

PLAN APPROVAL INFORMATION				
RELATED INFORMATION	REQUIRED	NOT REQUIRED	COUNTY I.D. NUMBER	COMMENTS/SHEET NO.
1. RPA BOUNDARY LOCATION CERTIFICATION		●		9820-RPA-001-1
2. RPA DELINEATION		●		
3. CHESAPEAKE BAY ACT EXCEPTION		●		
4. FLOOD PLAIN STUDY		●	9820-FP-02-1	
5. DRAINAGE STUDY		●		
6. WATER QUALITY IMPACT ASSESSMENT	●			
7. SOILS REPORT	FULL LIMITED	●		
8. REZONING/SPECIAL EXCEPTION/SPECIAL PERMIT APPROVAL		●		
9. B.Z.A. VARIANCE APPROVAL		●		
10. WETLANDS/WATERS OF THE U.S. PERMIT		●		
11. FEMA LETTER OF MAP REVISION		●		
12. VEGETATED ROOF NOTE		●		
13. OVERLAY DISTRICT INFORMATION		●		
14. TREE BANKING		●		
15. TREE FUND		●		
16. MODIFICATIONS/WAIVERS		●		

REQUIRED INFORMATION	
DESCRIPTION OF PROPOSED WORK	THIS WATER QUALITY IMPACT ASSESSMENT IS IN RESPONSE FOR AN UNPERMITTED SPORT COURT WITHIN THE RESOURCE PROTECTION AREA (RPA), APPROXIMATELY 800 SQUARE FEET IN SIZE. A NOTICE OF VIOLATION WAS ISSUED TO THE PROPERTY OWNER ON FEBRUARY 10, 2022. THE PURPOSE OF THE WQIA IS TO RECEIVE APPROVAL FROM THE RESOURCE EXCEPTION COMMITTEE, WHICH WILL ALLOW THE SPORT COURT TO REMAIN WITHIN THE RPA.
TAX MAP NUMBER	0353 26 0027
ZONING DISTRICT	R-1
MINIMUM YARD REQUIREMENTS (SETBACKS)	FY: 40 FT, SY: 20 FT, RY: 25 FT
MINIMUM LOT AREA REQUIREMENT	36,000 SF
MINIMUM LOT WIDTH REQUIREMENT	150 FEET
TOTAL LOT AREA (SQUARE FEET OR ACRE)	36,159 SQ. (0.83 ACRES)
SERVED BY (INDICATE PUBLIC WATER OR INDIVIDUAL WELL)	PUBLIC WATER
SERVED BY (INDICATE PUBLIC SEWER OR INDIVIDUAL WASTEWATER MANAGEMENT SYSTEM)	PUBLIC SEWER
BUILDING HEIGHT CERTIFICATION (LTI 06-13)	N/A
E&S PRIORITY RATING FORM	N/A
RESPONSIBLE LAND DISTURBER	NAME: CURT CROUCH CERTIFICATE NO.: 047045 PHONE NO.: 540-359-1636 ADDRESS: 4995 CROUCH LANE, MIDLAND, VA 22728
WATER QUALITY WAIVER INFO, IF APPLICABLE	N/A
TREE CONSERVATION PLAN	N/A

SITE INSPECTION NOTES

- NOTIFY SITE INSPECTIONS AT 703-324-1720 PRIOR TO BEGINNING ANY WORK ON THE PROJECT. FAILURE TO NOTIFY CAN RESULT IN THE ISSUANCE OF A VIOLATION AND A SUBSEQUENT FINE FOR COMPLIANCE INSPECTION.
- NO EARTH DISTURBANCE OR CONSTRUCTION IS ALLOWED UNTIL THE BUILDING PERMIT FOR THE PROJECT IS ISSUED. EVIDENCE OF A BUILDING PERMIT MUST BE PROVIDED TO THE SITE INSPECTOR AT THE PRE-CONSTRUCTION MEETING.
- NOTIFY THE "MISS UTILITY" NOTIFICATION CENTER AT 1-800-552-7001 AT LEAST TWO WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION, DEMOLITION, OR BLASTING IN ACCORDANCE WITH THE VIRGINIA UNDERGROUND UTILITY DAMAGE PREVENTION ACT.

LEGALITY OF LOT CERTIFICATION (LTI 02-10)

I HEREBY CERTIFY THAT ALL APPROPRIATE COUNTY APPROVALS WERE OBTAINED IN ACCORDANCE WITH THE PROCESS REQUIRED BY THE SUBDIVISION ORDINANCE IN EFFECT AT THE TIME OF THE CREATION OF LOT(S) 27. THE LOT(S) WERE CREATED AS PART OF THE THOMPSON ROAD PROPERTY SUBDIVISION APPROVED BY FAIRFAX COUNTY ON OCTOBER 1, 2004 AND RECORDED IN DEED BOOK 16579 AT PAGE 1676 IN FAIRFAX COUNTY LAND RECORDS.

WETLANDS PERMITS CERTIFICATION

I HEREBY CERTIFY THAT ALL WETLANDS PERMITS REQUIRED BY LAW WILL BE OBTAINED PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES.

SIGNATURE _____ 09/10/23
OWNER/DEVELOPER ANDREW L. RIEGER OWNER
NAME TITLE

INFORMATION REGARDING ACTIVITIES IN THE RESOURCE PROTECTION AREA

ACTIVITY	YES/NO
CONSTRUCTION ACTIVITIES IN A RESOURCE PROTECTION AREA (IF YES, INDICATE TYPE BELOW)	NO
REDEVELOPMENT PRINCIPAL STRUCTURE	
REDEVELOPMENT ACCESSORY STRUCTURE	
PUBLIC ROADS	
PRIVATE ROADS	
DRIVEWAYS	
STORMWATER OUTFALL	
OTHER (INDICATE TYPE):	

TREE PRESERVATION

TREE PRESERVATION TARGET DEVIATIONS OR MODIFICATIONS ARE BEING REQUESTED. YES NO

NOTICE OF VIOLATION

IS THIS PLAN SUBMITTED AS A RESULT OF NOTICE OF VIOLATION? YES NO

IF "YES", COPY OF NOTICE OF VIOLATION PROVIDED ON SHEET NO. _____

STORMWATER INFORMATION

COUNTY STORMWATER PERMIT REQUIRED? YES NO

VPDES PERMIT COVERAGE REQUIRED YES NO

HIGH DENSITY POLYETHYLENE (HDPE) PIPE USED ON THIS PROJECT YES NO

WATER QUALITY OPTION: NONE
NON-POINT NUTRIENT CREDITS COMPREHENSIVE SWM PLAN
OFF-SITE FACILITY EXISTING ONSITE FACILITY

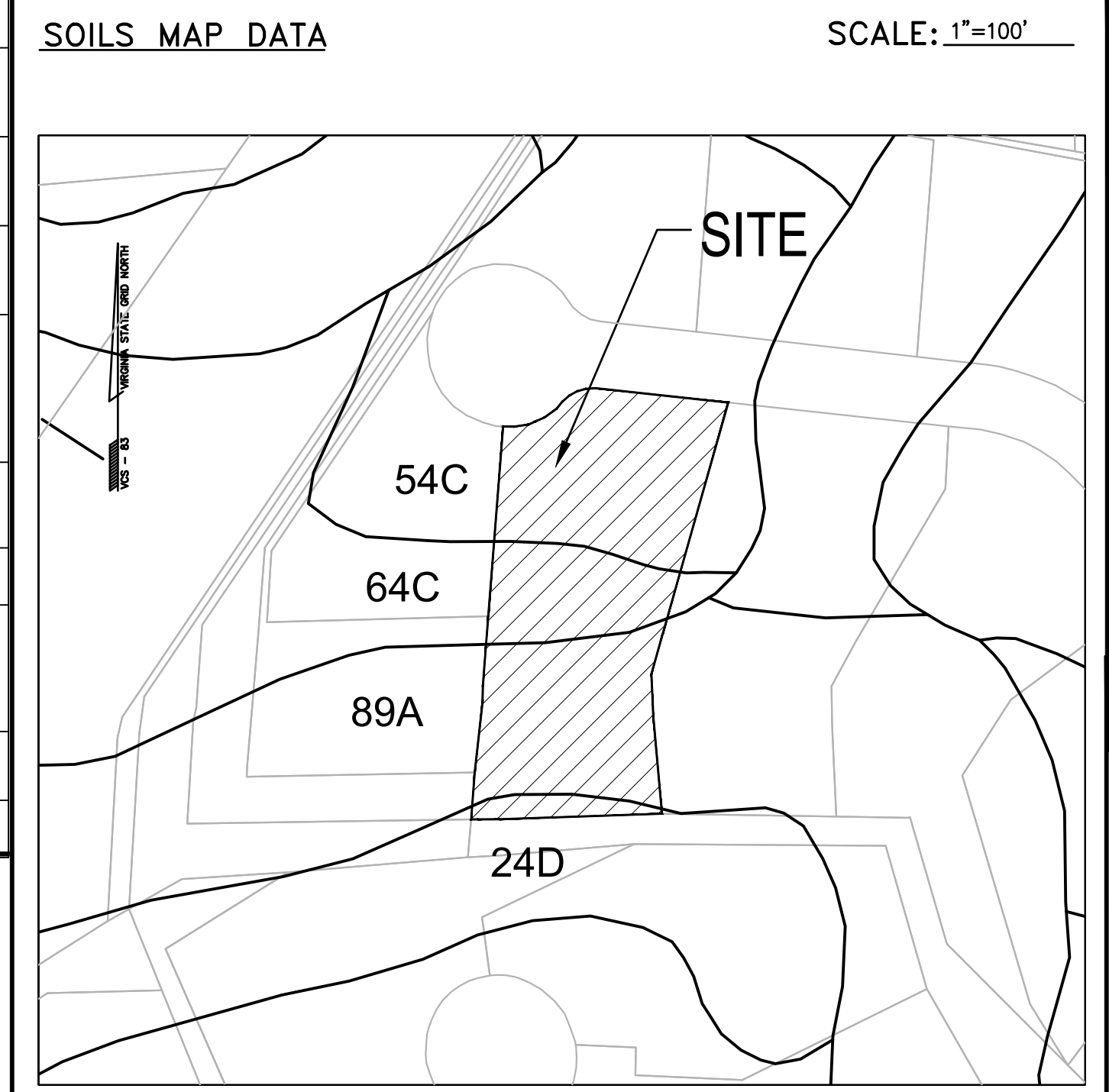
TECHNICAL CRITERIA 5 (OLD)
TIME LIMITS VPDES PERMIT NO. (IF TIME LIMITS): _____
GRANDFATHERED DEQ MEMO 14-2014
NEW DEVELOPMENT REDEVELOPMENT

