

GENERAL NOTES

- THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- THE SUBJECT PROPERTY IS ZONED R-SC PER THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENTS NO. 374B AND 0048 WERE USED FOR THIS PROJECT.
- TRACT BOUNDARY IS BASED ON A FIELD RUN BOUNDARY SURVEY PERFORMED ON OR ABOUT APRIL, 2015 BY BENCHMARK ENGINEERING, INC.
- A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
- THE TRAFFIC STUDY WAS PREPARED BY MARS GROUP, INC. IN MARCH, 2014.
- THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT. THE WATER AND SEWER IS PUBLIC. THE CONTRACT NUMBER IS 14-4912-D.
- THIS SUBDIVISION IS SUBJECT TO SECTION 18.122B OF THE HOWARD COUNTY CODE. PUBLIC WATER AND/OR SEWER SERVICE HAS BEEN GRANTED UNDER THE TERMS AND PROVISIONS, THEREOF, EFFECTIVE MARCH 7, 2015, ON WHICH DATE DEVELOPERS AGREEMENT NUMBER F-15-096/14-4912-D WAS FILED AND ACCEPTED.
- WATER AND SEWER SERVICE TO THESE LOTS WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.122B OF THE HOWARD COUNTY CODE. PUBLIC WATER AND SEWERAGE ALLOCATION WILL BE GRANTED AT TIME OF ISSUANCE OF BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.
- TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO CEMETERY LOCATIONS ON-SITE.
- THERE ARE NO HISTORIC SITES/FEATURES LOCATED ON THIS SITE.
- THERE ARE WETLANDS, STREAMS AND THEIR REQUIRED BUFFERS, LOCATED ON THIS SITE. THERE IS NO 100YR FLOODPLAIN ON THIS SITE.
- THERE ARE NO STEEP SLOPES THAT 25% OR GREATER THAT IS MORE THAN A CONTIGUOUS 20,000 sq ft LOCATED ON THIS SITE.
- DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:

- WIDTH - 12' (16' SERVING MORE THAN ONE RESIDENCE).
- SURFACE - 6" OF COMPACT CRUSHER RUN BASE WITH TAR AND CHIP COATING (1-1/2" MIN).
- GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM 45' TURNING RADIUS.
- STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING).
- DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOODPLAIN WITH NO MORE THAN 1-FOOT DEPTH OVER DRIVEWAY.
- STRUCTURE CLEARANCES - MINIMUM 12 FEET.
- MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.

- THE WETLAND DELINEATION AND FOREST STAND DELINEATION WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. IN MARCH, 2014.
- THE GEOTECHNICAL REPORT WAS PREPARED BY GEOTECHNICAL LABORATORIES, INC. IN NOVEMBER, 2014.
- IN ACCORDANCE WITH SECTION 12B.0.A.1 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 (APPLIES FOR RESIDENTIAL SIPS).
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING OR NEW STRUCTURES SHALL BE PERMITTED WITHIN THE WETLANDS, STREAMS, THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS OR 100 YEAR FLOODPLAIN EXCEPT AS APPROVED THE HOWARD COUNTY, DEPARTMENT OF PLANNING AND ZONING.
- 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 ONTO THE PIPESTEM LOT DRIVEWAY.
- LANDSCAPING FOR THIS SUBDIVISION IS PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. THE OBLIGATION FOR SECTION 2, PHASE 2 WAS DEFERRED ON F-15-103 AND IS NOW DESIGNING IN ACCORDANCE WITH THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF \$3,750.00 (\$300 FOR EACH OF THE 10 SHADE TREES, \$150 FOR THE 5 EVERGREENS) FOR THE REQUIRED PERIMETER LANDSCAPING SHALL BE POSTED AS PART OF THE BUILDER'S GRADING PERMIT. LANDSCAPING FOR SECTION 2, PHASE 1 WAS PROVIDED AT THE TIME OF THE ROAD PLANS, F-15-096, AND SURETY WAS POSTED AS PART OF THE DPW, DEVELOPERS AGREEMENT.

- THE TOTAL FOREST CONSERVATION OBLIGATION HAS BEEN MET BY THIS PLAN BY THE ON-SITE REFORESTATION OF 0.32 AC. WITHIN A FOREST CONSERVATION EASEMENT, FINANCIAL SURETY IN THE AMOUNT OF \$10,486 FOR THE PLANTING WAS POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT, F-15-096.
- THE OPEN SPACE SHOWN HEREON WAS DEDICATED TO A PROPERTY OWNERS ASSOCIATION FOR THE RESIDENTS OF THIS SUBDIVISION AT THE TIME OF FINAL PLAT RECORDATION. THE ARTICLES OF INCORPORATION AND RESTRICTIONS FOR THE HOMEOWNERS ASSOCIATION ARE AS ON THE RECORD PLATS.
- THE REQUIRED COMMUNITY MEETING FOR THIS PROJECT WAS HELD ON JULY 21, 2015.
- STORMWATER MANAGEMENT ENVIRONMENTAL SITE DESIGN (ESD) HAS BEEN PROVIDED IN ACCORDANCE WITH THE "MARYLAND DEPARTMENT OF THE ENVIRONMENT STORMWATER MANAGEMENT ACT OF 2007" AND THE "HOWARD COUNTY DESIGN MANUAL VOLUME 1, CHAPTER 5" TO THE MAXIMUM EXTENT PRACTICAL (MEP) VIA M-6 MICRO-BIoretention PRACTICES, M-3 LANDSCAPE INFILTRATION PRACTICE AND M-5 DRY WELLS. THE PRACTICES ARE PRIVATELY OWNED AND PRIVATELY MAINTAINED. THE STORMWATER MANAGEMENT WAS APPROVED UNDER F-15-096.

- ON JUNE 8, 2015, WP-15-140 WAS APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING. THE FOLLOWING SECTIONS OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS WERE WAIVED: SECTION 16.121(a)(2), 16.121(a)(1), 16.144(b) & 16.145, 16.144(g) & 16.146 AND 16.1205(c)(7). APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:
 - THE PETITIONER MUST RECEIVE APPROVAL OF F-15-096 WOODBROOK, SECTION 2 PHASE 1, TO CONSOLIDATE THE 3 PARCELS AND CREATE 3 BULDBLE LOTS AND 2 NON-BULDBLE PARCELS.
 - ADD THE WAIVER PETITION, WP-15-140 ON F-15-096, SECTION 2, PHASE 1 AS GENERAL NOTE STATING THE REQUEST, THE APPROVAL DATE AND CONDITIONS IN WHICH IT WAS APPROVED.
 - A NOTE SHALL BE PROVIDED ON THE FINAL PLAN FOR F-15-096 AND THE SUPPLEMENTAL PLAN THAT THE 25% OPEN SPACE REQUIREMENT WILL BE TEMPORARILY DEFERRED UNDER SECTION 2, PHASE 1, F-15-096 AND WILL BE PROVIDED IN ITS ENTIRETY UNDER SECTION 2, PHASE 2 OF WOODBROOK.
 - A 12' ACCESS DRIVE WILL BE REQUIRED FOR THE OPEN SPACE ACCESS. A GENERAL NOTE SHOULD BE ADDED TO THE FINAL PLAN AND ALSO STATE THAT HOWARD COUNTY WILL NOT BE RESPONSIBLE FOR THE MAINTENANCE OF THE OPEN SPACE ACCESS DRIVE IF THE OPEN SPACE LOT IS DEDICATED TO HOWARD COUNTY.
 - SHOW THE 1 SPECIMEN TREE BEING REMOVED AND LABELED PER WP-15-140 ON THE SUPPLEMENTAL PLAN FOR F-15-096. THE SPECIMEN TREE REMOVAL SHALL BE MITIGATED BY THE PLANTING OF 2 PERIMETER SHADE TREES OF 3" CALIPER.
 - PETITIONER SHALL ADDRESS ALL COMMENTS FROM ALL SRC AGENCIES FOR F-15-096.
 - COMPLY WITH ALL COMMENTS FOR THE APPROVED ECP-14-081.

- 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.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.

