REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	1

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

COMMONWEALTH OF VIRGINIA

CITY OF WINCHESTER, VIRGINIA
DEPARTMENT OF PUBLIC SERVICES

WENTWORTH DRIVE SIDEWALKS FROM VALLEY AVENUE TO W. CEDARMEADE AVENUE

STATE PROJECT NO. EN14-138-102
VDOT UPC # 106054

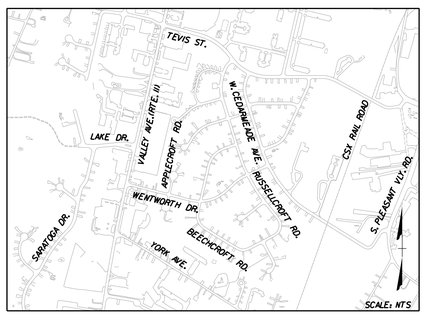
PAC PLANS
JULY 2019

INDEX OF SHEETS

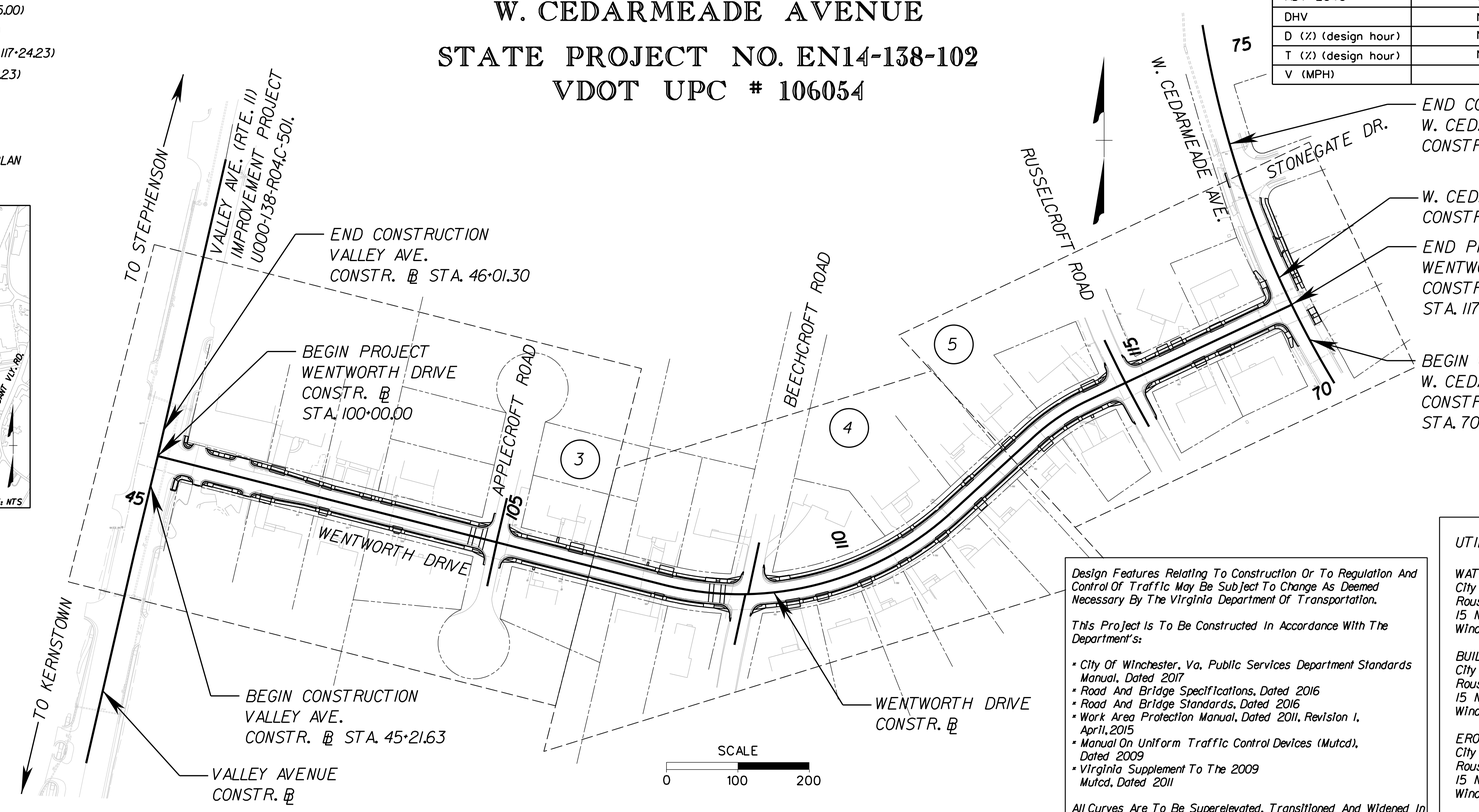
SHEET NO.:	DESCRIPTION:
1	TITLE SHEET
1A(1) - 1A(4)	SURVEY CONTROL/CONSTRUCTION ALIGNMENT DATA
1B*	UNDERGROUND UTILITY TEST HOLE INFORMATION
1C(1) - 1C(10)	TRANSPORTATION MANAGEMENT PLAN
1D(1) - 1D(4)	EROSION AND SEDIMENT CONTROL PLAN
2	GENERAL NOTES
2A	TYPICAL SECTIONS
2B(1) - 2B(3)	GEOMETRIC DETAILS
2C(1) - 2C(11)	DRIVEWAY AND CURB RAMP DETAILS
2D	DETAILS
3	PLAN (STA. 100+00.00 TO STA. 106+25.00)
3A	GRADING PLAN (STA. 100+00.00 TO STA. 106+25.00)
3B	PROFILE (STA. 100+00.00 TO STA. 106+25.00)
4	PLAN (STA. 106+25.00 TO STA. 112+75.00)
4A	GRADING PLAN (STA. 106+25.00 TO STA. 112+75.00)
4B	PROFILE (STA. 106+25.00 TO STA. 112+75.00)
5	PLAN (STA. 112+75.00 TO STA. 117+24.23)
5A	GRADING PLAN (STA. 112+75.00 TO STA. 117+24.23)
5B	PROFILE (STA. 112+75.00 TO STA. 117+24.23)
6	DRAINAGE DESCRIPTIONS
7A-7C	STORM DRAIN PROFILES
8(1)-8(4)	SIGNING AND MARKING PLAN
9A-9F	WATER MAIN AND SANITARY SEWER PLAN

* NOT INCLUDED IN THIS SUBMISSION.

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468



VICINITY MAP



FUNCTIONAL CLASSIFICATION AND TRAFFIC DATA			
	WENTWORTH DRIVE	VALLEY AVENUE ROUTE 11	W. CEDARMEADE AVENUE
	URBAN LOCAL STREET	URBAN PRINCIPAL ARTERIAL	URBAN MAJOR COLLECTOR
	Fr: 100+00.00 To: 117+24.23	Fr: 45+22.00 To: 46+01.00	Fr: 70+70.00 To: 73+30.00
VDOT GEOMETRIC STANDARD	GS-8	GS-5	GS-8
ADT 2018	1200	13000	1300
ADT 2040	1510	16300	1630
DHV	N/A	N/A	N/A
D (%) (design hour)	N/A	97	98
T (%) (design hour)	N/A	3	1
V (MPH)	25	35	25

RESPONSIBLE LAND DISTURBER

NAME: _____
CERTIFICATION #: _____
DATE: _____

THE RESPONSIBLE LAND DISTURBER IS THE PARTY RESPONSIBLE FOR CONSTURCTION & MAINTENANCE OF ALL THE LAND DISTURBING ACTIVITIES AS SET FORTH IN THESE PLANS.

Design Features Relating To Construction Or To Regulation And Control Of Traffic May Be Subject To Change As Deemed Necessary By The Virginia Department Of Transportation.

This Project Is To Be Constructed In Accordance With The Department's:

- City Of Winchester, Va. Public Services Department Standards Manual, Dated 2017
- Road And Bridge Specifications, Dated 2016
- Road And Bridge Standards, Dated 2016
- Work Area Protection Manual, Dated 2011, Revision 1, April, 2015
- Manual On Uniform Traffic Control Devices (Mutcd), Dated 2009
- Virginia Supplement To The 2009 Mutcd, Dated 2011

All Curves Are To Be Superelevated, Transitioned And Widened In Accordance With Standard Tc-5.11 Uls, Except Where Otherwise Noted.

UTILITY AND REGULATORY CONTACTS:

WATER AND SEWER SERVICE
City of Winchester Public Utilities
Rouss City Hall
15 North Cameron Street
Winchester, VA 22601

BUILDING INSPECTIONS
City of Winchester Inspections Department
Rouss City Hall
15 North Cameron Street
Winchester, VA 22601

EROSION AND SEDIMENT CONTROL
City of Winchester Engineering Department
Rouss City Hall
15 North Cameron Street
Winchester, VA 22601

PUBLIC ROAD IMPROVEMENTS
City of Winchester Engineering Department
Rouss City Hall
15 North Cameron Street
Winchester, VA 22601

NATURAL GAS
Washington Gas
350 Hillandale Lane
Winchester, VA 22602

ELECTRIC SERVICE
Shenandoah Valley
Electric Cooperative
3463 Valley Pike
Winchester, VA 22602
540-450-0111

TELEPHONE SERVICE
Verizon
404 Hillandale Lane
Winchester, VA 22602
540-665-3156

CONVENTIONAL SIGNS

STATE LINE
COUNTY LINE
CITY,TOWN OR VILLAGE
RIGHT OF WAY LINE
FENCE LINE
UNFENCED PROPERTY LINE
FENCED PROPERTY LINE
WATER LINE
SANITARY SEWER LINE
GAS LINE
ELECTRIC UNDERGROUND CABLE
TRAVELED WAY
GUARD RAIL
RETAINING WALL
RAILROADS
BASE OR SURVEY LINE
LEVEE OR EMBANKMENT
BRIDGES
CULVERTS
DROP INLET
POWER POLES
TELEPHONE OR TELEGRAPH POLES
TELEPHONE OR TELEGRAPH LINES
HEDGE
TREES
HEAVY WOODS
GROUND ELEVATION
GRADE ELEVATION

OWNER:
City of Winchster
15 North Cameron Street
Winchester, Virginia 22601
Contact: Kelly Henshaw
540-667-2387

ENGINEER:
RK&K
Responsive People | Creative Solutions
RK&K, LLP
12600 FAIR LAKES CIRCLE,
SUITE 300,
FAIRFAX, VA 22033

POPULATION 26,203 (2010 CENSUS)

STATE PROJECT NO.	SECTION	FEDERAL AID PROJECT NO.	TYPE CODE	UPC NO.	LENGTH INCLUDING BRIDGE(S) FEET	LENGTH INCLUDING BRIDGE(S) MILES	LENGTH EXCLUDING BRIDGE(S) FEET	LENGTH EXCLUDING BRIDGE(S) MILES	TYPE PROJECT	DESCRIPTION
EN14-138-102	P-101		PENG	106054	1724.23	0.33	1724.23	0.33	PRELIM. ENG.	WENTWORTH DRIVE SIDEWALK IMPROVEMENTS FROM VALLEY AVENUE (ROUTE 11) TO W. CEDARMEADE AVENUE

NOTE: PROJECT LENGTH BASED ON CONSTRUCTION BASELINE

REVISION BLOCK		
REV. NO.	SHEET NUMBER AND REVISION DESCRIPTION	DATE

PROJECT	SHEET NO.
EN14-138-102	1

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

SURVEY CONTROL/CONSTRUCTION ALIGNMENT DATA

COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
Lic. No. 37672
7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	1A(1)

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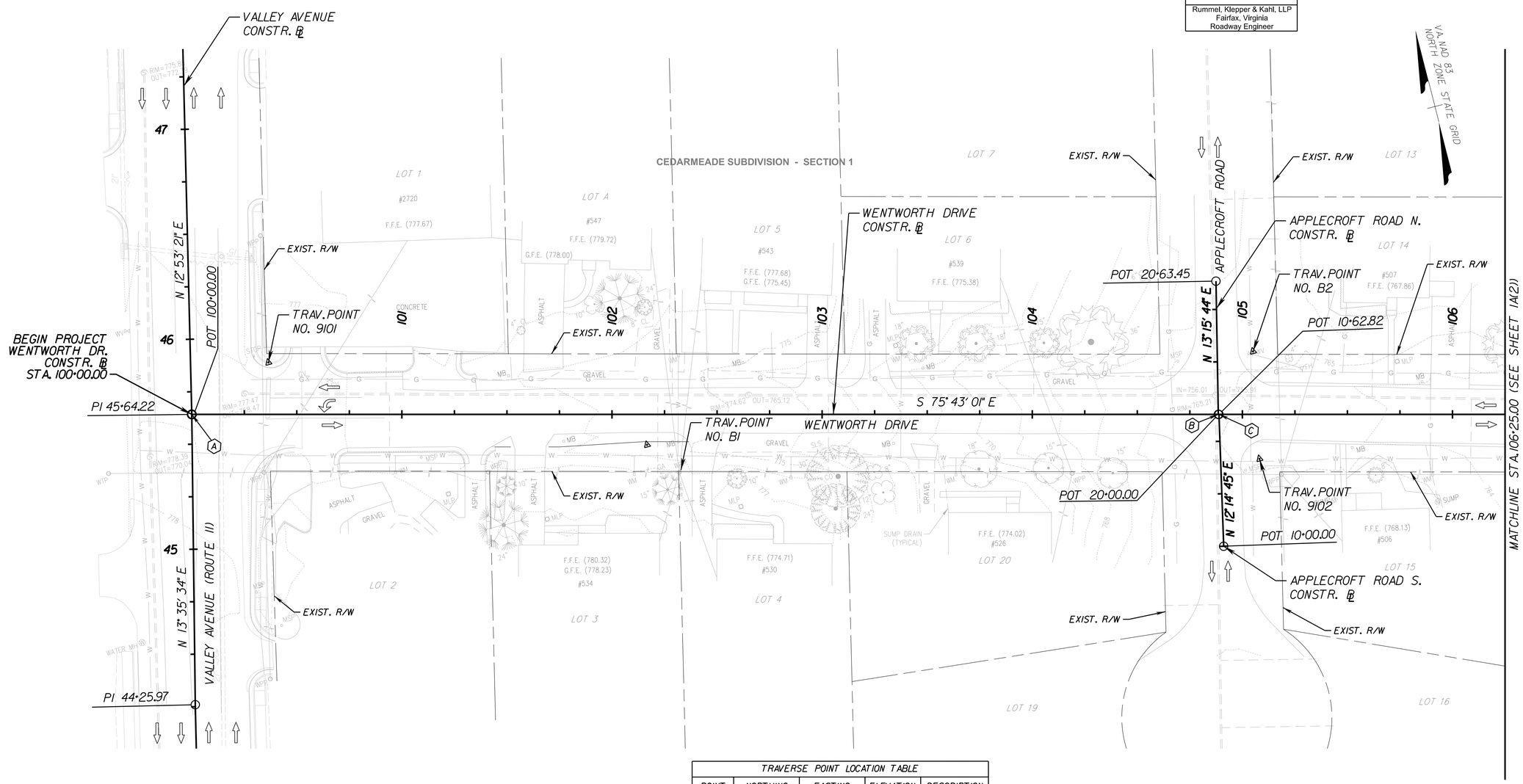

NOTES:

1. TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON AN ACTUAL FIELD SURVEY COMPLETED NOVEMBER 14, 2016.

2. ANY UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE.

3. HORIZONTAL ORIENTATION IS BASED ON VA. NAD 83 NORTH ZONE STATE GRID; VERTICAL DATUM IS BASED ON NAVD 88 ELEVATIONS ESTABLISHED USING GPS METHODS.

TRAVERSE POINT LOCATION TABLE

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
B1	7102294.0598	11571557.3175	775.35	PNT
B2	7102265.9482	11571847.7572	765.47	SPIKE
B3	7102200.1748	11572156.5980	761.08	SPIKE
B4	7102217.4700	11572401.2700	749.88	SPIKE
B5	7102399.2923	11572562.2191	745.41	SPIKE
9101	7102376.5140	11571392.3520	777.72	IRT/CAP
9102	7102215.6500	11571838.0860	764.94	IRT/CAP
9103	7102474.6670	11572672.5400	743.48	IRT/CAP
9104	7102565.1680	11572962.4330	742.12	IRT/CAP
C2177	7102717.7300	11572896.0100	739.67	16P NAIL

(A) WENTWORTH DRIVE CONSTR. ℄
STA. 100+00.00 =
VALLEY AVENUE ℄
STA. 45+64.22
DELTA ANGLE = 91° 23' 38.04" LEFT
DELTA ANGLE = 89° 18' 34.56" RIGHT

(B) WENTWORTH DRIVE CONSTR. ℄
STA. 104+88.55 =
APPLECROFT ROAD N. CONSTR. ℄
STA. 20+00.00
DELTA ANGLE = 91° 01' 15.16" LEFT

(C) WENTWORTH DRIVE CONSTR. ℄
STA. 104+88.87 =
APPLECROFT ROAD S. CONSTR. ℄
STA. 10+62.82
DELTA ANGLE = 87° 57' 46.43" RIGHT

SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	1A(1)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
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SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

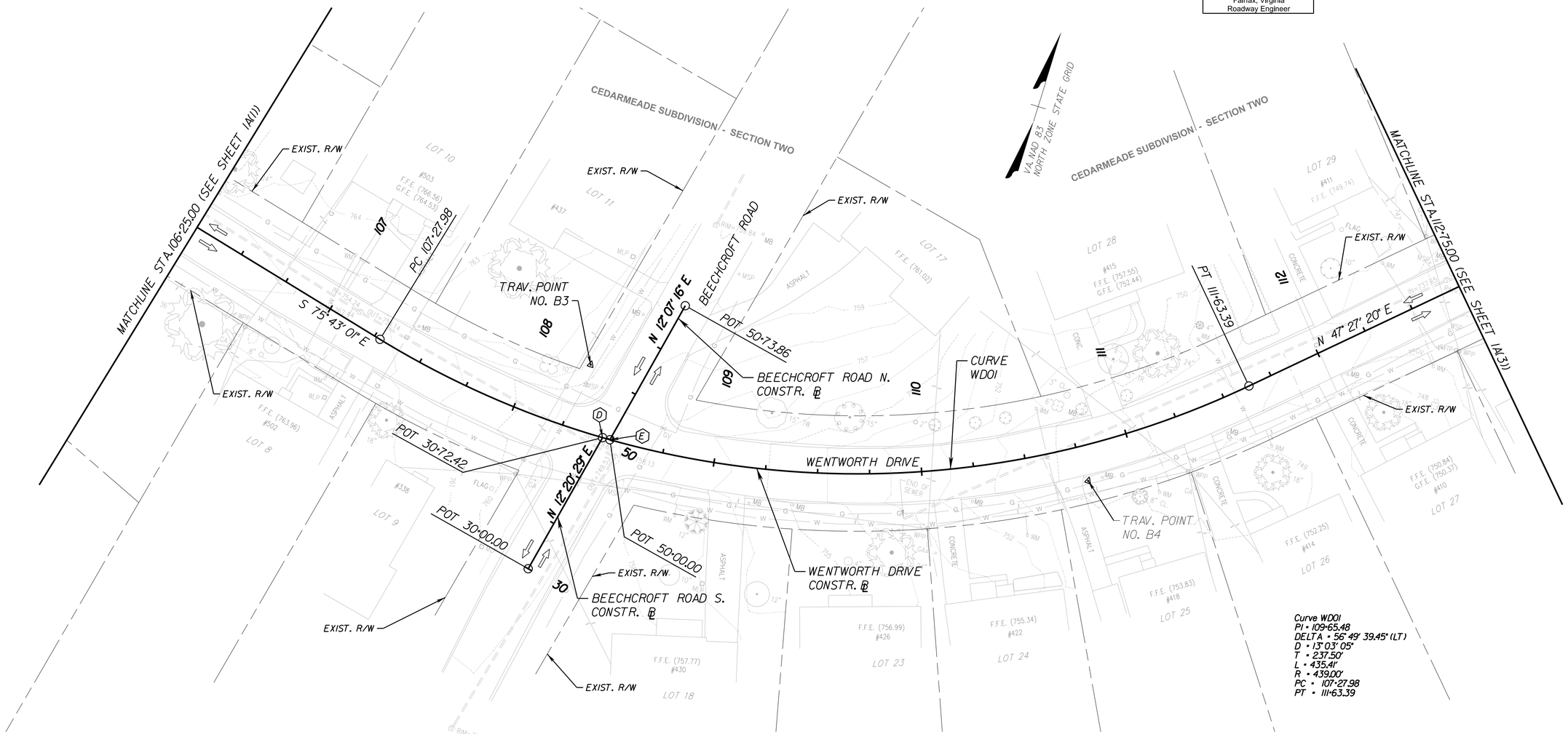
SURVEY CONTROL/CONSTRUCTION ALIGNMENT DATA

COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
Lic. No. 37672
7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	1A(2)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



Curve WD01
PI = 109+65.48
DELTA = 56° 49' 39.45" (LT)
D = 13° 03' 05"
T = 237.50'
L = 435.41'
R = 439.00'
PC = 107+27.98
PT = 111+63.39

TRAVERSE POINT LOCATION TABLE				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
B1	7102294.0598	11571557.3175	775.35	PNT
B2	7102265.9482	11571847.7572	765.47	SPIKE
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B5	7102399.2923	11572562.2191	745.41	SPIKE
9101	7102376.5140	11571392.3520	777.72	IRT/CAP
9102	7102215.6500	11571838.0860	764.94	IRT/CAP
9103	7102474.6670	11572672.5400	743.48	IRT/CAP
9104	7102565.1680	11572962.4330	742.12	IRT/CAP
C2177	7102717.7300	11572896.0100	739.67	16P NAIL

(D) WENTWORTH DRIVE CONSTR. ℄
STA. 108+45.16 =
BEECHCROFT ROAD S. CONSTR. ℄
STA. 30+72.42
DELTA ANGLE = 103° 21' 08.63" LEFT

(E) WENTWORTH DRIVE CONSTR. ℄
STA. 108+48.82 =
BEECHCROFT ROAD N. CONSTR. ℄
STA. 50+00.00
DELTA ANGLE = 76° 23' 26.30" LEFT

NOTES:

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SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	1A(2)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
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SURVEY CONTROL/CONSTRUCTION ALIGNMENT DATA

COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
Lic. No. 37672
7/8/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

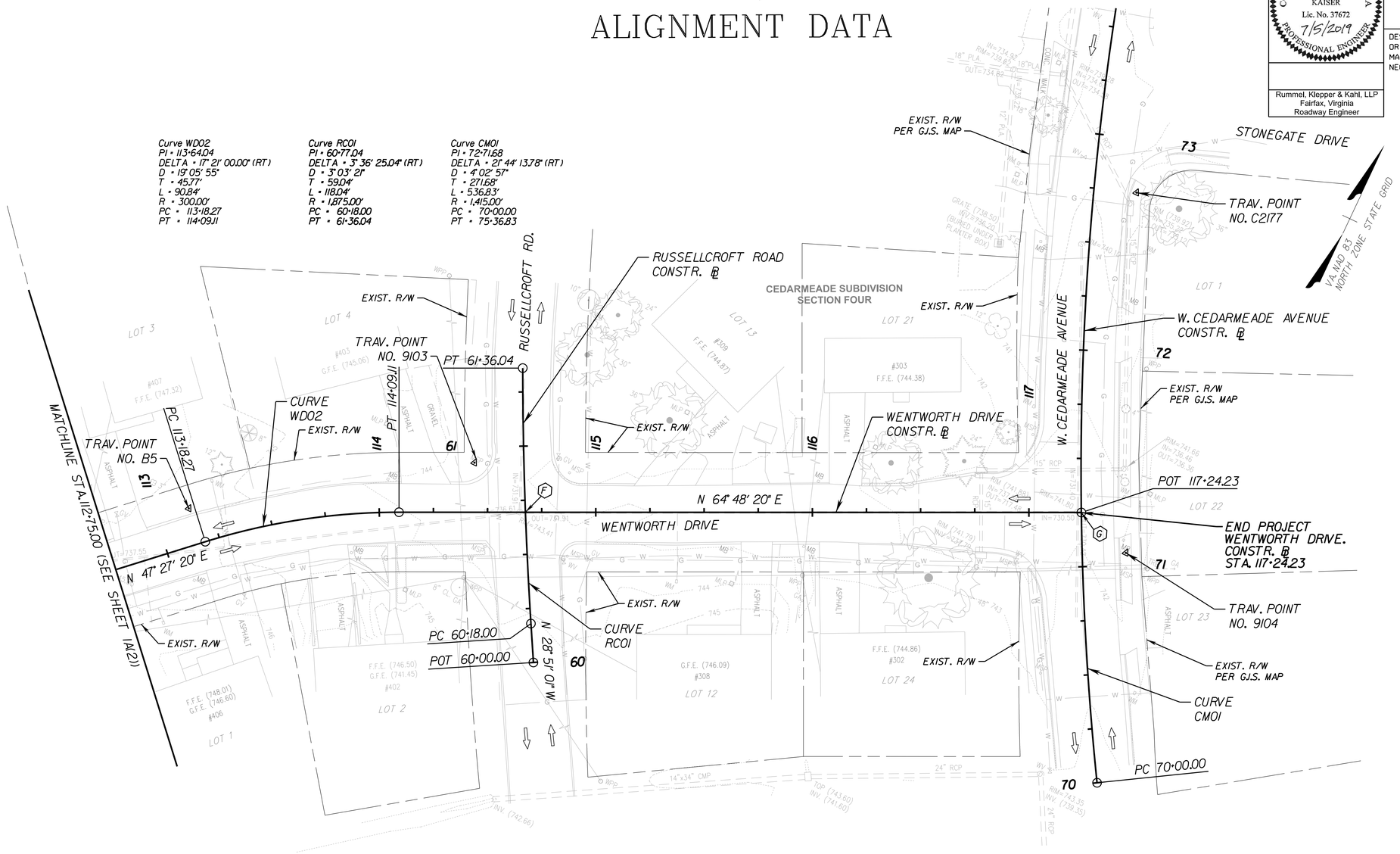
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	1A(3)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Curve WD02
PI = 113+64.04
DELTA = 17° 21' 00.00" (RT)
D = 19° 05' 55"
T = 45.77'
L = 90.84'
R = 300.00'
PC = 113+18.27
PT = 114+09.11

Curve RC01
PI = 60+77.04
DELTA = 3° 36' 25.04" (RT)
D = 3° 03' 21"
T = 59.04'
L = 118.04'
R = 1,875.00'
PC = 60+18.00
PT = 61+36.04

Curve CM01
PI = 72+71.68
DELTA = 21° 44' 13.78" (RT)
D = 4° 02' 57"
T = 271.68'
L = 536.83'
R = 1,415.00'
PC = 70+00.00
PT = 75+36.83



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9104	7102565.1680	1572962.4330	742.12	IRT/CAP
C2177	7102717.7300	1572896.0100	739.67	16P NAIL

(F) WENTWORTH DRIVE CONSTR. ℄
STA. 114+67.49 =
RUSSELLCROFT ROAD CONSTR. ℄
STA. 60+69.45
DELTA ANGLE = 92° 04' 59.72" LEFT
DELTA ANGLE = 87° 55' 00.28" RIGHT

(G) WENTWORTH DRIVE CONSTR. ℄
STA. 117+24.23 =
WEST CEDARMEADE AVENUE CONSTR. ℄
STA. 71+25.03
DELTA ANGLE = 90° 49' 24.89" LEFT
DELTA ANGLE = 89° 10' 35.11" RIGHT

SCALE 0 25' 50'

PROJECT	SHEET NO.
EN14-138-102	1A(3)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

SURVEY CONTROL/CONSTRUCTION ALIGNMENT DATA

COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
Lic. No. 37672
7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	1A(4)

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Chain WENTWORTH DRIVE CONSTR. B/L contains:
WD1 CUR WD01 CUR WD02 WD4

Beginning chain WENTWORTH DRIVE CONSTR. B/L description
****

Point WD1 N 7,102,361.5119 E 11,571,350.9098 Sta 100+00.0000

Course from WD1 to PC WD01 S 75° 43' 01.0250" E Dist 727.9750

Curve Data

Curve WD01
P.I. Station 109+65.4782 N 7,102,123.3165 E 11,572,286.5439
Delta = 56° 49' 39.4480" (LT)
Degree = 13° 03' 05.1495"
Tangent = 237.5032
Length = 435.4130
Radius = 439.0000
External = 60.1280
Long Chord = 417.7842
Mid.Ord. = 52.8846
P.C. Station 107+27.9750 N 7,102,181.9115 E 11,572,056.3822
P.T. Station 111+63.3880 N 7,102,283.9075 E 11,572,461.5247
C.C. N 7,102,607.3415 E 11,572,164.6889
Back = S 75° 43' 01.0250" E
Ahead = N 47° 27' 19.5270" E
Chord Bear = N 75° 52' 09.2510" E

Course from PT WD01 to PC WD02 N 47° 27' 19.5270" E Dist 154.8824

Curve Data

Curve WD02
P.I. Station 113+64.0429 N 7,102,419.5831 E 11,572,609.3575
Delta = 17° 21' 00.0003" (RT)
Degree = 19° 05' 54.9354"
Tangent = 45.7725
Length = 90.8444
Radius = 300.0000
External = 3.4718
Long Chord = 90.4977
Mid.Ord. = 3.4321
P.C. Station 113+18.2704 N 7,102,388.6334 E 11,572,575.6345
P.T. Station 114+09.1148 N 7,102,439.0681 E 11,572,650.7755
C.C. N 7,102,167.6079 E 11,572,778.4836
Back = N 47° 27' 19.5270" E
Ahead = N 64° 48' 19.5273" E
Chord Bear = N 56° 07' 49.5271" E

Course from PT WD02 to WD4 N 64° 48' 19.5273" E Dist 315.1109

Point WD4 N 7,102,573.2088 E 11,572,935.9091 Sta 117+24.2257

****
Ending chain WENTWORTH DRIVE CONSTR. B/L description

Chain VALLEY AVENUE CONSTR. B/L contains:
VA1 VA2 VA3 VA4

Beginning chain VALLEY AVENUE CONSTR. B/Ldescription
****

Point VA1 N 7,101,932.1399 E 11,571,250.6839 Sta 41+23.3000

Course from VA1 to VA2 N 12° 55' 54.2846" E Dist 302.6712

Point VA2 N 7,102,227.1346 E 11,571,318.4187 Sta 44+25.9712

Course from VA2 to VA3 N 13° 35' 33.5626" E Dist 138.2495

Point VA3 N 7,102,361.5119 E 11,571,350.9098 Sta 45+64.2207

Course from VA3 to VA4 N 12° 53' 20.9817" E Dist 425.7414

Point VA4 N 7,102,776.5261 E 11,571,445.8781 Sta 49+89.9622

****
Ending chain VALLEY CONSTR. B/L description

Chain APPLECROFT ROAD N. CONSTR. B/L contains:
ACN1 ACN2

Beginning chain APPLECROFT ROAD N. CONSTR. B/L description
****

Point ACN1 N 7,102,240.9808 E 11,571,824.3572 Sta 20+00.0000

Course from ACN1 to ACN2 N 13° 15' 43.8197" E Dist 63.4522

Point ACN2 N 7,102,302.7408 E 11,571,838.9136 Sta 20+63.4522

****
Ending chain APPLECROFT ROAD N. CONSTR. B/L description

Chain APPLECROFT ROAD S. CONSTR. B/L contains:
ACS1 ACS2

Beginning chain APPLECROFT ROAD S. CONSTR. B/L description
****

Point ACS1 N 7,102,179.5134 E 11,571,811.3427 Sta 10+00.0000

Course from ACS1 to ACS2 N 12° 14' 45.4049" E Dist 62.8179

Point ACS2 N 7,102,240.9020 E 11,571,824.6670 Sta 10+62.8179

****
Ending chain APPLECROFT ROAD S. CONSTR. B/L description

Chain BEECHCROFT ROAD N. CONSTR. B/L contains:
BCN1 BCN2

Beginning chain BEECHCROFT ROAD N. CONSTR. B/L description
****

Point BCN1 N 7,102,168.4895 E 11,572,176.0908 Sta 50+00.0000

Course from BCN1 to BCN2 N 12° 07' 15.9929" E Dist 73.8551

Point BCN2 N 7,102,240.6980 E 11,572,191.5988 Sta 50+73.8551

****
Ending chain BEECHCROFT ROAD N. CONSTR. B/L description

Chain BEECHCROFT ROAD S. CONSTR. B/L contains:
BCS1 BCS2

Beginning chain BEECHCROFT ROAD S. CONSTR. B/L description
****

Point BCS1 N 7,102,097.6609 E 11,572,156.9564 Sta 30+00.0000

Course from BCS1 to BCS2 N 12° 20' 28.7508" E Dist 72.4224

Point BCS2 N 7,102,168.4097 E 11,572,172.4356 Sta 30+72.4224

****
Ending chain BEECHCROFT ROAD S. CONSTR. B/L description

Chain RUSSELLCROFT ROAD CONSTR. B/L contains:
RC1 CUR RC01 RC3

Beginning chain RUSSELLCROFT ROAD CONSTR. B/L description
****

Point RC1 N 7,102,402.7467 E 11,572,736.4823 Sta 60+00.0000

Course from RC1 to PC RC01 N 28° 51' 00.5065" W Dist 17.9999

Curve Data

Curve RC01
P.I. Station 60+77.0381 N 7,102,470.2231 E 11,572,699.3099
Delta = 3° 36' 25.0414" (RT)
Degree = 3° 03' 20.7897"
Tangent = 59.0382
Length = 118.0374
Radius = 1,875.0000
External = 0.9292
Long Chord = 118.0179
Mid.Ord. = 0.9288
P.C. Station 60+17.9999 N 7,102,418.5125 E 11,572,727.7970
P.T. Station 61+36.0373 N 7,102,523.6235 E 11,572,674.1324
C.C. N 7,103,323.2382 E 11,574,370.0809
Back = N 28° 51' 00.5065" W
Ahead = N 25° 14' 35.4652" W
Chord Bear = N 27° 02' 47.9858" W

Point RC3 N 7,102,523.6234 E 11,572,674.1324 Sta 61+36.0374

****
Ending chain RUSSELLCROFT ROAD CONSTR. B/L description

Chain W. CEDARMEADE AVENUE CONSTR. B/L contains:
CUR CM01

Beginning chain W. CEDARMEADE AVENUE CONSTR. B/L description
****

Curve Data

Curve CM01
P.I. Station 72+71.6814 N 7,102,696.0962 E 11,572,855.3876
Delta = 21° 44' 13.7798" (RT)
Degree = 4° 02' 57.0181"
Tangent = 271.6814
Length = 536.8298
Radius = 1,415.0000
External = 25.8455
Long Chord = 533.6161
Mid.Ord. = 25.3819
P.C. Station 70+00.0000 N 7,102,463.4174 E 11,572,995.6422
P.T. Station 75+36.8298 N 7,102,964.1731 E 11,572,811.2786
C.C. N 7,103,193.9061 E 11,574,207.5049
Back = N 31° 04' 50.8998" W
Ahead = N 9° 20' 37.1200" W
Chord Bear = N 20° 12' 44.0099" W

****
Ending chain W. CEDARMEADE AVENUE CONSTR. B/L description

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

TRANSPORTATION MANAGEMENT PLAN

COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
Lic. No. 37672
7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	IC(1)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

TEMPORARY TRAFFIC CONTROL PLAN

GENERAL NOTES:

1. TMP/SOC TYPE A PROJECT INFORMATION:

   A. IDENTIFY THE PROJECT'S TMP TYPE:
   THIS PROJECT'S TMP/SOC PLAN HAS BEEN DESIGNED IN CONFORMANCE WITH A TYPE A TMP/SOC PLAN.

   B. IDENTIFY THE WORK ZONE LOCATION, LENGTH, AND WIDTHS:
   THE PROJECT LOCATION IS AS SHOWN ON SHEET 1.
   THE WORK ZONE AREAS HAVE BEEN DELINEATED AS DETAILED ON THE TMP/SOC PLAN SHEET IC(2)-IC(10).

   C. NOTE THE HOURS THE CONSTRUCTION AREA WILL BE ACTIVE:
   THE CONSTRUCTION AREA SHALL BE CONSIDERED ACTIVE WHEN ANY IMPACT TO TRAFFIC OCCURS. (1ST CONE IN ROAD)

   LANE CLOSURE HOURS HAVE THE FOLLOWING LIMITATIONS:

	SINGLE LANE CLOSURES (URBAN PRINCIPAL ARTERIAL)			
	MONDAY TO THURSDAY	FRIDAY	SATURDAY TO SUNDAY	SUNDAY TO MONDAY
DAY	9:30 AM TO 3:00 PM	9:30 AM TO 2:00 PM	–	–
NIGHT	10:00 PM TO 5:00 AM	–	–	–

	SINGLE LANE CLOSURES (LOCAL STREET)			
	MONDAY TO THURSDAY	FRIDAY	SATURDAY TO SUNDAY	SUNDAY TO MONDAY
DAY	9:00 AM TO 3:30 PM	9:30 AM TO 2:00 PM	-	-
NIGHT	9:00 PM TO 5:00 AM	-	-	-

   WEEKEND WORK SHALL NOT BE ALLOWED UNLESS APPROVED BY THE CITY ENGINEER.

   NO LANE CLOSURES WILL BE ALLOWED FROM NOON ON THE DAY BEFORE A HOLIDAY UNTIL NOON ON THE WORKDAY FOLLOWING THE HOLIDAY. HOLIDAYS INCLUDE ALL STATE AND FEDERAL HOLIDAYS.

   NIGHT TIME WORK SHALL NOT BE PERMITTED UNLESS APPROVED BY THE CITY.

   D. THE TMP/SOC PLAN, DURING CONSTRUCTION, SHALL BE IN ACCORDANCE WITH SECTIONS 512, 701, 703 & 704 OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS, DATED 2016; THE 2011 VIRGINIA WORK AREA PROTECTION MANUAL (VA WAPM), REVISION 1, APRIL 1, 2015; THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), 2009 EDITION; AND THE VIRGINIA SUPPLEMENT TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2011 EDITION.

   E. THE CONTRACTOR SHALL:
   DESIGNATE A PERSON ASSIGNED TO THE PROJECT WHO WILL HAVE THE PRIMARY RESPONSIBILITY, WITH SUFFICIENT AUTHORITY, FOR IMPLEMENTING THE TMP/SOC AND OTHER SAFETY AND MOBILITY ASPECTS OF THE PERMIT WORK. THIS PERSON SHALL COORDINATE WITH THE FAIRFAX COUNTY CONSTRUCTION INSPECTOR FOR THE DURATION OF CONSTRUCTION.

   ENSURE THAT PERSONNEL ASSIGNED TO THE PROJECT ARE TRAINED IN TRAFFIC CONTROL TO A LEVEL COMMENSURATE WITH THEIR RESPONSIBILITIES IN ACCORDANCE WITH VDOT'S WORK ZONE TRAFFIC CONTROL TRAINING GUIDELINES.

   INFORM THE ENGINEER OF ANY WORK REQUIRING LANE SHIFTS, LANE CLOSURES, AND/OR PHASE CHANGES A MINIMUM OF ONE WEEK PRIOR TO IMPLEMENTING THIS ACTIVITY.

   PERFORM REVIEWS OF THE CONSTRUCTION AREA, TO ENSURE COMPLIANCE WITH CONTRACT DOCUMENTS, AT REGULARLY SCHEDULED INTERVALS AT THE DIRECTION OF THE ENGINEER. CONTRACTOR SHALL MAINTAIN A COPY OF THE TEMPORARY TRAFFIC CONTROL PLAN AT THE WORK SITE AT ALL TIMES.

   COORDINATE WITH THE CITY OF WINCHESTER'S POLICE DEPARTMENT AND FIRE/RESCUE DEPARTMENT FOR ANY LANE CLOSURES AND ANY DETOURS OF ANY NATURE.

   SCHEDULE ALL PHASES OF CONSTRUCTION IN SUCH A MANNER THAT WATER, SANITARY SEWER, CABLE, FIBER CABLE/OPTIC CABLE, ANY OVERHANGING UTILITIES, AND ANY UNDERGROUND UTILITIES SERVICES WILL NOT BE INTERRUPTED.

2. THIS TMP/SOC PLAN IS INTENDED AS A GUIDE. IT IS NOT TO ENUMERATE EVERY DETAIL WHICH MUST BE CONSIDERED IN THE CONSTRUCTION OF EACH PHASE, BUT ONLY TO SHOW THE GENERAL HANDLING OF EXISTING TRAFFIC. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PRESENT A FORMAL TMP/SOC PLAN, WITH CONSTRUCTION SIGNAGE, TO THE ENGINEER FOR APPROVAL PRIOR TO ANY CONSTRUCTION ACTIVITY THAT MAY AFFECT THE EXISTING TRAFFIC.

3. ALL AREAS EXCAVATED BELOW THE EXISTING PAVEMENT SURFACE AND WITHIN THE CLEAR ZONE AT THE CONCLUSION OF EACH WORKDAY, SHALL BE BACKFILLED TO FORM ON APPROXIMATE 6:1 WEDGE AGAINST THE EXISTING PAVEMENT OR NEWLY CONSTRUCTED PAVEMENT SURFACE FOR THE SAFETY AND PROTECTION OF VEHICULAR TRAFFIC.

4. TRAFFIC BARRIER SERVICE IS NOT PROPOSED FOR THE CONSTRUCTION OF THIS PROJECT.

5. IF A GEOTECHNICAL INVESTIGATION HAS BEEN PERFORMED FOR THE PROJECT, THE CONTRACTOR SHALL FOLLOW THE GEOTECHNICAL RECOMMENDATIONS PROVIDED BY THE CITY.

6. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE FOR THE DURATION OF THE PROJECT. CONTRACTOR SHALL ADD ANY ADDITIONAL TEMPORARY MEASURES NECESSARY TO FACILITATE PROPER, POSITIVE DRAINAGE FOR THE DURATION OF CONSTRUCTION.

7. WHERE GROUP 2 CHANNELIZING DEVICES ARE USED TO SEPARATE THE CONSTRUCTION AREA AND TRAFFIC, A MINIMUM CLEAR ZONE AREA AS DEFINED IN THE VA WAPM IS TO BE MAINTAINED.

8. THE CONTRACTOR SHALL COORDINATE WITH CITY OF WINCHESTER FOR LOCATION(S) OF THE CONSTRUCTION STAGING AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND/OR EASEMENTS.

9. TEMPORARY RELOCATION OF BUS STOP DURING CONSTRUCTION SHALL BE COORDINATED WITH WIN TRAN. CONTRACTOR SHALL CONTACT WIN TRAN AT (540) 667 - 1815 AT LEAST TWO WEEKS IN ADVANCE OF WORK WHICH WILL IMPACT EXISTING BUS ROUTES OR STOPS.

10. IMPLEMENTING THE TRANSPORTATION MANAGEMENT PLAN:

    DURING THE FIRST DAY OF THE NEW WORK ZONE TRAFFIC PATTERN, THE PROJECT'S MANAGER AND PROJECT'S CONSTRUCTION INSPECTOR SHALL INSPECT THE WORK ZONE TO ENSURE COMPLIANCE WITH THE TMP. ON THE THIRD TO FOURTH DAY OF THE IMPLEMENTATION OF THE TMP'S NEW WORK ZONE TRAFFIC PATTERN, THE CONSTRUCTION INSPECTOR SHALL CONDUCT AN ON-SITE REVIEW OF THE WORK ZONE'S PERFORMANCE IN COORDINATION WITH THE ENGINEER AND RECOMMEND TO THE CONTRACTOR ANY REQUIRED CHANGES TO THE TMP TO ENHANCE THE WORK ZONE'S SAFETY AND MOBILITY. ALL SUCH CHANGES SHALL BE DOCUMENTED. AN ON-SITE REVIEW OF THE PROJECT'S WORK ZONE TRAFFIC CONTROL BY THE CITY'S CONSTRUCTION INSPECTOR AND THE CONTRACTOR SHALL BE CONDUCTED WITHIN 48 HOURS OF ANY FATAL INCIDENT/CRASH WITHIN THE WORK ZONE.

11. EVALUATION OF THE TRANSPORTATION MANAGEMENT PLAN:

    A PERFORMANCE ASSESSMENT OF THE TMP INCLUDING AREA WIDE IMPACTS ON ADJACENT ROADWAYS SHALL BE PERFORMED BY CITY OF WINCHESTER, IF REQUESTED BY VDOT.

12. PUBLIC COMMUNICATIONS PLAN:

    THE CONTRACTOR SHALL BE RESPONSIBLE FOR:

    A. NOTIFYING THE PROJECT MANAGER AND CONSTRUCTION INSPECTOR TWO WEEKS IN ADVANCE OF ANY SCHEDULED WORK PLANS AND TRAFFIC DELAYS.

    B. NOTIFYING THE PROJECT MANAGER, CONSTRUCTION INSPECTOR, AND CORRESPONDING ENGINEER OF ANY UNSCHEDULED TRAFFIC DELAYS.

13. TRANSPORTATION OPERATIONS:

    THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND PROVIDING THE FOLLOWING:

    A. NOTIFY THE VDOT STAUNTON DISTRICT OFFICE ONE WEEK IN ADVANCE IN ORDER TO PLACE LANE CLOSURE INFORMATION ON THE 511 SYSTEM AND VA-TRAFFIC.

    B. POST A LIST OF LOCAL EMERGENCY RESPONSE AGENCIES INSIDE THE PROJECT'S CONSTRUCTION OFFICE/TRAILER.

    C. IMMEDIATELY REPORT ANY TRAFFIC INCIDENTS THAT MAY OCCUR IN THE WORK ZONE.

    D. NOTIFY THE PROJECT'S CONSTRUCTION INSPECTOR AND CORRESPONDING ENGINEER OF ANY INCIDENTS AND EXPECTED TRAFFIC DELAYS.

    E. WITHIN 24 HOURS OF ANY INCIDENTS WITHIN THE CONSTRUCTION WORK ZONE, A REVIEW OF THE TRAFFIC CONTROLS SHALL BE COMPLETED AND NECESSARY ADJUSTMENTS MADE TO REDUCE THE FREQUENCY AND SEVERITY OF ANY FUTURE INCIDENTS.