SWM FACILITIES DESIGNED USING:
TECHNICAL CRITERIA 4 (NEW)
TYPE OF DEVELOPMENT: NEW DEVELOPMENT REDEVELOPMENT
NEW+REDEVELOPMENT (i.e. REDEVELOPMENT WITH A NET INCREASE IN IMPERVIOUS AREA)

SWM FACILITIES (PROPOSED ONLY)

FACILITY ID NO.	FACILITY TYPE	PURPOSE (QUALITY/ QUANTITY)	AREA TREATED (ACRES)	LATITUDE (DECIMAL DEGREE)	LONGITUDE (DECIMAL DEGREE)	WATERSHED	RECEIVING WATERS	MAINTENANCE AGREEMENT Y/N	VAHUB CODE	LENGTH/ AREA OF FACILITY	UNIT (FT/ SF)	NO. OF BLDG. SERVED (FOR ROOFTOP DISCONNECT)

DISTURBED AREA (DA) WITHIN WATERSHED(S):
WATERSHED 1 CUB RUN (UPPER FLATLICK BRANCH) DA= 0.018 (ACRES)
WATERSHED 2 _____ DA= _____ (ACRES)
TOTAL DISTURBED AREA= 0.018 (ACRES)



SOIL ID NUMBERS	SOIL SERIES NAME	FOUNDATION SUPPORT	SOIL DRAINAGE	EROSION POTENTIAL	PROBLEM CLASS
24D	CHANTILLY-NESTORIA COMPLEX	GOOD	FAIR	HIGH	IVB
54C	HATTONTOWN-JACKLAND-HAYMARKET COMPLEX	POOR	POOR	MEDIUM	IVA
64C	JACKLAND AND HAYMARKET SOIL, VERY STONY	POOR	POOR	MEDIUM	III
89A	ROWLAND SILT LOAM	POOR	POOR	LOW	III

IS THE SITE LOCATED ON NATURALLY OCCURRING ASBESTOS (NOA) SOIL? YES NO

AREAS THAT MAY CONTAIN NOA SOIL ARE SHOWN ON THE OFFICIAL COUNTY SOILS MAP ON THE DIGITAL MAP VIEWER ON THE COUNTY WEBSITE. ASBESTOS IS REGULATED BY THE VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY. SAFETY PRECAUTIONS AND LINKS TO REGULATIONS REGARDING THESE SOILS OR FILL ORIGINATING FROM THEM CAN BE FOUND ON THE NORTHERN VIRGINIA SOIL AND WATER CONSERVATION DISTRICT WEBSITE: WWW.FAIRFAXCOUNTY.GOV/NVSWCD

PRO RATA SHARE ASSESSMENT FORM

INFORMATION REQUIRED	VALUE
TOTAL SITE AREA (AC)	0.8300
TOTAL POST DEVELOPMENT IMPERVIOUS COVER (AC)	0.173
NET INCREASE IN IMPERVIOUS AREA (AC)	INCREASE 0.02 AC
FROM "SUMMARY" TAB OF VRRM SPREADSHEET (IF APPLICABLE):	
ADJUSTED POST-DEVELOPMENT PHOSPHORUS LOAD (LB/YR)	N/A
TOTAL RUNOFF VOLUME REDUCTION (CU FT)	N/A

SWMO WATER QUALITY REQUIREMENT DETERMINATION

	SQUARE FEET
IMPERVIOUS AREA PROPOSED	
BUILDINGS	0
DRIVEWAYS	0
MISCELLANEOUS	800
TOTAL IMPERVIOUS ADDED	800
IMPERVIOUS AREA EXISTING (TO REMAIN)	6,745
TOTAL IMPERVIOUS AREA (PROPOSED AND EXISTING TO REMAIN)	7,545
TOTAL LOT AREA	36,159
% IMPERVIOUS EQUALS TOTAL IMPERVIOUS AREA DIVIDED BY LOT AREA MULTIPLIED BY 100	
% IMPERVIOUS = 20.9%	
BMP REQUIRED YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	

OWNER INFORMATION

(X) OWNER () TRUSTEE () A CORPORATION () A PARTNERSHIP () AN INDIVIDUAL

ANDREW L. RIEGER NAME 703-862-3375 PHONE
12917 PERCHERON LANE, OAK HILL VA 20171 ADDRESS ANDYRIEGER@AOL.COM EMAIL

APPROVED FOR INDIVIDUAL WASTEWATER SYSTEM AND/OR WATER WELL

DATE _____ BY _____ FAIRFAX COUNTY DEPARTMENT OF HEALTH

RESOURCE PROTECTION AREA

THE LIMITS OF CLEARING AND GRADING SHOWN NEAR AND/OR WITHIN THE LIMITS OF THE RESOURCE PROTECTION AREA (RPA) MUST BE STRICTLY OBSERVED AND ENFORCED. ANY ENCROACHMENT INTO, AND/OR DISTURBANCE OF, THE RPA NOT SHOWN ON THIS PLAN IS CONSIDERED A VIOLATION OF THE CHESAPEAKE BAY PRESERVATION ORDINANCE (CBPO) AND IS SUBJECT TO THE PENALTIES OF CBPO ARTICLE 9 (VIOLATIONS AND PENALTIES).

(STORMWATER REVIEWER) DATE: _____

APPROVED FOR GRADING ONLY ON

____ LOT(S) NO. _____
____ PARCEL(S) NO. _____

THE FOLLOWING CERTIFICATIONS BASED ON A FIELD SURVEY ARE REQUIRED PRIOR TO RUP ISSUANCE (REVIEWER TO CHECK APPROPRIATE ITEMS):

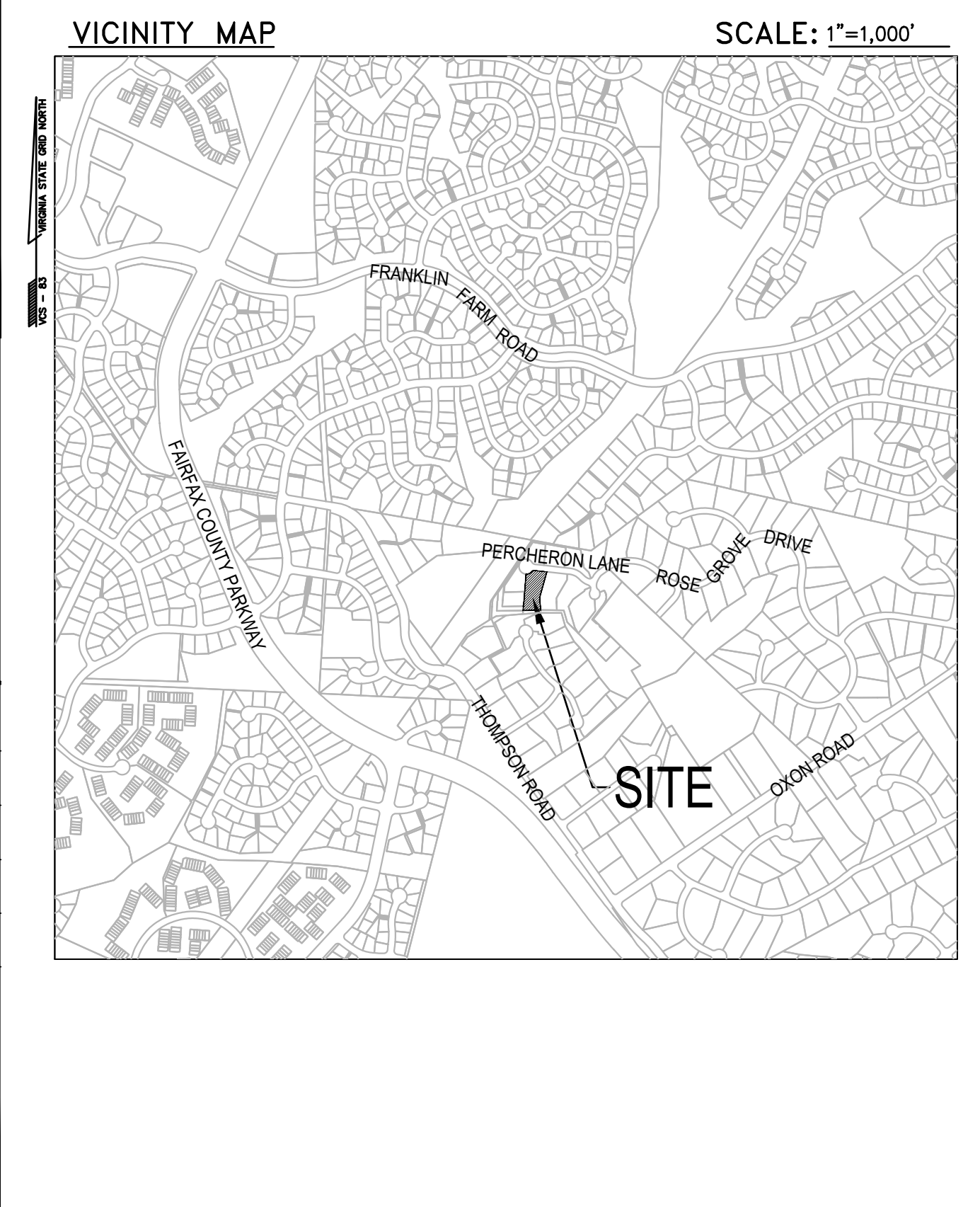
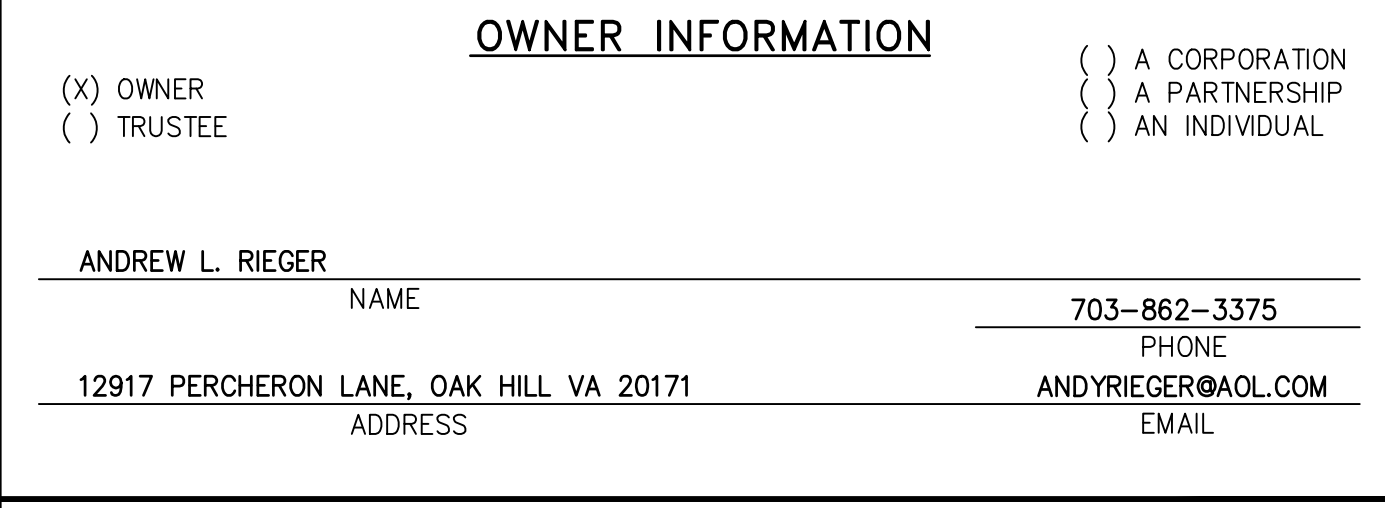
____ A BUILDING HEIGHT CERTIFICATION
____ A SETBACK CERTIFICATION

