

FHWA-534# 33128
FEDERAL PROJECT NUMBER: NHPP-5128(418)
STATE PROJECT 0115-080-911, P101, R201, C501
#SMART18-PLANTATION RD BIKE/PED/STREETSCAPE PHASE II
RIGHT OF WAY ACQUIRED UNDER PROJECT #0115-080-911 (UPC's 98220 & 103607)

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20 CROSS SECTION SHEETS

NOTES:

THE PRIMARY CONTACT FOR NOTIFICATION OF PROBLEMS AND/OR EMERGENCIES WILL BE DAVID HENDERSON 540-772-2068

APPROXIMATE LINEAR FEET OF TRAIL = 102
APPROXIMATE LINEAR FEET OF SIDEWALK = 775
APPROXIMATE TOTAL DISTURBED AREA = 0.69AC

THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH VDOT'S 2020 ROAD AND BRIDGE SPECIFICATIONS, 2016 ROAD AND BRIDGE STANDARDS, 2009 MUTCD REVISIONS 1 & 2, 2011 VIRGINIA SUPPLEMENT TO THE MUTCD REVISION 1, 2011 VIRGINIA WORK AREA PROTECTION MANUAL REVISION 2 (SEPT. 1, 2019) AND AS AMENDED BY CONTRACT PROVISIONS AND THE COMPLETE ELECTRONIC PDF VERSION OF THE PLAN ASSEMBLY.

CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-552-7001 AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY STATE AND LOCAL PERMITS BEFORE BEGINNING CONSTRUCTION.

THE CONTRACTOR SHALL ENSURE THAT ALL ASPECTS OF CONSTRUCTION ARE IN COMPLIANCE WITH APPLICABLE CODES AND THESE PLANS.

CONTRACTOR SHALL BE RESPONSIBLE FOR ANY OFFSITE GRADING, IF NECESSARY, TO CONSTRUCT THE PROJECT.

ALL TREES AND OTHER OBSTRUCTIONS WITHIN 2 FEET OF THE EDGE OF THE SIDEWALK SHALL BE REMOVED. ALL TREES OUTSIDE OF LIMITS OF CONSTRUCTION SHALL REMAIN UNHARMED, UNLESS OTHERWISE NOTED ON THE PLANS OR DIRECTED BY THE ENGINEER. TREE CLEARING TIME OF YEAR RESTRICTION IS FROM APRIL 15 TO SEPTEMBER 15.

THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, LOCATIONS, AND ELEVATIONS OF EXISTING STRUCTURES AND UTILITIES SHOWN ON THE CONTRACT DRAWINGS. ALL DISCREPANCIES BETWEEN FIELD CONDITIONS AND THESE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER BEFORE PROCEEDING WITH WORK THAT IS DIRECTLY AFFECTED BY THE DISCREPANCY.

Utilities Marked per Miss Utility Ticket #A207600510, #A915601426 & #A915401006			
Company	Contact	Phone Number	Damage Contact Phone Number
AEP (AEP111)	Consolidated	(866)808–0099	(800)956–4237
Cox (CXR068)	Consolidated	(866)808–0099	(540)915–2603
Lumos (LMS446)	Consolidated	(866)808–0099	(877)411–6930
Roanoke Gas (ROGC62)	Consolidated	(866)808–0099	(540)777–4427
Roanoke Gas (RGC540)	Zach Beckner	(540)655–0280	(540)777–4427
Verizon (VZN510)	Dean Rasmussen	(434)942–8192	(877)562–2253
Verizon (VZN804)	Utiliquest	(804)286–1721	(888)483–1233
Western Viginia Water Authority (WW823)	Sue Bower	(540)853–5641	(540)853–2792
Western Viginia Water Authority (WW823)	Michelle Niday	(540)283–2981	(540)283–2981
Level 3–Centrylink (LTC903)	Call Center	(877)366–8344	(877)366–8344 ext. 3
Roanoke Broadband (RVB904)	Michelle Niday	(540)283–2981	(540)853–5700
Utilities "No Conflict per Miss Utility Ticket #A207600510, #A915601426 & #A915401006			
Company	Contact	Phone Number	Damage Contact Phone Number
AEP (AEP111)	USIC Locating Service	(800)778–9140	(800)956–4237
Cox (CXR068)	Utiliquest	(703)754–2116	(540)915–2603
Roanoke City (ROA853)	Bob Swain	(540)853–2691	(540)537–8496
Sprint (USSP22)	Call Center	(800)521–0579	(800)521–0579

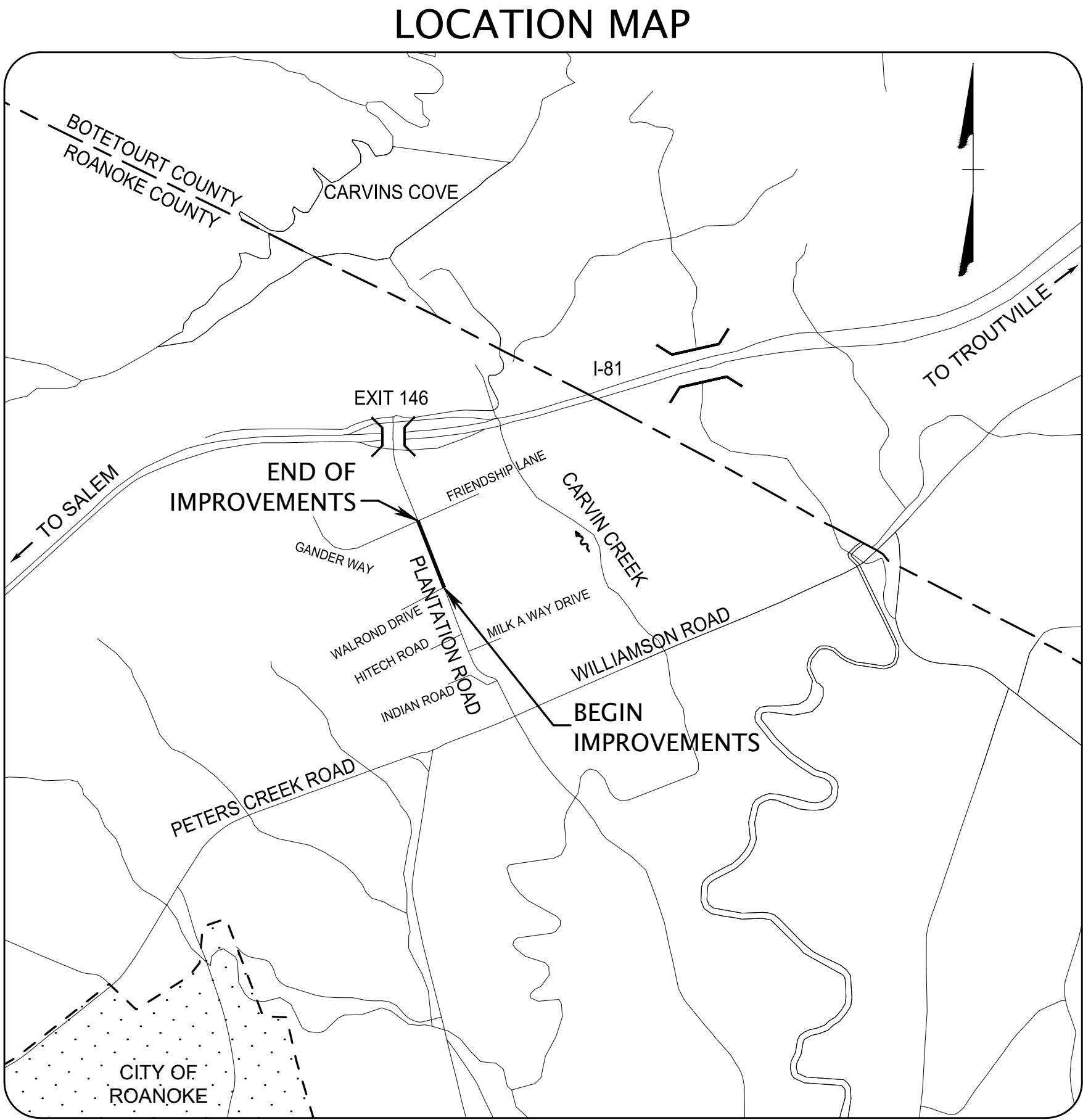
FUNCTIONAL CLASSIFICATION AND TRAFFIC DATA	
URBAN PRINCIPAL ARTERIAL-ROLLING-45 MPH DESIGN SPEED	
	Fr: WALROND DRIVE To: GANDER WAY/FRIENDSHIP LANE
ADT	12,000 (2017) IND. TO I-81
ADT	15,000 (2017) RTE. II TO IND.
DHV	832
D (%) (design hour)	63%
T (%) (design hour)	4%
V (MPH)	SEE PLAN AND PROFILE SHEETS FOR HORIZONTAL AND VERTICAL CURVE DESIGN SPEEDS.
WALROND DRIVE-URBAN LOCAL-30 MPH DESIGN SPEED	
FRIENDSHIP LANE-URBAN LOCAL-30 MPH DESIGN SPEED	

TIER 1 PROJECT

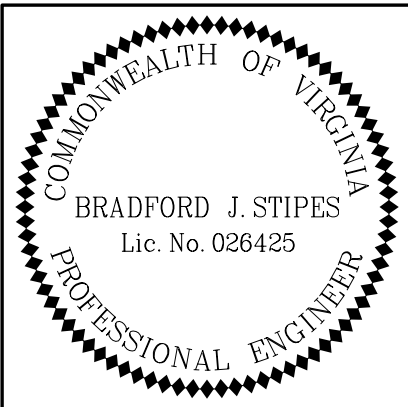
LOCALLY ADMINISTERED PROJECTS	
ROANOKE COUNTY	
DAVID M. HENDERSON, P.E.	
RECOMMENDED FOR APPROVAL FOR RIGHT OF WAY ACQUISITION	
03/04/2020	COUNTY ENGINEER
DATE	TITLE OF POSITION
DAVID M. HENDERSON, P.E.	
RECOMMENDED FOR APPROVAL FOR CONSTRUCTION	
DATE	TITLE OF POSITION

RECOMMENDED FOR APPROVAL FOR RIGHT OF WAY ACQUISITION	
03/12/2020	THOMAS DIGIULIAN
DATE	DISTRICT PLANNING AND INVESTMENT MANAGER
03/12/2020	THOMAS DIGIULIAN
DATE	DISTRICT PROJECT DEVELOPMENT ENGINEER
APPROVED FOR RIGHT OF WAY ACQUISITION	
03/12/2020	KENNETH KING
DATE	DISTRICT ENGINEER/ADMINISTRATOR

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION	
DATE	DISTRICT PLANNING AND INVESTMENT MANAGER
DATE	DISTRICT PROJECT DEVELOPMENT ENGINEER
APPROVED FOR CONSTRUCTION	
DATE	DISTRICT ENGINEER/ADMINISTRATOR



OTHER UTILITIES MAY BE PRESENT THAT ARE NOT MARKED BY MISS UTILITY. CONTRACTOR SHALL TAKE NECESSARY STEPS TO LOCATE THESE UTILITIES.



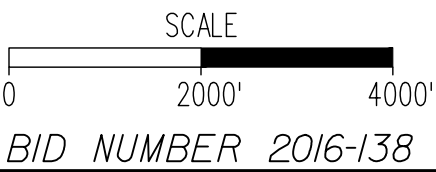
Whitman Requardt & Associates
Blacksburg, Virginia
ROADWAY ENGINEER



COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

VDOT PROJECT NUMBER:
#SMART18 - PLANTATION RD BIKE/PED/STREETSCAPE PHASE II
STATE PROJECT NO: 0115-080-911, P101, R201, C501
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PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT



Rev	Date	Description
Drawing		Sheet
TITLE SHEET		1

This Topographic Survey was completed under the direct and responsible charge of, Timothy Hoelzle, LS #1754 from an actual Ground survey made under my supervision; that original data was obtained on March 19th through July 19, 2012; and that this plat, including metadata meets minimum accuracy standards unless otherwise noted.

Additional survey updates were received by the designers on the following dates:
February 28, 2014, August 7, 2014, August 21, 2014, October 21, 2014, October 23, 2014, January 13, 2015, January 23, 2015, February 10, 2015, September 28, 2015.

Notes:

- 1) THIS PLAT IS BASED ON A CURRENT FIELD SURVEY.
- 2) THIS PLAT WAS PREPARED WITHOUT THE BENEFIT OF A CURRENT TITLE REPORT AND THERE MAY EXIST ENCUMBRANCES WHICH EFFECT THE SUBJECT PROPERTY THAT ARE NOT SHOWN HEREON.
- 3) THIS PROPERTY DOES LIE WITHIN THE LIMITS OF A FLOOD HAZARD AREA AS DESIGNATED BY FEMA. THIS OPINION IS BASED ON AN INSPECTION OF THE FLOOD INSURANCE RATE MAPS AND HAS BEEN VERIFIED BY ACTUAL FIELD ELEVATIONS, SEE COMMUNITY PANEL #510190 00152 G, MAP #51161C0152G, DATED: SEPTEMBER 28, 2007. ZONE "X" (unShaded).
- 4) HORIZONTAL AND VERTICAL CONTROL (NAVD 88) WERE ESTABLISHED BY PREFORMING GPS SURVEY TIES TO THE EXISTING CITY OF ROANOKE CONTROL.
- 5) THIS PLAT IS BASED ON VIRIGINIA STATE PLANE COORDINATE SYSTEM, ROANOKE 2000 ADJUSTMENT, SURFACE VALUES. SURFACE VALUES WERE OBTAINED BY SCALING GRID COORDINATES BY A COMBINED SCALE FACTOR OF 1.00010392 AT POINT #31 (N:3655311.98818, E:11059222.87081, ELEV:1137.96).
- 6) CONTOURS AS SHOWN HEREON ARE AT 2-FOOT INTERVALS.
- 7) THIS PLAT DOES NOT GUARANTEE THE EXISTENCE OR LOCATION OF ANY UNDERGROUND UTILITIES. ALL SURFACE UTILITIES WERE FIELD LOCATED. ALL UNDERGROUND UTILITIES SHOWN WERE ESTABLISHED USING ABOVE GROUND STRUCTURES, AND MARKINGS BY MISS UTILITY. SEE MISS UTILITY TICKET NUMBERS A207600510. ALL UNDERGROUND UTILITY LINES ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED PRIOR TO THE START OF ANY CONSTRUCTION.

ABBREV.	DESCRIPTION
AEP	Appalachian Electric Power
APCO	Appalachian Power Company
B.W.L	Broken White Line
B.Y.L	Broken Yellow Line
C&P	Chesapeake & Potomac
CI	Curb Inlet
CMP	Corrugated Metal Pipe
CPP	Corrugated Plastic Pipe
D.Y.L	Double Yellow Line
DI	Drop Inlet
DMH	Storm Drainage Manhole
E	East
FO	Fiber Optic
GAS	Underground Gas Line
GW	Guy Wire
IDP	Iron Ductile Pipe
N	North
OHE	Overhead Electric
OHT	Overhead Telephone
OHU	Overhead Utilities
PVC	Polyvinyl Chloride Pipe
RCP	Rienforced Concrete Pipe
S	South
S.W.L	Single White Line
S.Y.L	Single Yellow Line
SS	Sanitary Sewer Line
SSMH	Sanitary Sewer Manhole
TCP	Terra Cotta Pipe
UBb	Underground Broadband
UGE	Underground Electric
UGV	Underground Verizon Line
v	Vault
W	Waterline/West
x	Approximate

SYMBOL LEGEND	
	Existing Property Monument
	Existing Property Monument
	Property Corner
	Property Line
	Traffic Arrows
	Traffic Signal
	Sign
	Handi-Cap
	Mail Box
	Bollard
	Vent Pipe
	Grave Site
	Monitoring Well
	Shrub
	Tree
	Gas Valve
	Gas Meter
	Water Meter
	Water Manhole
	Fire Hydrant
	Fire Connection
	Well
	Water Valve
	Sanitary Sewer Manhole
	Sanitary Sewer Cleanout
	VDOT Manhole
	Storm Drainage Manhole
	Telephone Pedestal
	Telephone Manhole
	Electric Transformer
	Electric Meter
	Electric Box
	Electric Conduit
	Light Pole
	Utility Pole
	Guy Wire
	Yard Light



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PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing
SURVEY DATA SHEET

Sheet
1B(1)

S
11

SSMH
Rim=1116.24'
Inv.(N)(In)=1105.99'
Inv.(S)(In)=1105.86'
Inv.(Out)=1105.66'

S
12

SSMH
Rim=1111.79'
Inv.(S)(In)=1099.07'
Inv.(SW)(In)=1101.49'
Inv.(NW)(In)=1098.84'
Inv.(Out)=1098.67'

S
33

SSMH
Rim=1116.57'
Inv.(In)=1106.25'
Inv.(Out)=1106.18'

S
13

SSMH
Rim=1115.52'
Inv.(S)(In)=1109.02'
Inv.(W)(In)=1109.45'
Inv.(Out)=1108.89'

S
14

SSMH
Rim=1118.09'
Inv.(S)(In)=1110.54'
Inv.(W)(In)=1110.51'
Inv.(Out)=1110.49'

S
15

SSMH
Rim=1116.85'
Inv.(SW)(In)=1111.30'
Inv.(S)(In)=1111.28'
Inv.(Out)=1111.18'

S
16

SSMH
Rim=1119.69'
Inv.(In)=1114.48'
Inv.(Out)=1114.37'

Existing Sanitary Sewer Table (July 15, 2019)

#	STRUCTURE	WVWA#	RIM	INV.OUT
61	SSMH	04C-3966.0	1117.38'	1108.15' (8" PVC)

Existing Sanitary Sewer Table (July 15, 2019)

#	STRUCTURE	WVWA#	RIM	INV.OUT	INV.IN
62	SSMH		1117.32'	1111.03' (8" PVC)	1111.08' (8" PVC)



Whitman, Requardt & Associates, LLP
1700 Kraft Drive, Suite 1200, Blacksburg, Virginia 24060

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Drawing
SURVEY DATA SHEET – EXIST.
SANITARY SEWER DESCRIPTIONS

Sheet
1B(2)

Rev	Date	Description

D-16

DMH
Rim=1107.57'
Inv.=1098.97'

D-17

36" RCP
Inv.(Out)=1098.81'

D-18

CI
Rim=1114.18'
Inv.(Out)=1109.70'

D-22

DI
Grate=1110.89'
Inv.(SE)(In)=1107.34'
Inv.(SW)(In)=1105.84'
Inv.(NW)(In)=1107.49'
Inv.(Out)=1101.83'

D-27

DI
Grate=1113.58'
Inv.(In)=1108.35'
Inv.(Out)=1108.32'

D-29

CI
Top=1114.69'
Grate=1114.12'
Inv.(In)=1110.42'
Inv.(Out)=1109.64'

D-32

DMH
Rim=1115.67'
Inv.(SW)(In)=1110.97'
Inv.(SE)(In)=1110.65'
Inv.(Out)=1110.60'

D-41

DI
Grate=1115.93'
Inv.(In)=1112.63'
Inv.(Out)=1112.43'

D-42

24"x36" RCP
w/Flared End
Inv.(In)=1113.27'

D-43

10" RCP
Inv.(Out)=1114.84'

D-46

24" RCP
Inv.(Out)=1115.53'

D-47

Inlet
Rim=1120.57'
Inv.(SE)(In)=1119.16'
Inv.(NW)(In)=1119.10'
Inv.(Out)=1116.55'

D-48

24" RCP
Inv.(In)=1118.95'
Inv.(Out)=1118.73'

Existing Storm Drainage Table (July 15, 2019)

#	STRUCTURE	RIM	GRATE	INV.OUT	INV.IN	INV.IN(2)	THROAT
D-247	DMH	1107.45'		1100.36' (36" RCP)	1100.48' (36" RCP)		
D-248	DMH	1113.03'		1101.31' (36" RCP)	1101.33' (36" RCP) SW	1105.61' (18" RCP) SE	
D-249	DMH	1113.40'		1106.98' (18" RCP)	1107.01' (18" RCP)		
D-250	DMH	1114.47'		1109.82' (18" RCP)	1109.87' (18" RCP)		

Existing Storm Drainage Table (July 15, 2019)

#	STRUCTURE	RIM	GRATE	INV.OUT	INV.IN	THROAT
D-251	DMH	1119.07'		1113.07' (18" RCP)	1113.36' (18" RCP)	
D-252	DMH	1122.47'		1116.20' (18" RCP)	1117.65' (18" RCP)	
D-253	DMH	1121.11'		1117.69' (18" RCP)	1117.76' (15" RCP)	
D-254	Curb Inlet		1125.70'	1121.64' (15" RCP)	1121.76' (15" RCP)	3'
D-255	Drop Inlet	1126.20'		1122.23' (15" RCP)		



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PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
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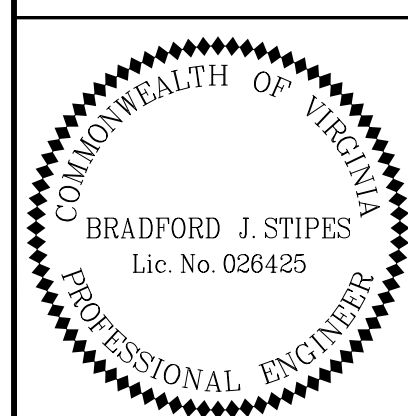
Drawing
SURVEY DATA SHEET – EXIST.
DRAINAGE DESCRIPTIONS

Sheet
1B(3)

Rev	Date	Description

STATE PROJECT 0115-080-911, P101, R201, C501

*RIGHT OF WAY ACQUIRED UNDER PROJECT #0115-080-911 (UPC's 98220 & 103607)

[illegible]

Whitman Requardt & Associates
Blacksburg, Virginia
ROADWAY ENGINEER



COUNTY OF ROANOKE
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PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing RIGHT OF WAY DATA SHEET

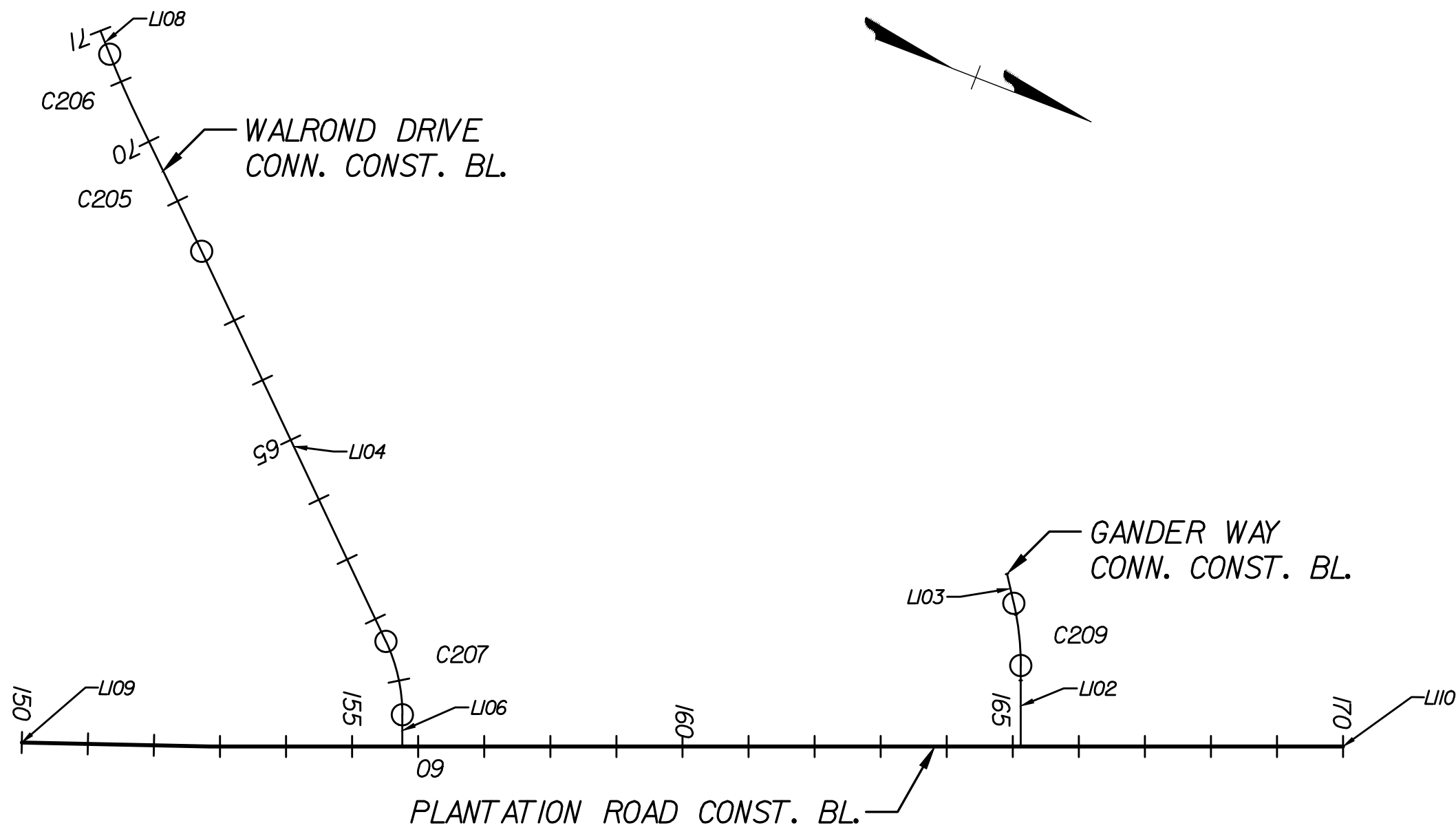
Sheet
1C

Rev	Date	Description

Plantation Road Baseline																	
Number	Starting Station	Delta	Radius	Tangent Length	Length of Curve	Bearing	Northing	Easting	PC Station	PC Northing	PC Easting	PI Station	PI Northing	PI Easting	PT Station	PT Northing	PT Easting
L109	150+00.00					N21° 03' 10.00"W	3655474.834	11060184.842									
L110	170+00.00					N21° 03' 10.00"W	3657343.432	11059472.014									

WALROND DRIVE																	
Number	Starting Station	Delta	Radius	Tangent Length	Length of Curve	Bearing	Northing	Easting	PC Station	PC Northing	PC Easting	PI Station	PI Northing	PI Easting	PT Station	PT Northing	PT Easting
L106	60+00.00					S68° 56' 50.00"W	3656014.4841	11059983.5543									
C207		025° 17' 14.30"	260.00	58.32	114.75				60+47.86	3655997.2918	11059938.8900	61+06.18	3655976.3399	11059884.4583	61+62.61	3655934.1447	11059844.1921
L104	61+62.61					S43° 39' 35.70"W	3655934.1447	11059844.1921									
C205		000° 44' 39.94"	16685.00	108.39	216.78				68+15.65	3655461.7030	11059393.3489	69+24.04	3655383.2858	11059318.5167	70+32.43	3655303.9030	11059244.7097
C206		004° 36' 25.20"	1400.00	56.32	112.57				70+32.43	3655303.9030	11059244.7097	70+88.75	3655262.6599	11059206.3634	71+45.00	3655224.6300	11059164.8284
L108	71+45.00					S47° 31' 20.95"W	3655224.6300	11059164.8284									

Gander Way																	
Number	Starting Station	Delta	Radius	Tangent Length	Length of Curve	Bearing	Northing	Easting	PC Station	PC Northing	PC Easting	PI Station	PI Northing	PI Easting	PT Station	PT Northing	PT Easting
L102	80+00.00					S68° 56' 50.00"W	3656888.0060	11059647.3171									
C209		012° 47' 54.39"	425.00	47.67	94.93				81+22.45	3656844.0195	11059533.0429	81+70.11	3656826.8967	11059488.5591	82+17.38	3656800.3451	11059448.9735
L103	82+17.38					S56° 08' 55.61"W	3656800.3451	11059448.9735									



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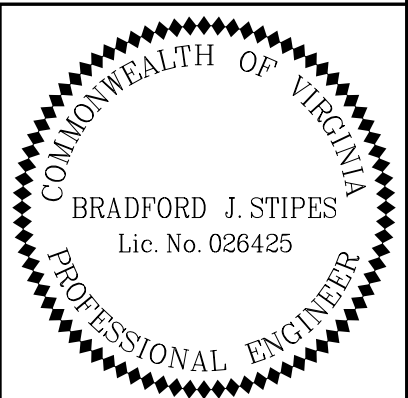
PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
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Rev	Date	Description

Drawing
**CONSTRUCTION
ALIGNMENT DATA SHEET**

Sheet
1D



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Blacksburg, Virginia
ROADWAY ENGINEER

1). Project Category (Minimum TMP Requirements)

- A). This will be a Type B Category III project.
- B). The length of the work zone is approximately 1,275’
The width of the work area will vary.
- C). The work zone, active hours, will be 7 a.m. to 5 p.m.
Allowable Lane Closure Hours – 9 a.m. to 3 p.m.
6 p.m. to 6 a.m.
No Lane closures will be permitted outside of these times unless approved by VDOT.
- D). The traffic in this area consists primarily of local traffic and through traffic including truck traffic.

2). Temporary Traffic Control (TTC) Plan: (Component 1)

- A). Major components will consist of General Notes, Typical Sections and Special Details.
- B). Specific traffic control figures and notes from the 2011 VIRGINIA W.A.P.M. Revision 2 used for Traffic Control are:

TTC–1.1, Page 6H–8, 6H–9
TTC–4.1, Page 6H–14, 6H–15
TTC–5.2, Page 6H–16, 6H–17
TTC–13.2, Page 6H–34, 6H–35
TTC–16.2, Page 6H–40, 6H–41
TTC–17.2, Page 6H–42, 6H–43
TTC–21.1, Page 6H–50, 6H–51
TTC–22.2, Page 6H–52, 6H–53
TTC–27.2, Page 6H–62, 6H–63
TTC–28.2, PAGE 6H–62, 6H–63
TTC–29.2, Page 6H–64, 6H–65
TTC–30.2, PAGE 6H–66, 6H–67
TTC–34.2, Page 6H–74, 6H–75
TTC–35.1, Page 6H–76, 6H–77
TTC–36.2, Page 6H–78, 6H–79
TTC–40.2, Page 6H–86, 6H–87
TTC–41.2, Page 6H–88, 6H–89
TTC–42.2, Page 6H–90, 6H–91
TTC–53.0, Page 6H–112, 6H–113
TTC–55.1, Page 6H–116, 6H–117
TTC–57.2, Page 6H–120, 6H–121
TTC–60.0, Page 6H–126, 6H–127

3). Public Communication Strategies: (Component 2)

Project Description:

- Construction of curb and gutter and shared–use path.
- Utility relocations.
- Landscaping

Traffic Impacts:

- Temporary lane closures.
- Roadway Detour.

Goals:

- To inform the public about the project
- To minimize disruption through proactive information dissemination efforts
- To gather public support for the project
- To establish a crisis communications plan

Messages:

- Benefits and purpose of the project
- Traffic impacts and information on alternate routes
- Contacts for more information

Public Meetings:

- To Be Determined.

Crisis Communications Plan:

- As with any crisis, emergency responders (911) should be notified immediately if necessary.
- The Project Construction Engineer or his designee should be notified immediately.
- If the emergency is traffic related, the Project Construction Engineer or his designee should immediately notify the County Engineer David Henderson 540–772–2083.
- The County Engineer will work together with the VDOT Traffic Operations Center to inform the traveling public, emergency responders and the media about delays and unexpected changes in traffic patterns using the contact list and other resources if necessary.

Target Audience	Contact Method	Phone Number, E–mail or Address	Responsible Charge
Motorists	News Release, weekly traffic information (Roadwatch) and the Traffic Operations Center	See District Communications news release distribution list (e–mail and fax)	County Engineer David Henderson (540) 772–2083
POLICE Virginia State Police Roanoke County Police	Phone	Emergency 911 (540) 375–9518 Emergency 911 (540) 562–3265	Project Construction Engineer Project Construction Engineer
FIRE / RESCUE Roanoke County Fire and Rescue		Emergency 911 (540) 777–8701	Project Construction Engineer
Residential neighborhoods			County Principal Planner Megan Cronise (540) 772–2068 x282
COUNTY/CITY OFFICIALS Roanoke County Administration	Phone	(540) 772–2004	County Engineer David Henderson (540) 772–2083

4). Transportation Operations (TO) Plan

A.) A contact list of local emergency response agencies must be kept and maintained throughout the project lifecycle.

B.) Traffic Backup Notification

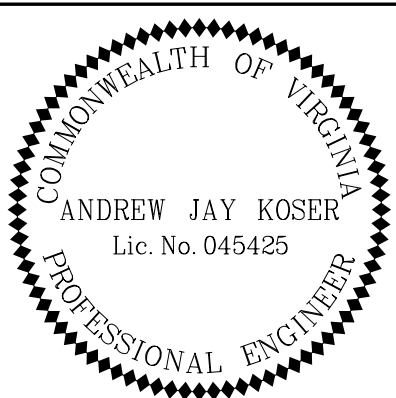
Emergency contact for this project shall be 911.

The Traffic Operations Center (540–375–0170) shall be notified of lane closures and traffic related to the work by the project staff. The TOC will utilize available systems (cameras, sensors, etc) to monitor the work area and all adjacent areas. The TOC will make all entries into systems that feed this information into 511. The TOC will utilize assets such as permanent and mobile variable message signs with CDMA modems to alert motorists of lane closures and other incidents that may impact travel.

The TOC will also make notifications to department staff. The staff notifications shall include but not be limited to the Duty Officer, Resident Engineer, Construction Area Work Zone Safety Coordinator, District Traffic Engineer, Regional Traffic Operations Manager, Regional Incident Management Coordinator, and District Communications Manager of any incidents and expected traffic delays.

The Contractor shall be responsible for inter–agency notifications to entities such as but not limited to VSP and other affected agencies.

A review of all major incidents, as determined by the Regional Incident Management Coordinator, shall be accomplished within 48 hours of clearance of the incident. VDOT Project Staff, Regional Operations Staff, Contractor Staff, and emergency responders shall be represented at these meetings.



Whitman Requardt & Associates
Blacksburg, Virginia
ROADWAY ENGINEER

Rev	Date	Description



COUNTY OF ROANOKE
3204 BERNARD DRIVE
ROANOKE, VA 24018

VDOT PROJECT NUMBER:
#SMART18 - PLANTATION RD BIKE/PED/STREETScape PHASE II
STATE PROJECT NO: 0115-080-911, P101, R201, C501
VDOT UPC NUMBER: 111366

PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETScape IMPROVEMENTS PHASE 2 PROJECT

Drawing
TRANSPORTATION
MANAGEMENT NOTES SHEET

Sheet
1E(1)

TEMPORARY TRAFFIC CONTROL PLAN (TTCP) NOTES:
UNLESS OTHERWISE APPROVED OR DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL PLAN AND PROSECUTE THE WORK IN ACCORDANCE WITH THE FOLLOWING:

1. TRAFFIC CONTROL DEVICES AND SAFETY MEASURES SHALL COMPLY WITH THE:
 - A. 2011 WORK AREA PROTECTION MANUAL (VA WAPM) WITH REVISION 2.
 - B. 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) WITH REVISIONS 1 AND 2.
 - C. 2011 VIRGINIA SUPPLEMENT TO THE MUTCD WITH REVISION 1.
2. IT IS NOT THE INTENT OF THE SEQUENCE OF CONSTRUCTION PLANS TO ENUMERATE EVERY DETAIL WHICH MUST BE CONSIDERED IN THE CONSTRUCTION OF EACH STAGE, BUT ONLY TO SHOW THE GENERAL HANDLING OF TRAFFIC.
3. THE STAGES IN THIS SUGGESTED SEQUENCE OF CONSTRUCTION SHALL BE FOLLOWED UNLESS THE CONTRACTOR SUBMITS AND SECURES THE APPROVAL OF THE ENGINEER FOR A SEQUENCE WHICH WILL BOTH EXPEDITE CONSTRUCTION WHILE LESSENING THE EFFECT OF SUCH CONSTRUCTION UPON THE TRAVELING PUBLIC. THE INTENT OF THE CONTRACT AND SUGGESTED SEQUENCE OF CONSTRUCTION IS THAT PORTIONS OF ROADWAYS IN THE DIFFERENT STAGES MAY BE ALLOWED TO BE CONSTRUCTED PROVIDED THEY DO NOT INTERFERE WITH EXISTING TRAFFIC FLOW AND/OR DO NOT CAUSE ANY DELAY IN THE PROJECT COMPLETION. UNDER NO CIRCUMSTANCE WILL CONCURRENT CONSTRUCTION LEFT AND RIGHT OF ANY LANE OF TRAFFIC BE ALLOWED, UNLESS OTHERWISE DIRECTED BY THE ENGINEER OR SHOWN ON THESE PLANS.
4. TRAFFIC CONTROL PLANS SHOW GENERAL LANE CLOSURES FOR THE WORK, HOWEVER, WHEN EMPLOYING TEMPORARY LANE CLOSURES, THE LENGTH OF THE CLOSURE EMPLOYED EACH DAY SHOULD BE FOR ONLY THE AMOUNT OF WORK ZONE NEEDED TO BE PROTECTED THAT DAY PLUS UPSTREAM BUFFER SPACES, TAPERS, ETC. PER THE VA WAPM.
5. ACCESS TO RESIDENTIAL PROPERTIES SHALL BE MAINTAINED AT ALL TIMES.
6. ACCESS TO BUSINESS/COMMERCIAL ENTRANCES SHALL BE MAINTAINED AT ALL TIMES DURING THE NORMAL OPERATING HOURS OF EACH BUSINESS. NOTIFICATION SHALL BE PROVIDED AT LEAST 72 HOURS PRIOR TO CLOSING A BUSINESS ENTRANCE DURING NON-BUSINESS HOURS.
7. ACCESS TO BUSINESSES THAT OPERATE 24 HOURS A DAY (E.G., HOTELS) SHALL BE MAINTAINED AT ALL TIMES.
8. AT NO TIME SHALL TRAFFIC ENTERING AN ENTRANCE BE MADE TO WAIT IN THE THROUGH TRAVEL LANE OF PLANTATION RD.
9. WHERE WORK IS OCCURRING IN FRONT OF BUSINESS/COMMERCIAL/RESIDENTIAL ENTRANCES, SUFFICIENT TRAFFIC CONTROL DEVICES SHALL BE PROVIDED IN ORDER TO DIRECT MOTORISTS AROUND THE WORK AREA.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL UTILITY AND STORM DRAINAGE WORK THROUGHOUT THE PROJECT UNLESS OTHERWISE NOTED IN THESE PLANS.
11. TWO-WAY TRAFFIC IS TO BE MAINTAINED AT ALL TIMES UNLESS OTHERWISE NOTED ON THESE PLANS. FLAGGING OPERATIONS MAY BE REQUIRED FOR CERTAIN TASKS.
12. ALL TRAFFIC CONTROL DEVICES AND SIGNS NECESSARY FOR MAINTENANCE OF TRAFFIC ARE TO BE PROVIDED, INSTALLED, MAINTAINED, AND REMOVED BY THE CONTRACTOR.
13. ALL DROPOFFS SHALL BE PROTECTED IN ACCORDANCE WITH VA WAPM APPENDIX A.
14. CHANGES TO THE "WORK ZONE SPEED LIMIT" AND TERMINI MAY BE IMPLEMENTED AND/OR ADJUSTED AS FIELD CONDITIONS REQUIRE ONLY UPON APPROVAL BY THE VDOT SALEM DISTRICT TRAFFIC ENGINEER.
15. ALL TRAFFIC DEVICE LOCATIONS SHALL BE MARKED BY THE CONTRACTOR AND REVIEWED BY THE ENGINEER PRIOR TO INSTALLATION.
16. ANY CURB, CURB AND GUTTER, AND SIDEWALK THAT ARE NOT TO BE REPLACED AND THAT WILL BE IMPACTED BY CONSTRUCTION ACTIVITIES SHOULD BE PROTECTED BY THE CONTRACTOR OR REPLACED AT THE CONTRACTOR'S EXPENSE IF DAMAGED.
17. THE CONTRACTOR SHALL ENSURE THAT TRAFFIC CONTROL DEVICES DO NOT IMPAIR ADEQUATE SIGHT DISTANCE.
18. ALL CONFLICTING HIGHWAY SIGNS SHALL BE COVERED. ADDITIONALLY, ALL WORK ZONE SIGNS NOT IN USE SHALL BE COVERED OR REMOVED. IF COVERED, SIGNS SHALL BE DELINEATED PER THE VIRGINIA WORK AREA PROTECTION MANUAL.

- TTCP NOTES (CONT'D):**
19. NO EQUIPMENT AND/OR MATERIALS MAY BE STORED WITHIN THE ESTABLISHED DESIGN CLEAR ZONE.
 20. SHADOW VEHICLES AND TRUCK-MOUNTED ATTENUATORS ARE NOT SHOWN IN PLANS, HOWEVER THEY SHOULD BE UTILIZED AS REQUIRED BY THE VA WAPM.
 21. NIGHT TIME (GROUP 2) CHANNELIZING DEVICES SHALL BE USED TO DELINEATE EDGE OF PAVEMENT/HAZARDS WHERE NECESSARY. ALL CHANNELIZING DEVICES USED AT NIGHT SHALL BE GROUP 2.
 22. TRENCHES TO BE BACKFILLED WITH COMPACTED STONE PRIOR TO RE-OPENING LANES TO TRAFFIC.
 23. CONTRACTOR SHALL SUPPLEMENT TEMPORARY PAVEMENT MARKINGS WITH TEMPORARY PAVEMENT MARKERS AS REQUIRED BY VA WAPM SECTION 6F.90.

STAGE SEQUENCING INFORMATION
WORK DESCRIPTIONS NOT INCLUSIVE

STAGE 1: WATERLINE FROM STA. 156+50 TO STA. 164+40, PLANTATION ROAD SB LANES ONLY.
STAGE 2: SANITARY SEWER FROM STA. 164+75 TO STA. 165+00 & REMAINING WATERLINE BETWEEN STA. 164+40 AND STA. 165+00.
THIS WORK IS REQUIRED TO BE DONE AT NIGHT.
STAGE 3: STORM SEWER FROM STA. 159+00 TO STA. 161+00 AND STORM SEWER PIPE CROSSING AT STA. 157+50 (MOT NOT SHOWN).
STAGE 4: SIDEWALK/SHARED USE PATH FROM WALROND DR. TO GANDER WAY, STORM SEWER FROM STA. 156+30 TO STA. 163+75.
STAGE 4A: WALROND DRIVE WIDENING FROM STA. 60+25 TO STA. 62+05.40

SEQUENCE OF CONSTRUCTION

- STAGE 1**
1. COVER CONFLICTING PAVEMENT MARKINGS AND INSTALL TEMPORARY PAVEMENT MARKINGS; TIE TO EXISTING MARKINGS. UTILIZE LANE CLOSURES (SB ONLY) IN ACCORDANCE WITH THE VA WAPM AS NECESSARY (SEE TTC'S 13.2, 16.2, 17.2 21.1, 22.2, 27.2, 29.2, 41.2, 42.2, 53.0 OR OTHERS). TEMPORARY PAVEMENT MARKINGS AND MARKERS SHALL REMAIN IN PLACE AND BE MAINTAINED UNTIL THIS STAGE IS COMPLETE. EXISTING MARKINGS SHOULD BE COVERED WITH TYPE E CONSTRUCTION MARKINGS. SET UP WORK ZONE AS SHOWN ON SHEETS 1E(3) THROUGH 1E(5).
 2. CONSTRUCT PROPOSED WATER MAIN FROM STATION 156+50 TO 164+40.
 3. WHEN CONSTRUCTING WATER MAIN IN FRONT OF CONNECTING STREETS, ENOUGH SPACE SHALL BE PROVIDED TO MAINTAIN TRAFFIC IN AND OUT OF CONNECTION.
- STAGE 2**
1. THIS WORK SHALL INCLUDE THE CONSTRUCTION OF THE SANITARY SEWER AND WATER MAIN WITHIN THE INTERSECTION OF PLANTATION ROAD AND GANDER WAY/FRIENDSHIP LANE DURING NIGHT-TIME HOURS.
 2. THE WORK ZONE SHOWN ON SHEETS 1E(6) THROUGH 1E(8) IS MODELED AFTER VA WAPM TTC-30.2. THE CONTRACTOR SHALL SET UP THE WORK ZONE AS SHOWN AND EITHER OBTAIN THE SERVICES OF A LAW ENFORCEMENT AGENT OR HAVE FOUR STATE CERTIFIED FLAGGERS (ONE FOR EACH APPROACH) AS REQUIRED BY VA WAPM TTC-30.2. FLAGGER STATIONS SHALL BE ILLUMINATED.
ALLOWABLE NIGHTTIME WORK HOURS - 6PM TO 6AM.
 3. ALL TURN LANES SHALL REMAIN CLOSED AS SHOWN DURING THE FLAGGING OPERATION.
 4. THE MOT PLANS DEPICT MAINTAINING TRAFFIC UTILIZING THE INSIDE (I.E., LEFT) LANES (EXCEPT ON FRIENDSHIP LANE). THE MOT PLANS MAY BE MODIFIED TO CHANGE THE ACTUAL LANE WHERE TRAFFIC IS MAINTAINED AS NECESSARY. EXAMPLE: THE SPECIFIC WORK PLANNED FOR THE EVENING WOULD BE BETTER ACCOMPLISHED WITH NB TRAFFIC IN THE RIGHT THROUGH LANE. THE CENTER LANE SHOULD BE CLOSED AND THE LEFT THROUGH LANE SHOULD BE CLOSED IN ADVANCE OF THE INTERSECTIONS IN ACCORDANCE WITH VA WAPM TTC-22.2 AND TTC-17.2, RATHER THAN CLOSING THE OUTSIDE LANE AS SHOWN.
 5. MOTORISTS SHOULD BE PROVIDED WITH A CLEAR PATH THROUGH THE INTERSECTION.
 6. EXCAVATIONS SHALL BE BACKFILLED WITH COMPACTED STONE AT THE END OF EACH WORK PERIOD.

- STAGE 3**
1. SET UP WORK ZONE AS SHOWN ON SHEETS 1E(9) THROUGH 1E(11). (MODELED AFTER VA WAPM TTC-20.2.) TRAFFIC CONTROL DEVICES (E.G. TYPE B WARNING LIGHTS, TEMPORARY MARKINGS AND MARKERS, ETC.) AS WELL AS ERADICATION OF EXISTING MARKINGS SHALL BE IN ACCORDANCE WITH VA WAPM TTC-20.2. ERADICATION SHALL BE PERFORMED BY COVERING EXISTING MARKINGS WITH TYPE E MARKINGS. BARRIER PLACEMENT AND TEMPORARY MARKINGS PLACEMENT SHALL BE DONE WITH LANE CLOSURES IN ACCORDANCE WITH THE VA WAPM AS NECESSARY (SEE TTC'S 16.2, 41.2, 53.0 OR OTHERS).
 2. CONSTRUCT DRAINAGE SYSTEM 3-18A TO 3-19A (UNDERGROUND DETENTION FACILITY).
 3. CONSTRUCT STORM SEWER PIPE CROSSING AT STA. 157+50 (STRUCTURES 3-8 AND 3-17A) NIGHT TIME WORK REQUIRED.
 - 3.1. CLOSE BOTH NB LANES AND DIVERT NB TRAFFIC TO CENTER LANE IN ACCORDANCE WITH VA WAPM TTC-41.2.
 - 3.2. RE-OPEN ALL LANES TO TRAFFIC.
 - 3.3. CLOSE NB INSIDE LANE, CENTER LANE AND SB INSIDE LANE IN ACCORDANCE WITH VA WAPM TTC-42.2.
 - 3.4. RE-OPEN ALL LANES TO TRAFFIC.
 - 3.5. CLOSE BOTH SB LANES AND DIVERT SB TRAFFIC TO CENTER LANE IN ACCORDANCE WITH VA WAPM TTC-41.2.
 - 3.6. RE-OPEN ALL LANES TO TRAFFIC.
 4. RECONSTRUCT PAVED SHOULDER/OUTSIDE LANE.
 5. AT THE END OF EACH WORKDAY, ALL LANES SHALL BE OPENED TO TRAFFIC.
 6. NIGHT TIME (GROUP 2) CHANNELIZING DEVICES SHALL BE USED TO DELINEATE EDGE OF PAVEMENT/HAZARDS.

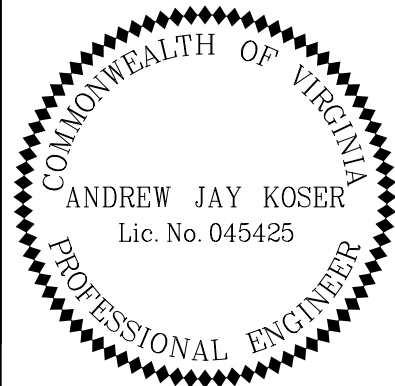
- STAGE 4**
1. COVER CONFLICTING PAVEMENT MARKINGS AND INSTALL TEMPORARY PAVEMENT MARKINGS; TIE TO EXISTING MARKINGS. UTILIZE LANE CLOSURES (SB ONLY) IN ACCORDANCE WITH THE VA WAPM AS NECESSARY (SEE TTC'S 13.2, 16.2, 17.2 21.1, 22.2, 27.2, 29.2, 41.2, 42.2, 53.0 OR OTHERS). TEMPORARY PAVEMENT MARKINGS AND MARKERS SHALL REMAIN IN PLACE AND BE MAINTAINED UNTIL THIS STAGE IS COMPLETE. EXISTING MARKINGS SHOULD BE COVERED WITH TYPE E CONSTRUCTION MARKINGS. SET UP WORK ZONE AS SHOWN ON SHEETS 1E(12) THROUGH 1E(14). (MODELED AFTER VA WAPM TTC-16.2.)
 2. COMPLETE GRADING AND INSTALLATION OF DRAINAGE STRUCTURES (3-6 TO 3-9, (EXCEPT 3-7), 3-10 TO 3-14, 4-1 TO 4-5) FROM STATION 155+00 TO END OF PROJECT.
 3. CONSTRUCT CURB AND GUTTER, SHARED USE PATH AND SIDEWALK FROM WALROND DRIVE TO END OF PROJECT.
 4. AS PORTIONS OF THE SIDEWALK ARE CONSTRUCTED, THEY SHOULD BE CLOSED TO PEDESTRIANS THROUGH USE OF APPROPRIATE TRAFFIC CONTROL DEVICES (E.G., SIDEWALK CLOSED SIGNS, TYPE III BARRICADES) UNTIL CONSTRUCTION IS COMPLETE IN THAT AREA.

- STAGE 4A**
5. ENSURE TEMPORARY PAVEMENT MARKINGS INSTALLED PREVIOUSLY ARE IN GOOD SHAPE.
 6. SET UP WORK ZONE AS SHOWN ON SHEETS 1E(12) THROUGH 1E(14). (MODELED AFTER VA WAPM TTC-16.2.)
 7. EB WALROND DRIVE TRAFFIC SHALL BE DETOURED AS SHOWN ON SHEET 1E(15).
 8. CONSTRUCT WALROND DRIVE WIDENING FROM STA. 60+25 TO STA. 62+05.40.
 9. COMPLETE GRADING AND INSTALLATION OF DRAINAGE STRUCTURES (3-3A TO 3-3) AND PORTION OF 3-4 TO 3-5.
 10. CONSTRUCT CURB AND GUTTER, REMAINING SHARED USE PATH AND SIDEWALK AT WALROND DRIVE.
 11. MAINTAINING EB DETOUR, SHIFT WB TRAFFIC TO NEWLY CONSTRUCTED PORTION OF WALROND DRIVE, TRANSITIONING TRAFFIC BACK TO STANDARD ALIGNMENT NEAR BEGINNING OF WIDENING ON WALROND DRIVE. CONSTRUCT REMAINING PORTION OF 3-4 TO 3-5, CONSTRUCT 3-7 TO 3-5 AND 3-5 TO 3-6. CONSTRUCT CURB AND GUTTER ALONG NORTH SIDE OF WALROND DRIVE.
 12. REMOVE TEMPORARY PAVEMENT MARKINGS, ERADICATE ANY REMAINING CONFLICTING EXISTING PAVEMENT MARKINGS AND INSTALL FINAL PAVEMENT MARKINGS. UTILIZE LANE CLOSURES IN ACCORDANCE WITH THE VA WAPM AS NECESSARY (SEE TTC'S 13.2, 16.2, 17.2 21.1, 22.2, 27.2, 29.2, 41.2, 42.2, 53.0 OR OTHERS).

