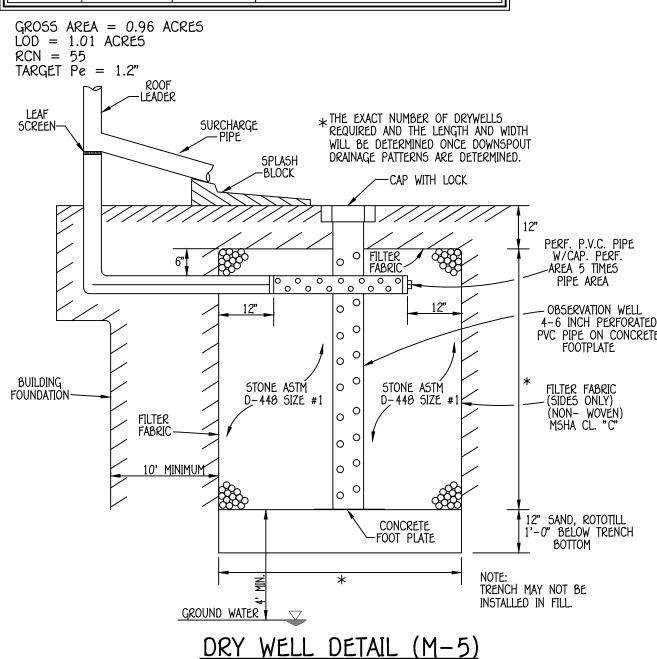
SHEET INDEX						
SHEET N	D.ESCRIPTION					
1	TITLE SHEET					
2	SITE DEVELOPMENT PLAN					
3	SEDIMENT & EROSION CONTROL NOTES & DETAILS					

	50IL5 LEGEND							
50IL	NAME	CLA55	K FACTOR					
ChC	Chillum—Russett loams, 5 to 10 percent slopes	В	0.28					
Сев	Chillum loam, 2 to 5 percent slopes	В	0.28					
Fa	Fällsington sändy loäm, 0 to 2 percent slopes	В	0.24					
5aC	Sasaafras loam, 5 to 10 percent slopes	В	0.24					
UsB	Urban land—Sassafras—Beltsville complex, 0 to 5 percent slopes	С	0.24					
UsD	Urban land-Sassafras-Beltsville complex, 5 to 1 percent slopes	С	0.24					

STORMWATER MANAGEMENT SUMMARY								
AREA ID.	E5Dv REQUIRED CU.FT.	ESDV PROVIDED CU.FT.	REMARK5					
SITE	1,120	723	DRY WELL (M-5), ROOFTOP DISCONNECTION (N-1) & NON-ROOFTOP DISCONNECTION (N-2)					
TOTAL	1,128	723						

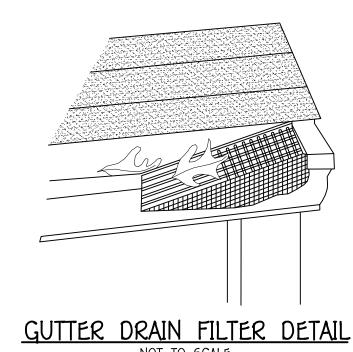


Minimum Lot Size Chart Pipestem Area 2 21,566 Sq. Ft. 1,565 Sq. Ft. 20,001 Sq.

	ADDRESS CHART
LOT #	STREET ADDRESS
1	5442 KERGER ROAD
2	5444 KERGER ROAD

SITE DEVELOPMENT PLAN BOOWOODS LOTS 1 AND 2

TAX MAP No. 31 GRID No. 20 PARCEL NO. 867 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND



STORMWATER MANAGEMENT NOTES

- 1. STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH WITH CHAPTER 5, "ENVIRONMENTAL SITE DESIGN" OF THE 2007 MARYLAND STORMWATER MANAGEMENT DESIGN MANUAL, EFFECTIVE MAY 4, 2010.
- 2. MAXIMUM CONTRIBUTING ROOF TOP AREA TO EACH DRYWELL SHALL BE 1,000 SQ. FT. OR LESS.
- 3. DRYWELLS SHALL BE PROVIDED AT LOCATIONS WHERE THE LENGTH OF DISCONNECTION IS LESS THAN 75' AT 5%. THE SIZE AND CONSTRUCTION OF THE DRYWELL SHALL BE IN ACCORDANCE WITH THE DETAIL SHOWN ON THIS SHEET.
- 4. FINAL GRADING IS SHOWN ON THIS SITE DEVELOPMENT PLAN.

ſ									
	DRY WELL CHART								
	DRYWELL NO.	AREA OF PER DOWN			VOLUME PROVIDED	AREA OF TREATMENT	L	W	D
	5IDE (2)	870 SQ.	FT.	83 C.F.	200 C.F.	100%*	10' x	10'	x 5'

* AREA OF TREATMENT EXCEEDS THAT REQUIRED.

DATE

Table B.4. Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltration

Material	Specification	Size	Notes
Plantings	see Appendix A; Table A.4	n/à	plantings are site-specific
Planting soil [2' to 4' deep]	loamy sand 60-65% compost 35-40% or sandy loam 30% coarse sand 30% compost 40%		USDA soil types loamy sand or sandy loam; clay content <5%
Organic Content	Min. 10% by dry weight (A5TM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum
Pea gravel diaphragm	pea gravel: ASTM-D-440	No. 0 or No. 9 (1/0" †o 3/0")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Grāvel (underdrāins ānd infil†rāțion berms)	AASHTO M-43	No. 57 or No. Aggregate (3/8" to 3/4")	
Underdräin piping	F 750, Type P5 20 or AASHTO M-270	4" †o 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" pert. © 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with 1/4 inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; f = 3500 psi at 20 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n.a	on-site testing of poured-in-place concrete required: 20 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved 5tate or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the 5tate of Maryland — design to include meeting ACI Code 350.R/09; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
5 à nd	AASHTO-M-6 or ASTM-C-33	0.02" †o 0.04"	Sand substitutions such as Diabase and Graystone (AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

