

GENERAL NOTES

- THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVES HAVE BEEN APPROVED.
- THE EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON A TOPOGRAPHIC SURVEY PREPARED BY VOGEL ENGINEERING + TIMMONS GROUP, PERFORMED IN DECEMBER, 2022. OFFSITE TOPOGRAPHY IS FROM HOWARD COUNTY GIS.
- THE PROJECT BOUNDARY IS BASED ON A BOUNDARY SURVEY PREPARED BY VOGEL ENGINEERING + TIMMONS GROUP, DATED DECEMBER, 2022.
- 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. 470D AND 470E WERE USED FOR THIS PROJECT.
- THE SUBJECT PROPERTY IS ZONED "R-12" IN ACCORDANCE WITH THE 10/6/2013 COMPREHENSIVE ZONING PLAN AND IS SUBJECT TO THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS EFFECTIVE 10/2/03 PER COUNTY BILL 75-2013.
- NO GRADING, REMOVAL OF VEGETATION OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, STREAM BUFFERS, AND 100-YEAR FLOODPLAIN AREAS.
- THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
- SEWER SERVICE FOR THIS PROJECT IS TO BE FROM 728-D, AND WATER SERVICE FOR THIS PROJECT IS TO BE FROM 396-D.
- THERE IS 100YR FEMA FLOODPLAIN ON THE PROPERTY.
- THERE ARE NO STEEP SLOPES OVER 20,000 CONTIGUOUS SQUARE FEET ON THE PROPERTY.
- THE FOREST STAND DELINEATION AND ENVIRONMENTAL RESOURCES ASSESSMENT WAS PERFORMED BY JOHN CANOLES OF ECO-SCIENCE PROFESSIONALS, INC., DATED MARCH 2023.
- THE AFFORESTATION REQUIREMENT FOR THIS PROJECT IS 0.4 AC. THE SITE CONTAINS 0.1 AC. OF EXISTING FOREST. THE OUTSTANDING AFFORESTATION REQUIREMENT (0.3 AC.) WILL BE ADDRESSED WITH THE SITE DEVELOPMENT PLAN. THERE ARE NO SPECIEN TREES, STATE CHAMPION TREES, TREES 75% OF STATE CHAMPION, HISTORIC TREES OR OTHER SIGNIFICANT REGULATED VEGETATION PRESENT ON THE SITE.
- THERE ARE NO WETLANDS OR THEIR BUFFERS PRESENT ON THE SITE.
- MARTIN ROAD IS PUBLIC ROAD.
- TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS OR MEMORIALS ON THIS PROPERTY. THERE IS ONE EXISTING STRUCTURE ON THIS SITE TO REMAIN. THE SITE IS NOT LISTED ON THE HISTORIC SITES INVENTORY.
- STORMWATER MANAGEMENT FOR THE PROJECT IS PROVIDED BY THE USE OF MICRO-SCALE PRACTICES IN ACCORDANCE WITH ENVIRONMENTAL SITE DESIGN CRITERIA SYSTEM. THE MICRO-SCALE PRACTICES USED ARE MICRO-BIORETENTION FACILITY (M-6). THIS FACILITY SHALL BE PRIVATELY OWNED AND MAINTAINED.
- APPROVAL OF THIS ENVIRONMENTAL CONCEPT PLAN (ECP) DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED SUBDIVISION PLAN/PLAN 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 AND THE HOWARD COUNTY ZONING REGULATIONS SHALL OCCUR AT THE SUBDIVISION PLAN/PLAN AND/OR SITE DEVELOPMENT PLAN 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.
- APPROVAL OF THIS ENVIRONMENTAL CONCEPT PLAN (ECP) BY THE HOWARD COUNTY CONSERVATION DISTRICT DOES NOT GRANT APPROVAL OF THE PROPOSED SEDIMENT CONTROL SCHEME. THE FINAL PLAN SHALL INCLUDE A SEQUENCE OF CONSTRUCTION WHICH SHALL DETAIL SEDIMENT & EROSION CONTROLS AND PHASING AND ADDRESS THE PROJECT TEMPORARY STORMWATER MANAGEMENT REQUIREMENTS.
- NO WAIVER PETITIONS OR/AND ALTERNATIVE COMPLIANCE FOR ENVIRONMENTAL DISTURBANCE OR ENCROACHMENTS ARE REQUIRED FOR THIS PROJECT.
- IMPROVEMENTS ON THIS PLAN WILL BE SHOWN AS A REDLINE TO SDP-01-002.

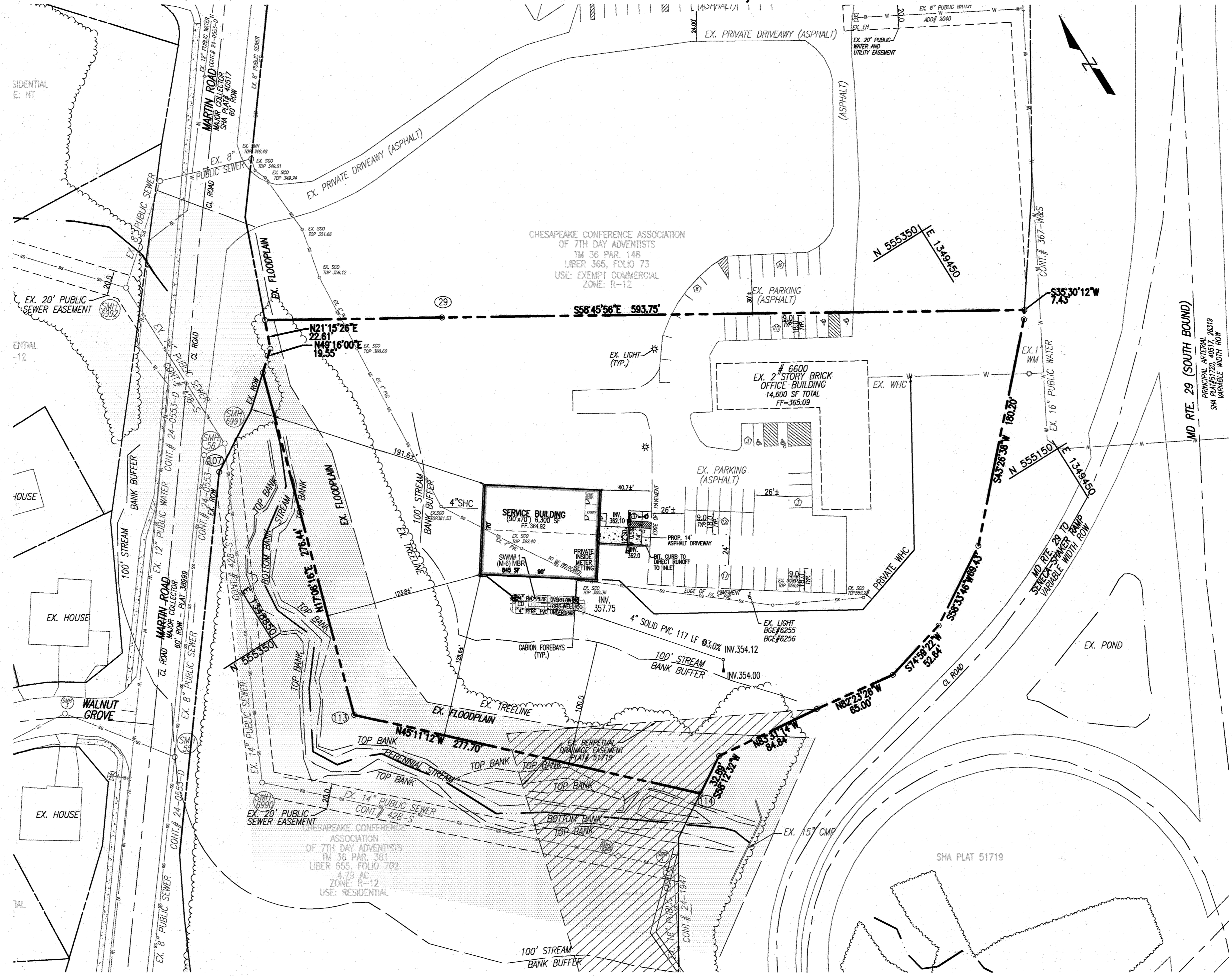
ENVIRONMENTAL SITE DESIGN NARRATIVE:

- THE ENVIRONMENTAL AREAS FOR THIS SITE ARE SMALL PATCHES OF MODERATE SLOPES. THERE IS APPROXIMATELY 0.1 AC. OF FOREST ON SITE. THERE WILL BE NO DISTURBANCE TO THE FOREST, STREAM AND ITS BUFFER.
- THE SITE NATURALLY SLOPES FROM NORTH TO SOUTH. THE SITE HAS BEEN DESIGNED TO MAINTAIN THE NATURAL DRAINAGE PATTERNS, WITH NO DRAMATIC CHANGES TO THE NATURAL DRAINAGE.
- THE CONCEPTUAL REDUCTION IN IMPERVIOUS AREA THROUGH BETTER SITE DESIGN IS ACHIEVED THROUGH THE ENVIRONMENTAL SITE DESIGN (ESD) FOR THE PROJECT TO THE MAXIMUM EXTENT PRACTICABLE (MEP). THE RESULTS OF THE ENVIRONMENTAL SITE DESIGN FOR THIS PROJECT WILL REFLECT "WOODS IN GOOD CONDITION". THE ESD CONCEPT INCLUDES THE USE OF MICRO-BIORETENTION FACILITY (M-6).
- SEDMIMENT CONTROL FOR THIS SPECIFIC SITE PLAN WILL BE PROVIDED THROUGH THE USE OF EARTH DIKE AND SUPER SILT FENCE PERIMETER CONTROLS. SEDIMENT CONTROL SHALL BE IN ACCORDANCE WITH CURRENT REQUIREMENTS AND SHALL BE APPROVED BY THE HOWARD COUNTY CONSERVATION DISTRICT DURING THE FUTURE SITE DEVELOPMENT PLAN PHASE OF THE PROJECT.
- STORMWATER MANAGEMENT FOR THE PROJECT SHALL BE MET THROUGH THE MICRO-SCALE PRACTICE OF MICRO-BIORETENTION FACILITY (M-6). THE CALCULATED RAINFALL TARGET (FE) FOR THIS PROJECT IS 1.60", THE TOTAL RUNOFF VOLUME (ESDV) REQUIRED IS 1,037 CF., AND THE REV. REQUIRED IS 246 .
- NO WAIVER PETITIONS OR/AND ALTERNATIVE COMPLIANCE FOR ENVIRONMENTAL DISTURBANCE OR ENCROACHMENTS ARE REQUIRED FOR THIS PROJECT.
- IMPROVEMENTS ON THIS PLAN WILL BE SHOWN AS A REDLINE TO SDP-01-002.

SITE ANALYSIS DATA CHART

TOTAL PROJECT AREA:	3.95 AC.
NET AREA OF PROJECT:	3.53 AC. (3.95 AC. - 0.42 AC.)
AREA OF WETLANDS AND WETLAND BUFFERS:	0.00 AC.
AREA OF FLOODPLAIN:	0.42 AC.
AREA OF FOREST:	0.10 AC.
AREA OF MODERATE SLOPES (15% TO 24.99%):	0.41 AC.
AREA OF STEEP SLOPES (25% OR GREATER):	0.00 AC.
ERODIBLE SOILS:	0.34 AC. (15,051 SF)
LIMIT OF DISTURBED AREA:	0.58 AC.
PROPOSED USES FOR SITE AND STRUCTURES:	
GREEN OPEN AREA:	0.30 AC. (OPEN AND ENVIRONMENTAL)
PROPOSED IMPERVIOUS AREA:	0.16 AC. (WITHIN LOD AREA)
PRESENT ZONING DESIGNATION:	R-12
DPZ FILE REFERENCES:	SDP-72-114, SDP-01-002,

ENVIRONMENTAL CONCEPT PLAN CHESAPEAKE CONFERENCE HOWARD COUNTY, MD



COVER PLAN
SCALE: 1"=50'



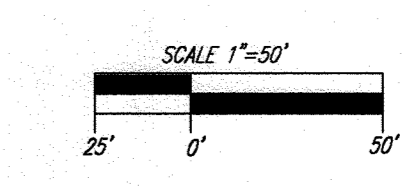
VICINITY MAP
SCALE: 1"=2,000'
ADC MAP COORDINATE: 32 F4

LEGEND:

	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING PAVING
	EXISTING TREELINE
	EXISTING FENCE
	EXISTING STREAM
	EXISTING STREAM BUFFER
	EXISTING SIGN
	EXISTING UTILITY POLE
	EXISTING SANITARY MANHOLE
	EXISTING SANITARY LINE
	EXISTING CLEANOUT
	EXISTING FIRE HYDRANT
	EXISTING WATER LINE
	EXISTING STORMDRAIN
	MICRO BIO-RETENTION
	EX. PERPETUAL DRAINAGE EASEMENT PLAT# 51719
	EX. 100 YEAR FLOODPLAIN

