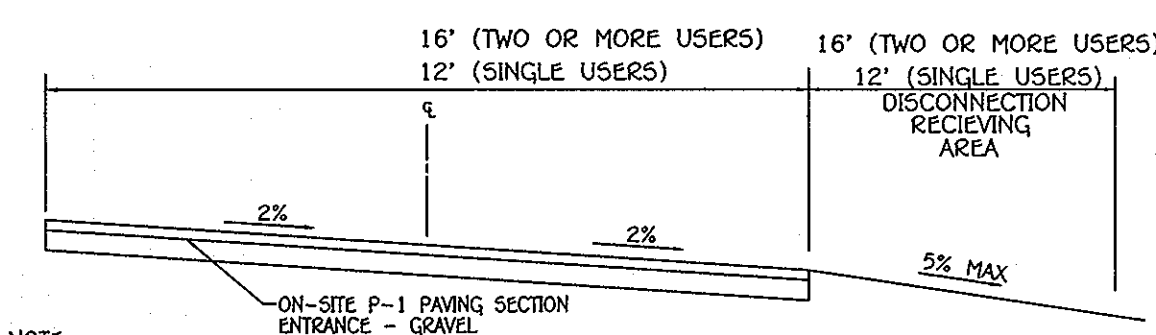
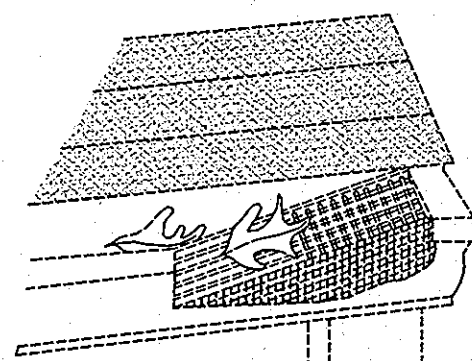


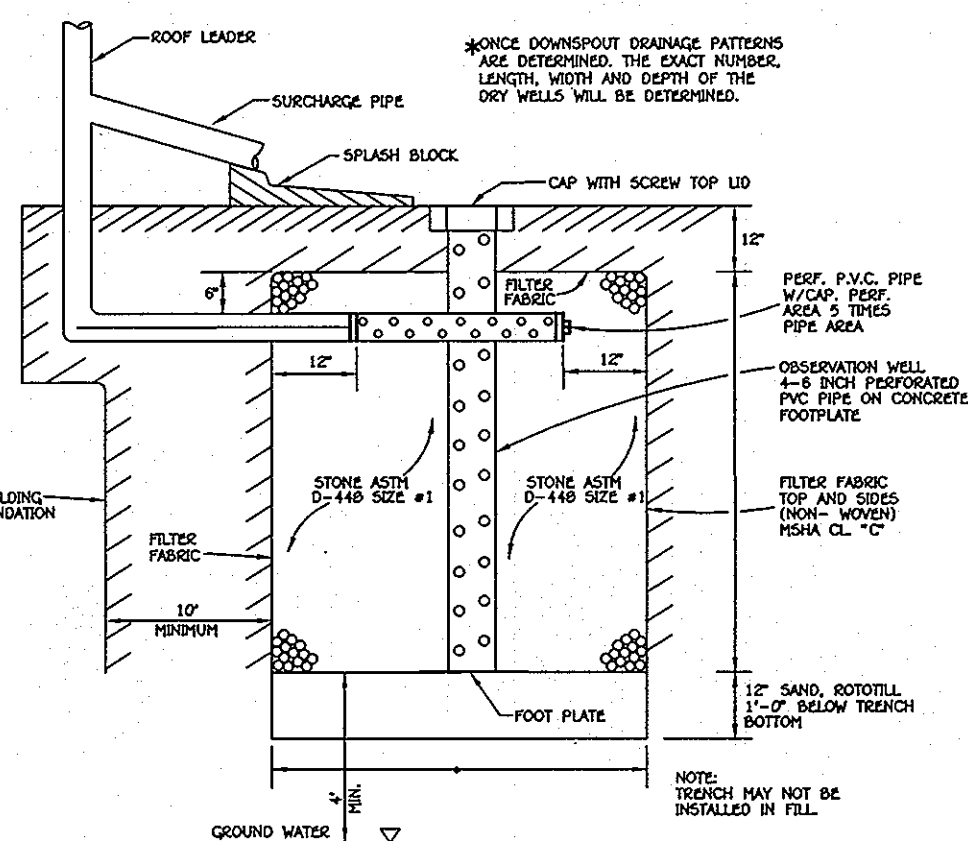
| SYMBOL | DESCRIPTION |
|--------|----------------------------------|
| - - - | EXISTING 2' CONTOURS |
| - - - | EXISTING 10' CONTOURS |
| - - - | PROPOSED CONTOUR |
| + | SPOT ELEVATION |
| - - - | LIMITS OF DISTURBANCE |
| - - - | PROPOSED PAVING |
| - - - | NON-ROOFTOP DISCONNECTION |
| - - - | SOILS LINES AND TYPE |
| - - - | SUPER SILT FENCE |
| - - - | STABILIZED CONSTRUCTION ENTRANCE |



