

SHEET INDEX	
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ENVIRONMENTAL CONCEPT PLAN

BONNIE VIEW LANE

LOTS 4 AND 5

R-ED (RESIDENTIAL: SINGLE) DISTRICT

TAX MAP No. 38 GRID No. 03 PARCEL NO. 895

FIRST ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

STORMWATER MANAGEMENT PRACTICES BY LOT		
AREA ID	MICRO-BIO (M-6) NUMBER	REMARKS
LOT 4	1	HOUSE DRAINS TO BIO ON LOT, DRIVEWAY TREATED BY DISCONNECTION OF NON-ROOFTOP RUNOFF

STORMWATER MANAGEMENT PRACTICES							
AREA ID	LOCATION	DRAINAGE AREA SF	% IMPERVIOUS	ESDV REQUIRED CUFT.	ESDV PROVIDED CUFT.	MICRO-BIO RETENTION M-6 (Y/N)	DISCONNECTION NON-ROOFTOP RUNOFF N-2 (Y/N)
1	LOT 4	7,547	21.2%	241	299	Y	Y

GROSS AREA = 1.02 ACRES
 LOD = 0.31 ACRES
 RCN = 69.0
 TARGET Pe = 1.0'

STORMWATER MANAGEMENT DESIGN NARRATIVE

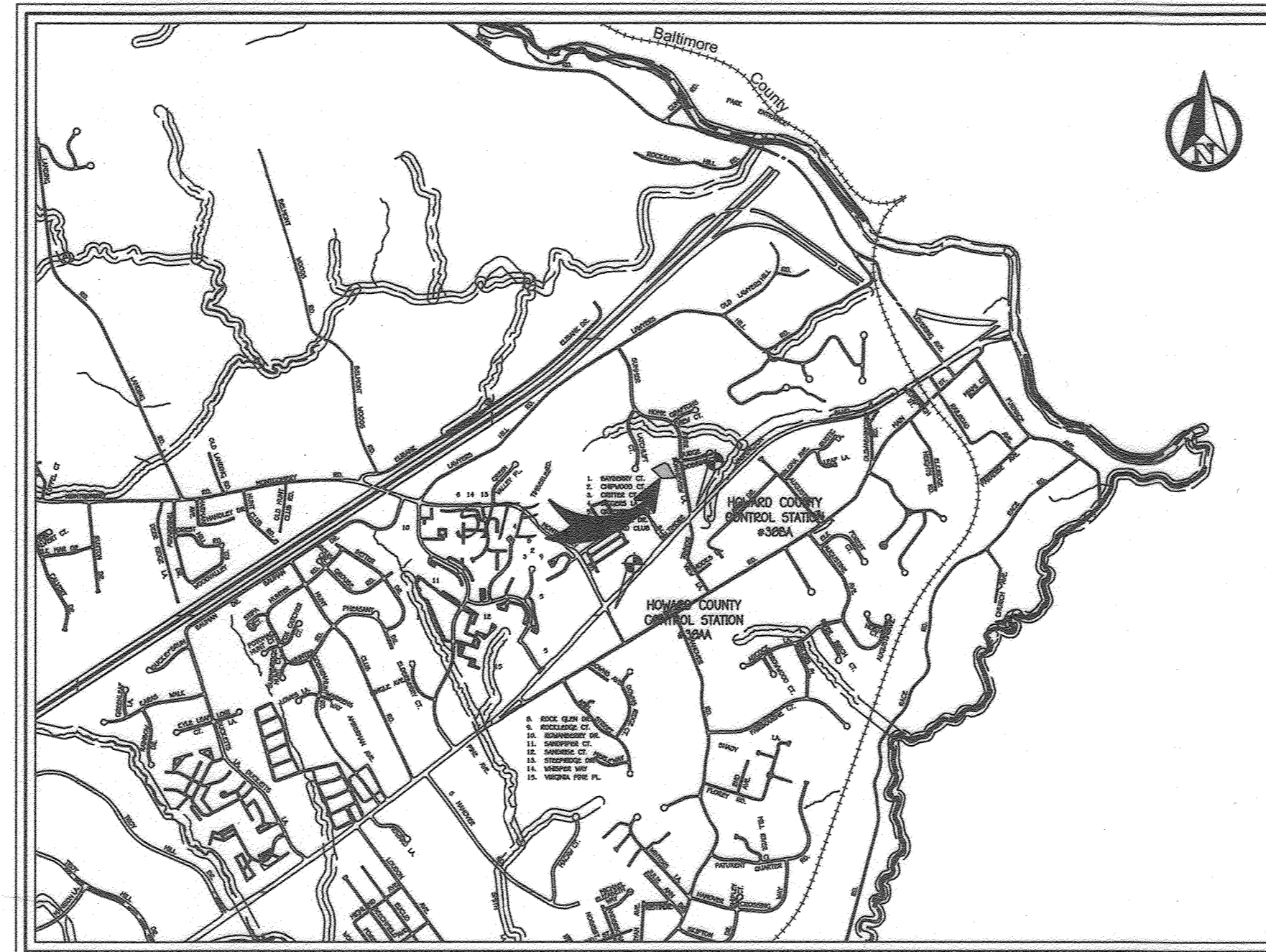
INTRODUCTION:
 THIS REPORT WILL DEMONSTRATE HOW THE CRITERIA SET FORTH IN THE MARYLAND STORMWATER DESIGN MANUAL, VOLUMES I AND II (EFFECTIVE OCTOBER 2000, REVISED MAY 2009) WILL BE SATISFIED FOR THIS PROJECT. THE GOAL OF CREATING HYDROLOGY SIMILAR TO THAT OF "WOODS IN GOOD CONDITION" WILL BE ACCOMPLISHED THROUGH THE USE OF A M-6 MICRO BIO-RETENTION FACILITY, AND N-2 DISCONNECTION OF NON-ROOFTOP RUNOFF.