    CONTACT NUMBERS:

    CITY PROJECT MANAGER - KELLY HENSHAW - (540) 667-2387
    CITY CONSTRUCTION MANAGER - TBD
    CITY CONSTRUCTION INSPECTOR - TBD
    POLICE/AMBULANCE/FIRE SAFETY/HAZMAT SPILLS - 911
    VDOT STAUNTON DISTRICT OFFICE (REPORT LANE OR ROAD CLOSURES) - (540) 332-9201 OR (540) 332-9264
    VIRGINIA STATE POLICE - (540) 662-3313
    VDOT STAUNTON DISTRICT OFFICE - (540) 332-9075 (8:15 AM - 4:00 PM)
    CITY OF WINCHESTER ENGINEERING DEPARTMENT - (540) 667-1815

    NON-EMERGENCY NUMBERS:

    CITY OF WINCHESTER POLICE DEPARTMENT - (540) 662-4131
    CITY OF WINCHESTER FIRE & RESCUE - (540) 662-2298

GENERAL CONSTRUCTION NOTES:

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL INSTALL PROJECT LIMIT SIGNAGE IN ACCORDANCE WITH VA WAPM FIGURE TTC-53.0 (NOT GRAPHICALLY SHOWN ON THE PLANS). FOR THE DURATION OF CONSTRUCTION, THE CONTRACTOR SHALL ENSURE THIS SIGNAGE REMAINS IN COMPLIANCE IF THE PROJECT LIMITS CHANGE.

2. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING PROPER DRAINAGE FOR THE DURATION OF ALL PHASES AND INSTALLING ANY NECESSARY MEASURES TO FACILITATE PROPER DRAINAGE.

3. THE CONTRACTOR SHALL MAKE ANY NECESSARY ADJUSTMENTS DURING BOTH WORK AND NON-WORK HOURS TO ENSURE THE PROTECTION AND SAFETY OF THE ADJACENT PROPERTY OWNERS, PEDESTRIANS, VEHICULAR TRAFFIC AND THE GENERAL PUBLIC FROM ANY CONSTRUCTION RELATED ACTIVITY, CONSTRUCTION EQUIPMENT AND THE CONSTRUCTION SITE ITSELF.

4. THE CONTRACTOR WILL DEVELOP TRAFFIC CONTROL PLANS AT NO COST TO THE COUNTY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE SAFE TRAVEL ON THE ROADWAYS WITHIN THE WORK ZONE.

5. THE PUBLIC SHALL BE NOTIFIED OF THE EXPECTED CONSTRUCTION SCHEDULE ON THE CITY'S WEB SITE FOR THIS PROJECT. INFORMATION OF THE POTENTIAL FOR BACK-UPS DURING THE PEAK HOURS OF OPERATION IS PROVIDED BY THE VDOT STAUNTON DISTRICT OFFICE. THE ENGINEER NEEDS TO COORDINATE WITH THE CITY OF WINCHESTER AND VDOT.

6. THE VDOT STAUNTON DISTRICT OFFICE SHALL BE NOTIFIED OF LANE AND ROADWAY CLOSURE INFORMATION FOR DISTRIBUTION ON THE 511 SYSTEM AND VIRGINIA OPERATIONS INFORMATION SYSTEM (VOIS). EMERGENCY RESPONSE PROFESSIONALS SHALL RESPOND TO TRAFFIC INCIDENTS IN THE WORK ZONE AS SOON AS POSSIBLE.

7. THE APPROPRIATE CLEAR ZONE SHALL BE MAINTAINED FREE OF PARKED EQUIPMENT AND STORED MATERIAL, OR PROTECTED AT THE END OF EACH DAY IN ACCORDANCE WITH THE WORK AREA PROTECTION MANUAL. EQUIPMENT AND MATERIAL SHALL NOT BE STORED WITHIN THE ESTABLISHED CLEAR ZONE AND/OR DEFLECTION ZONE OF PHYSICAL BARRIERS IN ACCORDANCE WITH THE WORK AREA PROTECTION MANUAL.

8. CONTRACTOR SHALL REQUIRE THE APPROVAL OF THE ENGINEER FOR SELECTED LOCATIONS OF ANY STAGING AREA FOR STAGING AND FOR MATERIALS OR EQUIPMENT STORAGE.

9. ACCESS TO PRIVATE AND COMMERCIAL DRIVEWAYS WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES.

CONSTRUCTION NARRATIVE:

1. CONTRACTOR SHALL COORDINATE CONSTRUCTIONWORK WITHIN THE VICINITY OF VALLEY AVENUE WITH THE VALLEY AVENUE IMPROVEMENTS PROJECT NO.U000-138-R04,C-501.

2. SET THE CONTRUCTION SIGNS AND TEMPORARY TRAFFIC CONTROL DEVICES PER VA WAPM FIGURES TTC-1J, TTC-4J, TTC-16J, TTC-17J, TTC-22J, TTC-23J, TTC-26J, TTC-27J, TTC-28J, TTC-35.0, AND TTC-53.0.

3. THE CONTRACTOR SHALL INSTALL EROSION AND SEDIMENT CONTROLS AS APPROPRIATE PRIOR TO STARTING WORK.

4. PRIOR TO THE END OF EACH WORKDAY, COVER AND PROTECT UNFINISHED EXCAVATED AREAS WITH TEMPORARY BACKFILL OR STEEL PLATES. THE CONTRACTOR SHALL ENSURE THAT PEDESTRIAN AND VEHICULAR TRAFFIC CAN MANUEVER THROUGH THE AREA SAFELY AT ALL TIMES.

5. PHASE 1

   A. CONSTRUCT PROPOSED WATER MAIN IMPROVEMENTS AND SANITARY SEWER MANHOLE IMPROVEMENTS ON VALLEY AVEUNE, WENTWORTH DRIVE, APPLECROFT ROAD, BEECHCROFT ROAD, RUSSELLCROFT ROAD, AND W. CEDARMEADE AVENUE.

   B. INSTALL PROPOSED DRAINAGE PIPE AND DRAINAGE INLET IMPROVEMENTS ON WENTWORTH DRIVE, APPLECROFT ROAD, BEECHCROFT ROAD, RUSSELLCROFT ROAD, AND W. CEDARMEADE AVENUE.

6. PHASE 2

   A. CONSTRUCT CURB AND GUTTER, SIDEWALK, AND DRIVEWAY IMPROVEMENTS ON VALLEY AVENUE, WENTWORTH DRIVE, APPLECROFT ROAD, BEECHCROFT ROAD, RUSSELLCROFT ROAD, AND W. CEDARMEADE AVENUE. CONSTRUCT ONE SIDE OF THE ROADWAY AT A TIME.

   B. MILL EXISTING PAVEMENT AND RESURFACE WENTWORTH DRIVE AND INTERSECTING SIDESTREETS AS SHOWN ON PLAN SHEET NOS. 3, 4, AND 5.

   C. COMPLETE ANY REMAINING ITEMS OF WORK.

   D. ONCE CONSTRUCTION IS COMPLETE, REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL ITEMS.

   E. REMOVE TEMPORARY TRAFFIC CONTROL DEVICES AND CONSTRUCTION SIGNS.

CONSTRUCTION PAVEMENT WORKING GENERAL NOTES:

(DURING CONSTRUCTION ONLY)

1. ALL CONSTRUCTION PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF EACH OF THE FOLLOWING AND ANY REVISION THEREOF:

   A. MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), 2009

   B. THE VIRGINIA SUPPLEMENT TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2011

   C. THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS, 2016

   D. THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE STANDARDS, 2016

2. ALL CONSTRUCTION PAVEMENT MARKINGS SHALL BE OF TYPE A OR TYPE D, CLASS II, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. DURING CONSTRUCTION ANY PAVEMENT MARKINGS WHICH WILL CONFLICT WITH THOSE SHOWN ON THE TMP/SOC PLANS, OR AS DIRECTED BY THE ENGINEER, SHALL BE COVERED WITH TYPE E, NON-REFLECTIVE BLACK TAPE (OR ERADICATED AT THE DIRECTION OF THE ENGINEER).

3. ELONGATED ARROWS SHALL BE IN ACCORDANCE WITH MUTCD AND VDOT ROAD AND BRIDGE STANDARD.

TRANSPORTATION OPERATION PLAN:

THE PUBLIC AFFAIRS SECTION AND THE VDOT STAUNTON DISTRICT OFFICE SHALL BE NOTIFIED BY THE CONSTRUCTION PROJECT MANAGER OF LANE CLOSURE INFORMATION FOR DISTRIBUTION ON THE 511 SYSTEM AND VIRGINIA OPERATIONS INFORMATION SYSTEM (VOIS). THE CONTRACTOR SHALL ACQUIRE APPROVAL FROM VDOT 4 WEEKS PRIOR TO CONSTRUCTION. FOLLOWING ANY TRAFFIC INCIDENTS, THE CONTRACTOR SHALL CLEAN AND RESTORE THE SITE FOR NORMAL OPERATIONS AS SOON AS POSSIBLE.

ADVANCED WORK ZONE TRAFFIC CONTROL TRAINING

DESIGNER
MATTHEW J. KAISER
VERIFICATION NO.:
061915006

PROJECT	SHEET NO.
EN14-138-102	IC(1)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

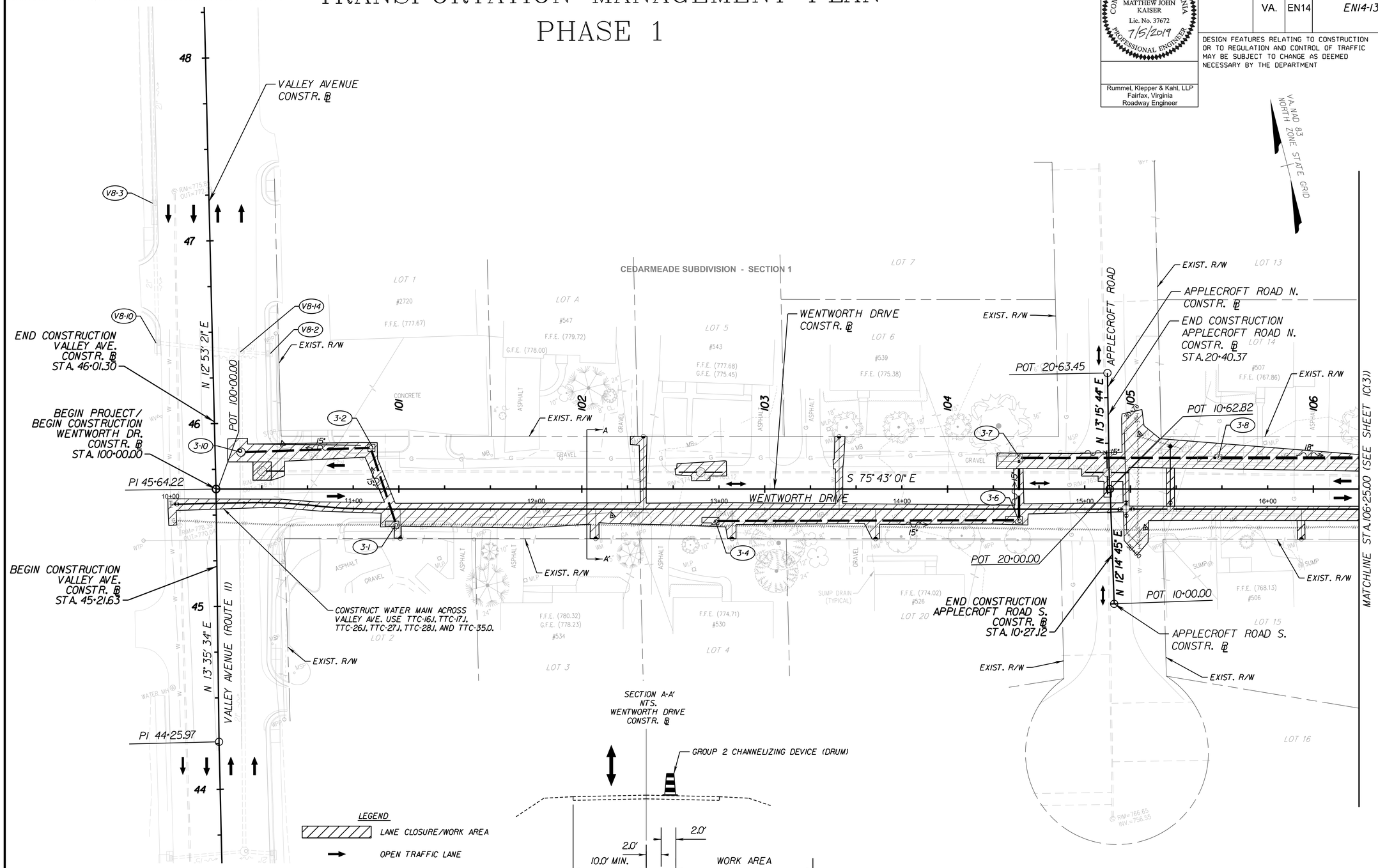
TRANSPORTATION MANAGEMENT PLAN
PHASE 1

COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
Lic. No. 37672
7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	IC(2)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	IC(2)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
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TRANSPORTATION MANAGEMENT PLAN
PHASE 1

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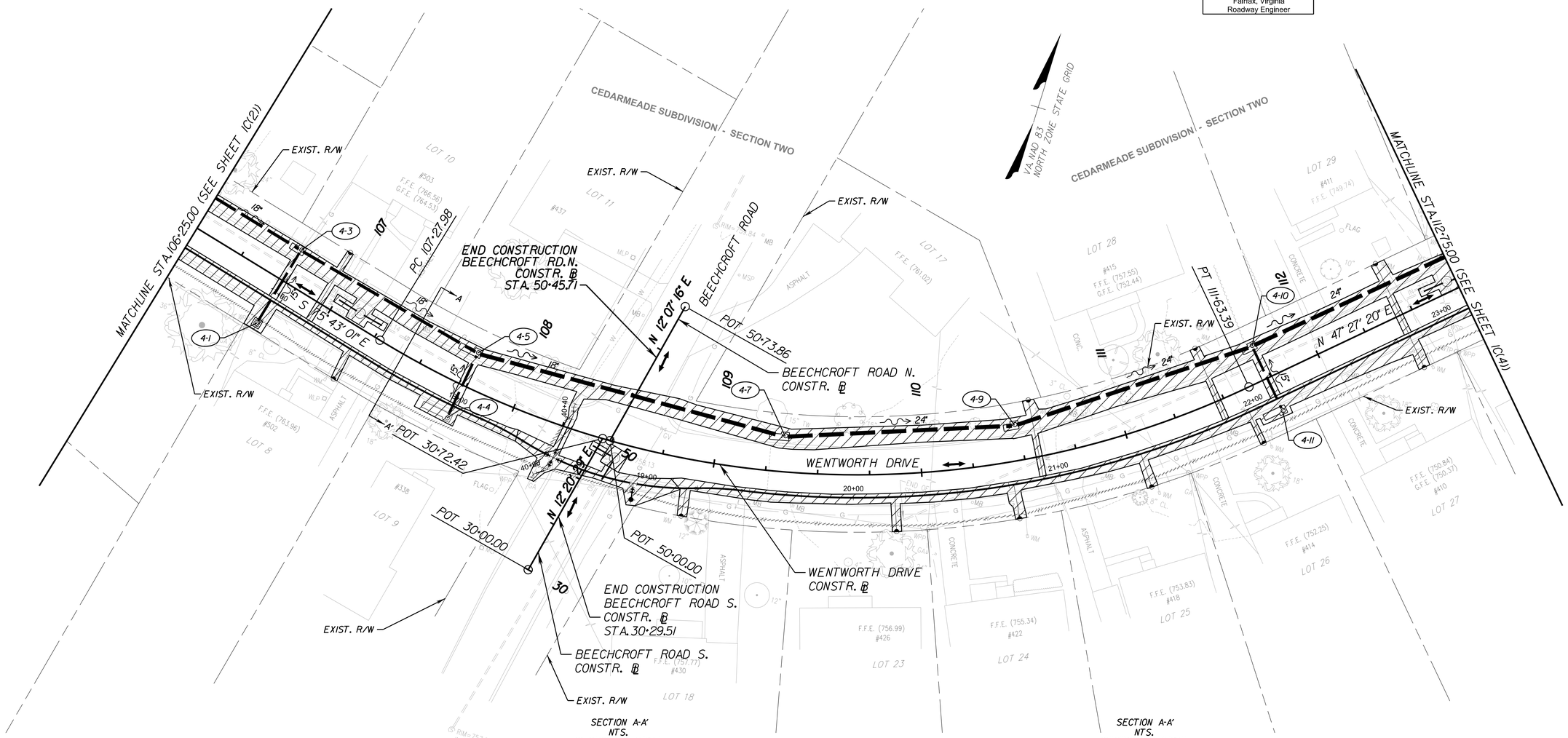
7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	IC(3)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



LEGEND

- LANE CLOSURE/WORK AREA
- OPEN TRAFFIC LANE
- ONE LANE TWO WAY TRAFFIC CONTROL USING FLAGGERS VA WAPM FIGURE TTC-23J

SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	IC(3)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
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TRANSPORTATION MANAGEMENT PLAN
PHASE 1

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7/5/2019
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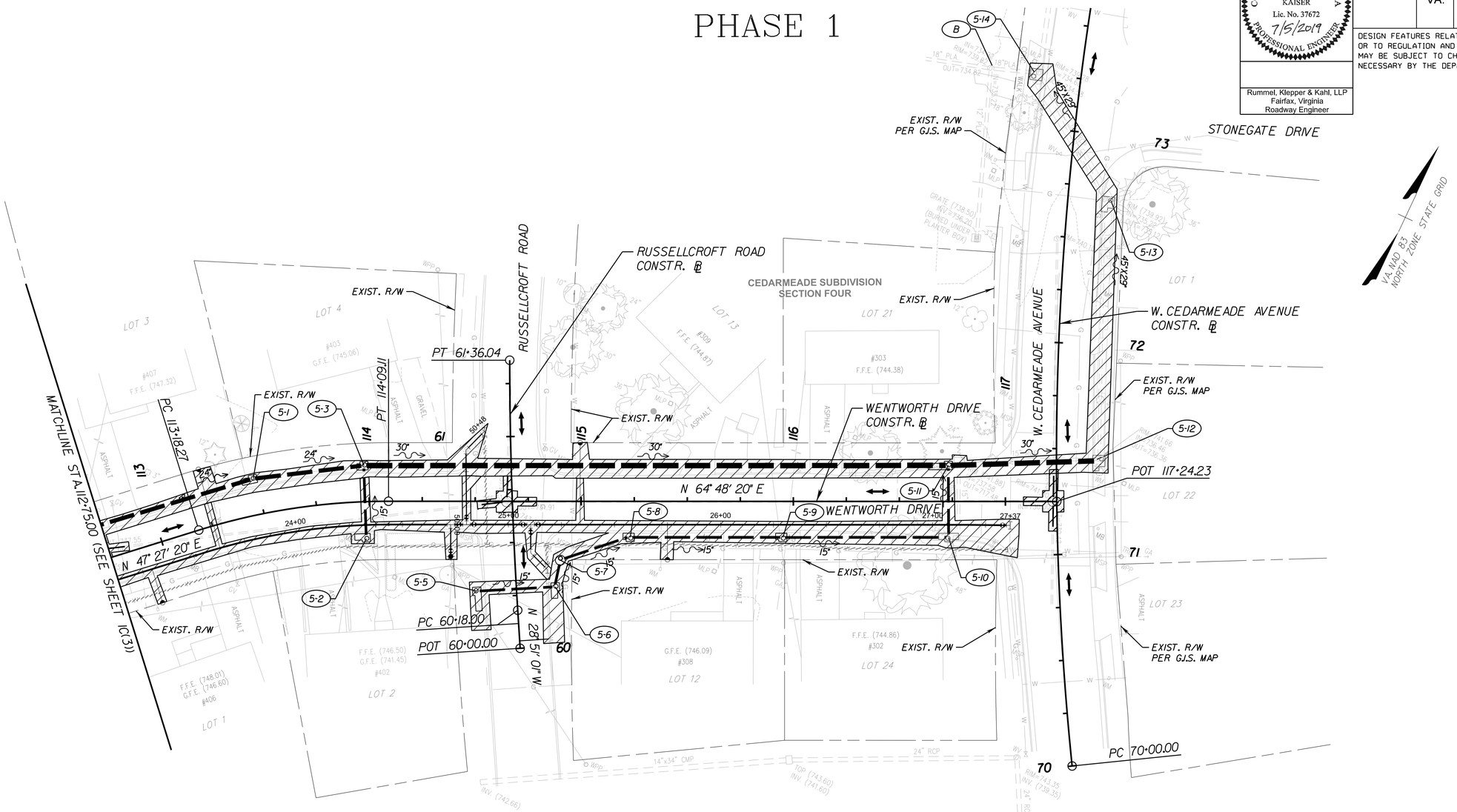
Roadway Engineer

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	IC(4)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



LEGEND

- LANE CLOSURE/WORK AREA
- OPEN TRAFFIC LANE
- ONE LANE TWO WAY TRAFFIC CONTROL USING FLAGGERS VA WAPM FIGURE TTC-23J

SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	IC(4)

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TRANSPORTATION MANAGEMENT PLAN
PHASE 2

COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
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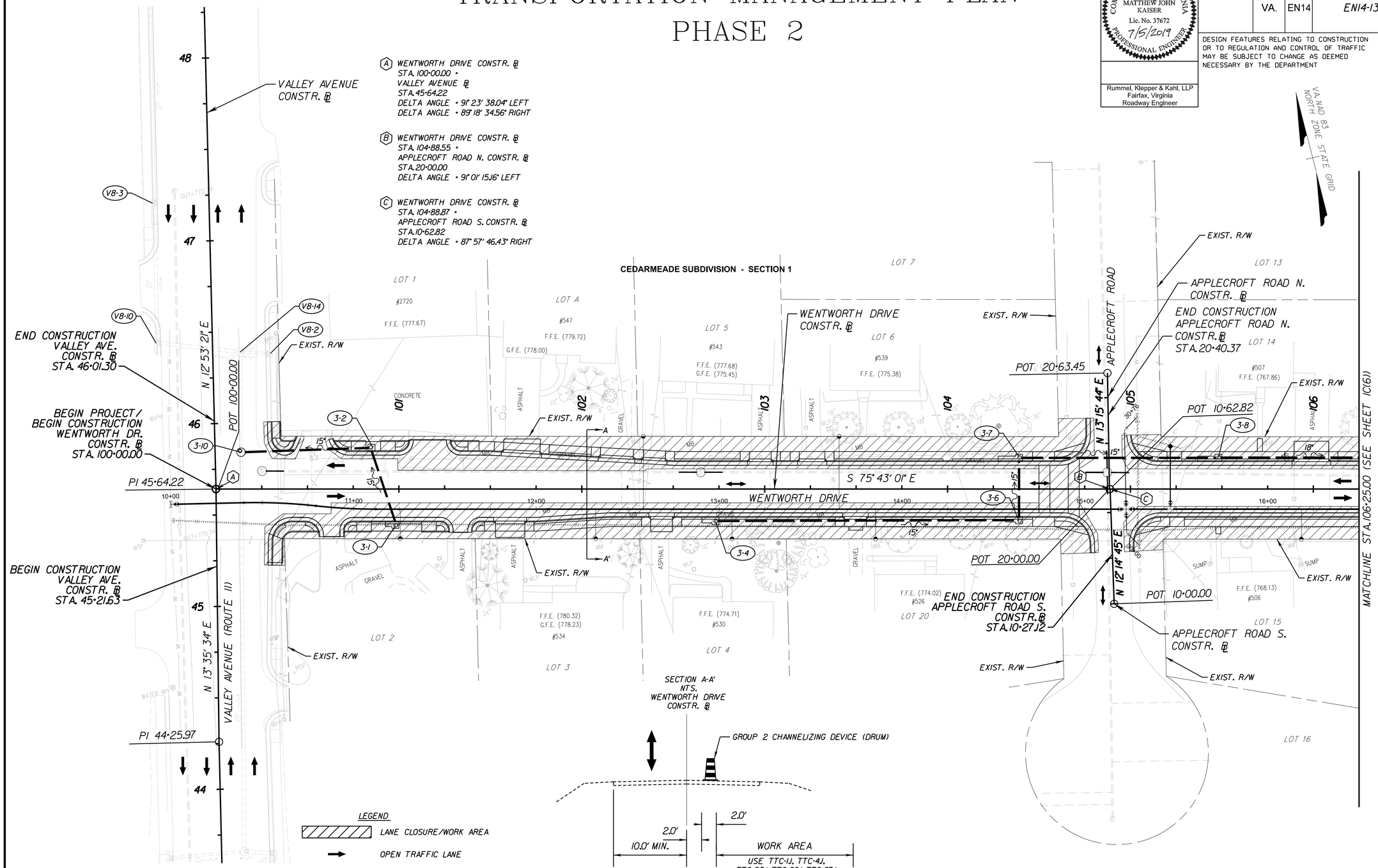
7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	IC(5)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



NOTE: MIRROR TYPICAL APPLICATION FOR CONSTRUCTION OF NORTH SIDE.

SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	IC(5)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
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DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

TRANSPORTATION MANAGEMENT PLAN
PHASE 2

COMMONWEALTH OF VIRGINIA
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Lic. No. 37672
7/5/2019
PROFESSIONAL ENGINEER

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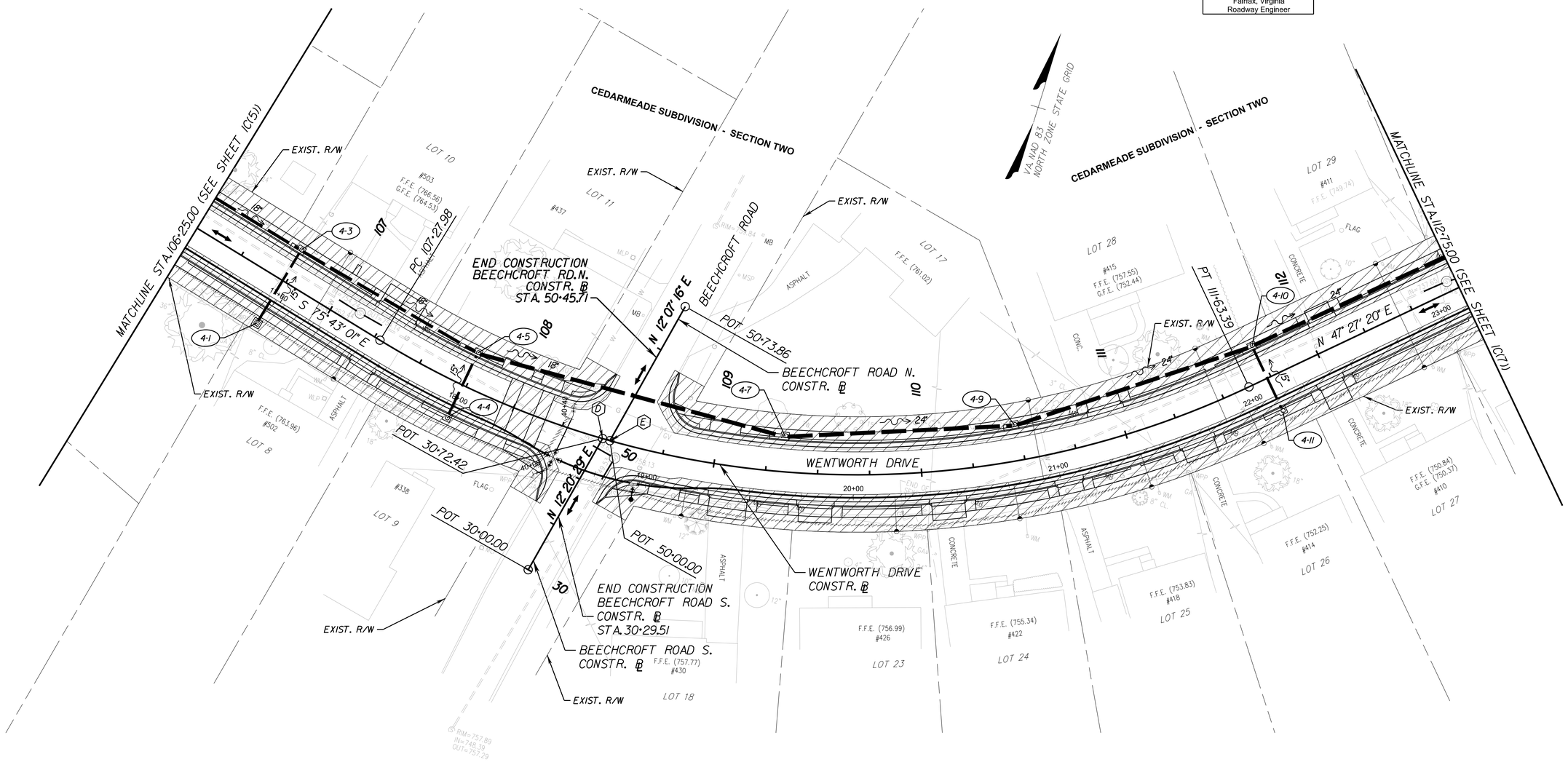
Roadway Engineer

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	IC(6)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



LEGEND

- LANE CLOSURE/WORK AREA
- OPEN TRAFFIC LANE
- ONE LANE TWO WAY TRAFFIC CONTROL USING FLAGGERS VA WAPM FIGURE TTC-23J

(D) WENTWORTH DRIVE CONSTR. ℄ STA. 108+45.16 = BEECHCROFT ROAD S. CONSTR. ℄ STA. 30+72.42
DELTA ANGLE = 103° 21' 08.63" LEFT

(E) WENTWORTH DRIVE CONSTR. ℄ STA. 108+48.82 = BEECHCROFT ROAD N. CONSTR. ℄ STA. 50+00.00
DELTA ANGLE = 76° 23' 26.30" LEFT

SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	IC(6)

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TRANSPORTATION MANAGEMENT PLAN
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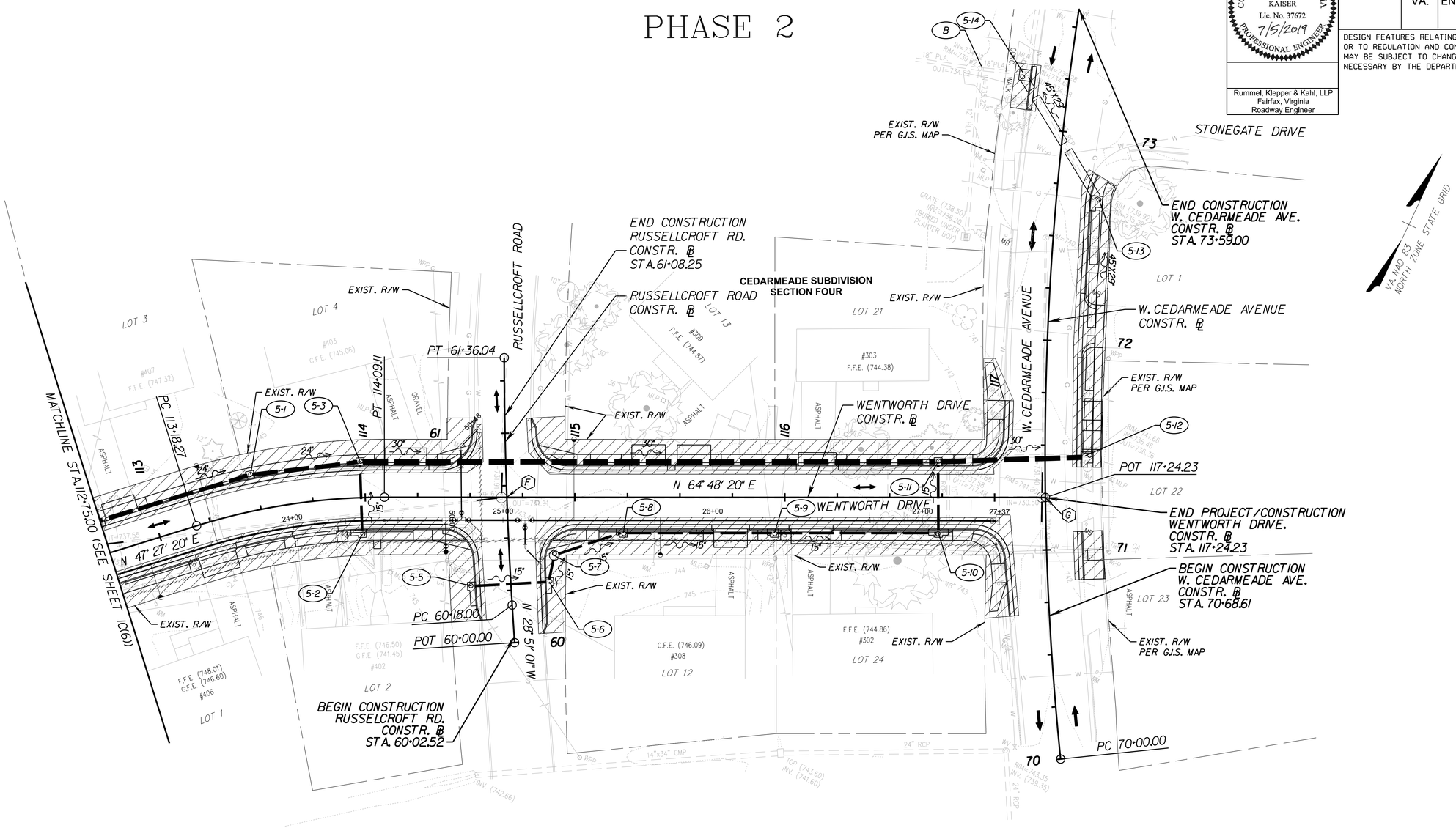
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	IC(7)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



(F) WENTWORTH DRIVE CONSTR. @
STA. 114+67.49 =
RUSSELLCROFT ROAD CONSTR. @
STA. 60+69.45
DELTA ANGLE = 92° 04' 59.72" LEFT
DELTA ANGLE = 87° 55' 00.28" RIGHT

(G) WENTWORTH DRIVE CONSTR. @
STA. 117+24.23 =
WEST CEDARMEADE AVENUE CONSTR. @
STA. 71+25.03
DELTA ANGLE = 90° 49' 24.89" LEFT
DELTA ANGLE = 89° 10' 35.11" RIGHT

LEGEND

LANE CLOSURE/WORK AREA

OPEN TRAFFIC LANE

ONE LANE TWO WAY TRAFFIC CONTROL USING FLAGGERS VA WAPM FIGURE TTC-23.1

SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	IC(7)

7/8/2019
6:51:04 PM

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Plotted By: RK&K - RR

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

TRANSPORTATION MANAGEMENT PLAN

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	IC(8)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Typical Traffic Control
Work Beyond the Shoulder Operation
(Figure TTC-1.1)
NOTES

Guidance:

1. *The minimum distance between the sign and work vehicle should be 1300'-1500' on Limited Access highways, and on all other roadways 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limited is 45 mph or less.*

Option:

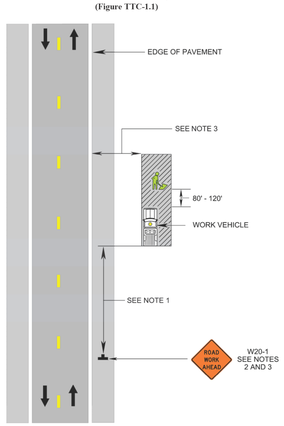
2. The ROAD WORK AHEAD (W20-1) sign may be replaced with other appropriate signs such as the SHOULDER WORK (W21-5) sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.
3. The ROAD WORK AHEAD sign may be omitted where the work space is behind a barrier, more than 4 feet behind vertical curb (Standard CG-2 and CG-6) on urban roadways, or outside of the clear zone for all other roadways. For clear zone values see Page A-4 of Appendix A.
4. For short-term, short duration or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with activated high-intensity amber rotating, flashing, or oscillating lights is used.

Standard:

5. **Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, or oscillating lights. Vehicle hazard warning signals can be used to supplement high-intensity amber rotating, flashing, or oscillating lights.**
6. **If the work space is in the median of a divided highway, an advance warning sign shall also be placed on the left side of the directional roadway.**

1: Revision 1 – 4/1/2015

Work Beyond the Shoulder Operation
(Figure TTC-1.1)



Typical Traffic Control
Stationary Operation on a Shoulder
(Figure TTC-4.1)
NOTES

Standard

1. **For long-term stationary work (more than 3 days) on divided highways having a median wider than 8', sign assemblies on both sides of the roadway shall be required as shown (ROAD WORK AHEAD (W20-1), RIGHT SHOULDER CLOSED AHEAD (W21-5bR), RIGHT SHOULDER CLOSED (W21-5aR)), even though only one shoulder is being closed. For operations less than 3 days in duration, sign assemblies will only be required on the side where the shoulder is being closed and a RIGHT SHOULDER CLOSED (W21-5aR) sign shall be added to that side.**

Guidance

2. *Sign spacing should be 1300'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.*

Option:

3. The SHOULDER WORK (W21-5) sign on an intersecting roadway may be omitted where drivers emerging from that roadway will encounter another advance warning sign prior to this activity area.
4. For short duration operations of 60 minutes or less, all signs and channelizing devices may be eliminated if a vehicle with activated high-intensity amber rotating, flashing, or oscillating lights is used.

Standard:

5. **Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, or oscillating lights. Vehicle hazard warning signals can be used to supplement high-intensity amber rotating, flashing, or oscillating, lights.**
6. **Taper length (L) and channelizing device spacing shall be at the following:**

Taper Length (L)				
Speed Limit (mph)	Lane Width (Feet)			
	9	10	11	12
25	95	105	115	125
30	135	150	165	180
35	185	205	225	245
40	240	270	295	320
45	405	450	495	540
50	450	500	550	600
55	495	550	605	660
60	540	600	660	720
65	585	650	715	780
70	630	700	770	840
Minimum taper lengths for Limited Access highways shall be 1000 feet.				
Shoulder Taper = ⅓ L Minimum				

Channelizing Device Spacing		
Location	Speed Limit (mph)	
	0 - 35	36 +
Transition Spacing	20'	40'
Travelway Spacing	40'	80'
Construction Access*	80'	120'

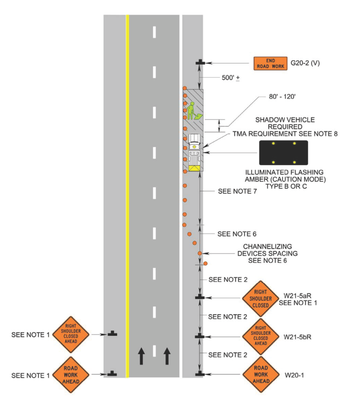
* Spacing may be increased to this distance, but shall not exceed one access per ¼ mile.

On roadways with paved shoulders having a width of 8 feet or more, channelizing devices shall be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the traveled way.

7. **The buffer space length shall be as shown in Table 6H-3 on Page 6H-5 for the posted speed limit.**
8. **A truck-mounted attenuator (TMA) shall be used on the shadow vehicle on Limited Access highways and multi-lane roadways with posted speed limit equal to or greater than 45 mph for operations with a duration greater than 60 minutes.**
9. **When a side road intersects the highway within the temporary traffic control zone, additional traffic control devices shall be placed as needed.**

1: Revision 1 – 4/1/2015

Stationary Operation on a Shoulder
(Figure TTC-4.1)



Typical Traffic Control
Outside Lane Closure Operation on a Four-Lane Roadway
(Figure TTC-16.1)
NOTES

Standard:

1. **On divided highways having a median wider than 8', right and left sign assemblies shall be required.**

Guidance:

2. *Sign spacing should be 1300'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.*
3. *Care should be exercised when establishing the limits of the work zone to insure maximum possible sight distance in advance of the transition, based on the posted speed limit and at least equal to or greater than the values in Table 6H-3. For Limited Access highways a minimum of 1000' is desired.*
4. *All vehicles, equipment, workers, and their activities should be restricted to one side of the pavement.*

Standard:

5. **Taper Length (L) and Channelizing Device Spacing shall be:**

Taper Length (L)				
Speed Limit (mph)	Lane Width (Feet)			
	9	10	11	12
25	95	105	115	125
30	135	150	165	180
35	185	205	225	245
40	240	270	295	320
45	405	450	495	540
50	450	500	550	600
55	495	550	605	660
60	540	600	660	720
65	585	650	715	780
70	630	700	770	840
Minimum taper lengths for Limited Access highways shall be 1000 feet.				
Shoulder Taper = ⅓ L Minimum				

Channelizing Device Spacing		
Location	Speed Limit (mph)	
	0 - 35	36 +
Transition Spacing	20'	40'
Travelway Spacing	40'	80'
Construction Access*	80'	120'

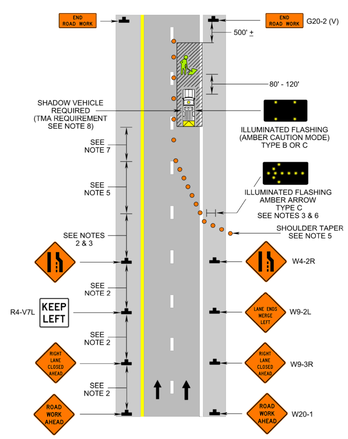
* Spacing may be increased to this distance, but shall not exceed one access per ¼ mile.

On roadways with paved shoulders having a width of 8 feet or more, channelizing devices shall be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the traveled way.

6. **An arrow board shall be used when a lane is closed. When more than one lane is closed, a separate arrow board shall be used for each closed lane (see Figure TTC-18).**
7. **The buffer space length shall be shown in Table 6H-3 on Page 6H-5 for the posted speed limit.**
8. **A shadow vehicle with either a Type B or C arrow board operating in the caution mode, or at least one high intensity amber rotating, flashing, or oscillating light shall be parked 80'-120' in advance of the first work crew. When the posted speed limit is 45 mph or greater, a truck-mounted attenuator shall be used.**
9. **Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, or oscillating lights but can be used to supplement the amber rotating, flashing, or oscillating lights.**
10. **When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed as needed.**

1: Revision 1 – 4/1/2015

Outside Lane Closure Operation on a Four-Lane Roadway
(Figure TTC-16.1)



Typical Traffic Control
Inside Lane Closure Operation on a Four-Lane Roadway
(Figure TTC-17.1)
NOTES

Standard:

1. **On divided highways having a median wider than 8', right and left sign assemblies shall be required.**

Guidance:

2. *Sign spacing should be 1300'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.*
3. *Care should be exercised when establishing the limits of the work zone to insure maximum possible sight distance in advance of the transition, based on the posted speed limit and at least equal to or greater than the values in Table 6H-3. For Limited Access highways a minimum of 1000' is desired.*
4. *All vehicles, equipment, workers, and their activities should be restricted to one side of the pavement.*

Standard:

5. **Taper length (L) and channelizing device spacing shall be:**

Taper Length (L)				
Speed Limit (mph)	Lane Width (Feet)			
	9	10	11	12
25	95	105	115	125
30	135	150	165	180
35	185	205	225	245
40	240	270	295	320
45	405	450	495	540
50	450	500	550	600
55	495	550	605	660
60	540	600	660	720
65	585	650	715	780
70	630	700	770	840
Minimum taper lengths for Limited Access highways shall be 1000 feet.				
Shoulder Taper = ⅓ L Minimum				

Channelizing Device Spacing		
Location	Speed Limit (mph)	
	0 - 35	36 +
Transition Spacing	20'	40'
Travelway Spacing	40'	80'
Construction Access*	80'	120'

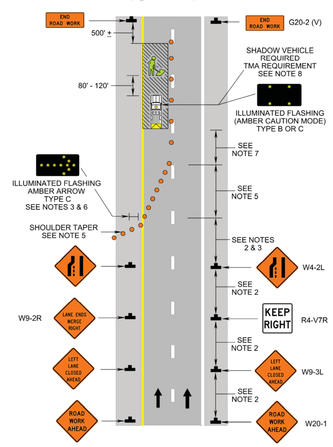
* Spacing may be increased to this distance, but shall not exceed one access per ¼ mile.

On roadways with paved shoulders having a width of 8 feet or more, channelizing devices shall be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the traveled way.

6. **An arrow board shall be used when a lane is closed. When more than one lane is closed, a separate arrow board shall be used for each closed lane (see Figure TTC-18).**
7. **The buffer space length shall be shown in Table 6H-3 on Page 6H-5 for the posted speed limit.**
8. **A shadow vehicle with either a Type B or C arrow board operating in the caution mode, or at least one high intensity amber rotating, flashing, or oscillating light shall be parked 80'-120' in advance of the first work crew. When the posted speed limit is 45 mph or greater, a truck-mounted attenuator shall be used.**
9. **Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, or oscillating lights but can be used to supplement the amber rotating, flashing, or oscillating lights.**
10. **When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed as needed.**

1: Revision 1 – 4/1/2015

Inside Lane Closure Operation on a Four-Lane Roadway
(Figure TTC-17.1)



Typical Traffic Control
Right Lane Closure Operation on a Three-Lane Roadway
(Figure TTC-22.1)
NOTES

Guidance:

1. *The distance between signs and beginning of channelizing device transition should be a minimum of 500' and a maximum of 800'.*
2. *The buffer space length should be as shown in Table 6H-3 on Page 6H-5 for the posted speed limit.*
3. *For locations with a high volume of left turning movements, the graphic NO LEFT TURN (R3-2) signs should be used within the closed lane.*

Option:

4. Where Right-of-Way or geometric conditions prevent use of 48" x 48" signs, 36" x 36" signs may be used.

Standard:

5. **Taper length (L) and channelizing device spacing shall be :**

Taper Length (L)				
Speed Limit (mph)	Lane Width (Feet)			
	9	10	11	12
25	95	105	115	125
30	135	150	165	180
35	185	205	225	245
40	240	270	295	320
45	405	450	495	540
50	450	500	550	600
55	495	550	605	660
60	540	600	660	720
65	585	650	715	780
70	630	700	770	840
Minimum taper lengths for Limited Access highways shall be 1000 feet.				
Shoulder Taper = ⅓ L Minimum				

Channelizing Device Spacing		
Location	Speed Limit (mph)	
	0 - 35	36 +
Transition Spacing	20'	40'
Travelway Spacing	40'	80'
Construction Access*	80'	120'

* Spacing may be increased to this distance, but shall not exceed one access per ¼ mile.

On roadways with paved shoulders having a width of 8 feet or more, channelizing devices shall be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the traveled way.