TYPICAL PRIVATE DRIVE CROSS SLOPE SECTION
NOT TO SCALE



GUTTER DRAIN FILTER DETAIL
NOT TO SCALE



DRY WELL DETAIL
NOT TO SCALE

| DRYWELL NO. | AREA OF ROOF PER DOWN SPOUT | VOLUME REQUIRED | VOLUME PROVIDED | *L | W | D |
|-------------|-----------------------------|-----------------|-----------------|----|----|----|
| 1 | 400 SQ. FT. | 32 C.F. | 36 C.F. | 6' | 4' | 4' |
| 2 | 400 SQ. FT. | 32 C.F. | 36 C.F. | 6' | 4' | 4' |
| 3 | 400 SQ. FT. | 32 C.F. | 36 C.F. | 6' | 4' | 4' |
| 4 | 400 SQ. FT. | 32 C.F. | 36 C.F. | 6' | 4' | 4' |

STORMWATER MANAGEMENT NOTES

- STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH CHAPTER 5, ENVIRONMENTAL SITE DESIGN OF THE 2000 MARYLAND STORMWATER MANAGEMENT DESIGN MANUAL, EFFECTIVE MAY 4, 2010.
- MAXIMUM CONTRIBUTING ROOF TOP AREA TO EACH DOWNSPOUT SHALL BE 500 SQ. FT. OR LESS.
- DRYWELLS SHALL BE PROVIDED AT LOCATIONS WHERE THE LENGTH OF DISCONNECTION IS LESS THAN 75' AT 5%. THE SIZE AND CONSTRUCTION OF THE DRYWELL SHALL BE IN ACCORDANCE WITH THE DETAIL SHOWN ON THIS SHEET.
- FINAL GRADING WILL BE SHOWN AT THE SITE DEVELOPMENT PLAN STAGE.

OPERATION & MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DISCONNECTION OF NONROOFTOP RUNOFF (N-2)

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

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

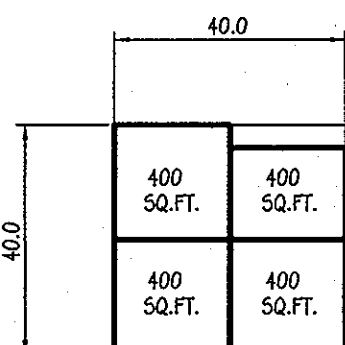
- THE OWNER SHALL INSPECT THE MONITORING WELLS AND STRUCTURES ON A QUARTERLY BASIS AND AFTER EVERY HEAVY STORM EVENT.
- THE OWNER SHALL RECORD THE WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.
- THE OWNER SHALL MAINTAIN A LOG BOOK TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
- WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN A SEVENTY-TWO (72) HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
- THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
- ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