GENERAL SITE CONDITIONS:
 THE BONNIE VIEW PROPERTY IS ZONED R-ED AND LOCATED ON TAX MAP 38, PARCEL NO. 895 OF THE HOWARD COUNTY, MARYLAND TAX MAP DATABASE SYSTEM. IT IS LOCATED IN THE ELLICOTT CITY AREA OF HOWARD COUNTY. THIS PROPERTY CONSISTS OF 1.02 ACRES AND IS RELATIVELY RECTANGULAR IN SHAPE. THE BONNIE VIEW LANE PROPERTY PROJECT IS BORDERED BY RESIDENTIAL LOTS TO THE NORTH, WEST AND SOUTH. BONNIE VIEW LANE EXTENDS TO THIS PROPERTY TO THE EAST. THIS PROJECT PROPOSES A SUBDIVISION OF AN EXISTING LOT INTO TWO (2) LOTS USING ONE SHARED DRIVEWAY. THE EXISTING BUILDINGS AND DRIVEWAY ON THIS PROPERTY WILL BE REMAIN. THE PROPERTY IS LOCATED WITHIN THE PATAPSCO RIVER WATERSHED (02130906). THE SITE CURRENTLY DRAINS TO THE SOUTH. THE RUNOFF FROM THE ROOF OF THE PROPOSED HOUSE WILL BE TREATED BY THE MICRO BIORETENTION (M-6) FACILITY. THE RUNOFF FROM THE PROPOSED DRIVEWAY WILL BE TREATED BY THE DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2). THE WEB SOIL SURVEY SHOWS SOILS ON THE SITE CONSIST OF RUSSETT AND BELTSVILLE COMPLEX (RUB) & (RUC), TYPE "C" SOILS, AS WELL AS SASSAPRAS AND CROOM (SD), TYPE "B" SOILS.

- I. **NATURAL RESOURCE PROTECTION:**
 NO WETLANDS, STREAMS, THEIR BUFFERS, FLOODPLAINS, OR FOREST, EXIST ON-SITE. STEEP SLOPES EXIST ON-SITE BUT ARE NOT IN THE AREA OF IMPROVEMENT, NO SPECIAL PROTECTION IS REQUIRED. NO SPECIMEN TREES ON SITE.
- II. **MAINTENANCE OF NATURAL FLOW PATTERNS:**
 NATURAL FLOW PATTERN HAS BEEN MAINTAINED.
- III. **REDUCTION OF IMPERVIOUS AREAS THROUGH BETTER SITE DESIGN, ALTERNATIVE SURFACES AND NONSTRUCTURAL PRACTICES:**
 ONLY THE MINIMUM IMPERVIOUS AREAS HAVE BEEN PROPOSED TO ALLOW ADEQUATE ACCESS TO THE PROPOSED LOTS. THIS DESIGN PROVIDES ONLY A SINGLE SHARED DRIVEWAY FOR ACCESS TO BOTH OF THE LOTS.
- IV. **INTEGRATION OF EROSION AND SEDIMENT CONTROLS INTO STORMWATER STRATEGY:**
 THIS PROJECT UTILIZES BIO-RETENTION FACILITIES IN LOCATIONS THAT COULD WORK IN CONCERT WITH SEDIMENT TRAPPING IF REQUIRED.
- V. **IMPLEMENTATION OF ESD PLANNING TECHNIQUES AND PRACTICES TO THE MAXIMUM EXTENT PRACTICABLE (MEP):**
 THIS SUBMISSION WILL PROPOSE CHAPTER 5 DEVICES TO MEET AND EXCEED ENVIRONMENTAL SITE DESIGN TO THE MAXIMUM EXTENT PRACTICABLE (ESD TO THE MEP). ALL IMPERVIOUS AREAS WILL RECEIVE FULL TREATMENT.
- VI. **REQUEST FOR DESIGN MANUAL WAIVER:**
 NO WAIVERS ARE EXPECTED TO BE REQUESTED ON THIS PROJECT RELATING TO SWM REQUIREMENTS.

STORMWATER MANAGEMENT NOTES

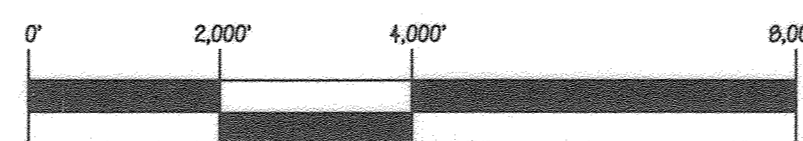
1. STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH WITH CHAPTER 5, "ENVIRONMENTAL SITE DESIGN" OF THE 2007 MARYLAND STORMWATER MANAGEMENT DESIGN MANUAL, EFFECTIVE MAY 4, 2010.
2. MAXIMUM CONTRIBUTING ROOF TOP AREA TO EACH DOWNSPOUT SHALL BE 500 SQ. FT. OR LESS.
3. FINAL GRADING SHALL BE PROVIDED WITH THE SITE DEVELOPMENT PLAN.



