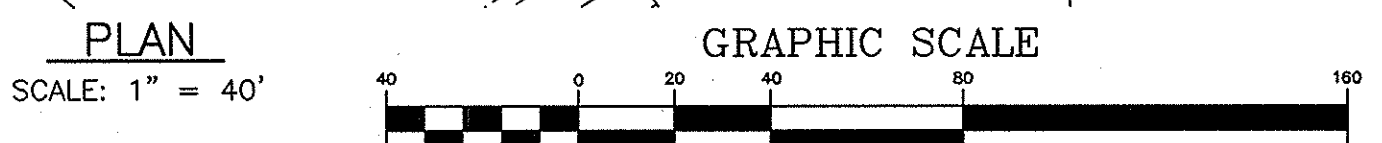
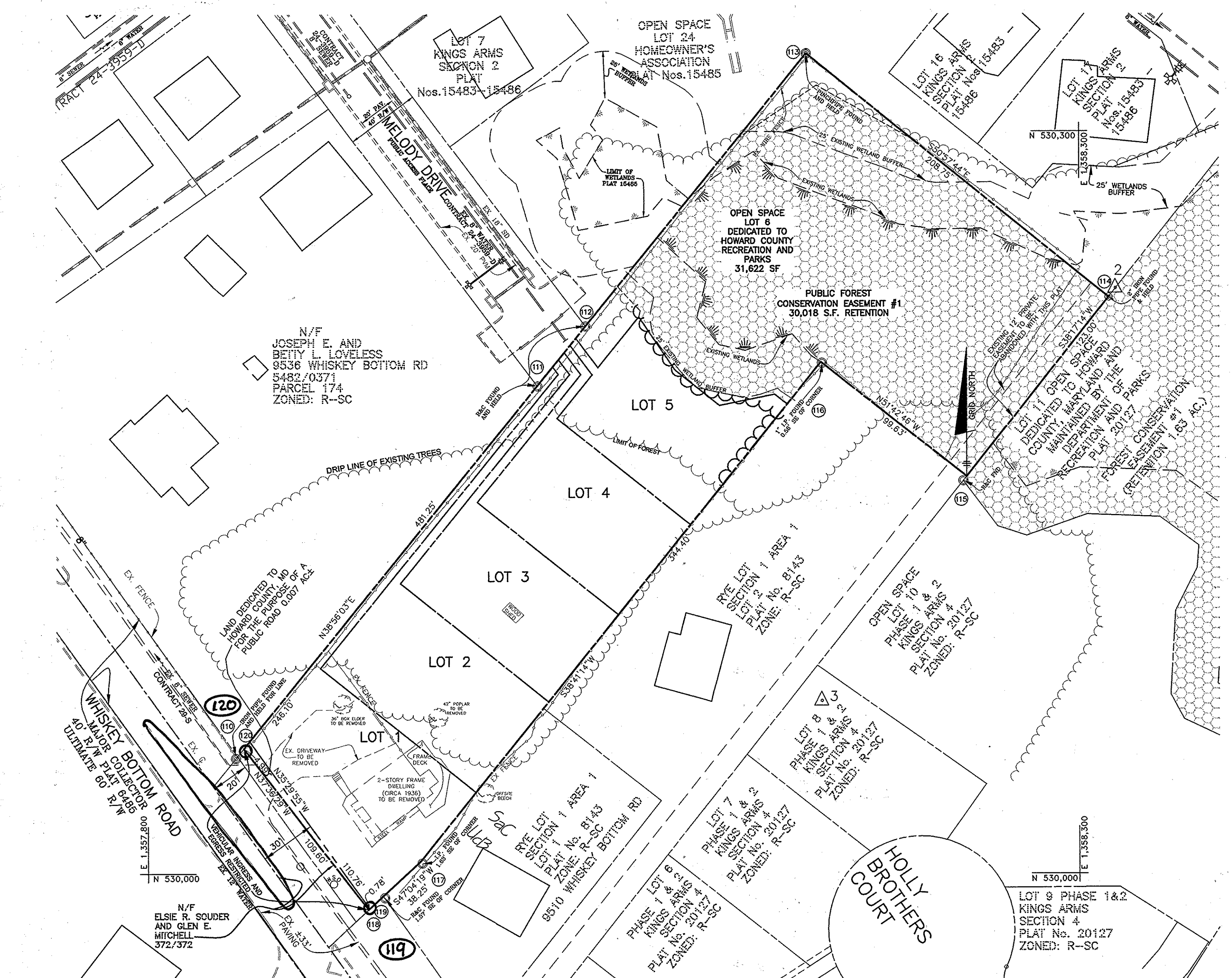