- EXISTING TOPOGRAPHY SHOWN HEREON WAS FIELD RUN BY BENCHMARK ENGINEERING, INC IN FEBRUARY, 2014. CONTOUR INTERVAL IS 2 FEET.

SITE ANALYSIS DATA CHART

A) TOTAL PROJECT AREA	2.02 ACRES
B) AREA OF PLAN SUBMISSION	2.02 ACRES
C) LIMIT OF DISTURBED AREA	1.55 ACRES
D) PRESENT ZONING:	R-SC (SINGLE CLUSTER)
E) PROPOSED USE OF SITE:	RESIDENTIAL SINGLE FAMILY DETACHED
F) FLOOR SPACE ON EACH LEVEL OF BLDG PER USE	N/A
G) TOTAL NUMBER OF UNITS ALLOWED AS SHOWN ON FINAL PLAT(S)	8
H) TOTAL NUMBER OF UNITS PROPOSED	8
I) MAXIMUM NUMBER OF EMPLOYEES, TENANTS ON SITE PER USE	N/A
J) NUMBER OF PARKING SPACES REQUIRED BY HO. CO. ZONING REGS AND/OR FDP CRITERIA	20 (8 UNITS x 2.5)
K) NUMBER OF PARKING SPACES PROVIDED ONSITE (INCLUDES HANDICAPPED SPACES)	24 (1 FOR EACH GARAGE AND 2 FOR EACH DRIVEWAY)
L) OPEN SPACE ON-SITE	0.65 AC.
M) AREA OF RECREATIONAL OPEN SPACE REQUIRED	N/A
N) BUILDING COVERAGE OF SITE	N/A
O) APPLICABLE DPZ FILE REFERENCES:	ECP-14-081, F-15-096, WP-15-140, W&S CONTRACT #14-4912-D, F-15-103

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

 6-8-16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

 6-28-16
 CHIEF, DIVISION OF LAND DEVELOPMENT

 6-28-16
 DIRECTOR

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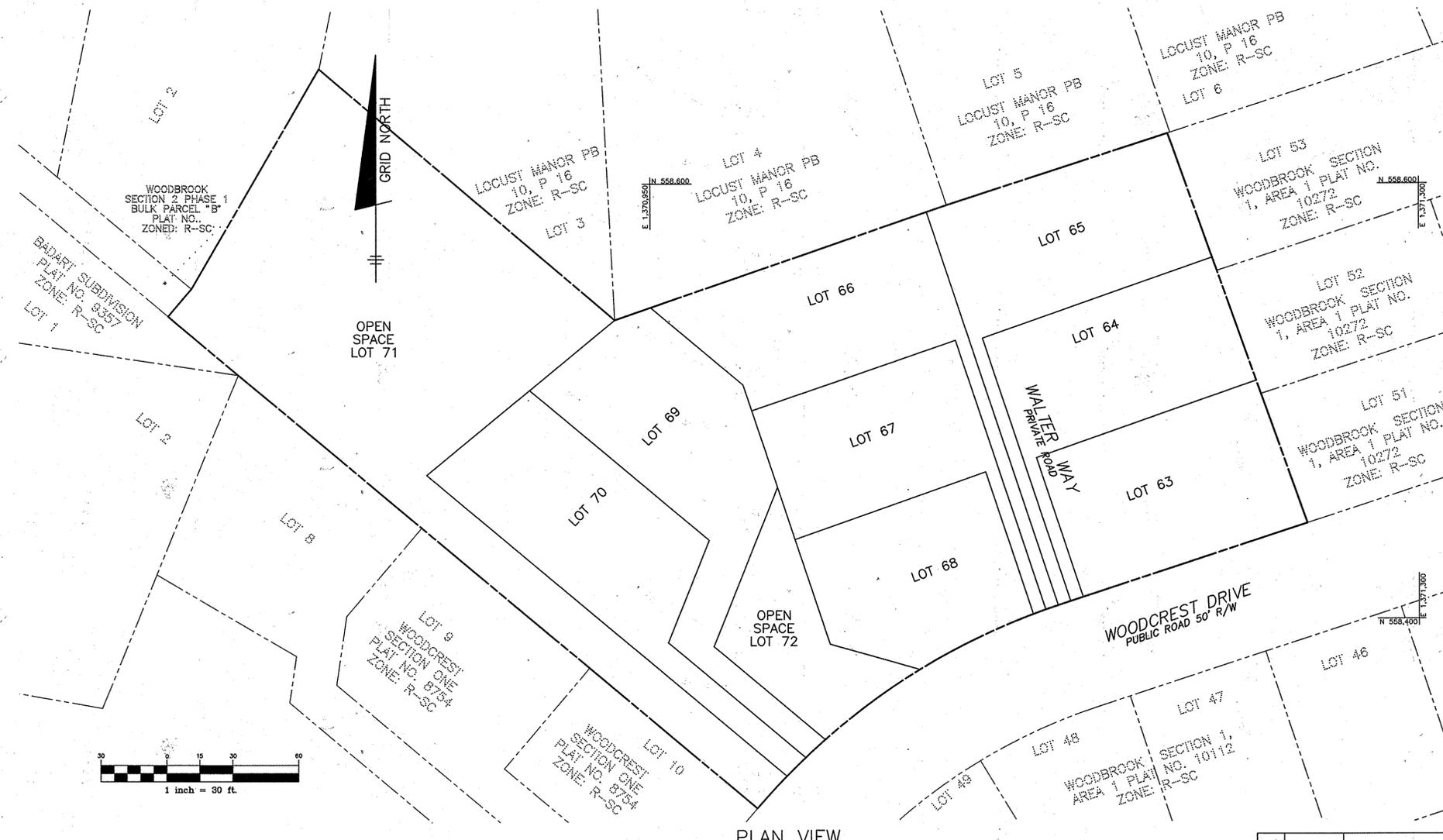
GENERAL NOTES CONT.

- EXISTING UTILITIES SHOWN HEREON ARE BASED ON FIELD LOCATIONS AND RECORD DRAWINGS.
- ANY DAMAGE TO THE COUNTY'S RIGHT OF WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.
- SHC ELEVATIONS SHOWN ARE LOCATED AT THE PROPERTY LINE OR EASEMENT LINE.
- FOR DRIVEWAY ENTRANCES DETAILS REFER TO THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD DETAIL R-6.03.

RESIDENTIAL SITE DEVELOPMENT PLAN

WOODBROOK

SECTION 2, PHASES 1 AND 2, LOTS 63-70 AND OPEN SPACE LOTS 71 AND 72



PLAN VIEW

SHEET INDEX	
SHEET	TITLE
1	TITLE SHEET
2	SITE DEVELOPMENT PLAN
3	SEDIMENT AND EROSION CONTROL & STORMWATER MANAGEMENT PLAN
4	STORMWATER MANAGEMENT NOTES AND DETAILS
5	STORMWATER MANAGEMENT NOTES AND DETAILS
6	SEDIMENT AND EROSION CONTROL NOTES & DETAILS
7	LANDSCAPE PLAN, NOTES AND DETAILS

PERMIT INFORMATION CHART						
SUBDIVISION NAME:		SECTION/AREA:	LOT/PARCEL #			
WOODBROOK		SECTION 2 PHASES 1 & 2	LOTS 63 thru 70			
PLAT No.	GRID	ZONE	TAX MAP	ELECTION DISTRICT	CENSUS TRACT	
23004-23005	14	R-SC	37	1st	601108	
23002-23003						

NO.	DATE	REVISION

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. 45577; Expiration Date: 06-08-2016

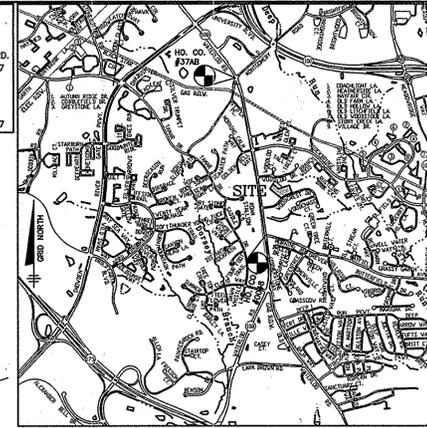
BENCHMARK ENGINEERING, INC.
ENGINEERS & LAND SURVEYORS & PLANNERS
8480 BALTIMORE NATIONAL PIKE & SUITE 315 ELLICOTT CITY, MARYLAND 21043
(P) 410-465-8105 (F) 410-465-8844
WWW.BE-CMLENGINEERING.COM



OWNER/DEVELOPER: SECURITY DEVELOPMENT, LLC P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 410-465-4244	PROJECT: WOODBROOK SECTION 2, PHASES 1 AND 2, LOTS 63-70 AND OPEN SPACE LOTS 71 AND 72
BUILDER: WILLIAMSBURG GROUP LLC 5485 HARPERS FARM ROAD SUITE 200 COLUMBIA, MARYLAND 21044 410-964-4440	LOCATION: TAX MAP 37, GRID 14 PARCELS 126, 488 AND 530 1st ELECTION DISTRICT WOODCREST DRIVE HOWARD COUNTY, MARYLAND
TITLE: TITLE SHEET	DATE: MAY, 2016 PROJECT NO. 2370
Design: jc Draft: jc Check: -	SCALE: AS SHOWN DRAWING 1 OF 7

BENCH MARKS NAD '83

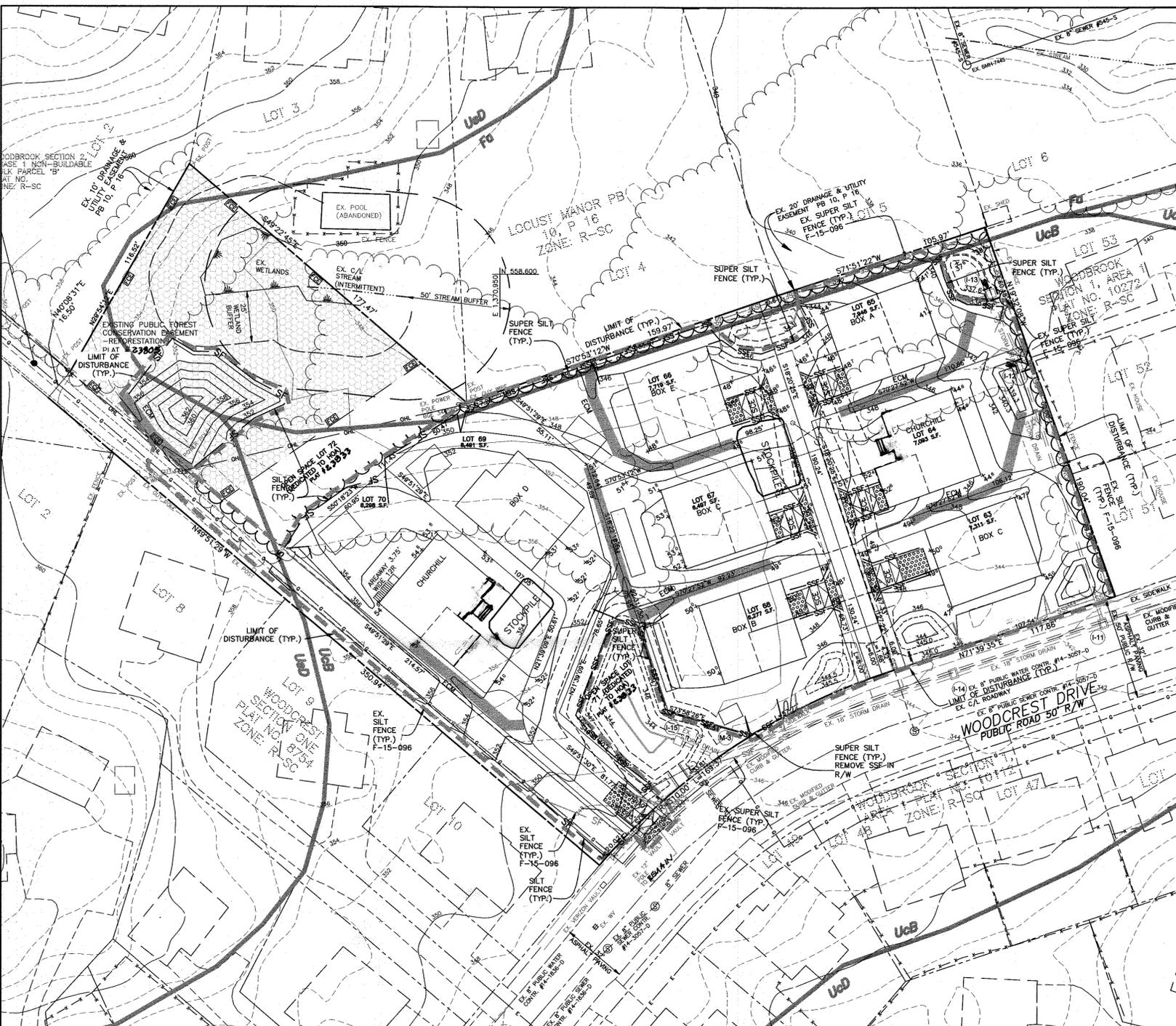
HO. CO. MON. 374B	ELEV. 390.452
STAMPED DISC ON CONCRETE MONUMENT, CORNER MD. RT. 108 & OLD MONTGOMERY RD N 561.137.376	E 1,369,891.847
HO. CO. MON. 0048	ELEV. 348.044
STAMPED DISC ON CONCRETE MONUMENT, CORNER MD. RT. 108 & MAYFIELD AVENUE N 557,526.362	E 1,370,661.987



ADC MAP: 34, GRID: C3 VICINITY MAP

ADDRESS CHART	
LOT	STREET ADDRESS
63	6202 WALTER WAY
64	6206 WALTER WAY
65	6210 WALTER WAY
66	6209 WALTER WAY
67	6205 WALTER WAY
68	6201 WALTER WAY
69	6251 WOODCREST DRIVE
70	6247 WOODCREST DRIVE

NOTE: THE MODERATE INCOME HOUSING UNIT REQUIREMENT (COUNCIL BILL 35-2013) SHALL BE FULFILLED BY PAYMENT OF A FEE-IN-LIEU IN AN AMOUNT THAT IS TO BE CALCULATED BY THE DEPARTMENT OF INSPECTIONS LICENSES AND PERMITS AT THE TIME OF BUILDING PERMIT. THE FEE-IN-LIEU SHALL BE PAID FOR LOTS 64 AND 66-70 WITHIN THIS SUBDIVISION AT TIME OF BUILDING PERMIT ISSUANCE.



SEDIMENT AND EROSION CONTROL PLAN
SCALE: 1" = 30'

THIS PLAN IS FOR
SEDIMENT CONTROL
ONLY.

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.

Shm. Cw 5/26/16
ENGINEER *Shm. M. Carney #45577* DATE

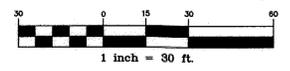
DEVELOPER'S CERTIFICATE
I, WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING 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.

John M. Robertson 5/26/16
BUILDERS DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

John M. Robertson 6/1/16
HOWARD SOIL CONSERVATION DISTRICT DATE

- LEGEND**
- LIMIT OF SUBMISSION
 - SOILS LINE
 - Fa SOILS LABEL
 - EX. FOREST CONSERVATION EASEMENT
 - EX. FOREST CONS. SIGN
 - WETLAND LIMITS
 - STREAM
 - EXISTING CONTOURS
 - PROPOSED GRADING
 - EXISTING TREELINE
 - PROPOSED TREELINE
 - INLET PROTECTION
 - ECM SOIL STABILIZATION MATTING
 - SILT FENCE
 - SUPER SILT FENCE
 - LIMIT OF DISTURBANCE
 - STABILIZED CONSTRUCTION ENTRANCE



STORMWATER MANAGEMENT DRAINAGE AREA MAP AND PLAN
SCALE: 1" = 30'

SOILS LEGEND

MAP SYMBOL	SOIL TYPE	MAPPING UNIT	K FACTOR
*Fa	D	FALLSINGTON SANDY LOAM - 0 TO 2 PERCENT SLOPES	0.20
UcB	C (B,D)	URBAN LAND: CHILLUM/BELTSVILLE COMPLEX - 0 TO 5 PERCENT SLOPES	0.37
UcD	C (B,D)	URBAN LAND: CHILLUM/BELTSVILLE COMPLEX - 5 TO 10 PERCENT SLOPES	0.37

USDA-NRCS WEBSITE, MAP #19 SAVAGE NE
* INDICATES HYDRIC SOILS

<p>1 12.1.16 <i>Revise grading on lots 69 & 70, Revise Drive Run Locations</i></p> <p>NO. DATE REVISION</p>		<p>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. 45577 (Mechanical) Date: 06-08-2016.</p> <p><i>Shm. Cw</i> 5/26/16 PROFESSIONAL ENGINEER</p>
<p>BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS ENGINEERING, INC. 9480 BALTIMORE NATIONAL PIKE & SUITE 315 • ELLICOTT CITY, MARYLAND 21043 (P) 410-465-8105 (F) 410-465-6544 WWW.BEI-CVLENGINEERING.COM</p>		
<p>OWNER/DEVELOPER: SECURITY DEVELOPMENT, LLC P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 410-465-4244</p> <p>BUILDER: WILLIAMSBURG GROUP, LLC 5485 HARPERS FARM ROAD SUITE 200 COLUMBIA, MARYLAND 21044 410-964-4440</p>		<p>PROJECT: WOODBROOK SECTION 2, PHASES 1 AND 2, LOTS 63-70 AND OPEN SPACE LOTS 71 AND 72</p> <p>LOCATION: TAX MAP 37, GRID 14 PARCELS 126, 485 AND 530 141 ELECTION DISTRICT WOODCREST DRIVE HOWARD COUNTY, MARYLAND</p>
<p>DESIGN: JMC DRAFT: JMC</p>		<p>TITLE: SEDIMENT AND EROSION CONTROL & STORMWATER MANAGEMENT PLAN</p> <p>DATE: MAY, 2016 BEI PROJECT NO. 2370</p> <p>SCALE: 1" = 30' SHEET 3 OF 7</p>

CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-376. All references to ASTM and ASHTO specifications apply to the most recent version.

Site Preparation
Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped to topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and shore breaks shall be sloped to a steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.
Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut and removed with the ground surface. For stormwater management ponds, a minimum of a 25-foot-radius around the inlet structure shall be cleared.
All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir directly to the river or his representative. When disposed, a minimum quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

Earth Fill
Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable material. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification CC, SC, CH, or CL and must have at least 30% passing the #20 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer.
Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

Placement - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.
Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be squeezed out.
When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within ± 2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by ASHTO Method T-99 (Standard Proctor).

Cut Off Trench - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be placed in layers not to exceed four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.
Structure Backfill - Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed 6 inches in thickness and shall be compacted with the equipment specified for compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipes. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill adjacent to the structure (flowable fill) shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

Stabilization
All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding and fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.
Erosion and Sediment Control
Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

Structure Backfill
Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed 6 inches in thickness and shall be compacted with the equipment specified for compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipes. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill adjacent to the structure (flowable fill) shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

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Structure Backfill
Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed 6 inches in thickness and shall be compacted with the equipment specified for compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipes. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill adjacent to the structure (flowable fill) shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

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ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Woodbrook Section 2 Boring No. B-1
Location: Ellicott City, MD Job # 14325A

Date: 7/12/14
Surf. Elev.: 352.6 ft
Date Started: 7/12/14
Date Completed: 7/12/14

Elevation/Depth	SOIL SYMBOL/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Roc.	NMTS	SPT Blows	SPT Blow/Foot Curve	
							N	F
0	D	6" of Topsoil				2-3	6	10
1	D	Light Tan/Brown, moist, loose to very loose silty fine SAND (SM)				3-4	7	10
2	D	Light Tan/Brown, moist, loose to very loose silty fine SAND (SM)				3-4	7	10
3	D	Light Tan/Brown, moist, loose to very loose silty fine SAND (SM)				3-4	7	10
4	D	Light Tan/Brown, moist, loose to very loose silty fine SAND (SM)				3-4	7	10
5	D	Light Tan/Brown, moist, loose to very loose silty fine SAND (SM)				3-4	7	10
6	D	Light Tan/Brown, moist, loose to very loose silty fine SAND (SM)				3-4	7	10
7	D	Light Tan/Brown, moist, loose to very loose silty fine SAND (SM)				3-4	7	10
8	D	Light Tan/Brown, moist, loose to very loose silty fine SAND (SM)				3-4	7	10
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10	D	Light Tan/Brown, moist, loose to very loose silty fine SAND (SM)				3-4	7	10
11	D	Light Tan/Brown, moist, loose to very loose silty fine SAND (SM)				3-4	7	10
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87	D	Light Tan/Brown, moist, loose to very loose silty fine SAND (SM)				3-4	7	10

B.4.C Specifications for Micro-Bioretenation, Rain Gardens, Landscape Infiltration & Infiltration Berms

- Material Specifications**
The allowable materials to be used in these practices are detailed in Table B.4.1.
- Filtering Media or Planting Soil**
The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the micro-bioretenation practice that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, or other noxious weeds as specified under COMAR 15.08.01.05.
The planting soil shall be tested and shall meet the following criteria:
 - Soil Component - Loamy Sand or Sandy Loam (USDA Soil Textural Classification)
 - Organic Content - Minimum 10% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy sand (60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%).
 - Clay Content - Media shall have a clay content of less than 5%.
 - pH Range - Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pH.

There shall be at least one soil test per project. Each test shall consist of both the standard soil test for pH, and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the topsoil was excavated.

- Compaction**
It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoist to remove original soil. If practices are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure.

Compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to restructure the soil profile through the 12 inch construction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

Rototill 2 to 3 inches of sand into the base of the bioretention facility before backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base.

When backfilling the bioretention facility, place soil in lifts 12" to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

- Plant Material**
Recommended material for micro-bioretenation practices can be found in Appendix A, Section A.2.3.
- Plant Installation**
Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3". Shredded or chipped hardwood mulch is the only acceptable mulch. Fine mulch and wood chips will float and move to the perimeter of the bioretention area during a storm event and are not acceptable. Shredded mulch will be well aged (6 to 12 months) for acceptance.

Rootstock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted as 1/8" of the ball is above final grade surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation.

Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball.

Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications.

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers, deers, or, at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are used to amend the soil. Rototill area fertilizer at a rate of 2 pounds per 1000 square feet.

- Underdrains**
Underdrains should meet the following criteria:

- Pipe - Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTM F 758, Type PS 28, or AASHTO M-278) in a gravel layer. The preferred material is slotted, 4" rigid pipe (e.g., PVC or HDPE).
- Perforations - If perforated pipe is used, perforations should be 3/8" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with a 72" (No. 4 or 4x4) galvanized hardware cloth.
- Gravel - The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and below the underdrain.
- The main collector pipe shall be at a minimum 0.5% slope.
- A rigid, non-perforated observation well must be provided (one per every 1,000 square feet) to provide a clean-out port and monitor performance of the filter.
- A 4" layer of pea gravel (3/4" to 1/2" stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain. This layer may be considered part of the filter bed when bed thickness exceeds 24".

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

- Miscellaneous**
These practices may not be constructed until all contributing drainage area has been stabilized

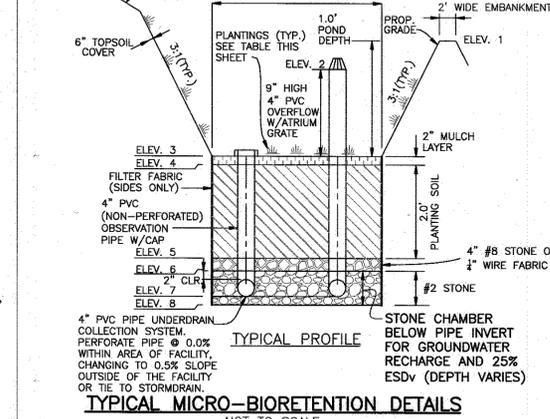
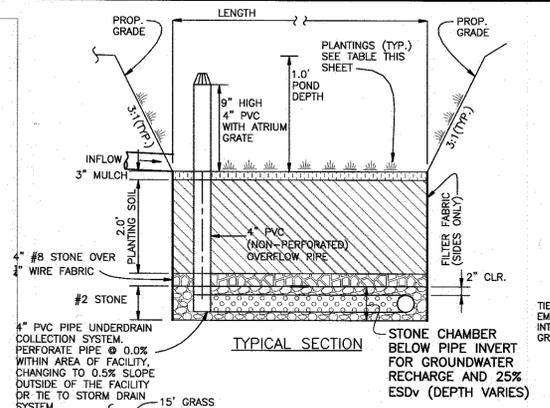
LANDSCAPE DATA		PLANTING DATA	
HYDROLOGIC ZONE 3 - REGULARLY INUNDATED SHORELINE FRINGE (HIGH MARSH)	DESIGN FLOW (CFS)	111	85
DESIGN FLOW (CFS)	DESIGN FLOW (CFS)	111	85
DESIGN FLOW (CFS)	DESIGN FLOW (CFS)	111	85

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Cantor, Chief, Development Engineering Division, 6-28-16

Veronica, Chief, Development Engineering Division, 6-28-16

Val, Director, 6-28-16



MICRO-BIORETENATION DESIGN TABLES

A		B	
ELEV. 1	345.00	ELEV. 1	345.50
ELEV. 2	344.75	ELEV. 2	345.25
ELEV. 3	344.00	ELEV. 3	344.50
ELEV. 4	343.83	ELEV. 4	344.33
ELEV. 5	341.83	ELEV. 5	342.33
ELEV. 6	341.50	ELEV. 6	342.00
ELEV. 7	340.92	ELEV. 7	341.42
ELEV. 8	339.87	ELEV. 8	340.27

DIMENSIONS		DIMENSIONS	
'A'	varies	'A'	varies
'B'	varies	'B'	varies
TOTAL SF	111	TOTAL SF	85

MICRO-BIORETENATION (M-6) CONSTRUCTION SPECIFICATIONS

- THE SUBGRADE FOR ALL BIORETENATION COMPONENTS SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ALL FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL. MATERIALS SHALL BE PREPARED BY STRIPPING TOPSOIL AND ANY OTHER UNSUITABLE MATERIALS FROM THE AREAS. AND BE COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DRY DENSITY REFERENCED TO ASTM D 1557 STANDARD PRACTICE.
- THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
- GEOTEXTILE CLASS C28 OR BETTER SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE PREPARED BY PLACING ANOTHER PIECE OF GEOTEXTILE FABRIC OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE FABRIC. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE FABRIC SHALL BE A MINIMUM OF ONE FOOT.
- STONE FOR THE RIP-RAP OR LEVEL SPREADERS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF MATERIALS. THE STONE FOR THE RIP-RAP OR LEVEL SPREADERS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL INSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. STONE SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE FABRIC. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.
- Unless otherwise specified, place 6" (150mm) of crushed, washed, 3/4" - 2" (20mm - 50mm) hard, non-calicheous stone on the bottom of the trench. The base must be level and at a zero grade.
- If it becomes impractical to level the stone base by hand, use a low pressure, tracked dozer. This stone is placed too high then the flow will be forced out of the channel, and scour adjacent to the stone will occur.

PLANTING SCHEDULE - MICRO-BIORETENATION AND LANDSCAPE INFILTRATION

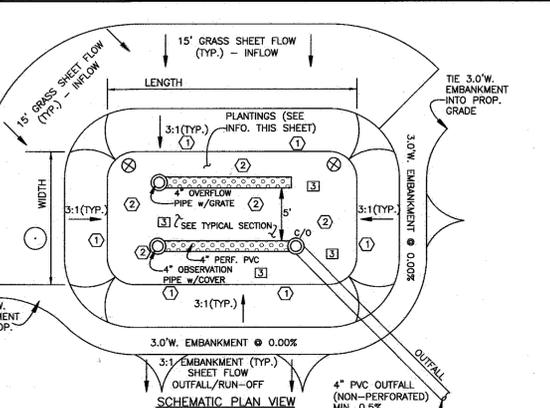
FACILITY AREA (SF)	A	B	D	E
111	85	124	110	

MICRO-BIORETENATION PLANTING LEGEND

SYMBOL	NAME
①	AJUGA REPTANS (CREEPING BUGLEWEED)
②	IRIS VERSICOLOR (IRIS)
□	CLETHRA (COMMON PERIWINKLE)
△	ELYMUS VIRGINICUS (VIRGINIA WILD RYE)
○	VACCINIUM ATROCAROCCUM (HIGHBUSH BLUEBERRY)
●	BETULA NIGRA (RIVER BIRCH)

TABLE B.3.2 MATERIALS AND SPECIFICATIONS FOR SWM FACILITIES

MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS (IF REQUIRED)	SEE APPENDIX A; TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2.0' TO 4.0' DEEP)	SAND: 35-60% S.L.T.; 30-35% S.L.T.; 10-25% S.L.T.	N/A	USDA SOIL TYPES: LOAMY SAND, SANDY LOAM OR LOAM
MULCH	SHREDDED HARDWOOD	N/A	2" TO 3" DEPTH, AGED 6 MONTHS, MINIMUM
GEOTEXTILE (CLASS 'C')	APPARENT OPENING SIZE: (ASTM D 4753) 1/8" MIN. TENSILE STRENGTH: (ASTM D 4632) 100 LBS/INCH PLUNGE RESISTANCE: (ASTM D 4833)	N/A	FOR USE AS NECESSARY BENEATH UNDERDRAINS ONLY
UNDERDRAIN GRAVEL	AASHTO M-43	0.375" TO 0.750"	
UNDERDRAIN PIPING	F758, TYPE PS28 OR AASHTO M-278	4" TO 6" RIGID SCHED 40 PVC OR SDR35	3/8" PERV. @ 6" O/C, 4 HOLES PER ROW. MINIMUM OF 3" OF 1/4" CALVANEZED HARDWARE CLOTH
POURED-IN-PLACE CONC. (IF REQUIRED)	MSHA MIX NO. 3; F-3500 @ 28 DAYS, NORMAL WEIGHT, AIR ENTRAINMENT, REINFORCING TO MEET ASTM 615-60	N/A	ON-SITE TESTING OF POURED-IN-PLACE CONC. REQUIRED; 28 DAY STRENGTH TEST AND SLUMP TEST; ALL CONC. DESIGN (CAST-IN-PLACE OR PRE-CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS REQUIRES DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND. DESIGN TO INCLUDE ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES); AND ANALYSIS OF POTENTIAL CRACKING
CHECK DAM (CREATED WOOD)	AWPA STANDARD C6	6" X8" OR 8" X8"	NOT COAT WITH CREOSOTE; EMBED AT LEAST 3" INTO SIDE SLOPES



MICRO-BIORETENATION DESIGN TABLES

Drywell Designation	Impervious Area (SF)	Drainage Area (SF)	Volumetric Runoff	ESDV	Length (ft)	Width (ft)	Depth (ft)	Volume Provided (CF)	Full ESDV Provided?
DW-1	460	460	0.95	58.27	10	7	5	140	yes
DW-2	1220	1220	0.95	154.53	Stormchamber design			650	yes
DW-3	1853	1853	0.95	234.71	Stormchamber design			650	yes
DW-4	1693	1693	0.95	214.45	Stormchamber design			650	yes
DW-5	1831	1831	0.95	231.93	Stormchamber design			650	yes
DW-6	1870	1870	0.95	236.87	Stormchamber design			650	yes

MICRO-BIORETENATION DESIGN TABLES

Drywell Designation	Length (ft)	Width (ft)	Depth (ft)	Grade	Top of Stone	Bottom of Stone	Storm-Chamber
DW-1	10.00	7.00	5.00	347.0	346.0	341.0	NO
DW-2	33.00	7.00	5.00	348.0	347.0	342.0	YES
DW-3	33.00	7.00	5.00	351.0	350.0	345.0	YES
DW-4	18.00	13.00	5.00	348.0	347.0	342.0	YES
DW-5	18.00	13.00	5.00	351.0	350.0	345.0	YES
DW-6	18.00	13.00	5.00	350.0	347.0	342.0	YES

MICRO-BIORETENATION DESIGN TABLES

D		E	
ELEV. 1	343.00	ELEV. 1	340.30
ELEV. 2	342.80	ELEV. 2	340.05
ELEV. 3	342.05	ELEV. 3	339.30
ELEV. 4	341.88	ELEV. 4	339.13
ELEV. 5	339.88	ELEV. 5	337.13
ELEV. 6	339.55	ELEV. 6	336.80
ELEV. 7	338.97	ELEV. 7	336.22
ELEV. 8	337.74	ELEV. 8	334.81

DIMENSIONS		DIMENSIONS	
'A'	varies	'A'	varies
'B'	varies	'B'	varies
TOTAL SF	124	TOTAL SF	110

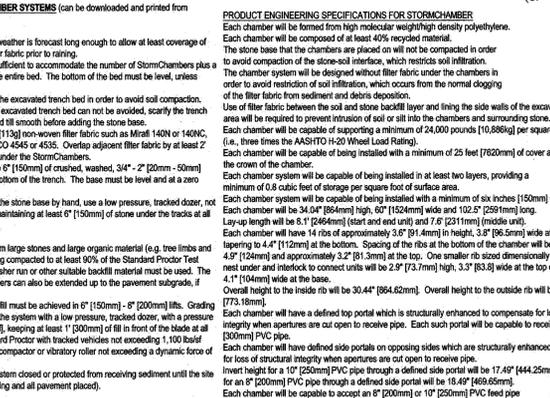
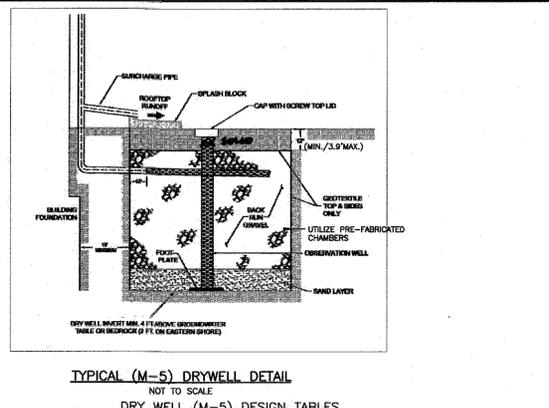


TABLE B.4.1 MATERIALS AND SPECIFICATIONS FOR (M-6) MICRO-BIORETENATION

MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS (IF REQUIRED)	SEE APPENDIX A; TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2.0' TO 4.0' DEEP)	LOAMY SAND (60-65%) & COMPOST (35-40%) OR LOAMY SAND (30%) COARSE SAND (30%) & COMPOST (35-40%)	N/A	USDA SOIL TYPES: LOAMY SAND, SANDY LOAM, CLAY CONTENT <5%
MULCH	SHREDDED HARDWOOD	N/A	AGED 6 MONTHS, MINIMUM
GEOTEXTILE	MIN. 100% BY DRY WEIGHT (ASTM D2974)	N/A	
UNDERDRAIN PIPING	F758, TYPE PS28 OR AASHTO M-278	4" TO 6" RIGID SCHED 40 PVC OR SDR35	3/8" PERV. @ 6" O/C, 4 HOLES PER ROW. MINIMUM OF 3" OF 1/4" CALVANEZED HARDWARE CLOTH
POURED-IN-PLACE CONC. (IF REQUIRED)	MSHA MIX NO. 3; F-3500 @ 28 DAYS, NORMAL WEIGHT, AIR ENTRAINMENT, REINFORCING TO MEET ASTM 615-60	N/A	ON-SITE TESTING OF POURED-IN-PLACE CONC. REQUIRED; 28 DAY STRENGTH TEST AND SLUMP TEST; ALL CONC. DESIGN (CAST-IN-PLACE OR PRE-CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS REQUIRES DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND. DESIGN TO INCLUDE ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES); AND ANALYSIS OF POTENTIAL CRACKING
SAND (1.0' DEEP)	AASHTO M-6 OR ASTM C-33	0.02" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GYPSSTONE (ASHSTO #10 ARE NOT ACCEPTABLE; NO CALCIUM CARBOXYLATE OR NO "ROCK DUST" CAN BE USED FOR SAND



VEGETATIVE STABILIZATION	DEFINITION	PURPOSE	CRITERIA
Using vegetation to cover or protect exposed soil surfaces.	Definition: The process of preparing the soil to sustain adequate vegetative stabilization. Purpose: To provide a suitable soil medium for vegetative growth. Conditions: Where Erosion Control is to be established.	Purpose: To provide a suitable soil medium for vegetative growth. Conditions: Where Erosion Control is to be established.	Criteria: The application of seed and mulch to establish vegetation.

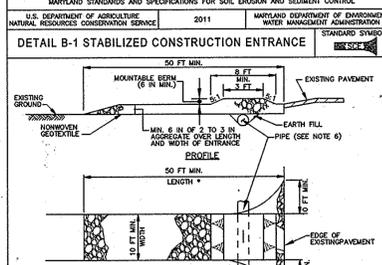
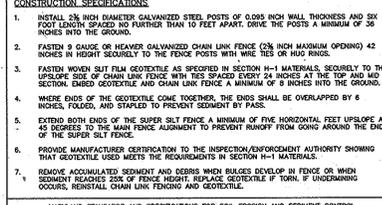
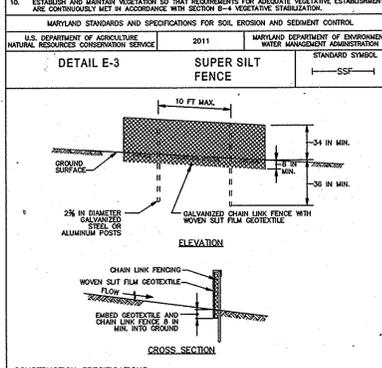
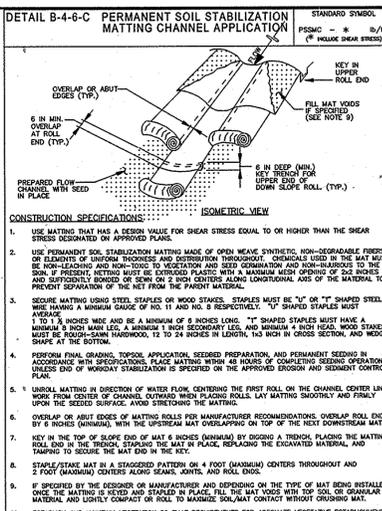
SOIL PREPARATION	DEFINITION	PURPOSE	CRITERIA
1. Temporary Stabilization	Definition: The process of preparing the soil to sustain adequate vegetative stabilization. Purpose: To provide a suitable soil medium for vegetative growth. Conditions: Where Erosion Control is to be established.	Purpose: To provide a suitable soil medium for vegetative growth. Conditions: Where Erosion Control is to be established.	Criteria: The application of seed and mulch to establish vegetation.
2. Permanent Stabilization	Definition: The process of preparing the soil to sustain adequate vegetative stabilization. Purpose: To provide a suitable soil medium for vegetative growth. Conditions: Where Erosion Control is to be established.	Purpose: To provide a suitable soil medium for vegetative growth. Conditions: Where Erosion Control is to be established.	Criteria: The application of seed and mulch to establish vegetation.

SOIL AMENDMENTS	DEFINITION	PURPOSE	CRITERIA
1. Topsoil	Definition: The process of preparing the soil to sustain adequate vegetative stabilization. Purpose: To provide a suitable soil medium for vegetative growth. Conditions: Where Erosion Control is to be established.	Purpose: To provide a suitable soil medium for vegetative growth. Conditions: Where Erosion Control is to be established.	Criteria: The application of seed and mulch to establish vegetation.
2. Topsoil Salvage	Definition: The process of preparing the soil to sustain adequate vegetative stabilization. Purpose: To provide a suitable soil medium for vegetative growth. Conditions: Where Erosion Control is to be established.	Purpose: To provide a suitable soil medium for vegetative growth. Conditions: Where Erosion Control is to be established.	Criteria: The application of seed and mulch to establish vegetation.

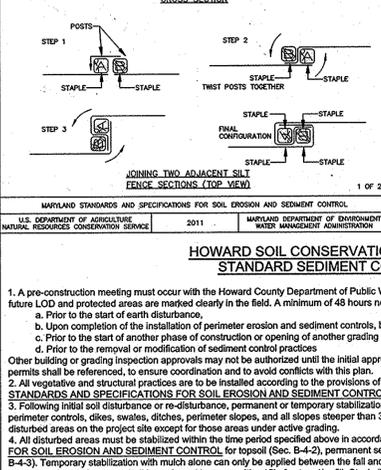
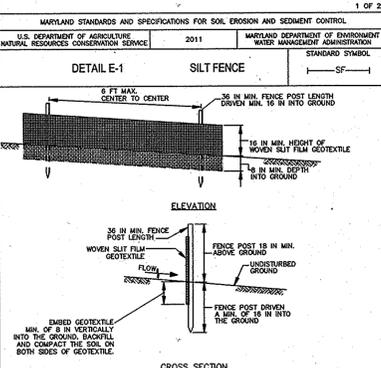
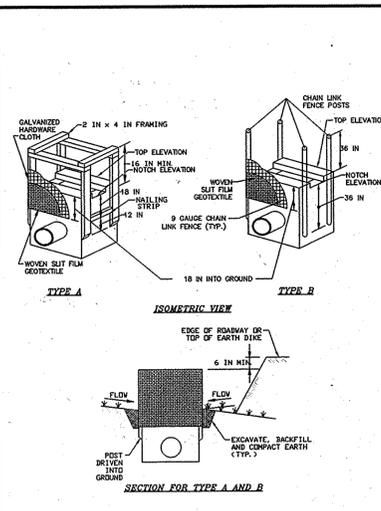
VEGETATIVE STABILIZATION	DEFINITION	PURPOSE	CRITERIA
1. General Use	Definition: The process of preparing the soil to sustain adequate vegetative stabilization. Purpose: To provide a suitable soil medium for vegetative growth. Conditions: Where Erosion Control is to be established.	Purpose: To provide a suitable soil medium for vegetative growth. Conditions: Where Erosion Control is to be established.	Criteria: The application of seed and mulch to establish vegetation.
2. Turfgrass	Definition: The process of preparing the soil to sustain adequate vegetative stabilization. Purpose: To provide a suitable soil medium for vegetative growth. Conditions: Where Erosion Control is to be established.	Purpose: To provide a suitable soil medium for vegetative growth. Conditions: Where Erosion Control is to be established.	Criteria: The application of seed and mulch to establish vegetation.

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Table B.1: Temporary Seeding for Site Stabilization	Plant Species	Seeding Rate (lb/ac)	Seeding Depth (in)	Recommended Seeding Dates by Plant Hardiness Zone
				5b and 6a, 6b, 7a and 7b
				5b and 6a, 6b, 7a and 7b

Table B.3: Recommended Planting Dates for Permanent Cover in Maryland	Type of Plant Material	Plant Hardiness Zone	Planting Dates

Table B.4: Standards and Specifications for Permanent Stabilization (Continued)	Section	Requirement

HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES

1. A pre-construction meeting must occur with the Howard County Department of Public Works, Construction Inspection Division (CID), 410-313-1855 after the future LOR and protected areas are marked clearly in the field. A minimum of 48 hours 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.
 - d. Prior to the removal or modification of sediment control practices.
2. All other grading or inspection approvals may not be authorized until the initial approval by the inspection agency is made. Other related state and federal permits shall be obtained prior to construction to avoid conflict with this plan.
3. All other grading and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and revisions thereof.
4. Following initial site disturbance or re-disturbance, permanent stabilization is required within three (3) calendar days as to the surface of all other disturbed areas on the project site except for those areas under active grading.
5. 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 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 feet must be benched with stable outer walls.
6. All sediment control structures are to remain in place, and are to be maintained in operative condition until permission for their removal has been obtained from the CID.
7. Site Analysis:

Total Area of Site:	2.02 Acres
Area Disturbed:	1.55 Acres
Area to be roofed or paved:	1.15 Acres
Area to be vegetatively stabilized:	0.87 Acres
Total:	2.80 Cu Yds
Off-site total/borrow area location:	0
8. 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 should include:
 - a. Inspection date
 - b. Inspection type (routine, pre-storm event, during rain event)
 - c. Name and title of inspector
 - d. Weather information (current conditions as well as time and amount of last recorded precipitation)
 - e. Brief description of project status (e.g. percent complete) and/or current activities
 - f. Evidence of sediment discharges
 - g. Identification of plan deficiencies
 - h. Identification of sediment controls that require maintenance
 - i. Identification of missing or improperly installed sediment controls
 - j. Compliance status regarding the sequence of construction and stabilization requirements
 - k. Photographs
 - l. Monitoring/inspecting
 - m. Maintenance and/or corrective action performed
 - n. Other inspection items as required by the General Permit for Stormwater Associated with Construction Activities (NPDES, MDE).
9. Trenches for the construction of utilities to be three pipe lengths or that which can and shall be back filled and stabilized by the end of each work day, whichever is shorter.
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 be allowed by the CID per the list of HSCD-approved field changes.
11. Disturbance shall not occur outside the L.O.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, wheelbarrows, and other equipment shall be treated in a sediment basin or other approved washwater facility.
13. Topsoil shall be stockpiled and preserved on-site for redistribution on final grade.
14. All silt fence and super silt fence shall be placed on-the-contour, and be imbedded at 25 minimum inches, with lower ends buried up by 2' in elevation.
15. Stream channels must not be disturbed during the following restricted time periods (inclusive):
 - Use 1 and 1P March 1 - Jun 15
 - Use 1 and 1HP October 1 - April 30
 - Use 4 March 1 - May 31
 - Use 4C April 1 - Jun 15
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.

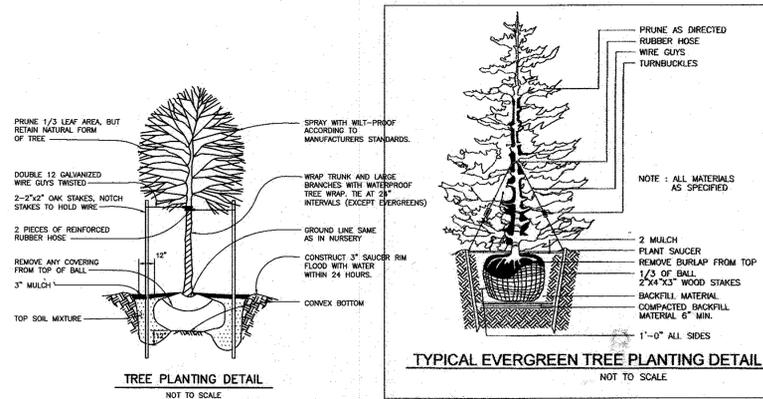
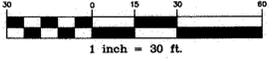
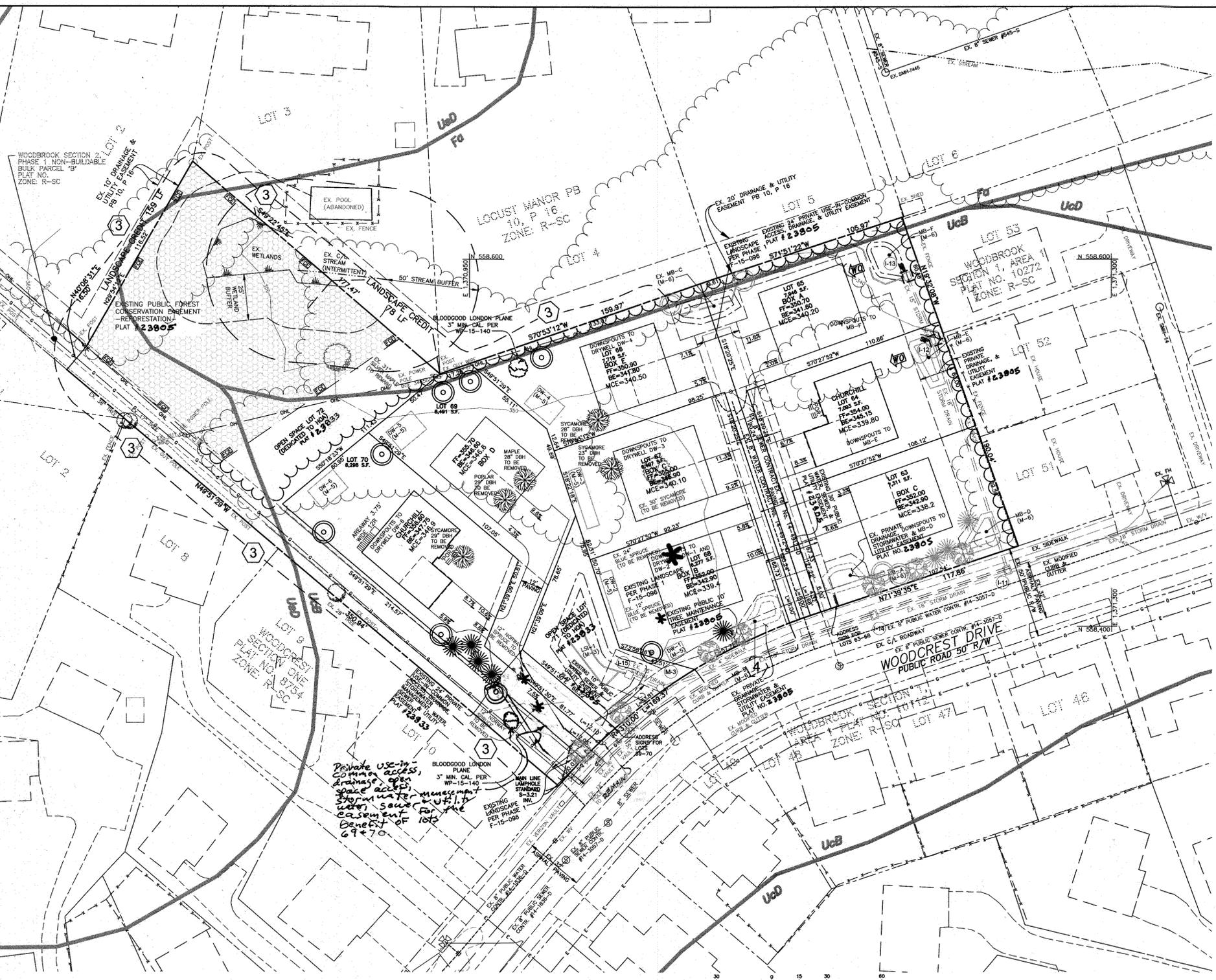
PERIMETER PLANTING LIST			
SYMBOL	QUANTITY	NAME	REMARKS
	8	Tilia cordata 'greenspire' GREENSPIRE LITTLELEAF LINDEN	2 1/2" MIN. CAL. B & B FULL HEAD
	5	Cupressocyparis leylandii LEYLAND CYPRESS	5' - 6' HEIGHT
	2	Platanus x acerifolia Bloodgood' BLOODGOOD LONDON PLANE	3" MIN. CAL.

SCHEDULE A PERIMETER LANDSCAPE EDGE				
CATEGORY	ADJACENT TO ROADWAY	ADJACENT TO PERIMETER PROPERTIES		TOTAL
		YES	NO	
PERIMETER NO. / LANDSCAPE TYPE		3	A	4
LINEAR FEET OF PERIMETER (FRONTAGE/ROADWAY)		791'	58'	
CREDIT FOR EXISTING VEGETATION: NO OR YES (w/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		YES	NO	
CREDIT FOR WALL, FENCE OR BERM: NO OR YES (w/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		NO	NO	
NUMBER OF PLANTS REQUIRED: SHADE TREES		11**	1	10
EVERGREEN TREES		-	-	-
OTHER TREES (2:1 SUBSTITUTE)		-	-	-
SHRUBS		-	-	-
NUMBER OF PLANTS PROVIDED: SHADE TREES		9**	1	10**
EVERGREEN TREES		-	-	-
OTHER TREES (2:1 SUBSTITUTE)		4*	-	4*
SHRUBS (10:1 SUBSTITUTE)		-	-	-
CREDITS PLANT SUBSTITUTION (DESCRIBE BELOW IF NEEDED)		-	-	-

* SUBSTITUTION IN PERIMETER 3 FROM 2 SHADE TREES TO 4 EVERGREEN TREES IS PROVIDED TO INCREASE THE PRIVACY FROM THE REAR YARD OF THE ADJOINING PROPERTIES.
 ** THE 2 PLATANUS X ACERIFOLIA/BLOODGOOD LONDON PLANE TREES OF 3" CALIPER ARE BEING INSTALLED TO WITHGATE THE REMOVAL OF A SPECIMEN TREE. APPROVAL FOR THIS REMOVAL WAS APPROVED UNDER WAIVER PETITION. WP-14-140.

DEVELOPER'S/BUILDER'S CERTIFICATE
 I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.
 [Signature] 5/26/16
 BOB CORBETT, DATE
 WILLIAMSBURG GROUP LLC

LANDSCAPE NOTES:
 1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL.
 2. AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATIONS.
 3. THE OWNER, TENANTS AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
 4. LANDSCAPING FOR THIS SUBDIVISION IS PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. THE OBLIGATION FOR SECTION 2, PHASE 2 WAS DEFERRED ON F-15-103 AND IS NOW DESIGNED IN ACCORDANCE WITH THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF \$3,750.00 (\$300 FOR EACH OF THE 10 SHADE TREES, \$150 FOR THE 5 EVERGREENS) FOR THE REQUIRED PERIMETER LANDSCAPING SHALL BE POSTED AS PART OF THE BUILDER'S GRADING PERMIT. LANDSCAPING FOR SECTION 2, PHASE 1 WAS PROVIDED AT THE TIME OF THE ROAD PLANS, F-15-096, AND SURETY WAS POSTED AS PART OF THE BPM, DEVELOPERS AGREEMENT.
 5. THE EASTERN BOUNDARY LINE IS INTERNAL TO THE SAME SUBDIVISION AND THEREFORE NO LANDSCAPE OBLIGATION IS REQUIRED.
 6. STREET TREES WERE PLANTED UNDER THE ROAD CONSTRUCTION PLANS FOR SECTION 2, PHASE 1, F-15-096.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 6-8-16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 6-28-16
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 6-28-16
 DIRECTOR

NO.	DATE	REVISION
1	12.1.16	Revise driveway Location For Lots 69-70.

BENCHMARK ENGINEERING, INC.
 ENGINEERS & LAND SURVEYORS & PLANNERS
 6490 BALTIMORE NATIONAL PIKE & SUITE 315 • ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-6644
 WWW.BE-ENGINEERING.COM

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. 12345. Expiration Date: 06-08-2016.
 [Signature] 5/26/16

OWNER/DEVELOPER: SECURITY DEVELOPMENT, LLC
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21041
 410-465-4244

BUILDER: WILLIAMSBURG GROUP LLC
 5485 HARPERS FARM ROAD
 SUITE 200
 COLUMBIA, MARYLAND 21044
 410-964-4440

PROJECT: WOODBROOK SECTION 2, PHASES 1 AND 2, LOTS 63-70 AND OPEN SPACE LOTS 71 AND 72

LOCATION: TAX MAP 37, GRID 14
 PARCELS 125, 488 AND 530
 1st ELECTION DISTRICT
 WOODCREST DRIVE
 HOWARD COUNTY, MARYLAND

TITLE: LANDSCAPE PLAN, NOTES AND DETAILS

DATE: MAY, 2016 BEI PROJECT NO. 2370
 DESIGN: JMC DRAFT: JMC SCALE: AS SHOWN SHEET 7 OF 7