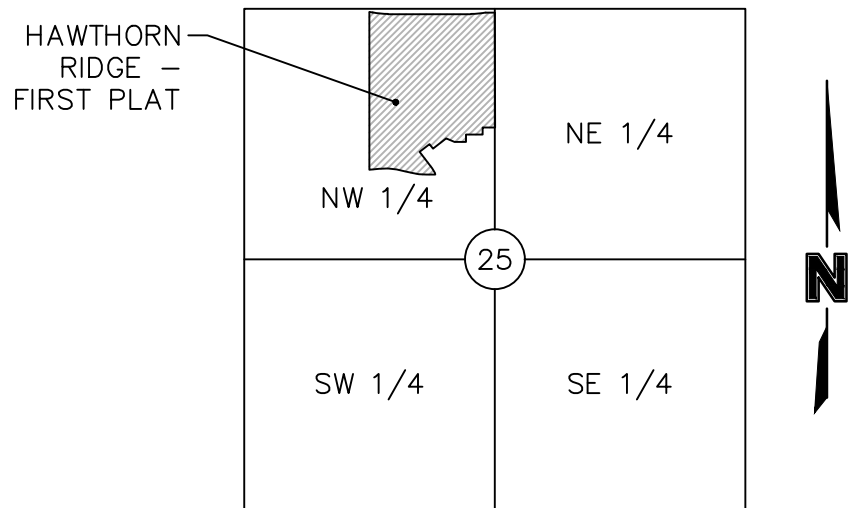


# HAWTHORN RIDGE 1ST PLAT STREET & STORM SEWER PLANS

SECTION 25, TOWNSHIP 47 N., RANGE 32 W.  
IN LEE'S SUMMIT, JACKSON, MO



LOCATION MAP

Sec. 25, Twp. 47 N., Rge. 32 W.  
(N.T.S.)

**AS BUILT**

DATE: 12/19/2018

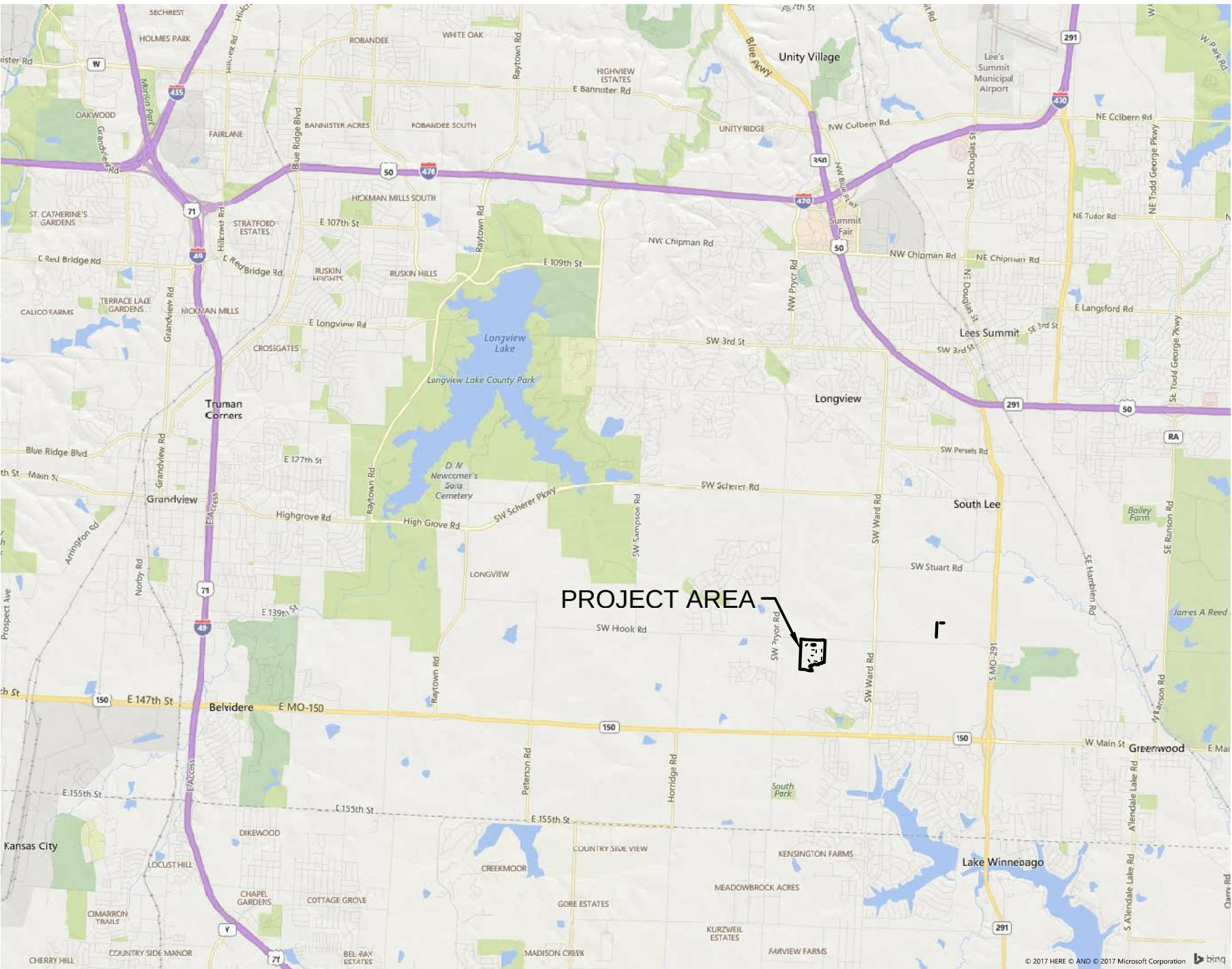
- ☐ NOT FOR CONSTRUCTION
- ☒ REVIEWED FOR CONSTRUCTION

## DEVELOPMENT TEAM CONTACT INFORMATION

|                 |                                                             |                                                                                                                                      |
|-----------------|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| CIVIL ENGINEER  |                                                             |                                                                                                                                      |
|                 | MELISSA G DEGONIA, P.E.<br>OLSSON ASSOCIATES                | 1301 BURLINGTON, SUITE 100<br>NORTH KANSAS CITY, MO 64116<br>TEL: 816.587.4320<br>FAX: 816.587.1393<br>MDEGONIA@OLSSONASSOCIATES.COM |
| OWNER/DEVELOPER |                                                             |                                                                                                                                      |
|                 | DAVID PRICE<br>CMH PARKS, INC. D/B/A SUMMIT<br>CUSTOM HOMES | 120 SE 30TH ST<br>LEE'S SUMMIT, MO 64082<br>TEL: 816.246.6700<br>DAVID@SUMMITCUSTOMHOMESKC.COM                                       |

## UTILITY SERVICE NUMBERS

|                                       |              |
|---------------------------------------|--------------|
| LEE'S SUMMIT PUBLIC WORKS             | 816-969-1800 |
| LEE'S SUMMIT WATER & SEWER DEPARTMENT | 816-969-1940 |
| MISSOURI GAS ENERGY                   | 816-756-5252 |
| AT&T                                  | 800-286-8313 |
| KCP&L                                 | 816-471-5275 |
| TIME WARNER CABLE                     | 816-358-5360 |
| GOOGLE FIBER                          | 877-454-6959 |



## PROPERTY DESCRIPTION:

A tract of land in the Northwest Quarter of Section 25, Township 47 North, Range 32 West of the 5th Principal Meridian in Lee's Summit, Jackson County, Missouri being bounded and described as follows: Commencing at the center of said Section 25; thence North 02°18'36" East, along the West line of said Northwest Quarter, 1,392.58 feet to the Point of Beginning of the tract of land to be herein described; thence North 87°41'24" West, 130.00 feet; thence South 02°18'36" West, 72.00 feet; thence North 87°41'24" West, 175.00 feet; thence South 02°18'36" West, 78.00 feet; thence North 87°41'24" West, 121.73 feet; thence North 65°30'07" West, 95.33 feet; thence South 54°57'38" West, 175.90 feet; thence North 35°02'22" West, 58.00 feet; thence South 54°57'38" West, 130.00 feet; thence South 35°02'22" East, 216.00 feet; thence South 26°05'21" East, 59.04 feet; thence South 11°06'36" East, 18.27 feet; thence North 87°41'24" West, 95.00 feet; thence North 85°13'24" West, 75.61 feet; thence North 77°26'18" West, 74.74 feet; thence North 73°51'15" West, 80.00 feet; thence North 75°24'39" West, 87.64 feet; thence North 81°26'34" West, 91.19 feet; thence North 87°51'30" West, 91.19 feet; thence South 86°06'14" West, 105.62 feet to a point on the West line of the East half said Northwest Quarter; thence North 02°27'15" East, along said West line, 1,661.30 feet to a point on the South right-of-way line of SW Hook Road, as now established; thence Easterly along said South right-of-way line, a along a curve to the right, having an initial tangent bearing of South 80°28'37" East with a radius of 470.00 feet, a central angle of 04°08'23" and an arc distance of 33.96 feet; thence Easterly, continuing along said South right-of-way line, along a curve to the left, having a common tangent with the last described course with a radius of 830.00 feet, a central angle of 11°15'17" and an arc distance of 163.04 feet; thence South 87°35'31" East, continuing along said South right-of-way line, 873.16 feet; thence Easterly continuing along said South right-of-way line, along a curve to the left having an initial tangent bearing of South 87°35'30" East, with a radius of 830.00 feet, a central angle of 10°48'20" and an arc distance of 156.53 feet; thence South 87°45'42" East, continuing along said South right-of-way line, 95.80 feet to a point on said East line; thence South 02°18'36" West, along said East line, 1,210.33 feet to the Point of Beginning. Containing 1,939,986 square feet or 44.54 acres, more or less.

## BENCHMARK

RR SPIKE IN SOUTH FACE OF POWER POLE ON NORTH SIDE OF SW. HOOK ROAD, IMMEDIATELY WEST OF DRIVEWAY FOR HOUSE#1622. ELEVATION= 1024.63'

| INDEX OF SHEETS                 |      |
|---------------------------------|------|
| TITLE SHEET                     | C101 |
| GENERAL NOTES                   | C102 |
| GENERAL LAYOUT                  | C103 |
| TYPICAL SECTIONS                | C104 |
| GRADING PLAN                    | C105 |
| ROADWAY PLAN & PROFILE          | C106 |
| ROADWAY PLAN & PROFILE          | C107 |
| ROADWAY PLAN & PROFILE          | C108 |
| ROADWAY PLAN & PROFILE          | C109 |
| ROADWAY PLAN & PROFILE          | C110 |
| ROADWAY PLAN & PROFILE          | C111 |
| ROADWAY PLAN & PROFILE          | C112 |
| ROADWAY PLAN & PROFILE          | C113 |
| TRAFFIC CONTROL PLAN            | C114 |
| ROADWAY SPOT ELEVATIONS         | C115 |
| ROADWAY SPOT ELEVATIONS         | C116 |
| STORM SEWER PLAN & PROFILE      | C117 |
| STORM SEWER PLAN AND PROFILE    | C118 |
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| STORM SEWER PLAN & PROFILE      | C121 |
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| STORM SEWER PLAN & PROFILE      | C123 |
| DETENTION BASIN PLAN            | C124 |
| DETENTION BASIN PLAN            | C125 |
| DRAINAGE PLAN                   | C126 |
| DRAINAGE TABLES - 10 YEAR       | C127 |
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| MASTER DRAINAGE PLAN            | C129 |
| SITE DISTURBANCE PLAN - PHASE 1 | C130 |
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| SITE DISTURBANCE PLAN - PHASE 3 | C132 |
| LAND DISTURBANCE DETAILS        | C133 |
| SIGN DETAILS                    | C134 |
| STORM SEWER DETAILS             | C135 |
| ROADWAY MARKING DETAILS         | C136 |

REVIEWED BY:

City of Lee's Summit

Date

Olsson Associates has been retained to provide as-built drawings for this project.

*Melissa G DeGonia*

Melissa G DeGonia, P.E.

Civil Engineer

MO# 2011000892

03/04/2019

Date

The Policy of the "Plan Preparation Criteria and Procedure" and Policy Document No. 880544 "As-Built Drawings for Sewer Built by Permit" stipulate the following regarding "as-built" drawings: 1. Drawings are to be provided within thirty (30) days after the date the "Request for As-Built" letter is issued by the City to the contractor. 2. Drawings must be accepted by the City before any service connections will be allowed. 3. Drawings are part of the permit obligations making them the responsibility of the permittee. 4. The cost of preparing "as-built" drawings shall be included in the performance bond.

**OLSSON ASSOCIATES**



| REVISIONS |                           |
|-----------|---------------------------|
| NO.       | DESCRIPTION               |
| 1         | Revised per city comments |
| 2         | Revised per city comments |
| 3         | Revised per city comments |
| 4         | Revised per city comments |
| 5         | Revised per city comments |
| 6         | Revised per city comments |
| 7         | Revised per city comments |

|                                           |      |
|-------------------------------------------|------|
| TITLE SHEET<br>STREET & STORM SEWER PLANS | 2018 |
| HAWTHORN RIDGE<br>1ST PLAT                |      |
| LEE'S SUMMIT, MO                          |      |

drawn by: D.A.H.O.  
checked by: M.G.D.  
designed by: P.M.L.B.  
QA/QC by: K.S.J.  
project no.: 017-0188  
date: 03.03.2017

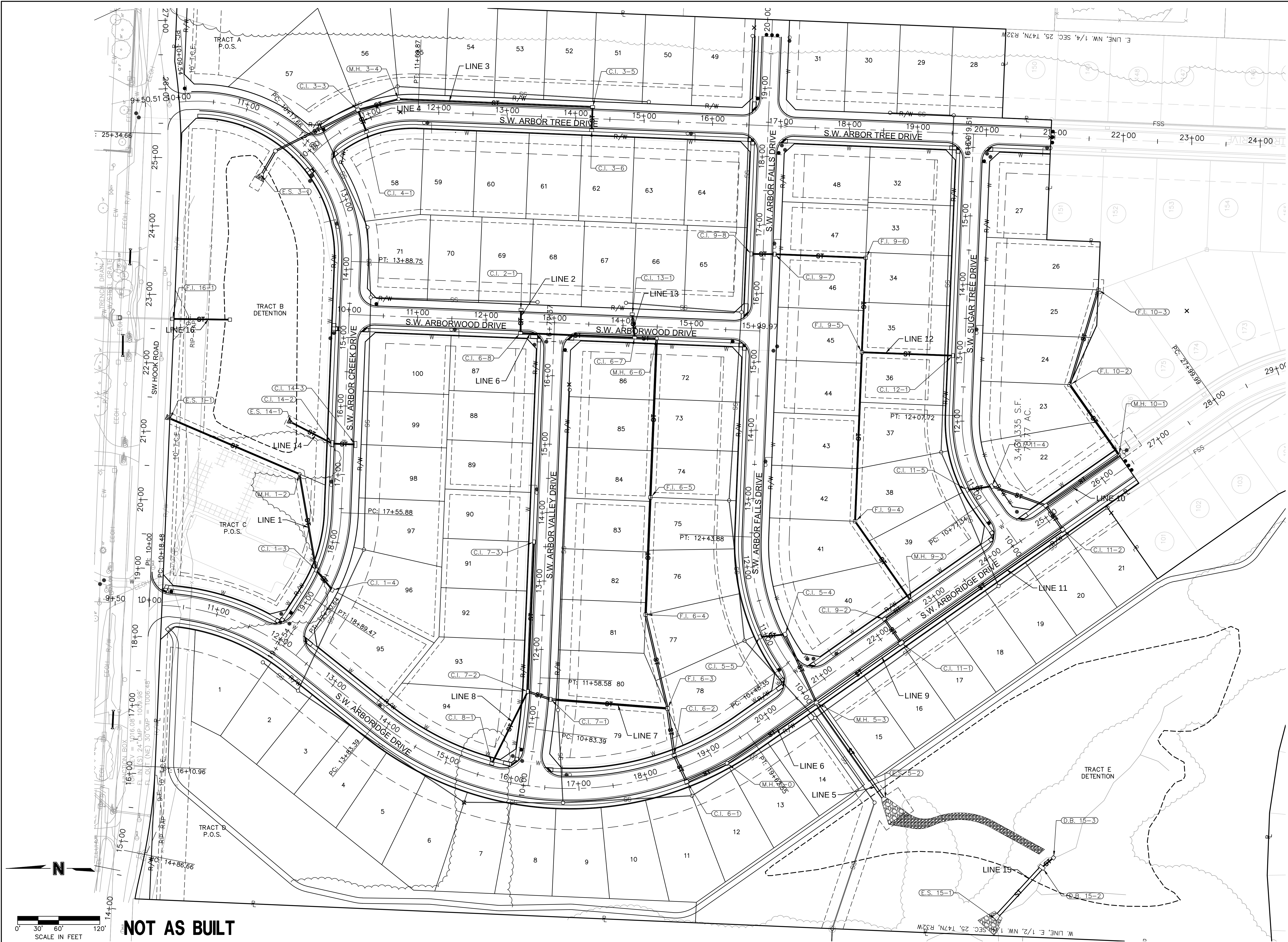
SHEET  
C101







DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\CONV\01\_Street & Storm\_36x24\C\_GEN02\_017-0188.dwg  
DATE: Feb 19, 2019 5:50pm  
USER: dhernandez



NOT AS BUILT

OLSSON ASSOCIATES

Olsson Associates - Civil Engineering  
Professional Engineer  
No. 0000000000  
North Kansas City, MO 64116  
TEL 816.997.4320  
FAX 816.997.1393  
www.olssonassociates.com

STATE OF MISSOURI  
MELISSA G. DEGENIA  
NUMBER  
FE-2011000892  
03/04/2019  
PROFESSIONAL ENGINEER

BY: MGD

REVISIONS DESCRIPTION

NO. REV. DATE

4 01.03.2018 Removed Road Improvements

REVISIONS

2018

#####

HAWTHORN RIDGE  
1ST PLAT

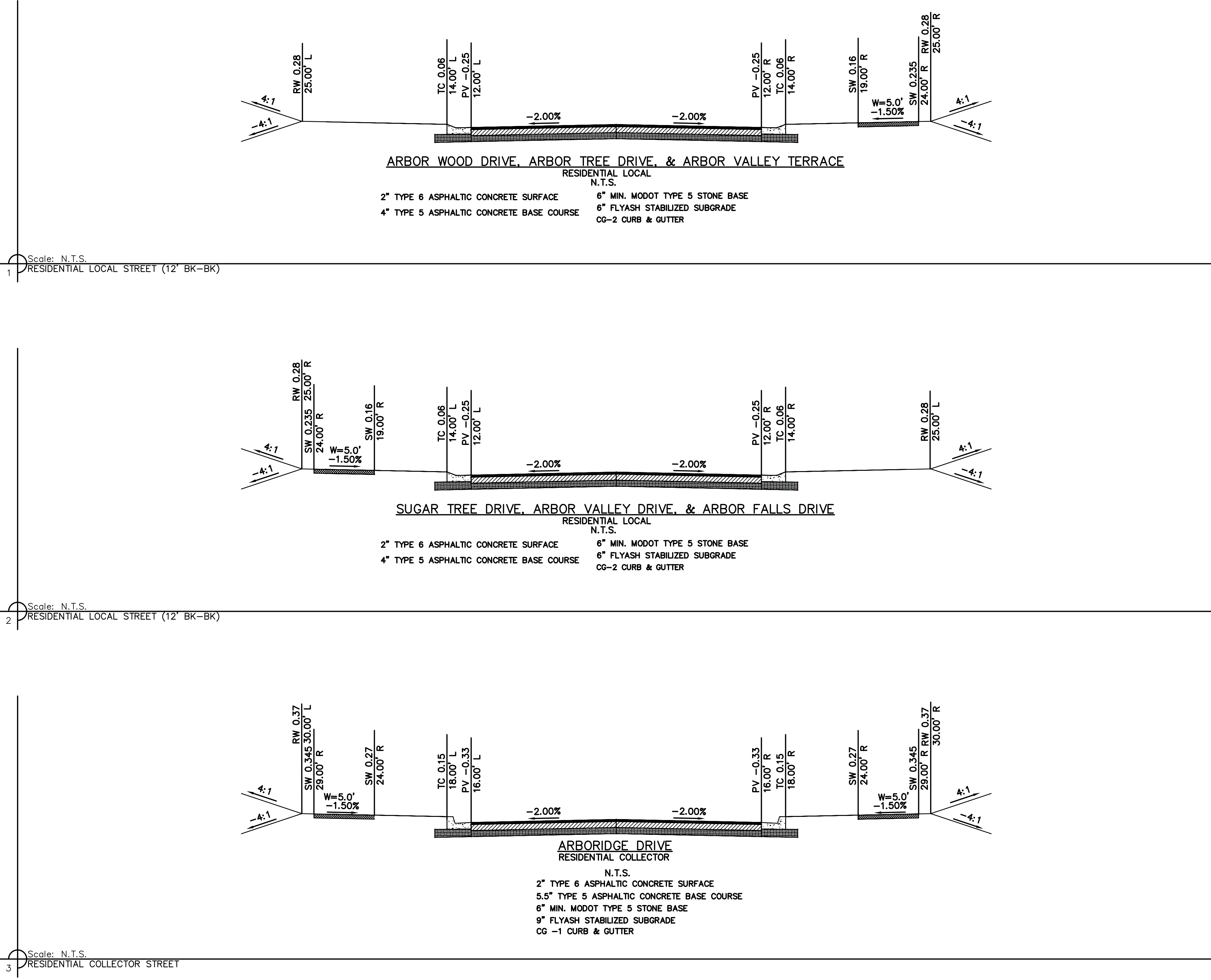
LEE'S SUMMIT, MO

drawn by: DAH  
checked by: MGD  
designed by: PML  
QA/QC by: KSL  
project no.: 017-0188  
date: 03.03.2017

SHEET  
C103



NOT AS BUILT



drawn by: D.A.H.O.  
checked by: M.G.D.  
designed by: P.M.L.B.  
QA/QC by: K.S.J.  
project no.: 017-0188  
date: 03.03.2017

SHEET  
C104

TYPICAL SECTIONS

HAWTHORN RIDGE  
1ST PLAT

LEE'S SUMMIT, MO

2018

REVISIONS

| NO. | REV. | DATE       | REVISIONS DESCRIPTION     | BY  |
|-----|------|------------|---------------------------|-----|
| 1   |      | 04.19.2017 | Revised section           | MGD |
| 4   |      | 01.08.2018 | Removed Hook Road section | MGD |
| 5   |      | 02.14.2018 | Revised asphalt type      |     |
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OLSSON<sup>®</sup>

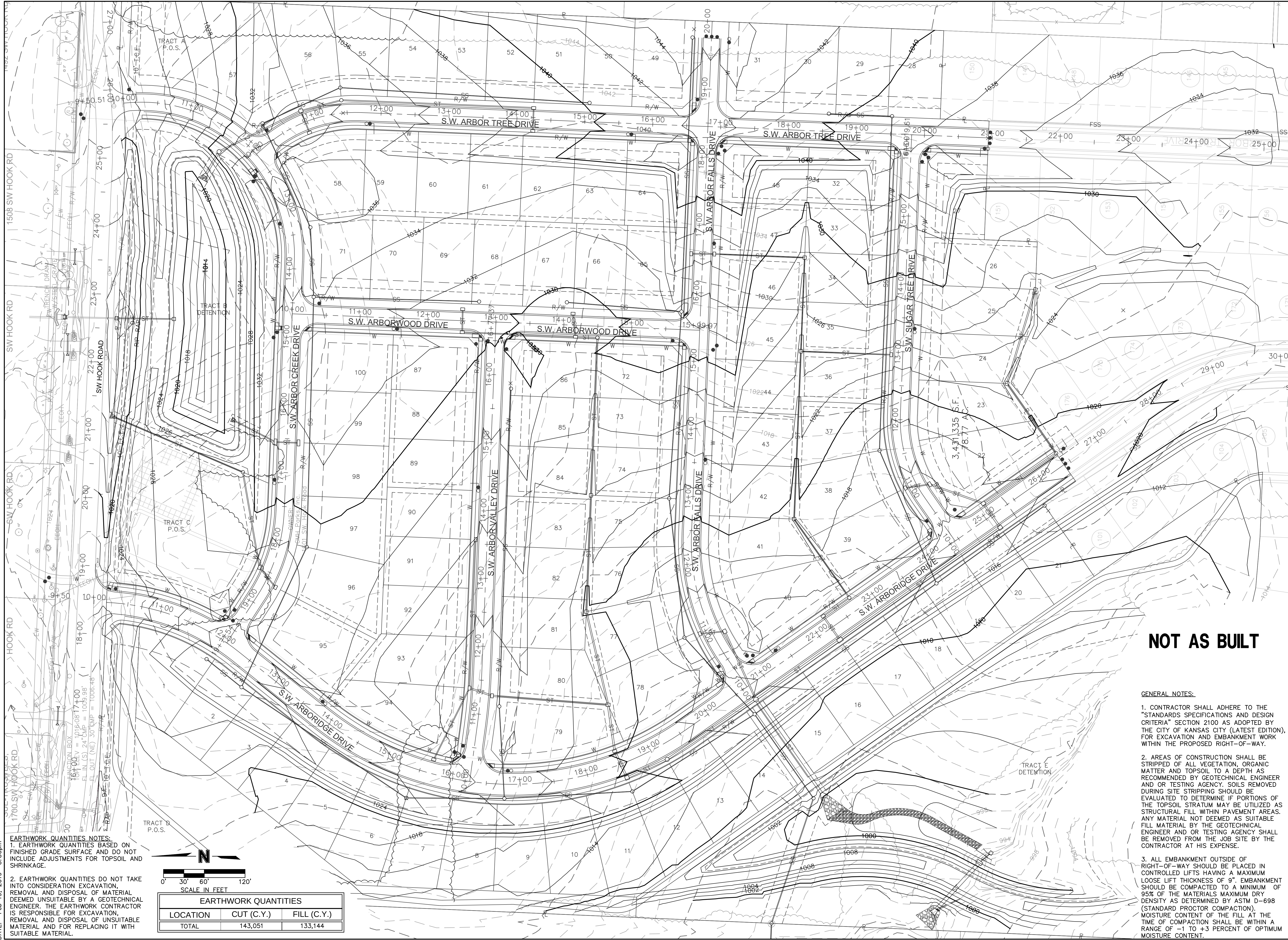
ASSOCIATES

Olsson Associates - Civil Engineering  
180 S. Main Street  
North Kansas City, MO 64116  
TEL 816.897.4320  
FAX 816.897.1393  
www.olssonassociates.com

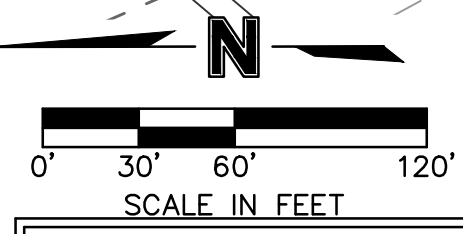
STATE OF MISSOURI

MELISSA G. DEGENIA  
NUMBER  
PE-2011000892  
03/04/2019  
PROFESSIONAL ENGINEER





**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.



| EARTHWORK QUANTITIES |            |             |
|----------------------|------------|-------------|
| LOCATION             | CUT (C.Y.) | FILL (C.Y.) |
| TOTAL                | 143,051    | 133,144     |

## NOT AS BUILT

- GENERAL NOTES:**
- CONTRACTOR SHALL ADHERE TO THE "STANDARDS SPECIFICATIONS AND DESIGN CRITERIA" SECTION 2100 AS ADOPTED BY THE CITY OF KANSAS CITY (LATEST EDITION), FOR EXCAVATION AND EMBANKMENT WORK WITHIN THE PROPOSED RIGHT-OF-WAY.
  - 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.
  - ALL EMBANKMENT OUTSIDE OF RIGHT-OF-WAY SHOULD BE PLACED IN CONTROLLED LIFTS HAVING A MAXIMUM LOOSE LIFT THICKNESS OF 9". 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 -1 TO +3 PERCENT OF OPTIMUM MOISTURE CONTENT.

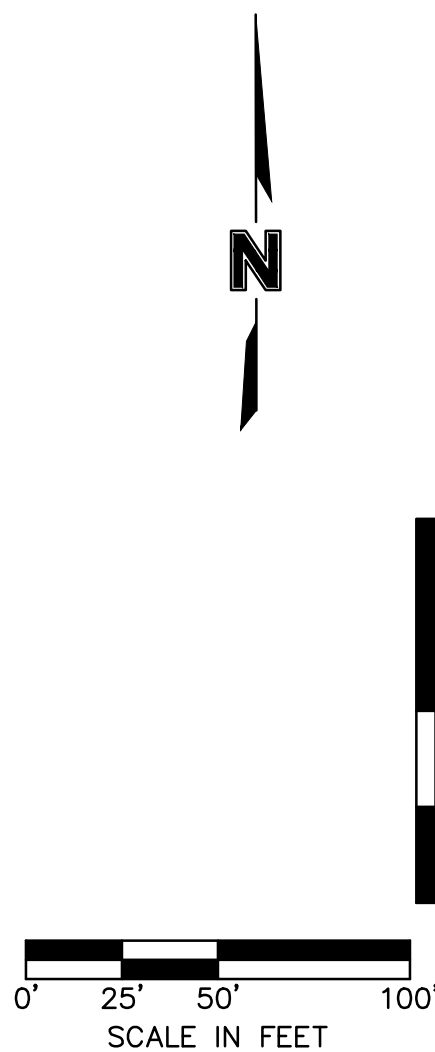
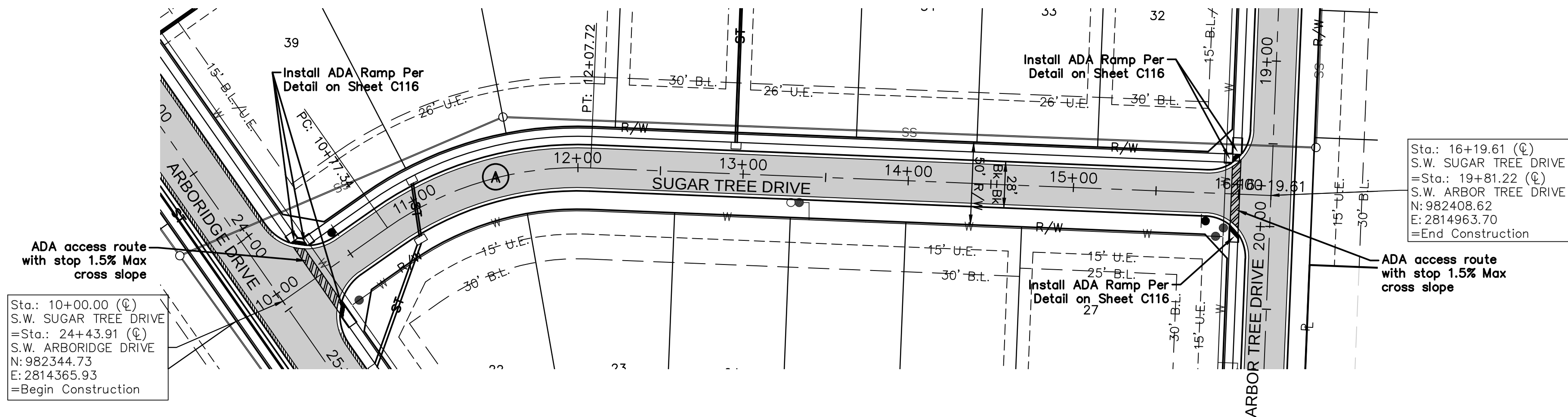
OLSSON ASSOCIATES

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1800 Certificate of Authority #010592  
North Kansas City, MO 64116  
TEL 816.997.4320  
FAX 816.997.1393  
www.olssonassociates.com

STATE OF MISSOURI  
MELISSA G. DEGENIA  
NUMBER  
FE-20111000892  
08/04/2019  
PROFESSIONAL ENGINEER

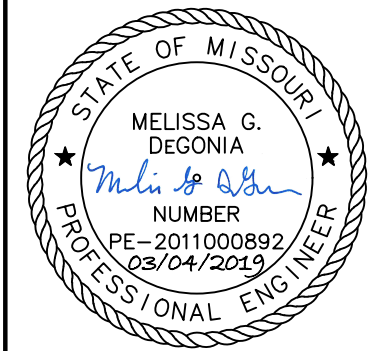
| NO. | REV. | DATE       | REVISIONS DESCRIPTION          | BY | MGD |
|-----|------|------------|--------------------------------|----|-----|
|     |      |            |                                |    |     |
| 4   |      | 01.02.2018 | Removed Hook Road Improvements |    |     |
| 5   |      | 03.02.2018 | Grading Quantities revised     |    |     |
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**A S S O C I A T E S**

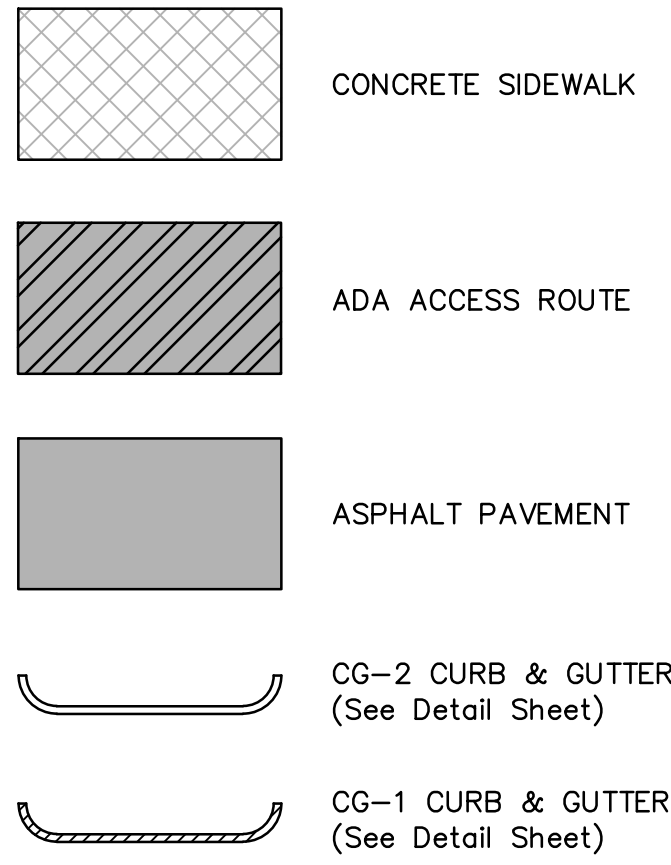
Olsson Associates - Civil Engineering  
MO Certificate of Authority #001592  
1301 Burlington, Suite 100  
North Kansas City, MO 64116  
TEL 816.587.4200  
FAX 816.587.1393  
[www.olssonassociates.com](http://www.olssonassociates.com)

[illegible]

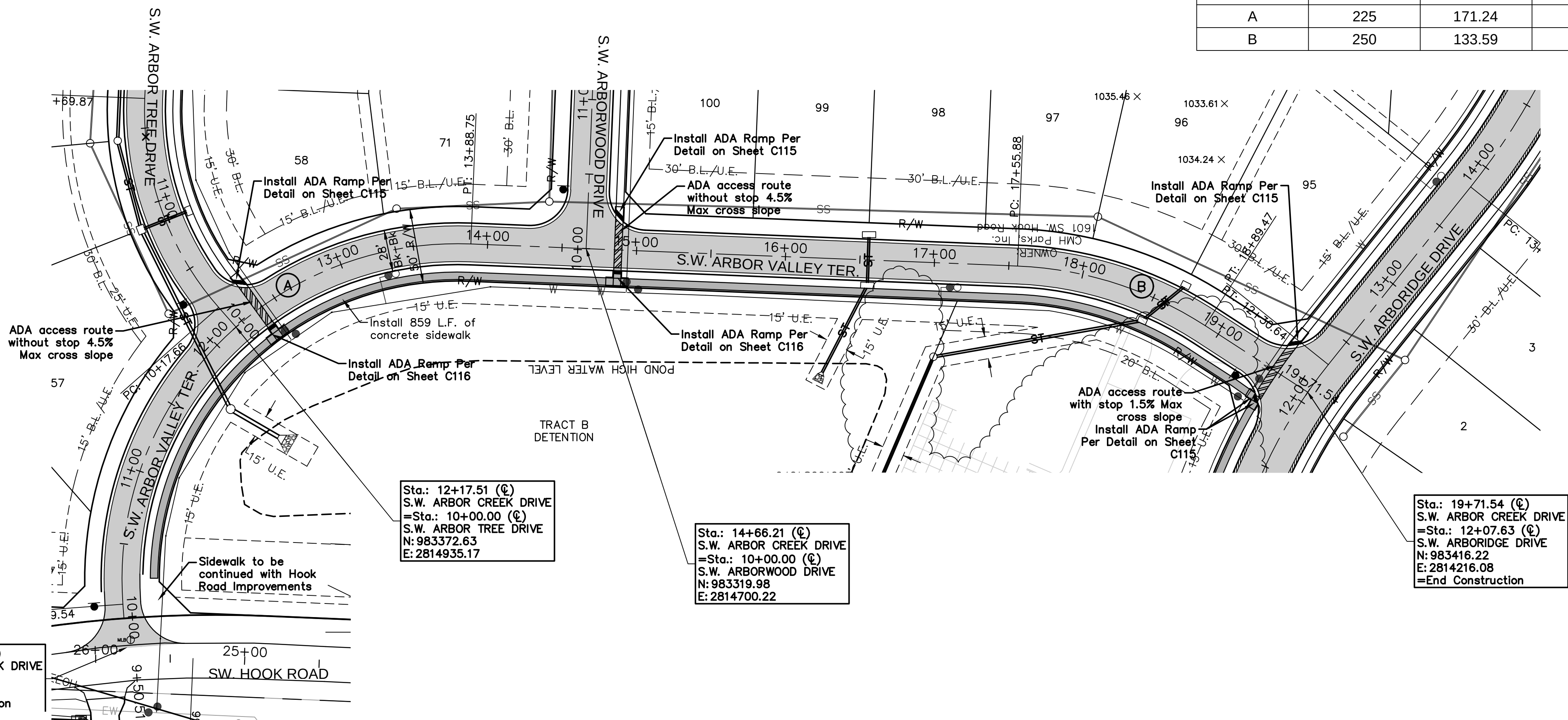
|                            |      |
|----------------------------|------|
| ROADWAY PLAN & PROFILE     |      |
| HAWTHORN RIDGE<br>1ST PLAT |      |
| LEE'S SUMMIT, MO           | 2018 |

drawn by: D.A.H.O  
checked by: M.G.D.  
designed by: P.M.D  
QA/QC by: K.S.J  
project no.: 017-0188  
date: 03.03.2017





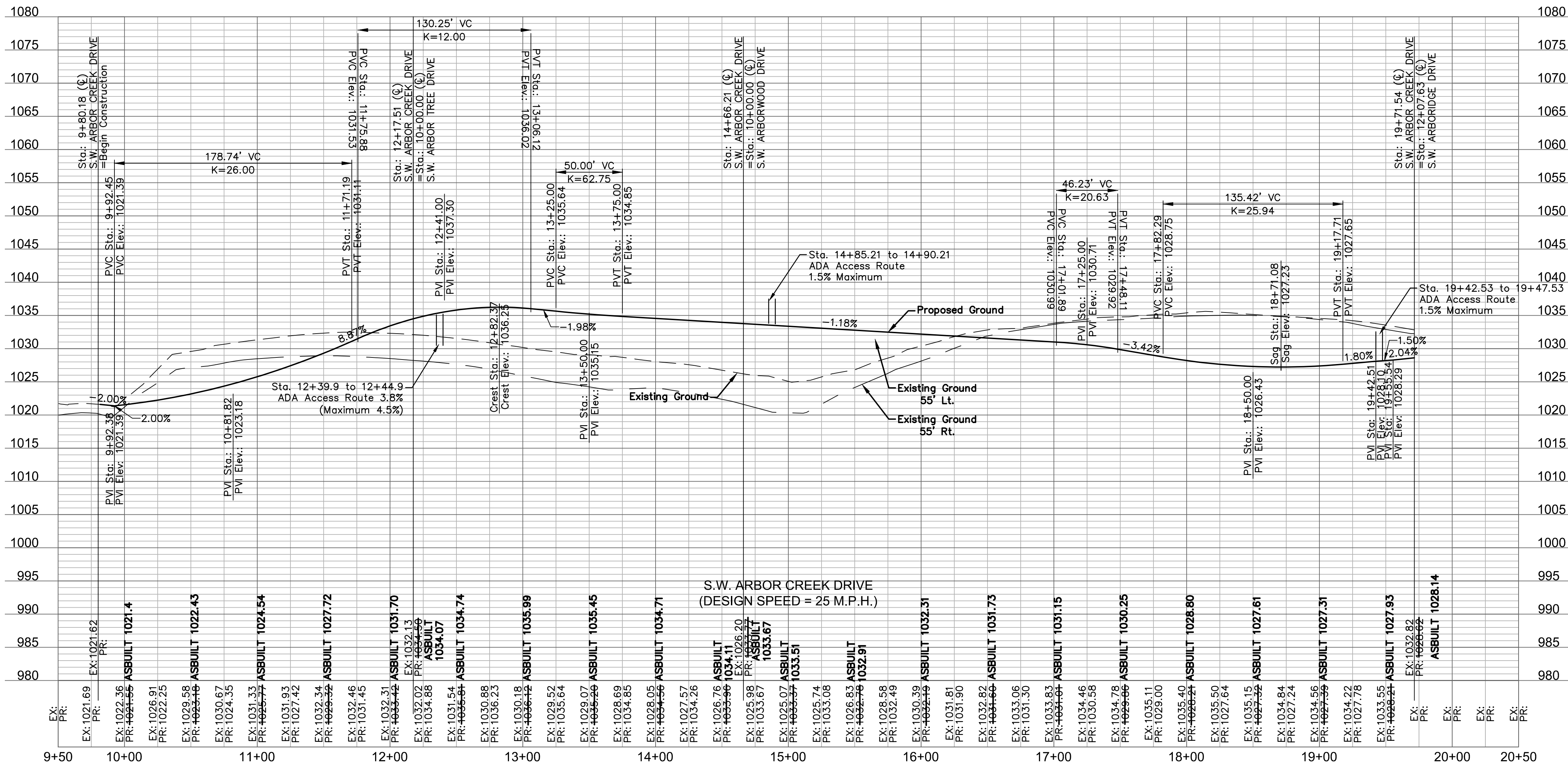
Sta.: 9+80.18 (C)  
S.W. ARBOR CREEK DRIVE  
N: 983587.65  
E: 2815008.89  
=Begin Construction



Sta.: 12+17.51 (C)  
S.W. ARBOR CREEK DRIVE  
=Sta.: 10+00.00 (C)  
S.W. ARBOR TREE DRIVE  
N: 983372.63  
E: 2814935.17

Sta.: 14+66.21 (C)  
S.W. ARBOR CREEK DRIVE  
=Sta.: 10+00.00 (C)  
S.W. ARBORWOOD DRIVE  
N: 983319.98  
E: 2814700.22

Sta.: 19+71.54 (C)  
S.W. ARBOR CREEK DRIVE  
=Sta.: 12+07.63 (C)  
S.W. ARBORIDGE DRIVE  
N: 983416.22  
E: 2814216.08  
=End Construction



**AS BUILT**  
DATE: 12/19/2018



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North Kansas City, MO 64116  
TEL: 816.897.4320  
FAX: 816.897.1393  
www.olssonassociates.com

STATE OF MISSOURI

MELISSA G. DEGENIA  
NUMBER  
FE-2011000892  
03/04/2019  
PROFESSIONAL ENGINEER

BY

MGD

MGD

REVISIONS DESCRIPTION

NO. REV. DATE

4 01.02.2018 Removed Hook Road Improvements

5 02.12.2018 Revised ADA access notes

ROADWAY PLAN & PROFILE

HAWTHORN RIDGE  
1ST PLAT

LEE'S SUMMIT, MO

drawn by: DA.H.D.

checked by: M.G.D.

designed by: E.M.L.