GENERAL NOTES

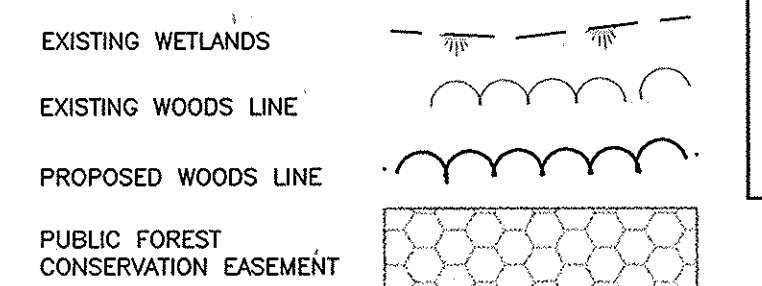
- 1. THE SUBJECT PROPERTY IS ZONED R-SC PER THE 2/02/04 COMPREHENSIVE ZONING PLAN AND PER COMP. LITE ZONING AMENDMENTS EFFECTIVE 7/28/06.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
3. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1850 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
4. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
5. WATER AND SEWER ARE PUBLIC. CONTRACT NUMBER 14-4723-D.
6. WATER AND SEWER SERVICE TO THESE LOTS WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.122.B OF THE HOWARD COUNTY CODE.
7. PUBLIC WATER AND SEWAGE ALLOWANCE WILL BE GRANTED AT THE TIME OF ISSUANCE OF THE BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.
8. TRACT BOUNDARY BASED ON FIELD RUN BOUNDARY SURVEY BY BENCHMARK ENGINEERING, INC. IN SEPTEMBER, 2010.
9. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 58A & 50B5 WERE USED FOR THIS PROJECT.
10. EXISTING TOPOGRAPHY SHOWN HEREON WAS FIELD RUN BY BENCHMARK ENGINEERING, INC. IN SEPTEMBER, 2010. CONTOUR INTERVAL IS 2 FEET.
11. EXISTING UTILITIES SHOWN HEREON ARE BASED ON FIELD LOCATIONS AND RECORD DRAWINGS.
12. CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO ANY CONSTRUCTION ACTIVITY AND SHALL ADJUST ALL UTILITIES AND RIM ELEVATIONS AS NEEDED TO MATCH THIS PLAN.
13. 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 OF THE DEVELOPER AGREEMENT #14-4723-D.
14. FOREST STAND DELINEATION PLAN WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., FEBRUARY 2011.
15. THE WETLANDS DELINEATION STUDY FOR THIS PROJECT WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., OCTOBER, 2010.
16. THERE ARE NO STEEP SLOPES ON THIS SITE.
17. THERE IS NO 100-YEAR FLOODPLAIN ON THIS SITE.
18. NO NOISE STUDY IS REQUIRED FOR THIS PROJECT.
19. AN APO TRAFFIC ANALYSIS WAS PREPARED BY THE MARS GROUP, DATED FEBRUARY, 2011, AND WAS APPROVED SEPTEMBER 16, 2011.
20. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO HISTORIC FEATURES OR CEMETERY LOCATIONS ON-SITE.
21. UNLESS NOTED AS "PRIVATE", ALL EASEMENTS ARE PUBLIC.
22. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
23. BRL INDICATES BUILDING RESTRICTION LINE.
24. THIS PLAN IS SUBJECT TO THE 5th EDITION OF THE HOWARD COUNTY SUBDIVISION REGULATIONS AND THE AMENDED HOWARD COUNTY ZONING REGULATIONS.
25. STORMWATER MANAGEMENT SHALL BE PROVIDED FOR THIS PROJECT BASED ON GUIDELINES ESTABLISHED BY THE 2007 REVISIONS TO THE 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUMES I & II. ENVIRONMENTAL SITE DESIGN BIO-SWALE AND MICRO-BIORETENTION FACILITIES WERE USED. BIO-SWALES AND MICRO-BIORETENTION FACILITIES SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE INDIVIDUAL LOT OWNERS. MAINTENANCE AGREEMENTS WILL BE ESTABLISHED TO ENSURE LOT TO LOT CONVEYANCE.
26. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
27. 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 POST (14 GAUGE), INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
28. LANDSCAPING FOR LOTS 1-5 IS PROVIDED IN ACCORDANCE WITH A CERTIFIED LANDSCAPE PLAN ON FILE WITH THIS PLAN. IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL, SURETY IN THE AMOUNT OF \$5,720 FOR SHADE TREES (INCLUDING TWO LARGE SHADE TREES FOR MITIGATION PER WP-11-153), 3 EVERGREENS, 215' OF PRIVACY FENCING AND 4 SHRUBS FOR TRASH PAD SCREENING SHALL BE POSTED WITH A DEVELOPER'S AGREEMENT UNDER THIS FINAL PLAN.
29. ALL AREAS OF CONTROLLED FILL TO BE AT 95% COMPACTION PER AASHTO-T180 STANDARDS.
30. THIS PLAN COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION ASSET. THE DEVELOPER SHALL PROVIDE FOR THE FOREST CONSERVATION WITHIN OPEN SPACE LOT 6, IN EXCESS OF THE BREAK EVEN POINT OF 0.5 ACRES REQUIRED FOR THIS SUBDIVISION. A DEED OF FOREST CONSERVATION EASEMENT AND FOREST CONSERVATION AGREEMENT HAVE BEEN EXECUTED WITH THE DEVELOPER AGREEMENT FOR #12-019.
31. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
32. DRIVEWAYS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
(a) WIDTH - 12' (16' SERVING MORE THAN ONE RESIDENCE)
(b) SURFACE - 6" COMPACT CRUSHER RUN BASE WITH TAR AND CHIP COATING (1-1/2" MIN.)
(c) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM 45' TURNING RADIUS.
(d) STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING).
(e) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOODPLAIN WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY.
(f) STRUCTURE CLEARANCE - MINIMUM 12 FEET.
(g) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.
33. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAMS, OR THEIR REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATION EASEMENT AREAS.
34. 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.
35. THE DEVELOPER RESERVES UNTO ITSELF, ITS SUCCESSORS AND ASSIGNS, ALL EASEMENTS SHOWN ON THIS PLAN FOR WATER, SEWER, STORM DRAIN, OTHER PUBLIC UTILITIES AND FOREST CONSERVATION (DESIGNATED AS "FOREST CONSERVATION AREA") LOCATED IN, ON OVER AND THROUGH LOTS/PARCELS. ANY CONVEYANCES OF THE AFORESAID LOTS/PARCELS SHALL BE SUBJECT TO THE EASEMENTS HERIN RESERVED, WHETHER OR NOT EXPRESSLY STATED IN THE DEED(S) CONVEYING SAID LOTS/PARCELS. DEVELOPER SHALL EXECUTE AND DELIVER DEEDS FOR THE EASEMENTS HERIN RESERVED TO HOWARD COUNTY. UPON COMPLETION OF THE PUBLIC UTILITIES AND THEIR HOWARD COUNTY, AND IN THE CASE OF THE FOREST CONSERVATION EASEMENT(S), UPON COMPLETION OF THE DEVELOPER'S OBLIGATIONS UNDER THE FOREST CONSERVATION INSTALLATION AND MAINTENANCE AGREEMENT EXECUTED BY THE DEVELOPER AND THE COUNTY, AND THE RELEASE OF DEVELOPER'S SURETY POSTED WITH SAID AGREEMENT, THE COUNTY SHALL ACCEPT THE EASEMENTS AND RECORD THE DEED(S) OF EASEMENT IN THE LAND RECORDS OF HOWARD COUNTY.
36. THESE FINAL PLANS ARE PROVIDED WITH THE RESUBDIVISION PLAN (#12-019) UNDER THE PROVISIONS OF THE HOWARD COUNTY SUBDIVISION REGULATIONS, SECTION 16.102.(D)(1)(i) AND (ii), WHICH INDICATE THAT A RESUBDIVISION IS EXEMPT FROM THE SKETCH AND PRELIMINARY PLANS IF THERE ARE NO PUBLIC ROAD IMPROVEMENTS AND THERE IS NO ADDITIONAL AREA TO BE RECORDED.
37. WAIVER PETITION WP-11-153 WAIVING SECTION 16.1205.(c) TO ALLOW REMOVAL OF TWO SPECIMEN TREES WAS APPROVED JUNE 13, 2011.
38. LOT 5 IS LOCATED WITHIN THE FALLSINGTON URBAN (Fu) SOIL COMPLEX. WITHIN THIS COMPLEX, DEPTH TO BEDROCK IS UNDETERMINED, THERE IS A 0 TO 1 FOOT WATER TABLE, AND THERE ARE SEVERE LIMITATIONS FOR SEWAGE DISPOSAL FIELDS AND HOMES WITH BASEMENTS. SEASONAL WETNESS OCCURS.
39. A PRIVATE RANGE OF ADJACENT SIGN ASSEMBLY SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPER'S EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-5752 FOR DETAILS AND COST ESTIMATE.
40. THIS DEVELOPMENT IS DESIGNED TO BE IN ACCORDANCE WITH SECTION 16.127 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. THE DEVELOPER OF THIS PROJECT SHALL CREATE COMPATIBILITY WITH THE EXISTING NEIGHBORHOOD THROUGH THE USE OF ENHANCED PERIMETER LANDSCAPING, BERMS, FENCES, SIMILAR HOUSING UNIT TYPES AND THE DIRECTIONAL ORIENTATION OF THE PROPOSED HOUSES.
41. GRAVITY SEWER SERVICE, FIRST FLOOR ONLY. BASEMENT SEWER SERVICE TO BE PROVIDED BY PRIVATE ON-SITE PUMP.
42. A WAIVER FROM GRAVITY SEWER SERVICE FOR BASEMENTS WAS APPROVED NOVEMBER 17, 2011.
43. THIS PROJECT IS UTILIZING THE ZERO LOT LINE OPTION FOR LOT 1. THE REQUIREMENT OF A MINIMUM OF 15' BETWEEN HOUSES IS PROVIDED BY A 15' BRL ON LOT 2. A 5' MAINTENANCE EASEMENT TO BENEFIT LOT 1 IS REQUIRED FOR MAINTENANCE ACCESS, AND HAS BEEN RECORDED IN THE LAND RECORDS OF HOWARD COUNTY SIMULTANEOUSLY WITH THE RECORDED OF THIS PLAN IN ACCORDANCE WITH SECTION 110.2.E OF THE ZONING ORDINANCE.
44. THE SHARED DRIVEWAY SETBACK REDUCTION HAS BEEN APPROVED PROVIDED THAT A PRIVACY FENCE BE INSTALLED ALONG THE WESTERN PROPERTY LINE IN ACCORDANCE WITH SECTION 16.120(b)(6)(vi) OF THE SUBDIVISION REGULATIONS.
45. STREET LIGHT PLACEMENT AND TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)". A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREETLIGHT AND ANY TREE.
46. A DESIGN MANUAL WAIVER WAS APPROVED JANUARY 23, 2012 ALLOWING A MINIMUM 9" SEPARATION BETWEEN STORM DRAIN PIPE (DRIVEWAY CULVERT) AND THE SEWER MAIN. THE APPROVAL IS SUBJECT TO PLACING 57 STONE AGGREGATE BACKFILL FRO THE SEWER PIPE BEDDING TO 6 INCHES ABOVE THE CROWN OF THE STORM DRAIN AT THE CROSSING. THE STONE FILL SHALL EXTEND THE WIDTH OF THE STORM DRAIN TRENCH AS IT PASSES OVER THE SEWER.

RIGHT OF WAY ELEVATION CHART NAD'83
R/WPT NO. DESCRIPTION ELEVATION
119 REBAR & CAP 291.55'
120 REBAR & CAP 287.76'

FINAL CONSTRUCTION PLANS
KINGS ARMS, SECTION 5
LOTS 1-5 AND OPEN SPACE LOT 6
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND



LEGEND



SITE DATA TABULATION

1. GENERAL SITE DATA
a. PRESENT ZONING: R-SC
b. LOCATION, TAX MAP: 47, GRID 22, PARCEL 816
c. APPLICABLE DPZ FILE REFERENCES: N/A
d. PROPOSED USE OF SITE: SINGLE FAMILY DETACHED RESIDENTIAL
e. PROPOSED WATER AND SEWER SYSTEMS: PUBLIC

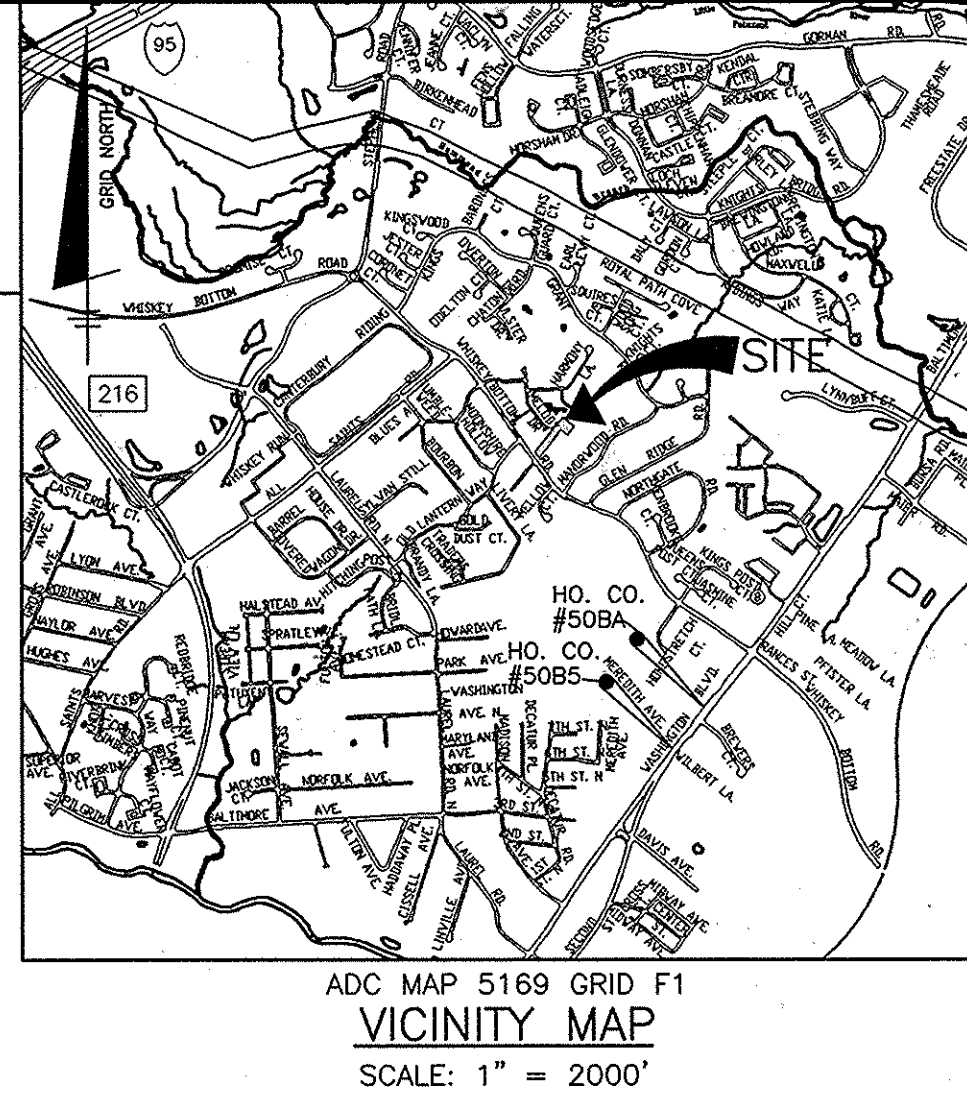
2. AREA TABULATION
a. TOTAL AREA OF SITE: 1.54± AC.
b. APPROXIMATE AREA OF 100 YEAR FLOODPLAIN: N/A
c. APPROX. AREA OF STEEP SLOPES (25% OR MORE): N/A
d. NET AREA OF SITE: 1.54± AC.
e. AREA OF THIS PLAN SUBMISSION: 1.54± AC.
f. AREA OF PROPOSED BUILDABLE LOTS: 0.81± AC.
g. AREA OF PROPOSED PUBLIC ROAD RIGHT-OF-WAY: 0.00± AC.
h. APPROXIMATE AREA OF LIMIT OF DISTURBANCE: 0.86± AC.
i. AREA OF PROPOSED OPEN SPACE LOTS: 0.73± AC.
j. AREA OF PROPOSED NON-CREDIT OPEN SPACE: 0.00 AC.

