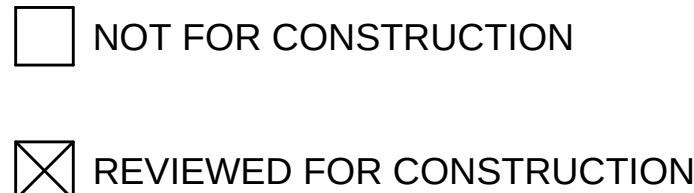




LOCATION MAP  
Sec. 2, Twp. 47 N., Rge. 32 W.  
(N.T.S.)

WOODSIDE RIDGE  
FIRST PLAT  
STREET & STORM SEWER PLANS

SECTION 2, TOWNSHIP 47 N, RANGE 32 W  
IN LEE'S SUMMIT, JACKSON COUNTY, MO



PROPERTY DESCRIPTION:

ALL OF JOHN KNOX RETIREMENT VILLAGE--10TH PLAT A SUBDIVISION RECORDED AS INSTRUMENT NUMBER 1279980 IN BOOK 35 AT PAGE 61 IN JACKSON COUNTY RECORDER OF DEEDS OFFICE, AND ALL OF FOREST LAKE AT JOHN KNOX VILLAGE -- 1ST PLAT A SUBDIVISION RECORDED AS INSTRUMENT NUMBER E00512922 IN BOOK 1106 AT PAGE 42 IN SAID JACKSON COUNTY RECORDER OF DEEDS OFFICE, BOTH SUBDIVISIONS OF LAND IN THE NORTHEAST QUARTER OF SECTION 2, TOWNSHIP 47 NORTH, RANGE 32, WEST OF THE 5TH PRINCIPAL MERIDIAN IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI, AND ALSO AN UNPLATTED TRACT OF LAND IN SAID NORTHEAST QUARTER AND SOUTHEAST QUARTER OF SAID SECTION 2, BEING BOUNDED AND DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SOUTHEAST QUARTER; THENCE NORTH 02°53'56" EAST, ON THE EAST LINE OF SAID SOUTHEAST QUARTER, 1,328.34 FEET TO THE SOUTHEAST CORNER OF THE NORTH HALF OF SAID SOUTHEAST QUARTER ALSO BEING THE NORTHEAST CORNER OF STERLING HILLS 1ST PLAT, A SUBDIVISION IN SAID LEE'S SUMMIT RECORDED AS INSTRUMENT NUMBER 11188888 IN BOOK 153 AT PAGE 22 IN SAID JACKSON COUNTY RECORDER OF DEEDS OFFICE; THENCE NORTH 87°49'43" WEST, 580.01 FEET ON THE SOUTH LINE OF SAID NORTH HALF OF SAID SOUTHEAST QUARTER, ALSO BEING THE NORTH LINE OF SAID STERLING HILLS 1ST PLAT TO THE POINT OF BEGINNING OF THE TRACT OF LAND TO BE HEREIN DESCRIBED; THENCE CONTINUING NORTH 87°49'43" WEST ON SAID SOUTH LINE OF SAID NORTH HALF OF SAID SOUTHEAST QUARTER, ALSO BEING THE NORTH LINE OF SAID STERLING HILLS 1ST PLAT AND ALSO ON THE NORTH LINE OF STERLING HILLS 3RD PLAT, A SUBDIVISION IN SAID LEE'S SUMMIT RECORDED AS INSTRUMENT NUMBER 1121580 IN BOOK 153 AT PAGE 96 IN SAID JACKSON COUNTY RECORDER OF DEEDS OFFICE, ALSO BEING A POINT TO THE EAST LINE OF STERLING HILLS 5TH PLAT, A SUBDIVISION IN SAID LEE'S SUMMIT RECORDED AS INSTRUMENT NUMBER 11273788 IN BOOK 154 AT PAGE 88 IN SAID JACKSON COUNTY RECORDER OF DEEDS OFFICE 2,048.69 FEET TO THE SOUTHWEST CORNER OF SAID NORTH HALF OF SAID SOUTHEAST QUARTER; THENCE NORTH 03°05'41" EAST ON SAID EAST LINE OF STERLING HILLS 5TH PLAT, ALSO BEING THE WEST LINE OF SAID SOUTHEAST QUARTER, 389.28 FEET; THENCE NORTH 85°54'26" EAST, 236.75 FEET; THENCE NORTH 29°55'27" EAST, 306.11 FEET; THENCE NORTH 41°11'03" EAST, 60.06 FEET; THENCE SOUTH 75°51'31" EAST, 21.43 FEET; THENCE NORTH 22°12'04" EAST, 173.03 FEET; THENCE WESTERLY, ALONG A CURVE TO THE LEFT, HAVING AN INITIAL TANGENT BEARING OF NORTH 81°09'01" WEST WITH A RADIUS OF 225.00 FEET, A CENTRAL ANGLE OF 15°28'14" AND AN ARC DISTANCE OF 60.75 FEET; THENCE NORTH 06°37'15" WEST, 50.00 FEET; THENCE EASTERLY ALONG A CURVE TO THE RIGHT HAVING AN INITIAL TANGENT BEARING OF NORTH 83°22'45" EAST WITH A RADIUS OF 275.00 FEET, A CENTRAL ANGLE OF 28°01'47" AND AN ARC DISTANCE OF 134.53 FEET; THENCE NORTH 21°24'31" EAST, 135.10 FEET; THENCE NORTH 61°49'26" EAST, 951.56 FEET; THENCE NORTH 70°59'24" EAST, 137.47 FEET; THENCE NORTH 85°52'23" EAST, 130.41 FEET; THENCE NORTH 19°50'07" EAST, 128.42 FEET; THENCE WESTERLY ALONG A CURVE TO THE LEFT HAVING AN INITIAL TANGENT BEARING OF NORTH 70°09'53" WEST WITH A RADIUS OF 375.00 FEET, A CENTRAL ANGLE OF 08°59'37" EAST AND AN ARC DISTANCE OF 58.86 FEET; THENCE NORTH 10°50'30" EAST, 50.00 FEET; THENCE EASTERLY ALONG A CURVE TO THE RIGHT HAVING AN INITIAL TANGENT BEARING OF SOUTH 79°09'30" EAST WITH A RADIUS OF 425.00 FEET, A CENTRAL ANGLE OF 09°42'06" AND AN ARC DISTANCE OF 71.96 FEET; THENCE NORTH 20°32'36" EAST, 229.10 FEET TO A POINT ON THE NORTH LINE OF THE SOUTH HALF OF SAID NORTHEAST QUARTER; THENCE NORTH 87°37'42" WEST, ON SAID NORTH LINE OF SAID SOUTH HALF OF SAID NORTHEAST QUARTER, 574.95 FEET TO THE SOUTHEAST CORNER OF THE FORESTS OF BROOKRIDGE ESTATES THIRD PLAT, A SUBDIVISION IN SAID LEE'S SUMMIT RECORDED AS INSTRUMENT NUMBER 11198645 IN BOOK 153 AT PAGE 46 IN SAID JACKSON COUNTY RECORDER OF DEEDS OFFICE; THENCE NORTH 03°27'53" EAST, ON THE EAST LINE OF SAID THE FORESTS OF BROOKRIDGE ESTATES -- THIRD PLAT, 765.70 FEET TO THE SOUTHWEST CORNER OF LOT 1, VILLAGE CARE CENTER PLAT, A SUBDIVISION IN SAID LEE'S SUMMIT RECORDED AS INSTRUMENT NUMBER 1736897 IN BOOK 143 AT PAGE 122 IN SAID JACKSON COUNTY RECORDER OF DEEDS OFFICE; THENCE SOUTH 87°23'49" EAST, ON THE SOUTH LINE OF SAID LOT 1, ALSO A PORTION BEING ON THE NORTH LINE OF SAID JOHN KNOX RETIREMENT VILLAGE--10TH PLAT AND SAID FOREST LAKE AT JOHN KNOX VILLAGE--1ST PLAT, 1,343.71 FEET TO THE NORTHEAST CORNER OF SAID FOREST LAKE AT JOHN KNOX VILLAGE 1ST PLAT, ALSO BEING A POINT ON THE EXISTING WEST RIGHT--OF-WAY LINE OF NW PRYOR ROAD, AS NOW ESTABLISHED; THENCE SOUTH 03°27'53" WEST, ON SAID EXISTING WEST RIGHT--OF-WAY LINE ALSO BEING THE EAST LINE OF FOREST LAKE AT JOHN KNOX VILLAGE--1ST PLAT FOR THE NORTH 243.74 FEET, 481.43 FEET; THENCE NORTH 86°32'07" WEST, 479.89 FEET; THENCE SOUTH 03°27'53" WEST, 70.20 FEET; THENCE NORTH 86°32'07" WEST, 200.00 FEET; THENCE SOUTH 03°27'53" WEST, 221.62 FEET TO A POINT ON THE NORTH LINE OF THE SOUTH HALF OF THE SOUTH HALF OF SAID NORTHEAST QUARTER; THENCE SOUTH 87°37'42" EAST ON SAID NORTH LINE OF SAID SOUTH HALF OF SAID SOUTH HALF OF SAID NORTHEAST QUARTER, 200.04 FEET TO THE NORTHWEST CORNER OF LOT 1, JOHN KNOX RETIREMENT VILLAGE 9TH PLAT, A SUBDIVISION IN LEE'S SUMMIT RECORDED AS INSTRUMENT NUMBER 1274676 IN BOOK 35 AT PAGE 42 IN SAID JACKSON COUNTY RECORDER OF DEEDS OFFICE; THENCE SOUTH 03°27'53" WEST, ON THE WEST LINE OF SAID JOHN KNOX RETIREMENT VILLAGE 9TH PLAT 400.00 FEET TO THE SOUTHWEST CORNER OF SAID JOHN KNOX RETIREMENT VILLAGE 9TH PLAT; THENCE SOUTH 04°27'07" WEST, 289.53 FEET; THENCE NORTH 85°32'53" WEST, 175.00 FEET; THENCE SOUTH 04°27'07" WEST, 425.00 FEET; THENCE SOUTH 85°32'53" EAST, 175.00 FEET; THENCE SOUTH 04°27'07" WEST, 484.59 FEET; THENCE SOUTH 02°53'56" WEST , 385.97 FEET TO THE POINT OF BEGINNING. CONTAINING 3,360,308 SQUARE FEET OR 77.14 ACRES, MORE OR LESS.

## BENCHMARK

BMK #5 CHISELED SQUARE ON THE S.E. CORNER OF A CONCRETE PAD FOR A TRAFFIC SIGNAL BOX AT THE S.W. CORNER OF PRYOR ROAD AND O'BRIEN ROAD.  
ELEVATION: 979.24

| Sheet List Table |                            |
|------------------|----------------------------|
| Sheet Number     | Sheet Title                |
| C101             | COVER SHEET                |
| C102             | GENERAL NOTES              |
| C103             | MASTER GENERAL LAYOUT      |
| C104             | GENERAL LAYOUT             |
| C105             | GENERAL LAYOUT             |
| C106             | GENERAL LAYOUT             |
| C107             | GENERAL LAYOUT             |
| C108             | GRADING PLAN               |
| C109             | GRADING PLAN               |
| C110             | GRADING PLAN               |
| C111             | GRADING PLAN               |
| C112             | SWALE PLAN & PROFILE       |
| C113             | SWALE PLAN & PROFILE       |
| C114             | SWALE PLAN & PROFILE       |
| C115             | ROADWAY PLAN & PROFILE     |
| C116             | ROADWAY PLAN & PROFILE     |
| C117             | ROADWAY PLAN & PROFILE     |
| C118             | ROADWAY PLAN & PROFILE     |
| C119             | ROADWAY PLAN & PROFILE     |
| C120             | ROADWAY PLAN & PROFILE     |
| C121             | ROADWAY PLAN & PROFILE     |
| C122             | ROADWAY PLAN & PROFILE     |
| C123             | ROADWAY PLAN & PROFILE     |
| C124             | TRAFFIC CONTROL PLAN       |
| C125             | TRAFFIC CONTROL PLAN       |
| C126             | INTERSECTION DETAILS       |
| C127             | INTERSECTION DETAILS       |
| C128             | INTERSECTION DETAILS       |
| C129             | INTERSECTION DETAILS       |
| C130             | INTERSECTION DETAILS       |
| C131             | INTERSECTION DETAILS       |
| C132             | STORM SEWER PLAN & PROFILE |
| C133             | STORM SEWER PLAN & PROFILE |
| C134             | STORM SEWER PLAN & PROFILE |
| C135             | STORM SEWER PLAN & PROFILE |
| C136             | STORM SEWER PLAN & PROFILE |
| C137             | STORM SEWER PLAN & PROFILE |
| C138             | STORM SEWER PLAN & PROFILE |
| C139             | STORM SEWER PLAN & PROFILE |
| C140             | STORM SEWER PLAN & PROFILE |
| C141             | STORM SEWER PLAN & PROFILE |
| C142             | DETENTION BASIN PLAN       |
| C143             | DETENTION BASIN PLAN       |
| C144             | DRAINAGE PLAN              |
| C145             | DRAINAGE PLAN              |
| C146             | DRAINAGE PLAN              |
| C147             | DRAINAGE PLAN              |
| C148             | 10 YEAR DRAINAGE TABLES    |
| C149             | 100 YEAR DRAINAGE TABLES   |
| C150             | MASTER DRAINAGE PLAN       |
| C151             | MASTER DRAINAGE PLAN       |
| C152             | MASTER DRAINAGE PLAN       |
| C153             | MASTER DRAINAGE PLAN       |
| C154             | SIGNAGE DETAIL SHEET       |
| C155             | STORM DETAIL SHEET         |
| C156             | STORM DETAIL SHEET         |

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

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

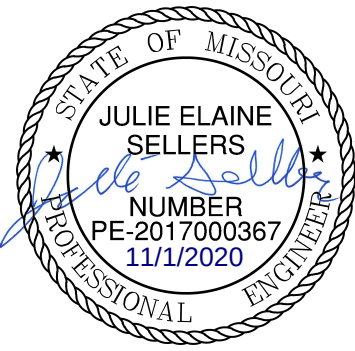
DATE 4/5/2019

COVER SHEET  
STREET & STORM SEWER PLANS

WOODSIDE RIDGE  
FIRST PLAT

LEE'S SUMMIT, MO

SHEET  
C101



BY

REVISIONS DESCRIPTION

REVISED PER CITY COMMENTS

|     |      |
|-----|------|
| NO. | DATE |
| REV |      |

## DEVISIONS

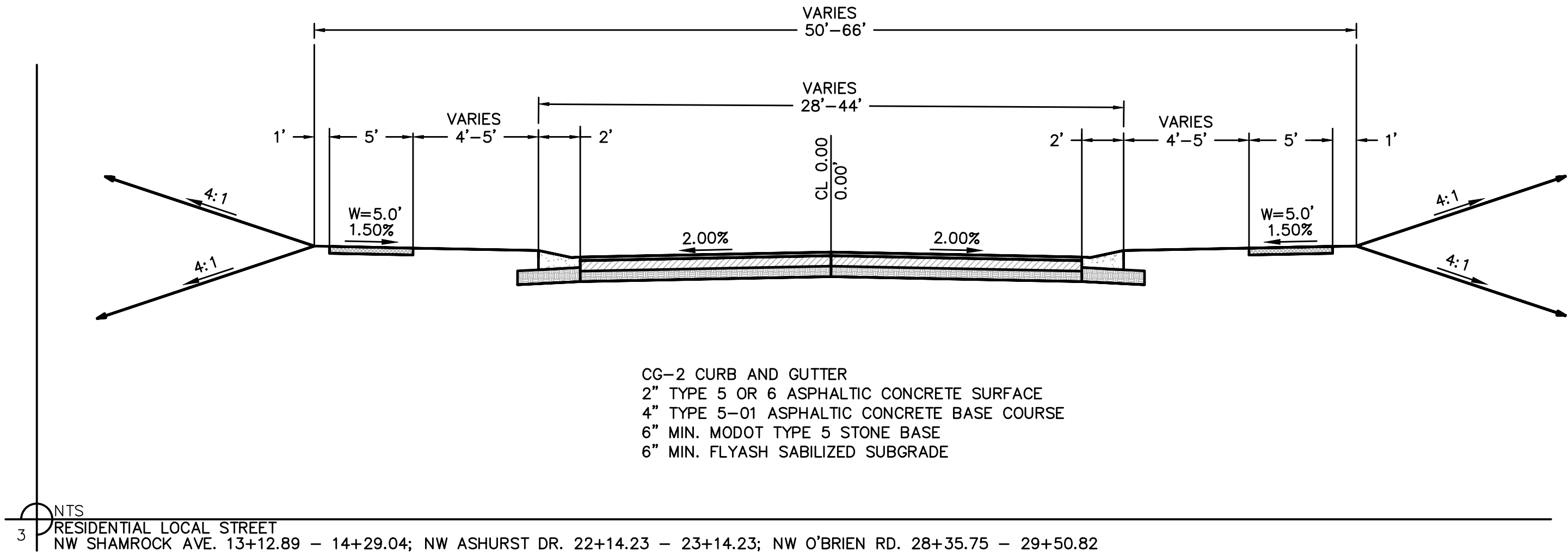
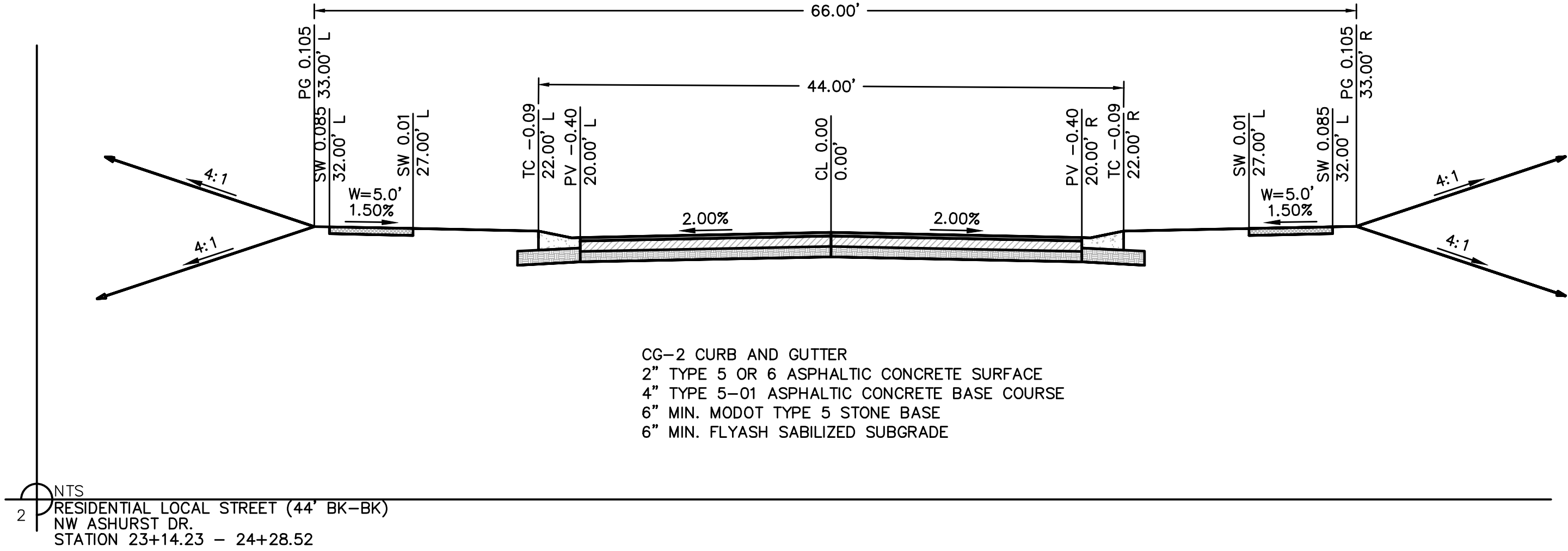
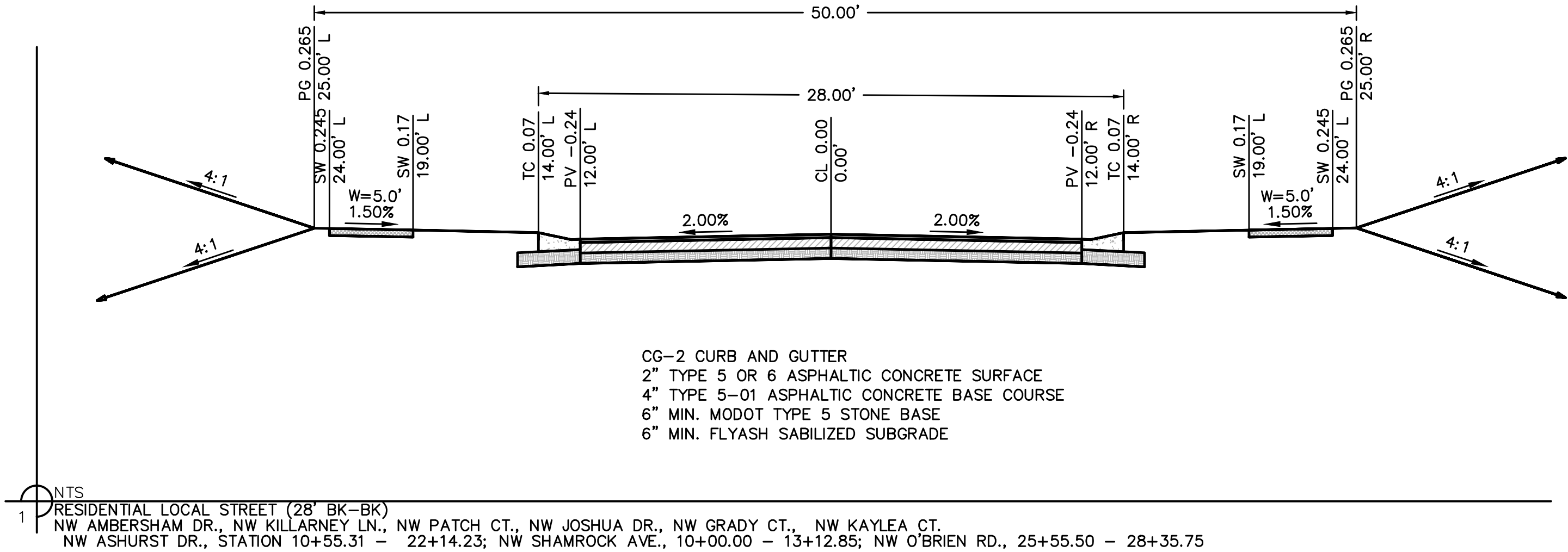
2019

drawn by: D.A.H.O  
checked by: J.E.S  
designed by: S.M.S  
QA/QC by: M.G.D  
project no.: A18-1140  
date: 2019.03.12



DWG: F:\2018\1001-1500\018-1140-A\40-Design\AutoCAD\Final Plans\Sheets\GNCV\01\_Street & Storm\_36-24\C\_GEN01\_1140A.dwg  
DATE: May 16, 2019 8:22am USER: ssaylor

- GENERAL NOTES:
1. THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO THE LEE'S SUMMIT, MISSOURI DESIGN AND CONSTRUCTION MANUAL AS ADOPTED BY ORDINANCE 5813. WHERE DISCREPANCIES EXIST BETWEEN THESE PLANS AND THE DESIGN AND CONSTRUCTION MANUAL, THE DESIGN AND CONSTRUCTION MANUAL SHALL PREVAIL.
  2. ALL MANHOLES, CATCH BASINS, UTILITY VALVES, AND METER PITS TO BE ADJUSTED OR REBUILT TO GRADE AS REQUIRED.
  3. ALL SIGNS (I.E. STREET NAME AND STOP SIGNS) SHALL BE INSTALLED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE CITY OF LEE'S SUMMIT, DESIGN AND CONSTRUCTION MANUAL, PRIOR TO SUBSTANTIAL COMPLETION. REFER TO SHEET C154 FOR SIGNAGE DETAILS.
  4. THE ASPHALTIC CONCRETE SURFACES ON ALL PERMITTED STREETS SHALL BE VIRGIN MATERIAL.
  5. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTROL DOWNSTREAM EROSION AND SILTATION DURING ALL PHASES OF CONSTRUCTION. EROSION CONTROL PLANS AND PROCEDURES SHALL BE IN PLACE PRIOR TO ANY EXCAVATION.
  6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORDING ROCK ELEVATIONS AT 25 FOOT (MAXIMUM) INTERVALS WHERE ENCOUNTERED, AND FURNISHING THIS INFORMATION TO THE DESIGN ENGINEER FOR USE ON "AS-BUILT" PLANS.
  7. THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ARE APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES.
  8. NO SUBSURFACE EXPLORATION FOR THE DETERMINATION OF AND/OR THE LOCATION OF EXISTING ROCK HAS BEEN MADE.
  9. CONTRACTOR SHALL PROVIDE EARTHWORK AND MATERIAL TESTING TO COMPLY WITH THE STANDARD SPECIFICATIONS OF THE PUBLIC WORKS DEPARTMENT OR AS REQUIRED BY THE CITY'S FIELD REPRESENTATIVE.
  10. CONTRACTOR MUST CONTACT DEVELOPMENT SERVICES INSPECTIONS AT 816-969-1200 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITIES.
  11. P.O.S= PROPOSED OPEN SPACE.



| ESTIMATE OF QUANTITIES |                                       |      |                    |          |
|------------------------|---------------------------------------|------|--------------------|----------|
| ITEM NO.               | DESCRIPTION                           | UNIT | QUANTITY           | AS-BUILT |
| SITE                   |                                       |      |                    |          |
| 1                      | EXCAVATION                            | C.Y. | 143863             |          |
| 2                      | EMBANKMENT                            | C.Y. | 136151             |          |
| STREET                 |                                       |      |                    |          |
| 3                      | EXCAVATION                            | C.Y. | 23653              |          |
| 4                      | EMBANKMENT                            | C.Y. | 29509              |          |
| 5                      | 8" ASPHALT PAVEMENT                   | S.Y. | 22773              |          |
| 6                      | STABILIZED SUBGRADE                   | S.Y. | 24583              |          |
| 7                      | 8" MoDOT TYPE 5 AGGREGATE             | S.Y. | 24583              |          |
| 8                      | CONCRETE CURB & GUTTER (CG-2)         | L.F. | 15277.38           |          |
| 9                      | ADA HANDICAP RAMP                     | EA.  | 17                 |          |
| 10                     | STOP SIGNS                            | EA.  | 9                  |          |
| 11                     | SPEED LIMIT SIGN                      | EA.  | 1                  |          |
| 12                     | STREET NAME SIGNS                     | EA.  | 28                 |          |
| 13                     | SIGN POSTS                            | EA.  | 9                  |          |
| 14                     | TYPE IV OBJECT MARKER                 | EA.  | 1                  |          |
| 15                     | 4" WHITE STRIPING                     | L.F. | 89.46              |          |
| 16                     | 24" STOP BAR WHITE STRIPING           | L.F. | 20                 |          |
| 17                     | MILL & OVERLAY                        | S.Y. | 69                 |          |
| 18                     | 5' CONCRETE SIDEWALK                  | L.F. | 888.39             |          |
| 19                     | 4" COMPACTED AGGREGATE FOR SIDEWALK   | S.Y. | 493.54             |          |
| 20                     | SEEDING, FERTILIZER, OR MULCH         | AC.  | 50.52              |          |
| 21                     | TOPSOIL                               | C.Y. | 40752.00           |          |
| STORM                  |                                       |      |                    |          |
| 22                     | STD. CURB INLET (5'x3' INSIDE)        | EA.  | <del>37</del>      | 35       |
| 23                     | STD. CURB INLET (7'x3' INSIDE)        | EA.  | <del>2</del>       | 2        |
| 24                     | STD. MANHOLE (4' DIA. INSIDE)         | EA.  | <del>16</del>      | 15       |
| 25                     | STD. MANHOLE (5' DIA. INSIDE)         | EA.  | <del>2</del>       | 2        |
| 26                     | STD. FIELD INLET (4'x4' INSIDE)       | EA.  | <del>8</del>       | 8        |
| 27                     | STD. FIELD INLET (5'x5' INSIDE)       | EA.  | <del>+</del>       | 2        |
| 28                     | STD. FIELD INLET (8'x8' INSIDE)       | EA.  | <del>+</del>       | 1        |
| 29                     | 15" HDPE                              | L.F. | <del>4743.16</del> | 4746.27  |
| 30                     | 18" HDPE                              | L.F. | <del>1337.87</del> | 1395.80  |
| 31                     | 15" RCP                               | L.F. | <del>96.55</del>   |          |
| 32                     | 24" HDPE                              | L.F. | <del>755.77</del>  | 752.05   |
| 33                     | 30" HDPE                              | L.F. | <del>108.38</del>  | 109.17   |
| 34                     | 36" HDPE                              | L.F. | <del>94.45</del>   | 96.31    |
| 35                     | 42" RCP                               | L.F. | <del>118.33</del>  |          |
| 36                     | 15" CMP END SECTION                   | EA.  | <del>2</del>       | 2        |
| 37                     | 18" CMP END SECTION                   | EA.  | <del>2</del>       | 2        |
| 38                     | 24" CMP END SECTION                   | EA.  | <del>3</del>       | 3        |
| 39                     | 30" CMP END SECTION                   | EA.  | <del>+</del>       | 1        |
| 40                     | 36" CMP END SECTION                   | EA.  | <del>+</del>       | 1        |
| 41                     | 42" RCP END SECTION                   | EA.  | <del>+</del>       | 1        |
| 42                     | CONNECTION TO EXISTING PIPE           | EA.  | <del>+</del>       | 1        |
| 43                     | RIP-RAP                               | S.Y. | <del>536</del>     |          |
| 44                     | FLEXAMAT TURF REINFORCEMENT MAT       | S.Y. | <del>1218</del>    |          |
| 45                     | PROPEX PYRAMAT TURF REINFORCEMENT MAT | S.Y. | <del>137</del>     |          |
| 46                     | SWALE TURF REINFORCEMENT MAT          | S.Y. | <del>1634</del>    |          |

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

| LEGEND |                                           |
|--------|-------------------------------------------|
|        | EXISTING CABLE TV, OVERHEAD               |
|        | EXISTING CABLE TV, UNDERGROUND            |
|        | PROPOSED CABLE TV, OVERHEAD               |
|        | PROPOSED CABLE TV, UNDERGROUND            |
|        | FUTURE CABLE TV, OVERHEAD                 |
|        | FUTURE CABLE TV, UNDERGROUND              |
|        | EXISTING FIBER OPTIC, OVERHEAD            |
|        | EXISTING FIBER OPTIC, UNDERGROUND         |
|        | PROPOSED FIBER OPTIC, OVERHEAD            |
|        | PROPOSED FIBER OPTIC, UNDERGROUND         |
|        | FUTURE FIBER OPTIC, OVERHEAD              |
|        | FUTURE FIBER OPTIC, UNDERGROUND           |
|        | EXISTING FIRE PROTECTION SYSTEM LINE      |
|        | PROPOSED FIRE PROTECTION SYSTEM LINE      |
|        | FUTURE FIRE PROTECTION SYSTEM LINE        |
|        | EXISTING FUEL LINE                        |
|        | PROPOSED FUEL LINE                        |
|        | FUTURE FUEL LINE                          |
|        | EXISTING NATURAL GAS LINE                 |
|        | PROPOSED NATURAL GAS LINE                 |
|        | FUTURE NATURAL GAS LINE                   |
|        | EXISTING TELEPHONE LINE, OVERHEAD         |
|        | EXISTING TELEPHONE LINE, UNDERGROUND      |
|        | PROPOSED TELEPHONE LINE, OVERHEAD         |
|        | PROPOSED TELEPHONE LINE, UNDERGROUND      |
|        | FUTURE TELEPHONE LINE, OVERHEAD           |
|        | FUTURE TELEPHONE LINE, UNDERGROUND        |
|        | EXISTING POWER/ELECTRIC LINE, OVERHEAD    |
|        | EXISTING POWER/ELECTRIC LINE, UNDERGROUND |
|        | PROPOSED POWER/ELECTRIC LINE, OVERHEAD    |
|        | PROPOSED POWER/ELECTRIC LINE, UNDERGROUND |
|        | FUTURE POWER/ELECTRIC LINE, OVERHEAD      |
|        | FUTURE POWER/ELECTRIC LINE, UNDERGROUND   |
|        | EXISTING SANITARY SEWER                   |
|        | PROPOSED SANITARY SEWER                   |
|        | FUTURE SANITARY SEWER                     |
|        | EXISTING STEAM LINE                       |
|        | PROPOSED STEAM LINE                       |
|        | FUTURE STEAM LINE                         |
|        | EXISTING STORM SEWER                      |
|        | PROPOSED STORM SEWER                      |
|        | FUTURE STORM SEWER                        |
|        | EXISTING WATER LINE                       |
|        | PROPOSED WATER LINE                       |
|        | FUTURE WATER LINE                         |

ALL NOTES REFERENCED ON THIS PLAN SHEET MAY HAVE APPLICATIONS TO EVERY FACET OF THE CONSTRUCTION PLANS. THE NOTE HEADINGS OR TITLES ARE TO BE USED AS A GENERAL GUIDE TO APPLICABLE SITUATIONS.

olsson

STATE OF MISSOURI  
JULIE ELAINE SELLERS  
NUMBER  
PE-2017000367  
11/1/2020  
PROFESSIONAL ENGINEER

BY

REVISIONS DESCRIPTION

NO. REV.

DATE

REVISED PER CITY COMMENTS

REVISED PER CITY COMMENTS

2019

GENERAL NOTES  
STREET & STORM SEWER PLANS

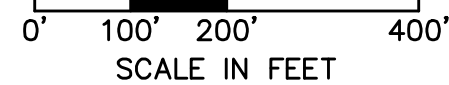
WOODSIDE RIDGE  
FIRST PLAT

LEE'S SUMMIT, MO

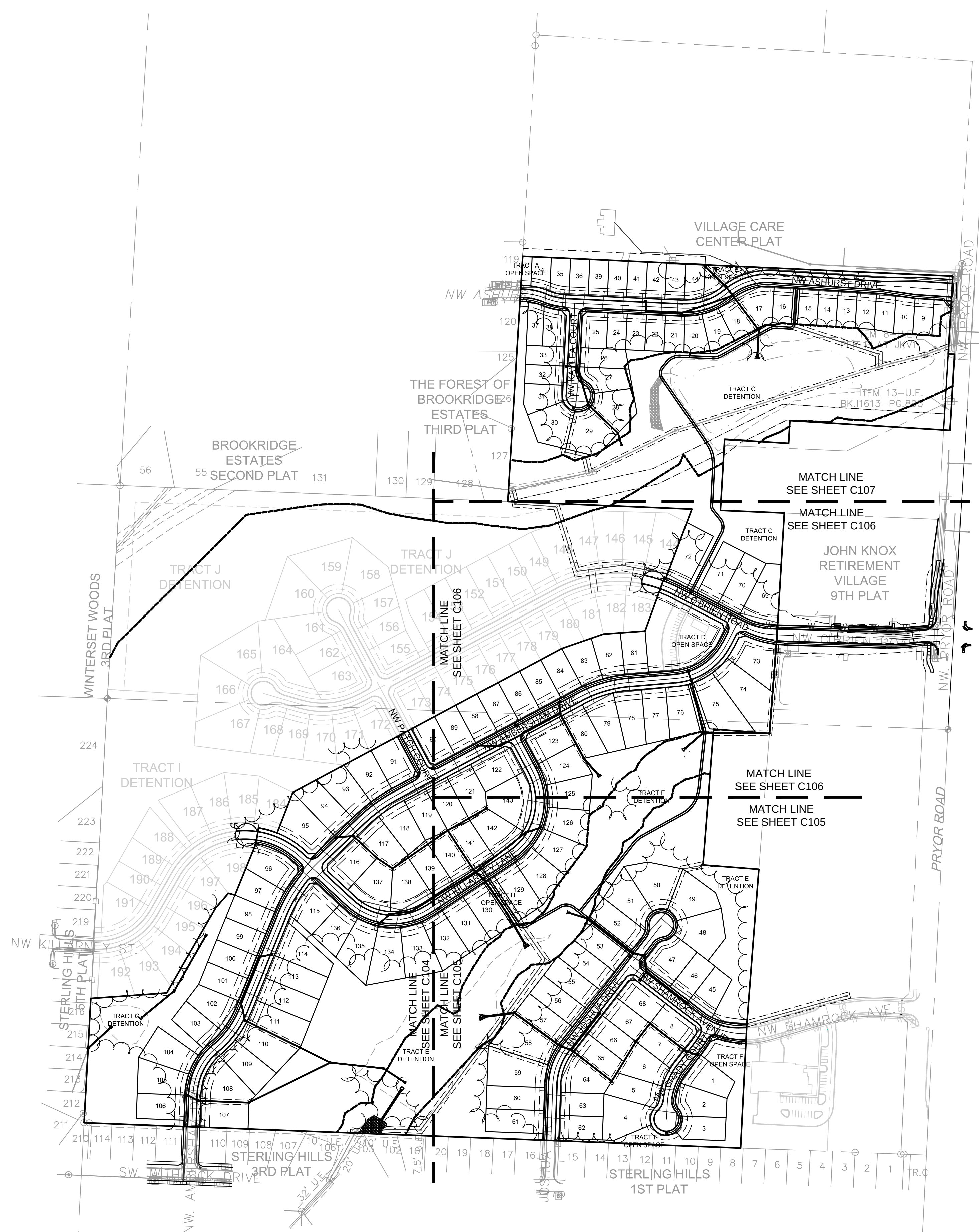
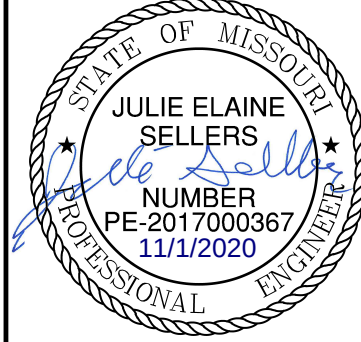
drawn by: J.E.S.  
checked by: J.E.S.  
designed by: S.M.S.  
QA/QC by: M.G.D.  
project no.: A18-1140  
date: 2019.03.12

SHEET  
C102





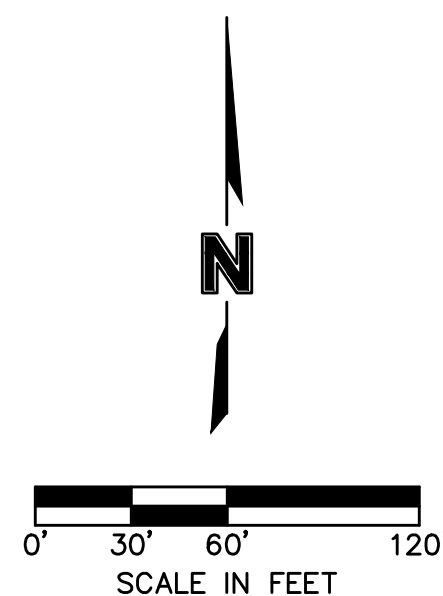
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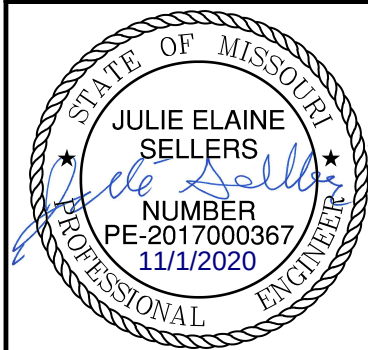




**NOT AS-BUILT**

**olsson**

MO Certificate of Authority #:001592  
1301 BURLINGTON, SUITE 100  
NORTH KANSAS CITY MO 64116



JOHN KNC  
RETIREMEI  
VILLAGE  
9TH PLA7

[illegible]

## GENERAL LAYOUT STREET & STORM SEWER PLANS

WOODSIDE RIDGE  
FIRST PLAT

LEE'S SUMMIT, MO

2019

drawn by: D.A.H.O  
checked by: J.E.S  
designed by: S.M.S  
QA/QC by: M.G.D  
project no.: A18-1140  
date: 2019.03.12

SHEET  
C105

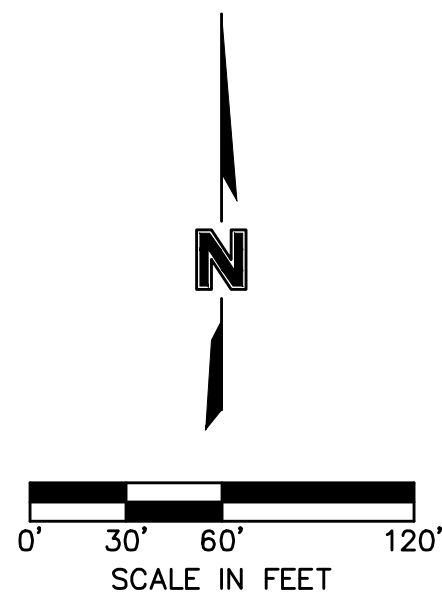
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DATE: Apr 04, 2019 1:52pm  
USER: ssaylor



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DATE: Apr 04, 2019 1:52pm USER: ssaylor



Key Map



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GENERAL LAYOUT  
STREET & STORM SEWER PLANS

WOODSIDE RIDGE  
FIRST PLAT

LEE'S SUMMIT, MO

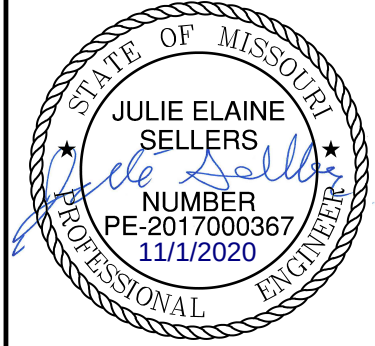
2019

drawn by: D.A.H.Q.  
checked by: J.E.S.  
designed by: S.M.S.  
QA/QC by: M.G.D.  
project no.: A18-1140  
date: 2019.03.12

SHEET  
C105

NO. REV. DATE REVISIONS DESCRIPTION

BY

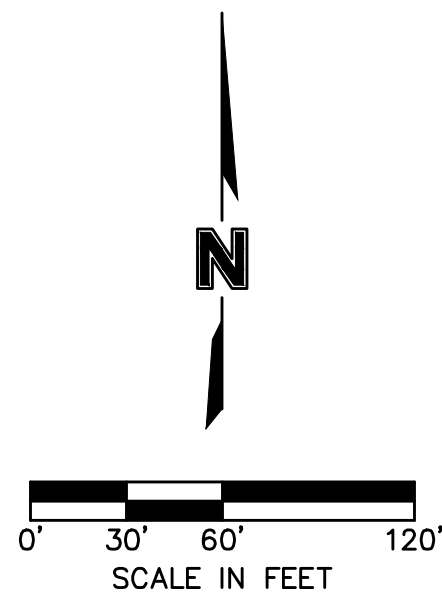


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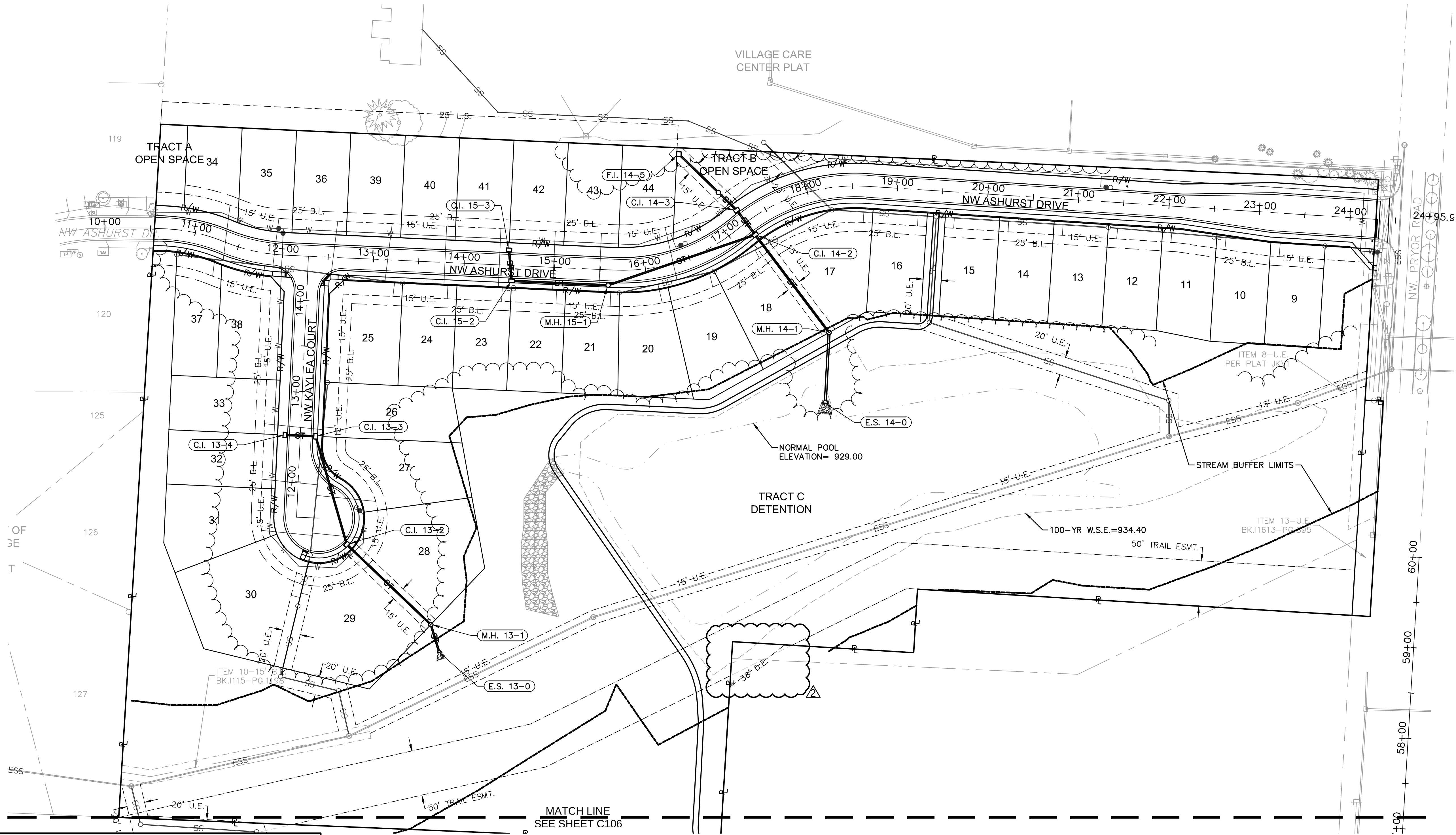
NO. 018-1140-A  
301 E. MAIN ST., SUITE 100  
NORTH KANSAS CITY, MO 64116  
TEL. 816.861.1177  
WWW.OLSSON.COM



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DATE: May 16, 2019 8:23am USER: ssaylor



Key Map



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GENERAL LAYOUT  
STREET & STORM SEWER PLANS

WOODSIDE RIDGE  
FIRST PLAT

LEE'S SUMMIT, MO

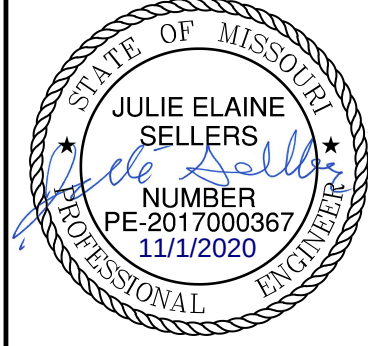
2019

drawn by: D.A.H.Q.  
checked by: J.E.S.  
designed by: S.M.S.  
QA/QC by: M.G.D.  
project no.: A18-1140  
date: 2019.03.12

SHEET  
C107

REVISIONS

BY



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NO. 0000000000  
303 E. 10TH ST., SUITE 100  
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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               | 23653      | 29509       |
| SITE                 | 143863     | 136151      |
| TOTAL                | 167516     | 165660      |

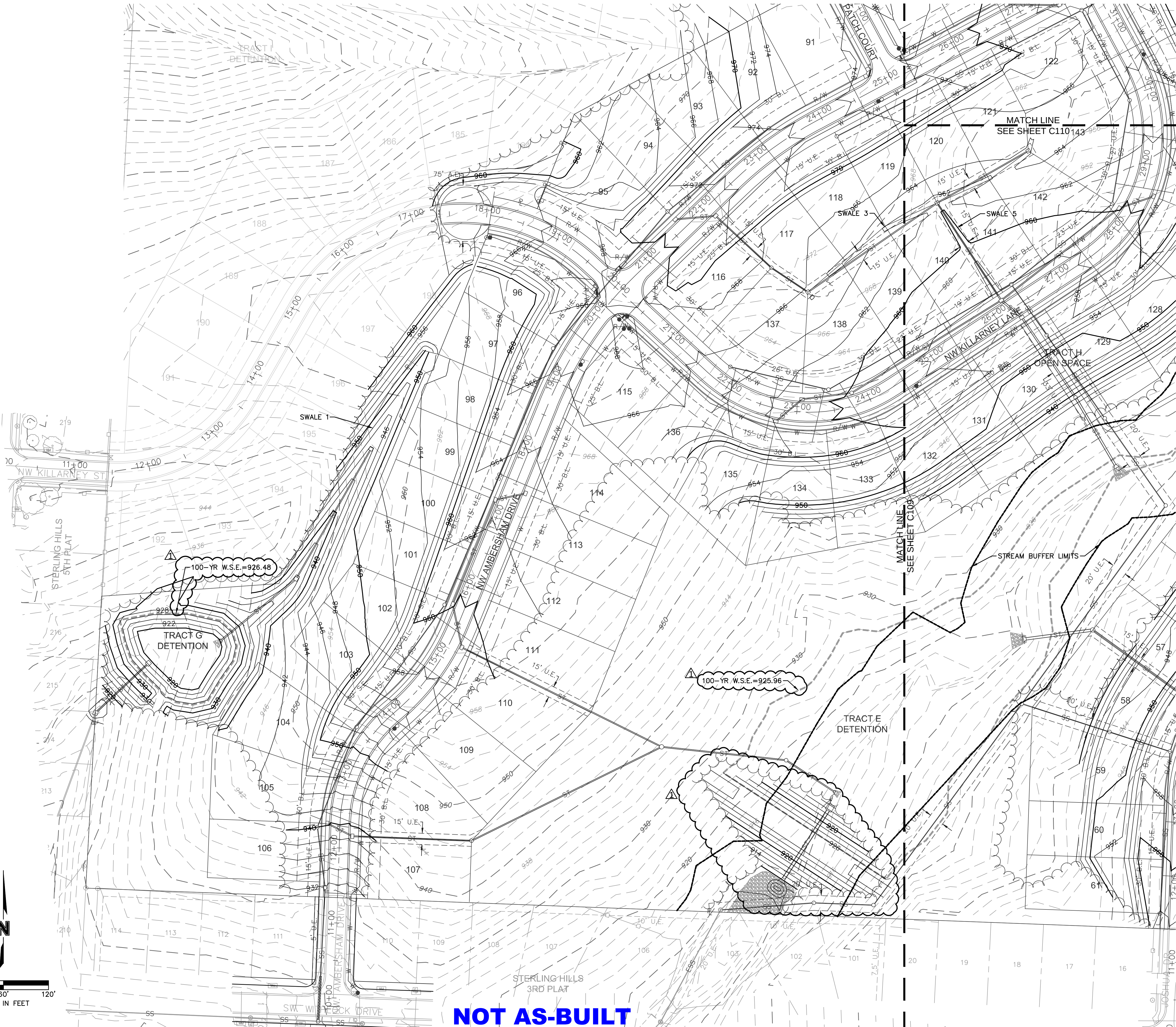
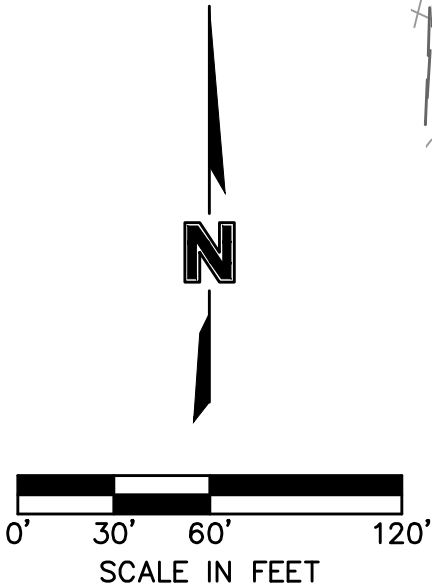
- EARTHWORK QUANTITIES NOTES:
1. EARTHWORK QUANTITIES BASED ON FINISHED GRADE SURFACE AND DO NOT INCLUDE ADJUSTMENTS FOR TOPSOIL AND SHRINKAGE.
2. EARTHWORK QUANTITIES DO NOT TAKE INTO CONSIDERATION EXCAVATION, REMOVAL AND DISPOSAL OF MATERIAL DEEMED UNSUITABLE BY A GEOTECHNICAL ENGINEER. THE EARTHWORK CONTRACTOR IS RESPONSIBLE FOR EXCAVATION, REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL AND FOR REPLACING IT WITH SUITABLE MATERIAL.

- THIRD PARTY TESTING REQUIRED FOR DETENTION BASIN IN TRACT E:
1. REMOVE TOPSOIL AND ORGANIC DIRT FROM THE AREA
2. PROOF ROLL TO CHECK THE SUBGRADE
- 2.1. REMOVE OR REPAIR ANY UNSTABLE AREA IN ACCORDANCE WITH THIRD-PARTY TESTER
3. PLACE 9" LOOSE LIFTS OF 9" MATERIAL WITH LL=50 AND PI=25 OR GREATER. 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.

| Woodside Ridge Lot Fill Information |                     |
|-------------------------------------|---------------------|
| Lot Number                          | Over 8' fill placed |
| 91                                  |                     |
| 92                                  |                     |
| 93                                  |                     |
| 94                                  |                     |
| 95                                  |                     |
| 96                                  |                     |
| 97                                  |                     |
| 98                                  |                     |
| 99                                  |                     |
| 100                                 |                     |
| 101                                 |                     |
| 102                                 |                     |
| 103                                 |                     |
| 104                                 |                     |
| 105                                 |                     |
| 106                                 |                     |
| 107                                 |                     |
| 108                                 |                     |
| 109                                 |                     |
| 110                                 |                     |
| 111                                 |                     |
| 112                                 |                     |
| 113                                 |                     |
| 114                                 |                     |
| 115                                 |                     |
| 116                                 |                     |
| 117                                 |                     |
| 118                                 |                     |
| 119                                 |                     |
| 133                                 |                     |
| 134                                 | 11'                 |
| 135                                 | 10'                 |
| 136                                 |                     |
| 137                                 |                     |
| 138                                 |                     |
| 139                                 |                     |

USER: ssaylor

DWG: F:\2018\1001-1500\018-1140-A\40-Design\AutoCAD\Final Plans\Sheets\GNCV\01\_Street & Storm\_36-24\C\_GRD01\_1140A.dwg  
DATE: Apr 04, 2019 1:57pm



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NO. 001892 of Authority in 001892  
300 E. Main Street, Suite 100  
NORTH KANSAS CITY, MO 64116  
TEL. 816.961.1177  
www.olson.com

STATE OF MISSOURI  
JULIE ELAINE SELLERS  
NUMBER  
PE-2017000367  
11/1/2020  
PROFESSIONAL ENGINEER

BY

REVISIONS DESCRIPTION

NO. REV. DATE

4/2/2019

REVISED PER CITY COMMENTS

GRADING PLAN  
STREET & STORM SEWER PLANS

WOODSIDE RIDGE  
FIRST PLAT

LEE'S SUMMIT, MO

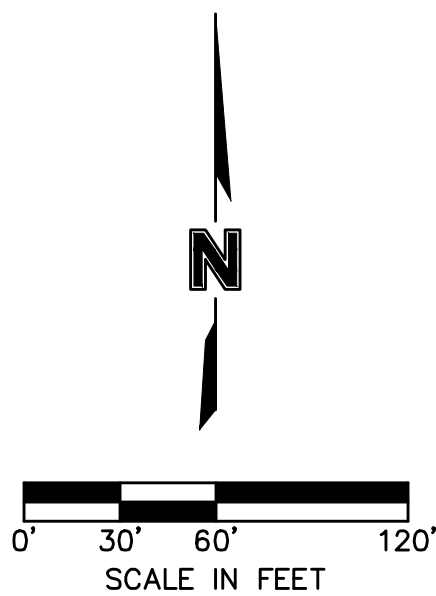
2019

drawn by: D.A.H.Q.  
checked by: J.E.S.  
designed by: S.M.S.  
QA/QC by: M.G.B.  
project no.: A18-1140  
date: 2019.03.12

SHEET  
C108



| Woodside Ridge Lot Fill Information |                     |
|-------------------------------------|---------------------|
| Lot Number                          | Over 8' fill placed |
| 1                                   |                     |
| 2                                   |                     |
| 3                                   |                     |
| 4                                   |                     |
| 5                                   |                     |
| 6                                   |                     |
| 7                                   |                     |
| 8                                   |                     |
| 45                                  | 14'                 |
| 46                                  | 13'                 |
| 47                                  | 16'                 |
| 48                                  | 13'                 |
| 49                                  |                     |
| 50                                  | 12'                 |
| 51                                  | 16'                 |
| 52                                  | 22'                 |
| 53                                  | 20'                 |
| 54                                  | 14'                 |
| 55                                  | 10'                 |
| 56                                  | 10'                 |
| 57                                  |                     |
| 58                                  |                     |
| 59                                  |                     |
| 60                                  |                     |
| 61                                  |                     |
| 62                                  |                     |
| 63                                  |                     |
| 64                                  |                     |
| 65                                  |                     |
| 66                                  |                     |
| 67                                  |                     |
| 68                                  |                     |
| 125                                 | 15'                 |
| 126                                 | 16'                 |
| 127                                 | 17'                 |
| 128                                 | 17'                 |
| 129                                 | 16'                 |
| 130                                 | 12'                 |
| 131                                 | 9'                  |
| 132                                 | 9'                  |
| 140                                 |                     |
| 141                                 |                     |
| 142                                 | 13'                 |
| 143                                 | 12'                 |



NOT AS-BUILT

GRADING PLAN  
STREET & STORM SEWER PLANS  
WOODSIDE RIDGE  
FIRST PLAT  
LEE'S SUMMIT, MO

2019

| NO. | REV. | DATE     | DESCRIPTION               | BY |
|-----|------|----------|---------------------------|----|
| 1   | A    | 4/2/2019 | REVISED PER CITY COMMENTS |    |
| 2   |      |          |                           |    |
| 3   |      |          |                           |    |
| 4   |      |          |                           |    |
| 5   |      |          |                           |    |
| 6   |      |          |                           |    |
| 7   |      |          |                           |    |
| 8   |      |          |                           |    |
| 9   |      |          |                           |    |
| 10  |      |          |                           |    |
| 11  |      |          |                           |    |
| 12  |      |          |                           |    |
| 13  |      |          |                           |    |
| 14  |      |          |                           |    |
| 15  |      |          |                           |    |
| 16  |      |          |                           |    |
| 17  |      |          |                           |    |
| 18  |      |          |                           |    |
| 19  |      |          |                           |    |
| 20  |      |          |                           |    |
| 21  |      |          |                           |    |
| 22  |      |          |                           |    |
| 23  |      |          |                           |    |
| 24  |      |          |                           |    |
| 25  |      |          |                           |    |
| 26  |      |          |                           |    |
| 27  |      |          |                           |    |
| 28  |      |          |                           |    |
| 29  |      |          |                           |    |
| 30  |      |          |                           |    |
| 31  |      |          |                           |    |
| 32  |      |          |                           |    |
| 33  |      |          |                           |    |
| 34  |      |          |                           |    |
| 35  |      |          |                           |    |
| 36  |      |          |                           |    |
| 37  |      |          |                           |    |
| 38  |      |          |                           |    |
| 39  |      |          |                           |    |
| 40  |      |          |                           |    |
| 41  |      |          |                           |    |
| 42  |      |          |                           |    |
| 43  |      |          |                           |    |
| 44  |      |          |                           |    |
| 45  |      |          |                           |    |
| 46  |      |          |                           |    |
| 47  |      |          |                           |    |
| 48  |      |          |                           |    |
| 49  |      |          |                           |    |
| 50  |      |          |                           |    |
| 51  |      |          |                           |    |
| 52  |      |          |                           |    |
| 53  |      |          |                           |    |
| 54  |      |          |                           |    |
| 55  |      |          |                           |    |
| 56  |      |          |                           |    |
| 57  |      |          |                           |    |
| 58  |      |          |                           |    |
| 59  |      |          |                           |    |
| 60  |      |          |                           |    |
| 61  |      |          |                           |    |
| 62  |      |          |                           |    |
| 63  |      |          |                           |    |
| 64  |      |          |                           |    |
| 65  |      |          |                           |    |
| 66  |      |          |                           |    |
| 67  |      |          |                           |    |
| 68  |      |          |                           |    |
| 69  |      |          |                           |    |
| 70  |      |          |                           |    |
| 71  |      |          |                           |    |
| 72  |      |          |                           |    |
| 73  |      |          |                           |    |
| 74  |      |          |                           |    |
| 75  |      |          |                           |    |
| 76  |      |          |                           |    |
| 77  |      |          |                           |    |
| 78  |      |          |                           |    |
| 79  |      |          |                           |    |
| 80  |      |          |                           |    |
| 81  |      |          |                           |    |
| 82  |      |          |                           |    |
| 83  |      |          |                           |    |
| 84  |      |          |                           |    |
| 85  |      |          |                           |    |
| 86  |      |          |                           |    |
| 87  |      |          |                           |    |
| 88  |      |          |                           |    |
| 89  |      |          |                           |    |
| 90  |      |          |                           |    |
| 91  |      |          |                           |    |
| 92  |      |          |                           |    |
| 93  |      |          |                           |    |
| 94  |      |          |                           |    |
| 95  |      |          |                           |    |
| 96  |      |          |                           |    |
| 97  |      |          |                           |    |
| 98  |      |          |                           |    |
| 99  |      |          |                           |    |
| 100 |      |          |                           |    |
| 101 |      |          |                           |    |
| 102 |      |          |                           |    |
| 103 |      |          |                           |    |
| 104 |      |          |                           |    |
| 105 |      |          |                           |    |
| 106 |      |          |                           |    |
| 107 |      |          |                           |    |
| 108 |      |          |                           |    |
| 109 |      |          |                           |    |
| 110 |      |          |                           |    |
| 111 |      |          |                           |    |
| 112 |      |          |                           |    |
| 113 |      |          |                           |    |
| 114 |      |          |                           |    |
| 115 |      |          |                           |    |
| 116 |      |          |                           |    |
| 117 |      |          |                           |    |
| 118 |      |          |                           |    |
| 119 |      |          |                           |    |
| 120 |      |          |                           |    |
| 121 |      |          |                           |    |
| 122 |      |          |                           |    |
| 123 |      |          |                           |    |
| 124 |      |          |                           |    |
| 125 |      |          |                           |    |
| 126 |      |          |                           |    |
| 127 |      |          |                           |    |
| 128 |      |          |                           |    |
| 129 |      |          |                           |    |
| 130 |      |          |                           |    |
| 131 |      |          |                           |    |
| 132 |      |          |                           |    |
| 133 |      |          |                           |    |
| 134 |      |          |                           |    |
| 135 |      |          |                           |    |
| 136 |      |          |                           |    |
| 137 |      |          |                           |    |
| 138 |      |          |                           |    |
| 139 |      |          |                           |    |
| 140 |      |          |                           |    |
| 141 |      |          |                           |    |
| 142 |      |          |                           |    |
| 143 |      |          |                           |    |



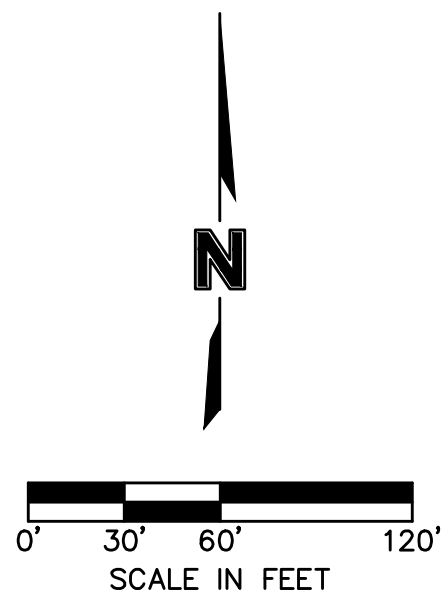
olsson  
NO. 00000000 of Authority # 001892  
300 E. BROADWAY, SUITE 1000  
NORTH KANSAS CITY, MO 64116  
TEL. 816.981.1177  
WWW.OLSSON.COM

drawn by: D.A.H.O.  
checked by: J.E.S.  
designed by: S.M.S.  
QA/QC by: M.G.D.  
project no.: A18-1140  
date: 2019.03.12

SHEET  
C109



| Woodside Ridge Lot Fill Information |                     |
|-------------------------------------|---------------------|
| Lot Number                          | Over 8' fill placed |
| 69                                  |                     |
| 70                                  |                     |
| 71                                  |                     |
| 72                                  |                     |
| 73                                  |                     |
| 74                                  |                     |
| 75                                  |                     |
| 76                                  |                     |
| 77                                  |                     |
| 78                                  |                     |
| 79                                  |                     |
| 80                                  |                     |
| 81                                  |                     |
| 82                                  |                     |
| 83                                  |                     |
| 84                                  |                     |
| 85                                  |                     |
| 86                                  |                     |
| 87                                  |                     |
| 88                                  |                     |
| 89                                  |                     |
| 90                                  |                     |
| 120                                 |                     |
| 121                                 |                     |
| 122                                 |                     |
| 123                                 |                     |
| 124                                 | 12'                 |



NOT AS-BUILT

BY

NO. REV.