QA/QC by: K.S.A.

project no.: 017-0188

date: 03.03.2017

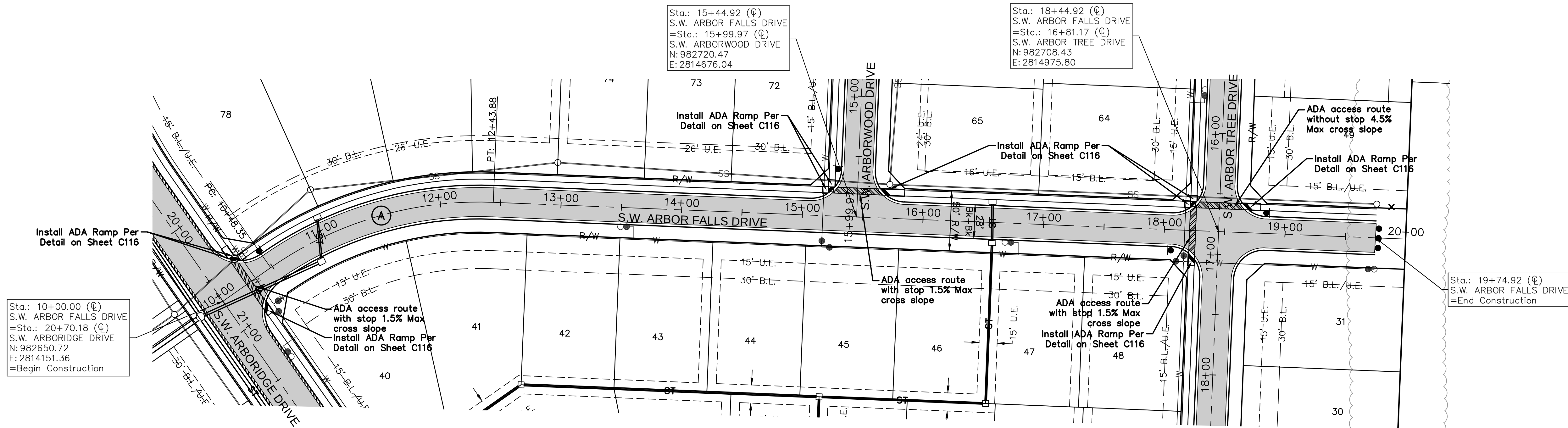
SHEET C107

2018









STATE OF MISSOURI  
MELISSA G. DEGONIA  
*Melissa G. DeGonia*  
NUMBER  
PE-2011000892  
03/04/2019  
PROFESSIONAL ENGINEER

| NO. REV. | DATE       | REVISIONS DESCRIPTION             | BY  |
|----------|------------|-----------------------------------|-----|
| 6        | 03-14-2018 | Revised for JDA's technical notes | MGD |
| 7        | 06-27-2018 | Error of Read Perceived           |     |
|          |            |                                   |     |
|          |            |                                   |     |
|          |            |                                   |     |
|          |            |                                   |     |

## ROADWAY PLAN & PROFILE

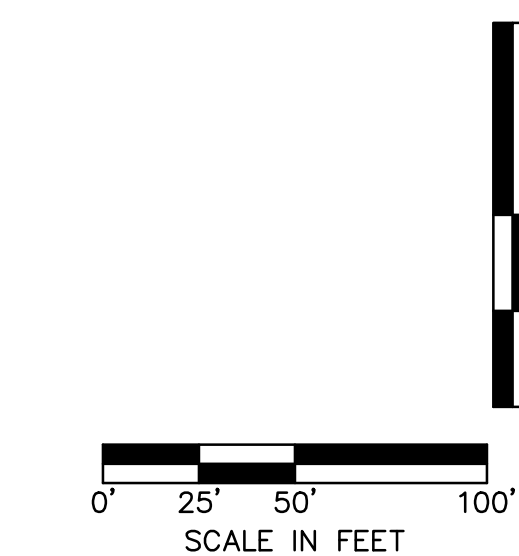
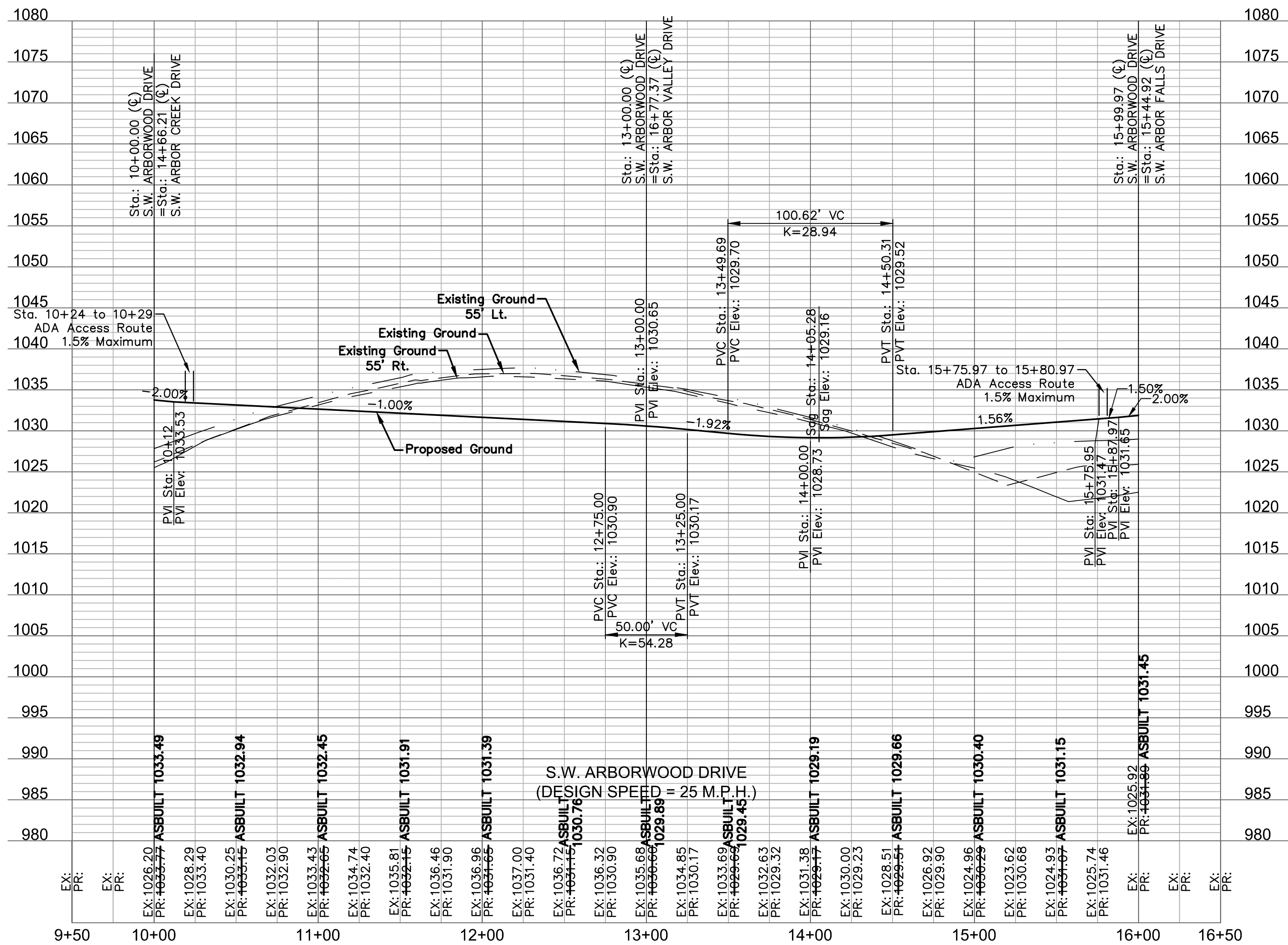
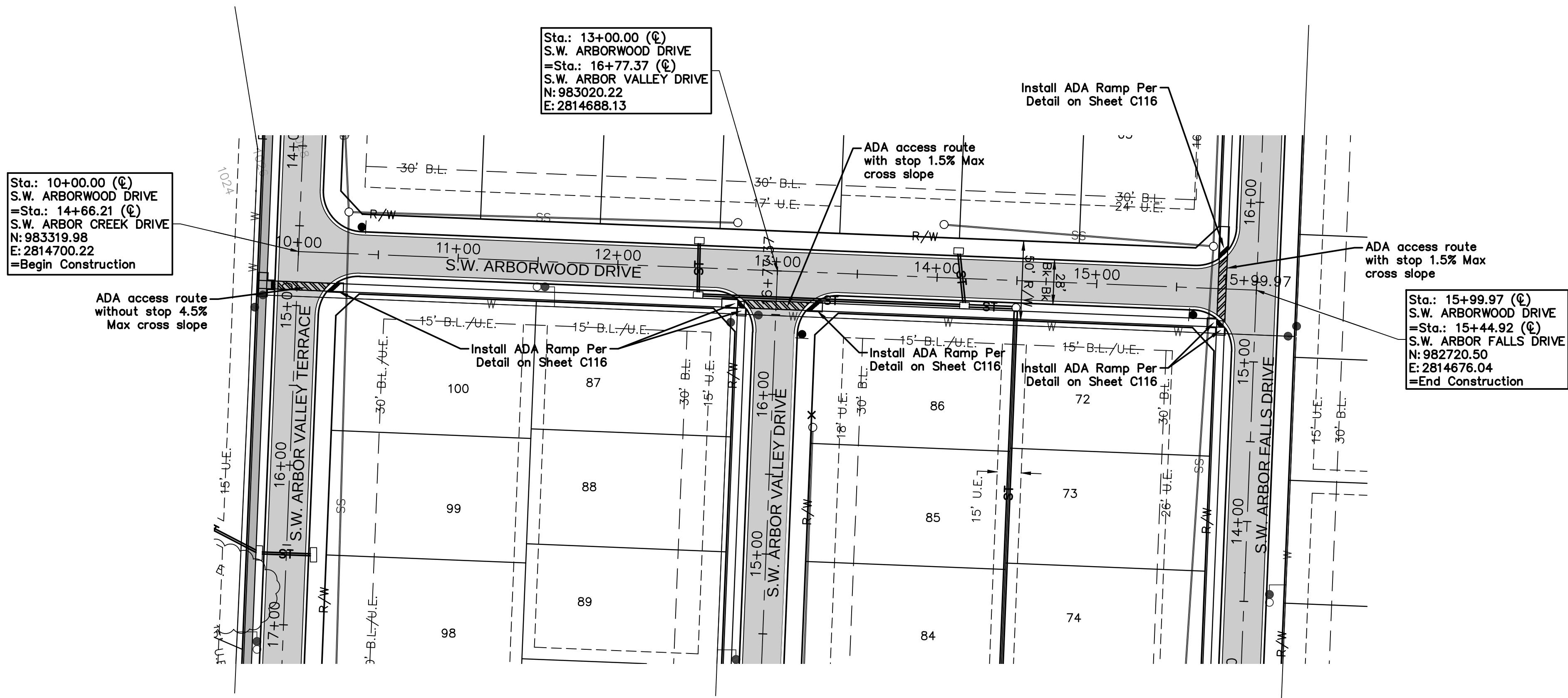
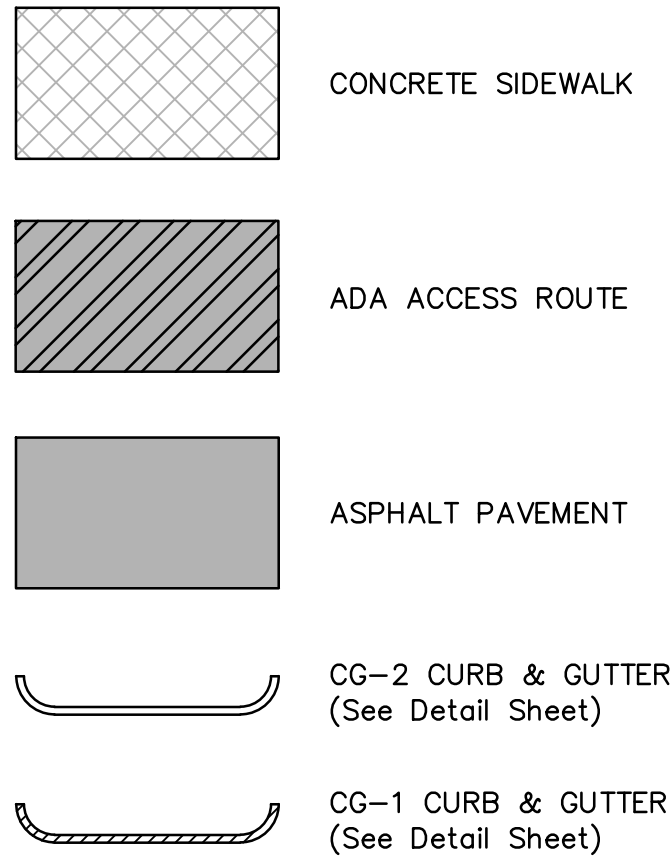
HAWTHORN RIDGE  
1ST PLAT

LEE'S SUMMIT, MO

drawn by: D.A.H.O.  
checked by: M.G.D.  
designed by: P.M.D.  
QA/QC by: K.S.J.  
project no.: 017-0188  
date: 03.03.2017

SHEET  
C109





AS BUILT

DATE: 12/19/2018

drawn by: D.A.H.D.  
checked by: M.G.D.  
designed by: E.M.L.  
QA/QC by: K.S.  
project no.: 017-0188  
date: 03.03.2017

SHEET C110

ROADWAY PLAN & PROFILE

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

REVISIONS

| NO. | REV. | DATE       | REVISIONS DESCRIPTION     |
|-----|------|------------|---------------------------|
| 5   |      | 02.12.2018 | Revised ADA access routes |

BY MGD

STATE OF MISSOURI

MELISSA G. DEGENIA

NUMBER

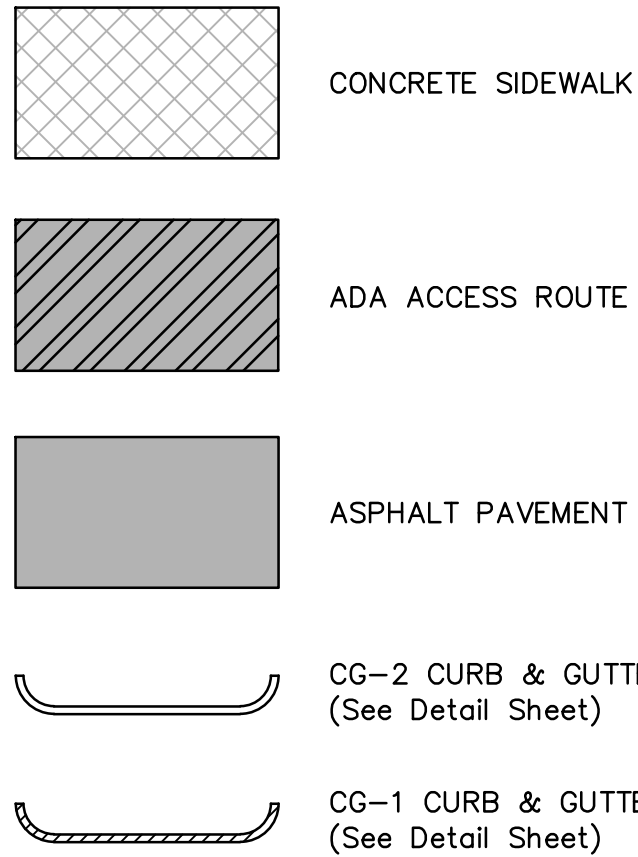
FE-2011000892

08/04/2019

PROFESSIONAL ENGINEER

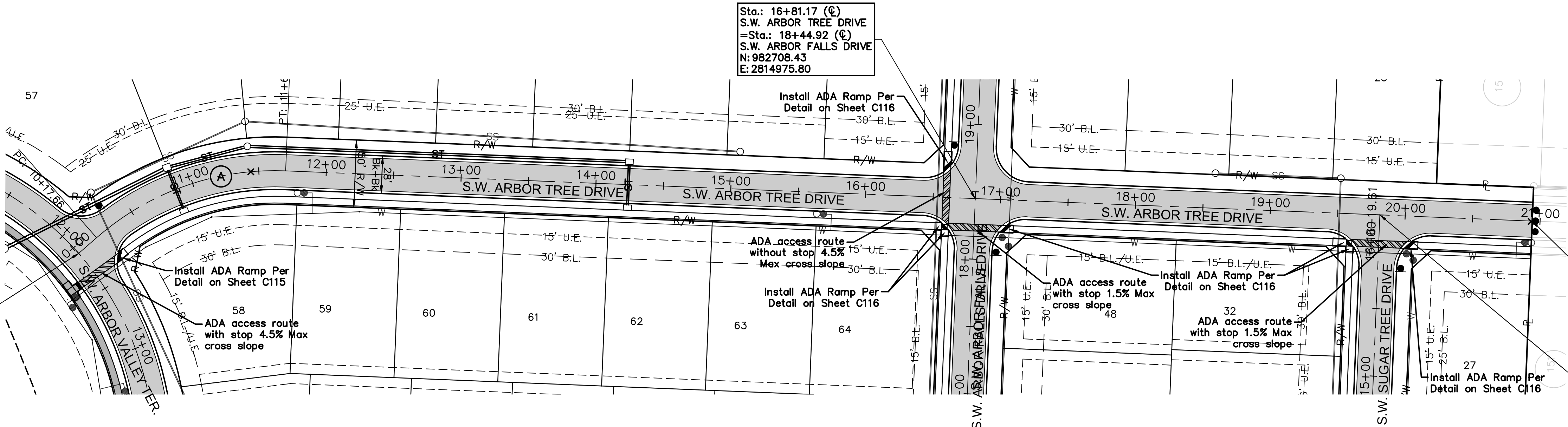
Olsson Associates - Civil Engineering  
1800 E. 12th Street  
North Kansas City, MO 64116  
TEL 816.897.4320  
FAX 816.897.1393  
www.olssonassociates.com





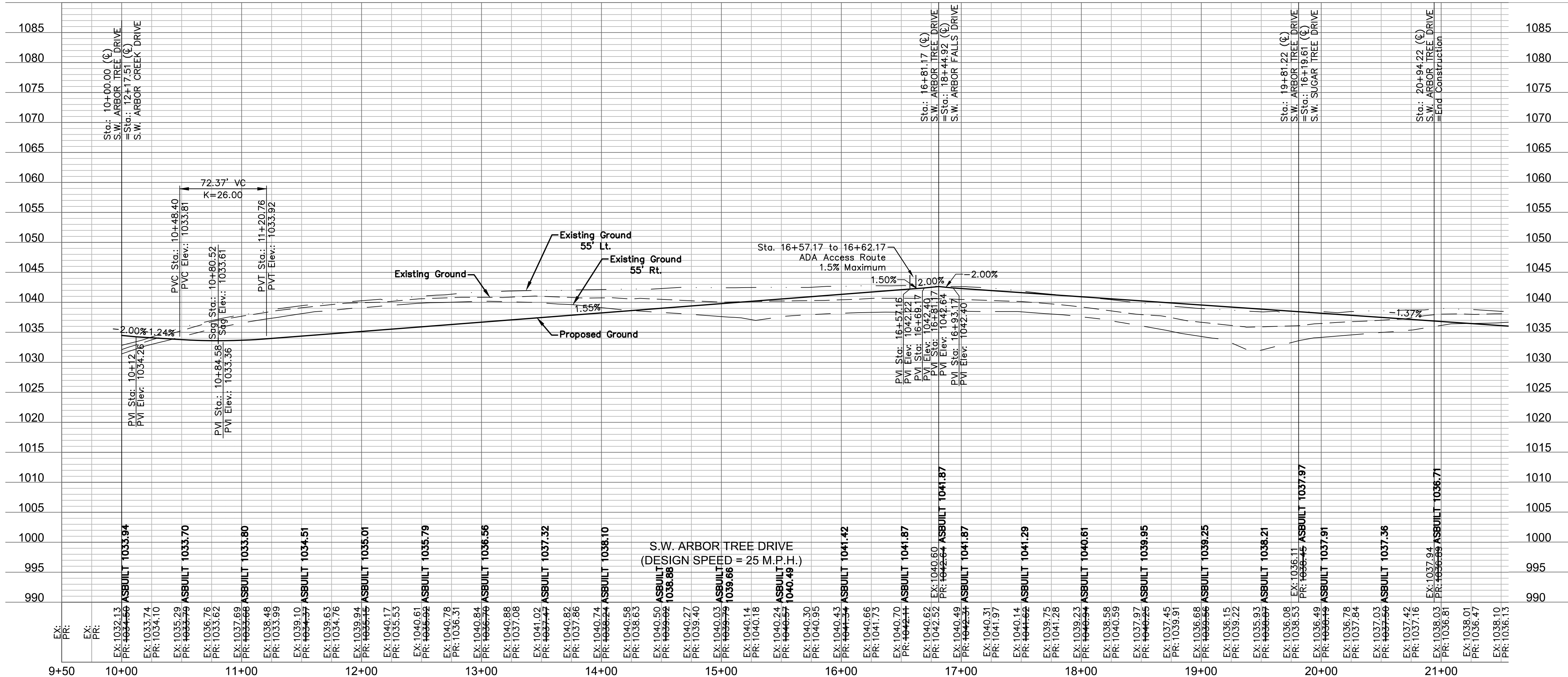
| CURVE | RADIUS | LENGTH | TANGENT | DELTA     | P.I. STA. (BK.) |
|-------|--------|--------|---------|-----------|-----------------|
| A     | 200    | 152.21 | 80.01   | 43°36'22" | 10+89.86        |

Sta.: 10+00.00 (C)  
S.W. ARBOR TREE DRIVE  
=Sta.: 12+17.51 (C)  
S.W. ARBOR CREEK DRIVE  
N: 983372.63  
E: 2814935.17  
=Begin Construction

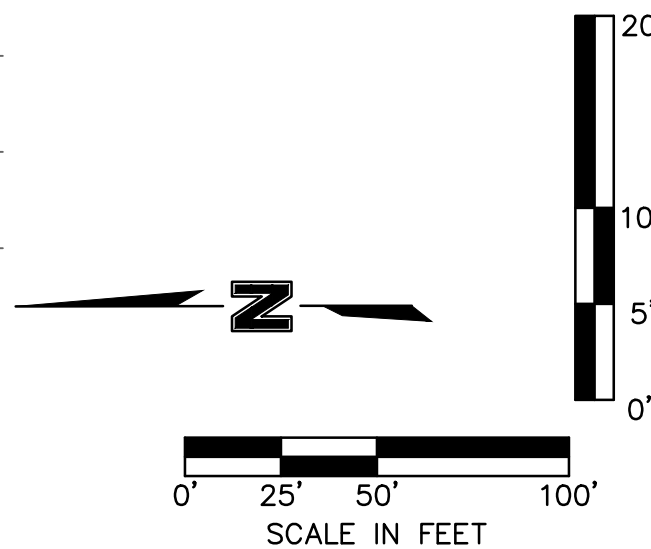


Sta.: 20+94.22 (C)  
S.W. ARBOR TREE DRIVE  
N: 982295.71  
E: 2814959.15  
=End Construction

Sta.: 19+81.22 (C)  
S.W. ARBOR TREE DRIVE  
=Sta.: 16+19.61 (C)  
S.W. SUGAR TREE DRIVE  
N: 982408.82  
E: 2814963.70



AS BUILT  
DATE: 12/19/2018



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TEL 816.897.4320  
FAX 816.897.1393  
www.olssonassociates.com

STATE OF MISSOURI  
MELISSA G. DEGENIA  
Professional Engineer  
NUMBER  
FE-2011000892  
03/04/2019

BY: MGD

REVISIONS DESCRIPTION

NO. REV. DATE

1 02.12.2018 Revised ADA access routes

REVISIONS

2018

ROADWAY PLAN & PROFILE

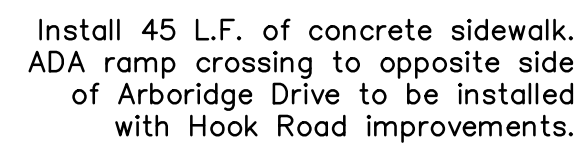
HAWTHORN RIDGE  
1ST PLAT

LEE'S SUMMIT, MO

drawn by: D.A.H.D.  
checked by: M.G.P.  
designed by: P.M.B.  
QA/QC by: K.S.P.  
project no.: 017-0188  
date: 03.03.2017

SHEET  
C111





Sta.: 10+00.00 (C)  
S.W. ARBORIDGE DRIVE, 0.00  
N: 983611.60  
E: 2814276.36  
=Begin Construction

Install ADA Ramp-  
per Detail on  
Sheet C115

Install 207 L.F. of—  
concrete sidewalk

Sta.: 12+07.63 (C)  
S.W. ARBORIDGE DRIVE  
=Sta.: 19+71.54 (C)  
S.W. ARBOR CREEK DRIVE  
N: 983416.22  
E: 2814216.08

Install ADA  
Detail on Sh

- ADA access route with stop 1.5% M

-Install ADA Ramp  
Detail on Sheet C

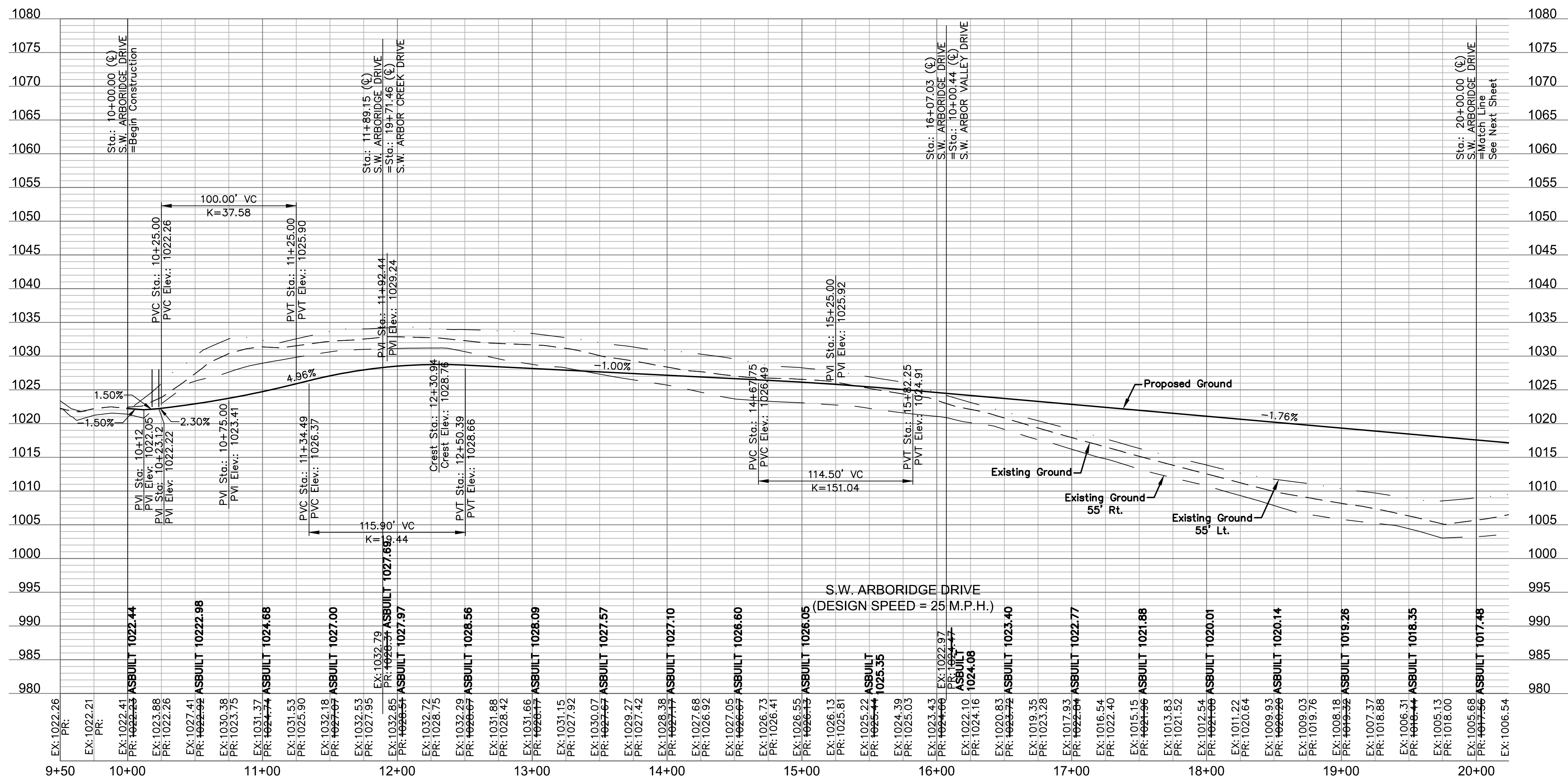
Install ADA Ramp  
Detail on Sheet C

ADA access route  
with stop 1.5% Max

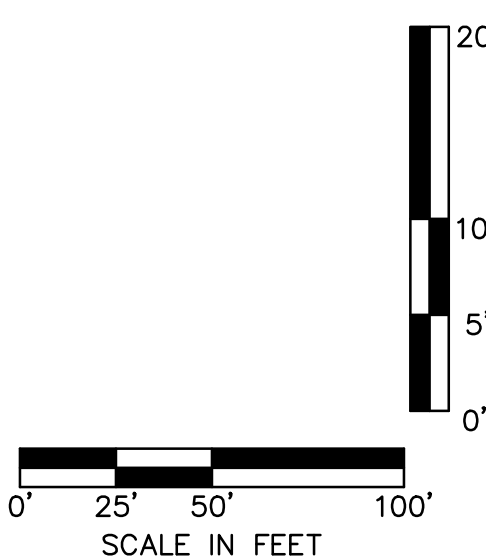
Sta.: 16+25.46 (C)  
S.W. ARBORIDGE DRIVE  
=Sta.: 10+00.00 (C)  
S.W. ARBOR VALLEY DRIVE  
N: 983058.90  
E: 2814012.25

—Install ADA Ramp Per  
Detail on Sheet C116

| CURVE | RADIUS | LENGTH | TANGENT | DELTA     | P.I. STA. (BK.) |
|-------|--------|--------|---------|-----------|-----------------|
| A     | 335    | 189.19 | 97.19   | 32°21'27" | 11+33.45        |
| B     | 450    | 242.12 | 124.07  | 30°49'38" | 18+38.48        |



**AS BUILT**  
DATE: 12/19/2018



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FAX 816.587.1393

[illegible]

## REVISIONS

2018

LEE'S SUMMIT, MO

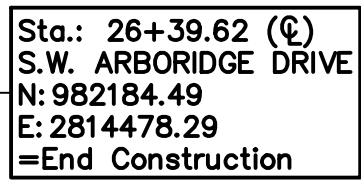
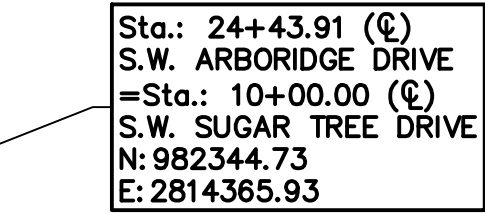
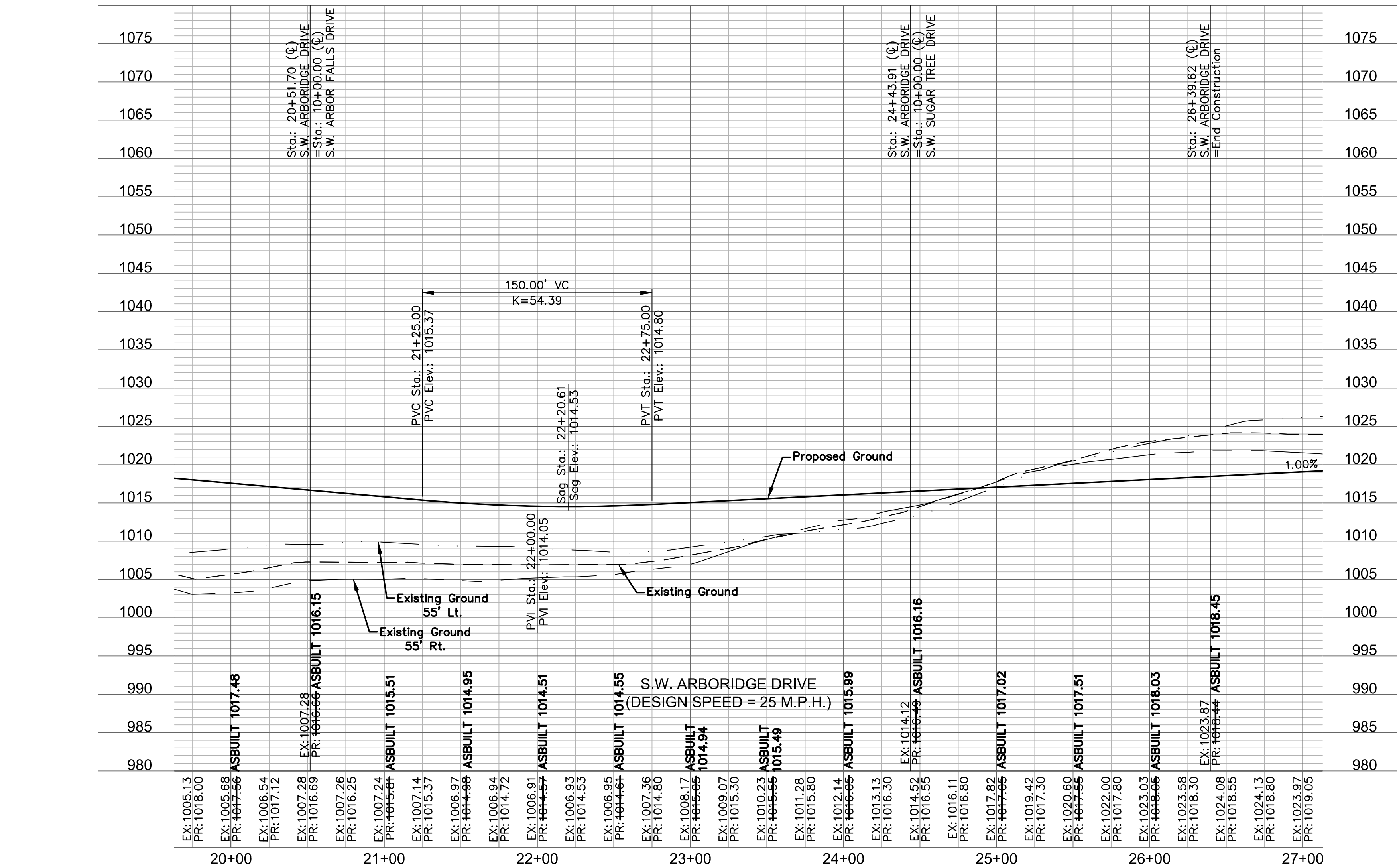
## ROADWAY PLAN & PROFILE

HAWTHORN RIDGE  
1ST PLAT

drawn by: D.A.H.O  
checked by: M.G.D  
designed by: P.M.D  
QA/QC by: K.S.J  
project no.: 017-0188  
date: 03.03.2017

SHEET  
C112

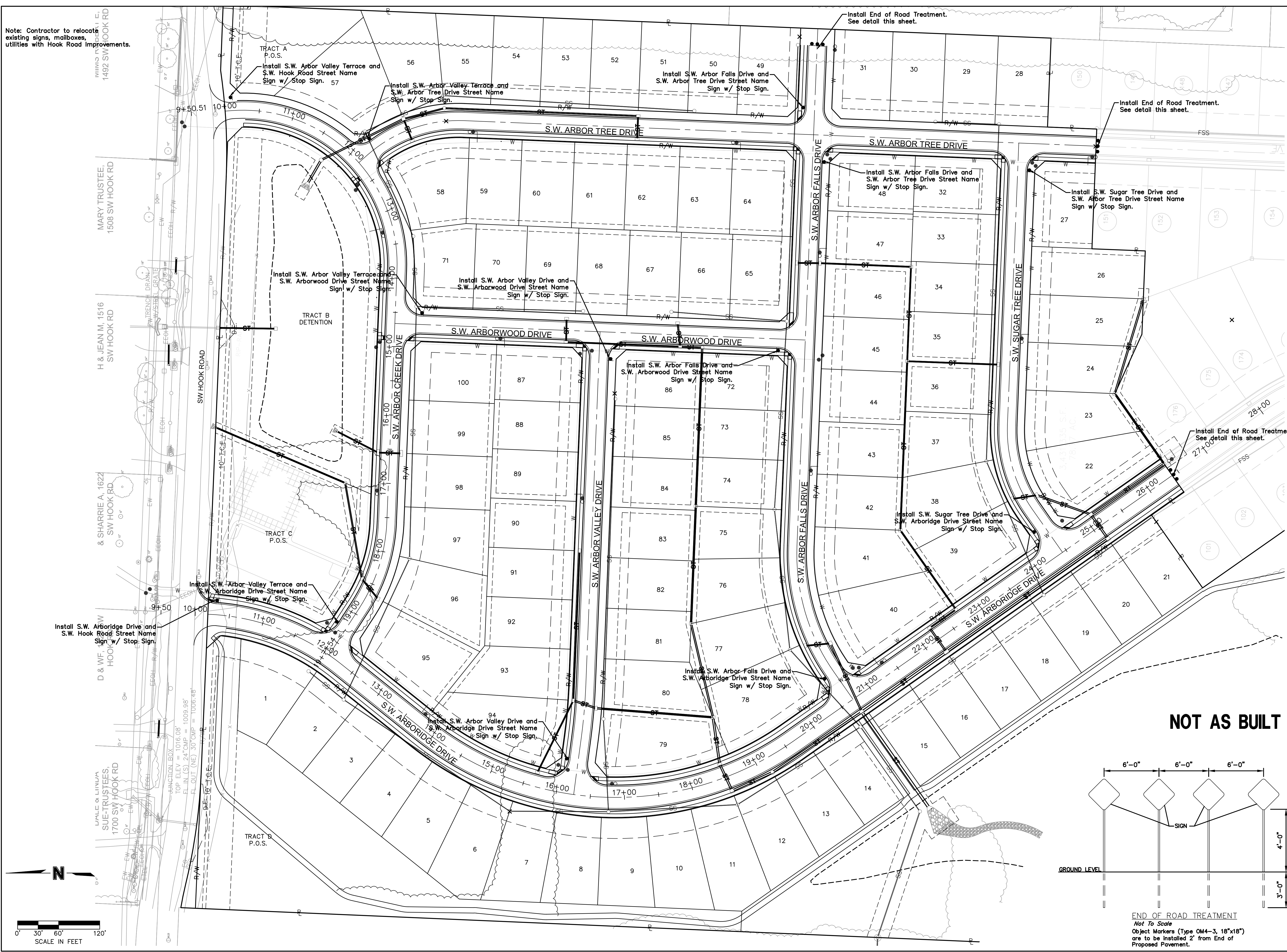




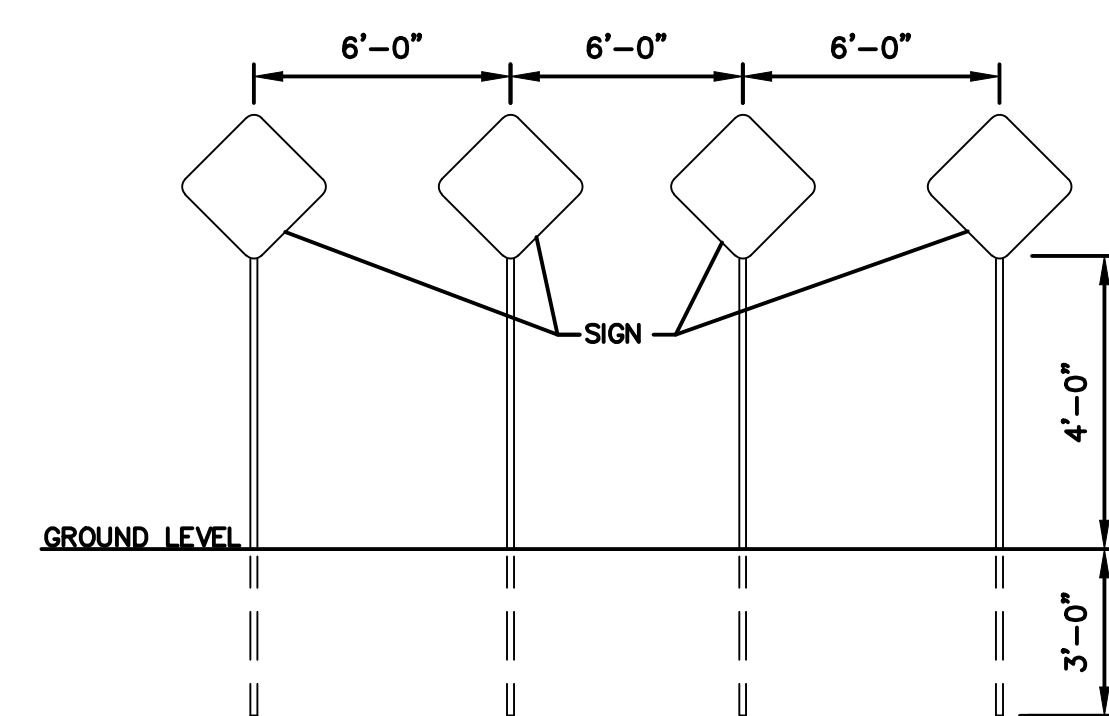


**Note: Contractor to relocate existing signs, mailboxes, utilities with Hook Road Improvements.**

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01\_Street & Storm\_36x24\C\_TCP02\_017-0188.dwg  
DATE: Feb 19, 2019 6:01pm  
USER: dhernandez