3. DENSITY TABULATION
a. NET AREA OF THE SITE: 1.54± AC.
b. TOTAL NUMBER OF BUILDABLE LOTS ALLOWED (4 D.U./NET AC.): 6
c. TOTAL NUMBER OF BUILDABLE LOTS PROPOSED: 5

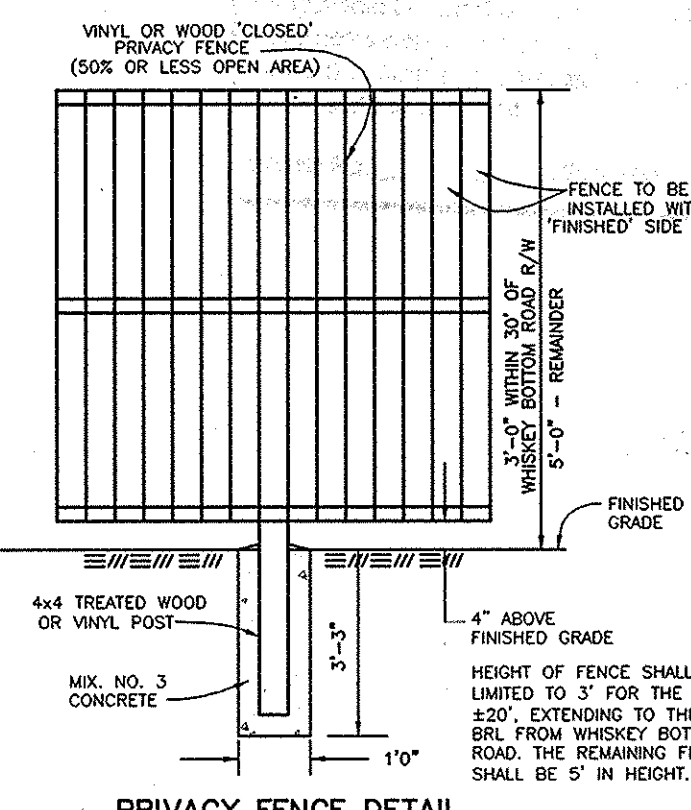
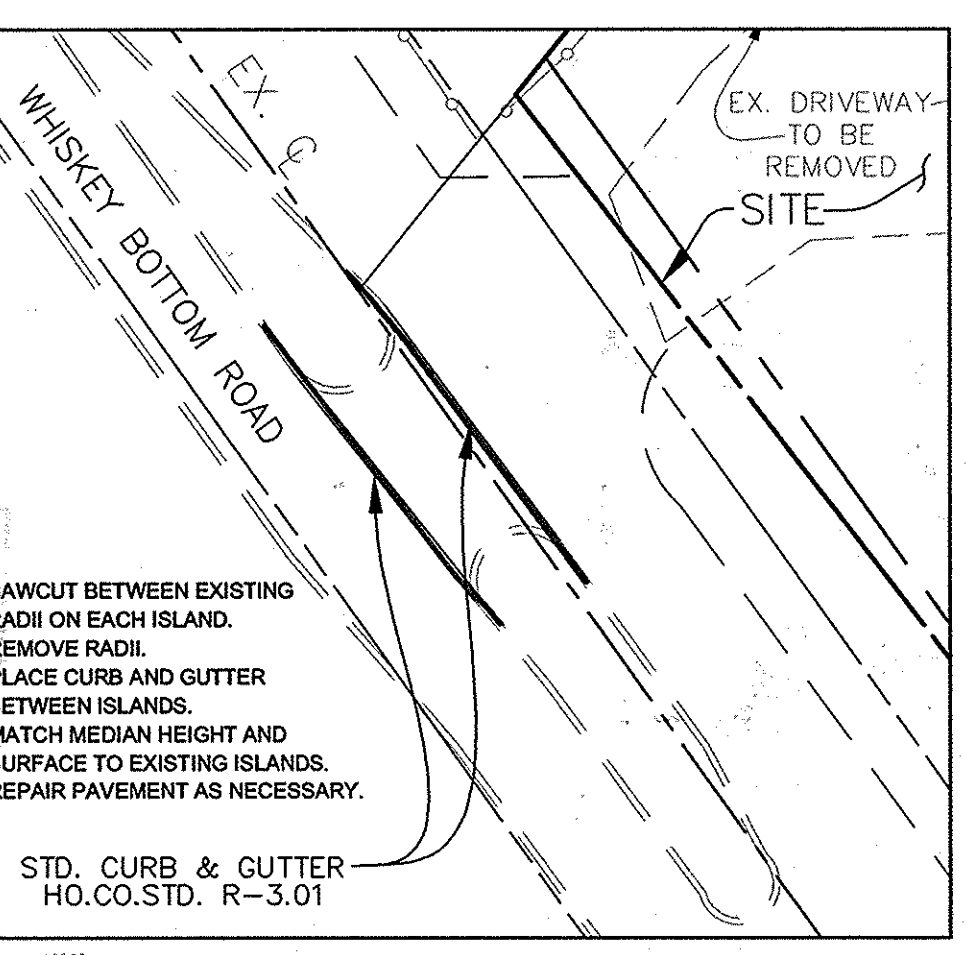
4. UNIT/LOT TABULATION
a. TOTAL NUMBER OF RESIDENTIAL UNITS/LOTS PROPOSED ON THIS SUBMISSION: 5
b. TOTAL NUMBER OF OPEN SPACE LOTS PROPOSED: 1
c. TOTAL NUMBER OF NON-BUILDABLE LOTS PROPOSED: N/A

5. OPEN SPACE DATA
a. MINIMUM RESIDENTIAL LOT SIZE: 6,000 S.F.
b. OPEN SPACE REQUIRED FOR TOTAL AREA OF SITE (25% OF 1.54 AC.): 0.385± AC.
c. TOTAL AREA OF PROPOSED OPEN SPACE: 0.73± AC.
d. AREA OF RECREATIONAL OPEN SPACE REQUIRED (250 SQ.FT. PER BUILDABLE LOT): 1,275 SQ.FT.
1) OPEN SPACE AREAS LESS THAN 35' IN WIDTH (NON-CREDITED): 0.00 AC.
2) TOTAL AREA OF OPEN SPACE MEETING MINIMUM OPEN SPACE REQUIREMENTS: 0.73± AC. (47.4%)
e. AREA OF RECREATIONAL OPEN SPACE REQUIRED (1) TOTAL AREA OF RECREATIONAL OPEN SPACE REQUIRED: NONE (<10 LOTS)
(2) TOTAL AREA OF RECREATIONAL OPEN SPACE PROVIDED: N/A

BENCH MARKS-(NAD'83)
HO. CO. #508A EL. N/A
STANDARD DISC ON CONC. MONUMENT
N 527561.6702 E 1359772.5936
HO. CO. #5085 EL. 178.242
STANDARD DISC ON CONC. MONUMENT
N 524999.3640 E 1357925.6751



TRAVERSE POINT CHART (NAD '83)
BOUNDARY COORDINATE CHART (NAD '83)
MINIMUM LOT SIZE CHART
LOT NO. GROSS AREA PIPESIT AREA MINIMUM LOT SIZE



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. 21443, Expiration Date: 12-21-14

CONSTRUCTION SPECIFICATIONS
These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

Site Preparation
Area 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 no steeper than 1:1. All trees shall be cleared and graded within 15 feet of the top 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 approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet spillway shall be cleared.
All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient 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. If 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 Code, 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 6 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall 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 that 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 AASHTO Method T-99 (Standard Proctor).
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 four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time shall 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.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi, 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be placed over, on, and on the side of the pipe. It only needs to extend up to the spring line for rigid conduits. Average stumps of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent flooding the pipe. When using flowable fill, all metal pipe shall be bluish-grey coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. 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 structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

Pipe Conduits
All pipes shall be circular in cross section.
Plastic Pipe - The following criteria shall apply for plastic pipe:
1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241, Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" - 10" inch pipe shall meet the requirements of AASHTO M252, Type S, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type S.
2. Joints and connections to fit-in-seep collars shall be completely watertight.
3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
4. Backfilling shall conform to "Structure Backfill".
5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.
Drainage Diaphragms - When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete
Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 3.
Rock Riprap
Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311.
Geotextile
Geotextile shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

Care of Water during Construction
All work on permanent structures shall be carried out in areas free from water. The contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavation slopes and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level of the location being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water pumps from which the water shall be pumped.

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, 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.

AS BUILT NOTES:
1.) HORIZONTAL DATUM FOR THIS AS-BUILT IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD83/AD83 AS PROJECTED FROM HO. CO. GEODETIC CONTROL STATIONS 50BA AND 50B AS VERTICAL DATUM FOR THIS AS-BUILT IS NORTH AMERICAN VERTICAL DATUM NGVD88 AS PROJECTED FROM THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATIONS.
2.) THE INSTRUMENTS USED IN PERFORMING THE AS-BUILT WERE A 5" TOTAL STATION AND PRISM AND RTK GPS.
3.) THIS AS-BUILT WAS PERFORMED BY BENCHMARK ENGINEERING, INC.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Diane Schreyer, Acting Chief, Bureau of Highways, 10/2/12
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Vicki DeLuca, Chief, Division of Land Development, 10/04/12
Michael J. ... Chief, Development Engineering Division, 10/4/12

SHEET INDEX
NO. DESCRIPTION
1 COVER SHEET
2 GRADING, LANDSCAPE AND STORMWATER MANAGEMENT PLAN
3 EROSION AND SEDIMENT CONTROL PLAN AND DETAIL
4 FOREST CONSERVATION PLAN

BENCHMARK ENGINEERING, INC. logo and contact information: 8480 BALTIMORE NATIONAL FIRE & SUITE 418 A BELLCOTT CITY, MARYLAND 21043

KINGS ARMS SECTION 5 LOTS 1-5 AND OPEN SPACE LOT 6
OWNER/DEVELOPER: SECURITY DEVELOPMENT LLC
TAX MAP: 47 PARCEL: 816
ELECTION DISTRICT NO. 6 DESIGN ZONE: R-SC
HOWARD COUNTY, MARYLAND
COVER SHEET
DATE: JUNE 2011 AUGUST 2012 PROJECT NO. 2364
SCALE: AS SHOWN SHEET 1 OF 4

PROJECT: Kings Arms Section 5  
DATE: 07/20/12

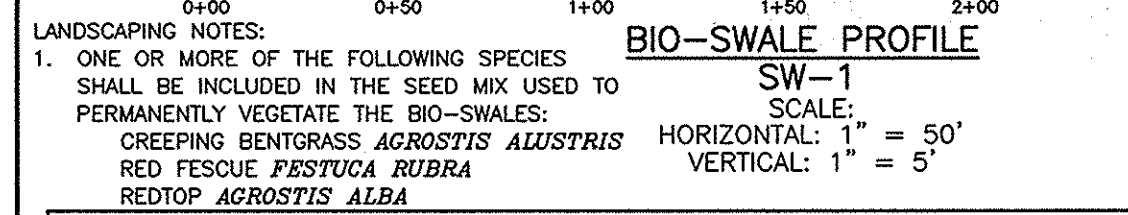
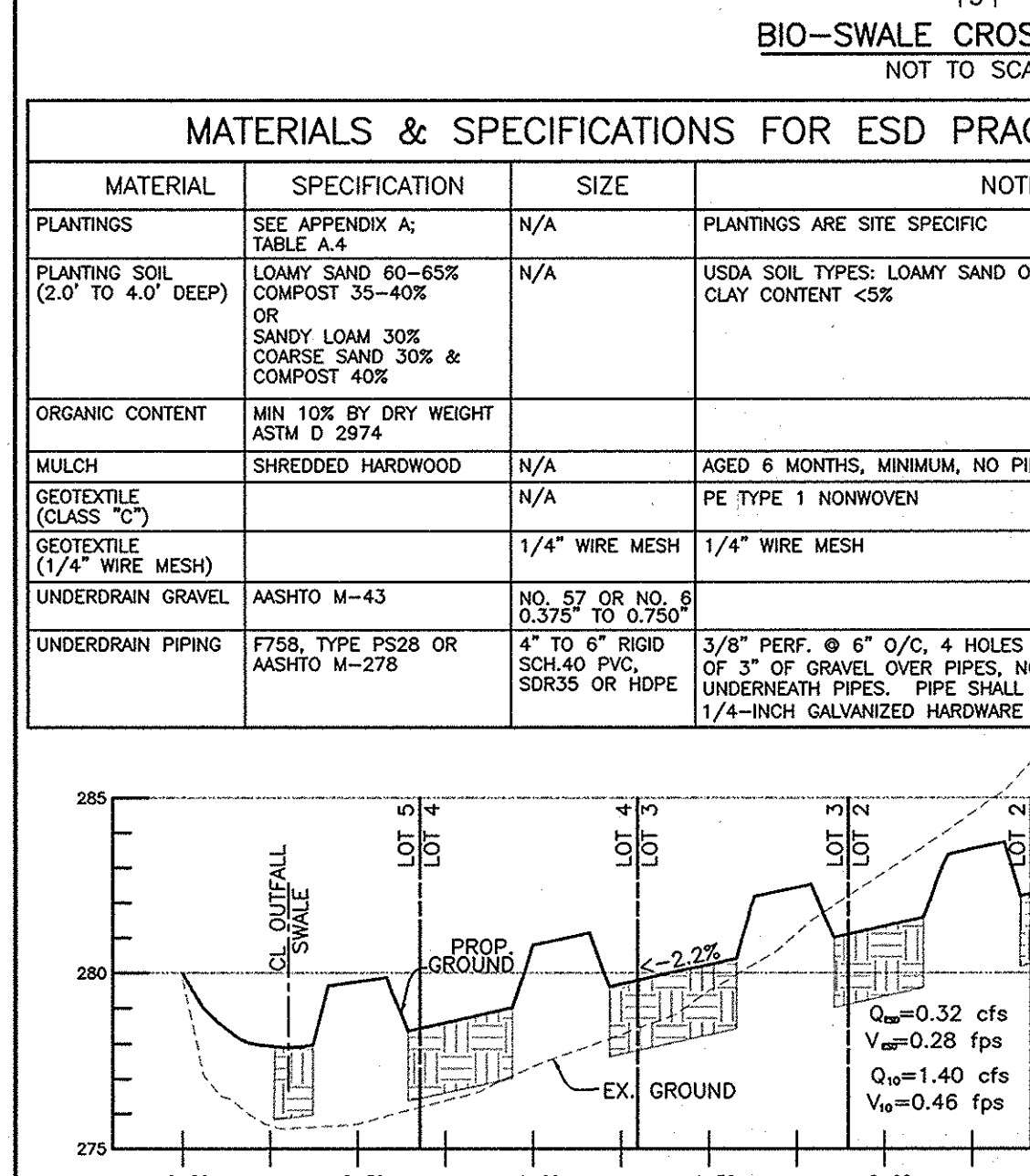
COMPUTATIONS FOR PRACTICES

Prac	Type	DA	Area	Flow	Velocity	Depth	Velocity	Depth	Velocity	Depth	Velocity	Depth
M-1	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
M-2	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
M-3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
M-4	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
M-5	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
M-6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7

### SOILS LEGEND

MAP SYMBOL	SOIL GROUP	SOIL TYPE
ChB	B	CHILLUM-RUSSETT LOAMS, 2 TO 5 PERCENT SLOPES
Fo	D	FALLSINGTON SAND LOAM, 0 TO 2 PERCENT SLOPES
SaC	B	SASSAFRAS LOAM, 5 TO 10 PERCENT SLOPES, **
RaB	C	RUSSETT FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES
UGD	D	URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 5 TO 15 PERCENT SLOPES **

\*\* INDICATES HYDRAIC SOILS  
\* INDICATES MODERATELY ERODIBLE  
TAKEN FROM HOWARD COUNTY SOILS SURVEY, ISSUED MAY 2008, MAP NO. 28

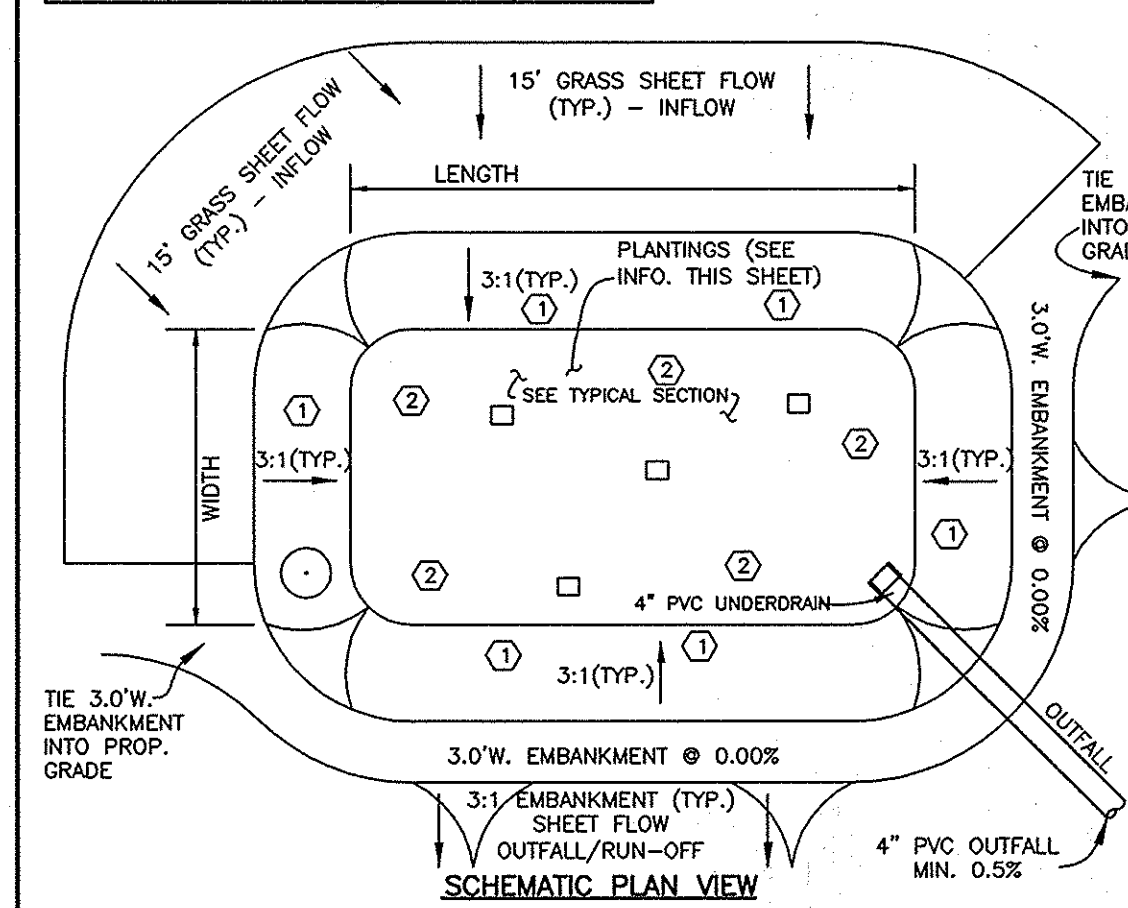


### STORM DRAIN STRUCTURE SCHEDULE

NO	LOCATION	INV. IN	INV. OUT	TOP ELEV.	NO. CO. STD.	COMMENTS
M-1	N 530,291.68 E 1,358,037.68	277.0	274.8	279.3	G - 5.12	
M-2	N 530,299.62 E 1,358,048.59	-	274.7	-	D - 5.51	
M-3	N 530,269.73 E 1,358,009.73	-	277.2	-	D - 5.51	

### PIPE SCHEDULE

SIZE	LENGTH	TYPE & CLASS	OWNER
12"	37 LF	HDPE	PRIVATE



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Diane Schwarz, Acting*  
CHIEF, BUREAU OF HIGHWAYS  
DATE: 10/2/12

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*W. Stankovich*  
CHIEF, DIVISION OF LAND DEVELOPMENT  
DATE: 10/4/12

### OPERATION AND MAINTENANCE SCHEDULE FOR M-8 BIO-SWALES AND M-6 MICROBIORETENTION

A. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUME II, TABLE A.4.1 AND 2.