CHANNELIZING DEVICE SPACING:

TRANSITION AND CURVE SPACING: 0-35 MPH = 20', 36+ MPH = 40'

TRAVELWAY SPACING: 0-35 MPH = 40', 36+ MPH = 80'



Whitman Requardt & Associates
Blacksburg, Virginia
ROADWAY ENGINEER



COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

VDOT PROJECT NUMBER:
#SMART18 - PLANTATION RD BIKE/PED/STREETScape PHASE II
STATE PROJECT NO: 0115-080-911, P101, R201, C501
VDOT UPC NUMBER: 111366

PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETScape IMPROVEMENTS PHASE 2 PROJECT

Drawing
TRANSPORTATION
MANAGEMENT PLAN SHEET

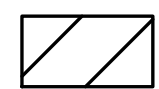


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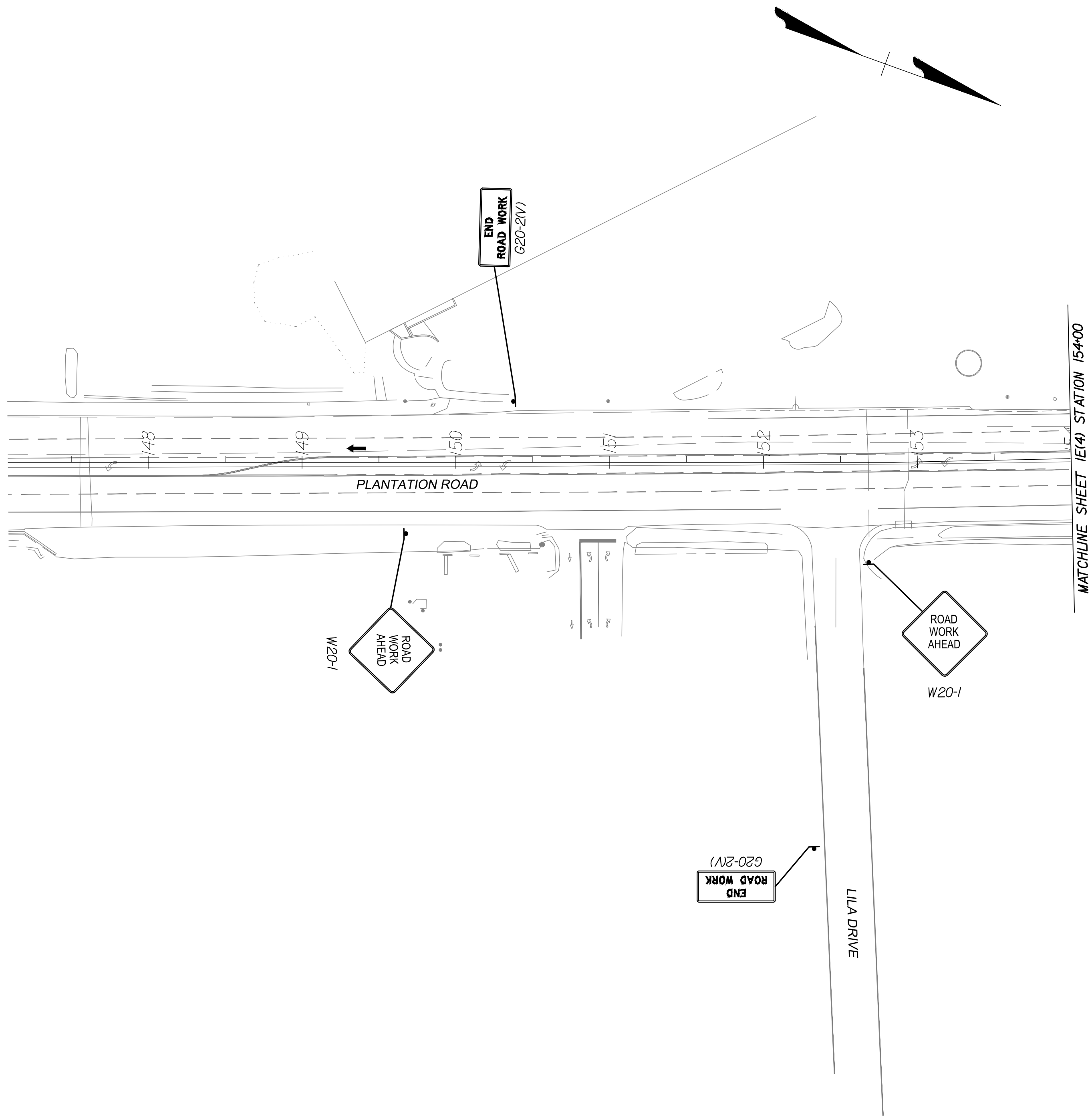
STAGE 1

STA. 156+50 TO STA. 164+40

LEGEND:

-  DENOTES AREA UNDER CONSTRUCTION
-  DENOTES TRAFFIC PATTERN FOR STAGE
-  DENOTES GROUP 2 CHANNELIZING DEVICES

TEMPORARY TRAFFIC CONTROL PLAN



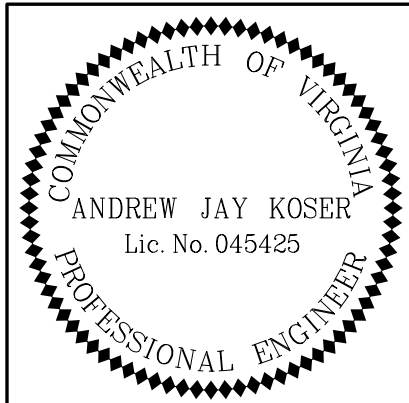
COUNTY OF ROANOKE
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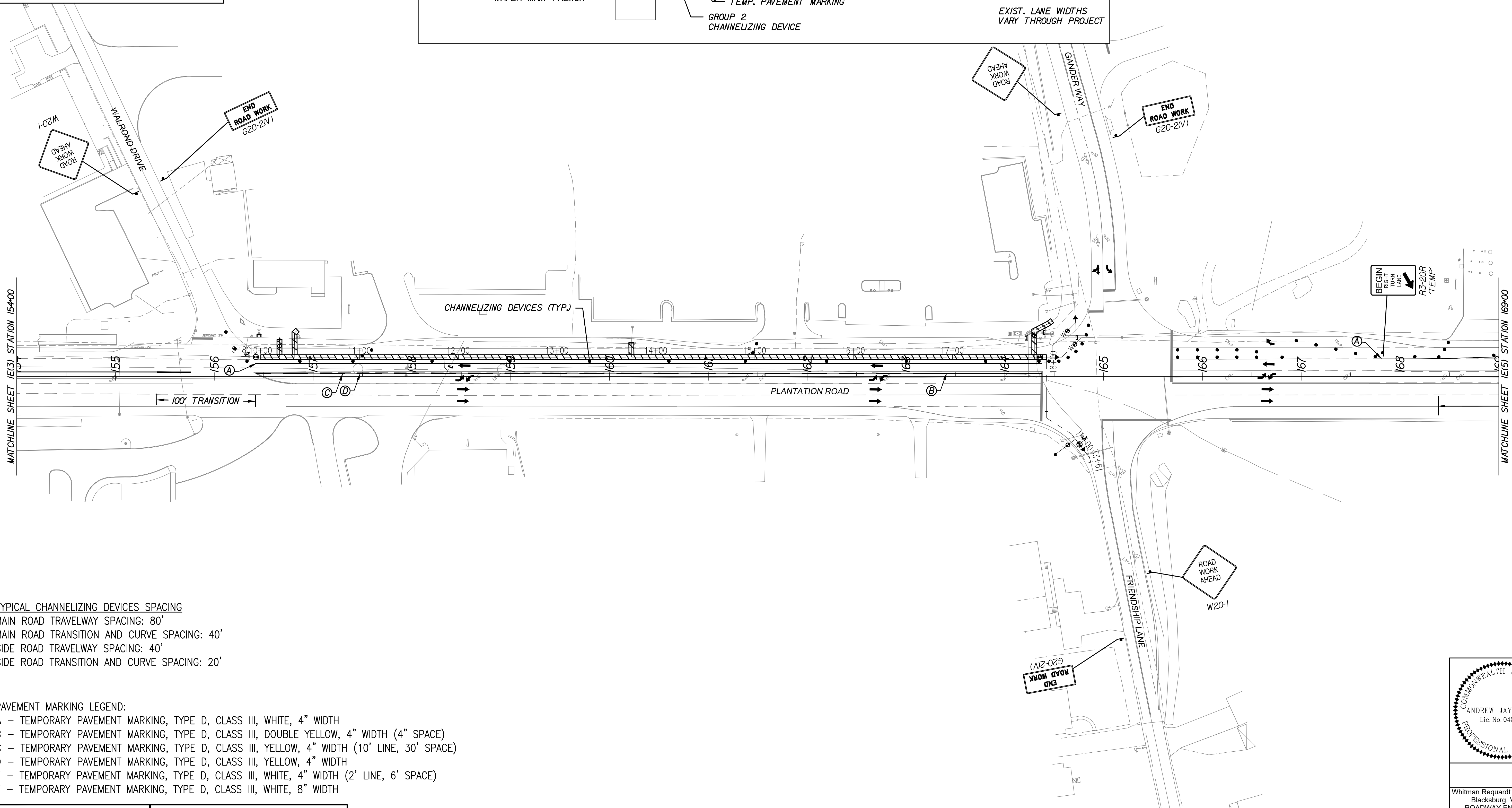
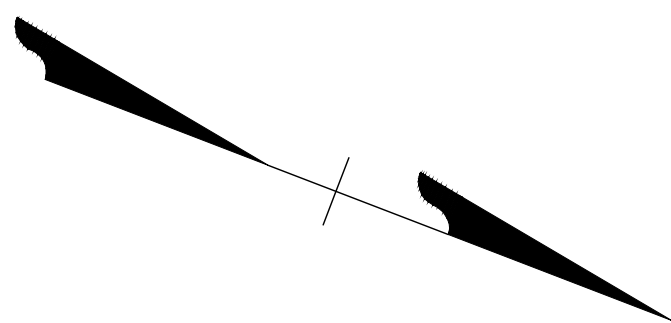
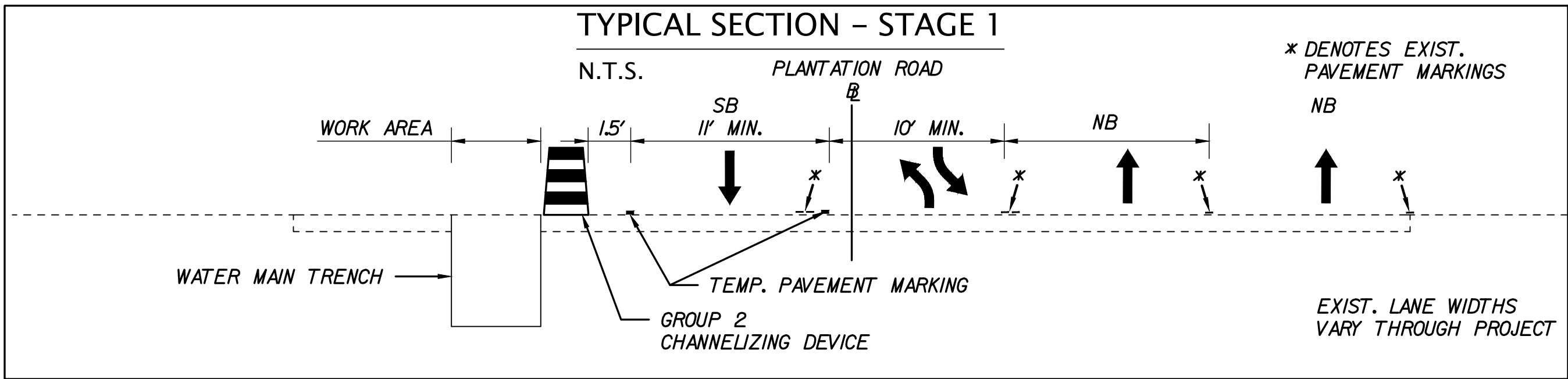
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ROADWAY ENGINEER

STAGE 1

STA. 156+50 TO STA. 164+40

LEGEND:

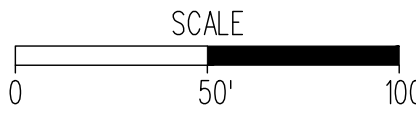
- DENOTES AREA UNDER CONSTRUCTION
- DENOTES TRAFFIC PATTERN FOR STAGE
- DENOTES GROUP 2 CHANNELIZING DEVICES



TYPICAL CHANNELIZING DEVICES SPACING
MAIN ROAD TRAVELWAY SPACING: 80'
MAIN ROAD TRANSITION AND CURVE SPACING: 40'
SIDE ROAD TRAVELWAY SPACING: 40'
SIDE ROAD TRANSITION AND CURVE SPACING: 20'

- PAVEMENT MARKING LEGEND:
- A - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, WHITE, 4" WIDTH
 - B - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, DOUBLE YELLOW, 4" WIDTH (4" SPACE)
 - C - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, YELLOW, 4" WIDTH (10' LINE, 30' SPACE)
 - D - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, YELLOW, 4" WIDTH
 - E - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, WHITE, 4" WIDTH (2' LINE, 6' SPACE)
 - F - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, WHITE, 8" WIDTH

TEMPORARY TRAFFIC CONTROL PLAN



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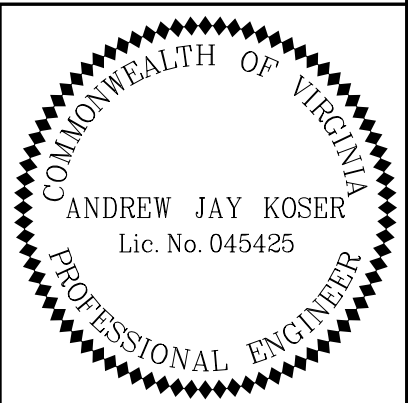
COUNTY OF ROANOKE
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PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

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STAGE 1

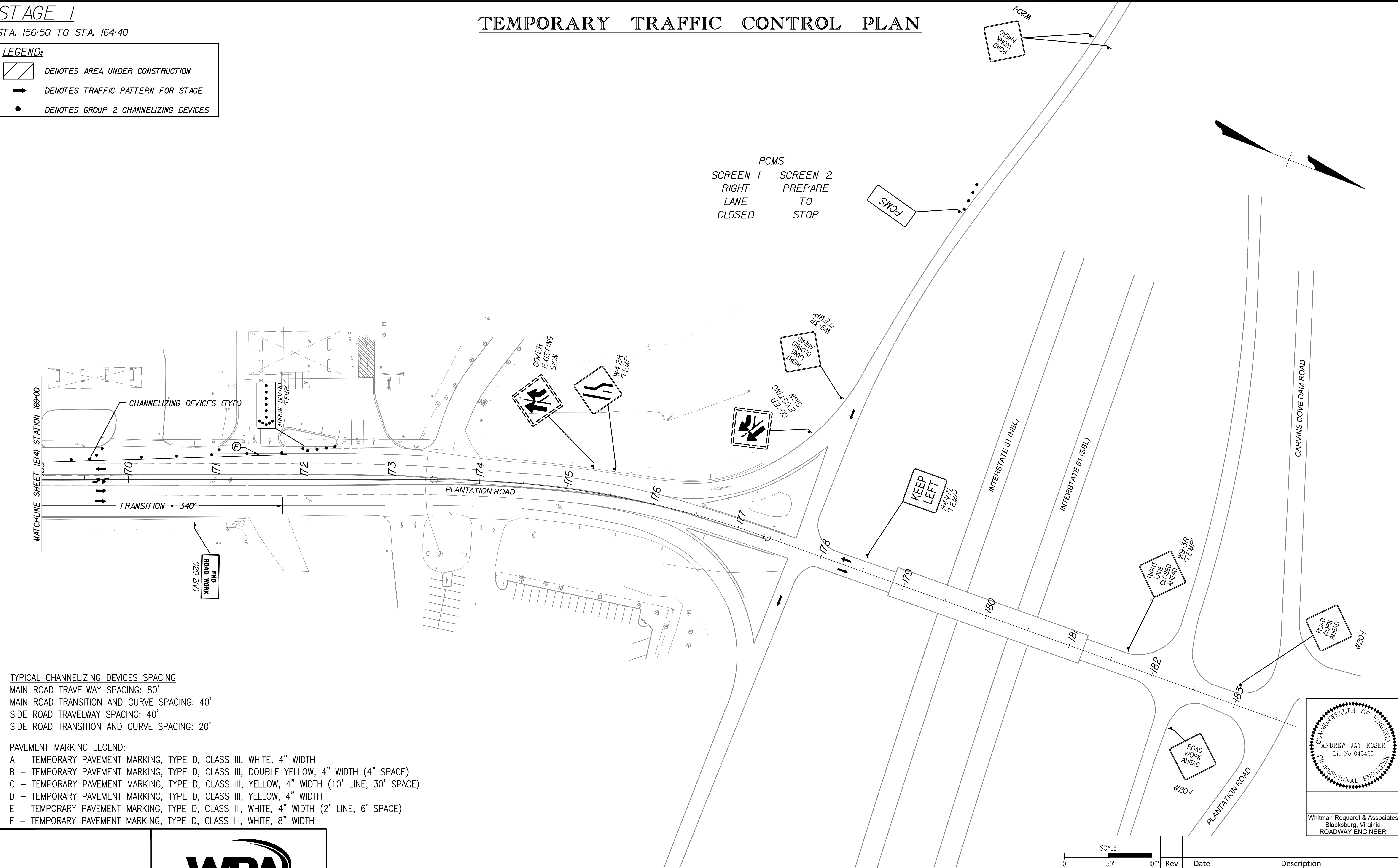
STA. 156+50 TO STA. 164+40

LEGEND:

- DENOTES AREA UNDER CONSTRUCTION
- DENOTES TRAFFIC PATTERN FOR STAGE
- DENOTES GROUP 2 CHANNELIZING DEVICES

TEMPORARY TRAFFIC CONTROL PLAN

PCMS
SCREEN 1
RIGHT
LANE
CLOSED
SCREEN 2
PREPARE
TO
STOP



TYPICAL CHANNELIZING DEVICES SPACING
MAIN ROAD TRAVELWAY SPACING: 80'
MAIN ROAD TRANSITION AND CURVE SPACING: 40'
SIDE ROAD TRAVELWAY SPACING: 40'
SIDE ROAD TRANSITION AND CURVE SPACING: 20'

PAVEMENT MARKING LEGEND:
A - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, WHITE, 4" WIDTH
B - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, DOUBLE YELLOW, 4" WIDTH (4" SPACE)
C - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, YELLOW, 4" WIDTH (10' LINE, 30' SPACE)
D - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, YELLOW, 4" WIDTH
E - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, WHITE, 4" WIDTH (2' LINE, 6' SPACE)
F - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, WHITE, 8" WIDTH



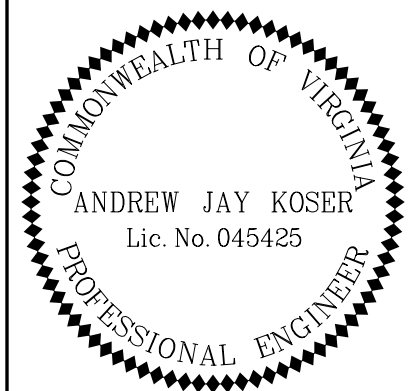
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Drawing
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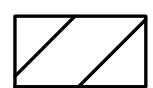


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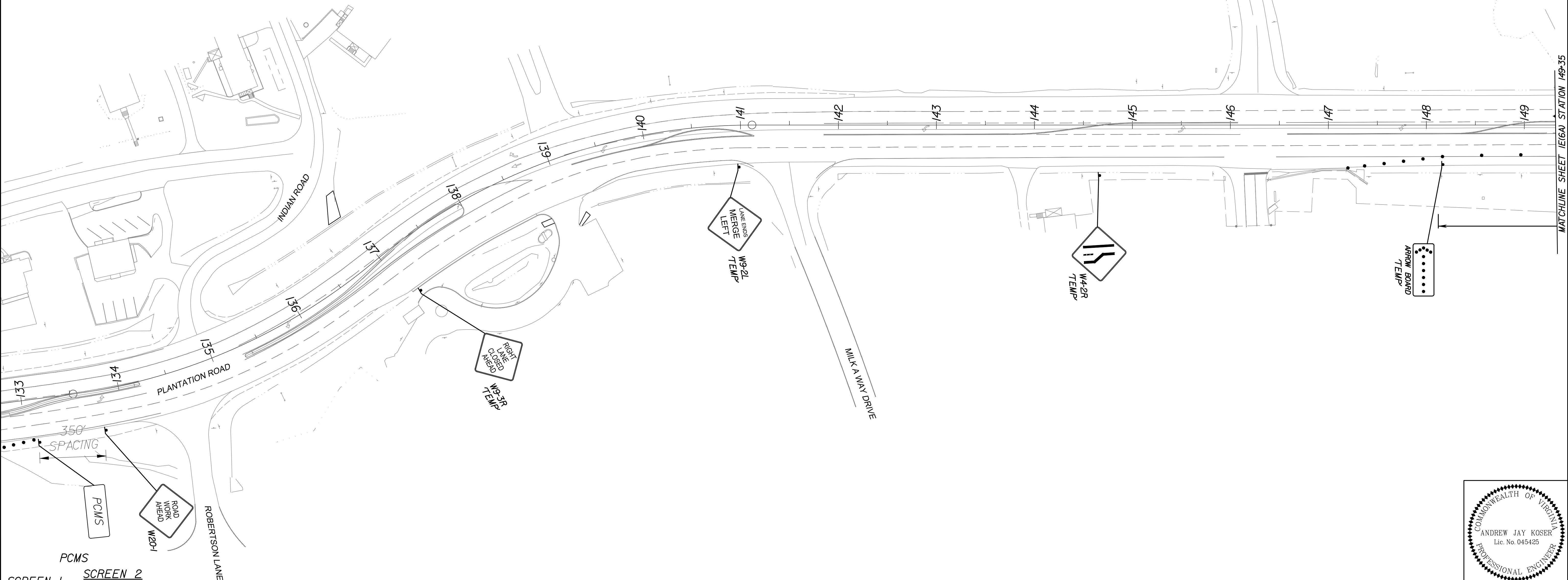
STAGE 2

STA. 164+40 TO STA. 165+00

TEMPORARY TRAFFIC CONTROL PLAN

LEGEND:

-  DENOTES AREA UNDER CONSTRUCTION
-  DENOTES TRAFFIC PATTERN FOR STAGE
-  DENOTES GROUP 2 CHANNELIZING DEVICES



SCREEN 1
FLAGGER
AHEAD

SCREEN 2
PREPARE
TO
STOP

TYPICAL CHANNELIZING DEVICES SPACING

MAIN ROAD TRAVELWAY SPACING:	80'
MAIN ROAD TRANSITION AND CURVE SPACING:	40'
SIDE ROAD TRAVELWAY SPACING:	40'
SIDE ROAD TRANSITION AND CURVE SPACING:	20'



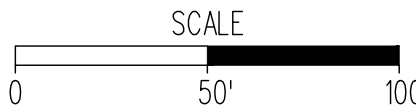
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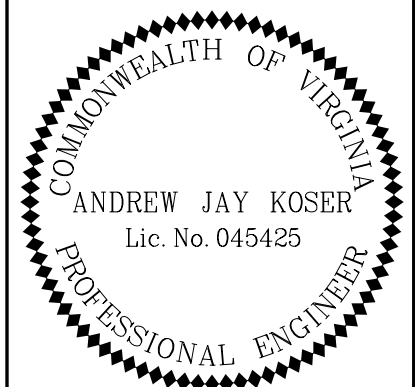
PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT



Rev	Date	Description

Drawing
TRANSPORTATION
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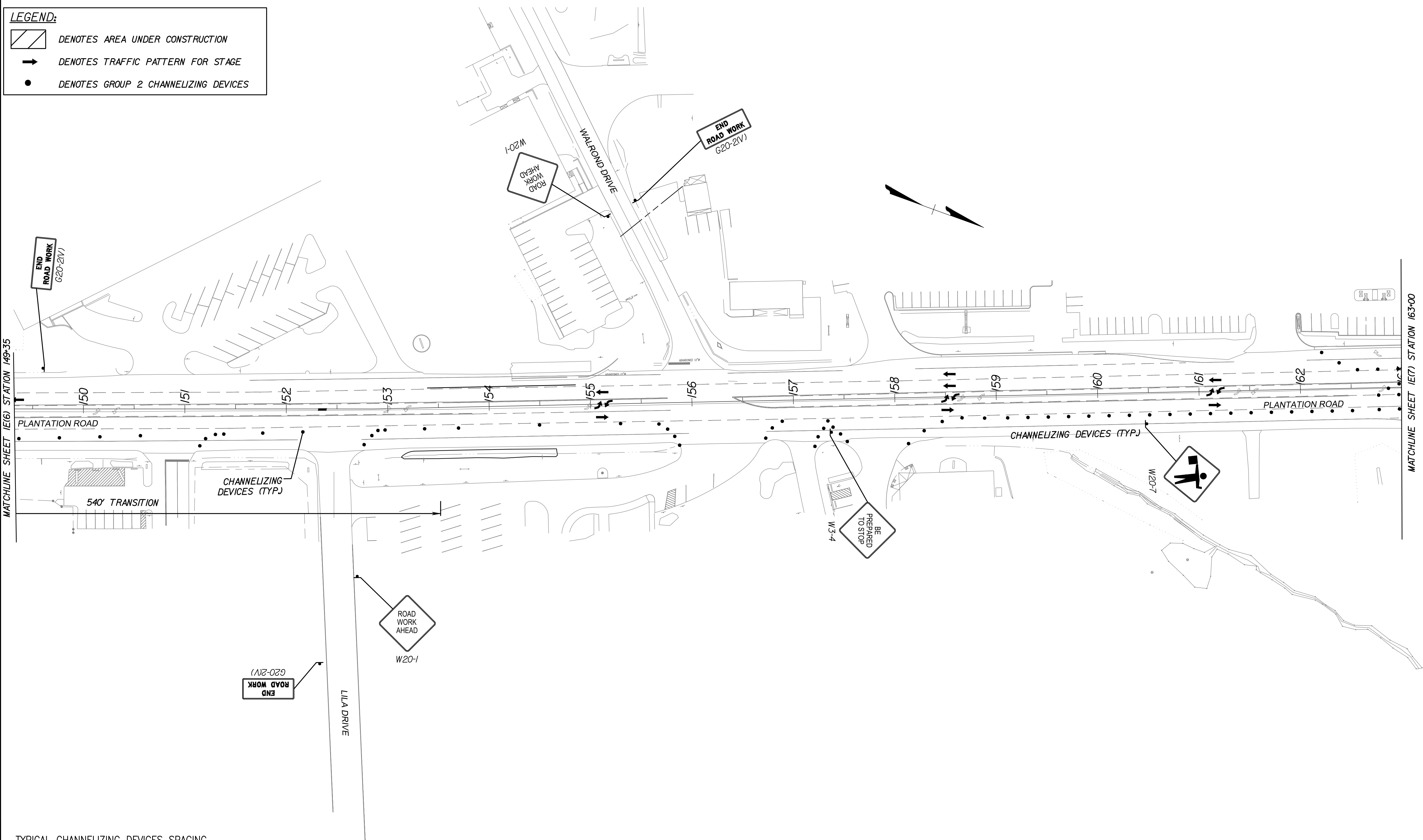
STAGE 2

STA. 164+40 TO STA. 165+00

TEMPORARY TRAFFIC CONTROL PLAN

LEGEND:

- DENOTES AREA UNDER CONSTRUCTION
- DENOTES TRAFFIC PATTERN FOR STAGE
- DENOTES GROUP 2 CHANNELIZING DEVICES



TYPICAL CHANNELIZING DEVICES SPACING
MAIN ROAD TRAVELWAY SPACING: 80'
MAIN ROAD TRANSITION AND CURVE SPACING: 40'
SIDE ROAD TRAVELWAY SPACING: 40'
SIDE ROAD TRANSITION AND CURVE SPACING: 20'



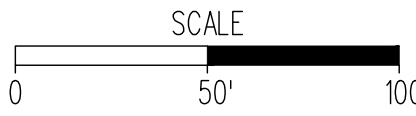
COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

VDOT PROJECT NUMBER:
#SMART18 - PLANTATION RD BIKE/PED/STREETSCAPE PHASE II
STATE PROJECT NO: 0115-080-911, P101, R201, C501
VDOT UPC NUMBER: 111366

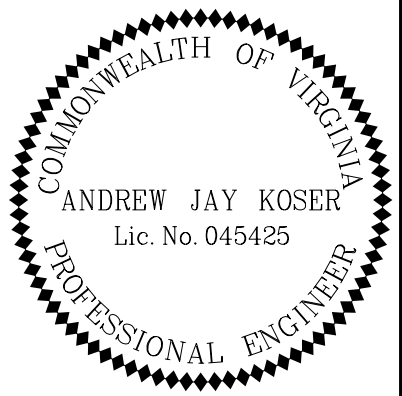
PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing
TRANSPORTATION
MANAGEMENT PLAN SHEET

Sheet
1E(6A)



Rev	Date	Description



Whitman Requardt & Associates
Blacksburg, Virginia
ROADWAY ENGINEER

STAGE 2

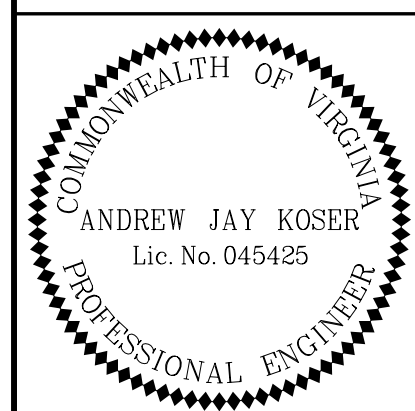
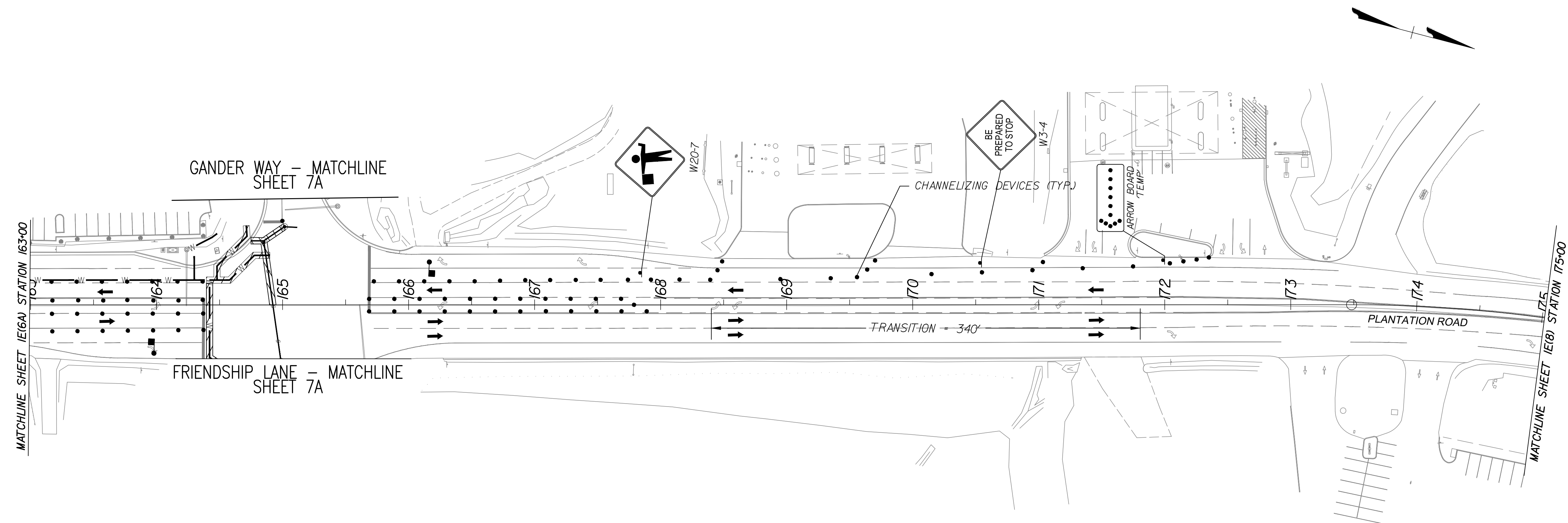
STA. 164+40 TO STA. 165+00

LEGEND:

DENOTES AREA UNDER CONSTRUCTION

DENOTES TRAFFIC PATTERN FOR STAGE

DENOTES GROUP 2 CHANNELIZING DEVICES



Whitman Requardt & Associates
Blacksburg, Virginia
ROADWAY ENGINEER

TYPICAL CHANNELIZING DEVICES SPACING
MAIN ROAD TRAVELWAY SPACING: 80'
MAIN ROAD TRANSITION AND CURVE SPACING: 40'
SIDE ROAD TRAVELWAY SPACING: 40'
SIDE ROAD TRANSITION AND CURVE SPACING: 20'



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COUNTY OF ROANOKE
5204 BERNARD DRIVE
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VDOT UPC NUMBER: 111366

PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETScape IMPROVEMENTS PHASE 2 PROJECT



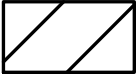


Drawing			Sheet
TRANSPORTATION MANAGEMENT PLAN SHEET			1 E(7)
Rev	Date	Description	

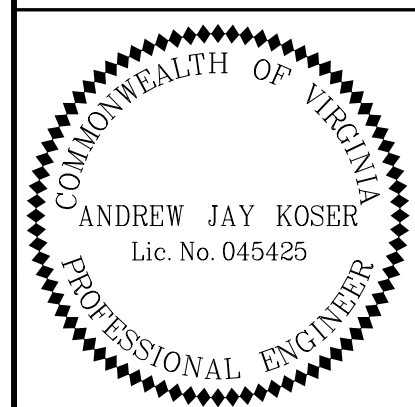
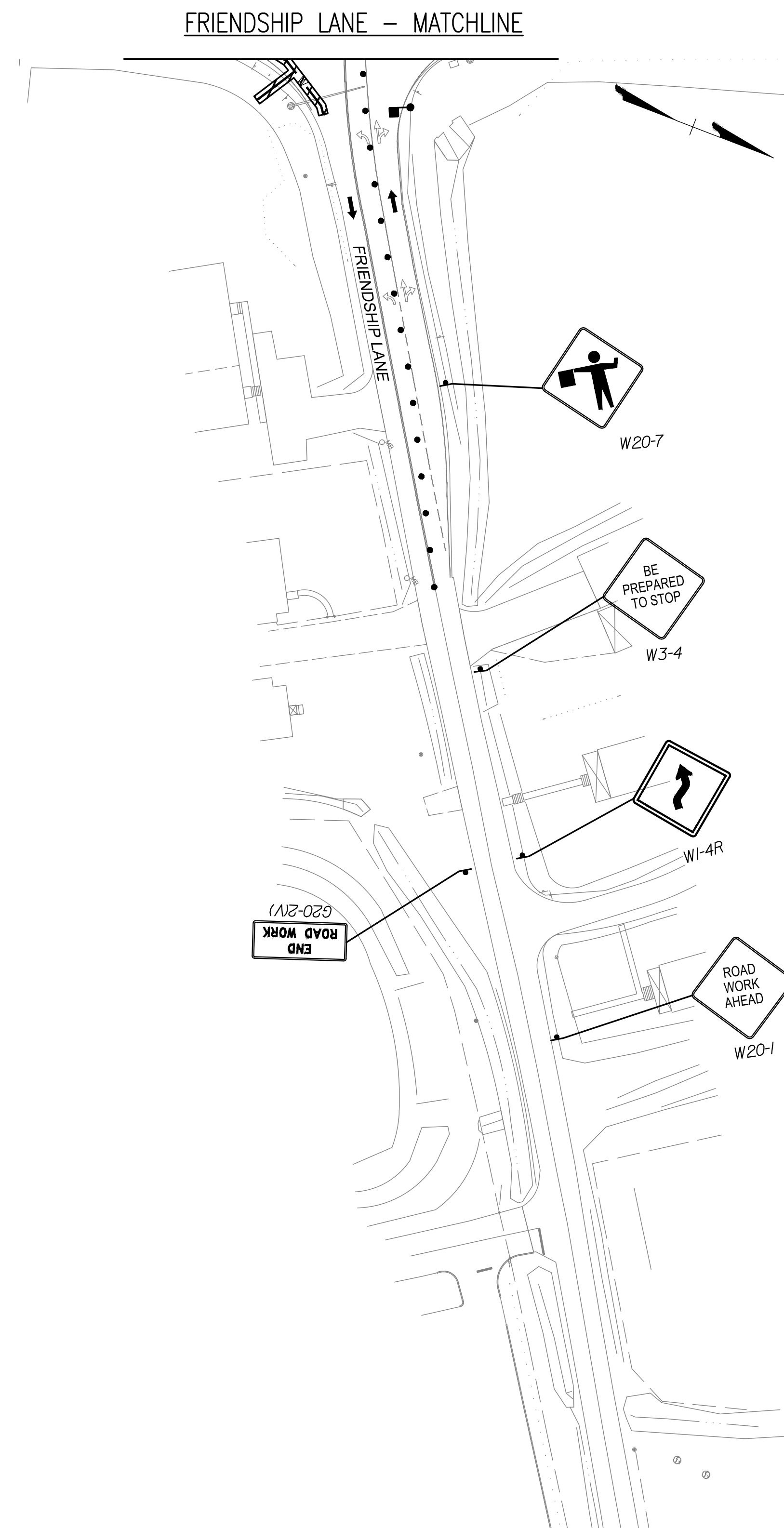
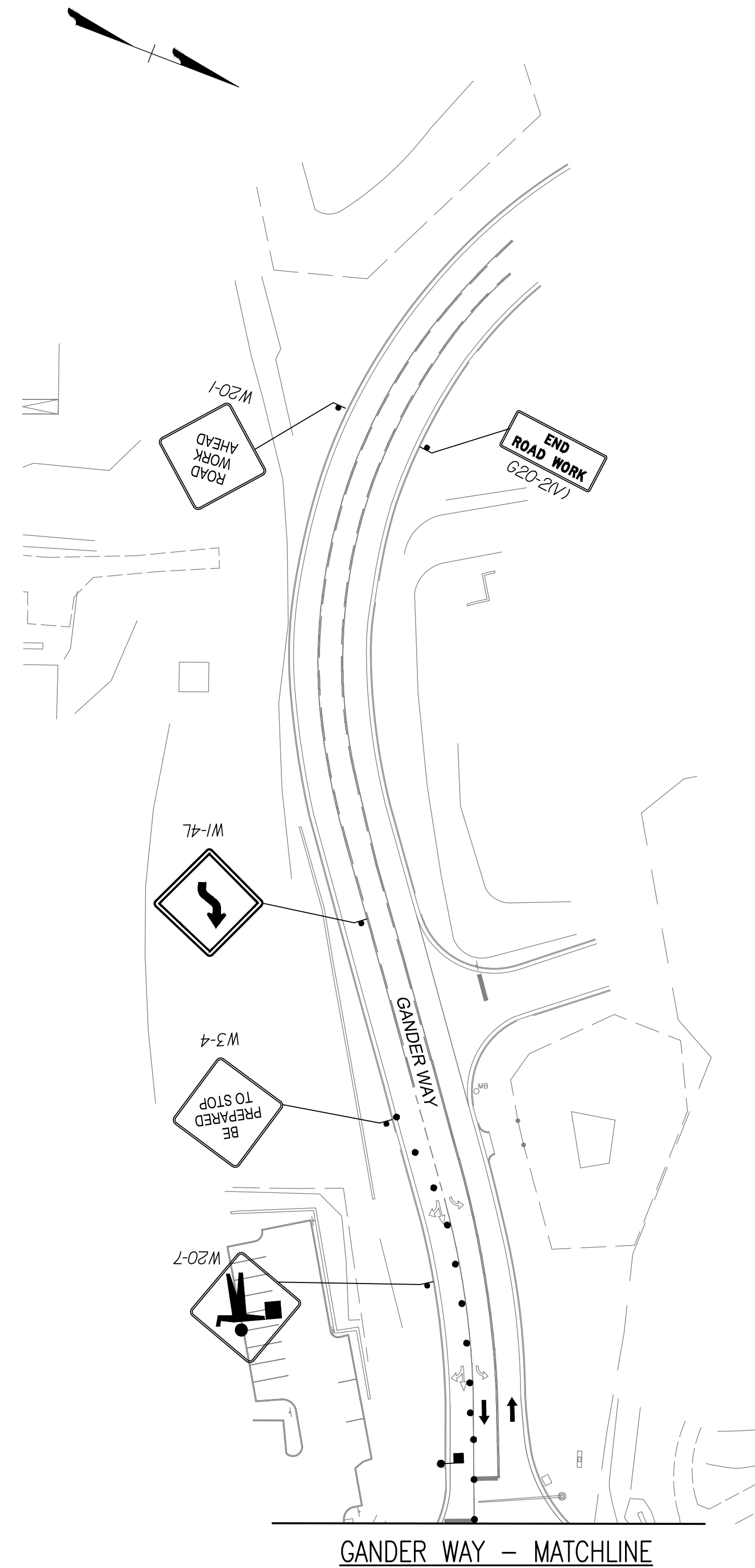
STAGE 2

STA. 164+40 TO STA. 165+00

TEMPORARY TRAFFIC CONTROL PLAN

LEGEND:

-  DENOTES AREA UNDER CONSTRUCTION
-  DENOTES TRAFFIC PATTERN FOR STAGE
-  DENOTES GROUP 2 CHANNELIZING DEVICES



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ROADWAY ENGINEER

TYPICAL CHANNELIZING DEVICES SPACING
MAIN ROAD TRAVELWAY SPACING: 80'
MAIN ROAD TRANSITION AND CURVE SPACING: 40'
SIDE ROAD TRAVELWAY SPACING: 40'
SIDE ROAD TRANSITION AND CURVE SPACING: 20'



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COUNTY OF ROANOKE

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#SMART18 - PLANTATION RD BIKE/PED/STREETSCAPE PHASE II
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VDOT UPC NUMBER: 111366

PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

SCALE
0 50' 100'

Rev	Date	Description

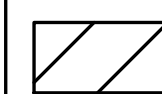
Drawing
TRANSPORTATION
MANAGEMENT PLAN SHEET

Sheet
1E(7A)

STAGE 2

STA. 164+40 TO STA. 165+00

LEGEND:



PCMS	
<u>SCREEN 1</u>	<u>SCREEN 2</u>
RIGHT	PREPARE
LANE	TO
CLOSED	STOP

MATCHLINE SHEET 1E(7) STATION 75

ROAD WORK
G20-21V

TYPICAL CHANNELIZING DEVICES SPACING

MAIN ROAD TRAVELWAY SPACING: 80'

MAIN ROAD TRANSITION AND CURVE SPACING: 40'

SIDE ROAD TRAVELWAY SPACING: 40'

SIDE ROAD TRANSITION AND CURVE SPACING: 20'

TEMPORARY TRAFFIC CONTROL PLAN



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COUNTY OF ROANOKE

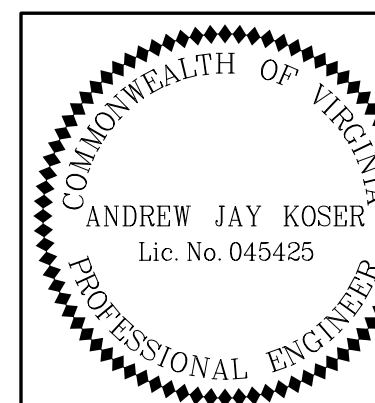
5204 BERNARD DRIVE
ROANOKE, VA 24018

VDOT PROJECT NUMBERS:
0115-080-R95, P101, C501 &
EN12-080-823, P101, R201, C501

VDOT UPC NUMBERS: 98220 & 103607

PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND STREETSCAPE IMPROVEMENTS PROJECT

TRANSPORTATION MANAGEMENT PLAN SHEET

Sheet
1 E(8)

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ROADWAY ENGINEER

SCALE

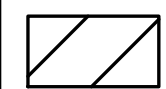




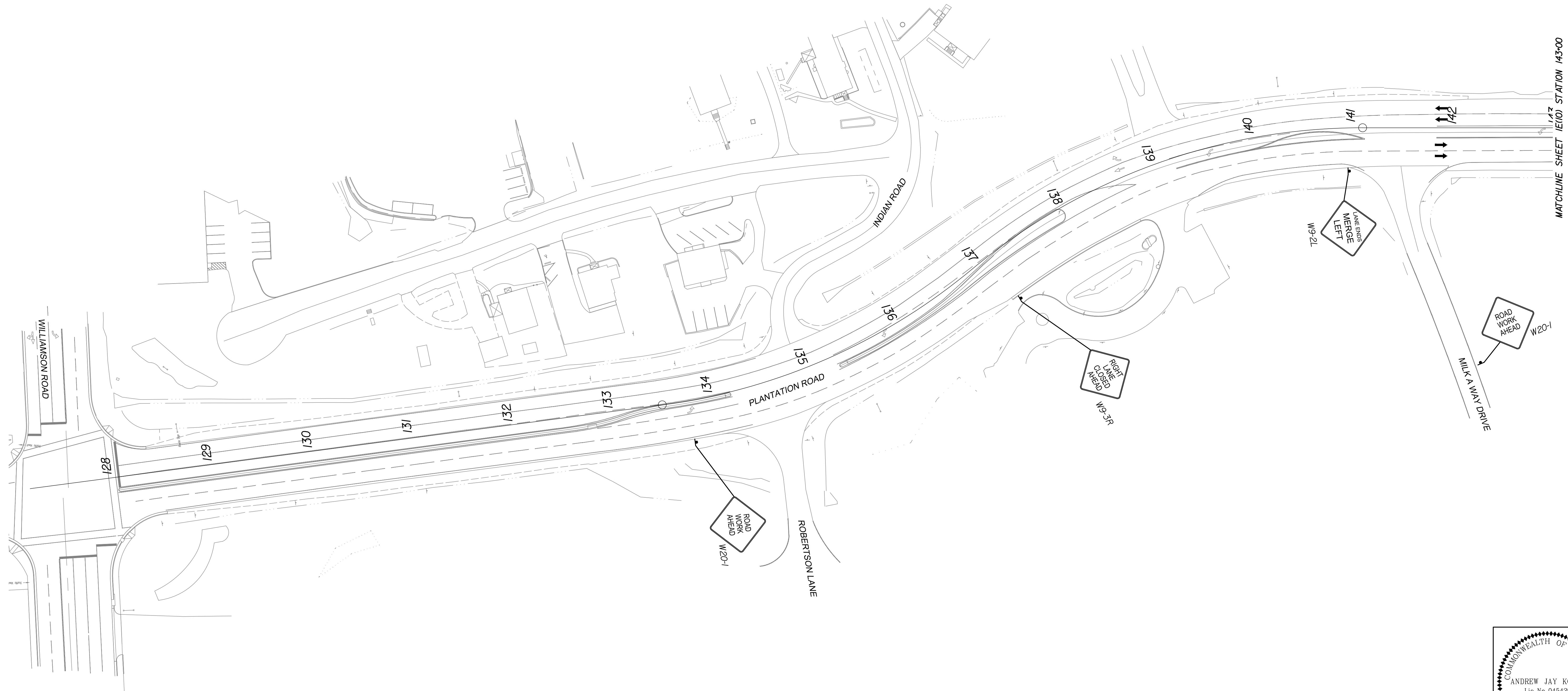
			ROADWAY ENGINEER
100'	Rev	Date	Description

STAGE 3

STA. 157+50 TO STA. 161+00

LEGEND:

-  DENOTES AREA UNDER CONSTRUCTION
-  DENOTES TRAFFIC PATTERN FOR STAGE
-  DENOTES GROUP 2 CHANNELIZING DEVICES



TYPICAL CHANNELIZING DEVICES SPACING
MAIN ROAD TRAVELWAY SPACING: 80'
MAIN ROAD TRANSITION AND CURVE SPACING: 40'
SIDE ROAD TRAVELWAY SPACING: 40'
SIDE ROAD TRANSITION AND CURVE SPACING: 20'



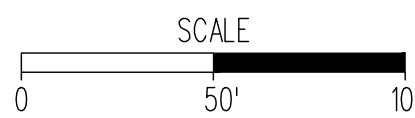
COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

VDOT PROJECT NUMBER:
#SMART18 - PLANTATION RD BIKE/PED/STREETSCAPE PHASE II
STATE PROJECT NO: 0115-080-911, P101, R201, C501
VDOT UPC NUMBER: 111366

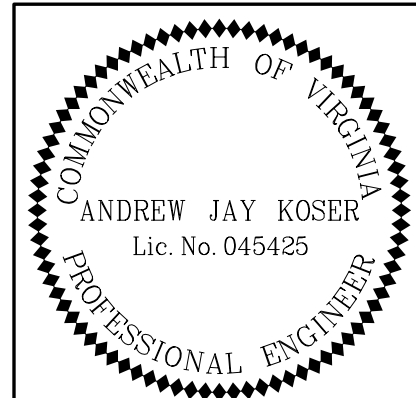
PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing
TRANSPORTATION
MANAGEMENT PLAN SHEET

Sheet
1 E(9)



Rev	Date	Description



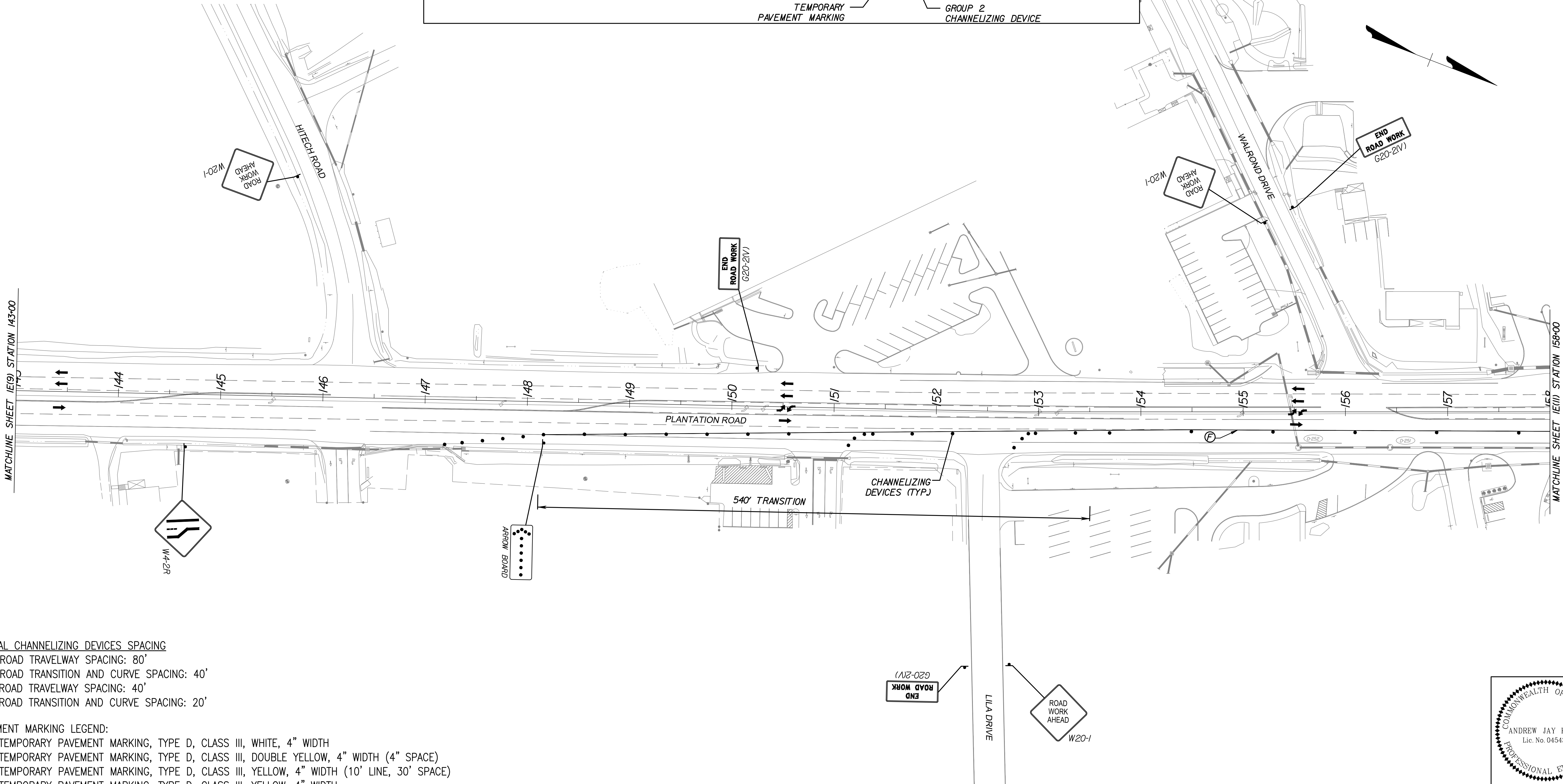
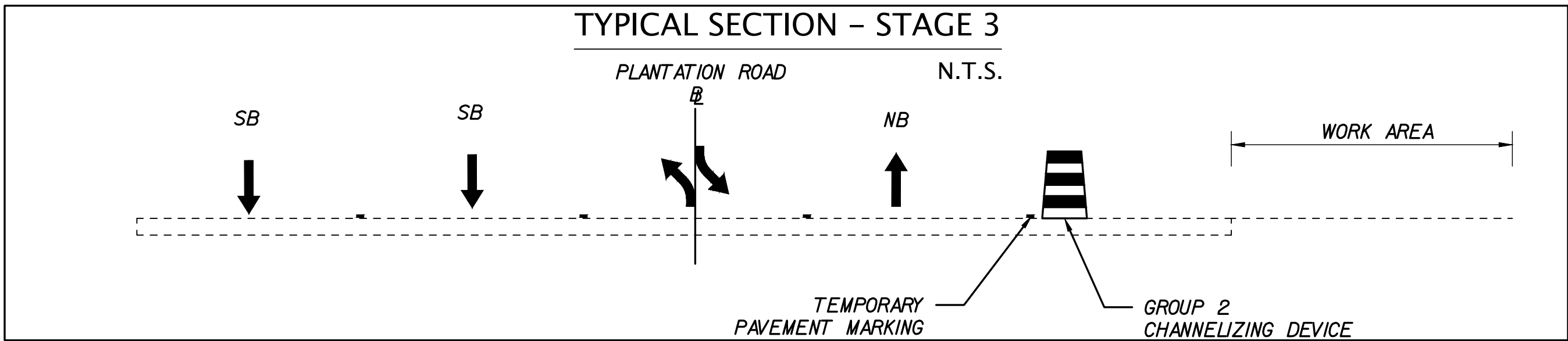
Whitman Requardt & Associates
Blacksburg, Virginia
ROADWAY ENGINEER

STAGE 3

STA. 157+50 TO STA. 161+00

LEGEND:

- DENOTES AREA UNDER CONSTRUCTION
- DENOTES TRAFFIC PATTERN FOR STAGE
- DENOTES GROUP 2 CHANNELIZING DEVICES



TYPICAL CHANNELIZING DEVICES SPACING
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MAIN ROAD TRANSITION AND CURVE SPACING: 40'
SIDE ROAD TRAVELWAY SPACING: 40'
SIDE ROAD TRANSITION AND CURVE SPACING: 20'

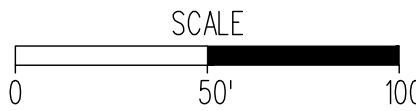
PAVEMENT MARKING LEGEND:
A – TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, WHITE, 4" WIDTH
B – TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, DOUBLE YELLOW, 4" WIDTH (4" SPACE)
C – TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, YELLOW, 4" WIDTH (10' LINE, 30' SPACE)
D – TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, YELLOW, 4" WIDTH
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F – TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, WHITE, 8" WIDTH



COUNTY OF ROANOKE
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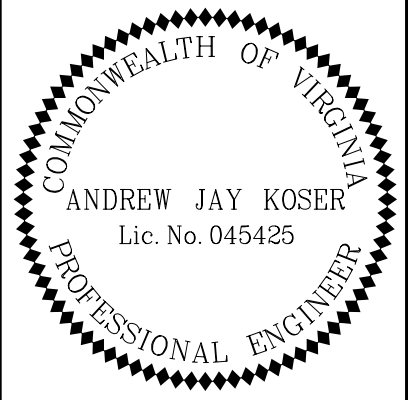
PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT



Rev	Date	Description

Drawing
TRANSPORTATION
MANAGEMENT PLAN SHEET

Sheet
1E(10)

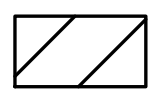



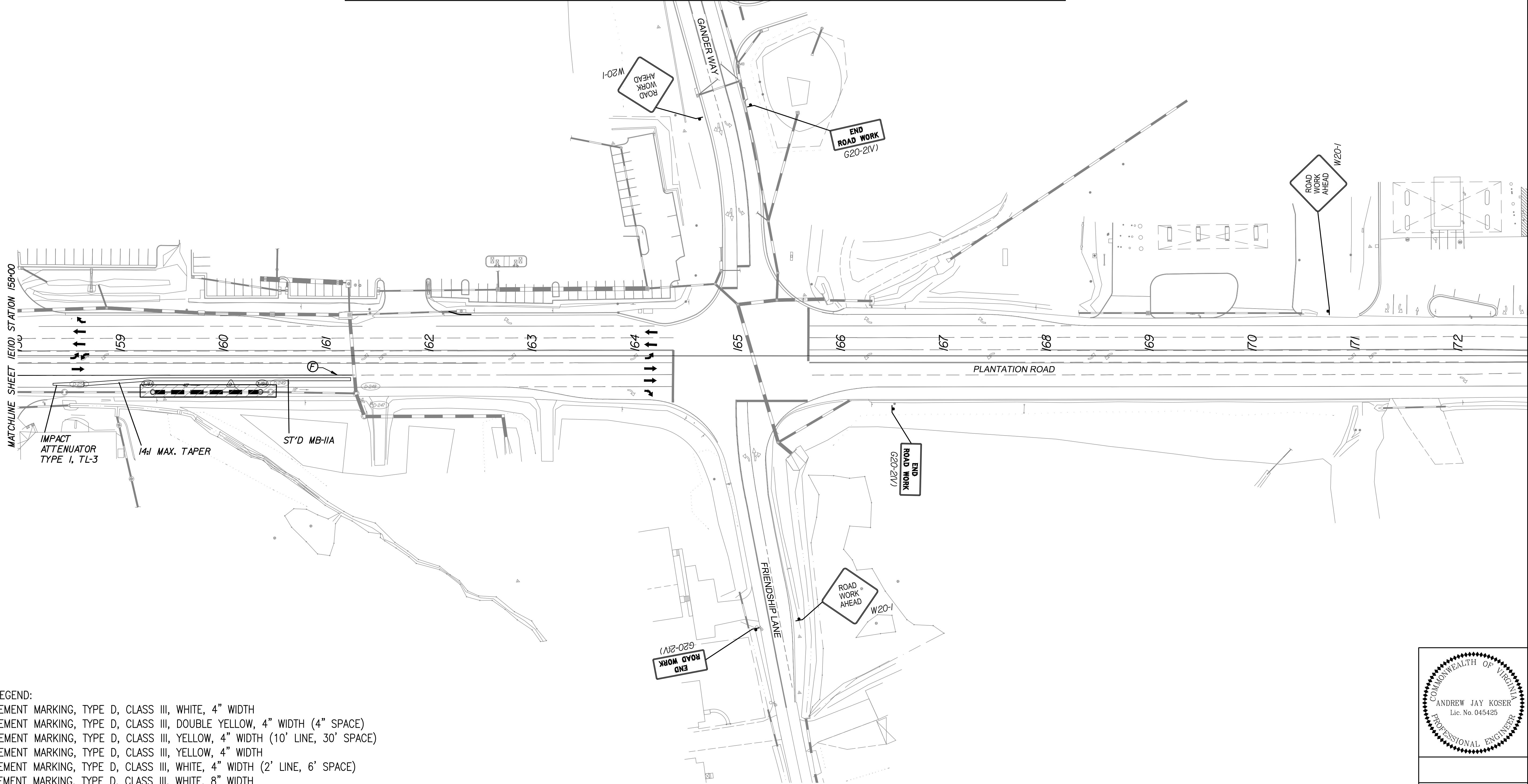
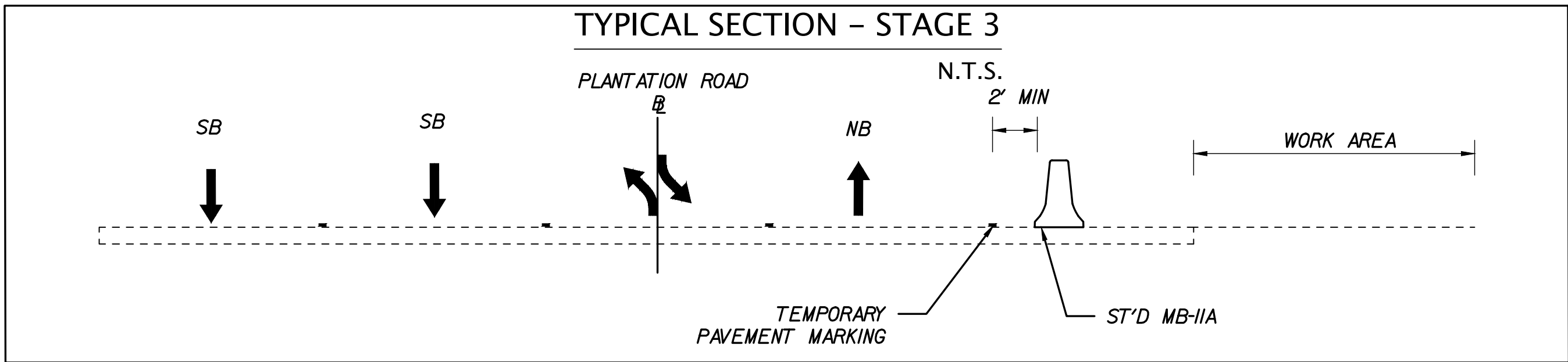
Whitman Requardt & Associates
Blacksburg, Virginia
ROADWAY ENGINEER