SHEET INDEX

DESCRIPTION	SHEET NO.
COVER SHEET AND ESDv CONCEPT PLAN	1 OF 2
STORMWATER MANAGEMENT DRAINAGE AREA MAP & DETAILS	2 OF 2



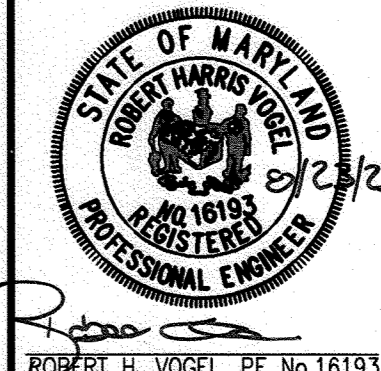
OWNER / DEVELOPER
CHESAPEAKE CONFERENCE ASSOCIATION
OF 7TH DAY ADVENTISTS
6600 MARTIN ROAD
COLUMBIA, MD 21044
301-596-5600
jutz@ccosda.org

NO.	REVISION	DATE

**ENVIRONMENTAL CONCEPT PLAN
COVER SHEET
AND ESDv CONCEPT PLAN
CHESAPEAKE CONFERENCE**
6600 MARTIN ROAD COLUMBIA, MD 21044
L. 07895 F. 00292

TAX MAP: 36 PARCEL: 335 BLOCK: 19 ZONING: R-12
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com



DESIGN BY: RHV
DRAWN BY: KG
CHECKED BY: RHV
DATE: AUGUST 2023
SCALE: AS SHOWN
W.O. NO.: 55048

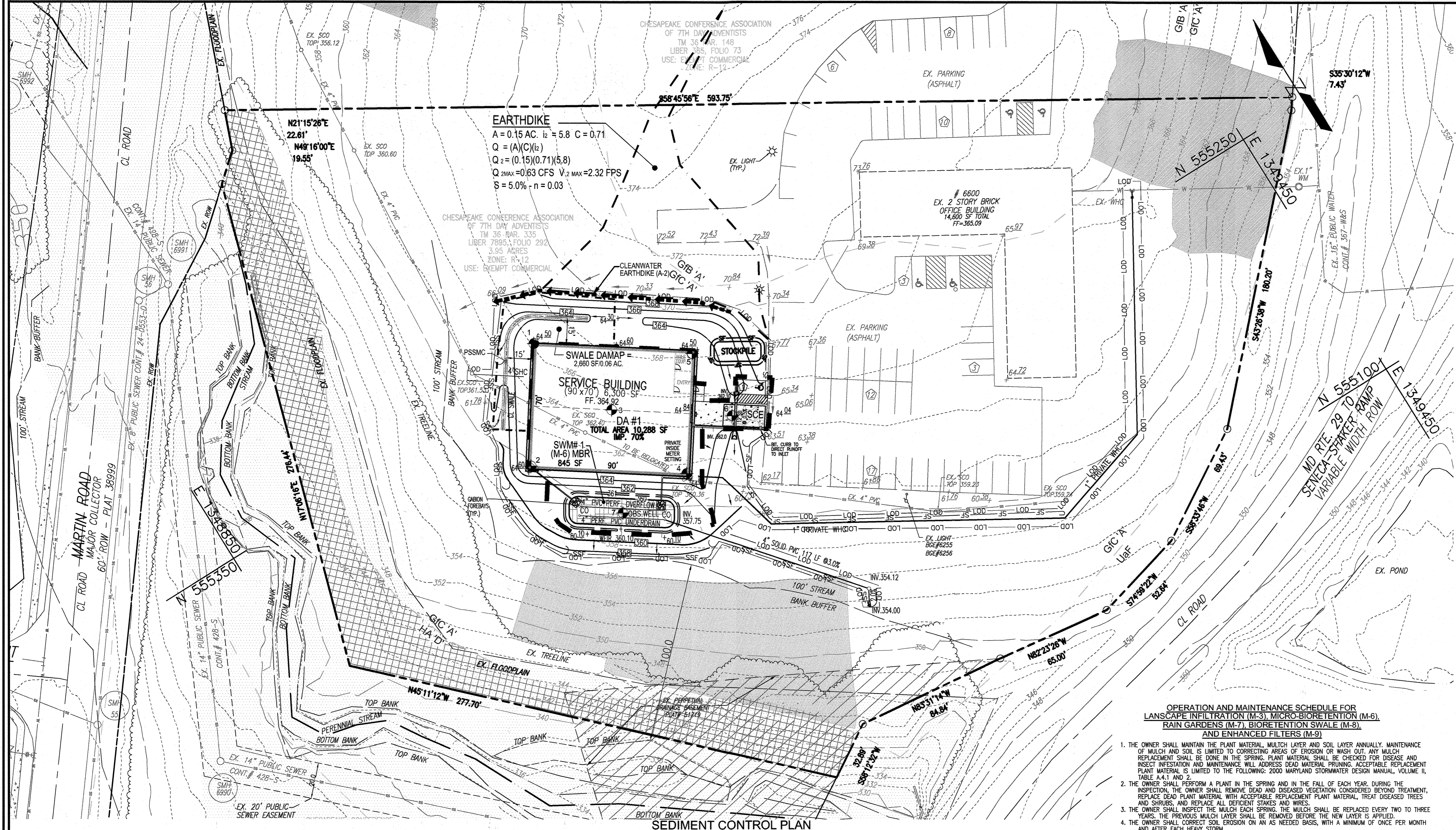
PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2024

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Sal... 9.1.23
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
... 8/28/23
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Table B.4.1 Materials Specifications for Micro-Bioretenation, Rain Gardens & Landscape Infiltration:

Material	Specifications	Notes
Planting	See Appendix A, Table A.4	Plantings are site-specific
Planting soil (2" to 4" deep)	loamy sand (60-65%) & compost (35-40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic mulch	Min. 10% by dry weight (ASTM D 670) 1/4" screened hardwood	
Pine gravel geotextile	pine gravel: ASTM-D-448	NO. 4 OR NO. 9 (1/4" TO 3/8")
Curb-in drain	ornamental stone: washed cobble	stone: 2" to 5"
Geotextile	AASHTO M-41	NO. 57 OR NO. 6 AGGREGATE (SEE TABLE B.4.2)
Underdrain piping	F 75L Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or HDPE Shielded or perforated pipe; 3/8" port @ 6" on center, 4 holes per row; minimum of 2" of gravel over pipe; see necessary underdrain notes. Perforated pipe shall be wrapped with 1/2-inch agricultural landscape cloth. on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or precast) and using previously approved form or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 308.2R9; vertical loading (10' or 10-20'); allowable horizontal loading (based on soil pressure); and analysis of potential cracking.
Poured in place concrete (if required)	MSEA Mix No. 3; f'c = 3500 psi @ 28 days, normal weight, air-entrained, reinforcing to meet ASTM A615-60	
Sand	AASHTO M-6 or ASTM-C-33	0.075" to 0.04"



LEGEND:

---	PROPERTY LINE	---	EXISTING WATER LINE
---	RIGHT-OF-WAY LINE	---	EXISTING STORM DRAIN
---	ADJACENT PROPERTY LINE	---	SOILS
---	EXISTING TREETRINE	---	SIC2
---	EXISTING PAVING	---	MICRO BIO-RETENTION
---	EXISTING UTILITY POLE	---	EXISTING CONTOUR
---	EXISTING LIGHT POLE	---	PROP. CONTOUR
---	EXISTING SIGN	---	SPOT ELEVATION
---	EXISTING SANITARY MANHOLE	---	SUPER SILT FENCE
---	EXISTING SANITARY LINE	---	SILT FENCE
---	EXISTING CLEANOUT	---	EARTH DIKE (A-2)
---	EXISTING FIRE HYDRANT	---	LIMIT OF DISTURBANCE
---	EX. 100 YEAR FLOODPLAIN	---	DRAINAGE AREA
---	EX. PERPETUAL DRAINAGE EASEMENT PLAT 51719	---	STABILIZED CONSTRUCTION ENTRANCE
---	MODERATE SLOPES	---	SOIL BORINGS
---	ERODABLE SOILS	---	

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

1. MATERIAL SPECIFICATIONS
 THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.

2. 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-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH OR PROVIDE AN OBSTACLE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERBERIS GRASS, QUACKERS, JOHNSON WEEDS AS SPECIFIED UNDER COMAR 16.03.01. 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%-40%) OR SANDY LOAM (50%), COARSE SAND (30%), AND COMPOST (20%).
 * 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 IN TO THE SOIL TO INCREASE OR DECREASE PH.
 THESE 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.

3. COMPACTION
 IT IS VERY IMPORTANT TO MINIMIZE EQUIPMENT OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED TO REMOVE ORIGINAL SOIL, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT OR LIGHT EQUIPMENT WITH TURF TYRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TYRES, RUBBER TYRES WITH LARGE LUGS, OR HIGH-PRESSURE TYRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.

4. PLANT MATERIAL
 RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION PRACTICES CAN BE FOUND IN APPENDIX A, SECTION A.2.3.

5. PLANT INSTALLATION
 MULCH IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE WINTER AND OTHER LOW WIND AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED 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 MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE. ROOTSTOCK OF THE PLANT MATERIAL SHALL BE MOST DURABLE TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH 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 PLANTS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.

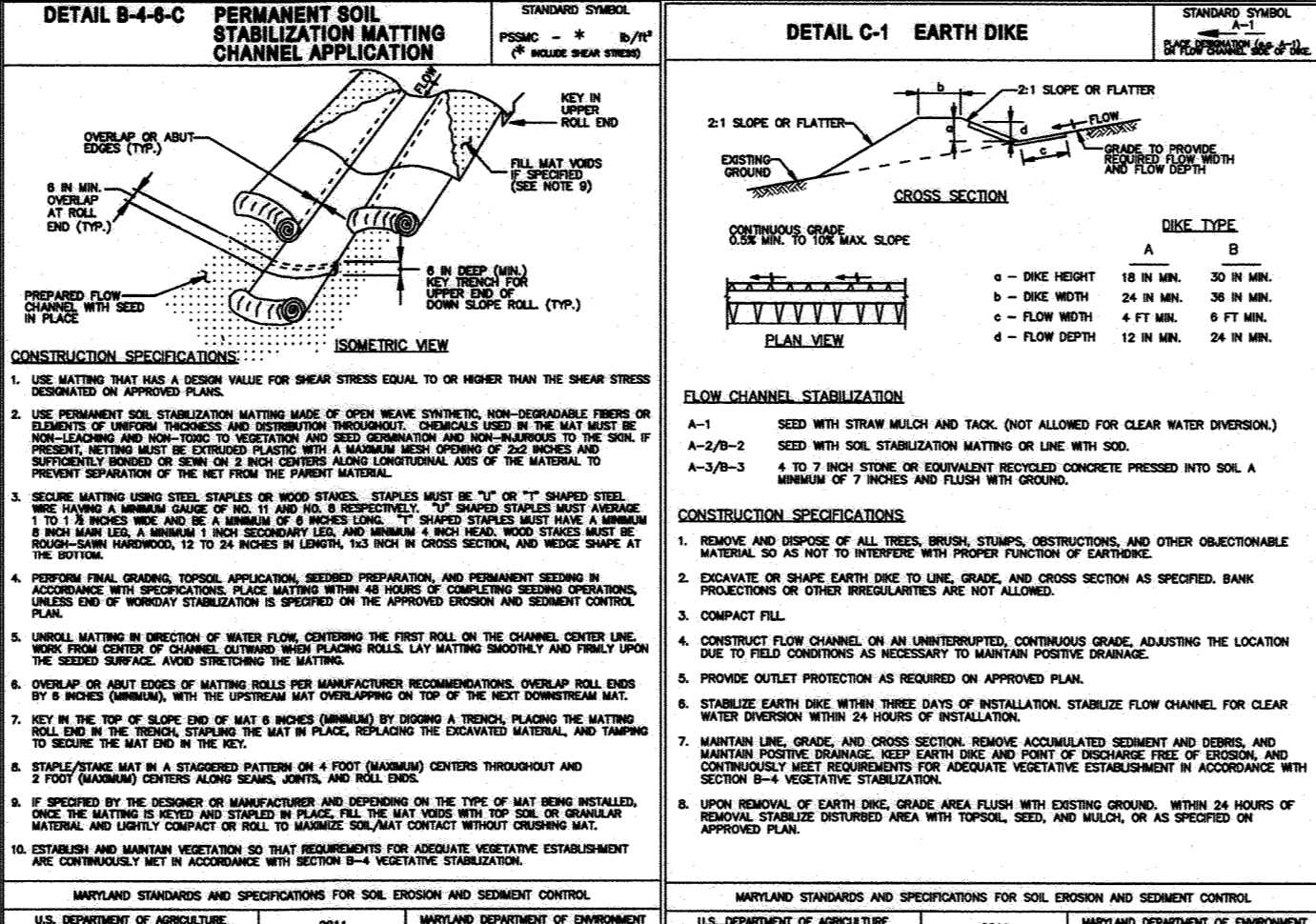
6. UNDERDRAINS
 UNDERDRAINS SHALL MEET THE FOLLOWING CRITERIA:
 * PERFORATIONS - PERFORATIONS SHALL BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM F756, TYPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G., PVC, OFC, OFPE).
 * PERFORATIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 8" ON CENTER WITH A MINIMUM OF FOUR HOLES PER FOOT. PERFORATIONS SHALL BE WRAPPED WITH 1/4" (NO. 4) AND 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 1:50 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 (1/8" TO 3/8" 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 1,000 SQUARE FEET OF SURFACE AREA).