IMPERVIOUS AREA

| | |
|----------|--------------|
| HOUSE | 1,600 SQ.FT. |
| DRIVEWAY | 696 SQ.FT. |
| TOTAL | 2,296 SQ.FT. |

STORMWATER MANAGEMENT PRACTICES

| LOT NO. | STREET NAME | MICRO-BIORETENTION FACILITY M-6 (NUMBER) | DRY WELLS M-5 (NUMBER) |
|---------|--------------|--|------------------------|
| 94 | AVOCA AVENUE | 1 | 4 |



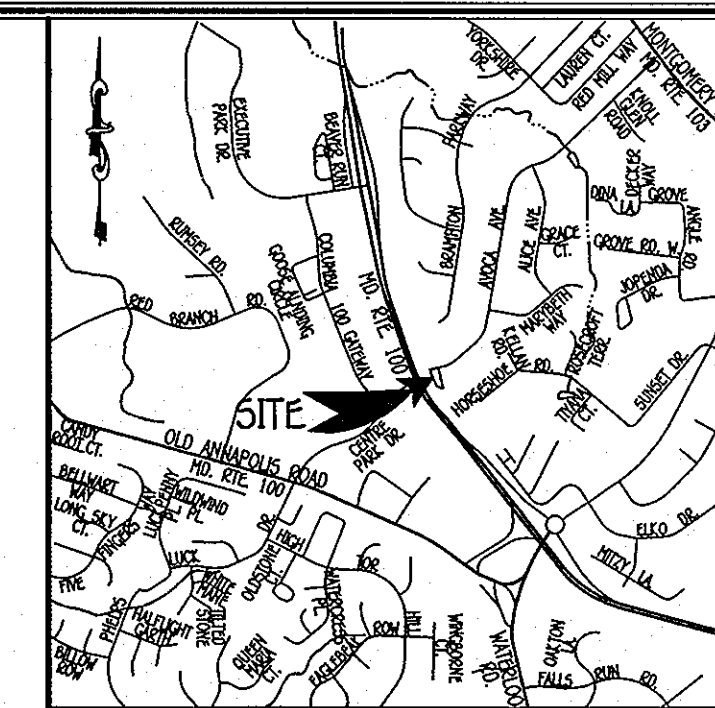
PATUXENT
ROOFTOP DRAINAGE AREAS

SOILS LEGEND

| SOIL | NAME | CLASS |
|------|---|-------|
| SaC | Sassafras loam, 5 to 10 percent slopes, moderately eroded | B |
| SaB | Sassafras loam, 2 to 5 percent slopes | B |

SaC Sassafras loam, 5 to 10% percent slopes, moderately eroded
This soil is suited to cultivated crops, pasture and trees. The main limitation is the hazard of erosion. Included in the areas mapped are some small areas in which the surface layer is a little more sandy and some severely eroded areas. (Capability unit IIIe-4 woodland suitability group 3).

SaB Sassafras loam, 2-5% slopes
Sassafras component makes up 100% of the map unit. All areas are prime farmland. The assigned K_w erodibility factor is 24. This soil is well drained. The slowest permeability within 60 inches is moderate. Available water capacity is very high and shrink swell potential is low. The soil is not flooded and is not ponded. The water table is deeper than 6 feet. It is in nonirrigated land capability class 2e. This component is not a hydric soil. The depth to a restrictive feature is greater than 60 inches. The potential runoff class is low.



VICINITY MAP
SCALE: 1" = 200'

SITE ANALYSIS DATA

- TOTAL AREA OF SUBJECT PROPERTY = 0.445 ACRES
- DEVELOPABLE AREA: 0.445 ACRES
- WETLAND AREA: NONE
- FLOODPLAIN: NONE
- FOREST: NONE
- STEEP SLOPES: NONE
- ERODIBLE SOILS: NONE
- LIMIT OF DISTURBANCE: 0.24 ACRES
- PROPOSED SITE USE: RESIDENTIAL
- GREEN OPEN AREA: 0.395 ACRES
- IMPERVIOUS AREA: 0.05 ACRES

General Notes:

- Previous Department of Planning and Zoning File Number: 302-5, 12-W, P.D. 6-PG 70, AA CASE NO. 12-009.
- The SWM Measures Illustrated On This Plan Are Conceptual As Specific House Configurations Have Not Yet Been Established. Specific SWM Measures Will Be Provided With The Associated Plot Plan When Final Design Details Can Be Provided.
- The contractor shall notify the Department of Public Works/Bureau of Engineering/ Construction Inspection Division at 410-313-1800 at least five (5) working days prior to the start of work.
- The contractor shall notify HSS UTILITY 411-6007-257-7777 at least 48 hours prior to any excavation work being done.
- The coordinates shown herein are based upon the Howard County Control Stations
- This property is located within the Metropolitan District.
- Any damage to the County Owned Right-of-Way shall be corrected at the Developer's expense.
- The subject property is zoned R-20 per the 2-04-04 Comprehensive Zoning Plan and the Comp-Lite Zoning Amendments dated 7-29-08.
- Landscaping for this project will be provided for at the Site Development Stage.
- Forest Conservation Obligations will be met by a Fee-In Lieu Payment at the Site Development Plan stage of this project.
- Review of this project for compliance with the Howard County Subdivision and Land Development Regulations and the Howard County Zoning Regulations occur at the Site Development Stage. Therefore, the applicant and consultant should expect additional and more detailed comments (including those that may alter overall site design) as this project progresses.
- Approval of this ESD does not constitute an approval of any subsequent subdivision and/or Site Development Plan.
- Stormwater Management requirements for this site will be using Environmental Site Design to the Maximum Extent Possible in accordance with the Maryland Stormwater Design Manual, Volumes I & II, effective May, 2010. Proposed practices will be located on Lot 94 as follows:
 - Stormwater requirements will be met by using Dry Wells (M-5) for Rooftop runoff. The Driveway runoff will be treated by using Non-roof-top Disconnection (N-2). These facilities will provide the required ESD Volumes for the proposed house and Driveway. These practices shall be privately owned and maintained in accordance with individual Declarations of Covenants.
- On August 6, 2012, by the Director of the Department of Planning and Zoning for Howard County Ordered That the Petition of Omar H. Foote For An Administrative Adjustment From Section 10B.04.4.11(A)(1) To Reduce The 50' Side Setback From An Arterial Road Right-of-Way To 40 Feet and Section 10B.04.4.11(A)(1) To Reduce The 50' Front Setback From A Street Right-of-Way To 45' To Construct A Single Family Detached Dwelling Was Granted Subject To The Following Conditions:
 - The petitioner shall comply with all applicable Federal, State and County laws and regulations.
 - The granted Administrative Adjustment shall apply solely to the single family dwelling as depicted on the Adjustment plan submitted by the Petitioner and not to any other structure, addition, building or use.
 - This Decision and Order shall be maintained in the Owner's Property records and shall be transferred to any succeeding owner of the property.

ESD NARRATIVE:

- There are no existing natural resources located on-site.
- The existing drainage patterns will be maintained as closely as possible during and after the development of the site.
- efforts have been made to reduce the impervious areas; once the final house type has been selected, it may be possible to reduce the site imperviousness through better site design.
- The required Sediment and Erosion control measures consisting of super silt fence and stabilized construction entrance have been designed in accordance with the latest Howard County Soil Conservation District and Maryland Department of the Environment regulations. Based on the type and location of the ESD practices, there was no need to incorporate these measures into the SWM strategy.
- The proposed Environmental Site Design measures have been implemented to the Maximum Extent Possible and meet the targeted PE for this site. As such, no major structural practices as described in Chapter 3 of the above cited Manual will be required.