DATE

REVISIONS DESCRIPTION

GRADING PLAN  
STREET & STORM SEWER PLANS

WOODSIDE RIDGE  
FIRST PLAT

LEE'S SUMMIT, MO

2019

REVISIONS

drawn by: D.A.H.Q.  
checked by: J.E.S.  
designed by: S.M.S.  
QA/QC by: M.G.D.  
project no.: A18-1140  
date: 2019.03.12

SHEET  
C110

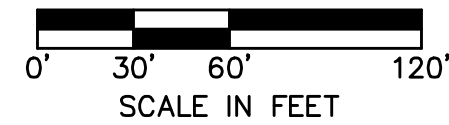
STATE OF MISSOURI  
JULIE ELAINE SELLERS  
NUMBER PE-2017000367  
11/1/2020  
PROFESSIONAL ENGINEER

JOHN KNC  
RETIREMEI  
VILLAGE  
9TH PLAT

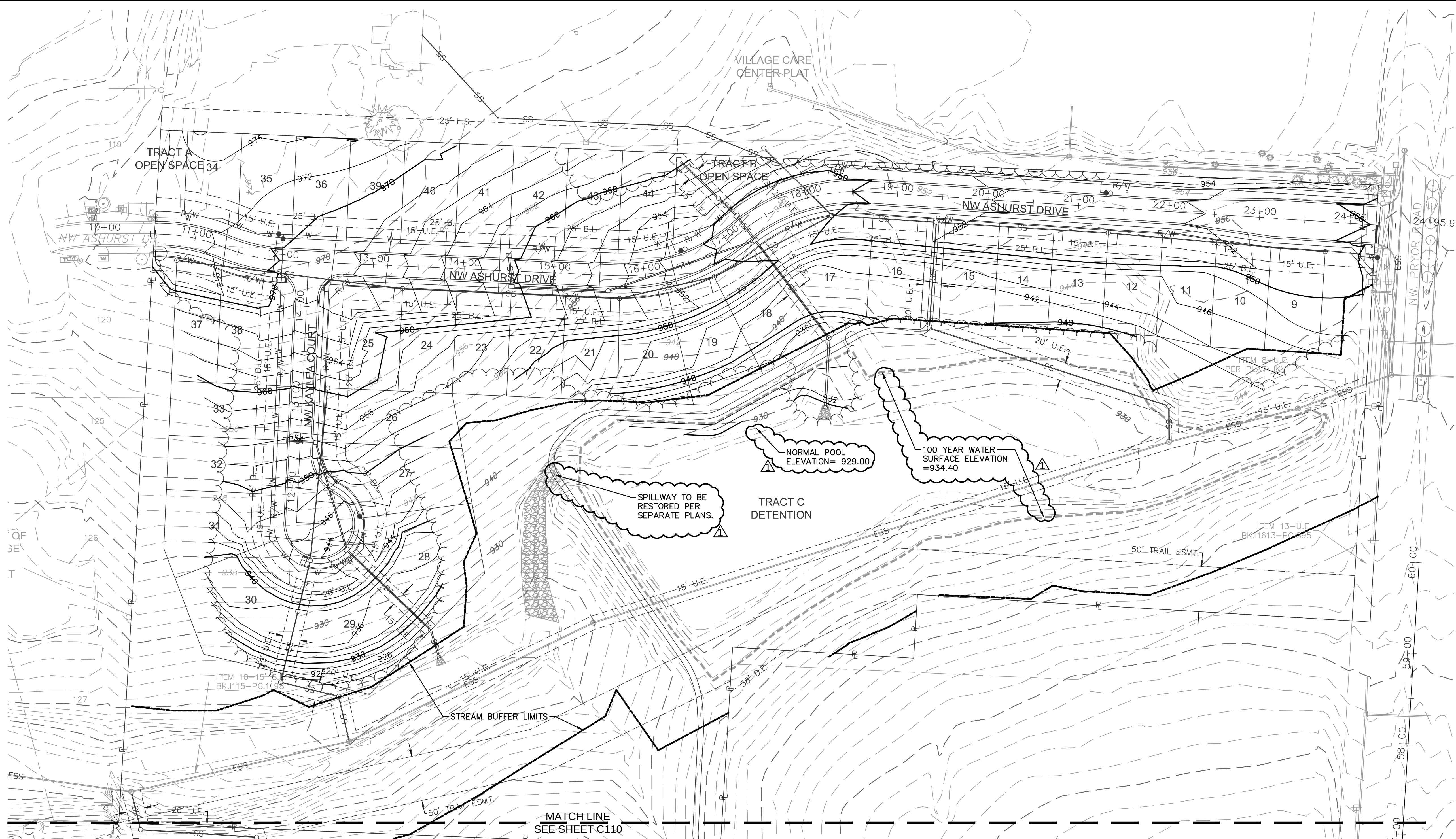
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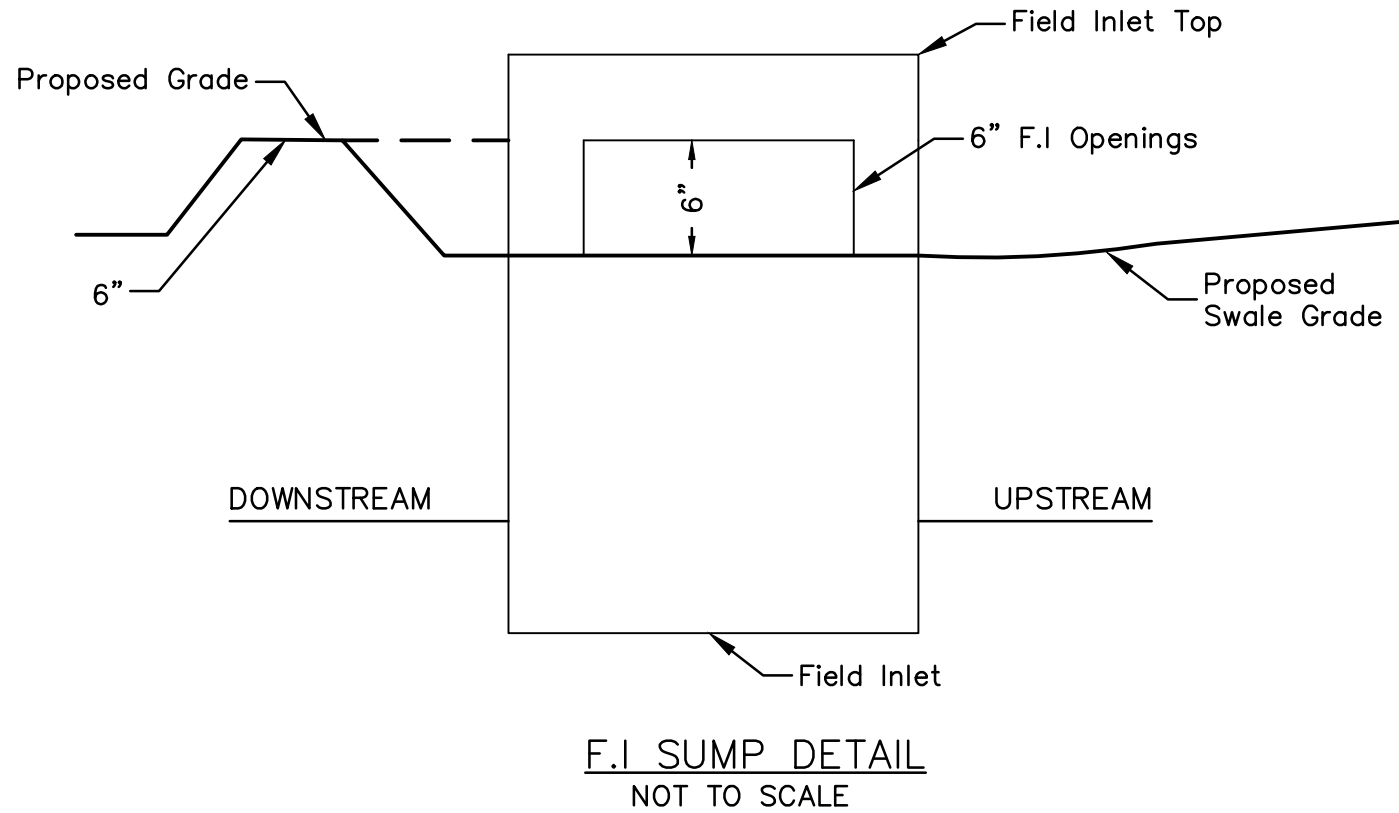
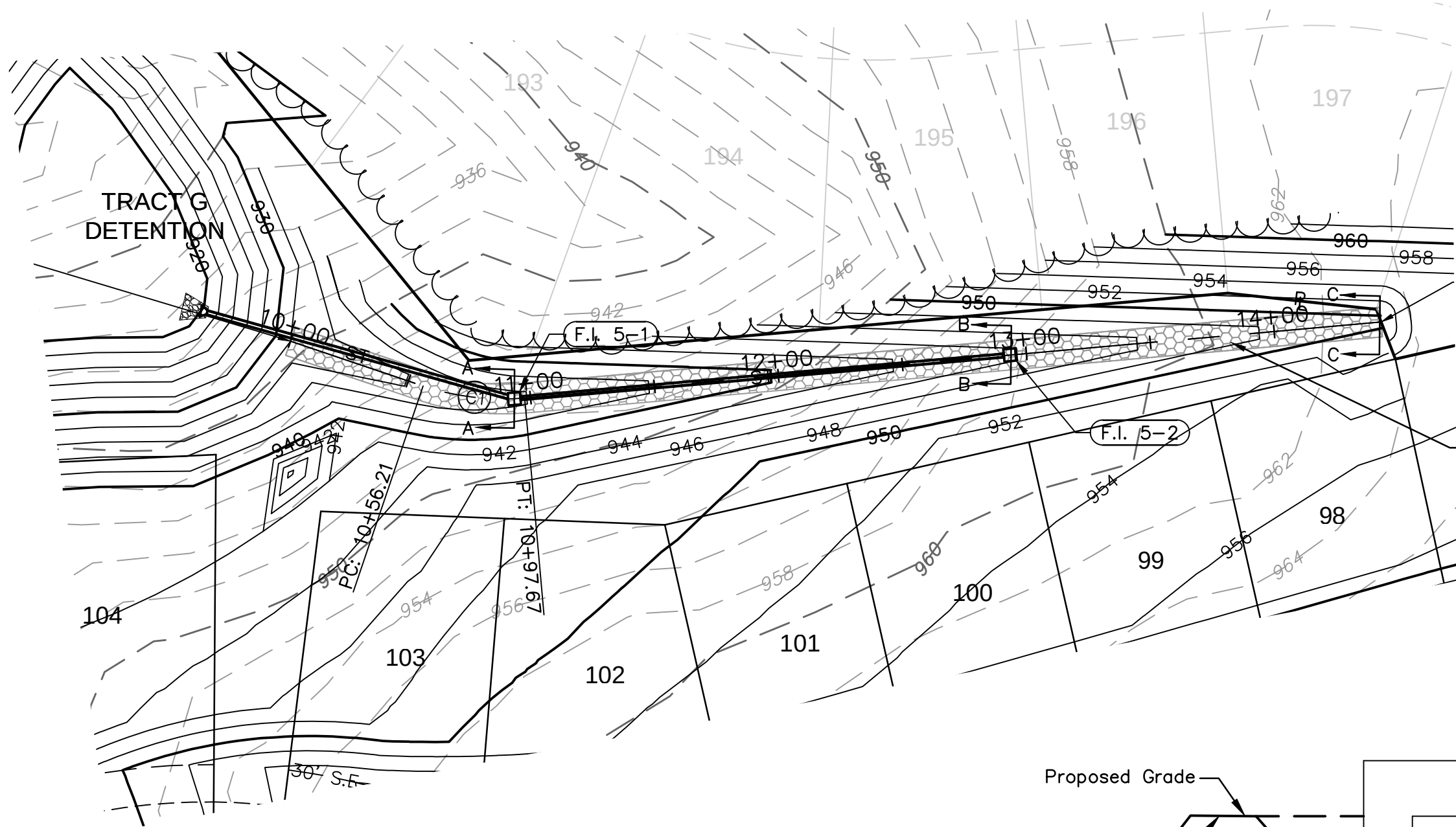
| Woodside Ridge | Lot Fill Information |
|----------------|----------------------|
| Lot Number     | Over 8' fill placed  |
| 9              |                      |
| 10             |                      |
| 11             |                      |
| 12             |                      |
| 13             |                      |
| 14             |                      |
| 15             |                      |
| 16             |                      |
| 17             |                      |
| 18             |                      |
| 19             |                      |
| 20             | 9'                   |
| 21             | 10'                  |
| 22             |                      |
| 23             |                      |
| 24             |                      |
| 25             |                      |
| 26             |                      |
| 27             |                      |
| 28             |                      |
| 29             | 10'                  |
| 30             | 10'                  |
| 31             |                      |
| 32             |                      |
| 33             |                      |
| 34             |                      |
| 35             |                      |
| 36             |                      |
| 37             |                      |
| 38             |                      |
| 39             |                      |
| 40             |                      |
| 41             |                      |
| 42             |                      |
| 43             |                      |
| 44             |                      |



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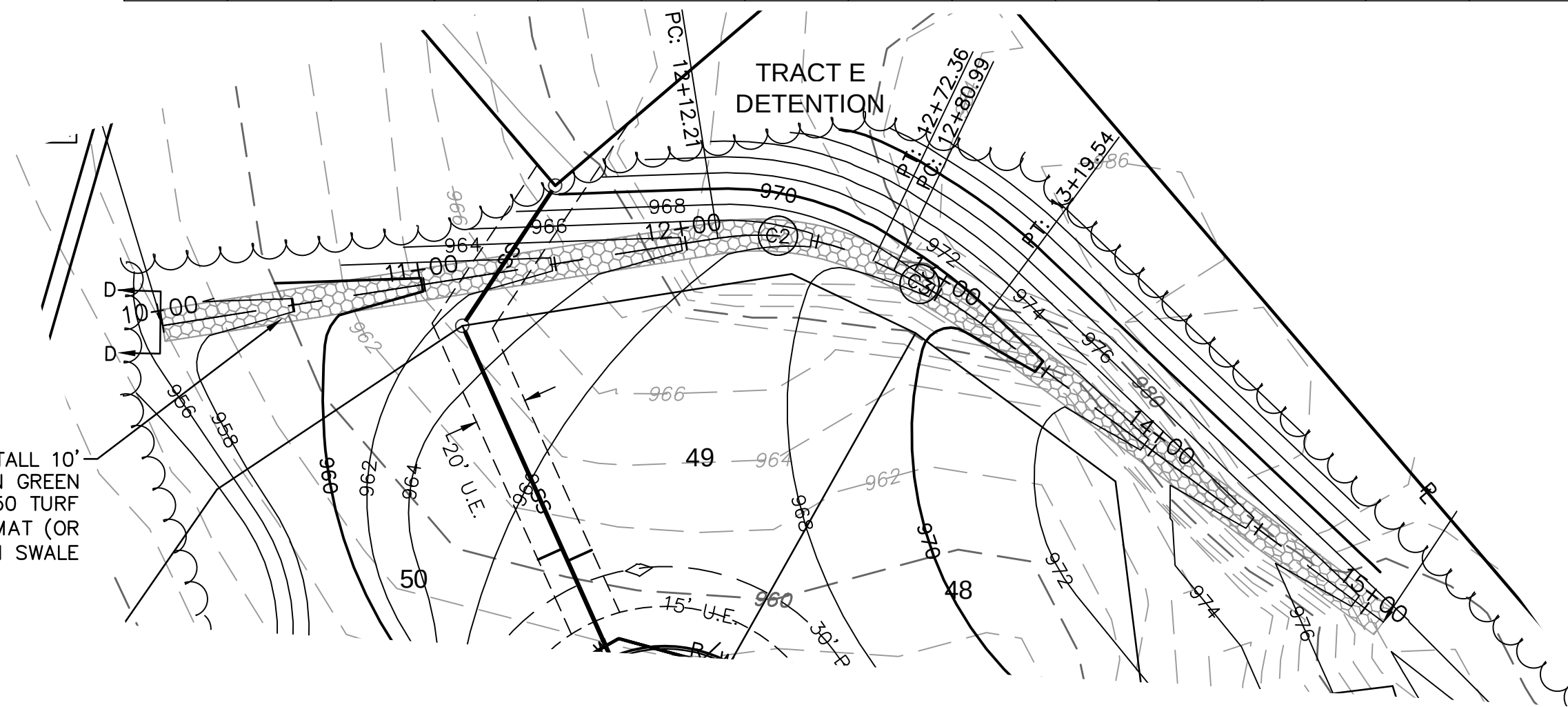


| CURVE TABLE |             |           |             |              |                 |
|-------------|-------------|-----------|-------------|--------------|-----------------|
| CURVE ID    | RADIUS (FT) | DELTA     | LENGTH (FT) | TANGENT (FT) | P.I. STA. (BK.) |
| C1          | 100.00'     | 23°45'21" | 41.46'      | 21.03'       | 10+76.64        |
| C2          | 100.00'     | 34°27'53" | 60.15'      | 31.02'       | 12+41.34        |
| C3          | 214.36'     | 12°36'37" | 47.18'      | 23.69'       | 12+95.85        |

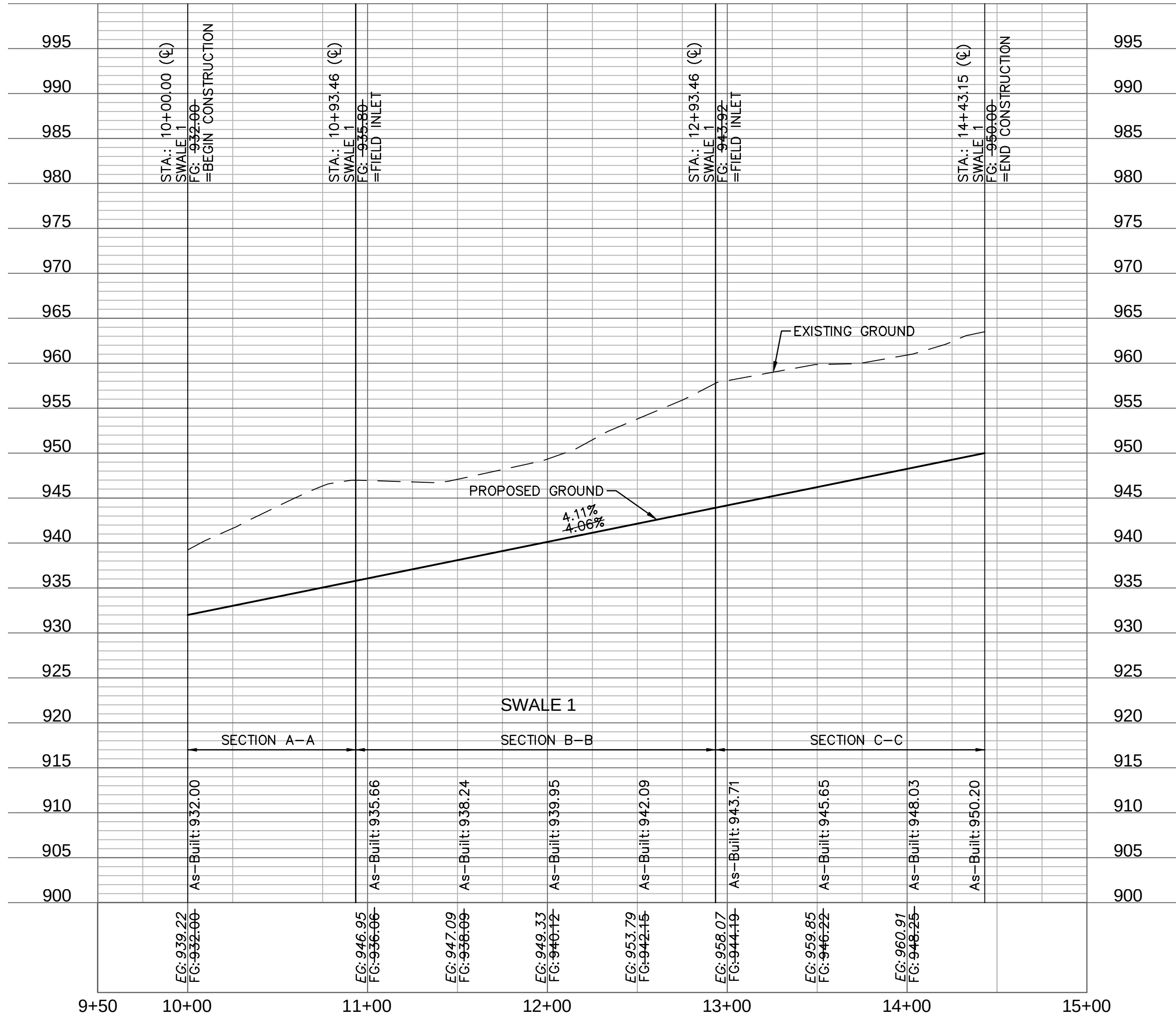
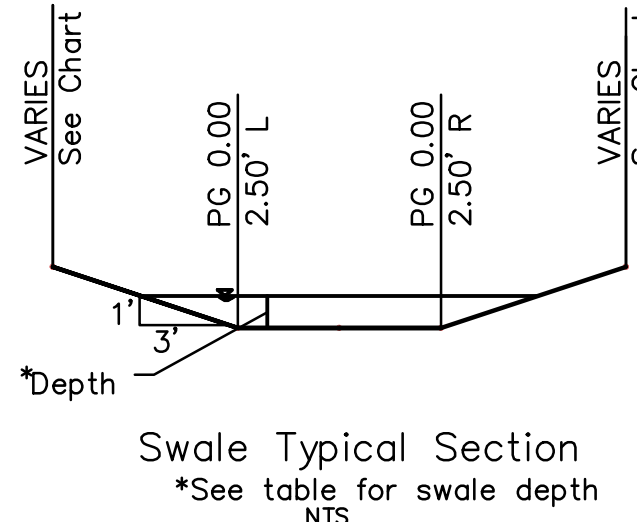


NOTE: INCLUDE SUMP PER ABOVE DETAIL WHERE FIELD INLETS ARE LOCATED WITHIN SWALES.

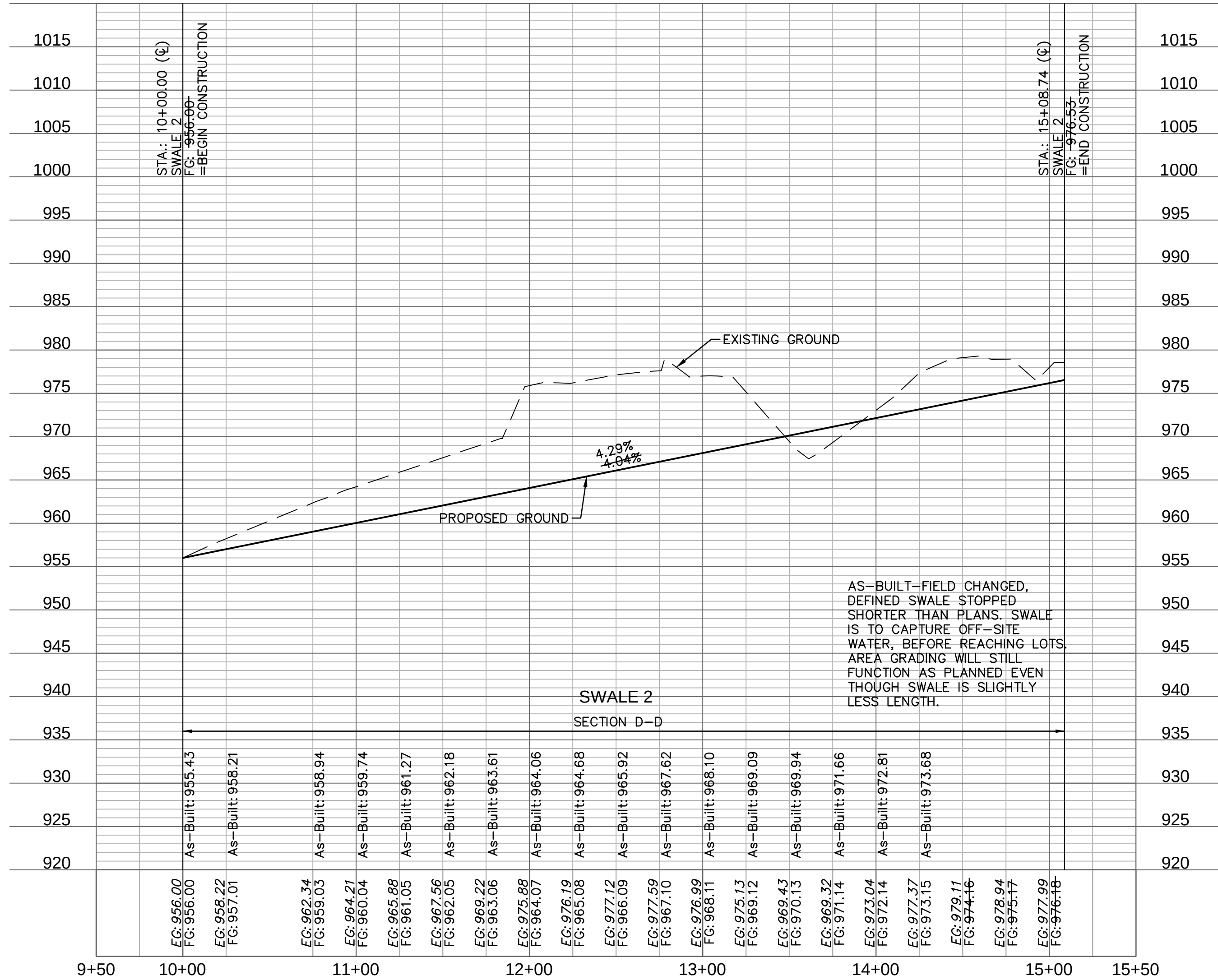
| Swale Design Table (100 Year Return Frequency) |                      |                   |                  |                       |                        |                   |                 |                  |                 |                   |                       |                |
|------------------------------------------------|----------------------|-------------------|------------------|-----------------------|------------------------|-------------------|-----------------|------------------|-----------------|-------------------|-----------------------|----------------|
| Section Data                                   |                      |                   |                  |                       |                        |                   | Flow Data       |                  |                 |                   |                       |                |
| SECTION                                        | Mannings Coefficient | Channel Slope (%) | Swale Depth (ft) | Left Side Slope (H:V) | Right Side Slope (H:V) | Bottom Width (ft) | Discharge (cfs) | Water Depth (ft) | Flow Area (ft²) | Velocity (ft/sec) | Wetted Perimeter (ft) | Top Width (ft) |
| A-A                                            | 0.03                 | 4.06%             | 1.35             | 3:1                   | 3:1                    | 5.00              | 1.97            | 0.15             | 0.82            | 2.41              | 5.95                  | 5.90           |
| B-B                                            | 0.03                 | 4.06%             | 1.35             | 3:1                   | 3:1                    | 5.00              | 8.49            | 0.34             | 2.05            | 4.15              | 7.15                  | 7.04           |
| C-C                                            | 0.03                 | 4.06%             | 1.35             | 3:1                   | 3:1                    | 5.00              | 8.88            | 0.35             | 2.12            | 4.19              | 7.21                  | 7.10           |
| D-D                                            | 0.03                 | 4.04%             | 1.35             | 3:1                   | 3:1                    | 5.00              | 7.63            | 0.32             | 1.91            | 4.00              | 7.02                  | 6.92           |



SWALE GRADING NOTES:  
1. CONTRACTOR SHALL CONSTRUCT SWALES WITH MINIMUM SLOPE, WIDTH AND DEPTH AS SHOWN IN THE SWALE DESIGN TABLES.  
2. CONTRACTOR SHALL CONSTRUCT ENTIRE DEPTH OF SWALES WITHIN THE RECORDED SURFACE DRAINAGE EASEMENTS AS SHOWN ON THE PLANS.  
3. 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.



AS-BUILT



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NO. 001816 of Architects and Engineers  
3001 BIRCH STREET, SUITE 100  
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TEL 816.861.1177  
WWW.OLSSON.COM

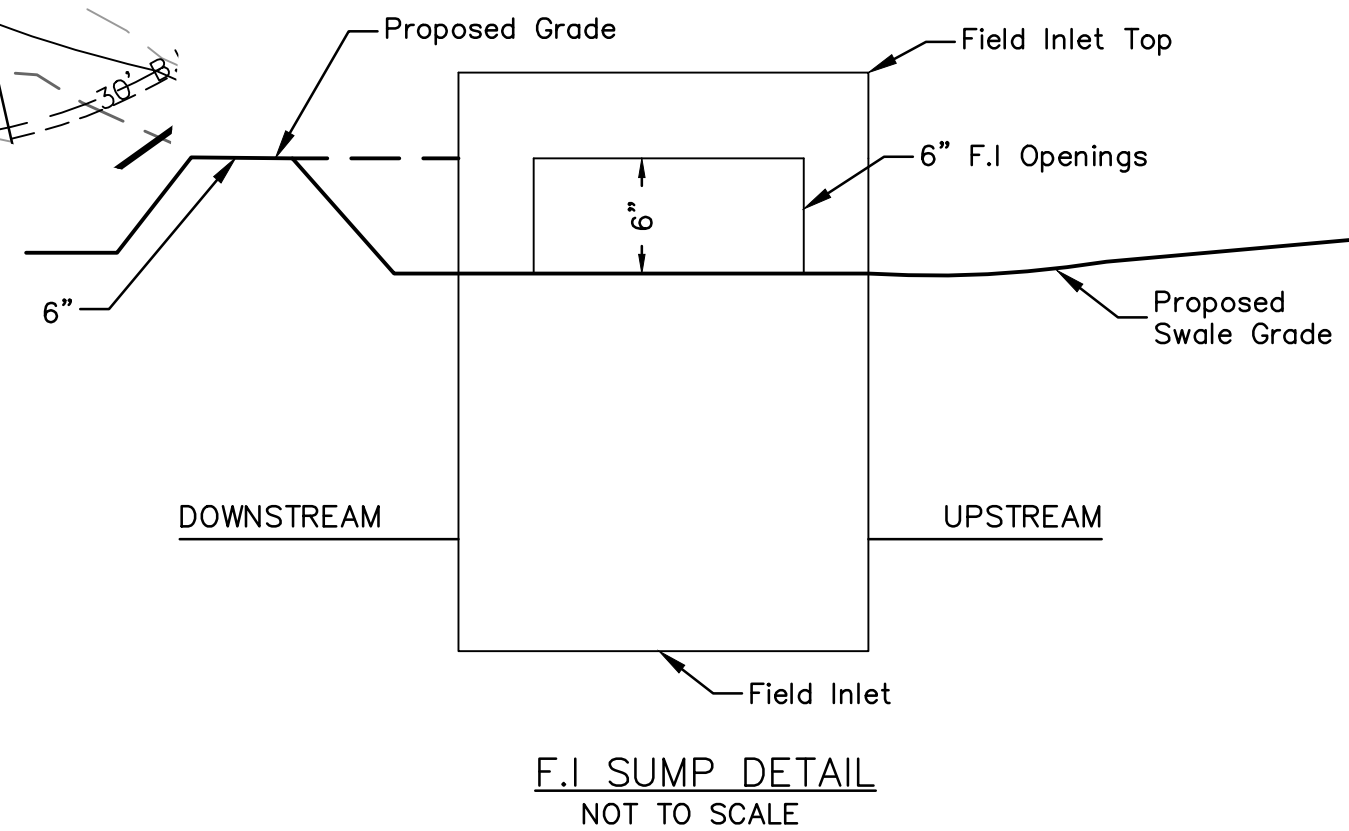
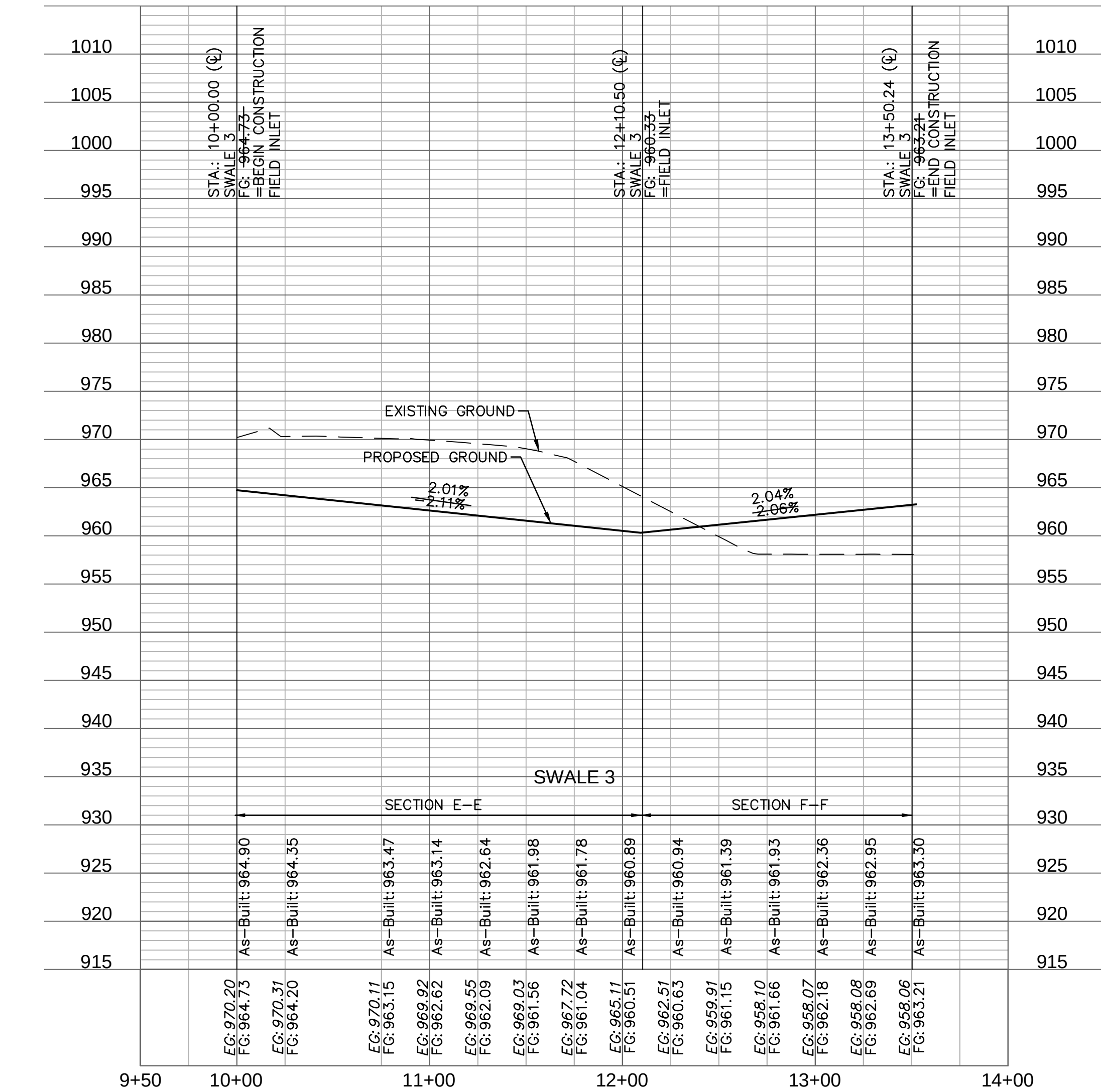
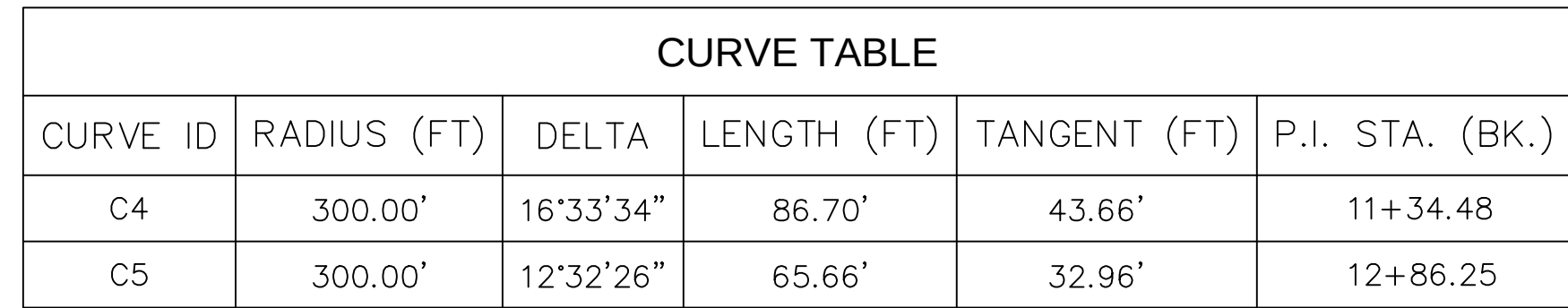
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JULIE ELAINE SELLERS  
Professional Engineer  
NUMBER  
PE-2017000367  
11/1/2020

BY  
REVISIONS DESCRIPTION  
NO. REV. DATE  
2019

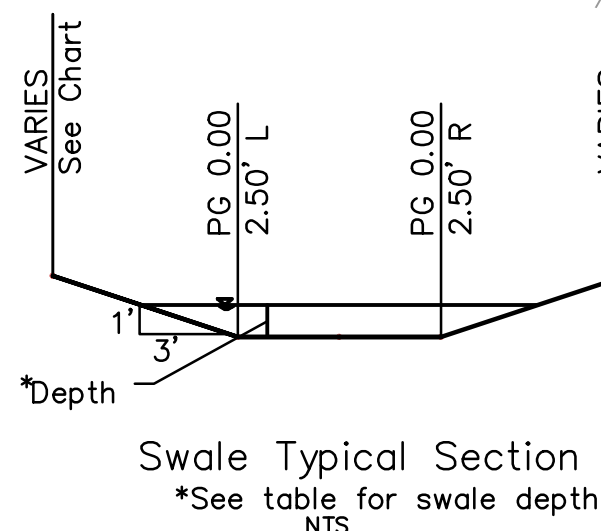
SWALE PLAN & PROFILE  
STREET & STORM SEWER PLANS  
WOODSIDE RIDGE  
FIRST PLAT  
LEE'S SUMMIT, MO

SHEET  
C112

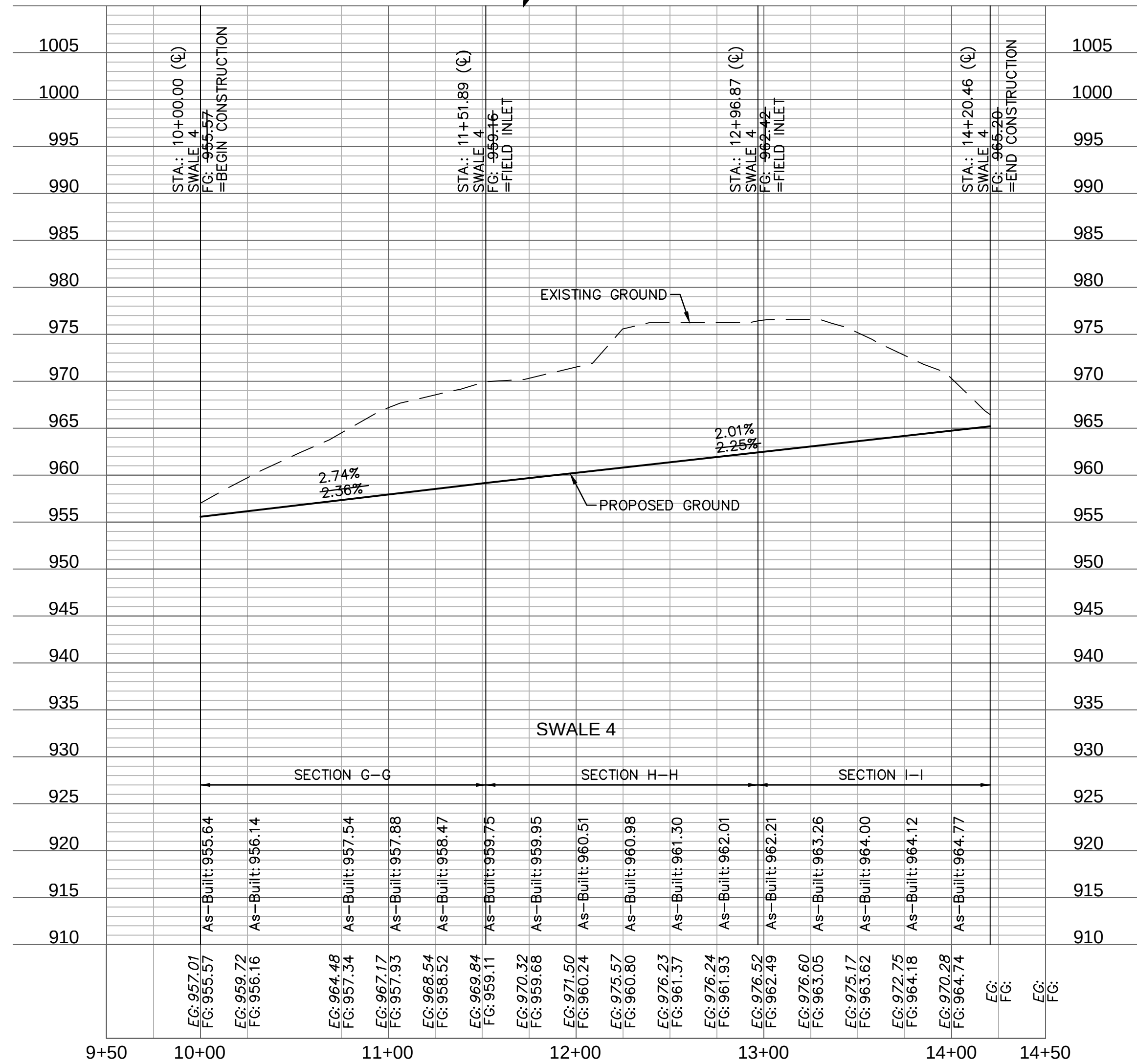
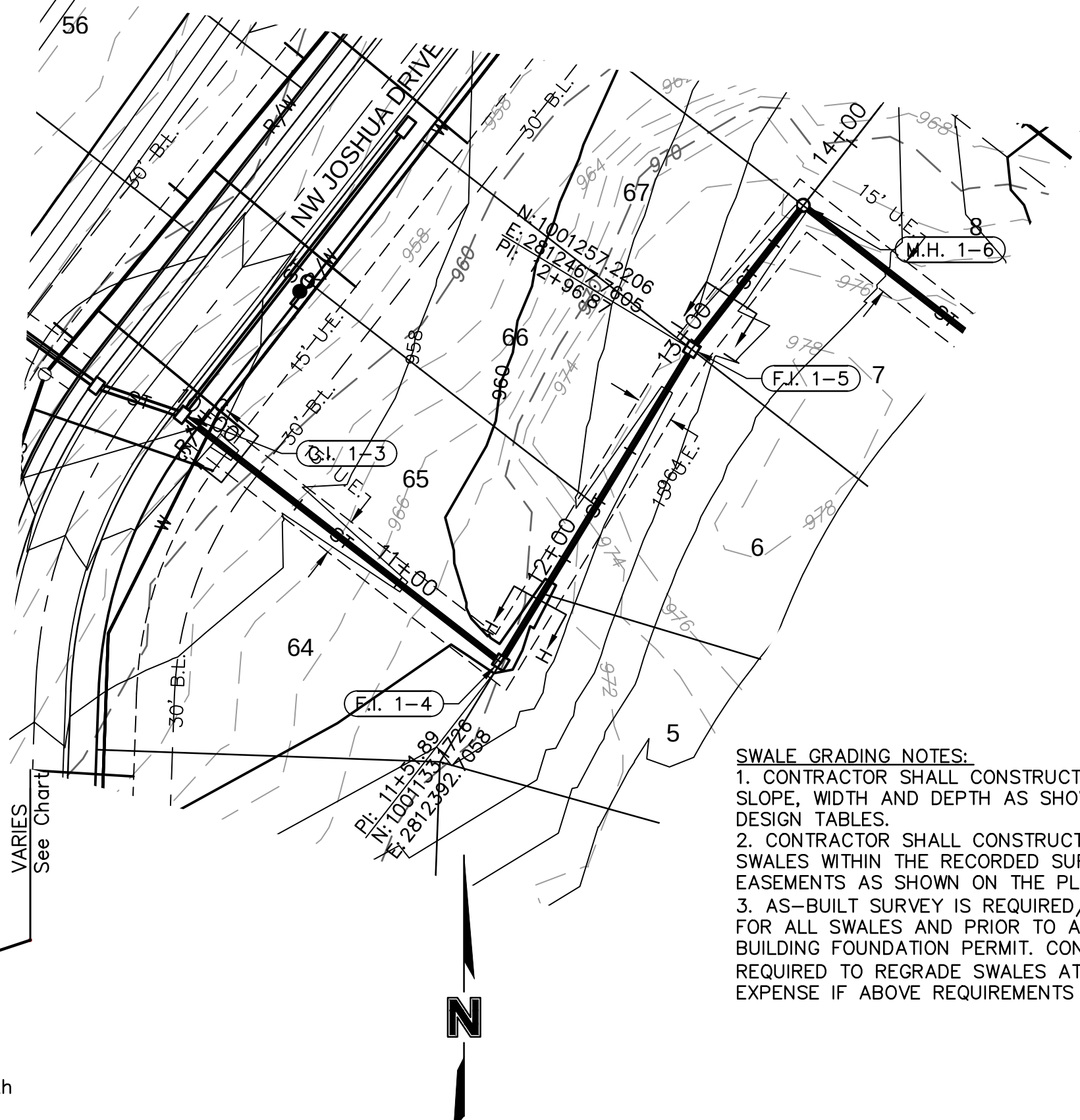




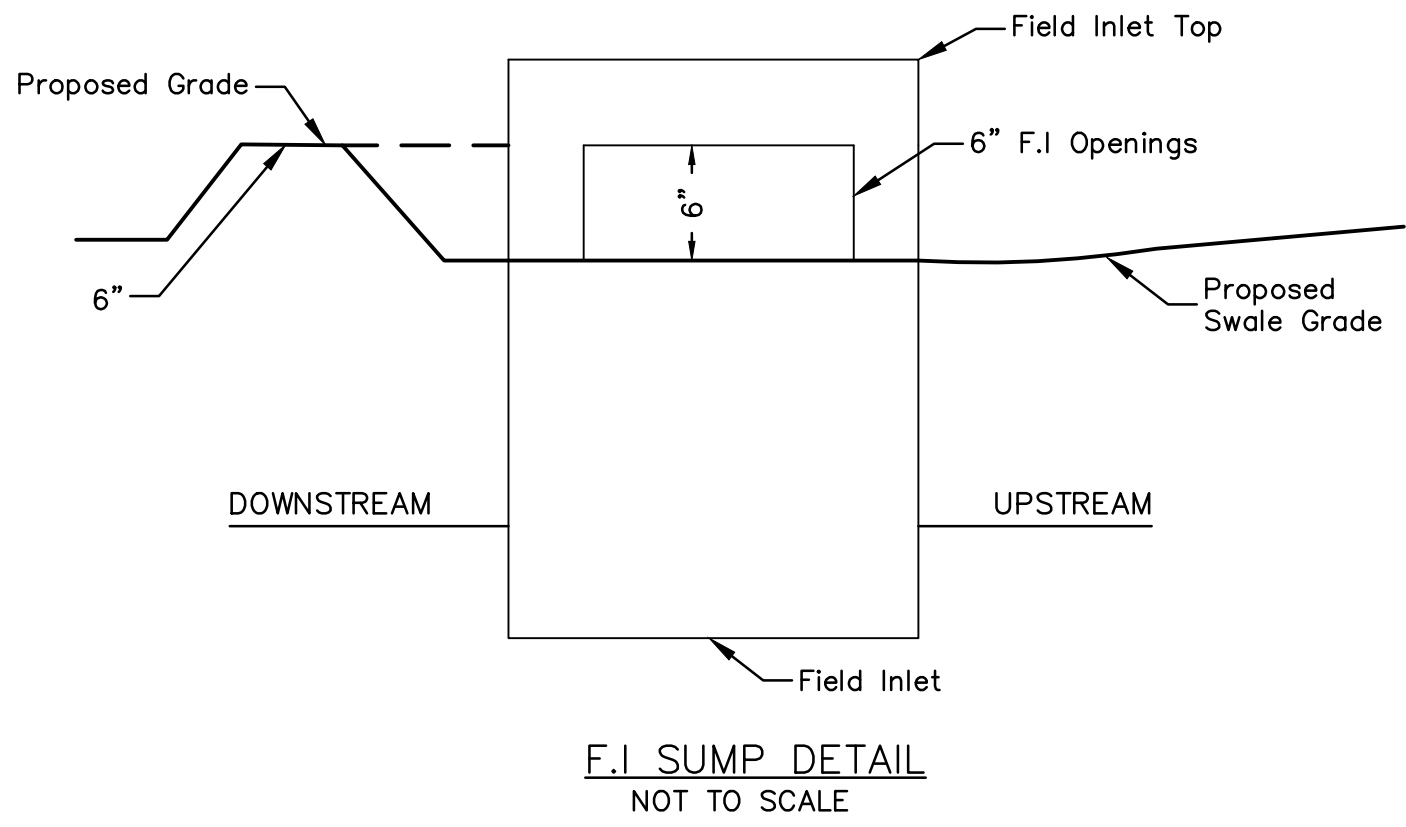
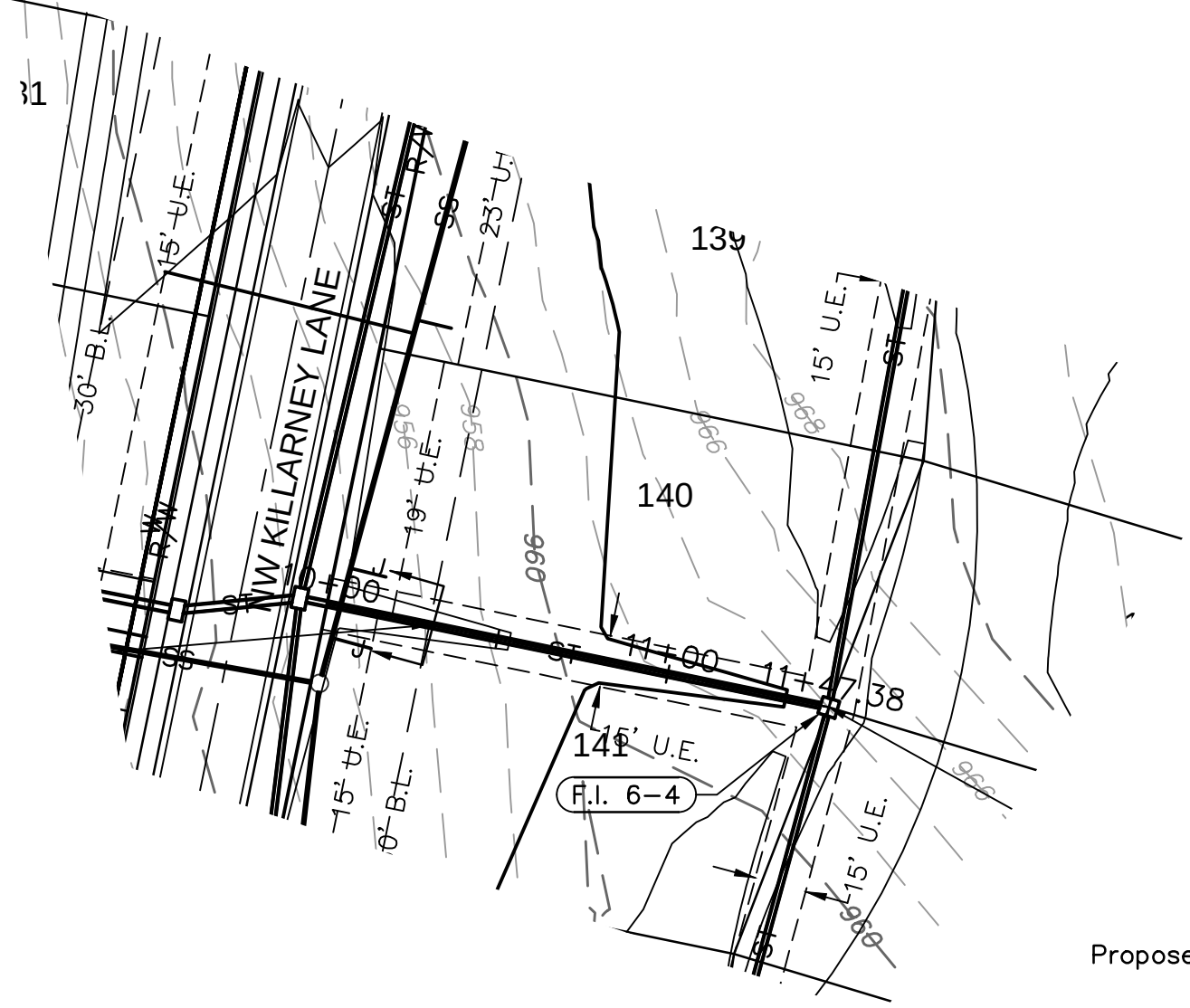
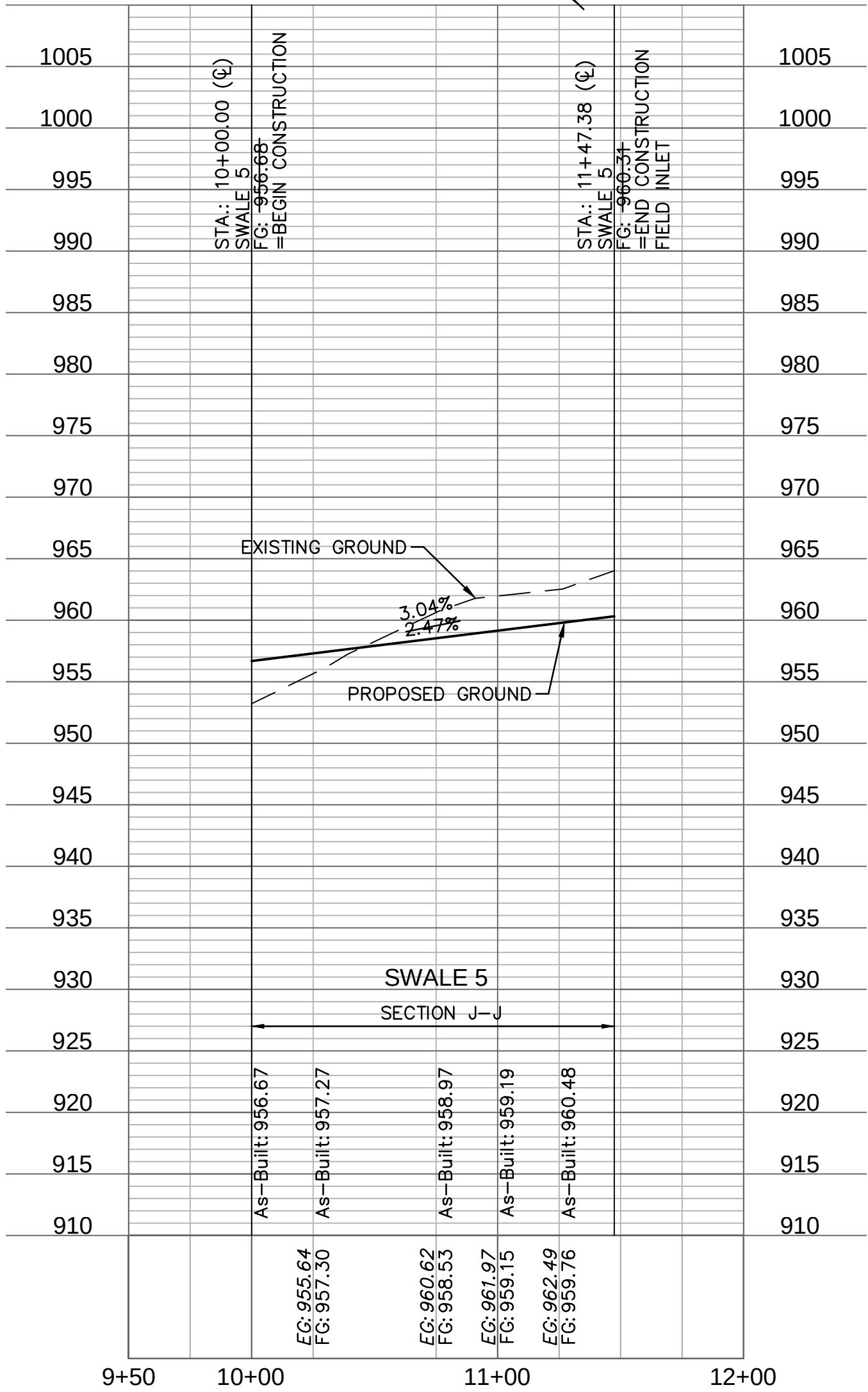
NOTE: INCLUDE SUMP PER ABOVE DETAIL WHERE  
FIELD INLETS ARE LOCATED WITHIN SWALES.