APPROVED BY: _____ PLAN REVIEWER DATE: _____

THIS APPROVAL IS NOT A COMMITMENT TO PROVIDE SANITARY SEWER.

SHEET INDEX

- COVER SHEET
- WATER QUALITY IMPACT ASSESSMENT
- WQIA RPA LANDSCAPING PLAN



DESIGN ENGINEER / SURVEYOR
FIRM NAME: CURT R. CROUCH, P.E.
ADDRESS: 4995 CROUCH LANE
MIDLAND, VIRGINIA 22728
PHONE NO: 540-359-1636
FAX NO: _____
PROJ. MANAGER: CURT R. CROUCH
EMAIL: CROUCHCURT@GMAIL.COM

PROFESSIONAL SEAL
THIS WQIA HAS BEEN DETERMINED TO BE ACCEPTABLE FOR FURTHER CONSIDERATION BY THE EXCEPTION REVIEW COMMITTEE. FORMING A PUBLIC HEARING IS ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 4 OF COUNTY CODE, CHAPTER 11B CONSERVATION AND BAY PRESERVATION ORDINANCE.

PROFESSIONAL SEAL
CURT R. CROUCH
Lic. No. 047045
9/11/23

RIEGER, ANDREW L.
THOMPSON ROAD PROPERTY
LT 27
12917 PERCHERON LANE
OAK HILL, VA 20171
SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA

COUNTY NUMBER
9820-WQIA-003-1
PLAN REVIEWER

SHEET 1 OF 3
REVISED: 3/16

DATE _____

INFILL GRADING PLAN COVERSHEET

NOTICE OF VIOLATION
Fairfax County Chesapeake Bay Preservation Ordinance

DATE ISSUED: 2/10/2022
CERTIFIED MAIL #: 7019 1640 0001 0919 2909
VIOLATION ISSUED TO: Andrew L. Rieger
12917 Percheron Lane
Oak Hill, VA 20171
LOCATION OF VIOLATION: 12917 Percheron Lane
Oak Hill, VA 20171
TAX MAP REFERENCE: 0353 26 0027
CASE #: 202200244

I inspected the above site on 2/3/2022 and observed the following violations in a Chesapeake Bay Preservation Area:

- Land disturbance in the Resource Protection Area (RPA) without an approved Water Quality Impact Assessment in violation of Fairfax County Code, Section 118-4-2 and Section 118-3-2(a) and (b). The land disturbance in the RPA consists of an unpermitted sports court, approximately 800 square feet in size.
- Encroachment of an accessory structure or use into the RPA without an exception approval by either the Exception Review Committee or by the Board of Supervisors, when in conjunction with a rezoning or special exception approval, in violation of Fairfax County Code, Section 118-6-9

Furthermore, Fairfax County Code, Section 118-9-1(a), provides as follows:

Any building erected or improvements constructed contrary to any provisions of this Chapter and any land disturbing activity regardless of area contrary to any of the provisions of this Chapter and any removal of vegetation in Chesapeake Bay Preservation Areas contrary to any provisions of this Chapter shall be and the same is hereby declared to be unlawful.

Department of Land Development Services
12055 Government Center Parkway, Suite 659
Fairfax, Virginia 22033-5503
Phone 703-324-1780 • TTY 711 • FAX 703-653-6678
www.fairfaxcounty.gov

Andrew L. Rieger
Page 3 of 3

for damages, or for injunctive relief. (32-03-118.)

Section 118-9-3, Civil Penalties, reads as follows:

- (a) Any person who violates any provision of this Chapter or who violates or fails, neglects, or refuses to obey any local governmental body's or official's final notice, order, rule, regulation, or variance or permit condition authorized under this Chapter shall, upon such finding by an appropriate circuit court, be assessed a civil penalty not to exceed \$5,000 for each day of violation.

Section 118-8-1, Procedures, states in relevant part as follows:

- (a) An applicant aggrieved by any decision of the Director of the Land Development Services... in the administration of this Chapter may, within 15 days of such decision, appeal the decision to the Board of Supervisors.

and...

- (c) Such appeal shall be filed with the Clerk to the Board of Supervisors and shall state with specificity the provisions of this Chapter which the applicant alleges to have been violated by the decision and the reasons therefor. A copy of the appeal shall also be delivered to the Director of the Department of Land Development Services within such 30-day period.

Failure to correct this violation may result in legal action under applicable state and county codes.

ISSUED BY:

Jesus Rico Arreola, Code Specialist II
Environmental Compliance and Enforcement Branch
12055 Government Center Parkway
Fairfax, Virginia 22033-5503
Phone: (703) 324-8463
Email: jesus.ricoarreola@fairfaxcounty.gov
Authorized Agent of the Director of LDS

Andrew L. Rieger
Page 2 of 3

You are directed to correct this violation within sixty (60) days of receipt of this order, by performing the following, corrective measures:

- Cease and desist all land disturbing activity in the RPA.
- Remove the unpermitted sports court in accordance with County policy and procedure by:
Submitting and receiving approval for a **Water Quality Impact Assessment (WQIA)** that restores the RPA to the requirements of Section 118-9-1(d).

Restoration of the RPA shall be in accordance with the requirements of the Chesapeake Bay Preservation Ordinance and Public Facilities Manual (PFM). In addition to the plantings required by Section 118-3-3(f) and the PFM, the Director may require for any trees impacted or illegally removed from the RPA to be replaced by other trees of the same comparable species of equal value and/or be replaced by two trees for each tree impacted or removed. The replacement trees shall be 1.5-inch caliper trees or larger. If any fill is relocated on site outside the RPA, the WQIA shall also show the area where the fill is to be placed and demonstrate that the placement of the fill shall not adversely impact the existing drainage of the land;

OR

- Submit and receive approval for:
a. An exception request to permit encroachment into the RPA in accordance with the requirements of Section 118-6-5, -6, and -9 and
b. A WQIA that restores the RPA to the requirements of Section 118-9-1(d). Restoration of the RPA shall be in accordance with the requirements of the Chesapeake Bay Preservation Ordinance and PFM;

AND

- Correct the violation in accordance with the approved WQIA.

Section 118-9-2, Criminal Violations and Penalties, states:

- (a) Violators of this Chapter shall be guilty of a Class 1 misdemeanor.
(b) Each day any violation of this Chapter shall continue shall constitute separate offense.
(c) In addition to any criminal penalties provided under this Article, any person who violates any provision of this Chapter may be liable to the County in a civil action

WQIA NARRATIVE:

THE EXISTING SPORTS COURTS IS WITHIN THE RESOURCE PROTECTIVE AREA (RPA) BUT IT IS OUTSIDE OF THE 50' SEAWARD ZONE. THE EXISTING SPORT COURT IS WITHIN ROWLAND SILT LOAM (89A) SOILS AND HAVE EXISTING SLOPES THAT RANGE BETWEEN 5-10%. THE SOILS HAVE A LOW EROSION POTENTIAL, THEREFORE, THERE WAS MINIMAL IMPACTS TO THE RPA. THE SPORTS COURT WAS BUILT WITHIN THE SAME FOOTPRINT AS AN EXISTING GRAVEL PLAYGROUND, THEREFORE, THERE WAS MINIMAL DISTURBANCE DURING CONSTRUCTION. THE RPA MOSTLY CONSIST OF OPEN GRASS AREA WITH TREES SCATTERED THROUGH OUT THE AREA. NO TREES WERE REMOVED AS PART OF THE CONSTRUCTION ON OF THE SPORT COURT. TO OFFSET THE IMPACTS OF HAVING THE SPORTS COURT THE APPLICANT IS PLANTING 1.5 TIMES THE REQUIRED DENSITY PER ACRE FOR RPA ESTABLISHMENT AND RESTORATION.