HOWARD COUNTY GEODETIC SURVEY CONTROL NO. 38AA
 N 561,158.815 E 1,389,726.426 ELEVATION: 220.036'
 HOWARD COUNTY GEODETIC SURVEY CONTROL NO. 38BA
 N 562,553.314 E 1,390,967.956 ELEVATION: 166.174'
 REFER TO HOWARD CO. ADC MAP 35-01

VICINITY MAP

SCALE: 1" = 2,000'



SCALE: 1" = 2,000'

GENERAL NOTES

1. THE SUBJECT PROPERTY IS ZONED R-ED (PER 10/06/13 COMPREHENSIVE ZONING PLAN).
2. TOTAL AREA OF PROPERTY: 1.02 AC.
3. ONE SINGLE FAMILY HOUSE IS PROPOSED FOR THIS LOT.
4. CONTRACTOR/BUILDER TO VERIFY ELEVATIONS IN THE FIELD BEFORE BEGINNING ANY CONSTRUCTION.
5. BOUNDARY IS BASED ON A FIELD RUN SURVEY PERFORMED BY FISHER, COLLINS & CARTER ON OR ABOUT APRIL, 2020.
6. TOPOGRAPHIC INFORMATION IS BASED ON DIGITAL HOWARD COUNTY AERIAL ALONG WITH FIELD RUN TOPOGRAPHY BY FISHER, COLLINS & CARTER, INC., APRIL, 2020.
7. COORDINATES BASED ON NAD'83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL.
8. STATIONS NO. 3104 AND NO. 3108:
 HOWARD COUNTY MONUMENT NO. 38AA N 561,158.815 E 1,389,726.426 ELEV. 220.036'
 HOWARD COUNTY MONUMENT NO. 38BA N 562,553.314 E 1,390,967.956 ELEV. 166.174'
9. STORMWATER MANAGEMENT IS IN ACCORDANCE WITH THE M.D.E. STORM WATER DESIGN MANUAL, VOLUMES I & II, REVISED 2009. WE ARE PROVIDING STORM WATER MANAGEMENT BY THE USE OF 1 MICRO-BIORETENTION (M-6) DEVICE. ALL ARE TO BE MAINTAINED BY THE HOMEOWNER.
10. ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.
11. SOILS SHOWN HEREON ARE BASED ON NRCS WEB SOIL SURVEY.
12. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS HIS STANDARDS AND SPECIFICATIONS IF APPLICABLE.
13. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
14. 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.
15. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM(S) OR THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100 YEAR FLOODPLAIN.
16. PER ENVIRONMENTAL FINDINGS LETTER RECEIVED JUNE 26, 2023 BY JAMES HIMMEL, REGISTERED FORESTER, THERE ARE NO WETLANDS, STREAMS OR THEIR BUFFERS LOCATED WITHIN THE BOUNDARY OF THIS SITE. THERE ARE NO FLOODPLAIN LINES OR SPECIMEN TREES LOCATED ON THE SITE. STEEP SLOPES AND FORESTS EXIST ONLY ON THE SOUTHERN PORTION OF THE SITE, NONE OF WHICH WILL BE DISTURBED.
17. LANDSCAPING WILL BE PROVIDED AT THE FINAL PLAN STAGE OF THIS PROJECT.
18. FOREST CONSERVATION REQUIREMENTS FOR THIS PROPOSED SUBDIVISION WILL BE PROVIDED AT THE FINAL PLAN STAGE OF THIS PROJECT IN ACCORDANCE WITH SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION ACT.
19. SOIL BORING INFORMATION WILL BE PROVIDED AT THE NEXT PLAN STAGE OF THIS PROJECT.
20. APPROVAL OF THIS ECP DOES NOT CONSTITUTE APPROVAL OF SUBSEQUENT OR ASSOCIATED SUBDIVISION OR SITE DEVELOPMENT PLANS OR RED-LINE REVISIONS. 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, SITE DEVELOPMENT PLAN, OR RED-LINE REVISION PROCESSES. THE APPLICANT AND CONSULTANT SHOULD EXPECT ADDITIONAL AND MORE DETAILED REVIEW COMMENTS (INCLUDING COMMENTS THAT MAY ALTER THE OVERALL SITE DESIGN) AS THE PROJECT PROGRESSES THROUGH THE PLAN REVIEW PROCESS.
21. A PRESUBMISSION MEETING WILL BE HELD AFTER THE ECP SUBMISSION FOR THIS PROJECT.
22. NO WAIVERS ARE EXPECTED TO BE REQUESTED ON THIS PROJECT RELATING TO SWM REQUIREMENTS.

SITE ANALYSIS DATA CHART

- A. TOTAL AREA OF PROPERTY = 44,379.70 SQ.FT. OR 1.02 AC.
- B. LIMIT OF DISTURBED AREA (SITE) = 13,403 SQ.FT. OR 0.31 AC.
- C. PRESENT ZONING DESIGNATION = R-ED
- D. PROPOSED USE: RESIDENTIAL
- E. PREVIOUS HOWARD COUNTY FILES: F-84-025 & F-86-166
- F. TOTAL AREA OF FLOODPLAIN LOCATED ON-SITE = 0.00 AC.
- G. TOTAL AREA OF SLOPES IN EXCESS OF 25% = 0.27 AC.
- H. TOTAL AREA OF WETLANDS (INCLUDING BUFFER) = 0.00 AC.
- I. TOTAL AREA OF STREAM (INCLUDING BUFFER) = 0.00 AC.
- J. TOTAL AREA OF EXISTING FOREST = 0.00 AC.
- K. TOTAL GREEN OPEN AREA = 8,060 SQ.FT. OR 0.19 AC.
- L. TOTAL PROPOSED IMPERVIOUS AREA = 2,333 SQ.FT. OR 0.05 AC.
- M. TOTAL PROPOSED IMPERVIOUS PAVING AREA = 733 SQ.FT. OR 0.02 AC.
- N. TOTAL PROPOSED IMPERVIOUS ROOF AREA = 1,600 SQ.FT. 0.04 AC.
- O. TOTAL EXISTING PAVING AREA = 2,767 SQ.FT. OR 0.06 AC.
- P. TOTAL EXISTING IMPERVIOUS ROOF AREA = 1,881 SQ.FT. 0.04 AC.
- Q. TOTAL AREA OF ESCOBBLE SOILS = 0.41 AC.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

9.18.23 DATE
 9/13/23 DATE

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PKE.
 ELLICOTT CITY, MARYLAND 21042
 (410) 461 - 2895

#27020



PROFESSIONAL CERTIFICATION

"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 NO. 27020, EXPIRATION DATE: 1/1/25."
 Paul A. Cavanaugh
 DATE: 8/14/2023

OWNER/DEVELOPER

CHETAN B MEHTA
 5192 TALBOTS LANDING
 ELLICOTT CITY MD 21043

TITLE SHEET
BONNIE VIEW LANE
 LOTS 4 AND 5

5830 BONNIE VIEW LANE
 TAX MAP NO.: 38 GRID NO.: 03 PARCEL NO.: 895
 ZONED: R-ED PLAT NO.: 5763
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN DATE: AUGUST, 2023
 SHEET 1 OF 4 ECP-23-056

LEGEND	
SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	EXISTING CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
---	EXISTING FENCE
x 448.5	SPOT ELEVATION
18" 50'	EXISTING STORM DRAIN
---	EXISTING WATER LINE
---	EXISTING SEWER LINE
---	EXISTING OVERHEAD WIRE
---	EXISTING FENCE LINE
---	PROPOSED PAVING
---	PRIVATE UIC EASEMENT
---	PRIVATE DRAINAGE & UTILITY EASEMENT
---	LIMIT OF DISTURBANCE
---	SUPER SILT FENCE/TREE PROTECTION FENCE
---	DIVERSION FENCE/TREE PROTECTION FENCE
---	EXISTING VEGETATION LINE
---	PROPOSED VEGETATION LINE
---	DRAINAGE DIVIDE
---	PERMANENT SOIL STABILIZATION CONTROL MATTING
---	SOIL LINES AND TYPES
---	BIO RETENTION FACILITY (F-6) OR (M-6) AS NOTED
---	PROPOSED ROOF LEADER
---	15% TO 24.9% STEEP SLOPES
---	25% AND GREATER STEEP SLOPES



APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 DATE: 9/18/23
 DATE: 9/13/23

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SOILS LEGEND			
SOIL	NAME	CLASS	'K' VALUE
RuB	Russett and Beltsville soils, 2 to 5 percent slopes	C	.43
RuC	Russett and Beltsville soils, 5 to 10 percent slopes	C	.28
SrD	Sassafras and Croom soils, 10 to 15 percent slopes	B	.32

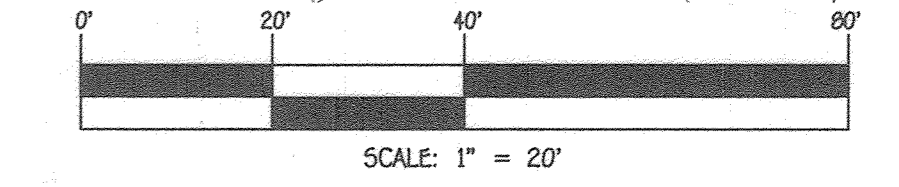
PLAN VIEW
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 Paul G. Cavanaugh
 DATE: Aug 17, 2023

OWNER/DEVELOPER
 CHETAN B MEHTA
 5192 TALBOTS LANDING
 ELLICOTT CITY MD 21043



EXISTING CONDITIONS & DEMOLITION PLAN
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 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
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 SHEET 2 OF 4

LEGEND	
SYMBOL	DESCRIPTION
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	EXISTING CONTOUR 10' INTERVAL
	PROPOSED CONTOUR 10' INTERVAL
	PROPOSED CONTOUR 2' INTERVAL
	EXISTING FENCE
	SPOT ELEVATION
	EXISTING STORM DRAIN
	EXISTING WATER LINE
	EXISTING SEWER LINE
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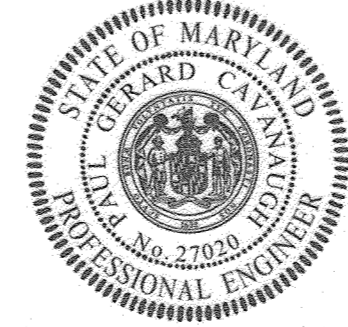
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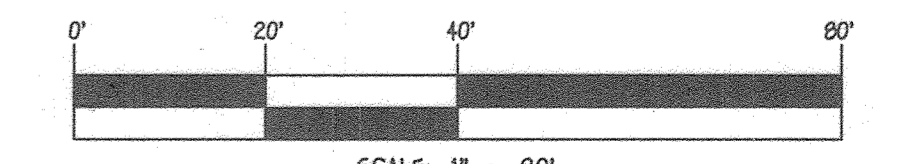
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 SHEET 3 OF 4 ECP-23-056

INFILTRATION AND FILTER SYSTEM CONSTRUCTION SPECIFICATIONS

INFILTRATION AND FILTER SYSTEMS EITHER TAKE ADVANTAGE OF EXISTING PERMEABLE SOILS OR CREATE A PERMEABLE MEDIUM SUCH AS SAND FOR WC, AND RE V. IN SOME INSTANCES WHERE PERMEABILITY IS GREAT, THESE FACILITIES MAY BE USED FOR QP AS WELL. THE MOST COMMON SYSTEMS INCLUDE INFILTRATION TRENCHES, INFILTRATION BASINS, SAND FILTERS, AND ORGANIC FILTERS.

WHEN PROPERLY PLANTED, VEGETATION WILL THRIVE AND ENHANCE THE FUNCTIONING OF THESE SYSTEMS. FOR EXAMPLE, PRE-TREATMENT BUFFERS WILL TRAP SEDIMENTS THAT OFTEN ARE BOUND WITH PHOSPHOROUS AND METALS. VEGETATION PLANTED IN THE FACILITY WILL AID IN NUTRIENT UPTAKE AND WATER STORAGE. ADDITIONALLY, PLANT ROOTS WILL PROVIDE ARTERIES FOR STORMWATER TO PERMEATE SOIL FOR GROUNDWATER RECHARGE. FINALLY, SUCCESSFUL PLANTINGS PROVIDE AESTHETIC VALUE AND WILDLIFE HABITAT MAKING THESE FACILITIES MORE DESIRABLE TO THE PUBLIC.

DESIGN CONSTRAINTS:

- > PLANTING BUFFER STRIPS OF AT LEAST 20 FEET WILL CAUSE SEDIMENTS TO SETTLE OUT BEFORE REACHING THE FACILITY, THEREBY REDUCING THE POSSIBILITY OF CLOGGING.
- > DETERMINE AREAS THAT WILL BE SATURATED WITH WATER AND WATER TABLE DEPTH SO THAT APPROPRIATE PLANTS MAY BE SELECTED (HYDROLOGY WILL BE SIMILAR TO BIORETENTION FACILITIES, SEE FIGURE A.5 AND TABLE A.4 FOR PLANTING MATERIAL GUIDANCE).
- > PLANTS KNOWN TO SEND DOWN DEEP TAPROOTS SHOULD BE AVOIDED IN SYSTEMS WHERE FILTER FABRIC IS USED AS PART OF FACILITY DESIGN.
- > TEST SOIL CONDITIONS TO DETERMINE IF SOIL AMENDMENTS ARE NECESSARY.
- > PLANTS SHALL BE LOCATED SO THAT ACCESS IS POSSIBLE FOR STRUCTURE MAINTENANCE.
- > STABILIZE HEAVY FLOW AREAS WITH EROSION CONTROL MATS OR SOO.
- > TEMPORARILY DIVERT FLOWS FROM SEEDING AREAS UNTIL VEGETATION IS ESTABLISHED.
- > SEE TABLE A.5 FOR ADDITIONAL DESIGN CONSIDERATIONS.

BIO-RETENTION

SOIL BED CHARACTERISTICS
THE CHARACTERISTICS OF THE SOIL FOR THE BIORETENTION FACILITY ARE PERHAPS AS IMPORTANT AS THE FACILITY LOCATION, SIZE, AND TREATMENT VOLUME. THE SOIL MUST BE PERMEABLE ENOUGH TO ALLOW RUNOFF TO FILTER THROUGH THE MEDIA, WHILE HAVING CHARACTERISTICS SUITABLE TO PROMOTE AND SUSTAIN A ROBUST VEGETATIVE COVER COOP. IN ADDITION, MUCH OF THE NUTRIENT POLLUTANT UPTAKE (NITROGEN AND PHOSPHORUS) IS ACCOMPLISHED THROUGH ABSORPTION AND MICROBIAL ACTIVITY WITHIN THE SOIL PROFILE. THEREFORE, SOILS MUST BALANCE THEIR CHEMICAL AND PHYSICAL PROPERTIES TO SUPPORT BIOTIC COMMUNITIES ABOVE AND BELOW GROUND.

THE PLANTING SOIL SHOULD BE A SANDY LOAM, LOAMY SAND, LOAM (USDA), OR A LOAM/SAND MIX (SHOULD CONTAIN A MINIMUM 35 TO 50% SAND, BY VOLUME). THE CLAY CONTENT FOR THESE SOILS SHOULD BE LESS THAN 25% BY VOLUME (ENVIRONMENTAL QUALITY RESOURCES (EQ2), 1996; ENGINEERING TECHNOLOGY INC. AND BIOHABITATS, INC. (ETAB), 1993). SOILS SHOULD FALL WITHIN THE SM, ML, SC CLASSIFICATIONS OR THE UNIFIED SOIL CLASSIFICATION SYSTEM (USCS). A PERMEABILITY OF AT LEAST 1.0 FEET PER DAY (0.5"/HR) IS REQUIRED (A CONSERVATIVE VALUE OF 0.5 FEET PER DAY IS USED FOR DESIGN). THE SOIL SHOULD BE FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER. BRUSH OR SEEDS FROM NOXIOUS WEEDS (E.G., JOHNSON GRASS, MUNGWORT, MUTESIDE, AND CANADA THISTLE OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.) SHOULD NOT BE PRESENT IN THE SOILS. PLACEMENT OF THE PLANTING SOIL SHOULD BE IN 12 TO 18 LIFTS THAT ARE LOOSELY COMPACTED (TAPPED LIGHTLY WITH A BACKHOE BUCKET OR TRAVERSED BY DOZER TRACKS). THE SPECIFIC CHARACTERISTICS ARE PRESENTED IN TABLE A.3.

TABLE A.3 PLANTING SOIL CHARACTERISTICS

PARAMETER	VALUE
PH RANGE	5.2 TO 7.00
ORGANIC MATTER	1.5 TO 4.0% (BY WEIGHT)
MAGNESIUM	35 LBS. PER ACRE, MINIMUM
PHOSPHORUS (PHOSPHATE - P2O5)	75 LBS. PER ACRE, MINIMUM
POTASSIUM (POTASH - K2O)	85 LBS. PER ACRE, MINIMUM
SOLUBLE SALTS	500 PPM
CLAY	10 TO 25 %
SILT	30 TO 55 %
SAND	35 TO 60%

MULCH LAYER

THE MULCH LAYER PLAYS AN IMPORTANT ROLE IN THE PERFORMANCE OF THE BIORETENTION SYSTEM. THE MULCH LAYER HELPS MAINTAIN SOIL MOISTURE AND AVOIDS SURFACE SEALING, WHICH REDUCES PERMEABILITY. MULCH HELPS PREVENT EROSION, AND PROVIDES A MICROENVIRONMENT SUITABLE FOR SOIL BIOTA AT THE MULCH/SOIL INTERFACE. IT ALSO SERVES AS A PRETREATMENT LAYER, TRAPPING THE FINER SEDIMENTS, WHICH REMAIN SUSPENDED AFTER THE PRIMARY PRETREATMENT.

THE MULCH LAYER SHOULD BE STANDARD LANDSCAPE STYLE, SINGLE OR DOUBLE SHREDDED HARDWOOD MULCH OR CHIPS. THE MULCH LAYER SHOULD BE WELL AGED (STOCKPILED OR STORED FOR AT LEAST 12 MONTHS), UNIFORM IN COLOR, AND FREE OF OTHER MATERIALS, SUCH AS WEED SEEDS, SOIL, ROOTS, ETC. THE MULCH SHOULD BE APPLIED TO A MAXIMUM DEPTH OF THREE INCHES. GRASS CLIPPINGS SHOULD NOT BE USED AS A MULCH MATERIAL.

PLANTING GUIDANCE

PLANT MATERIAL SELECTION SHOULD BE BASED ON THE GOAL OF SIMULATING A TERRESTRIAL FORESTED COMMUNITY OF NATIVE SPECIES. BIORETENTION SIMULATES AN UPLAND-SPECIES ECOSYSTEM. THE COMMUNITY SHOULD BE DOMINATED BY TREES, BUT HAVE A DISTINCT COMMUNITY OF UNDERSTORY TREES, SHRUBS AND HERBACEOUS MATERIALS. BY CREATING A DIVERSE, DENSE PLANT COVER, A BIORETENTION FACILITY WILL BE ABLE TO TREAT STORMWATER RUNOFF AND WITHSTAND URBAN STRESSORS FROM INSECTS, DISEASE, DROUGHT, TEMPERATURE, WIND, AND EXPOSURE.

THE PROPER SELECTION AND INSTALLATION OF PLANT MATERIALS IS KEY TO A SUCCESSFUL SYSTEM. THERE ARE ESSENTIALLY THREE ZONES WITHIN A BIORETENTION FACILITY (FIGURE A.5). THE LOWEST ELEVATION SUPPORTS PLANT SPECIES ADAPTED TO STANDING AND FLUCTUATING WATER LEVELS. THE MIDDLE ELEVATION SUPPORTS PLANTS THAT LIKE DRIER SOIL CONDITIONS, BUT CAN STILL TOLERATE OCCASIONAL INUNDATION BY WATER. THE OUTER EDGE

IS THE HIGHEST ELEVATION AND GENERALLY SUPPORTS PLANTS ADAPTED TO DRIER CONDITIONS. A SAMPLE OF APPROPRIATE PLANT MATERIALS FOR BIORETENTION FACILITIES ARE INCLUDED IN TABLE A.4. THE LAYOUT OF PLANT MATERIAL SHOULD BE FLEXIBLE, BUT SHOULD FOLLOW THE GENERAL PRINCIPALS DESCRIBED IN TABLE A.5. THE OBJECTIVE IS TO HAVE A SYSTEM, WHICH RESEMBLES A RANDOM, AND NATURAL PLANT LAYOUT, WHILE MAINTAINING OPTIMAL CONDITIONS FOR PLANT ESTABLISHMENT AND GROWTH. FOR A MORE EXTENSIVE BIORETENTION PLAN, CONSULT ETAB, 1993 OR CLAYTOR AND SCHUELER, 1997.