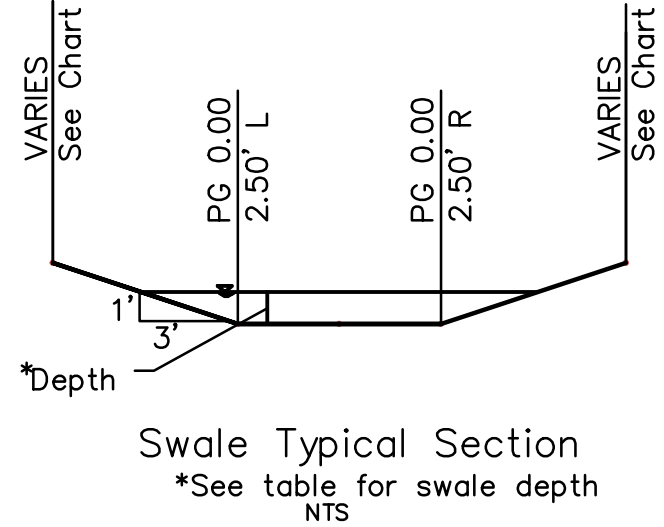
| Section Data |                      |                   |                  |                       |                        |                   | Flow Data       |                  |                              |                   |                       |                |                      |                                     |
|--------------|----------------------|-------------------|------------------|-----------------------|------------------------|-------------------|-----------------|------------------|------------------------------|-------------------|-----------------------|----------------|----------------------|-------------------------------------|
| SECTION      | Mannings Coefficient | Channel Slope (%) | Swale Depth (ft) | Left Side Slope (H:V) | Right Side Slope (H:V) | Bottom Width (ft) | Discharge (cfs) | Water Depth (ft) | Flow Area (ft <sup>2</sup> ) | Velocity (ft/sec) | Wetted Perimeter (ft) | Top Width (ft) | Specific Energy (ft) | Shear Stress (lbs/ft <sup>2</sup> ) |
| E-E          | 0.03                 | 2.10%             | 1.35             | 3:1                   | 3:1                    | 5.00              | 4.01            | 0.27             | 1.57                         | 2.56              | 6.71                  | 6.62           | 0.37                 | 0.31                                |
| F-F          | 0.03                 | 2.10%             | 1.35             | 3:1                   | 3:1                    | 5.00              | 2.83            | 0.22             | 1.25                         | 2.27              | 6.39                  | 6.32           | 0.30                 | 0.26                                |
| G-G          | 0.03                 | 2.36%             | 1.35             | 3:1                   | 3:1                    | 5.00              | 2.57            | 0.20             | 1.12                         | 2.29              | 6.26                  | 6.20           | 0.28                 | 0.26                                |
| H-H          | 0.03                 | 2.25%             | 1.35             | 3:1                   | 3:1                    | 5.00              | 2.76            | 0.21             | 1.18                         | 2.33              | 6.33                  | 6.26           | 0.29                 | 0.26                                |
| I-I          | 0.03                 | 2.25%             | 1.35             | 3:1                   | 3:1                    | 5.00              | 1.97            | 0.17             | 0.94                         | 2.10              | 6.08                  | 6.02           | 0.24                 | 0.22                                |



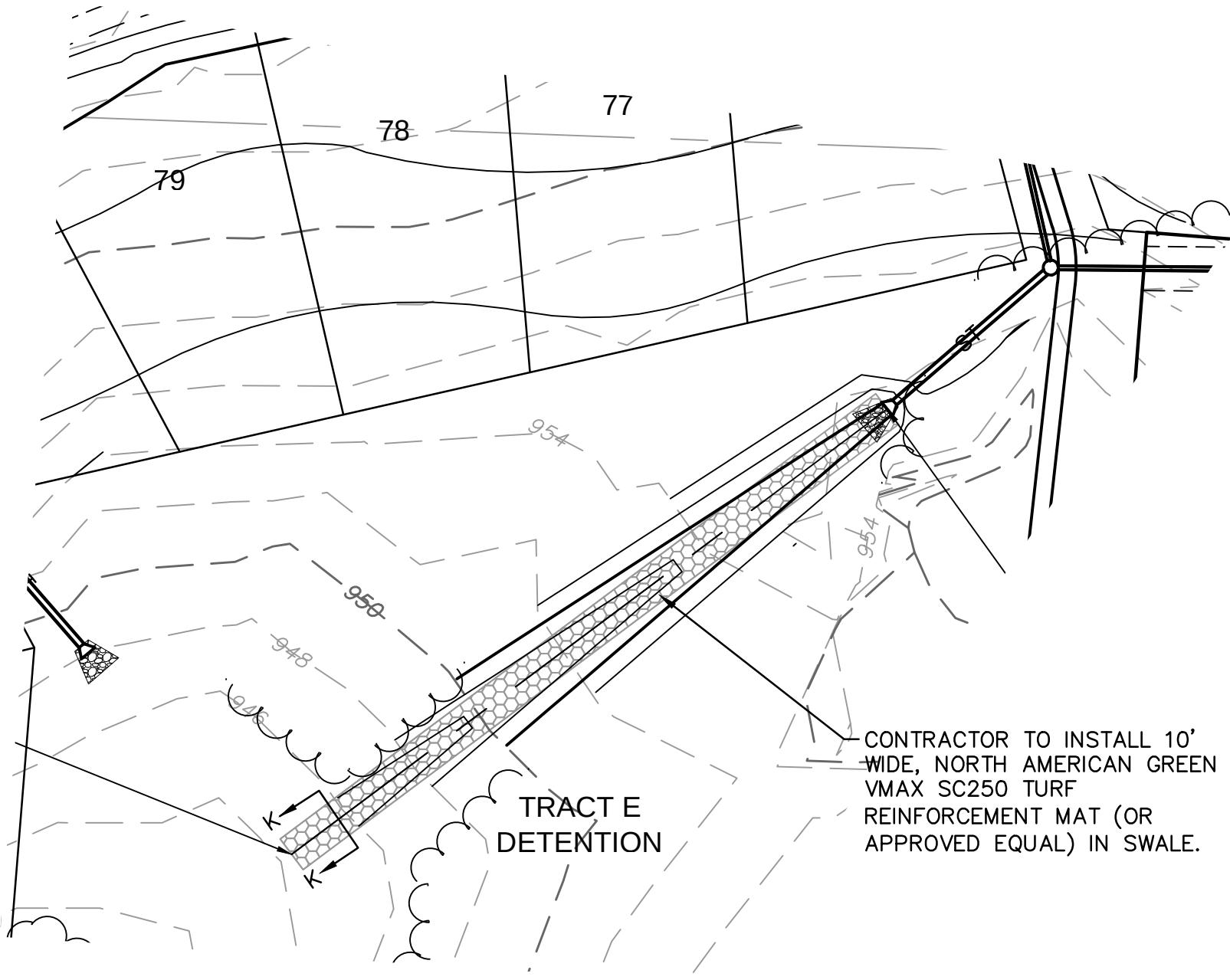




NOTE: INCLUDE SUMP PER ABOVE DETAIL WHERE  
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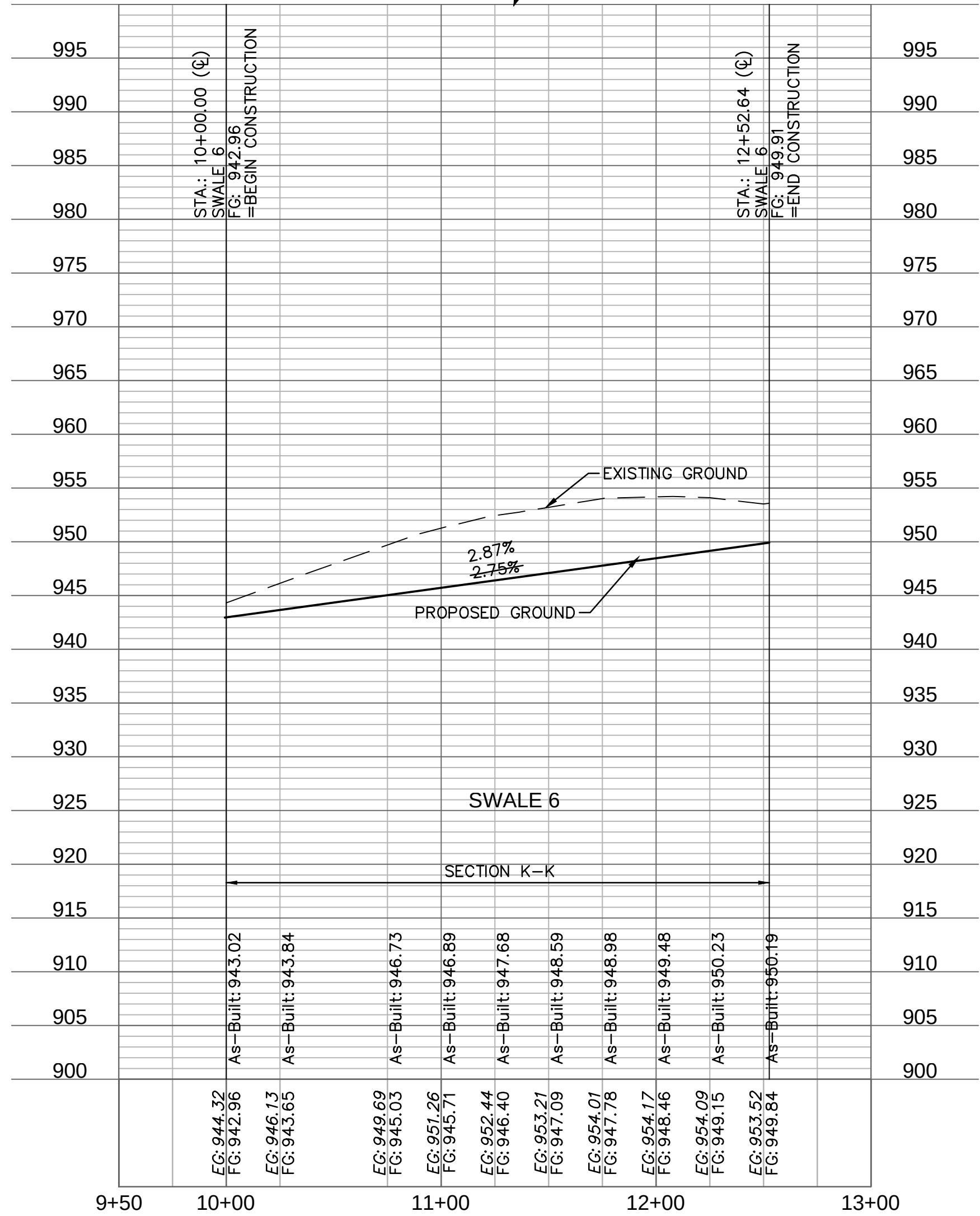


| Section Data |                      |                   |                  |                       |                        |                   |                 | Flow Data        |                 |                   |                       |                |                      |                        |
|--------------|----------------------|-------------------|------------------|-----------------------|------------------------|-------------------|-----------------|------------------|-----------------|-------------------|-----------------------|----------------|----------------------|------------------------|
| SECTION      | Mannings Coefficient | Channel Slope (%) | Swale Depth (ft) | Left Side Slope (H:V) | Right Side Slope (H:V) | Bottom Width (ft) | Discharge (cfs) | Water Depth (ft) | Flow Area (ft²) | Velocity (ft/sec) | Wetted Perimeter (ft) | Top Width (ft) | Specific Energy (ft) | Shear Stress (lbs/ft²) |
| J-J          | 0.03                 | 2.47%             | 1.35             | 3:1                   | 3:1                    | 5.00              | 0.72            | 0.10             | 0.53            | 1.36              | 5.63                  | 5.60           | 0.13                 | 0.15                   |
| K-K          | 0.03                 | 2.25%             | 1.35             | 3:1                   | 3:1                    | 5.00              | 18.49           | 0.61             | 4.17            | 4.44              | 8.86                  | 8.66           | 0.92                 | 0.66                   |

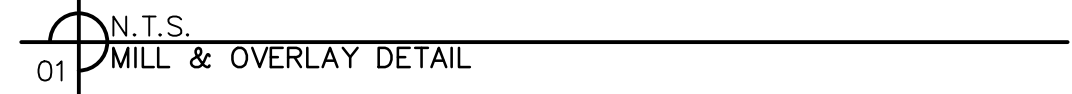


SWALE GRADING NOTES:

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2. CONTRACTOR SHALL CONSTRUCT ENTIRE DEPTH OF SWALES WITHIN THE RECORDED SURFACE DRAINAGE EASEMENTS AS SHOWN ON THE PLANS.
3. 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.





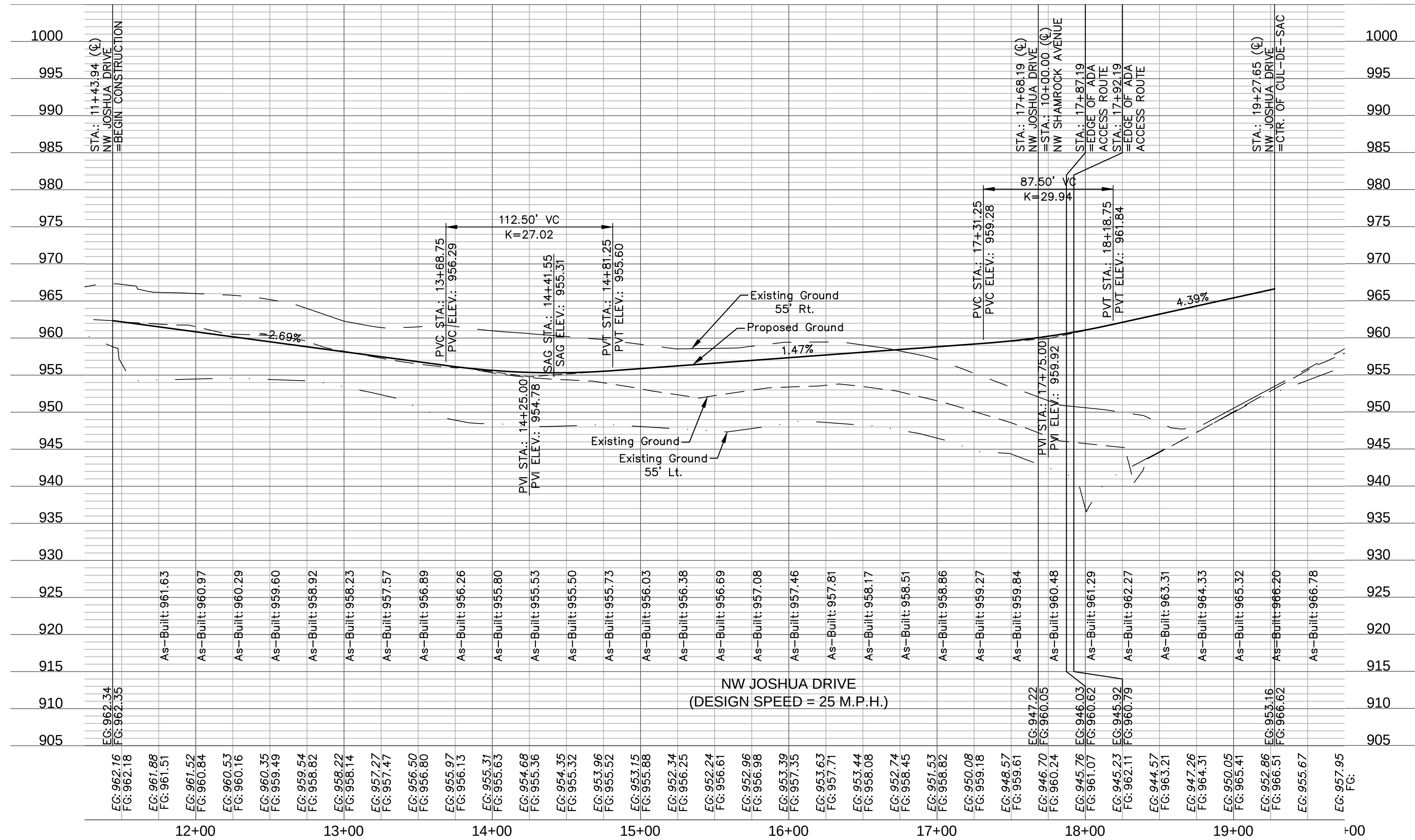
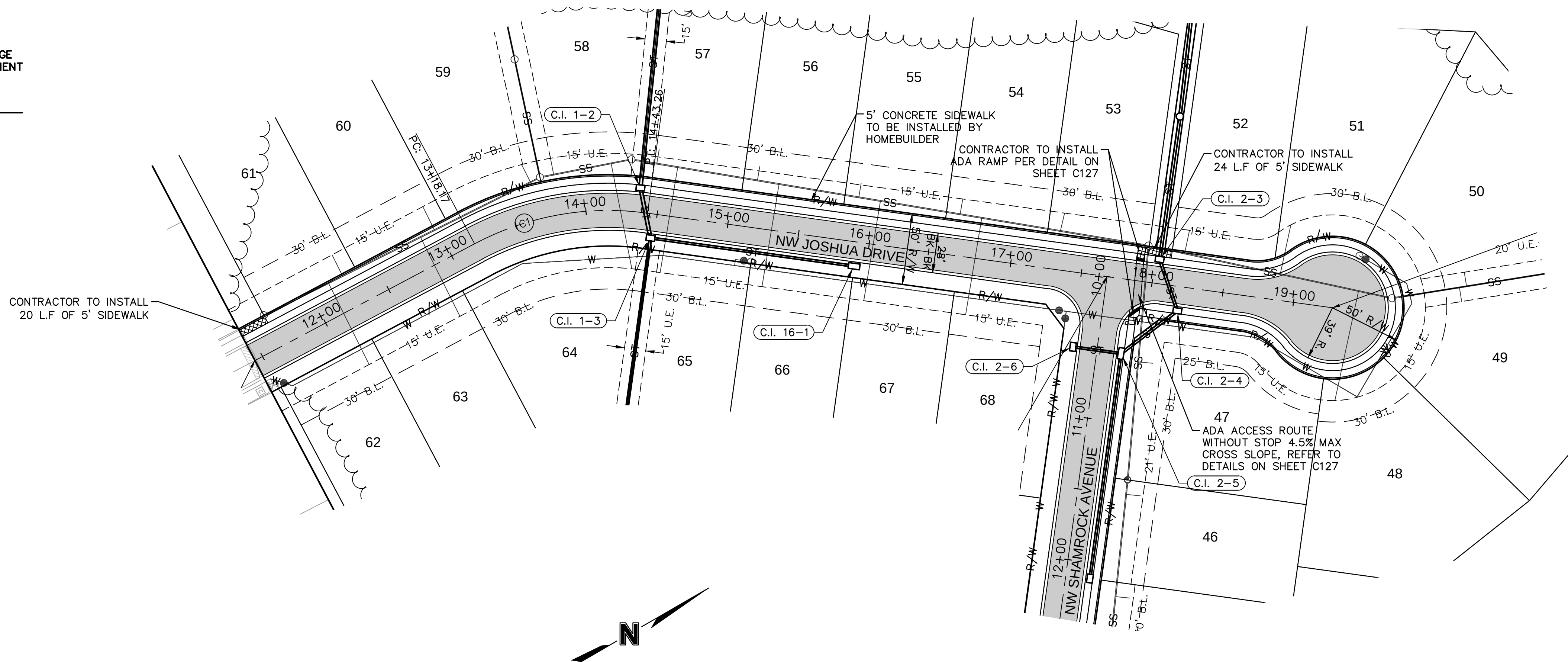


|                                                                                   |                    |
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|  | CONCRETE SIDEWALK  |
|  | ASPHALT PAVEMENT   |
|  | CG-2 CURB & GUTTER |

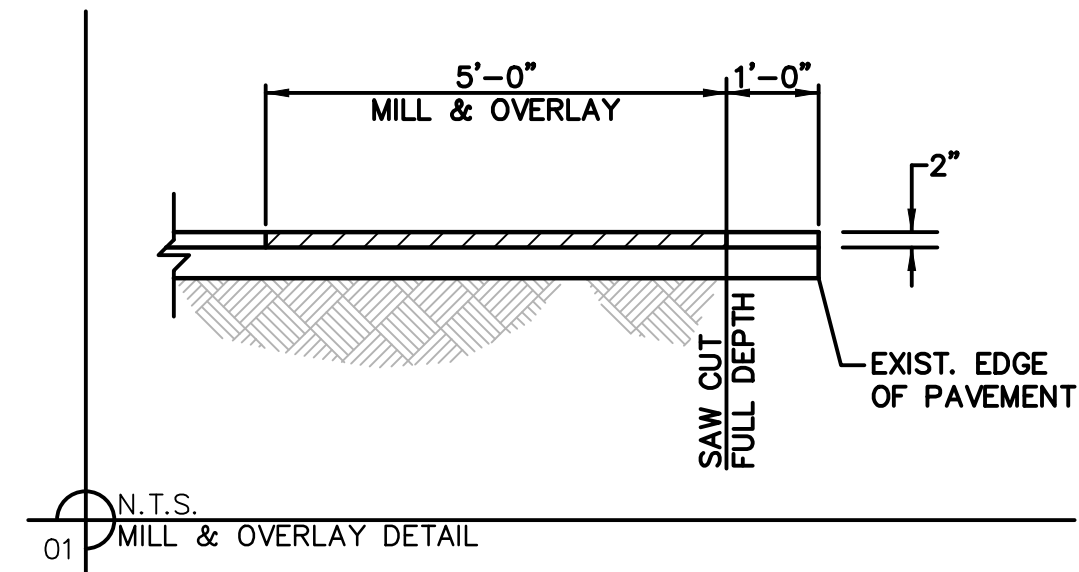


## AS-BUILT

| CURVE ID | RADIUS (FT) | DELTA     | LENGTH (FT) | TANGENT (FT) | P.I. STA. (BK.) |
|----------|-------------|-----------|-------------|--------------|-----------------|
| C1       | 200.00'     | 35°50'10" | 125.09'     | 64.67'       | 13+78.59        |

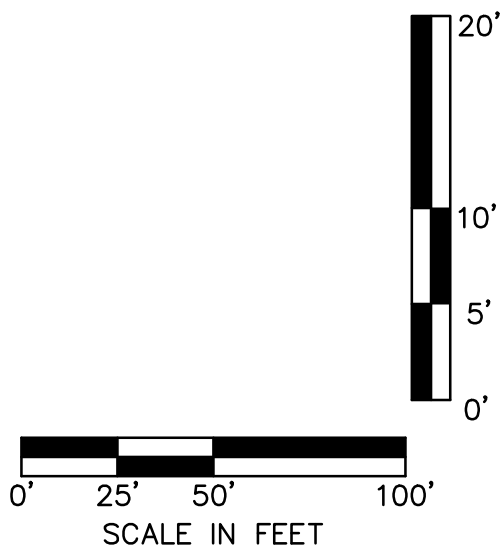
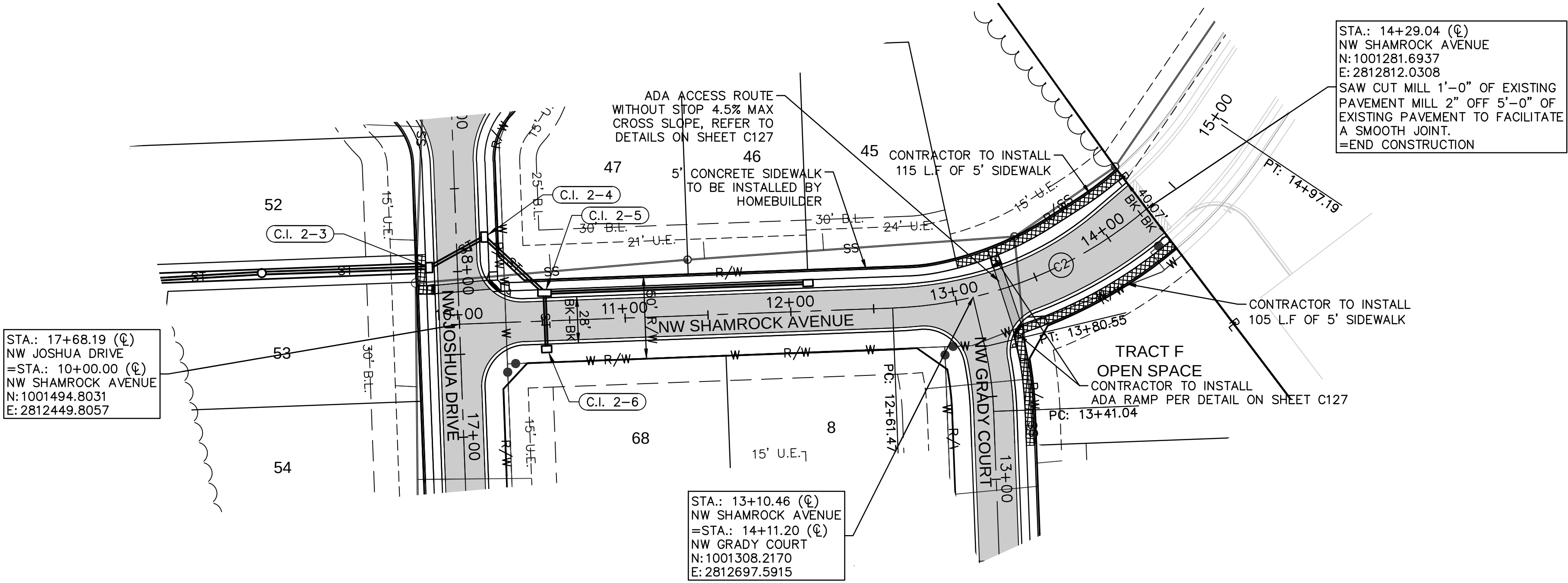




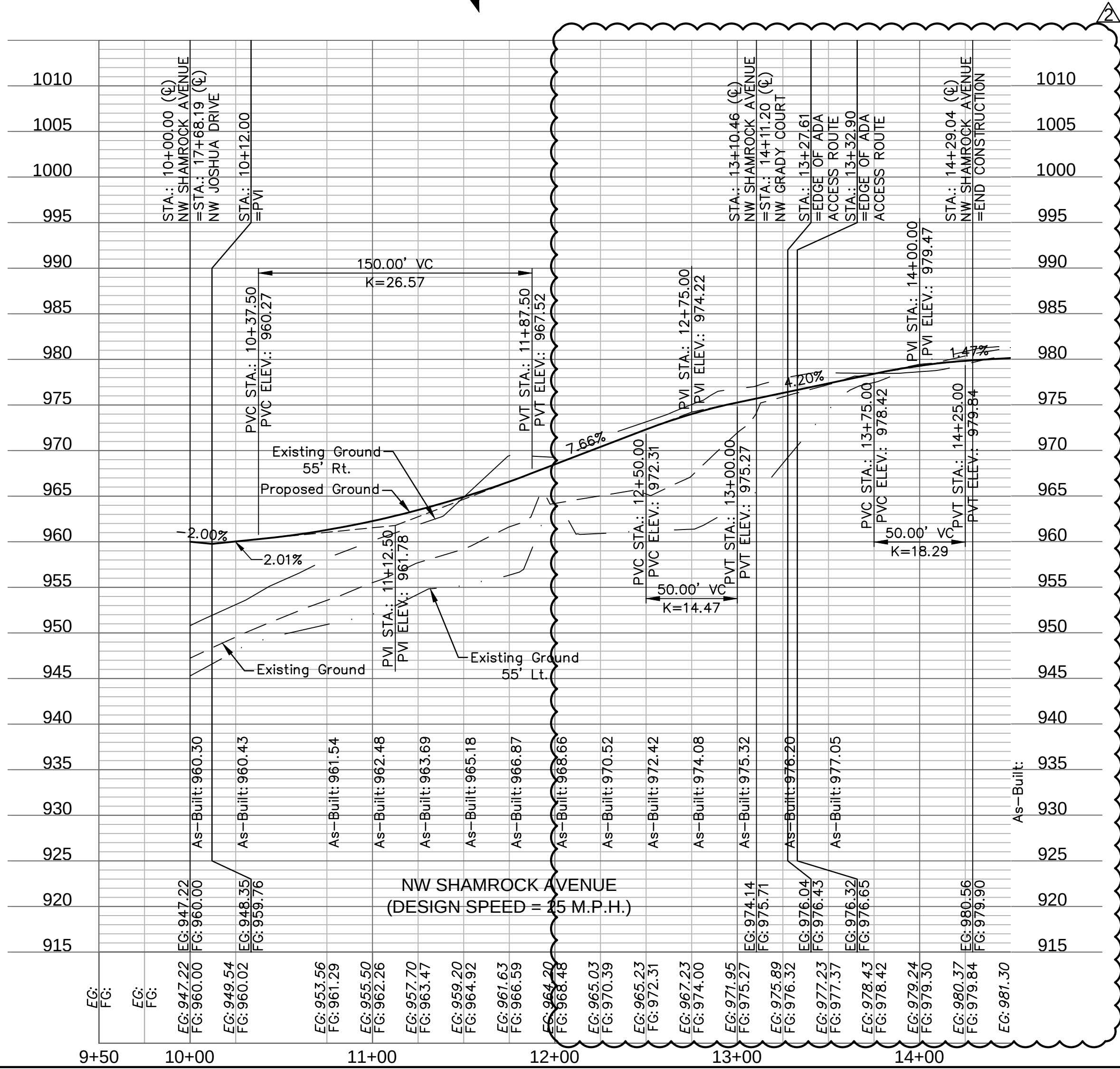


| CURVE TABLE |             |           |             |              |                 |
|-------------|-------------|-----------|-------------|--------------|-----------------|
| CURVE ID    | RADIUS (FT) | DELTA     | LENGTH (FT) | TANGENT (FT) | P.I. STA. (BK.) |
| C2          | 250.00'     | 54°01'18" | 235.71'     | 127.44'      | 13+88.91        |

| LEGEND |                    |
|--------|--------------------|
|        | CONCRETE SIDEWALK  |
|        | ASPHALT PAVEMENT   |
|        | CG-2 CURB & GUTTER |



AS-BUILT



olsson

NO. 00000000 of Arkansas at 001892  
3001 BIRKING ST. SUITE 100  
NORTH KANSAS CITY, MO 64116  
TEL 816.861.1177  
WWW.OLSSON.COM

STATE OF MISSOURI  
JULIE ELAINE SELLERS  
Professional Engineer  
NUMBER  
PE-2017000367  
11/1/2020

BY  
NO. REV. DATE REVISIONS DESCRIPTION  
10/21/2019 REVISED PER CITY COMMENTS

REVISIONS

ROADWAY PLAN & PROFILE  
STREET & STORM SEWER PLANS

WOODSIDE RIDGE  
FIRST PLAT

LEE'S SUMMIT, MO

drawn by: D.A.H.Q.  
checked by: J.E.S.  
designed by: S.M.S.  
QA/QC by: M.G.B.  
project no.: A18-1140  
date: 2019.03.12

SHEET  
C116

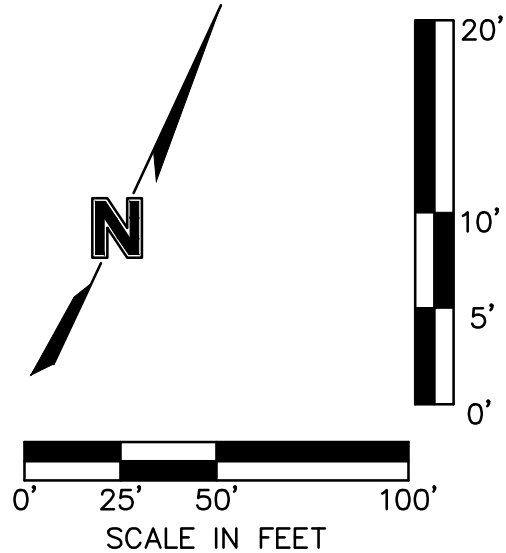




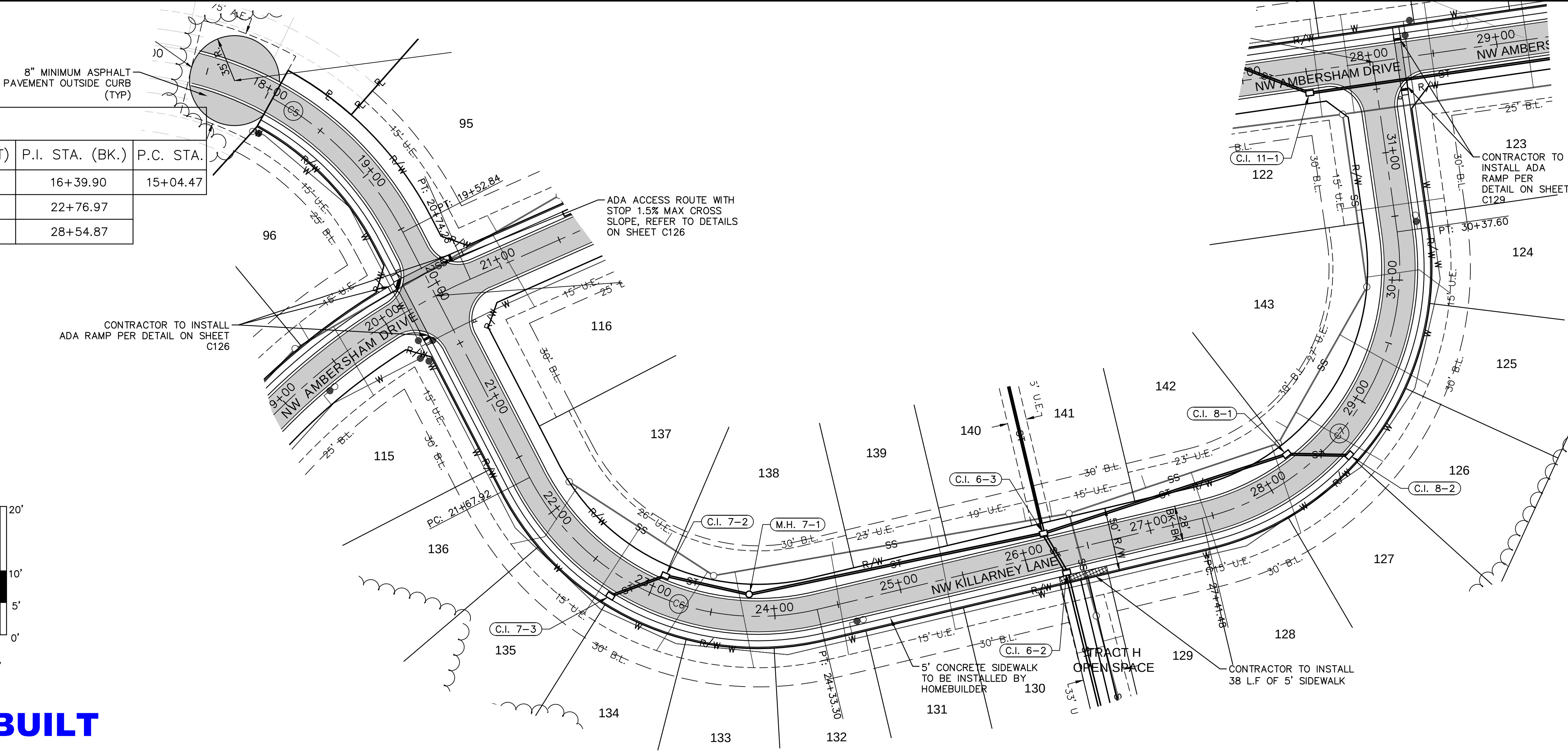
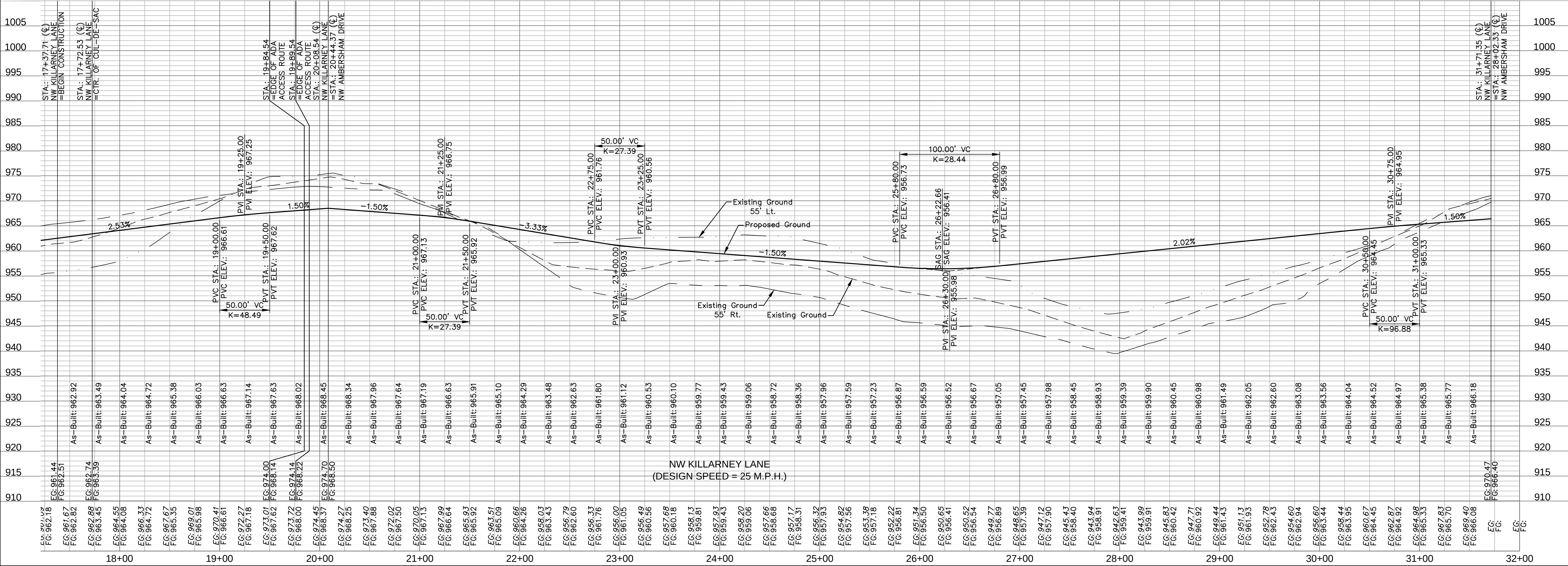


| CURVE TABLE |             |            |             |              |                 |           |
|-------------|-------------|------------|-------------|--------------|-----------------|-----------|
| CURVE ID    | RADIUS (FT) | DELTA      | LENGTH (FT) | TANGENT (FT) | P.I. STA. (BK.) | P.C. STA. |
| C5          | 250.00'     | 102°45'30" | 448.37'     | 312.94'      | 16+39.90        | 15+04.47  |
| C6          | 200.00'     | 76°01'40"  | 265.39'     | 156.33'      | 22+76.97        |           |
| C7          | 200.00'     | 84°50'00"  | 296.12'     | 182.73'      | 28+54.87        |           |

| LEGEND |                    |
|--------|--------------------|
|        | CONCRETE SIDEWALK  |
|        | ASPHALT PAVEMENT   |
|        | CG-2 CURB & GUTTER |



AS-BUILT



STATE OF MISSOURI  
JULIE ELAINE SELLERS  
Professional Engineer  
NUMBER PE-2017000367  
11/1/2020

BY: \_\_\_\_\_  
NO. REV. \_\_\_\_\_  
DATE \_\_\_\_\_

REVISIONS DESCRIPTION

2019  
LEE'S SUMMIT, MO

ROADWAY PLAN & PROFILE  
STREET & STORM SEWER PLANS  
WOODSIDE RIDGE  
FIRST PLAT

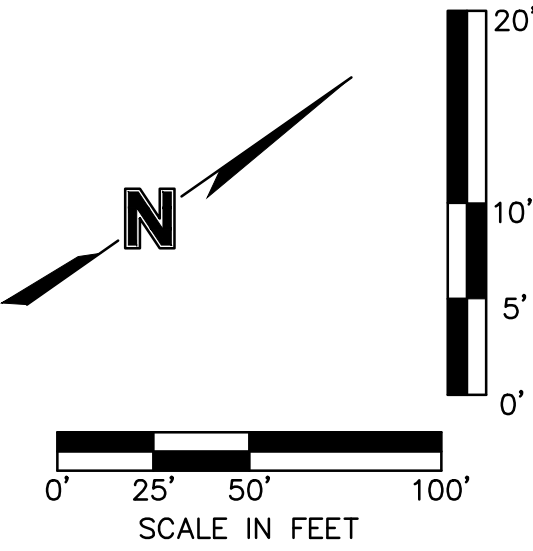
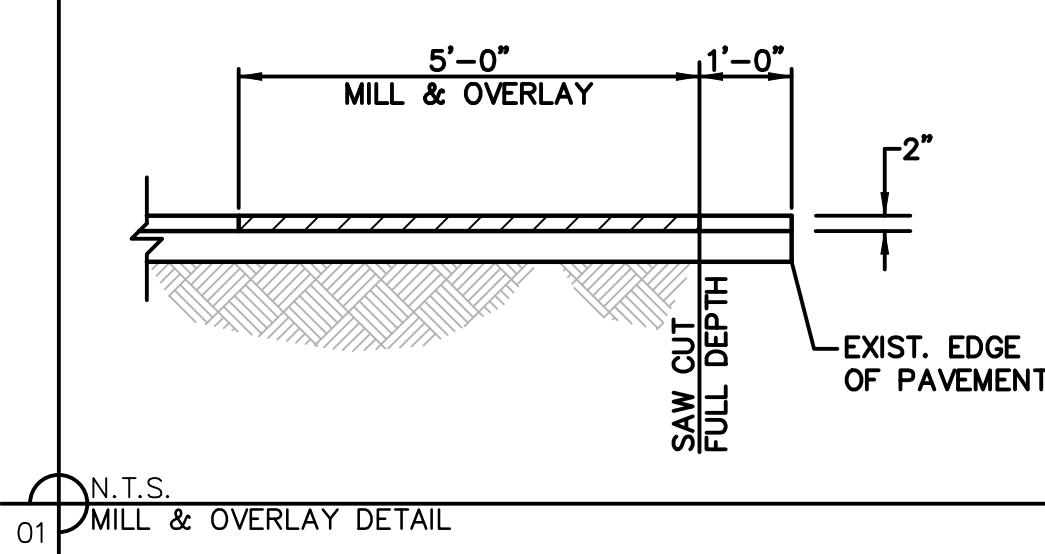
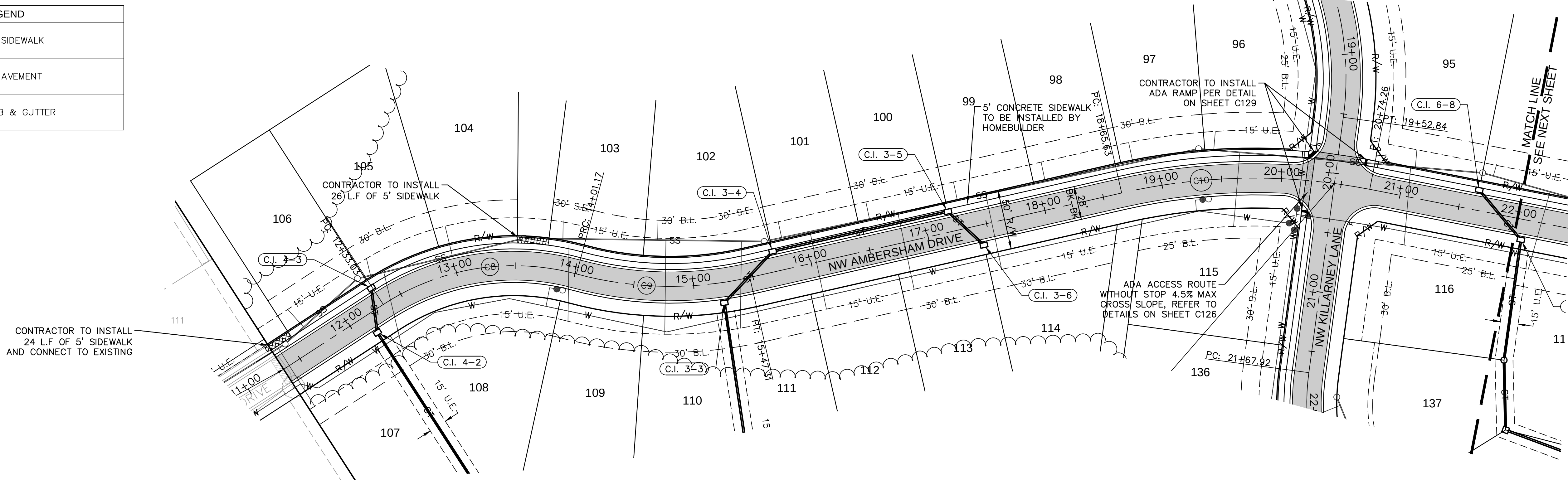
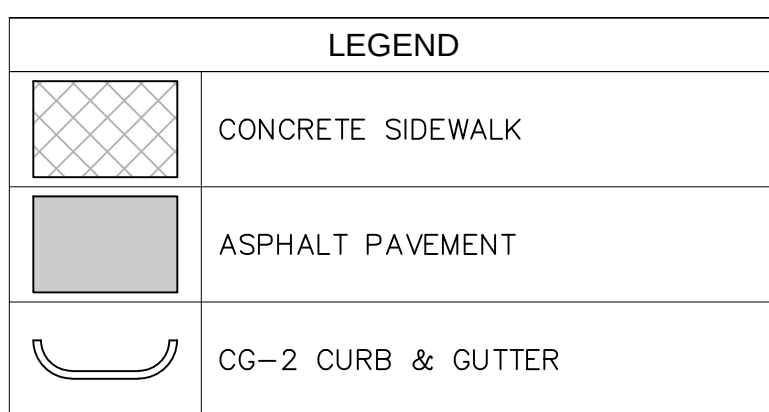
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checked by: \_\_\_\_\_ J.E.S.  
designed by: \_\_\_\_\_ S.M.S.  
QA/QC by: \_\_\_\_\_ M.G.B.  
project no.: A18-1140  
date: 2019.03.12

SHEET  
C118

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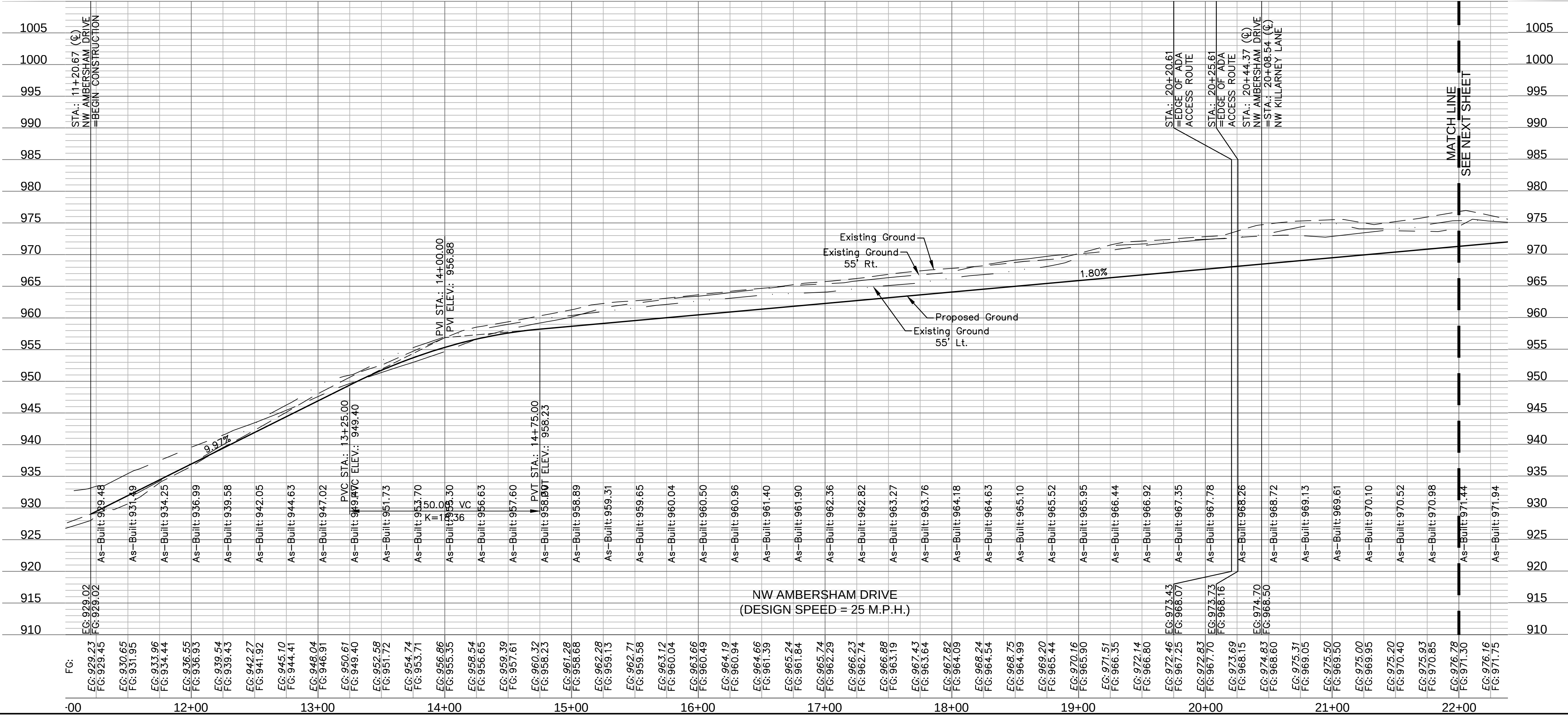
NO. 001801 of Authority # 001892  
300 HURDIS STREET, SUITE 100  
NORTH KANSAS CITY, MO 64116  
TEL. 816.861.1177  
WWW.OLSSON.COM



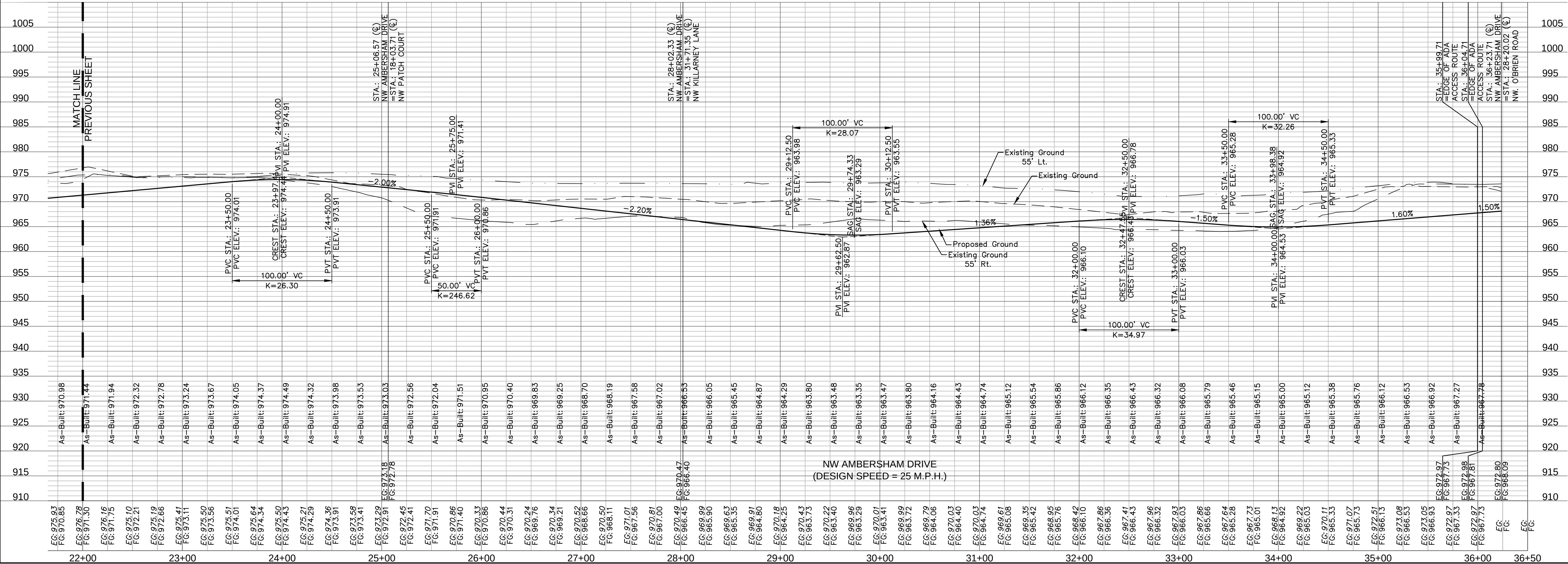
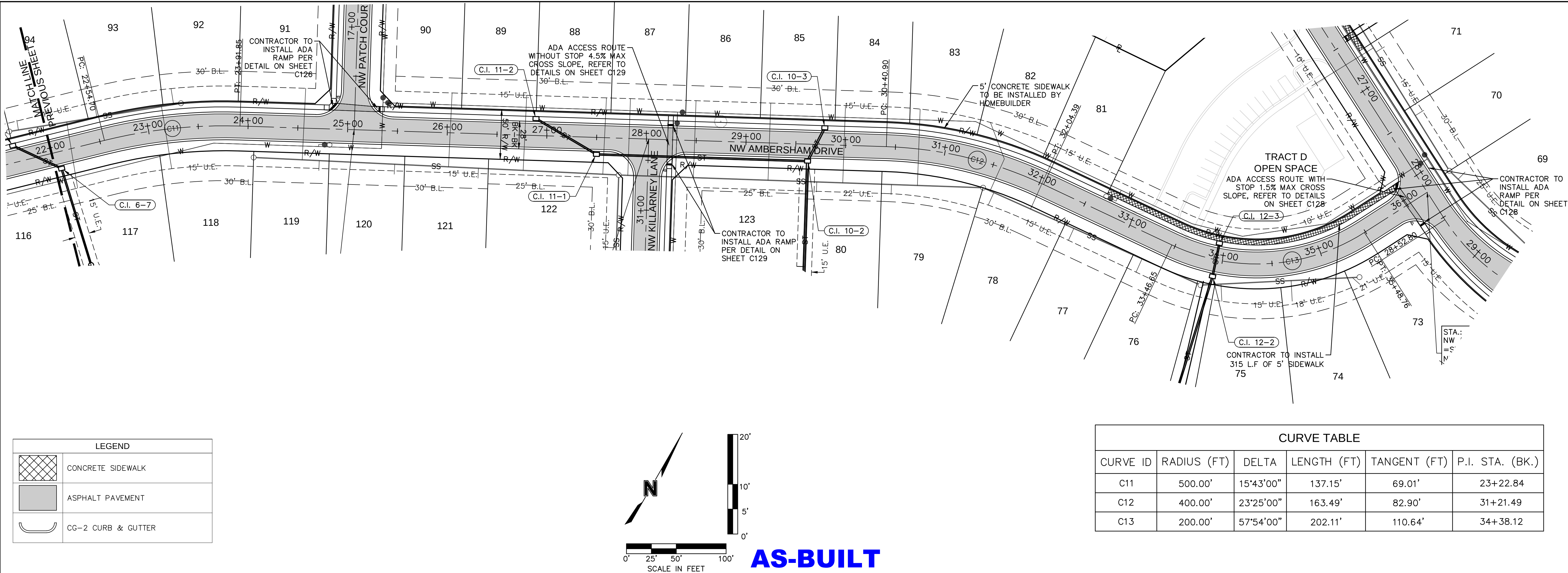


## AS-BUILT

| CURVE ID | RADIUS (FT) | DELTA     | LENGTH (FT) | TANGENT (FT) | P.I. STA. (BK.) |
|----------|-------------|-----------|-------------|--------------|-----------------|
| C8       | 200.00'     | 48°10'10" | 168.14'     | 89.40'       | 13+11.77        |
| C9       | 300.00'     | 37°54'40" | 146.14'     | 74.55'       | 14+72.76        |
| C10      | 500.00'     | 23°54'20" | 208.62'     | 105.85'      | 19+68.41        |







BY

NO. REV.

DATE

REVISIONS DESCRIPTION

STATE OF MISSOURI

JULIE ELAINE SELLERS

NUMBER

PE 2017000367

11/1/2020

PROFESSIONAL ENGINEER

ROADWAY PLAN & PROFILE

STREET & STORM SEWER PLANS

WOODSIDE RIDGE

FIRST PLAT

LEE'S SUMMIT, MO

2019

drawn by:

checked by:

designed by:

QA/QC by:

project no.:

date:

DA.H.O.

J.E.S.

S.M.S.

M.G.B.