THE ENGINEER SHALL NOT HAVE CONTROL OVER OR CHARGE OF AND SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK SHOWN ON THESE PLANS. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S SCHEDULES OR FAILURE TO CARRY OUT THE WORK. THE ENGINEER IS NOT RESPONSIBLE FOR NOTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS, OR THEIR AGENTS OR EMPLOYEES, OR OF ANY OTHER PERSONS PERFORMING PORTIONS OF THE WORK.

REAR YARD COVERAGE COMPUTATIONS

TOTAL REAR YARD AREA	3,108.6 SF
PROPOSED POOL AND PATIO AREA	0.0 SF
EXISTING SHED AND PATIO	0.0 SF
TOTAL REAR LOT COVERAGE (SQ.FT)	0.0 SF
% OF LOT COVERAGE (POST)=	$\frac{0.0 \times 100}{3,108.6} = 0.0\%$

IMPERVIOUS AREA/RUNOFF COMPUTATIONS (SQ. FT.)

DESCRIPTION	PRE-DEV	POST-DEV
EX. HOUSE	3,578.0	3,578.0
EX. SIDEWALK	699.0	699.0
EX. DRIVEWAY	1,634.0	1,634.0
EX. DECK	621.0	621.0
EX. PATIO	213.0	213.0
SPORTS COURT		800.0

TOTAL IMPERVIOUS AREA (SQ.FT)	6,745.0	7,545.0
PERVIOUS AREA/GRASS AREA (SQ.FT)	29,414.0	28,614.0
TOTAL SITE AREA (SQ.FT)	36,159.0	36,159.0

INCREASE IN IMPERVIOUS (SQ.FT.) 800.0

TOTAL % OF IMPERVIOUS AREA(POST)= $\frac{7,545 \times 100}{36,159.0} = 20.9\%$

"C" RUNOFF COEFFICIENT

A. PRE-DEVELOPMENT
 $6,745 \times 0.90 + 29,414 \times 0.35 = 0.45$
36,159.0

A. POST-DEVELOPMENT *
 $= 7,545 \times 0.90 + 28,614 \times 0.35 = 0.46$
36,159.0

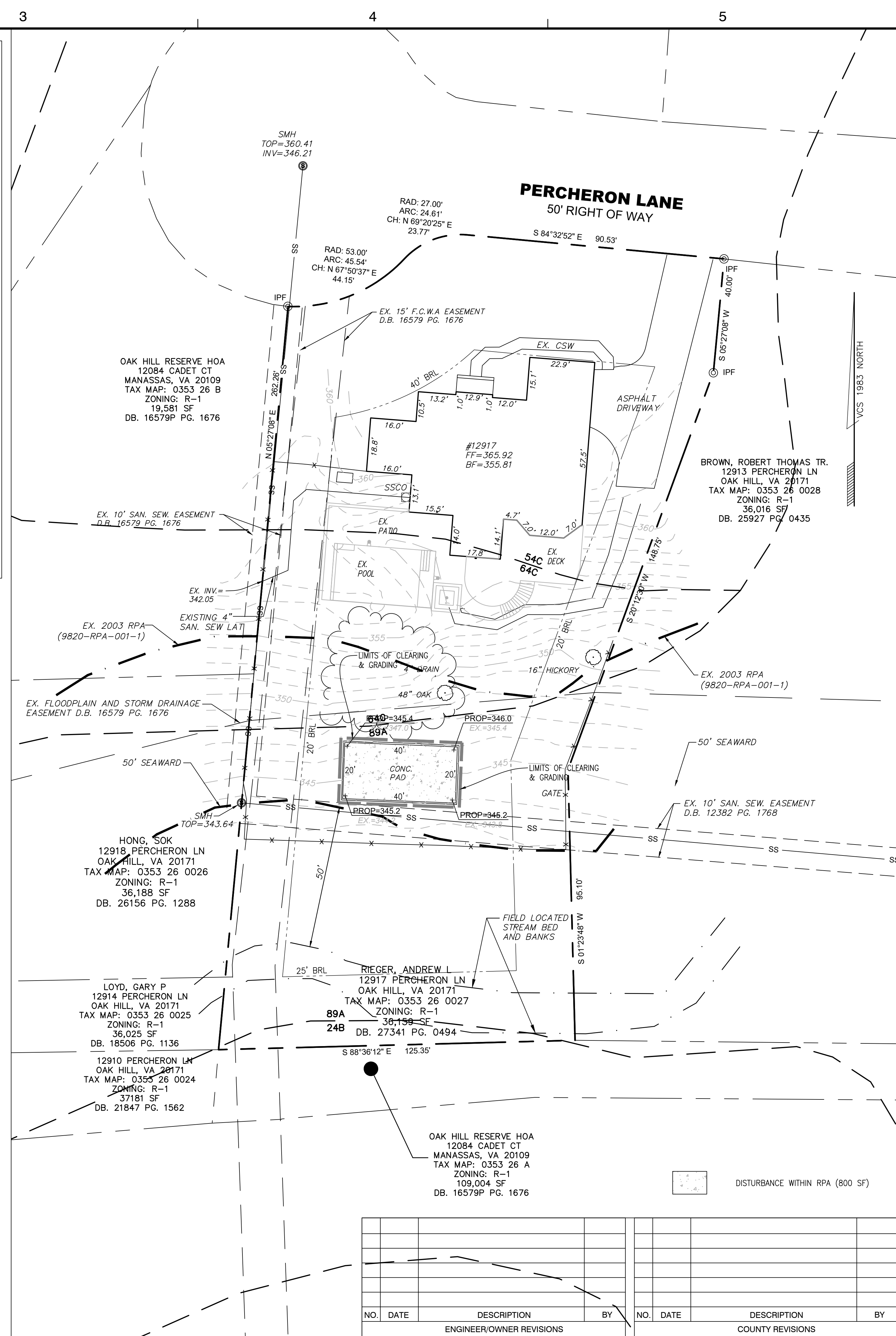
RUNOFF Q=CIA

A. PRE-DEVELOPMENT
 $Q_2 = 0.45 \times 5.23 \times 0.83 = 1.95$ CFS
 $Q_{10} = 0.45 \times 6.77 \times 0.83 = 2.53$ CFS

B. POST-DEVELOPMENT*
 $Q_2 = 0.46 \times 5.23 \times 0.83 = 2.00$ CFS
 $Q_{10} = 0.46 \times 6.77 \times 0.83 = 2.58$ CFS

C. CHANGE IN RUNOFF*
 $Q_2 = 2.00 - 1.95 = +0.05$ CFS INCREASE IN RUNOFF
 $Q_{10} = 2.58 - 2.53 = +0.05$ CFS INCREASE IN RUNOFF

-OUTFALL NARRATIVE ON SHEET 5

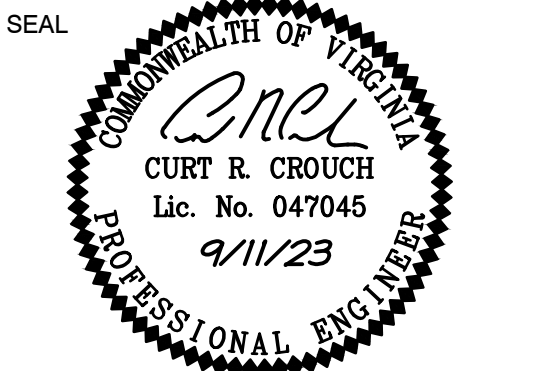


CURT R. CROUCH, P.E.

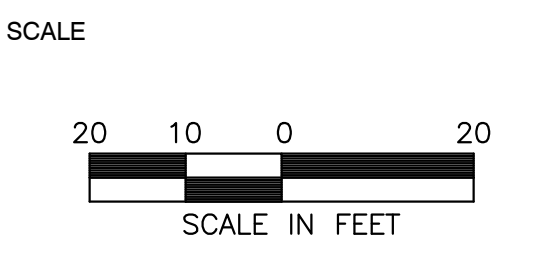
4995 CROUCH LANE
MIDLAND, VIRGINIA 22728
EMAIL: CROUCH.CURT@GMAIL.COM
TELEPHONE: 540.359.1636

THIS WQIA HAS BEEN DETERMINED TO BE ACCEPTABLE FOR FURTHER CONSIDERATION BY THE EXCEPTION REVIEW COMMITTEE. DURING A PUBLIC HEARING IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 6 OF COUNTY CODE, CHAPTER 118 (CHESAPEAKE BAY PRESERVATION ORDINANCE).