STAGE 3

STA. 157+50 TO STA. 161+00

LEGEND:

-  DENOTES AREA UNDER CONSTRUCTION
-  DENOTES TRAFFIC PATTERN FOR STAGE



- PAVEMENT MARKING LEGEND:
- A – TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, WHITE, 4" WIDTH
 - B – TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, DOUBLE YELLOW, 4" WIDTH (4" SPACE)
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 - D – TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, YELLOW, 4" WIDTH
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 - F – TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, WHITE, 8" WIDTH



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COUNTY OF ROANOKE
5204 BERNARD DRIVE
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VDOT PROJECT NUMBERS:
0115-080-R95, P101, C501 &
EN12-080-823, P101, R201, C501
VDOT UPC NUMBERS: 98220 & 103607

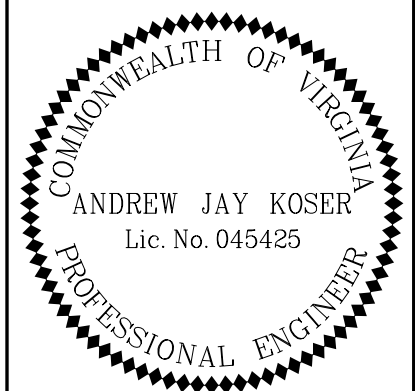
PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PROJECT

SCALE
0 50' 100'

Rev	Date	Description

Drawing
TRANSPORTATION
MANAGEMENT PLAN SHEET

Sheet
1E(11)



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ROADWAY ENGINEER

STAGE 4

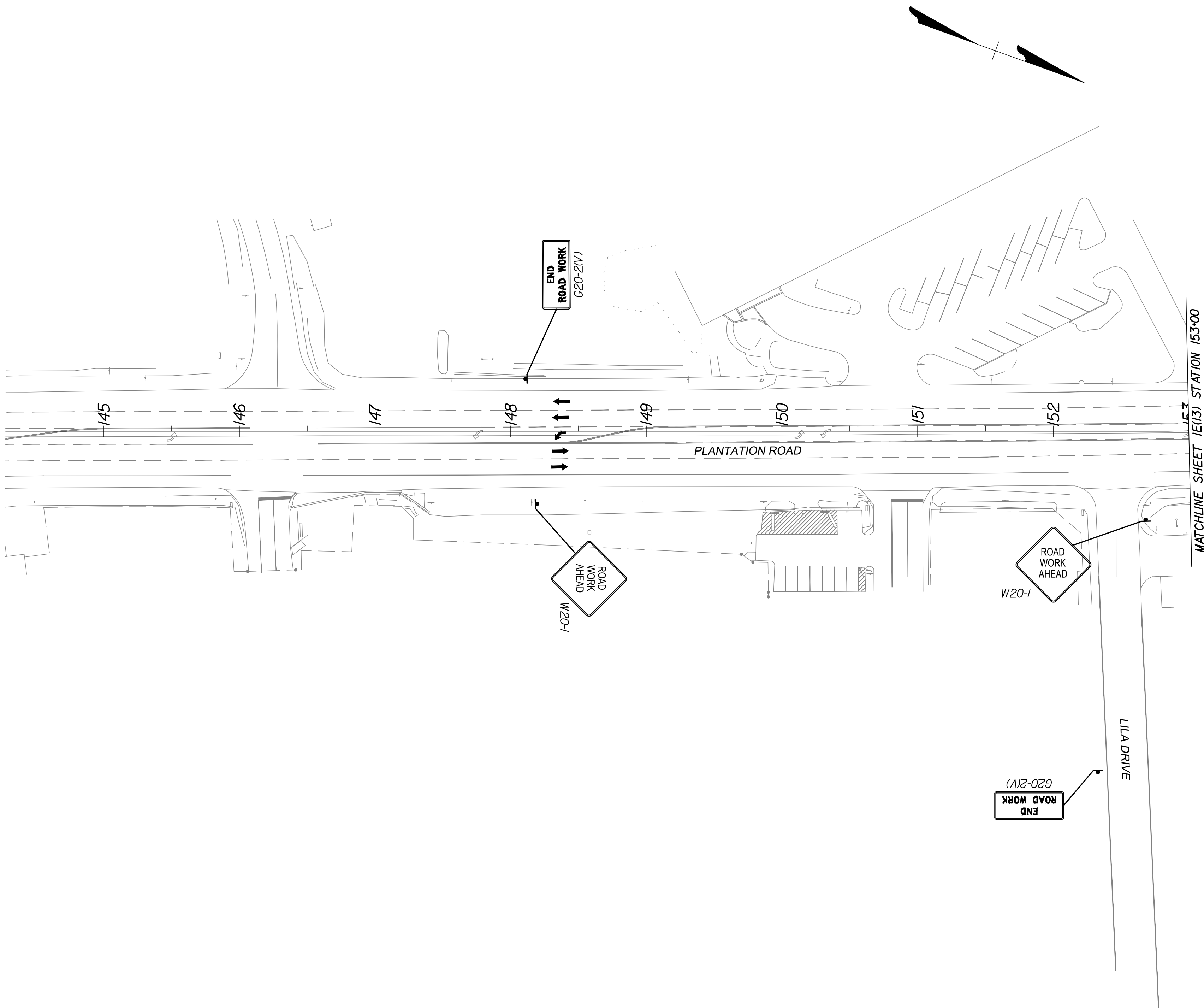
STA. 154+00.00 TO STA. 165+75.97

TEMPORARY TRAFFIC CONTROL PLAN

LEGEND:

DENOTES AREA UNDER CONSTRUCTION

→ DENOTES TRAFFIC PATTERN FOR STAGE



WRA

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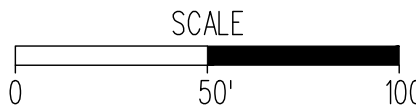
COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

VDOT PROJECT NUMBERS:
0115-080-R95, P101, C501 &
EN12-080-823, P101, R201, C501
VDOT UPC NUMBERS: 98220 & 103607

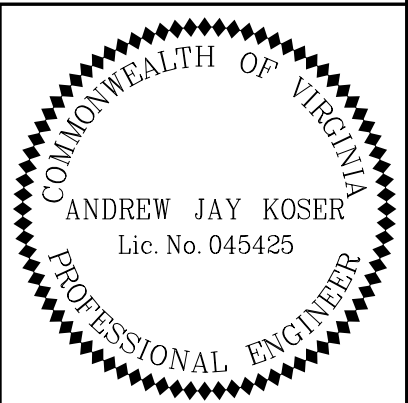
PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETScape IMPROVEMENTS PROJECT

Drawing
TRANSPORTATION
MANAGEMENT PLAN SHEET

Sheet
1E(12)



Rev	Date	Description



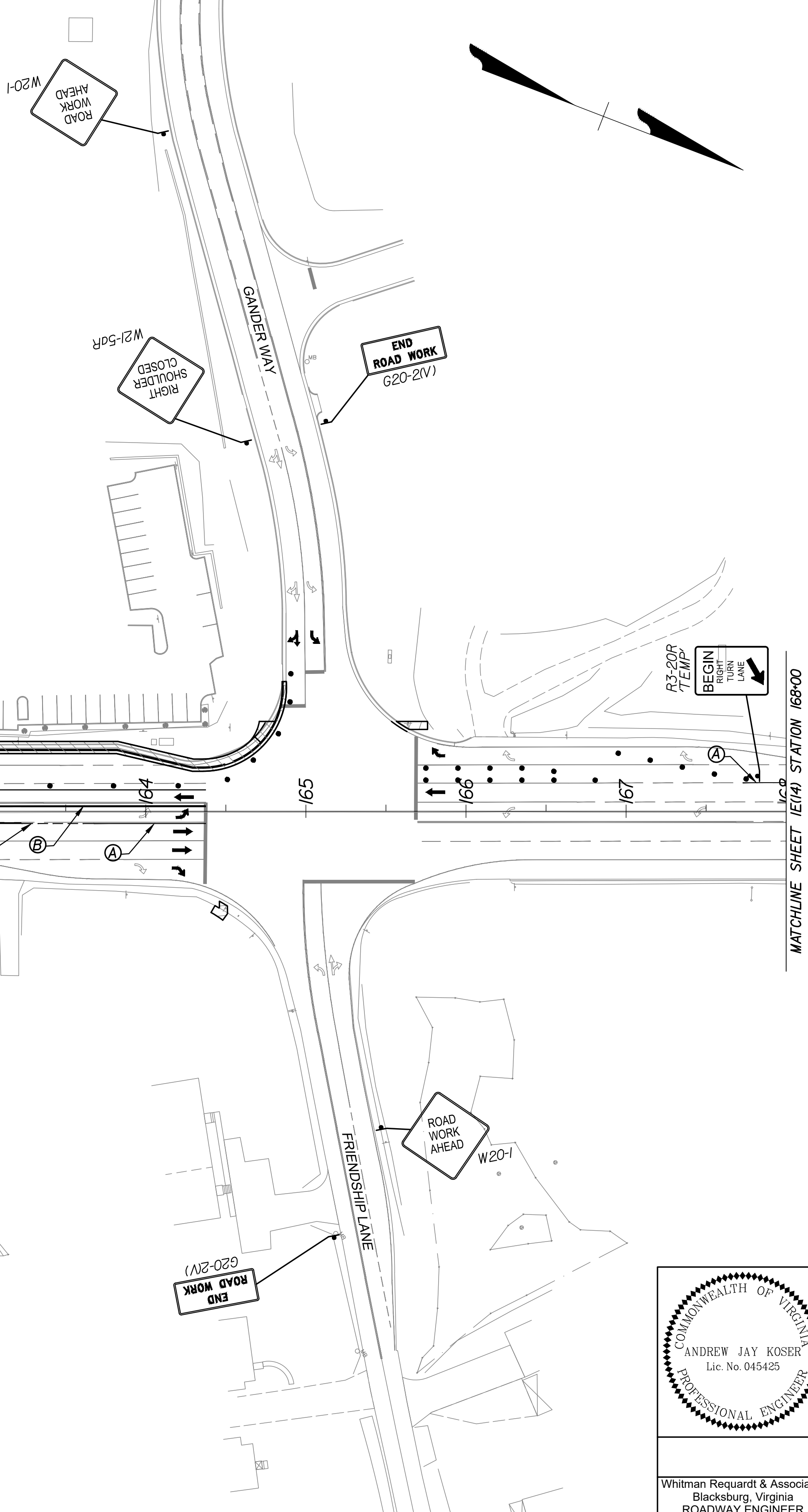
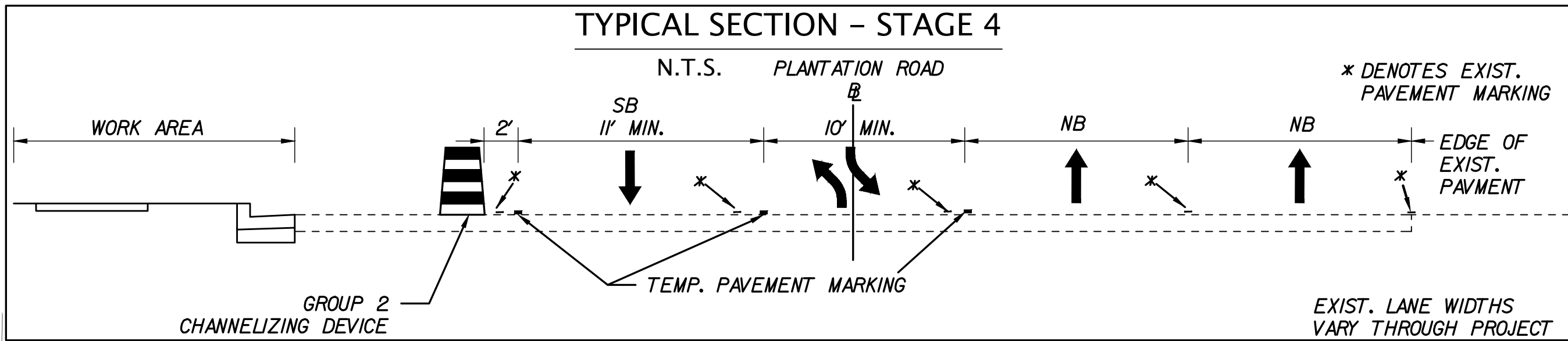
Whitman Requardt & Associates
Blacksburg, Virginia
ROADWAY ENGINEER

STAGE 4

STA. 154+00.00 TO STA. 165+75.97

LEGEND:

- DENOTES AREA UNDER CONSTRUCTION
- DENOTES TRAFFIC PATTERN FOR STAGE
- DENOTES GROUP 2 CHANNELIZING DEVICES



TYPICAL CHANNELIZING DEVICES SPACING
MAIN ROAD TRAVELWAY SPACING: 80'
MAIN ROAD TRANSITION AND CURVE SPACING: 40'
SIDE ROAD TRAVELWAY SPACING: 40'
SIDE ROAD TRANSITION AND CURVE SPACING: 20'

PAVEMENT MARKING LEGEND:
A - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, WHITE, 4" WIDTH
B - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, DOUBLE YELLOW, 4" WIDTH (4" SPACE)
C - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, YELLOW, 4" WIDTH (10' LINE, 30' SPACE)
D - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, YELLOW, 4" WIDTH
E - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, WHITE, 4" WIDTH (2' LINE, 6' SPACE)
F - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, WHITE, 8" WIDTH



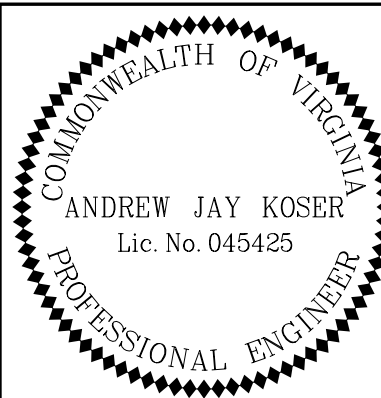
COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

VDOT PROJECT NUMBER:
#SMART18 - PLANTATION RD BIKE/PED/STREETSCAPE PHASE II
STATE PROJECT NO: 0115-080-911, P101, R201, C501
VDOT UPC NUMBER: 111366

PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing
TRANSPORTATION
MANAGEMENT PLAN SHEET

Sheet
1E(13)



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Blacksburg, Virginia
ROADWAY ENGINEER

Rev	Date	Description

STAGE 4

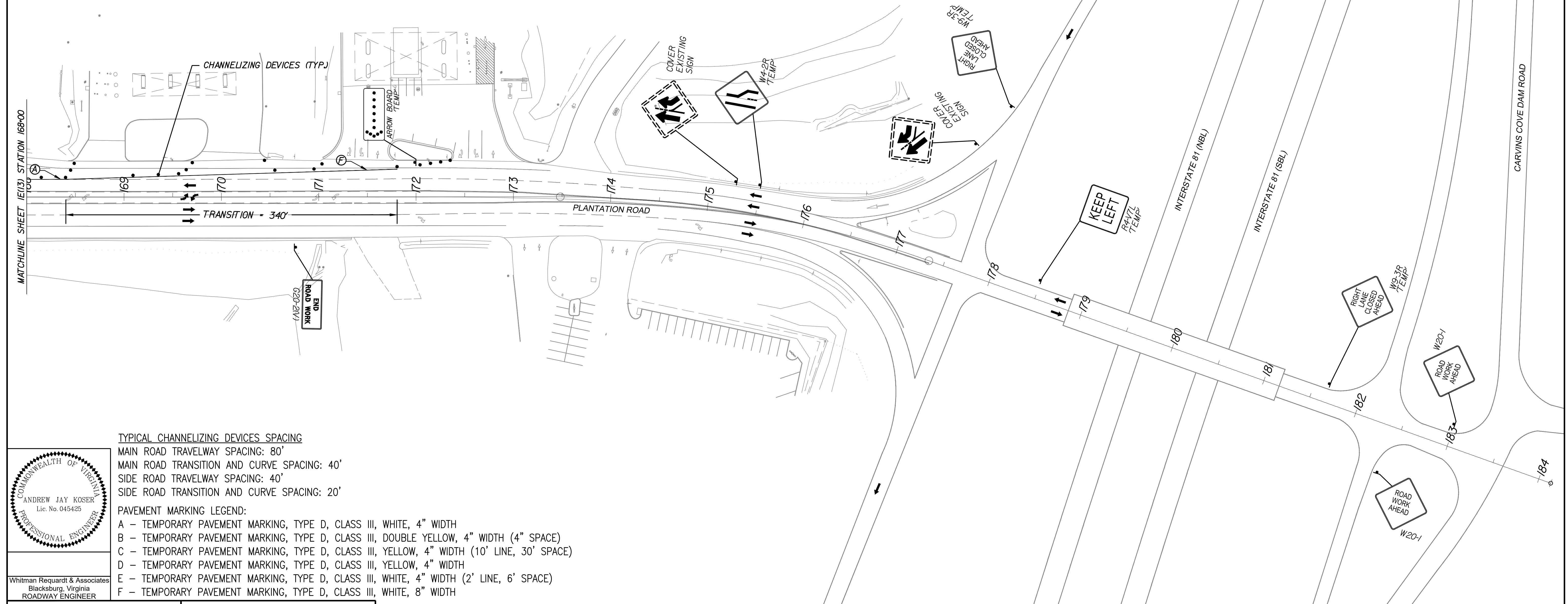
STA. 154+00.00 TO STA. 165+75.97

TEMPORARY TRAFFIC CONTROL PLAN

LEGEND:

- DENOTES AREA UNDER CONSTRUCTION
- DENOTES TRAFFIC PATTERN FOR STAGE
- DENOTES GROUP 2 CHANNELIZING DEVICES

PCMS
 SCREEN 1
 RIGHT
 LANE
 CLOSED
 SCREEN 2
 PREPARE
 TO
 STOP

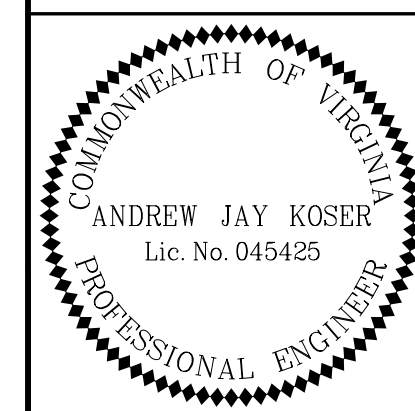


TYPICAL CHANNELIZING DEVICES SPACING

MAIN ROAD TRAVELWAY SPACING: 80'
 MAIN ROAD TRANSITION AND CURVE SPACING: 40'
 SIDE ROAD TRAVELWAY SPACING: 40'
 SIDE ROAD TRANSITION AND CURVE SPACING: 20'

PAVEMENT MARKING LEGEND:

A - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, WHITE, 4" WIDTH
 B - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, DOUBLE YELLOW, 4" WIDTH (4" SPACE)
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 D - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, YELLOW, 4" WIDTH
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 F - TEMPORARY PAVEMENT MARKING, TYPE D, CLASS III, WHITE, 8" WIDTH



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 ROADWAY ENGINEER



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COUNTY OF ROANOKE
 5204 BERNARD DRIVE
 ROANOKE, VA 24018

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 VDOT UPC NUMBER: 111366

PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
 STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

SCALE
 0 50' 100'

Rev	Date	Description

Drawing
**TRANSPORTATION
 MANAGEMENT PLAN SHEET**

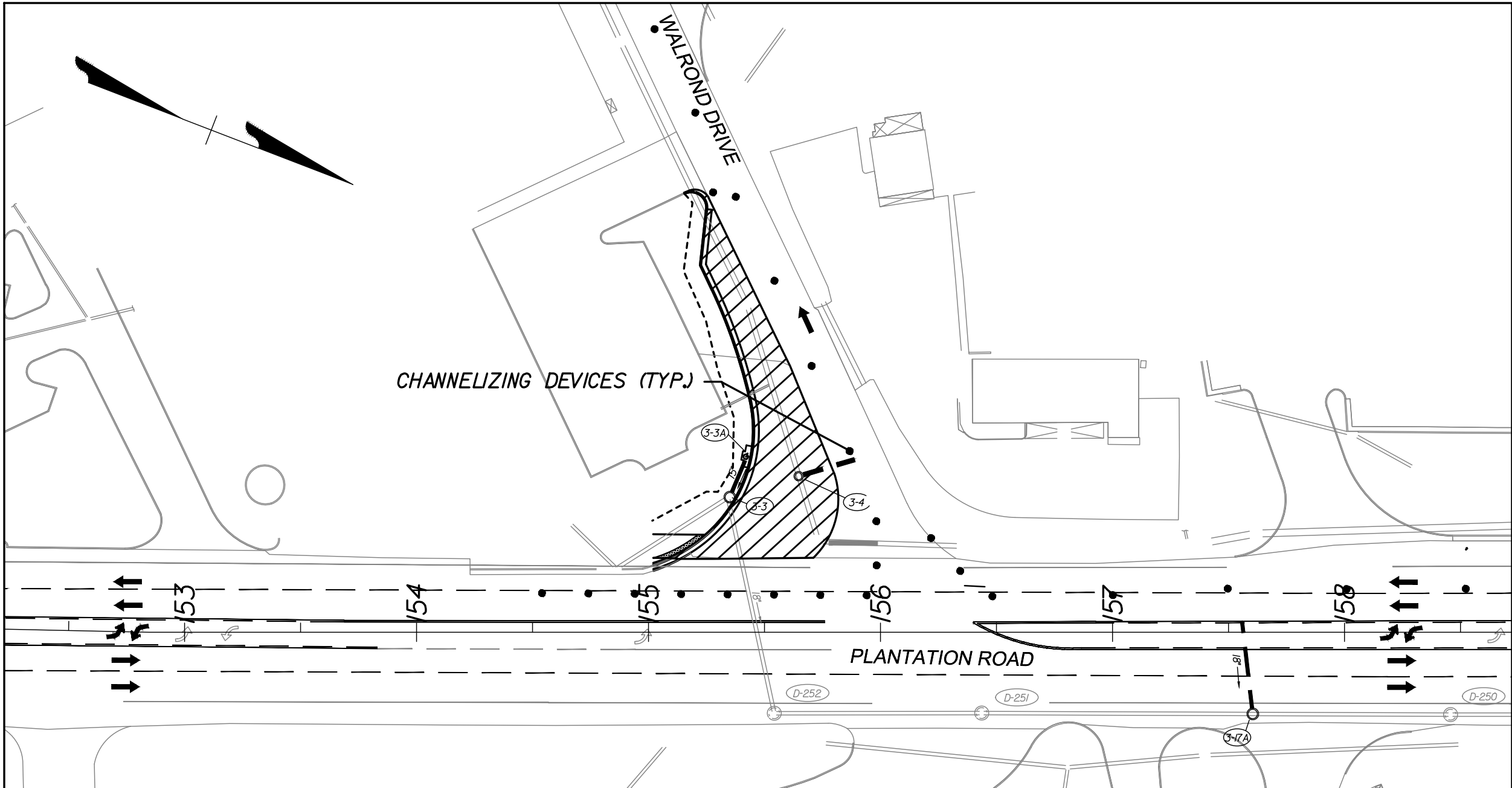
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STAGE 4A

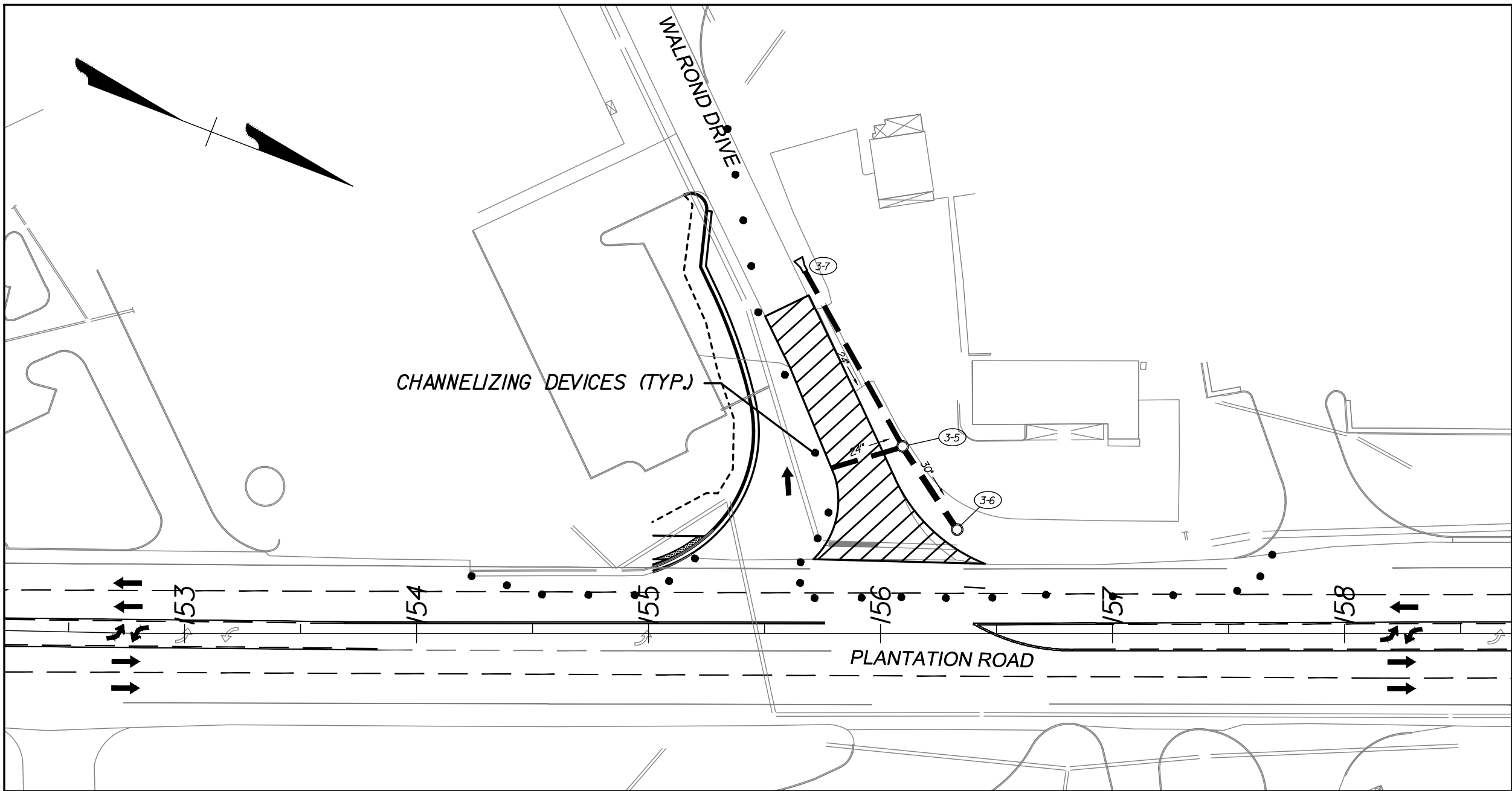
STA. 60+25 TO STA. 62+05.40 (WALROND DRIVE)

LEGEND:

- DENOTES AREA UNDER CONSTRUCTION
- DENOTES TRAFFIC PATTERN FOR STAGE
- DENOTES GROUP 2 CHANNELIZING DEVICES



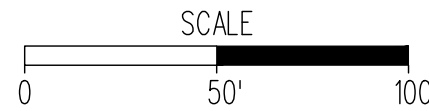
NOTE: ROAD WORK AHEAD AND END ROAD WORK SIGNS REQUIRED ALONG PLANTATION ROAD AND OTHER CONNECTIONS, BUT NOT SHOWN.



NOTE: ROAD WORK AHEAD AND END ROAD WORK SIGNS REQUIRED ALONG PLANTATION ROAD AND OTHER CONNECTIONS, BUT NOT SHOWN.

TEMPORARY TRAFFIC CONTROL PLAN

WRA
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1700 Kraft Drive, Suite 1200, Blacksburg, Virginia 24060



COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

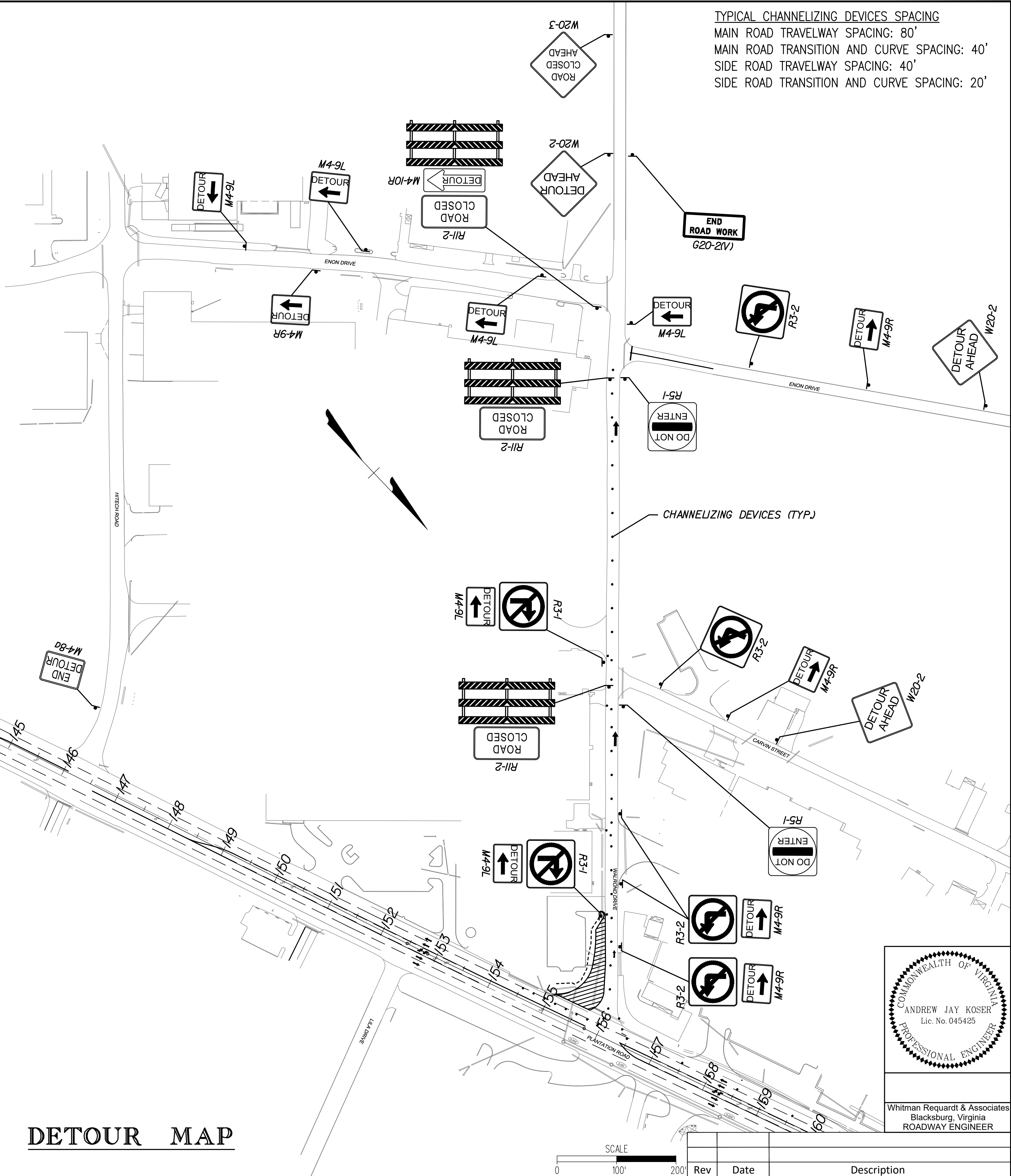
VDOT PROJECT NUMBER:
#SMART18 - PLANTATION RD BIKE/PED/STREETSCAPE PHASE II
STATE PROJECT NO: 0115-080-911, P101, R201, C501
VDOT UPC NUMBER: 111366

PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing
TRANSPORTATION
MANAGEMENT PLAN SHEET

Sheet
1E(15)

DETOUR MAP



TYPICAL CHANNELIZING DEVICES SPACING
MAIN ROAD TRAVELWAY SPACING: 80'
MAIN ROAD TRANSITION AND CURVE SPACING: 40'
SIDE ROAD TRAVELWAY SPACING: 40'
SIDE ROAD TRANSITION AND CURVE SPACING: 20'

COMMONWEALTH OF VIRGINIA
ANDREW JAY KOSER
Lic. No. 045425
PROFESSIONAL ENGINEER

Whitman Reardon & Associates
Blacksburg, Virginia
ROADWAY ENGINEER

Rev	Date	Description

GRADING

- G-1 The grade line denotes top of finished pavement unless shown otherwise on typical sections or plans.
- G-2 Earthwork quantities on this project are based on anticipated settlement and may require adjusting during construction.
- 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: curb & gutter, paved channels & ditches, & sidewalks.
- G-6 The borrow material for this project shall be a minimum CBR 7 or as approved by the Materials Engineer.

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 County Planning Administrator 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-6 Pipe types shall conform to the allowable types shown on sheet number 4C-Drainage Descriptions Sheet. For strength, sheet thickness, or class designation, available sizes, height of cover limitations and other restrictions for a particular pipe type or height of cover, see the VDOT Road and Bridge Standard PC-1. Structural plate pipe may be substituted for corrugated pipe of the same size, provided the substitution complies with the applicable sections of the VDOT Road and Bridge Standards PC-1.
- D-10 The proposed riprap may be omitted by the Engineer if the slope designated for placement of riprap is found to be comprised of solid rock or closely consolidated boulders with soundness, size and weight equal to, or exceeding, the specifications for the proposed riprap.
- 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 Standard 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.

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 theoretical maximum density. (See VDOT IIM-LD-158)

INCIDENTALS

- I-6 Certain trees shall be preserved as noted on plans or as directed by the Engineer.
- I-9 When no centerline alignment is shown for a proposed entrance, the entrance shall be constructed in the same location as the existing entrance.
- I-18 All pavement markings and traffic flow arrows shown on the roadway construction plans are schematic only. The actual location and application of pavement markings shall be in accordance with Section 704 of the applicable VDOT Road and Bridge Specifications, MUTCD, sequence of construction/traffic control plans, pavement marking plan sheets 11(1) thru 11(5) and as directed by the Engineer.
- I-19 The following outside sources, under contract with Roanoke County, have provided information on this project.
- | | | |
|------------------|---|------------------------------------|
| Hydraulic Design | — | Whitman, Requardt & Associates LLP |
| Roadway Design | — | Whitman, Requardt & Associates LLP |
| Utility Design | — | Whitman, Requardt & Associates LLP |
| Survey | — | Lumsden Associates, P.C. |
| Traffic Design | — | Whitman, Requardt & Associates LLP |
| Landscape Design | — | Land Planning & Design Associates |
| Lighting Design | — | N/A |

If questions or problems arise during construction, please contact the Roanoke County Project Manager — David Henderson (540.772.2068)DO NOT CONTACT THE OUTSIDE SOURCES

- I-20 The Official Electronic PDF Version of the plans will override the paper copies or prints of specific layers. Portions of this plan assembly have been CADD generated. To assist in the preparation of the bid and construction of the project, AutoCAD format (.dwg) files will be made available to the prime contractor during bids and after award of the contract.
- I-21 All electronic plan assemblies will include the construction plans in two formats: PDF files and AutoCAD format (.dwg) files. Only the PDF files will be considered as part of the official plan assembly.
- I-22 All proposed entrances with grades of 10 percent or greater shall be paved.



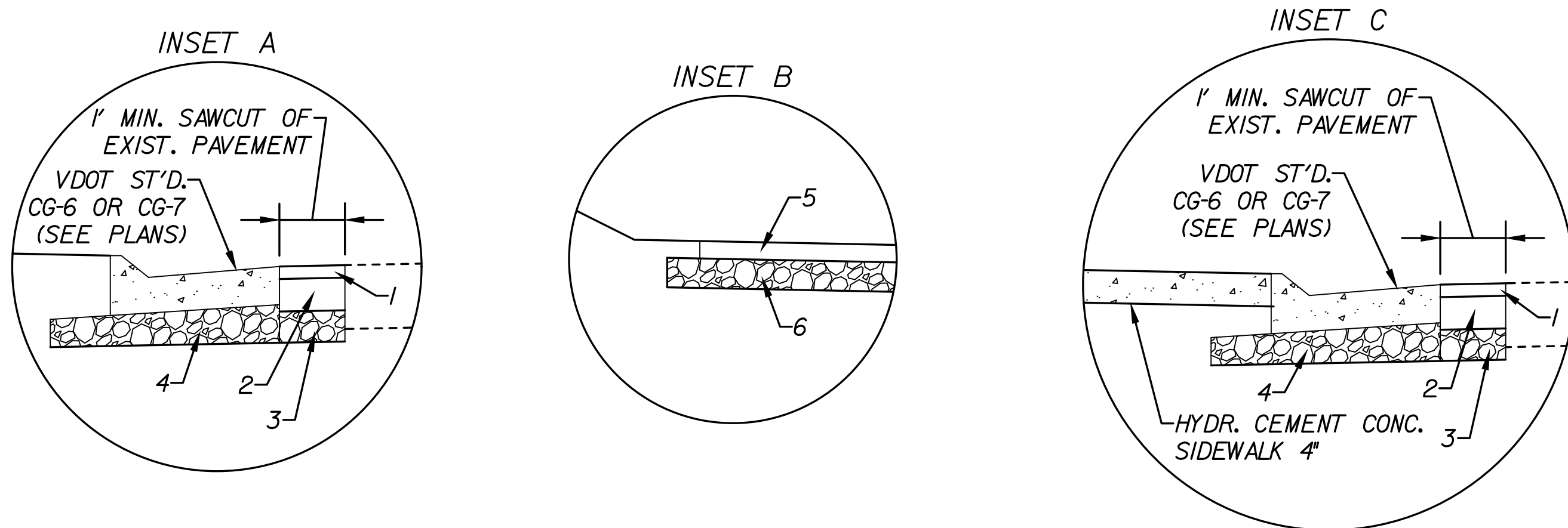
COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

VDOT PROJECT NUMBER:
#SMART18 - PLANTATION RD BIKE/PED/STREETSCAPE PHASE II
STATE PROJECT NO: 0115-080-911, P101, R201, C501
VDOT UPC NUMBER: 111366

PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing
GENERAL NOTES SHEET

Sheet
2

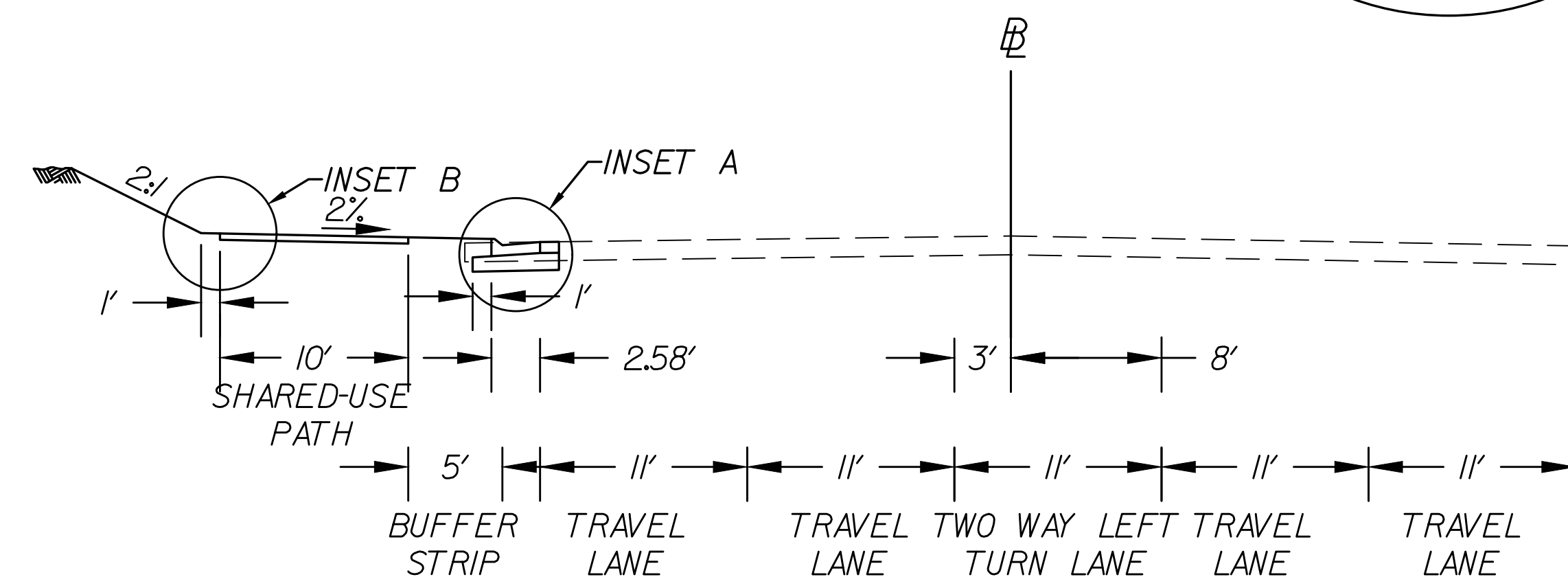


- 1 SURFACE - ASPHALT CONCRETE, TYPE SM-9.5A AT 175 LB/SY
- 2 BASE - 8" ASPHALT CONCRETE, TYPE BM-25.0A
- 3 SUBBASE - 6" AGGREGATE BASE MATERIAL, TYPE I, SIZE NO. 21B
- 4 SUBBASE - AGGREGATE BASE MATERIAL, TYPE I, SIZE NO. 21B (VARIABLE THICKNESS - PER STANDARDS)
- 5 SURFACE - ASPHALT CONCRETE, TYPE SM-9.5A AT 235 LB/SY
- 6 SUBBASE - 6" AGGREGATE BASE MATERIAL, TYPE I, SIZE NO. 21B

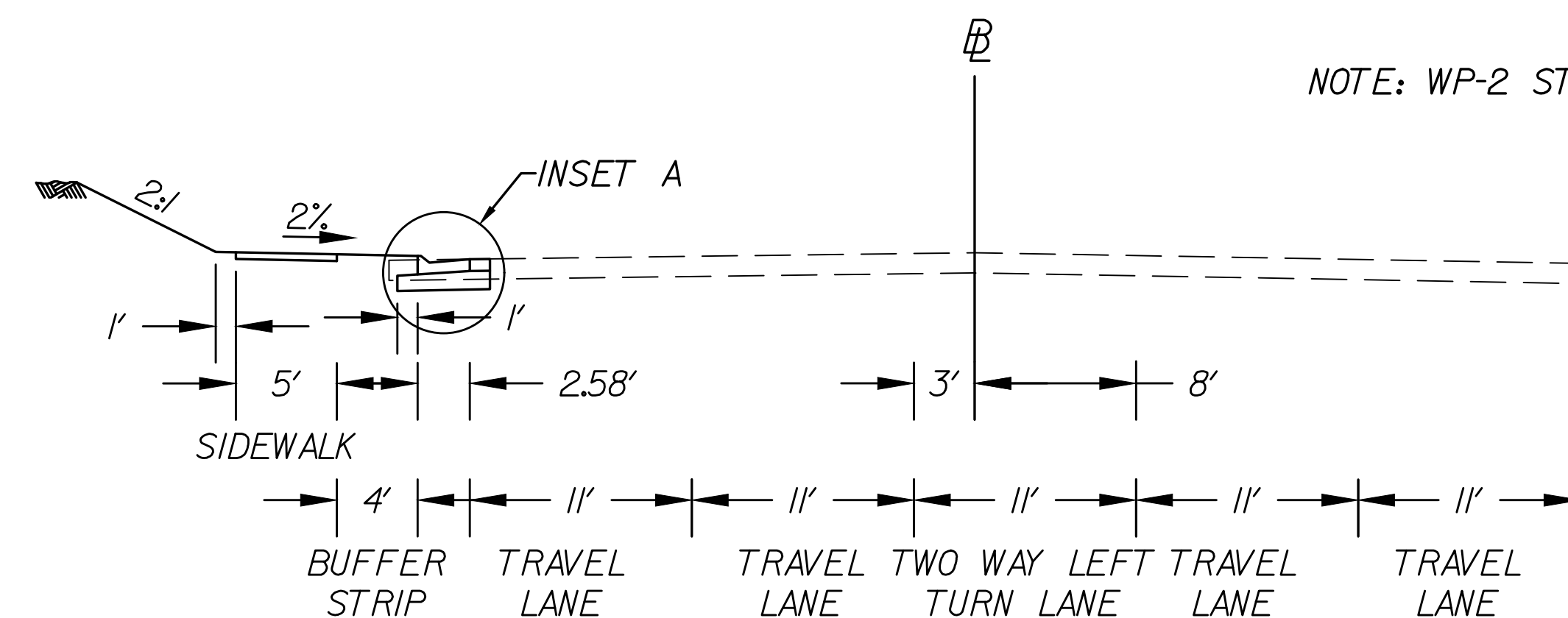
PRIVATE AND COMMERCIAL ENTRANCES

TYPE IV
ASPHALT COMMERCIAL
ASPHALT CONC. TYPE SM-9.5D @ 175 LB/SY
4" ASPHALT CONC. BASE COURSE BM-25.0A
6" AGGR. BASE MAT'L TY. I NO. 21B

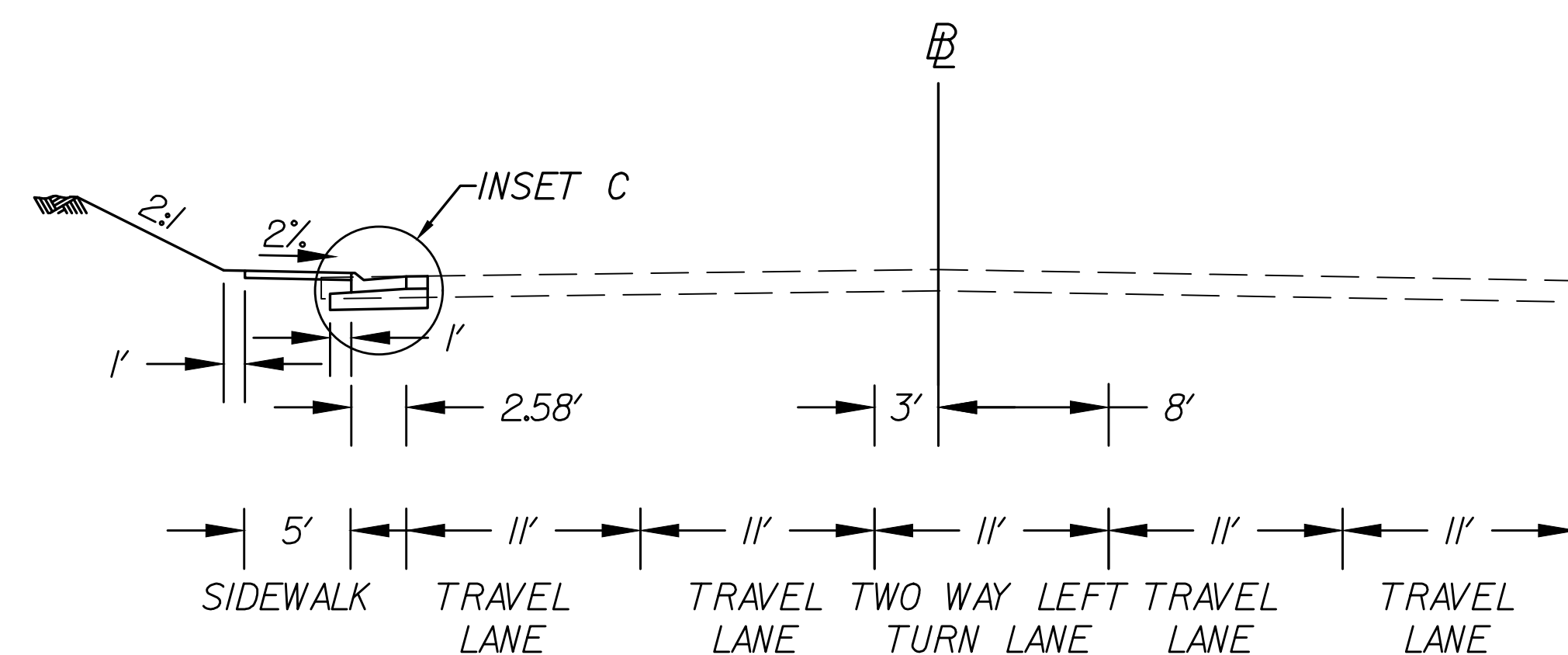
NTS



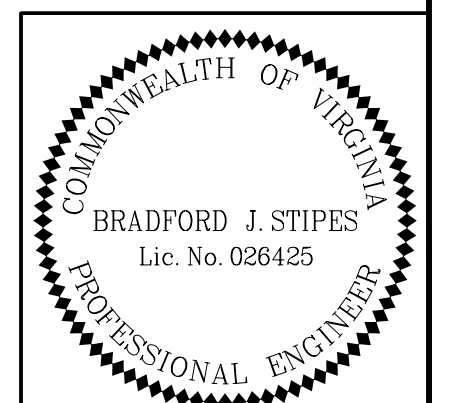
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(STATIONS 154+23.07 TO 155+25.23)
NTS



PLANTATION ROAD
(STATIONS 156+36.30 TO 157+67.27
AND 158+18.91 TO 161+51.56)
NTS



PLANTATION ROAD
(STATIONS 162+06.07 TO 164+83.46)
NTS



Whitman Requardt & Associates
Blacksburg, Virginia
ROADWAY ENGINEER



COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

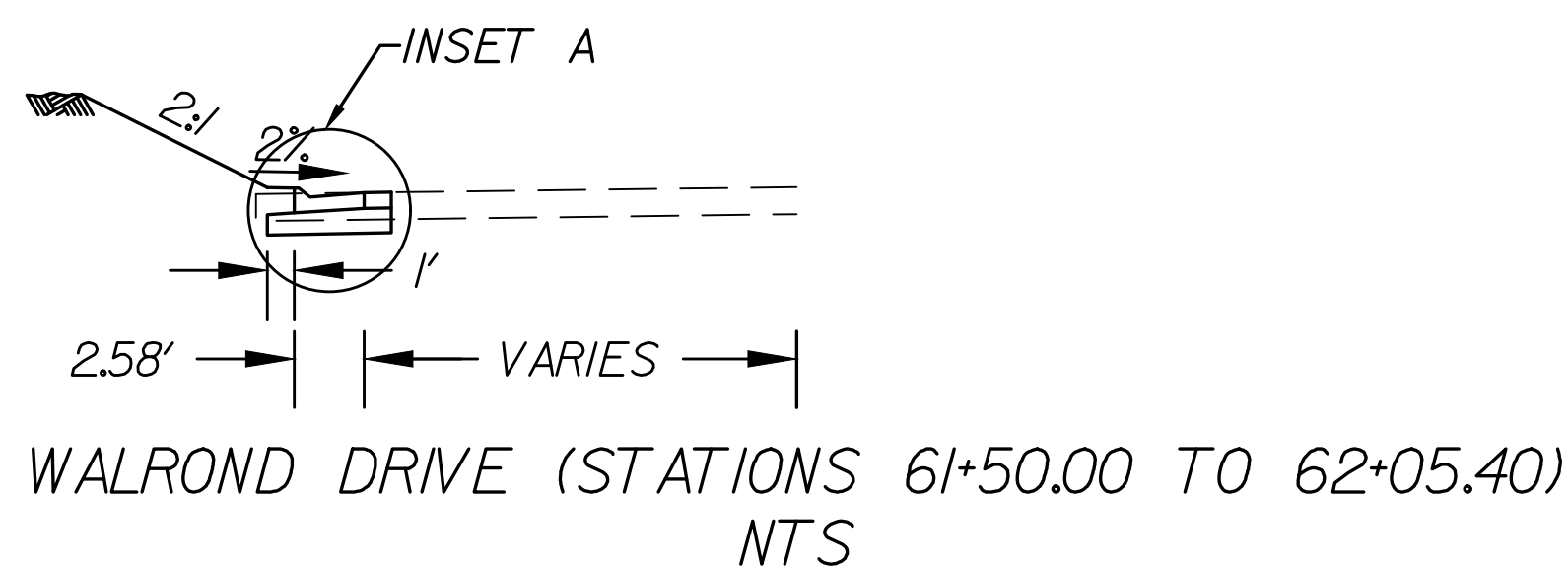
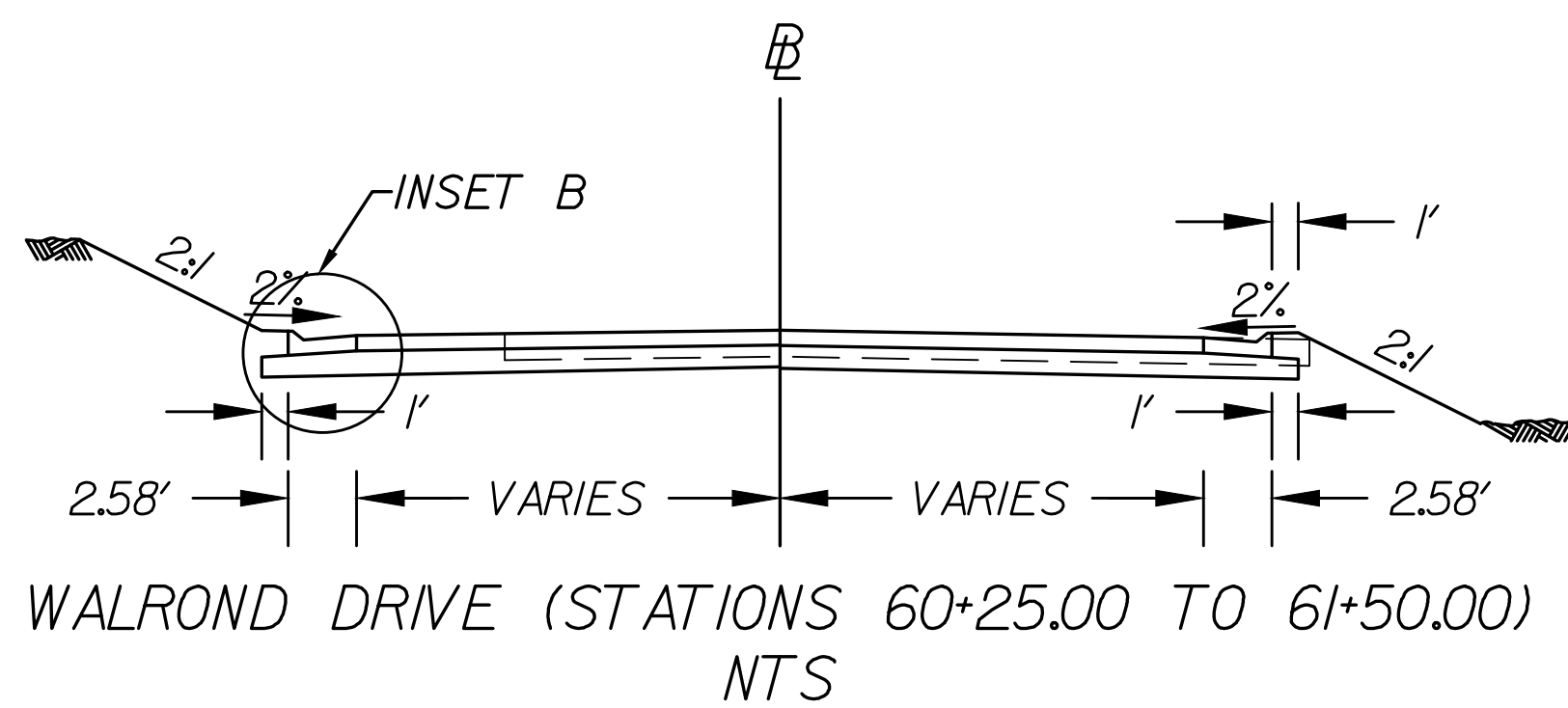
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PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

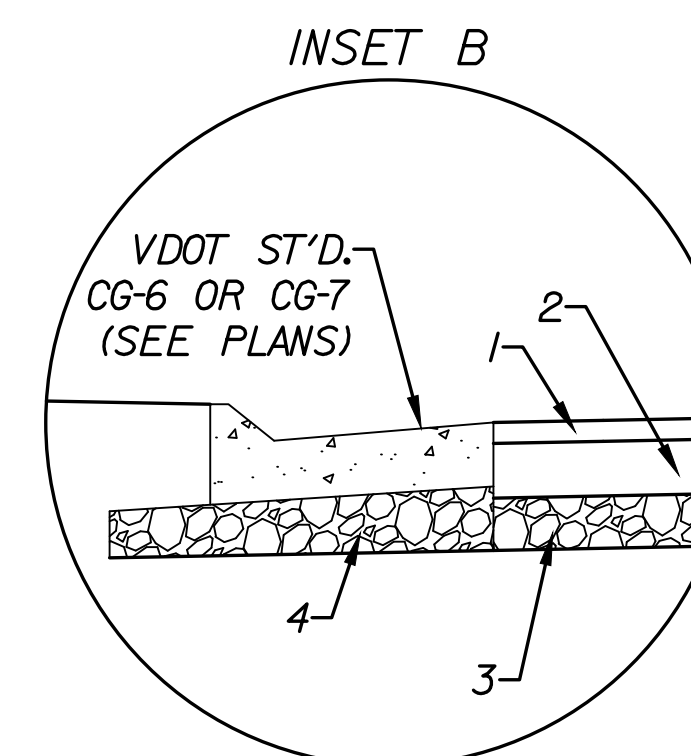
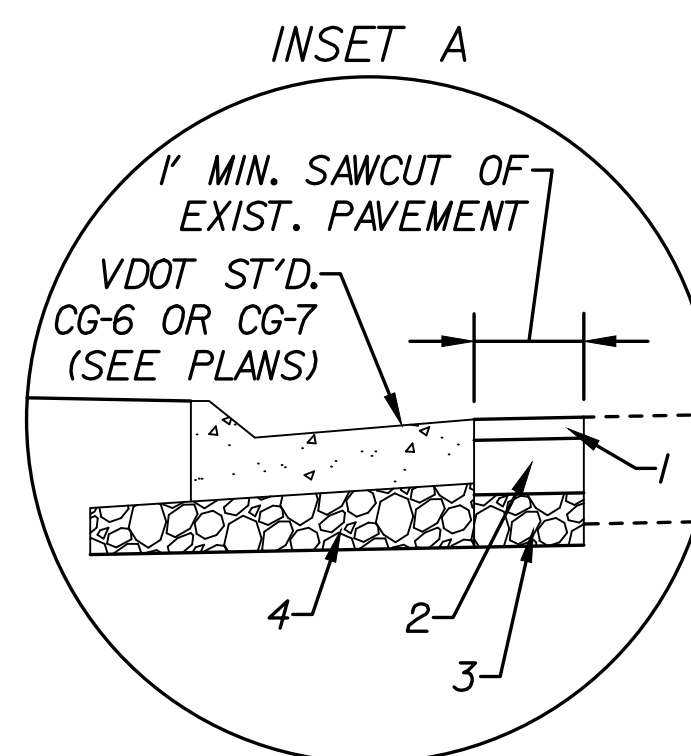
Drawing
TYPICAL SECTION SHEET

Sheet
2A(1)

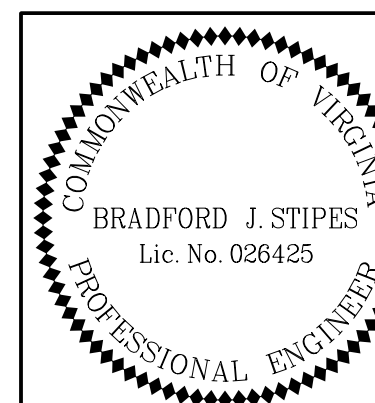
Rev	Date	Description



- 1 SURFACE - ASPHALT CONCRETE, TYPE SM-9.5A AT 175 LB/SY
- 2 BASE - 8" ASPHALT CONCRETE, TYPE BM-25.0A
- 3 SUBBASE - 6" AGGREGATE BASE MATERIAL, TYPE 1, SIZE NO. 21B
- 4 SUBBASE - AGGREGATE BASE MATERIAL, TYPE 1, SIZE NO. 21B (VARIABLE THICKNESS - PER STANDARDS)



NOTE: WP-2 STANDARD SHALL BE USED.