A18-1140

2019.03.12

SHEET

C120

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NSC Consultants of Arkansas, Inc. 001892

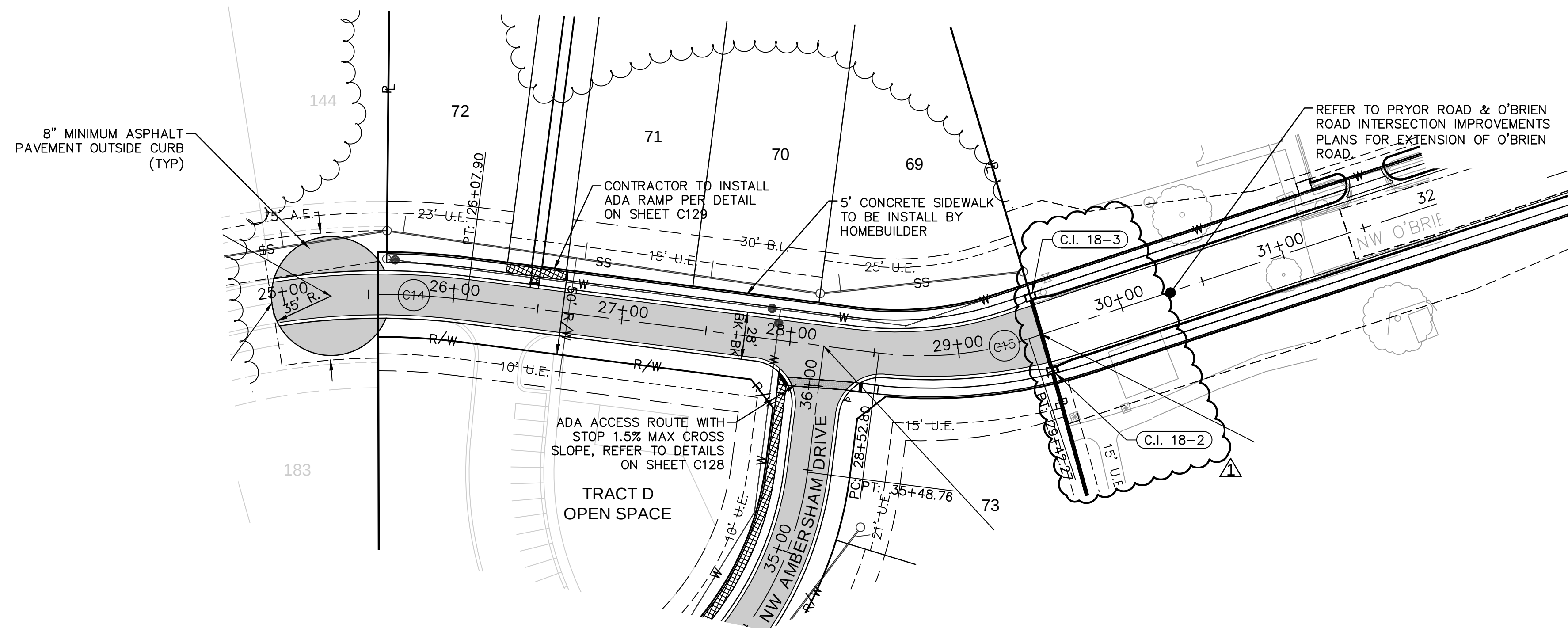
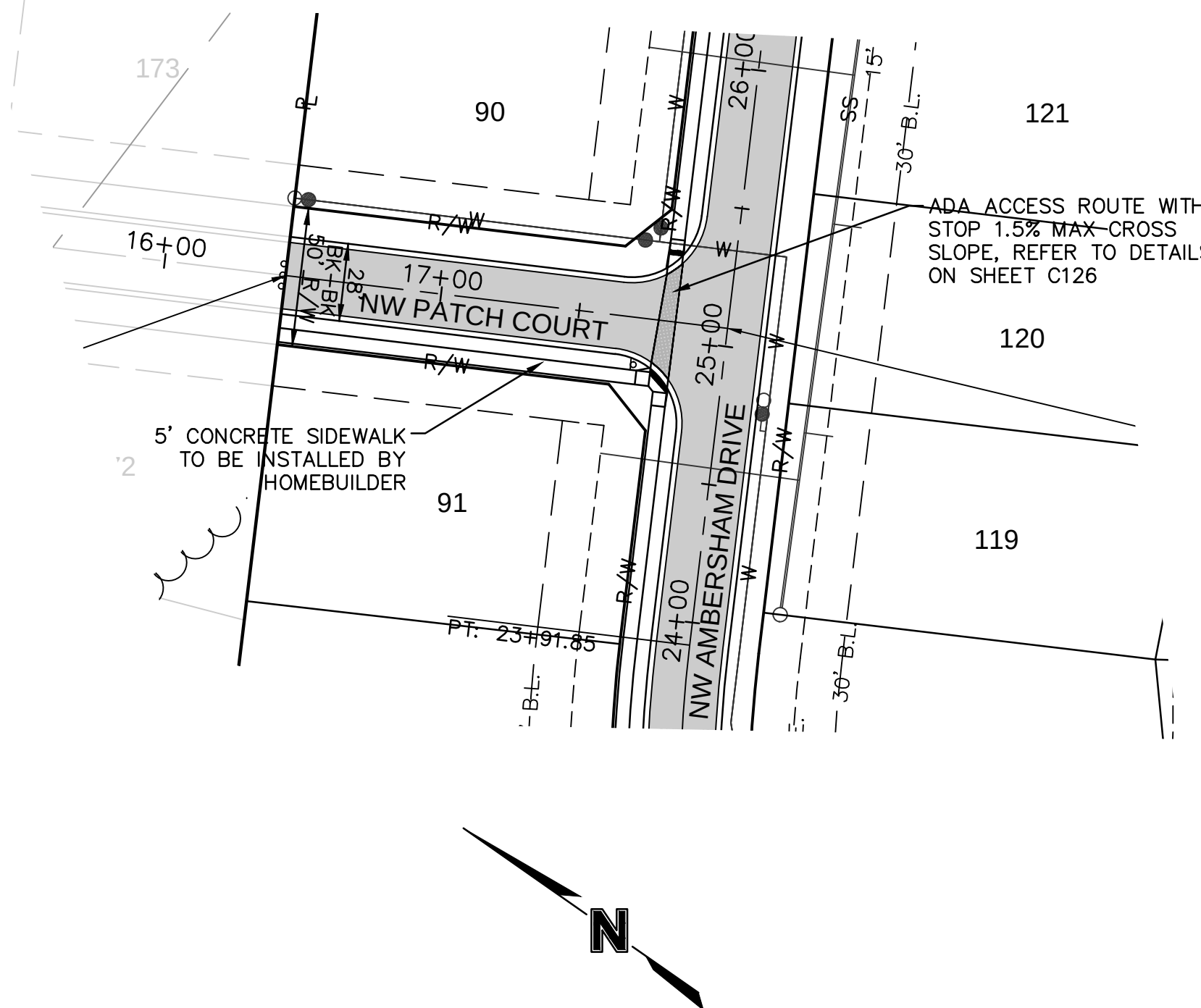
3001 BIRCHWOOD DRIVE, SUITE 100

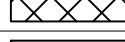
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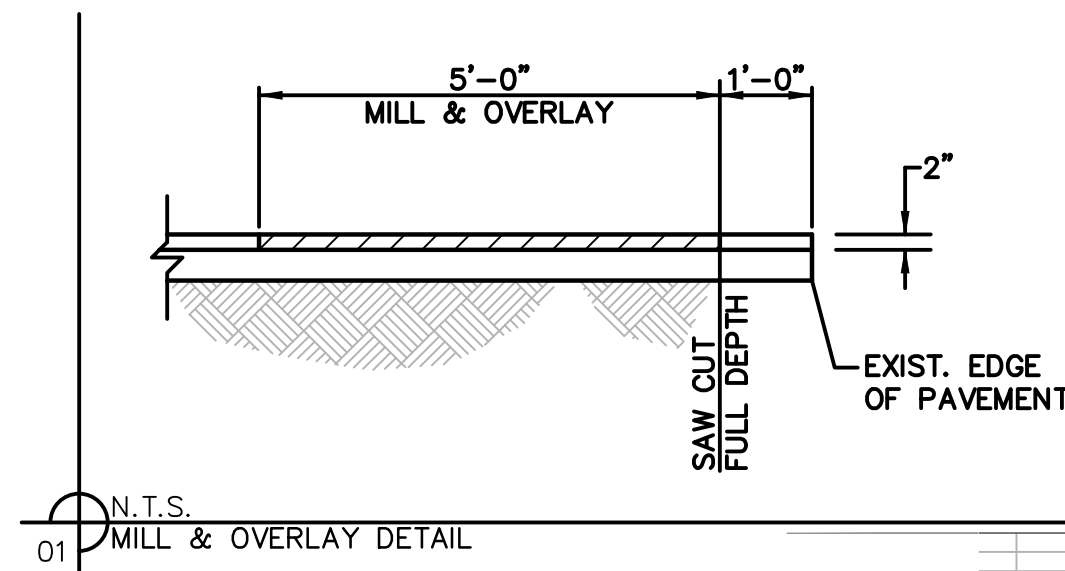
TEL 816.861.1177

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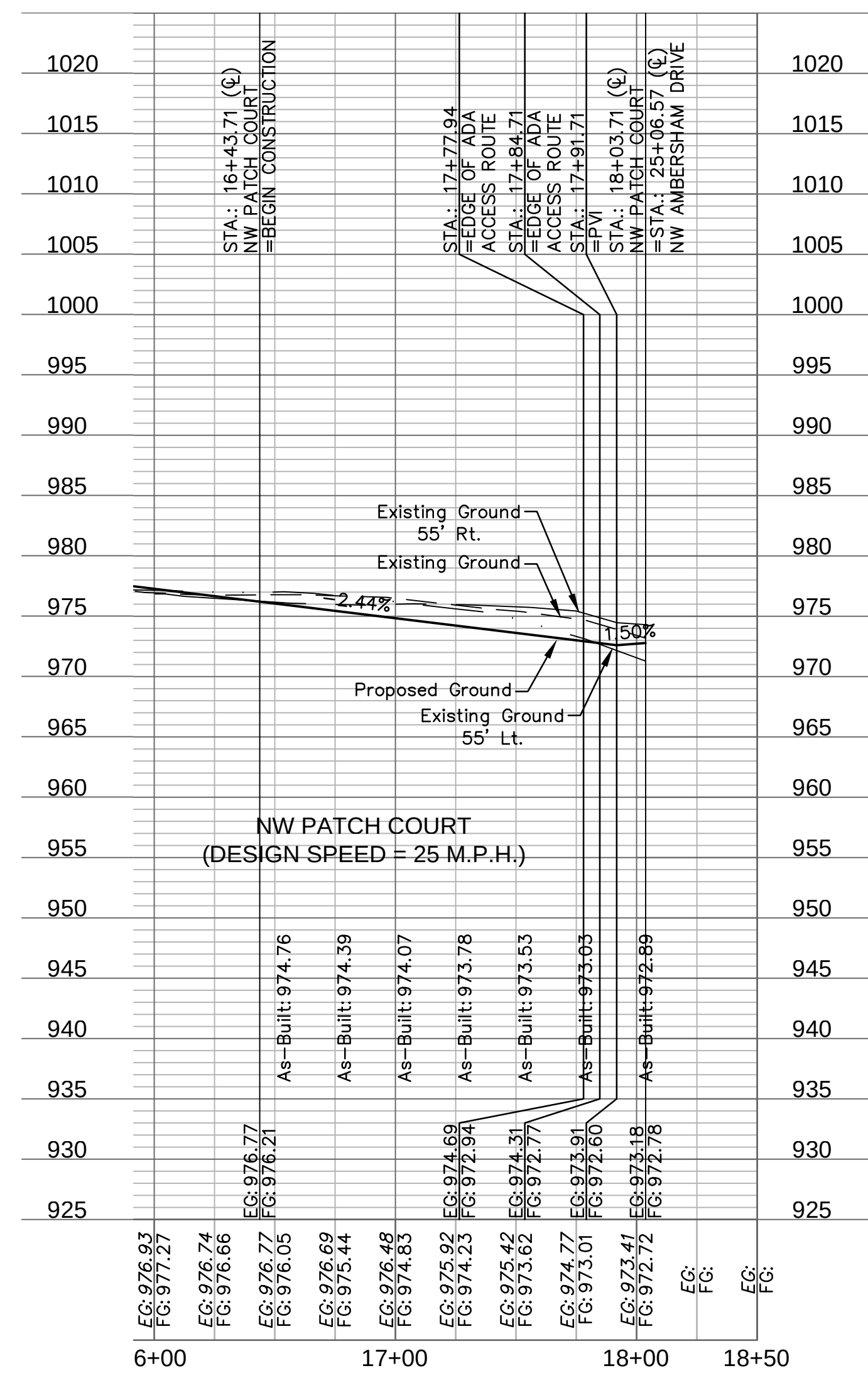




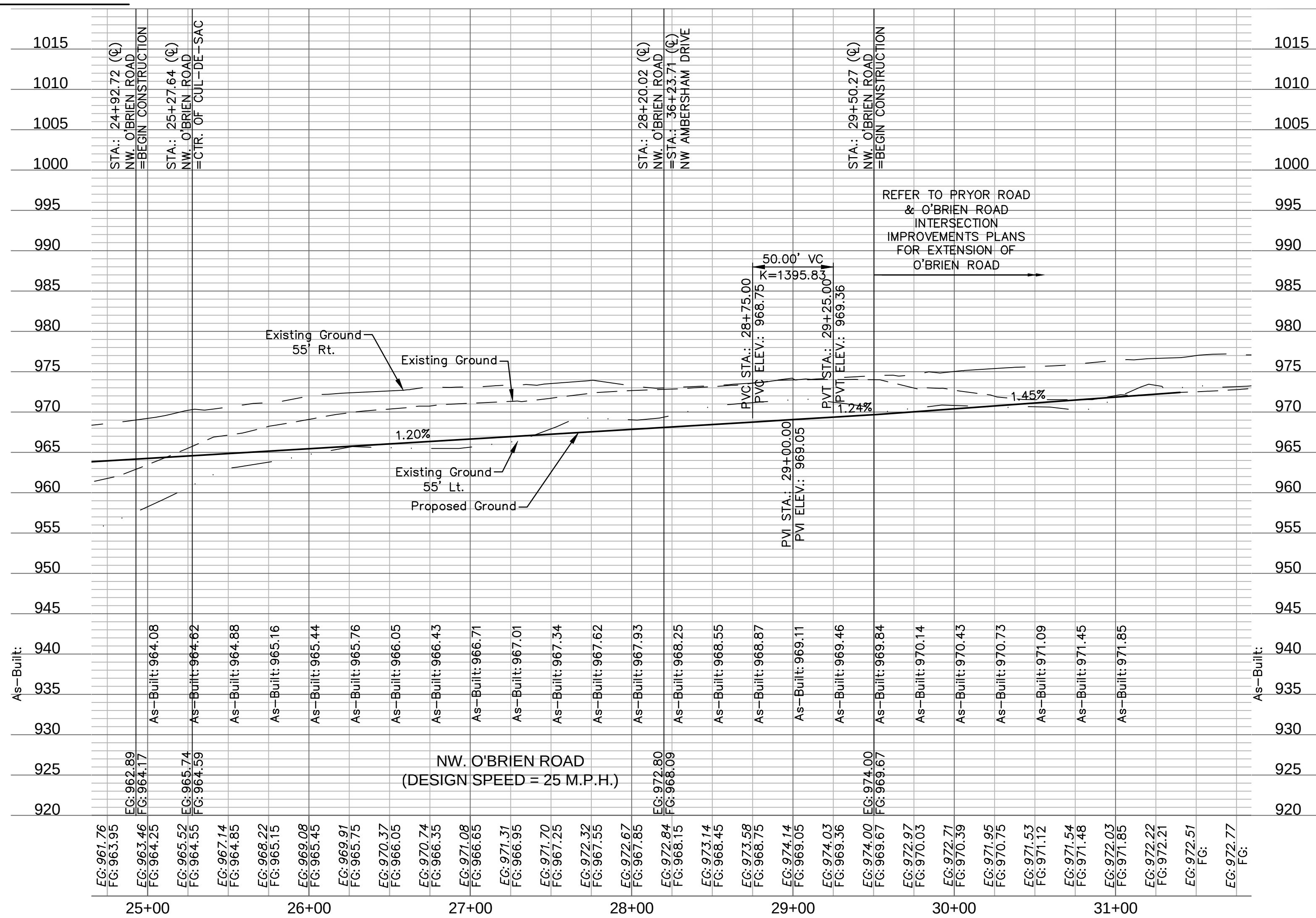
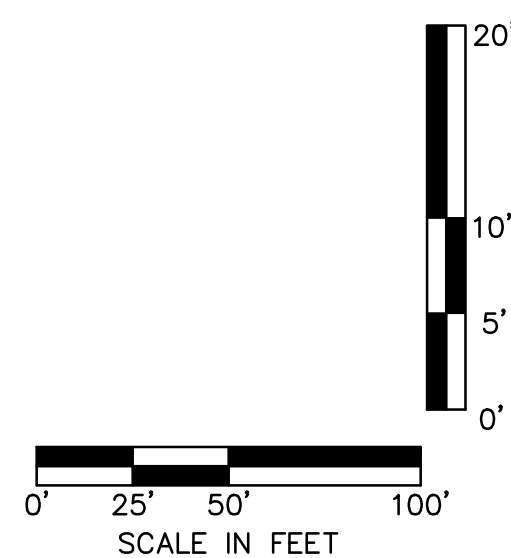
| LEGEND                                                                            |                    |
|-----------------------------------------------------------------------------------|--------------------|
|  | CONCRETE SIDEWALK  |
|  | ASPHALT PAVEMENT   |
|  | CG-2 CURB & GUTTER |



| CURVE TABLE |             |           |             |              |                 |           |
|-------------|-------------|-----------|-------------|--------------|-----------------|-----------|
| CURVE ID    | RADIUS (FT) | DELTA     | LENGTH (FT) | TANGENT (FT) | P.I. STA. (BK.) | P.C. STA. |
| C14         | 400.00'     | 48°43'10" | 340.13'     | 181.11'      | 24+26.79        | 22+20.32  |
| C15         | 200.00'     | 24°58'10" | 87.16'      | 44.28'       | 28+95.68        |           |

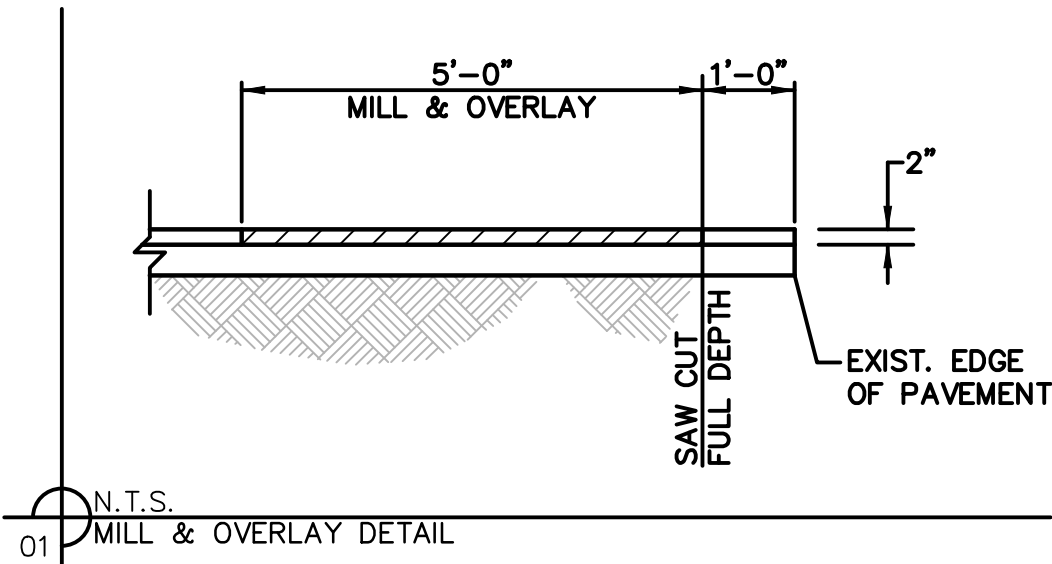
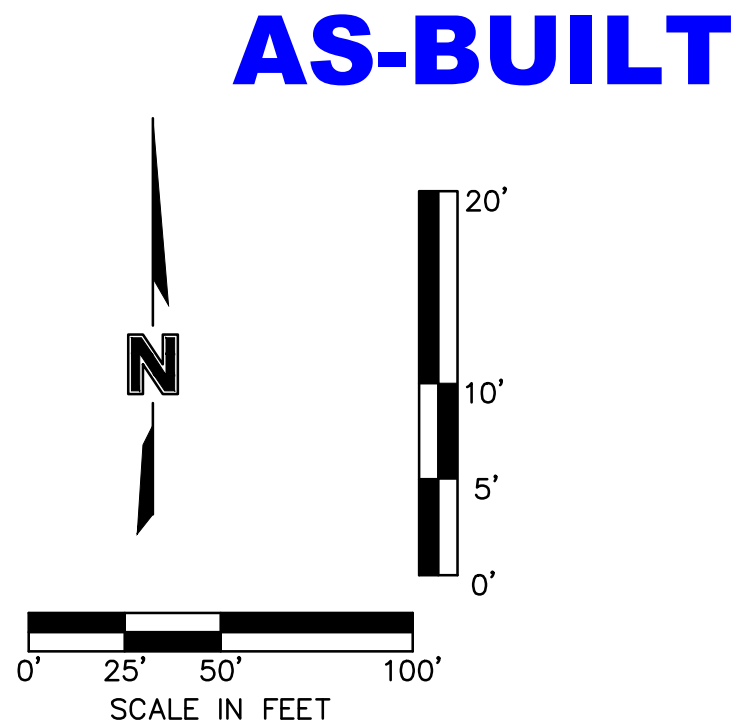


## AS-BUILT

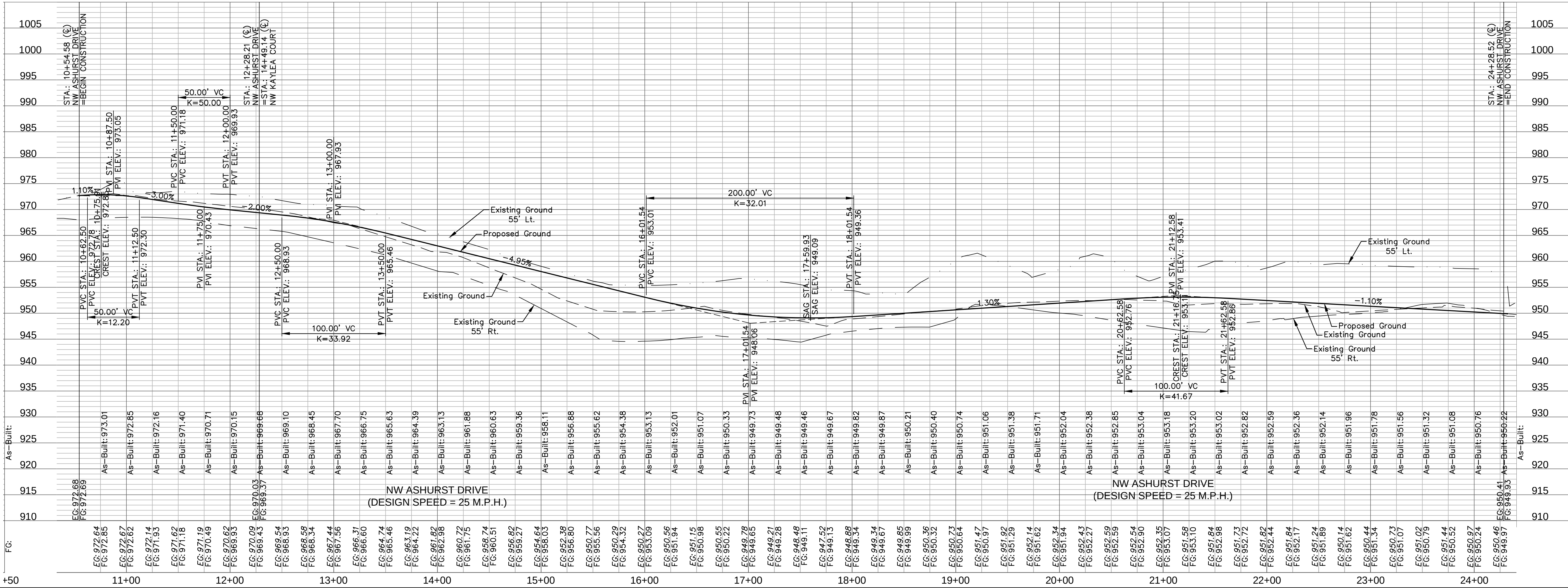




| LEGEND |                    |
|--------|--------------------|
|        | CONCRETE SIDEWALK  |
|        | ASPHALT PAVEMENT   |
|        | CG-2 CURB & GUTTER |



| CURVE TABLE |             |           |             |              |                 |
|-------------|-------------|-----------|-------------|--------------|-----------------|
| CURVE ID    | RADIUS (FT) | DELTA     | LENGTH (FT) | TANGENT (FT) | P.I. STA. (BK.) |
| C16         | 200.00'     | 21°42'50" | 75.80'      | 38.36'       | 10+95.52        |
| C17         | 200.00'     | 19°35'00" | 68.36'      | 68.36'       | 11+33.88        |
| C18         | 200.00'     | 42°29'30" | 148.32'     | 77.76'       | 16+36.36        |
| C19         | 200.00'     | 43°36'10" | 152.20'     | 80.00'       | 17+86.33        |



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NSO Corporation of America #031892  
300 HURDIS STREET, SUITE 100  
NORTH KANSAS CITY, MO 64116  
TEL 816.961.1177  
www.olson.com

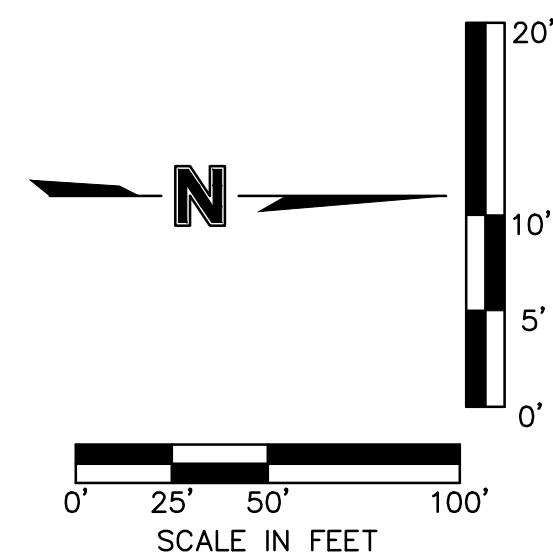
STATE OF MISSOURI  
JULIE ELAINE SELLERS  
Professional Engineer  
NUMBER  
PE-2017000367  
11/1/2020

BY  
REVISIONS DESCRIPTION  
NO. REV. DATE  
2019

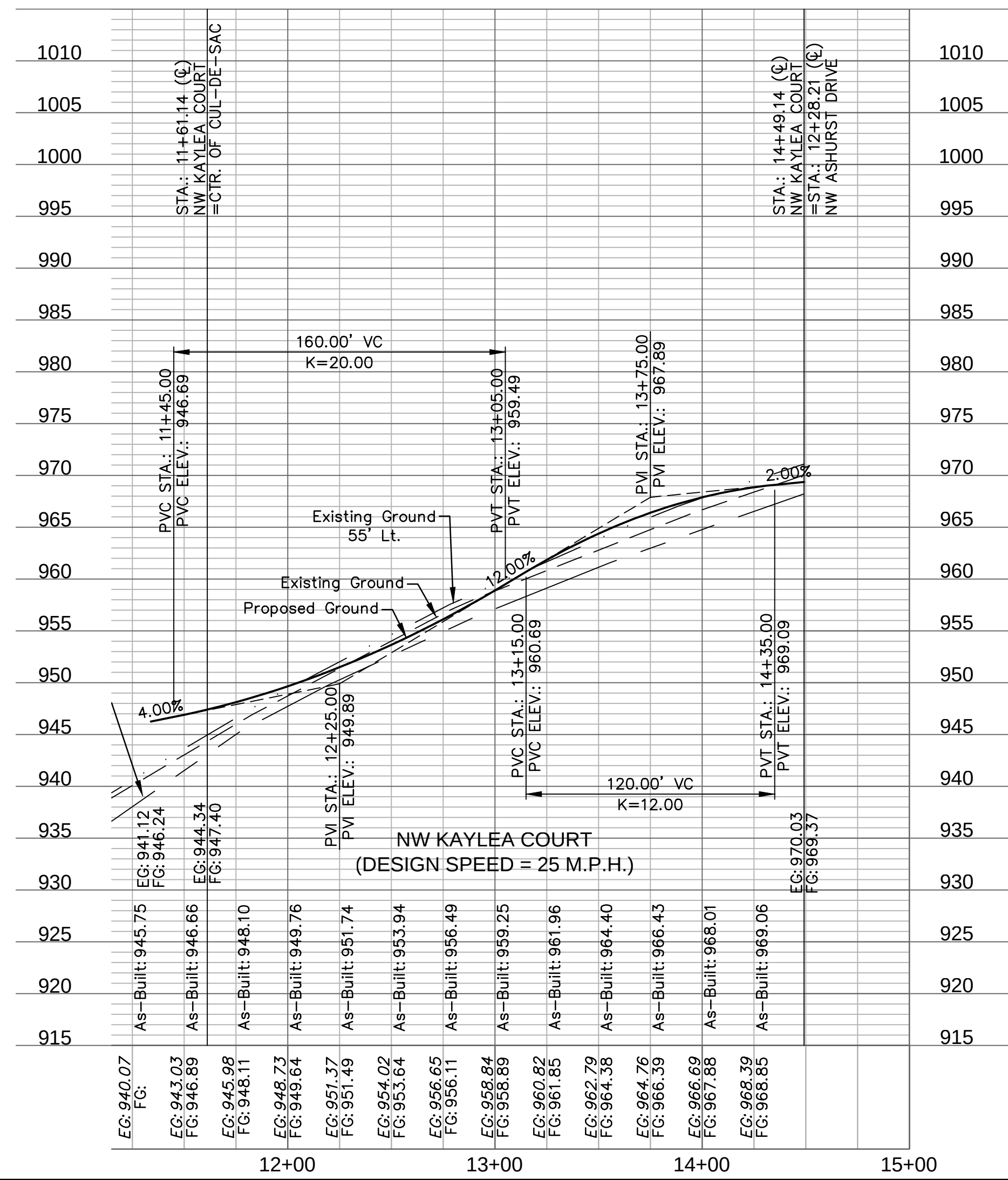
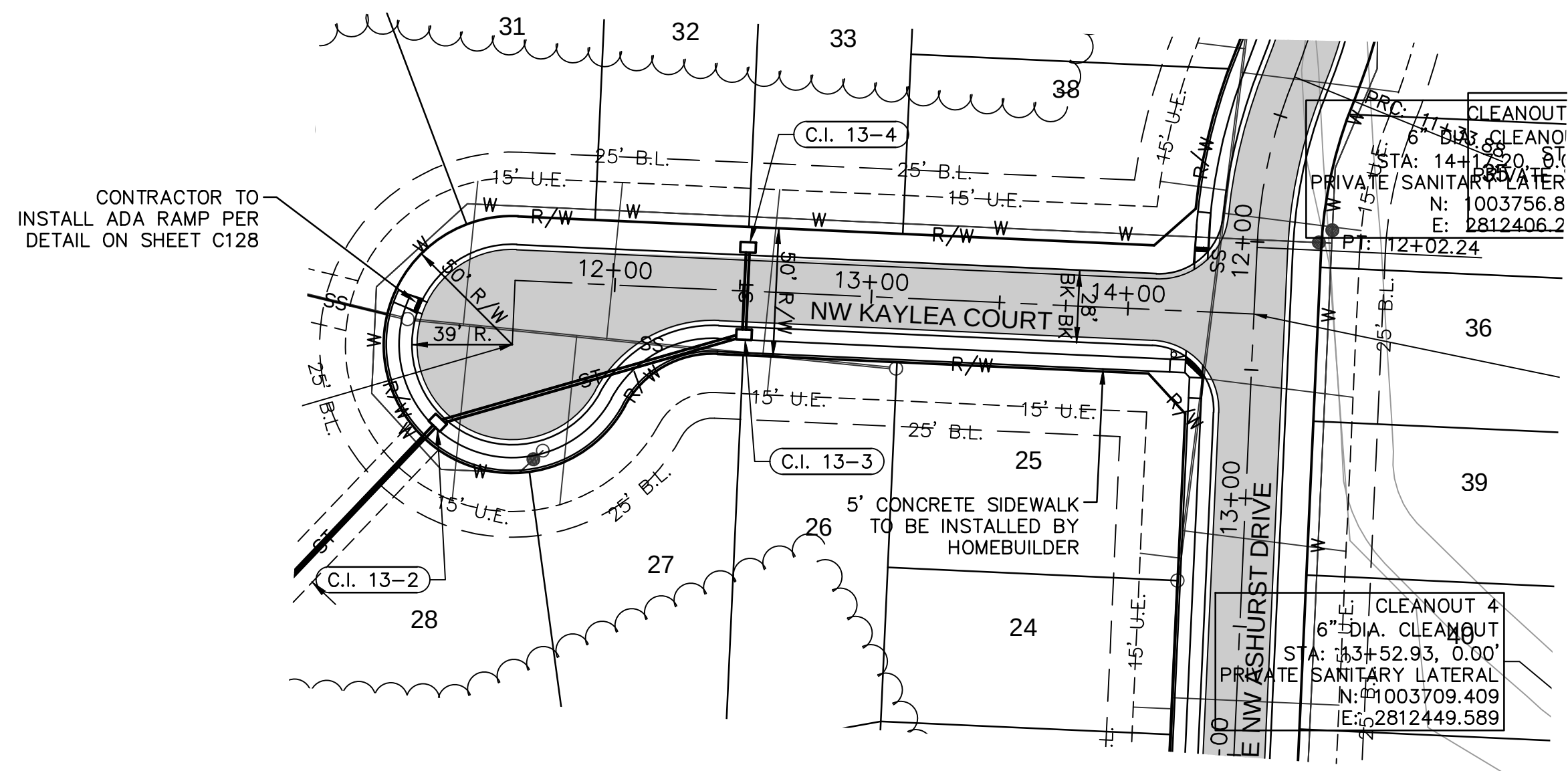
ROADWAY PLAN & PROFILE  
STREET & STORM SEWER PLANS  
WOODSIDE RIDGE  
FIRST PLAT  
LEE'S SUMMIT, MO

SHEET  
C122





## AS-BUILT



| LEGEND                                                                            |                    |
|-----------------------------------------------------------------------------------|--------------------|
|  | ASPHALT PAVEMENT   |
|  | CG-2 CURB & GUTTER |

|                                                                                                                                                                       |                                                      |  |             |           |                       |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|--|-------------|-----------|-----------------------|----|
| drawn by: _____ D.A.H.Q.<br>checked by: _____ J.E.S.<br>designed by: _____ S.M.S.<br>O&QC by: _____ M.G.D.<br>project no.: _____ A318-11463<br>date: _____ 2019.03.12 | ROADWAY PLAN & PROFILE<br>STREET & STORM SEWER PLANS |  | NO.<br>REV. | DATE      | REVISIONS DESCRIPTION | BY |
|                                                                                                                                                                       | WOODSIDE RIDGE<br>FIRST PLAT                         |  |             |           |                       |    |
|                                                                                                                                                                       |                                                      |  |             |           |                       |    |
|                                                                                                                                                                       |                                                      |  |             |           |                       |    |
|                                                                                                                                                                       |                                                      |  |             |           |                       |    |
|                                                                                                                                                                       | LEE'S SUMMIT, MO                                     |  | 2019        | REVISIONS |                       |    |

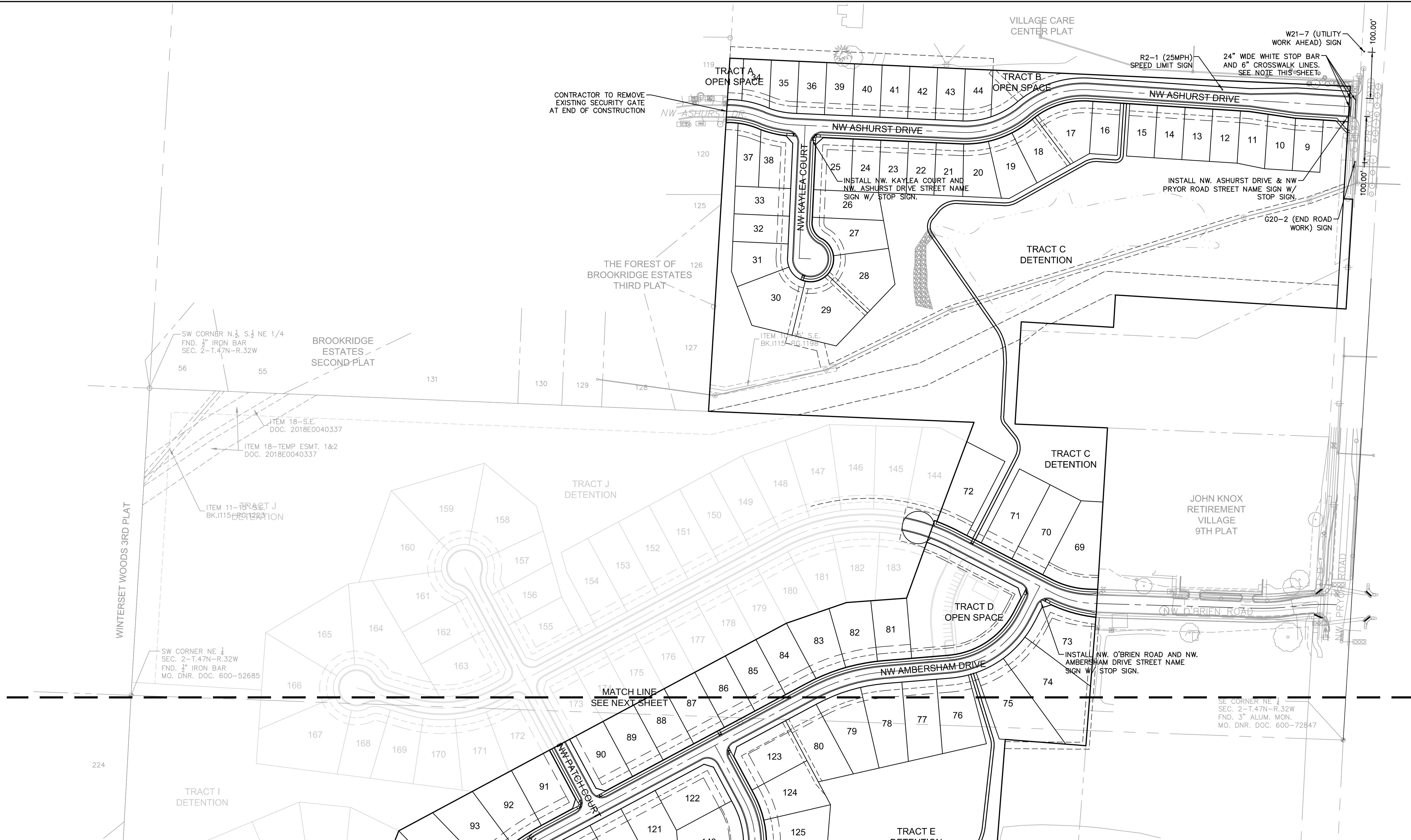
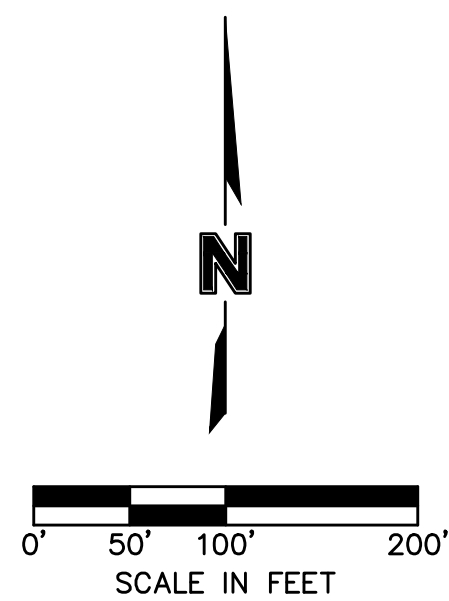


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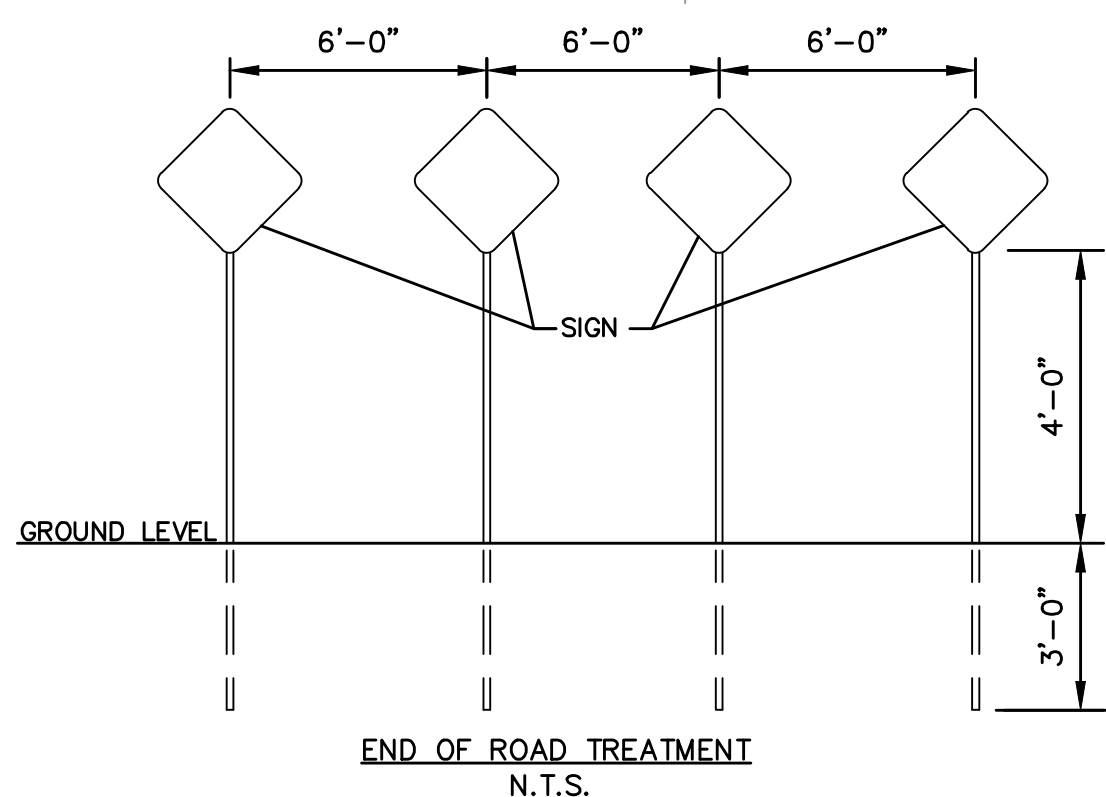
MO Certificate of Authority #:001592  
1301 BURLINGTON, SUITE 100  
NORTH KANSAS CITY, MO 64116  
TEL 816.361.1177  
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DWG: F:\2018\1001-1500\018-1140-A\40-Design\AutoCAD\Final Plans\Sheets\GNV\01\_Street & Storm\_36-24\C-TRF01\_1140A.dwg  
DATE: May 16, 2019 8:24am  
USER: ssaylor



NOTE: THE CROSSWALK AND STOP LINES SHALL BE PREFORMED THERMOPLASTIC MATERIAL AND LOCATED IN CONFORMANCE WITH STANDARD DETAILS AND MUTCD WITH 4' OF SEPARATION AND CONSISTENT PARALLEL WIDTH. CROSSWALK LINES SHALL BE 10' APART MATCHING THE WIDTH OF THE SHARED-USE PATH.



NOT AS-BUILT

STATE OF MISSOURI  
JULIE ELAINE SELLERS  
NUMBER PE-2017000367  
11/1/2020  
PROFESSIONAL ENGINEER

|                           |                 |
|---------------------------|-----------------|
| BY                        |                 |
| NO. REV.                  | 03/12/2019<br>A |
| DATE                      | 03/12/2019      |
| REVISED PER CITY COMMENTS |                 |
| REVISED PER CITY COMMENTS |                 |
| REVISIONS DESCRIPTION     |                 |
| REVISIONS                 |                 |

TRAFFIC CONTROL PLAN  
STREET & STORM SEWER PLANS

WOODSIDE RIDGE  
FIRST PLAT

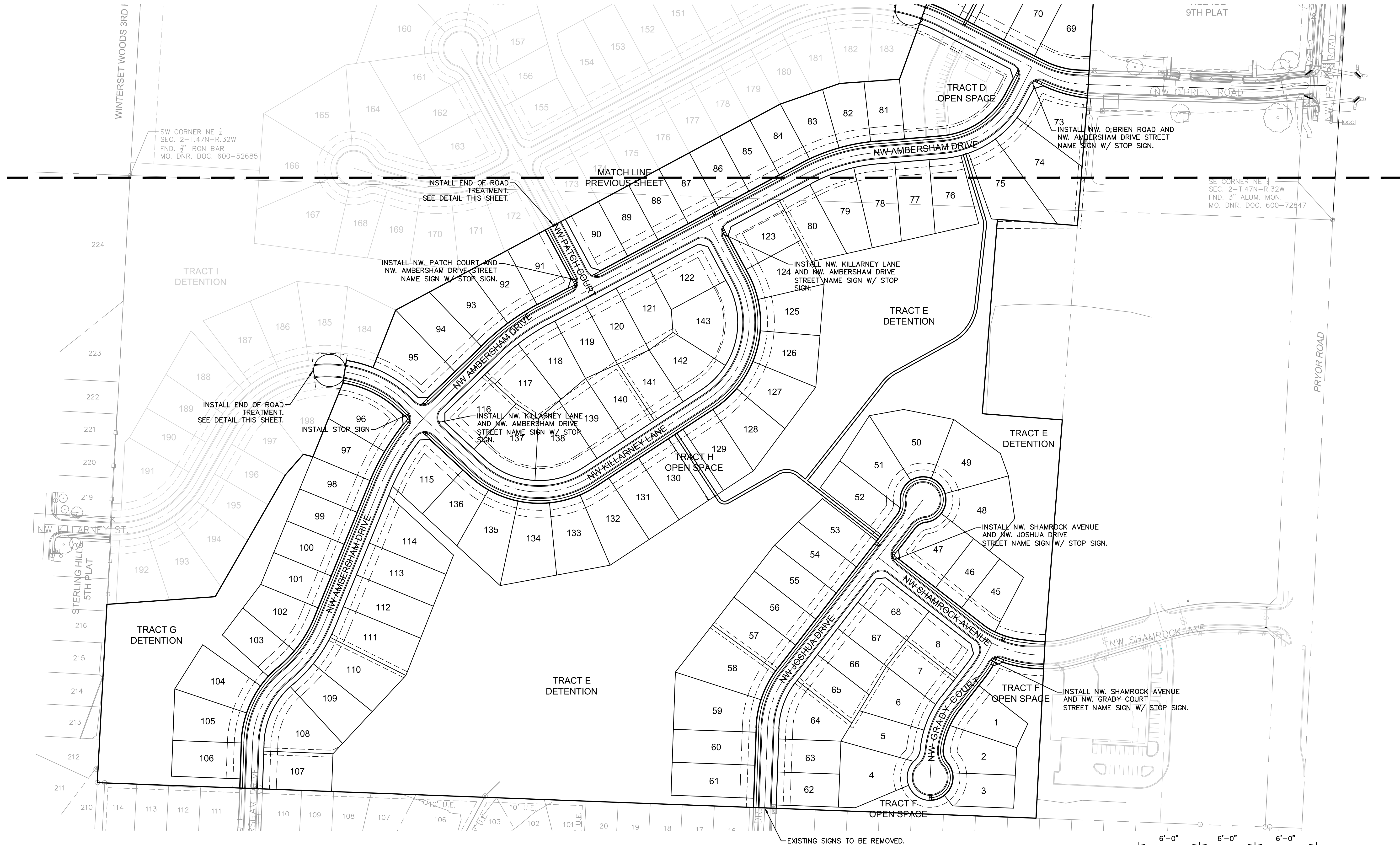
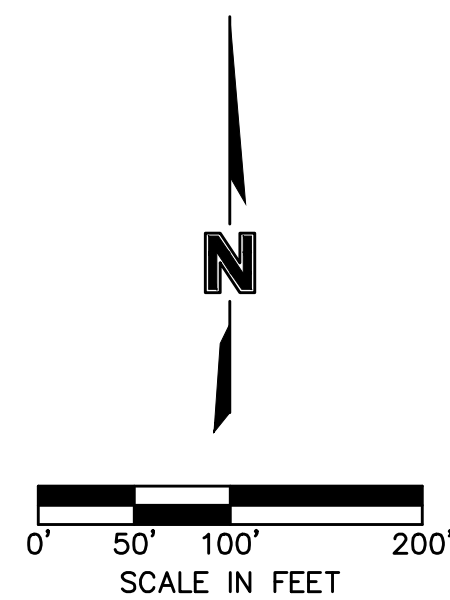
LEE'S SUMMIT, MO

drawn by: D.A.H.Q.  
checked by: J.E.S.  
designed by: S.M.S.  
QA/QC by: M.G.D.  
project no.: A18-1140  
date: 2019.03.12

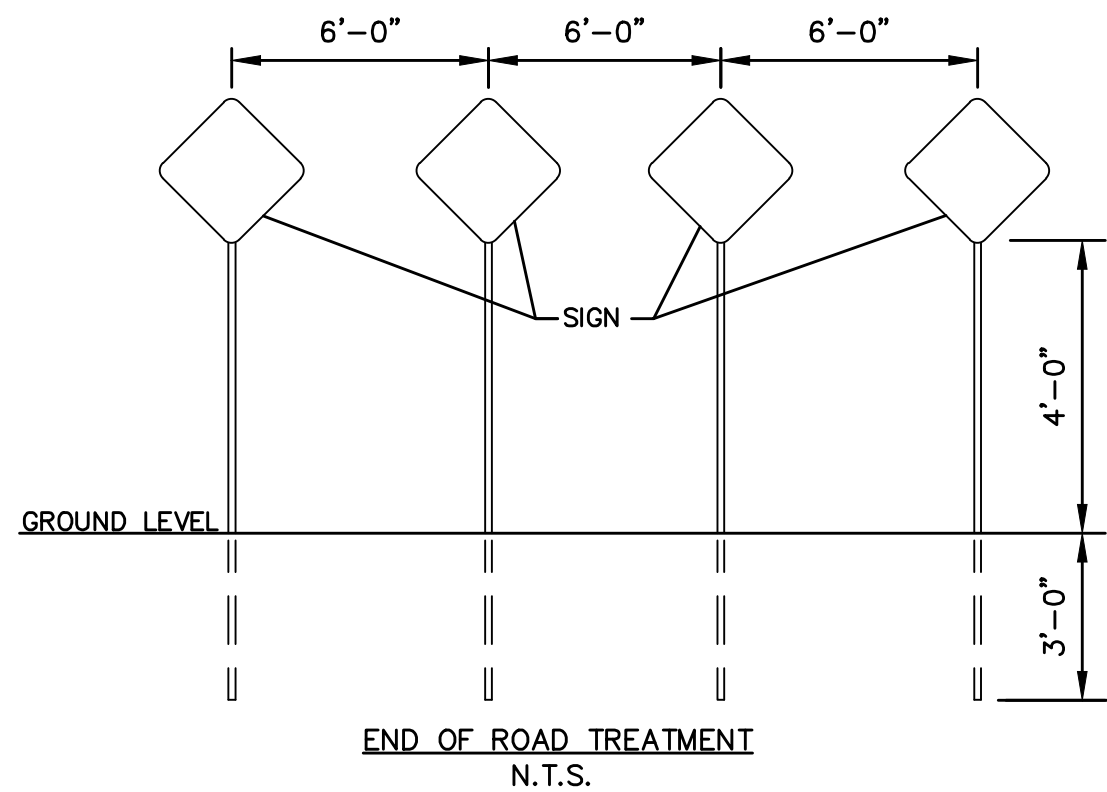
SHEET  
C124



DWG: F:\2018\1001-1500\018-1140-A\40-Design\AutoCAD\Final Plans\Sheets\GNCV\01\_Street & Storm\_36-24\G\_TRF01\_1140A.dwg  
DATE: Apr 04, 2019 1:58pm  
USER: ssaylor



NOT AS-BUILT



OBJECT MARKERS (TYPE OM4-3, 18"x18")  
ARE TO BE INSTALLED 2' FROM END OF  
PROPOSED PAVEMENT.

olsson

NO. 00000000 of Authority of 001002  
300 E. Main Street, Suite 100  
NORTH KANSAS CITY, MO 64116  
TEL. 816.861.1177  
www.olsson.com

STATE OF MISSOURI  
JULIE ELAINE  
SELLERS  
Professional Engineer  
NUMBER  
PE-2017000367  
11/1/2020

BY  
NO. REV.  
DATE  
REVISIONS DESCRIPTION

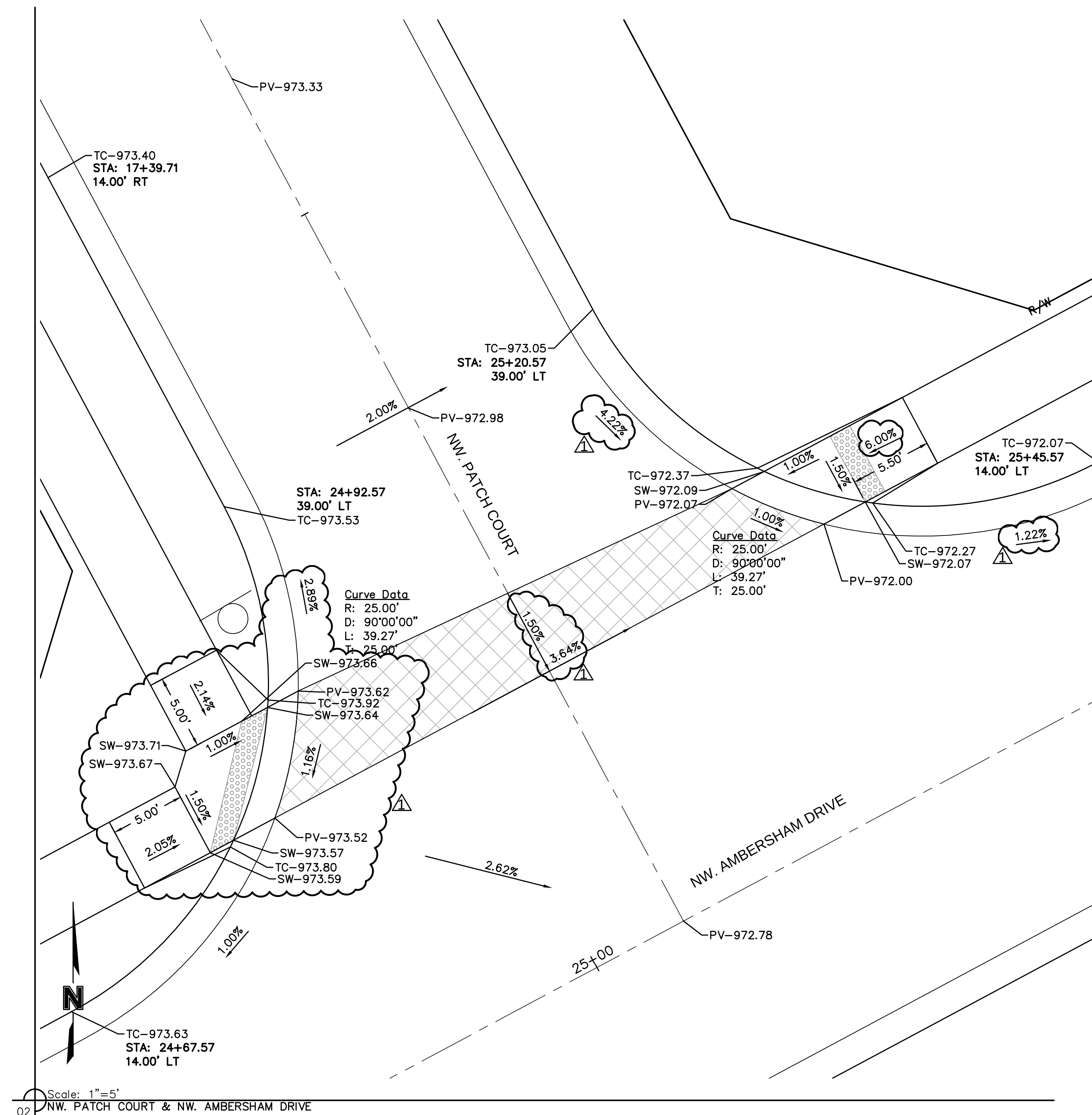
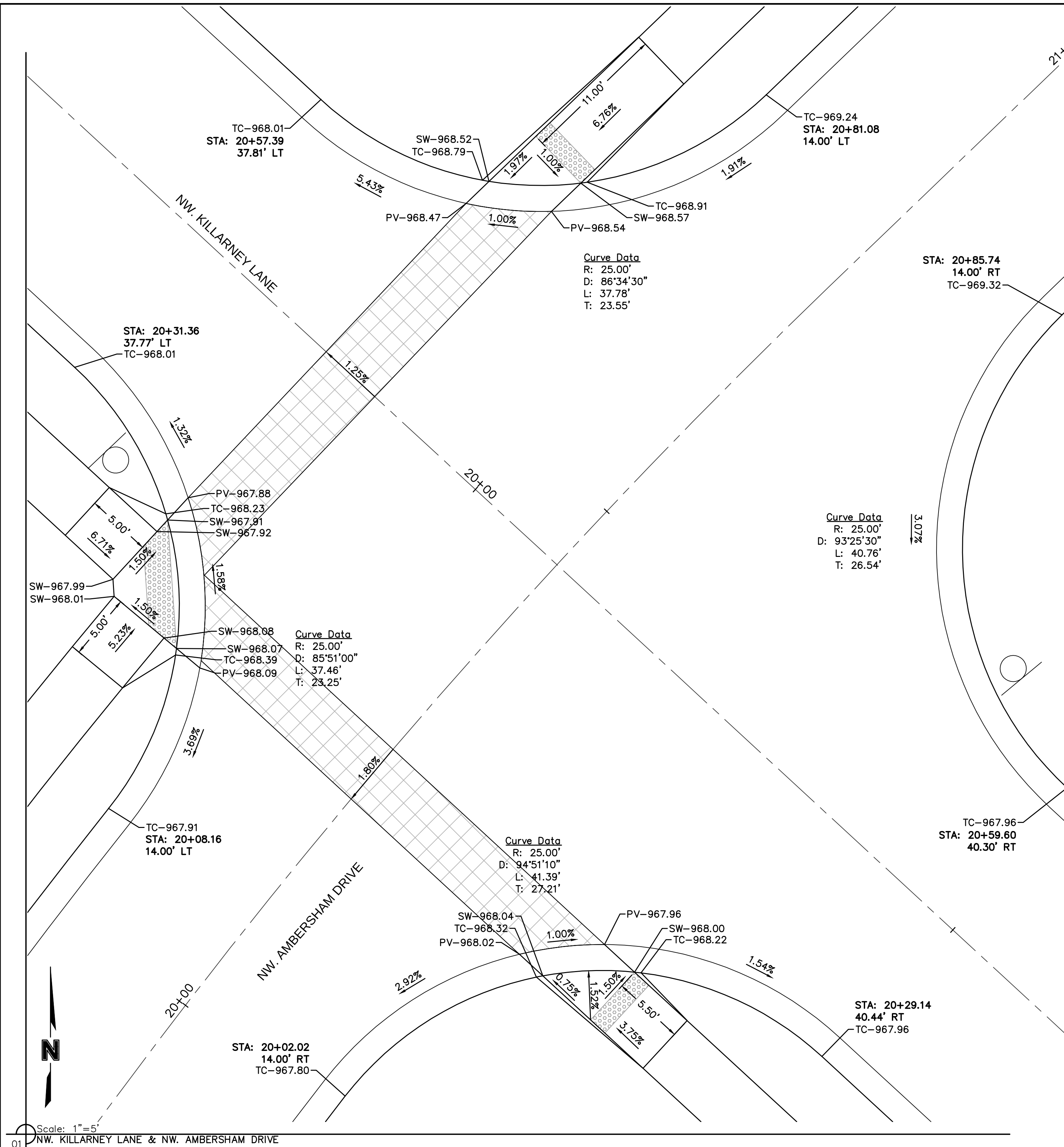
TRAFFIC CONTROL PLAN  
STREET & STORM SEWER PLANS  
WOODSIDE RIDGE  
FIRST PLAT  
LEE'S SUMMIT, MO

2019

drawn by: D.A.H.O.  
checked by: J.E.S.  
designed by: S.M.S.  
QA/QC by: M.G.D.  
project no.: A18-1140  
date: 2019.03.12

SHEET  
C125

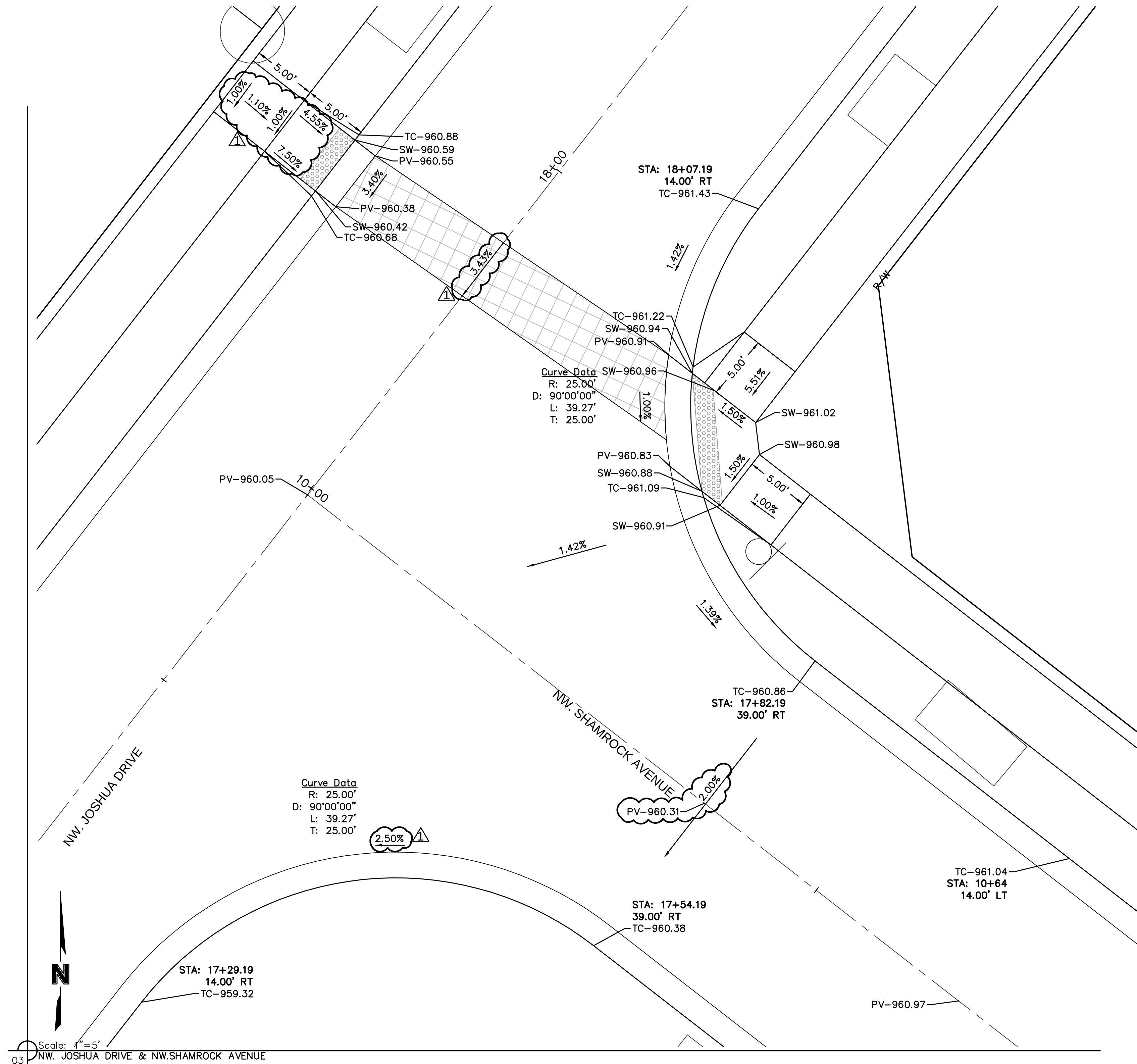
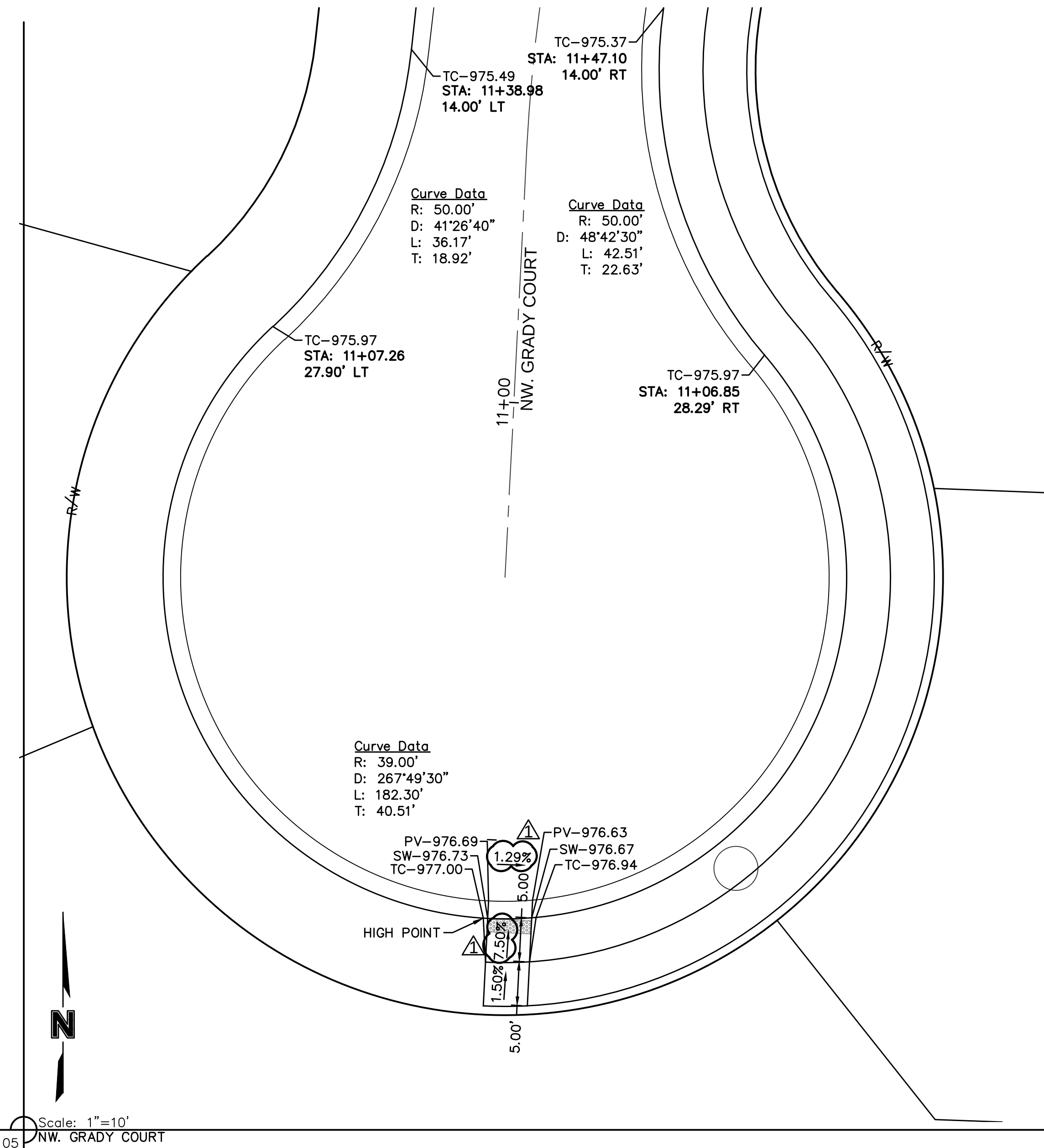




**NOT AS-BUILT**



## NOT AS-BUILT



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DATE: Apr 04, 2019 11:25am  
USER: ssaylor

## INTERSECTION DETAILS STREET & STORM SEWER PLANS

WOODSIDE RIDGE  
FIRST FLAT

LEE'S SUMMIT, MO

2019

REVISIONS

| NO.<br>REV. | DATE     | REVISIONS DESCRIPTION     | BY |
|-------------|----------|---------------------------|----|
| A           | 4/2/2019 | REVISED PER CITY COMMENTS |    |



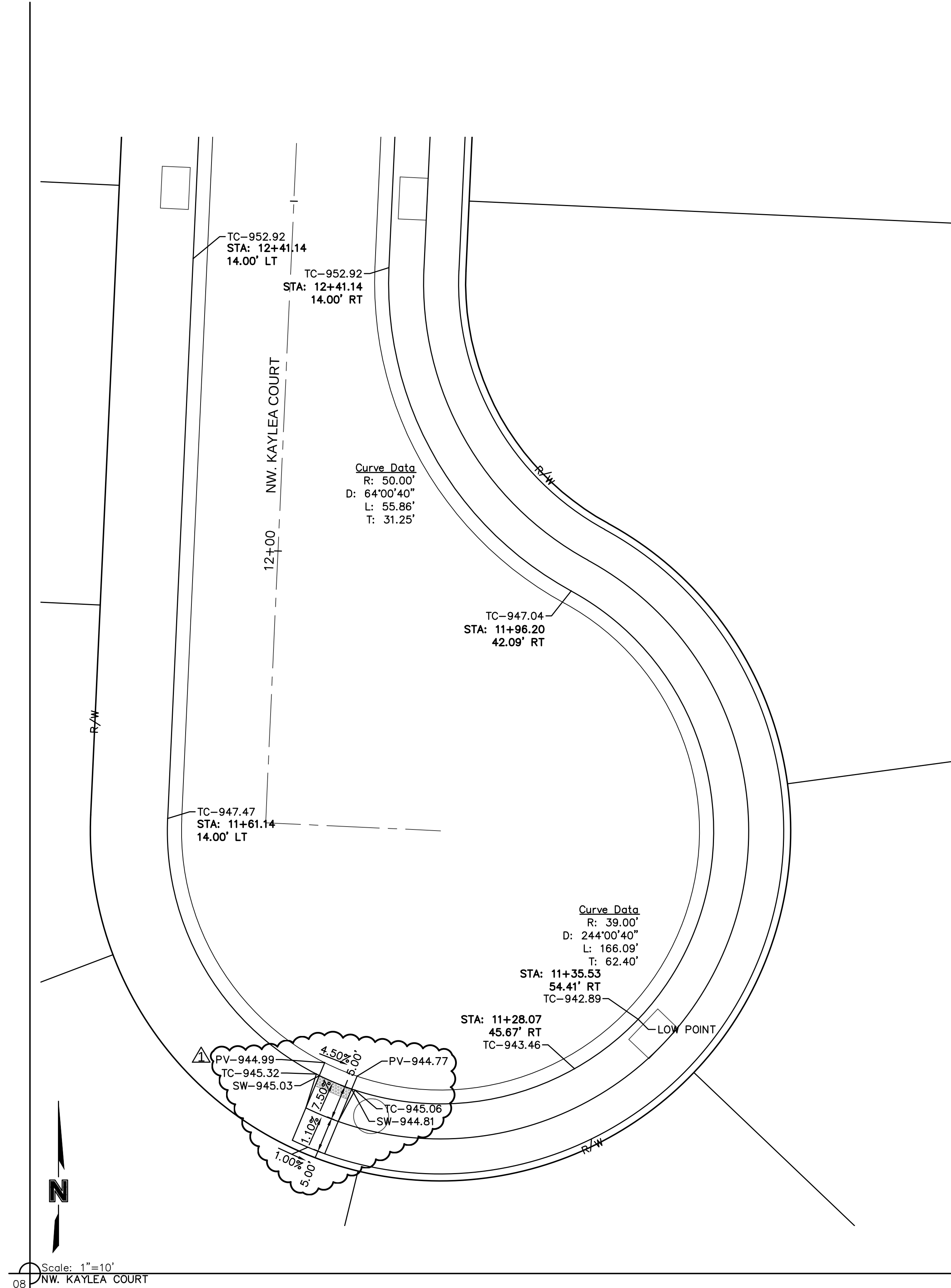
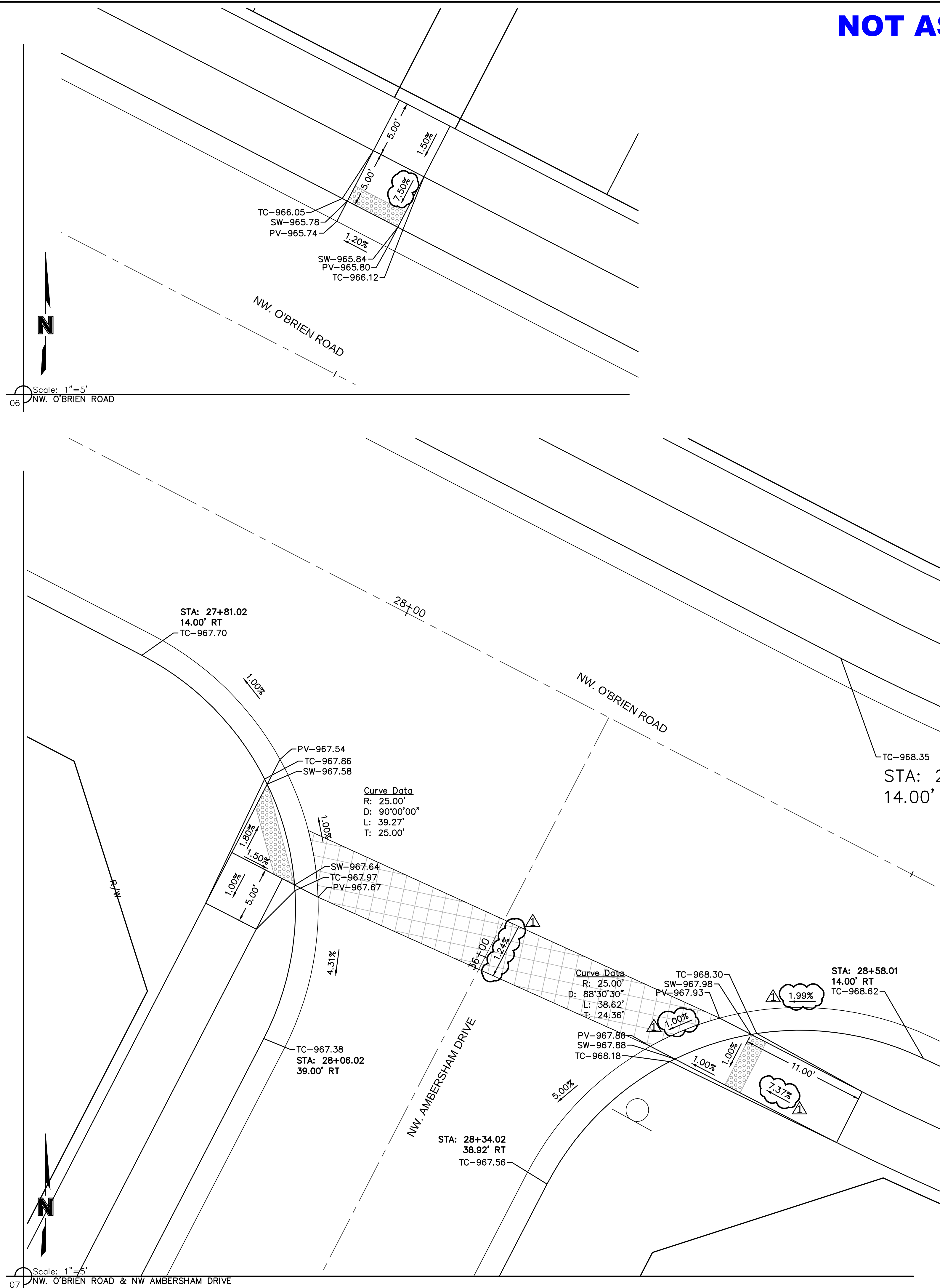
MO Certificate of Authority #:001592  
1301 BURLINGTON, SUITE 100  
NORTH KANSAS CITY, MO 64116  
TEL 816.361.1177  
www.olsson.com

SHEET  
C127

drawn by: D.A.H.O  
checked by: J.E.S  
designed by: S.M.S  
QA/QC by: M.G.D  
project no.: A18-1140  
date: 2019.03.12



**NOT AS-BUILT**



DWG: F:\2018\1001-1500\018-1140-A\40-Design\AutoCAD\Final Plans\Sheets\GNC\01\_Street & Storm\_36x24\C\_SPT01\_1140A.dwg  
DATE: Apr 04, 2019 11:26am  
USER: ssaylor

**olson**

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NORTH KANSAS CITY, MO 64116  
TEL 816.361.1177  
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[illegible]

## INTERSECTION DETAILS

### STREET & STORM SEWER PLANS

WOODSIDE RIDGE  
FIRST PLAT

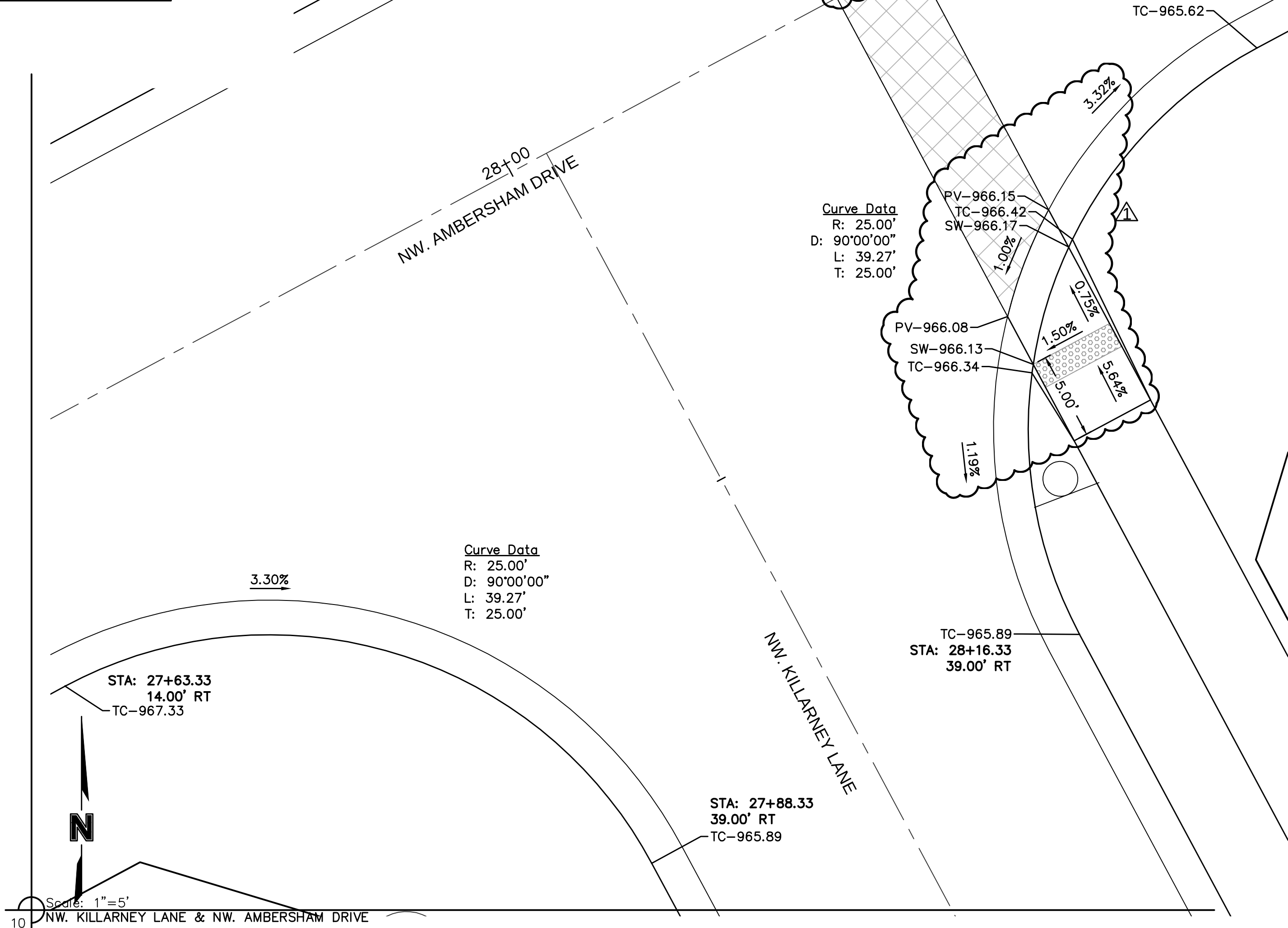
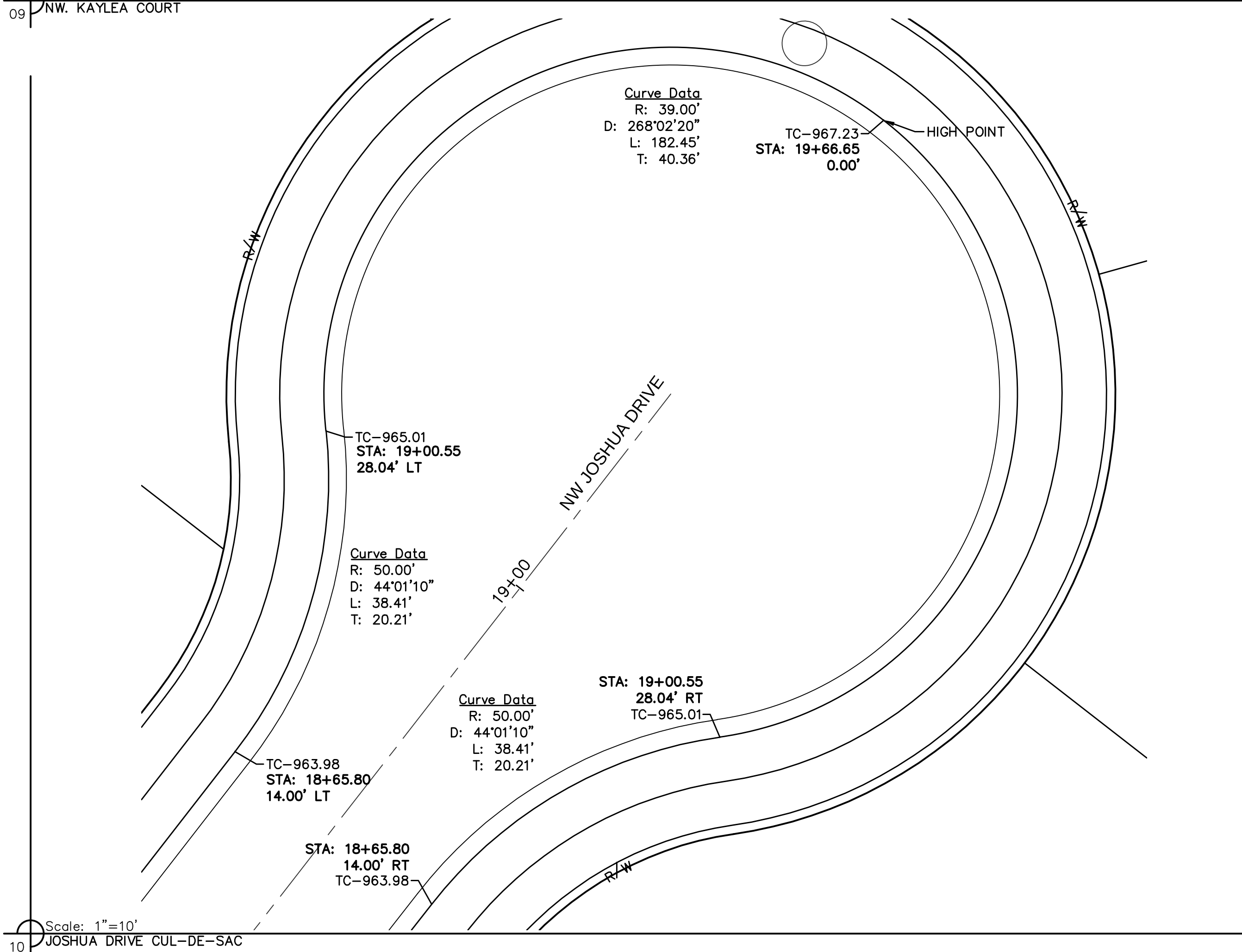
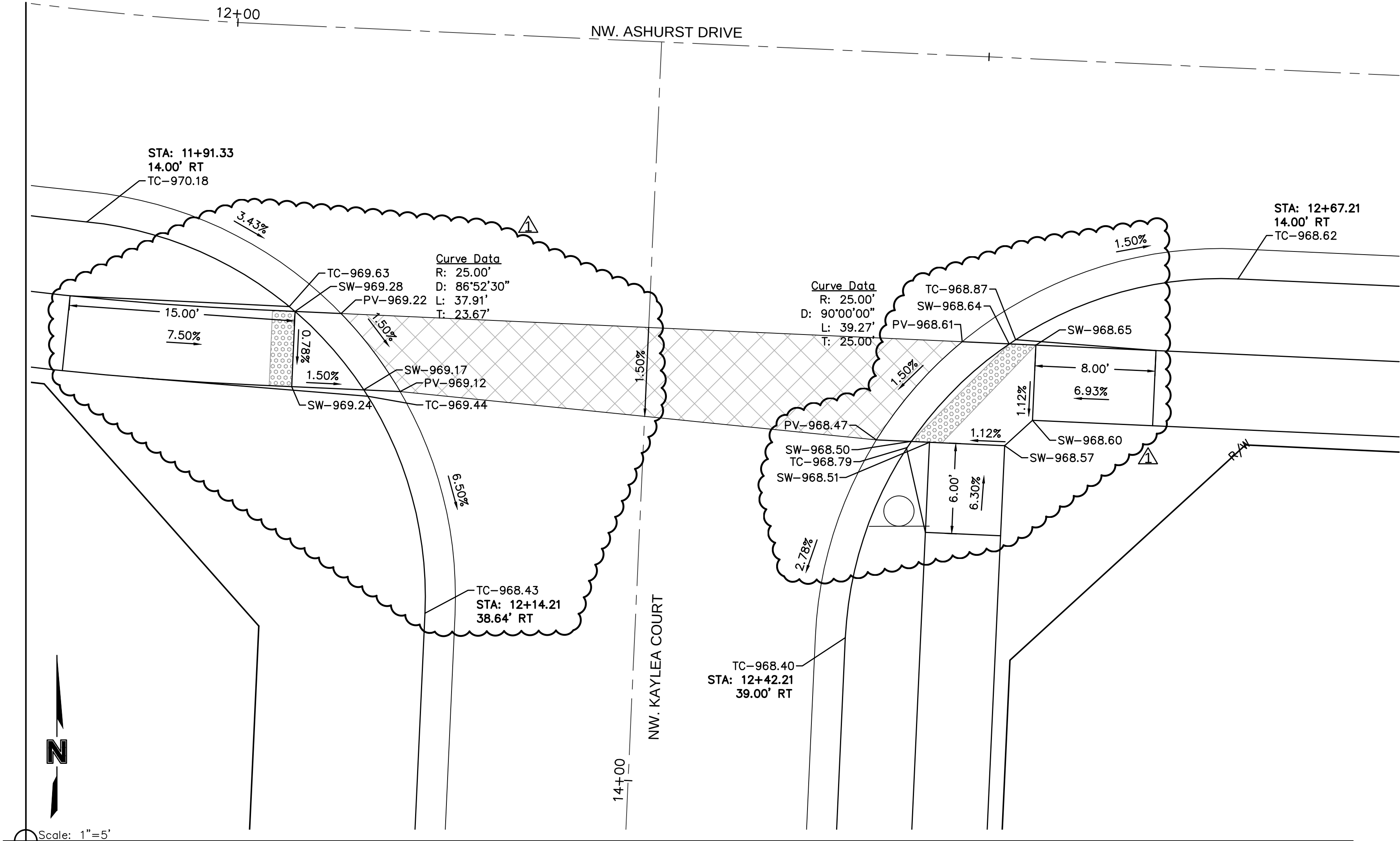
LEE'S SUMMIT, MO

Drawn by: D.A.H.O  
 Checked by: J.E.S  
 Designed by: S.M.S  
 A/QC by: M.G.D  
 Project no.: A18-1140  
 Date: 2019.03.12

SHEET  
C128



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| REVISIONS |          |                           |
|-----------|----------|---------------------------|
| NO.       | DATE     | DESCRIPTION               |
| 1         | 4/2/2019 | REVISED PER CITY COMMENTS |

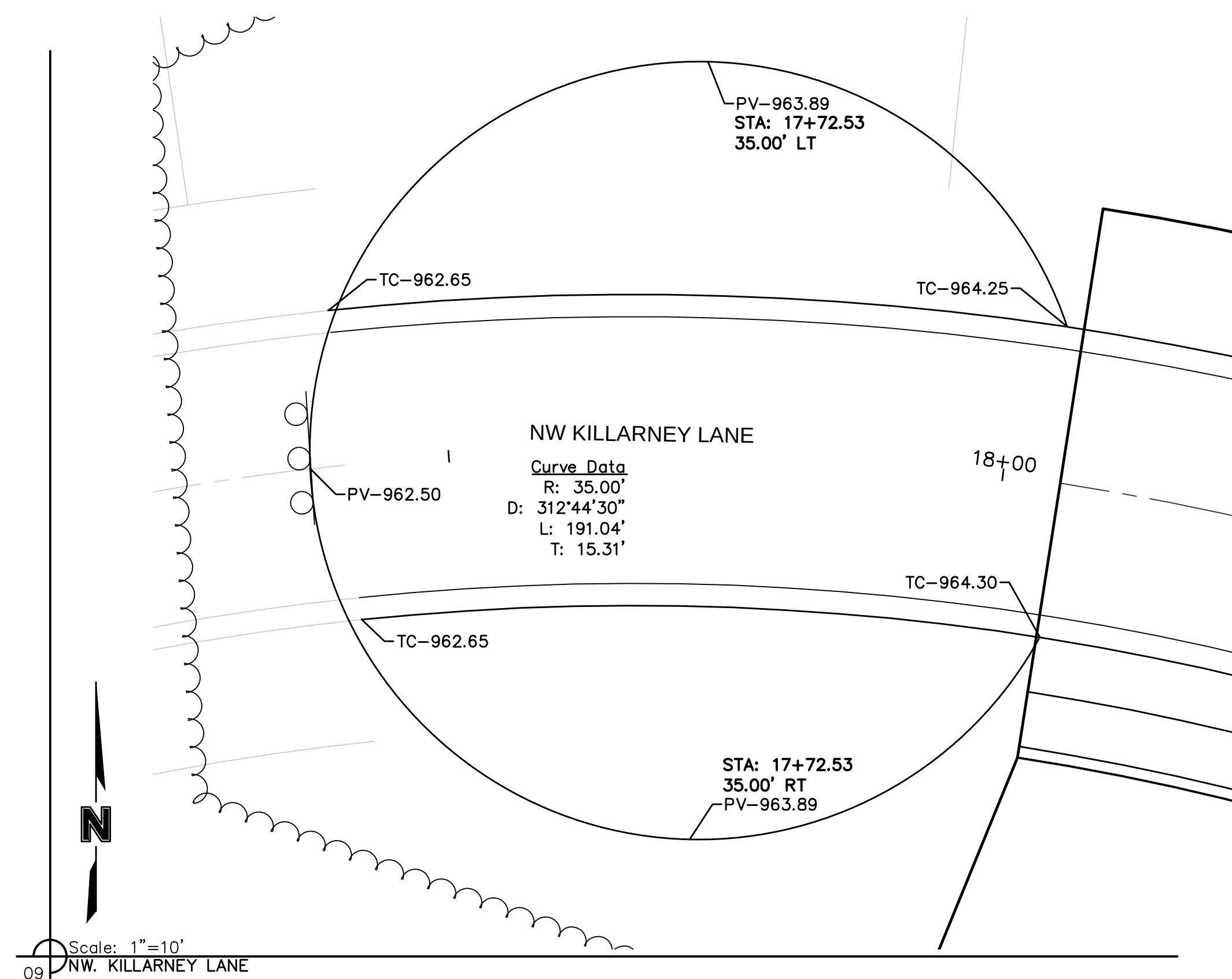
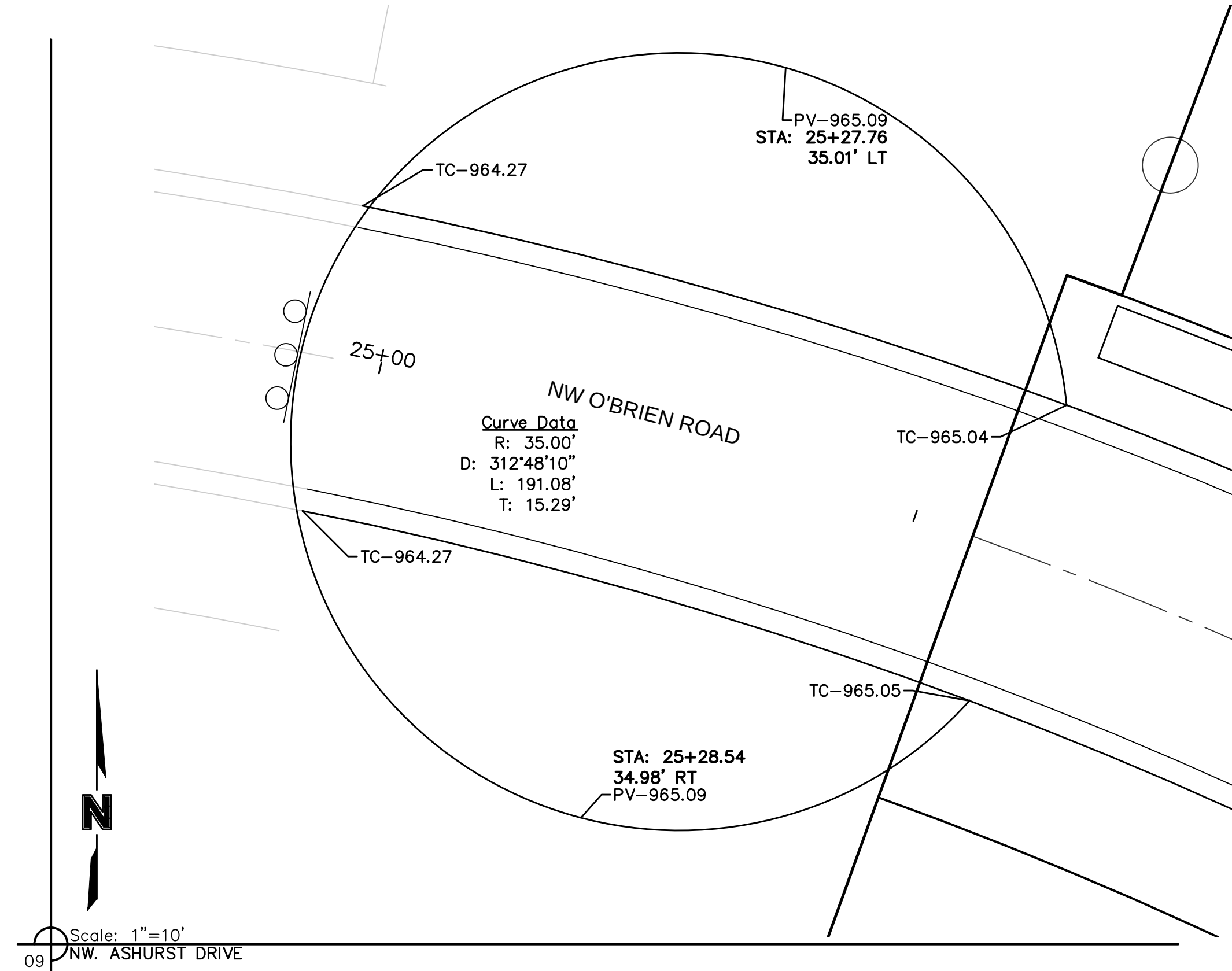
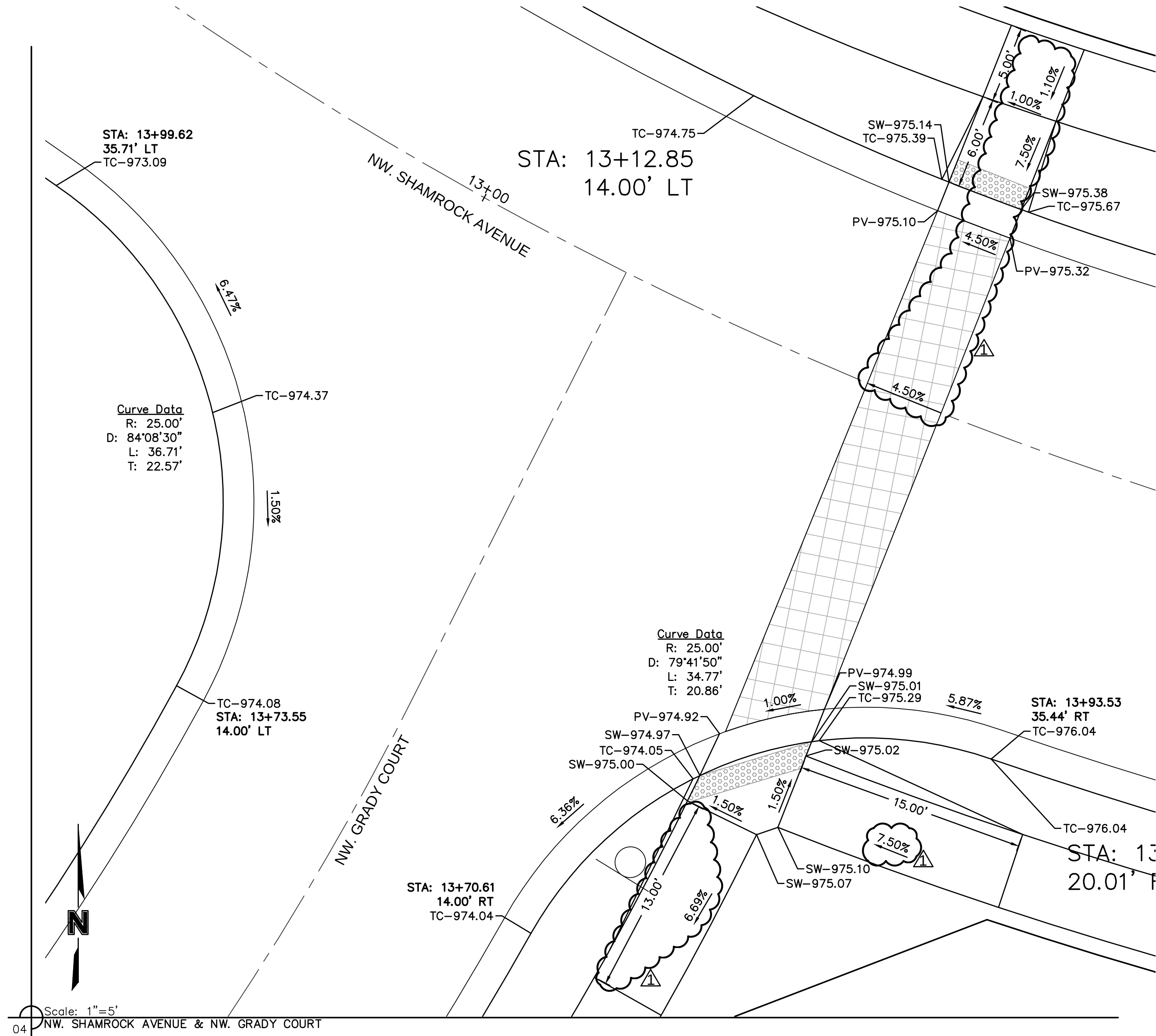
| INTERSECTION DETAILS       |  |
|----------------------------|--|
| STREET & STORM SEWER PLANS |  |
| WOODSIDE RIDGE             |  |
| FIRST PLAT                 |  |
| LEE'S SUMMIT, MO           |  |

drawn by: D.A.H.Q.  
checked by: J.E.S.  
designed by: S.M.S.  
QA/QC by: M.G.D.  
project no.: A18-1140  
date: 2019.03.12

SHEET  
C129

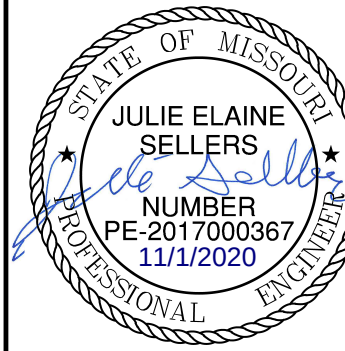


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|                                                    |  |      |
|----------------------------------------------------|--|------|
| INTERSECTION DETAILS<br>STREET & STORM SEWER PLANS |  | 2019 |
| WOODSIDE RIDGE<br>FIRST PLAT                       |  |      |

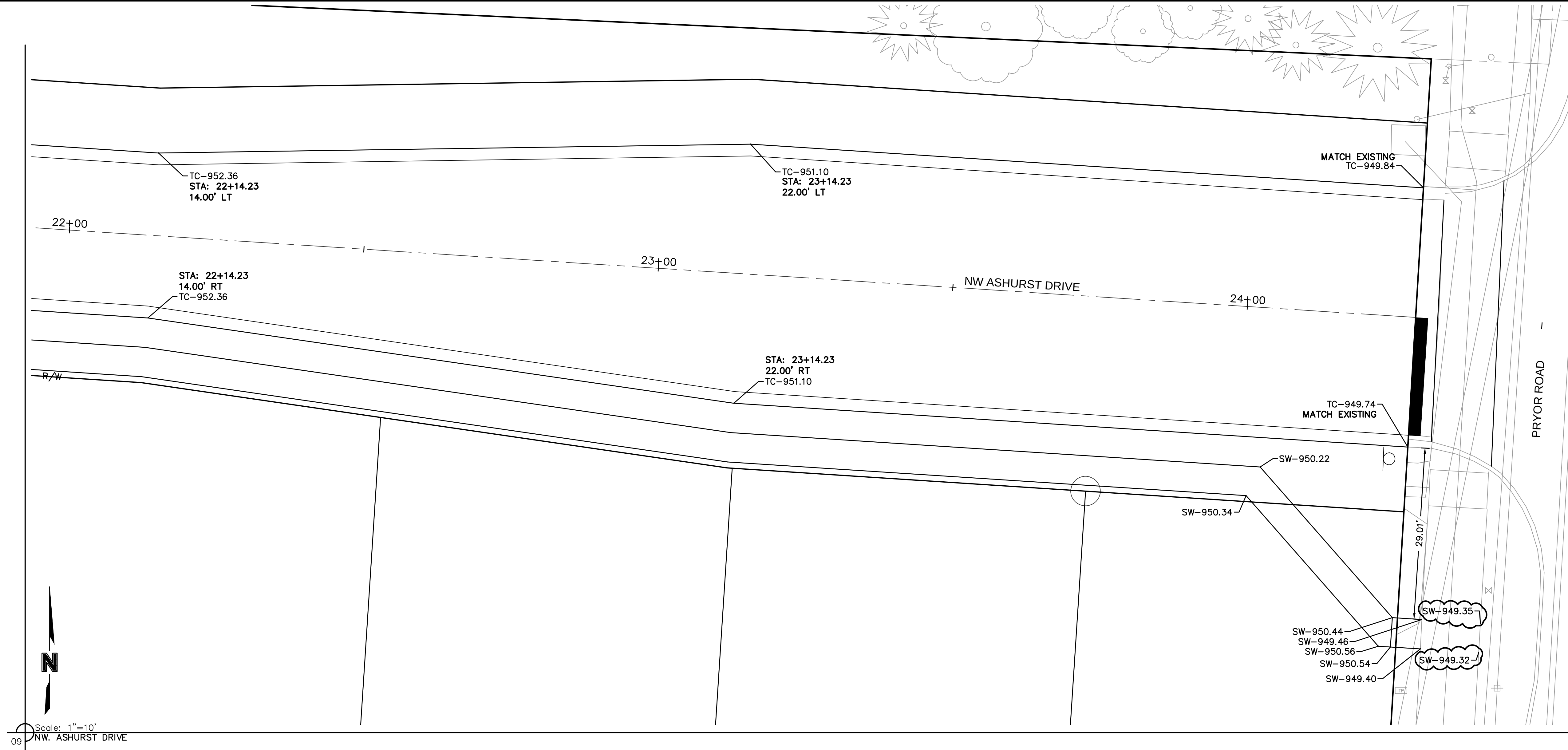
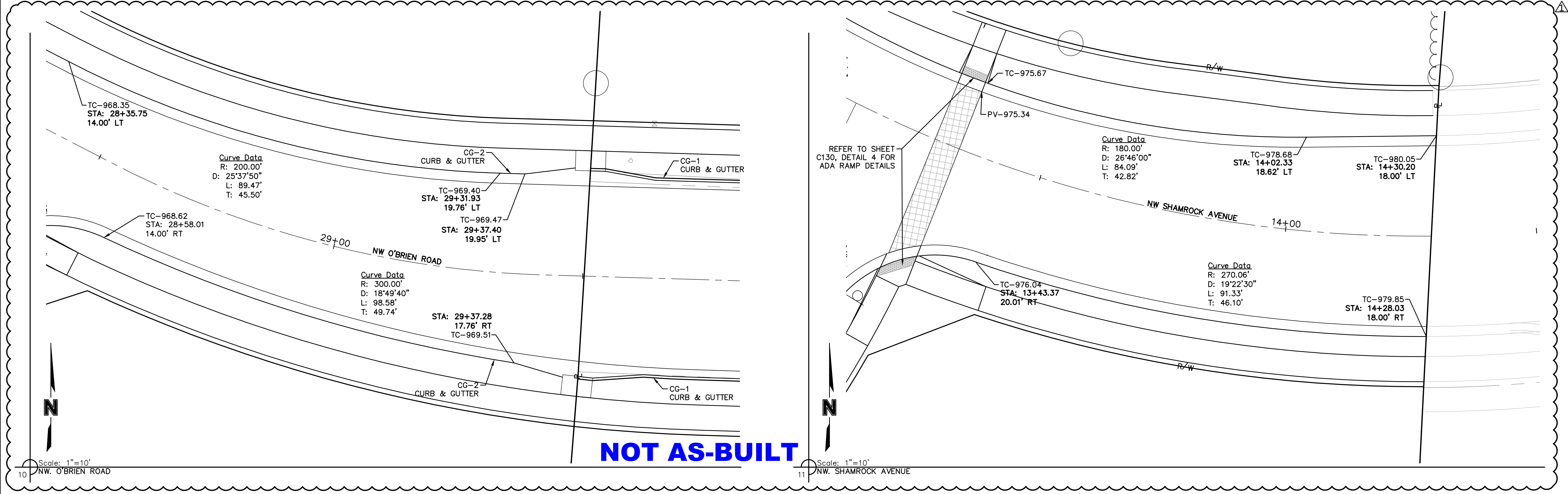
drawn by: D.A.H.O.  
checked by: J.E.S.  
designed by: S.M.S.  
QA/QC by: M.G.D.  
project no.: A18-1140  
date: 2019.03.12

SHEET  
C130

NO. 018-1140-A  
301 E. 10th St.  
NORTH KANSAS CITY, MO 64116  
TEL. 816.861.1177  
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North Kansas City, MO 64116  
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STATE OF MISSOURI  
JULIE ELAINE SELLERS  
Professional Engineer  
NUMBER  
PE-2017000367  
11/1/2020

BY

NO. REV.

DATE

REVISIONS DESCRIPTION

REVISED PER CITY COMMENTS

INTERSECTION DETAILS  
STREET & STORM SEWER PLANS

WOODSIDE RIDGE  
FIRST PLAT

LEE'S SUMMIT, MO

2019

REVISIONS

drawn by: D.A.H.O.  
checked by: J.E.S.  
designed by: S.M.S.  
QA/QC by: M.G.D.  
project no.: A18-1140  
date: 2019.03.12

SHEET  
C131

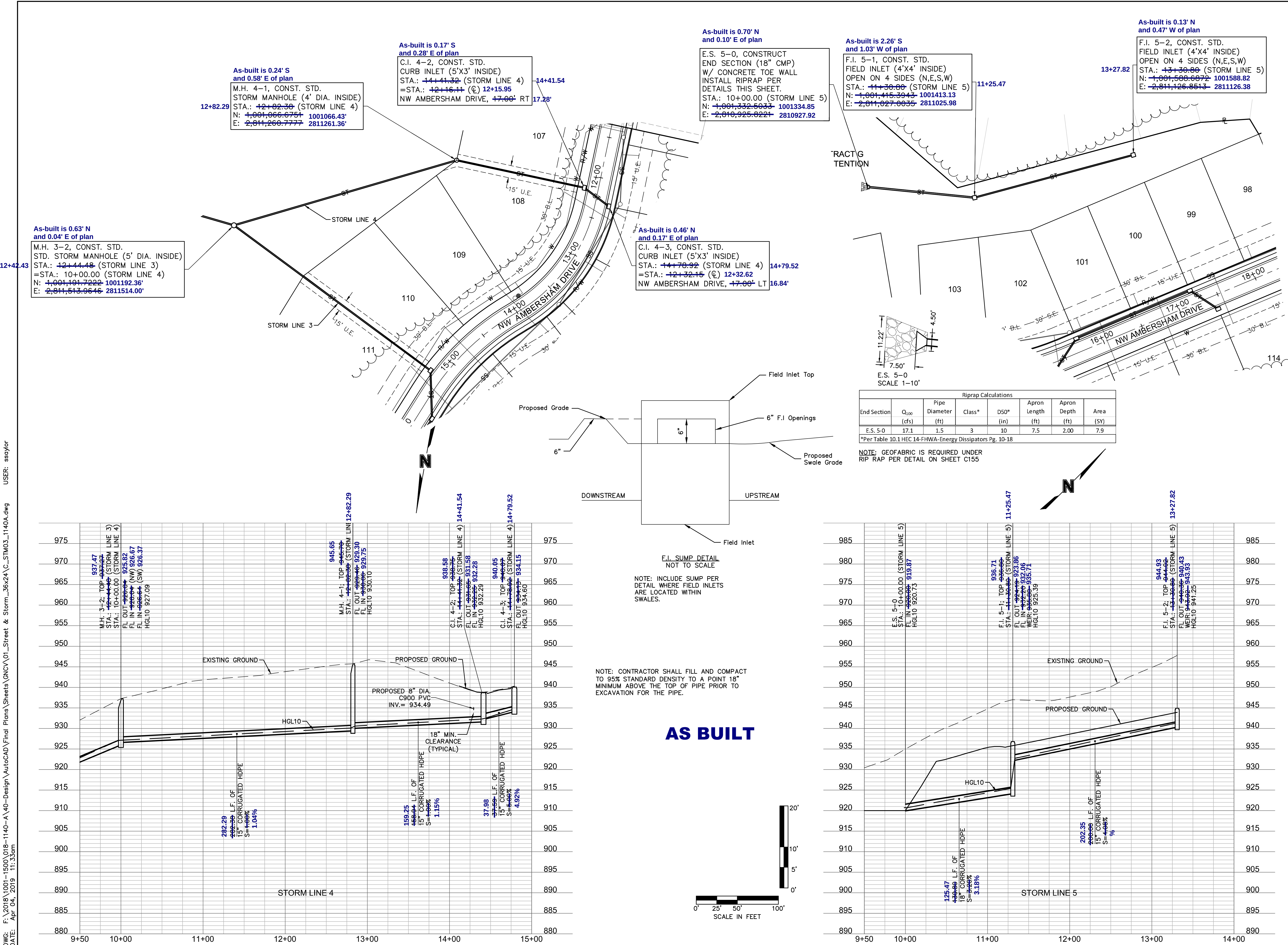




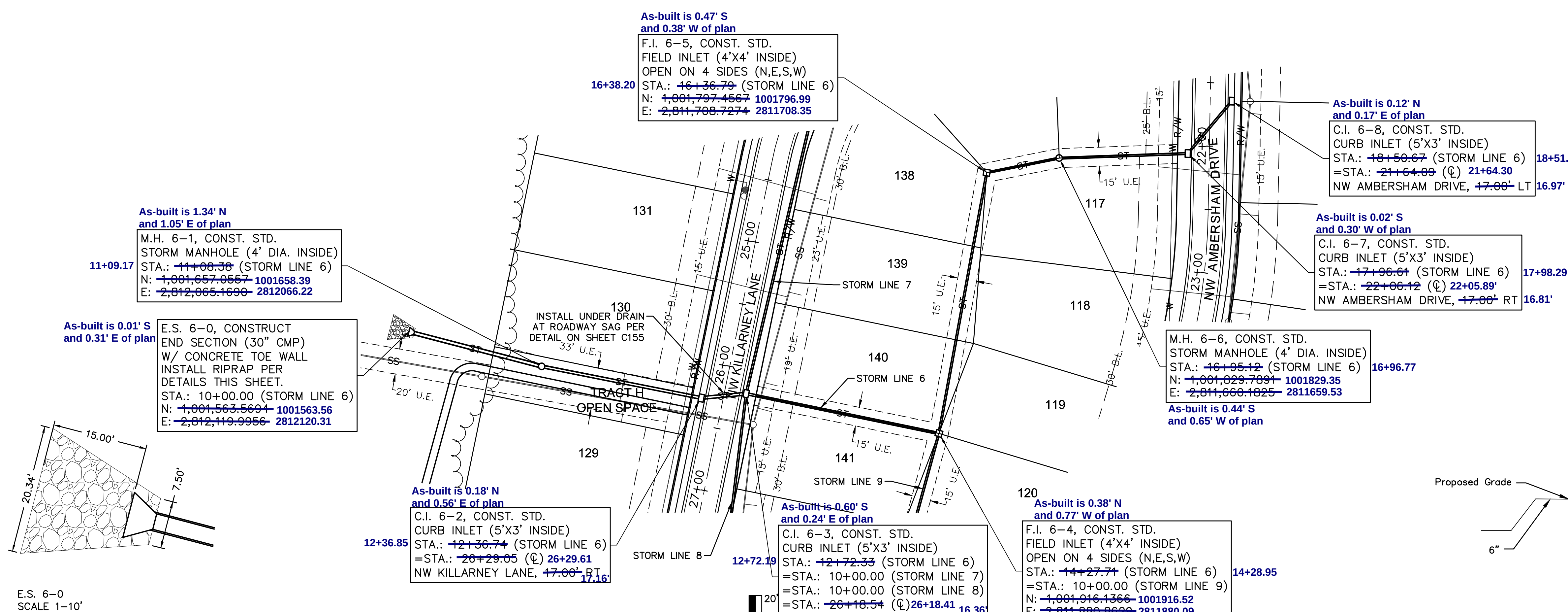








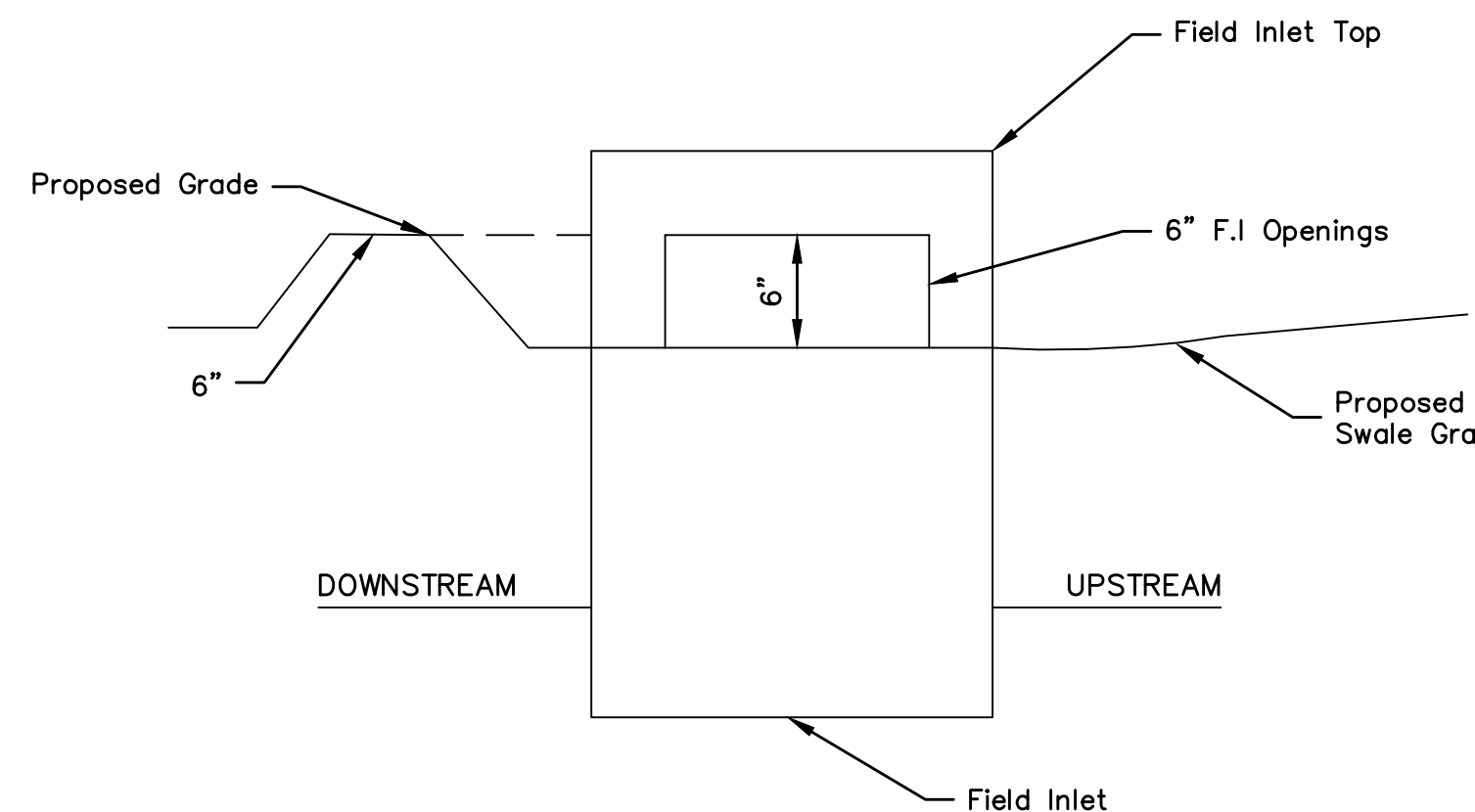




| Riprap Calculations |                  |               |        |      |              |             |      |
|---------------------|------------------|---------------|--------|------|--------------|-------------|------|
| End Section         | Q <sub>100</sub> | Pipe Diameter | Class* | D50* | Apron Length | Apron Depth | Area |
|                     | (cfs)            | (ft)          |        | (in) | (ft)         | (ft)        | (SY) |
| E.S. 6-0            | 41.86            | 2.5           | 4      | 14   | 15           | 2.57        | 27.4 |

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

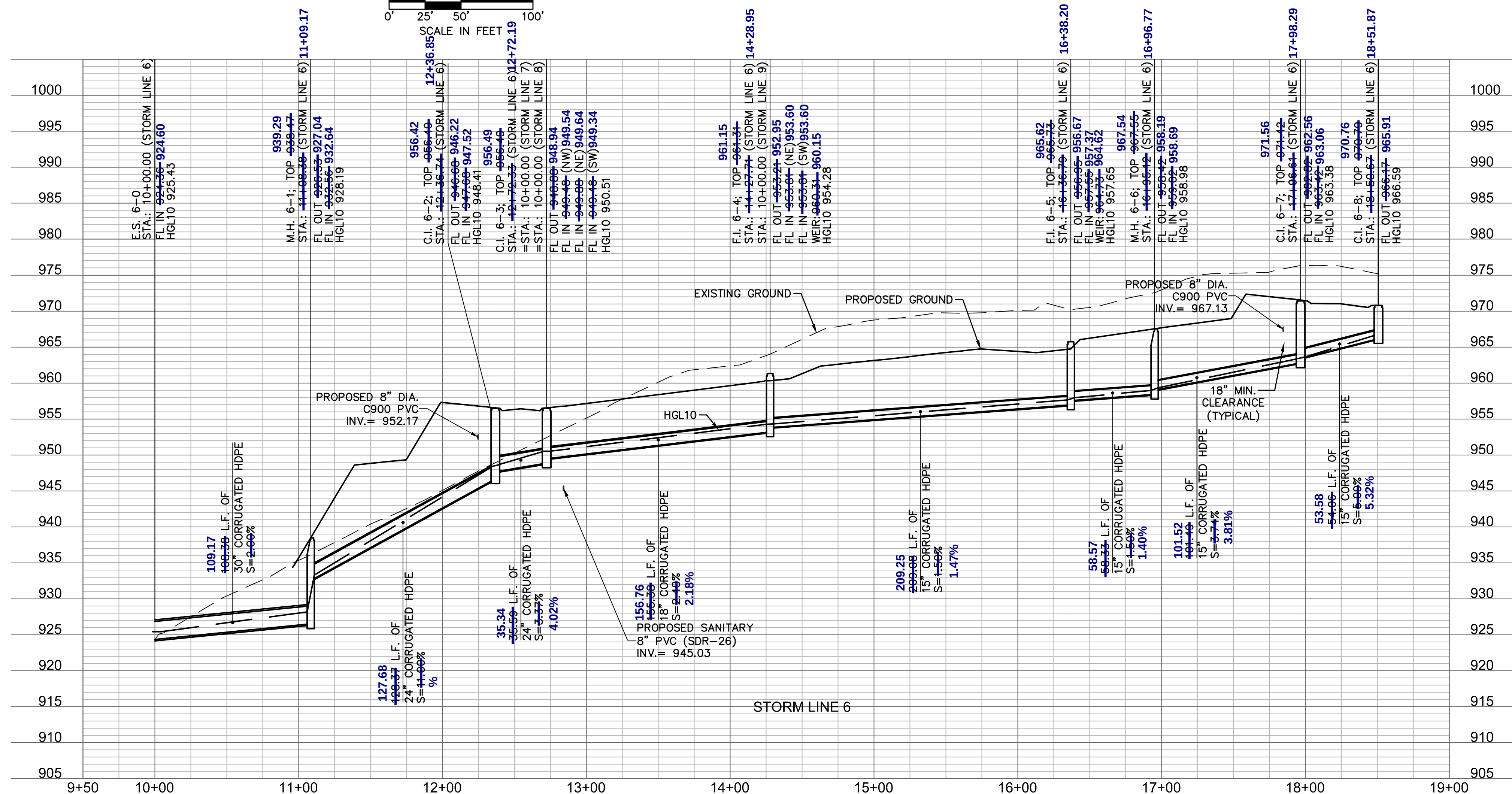
**NOTE:** GEOTEXTILE IS REQUIRED UNDER RIP RAP PER DETAIL ON SHEET C155



F.I. SUMP DETAIL  
NOT TO SCALE

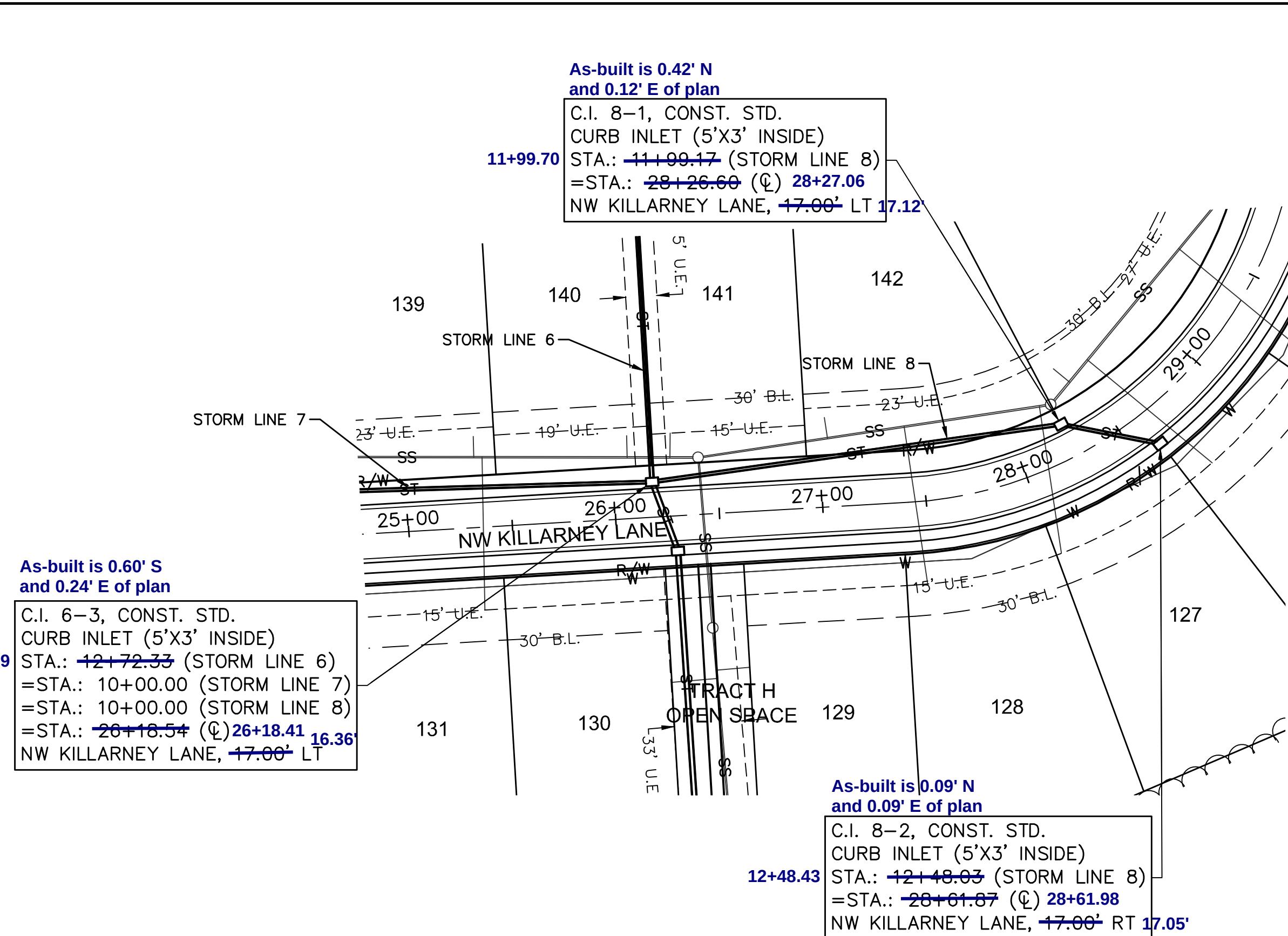
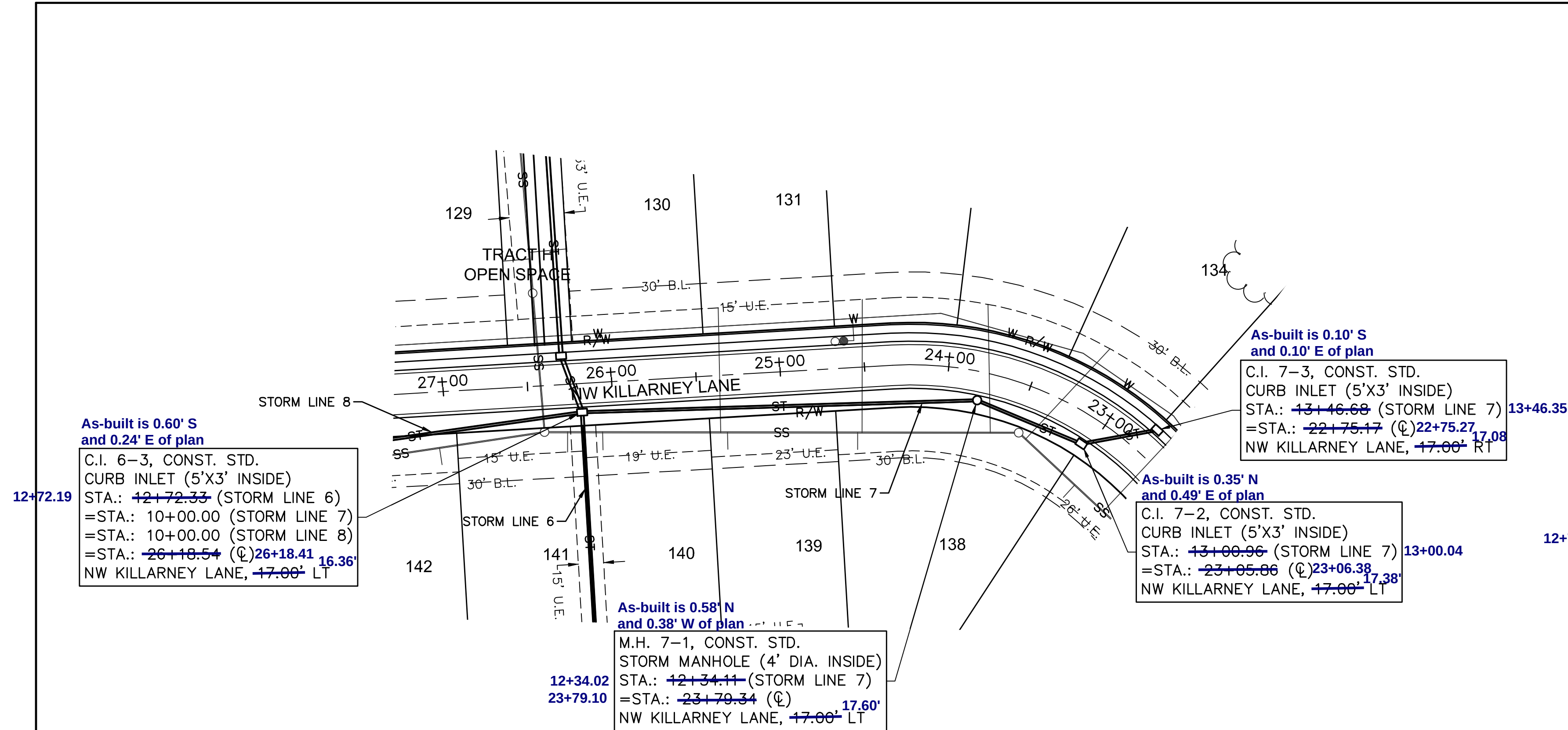
NOTE: INCLUDE SUMP PER  
DETAIL WHERE FIELD INLETS  
ARE LOCATED WITHIN  
SWALES.