RIEGER, ANDREW L.
THOMPSON ROAD PROPERTY
LT 27
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SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA



KEY PLAN

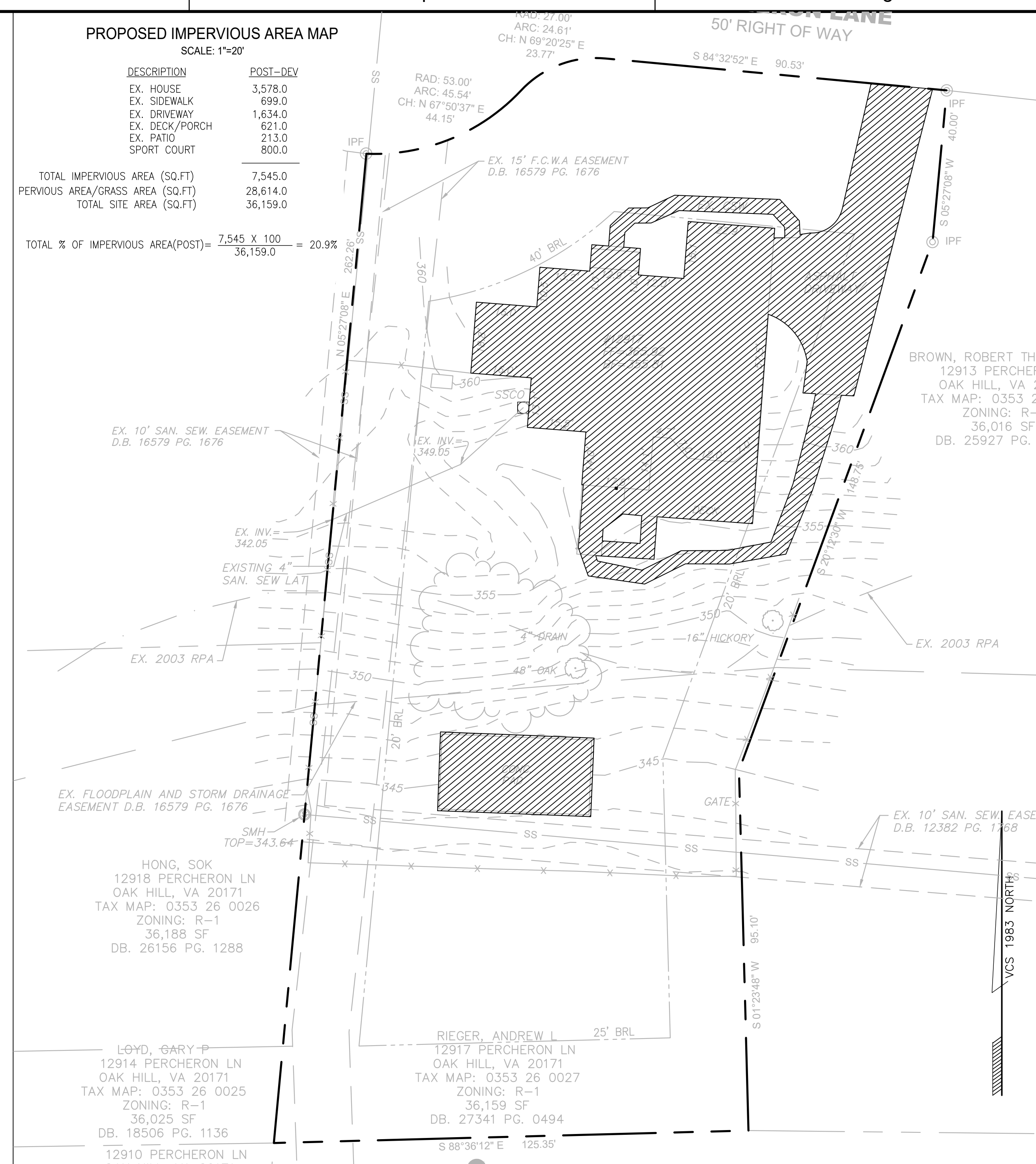
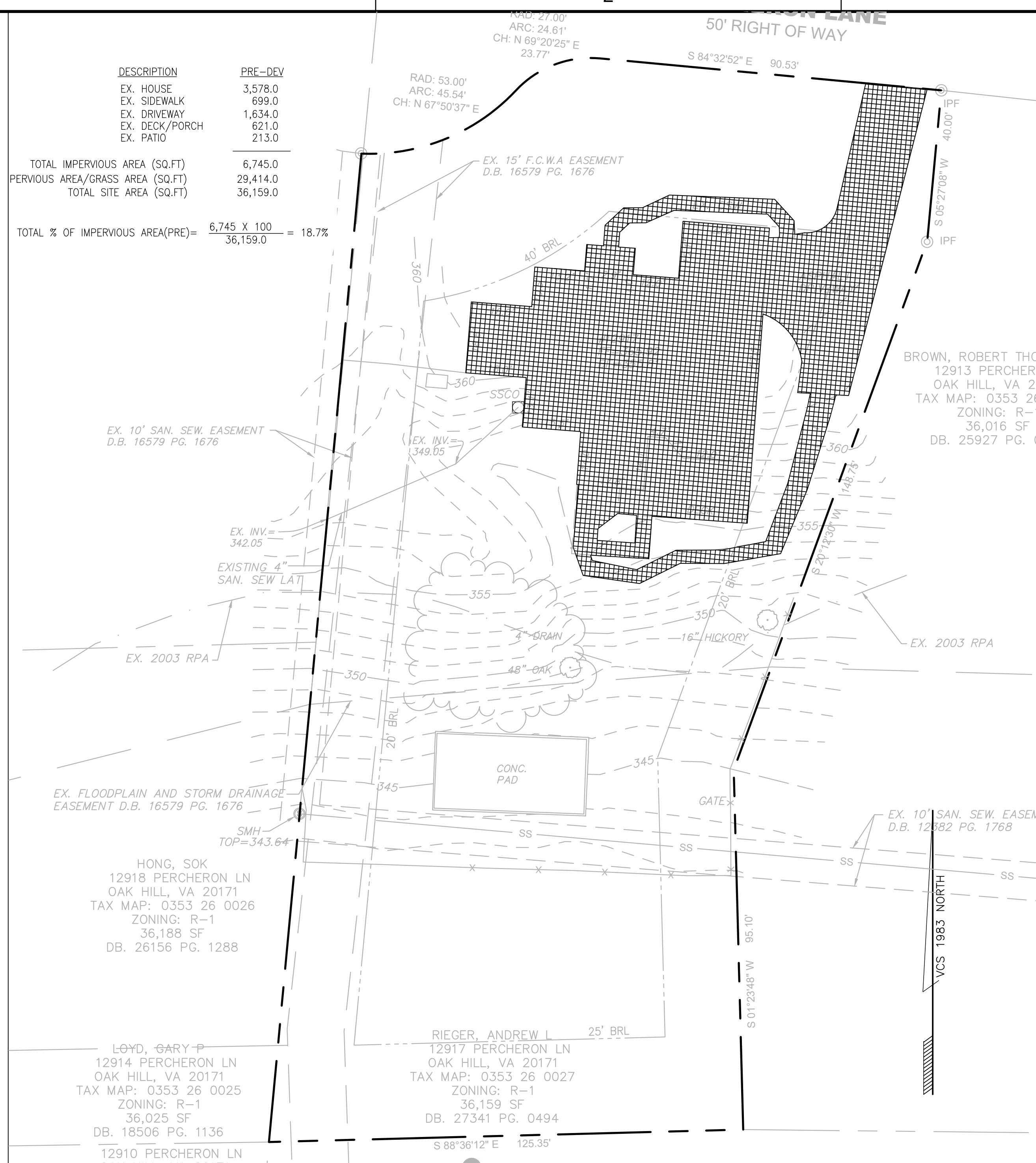


No.	DATE	BY	Description

DRAWN BY: CC
APPROVED BY: CC
CHECKED BY: CC
DATE: SEPT. 2023

WATER QUALITY IMPACT ASSESSMENT

PROJECT NO. 9820-WQIA-003-1



THIS SITE CONSISTS OF 0.83 ACRES OF TOTAL LAND AREA, OF WHICH 800 SQUARE FEET WAS DISTURBED FOR THE CONSTRUCTION OF A CONCRETE SPORTS COURT. THE SITE IS WITHIN CUB RUN WATERSHED AND HAS ONE OUTFALL. THE RUNOFF FROM THE SITE MAINLY DRAINS TO THE SOUTH AS SHEET FLOW OVER GRASS COVERED AND VEGETATED AREA. AFTER THE RUNOFF LEAVES TO THE SOUTH OF THE SITE IT FLOWS INTO A NATURAL SWALE TO THE SOUTH. FIELD OBSERVATION REVEALED THAT NO DRAINAGE PROBLEM ON SITE AND OFFSITE WITHIN THE STUDY AREA.

THERE WAS AN INCREASE OF 800 SF OF IMPERVIOUS AREA FOR A TOTAL OF 7,545 SF OF IMPERVIOUS AREA WHICH RESULTS IN AN INCREASE OF 0.05 CFS AND 0.05 CFS FOR THE 2 YEAR AND 10 YEAR STORM EVENT RESPECTIVELY, WHICH IS A MINIMAL INCREASE FOR THIS LOT. THE RUNOFF FROM THE SITE IS NOT DIRECTED TOWARDS ANY ADJACENT BUILDINGS OR STRUCTURES AND WILL CONTINUE TO LEAVE THE SITE AS SHEET FLOW. THE EXISTING SPORTS COURT DISCHARGES SHALL NOT DISCHARGE ON THE ADJACENT PROPERTY AND NOT HAVE ANY NEGATIVE IMPACTS TO CAUSE EROSION.

THIS INCREASE IN RUNOFF BY THIS DEVELOPMENT WILL HONOR THE NATURAL DRAINAGE DIVIDES AND WILL NOT AGGRAVATE ANY EXISTING DRAINAGE PROBLEM OR CAUSE ANY NEW DRAINAGE PROBLEM ON THE DOWNSTREAM PROPERTIES. THE RUNOFF FROM THIS SITE WILL LEAVE AS SHEET FLOW. IT IS THE OPINION OF THE ENGINEER THAT THIS INCREASE WILL NOT HAVE ANY ADVERSE IMPACT ON SITE OR OFFSITE AFTER COMPLETION OF THE PROPOSED DEVELOPMENT BECAUSE THE ORIGINAL SUBDIVISION STORM SEWER AND OUTFALL WAS DESIGNED TO HANDLE THE ADDITIONAL RUNOFF.

WATER QUALITY NARRATIVE

PRE-DEVELOPMENT CONDITIONS

THIS SITE CONSIST OF 0.83 ACRES AND HAS AN EXISTING HOUSE, SIDEWALK, DRIVEWAY AND DECK ON THE SITE FOR A TOTAL OF 6,745 SF OF IMPERVIOUS AREA, WHICH IS 18.7% OF THE ENTIRE SITE. THE EXISTING IMPERVIOUS AREA WILL REMAIN AFTER THE SPORTS COURT CONSTRUCTED.

POST-DEVELOPMENT CONDITIONS

THE PROPOSED DEVELOPED WILL HAVE APPROXIMATELY 800 SF OF DISTURBANCE AND WILL HAVE 7,545 SF OF IMPERVIOUS AREA, WHICH IS 20.9% OF THE ENTIRE SITE. THE TOTAL INCREASE OF IMPERVIOUS AREA IS 1,220 SF.

WATER QUALITY REQUIREMENTS

WATER QUALITY REQUIREMENTS FOR THIS SITE ARE BEING PROVIDED BY A PORTION OF THE SITE HAVING COMPOST AMENDED SOILS PER SPECIFICATIONS NO. 4. THE NEW STORMWATER REGULATIONS HAVE BEEN UTILIZED FOR THE PROJECT (4VAC50-60-10 THOUGH 4VAC50-60-85). THE VIRGINIA RUNOFF REDUCTION METHODOLOGY (VRRM) HAS BEEN USED TO DETERMINE BOTH THE PHOSPHOROUS REMOVAL REQUIREMENTS AND THE RUNOFF REDUCTION VOLUME. THE TARGET PHOSPHOROUS LOAD (POST-DEVELOPMENT) FOR THE SITE IS 0.41POUNDS PER ACRE PER YEAR.

THE DEVELOPMENT SITE AREA IS 0.87 AC WITH A DISTURBED ACREAGE OF 800 SF. THE TOTAL REQUIRED PHOSPHOROUS REMOVAL IS 0.10 LBS/YR. THE TOTAL PHOSPHOROUS BEING REMOVED FROM THE SITE IS 0.10 LBS/YR BY COMPOST AMENDED SOILS, WHICH MEETS DEQ THE WATER QUALITY REQUIREMENT.

CURT R. CROUCH, P.E.

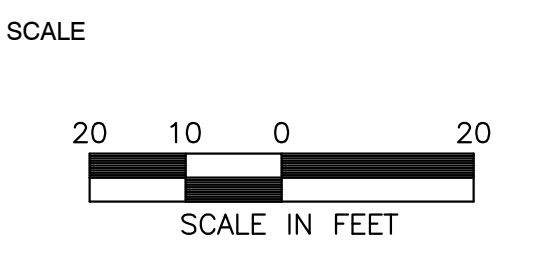
4995 CROUCH LANE
MIDLAND, VIRGINIA 22728
EMAIL: CROUCH.CURT@GMAIL.COM
TELEPHONE: 540.359.1636

THIS WQA HAS BEEN DETERMINED TO BE ACCEPTABLE FOR FURTHER CONSIDERATION BY THE EXCEPTION REVIEW COMMITTEE DURING A PUBLIC HEARING IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 6 OF COUNTY CODE CHAPTER 18 (CHESAPEAKE BAY PRESERVATION ORDINANCE).

RIEGER, ANDREW L.
THOMPSON ROAD PROPERTY
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SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA



KEY PLAN



No.	DATE	BY	Description

REVISIONS
DRAWN BY: CC
APPROVED BY: CC
CHECKED BY: CC
DATE: MARCH 2022

TITLE
IMPERVIOUS AREA MAP AND OUTFALL NARRATIVE

PROJECT NO. 0000-WQIA-001

NO.	DATE	DESCRIPTION	BY

NO.	DATE	DESCRIPTION	BY

C:\Users\ccrouch\Documents\Drawings\Projects\WQA\Sully\04-BMP.dwg

CLEAR ALL (Ctrl+Shift+R)

data input cells
constant values
calculation cells
final results

0.02
10%
0.018
0.10

Check:
BMP Design Specifications List: 2013 Draft Stds & Specs
Linear project? No
Land cover areas entered correctly? ✓
Total disturbed area entered? ✓

Totals
0.00
0.68
0.16
0.83

Totals
0.00
0.66
0.17
0.83

B Soils	C Soils	D Soils
0.03	0.04	0.05
0.20	0.22	0.25
0.95	0.95	0.95

LAND COVER SUMMARY – POST DEVELOPMENT

Final	Land Cover Summary-Post	Land Cover Summary-Post
0.00	Forest/Open Space Cover (acres) 0.00	Post-Development New Impervious
0.00	Weighted Rv (forest) 0.00	
0%	% Forest 0%	
0.66	Managed Turf Cover (acres) 0.66	
0.25	Weighted Rv (turf) 0.25	
79%	% Managed Turf 81%	
0.17	ReDev. Impervious Cover (acres) 0.16	New Impervious Cover (acres) 0.02
0.95	Rv (impervious) 0.95	Rv (impervious) 0.95
21%	% Impervious 19%	
0.83	Total ReDev. Site Area (acres) 0.81	
0.40	ReDev Site Rv 0.38	

Treatment Volume and Nutrient Load

0.0274	Post-Development Treatment Volume (acre-ft) 0.0260	Post-Development Treatment Volume (acre-ft) 0.0014
1,193	Post-Development Treatment Volume (cubic feet) 1,131	Post-Development Treatment Volume (cubic feet) 62
0.75	Post-Development Load (lb/yr)* 0.71	Post-Development TP Load (lb/yr) 0.04
0.90	Post-Development TP Load per acre (lb/acre/yr) 0.87	
	Max. Reduction Required (Below Pre-Development Load) 10%	
	TP Load Reduction Required for Redeveloped Area (lb/yr) 0.07	TP Load Reduction Required for New Impervious Area (lb/yr) 0.03

Final Post-Development TN Load (Post-Development & New Impervious) (lb/yr) 5.36

Final Post-Development TN Load (Post-Development & New Impervious) (lb/yr) 0.10

Final Post-Development TN Load (Post-Development & New Impervious) (lb/yr) 5.36

Drainage Area A

Drainage Area A Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)					0.00	0.00
Managed Turf (acres)				0.66	0.66	0.25
Impervious Cover (acres)				0.17	0.17	0.95
Total					0.83	

2. Rooftop Disconnection (RR)

2.a. Simple Disconnection to A/B Soils (Spec #1)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.b. Simple Disconnection to C/D Soils (Spec #1)	25			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.c. To Soil Amended Filter Path as per specifications (existing C/D soils) (Spec #4)	50		0.08	0	138	138	276	0	0.00	0.17	0.09	0.09	
2.d. To Dry Well or French Drain #1, Micro-infiltration #1 (Spec #8)	50			0	0	0	0	25	0.00	0.00	0.00	0.00	
2.e. To Dry Well or French Drain #2, Micro-infiltration #2 (Spec #8)	90			0	0	0	0	25	0.00	0.00	0.00	0.00	
2.f. To Rain Garden #1, Micro-Bioretenion #1 (Spec #9)	40			0	0	0	0	25	0.00	0.00	0.00	0.00	
2.g. To Rain Garden #2, Micro-Bioretenion #2 (Spec #9)	80			0	0	0	0	50	0.00	0.00	0.00	0.00	
2.h. To Rainwater Harvesting (Spec #6)	0			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.i. To Stormwater Planter, Urban Bioretention (Spec #9, Appendix A)	40			0	0	0	0	25	0.00	0.00	0.00	0.00	

CLEAR BMP AREAS

Total Phosphorus Available for Removal in D.A. A (lb/yr) 0.74
Post Development Treatment Volume in D.A. A (ft³) 1,185

TOTAL IMPERVIOUS COVER TREATED (ac)	0.08	AREA CHECK: OK.
TOTAL MANAGED TURF AREA TREATED (ac)	0.00	AREA CHECK: OK.
TOTAL PHOSPHORUS REMOVAL REQUIRED ON SITE (lb/yr)	0.08	
TOTAL PHOSPHORUS AVAILABLE FOR REMOVAL IN D.A. A (lb/yr)	0.74	
TOTAL PHOSPHORUS REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)	0.00	
TOTAL PHOSPHORUS REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)	0.09	
TOTAL PHOSPHORUS LOAD REDUCTION ACHIEVED IN D.A. A (lb/yr)	0.09	
TOTAL PHOSPHORUS REMAINING AFTER APPLYING BMP LOAD REDUCTIONS IN D.A. A (lb/yr)	0.66	
SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS		
NITROGEN REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)	0.62	
NITROGEN REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)	0.00	
TOTAL NITROGEN REMOVED IN D.A. A (lb/yr)	0.62	

Site Results (Water Quality Compliance)

Area Checks	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	AREA CHECK
FOREST/OPEN SPACE (ac)	0.00	0.00	0.00	0.00	0.00	OK.
IMPERVIOUS COVER (ac)	0.17	0.00	0.00	0.00	0.00	OK.
IMPERVIOUS COVER TREATED (ac)	0.08	0.00	0.00	0.00	0.00	OK.
MANAGED TURF AREA (ac)	0.66	0.00	0.00	0.00	0.00	OK.
MANAGED TURF AREA TREATED (ac)	0.00	0.00	0.00	0.00	0.00	OK.
AREA CHECK	OK.	OK.	OK.	OK.	OK.	