Whitman Requardt & Associates
Blacksburg, Virginia
ROADWAY ENGINEER



COUNTY OF ROANOKE
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PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
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Drawing
TYPICAL SECTION SHEET

Sheet
2A(2)

Rev	Date	Description

TABLE 3.31-B
(Revised June 2003)
TEMPORARY SEEDING SPECIFICATIONS
QUICK REFERENCE FOR ALL REGIONS

SEED		
APPLICATION DATES	SPECIES	APPLICATION RATES
Sept. 1 - Feb. 15	50/50 Mix of Annual Ryegrass (lolium multi-florum) & Cereal (Winter) Rye (Secale cereale)	50 - 100 (lbs/acre)
Feb. 16 - Apr. 30	Annual Ryegrass (lolium multi-florum)	60 - 100 (lbs/acre)
May 1 - Aug. 31	German Millet	50 (lbs/acre)

FERTILIZER & LIME

- Apply 10-10-10 **fertilizer** at a rate of 450 lbs. / acre (or 10 lbs. / 1,000 sq. ft.)
- Apply **Pulverized Agricultural Limestone** at a rate of 2 tons/acre (or 90 lbs. / 1,000 sq. ft.)

NOTE:

1 - A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site.
2 - Incorporate the lime and fertilizer into the top 4 – 6 inches of the soil by disking or by other means.
3 - When applying Slowly Available Nitrogen, use rates available in [Erosion & Sediment Control Technical Bulletin # 4, 2003 Nutrient Management for Development Sites](#) at <http://www.dcr.state.va.us/sw/e&s.htm#pubs>

TABLE 3.32-C
(Revised June 2003)
PERMANENT SEEDING SPECIFICATIONS FOR APPALACHIAN/MOUNTAIN AREA

SEED ¹		
LAND USE	SPECIES	APPLICATION RATES
<u>Minimum Care Lawn</u> (Commercial or Residential)	Tall Fescue ¹	90-100%
	Perennial Ryegrass ²	0-10%
	Kentucky Bluegrass ¹	0-10%
	TOTAL: 200-250 lbs.	
<u>High-Maintenance Lawn</u>	Minimum of three (3) up to five (5) varieties of Kentucky Bluegrass from approved list for use in Virginia ¹	TOTAL: 125 lbs.
<u>General Slope (3:1 or less)</u>	Tall Fescue ¹	128 lbs.
	Red Top Grass or Creeping Red Fescue	2 lbs.
	Seasonal Nurse Crop ³	20 lbs.
	TOTAL: 150 lbs.	
<u>Low-Maintenance Slope</u> (Steeper than 3:1)	Tall Fescue ¹	108 lbs.
	Red Top Grass or Creeping Red Fescue	2 lbs.
	Seasonal Nurse Crop ³	20 lbs.
	Crownvetch ⁴	20 lbs.
		TOTAL: 150 lbs.

1 - When selecting varieties of turfgrass, use the Virginia Crop Improvement Association (VCIA) recommended turfgrass variety list. Quality seed will bear a label indicating that they are approved by VCIA. A current turfgrass variety list is available at the local County Extension office or through VCIA at 804-746-4884 or at <http://sudan.cses.vt.edu/html/Turf/turf/publications/publications2.html>
2 - Perennial Ryegrass will germinate faster and at lower soil temperatures than Tall Fescues, thereby providing cover and erosion resistance for seedbed.
3 - Use seasonal nurse crop in accordance with seeding dates as stated below:
March, April - May 15th Annual Rye
May 16th - August 15th Foxtail Millet
August 16th - September, October Annual Rye
November - February Winter Rye
4 - All legume seed must be properly inoculated. If Flatpea is used, increase to 30 lbs/acre. If Weeping Lovegrass is used, include in any slope or low maintenance mixture during warmer seeding periods, increase to 30 -40 lbs/acre.

FERTILIZER & LIME

- Apply 10-20-10 **fertilizer** at a rate of 500 lbs. / acre (or 12 lbs. / 1,000 sq. ft.)
- Apply **Pulverized Agricultural Limestone** at a rate of 2 tons/acre (or 90 lbs. / 1,000 sq. ft.)

NOTE:

- A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site.
- Incorporate the lime and fertilizer into the top 4 – 6 inches of the soil by disking or by other means.
- When applying Slowly Available Nitrogen, use rates available in [Erosion & Sediment Control Technical Bulletin # 4, 2003 Nutrient Management for Development Sites](#) at <http://www.dcr.state.va.us/sw/e&s.htm#pubs>

NOTE: REFER TO EROSION & SEDIMENT CONTROL VA. DEQ
TECHNICAL BULLETIN #4, "NUTRIENT MANAGEMENT FOR
DEVELOPMENT SITES" FOR ADDITIONAL SPECIFICATIONS.



COUNTY OF ROANOKE
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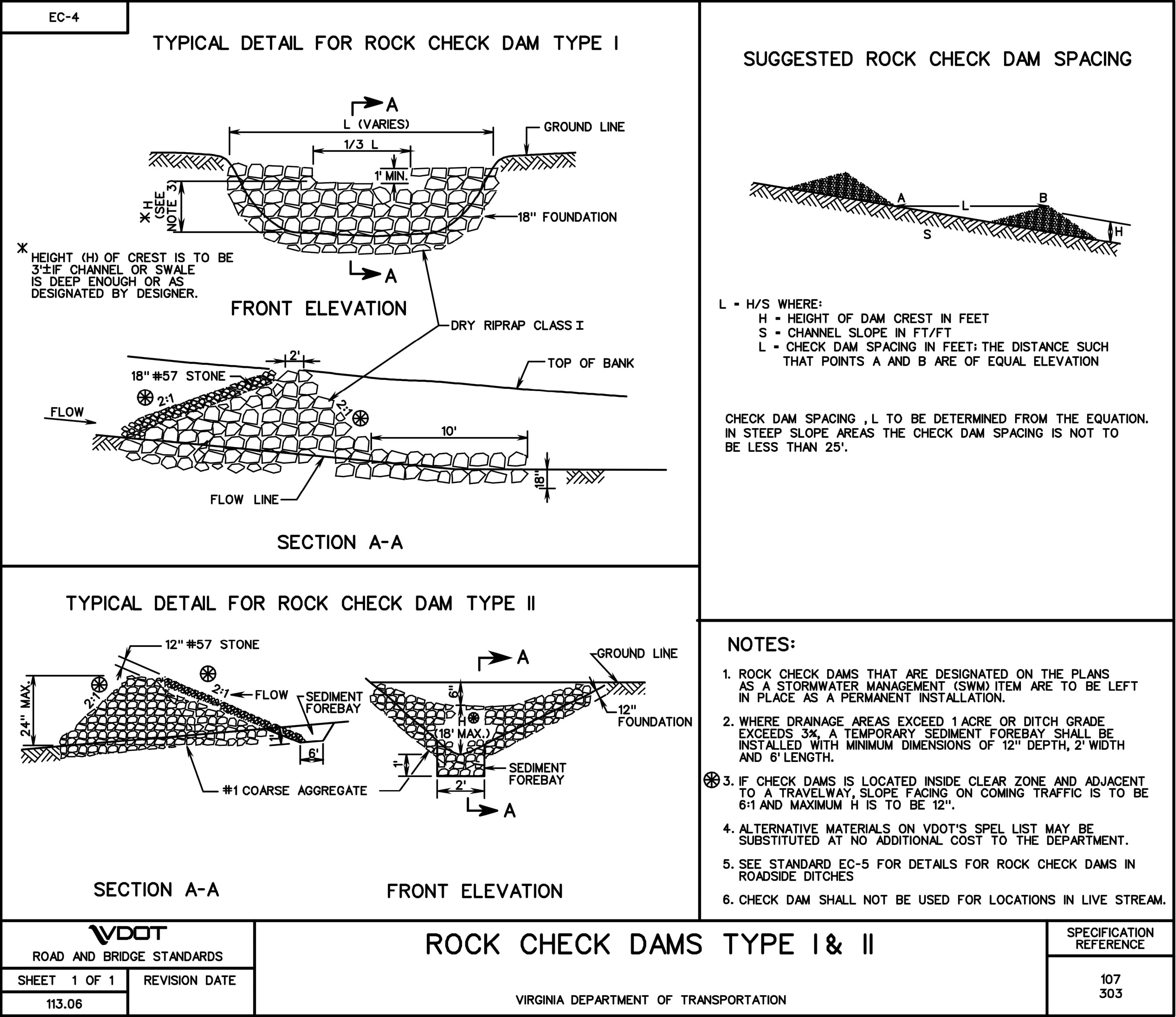
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STATE PROJECT NO: 0115-080-911, P101, R201, C501
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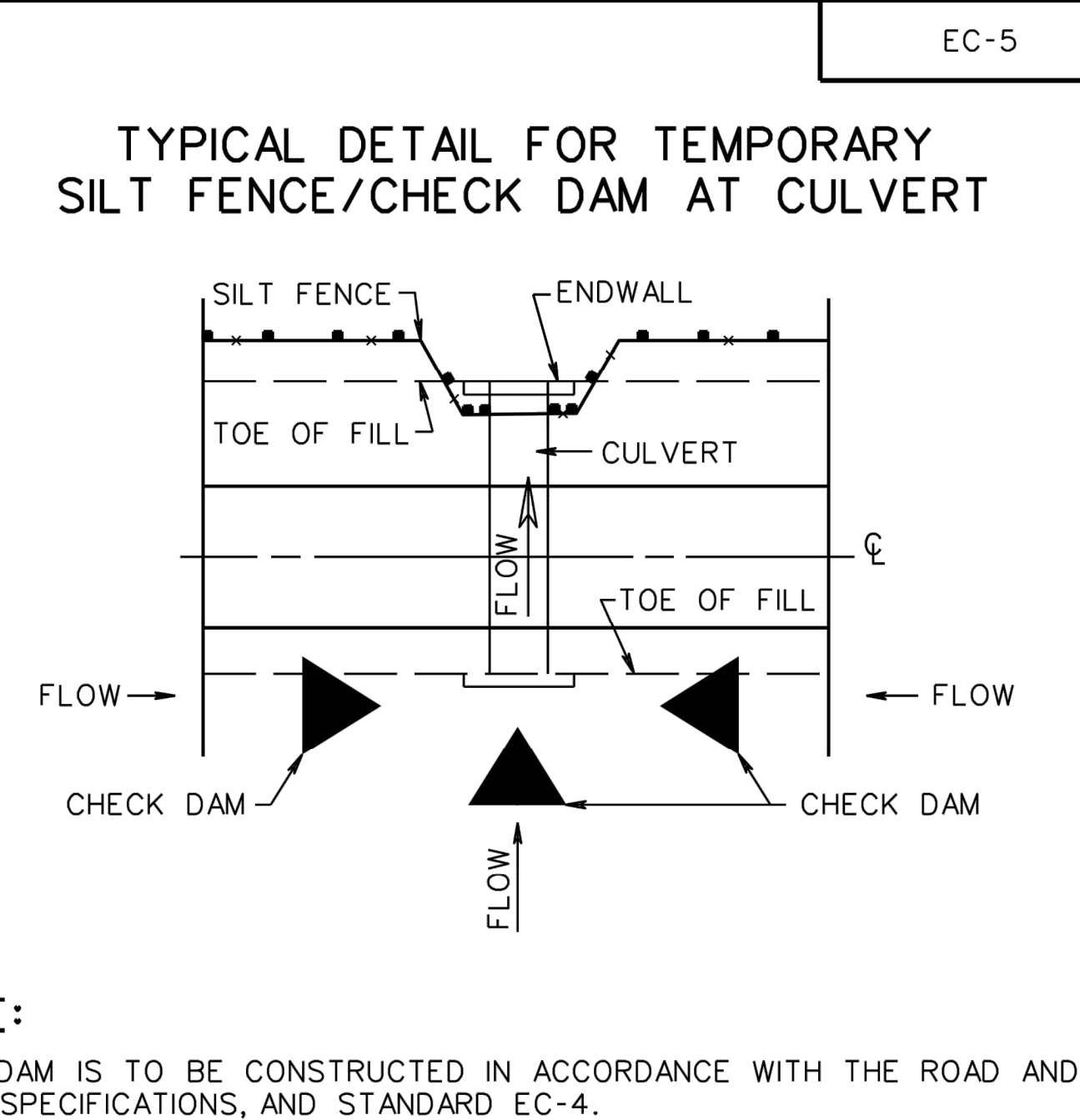
PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Revision History		
Rev	Date	Description


Drawing
**SEEDING
DETAIL SHEET**

Sheet
2B(1)





- ### NOTES FOR SILT FENCE TYPE A & B:
1. USE OF TYPE A SILT FENCE IS LIMITED TO A FILL HEIGHT OF 20 FEET OR LESS.
TYPE B SILT FENCE MUST BE USED WHERE THE FILL HEIGHT EXCEEDS 20 FEET.
 2. ALL POSTS SHALL BE DRIVEN 24" MIN. INTO THE GROUND AND SHALL EXTEND 6" ABOVE THE FILTER FABRIC (TYPE A) OR WIRE FENCE (TYPE B).
WOODEN POSTS SHALL BE OAK AND HAVE MIN. DIMENSIONS OF 2" BY 2". STEEL POSTS SHALL HAVE A MINIMUM WEIGHT OF 1.33 POUNDS PER LINEAR FOOT.
 3. GEOTEXTILE FABRIC SHALL BE EMBEDDED 12" INTO THE GROUND (6" VERTICALLY AND 6" HORIZONTALLY ALONG THE BOTTOM OF TRENCH) AS SHOWN IN DETAILS A(2) & B(2) ON SHEETS 2 AND 3.
 4. SLICING IS AN APPROVED ALTERNATIVE TO TRENCHING FOR ANCHORING THE GEOTEXTILE FABRIC INTO THE GROUND SHOWN IN DETAILS A(2) & B(2) ON SHEETS 2 AND 3. SLICING SHALL BE ACCOMPLISHED IN ACCORDANCE WITH SECTION 303 OF THE ROAD AND BRIDGE SPECIFICATIONS.
 5. WHEN TWO SEPARATE SECTIONS OF GEOTEXTILE FABRIC ADJOIN EACH OTHER, THEY SHALL OVERLAP BY 6" AND BE DOUBLE FOLDED.
 6. GEOTEXTILE FABRIC SHALL BE FASTENED SECURELY TO THE POSTS (TYPE A & B) AND WIRE FENCE (TYPE B ONLY). THE ATTACHMENTS TO THE WIRE FENCE SHALL BE MADE WITH TIES SPACED EVERY 24" HORIZONTALLY AT BOTH THE TOP AND VERTICAL MIDPOINT OF THE GEOTEXTILE FABRIC.
 7. WIRE FENCE (TYPE B ONLY) SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES AND EMBEDDED A MINIMUM OF 2" IN THE GROUND.
 8. WIRE FENCE (TYPE B ONLY) SHALL BE A MINIMUM OF 14 GAUGE WELDED WIRE WITH A MESH SPACING OF 2" BY 4". ALTERNATIVE MESH SPACING MAY BE APPROVED BY THE ENGINEER, BUT MUST BE NO MORE THAN 6" BY 6".
 9. FOR AREAS REQUIRING TYPE B SILT FENCE, A MINIMUM LENGTH OF 100 LINEAR FEET SHALL BE INSTALLED.
 10. AS AN ALTERNATIVE TO UTILIZING TYPE B SILT FENCE, TWO ROWS OF TYPE A SILT FENCE MAY BE PLACED PARALLEL TO EACH OTHER WITH 3' TO 5' BETWEEN THE TWO ROWS. THIS OPTION MAY BE USED AT ALL LOCATIONS SPECIFYING TYPE B SILT FENCE UNLESS OTHERWISE PROHIBITED BY THE PLANS. SEE DETAIL ON SHEET 3 (BOTTOM RIGHT).
 11. MATERIALS FOR ALL SILT FENCE SHALL CONFORM TO THE REQUIREMENTS OF SECTION 242 OF THE VDOT ROAD & BRIDGE SPECIFICATIONS.

SPECIFICATION REFERENCE	A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE. TEMPORARY SILT BARRIERS SILT FENCE (TYPE A & B) AND BRUSH BARRIER VIRGINIA DEPARTMENT OF TRANSPORTATION	 ROAD AND BRIDGE STANDARDS	
		REVISION DATE	SHEET 1 OF 4
		08/14	113.07



COUNTY OF ROANOKE
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PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

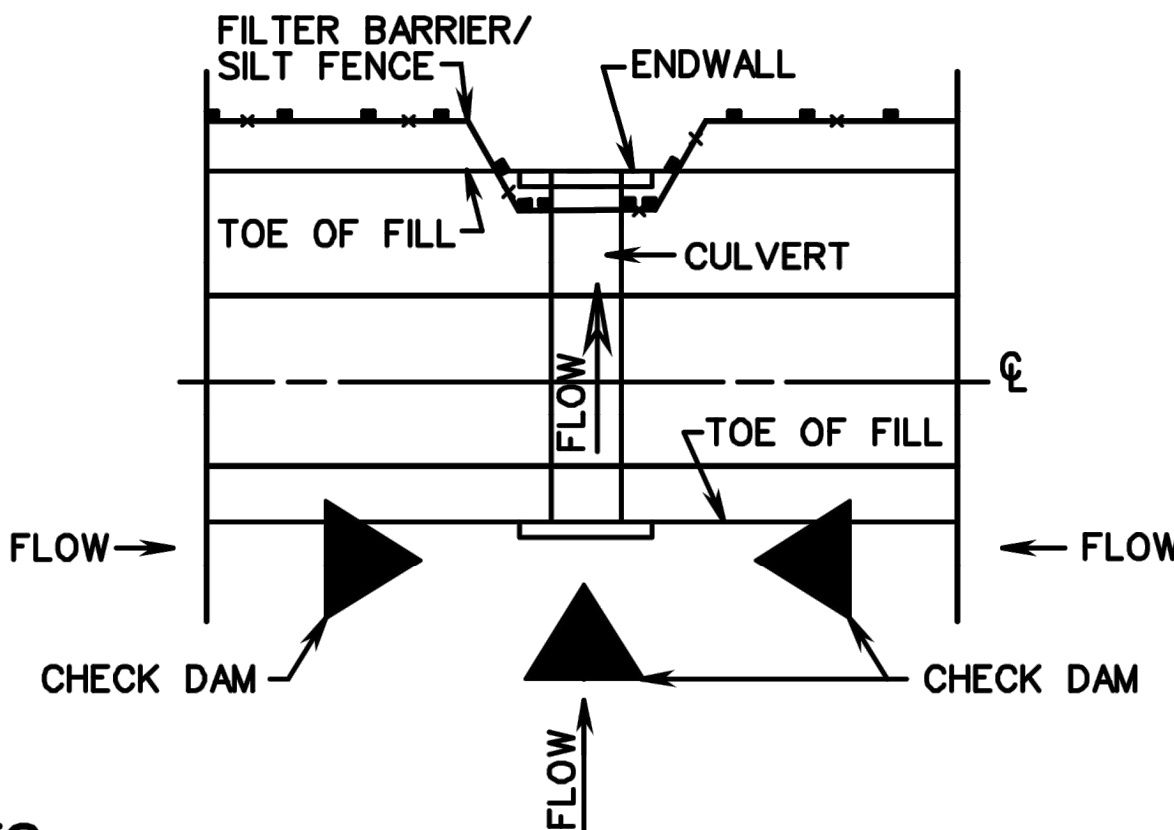
Drawing TEMP. SILT BARRIER DETAIL SHEET

Sheet
2B(3)

Rev	Date	Description

EC-6

TYPICAL DETAIL FOR INSTALLATION OF TEMPORARY FILTER
BARRIER/SILT FENCE/CHECK DAM AT CULVERT



NOTES:

1. IF ANY PORTION OF FILL IS GREATER THAN 5', SILT FENCE IS REQUIRED.
IF FILL HEIGHT IS LESS THAN 5', FILTER BARRIER IS REQUIRED.
2. ROCK CHECK DAM IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE
ROAD AND BRIDGE SPECIFICATIONS, AND STANDARD EC-4.
3. FILTER BARRIER/SILT FENCE IS TO BE INSTALLED IN ACCORDANCE WITH
THE ROAD AND BRIDGE SPECIFICATIONS, AND STANDARD EC-5.

* INSTALLATION DETAIL ONLY - ROCK CHECK DAMS, FILTER BARRIER, AND SILT FENCE
TO BE PAID FOR IN ACCORDANCE WITH THE ROAD AND BRIDGE SPECIFICATIONS.



ROAD AND BRIDGE STANDARDS

SHEET 2 OF 2

113.10

REVISION DATE

INLET PROTECTION
(TYPE C)

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION
REFERENCE

107
242
303



COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

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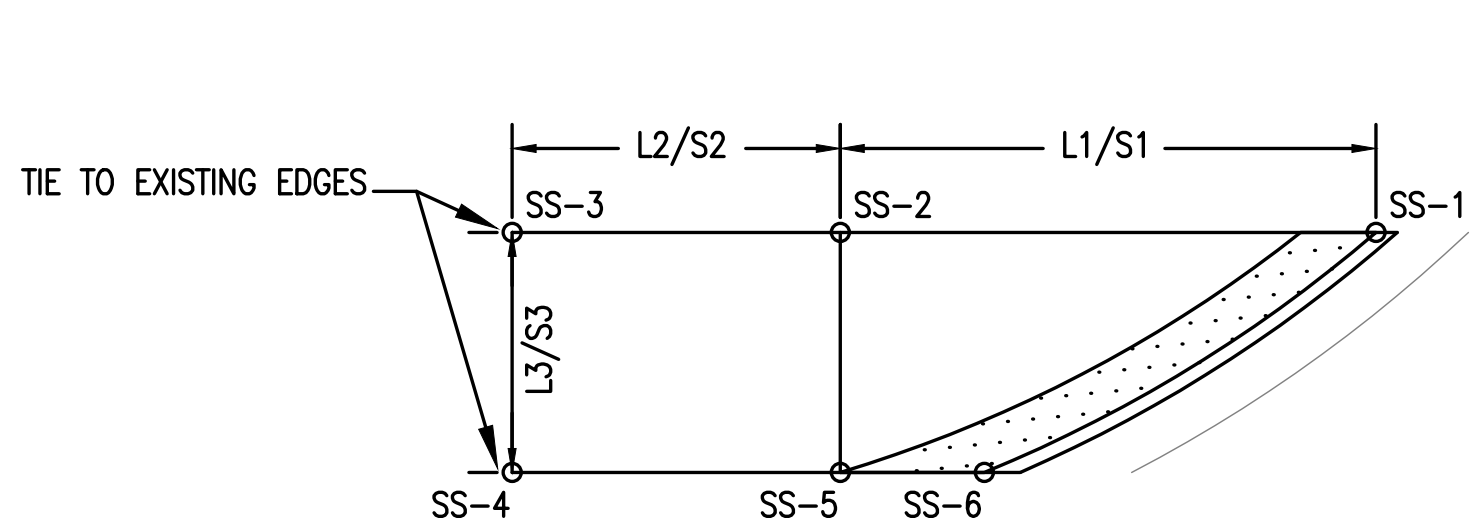
PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing
INLET PROTECTION
DETAIL SHEET

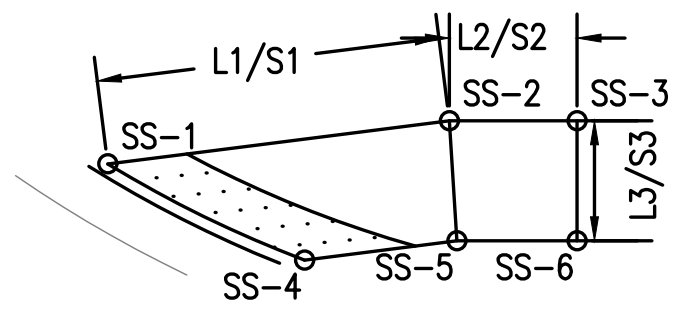
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Rev	Date	Description

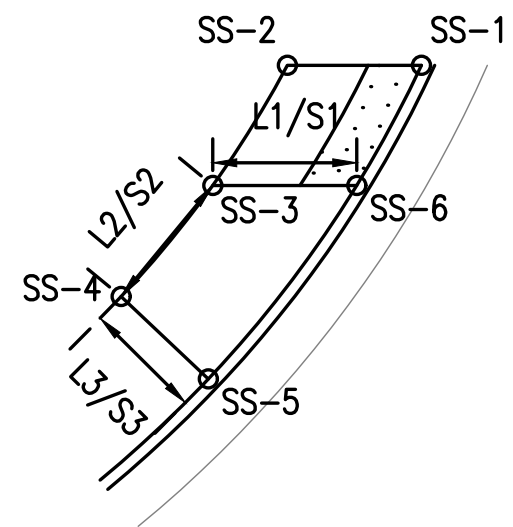
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2-1	TYPE B	22.3	25	10	2.06%	12.4%	1.7%	1122.93'	1123.39'	1126.50'	1126.33'	1124.00'	1123.88'	N/A	N/A
2-2	TYPE B	17.9	6	5	0.5%	3.5%	2%	1119.02'	1119.11'	1118.90'	1118.71'	1118.85'	1118.80'	N/A	N/A
2-3	TYPE B	13	7	5	2.08%	7.4%	2%	1115.64'	1115.91'	1116.43'	1116.33'	1115.81'	1115.71'	N/A	N/A
2-4	TYPE B	14.3	5.3	5	0.5%	2.6%	2%	1115.18'	1115.25'	1115.11'	1114.76'	1114.89'	1115.01'	N/A	N/A
2-5	TYPE B	9.5	5	5	1.6%	6.6%	2%	1113.76'	1113.91'	1114.24'	1114.14'	1113.81'	1113.69'	N/A	N/A
2-6	TYPE B	14.8	5	5	0.5%	2.8%	2%	1114.07'	1114.14'	1114.28'	1113.88'	1114.18'	N/A	N/A	N/A
2-7	TYPE B	6	5	6	4%	2%	4.2%	1115.89'	1115.65'	1115.68'	1115.93'	1115.79'	1115.55'	1115.58'	1115.83'
2-8	TYPE B	6	6	5	2.08%	0.5%	2%	1116.17'	1116.29'	1116.19'	1116.22'	1116.12'	1116.06'	N/A	N/A
2-9	TYPE B	13.6	5	5	0.6%	1.8%	2%	1116.81'	1116.89'	1116.98'	1116.68'	1116.79'	1116.88'	N/A	N/A
2-10	TYPE B	8.9	6.5	5	2%	1.1%	2%	1114.20'	1114.25'	1114.35'	1114.42'	1114.32'	1114.26'	N/A	N/A



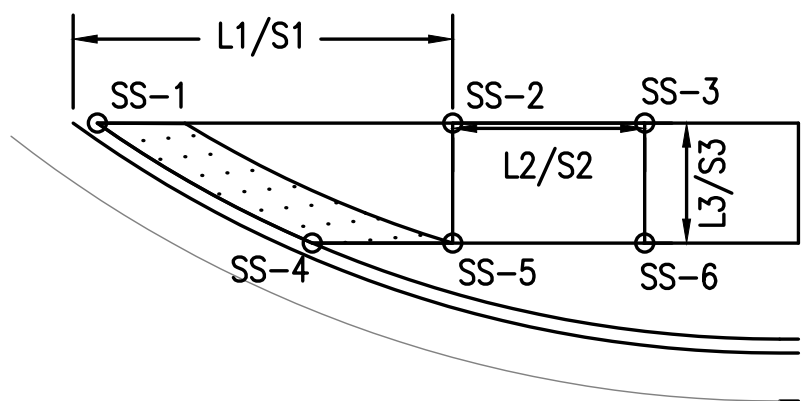
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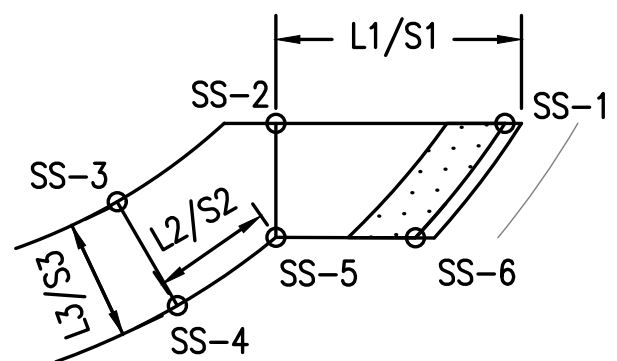
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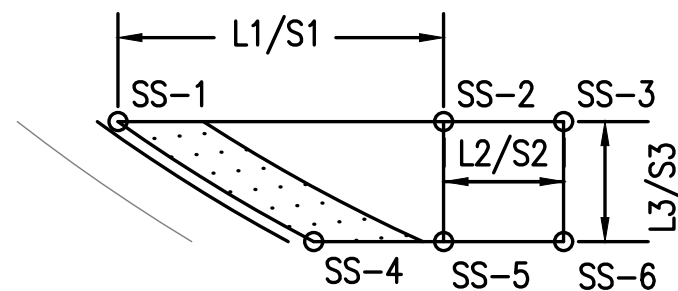
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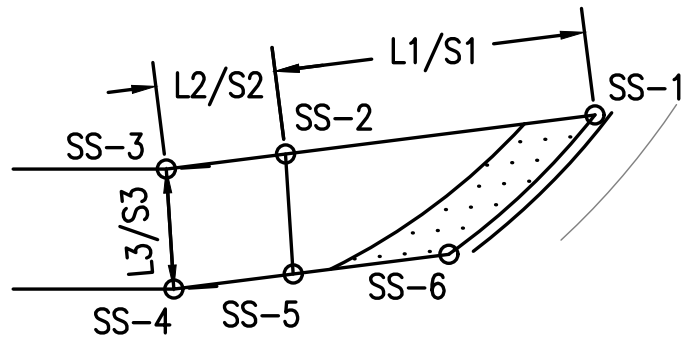
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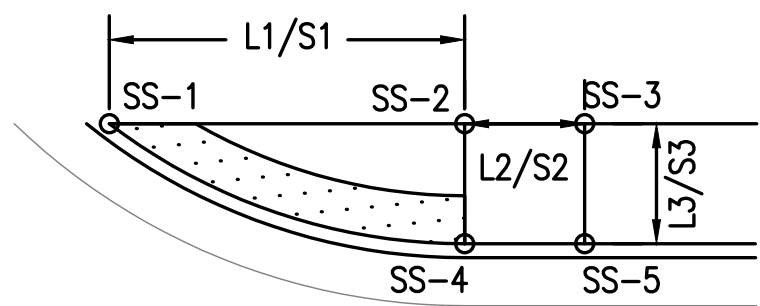
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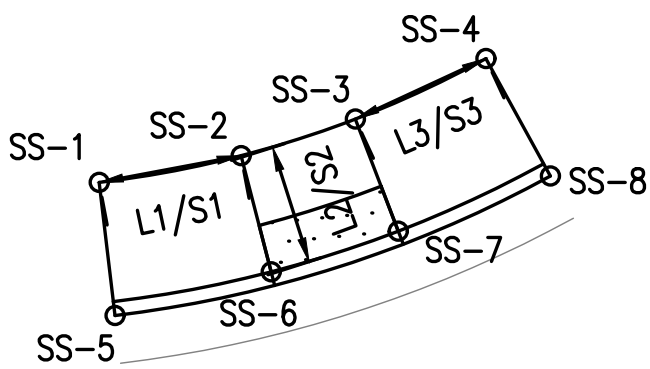
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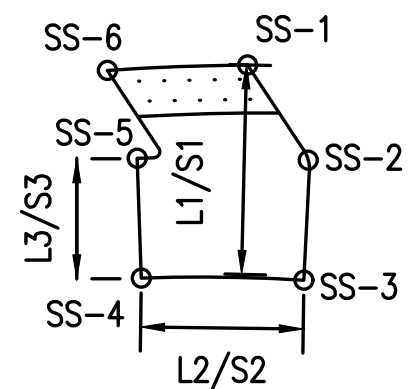
CURB RAMP
2-3



CURB RAMP
2-6



CURB RAMP
2-7



CURB RAMP
2-10

CURB RAMP	STATION
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2-2	156+50.00
2-3	157+50.00
2-4	158+25.00
2-5	161+50.00
2-6	162+25.00
2-7	164+50.00
2-8	164+75.00
2-9	165+35.00
2-10	164+55.00



COUNTY OF ROANOKE
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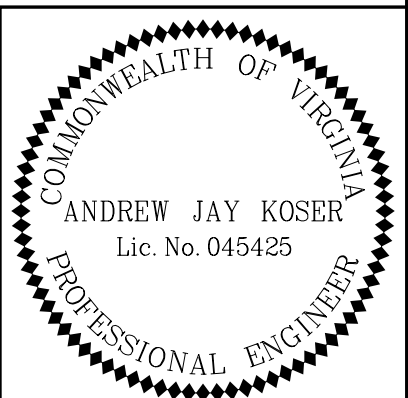
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STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

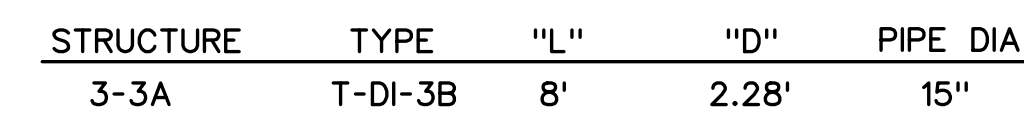
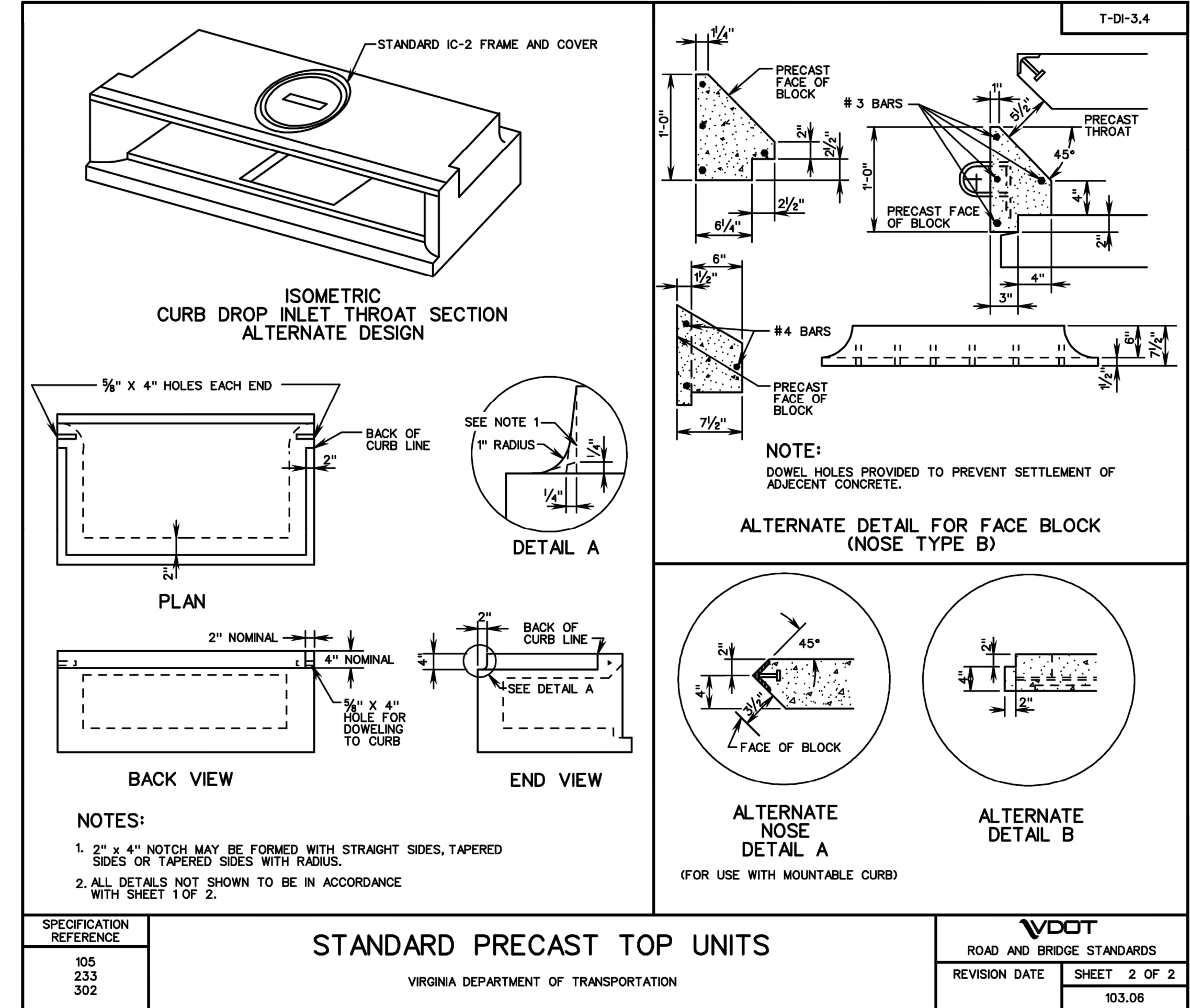
CURB RAMP DETAILS

Sheet
2B(6)

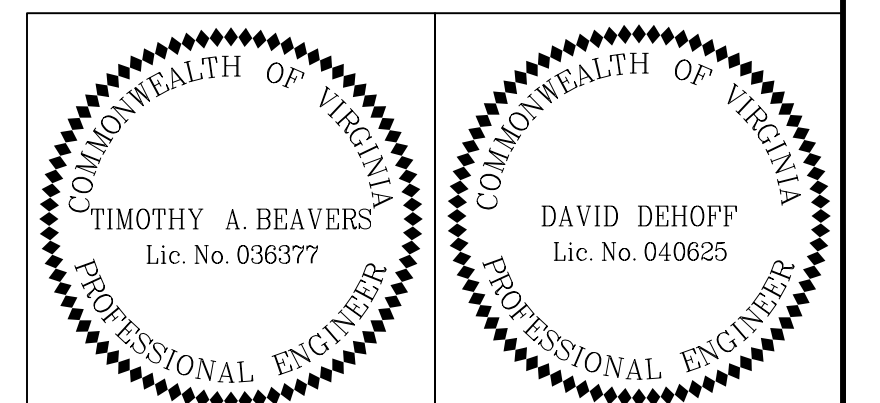
Rev	Date	Description



Whitman Requardt & Associates
Blacksburg, Virginia
ROADWAY ENGINEER



NOTE: CONTRACTOR HAS THE OPTION TO UTILIZE EITHER
PRECAST OR CAST IN PLACE STRUCTURES AS NEEDED.

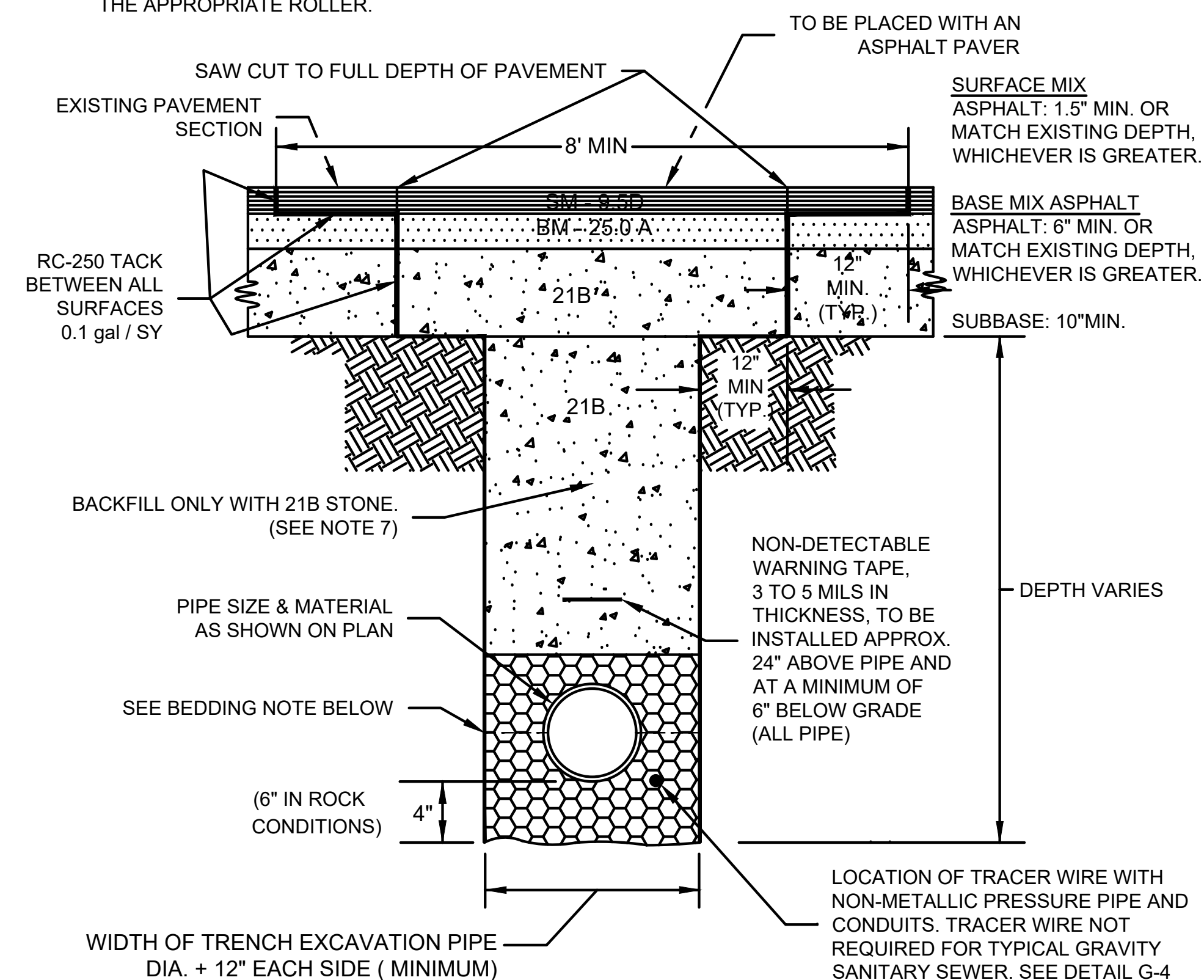


Whitman Requardt & Associates Blacksburg, Virginia STRUCTURAL ENGINEER	Whitman Requardt & Associates Blacksburg, Virginia HYDRAULICS ENGINEER
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		STRUCTURAL ENGINEER	HYDRAULICS ENGINEER
Rev	Date	Description	

FOR THE BELOW DETAIL, IN ALL CASES REFERENCED TO "VDOT" SHALL BE CONSIDERED TO BE ROANOKE COUNTY OR ITS DESIGNATED AGENT.

1. THIS DETAIL APPLIES TO WATER, SEWER, ELECTRIC, BROADBAND, AND STORM SEWER.
2. BEDDING, HAUNCHING AND INITIAL BACKFILL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THIS DETAIL AND MANUFACTURER'S RECOMMENDATION.
3. ALL PVC PIPE SHALL BE BEDDED IN VDOT #57 OR #68 STONE.
4. IN VDOT ROW, THE CONTRACTOR SHALL REPLACE THE PAVEMENT AS REQUIRED AND SPECIFIED BY VDOT.
5. ALL CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE AS SPECIFIED BY VDOT.
6. PRIOR TO CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR SECURING ALL REQUIRED PERMITS FROM VDOT.
7. BEDDING STONE AND FILL SHALL BE PLACED IN 6" LIFTS AND SHALL BE COMPACTED TO AT LEAST 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D 698.
8. ALL SEWER LINE PIPE SHALL BE BEDDED IN COMPACTED GRANULAR MATERIAL. BEDDING REQUIREMENTS FOR DUCTILE SEWER LINE ARE DEPENDENT ON MANUFACTURER'S BEDDING CRITERIA.
9. BENCH CUTS SHALL BE 12" MINIMUM.
10. ALL EXCAVATIONS SHALL COMPLY WITH OSHA TECHNICAL MANUAL, CHAPTER 2, TITLED "EXCAVATIONS: HAZARD RECOGNITION IN TRENCHING AND SHORING."
11. THE TRACER WIRE SHALL BE PLACED ALONG THE LOWER QUADRANT OF THE PIPE. THE WIRE SHALL NOT TOUCH THE PIPE, BUT SHALL BE A MAXIMUM OF 6" FROM THE PIPE. NON-METALLIC SPACERS MAY BE USED TO MAINTAIN A SET DISTANCE FROM THE UTILITY.
12. INSPECTOR TO BE ONSITE DURING ALL UTILITY INSTALLATIONS.
13. WHERE INTERMEDIATE COURSES (IM) EXIST IN THE FIELD, THEY SHALL BE REPLACED WITH THE SAME DEPTH AND SHALL BE PLACED UNDER THE FULL WIDTH OF THE NEW SURFACE COURSE.
14. THE BASE ASPHALT SHALL BE PLACED AT SUCH A WIDTH AS TO ALLOW THE BASE ASPHALT TO BE COMPACTED WITH THE APPROPRIATE ROLLER.



BEDDING: FOR WATERLINES, INSTALL BEDDING STONE TO SPRING LINE OF PIPE AT A MINIMUM, OR PER MANUFACTURER'S RECOMMENDATION. FOR SANITARY SEWER, BEDDING SHALL BE MINIMUM 6" ABOVE PIPE. FOR BROADBAND AND ELECTRIC INSTALLED IN OPEN TRENCH, CONDUIT SHALL BE BEDDED WITH A MINIMUM OF 3 INCHES OF NO 25 OR 26 CRUSHER RUN STONE ON ALL SIDES OF CONDUIT. FOR STORM SEWER, BEDDING AND INSTALLATION SHALL MEET THE MINIMUM REQUIREMENTS OF THE VDOT STANDARD, DETAIL PB-1.

PLANTATION ROAD - CONSTRUCTION DETAIL

BEDDING AND BACKFILL AND PAVEMENT REPAIR

G-12

Whitman, Requardt & Associates, LLP
1700 Kraft Drive, Suite 1200, Blacksburg, Virginia 24060

COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

VDOT PROJECT NUMBER:
#SMART18 - PLANTATION RD BIKE/PED/STREETSCAPE PHASE II
STATE PROJECT NO: 0115-080-911, P101, R201, C501

VDOT UPC NUMBER: 111366

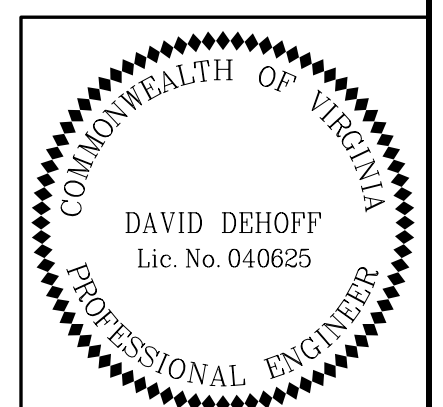
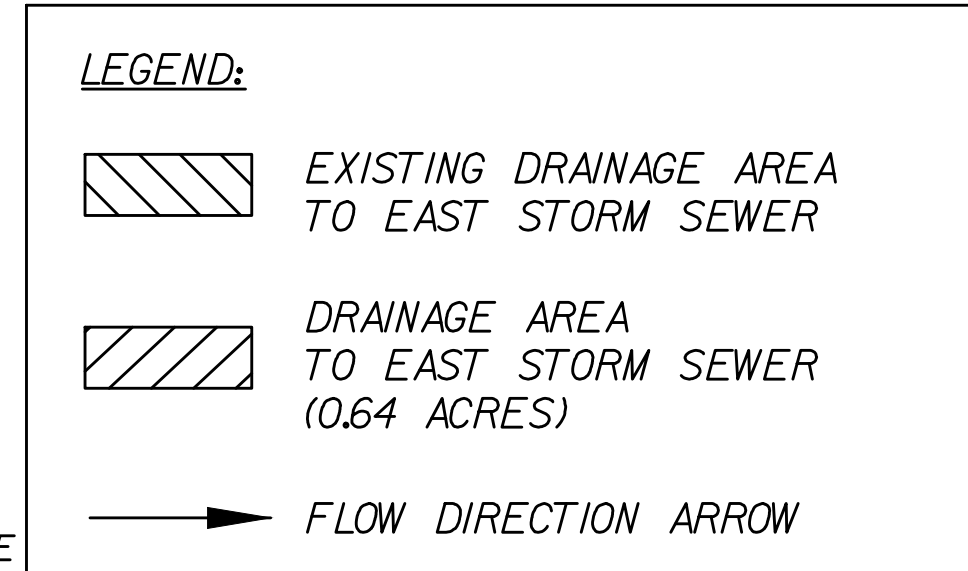
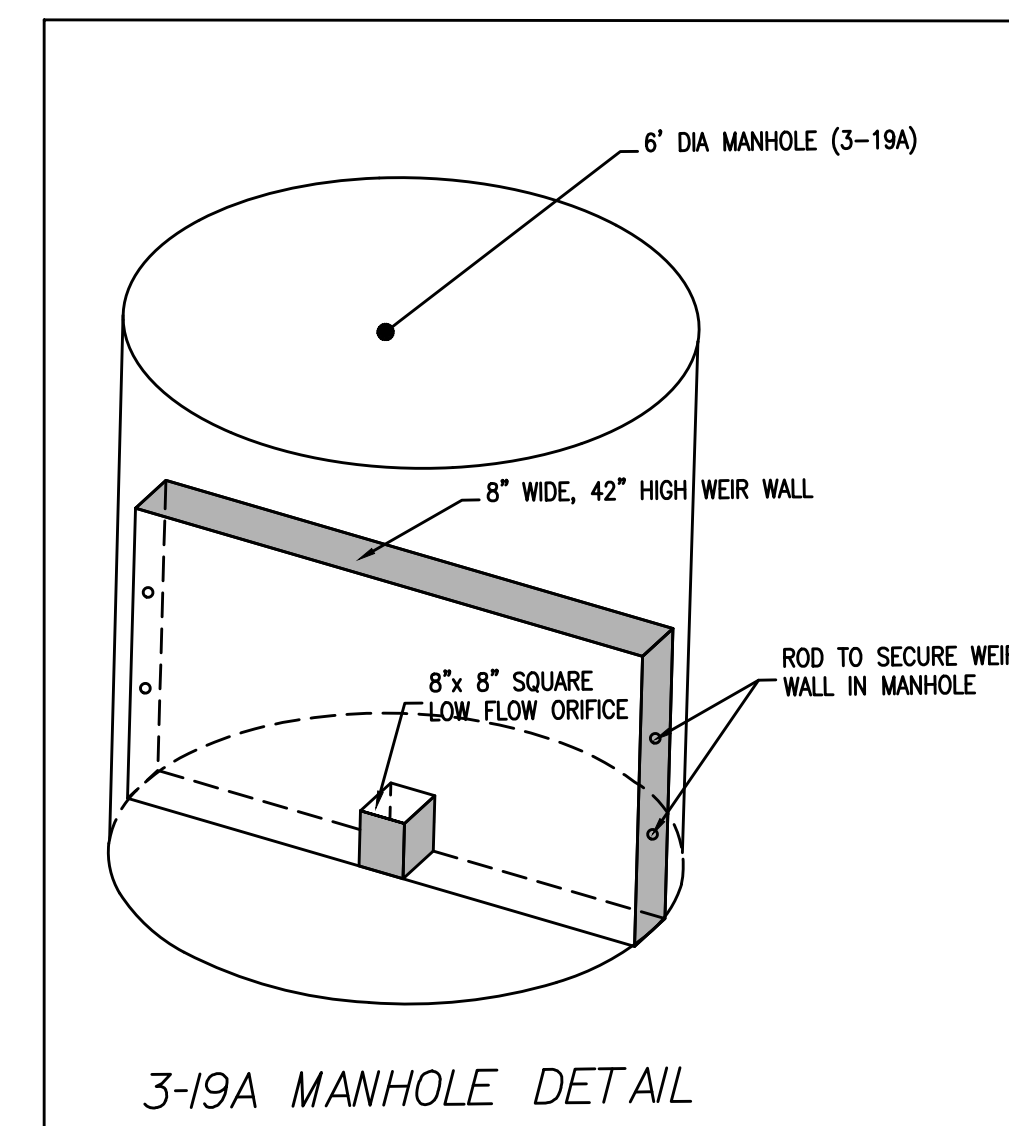
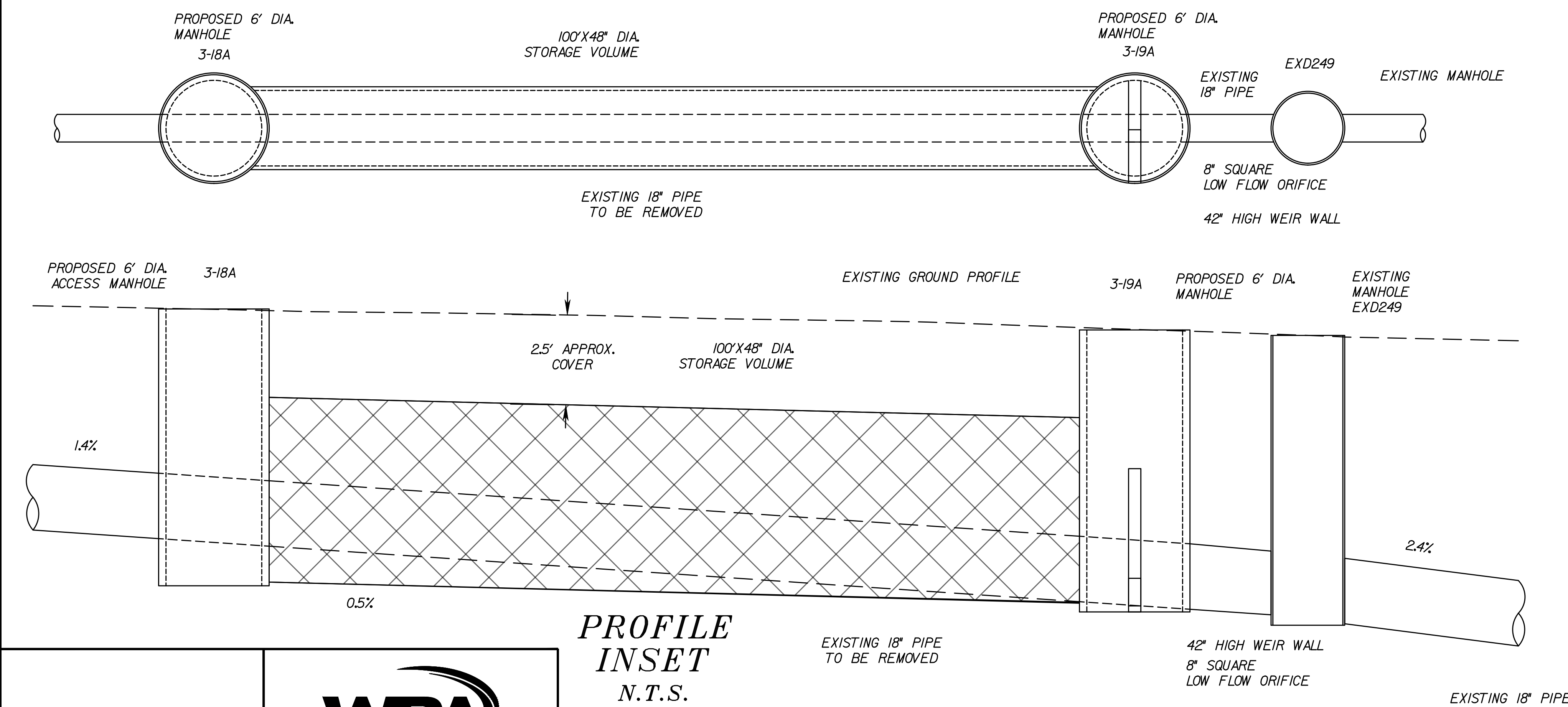
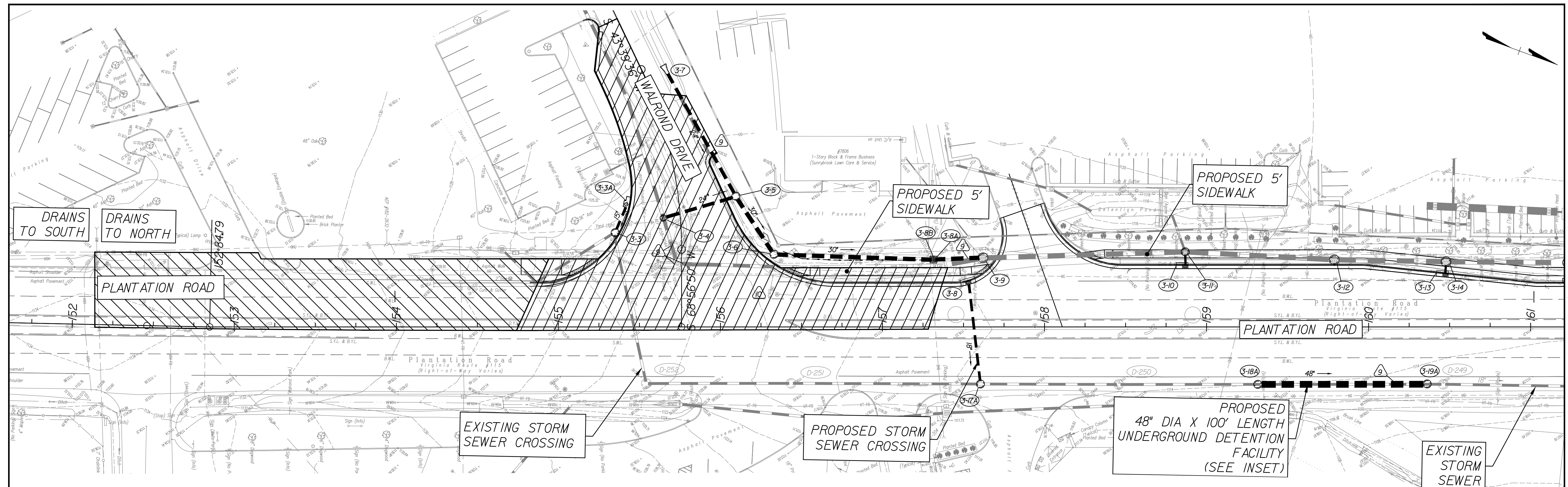
PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing

BEDDING DETAIL SHEET

Sheet
2B(8)

Rev	Date	Description



Whitman Requardt & Associates
 Blacksburg, Virginia
 HYDRAULICS ENGINEER

Rev	Date	Description



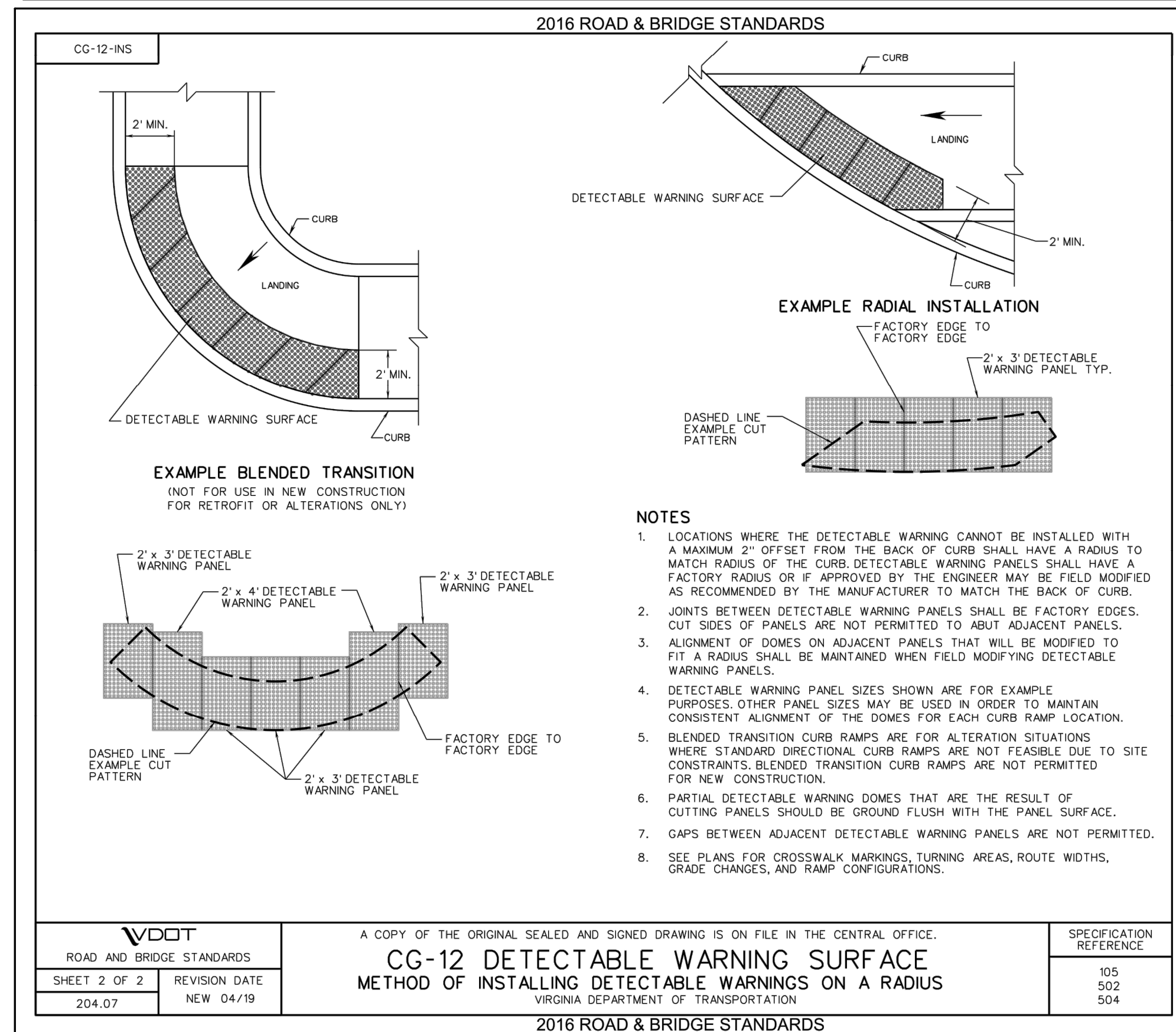
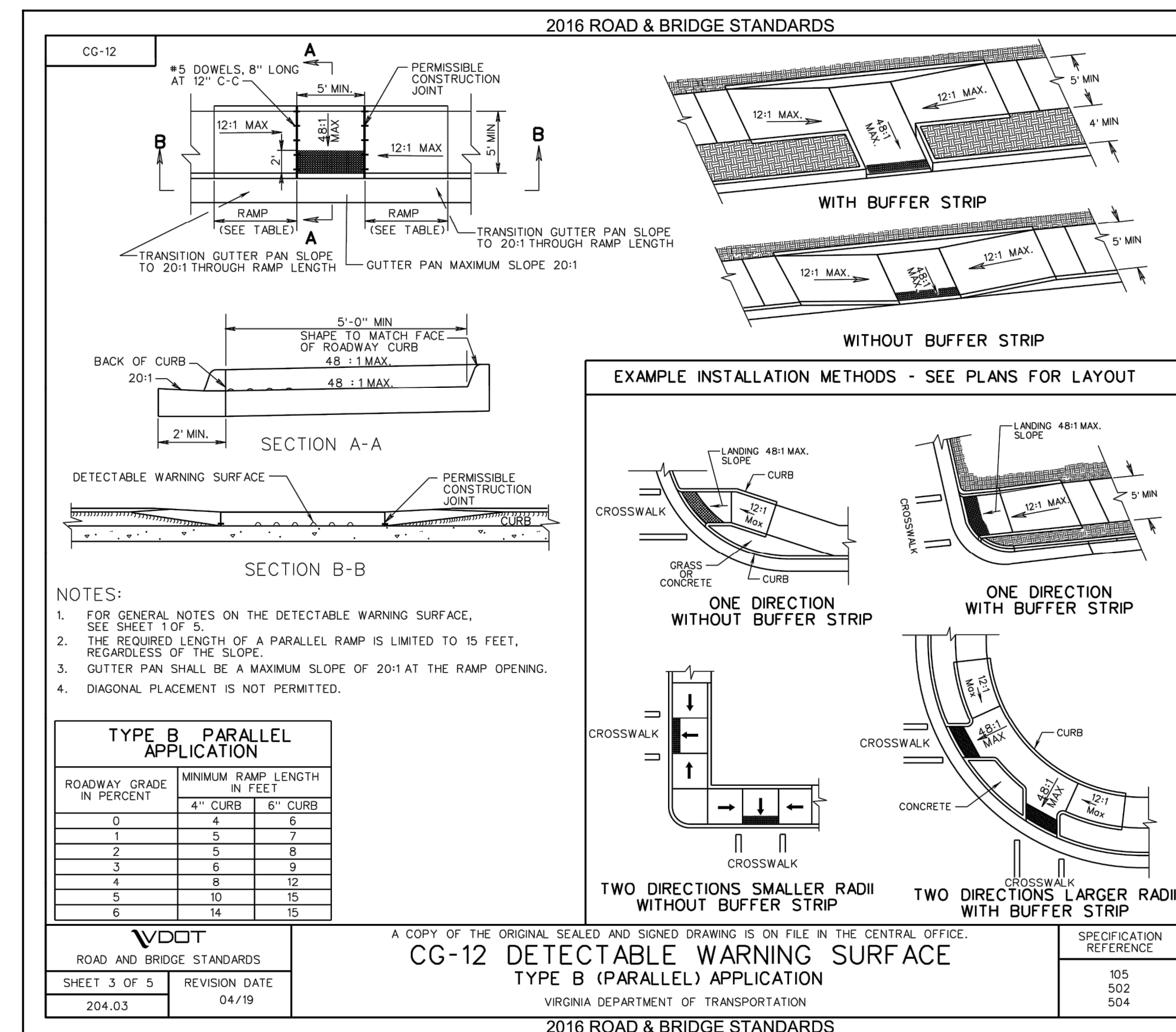
COUNTY OF ROANOKE
 5204 BERNARD DRIVE
 ROANOKE, VA 24018

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 STATE PROJECT NO: 0115-080-911, P101, R201, C501
 VDOT UPC NUMBER: 111366

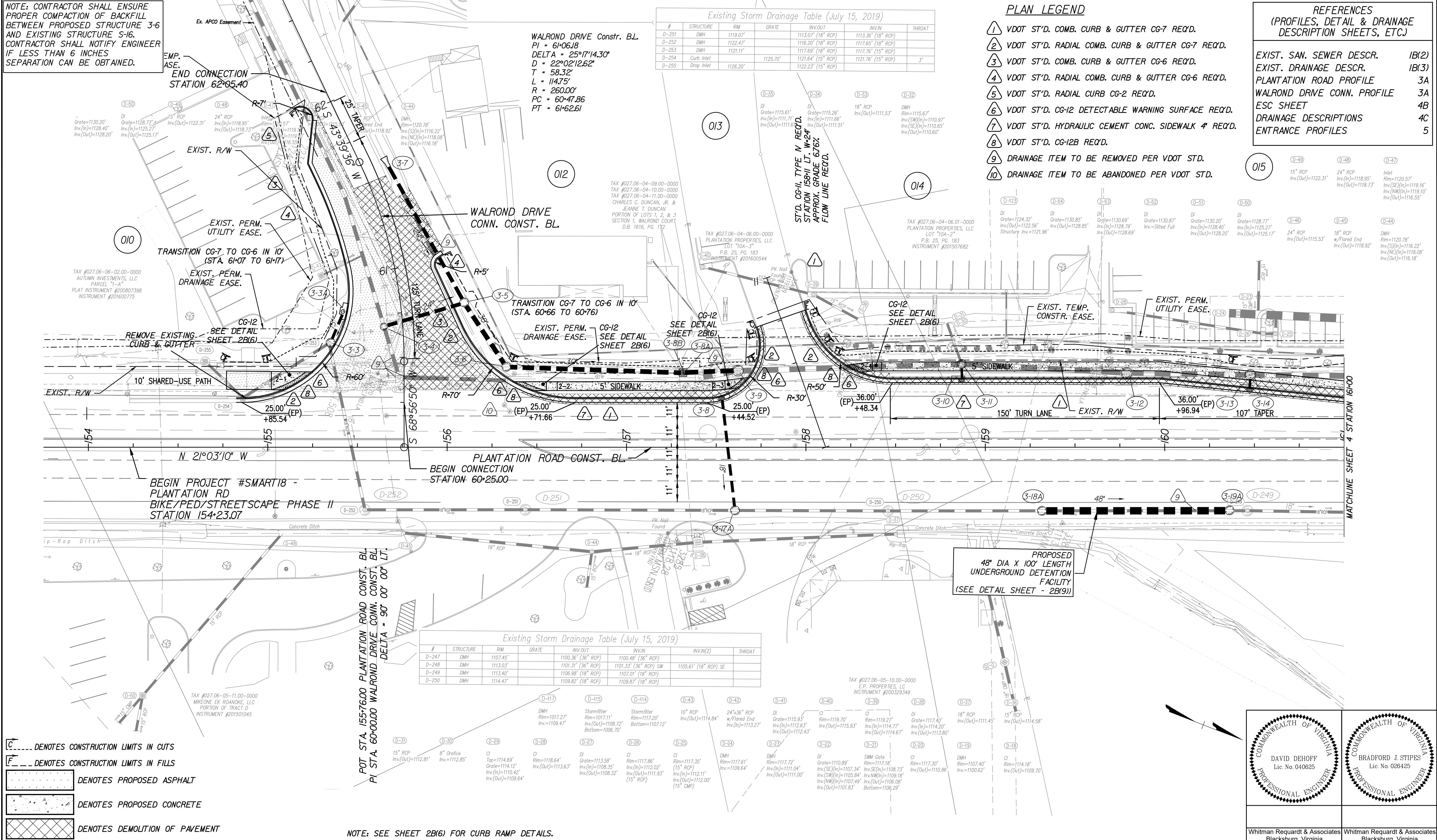
PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
 STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing
**UNDERGROUND
 DETENTION DESIGN**

Sheet
2B(9)



NOTE: CONTRACTOR SHALL ENSURE PROPER COMPACTION OF BACKFILL BETWEEN PROPOSED STRUCTURE 3-6 AND EXISTING STRUCTURE S-16. CONTRACTOR SHALL NOTIFY ENGINEER IF LESS THAN 6 INCHES SEPARATION CAN BE OBTAINED.



- DENOTES CONSTRUCTION LIMITS IN CUTS
- DENOTES CONSTRUCTION LIMITS IN FILLS
- [Pattern] DENOTES PROPOSED ASPHALT
- [Pattern] DENOTES PROPOSED CONCRETE
- [Pattern] DENOTES DEMOLITION OF PAVEMENT

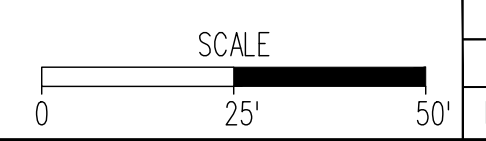


NOTE: SEE SHEET 2B(6) FOR CURB RAMP DETAILS.
NOTE: SEE SHEET 2A(1) FOR ENTRANCE TYPES.
NOTE: DOT - DASHED LINES DENOTE TEMPORARY EASEMENTS.
NOTE: DOT - DASHED LINES DENOTE PERMANENT EASEMENTS.
NOTE: DASHED LINES DENOTE EXISTING RIGHT OF WAY ACQUIRED UNDER PROJECT *0115-080-911 (UPC'S 98220 & 103607)

COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

VDOT PROJECT NUMBER:
#SMART18 - PLANTATION RD BIKE/PEDESTRIAN AND STREETScape PHASE II
STATE PROJECT NO: 0115-080-911, P101, R201, C501
VDOT UPC NUMBER: 111366

PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND STREETScape IMPROVEMENTS PHASE 2 PROJECT



Rev	Date	Description

Drawing

Sheet

3

COMMONWEALTH OF VIRGINIA

DAVID DEHOFF

Lic. No. 040625

PROFESSIONAL ENGINEER

COMMONWEALTH OF VIRGINIA

BRADFORD J. STIPES

Lic. No. 026425

PROFESSIONAL ENGINEER

Whitman Requardt & Associates

Blacksburg, Virginia

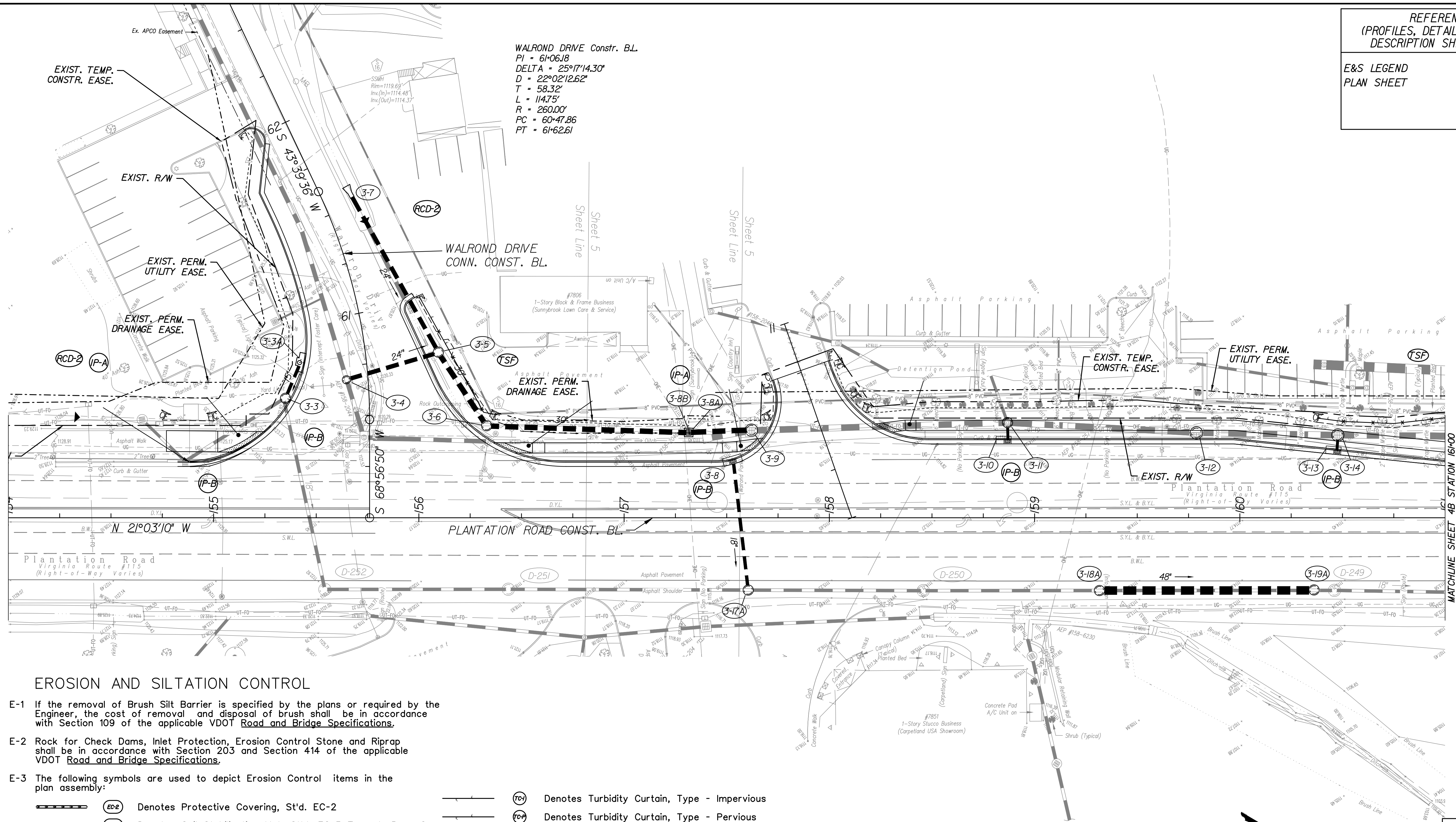
HYDRAULICS ENGINEER

Whitman Requardt & Associates

Blacksburg, Virginia

ROADWAY ENGINEER

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
E&S LEGEND	2
PLAN SHEET	3









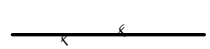
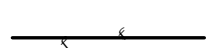





EROSION AND SILTATION CONTROL

E-1 If the removal of Brush Silt Barrier is specified by the plans or required by the Engineer, the cost of removal and disposal of brush shall be in accordance with Section 109 of the applicable VDOT Road and Bridge Specifications.

E-2 Rock for Check Dams, Inlet Protection, Erosion Control Stone and Riprap shall be in accordance with Section 203 and Section 414 of the applicable VDOT Road and Bridge Specifications.

E-3 The following symbols are used to depict Erosion Control items in the plan assembly:

-  (EC-2) Denotes Protective Covering, St'd. EC-2
-  (EC-3A) Denotes Soil Stabilization Mat, St'd. EC-3 Type A, B or C
-  (TFB) Denotes Temporary Filter Barrier, St'd. EC-5
-  (TSF) Denotes Temporary Silt Fence, St'd. EC-5
-  (TDC) Denotes Temporary Diversion Channel, St'd. EC-12
-  (DD) Denotes Temporary Diversion Dike, St'd. EC-9

-  (TCV) Denotes Turbidity Curtain, Type - Impervious
-  (TCP) Denotes Turbidity Curtain, Type - Pervious
-  (RCD-I) Denotes Rock Check Dam, Type I; St'd. EC-4
-  (RCD-II) Denotes Rock Check Dam, Type II; St'd. EC-4
-  (IP-A) Denotes Inlet Protection, Type A; St'd. EC-6
-  (IP-B) Denotes Inlet Protection, Type B; St'd. EC-6
-  (TST) Denotes Temporary Sediment Trap, St'd. EC-7

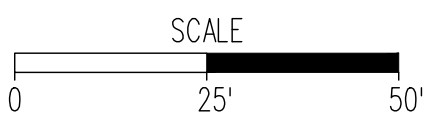
E-4 Seeding to meet standards of the Virginia Erosion and Sediment Control Handbook (VESCH).

 DENOTES CONSTRUCTION LIMITS IN CUTS
 DENOTES CONSTRUCTION LIMITS IN FILLS

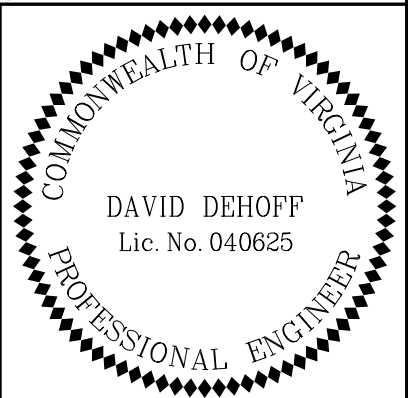


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COUNTY OF ROANOKE 5204 BERNARD DRIVE ROANOKE, VA 24018		VDOT PROJECT NUMBER: #SMART18 - PLANTATION RD BIKE/PED/STREETSCAPE PHASE II STATE PROJECT NO: 0115-080-911, P101, R201, C501 VDOT UPC NUMBER: 111366	PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT	Drawing EROSION & SEDIMENT CONTROL SHEET	Sheet 3B
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Rev	Date	Description

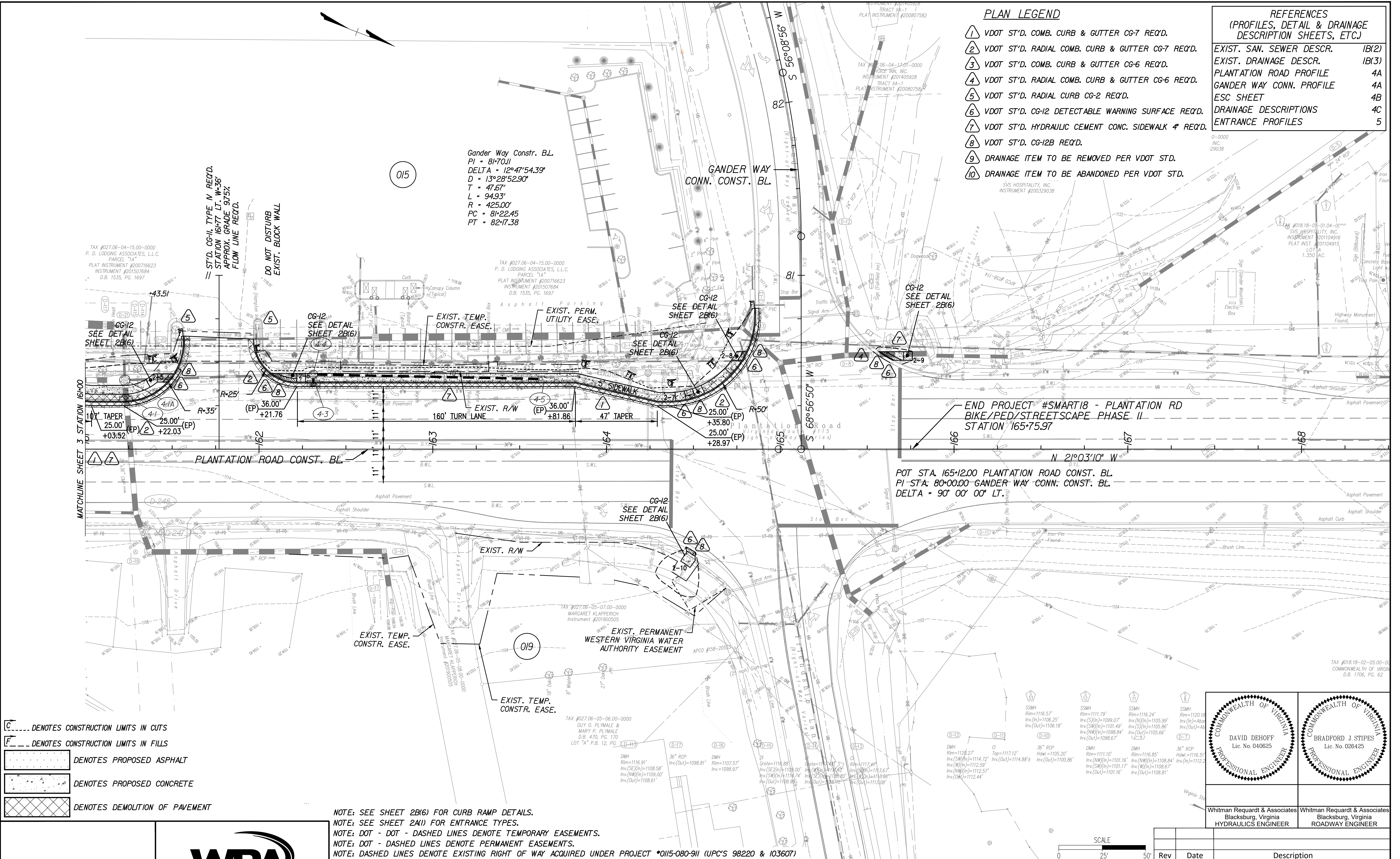


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Blacksburg, Virginia
HYDRAULICS ENGINEER

PLAN LEGEND

- 1 VDOT ST'D. COMB. CURB & GUTTER CG-7 REQ'D.
- 2 VDOT ST'D. RADIAL COMB. CURB & GUTTER CG-7 REQ'D.
- 3 VDOT ST'D. COMB. CURB & GUTTER CG-6 REQ'D.
- 4 VDOT ST'D. RADIAL COMB. CURB & GUTTER CG-6 REQ'D.
- 5 VDOT ST'D. RADIAL CURB CG-2 REQ'D.
- 6 VDOT ST'D. CG-12 DETECTABLE WARNING SURFACE REQ'D.
- 7 VDOT ST'D. HYDRAULIC CEMENT CONC. SIDEWALK 4" REQ'D.
- 8 VDOT ST'D. CG-12B REQ'D.
- 9 DRAINAGE ITEM TO BE REMOVED PER VDOT STD.
- 10 DRAINAGE ITEM TO BE ABANDONED PER VDOT STD.

REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
EXIST. SAN. SEWER DESCR.	1B(2)
EXIST. DRAINAGE DESCR.	1B(3)
PLANTATION ROAD PROFILE	4A
GANDER WAY CONN. PROFILE	4A
ESC SHEET	4B
DRAINAGE DESCRIPTIONS	4C
ENTRANCE PROFILES	5



- C --- DENOTES CONSTRUCTION LIMITS IN CUTS
- F --- DENOTES CONSTRUCTION LIMITS IN FILLS
- DENOTES PROPOSED ASPHALT
- DENOTES PROPOSED CONCRETE
- DENOTES DEMOLITION OF PAVEMENT

NOTE: SEE SHEET 2B(6) FOR CURB RAMP DETAILS.
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 NOTE: DOT - DOT - DASHED LINES DENOTE TEMPORARY EASEMENTS.
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COUNTY OF ROANOKE
 5204 BERNARD DRIVE
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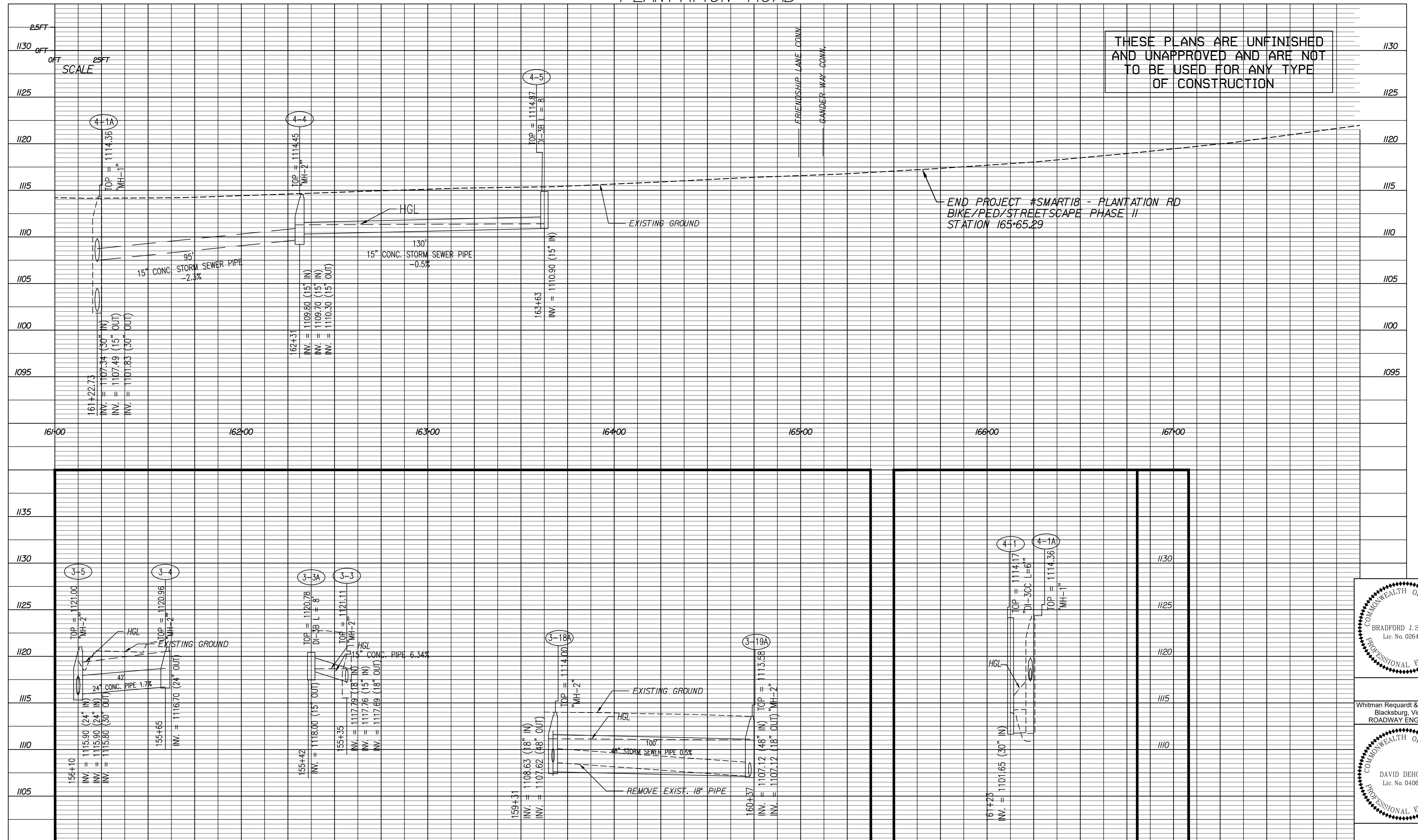
**PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
 STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT**

Rev	Date	Description

COMMONWEALTH OF VIRGINIA DAVID DEHOFF Lic. No. 040625 PROFESSIONAL ENGINEER	COMMONWEALTH OF VIRGINIA BRADFORD J. STIPES Lic. No. 026425 PROFESSIONAL ENGINEER
Whitman Requardt & Associates Blacksburg, Virginia HYDRAULICS ENGINEER	Whitman Requardt & Associates Blacksburg, Virginia ROADWAY ENGINEER

Drawing
PLAN SHEET
 Sheet
4

PLANTATION ROAD



THESE PLANS ARE UNFINISHED
AND UNAPPROVED AND ARE NOT
TO BE USED FOR ANY TYPE
OF CONSTRUCTION

END PROJECT #SMART18 - PLANTATION RD
BIKE/PED/STREETSCAPE PHASE II
STATION 165+65.29

WRA
Whitman, Requardt & Associates, LLP
1700 Kraft Drive, Suite 1200, Blacksburg, Virginia 24060

COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

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PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

		HYDRAULICS ENGINEER	
		1095	
Rev	Date	Description	
Drawing		Sheet	
PROFILE SHEET		4A	

EROSION AND SILTATION CONTROL

E-1 If the removal of Brush Silt Barrier is specified by the plans or required by the Engineer, the cost of removal and disposal of brush shall be in accordance with Section 109 of the applicable VDOT Road and Bridge Specifications.

E-2 Rock for Check Dams, Inlet Protection, Erosion Control Stone and Riprap shall be in accordance with Section 203 and Section 414 of the applicable VDOT Road and Bridge Specifications.

E-3 The following symbols are used to depict Erosion Control items in the plan assembly:

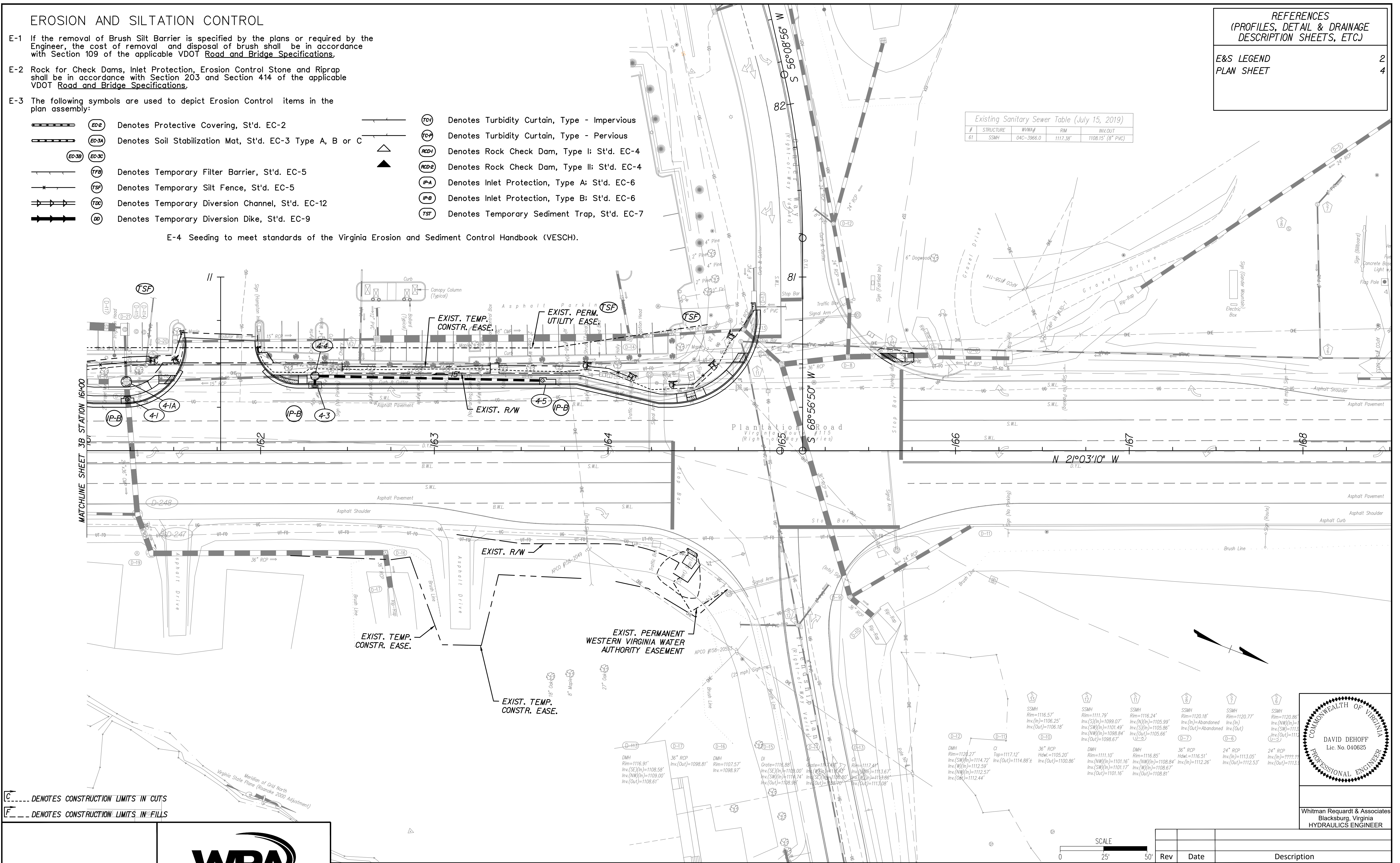
- | | | | | | |
|--|-------|---|--|-------|--|
| | EC-2 | Denotes Protective Covering, St'd. EC-2 | | TC-I | Denotes Turbidity Curtain, Type - Impervious |
| | EC-3A | Denotes Soil Stabilization Mat, St'd. EC-3 Type A, B or C | | TC-P | Denotes Turbidity Curtain, Type - Pervious |
| | EC-3B | | | RC-I | Denotes Rock Check Dam, Type I; St'd. EC-4 |
| | EC-3C | | | RC-II | Denotes Rock Check Dam, Type II; St'd. EC-4 |
| | TFB | Denotes Temporary Filter Barrier, St'd. EC-5 | | IP-A | Denotes Inlet Protection, Type A; St'd. EC-6 |
| | TSF | Denotes Temporary Silt Fence, St'd. EC-5 | | IP-B | Denotes Inlet Protection, Type B; St'd. EC-6 |
| | TC | Denotes Temporary Diversion Channel, St'd. EC-12 | | TS | Denotes Temporary Sediment Trap, St'd. EC-7 |
| | TD | Denotes Temporary Diversion Dike, St'd. EC-9 | | | |

E-4 Seeding to meet standards of the Virginia Erosion and Sediment Control Handbook (VESCH).

REFERENCES
(PROFILES, DETAIL & DRAINAGE
DESCRIPTION SHEETS, ETC.)

E&S LEGEND 2
PLAN SHEET 4

Existing Sanitary Sewer Table (July 15, 2019)			
#	STRUCTURE	WVMA#	INV. OUT
61	SSMH	04C-3966.0	1117.38' 1108.15' (8" PVC)



--- DENOTES CONSTRUCTION LIMITS IN CUTS
--- DENOTES CONSTRUCTION LIMITS IN FILLS



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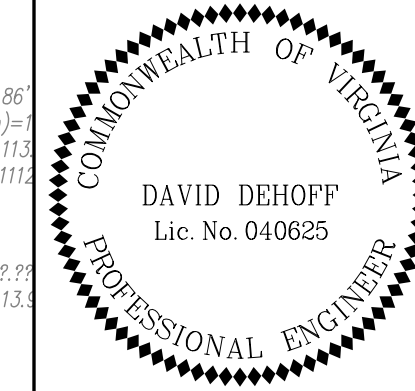
COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

VDOT PROJECT NUMBER:
#SMART18 - PLANTATION RD BIKE/PEDESTRIAN PHASE II
STATE PROJECT NO: 0115-080-911, P101, R201, C501
VDOT UPC NUMBER: 111366

PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing
EROSION & SEDIMENT
CONTROL SHEET

Sheet
4B



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Blacksburg, Virginia
HYDRAULICS ENGINEER

Rev	Date	Description

- ~~3-3A~~ 1 MODIFIED DI-3B TOP UNIT REQ'D, L-8'
RIM-1120.78', INV.-1118.00'
SEE DETAIL SHEET 2B-7
- ~~3-3~~ MODIFY MH TO RECEVE PROP PIPE
ADJUST TO GRADE, RIM-1121.11'
- ~~3-3A~~ ~~3-3~~ 15' 15" CONC. STORM SEWER PIPE REQ'D. (2' COVER)
INV. (IN)-1118.00' INV. (OUT)-1117.76'
- ~~3-4~~ 1 ST'D MH-1 OR 2 REQ'D
1 ST'D MH-1 FRAME AND COVER REQ'D
RIM-1120.96', INV.-1116.70', H-3.6'
ST'D IS-1 REQ'D
(LESS THAN MIN ST'D HEIGHT)
REMOVE DOWNSTREAM 24" PIPE
- ~~3-5~~ 1 ST'D MH-1 OR 2 REQ'D
1 ST'D MH-1 FRAME AND COVER REQ'D
RIM-1121.0', INV.-1115.80', H-5.1'
ST'D IS-1 REQ'D
- ~~3-4~~ ~~3-5~~ 42' 24" CONC. STORM SEWER PIPE REQ'D. (1' COVER)
INV. (IN)-1116.70' INV. (OUT)-1115.90'
- ~~3-5~~ ~~3-6~~ 38' 30" CONC. STORM SEWER PIPE REQ'D. (8' COVER)
INV. (IN)-1115.80' INV. (OUT)-1115.10'
- ~~3-6~~ 1 ST'D MH-1 OR 2 REQ'D
1 ST'D MH-1 FRAME AND COVER REQ'D
RIM-1120.00', INV.-1115.00, H-4.4'
ST'D IS-1 REQ'D
(LESS THAN MIN. ST'D HEIGHT)
- ~~3-7~~ 1 ST'D 24" ES-1 REQ'D
INV. -1118.00'
- ~~3-7~~ ~~3-5~~ 84' 24" CONC. STORM SEWER PIPE REQ'D. (3' COVER)
INV. (IN)-1118.00' INV. (OUT)-1115.90'
- ~~3-8~~ 1 ST'D DI-2C REQ'D, L-8'
RIM-1116.00', INV.-1112.80'
(STRUCTURE LESS THAN MINIMUM ST'D HEIGHT)
- ~~3-6~~ ~~3-8A~~ 95' 30" CONC. STORM SEWER PIPE REQ'D. (3' COVER)
INV. (IN)-1115.00' INV. (OUT)-1113.26
- ~~3-8A~~ 1 ST'D DI-1 REQ'D
RIM- 1116.40', INV.- 1113.16'
(STRUCTURE LESS THAN MINIMUM ST'D HEIGHT)
ST'D IS-1 REQ'D
- ~~3-8B~~ ATTACH EXIST PIPE TO PROPOSED INLET
MATCH EXIST PIPE SLOPE
8' 10" HDPE PIPE REQ'D
- ~~3-8A~~ ~~3-9~~ 27' 30" CONC. STORM SEWER PIPE REQ'D. (3' COVER)
INV. (IN)-1113.16' INV. (OUT)-1112.9'
- ~~3-9~~ CONVERT EXIST DI TO MANHOLE
1 ST'D. MH-1 FRAME AND COVER REQ'D
ADJUST TO GRADE, TOP -1116.77
MODIFY TO RECEIVE 30" PIPE FROM 3-8A
REMOVE EXIST 30" X 19" INLET PIPE

- ~~3-10~~ 1 ST'D DI-2B REQ'D, L-6'
RIM-1114.79', INV.-1110.80'
- ~~3-11~~ CONVERT EXIST DI TO MANHOLE
1 ST'D. MH-1 FRAME AND COVER REQ'D
ADJUST TO GRADE, MODIFY TO RECEIVE PROPOSED PIPE
- ~~3-10~~ ~~3-11~~ 6' 15" CONC. STORM SEWER PIPE REQ'D. (3' COVER)
INV. (IN)-1110.80' INV. (OUT)-1110.70'
- ~~3-12~~ CONVERT EXIST DI TO MANHOLE
1 ST'D. MH-1 FRAME AND COVER REQ'D
ADJUST TO GRADE
- ~~3-13~~ 1 ST'D DI-2B REQ'D, L-6'
RIM-1114.27', INV.-1109.20'
- ~~3-14~~ CONVERT EXIST DI TO MANHOLE
1 ST'D. MH-1 FRAME AND COVER REQ'D
ADJUST TO GRADE, MODIFY TO RECEIVE PROPOSED PIPE
INV. (FROM 3-13)-1109.00'
- ~~3-13~~ ~~3-14~~ 6' 15" CONC. STORM SEWER PIPE REQ'D. (4' COVER)
INV. (IN)-1109.20' INV. (OUT)-1109.00'
- ~~3-8~~ ~~3-17A~~ 58' 18" CONC. STORM SEWER PIPE REQ'D. (3' COVER)
INV. (IN)-1112.80' INV. (OUT)-1112.30'
CONTRACTOR SHALL FIELD LOCATE 36" WATER LINE AND
VERIFY MINIMUM 15" SEPARATION W/ PROPOSED PIPE.
SUPPORT PROPOSED STORM SEWER WITH CONCRETE PIERS OVER
EXIST. 36" WATER MAIN IN ACCORDANCE WITH WYMA DETAIL G-8.
CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS AND CARE
IN ORDER TO NOT CAUSE DAMAGE TO EXIST. 36" WATER MAIN.
- ~~3-17A~~ 1 ST'D MH-1 OR 2 REQ'D
1 ST'D MH-1 FRAME AND COVER REQ'D
RIM-1115.60', INV.-1111.70, H-3.3'
DOGHOUSE INSTALLATION OVER EXIST 18" PIPE REQ'D
- ~~3-18A~~ 1 ST'D MH-1 OR 2 REQ'D
1 ST'D MH-1 FRAME AND COVER REQ'D
RIM-1114.02', INV.-1107.62, H-5.7'
CONNECT TO EXIST 18" PIPE
- ~~3-19A~~ 1 ST'D MH-1 OR 2 REQ'D
1 ST'D MH-1 FRAME AND COVER REQ'D
RIM-1113.58', INV.-1107.12, H-5.8'
CONNECT TO EXIST 18" PIPE
CONSTRUCT WEIR WALL PER DETAIL, SHEET 2B-9
- ~~3-18A~~ ~~3-19A~~ 100' 48" STORM SEWER PIPE REQ'D. (2' COVER)
INV. (IN)-1107.62' INV. (OUT)-1107.12'
REMOVE EXIST 18" PIPE

- ~~4-1A~~ CONVERT EXIST DI TO MANHOLE
1 ST'D. MH-1 FRAME AND COVER REQ'D
ADJUST TO GRADE
- ~~4-1~~ 1 ST'D DI-3CC REQ'D, L-6'
"DOGHOUSE" INSTALLATION OVER EXIST 36" x 24" PIPE REQ'D.
RIM-1114.17', INV.-1101.65'
ST'D IS-1 REQ'D
- ~~4-3~~ 1 ST'D DI-2C REQ'D, L-6'
RIM-1114.24', INV.-1110.20'
ST'D IS-1 REQ'D
- ~~4-4~~ 1 ST'D MH-1 OR 2 REQ'D
1 ST'D MH-1 FRAME AND COVER REQ'D
RIM-1114.45', INV.-1109.70, H-4.1'
CONNECT TO EXIST 15" PIPE
(REMOVE EXIST DI)
- ~~4-3~~ ~~4-4~~ 4' 15" CONC. STORM SEWER PIPE REQ'D. (3' COVER)
INV. (IN)-1110.20' INV. (OUT)-1109.80'
- ~~4-5~~ 1 ST'D DI-3B REQ'D, L-6'
RIM-1114.87', INV.-1110.90'
- ~~4-4~~ ~~4-5~~ 130' 15" CONC. STORM SEWER PIPE REQ'D. (3' COVER)
INV. (IN)-1110.90' INV. (OUT)-1109.80'

NOTE: CONTRACTOR HAS TO OPTION TO UTILIZE
PRECAST/CAST IN PLACE STRUCTURES AS NEEDED.



COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

VDOT PROJECT NUMBER:
#SMART18 - PLANTATION RD BIKE/PED/STREETSCAPE PHASE II
STATE PROJECT NO: 0115-080-911, P101, R201, C501
VDOT UPC NUMBER: 111366

PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing
DRAINAGE DESCRIPTION
SHEET

Sheet
4C

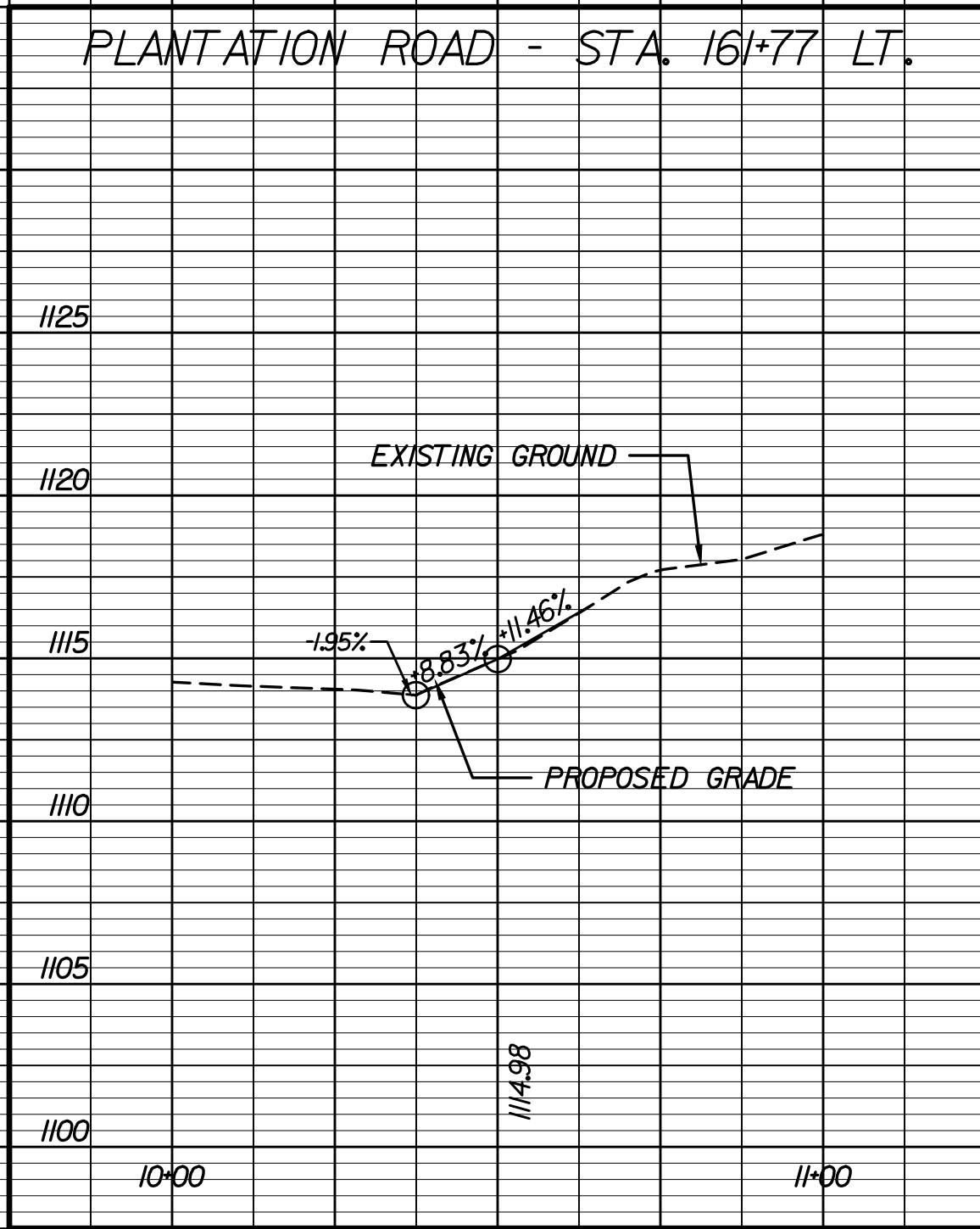
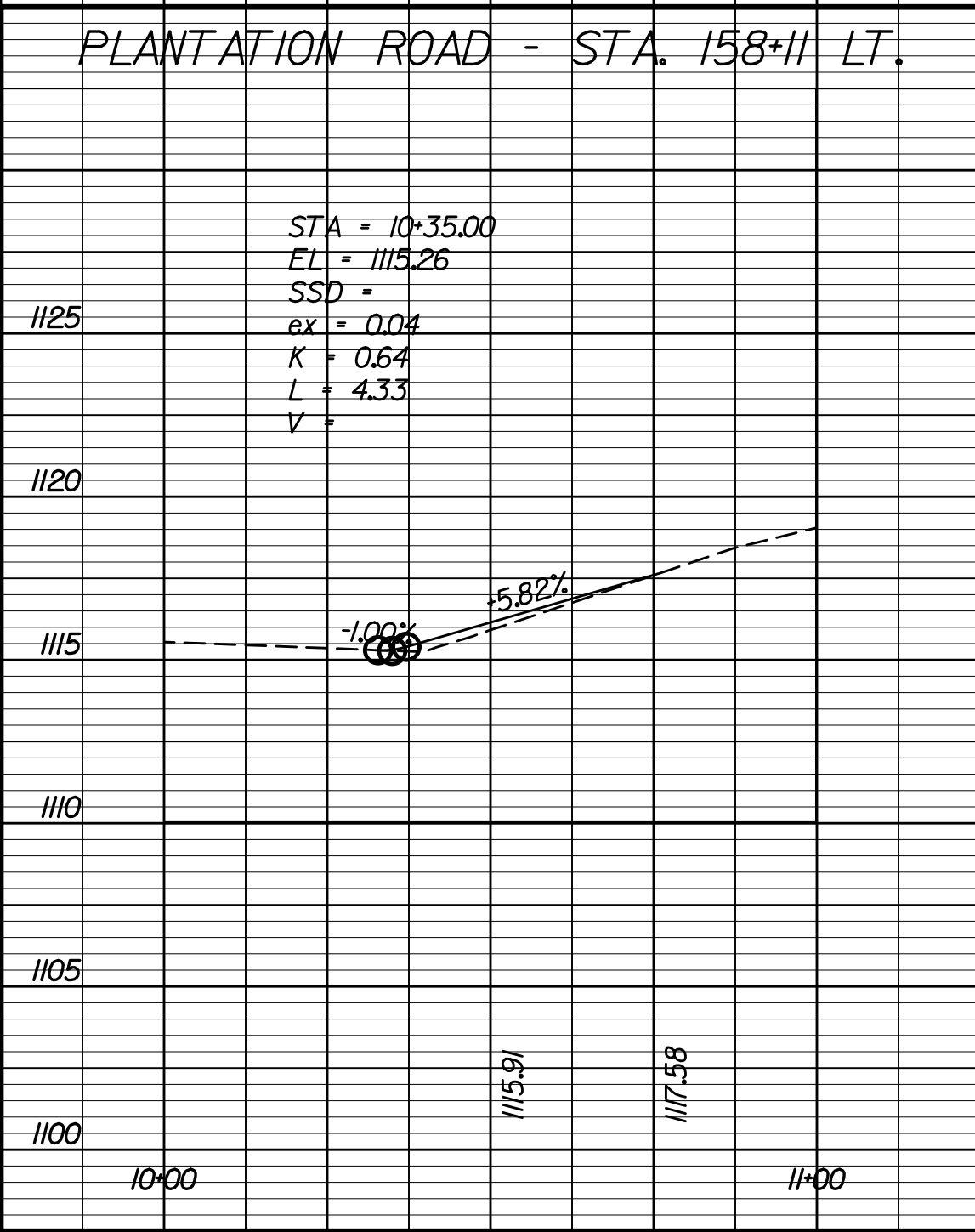
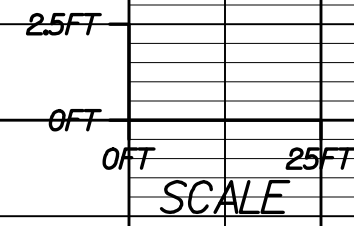
Rev	Date	Description



Whitman Requardt & Associates
Blacksburg, Virginia
HYDRAULICS ENGINEER



Whitman Requardt & Associates
Blacksburg, Virginia
ROADWAY ENGINEER



COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

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Rev	Date	Description

Drawing
ENTRANCE PROFILE
SHEET

Sheet
5

GENERAL NOTES

1. THE CONTRACTOR SHALL NOTE THAT THE UTILITY PLAN SHEETS ARE FOR WATER AND SEWER RELOCATION AND ADJUSTMENT. THE CONTRACTOR SHALL REFER TO THE ROADWAY PLANS FOR ROADWAY AND DRAINAGE DESIGN. GAS AND OTHER UTILITY INSTALLATIONS ARE BY OTHERS.

WATER AND SEWER SYSTEM REPRESENTATIVE: WESTERN VIRGINIA WATER AUTHORITY (WVWA)
CONTACT: AARON SHEARER, DEVELOPMENT MANAGER
PHONE: 540-283-2941
EMAIL: AARON.SHEARER@WESTERNVWATER.ORG

WATER MAIN, SEWERS, AND APPURTENANCES SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH WESTERN VIRGINIA REGIONAL DESIGN AND CONSTRUCTION STANDARDS, LATEST EDITION (WVWA STANDARDS) AND THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS AND STANDARDS. IN CASE OF CONFLICT, THE MORE STRINGENT REQUIREMENT SHALL APPLY. CONTRACTOR SHALL KEEP A COPY OF THE WVWA STANDARDS ON SITE AT ALL TIMES DURING UTILITY CONSTRUCTION.

2. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF, AND AT NO EXPENSE, TO THE WVWA OR OWNER. ANY DAMAGES OR UNSCHEDULED INTERRUPTION OF WATER OR SEWER SERVICE SHALL BE REPORTED IMMEDIATELY TO WVWA.

3. THE LOCATIONS, DEPTHS AND SIZES OF EXISTING UTILITIES SHOWN ON THESE PLANS HAVE BEEN OBTAINED FROM AVAILABLE UTILITY RECORDS AND FIELD UTILITY SURVEYS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL FIELD VERIFY, WITH TEST HOLES, THE EXACT LOCATION, ELEVATION, TYPE, ROUNDNESS AND SIZE OF ALL EXISTING UNDERGROUND UTILITIES AT POINTS OF CONNECTION AND CROSSINGS PRIOR TO ORDERING OF MATERIALS, EXCAVATION, AND INSTALLATION FOR THIS PROJECT.

4. THE CONTRACTOR SHALL CALL VIRGINIA 811 (VA811) AT 811 OR (800) 552-7001 TO REQUEST FIELD UTILITY LOCATIONS AT LEAST 72 HOURS BEFORE BEGINNING ANY EXCAVATION OR CONSTRUCTION SHOWN ON THESE PLANS, AND IN ACCORDANCE WITH THE UNDERGROUND UTILITY DAMAGE PREVENTION ACT.

5. CONTRACTOR SHALL DEVELOP A SCOPE AND SEQUENCE OF CONSTRUCTION IN SUCH A MANNER THAT THE WATER MAINS AND COLLECTOR SEWERS REMAIN IN SERVICE AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT A PLAN OF OPERATIONS AND PROPOSED METHODS AND TECHNIQUES FOR CONSTRUCTING THE WATER MAINS AND COLLECTOR SEWERS TO THE OWNER AND WVWA FOR APPROVAL PRIOR TO BEGINNING UTILITY CONSTRUCTION.

6. THE CONTRACTOR'S SEQUENCE OF CONSTRUCTION SHALL CONSIST OF A PRELIMINARY LIST OF DATES FOR UTILITY CONNECTIONS.

7. PRIOR TO CUTTING INTO ANY WATER MAIN, THE CONTRACTOR SHALL HAVE ALL FITTINGS, VALVES AND PIPES AT THE SITE AND SHALL VERIFY, IN THE PRESENCE OF THE WVWA INSPECTOR, THROUGH FIELD MEASUREMENTS, THAT ALL PIPING, FITTINGS AND VALVES WILL ALIGN AND FIT PROPERLY WITH THE EXISTING FACILITIES. CONNECTION TO EXISTING MAINS SHALL BE MADE ONLY AFTER THE PROPOSED MAIN IS INSTALLED, TESTED AND APPROVED BY THE WVWA. CONNECTIONS TO EXISTING MAINS SHALL ONLY OCCUR TUESDAY THROUGH THURSDAY.

8. ALL WORK SHALL BE SUBJECT TO INSPECTION BY THE WVWA. PROVIDE NOTICE AT LEAST 3 BUSINESS DAYS PRIOR TO THE START OF ANY WATER OR SEWER UTILITY WORK. FAILURE TO COMPLY OR PROPERLY NOTIFY MAY RESULT IN ADDITIONAL WORK BY THE CONTRACTOR IN ORDER TO PERMIT THE NECESSARY INSPECTION AND/OR DISCONNECTION FROM THE SYSTEM.

9. CONTRACTOR SHALL COORDINATE ALL CONNECTIONS TO THE EXISTING PUBLIC WATER FACILITIES WITH THE WVWA. A REPRESENTATIVE OF THE WVWA SHALL BE ON-SITE WHILE NEW CONNECTIONS ARE BEING MADE TO THE EXISTING PUBLIC WATER FACILITIES.

10. CONTRACTOR SHALL NOT OPERATE ANY EXISTING WATER OR SANITARY SEWER FACILITIES. OPERATION OF THESE FACILITIES SHALL ONLY BE DONE BY THE WVWA PERSONNEL. CONTRACTOR SHALL COORDINATE WITH THE WVWA FOR OPERATION OF THESE FACILITIES; AND PROVIDE 14 DAYS NOTICE PRIOR TO OPERATION OF VALVES RELATED TO NEW CONNECTIONS AND SYSTEM SHUTDOWNS.

11. PROCEDURES FOR ACCOMPLISHING EACH INSTALLATION SHALL BE THE CONTRACTOR'S RESPONSIBILITY. ALL MATERIALS, EQUIPMENT, LABOR, APPURTENANCES (INCLUDING BUT NOT LIMITED TO: EXCAVATING, TESTING, DISINFECTING, BACKFILLING, COMPACTING, DEWATERING, DISPOSING OF SURPLUS AND UNSUITABLE MATERIAL, SHEETING AND SHORING, BEDDING MATERIAL, INSTALLING PIPE, AND CONNECTING TO EXISTING PIPES), REQUIRED TO ACCOMPLISH INSTALLATIONS IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION SHALL BE INCLUDED BY THE CONTRACTOR.

12. DURING INSTALLATION OF NEW PIPES, THE CONTRACTOR SHALL DO WHAT IS NECESSARY TO PROTECT EXISTING UTILITIES, PIPELINES AND FACILITIES AGAINST DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL PROVIDE ANY NEEDED TEMPORARY SUPPORTS REQUIRED TO INSTALL THE NEW UTILITIES WHILE MAINTAINING THE EXISTING UTILITIES AND FACILITIES IN OPERATION. (TEMPORARY SUPPORTING OF THE EXISTING WATER FACILITIES WILL REQUIRE WVWA APPROVAL PRIOR TO INSTALLATION).

13. ALL NEW WATER MAINS MUST HAVE A MINIMUM COVER OF 3.0 FEET AND A MAXIMUM COVER OF 6.0 FEET, UNLESS OTHERWISE NOTED ON THE PLANS. ALL UTILITIES MUST HAVE A MINIMUM TEMPORARY COVER DURING CONSTRUCTION OF 2 FEET.

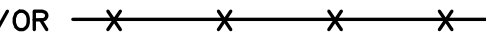
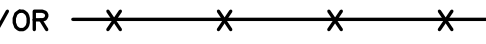
14. CONTRACTOR SHALL PERFORM UTILITY RELOCATION WORK PRIOR TO OR CONCURRENT WITH OTHER PROJECT GRADING OR EXCAVATION.

15. THE CONTRACTOR SHALL NOT PERFORM ANY GRADING OPERATIONS OVER EXISTING FACILITIES WITHIN THE PROJECT WHICH WOULD IN ANY WAY JEOPARDIZE SERVICES UNTIL THE PROPOSED FACILITIES ARE INSTALLED AND PLACED INTO OPERATION AND EXISTING FACILITIES ABANDONED. ANY DEVIATION MUST BE APPROVED BY THE WVWA.

16. THE CONTRACTOR SHALL MAINTAIN A SET OF RECORD DRAWINGS ON SITE TO BE SUBMITTED TO THE WVWA PROJECT INSPECTORS AND OWNER PRIOR TO SUBSTANTIAL COMPLETION. THEY SHALL REFLECT THE AS-BUILT FIELD MEASUREMENTS (INVERTS, STATIONS, ETC.) FOR THE CONSTRUCTED FACILITIES.

17. PLAN LOCATION AND DIMENSIONS SHALL BE ADHERED TO.

18. ALL PIPE ELEVATIONS SHOWN ARE INVERT UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS.

19. ITEMS DESIGNATED "T.B.A." AND/OR  ARE TO BE ABANDONED. ITEMS DESIGNATED "T.B.R." AND/OR  ARE TO BE REMOVED.

20. ALL CONCRETE SHALL BE VDOT CLASS A3 IF CAST-IN-PLACE, AND VDOT CLASS A4 IF PRECAST.

21. 18 INCHES MINIMUM VERTICAL SEPARATION IS REQUIRED BETWEEN WATER MAIN AND STORM SEWER CULVERTS. WHEN THE 18 INCHES MINIMUM SEPARATION CANNOT BE ACHIEVED, SUPPORT SHALL BE PROVIDED IN ACCORDANCE WITH DETAIL G-8, AND THE WATER MAIN SHALL BE ENCASED IN CONCRETE AND/OR INSULATED AS APPROVED IN WRITING BY THE WVWA. CONCRETE ENCASEMENT AND INSULATION SHALL EXTEND A MINIMUM OF 5 FEET BEYOND THE CENTERLINE OF THE CULVERT IN BOTH DIRECTIONS OR 5 FEET BEYOND ENDS OF CULVERT WHEN PARALLEL.

22. SAW CUT ASPHALT (FULL DEPTH) SHALL BE REQUIRED WHEN TRENCHING IS WITHIN A PAVED ROADWAY. PAVEMENT REPAIR SHALL BE IN ACCORDANCE WITH DETAIL G-12.

23. TEMPORARY PAVEMENT PATCHES SHALL BE REPLACED WITH PERMANENT PAVEMENT OR PROPOSED PAVEMENT STRUCTURE PRIOR TO FINAL PROJECT ACCEPTANCE.

24. THE CONSTRUCTION OF THE WATER MAINS, COLLECTOR SEWERS AND APPURTENANCES SHALL BE PERFORMED BY A PUBLIC UTILITY PIPELINE CONTRACTOR WITH EXPERIENCE IN THE INSTALLATION AND TESTING OF WATER MAINS AND COLLECTOR SEWERS AND DISINFECTION OF WATER MAINS AND SYSTEMS.

25. THE CONTRACTOR, WITH HIS ASSOCIATED MATERIALS SUPPLIERS, SHALL PROVIDE CERTIFICATION ACCEPTABLE TO THE WVWA AND OWNER THAT ALL PIPE MATERIALS SUPPLIED ON THE PROJECT MEET OR EXCEED THE CURRENT EDITION OF THE WVWA STANDARDS.

26. FOR CONSTRUCTION DETAILS, REFER TO THE 6(2) SERIES OF SHEETS.

27. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE PROPOSED UTILITIES SHOWN ON THESE PLANS WITH THE PHASING OF THE ROADWAY CONSTRUCTION AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS. AS A RESULT, THE UTILITY ADJUSTMENTS AND RELOCATIONS MAY REQUIRE MULTIPLE MOBILIZATIONS OF EQUIPMENT AND MATERIALS ASSOCIATED WITH PHASED CONSTRUCTION.

28. THE CONTRACTOR SHALL ATTEND A PRE-CONSTRUCTION/COORDINATION MEETING AT LEAST 14 DAYS PRIOR TO ANY CONSTRUCTION SHOWN ON THESE PLANS. THE CONTRACTOR WILL BE REQUIRED TO SUBMIT, AT THE MEETING, A DETAILED SEQUENCE OF CONSTRUCTION TO INCLUDE A SCHEDULE OF OPERATIONS AND PROPOSED METHODS INTENDED TO MINIMIZE DOWN-TIME OF THE EXISTING UTILITIES.

29. THE NUMBER AND TYPE OF FITTINGS REQUIRED FOR THE COMPLETION OF WATER RELOCATION WORK ARE NOT GUARANTEED AND, THEREFORE, SHALL BE DETERMINED BY ACTUAL CONDITIONS ENCOUNTERED IN THE FIELD DURING CONSTRUCTION.





























30. CONTRACTOR SHALL FURNISH COPIES OF ALL SHOP DRAWINGS PRIOR TO CONSTRUCTION AND/OR INSTALLATION OF FACILITIES AND RELATED ITEMS. ANY ITEMS INSTALLED PRIOR TO APPROVAL OF SHOP DRAWINGS ARE DONE AT THE CONTRACTOR'S RISK AND MAY BE SUBJECT TO REMOVAL AND CORRECT INSTALLATION AT THE CONTRACTOR'S EXPENSE.

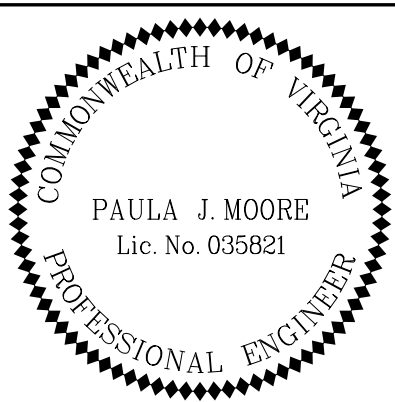
31. DURING CONSTRUCTION STAKEOUT FOR NEW UTILITIES, CONTRACTOR SHALL ALSO STAKE ANY PROPOSED DRIVEWAY ENTRANCES USING THE ENTRANCE PROFILE SHEETS AND PROPOSED STORM DRAINAGE USING THE DRAINAGE DESCRIPTION SHEETS. UTILITIES SHALL BE INSTALLED SO AS TO AVOID CONFLICT WITH THESE PROPOSED ITEMS.

32. THE CONTRACTOR SHALL TEMPORARILY RESTORE THE PIPE TRENCH/EXCAVATION IN PAVED AREAS AS SOON AS POSSIBLE, USING ONE OF THE THREE FOLLOWING METHODS BASED UPON THE STATUS OF CONSTRUCTION COMPLETION AND FIELD CONDITIONS:

- a. MATCH EXISTING MATERIAL AND DEPTH.
b. PLACE THE FINAL PAVEMENT SECTION REQUIRED PER DETAIL G-12.
c. PLACE THE TEMPORARY PAVEMENT SECTION (2-INCH OF SM-9.5D & 4-INCH OF BM-25.0A).

INDEX OF SHEETS		
SHEET NO.	DESCRIPTION	ROADWAY SHEET NO.
6(1)	GENERAL NOTES, LEGEND, AND INDEX SHEET	N/A
6(1A)	UTILITY NOTES	N/A
6(2)	DETAIL DRAWING WVWA - WATER	N/A
6(2A)	DETAIL DRAWING WVWA - WATER	N/A
6(2B)	DETAIL DRAWING WVWA - SEWER	N/A
6(2C)	DETAIL DRAWING - GENERAL	N/A
6(3)	UTILITY PLAN	3
6(3A)	UTILITY PROFILE	N/A
6(4)	UTILITY PLAN	4
6(4A)	UTILITY PROFILE	N/A
6(4B)	UTILITY PROFILE	N/A

LEGEND	EXISTING	PROPOSED
SANITARY SEWER		
GAS LINE		
WATER MAIN		
TELEPHONE CABLE		
FIBER OPTIC CABLE OR CONDUIT		
ELECTRIC CABLE OR CONDUIT		
TRAFFIC CONTROL LINE		
WATER METER & BOX		
WATER VALVE & VAULT		
WATER VALVE & BOX		
WATER REDUCER		
FIRE HYDRANT		
SANITARY SEWER MANHOLE		
SEWER CLEANOUT		
CONCRETE THRUST COLLAR		
WATER SERVICE CONNECTION		



Whitman Requardt & Associates
Blacksburg, Virginia
UTILITY ENGINEER



COUNTY OF ROANOKE

5204 BERNARD DRIVE
ROANOKE, VA 24018

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PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing
GENERAL NOTES, LEGEND
AND INDEX SHEET

Sheet

6(1)

WATER NOTES

1. ALL 1" WATER SERVICE PIPE SHALL BE POLYETHYLENE TUBING, ENDOPURE BY ENDOT INDUSTRIES OR EQUAL, AND IN ACCORDANCE WITH WVWA STANDARDS.

WVWA GENERAL NOTES

1. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO THE LATEST EDITION OF THE WESTERN VIRGINIA REGIONAL DESIGN AND CONSTRUCTION STANDARDS AVAILABLE AT WWW.WESTERNVWATER.ORG OR BY CONTACTING THE WESTERN VIRGINIA WATER AUTHORITY (AUTHORITY) AT 540-853-5700. THE PROJECT SHALL ALSO COMPLY WITH THE GOVERNING JURISDICTION'S STANDARDS AND OTHER AGENCY STANDARDS (E.G., VDOT, DEQ, DCR, VDH, ETC.) WHERE APPLICABLE.
2. THE AUTHORITY WILL INSTALL ALL NEW WATER METERS AND REMOVE ALL EXISTING WATER METERS. THE CONTRACTOR SHALL INSTALL COMPLETE NEW WATER SERVICES INCLUDING THE METER SETTER AND BOX IN CONFORMANCE WITH THE AUTHORITY'S STANDARDS. FOLLOWING METER REPLACEMENT BY THE AUTHORITY, THE CONTRACTOR SHALL DEMOLISH THE EXISTING WATER METER SETTER AND BOX. THE CONTRACTOR SHALL COORDINATE EXISTING METER REMOVAL AND NEW METER INSTALLATION DIRECTLY WITH THE AUTHORITY. THE CONTRACTOR SHALL PROVIDE AT LEAST THREE (3) BUSINESS DAYS ADVANCE NOTICE TO THE AUTHORITY PRIOR TO NEEDING METER INSTALLATIONS. THE CONTRACTOR SHALL SEQUENCE CONSTRUCTION ACTIVITY TO RECEIVE NEW METERS BEFORE CONTACTING THE AUTHORITY FOR WATER METER REPLACEMENT.
3. ALL LIVE CONNECTIONS TO EXISTING WATERLINES SHALL BE PERFORMED BY THE AUTHORITY. THE CONTRACTOR SHALL PROVIDE FULL STAINLESS STEEL TAPPING SLEEVE(S) AND VALVE(S). THE CONTRACTOR SHALL EXCAVATE TO THE EXISTING WATERLINE, SHORE THE TRENCH PER OSHA REQUIREMENTS, CLEAN THE EXISTING WATERLINE, AND INSTALL THE TAPPING SLEEVE AND VALVE PRIOR TO THE AUTHORITY PERFORMING THE TAP. THE CONTRACTOR SHALL NOTIFY THE AUTHORITY'S INSPECTOR AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO REQUIRING THE CONNECTION.
4. ALL CONNECTIONS TO EXISTING SANITARY SEWERLINES SHALL BE PERFORMED BY THE AUTHORITY. THE CONTRACTOR SHALL EXCAVATE TO THE EXISTING SEWERLINE, SHORE THE TRENCH PER OSHA REQUIREMENTS, AND CLEAN THE EXISTING SEWERLINE PRIOR TO THE AUTHORITY PERFORMING THE TAP. THE CONTRACTOR SHALL NOTIFY THE AUTHORITY'S UTILITY LINE SERVICES DIVISION AT 540-853-2792 AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO REQUIRING THE CONNECTION.
5. THE CONTRACTOR SHALL PERFORM ALL MANHOLE CONNECTIONS. THE CORING AND BOOT INSTALLATION SHALL BE INSPECTED AND APPROVED BY AN AUTHORITY CONSTRUCTION INSPECTOR PRIOR TO ACTIVATING SEWER SERVICE. THE CONTRACTOR SHALL CONTACT THE AUTHORITY'S CONSTRUCTION INSPECTOR RESPONSIBLE FOR THE PROJECT AT LEAST ONE (1) DAY PRIOR TO INITIATING THE MANHOLE CONNECTION.
6. PRIOR TO CONSTRUCTION IN THE RIGHT-OF-WAY, ALL APPLICABLE PERMIT(S) FROM THE GOVERNING JURISDICTION AND/OR AGENCY MUST BE OBTAINED AND A COPY KEPT ON THE PROJECT SITE.
7. FOR PROJECTS REQUIRING TRAFFIC CONTROL IN THE CITY OF ROANOKE, NOTIFY MANAGER OF TRANSPORTATION, MARK JAMISON, AT 540-853-5471 AT LEAST TWO (2) WEEKS IN ADVANCE OF REQUIRING TRAFFIC CONTROL. FOR A LANE CLOSURE PERMIT IN THE CITY OF ROANOKE, CONTACT THE TRAFFIC ENGINEER, HONG LIU, AT 540-853-2686. IN ROANOKE, BOTETOURT, OR FRANKLIN COUNTIES, TRAFFIC CONTROL REQUIREMENTS ARE APPROVED BY VDOT. PLEASE CONTACT THE LOCAL VDOT OFFICE. TRAFFIC CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH THE MOST RECENT MUTCD MANUAL AND THE VDOT WORK AREA PROTECTION MANUAL UNLESS OTHERWISE SPECIFIED BY THE CITY.
8. THE CONTRACTOR SHALL NOTIFY THE AUTHORITY'S ENGINEERING COORDINATOR, MARK SINK, AT 540-537-3460 AT LEAST THREE (3) DAYS PRIOR TO CONSTRUCTION.
9. A PRE-CONSTRUCTION CONFERENCE SHALL BE SCHEDULED AT LEAST ONE (1) DAY PRIOR TO ANY CONSTRUCTION.
10. THE CONTRACTOR SHALL HAVE A VALID MISS UTILITY TICKET PRIOR TO EXCAVATION. CONTACT MISS UTILITY AT 1-800-552-7001.
11. ALL EXISTING UTILITIES MAY NOT BE SHOWN OR MAY NOT BE SHOWN IN THEIR EXACT LOCATION. CONTRACTOR SHALL LOCATE ALL UTILITIES AND DETERMINE ALL INVERTS PRIOR TO CONSTRUCTION TO ALLOW FOR ADJUSTMENTS DUE TO CONFLICTS WITH OTHER UTILITIES. THE CONTRACTOR SHALL COMPLY WITH THE VIRGINIA STATE WATERWORKS REGULATIONS, SECTION 12VACS-590-1150, AND THE VIRGINIA STATE SEWAGE COLLECTION AND TREATMENT REGULATIONS WHERE LINES CROSS.
12. AN APPROVED SET OF PLANS AND PERMITS MUST BE AVAILABLE AT THE CONSTRUCTION SITE AT ALL TIMES.
13. CONSTRUCTION DEBRIS SHALL BE CONTAINERIZED IN ACCORDANCE WITH THE VIRGINIA LITTER CONTROL ACT.
14. THE CONTRACTOR'S CERTIFIED RESPONSIBLE LAND DISTURBER SHALL BE RESPONSIBLE TO IMPLEMENT ALL EROSION AND SEDIMENT CONTROLS REQUIRED. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, AND SHALL BE INSTALLED PRIOR TO CONSTRUCTION. THE AUTHORITY MAY REQUIRE CHANGES TO AN APPROVED PLAN IN THE FOLLOWING CASES WHERE INSPECTION HAS REVEALED THAT THE PLAN IS INADEQUATE TO SATISFY APPLICABLE REGULATIONS.
15. THE CONTRACTOR SHALL PROVIDE ADEQUATE MEANS OF CLEANING ALL VEHICLES AND EQUIPMENT PRIOR TO ENTERING PUBLIC STREETS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE STREETS ARE KEPT IN A CLEAN, MUD- AND DUST-FREE CONDITION AT ALL TIMES.
16. FIELD CHANGES SHALL BE APPROVED BY THE AUTHORITY'S ENGINEERING DIVISION PRIOR TO SUCH CONSTRUCTION. NO ADDITIONAL PAY ITEMS SHALL BE MADE TO CONTRACTOR FOR WORK PERFORMED WITHOUT PRIOR APPROVAL FROM AUTHORITY'S PROJECT MANAGER.
17. THE CONTRACTOR SHALL MAKE PROVISIONS TO PROVIDE ACCESS TO ALL PROPERTIES DURING CONSTRUCTION AND SHALL MAINTAIN SAFE ACCESSIBILITY TO FIRE HYDRANTS AT ALL TIMES.
18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND UNCOVERING ALL MANHOLES AFTER PAVING. MANHOLE RIMS SHALL BE INSTALLED TO GRADE AND FLUSH WITH THE FINAL PAVEMENT.
19. UNREPAIRED ROADWAYS OPENED TO TRAFFIC SHALL HAVE, AT A MINIMUM, COMPACTED AGGREGATE MATERIAL VDOT 21A OR 21B FLUSH WITH THE ADJACENT ROADWAY SURFACE AND SHALL BE INSPECTED AND REPAIRED ON A DAILY BASIS. SOME AREAS WILL REQUIRE A TEMPORARY PATCH UNTIL FINAL PAVING CAN BE COMPLETED.
20. THE CONTRACTOR SHALL NOT EXCAVATE MORE TRENCH LENGTH THAN CAN BE RESTORED WITHIN THE SAME WORK DAY. ALL TRENCHES SHALL BE BACKFILLED OR PLATED AT THE END OF EACH WORK DAY OR WHEN THE CONTRACTOR IS NOT ON SITE.
21. THE CONTRACTOR SHALL SUPPLY THE AUTHORITY WITH CORRECT AS-BUILT PLANS BEFORE SUBSTANTIAL COMPLETION WILL BE GRANTED.
22. HORIZONTAL AND/OR VERTICAL BEND FITTINGS SHOWN IN THE PLAN ARE APPROXIMATE. CONTRACTOR TO BE AWARE THAT ALL HORIZONTAL AND/OR VERTICAL BEND FITTINGS MAY NOT BE SHOWN IN THE PLANS.
23. ANY PROJECT WITHIN VDOT JURISDICTION WILL REQUIRE COMPACTION TESTS EVERY 500 LINEAR FEET WHERE PAVEMENT (ROADWAY) IS CUT AND REPLACED.
24. CONTRACTOR SHALL RECORD VERTICAL AS-BUILT DATA TO INCLUDE DEPTH OF WATER MAIN, WATER MAIN FEATURES & ALL UTILITY CROSSINGS.

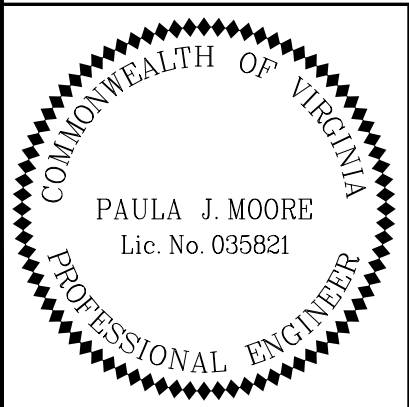
SEWER NOTES

1. ALL NEWLY INSTALLED SANITARY SEWERS SHALL BE INSPECTED BY THE CONTRACTOR BY CCTV INSPECTION. INSPECTION SHALL BE PERFORMED PRIOR TO SUBSTANTIAL COMPLETION AND PRIOR TO PLACING THE NEW SANITARY SEWER INTO SERVICE. CCTV INSPECTION SHALL BE PERFORMED AND SUBMITTED IN ACCORDANCE WITH WVWA STANDARDS, SECTION CS-4 SANITARY SEWER CLOSED CIRCUIT TELEVISION (CCTV) INSPECTION.
2. BYPASS PUMPING SHALL BE PERFORMED IN ACCORDANCE WITH THE WVWA STANDARDS AND THE MAINTENANCE OF TRAFFIC PLANS FOR THIS PROJECT. IN ADDITION, WHEN PUMPING IS NECESSARY INTO OR OUT OF A MANHOLE LOCATED WITHIN THE TRAVELWAY, THE BYPASS HOSE SHALL BE PLACED BELOW THE STREET SURFACE AND TEMPORARILY INSTALLED INTO THE SIDE OF THE MANHOLE BY CORING THE MANHOLE. THE STREET SURFACE SHALL BE RESTORED WITH TEMPORARY PAVEMENT FOR THE DURATION OF THE BYPASS PUMPING. UPON COMPLETION OF THE BYPASS PUMPING, THE MANHOLE SHALL BE REPAIRED BY FILLING THE CORED HOLE WITH HYDRAULIC CEMENT EQUAL TO SIKAGROUT 212, AND THE ROAD BASE AND SURFACE REPAIRED IN ACCORDANCE WITH DETAIL G-12. ALL PAVEMENT REMOVAL AND REPLACEMENT NECESSARY FOR BYPASS PUMPING SHALL BE INCIDENTAL TO SANITARY COLLECTION SEWER.\
3. ALL SANITARY SEWER DUCTILE IRON PIPE SHALL BE LINED WITH PROTECTED 401 EPOXY, IN ACCORDANCE WITH THE WVWA STANDARDS.

OTHER UTILITY NOTES

1. UTILITY CONTACTS:
- ROANOKE GAS COMPANY
CONTACT: CHRISTOPHER BOOTHE
PHONE: 540-777-3816
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2. CONTRACTOR SHALL COORDINATE WORK ON THE PROJECT WITH ALL UTILITY OWNERS AS NEEDED TO AVOID CONFLICTS AND TO MAINTAIN THE PROJECT SCHEDULE. CONTRACTOR SHALL NOTIFY APPLICABLE UTILITY OWNERS WHEN WORKING NEAR EXISTING UTILITES AND WHEN UTILITY ADJUSTMENTS AND/OR RELOCATIONS ARE NEEDED. SOME UTILITY RELOCATIONS HAVE BEEN COMPLETED PRIOR TO AWARD OF THE PROJECT. SOME UTILITES WILL BE RELOCATED DURING THE PROJECT BY THE UTILITY OWNER AND UPON NOTIFICATION BY AND COORDINATED WITH THE CONTRACTOR.
3. ROANOKE GAS COMPANY (RGC) IS TO RELOCATE GAS MAINS AS NECESSARY TO ACCOMMODATE THE PROJECT. COORDINATION FOR SCOPE AND SCHEDULE OF NEEDED GAS MAIN RELOCATIONS SHALL BE PERFORMED IN THE PRECONSTRUCTION MEETING. THE CONTRACTOR SHALL COORDINATE THEIR WORK WITH RGC'S RELOCATION WORK AS NEEDED.
4. APPENDIX B OF THE PROJECT MANUAL INCLUDES PROPOSED UTILITY RELOCATION PLANS, SHOWING EACH UTILITY'S INTENDED RELOCATION, REMOVAL AND/OR INSTALLATION OF UTILITIES. THESE PLANS HAVE BEEN PREPARED BY UTILITY COMPANIES AND ARE INCLUDED FOR THE CONTRACTOR'S USE IN COORDINATING UTILITIES WITH CONSTRUCTION OF THE PROJECT. THE PLANS SHOW WORK THAT IS AN ADDITION TO, OR A CLARIFICATION OF, THE UTILITY RELOCATIONS BY OTHERS SHOWN ON SHEETS 6(3) THROUGH 6(4). THE UTILITY PLANS BY UTILITY COMPANIES ARE NOT FINAL AND MAY NOT REPRESENT ALL UTILITY RELOCATIONS THAT ARE NECESSARY TO AVOID CONFLICTS WITH THE PROJECT.

UTILITY TEST HOLES (TH) ⬤ – DEPTH TO TOP OF UTILITY			
TH NO.	UTILITY	DEPTH	SHEET
1	36" WATER MAIN	4'-9"	6(3)
2	36" WATER MAIN	4'-9"	6(3)



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Blacksburg, Virginia
UTILITY ENGINEER



COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

VDOT PROJECT NUMBER:
#SMART18 - PLANTATION RD BIKE/PED/STREETSCAPE PHASE II
STATE PROJECT NO: 0115-080-911, P101, R201, C501
VDOT UPC NUMBER: 111366

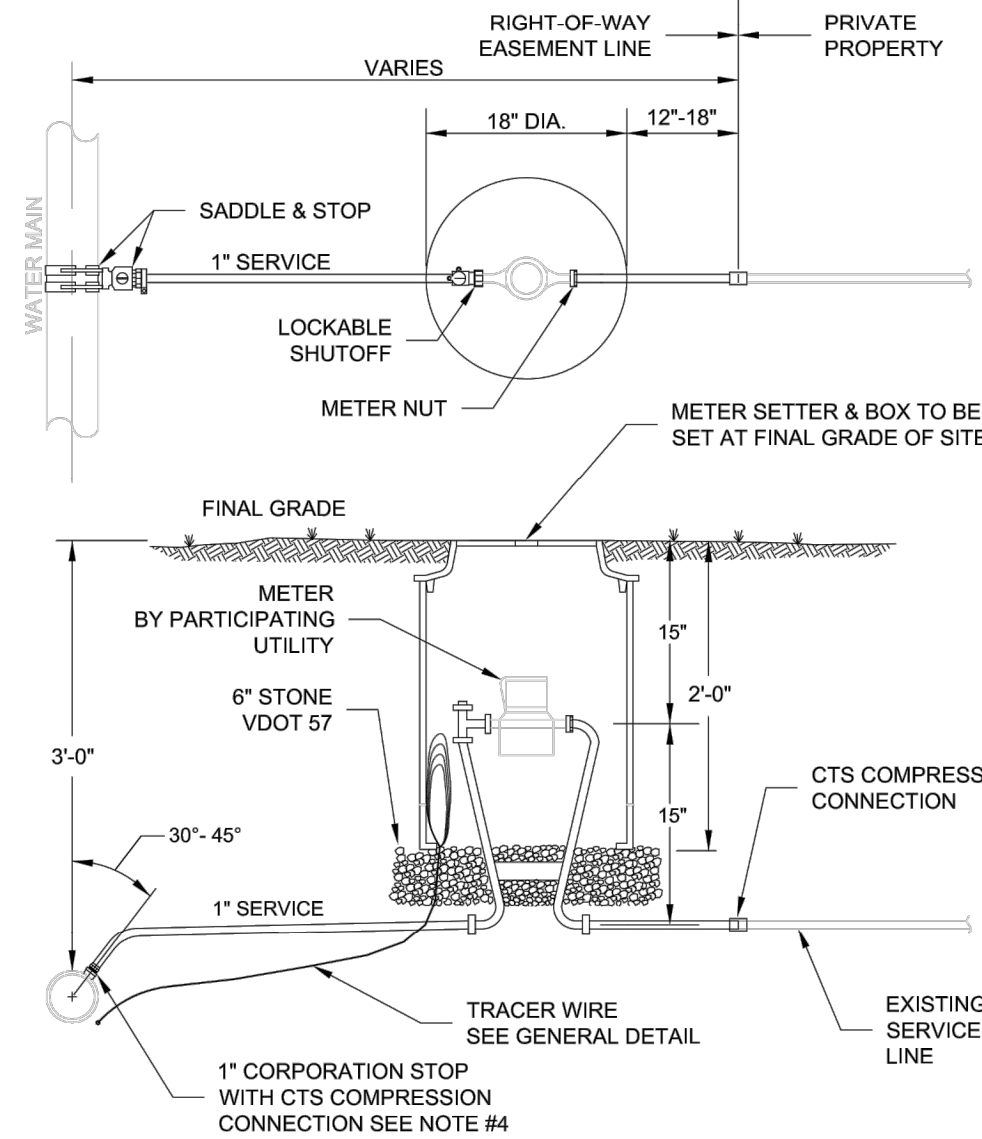
PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Rev	Date	Description

Drawing
UTILITY NOTES

Sheet
6(1A)

1. SETTER TO BE A.Y. McDONALD 720-215MXD33, FORD VB72-19W-11-33 OR APPROVED EQUAL.
2. SADDLES MUST BE USED WITH ALL PLASTIC & DUCTILE IRON PIPE. SERVICE SADDLES SHALL BE USED IN ACCORDANCE WITH WATER DISTRIBUTION PIPING SPECIFICATION. SERVICE SADDLES FOR PLASTIC PIPE SHALL BE: POWERSEAL 3417, OR 3412AS, ROMAC 202S, OR 306, OR FORD METER FS202 OR FS303. FOR DUCTILE IRON PIPE USE THE ABOVE, OR POWERSEAL 3413, ROMAC 202 OR FORD METER F202.
3. METER BOX SHALL BE CARSON/MID-STATES PLASTICS, INC. PLASTIC BOX WITH FORD A32-T (ELECTRONIC READ LID), ADS CORRUGATED HDPE BOX WITH FORD A32-T (ELECTRONIC READ LID), OR A.Y. McDONALD MODEL 74M32AT CAST IRON BASE & COVER OR APPROVED EQUAL. METER BOX SHALL NOT BE PLACED IN AREAS SUBJECT TO VEHICULAR TRAFFIC. IF TRAFFIC BEARING BOX IS REQUIRED, DESIGN ENGINEER SHALL CONSULT WITH PARTICIPATING UTILITY TO DETERMINE SITE SPECIFIC REQUIREMENTS.
4. CORPORATION STOP SHALL BE FORD FB1000-4-G-NL, MUELLER B-25008 OR APPROVED EQUAL.
5. SERVICE SHALL BE "K" TYPE COPPER, OR COPPER TUBE SIZE POLYETHYLENE (PE) 4710, SODR-9 (200 psi).
6. WHENEVER SIDEWALK EXISTS OR IS PROPOSED, MODIFY METER LOCATION AS DIRECTED.



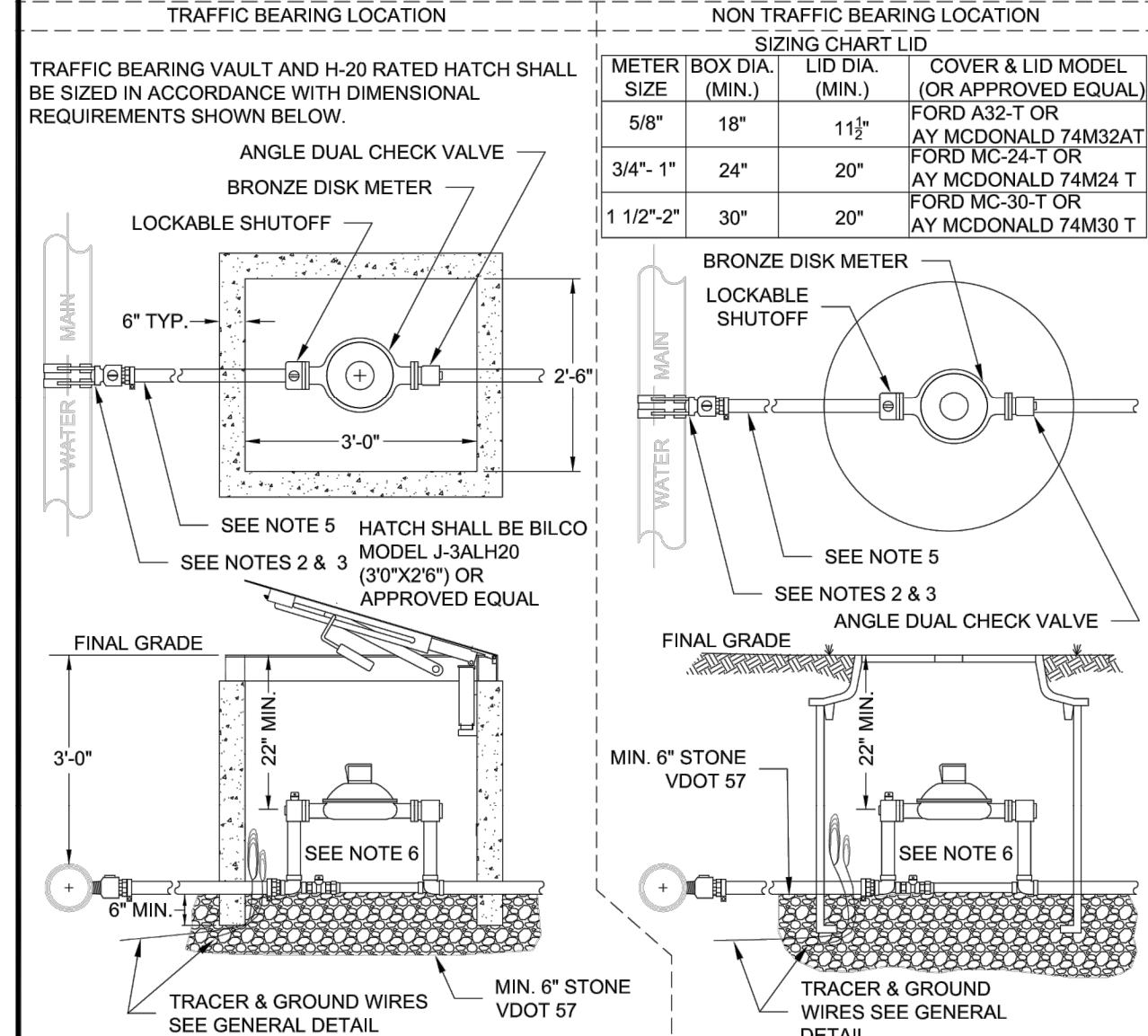
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

SINGLE RESIDENTIAL
WATER SERVICE
(REPLACEMENT OF EXISTING SERVICE)

W-2

02/10/15

1. ALL METERS ARE TO BE PROVIDED AND INSTALLED BY PARTICIPATING UTILITY AT OWNER/DEVELOPER'S EXPENSE. METER BOX, SERVICE, AND SETTER TO BE FURNISHED AND INSTALLED BY OWNER/DEVELOPER IN ACCORDANCE WITH THE MINIMUM REQUIREMENTS SHOWN BELOW.
2. SADDLES MUST BE USED WITH ALL PLASTIC & DUCTILE IRON PIPE. SERVICE SADDLES SHALL BE USED IN ACCORDANCE WITH WATER DISTRIBUTION PIPING SPECIFICATION. SERVICE SADDLES FOR PLASTIC PIPE SHALL BE: POWERSEAL 3417, OR 3412AS, ROMAC 202S, OR 306, OR FORD METER FS202 OR FS303. FOR DUCTILE IRON PIPE USE THE ABOVE, OR POWERSEAL 3413, ROMAC 202 OR FORD METER F202.
3. CORPORATION STOP SHALL BE FORD FB1000-4-G-NL, MUELLER B-25008 OR APPROVED EQUAL.
4. METER BOXES LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC SHALL BE CONCRETE WITH H-20 RATED TRAFFIC BEARING HATCH. ALL OTHER METER BOXES SHALL BE CARSON/MID-STATES PLASTICS, INC. PLASTIC BOX, ADS CORRUGATED HDPE BOX, OR APPROVED EQUAL. MINIMUM METER BOX & LID DIAMETERS SHALL BE IN ACCORDANCE WITH SIZING CHART BELOW.
5. SERVICE SHALL BE "K" TYPE COPPER OR P.E. 4710, CTS O.D., MINIMUM CELL CLASS 44547AE AND 44547AD.
6. COPPER METER SETTER TO BE FORD, A.Y. McDONALD OR APPROVED EQUAL WITH ANGLE DUAL CHECK VALVE AND BYPASS HAVING LOCKABLE SHUTOFF VALVE.
7. SERVICES REQUIRING METERS LARGER THAN 2-INCH SHALL BE REVIEWED BY THE PARTICIPATING UTILITY ON A CASE BY CASE BASIS.



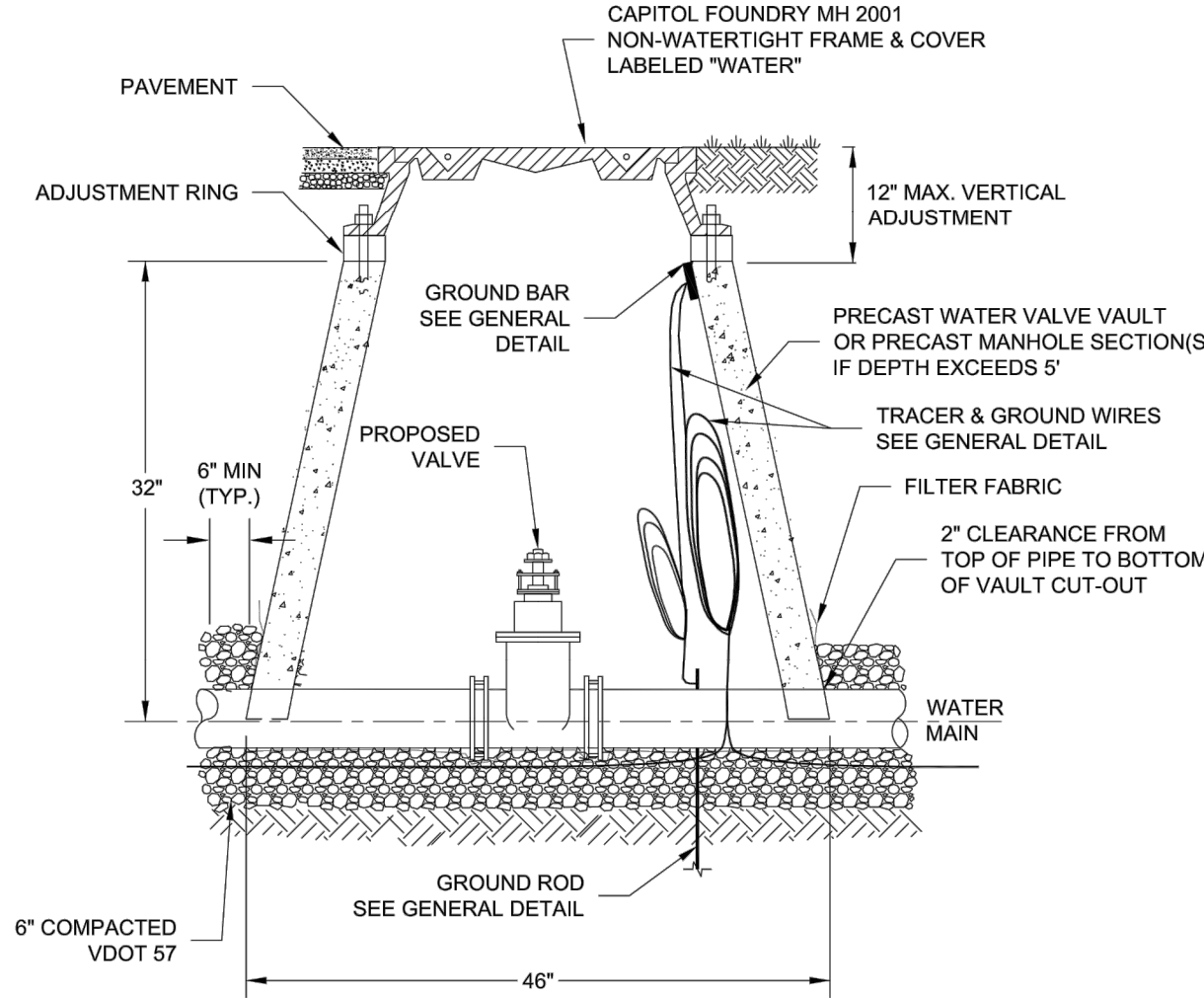
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

COMMERCIAL
WATER SERVICE
METER SIZES 5/8" - 2"

W-5

02/10/15

1. FILTER FABRIC TO BE INSTALLED BETWEEN BOTTOM OF PIPE AND STONE BEDDING. FABRIC TO EXTEND VERTICALLY A MINIMUM OF 6" FROM BOTTOM OF VAULT (FULL CIRCUMFERENCE).



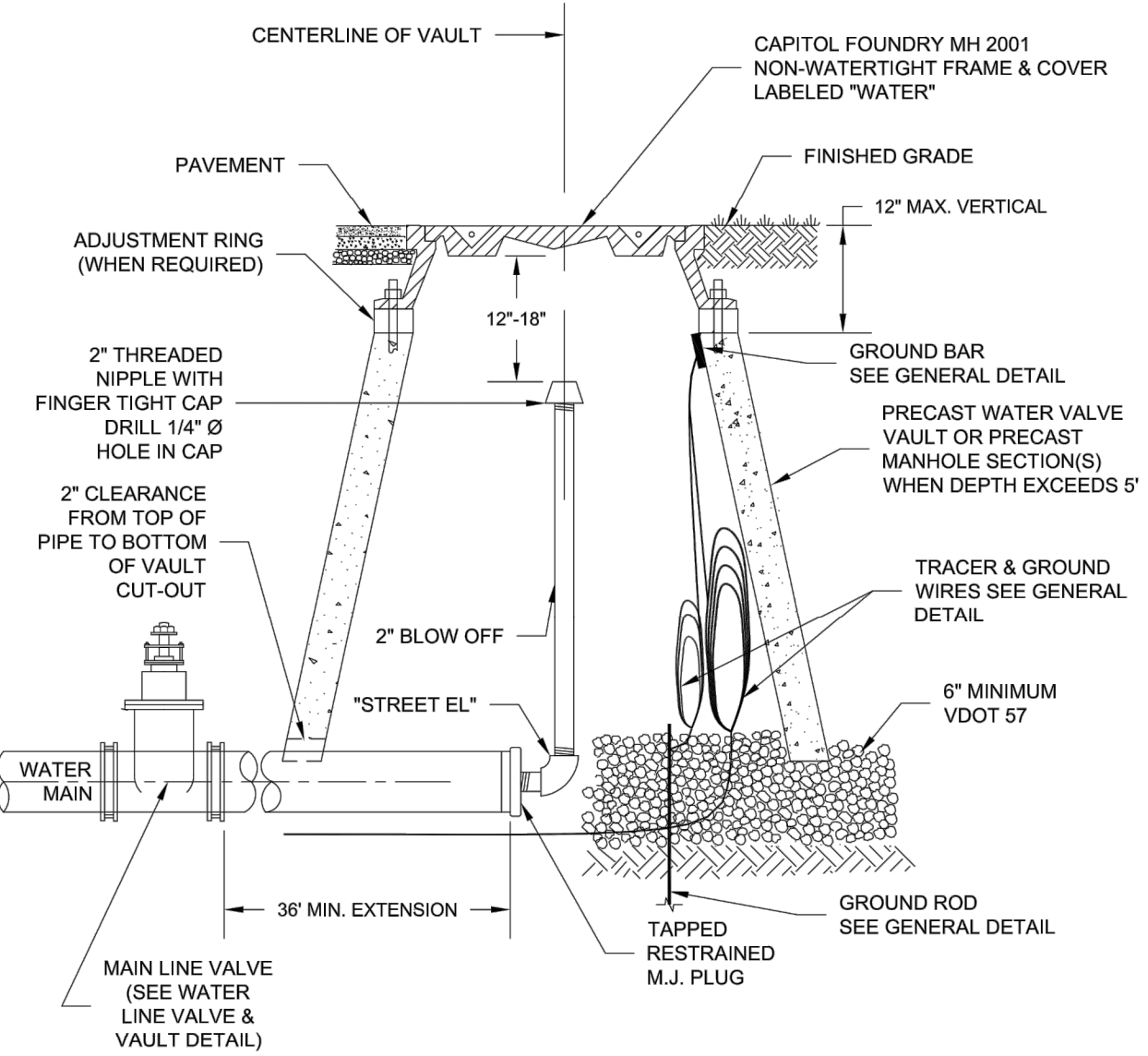
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

WATER LINE VALVE
& VAULT

W-9

01/01/14

1. THE 2" PIPING AND "STREET EL" SHALL BE LEAD FREE BRASS OR DUCTILE IRON.
2. PIPE JOINTS SHALL BE RESTRAINED BEFORE GATE VALVE IN ACCORDANCE WITH DISTANCE SHOWN IN THE "MINIMUM THRUST RESTRAINT OF PIPE JOINTS DESIGN LENGTHS" DETAIL FOR VALVE / PLUG. PIPE JOINTS BETWEEN GATE VALVE AND BLOWOFF SHALL ALSO BE RESTRAINED.



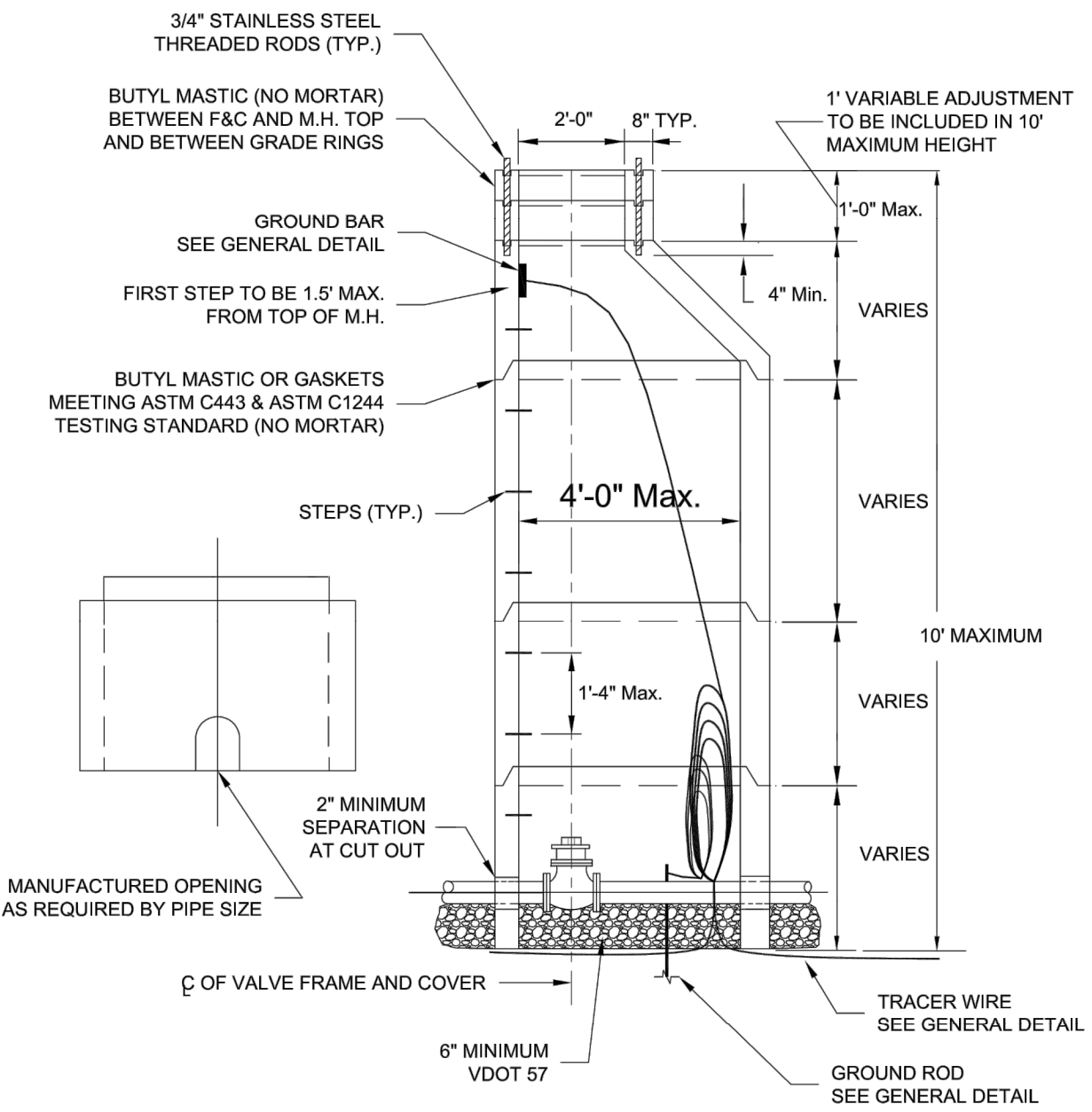
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

TEMPORARY END OF LINE
BLOW-OFF ASSEMBLY

W-11

01/01/14

1. TO BE USED WHEN STANDARD VAULT CONSTRUCTION EXCEEDS MAXIMUM VERTICAL HEIGHT OF 5'.



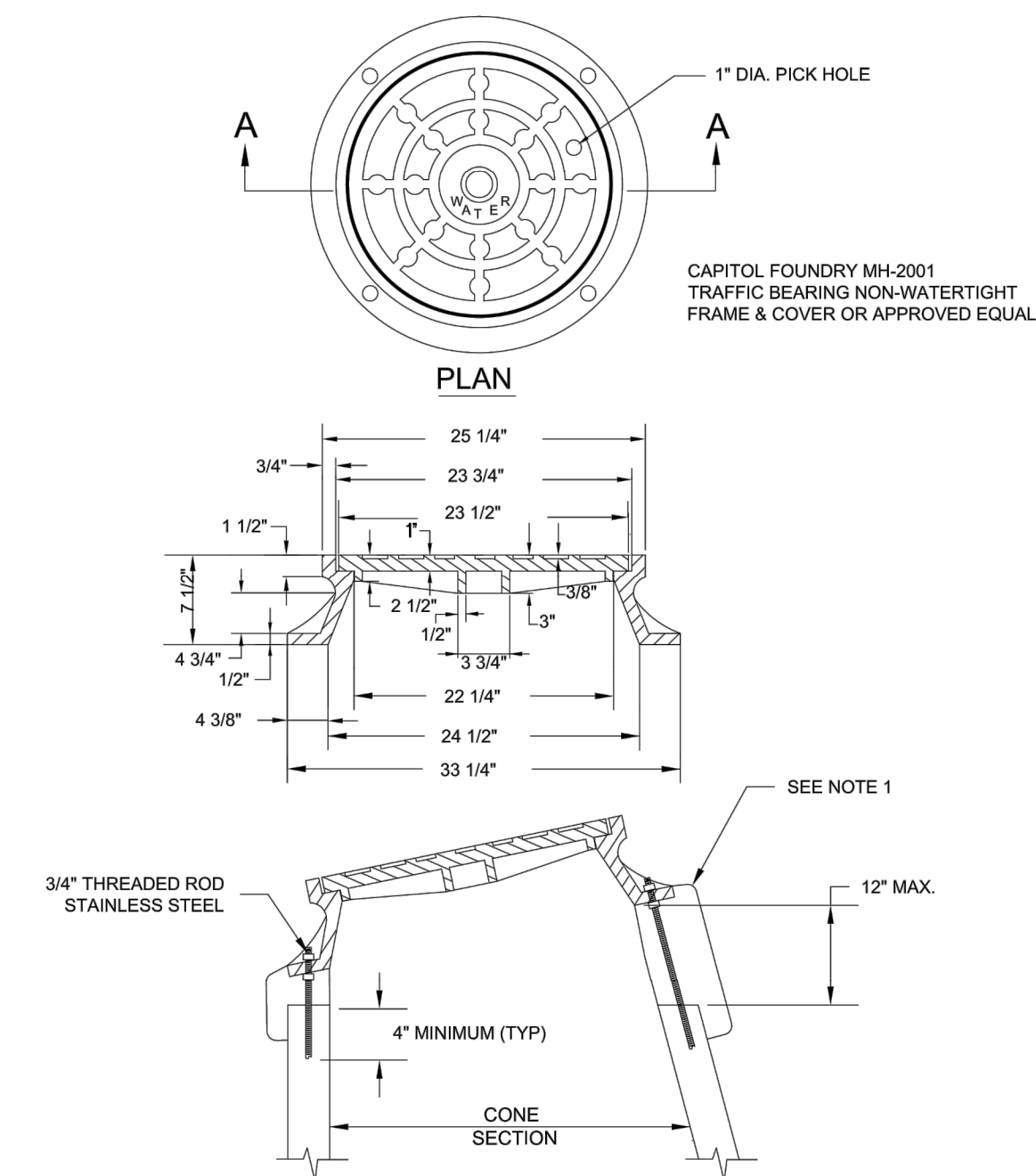
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

DEEP VALVE
VAULT (MANHOLE)

W-15

01/01/14

1. USE MODERATELY STIFF MIX OF NON SHRINK GROUT, SAND, AND 1/2" AND LESS DIAMETER GRAVEL WITH 28 DAYS STRENGTH AT MINIMUM 3,000 P.S.I.
2. MIX IS TO BE FORCED INTO ALL GROOVES AND UNDER FLANGE OF FRAME AND LEFT AT OR ABOVE TOP OF FLANGE.
3. DO NOT BACKFILL AROUND FRAME AND COVER, FOR 48 HOURS AFTER CONCRETE IS PLACED. THE USE OF HIGH EARLY STRENGTH CEMENT WOULD REDUCE TIME TO (24 HRS.)
4. RESTRICT TRAFFIC LOAD FOR A MINIMUM OF 24 HOURS.

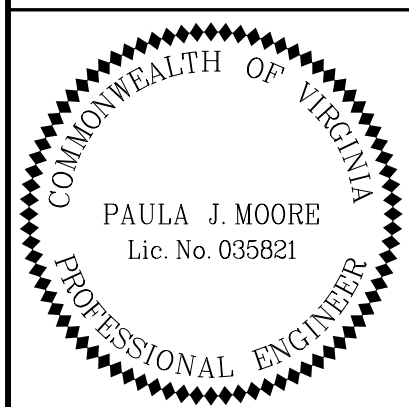


WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

VAULT FRAME
AND COVER

W-16

01/01/14



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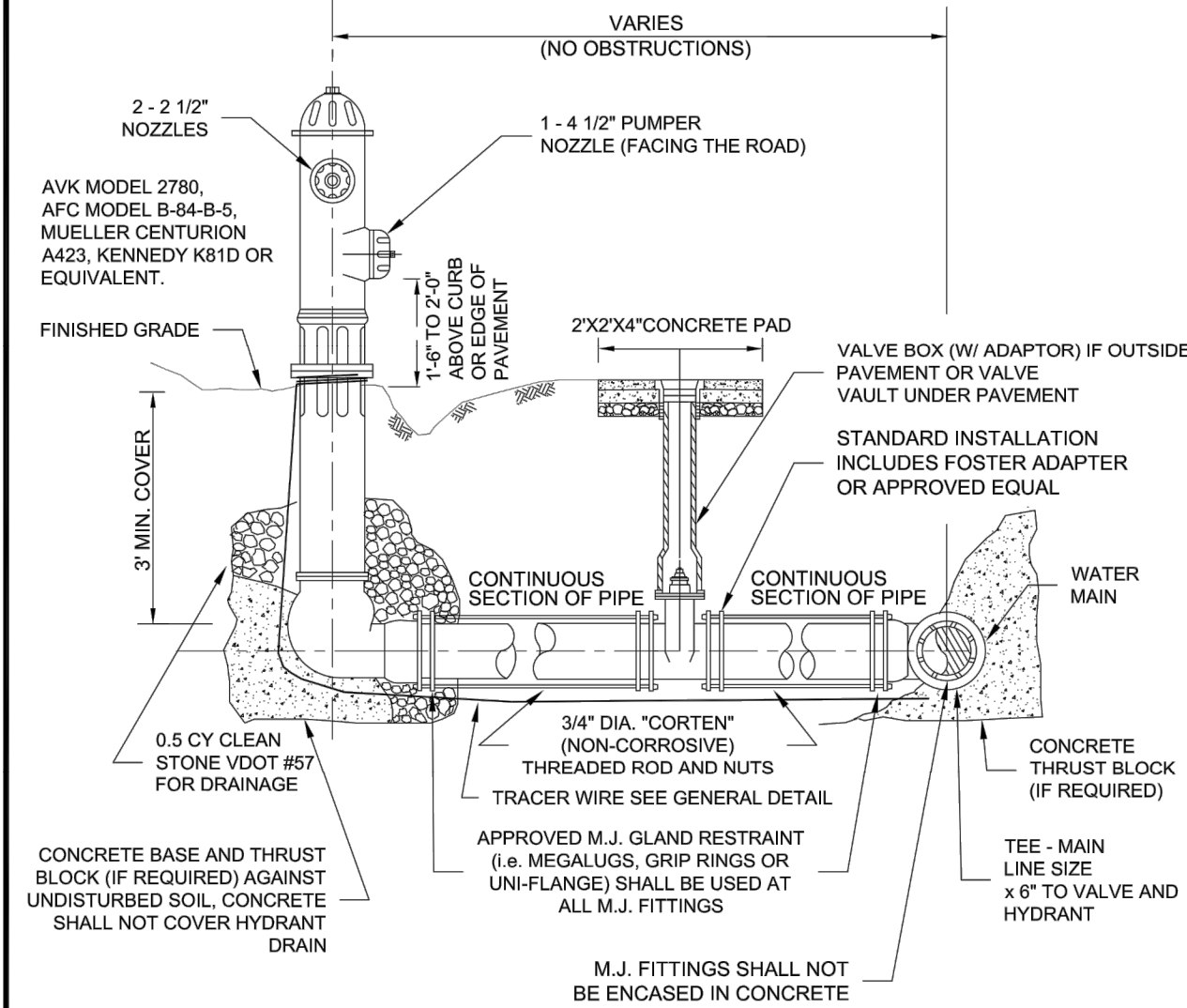
COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

VDOT PROJECT NUMBER:
#SMART18 - PLANTATION RD BIKE/PEDESTRIAN PHASE II
STATE PROJECT NO: 0115-080-911, P101, R201, C501
VDOT UPC NUMBER: 111366

PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Rev	Date	Description	Sheet
			6(2)

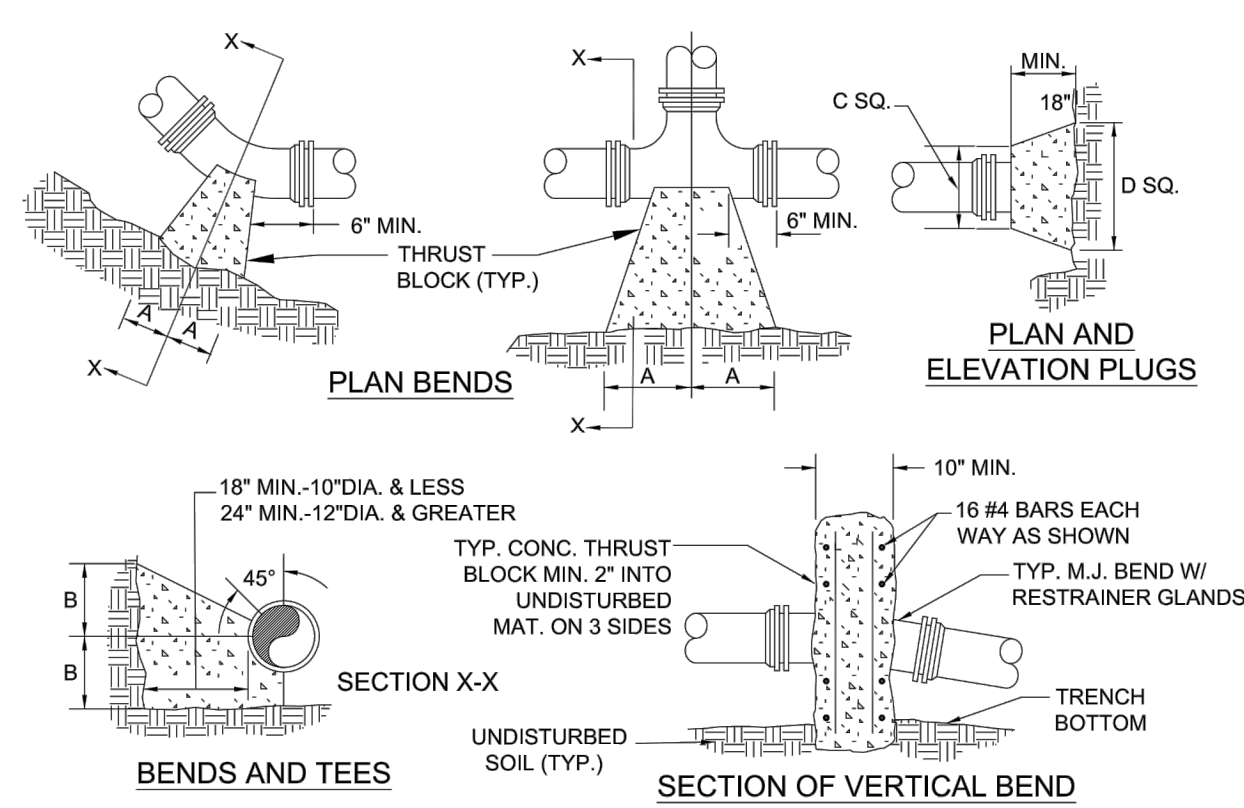
- PUBLIC HYDRANTS SHALL BE PAINTED SILVER WITH AN OIL-BASED PAINT. PRIVATE HYDRANTS SHALL ALSO BE PAINTED SILVER WITH AN OIL-BASED PAINT UNLESS OTHERWISE SPECIFIED BY THE JURISDICTIONAL FIRE MARSHALL.
- FIRE HYDRANT SHALL BE INSTALLED 2' MIN. AND 4' MAX. FROM BACK OF CURB OR 6' MIN. AND 12' MAX. FROM EDGE OF PAVEMENT WHEN CURB IS NOT PRESENT. FIRE HYDRANT TO BE INSTALLED WITHIN RIGHT-OF-WAY OR EASEMENT LINE.
- AREA AROUND HYDRANT AT A RADIUS OF 4' TO BE LEVEL AND UNOBSTRUCTED.
- WATERPROOF BAGS OR OUT OF SERVICE RINGS SHALL BE PLACED OVER ALL NEWLY INSTALLED FIRE HYDRANTS.
- HYDRANT ASSEMBLIES SHALL BE RODDED AND RESTRAINED WITH APPROVED M.J. GLAND RESTRAINTS. HIGH PRESSURE (OVER 150 PSI) ALSO REQUIRES CONCRETE THRUST BLOCKS AS SHOWN BELOW.
- IF DURING CONSTRUCTION THE SEASONAL WATER LEVEL IS NOTED TO BE ABOVE THE DRAIN OUTLETS OF THE PROPOSED HYDRANT, THE PARTICIPATING UTILITY WILL BE NOTIFIED IMMEDIATELY SO THAT THE HYDRANT CAN BE RELOCATED TO A SUITABLE LOCATION, OMITTED, OR THE DRAIN HOLE PLUGGED.
- TWO WRAPS OF TRACER WIRE SHALL BE WRAPPED AROUND BASE OF HYDRANT.
- APPROVED MODELS - AVK MODEL 2780, AFC MODEL B-84-B-5, MUELLER CENTURION A423, KENNEDY K81D OR EQUIVALENT.
- WHERE HYDRANT LATERAL(S) IS APPROVED BY THE PARTICIPATING UTILITY TO BE LONGER IN LENGTH, MAKING THE CONTINUOUS SECTION OF PIPE ON EACH SIDE OF THE GATE VALVE UNFEASIBLE, RESTRAINED PIPE JOINTS SHALL BE INSTALLED BETWEEN THE TEE AND GATE VALVE. IN LIEU OF RODDING, HOWEVER, A RODDED CONTINUOUS SECTION OF PIPE SHALL ALWAYS BE INSTALLED BETWEEN THE GATE VALVE AND HYDRANT.



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

FIRE HYDRANT ASSEMBLY

02/10/15 W-17



NOTES

- FOR VERT. BEND DOWN IN EXCESS OF 11 1/4" BEND, ANCHORAGE SHALL BE DESIGNED BY ENGINEER.
- FOR VERT. BEND UPWARD, BLOCKING TO BE SIMILAR TO THAT FOR HORIZ. BEND.
- GLANDS & BOLTS SHALL BE PROTECTED FROM CONC. WITH PLASTIC SHEETING WHEN POURING THRUST BLOCKS.
- ALL THRUST BLOCK & SUPPORT CONCRETE SHALL BE 3000 PSI READY MIX CONCRETE.
- THRUST BLOCKS WITH "B" DIMENSION GREATER THAN 30" SHALL HAVE THE RESTRAINED PIPE INSTALLED WITH A MINIMUM OF 4' OF COVER.
- REFER TO "MINIMUM THRUST RESTRAINT OF PIPE JOINTS DESIGN LENGTHS" DETAIL FOR WHEN THRUST BLOCKS ARE REQUIRED TO BE USED.
- WHEN THRUST BLOCK IS REQUIRED BUT NOT FEASIBLE TO CONSTRUCT, THRUST COLLAR SHALL BE USED. SEE "THRUST COLLAR" DETAIL.

PRESSURE = 200psi
BEARING = 2000psf
FACTOR OF SAFETY = 1.5

PIPE SIZE	90° BEND		45° BEND		22 1/2° BEND		11 1/2° BEND		TEE		PLUG	
	A	B	A	B	A	B	A	B	A	B	C	D
4"	8"	12"	8"	8"	6"	6"	6"	6"	11"	9"	10"	6"
6"	18"	12"	8"	10"	8"	8"	8"	8"	11"	10"	12"	18"
8"	18"	13"	10"	10"	8"	8"	8"	11"	12"	12"	24"	
10"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
12"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
16"	26"	20"	16"	18"	11"	13"	11"	13"	18"	20"	20"	36"
24"	82"	42"	62"	30"	44"	22"	22"	16"	82"	42"	82"	42"
30"	185"	42"	100"	42"	52"	42"	40"	30"	185"	42"	185"	42"

WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

THRUST BLOCK REQUIREMENTS

W-18

02/10/15

FACTOR OF SAFETY = 1.5												
PIPE SIZE	PIPE MATL.	90° BEND	45° BEND	22 1/2° BEND	11 1/2° BEND	VALVE/ PLUG (NOTE 2)	TEE BRANCH (NOTE 3)	REDUCER (NOTE 4)	45° VERT.	22 1/2° VERT.	11 1/2° VERT.	
6"	D.I.	28'	21'	6'	3'	50'	26'	26'	21'	10'	5'	
8"	D.I.	36'	21'	8'	4'	65'	41'	27'	27'	13'	7'	
10"	D.I.	43'	21'	9'	5'	77'	53'	26'	32'	16'	8'	
12"	D.I.	51'	21'	10'	5'	91'	67'	27'	36'	18'	9'	
6"	PVC	29'	21'	6'	3'	78'	25'	40'	32'	16'	8'	
8"	PVC	37'	21'	8'	4'	102'	49'	43'	42'	21'	10'	
10"	PVC	44'	21'	9'	5'	122'	68'	41'	51'	25'	12'	
12"	PVC	51'	21'	11'	6'	143'	89'	42'	60'	29'	15'	

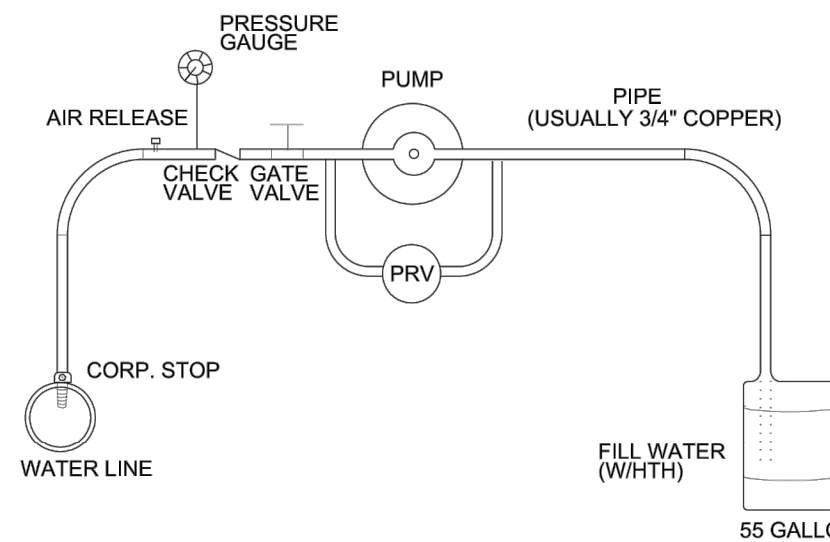
- ALL JOINTS SHALL BE RESTRAINED ON BOTH SIDES OF THE FITTING AND DOCUMENTED BY THE INSPECTOR FOR THE LENGTH SHOWN UNLESS OTHERWISE INDICATED.
- RESTRAINED LENGTH SHOWN REFERS TO ANY DESIGNED OR POTENTIAL LINE STOP, INCLUDING ALL GATE VALVES.
- RESTRAINED LENGTH SHOWN REFERS TO THE BRANCH LINE ONLY. THE CONTINUOUS PIPE LENGTH OF THE MAIN RUN SHALL BE A MINIMUM OF 10' ON EACH SIDE OF THE TEE.
- RESTRAINED LENGTH SHOWN IS BASED ON REDUCING PIPE DIAMETER TO ONE SIZE SMALLER THAN PIPE LISTED (ANY OTHER DIAMETER REDUCTION WILL REQUIRE ADDITIONAL CALCULATIONS BEFORE INSTALLATION). RESTRAINED LENGTH SHOWN IS UPSTREAM ON THE LARGE SIDE OF THE REDUCER.
- 12" AND SMALLER DIAMETER: IF UNDER 150 PSI WORKING PRESSURE, RESTRAINED JOINT(S) ARE TO BE USED. IF EQUAL TO OR OVER 150 PSI WORKING PRESSURE, BOTH THRUST BLOCK(S) AND RESTRAINED JOINT(S) SHALL BE USED.
- LARGER THAN 12" DIAMETER: IF UNDER 100 PSI WORKING PRESSURE, RESTRAINED JOINT(S) ARE TO BE USED. IF EQUAL TO OR OVER 100 PSI WORKING PRESSURE, BOTH THRUST BLOCK(S) AND RESTRAINED JOINT(S) SHALL BE USED (UNLESS OTHERWISE APPROVED BY THE PARTICIPATING UTILITY).
- FOR RESTRAINED JOINT PIPING REQUIREMENTS AT FITTING R.J. PVC AND R.J. DIP MAY BE USED INTERCHANGEABLY WITH APPROVAL FROM PARTICIPATING UTILITY. CONTRACTOR MUST PLAN ACCORDINGLY FOR THE DIFFERENCE IN PVC AND DIP BELL AND SPIGOT DIMENSIONS.

WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

MINIMUM THRUST RESTRAINT OF PIPE JOINTS DESIGN LENGTHS

W-19

02/10/15



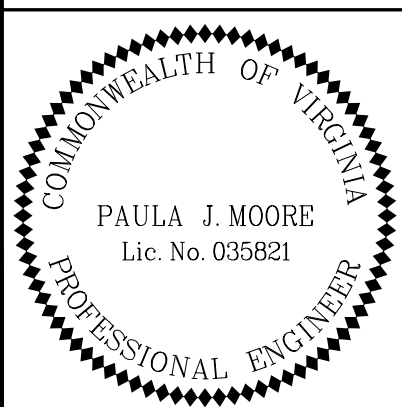
TYPICAL WATER PRESSURE TEST RIG

WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

TYPICAL WATER PRESSURE TEST RIG

W-20

01/01/14



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COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

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PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing
DETAIL DRAWING
WWA - WATER

Sheet
6(2A)

Rev	Date	Description

-
- Diagram illustrating a precast manhole assembly. The assembly consists of a circular manhole structure with a flexible boot and stainless steel band. The diagram shows the precast hole, the grout annular space (typical inlet and outlet), the flexible boot with stainless steel band (typical), and the overall height of 4'-0".

4' STANDARD MANHOLE
FOR PIPE 15" OR SMALLER
(FOR DEPTHS UP TO 15 FEET)

08/01/15

-
- SANITARY SEWER LATERAL FOR DEEP SEWER**
- CLEAN-OUT DETAILS:**
- SOLID GLUE CAP
 - ROUGH GRADE
 - FINISHED GRADE
 - PRIVATE PROPERTY
 - RIGHT OF WAY OR LIMITS OF EASEMENT
 - CLEAN OUT BOX AND LID (SET TO FINISHED GRADE)
 - CLEAN-OUT TO EXTEND ABOVE GROUND A MIN. OF 3 FEET DURING INSTALLATION OF MAIN LINE. PLUMBER SHALL CUT STACK TO FINISHED GRADE AS SHOWN WHEN BUILDING SEWER IS CONNECTED TO LATERAL.
 - 45° WYE (TEE NOT ACCEPTABLE) (SEE NOTE #2)
 - 45° MAX
 - SEWER MAIN
 - 4" MINIMUM GRAVEL BEDDING #57 OR EQUIVALENT
 - 11.25° OR 22.5° BEND (SEE NOTE #2)
 - 2'-0" MIN.
 - 2'-0" MIN.
 - 45° MAX.
- OTHER NOTES:**
- 1/4" PER 1'-0" MINIMUM GRADE
 - 45° OR 22.5° BELL & SPIGOT BEND (IF NEEDED)
 - PLASTIC BODY CLEAN-OUT & CAP
 - CLEAN-OUT STACK (SEE NOTES #2 & #8)
 - HORIZONTAL SECTION SHALL EXTEND A MINIMUM OF 5' OR AS DIRECTED BY THE PARTICIPATING UTILITY (SEE NOTE #6)
 - TEE, WYE, TEE/WYE OR COMBINATION OF WYE & 45° BEND FITTINGS SHALL BE SIZED AS REQUIRED
 - SAME AS ABOVE

SANITARY SEWER LATERAL

01/01/14

-
- Technical drawing illustrating a pipe coupling assembly. The assembly consists of a FERNOCO FLEXIBLE COUPLING joining TYPE "A" PIPE and TYPE "B" PIPE. The coupling is embedded in a concrete structure. The concrete extends 12" beyond the ends of the coupling. The concrete is labeled as 3,000 PSI CONCRETE CRADLE-EXTEND 12" BEYOND ENDS OF COUPLING. The coupling is also labeled as CONCRETE TO SPRINGLINE OF PIPE. The assembly is shown in cross-section, revealing the coupling's internal structure and the surrounding materials: BACKFILL MATERIAL, BEDDING MATERIAL, and a 4" MIN. bedding layer. The coupling has a 12" PIPE DIA. and a 4" MIN. bedding layer.

JOINING DISSIMILAR PIPE FOR USE WITH EXISTING PIPE

01/01/14

- [illegible]

SANITARY SEWER PIPE ABANDONMENT AT A MANHOLE

01/01/14

-
- PAVEMENT IN ACCORDANCE WITH GOVERNING JURISDICTIONAL REQUIREMENTS
- REMOVE MANHOLE FRAME AND COVER, RESTORE TO MATCH SURROUNDING AREA AND GRADE
- FINISHED GRADE
- REMOVE MANHOLE TO A MINIMUM OF TWO FEET BELOW FINISHED GRADE (REMOVE ALL GRADE RINGS)
- #57 STONE, LEAN CONCRETE, OR FLOWABLE FILL
- FILL MANHOLE SOLID WITH 3,000 PSI CONCRETE
- 18" MINIMUM
- MECHANICAL PLUG

SANITARY SEWER MANHOLE ABANDONMENT

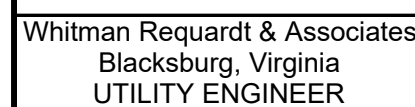
01/01/14

JUN 18 6 98

NOTE: IF THERE HAS BEEN NO LEAKAGE (ZERO PSIG DROP) AFTER ONE HOUR OF TESTING, THE TEST SHALL BE ACCEPTED AND THE TEST COMPLETE.

LOW-PRESSURE AIR TESTING TABLE

01/01/14



COUNTY OF ROANOKE
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ROANOKE, VA 24018

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<p>VDOT UPC NUMBER: 111366</p>

PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing
DETAIL DRAWING
WVWA – SEWER

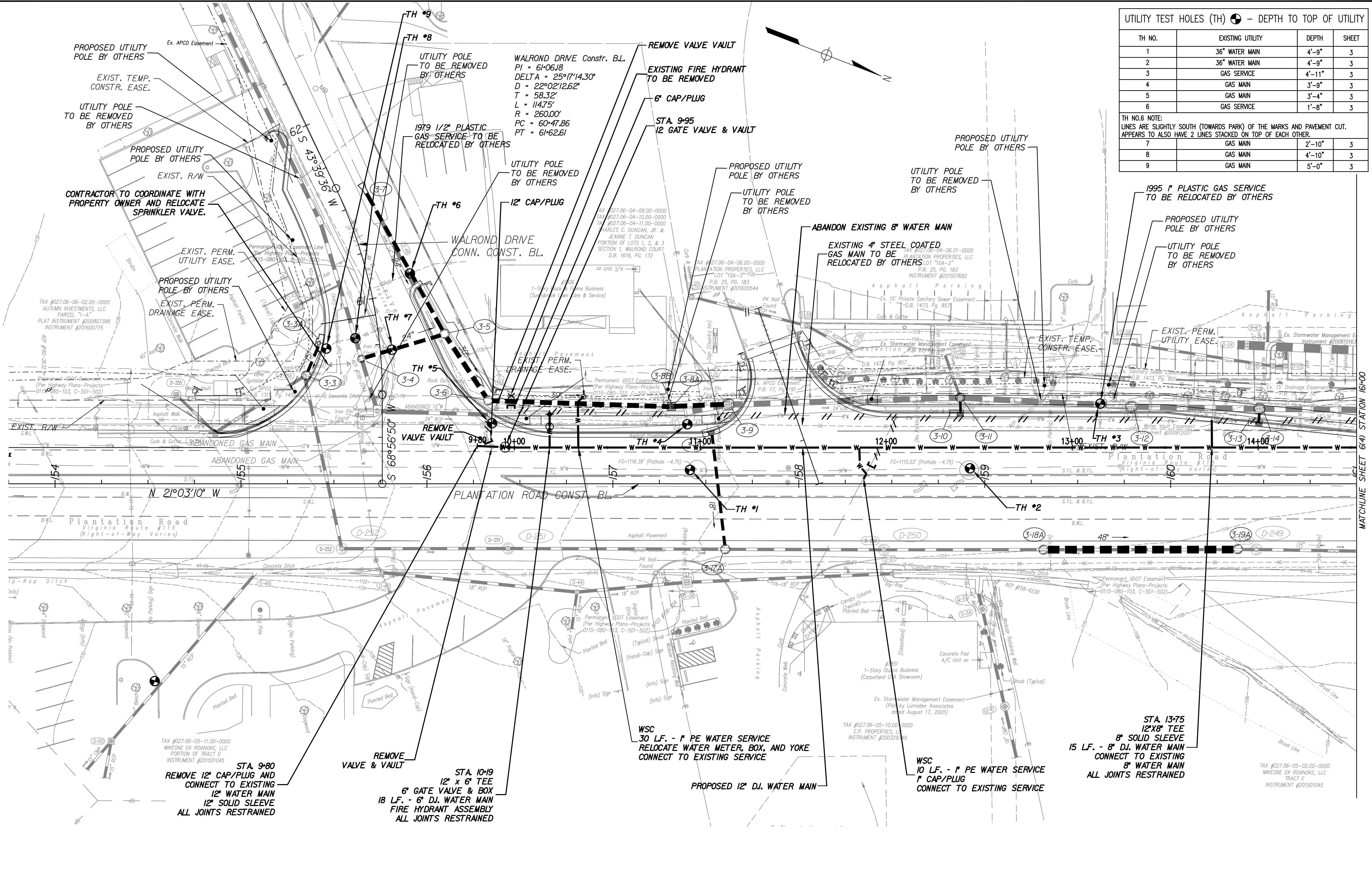
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6(2B)

Rev	Date	Description

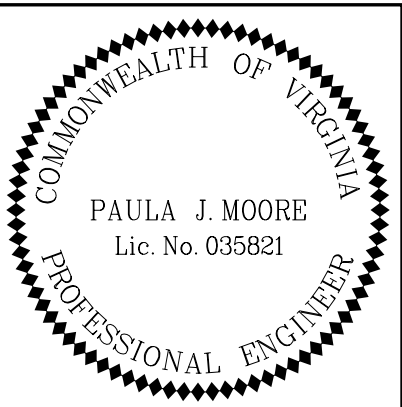
- 01/01

- 01/01/14

- G-12**



UTILITY TEST HOLES (TH) - DEPTH TO TOP OF UTILITY			
TH NO.	EXISTING UTILITY	DEPTH	SHEET
1	36" WATER MAIN	4'-9"	3
2	36" WATER MAIN	4'-9"	3
3	GAS SERVICE	4'-11"	3
4	GAS MAIN	3'-9"	3
5	GAS MAIN	3'-4"	3
6	GAS SERVICE	1'-8"	3
TH NO.6 NOTE: LINES ARE SLIGHTLY SOUTH (TOWARDS PARK) OF THE MARKS AND PAVEMENT CUT. APPEARS TO ALSO HAVE 2 LINES STACKED ON TOP OF EACH OTHER.			
7	GAS MAIN	2'-10"	3
8	GAS MAIN	4'-10"	3
9	GAS MAIN	5'-0"	3



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Blacksburg, Virginia
UTILITY ENGINEER

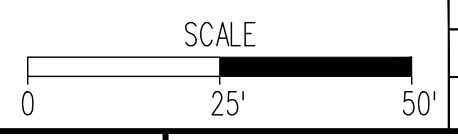


NOTE:
1. WATER MAIN STA. 10+00 = PLANTATION ROAD CONSTR. BL STA. 156+47, 19' LT.

COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

VDOT PROJECT NUMBER:
#SMART18 - PLANTATION RD BIKE/PEDESTRIAN PHASE II
STATE PROJECT NO: 0115-080-911, P101, R201, C501
VDOT UPC NUMBER: 111366

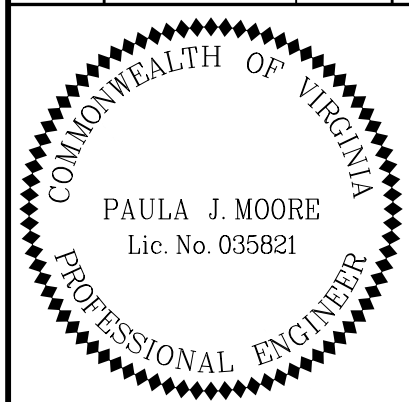
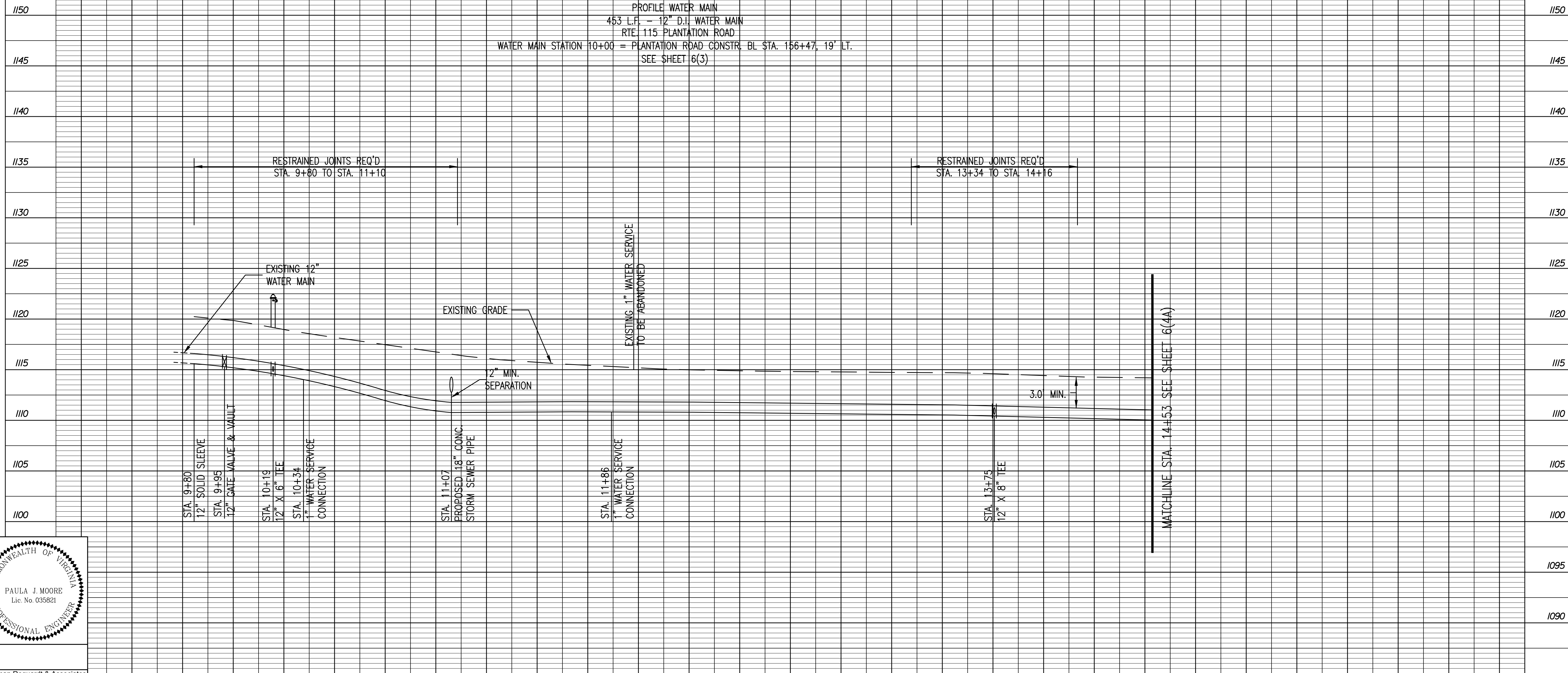
PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT



Rev	Date	Description

Drawing	Sheet
UTILITY PLAN	6(3)

PLANTATION ROAD



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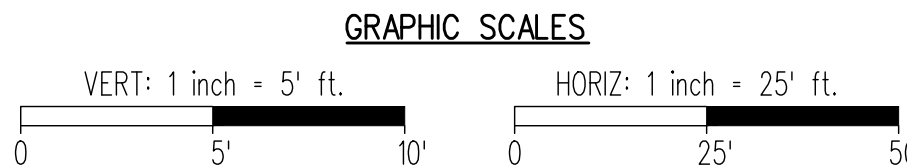
COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

VDOT PROJECT NUMBER:
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STATE PROJECT NO: 0115-080-911, P101, R201, C501
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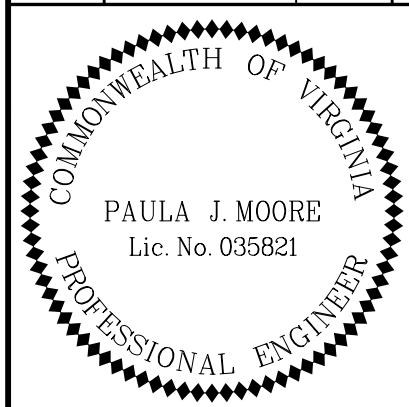
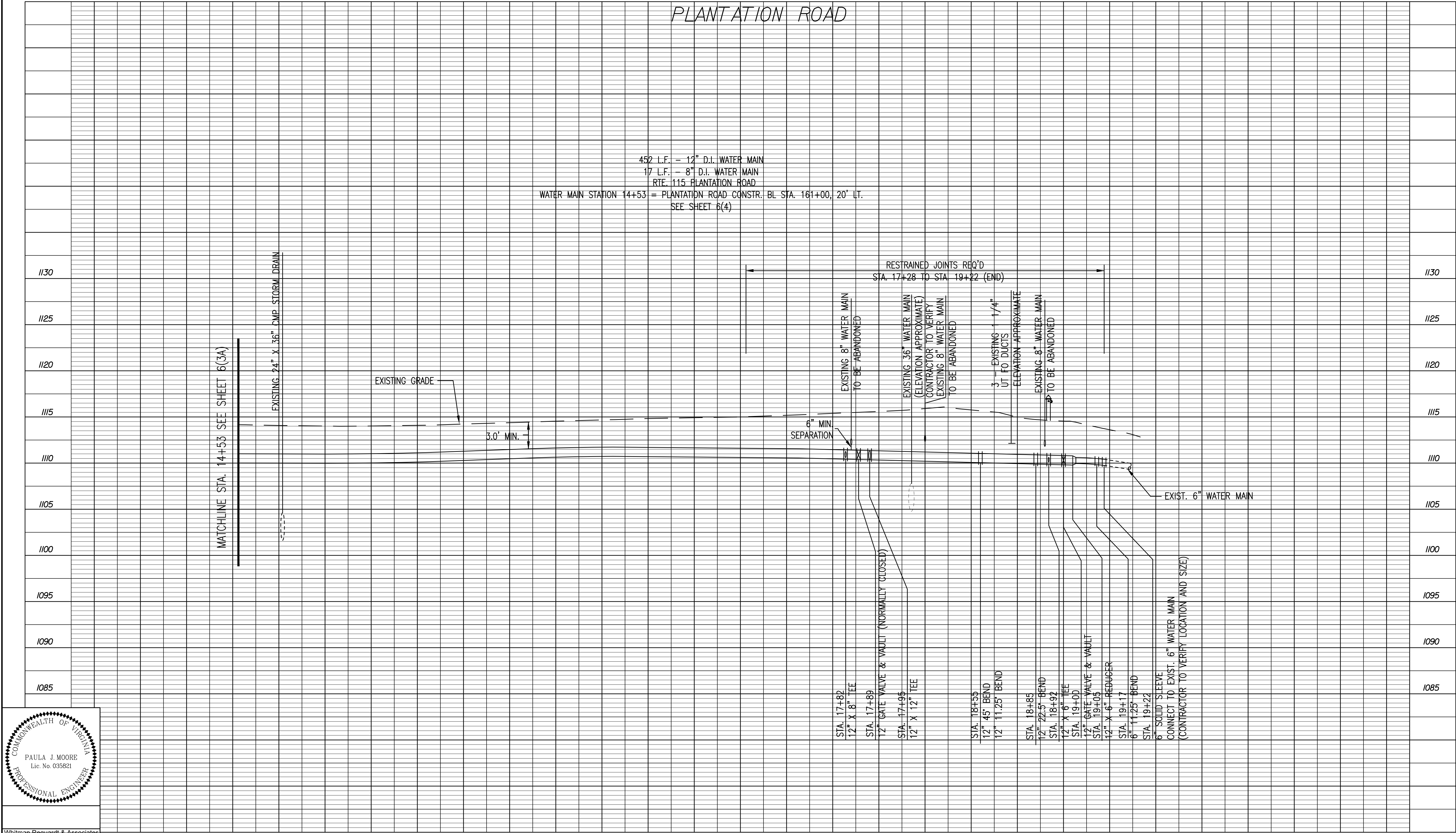
PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing		Sheet	
Rev	Date	Description	
		UTILITY PROFILE	6(3A)

NOTE:
1. CONTRACTOR SHALL PROVIDE TEMPORARY 1" WATER SERVICE TO ALLOW FOR CONSTRUCTION OF
12" D.I. WATER MAIN.



50'		Rev	Date	Description
Drawing			Sheet	
UTILITY PLAN			6(4)	



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Blacksburg, Virginia
UTILITY ENGINEER



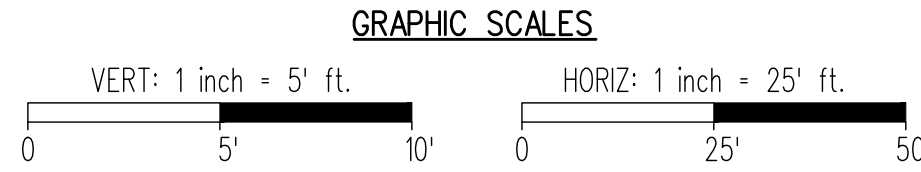
COUNTY OF ROANOKE
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ROANOKE, VA 24018

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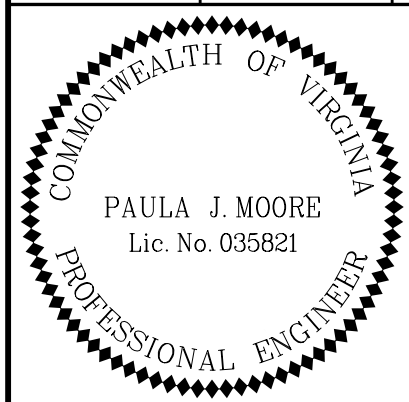
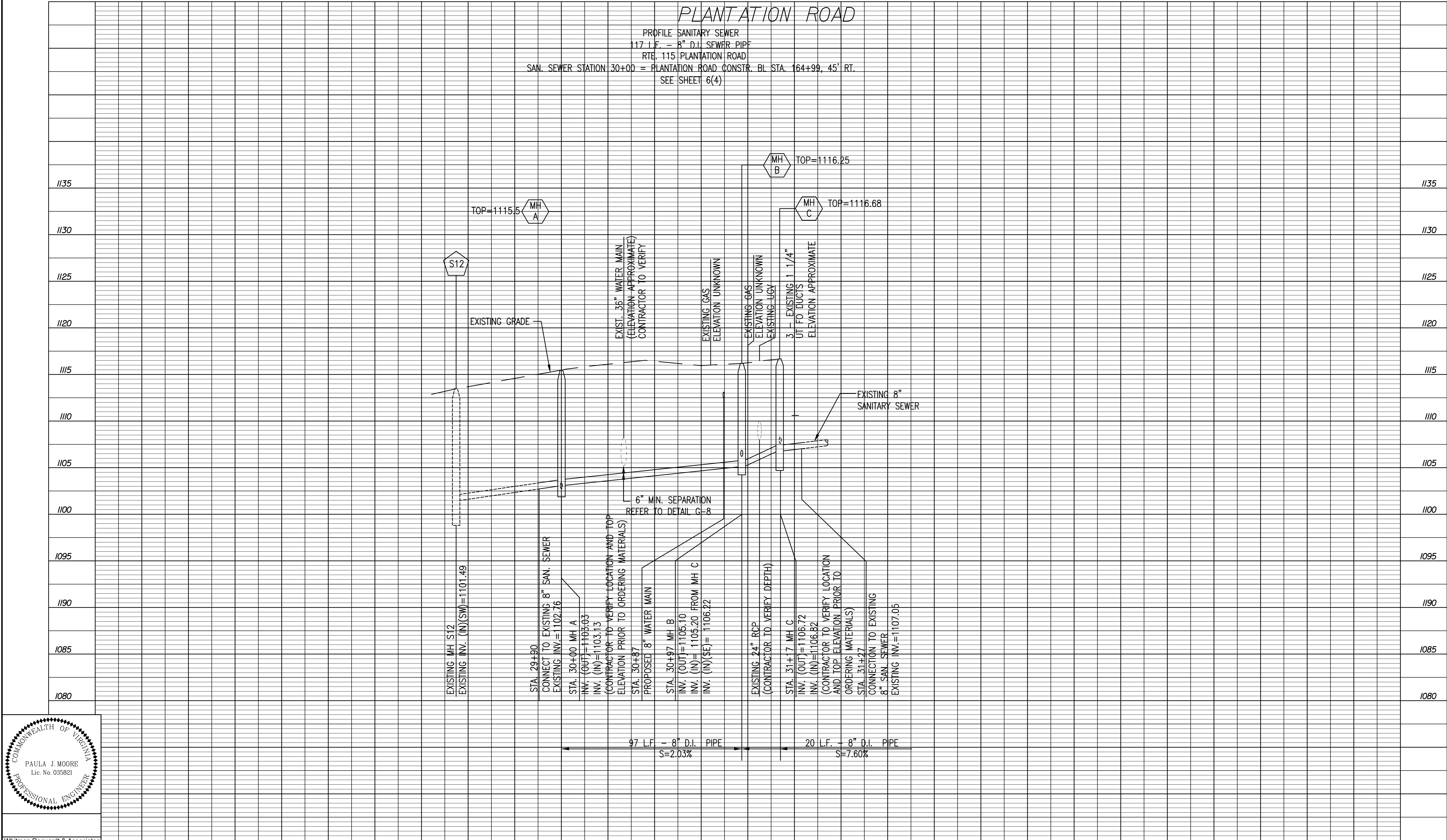
PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing
UTILITY PROFILE
WATER

Sheet
6(4A)



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UTILITY ENGINEER



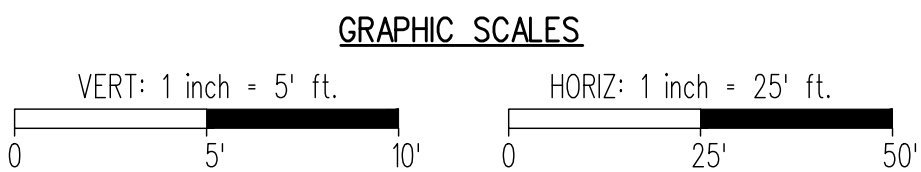
COUNTY OF ROANOKE
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ROANOKE, VA 24018

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PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing
UTILITY PROFILE
SEWER

Sheet
6(4B)

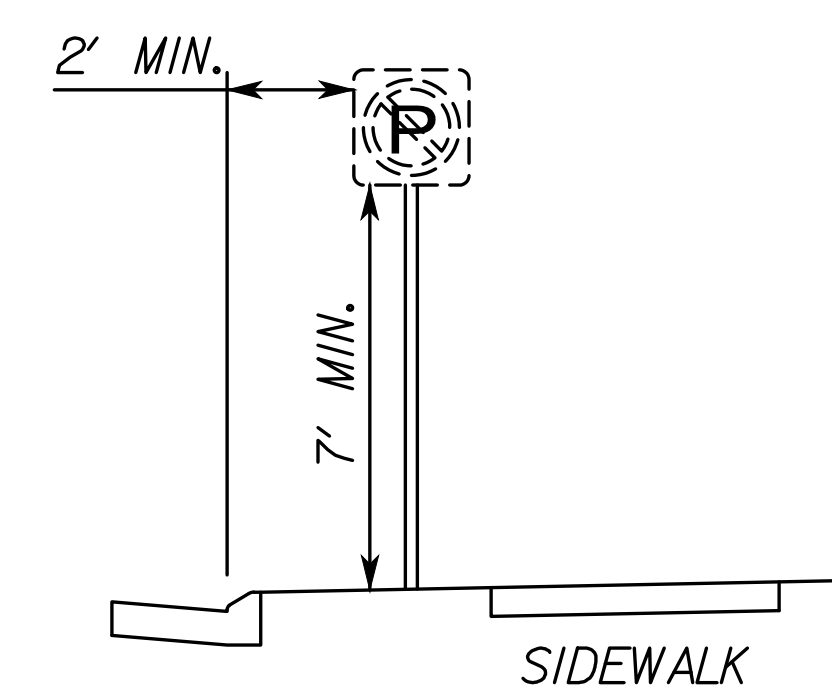


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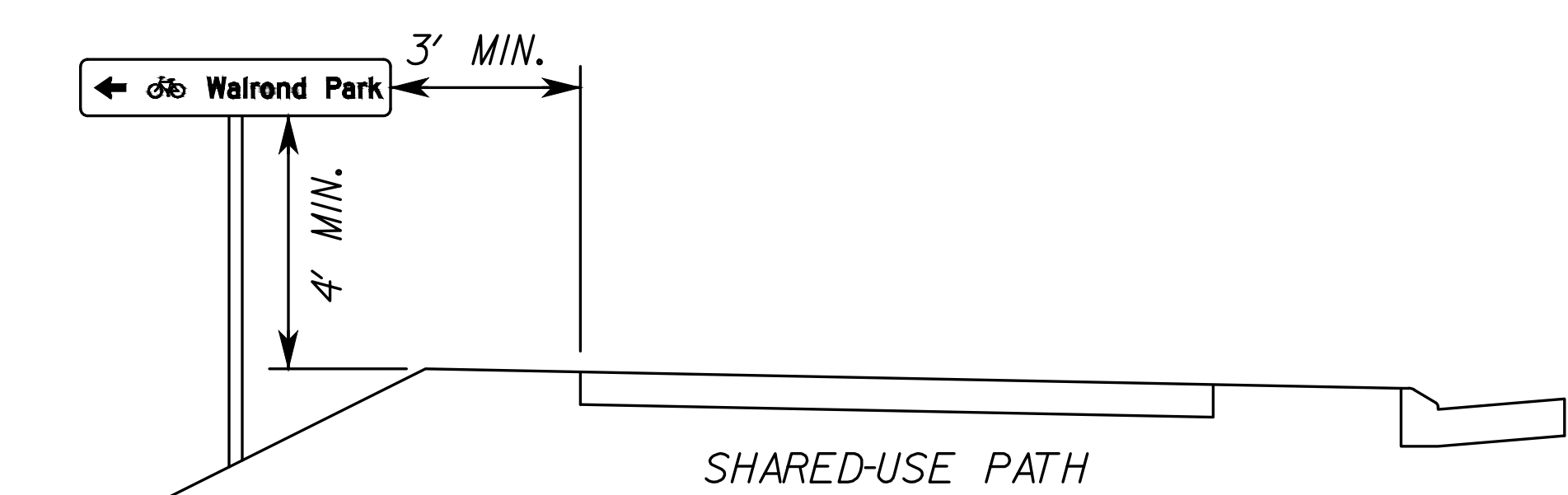
GENERAL NOTES - SIGNING & PAVEMENT MARKINGS

1. ALL PROPOSED SIGNING AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF EACH OF THE FOLLOWING MANUALS, OR THE MOST RECENT REVISION THERE TO:
- A. THE VIRGINIA SUPPLEMENT TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
 - B. MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
 - C. THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS.
 - D. THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE STANDARDS.
 - E. FHWA STANDARD HIGHWAY SIGNS BOOK
 - F. VIRGINIA STANDARD HIGHWAY SIGNS BOOK
2. ANY EXISTING PAVEMENT MARKINGS THAT WILL CONFLICT WITH PROPOSED PAVEMENT MARKINGS SHALL BE COMPLETELY ERADICATED.
3. LIMITS SHOWN OF PROPOSED MARKINGS ARE APPROXIMATE AND SHALL BE MODIFIED IN THE FIELD TO ENSURE THAT PROPOSED PAVEMENT MARKINGS CONTINUE UNTIL EXISTING PAVEMENT MARKING CAN BE MATCHED.
4. EXISTING SIGNS WITHIN THE LIMITS OF THE CONTRACT WHICH HAVE NOT BEEN ACCOUNTED FOR IN THE PLAN SHALL BE RELOCATED OR REMOVED AS DIRECTED BY THE PROJECT ENGINEER.
5. ALL COMPONENTS OF AN EXISTING SIGN INSTALLATION WHICH ARE REMOVED SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR AT AN OFF-SITE LOCATION.
6. LOCATIONS OF ALL PROPOSED SIGNS AND RELOCATED EXISTING SIGNS SHALL BE REVIEWED IN THE FIELD WITH THE PROJECT ENGINEER PRIOR TO INSTALLATION TO ENSURE PROPER VISIBILITY.
7. ALL SIGNS SHALL BE MOUNTED A MINIMUM OF 7-FT ABOVE SIDEWALKS (SEE DETAIL BELOW). EXCEPTION: BICYCLE FACILITY SIGN. SEE DETAIL AT BOTTOM OF PAGE.
8. SIGN ASSEMBLY WITH STOP SIGN FOR WALROND DRIVE TO BE LOCATED SO THAT SIGN PANELS ARE A MINIMUM OF 3-FT FROM THE SHARED-USE PATH.

ROADWAY SIGN ADJACENT TO SIDEWALK



BICYCLE FACILITY SIGN ADJACENT TO SHARED-USE PATH



NOTE:
THIS TYPICAL SIGN LOCATION APPLIES ONLY TO THOSE SIGNS INTENDED FOR USERS OF THE SHARED-USE PATH.

STANDARD SIGN LEGEND

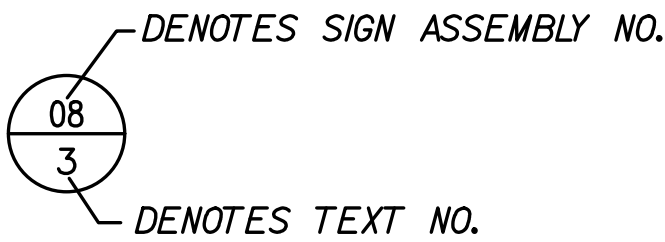
PLAN ITEM	PLAN SYMBOL	
	PROPOSED	EXISTING
SINGLE POST SIGN SUPPORT		
DOUBLE POST SIGN SUPPORT		
TRIPLE POST SIGN SUPPORT		
SIGN CALL-OUTS		
EXISTING SIGN TO REMAIN OR TO BE RELOCATED		
EXISTING SIGN TO BE REMOVED		
PROPOSED SIGN PANEL		

INDEX OF SHEETS

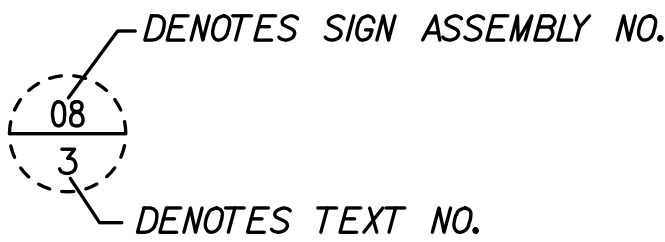
SHEET NO.:	SHEET DESCRIPTION:
7(1)	INDEX OF SHEETS, GENERAL NOTES & LEGENDS
7(2)	SIGN SCHEDULE
7(3)	SIGNING AND PAVEMENT MARKING PLANS
7(4)	SIGN FIGURE DETAILS
7(5)	SIGN FIGURE DETAILS

SIGN LABELS

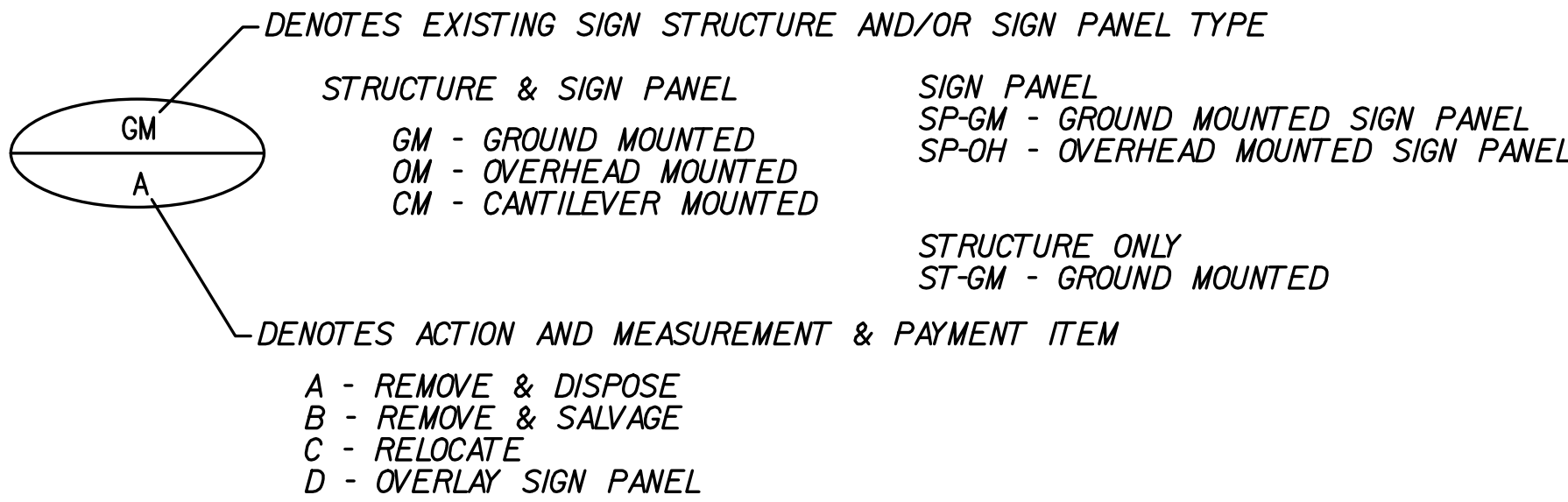
PROPOSED SIGN ASSEMBLIES



RELOCATED SIGN ASSEMBLIES



SIGN RELOCATION OR PAYABLE SIGN DISPOSAL/SALVAGE



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.



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1700 Kraft Drive, Suite 1200, Blacksburg, Virginia 24060

COUNTY OF ROANOKE

5204 BERNARD DRIVE
ROANOKE, VA 24018

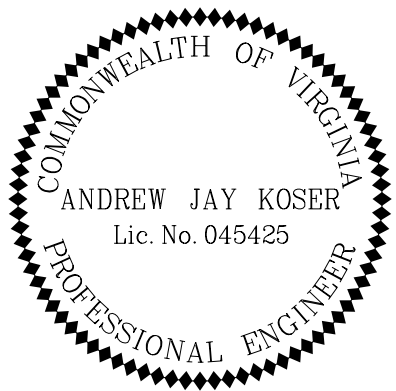
VDOT PROJECT NUMBER:
#SMART18 - PLANTATION RD BIKE/PED/STREETSCAPE PHASE II
STATE PROJECT NO: 0115-080-911, P101, R201, C501
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PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing
SIGNING & PAVEMENT
MARKING PLAN

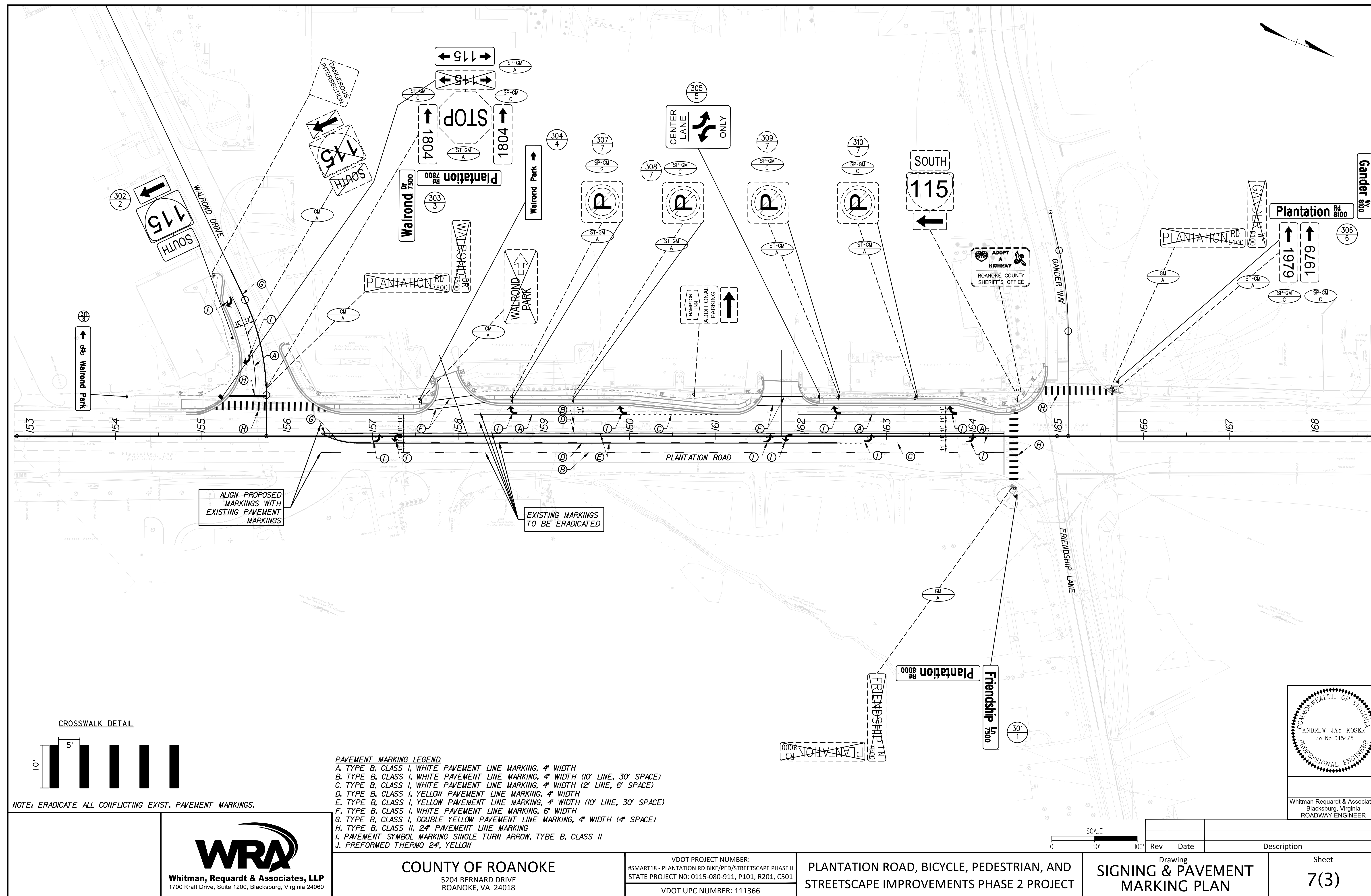
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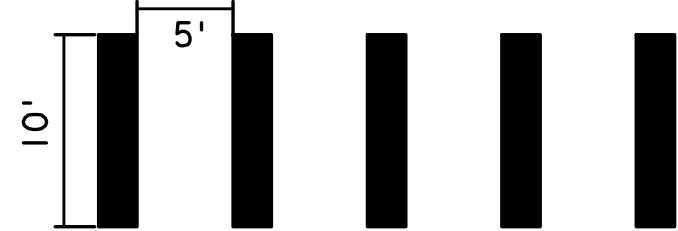


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ROADWAY ENGINEER

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CROSSWALK DETAIL



NOTE: ERADICATE ALL CONFLICTING EXIST. PAVEMENT MARKINGS.

PAVEMENT MARKING LEGEND

- A. TYPE B, CLASS I, WHITE PAVEMENT LINE MARKING, 4" WIDTH
- B. TYPE B, CLASS I, WHITE PAVEMENT LINE MARKING, 4" WIDTH (10' LINE, 30' SPACE)
- C. TYPE B, CLASS I, WHITE PAVEMENT LINE MARKING, 4" WIDTH (2' LINE, 6' SPACE)
- D. TYPE B, CLASS I, YELLOW PAVEMENT LINE MARKING, 4" WIDTH
- E. TYPE B, CLASS I, YELLOW PAVEMENT LINE MARKING, 4" WIDTH (10' LINE, 30' SPACE)
- F. TYPE B, CLASS I, WHITE PAVEMENT LINE MARKING, 6" WIDTH
- G. TYPE B, CLASS I, DOUBLE YELLOW PAVEMENT LINE MARKING, 4" WIDTH (4" SPACE)
- H. TYPE B, CLASS II, 24" PAVEMENT LINE MARKING
- I. PAVEMENT SYMBOL MARKING SINGLE TURN ARROW, TYPE B, CLASS II
- J. PREFORMED THERMO 24", YELLOW



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1700 Kraft Drive, Suite 1200, Blacksburg, Virginia 24060

COUNTY OF ROANOKE

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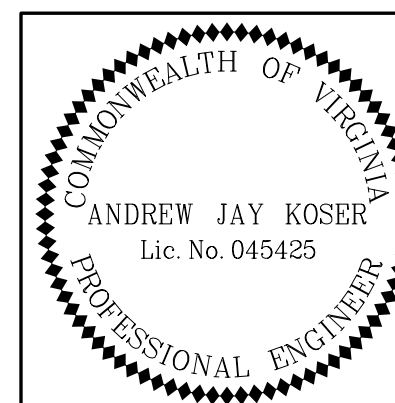
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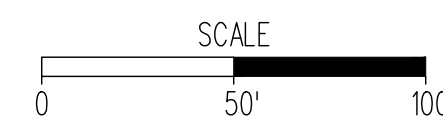
PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing
SIGNING & PAVEMENT
MARKING PLAN

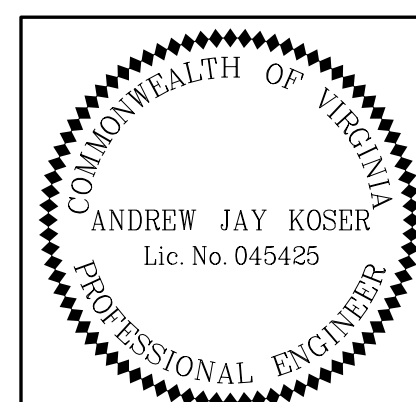
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ROADWAY ENGINEER



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ROADWAY ENGINEER

		ROADWAY ENGINEER
Rev	Date	Description

Drawing SIGNING & PAVEMENT MARKING PLAN

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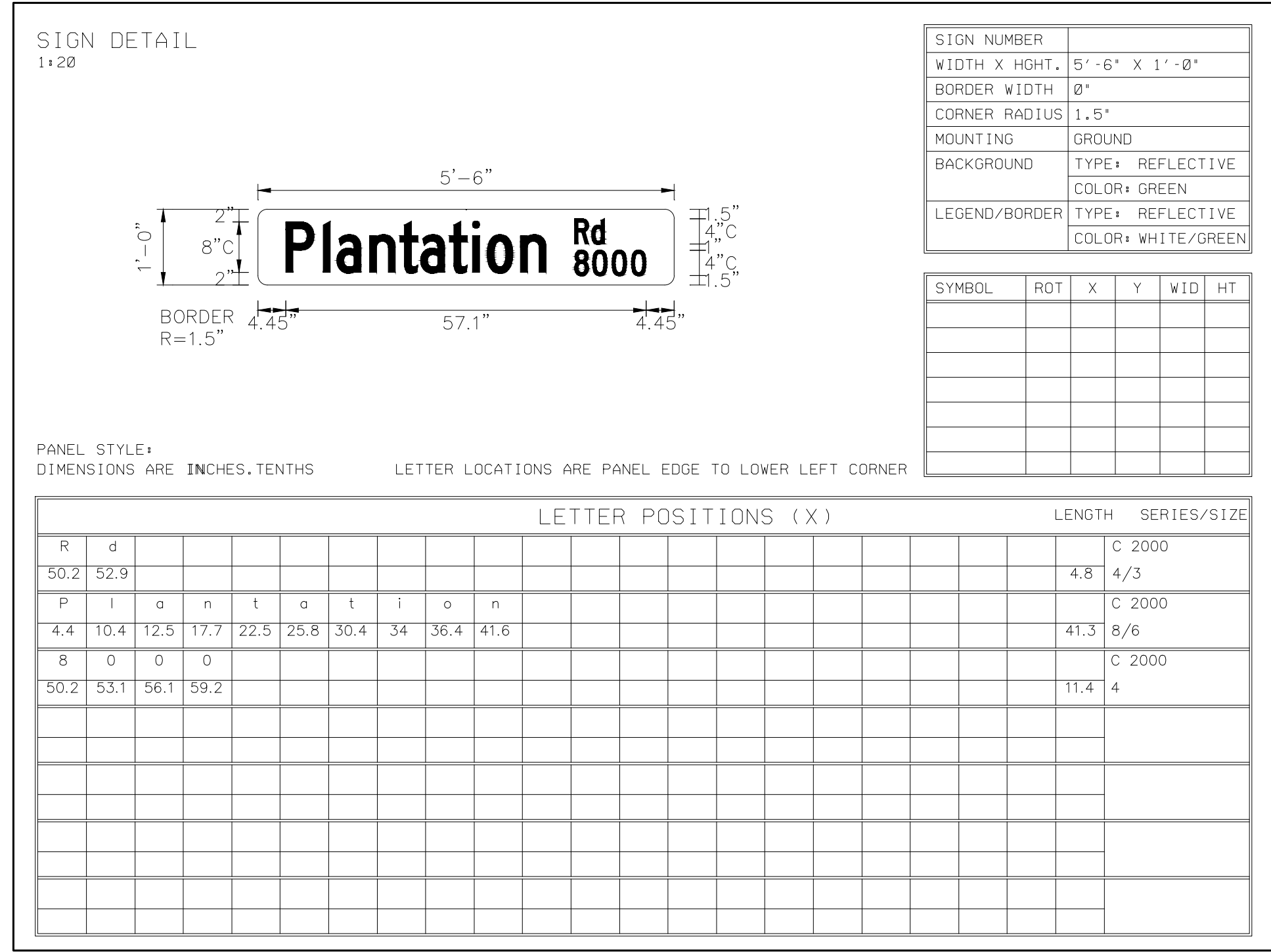


COUNTY OF ROANOKE
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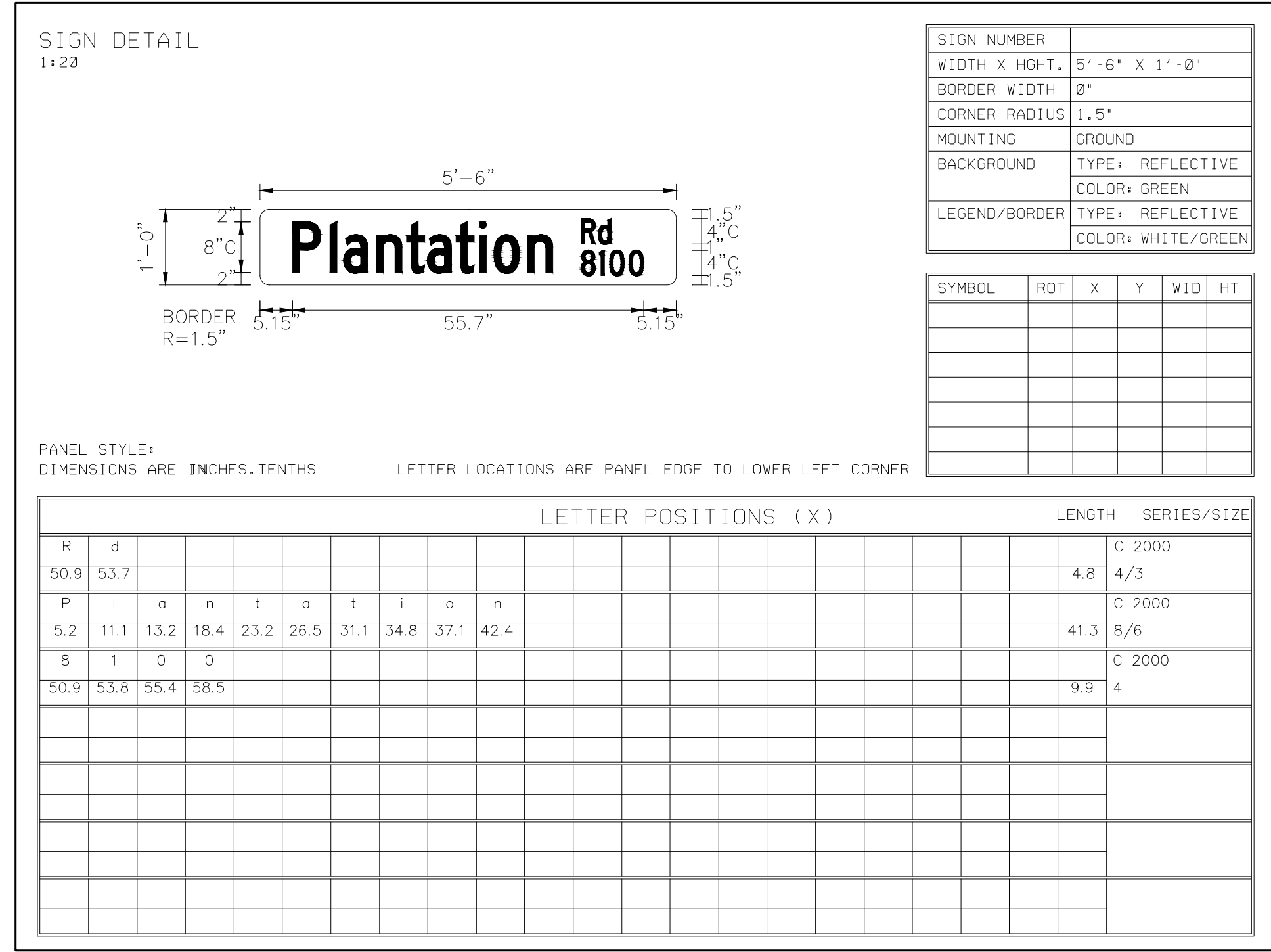
VDOT UPC NUMBER: 111366

PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT



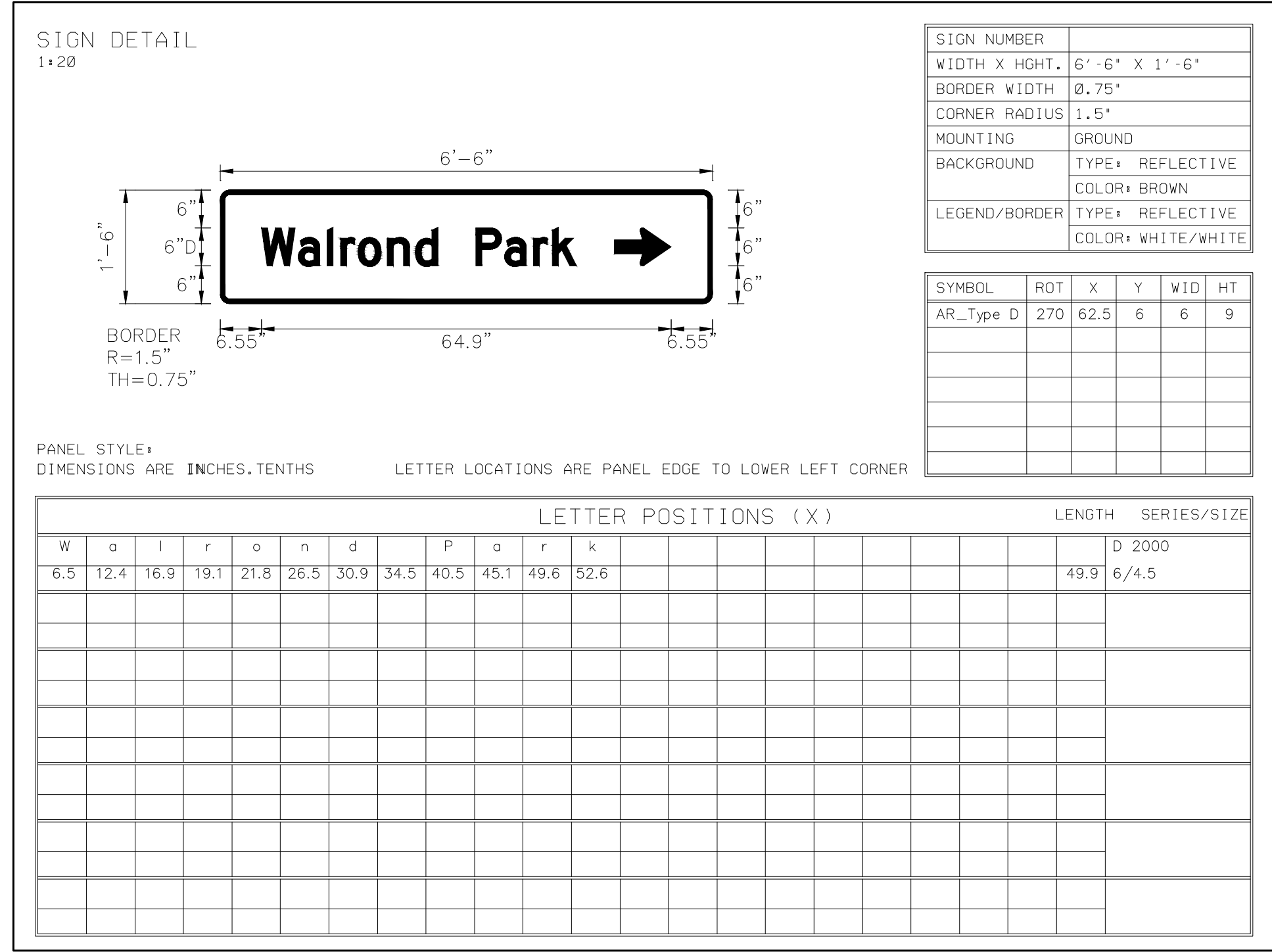
PANEL STYLE:
DIMENSIONS ARE INCHES, TENTHS

LETTER LOCATIONS ARE PANEL EDGE TO LOWER LEFT CORNER



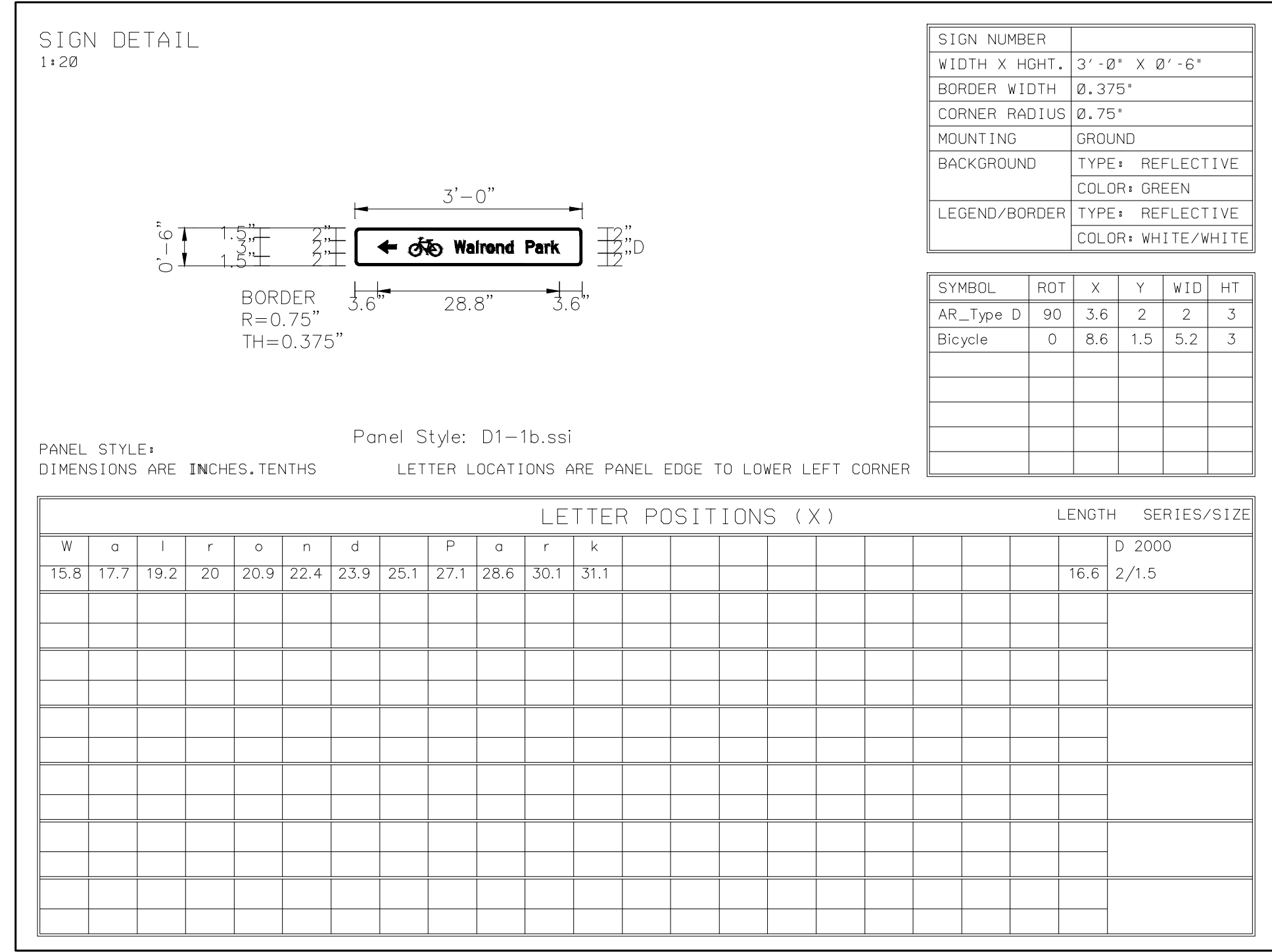
PANEL STYLE:
DIMENSIONS ARE INCHES, TENTHS

LETTER LOCATIONS ARE PANEL EDGE TO LOWER LEFT CORNER



PANEL STYLE:
DIMENSIONS ARE INCHES, TENTHS

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PANEL STYLE:
DIMENSIONS ARE INCHES, TENTHS

LETTER LOCATIONS ARE PANEL EDGE TO LOWER LEFT CORNER



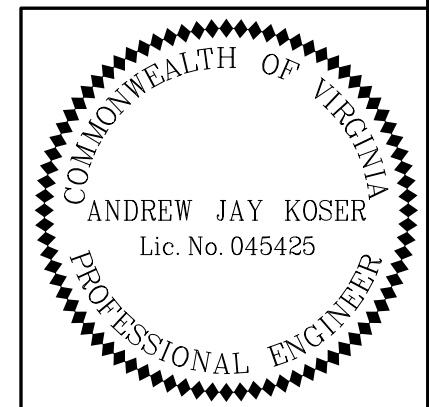
COUNTY OF ROANOKE
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PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
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Drawing
SIGNING & PAVEMENT
MARKING PLAN

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PROJECT NOTES

1. All construction shall be in accordance with the latest editions of the Virginia Department of Transportation (VDOT) Road and Bridge Standards, Road and Bridge Specifications, and special provisions.
2. All utilities shall be visually inspected by the VDOT Inspector or Engineer prior to backfilling trenches.
3. It is the contractor's responsibility to meet compliance requirements with 59, I-406, et. Seq. of the code of Virginia (Overhead High Voltage Lines Safety Act).

SIGNAL NOTES

1. All work shall be in accordance with the current edition of the Manual on Uniform Traffic Control Devices (MUTCD), the current edition of the VDOT Road and Bridge Specifications and the VDOT Road and Bridge Standards in effect at the time the signal plan is approved.
2. Utilities shown on the plans are not guaranteed to be complete or accurate. The Contractor shall be responsible for ensuring that all utilities within the project limits are identified and located before beginning work. The Contractor shall contact 'Miss Utility of Virginia' at 1-800-552-7001 48 hours prior to any construction activities.
3. Pedestal pole foundations for pedestrian actuation and signalization poles A, B, C, and D shall conform to VDOT standard PF-2. PF-2 foundations shall be built into the curbs of the ramps to ensure the 10-inch reach requirements for pedestrian push buttons.
4. Pole placements shall be verified by VDOT Engineer prior to construction.
5. Contractor shall verify with the VDOT Engineer that the proposed change in signal head loading patterns associated with changes to signal heads 3 and 3A can be accommodated by the existing pole and mast arm structure, and shall re-certify the pole is requested by VDOT.

STANDARD TRAFFIC SIGNAL LEGEND

PLAN ITEM	PLAN SYMBOL	
	PROPOSED	EXISTING
Metal Signal Pole & Foundation and Mast Arm (As noted in Signal Pole Legend)		
Pedestal Pole and Foundation (S'd. PF-2)		
Pedestal Pole and Foundation (S'd. PA-3)		
Traffic Signal Head w/ Backplate		
Traffic Signal Head w/o Backplate		
Pedestrian Signal Head		
Pedestrian Pushbutton & Sign		
Traffic Signal Sign Mast Arm or Span Wire M'd. Pole Mounted		
Emergency Vehicle Pre-emption (EVP) Sensor w/ Conf. Light		
Emergency Vehicle Pre-emption (EVP) Sensor w/o Conf. Light		
Video Detection Camera		
Junction Box (S'd. as noted on plans)		
Signal Luminaire (250 W) and Arm		
Signal Luminaire (400 W) and Arm		
Loop Detector (Size as noted on plans)		
Video Detection Zone (Size as noted on plans)		
Conduit		
Flashing Beacon		

LABELS

Signal Pole or Controller		Proposed Signal Head		Signal Phasing	Ø2	Sign	S-1
Cable and Conduit		Existing Signal Head		Pedestrian Phasing	P2>	Video Detection Camera	VDC-1
Junction Box		Proposed Pedestrian Signal Head				Emergency Preemption Detector	EVP-1
		Existing Pedestrian Signal Head					

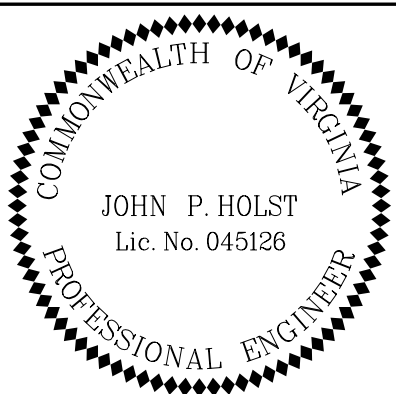
SIGNAL NOTES

SIGNAL NOTES (CONTINUED)

6. (M) denotes metal conduit, (S) denotes shielded cable, (EGC) denotes equipment grounding conductor.
7. Proposed conduit shall be PVC unless otherwise specified. Conduit to be placed crossing existing roads shall be direct bored under the roadway surface. Conduit in non-roadway locations shall be laid in open trenches conforming to Standard ECH-1.
8. The contractor shall repair any damage to existing concrete sidewalk or existing traffic signal equipment caused by the installation of signal equipment.
9. Pedestrian push buttons and signs shall be installed in accordance with VDOT standard PA-4 and shall be accessible/audible. Pedestrian signals shall be oriented to face the crosswalk to which it applies. Push buttons and corresponding push button signs shall be oriented parallel to the crosswalk to which they apply.
10. Pedestrian signal heads shall be in accordance with VDOT standard SP-8. Pedestrian signal heads shall be mounted in accordance with VDOT standard SMB-2.
11. Contractor shall follow the Virginia Work Area Protection Manual and the Transportation Management Plan developed for this project, for work activities that require temporary lane or sidewalk closures within the Right-of-Way for the purpose of equipment installation.

TRAFFIC SIGNAL GENERAL NOTES

1. All Pedestals shall be field staked by the Contractor and Inspected by the Engineer.
2. All unused wires in the signal heads shall be capped individually with crimp type caps and also taped.
3. Junction boxes may be relocated in the field as necessary provided they remain within the right of way, do not conflict with utilities and remain outside the pavement section.
4. At least two weeks prior to beginning signal work, the Contractor shall contact Salem Signal Shop at 540-387-5449 to determine the location of existing signal equipment.
5. Conduit systems shall be bonded in accordance with Section 700 of the Road & Bridge Specifications.
6. Verify Existing Utility Locations: This work shall consist of digging test holes at locations specified by the Engineer for the purpose of verifying the location of underground utilities. Earthen material, aggregate, hydraulic cement concrete or asphalt used to backfill test holes shall be the same quality as existing.
7. The contractor is responsible for all work zone signing, delineation, pavement markings and any other traffic control devices necessary to perform the work. Upon completion of the project the contractor will remove all such temporary devices.
8. Discrepancies between drawing and contractor specification shall be reported to the engineer immediately for clarification.
9. New traffic and pedestrian signal heads shall be covered with a durable non-transparent cover upon installation. The contractor shall maintain the covers until the new traffic signal system is operational.
10. The contractor shall extend and cap all conduits stubbed from junction boxes and foundation a minimum of six inches beyond the outer edge of the box or foundation.
11. All signal equipment shall be wired with a continuous run from the equipment to the controller cabinet.
12. Pedestrian signal heads shall be mounted with the bottom of the signal housing including braces not less than 7 feet or more than 10 feet above the sidewalk level.
13. The contractor shall cut the excess height off of the pedestal poles after mounting the pedestrian heads and fasten pole cap.
14. Contractor shall supply and install any and all equipment required for the signal connection to the controller and all items required in the cabinet to provide a complete working signal system.
15. Contractor shall be responsible for keeping the intersection signalized for the duration of construction. If any existing signal equipment is damaged during construction the contractor shall be responsible for replacement and maintaining continuous operation of the signal.



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Blacksburg, Virginia
TRAFFIC ENGINEER

#1	04/20/20	Addressed	VDOT	90%	Review	Comments
#2	08/28/20	Addressed	VDOT	100%	Review	Comments
Rev	Date	Description				



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PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
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Drawing
SIGNAL NOTES &
TRAFFIC SIGNAL LEGEND

Sheet

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QUANTITY SUMMARY

INTERSECTION		①②③																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
		VDOT ITEM CODE	Sign Panel	Traffic Signal Head Section 12" LED, HVS Backplate	Accessible Pedestrian Actuation, PA-4	Pedestrian Pedestal Pole PF-2, 10'	Concrete Foundation PF-2	14/4 Conductor Cable	Hanger Assembly SH-3, One Way	Hanger Assembly SHB-3, One Way	LED Pedestrian Signal Head, SP-8	*8 Conductor Cable	2" PVC Conduit	Trench Excavation ECH																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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QUANTITY SUMMARY NOTES

1. INCLUDED IN THIS BID ITEM ARE ALL REQUIRED MOUNTING HARDWARE.
2. INCLUDED IN THIS BID ITEM ARE HIGH-VISIBILITY RETROREFLECTIVE BACKPLATES AND TUNNEL VISORS FOR ALL SIGNAL HEADS.
3. INCLUDED IN THIS BID ITEM IS THE INSTALLATION OF THE PEDESTRIAN SIGNS, MOUNTING BRACKETS, AND MISCELLANEOUS HARDWARE ASSOCIATED WITH PEDESTRIAN ACTUATION.
4. QUANTITIES AS SHOWN ARE APPROXIMATE ONLY. CONTRACTORS ARE RESPONSIBLE FOR MAKING THEIR OWN TAKE-OFFS AND COMPLETING THE PROJECT TO THE FULL INTENT OF THE PLAN.



COUNTY OF ROANOKE
5204 BERNARD DRIVE
ROANOKE, VA 24018

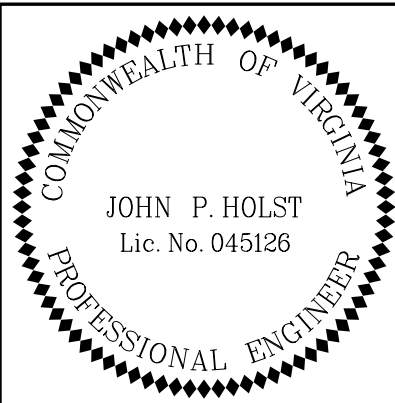
VDOT PROJECT NUMBER:
#SMART18 - PLANTATION RD BIKE/PED/STREETSCAPE PHASE II
STATE PROJECT NO: 0115-080-911, P101, R201, C501
VDOT UPC NUMBER: 111366

PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

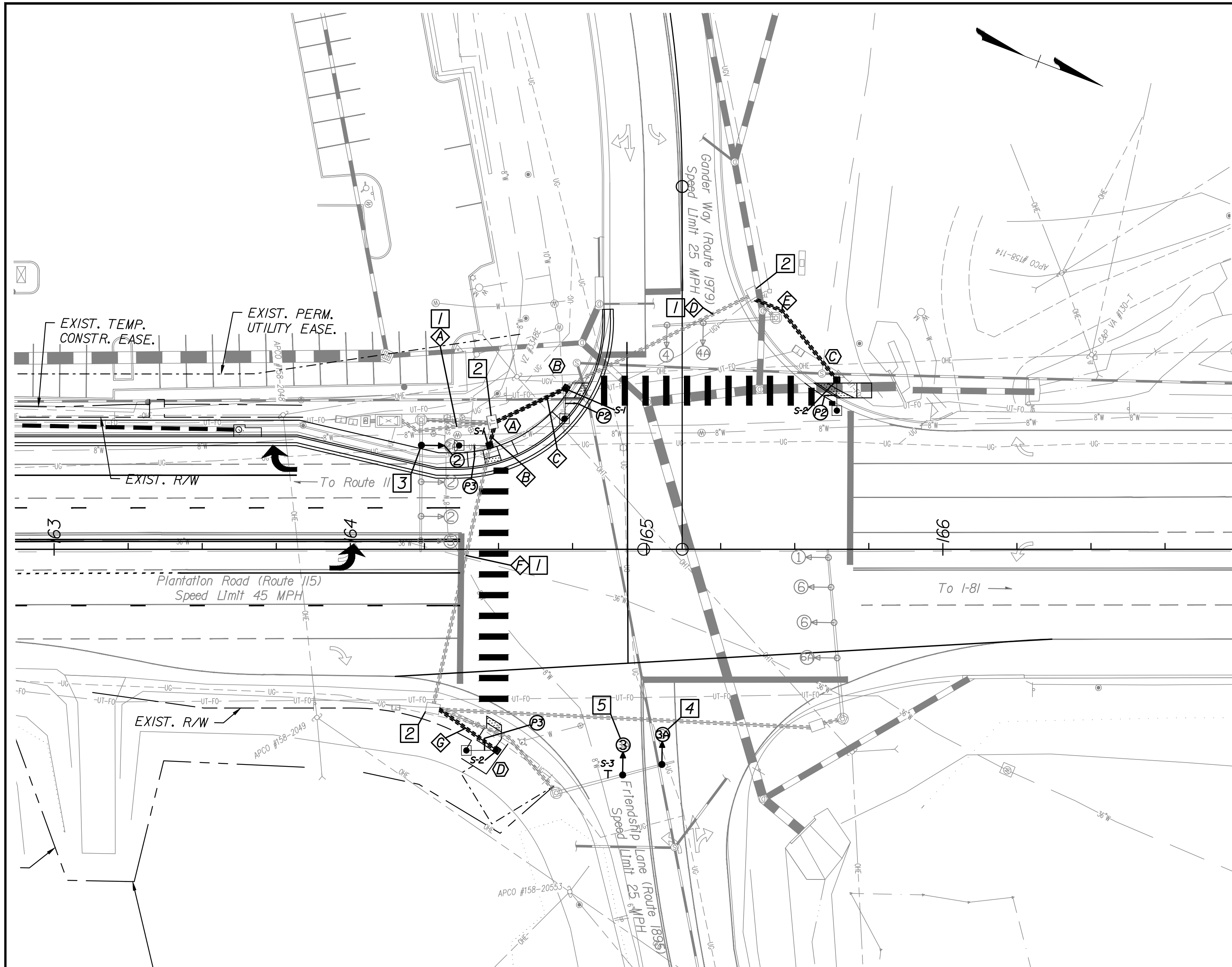
QUANTITY SUMMARY

Sheet
8(2)

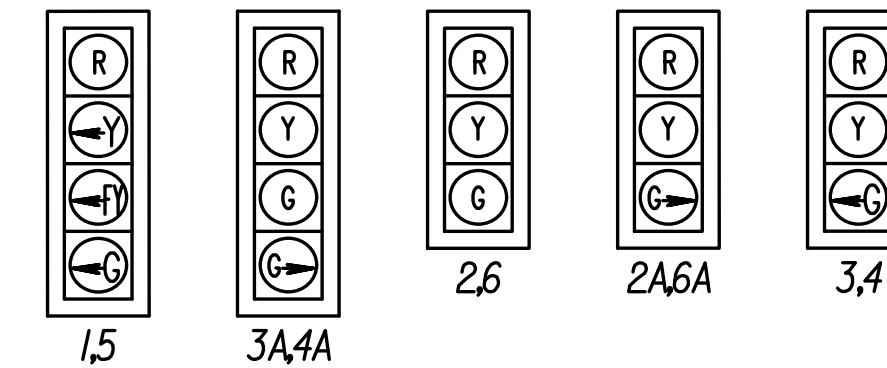
Rev	Date	Description
*1	04/20/20	Addressed VDOT 90% Review Comments
*2	08/28/20	Addressed VDOT 100% Review Comments



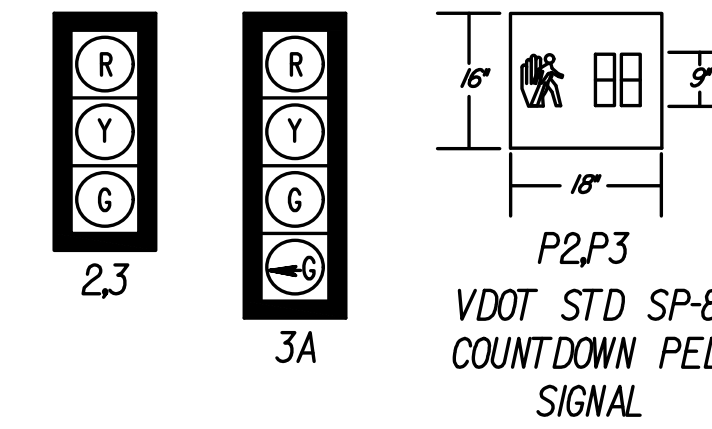
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TRAFFIC ENGINEER



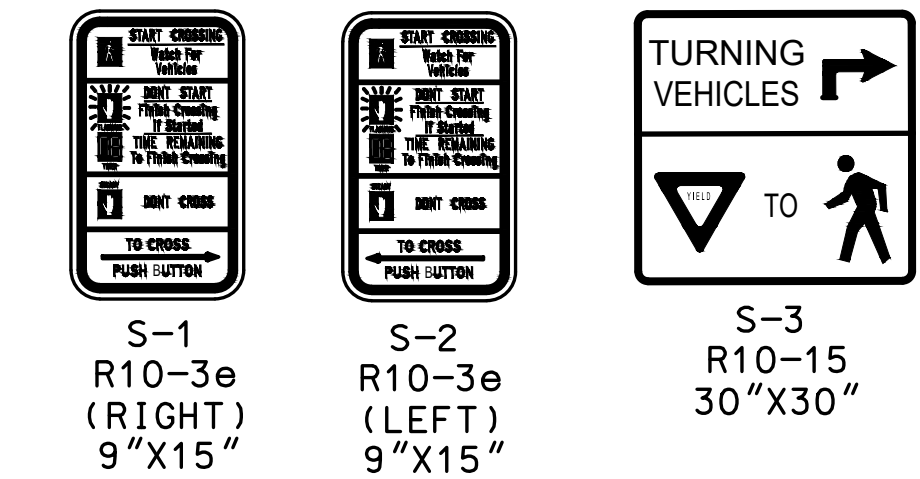
EXISTING SIGNALS



PROPOSED SIGNALS



PROPOSED SIGNS



PROPOSED PEDESTAL POLES



CONDUIT RUN DETAILS

- 3 - 3" Conduits (EXISTING)
- 8 - 14-4 Conductor Cable for Heads P2(2)/P3(2), PBs P2(2)/P3(2)
- 1 - 2" Conduit (NEW)
- 2 - 14-4 Conductor Cable for Head P3, PB P3
- 1 - *8 Equipment Grounding Conductor (EGC)
- 1 - 2" Conduit (NEW)
- 2 - 14-4 Conductor Cable for Head P2, PB P2
- 1 - *8 Equipment Grounding Conductor (EGC)
- 1 - 2" Conduit (EXISTING)
- 2 - 14-4 Conductor Cable for Head P2, PB P2
- 1 - 2" Conduit (NEW)
- 2 - 14-4 Conductor Cable for Head P2, PB P2
- 1 - *8 Equipment Grounding Conductor (EGC)
- 1 - 2" Conduit (EXISTING)
- 2 - 14-4 Conductor Cable for Head P3, PB P3
- 1 - 2" Conduit (NEW)
- 2 - 14-4 Conductor Cable for Head P3, PB P3
- 1 - *8 Equipment Grounding Conductor (EGC)

INITIAL TIMING CHART

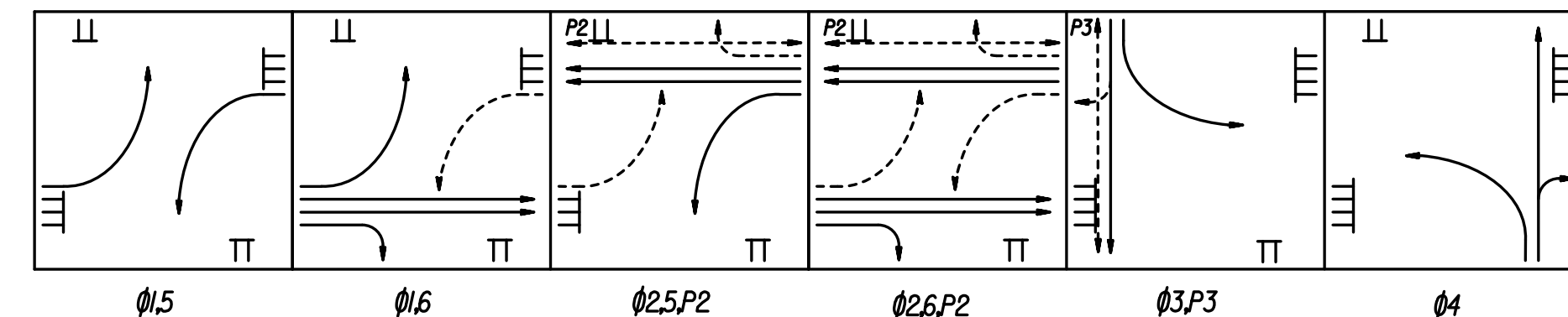
PHASE	1	2	3	4	5	6	7	8
MOVEMENT	WB LEFT	SB TRRL RIGHT	EB	WB	SB TRRL RIGHT	WB TRRL RIGHT		
PHASE ON	X	X	X	X	X	X		
PHASE OFF							X	X
MIN GR								
PASSAGE								
AMBER								
RED								
MAX 1			45					
MAX 2			45					
MIN GAP								
PED WALK	7	7						
FLASHING DON'T WALK	21	22						
SOLID DON'T WALK	3	3						
MODE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

NOTE: RETAIN EXISTING TIMINGS PROGRAMMED IN TRAFFIC SIGNAL CONTROLLER. ADD PEDESTRIAN PHASES P2 & P3 AND UPDATE PHASE 3 MAX TIMES.

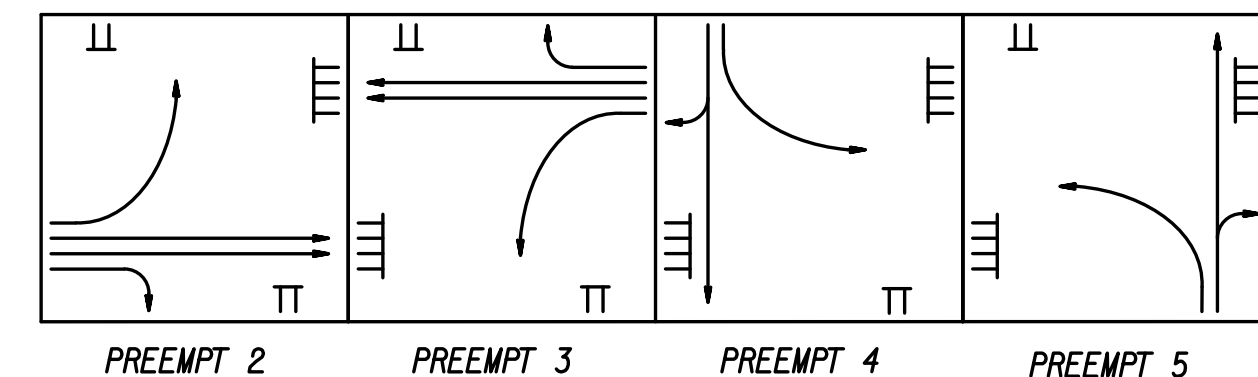
CONSTRUCTION NOTES

- 1 Utilize Existing Conduit
- 2 Utilize Existing Junction Box
- 3 Replace Existing Signal Head 2A with Proposed Signal Head 2
- 4 Replace Existing Signal Head 3 Proposed Signal Head 3A
- 5 Replace Existing Signal Head 3A with Proposed Signal Head 3

PHASING DIAGRAM



PREEMPTION PHASING DIAGRAM



COLOR SEQUENCE CHART

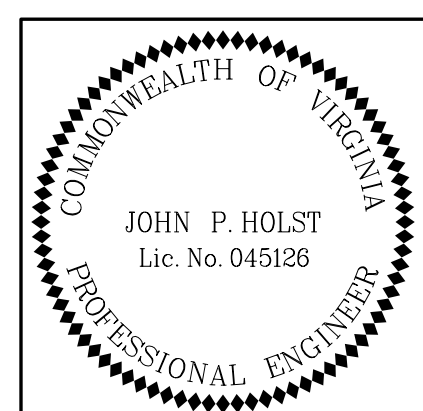
	PHASES						COMBINATIONS				PRE-EMPTION					
	1	2	3	4	5	6	1-5	1-6	2-5	2-6	2	3	4	5		
1																
2																
3																
3A																
4																
4A																
5																
6																
6A																
P2																
P3																

BLANK SPACES DENOTE RED OR DON'T WALK SIGNAL INDICATIONS
FY DENOTES FLASHING YELLOW ARROW

Accessible Pedestrian Pushbutton Notes:

Each pedestrian push button is identified with a description using the following format:

- (Ped Phase) Left and/or Right arrow for R10-3e sign - Walk Message; Walk Message / Percussive Tones
- (P2) L & R - "Walk to cross Gander Way, Walk", Percussive Tones
- (P3) L & R - "Walk to cross Plantation Road, Walk", Percussive Tones



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SCALE
0 25' 50'

Rev	Date	Description
*1	04/20/20	Addressed VDOT 90% Review Comments
*2	08/28/20	Addressed VDOT 100% Review Comments
*3	11/18/20	Addressed VDOT Comments on Ped Phases



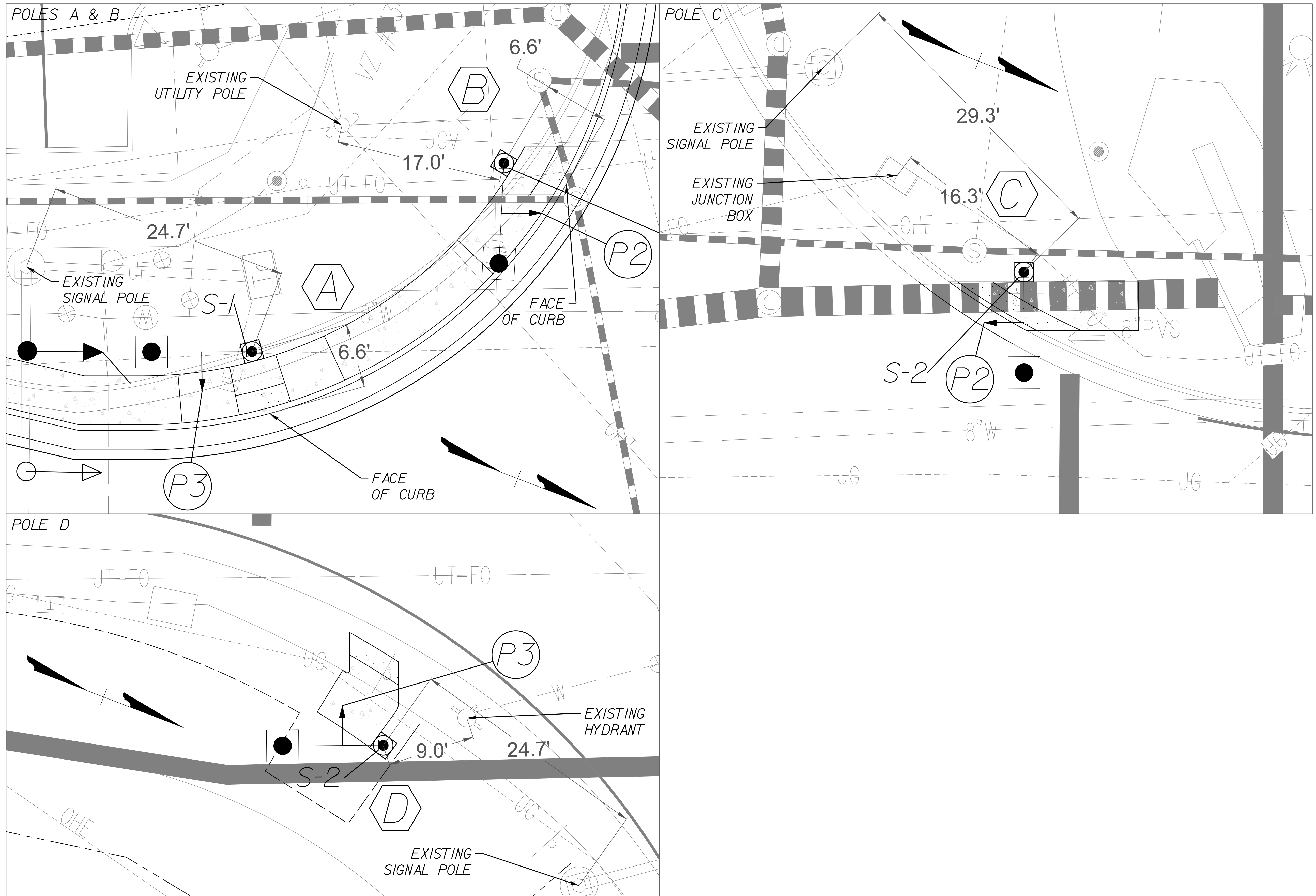
COUNTY OF ROANOKE
3204 BERNARD DRIVE
ROANOKE, VA 24018

VDOT PROJECT NUMBER:
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PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing
**PEDESTRIAN SIGNAL
PLAN SHEET**

Sheet
8(3)



POLE LOCATION NOTES:
POLE LOCATIONS ARE MEASURED FROM THE CENTER OF THE PROPOSED POLES TO THE CENTER OF THE REFERENCED EXISTING EQUIPMENT, EXCEPT FOR FACES OF CURBS.



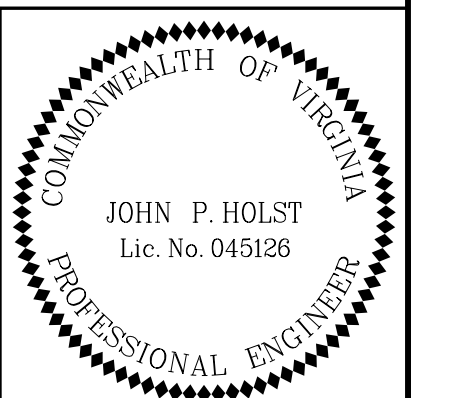
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PLANTATION ROAD, BICYCLE, PEDESTRIAN, AND
STREETSCAPE IMPROVEMENTS PHASE 2 PROJECT

Drawing
**PEDESTRIAN SIGNAL
DETAIL SHEET**

Sheet
8(4)



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Rev	Date	Description
*1	04/20/20	Addressed VDOT 90% Review Comments
*2	08/28/20	Addressed VDOT 100% Review Comments