7. MISCELLANEOUS
 THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

OPERATION AND MAINTENANCE SCHEDULE FOR LANDSCAPE INFILTRATION (M-3), MICRO-BIORETENTION (M-6), RAIN GARDENS (M-7), BIORETENTION SWALE (M-8), AND ENHANCED FILTERS (M-9)

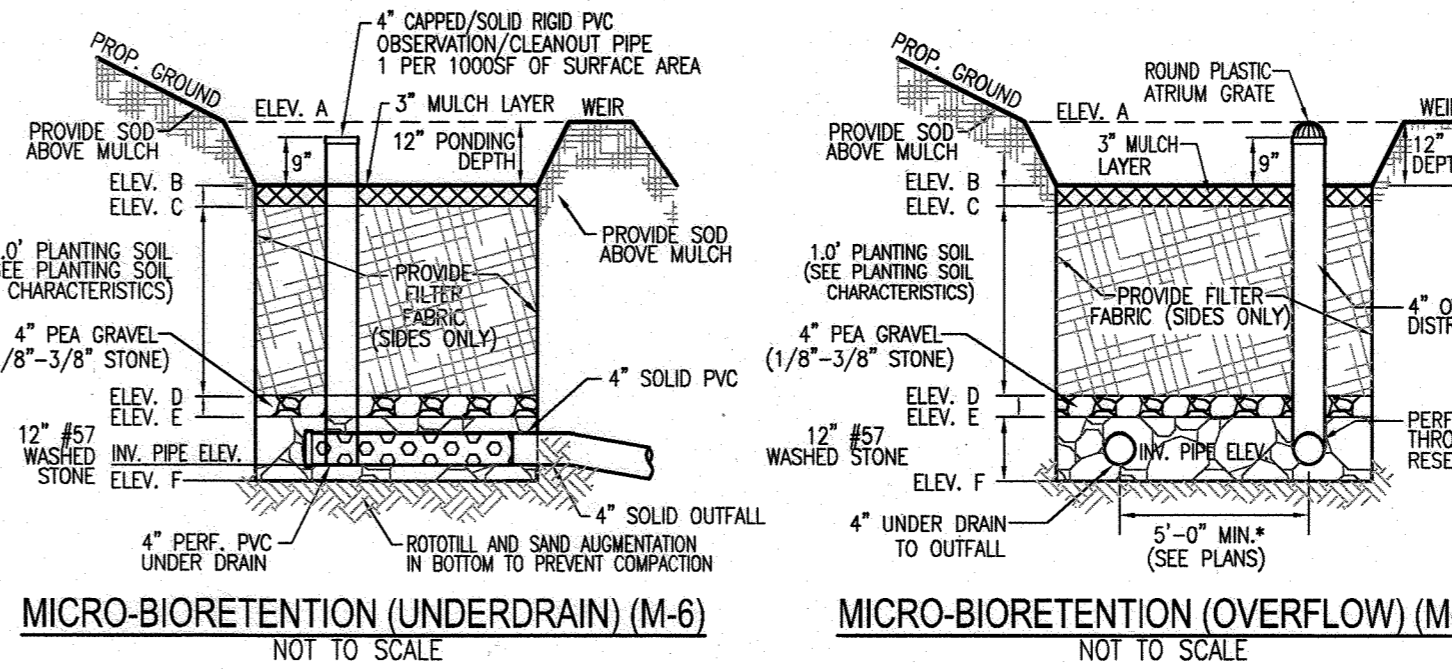
- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL PRUNING, ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUME II, TABLE 1.1.
- 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 PREVIOUS 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.

SEDIMENT CONTROL PLAN
 SCALE: 1" = 30'



MICRO BIORETENTION DATA CHART

MBR Facility	Ponding Depth (ft)	Ponding Elevation (ft)	Top of Mulch ELEV. A	Bottom of Mulch ELEV. B	Depth of Plant Mix ELEV. D	Bottom of Plant Mix ELEV. E	Bottom of Pea Gravel ELEV. F	Depth of Stone ELEV. G	Bottom of Stone ELEV. H	Invert of Underdrain
1	1.00	361.00	360.00	359.75	1.00	358.75	358.42	1.00	357.42	357.75



MICROBIORETENTION NOTES:

- ONLY THE SIDES OF MICROBIORETENTION ARE TO BE WRAPPED IN FILTER FABRIC. FILTER FABRIC BETWEEN LAYER OR AT THE BOTTOM OF THE MICROBIORETENTION WILL CAUSE THE MBR TO FAIL, AND THEREFORE SHALL NOT BE INSTALLED.
- WRAP THE PERFORATED MBR UNDERDRAIN PIPE WITH 1/4" MESH (4x4) OR SMALLER GALVANIZED HARDWARE CLOTH.
- PROVIDE 5" MINIMUM SPACING BETWEEN UNDER DRAIN AND PERFORATED PIPE THROUGH STONE RESERVOIR OR SPACE PIPE EQUALLY ACROSS BOTTOM FOR SMALL BIOS. (SEE PLANS)

VOGEL ENGINEERING & TIMMONS GROUP
 3300 North Ridge Road, Suite 110, Ellicott City, MD 21043
 P: 410.461.7666 F: 410.461.8961
 www.vogeleng.com www.timmons.com

INDIVIDUAL PRACTICE ESDV DESIGN COMPUTATIONS

Project: Chesapeake Conference
 Property Area: 0.38 AC
 LDD Area: 29 %
 Site % Impervious: 29 %
 Total Impervious: 0.1108 AC
 Target ESDV Required: 1,037 cf.
 ESDV Provided: 1,127 cf.

PRACTICE	PRACTICE DA (SF)	PRACTICE DA (AC)	IMPERV (SF)	IMPERV (AC)	PERV (SF)	PERV (AC)	PRACTICE Rv	PRACTICE Rv	Rev PROVIDED (cu-ft)	TOTAL VOLUME PROVIDED	REMARKS	
DA #1	10,288	0.236	7,174	0.165	3,117	0.07	0.68	581	929	246	1,127	MICROSCALE MICRO-BIORETENTION (M-6) 1,127 ESDV Surface Area of MBR @ 1.0 ponding (73% above) x 0.4 (Recharge Vol Req. = 25% of total volume provided below) 0 = 845 Additional Stone ESDV x 0.3
TOTALS	246	281	1,127								Remaining ESDV: 30	

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Paul D. ... 9.1.23
 CHIEF, DEVELOPMENT ENGINEERING DIVISION & DATE

... 8/28/23
 CHIEF, DIVISION OF LAND DEVELOPMENT & DATE

MAPPED SOILS TYPES - HOWARD COUNTY, MARYLAND

SYMBOL	NAME / DESCRIPTION	GROUP	HYDROLOGIC RANGE	ERODIBILITY
GIC	GLADSTONE-URBAN LANNI COMPLEX, 0-8 PERCENT SLOPES	A	NO	0.28
GIC	GLADSTONE-URBAN LANNI COMPLEX, 8-15 PERCENT SLOPES	A	NO	0.28
Hg	HATBORO-CODOROUS SILT LOAMS, 0 TO 3 PERCENT SLOPES	D	YES	0.37

NOTES:
 TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, AND HOWARD COUNTY SOIL CONSERVATION DISTRICT WEBSITE DOCUMENTS. [HTTS://WWW.HOWARDSCD.ORG/DOCUMENTS](https://www.howardscd.org/documents)
 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

$Q = CIA$
 $C = 0.71$ $I_2 = 5.8$ $ln = 7.0$ $ln = 7.0$
 $A = 0.06$ $AC = 0.03$ $SLOPE = 4\%$
 $Q_2 = 0.24$ $Q_2 = 0.178$ $V_2 = 1.62$ $Q_2 = 0.178$
 $Q_1 = 0.20$ $V_1 = 1.73$ $Q_1 = 0.199$
 $Max Shear Stress = 0.199$

GRASS SWALE
 TYPICAL CROSS SECTION (NOT TO SCALE)

OWNER / DEVELOPER
 CHESAPEAKE CONFERENCE ASSOCIATION
 OF 7TH DAY ADVENTISTS
 6600 MARTIN ROAD
 COLUMBIA, MD 21044
 501-596-5600
 jutz@ccosda.org

ENVIRONMENTAL CONCEPT PLAN
 STORMWATER MANAGEMENT DRAINAGE AREA MAP & DETAILS
 CHESAPEAKE CONFERENCE
 6600 MARTIN ROAD COLUMBIA, MD 21044
 L. 07895 F. 00292

STX MAP: 36 PARCEL: 335
 5TH ELECTION DISTRICT

BLOCK: 19 ZONING: R-12
 HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
 3300 NORTH RIDGE ROAD, SUITE 110, ELlicOTT CITY, MD 21043
 P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE

DESIGN BY: RHV
 DRAWN BY: KG
 CHECKED BY: RHV
 DATE: AUGUST 2023
 SCALE: AS SHOWN
 W.O. NO.: 55048

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NUMBER 16183, EXPIRATION DATE: 08-27-2024

2 SHEET OF 2