OWNER

CRAIG J. MORRIS

5420 RADEL COURT ELLICOTT CITY MD 21042

410-461-6771

BUILDER

VIKING CUSTOM HOMES

Cary Cumberland 1715 Archers Glen

Sykesville, Maryland 21784 410-977-2188

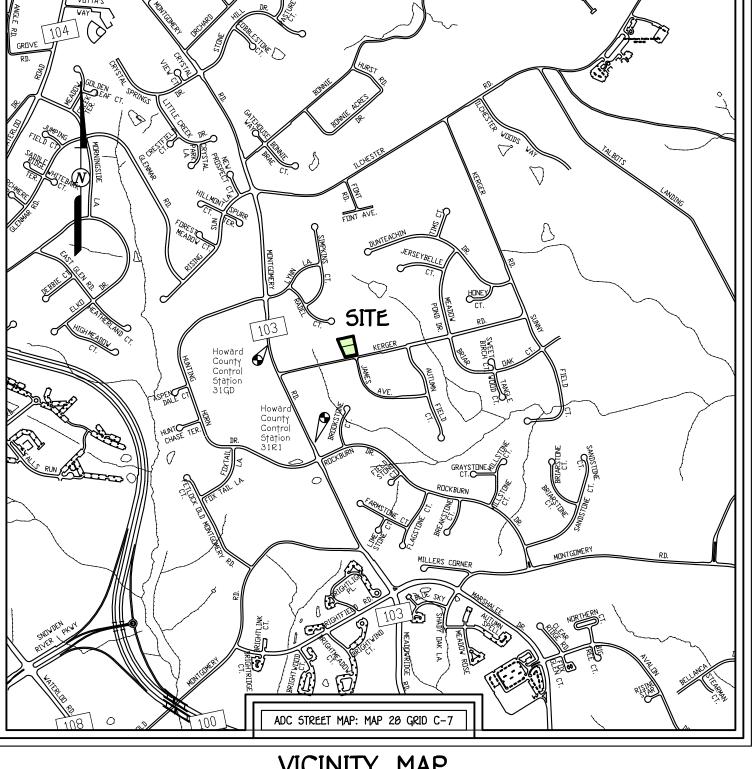
FISHER, COLLINS & CARTER, INC.

/IL ENGINEERING CONSULTANTS & LAND SURVEYOR

(410) 461 - 2055

5QUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIK FLLICOTT CITY, MARYLAND 21042

NO.



VICINITY MAP 5CALE: 1" = 1200'

<u>BE</u>	NCHMARK INFORMATION
B.M.#1	- HOWARD COUNTY CONTROL STATION #31GD - HORIZONTAL - NAD '63)
	N 566,299.8736 E 1,372,013.9484 ELEVATION = 419.34 - VERTICAL - (NAVD '88)
B.M.#2	- HOWARD COUNTY CONTROL STATION #31R1 - HORIZONTAL - (NAD '63)
	N 565,303.5115 E 1,372,517.7020 ELEVATION = 400.93 - VERTICAL - (NAVD '88)

OPERATION & MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DRY WELLS (M-5)

- A. THE OWNER SHALL INSPECT THE MONITORING WELLS AND STRUCTURES ON A QUARTERLY
- BASIS AND AFTER EVERY HEAVY STORM EVENT. B. THE OWNER SHALL RECORD THE WATER LEVELS AND SEDIMENT BUILD UP IN THE
- MONITORING WELLS OVER A PERIOD OF SEVERAL DAYS TO ENSURE TRENCH DRAINAGE. C. THE OWNER SHALL MAINTAIN A LOG BOOK TO DETERMINE THE RATE AT WHICH THE
- FACILITY DRAINS. D. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN A

This development plan is approved for soil erosion and sediment control by

DATE

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER

THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38386, EXPIRATION

the HOWARD SOIL CONSERVATION DISTRICT.

Signature Of Professional Engineer

Howard SCD

DATE: 01/12/2018.

SEVENTY-TWO (72) HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN. E. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION

Date

- TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
- F. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN

- LIMIT OF DISTURBED AREA = 43,076 SQ.FT. OR 1.01 Ac.±
- (PER 10/06/2013 COMPREHENSIVE ZONING PLAN)
- TOTAL AREA OF FLOODPLAIN LOCATED ON-SITE = 0.00 AC±
- TOTAL AREA OF WETLANDS (INCLUDING BUFFER) = 0.00 AC. ± TOTAL AREA OF STREAM (INCLUDING BUFFER) = 0.00 AC.±
- MPERVIOUS AREA = 0.23 AC±

DATE

VERIFIED. THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS		TOTAL IMP
THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.	۲.	TOTAL ARE

SIGNATURE OF ENGINEER

APPROVED: DEPARTMENT OF PLANNING AND ZONING									
Director — Department of Planning and Zoning Date									
Chief, Division of Land Development Date									
Chief, Deve	lopment Engin	zering Division	า			Date			
PROJECT		-		SECTION	PARCEL NO.		1		
BOOWOODS LOTS 1 AND 2						8 67			
PLAT	PLAT BLOCK NO. ZONE TAX/ZONE ELEC. DIST.				T. CENSUS TR.		1		
22693 20 R-20 31 FIRST 601104					601104				

LEGEND **SYMBOL SYMBOL DESCRIPTION** DESCRIPTION PROPOSED CONTOUR EXISTING 2' CONTOURS - 482 - - EXISTING 10' CONTOURS SPOT ELEVATION +362.5LIMITS OF DISTURBANCE SOILS LINES AND TYPE EXISTING TREELINE DRAINAGE AREA DIVIDE — SF — SILT FENCE 🛂 🥌 🕒 | INDIVIDUAL TREES & SHRUBS • EROSION CONTROL MATTING EXISTING FENCE LINE STABILIZES CONSTRUCTION ENTRANCE EXISTING & PROPOSED PAVING

