

**GENERAL NOTES**

- THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS ALTERNATIVE COMPLIANCE HAVE BEEN APPROVED.
- THIS ENVIRONMENTAL CONCEPT PLAN IS SUBJECT TO THE FOLLOWING DPZ FILES:  
CONTRACT NO. F-96-177, CONTRACT S-W, 44-3116, 44-1024, 10-1043, 347-S, WP-97-87.
- THE EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON HOWARD COUNTY GIS.
- THE PROJECT BOUNDARY IS BASED ON A FIELD RUN BOUNDARY PERFORMED BY MARKS & VOGEL ASSOCIATES, INC., DATED APRIL 1996.
- THE COORDINATES AND ELEVATIONS SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY CONTROL STATION 37CA AND 37CB WERE USED FOR THIS PROJECT.
- THE SUBJECT PROPERTY IS ZONED R-20 IN ACCORDANCE WITH THE ZONING REGULATIONS EFFECTIVE ON OCT. 06, 2013, AND IS SUBJECT TO SUBDIVISION AND LAND DEVELOPMENT REGULATIONS EFFECTIVE OCT. 07, 2007 PER COUNCIL BILL 47-2007 & 48-2007. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, ALTERNATIVE COMPLIANCE PETITION APPLICATION OR BUILDING/GRADING PERMIT APPLICATIONS.
- THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.  
- WATER FOR THIS PROJECT SHALL BE FROM AN EXTENSION OF CONTRACT NO. #44-1024.  
- SEWER FOR THIS PROJECT SHALL BE FROM THE PROPOSED EXTENSION OF CONTRACT NO. #10-1043.  
- WATER AND SEWER SERVICE WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.122.B OF THE HOWARD COUNTY CODE. ALLOCATIONS WILL BE GRANTED AT TIME OF ISSUANCE OF BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.
- THIS SITE IS NOT LOCATED IN A HISTORIC DISTRICT.
- NO RARE, THREATENED OR ENDANGERED SPECIES OR THEIR HABITATS WERE OBSERVED ON THE PROPERTY.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAM(S) OR THEIR REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATION EASEMENT AREAS.
- WETLANDS AND THEIR BUFFERS WILL NOT BE IMPACTED BY THE CONSTRUCTION OF THE SITE.
- THERE ARE NO "FLOODPLAIN" AREAS LOCATED WITHIN THE DEVELOPMENT AREA. FLOODPLAIN SHOWN NORTH OF LOT 3 IS FROM ROCKBURN BRANCH FLOOD STUDY, MAP # 26-468.
- THERE ARE 211 S.F. STEEP SLOPES, 25% OR GREATER.
- THE PROJECT SITE WAS EVALUATED FOR THE PRESENCE OF ENVIRONMENTAL FEATURES AND A LETTER HAS BEEN PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. C/O MR. JOHN CANOLES, MARCH 20, 2018. MR. CANOLES NOTED AREAS OF FOREST AND LAWN BUT NO SPECIFIC TREES OR ANY OTHER REGULATED ENVIRONMENTAL FEATURES WERE FOUND WITHIN THE LIMITS OF THE DEVELOPMENT AREA FOR THIS PROJECT. WETLAND DELINEATION FOR AREA NORTH OF LOT 3 PROVIDED BY MARKS & VOGEL ASSOCIATES, INC., DATED APRIL 1996.
- THIS PROJECT IS SUBJECT TO THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION. A FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE, FOREST CONSERVATION ACT, (FOREST RETENTION). NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER FOREST MANAGEMENT PRACTICES AS DEFINED IN THE FOREST CONSERVATION EASEMENT ARE ALLOWED. THE BALANCE OF THE FOREST CONSERVATION OBLIGATION INCURRED BY THIS SUBDIVISION (0.23 AC. OF REFORESTATION) HAVE BEEN MET BY PAYMENT OF \$3005.00 TO THE HOWARD COUNTY FOREST CONSERVATION FUND. THE FOREST CONSERVATION REQUIREMENTS WERE ADDRESSED UNDER F-96-177.
- A LANDSCAPE PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF \$3,000.00 FOR THE REQUIRED 10 SHADE TREES. WILL BE PAID WITH THE BUILDER'S GRADING PERMIT.
- THERE ARE 0 S.F. (0.00 AC.) AREA OF WETLANDS PRESENT WITHIN THE DEVELOPMENT AREA PER DELINEATION BY MARKS & VOGEL ASSOCIATES, INC., DATED APRIL 1996.
- THERE ARE 0 S.F. (0.00 AC.) AREA OF OPEN SPACE PRESENT. OPEN SPACE IS NOT REQUIRED FOR A MINOR SUBDIVISION.
- GEOTECHNICAL INVESTIGATIONS SHALL BE COMPLETED AS PART OF THE SITE DEVELOPMENT PLAN SUBMISSION.
- REFERENCE WP-97-87 APPROVED APRIL 16, 1997 TO WAIVE SECTION 16.120(b)(5)(i) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS TO NOT REQUIRE NOISE MITIGATION BY MEANS OF A BERM FOR THE 650 BA NOISE LINE CROSSING LOT 1. CONDITION OF APPROVAL: CONSTRUCTION OF A MINIMUM 5-FOOT HIGH SOLID BOARD FENCE TO SUPPLEMENT THE TYPE "B" VEGETATIVE BUFFER REQUIRED ON MONTGOMERY ROAD. PLANT TREES ON THE STREET SIDE (IE. OUTSIDE) OF THE FENCE. A TALLER FENCE IS PERMITTED FOR USE AS A NOISE MITIGATION DEVICE. LANDING ROAD IS CLASSIFIED AS A MINOR COLLECTOR AND A SCENIC ROAD. MONTGOMERY ROAD IS CLASSIFIED AS A MINOR ARTERIAL. SITE ACCESS SHALL BE PRIVATE DRIVEWAYS FROM LANDING ROAD.
- A TRAFFIC STUDY IS NOT REQUIRED FOR THIS PROJECT.
- THIS PROJECT IS EXEMPT FROM AN ADEQUATE ROADS FACILITIES TEST STUDY, AS IT IS A MINOR SUBDIVISION.
- TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS, CEMETERIES, OR HISTORIC STRUCTURES LOCATED WITHIN THE DEVELOPMENT AREA.
- THERE ARE NO EXISTING DWELLINGS OR STRUCTURES WITHIN THE DEVELOPMENT AREA.
- A FEE-IN-LIEU OF STORMWATER MANAGEMENT FOR THE PROJECT WAS APPROVED BY THE DIRECTOR OF PUBLIC WORKS ON 6/28/96. WATER QUALITY TRENCHES AND DRYWELLS SHALL BE PROVIDED WITH INDIVIDUAL HOUSE CONSTRUCTION.
- SEDIMENT AND EROSION CONTROLS WILL BE PROVIDED FOR THIS SITE BY ON LOT PERIMETER CONTROLS.
- THERE ARE 1.26 AC. OF HIGHLY ERODIBLE SOILS ON THIS SITE.
- DRIVEWAY ACCESS 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 FEET (16 FEET SERVING MORE THAN ONE RESIDENCE)  
B) SURFACE - 6 INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING, (1-1 1/2" MIN.)  
C) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% CHANGE AND MINIMUM OF 45-FOOT TURNING RADIUS.  
D) STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING).  
E) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100-YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE.  
F) STRUCTURE CLEARANCES - MINIMUM 12 FEET.  
G) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.
- A PRE-SUBMISSION COMMUNITY MEETING IS NOT REQUIRED FOR CONSTRUCTION OF A HOME ON AN EXISTING LOT.
- MHU'S ARE REQUIRED FOR THIS PROJECT. THE DEVELOPER WILL PAY A FEE-IN-LIEU TO ADDRESS THIS REQUIREMENT.
- DECLARATION OF COVENANTS FOR LOTS 1 AND 2 SHALL BE RECORDED WITH THE DEVELOPER AGREEMENT AND SIMULTANEOUSLY WITH THE PRIVATE STORMWATER DEVICES LOCATED ON THESE LOTS. ALL STORMWATER DEVICES SHALL BE PRIVATE. ALL STORMWATER DEVICES SHALL BE LOCATED WITHIN THE PRIVATE LOTS, AND OWNED AND MAINTAINED BY THE HOMEOWNER.
- SHC ELEVATIONS SHOWN ARE LOCATED AT THE PROPERTY LINE.
- APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED SUBDIVISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN AND/OR RED-LINE REVISION PLAN. REVIEW OF THIS PROJECT FOR COMPLIANCE WITH THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS SHALL OCCUR AT THE SUBDIVISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN STAGES AND/OR RED-LINE REVISION PROCESS. THE APPLICANT AND CONSULTANT SHOULD EXPECT ADDITIONAL AND MORE DETAILED REVIEW COMMENTS (INCLUDING COMMENTS THAT MAY ALTER THE OVERALL SITE DESIGN) AS THIS PROJECT PROGRESSES THROUGH THE PLAN REVIEW PROCESS.

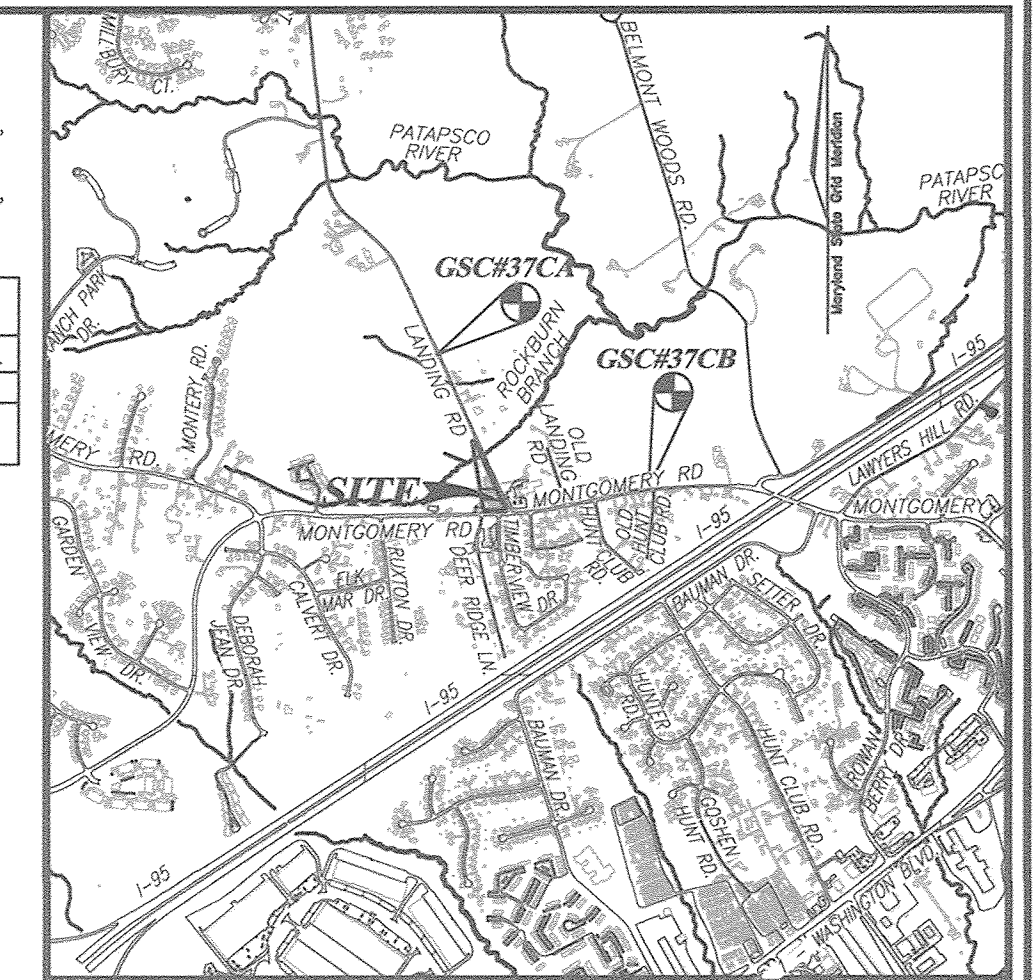
# ENVIRONMENTAL CONCEPT PLAN SNODGRASS PROPERTY LOTS 1 AND 2 L.0700 / F.00601 AND L.0700 / F.00604

**BENCHMARKS**

HOWARD COUNTY BENCHMARK 37CA  
N 564,321.637 E 1,382,742.900 ELEV.: 256.893'  
HOWARD COUNTY BENCHMARK 37CB  
N 562,930.787 E 1,384,957.348 ELEV.: 257.145'

**SHEET INDEX**

DESCRIPTION	SHEET NO.
COVER SHEET AND LAYOUT PLAN	1 OF 2
GRADING, EROSION AND SEDIMENT CONTROL PLAN, ESDV DRAINAGE AREA MAP AND DETAILS	2 OF 2



**VICINITY MAP**

SCALE: 1"=200'  
ADC MAP COORDINATES: MAP 35, GRID B-1

**LEGEND**

	EXISTING CONTOUR
	PROPOSED CONTOUR
	EXISTING CURB AND GUTTER
	PROPOSED CURB AND GUTTER
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING MAILBOX
	EXISTING SIGN
	EXISTING SANITARY MANHOLE
	EXISTING SANITARY LINE
	EXISTING CLEANOUT
	EXISTING FIRE HYDRANT
	EXISTING WATER LINE
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	EXISTING TREELINE
	PROPOSED TREELINE
	LIMIT OF DISTURBANCE
	EX. WETLAND
	WETLAND BUFFER

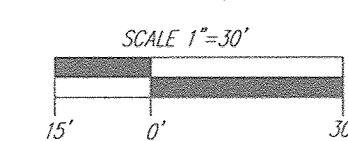
**SITE DATA**

TAX MAP 37, BLOCK 6, PARCEL 67  
1ST ELECTION DISTRICT  
PRESENT ZONING: R-20 RESIDENTIAL  
TOTAL AREA OF PROPERTY: 2.123 AC. (LOTS 1, 2 & 3)  
DPZ REFERENCES:  
DEED/PLAT REFERENCES: L.7000 / F.00601 & L. 7000 / F.0604  
PLAT NO. 13025  
AREA MANAGED BY ESDV ("THIS PLAN-"DEVELOPMENT AREA"): 43,935 S.F./1.01 AC.  
USE OF PROPOSED STRUCTURES (THIS PLAN):  
SINGLE FAMILY RESIDENTIAL  
3,369 SF (0.08 AC. OR 8.71%)  
\*TOTAL BUILDING COVERAGE WITHIN THE DEVELOPMENT AREA:  
3,723 SF (0.09 AC. OR 9.62%)  
\*PAVED AREA WITHIN THE DEVELOPMENT AREA:  
3,723 SF (0.09 AC. OR 9.62%)  
LIMIT OF DISTURBED AREA (THIS PLAN): 43,935 / 1.01 AC.  
\*WETLANDS ON SITE: 0.00 AC.  
\*WETLAND BUFFERS ON SITE: 0.00 AC.  
\*STREAMS AND THEIR BUFFERS ON SITE: 0.00 AC.  
\*AREA OF 100-YEAR FLOODPLAIN: 0.00 AC.  
\*AREA OF EXISTING FOREST ON SITE: 0.24 AC.  
\*AREA OF MDE STEEP SLOPES (20% OR GREATER): 211 SF / 0.005 AC.  
\*AREA OF ERODIBLE SOILS: 211 SF / 0.005 AC.  
\*IMPERVIOUS AREA : 7,092 S.F. ( 0.16 AC. OR 16.14%)  
\*GREEN/OPEN AREA : 31,606 S.F. ( 0.73 AC. OR 83.86%)  
NOTE \*WITHIN LIMITS OF DEVELOPMENT AREA ONLY



**LAYOUT PLAN VIEW**

SCALE: 1"=50'



**ENVIRONMENTAL SITE DESIGN NARRATIVE:**

IN ACCORDANCE WITH THE DEVELOPMENT ENGINEERING DIVISION ECP CHECKLIST ITEM III.K.

- THE NATURAL AREAS ON THE SNODGRASS PROJECT SITE ARE LOCATED TOWARD THE PROJECT BOUNDARIES. NO DISTURBANCE TO THE STREAM AND STREAM BUFFER, WETLAND AND WETLAND BUFFER OR THEIR WOODED RESOURCES IS PROPOSED UNLESS SHOWN HEREON.
  - NO DRAMATIC DISTURBANCE TO THE NATURAL DRAINAGE PATTERNS ARE PROPOSED.
  - THE CONCEPTUAL REDUCTION IN IMPERVIOUS AREA THROUGH BETTER SITE DESIGN IS ACHIEVED THROUGH THE ENVIRONMENTAL SITE DESIGN (ESD) FOR THE PROJECT. THE ESD CONCEPT INCLUDES THE USE OF MICRO-SCALE PRACTICES TO INCLUDE RAIN GARDEN FACILITIES AND DRY WELLS.
  - SEDIMENT CONTROL FOR THIS SPECIFIC SITE PLAN WILL BE PROVIDED THROUGH THE USE A PROPOSED EARTH DIKES, AND SILT FENCE PERIMETER CONTROLS AND STONE OUTLET STRUCTURES. SEDIMENT CONTROL SHALL BE IN ACCORDANCE WITH CURRENT REQUIREMENTS AND SHALL BE APPROVED BY THE HOWARD SOIL CONSERVATION DISTRICT.
  - STORMWATER MANAGEMENT FOR THE PROJECT HAS BEEN CONCEPTUALLY MET THROUGH THE USE OF 4-RAIN GARDEN FACILITIES, 1-DRY WELL FACILITY. THE RESULTS OF THE ENVIRONMENTAL SITE DESIGN FOR THIS PROJECT WILL REFLECT "WOODS IN GOOD CONDITION".
- TARGET PE = 1.00" PROVIDED PE = 1.0"  
TARGET ESDv = 715 CUFT PROVIDED = 924+/- CUFT
6. AT THIS CONCEPT STAGE OF DEVELOPMENT, NO WAIVER PETITIONS FOR THE STORMWATER MANAGEMENT DESIGN ARE REQUIRED.

**STORMWATER MANAGEMENT INFORMATION CHART**

LOT/PARCEL #	STREET ADDRESS	FACILITY NAME & NUMBER	PRACTICE TYPE (QUANTITY)	PUBLIC	PRIVATE	MAINTENANCE RESPONSIBILITY
LOT 1	5780 LANDING ROAD	MBR #1A	M-7 RAIN GARDEN		X	Owner
LOT 1	5780 LANDING ROAD	MBR-1B	M-7 RAIN GARDEN		X	Owner
LOT 1	5780 LANDING ROAD	MBR-1C	M-5 DRY WELL		X	Owner
LOT 2	5774 LANDING ROAD	MBR-2A	M-7 RAIN GARDEN		X	Owner
LOT 2	5774 LANDING ROAD	MBR-2B	M-7 RAIN GARDEN		X	Owner

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Paul C. ...*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
DATE: 10-17-18

*Karl ...*  
CHIEF, DIVISION OF LAND DEVELOPMENT  
DATE: 10/17/18

**OWNER/DEVELOPER**

MAIN STREET BUILDERS  
C/O JOSEPH SNODGRASS  
5705 LANDING ROAD  
ELKBRIDGE, MARYLAND 21075  
(410) 796-2003

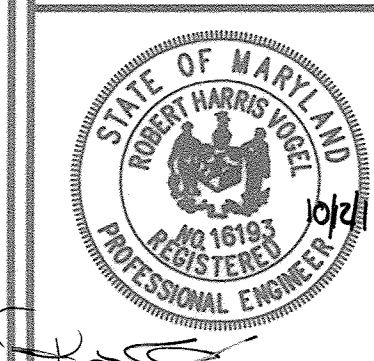
NO.	REVISION	DATE

**ENVIRONMENTAL CONCEPT PLAN  
COVER SHEET AND LAYOUT PLAN**

**SNODGRASS PROPERTY LOTS 1 & 2**  
5774 & 5780 LANDING ROAD  
L. 07000/F. 00601 & L. 07000/F. 00604

TAX MAP 37, BLOCK 6, PARCEL 67  
1ST ELECTION DISTRICT  
ZONED: R-20  
HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL ENGINEERING, INC.**  
ENGINEERS • SURVEYORS • PLANNERS  
3300 N. RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
TEL: 410.461.7666 FAX: 410.461.8961



DESIGN BY: GAH  
DRAWN BY: GAH  
CHECKED BY: RHV  
DATE: OCTOBER 2018  
SCALE: AS SHOWN  
W.O. NO.: 04-33

PROFESSIONAL CERTIFICATE  
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. 16193, EXPIRATION DATE 09-27-2020

1 SHEET OF 2

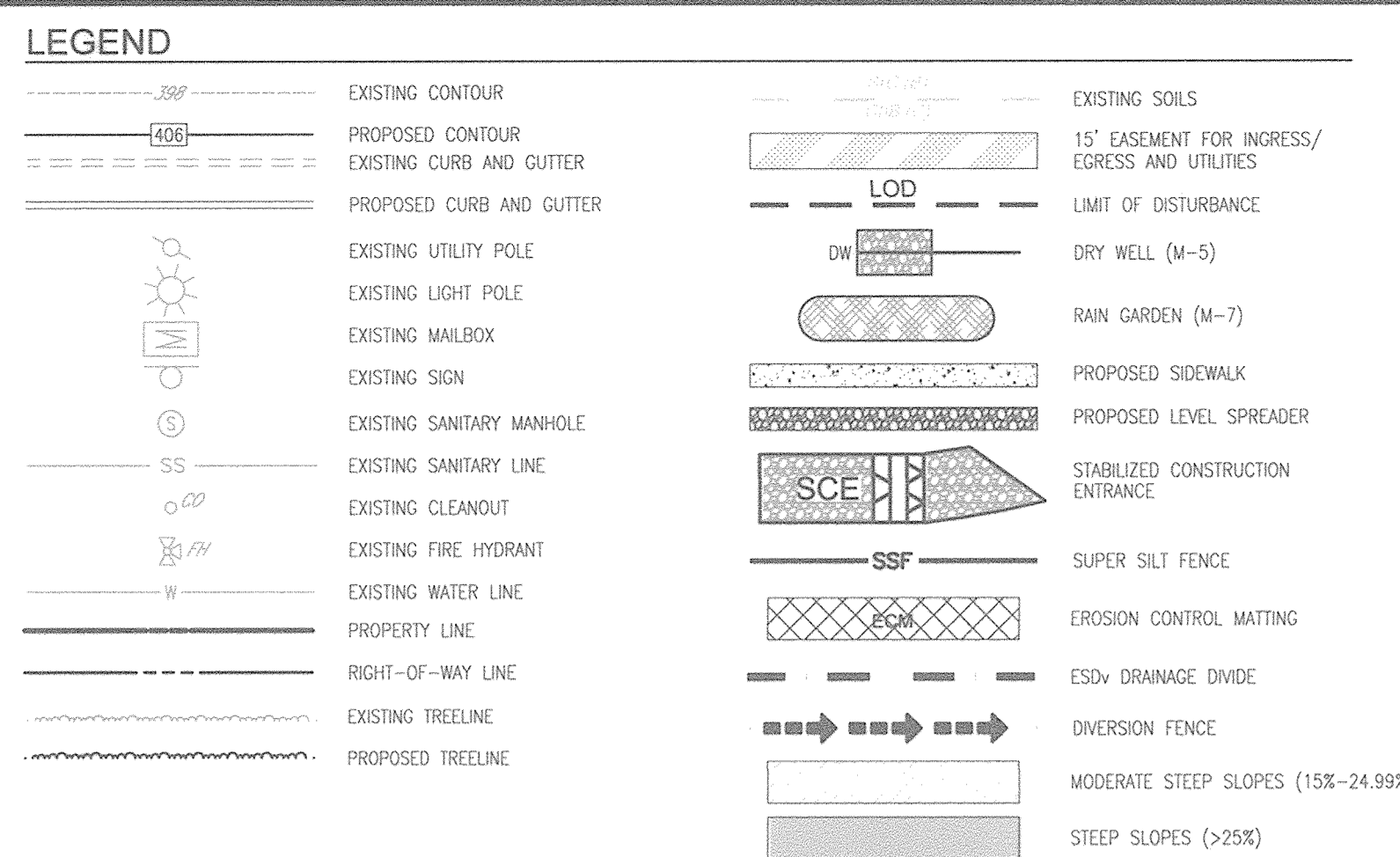
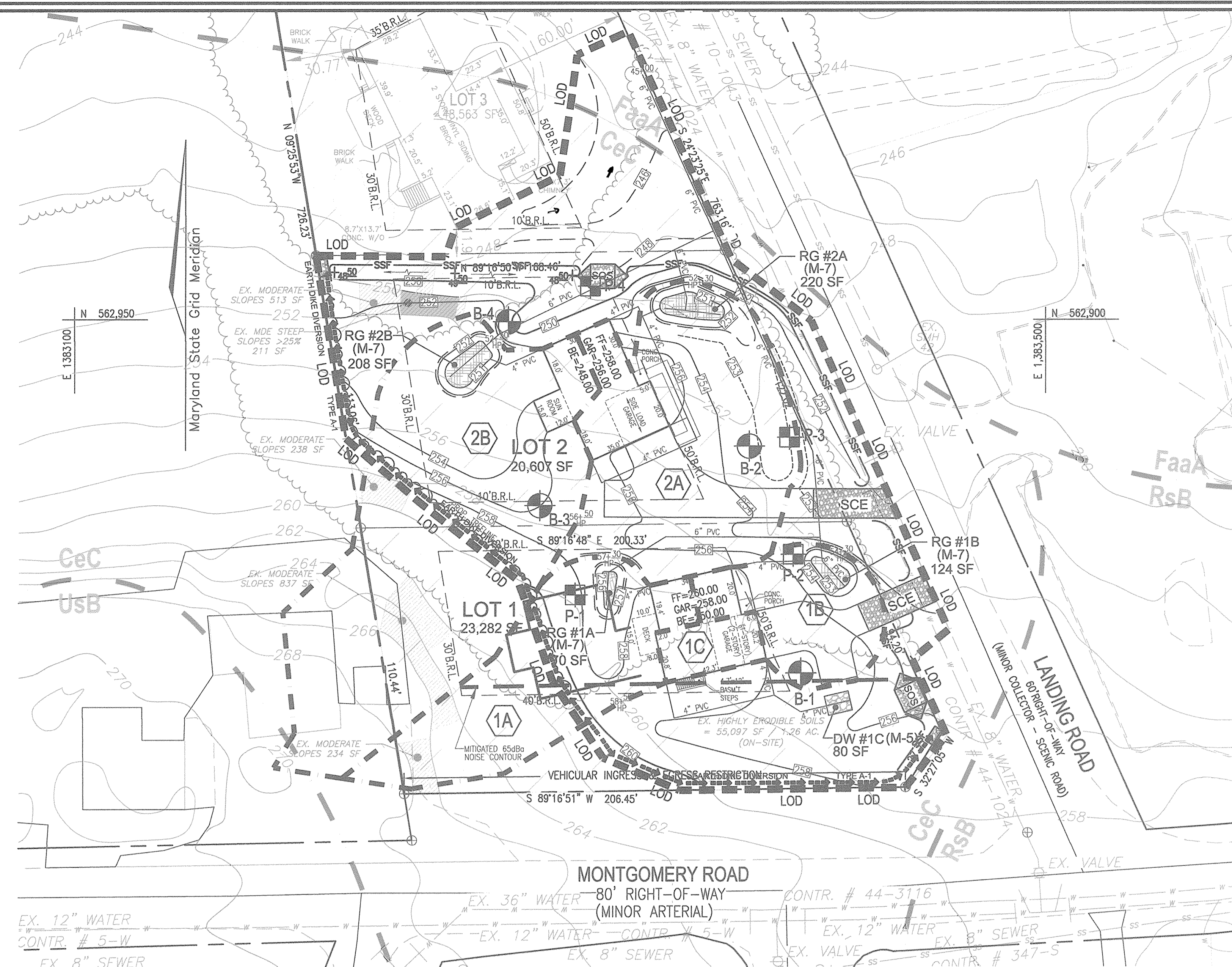


**APPENDIX B.2 CONSTRUCTION SPECIFICATIONS FOR INFILTRATION PRACTICES**  
**B.2.A INFILTRATION TRENCH GENERAL NOTES AND SPECIFICATIONS**

1. AN INFILTRATION TRENCH MAY NOT RECEIVE RUN-OFF UNTIL THE ENTIRE CONTRIBUTING DRAINAGE AREA TO THE INFILTRATION TRENCH HEAVY EQUIPMENT AND THE PROPOSED LOCATION OF THE INFILTRATION TRENCH IS PROTECTED FROM TRUCKING OVER THE INFILTRATION TRENCH.
2. EXCAVATE THE INFILTRATION TRENCH TO THE DESIGN DIMENSIONS. EXCAVATED MATERIALS SHALL BE PLACED AWAY FROM THE TRENCH SIDES TO PREVENT COLLAPSE OF THE TRENCH WALLS. EXCAVATED MATERIALS SHALL BE PLACED AWAY FROM THE TRENCH SIDES TO PREVENT COLLAPSE OF THE TRENCH WALLS. EXCAVATED MATERIALS SHALL BE PLACED AWAY FROM THE TRENCH SIDES TO PREVENT COLLAPSE OF THE TRENCH WALLS.
3. A CLASS "C" GEOTEXTILE OR BETTER (SEE SECTION 24.0 - MATERIAL SPECIFICATIONS, 1994 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL) MUST BE PLACED BETWEEN THE TRENCH SIDE WALLS AND BETWEEN THE STONE RESERVOIR AND GRAVEL FILTER LAYERS. A PARTIAL LIST OF NON-WOVEN FILTER FABRICS THAT MEET THE CLASS "C" CRITERIA FOLLOWS. ANY ALTERNATIVE FILTER FABRIC MUST BE APPROVED BY THE PLAN APPROVAL AUTHORITY.

**APPENDIX B.4.C SPECIFICATIONS FOR MICRO-BIORETENTION, RAIN GARDEN, LANDSCAPE INFILTRATION & INFILTRATION BENCH**

1. MATERIAL SPECIFICATIONS
  - a. SOIL: SHALL BE CLASSIFIED AS US-B OR CEC. SOILS WITH A PERCENTAGE OF CLAY LESS THAN 10% SHALL BE ACCEPTABLE.
  - b. MULCH: SHALL BE CLASSIFIED AS US-B OR CEC. MULCH SHALL BE CLASSIFIED AS US-B OR CEC.
  - c. PLANT MATERIAL: SHALL BE CLASSIFIED AS US-B OR CEC. PLANT MATERIAL SHALL BE CLASSIFIED AS US-B OR CEC.
2. FILTERING MEDIA OR PLANTING SOIL
  - a. MULCH: SHALL BE CLASSIFIED AS US-B OR CEC. MULCH SHALL BE CLASSIFIED AS US-B OR CEC.
  - b. PLANTING SOIL: SHALL BE CLASSIFIED AS US-B OR CEC. PLANTING SOIL SHALL BE CLASSIFIED AS US-B OR CEC.
3. CONSTRUCTION
  - a. INFILTRATION TRENCH: SHALL BE CLASSIFIED AS US-B OR CEC. INFILTRATION TRENCH SHALL BE CLASSIFIED AS US-B OR CEC.
  - b. MICRO-BIORETENTION: SHALL BE CLASSIFIED AS US-B OR CEC. MICRO-BIORETENTION SHALL BE CLASSIFIED AS US-B OR CEC.
  - c. RAIN GARDEN: SHALL BE CLASSIFIED AS US-B OR CEC. RAIN GARDEN SHALL BE CLASSIFIED AS US-B OR CEC.
  - d. LANDSCAPE INFILTRATION: SHALL BE CLASSIFIED AS US-B OR CEC. LANDSCAPE INFILTRATION SHALL BE CLASSIFIED AS US-B OR CEC.
  - e. INFILTRATION BENCH: SHALL BE CLASSIFIED AS US-B OR CEC. INFILTRATION BENCH SHALL BE CLASSIFIED AS US-B OR CEC.

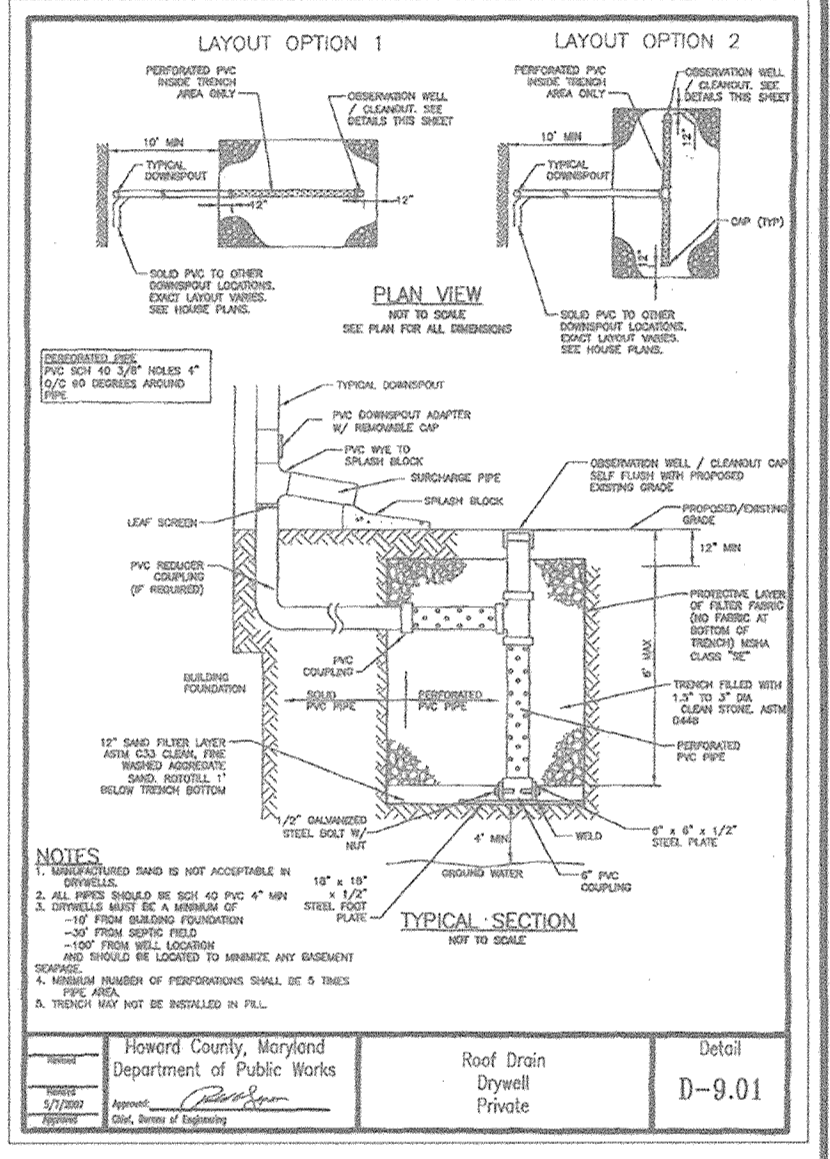


**MAPPED SOILS TYPES - CLARKSVILLE NW / NE MAP #16 / 17**

SYMBOL NAME / DESCRIPTION	GROUP	K-FACTOR	HYDRIC	HYDRIC INCLUSIONS	PRIME FARMLAND	<15% SLOPE W/ EROSION POTENTIAL
RsB RUSSETT FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES	C	.28	NO	NO	NO	NO
CeC CHILLUM LOAM, 5 TO 10 PERCENT SLOPES	C	.43	NO	NO	*YES	NO
FoaA FALLSILLION SANDY LOAMS, 0 TO 2 PERCENT SLOPES, NORTHERN COASTAL PLAIN	C/D	-	NO	YES	*YES	NO
UsB URBAN LAND-SASSAFRASS-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES	D	-	NO	NO	NO	NO

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY  
 \*FARMLAND OF STATEWIDE IMPORTANCE

- NOTES:**
1. HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT.
  2. ONLY CeC SOILS ARE PRESENT WITHIN THE DEVELOPMENT AREA.



**OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAIN STORMWATER INFILTRATION TRENCHES (I-1), AND DRY WELLS (M-5)**

1. THE OWNER SHALL INSPECT THE MONITORING WELLS AND STRUCTURES ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.
2. THE OWNER SHALL RECORD THE WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS OVER A PERIOD OF SEVERAL DAYS TO DETERMINE TRENCH DRAINAGE.
3. THE OWNER SHALL MAINTAIN A LOG BOOK TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
4. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DRAIN WITHIN A SEVENTY-TWO (72) HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
5. 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.

**Table B.4.1 Materials Specifications for Micro-Bioretenion, Rain Gardens & Landscape Facilities**

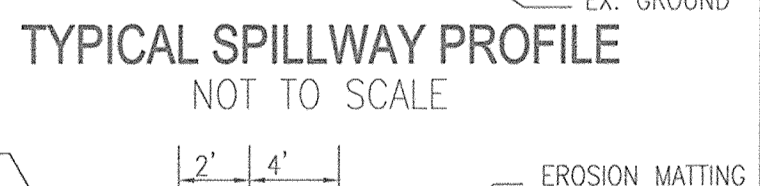
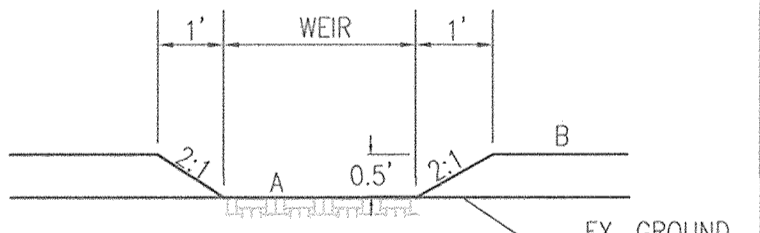
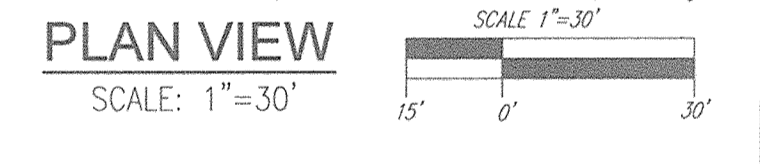
Material	Specification	Notes
Soil	See Appendix A, Table A.4	See Appendix A, Table A.4
Mulch	See Appendix A, Table A.4	See Appendix A, Table A.4
Plant Material	See Appendix A, Table A.4	See Appendix A, Table A.4

**OPERATION AND MAINTENANCE SCHEDULE FOR (M-5) MICROBIORETENTION AREAS**

1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. 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.
2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.
3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER EVERY 2 TO 3 YEARS.
4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

**MICROBIORETENTION / RAIN GARDEN DATA SHEET**

Facility #	Ponding Depth (ft)	Ponding Elevation (ft)	Top of Mulch ELEV. B	Bottom of Mulch ELEV. C	Bottom of Plant Mix ELEV. D	Bottom of Underdrain ELEV. E	Invert of Underdrain ELEV. F	Additional Depth of Rev. (ft)	Bottom of Rev. ELEV. G	Surface Area (SF)	Approx. Dimensions (at midpoint)			
SWM #1A	1.00	257.00	256.00	255.75	2.00	253.75	253.42	1.00	252.42	292.67	0.83	251.59	70	9' x 18'
SWM #1B	1.00	254.00	253.00	252.75	2.00	250.75	250.42	1.00	249.42	248.67	0.83	248.59	124	9' x 18'
SWM #1C	1.00	252.00	251.00	250.75	2.00	248.75	248.42	1.00	247.42	247.67	0.83	246.59	220	11' x 27'
SWM #2A	1.00	252.00	251.00	250.75	2.00	248.75	248.42	1.00	247.42	247.67	0.83	246.59	208	10' x 21'



**ENVIRONMENTAL SITE DESIGN PRACTICE VOLUMES PROVIDED**

DRAINAGE AREA	TREATED	FACILITY NUMBER	X RAIN GARDEN (M-7)	X NO-ROOFTOP DISCONNECT (N-2)	X DRY WELL (M-5)	X GRAVEL TRENCH (I-1)	X RECHARGE	X ESDv VOLUME
1A	6050	1A	0	93	0	0	0	23
1B	3248	1B	0	165	0	0	0	41
1C	867	1C	0	0	96	0	0	16
2A	8901	2A	0	293	0	0	0	73
2B	14328	2B	0	277	0	0	0	69
TOTALS:			0	828	0	96	0	224

**ESDv DRAINAGE AREA SUMMARY TABLE**

DRAINAGE AREA	FACILITY TYPE & NO.	IMPERVIOUS AREA	GRASS AREA	TOTAL AREA	PERCENT IMPERVIOUS	RV	ESDv MIN	ESDv MAX	TARGET ESDv	PROVIDED ESDv
SWM #1A	RG (M-7)	884	5206	6090	14.52	0.18	92	238	92	93
SWM #1B	RG (M-7)	1502	1546	3048	49.28	0.49	125	326	125	165
SWM #1C	DRY WELL (M-5)	867	0	867	100.00	0.95	69	178	69	96
SWM #2A	RG (M-7)	2903	5998	8901	32.61	0.34	255	663	255	293
SWM #2B	RG (M-7)	2732	11596	14328	19.07	0.22	265	688	265	277
TOTALS:				33234			805	924		

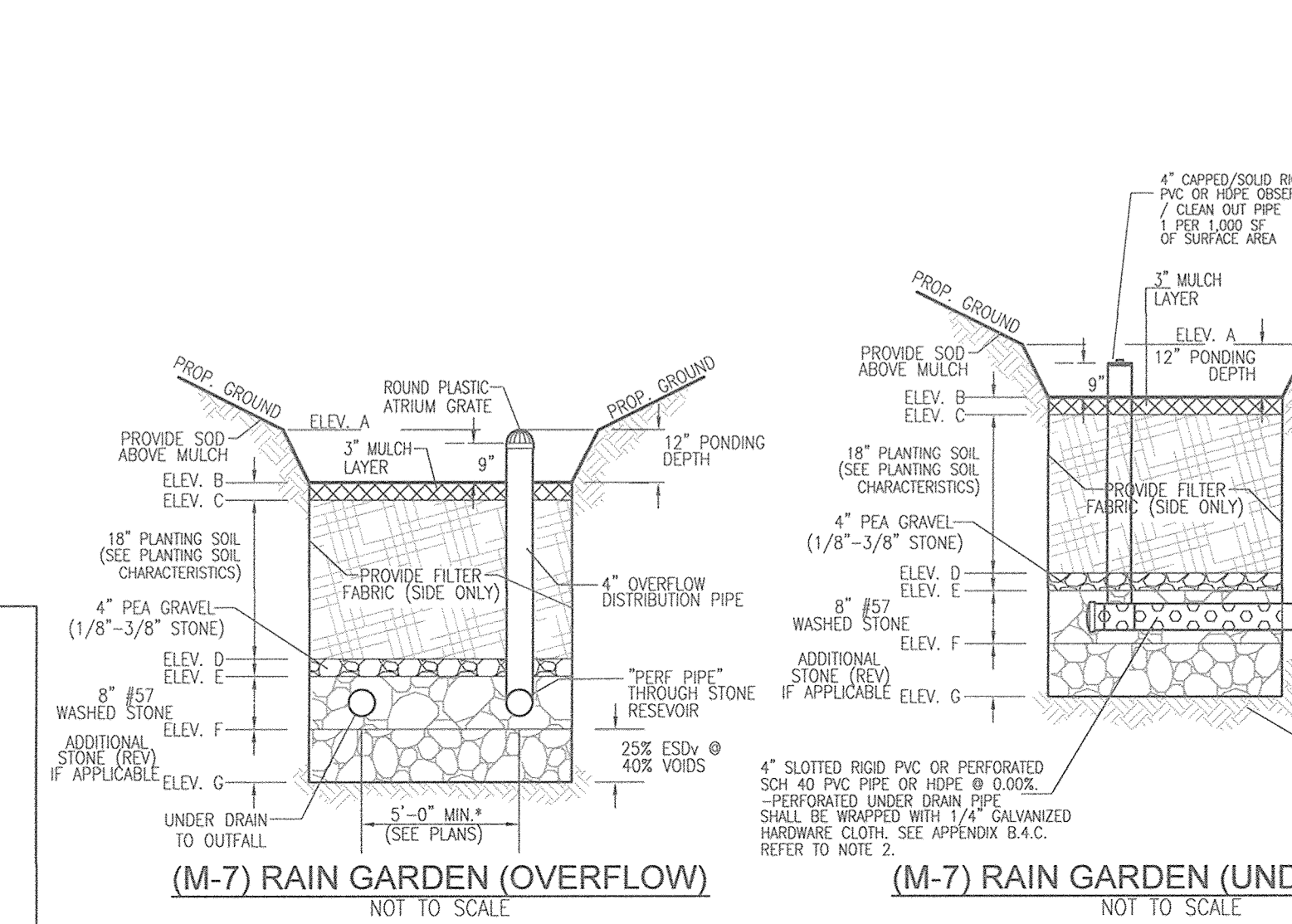
- NOTE:**
- SILT FENCE IS TO BE REPLACED WITH SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
  - SILT FENCE SHALL BE CURLED UPHILL NO MORE THAN 35 FEET APART
  - DOUBLE ROWS OF SUPER SILT FENCE SHALL BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

- NOTE:**
- EITHER PERMANENT OR TEMPORARY STABILIZATION IS TO BE APPLIED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR REGARDLESS OF DAYS/DATES IN THE STANDARD SEDIMENT CONTROL NOTES AND/OR SEEDING SPECIFICATIONS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 10-17-18  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

*[Signature]* 10/17/18  
 CHIEF, DIVISION OF LAND DEVELOPMENT



NO.	REVISION	DATE

**ENVIRONMENTAL CONCEPT PLAN**  
**GRADING, EROSION AND SEDIMENT CONTROL PLAN**  
**AND ESDv DRAINAGE AREA MAP**  
**SNODGRASS PROPERTY LOTS 1 & 2**  
 5774 & 5780 LANDING ROAD  
 L. 07000/F. 00601 & L. 07000/F. 00604

TAX MAP 37 BLOCK 6  
 1ST ELECTION DISTRICT

ZONED: R-20  
 PARCEL 67  
 HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL ENGINEERING, INC.**  
 ENGINEERS • SURVEYORS • PLANNERS  
 3300 N. RIDGE ROAD, SUITE 110, ELICOTT CITY, MD 21043  
 TEL: 410.461.7666 FAX: 410.461.8961

**PROFESSIONAL CERTIFICATE**  
 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. 16193, EXPIRATION DATE 08-27-2020

DESIGN BY: GAH  
 DRAWN BY: GAH  
 CHECKED BY: RHV  
 DATE: OCTOBER 2018  
 SCALE: AS SHOWN  
 W.O. NO.: 04-33

SHEET 2 OF 2