## AS BUILT

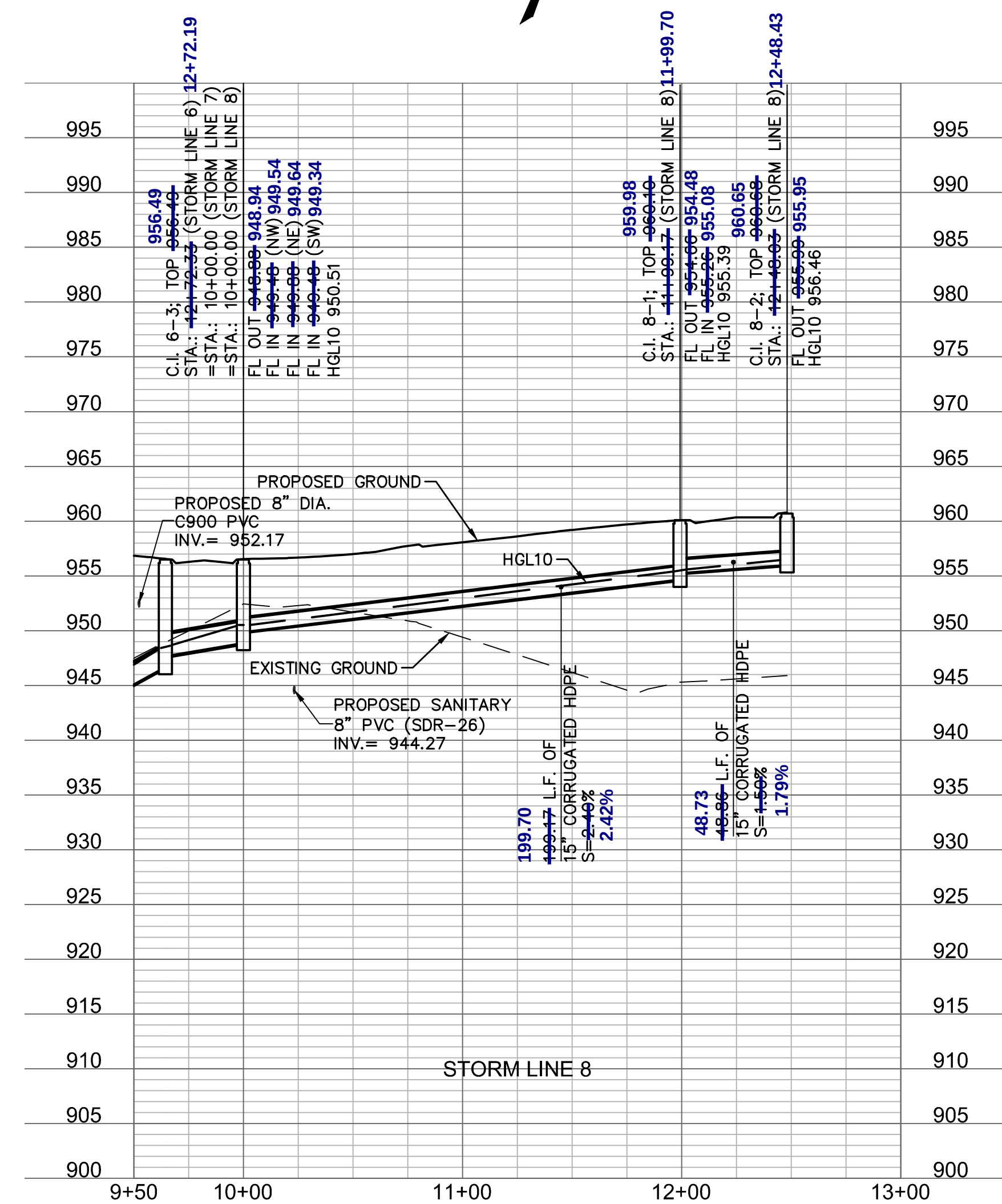
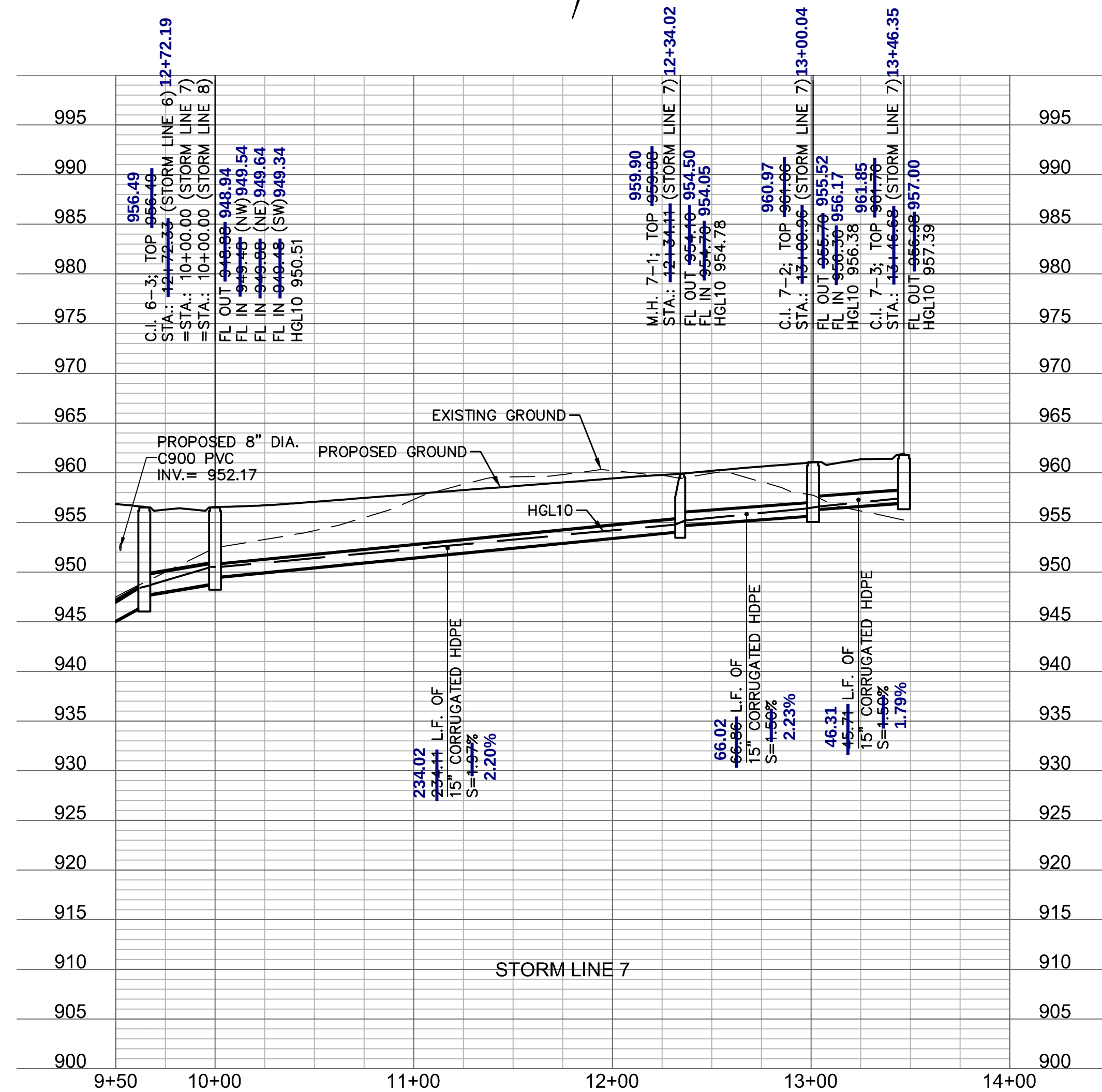


NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.





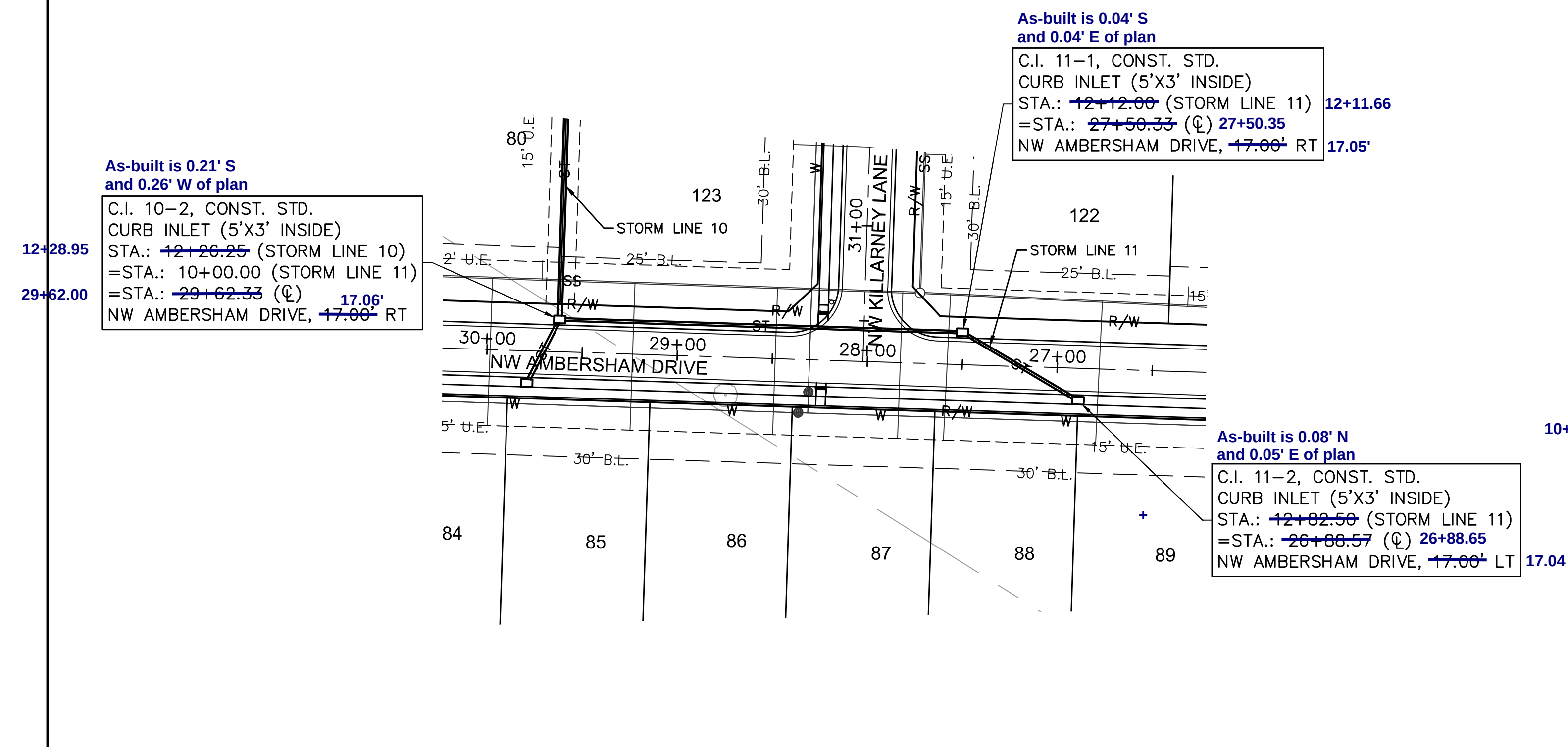
## AS BUILT







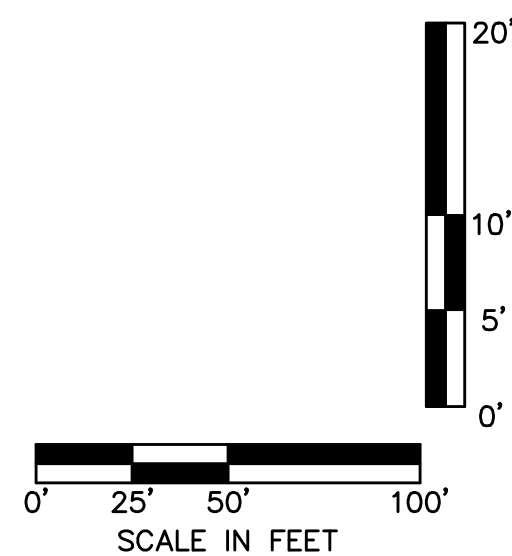
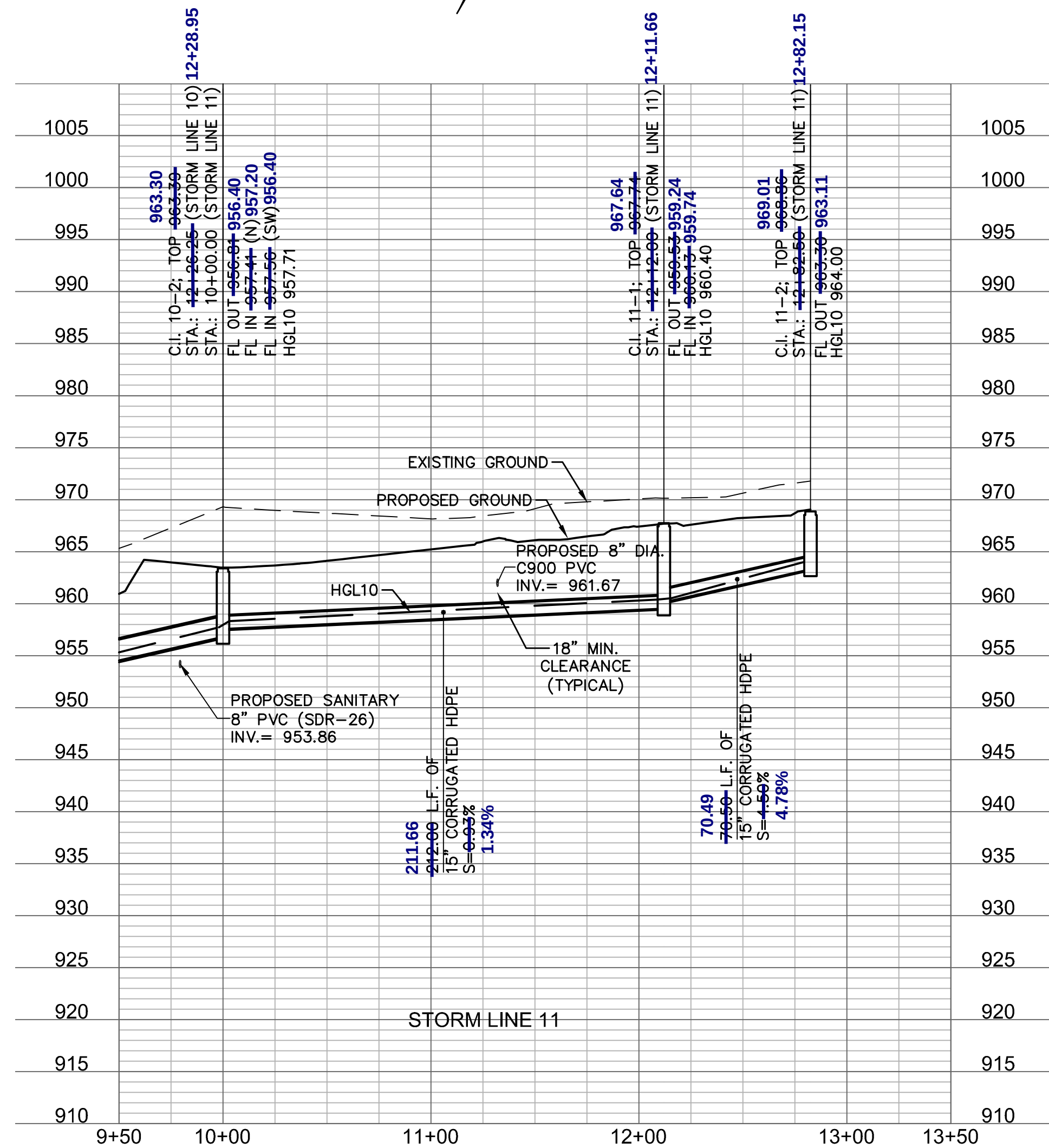




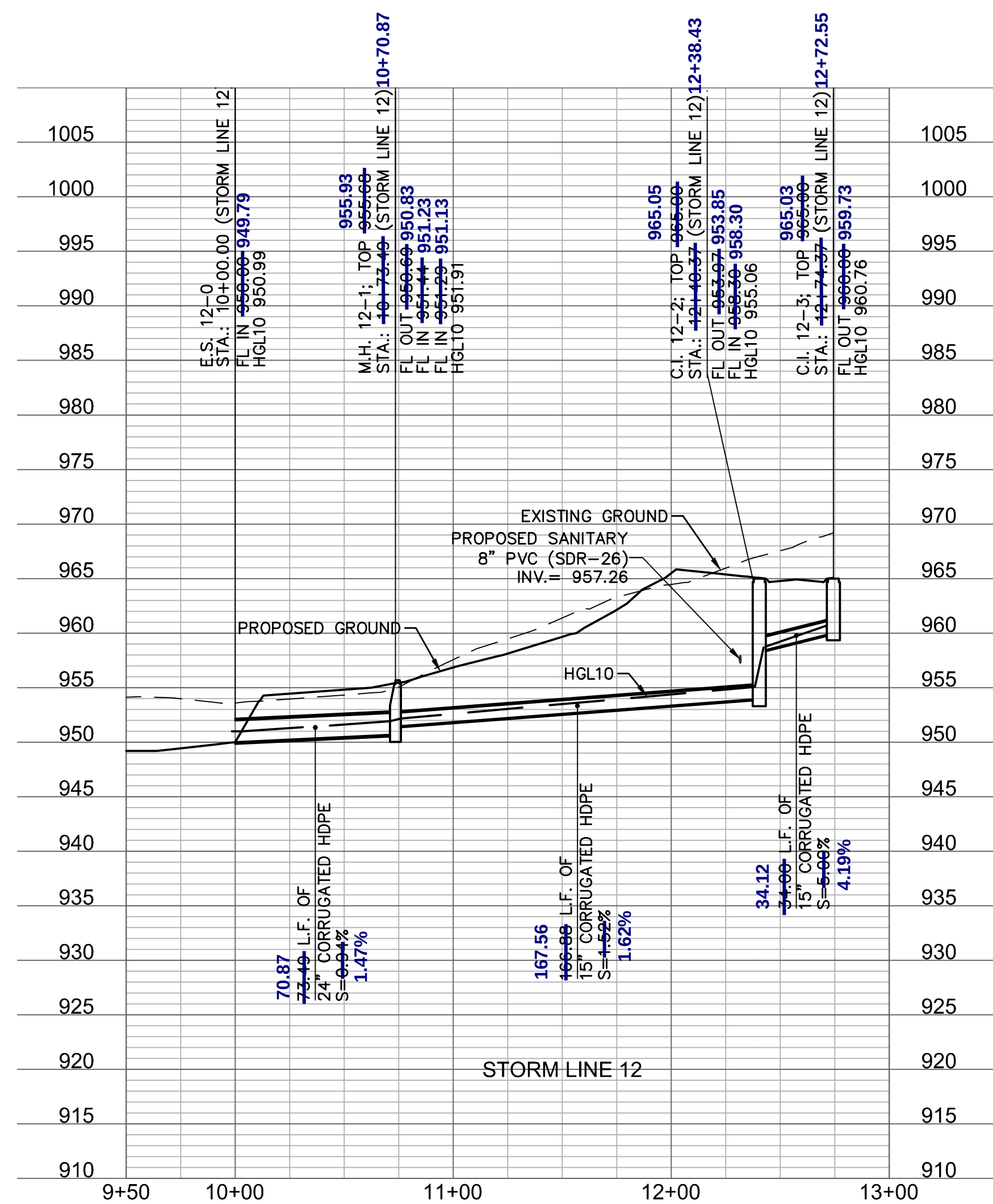
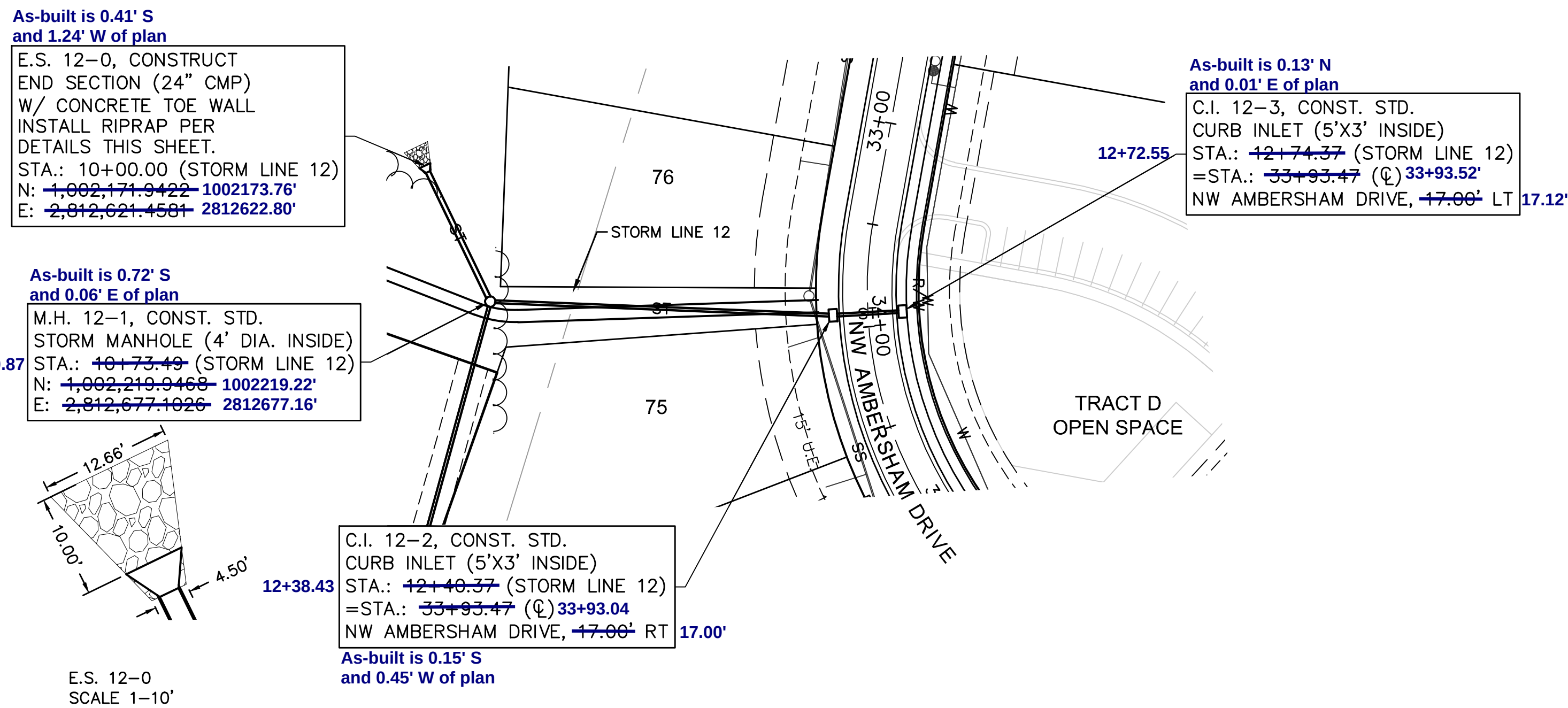
| Riprap Calculations |                           |                          |        |              |                         |                        |              |
|---------------------|---------------------------|--------------------------|--------|--------------|-------------------------|------------------------|--------------|
| End Section         | Q <sub>100</sub><br>(cfs) | Pipe<br>Diameter<br>(ft) | Class* | D50*<br>(in) | Apron<br>Length<br>(ft) | Apron<br>Depth<br>(ft) | Area<br>(SY) |
| E.S. 12-0           | 20.34                     | 2                        | 3      | 10           | 10                      | 2.00                   | 7.9          |

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

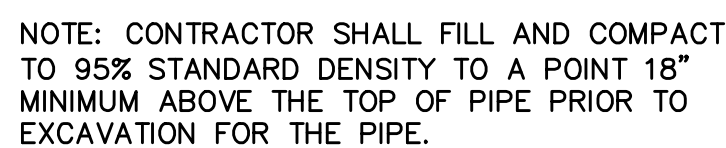
**NOTE:** GEOTEXTILE IS REQUIRED UNDER RIP RAP PER DETAIL ON SHEET C155



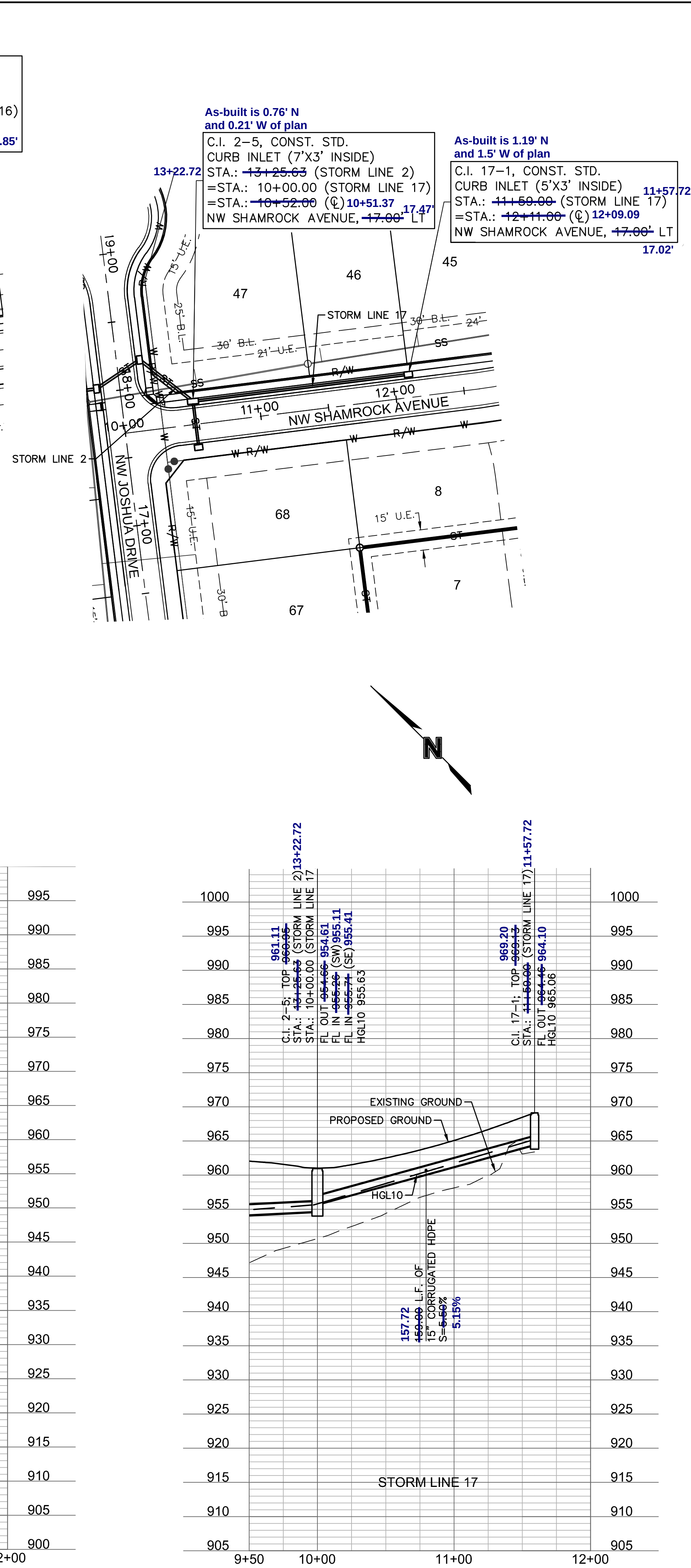
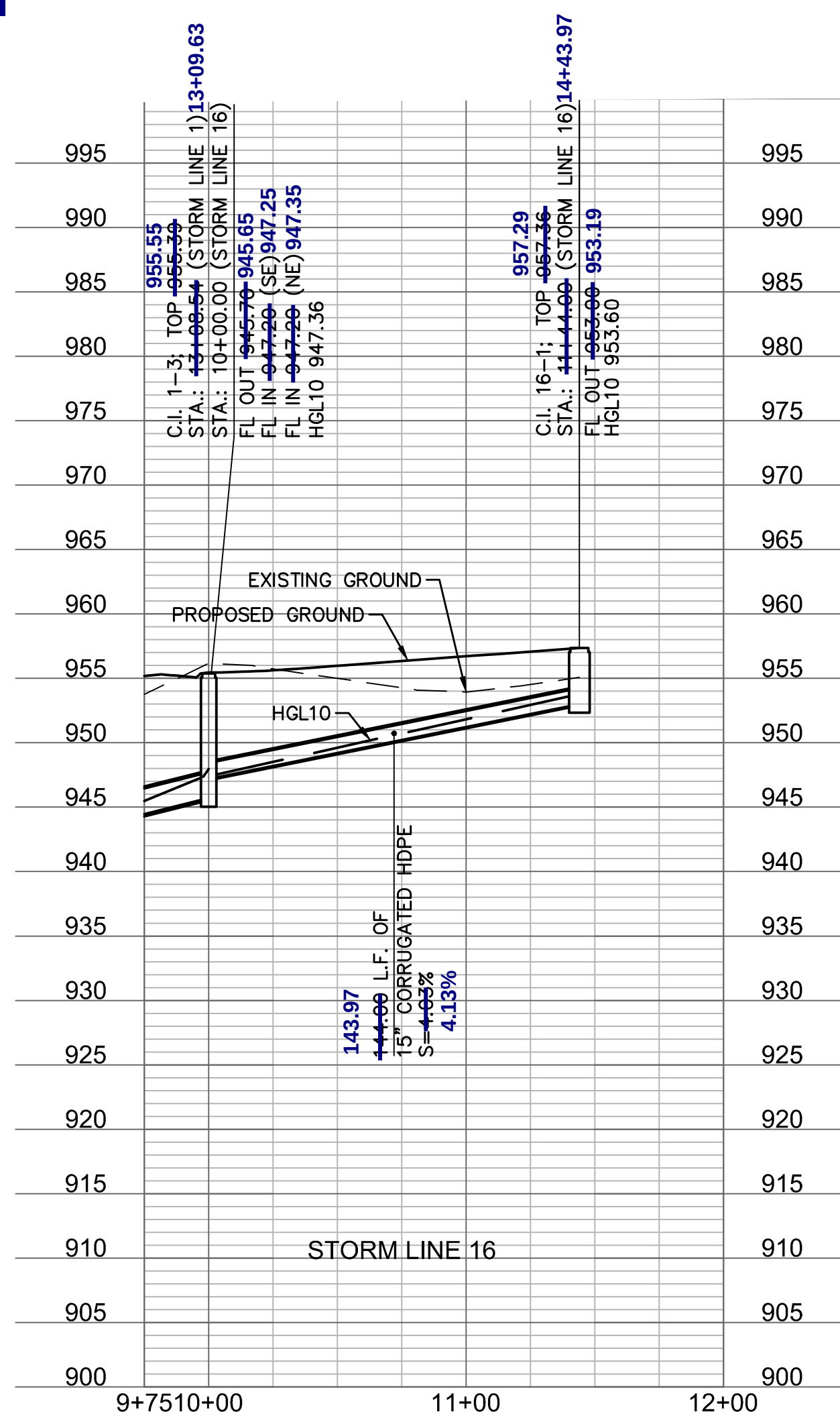
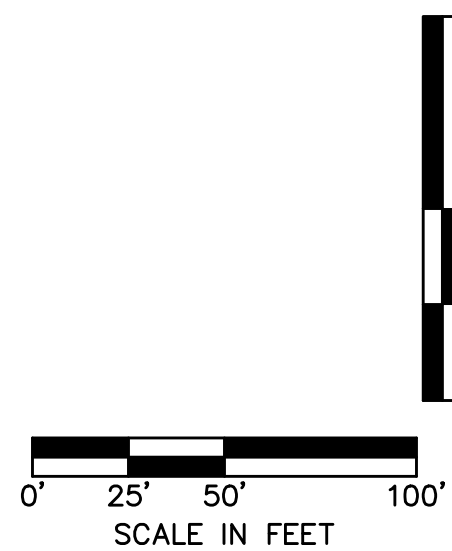
NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.









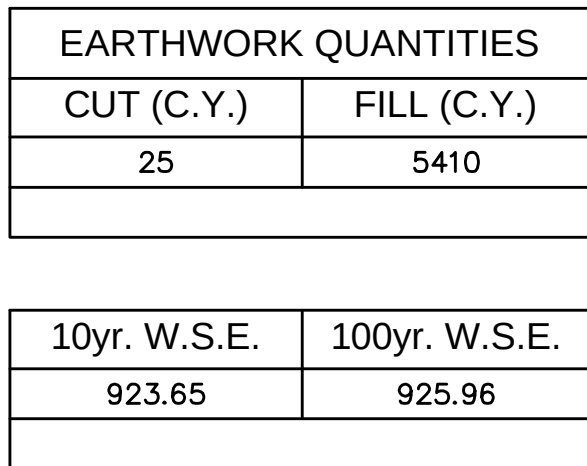




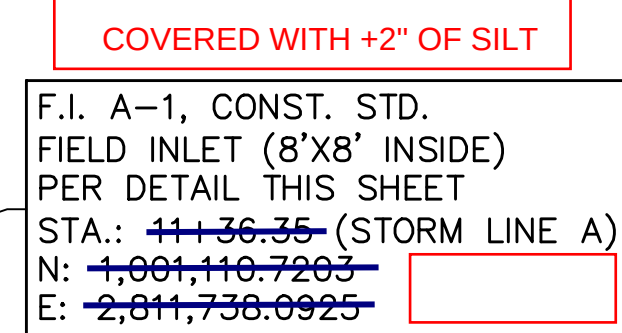




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DATE: May 16, 2019 8:25am



Date Surveyed:  
Field Acceptance Date



- 
- E.S. A-0  
SCALE 1-10'

**NOTE:** GEOTEXTILE IS REQUIRED UNDER RIP RAP PER DETAIL ON SHEET C155

**ENERGY DISSIPATOR BASIN DIMENSIONS:**  
D50 = 1.75'; DISSIPATOR POOL LENGTH-  
(LS) = 20'; APRON LENGTH (LA) = 5';  
APRON WIDTH (WB) = 17'; OVERALL  
BASIN LENGTH (LB) = 25'. PROVIDE  
RIPRAP UP TO ELEVATION 909  
SURROUNDING DISSIPATOR BASIN.  
SEE BELOW FOR DETAILS.

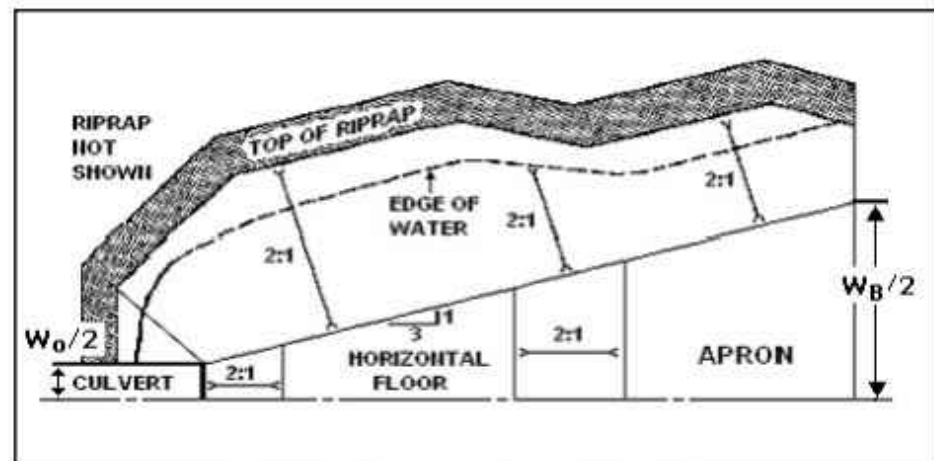
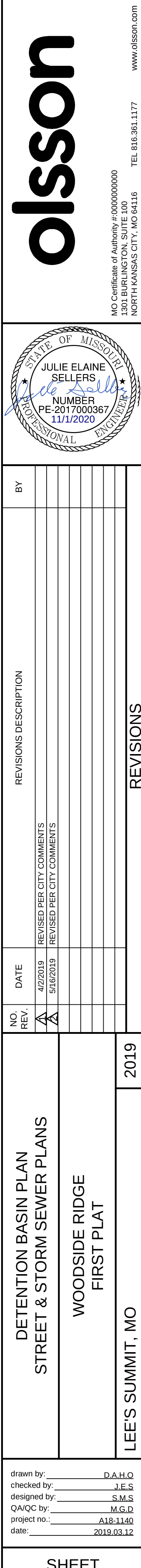


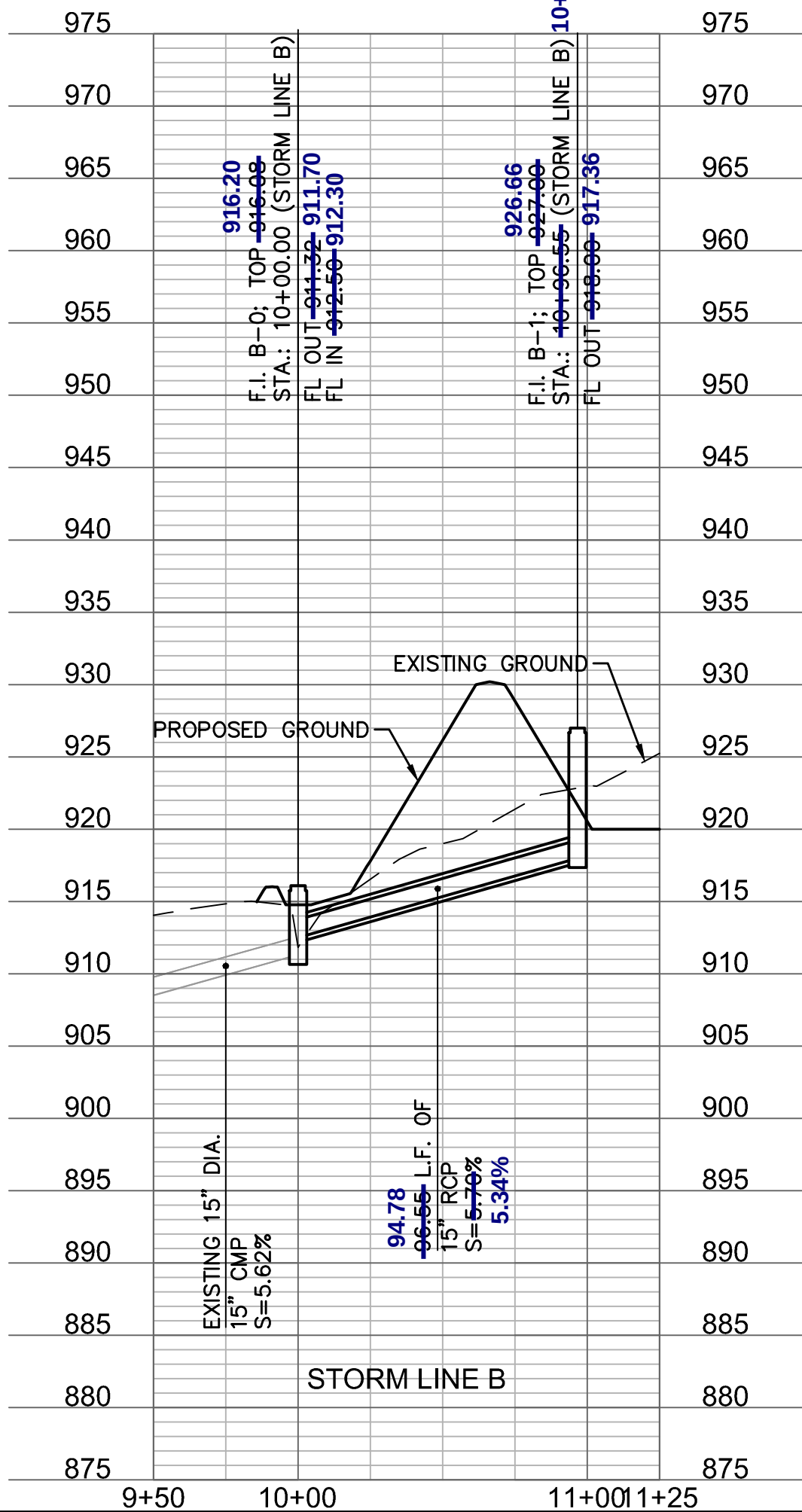
Figure 10.2. Half Plan of Riprap Basin







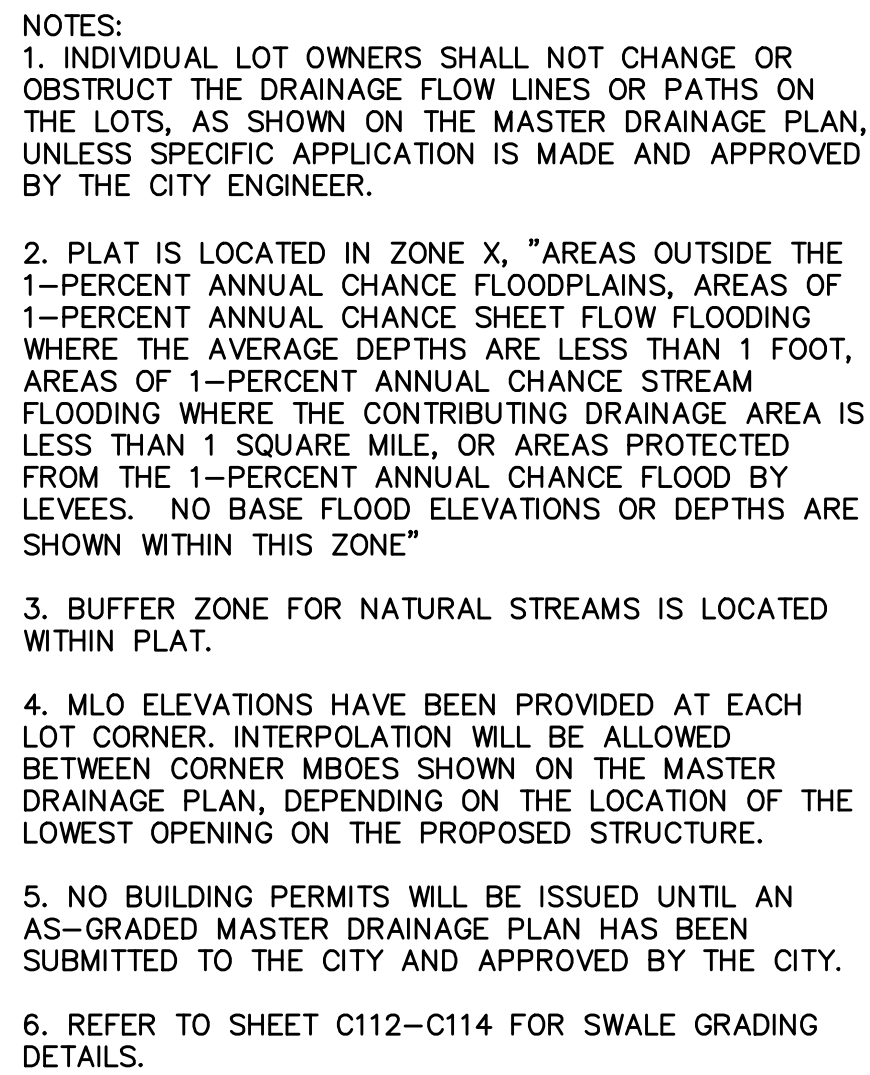
|              |               |
|--------------|---------------|
| 10yr. W.S.E. | 100yr. W.S.E. |
| 924.68       | 926.48        |
|              |               |



F.I. B-1, CONST. STD.  
FIELD INLET (5'X5' INSIDE)  
PER DETAIL THIS SHEET  
STA.: ~~10+96.55~~ (STORM LINE B) 10+94.78  
N: ~~1,001,303.0104~~ 1001304.54  
E: ~~2,810,830.2869~~ 2810829.12



DWG: F:\2018\1001-1500\018-1140-A\40-Design\AutoCAD\Final Plans\Sheets\GNCV\01\_Street & Storm\_36x24\C\_DRN01\_1140A.dwg  
DATE: Apr 04, 2019 11:49am  
USER: ssaylor



SHEET  
C144

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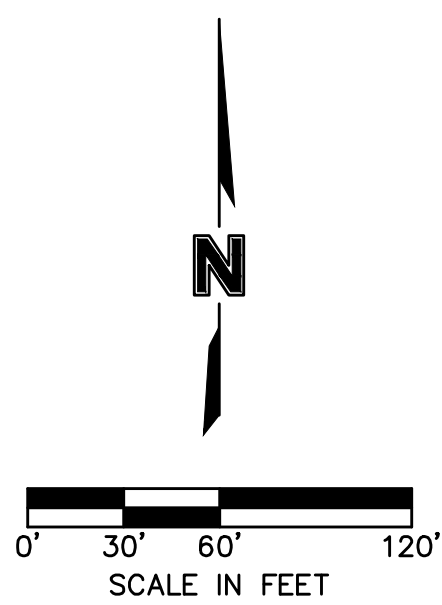




6. REFER TO SHEET C112-C114 FOR SWALE GRADING DETAILS.



## NOT AS-BUILT



USER: ssaylor

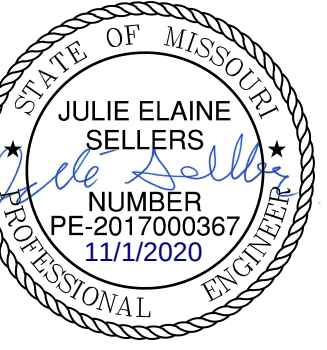
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DWG: F:\2018\1001-1500\018  
DATE: Apr 04, 2019 11:49am

olson

TEL 816.361.1177 [www.olsson.com](http://www.olsson.com)

1301 BURLINGTON, SUITE 100  
NORTH KANSAS CITY, MO 64116



# DRAINAGE PLAN STREET & STORM SEWER PLANS

WOODSIDE RIDGE  
FIRST PLAT

2019

LEE'S SUMMIT, MO

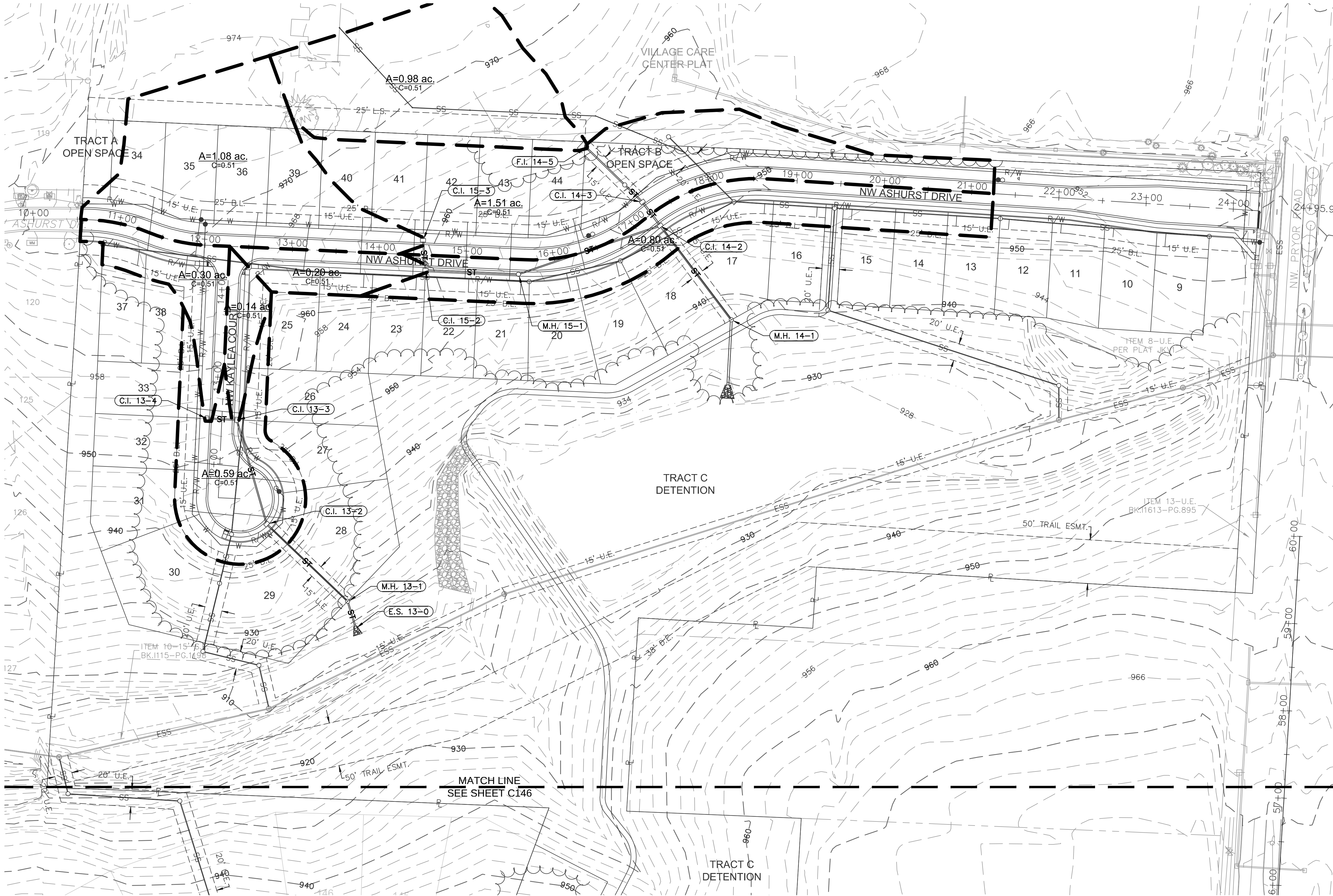
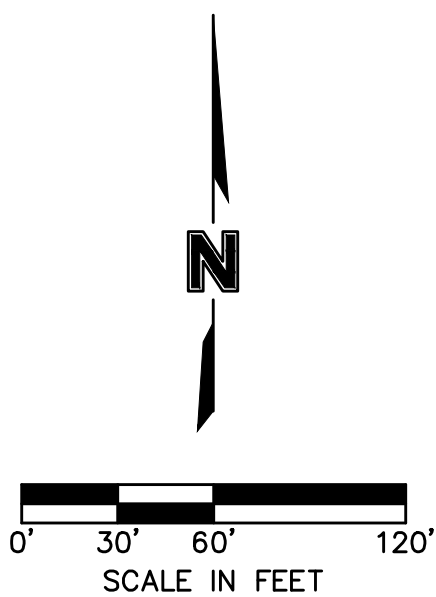
Drawn by: D.A.H.O  
 Checked by: J.E.S  
 Designed by: S.M.S  
 WQC by: M.G.D  
 Project no.: A18-1140  
 Date: 2019.03.12

SHEET  
C146



- NOTES:
1. INDIVIDUAL LOT OWNERS SHALL NOT CHANGE OR OBSTRUCT THE DRAINAGE FLOW LINES OR PATHS ON THE LOTS, AS SHOWN ON THE MASTER DRAINAGE PLAN, UNLESS SPECIFIC APPLICATION IS MADE AND APPROVED BY THE CITY ENGINEER.
  2. PLAT IS LOCATED 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. BUFFER ZONE FOR NATURAL STREAMS IS LOCATED WITHIN PLAT.
  4. MLO ELEVATIONS HAVE BEEN PROVIDED AT EACH LOT CORNER. INTERPOLATION WILL BE ALLOWED BETWEEN CORNER MBOES SHOWN ON THE MASTER DRAINAGE PLAN, DEPENDING ON THE LOCATION OF THE LOWEST OPENING ON THE PROPOSED STRUCTURE.
  5. NO BUILDING PERMITS WILL BE ISSUED UNTIL AN AS-GRADED MASTER DRAINAGE PLAN HAS BEEN SUBMITTED TO THE CITY AND APPROVED BY THE CITY.
  6. REFER TO SHEET C112-C114 FOR SWALE GRADING DETAILS.

| LEGEND |                                |
|--------|--------------------------------|
|        | FINISHED INDEX CONTOURS        |
|        | FINISHED INTERMEDIATE CONTOURS |
|        | RIDGE LINE                     |
|        | DRAINAGE AREA                  |
|        | RUNOFF COEFFICIENT             |
|        | STORM STRUCTURE NUMBER         |



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NUMBER  
PE-2017000367  
11/1/2020

BY: \_\_\_\_\_  
REVISIONS DESCRIPTION  
DATE  
NO. REV. \_\_\_\_\_

DRAINAGE PLAN  
STREET & STORM SEWER PLANS  
WOODSIDE RIDGE  
FIRST PLAT  
LEE'S SUMMIT, MO

2019

drawn by: D.A.H.O.  
checked by: J.E.S.  
designed by: S.M.S.  
QA/QC by: M.G.B.  
project no.: A18-1140  
date: 2019.03.12