- JBJECT PROPERTY ZONED R-20 PER 2/2/04 COMPREHENSIVE ZONING PLAN AND THE "COMP LITE" ZONING AMENDMENTS EFFECTIVE 7/28/06. COORDINATES BASED ON NAD '83, MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 31GD AND NO. 31R1 STA. 31GD N 566299.8736 E 1372013.9484
- 5TA. 31R1 N 565303.5115 E 1372517.7020
- THIS PLAT IS BASED ON FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED ON OR ABOUT JULY, 2009, BY FISHER, COLLINS AND CARTER, INC.
- B.R.L. DENOTES BUILDING RESTRICTION LINE.

 DENOTES IRON PIN SET CAPPED "F.C.C. 106".
- # DENOTES IRON PIPE OR IRON BAR FOUND. O DENOTES ANGULAR CHANGE IN BEARING OF BOUNDARY OR RIGHTS-OF-WAY.

 DENOTES CONCRETE MONUMENT SET WITH ALUMINUM PLATE "F.C.C. 106".
- DENOTES CONCRETE MONUMENT OR STONE FOUND ALL LOT AREAS ARE MORE OR LESS (±).

1. DISTANCES SHOWN ARE BASED ON SURFACE MEASUREMENT AND NOT REDUCED TO NAD '83 GRID MEASUREMENT. 2. NO CEMETERIES EXISTS ON THIS SITE BASED ON BOTH A SITE VISIT AND ON AN EXAMINATION OF THE HOWARD COUNTY CEMETERY INVENTORY MAP.

- 12. NO CEMETERIES EXISTS ON THIS STIE BASED ON BOTH A STIE VISIT AND ON AN EXAMINATION OF THE HOWARD COUNTY CEMETERY INVENTORY MAP.

 13. THIS PLAN IS IN COMPLIANCE WITH THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS PER COUNCIL BILL 45-2003 AND THE 2013 ZONING REGULATIONS. DEVELOPMENT OR CONSTRUCTION ON THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION, OR BUILDING/GRADING PERMIT.

 14. PREVIOUS DEPARTMENT OF PLANNING AND ZONING FILE NUMBERS: P-93-01, 5-90-09, F-94-99, F-10-052, ECP-11-024, F-12-043, AND WP-12-162.
- OPEN SPACE REQUIREMENTS WERE PROVIDED BY PAYMENT OF A FEE-IN-LIEU OF OPEN SPACE UNDER F-12-043
- 16. FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND ROAD RIGHT-OF-WAY LINE AND NOT TO THE PIPESTEM LOT DRIVEWAY.
- DRIVEWAYS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS TO ENSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING (MINIMUM) REQUIREMENTS:
- A) WIDTH 12 FEET (16 FEET SERVING MORE THAN ONE RESIDENCE);
 B) SURFACE SIX (6") INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING. (1 -1/2" MINIMUM);
- C) GEOMETRY MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND 45-FOOT TURNING RADIUS;
 D) STRUCTURES (CULVERTS/BRIDGES) CAPABLE OF SUPPORTING 25 GROSS TONS (H25-LOADING);
 E) DRAINAGE ELEMENTS CAPABLE OF SAFELY PASSING 100 YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER SURFACE;
 F) STRUCTURE CLEARANCES MINIMUM 12 FEET;
- G) MAINTENANCE SUFFICIENT TO ENSURE ALL WEATHER USE.
- 18. NO NOISE STUDY IS REQUIRED FOR THIS PROJECT PER HOWARD COUNTY DESIGN MANUAL, VOL. III, SECTION 5.2(F).

 19. THE FOREST STAND DELINEATION AND WETLAND DELINEATION FOR THIS PROJECT WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED AUGUST, 2009.

 20. QUANTITY AND QUALITY STORMWATER MANAGEMENT REQUIREMENTS ARE MET BY APPLYING THE ROOFTOP DISCONNECTION CREDIT (N-1), NON-ROOFTOP DISCONNECTION CREDIT (N-2) AND USE OF DRYWELL (M-5) IN ACCORDANCE WITH CHAPTER 5 OF THE 2000 MARYLAND STORMWATER DESIGN MANUAL. SURETY PROVIDED WITH
- THE SITE DEVELOPMENT PLAN DEVELOPER'S AGREEMENT. 21. WATER AND SEWER SERVICE TO THESE LOTS WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.122.8 OF THE HOWARD COUNTY CODE. PUBLIC WATER AND PUBLIC SEWAGE ALLOCATION WILL BE GRANTED AT THE TIME OF THE ISSUANCE OF THE BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.
- 22. TRAFFIC STUDY IS NOT REQUIRED FOR THIS PLAN. 23. SIGHT DISTANCE STUDY FOR THIS PROJECT WAS PREPARED UNDER F-12-043.
 24. THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
- THESE LOTS WILL BE SERVED BY BOTH PUBLIC WATER AND PUBLIC SEWER.
- 26. THE 28' PRIVATE USE-IN-COMMON ACCESS EASEMENT AND MAINTENANCE AGREEMENT FOR THE BENEFIT OF LOTS 1 THRU 3 WERE RECORDED ALONG WITH F-12-043.