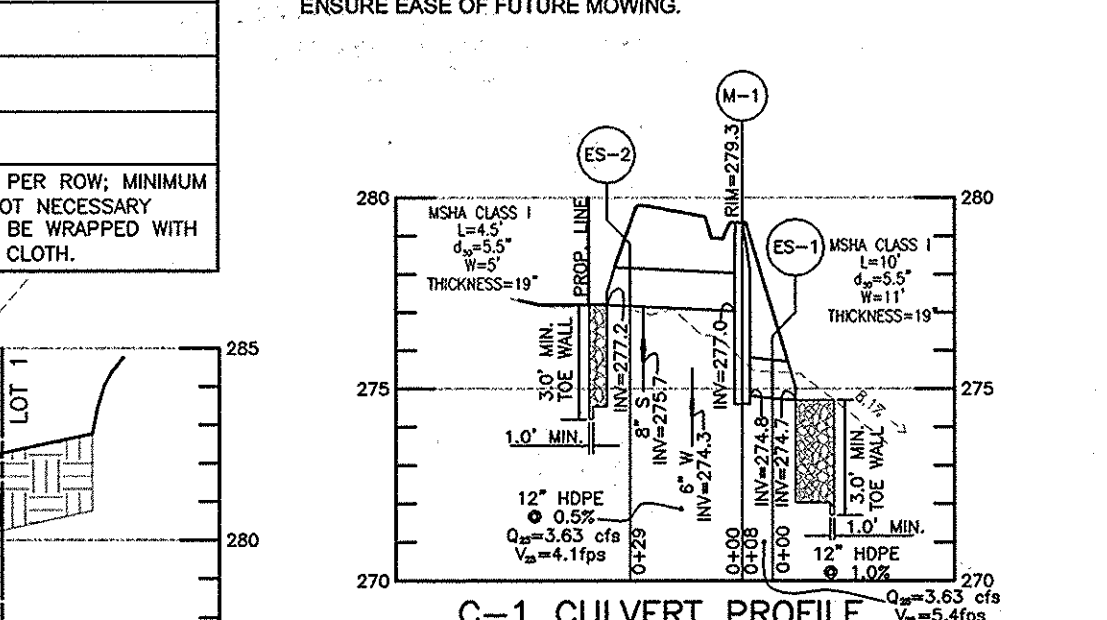
B. THE OWNER SHALL PERFORM A PLANT INSPECTION IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.

C. THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.

D. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

### BIO-SWALE CONSTRUCTION SPECIFICATIONS

- SWALES SHALL NOT BE CONVERTED TO BIO-SWALES UNTIL THE SURROUNDING SITE IS STABILIZED.
- IT IS IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF THE BIORETENTION AREA AND THE PLANTING SOILS.
- ROTOTILL TO 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE PLACEMENT OF UNDERDRAIN.
- WHEN BACKFILLING THE PLANTING SOILS, PLACE SOIL IN LIFTS OF 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION AREA.
- SIDESLOPES WITHIN THE BIO-SWALE SHALL BE A MAXIMUM OF 3:1 SLOPES.
- ALL CHANGES IN GRADING SHALL BE SMOOTHED AND ROUNDED, TO ENSURE EASE OF FUTURE MAINTENANCE.



NOTE: IN THE AREA OF THE STORM DRAIN/SEWER CROSSING, NUMBER 57 STONE AGGREGATE BACKFILL SHALL BE PLACED FROM THE BOTTOM OF THE SEWER PIPE BEDDING TO 6 INCHES ABOVE THE CROWN OF THE STORM DRAIN PIPE. THE AGGREGATE BACKFILL SHALL EXTEND THE WIDTH OF THE STORM DRAIN TRENCH AS IT PASSES OVER THE SEWER.

### FRONT BIO-SWALE PLANTINGS

SYMBOL	QUANTITY	NAME	REMARKS
①	21	LIRIOPE MUSCARI	
②	15	IRIS VERSICOLOR	
③	5	PRUNUS VIRGINIANA CHOKO CHERRY	2 1/2" MIN. CAL. BAB

### STORMWATER MANAGEMENT PRACTICES

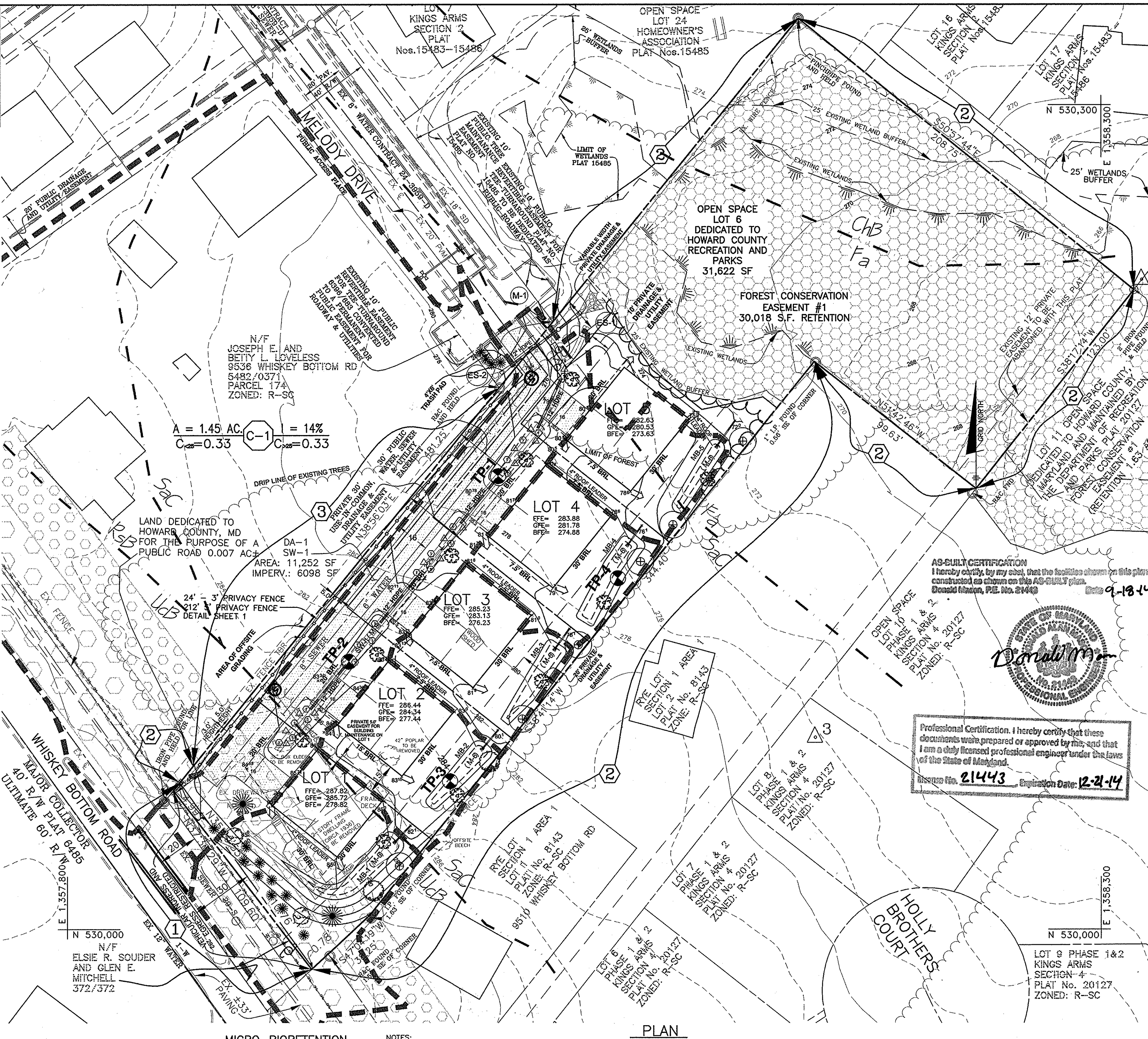
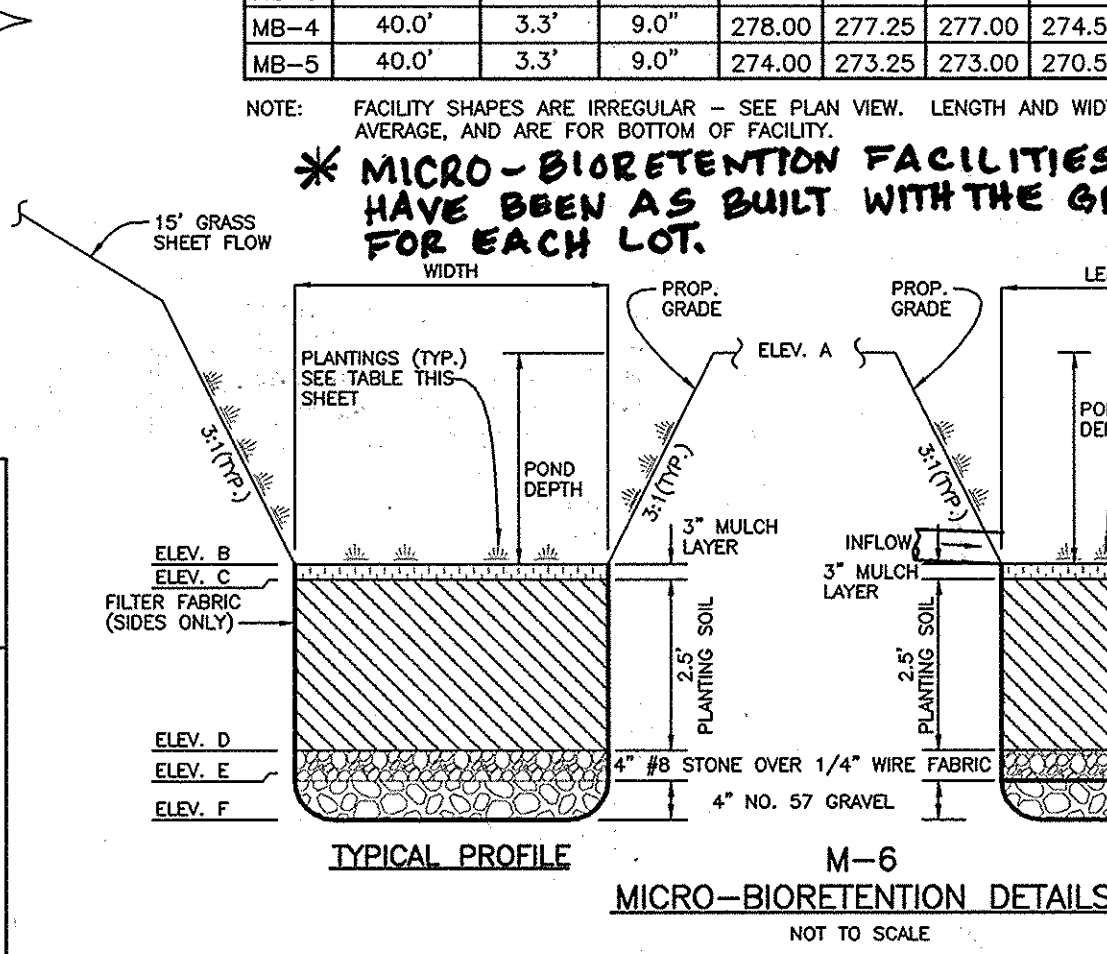
LOT NUMBER	ADDRESS	MICRO-BIORETENTION (NUMBER)	BIO-SWALES (NUMBER)
LOT 1	9041 MELODY DRIVE	1	1
LOT 2	9037 MELODY DRIVE	1	1
LOT 3	9033 MELODY DRIVE	1	1
LOT 4	9029 MELODY DRIVE	1	1
LOT 5	9025 MELODY DRIVE	1	1