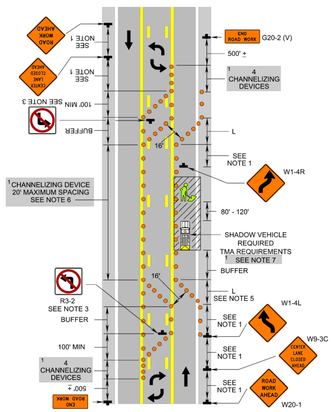
6. **To prevent vehicles from entering into the buffer and activity areas[1], channelizing device spacing shall be a maximum of 20' on center.**
7. **A shadow vehicle with either a Type B or C arrow board operating in the caution mode, or at least one rotating amber light or high intensity amber flashing or oscillating[2] light shall be parked 80'-120' in advance of the work crew in both directions of travel. If multiple lanes are present (four or more lanes, excluding the center turn lane) and the posted speed limit is 45 mph or greater, the vehicles shall be equipped with a truck-mounted attenuator (TMA).**
8. **When a side road intersects the highway within the temporary traffic control zone, additional traffic control devices shall be placed as needed.**
9. **For long-term work zones existing conflicting pavement markings and markers shall be removed and temporary pavement markings and markers shall be installed per Figure TTC-60.**

Guidance:

10. *When channelizing devices have the potential of leading vehicular traffic out of the intended traffic space, the channelizing devices should be extended a distance with 4 additional channelizing devices beyond the downstream end of the transition area as depicted.*[1]

1: Revision 1 – 4/1/2015

Right Lane Closure Operation on a Three-Lane Roadway
(Figure TTC-22.1)



1: Revision 1 – 4/1/2015

PROJECT	SHEET NO.
EN14-138-102	IC(8)

7/8/2019

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

TRANSPORTATION MANAGEMENT PLAN

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	IC(9)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Typical Traffic Control
Lane Closure on a Two-Lane Roadway Using Flaggers
(Figure TTC-23.1)
NOTES

Guidance:

1. *Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, and 500'-800' where the posted speed limit is greater than 45 mph.*
2. *Care should be exercised when establishing the limits of the work zone to insure maximum possible sight distance in advance of the flagger station and transition, based on the posted speed limit and at least equal to or greater than the values in Table 6H-3. Generally speaking, motorists should have a clear line of sight from the graphic flagger symbol sign to the flagger.*

Option:

3. Where Right-of-Way or geometric conditions prevent the use of 48" x 48" signs, 36" x 36" signs may be used.

Standard:

4. **Flagging stations shall be located far enough in advance of the work space to permit approaching traffic to reduce speed and/or stop before passing the work space and allow sufficient distance for departing traffic in the left lane to return to the right lane before reaching opposing traffic (see Table 6H-3 on Page 6H-5).**
5. **All flaggers shall be state certified and have their certification card in their possession when performing flagging duties (see Section 6E.01, Qualifications for Flaggers).**
6. **Cone spacing shall be based on the posted speed and the values in Table 6H-4 on Page 6H-6.**
7. **A shadow vehicle with at least one high intensity amber rotating, flashing, or oscillating light shall be parked 80'-120' in advance of the first work crew.**

Option:

8. A supplemental flagger may be required in this area to give advance warning of the operation ahead by slowing approaching traffic prior to reaching the flagger station or queued traffic.

Guidance:

9. *If the queue of traffic reaches the BE PREPARED TO STOP (W3-4) sign then the signs, and if used the portable temporary rumble strips (PTRS), should be readjusted at greater distances.*
10. *When a highway-rail crossing exists within or upstream of the transition area and it is anticipated that queues resulting from the lane closure might extend through the highway-rail grade crossing, the temporary traffic control zone should be extended so that the transition area precedes the highway-rail crossing (see Figure TTC-58 for additional information on highway-rail crossings).*

Standard:

11. **At night, flagger stations shall be illuminated, except in emergencies (see Section 6E.08).**

Option:

12. Cones may be eliminated when using a pilot vehicle operation or when the total roadway width is 20 feet or less.
13. For low-volume situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger, positioned to be visible to road users approaching from both directions, may be used (see Chapter 6E).

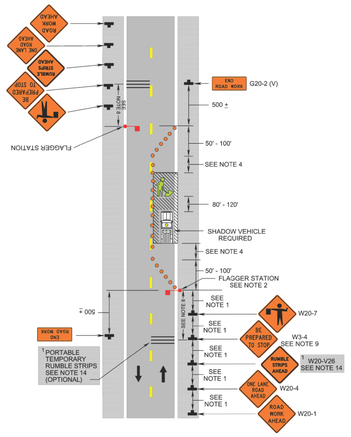
Standard:

14. **When approved for use, three portable temporary rumble (PTRS) strips shall be installed across the entire travel lane adjacent to the BE PREPARED TO STOP (W3-4) sign. The portable temporary rumble strips shall be monitored and adjusted as necessary during the work shift to ensure proper placement on the roadway. When the PTRS are installed, the RUMBLE STRIPS AHEAD (W20-V26) sign shall also be utilized.**

Posted Speed	0 – 35 mph	36 – 55 mph
PTRS Spacing (Center to Center)	5 Feet	8 Feet

1: Revision 1 – 4/1/2015

Lane Closure on a Two-Lane Roadway Using Flaggers
(Figure TTC-23.1)



1: Revision 1 – 4/1/2015

Typical Traffic Control
Lane Closure Operation – Near Side of an Intersection
(Figure TTC-26.1)
NOTES

Guidance:

1. *Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, 500'-800' where the posted speed limit is greater than 45 mph.*

Standard:

2. **On divided highways having a median wider than 8', right and left sign assemblies shall be required.**
3. **Taper length (L) and channelizing device spacing shall be:**

Taper Length (L)				
Speed Limit (mph)	**Lane Width (Feet)**			
	9	**10**	**11**	**12**
25	95	105	115	125
30	135	150	165	180
35	185	205	225	245
40	240	270	295	320
45	405	450	495	540
50	450	500	550	600
55	495	550	605	660
60	540	600	660	720
65	585	650	715	780
70	630	700	770	840
Minimum taper lengths for Limited Access highways shall be 1000 feet.				
Shoulder Taper = ⅓ L Minimum				

Channelizing Device Spacing		
Location	**Speed Limit (mph)**	
	0 - 35	**36 +**
Transition Spacing	20'	40'
Travelway Spacing	40'	80'
Construction Access*	60'	120'

* Spacing may be increased to this distance, but shall not exceed one access per ¼ mile.

On roadways with paved shoulders having a width of 8 feet or more, channelizing devices shall be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the traveled way.

On three or more lane roadways, the merging tapers shall be installed as shown in TTC-18.

Guidance:

4. *If room permits, a shadow vehicle with at least one rotating, oscillating, or amber strobe light should be parked 80'-120' in advance of the first work crew.*

Standard:

5. **If the posted speed limit is 45 mph or greater, the shadow vehicle shall have a truck-mounted attenuator.**
6. **For emergency situations (any non-planned operation) of 30 minutes or less duration, two rotating amber lights or two high intensity amber flashing or oscillating lights mounted on the vehicle and visible for 360° shall be required in addition to the channelizing devices shown around the vehicle. Also, vehicle hazard warning signals shall be used.**

Guidance:

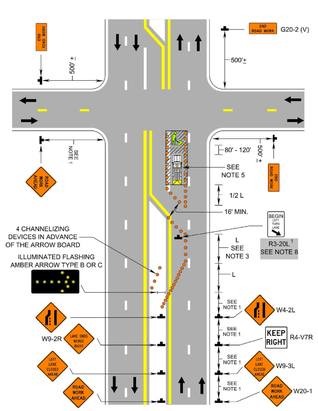
7. *If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure TTC-36.*

Standard:

8. **If the left turn lane is closed a NO LEFT TURN (Symbol) (R3-2) shall be used.**

1: Revision 1 – 4/1/2015

Lane Closure Operation - Near Side of an Intersection
(Figure TTC-26.1)



1: Revision 1 – 4/1/2015

Typical Traffic Control
Lane Closure Operation – Far Side of an Intersection
(Figure TTC-27.1)
NOTES

Guidance:

1. *Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, 500'-800' where the posted speed limit is greater than 45 mph.*

Standard:

2. **On divided highways having a median wider than 8', right and left sign assemblies shall be required.**
3. **Taper length (L) and channelizing device spacing shall be:**

Taper Length (L)				
Speed Limit (mph)	**Lane Width (Feet)**			
	9	**10**	**11**	**12**
25	95	105	115	125
30	135	150	165	180
35	185	205	225	245
40	240	270	295	320
45	405	450	495	540
50	450	500	550	600
55	495	550	605	660
60	540	600	660	720
65	585	650	715	780
70	630	700	770	840
Minimum taper lengths for Limited Access highways shall be 1000 feet.				
Shoulder Taper = ⅓ L Minimum				

Channelizing Device Spacing		
Location	**Speed Limit (mph)**	
	0 - 35	**36 +**
Transition Spacing	20'	40'
Travelway Spacing	40'	80'

On roadways with paved shoulders having a width of 8 feet or more, channelizing devices shall be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the traveled way.

Guidance:

4. *If room permits, a shadow vehicle with at least one amber, rotating, oscillating, or high intensity flashing light should be parked 80'-120' in advance of the first work crew.*

Standard:

5. **If the posted speed limit is 45 mph or greater, the shadow vehicle shall have a truck-mounted attenuator.**
6. **For emergency situations (any non-planned operation) of 30 minutes or less duration, two rotating amber lights or high intensity amber flashing or oscillating lights mounted on the vehicle and visible for 360° shall be required in addition to the channelizing devices shown around the vehicle. Also, vehicle hazard warning signals shall be used.**

Guidance:

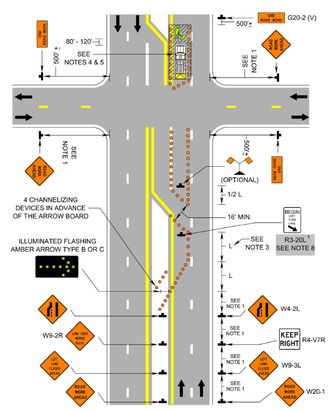
7. *If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure TTC-36.*

Standard:

8. **If the left turn lane is closed a NO LEFT TURN (Symbol) (R3-2) shall be used.**

1: Revision 1 – 4/1/2015

Lane Closure Operation - Far Side of an Intersection
(Figure TTC-27.1)



1: Revision 1 – 4/1/2015

Typical Traffic Control
Lane Closure Operation in an Intersection
(Figure TTC-28.1)
NOTES

Guidance:

1. *The control of traffic through the intersection in order of preference should be:*
   a. *Obtain the services of law enforcement personnel.*
   b. *Detour the effective routes to other roads and streets as approved and directed by the Regional Traffic Engineer.*
   c. *Place a state certified flagger on each leg of the intersection controlling a single lane of traffic.*

   Appropriate signing as shown should be used for law enforcement and flagging operations. For detour signs see Figure TTC-34.
2. *Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, 500'-800' where the posted speed limit is greater than 45 mph.*

Standard:

3. **Channelizing device spacing shall be on 20' centers or less.**

Guidance:

4. *If room permits, a shadow vehicle with at least one rotating amber light or high intensity amber flashing or oscillating light should be parked 80'-120' in advance of the first work crew.*

Standard:

5. **For emergency situations (any non-planned operation) of 30 minutes or less duration, two rotating amber lights or high intensity amber flashing or oscillating lights mounted on the vehicle and visible for 360° shall be required in addition to the channelizing devices shown around the vehicle. Also, vehicle hazard warning signals shall be used.**

Guidance:

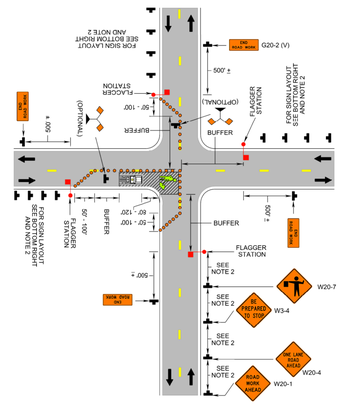
6. *If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure TTC-36.*

Support:

7. Turns can be prohibited as required by vehicular traffic conditions. Unless the streets are wide, it might be physically impossible to make certain turns, especially for large vehicles.

1: Revision 1 – 4/1/2015

Lane Closure Operation in an Intersection
(Figure TTC-28.1)



1: Revision 1 – 4/1/2015

Typical Traffic Control
Sidewalk Closure and Bypass Sidewalk Operation
(Figure TTC-35.0)
NOTES

Standard:

1. **When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.**

Guidance:

2. *Where high speeds are anticipated, a temporary traffic barrier and, if necessary, a crash cushion should be used to separate the temporary sidewalks from vehicular traffic.*
3. *Audible information devices should be considered where midblock closings and changed crosswalk areas cause inadequate communication to be provided to pedestrians who have visual disabilities.*
4. *Temporary markings should be considered for operations exceeding three days in duration.*

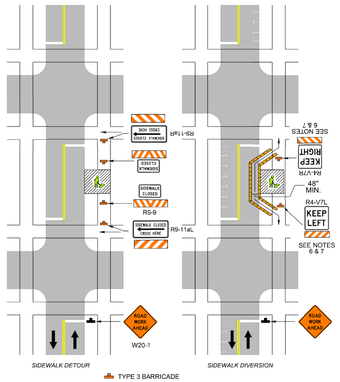
Option:

5. Only the TTC devices related to pedestrians are shown. Other devices, such as lane closure signing or ROAD NARROWS (W5-1) signs, may be used to control vehicular traffic.
6. For nighttime closures, Type A Flashing warning lights may be used on barricades that support signs and close sidewalks.
7. Signs, such as KEEP RIGHT (R4-V7R) and KEEP LEFT (R4-V7L), may be placed along a temporary sidewalk to guide or direct pedestrians.

Standard:

8. **All sidewalk closures shall be closed with Type 3 Barricades.**

Sidewalk Closure and Bypass Sidewalk Operation
(Figure TTC-35.0)



PROJECT	SHEET NO.
EN14-138-102	IC(9)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

TRANSPORTATION MANAGEMENT PLAN

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	IC(10)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Typical Traffic Control
Signing for Project Limits
(Figure TTC-53.0)
NOTES

Support:

1. This layout depicts signing requirements for notifying motorist when they are entering and exiting a potential construction/maintenance area with a duration equal to or greater than 60 days.

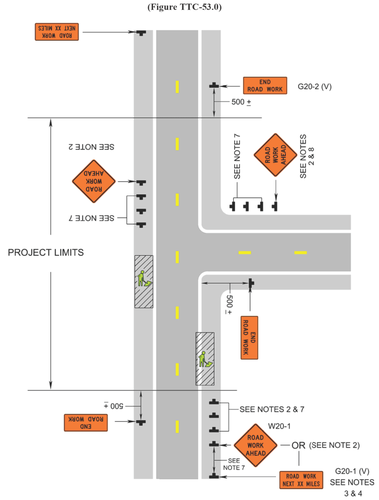
Standard:

2. **The ROAD WORK AHEAD (W20-1) sign or the ROAD WORK NEXT XX MILES (G20-1 (V)) sign shall be placed far enough in advance of the project limits so that other warning signs in a series may be adequately placed prior to the condition they are warning about.**
3. **The ROAD WORK NEXT XX MILES sign shall be used for projects with activity areas greater than 2 miles in length, or when multiple work activities (such as pavement patching, guardrail installations, shoulder restoration, etc.) occur along a highway.**
4. **The distance displayed on the ROAD WORK NEXT XX MILES sign shall be stated to the nearest whole mile from the point of installation to the END ROAD WORK (G20-2 (V)) sign.**
5. **On divided highways having a median wider than 8', right and left sign assemblies shall be required.**

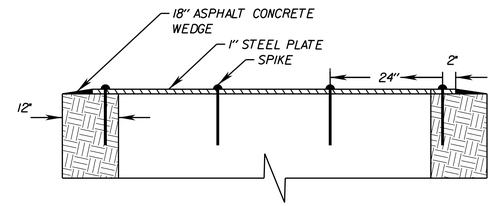
Guidance:

6. *For projects with activity areas 2 miles or less in length, the ROAD WORK AHEAD sign should be the first sign motorist encounter.*
7. *Sign spacing should be 1300'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.*
8. *All connections within the project limits should be identified with signs indicating to motorist they are entering or exiting a potential construction/maintenance area.*

Signing for Project Limits
(Figure TTC-53.0)



STEEL PLATE PLACEMENT DETAIL (NTS)



STEEL PLATE DRILL HOLE PATTERN (NTS)

NOTES:

1. HOLES SHALL BE DRILLED TO ACCOMMODATE COMMON RAIL SPIKE
2. PROVIDE A SMOOTH TRANSITION FROM EXISTING ASPHALT TO STEEL PLATE TRAVEL SURFACE.
3. BITUMINOUS SEALER TO BE PLACED AROUND HOLES AND BOTTOM OF SPIKE HEAD.
4. SPIKES MUST BE INSTALLED IN ALL STEEL PLATES. NO SUBSTITUTES ALLOWED.
5. ALL STEEL PLATES SHALL HAVE ALL CORNERS WITH WHITE TAPE OR PAINT.
6. USE OF STEEL PLATE IN A PEDESTRIAN CROSSWALK SHALL REQUIRE THE PLATE TO BE PAINTED AND COATED WITH HIGH INDEX GLASS BEADS.

	PROJECT	SHEET NO.
	EN14-138-102	IC(10)

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DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

EROSION & SEDIMENT CONTROL PLAN

COMMONWEALTH OF VIRGINIA
BRIAN MICHAEL FINERFROCK
Lic. No. 44505
7/5/19
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Hydraulic Engineer

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	ID(1)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

PROJECT DESCRIPTION:

THE PURPOSE OF THIS PROJECT IS TO IMPROVE WALKABILITY UNDER THE SAFE ROUTES TO SCHOOL PROGRAM BY ADDING SIDEWALKS ON EITHER SIDE OF WENTWORTH DRIVE. THE PROJECT CONSISTS OF SIDEWALK, CURB AND GUTTER, ENTRANCES, DRAINAGE IMPROVEMENTS, AND WATER/SEWER IMPROVEMENTS.

ADJACENT AREAS:

THE AREAS ADJACENT TO THIS PROJECT ARE PRIMARILY RESIDENTIAL, WITH BUSINESSES TO THE WEST ALONG VALLEY AVENUE. THIS PROJECT DOES NOT PROPOSE ANY OFF-SITE WORK. IN THE EVENT THAT THE CONTRACTOR SHOULD DEEM ANY OFF-SITE WORK NECESSARY, ALL NECESSARY EASEMENTS AND PERMITS ARE TO BE OBTAINED PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ACCEPTABLE BORROW AND/OR DISPOSAL SITES, AND THESE SHALL BE IN ACCORDANCE WITH VDOT REGULATIONS.

SOILS:

SEE SOILS MAP AND TABLE ON THIS SHEET. KARST TOPOGRAPHY MAY BE PRESENT IN THIS AREA. SPECIAL PRECAUTIONS REGARDING ASBESTOS SOILS OR FILL ORIGINATING FROM THESE SOILS ARE REQUIRED BY THE OCCUPATIONAL SAFETY AND HEALTH REGULATIONS ENFORCED BY THE VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY AND SPECIAL GUIDANCE HAS BEEN ISSUED BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY.

CRITICAL AREAS:

THERE ARE NO WETLANDS, STREAMS, FLOODPLAINS, OR CRITICAL SLOPES WITHIN THIS PROJECT.

EROSION AND SEDIMENT CONTROL MEASURES:

UNLESS OTHERWISE NOTED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MOST CURRENT MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH). ALL NECESSARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE PRIOR TO BEGINNING CONSTRUCTION.

TEMPORARY & PERMANENT STABILIZATION:

TEMPORARY AND PERMANENT STABILIZATION SHALL BE DONE IN ACCORDANCE WITH THE VESCH. TEMPORARY SEEDING WILL FOLLOW IMMEDIATELY AFTER GRADING. IN ALL SEEDING OPERATIONS, SEED, FERTILIZER, AND LIME WILL BE APPLIED PRIOR TO MULCHING. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY FOLLOWING FINISHED GRADING. EROSION AND SEDIMENT CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL THE GRASS IS ESTABLISHED. PERMANENT SEEDING MIXTURES SHALL CONFORM TO TABLE 3.32-C OF THE VESCH.

GENERAL NOTES:

1. LAND DISTURBING ACTIVITY WHICH OCCURS WITHIN THE VDOT RIGHT-OF-WAY MUST BE SUPERVISED BY PERSONNEL MEETING THE REQUIREMENTS OF VDOT ROAD AND BRIDGE SPECIFICATION 107.6 (A).

2. THE CITY IS RESPONSIBLE FOR COMPLYING WITH APPLICABLE LOCAL, STATE, AND FEDERAL ENVIRONMENTAL LAWS AND REGULATIONS, INCLUDING ACQUIRING CLEARANCES/AUTHORIZATIONS FROM APPROPRIATE REGULATORY AGENCIES.

3. ALL E&S CONTROLS SHALL BE REMOVED WITHIN 30 DAYS AFTER PROJECT IS STABILIZED.

4. IN GENERAL, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED DAILY AND AFTER EACH SIGNIFICANT RAINFALL.

5. THE JOB SUPERINTENDENT SHALL BE RESPONSIBLE FOR THE INSTALLATION, DAILY INSPECTION, AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL PRACTICES.

SOURCE: USDA WEB SOIL SURVEY

SOILS MAP
1"=100'

SOILS TABLE

SOIL ID NUMBERS	SOIL SERIES NAME	NATURAL DRAINAGE CLASS	RUNOFF CLASS	HSG
200	URBAN LAND	N/A	N/A	N/A
514B	FREDERICK-POPLIMENTO-URBAN LAND COMPLEX	WELL DRAINED	MEDIUM	B/C

PROJECT	SHEET NO.
EN14-138-102	ID(1)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

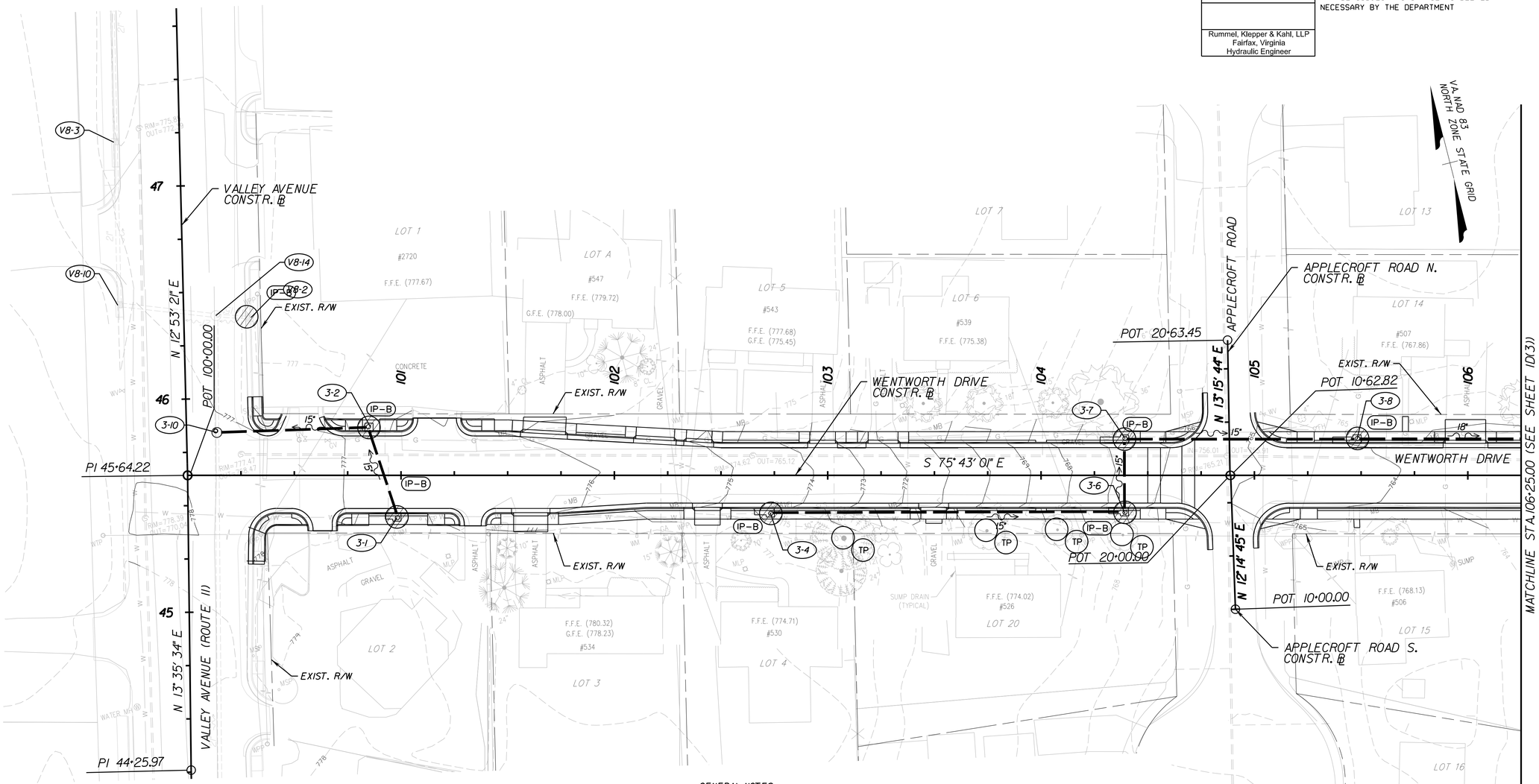
EROSION AND SEDIMENT CONTROL PLAN

COMMONWEALTH OF VIRGINIA
BRIAN MICHAEL FINERFROCK
Lic. No. 44505
7/5/19
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Hydraulic Engineer

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	ID(2)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



GENERAL NOTES:

1. INSTALL ALL ESC AS SHOWN ON PLANS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION.
2. REMOVE ALL ESC ITEMS UPON FINAL GRADING AND STABILIZATION.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE A SUITABLE STAGING /STORAGE AREA AND PROVIDE NECESSARY ESC PLAN AND PERMIT AMENDMENTS FOR THIS SITE.
4. ADDITIONAL ESC TO BE DETERMINED AND INSTALLED AS NEEDED BY THE CONTRACTOR.
5. THIS SHEET IS FOR TEMPORARY EROSION AND SEDIMENT CONTROL ONLY.
6. ANY BRANCHES WITHIN THE LIMITS OF DISTURBANCE SHOULD BE ELEVATED THROUGH PRUNING OR GUYED TO RAISE THE CROWN FOR CONSTRUCTION ACCESS. PRUNING SHALL BE PERFORMED PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION. ALL PRUNING SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) A300 PRUNING STANDARDS.
7. TREE PROTECTION TO BE INSTALLED WITHIN THE EXISTING RIGHT-OF-WAY, AND SHALL NOT EXTEND ONTO PRIVATE PROPERTY.

LEGEND

- DENOTES EXISTING RIGHT OF WAY
- 250 DENOTES EXISTING CONTOURS
- 250 DENOTES PROPOSED CONTOURS
- TR DENOTES AN EXISTING TREE TO BE REMOVED
- TP DENOTES AN EXISTING TREE TO BE PROTECTED
- IP-A DENOTES INLET PROTECTION, TYPE A: VDOT ST'D. EC-6
- IP-B DENOTES INLET PROTECTION, TYPE B: VDOT ST'D. EC-6

SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	ID(2)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
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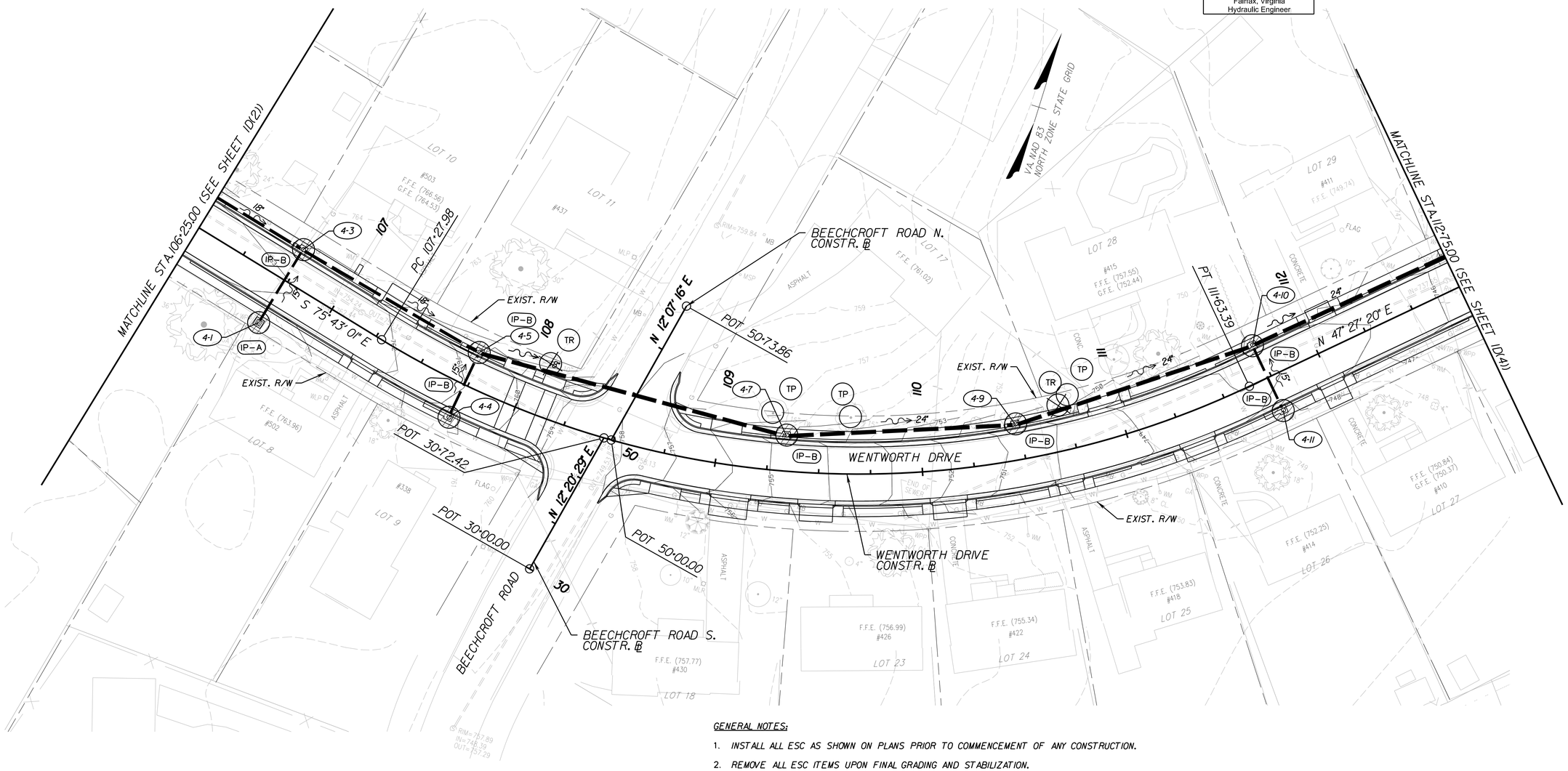
Hydraulic Engineer

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	1D(3)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



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- IP-B DENOTES INLET PROTECTION, TYPE B: VDOT ST'D. EC-6

SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	1D(3)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
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DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

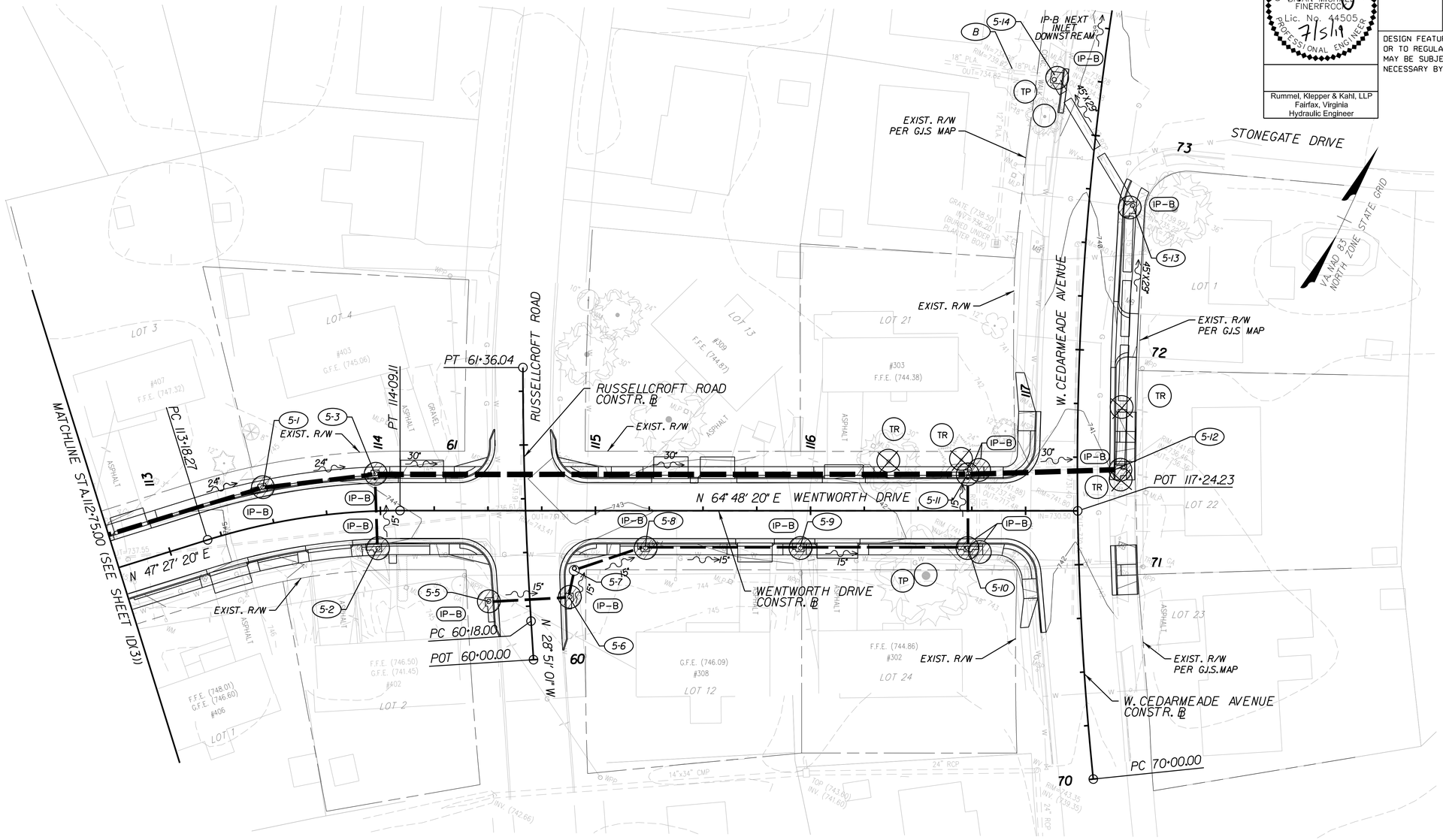
EROSION AND SEDIMENT CONTROL PLAN

COMMONWEALTH OF VIRGINIA
BRIAN MICHAEL FINERFROCK
Lic. No. 44505
PROFESSIONAL ENGINEER
7/5/19

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Hydraulic Engineer

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	ID(4)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



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SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	ID(4)

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DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

GENERAL NOTES

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	2

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

VDOT

GRADING

G-1 THE GRADE LINE DENOTES TOP OF FINISHED PAVEMENT UNLESS SHOWN OTHERWISE ON TYPICAL SECTIONS OR PLANS.

G-4 THE COST OF REMOVAL OF ALL EXISTING CONCRETE ITEMS LOCATED IN THE AREA TO BE GRADED, INCLUDING, BUT NOT LIMITED TO THE FOLLOWING, SHALL BE INCLUDED IN THE PRICE BID FOR REGULAR EXCAVATION: CONCRETE PIPE, CONCRETE SIDEWALK, AND CONCRETE PAVEMENT.

G-6 ALL REGULAR EXCAVATION, BORROW EXCAVATION AND EMBANKMENT MATERIAL USED TO CONSTRUCT EMBANKMENTS FOR THIS PROJECT SHALL MEET A MINIMUM CBR VALUE OF 5 OR AS DETERMINED BY VTM-8, SHALL NOT INCLUDE USCS CH OR MH SOILS UNLESS STABILIZED WITH LIME (PER VTM-11) OR CEMENT (PER VTM-72), SHALL BE IN ACCORDANCE WITH SECTION 303.04(H) OF THE 2016 ROAD AND BRIDGE SPECIFICATIONS OR AS APPROVED BY THE DISTRICT MATERIALS ENGINEER. NO.10 SCREENINGS MAY BE USED AS BORROW MATERIAL OR EMBANKMENT IN ACCORDANCE WITH THE SPECIAL PROVISION FOR USE OF NUMBER 10 SCREENINGS AND WILL BE PAID FOR AS BORROW MATERIAL OR EMBANKMENT.

SHALE, SILTSTONE, CLAYSTONE AND OTHER POTENTIALLY NONDURABLE ROCK MATERIALS SHALL MEET THE REQUIREMENTS OF THE SPECIAL PROVISION FOR SHALE FILL.

G-8 IN THE EVENT IT BECOMES NECESSARY TO USE BLASTING TECHNIQUES TO LOOSEN, BREAK AND/OR EXCAVATE BEDROCK, THE SPECIAL PROVISION FOR CONTROLLED BLASTING SHALL APPLY.

G-9 WORK INCLUDED IN THESE PLANS SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR PROTECTION OF KARST HABITAT. IN THE EVENT A CAVE, SINKHOLE, SPRING, BLOWHOLE, SWALLET OR OTHER KARST FEATURE IS OBSERVED WITHIN THE PROJECT LIMITS OR IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY CONTACT THE VDOT PROJECT INSPECTOR AND THE VDOT DISTRICT ENVIRONMENTAL MANAGER AT (540) 332-9101.

DRAINAGE

D-1 THE HORIZONTAL LOCATION OF ALL DRAINAGE STRUCTURES SHOWN ON THESE PLANS IS APPROXIMATE ONLY, WITH THE EXCEPTION OF STRUCTURES SHOWING SPECIFIC STATIONS, SPECIAL DESIGN BRIDGES AND STORM SEWER SYSTEMS.

D-2 THE HORIZONTAL LOCATION AND INVERT ELEVATIONS SHOWN FOR PROPOSED CULVERTS AND STORM SEWER OUTFALL PIPES ARE BASED ON EXISTING SURVEY DATA AND REQUIRED DESIGN CRITERIA. IF DURING CONSTRUCTION, IT IS FOUND THAT THE HORIZONTAL LOCATION OR INVERT ELEVATIONS SHOWN ON THE PLANS DIFFER SIGNIFICANTLY FROM THE HORIZONTAL LOCATION OR ELEVATIONS OF THE STREAM OR SWALE IN WHICH THE CULVERT OR STORM SEWER OUTFALL PIPE IS TO BE PLACED, THE ENGINEER SHALL CONFER WITH, AND GET APPROVAL FROM, THE APPLICABLE DISTRICT DRAINAGE ENGINEER BEFORE INSTALLING THE CULVERT OR STORM SEWER OUTFALL PIPE.

D-3 THE "H" DIMENSIONS SHOWN ON PLANS FOR DROP INLETS AND JUNCTION BOXES AND THE "L.F." DIMENSIONS SHOWN FOR MANHOLES ARE FOR ESTIMATING PURPOSES AND ARE BASED ON THE PROPOSED INVERT ELEVATIONS SHOWN FOR THE STRUCTURE AND THE ANTICIPATED TOP (RIM) ELEVATION BASED ON EXISTING OR PROPOSED FINISHED GRADE. THE ACTUAL "H" OR "L.F." DIMENSIONS ARE TO BE DETERMINED BY THE CONTRACTOR FROM FIELD CONDITIONS.

D-8 WHERE OPEN JOINT PIPE IS TO BE USED, NO JOINT SHALL BE OPENED A DISTANCE EXCEEDING 25% OF THE SPIGOT LENGTH. SEALING OF THE PIPE JOINT SHALL BE IN ACCORDANCE WITH SECTION 302 OF THE APPLICABLE VDOT ROAD AND BRIDGE SPECIFICATIONS.

D-9 A PIPE JOINT LENGTH DIFFERENT FROM THAT STATED ON THE PLANS MAY BE USED. AN ADJUSTMENT IN THE PERCENTAGE OF OPEN JOINT (NOT TO EXCEED 25% OF THE SPIGOT LENGTH) OR AMOUNT OF BEVEL SHALL BE MADE THAT WILL OBTAIN THE RADIUS STATED ON THE PLANS. EXTRA PAYMENT FOR THIS ADJUSTMENT WILL NOT BE ALLOWED. THE PROPOSED ADJUSTMENT SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION OF THE PIPE LINE.

D-12 ALL EXISTING DRAINAGE FACILITIES LABELED "TO BE ABANDONED" SHALL BE LEFT IN PLACE, BACKFILLED AND PLUGGED IN ACCORDANCE WITH THE VDOT ROAD AND BRIDGE STANDARD PP-1. BASIS OF PAYMENT WILL BE C.Y. OF FLOWABLE BACKFILL.

D-13 EXISTING DRAINAGE FACILITIES BEING UTILIZED AS A PART OF THE DRAINAGE SYSTEM, AND DESIGNATED ON THE PLANS "TO BE CLEANED OUT" SHALL BE CLEANED AS DIRECTED BY THE ENGINEER. THE COST INCIDENTAL TO THIS SHALL BE INCLUDED IN THE CONTRACT PRICE FOR OTHER ITEMS.

D-14 PROPOSED DROP INLETS WITH A HEIGHT (H) LESS THAN THE STANDARD MINIMUM SHOWN IN THE VDOT ROAD AND BRIDGE STANDARDS SHALL BE CONSIDERED AND PAID FOR AS STANDARD DROP INLETS FOR THE TYPE SPECIFIED. PIPES WITH LESS THAN STANDARD MINIMUM FINISHED HEIGHT OF COVER SHALL BE NOTED AS SUCH IN THE DRAINAGE DESCRIPTION FOR THE PIPE. SPECIFIC PIPE BEDDING AND COVER REQUIREMENTS ARE PROVIDED IN THE APPLICABLE PB-1 AND PC-1 STANDARD DRAWINGS OF THE VDOT ROAD AND BRIDGE STANDARDS.

D-16 WHEN CG-6 OR CG-7 IS SPECIFIED ON A RADIUS (SUCH AS AT A STREET INTERSECTION), THE ENGINEER MAY APPROVE A DECREASE IN THE CROSS SLOPE OF THE GUTTER TO FACILITATE PROPER DRAINAGE.

D-17 ST'D. SL-1 SAFETY SLAB LOCATIONS ARE BASED ON THE ASSUMED USE OF PRECAST STRUCTURES. IF CAST-IN-PLACE STRUCTURES ARE UTILIZED, AND THE INTERIOR CHAMBER DIMENSIONS (LENGTH AND WIDTH, OR DIAMETER) ARE LESS THAN 4 FEET, THE SAFETY SLABS SHALL NOT BE INSTALLED.

D-18 PIPE BACKFILL SHALL BE PERFORMED IN ACCORDANCE WITH VDOT STANDARD PB-1 AND SECTION 302.03(A)2.G. OF THE SPECIFICATIONS UNLESS NOTED HEREIN. REGULAR BACKFILL MATERIAL WITHIN THE LIMITS OF ROADWAY EMBANKMENTS AND UNDER EXISTING OR PROPOSED ROADWAY SHALL MEET A MINIMUM CBR VALUE OF 15.0 AS DETERMINED BY VTM-8. NO. 10 SCREENINGS MAY BE USED AS REGULAR BACKFILL OR BEDDING MATERIAL IN ACCORDANCE WITH THE SPECIAL PROVISION FOR USE OF NUMBER 10 SCREENINGS. GROUND LINE SHALL BE CONSIDERED THE TOP OF TRENCH AT THE TIME OF PIPE INSTALLATION. WHEN PIPE DOES NOT PROJECT ABOVE GROUND LINE, REGULAR BACKFILL SHALL EXTEND TO THE TOP OF THE PIPE TRENCH IN FILLS OR SUBGRADE IN CUTS. OUTLET PIPES FOR STORM WATER MANAGEMENT BASINS SHALL BE INSTALLED AS NOTED ON THE PLANS. THE COST OF FURNISHING, PLACING, AND COMPACTING THE REGULAR BACKFILL, BEDDING MATERIAL, AND DISPOSING OF UNSUITABLE MATERIAL EXCAVATED FROM THE TRENCH SHALL BE INCLUDED IN THE PRICE OF THE PIPE AND WILL NOT BE MEASURED AND FOR SEPARATE PAYMENT.

PAVEMENT

P-2 THE PAVEMENT MATERIALS ON THIS PROJECT WILL BE PAID FOR ON A TONNAGE BASIS. THE WEIGHT WILL VARY IN ACCORDANCE WITH THE SPECIFIC GRAVITY OF THE AGGREGATES AND THE ASPHALTIC CONTENT OF THE MIX ACTUALLY USED TO SECURE THE DESIGN DEPTH. THE WEIGHT OF THE ASPHALT CONCRETE IS BASED ON 95% OF THE THEORETICAL MAXIMUM DENSITY.

P-3 TIE-IN TO EXISTING PAVEMENTS ALONG MAINLINE AND CONNECTORS SHALL BE MILLED TO A DEPTH MATCHING THE NEW SURFACE ASPHALT COURSE IN ACCORDANCE WITH VDOT ROAD AND BRIDGE STANDARD ACOT-1. WIDENING SHALL CONFORM TO VDOT ROAD AND BRIDGE STANDARD WP-2. SAWCUT IS EXPECTED TO BE APPROXIMATELY 4 INCHES IN DEPTH ALONG MAINLINE.

MATERIALS

NOTE: THE QUANTITIES OF AGGREGATE MATERIALS ESTIMATED FOR THIS PROJECT WERE COMPUTED USING THE FOLLOWING BULK DENSITY FACTORS:

RIPRAP (ALL TYPES)	1.8 TONS/CUBIC YARD
ROCKFILL MATERIAL (12" X 2")	1.5 TONS/CUBIC YARD
SELECT MATERIAL (8" X 2")	1.5 TONS/CUBIC YARD
NO.21A/21B	2.0 TONS/CUBIC YARD
NO.25/26	2.0 TONS/CUBIC YARD
SELECT MATERIAL, TYPE I	2.0 TONS/CUBIC YARD
CEMENT TREATED AGGREGATE (CTA)	2.0 TONS/CUBIC YARD
NO. 57	1.3 TONS/CUBIC YARD
BEDDING MATERIAL	1.4 TONS/CUBIC YARD
CLASS I BACKFILL MATERIAL	2.0 TONS/CUBIC YARD

NOTE: THE CONTRACTOR SHALL CONTACT THE ENGINEER TO DETERMINE THE SOURCE-SPECIFIC BULK DENSITY CONVERSION FACTORS FOR AGGREGATE MATERIALS THAT SHALL BE USED FOR COMPUTING ACTUAL QUANTITIES FOR PAYMENT PURPOSES.