 27. THIS DEVELOPMENT IS DESIGNED TO BE IN ACCORDANCE WITH SECTION 16.127-RESIDENTIAL INFILL DEVELOPMENT-OF SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. THE DEVELOPER OF THIS PROJECT SHALL CREATE COMPATIBILITY WITH THE EXISTING NEIGHBORHOOD THROUGH THE USE OF ENHANCED PERIMETER
- LANDSCAPING, BERMS, FENCES, SIMILAR HOUSING UNIT TYPES AND THE DIRECTIONAL ORIENTATION OF THE PROPOSED HOUSES.
- THIS SITE CONTAINS NO WETLANDS, STREAM BUFFERS OR 100 YEAR FLOODPLAIN PROVIDED BY AN ENVIRONMENTAL STUDY CONDUCTED BY ECO-SCIENCE
- PROFESSIONALS, INC. DATED AUGUST, 2009.

 29. PUBLIC WATER AND PUBLIC SEWER IS PROVIDED TO LOTS 1, 2 AND 3 BOOWOODS VIA PUBLIC WATER HOUSE CONNECTIONS FROM CONTRACT NO. 266-W AND
- SEWER HOUSE CONNECTIONS FROM CONTRACT NO. 10-1215. 30. THE FOREST CONSERVATION OBLIGATION FOR 0.96 ACRES REFORESTATION REQUIRED FOR ABBEYFIELD ESTATES, LOT 40 AND BOOWOODS, LOTS 1 THRU 3, (UNDER
- F-12-043) IS PROVIDED OFF-SITE ON THE PROPERTY OF QUARTZ HILL, LLC, TAX MAP 8, TAX PARCEL 401 BY THE CREATION OF 1.92 ACRES RETENTION ON AN APPROVED FOREST RETENTION BANK, SDP-10-104. 31. PLAN IS SUBJECT TO WP-12-162 WHICH THE PLANNING DIRECTOR ON MAY 24, 2012 APPROVED A WAIVER TO SECTION 16.1205(A)(7) - FOREST RETENTION PRIORITIES
- STATE CHAMPION TREES TO ALLOW FOR THE REMOVAL OF SPECIMEN TREE 'B' A 37" TULIP POPLAR ON LOT 2 AND REMOVAL OF SPECIMEN TREE 'E', A 48" TULIP POPLAR FOR LOT 3 SUBJECT TO THE FOLLOWING:
- 1. ADD A GENERAL NOTE FOR THE WAIVER PETITION WP-12-162, ON F-12-043, ABBEYFIELD ESTATES & BOO WOODS STATING THE REQUEST, SECTION NUMBER.
- 2. SHOW THE SPECIMEN TREES BEING REMOVED AND LABELED PER WP-12-162 ON THE SUPPLEMENTAL PLAN MYLAR ORIGINAL, FOR F-12-043.

 3. THE APPLICANT SHALL TAKE THE NECESSARY STEPS TO PROTECT THE FOUR REMAINING SPECIMEN TREES DURING THE CONSTRUCTION ACTIVITY TO PROTECT
- THEM AND THEIR CRITICAL ROOT ZONES IN ACCORDANCE WITH APPENDIX "G" SOIL AND FOREST PROTECTION TECHNIQUES" OF THE FOREST CONSERVATION
- 4. REMOVAL OF THE 2 SPECIMEN TREES IS SUBJECT TO PROVIDING THE REPLACEMENT LANDSCAPING TREES AS OFFERED IN THE WAIVER PETITION JUSTIFICATION BY THE APPLICANT.
- 32. WAIVER PETITION WP-12-162 (CONDITION 4) REQUIRES PROVIDING REPLACEMENT TREES CONSISTING OF 8 NEW SHADE TREES AND 49 EVERGREEN TREES. THE FOREST OBLIGATION FOR THIS PLAT IS PROVIDED BY A REDLINE TO SDP-10-104, QUARTZ HILL, LLC, FOREST RETENTION BANK. THIS REDLINE WAS APPROVED BY
- THE DEVELOPMENT ENGINEERING DIVISION ON NOVEMBER, 2012. A PRIVATE RANGE OF ADDRESS SIGN SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPERS/OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-2430 FOR DETAILS AND COST ESTIMATE.
- TRASH AND RECYCLABLES COLLECTION WILL BE AT FREDERICK ROAD WITHIN 5' OF THE COUNTY ROADWAY. TRASH / REFUSE COLLECTION PAD WILL BE MAINTAINED BY THE PROPERTY OWNERS (IF AN HOA) IS NOT PROPOSED. THE MAINTENANCE OF THIS COLLECTION AREA SHOULD BE REFERENCED IN THE PRIVATE USE-IN-COMMON
- 35. DRIVEWAY SHALL BE PROVIDED IN ACCORDANCE WITH HOWARD COUNTY STANDARD DETAIL R-6.06 IN THE VOL. IV DESIGN MANUAL.
- SOILS INFORMATION BASED ON NRCS WEB SOIL SURVEY FOR HOWARD COUNTY, MARYLAND AND HOWARD COUNTY SOIL MAP #19. IN ACCORDANCE WITH SECTION 120 (0)(A)(1)(E)OF THE HOWARD COUNTY ZONING REGULATIONS, BAY WINDOWS, CHIMNEYS OR EXTERIOR STAIRWAYS NOT MORE THAN 16 FEET IN WIDTH MAY PROJECT NOT MORE THAN 4 FEET INTO ANY SETBACKS, PORCHES OR DECKS, OPEN OR ENCLOSED MAY PROJECT NOT MORE THAN 10 FEET INTO
- THE FRONT OR REAR YARD SETBACK. 38. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:
- BGE(CONTRACTOR SERVICES) 410.850.4620 410.787.9068
- BGE(UNDERGROUND DAMAGE CONTROL) COLONIAL PIPELINE COMPANY
- 410.795.1390 HOWARD COUNTY, DEPT. OF PUBLIC WORKS, BUREAU OF UTILITIES 410.313.4900 HOWARD COUNTY HEALTH DEPARTMENT 410.313.2640 1.800.252.113
- 1.800.743.0033/410.224.9210 39. ANY DAMAGE TO PUBLIC RIGHT-OF WAYS, PAVING OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- THE EXISTING TOPOGRAPHY IS BASED ON FIELD RUN TOPOGRAPHIC SURVEY PERFORMED ON OR ABOUT AUGUST 2009 BY FISHER, COLLINS & CARTER, INC. WITH MAXIMUM CONTOUR