Site Treatment Volume (ft³) 1,185

Runoff Reduction Volume and TP By Drainage Area

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	TOTAL
RUNOFF REDUCTION VOLUME ACHIEVED (ft ³)	138	0	0	0	0	138
TP LOAD AVAILABLE FOR REMOVAL (lb/yr)	0.74	0.00	0.00	0.00	0.00	0.74
TP LOAD REDUCTION ACHIEVED (lb/yr)	0.09	0.00	0.00	0.00	0.00	0.09
TP LOAD REMAINING (lb/yr)	0.66	0.00	0.00	0.00	0.00	0.66
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	0.62	0.00	0.00	0.00	0.00	0.62

Total Phosphorus

FINAL POST-DEVELOPMENT TP LOAD (lb/yr)	0.74
TP LOAD REDUCTION REQUIRED (lb/yr)	0.08
TP LOAD REDUCTION ACHIEVED (lb/yr)	0.09
TP LOAD REMAINING (lb/yr)	0.66
REMAINING TP LOAD REDUCTION REQUIRED (lb/yr):	0.00 **

**No further TP load reduction required

Total Nitrogen (For Information Purposes)

POST-DEVELOPMENT LOAD (lb/yr)	5.33
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	0.62
REMAINING POST-DEVELOPMENT NITROGEN LOAD (lb/yr)	4.71

NO.	DATE	DESCRIPTION	BY

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TELEPHONE: 540.359.1636

THIS WORK HAS BEEN DETERMINED TO BE ACCEPTABLE FOR FURTHER CONSIDERATION BY THE SUBCOMMITTEE ON PUBLIC HEARINGS IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 6 OF COUNTY CODE, CHAPTER 18 (CONSERVATION AND BAY PRESERVATION ORDINANCE).

RIEGER, ANDREW L.
THOMPSON ROAD PROPERTY
LT 27
12917 PERCHERON LANE
OAK HILL, VA 20171
SULLY DISTRICT
FAIRFAX COUNTY, VIRGINIA



KEY PLAN

SCALE

No.	DATE	BY	Description

TITLE
BMP COMPUTATIONS

PROJECT NO. 0000-WQIA-001

SECTION 2: PERFORMANCE

Table 4.1: Stormwater Functions of Soil Compost Amendments¹

Table with columns: Stormwater Function, HSG Soils A and B (No CA, With CA), HSG Soils C and D (No CA, With CA). Rows include Annual Runoff Volume Reduction (RR), Total Phosphorus (TP) EMC Reduction, Total Nitrogen (TN) EMC Reduction, and Channel Protection & Flood Mitigation.

1 CWP and CSN (2008), CWP (2007)
2 CA = Compost Amended Soils, see Stormwater Design Specification No. 4.
3 Compost amendments are generally not applicable for A and B soils, although it may be advisable to incorporate them on mass-graded B soils to maintain runoff reduction rates.
4 Filter strips in HSG C and D should use composted amended soils to enhance runoff reduction capabilities. See Stormwater Design Specification No. 2: Sheetflow to Vegetated Filter Strip or Conserved Open Space.

SECTION 3: DESIGN TABLE

Not applicable.

SECTION 4: TYPICAL DETAILS

Not applicable.

SECTION 5: PHYSICAL FEASIBILITY & DESIGN APPLICATIONS

Compost amended soils are suitable for any pervious area where soils have been or will be compacted by the grading and construction process. They are particularly well suited when existing soils have low infiltration rates (HSG C and D) and when the pervious area will be used to filter runoff (downspout disconnections and grass channels). The area or strip of amended soils should be hydraulically connected to the stormwater conveyance system. Soil restoration is recommended for sites that will experience mass grading of more than a foot of cut and fill across the site.

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- h. Carbon/nitrogen ratio shall be less than 25:1
i. Trace metal test result = "pass"
j. The compost must have a dry bulk density ranging from 40 to 50 lbs./cu. ft.

SECTION 7: REGIONAL & SPECIAL CASE DESIGN ADAPTATIONS

7.1. Karst Terrain

No special adaptations are needed in karst terrain, but the designer should take soil tests to ensure that soil pH is adjusted to conform to pre-existing soil conditions found in limestone dominated areas.

7.2. Coastal Plain

Designers should evaluate drainage and water table elevations to ensure the entire depth of soil amendment will not become saturated (i.e., a minimum separation depth of 2 feet from groundwater). Compost amendments are most cost effective when used to boost the runoff reduction capability of grass vegetated filter strips, grass channels and rooftop disconnections.

7.3. Steep Terrain

Compost amendments are ineffective when longitudinal slopes exceed 5%, so some terracing may be needed on steeper slopes.

7.4. Cold Climate and Winter Performance

Soil restoration is not recommended for areas that will be used for snow storage.

7.5. Linear Highway Sites

Soil amendments can improve the runoff reduction of drainage swales in open section rights-of-way and highway medians.

SECTION 8: CONSTRUCTION

8.1. Construction Sequence

The construction sequence for compost amendments differs depending whether the practice will be applied to a large area or a narrow filter strip, such as in a rooftop disconnection or grass channel. For larger areas, a typical construction sequence is as follows:

Step 1. Prior to building, the proposed area should be deep tilled to a depth of 2 to 3 feet using a tractor and sub-soiler with two deep shanks (curved metal bars) to create ribs perpendicular to the direction of flow. (This step is usually omitted when compost is used for narrower filter strips.)

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The second soil test is taken at least one week after the compost has been incorporated into the soils. This soil analysis should be conducted by a reputable laboratory to determine whether any further nutritional requirements, pH adjustment, and organic matter adjustments are necessary for plant growth. This soil analysis should be done in conjunction with the final construction inspection to ensure tilling or subsoiling has achieved design depths.

6.3. Runoff Volume Reduction

The runoff volume reduction achieved by soil restoration depends on the site application and the pre-construction hydrologic soil group. When compost amendments are used simply to reduce runoff volume from compacted lawns, the lower runoff coefficients shown in Table 4.2 can be used to lower the total treatment volume for the site as a whole. If the soil restoration area accepts runoff from adjacent impervious areas, the higher runoff reduction rates outlined in Table 4.1 above may be used for the indicated practices.

Table 4.2. Runoff Coefficients for Use for Different Pervious Areas

Table with columns: Hydrologic Soil Group, Undisturbed Soils, Disturbed Soils, Restored and Reforested. Rows include A, B, C, D.

Notes:
1 Portions of a new development site, outside the limits of disturbance, which are not graded and do not receive construction traffic.
2 Previously developed sites, and any site area inside the limits of disturbance as shown on the E&S Control plan.
3 Areas with restored soils that are also reforested to achieve a minimum 75% forest canopy.

6.4. Determining Depth of Compost Incorporation

The depth of compost amendment is based on the relationship of the surface area of the soil amendment to the contributing area of impervious cover that it receives. Table 4.3 presents some general guidance derived from soil modeling by Holman-Dodds (2004) that evaluates the required depth to which compost must be incorporated. Some adjustments to the recommended incorporation depth were made to reflect alternative recommendations of Roa Espinosa (2006), Balousek (2003), Chollak and Rosenfeld (1998) and others.

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Step 2. A second deep tilling to a depth of 12 to 18 inches is needed after final building lots have been graded.

Step 3. It is important to have dry conditions at the site prior to incorporating compost.

Step 4. An acceptable compost mix is then incorporated into the soil using a roto-tiller or similar equipment at the volumetric rate of 1 part compost to 2 parts soil.

Step 5. The site should be leveled and seeds or sod used to establish a vigorous grass cover. Lime or irrigation may initially be needed to help the grass grow quickly.

Step 6. Areas of compost amendments exceeding 2500 square feet should employ simple erosion control measures, such as silt fence, to reduce the potential for erosion and trap sediment.

8.2. Construction Inspection

Construction inspection involves digging a test pit to verify the depth of mulch, amended soil and scarification. A rod penetrometer should be used to establish the depth of uncompacted soil at one location per 10,000 square feet.

SECTION 9: MAINTENANCE

9.1. Maintenance Agreements

When soil compost amendments are applied on private residential lots, homeowners will need to be educated on their routine maintenance needs, understand the long-term maintenance plan, and be subject to a deed restriction or other mechanism enforceable by the qualifying local program to ensure that infiltrating areas are not converted or disturbed. The mechanism should, ideally, grant authority for local agencies to access the property for inspection or corrective action. In addition, the GPS coordinates for all amended areas should be provided upon facility acceptance to ensure long term tracking.

A simple maintenance agreement should be provided if soil restoration is associated with more than 10,000 square feet of reforestation. A conservation easement or deed restriction, which also identifies a responsible party, may be required to make sure the newly developing forest cannot be cleared or developed management is accomplished (i.e., thinning, invasive plant removal, etc.). Soil compost amendments within a filter strip or grass channel should be located in a public right-of-way, or within a dedicated stormwater or drainage easement.

9.2. First Year Maintenance Operations

In order to ensure the success of soil compost amendments, the following tasks must be undertaken in the first year following soil restoration:

Initial inspections. For the first six months following the incorporation of soil amendments, the site should be inspected at least once after each storm event that exceeds 1/2-inch of rainfall.

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Table 4.3. Short-Cut Method to Determine Compost and Incorporation Depths

Table with columns: Contributing Impervious Cover to Soil Amendment Area Ratio (IC/SA = 0, 0.5, 0.75, 1.0). Rows include Compost Depth (in) and Incorporation Method (Rototiller, Tiller, Subsoiler, Subsoiler).

Notes:
1 IC = contrib. impervious cover (sq. ft.) and SA = surface area of compost amendment (sq. ft.)
2 For amendment of compacted lawns that do not receive off-site runoff
3 In general, IC/SA ratios greater than 1 should be avoided
4 Average depth of compost added
5 Lower end for B soils, higher end for C/D soils

Once the area and depth of the compost amendments are known, the designer can estimate the total amount of compost needed, using an estimator developed by TCC, (1997):

C = A * D * 0.0031

Where: C = compost needed (cu. yds.)
A = area of soil amended (sq. ft.)
D = depth of compost added (in.)