EROSION AND SEDIMENT CONTROL

E-3 THE FOLLOWING SYMBOLS ARE USED TO DEPICT EROSION CONTROL ITEMS IN THE PLAN ASSEMBLY:

TR — DENOTES AN EXISTING TREE TO BE REMOVED

TP — DENOTES AN EXISTING TREE TO BE PROTECTED

IP-A — DENOTES INLET PROTECTION, TYPE A: VDOT ST'D. EC-6

IP-B — DENOTES INLET PROTECTION, TYPE B: VDOT ST'D. EC-6

CITY OF WINCHESTER

1. ANY SUMP PUMP DISCHARGE PIPES AND/OR ROOF DRAINS SHOULD BE CONNECTED TO THE NEW STORM SEWER SYSTEM, WHERE POSSIBLE. OTHERWISE, THESE PIPES SHOULD DISCHARGE THROUGH THE CURB LINE.

PROJECT MANAGER Kelly Henshaw (540) 667-2387
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DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
Lic. No. 37672
7/5/2019
PROFESSIONAL ENGINEER

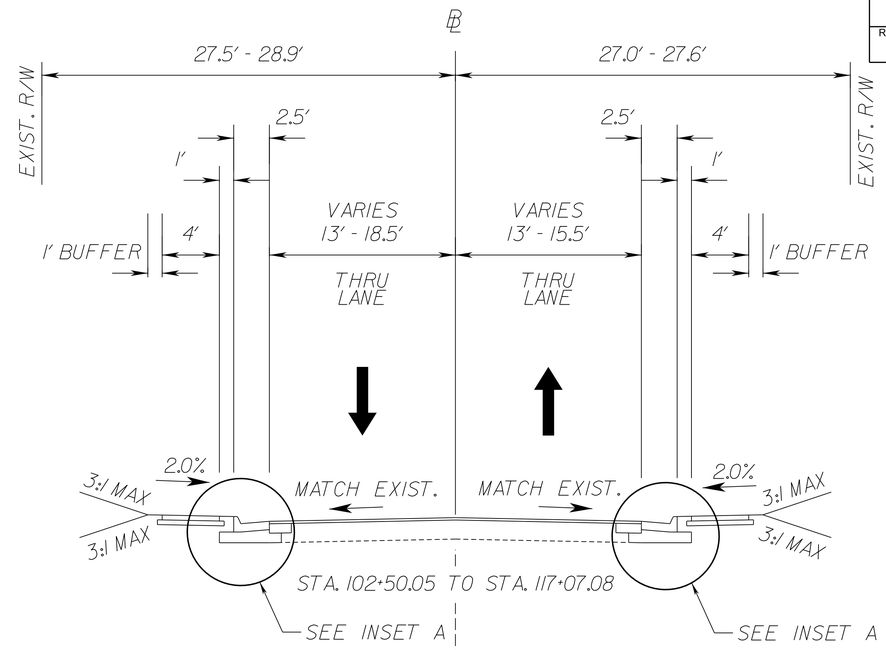
Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	2A

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

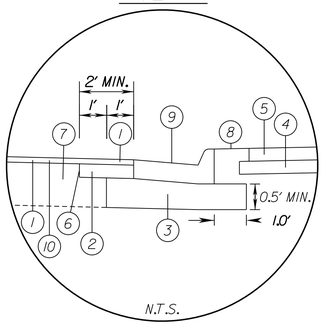
TYPICAL SECTIONS

WENTWORTH DRIVE CONSTR.



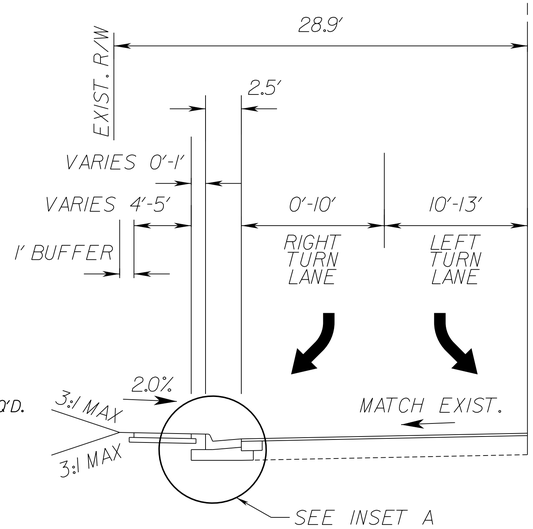
NOTE: ON STREET PARKING ALLOWED ON BOTH SIDES OF ROADWAY.

INSET A



LEGEND

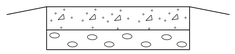
1. 1.5" ASPHALT CONCRETE TYPE SM-9.5A, ESTIMATED AT 165 LBS/SY
2. VARIABLE DEPTH ASPHALT CONCRETE, TYPE BM-25.0A, TO MATCH EXISTING ASPHALT CONCRETE THICKNESS (3" MIN.)
3. VARIABLE DEPTH AGGREGATE BASE MATERIAL, TYPE I, SIZE NO. 21B, THE THICKNESS OF THE AGGREGATE BASE MATERIAL SHALL BE 8" OR EXTEND TO THE BOTTOM OF THE EXISTING AGGREGATE BASE LAYER, WHICHEVER IS THICKER
4. 4" AGGREGATE BASE MATERIAL, TYPE I, SIZE NO. 21B
5. 4" HYDRAULIC CONCRETE SIDEWALK CLASS A4
6. SAWCUT ASPHALT CONCRETE PAVEMENT (FULL DEPTH); PER VDOT ST'D. WP-2 REQ'D.
7. EXISTING PAVEMENT TO REMAIN
8. 2" TOPSOIL CLASS A OR B AND SEEDING REQ'D.
9. VDOT ST'D. CG-6 REQ'D.
10. MILL 1.5" OF EXISTING PAVEMENT



STA. 100+28.50 TO STA. 102+50.05

DRIVEWAY DETAILS

TYPE II
CONCRETE

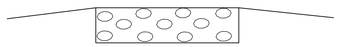


CONCRETE ENTRANCE PAVEMENT
7" HES
4" AGGR. BASE MAT'L. TY. I, NO. 21B

TYPE III
ASPHALT

ASPHALT CONC. TYPE
SM-9.5A @ 220 LBS. PER S.Y.
4" AGGR. BASE MAT'L. TY. I, NO. 21B

TYPE I
CRUSHER RUN AGGR.



6" CRUSHER RUN
AGGR. 25 OR 26

N.T.S.	PROJECT EN14-138-102	SHEET NO. 2A

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

GEOMETRIC DETAILS

COMMONWEALTH OF VIRGINIA
BRIAN MICHAEL FINERFROCK
Lic. No. 44505
7/5/19
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Hydraulic Engineer

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7/5/2019
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Fairfax, Virginia
Roadway Engineer

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	2B(1)

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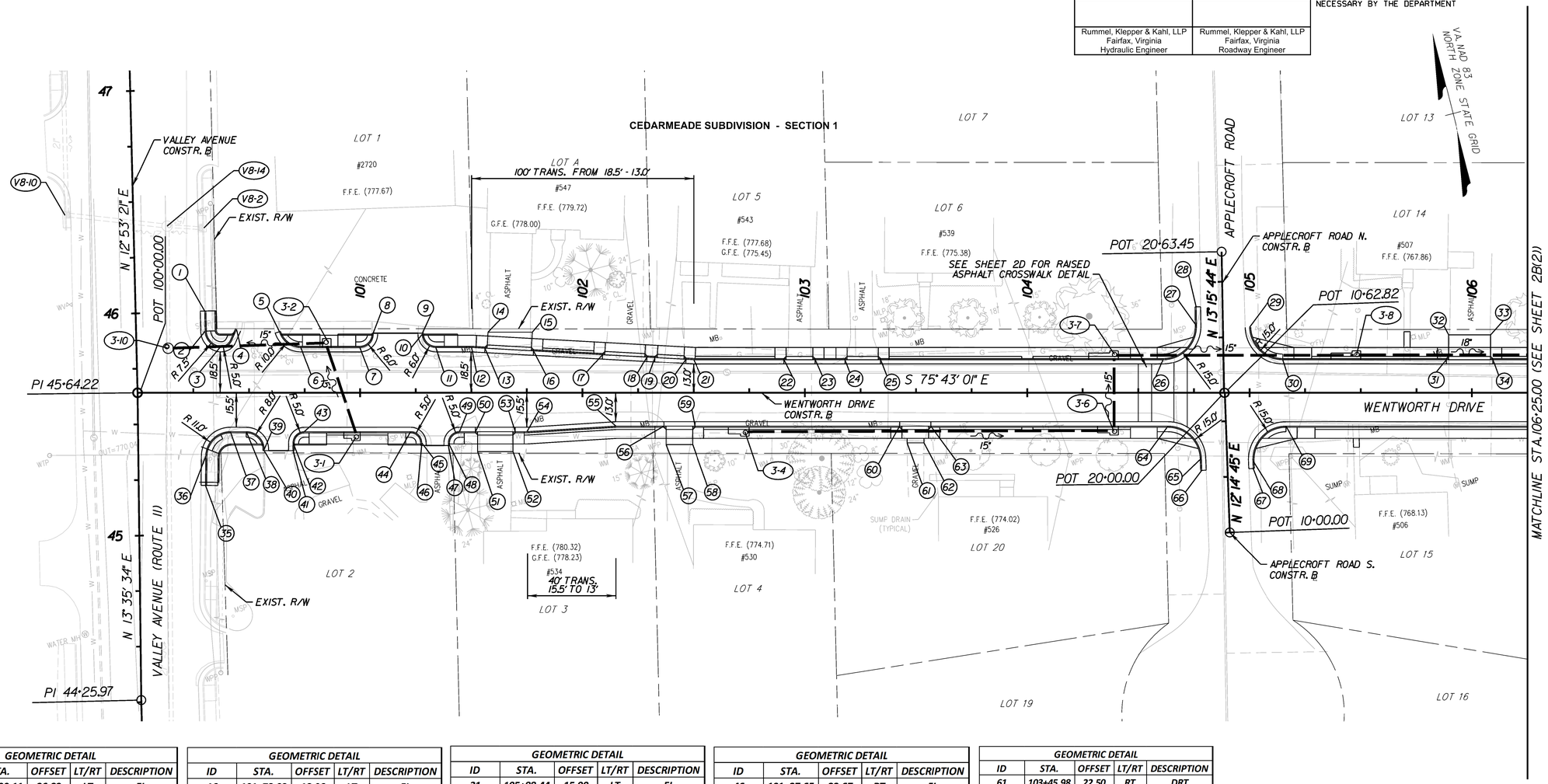

GEOMETRIC DETAIL				
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2	100+30.33	27.82	LT	FL
3	100+36.99	20.55	LT	FL
4	100+44.38	28.65	LT	FL
5	100+63.66	27.53	LT	FL
6	100+73.21	20.50	LT	FL
7	100+99.86	20.50	LT	FL
8	101+05.86	26.89	LT	FL
9	101+27.99	26.88	LT	FL
10	101+27.99	26.50	LT	FL
11	101+33.99	20.50	LT	FL
12	101+50.05	20.50	LT	FL
13	101+56.05	20.17	LT	FL
14	101+57.45	27.35	LT	DLT
15	101+77.48	27.35	LT	DLT

GEOMETRIC DETAIL				
ID	STA.	OFFSET	LT/RT	DESCRIPTION
16	101+78.02	18.96	LT	FL
17	102+09.05	17.26	LT	FL
18	102+29.02	16.16	LT	FL
19	102+32.59	15.96	LT	FL
20	102+46.57	15.19	LT	FL
21	102+50.05	15.00	LT	FL
22	102+90.60	15.00	LT	FL
23	103+04.60	15.00	LT	FL
24	103+17.95	15.00	LT	FL
25	103+33.95	15.00	LT	FL
26	104+61.11	15.00	LT	FL
27	104+76.11	30.22	LT	FL
28	104+75.99	38.72	LT	FL
29	105+00.01	29.57	LT	FL
30	105+15.00	15.00	LT	FL

GEOMETRIC DETAIL				
ID	STA.	OFFSET	LT/RT	DESCRIPTION
31	105+88.44	15.00	LT	FL
32	105+89.44	26.16	LT	DLT
33	106+08.44	26.16	LT	DLT
34	106+09.44	15.00	LT	FL
35	100+30.47	41.63	RT	FL
36	100+30.63	28.36	RT	FL
37	100+41.63	17.50	RT	FL
38	100+48.89	17.50	RT	FL
39	100+56.79	25.50	RT	FL
40	100+56.79	26.00	RT	FL
41	100+69.76	26.00	RT	FL
42	100+69.76	22.50	RT	FL
43	100+74.76	17.50	RT	FL
44	101+22.65	17.50	RT	FL
45	101+27.65	22.50	RT	FL

GEOMETRIC DETAIL				
ID	STA.	OFFSET	LT/RT	DESCRIPTION
46	101+27.65	23.67	RT	FL
47	101+39.65	23.67	RT	FL
48	101+39.65	22.50	RT	FL
49	101+44.65	17.50	RT	FL
50	101+51.81	17.50	RT	FL
51	101+52.81	26.47	RT	DRT
52	101+68.81	26.47	RT	DRT
53	101+69.81	17.50	RT	FL
54	101+75.06	17.50	RT	FL
55	102+15.06	15.00	RT	FL
56	102+36.59	15.00	RT	FL
57	102+37.59	23.32	RT	DRT
58	102+49.59	23.32	RT	DRT
59	102+50.59	15.00	RT	FL
60	103+42.64	15.00	RT	FL

GEOMETRIC DETAIL				
ID	STA.	OFFSET	LT/RT	DESCRIPTION
61	103+45.98	22.50	RT	DRT
62	103+53.58	22.50	RT	DRT
63	103+56.64	15.00	RT	FL
64	104+63.33	15.00	RT	FL
65	104+78.32	29.47	RT	FL
66	104+78.52	34.87	RT	FL
67	105+01.63	34.04	RT	FL
68	105+01.50	30.53	RT	FL
69	105+16.49	15.00	RT	FL

FL- FLOW LINE
DLT-DRIVEWAY LEFT
DRT-DRIVEWAY RIGHT
FSWK-FRONT SIDEWALK
BSWK-BACK SIDEWALK

SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	2B(1)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
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GEOMETRIC DETAILS

COMMONWEALTH OF VIRGINIA
BRIAN MICHAEL FINERFROCK
Lic. No. 44505
7/5/19
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Hydraulic Engineer

COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
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7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	2B(2)

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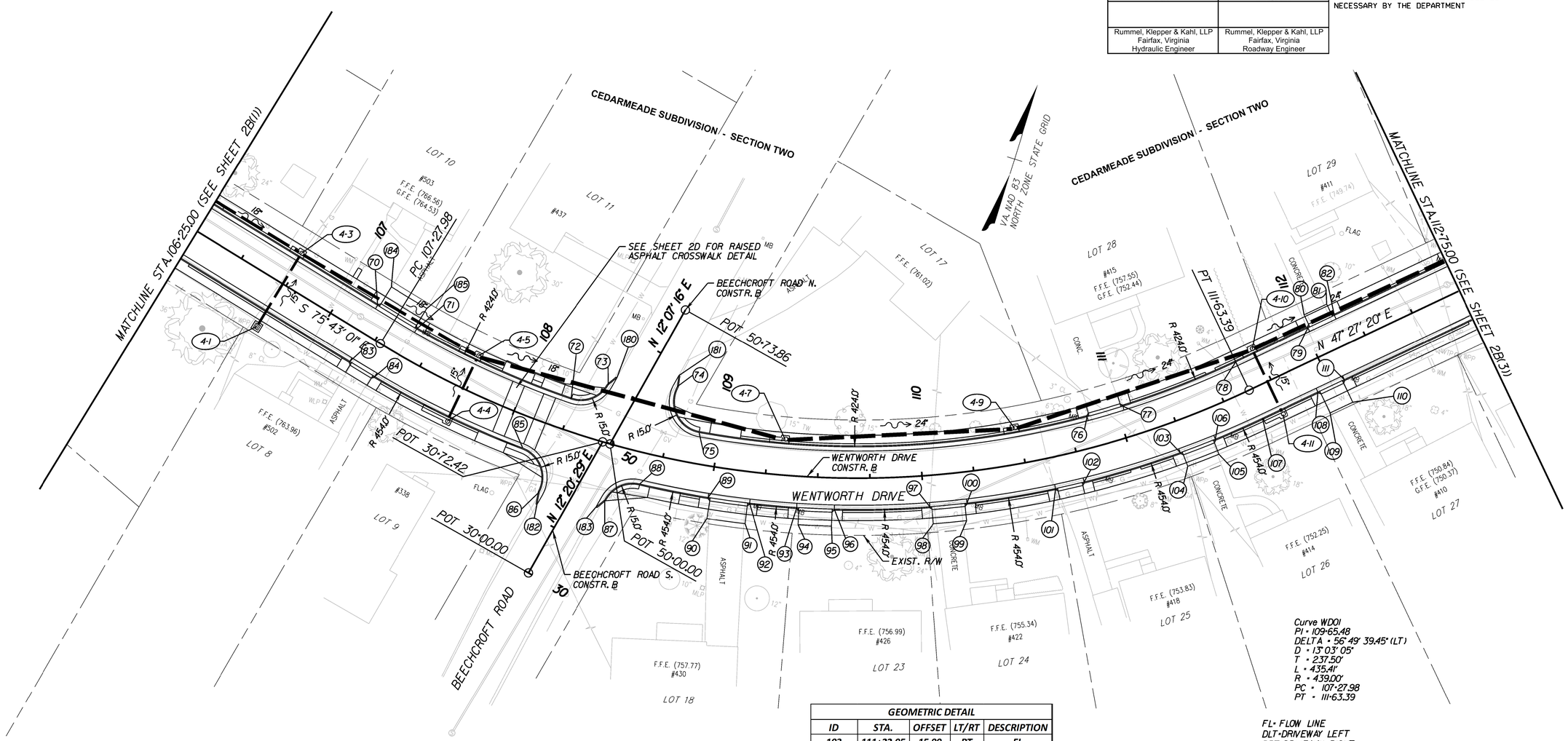

Curve WD01
PI = 109+65.48
DELTA = 56° 49' 39.45" (LT)
D = 13° 03' 05"
T = 237.50'
L = 435.41'
R = 439.00'
PC = 107+27.98
PT = 111+63.39

FL= FLOW LINE
DLT=DRIVEWAY LEFT
DRT=DRIVEWAY RIGHT
FSWK=FRONT SIDEWALK
BSWK=BACK SIDEWALK

GEOMETRIC DETAIL				
ID	STA.	OFFSET	LT/RT	DESCRIPTION
70	107+17.25	15.00	LT	FL
71	107+39.65	15.00	LT	FL
72	108+24.02	15.00	LT	FL
73	108+39.74	27.02	LT	FL
74	108+74.51	34.59	LT	FL
75	108+89.93	15.00	LT	FL
76	110+84.49	15.00	LT	FL
77	111+03.13	15.00	LT	FL
78	111+63.39	15.00	LT	FL
79	112+01.81	15.00	LT	FL
80	112+02.81	21.42	LT	DLT

GEOMETRIC DETAIL				
ID	STA.	OFFSET	LT/RT	DESCRIPTION
81	112+14.81	21.42	LT	DLT
82	112+15.81	15.00	LT	FL
83	107+19.99	15.00	RT	FL
84	107+33.79	15.00	RT	FL
85	108+10.19	15.00	RT	FL
86	108+24.06	32.14	RT	FL
87	108+53.38	26.63	RT	FL
88	108+67.11	15.00	RT	FL
89	108+99.47	15.00	RT	FL
90	109+00.44	25.12	RT	DRT
91	109+17.92	25.12	RT	DRT

GEOMETRIC DETAIL				
ID	STA.	OFFSET	LT/RT	DESCRIPTION
92	109+18.89	15.00	RT	FL
93	109+40.93	15.00	RT	FL
94	109+42.04	23.32	RT	DRT
95	109+57.23	23.32	RT	DRT
96	109+58.34	15.00	RT	FL
97	110+02.61	15.00	RT	FL
98	110+03.67	23.46	RT	DRT
99	110+18.96	23.46	RT	DRT
100	110+20.02	15.00	RT	FL
101	110+61.69	15.00	RT	FL
102	110+75.28	15.00	RT	FL

GEOMETRIC DETAIL				
ID	STA.	OFFSET	LT/RT	DESCRIPTION
103	111+22.05	15.00	RT	FL
104	111+23.14	22.36	RT	DRT
105	111+38.37	22.36	RT	DRT
106	111+39.46	15.00	RT	FL
107	111+63.39	15.00	RT	FL
108	111+92.89	15.00	RT	FL
109	111+93.89	26.55	RT	DRT
110	112+05.89	26.55	RT	DRT
111	112+06.89	15.00	RT	FL
180	108+43.01	31.46	LT	FL
181	108+74.00	39.86	LT	FL
182	108+24.90	38.28	RT	FL
183	108+50.42	30.99	RT	FL
184	107+18.25	25.97	LT	DLT
185	107+38.90	25.97	LT	DLT

SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	2B(2)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
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GEOMETRIC DETAILS

COMMONWEALTH OF VIRGINIA
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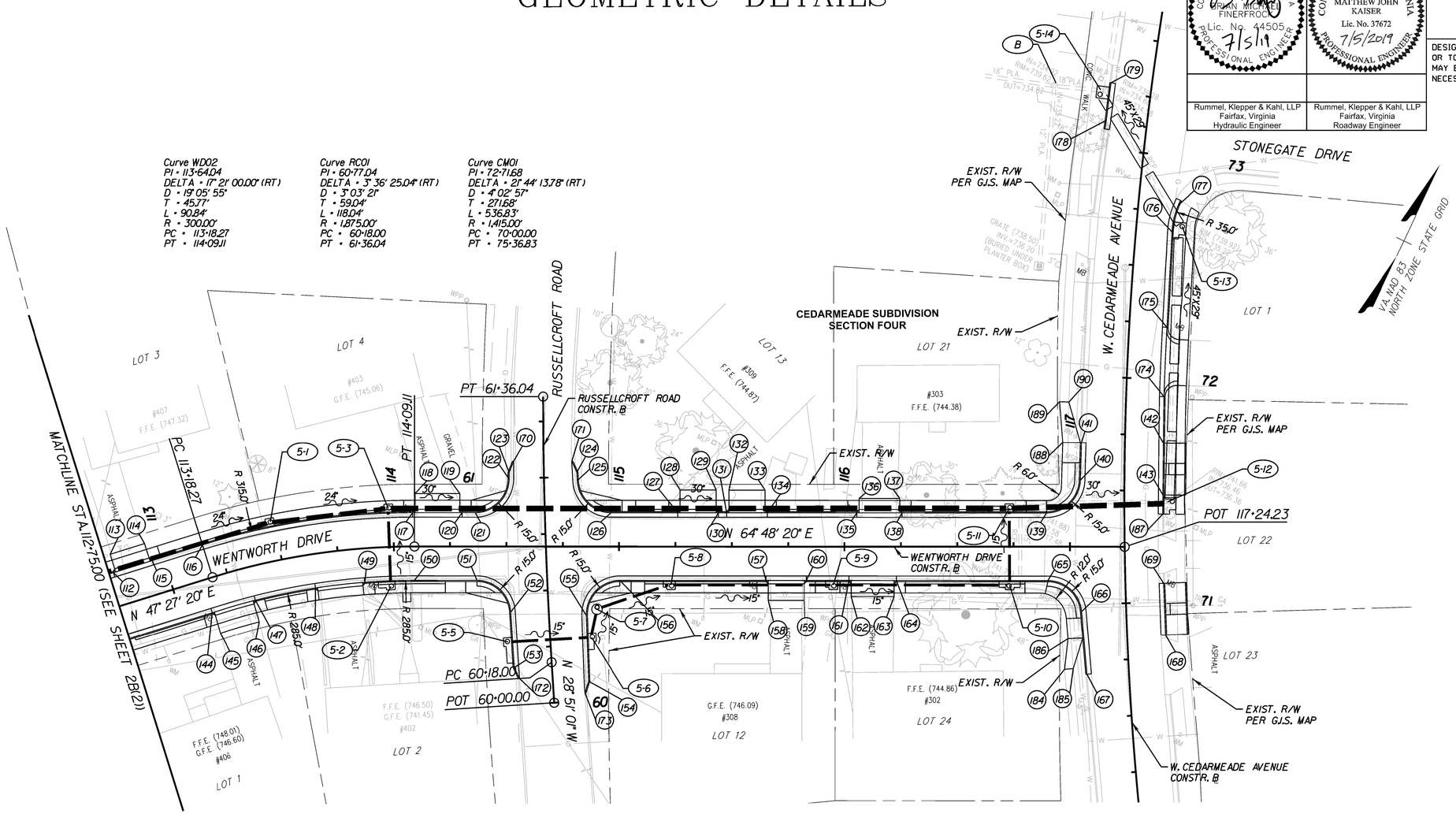
REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	2B(3)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Curve WD02
PI = 113+64.04
DELTA = 17° 21' 00.00" (RT)
D = 19° 05' 55"
T = 45.77'
L = 90.84'
R = 300.00'
PC = 113+18.27
PT = 114+09.11

Curve RC01
PI = 60+77.04
DELTA = 3° 36' 25.04" (RT)
D = 3° 03' 21"
T = 59.04'
L = 118.04'
R = 1,875.00'
PC = 60+18.00
PT = 61+36.04

Curve CM01
PI = 72+71.68
DELTA = 21° 44' 13.78" (RT)
D = 4° 02' 57"
T = 271.68'
L = 536.83'
R = 1,415.00'
PC = 70+00.00
PT = 75+36.83



GEOMETRIC DETAIL				
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113	112+77.96	23.21	LT	DLT
114	112+93.96	23.21	LT	DLT
115	112+94.96	15.00	LT	FL
116	113+18.27	15.00	LT	FL
117	114+08.38	15.00	LT	FL
118	114+09.35	23.46	LT	DLT
119	114+29.35	23.46	LT	DLT
120	114+30.35	15.00	LT	FL
121	114+36.18	15.00	LT	FL
122	114+51.18	29.97	LT	FL
123	114+51.19	32.81	LT	FL
124	114+81.20	32.96	LT	FL
125	114+81.39	29.22	LT	FL
126	114+96.37	15.00	LT	FL

GEOMETRIC DETAIL				
ID	STA.	OFFSET	LT/RT	DESCRIPTION
127	115+26.08	15.00	LT	FL
128	115+27.08	25.08	LT	DLT
129	115+43.08	25.08	LT	DLT
130	115+44.08	15.00	LT	FL
131	115+47.72	15.00	LT	FL
132	115+48.72	25.02	LT	DLT
133	115+64.72	25.02	LT	DLT
134	115+65.72	15.00	LT	FL
135	116+05.50	15.00	LT	FL
136	116+06.50	21.38	LT	DLT
137	116+24.50	21.38	LT	DLT
138	116+25.50	15.00	LT	FL
139	116+89.60	15.00	LT	FL
140	117+04.59	29.56	LT	FL
141	117+05.08	46.22	LT	FL

GEOMETRIC DETAIL				
ID	STA.	OFFSET	LT/RT	DESCRIPTION
* 142	71+71.33	17.05	RT	FL
* 143	71+48.05	17.10	RT	FL
144	113+13.45	15.00	RT	FL
145	113+14.22	24.80	RT	DRT
146	113+33.48	24.77	RT	DRT
147	113+34.25	15.00	RT	FL
148	113+62.82	15.00	RT	FL
149	113+85.99	15.00	RT	FL
150	114+09.11	15.00	RT	FL
151	114+36.95	15.00	RT	FL
152	114+51.92	29.04	RT	FL
153	114+53.50	53.73	RT	FL
154	114+86.48	59.82	RT	FL
155	114+85.41	30.51	RT	FL
156	115+00.43	15.00	RT	FL

ID	STA.	OFFSET	LT/RT	DESCRIPTION
157	115+65.17	15.00	RT	FL
158	115+66.17	23.85	RT	DRT
159	115+82.17	23.85	RT	DRT
160	115+83.17	15.00	RT	FL
161	116+02.01	15.00	RT	FL
162	116+03.01	22.09	RT	DRT
163	116+22.01	22.09	RT	DRT
164	116+23.01	15.00	RT	FL
165	116+90.19	15.00	RT	FL
166	117+05.14	28.72	RT	FL
167	117+07.53	56.61	RT	FL
* 168	70+85.14	17.02	RT	FL
* 169	71+08.42	16.94	RT	FL
170	114+53.20	37.81	LT	FL
171	114+78.95	37.75	LT	FL

GEOMETRIC DETAIL				
ID	STA.	OFFSET	LT/RT	DESCRIPTION
172	114+55.81	58.59	RT	FL
173	114+84.80	64.94	RT	FL
* 174	71+92.30	16.77	RT	FL
* 175	72+23.31	16.73	RT	FL
* 176	72+66.22	16.01	RT	FL
* 177	72+78.41	17.68	RT	FL
* 178	73+12.41	18.05	LT	FL
* 179	73+28.96	18.05	LT	FL
184	116+97.62	54.43	RT	BSWK
185	117+01.47	54.11	RT	FSWK
186	116+99.15	40.80	RT	BSWK
* 187	71+39.46	17.03	RT	FL
188	116+96.78	46.29	LT	BSWK
189	116+95.37	64.41	LT	BSWK
190	116+99.46	64.24	LT	FSWK

FL= FLOW LINE
DLT=DRIVEWAY LEFT
DRT=DRIVEWAY RIGHT
FSWK=FRONT SIDEWALK
BSWK=BACK SIDEWALK

NOTE:
1. ALL STATIONS AND OFFSETS TAKEN FROM WENTWORTH CONSTR. BASELINE UNLESS OTHERWISE NOTED.
*2. STATIONS AND OFFSETS TAKEN FROM W. CEDARMEADE CONSTR. BASELINE.

SCALE 0 25' 50'

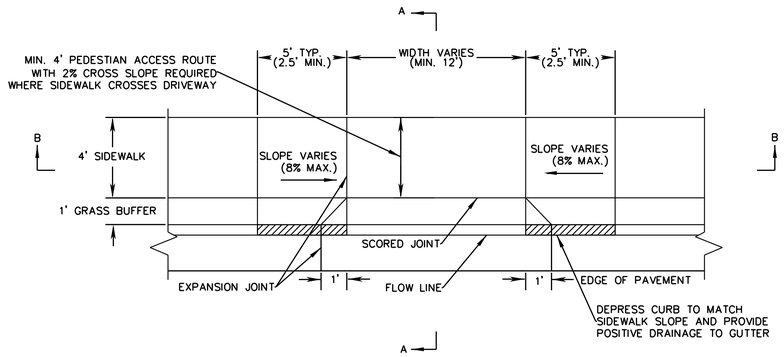
PROJECT	SHEET NO.
EN14-138-102	2B(3)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	2C(1)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

DRIVEWAY AND CURB RAMP DETAILS



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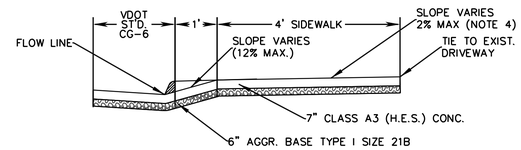
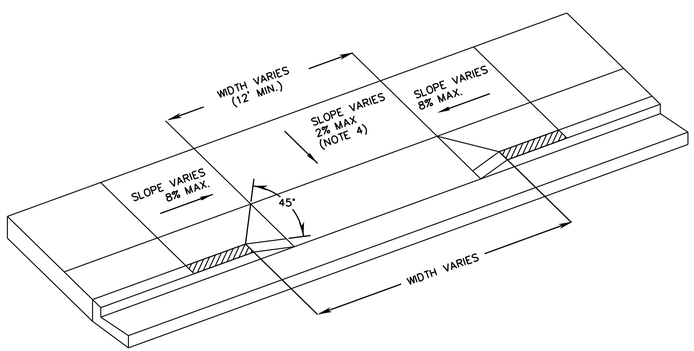


SECTION A-A



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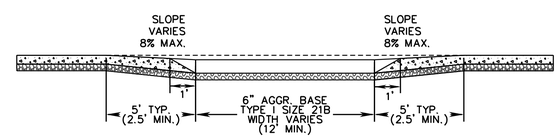


SECTION B-B

CONCRETE DRIVEWAY ENTRANCE DETAIL

NOTES:
1. A 3/4" MIN. DEPTH SCORED JOINT SHALL BE PLACED ON CENTERLINE OF DRIVEWAY ENTRANCE OR EVERY 10'.
2. CONCRETE DRIVEWAY ENTRANCE SHALL BE POURED MONOLITHICALLY.
3. PROVIDE 6" MINIMUM AGGREGATE BASE HAVING MINIMUM CBR-30 UNDER DRIVEWAY ENTRANCE.
4. SEE PLAN GRADING FOR THE DIRECTION OF SIDEWALK CROSS SLOPE.

N.T.S.	PROJECT EN14-138-102	SHEET NO. 2C(1)

PROJECT MANAGER Kelly Henshow (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

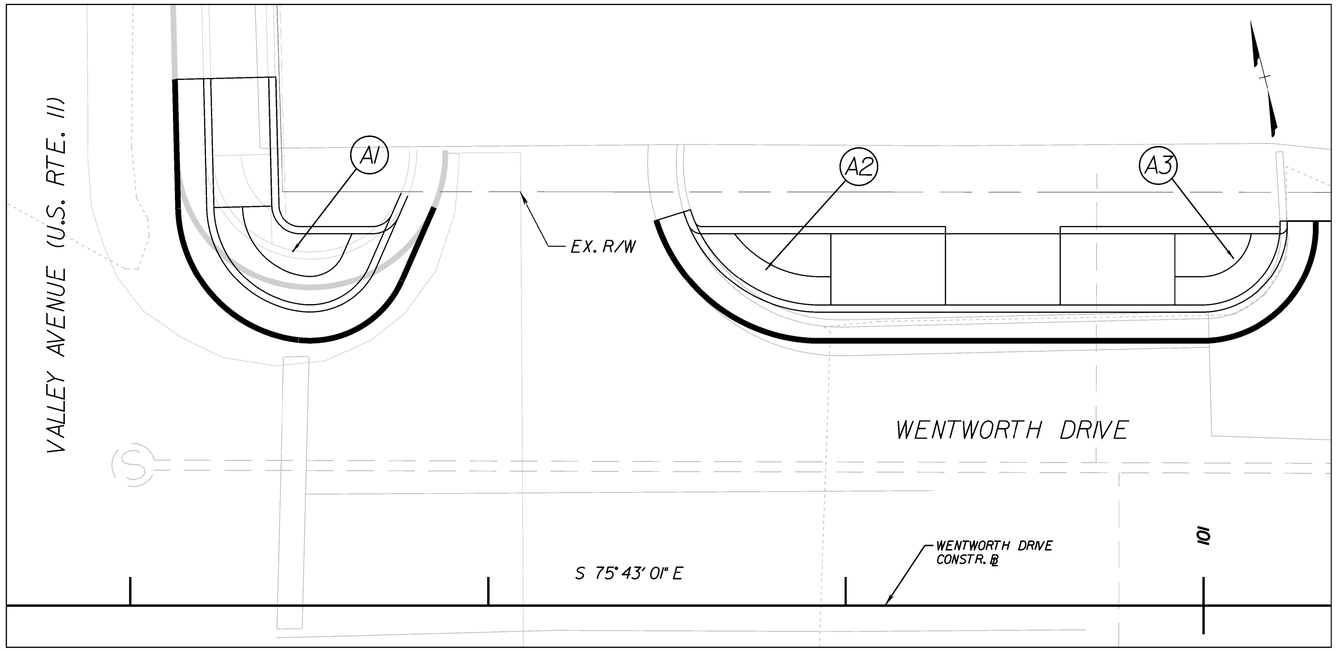
DRIVEWAY AND CURB RAMP DETAILS

COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
Lic. No. 37672
7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	2C(2)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

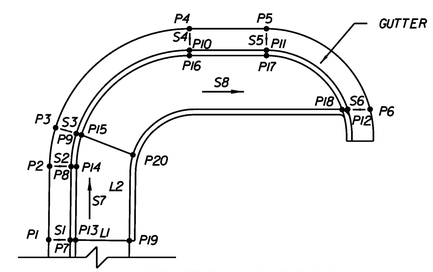


VDOT ST'D. CG-12 TYPE B											
CURB RAMP	L1 (FT)	L2 (FT)	L3 (FT)	S1 (%)	S2 (%)	S3(%)	S4 (%)	S5 (%)	S6 (%)	S7 (%)	S8 (%)
A1	4.00	9.00	-	4.0	-	5.0	-	4.5	5.0	3.7	0.6

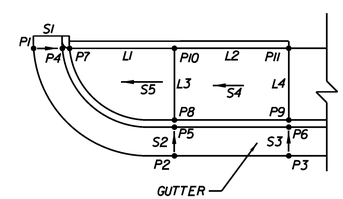
VDOT ST'D. CG-12 TYPE B									
CURB RAMP	L1 (FT)	L2 (FT)	L3 (FT)	L4 (FT)	S1 (%)	S2 (%)	S3(%)	S4 (%)	S5 (%)
A2	9.13	8.00	5.00	5.00	5.0%	5.0%	8.3%	5.6%	0.5%
A3	7.34	8.00	5.00	5.00	1.5%	2.5%	8.3%	5.6%	0.5%

CURB RAMP	POINT	REF. ALIGNMENT	STATION	OFFSET (FT.)	SIDE	ELEV.
A1	P1	WENTWORTH DRIVE	100+28.11	36.78	LT	776.89
	P2	WENTWORTH DRIVE	-	-	-	-
	P3	WENTWORTH DRIVE	100+28.33	27.77	LT	776.82
	P4	WENTWORTH DRIVE	-	-	-	-
	P5	WENTWORTH DRIVE	100+36.77	18.56	LT	777.10
	P6	WENTWORTH DRIVE	100+45.41	26.00	LT	777.18
	P7	WENTWORTH DRIVE	100+30.11	36.83	LT	776.81
	P8	WENTWORTH DRIVE	-	-	-	-
	P9	WENTWORTH DRIVE	100+30.33	27.82	LT	776.72
	P10	WENTWORTH DRIVE	-	-	-	-
	P11	WENTWORTH DRIVE	100+37.00	20.55	LT	777.00
	P12	WENTWORTH DRIVE	100+43.22	26.00	LT	777.08
	P13	WENTWORTH DRIVE	100+30.61	36.84	LT	777.31
	P14	WENTWORTH DRIVE	-	-	-	-
	P15	WENTWORTH DRIVE	100+30.83	27.83	LT	776.73
	P16	WENTWORTH DRIVE	-	-	-	-
	P17	WENTWORTH DRIVE	100+37.05	21.04	LT	777.01
	P18	WENTWORTH DRIVE	100+42.68	26.00	LT	777.08
	P19	WENTWORTH DRIVE	100+34.66	36.94	LT	777.39
	P20	WENTWORTH DRIVE	100+34.88	27.93	LT	777.07

CURB RAMP	POINT	REF. ALIGNMENT	STATION	OFFSET (FT.)	SIDE	ELEV.
A2	P1	WENTWORTH DRIVE	100+62.07	26.00	LT	777.04
	P2	WENTWORTH DRIVE	100+73.97	18.50	LT	776.98
	P3	WENTWORTH DRIVE	100+81.97	18.50	LT	777.01
	P4	WENTWORTH DRIVE	100+64.28	26.00	LT	776.94
	P5	WENTWORTH DRIVE	100+73.97	20.50	LT	776.88
	P6	WENTWORTH DRIVE	100+81.97	20.50	LT	776.84
	P7	WENTWORTH DRIVE	100+64.84	26.00	LT	776.95
	P8	WENTWORTH DRIVE	100+73.97	21.00	LT	776.89
	P9	WENTWORTH DRIVE	100+81.97	21.00	LT	777.34
	P10	WENTWORTH DRIVE	100+73.97	26.00	LT	776.99
	P11	WENTWORTH DRIVE	100+81.97	26.00	LT	777.44
A3	P1	WENTWORTH DRIVE	101+07.84	26.00	LT	776.90
	P2	WENTWORTH DRIVE	100+98.00	18.50	LT	776.86
	P3	WENTWORTH DRIVE	100+90.00	18.50	LT	776.94
	P4	WENTWORTH DRIVE	101+05.84	26.00	LT	776.87
	P5	WENTWORTH DRIVE	100+98.00	20.50	LT	776.81
	P6	WENTWORTH DRIVE	100+90.00	20.50	LT	776.77
	P7	WENTWORTH DRIVE	101+05.33	26.00	LT	776.88
	P8	WENTWORTH DRIVE	100+98.00	21.00	LT	776.82
	P9	WENTWORTH DRIVE	100+90.00	21.00	LT	777.27
	P10	WENTWORTH DRIVE	100+98.00	26.00	LT	776.92
	P11	WENTWORTH DRIVE	100+90.00	26.00	LT	777.37



VDOT ST'D. CG-12 TYPE B
N.T.S.



VDOT ST'D. CG-12 TYPE B
N.T.S.

NOTE: CURB RAMPS TO BE CONSTRUCTED WITH CLASS A4 CONCRETE.

SCALE	PROJECT	SHEET NO.
0 5' 10'	EN14-138-102	2C(2)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

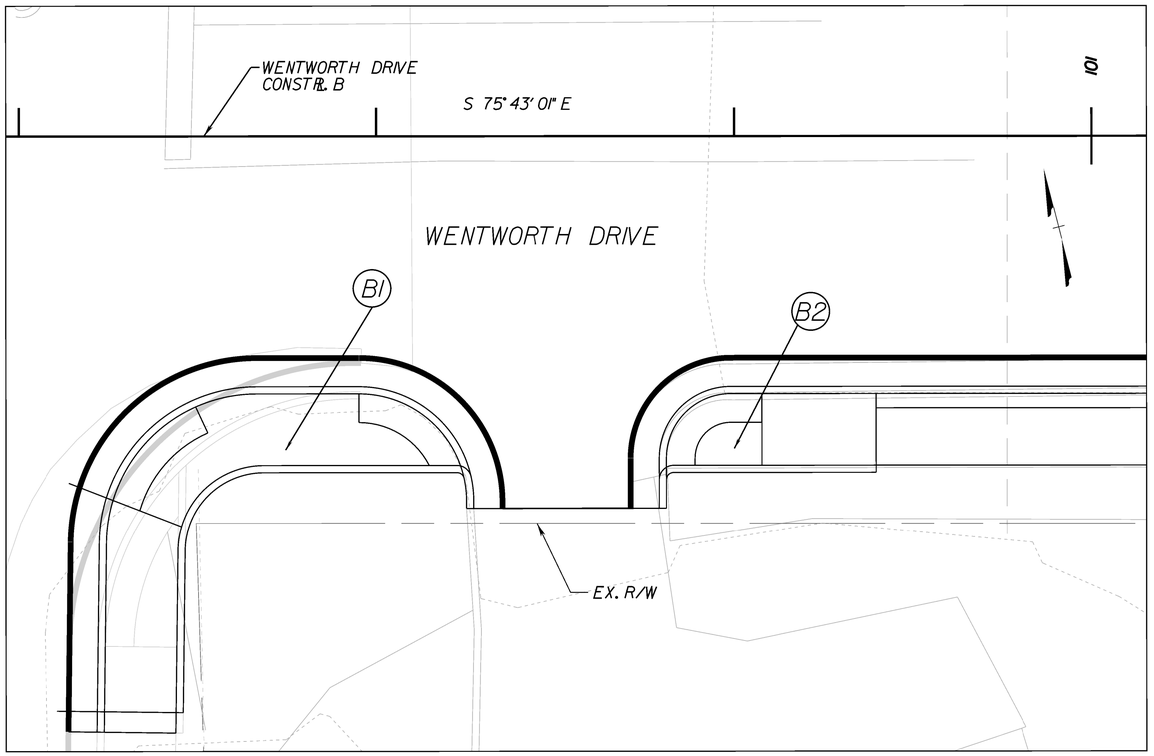
DRIVEWAY AND CURB RAMP DETAILS

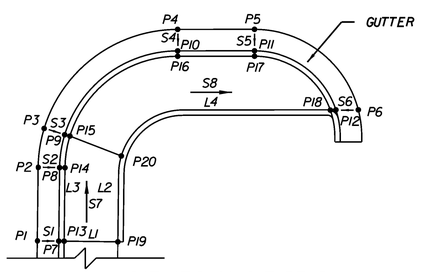
COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
Lic. No. 37672
7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

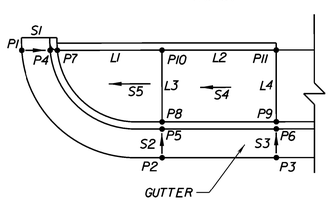
REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	2C(3)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT





VDOT ST'D. CG-12 TYPE B
N.T.S.



VDOT ST'D. CG-12 TYPE B
N.T.S.