SITE ANALYSIS DATA CHART

- A. TOTAL AREA OF THIS SUBMISSION = 41,841 SQ.FT. OR 0.96 Ac.±.
- PRESENT ZONING DESIGNATION = R-20
- PROPOSED USE: RESIDENTIAL
- PREVIOUS HOWARD COUNTY FILES: P-93-01, 5-90-09, F-94-99, F-10-052, ECP-11-024, F-12-043, AND WP-12-162
- TOTAL AREA OF SLOPES IN EXCESS OF 15% TO 24.99% = 0.00 AC± TOTAL AREA OF SLOPES IN EXCESS OF 25% OR GREATER = 0.00 AC±
- TOTAL AREA OF FOREST TO BE RETAINED = 0.00 AC± TOTAL AREA OF LOTS / BUILDABLE PARCELS = 0.96 AC±
- TOTAL GREEN OPEN AREA = 0.73 AC±

TOTAL AREA OF EXISTING FOREST = 0.00 AC±

AREA OF ERODIBLE SOILS = 0.00 AC. ±

BUILDER/DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, FOR SEDIMENT AND EROSION CONTROL AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF DEVELOPER

ENGINEER'S CERTIFICATE "I/WE CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS

OF THE HOWARD SOIL CONSERVATION DISTRICT."

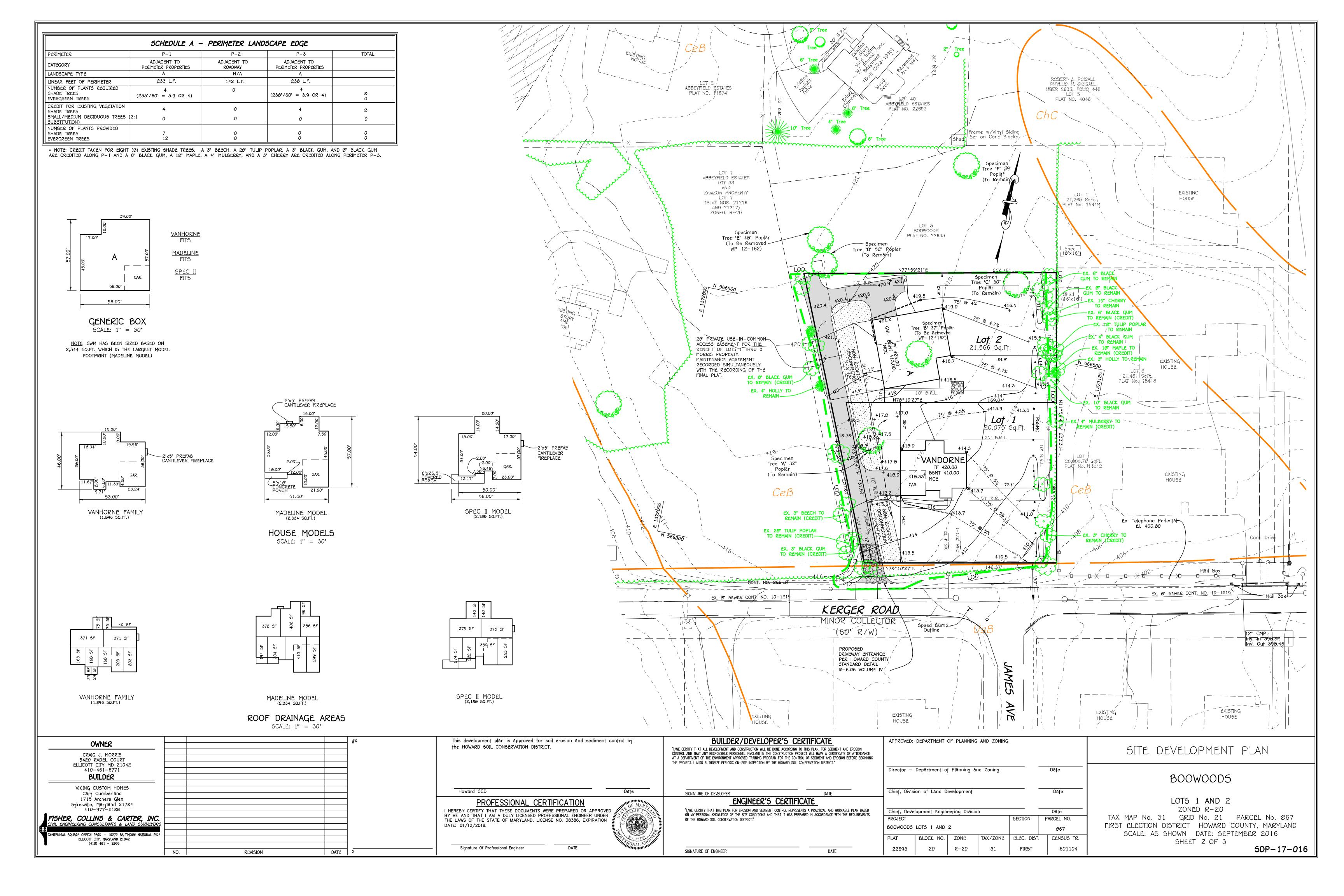
BOOWOODS

TITLE SHEET

LOTS 1 AND 2 ZONED R-20 TAX MAP No. 31 GRID No. 21 PARCEL No. 867

FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND SCALE: AS SHOWN DATE: SEPTEMBER 2016

SHEET 1 OF 3 5DP-17-016



SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS (B-4-2)

flatter are to be tracked with ridges running parallel to the contour of the slope.

