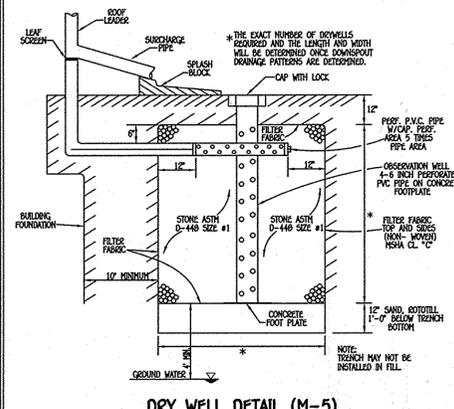
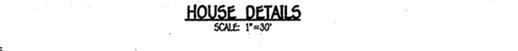
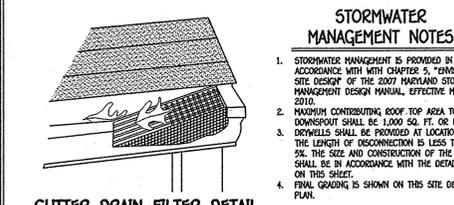
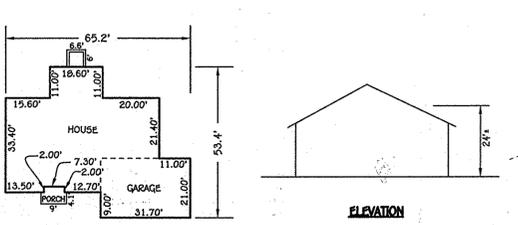


SHEET INDEX	
SHEET NO.	DESCRIPTION
1	SITE DEVELOPMENT PLAN
2	SEDIMENT CONTROL NOTES & DETAILS

LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	EXISTING 2' CONTOURS		PROPOSED CONTOUR
	EXISTING 10' CONTOURS		SPOT ELEVATION
	SOILS LINES AND TYPE		LIMITS OF DISTURBANCE
	EXISTING TREELINE		SILT FENCE
	PROPOSED TREELINE		EROSION CONTROL MATTING
	PROPOSED PAVING		SUPER SILT FENCE
	PERC TEST HOLE		STABILIZES CONSTRUCTION ENTRANCE



SOILS LEGEND			
SOIL	NAME	CLASS	K FACTOR
GgB	Glenelg loam, 3 to 8 percent slopes	B	0.20



OPERATION & MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED, DISCONNECTION OF ROOFTOP RUNOFF (N-1)

1. MAINTENANCE OF AREAS RECEIVING DISCONNECTION RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE AREAS RECEIVING RUNOFF SHOULD BE PROTECTED FROM FUTURE COMPACTOR OR DEVELOPMENT OF IMPERVIOUS AREA IN COMMERCIAL AREAS FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.

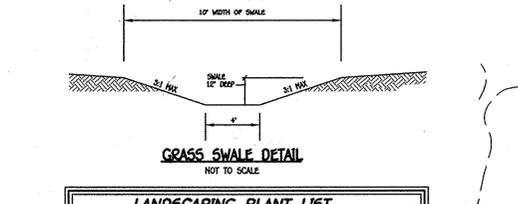
DRY WELL CHART						
DRYWELL NO.	AREA OF ROOF PER DOWN SPOUT	VOLUME REQUIRED	VOLUME PROVIDED	AREA OF TREATMENT	L	W
21 (1)	783 SQ. FT.	100 C.F.	128 C.F.	100%*	8' x 8' x 2'	
22 (1)	785 SQ. FT.	97 C.F.	128 C.F.	100%*	8' x 8' x 2'	
22 (2)	812 SQ. FT.	103 C.F.	128 C.F.	100%*	8' x 8' x 2'	
22 (3)	809 SQ. FT.	116 C.F.	128 C.F.	100%*	8' x 8' x 2'	
22 (4)	898 SQ. FT.	23 C.F.	24 C.F.	100%*	5' x 5' x 4'	

OPERATION & MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED OPEN CHANNEL SYSTEMS - GRASS SWALES, (M-8)