6.5. Compost Specifications

The basic material specifications for compost amendments are outlined below:

- Compost shall be derived from plant material and meet the general criteria set forth by the U.S. Composting Seal of Testing Assurance (STA) program. See www.compostingcouncil.org for a list of local providers.
• The compost shall be the result of the biological degradation and transformation of plant-derived materials under conditions that promote anaerobic decomposition. The material shall be well composted, free of viable weed seeds, and stable with regard to oxygen consumption and carbon dioxide generation. The compost shall have a moisture content that has no visible free water or dust produced when handling the material. It shall meet the following criteria, as reported by the U.S. Composting Council STA Compost Technical Data Sheet provided by the vendor:
a. 100% of the material must pass through a half inch screen
b. The pH of the material shall be between 6 and 8
c. Manufactured inert material (plastic, concrete, ceramics, metal, etc.) shall be less than 1% by weight
d. The organic matter content shall be between 35% and 65%
e. Soluble salt content shall be less than 6.0 mmhos/cm
f. Maturity should be greater than 80%
g. Stability shall be 7 or less

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Spot Reforesting. Inspectors should look for bare or eroding areas in the contributing drainage area or around the soil restoration area and make sure they are immediately stabilized with grass cover.

Fertilization. Depending on the amended soils test, a one-time, spot fertilization may be needed in the fall after the first growing season to increase plant vigor.

Watering. Water once every three days for the first month, and then weekly during the first year (April-October), depending on rainfall.

9.3. Ongoing Maintenance

There are no major on-going maintenance needs associated with soil compost amendments, although the owners may want to de-thatch the turf every few years to increase permeability. The owner should also be aware that there are maintenance tasks needed for filter strips, grass channels, and reforestation areas. An example maintenance inspection checklist for an area of Soil Compost Amendments can be accessed in Appendix C of Chapter 9 of the Virginia Stormwater Management Handbook (2010).

SECTION 10. COMMUNITY & ENVIRONMENTAL CONCERNS

Not applicable.

SECTION 11: REFERENCES

Balousek, 2003. Quantifying decreases in stormwater runoff from deep-tilling, chisel-planting and compost amendments. Dane County Land Conservation Department. Madison, Wisconsin.
Chollak, T. and P. Rosenfeld. 1998. Guidelines for Landscaping with Compost-Amended Soils. City of Redmond Public Works. Redmond, W.A. Available online at: http://www.ci.redmond.wa.us/insidecityhall/publicworks/environment/pdfs/compostamendedsoils.pdf
City of Portland. 2008. "Soil Specification for Vegetated Stormwater Facilities." Portland Stormwater Management Manual. Portland, Oregon.
Composting Council (TCC). 1997. Development of a Landscape Architect Specification for Compost Utilization. Alexandria, VA. http://www.cwc.org/organics/org872rpt.pdf
Holman-Dodds, L. 2004. Chapter 6. Assessing Infiltration-Based Stormwater Practices. PhD Dissertation. Department of Hydroscience and Engineering. University of Iowa. Iowa City, IA.
Lenhart, J. 2007. "Compost as a Soil Amendment for Water Quality Treatment Facilities." Proceedings: 2007 LID Conference. Wilmington, NC.
Low Impact Development Center. Guideline for Soil Amendments. Available online at:

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COMPOST DEPTH

THIS SITE PROPOSES A COMPOST AMENDED SOILS TO PROVIDE STORMWATER MANAGEMENT WATER. PER THE SOIL AMENDMENTS SPECIFICATION, BELOW ARE THE CALCULATIONS TO DETERMINE THE AMOUNT OF COMPOST NEEDED FOR THE COMPOST AMENDMENT AREA BASED ON TABLE 4.3 SHOWN ON THIS SHEET.

COMPOST AREA

IMPERVIOUS AREA TO COMPOST AMENDED AREA (IC) = 0.08 ACRES
SURFACE AREA OF COMPOST AMENDED AREA (SA) = 0.01 ACRES = 465 SF

IC / SA > 1.00

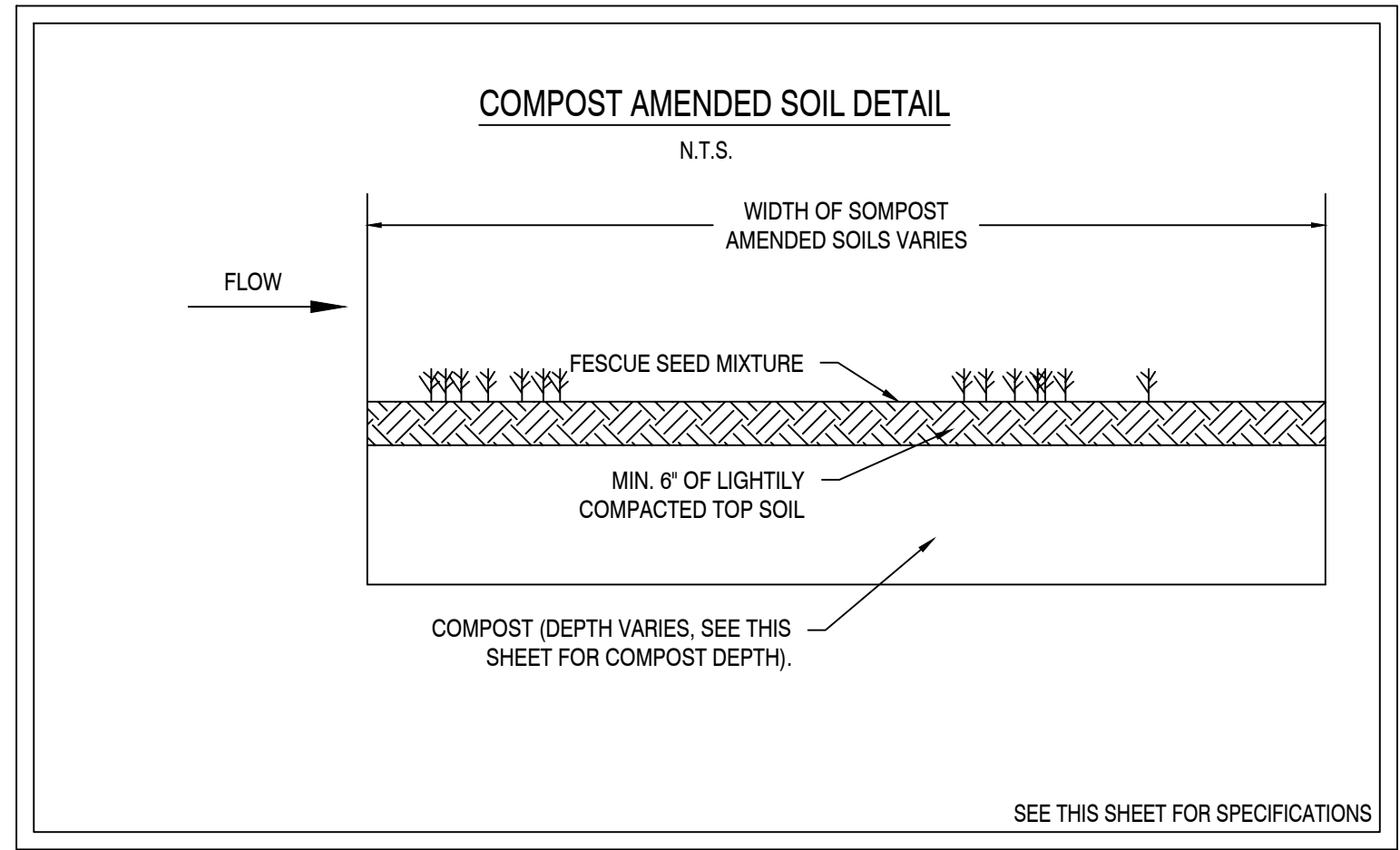
DEPTH OF COMPOST (D) = 6 INCHES

COMPOST NEEDED (C) = SA * D * 0.0031

C = 465 * 6 * 0.0031

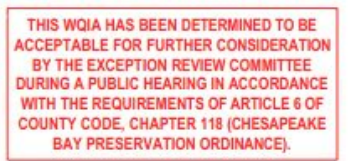
C = 8.6 CUBIC YARDS

REFER TO VIRGINIA DEQ STORMWATER DESIGN SPECIFICATION NO. 4 SOIL COMPOST AMENDMENT FOR MORE INFORMATION ABOUT CONSTRUCTION, MAINTENANCE, AND DESIGN STANDARDS.

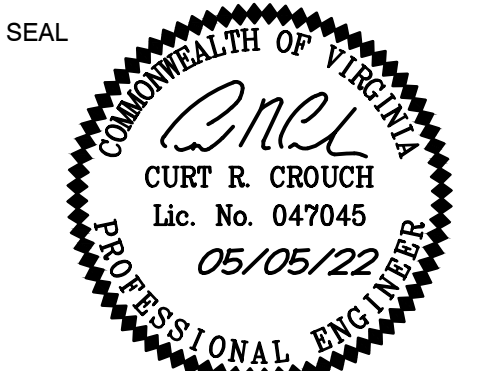


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KEY PLAN

SCALE

Table with columns: No., DATE, BY, Description for REVISIONS.

REVISIONS

DRAWN BY CC

APPROVED BY CC

CHECKED BY CC

DATE MARCH 2022

TITLE
SOIL COMPOST
DETAILS

PROJECT NO. 0000-WQIA-001

6

SHEET NO. 6 OF 6

Table with columns: NO., DATE, DESCRIPTION, BY for ENGINEER/OWNER REVISIONS.

Table with columns: NO., DATE, DESCRIPTION, BY for COUNTY REVISIONS.