SHEET  
C147



| 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) |   |
| M.H. 1-1                             | E.S. 1-0             | 94.45       | 920.83               | 918.00                 | 3.00      | 36            | 0.012       | 25.29            | 10.17           | 125.07         | 0.92            | 922.45                    |   |
| C.I. 1-2                             | M.H. 1-1             | 178.23      | 940.35               | 925.83                 | 8.15      | 24            | 0.012       | 25.29            | 14.53           | 69.94          | 0.83            | 942.12                    |   |
| C.I. 1-3                             | C.I. 1-2             | 35.86       | 945.70               | 943.91                 | 4.99      | 24            | 0.012       | 21.58            | 12.06           | 54.74          | 0.87            | 947.36                    |   |
| F.I. 1-4                             | C.I. 1-3             | 159.42      | 953.55               | 947.20                 | 3.98      | 18            | 0.012       | 11.23            | 9.90            | 22.70          | 0.75            | 954.83                    |   |
| F.I. 1-5                             | F.I. 1-4             | 144.93      | 957.05               | 954.15                 | 2.00      | 18            | 0.012       | 9.65             | 7.95            | 16.09          | 0.84            | 958.25                    |   |
| M.H. 1-6                             | F.I. 1-5             | 72.00       | 958.73               | 957.65                 | 1.50      | 18            | 0.012       | 8.52             | 7.12            | 13.93          | 0.85            | 959.86                    |   |
| C.I. 1-7                             | M.H. 1-6             | 143.00      | 965.57               | 959.53                 | 4.22      | 18            | 0.012       | 8.52             | 9.08            | 23.38          | 0.63            | 966.70                    |   |
| C.I. 1-8                             | C.I. 1-7             | 36.65       | 968.07               | 966.17                 | 5.18      | 15            | 0.012       | 6.68             | 9.27            | 15.93          | 0.56            | 969.11                    |   |
| M.H. 2-1                             | E.S. 2-0             | 60.97       | 930.91               | 930.00                 | 1.49      | 18            | 0.012       | 9.18             | 7.30            | 13.90          | 0.89            | 932.08                    |   |
| M.H. 2-2                             | M.H. 2-1             | 76.06       | 937.81               | 931.41                 | 8.41      | 18            | 0.012       | 9.18             | 9.10            | 33.00          | 0.67            | 938.98                    |   |
| C.I. 2-3                             | M.H. 2-2             | 100.99      | 952.43               | 940.37                 | 11.94     | 18            | 0.012       | 9.18             | 12.17           | 39.31          | 0.49            | 953.60                    |   |
| C.I. 2-4                             | C.I. 2-3             | 38.11       | 953.47               | 953.03                 | 1.15      | 18            | 0.012       | 8.20             | 6.63            | 12.22          | 0.90            | 954.58                    |   |
| C.I. 2-5                             | C.I. 2-4             | 49.50       | 954.66               | 954.17                 | 0.99      | 18            | 0.012       | 6.29             | 5.89            | 11.32          | 0.80            | 955.63                    |   |
| C.I. 2-6                             | C.I. 2-5             | 34.00       | 955.60               | 955.26                 | 1.00      | 15            | 0.012       | 0.79             | 2.72            | 7.00           | 0.37            | 955.95                    | j |
| M.H. 3-1                             | E.S. 3-0             | 77.77       | 911.48               | 910.15                 | 1.71      | 15            | 0.012       | 6.90             | 7.22            | 9.15           | 0.81            | 912.53                    |   |
| M.H. 3-2                             | M.H. 3-1             | 166.71      | 926.04               | 912.08                 | 8.37      | 15            | 0.012       | 6.90             | 10.59           | 20.24          | 0.50            | 927.09                    |   |
| C.I. 3-3                             | M.H. 3-2             | 297.33      | 952.61               | 926.64                 | 8.73      | 15            | 0.012       | 4.35             | 7.89            | 20.67          | 0.45            | 953.45                    |   |
| C.I. 3-4                             | C.I. 3-3             | 58.94       | 954.39               | 953.21                 | 2.00      | 15            | 0.012       | 3.30             | 5.84            | 9.90           | 0.50            | 955.12                    |   |
| C.I. 3-5                             | C.I. 3-4             | 150.00      | 957.24               | 954.99                 | 1.50      | 15            | 0.012       | 2.59             | 5.09            | 8.57           | 0.47            | 957.88                    |   |
| C.I. 3-6                             | C.I. 3-5             | 41.11       | 958.46               | 957.84                 | 1.51      | 15            | 0.012       | 1.16             | 4.02            | 8.59           | 0.31            | 958.88                    |   |
| M.H. 4-1                             | M.H. 3-2             | 282.38      | 929.46               | 926.64                 | 1.00      | 15            | 0.012       | 2.55             | 4.64            | 6.99           | 0.52            | 930.10                    |   |
| C.I. 4-2                             | M.H. 4-1             | 158.94      | 931.65               | 930.06                 | 1.00      | 15            | 0.012       | 2.55             | 4.65            | 7.00           | 0.52            | 932.29                    |   |
| C.I. 4-3                             | C.I. 4-2             | 37.59       | 934.13               | 932.25                 | 5.00      | 15            | 0.012       | 1.39             | 5.60            | 15.64          | 0.25            | 934.60                    |   |
| F.I. 5-1                             | E.S. 5-0             | 130.80      | 924.19               | 920.00                 | 3.20      | 18            | 0.012       | 9.69             | 8.88            | 20.36          | 0.73            | 925.39                    |   |
| F.I. 5-2                             | F.I. 5-1             | 200.00      | 940.36               | 932.20                 | 4.08      | 15            | 0.012       | 4.85             | 7.80            | 14.13          | 0.51            | 941.25                    |   |
| M.H. 6-1                             | E.S. 6-0             | 108.38      | 926.53               | 924.36                 | 2.00      | 30            | 0.012       | 23.86            | 9.40            | 62.87          | 1.07            | 928.19                    |   |
| C.I. 6-2                             | M.H. 6-1             | 128.37      | 946.68               | 932.56                 | 11.00     | 24            | 0.012       | 23.86            | 15.37           | 81.27          | 0.74            | 948.41                    |   |
| C.I. 6-3                             | C.I. 6-2             | 35.59       | 948.88               | 947.68                 | 3.37      | 24            | 0.012       | 20.75            | 10.79           | 44.99          | 0.95            | 950.51                    |   |
| F.I. 6-4                             | C.I. 6-3             | 155.38      | 953.21               | 949.48                 | 2.40      | 18            | 0.012       | 7.58             | 5.75            | 17.63          | 1.03            | 954.28                    |   |
| F.I. 6-5                             | F.I. 6-4             | 209.08      | 956.95               | 953.81                 | 1.50      | 15            | 0.012       | 3.01             | 5.32            | 8.57           | 0.51            | 957.65                    |   |
| M.H. 6-6                             | F.I. 6-5             | 58.33       | 958.42               | 957.55                 | 1.49      | 15            | 0.012       | 1.96             | 4.68            | 8.54           | 0.41            | 958.98                    |   |
| C.I. 6-7                             | M.H. 6-6             | 101.49      | 962.82               | 959.02                 | 3.74      | 15            | 0.012       | 1.96             | 5.77            | 13.54          | 0.32            | 963.38                    |   |
| C.I. 6-8                             | C.I. 6-7             | 54.06       | 966.17               | 963.42                 | 5.09      | 15            | 0.012       | 1.13             | 5.29            | 15.78          | 0.23            | 966.59                    |   |
| M.H. 7-1                             | C.I. 6-3             | 234.11      | 954.10               | 949.48                 | 1.97      | 15            | 0.012       | 2.85             | 3.41            | 9.83           | 1.03            | 954.78                    | j |
| C.I. 7-2                             | M.H. 7-1             | 66.86       | 955.70               | 954.70                 | 1.50      | 15            | 0.012       | 2.85             | 5.23            | 8.56           | 0.50            | 956.38                    |   |
| C.I. 7-3                             | C.I. 7-2             | 45.71       | 956.98               | 956.30                 | 1.49      | 15            | 0.012       | 1.09             | 3.94            | 8.53           | 0.30            | 957.39                    |   |
| C.I. 8-1                             | C.I. 6-3             | 199.17      | 954.66               | 949.88                 | 2.40      | 15            | 0.012       | 3.27             | 4.83            | 10.84          | 0.63            | 955.39                    |   |
| C.I. 8-2                             | C.I. 8-1             | 48.86       | 955.99               | 955.26                 | 1.49      | 15            | 0.012       | 1.39             | 4.23            | 8.55           | 0.34            | 956.46                    |   |
| F.I. 9-1                             | F.I. 6-4             | 139.73      | 959.40               | 953.81                 | 4.00      | 15            | 0.012       | 1.24             | 3.10            | 13.99          | 0.47            | 959.84                    | j |
| M.H. 10-1                            | E.S. 10-0            | 68.05       | 949.02               | 948.00                 | 1.50      | 24            | 0.012       | 6.50             | 6.17            | 30.00          | 0.63            | 949.92                    |   |
| C.I. 10-2                            | M.H. 10-1            | 158.20      | 956.81               | 949.62                 | 4.54      | 24            | 0.012       | 6.50             | 8.02            | 52.24          | 0.48            | 957.71                    |   |
| C.I. 10-3                            | C.I. 10-2            | 37.68       | 957.98               | 957.41                 | 1.51      | 18            | 0.012       | 1.88             | 4.50            | 13.99          | 0.37            | 958.50                    |   |
| C.I. 11-1                            | C.I. 10-2            | 212.00      | 959.53               | 957.56                 | 0.93      | 15            | 0.012       | 4.62             | 5.49            | 6.74           | 0.76            | 960.40                    |   |
| C.I. 11-2                            | C.I. 11-1            | 70.50       | 963.30               | 960.13                 | 4.50      | 15            | 0.012       | 3.04             | 6.90            | 14.83          | 0.38            | 964.00                    |   |
| M.H. 12-1                            | E.S. 12-0            | 73.49       | 950.69               | 950.00                 | 0.94      | 24            | 0.012       | 11.59            | 6.64            | 23.74          | 0.99            | 951.91                    |   |
| C.I. 12-2                            | M.H. 12-1            | 166.88      | 953.97               | 951.44                 | 1.52      | 15            | 0.012       | 7.54             | 7.27            | 8.61           | 0.91            | 955.06                    |   |
| C.I. 12-3                            | C.I. 12-2            | 34.00       | 960.00               | 958.30                 | 5.00      | 15            | 0.012       | 3.53             | 7.41            | 15.64          | 0.40            | 960.76                    |   |
| M.H. 13-1                            | E.S. 13-0            | 32.00       | 913.55               | 912.59                 | 3.00      | 15            | 0.012       | 3.87             | 6.74            | 12.12          | 0.49            | 914.34                    |   |
| C.I. 13-2                            | M.H. 13-1            | 128.00      | 934.50               | 919.14                 | 12.00     | 15            | 0.012       | 3.87             | 9.58            | 24.23          | 0.34            | 935.29                    |   |
| C.I. 13-3                            | C.I. 13-2            | 124.09      | 947.93               | 936.00                 | 9.61      | 15            | 0.012       | 1.66             | 6.98            | 21.69          | 0.23            | 948.44                    |   |
| C.I. 13-4                            | C.I. 13-3            | 34.00       | 949.21               | 948.53                 | 2.00      | 15            | 0.012       | 1.13             | 4.25            | 9.89           | 0.29            | 949.63                    |   |
| M.H. 14-1                            | E.S. 14-0            | 77.98       | 929.49               | 928.00                 | 1.91      | 24            | 0.012       | 16.03            | 8.62            | 33.87          | 0.97            | 930.93                    |   |
| C.I. 14-2                            | M.H. 14-1            | 135.03      | 935.89               | 930.09                 | 4.30      | 18            | 0.012       | 16.03            | 11.79           | 23.58          | 0.91            | 937.31                    |   |
| C.I. 14-3                            | C.I. 14-2            | 34.00       | 941.64               | 940.96                 | 2.00      | 18            | 0.012       | 9.34             | 7.85            | 16.09          | 0.82            | 942.82                    |   |
| M.H. 14-4                            | C.I. 14-3            | 27.99       | 942.80               | 942.24                 | 2.00      | 15            | 0.012       | 3.68             | 5.60            | 9.90           | 0.58            | 943.57                    |   |
| F.I. 14-5                            | M.H. 14-4            | 60.93       | 954.37               | 948.28                 | 9.99      | 15            | 0.012       | 3.68             | 8.97            | 22.12          | 0.35            | 955.14                    |   |
| M.H. 15-1                            | C.I. 14-2            | 171.54      | 949.40               | 944.19                 | 3.04      | 15            | 0.012       | 3.69             | 6.66            | 12.19          | 0.47            | 950.18                    |   |
| C.I. 15-2                            | M.H. 15-1            | 106.46      | 954.79               | 950.00                 | 4.50      | 15            | 0.012       | 3.69             | 7.32            | 14.84          | 0.42            | 955.57                    |   |
| C.I. 15-3                            | C.I. 15-2            | 34.28       | 955.95               | 955.39                 | 1.63      | 15            | 0.012       | 2.94             | 5.38            | 8.94           | 0.49            | 956.64                    |   |
| C.I. 16-1                            | C.I. 1-3             | 144.00      | 953.00               | 947.20                 | 4.03      | 15            | 0.012       | 2.25             | 6.13            | 14.04          | 0.34            | 953.60                    |   |
| C.I. 17-1                            | C.I. 2-5             | 159.00      | 964.46               | 955.71                 | 5.50      | 15            | 0.012       | 2.25             | 6.62            | 16.41          | 0.31            | 965.06                    |   |
| M.H. 18-1                            | M.H. 12-1            | 207.05      | 953.36               | 951.29                 | 1.00      | 15            | 0.012       | 4.05             | 5.35            | 6.99           | 0.68            | 954.17                    |   |
| C.I. 18-2                            | M.H. 18-1            | 286.61      | 963.97               | 953.96                 | 3.49      | 15            | 0.012       | 4.05             | 7.09            | 13.07          | 0.48            | 964.78                    |   |
| C.I. 18-3                            | C.I. 18-2            | 45.03       | 965.47               | 964.57                 | 2.00      | 15            | 0.012       | 2.81             | 5.56            | 9.89           | 0.46            | 966.14                    |   |

| Inlet Design Table                                                                                                                                                                       |                |           |                 |            |                 |                |                             |               |             |                           |              |               |               |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|-----------------|------------|-----------------|----------------|-----------------------------|---------------|-------------|---------------------------|--------------|---------------|---------------|--|
| 10 Year Return Frequency                                                                                                                                                                 |                |           |                 |            |                 |                |                             |               |             |                           |              |               |               |  |
| Inlet ID                                                                                                                                                                                 | Inlet Location | Peak Flow | Upstream Bypass | Total Flow | Clogging Factor | Inlet Capacity | Sag Inlet Capacity (Note 1) | Captured Flow | Bypass Flow | Inlet Efficiency (Note 2) | Gutter Depth | Gutter Spread | Ponding Depth |  |
|                                                                                                                                                                                          |                | (cfs)     | (cfs)           | (cfs)      |                 | (cfs)          | (cfs)                       | (cfs)         | (cfs)       | (%)                       | (ft)         | (ft)          | (ft)          |  |
| C.I. 1-2(L)                                                                                                                                                                              | SAG            | 1.58      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.15         | 7.61          | ...           |  |
| C.I. 1-2(R)                                                                                                                                                                              | SAG            | 1.46      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.13         | 6.39          | ...           |  |
| C.I. 1-2                                                                                                                                                                                 | SAG            | 3.71      | 0.00            | 3.71       | 0.80            | 19.40          | 15.52                       | 3.71          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| C.I. 1-3(L)                                                                                                                                                                              | SAG            | 3.64      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.18         | 8.99          | ...           |  |
| C.I. 1-3(R)                                                                                                                                                                              | SAG            | 1.16      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.13         | 6.56          | ...           |  |
| C.I. 1-3                                                                                                                                                                                 | SAG            | 8.10      | 0.00            | 8.10       | 0.80            | 19.40          | 15.52                       | 8.10          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| F.I. 1-4                                                                                                                                                                                 | SAG            | 1.58      | 0.00            | 1.58       | 0.80            | 14.00          | 11.20                       | 1.58          | 0.00        | 100.00%                   | ...          | ...           | 0.12          |  |
| F.I. 1-5                                                                                                                                                                                 | SAG            | 1.13      | 0.00            | 1.13       | 0.80            | 14.00          | 11.20                       | 1.13          | 0.00        | 100.00%                   | ...          | ...           | 0.09          |  |
| C.I. 1-7(R)                                                                                                                                                                              | SAG            | 1.13      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.13         | 6.60          | ...           |  |
| C.I. 1-7                                                                                                                                                                                 | SAG            | 1.84      | 0.00            | 1.84       | 0.80            | 19.40          | 15.52                       | 1.84          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| C.I. 1-8(L)                                                                                                                                                                              | SAG            | 3.71      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.21         | 10.32         | ...           |  |
| C.I. 1-8(R)                                                                                                                                                                              | SAG            | 1.13      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.13         | 6.46          | ...           |  |
| C.I. 1-8                                                                                                                                                                                 | SAG            | 6.68      | 0.00            | 6.68       | 0.80            | 19.40          | 15.52                       | 6.68          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| C.I. 2-3                                                                                                                                                                                 | GRADE          | 0.98      | 0.00            | 0.98       | 1.00            | 0.83           | 0.83                        | 0.83          | 0.15        | 84.65%                    | 0.10         | 5.00          | ...           |  |
| C.I. 2-4                                                                                                                                                                                 | GRADE          | 1.91      | 0.00            | 1.91       | 1.00            | 1.38           | 1.38                        | 1.38          | 0.54        | 71.99%                    | 0.13         | 6.44          | ...           |  |
| C.I. 2-5                                                                                                                                                                                 | GRADE          | 3.25      | 0.96            | 4.21       | 1.00            | 2.80           | 2.80                        | 2.80          | 1.41        | 66.54%                    | 0.19         | 9.50          | ...           |  |
| C.I. 2-6                                                                                                                                                                                 | GRADE          | 0.79      | 0.00            | 0.79       | 1.00            | 0.72           | 0.72                        | 0.72          | 0.07        | 91.26%                    | 0.10         | 5.06          | ...           |  |
| C.I. 3-3                                                                                                                                                                                 | GRADE          | 1.05      | 0.11            | 1.16       | 1.00            | 1.05           | 1.05                        | 1.05          | 0.11        | 90.19%                    | 0.13         | 6.32          | ...           |  |
| C.I. 3-4                                                                                                                                                                                 | GRADE          | 0.71      | 0.17            | 0.88       | 1.00            | 0.82           | 0.82                        | 0.82          | 0.06        | 92.69%                    | 0.11         | 5.70          | ...           |  |
| C.I. 3-5                                                                                                                                                                                 | GRADE          | 1.43      | 0.00            | 1.43       | 1.00            | 1.25           | 1.25                        | 1.25          | 0.17        | 87.93%                    | 0.14         | 6.82          | ...           |  |
| C.I. 3-6                                                                                                                                                                                 | GRADE          | 1.16      | 0.00            | 1.16       | 1.00            | 1.05           | 1.05                        | 1.05          | 0.11        | 90.20%                    | 0.13         | 6.32          | ...           |  |
| C.I. 4-2                                                                                                                                                                                 | GRADE          | 1.16      | 0.11            | 1.28       | 1.00            | 0.87           | 0.87                        | 0.87          | 0.41        | 67.89%                    | 0.09         | 4.75          | ...           |  |
| C.I. 4-3                                                                                                                                                                                 | GRADE          | 1.39      | 0.06            | 1.45       | 1.00            | 0.94           | 0.94                        | 0.94          | 0.51        | 64.56%                    | 0.10         | 4.98          | ...           |  |
| F.I. 5-1                                                                                                                                                                                 | SAG            | 4.84      | 0.00            | 4.84       | 0.80            | 14.00          | 11.20                       | 4.84          | 0.00        | 100.00%                   | ...          | ...           | 0.25          |  |
| F.I. 5-2                                                                                                                                                                                 | SAG            | 4.85      | 0.00            | 4.85       | 0.80            | 14.00          | 11.20                       | 4.85          | 0.00        | 100.00%                   | ...          | ...           | 0.25          |  |
| C.I. 6-2(L)                                                                                                                                                                              | SAG            | 1.58      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.15         | 7.59          | ...           |  |
| C.I. 6-2(R)                                                                                                                                                                              | SAG            | 0.90      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.12         | 6.00          | ...           |  |
| C.I. 6-2                                                                                                                                                                                 | SAG            | 3.11      | 0.00            | 3.11       | 0.80            | 19.40          | 15.52                       | 3.11          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| C.I. 6-3(L)                                                                                                                                                                              | SAG            | 1.50      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.15         | 7.42          | ...           |  |
| C.I. 6-3(R)                                                                                                                                                                              | SAG            | 3.08      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.20         | 9.87          | ...           |  |
| C.I. 6-3                                                                                                                                                                                 | SAG            | 7.05      | 0.00            | 7.05       | 0.80            | 19.40          | 15.52                       | 7.05          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| F.I. 6-4                                                                                                                                                                                 | SAG            | 3.33      | 0.00            | 3.33       | 0.80            | 14.00          | 11.20                       | 3.33          | 0.00        | 100.00%                   | ...          | ...           | 0.19          |  |
| F.I. 6-5                                                                                                                                                                                 | SAG            | 1.05      | 0.00            | 1.05       | 0.80            | 14.00          | 11.20                       | 1.05          | 0.00        | 100.00%                   | ...          | ...           | 0.09          |  |
| C.I. 6-7                                                                                                                                                                                 | GRADE          | 0.83      | 0.00            | 0.83       | 1.00            | 0.77           | 0.77                        | 0.77          | 0.06        | 93.24%                    | 0.11         | 5.56          | ...           |  |
| C.I. 6-8                                                                                                                                                                                 | GRADE          | 1.13      | 0.00            | 1.13       | 1.00            | 1.02           | 1.02                        | 1.02          | 0.11        | 90.53%                    | 0.12         | 6.24          | ...           |  |
| C.I. 7-2                                                                                                                                                                                 | GRADE          | 1.76      | 0.06            | 1.82       | 1.00            | 1.40           | 1.40                        | 1.40          | 0.41        | 77.23%                    | 0.13         | 6.66          | ...           |  |
| C.I. 7-3                                                                                                                                                                                 | GRADE          | 1.09      | 0.00            | 1.09       | 1.00            | 0.93           | 0.93                        | 0.93          | 0.15        | 85.85%                    | 0.11         | 5.49          | ...           |  |
| C.I. 8-1                                                                                                                                                                                 | GRADE          | 1.88      | 0.23            | 2.11       | 1.00            | 1.70           | 1.70                        | 1.70          | 0.40        | 80.89%                    | 0.15         | 7.71          | ...           |  |
| C.I. 8-2                                                                                                                                                                                 | GRADE          | 1.39      | 0.00            | 1.39       | 1.00            | 1.21           | 1.21                        | 1.21          | 0.18        | 87.17%                    | 0.13         | 6.59          | ...           |  |
| F.I. 9-1                                                                                                                                                                                 | SAG            | 1.24      | 0.00            | 1.24       | 0.80            | 14.00          | 11.20                       | 1.24          | 0.00        | 100.00%                   | ...          | ...           | 0.10          |  |
| C.I. 10-3(L)                                                                                                                                                                             | SAG            | 0.34      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.08         | 3.87          | ...           |  |
| C.I. 10-3(R)                                                                                                                                                                             | SAG            | 0.98      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.13         | 6.38          | ...           |  |
| C.I. 10-3                                                                                                                                                                                | SAG            | 1.88      | 0.00            | 1.88       | 0.80            | 19.40          | 15.52                       | 1.88          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| C.I. 10-4(L)                                                                                                                                                                             | SAG            | 2.96      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.21         | 10.60         | ...           |  |
| C.I. 10-4(R)                                                                                                                                                                             | SAG            | 3.56      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.19         | 9.36          | ...           |  |
| C.I. 10-4                                                                                                                                                                                | SAG            | 9.11      | 0.00            | 9.11       | 0.80            | 19.40          | 15.52                       | 9.11          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| C.I. 11-1                                                                                                                                                                                | GRADE          | 1.58      | 0.00            | 1.58       | 1.00            | 1.34           | 1.34                        | 1.34          | 0.23        | 85.28%                    | 0.14         | 6.89          | ...           |  |
| C.I. 11-2                                                                                                                                                                                | GRADE          | 3.04      | 0.00            | 3.04       | 1.00            | 2.23           | 2.23                        | 2.23          | 0.81        | 73.35%                    | 0.18         | 8.82          | ...           |  |
| C.I. 12-2(L)                                                                                                                                                                             | SAG            | 0.41      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.09         | 4.43          | ...           |  |
| C.I. 12-2(R)                                                                                                                                                                             | SAG            | 3.00      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.19         | 9.33          | ...           |  |
| C.I. 12-2                                                                                                                                                                                | SAG            | 4.01      | 0.00            | 4.01       | 0.80            | 19.40          | 15.52                       | 4.01          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| C.I. 12-3(L)                                                                                                                                                                             | SAG            | 0.64      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.10         | 5.22          | ...           |  |
| C.I. 12-3(R)                                                                                                                                                                             | SAG            | 0.53      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.10         | 4.85          | ...           |  |
| C.I. 12-3                                                                                                                                                                                | SAG            | 3.53      | 0.00            | 3.53       | 0.80            | 19.40          | 15.52                       | 3.53          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| C.I. 13-2(L)                                                                                                                                                                             | SAG            | 0.60      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.10         | 4.84          | ...           |  |
| C.I. 13-2(R)                                                                                                                                                                             | SAG            | 0.38      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.07         | 3.55          | ...           |  |
| C.I. 13-2                                                                                                                                                                                | SAG            | 2.21      | 0.00            | 2.21       | 0.80            | 19.40          | 15.52                       | 2.21          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| C.I. 13-3                                                                                                                                                                                | GRADE          | 0.53      | 0.00            | 0.53       | 1.00            | 0.44           | 0.44                        | 0.44          | 0.09        | 83.36%                    | 0.07         | 3.29          | ...           |  |
| C.I. 13-4                                                                                                                                                                                | GRADE          | 1.13      | 0.00            | 1.13       | 1.00            | 0.76           | 0.76                        | 0.76          | 0.36        | 67.81%                    | 0.09         | 4.37          | ...           |  |
| C.I. 14-2(L)                                                                                                                                                                             | SAG            | 0.98      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.10         | 5.07          | ...           |  |
| C.I. 14-2(R)                                                                                                                                                                             | SAG            | 1.39      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.14         | 7.18          | ...           |  |
| C.I. 14-2                                                                                                                                                                                | SAG            | 3.00      | 0.00            | 3.00       | 0.80            | 19.40          | 15.52                       | 3.00          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| C.I. 14-3(L)                                                                                                                                                                             | SAG            | 1.76      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.16         | 7.85          | ...           |  |
| C.I. 14-3(R)                                                                                                                                                                             | SAG            | 2.59      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.16         | 8.15          | ...           |  |
| C.I. 14-3                                                                                                                                                                                | SAG            | 5.66      | 0.00            | 5.66       | 0.80            | 19.40          | 15.52                       | 5.66          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| F.I. 14-5                                                                                                                                                                                | SAG            | 3.68      | 0.00            | 3.68       | 0.80            | 14.00          | 11.20                       | 3.68          | 0.00        | 100.00%                   | ...          | ...           | 0.20          |  |
| C.I. 15-2                                                                                                                                                                                | GRADE          | 0.75      | 0.00            | 0.75       | 1.00            | 0.65           | 0.65                        | 0.65          | 0.10        | 87.10%                    | 0.09         | 4.43          | ...           |  |
| C.I. 15-3                                                                                                                                                                                | GRADE          | 2.94      | 0.00            | 2.94       | 1.00            | 1.72           | 1.72                        | 1.72          | 1.22        | 58.61%                    | 0.15         | 7.40          | ...           |  |
| C.I. 16-1                                                                                                                                                                                | GRADE          | 2.25      | 2.01            | 4.26       | 1.00            | 3.26           | 3.26                        | 3.26          | 1.00        | 76.52%                    | 0.21         | 10.68         | ...           |  |
| C.I. 17-1                                                                                                                                                                                | GRADE          | 2.25      | 0.00            | 2.25       | 1.00            | 1.29           | 1.29                        | 1.29          | 0.96        | 57.46%                    | 0.12         | 6.17          | ...           |  |
| C.I. 18-2                                                                                                                                                                                | GRADE          | 1.24      | 0.00            | 1.24       | 1.00            | 1.23           | 1.23                        | 1.23          | 0.01        | 99.52%                    | 0.14         | 6.60          | ...           |  |
| C.I. 18-3                                                                                                                                                                                | GRADE          | 2.81      | 0.00            | 2.81       | 1.00            | 2.63           | 2.63                        | 2.63          | 0.18        | 93.65%                    | 0.19         | 8.98          | ...           |  |
| Notes:                                                                                                                                                                                   |                |           |                 |            |                 |                |                             |               |             |                           |              |               |               |  |
| 1. Inlet capacity at sag location has been reduced by a clogging factor of 0.80, reducing theoretical capacity to 80% capacity, as required per APWA Section 5600.                       |                |           |                 |            |                 |                |                             |               |             |                           |              |               |               |  |
| Both theoretical capacity and reduced capacity are shown.                                                                                                                                |                |           |                 |            |                 |                |                             |               |             |                           |              |               |               |  |
| 2. Inlet efficiency shown in the tables is Captured Flow/Total Flow, denoting the actual percentage of flow captured after the capacity has been reduced to 80% of theoretical capacity. |                |           |                 |            |                 |                |                             |               |             |                           |              |               |               |  |



| Storm Sewer Design Calculation Table |                      |             |                      |                        |           |               |             |                  |                 |                |                 |                           |
|--------------------------------------|----------------------|-------------|----------------------|------------------------|-----------|---------------|-------------|------------------|-----------------|----------------|-----------------|---------------------------|
| 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) |
| M.H. 1-1                             | E.S. 1-0             | 94.45       | 920.83               | 918.00                 | 3.00      | 36            | 0.012       | 44.33            | 12.14           | 125.07         | 1.23            | 923.00                    |
| C.I. 1-2                             | M.H. 1-1             | 178.23      | 940.35               | 925.83                 | 8.15      | 24            | 0.012       | 44.33            | 18.86           | 69.94          | 1.16            | 942.32                    |
| C.I. 1-3                             | C.I. 1-2             | 35.86       | 945.70               | 943.91                 | 4.99      | 24            | 0.012       | 37.82            | 15.47           | 54.74          | 1.22            | 947.64                    |
| F.I. 1-4                             | C.I. 1-3             | 159.42      | 953.55               | 947.20                 | 3.98      | 18            | 0.012       | 19.66            | 12.83           | 22.70          | 1.08            | 955.01                    |
| F.I. 1-5                             | F.I. 1-4             | 144.93      | 957.05               | 954.15                 | 2.00      | 18            | 0.012       | 16.90            | 10.01           | 16.09          | 1.31            | 958.49                    |
| M.H. 1-6                             | F.I. 1-5             | 72.00       | 958.73               | 957.65                 | 1.50      | 18            | 0.012       | 14.93            | 8.75            | 13.93          | 1.37            | 960.13                    |
| C.I. 1-7                             | M.H. 1-6             | 143.00      | 965.57               | 959.53                 | 4.22      | 18            | 0.012       | 14.93            | 11.36           | 23.38          | 0.87            | 966.97                    |
| C.I. 1-8                             | C.I. 1-7             | 36.65       | 968.07               | 966.17                 | 5.18      | 15            | 0.012       | 11.71            | 11.84           | 15.93          | 0.80            | 969.28                    |
| M.H. 2-1                             | E.S. 2-0             | 60.97       | 930.91               | 930.00                 | 1.49      | 18            | 0.012       | 16.16            | 9.15            | 13.90          | 1.50            | 932.73                    |
| M.H. 2-2                             | M.H. 2-1             | 76.06       | 937.81               | 931.41                 | 8.41      | 18            | 0.012       | 16.16            | 9.23            | 33.00          | 1.50            | 939.24j                   |
| C.I. 2-3                             | M.H. 2-2             | 100.99      | 952.43               | 940.37                 | 11.94     | 18            | 0.012       | 16.16            | 15.23           | 39.31          | 0.67            | 953.86                    |
| C.I. 2-4                             | C.I. 2-3             | 38.11       | 953.47               | 953.03                 | 1.15      | 18            | 0.012       | 14.45            | 8.18            | 12.22          | 1.50            | 955.15                    |
| C.I. 2-5                             | C.I. 2-4             | 49.50       | 954.66               | 954.17                 | 0.99      | 18            | 0.012       | 11.09            | 6.28            | 11.32          | 1.50            | 957.11                    |
| C.I. 2-6                             | C.I. 2-5             | 34.00       | 955.60               | 955.26                 | 1.00      | 15            | 0.012       | 1.38             | 1.12            | 7.00           | 1.25            | 958.16                    |
| M.H. 3-1                             | E.S. 3-0             | 77.77       | 911.48               | 910.15                 | 1.71      | 15            | 0.012       | 12.10            | 9.86            | 9.15           | 1.25            | 913.73                    |
| M.H. 3-2                             | M.H. 3-1             | 166.71      | 926.04               | 912.08                 | 8.37      | 15            | 0.012       | 12.10            | 9.90            | 20.24          | 1.25            | 927.26j                   |
| C.I. 3-3                             | M.H. 3-2             | 297.33      | 952.61               | 926.64                 | 8.73      | 15            | 0.012       | 7.63             | 9.66            | 20.67          | 0.62            | 953.71                    |
| C.I. 3-4                             | C.I. 3-3             | 58.94       | 954.39               | 953.21                 | 2.00      | 15            | 0.012       | 5.79             | 7.01            | 9.90           | 0.69            | 955.36                    |
| C.I. 3-5                             | C.I. 3-4             | 150.00      | 957.24               | 954.99                 | 1.50      | 15            | 0.012       | 4.54             | 6.05            | 8.57           | 0.65            | 958.10                    |
| C.I. 3-6                             | C.I. 3-5             | 41.11       | 958.46               | 957.84                 | 1.51      | 15            | 0.012       | 2.04             | 4.75            | 8.59           | 0.41            | 959.03                    |
| M.H. 4-1                             | M.H. 3-2             | 282.38      | 929.46               | 926.64                 | 1.00      | 15            | 0.012       | 4.47             | 5.52            | 6.99           | 0.73            | 930.32                    |
| C.I. 4-2                             | M.H. 4-1             | 158.94      | 931.65               | 930.06                 | 1.00      | 15            | 0.012       | 4.47             | 5.52            | 7.00           | 0.73            | 932.51                    |
| C.I. 4-3                             | C.I. 4-2             | 37.59       | 934.13               | 932.25                 | 5.00      | 15            | 0.012       | 2.43             | 6.61            | 15.64          | 0.33            | 934.75                    |
| F.I. 5-1                             | E.S. 5-0             | 130.80      | 924.19               | 920.00                 | 3.20      | 18            | 0.012       | 17.01            | 11.33           | 20.36          | 1.05            | 925.63                    |
| F.I. 5-2                             | F.I. 5-1             | 200.00      | 940.36               | 932.20                 | 4.08      | 15            | 0.012       | 8.52             | 9.66            | 14.13          | 0.70            | 941.50                    |
| M.H. 6-1                             | E.S. 6-0             | 108.38      | 926.53               | 924.36                 | 2.00      | 30            | 0.012       | 41.86            | 11.48           | 62.87          | 1.49            | 928.70                    |
| C.I. 6-2                             | M.H. 6-1             | 128.37      | 946.68               | 932.56                 | 11.00     | 24            | 0.012       | 41.86            | 19.72           | 81.27          | 1.02            | 948.64                    |
| C.I. 6-3                             | C.I. 6-2             | 35.59       | 948.88               | 947.68                 | 3.37      | 24            | 0.012       | 36.40            | 13.83           | 44.99          | 1.36            | 950.81                    |
| F.I. 6-4                             | C.I. 6-3             | 155.38      | 953.21               | 949.48                 | 2.40      | 18            | 0.012       | 13.31            | 7.97            | 17.63          | 1.33            | 954.57                    |
| F.I. 6-5                             | F.I. 6-4             | 209.08      | 956.95               | 953.81                 | 1.50      | 15            | 0.012       | 5.26             | 6.05            | 8.57           | 0.76            | 957.88                    |
| M.H. 6-6                             | F.I. 6-5             | 58.33       | 958.42               | 957.55                 | 1.49      | 15            | 0.012       | 3.42             | 5.53            | 8.54           | 0.55            | 959.17                    |
| C.I. 6-7                             | M.H. 6-6             | 101.49      | 962.82               | 959.02                 | 3.74      | 15            | 0.012       | 3.42             | 6.84            | 13.54          | 0.43            | 963.57                    |
| C.I. 6-8                             | C.I. 6-7             | 54.06       | 966.17               | 963.42                 | 5.09      | 15            | 0.012       | 1.97             | 6.24            | 15.78          | 0.30            | 966.73                    |
| M.H. 7-1                             | C.I. 6-3             | 234.11      | 954.10               | 949.48                 | 1.97      | 15            | 0.012       | 5.00             | 4.66            | 9.83           | 1.25            | 955.01j                   |
| C.I. 7-2                             | M.H. 7-1             | 66.86       | 955.70               | 954.70                 | 1.50      | 15            | 0.012       | 5.00             | 6.25            | 8.56           | 0.69            | 956.61                    |
| C.I. 7-3                             | C.I. 7-2             | 45.71       | 956.98               | 956.30                 | 1.49      | 15            | 0.012       | 1.91             | 4.64            | 8.53           | 0.40            | 957.53                    |
| C.I. 8-1                             | C.I. 6-3             | 199.17      | 954.66               | 949.88                 | 2.40      | 15            | 0.012       | 5.72             | 5.72            | 10.84          | 0.93            | 955.63                    |
| C.I. 8-2                             | C.I. 8-1             | 48.86       | 955.99               | 955.26                 | 1.49      | 15            | 0.012       | 2.43             | 4.99            | 8.55           | 0.46            | 956.61                    |
| F.I. 9-1                             | F.I. 6-4             | 139.73      | 959.40               | 953.81                 | 4.00      | 15            | 0.012       | 2.17             | 3.30            | 13.99          | 0.76            | 959.99j                   |
| M.H. 10-1                            | E.S. 10-0            | 68.05       | 949.02               | 948.00                 | 1.50      | 24            | 0.012       | 11.38            | 7.31            | 30.00          | 0.85            | 950.23                    |
| C.I. 10-2                            | M.H. 10-1            | 158.20      | 956.81               | 949.62                 | 4.54      | 24            | 0.012       | 11.38            | 9.51            | 52.24          | 0.63            | 958.02                    |
| C.I. 10-3                            | C.I. 10-2            | 37.68       | 957.98               | 957.41                 | 1.51      | 18            | 0.012       | 3.29             | 4.51            | 13.99          | 0.61            | 958.67                    |
| C.I. 11-1                            | C.I. 10-2            | 212.00      | 959.53               | 957.56                 | 0.93      | 15            | 0.012       | 8.09             | 6.59            | 6.74           | 1.25            | 961.65                    |
| C.I. 11-2                            | C.I. 11-1            | 70.50       | 963.30               | 960.13                 | 4.50      | 15            | 0.012       | 5.33             | 4.88            | 14.83          | 1.25            | 964.24j                   |
| M.H. 12-1                            | E.S. 12-0            | 73.49       | 950.69               | 950.00                 | 0.94      | 24            | 0.012       | 20.34            | 7.98            | 23.74          | 1.43            | 952.31                    |
| C.I. 12-2                            | M.H. 12-1            | 166.88      | 953.97               | 951.44                 | 1.52      | 15            | 0.012       | 13.23            | 10.78           | 8.61           | 1.25            | 958.66                    |
| C.I. 12-3                            | C.I. 12-2            | 34.00       | 960.00               | 958.30                 | 5.00      | 15            | 0.012       | 6.19             | 5.45            | 15.64          | 1.25            | 961.00j                   |
| M.H. 13-1                            | E.S. 13-0            | 32.00       | 913.55               | 912.59                 | 3.00      | 15            | 0.012       | 6.77             | 8.16            | 12.12          | 0.67            | 914.59                    |
| C.I. 13-2                            | M.H. 13-1            | 128.00      | 934.50               | 919.14                 | 12.00     | 15            | 0.012       | 6.77             | 11.55           | 24.23          | 0.45            | 935.54                    |
| C.I. 13-3                            | C.I. 13-2            | 124.09      | 947.93               | 936.00                 | 9.61      | 15            | 0.012       | 2.89             | 8.25            | 21.69          | 0.31            | 948.61                    |
| C.I. 13-4                            | C.I. 13-3            | 34.00       | 949.21               | 948.53                 | 2.00      | 15            | 0.012       | 1.97             | 5.00            | 9.89           | 0.38            | 949.77                    |
| M.H. 14-1                            | E.S. 14-0            | 77.98       | 929.49               | 928.00                 | 1.91      | 24            | 0.012       | 28.19            | 10.71           | 33.87          | 1.39            | 931.32                    |
| C.I. 14-2                            | M.H. 14-1            | 135.03      | 935.89               | 930.09                 | 4.30      | 18            | 0.012       | 28.19            | 15.95           | 23.58          | 1.50            | 939.88                    |
| C.I. 14-3                            | C.I. 14-2            | 34.00       | 941.64               | 940.96                 | 2.00      | 18            | 0.012       | 16.39            | 9.28            | 16.09          | 1.50            | 946.29                    |
| M.H. 14-4                            | C.I. 14-3            | 27.99       | 942.80               | 942.24                 | 2.00      | 15            | 0.012       | 6.45             | 5.26            | 9.90           | 1.25            | 947.20                    |
| F.I. 14-5                            | M.H. 14-4            | 60.93       | 954.37               | 948.28                 | 9.99      | 15            | 0.012       | 6.45             | 10.81           | 22.12          | 0.46            | 955.39                    |
| M.H. 15-1                            | C.I. 14-2            | 171.54      | 949.40               | 944.19                 | 3.04      | 15            | 0.012       | 6.54             | 5.69            | 12.19          | 1.25            | 950.43j                   |
| C.I. 15-2                            | M.H. 15-1            | 106.46      | 954.79               | 950.00                 | 4.50      | 15            | 0.012       | 6.54             | 8.88            | 14.84          | 0.58            | 955.82                    |
| C.I. 15-3                            | C.I. 15-2            | 34.28       | 955.95               | 955.39                 | 1.63      | 15            | 0.012       | 5.22             | 6.46            | 8.94           | 0.69            | 956.88                    |
| C.I. 16-1                            | C.I. 1-3             | 144.00      | 953.00               | 947.20                 | 4.03      | 15            | 0.012       | 3.95             | 7.28            | 14.04          | 0.45            | 953.80                    |
| C.I. 17-1                            | C.I. 2-5             | 159.00      | 964.46               | 955.71                 | 5.50      | 15            | 0.012       | 3.95             | 3.98            | 16.41          | 1.25            | 965.26j                   |
| M.H. 18-1                            | M.H. 12-1            | 207.05      | 953.36               | 951.29                 | 1.00      | 15            | 0.012       | 7.11             | 6.43            | 6.99           | 1.04            | 954.43                    |
| C.I. 18-2                            | M.H. 18-1            | 286.61      | 963.97               | 953.96                 | 3.49      | 15            | 0.012       | 7.11             | 8.62            | 13.07          | 0.66            | 965.04                    |
| C.I. 18-3                            | C.I. 18-2            | 45.03       | 965.47               | 964.57                 | 2.00      | 15            | 0.012       | 4.94             | 6.64            | 9.89           | 0.62            | 966.37                    |

| Inlet Design Table                                                                                                                                                                       |                |           |                 |            |                 |                |                             |               |             |                           |              |               |               |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|-----------------|------------|-----------------|----------------|-----------------------------|---------------|-------------|---------------------------|--------------|---------------|---------------|--|
| 100 Year Return Frequency                                                                                                                                                                |                |           |                 |            |                 |                |                             |               |             |                           |              |               |               |  |
| Inlet ID                                                                                                                                                                                 | Inlet Location | Peak Flow | Upstream Bypass | Total Flow | Clogging Factor | Inlet Capacity | Sag Inlet Capacity (Note 1) | Captured Flow | Bypass Flow | Inlet Efficiency (Note 2) | Gutter Depth | Gutter Spread | Ponding Depth |  |
|                                                                                                                                                                                          |                | (cfs)     | (cfs)           | (cfs)      |                 | (cfs)          | (cfs)                       | (cfs)         | (cfs)       | (%)                       | (ft)         | (ft)          | (ft)          |  |
| C.I. 1-2(L)                                                                                                                                                                              | SAG            | 2.76      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.19         | 9.59          | ...           |  |
| C.I. 1-2(R)                                                                                                                                                                              | SAG            | 2.57      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.16         | 7.89          | ...           |  |
| C.I. 1-2                                                                                                                                                                                 | SAG            | 6.51      | 0.00            | 6.51       | 0.80            | 19.40          | 15.52                       | 6.51          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| C.I. 1-3(L)                                                                                                                                                                              | SAG            | 6.38      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.22         | 11.10         | ...           |  |
| C.I. 1-3(R)                                                                                                                                                                              | SAG            | 2.04      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.16         | 8.10          | ...           |  |
| C.I. 1-3                                                                                                                                                                                 | SAG            | 14.21     | 0.00            | 14.21      | 0.80            | 19.40          | 15.52                       | 14.21         | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| F.I. 1-4                                                                                                                                                                                 | SAG            | 2.76      | 0.00            | 2.76       | 0.80            | 14.00          | 11.20                       | 2.76          | 0.00        | 100.00%                   | ...          | ...           | 0.17          |  |
| F.I. 1-5                                                                                                                                                                                 | SAG            | 1.97      | 0.00            | 1.97       | 0.80            | 14.00          | 11.20                       | 1.97          | 0.00        | 100.00%                   | ...          | ...           | 0.14          |  |
| C.I. 1-7(R)                                                                                                                                                                              | SAG            | 1.97      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.16         | 8.14          | ...           |  |
| C.I. 1-7                                                                                                                                                                                 | SAG            | 3.22      | 0.00            | 3.22       | 0.80            | 19.40          | 15.52                       | 3.22          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| C.I. 1-8(L)                                                                                                                                                                              | SAG            | 6.51      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.25         | 12.74         | ...           |  |
| C.I. 1-8(R)                                                                                                                                                                              | SAG            | 1.97      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.16         | 7.97          | ...           |  |
| C.I. 1-8                                                                                                                                                                                 | SAG            | 11.71     | 0.00            | 11.71      | 0.80            | 19.40          | 15.52                       | 11.71         | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| C.I. 2-3                                                                                                                                                                                 | GRADE          | 1.71      | 0.00            | 1.71       | 1.00            | 1.27           | 1.27                        | 1.27          | 0.44        | 74.48%                    | 0.12         | 6.18          | ...           |  |
| C.I. 2-4                                                                                                                                                                                 | GRADE          | 3.36      | 0.00            | 3.36       | 1.00            | 1.92           | 1.92                        | 1.92          | 1.44        | 57.22%                    | 0.16         | 7.96          | ...           |  |
| C.I. 2-5                                                                                                                                                                                 | GRADE          | 5.76      | 2.34            | 8.11       | 1.00            | 3.83           | 3.83                        | 3.83          | 4.28        | 47.24%                    | 0.24         | 12.14         | ...           |  |
| C.I. 2-6                                                                                                                                                                                 | GRADE          | 1.38      | 0.00            | 1.38       | 1.00            | 1.17           | 1.17                        | 1.17          | 0.21        | 84.57%                    | 0.13         | 6.25          | ...           |  |
| C.I. 3-3                                                                                                                                                                                 | GRADE          | 1.84      | 0.35            | 2.19       | 1.00            | 1.79           | 1.79                        | 1.79          | 0.40        | 81.72%                    | 0.16         | 8.01          | ...           |  |
| C.I. 3-4                                                                                                                                                                                 | GRADE          | 1.25      | 0.52            | 1.77       | 1.00            | 1.50           | 1.50                        | 1.50          | 0.26        | 85.09%                    | 0.15         | 7.39          | ...           |  |
| C.I. 3-5                                                                                                                                                                                 | GRADE          | 2.50      | 0.00            | 2.50       | 1.00            | 1.99           | 1.99                        | 1.99          | 0.52        | 79.38%                    | 0.17         | 8.42          | ...           |  |
| C.I. 3-6                                                                                                                                                                                 | GRADE          | 2.04      | 0.00            | 2.04       | 1.00            | 1.69           | 1.69                        | 1.69          | 0.35        | 82.90%                    | 0.16         | 7.80          | ...           |  |
| C.I. 4-2                                                                                                                                                                                 | GRADE          | 2.04      | 0.40            | 2.44       | 1.00            | 1.21           | 1.21                        | 1.21          | 1.23        | 49.64%                    | 0.12         | 6.05          | ...           |  |
| C.I. 4-3                                                                                                                                                                                 | GRADE          | 2.43      | 0.26            | 2.70       | 1.00            | 1.26           | 1.26                        | 1.26          | 1.44        | 46.61%                    | 0.13         | 6.29          | ...           |  |
| F.I. 5-1                                                                                                                                                                                 | SAG            | 8.49      | 0.00            | 8.49       | 0.80            | 14.00          | 11.20                       | 8.49          | 0.00        | 100.00%                   | ...          | ...           | 0.36          |  |
| F.I. 5-2                                                                                                                                                                                 | SAG            | 8.52      | 0.00            | 8.52       | 0.80            | 14.00          | 11.20                       | 8.52          | 0.00        | 100.00%                   | ...          | ...           | 0.36          |  |
| C.I. 6-2(L)                                                                                                                                                                              | SAG            | 2.76      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.19         | 9.58          | ...           |  |
| C.I. 6-2(R)                                                                                                                                                                              | SAG            | 1.58      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.15         | 7.72          | ...           |  |
| C.I. 6-2                                                                                                                                                                                 | SAG            | 5.46      | 0.00            | 5.46       | 0.80            | 19.40          | 15.52                       | 5.46          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| C.I. 6-3(L)                                                                                                                                                                              | SAG            | 2.63      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.19         | 9.75          | ...           |  |
| C.I. 6-3(R)                                                                                                                                                                              | SAG            | 5.40      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.25         | 12.53         | ...           |  |
| C.I. 6-3                                                                                                                                                                                 | SAG            | 12.37     | 0.00            | 12.37      | 0.80            | 19.40          | 15.52                       | 12.37         | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| F.I. 6-4                                                                                                                                                                                 | SAG            | 5.88      | 0.00            | 5.88       | 0.80            | 14.00          | 11.20                       | 5.88          | 0.00        | 100.00%                   | ...          | ...           | 0.28          |  |
| F.I. 6-5                                                                                                                                                                                 | SAG            | 1.84      | 0.00            | 1.84       | 0.80            | 14.00          | 11.20                       | 1.84          | 0.00        | 100.00%                   | ...          | ...           | 0.13          |  |
| C.I. 6-7                                                                                                                                                                                 | GRADE          | 1.45      | 0.00            | 1.45       | 1.00            | 1.27           | 1.27                        | 1.27          | 0.18        | 87.74%                    | 0.14         | 6.86          | ...           |  |
| C.I. 6-8                                                                                                                                                                                 | GRADE          | 1.97      | 0.00            | 1.97       | 1.00            | 1.65           | 1.65                        | 1.65          | 0.33        | 83.42%                    | 0.15         | 7.71          | ...           |  |
| C.I. 7-2                                                                                                                                                                                 | GRADE          | 3.09      | 0.18            | 3.27       | 1.00            | 2.07           | 2.07                        | 2.07          | 1.20        | 63.38%                    | 0.17         | 8.30          | ...           |  |
| C.I. 7-3                                                                                                                                                                                 | GRADE          | 1.91      | 0.00            | 1.91       | 1.00            | 1.46           | 1.46                        | 1.46          | 0.45        | 76.25%                    | 0.14         | 6.78          | ...           |  |
| C.I. 8-1                                                                                                                                                                                 | GRADE          | 3.29      | 0.68            | 3.97       | 1.00            | 2.67           | 2.67                        | 2.67          | 1.30        | 67.29%                    | 0.20         | 9.78          | ...           |  |
| C.I. 8-2                                                                                                                                                                                 | GRADE          | 2.43      | 0.00            | 2.43       | 1.00            | 1.90           | 1.90                        | 1.90          | 0.53        | 78.23%                    | 0.16         | 8.14          | ...           |  |
| F.I. 9-1                                                                                                                                                                                 | SAG            | 2.17      | 0.00            | 2.17       | 0.80            | 14.00          | 11.20                       | 2.17          | 0.00        | 100.00%                   | ...          | ...           | 0.14          |  |
| C.I. 10-3(L)                                                                                                                                                                             | SAG            | 0.59      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.10         | 4.78          | ...           |  |
| C.I. 10-3(R)                                                                                                                                                                             | SAG            | 1.71      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.16         | 7.88          | ...           |  |
| C.I. 10-3                                                                                                                                                                                | SAG            | 3.29      | 0.00            | 3.29       | 0.80            | 19.40          | 15.52                       | 3.29          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| C.I. 10-4(L)                                                                                                                                                                             | SAG            | 5.20      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.27         | 13.64         | ...           |  |
| C.I. 10-4(R)                                                                                                                                                                             | SAG            | 6.25      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.23         | 11.56         | ...           |  |
| C.I. 10-4                                                                                                                                                                                | SAG            | 15.99     | 0.00            | 15.99      | 0.80            | 19.40          | 15.52                       | 15.52         | 0.47        | 97.06%                    | ...          | ...           | ...           |  |
| C.I. 11-1                                                                                                                                                                                | GRADE          | 2.76      | 0.00            | 2.76       | 1.00            | 2.08           | 2.08                        | 2.08          | 0.68        | 75.40%                    | 0.17         | 8.51          | ...           |  |
| C.I. 11-2                                                                                                                                                                                | GRADE          | 5.33      | 0.00            | 5.33       | 1.00            | 3.14           | 3.14                        | 3.14          | 2.19        | 58.95%                    | 0.22         | 10.88         | ...           |  |
| C.I. 12-2(L)                                                                                                                                                                             | SAG            | 0.72      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.11         | 5.47          | ...           |  |
| C.I. 12-2(R)                                                                                                                                                                             | SAG            | 5.26      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.23         | 11.52         | ...           |  |
| C.I. 12-2                                                                                                                                                                                | SAG            | 7.04      | 0.00            | 7.04       | 0.80            | 19.40          | 15.52                       | 7.04          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| C.I. 12-3(L)                                                                                                                                                                             | SAG            | 1.12      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.13         | 6.44          | ...           |  |
| C.I. 12-3(R)                                                                                                                                                                             | SAG            | 0.92      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.12         | 5.99          | ...           |  |
| C.I. 12-3                                                                                                                                                                                | SAG            | 6.19      | 0.00            | 6.19       | 0.80            | 19.40          | 15.52                       | 6.19          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| C.I. 13-2(L)                                                                                                                                                                             | SAG            | 1.05      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.13         | 6.37          | ...           |  |
| C.I. 13-2(R)                                                                                                                                                                             | SAG            | 0.66      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.09         | 4.57          | ...           |  |
| C.I. 13-2                                                                                                                                                                                | SAG            | 3.88      | 0.00            | 3.88       | 0.80            | 19.40          | 15.52                       | 3.88          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| C.I. 13-3                                                                                                                                                                                | GRADE          | 0.92      | 0.00            | 0.92       | 1.00            | 0.67           | 0.67                        | 0.67          | 0.25        | 72.60%                    | 0.08         | 4.06          | ...           |  |
| C.I. 13-4                                                                                                                                                                                | GRADE          | 1.97      | 0.00            | 1.97       | 1.00            | 1.03           | 1.03                        | 1.03          | 0.95        | 52.11%                    | 0.11         | 5.40          | ...           |  |
| C.I. 14-2(L)                                                                                                                                                                             | SAG            | 1.71      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.13         | 6.40          | ...           |  |
| C.I. 14-2(R)                                                                                                                                                                             | SAG            | 2.43      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.18         | 8.86          | ...           |  |
| C.I. 14-2                                                                                                                                                                                | SAG            | 5.26      | 0.00            | 5.26       | 0.80            | 19.40          | 15.52                       | 5.26          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| C.I. 14-3(L)                                                                                                                                                                             | SAG            | 3.09      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.19         | 9.69          | ...           |  |
| C.I. 14-3(R)                                                                                                                                                                             | SAG            | 4.54      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.21         | 10.56         | ...           |  |
| C.I. 14-3                                                                                                                                                                                | SAG            | 9.94      | 0.00            | 9.94       | 0.80            | 19.40          | 15.52                       | 9.94          | 0.00        | 100.00%                   | ...          | ...           | ...           |  |
| F.I. 14-5                                                                                                                                                                                | SAG            | 6.45      | 0.00            | 6.45       | 0.80            | 14.00          | 11.20                       | 6.45          | 0.00        | 100.00%                   | ...          | ...           | 0.30          |  |
| C.I. 15-2                                                                                                                                                                                | GRADE          | 1.32      | 0.00            | 1.32       | 1.00            | 1.03           | 1.03                        | 1.03          | 0.29        | 78.13%                    | 0.11         | 5.48          | ...           |  |
| C.I. 15-3                                                                                                                                                                                | GRADE          | 5.22      | 0.00            | 5.22       | 1.00            | 2.17           | 2.17                        | 2.17          | 3.05        | 41.51%                    | 0.18         | 9.18          | ...           |  |
| C.I. 16-1                                                                                                                                                                                | GRADE          | 3.95      | 5.93            | 9.88       | 1.00            | 5.35           | 5.35                        | 5.35          | 4.53        | 54.17%                    | 0.29         | 14.64         | ...           |  |
| C.I. 17-1                                                                                                                                                                                | GRADE          | 3.95      | 0.00            | 3.95       | 1.00            | 1.61           | 1.61                        | 1.61          | 2.34        | 40.65%                    | 0.15         | 7.61          | ...           |  |
| C.I. 18-2                                                                                                                                                                                | GRADE          | 2.17      | 0.00            | 2.17       | 1.00            | 2.09           | 2.09                        | 2.09          | 0.08        | 96.28%                    | 0.18         | 8.15          | ...           |  |
| C.I. 18-3                                                                                                                                                                                | GRADE          | 4.94      | 0.00            | 4.94       | 1.00            | 4.19           | 4.19                        | 4.19          | 0.74        | 84.99%                    | 0.24         | 11.08         | ...           |  |
| 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. |                |           |                 |            |                 |                |                             |               |             |                           |              |               |               |  |



DWG: F:\2018\1001-1500\018-1140-A\40-Design\AutoCAD\As-Built\Sheets\GNV\01\_Street & Storm\_36x24\C-MDR01\_1140A.dwg  
DATE: Nov 02, 2020 9:38am  
USER: jellers



Key Map

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

2. PLAT IS LOCATED 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. BUFFER ZONE FOR NATURAL STREAMS IS LOCATED WITHIN PLAT.

4. MLO ELEVATIONS HAVE BEEN PROVIDED AT EACH LOT CORNER. INTERPOLATION WILL BE ALLOWED BETWEEN CORNER MBOES SHOWN ON THE MASTER DRAINAGE PLAN, DEPENDING ON THE LOCATION OF THE LOWEST OPENING ON THE PROPOSED STRUCTURE.

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

RMLO - REAR MINIMUM LOW OPENING  
FMLO - FRONT MINIMUM LOW OPENING

6. REFER TO SHEET C112-C114 FOR SWALE GRADING DETAILS.

LOT TYPES:  
S - STANDARD  
D - DAYLIGHT  
W - WALKOUT

BASIN B1 (TRACT G) CONDITIONS:  
100-YEAR W.S.E. (NON-CLOGGED): 926.48  
CLOGGED CONDITION (ALL FLOW THROUGH EMERGENCY SPILLWAY): 928.84

BASIN C1 DETENTION (TRACT E):  
100-YEAR W.S.E. (NON-CLOGGED): 925.96  
CLOGGED CONDITION (ALL FLOW THROUGH EMERGENCY SPILLWAY): 927.41

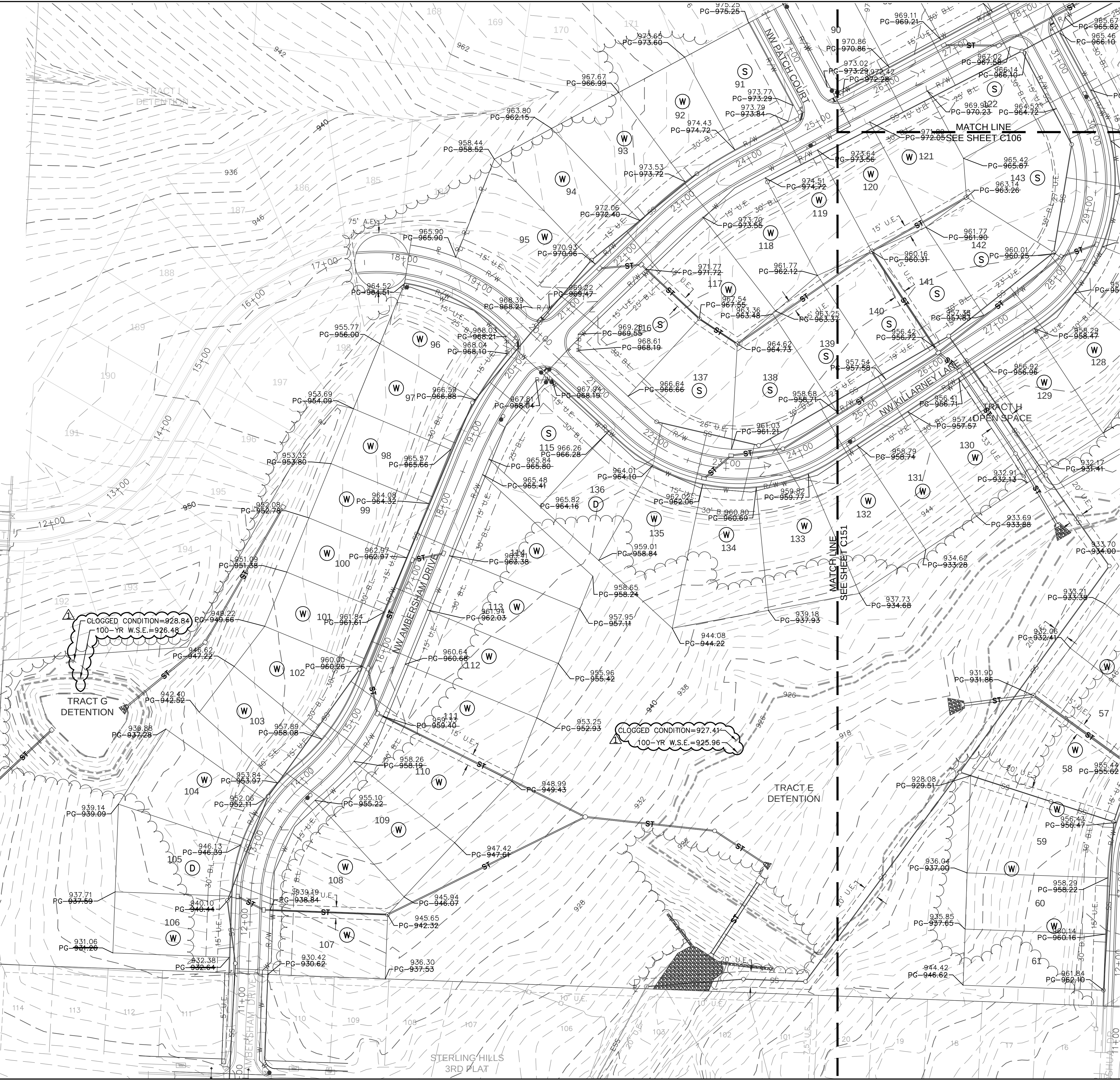
AS-BUILT



0' 30' 60' 120'  
SCALE IN FEET

| Woodside Ridge First Plat<br>Minimum Low Opening Elevations |               |                |                |                 |  |
|-------------------------------------------------------------|---------------|----------------|----------------|-----------------|--|
| Lot                                                         | Rear Left MLO | Rear Right MLO | Front Left MLO | Front Right MLO |  |
| 91                                                          | 974.70        | 974.63         | 975.32         | 973.79          |  |
| 92                                                          | 968.74        | 974.70         | 974.31         | 975.32          |  |
| 93                                                          | 962.75        | 968.74         | 972.99         | 974.31          |  |
| 94                                                          | 959.28        | 962.75         | 971.55         | 972.99          |  |
| 95                                                          | 967.33        | 959.28         | 968.30         | 971.55          |  |
| 96                                                          | 956.49        | 966.73         | 967.47         | 968.30          |  |
| 97                                                          | 952.94        | 956.49         | 966.25         | 967.47          |  |
| 98                                                          | 954.40        | 952.94         | 964.91         | 966.25          |  |
| 99                                                          | 953.38        | 954.40         | 963.56         | 964.91          |  |
| 100                                                         | 951.98        | 953.38         | 962.20         | 963.56          |  |
| 101                                                         | 950.26        | 951.98         | 960.85         | 962.20          |  |
| 102                                                         | 947.82        | 950.26         | 958.67         | 960.85          |  |
| 103                                                         | 943.05        | 947.82         | 954.57         | 958.67          |  |
| 104                                                         | 939.71        | 928.53         | 946.99         | 952.70          |  |
| 105                                                         | 938.19        | 939.71         | 941.03         | 946.99          |  |
| 106                                                         | 931.86        | 938.19         | 933.22         | 941.03          |  |
| 107                                                         | 941.65        | 933.43         | 939.44         | 931.22          |  |
| 108                                                         | 946.67        | 941.65         | 955.80         | 939.44          |  |
| 109                                                         | 948.21        | 946.67         | 958.78         | 955.80          |  |
| 110                                                         | 950.03        | 948.21         | 960.00         | 958.78          |  |
| 111                                                         | 953.53        | 950.03         | 961.27         | 960.00          |  |
| 112                                                         | 956.02        | 953.53         | 962.62         | 961.27          |  |
| 113                                                         | 957.71        | 956.02         | 963.97         | 962.62          |  |
| 114                                                         | 958.84        | 957.71         | 966.07         | 963.97          |  |
| 115                                                         | 964.76        | 966.78         | 966.87         | 967.98          |  |
| 116                                                         | 971.22        | 964.34         | 970.14         | 967.25          |  |
| 117                                                         | 965.46        | 965.33         | 974.14         | 972.29          |  |
| 118                                                         | 964.21        | 965.46         | 975.31         | 974.14          |  |
| 119                                                         | 962.22        | 964.21         | 974.15         | 975.31          |  |
| 133                                                         | 935.28        | 938.53         | 960.36         | 961.28          |  |
| 134                                                         | 938.53        | 944.82         | 961.28         | 962.65          |  |
| 135                                                         | 944.82        | 959.44         | 962.65         | 964.69          |  |
| 136                                                         | 959.44        | 964.76         | 964.69         | 966.87          |  |
| 137                                                         | 969.46        | 964.01         | 967.25         | 961.80          |  |
| 138                                                         | 964.01        | 961.51         | 961.80         | 959.30          |  |
| 139                                                         | 961.51        | 960.38         | 959.30         | 958.17          |  |

MLO elevations have been provided per lot lines, facing the lot from the street. Interpolation will be allowed between the right and left side MLO's provided, depending on the location of the lowest opening on the proposed structure.