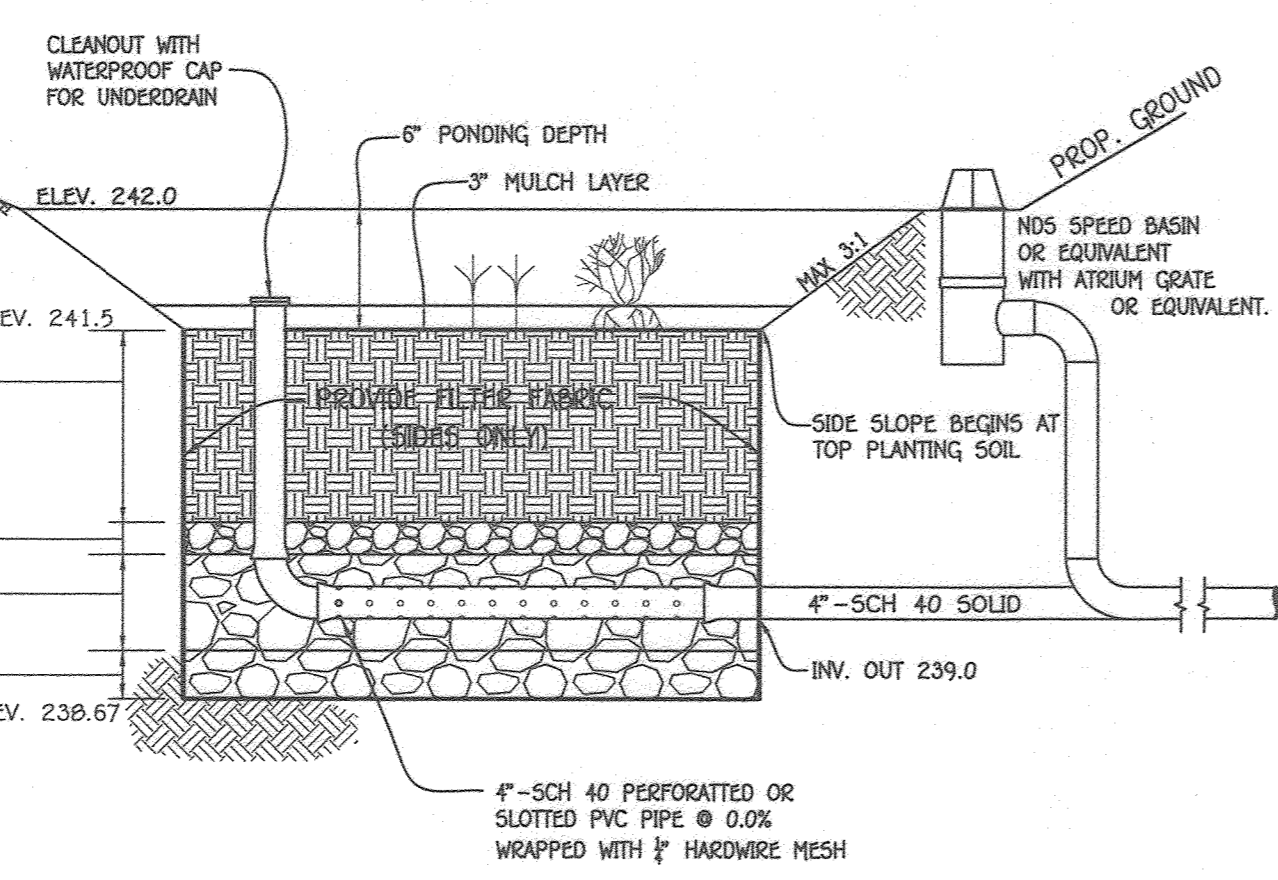
Table B.4. Materials Specifications for Micro-Bioretenion, Rain Gardens & Landscape Infiltration

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil (2" to 4" deep)	loamy sand 60-65% compost 35-40% or sandy loam 30% coarse sand 30%		USDA soil types loamy sand or sandy loam; clay content <5%
Organic Content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum
Pea gravel diaphragm	pea gravel: ASTM-D-446	No. 8 or No. 9 (1/8" to 3/8")	
Curbing drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile	n/a		PE Type 1 nonwoven
Gravel (underdrains and infiltration basins)	ASHTO M-43	No. 57 or No. Approx. (3/8" to 3/4")	
Underdrain piping	1" 758, Type P5 23 or ASHTO M-278	4" to 6" rigid schedule 40 PVC or 50835	slotted or perforated pipe; 3/8" pert. @ 6" on center; 4 holes per row; minimum of 3" of gravel over pipes; not necessary underdrain pipes. Perforated pipe shall be wrapped with 1/4 inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; f = 3500 psi @ 28 days; normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved mixes 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 502.2.7.9; vertical loading 01-10 or 11-20; allowable horizontal loading (based on soil pressure); and analysis of potential cracking
Sand	ASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Orbbase and Grapstone (ASHTO) #10 are not acceptable. No "rock dust" can be used for sand.