1. THE OPEN CHANNEL SYSTEM SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE FACILITY IS FUNCTIONING PROPERLY.
2. THE OPEN CHANNEL SHALL BE MAINTAINED TO A MINIMUM OF AS NEEDED DURING THE GROWING SEASON TO MAINTAIN A MINIMUM GRASS HEIGHT OF LESS THAN 6 INCHES.
3. TREES AND LITTER SHALL BE REMOVED DURING REGULAR MAINTENANCE OPERATIONS AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE OPEN CHANNEL SYSTEM SHALL BE REPAIRED AS SOON AS IT IS NOTICED.
5. RUNOFF SET IN THE OPEN CHANNEL SYSTEM WHEN IT EXCEEDS 25% OF THE ORIGINAL W/O.
6. INSPECTOR SHALL CHECK DAMS TWICE A YEAR FOR STRUCTURAL INTEGRITY. RESTORE CHECK DAMS TO ORIGINAL CONDITION AS APPLICABLE.

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 SECTIONS BUILT 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 DATE AT WHICH THE FACILITY DRAINS.
- D. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN WITHIN A SEVENTY-TWO (72) HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
- E. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
- F. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INTERFERON FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.



STORMWATER MANAGEMENT PRACTICES				
LOT No.	ADDRESS	DRY WELLS (NUMBER)	GRASS SWALE (NUMBER)	ROOFTOP DISCONNECTION (NUMBER)
22	5521 TROTTER ROAD	3	1	3
21	5517 TROTTER ROAD	2	0	2

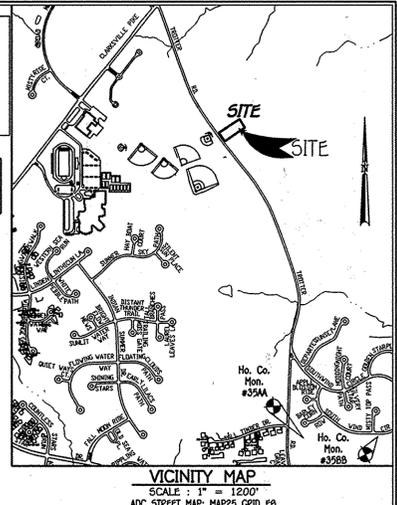
LANDSCAPING PLANT LIST			
QTY.	KEY	NAME	SIZE
4		ACER RUBRUM 'RED SUNSET' (RED SUNSET RED MAPLE)	2.5'-3" CAL. FULL CROWN, 8/86
6		THUJA PLICATA (Giant Arborvitae 'Green Giant')	9'-6" HT. CONT./8/86

SCHEDULE A - PERIMETER LANDSCAPE EDGE				
PERIMETER	P-1	P-2	P-3	TOTAL
CATEGORY	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	
LANDSCAPE TYPE	A	A	A	
LINEAR FEET OF PERIMETER	155 LF	135 LF	332 LF	
CREDIT FOR EXISTING VEGETATION				
LINEAR FEET (LF) OF CREDIT REMAINING PERIMETER (LF)	22 LF OF EXISTING TREES 133 LF REMAINING	135 LF OF EXISTING TREES 0 LF REMAINING	30 LF OF EXISTING TREES 302 LF REMAINING	
NUMBER OF PLANTS REQUIRED	2	0	5	7
SHADE TREES	(133/60' = 2.2 OR 2)	0	(302/60' = 5.0 OR 5)	0
EVERGREENS/SUBSTITUTION TREES(2:1) SHRUBS	0	0	0	0
CREDIT FOR EXISTING VEGETATION				
SHADE TREES	0	0	0	0
EVERGREENS/SUBSTITUTION TREES(2:1) SHRUBS	0	0	0	0
NUMBER OF PLANTS PROVIDED				
SHADE TREES	2	0	2	5
EVERGREENS/SUBSTITUTION TREES(2:1) SHRUBS	0	0	0	0