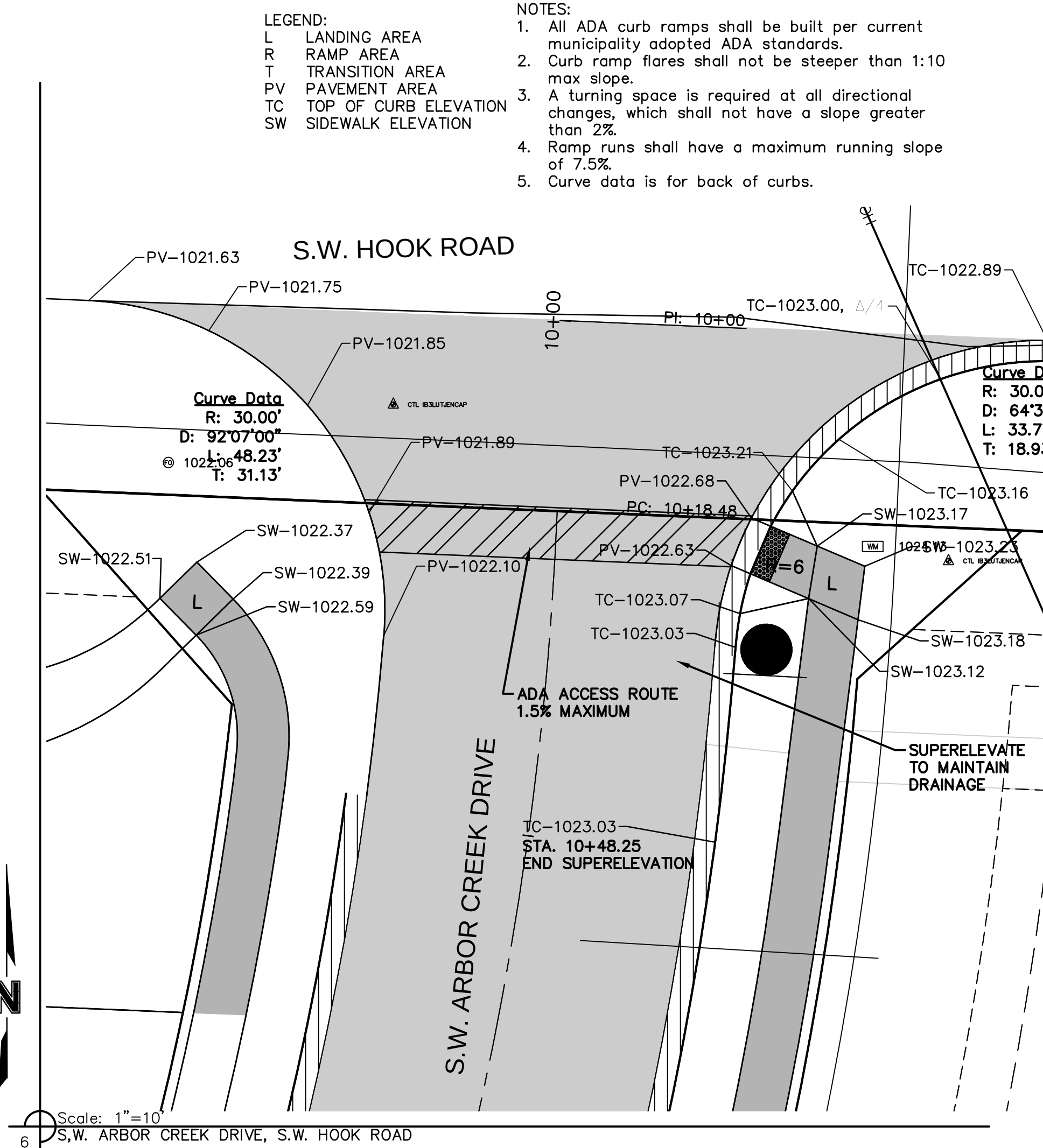
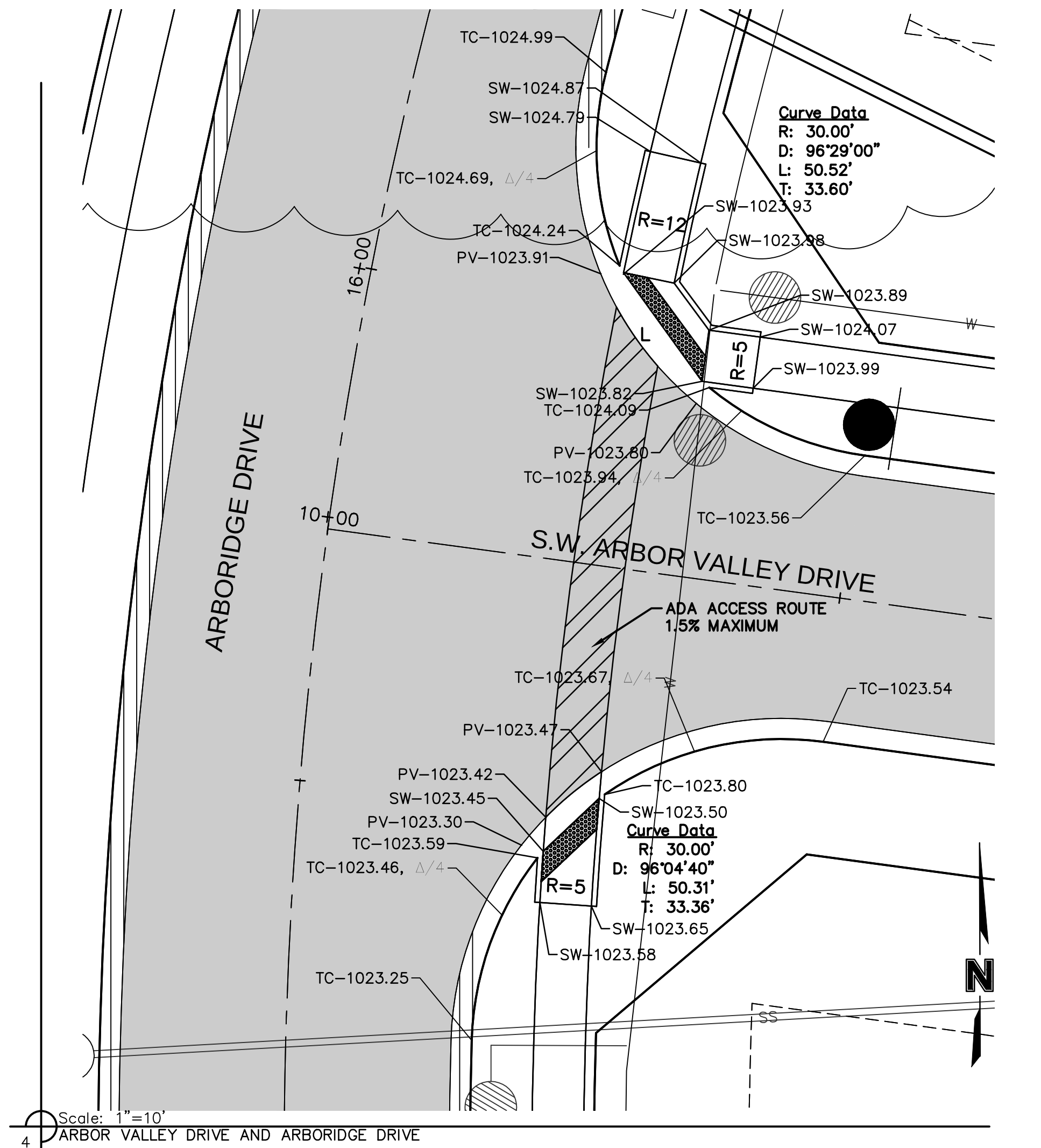
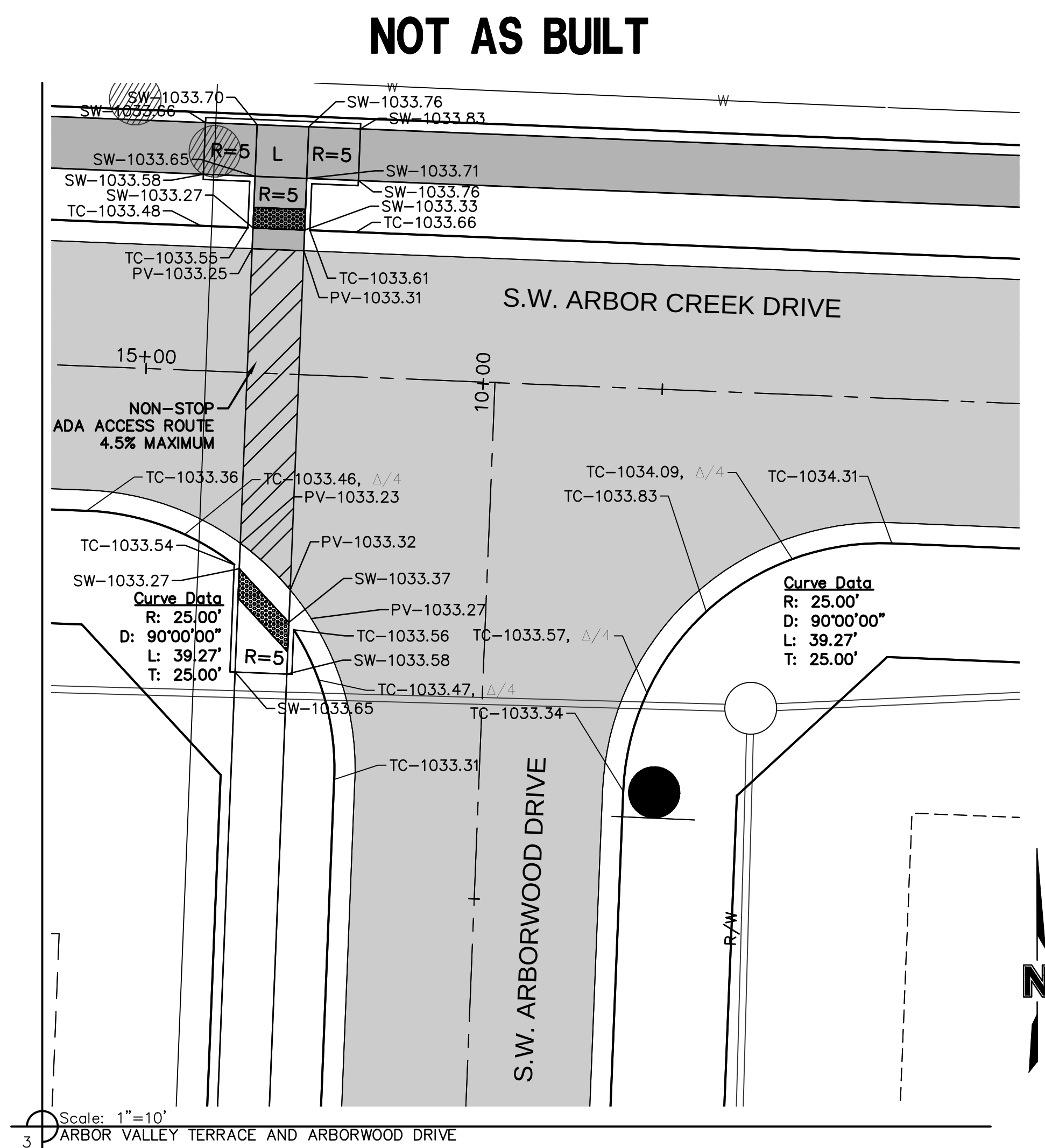
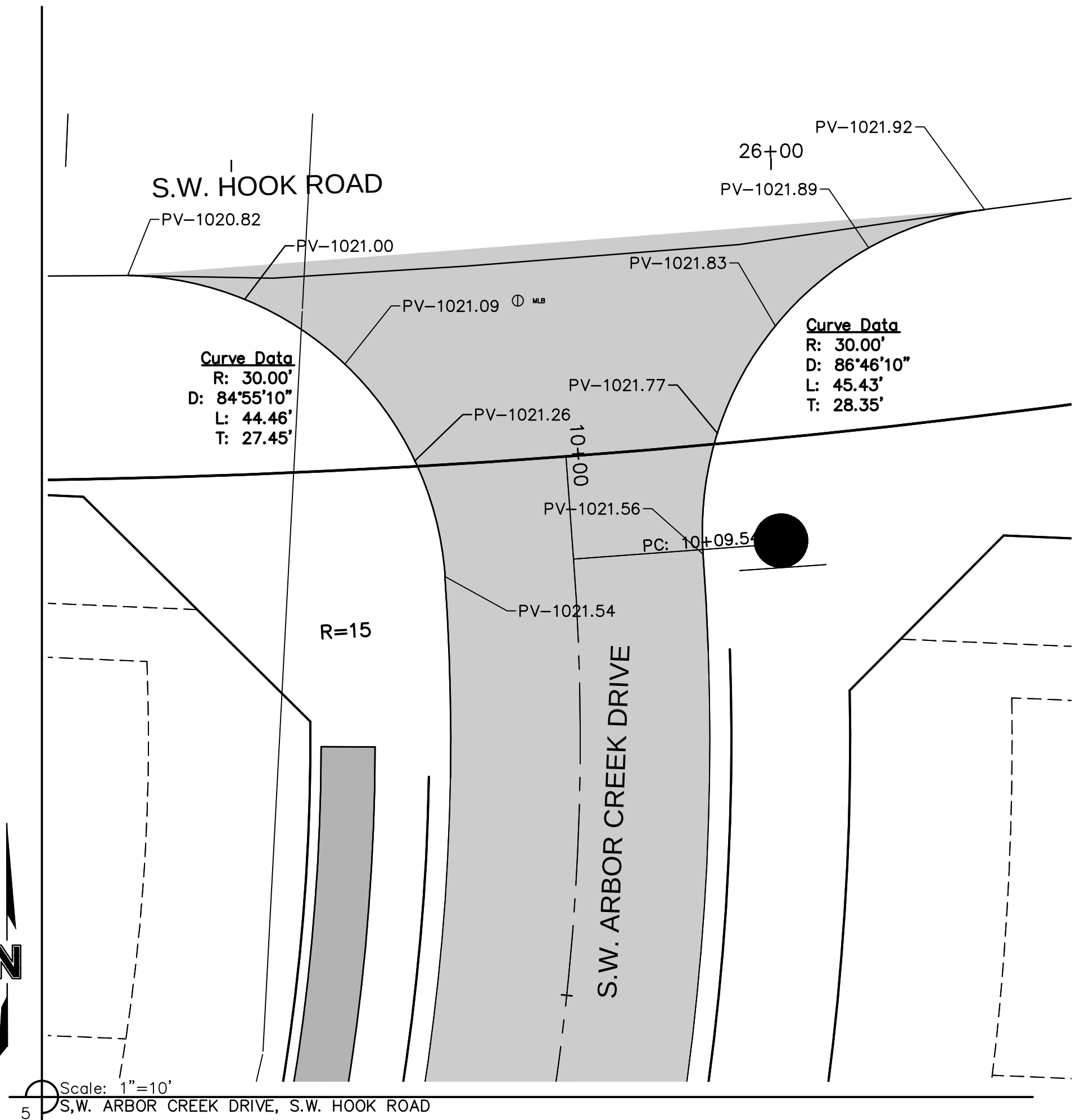
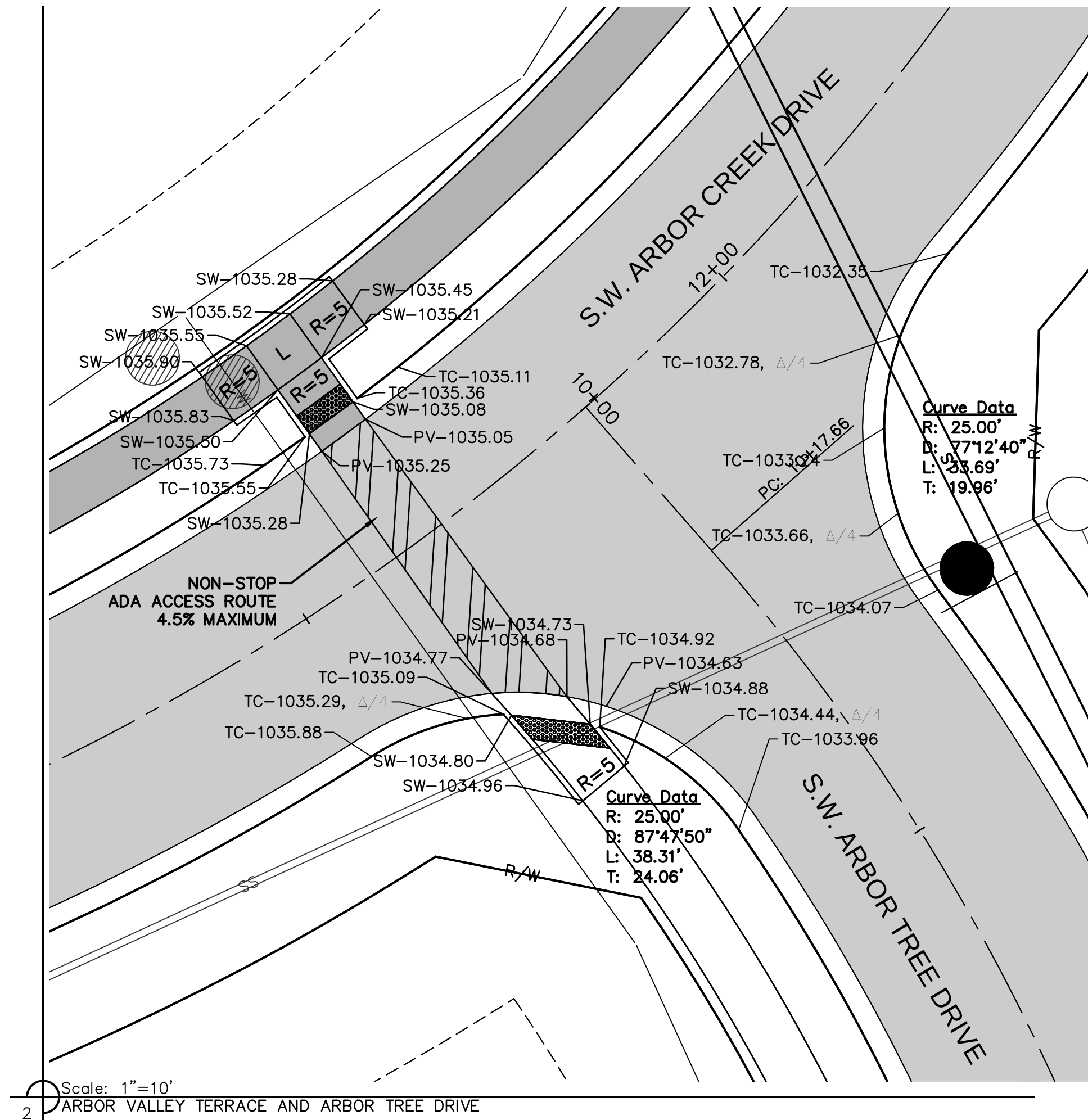
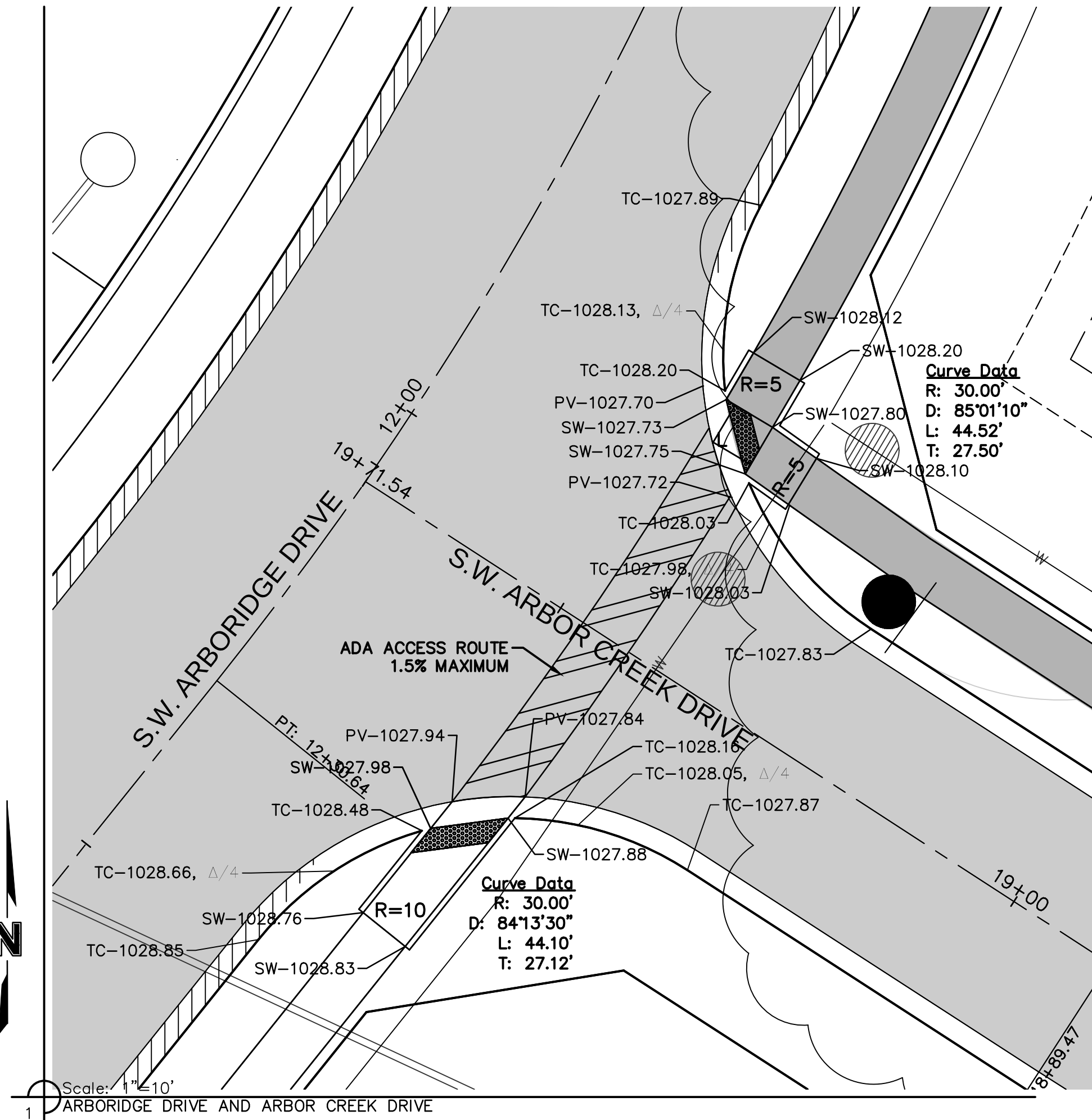
## NOT AS BUILT



END OF ROAD TREATMENT  
*Not To Scale*  
Object Markers (Type OM4-3, 18"x18")  
are to be installed 2' from End of  
Proposed Pavement.

|                                                                                                                                                                      |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                         |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| drawn by: _____ D.A.H.G.<br>checked by: _____ M.G.D.<br>designed by: _____ P.M.D.<br>QA/QC by: _____ K.S.J.<br>project no.: _____ 017-0188<br>date: _____ 03/03/2017 |  |  |  |  |  | <div style="text-align: center;"> <h1>OOLSSON<sup>®</sup></h1> <h2>ASSOCIATES</h2> <p>Olsson Associates - Civil Engineering<br/>           1301 Burlington, Suite 100<br/>           North Kansas City, MO 64116<br/>           TEL 816.987.4320<br/>           FAX 816.987.1393<br/> <a href="http://www.olssonassociates.com">www.olssonassociates.com</a></p> </div> |  |  |  |  |  |
| TRAFFIC CONTROL PLAN<br><br><br>HAWTHORN RIDGE<br>1ST PLAT                                                                                                           |  |  |  |  |  | NO. REV.      DATE      REVISIONS DESCRIPTION      BY                                                                                                                                                                                                                                                                                                                   |  |  |  |  |  |
|                                                                                                                                                                      |  |  |  |  |  | 1      04/19/2017      Added sheet      MGD<br>4      04/08/2018      Reformed Major Road Imp Overights      MGD<br>5      06/27/2018      End of Road Treatment Location Revised      MGD                                                                                                                                                                              |  |  |  |  |  |
|                                                                                                                                                                      |  |  |  |  |  | REVISIONS                                                                                                                                                                                                                                                                                                                                                               |  |  |  |  |  |
| LEE'S SUMMIT, MO                                                                                                                                                     |  |  |  |  |  | 2018                                                                                                                                                                                                                                                                                                                                                                    |  |  |  |  |  |
| SHEET<br>C114                                                                                                                                                        |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                         |  |  |  |  |  |





USER: dhernandez

DWG: F:\2017\0001\0500\017-0188\40-Design\AutoCAD\Final Plans\ASBULLTS\GNCV\01\_Street & Storm\_36x24\C\_SPT02\_017-0188.dwg  
DATE: Feb 19, 2019 6:03pm

DWG: F:\2017\0001-0500\01  
DATE: Feb 19, 2019 6:03pm

## NOT AS BUILT

LEGEND:

|    |                       |
|----|-----------------------|
| L  | LANDING AREA          |
| R  | RAMP AREA             |
| T  | TRANSITION AREA       |
| PV | PAVEMENT AREA         |
| TC | TOP OF CURB ELEVATION |
| SW | SIDEWALK ELEVATION    |

NOTES:

1. All ADA curb ramps shall be built per current municipality adopted ADA standards.
2. Curb ramp flares shall not be steeper than 1:10 max slope.
3. A turning space is required at all directional changes, which shall not have a slope greater than 2%.
4. Ramp runs shall have a maximum running slope of 7.5%.
5. Curve data is for back of curbs.

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FAX 816.587.1393

MO Certificate of Authority #:0  
1301 Burlington, Suite 100  
North Kansas City, MO 64116

[illegible]

|                  |                            |      |
|------------------|----------------------------|------|
| #####            | HAWTHORN RIDGE<br>1ST PLAT | 2018 |
| LEE'S SUMMIT, MO |                            |      |

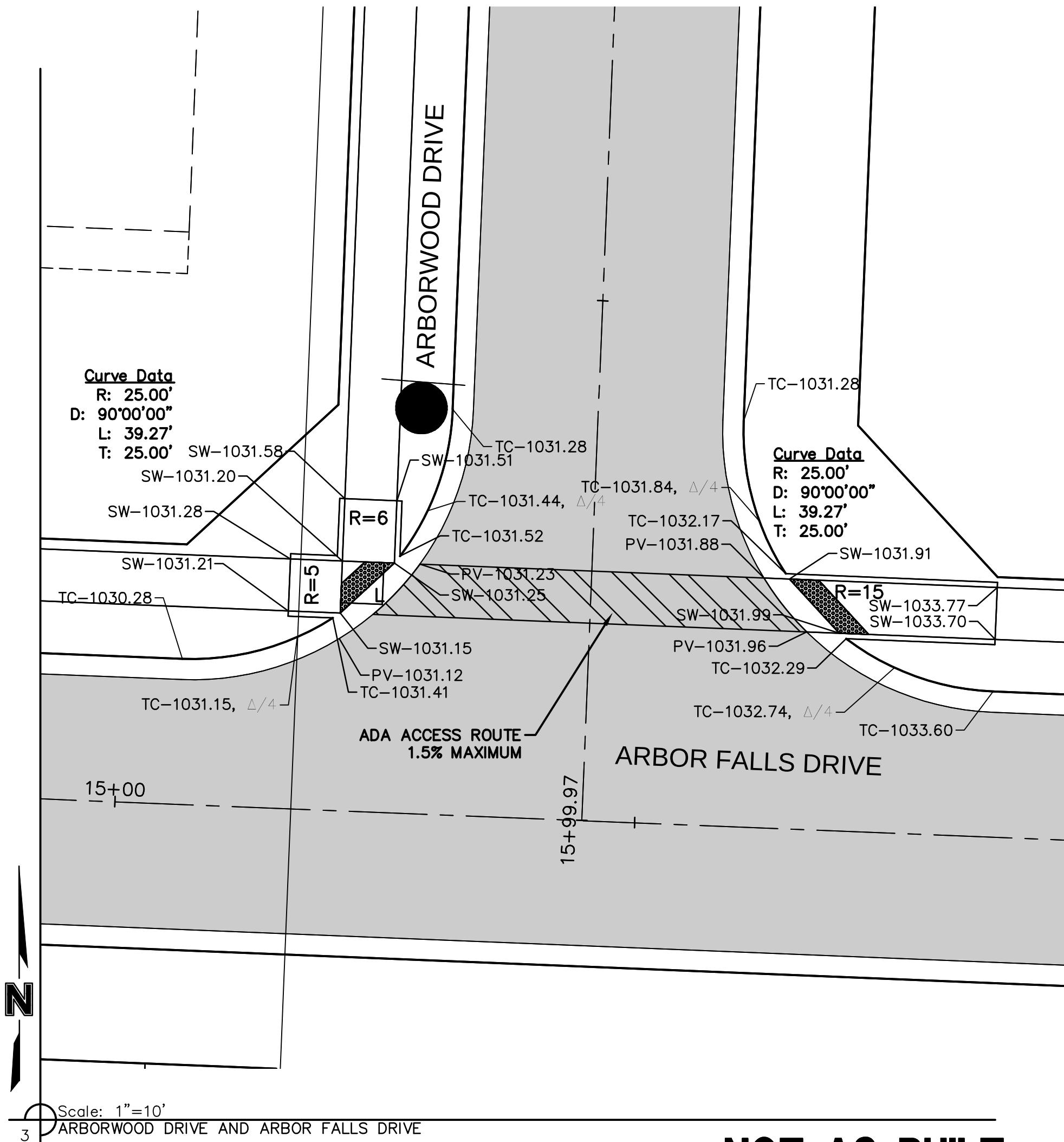
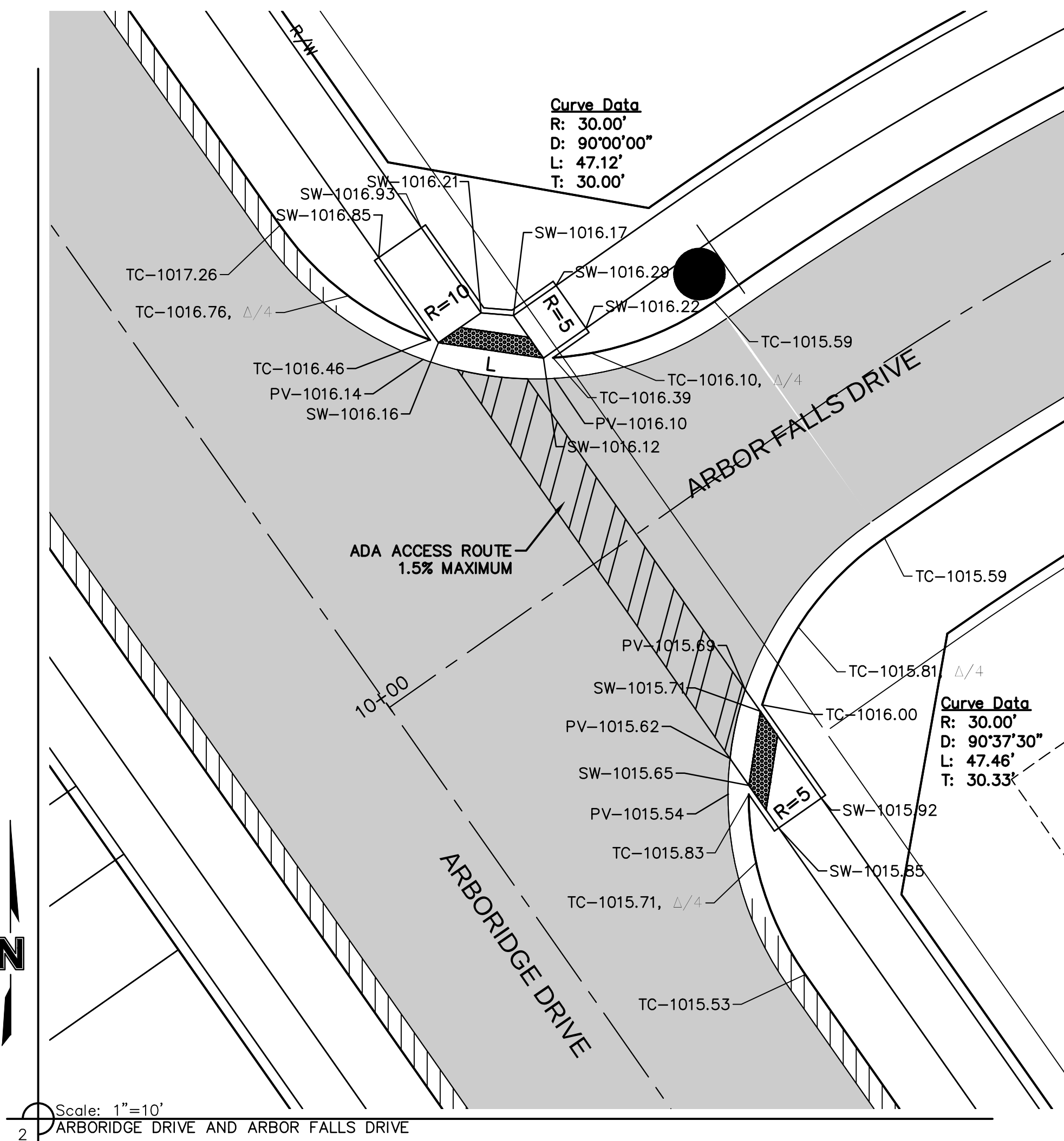
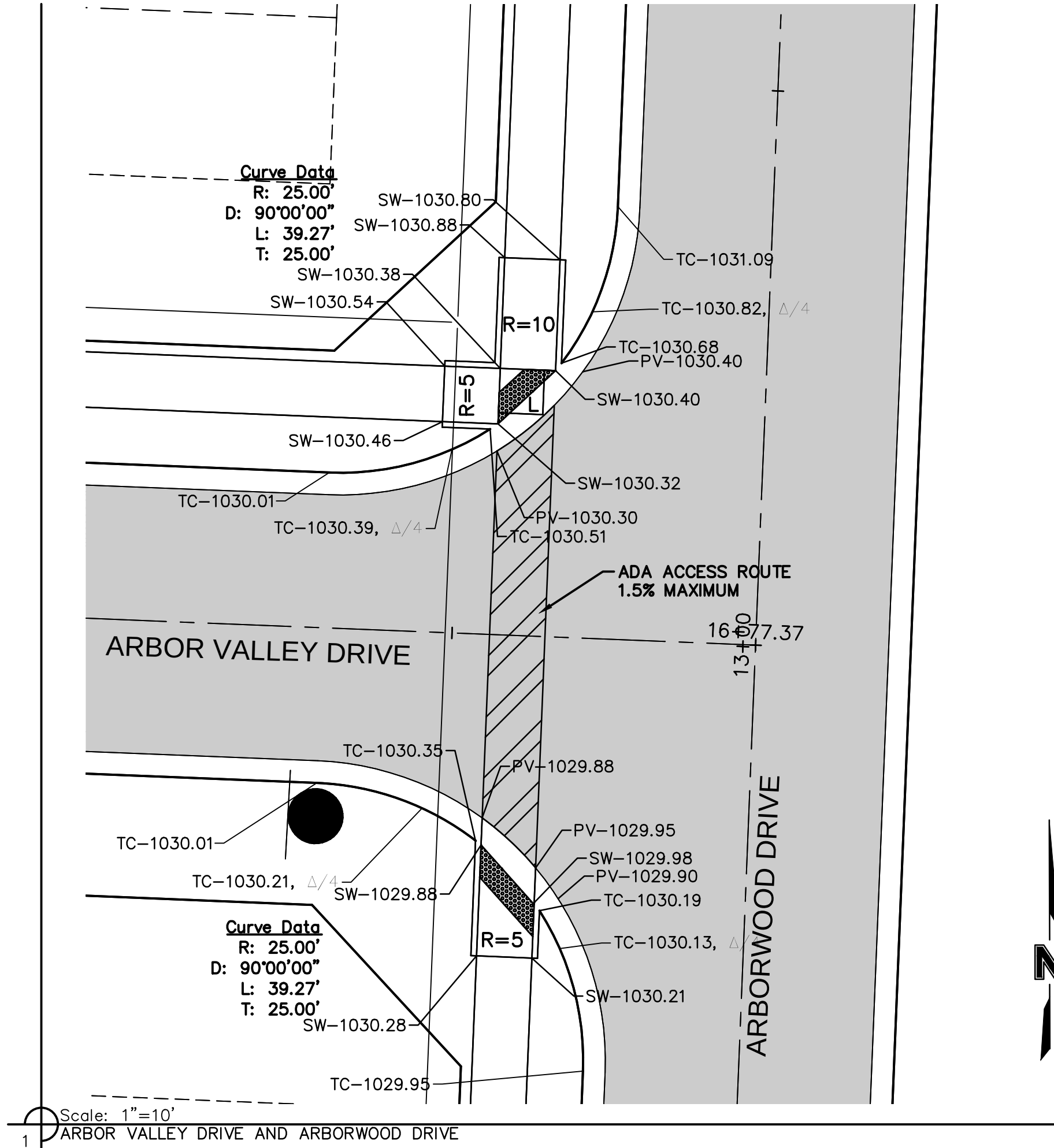
Drawn by: D.A.H.Q  
 Checked by: M.G.D.  
 Designed by: P.M.D  
 QA/QC by: K.S.J  
 Project no.: 017-0188  
 Date: 03.03.2017

SHEET  
C115

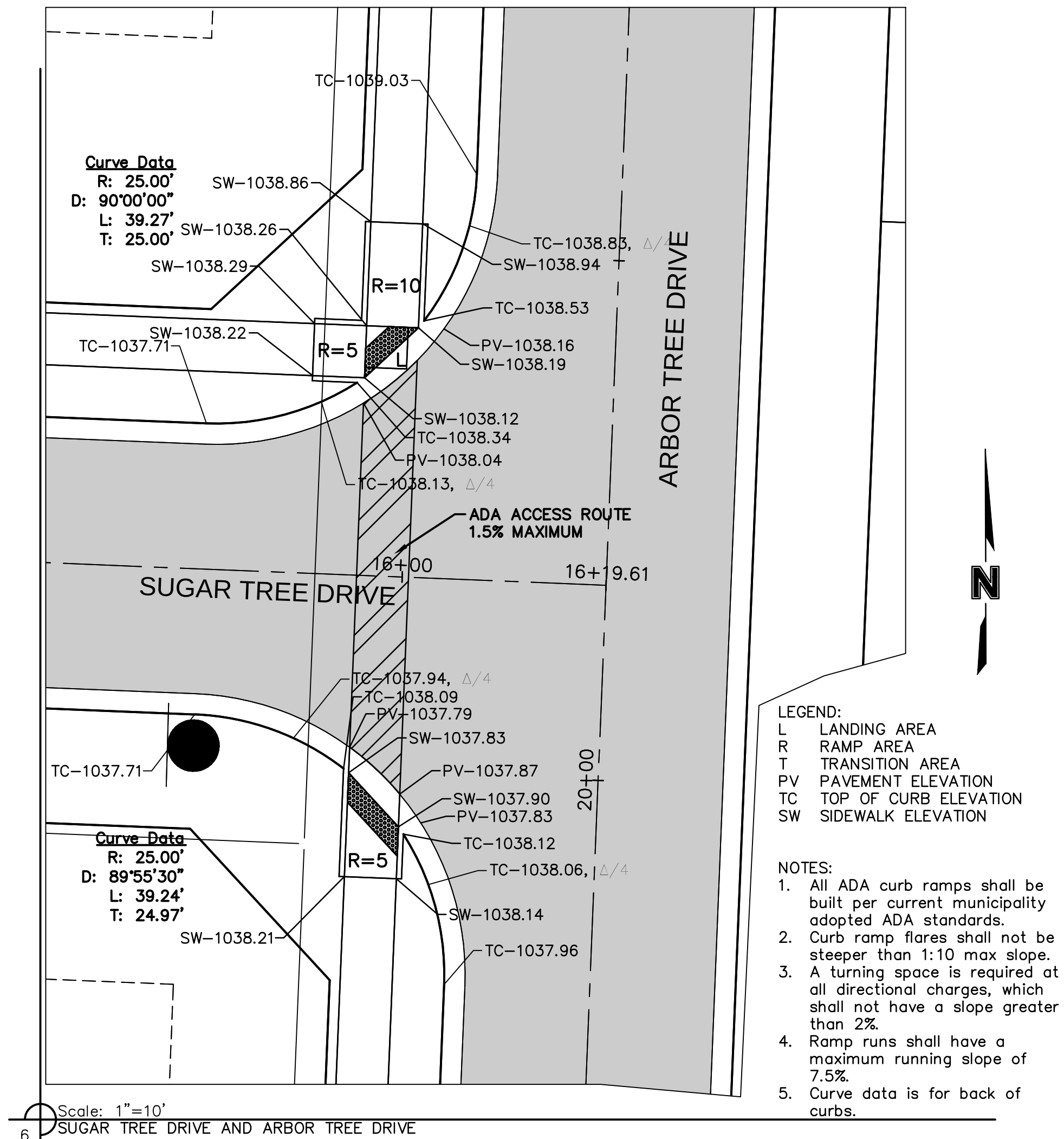
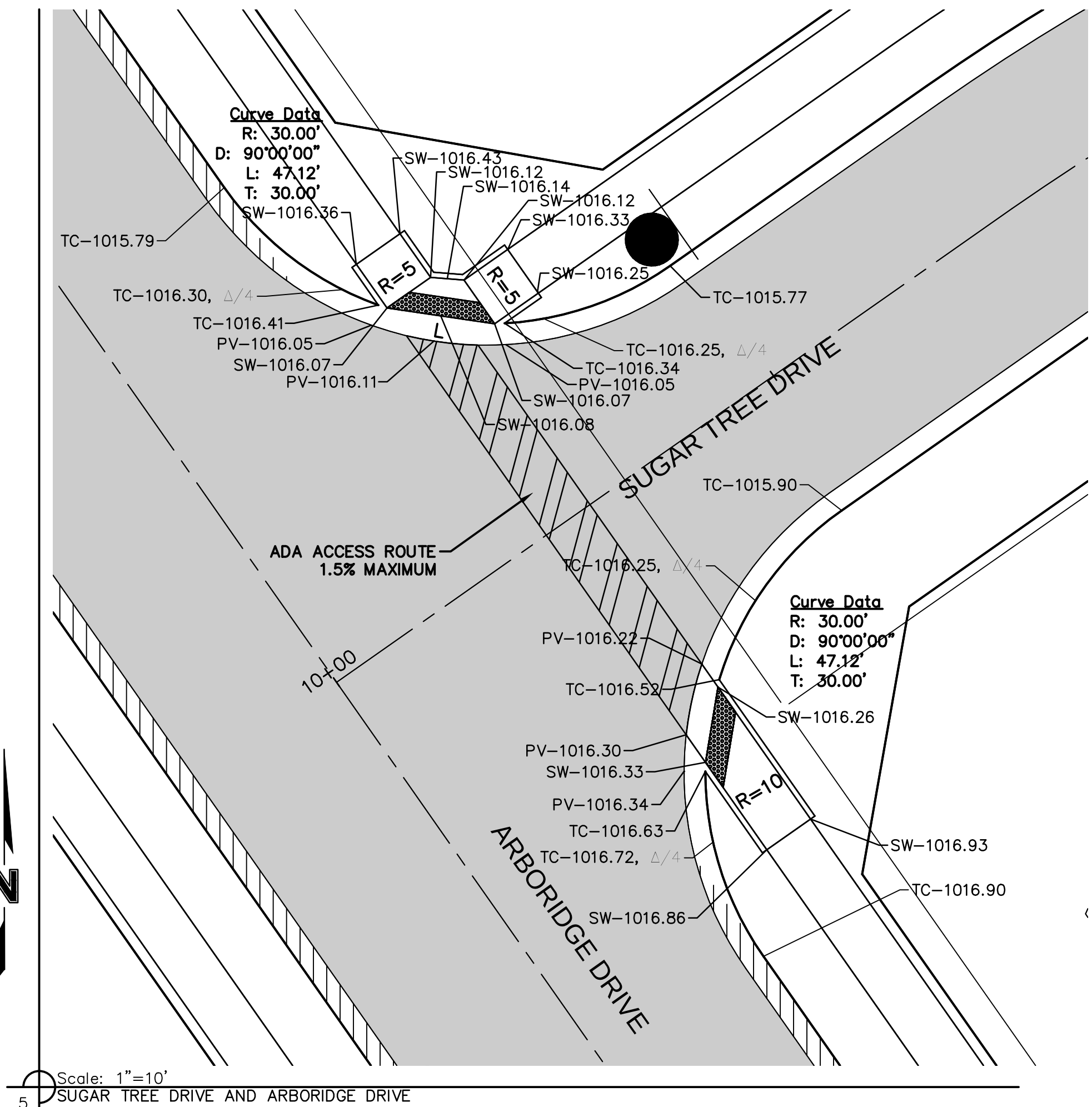
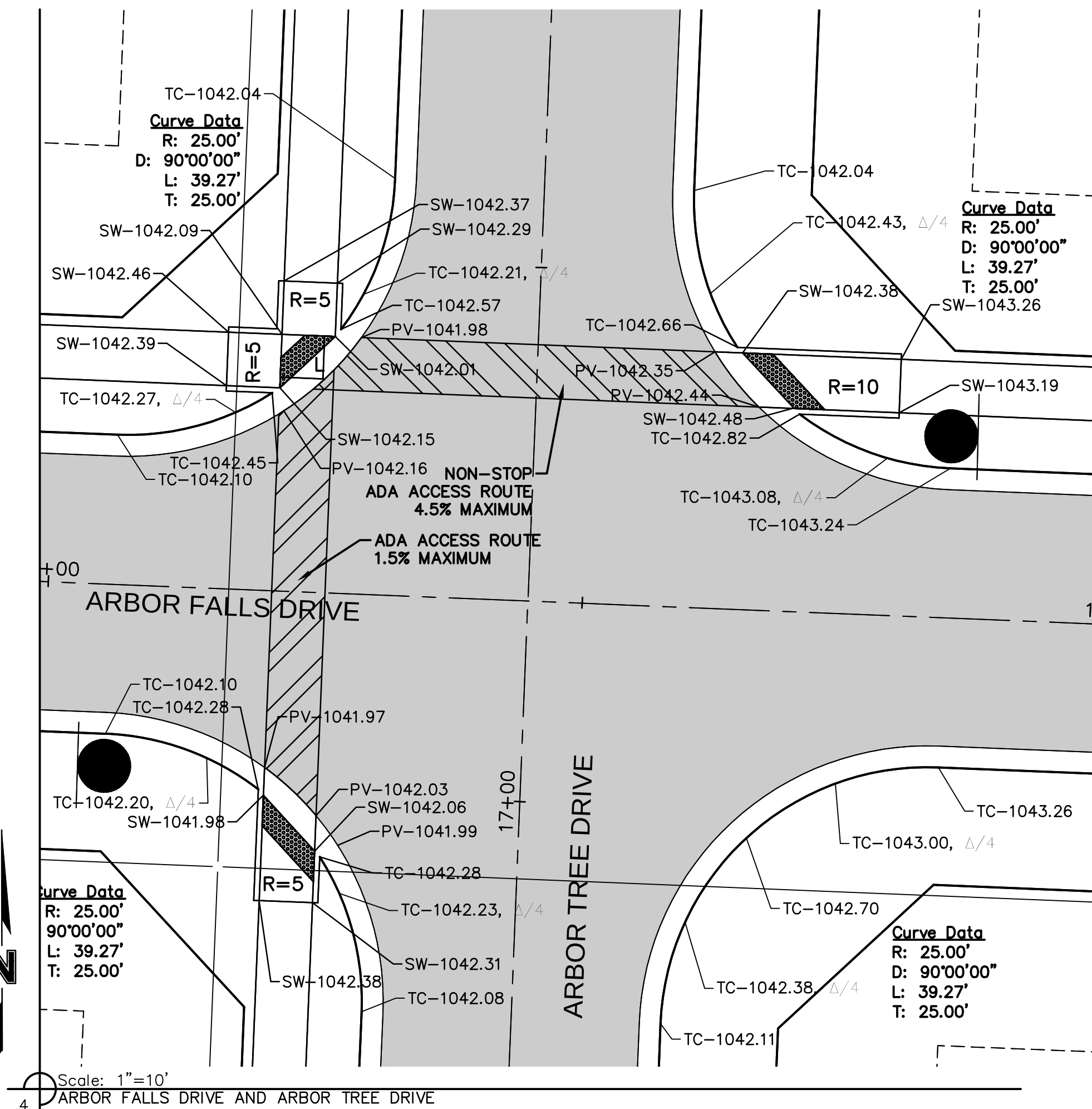


USER: dhernandez

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DATE: Feb 19, 2019 6:05pm



NOT AS BUILT



LEGEND:  
L LANDING AREA  
R RAMP AREA  
T TRANSITION AREA  
PV PAVEMENT ELEVATION  
TC TOP OF CURB ELEVATION  
SW SIDEWALK ELEVATION

NOTES:  
1. All ADA curb ramps shall be built per current municipality adopted ADA standards.  
2. Curb ramp flares shall not be steeper than 1:10 max slope.  
3. A turning space is required at all directional charges, which shall not have a slope greater than 2%.  
4. Ramp runs shall have a maximum running slope of 7.5%.  
5. Curve data is for back of curbs.

**OLSSON ASSOCIATES**

MELISSA G. DEGENIA  
Professional Engineer  
No. 0011000892  
Exp. 04/2019

| NO. | REV. | DATE       | DESCRIPTION                | BY | MGD | MGD |
|-----|------|------------|----------------------------|----|-----|-----|
|     |      |            |                            |    |     |     |
| 2   |      | 06.23.2017 | Revised utility elevations |    |     |     |
| 5   |      | 02.14.2018 | Revised ADA access notes   |    |     |     |

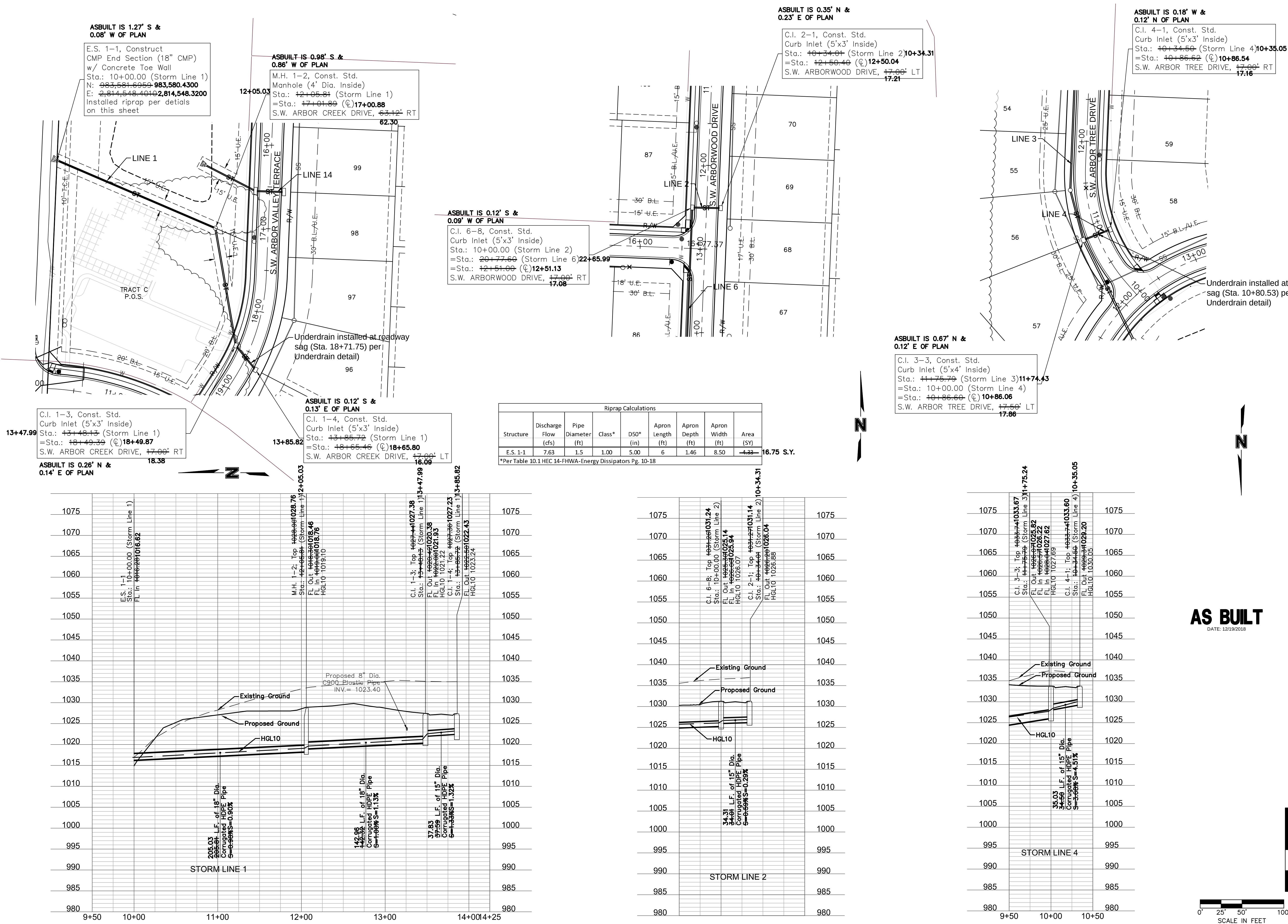
HAWTHORN RIDGE  
1ST PLAT

LEE'S SUMMIT, MO

drawn by: D.A.H.Q.  
checked by: M.G.D.  
designed by: E.M.L.B.  
QA/QC by: K.S.J.  
project no.: 017-0188  
date: 03.03.2017

SHEET  
C116





**AS BUILT**  
DATE: 12/19/2018



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STATE OF MISSOURI  
MELISSA G. DECONIA  
Professional Engineer  
NUMBER  
FE-2011000892  
08/04/2019

REVISIONS

| NO. | REV.       | DATE               | DESCRIPTION |
|-----|------------|--------------------|-------------|
| 1   | 04.19.2017 | Added notes        |             |
| 4   | 01.08.2018 | Revised structures |             |

2018

#####

HAWTHORN RIDGE  
1ST PLAT

LEE'S SUMMIT, MO

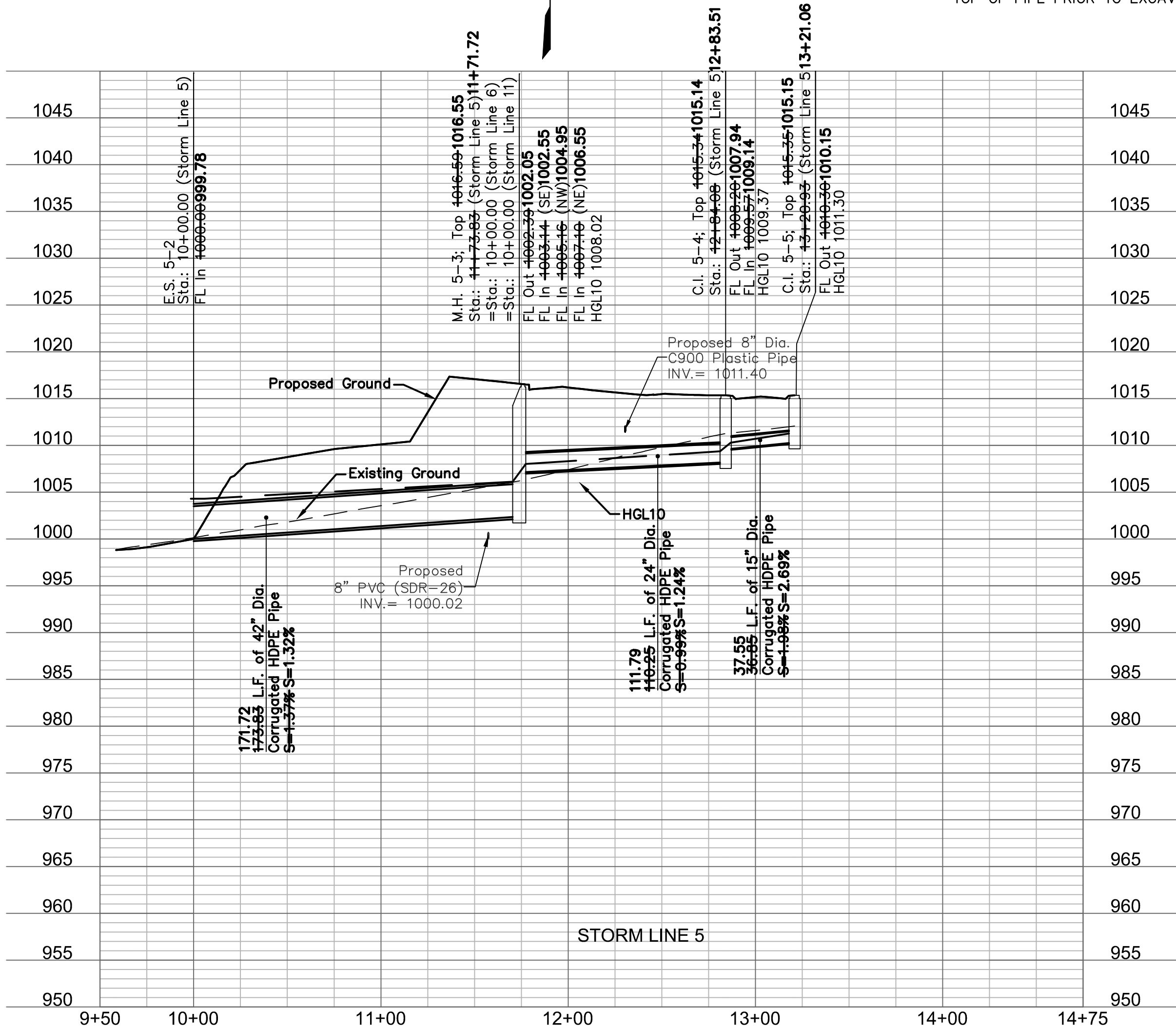
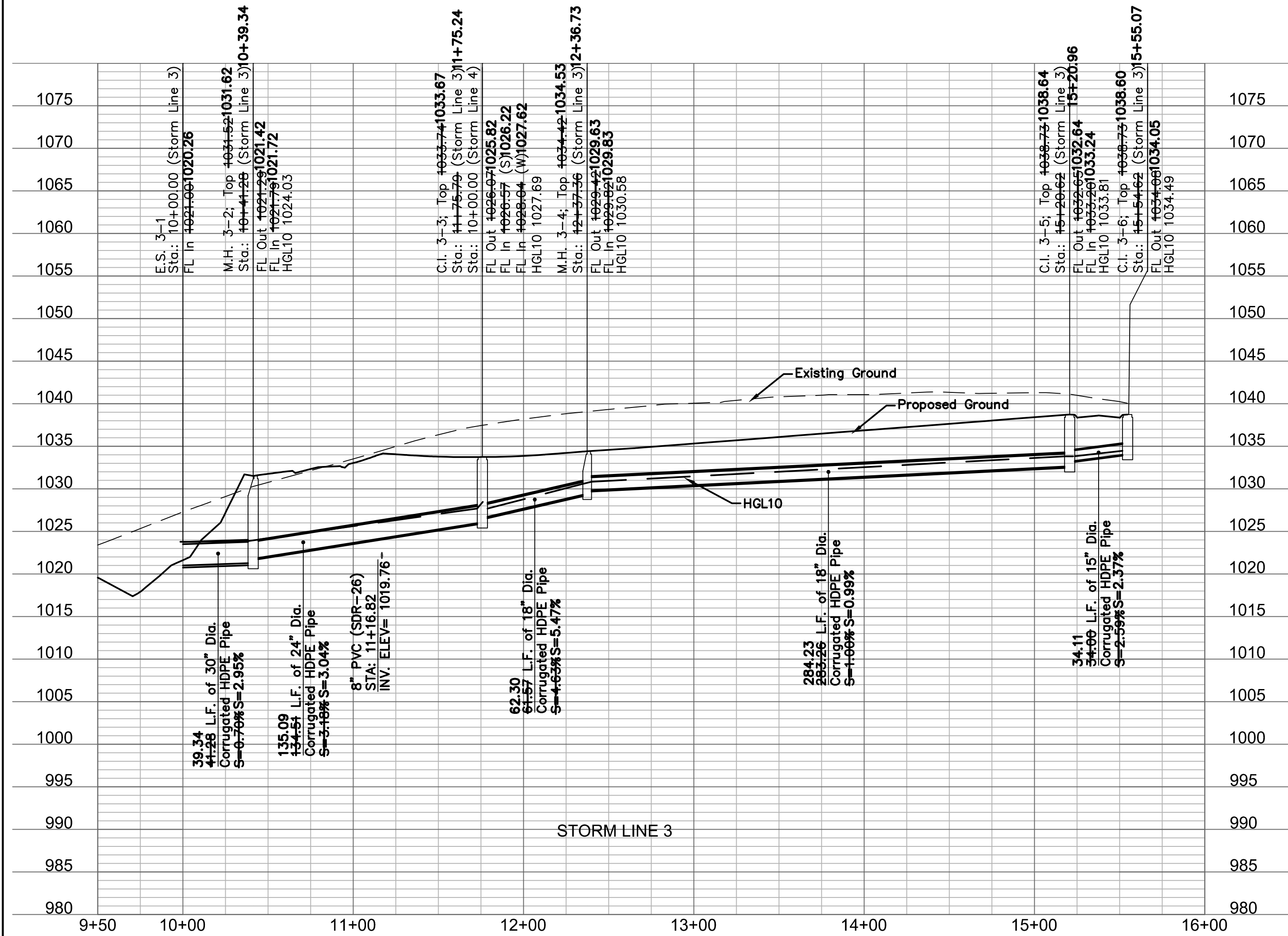
drawn by: D.A.H.Q.  
checked by: M.G.D.  
designed by: P.M.D.  
QA/QC by: K.S.J.  
project no.: 017-0188  
date: 03.03.2017

**SHEET C117**



USER: dhernandez

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DATE: Feb 19, 2019 6:08pm



AS BUILT  
DATE: 12/19/2018



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STATE OF MISSOURI  
MELISSA G. DEGENIA  
NUMBER  
FE-2011000892  
08/04/2019  
PROFESSIONAL ENGINEER

BY: MGD

REVISIONS DESCRIPTION

NO. REV. DATE

4 01.02.2018 Revised structures

5 02.14.2018 Revised manhole diameter

6 03.02.2018 Storm Line Revised

REVISIONS

2018

STORM SEWER PLAN AND PROFILE

HAWTHORN RIDGE  
1ST PLAT

LEE'S SUMMIT, MO

drawn by: D.A.H.Q.  
checked by: M.G.D.  
designed by: P.M.D.  
K.S.J.  
QA/QC by: K.S.J.  
project no.: 017-0188  
date: 03.03.2017

SHEET  
C118



C.I. 6-2, Const. Std.  
Curb Inlet (5'x3' Inside)  
Sta.: 12+65.50 (Storm Line 6)  
=Sta.: 18+50.00 (E) 18+49.90  
S.W. ARBORIDGE DRIVE, 20.00' LT

ASBUILT IS 0.25' N &  
0.38' E OF PLAN  
21.44

C.I. 6-1, Const. Std.  
Curb Inlet (5'x5' Inside)  
Sta.: 12+22.40 (Storm Line 6)  
=Sta.: 18+53.03 (E) 18+52.67  
S.W. ARBORIDGE DRIVE, 22.00' RT

ASBUILT IS 0.37' N &  
0.09' W OF PLAN  
21.95

M.H. 6-0, Const. Std.  
Manhole (5' Dia. Inside)  
Sta.: 11+57.58 (Storm Line 6)  
=Sta.: 19+14.85 (E) 19+14.66  
S.W. ARBORIDGE DRIVE, 22.50' RT

ASBUILT IS 0.77' W &  
0.20' S OF PLAN  
23.27

F.I. 6-3, Const. Std.  
Field Inlet (5'x4' Inside)  
Open on 4 sides (N,E,S,W)  
Sta.: 13+34.50 (Storm Line 6)  
=Sta.: 10+00.00 (Storm Line 7)  
=Sta.: 18+68.66 (E) 18+68.32  
S.W. ARBORIDGE DRIVE, 22.00' LT

M.H. 5-3, Const. Std.  
Manhole (6' Dia. Inside)  
Sta.: 11+73.83 (Storm Line 5)  
=Sta.: 10+00.00 (Storm Line 6)  
=Sta.: 10+00.00 (Storm Line 11)  
=Sta.: 20+70.12 (E) 20+68.68  
S.W. ARBORIDGE DRIVE, 22.67' RT

ASBUILT IS 0.36' N &  
1.98' W OF PLAN  
24.09

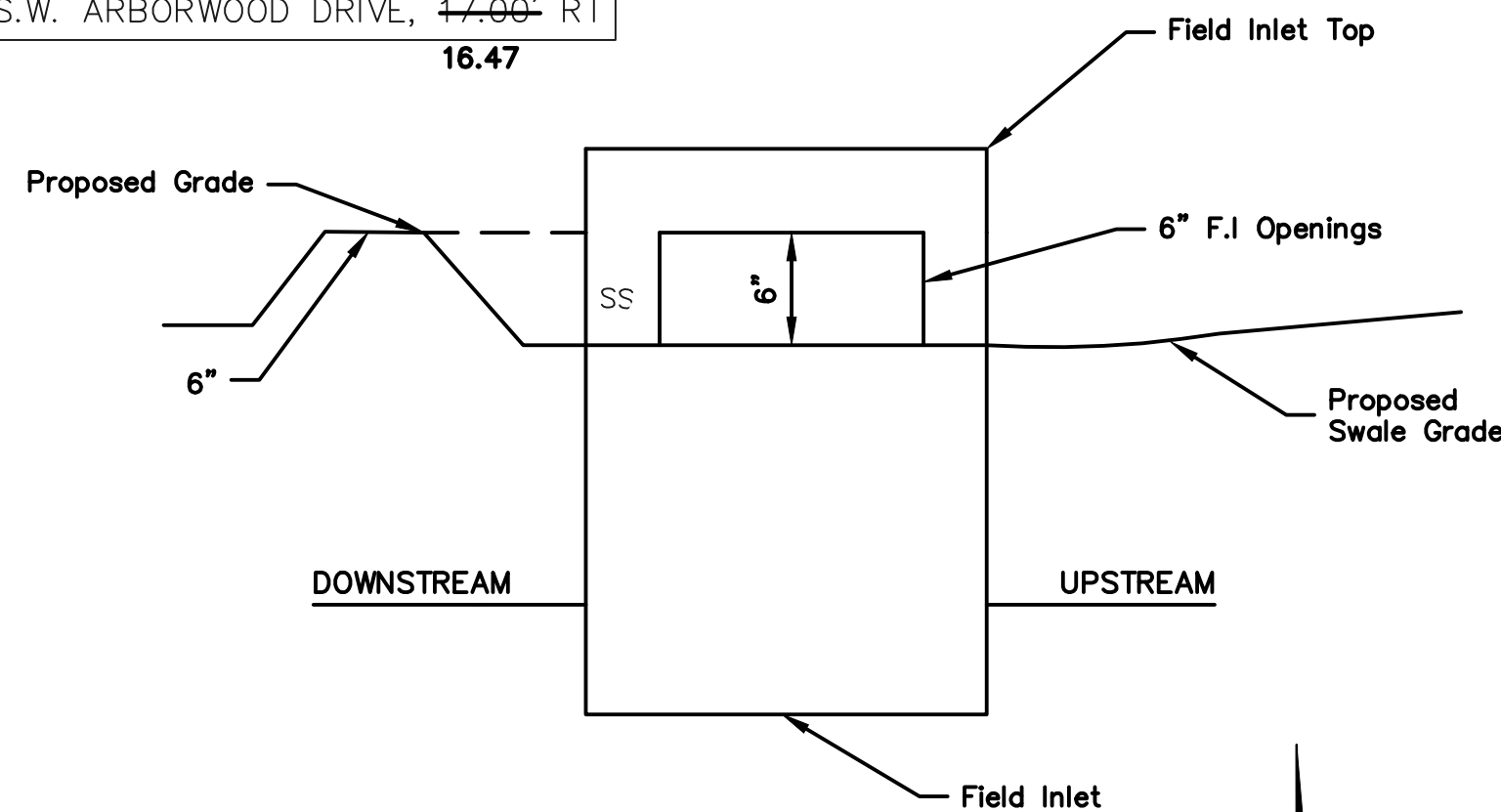
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0.29' E OF PLAN  
C.I. 6-7, Const. Std.  
Curb Inlet (5'x3' Inside)  
Sta.: 19+10.70 (Storm Line 6)  
=Sta.: 10+00.00 (Storm Line 13)  
=Sta.: 14+17.81 (E) 14+17.72  
S.W. ARBORWOOD DRIVE, 17.00' RT

ASBUILT IS 0.12' S &  
0.09' W OF PLAN  
C.I. 6-8, Const. Std.  
Curb Inlet (5'x3' Inside)  
Sta.: 20+77.60 (Storm Line 6)  
=Sta.: 10+00.00 (Storm Line 2)  
=Sta.: 12+51.00 (E) 12+51.13  
S.W. ARBORWOOD DRIVE, 17.00' RT

ASBUILT IS 0.79' S &  
0.50' E OF PLAN  
M.H. 6-6, Const. Std.  
Manhole (4' Dia. Inside)  
Sta.: 18+78.60 (Storm Line 6)  
=Sta.: 14+50.00 (E) 14+50.77  
S.W. ARBORWOOD DRIVE, 17.00' RT

ASBUILT IS 0.30' S &  
0.30' E OF PLAN  
F.I. 6-5, Const. Std.  
Field Inlet (4'x4' Inside)  
Open on 4 Sides (N,E,S,W)  
Sta.: 16+46.67 (Storm Line 6)  
=Sta.: 982,880.3010 982,880.0800  
N: 2,814,433.2905 2,814,433.5900  
E: 2,814,433.2905 2,814,433.5900

ASBUILT IS 1.14' N &  
0.19' E OF PLAN  
F.I. 6-4, Const. Std.  
Field Inlet (4'x4' Inside)  
Open on 4 Sides (N,E,S,W)  
Sta.: 14+74.13 (Storm Line 6)  
=Sta.: 982,887.2026 982,888.4400  
N: 2,814,433.2905 2,814,433.5900  
E: 2,814,433.2905 2,814,433.5900

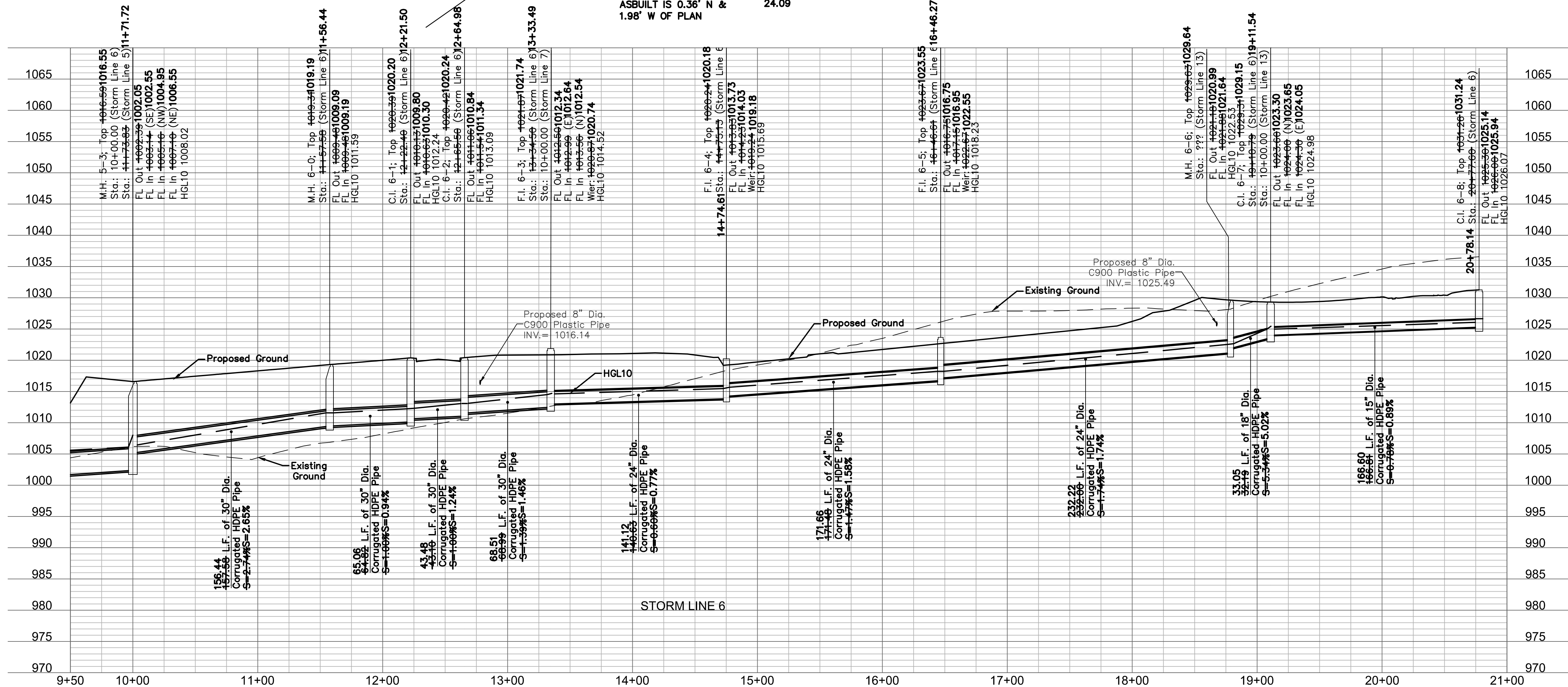


F.I. SUMP DETAIL  
NOT TO SCALE

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

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

AS BUILT  
DATE: 12/19/2018



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STATE OF MISSOURI  
MELISSA G. DEGENIA  
Professional Engineer  
NUMBER  
PE-2011000892  
08/04/2019

BY  
MGD  
MGD

REVISIONS DESCRIPTION  
1 04.19.2017 Added detail  
4 01.08.2018 Revised structures  
5 02.14.2018 Revised manhole diameter

NO. REV. DATE

STORM SEWER PLAN AND PROFILE  
HAWTHORN RIDGE  
1ST PLAT  
LEE'S SUMMIT, MO

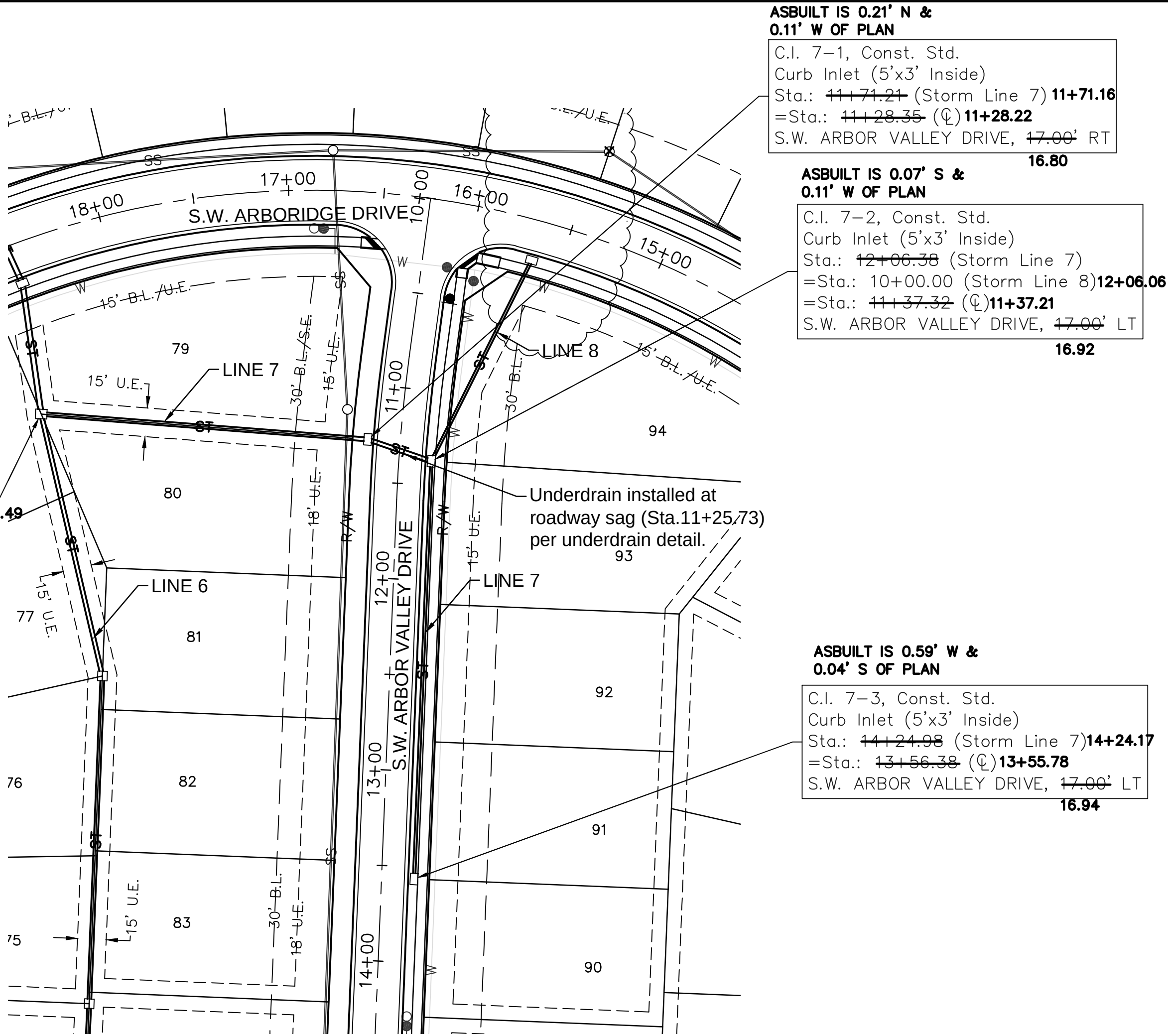
2018

drawn by: DAH.Q  
checked by: M.G.D.  
designed by: P.M.D.  
QA/QC by: K.S.J.  
project no.: 017-0188  
date: 03.03.2017

SHEET  
C119

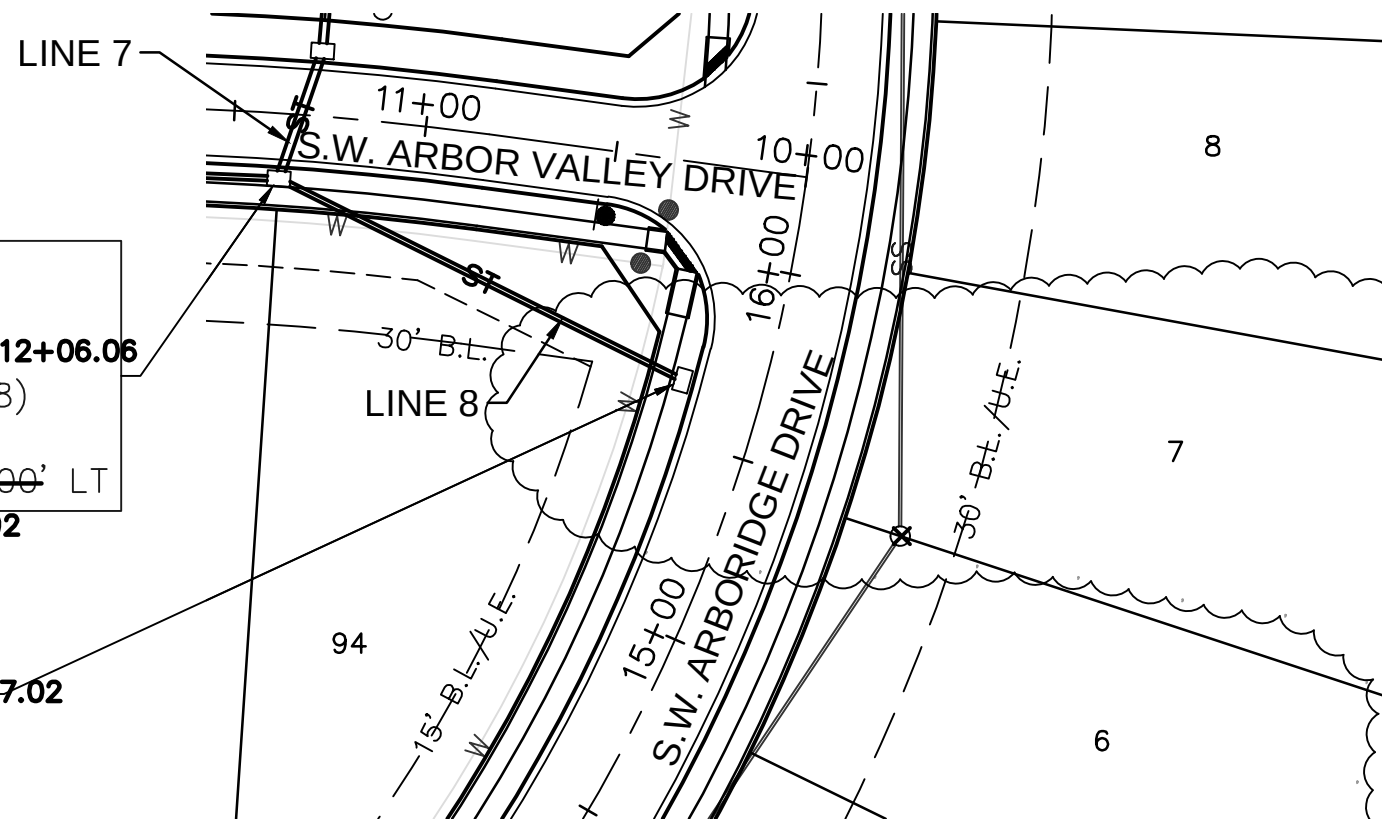


ASBUILT IS 0.26' N &  
0.10' W OF PLAN  
F.I. 6-3, Const. Std.  
Field Inlet (5'x4' Inside)  
Open on 4 sides (N,E,S,W)  
Sta.: 13+34.50 (Storm Line 6)13+33.49  
=Sta.: 10+00.00 (Storm Line 7)  
=Sta.: 18+68.66 (E)18+68.32  
S.W. ARBORIDGE DRIVE, 88.02' LT  
88.03