A. Soil Preparation 1. Temporary Stabilization

a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 o

b. Apply fertilizer and lime as prescribed on the plans.

- c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
- a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
- i. Soil pH between 6.0 and 7.0. Soluble salts less than 500 parts per million (ppm).
- iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be
- planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable. iv. Soil contains 1.5 percent minimum organic matter by weight.
- v. Soil contains sufficient pore space to permit adequate root penetration
- b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions. c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.
- d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test. e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

- 2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
- 3. Topsoiling is limited to areas having 2:1 or flatter slopes where:
- a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.

b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.

- c. The original soil to be vegetated contains material toxic to plant growth
- d. The soil is so acidic that treatment with limestone is not feasible.
- 4. Areas having slopes steeper than 2:1 require special consideration and design.
- 5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:

a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoi must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders. stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2 inches in diameter.

b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.

c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil

- Erosion and sediment control practices must be maintained when applying topsoil.
- b. Uniformly distribute topsoil in a 5 to 0 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.

c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)

- 1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses. 2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by
- appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
-). Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseedinc which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
- 4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
- 5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

The application of seed and mulch to establish vegetative cover

To protect disturbed soils from erosion during and at the end of construction.

Conditions Where Practice Applies To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

Specifications

- a. All seed must meet the requirement of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate. b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture
- c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as
- cook as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.
- a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
- . Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
- ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with weighted roller to provide good seed to soil contact.
- b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil. i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must
- ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
- c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
- i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P 0 (phosphorus), 200 pounds per acre; K 0 (potassium), 200 pounds per acre. ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding. iii. Mix seed and fertilizer on site and seed immediately and without interruption. iv. When hydroseeding do not incorporate seed into the soil.
- Mulch Materials (in order of preference)
- a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty.
- Note: Use only sterile straw mulch in areas where one species of grass is desired. b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into uniform fibrous physical

- i. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
- ii. WCFM, including dye, must contain no germination or growth inhibiting factors. iii. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the
- iv. WCFM material must not contain elements or compounds at concentration levels that will by phyto-toxic v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.
- a. Apply mulch to all seeded areas immediately after seeding.

growth of the grass seedlings.

- b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre. c. Wood cellulose fiber used as mulch must be applied to a net dry weight of 1500 pounds per acre. Mix the wood
- cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of
- a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard: i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment
- can operate safely. If used on sloping land, this practice should follow the contour. ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of
- iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be
- heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4-15 feet wide and 300 to 3,000 feet long.

TEMPORARY SEEDING NOTES (B-4-4)

To stabilize disturbed soils with vegetation for up to 6 months.

Purpose To use fast growing vegetation that provides cover on disturbed soils.

testing agency. Soil tests are not required for Temporary Seeding.

Definition

Conditions Where Practice Applies

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan. 2. For sites having soil tests performed, use and show the recommended rates by the

3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

Temporary Seeding Summary

		romporari cocami	9 04.7		
Hardiness Zone Seed Mixture (e (from Figure B. from Table B.1):	Fertilizer Rate (10-20-20)	Lime Rațe		
Species	Application Rate (lb/ac)	: Seeding Dațes	Seeding Dep†hs	1	
BARLEY	96	3/1 - 5/15,	1"	436 b/ac	2 †ons/āc
OAT5	72	8/15 - 10/15	1"	(10 lb/ 1000 sf)	(90 lb/ 1000 sf)
RYE	112		1"		

PERMANENT SEEDING NOTES (B-4-5)

A. Seed Mixtures General Use

a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan. b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.

c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency. d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at $3^{\circ}1/2$ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary .

à. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance. b. Select one or more of the species or mixtures listed below based on the site conditions or purpose.

Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan. i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation

required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight

iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.

iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 1/2 to 3 pounds per 1000 saudre feet.

Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"

Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line

c. Ideal Times of Seeding for Turf Grass Mixtures Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a) Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b) Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)

d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 1/2 inches in diameter The resulting seedbed must be in such condition that future moving of grasses will pose no difficulty. e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (1/2 to 1 inch

every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when

seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites. Permanent Seeding Summary Fertilizer Rate (10-20-20) Lime Rate Hardiness Zone (from Figure B.3): __6b____ Seed Mixture (from Table B.3): ____8__ Dates Depths (lb/ac) Mar. 1-May 15 1/4-1/2 45 lbs. 90 lb/ac 90 lb/ac 2 tons/ac Aug. 15-Oct. 15 in. per acre (2 lb/ (2 lb/ (90 lb/ 8 TALL FESCUE 100 (1.0 lb/ 1000 sf) 1000 sf) 1000 sf)

DATE: 01/12/2018.

Signature Of Professional Engineer

This development plan is approved for soil erosion and sediment control by

DATE

B. 5od: To provide quick cover on disturbed areas (2:1 grade or flatter)

- General Specifications a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and
- b. Sod must be machine cut at a uniform soil thickness to 3/4 inch, plus or minus 1/4 inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be
- acceptable. c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when
- suspended vertically with a firm grasp on the upper 10 percent of the section. l. Sod must not be harvested or transplanted when moisture content (excessively dry of wet) may adversely affect its survival.
- e, Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation. Sod Installation
- a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other.
- Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots. c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or
- otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping, and irrigating for any piece of sod within eight hours.
- a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
- b. After the first week, sod watering is required as necessary to maintain adequate moisture content. c. Do not mow until the sod is firmly rooted. No more than 1/3 of the grass leaf must be removed by the initial cutting or
- subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREAS <u>Definition</u>

A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

<u>Purpose</u> To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

Conditions Where Practice Applies Stockpile areas are utilized when it is necessary to salvage and store soil for later use. Criteria

. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan. 2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading. Runoff from the stockpile area must drain to a suitable sediment control practice. 4. Access the stockpile area from the upgrade side.