### MICRO-BIORETENTION GEOMETRY

LENGTH	WIDTH	DEPTH	A	B	C	D	E	F	G	
MB-1	54.0'	3.5'	9.0'	284.00	283.25	283.00	280.50	280.17	279.83	282.25
MB-2	40.0'	3.3'	9.0'	282.00	281.25	281.00	278.50	278.17	277.83	280.25
MB-3	44.0'	4.5'	9.0'	280.00	279.25	279.00	276.50	276.17	275.83	278.25
MB-4	40.0'	3.3'	9.0'	278.00	277.25	277.00	274.50	274.17	273.83	276.25
MB-5	40.0'	3.3'	9.0'	274.00	273.25	273.00	270.50	270.17	269.83	272.25

NOTE: FACILITY SHAPES ARE IRREGULAR - SEE PLAN VIEW. LENGTH AND WIDTH MEASUREMENTS ARE AVERAGE, AND ARE FOR BOTTOM OF FACILITY.

\* MICRO-BIORETENTION FACILITIES ON LOT HAVE BEEN AS BUILT WITH THE GRADE CONT FOR EACH LOT.

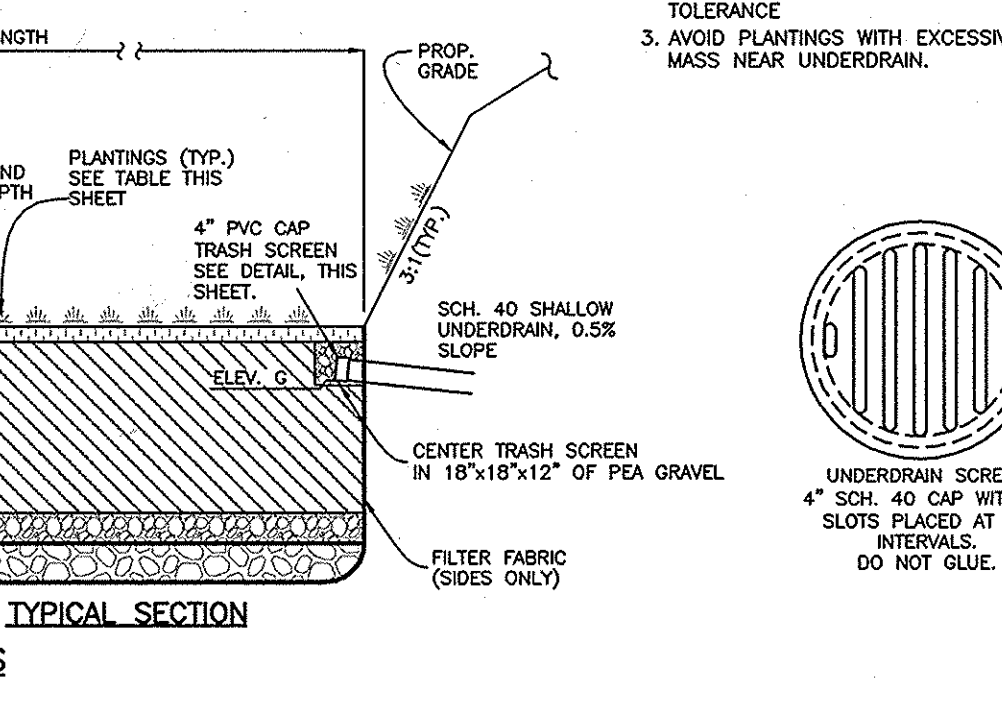


### MICRO-BIORETENTION PLANTING SCHEDULE

①	IRIS VERSICOLOR (IRIS)
②	NYPHOIDES PELTATA FLOATING-HEART YELLOW
③	LOBELIA CARDINALIS CARDINAL FLOWER
④	ACER RUBRUM (RED MAPLE)

### MICRO-BIORETENTION PLANTING DATA

- PLANTINGS WITHIN THE PONDING AREA ARE TO BE OF A MEDIUM TO HIGH WATER TOLERANCE.
- PLANTINGS ALONG THE PERIMETER (SEPA) AREA ARE TO BE OF A LOW TO MEDIUM WATER TOLERANCE.
- AVOID PLANTINGS WITH EXCESSIVE ROOT MASS NEAR UNDERDRAIN.



### DEVELOPER'S/BUILDER'S CERTIFICATION

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A LETTER OF NOTICE, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

NAME: *Steve Breeden* DATE: 9/20/12

### BGE ZONE LEGEND

GREEN ZONE: [Symbol]

YELLOW ZONE: [Symbol]

### AS-BUILT 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.  
Assess No. 21443 Expiration Date: 12-2-14

### LEGEND

- EXISTING CONTOURS
- SOIL DELINEATION
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- FACILITY DRAINAGE AREA
- PROPOSED PAVEMENT
- PUBLIC FOREST CONSERVATION EASEMENT
- PERIMETER LANDSCAPING TREES
- SPECIMEN TREE MITIGATION PLANTINGS

### SCHEDULE A PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO	ROADS	PERIMETER PROPERTY	P-2	MITIGATION	TRASH PAD	TOTAL
LANDSCAPE TYPE	① B	② A	③ A	④ A	⑤ A		
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	110'	890'	230'				
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	YES* 631'	NO				
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	YES** 216 L.F.				
NUMBER OF PLANTS REQUIRED	110 L.F.	359 L.F.	0 L.F.				
SHADE TREES	3	0	0		2		10
EVERGREEN TREES	0	0	0		0		0
OTHER TREES (2:1 SUBSTITUTE)	0	0	0		0		0
SHRUBS	0	0	0		0		0
NUMBER OF PLANTS PROVIDED	2	8	0		2		10
SHADE TREES	0	0	0		0		0
EVERGREEN TREES	0	0	0		0		0
OTHER TREES (2:1 SUBSTITUTE)	0	0	0		0		0
SHRUBS (10:1 SUBSTITUTE)	10	0	0		0		14

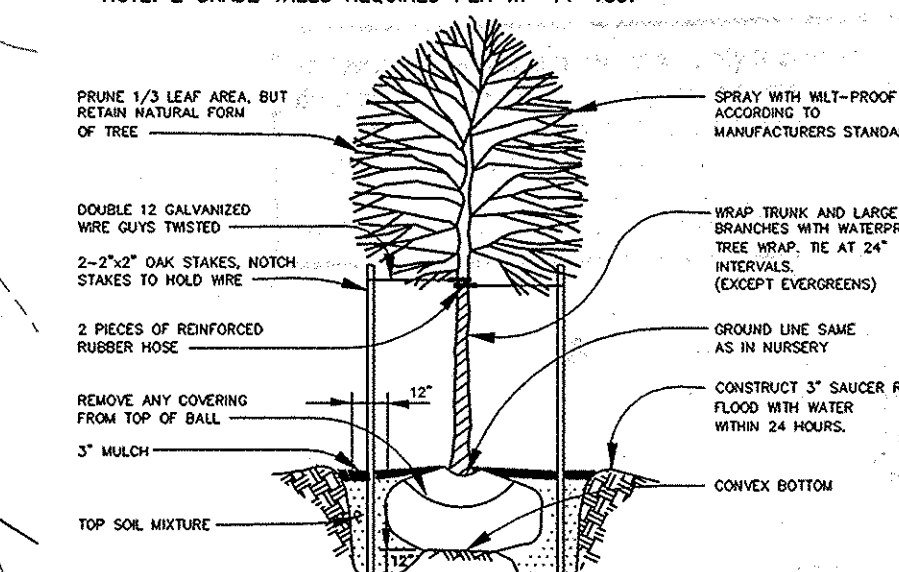
NOTE: LANDSCAPING FOR LOTS 1-5 IS PROVIDED IN ACCORDANCE WITH A CERTIFIED LANDSCAPE PLAN ON FILE WITH THIS PLAN, IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL. SURETY IN THE AMOUNT OF \$5,750 FOR 10 SHADE TREES (INCLUDING TWO LARGE SHADE TREES FOR MITIGATION PER WP-11-153), 3 EVERGREENS, 215' OF PRIVACY FENCING AND 4 SHRUBS FOR TRASH PAD SCREENING SHALL BE POSTED WITH A DEVELOPER'S AGREEMENT UNDER THIS FINAL PLAN.

### LANDSCAPE PLANTING LIST

SYMBOL	QUANTITY	NAME	REMARKS
⑥	6	QUERUS COCOONIA SCARLET OAK	2 1/2" MIN. CAL. BAB FULL HEAD
⑦	2	PRUNUS THUNBERGERIANA JAPANESQUE PINE	6"-8" HL. UNDEVELOPED
⑧	2	ACER GRISUDUM PAPERBARK MAPLE	2" MIN. CAL. BAB FULL HEAD
⑨	14	ILEX X MESSERIAE BLUE PRINCE HOLLY	3 1/2' TO 4' HL.

### SPECIMEN TREE MITIGATION PLANTING LIST

SYMBOL	QUANTITY	NAME	REMARKS
⑩	2	PLATANUS X ACERIFOLIA BLOODGOOD LONDON PLANE	2 1/2" MIN. CAL. BAB FULL HEAD



NOTE: 1. TREES SHOULD BE PLANTED A MINIMUM OF 6 FEET FROM THE EDGE OF PAVING AND MUST BE A MINIMUM OF 5 FEET FROM ANY STORM DRAIN.  
2. TREES MUST BE PLANTED A MINIMUM OF 5 FEET FROM AN OPEN SPACE ACCESS STRIP AND 10 FEET FROM A DRIVEWAY.  
3. SEE TREE PLANTING DETAIL - THIS SHEET.

### BENCHMARK ENGINEERING, INC.

ENGINEERS & LAND SURVEYORS & PLANNERS

8400 BALTIMORE NATIONAL PIKE & SUITE 418 & ELLICOTT CITY, MARYLAND 21043  
(7) 410-465-8105 (7) 410-465-8644

60 THOMAS JOHNSON DRIVE & FREDERICK, MARYLAND 21702  
(7) 301-371-3609 (7) 301-371-3606  
WWW.BE-ONLINEENGINEERS.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 28376, Expiration Date: 1-1-2013.

### KINGS ARMS SECTION 5

LOTS 1-5 AND OPEN SPACE LOT 6

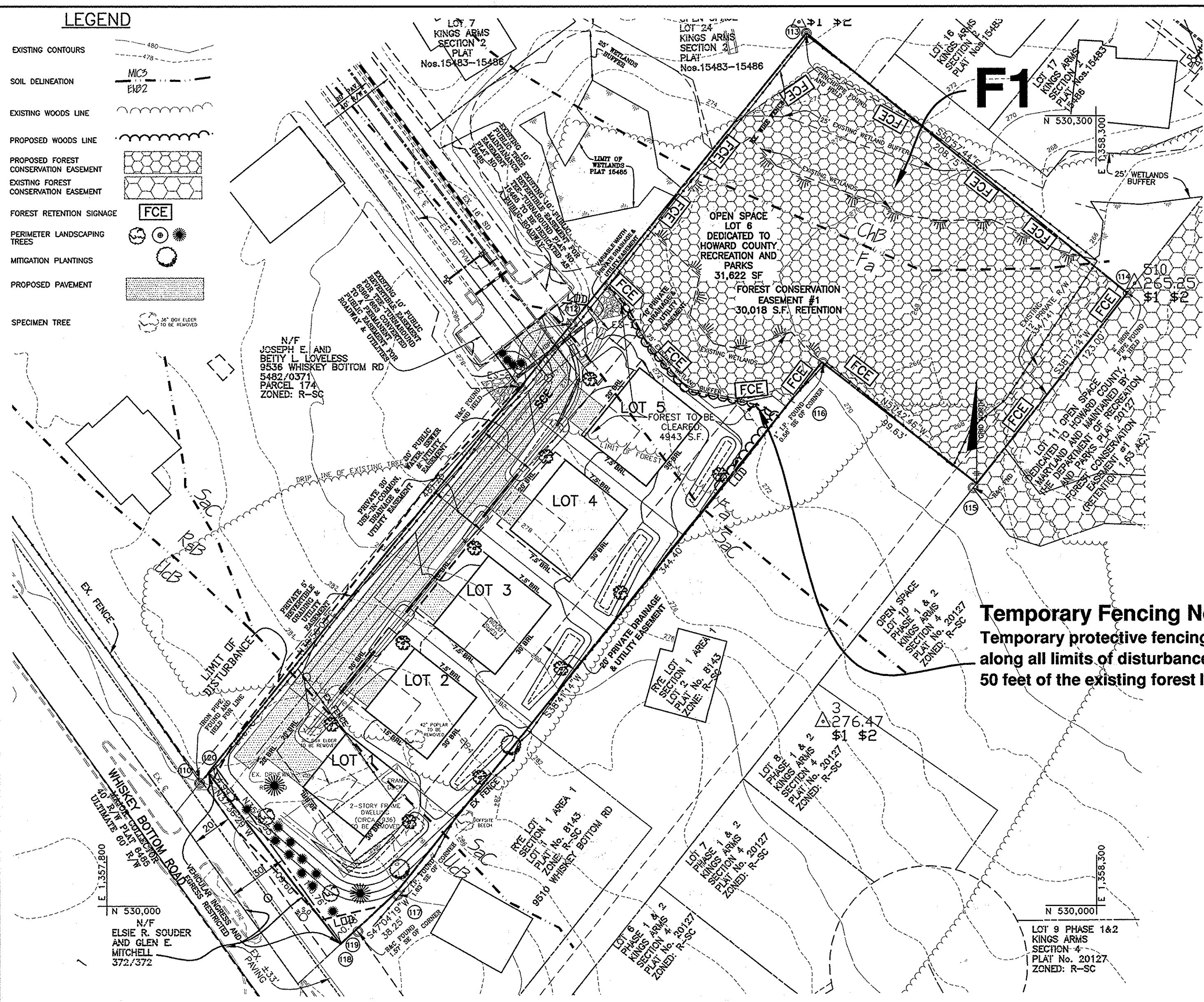
TAX MAP: 47 PARCEL: 816  
GRID: 22 ELECTION DISTRICT NO. 5 DESIGN ZONE: R-SC  
410-465-4244  
Att: STEVE BREEDEN

### GRADING, LANDSCAPE AND STORMWATER MANAGEMENT PLAN

DATE: JUNE 2011 PROJECT NO. 2364  
AUGUST 2012 SHEET 2 OF 4

DESIGN: AAM DRAFT: AAM CHECK: CAM SCALE: AS SHOWN SHEET 2 OF 4





### Specimen Tree Chart

Key	Species, Size	Condition	Proposed Impact/Comment
A	Tulip poplar - 42" DBH	good	cleared to accommodate site development
B	Box Elder - 36" DBH	fair	cleared to accommodate site development

A waiver request will be made for removal of specimen trees

### Forest Stand Data

Key	Community Type	Acres	Dominant Vegetation	General Condition	Priority Acres
F1	Maple - Poplar	0.8	Acer rubrum, Liquidambar styraciflua, Nyssa sylvatica	Good	0.7 wetland, buffers

See accompanying report for complete stand descriptions  
\* Approximately 0.8 acres of offsite forest area is present within 100 feet of the property

- ### FSD NOTES:
- No rare, threatened or endangered species or their appropriate habitat were observed on the property.
  - Surrounding land use is mixed commercial and high density residential development.
  - All forest on the site is within Stand F-1.

Project: Kings Arms Section 5  
Date: February 23, 2011

NET TRACT AREA	Acres
A. Total tract area	1.5
B. Area within 100 Year Floodplain	0.0
C. Area to remain in agricultural production	0
D. Net Tract Area	1.5

LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)  
ARA MDR IDA HDR MPD CIA  
X

	(percentage)	
E. Afforestation Threshold	0.15	0.2
F. Conservation Threshold	0.20	0.3

EXISTING FOREST COVER:

G. Existing forest cover (excluding floodplain)	0.8
H. Area of forest above afforestation threshold	0.6
I. Area of forest above conservation threshold	0.5

BREAK EVEN POINT:

	Break-Even Point
J. Forest retention above threshold with no mitigation	0.1
K. Clearing permitted without mitigation	0.4

PROPOSED FOREST CLEARING

L. Total area of forest to be Cleared or Retained Outside FCE	0.1
M. Total area of forest to be Retained in FCE	0.7

PLANTING REQUIREMENTS

N. Reforestation for clearing above Conservation Threshold	0.03
P. Reforestation for clearing below Conservation Threshold	0
Q. Credit for retention above conservation threshold	0.4
R. Total reforestation required	0
S. Total afforestation required	0
T. Total reforestation and afforestation required	0

### Temporary Fencing Note

Temporary protective fencing shall be installed along all limits of disturbance occurring within 50 feet of the existing forest limits.

### Wetland Data

WETLAND SYSTEM	COWARDIN CLASSIFICATION	DOMINANT VEGETATION	ACREAGE
A	PFO1C	Acer rubrum, Liquidambar styraciflua, Nyssa sylvatica, Magnolia virginiana, Viburnum dentatum, Vaccinium corymbosum, Cornus alternifolia, Onoclea sensibilis	0.7

- ### FCP NOTES:
- ANY FOREST CONSERVATION EASEMENT (FCE) AREA SHOWN HEREON IS SUBJECT TO PROTECTIVE COVENANTS WHICH MAY BE FOUND IN THE LAND RECORDS OF HOWARD COUNTY WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.
  - FORESTED AREAS OCCURRING OUTSIDE OF THE FCE SHALL NOT BE CONSIDERED PART OF THE FCE AND SHALL NOT BE SUBJECT TO PROTECTIVE LAND COVENANTS.
  - LIMITS OF DISTURBANCE SHALL BE RESTRICTED TO AREAS OUTSIDE THE LIMIT OF TEMPORARY FENCING OR THE FCE BOUNDARY, WHICHEVER IS GREATER.
  - THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENTS, EXCEPT AS PERMITTED BY HOWARD COUNTY DPZ.
  - NO STOCKPILES, PARKING AREAS, EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED AS FOREST CONSERVATION EASEMENTS.
  - PERMANENT SIGNAGE SHALL BE PLACED 50-100' APART ALONG THE BOUNDARIES OF ALL AREAS INCLUDED IN FOREST CONSERVATION EASEMENTS. SIGNS SHALL BE MOUNTED ON A PERMANENT WOOD POST OR METAL STAKE. FCE SIGNS SHALL NOT BE ATTACHED TO TREES.
  - THIS PLAN COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BY THE ON-SITE RETENTION OF 0.69 ACRES OF FOREST RESOURCES WITHIN OPEN SPACE LOT 6, IN EXCESS OF THE BREAK EVEN POINT OF 0.5 ACRES REQUIRED FOR THIS SUBDIVISION. A DEED OF FOREST CONSERVATION EASEMENT AND FOREST CONSERVATION AGREEMENT HAVE BEEN EXECUTED WITH THE DEVELOPER AGREEMENT FOR F-12-019.
  - THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

### POST-CONSTRUCTION MANAGEMENT PLAN

Howard County requires a two year post-construction management plan be prepared as part of the Forest Conservation Plan. The plan goes into effect upon acceptance of the construction certification of completion by the County. Eco-Science Professionals, or another qualified professional designated by the developer, will be responsible for implementation of the post-construction management plan.