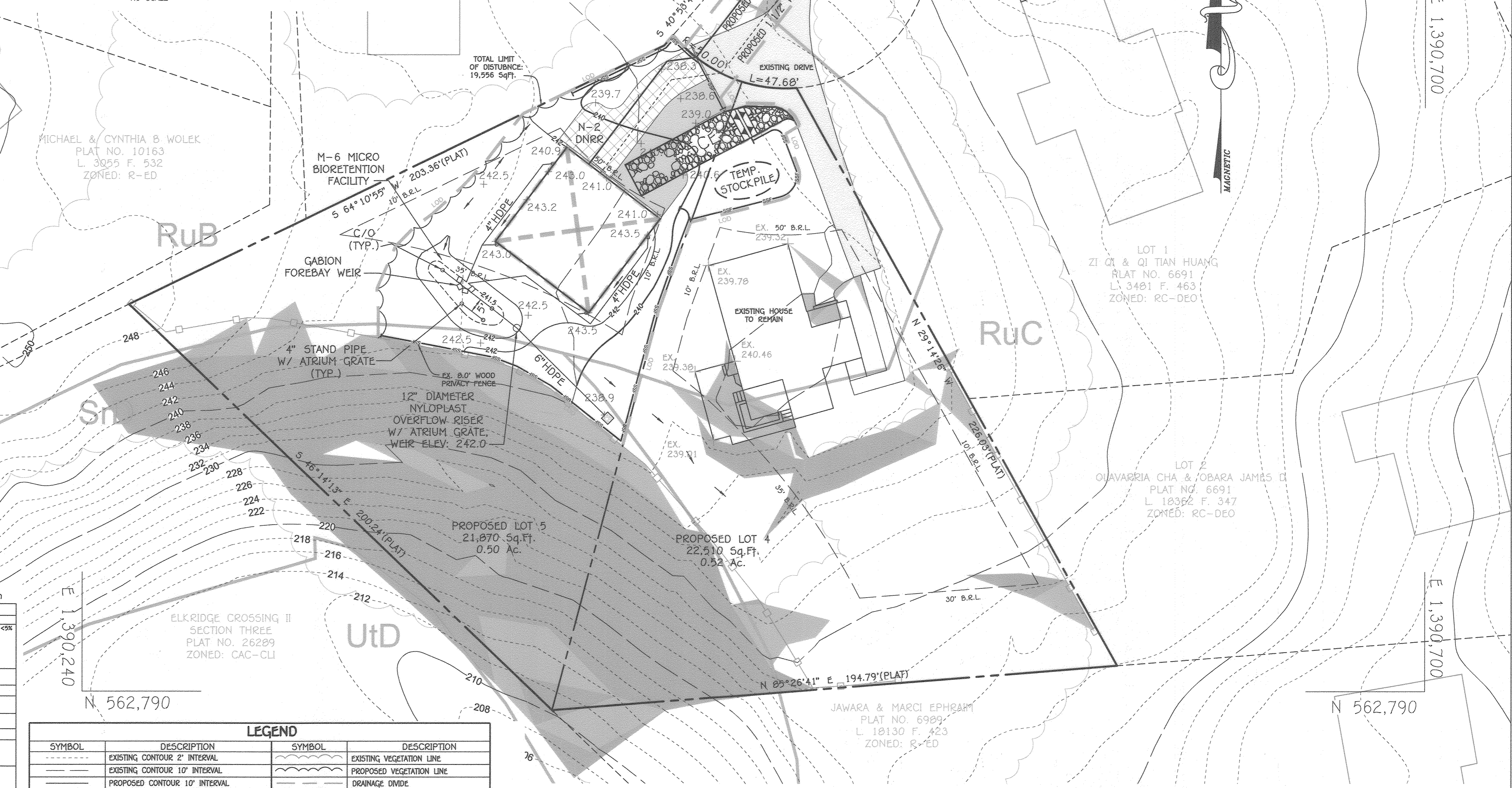
APPROVED: DEPARTMENT OF PLANNING AND ZONING

9/18/23
9/13/23

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
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(410) 461 - 2955



MICRO-BIORETENTION (UNDERDRAIN)(M-6)
NO SCALE



LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL	---	EXISTING VEGETATION LINE
---	EXISTING CONTOUR 10' INTERVAL	---	PROPOSED VEGETATION LINE
---	PROPOSED CONTOUR 10' INTERVAL	---	DRAINAGE DIVIDE
---	PROPOSED CONTOUR 2' INTERVAL	GHB	SOIL LINES AND TYPES
---	EXISTING FENCE	LoB	PERMANENT SOIL STABILIZATION CONTROL MATTING
---	SPOT ELEVATION	---	BIO RETENTION FACILITY (F-6) OR (M-6) AS NOTED
---	EXISTING STORM DRAIN	---	PROPOSED ROOF LEADER
---	EXISTING WATER LINE	---	DENOTES EXISTING TREES TO BE REMOVED
---	EXISTING FENCE LINE	---	DENOTES EXISTING TREES TO REMAIN
---	EXISTING SEWER LINE	---	SPECIMEN TREE
---	EXISTING OVERHEAD WIRE	---	CRITICAL ROOT ZONE
---	PROPOSED PAVING	---	
---	PRIVATE UIC EASEMENT	---	
---	PRIVATE DRAINAGE & UTILITY EASEMENT	---	
---	LIMIT OF DISTURBANCE	---	
---	SUPER SILT FENCE/TREE PROTECTION FENCE	---	
---	DIVERSION FENCE/TREE PROTECTION FENCE	---	
---	DENOTES MBR OVERLAND FLOWPATH	---	

PLAN VIEW
SCALE: 1" = 20'

OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIO-RETENTION AREAS (M-6)

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



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. 27020, EXPIRATION DATE: 7/1/25.

OWNER/DEVELOPER
CHETAN B MEHTA
5192 TALBOTS LANDING
ELLCOTT CITY MD 21043

PRELIMINARY EROSION/SEDIMENT CONTROL PLAN AND STORMWATER MANAGEMENT NOTES AND DETAILS

BONNIE VIEW LANE
LOTS 4 AND 5
5830 BONNIE VIEW LANE
TAX MAP NO.: 36 GRID NO.: 03 PARCEL NO.: 895
ZONED: R-ED PLAT NO.: 5763
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: AUGUST, 2023
SHEET 4 OF 4

SOILS LEGEND

SOIL	NAME	CLASS	K' VALUE
RuB	Russell and Belleville soils, 2 to 5 percent slopes	C	.43
RuC	Russell and Belleville soils, 5 to 10 percent slopes	C	.28
SrD	Sassafras and Croom soils, 10 to 15 percent slopes	B	.32



SCALE: 1" = 20'