VDOT ST'D. CG-12 TYPE B												
CURB RAMP	L1 (FT)	L2 (FT)	L3 (FT)	L4 (FT)	S1 (%)	S2 (%)	S3(%)	S4 (%)	S5 (%)	S6 (%)	S7 (%)	S8 (%)
B1	5.00	13.00	14.82	21.41	8.3%	8.3%	-5.0%	-5.0%	-5.0%	-1.0%	2.7%	1.0%

VDOT ST'D. CG-12 TYPE B									
CURB RAMP	L1 (FT)	L2 (FT)	L3 (FT)	L4 (FT)	S1 (%)	S2 (%)	S3(%)	S4 (%)	S5 (%)
B2	6.67	8.00	5.00	5.00	5.0%	5.0%	5.5%	5.3%	-1.8%

CURB RAMP	POINT	REF. ALIGNMENT	STATION	OFFSET (FT.)	SIDE	ELEV.
B1	P1	WENTWORTH DRIVE	100+28.49	40.17	RT	777.69
	P2	WENTWORTH DRIVE	100+28.63	28.33	RT	777.55
	P3	WENTWORTH DRIVE	100+29.26	24.52	RT	777.56
	P4	WENTWORTH DRIVE	100+41.63	15.50	RT	777.42
	P5	WENTWORTH DRIVE	100+48.80	15.50	RT	777.37
	P6	WENTWORTH DRIVE	100+58.47	23.00	RT	777.52
	P7	WENTWORTH DRIVE	100+30.49	40.20	RT	777.52
	P8	WENTWORTH DRIVE	100+30.63	28.36	RT	777.38
	P9	WENTWORTH DRIVE	100+31.12	25.24	RT	777.66
	P10	WENTWORTH DRIVE	100+41.63	17.50	RT	777.52
	P11	WENTWORTH DRIVE	100+48.79	17.50	RT	777.47
	P12	WENTWORTH DRIVE	100+56.39	23.00	RT	777.54
	P13	WENTWORTH DRIVE	100+30.99	40.20	RT	778.02
	P14	WENTWORTH DRIVE	100+31.13	28.37	RT	777.48
	P15	WENTWORTH DRIVE	100+31.59	25.43	RT	777.67
	P16	WENTWORTH DRIVE	100+41.63	18.00	RT	777.53
	P17	WENTWORTH DRIVE	100+48.79	18.00	RT	777.48
	P18	WENTWORTH DRIVE	100+55.86	23.00	RT	777.55
	P19	WENTWORTH DRIVE	100+35.99	40.26	RT	778.12
	P20	WENTWORTH DRIVE	100+36.38	27.28	RT	777.77

CURB RAMP	POINT	REF. ALIGNMENT	STATION	OFFSET (FT.)	SIDE	ELEV.
B2	P1	WENTWORTH DRIVE	100+67.76	23.00	RT	777.14
	P2	WENTWORTH DRIVE	100+76.93	15.50	RT	776.92
	P3	WENTWORTH DRIVE	100+84.93	15.50	RT	776.86
	P4	WENTWORTH DRIVE	100+69.76	23.00	RT	777.04
	P5	WENTWORTH DRIVE	100+76.93	17.50	RT	776.82
	P6	WENTWORTH DRIVE	100+84.93	17.50	RT	776.75
	P7	WENTWORTH DRIVE	100+70.26	23.00	RT	777.05
	P8	WENTWORTH DRIVE	100+76.93	18.00	RT	776.83
	P9	WENTWORTH DRIVE	100+84.93	18.00	RT	777.25
	P10	WENTWORTH DRIVE	100+76.93	23.00	RT	776.93
	P11	WENTWORTH DRIVE	100+84.93	23.00	RT	777.35

NOTE: CURB RAMPS TO BE CONSTRUCTED WITH CLASS A4 CONCRETE.

SCALE	PROJECT	SHEET NO.
0 5' 10'	EN14-138-102	2C(3)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

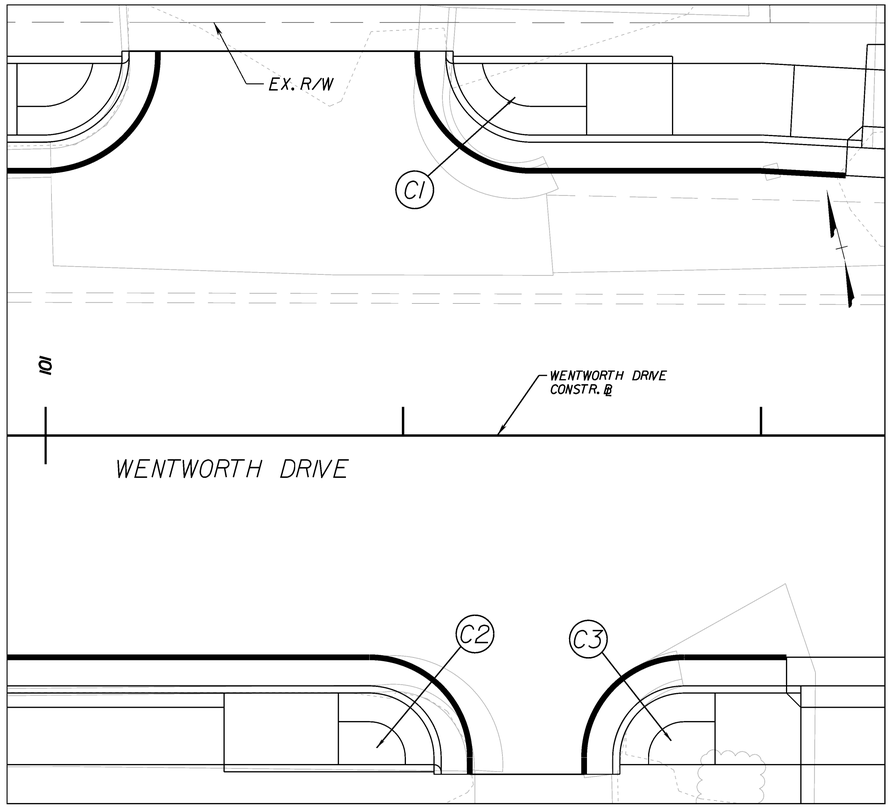
DRIVEWAY AND CURB RAMP DETAILS

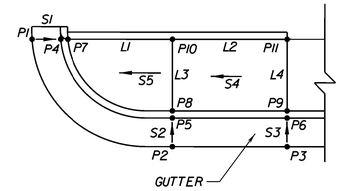
COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
Lic. No. 37672
7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	2C(4)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT





VDOT ST'D. CG-12 TYPE B
N.T.S.

VDOT ST'D. CG-12 TYPE B									
CURB RAMP	L1 (FT)	L2 (FT)	L3 (FT)	L4 (FT)	S1 (%)	S2 (%)	S3(%)	S4 (%)	S5 (%)
C1	9.13	6.00	5.00	5.00	5.0%	4.0%	8.3%	4.2%	-2.0%
C2	6.67	8.00	5.00	5.00	3.0%	-1.0%	2.0%	6.4%	0.15%
C3	6.64	6.02	5.00	5.00	1.0%	5.0%	8.3%	-2.2%	-1.8%

CURB RAMP	POINT	REF. ALIGNMENT	STATION	OFFSET (FT.)	SIDE	ELEV.
C1	P1	WENTWORTH DRIVE	101+26.00	26.00	LT	776.70
	P2	WENTWORTH DRIVE	101+37.82	18.50	LT	776.39
	P3	WENTWORTH DRIVE	101+43.82	18.50	LT	776.24
	P4	WENTWORTH DRIVE	101+28.01	26.00	LT	776.60
	P5	WENTWORTH DRIVE	101+37.82	20.50	LT	776.31
	P6	WENTWORTH DRIVE	101+43.82	20.50	LT	776.07
	P7	WENTWORTH DRIVE	101+28.51	26.00	LT	776.61
	P8	WENTWORTH DRIVE	101+37.82	21.00	LT	776.32
	P9	WENTWORTH DRIVE	101+43.82	21.00	LT	776.57
	P10	WENTWORTH DRIVE	101+37.82	26.00	LT	776.42
	P11	WENTWORTH DRIVE	101+43.82	26.00	LT	776.67
C2	P1	WENTWORTH DRIVE	101+29.65	23.00	RT	776.69
	P2	WENTWORTH DRIVE	101+20.49	15.50	RT	776.52
	P3	WENTWORTH DRIVE	101+12.48	15.50	RT	776.60
	P4	WENTWORTH DRIVE	101+27.65	23.00	RT	776.63
	P5	WENTWORTH DRIVE	101+20.49	17.50	RT	776.54
	P6	WENTWORTH DRIVE	101+12.48	17.50	RT	776.56
	P7	WENTWORTH DRIVE	101+27.15	23.00	RT	776.64
	P8	WENTWORTH DRIVE	101+20.49	18.00	RT	776.55
	P9	WENTWORTH DRIVE	101+12.48	18.00	RT	777.06
	P10	WENTWORTH DRIVE	101+20.49	23.00	RT	776.65
	P11	WENTWORTH DRIVE	101+12.48	23.00	RT	777.16
C3	P1	WENTWORTH DRIVE	101+37.60	23.00	RT	776.64
	P2	WENTWORTH DRIVE	101+46.79	15.50	RT	776.34
	P3	WENTWORTH DRIVE	101+51.81	15.50	RT	776.32
	P4	WENTWORTH DRIVE	101+39.65	23.00	RT	776.62
	P5	WENTWORTH DRIVE	101+46.79	17.50	RT	776..40
	P6	WENTWORTH DRIVE	101+51.81	17.50	RT	776.15
	P7	WENTWORTH DRIVE	101+40.15	23.00	RT	776.63
	P8	WENTWORTH DRIVE	101+46.79	18.00	RT	776.41
	P9	WENTWORTH DRIVE	101+51.81	18.00	RT	776.16
	P10	WENTWORTH DRIVE	101+46.79	23.00	RT	776.51
	P11	WENTWORTH DRIVE	101+52.81	23.00	RT	776.40

NOTE: CURB RAMPS TO BE CONSTRUCTED WITH CLASS A4 CONCRETE.

SCALE 0 5' 10'

PROJECT	SHEET NO.
EN14-138-102	2C(4)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

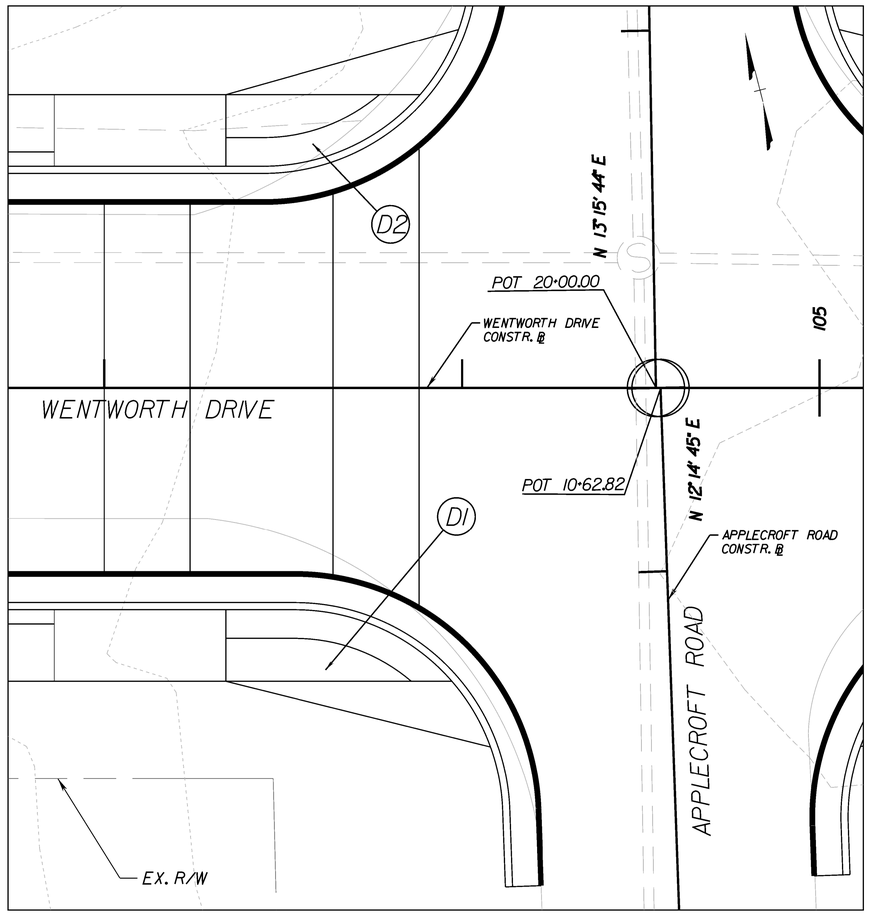
DRIVEWAY AND CURB RAMP DETAILS

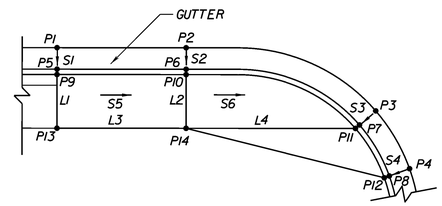
COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
Lic. No. 37672
7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	2C(5)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT





VDOT ST'D. CG-12 TYPE B MODIFIED
N.T.S.

VDOT ST'D. CG-12 TYPE B MODIFIED										
CURB RAMP	L1 (FT)	L2 (FT)	L3 (FT)	L4 (FT)	S1 (%)	S2 (%)	S3(%)	S4 (%)	S5 (%)	S6 (%)
D1	5.00	5.00	12.00	15.79	8.3%	5.0%	-5.0%	-5.0%	7.8%	1.9%
D2	5.00	5.00	12.00	13.57	8.3%	5.0%	-4.0%	-4.0%	7.3%	1.7%

CURB RAMP	POINT	REF. ALIGNMENT	STATION	OFFSET (FT.)	SIDE	ELEV.
D1	P1	WENTWORTH DRIVE	101+46.50	13.00	RT	766.29
	P2	WENTWORTH DRIVE	104+58.50	13.00	RT	765.78
	P3	WENTWORTH DRIVE	104+76.18	18.86	RT	765.29
	P4	WENTWORTH DRIVE	104+79.33	24.24	RT	765.31
	P5	WENTWORTH DRIVE	104+46.50	15.00	RT	766.12
	P6	WENTWORTH DRIVE	104+58.50	15.00	RT	765.68
	P7	WENTWORTH DRIVE	104+74.66	20.17	RT	765.39
	P8	WENTWORTH DRIVE	104+77.45	24.92	RT	765.41
	P9	WENTWORTH DRIVE	104+46.50	15.50	RT	766.62
	P10	WENTWORTH DRIVE	104+58.50	15.50	RT	765.68
	P11	WENTWORTH DRIVE	104+74.29	20.50	RT	765.40
	P12	WENTWORTH DRIVE	104+76.98	25.09	RT	765.91
	P13	WENTWORTH DRIVE	104+46.50	20.50	RT	766.72
	P14	WENTWORTH DRIVE	104+58.50	20.50	RT	765.70
D2	P1	WENTWORTH DRIVE	104+46.50	13.00	LT	766.41
	P2	WENTWORTH DRIVE	104+58.50	13.00	LT	766.02
	P3	WENTWORTH DRIVE	104+73.96	18.86	LT	765.63
	P4	WENTWORTH DRIVE	104+77.10	24.22	LT	765.61
	P5	WENTWORTH DRIVE	104+46.50	15.00	LT	766.24
	P6	WENTWORTH DRIVE	104+58.50	15.00	LT	765.92
	P7	WENTWORTH DRIVE	104+72.44	20.17	LT	765.71
	P8	WENTWORTH DRIVE	104+75.22	24.90	LT	765.69
	P9	WENTWORTH DRIVE	104+46.50	15.50	LT	766.74
	P10	WENTWORTH DRIVE	104+58.50	15.50	LT	765.93
	P11	WENTWORTH DRIVE	104+72.07	20.50	LT	765.73
	P12	WENTWORTH DRIVE	104+74.75	25.07	LT	766.19
	P13	WENTWORTH DRIVE	104+46.50	20.50	LT	766.84
	P14	WENTWORTH DRIVE	104+58.50	20.50	LT	765.96

NOTE: CURB RAMPS TO BE CONSTRUCTED WITH CLASS A4 CONCRETE.

SCALE	PROJECT	SHEET NO.
0 5' 10'	EN14-138-102	2C(5)

PROJECT MANAGER Kelly Henshow (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

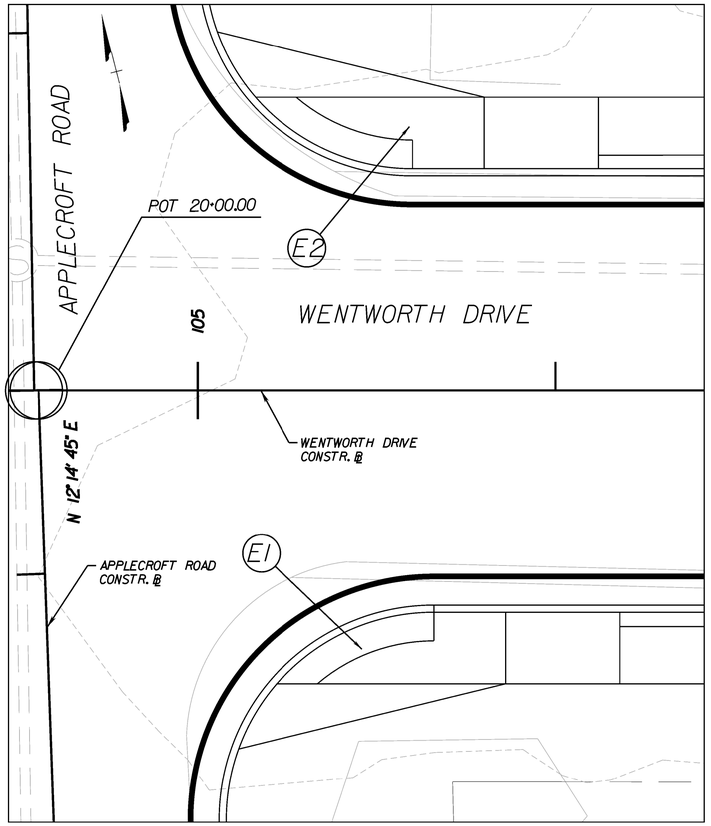
DRIVEWAY AND CURB RAMP DETAILS

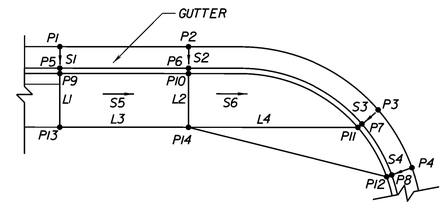
COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
Lic. No. 37672
7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	2C(6)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT





VDOT ST'D. CG-12 TYPE B MODIFIED
N.T.S.

VDOT ST'D. CG-12 TYPE B MODIFIED										
CURB RAMP	L1 (FT)	L2 (FT)	L3 (FT)	L4 (FT)	S1 (%)	S2 (%)	S3(%)	S4 (%)	S5 (%)	S6 (%)
E1	5.00	5.00	8.00	15.95	8.3%	5.0%	5.0%	8.3%	4.3%	-1.0%
E2	5.00	5.00	8.00	15.95	8.3%	5.0%	5.0%	8.3%	4.2%	-2.0%

CURB RAMP	POINT	REF. ALIGNMENT	STATION	OFFSET (FT.)	SIDE	ELEV.
E1	P1	WENTWORTH DRIVE	105+29.49	13.00	RT	764.31
	P2	WENTWORTH DRIVE	105+21.49	13.00	RT	764.40
	P3	WENTWORTH DRIVE	105+03.65	18.86	RT	764.67
	P4	WENTWORTH DRIVE	105+00.51	24.21	RT	764.91
	P5	WENTWORTH DRIVE	105+29.49	15.00	RT	764.14
	P6	WENTWORTH DRIVE	105+21.49	15.00	RT	764.30
	P7	WENTWORTH DRIVE	105+05.16	20.17	RT	764.57
	P8	WENTWORTH DRIVE	105+02.39	24.89	RT	764.75
	P9	WENTWORTH DRIVE	105+29.49	15.50	RT	764.64
	P10	WENTWORTH DRIVE	105+21.49	15.50	RT	764.30
	P11	WENTWORTH DRIVE	105+05.54	20.50	RT	764.57
	P12	WENTWORTH DRIVE	105+02.86	25.06	RT	765.25
	P13	WENTWORTH DRIVE	105+29.49	20.50	RT	764.74
	P14	WENTWORTH DRIVE	105+21.49	20.50	RT	764.40
E2	P1	WENTWORTH DRIVE	105+28.00	13.00	LT	764.40
	P2	WENTWORTH DRIVE	105+20.00	13.00	LT	764.49
	P3	WENTWORTH DRIVE	105+02.16	18.86	LT	764.91
	P4	WENTWORTH DRIVE	104+99.02	24.22	LT	765.23
	P5	WENTWORTH DRIVE	105+28.00	15.00	LT	764.23
	P6	WENTWORTH DRIVE	105+20.00	15.00	LT	764.39
	P7	WENTWORTH DRIVE	105+03.67	20.17	LT	764.81
	P8	WENTWORTH DRIVE	105+00.90	24.90	LT	765.06
	P9	WENTWORTH DRIVE	105+28.00	15.50	LT	764.73
	P10	WENTWORTH DRIVE	105+20.00	15.50	LT	764.39
	P11	WENTWORTH DRIVE	105+04.05	20.50	LT	764.81
	P12	WENTWORTH DRIVE	105+01.37	25.07	LT	765.56
	P13	WENTWORTH DRIVE	105+28.00	20.50	LT	764.83
	P14	WENTWORTH DRIVE	105+20.00	20.50	LT	764.49

NOTE: CURB RAMPS TO BE CONSTRUCTED WITH CLASS A4 CONCRETE.

SCALE	PROJECT	SHEET NO.
0 5' 10'	EN14-138-102	2C(6)

PROJECT MANAGER Kelly Henshow (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

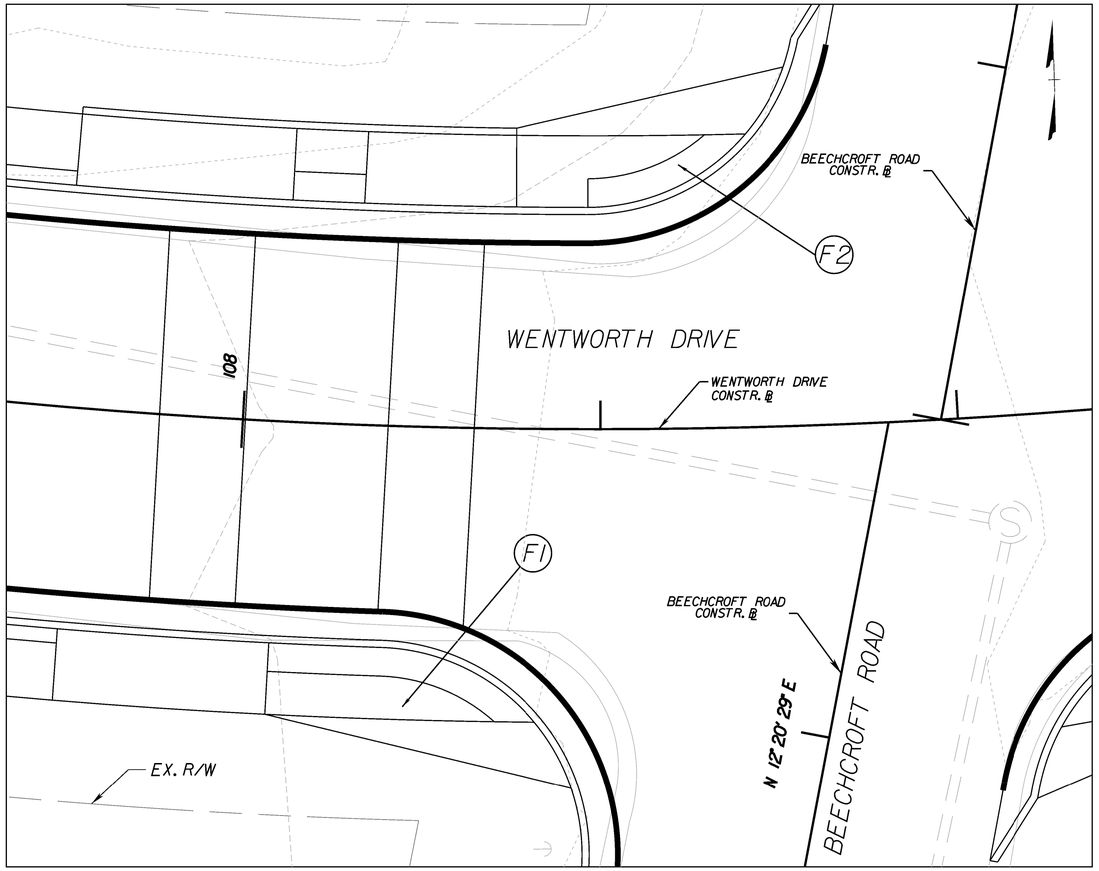
DRIVEWAY AND CURB RAMP DETAILS

COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
Lic. No. 37672
7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

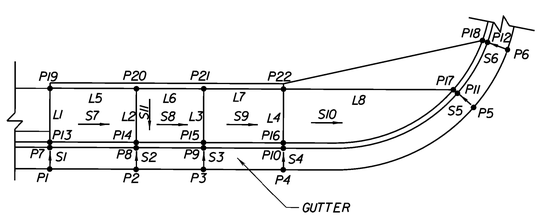
REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	2C(7)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

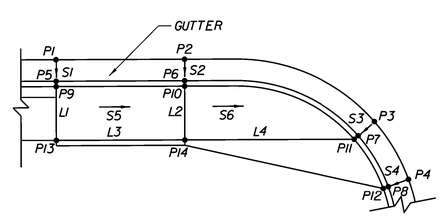


CURB RAMP	POINT	REF. ALIGNMENT	STATION	OFFSET (FT.)	SIDE	ELEV.
F1	P1	WENTWORTH DRIVE	107+88.26	13.00	RT	760.29
	P2	WENTWORTH DRIVE	108+02.60	13.00	RT	759.84
	P3	WENTWORTH DRIVE	108+22.38	18.89	RT	758.81
	P4	WENTWORTH DRIVE	108+25.28	24.30	RT	758.72
	P5	WENTWORTH DRIVE	107+88.28	15.00	RT	760.13
	P6	WENTWORTH DRIVE	108+02.59	15.00	RT	759.74
	P7	WENTWORTH DRIVE	108+20.92	20.18	RT	758.91
	P8	WENTWORTH DRIVE	108+23.48	24.94	RT	758.82
	P9	WENTWORTH DRIVE	107+88.23	15.50	RT	760.63
	P10	WENTWORTH DRIVE	108+02.58	15.50	RT	759.75
	P11	WENTWORTH DRIVE	108+20.55	20.50	RT	758.91
	P12	WENTWORTH DRIVE	108+23.04	25.10	RT	759.32
	P13	WENTWORTH DRIVE	107+88.35	20.50	RT	760.73
	P14	WENTWORTH DRIVE	108+02.56	20.50	RT	759.78
F2	P1	WENTWORTH DRIVE	107+87.02	13.00	LT	760.24
	P2	WENTWORTH DRIVE	108+02.74	13.00	LT	759.76
	P3	WENTWORTH DRIVE	108+07.90	13.00	LT	759.60
	P4	WENTWORTH DRIVE	108+18.96	13.00	LT	759.05
	P5	WENTWORTH DRIVE	108+37.59	18.83	LT	758.79
	P6	WENTWORTH DRIVE	108+41.05	24.20	LT	758.45
	P7	WENTWORTH DRIVE	107+87.02	15.00	LT	760.07
	P8	WENTWORTH DRIVE	108+02.76	15.00	LT	759.66
	P9	WENTWORTH DRIVE	108+07.93	15.00	LT	759.50
	P10	WENTWORTH DRIVE	108+18.93	15.00	LT	758.95
	P11	WENTWORTH DRIVE	108+36.03	20.17	LT	758.89
	P12	WENTWORTH DRIVE	108+39.07	24.92	LT	758.55
	P13	WENTWORTH DRIVE	107+87.02	15.50	LT	760.57
	P14	WENTWORTH DRIVE	108+02.76	15.50	LT	759.67
	P15	WENTWORTH DRIVE	108+07.94	15.50	LT	759.51
	P16	WENTWORTH DRIVE	108+18.93	15.50	LT	758.96
	P17	WENTWORTH DRIVE	108+35.64	20.50	LT	758.89
	P18	WENTWORTH DRIVE	108+38.58	25.10	LT	759.05
	P19	WENTWORTH DRIVE	107+87.02	20.50	LT	760.67
	P20	WENTWORTH DRIVE	108+02.79	20.50	LT	759.77
	P21	WENTWORTH DRIVE	108+08.04	20.50	LT	759.61
	P22	WENTWORTH DRIVE	108+18.87	20.50	LT	759.06

VDOT ST'D. CG-12 TYPE B MODIFIED																			
CURB RAMP	L1 (FT)	L2 (FT)	L3 (FT)	L4 (FT)	L5 (FT)	L6 (FT)	L7 (FT)	L8 (FT)	S1 (%)	S2 (%)	S3(%)	S4 (%)	S5 (%)	S6 (%)	S7 (%)	S8 (%)	S9 (%)	S10 (%)	S11 (%)
F1	5.00	5.00	14.87	18.84	-	-	-	-	8.33%	5.0%	-5.0%	-5.0%	6.4%	4.6%	-	-	-	-	-
F2	5.00	5.00	5.00	5.00	15.03	5.00	10.32	15.99	8.33%	5.0%	5.0%	5.0%	-5.0%	-5.0%	6.0%	3.2%	5.3%	1.1%	2.0%



VDOT ST'D. CG-12 TYPE B MODIFIED
N.T.S.



VDOT ST'D. CG-12 TYPE B MODIFIED
N.T.S.

NOTE: CURB RAMPS TO BE CONSTRUCTED WITH CLASS A4 CONCRETE.

SCALE	PROJECT	SHEET NO.
0 5' 10'	EN14-138-102	2C(7)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

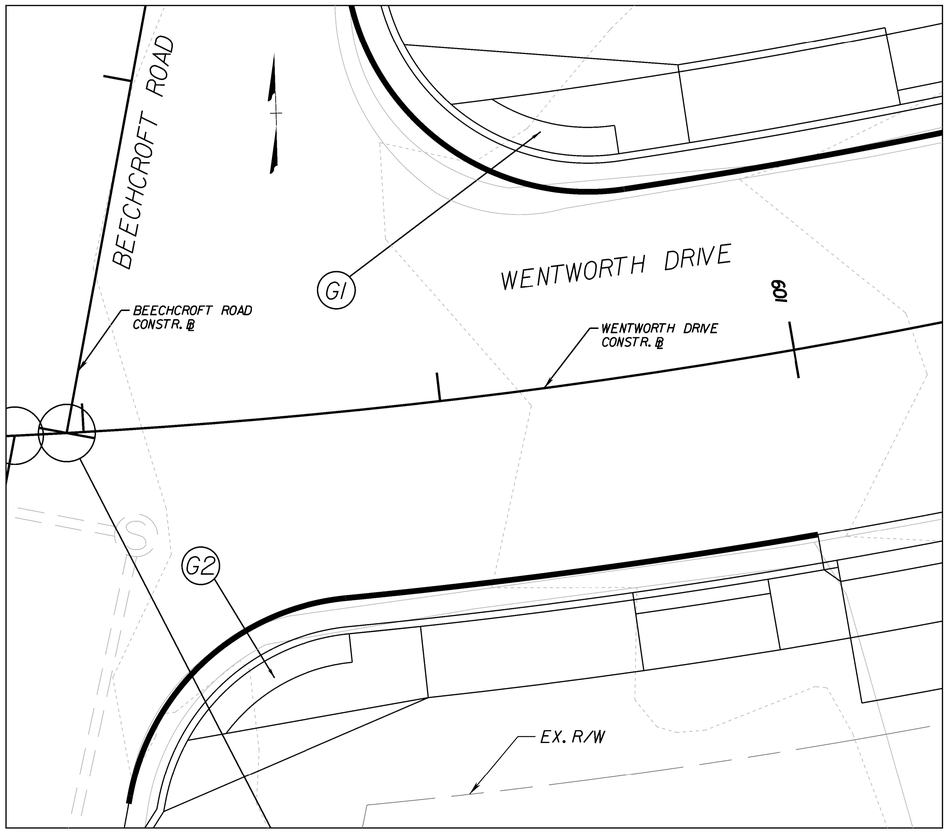
DRIVEWAY AND CURB RAMP DETAILS

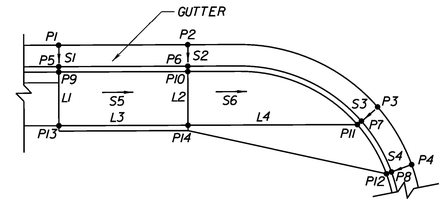
COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
Lic. No. 37672
7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	2C(8)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT





VDOT ST'D. CG-12 TYPE B MODIFIED
N.T.S.

VDOT ST'D. CG-12 TYPE B MODIFIED										
CURB RAMP	L1 (FT)	L2 (FT)	L3 (FT)	L4 (FT)	S1 (%)	S2 (%)	S3(%)	S4 (%)	S5 (%)	S6 (%)
G1	5.00	5.00	14.75	16.08	8.3%	5.0%	5.0%	8.3%	-0.9%	-3.5%
G2	5.00	5.00	15.18	17.08	8.3%	5.0%	5.0%	8.3%	-1.1%	-3.2%

CURB RAMP	POINT	REF. ALIGNMENT	STATION	OFFSET (FT.)	SIDE	ELEV.
G1	P1	WENTWORTH DRIVE	109+10.64	13.00	LT	755.53
	P2	WENTWORTH DRIVE	108+95.08	13.00	LT	756.10
	P3	WENTWORTH DRIVE	108+76.35	18.83	LT	756.75
	P4	WENTWORTH DRIVE	108+72.92	24.14	LT	757.15
	P5	WENTWORTH DRIVE	109+10.64	15.00	LT	755.36
	P6	WENTWORTH DRIVE	108+95.10	15.00	LT	756.00
	P7	WENTWORTH DRIVE	108+77.91	20.17	LT	756.65
	P8	WENTWORTH DRIVE	108+74.90	24.86	LT	756.98
	P9	WENTWORTH DRIVE	109+10.64	15.50	LT	755.86
	P10	WENTWORTH DRIVE	108+95.11	15.50	LT	756.00
	P11	WENTWORTH DRIVE	108+78.30	20.50	LT	756.65
	P12	WENTWORTH DRIVE	108+75.39	25.04	LT	757.48
	P13	WENTWORTH DRIVE	109+10.64	20.50	LT	755.96
	P14	WENTWORTH DRIVE	108+95.17	20.50	LT	756.10
G2	P1	WENTWORTH DRIVE	108+86.45	13.00	RT	756.62
	P2	WENTWORTH DRIVE	108+71.95	13.00	RT	757.22
	P3	WENTWORTH DRIVE	108+53.71	20.62	RT	757.86
	P4	WENTWORTH DRIVE	108+51.55	26.14	RT	758.00
	P5	WENTWORTH DRIVE	108+86.45	15.00	RT	756.45
	P6	WENTWORTH DRIVE	108+71.95	15.00	RT	757.12
	P7	WENTWORTH DRIVE	108+55.32	21.70	RT	757.76
	P8	WENTWORTH DRIVE	108+53.38	26.63	RT	757.83
	P9	WENTWORTH DRIVE	108+86.45	15.50	RT	756.95
	P10	WENTWORTH DRIVE	108+71.95	15.50	RT	757.12
	P11	WENTWORTH DRIVE	108+55.72	21.97	RT	757.76
	P12	WENTWORTH DRIVE	108+53.81	26.84	RT	758.33
	P13	WENTWORTH DRIVE	108+86.45	20.50	RT	757.05
	P14	WENTWORTH DRIVE	108+71.95	20.50	RT	757.22

NOTE: CURB RAMPS TO BE CONSTRUCTED WITH CLASS A4 CONCRETE.

SCALE	PROJECT	SHEET NO.
0 5' 10'	EN14-138-102	2C(8)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

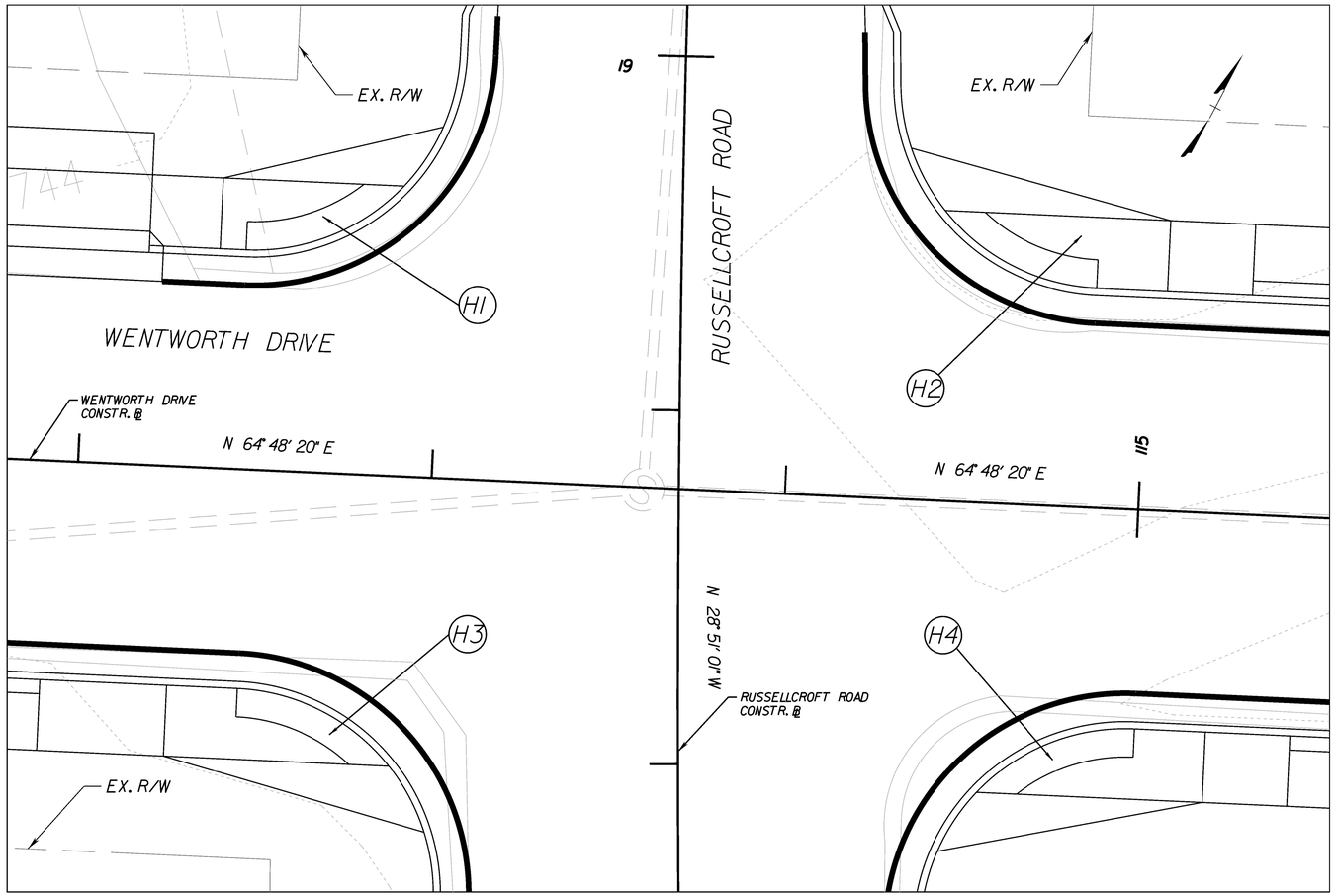
DRIVEWAY AND CURB RAMP DETAILS

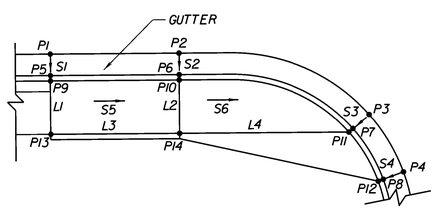
COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
Lic. No. 37672
7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	2C(9)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT





VDOT ST'D. CG-12 TYPE B MODIFIED
N.T.S.

VDOT ST'D. CG-12 TYPE B MODIFIED										
CURB RAMP	L1 (FT)	L2 (FT)	L3 (FT)	L4 (FT)	S1 (%)	S2 (%)	S3(%)	S4 (%)	S5 (%)	S6 (%)
H1	5.00	5.00	5.00	12.79	8.3%	5.0%	-5.0%	-5.0%	2.2%	1.9%
H2	5.00	5.00	6.00	15.95	8.3%	5.0%	5.0%	8.3%	5.8%	-0.2%
H3	5.00	5.00	8.99	15.95	8.3%	5.0%	-1.0%	-1.0%	6.6%	1.1%
H4	5.00	5.00	6.00	15.96	8.3%	5.0%	5.0%	8.3%	6.5%	-0.3%

NOTE: CURB RAMPS TO BE CONSTRUCTED WITH CLASS A4 CONCRETE.

CURB RAMP	POINT	REF. ALIGNMENT	STATION	OFFSET (FT.)	SIDE	ELEV.
H1	P1	WENTWORTH DRIVE	114+30.35	13.00	LT	743.53
	P2	WENTWORTH DRIVE	114+34.35	13.00	LT	743.48
	P3	WENTWORTH DRIVE	114+49.63	18.86	LT	743.15
	P4	WENTWORTH DRIVE	114+52.04	23.89	LT	743.12
	P5	WENTWORTH DRIVE	114+30.35	15.00	LT	743.36
	P6	WENTWORTH DRIVE	114+34.35	15.00	LT	743.38
	P7	WENTWORTH DRIVE	114+47.51	20.17	LT	743.25
	P8	WENTWORTH DRIVE	114+50.18	24.61	LT	743.22
	P9	WENTWORTH DRIVE	114+30.35	15.50	LT	743.46
	P10	WENTWORTH DRIVE	114+34.35	15.50	LT	743.39
	P11	WENTWORTH DRIVE	114+47.14	20.50	LT	743.25
	P12	WENTWORTH DRIVE	114+49.71	24.79	LT	743.72
	P13	WENTWORTH DRIVE	114+29.35	20.50	LT	743.60
	P14	WENTWORTH DRIVE	114+34.35	20.50	LT	743.49
H2	P1	WENTWORTH DRIVE	115+07.37	13.00	LT	742.73
	P2	WENTWORTH DRIVE	115+01.37	13.00	LT	742.81
	P3	WENTWORTH DRIVE	114+83.83	18.86	LT	742.94
	P4	WENTWORTH DRIVE	114+80.51	23.89	LT	742.99
	P5	WENTWORTH DRIVE	115+07.37	15.00	LT	742.56
	P6	WENTWORTH DRIVE	115+01.37	15.00	LT	742.71
	P7	WENTWORTH DRIVE	114+85.04	20.17	LT	742.84
	P8	WENTWORTH DRIVE	114+82.38	24.61	LT	742.82
	P9	WENTWORTH DRIVE	115+07.37	15.50	LT	743.06
	P10	WENTWORTH DRIVE	115+01.37	15.50	LT	742.71
	P11	WENTWORTH DRIVE	114+85.42	20.50	LT	742.84
	P12	WENTWORTH DRIVE	114+82.83	24.79	LT	743.32
	P13	WENTWORTH DRIVE	115+07.37	20.50	LT	743.16
	P14	WENTWORTH DRIVE	115+01.37	20.50	LT	742.81
H3	P1	WENTWORTH DRIVE	114+22.96	13.00	RT	743.87
	P2	WENTWORTH DRIVE	114+31.95	13.00	RT	743.71
	P3	WENTWORTH DRIVE	114+49.79	18.86	RT	743.51
	P4	WENTWORTH DRIVE	114+52.94	24.22	RT	743.57
	P5	WENTWORTH DRIVE	114+22.96	15.00	RT	743.70
	P6	WENTWORTH DRIVE	114+31.95	15.00	RT	743.61
	P7	WENTWORTH DRIVE	114+48.28	20.17	RT	743.53
	P8	WENTWORTH DRIVE	114+51.06	24.90	RT	743.59
	P9	WENTWORTH DRIVE	114+22.96	15.50	RT	744.20
	P10	WENTWORTH DRIVE	114+31.95	15.50	RT	743.61
	P11	WENTWORTH DRIVE	114+47.90	20.50	RT	743.53
	P12	WENTWORTH DRIVE	114+50.59	25.07	RT	744.09
	P13	WENTWORTH DRIVE	114+22.96	20.50	RT	744.30
	P14	WENTWORTH DRIVE	114+31.95	20.50	RT	743.71

CURB RAMP	POINT	REF. ALIGNMENT	STATION	OFFSET (FT.)	SIDE	ELEV.
H4	P1	WENTWORTH DRIVE	115+11.43	13.00	RT	742.93
	P2	WENTWORTH DRIVE	115+05.43	13.00	RT	742.97
	P3	WENTWORTH DRIVE	114+87.58	18.86	RT	743.12
	P4	WENTWORTH DRIVE	114+84.56	23.89	RT	743.20
	P5	WENTWORTH DRIVE	115+11.43	15.00	RT	742.76
	P6	WENTWORTH DRIVE	115+05.43	15.00	RT	742.87
	P7	WENTWORTH DRIVE	114+89.09	20.17	RT	743.02
	P8	WENTWORTH DRIVE	114+86.43	24.61	RT	743.03
	P9	WENTWORTH DRIVE	115+11.43	15.50	RT	743.26
	P10	WENTWORTH DRIVE	115+05.43	15.50	RT	742.87
	P11	WENTWORTH DRIVE	114+89.47	20.50	RT	743.02
	P12	WENTWORTH DRIVE	114+86.90	24.79	RT	743.53
	P13	WENTWORTH DRIVE	115+11.43	20.50	RT	743.36
	P14	WENTWORTH DRIVE	115+05.43	20.50	RT	742.97

SCALE 0 5' 10'

PROJECT	SHEET NO.
EN14-138-102	2C(9)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

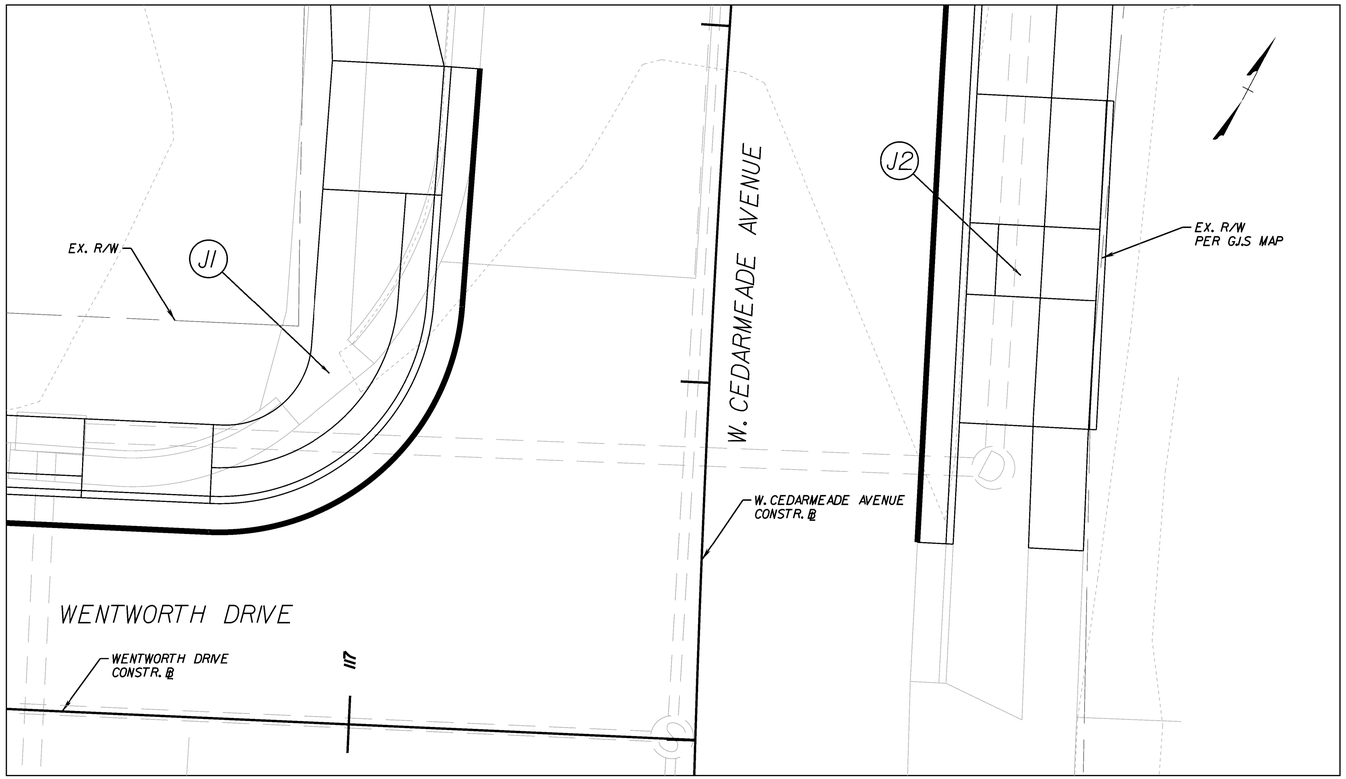
DRIVEWAY AND CURB RAMP DETAILS

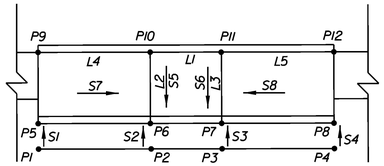
COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
Lic. No. 37672
7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	2C(10)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT





VDOT ST'D. CG-12 TYPE B
N.T.S.

VDOT ST'D. CG-12 TYPE B													
CURB RAMP	L1 (FT)	L2 (FT)	L3 (FT)	L4 (FT)	L5 (FT)	S1 (%)	S2 (%)	S3(%)	S4 (%)	S5 (%)	S6 (%)	S7 (%)	S8 (%)
J1	20.82	5.00	7.80	9.00	9.00	8.3%	5.0%	5.0%	8.3%	2.0%	2.0%	5.7%	3.1%
J2	5.00	9.60	9.60	9.00	9.00	8.3%	5.0%	5.0%	8.3%	1.5%	1.5%	3.4%	6.3%

CURB RAMP	POINT	REF. ALIGNMENT	STATION	OFFSET (FT.)	SIDE	ELEV.
J1	P1	WENTWORTH DRIVE	116+80.60	13.00	LT	741.38
	P2	WENTWORTH DRIVE	116+89.60	13.00	LT	741.34
	P3	WENTWORTH DRIVE	117+06.81	37.22	LT	740.85
	P4	WENTWORTH DRIVE	117+07.07	46.17	LT	740.69
	P5	WENTWORTH DRIVE	116+80.60	15.00	LT	741.22
	P6	WENTWORTH DRIVE	116+89.60	15.00	LT	741.24
	P7	WENTWORTH DRIVE	117+04.81	37.23	LT	740.75
	P8	WENTWORTH DRIVE	117+05.08	46.22	LT	740.53
	P9	WENTWORTH DRIVE	116+80.60	20.50	LT	741.85
	P10	WENTWORTH DRIVE	116+89.60	20.50	LT	741.34
	P11	WENTWORTH DRIVE	116+96.51	37.29	LT	740.91
	P12	WENTWORTH DRIVE	116+96.78	46.29	LT	741.19
J2	P1	W. CEDARMEADE AVENUE	71+71.31	15.05	RT	740.62
	P2	W. CEDARMEADE AVENUE	71+62.21	15.12	RT	740.74
	P3	W. CEDARMEADE AVENUE	71+57.15	15.13	RT	740.82
	P4	W. CEDARMEADE AVENUE	71+48.06	15.10	RT	740.96
	P5	W. CEDARMEADE AVENUE	71+71.33	17.05	RT	740.45
	P6	W. CEDARMEADE AVENUE	71+62.22	17.12	RT	740.64
	P7	W. CEDARMEADE AVENUE	71+57.16	17.13	RT	740.72
	P8	W. CEDARMEADE AVENUE	71+48.05	17.10	RT	740.79
	P9	W. CEDARMEADE AVENUE	71+71.44	26.64	RT	741.09
	P10	W. CEDARMEADE AVENUE	71+62.27	26.71	RT	740.78
	P11	W. CEDARMEADE AVENUE	71+57.17	26.72	RT	740.86
	P12	W. CEDARMEADE AVENUE	71+48.00	26.69	RT	741.43

NOTE: CURB RAMPS TO BE CONSTRUCTED WITH CLASS A4 CONCRETE.

SCALE	PROJECT	SHEET NO.
0 5' 10'	EN14-138-102	2C(10)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

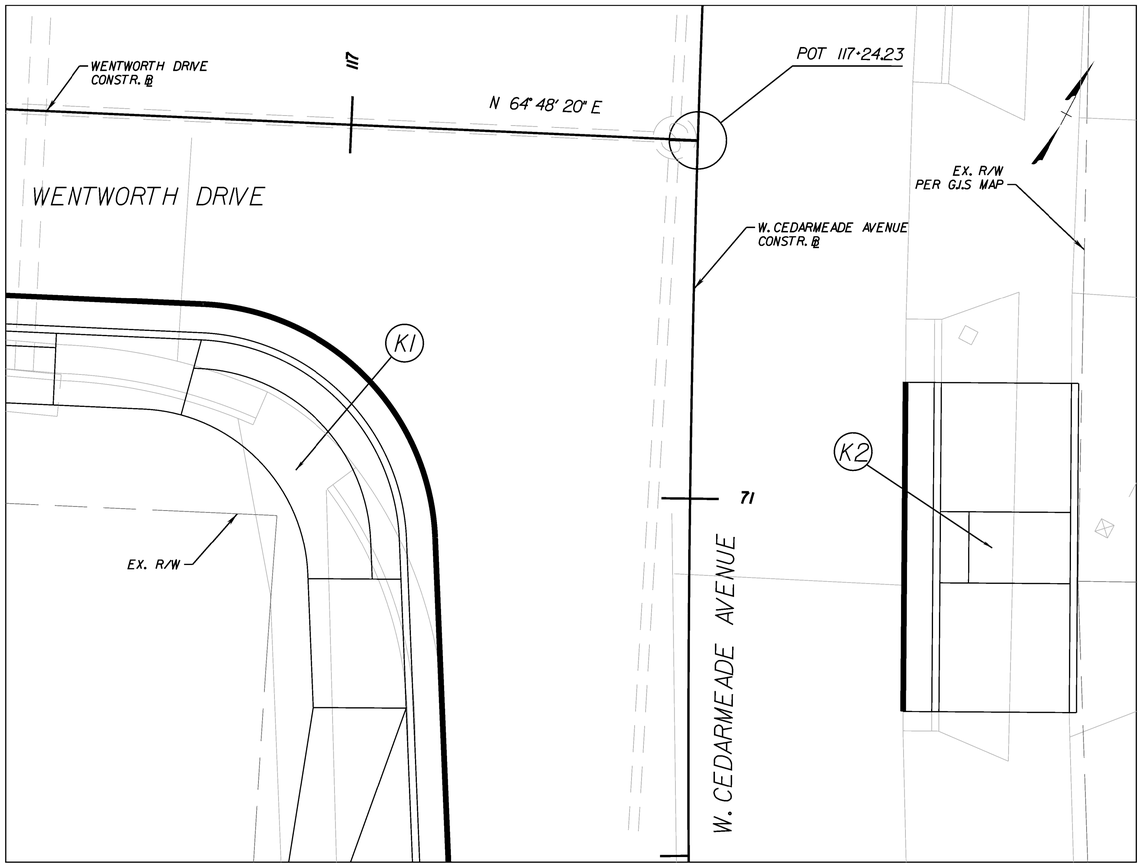
DRIVEWAY AND CURB RAMP DETAILS

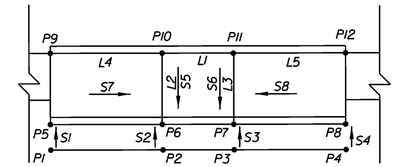
COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
Lic. No. 37672
7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	2C(11)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT





VDOT ST'D. CG-12 TYPE B
N.T.S.

VDOT ST'D. CG-12 TYPE B													
CURB RAMP	L1 (FT)	L2 (FT)	L3 (FT)	L4 (FT)	L5 (FT)	S1 (%)	S2 (%)	S3(%)	S4 (%)	S5 (%)	S6 (%)	S7 (%)	S8 (%)
K1	15.53	6.51	5.42	9.01	9.00	8.3%	5.0%	5.0%	8.3%	2.0%	2.0%	5.9%	5.0%
K2	5.00	9.11	9.12	9.00	9.00	8.3%	5.0%	5.0%	8.3%	2.0%	2.0%	4.9%	6.2%

CURB RAMP	POINT	REF. ALIGNMENT	STATION	OFFSET (FT.)	SIDE	ELEV.
K1	P1	WENTWORTH DRIVE	117+11.15	40.34	RT	741.74
	P2	WENTWORTH DRIVE	117+07.38	31.48	RT	741.69
	P3	WENTWORTH DRIVE	116+90.20	13.00	RT	741.31
	P4	WENTWORTH DRIVE	116+80.03	13.00	RT	741.33
	P5	WENTWORTH DRIVE	117+06.15	40.54	RT	741.67
	P6	WENTWORTH DRIVE	117+05.38	31.56	RT	741.59
	P7	WENTWORTH DRIVE	116+90.19	15.00	RT	741.21
	P8	WENTWORTH DRIVE	116+80.03	15.00	RT	741.16
	P9	WENTWORTH DRIVE	116+99.15	40.80	RT	742.27
	P10	WENTWORTH DRIVE	116+98.38	31.83	RT	741.72
	P11	WENTWORTH DRIVE	116+89.01	20.79	RT	741.32
	P12	WENTWORTH DRIVE	116+80.03	20.50	RT	741.77
K2	P1	W. CEDARMEADE AVENUE	71+08.40	14.94	RT	741.55
	P2	W. CEDARMEADE AVENUE	70+99.30	15.02	RT	741.54
	P3	W. CEDARMEADE AVENUE	70+94.25	15.03	RT	741.73
	P4	W. CEDARMEADE AVENUE	70+85.15	15.02	RT	741.85
	P5	W. CEDARMEADE AVENUE	71+08.42	16.94	RT	741.38
	P6	W. CEDARMEADE AVENUE	70+99.31	17.02	RT	741.44
	P7	W. CEDARMEADE AVENUE	70+94.25	17.03	RT	741.63
	P8	W. CEDARMEADE AVENUE	70+85.14	17.02	RT	741.68
	P9	W. CEDARMEADE AVENUE	71+08.54	26.55	RT	742.06
	P10	W. CEDARMEADE AVENUE	70+99.37	26.63	RT	741.62
	P11	W. CEDARMEADE AVENUE	70+94.27	26.65	RT	741.81
	P12	W. CEDARMEADE AVENUE	70+85.10	26.64	RT	742.37

NOTE: CURB RAMPS TO BE CONSTRUCTED WITH CLASS A4 CONCRETE.

SCALE 0 5' 10'

PROJECT	SHEET NO.
EN14-138-102	2C(11)

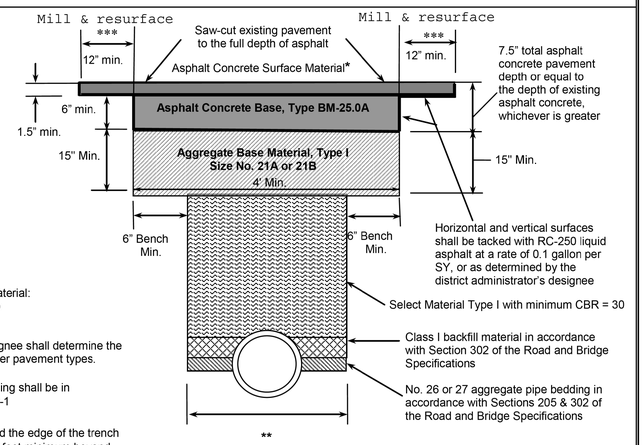
PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

DETAILS

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	2D

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Asphalt Pavement Restoration Detail for Open Cut Utility Installations



NOTES:

* Asphalt Concrete Surface Material:
SM-9.5A for ADT < 10,000
SM-9.5D for ADT > 10,000

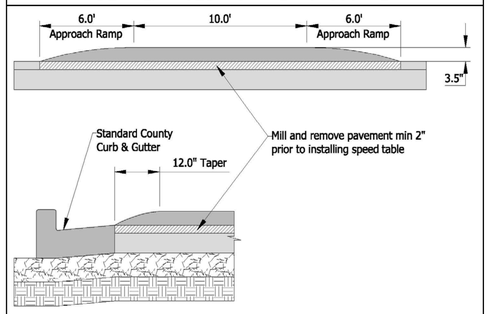
The district administrator's designee shall determine the restoration requirements for other pavement types.

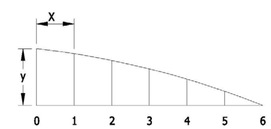
** Trench width and pipe bedding shall be in accordance with VDOT Std. PB-1

*** 12 inches minimum beyond the edge of the trench on longitudinal open cuts, or 25 feet minimum beyond the trench centerline on perpendicular open cuts, or as determined by the district administrator's designee.

Date: August 27, 2014

DETAIL: RAISED ASPHALT CROSSWALK



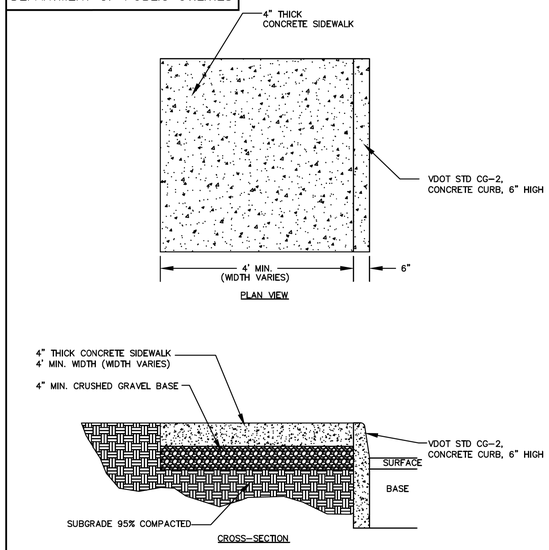


APPROACH RAMP PROFILE

Approach Ramp Dimensions

x (ft)	y (ft)	y (in)
0	0.293	3.50
1	0.283	3.40
2	0.255	3.06
3	0.225	2.70
4	0.171	2.05
5	0.104	1.25
6	0.000	0.00

CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES



STANDARD DETAIL NO. SW-1	STANDARD CONCRETE SIDEWALK SCALE: NONE	DATE: 10/2017

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

PLAN

COMMONWEALTH OF VIRGINIA
BRIAN MICHAEL FINERFROCK
Lic. No. 44505
7/5/19
PROFESSIONAL ENGINEER

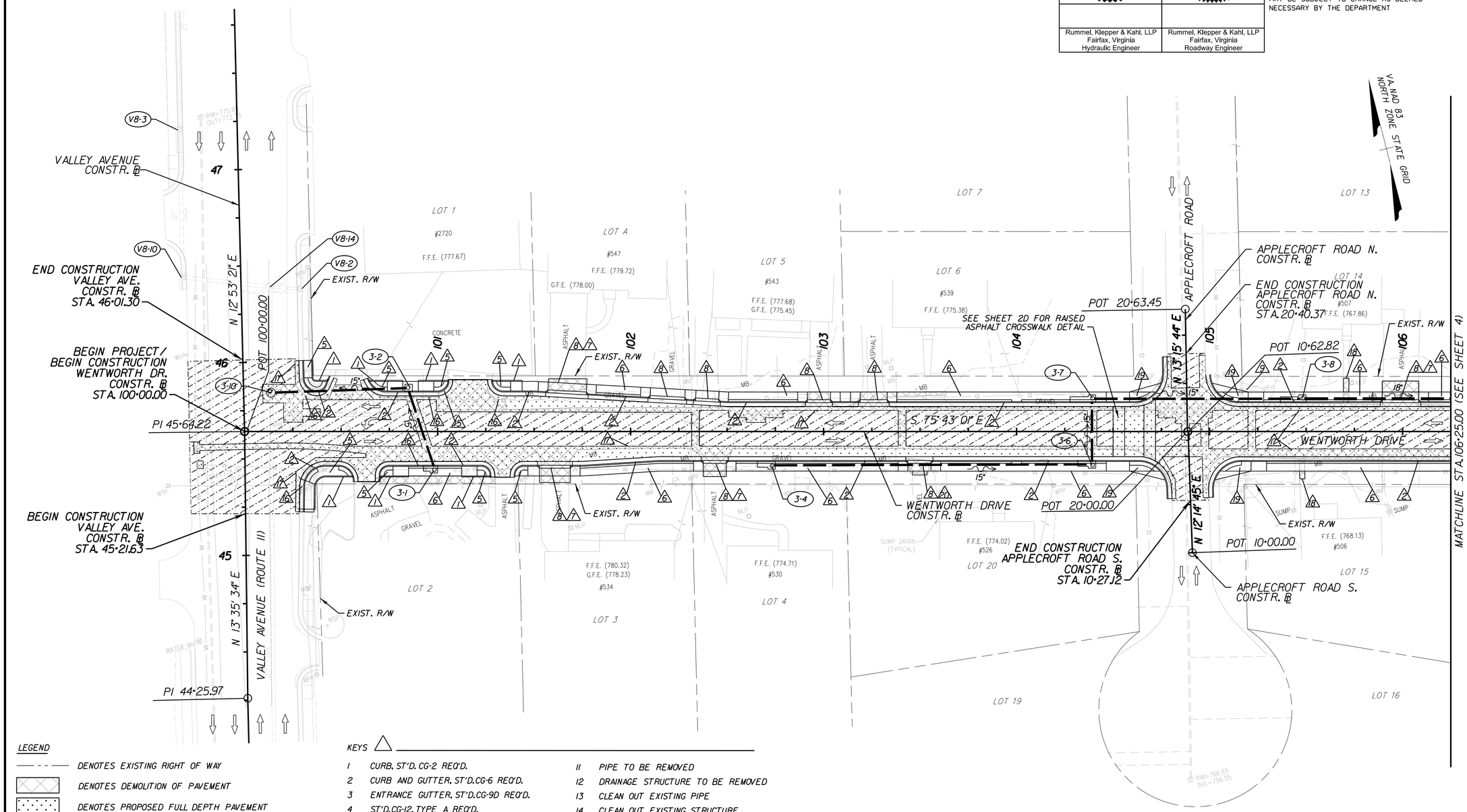
Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Hydraulic Engineer

COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
Lic. No. 37672
7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	3

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



LEGEND

- DENOTES EXISTING RIGHT OF WAY
- DENOTES DEMOLITION OF PAVEMENT
- DENOTES PROPOSED FULL DEPTH PAVEMENT
- DENOTES MILL & OVERLAY PAVEMENT

KEYS

1	CURB, ST'D. CG-2 REQ'D.	11	PIPE TO BE REMOVED
2	CURB AND GUTTER, ST'D.CG-6 REQ'D.	12	DRAINAGE STRUCTURE TO BE REMOVED
3	ENTRANCE GUTTER, ST'D.CG-9D REQ'D.	13	CLEAN OUT EXISTING PIPE
4	ST'D.CG-12, TYPE A REQ'D.	14	CLEAN OUT EXISTING STRUCTURE
5	ST.D.CG-12, TYPE B REQ'D.	15	REMOVE EXISTING CURB
6	4' SIDEWALK REQ'D.	16	REMOVE EXISTING CURB AND GUTTER
7	ASPHALT DRIVEWAY PAVEMENT	17	FULL DEPTH SAWCUT REQ'D.
8	CONCRETE DRIVEWAY PAVEMENT	18	TIE TO EXISTING WALKWAY
9	REMOVE EXISTING FENCE	19	CG-12, TYPE B MODIFIED REQ'D.
10	PIPE TO BE ABANDONED AND PLUGGED	20	GRAVEL DRIVEWAY

NOTE: IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT FROM HARM OR REPLACE UNDER LICENSED LAND SURVEYOR ALL PROPERTY MONUMENTATION DISTURBED BY CONSTRUCTION.

SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	3

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
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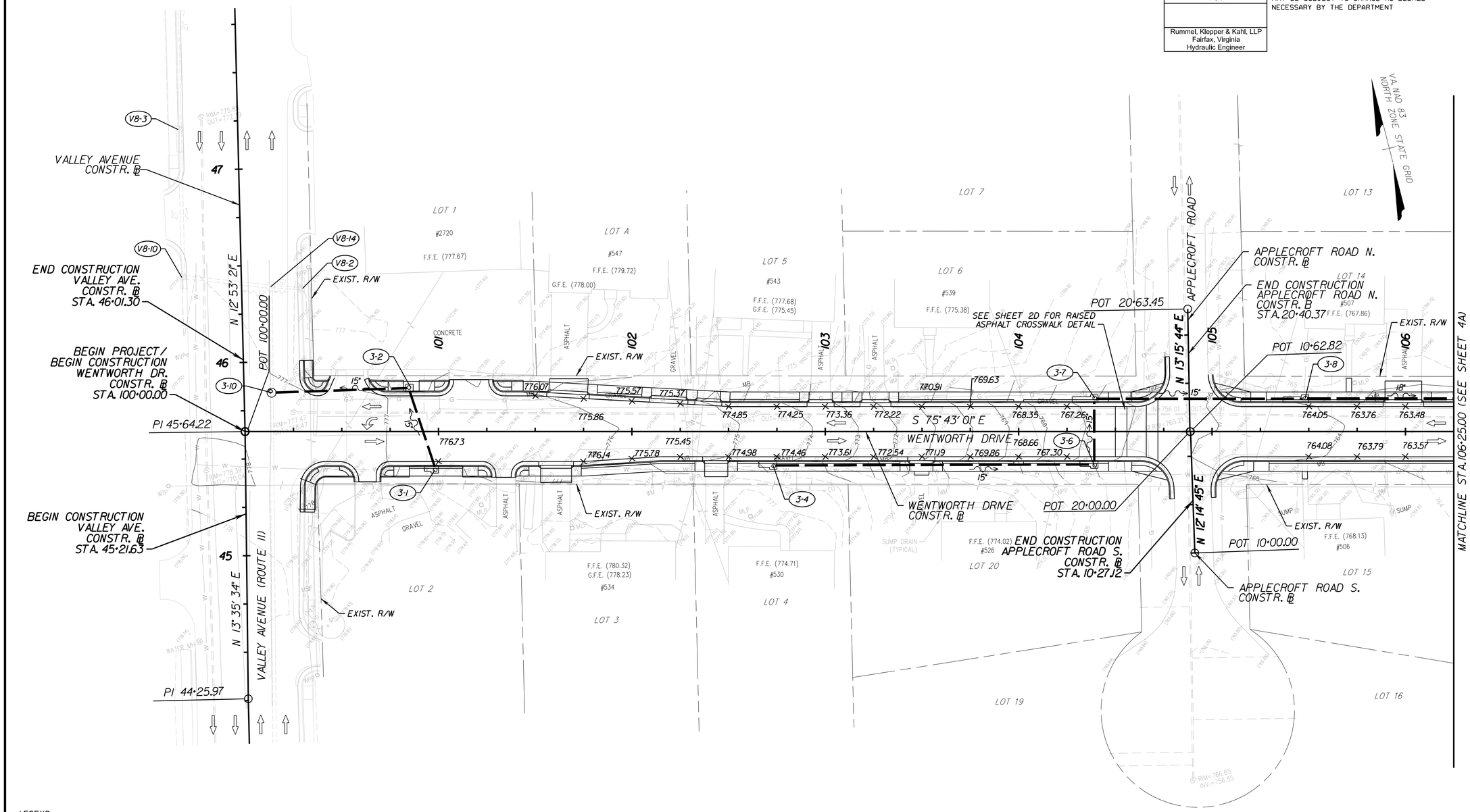
GRADING PLAN

COMMONWEALTH OF VIRGINIA
BRIAN MICHAEL FINERFROCK
Lic. No. 44505
PROFESSIONAL ENGINEER
7/5/19

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Hydraulic Engineer

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	3A

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



LEGEND

DENOTES EXISTING RIGHT OF WAY
250 DENOTES EXISTING CONTOURS
250 DENOTES PROPOSED CONTOURS

SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	3A

PROJECT MANAGER Kelly Henshaw (540) 667-2387
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PROFILE

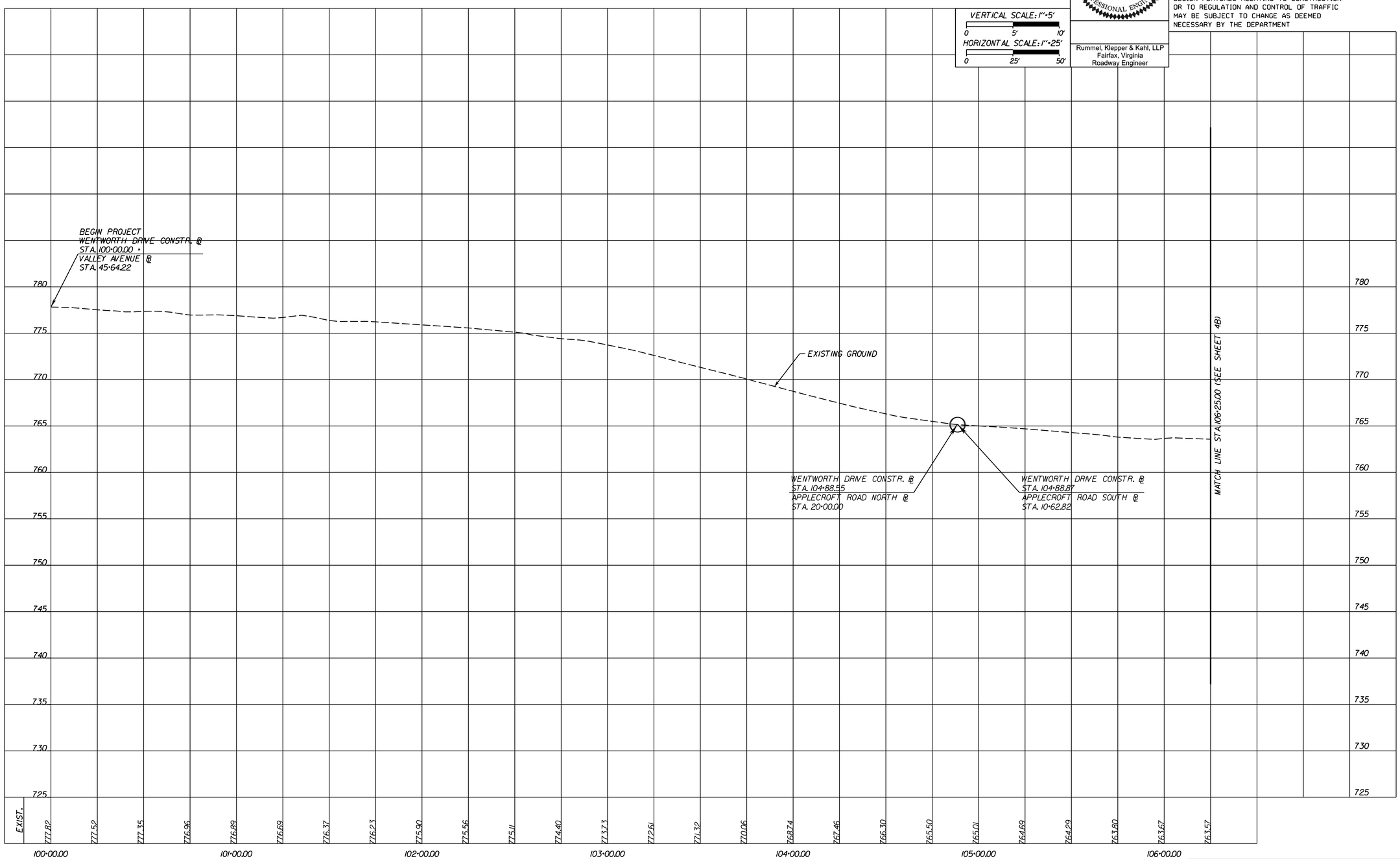
COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
Lic. No. 37672
7/5/2019
PROFESSIONAL ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	3B

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

VERTICAL SCALE: 1"=5'
0 5' 10'
HORIZONTAL SCALE: 1"=25'
0 25' 50'

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer



PROJECT	SHEET NO.
EN14-138-102	3B

PROJECT MANAGER Kelly Henshaw (540) 667-2387
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PLAN

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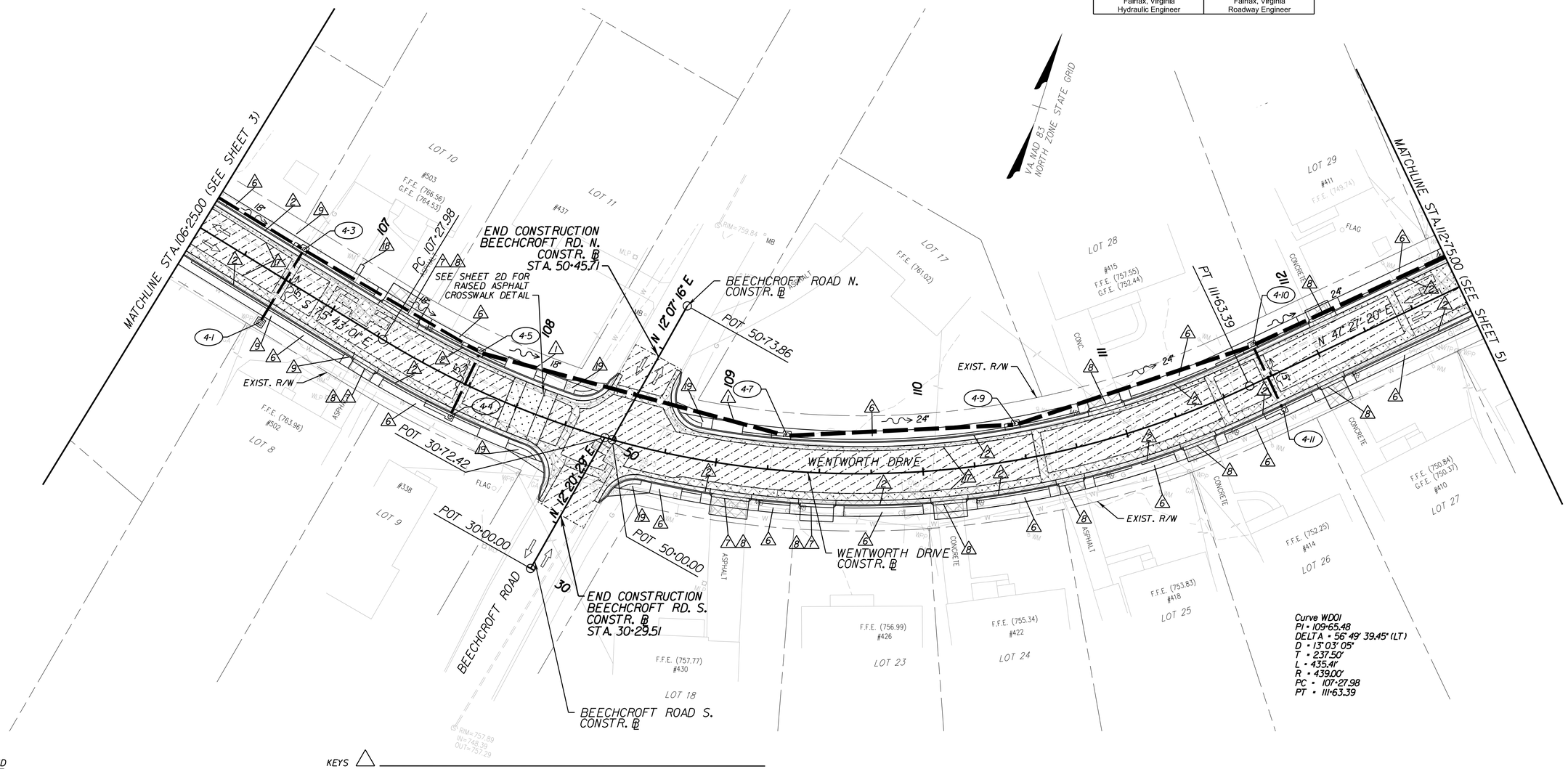
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	4

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



LEGEND

- DENOTES EXISTING RIGHT OF WAY
- DENOTES DEMOLITION OF PAVEMENT
- DENOTES PROPOSED FULL DEPTH PAVEMENT
- DENOTES MILL & OVERLAY PAVEMENT

KEYS

1	CURB, ST'D. CG-2 REQ'D.	11	PIPE TO BE REMOVED
2	CURB AND GUTTER, ST'D.CG-6 REQ'D.	12	DRAINAGE STRUCTURE TO BE REMOVED
3	ENTRANCE GUTTER, ST'D.CG-9D REQ'D.	13	CLEAN OUT EXISTING PIPE
4	ST'D.CG-12, TYPE A REQ'D.	14	CLEAN OUT EXISTING STRUCTURE
5	ST.D.CG-12, TYPE B REQ'D.	15	REMOVE EXISTING CURB
6	4' SIDEWALK REQ'D.	16	REMOVE EXISTING CURB AND GUTTER
7	ASPHALT DRIVEWAY PAVEMENT	17	FULL DEPTH SAWCUT REQ'D.
8	CONCRETE DRIVEWAY PAVEMENT	18	TIE TO EXISTING WALKWAY
9	REMOVE EXISTING FENCE	19	CG-12, TYPE B MODIFIED REQ'D.
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SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	4

PROJECT MANAGER Kelly Henshaw (540) 667-2387
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GRADING PLAN

COMMONWEALTH OF VIRGINIA
BRIAN MICHAEL FINERFROCK
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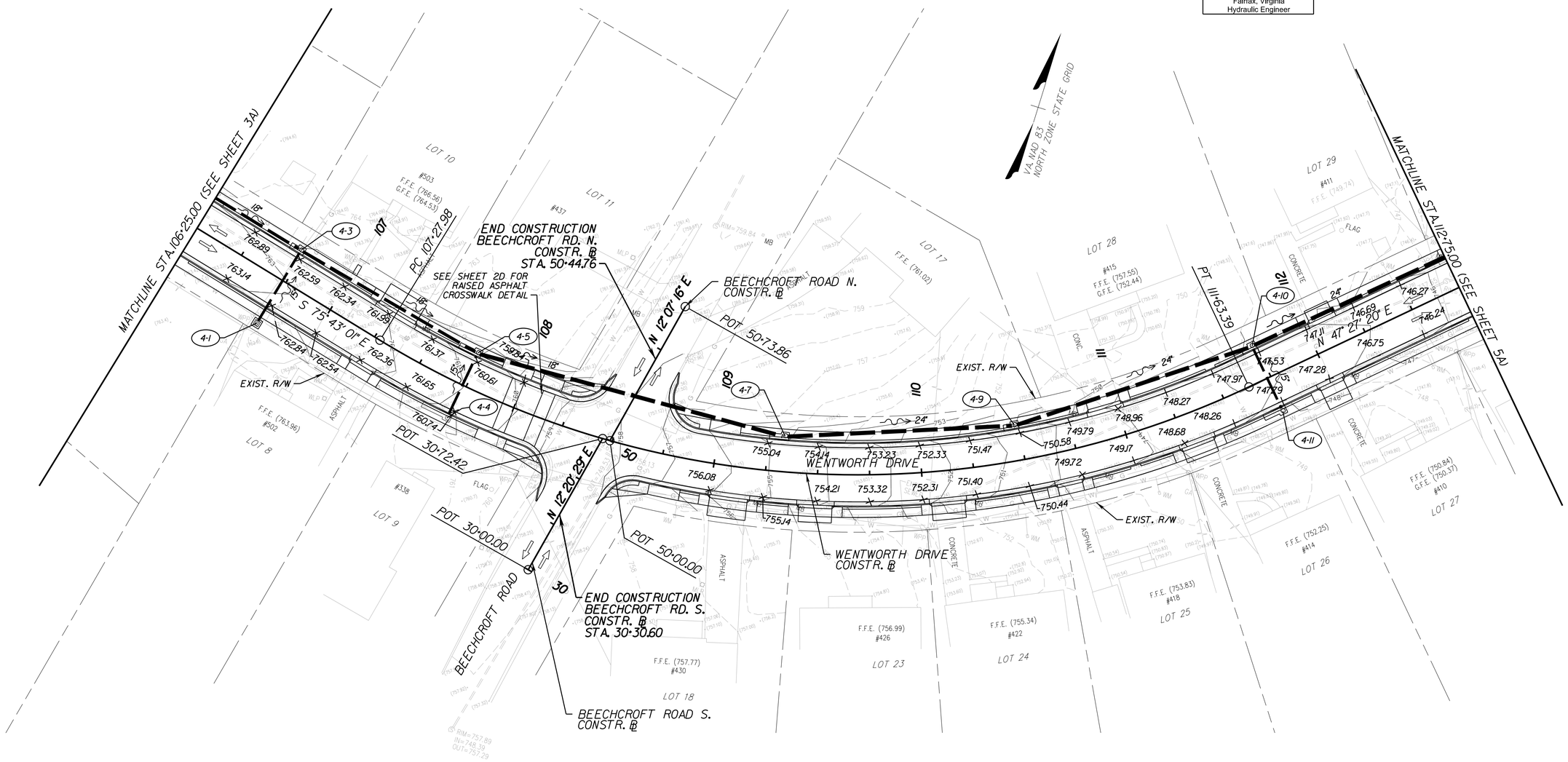
PROFESSIONAL ENGINEER
7/5/19

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Hydraulic Engineer

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	4A

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



LEGEND

DENOTES EXISTING RIGHT OF WAY
250 DENOTES EXISTING CONTOURS
250 DENOTES PROPOSED CONTOURS

SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	4A

PROJECT MANAGER Kelly Henshaw (540) 667-2387
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PROFILE

COMMONWEALTH OF VIRGINIA
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7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	4B

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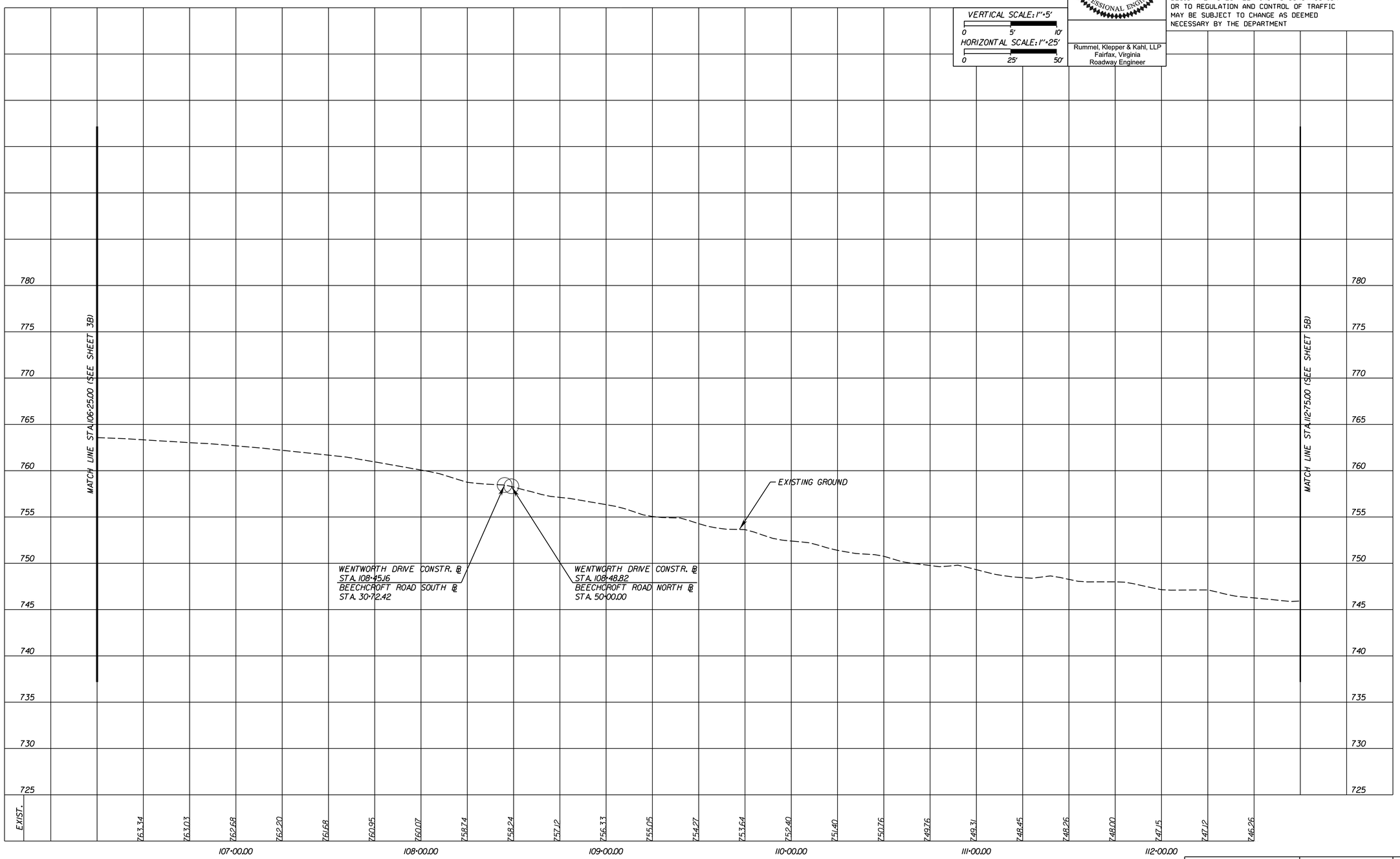
VERTICAL SCALE: 1"=5'
0 5' 10'
HORIZONTAL SCALE: 1"=25'
0 25' 50'



PROJECT	SHEET NO.
EN14-138-102	4B

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SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

PLAN

COMMONWEALTH OF VIRGINIA
BRIAN MICHAEL FINERFROCK
Lic. No. 44505
7/5/19
PROFESSIONAL ENGINEER

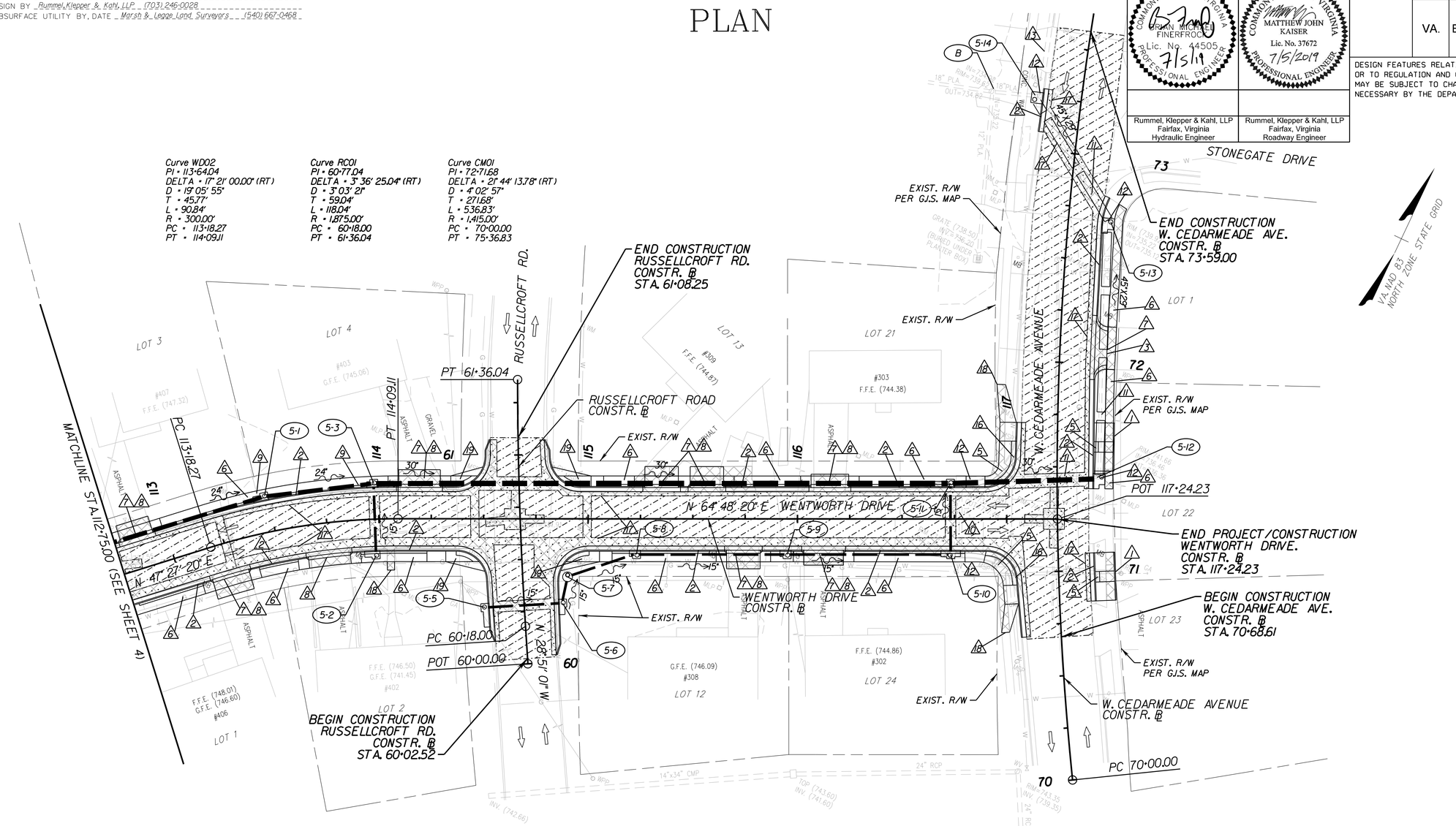
Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Hydraulic Engineer

COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
Lic. No. 37672
7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	5

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



LEGEND

- DENOTES EXISTING RIGHT OF WAY
- DENOTES DEMOLITION OF PAVEMENT
- DENOTES PROPOSED FULL DEPTH PAVEMENT
- DENOTES MILL & OVERLAY PAVEMENT

KEYS

1	CURB, ST'D. CG-2 REQ'D.	11	PIPE TO BE REMOVED
2	CURB AND GUTTER, ST'D.CG-6 REQ'D.	12	DRAINAGE STRUCTURE TO BE REMOVED
3	ENTRANCE GUTTER, ST'D.CG-9D REQ'D.	13	CLEAN OUT EXISTING PIPE
4	ST'D.CG-12, TYPE A REQ'D.	14	CLEAN OUT EXISTING STRUCTURE
5	ST.D.CG-12, TYPE B REQ'D.	15	REMOVE EXISTING CURB
6	4' SIDEWALK REQ'D.	16	REMOVE EXISTING CURB AND GUTTER
7	ASPHALT DRIVEWAY PAVEMENT	17	FULL DEPTH SAWCUT REQ'D.
8	CONCRETE DRIVEWAY PAVEMENT	18	TIE TO EXISTING WALKWAY
9	REMOVE EXISTING FENCE	19	CG-12, TYPE B MODIFIED REQ'D.
10	PIPE TO BE ABANDONED AND PLUGGED	20	GRAVEL DRIVEWAY

NOTE: IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT FROM HARM OR REPLACE UNDER LICENSED LAND SURVEYOR ALL PROPERTY MONUMENTATION DISTURBED BY CONSTRUCTION.

SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	5

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

GRADING PLAN

COMMONWEALTH OF VIRGINIA
BRIAN MICHAEL FINERFROCK
Lic. No. 44505
PROFESSIONAL ENGINEER
7/5/19

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Hydraulic Engineer

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	5A

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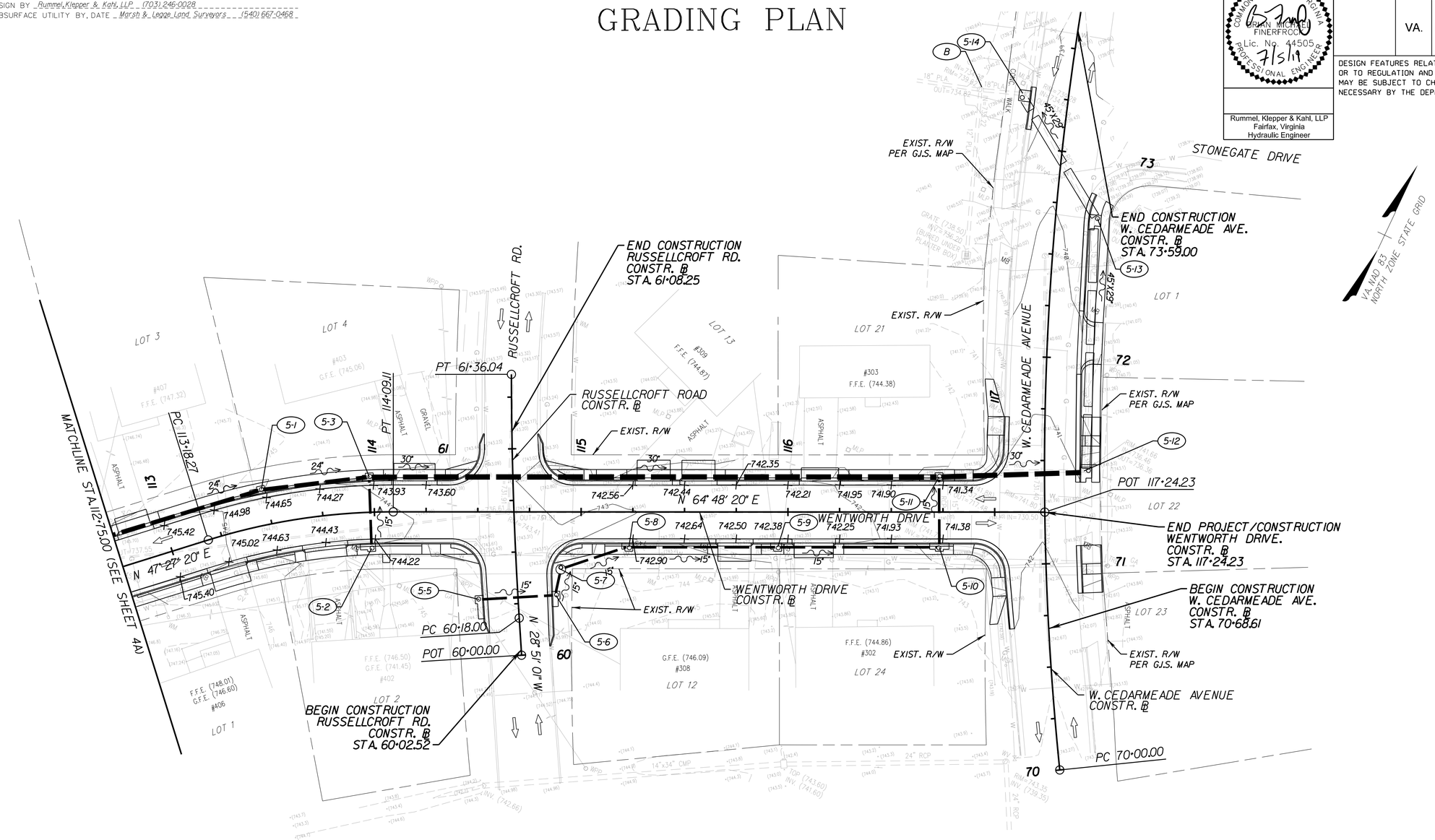

LEGEND

DENOTES EXISTING RIGHT OF WAY
250 DENOTES EXISTING CONTOURS
250 DENOTES PROPOSED CONTOURS

SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	5A

PROJECT MANAGER Kelly Henshaw (540) 667-2387
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DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

PROFILE

COMMONWEALTH OF VIRGINIA
MATTHEW JOHN KAISER
Lic. No. 37672
7/5/2019
PROFESSIONAL ENGINEER

Rummel, Klepper & Kahl, LLP
Fairfax, Virginia
Roadway Engineer

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	5B

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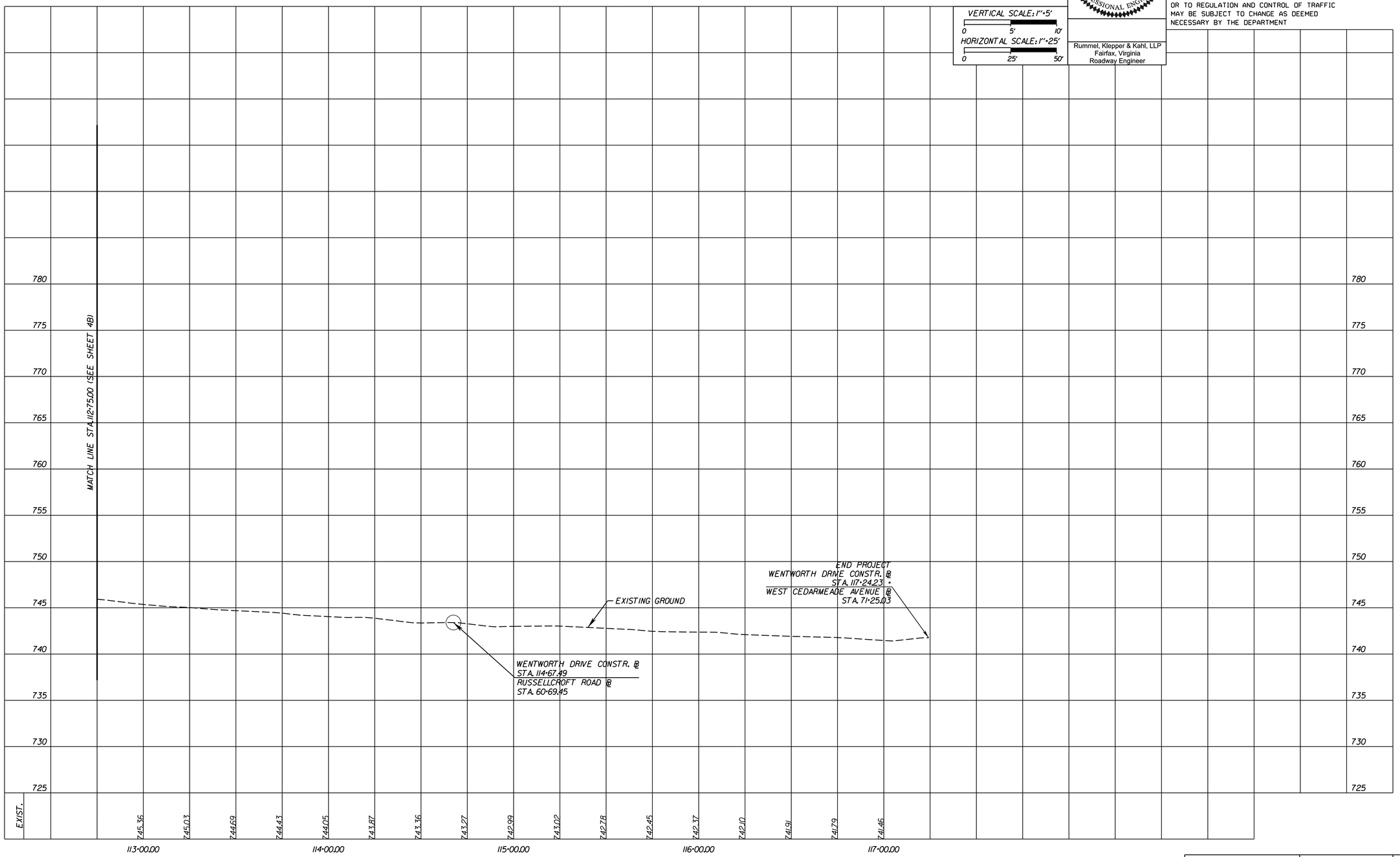
VERTICAL SCALE: 1"=5'
0 5' 10'
HORIZONTAL SCALE: 1"=25'
0 25' 50'



PROJECT	SHEET NO.
EN14-138-102	5B

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
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SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

DRAINAGE DESCRIPTIONS

Sheet 3

3-1
1 Std.DI-3B Req.
L=6' ,H=4.0' ,Inv=773.10'
Std.IS-1 Req.

3-1 — 3-2
41' - 15" Conc.Pipe Class III Req.(2' Cover)
Silt Tight Joint Type
Inv(In) = 773.10',Inv(Out) = 772.80'

3-2
1 Std.DI-3A Req.
H=4.6' ,Inv=772.70'
Std.IS-1 Req.

3-2 — 3-10
68' - 15" Conc.Pipe Class III Req.(3' Cover)
Silt Tight Joint Type
Inv(In) = 772.70' ,Inv(Out) = 772.30'

3-4
1 Std.DI-3B Req.
L=8' ,H=4.0' ,Inv=770.80'
Std.IS-1 Req.

3-4 — 3-6
163' - 15" Conc.Pipe Class III Req.(3' Cover)
Silt Tight Joint Type
Inv(In) = 770.80',Inv(Out) = 762.40'

3-6
1 Std.DI-3B Req.
L=8' ,H=4.1' ,Inv=762.30'
Std.IS-1 Req.

3-6 — 3-7
31' - 15" Conc.Pipe Class III Req.(2' Cover)
Silt Tight Joint Type
Inv(In) = 762.30' ,Inv(Out) = 762.10'

3-7
1 Std.DI-3B Req.
L=12' ,H=4.5' ,Inv=762.00'
Std.IS-1 Req.

3-7 — 3-8
106' - 15" Conc.Pipe Class III Req.(2' Cover)
Silt Tight Joint Type
Inv(In) = 762.00' ,Inv(Out) = 760.40'

3-8
1 Std.DI-3B Req.
L=12' ,H=4.2' ,Inv=760.20'
Std.IS-1 Req.

3-8 — 4-3
122' - 18" Conc.Pipe Class III Req.(2' Cover)
Silt Tight Joint Type
Inv(In) = 760.20',Inv(Out) = 758.70'

3-10
14.2 LF Std.MH-1 or 2 Req.
1 Std.MH-1 Frame & Cover Req.
Inv = 763.18'
1 Std.SL-1 Req.
Std.IS-1 Req.
Connect to Exist.21" Conc.Pipe,Inv = 763.20'
Connect to Exist.21" Conc.Pipe,Inv = 763.18'

Sheet 4

4-1
1 Std.DI-1 Req.
H=2.5' ,Inv=760.20'
Std.IS-1 Req.

4-1 — 4-3
38' - 15" Conc.Pipe Class IV Req.(1' Cover)
Silt Tight Joint Type
Inv(In) = 760.20' ,Inv(Out) = 758.50'

4-3
1 Std.DI-3B Req.
L=6' ,H=4.5' ,Inv=758.40'
Std.IS-1 Req.

4-3 — 4-5
96' - 18" Conc.Pipe Class III Req.(3' Cover)
Silt Tight Joint Type
Inv(In) = 758.40' ,Inv(Out) = 756.70'

4-4
1 Std.DI-3B Req.
L=14' ,H=4.0' ,Inv=757.10'
Std.IS-1 Req.

4-4 — 4-5
31' - 15" Conc.Pipe Class III Req.(2' Cover)
Silt Tight Joint Type
Inv(In) = 757.10' ,Inv(Out) = 756.90'

4-5
1 Std.DI-3B Req.
L=10' ,H=4.4' ,Inv=756.60'
Std.IS-1 Req.

4-5 — 4-7
150' - 18" Conc.Pipe Class III Req.(2' Cover)
Silt Tight Joint Type
Inv(In) = 756.60' ,Inv(Out) = 750.30'

4-7
1 Std.DI-3B Req.
L=8' ,H=4.7' ,Inv=749.80'
Std.IS-1 Req.

4-7 — 4-9
108' - 24" Conc.Pipe Class III Req.(2' Cover)
Silt Tight Joint Type
Inv(In) = 749.80' ,Inv(Out) = 746.20'

4-9
1 Std.DI-3B Req.
L=6' ,H=4.8' ,Inv=746.10'
Std.IS-1 Req.

4-9 — 4-10
118' - 24" Conc.Pipe Class III Req.(2' Cover)
Silt Tight Joint Type
Inv(In) = 746.10' ,Inv(Out) = 743.20'

4-10
1 Std.DI-3B Req.
L=6' ,H=4.8' ,Inv=743.10'
Std.IS-1 Req.

4-10 — 5-1
174' - 24" Conc.Pipe Class III Req.(3' Cover)
Silt Tight Joint Type
Inv(In) = 743.10' ,Inv(Out) = 740.10'

4-11
1 Std.DI-3B Req.
L=10' ,H=3.9' ,Inv=744.20'
Std.IS-1 Req.

4-11 — 4-10
32' - 15" Conc.Pipe Class III Req.(2' Cover)
Silt Tight Joint Type
Inv(In) = 744.20' ,Inv(Out) = 743.90'

Sheet 5

5-1
1 Std.DI-3B Req.
L=6' ,H=5.0' ,Inv=740.00'
Std.IS-1 Req.

5-1 — 5-3
50' - 24" Conc.Pipe Class III Req.(3' Cover)
Silt Tight Joint Type
Inv(In) = 740.00' ,Inv(Out) = 739.40'

5-2
1 Std.DI-3B Req.
L=6' ,H=4.0' ,Inv=740.60'
Std.IS-1 Req.

5-2 — 5-3
31' - 15" Conc.Pipe Class III Req.(2' Cover)
Silt Tight Joint Type
Inv(In) = 740.60' ,Inv(Out) = 740.20'

5-3
1 Std.DI-3B Req.
L=4' ,H=5.2' ,Inv=739.10'
Std.IS-1 Req.

5-3 — 5-11
273' - 30" Conc.Pipe Class III Req.(2' Cover)
Silt Tight Joint Type
Inv(In) = 739.10' ,Inv(Out) = 736.30'

5-5
1 Std.DI-3B Req.
L=10' ,H=4.0' ,Inv=740.20'
Std.IS-1 Req.

5-5 — 5-6
34' - 15" Conc.Pipe Class III Req.(2' Cover)
Silt Tight Joint Type
Inv(In) = 740.20' ,Inv(Out) = 739.80'

5-6
1 Std.DI-3B Req.
L=6' ,H=4.0' ,Inv=739.70'
Std.IS-1 Req.

5-6 — 5-7
10' - 15" Conc.Pipe Class III Req.(3' Cover)
Silt Tight Joint Type
Inv(In) = 739.70' ,Inv(Out) = 739.60'

5-7
4.0 LF Std.MH-1 or 2 Req.
1 Std.MH-1 Frame & Cover Req.
Inv = 739.50'
Std.IS-1 Req.

5-7 — 5-8
31' - 15" Conc.Pipe Class III Req.(2' Cover)
Silt Tight Joint Type
Inv(In) = 739.50' ,Inv(Out) = 739.30'

5-8
1 Std.DI-3B Req.
L=4' ,H=4.0' ,Inv=739.20'
Std.IS-1 Req.

5-8 — 5-9
69' - 15" Conc.Pipe Class III Req.(2' Cover)
Silt Tight Joint Type
Inv(In) = 739.20' ,Inv(Out) = 738.30'

5-9
1 Std.DI-3B Req.
L=4' ,H=4.0' ,Inv=738.20'
Std.IS-1 Req.

5-9 — 5-10
76' - 15" Conc.Pipe Class III Req.(3' Cover)
Silt Tight Joint Type
Inv(In) = 738.20' ,Inv(Out) = 737.30'

5-10
1 Std.DI-3C Req.
L=8' ,H=4.1' ,Inv=737.20'
Std.IS-1 Req.

5-10 — 5-11
31' - 15" Conc.Pipe Class III Req.(2' Cover)
Silt Tight Joint Type
Inv(In) = 737.20' ,Inv(Out) = 737.00'

5-11
1 Std.DI-3B Req.
L=10' ,H=5.5' ,Inv=736.20'
Std.IS-1 Req.

5-11 — 5-12
68' - 30" Conc.Pipe Class III Req.(2' Cover)
Silt Tight Joint Type
Inv(In) = 736.20' ,Inv(Out) = 735.70'

5-12
1 Std.DI-4B Req.
L=6' ,H=6.0' ,Inv=735.60'
Std.IS-1 Req.

5-12 — 5-13
118' - 45"x29" Conc.Pipe Class III Req.(2' Cover)
Silt Tight Joint Type
Inv(In) = 735.60' ,Inv(Out) = 735.00'

5-13
1 Std.DI-4B Req.
L=6' ,H=4.9' ,Inv=735.00'
Std.IS-1 Req.

5-13 — 5-14
66' - 45"x29" Conc.Pipe Class IV Req.(1' Cover)
Silt Tight Joint Type
Inv(In) = 735.00' ,Inv(Out) = 734.60'

5-14
1 Std.DI-4AReq.
H=4.7' ,Inv=734.58'
Std.IS-1 Req.
Connect To Existing 18" Pla.Pipe,Inv = 734.68'
Connect To Existing 24" Conc.Pipe,Inv = 734.58'

Note: All curb inlets shall be recessed 1/2" from face of curb.

COMMONWEALTH OF VIRGINIA
BRIAN MICHAEL FINERFROCK
Lic. No. 44505
7/5/19
PROFESSIONAL ENGINEER

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Hydraulic Engineer

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	6

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

PROJECT	SHEET NO.
EN14-138-102	6

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
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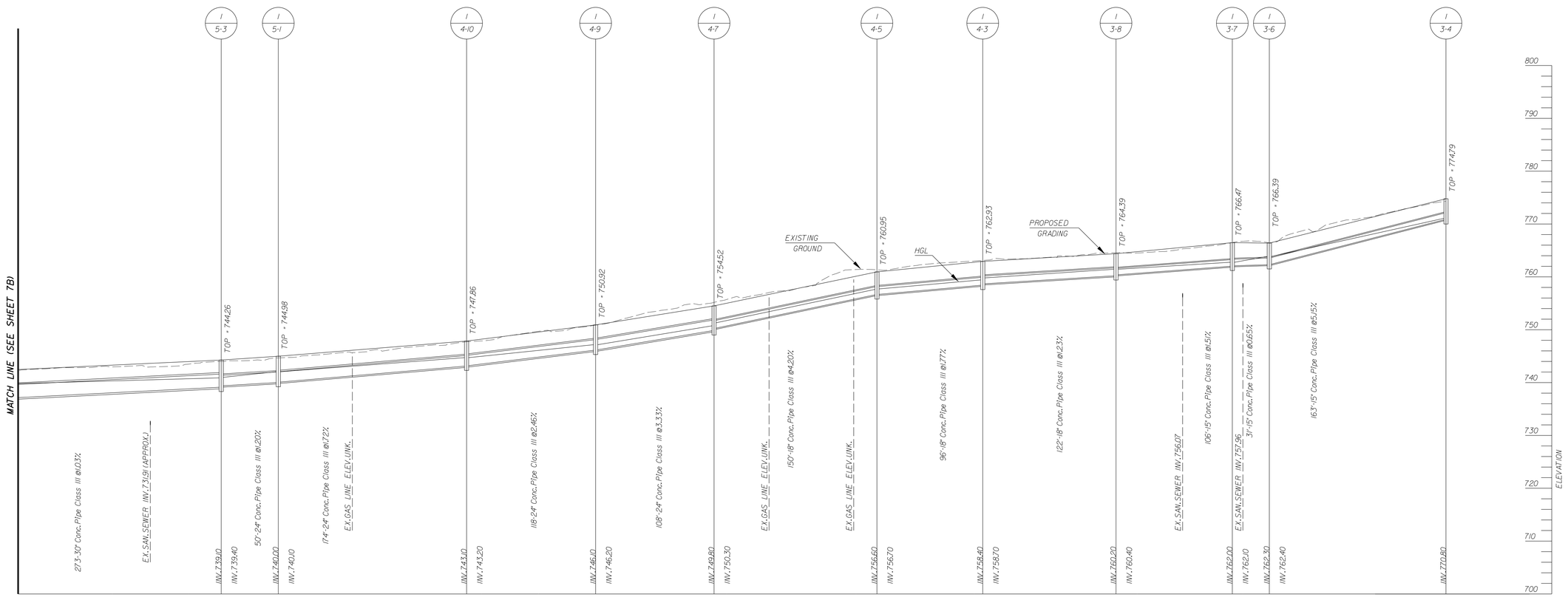
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	7A

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

STORM SEWER PROFILES



1) Only existing Utilities, at the time of the survey, which are to remain are shown on the Storm Sewer Profiles. These profiles do not reflect either planned re-location of Utilities or proposed Utilities. The Contractor is also directed to any Utility Plans that may exist as part of this plan assembly.

2) All Utility locations are approximate, and are based on information from the project survey.

3) Utility clearance dimensions shown assume the use of concrete Storm Sewer Pipe and corresponding pipe thicknesses (worst case scenario).

4) Federal regulations prohibit the use of mechanized equipment within 2-ft of natural gas facilities. The Contractor must contact Washington Gas Line's Damage Prevention Team to have the main protected prior to constructing facilities in these areas.

VERTICAL SCALE: 1" = 10'
0 10' 20'
HORIZONTAL SCALE: 1" = 50'
0 50' 100'

PROJECT	SHEET NO.
EN14-138-102	7A

PROJECT MANAGER Kelly Henshaw (540) 667-2387
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REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	7B

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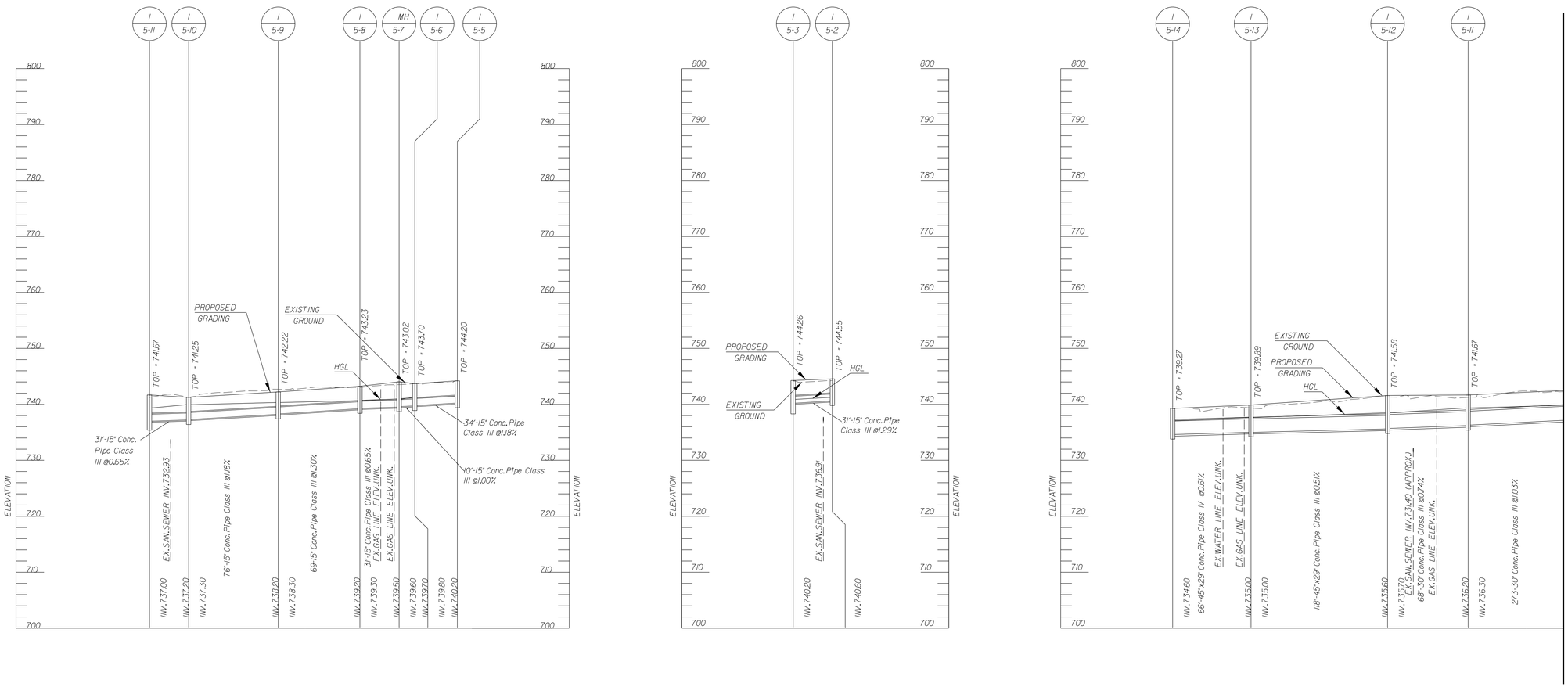
STORM SEWER PROFILES



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0 10' 20'
HORIZONTAL SCALE: 1" = 50'
0 50' 100'

PROJECT	SHEET NO.
EN14-138-102	7B

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REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	7C

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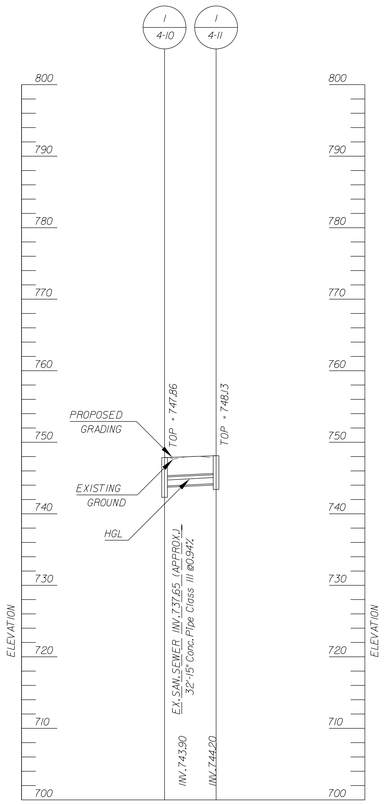
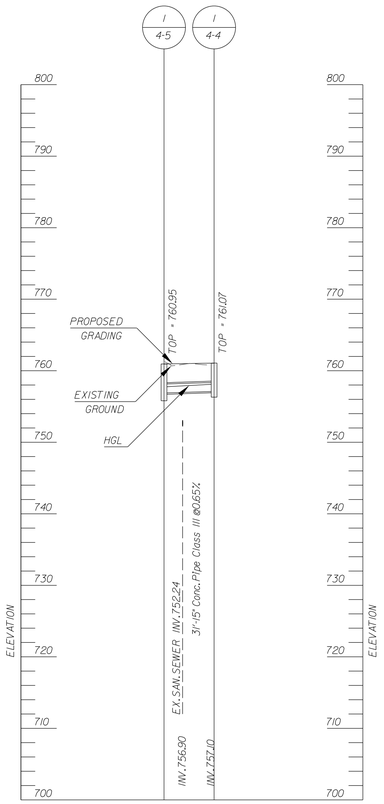
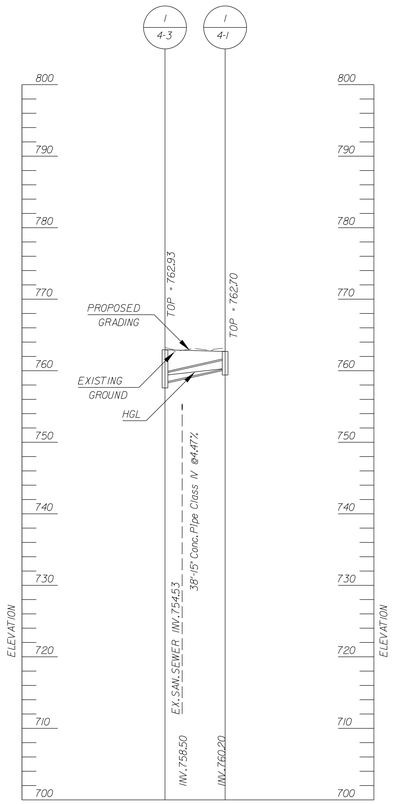
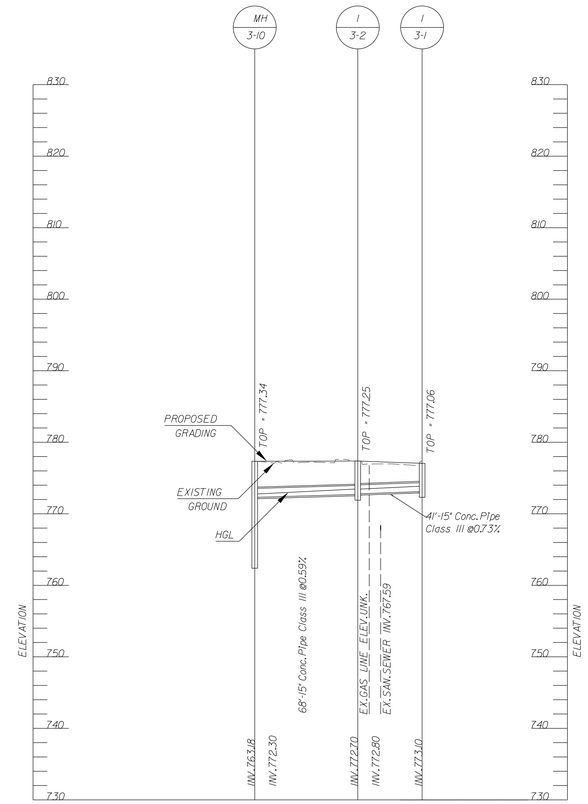
STORM SEWER PROFILES









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0 10' 20'
HORIZONTAL SCALE: 1" = 50'
0 50' 100'

PROJECT	SHEET NO.
EN14-138-102	7C

PROJECT MANAGER Kelly Henshaw (540) 667-2387
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REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	8(1)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

SIGNING AND MARKING PLAN

STANDARD SIGN LEGEND

PLAN ITEM	PLAN SYMBOL PROPOSED	PLAN SYMBOL EXISTING
Single Post Sign Support		
Double Post Sign Support		
Triple Post Sign Support		

SIGN CALL-OUTS

Existing sign and structure to be replaced in current location	95
Existing Sign to be Removed	95
Proposed Sign Panel	95

SIGN LABELS

Proposed Sign Assemblies

2808 / 3 — denotes Sign Assembly No. / denotes Text No.

Relocated Sign Assemblies

2808 / 3 — denotes Sign Assembly No. / denotes Text No.

Sign Relocation or Payable Sign Disposal/Salvage

GM / A — denotes Existing Sign Structure and/or Sign Panel Type

STRUCTURE & SIGN PANEL
GM - Ground Mounted
OM - Overhead Mounted
CM - Cantilever Mounted

SIGN PANEL
SP-GM - Ground Mounted Sign Panel
SP-OH - Overhead Mounted Sign Panel

STRUCTURE ONLY
ST-GM - Ground Mounted

denotes Action and Measurement & Payment Item
A - Remove & Dispose of Existing Sign Structure
B - Remove & Salvage Existing Sign Structure
C - Relocate Existing Sign Structure
D - Overlay Existing Sign Panel
E - Reset Existing Sign Panel

Signs noted on plans to be removed that do not have an accompanying sign label shall not be measured separately for payment. Removal and disposal for such signs shall be incidental to other contract items.

SIGN SCHEDULE

TEXT NO.	SIGN ASSEMBLY NO(s).	TEXT	MUTCD ST'D.	PANEL SIZE W	PANEL SIZE H	QTY.	SIGN AREA (SQ. FT.) (EA)	SIGN AREA (SQ. FT.) TOTAL	PROP. SIGN STRUCTURE ST'D.	REMARKS
1	103 104	STOP (Applecroft)	R1-1	30"	30"	1	6.25	6.25	SEE NOTE 5	-
2	107 108	STOP (Beechcroft)	R1-1	30"	30"	1	6.25	6.25	SEE NOTE 5	-
3	109	AHEAD	W11-2 W16-9P	30" 24"	30" 12"	1 1	6.25 2.00	6.25 2.00	SEE NOTE 5	-
4	101 102 105 106		W11-2 W16-7P	30" 24"	30" 12"	1 1	6.25 2.00	6.25 2.00	SEE NOTE 5	-
5	110	SPEED LIMIT 25	R2-1	24"	30"	1	5.00	5.00	SEE NOTE 5	-

GENERAL NOTES

1. UNLESS OTHERWISE APPROVED BY THE ENGINEER OR INDICATED IN THE MAINTENANCE OF TRAFFIC AND SEQUENCE OF CONSTRUCTION PLANS, EXISTING TRAFFIC SIGNS WHICH ARE TO BE RELOCATED SHALL REMAIN IN PLACE UNTIL THE NEW SIGN STRUCTURE IS IN PLACE.
2. THE REMOVAL OR MODIFICATION OF EXISTING SIGN PANELS, STRUCTURES, OR FOUNDATIONS SHALL CONFORM TO SECTION 510 OF THE VDOT ROAD AND BRIDGE SPECIFICATIONS.
3. NEW MATERIALS AND ITEMS REQUIRED TO COMPLETE THE REMOVAL OR MODIFICATION OF EXISTING ITEMS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL IN ACCORDANCE WITH SECTION 105 OF THE VDOT ROAD AND BRIDGE SPECIFICATIONS.
4. ALL EXISTING AND PROPOSED SIGN LOCATIONS ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR. ALL PROPOSED SIGN LOCATIONS SHALL BE STAKED BY THE CONTRACTOR FOR REVIEW AND APPROVAL BY THE TRAFFIC ENGINEER PRIOR TO ANY INSTALLATION OR RELOCATION.
5. REFER TO "CITY OF WINCHESTER PUBLIC SERVICES DEPARTMENT STANDARDS MANUAL" FOR SIGN POST AND FOUNDATION SPECIFICATIONS. BOTTOM OF EACH SIGN FACE MUST MEET A MINIMUM VERTICAL CLEARANCE OF 7 FEET ABOVE THE FINISHED SIDEWALK GRADE.
6. ALL STRIPING, WHERE MATCHING TO EXISTING, SHALL BE DONE IN A MANNER APPROVED BY THE ENGINEER.
7. EXISTING PAVEMENT MARKINGS THAT CONFLICT WITH THE PROPOSED MARKINGS SHOWN HEREIN SHALL BE ERADICATED.
8. LIMITS SHOWN OF PROPOSED PAVEMENT MARKINGS ARE APPROXIMATE AND SHALL BE MODIFIED IN THE FIELD TO ENSURE THAT PROPOSED PAVEMENT MARKINGS CONTINUE UNTIL EXISTING PAVEMENT MARKINGS CAN BE MATCHED.
9. ALL LONGITUDINAL PAVEMENT MARKINGS SHALL BE TYPE B, CLASS I ALKYD THERMOPLASTIC, UNLESS OTHERWISE NOTED.
10. ALL PROPOSED SIGNING AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF EACH OF THE FOLLOWING MANUALS, OR THE MOST CURRENT REVISION THERETO:
    - A) CITY OF WINCHESTER PUBLIC SERVICES DEPARTMENT STANDARDS MANUAL.
    - B) THE VIRGINIA SUPPLEMENT OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
    - C) THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE STANDARDS.
    - D) THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS.
    - E) MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
11. PROPOSED SIGN LOCATIONS ARE APPROXIMATE AND SHALL BE MODIFIED IN THE FIELD TO AVOID CONFLICT WITH UNDERGROUND UTILITIES OR OTHER CONSTRUCTIONS, AND TO COMPLY WITH STANDARDS REFERENCED IN NOTE 11.
12. STOP BARS SHALL BE 24" IN WIDTH AND SHALL BE LOCATED AS SHOWN ON THE PLANS.
13. ALL LANE-USE ARROWS SHALL BE MUTCD STANDARD ARROWS AND HAVE BASES WITH 12" WIDTH.

MEASUREMENT AND PAYMENT ITEMS

A. REMOVE AND DISPOSE OF EXISTING SIGN STRUCTURE

MEASURED IN UNITS OF EACH AND PAID FOR AT THE CONTRACT UNIT PRICE PER EACH. PRICE SHALL BE FULL COMPENSATION FOR DISMANTLING AND REMOVING EXISTING SIGN AND SUPPORT(S), BACKFILLING RESULTING HOLES, AND FOR ALL MATERIALS, LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK. EXISTING FOUNDATIONS SHALL BE REMOVED AND BACKFILLED.

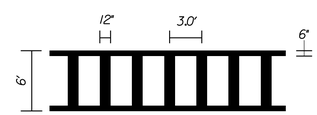
C. RELOCATE EXISTING SIGN STRUCTURE

MEASURED IN UNITS OF EACH AND PAID FOR AT THE CONTRACT UNIT PRICE PER EACH. PRICE SHALL BE FULL COMPENSATION FOR DISMANTLING AND REMOVING EXISTING SIGN AND SUPPORT(S), BACKFILLING RESULTING HOLES, INSTALLING EXISTING SIGN AND SUPPORT(S) IN THE NEW LOCATION WITH SPECIAL BACKFILL MATERIAL, FURNISHING NEW MISCELLANEOUS NUTS, BOLTS, AND WASHERS, AND FOR ALL MATERIALS, LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK. SIGN FOUNDATIONS SHALL BE PAID FOR SEPARATELY. EXISTING FOUNDATIONS SHALL BE REMOVED AND BACKFILLED.

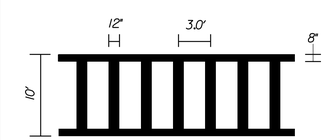
E. RESET EXISTING SIGN PANEL

MEASURED IN UNITS OF EACH AND PAID FOR AT THE CONTRACT UNIT PRICE PER EACH. PRICE SHALL BE FULL COMPENSATION FOR DISMANTLING AND REMOVING EXISTING SIGN AND SUPPORT(S), INSTALLING NEW SUPPORT(S) AT PROPER HEIGHT, REINSTALLING EXISTING SIGN, FURNISHING NEW MISCELLANEOUS NUTS, BOLTS, AND WASHERS, AND FOR ALL MATERIALS, LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

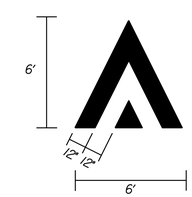
STANDARD CROSSWALK MARKING DETAIL



RAISED CROSSWALK MARKING DETAIL



RAISED CROSSWALK APPROACH MARKING DETAIL



PROJECT	SHEET NO.
EN14-138-102	8(1)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

COMMONWEALTH OF VIRGINIA
STUART M. SAMBERG
Lic. No. 054707
7/5/2019
PROFESSIONAL ENGINEER

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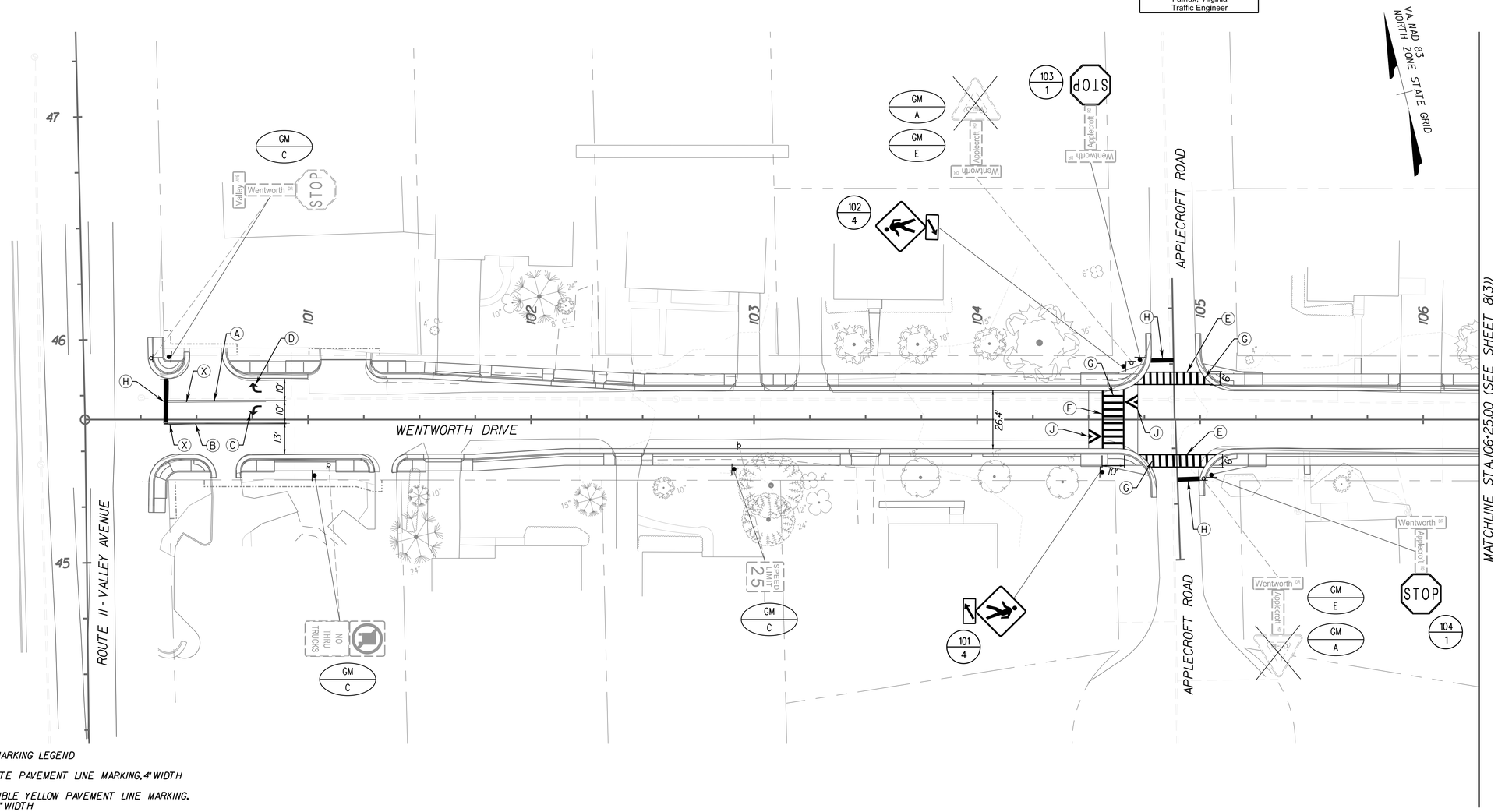
Fairfax, Virginia
Traffic Engineer

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	8(2)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



SIGNING AND PAVEMENT MARKING LEGEND

- (A) TYPE B, CLASS I, WHITE PAVEMENT LINE MARKING, 4" WIDTH
- (B) TYPE B, CLASS I, DOUBLE YELLOW PAVEMENT LINE MARKING, 4" WIDTH, 4" SPACING, 4" WIDTH
- (C) TYPE B, CLASS II, PAVEMENT MARKING SYMBOL, LEFT TURN ARROW
- (D) TYPE B, CLASS II, PAVEMENT MARKING SYMBOL, RIGHT TURN ARROW
- (E) TYPE B, CLASS I, WHITE PAVEMENT LINE MARKING, 6" WIDTH
- (F) TYPE B, CLASS I, WHITE PAVEMENT LINE MARKING, 8" WIDTH
- (G) TYPE B, CLASS I, WHITE PAVEMENT LINE MARKING, 12" WIDTH
- (H) TYPE B, CLASS I, WHITE PAVEMENT LINE MARKING, 24" WIDTH
- (J) CROSSWALK APPROACH MARKING, TYPE B, CLASS I, WHITE PAVEMENT LINE 12" WIDTH (SEE SHEET 6(1) FOR DETAIL)
- (X) ERADICATE EXISTING PAVEMENT MARKING

SPEED LIMIT 45 — Existing sign and structure to remain

SPEED LIMIT 45 — Existing sign and structure to be removed

SPEED LIMIT 45 — New sign and structure to be installed

SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	8(2)