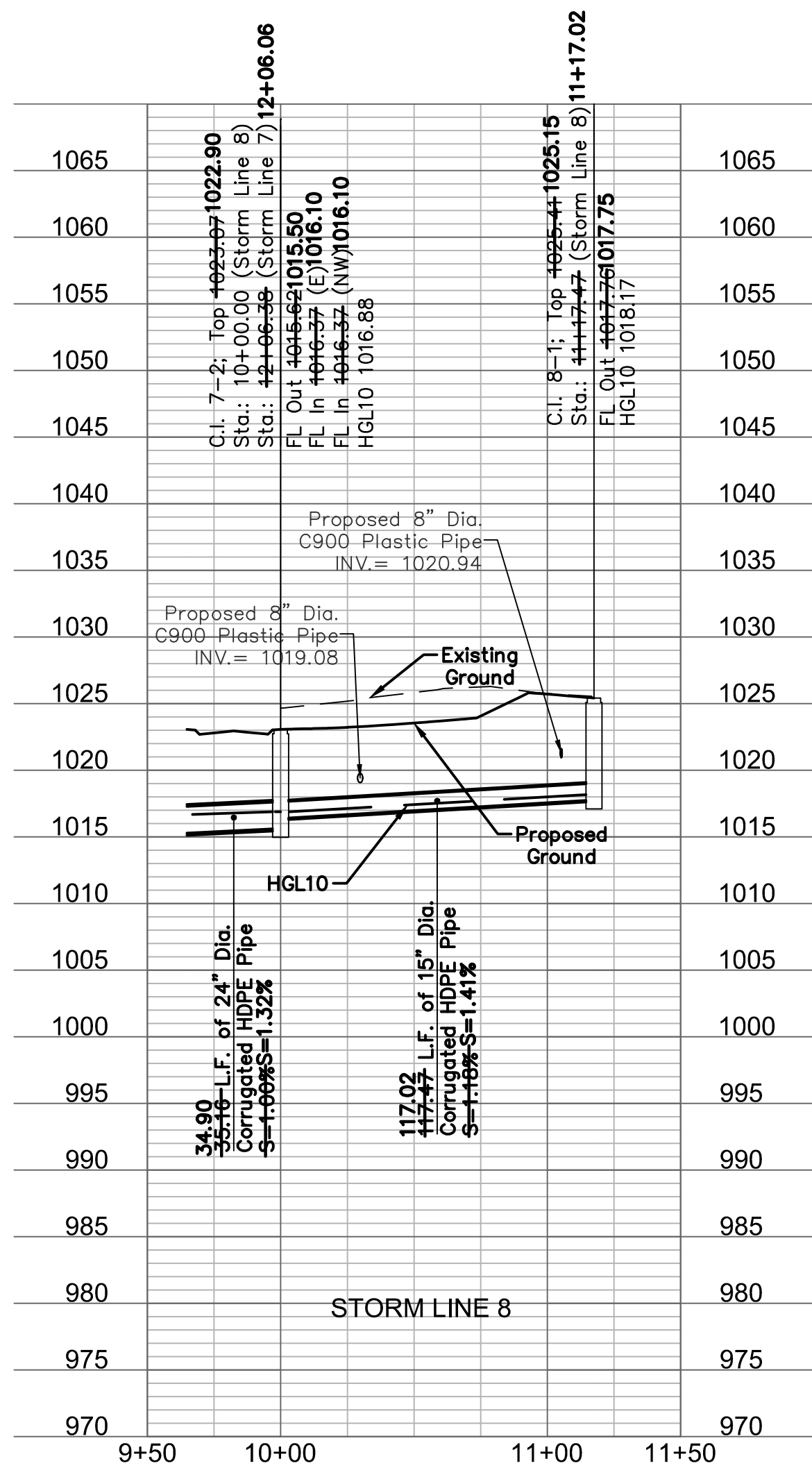
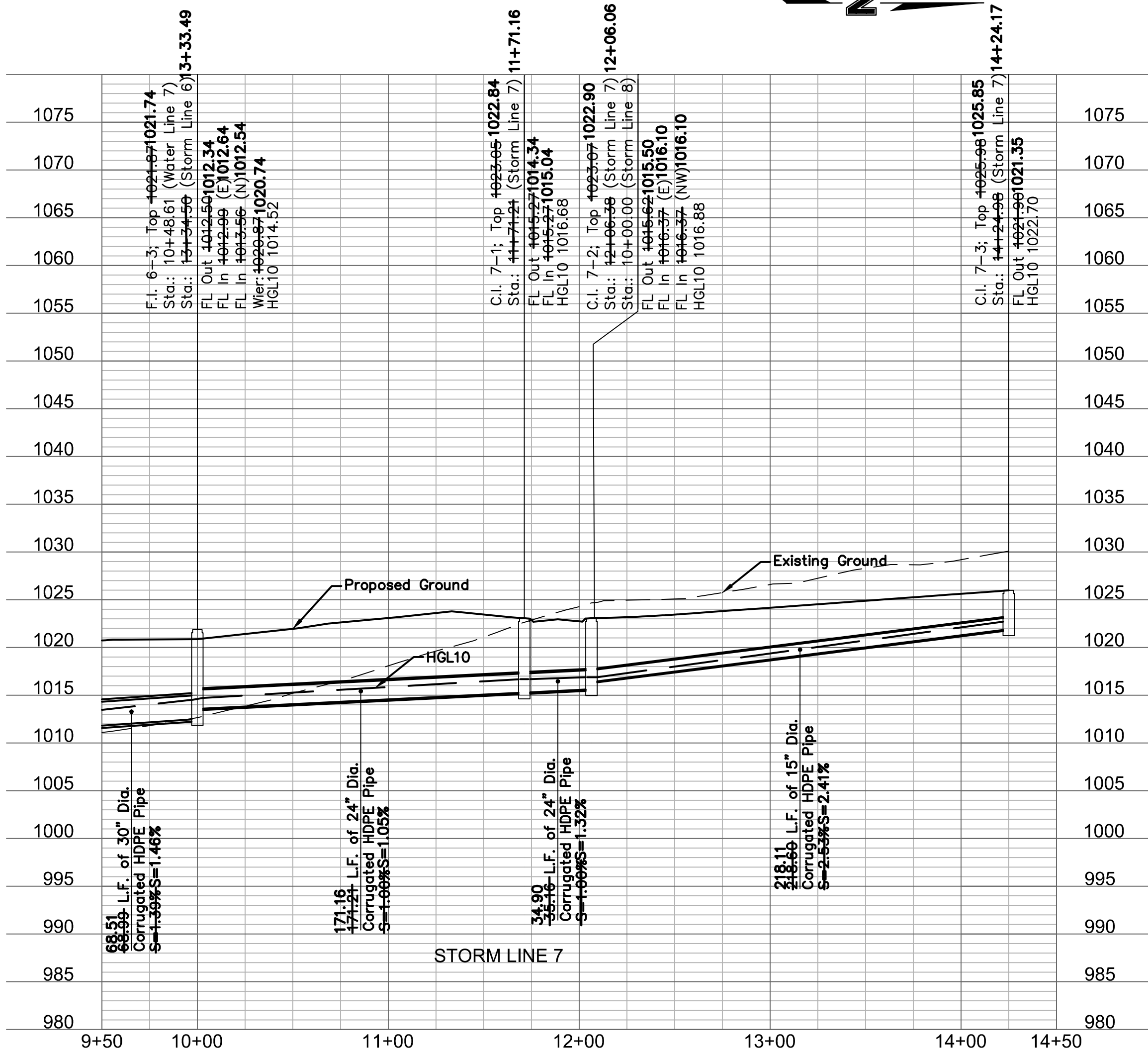


ASBUILT IS 0.07' S &  
0.11' W OF PLAN  
C.I. 7-2, Connect to Existing  
Curb Inlet (5'x3' Inside)  
Sta.: 12+06.38 (Storm Line 7)12+06.06  
=Sta.: 10+00.00 (Storm Line 8)  
=Sta.: 11+37.32 (E)11+37.21  
S.W. ARBOR VALLEY DRIVE, 17.00' LT  
16.92

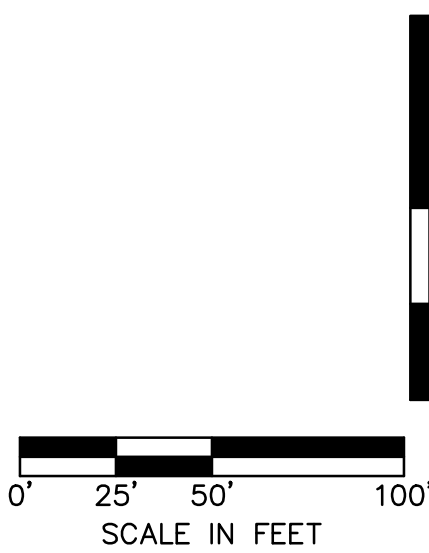
C.I. 8-1, Const. Std.  
Curb Inlet (5'x3' Inside)  
Sta.: 11+17.47 (Storm Line 8)11+17.02  
=Sta.: 15+65.79 (E)15+65.87  
S.W. ARBORIDGE DRIVE, 21.00' LT  
21.38  
ASBUILT IS 0.18' S &  
0.34' E OF PLAN



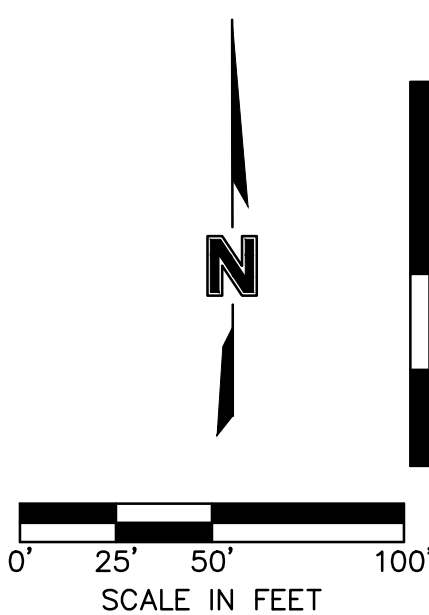
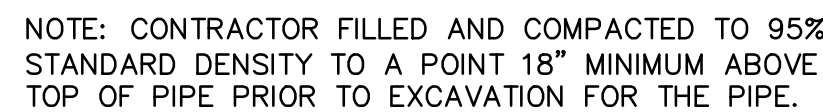
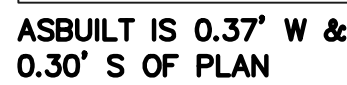
NOTE: CONTRACTOR FILLED AND COMPACTED TO 95%  
STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE  
TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.



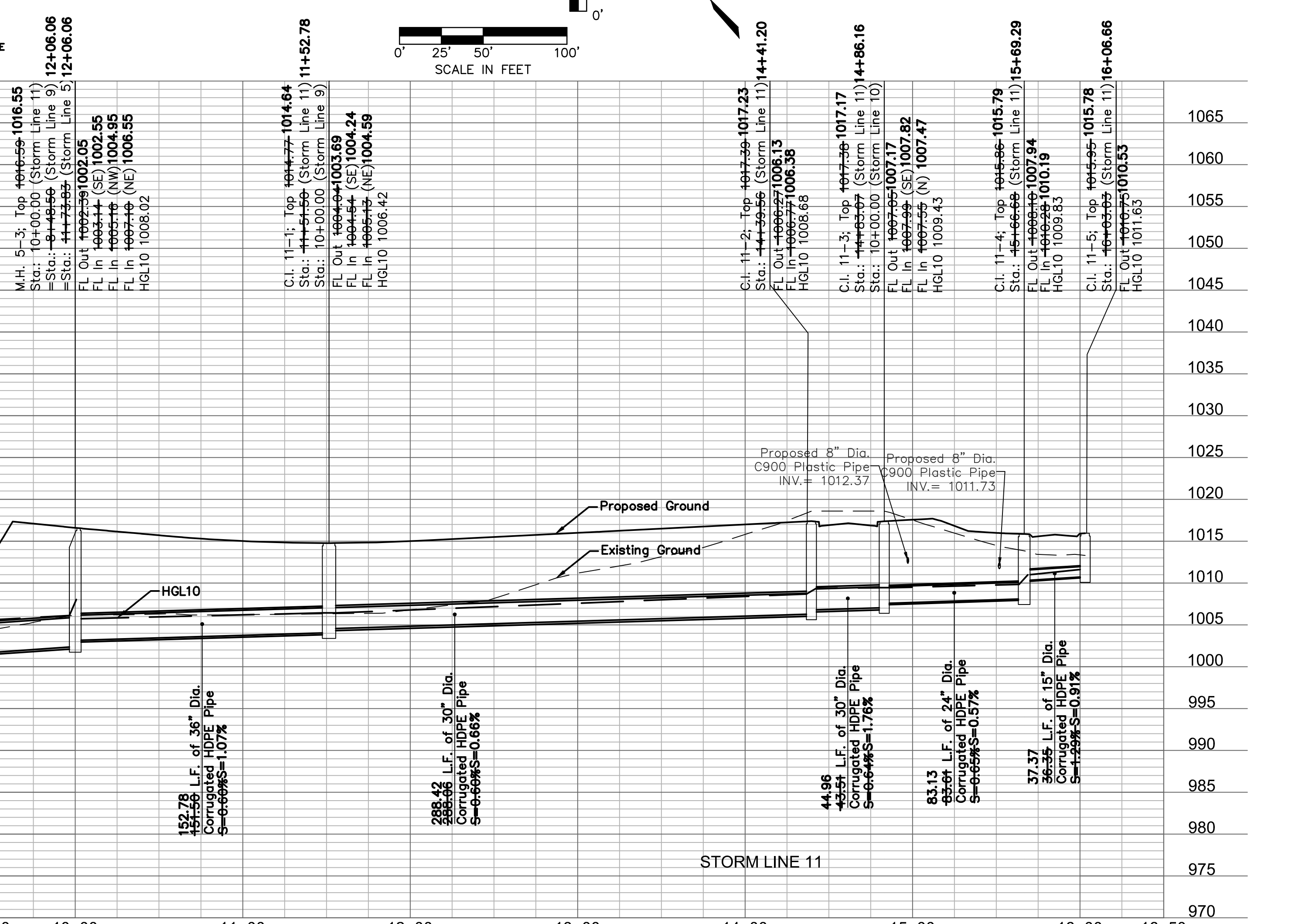
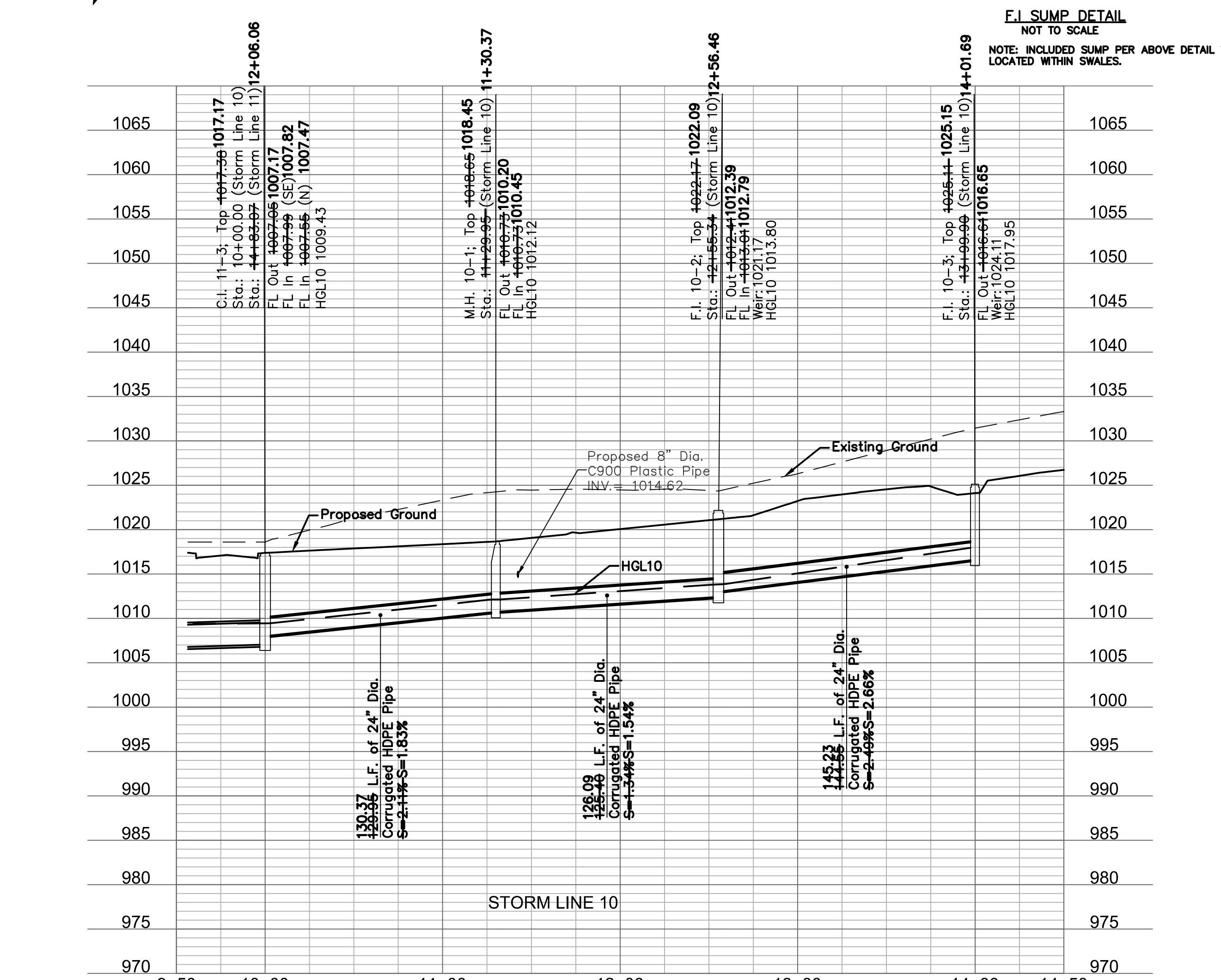
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DATE: 12/19/2018



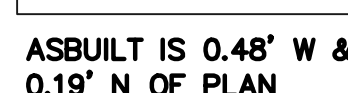
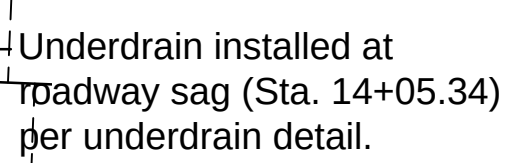
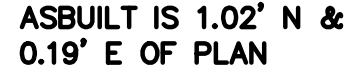






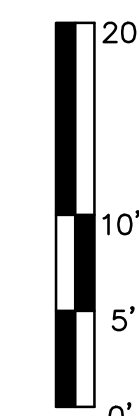




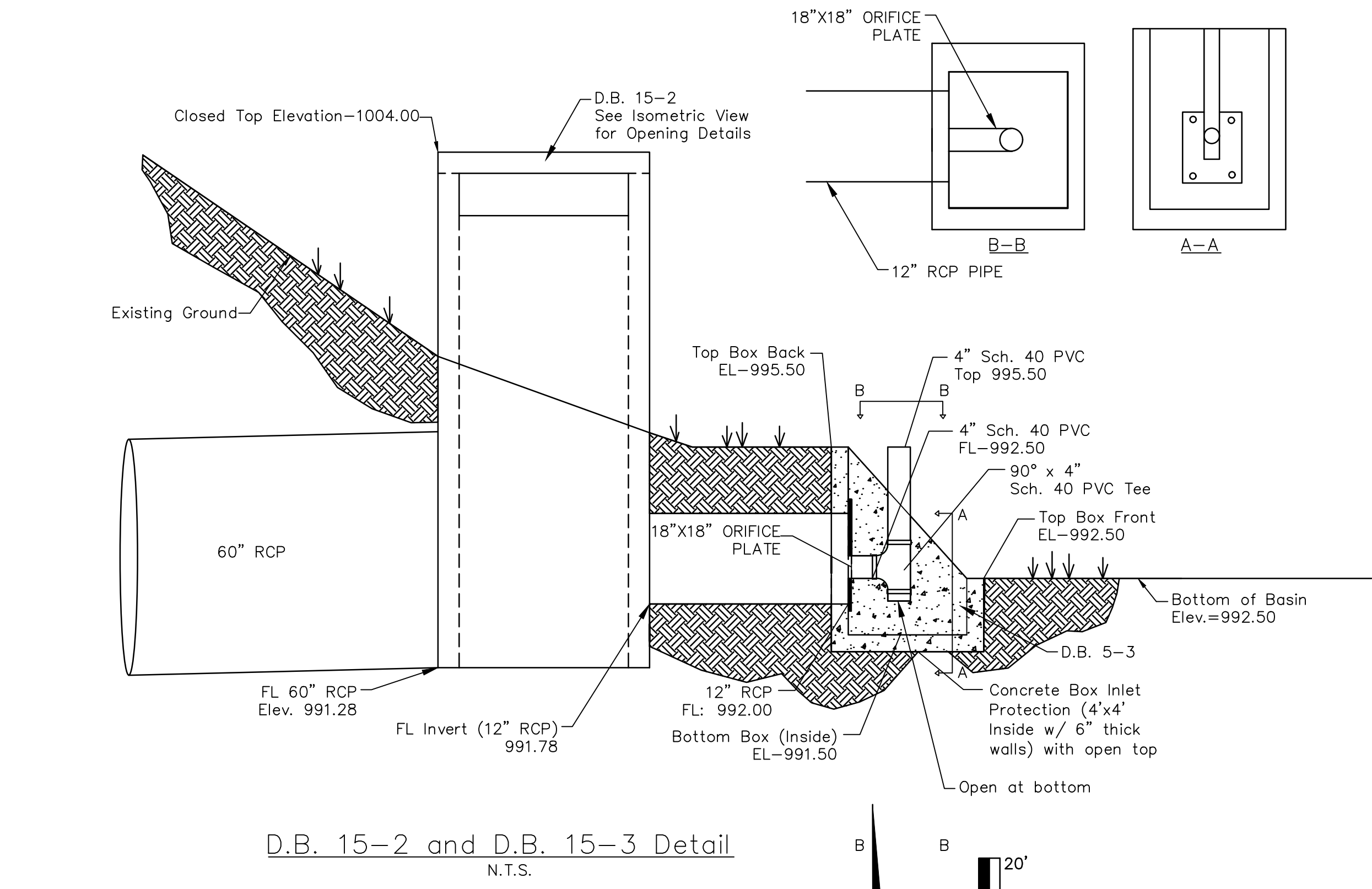


\*Per Table 10.1 HEC 14-FHWA-Energy Dissipators Pg. 10-18

**AS BUILT**  
DATE: 12/19/2018

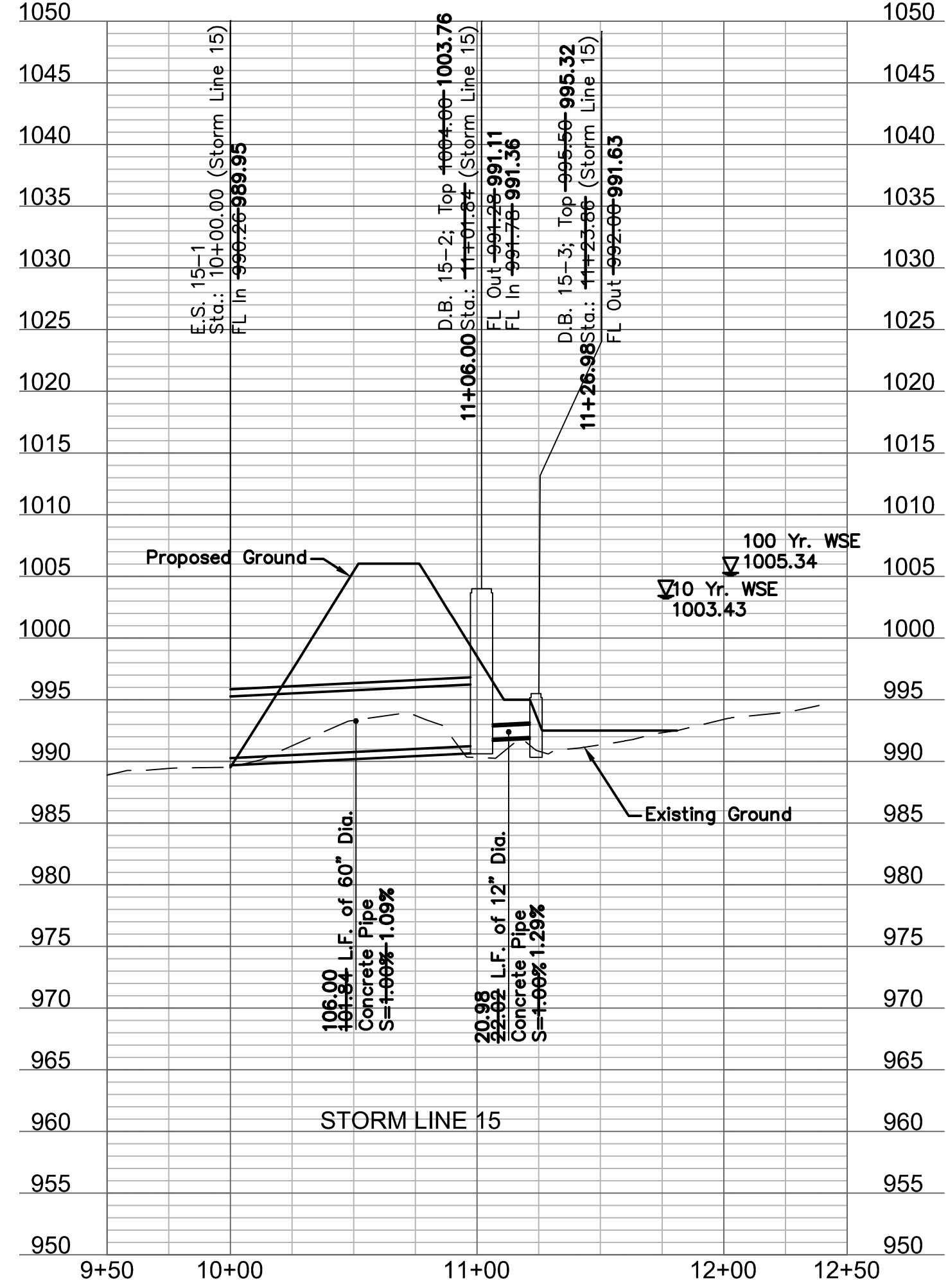






| 10yr. W.S.E. | 100yr. W.S.E. |
|--------------|---------------|
| 1003.43      | 1005.34       |

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

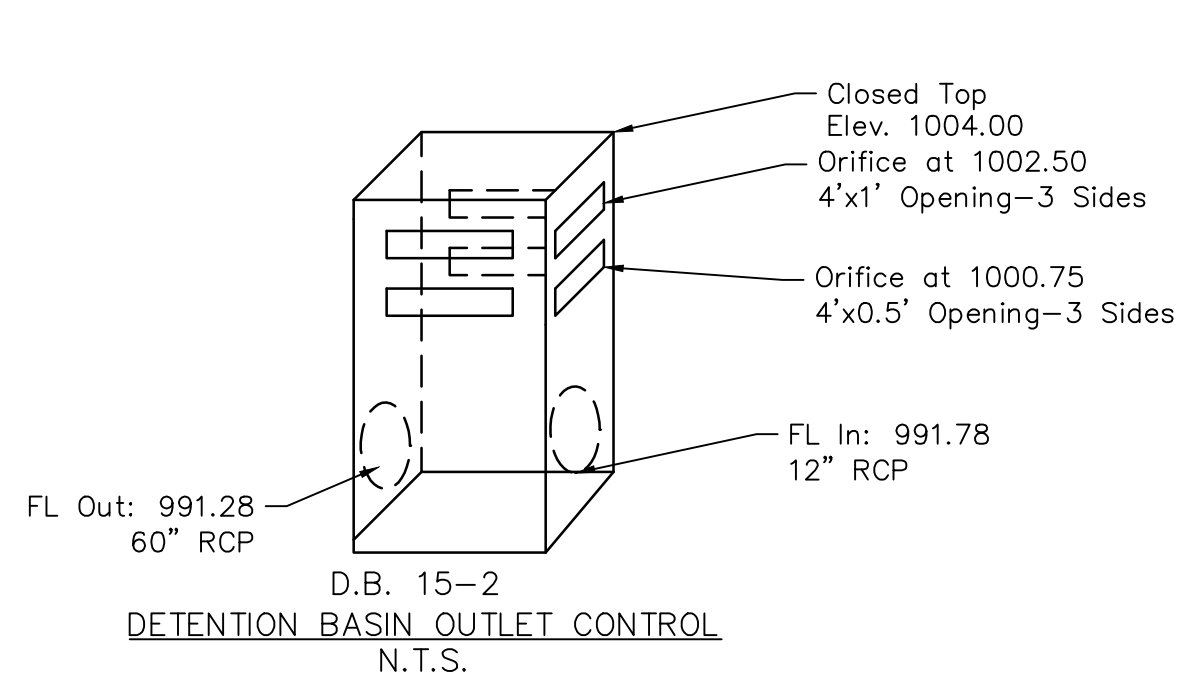


**AS BUILT**  
DATE: 12/19/2018

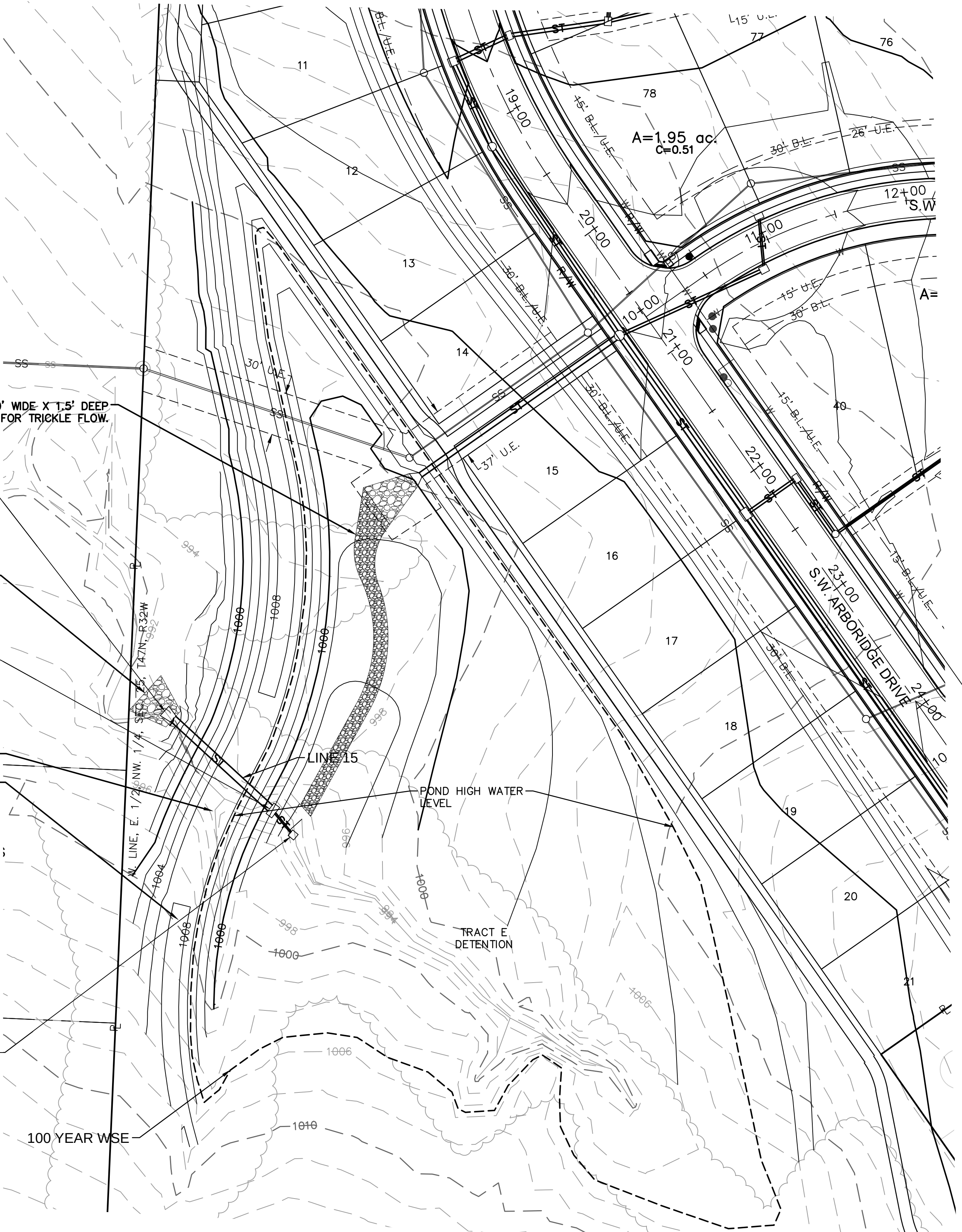
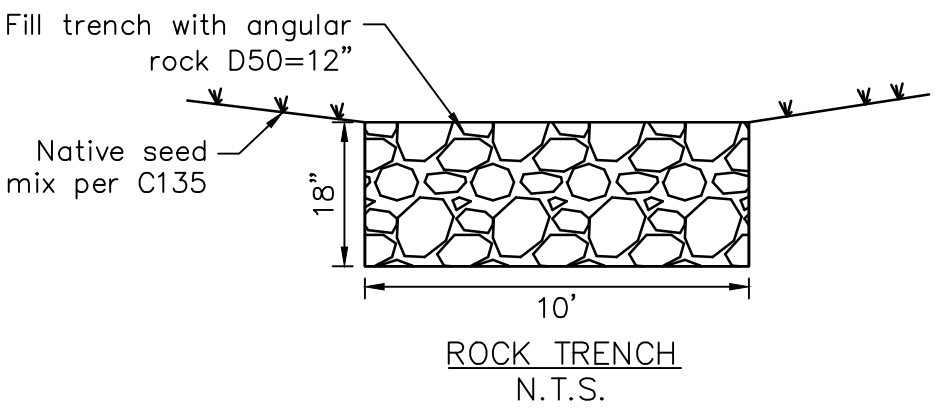
E.S. 15-1, Construct RCP End Section (60" RCP) w/ Concrete Toe Wall  
Sta.: 10+00.00 (Storm Line 15)  
N: ~~982,377.8698~~ **982,381.7970**  
E: ~~2,813,817.9658~~ **2,813,814.1540**  
**ASBUILT IS 3.93' N & 3.81' W OF PLAN**

D.B. 15-2, Const. Std. Field Inlet (8'x4' Inside) per detail on this sheet  
Sta.: ~~11+01.84~~ (Storm Line 15)  
N: ~~982,308.9300~~ **982,309.1110**  
E: ~~2,813,892.9266~~ **2,813,891.3050**  
**ASBUILT IS 1.62' W & 0.18' N OF PLAN**

D.B. 15-3, Const. Detention Structure (4'x4' Inside) per detail on this sheet  
Sta.: ~~11+23.86~~ (Storm Line 15)  
N: ~~982,291.9887~~ **982,293.8140**  
E: ~~2,813,986.9874~~ **2,813,905.6660**  
**ASBUILT IS 1.32' W & 1.83' N OF PLAN**



| Riprap Calculations                                      |                      |                    |        |           |                   |                  |                  |
|----------------------------------------------------------|----------------------|--------------------|--------|-----------|-------------------|------------------|------------------|
| Structure                                                | Discharge Flow (cfs) | Pipe Diameter (ft) | Class* | D50* (in) | Apron Length (ft) | Apron Depth (ft) | Apron Width (ft) |
| E.S. 15-1                                                | 164.51               | 5                  | 4.00   | 14.00     | 30                | 2.57             | 35.00            |
| *Per Table 10.1 HEC 14-FHWA-Energy Dissipators Pg. 10-18 |                      |                    |        |           |                   |                  | 74.18            |



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STATE OF MISSOURI  
MELISSA G. DEGENIA  
NUMBER  
FE-2011000892  
08/04/2019  
PROFESSIONAL ENGINEER

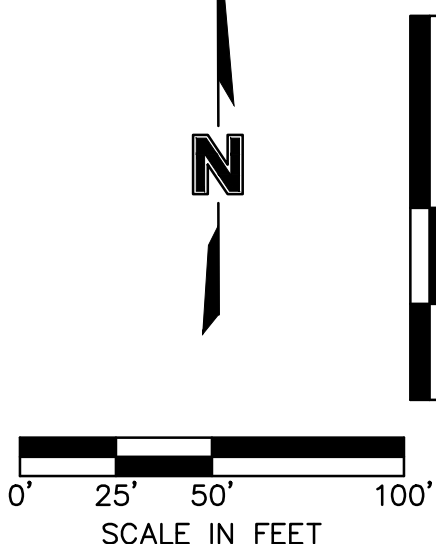
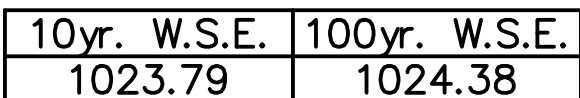
BY: MGD MGD MGD  
REVISIONS DESCRIPTION  
NO. REV. DATE  
1 04.19.2017 Revised detail  
4 01.08.2018 Revised structures  
5 02.14.2018 Added notes  
6 03.05.2018 Plan sheet revised per city comments

DETENTION BASIN PLAN  
HAWTHORN RIDGE  
1ST PLAT  
2018  
LEE'S SUMMIT, MO

drawn by: D.A.H.O.  
checked by: M.G.D.  
designed by: P.M.L.B.  
QA/QC by: K.S.P.  
project no.: 017-0188  
date: 03.03.2017

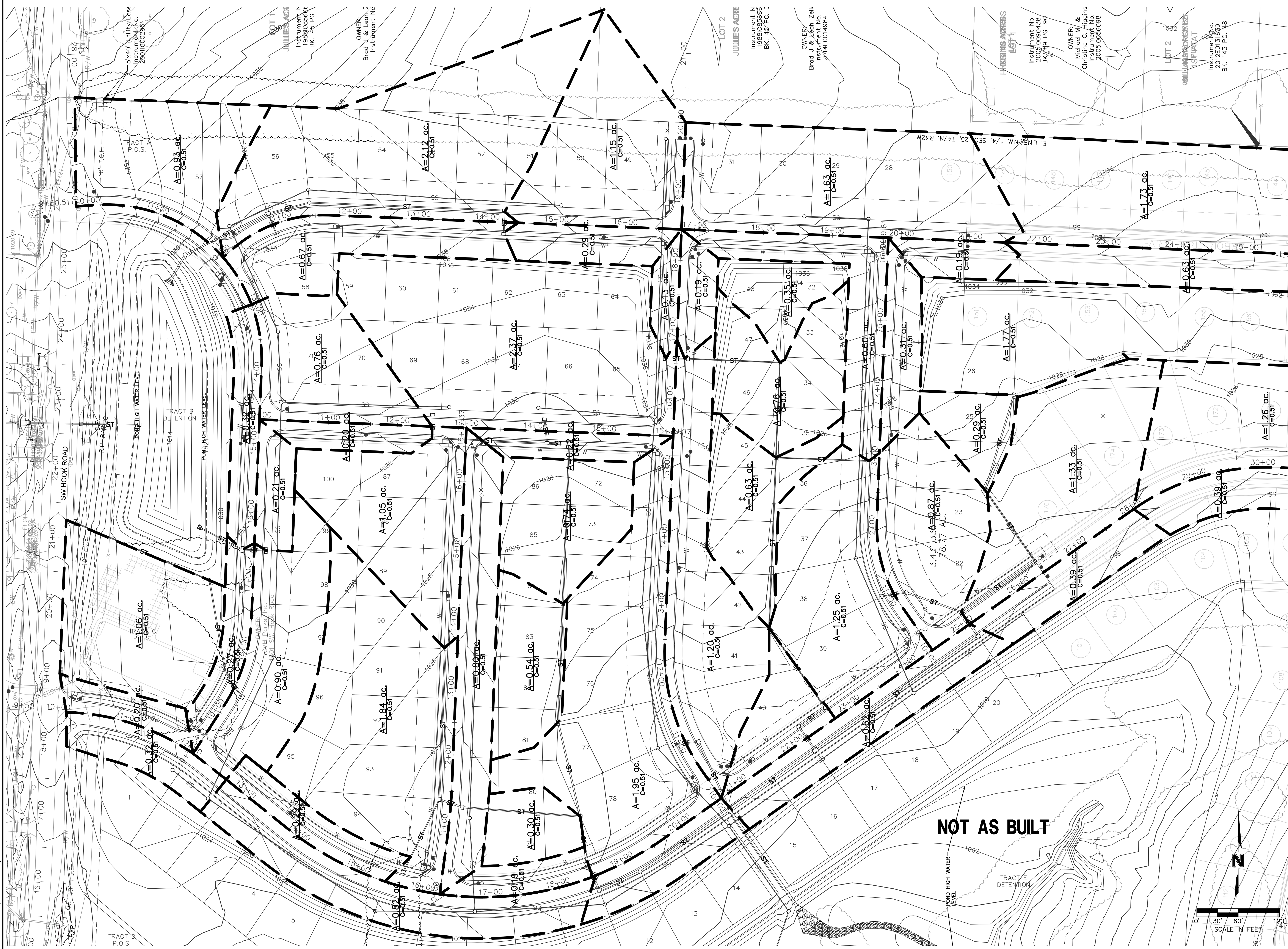
SHEET  
C124







DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01\_Street & Storm\_36x24\C\_DRN01\_017-0188.dwg

[illegible]



| Drainage Area Design Table (10-year Return Frequency) |               |      |       |         |      |           |
|-------------------------------------------------------|---------------|------|-------|---------|------|-----------|
| Inlet ID                                              | Drainage Area | C    | Tc    | i       | K    | Peak Flow |
|                                                       | (ac)          |      | (min) | (in/hr) |      | (cfs)     |
| C.I. 1-3(L)                                           | 0.04          | 0.51 | 5.00  | 7.35    | 1.00 | 0.15      |
| C.I. 1-3(R)                                           | 0.13          | 0.51 | 5.00  | 7.35    | 1.00 | 0.49      |
| C.I. 1-3(B)                                           | 0.09          | 0.51 | 5.00  | 7.35    | 1.00 | 0.34      |
| C.I. 1-3                                              | 0.26          | 0.51 | 5.00  | 7.35    | 1.00 | 0.98      |
| C.I. 1-4(L)                                           | 0.07          | 0.51 | 5.00  | 7.35    | 1.00 | 0.26      |
| C.I. 1-4(R)                                           | 0.52          | 0.51 | 5.00  | 7.35    | 1.00 | 1.95      |
| C.I. 1-4(B)                                           | 0.31          | 0.51 | 5.00  | 7.35    | 1.00 | 1.16      |
| C.I. 1-4                                              | 0.90          | 0.51 | 5.00  | 7.35    | 1.00 | 3.38      |
| C.I. 1-2-1                                            | 0.76          | 0.51 | 5.00  | 7.35    | 1.00 | 2.85      |
| C.I. 3-3(L)                                           | 0.00          | 0.51 | 5.00  | 7.35    | 1.00 | 0.00      |
| C.I. 3-3(R)                                           | 0.39          | 0.51 | 5.00  | 7.35    | 1.00 | 1.46      |
| C.I. 3-3(B)                                           | 1.73          | 0.51 | 5.00  | 7.35    | 1.00 | 6.49      |
| C.I. 3-3                                              | 2.12          | 0.51 | 5.00  | 7.35    | 1.00 | 7.95      |
| C.I. 3-5                                              | 1.15          | 0.51 | 5.00  | 7.35    | 1.00 | 4.31      |
| C.I. 3-6                                              | 0.29          | 0.51 | 5.00  | 7.35    | 1.00 | 1.09      |
| C.I. 4-1(L)                                           | 0.07          | 0.51 | 5.00  | 7.35    | 1.00 | 0.26      |
| C.I. 4-1(R)                                           | 0.35          | 0.51 | 5.00  | 7.35    | 1.00 | 1.31      |
| C.I. 4-1(B)                                           | 0.49          | 0.51 | 5.00  | 7.35    | 1.00 | 1.84      |
| C.I. 4-1                                              | 0.91          | 0.51 | 5.00  | 7.35    | 1.00 | 3.41      |
| C.I. 5-4(L)                                           | 0.00          | 0.51 | 5.00  | 7.35    | 1.00 | 0.00      |
| C.I. 5-4(R)                                           | 0.66          | 0.51 | 5.00  | 7.35    | 1.00 | 2.48      |
| C.I. 5-4(B)                                           | 0.55          | 0.51 | 5.00  | 7.35    | 1.00 | 2.06      |
| C.I. 5-4                                              | 1.21          | 0.51 | 5.00  | 7.35    | 1.00 | 4.54      |
| C.I. 5-5(L)                                           | 0.49          | 0.51 | 5.00  | 7.35    | 1.00 | 1.84      |
| C.I. 5-5(R)                                           | 0.07          | 0.51 | 5.00  | 7.35    | 1.00 | 0.26      |
| C.I. 5-5(B)                                           | 1.06          | 0.51 | 5.00  | 7.35    | 1.00 | 3.98      |
| C.I. 5-5                                              | 1.62          | 0.51 | 5.00  | 7.35    | 1.00 | 6.08      |
| C.I. 6-1                                              | 0.82          | 0.51 | 5.00  | 7.35    | 1.00 | 3.08      |
| C.I. 6-2                                              | 0.19          | 0.51 | 5.00  | 7.35    | 1.00 | 0.71      |
| F.I. 6-3                                              | 0.30          | 0.51 | 5.00  | 7.35    | 1.00 | 1.13      |
| F.I. 6-4                                              | 0.54          | 0.51 | 5.00  | 7.35    | 1.00 | 2.03      |
| F.I. 6-5                                              | 0.74          | 0.51 | 5.00  | 7.35    | 1.00 | 2.78      |
| C.I. 6-7(L)                                           | 0.06          | 0.51 | 5.00  | 7.35    | 1.00 | 0.23      |
| C.I. 6-7(R)                                           | 0.07          | 0.51 | 5.00  | 7.35    | 1.00 | 0.26      |
| C.I. 6-7(B)                                           | 0.09          | 0.51 | 5.00  | 7.35    | 1.00 | 0.34      |
| C.I. 6-7                                              | 0.22          | 0.51 | 5.00  | 7.35    | 1.00 | 0.83      |
| C.I. 6-8                                              | 0.20          | 0.51 | 5.00  | 7.35    | 1.00 | 0.75      |
| C.I. 7-1(L)                                           | 0.61          | 0.51 | 5.00  | 7.35    | 1.00 | 2.29      |
| C.I. 7-1(R)                                           | 0.07          | 0.51 | 5.00  | 7.35    | 1.00 | 0.26      |
| C.I. 7-1(B)                                           | 0.12          | 0.51 | 5.00  | 7.35    | 1.00 | 0.45      |
| C.I. 7-1                                              | 0.80          | 0.51 | 5.00  | 7.35    | 1.00 | 3.00      |
| C.I. 7-2(L)                                           | 0.09          | 0.51 | 5.00  | 7.35    | 1.00 | 0.34      |
| C.I. 7-2(R)                                           | 0.11          | 0.51 | 5.00  | 7.35    | 1.00 | 0.41      |
| C.I. 7-2(B)                                           | 1.73          | 0.51 | 5.00  | 7.35    | 1.00 | 6.49      |
| C.I. 7-2                                              | 1.93          | 0.51 | 5.00  | 7.35    | 1.00 | 7.24      |
| C.I. 7-3                                              | 1.05          | 0.51 | 5.00  | 7.35    | 1.00 | 3.94      |
| C.I. 8-1                                              | 0.29          | 0.51 | 5.00  | 7.35    | 1.00 | 1.09      |
| C.I. 9-2(L)                                           | 0.19          | 0.51 | 5.00  | 7.35    | 1.00 | 0.71      |
| C.I. 9-2(R)                                           | 0.09          | 0.51 | 5.00  | 7.35    | 1.00 | 0.34      |
| C.I. -9-2(B)                                          | 0.25          | 0.51 | 5.00  | 7.35    | 1.00 | 0.94      |
| C.I. 9-2                                              | 0.53          | 0.51 | 5.00  | 7.35    | 1.00 | 1.99      |
| F.I. 9-4                                              | 0.63          | 0.51 | 5.00  | 7.35    | 1.00 | 2.36      |
| F.I. 9-5                                              | 0.76          | 0.51 | 5.00  | 7.35    | 1.00 | 2.85      |
| F.I. 9-6                                              | 0.35          | 0.51 | 5.00  | 7.35    | 1.00 | 1.31      |
| C.I. 9-7                                              | 0.19          | 0.51 | 5.00  | 7.35    | 1.00 | 0.71      |
| C.I. 9-8                                              | 0.13          | 0.51 | 5.00  | 7.35    | 1.00 | 0.49      |
| F.I. 10-2                                             | 0.29          | 0.51 | 5.00  | 7.35    | 1.00 | 1.09      |
| F.I. 10-3                                             | 1.02          | 0.51 | 5.00  | 7.35    | 1.00 | 3.83      |
| C.I. 11-1(L)                                          | 0.35          | 0.51 | 5.00  | 7.35    | 1.00 | 1.31      |
| C.I. 11-1(R)                                          | 0.14          | 0.51 | 5.00  | 7.35    | 1.00 | 0.53      |
| C.I. 11-1(B)                                          | 0.14          | 0.51 | 5.00  | 7.35    | 1.00 | 0.53      |
| C.I. 11-1                                             | 0.63          | 0.51 | 5.00  | 7.35    | 1.00 | 2.36      |
| C.I. 11-2                                             | 0.39          | 0.51 | 5.00  | 7.35    | 1.00 | 1.46      |
| C.I.11-3                                              | 1.33          | 0.51 | 5.00  | 7.35    | 1.00 | 4.99      |
| C.I. 11-4(L)                                          | 0.23          | 0.51 | 5.00  | 7.35    | 1.00 | 0.86      |
| C.I. 11-4(R)                                          | 0.05          | 0.51 | 5.00  | 7.35    | 1.00 | 0.19      |
| C.I. 11-4(B)                                          | 0.59          | 0.51 | 5.00  | 7.35    | 1.00 | 2.21      |
| C.I. 11-4                                             | 0.87          | 0.51 | 5.00  | 7.35    | 1.00 | 3.26      |
| C.I. 11-5(L)                                          | 0.21          | 0.51 | 5.00  | 7.35    | 1.00 | 0.79      |
| C.I. 11-5(R)                                          | 0.19          | 0.51 | 5.00  | 7.35    | 1.00 | 0.71      |
| C.I. 11-5(B)                                          | 0.85          | 0.51 | 5.00  | 7.35    | 1.00 | 3.19      |
| C.I. 11-5                                             | 1.25          | 0.51 | 5.00  | 7.35    | 1.00 | 4.69      |
| C.I. 12-1                                             | 0.60          | 0.51 | 5.00  | 7.35    | 1.00 | 2.25      |
| C.I. 13-1(L)                                          | 0.21          | 0.51 | 5.00  | 7.35    | 1.00 | 0.79      |
| C.I. 13-1(R)                                          | 0.20          | 0.51 | 5.00  | 7.35    | 1.00 | 0.75      |
| C.I. 13-1(B)                                          | 2.16          | 0.51 | 5.00  | 7.35    | 1.00 | 8.10      |
| C.I. 13-1                                             | 2.57          | 0.51 | 5.00  | 7.35    | 1.00 | 9.64      |
| C.I. 14-2                                             | 0.32          | 0.51 | 5.00  | 7.35    | 1.00 | 1.20      |
| C.I. 14-3                                             | 0.21          | 0.51 | 5.00  | 7.35    | 1.00 | 0.79      |

| 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. 1-3(L)                                   | SAG            | 0.15      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.06         | 2.85          | ...           |
| C.I. 1-3(R)                                   | SAG            | 0.49      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.09         | 4.51          | ...           |
| C.I. 1-3                                      | SAG            | 0.98      | 0.00            | 0.98       | 0.80            | 19.40          | 15.52                       | 0.98          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 1-4(L)                                   | SAG            | 0.26      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.07         | 3.52          | ...           |
| C.I. 1-4(R)                                   | SAG            | 1.95      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.15         | 7.60          | ...           |
| C.I. 1-4                                      | SAG            | 3.38      | 0.00            | 3.38       | 0.80            | 19.40          | 15.52                       | 3.38          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 2-1                                      | GRADE          | 2.85      | 0.00            | 2.85       | 1.00            | 2.40           | 2.40                        | 2.40          | 0.45        | 84.10%                    | 0.20         | 9.87          | ...           |
| C.I. 3-3(L)                                   | SAG            | 0.00      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.00         | 0.00          | ...           |
| C.I. 3-3(R)                                   | SAG            | 1.46      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.18         | 8.86          | ...           |
| C.I. 3-3                                      | SAG            | 7.95      | 0.00            | 7.95       | 0.80            | 19.40          | 15.52                       | 7.95          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 3-5                                      | GRADE          | 4.31      | 0.00            | 4.31       | 1.00            | 2.90           | 2.90                        | 2.90          | 1.41        | 67.22%                    | 0.21         | 10.31         | ...           |
| C.I. 3-6                                      | GRADE          | 1.09      | 0.00            | 1.09       | 1.00            | 0.99           | 0.99                        | 0.99          | 0.10        | 90.79%                    | 0.12         | 6.15          | ...           |
| C.I. 4-1(L)                                   | SAG            | 0.26      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.07         | 3.58          | ...           |
| C.I. 4-1(R)                                   | SAG            | 1.31      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.14         | 6.78          | ...           |
| C.I. 4-1                                      | SAG            | 3.41      | 0.00            | 3.41       | 0.80            | 19.40          | 15.52                       | 3.41          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 5-4(L)                                   | SAG            | 0.00      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.04         | 2.23          | ...           |
| C.I. 5-4(R)                                   | SAG            | 2.48      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.16         | 7.99          | ...           |
| C.I. 5-4                                      | SAG            | 4.54      | 0.00            | 4.54       | 0.80            | 19.40          | 15.52                       | 4.54          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 5-5(L)                                   | SAG            | 1.84      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.15         | 7.30          | ...           |
| C.I. 5-5(R)                                   | SAG            | 0.26      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.07         | 3.44          | ...           |
| C.I. 5-5                                      | SAG            | 6.08      | 0.00            | 6.08       | 0.80            | 19.40          | 15.52                       | 6.08          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 6-1                                      | GRADE          | 3.08      | 0.00            | 3.08       | 1.00            | 2.78           | 2.78                        | 2.78          | 0.29        | 90.55%                    | 0.19         | 8.79          | ...           |
| C.I. 6-2                                      | GRADE          | 0.71      | 0.00            | 0.71       | 1.00            | 0.71           | 0.71                        | 0.71          | 0.00        | 99.97%                    | 0.11         | 5.08          | ...           |
| F.I. 6-3                                      | SAG            | 1.13      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | ...          | ...           | 0.09          |
| F.I. 6-4                                      | SAG            | 2.03      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | ...          | ...           | 0.14          |
| F.I. 6-5                                      | SAG            | 2.78      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | ...          | ...           | 0.17          |
| C.I. 6-7(L)                                   | SAG            | 0.23      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.07         | 3.37          | ...           |
| C.I. 6-7(R)                                   | SAG            | 0.26      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.08         | 4.02          | ...           |
| C.I. 6-7                                      | SAG            | 0.83      | 0.00            | 0.83       | 0.80            | 19.40          | 15.52                       | 0.83          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 6-8                                      | GRADE          | 0.75      | 0.00            | 0.75       | 1.00            | 0.72           | 0.72                        | 0.72          | 0.03        | 96.30%                    | 0.12         | 5.99          | ...           |
| C.I. 7-1(L)                                   | SAG            | 2.29      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.17         | 8.45          | ...           |
| C.I. 7-1(R)                                   | SAG            | 0.26      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.07         | 3.44          | ...           |
| C.I. 7-1                                      | SAG            | 3.00      | 0.00            | 3.00       | 0.80            | 19.40          | 15.52                       | 3.00          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 7-2(L)                                   | SAG            | 0.34      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.14         | 7.01          | ...           |
| C.I. 7-2(R)                                   | SAG            | 0.41      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.08         | 4.10          | ...           |
| C.I. 7-2                                      | SAG            | 7.24      | 0.00            | 7.24       | 0.80            | 19.40          | 15.52                       | 7.24          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 7-3                                      | GRADE          | 3.94      | 0.00            | 3.94       | 1.00            | 2.88           | 2.88                        | 2.88          | 1.06        | 73.20%                    | 0.21         | 10.40         | ...           |
| C.I. 8-1                                      | GRADE          | 1.09      | 0.00            | 1.09       | 1.00            | 1.08           | 1.08                        | 1.08          | 0.01        | 99.47%                    | 0.13         | 5.95          | ...           |
| C.I. 9-2(L)                                   | SAG            | 0.71      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.12         | 5.72          | ...           |
| C.I. 9-2(R)                                   | SAG            | 0.34      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.09         | 4.32          | ...           |
| C.I. 9-2                                      | SAG            | 1.99      | 0.00            | 1.99       | 0.80            | 19.40          | 15.52                       | 1.99          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| F.I. 9-4                                      | SAG            | 2.36      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | ...          | ...           | 0.15          |
| F.I. 9-5                                      | SAG            | 2.85      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | ...          | ...           | 0.17          |
| F.I. 9-6                                      | SAG            | 1.31      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | ...          | ...           | 0.10          |
| C.I. 9-7                                      | GRADE          | 0.71      | 0.00            | 0.71       | 1.00            | 0.63           | 0.63                        | 0.63          | 0.08        | 88.55%                    | ...          | ...           | ...           |
| C.I. 9-8                                      | GRADE          | 0.49      | 0.00            | 0.49       | 1.00            | 0.45           | 0.45                        | 0.45          | 0.04        | 92.32%                    | ...          | ...           | ...           |
| F.I. 10-2                                     | SAG            | 1.09      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | ...          | ...           | 0.09          |
| F.I. 10-3                                     | SAG            | 3.83      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | ...          | ...           | 0.21          |
| C.I. 11-1(L)                                  | SAG            | 1.31      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.17         | 7.83          | ...           |
| C.I. 11-1(R)                                  | SAG            | 0.53      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.13         | 6.02          | ...           |
| C.I. 11-1                                     | SAG            | 2.36      | 0.00            | 2.36       | 0.80            | 19.40          | 15.52                       | 2.36          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 11-2                                     | GRADE          | 1.46      | 0.00            | 1.46       | 1.00            | 1.13           | 1.13                        | 1.13          | 0.33        | 77.37%                    | ...          | ...           | ...           |
| C.I. 11-3                                     | GRADE          | 4.99      | 0.00            | 4.99       | 1.00            | 4.33           | 4.33                        | 4.33          | 0.66        | 86.79%                    | ...          | ...           | ...           |
| C.I. 11-4(L)                                  | SAG            | 0.86      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.11         | 5.59          | ...           |
| C.I. 11-4(R)                                  | SAG            | 0.19      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.06         | 3.15          | ...           |
| C.I. 11-4                                     | SAG            | 3.26      | 0.00            | 3.26       | 0.80            | 19.40          | 15.52                       | 3.26          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 11-5(L)                                  | SAG            | 0.79      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.14         | 7.07          | ...           |
| C.I. 11-5(R)                                  | SAG            | 0.71      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.10         | 5.20          | ...           |
| C.I. 11-5                                     | SAG            | 4.69      | 0.00            | 4.69       | 0.80            | 19.40          | 15.52                       | 4.69          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 12-1                                     | GRADE          | 2.25      | 0.00            | 2.25       | 1.00            | 1.42           | 1.42                        | 1.42          | 0.83        | 63.32%                    | 0.13         | 6.52          | ...           |
| C.I. 13-1(L)                                  | SAG            | 0.79      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.11         | 5.49          | ...           |
| C.I. 13-1(R)                                  | SAG            | 0.75      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.14         | 6.85          | ...           |
| C.I. 13-1                                     | SAG            | 9.64      | 0.00            | 9.64       | 0.80            | 19.40          | 15.52                       | 9.64          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 14-2                                     | GRADE          | 1.20      | 0.00            | 1.20       | 1.00            | 1.16           | 1.16                        | 1.16          | 0.04        | 96.61%                    | 0.14         | 6.92          | ...           |
| C.I. 14-3                                     | GRADE          | 0.79      | 0.00            | 0.79       | 1.00            | 0.78           | 0.78                        | 0.78          | 0.01        | 98.63%                    | 0.12         | 5.91          | ...           |



| Drainage Area Design Table (100-year Return Frequency) |               |      |       |         |      |           |
|--------------------------------------------------------|---------------|------|-------|---------|------|-----------|
| Inlet ID                                               | Drainage Area | C    | Tc    | i       | K    | Peak Flow |
|                                                        | (ac)          |      | (min) | (in/hr) |      | (cfs)     |
| C.I. 1-3(L)                                            | 0.04          | 0.51 | 5.00  | 10.32   | 1.25 | 0.26      |
| C.I. 1-3(R)                                            | 0.13          | 0.51 | 5.00  | 10.32   | 1.25 | 0.86      |
| C.I. 1-3(B)                                            | 0.09          | 0.51 | 5.00  | 10.32   | 1.25 | 0.59      |
| C.I. 1-3                                               | 0.26          | 0.51 | 5.00  | 10.32   | 1.25 | 1.71      |
| C.I. 1-4(L)                                            | 0.07          | 0.51 | 5.00  | 10.32   | 1.25 | 0.46      |
| C.I. 1-4(R)                                            | 0.52          | 0.51 | 5.00  | 10.32   | 1.25 | 3.42      |
| C.I. 1-4(B)                                            | 0.31          | 0.51 | 5.00  | 10.32   | 1.25 | 2.04      |
| C.I. 1-4                                               | 0.90          | 0.51 | 5.00  | 10.32   | 1.25 | 5.92      |
| C.I. 2-1                                               | 0.76          | 0.51 | 5.00  | 10.32   | 1.25 | 5.00      |
| C.I. 3-3(L)                                            | 0.00          | 0.51 | 5.00  | 10.32   | 1.25 | 0.00      |
| C.I. 3-3(R)                                            | 0.39          | 0.51 | 5.00  | 10.32   | 1.25 | 2.57      |
| C.I. 3-3(B)                                            | 1.73          | 0.51 | 5.00  | 10.32   | 1.25 | 11.38     |
| C.I. 3-3                                               | 2.12          | 0.51 | 5.00  | 10.32   | 1.25 | 13.95     |
| C.I. 3-5                                               | 1.15          | 0.51 | 5.00  | 10.32   | 1.25 | 7.57      |
| C.I. 3-6                                               | 0.29          | 0.51 | 5.00  | 10.32   | 1.25 | 1.91      |
| C.I. 4-1(L)                                            | 0.07          | 0.51 | 5.00  | 10.32   | 1.25 | 0.46      |
| C.I. 4-1(R)                                            | 0.35          | 0.51 | 5.00  | 10.32   | 1.25 | 2.30      |
| C.I. 4-1(B)                                            | 0.49          | 0.51 | 5.00  | 10.32   | 1.25 | 3.22      |
| C.I. 4-1                                               | 0.91          | 0.51 | 5.00  | 10.32   | 1.25 | 5.99      |
| C.I. 5-4(L)                                            | 0.00          | 0.51 | 5.00  | 10.32   | 1.25 | 0.00      |
| C.I. 5-4(R)                                            | 0.66          | 0.51 | 5.00  | 10.32   | 1.25 | 4.34      |
| C.I. 5-4(B)                                            | 0.55          | 0.51 | 5.00  | 10.32   | 1.25 | 3.62      |
| C.I. 5-4                                               | 1.21          | 0.51 | 5.00  | 10.32   | 1.25 | 7.96      |
| C.I. 5-5(L)                                            | 0.49          | 0.51 | 5.00  | 10.32   | 1.25 | 3.22      |
| C.I. 5-5(R)                                            | 0.07          | 0.51 | 5.00  | 10.32   | 1.25 | 0.46      |
| C.I. 5-5(B)                                            | 1.06          | 0.51 | 5.00  | 10.32   | 1.25 | 6.98      |
| C.I. 5-5                                               | 1.62          | 0.51 | 5.00  | 10.32   | 1.25 | 10.66     |
| C.I. 6-1                                               | 0.82          | 0.51 | 5.00  | 10.32   | 1.25 | 5.40      |
| C.I. 6-2                                               | 0.19          | 0.51 | 5.00  | 10.32   | 1.25 | 1.25      |
| F.I. 6-3                                               | 0.30          | 0.51 | 5.00  | 10.32   | 1.25 | 1.97      |
| F.I. 6-4                                               | 0.54          | 0.51 | 5.00  | 10.32   | 1.25 | 3.55      |
| F.I. 6-5                                               | 0.74          | 0.51 | 5.00  | 10.32   | 1.25 | 4.87      |
| C.I. 6-7(L)                                            | 0.06          | 0.51 | 5.00  | 10.32   | 1.25 | 0.39      |
| C.I. 6-7(R)                                            | 0.07          | 0.51 | 5.00  | 10.32   | 1.25 | 0.46      |
| C.I. 6-7(B)                                            | 0.09          | 0.51 | 5.00  | 10.32   | 1.25 | 0.59      |
| C.I. 6-7                                               | 0.22          | 0.51 | 5.00  | 10.32   | 1.25 | 1.45      |
| C.I. 6-8                                               | 0.20          | 0.51 | 5.00  | 10.32   | 1.25 | 1.32      |
| C.I. 7-1(L)                                            | 0.61          | 0.51 | 5.00  | 10.32   | 1.25 | 4.01      |
| C.I. 7-1(R)                                            | 0.07          | 0.51 | 5.00  | 10.32   | 1.25 | 0.46      |
| C.I. 7-1(B)                                            | 0.12          | 0.51 | 5.00  | 10.32   | 1.25 | 0.79      |
| C.I. 7-1                                               | 0.80          | 0.51 | 5.00  | 10.32   | 1.25 | 5.26      |
| C.I. 7-2(L)                                            | 0.09          | 0.51 | 5.00  | 10.32   | 1.25 | 0.59      |
| C.I. 7-2(R)                                            | 0.11          | 0.51 | 5.00  | 10.32   | 1.25 | 0.72      |
| C.I. 7-2(B)                                            | 1.73          | 0.51 | 5.00  | 10.32   | 1.25 | 11.38     |
| C.I. 7-2                                               | 1.93          | 0.51 | 5.00  | 10.32   | 1.25 | 12.70     |
| C.I. 7-3                                               | 1.05          | 0.51 | 5.00  | 10.32   | 1.25 | 6.91      |
| C.I. 8-1                                               | 0.29          | 0.51 | 5.00  | 10.32   | 1.25 | 1.91      |
| C.I. 9-2(L)                                            | 0.19          | 0.51 | 5.00  | 10.32   | 1.25 | 1.25      |
| C.I. 9-2(R)                                            | 0.09          | 0.51 | 5.00  | 10.32   | 1.25 | 0.59      |
| C.I. 9-2(B)                                            | 0.25          | 0.51 | 5.00  | 10.32   | 1.25 | 1.65      |
| C.I. 9-2                                               | 0.53          | 0.51 | 5.00  | 10.32   | 1.25 | 3.49      |
| F.I. 9-4                                               | 0.63          | 0.51 | 5.00  | 10.32   | 1.25 | 4.15      |
| F.I. 9-5                                               | 0.76          | 0.51 | 5.00  | 10.32   | 1.25 | 5.00      |
| F.I. 9-6                                               | 0.35          | 0.51 | 5.00  | 10.32   | 1.25 | 2.30      |
| C.I. 9-7                                               | 0.19          | 0.51 | 5.00  | 10.32   | 1.25 | 1.25      |
| C.I. 9-8                                               | 0.13          | 0.51 | 5.00  | 10.32   | 1.25 | 0.86      |
| F.I. 10-2                                              | 0.29          | 0.51 | 5.00  | 10.32   | 1.25 | 1.91      |
| F.I. 10-3                                              | 1.02          | 0.51 | 5.00  | 10.32   | 1.25 | 6.71      |
| C.I. 11-1(L)                                           | 0.35          | 0.51 | 5.00  | 10.32   | 1.25 | 2.30      |
| C.I. 11-1(R)                                           | 0.14          | 0.51 | 5.00  | 10.32   | 1.25 | 0.92      |
| C.I. 11-1(B)                                           | 0.14          | 0.51 | 5.00  | 10.32   | 1.25 | 0.92      |
| C.I. 11-1                                              | 0.63          | 0.51 | 5.00  | 10.32   | 1.25 | 4.15      |
| C.I. 11-2                                              | 0.39          | 0.51 | 5.00  | 10.32   | 1.25 | 2.57      |
| C.I.11-3                                               | 1.33          | 0.51 | 5.00  | 10.32   | 1.25 | 8.75      |
| C.I. 11-4(L)                                           | 0.23          | 0.51 | 5.00  | 10.32   | 1.25 | 1.51      |
| C.I. 11-4(R)                                           | 0.05          | 0.51 | 5.00  | 10.32   | 1.25 | 0.33      |
| C.I. 11-4(B)                                           | 0.59          | 0.51 | 5.00  | 10.32   | 1.25 | 3.88      |
| C.I. 11-4                                              | 0.87          | 0.51 | 5.00  | 10.32   | 1.25 | 5.73      |
| C.I. 11-5(L)                                           | 0.21          | 0.51 | 5.00  | 10.32   | 1.25 | 1.38      |
| C.I. 11-5(R)                                           | 0.19          | 0.51 | 5.00  | 10.32   | 1.25 | 1.25      |
| C.I. 11-5(B)                                           | 0.85          | 0.51 | 5.00  | 10.32   | 1.25 | 5.59      |
| C.I. 11-5                                              | 1.25          | 0.51 | 5.00  | 10.32   | 1.25 | 8.23      |
| C.I. 12-1                                              | 0.60          | 0.51 | 5.00  | 10.32   | 1.25 | 3.95      |
| C.I. 13-1(L)                                           | 0.21          | 0.51 | 5.00  | 10.32   | 1.25 | 1.38      |
| C.I. 13-1(R)                                           | 0.20          | 0.51 | 5.00  | 10.32   | 1.25 | 1.32      |
| C.I. 13-1(B)                                           | 2.16          | 0.51 | 5.00  | 10.32   | 1.25 | 14.21     |
| C.I. 13-1                                              | 2.57          | 0.51 | 5.00  | 10.32   | 1.25 | 16.91     |
| C.I. 14-2                                              | 0.32          | 0.51 | 5.00  | 10.32   | 1.25 | 2.11      |
| C.I. 14-3                                              | 0.21          | 0.51 | 5.00  | 10.32   | 1.25 | 1.38      |

| 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. 1-3(L)                                                                                                                                                                              | SAG            | 0.26      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.07         | 3.52          | ...           |
| C.I. 1-3(R)                                                                                                                                                                              | SAG            | 0.86      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.11         | 5.57          | ...           |
| C.I. 1-3                                                                                                                                                                                 | SAG            | 1.71      | 0.00            | 1.71       | 0.80            | 19.40          | 15.52                       | 1.71          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 1-4(L)                                                                                                                                                                              | SAG            | 0.46      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.09         | 4.35          | ...           |
| C.I. 1-4(R)                                                                                                                                                                              | SAG            | 3.42      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.19         | 9.43          | ...           |
| C.I. 1-4                                                                                                                                                                                 | SAG            | 5.92      | 0.00            | 5.92       | 0.80            | 19.40          | 15.52                       | 5.92          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 2-1                                                                                                                                                                                 | GRADE          | 5.00      | 0.00            | 5.00       | 1.00            | 3.68           | 3.68                        | 3.68          | 1.32        | 73.67%                    | 0.24         | 12.19         | ...           |
| C.I. 3-3(L)                                                                                                                                                                              | SAG            | 0.00      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.00         | 0.00          | ...           |
| C.I. 3-3(R)                                                                                                                                                                              | SAG            | 2.57      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.24         | 11.84         | ...           |
| C.I. 3-3                                                                                                                                                                                 | SAG            | 13.95     | 0.00            | 13.95      | 0.80            | 19.40          | 15.52                       | 13.95         | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 3-5                                                                                                                                                                                 | GRADE          | 7.57      | 0.00            | 7.57       | 1.00            | 3.89           | 3.89                        | 3.89          | 3.68        | 51.41%                    | 0.25         | 12.73         | ...           |
| C.I. 3-6                                                                                                                                                                                 | GRADE          | 1.91      | 0.00            | 1.91       | 1.00            | 1.60           | 1.60                        | 1.60          | 0.31        | 83.82%                    | 0.15         | 7.59          | ...           |
| C.I. 4-1(L)                                                                                                                                                                              | SAG            | 0.46      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.09         | 4.42          | ...           |
| C.I. 4-1(R)                                                                                                                                                                              | SAG            | 2.30      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.17         | 8.54          | ...           |
| C.I. 4-1                                                                                                                                                                                 | SAG            | 5.99      | 0.00            | 5.99       | 0.80            | 19.40          | 15.52                       | 5.99          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 5-4(L)                                                                                                                                                                              | SAG            | 0.00      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.07         | 3.38          | ...           |
| C.I. 5-4(R)                                                                                                                                                                              | SAG            | 4.34      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.20         | 9.86          | ...           |
| C.I. 5-4                                                                                                                                                                                 | SAG            | 7.96      | 0.00            | 7.96       | 0.80            | 19.40          | 15.52                       | 7.96          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 5-5(L)                                                                                                                                                                              | SAG            | 3.22      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.18         | 9.12          | ...           |
| C.I. 5-5(R)                                                                                                                                                                              | SAG            | 0.46      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.09         | 4.30          | ...           |
| C.I. 5-5                                                                                                                                                                                 | SAG            | 10.66     | 0.00            | 10.66      | 0.80            | 19.40          | 15.52                       | 10.66         | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 6-1                                                                                                                                                                                 | GRADE          | 5.40      | 0.00            | 5.40       | 1.00            | 4.32           | 4.32                        | 4.32          | 1.08        | 80.05%                    | 0.24         | 10.85         | ...           |
| C.I. 6-2                                                                                                                                                                                 | GRADE          | 1.25      | 0.00            | 1.25       | 1.00            | 1.24           | 1.24                        | 1.24          | 0.01        | 98.94%                    | 0.14         | 6.27          | ...           |
| F.I. 6-3                                                                                                                                                                                 | SAG            | 1.97      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | ...          | ...           | 0.14          |
| F.I. 6-4                                                                                                                                                                                 | SAG            | 3.55      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | ...          | ...           | 0.20          |
| F.I. 6-5                                                                                                                                                                                 | SAG            | 4.87      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | ...          | ...           | 0.25          |
| C.I. 6-7(L)                                                                                                                                                                              | SAG            | 0.39      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.08         | 4.16          | ...           |
| C.I. 6-7(R)                                                                                                                                                                              | SAG            | 0.46      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.10         | 5.13          | ...           |
| C.I. 6-7                                                                                                                                                                                 | SAG            | 1.45      | 0.00            | 1.45       | 0.80            | 19.40          | 15.52                       | 1.45          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 6-8                                                                                                                                                                                 | GRADE          | 1.32      | 0.00            | 1.32       | 1.00            | 1.22           | 1.22                        | 1.22          | 0.09        | 92.81%                    | 0.15         | 7.39          | ...           |
| C.I. 7-1(L)                                                                                                                                                                              | SAG            | 4.01      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.21         | 10.43         | ...           |
| C.I. 7-1(R)                                                                                                                                                                              | SAG            | 0.46      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.09         | 4.25          | ...           |
| C.I. 7-1                                                                                                                                                                                 | SAG            | 5.26      | 0.00            | 5.26       | 0.80            | 19.40          | 15.52                       | 5.26          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 7-2(L)                                                                                                                                                                              | SAG            | 0.59      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.20         | 9.85          | ...           |
| C.I. 7-2(R)                                                                                                                                                                              | SAG            | 0.72      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.10         | 5.22          | ...           |
| C.I. 7-2                                                                                                                                                                                 | SAG            | 12.70     | 0.00            | 12.70      | 0.80            | 19.40          | 15.52                       | 12.70         | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 7-3                                                                                                                                                                                 | GRADE          | 6.91      | 0.00            | 6.91       | 1.00            | 4.06           | 4.06                        | 4.06          | 2.85        | 58.76%                    | 0.26         | 12.84         | ...           |
| C.I. 8-1                                                                                                                                                                                 | GRADE          | 1.91      | 0.00            | 1.91       | 1.00            | 1.83           | 1.83                        | 1.83          | 0.07        | 96.13%                    | 0.16         | 7.35          | ...           |
| C.I. 9-2(L)                                                                                                                                                                              | SAG            | 1.25      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.15         | 7.06          | ...           |
| C.I. 9-2(R)                                                                                                                                                                              | SAG            | 0.59      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.12         | 5.34          | ...           |
| C.I. 9-2                                                                                                                                                                                 | SAG            | 3.49      | 0.00            | 3.49       | 0.80            | 19.40          | 15.52                       | 3.49          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| F.I. 9-4                                                                                                                                                                                 | SAG            | 4.15      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | ...          | ...           | 0.22          |
| F.I. 9-5                                                                                                                                                                                 | SAG            | 5.00      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | ...          | ...           | 0.25          |
| F.I. 9-6                                                                                                                                                                                 | SAG            | 2.30      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | ...          | ...           | 0.15          |
| C.I. 9-7                                                                                                                                                                                 | GRADE          | 1.25      | 0.00            | 1.25       | 1.00            | 1.00           | 1.00                        | 1.00          | 0.25        | 80.33%                    | ...          | ...           | ...           |
| C.I. 9-8                                                                                                                                                                                 | GRADE          | 0.86      | 0.00            | 0.86       | 1.00            | 0.74           | 0.74                        | 0.74          | 0.12        | 86.25%                    | ...          | ...           | ...           |
| F.I. 10-2                                                                                                                                                                                | SAG            | 1.91      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | ...          | ...           | 0.13          |
| F.I. 10-3                                                                                                                                                                                | SAG            | 6.71      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | ...          | ...           | 0.31          |
| C.I. 11-1(L)                                                                                                                                                                             | SAG            | 2.30      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.22         | 10.07         | ...           |
| C.I. 11-1(R)                                                                                                                                                                             | SAG            | 0.92      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.18         | 8.42          | ...           |
| C.I. 11-1                                                                                                                                                                                | SAG            | 4.15      | 0.00            | 4.15       | 0.80            | 19.40          | 15.52                       | 4.15          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 11-2                                                                                                                                                                                | GRADE          | 2.57      | 0.00            | 2.57       | 1.00            | 1.65           | 1.65                        | 1.65          | 0.92        | 64.23%                    | ...          | ...           | ...           |
| C.I. 11-3                                                                                                                                                                                | GRADE          | 8.75      | 0.00            | 8.75       | 1.00            | 6.52           | 6.52                        | 6.52          | 2.24        | 74.44%                    | ...          | ...           | ...           |
| C.I. 11-4(L)                                                                                                                                                                             | SAG            | 1.51      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.14         | 6.90          | ...           |
| C.I. 11-4(R)                                                                                                                                                                             | SAG            | 0.33      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.08         | 3.89          | ...           |
| C.I. 11-4                                                                                                                                                                                | SAG            | 5.73      | 0.00            | 5.73       | 0.80            | 19.40          | 15.52                       | 5.73          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 11-5(L)                                                                                                                                                                             | SAG            | 1.38      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.19         | 9.43          | ...           |
| C.I. 11-5(R)                                                                                                                                                                             | SAG            | 1.25      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.13         | 6.42          | ...           |
| C.I. 11-5                                                                                                                                                                                | SAG            | 8.23      | 0.00            | 8.23       | 0.80            | 19.40          | 15.52                       | 8.23          | 0.00        | 100.00%                   | ...          | ...           | ...           |
| C.I. 12-1                                                                                                                                                                                | GRADE          | 3.95      | 0.00            | 3.95       | 1.00            | 1.85           | 1.85                        | 1.85          | 2.10        | 46.93%                    | 0.16         | 8.05          | ...           |
| C.I. 13-1(L)                                                                                                                                                                             | SAG            | 1.38      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.14         | 6.87          | ...           |
| C.I. 13-1(R)                                                                                                                                                                             | SAG            | 1.32      | ...             | ...        | ...             | ...            | ...                         | ...           | ...         | ...                       | 0.18         | 9.19          | ...           |
| C.I. 13-1                                                                                                                                                                                | SAG            | 16.91     | 0.00            | 16.91      | 0.80            | 19.40          | 15.52                       | 15.52         | 1.39        | 91.78%                    | ...          | ...           | ...           |
| C.I. 14-2                                                                                                                                                                                | GRADE          | 2.11      | 0.00            | 2.11       | 1.00            | 1.94           | 1.94                        | 1.94          | 0.17        | 91.97%                    | 0.17         | 8.55          | ...           |
| C.I. 14-3                                                                                                                                                                                | GRADE          | 1.38      | 0.00            | 1.38       | 1.00            | 1.32           | 1.32                        | 1.32          | 0.06        | 95.68%                    | 0.15         | 7.30          | ...           |
| Notes:                                                                                                                                                                                   |                |           |                 |            |                 |                |                             |               |             |                           |              |               |               |
| 1. Inlet capacity at sag location has been reduced by a clogging factor of 0.80, reducing theoretical capacity to 80% capacity, as required per APWA Section 5600.                       |                |           |                 |            |                 |                |                             |               |             |                           |              |               |               |
| Both theoretical capacity and reduced capacity are shown.                                                                                                                                |                |           |                 |            |                 |                |                             |               |             |                           |              |               |               |
| 2. Inlet efficiency shown in the tables is Captured Flow/Total Flow, denoting the actual percentage of flow captured after the capacity has been reduced to 80% of theoretical capacity. |                |           |                 |            |                 |                |                             |               |             |                           |              |               |               |

| Storm Sewer Design Calculation Table (100-year Return Frequency) |                      |             |                      |                        |           |               |             |                  |                 |                |                 |                           |                         |
|------------------------------------------------------------------|----------------------|-------------|----------------------|------------------------|-----------|---------------|-------------|------------------|-----------------|----------------|-----------------|---------------------------|-------------------------|
| Upstream Structure                                               | Downstream Structure | Length (ft) | Upstream Invert (ft) | Downstream Invert (ft) | Slope (%) | Diameter (in) | Manning's n | Total Flow (cfs) | Velocity (ft/s) | Capacity (cfs) | Flow Depth (ft) | Upstream Struct. HGL (ft) | Upstream Top Elev. (ft) |
| M.H. 1-2                                                         | E.S. 1-1             | 205.81      | 1018.30              | 1016.28                | 0.98      | 18            | 0.012       | 7.63             | 6.80            | 11.27          | 1.07            | 1019.37                   | 1028.90                 |
| C.I. 1-3                                                         | M.H. 1-2             | 142.32      | 1020.42              | 1019.00                | 1.00      | 18            | 0.012       | 7.63             | 6.89            | 11.36          | 1.07            | 1021.49                   | 1027.43                 |
| C.I. 1-4                                                         | C.I. 1-3             | 37.59       | 1022.50              | 1022.00                | 1.33      | 15            | 0.012       | 5.92             | 7.18            | 8.07           | 0.98            | 1023.48                   | 1027.34                 |
| C.I. 2-1                                                         | C.I. 6-8             | 34.01       | 1026.20              | 1026.00                | 0.59      | 15            | 0.012       | 5.00             | 4.08            | 5.36           | 1.25            | 1047.50                   | 1031.27                 |
| M.H. 3-2                                                         | E.S. 3-1             | 41.28       | 1021.29              | 1021.00                | 0.79      | 30            | 0.012       | 29.82            | 6.08            | 39.38          | 2.50            | 1024.55                   | 1031.51                 |
| C.I. 3-3                                                         | M.H. 3-2             | 134.46      | 1026.07              | 1021.79                | 3.18      | 24            | 0.012       | 29.82            | 9.49            | 43.72          | 1.86            | 1027.93                   | 1033.74                 |
| M.H. 3-4                                                         | C.I. 3-3             | 61.52       | 1029.42              | 1026.57                | 4.63      | 18            | 0.012       | 9.88             | 5.87            | 24.49          | 1.21            | 1030.63                   | 1034.42                 |
| C.I. 3-5                                                         | M.H. 3-4             | 283.26      | 1032.65              | 1029.82                | 1.00      | 18            | 0.012       | 9.88             | 7.25            | 11.37          | 1.21            | 1033.86                   | 1038.73                 |
| C.I. 3-6                                                         | C.I. 3-5             | 34.00       | 1034.08              | 1033.20                | 2.59      | 15            | 0.012       | 1.91             | 2.90            | 11.25          | 0.55            | 1034.63                   | 1038.73                 |
| C.I. 4-1                                                         | C.I. 3-3             | 34.00       | 1029.31              | 1028.04                | 3.74      | 15            | 0.012       | 5.99             | 10.68           | 13.52          | 0.99            | 1030.30                   | 1033.74                 |
| M.H. 5-3                                                         | E.S. 5-2             | 169.45      | 1002.66              | 999.29                 | 1.73      | 42            | 0.012       | 167.19           | 17.38           | 143.51         | 3.50            | 1007.37                   | 1016.36                 |
| C.I. 5-4                                                         | M.H. 5-3             | 109.56      | 1008.20              | 1004.16                | 3.69      | 24            | 0.012       | 18.62            | 5.93            | 47.37          | 2.00            | 1012.69                   | 1015.33                 |
| C.I. 5-5                                                         | C.I. 5-4             | 36.39       | 1010.30              | 1009.57                | 2.01      | 15            | 0.012       | 10.66            | 8.69            | 9.91           | 1.25            | 1014.31                   | 1015.35                 |
| M.H. 6-0                                                         | M.H. 5-3             | 157.56      | 1009.48              | 1005.16                | 2.74      | 30            | 0.012       | 68.50            | 13.96           | 73.57          | 2.50            | 1015.81                   | 1019.31                 |
| C.I. 6-1                                                         | M.H. 6-0             | 64.77       | 1010.13              | 1009.48                | 1.00      | 30            | 0.012       | 68.50            | 13.96           | 44.51          | 2.50            | 1018.05                   | 1020.37                 |
| C.I. 6-2                                                         | C.I. 6-1             | 42.10       | 1011.06              | 1010.63                | 1.02      | 30            | 0.012       | 63.10            | 12.86           | 44.90          | 2.50            | 1023.44                   | 1020.42                 |
| F.I. 6-3                                                         | C.I. 6-2             | 68.99       | 1012.50              | 1011.54                | 1.39      | 30            | 0.012       | 61.85            | 12.60           | 52.41          | 2.50            | 1026.09                   | 1021.87                 |
| F.I. 6-4                                                         | F.I. 6-3             | 140.64      | 1013.83              | 1012.99                | 0.60      | 24            | 0.012       | 33.10            | 10.54           | 18.94          | 2.00            | 1032.28                   | 1020.24                 |
| F.I. 6-5                                                         | F.I. 6-4             | 171.48      | 1016.75              | 1014.23                | 1.47      | 24            | 0.012       | 29.55            | 9.41            | 29.70          | 2.00            | 1035.31                   | 1023.67                 |
| M.H. 6-6                                                         | F.I. 6-5             | 232.00      | 1021.18              | 1017.15                | 1.74      | 24            | 0.012       | 24.68            | 7.86            | 32.29          | 2.00            | 1038.36                   | 1029.63                 |
| C.I. 6-7                                                         | M.H. 6-6             | 32.19       | 1023.60              | 1021.88                | 5.34      | 18            | 0.012       | 24.68            | 13.97           | 26.30          | 1.50            | 1040.83                   | 1029.61                 |
| C.I. 6-8                                                         | C.I. 6-7             | 166.81      | 1025.30              | 1024.00                | 0.78      | 15            | 0.012       | 6.32             | 5.15            | 6.18           | 1.25            | 1046.71                   | 1031.26                 |
| C.I. 7-1                                                         | F.I. 6-3             | 171.21      | 1015.27              | 1013.56                | 1.00      | 24            | 0.012       | 26.78            | 8.53            | 24.49          | 2.00            | 1031.76                   | 1023.06                 |
| C.I. 7-2                                                         | C.I. 7-1             | 35.16       | 1015.62              | 1015.27                | 1.00      | 24            | 0.012       | 21.52            | 6.85            | 24.45          | 2.00            | 1032.60                   | 1023.07                 |
| C.I. 7-3                                                         | C.I. 7-2             | 218.61      | 1021.90              | 1016.37                | 2.53      | 15            | 0.012       | 6.91             | 5.63            | 11.13          | 1.25            | 1035.82                   | 1025.98                 |
| C.I. 8-1                                                         | C.I. 7-2             | 117.47      | 1017.76              | 1016.37                | 1.18      | 15            | 0.012       | 1.91             | 1.56            | 7.61           | 1.25            | 1033.77                   | 1025.23                 |
| C.I. 9-2                                                         | C.I. 11-1            | 43.01       | 1005.53              | 1005.13                | 0.93      | 24            | 0.012       | 21.00            | 6.69            | 23.63          | 2.00            | 1017.23                   | 1014.75                 |
| M.H. 9-3                                                         | C.I. 9-2             | 46.93       | 1007.00              | 1006.53                | 1.00      | 18            | 0.012       | 17.51            | 9.91            | 11.38          | 1.50            | 1019.39                   | 1014.97                 |
| F.I. 9-4                                                         | M.H. 9-3             | 141.40      | 1009.57              | 1007.50                | 1.46      | 18            | 0.012       | 17.51            | 9.91            | 13.76          | 1.50            | 1024.26                   | 1018.04                 |
| F.I. 9-5                                                         | F.I. 9-4             | 247.00      | 1017.73              | 1012.41                | 2.15      | 18            | 0.012       | 13.36            | 7.56            | 16.70          | 1.50            | 1029.18                   | 1024.47                 |
| F.I. 9-6                                                         | F.I. 9-5             | 138.00      | 1022.56              | 1017.98                | 3.32      | 15            | 0.012       | 4.41             | 3.59            | 12.74          | 1.25            | 1031.07                   | 1026.50                 |
| C.I. 9-7                                                         | F.I. 9-6             | 133.00      | 1029.11              | 1023.01                | 4.59      | 15            | 0.012       | 2.11             | 1.72            | 14.98          | 1.25            | 1031.49                   | 1036.81                 |
| C.I. 9-8                                                         | C.I. 9-7             | 34.02       | 1030.50              | 1030.16                | 1.00      | 15            | 0.012       | 0.86             | 0.70            | 6.99           | 1.01            | 1031.51                   | 1036.77                 |
| M.H. 10-1                                                        | C.I. 11-3            | 129.94      | 1010.73              | 1008.49                | 1.72      | 24            | 0.012       | 26.19            | 8.34            | 32.17          | 2.00            | 1029.66                   | 1018.66                 |
| F.I. 10-2                                                        | M.H. 10-1            | 125.40      | 1012.41              | 1010.73                | 1.34      | 24            | 0.012       | 26.19            | 8.34            | 28.36          | 2.00            | 1032.17                   | 1022.17                 |
| F.I. 10-3                                                        | F.I. 10-2            | 144.55      | 1016.61              | 1013.01                | 2.49      | 24            | 0.012       | 24.28            | 7.73            | 38.67          | 2.00            | 1034.92                   | 1025.11                 |
| C.I. 11-1                                                        | M.H. 5-3             | 151.51      | 1004.13              | 1003.16                | 0.64      | 36            | 0.012       | 80.07            | 11.33           | 57.81          | 3.00            | 1013.92                   | 1014.77                 |
| C.I. 11-2                                                        | C.I. 11-1            | 288.06      | 1006.66              | 1004.63                | 0.70      | 30            | 0.012       | 54.92            | 11.19           | 43.25          | 2.50            | 1021.32                   | 1017.23                 |
| C.I. 11-3                                                        | C.I. 11-2            | 43.00       | 1007.49              | 1007.16                | 0.77      | 30            | 0.012       | 49.79            | 10.15           | 38.92          | 2.50            | 1024.78                   | 1017.25                 |
| C.I. 11-4                                                        | C.I. 11-3            | 84.02       | 1008.83              | 1007.99                | 1.00      | 24            | 0.012       | 13.96            | 4.44            | 24.50          | 2.00            | 1028.44                   | 1015.86                 |
| C.I. 11-5                                                        | C.I. 11-4            | 36.35       | 1010.75              | 1010.28                | 1.29      | 15            | 0.012       | 8.23             | 6.71            | 7.95           | 1.25            | 1029.19                   | 1015.95                 |
| C.I. 12-1                                                        | F.I. 9-5             | 133.00      | 1019.26              | 1017.98                | 0.96      | 15            | 0.012       | 3.95             | 3.22            | 6.86           | 1.25            | 1030.94                   | 1023.35                 |
| C.I. 13-1                                                        | C.I. 6-7             | 34.37       | 1024.58              | 1024.30                | 0.81      | 18            | 0.012       | 16.91            | 9.57            | 10.27          | 1.50            | 1046.11                   | 1029.29                 |
| C.I. 14-2                                                        | E.S. 14-1            | 67.74       | 1025.46              | 1022.29                | 4.68      | 15            | 0.012       | 3.49             | 2.84            | 15.13          | 0.75            | 1026.21                   | 1031.65                 |
| C.I. 14-3                                                        | E.S. 14-2            | 34.00       | 1027.00              | 1026.66                | 1.00      | 15            | 0.012       | 1.38             | 4.43            | 7.00           | 0.46            | 1027.46                   | 1031.65                 |

## NOT AS BUILT



RMBOE – REAR MINIMUM BUILDING OPENING ELEVATION  
FMBOE – FRONT MINIMUM BUILDING OPENING ELEVATION

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. Plot is located in Zone X "areas outside the 1-percent annual chance floodplains, areas of 1-percent annual chance sheet flood 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. Plot is located outside of any required buffer zones for natural or cultural resources.
4. MBOE 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.

NOTE: No building permits will be issued until an as-graded Master Drainage Plan has been submitted to the city and approved by the city.

\* Swales to be constructed between each of the lots 87 through 94 to drain to the south.

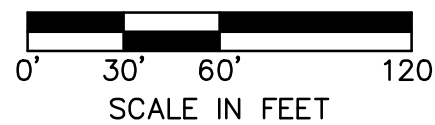
(D) DAYLIGHT

(W) WALKOUT

(S) STANDARD

100 YEAR WSE: 1024.38

DATE: 12/19/2018



USER: dhernandez

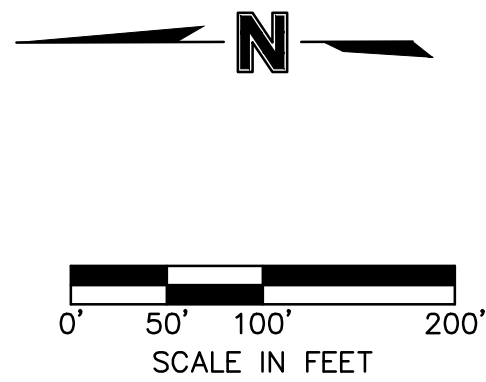
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| SEDIMENT BASIN DESIGN DATA SUMMARY |          |          |         |                                                                                |
|------------------------------------|----------|----------|---------|--------------------------------------------------------------------------------|
| Design Item:                       | Basin #1 | Basin #2 | Units   | Notes:                                                                         |
| <b>Site Data:</b>                  |          |          |         |                                                                                |
| Tributary Drainage Area to Pond:   | 31.34    | 8.09     | Acres   |                                                                                |
| 50% (2 yr) Design Flow:            | 83.92    | 21.67    | cfs     |                                                                                |
| 4% (25 yr) Design Flow:            | 149.09   | 38.50    | cfs     |                                                                                |
| <b>Pond Data:</b>                  |          |          |         |                                                                                |
| Minimum Sediment Storage Volume:   | 4200     | 1085     | cu. yd. | 134 cy/acre minimum                                                            |
| Provided Sediment Storage Volume:  | 4200     | 1085     | cu. yd. | 134 cy/acre minimum                                                            |
| Bottom Elevation:                  | 998.00   | 1014.00  | Ft      |                                                                                |
| Sediment Cleanout Elevation:       | 1001.60  | 1016.41  | Ft      | Elevation Equal to 50% of Original Design Volume.                              |
| Top of Riser Elevation:            | 1002.98  | 1017.12  | Ft      | Top of Dry Storage Volume                                                      |
| Emergency Spillway Elevation:      | 1006.00  | 1024.90  | Ft      | at or Above Q-2 elev. 1.0 ft min above principal spillway                      |
| Q-25 year Elevation:               | 1006.82  | 1025.14  | Ft      |                                                                                |
| Top of Dam Elevation:              | 1008.00  | 1026.10  | Ft      | 1.0 ft min above Q-25 elev.                                                    |
| <b>Basin Shape Data:</b>           |          |          |         |                                                                                |
| A= Area at Normal Pool             | 36337.18 | 9000.36  | SF      |                                                                                |
| L= Length of Flow Path             | 128.00   | 160.00   | Ft      |                                                                                |
| We = Effective Width = A/L         | 283.88   | 56.25    | Ft      |                                                                                |
| Length to Width Ratio = L/We       | 0.45     | 2.84     |         | If Length to Width Ratio is less than 2, baffles are required                  |
| <b>Principal Spillway Data:</b>    |          |          |         |                                                                                |
| Riser Pipe Diameter:               | 48       | 18       | in      | 15-inch min. Size for 2 year flow minimum                                      |
| Barrell Pipe Diameter:             | 36       | 15       | in      | 15-inch min. Size for 2 year flow minimum                                      |
| Riser Pipe Base Size:              | 1.93     | 0.23     | cu. yd. | Size to Prevent Flotation. 1.25 safety factor required.                        |
| <b>Skimmer Data:</b>               |          |          |         |                                                                                |
| Skimmer Size:                      | 6.00     | 4.00     | in      |                                                                                |
| Skimmer Elevation                  | 1002.30  | 1013.01  | Ft      |                                                                                |
| <b>Emergency Spillway Data:</b>    |          |          |         |                                                                                |
| Elevation of Spillway:             | 1006.00  | 1024.90  |         |                                                                                |
| Design Width of Spillway:          | 75.00    | 125.00   | Ft      |                                                                                |
| Design Depth in Spillway:          | 0.82     | 0.24     | Ft      | Use $Q_{25yr} = C_b b H^{3/2}$ where $C_b = 2.63$ , b is the Width of Spillway |
| Design Velocity in Spillway:       | 2.44     | 1.31     | Ft/sec  |                                                                                |

| TEMPORARY SEDIMENT TRAP                |  | 1       |
|----------------------------------------|--|---------|
| POND AND PRINCIPAL SPILLWAY DATA:      |  |         |
| DAM TOP ELEVATION                      |  | 1020.00 |
| EMERGENCY SPILLWAY ELEVATION           |  | 1018.71 |
| WET STORAGE VOLUME ELEVATION           |  | 1017.65 |
| CLEANOUT ELEVATION                     |  | 1017.65 |
| DRY BOTTOM ELEVATION                   |  | 1016.00 |
| VOL. REQ'D @ 134CY/ACRE                |  | 732     |
| VOL. PROVIDED BELOW OUTLET CREST (CY)  |  | 732     |
| STONE OUTLET DATA:                     |  |         |
| LENGTH (L) FT.                         |  | 32.94   |
| WIDTH (W) FT.                          |  | 10.00   |
| DRAINAGE AREA (AC)                     |  | 5.49    |
| UPSTREAM D50 (MEDIAN STONE SIZE, IN)   |  | 2.00    |
| DOWNSTREAM D50 (MEDIAN STONE SIZE, IN) |  | 10.00   |



- LEGEND:**
- PHASE 1 DEVICES**
- TEMPORARY STONE CONSTRUCTION ENTRANCE
  - SF SILT FENCE
  - STORM DRAIN INLET PROTECTION
  - TEMPORARY DIVERSION BERM

**NOTE:**  
THE SITE DISTURBANCE PLANS INDICATES THE FINAL PLACEMENT OF EROSION CONTROL DEVICES. THE CONTRACTOR(S) MAY PLACED WITH THE CONSTRUCTION PRIOR TO THE FINAL PLACEMENT OF THESE DEVICES BY PROVIDING ADDITIONAL DEVICES TO CONTROL EROSION ON THEIR ITEMS OF WORK. THESE DEVICES SHALL BE MAINTAINED UNTIL THE FINAL DEVICES ARE IN PLACE.

NOT AS BUILT

Approximate location of vehicle tracking control. Location may be varied to accommodate construction.

Prior to any clearing or other construction activities contractor shall install inlet protection device per APWA detail ESC-19. Inlet protection to remain in place until seeding and mulching operations are completed (Typ.).

Prior to any clearing or other construction activities contractor shall install temporary sediment trap #1 with rock outlet per table on this sheet and details on sheet C137.

Prior to any clearing or other construction activities contractor shall install sediment basin #2 with riser and skimmer outlet per table on this sheet and details on sheet C137.

Prior to any clearing or other construction activities contractor shall install temporary sediment basin #1 with riser and skimmer outlet per table on this sheet and details on sheet C137.

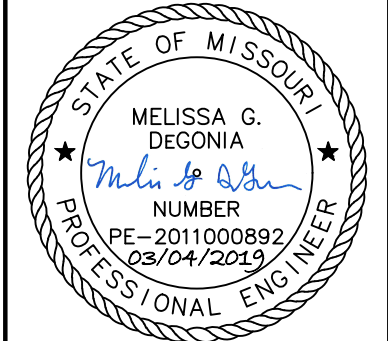
Prior to any clearing or other construction activities contractor shall install silt fencing to control erosion and silt. Fencing to be installed per APWA detail. (Typ.)



| NO. REV.  |  | DATE       | REVISIONS DESCRIPTION   | BY  |
|-----------|--|------------|-------------------------|-----|
| 6         |  | 03.03.2018 | Sediment Basins revised | JES |
| REVISIONS |  |            |                         |     |
| 2018      |  |            |                         |     |

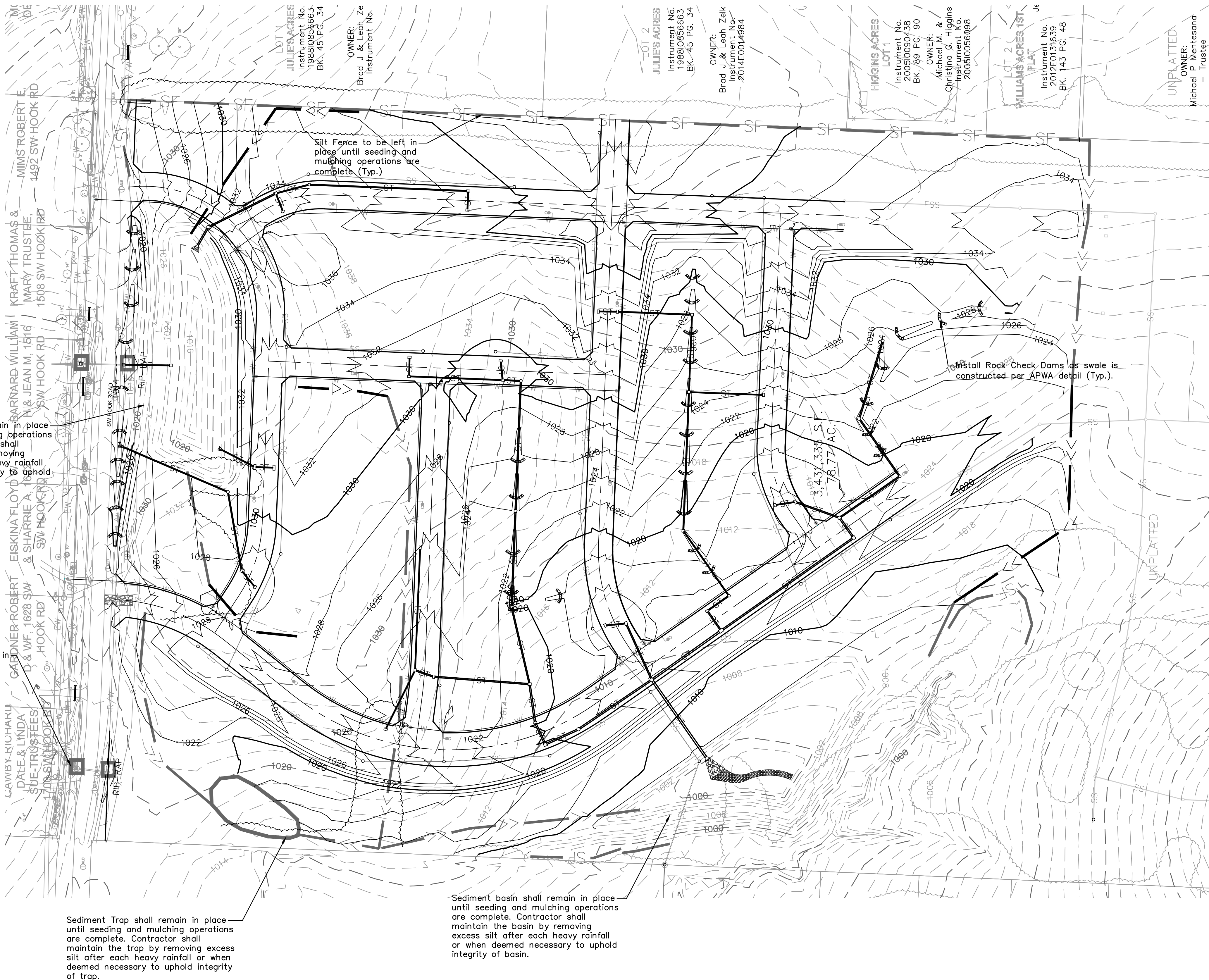
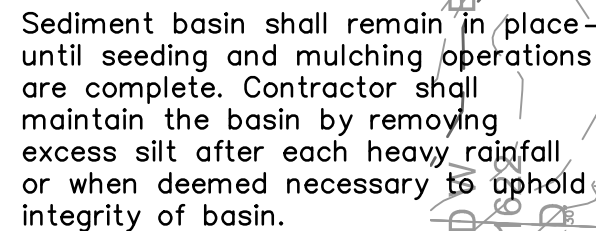
SITE DISTURBANCE PLAN - PHASE 1  
HAWTHORN RIDGE  
1ST PLAT  
LEE'S SUMMIT, MO

drawn by: DAH.D  
checked by: M.G.D.  
designed by: P.M.L.  
QA/QC by: K.S.L.  
project no.: 017-0188  
date: 03.03.2017





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DATE: Feb 19, 2019 6:20pm  
USER: dhernandez



Sediment basin shall remain in place until seeding and mulching operations are complete. Contractor shall maintain the basin by removing excess silt after each heavy rainfall or when deemed necessary to uphold integrity of basin.

[illegible]

## SITE DISTURBANCE PLAN - PHASE 2

HAWTHORN RIDGE  
1ST PLAT

LEE'S SUMMIT, MO

drawn by: D.A.H.O.  
checked by: M.G.D.  
designed by: P.M.D.  
QA/QC by: K.S.J.  
project no.: 017-0188  
date: 03.03.2017

SHEET  
C131



GENERAL NOTES:

SEED & MULCH NOTES:  
SEEDING SHALL BE DONE BEFORE THE PROPOSED SEEDBED BECOMES ERODED, CRUSTED OVER, OR DRIED OUT AND SHALL NOT BE DONE WHEN THE GROUND IS FROZEN, OR COVERED WITH SNOW. THE SEED SHALL COMPLY WITH THE REQUIREMENTS OF THE MISSOURI SEED LAW AND THE FEDERAL SEED ACT. ALSO, IT SHALL CONTAIN NO SEED OF ANY PLANT ON THE FEDERAL NOXIOUS WEED LIST. OTHER WEED SEED SHALL NOT EXCEED ONE PERCENT BY WEIGHT OF MIX.

SEED & FERTILIZER RATE:  
MIX I - RYE GRASS / BLUE GRASS -----100 LBS. PER ACRE  
MIX II - TALL FESCUE / BLUE GRASS -----195 LBS. PER ACRE  
LIME -----2000 LBS. PER ACRE  
(50 LBS. PER 1000 SQ. FT.)  
FERTILIZER -----800 TO 1200 LBS. PER ACRE (25 LBS. PER 1000 SQ. FT.)

DURING THE DATES DECEMBER 15TH THROUGH MAY 31 ALL LIME, FERTILIZER, SEED, AND MULCH SHALL BE APPLIED TO FINISHED SLOPES OF DISTURBED AREAS. DURING THE MONTHS OF JUNE, JULY, OCTOBER, AND NOVEMBER 1ST THROUGH DECEMBER 15TH, LIME, FERTILIZER, SEED, AND MULCH SHALL BE APPLIED AT THE FOLLOWING RATES:  
LIME - 100 % OF SPECIFIED QUANTITY  
FERTILIZER - 75 % OF THE SPECIFIED QUANTITY  
SEED - 50 % OF THE SPECIFIED QUANTITY  
MULCH - 100 % OF THE SPECIFIED QUANTITY  
MULCH SHALL BE VEGETATIVE TYPE, CEREAL STRAW FROM STALKS OF OATS, RYE, OR BARLEY, OR APPROVED EQUAL. THE STRAW SHALL BE FREE OF PROHIBITED WEED SEED AND RELATIVELY FREE OF ALL OTHER NOXIOUS AND UNDESIRABLE SEED. MULCH SHALL BE APPLIED AT THE RATE OF 2 TONS PER ACRE, (70 TO 90 LBS. PER 1000 SQ. FT.). MULCH SHALL BE EMBEDDED BY A MULCH ANCHORING TOOL OR DISK TYPE ROLLER HAVING FLAT SERRATED DISKS SPACED NOT MORE THAN 10 INCHES APART AND CLEANING SCRAPERS SHALL BE PROVIDED.

THE SITE DISTURBANCE PLANS INDICATES THE FINAL PLACEMENT OF EROSION CONTROL DEVICES. THE CONTRACTOR(S) MAY PROCEED WITH THE CONSTRUCTION PRIOR TO THE FINAL PLACEMENT OF THESE DEVICES BY PROVIDING ADDITIONAL DEVICES TO CONTROL EROSION ON THEIR ITEMS OF WORK. THESE DEVICES SHALL BE MAINTAINED UNTIL THE FINAL DEVICES ARE IN PLACE.

NATIVE SEED MIX  
NORTHERN SHORT GRASS MEADOW MIX (6LB PER ACRE)  
SUPPLIER:  
CRITSITE PRODUCTS, PRAIRIE AND WETLAND CENTER  
16245 SOUTH HIGHWAY 71  
BELTON, MO 64012  
816-331-9736

Sediment trap and diversion berm to be removed and final grading completed once grading has been stabilized. Area disturbed by removal grading to be seeded and mulched immediately upon completion of grading activities.

Area to be planted with native seed mix and mulched.

Sediment basin and diversion berm to be removed and final grading completed once grading has been stabilized. Area disturbed by removal grading to be seeded and mulched immediately upon completion of grading activities.

Area to be planted with native seed mix and mulched. Install 10' wide x 1.5' deep rock trench for trickle flow.

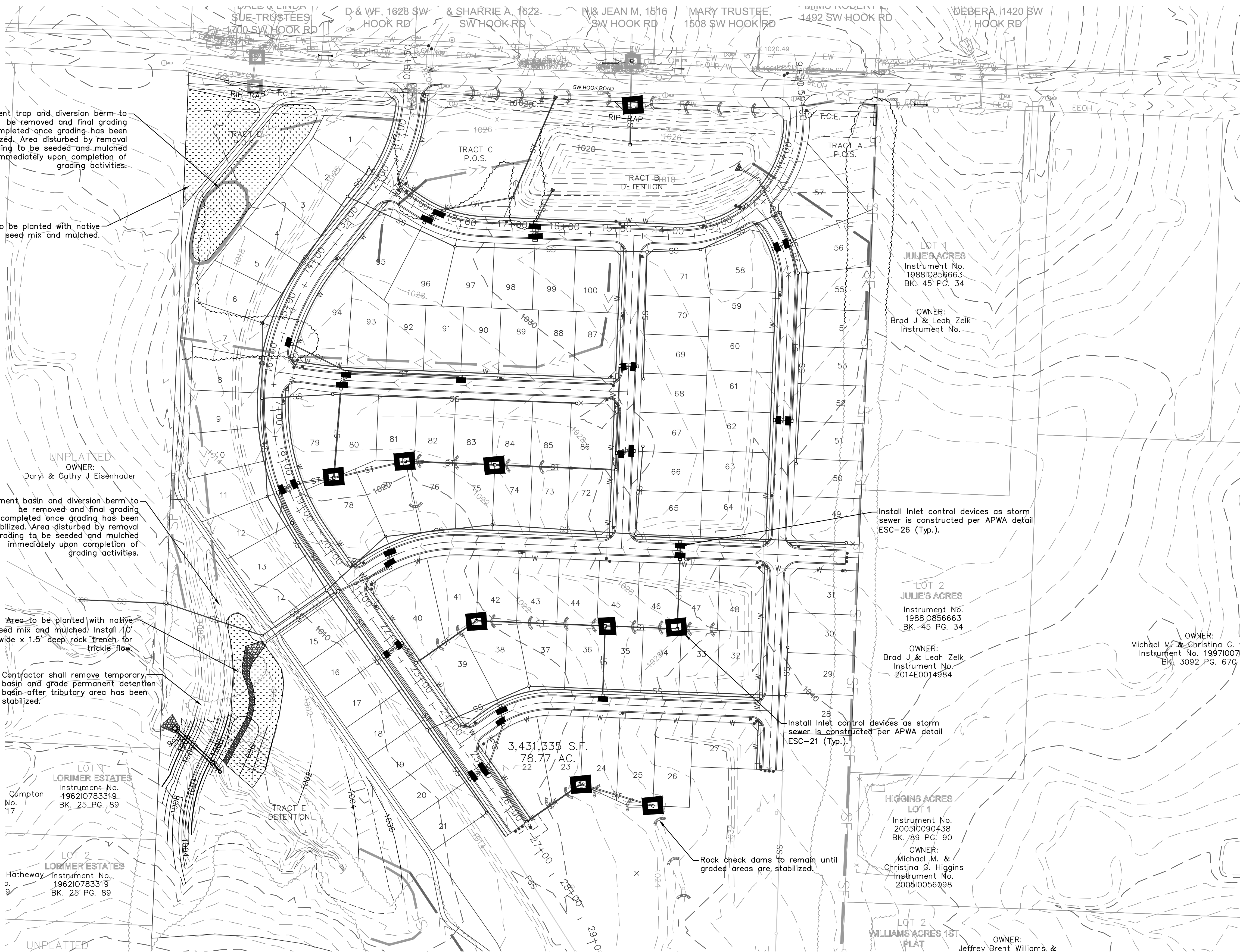
Contractor shall remove temporary basin and grade permanent detention basin after tributary area has been stabilized.

LOT 1  
LORIMER ESTATES  
Instrument No. 196210783319  
BK. 25 PG. 89  
Cumpton No. 17

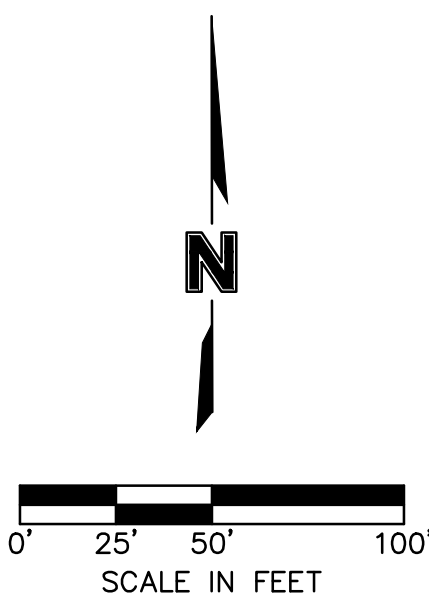
LOT 2  
LORIMER ESTATES  
Instrument No. 196210783319  
BK. 25 PG. 89  
Hatheway No. 9

UNPLATTED

- PHASE 1 DEVICES
- PHASE 2 DEVICES
- PHASE 3 DEVICES
- TEMPORARY STONE CONSTRUCTION ENTRANCE
- SILT FENCE
- STORM DRAIN INLET PROTECTION
- TEMPORARY DIVERSION BERM
- NATIVE SEED MIX



NOT AS BUILT



|                                 |  |  |                            |  |  |                          |  |  |                       |           |  |  |
|---------------------------------|--|--|----------------------------|--|--|--------------------------|--|--|-----------------------|-----------|--|--|
| SITE DISTURBANCE PLAN - PHASE 3 |  |  | HAWTHORN RIDGE<br>1ST PLAT |  |  | LEE'S SUMMIT, MO         |  |  | 2018                  | REVISIONS |  |  |
| drawn by: _____ D.A.H.Q         |  |  | checked by: _____ M.S.D    |  |  | designed by: _____ P.M.D |  |  | QA/QC by: _____ K.S.J |           |  |  |
| project no.: _____ 017-0188     |  |  | date: _____ 03.03.2017     |  |  |                          |  |  |                       |           |  |  |
| SHEET<br>C132                   |  |  |                            |  |  |                          |  |  |                       |           |  |  |



DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01\_Street & Storm\_36x24\C\_XSC01\_017-0188.dwg  
DATE: Feb 19, 2019 6:21pm  
USER: dhernandez

- Gradation - riprap materials shall be graded within the following limits

Not more than 5% shall pass through the 2 inch sieve.

Thickness 20–60 mills

Grab strength 90–120 lbs.

Conform ASTM D-1682 or ASTM D-177

A cross-sectional diagram of a road shoulder. The top layer is labeled "Compacted Soil" with an arrow pointing to it. The width of the compacted soil layer at the top is indicated as "2' Min". The total width of the shoulder, including the underlying base, is indicated as "6' Typical". The height of the compacted soil layer is indicated as "12" Min". An arrow on the right side of the diagram points to the right, labeled "Flow".

Diagram illustrating the required rock layer for drainage. The rock layer is 6" Minimum Thickness and consists of 2"-3" Rock Over 1/2"-3/4" Filter Layer (Over geotextile fabric, when specified). The drainage length is 50' minimum, and the grade is to drain away from the public road. The rock layer is labeled "As Required 12" Min."

1 foot thick 1/2" to 3/4" clean gravel filter over rock

3,600 cu ft/acre

5' Min.

1.50'

5.0' Max.

Filter Fabric

Diagram illustrating the cross-section of a gravel filter over rock. The filter is 1 foot thick, composed of 1/2" to 3/4" clean gravel. The filter is placed over a rock layer. The filter is 3,600 cu ft/acre. The filter is 5' Min. wide. The filter is 1.50' high. The filter is 5.0' Max. high. The filter is placed over a Filter Fabric.

**Cross Section**

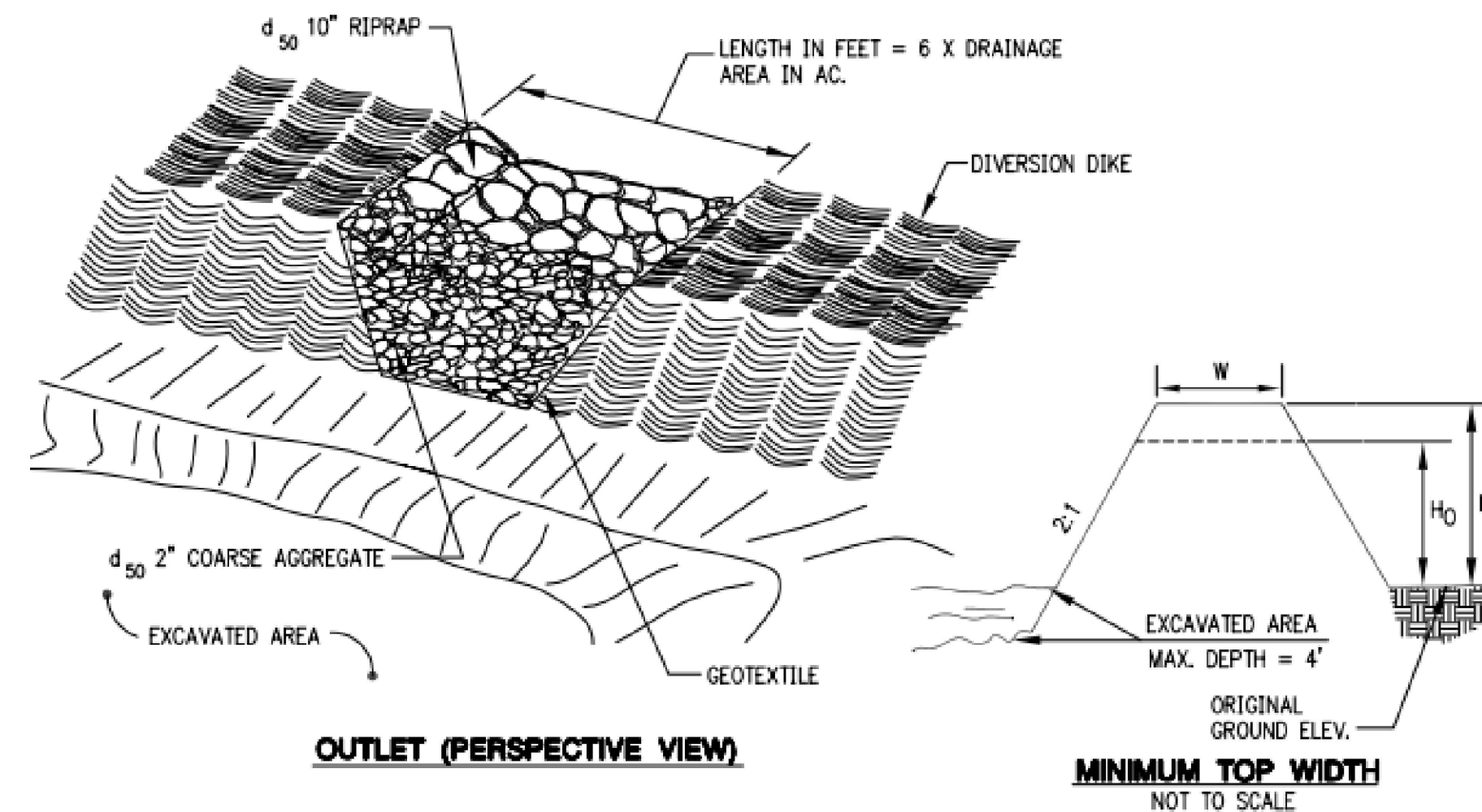
The diagram illustrates a cross-section of a dam structure. Key components and dimensions include:

- Design Settled Top:** The uppermost layer on the left side.
- 5.0' Max. Fill:** The maximum height of the fill material on the left side.
- Filter Fabric:** A layer of filter fabric located below the fill material.
- 1.50' Min.:** The minimum thickness of the filter fabric layer.
- 4.00':** The width of the dam body.
- 3.0' Min.:** The minimum thickness of the dam body at the base.
- 2:1 side slope max.:** The maximum side slope of the dam body.
- 1:1 side slope max.:** The maximum side slope of the emergency by-pass.
- Overfill 6' for settlement:** The additional height of the dam body for settlement.
- Emergency By-pass 6' below settled top of dam:** The height of the emergency by-pass below the settled top of the dam.
- Natural Ground:** The ground level on the right side.

### ROCK CHECK DAM DETAIL

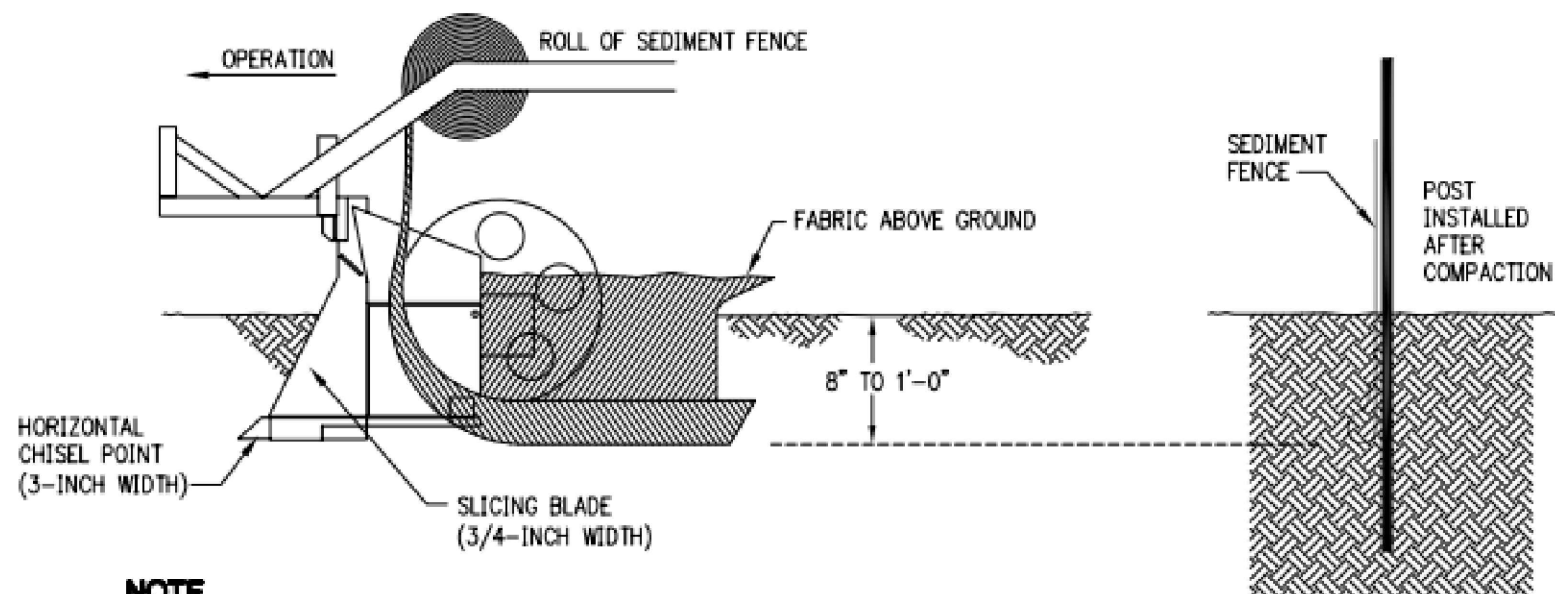
NOTE:  
\* SEE MINIMUM TOP WIDTH BELOW.

NOT TO SCALE



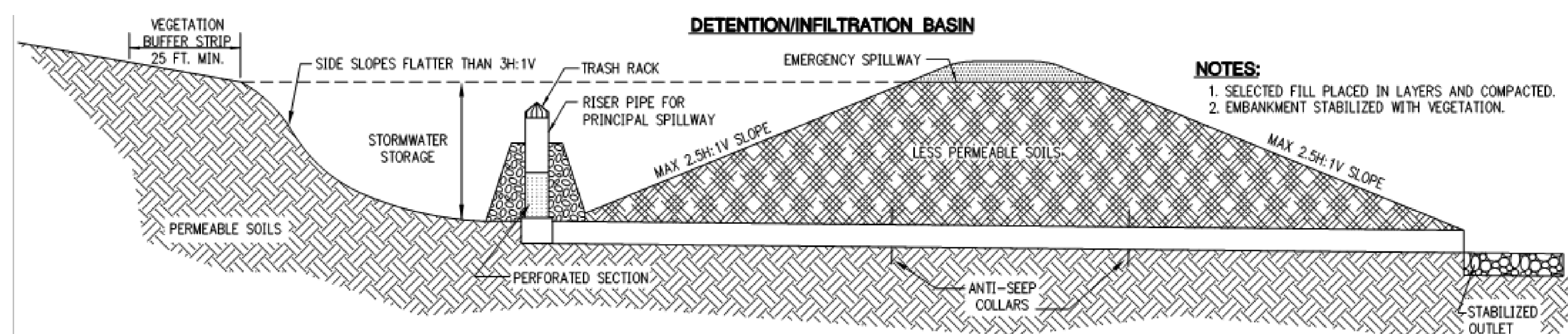
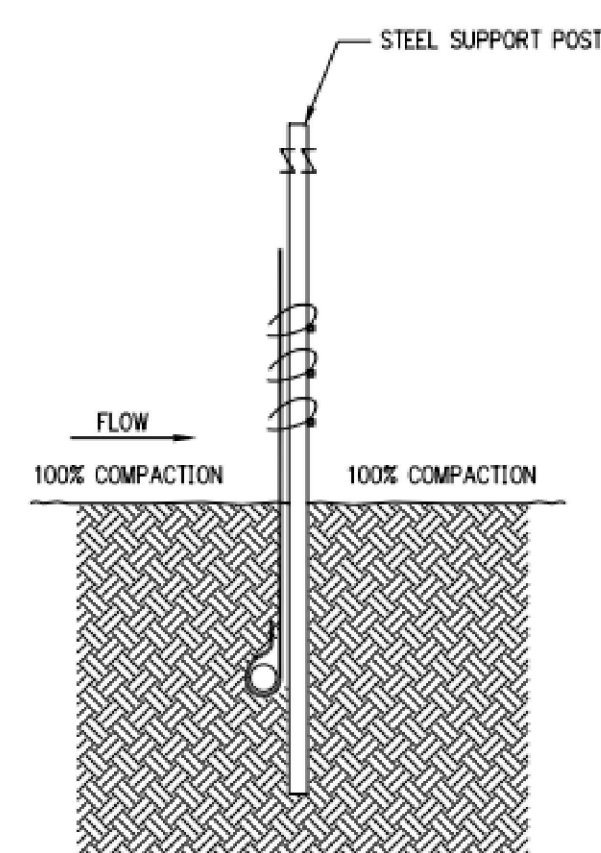
**SEDIMENT FENCE INSTALLATION**  
**SLICING METHOD**

The diagram illustrates the slicing method for installing a sediment fence. A vertical pipe is shown with a fabric strip attached to its side. The fabric strip is labeled "BELT" and is shown with a hatched pattern. The top of the fabric is indicated by a dashed line labeled "TOP OF FABRIC". The distance from the top of the fabric to the top of the belt is labeled "TOP 8\"". A callout box on the right shows a detail of the "DIAGONAL ATTACHMENT DOUBLES STRENGTH", which is a grid pattern with a diagonal line running from the top-left to the bottom-right.



**NOTE**  
VIBRATORY PLOW IS NOT ACCEPTABLE BECAUSE OF HORIZONTAL COMPACTION.

1. LIMIT PONDING HEIGHT TO 24"
2. ATTACH FABRIC TO UPSTREAM SIDE OF POST.
3. DRIVE OVER EACH SIDE OF SEDIMENT FENCE 2 TO 4 TIMES WITH DEVICE EXERTING 60 PSI OR GREATER AFTER MATERIAL IS SLICED INTO THE GROUND.
4. SPACE POSTS A MAX OF  
7' ON OPEN RUNS AND  
4' ON POOLING AREAS.
5. SINK POSTS AS FAR BELOW GROUND AS FABRIC ABOVE GROUND.

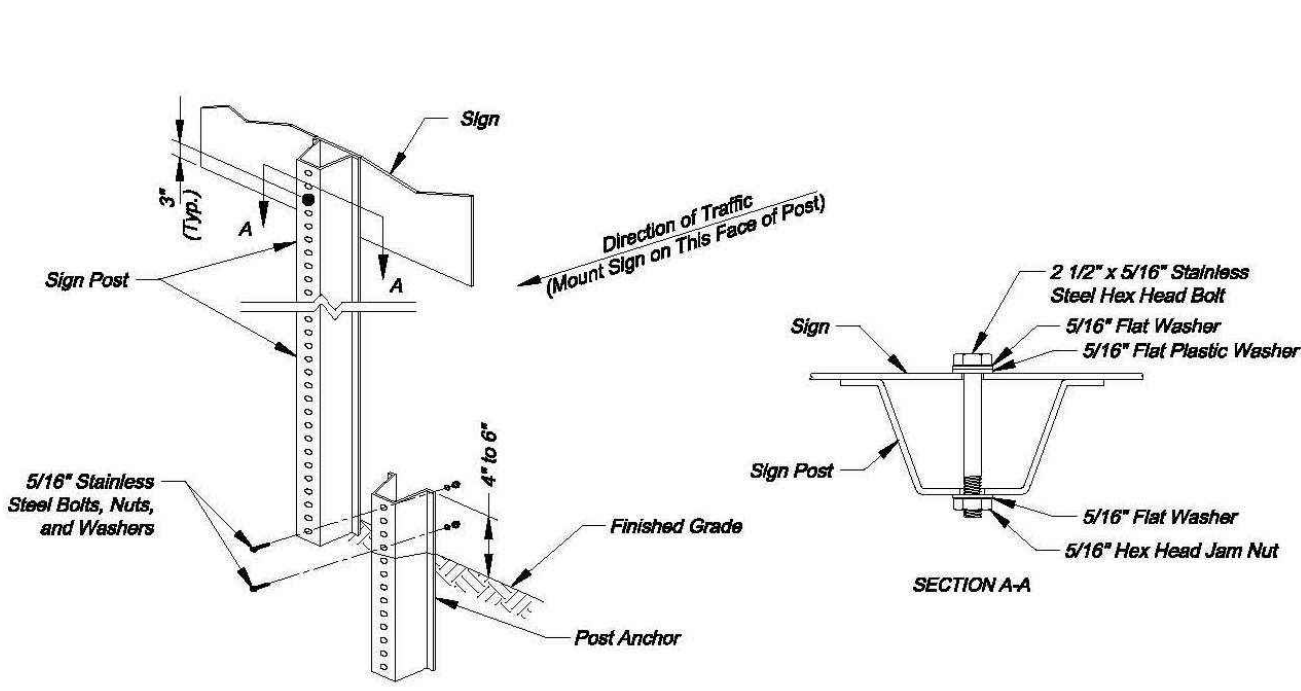


**NOTES:**

1. SELECTED FILL PLACED IN LAYERS AND COMPACTED.
2. EMBANKMENT STABILIZED WITH VEGETATION.

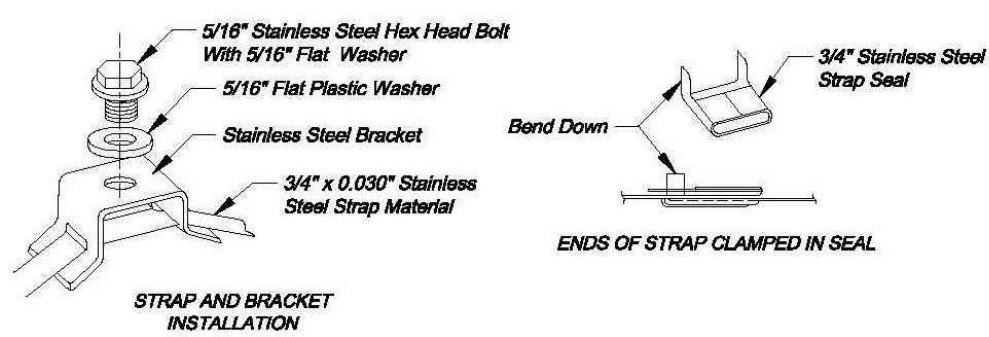
NOT TO SCALE





#### U-STEEL POST DETAILS

- U-STEEL POST NOTES:**
1. Splice shall be positioned entirely between finished grade line and 18" above finished grade line. Only one splice will be allowed per post.
  2. U-Steel post shall be 3 to 4 ft. galvanized according to ASTM A123.
  3. U-Steel post can be used for installation of signs with an area of less than 2.5 square feet.
  4. All posts shall be embedded a minimum of 3 feet.

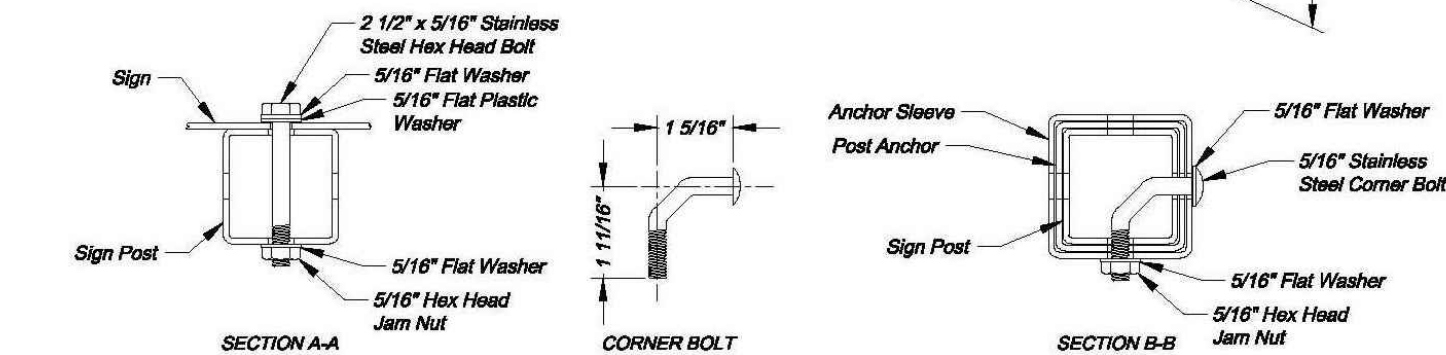


#### STRAP TYPE SIGN SUPPORT DETAILS

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

- PERMANENT SIGNING GENERAL NOTES:**
1. All signing shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).
  2. The Contractor is responsible for avoiding any and all utilities when installing sign posts, whether the utility is indicated on the plans or not.
  3. All workmanship and materials shall be subject to the inspection and approval of the Public Works Department of the City of Lee's Summit.
  4. The Contractor shall stake the location of all sign posts to be installed. The City Inspector shall inspect the staking prior to installation.
  5. 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 or mast arms.
  6. All post mounted signs shall be installed with breakaway anchors according to the Standard Drawings.
  7. 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.
  8. 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 in full compliance for the equipment until it is delivered.
  9. 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:**
1. Sign post anchor driven partially into the ground using a drive cap with a sledge and power equipment.
  2. Anchor sleeve slipped over anchor and drive into the ground together with the sign post anchor.
  3. Insert sign post into the post anchor and bolt in place.

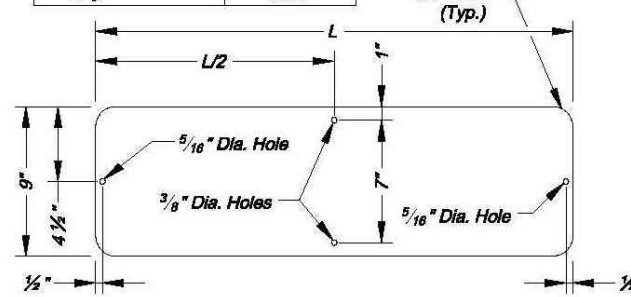


#### SQUARE STEEL POST DETAILS

- SQUARE STEEL POST NOTES:**
1. 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 1/4" x 2 1/4" x 36" Square Steel Post  
Anchor Sleeve - 12 Ga. 2 1/4" x 2 1/4" x 18" Square Steel Post
  2. 14 Gauge posts must meet a certified minimum yield strength of 60,000 psi.
  3. 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.
  4. 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.

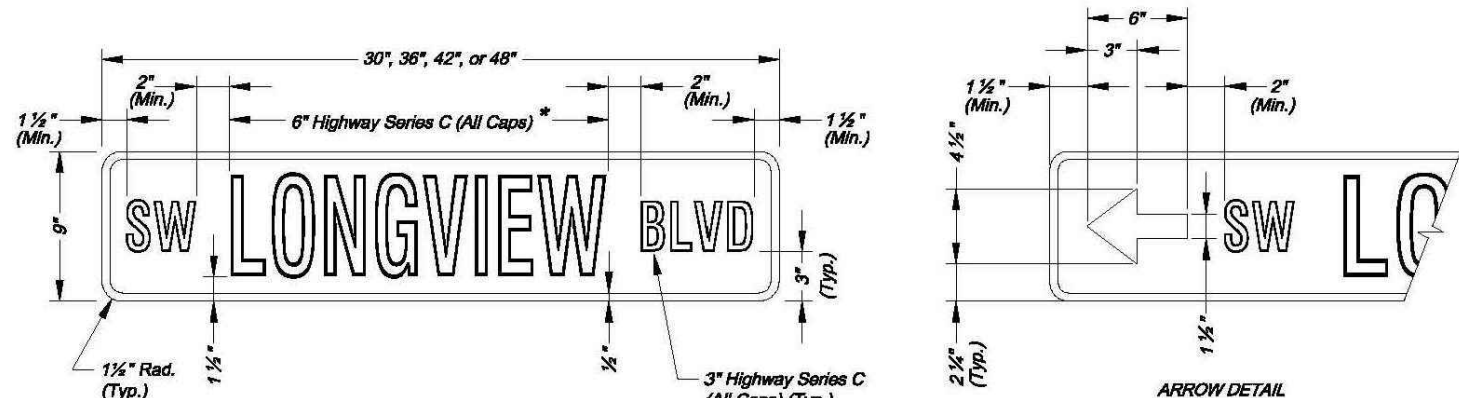
#### STANDARD ABBREVIATION LISTS

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



#### STREET NAME SIGN BLANK DETAILS

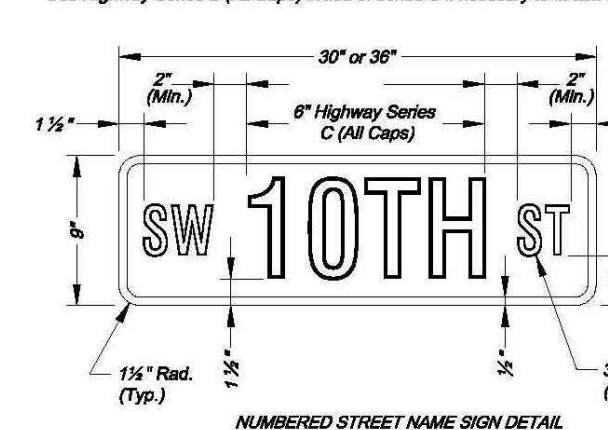
For Mounting on Square Steel Posts



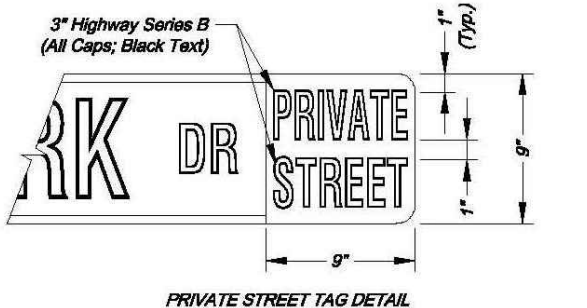
#### PROJECT SIGN DETAILS

#### NAMED STREET NAME SIGN DETAIL

\* Use Highway Series B (All Caps) in lieu of series C if necessary to fit text on a 36" sign blank.



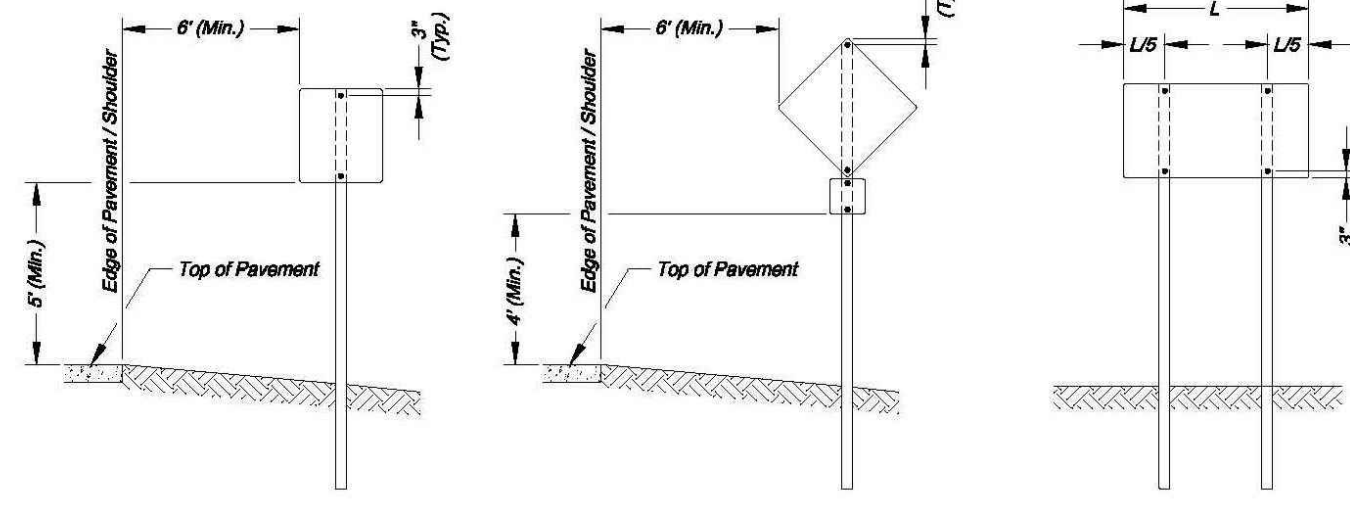
#### NUMBERED STREET NAME SIGN DETAIL



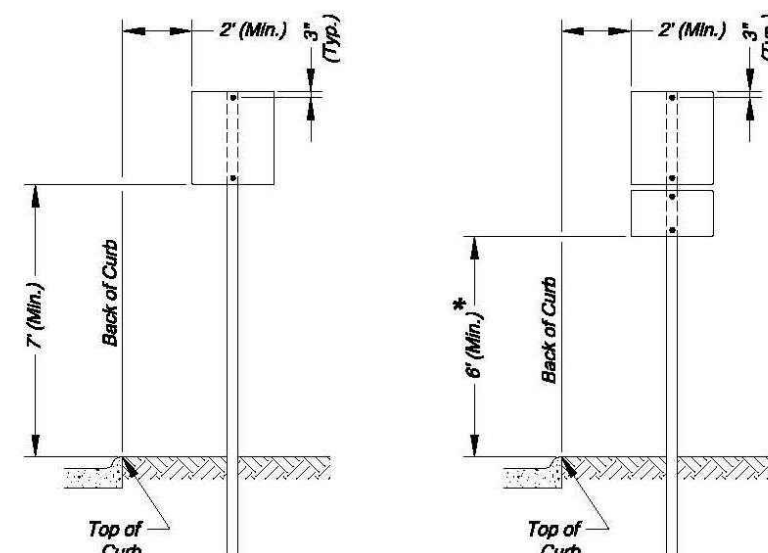
#### PRIVATE STREET TAG DETAIL

- NOTES:**
1. For all street name signs, the legend shall be white and the background shall be green.
  2. Arrows shall be added to street name signs where the name of a street changes at an intersection. Street name signs with arrows are to be installed on each side of the intersection to indicate the change in names. Arrows shall be white.
  3. The "PRIVATE STREET" tag should be added to the end of street name signs to indicate where a street that is outside the right-of-way intersects a public street. The background for the "PRIVATE STREET" tag shall be yellow.

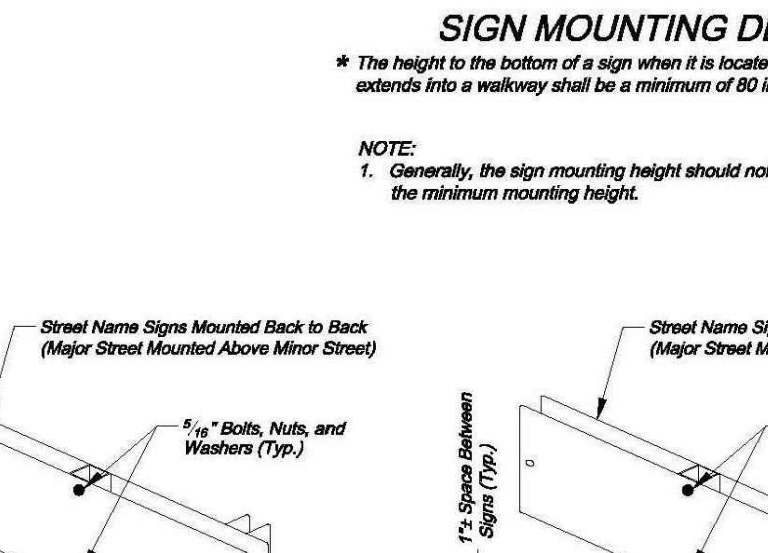
#### STREET NAME SIGN FACE DETAILS



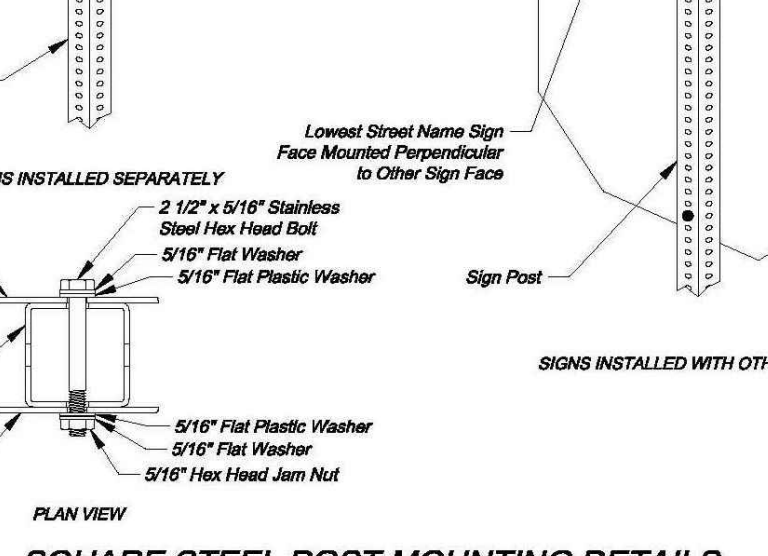
#### SIGN INSTALLATION FOR NON-CURBED STREET



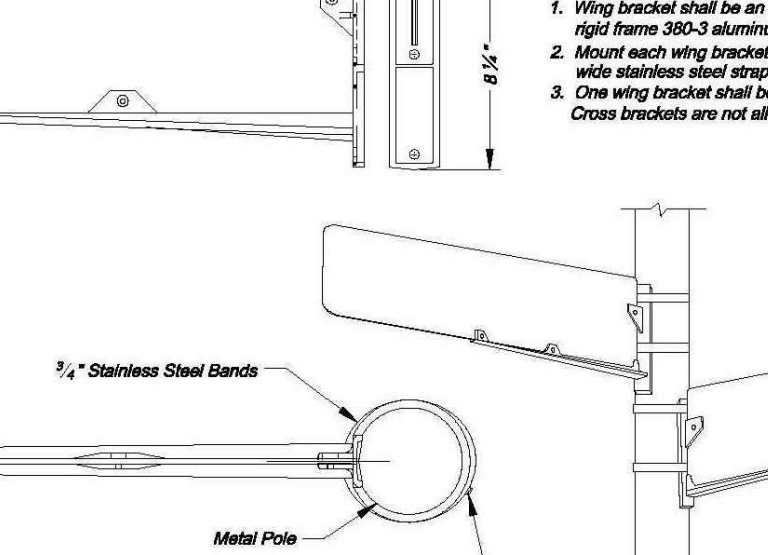
#### SIGN INSTALLATION FOR CURBED STREET



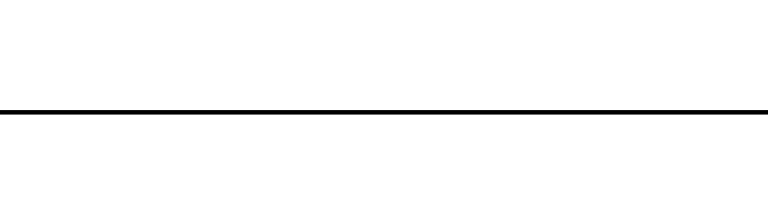
#### SIGN INSTALLATION WITH AUXILIARY SIGN FOR NON-CURBED STREET



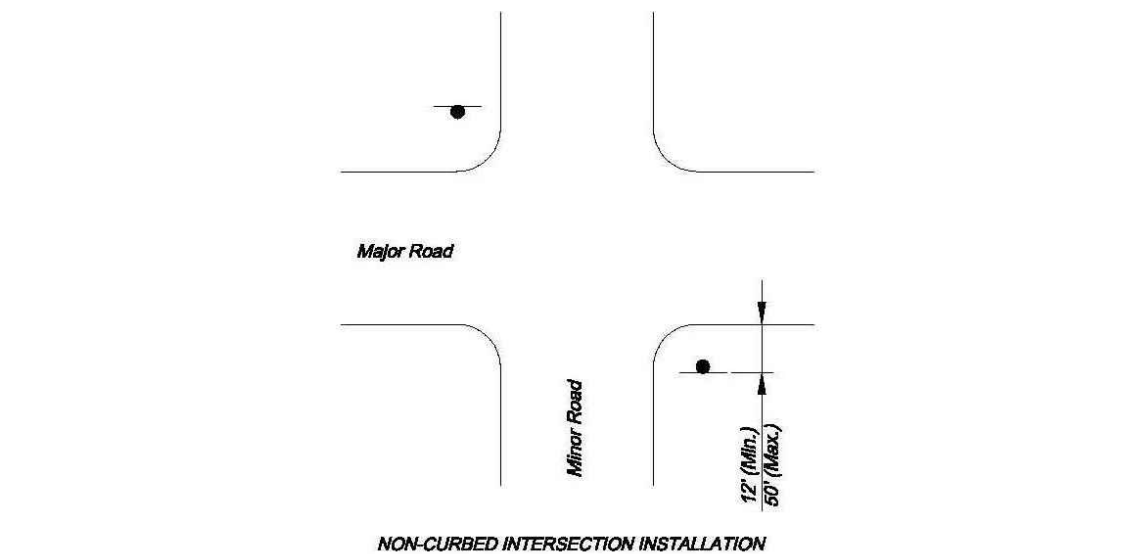
#### SIGN INSTALLATION WITH TWO SIGN POSTS



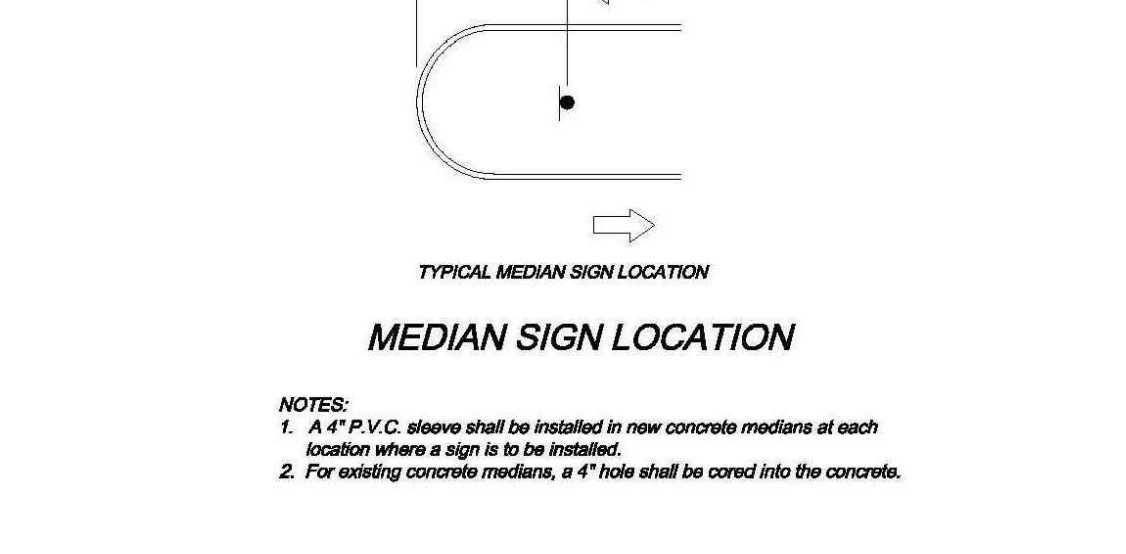
#### SIGN INSTALLATION FOR CURBED STREET



#### WING BRACKET MOUNTING DETAILS



#### CONTROL SIGN LOCATION



#### MEDIAN SIGN LOCATION

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

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. BACKFILL UNDER PAVEMENT (EXISTING OR PROPOSED), SHALL BE FLOWABLE FILL.
2. TRENCH BANKS MAY BE CUT BACK ON SLOPES IN ACCORDANCE WITH CURRENT OSHA REGULATIONS, BUT ONLY IN AREAS WHERE THE INCREASED TRENCH WIDTH WILL NOT INTERFERE WITH SURFACE FEATURES. SLOPES MUST NOT EXTEND BELOW TOP OF BEDDING.
3. MINIMUM AND MAXIMUM WIDTHS SHALL BE IN ACCORDANCE WITH PIPE MANUFACTURER'S RECOMMENDATION AS APPROVED ON ENGINEERING PLANS.



1. Locate ring and cover over outlet.
2. All work and materials shall conform to APWA Section 2602.
3. Use 20 chamfer strip on all exposed concrete corners.
4. Steps required at 400 O.C. when depth from top of casing to invert exceeds 1200.
5. Boxcuis will not be allowed to project through the corners of the structure.
6. The minimum reinforcing shall be 1 H-bar over a corner place pipe and 2 H-bars over a precast boxcul.
7. Limit opening height to 150 with 15M galvanized bars extending to corner rebars.
8. Show field inlet orientation on plans plus number and size of openings.
9. O.R. = outside pipe radius
10. Ring & Cover to be Neenah R-1537, Clay & Bailey #2020, Deeter #2016, or approved equal.  
(Casting may vary by municipality, refer to plans & contract documents.)
11. 100 # field tile or precast hole shall be located at entering pipe and in the front face sump points. These tiles or openings shall be capped with 6 galvanized wire mesh on the outside of the inlet and clear the invert and base concrete.



N.T.S



NOTE: All dimensions in mm.



NOTES:

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

## NOT AS BUILT

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## STORM SEWER DETAILS

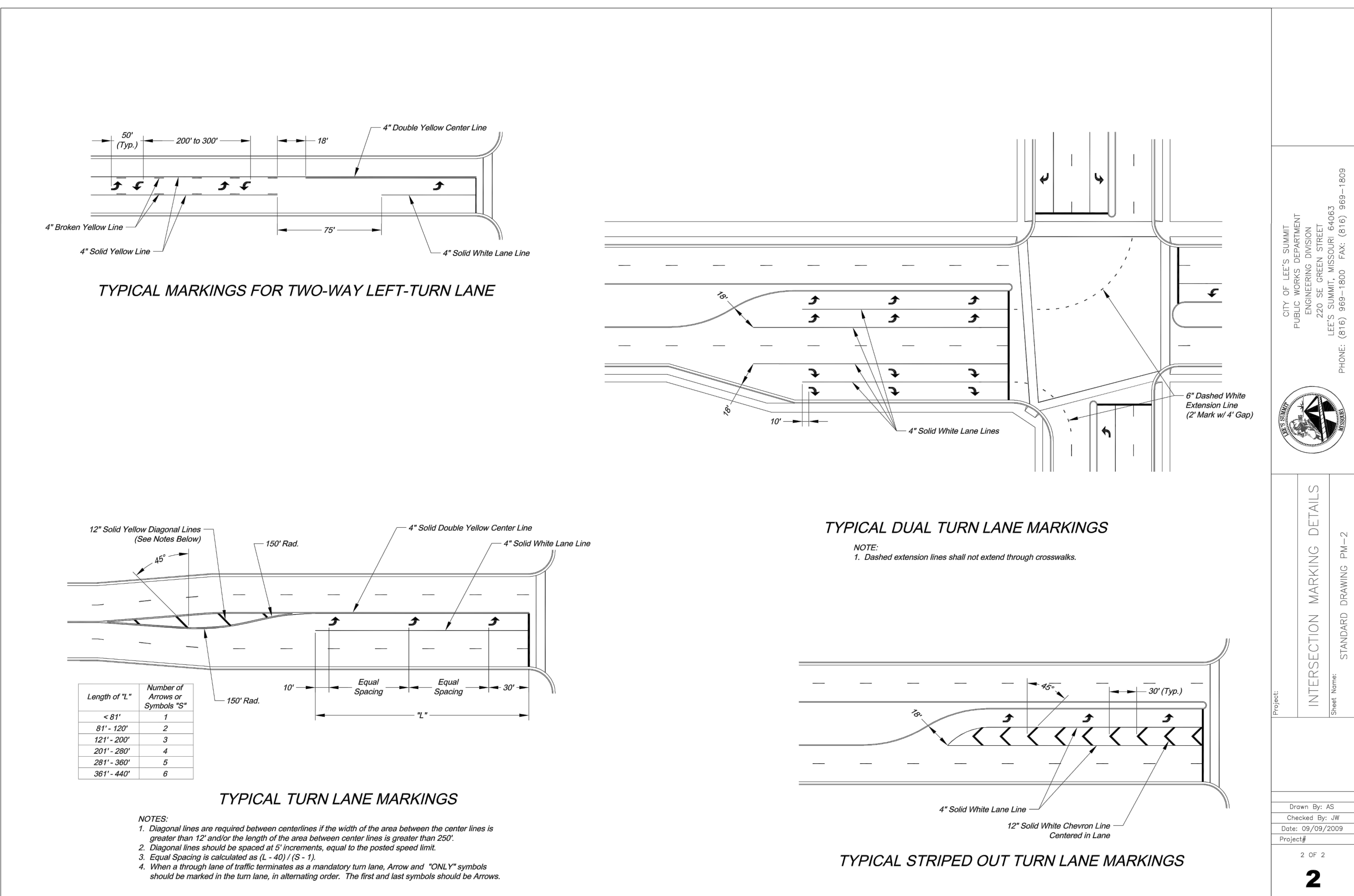
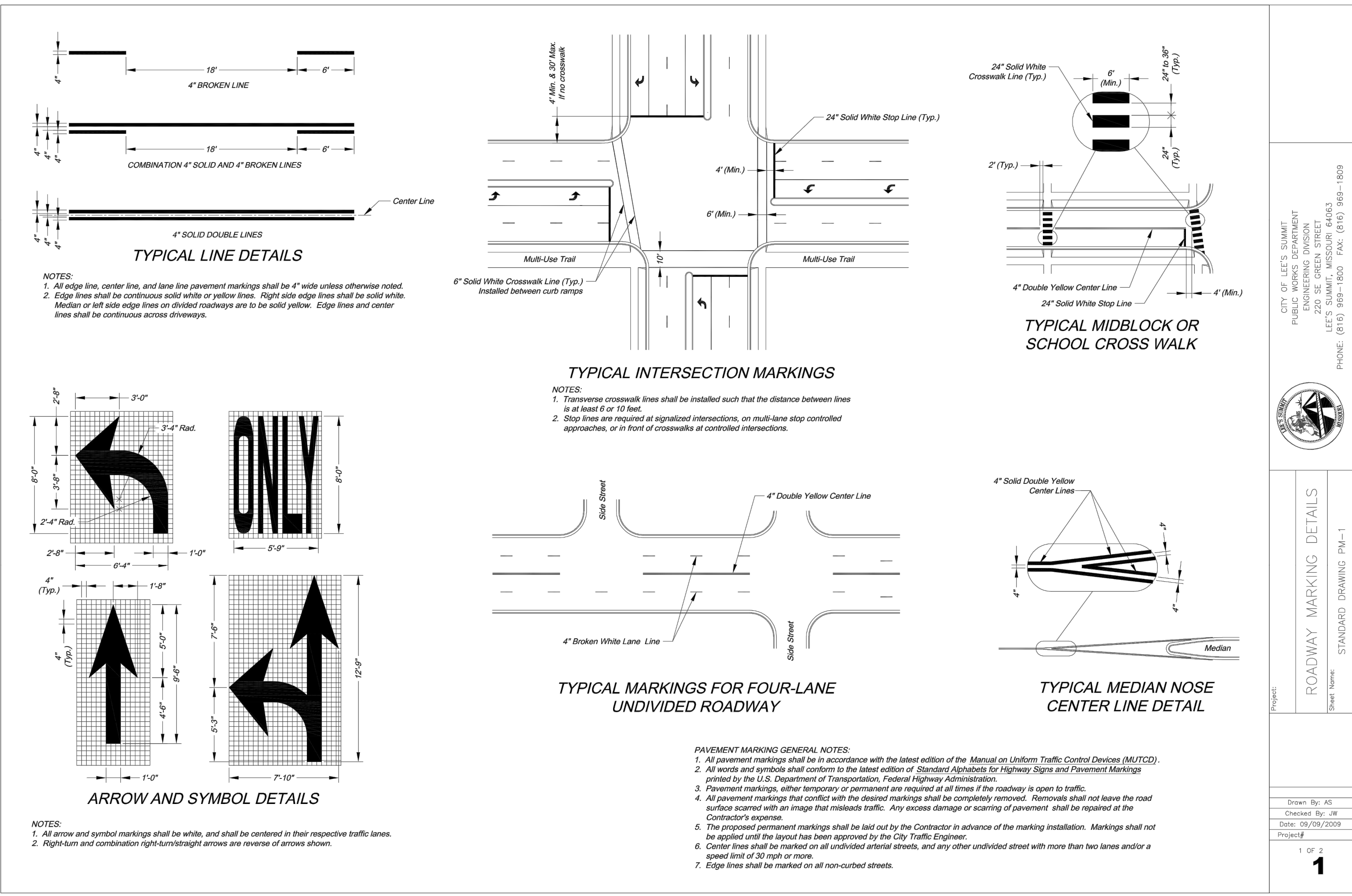
HAWTHORN RIDGE  
1ST PLAT

LEE'S SUMMIT, MO

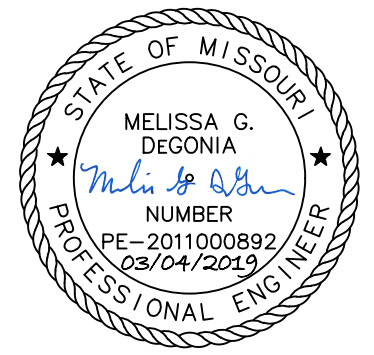
2018

drawn by: D.A.H.O  
checked by: M.G.D.  
designed by: P.M.D  
QA/QC by: K.S.J  
project no.: 017-0188  
date: 03.03.2017





## NOT AS BUILT

[illegible]

|                            |      |
|----------------------------|------|
| ROADWAY MARKING DETAILS    |      |
| HAWTHORN RIDGE<br>1ST PLAT | 2018 |

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