SWM NARRATIVE:

INTRODUCTION:
This report will demonstrate how the criteria set forth in the Maryland Stormwater Management Design Manual, Volumes I and II, effective October 2000 and revised in May of 2010, will be utilized for this project. The goal of creating hydrology similar to that of Woods in Good Condition will be accomplished through the use of practices set forth in the revised Chapter 5 of the above referenced manual. The achievement of this goal will preclude the need to provide Channel Protection Volume for this project.

GENERAL SITE CONDITIONS:
Lot 94 consists of 0.445 acres and is zoned R-20. It is located on Tax Map No. 30, Grid 10 and Parcel No. 234 of the Howard County Tax Map database system. It is located south of Avoca Avenue where it terminates at Maryland Route 100 in the Ellicott City area of the county. At present, there are no impervious areas located on the site. Slopes average around 8% at the front of the property where the proposed house will be located. Most of the existing trees located in the front of the lot will have to be removed for construction; however, the trees located in the rear of the lot can be saved. The soils located on the property are in the hydrological soil group "B".

NATURAL RESOURCES PROTECTION:
There are no Natural Resources as shown in Table 5.1 of the above referenced manual located on this site; therefore no protections are required.

MAINTENANCE OF NATURAL FLOW PATTERNS:
It is the intent of the proposed design to mimic runoff discharge patterns and directions as closely as possible to those existing prior to development.

REDUCTION OF IMPERVIOUS AREAS THROUGH BETTER SITE DESIGN, ALTERNATIVE SURFACES AND NON-STRUCTURAL PRACTICES:
The proposed house and driveway are at a minimum size necessary to fit within the small building envelope on this site. Non-structural practices as permitted in Chapter 5, i.e., Non-Rooftop Disconnection (N-2) and Drywells (M-5) were used to address ESD to the PE requirements. Alternative surfaces were not incorporated into the design.

INTEGRATION OF EROSION AND SEDIMENT CONTROLS INTO THE STORMWATER STRATEGY:
There was no need to incorporate the Sediment and Erosion Control devices into the Stormwater Management design for this site.

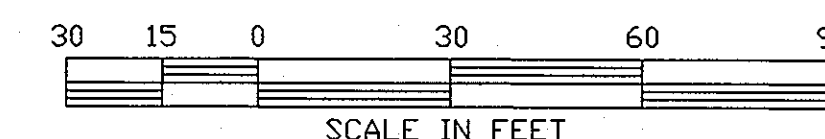
| SWM SUMMARY CHART | | | |
|-------------------|------------------|------------------|---|
| AREA ID | ESDV REQ. cu.ft. | ESDV Pvd. cu.ft. | REMARKS |
| LOT 1 | 175 | 196 | 1-MICRO-BIORETENTION (M-6) & 4-DRYWELLS (M-5) |
| TOTALS | 175 | 196 | |

AREA = 0.445 ACRES
RCN = 55
TARGET PE = 1.0'

CALCULATE THE PE PROVIDED AS FOLLOWS:

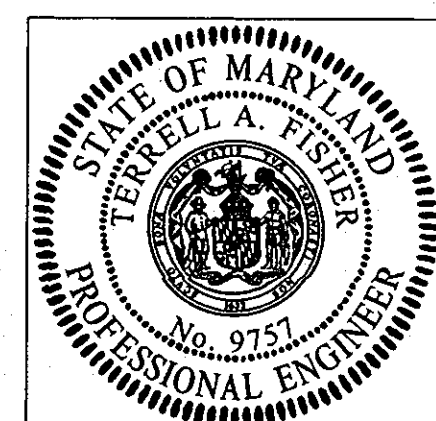
$$PE \text{ PROVIDED} = \frac{ESDV \times 12}{R_v \times A} = \frac{196 \times 12}{0.95 \times (0.050 \text{ acres})} = \frac{2352}{4.350} = 49516 = 1.14' \text{ vs } 1.0'$$

AS SUCH, 114% (1.14'/1.0') OF THE REQUIRED ESD VOLUME HAS BEEN PROVIDED.



| DATE | REVISION BLOCK DESCRIPTION |
|------|----------------------------|
| | |
| | |
| | |
| | |
| | |
| | |

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE FASE - 10772 BALTIMORE NATIONAL PIKE
ELICOTT CITY, MARYLAND 21042
(410) 461-2955



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. 9757, EXPIRATION DATE: 3/3/14.
Terrrell A. Fisher 3/8/13
TERRILL A. FISHER DATE

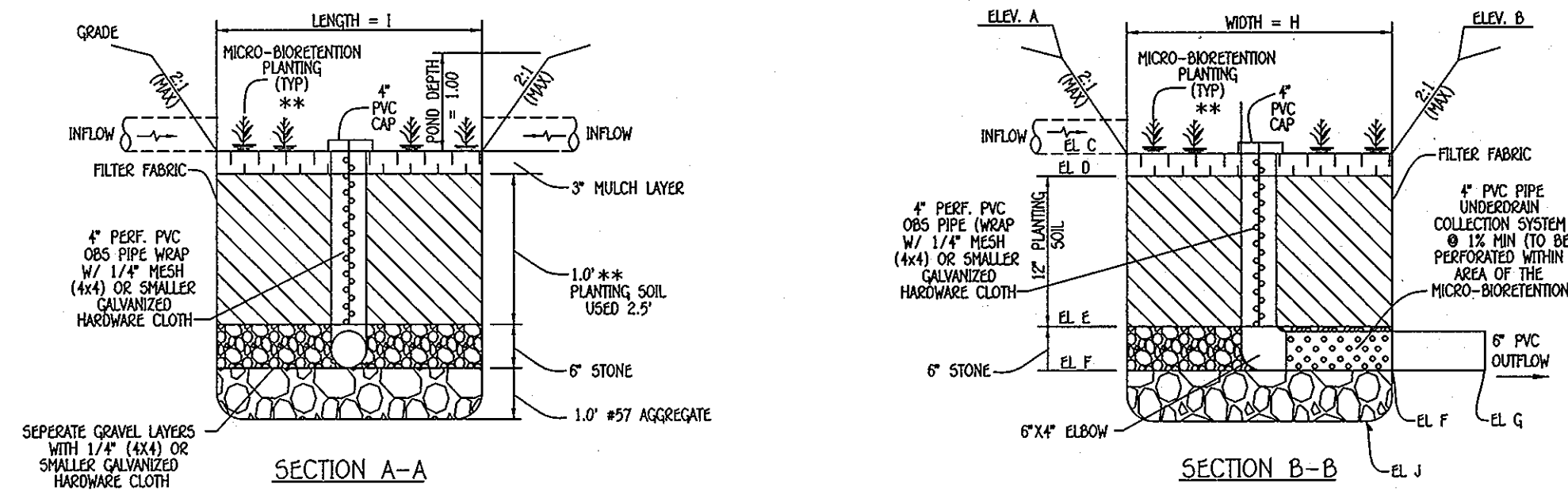
OWNER
OMAR AND CHRISTINE FOOTE
5129 AVOCA DRIVE
ELICOTT CITY, MD. 21043

DEVELOPER
BURKHARD HOMES, LLC
5129 AVOCA DRIVE
ELICOTT CITY, MD. 21042

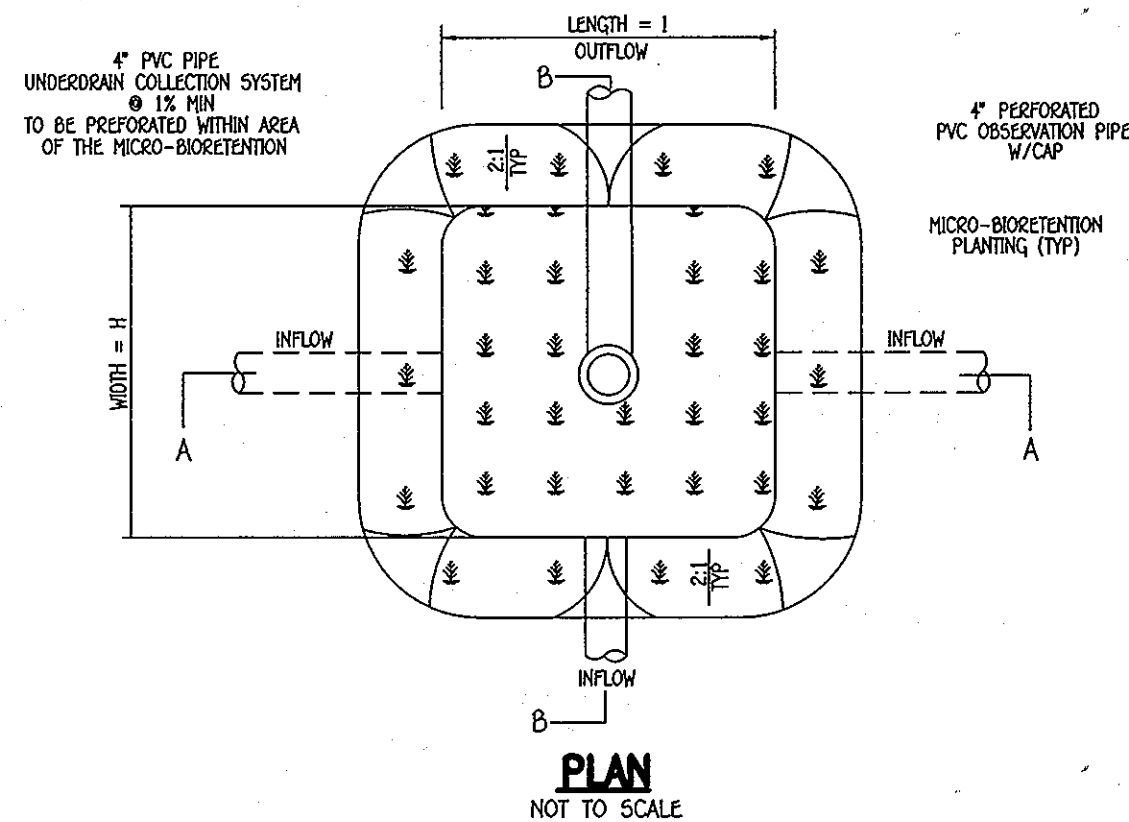
| APPROVED: DEPARTMENT OF PLANNING AND ZONING | | | | |
|---|------------|---------|-------------|-----------------|
| Chief, Division of Land Development | | | | 3/21/13 Date |
| Chief, Development Engineering Division | | | | 3/28/13 Date |
| PROJECT | SECTION | LOT NO. | ZONED: R-20 | |
| MONTGOMERY KNOLLS | N/A | 94 | | |
| PLAT | BLOCK NO. | ZONE | TAX/ZONE | ELEC. DIST. |
| 6 | 18 | R-20 | 30 | SECOND |
| PAGE 70 | CENSUS TR. | | | |