- The following items will be incorporated into the plan for the subject property:
- Fencing and Signage**  
Permanent signage indicating the limits of the retention/planting area shall be maintained.
  - General Site Inspections**  
Site inspections will be performed to insure that retention of the forest is met in accordance with this plan and that the forest edge remains healthy and stable.
  - Education**  
The developer will provide appropriate materials to property owners informing them of the location and purpose of the forest conservation easement. Materials may include site plans and information explaining the intent of the forest conservation law.
  - Final Inspection**  
At the end of the two year post-construction management period, Eco-Science Professionals, or another qualified professional, will submit to the administrator of the Howard County Forest Conservation Program certification that all retention/afforestation requirements have been met. Upon acceptance of this certification, the County will release the developer from all future obligations and release the developer's bond.

### FOREST CONSERVATION EASEMENTS

Easements are a legal means of providing permanent protection of forests, farmland and open space. In accordance with the criteria outlined in the Howard County Forest Conservation Manual, a forest conservation easement will be recorded for the retention areas the subject property. Submission of the easements for recordation will occur prior to commencement of construction activities.

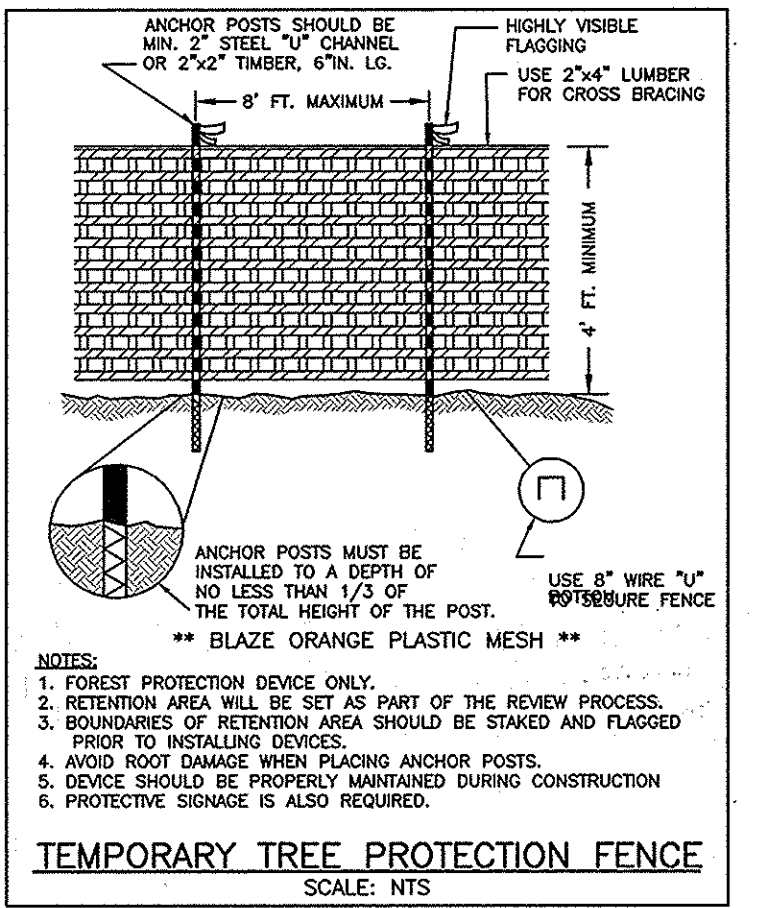
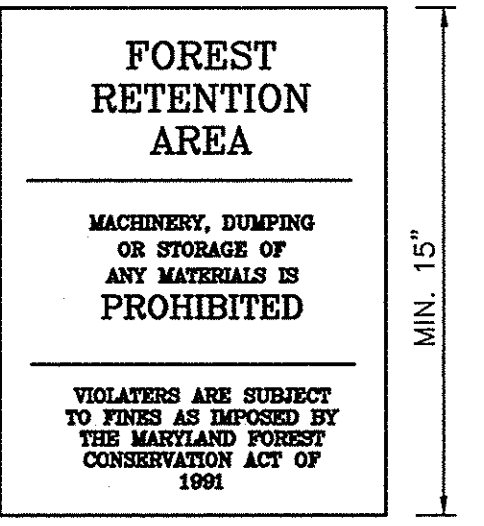
### SOILS LEGEND

MAP SYMBOL	SOIL GROUP	SOIL TYPE
ChB	B	CHILLUM-RUSSETT LOAMS, 2 TO 5 PERCENT SLOPES
* Fd	D	FALLSINGTON SAND LOAM, 0 TO 2 PERCENT SLOPES
SoC	B	SASSAFRAS LOAM, 5 TO 10 PERCENT SLOPES, **
UcB	C	URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 5 TO 15 PERCENT SLOPES **

\*\* INDICATES HYDRIC SOILS  
\*\* MODERATELY PROBABLE  
TAKEN FROM HOWARD COUNTY SOILS SURVEY, ISSUED MAY 2008, MAP NO. 28

### CONSTRUCTION PERIOD PROTECTION PROGRAM

- Forest Protection Techniques**
  - Soil Protection Area (Critical Root Zone)**  
The soil protection area, or critical root zone, of a tree is that portion of the soil column where most of its roots may be found. The majority of roots responsible for water and nutrient uptake are located just below the soil surface. Temporary fencing shall be placed around the critical root zone of the forest in areas where the forest limits occur within 25 feet of the limit of disturbance.
  - Fencing and Signage**  
Existing forest limits occurring within 25 feet of the limits of disturbance shall be protected using temporary protective fencing. Permanent signage shall be placed around the afforestation area prior to plant installation, as shown on the plan.
- Pre-Construction Meeting**  
Upon staking of limits of disturbance a pre-construction meeting will be held between the developer, contractor and appropriate County Inspector. The purpose of the meeting will be to verify that all sediment control is in order, and to notify the contractor of possible penalties for non-compliance with the FCP.
- Storage Facilities/Equipment Cleaning**  
All equipment storage, parking, sanitary facilities, material stockpiling, etc. associated with construction of the project will be restricted to those areas outside of the proposed Forest Conservation Easement. Cleaning of equipment will be limited to area within the LOD of the proposed homesites. Wastewater resulting from equipment cleaning will be controlled to prevent runoff into environmentally sensitive areas.
- Sequence of Construction**  
The following timetable represents the proposed timetable for development of the subject property. The items outlined in the Forest Conservation Plan will be enacted within two (2) years of subdivision approval. Below find a proposed sequence of construction.
  - Install all tree protection signage, temporary tree protection fencing and sediment control devices.
  - Hold pre-construction meeting between developer, contractor and County Inspector.
  - Build access roads, install water and sewer, and construct houses. Stabilize all disturbed areas accordingly.
  - Remove sediment control and temporary protective fencing.
  - Hold post-construction meeting with County inspectors to assure compliance with FCP. Submit Certification of Retention.
- Construction Monitoring**  
Eco-Science Professionals, or another qualified professional designated by the developer, will monitor construction of the project to ensure that all activities are in compliance with the Forest Conservation Plan.
- Post-Construction Meeting**  
Upon completion of construction, Eco-Science Professionals, or another qualified professional designated by the developer, will notify the County that construction has been completed and arrange for a post-construction meeting to review the project site. The meeting will allow the County inspector to verify that forest retention requirements have been met.



APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Diane Schwyz*, Acting, 10/2/12  
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Kevin J. Smith*, 10/2/12  
CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Wendell*, 10/4/12  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

THIS PLAN IS FOR FOREST CONSERVATION ONLY

No As-Built information is required on this sheet

*Dorothy M...*  
Professional Engineer  
License No. 21443, Expiration Date: 12-31-14

**Eco-Science Professionals, Inc.**  
CONSULTING ECOLOGISTS  
P.O. Box 9006 Glen Arm, MD 21057 (410) 592-6752  
MD DNR Qualified Professional  
USACOE Wetland Designer  
Certification # WDC0061004423  
John P. Gelsner

NO.	DATE	REVISION

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS & LAND SURVEYORS & PLANNERS  
8400 BALTIMORE NATIONAL PIKE SUITE 418 & ELLICOTT CITY, MARYLAND 21043  
(7) 410-465-8105 (7) 410-465-8844  
60 THOMAS SHONSON DRIVE & FREDERICK, MARYLAND 21702  
(7) 301-371-3609 (7) 301-371-3009  
WWW.BE-ENGINEERING.COM

STATE OF MARYLAND  
Professional Engineer  
2/22/2012

OWNER/DEVELOPER:  
SECURITY DEVELOPMENT LLC  
PO BOX 417  
SUITE 100  
ELLICOTT CITY, MARYLAND 21041  
410-465-4244  
ATT: STEVE BREEDEN

TAX MAP: 47 PARCEL: 816  
GRID: 22 DESIGN ZONE: R-SC  
ELECTION DISTRICT NO. 6  
HOWARD COUNTY, MARYLAND

FOREST CONSERVATION PLAN, NOTES AND DETAILS  
DATE: FEBRUARY 2011 PROJECT NO. 2364  
AUGUST 2012  
DESIGN: AM DRAFT: AM CHECK: JC SCALE: 1" = 30' SHEET 4 OF 4