SITE ANALYSIS DATA CHART			
A.	TOTAL AREA OF THIS SUBMISSION = 25,736 SQ.FT. OR 0.59 AC. (INCLUDES OFF-SITE DISTURBANCE).		
B.	LIMIT OF DISTURBED AREA = 21,180 SQ.FT. OR 0.49 AC.		
C.	PRESENT ZONING DESIGNATION R-20 (PER 10/06/2013 COMPREHENSIVE ZONING PLAN)		
D.	PROPOSED USE: RESIDENTIAL		
E.	PREVIOUS HOWARD COUNTY FILES: P66, PG 49; ECP-12-017; SDP-12-068; ECP-14-090, F-1125, W-15-090.		
F.	TOTAL AREA OF FLOODPLAIN LOCATED ON SITE = 0.00 AC		
G.	TOTAL AREA OF SLOPES IN EXCESS OF 15% = 0.00 AC		
H.	TOTAL AREA OF WETLANDS (INCLUDING BUFFER) = 0.00 AC		
I.	TOTAL AREA OF STREAM (INCLUDING BUFFER) = 0.00 AC		
J.	TOTAL AREA OF EXISTING FOREST = 0.00 AC		
K.	TOTAL AREA OF FOREST TO BE RETAINED = 0.00 AC		
L.	TOTAL GREEN OPEN AREA = 0.48 AC		
M.	TOTAL IMPERVIOUS AREA = 0.11 AC		
N.	TOTAL AREA OF ERODIBLE SOILS = 0.00 AC		



BENCHMARK INFORMATION	
B.M. # 35A	HOWARD COUNTY CONTROL STATION #35A - HORIZONTAL - (NAD '83) N 560,767.6901 E 1,335,463.8345 ELEVATION = 430.96 - VERTICAL - (NAVD '86)
B.M. # 35B	HOWARD COUNTY CONTROL STATION #35B - HORIZONTAL - (NAD '83) N 560,790.4155 E 1,336,537.2303 ELEVATION = 394.27 - VERTICAL - (NAVD '86)



ADDRESS CHART	
LOT NUMBER	STREET ADDRESS
22	5521 TROTTER ROAD

GENERAL NOTES

1. SUBJECT PROPERTY ZONED R-20 PER 10/06/13 COMPREHENSIVE ZONING PLAN.
2. COORDINATES BASED ON NAD '83, MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 35A AND NO. 35B.
3. THIS PLAN IS BASED ON FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED ON OR ABOUT JULY, 2014 BY FISHER, COLLINS AND CARTER, INC. THE EXISTING TOPOGRAPHY IS TAKEN FROM A FIELD RUN TOPOGRAPHIC SURVEY HAVING TWO FOOT CONTOUR INTERVALS PREPARED BY FISHER, COLLINS AND CARTER, INC. DATED JULY, 2014 AND SUPPLEMENTED WITH HOWARD COUNTY GIS TOPOGRAPHY AT 5' CONTOUR INTERVAL INTERPOLATED FOR 2' CONTOUR INTERVAL.
4. ALL AREAS ARE MORE OR LESS (±).
5. FOR FLAG OR PIPE STEEL LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE TO BE PROVIDED AT THE JUNCTION OF PIPE/FLAG STEEL AND THE ROAD R/W AND NOT ONTO THE FLAG/PIPE STEEL DRIVEWAY.
6. DRIVEWAYS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A BUILDING PERMIT TO INSURE 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 A GROSS TONS (HS-20) LOAD;
 - 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 INSURE ALL WEATHER USE.
7. DISTANCES SHOWN ARE BASED ON SURFACE MEASUREMENT AND NOT REDUCED TO NAD '83 GRID MEASUREMENT.
8. THESE IS NO 100 YEAR FLOODPLAIN LOCATED IN THIS SUBDIVISION.
9. THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT AND WILL BE SERVED BY PUBLIC WATER AND SEWER HOUSE CONNECTIONS.
10. WATER IS PUBLIC. SEWER IS PUBLIC. CONNECTIONS WILL BE MADE TO WATER & SEWER MAINS CONSTRUCTED UNDER CONTRACT # 34-4805-D.
11. TRAFFIC STUDY DATED MAY, 2014, PREPARED BY M&S GROUP.
12. NO FOREST EXISTS ON-SITE BASED ON LETTER FROM FISHER, COLLINS & CARTER, INC. DATED JUNE 2014. THE FOREST CONSERVATION REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT FOR THIS SUBDIVISION WAS FULFILLED BY PROVIDING A TREE-IN-LIEU OF PLANTMENT OF \$6.614 FOR LOT 22 UNDER F-14-125.
13. PUBLIC WATER AND SEWERAGE CONNECTIONS WILL BE GRANTED AT THE DISCRETION OF THE BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.
14. APPROVAL OF A SITE DEVELOPMENT PLAN IS REQUIRED FOR THE DEVELOPMENT OF ALL RESIDENTIAL LOTS WITHIN THIS SUBDIVISION PRIOR TO ISSUANCE OF ANY GRADING OR BUILDING PERMITS FOR NEW HOUSE CONSTRUCTION IN ACCORDANCE WITH SECTION 16.155 OF THE SUBDIVISION REGULATIONS.
15. A LETTER OF FINDINGS DATED OCTOBER 24, 2011 FOR WETLAND DELINEATION FOR THIS SUBDIVISION WAS PREPARED BY KLEBASCO ENVIRONMENTAL, L.L.C. THERE ARE NO WETLANDS LOCATED ON-SITE.
16. OPEN SPACE REQUIREMENTS WERE PROVIDED BY A TREE-IN-LIEU PAYMENT UNDER F-14-125.
17. 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, BENCHES, FENCES, SIMILAR HOUSING UNIT TYPES AND THE DIRECTIONAL ORIENTATION OF THE PROPOSED HOUSES.
18. THIS PLAN IS IN COMPLIANCE WITH THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS PER COUNCIL BILL 32-2013. 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, WATER PERMIT APPLICATION OR BUILDING/GRADING PERMIT.
19. NOISE STUDY IS NOT REQUIRED FOR THIS SUBDIVISION PER HOWARD COUNTY DESIGN MANUAL, VOLUME II, SECTION 5.2(1).
20. A COMMUNITY MEETING WAS CONDUCTED ON APRIL 1, 2014 FOR THE PURPOSE OF THE DEVELOPER TO PROVIDE INFORMATION TO THE COMMUNITY REGARDING THE PROPOSED RESIDENTIAL DEVELOPMENT AND TO ALLOW THE COMMUNITY TO ASK QUESTIONS AND TO MAKE COMMENTS PER SECTION 16.128(4) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS UNDER F-14-125.
21. LANDSCAPING FOR LOT 22 IS PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. A LANDSCAPE SURVEY IN THE AMOUNT OF \$2,100 BASED ON 4 SHADE TREES @ \$500/EACH TREE & 6 EVERGREENS @ \$150/EACH TREE IS TO BE POSTED AS PART OF THE BUILDERS GRADING PERMIT.
22. 24 PRIVATE USE-IN-COMMON SHARED DRIVEWAY AND STORMWATER MANAGEMENT EASEMENT AND MAINTENANCE AGREEMENT FOR LOTS 21 AND 22 WAS RECORDED SIMULTANEOUSLY WITH PLAT # 23358.
23. STORMWATER MANAGEMENT WILL BE IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL, VOLUMES I & II, REVISED 2009. USE OF THESE (3) 4'-9" DRY WELLS, 1'-1 DISCONNECTION OF ROOFTOP RUNOFF, AND 1'-9" GRASS SWALE AGE PROTECTED FOR THIS LOT. ALL SWM PRACTICES ARE TO BE PRIVATELY OWNED AND MAINTAINED BY THE INDIVIDUAL PROPERTY OWNER.
24. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS HMA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
25. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
26. THE CONTRACTOR SHALL NOTIFY "M&S UTILITY" AT 1-800-557-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
27. TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AS ALL STATE AND REGULATORY AGENCIES SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
28. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME B (1958), IF APPLICABLE. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN STREETLIGHTS AND ANY TREE.
29. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
30. EXISTING UTILITIES ARE BASED ON AVAILABLE COUNTY RECORDS.
31. TRASH AND RECYCLABLES COLLECTION WILL BE AT TROTTER ROAD WITHIN 5' OF THE COUNTY ROADWAY.
32. DRIVEWAY ENTRANCE TO BE CONSTRUCTED PER HOWARD COUNTY STANDARD DETAIL R-6(1).
33. SOILS SWAIN HERRON ARE BASED ON THE HERRON WASSON SURVEY AND HOWARD COUNTY SOILS MAP #28.
34. IN ACCORDANCE WITH SECTION 12B 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.
35. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

STATE HIGHWAY ADMINISTRATION	410.531.5533
REGULATORY SERVICES	410.890.4620
REGULATORY SERVICES	410.787.9088
REGULATORY SERVICES	1.800.227.7777
REGULATORY SERVICES	410.795.1390
HOWARD COUNTY, DEPT. OF PUBLIC WORKS, BUREAU OF UTILITIES	410.313.4900
HOWARD COUNTY HEALTH DEPARTMENT	410.313.2540
AT&T	1.800.252.1133
VERIZON	1.800.743.0033/410.224.9210
36. ANY DAMAGE TO PUBLIC RIGHT-OF-WAYS, PAVING OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
37. THIS PLAN IS SUBJECT TO W-15-090, APPROVED ON JANUARY 30, 2015 TO NAME SECTION 16.132(A)(2)(B) REGARDING CONSTRUCTION OF ROAD IMPROVEMENTS ON ONE SEWER, SURVEY AND HOWARD COUNTY SOILS MAP #28.
38. STANDARDS AND SECTION 16.134(A) REGARDING THE CONSTRUCTION OF SIDEWALKS. APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:
 - A) THE DEVELOPER SHALL PROVIDE A TREE-IN-LIEU FOR THE REQUIRED ROAD IMPROVEMENTS FOR THE STREET LIGHTS, SIDEWALKS, AND PAVING SECTION FOR THE PUBLIC ROAD FRONTAGE OF THE SUBJECT PROPERTY ALONG TROTTER ROAD. PAYMENT OF THE TREE-IN-LIEU SHALL BE PROVIDED AND PLACED IN AN APPROPRIATE ACCOUNT DESIGNATED BY THE DEVELOPMENT ENGINEERING DIVISION WITH PROCESSING OF COMMENTS DATED 1/12/15.
 - B) COMPLIANCE WITH COMMENTS ISSUED FOR THE FINAL PLAT, F-14-125.
 - C) SEE ATTACHED RECOMMENDATION FROM THE PUBLIC SCHOOL SYSTEM FOR A SCHOOL BUS WAITING AREA.

DESIGN BY:
DRAWN BY:
CHECKED BY:

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. 30886, EXPIRATION DATE: 01/12/2016.

ENGINEER'S CERTIFICATE
I certify that this plan for sediment and erosion 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.

Stephanie Tuite 9/25/15
Signature of Engineer Date

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 all 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.

Thomas V. Samuel 9/25/15
Signature of Developer Date

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.

John L. Roberts 10/14/15
Howard SCD Date

OWNER/DEVELOPER
THOMAS V. SAMUEL & Sissy M. Ambly
5517 TROTTER ROAD
CLARKSVILLE, MARYLAND 21029
301-552-0005

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Natalie Jaffe 11-3-15
Director - Department of Planning and Zoning Date

Walter L. ... 11-03-15
Chief, Division of Land Development Date

Walter L. ... 10-29-15
Chief, Development Engineering Division Date

SUBDIVISION	SECTION/AREA	LOT NO.
CRISWOOD MANOR	N/A	22

PLAT NO.	BLOCK NO.	ZONE	TAX/PARCEL	ELEC. DIST.	CENSUS TR.
23356	20	R-20	29/80	FIFTH	601104

SITE DEVELOPMENT PLAN

CRISWOOD MANOR
SECTION 4, LOT 22

TAX MAP No.: 29 GRID No. 20 PARCEL No.: 88

FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SCALE: 1"=30' DATE: SEPTEMBER, 2015

SHEET 1 OF 2 SDP-15-038

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

- A. Soil Preparation**
- Temporary Stabilization
 - Seeded preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment. As site ditches or ditches are mounted on construction equipment, after the soil is loosened, it must be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
 - Apply fertilizer and lime as prescribed on the plan.
 - Permanent Stabilization
 - A soil test is required for any third disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetation establishment are:
 - Soil pH between 6.0 and 7.0.
 - Soluble salts less than 500 parts per million (ppm).
 - Soil contains less than 40 percent clay and more than 10 percent silt (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if loesslike soils will be planted, then a sandy soil (less than 50 percent silt plus clay) would be acceptable.
 - Soil contains 1.5 percent minimum organic matter by weight.
 - Soil contains sufficient pore space to permit adequate root penetration.
 - Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
 - 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.
 - Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
 - 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 disking or heavy soil or other equipment to roughen the surface where site conditions will not permit normal seeded 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. Seeded loosening may be unnecessary on newly disturbed areas.

- B. Topsoiling**
- 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, or unacceptable soil application.
 - 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.
 - Topsoiling is limited to areas having 2:1 or flatter slopes where:
 - The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
 - 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.
 - The original soil to be vegetated contains material toxic to plant growth.
 - The soil is so acidic that treatment with limestone is not feasible.
 - Areas having slopes steeper than 2:1 require special consideration and design.
 - Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
 - Topsoil must be a loam, sandy loam, clay loam, silty loam, silty clay loam, or loamy sand. Other soils may be used if recommended by a soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textures and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, silica, roots, trash, or other materials larger than 1 1/2 inches in diameter.
 - Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, jimsonite, or others as specified.
 - 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.
 - Topsoil Application
 - Erosion and sediment control practices must be maintained when applying topsoil.
 - Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed by a soil scientist and approved by the appropriate approval authority. Topsoil 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.
 - 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 seeded preparation.

- C. Soil Amendments (Fertilizer and Lime Specifications)**
- 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 prepared for engineering purposes may also be used for chemical analysis.
 - Fertilizers must be uniform in composition, fine flowing and suitable for accurate application by appropriate equipment. Material 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 variety of the product.
 - Lime material must be ground limestone (hydrated or burnt lime may be substituted except when hydroxydes) which contains at least 50 percent total carbon (calculated on a dry basis) and must pass through a 20 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
 - 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.
 - 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.
- Purpose:**
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.
- Criteria:**
- A. Seeding**
- Specifications
 - 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 lots must be available upon request to the inspector to verify type of seed and seeding rates.
 - Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
 - Inoculants: The inoculant for treating legume seeds 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 on directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to hydroseed on soil as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.
 - Soil 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 phytotoxic materials.
 - Application
 - Dr. 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.
 - 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.
 - Drill or Outdrill/Seeder: Mechanized seeders that apply and cover seed with soil.
 - Outdrill/Seeder: Mechanized seeders that apply seed in such a fashion as to provide at least 1/4 inch of soil covering. Seeded area must be firm after planting.
 - Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
 - Hydroseeding: Apply seed uniformly with hydroseeding (slurry includes seed and fertilizer).
 - 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 (phosphorus), 200 pounds per acre; K (potassium), 200 pounds per acre.
 - 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.
 - Mix seed and fertilizer on site and seed immediately and without interruption.
 - When hydroseeding do not incorporate seed into the soil.
- Mulching
 - Mulch Materials (in order of preference)
 - Straw consisting of through threshed, dry, 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 straw mulch in areas where one species of grass is desired.
 - Wood Cellulose Fiber: Mulch (WCFM) consisting of specially prepared wood cellulose processed into uniform fibrous physical slats.

- B. Sod:** To provide quick cover on disturbed areas (2:1 grade or flatter).
- General Specifications
 - Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and remain in uniform possession in water under application and be used, 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 retention properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
 - WCFM material must not contain herbicides or compounds of concentration levels that will be phytotoxic.
 - 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.
 - Apply mulch to all seeded areas immediately after seeding.
 - 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.
 - 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 obtain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
 - Application
 - 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:
 - 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.
 - 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 to a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
 - Synthetic binders such as Acrylic DLR (Ago-Tack), DCA-70, Patrolnet, Temo Tax, Temo, 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 much, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited.
 - 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 4,000 feet long.
 - Sod Maintenance
 - 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 soil during the heat of the day or to prevent wilting.
 - After the first week, water and waterings is required as necessary to maintain adequate moisture content.
 - Do not mow until the soil is firmly rooted. No more than 1/2 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.

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.

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.

Criteria:

- Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardness Zone from Figure B.3, and prepare 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.
- For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
- When application is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3A.1.b and maintain until the next seeding season.

Hardness Zone (from Figure B.3):	fb	Fertilizer Rate (10-20-20)	Lime Rate
Species	Application Rate (lb/acre)	Seeding Dates	Seeding Depths
BARLEY	96	3/1 - 5/15	1"
OATS	72	8/15 - 10/15	1"
RYE	112		1"

PERMANENT SEEDING NOTES (B-4-5)

- A. Seed Mixtures**
- General Use
 - Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardness 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.
 - 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.
 - For sites having disturbed areas over 5 acres, use and show the rates necessary by the soil testing agency. For areas receiving low maintenance, apply urea fertilizer (45-0-0) at 3 1/2 pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown on the Permanent Seeding Summary.
- Turfgrass Mixtures
 - Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
 - 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.

1. Kentucky Bluegrass/Personal 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.

2. Kentucky Bluegrass/Personal 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.

3. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium maintenance, full sun to medium shade. Recommended mixture includes: Certified Tall Fescue Cultivars 90 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.

4. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in bluegrass lawns. For establishment in high quality, intensive 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 square feet.

- Notes:**
- 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.
 - Ideal Times of Seeding for Turf Grass Mixtures: Western MD: March 15 to June 1, August 1 to October 1 (Hardness Zones: 5b, 6a) Central MD: March 1 to May 15, August 15 to October 15 (Hardness Zones: 6b) Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardness Zones: 7a, 7b)
 - Fill areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the area to prepare a proper seedbed. Remove stones and debris over 1 1/2 inches in diameter. The resulting seedbed must be in such a condition that future mowing of grasses will pose no difficulty.
 - If soil moisture is deficient, supply new seedlings 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 seedlings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

Permanent Seeding Summary

Hardness Zone (from Figure B.3):	fb	Fertilizer Rate (10-20-20)	Lime Rate
No.	Species	Application Rate (lb/acre)	Seeding Dates
1	TALL FESCUE	100	Mar. 1-May 15, Aug. 15-Oct. 15

- B-4-4 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREAS**
- A mound or pile of soil protected by appropriately designed erosion and sediment control measures.
- Purpose:**
To provide a designated location for the temporary storage of soil that contains 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.
 - 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. Banding must be provided in accordance with Section B-3 Land Grading.
 - Runoff from the stockpile area must drain to a suitable sediment control practice.
 - Access roads and paths from the updrift side.
 - Clear water runoff into the stockpile area must be minimized by use of a diversion ditch such as a ditch, temporary embankment or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
 - Access roads and paths from the updrift side.
 7. Topsoil must be stabilized in accordance with the 3/7 off stabilization requirement as well as Standard B-4-1 permanent stabilization and Standard B-4-2 Temporary Seeding.
 - If the stockpile is located on an impervious surface, a liner shall be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

HOWARD SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

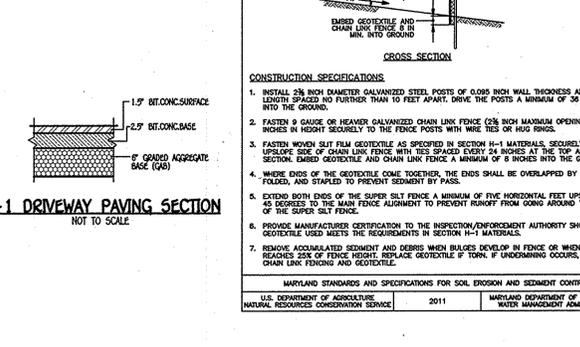
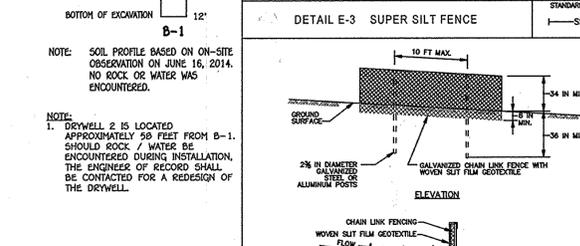
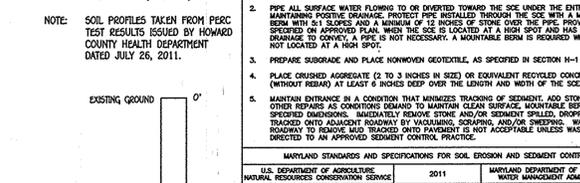
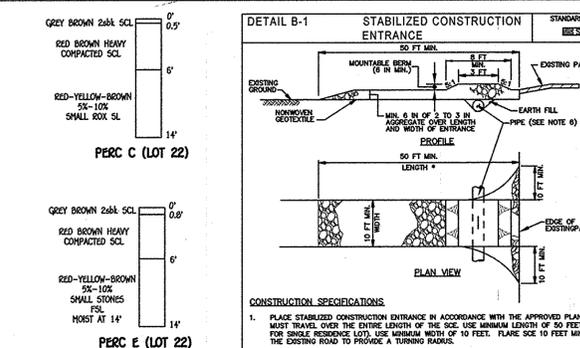
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MAINTENANCE:
The stockpile area must conform to the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than 2:1 slope. The stockpile must be kept free of erosion. If the initial height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, banding must be provided in accordance with Section B-3 Land Grading.

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TABLE B.4. Materials Specifications for Micro-Bioretenention, Rain Gardens & Landscape Infiltration

Material	Specification	Size	Notes
Plantings	see Appendix A Table A.4	n/a	plantings are site-specific
Filtering soil	loamy sand 60-65% coarse 35-40% sand/loam 30% coarse sand 30% coarse 40%		USDA soil type loamy sand or sandy loam; clay content <5%
Organic Content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood	aged 6 months, minimum	
Pea gravel/diaphragm	pea gravel ASTM-20-449	No. 8 or No. 9 (1/8" to 3/8")	
Durbin drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile	n/a	n/a	PE Type 1 nonwoven
Gravel (Underdrains and infiltration berm)	ASHSTO M-43	No. 57 or No. Aggregate (3/8" to 3/4")	
Underdrain	F 750, Type PS 20 or ASHSTO M-270	4" to 6" rigid schedule 40 PVC or 50835	Slotted or perforated pipe; 3/8" pert. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipe; not necessary underneath pipe. 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 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength test done just after concrete design (not-in-place or cast-in) not using previously approved 28th or local standards (concrete design done and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting AC Code 308.2-90; vertical loading 10-10 or H-20; allowable bearing capacity based on soil pressure; and analysis of potential cracking
Sand	ASHSTO M-6 or ASTM-C-33	0.075" to 0.04"	Sand substitutions such as Dabbie and Gifford (ASHSTO #10) are not acceptable. No calcium chloride or olefinic acid substitutes are acceptable. No "rock dust" can be used for sand.



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MAINTENANCE:

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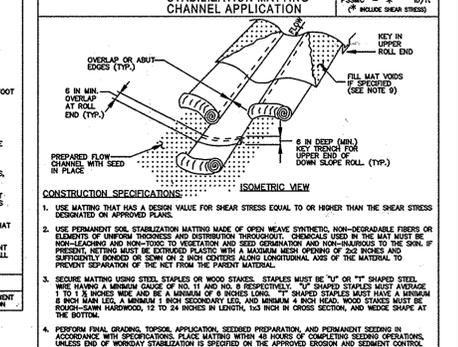
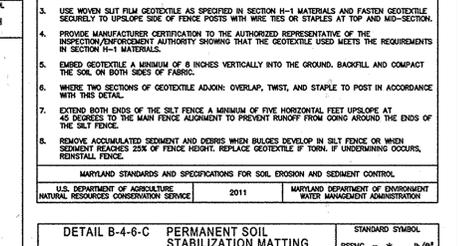
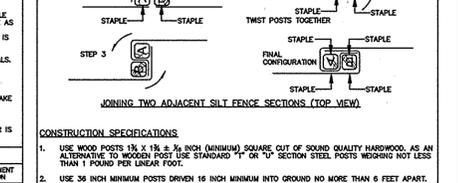
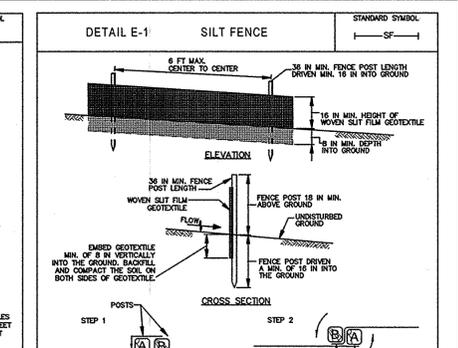
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