STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.
VA.				1

Rinker Design Associates, P.C.
Civil Engineering · Surveying · Land Planning · Transportation · Environmental · Right of Way Services
Office Locations

PROJECT MANAGER Dennis Johnson,P.E.-Town of Vienna,(703) 255-6380
SURVEYED BY Sidney Thomas,L.S.-Rinker Design Associates,P.C.(703) 368-7373 DATE July 2013
DESIGN BY Rinker Design Associates,P.C.(703) 368-7373
SUBSURFACE UTILITY BY "Miss Utility" DATE July 2013

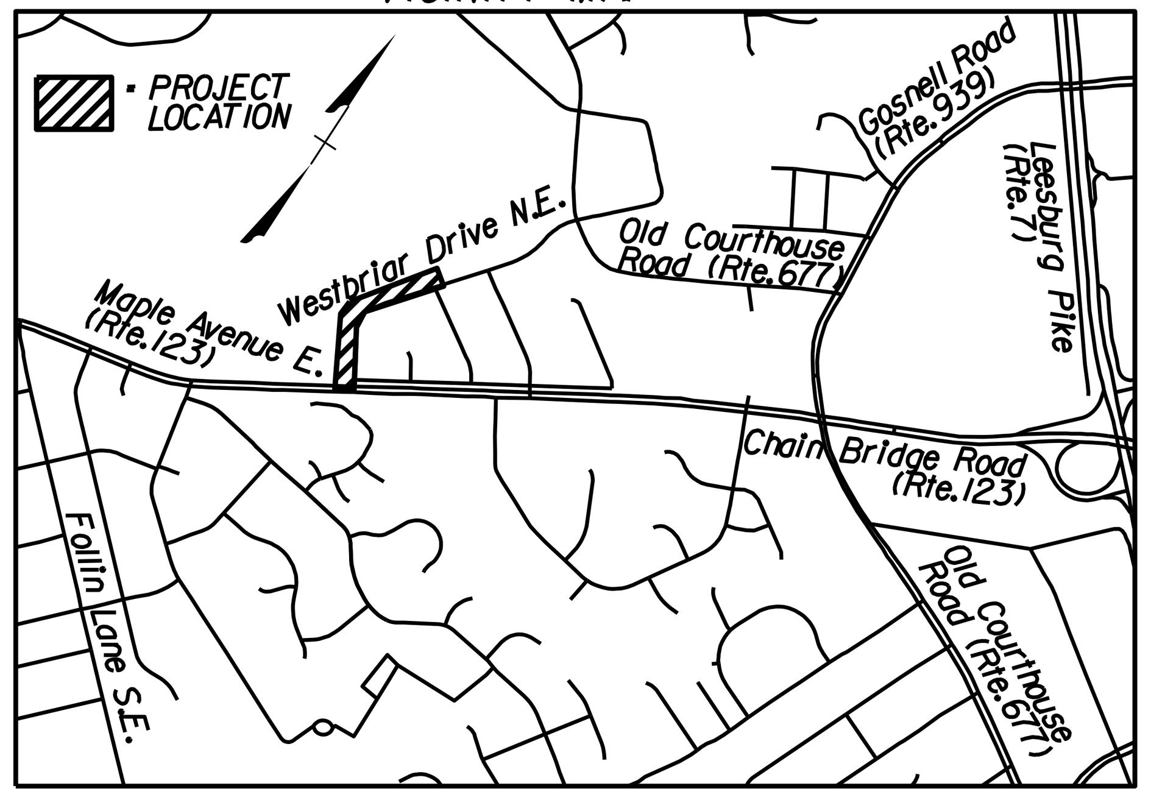
TOWN OF VIENNA

11/20/2013

SHEET INDEX

THIS PROJECT WAS DEVELOPED UTILIZING THE DEPARTMENT'S ENGINEERING DESIGN PACKAGE (GEOPAK).
GEOPAK Computer Identification No. 41031

VICINITY MAP



CONVENTIONAL SIGNS

STATE LINE
COUNTY LINE
CITY,TOWN OR VILLAGE
RIGHT OF WAY LINE
FENCE LINE
UNFENCED PROPERTY LINE
FENCED PROPERTY LINE
WATER LINE
SANITARY SEWER LINE
GAS LINE
ELECTRIC UNDERGROUND CABLE
TRAVELED WAY
GUARD RAIL
RETAINING WALL
RAILROADS
BASE OR SURVEY LINE

LEVEE OR EMBANKMENT
BRIDGES
CULVERTS
DROP INLET
POWER POLES
TELEPHONE OR TELEGRAPH POLES
TELEPHONE OR TELEGRAPH LINES
HEDGE
TREES
HEAVY WOODS
GROUND ELEVATION
GRADE ELEVATION

THE COMPLETE ELECTRONIC PDF VERSION OF THE PLAN ASSEMBLY AS AWARDED, HAS BEEN SEALED AND SIGNED USING DIGITAL SIGNATURES AND THE OFFICIAL PLAN ASSEMBLY IN ELECTRONIC FORMAT IS STORED IN THE VDOT CENTRAL OFFICE PLAN LIBRARY, INCLUDING ALL SUBSEQUENT REVISIONS, WILL BE THE OFFICIAL CONSTRUCTION PLANS. FOR INFORMATION RELATIVE TO ELECTRONIC FILES AND LAYERED PLANS, SEE THE GENERAL NOTES.

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

THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE DEPARTMENT'S 2007 ROAD AND BRIDGE SPECIFICATIONS, 2008 ROAD AND BRIDGE STANDARDS, 2009 MUTCD, 2011 VIRGINIA SUPPLEMENT TO THE MUTCD, 2011 VIRGINIA WORK AREA PROTECTION MANUAL AND AS AMENDED BY CONTRACT PROVISIONS AND THE COMPLETE ELECTRONIC PDF VERSION OF THE PLAN ASSEMBLY.

ALL CURVES ARE TO BE SUPERELEVATED, TRANSITIONED AND WIDENED IN ACCORDANCE WITH STANDARD TC-5.11U, EXCEPT WHERE OTHERWISE NOTED.

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Town of Vienna - Department of Public Works

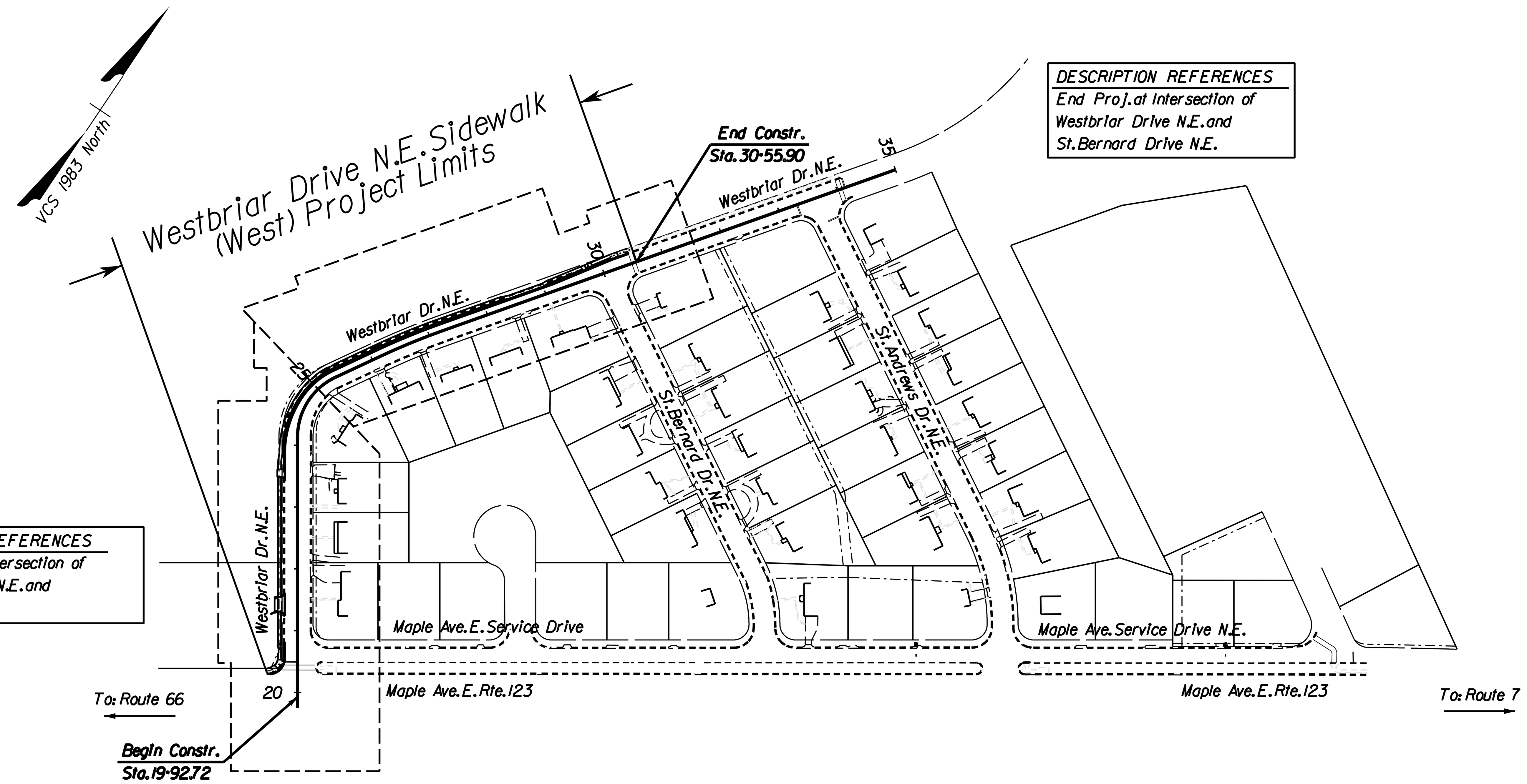
PLAN AND PROFILE OF PROPOSED PEDESTRIAN ACCESS IMPROVEMENTS

WESTBRIAR DRIVE N.E. SIDEWALK (WEST)

PEDESTRIAN ACCESS IMPROVEMENTS

From: Maple Avenue E. (Rte.123)
To: St.Bernard Drive N.E.

FUNCTIONAL CLASSIFICATION AND TRAFFIC DATA	
WESTBRIAR DRIVE N.E. - URBAN LOCAL - ROLLING	
	Fr: Maple Avenue E. (Rte. 123) To: St. Bernard Drive N.E.
AADT	N/A
AWDT	N/A
DHV	N/A
D (%)	N/A
T (%)	N/A
V (MPH)	N/A



DESCRIPTION REFERENCES
End Proj.at Intersection of Westbriar Drive N.E.and St.Bernard Drive N.E.

DESCRIPTION REFERENCES
Begin Proj.at Intersection of Westbriar Drive N.E.and Maple Avenue E.

SCALE 0 150' 300'

REVISED

LOCALLY ADMINISTERED PROJECTS	
Town of Vienna,Virginia	
NAME OF LOCALITY	
(SIGNATURE)	
NAME OF RESPONSIBLE LOCAL GOVERNMENT OFFICAL (TYPED)	
RECOMMENDED FOR APPROVAL FOR CONSTRUCTION	
	Dennis Johnson,P.E.
DATE	Director of Depart. of Public Works, Town of Vienna

PROJECT MANAGER Dennis Johnson P.E. (Town of Vienna)
SURVEYED BY Rinker Design Associates P.C. DATE: July 2013
DESIGN BY Adam D. Welschenbach P.E. - Rinker Design Associates P.C. (703) 368-7373
SUBSURFACE UTILITY BY "Miss Utility" DATE: July 2013

Survey Control & Horizontal Alignment Data

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	N.I.S.		1G

TOWN OF VIENNA

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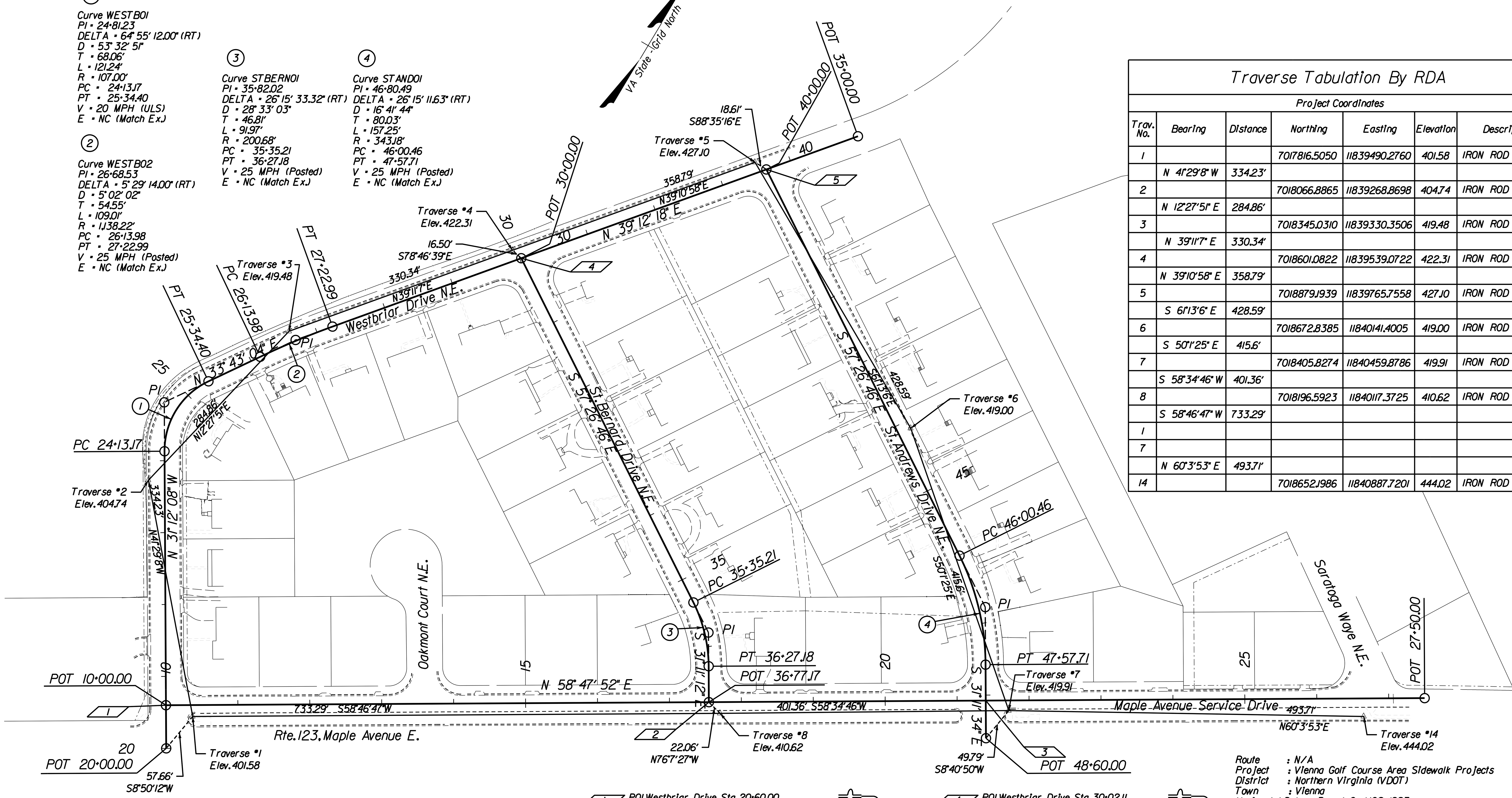
(1)
Curve WESTB01
PI = 24+81.23
DELTA = 64° 55' 12.00" (RT)
D = 53° 32' 51"
T = 68.06'
L = 121.24'
R = 107.00'
PC = 24+13.17
PT = 25+34.40
V = 20 MPH (ULS)
E = NC (Match Ex.)

(2)
Curve WESTB02
PI = 26+68.53
DELTA = 5° 29' 14.00" (RT)
D = 5° 02' 02"
T = 54.55'
L = 109.01'
R = 1,138.22'
PC = 26+13.98
PT = 27+22.99
V = 25 MPH (Posted)
E = NC (Match Ex.)

(3)
Curve STBERN01
PI = 35+82.02
DELTA = 26° 15' 33.32" (RT)
D = 28° 33' 03"
T = 46.81'
L = 91.97'
R = 200.68'
PC = 35+35.21
PT = 36+27.18
V = 25 MPH (Posted)
E = NC (Match Ex.)

(4)
Curve STAND01
PI = 46+80.49
DELTA = 26° 15' 11.63" (RT)
D = 16° 41' 44"
T = 80.03'
L = 157.25'
R = 343.18'
PC = 46+00.46
PT = 47+57.71
V = 25 MPH (Posted)
E = NC (Match Ex.)



Traverse Tabulation By RDA

Project Coordinates

Trav. No.	Bearing	Distance	Northing	Easting	Elevation	Description
1			7017816.5050	11839490.2760	401.58	IRON ROD W/ CAP
	N 41°29'8" W	334.23'				
2			7018066.8865	11839268.8698	404.74	IRON ROD W/ CAP
	N 12°27'51" E	284.86'				
3			7018345.0310	11839330.3506	419.48	IRON ROD W/ CAP
	N 39°11'7" E	330.34'				
4			7018601.0822	11839539.0722	422.31	IRON ROD W/ CAP
	N 39°10'58" E	358.79'				
5			7018879.1939	11839765.7558	427.10	IRON ROD W/ CAP
	S 61°13'6" E	428.59'				
6			7018672.8385	11840141.4005	419.00	IRON ROD W/ CAP
	S 50°1'25" E	415.6'				
7			7018405.8274	11840459.8786	419.91	IRON ROD W/ CAP
	S 58°34'46" W	401.36'				
8			7018196.5923	11840117.3725	410.62	IRON ROD W/ CAP
	S 58°46'47" W	733.29'				
1						
7						
	N 60°3'53" E	493.71'				
14			7018652.1986	11840887.7201	444.02	IRON ROD W/ CAP

1 — POI Westbriar Drive Sta. 20+60.00 / POI Maple Avenue Service Drive Sta. 10+00.00
2 — POI Maple Avenue Service Drive Sta. 17+54.80 / POI Saint Bernard Drive Sta. 36+77.17
3 — POI Maple Avenue Service Drive Sta. 21+39.82 / POI Saint Andrews Drive Sta. 48+07.70
4 — POI Westbriar Drive Sta. 30+02.11 / POI Saint Bernard Drive Sta. 30+00.00
5 — POI Westbriar Drive Sta. 33+64.56 / POI Saint Andrews Drive Sta. 40+00.00

Route : N/A
Project : Vienna Golf Course Area Sidewalk Projects
District : Northern Virginia (VDOT)
Town : Vienna
Horizontal Datum Based On VCS_1983
Vertical Datum Based On NGVD 1929
Survey By : Sidney Thomas, L.S. . Rinker Design Associates, P.C.
Operator : John Rose
Date : 4/25/2013
Scale : 1" = 100'

SCALE 0 80' 160'

PROJECT	SHEET NO.
	1G

TOWN OF VIENNA

PROJECT MANAGER Dennis Johnson P.E. (Town of Vienna)
SURVEYED BY Rinker Design Associates P.C. DATE: July 2013
DESIGN BY Adam D. Welschenbach P.E. - Rinker Design Associates P.C. (703) 368-7373
SUBSURFACE UTILITY BY "Miss Utility" DATE: July 2013

Horizontal Alignment Data

COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
PROFESSIONAL ENGINEER

Rinker Design Associates
Manassas, Virginia
PROFESSIONAL ENGINEER

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	N.I.S.		IG(1)

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

Maple Avenue Service Drive Construction Baseline

<= 1 Describe Chain 123SERVRD

Chain 123SERVRD contains:
SERVRD01 SERVRD02

Beginning chain 123SERVRD description

Point SERVRD01 N 7,017,810.8512 E 11,839,450.3350 Sta 10+00.00

Course from SERVRD01 to SERVRD02 N 58° 47' 52.4499" E Dist 1,750.0000

Point SERVRD02 N 7,018,717.4533 E 11,840,947.1893 Sta 27+50.00

Ending chain 123SERVRD description

Westbriar Drive Construction Baseline

<= 2 Describe Chain WESTBRIAR

Chain WESTBRIAR contains:
WESTB01 CUR WESTB01 CUR WESTB02 WESTB06

Beginning chain WESTBRIAR description
Feature: DEFAULT_POINT

Point WESTB01 N 7,017,759.5305 E 11,839,481.4185 Sta 20+00.00

Course from WESTB01 to PC WESTB01 N 31° 12' 07.5503" W Dist 413.1666

Curve Data

Curve WESTB01
Feature: DEFAULT_POINT
P.I. Station 24+81.23 N 7,018,171.1467 E 11,839,232.1143
Delta = 64° 55' 12.0001" (RT)
Degree = 53° 32' 50.8470"
Tangent = 68.0615
Length = 121.2382
Radius = 107.0000
External = 19.8124
Long Chord = 114.8561
Mid. Ord. = 16.7170
P.C. Station 24+13.17 N 7,018,112.9306 E 11,839,267.3742
P.T. Station 25+34.40 N 7,018,227.7590 E 11,839,269.8956
C.C. N 7,018,168.3628 E 11,839,358.8961
Back = N 31° 12' 07.5503" W
Ahead = N 33° 43' 04.4498" E
Chord Bear = N 1° 15' 28.4497" E

Course from PT WESTB01 to PC WESTB02 N 33° 43' 04.4493" E Dist 79.5766

Curve Data

Curve WESTB02
P.I. Station 26+68.53 N 7,018,339.3191 E 11,839,344.3473
Delta = 5° 29' 14.0014" (RT)
Degree = 5° 02' 01.6993"
Tangent = 54.5454
Length = 109.0074
Radius = 1,138.2200
External = 1.3062
Long Chord = 108.9658
Mid. Ord. = 1.3047
P.C. Station 26+13.98 N 7,018,293.9493 E 11,839,314.0689
P.T. Station 27+22.99 N 7,018,381.5857 E 11,839,378.8254
C.C. N 7,017,662.1184 E 11,840,260.8183
Back = N 33° 43' 04.4485" E
Ahead = N 39° 12' 18.4500" E
Chord Bear = N 36° 27' 41.4492" E

Course from PT WESTB02 to WESTB06 N 39° 12' 18.4501" E Dist 777.0100

Point WESTB06 N 7,018,983.6814 E 11,839,869.9723 Sta 35+00.00

Ending chain WESTBRIAR description

Saint Bernard Drive Construction Baseline

<= 3 Describe Chain STBERNARD

Chain STBERNARD contains:
STBERN01 CUR STBERN01 STBERN04

Beginning chain STBERNARD description

Point STBERN01 N 7,018,597.8712 E 11,839,555.2557 Sta 30+00.00

Course from STBERN01 to PC STBERN01 S 57° 26' 45.5502" E Dist 535.2084

Curve Data

Curve STBERN01
P.I. Station 35+82.02 N 7,018,284.6908 E 11,840,045.8292
Delta = 26° 15' 33.3160" (RT)
Degree = 28° 33' 02.9411"
Tangent = 46.8091
Length = 91.9737
Radius = 200.6800
External = 5.3869
Long Chord = 91.1709
Mid. Ord. = 5.2460
P.C. Station 35+35.21 N 7,018,309.8785 E 11,840,006.3746
P.T. Station 36+27.18 N 7,018,244.6463 E 11,840,070.0684
C.C. N 7,018,140.7284 E 11,839,898.3898
Back = S 57° 26' 45.5502" E
Ahead = S 31° 11' 12.2342" E
Chord Bear = S 44° 18' 58.8922" E

Course from PT STBERN01 to STBERN04 S 31° 11' 12.2330" E Dist 49.9866

Point STBERN04 N 7,018,201.8836 E 11,840,095.9529 Sta 36+77.17

Ending chain STBERNARD description

Saint Andrews Drive Construction Baseline

<= 4 Describe Chain STANDREWS

Chain STANDREWS contains:
STAND01 CUR STAND01 STAND04

Beginning chain STANDREWS description

Point STAND01 N 7,018,878.7352 E 11,839,784.3646 Sta 40+00.00

Course from STAND01 to PC STAND01 S 57° 26' 45.5501" E Dist 600.4584

Curve Data

Curve STAND01
P.I. Station 46+80.49 N 7,018,512.5689 E 11,840,357.9366
Delta = 26° 15' 11.6298" (RT)
Degree = 16° 41' 43.9706"
Tangent = 80.0286
Length = 157.2469
Radius = 343.1800
External = 9.2077
Long Chord = 155.8749
Mid. Ord. = 8.9671
P.C. Station 46+00.46 N 7,018,555.6318 E 11,840,290.4817
P.T. Station 47+57.71 N 7,018,444.1101 E 11,840,399.3849
C.C. N 7,018,266.3707 E 11,840,105.8185
Back = S 57° 26' 45.5501" E
Ahead = S 31° 11' 33.9202" E
Chord Bear = S 44° 19' 09.7351" E

Course from PT STAND01 to STAND04 S 31° 11' 33.9216" E Dist 102.2918

Point STAND04 N 7,018,356.6066 E 11,840,452.3637 Sta 48+60.00

Ending chain STANDREWS description

Rinker Design Associates, P.C.
Civil Engineering • Surveying • Land Planning
Transportation • Environmental
Right of Way Services
Office Locations

TOWN OF VIENNA

11/20/2013

PROJECT MANAGER Dennis Johnson P.E.(Town of Vienna)
SURVEYED BY Rinker Design Associates,P.C. DATE: July 2013
DESIGN BY Adam D.Welschenbach P.E. - Rinker Design Associates,P.C.(703) 368-7373
SUBSURFACE UTILITY BY "Miss Utility" DATE: July 2013

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	N.I.S.	TOWN OF VIENNA	IG(2)

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

COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
PROFESSIONAL ENGINEER

Rinker Design Associates
Manassas, Virginia
PROFESSIONAL ENGINEER

Geometric Data

This Sheet is for Geometric Information Only

Sta./Offset from Westbriar Drive N.E.Baseline

1	+80.11 26.67 LT	9	+63.90 31.70 LT
2	+78.11 28.28 LT	10	+55.05 22.70 LT
3	+76.19 28.28 LT	11	+53.49 31.78 LT
4	+74.22 26.70 LT	12	+41.16 42.04 LT
5	+78.11 32.28 LT	13	+31.13 44.23 LT
6	+73.18 32.28 LT	14	+38.55 50.55 LT
7	+71.22 30.70 LT	15	+36.37 40.61 LT
8	+63.90 30.70 LT	16	+34.00 50.17 LT

Signage Panel & Post Details

SIGNAGE GENERAL NOTES:

1. Unless otherwise specified,the Contractor shall have the option of refurbishing framing members on existing sign panels,or furnishing new sign panels with corresponding sign message for mounting on new breakaway post.

2. Unless otherwise approved by the Town,existing traffic signs,which are to be removed,shall remain in place until the new sign structure and critical message are in place.

3. The Contractor shall notify the Engineer at least five days prior to the proposed delivery date.Salvaged materials shall be delivered to the Departments normal work hours and days and properly stored as directed by the Engineer.

4. All sign panels,framing members and miscellaneous hardware shall be salvaged by the Contractor for the Department and delivered intact to: To a location at the discretion of the Town within the Town's limits.

5. A majority of the sign structures shall be located within 3' to 5' of the sign's proposed location or proposed relocation as shown on the plans.If installation of a proposed sign or proposed relocation of sign will conflict with a utility service,the Contractor shall notify Town 10 days prior to installation of the sign to coordinate a new location.Utilities shown on the plans are NOT guarenteed.The Contractor shall call "Miss Utility" prior to installation.

6. Proposed signs and sign structures shall not impact underground existing utilities. Contractor is responsible for any disruption in Utility Service due to digging for signage structure. If Proposed signage location will cause impact to existing Utility Service, sign location shall be relocated at the approval of the Town at no additional cost.

7. All Signs to be relocated or reset shall be installed with a new STP-1 post in accodrance with VDOT's St'd. STP-1.Each post shall be installed with a St'd.STP-1 Conc.Foundation.Existing posts for sign relocated or reset shall be disposed at a location approved by the Town.

TEXT NO.	TEXT	SIGN STRUCT. STD.	PANEL SIZE WIDTH INCHES	PANEL SIZE HEIGHT INCHES	LETTER TYPE	COLOR COMB.	SIGN AREA SQ.FT.	STD. NO.
A	STOP	STP-1, 2-1/2" 10 GA. Single Post	36	36	L-1	C-10	9	R1-1
B	OR	Mod.STP-1, 2-1/2" 10 GA. 5' Height	18	24	L-1	C-8	3	W1-8L or W1-8R
C	OR 20 MPH 20 MPH	Std.STP-1, 2-1/2" 10 GA. Single Post	36 18	36 18	L-1 L-1	C-8 C-8	9 2.25	W1-1R or W1-1L W13-1P
D	ROAD NARROWS	Std.STP-1, 2-1/2" 10 GA. Single Post	36	36	L-1	C-8	9	W5-1

Sign Structure Standards shall follow VDOT's St'd.STP-1.

SCALE 0 30' 60'

Rinker Design Associates, P.C.
Civil Engineering • Surveying • Land Planning
Transportation • Environmental
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11/20/2013

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Civil Engineering · Surveying · Land Planning
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Right of Way Services
Office Locations

Erosion & Sediment Control Notes & Details

COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
PROFESSIONAL ENGINEER
Rinker Design Associates
Manassas, Virginia
PROFESSIONAL ENGINEER

REVISED	STATE	TOWN OF VIENNA ROUTE	PROJECT	SHEET NO.
	VA.	N.I.S.		IL

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

Erosion and Sediment Control Narrative

Project Description: The project proposes approximately 1,020 linear feet of concrete sidewalk on the west side of Westbriar Drive N.E. from the Maple Avenue Service Drive to St.Bernard Drive N.E. The project also proposes the installation and reconstruction of curb ramps within the project site.

Existing Site Conditions: The project site consists of a curb & gutter section roadway with a golf course fronting the roadway. The site generally drains from the edge of the golf course towards the roadway, and the roadway drains from the north to the south. Vegetation within the project site consists of landscaped grass areas with mature trees and bushes. Storm runoff is collected by drop inlets at the intersection of Westbriar Drive N.E. and the Maple Avenue Service Drive and is then conveyed westward along the existing roadway via an existing closed storm sewer system.

Adjacent Areas: Areas adjacent to the project are residential in nature.

Off-site Areas: There will be impacts to adjacent parcels associated with the construction of this project. All necessary right-of-way, easements, and provisions will be acquired prior to the start of construction. The Contractor shall be responsible for the locations of acceptable borrow and/or disposal sites, and these shall be in accordance with Town of Vienna or as directed by the Town.

Soils: See soils map located on this sheet.

Critical Areas: There are no critical areas within the project site.

Erosion and Sediment Control Measures: Water quality and sediment/erosion control are of extreme importance. Care must be taken to avoid discharge of sediment into the existing storm water system. In order to best control impacts on this watershed, all vegetative and structural sediment control practices shall be constructed and maintained according to minimum standards and specifications of the Virginia Erosion and Sediment Control Handbook. Strict compliance with this program and standards is required. We are therefore specifying a plan to minimize impacts on the adjacent properties.

At the time of land disturbing activities within the Town right-of-way, the Contractor shall have a representative with Erosion and Sediment Control Contractor Certification (ESCCC) at the project site. The Town and Contractor is responsible for complying with applicable Local, State, and Federal Environmental Laws and Regulations, including acquiring clearances/authorizations from appropriate regulatory agencies.

Land Disturbing/Construction Sequence - Phase 1
1. The Contractor shall install the silt fence, inlet protection, and tree protection as shown on the Erosion & Sediment Control plan.
2. After the silt fence, inlet protection, and tree protection have been installed, the Contractor shall obtain the site inspector's approval of these controls.
3. After the site inspector's approval of the initial controls, clear and grub the site as necessary.

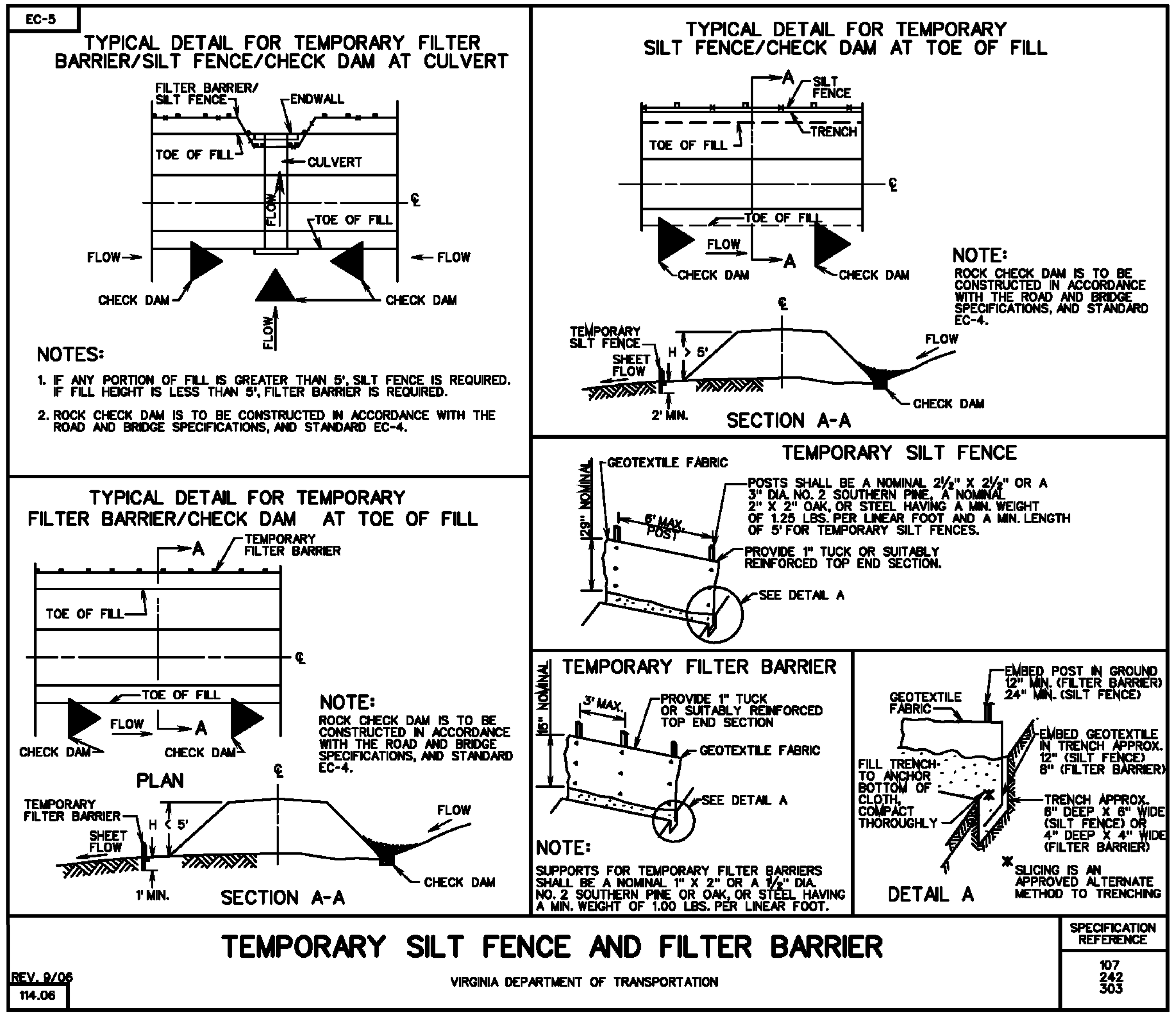
Land Disturbing/Construction Sequence - Phase 2
1. Fine grade the site.
2. Install sidewalk and entrance base course and concrete pavement.
3. Install all permanent seeding and fertilize all grassed areas.
4. Clean site of all trash and debris.
5. Have the inspector inspect all areas to determine if they are adequately stabilized.

Maintenance Program: The Contractor shall make a visual inspection of all mechanical controls and newly stabilized areas (i.e. seeded, mulched, or sodded areas) on a daily basis and after each rainfall event to insure that all controls are functioning properly. The following items will be checked in particular: inlet protection will be checked regularly for sediment buildup which will prevent drainage, and if the gravel is clogged by sediment, it shall be removed and cleaned or replaced; the silt fence barrier will be checked regularly for undermining or deterioration of the fabric, and sediment shall be removed when the level of sediment deposition reaches halfway to the top of the barrier; and the seeded areas will be checked regularly to ensure that a good stand is maintained, and areas shall be fertilized and reseeded as needed. Any damaged controls shall be repaired by the end of the work day, including reseeding and mulching if necessary. The Contractor may install additional measures should he or she deem it necessary at the inspector's approval. All erosion & sediment controls shall be removed within seven (7) days after the project is stabilized.

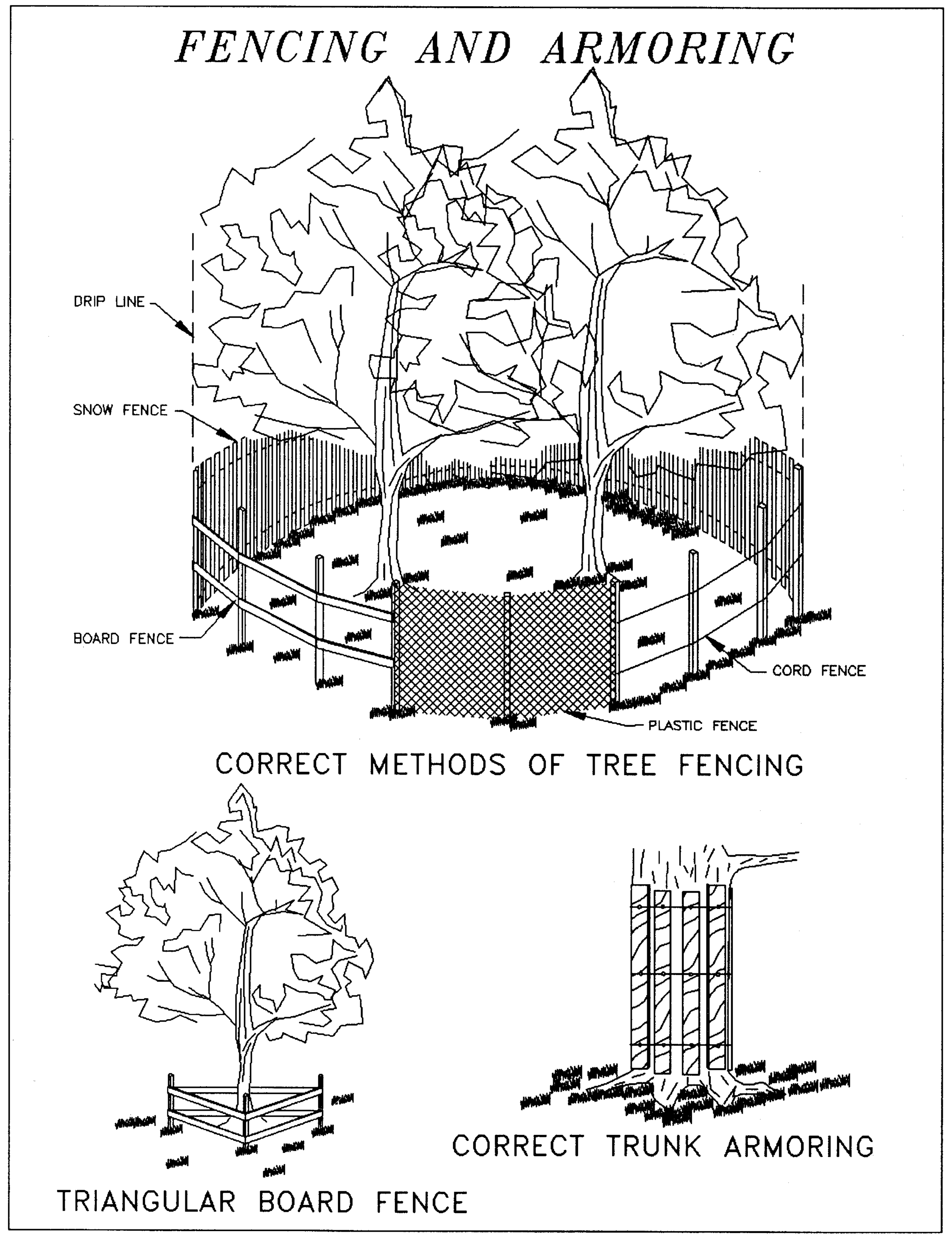
Structural Practices:
1. Silt Fence Barrier (3.05) - Silt fence barriers will be installed downslope of areas with minimal grades to filter sediment-laden runoff from sheet flow as indicated in the Erosion and Sediment control plans.
2. Storm Drain Inlet Protection (3.07) - All storm sewer inlets shall be protected during construction. Sediment-laden water shall be filtered before entering the storm sewer inlets.
3. Temporary Seeding (3.31) - All denuded areas which will be left dormant for extended periods of time shall be seeded with fast germinating temporary vegetation immediately following grading. Selection of the seed mixture will depend on the time of year it is applied.
4. Permanent Seeding (3.32) - Perennial vegetative cover shall be established on disturbed areas by planting seed to reduce erosion and decrease sediment yield and to permanently stabilize disturbed areas. Selection of the seed mixture will depend on the time of year it is applied.
5. Permanent Stabilization - Permanent stabilization shall be done in accordance with the VESCH and all Town of Vienna seeding standards.

Stormwater Runoff Considerations: See sheet 2K(6) for Outfall Analysis for this project.

TSF — TEMPORARY SILT FENCE



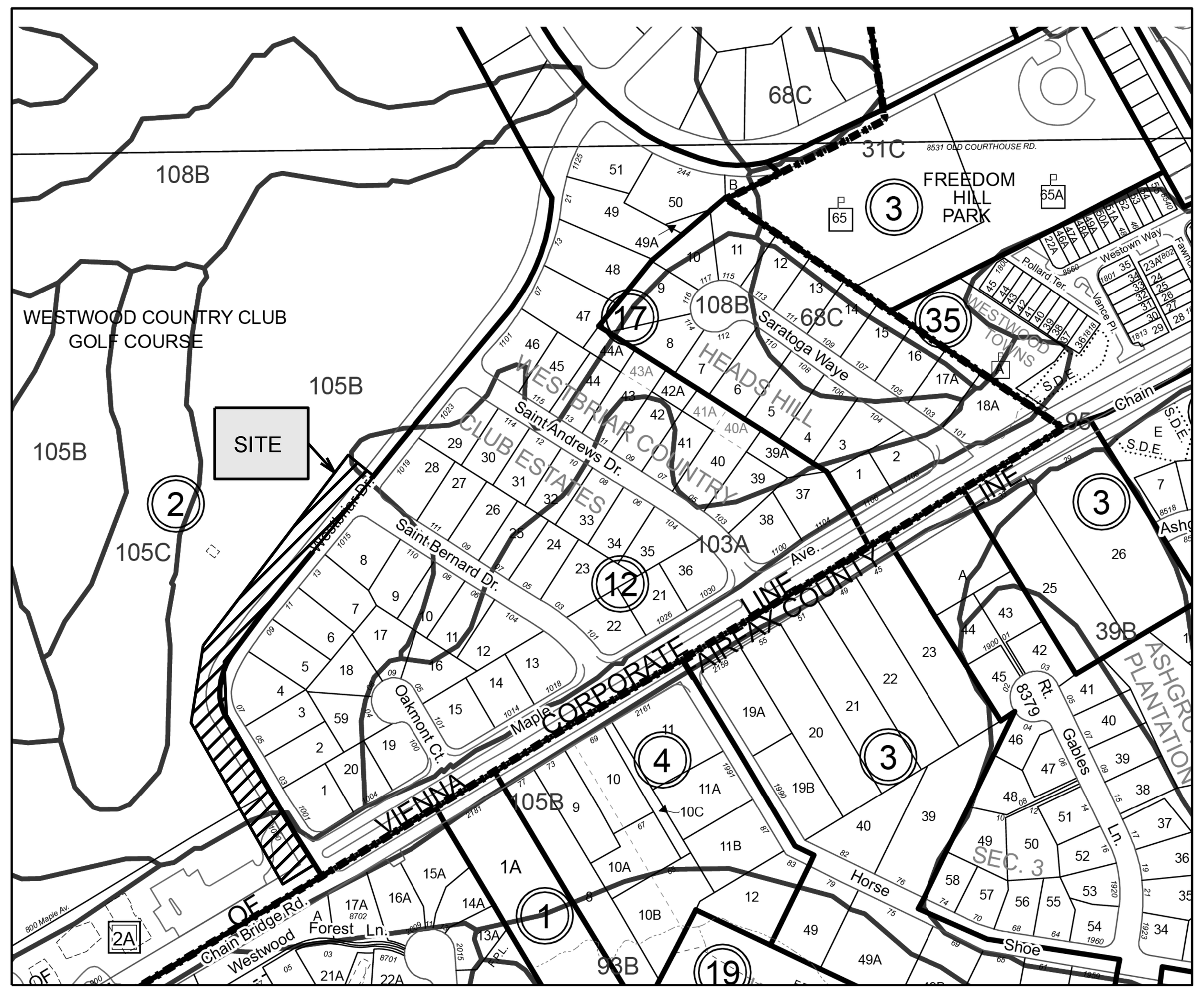
TP — TREE PROTECTION



Source: Va. DSWC

Plate 3.38-2

SOILS MAP DATA SCALE: N.T.S



SOILS MAP SOURCE: ☒COUNTY MAP; ☐PRIVATE SOILS SCIENTIST (FOR UNMAPPED SITES)					
SOIL ID NUMBERS	SOIL SERIES NAME	FOUNDATION SUPPORT	SOIL DRAINAGE	EROSION POTENTIAL	PROBLEM CLASS
95	URBAN LAND	N/A	N/A	N/A	IVB
105B	WHEATON GLENELG COMPLEX	GOOD	GOOD	HIGH	IVB
108B	WHEATON SUMERDUCK COMPLEX	MARGINAL	POOR	MEDIUM	IVB

IS THE SITE LOCATED WITHIN NATURALLY OCCURING ASBESTOS SOILS?
YES☐ NO☒

AREAS THAT MAY CONTAIN NATURALLY OCCURING ASBESTOS SOILS ARE LOCATED ON THE ORANGE SOILS TAX MAP GRIDS ON THE COUNTY WEBSITE. SPECIAL PRECAUTIONS REGARDIND THESE SOILS OR FILL ORIGINATING FROM THESE SOILS ARE REQUIRED BY OCCUPATIONAL SAFETY AND HEALTH REGULATIONS ENFORCED BY THE VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY AND SPECIAL GUIDANCE HAS BEEN ISSUED BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY.

SOILS MAPPED OVER NATUALLY OCCURING BEDROCK. THESE SOILS OCCUR WITHIN A GEOLOGIC FORMATION KNOWN AS THE PINEY BRANCH COMPLEX, LOCALLY KNOWN AS GREENSTONE. NATURALLY-OCCURRING ASBESTOS MINERALS, PREDOMINANTLY ACTINOLITE AND TREMOLITE, ARE KNOWN TO OCCUR IN THIS FORMATION. EXCAVATIONS IN BEDROCK OR EARTH MOVING ACTIVITIES WITHIN THIS FORMATION MAY EXPOSE THESE MINERALS TO THE ATMOSPHERE, ALLOWING THE FIBERS TO BECOME AIRBORNE.

PROJECT MANAGER Dennis Johnson P.E. (Town of Vienna)
SURVEYED BY Rinker Design Associates, P.C. DATE: July 2013
DESIGN BY Adam D. Welschenbach P.E. - Rinker Design Associates, P.C. (703) 368-7373
SUBSURFACE UTILITY BY "Miss Utility" DATE: July 2013

COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
PROFESSIONAL ENGINEER

Rinker Design Associates
Manassas, Virginia
PROFESSIONAL ENGINEER

Rinker Design Associates, P.C.
Office Locations

REVISED	STATE	TOWN OF VIENNA ROUTE	PROJECT	SHEET NO.
	VA.	N.I.S.		IL(1)

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

Erosion & Sediment Control Notes & Details

4VAC50-30-40. Minimum Standards. (MS-19)

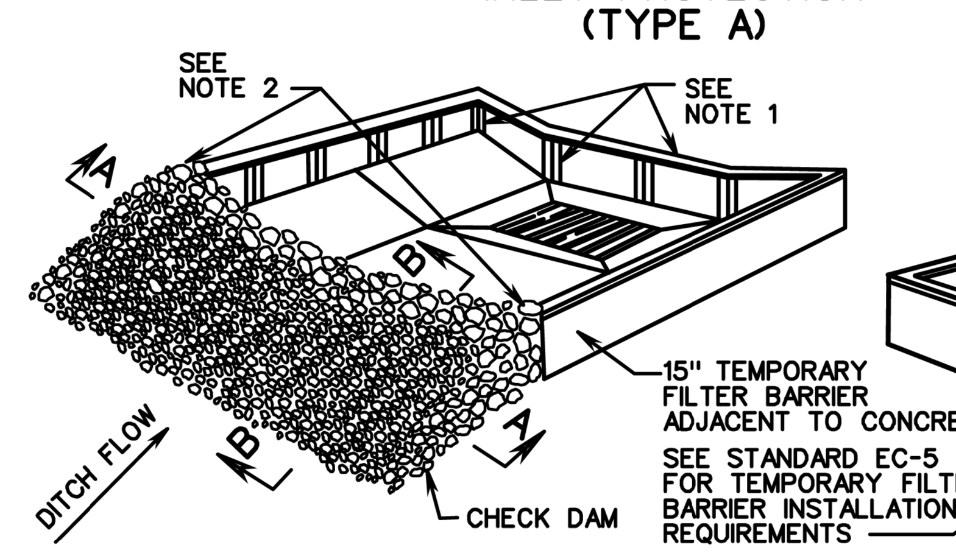
A VESCP must be consistent with the following criteria, techniques and methods:

1. Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven days to denuded areas that may not be at final grade but will remain dormant for longer than 14 days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.
2. During construction of the project, soil stock piles and borrow areas shall be stabilized or protected with sediment trapping measures. The applicant is responsible for the temporary protection and permanent stabilization of all soil stockpiles on site as well as borrow areas and soil intentionally transported from the project site.
3. A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is achieved that is uniform, mature enough to survive and will inhibit erosion.
4. Sediment basins and traps, perimeter dikes, sediment barriers and other measures intended to trap sediment shall be constructed as a first step in any land-disturbing activity and shall be made functional before upslope land disturbance takes place.
5. Stabilization measures shall be applied to earthen structures such as dams, dikes and diversions immediately after installation.
6. Sediment traps and sediment basins shall be designed and constructed based upon the total drainage area to be served by the trap or basin.
   a. The minimum storage capacity of a sediment trap shall be 134 cubic yards per acre of drainage area and the trap shall only control drainage areas less than three acres.
   b. Surface runoff from disturbed areas that is comprised of flow from drainage areas greater than or equal to three acres shall be controlled by a sediment basin. The minimum storage capacity of a sediment basin shall be 134 cubic yards per acre of drainage area. The outfall system shall, at a minimum, maintain the structural integrity of the basin during a 25-year storm of 24-hour duration. Runoff coefficients used in runoff calculations shall correspond to a bare earth condition or those conditions expected to exist while the sediment basin is utilized.
7. Cut and fill slopes shall be designed and constructed in a manner that will minimize erosion. Slopes that are found to be eroding excessively within one year of permanent stabilization shall be provided with additional slope stabilizing measures until the problem is corrected.
8. Concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel, flume or slope drain structure.
9. Whenever water seeps from a slope face, adequate drainage or other protection shall be provided.
10. All storm sewer inlets that are made operable during construction shall be protected so that sediment-laden water cannot enter the conveyance system without first being filtered or otherwise treated to remove sediment.
11. Before newly constructed stormwater conveyance channels or pipes are made operational, adequate outlet protection and any required temporary or permanent channel lining shall be installed in both the conveyance channel and receiving channel.
12. When work in a live watercourse is performed, precautions shall be taken to minimize encroachment, control sediment transport and stabilize the work area to the greatest extent possible during construction. Non-erodible material shall be used for the construction of causeways and cofferdams. Earthen fill may be used for these structures if armored by non-erodible cover materials.
13. When a live watercourse must be crossed by construction vehicles more than twice in any six-month period, a temporary vehicular stream crossing constructed of non-erodible material shall be provided.
14. All applicable federal, state and local chapters pertaining to working in or crossing live watercourses shall be met.
15. The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed.
16. Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:
   a. No more than 500 linear feet of trench may be opened at one time.
   b. Excavated material shall be placed on the uphill side of trenches.
   c. Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not adversely affect flowing streams or off-site property.
   d. Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.
   e. Restabilization shall be accomplished in accordance with this chapter.
   f. Applicable safety chapters shall be complied with.
17. Where construction vehicle access routes intersect paved or public roads, provisions shall be made to minimize the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a paved or public road surface, the road surface shall be cleaned thoroughly at the end of each day. Sediment shall be removed from the roads by shoveling or sweeping and transported to a sediment control disposal area. Street washing shall be allowed only after sediment is removed in this manner. This provision shall apply to individual development lots as well as to larger land-disturbing activities.
18. All temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer needed, unless otherwise authorized by the VESCP authority. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.
19. Properties and waterways downstream from development sites shall be protected from sediment deposition, erosion and damage due to increases in volume, velocity and peak flow rate of stormwater runoff for the stated frequency storm of 24-hour duration in accordance with the following standards and criteria. Stream restoration and relocation projects that incorporate natural channel design concepts are not man-made channels and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels:
   a. Concentrated stormwater runoff leaving a development site shall be discharged directly into an adequate natural or man-made receiving channel, pipe or storm sewer system. For those sites where runoff is discharged into a pipe or pipe system, downstream stability analyses at the outfall of the pipe or pipe system shall be performed.
   b. Adequacy of all channels and pipes shall be verified in the following manner:
      1) The applicant shall demonstrate that the total drainage area to the point of analysis within the channel is one hundred times greater than the contributing drainage area of the project in question; or
      2)
         a) Natural channels shall be analyzed by the use of a two-year storm to verify that stormwater will not overtop channel banks nor cause erosion of channel bed or banks.
         b) All previously constructed man-made channels shall be analyzed by the use of a ten-year storm to verify that stormwater will not overtop its banks and by the use of a two-year storm to demonstrate that stormwater will not cause erosion of channel bed or banks; and
         c) Pipes and storm sewer systems shall be analyzed by the use of a ten-year storm to verify that stormwater will be contained within the pipe or system.
   c. If existing natural receiving channels or previously constructed man-made channels or pipes are not adequate, the applicant shall:
      1) Improve the channels to a condition where a ten-year storm will not overtop the banks and a two-year storm will not cause erosion to channel the bed or banks; or
      2) Improve the pipe or pipe system to a condition where the ten-year storm is contained within the appurtenances;
      3) Develop a site design that will not cause the pre-development peak runoff rate from a two-year storm to increase when runoff outfalls into a natural channel or will not cause the pre-development peak runoff rate from a ten-year storm to increase when runoff outfalls into a man-made channel; or
      4) Provide a combination of channel improvement, stormwater detention or other measures which is satisfactory to the VESCP authority to prevent downstream erosion.
   d. The applicant shall provide evidence of permission to make the improvements.
   e. All hydrologic analyses shall be based on the existing watershed characteristics and the ultimate development condition of the subject project.
   f. If the applicant chooses an option that includes stormwater detention, he shall obtain approval from the VESCP of a plan for maintenance of the detention facilities. The plan shall set forth the maintenance requirements of the facility and the person responsible for performing the maintenance.
   g. Outfall from a detention facility shall be discharged to a receiving channel, and energy dissipators shall be placed at the outfall of all detention facilities as necessary to provide a stabilized transition from the facility to the receiving channel.
   h. All on-site channels must be verified to be adequate.
   i. Increased volumes of sheet flows that may cause erosion or sedimentation on adjacent property shall be diverted to a stable outlet, adequate channel, pipe or pipe system, or to a detention facility.
   j. In applying these stormwater management criteria, individual lots or parcels in a residential, commercial or industrial development shall not be considered to be separate development projects. Instead, the development, as a whole, shall be considered to be a single development project. Hydrologic parameters that reflect the ultimate development condition shall be used in all engineering calculations.
   k. All measures used to protect properties and waterways shall be employed in a manner which minimizes impacts on the physical, chemical and biological integrity of rivers, streams and other waters of the state.
   l. Any plan approved prior to July 1, 2014, that provides for stormwater management that addresses any flow rate capacity and velocity requirements for natural or man-made channels shall satisfy the flow rate capacity and velocity requirements for natural or man-made channels if the practices are designed to (i) detain the water quality volume and to release it over 48 hours; (ii) detain and release over a 24-hour period the expected rainfall resulting from the one year, 24-hour storm; and (iii) reduce the allowable peak flow rate resulting from the 1.5, 2, and 10-year, 24-hour storms to a level that is less than or equal to the peak flow rate from the site assuming it was in a good forested condition, achieved through multiplication of the forested peak flow rate by a reduction factor that is equal to the runoff volume from the site when it was in a good forested condition divided by the runoff volume from the site in its proposed condition, and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels as defined in any regulations promulgated pursuant to 10J-562 or 10J-570 of the Act.
   m. For plans approved on and after July 1, 2014, the flow rate capacity and velocity requirements of 10J-561 A of the Act and this subsection shall be satisfied by compliance with water quantity requirements in the Stormwater Management Act (10J-603.2 et seq. of the Code of Virginia) and attendant regulations, unless such land-disturbing activities are in accordance with 4VAC50-60-48 of the Virginia Stormwater Management Program (VSMP) Permit Regulations.
   n. Compliance with the water quantity minimum standards set out in 4VAC50-60-66 of the Virginia Stormwater Management Program (VSMP) Permit Regulations shall be deemed to satisfy the requirements of Minimum Standard 19.

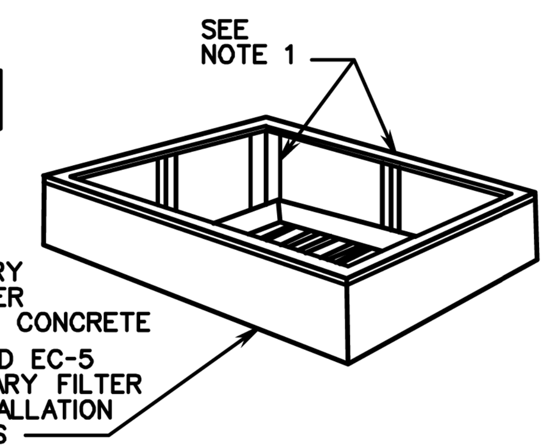
DIST

INLET PROTECTION

INLET PROTECTION (TYPE A)



TYPICAL TREATMENT FOR DROP INLET WITH CONCRETE GUTTER



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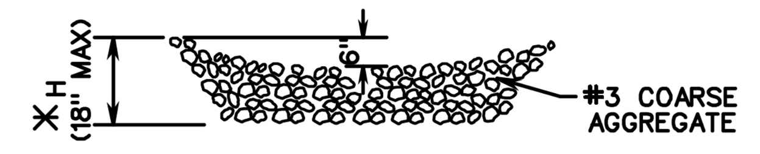
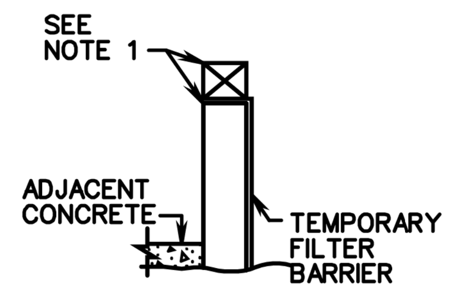
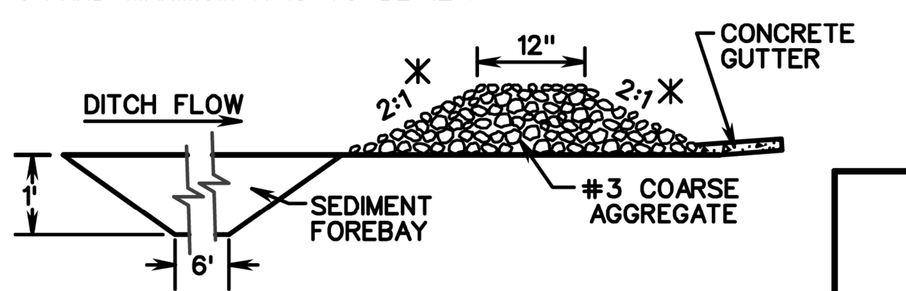


SECTION A-A

*IF CHECK DAM IS LOCATED INSIDE CLEAR ZONE AND ADJACENT TO A TRAVELWAY, SLOPE FACING ON COMING TRAFFIC IS TO BE 6:1 AND MAXIMUM H IS TO BE 12".





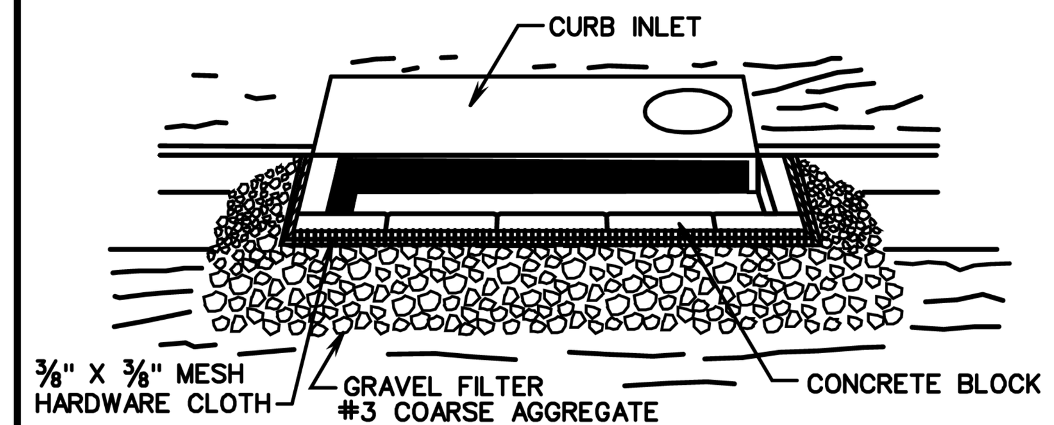
SECTION B-B

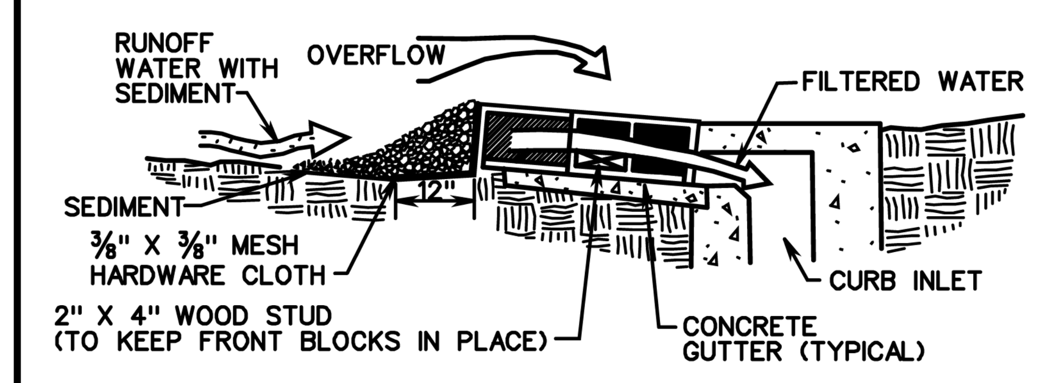
NOTES

1. POSTS AND TOP RAIL SHALL BE A NOMINAL 2½" X 2½" OR A 3" DIA. NO. 2 SOUTHERN PINE, A NOMINAL 2" X 2" OAK, OR STEEL HAVING A MIN. WEIGHT OF 1.25 LBS. PER LINEAR FOOT AND A MIN. LENGTH OF 5' FOR TEMPORARY SILT FENCES.
2. END OF FILTER BARRIER TO BE EMBEDDED INTO AGGREGATE.
3. IF A DROP INLET IS LOCATED IN A SAG IN THE DITCH GRADE, A CHECK DAM IS REQUIRED FOR EACH SIDE OF THE INLET THAT RECEIVES DITCH FLOW.
4. WHERE DRAINAGE AREAS EXCEED ONE ACRE OR DITCH GRADE EXCEEDS 3%, A TEMPORARY SEDIMENT FOREBAY SHALL BE INSTALLED WITH MINIMUM DIMENSIONS OF 12" DEPTH, 2' WIDTH AND 6' LENGTH.

INLET PROTECTION (TYPE B)

EC-6





SECTION VIEW

SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE AN OVERFLOW CAPABILITY IS NECESSARY TO PREVENT EXCESSIVE PONDING IN FRONT OF THE STRUCTURE.

NOTE:

GEOTEXTILE PRODUCTS DESIGNED TO BE INSERTED INTO GRATED DROP INLETS OR DESIGNED TO COVER THE SLOTS OF SLOT DROP INLETS, THAT HAVE BEEN APPROVED FOR USE ON VDOT PROJECTS AND ARE FOUND ON VDOT'S SPEL LIST, MAY BE SUBSTITUTED FOR THE DROP INLET PROTECTION DEVICES DETAILED HEREON.

TOWN OF VIENNA

11/20/2013

PROJECT MANAGER Dennis Johnson P.E.(Town of Vienna)
SURVEYED BY Rinker Design Associates,P.C. DATE: July 2013
DESIGN BY Adam D.Welschenbach P.E. - Rinker Design Associates,P.C.(703) 368-7373
SUBSURFACE UTILITY BY "Miss Utility" DATE: July 2013

Erosion & Sediment Control Phases 1 & 2

COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
PROFESSIONAL ENGINEER

Rinker Design Associates
Manassas, Virginia
PROFESSIONAL ENGINEER

REVISED	STATE	ROUTE	PROJECT (TOWN OF VIENNA)	SHEET NO.
	VA.	N.I.S.		1M

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

Tree Legend

X Denotes Tree To Be Removed and Replaced with New Tree

New Tree(s) SHALL be selected/approved by Town Arborist PRIOR to purchase. Coordination with Town Req'd.

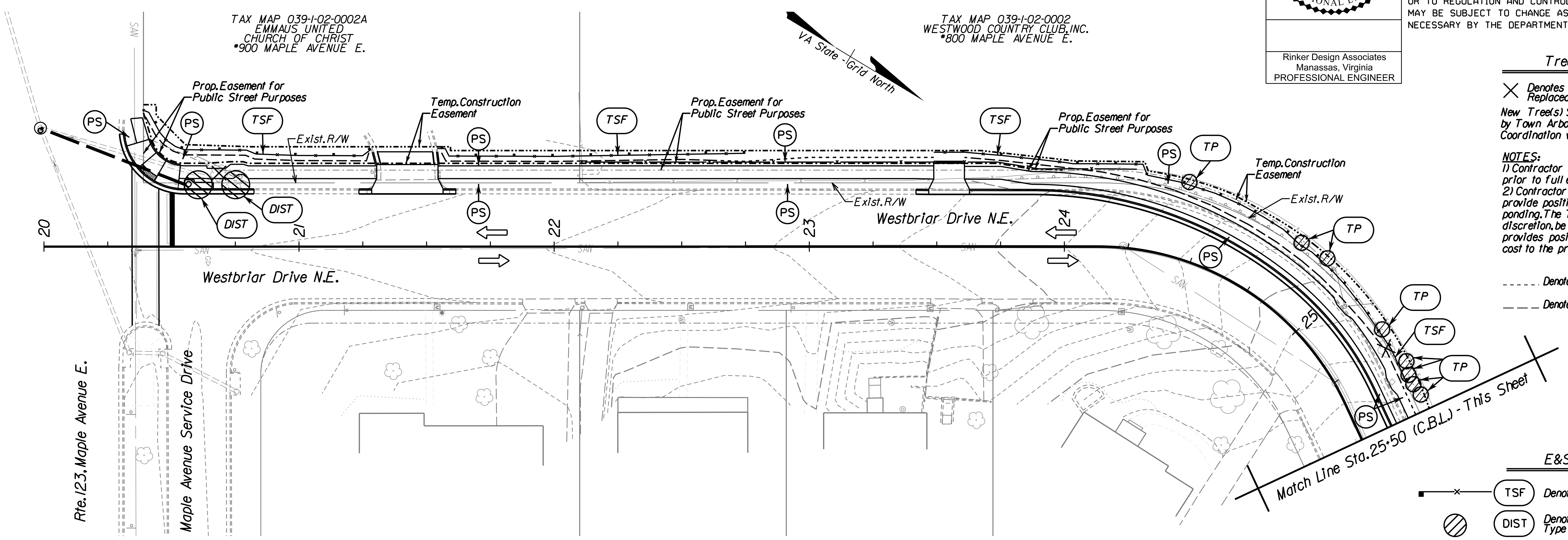
NOTES:
1) Contractor shall clean cut roots prior to full excavation.
2) Contractor shall ensure all grading activites provide positive drainage and shall not create ponding. The Town of Vienna shall, at its discretion, be permitted to ensure the Contractor provides positive drainage at no additional cost to the project.

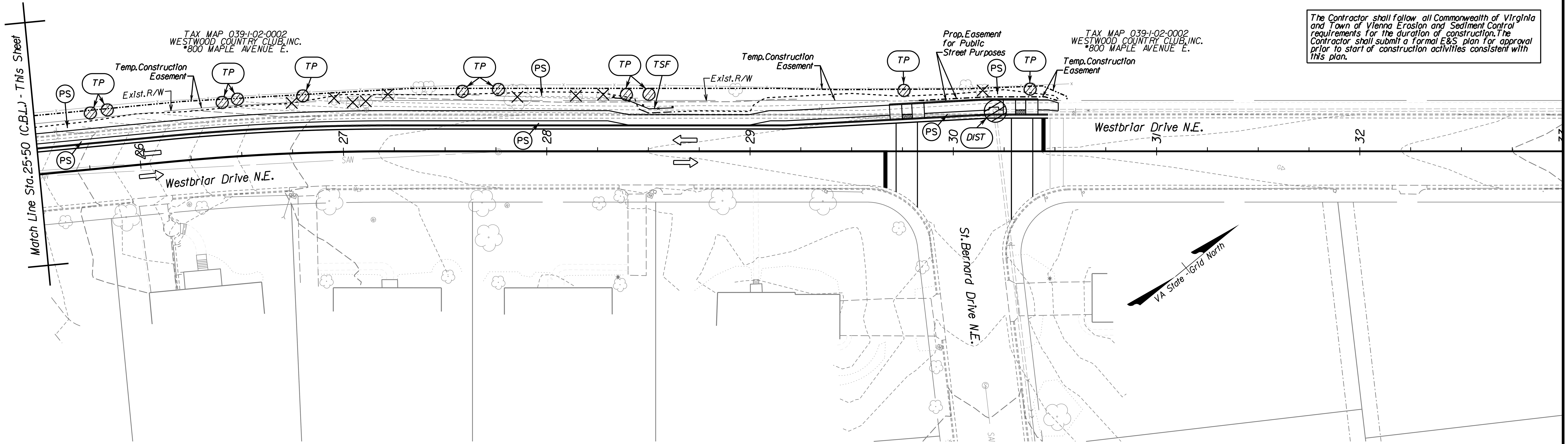
------ Denotes Construction Limits In Cuts
— — — Denotes Construction Limits In Fills

E&S LEGEND

TSF Denotes Temporary Silt Fence, St'd EC-5
DIST Denotes Drop Inlet Protection, Type A or B (as necessary)
TP Tree Protection
PS Permanent Seeding

The Contractor shall follow all Commonwealth of Virginia and Town of Vienna Erosion and Sediment Control requirements for the duration of construction. The Contractor shall submit a formal E&S plan for approval prior to start of construction activities consistent with this plan.





SCALE 0 25' 50'

Rinker Design Associates, P.C.
Civil Engineering · Surveying · Land Planning · Transportation · Environmental · Right of Way Services

TOWN OF VIENNA

11/20/2013

PROJECT MANAGER Dennis Johnson P.E.(Town of Vienna)
SURVEYED BY Rinker Design Associates,P.C. DATE: July 2013
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SUBSURFACE UTILITY BY "Miss Utility" DATE: July 2013

General Notes & Details

COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
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PROFESSIONAL ENGINEER

Rinker Design Associates
Manassas, Virginia
PROFESSIONAL ENGINEER

REVISED	STATE	TOWN OF VIENNA ROUTE	PROJECT	SHEET NO.
	VA.	N.J.S.		2

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

GRADING GENERAL NOTES

1. 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: Small Footings, Light Pole Foundations, End Walls, Drop Inlets, Manholes, Pipes, Concrete Slabs, Curb and Gutter, Concrete or Asphalt Sidewalk, Paved Ditches, Foundation Slabs, and Base or Brick items.
2. If, during construction, it is deemed necessary to change the depth more than 1 foot (0.3 m) or the limits of such excavation, such change shall be made at the direction of the Engineer and measurement and payment shall be made in accordance with Section 303 of the applicable VDOT Road and Bridge Specifications.
3. The borrow or embankment material for this project shall be a minimum CBR 6 or as approved by the Town Engineer. Material classified as CH or MH in its natural state according to ASTM D 2487 or ASTM D 2488 shall not be hauled on-site as borrow material.

DRAINAGE GENERAL NOTES

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.
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 Town Engineer before installing the culvert or storm sewer outfall pipe.
3. The "H" dimensions shown on the plans for drop inlets and junction boxes and the "L.F.(m)" 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.(m)" dimensions are to be determined by the Contractor from field conditions.
4. Existing drainage facilities being utilized as a part of the drainage system, including three structures downstream of the project area, shall be cleaned out as directed by the Engineer. The cost to perform this work shall be not be covered as a separate pay item, and shall be considered incidental to the project.
5. Proposed drop inlet tops 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.
6. When Standard CG-6 or Mod.CG-6 (see this sheet for Town's detail) 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.
7. St'd.SL-1 Safety slab locations are based on the assumed use of precast structures. If cast-in-place structures are utilized, and the interior chamber dimensions (length and width, or diameter) are less than four feet, the safety slabs shall not be installed.
8. All excavated areas shall be restored and/or patched the same day. Prior to beginning the work, the Contractor shall submit an acceptable contingency plan to the Town outlining temporary protective measures to be utilized should the Contractor be unable to complete the restoration prior to the end of the work day.

PAVEMENT GENERAL NOTES

1. For bidding purposes, the Contractor shall utilize the typical section on this sheet. Prior to the start of construction, the Contractor shall obtain pavement cores (as directed by the Town) and submit a pavement design for approval by the Town. Proposed pavement is required in all locations adjacent to proposed curb (1' width) in accordance with VDOT's WP-2 standard.

INCIDENTAL GENERAL NOTES

1. Certain trees shall be preserved as noted on plans or as directed by the Engineer.
2. When Standard slope roundoffs would damage trees, bushes or other desirable vegetation, they shall be omitted when so ordered by the Town.
3. Clearing and grubbing shall be confined to those areas needed for construction. No trees or shrubs in ungraded areas shall be cut without the permission of the Town.
4. When no centerline alignment is shown for a proposed entrance, the entrance shall be constructed in the same location as the existing entrance.
5. St'd.RM-1 Right of Way Monuments shall be set by the Contractor. Any disturbed by the Contractor shall be restored at the Contractor's cost.
6. The "Underground Utilities" survey data on this project has been provided by "Miss Utility."
7. 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, and as directed by the Town. All proposed pavement marking work shall be incidental to the project and not paid for as a separate pay item.
8. The following outside sources, under contract with VDOT, have provided information on this project:
   Hydraulic Design Rinker Design Associates,P.C.
   Sidewalk Design Rinker Design Associates,P.C.
   Utility Designation "Miss Utility"
   Utility Location "Miss Utility"
   Survey Rinker Design Associates,P.C.
   If questions or problems arise during construction, please contact the Project Designer. DO NOT CONTACT THE OUTSIDE SOURCES.
9. All electronic plan assemblies will include the construction plans in one format: .pdf files. Only the .pdf files will be considered as part of the official plan assembly.

EROSION AND SEDIMENT CONTROL (ESC) GENERAL NOTES

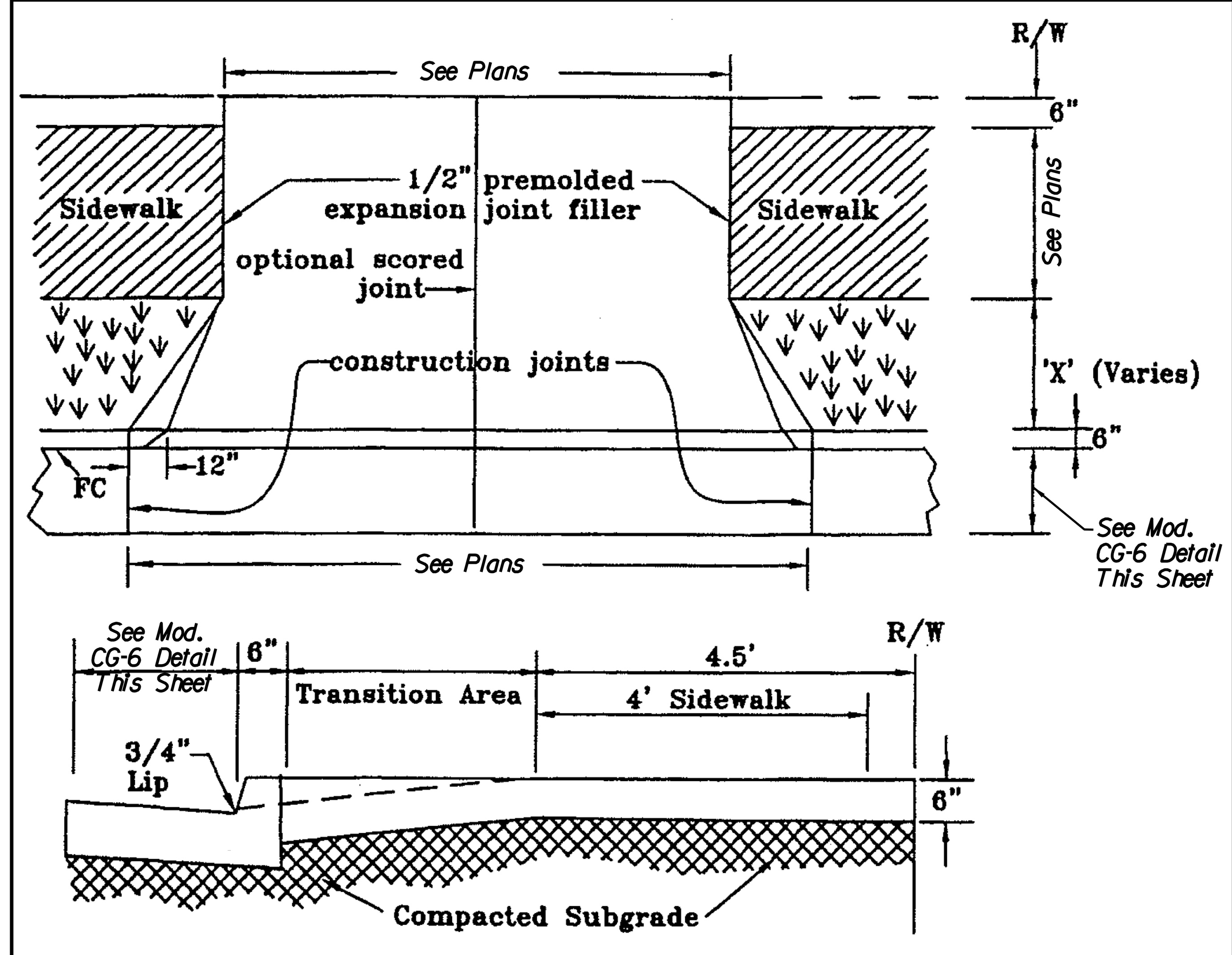
1. See Sheets 1L and 1L(1) for the Erosion & Sediment Control General Notes and Legend.

GENERAL NOTES

1. The Contractor shall conduct a post installation visual/video camera inspection of all storm sewer pipes and a selected number of pipe culverts in accordance with the requirements of Section 302.03(d) of the VDOT 2007 Supplemental Road & Bridge Specifications and VTM 123.
2. The Contractor shall present a TMP/SOC plan to the Town for approval prior to the start of construction.
   -All entrances shall remain open during non-working hours or as directed by the Town.
3. 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, the current edition of the VDOT Road and Bridge Standards, current VDOT insertable sheets to the Road and Bridge Standards, and all special provisions in effect at the time the plan is approved. The Contractor is to also perform all work in accordance with all current revisions to the Road and Bridge Standards, as applicable.
4. The Contractor shall replace all structure tops within the project limits as noted on the plans. Only structure tops are to be replaced. All related incidental work and adjacent curb/pavement replacement/repair shall be incidental to the cost of structure top replacement.
5. The Contractor shall follow all Town of Vienna requirements for planting trees (including installing any tree root barrier when trees are to be installed adjacent to proposed curb) at no additional cost to the project.
6. The Town of Vienna shall determine what species of tree(s) to plant. Unless otherwise directed by the Town the following tree types shall be used:
   a) Tree Type 1 - Red Maple
   b) Tree Type 2 - Willow Oak
   c) Tree Type 3 - Northern Red Oak
7. a) The Contractor is responsible for locating all utilities. Utilities shown on plans are not guaranteed. Any disruption/impact in utility service is the sole responsibility of the Contractor. The Contractor is responsible for all utility relocation efforts/coordination to ensure utilities are relocated and/or reset (as needed for utility boxes, pole guys etc.) and/or sidewalk guy wires are installed. The Contractor is responsible for all costs not covered by the Town of Vienna's utility franchise agreement(s). Coordination with Town of Vienna is required.

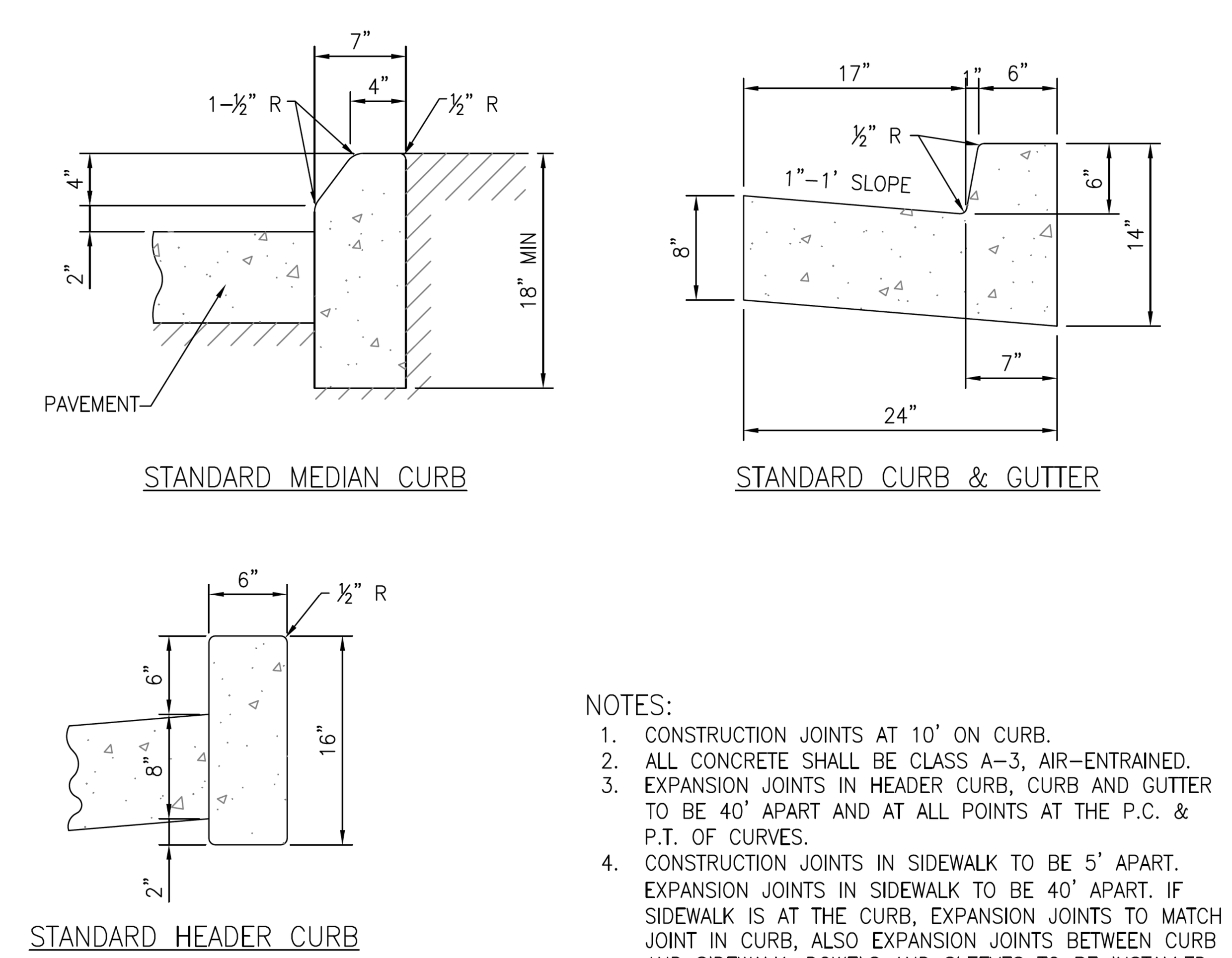
   b) The Town of Vienna's forces will relocate as needed (due to construction conflicts) any other waterline conflicts, fire hydrants, and water meters. The Contractor shall coordinate with the Town of Vienna for construction scheduling to ensure continued service.
8. The Contractor shall plant trees in accordance with VDOT's 2007 Road and Bridge Specifications, Section 605.05,(b) of VDOT's 2007 Road and Bridge Specifications is amended to establish the "Establishment Period" for trees planted to be one full year. Additionally, Section 605.05,"1,(b) is amended to add that the Contractor is required to water the trees once a week June 01 through September 31. Lastly, Section 605.05 "4 is amended to replace the last sentence as follows: Any future trees to be replaced shall be at the Contractor's expense, through the end of the "Establishment Period."
9. The Contractor shall provide Construction Surveying in accordance with VDOT's 2007 Road and Bridge Specifications under the direction of a Virginia Licensed Land Surveyor. Additionally the Contractor shall provide Construction Engineering Inspection (CEI) services as directed the Town (if required) at no additional cost to the project.

MODIFIED CG-9A



DRIVEWAY ENTRANCE WITH SIDEWALK

Modified CG-6



STANDARD MEDIAN CURB

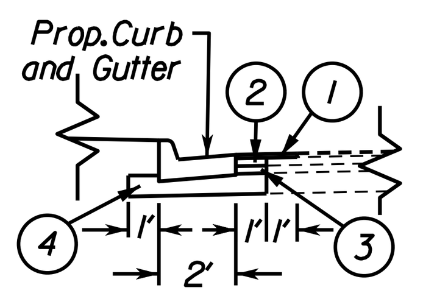
STANDARD CURB & GUTTER

STANDARD HEADER CURB

NOTES:
1. CONSTRUCTION JOINTS AT 10' ON CURB.
2. ALL CONCRETE SHALL BE CLASS A-3, AIR-ENTRAINED.
3. EXPANSION JOINTS IN HEADER CURB, CURB AND GUTTER TO BE 40' APART AND AT ALL POINTS AT THE P.C. & P.T. OF CURVES.
4. CONSTRUCTION JOINTS IN SIDEWALK TO BE 5' APART. EXPANSION JOINTS IN SIDEWALK TO BE 40' APART. IF SIDEWALK IS AT THE CURB, EXPANSION JOINTS TO MATCH JOINT IN CURB, ALSO EXPANSION JOINTS BETWEEN CURB AND SIDEWALK. DOWELS AND SLEEVES TO BE INSTALLED IN C&G JOINTS WHERE SUB-GRADE IS UNSTABLE.
5. EXPANSION JOINTS REQUIRED WHERE SIDEWALKS MEET DRIVEWAY APRONS.

STANDARD CURB,GUTTER & SIDEWALK
TOWN OF VIENNA
DEPARTMENT OF PUBLIC WORKS
PREPARED: 11-10-2010
REVISED: 5-18-2011

Recommended Pavement Typical



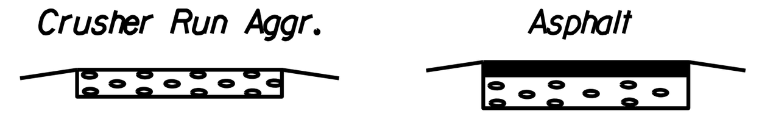
*For all locations with Prop.Curb and Gutter (per WP-2 St'd). For more information, see Pavement Note 1 on this sheet.

1. Surface Course - (1.5") Asph.Conc.,Type SM-9.5A
2. Intermediate Course - (3") Asph.Conc.,Type IM-19.0A
3. Base Course - (3") Asph.Conc.,Type BM-25.0A
4. Sub-base Course - (8") Aggregate Base Material, Type I, Size No.21B

PRIVATE ENTRANCES

*See Plan Sheets for Sidewalk Typicals

TYPE I Crusher Run Aggr.	TYPE III Asphalt
6" Crusher Run Aggr. 25 or 26	Asphalt Conc.Type SM-9.5A or SM-9.5D @ 220 Lbs. per S.Y. 4" Aggr. Base Mat'l. Ty. I No. 21A or 21B



NOT TO SCALE

Notes:
1. The type of entrance (I or III) to be constructed will be determined by the existing condition at the time of construction or as directed by the Town Engineer.
2. Contractor shall ensure all driveway grading activities provide for positive drainage during and post-construction of the project. Any ponding/drainage issues arising due to construction activities are the sole responsibility (including costs) of the Contractor. The Contractor shall coordinate with the Town and property owners/residents prior to the start of construction.

Rinker Design Associates, P.C.
Civil Engineering · Surveying · Land Planning · Transportation · Environmental · Right of Way Services
Office Locations

TOWN OF VIENNA

11/20/2013

PROJECT MANAGER Dennis Johnson P.E.(Town of Vienna)
SURVEYED BY Rinker Design Associates,P.C. DATE: July 2013
DESIGN BY Adam D.Welschenbach P.E. - Rinker Design Associates,P.C.(703) 368-7373
SUBSURFACE UTILITY BY "Miss Utility" DATE: July 2013

Existing Drainage & Sanitary Descriptions

COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
PROFESSIONAL ENGINEER

Rinker Design Associates
Manassas, Virginia
PROFESSIONAL ENGINEER

REVISED	STATE	TOWN OF VIENNA		SHEET NO.
		ROUTE	PROJECT	
	VA.	N.I.S.		2K

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

(1) STORM MANHOLE
TOP=400.50
INV IN=395.45
INV OUT=395.25(15" RCP)

(2) CATCH BASIN
TOP=401.80
INV IN=397.53 (per record)
INV OUT=397.30(15" RCP)

(3) CATCH BASIN
TOP=401.50
INV IN=398.00
INV OUT=397.59 (per record)
(15" RCP)

(4) CATCH BASIN
TOP=400.80
INV OUT=398.40(15" RCP)

(5) CATCH BASIN
TOP=401.35
INV IN=395.35
INV OUT=395.30(38" RCP)

(6) CATCH BASIN
TOP=402.90
INV IN=397.15
INV OUT=396.85(38" RCP)

(7) CATCH BASIN
TOP=400.70
STRUCTURE FULL OF SILT
PIPE SHOWN PER HIGHWAY PLAN

(8) STORM MANHOLE
TOP=408.25
INV IN=401.05
INV OUT=400.85(30" RCP)

(9) CATCH BASIN
TOP=407.65
INV OUT=403.70(15" RCP)

(10) CATCH BASIN
TOP=408.95
INV IN=403.65
INV OUT=402.55(15" RCP)

(11) CATCH BASIN
TOP=409.10
INV IN=401.85
INV OUT=401.05(48" RCP)

(12) CATCH BASIN
TOP=408.10
INV IN=403.33
INV OUT=402.90(30" RCP)

(13) CATCH BASIN
TOP=408.00
INV IN=404.80(15" RCP)
INV IN=404.23(24" RCP)
INV OUT=403.95(27" RCP)

(14) CATCH BASIN
TOP=412.05
INV IN=406.55(FROM-15)
INV IN=406.40(FROM-16)
INV OUT=406.35(15" RCP)

(15) STORM GRATE
TOP=413.65
INV OUT=410.40(15" RCP)

(16) CATCH BASIN
TOP=422.80
INV IN=417.55
INV OUT=417.50(15" RCP)

(17) CATCH BASIN
TOP=429.80
INV IN=423.87
INV OUT=423.63(15" CMP)

(18) CATCH BASIN
TOP=430.20
INV OUT=425.30(15" CMP)

(19) CATCH BASIN
TOP=420.88
INV IN=414.10(15" RCP)
INV IN=413.60(48" RCP)
INV OUT=413.26(48" RCP)

(20) CATCH BASIN
TOP=421.00
INV IN=415.15
INV OUT=414.80(15" RCP)

(21) CATCH BASIN
TOP=419.85
INV OUT=415.40(15" RCP)

(22) CATCH BASIN
TOP=428.96
INV IN=423.54(18" RCP)(per record)
INV IN=423.71(48" RCP)
INV OUT=423.02(48" RCP)

(23) CATCH BASIN
TOP=429.60
INV IN=424.28 (per record)
INV OUT=424.26(18" RCP)(per record)

(24) CATCH BASIN
TOP=428.00
INV OUT=424.49(15" RCP)(per record)

(25) STORM MANHOLE
TOP=428.08
INV IN=420.66(APPROX.DIR.18" RCP)
INV OUT=419.70(24" RCP)

(26) STORM GRATE
TOP=Unkn
OUT=Unkn (15" RCP)
No Access Granted

(27) STORM MANHOLE
TOP=419.00
INV IN=415.05
INV OUT=416.60(24" RCP)

(28) STORM MANHOLE
TOP=416.00
INV IN=412.70(FROM-27)
INV IN=412.26(FROM-29)
INV OUT=412.23(21" RCP)

(29) CATCH BASIN
TOP=416.10
INV OUT=412.48(21" RCP)

(30) CATCH BASIN
TOP=416.10
INV IN=411.60
INV OUT=411.00(24" RCP)

(31) CATCH BASIN
TOP=405.80
INV OUT=400.65(15" RCP)

(32) CATCH BASIN
TOP=405.75
INV IN=399.20
INV OUT=397.05(48" RCP)

(33) STORM MH
TOP=417.60
INV IN=410.10
INV OUT=410.00(48" RCP)

(34) CATCH BASIN
TOP=415.40
INV IN=408.40
INV OUT=408.20(48" RCP)

(35) CATCH BASIN
TOP=403.30
INV IN=395.20
INV OUT=394.30(48" RCP)

(36) CATCH BASIN
TOP=396.20
INV IN=388.50
INV OUT=388.40(15" RCP)

(37) CATCH BASIN
TOP=387.40
INV IN=383.30(FROM-36)
INV IN=383.05(FROM-38)
INV OUT=382.80(18" RCP)

(38) CATCH BASIN
TOP=387.45
INV OUT=383.10(15" RCP)

(39) CATCH BASIN
TOP=382.90
INV IN=377.10
INV OUT=377.00(18" RCP)

SANITARY SEWER

(A) SAN MH
TOP=406.90
INV IN=397.65
INV OUT=397.60(8")

(B) SAN MH
TOP=412.50
INV IN=403.35
INV OUT=403.30(8")

(C) SAN MH
TOP=421.50
INV OUT=414.00(8")

(D) SAN MH
TOP=400.75
INV IN=392.45(FROM-A)
INV IN=392.15(FROM-E)
INV OUT=392.10(8")

(E) SAN MH
TOP=404.87

(F) SAN MH
TOP=405.45

(G) SAN MH
TOP=408.25

(H) SAN MH
TOP=410.80
INV IN=401.00(BOTH)
INV OUT=400.95(8")

(I) SAN MH
TOP=413.30

(J) SAN MH
TOP=407.95
INV IN=401.65
INV OUT=401.60(8")

(K) SAN MH
TOP=409.25
INV IN=402.70
INV OUT=402.65(8")

(L) SAN MH
TOP=420.65
INV OUT=411.35(8")

(M) SAN MH
TOP=419.28

(N) SAN MH
TOP=424.65

(O) SAN MH
TOP=416.15
INV IN=410.30
INV OUT=410.25(8")

(P) SAN MH
TOP=421.60
INV IN=412.25
INV OUT=412.24(8")

(Q) SAN MH
TOP=428.10
INV IN=417.95
INV OUT=417.75(8")

(R) SAN MH
TOP=438.35
INV OUT=428.85(8")

(S) SAN MH
TOP=423.36

(T) SAN MH
TOP=441.25

(U) SAN MH
TOP=443.55

Rinker Design Associates, P.C.
Civil Engineering • Surveying • Land Planning
Transportation • Environmental
Right of Way Services
Office Locations
927 Maple Grove Drive
Suite 105
Fredericksburg, VA 22407
Phone: (540) 548-4470
Fax: (540) 548-4471

TOWN OF VIENNA

11/20/2013

Rinker Design Associates, P.C.

TOWN OF VIENNA

11/20/2013

Rinker Design Associates, P.C.
Civil Engineering - Surveying - Land Planning - Transportation - Environmental - Right of Way Services
Office Locations

TOWN OF VIENNA

11/20/2013


PROJECT MANAGER Dennis Johnson P.E. (Town of Vienna)
SURVEYED BY Rinker Design Associates P.C. DATE: July 2013
DESIGN BY Adam D. Welschenbach P.E. - Rinker Design Associates P.C. (703) 368-7373
SUBSURFACE UTILITY BY "Miss Utility" DATE: July 2013
Proposed Drainage Map
COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
PROFESSIONAL ENGINEER
Rinker Design Associates
Manassas, Virginia
PROFESSIONAL ENGINEER
REVISED
STATE
TOWN OF VIENNA
ROUTE
PROJECT
SHEET NO.
VA.
N.I.S.
2K(2)
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT
St. Andrews Drive N.E.
St. Bernard Drive N.E.
Westbriar Drive N.E.
Oakmont Court N.E.
Maple Avenue Service Drive
Rte. 123 Maple Avenue E.
Pond Releases to Outfall #3
A=17.8 Ac.
C = 0.51
Pond Releases to Outfall #3
A=6.13 Ac.
C = 0.39
Ex.12
A=0.87 Ac.
C=0.63
Ex.06
A=2.76 Ac.
C=0.48
Ex.10
A=0.40 Ac.
C=0.84
Outfall #2
A=26.34 Ac.
C=0.51
Ex.11
A=4.08 Ac.
C=0.47
Ex.32
A=0.52 Ac.
C=0.60
Shaded Elements to Be Completed by Others under Separate Projects
Outfall #3
A=41.58 Ac.
C=0.50
Ex.36
A=0.39 Ac.
C=0.87
Outfall #1
A=5.54 Ac.
C=0.64
Ex.37
A=0.39 Ac.
C=0.75
Outfall Drainage Divide
Inlet Drainage Divide
SCALE
0 100' 200'
PROJECT
SHEET NO.
2K(2)

PROJECT MANAGER Dennis Johnson P.E. (Town of Vienna)
SURVEYED BY Rinker Design Associates, P.C. DATE: July 2013
DESIGN BY Adam D. Welschenbach P.E. - Rinker Design Associates, P.C. (703) 368-7373
SUBSURFACE UTILITY BY "Miss Utility" DATE: July 2013

Storm Drainage Computations

COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
PROFESSIONAL ENGINEER

Rinker Design Associates
Manassas, Virginia
PROFESSIONAL ENGINEER

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	N.I.S.		2K(3)

TOWN OF VIENNA

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

PRE-DEVELOPMENT INLET COMPUTATIONS

FORM LD-204
INLET COMPUTATIONS
ROUTE: Maple Avenue

DESIGNED BY: JW DATE: 10/28/2013
CHECKED BY: AW UNITS: ENGLISH

Inlet																														Sag Inlets Only					
Number	Type	Length (Ft)	Station	Drainage Area (Ac)	C	CA	Sum CA	I (In/Hr)	Q Incr.(CFS)	Qc Carryover (CFS)	QT Gutter Flow (CFS)	S Gutter Slope (Ft/Ft)	Sx Cross Slope (Ft/Ft)	T (Spread) (Ft)	W (Gutter Width) (Ft)	W/T	Sw (Gutter Slope) (Ft/Ft)	Sw/Sx	Eo (App.9C-8)	a	S'w	Se	Computed Length (Ft)	L Specified Length (Ft)	L/LT	E (App.9C-18)	Q Intercepted (CFS)	Qb Carryover (CFS)	Depth at Curb (In)	Allowable Ponding Depth (Ft)	Height of Curb Opening h (Ft)	d/h	Depth at Inlet (In)	T Spread @ SAG (Ft)	Remarks
Ex06	DI-4B	8	14+17	2.78	0.48	1.33																													
							1.33	4.00	5.33	0.00	5.33	0.0230	0.0800	4.7	1.5	0.317	0.0833	1.0413	0.642	1.56	0.0866	0.1356	16.104	8	0.497	0.709	3.78	1.55	4.601						
Ex10	DI-3B	8	16+45	0.40	0.84	0.34																													
							0.34	4.00	1.35	0.00	1.35	0.0083	0.0200	7.4	1.5	0.204	0.0833	4.1650	0.588	2.64	0.1466	0.1062	7.709	8	1.038	1.000	1.35	0.00	2.906						
Ex11	DI-4B	8	16+45	4.08	0.47	1.92																													
							1.92	4.00	7.68	3.98	11.66	0.0075	0.0200	18.3	1.5	0.082	0.0833	4.1650	0.241	2.64	0.1466	0.0553	27.367	8	0.292	0.463	5.40	6.26	5.542						T > 8.0 ft
Ex12	DI-3C	4	35+49	0.05	0.90	0.05																													Back/Lt.
							0.05	4.00	0.18	0.00																									Back/Lt.
				0.80	0.57	0.45																													Ahead/Rt.
							0.45	4.00	1.81	0.00		0.0500	0.0470	3.4	1.5	0.435	0.0833	1.7723		2.15															Ahead/Rt.
											1.99	0.0500												4			1.99		3.066	0.4	0.031	12.00	4.6	5.4	Weir Flow
Ex32	DI-4B	8	13+84	0.52	0.60	0.31																													
							0.31	4.00	1.24	6.26	7.50	0.0067	0.0200	15.8	1.5	0.095	0.0833	4.1650	0.282	2.64	0.1466	0.0613	20.659	8	0.387	0.586	4.39	3.10	4.927						T > 8.0 ft
Ex36	DI-3B	4	10+00	0.39	0.87	0.34																													
							0.34	4.00	1.37	2.04	3.41	0.0133	0.0200	10.0	1.5	0.150	0.0833	4.1650	0.447	2.64	0.1466	0.0856	14.921	4	0.268	0.430	1.46	1.94	3.533						T > 8.0 ft
Ex37	DI-3B	4	10+00	0.39	0.75	0.29																													
							0.29	4.00	1.17	1.94	3.11	0.0115	0.0200	9.9	1.5	0.151	0.0833	4.1650	0.450	2.64	0.1466	0.0860	13.713	4	0.292	0.462	1.44	1.67	3.516						T > 8.0 ft

POST-DEVELOPMENT INLET COMPUTATIONS

FORM LD-204
INLET COMPUTATIONS
ROUTE: Maple Avenue

DESIGNED BY: JW DATE: 10/28/2013
CHECKED BY: AW UNITS: ENGLISH

Inlet																														Sag Inlets Only					
Number	Type	Length (Ft)	Station	Drainage Area (Ac)	C	CA	Sum CA	I (In/Hr)	Q Incr.(CFS)	Qc Carryover (CFS)	QT Gutter Flow (CFS)	S Gutter Slope (Ft/Ft)	Sx Cross Slope (Ft/Ft)	T (Spread) (Ft)	W (Gutter Width) (Ft)	W/T	Sw (Gutter Slope) (Ft/Ft)	Sw/Sx	Eo (App.9C-8)	a	S'w	Se	Computed Length (Ft)	L Specified Length (Ft)	L/LT	E (App.9C-18)	Q Intercepted (CFS)	Qb Carryover (CFS)	Depth at Curb (In)	Allowable Ponding Depth (Ft)	Height of Curb Opening h (Ft)	d/h	Depth at Inlet (In)	T Spread @ SAG (Ft)	Remarks
Ex06	DI-4B	8	14+17	2.76	0.48	1.32																													
							1.32	4.00	5.29	0.00	5.29	0.0230	0.0800	4.7	1.5	0.318	0.0833	1.0413	0.643	1.56	0.0866	0.1357	16.046	8.000	0.499	0.711	3.76	1.53	4.588						
Ex10	DI-3B	8	16+45	0.40	0.84	0.34																													
							0.34	4.00	1.35	0.00	1.35	0.0083	0.0200	7.4	1.5	0.204	0.0833	4.1650	0.588	2.64	0.1466	0.1062	7.709	8.000	1.038	1.000	1.35	0.00	2.906						
Ex11	DI-4B	8	16+45	4.08	0.47	1.92																													
							1.92	4.00	7.68	3.98	11.66	0.0075	0.0200	18.3	1.5	0.082	0.0833	4.1650	0.241	2.64	0.1466	0.0553	27.367	8.000	0.292	0.463	5.40	6.26	5.542						T > 8.0 ft
Ex12	DI-3C	4	35+49	0.07	0.81	0.06																													Back/Lt.
							0.06	4.00	0.23	0.00																									Back/Lt.
				0.80	0.61	0.49																													Ahead/Rt.
							0.49	4.00	1.94	0.00		0.0500	0.0470	3.6	1.5	0.422	0.0833	1.7723		2.15															Ahead/Rt.
											2.17	0.0500												4.000			2.17		3.248	0.4	0.031	12.00	4.7	5.8	Weir Flow
Ex32	DI-4B	8	13+84	0.52	0.60	0.31																													
							0.31	4.00	1.24	6.26	7.50	0.0067	0.0200	15.8	1.5	0.095	0.0833	4.1650	0.282	2.64	0.1466	0.0613	20.659	8.000	0.387	0.586	4.39	3.10	4.927						T > 8.0 ft
Ex36	DI-3B	4	10+00	0.39	0.87	0.34																													
							0.34	4.00	1.37	2.04	3.41	0.0133	0.0200	10.0	1.5	0.150	0.0833	4.1650	0.447	2.64	0.1466	0.0856	14.921	4.000	0.268	0.430	1.46	1.94	3.533						T > 8.0 ft
Ex37	DI-3B	4	10+00	0.39	0.75	0.29																													
							0.29	4.00	1.17	1.94	3.11	0.0115	0.0200	9.9	1.5	0.151	0.0833	4.1650	0.450	2.64	0.1466	0.0860	13.713	4.000	0.292	0.462	1.44	1.67	3.516						T > 8.0 ft

TOWN OF VIENNA

11/20/2013

PROJECT MANAGER Dennis Johnson, P.E. (Town of Vienna)
SURVEYED BY Rinker Design Associates, P.C. DATE: July, 2013
DESIGN BY Adam D. Welschenbach P.E. - Rinker Design Associates, P.C. (703) 368-7373
SUBSURFACE UTILITY BY "Miss Utility" DATE: July 2013

Storm Drainage Computations

COMMONWEALTH OF VIRGINIA — ADAM D. WELSCHENBACH — Lic. No. 044359 — PROFESSIONAL ENGINEER

Rinker Design Associates
Manassas, Virginia
PROFESSIONAL ENGINEER

REVISED	STATE	ROUTE (TOWN OF VIENNA)	PROJECT	SHEET NO.
	VA.	N.I.S.		2K(4)

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

PRE-DEVELOPMENT STORM COMPUTATIONS, 10-YEAR STORM

FORM LD-229

STORM SEWER DESIGN COMPUTATIONS — DESIGNED BY: JW — DATE: 10/28/2013

STORM FREQUENCY 10-Year — CHECKED BY: AW — UNITS: ENGLISH

Pipe No.	From Point Reference	From Point Sta.	To Point Reference	To Point Sta.	Drain Area "A" (Acre)	Runoff Coeff. "C"	CA Increment	CA Accumulated	Total Inlet Time (Minutes)	Rain Fall (In/Hr)	Runoff Lateral (CFS)	Runoff Total Q (CFS)	Invert Elevations Upper End	Invert Elevations Lower End	Length of Pipe (Ft)	Slope (Ft/Ft)	Size Dia. or Span/Rise (In)	Shape	Number of Pipes	Capacity (CFS)	Friction Slope (Ft/Ft)	Normal Flow Depth of Flow, dn (Ft)	Normal Flow Area of Flow, An (SqFt)	Normal Flow Hm (Ft)	Normal Flow Vn (Ft/Sec)	Normal Flow En (Ft)	Flow Time (Sec)	Remarks
Ex01toEx36	Ex01		Ex36	10+00	0.00		0.00	2.35	10.32	5.39	0.00	12.77	395.25	388.50	155.00	0.04355	15	Circular	1	13.48	0.04080	0.97	1.02	0.38	12.5	3.40	12	
Ex36toEx37	Ex36	10+00	Ex37	10+00	0.39	0.87	0.34	2.69	10.52	5.35	0.00	14.40	388.40	383.30	298.00	0.01711	15	Circular	1	8.45	0.05190	1.25	1.23	0.31	11.7	3.39	25	Pressure Flow
Ex37toEx39	Ex37	10+00	Ex39		0.39	0.75	0.29	3.44	10.95	5.27	0.00	18.12	382.80	377.10	346.00	0.01647	18	Circular	1	13.48	0.03100	1.50	1.77	0.38	10.3	3.13	34	Pressure Flow
Ex12toEx08	Ex12	35+49	Ex08		0.85	0.59	0.50	11.81	11.16	5.23	0.00	61.79	402.90	401.05	101.00	0.01832	30	Circular	1	55.52	0.02360	2.50	4.91	0.63	12.6	4.96	8	Pressure Flow
Ex08toEx06	Ex08		Ex06	14+17	0.00		0.00	11.81	11.29	5.21	0.00	61.79	400.85	397.15	288.00	0.01285	30	Circular	1	46.50	0.02360	2.50	4.91	0.63	12.6	4.96	23	Pressure Flow
Ex06toEx05	Ex06	14+17	Ex05	11+79	2.78	0.48	1.33	13.15	11.67	5.14	0.00	67.53	396.85	395.35	232.00	0.00647	36	Circular	1	53.65	0.01060	3.00	7.07	0.75	9.6	4.42	24	Pressure Flow
Ex10toEx11	Ex10	16+45	Ex11	16+45	0.40	0.84	0.34	0.53	5.07	6.75	0.00	3.59	402.55	401.85	78.00	0.00897	15	Circular	1	6.12	0.00320	0.69	0.69	0.33	5.2	1.11	15	
Ex11toEx32	Ex11	16+45	Ex32	13+84	4.08	0.47	1.92	19.50	56.90	2.23	0.00	57.94	401.05	399.20	260.00	0.00712	48	Circular	1	121.21	0.00170	1.95	6.08	0.98	9.5	3.36	27	
Ex32toEx35	Ex32	13+84	Ex35	11+67	0.52	0.60	0.31	19.99	57.35	2.22	0.00	59.16	397.05	395.20	210.00	0.00881	48	Circular	1	134.83	0.00180	1.85	5.70	0.95	10.4	3.53	20	

POST-DEVELOPMENT STORM COMPUTATIONS, 10-YEAR STORM

FORM LD-229

STORM SEWER DESIGN COMPUTATIONS — DESIGNED BY: JW — DATE: 10/28/2013

STORM FREQUENCY 10-Year — CHECKED BY: AW — UNITS: ENGLISH

Pipe No.	From Point Reference	From Point Sta.	To Point Reference	To Point Sta.	Drain Area "A" (Acre)	Runoff Coeff. "C"	CA Increment	CA Accumulated	Total Inlet Time (Minutes)	Rain Fall (In/Hr)	Runoff Lateral (CFS)	Runoff Total Q (CFS)	Invert Elevations Upper End	Invert Elevations Lower End	Length of Pipe (Ft)	Slope (Ft/Ft)	Size Dia. or Span/Rise (In)	Shape	Number of Pipes	Capacity (CFS)	Friction Slope (Ft/Ft)	Normal Flow Depth of Flow, dn (Ft)	Normal Flow Area of Flow, An (SqFt)	Normal Flow Hm (Ft)	Normal Flow Vn (Ft/Sec)	Normal Flow En (Ft)	Flow Time (Sec)	Remarks
Pr3-2toEx36	Prop3-2		Ex36	10+00	0.00		0.00	2.47	10.30	5.39	0.00	13.41	395.25	388.50	155.00	0.04355	15	Circular	1	13.48	0.04500	1.02	1.07	0.38	12.5	3.45	12	
Ex36toEx37	Ex36	10+00	Ex37	10+00	0.39	0.87	0.34	2.81	10.51	5.35	0.00	15.04	388.40	383.30	298.00	0.01711	15	Circular	1	8.45	0.05660	1.25	1.23	0.31	12.3	3.58	24	Pressure Flow
Ex37toEx39	Ex37	10+00	Ex39		0.39	0.75	0.29	3.55	10.92	5.28	0.00	18.71	382.80	377.10	346.00	0.01647	18	Circular	1	13.48	0.03310	1.50	1.77	0.38	10.6	3.24	33	Pressure Flow
Ex12toEx08	Ex12	35+49	Ex08		0.87	0.63	0.54	12.01	11.15	5.23	0.00	62.81	402.90	401.05	101.00	0.01832	30	Circular	1	55.52	0.02440	2.50	4.91	0.63	12.8	5.04	8	Pressure Flow
Ex08toEx06	Ex08		Ex06	14+17	0.00		0.00	12.01	11.29	5.21	0.00	62.81	400.85	397.15	288.00	0.01285	30	Circular	1	46.50	0.02440	2.50	4.91	0.63	12.8	5.04	23	Pressure Flow
Ex06toEx05	Ex06	14+17	Ex05	11+79	2.76	0.48	1.32	13.33	11.66	5.14	0.00	68.51	396.85	395.35	232.00	0.00647	36	Circular	1	53.65	0.01090	3.00	7.07	0.75	9.7	4.46	24	Pressure Flow
Ex10toEx11	Ex10	16+45	Ex11	16+45	0.40	0.84	0.34	0.56	5.07	6.75	0.00	3.80	402.55	401.85	78.00	0.00897	15	Circular	1	6.12	0.00360	0.71	0.72	0.34	5.3	1.14	15	
Ex11toEx32	Ex11	16+45	Ex32	13+84	4.08	0.47	1.92	19.57	56.90	2.23	0.00	58.38	401.05	399.20	260.00	0.00712	48	Circular	1	121.21	0.00170	1.96	6.11	0.99	9.6	3.37	27	
Ex32toEx35	Ex32	13+84	Ex35	11+67	0.52	0.60	0.31	20.06	57.35	2.22	0.00	59.61	397.05	395.20	210.00	0.00881	48	Circular	1	134.83	0.00180	1.86	5.73	0.95	10.4	3.54	20	

TOWN OF VIENNA

11/20/2013

PROJECT MANAGER Denois Johnson P.E. (Town of Vienna)
SURVEYED BY Rinker Design Associates P.C. DATE: July 2013
DESIGN BY Adam D. Welschenbach P.E. - Rinker Design Associates P.C. (703) 368-7373
SUBSURFACE UTILITY BY "Miss Utility" DATE: July 2013

Storm Drainage Computations

COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
PROFESSIONAL ENGINEER

Rinker Design Associates
Manassas, Virginia
PROFESSIONAL ENGINEER

Rinker Design Associates, P.C.
Office Locations

REVISED	STATE	ROUTE (TOWN OF VIENNA)	PROJECT	SHEET NO.
	VA.	N.I.S.		2K(5)

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

PRE-DEVELOPMENT HGL COMPUTATIONS

FORM LD-347

HYDRAULIC GRADE LINE ANALYSIS — DESIGNED BY: JW — DATE: 10/28/2013

INCIDENCE PROBABILITY 10-Year — CHECKED BY: AW — UNITS: ENGLISH

INLET OR JUNCTION	STA.	INVERT EL. OUTFLOW PIPE	DEPTH OF FLOW OUTFLOW PIPE	OUTLET WATER SURFACE ELEV.	DIA. PIPE Do (In/mm)	DESIGN DISCH. Qo (CFS/CMS)	LENGTH PIPE Lo (Ft/M)	FRICTION SLOPE, Sfo (FT/FT) (M/M)	FRICTION LOSS Hf (Ft/M)	JUNCTION LOSS Vo	Contr. Ho (Ft/M)	Vi	Vi^2/2g	Hi (Expn) 0.35*MAX. (Vi2/2g)	SKEW Angle	K	Bend H (Ft/M)	Sum HL (Ft/M)	SURFACE FLOW	Adj.Ht 1.3 Ht (Ft/M)	Inlet Shaping? Y/N	0.5 Ht (Ft/M)	FINAL H (Ft/M)	Inlet Water Surface Elevation	Top of MH Top of Inlet Elev. APPROX.	Adjustment?
(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)		(12)	(13)		(14)	(15)		(16)		(16)	(17)	(18)	(19)	
Ex39																								378.30		
Ex37	10+00	377.10	1.50	378.60	18	18.12	346	0.03112	10.767	10.3	0.408	11.7	2.1	0.748	90	0.70	0.069	1.225	1.544	1.225	YES	0.61	11.38	389.98	386.90	ADJUST
Ex36	10+00	383.30	1.25	389.98	15	14.40	298	0.05195	15.480	11.7	0.534	12.5	2.4	0.849	17	0.21	0.501	1.884	1.830	1.884	YES	0.94	16.42	406.40	395.70	ADJUST
Ex01		388.50	1.25	406.40	15	12.77	155	0.04085	6.332	12.5	0.606	8.0	1.0	0.349	58	0.54	0.310	1.265	0.000	1.265	YES	0.63	6.96	413.37	400.50	ADJUST
Ex05																								397.88		
Ex06	14+17	395.35	3.00	398.35	36	67.53	232	0.01072	2.486	9.6	0.354	12.6	2.5	0.861	0	0.00	0.000	1.215	6.848	1.215	YES	0.61	3.09	401.44	402.40	O.K.
Ex08		397.15	2.50	401.44	30	61.79	288	0.02372	6.831	12.6	0.615	12.6	2.5	0.861	82	0.65	1.589	3.065	0.000	3.065	YES	1.53	8.36	409.81	408.25	ADJUST
Ex12	35+49	401.05	2.50	409.81	30	61.79	101	0.02372	2.396	12.6	0.615	14.9	3.5	1.208	65	0.58	2.001	3.825	2.605	3.825	YES	1.91	4.31	414.12	407.60	ADJUST
Ex35																								398.40		
Ex32	13+84	395.20	4.00	398.40	48	59.16	210	0.00177	0.372	10.4	0.418	9.5	1.4	0.494	1	0.02	0.029	0.941	0.688	0.941	YES	0.47	0.84	399.24	405.25	O.K.
Ex11	16+45	399.20	4.00	402.40	48	57.94	260	0.00170	0.442	9.5	0.353	13.7	2.9	1.025	1	0.02	0.060	1.438	4.279	1.438	YES	0.72	1.16	403.56	408.60	O.K.
Ex10	16+45	401.85	1.25	403.56	15	3.59	78	0.00323	0.252	5.2	0.104	2.9	0.1	0.047	0	0.00	0.000	0.151	2.274	0.196	YES	0.10	0.35	403.91	408.45	O.K.

POST-DEVELOPMENT HGL COMPUTATIONS

FORM LD-347

HYDRAULIC GRADE LINE ANALYSIS — DESIGNED BY: JW — DATE: 10/28/2013

INCIDENCE PROBABILITY 10-Year — CHECKED BY: AW — UNITS: ENGLISH

INLET OR JUNCTION	STA.	INVERT EL. OUTFLOW PIPE	DEPTH OF FLOW OUTFLOW PIPE	OUTLET WATER SURFACE ELEV.	DIA. PIPE Do (In/mm)	DESIGN DISCH. Qo (CFS/CMS)	LENGTH PIPE Lo (Ft/M)	FRICTION SLOPE, Sfo (FT/FT) (M/M)	FRICTION LOSS Hf (Ft/M)	JUNCTION LOSS Vo	Contr. Ho (Ft/M)	Vi	Vi^2/2g	Hi (Expn) 0.35*MAX. (Vi2/2g)	SKEW Angle	K	Bend H (Ft/M)	Sum HL (Ft/M)	SURFACE FLOW	Adj.Ht 1.3 Ht (Ft/M)	Inlet Shaping? Y/N	0.5 Ht (Ft/M)	FINAL H (Ft/M)	Inlet Water Surface Elevation	Top of MH Top of Inlet Elev. APPROX.	Adjustment?
(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)		(12)	(13)		(14)	(15)		(16)		(16)	(17)	(18)	(19)	
Ex39																								378.30		
Ex37	10+00	377.10	1.50	378.60	18	18.71	346	0.03315	11.469	10.6	0.435	12.3	2.3	0.816	90	0.70	0.065	1.316	1.546	1.316	YES	0.66	12.13	390.73	386.90	ADJUST
Ex36	10+00	383.30	1.25	390.73	15	15.04	298	0.05664	16.880	12.3	0.583	12.5	2.4	0.852	17	0.21	0.503	1.938	1.831	1.938	YES	0.97	17.85	408.58	395.70	ADJUST
Prop3-2		388.50	1.25	408.58	15	13.41	155	0.04506	6.985	12.5	0.609	8.4	1.1	0.379	52	0.51	0.254	1.242	0.000	1.242	YES	0.62	7.61	416.18	400.50	ADJUST
Ex05																								397.88		
Ex06	14+17	395.35	3.00	398.35	36	68.51	232	0.01103	2.558	9.7	0.365	12.8	2.5	0.890	0	0.00	0.000	1.254	6.799	1.254	YES	0.63	3.19	401.54	402.40	O.K.
Ex08		397.15	2.50	401.54	30	62.81	288	0.02451	7.060	12.8	0.636	12.8	2.5	0.890	82	0.65	1.642	3.167	0.000	3.167	YES	1.58	8.64	410.18	408.25	ADJUST
Ex12	35+49	401.05	2.50	410.18	30	62.81	101	0.02451	2.476	12.8	0.636	15.1	3.5	1.240	65	0.58	2.054	3.930	2.840	3.930	YES	1.97	4.44	414.62	407.60	ADJUST
Ex35																								398.40		
Ex32	13+84	395.20	4.00	398.40	48	59.61	210	0.00180	0.378	10.4	0.420	9.6	1.4	0.496	1	0.02	0.029	0.945	0.688	0.945	YES	0.47	0.85	399.25	405.25	O.K.
Ex11	16+45	399.20	4.00	402.40	48	58.38	260	0.00173	0.449	9.6	0.354	13.7	2.9	1.027	1	0.02	0.060	1.442	4.279	1.442	YES	0.72	1.17	403.57	408.60	O.K.
Ex10	16+45	401.85	1.25	403.57	15	3.80	78	0.00362	0.282	5.3	0.107	3.0	0.1	0.050	0	0.00	0.000	0.158	2.274	0.205	YES	0.10	0.38	403.95	408.45	O.K.

TOWN OF VIENNA

11/20/2013

PROJECT MANAGER Dennis Johnson P.E.(Town of Vienna)
SURVEYED BY Rinker Design Associates P.C. DATE: July 2013
DESIGN BY Adam D. Welschenbach P.E. - Rinker Design Associates P.C.(703) 368-7373
SUBSURFACE UTILITY BY "Miss Utility" DATE: July 2013

Outfall Analysis

COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
PROFESSIONAL ENGINEER

Rinker Design Associates
Manassas, Virginia
PROFESSIONAL ENGINEER

REVISED	STATE	ROUTE	PROJECT (TOWN OF VIENNA)	SHEET NO.
	VA.	N.I.S.		2K(6)

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

OUTFALL ANALYSIS SUMMARY TABLE

DESIGNED BY: CW DATE: 10/28/2013
CHECKED BY: AW UNITS: ENGLISH

Outfall	Outfall Location Station	Outfall Structure (if any)	Drainage Area (ac) Total Area	Drainage Area (ac) Added Impervious (C=0.90)	Cw	Tc (min)	I-Value (in/hr) 2-yr	I-Value (in/hr) 10-yr	Q (cfs) 2-yr	Q (cfs) 10-yr	Outfall Receiving Channel: Channel Velocity 2-yr Check (ft/s)	Natural Channel 2-yr Avail. Depth (in)	Manmade Channel 10-yr Avail. Depth (in)	Stormdrain System 10-yr Pipe Capacity (cfs)	Outfall Adequacy Yes/No	Remarks
Outfall *1	Maple Avenue															
Existing	850' West	Ex.39	5.54	-	0.62	11.0	4.04	5.27	13.83	18.05	N/A	N/A	N/A	13.48	No	Existing Storm System
Post-Dev.	850' West	Ex.39	5.54	0.20	0.64	11.0	4.04	5.27	14.30	18.67	N/A	N/A	N/A	13.48	No	Existing Storm System
								Change =	0.47	0.61						
Outfall *2	Maple Avenue Service Drive															
Existing	11+80 LT	Ex.05	26.34	-	0.50	11.7	3.93	5.14	51.66	67.51	N/A	N/A	N/A	53.65	No	Existing Storm System
Post-Dev.	11+80 LT	Ex.05	26.34	0.31	0.51	11.7	3.93	5.14	52.39	68.46	N/A	N/A	N/A	53.65	No	Existing Storm System
								Change =	0.72	0.95						
Outfall *3	Maple Avenue															
Existing	11+70 RT	Ex.35	41.58	-	0.50	57.4	1.57	2.22	32.48	45.77	N/A	N/A	N/A	134.83	Yes	Existing Storm System
Post-Dev.	11+70 RT	Ex.35	41.58	0.11	0.50	57.4	1.57	2.22	32.61	45.96	N/A	N/A	N/A	134.83	Yes	Existing Storm System
								Change =	0.13	0.18						

Outfall Narrative

Project Overview: This outfall analysis is for five projects located in the same residential area in the Town of Vienna,Virginia.These five projects are linear pedestrian access improvement projects that will be constructed at approximately the same time.Since these projects all have the same three outfalls,these three outfalls have been analyzed collectively for the pre-developed condition (prior to any of the projects being constructed) and the post-developed condition (after all five projects have been constructed).The projects propose to add a 5' concrete sidewalk for a total of 6,180 feet.The sidewalks will be installed along the east side of Westbriar Drive NE,the west side of Westbriar Drive NE,the south side of the Maple Avenue Service Drive NE,the east and west sides of Saint Bernard Drive NE,and the east and west sides of Saint Andrews Drive NE.In the existing condition,these roadways have curb and gutter and existing closed storm sewer systems.The projects are located in the Wolftrap Creek watershed management area which is within the greater Difficult Run watershed.

Outfall Descriptions: Drainage for these projects impact three outfalls as described below.

Outfall *1 - This outfall is existing storm sewer.The drainage consists of 5.54 acres of sheetflow from the roadway,existing median,and surrounding residential areas.These projects increase the amount of impervious area going to this outfall by 0.20 acre,and the C-value increases slightly from 0.62 to 0.64.The peak flows for the 2- and 10-year storm events increase a negligible amount by 0.47 cfs and 0.61 cfs respectively as shown in the Outfall Analysis Summary Table on this sheet.Storm Computations on Sheets 2K(3) through 2K(5) for three pipes downstream of the projects show that the existing system is not adequate to convey the flows in the existing condition.This is true also for the proposed condition.

Outfall *2 - This outfall is existing storm sewer.The drainage consists of 26.34 acres of sheetflow from the roadway,existing median,and surrounding residential areas.These projects increase the amount of impervious area going to this outfall by 0.31 acre,and the C-value increases slightly from 0.50 to 0.51.The peak flows for the 2- and 10-year storm events increase a negligible amount by 0.72 cfs and 0.95 cfs respectively as shown in the Outfall Analysis Summary Table on this sheet.Storm Computations on Sheets 2K(3) through 2K(5) for three pipes downstream of these projects show that the existing system is not adequate to convey the flows for the 10-year storm in the existing condition or the proposed condition.The existing system is adequate to convey the flows for the 2-year storm for both the existing and proposed conditions.

Outfall *3 - This outfall is existing storm sewer.The drainage consists of 41.58 acres of sheetflow from the roadway,existing median,and surrounding residential areas.These projects increase the amount of impervious area going to this outfall by 0.11 acre,however the C-value remains the same at 0.50.The peak flows for the 2- and 10-year storm events increase a negligible amount by 0.13 cfs and 0.18 cfs respectively as shown in the Outfall Analysis Summary Table on this sheet. Storm Computations on Sheets 2K(3) through 2K(5) for three pipes downstream of these projects show that the existing system is adequate to convey these increased flows.

Drainage Area: The total project area for these projects is 7.03 acres.These projects combined propose the addition of 0.61 acre of impervious area within 2.14 acres of disturbed area.

Final Opinion: The existing storm sewer has adequate capacity to convey the proposed flow for Outfall *3.It is our opinion that the requirements of MS-19 are satisfied for Outfall *3 and that Outfall *3 will not be adversely impacted by the proposed walkway addition.Outfall *1 and Outfall *2 at their points of analysis are inadequate in the existing condition.The increases in peak runoff to these two outfalls due to the proposed projects are negligible.There are no known flooding problems at the points of analysis for Outfall *1 and Outfall *2.However,Outfall *1 and Outfall *2 do not satisfy the requirements of MS-19 in the existing condition. The Town has determined that it is not feasible to satisfy the requirements of MS-19 for the proposed condition as part of the scope of these pedestrian access improvement projects.

WQN/WQL Narrative

These projects propose to add a 5' concrete sidewalk for a total of 6,180 feet.The sidewalks will be installed along the east side of Westbriar Drive NE,the west side of Westbriar Drive NE,the south side of the Maple Avenue Service Drive NE,the east and west sides of Saint Bernard Drive NE,and the east and west sides of Saint Andrews Drive NE.The projects are located in the Wolftrap Creek watershed management area which is within the greater Difficult Run watershed.These projects have three outfalls as described in the Outfall Narrative.The Drainage Maps can be found on sheets 2K(1) and 2K(2) and Storm Computations can be found on sheets 2K(3),2K(4),and 2K(5). From the computations,it can be seen that:

1. There will be negligible increases in peak flow rates for all outfalls.
2. The existing storm sewer system is adequate to convey the flows for Outfall *3 but is not adequate for the existing or proposed conditions of Outfall *1 and Outfall *2 at the points of analysis.
3. There are no additional anticipated flooding or erosion problems downstream.

No water quantity control requirements are required for Outfall *3.No water quantity control requirements are proposed for Outfall *1 and Outfall *2.

Further,at the points of analysis,it can be seen that:

1. The increase in peak flow rates downstream of the discharge points are negligible.
2. There are no additional anticipated flooding or erosion problems downstream of the discharge points.

Additionally,per the Town of Vienna's MS-4 permit and per direction from the Town to RDA,public road and linear projects within the Town are exempt from the performance criteria for water quality requirements as long as the plan provides adequate erosion and sediment controls.The Erosion and Sediment Controls for this project can be found on the IL and IM sheet series.

Rinker Design Associates, P.C.
TOWN OF VIENNA
11/20/2013

PROJECT MANAGER Dennis Johnson P.E. (Town of Vienna)
SURVEYED BY Rinker Design Associates P.C. DATE: July 2013
DESIGN BY Adam D. Welschenbach P.E. - Rinker Design Associates P.C. (703) 368-7373
SUBSURFACE UTILITY BY "Miss Utility" DATE: July 2013

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	N.I.S.		3

TOWN OF VIENNA

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

COMMONWEALTH OF VIRGINIA — ADAM D. WELSCHENBACH Lic. No. 044359 — PROFESSIONAL ENGINEER

Rinker Design Associates
Manassas, Virginia
PROFESSIONAL ENGINEER

Walkway Design Legend

- ⚠1 To Be Removed
- ⚠2 To Be Reset in Place (Sign Post or Guy Wire)
- ⚠3 To Be Relocated
- Ex. Sign and Post
- Prop. Sign, St'd. STP-1 Post & St'd. STP-1 Conc. Found.
- (A) (B) (C) See Sheet 1G(2) for Signage Details

C - - Denotes Construction Limits in Cuts
F - - Denotes Construction Limits in Fills

Roadway Pattern Legend

- Denotes Demo. of Pave./Removal of Concrete
- Denotes Mill and Overlay/Variable Depth Build-up
- Full Depth Pavement

R/W Legend

- (1) Denotes Proposed Easement for Public Street Purposes
- (2) Denotes Temp. Constr. Ease.

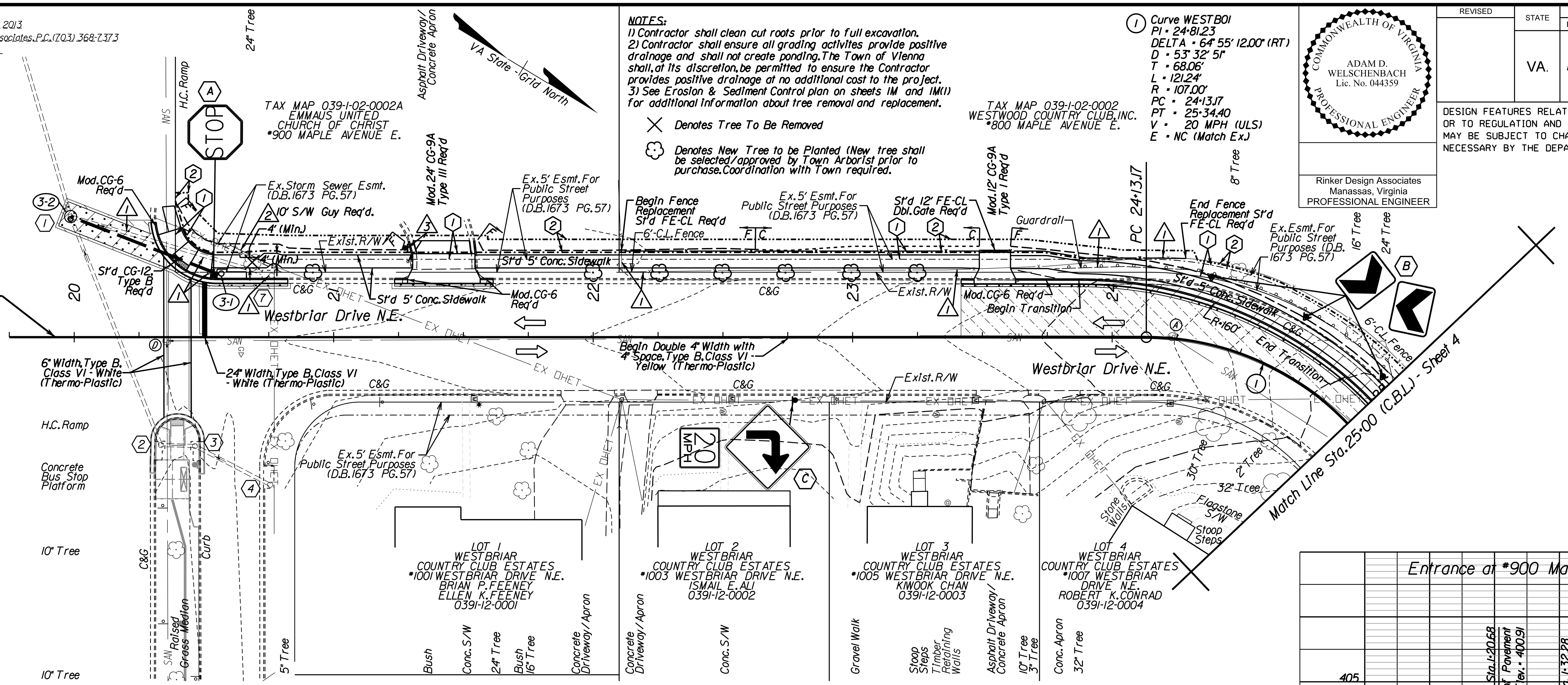
NOTES:

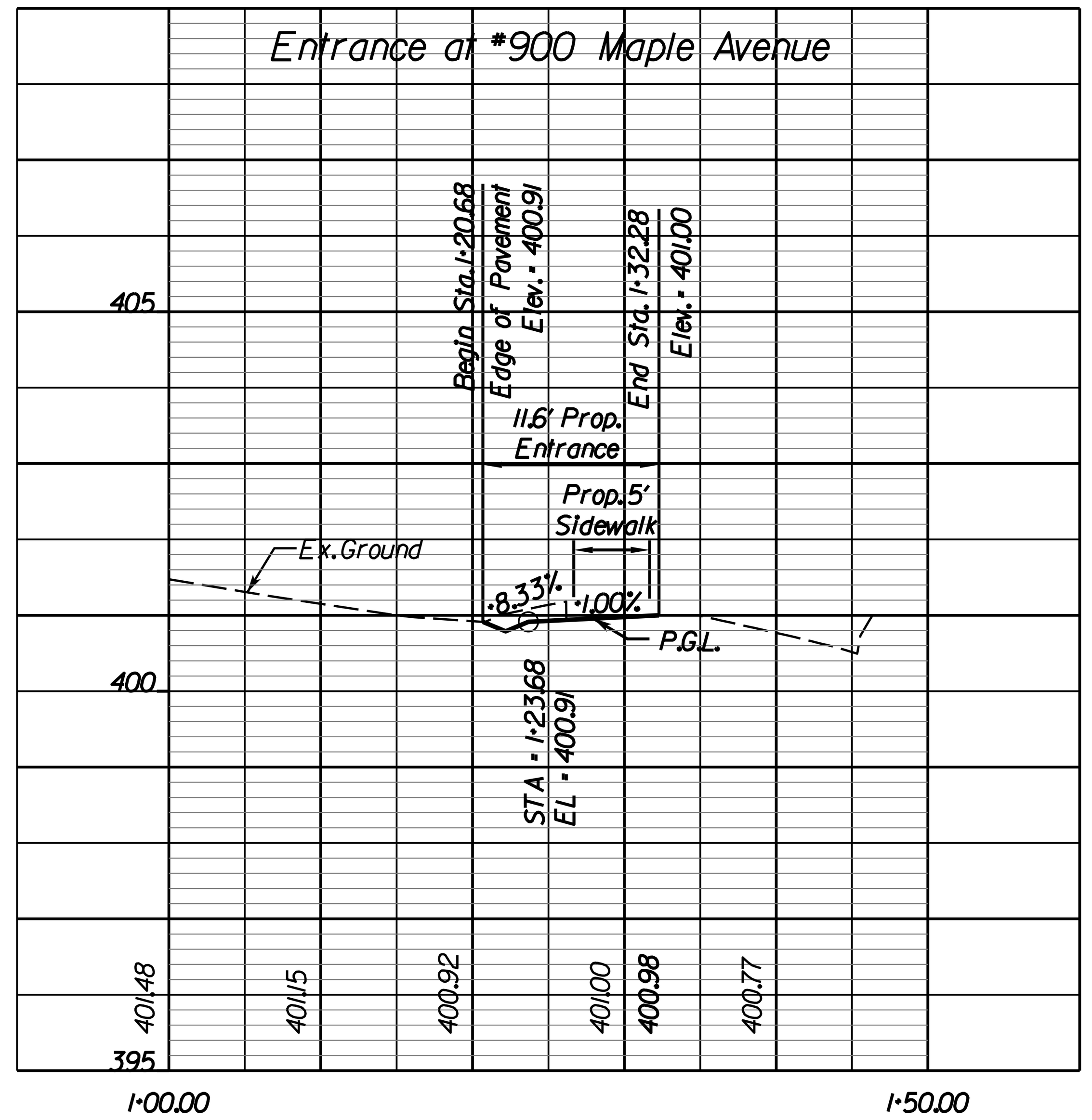
1) Contractor shall clean cut roots prior to full excavation.
2) Contractor shall ensure all grading activites provide positive drainage and shall not create ponding. The Town of Vienna shall, at its discretion, be permitted to ensure the Contractor provides positive drainage at no additional cost to the project.
3) See Erosion & Sediment Control plan on sheets 1M and 1M(1) for additional information about tree removal and replacement.

X Denotes Tree To Be Removed

Denotes New Tree to be Planted (New tree shall be selected/approved by Town Arborist prior to purchase. Coordination with Town required.

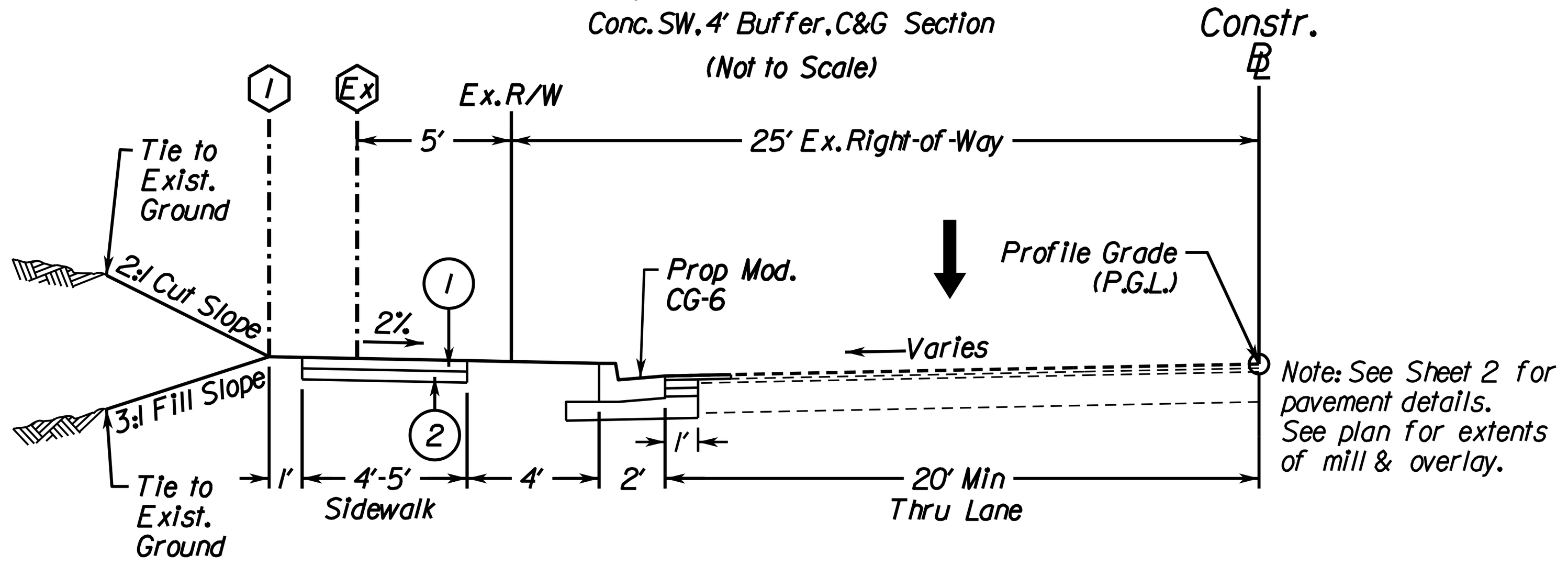
(1) Curve WESTB01
PI = 24+81.23
DELTA = 64° 55' 12.00" (RT)
D = 53° 32' 51"
T = 68.06'
L = 121.24'
R = 107.00'
PC = 24+13.17
PT = 25+34.40
V = 20 MPH (ULS)
E = NC (Match Ex.)





Typical Section

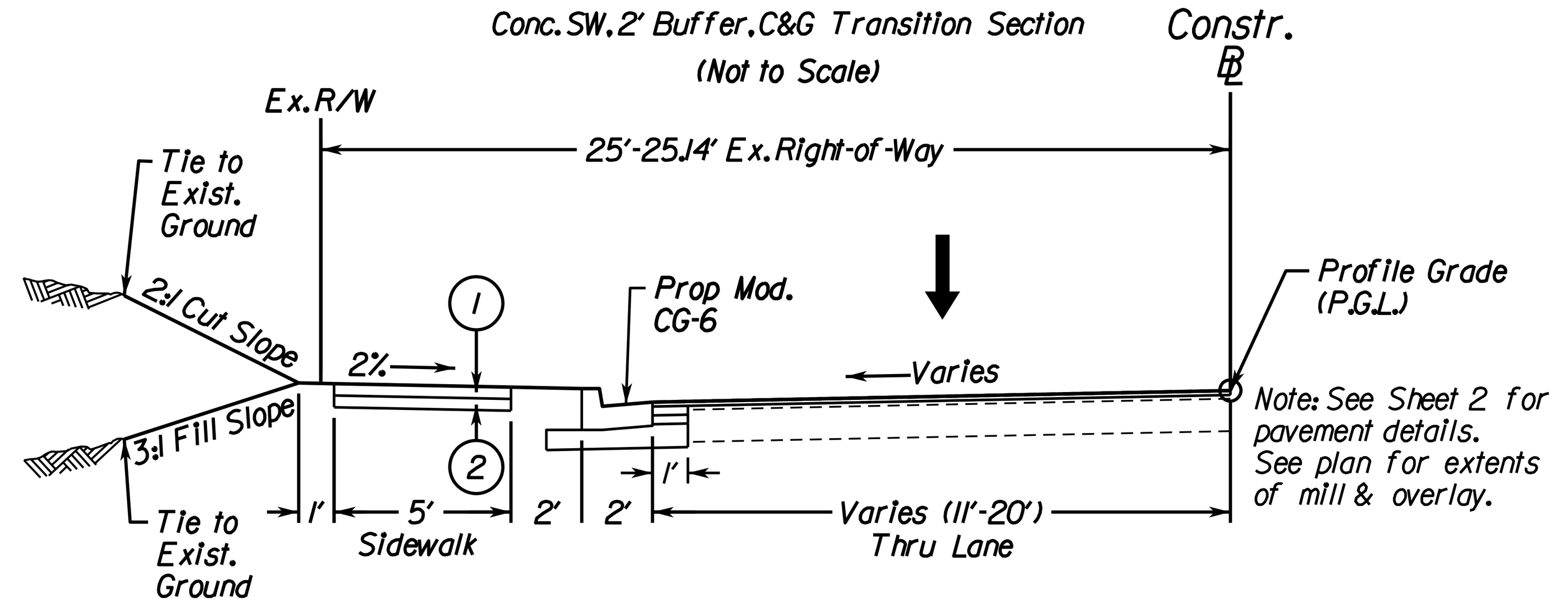
Conc. SW. 4' Buffer, C&G Section
(Not to Scale)



STATION	TO	STATION	LOCATION
20+29.57		20+82.33	Westbriar Drive LT
23+41.81		23+87.20	Westbriar Drive LT

Typical Section

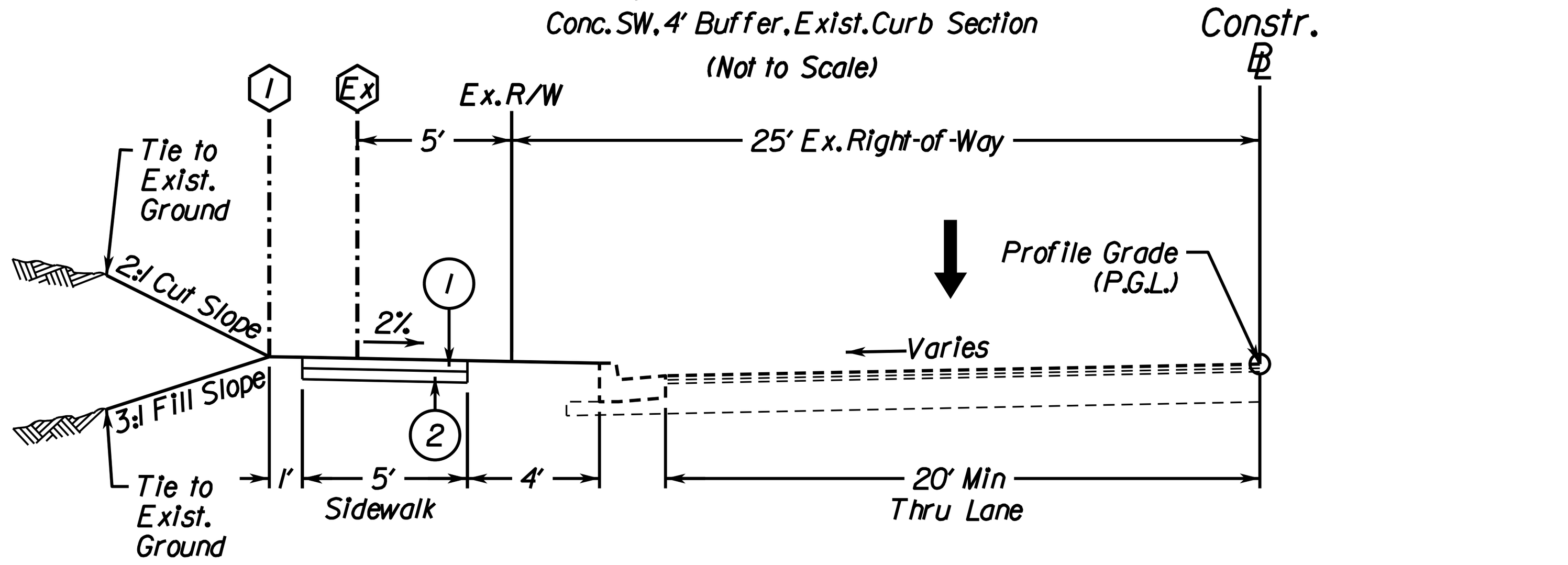
Conc. SW. 2' Buffer, C&G Transition Section
(Not to Scale)



STATION	TO	STATION	LOCATION
23+87.20		24+87.72	Westbriar Drive LT
29+17.57		29+68.97	Westbriar Drive LT
30+41.63		30+51.63	Westbriar Drive LT

Typical Section

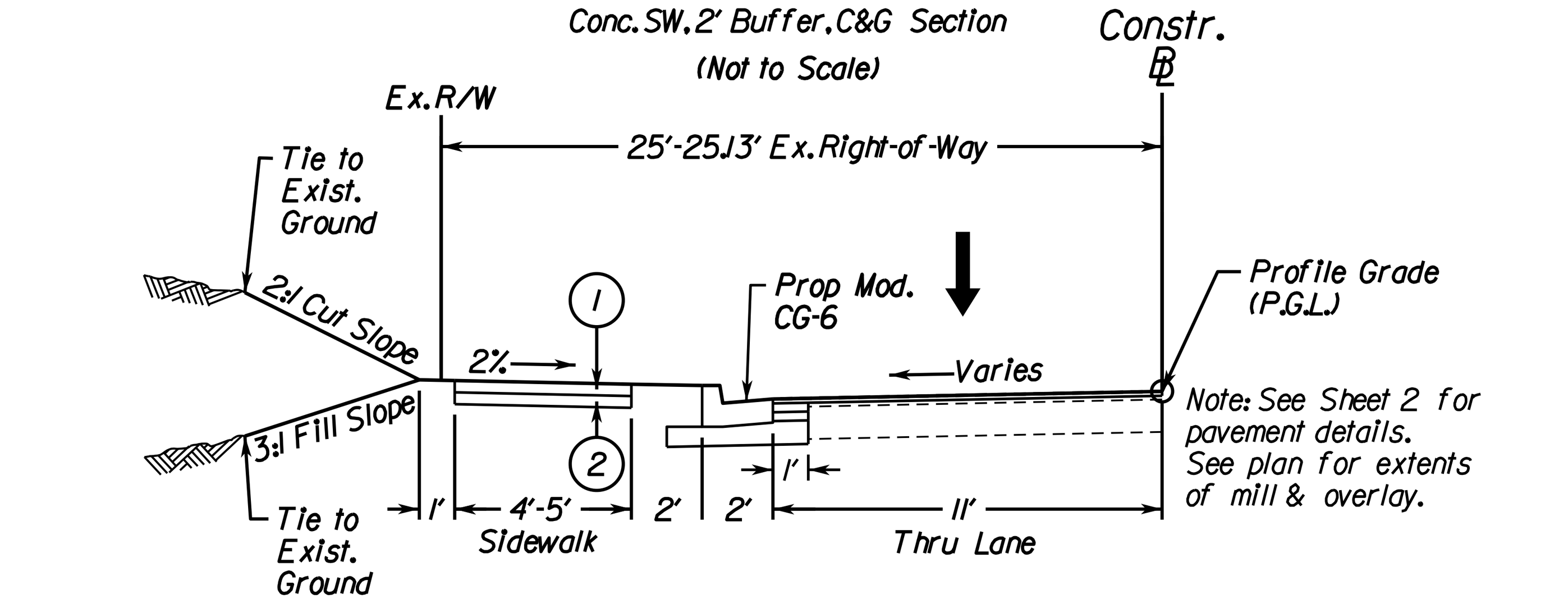
Conc. SW. 4' Buffer, Exist. Curb Section
(Not to Scale)



STATION	TO	STATION	LOCATION
20+82.33		23+41.81	Westbriar Drive LT

Typical Section

Conc. SW. 2' Buffer, C&G Section
(Not to Scale)



STATION	TO	STATION	LOCATION
24+87.72		28+30.00	Westbriar Drive LT
29+10.00		29+17.57	Westbriar Drive LT

Contractor shall obtain two pavement cores at approximately Sta. 20+25 on Westbriar Drive and Sta. 30+00 on Westbriar Drive to determine the existing pavement design to install with curb/gutter installation. All pavement widening shall match existing pavement design and shall be done in accordance with VDOT's WP-2 standard and shall provide positive drainage for all layers applicable. The Town's approval of pavement to be applied is required prior to ordering of materials or pavement application.

- (1) Concrete Sidewalk - (4") Class A3 Hydraulic Cement Concrete
- (2) Concrete Sidewalk Base - (4") Aggr. Base Material, Type I, Size No. 21A
- (Ex) Existing Easement For Public Street Purposes
- (1) Proposed Easement For Public Street Purposes

SCALE 0 25' 50'

PROJECT	SHEET NO.
	3

Rinker Design Associates, P.C. — Civil Engineering • Surveying • Land Planning • Transportation • Environmental • Right of Way Services — Office Locations

TOWN OF VIENNA

11/20/2013

Rinker Design Associates, P.C.
Civil Engineering · Surveying · Land Planning · Transportation · Environmental · Right of Way Services

TOWN OF VIENNA

11/20/2013

PROJECT MANAGER Dennis Johnson P.E. (Town of Vienna)
SURVEYED BY Rinker Design Associates P.C. DATE: July 2013
DESIGN BY Adam D. Welschenbach P.E. - Rinker Design Associates P.C. (703) 368-7373
SUBSURFACE UTILITY BY "Miss Utility" DATE: July 2013

(1) Curve WESTB01
PI = 24+81.23
DELTA = 64° 55' 12.00" (RT)
D = 53° 32' 51"
T = 68.06'
L = 121.24'
R = 107.00'
PC = 24+13.17
PT = 25+34.40
V = 20 MPH (ULS)
E = NC (Match Ex.)

(2) Curve WESTB02
PI = 26+68.53
DELTA = 5° 29' 14.00" (RT)
D = 5° 02' 02"
T = 54.55'
L = 109.01'
R = 1138.22'
PC = 26+13.98
PT = 27+22.99
V = 25 MPH (Posted)
E = NC (Match Ex.)

Walkway Design Legend

- (1) To Be Removed
- (4) Replace Ex. Drainage Structure Top (Size Varies)
- Ex. Sign and Post
- Prop. Sign, St'd. STP-1 Post & St'd. STP-1 Conc. Found.
- (A) (C) (D) See Sheet IG(2) for Signage Details

NOTES:

1) Contractor shall clean cut roots prior to full excavation.
2) Contractor shall ensure all grading activites provide positive drainage and shall not create ponding. The Town of Vienna shall, at its discretion, be permitted to ensure the Contractor provides positive drainage at no additional cost to the project.
3) See Erosion & Sediment Control plan on sheets IM and IM(1) for additional information about tree removal and replacement.

- Denotes Tree To Be Removed
- Denotes New Tree to be Planted (New tree shall be selected/approved by Town Arborist prior to purchase. Coordination with Town required.

Roadway Pattern Legend

- Denotes Demo. of Pave./Removal of Concrete
- Denotes Mill and Overlay/Variable Depth Build-up
- Full Depth Pavement

R/W Legend

- (1) Denotes Proposed Easement for Public Street Purposes
- (2) Denotes Temp. Constr. Ease.

- C Denotes Construction Limits in Cuts
- F Denotes Construction Limits in Fills

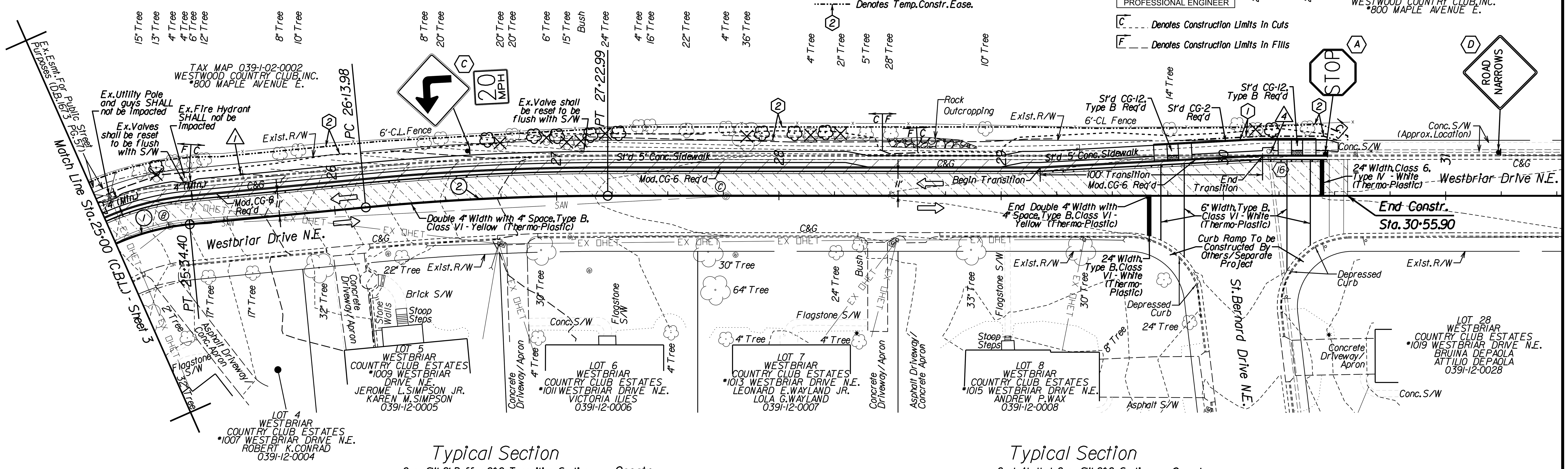
COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
PROFESSIONAL ENGINEER

Rinker Design Associates
Manassas, Virginia
PROFESSIONAL ENGINEER

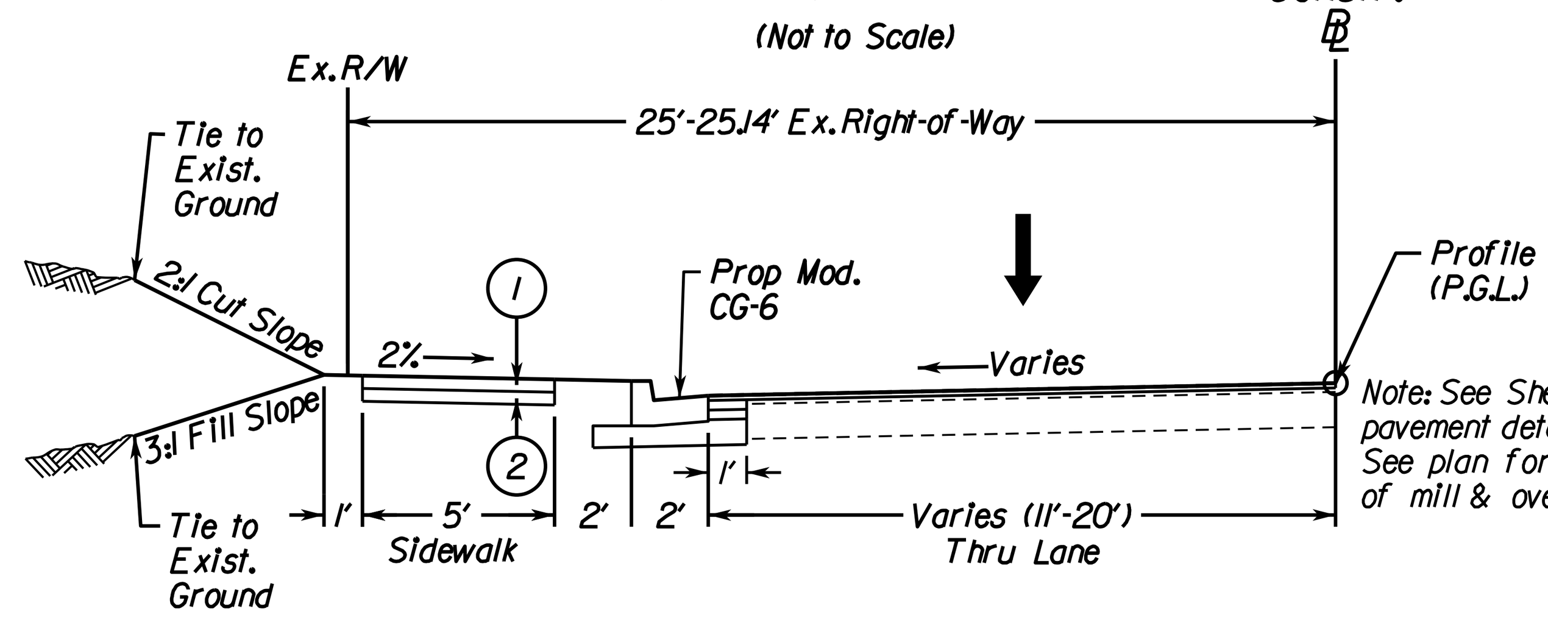
REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	N.I.S.		4

TOWN OF VIENNA

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

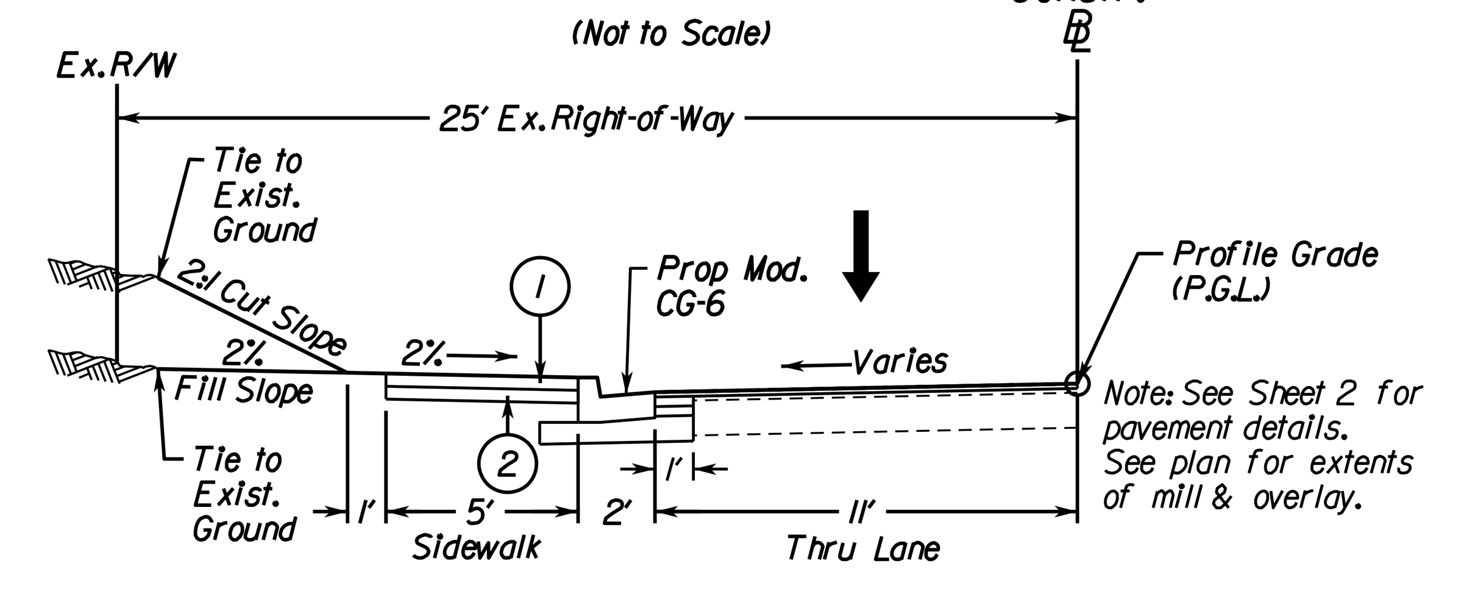


Typical Section
Conc. SW, 2' Buffer, C&G Transition Section
(Not to Scale)



STATION	TO	STATION	LOCATION
23+87.20		24+87.72	Westbriar Drive LT
29+17.57		29+68.97	Westbriar Drive LT
30+41.63		30+51.63	Westbriar Drive LT

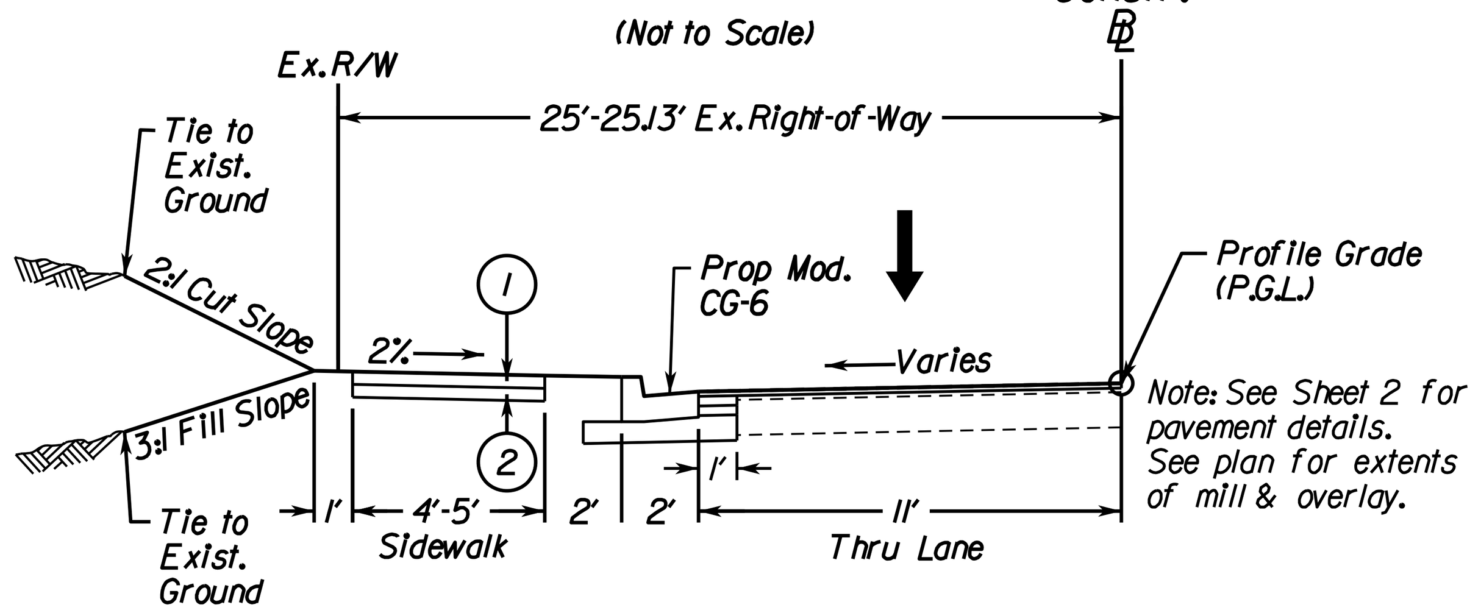
Typical Section
Curb-Abutted Conc. SW, C&G Section
(Not to Scale)



STATION	TO	STATION	LOCATION
28+30.00		29+10.00	Westbriar Drive LT

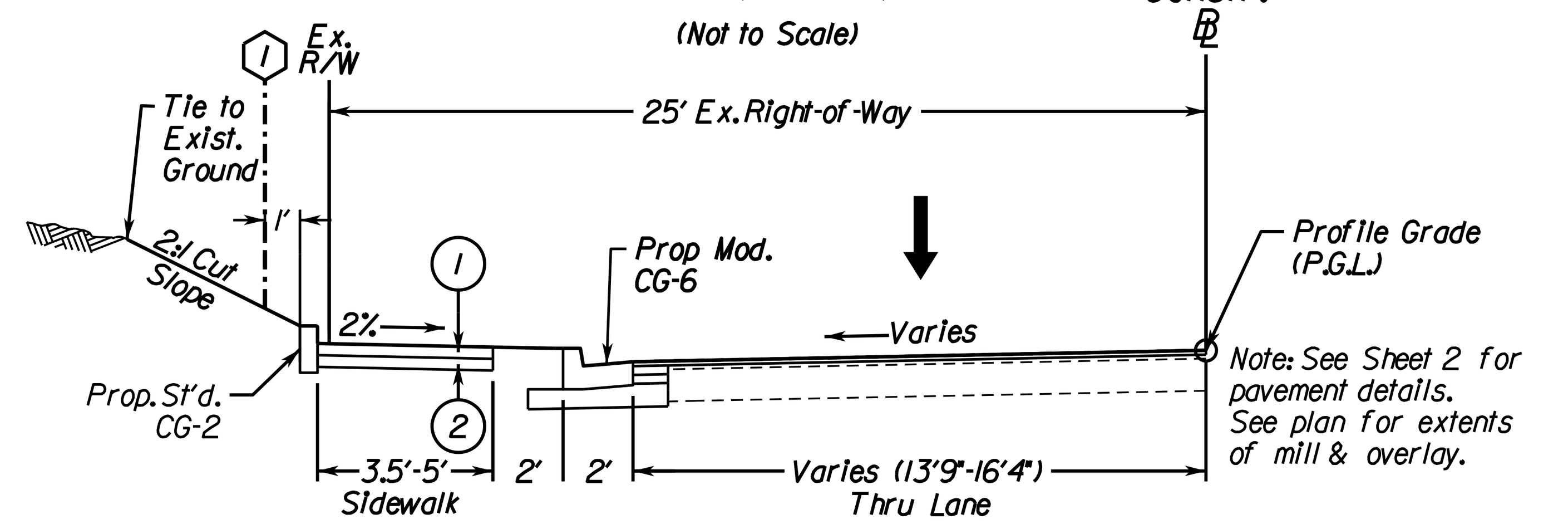
Contractor shall obtain two pavement cores at approximately Sta. 20+25 on Westbriar Drive and Sta. 30+00 on Westbriar Drive to determine the existing pavement design to install with curb/gutter installation. All pavement widening shall match existing pavement design and shall be done in accordance with VDOT's WP-2 standard and shall provide positive drainage for all layers applicable. The Town's approval of pavement to be applied is required prior to ordering of materials or pavement application.

Typical Section
Conc. SW, 2' Buffer, C&G Section
(Not to Scale)



STATION	TO	STATION	LOCATION
24+87.72		28+30.00	Westbriar Drive LT
29+10.00		29+17.57	Westbriar Drive LT

Typical Section
Conc. SW with Curb, 2' Buffer, C&G Section
(Not to Scale)



STATION	TO	STATION	LOCATION
29+68.97		30+41.63	Westbriar Drive LT

- (1) Concrete Sidewalk - (4") Class A3 Hydraulic Cement Concrete
- (2) Concrete Sidewalk Base - (4") Aggr. Base Material, Type I, Size No. 21A
- (1) Proposed Easement For Public Street Purposes

SCALE	PROJECT	SHEET NO.
0 25' 50'		4

11/20/2013 35x23 (in) default_rda.tbl 41031005.dgn
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PROJECT MANAGER Dennis Johnson P.E. (Town of Vienna)
SURVEYED BY Rinker Design Associates, P.C. DATE: July 2013
DESIGN BY Adam D. Welschenbach P.E. - Rinker Design Associates, P.C. (703) 368-7373
SUBSURFACE UTILITY BY "Miss Utility" DATE: July 2013

Grading Plan

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	N.I.S.		5

TOWN OF VIENNA

COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
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PROFESSIONAL ENGINEER

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

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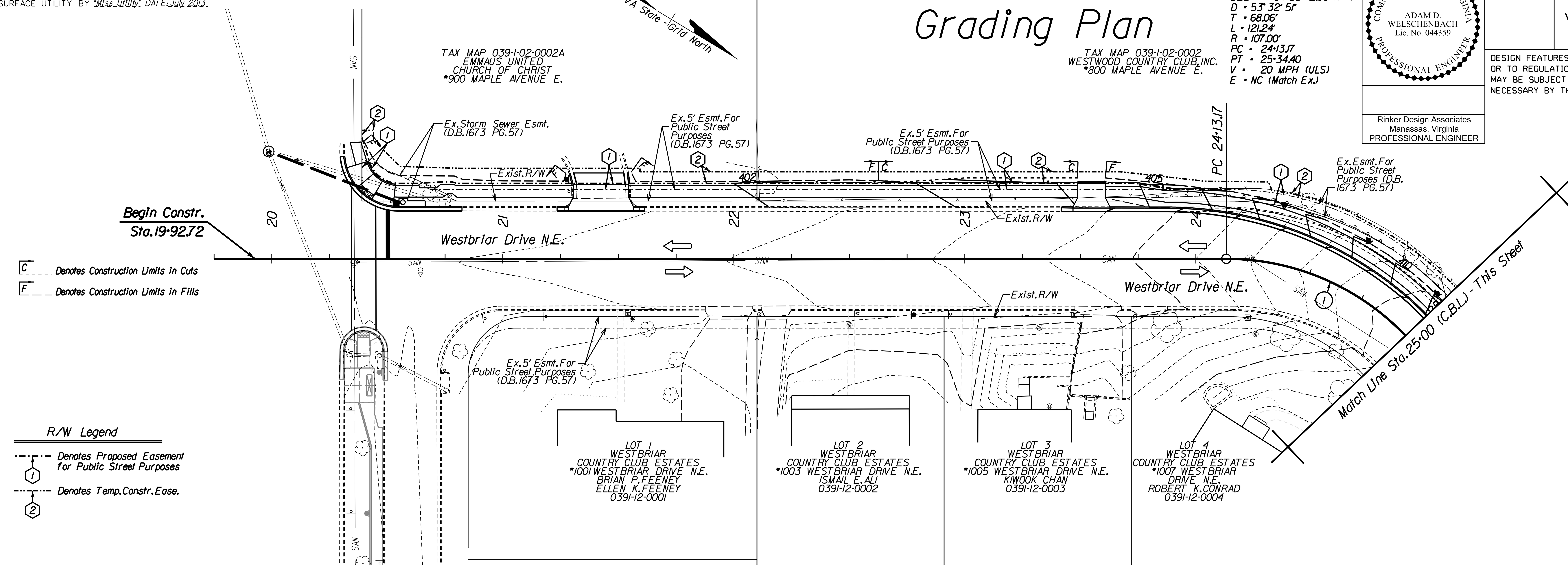
TOWN OF VIENNA



VA State Grid North
TAX MAP 039-1-02-0002A
EMMAUS UNITED CHURCH OF CHRIST
*900 MAPLE AVENUE E.
TAX MAP 039-1-02-0002
WESTWOOD COUNTRY CLUB, INC.
*800 MAPLE AVENUE E.
Ex. Storm Sewer Esmt. (D.B.1673 PG.57)
Ex. 5' Esmt. For Public Street Purposes (D.B.1673 PG.57)
Ex. Esmt. For Public Street Purposes (D.B. 1673 PG.57)
Exist. R/W
Begin Constr. Sta. 19+92.72
PC 24+13.17
Westbriar Drive N.E.
Match Line Sta. 25+00 (C.B.L.) - This Sheet
LOT 1 WESTBRIAR COUNTRY CLUB ESTATES *1001 WESTBRIAR DRIVE N.E. BRIAN P. FEENEY ELLEN K. FEENEY 0391-12-0001
LOT 2 WESTBRIAR COUNTRY CLUB ESTATES *1003 WESTBRIAR DRIVE N.E. ISMAIL E. ALI 0391-12-0002
LOT 3 WESTBRIAR COUNTRY CLUB ESTATES *1005 WESTBRIAR DRIVE N.E. KWOOK CHAN 0391-12-0003
LOT 4 WESTBRIAR COUNTRY CLUB ESTATES *1007 WESTBRIAR DRIVE N.E. ROBERT K. CONRAD 0391-12-0004

C Denotes Construction Limits in Cuts
F Denotes Construction Limits in Fills

R/W Legend
(1) Denotes Proposed Easement for Public Street Purposes
(2) Denotes Temp. Constr. Ease.

(1) Curve WESTB01
PI = 24+81.23
DELTA = 64° 55' 12.00" (RT)
D = 53° 32' 51"
T = 68.06'
L = 121.24'
R = 107.00'
PC = 24+13.17
PT = 25+34.40
V = 20 MPH (ULS)
E = NC (Match Ex.)

(2) Curve WESTB02
PI = 26+68.53
DELTA = 5° 29' 14.00" (RT)
D = 5° 02' 02"
T = 54.55'
L = 109.01'
R = 1138.22'
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PT = 27+22.99
V = 25 MPH (Posted)
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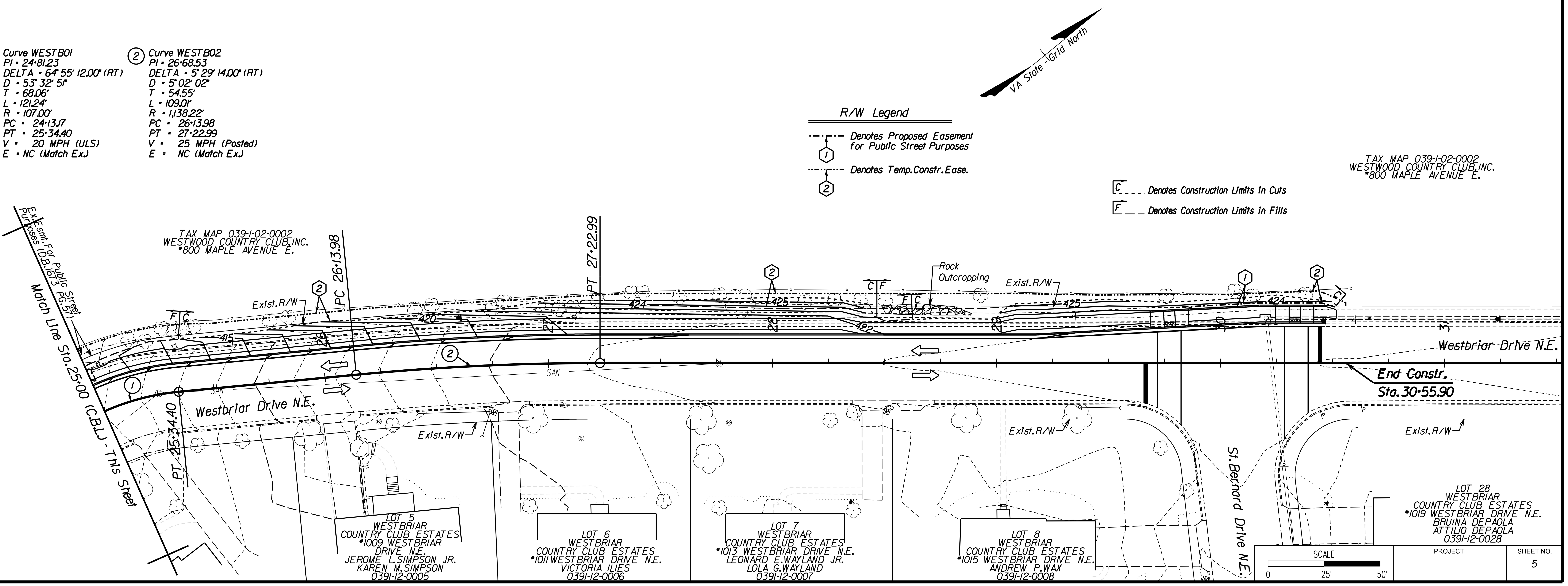

VA State Grid North
TAX MAP 039-1-02-0002
WESTWOOD COUNTRY CLUB, INC.
*800 MAPLE AVENUE E.
Ex. Esmt. For Public Street Purposes (D.B.1673 PG.57)
Match Line Sta. 25+00 (C.B.L.) - This Sheet
PT 25+34.40
PC 26+13.98
PT 27+22.99
Rock Outcropping
Exist. R/W
Westbriar Drive N.E.
End Constr. Sta. 30+55.90
St. Bernard Drive N.E.
LOT 5 WESTBRIAR COUNTRY CLUB ESTATES *1009 WESTBRIAR DRIVE N.E. JEROME L. SIMPSON JR. KAREN M. SIMPSON 0391-12-0005
LOT 6 WESTBRIAR COUNTRY CLUB ESTATES *1011 WESTBRIAR DRIVE N.E. VICTORIA ILIES 0391-12-0006
LOT 7 WESTBRIAR COUNTRY CLUB ESTATES *1013 WESTBRIAR DRIVE N.E. LEONARD E. WAYLAND JR. LOLA G. WAYLAND 0391-12-0007
LOT 8 WESTBRIAR COUNTRY CLUB ESTATES *1015 WESTBRIAR DRIVE N.E. ANDREW P. WAX 0391-12-0008
LOT 28 WESTBRIAR COUNTRY CLUB ESTATES *1019 WESTBRIAR DRIVE N.E. BRUINA DEPAOLA ATTILIO DEPAOLA 0391-12-0028

SCALE 0 25' 50'

PROJECT	SHEET NO.
	5

11/20/2013