PROJECT MANAGER Kelly Henshaw (540) 667-2387
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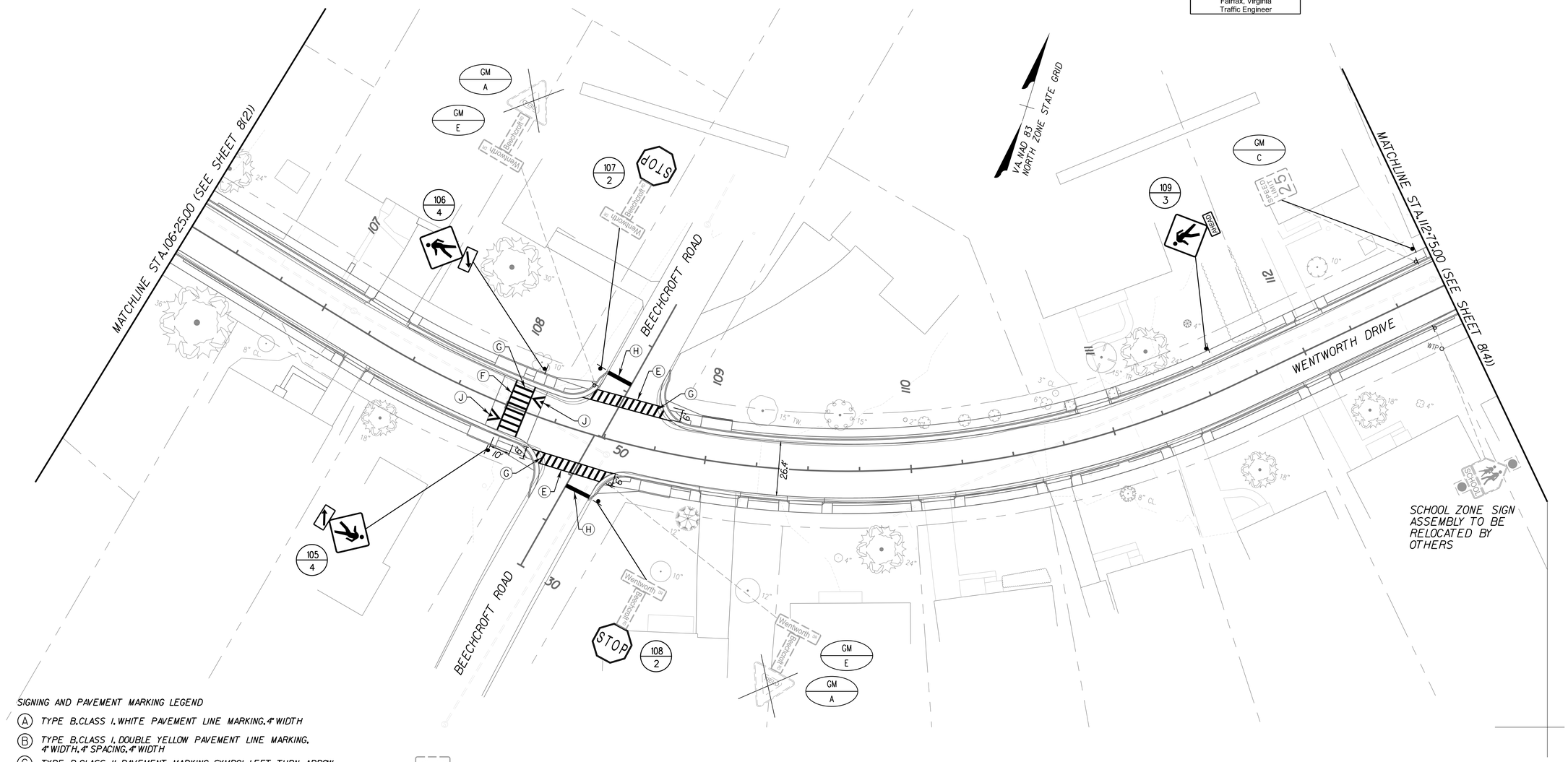
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	8(3)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



SIGNING AND PAVEMENT MARKING LEGEND

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- (C) TYPE B, CLASS II, PAVEMENT MARKING SYMBOL, LEFT TURN ARROW
- (D) TYPE B, CLASS II, PAVEMENT MARKING SYMBOL, RIGHT TURN ARROW
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- (G) TYPE B, CLASS I, WHITE PAVEMENT LINE MARKING, 12" WIDTH
- (H) TYPE B, CLASS I, WHITE PAVEMENT LINE MARKING, 24" WIDTH
- (J) CROSSWALK APPROACH MARKING, TYPE B, CLASS I, WHITE PAVEMENT LINE 12" WIDTH (SEE SHEET 6(1) FOR DETAIL)
- (X) ERADICATE EXISTING PAVEMENT MARKING

SPEED LIMIT 45 — Existing sign and structure to remain

~~SPEED LIMIT 45~~ — Existing sign and structure to be removed

SPEED LIMIT 45 — New sign and structure to be installed

SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	8(3)

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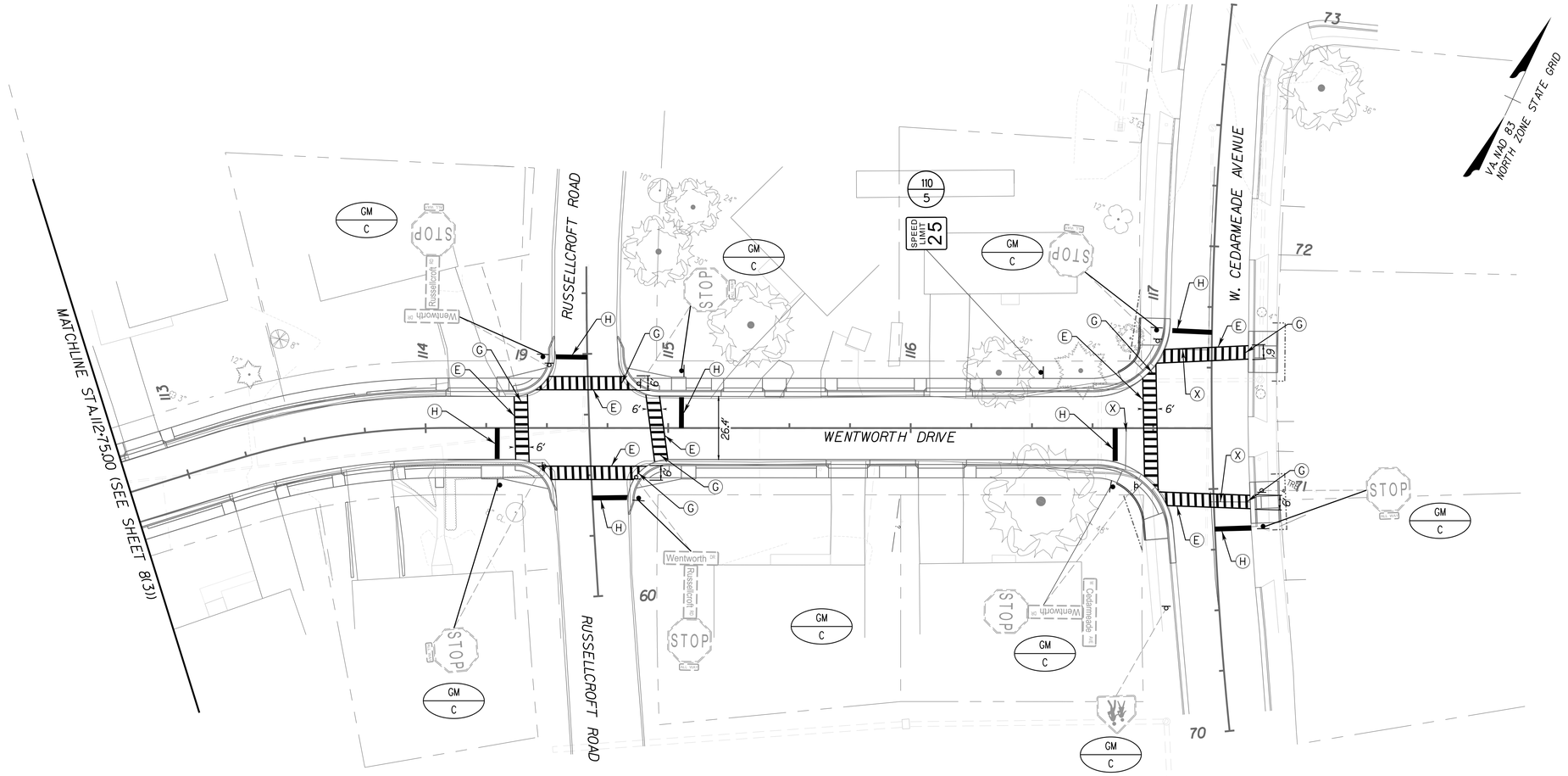
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	8(4)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



SIGNING AND PAVEMENT MARKING LEGEND

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- (B) TYPE B, CLASS I, DOUBLE YELLOW PAVEMENT LINE MARKING, 4" WIDTH, 4" SPACING, 4" WIDTH
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- (G) TYPE B, CLASS I, WHITE PAVEMENT LINE MARKING, 12" WIDTH
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- (X) ERADICATE EXISTING PAVEMENT MARKING

SPEED LIMIT 45 — Existing sign and structure to remain

~~SPEED LIMIT 45~~ — Existing sign and structure to be removed

SPEED LIMIT 45 — New sign and structure to be installed

SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	8(4)

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SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

WATER AND SANITARY SEWER PLAN

DENOTES DEMOLITION OF PAVEMENT

DENOTES PROPOSED FULL DEPTH PAVEMENT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

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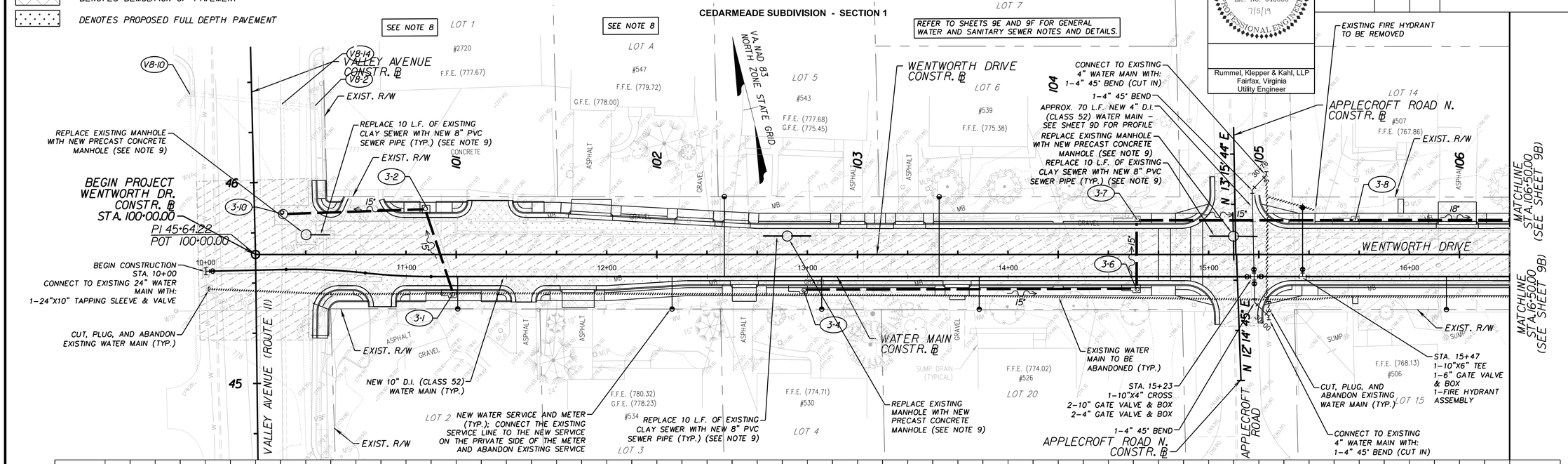
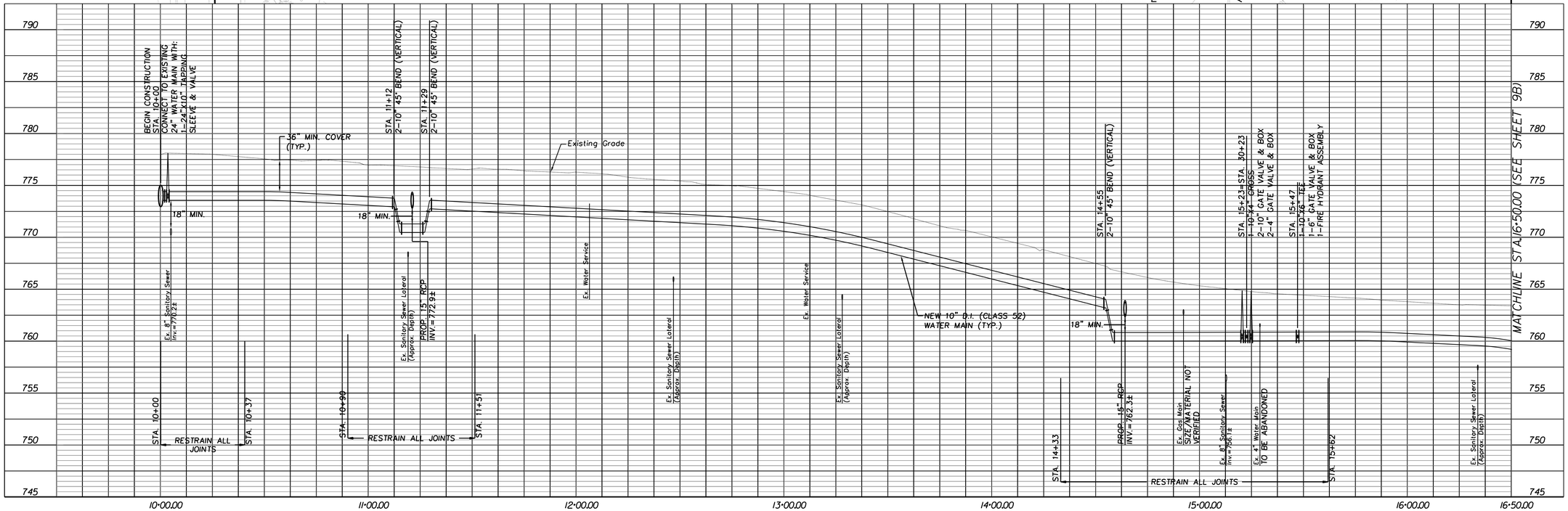
REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	9A





VERTICAL SCALE: 1"=5' (0, 5', 10')
HORIZONTAL SCALE: 1"=25' (0, 25', 50')

PROJECT	SHEET NO.
EN14-138-102	9A

PROJECT MANAGER Kelly Henshaw (540) 667-2387
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SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

WATER AND SANITARY SEWER PLAN

DENOTES DEMOLITION OF PAVEMENT

DENOTES PROPOSED FULL DEPTH PAVEMENT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REFER TO SHEETS 9E AND 9F FOR GENERAL WATER AND SANITARY SEWER NOTES AND DETAILS.

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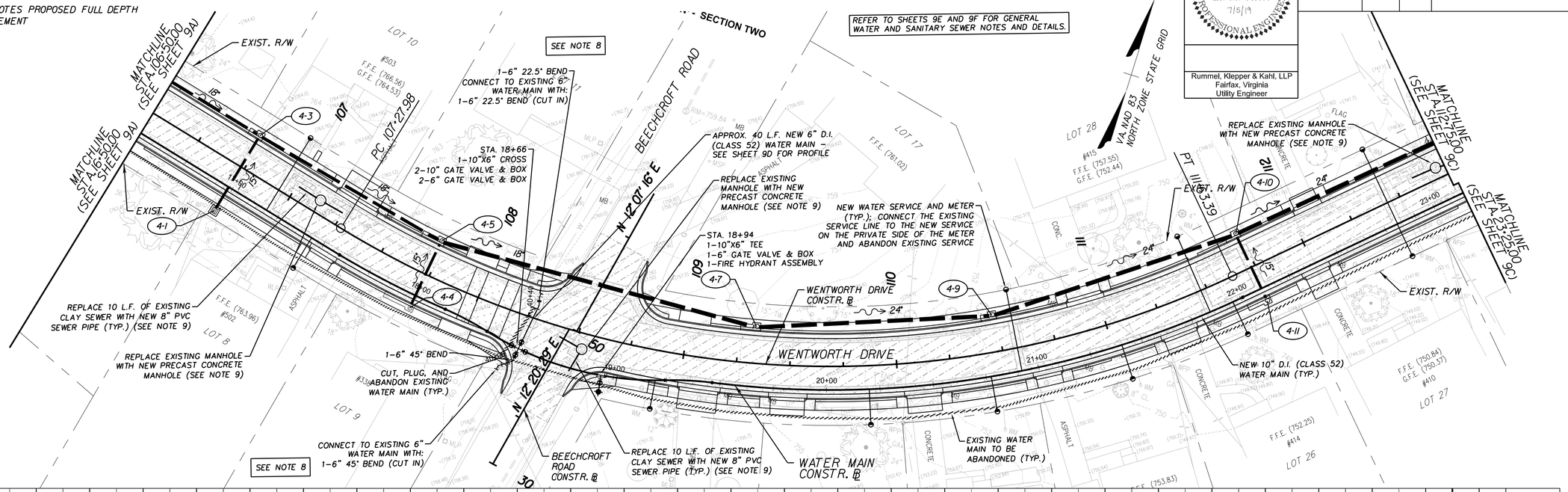
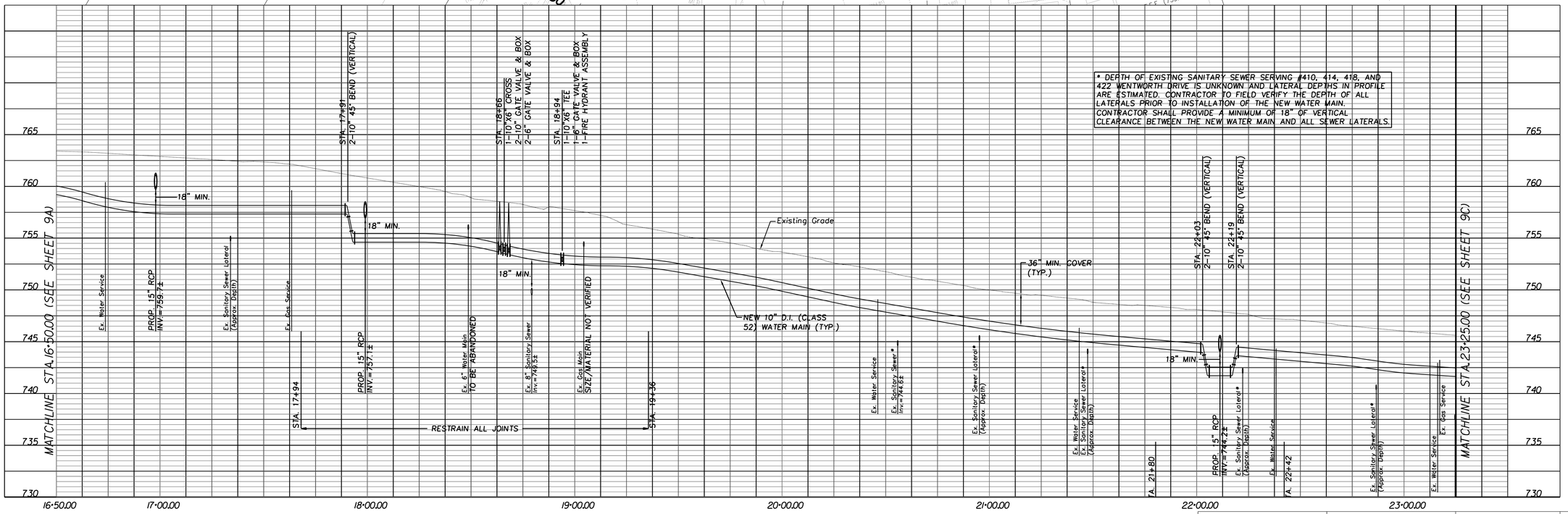
Utility Engineer

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	9B





VERTICAL SCALE: 1"=5' (0, 5', 10')

HORIZONTAL SCALE: 1"=25' (0, 25', 50')

PROJECT	SHEET NO.
EN14-138-102	9B

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PROJECT MANAGER Kelly Henshaw (540) 667-2387
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SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

WATER AND SANITARY SEWER PLAN

DENOTES DEMOLITION OF PAVEMENT

DENOTES PROPOSED FULL DEPTH PAVEMENT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

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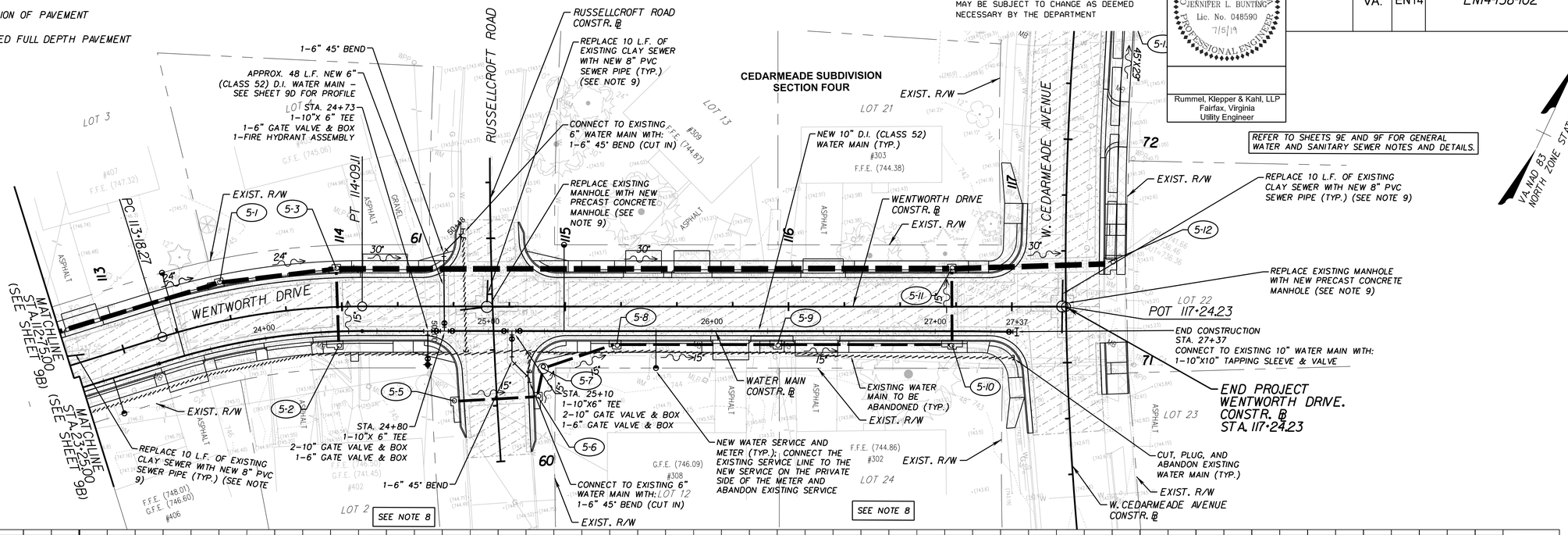
REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	9C

REFER TO SHEETS 9E AND 9F FOR GENERAL WATER AND SANITARY SEWER NOTES AND DETAILS.

VA. NAD 83 NORTH ZONE STATE GRID


RUSSELLCROFT ROAD
CONSTR. @
REPLACE 10 L.F. OF EXISTING CLAY SEWER WITH NEW 8" PVC SEWER PIPE (TYP.) (SEE NOTE 9)
1-6" 45° BEND
APPROX. 48 L.F. NEW 6" (CLASS 52) D.I. WATER MAIN - SEE SHEET 9D FOR PROFILE
STA. 24+73
1-10"X 6" TEE
1-6" GATE VALVE & BOX
1-FIRE HYDRANT ASSEMBLY
CONNECT TO EXISTING 6" WATER MAIN WITH: 1-6" 45° BEND (CUT IN)
REPLACE EXISTING MANHOLE WITH NEW PRECAST CONCRETE MANHOLE (SEE NOTE 9)
CEDARMEADE SUBDIVISION SECTION FOUR
NEW 10" D.I. (CLASS 52) WATER MAIN (TYP.)
WENTWORTH DRIVE CONSTR. @
EXIST. R/W
W. CEDARMEADE AVENUE
REPLACE 10 L.F. OF EXISTING CLAY SEWER WITH NEW 8" PVC SEWER PIPE (TYP.) (SEE NOTE 9)
REPLACE EXISTING MANHOLE WITH NEW PRECAST CONCRETE MANHOLE (SEE NOTE 9)
END CONSTRUCTION STA. 27+37 CONNECT TO EXISTING 10" WATER MAIN WITH: 1-10"X10" TAPPING SLEEVE & VALVE
END PROJECT WENTWORTH DRIVE. CONSTR. @ STA. 117+24.23
CUT, PLUG, AND ABANDON EXISTING WATER MAIN (TYP.)
W. CEDARMEADE AVENUE CONSTR. @
PC 113+18.27
PT 114+09.11
POT 117+24.23
MATCHLINE STA. 112+75.00 (SEE SHEET 9B)
MATCHLINE STA. 23+25.00 (SEE SHEET 9B)
WENTWORTH DRIVE
STA. 24+80
1-10"X 6" TEE
2-10" GATE VALVE & BOX
1-6" GATE VALVE & BOX
STA. 25+10
1-10"X6" TEE
2-10" GATE VALVE & BOX
1-6" GATE VALVE & BOX
WATER MAIN CONSTR. @
EXISTING WATER MAIN TO BE ABANDONED (TYP.)
NEW WATER SERVICE AND METER (TYP.); CONNECT THE EXISTING SERVICE LINE TO THE NEW SERVICE ON THE PRIVATE SIDE OF THE METER AND ABANDON EXISTING SERVICE
CONNECT TO EXISTING 6" WATER MAIN WITH: 1-6" 45° BEND (CUT IN)
REPLACE 10 L.F. OF EXISTING CLAY SEWER WITH NEW 8" PVC SEWER PIPE (TYP.) (SEE NOTE 9)
SEE NOTE 8
LOT 2
LOT 3
LOT 13
LOT 21
LOT 22
LOT 23
LOT 24
LOT 12
#303
#302
#308
#309
#406
#407
F.F.E. (744.38)
F.F.E. (744.86)
F.F.E. (746.09)
F.F.E. (748.01)
G.F.E. (746.60)
F.F.E. (744.87)
F.F.E. (747.32)
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F.F.E. (742.58)
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F.F.E. (743.13)
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F.F.E. (743.25)
F.F.E.

PROJECT MANAGER Kelly Henshaw (540) 667-2387
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WATER AND SANITARY SEWER PLAN

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

COMMONWEALTH OF VIRGINIA
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7/5/19
PROFESSIONAL ENGINEER

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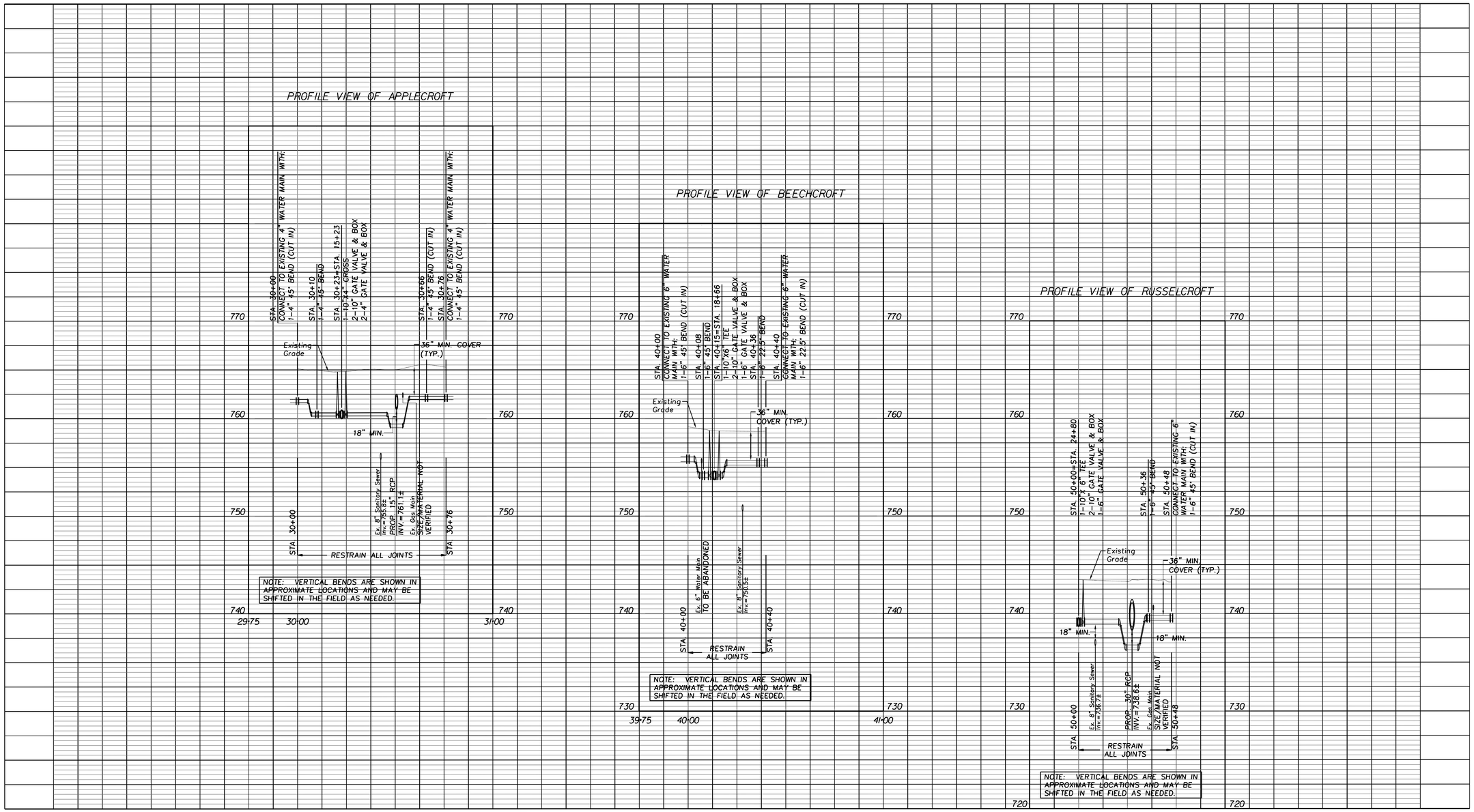
Utility Engineer

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	9D



VERTICAL SCALE: 1"=5' (0, 5', 10')
HORIZONTAL SCALE: 1"=25' (0, 25', 50')

PROJECT	SHEET NO.
EN14-138-102	9D

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WATER AND SANITARY SEWER PLAN

COMMONWEALTH OF VIRGINIA
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7/5/19
PROFESSIONAL ENGINEER

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Fairfax, Virginia
Utility Engineer

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	9E

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

GENERAL WATER AND SANITARY SEWER NOTES

1. ALL NEW WATER MAIN, SANITARY SEWER MAIN, AND APPURTENANCES SHALL CONFORM TO THE CITY OF WINCHESTER, VA PUBLIC SERVICES DEPARTMENT STANDARDS MANUAL (2017, OR LATEST VERSION).
2. EXISTING SANITARY SEWER LATERALS ARE SHOWN BASED ON CCTV INSPECTION RECORDS AND WERE NOT FIELD VERIFIED.
3. PROPOSED WATER SERVICES ARE SHOWN IN APPROXIMATE LOCATIONS AND MAY BE SHIFTED IN ORDER TO MINIMIZE DISTURBANCE TO EXISTING FEATURES. CONTRACTOR SHALL COORDINATE WITH THE INSPECTOR TO DETERMINE THE BEST LOCATION FOR ALL NEW METERS AND SERVICES.
4. VERTICAL BENDS ARE SHOWN IN PROFILE VIEW ONLY.
5. PROVIDE A MINIMUM OF 12" OF VERTICAL CLEARANCE AT ALL EXISTING UNDERGROUND UTILITY CROSSINGS.
6. MAINTAIN A MINIMUM OF 10' HORIZONTAL AND 18" VERTICAL CLEARANCE BETWEEN PROPOSED WATER MAIN AND EXISTING SANITARY SEWER MAIN AND SANITARY SEWER LATERALS.
7. ALL TEMPORARY WATER MAIN SHUTOUTS MUST BE PERFORMED BETWEEN THE HOURS OF 12:00 AM AND 6:00 AM. THE CONTRACTOR MUST NOTIFY THE CITY AT LEAST 5 WORKING DAYS IN ADVANCE OF THE ANTICIPATED SHUTOUT. THE CONTRACTOR MUST NOTIFY ALL CUSTOMERS AFFECTED BY THE SHUTOUT IN WRITING AT LEAST 48 HOURS IN ADVANCE.
8. FOR PROPERTIES ANNOTATED "SEE NOTE 8": THE LOCATION OF EXISTING WATER METER AND WATER SERVICE IS UNKNOWN. CONTRACTOR TO LOCATE EXISTING SERVICE PRIOR TO INSTALLATION OF THE NEW WATER MAIN. IF THE EXISTING SERVICE IS FOUND TO BE TIED TO THE WATER MAIN TO BE ABANDONED, CONTRACTOR SHALL INSTALL A NEW WATER METER, WATER SERVICE, AND COPPERSETTER IN ACCORDANCE WITH STANDARD DETAIL WD-1 AND ABANDON THE EXISTING WATER SERVICE.
9. SANITARY SEWER MANHOLES INDICATED TO BE REPLACED SHALL BE REPLACED WITH NEW PRECAST CONCRETE MANHOLES IN ACCORDANCE WITH STANDARD DETAIL SS-1. RIM ELEVATIONS SHALL BE FLUSH WITH THE PROPOSED PAVEMENT ELEVATION. ADDITIONALLY, 10 L.F. OF EACH INCOMING AND OUTGOING SEWER PIPE SHALL BE REPLACED WITH NEW PVC (SDR 26) PIPE AND CONNECTED TO THE EXISTING CLAY PIPE USING INDIANA SHEAR GUARD, OR APPROVED EQUAL. NEW PVC PIPES SHALL BE CONNECTED TO THE NEW MANHOLES AT THEIR EXISTING/CURRENT INVERT ELEVATIONS USING AN APPROVED FLEXIBLE CONNECTOR.
10. FRAMES AND COVERS FOR ALL MANHOLES LOCATED WITHIN THE ROADWAY SHALL BE TRAFFIC RATED.
11. THE DEPTH OF ALL EXISTING UTILITY LINES (WATER, GAS, COMMUNICATIONS) CROSSING THE PROPOSED STORM SEWER PIPE SHALL BE CONFIRMED BY TEST HOLE. IF THE EXISTING UTILITY IS FOUND TO BE IN CONFLICT WITH THE PROPOSED STORM PIPE, THE EXISTING PIPE AND/OR THE STORM SEWER SHALL BE ADJUSTED AS NEEDED TO PROVIDE A MINIMUM OF 18" OF VERTICAL CLEARANCE BETWEEN THE TWO PIPES.

SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	9E

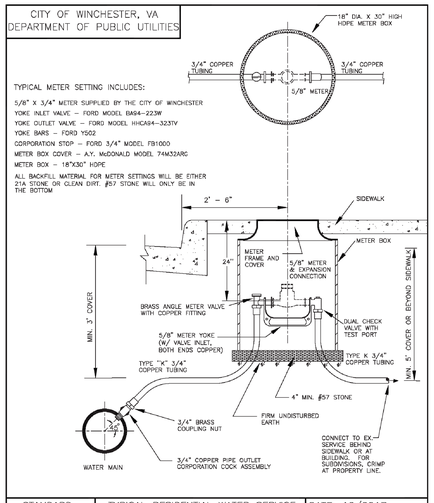
PROJECT MANAGER Kelly Henshaw (540) 667-2387
SURVEYED BY, DATE Marsh & Legge Land Surveyors (540) 667-0468, 11/14/2016
DESIGN BY Rummel, Klepper & Kahl, LLP (703) 246-0028
SUBSURFACE UTILITY BY, DATE Marsh & Legge Land Surveyors (540) 667-0468

WATER AND SANITARY SEWER PLAN

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	EN14	EN14-138-102	9F

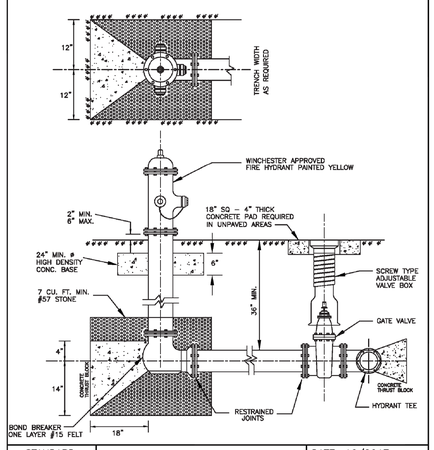
CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES



STANDARD DETAIL NO. WD– 1 | TYPICAL RESIDENTIAL WATER SERVICE 5/8" x 3/4" SCALE: NONE | DATE: 10/2017

CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES

FIRE HYDRANT SHALL BE TRAFFIC MODEL
RESTRAINTS SHALL BE BY MEGA–LUG FLANGES
4 – 1/2" STREAMER NOZZLE SHALL FACE THE ROADWAY

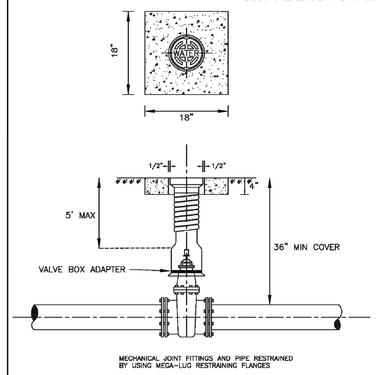


STANDARD DETAIL NO. WD– 7 | FIRE HYDRANT INSTALLATION SCALE: NONE | DATE: 10/2017

CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES

TYPICAL RESILIENT SEAT VALVE INSTALLATION:

VALVE BOX AND BOOT SHALL BE CAST IRON
VALVE BOX COVER SHALL BE MARKED "WATER"
VALVE TOP SHALL BE FLUSH WITH FINISHED GRADE
18" X 18" CONCRETE PAD SHALL BE PLACED AROUND VALVE BOXES LOCATED OUTSIDE OF PAVEMENT AREAS
VALVE BOX SHALL BE SCREW TYPE FOR ADJUSTMENT



STANDARD DETAIL NO. WD– 8 | TYPICAL VALVE & BOX INSTALLATION SCALE: NONE | DATE: 10/2017

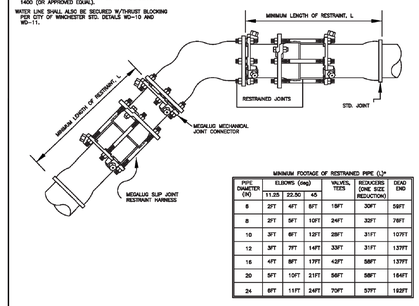
CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES

THE FOLLOWING JOINTS MUST BE RESTRAINED IN ALL APPLICATIONS:
1. BEND – INLET & OUTLET
2. VALVES – INLET & OUTLET
3. TEE – ALL BRANCHES
4. REDUCERS – LARGER PIPE ONLY
5. DEAD ENDS
6. HYDRANT RUNOUTS SHALL BE RESTRAINED AS DEAD ENDS

THRUST RESTRAINT ON SLIP JOINT DUCTILE IRON PIPE SHALL BE MEGALUG SERIES 1700, UNI–FLANGE SERIES 1400, OR APPROVED EQUAL.

THRUST RESTRAINT ON DUCTILE IRON FITTINGS SHALL BE PROVIDED BY THE USE OF MECHANICAL JOINT FITTINGS WITH MEGALUG SERIES 1100 OR UNI–FLANGE SERIES 1400 (OR APPROVED EQUAL).

WATER LINE SHALL ALSO BE SECURED W/THRUST BLOCKING PER CITY OF WINCHESTER STD. DETAILS WD–10 AND WD–11.



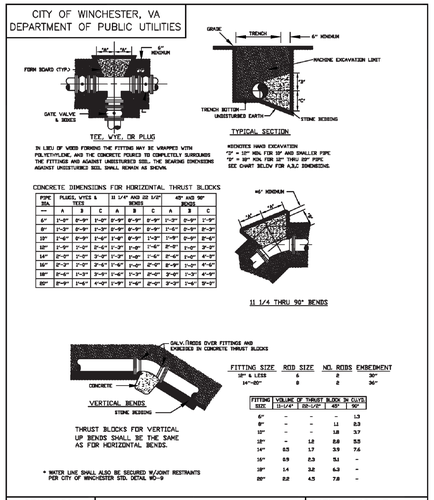
MINIMUM FOOTAGE OF RESTRAINED PIPE (L)*

PIPE DIAMETER (IN)	ELBOWS (deg) 11.25	22.50	45	WYES/TEES	REDUCERS (ONE SIZE REDUCTION)	DEAD END
6	2FT	4FT	8FT	19FT	39FT	56FT
8	2FT	5FT	10FT	24FT	32FT	76FT
10	3FT	6FT	12FT	28FT	31FT	107FT
12	3FT	7FT	14FT	33FT	31FT	137FT
16	4FT	8FT	17FT	42FT	58FT	137FT
20	5FT	10FT	21FT	58FT	58FT	164FT
24	6FT	11FT	24FT	70FT	57FT	192FT

* FIGURES BASED ON 36 INCH BURIAL DEPTH 150 PSI TEST PRESSURE
*FIGURES BASED ON SOIL BEARING CAPACITY OF 1500 PSF
*FIGURES BASED ON LAYING CONDITION AS SPECIFIED IN THE WINCHESTER STANDARD DETAILS

STANDARD DETAIL NO. WD– 9 | DUCTILE IRON PIPE RESTRAINT SCALE: NONE | DATE: 10/2017

CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES



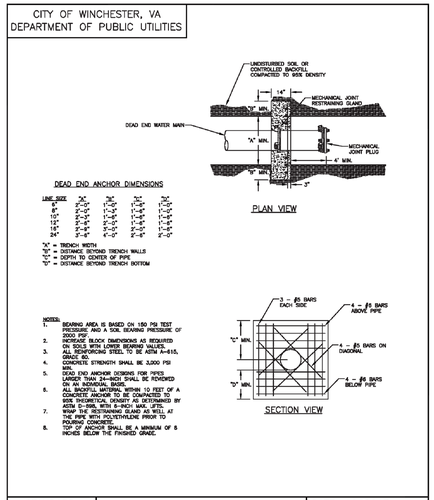
PIPE DIA.	PLUGS, WYES & TEES			11 1/4° AND 22 1/2° BENDS			45° AND 90° BENDS		
---	A	B	C	A	B	C	A	B	C
6"	1'-0"	0'-9"	1'-0"	0'-9"	0'-9"	0'-9"	1'-3"	0'-9"	1'-9"
8"	1'-3"	0'-9"	1'-3"	0'-9"	0'-9"	0'-9"	1'-6"	0'-9"	2'-3"
10"	1'-6"	0'-9"	1'-6"	0'-9"	0'-9"	1'-3"	1'-9"	0'-9"	2'-6"
12"	1'-9"	1'-3"	2'-0"	1'-3"	1'-0"	1'-6"	2'-0"	1'-0"	3'-0"
14"	2'-0"	1'-3"	2'-3"	1'-3"	1'-0"	1'-6"	2'-6"	1'-0"	3'-6"
16"	2'-3"	1'-3"	2'-6"	1'-6"	1'-0"	2'-0"	2'-9"	1'-0"	4'-0"
18"	2'-6"	1'-3"	2'-9"	1'-6"	1'-3"	2'-0"	3'-0"	1'-3"	4'-0"
20"	2'-9"	1'-6"	3'-0"	1'-9"	1'-6"	2'-0"	3'-3"	1'-6"	5'-3"

FITTING SIZE	ROD SIZE	NO. RODS	EMBEDMENT
22" & LESS	6	2	30"
24"–60"	8	2	36"

FITTING SIZE	VOLUME OF THRUST BLOCK IN CU.YD. 11-1/4°	22-1/2°	45°	90°
6"	-	-	-	1.3
8"	-	-	1.1	2.3
10"	-	-	1.8	3.7
12"	-	1.0	2.6	5.2
14"	0.5	1.7	3.9	7.6
16"	0.9	2.3	5.1	-
18"	1.4	3.0	6.5	-
20"	2.2	4.5	7.8	-

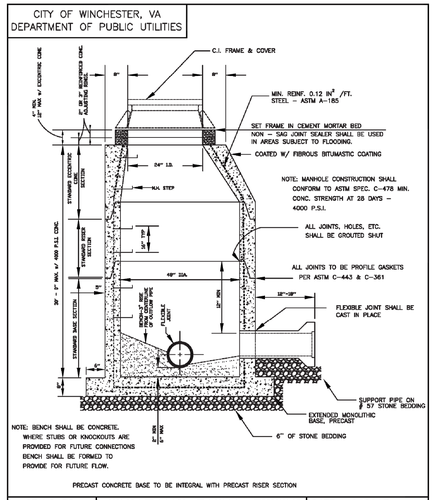
STANDARD DETAIL NO. WD–10 | CONCRETE THRUST BLOCKING SCALE: NONE | DATE: 10/2017

CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES



STANDARD DETAIL NO. WD–11 | DEAD END ANCHOR SCALE: NONE | DATE: 10/2017

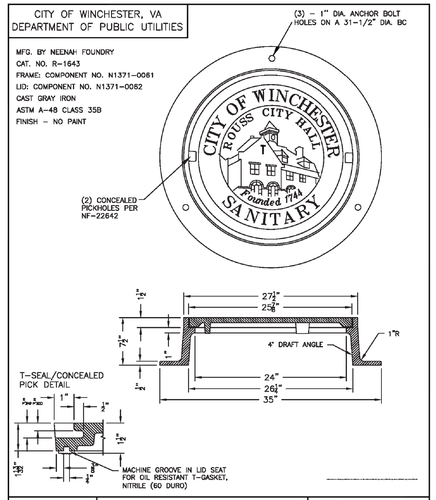
CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES



STANDARD DETAIL NO. SS–1 | STANDARD PRECAST CONCRETE MANHOLE SEWER 8" TO 24" SCALE: NONE | DATE: 10/2017

CITY OF WINCHESTER, VA
DEPARTMENT OF PUBLIC UTILITIES

MFG. BY NEENAH FOUNDRY
CAT. NO. R–1643
FRAME: COMPONENT NO. N1371–0061
LID: COMPONENT NO. N1371–0062
CAST GRAY IRON
ASTM A–48 CLASS 35B
FINISH – NO PAINT



STANDARD DETAIL NO. SS–6 | 28" SANITARY MANHOLE LID AND FRAME SCALE: NONE | DATE: 10/2017

SCALE	PROJECT	SHEET NO.
0 25' 50'	EN14-138-102	9F