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STATE OF MISSOURI  
JULIE ELAINE SELLERS  
Professional Engineer  
NUMBER  
PE-2017000367  
11/1/2020

BY

NO. REV.

DATE

REVISIONS DESCRIPTION

MASTER DRAINAGE PLAN  
STREET & STORM SEWER PLANS

WOODSIDE RIDGE  
FIRST PLAT

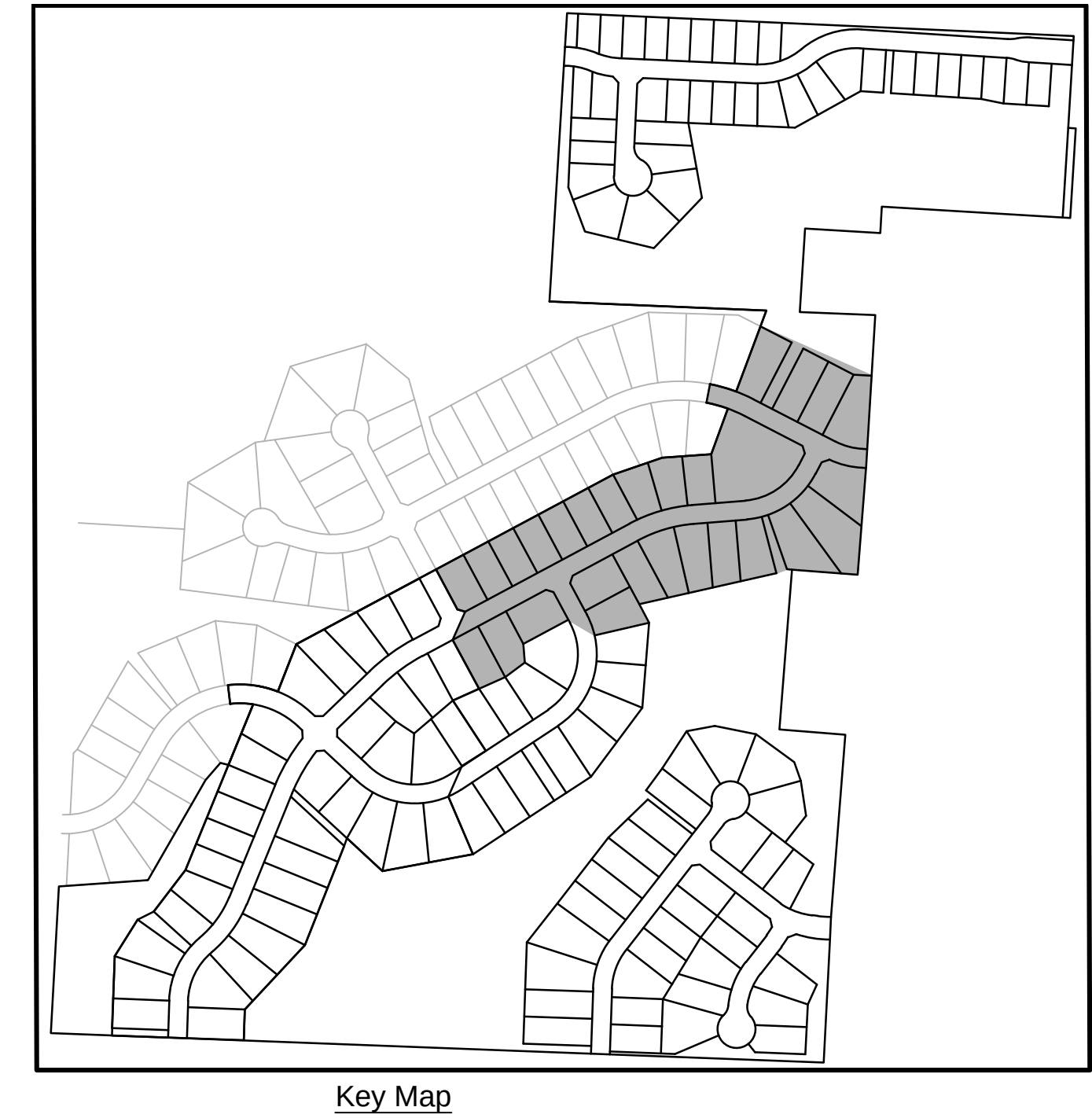
LEE'S SUMMIT, MO

drawn by: D.A.H.Q.  
checked by: J.E.S.  
designed by: S.M.S.  
QA/QC by: M.G.D.  
project no.: A18-1140  
date: 2019.03.12

SHEET  
C150

2019  
REVISIONS





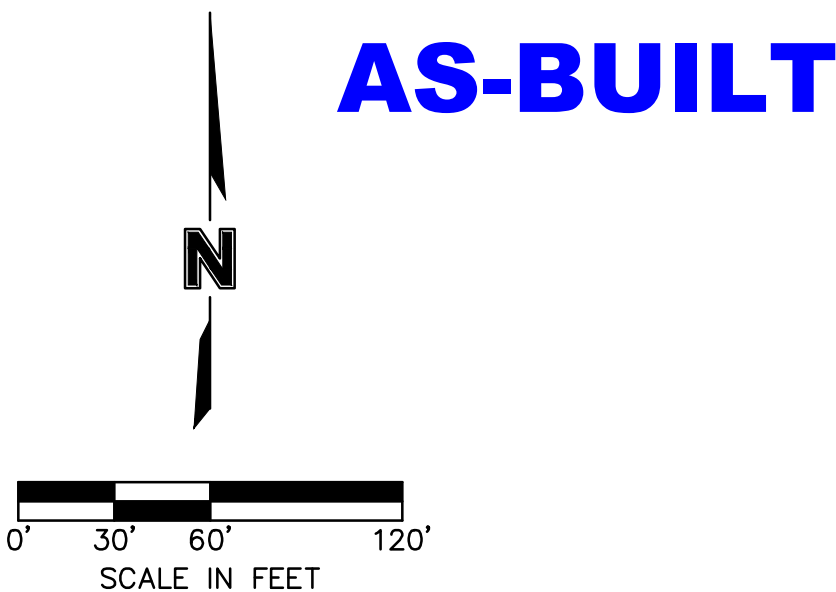
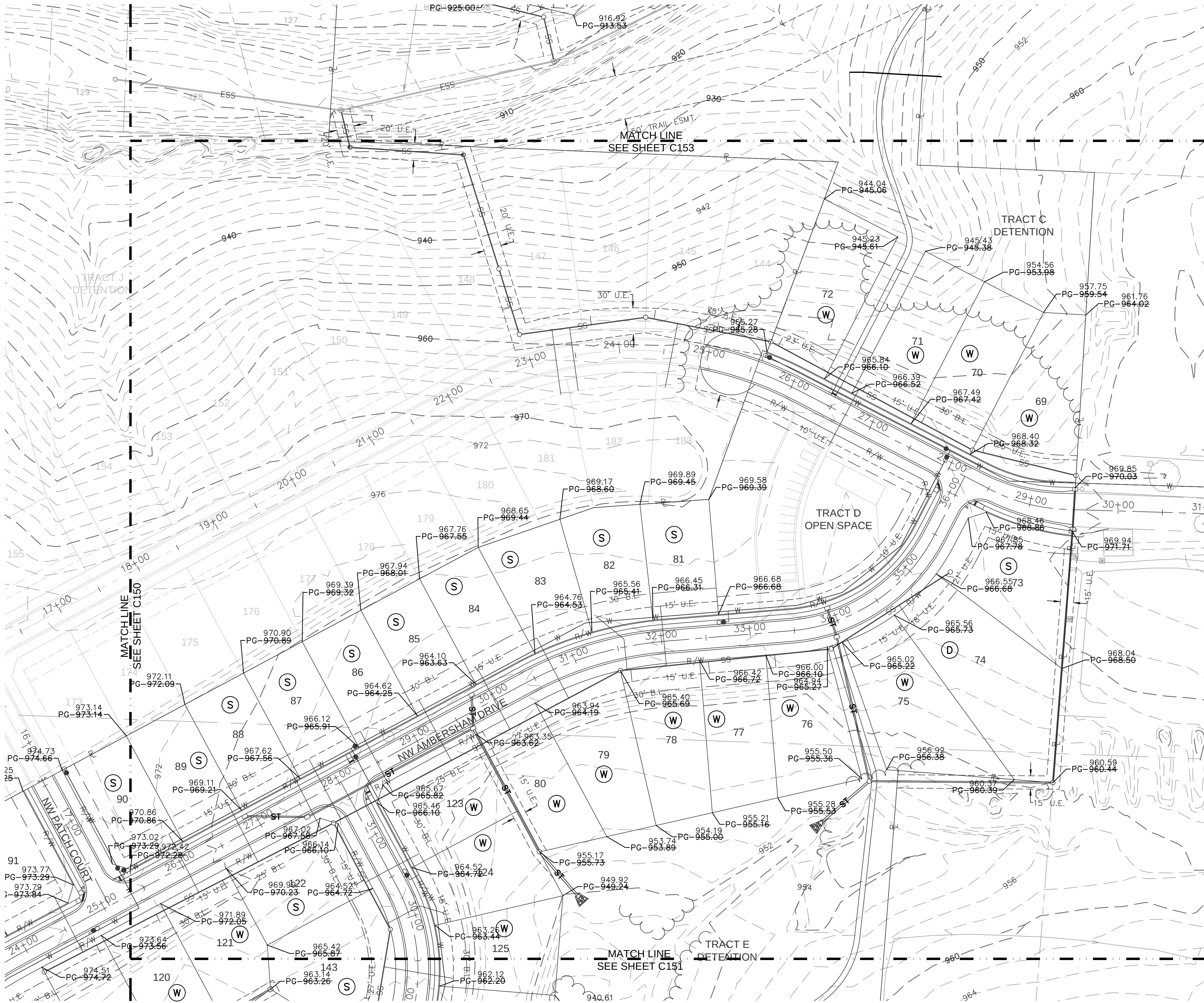
Key Map

- 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 LOCATED IN ZONE X, "AREAS OUTSIDE THE 1-PERCENT ANNUAL CHANCE FLOODPLAINS, AREAS OF 1-PERCENT ANNUAL CHANCE SHEET 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. BUFFER ZONE FOR NATURAL STREAMS IS LOCATED WITHIN PLAT.
  4. MLO ELEVATIONS HAVE BEEN PROVIDED PER LOT LINES. INTERPOLATION WILL BE ALLOWED BETWEEN THE RIGHT AND LEFT SIDE MBOES SHOWN ON THE MASTER DRAINAGE PLAN, DEPENDING ON THE LOCATION OF THE LOWEST OPENING ON THE PROPOSED STRUCTURE.
  5. NO BUILDING PERMITS WILL BE ISSUED UNTIL AN AS-GRADED MASTER DRAINAGE PLAN HAS BEEN SUBMITTED TO THE CITY AND APPROVED BY THE CITY.
- RMLO - REAR MINIMUM LOW OPENING  
FMLO - FRONT MINIMUM LOW OPENING

LOT TYPES:  
S - STANDARD  
D - DAYLIGHT  
W - WALKOUT

| Woodside Ridge First Plat      |               |                |                |                 |
|--------------------------------|---------------|----------------|----------------|-----------------|
| Minimum Low Opening Elevations |               |                |                |                 |
| Lot                            | Rear Left MLO | Rear Right MLO | Front Left MLO | Front Right MLO |
| 69                             | 958.35        | 962.36         | 969.22         | 970.67          |
| 70                             | 958.16        | 958.35         | 968.31         | 969.22          |
| 71                             | 946.03        | 955.16         | 967.21         | 968.31          |
| 72                             | 944.64        | 945.83         | 966.09         | 966.66          |
| 73                             | 969.91        | 969.36         | 969.29         | 967.15          |
| 74                             | 969.36        | 960.99         | 967.15         | 966.27          |
| 75                             | 960.99        | 956.92         | 966.27         | 965.80          |
| 76                             | 955.96        | 956.13         | 965.85         | 966.69          |
| 77                             | 956.13        | 955.76         | 966.69         | 967.34          |
| 78                             | 955.76        | 955.50         | 967.34         | 966.44          |
| 79                             | 955.50        | 955.35         | 966.44         | 965.12          |
| 80                             | 954.50        | 955.64         | 964.78         | 964.21          |
| 81                             | 969.20        | 969.49         | 966.99         | 967.28          |
| 82                             | 968.41        | 969.20         | 966.20         | 966.99          |
| 83                             | 967.64        | 968.41         | 965.43         | 966.20          |
| 84                             | 966.84        | 967.64         | 964.63         | 965.43          |
| 85                             | 967.46        | 966.84         | 965.25         | 964.63          |
| 86                             | 969.02        | 967.46         | 966.81         | 965.25          |
| 87                             | 970.58        | 969.02         | 968.37         | 966.81          |
| 88                             | 972.15        | 970.58         | 969.94         | 968.37          |
| 89                             | 973.71        | 972.15         | 971.50         | 969.94          |
| 90                             | 974.63        | 973.71         | 973.79         | 971.50          |
| 120                            | 963.94        | 962.35         | 972.64         | 974.15          |
| 121                            | 963.86        | 963.94         | 970.90         | 972.64          |
| 122                            | 962.95        | 969.66         | 965.58         | 968.41          |
| 123                            | 964.87        | 958.69         | 966.12         | 965.58          |
| 124                            | 958.69        | 949.84         | 965.58         | 964.28          |
| 125                            | 949.84        | 942.06         | 964.28         | 963.03          |

MLO elevations have been provided per lot lines, facing the lot from the street. Interpolation will be allowed between the right and left side MLO's provided, depending on the location of the lowest opening on the proposed structure.



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STATE OF MISSOURI  
JULIE ELAINE  
SELLERS  
NUMBER  
PE-2017000367  
11/1/2020  
PROFESSIONAL ENGINEER

BY: [Signature]  
REVISIONS DESCRIPTION  
DATE  
NO. REV.

MASTER DRAINAGE PLAN  
STREET & STORM SEWER PLANS  
WOODSIDE RIDGE  
FIRST PLAT  
LEE'S SUMMIT, MO

2019

drawn by: D.A.H.Q.  
checked by: J.E.S.  
designed by: S.M.S.  
QA/QC by: M.G.D.  
project no.: A18-1140  
date: 2019.03.12

SHEET  
C152



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 LOCATED 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. BUFFER ZONE FOR NATURAL STREAMS IS LOCATED WITHIN PLAT.

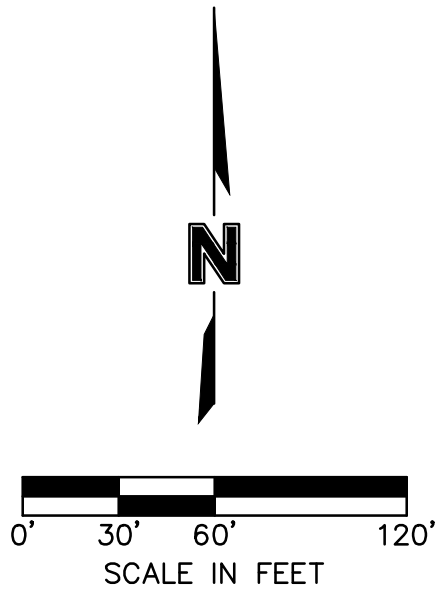
4. MLO ELEVATIONS HAVE BEEN PROVIDED PER LOT LINES. INTERPOLATION WILL BE ALLOWED BETWEEN THE RIGHT AND LEFT SIDE MBOES SHOWN ON THE MASTER DRAINAGE PLAN, DEPENDING ON THE LOCATION OF THE LOWEST OPENING ON THE PROPOSED STRUCTURE.

5. SWALES TO BE CONSTRUCTED BETWEEN EACH OF THE LOTS 81-90 TO DRAIN TOWARDS THE ROADWAY.

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

RMLO - REAR MINIMUM LOW OPENING  
FMLO - FRONT MINIMUM LOW OPENING

LOT TYPES:  
S - STANDARD  
D - DAYLIGHT  
W - WALKOUT



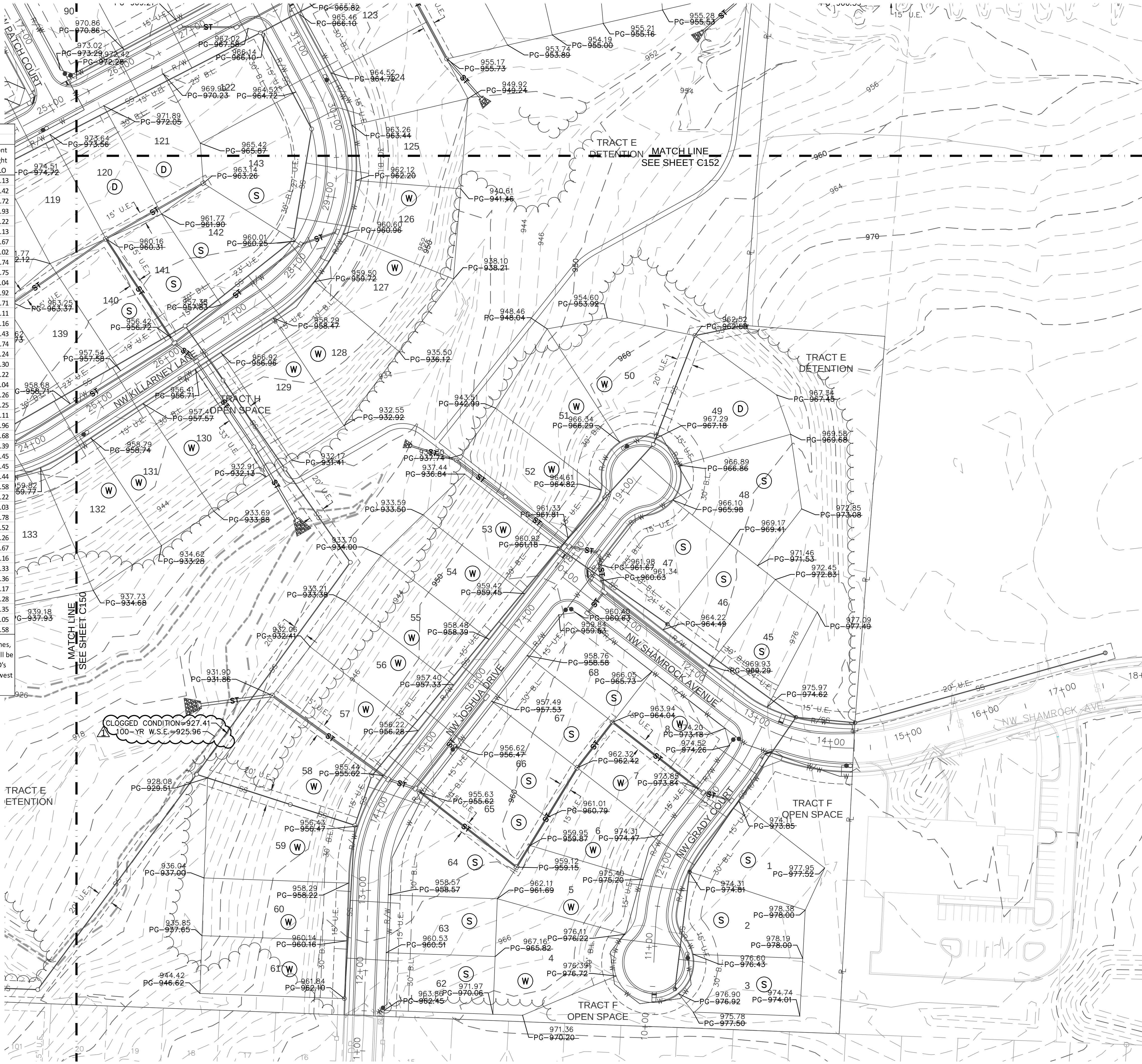
AS-BUILT

| Woodside Ridge First Plat      |               |                |                |                 |
|--------------------------------|---------------|----------------|----------------|-----------------|
| Minimum Low Opening Elevations |               |                |                |                 |
| Lot                            | Rear Left MLO | Rear Right MLO | Front Left MLO | Front Right MLO |
| 1                              | 977.14        | 977.34         | 974.93         | 975.13          |
| 2                              | 977.34        | 979.63         | 975.13         | 977.42          |
| 3                              | 979.63        | 979.93         | 977.42         | 977.72          |
| 4                              | 972.57        | 962.71         | 977.21         | 976.93          |
| 5                              | 962.71        | 959.72         | 976.93         | 976.22          |
| 6                              | 960.55        | 962.92         | 976.22         | 975.13          |
| 7                              | 962.92        | 964.54         | 975.13         | 974.67          |
| 8                              | 964.54        | 966.65         | 974.67         | 975.02          |
| 45                             | 962.25        | 963.95         | 960.04         | 961.74          |
| 46                             | 967.25        | 972.96         | 965.04         | 970.75          |
| 47                             | 965.01        | 967.25         | 962.80         | 965.04          |
| 48                             | 969.92        | 969.13         | 967.71         | 966.92          |
| 49                             | 963.12        | 969.92         | 968.11         | 967.71          |
| 50                             | 949.06        | 963.12         | 967.16         | 968.11          |
| 51                             | 944.11        | 949.06         | 965.43         | 967.16          |
| 52                             | 937.90        | 944.11         | 962.15         | 965.43          |
| 53                             | 934.19        | 938.04         | 960.25         | 961.74          |
| 54                             | 934.30        | 934.19         | 959.30         | 960.24          |
| 55                             | 933.81        | 934.30         | 958.22         | 959.30          |
| 56                             | 932.66        | 933.81         | 957.04         | 958.22          |
| 57                             | 932.50        | 932.66         | 956.26         | 957.04          |
| 58                             | 928.68        | 932.50         | 957.25         | 956.26          |
| 59                             | 936.64        | 928.68         | 959.11         | 957.25          |
| 60                             | 936.45        | 936.64         | 960.96         | 959.11          |
| 61                             | 945.02        | 936.45         | 962.66         | 960.96          |
| 62                             | 963.56        | 966.89         | 961.35         | 964.68          |
| 63                             | 963.56        | 961.60         | 961.35         | 959.39          |
| 64                             | 961.60        | 961.14         | 959.39         | 956.45          |
| 65                             | 963.03        | 961.14         | 957.44         | 956.45          |
| 66                             | 964.34        | 963.03         | 958.31         | 957.44          |
| 67                             | 964.34        | 961.79         | 958.31         | 959.58          |
| 68                             | 961.79        | 963.43         | 959.58         | 961.22          |
| 125                            | 949.84        | 942.06         | 964.28         | 963.03          |
| 126                            | 942.06        | 936.72         | 963.03         | 961.78          |
| 127                            | 936.72        | 936.94         | 961.78         | 960.52          |
| 128                            | 936.94        | 933.52         | 960.52         | 959.26          |
| 129                            | 933.52        | 932.01         | 959.26         | 957.67          |
| 130                            | 932.73        | 934.48         | 957.28         | 958.16          |
| 131                            | 934.48        | 933.88         | 958.16         | 959.33          |
| 132                            | 933.88        | 935.28         | 959.33         | 960.36          |
| 139                            | 961.51        | 960.38         | 959.30         | 958.17          |
| 140                            | 960.38        | 959.49         | 958.17         | 957.28          |
| 141                            | 959.49        | 960.56         | 957.28         | 958.35          |
| 142                            | 960.56        | 963.26         | 958.35         | 961.05          |
| 143                            | 963.26        | 962.95         | 961.05         | 965.58          |

MLO elevations have been provided per lot lines, facing the lot from the street. Interpolation will be allowed between the right and left side MLO's provided, depending on the location of the lowest opening on the proposed structure.



Key Map



USER: jseilers

DWG: F:\2018\1001-1500\018-1140-A\40-Design\AutoCAD\As-Built\Sheets\01\_Street & Storm\_36x24\C-MDR01\_1140A.dwg  
DATE: Nov 02, 2020 9:39am

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www.olson.com

STATE OF MISSOURI  
JULIE ELAINE SELLERS  
Professional Engineer  
NUMBER  
PE-2017000367  
11/1/2020

BY: \_\_\_\_\_  
REVISIONS DESCRIPTION  
NO. REV. DATE  
1 4/2/2019 REVISED PER CITY COMMENTS

MASTER DRAINAGE PLAN  
STREET & STORM SEWER PLANS  
WOODSIDE RIDGE  
FIRST PLAT  
LEE'S SUMMIT, MO  
2019

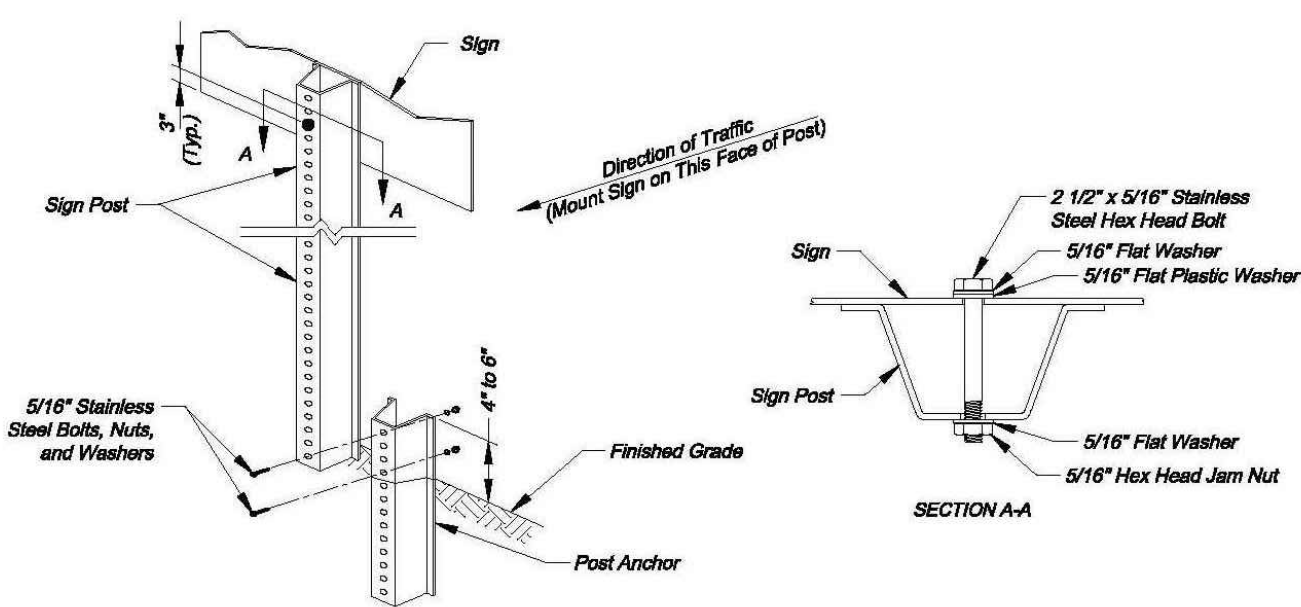
drawn by: D.A.H.O.  
checked by: J.E.S.  
designed by: S.M.S.  
QA/QC by: M.G.D.  
project no.: A18-1140  
date: 2019.03.12

SHEET  
C152









### U-STEEL POST DETAILS

- U-STEEL POST NOTES:**
- Splice shall be positioned entirely between finished grade line and 16" above finished grade line. Only one splice will be allowed per post.
  - U-Steel post shall be 3 to 6 ft., galvanized according to ASTM A123.
  - U-Steel post can be used for installation of signs with an area of less than 2.5 square feet.
  - All posts shall be embedded a minimum of 3 feet.



### STRAP TYPE SIGN SUPPORT DETAILS

- METAL POLE SIGN MOUNTING NOTES:**
- Signs on metal poles shall be attached with two brackets and stainless steel bands.
  - Holes in sign for attachment to the mounting brackets shall be offset a minimum of 2 inches from the edge of the sign.
  - Holes in sign shall be located such that the sign is level.
  - All strap, bracket, and seal materials should be Type 201 stainless steel.

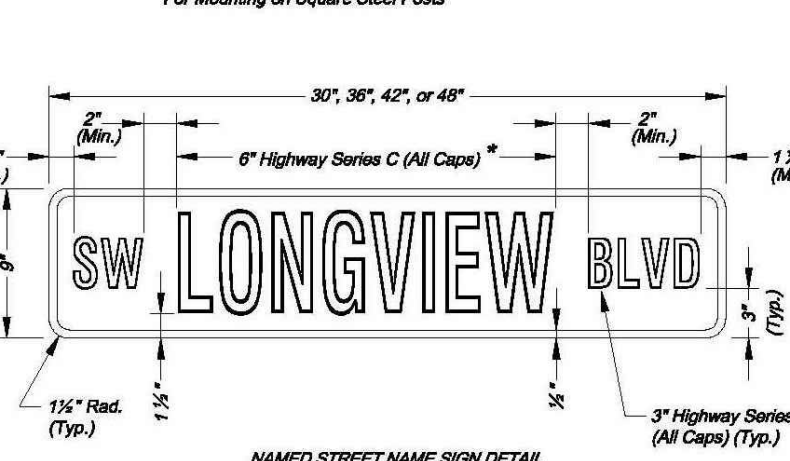
### STANDARD ABBREVIATION LISTS

| Named Streets | AVE  | BLVD | ST |
|---------------|------|------|----|
| Avenue        | AVE  | BLVD | ST |
| Boulevard     | BLVD |      |    |
| Circle        | CIR  |      |    |
| Creek         | CR   |      |    |
| Court         | CT   |      |    |
| Crossing      | XING |      |    |
| Drive         | DR   |      |    |
| Highway       | HWY  |      |    |
| Lane          | LN   |      |    |
| Parkway       | PKY  |      |    |
| Place         | PL   |      |    |
| Road          | RD   |      |    |
| Street        | ST   |      |    |
| Terrace       | TER  |      |    |
| Trail         | TRL  |      |    |
| Way           | WAY  |      |    |

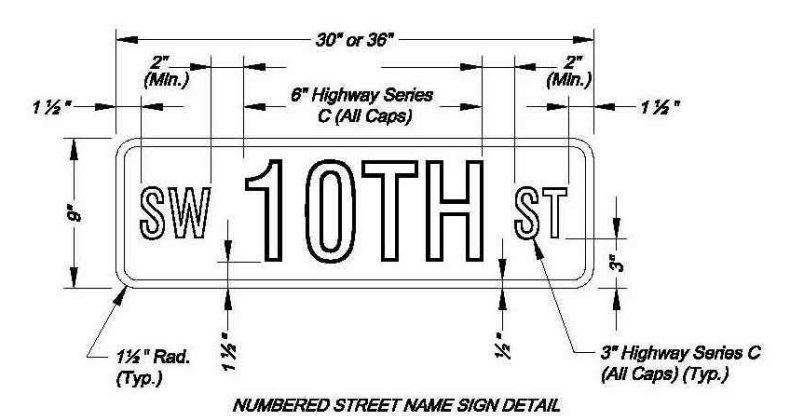
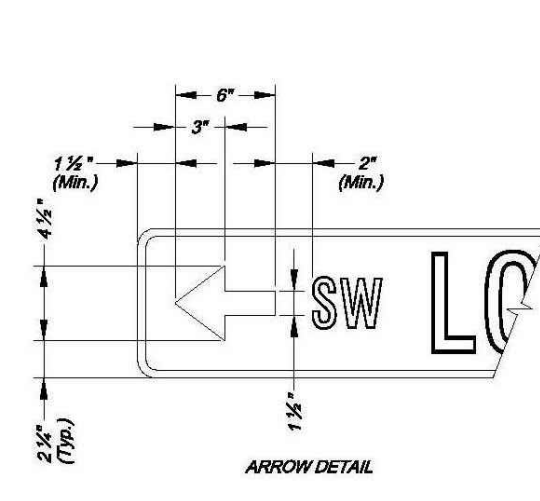
### STREET NAME SIGN QUANTITIES

| Sign Designation | Sign Size | Sign Area (Sq. Ft.) | Number | Quantity (Sq. Ft.) |
|------------------|-----------|---------------------|--------|--------------------|
| D3-1 (SP-1)      | 6" x 6"   | Sq. Ft.             | 1      | 1                  |
| D3-1 (SP-2)      | 6" x 6"   | Sq. Ft.             |        |                    |
| D3-1 (SP-3)      | 6" x 6"   | Sq. Ft.             |        |                    |
| D3-1 (SP-4)      | 6" x 6"   | Sq. Ft.             |        |                    |
| D3-1 (SP-5)      | 6" x 6"   | Sq. Ft.             |        |                    |
| D3-1 (SP-6)      | 6" x 6"   | Sq. Ft.             |        |                    |

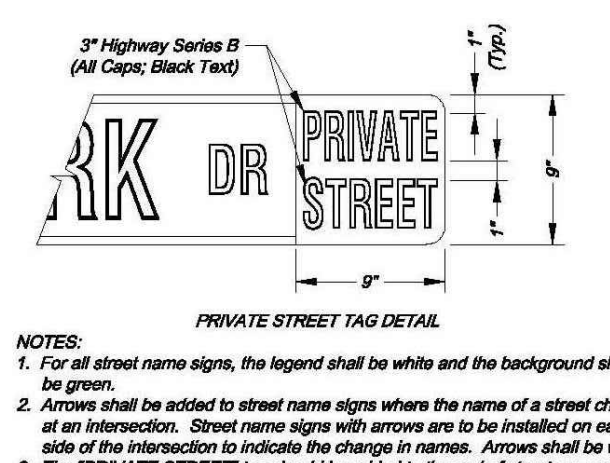
### STREET NAME SIGN BLANK DETAILS



### PROJECT SIGN DETAILS

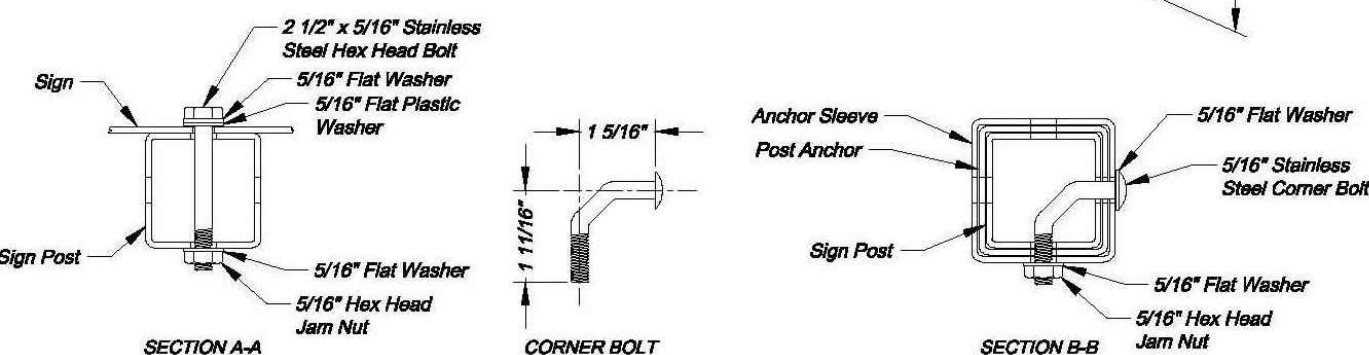


### STREET NAME SIGN FACE DETAILS



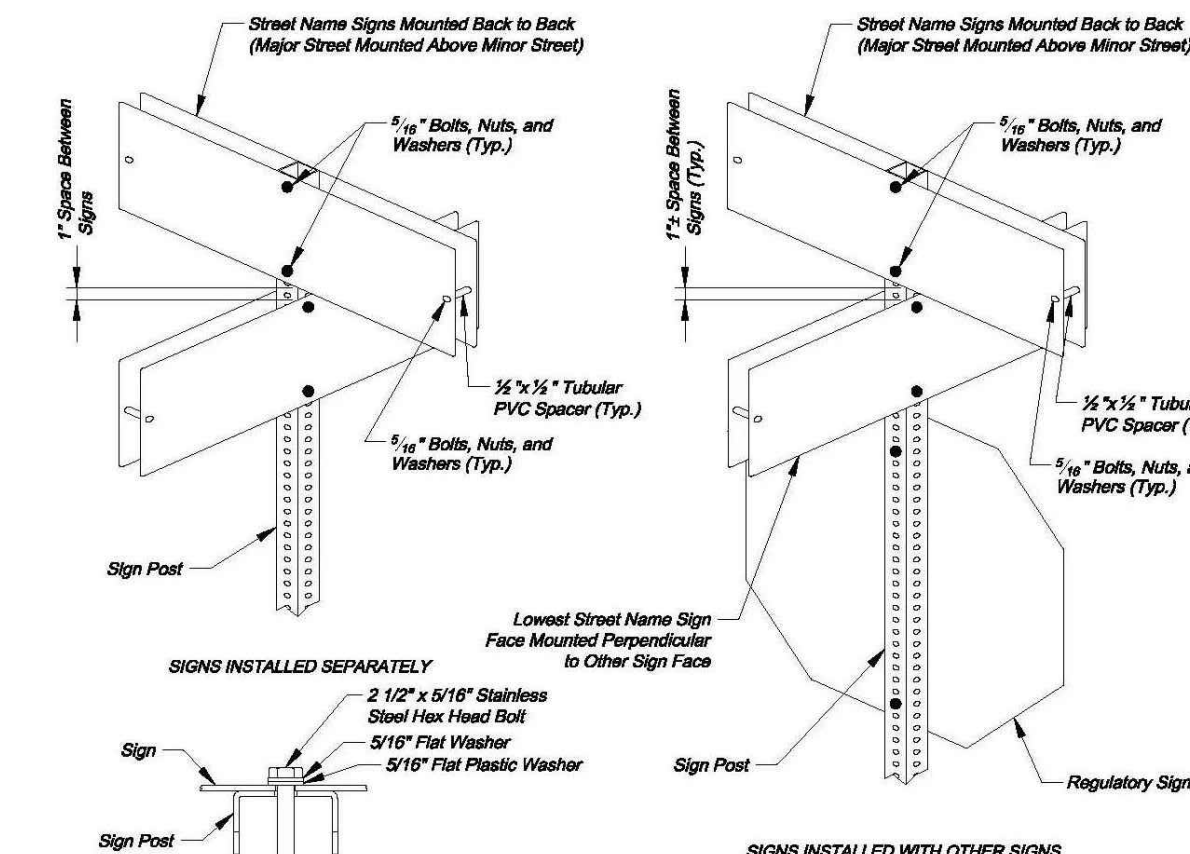
- PERMANENT SIGNING GENERAL NOTES:**
- All signing shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).
  - The Contractor is responsible for avoiding any and all utilities when installing sign posts, whether the utility is indicated on the plans or not.
  - All workmanship and materials shall be subject to the inspection and approval of the Public Works Department of the City of Lee's Summit.
  - The Contractor shall stake the location of all sign posts to be installed. The City Inspector shall inspect the staking prior to installation.
  - Minor relocation to avoid conflicts may be allowed with the approval of the City Traffic Engineer or designee.
  - Signs shown to be installed on the side of metal poles shall be mounted with stainless steel straps or wing brackets as detailed. No signs are to be installed on wood poles. See Traffic Signal Standard Drawings for the installation of signs on metal arms.
  - All post mounted signs shall be installed with breakaway anchors according to the Standard Drawings.
  - All existing signs will be used in place during construction and protected from damage unless otherwise indicated in the plans. If the Contractor damages any existing sign or posts during construction, the Contractor will be required to replace the damaged materials with new signs or posts of the same type and size at the Contractor's expense. The Contractor shall be responsible for removing and storing any signs that are to be reinstalled on the project. All equipment shall be maintained in good condition.
  - Existing permanent signs and posts removed by the Contractor for construction purposes which are not to be reinstalled shall be delivered to the City's Public Works Maintenance Facility (1671 SE Hamblen Road). The Contractor shall be responsible for removing and storing equipment in good condition and is fully responsible for the equipment until it is delivered.
  - All Stop, Yield, or street name signs shall be maintained in a conspicuous location for the driving public. All Stop and Yield signs removed for construction purposes can be temporarily erected in reflectorized drums (no less than 7 feet above the pavement surface) until they can be reinstalled. Any temporary Stop or Yield sign installation to be left in place overnight will require prior approval from the City Inspector.

- SQUARE STEEL POST INSTALLATION SEQUENCE:**
- Sign post anchor driven partially into the ground using a drive cap with a sledge or power equipment.
  - Anchor sleeve slipped over anchor and drive into the ground together with the sign post anchor.
  - Insert sign post into the post anchor and bolt in place.

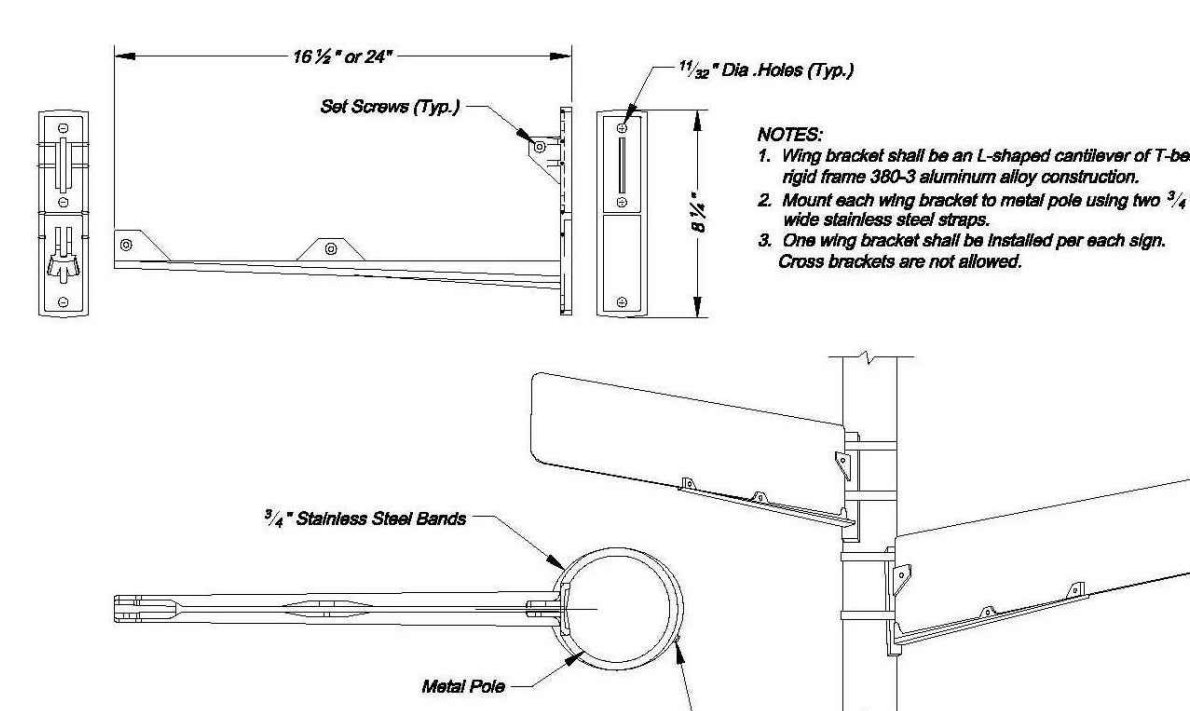


### SQUARE STEEL POST DETAILS

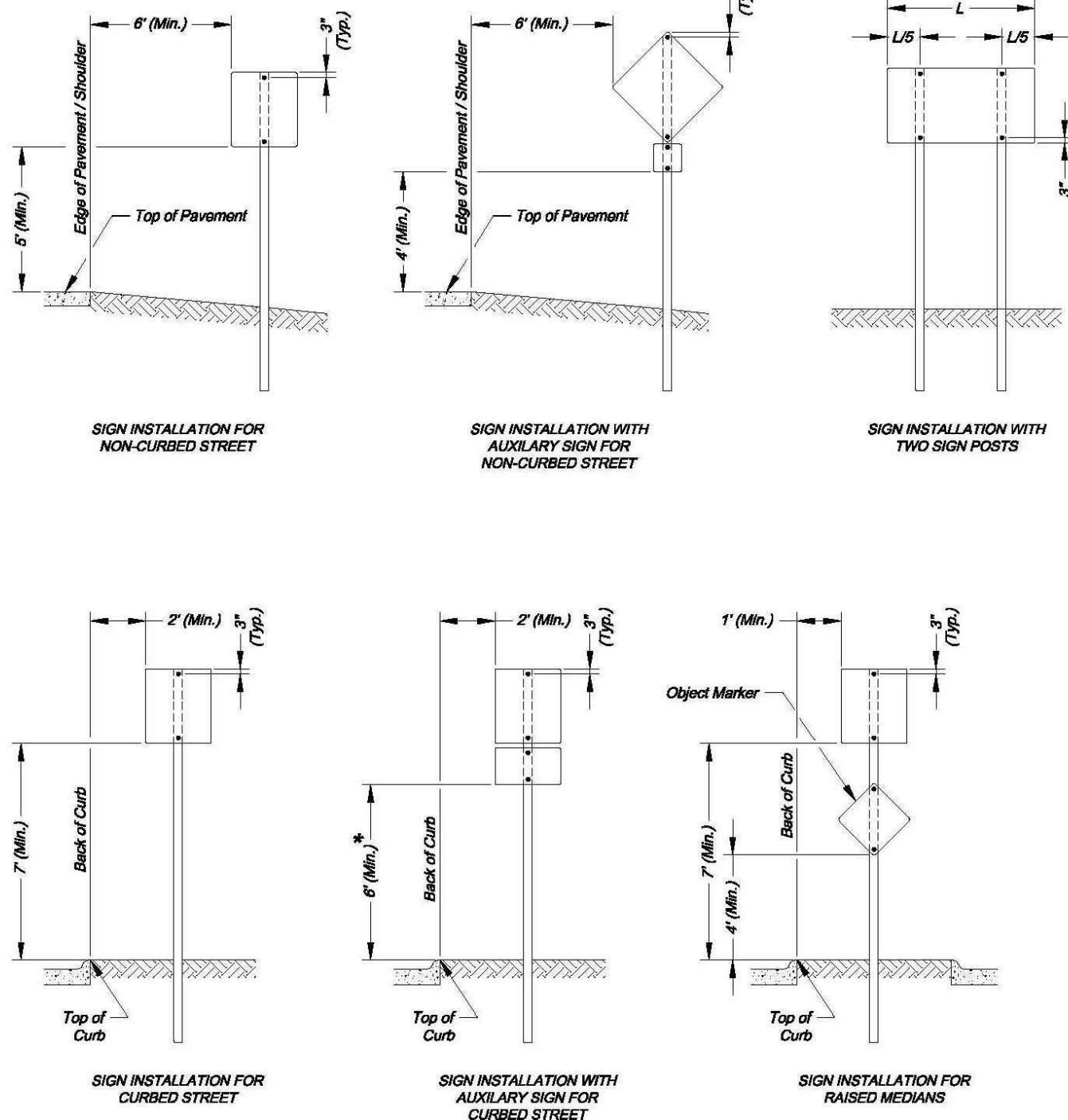
- SQUARE STEEL POST NOTES:**
- Square steel sign posts and break-away anchor shall consist of the following materials:  
Sign Post - 14 Ga. 2" x 2" Square Steel Post  
Post Anchor - 12 Ga. 2 1/2" x 2 1/2" x 36" Square Steel Post  
Anchor Sleeve - 12 Ga. 2 1/2" x 2 1/2" x 18" Square Steel Post
  - 14 Gauge posts must meet a certified minimum yield strength of 60,000 psi.
  - In all installations the first hole above the finished grade line on the sign post, anchor, and anchor sleeve must be in line for the insertion of the corner bolt.
  - The maximum area for one sign post is 9.0 square feet. A sign or combination of signs with an area greater than 9.0 square feet will require two posts. Also, signs with a width greater than 36" (not including 36" x 36" diamond shaped signs) will require two posts.



### SQUARE STEEL POST MOUNTING DETAILS



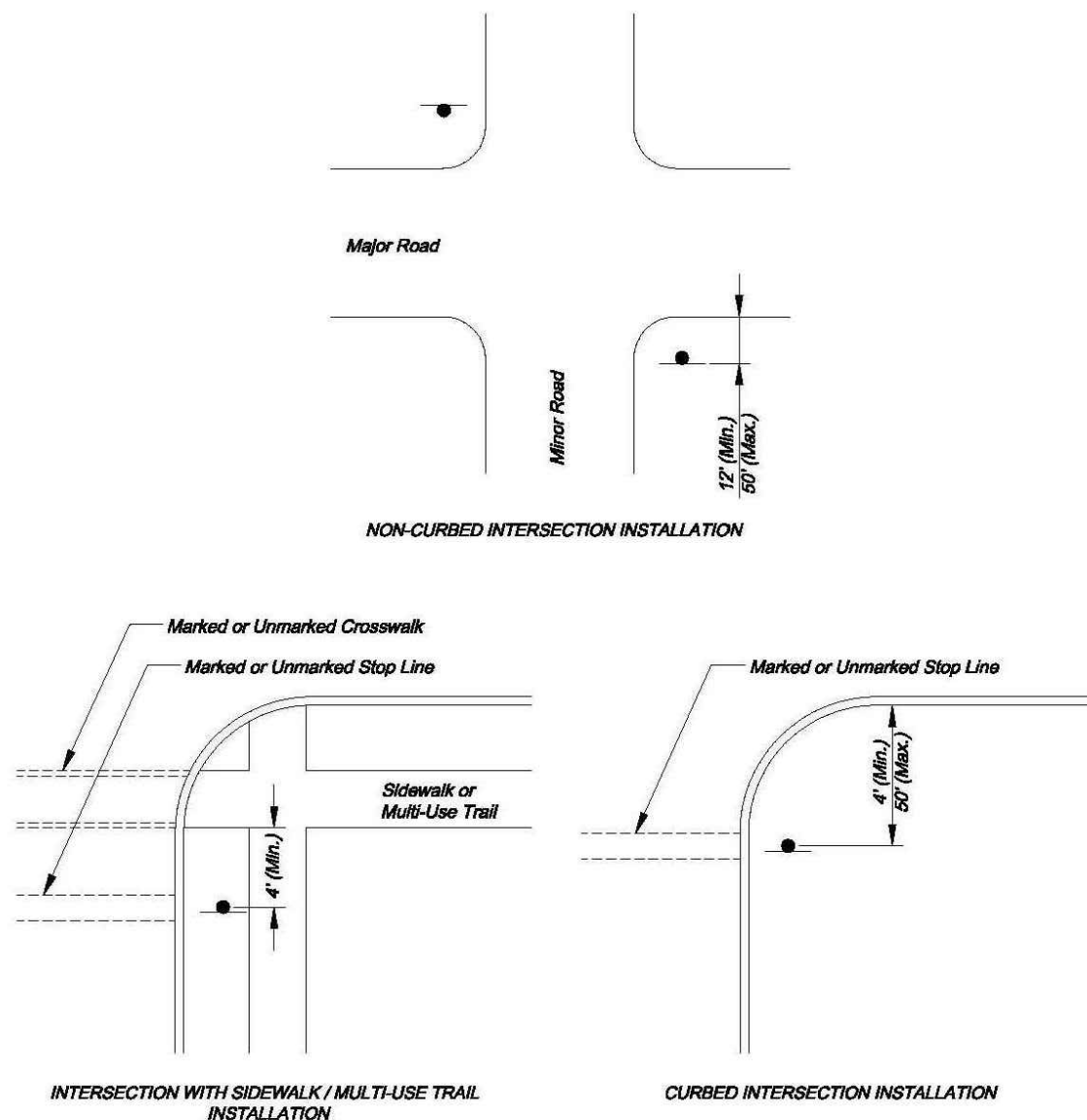
### WING BRACKET MOUNTING DETAILS



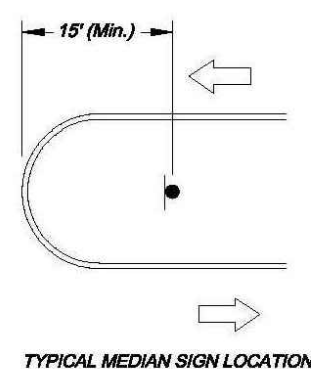
### SIGN MOUNTING DETAILS

- \* The height to the bottom of a sign when it is located in a pedestrian walkway or extends into a walkway shall be a minimum of 90 inches above the walkway.

- NOTE:**
- Generally, the sign mounting height should not be more than 1' greater than the minimum mounting height.

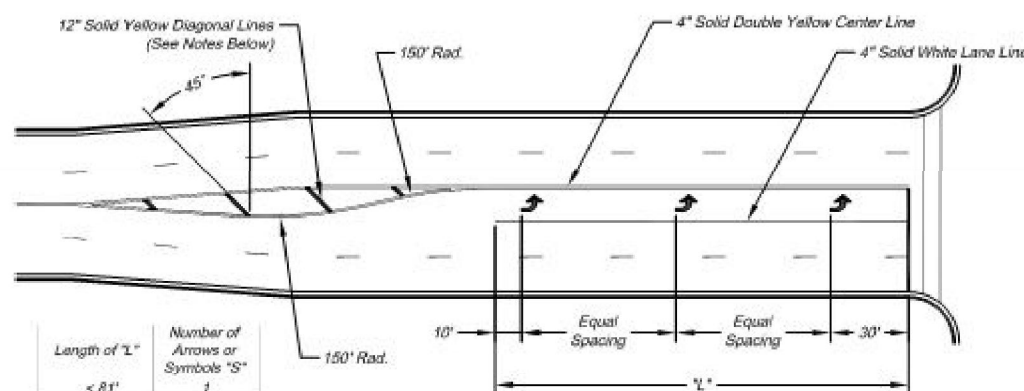


### CONTROL SIGN LOCATION



### MEDIAN SIGN LOCATION

- NOTES:**
- A 4" P.V.C. sleeve shall be installed in new concrete medians at each location where a sign is to be installed.
  - For existing concrete medians, a 4" hole shall be bored into the concrete.



### TYPICAL TURN LANE MARKINGS

- NOTES:**
- Diagonal lines are required between centerlines if the width of the area between the center lines is greater than 12' and/or the length of the area between center lines is greater than 200'.
  - Diagonal lines should be spaced at 5' increments, equal to the posted speed limit.
  - Equal Spacing is calculated as:  $400 / (S - 1)$ .
  - When a through lane of traffic terminates as a mandatory turn lane, Arrow and "ONLY" symbols should be marked in the turn lane, in alternating order. The first and last symbols should be Arrows.

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STATE OF MISSOURI  
JULIE ELAINE  
SELLERS  
Professional Engineer  
NUMBER  
PE-2017000367  
11/1/2020

BY  
REVISIONS DESCRIPTION  
DATE  
NO. REV.

2019

LEE'S SUMMIT, MO

WOODSIDE RIDGE  
FIRST PLAT

SIGNAGE DETAIL SHEET  
STREET & STORM SEWER PLANS

drawn by: D.A.H.O.  
checked by: J.E.S.  
designed by: S.M.S.  
QA/QC by: M.G.B.  
project no.: A18-1140  
date: 2019.03.12

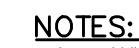
SHEET  
C154

NOT AS-BUILT

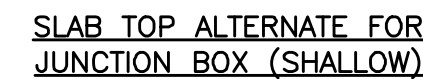
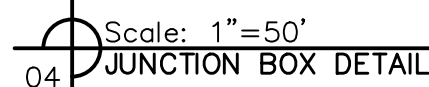




1. BACKFILL SHALL BE JOG EXCAVATED MATERIAL FREE FROM DEBRIS AND STONES COMPACTED TO 90% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D698 FOR BACKFILL UNDER PAVEMENT (EXISTING OR PROPOSED).
2. TRENCH BANKS MAY BE CUT BACK ON SLOPES IN ACCORDANCE WITH CURRENT OSHA REGULATIONS,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



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



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

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

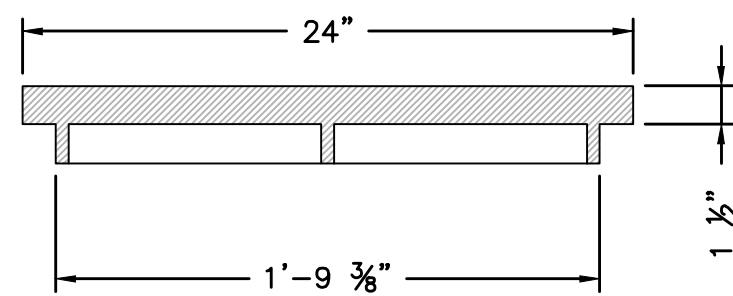
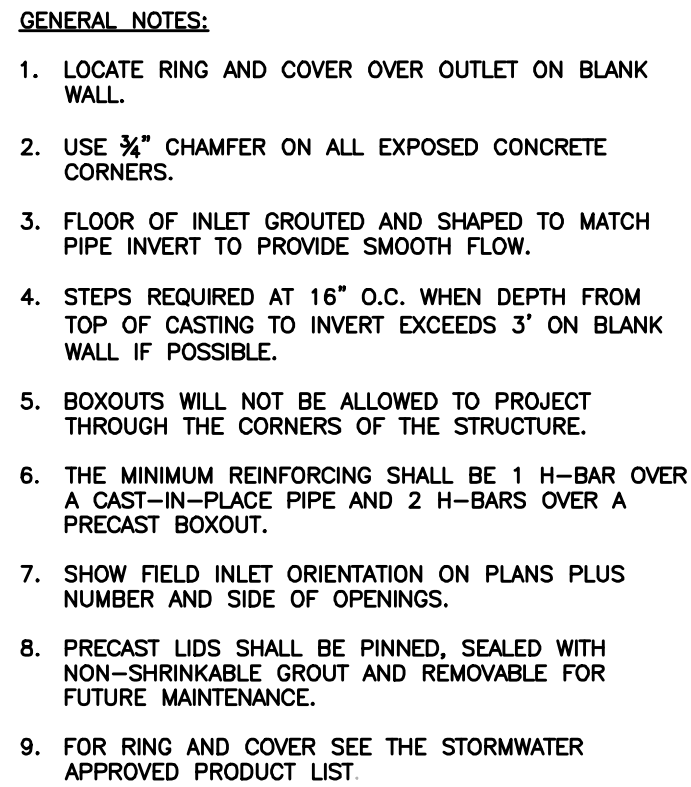
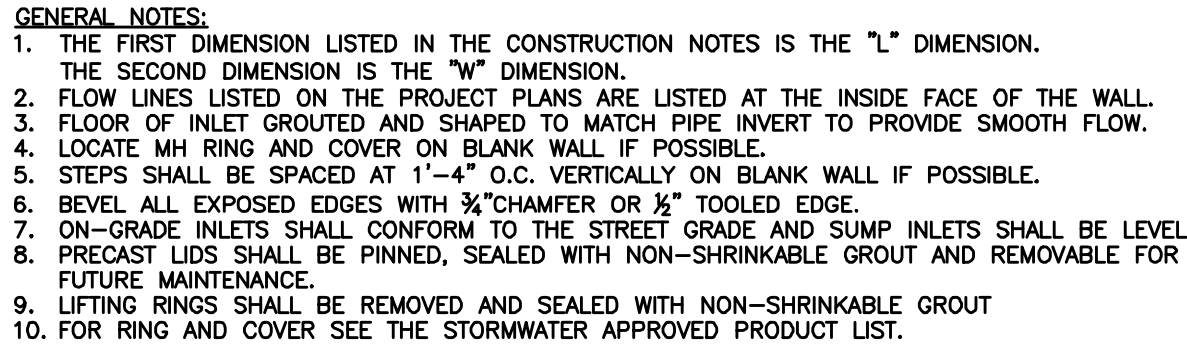
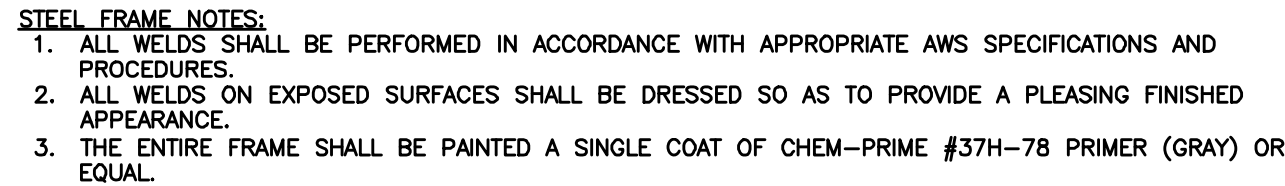


GENERAL NOTES:

1. LOCATE RING AND COVER ON BLANK WALL.
2. USE  $\frac{3}{4}$ " CHAMFER STRIP OR  $\frac{1}{2}$ " 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.
6. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON-SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
7. REINFORCING OF COVERS IN STREETS REQUIRES SPECIAL DESIGN.
8. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.

**NOT AS-BUILT**





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.