ENVIRONMENTAL CONCEPT PLAN

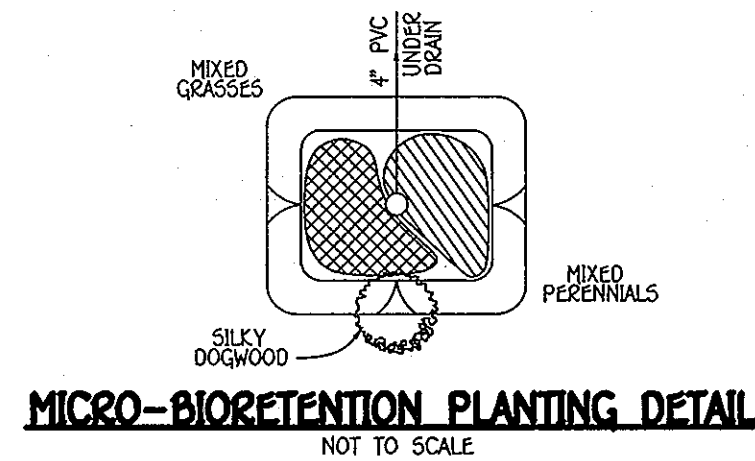
SINGLE FAMILY DETACHED
MONTGOMERY KNOLLS
LOT 94
ZONED: R-20
TAX MAP NO.: 0030 PARCEL NO.: 0234 GRID NO.: 0018
SECOND ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
SCALE: 1" = 30' DATE: MARCH, 2013
SHEET 1 OF 2 ECP-13-20



MICRO-BIORETENTION DETAIL (M-6)
NOT TO SCALE



| MICRO-BIORETENTION | | | | | | | | | | |
|---------------------|--------|--------|--------|--------|--------|--------|--------|----|-----|--------|
| BIORETENTION FILTER | A | B | C | D | E | F | G | H | I | J |
| 1 | 518.00 | 518.00 | 517.00 | 516.75 | 515.75 | 515.25 | 515.20 | 5' | 11' | 514.25 |



- * MIXED PERENNIALS
OUT-LEAF CONEFLOWER
CARDINAL FLOWER
TOXICANT ASTER
- * MIXED GRASSES
TUFTED FOXTAIL
BROOM SEDGE
SWITCH GRASS

NOTE:
PLANT MATERIAL MUST COVER AT LEAST 50% OF THE SURFACE AREA OF THE MICRO-BIORETENTION

| MICRO-BIORETENTION PLANT MATERIAL | | |
|-----------------------------------|------------------|-----------------------|
| QUANTITY | NAME | MAXIMUM SPACING (FT.) |
| 25 | MIXED PERENNIALS | 1 FT. |
| 25 | MIXED GRASSES | 1 FT. |

OPERATION & MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6)

- 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.
- THE OWNER SHALL PERFORM A PLANT 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.
- THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PROXIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
- THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

F:\2012\12011\dwg\12011-6001 ECP Lot 94.dwg, ECP SHT 2, 3/8/2013 11:23:22 AM

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE
ELLSWORTH CITY, MARYLAND 21114
(410) 461-2895



OWNER
OMAG and CHESTNUT FOOTC
5129 AVOCA DRIVE
ELLSWORTH CITY, MD. 21143

DEVELOPER
BURKHARD HOMES, LLC
5300 DORSEY HALL DRIVE
ELLSWORTH CITY, MD. 21142

APPROVED: DEPARTMENT OF PLANNING AND ZONING

K. J. [Signature]
Chief, Division of Land Development

3/2/13
Date

[Signature]
Chief, Development Engineering Division

3/2/13
Date

| | | |
|-------------------|-----------|-------------|
| PROJECT | SECTION | LOT NO. |
| MONTGOMERY KNOLLS | N/A | 94 |
| PLAT | BLOCK NO. | ZONE |
| PLAT BOOK | TAX/ZONE | ELEC. DIST. |
| PAGE 70 | 10 | R-20 |
| | | 30 |
| | | SECOND |

ENVIRONMENTAL CONCEPT PLAN

SINGLE FAMILY DETACHED
MONTGOMERY KNOLLS

LOT 94
ZONED: R-20

TAX MAP NO.: 0030 PARCEL NO.: 0234 GRID NO.: 0018
SECOND ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH, 2013

SHEET 2 OF 2 **ECP-13-28**