5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or liversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner. 5. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to 7. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization. 8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles

<u>Maintenance</u> The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land Grading

<u>HOWARD 50IL CONSERVATION DISTRICT (H5CD)</u> STANDARD SEDIMENT CONTROL NOTES

- 1. A pre-construction meeting must occur with the Howard County Department of Public Works, Construction Inspection Division (CID), 410-313-1055 after the future LOD and protected areas are marked clearly in the field. A minimum of 40 hour notice to CID must be given at the following stages:

 a. Prior to the start of earth disturbance,
- b. Upon completion of the installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading,
 c. Prior to the start of another phase of construction or opening of another grading unit,

containing contaminated material must be covered with impermeable sheeting.

- d. Prior to the removal or modification of sediment control practice Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made. Other related
- state and federal permits shall be referenced, to ensure coordination and to avoid conflicts with this plan All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 201 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and revisions thereto. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization is required within three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1); and seven
- (7) calendar days as to all other disturbed areas on the project site except for those areas under active grading.

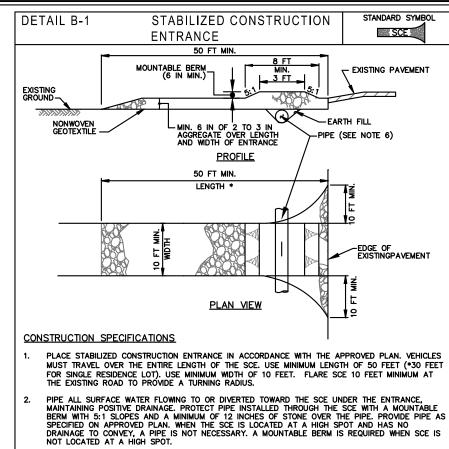
 All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND

 SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for topsoil (Sec. B-4-2), permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only be applied between the fall and spring seeding dates if the ground is frozen. Incremental stabilization (Sec. B-4-1) specifications shall be enforced in areas with >15 of cut and/or fill. Stockpiles (Sec. B-4-8) in excess of 20 ft. must be benched with stable outlet. All concentrated flow, steep slope, and highly erodible areas shall receive soil stabilization matting (Sec. B-4-6).
- All sediment control structures are to remain in place, and are to be maintained in operative condition until permission for their removal has Site Analysis: Total Area of Site:
- Area to be roofed or paved: Area to be vegetatively stabilized: _____0.78 ___ Acres
- Offsite waste/borrow area location: N/A... Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance. Additional sediment control must be provided, if deemed necessary by the CID. The site and all controls shall be inspected by the contractor weekly; and the next day after each rain event. A written report by the contractor, made available upon request, is part of every inspection and
- Inspection date Inspection type (routine, pre-storm event, during rain event)
- Name and title of inspector Weather information (current conditions as well as time and amount of last recorded precipitation)
- Brief description of project's status (e.g., percent complete) and/or current activitie Evidence of sediment discharges Identification of plan deficiencies
- Identification of sediment controls that require maintenance Identification of missing or improperly installed sediment controls
- Compliance status regarding the sequence of construction and stabilization requirements Photographs Monitoring/sampling
- Maintenance and/or corrective action performed Other inspection items as required by the General Permit for Stormwater Associated with Construction Activities (NPDES, MDE).
- Trenches for the construction of utilities is limited to three pipe lengths or that which can and shall be back-filled and stabilized by the end of 10. Any major changes or revisions to the plan or sequence of construction must be reviewed and approved by the HSCD prior to proceeding with construction. Minor revisions may allowed by the CID per the list of H5CD—approved field changes.

 Disturbance shall not occur outside the LO.D. A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage of 20 ac. per grading unit) at a time. Work may proceed to a subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has been stabilized and approved by the CID. Unless otherwise specified and approved by the CID, no more than
- 30 acres cumulatively may be disturbed at a given time. 12. Wash water from any equipment, vehicles, wheels, pavement, and other sources must be treated in a sediment basin or other approved washout
- 13. Topsoil shall be stockpiled and preserved on-site for redistribution onto final grade. 14. All Silt Fence and Super Silt Fence shall be placed on-the-contour, and be imbricated at 25 minimum intervals, with lower ends curled uphill by
- 15. Stream channels must not be disturbed during the following restricted time periods (inclusive): Use I and IP March 1 - June 15 Use III and IIIP October 1 - April 30
- Use IV March 1 May 31 16. A COPY of this plan, the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and associated permits shall be on-site and available when the site is active

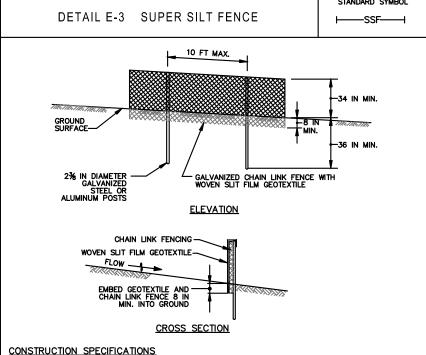
BUILDER/DEVELOPER'S CERTIFICATE

DATE



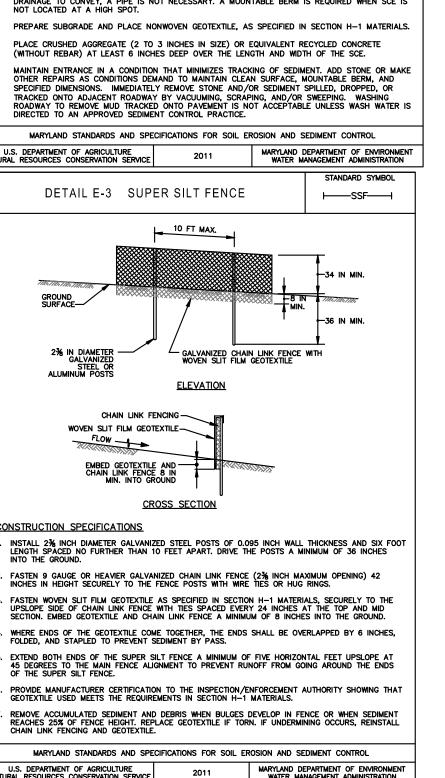
PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS

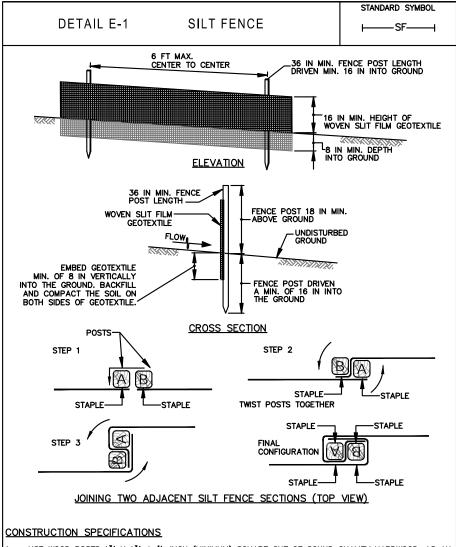
MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.



- CONSTRUCTION SPECIFICATIONS

- EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

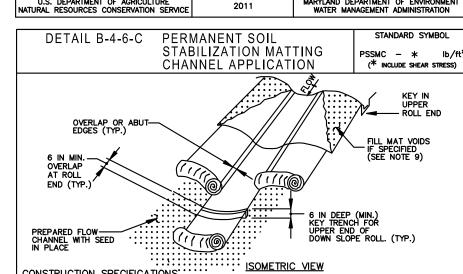




USE WOOD POSTS $1\frac{1}{4}$ X $1\frac{1}{4}$ \pm $\frac{1}{6}$ INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.

- USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION
- PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENT IN SECTION H-1 MATERIALS. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
- WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FFNCF.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL FROSION AND SEDIMENT CONTROL



USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS O ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VECETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. I PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.

SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 ½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL

- UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM). WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
- . KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
- . STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS. 9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
- 10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

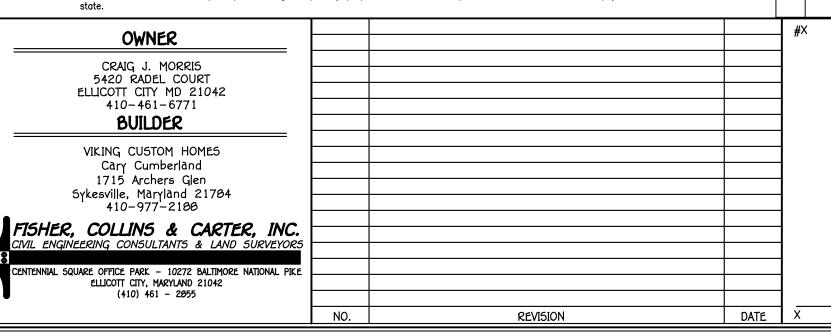
SEQUENCE OF CONSTRUCTION

2011

- 1. OBTAIN A GRADING PERMIT AND HOLD PRE-CONSTRUCTION MEETING WITH COUNTY INSPECTOR. (2 WEEKS) 2. NOTIFY "MISS UTILITY" AT LEAST 40 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777. NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION/
- NSPECTION AT 410-313-1330 AT LEAST 24 HOURS BEFORE STARTING WORK. 3. INSTALL STABILIZED CONSTRUCTION ENTRANCE, SILT FENCE, AND SUPER-SILT FENCE (1 DAY)

U.S. DEPARTMENT OF AGRICULTURE

- 4. INSTALL TEMPORARY SEEDING. (1 DAY) 5. CONSTRUCT BUILDINGS AND DRIVEWAYS. INSTALL WATER AND SEWER HOUSE CONNECTIONS TO HOUSES. INSTALL EROSION CONTROL MATTING. (12 MONTHS) 6. INSTALL ROOF LEADERS, FINE GRADE SITE, INSTALL DRYWELL, AND INSTALL
- PERMANENT SEEDING. (2 DAYS) 7. ALL FINAL GRADES AND STABILIZATION SHOULD BE COMPLETED BEFORE ANY REMOVAL OF CONTROLS. WHEN ALL CONTRIBUTING AREAS TO THE SEDIMENT CONTROL DEVICES HAVE BEEN STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, THE SEDIMENT CONTROL DEVICES MAY BE
- REMOVED. (3 DAYS) NOTE: THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE EACH RAINFALL AND ON A DAILY BASIS.



the HOWARD SOIL CONSERVATION DISTRICT. "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN. FOR SEDIMENT AND EROSION CONTROL AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT. Howard 5CD Date SIGNATURE OF DEVELOPER PROFESSIONAL CERTIFICATION

DATE ENGINEER'S CERTIFICATE "I/WE CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38386, EXPIRATION OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER

Director - Department of Planning and Zoning Chief, Division of Land Development Date Chief, Development Engineering Division Date SECTION PARCEL NO. BOOWOODS LOTS 1 AND 2 867 CENSUS TR. BLOCK NO. ZONE TAX/ZONE ELEC. DIST. FIR5T 22693 20 R-20 31 601104

APPROVED: DEPARTMENT OF PLANNING AND ZONING

SEDIMENT & EROSION CONTROL NOTES & DETAILS

BOOWOODS

LOTS 1 AND 2

ZONED R-20 TAX MAP No. 31 GRID No. 21 PARCEL No. 867 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND SCALE: AS SHOWN DATE: SEPTEMBER 2016

SHEET 3 OF 3

5DP-17-016

MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION