

SHEET INDEX	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	SITE LAYOUT / LANDSCAPE PLAN, NOTES AND DETAILS
3	STORMWATER MANAGEMENT PLAN, NOTES AND DETAILS
4	GRADING, EROSION/SEDIMENT CONTROL PLAN

SOILS LEGEND			
SOIL	NAME	CLASS	'K' VALUE
UcB	Urban land-Chillum-Beltville complex, 0 to 5 percent slopes	D	--

HOWARD COUNTY SOILS MAP PAGE 19; SAVAGE NE

STORMWATER MANAGEMENT PRACTICES						
AREA ID	LOCATION	DRAINAGE AREA SF.	% IMPERVIOUS	ESDv REQUIRED CuFt.	ESDv PROVIDED CuFt.	BIO-RETENTION (Y/N)
1	LOT 2	9,967	63.0%	882	1,094*	Y

GROSS AREA = 0.75 ACRES  
 LOD = 0.38 ACRES  
 RCN = 77  
 TARGET Pe = 1.6"

\*ADDITIONAL ESDv PROVIDED TO AID IN THE DRAINAGE ISSUES OF THE COMMUNITY

STORMWATER MANAGEMENT PRACTICES BY LOT		
AREA ID	MICRO-BIO (M-6) NUMBER	REMARKS
LOT 1	N/A	EXISTING HOUSE/DRIVEWAY TO REMAIN
LOT 2	1	HOUSE AND PORTION OF UIC DRIVEWAY DRAINS TO BIO ON LOT

# SITE DEVELOPMENT PLAN DANIEL PROPERTY

LOT 2  
ZONED R-20

TAX MAP No. 31 GRID No. 13 PARCEL NO. 48  
SECOND ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

### GENERAL NOTES

- THE SUBJECT PROPERTY IS ZONED R-20 (PER 10/06/13 COMPREHENSIVE ZONING PLAN).
- BOUNDARY IS BASED ON A FIELD RUN SURVEY PERFORMED BY FISHER, COLLINS & CARTER, ON OR ABOUT FEBRUARY, 2019.
- CONTOURS ARE BASED ON A TOPOGRAPHIC FIELD RUN SURVEY PERFORMED BY FISHER, COLLINS & CARTER, ON OR ABOUT AUGUST, 2019.
- COORDINATES BASED ON NAD'83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 31D4 AND NO. 31D8:  
 HOWARD COUNTY MONUMENT NO. 31D4 N 571,700.664 E 1,369,606.417 ELEV. 494.445'  
 N 569,583.589 E 1,359,155.211 ELEV. 429.348'  
 HOWARD COUNTY MONUMENT NO. 31D8 N 571,700.664 E 1,369,606.417 ELEV. 494.445'  
 N 569,583.589 E 1,359,155.211 ELEV. 429.348'
- STORM WATER MANAGEMENT IS IN ACCORDANCE WITH THE M.D.E. STORM WATER DESIGN MANUAL, VOLUMES I & II, REVISED 2009. THIS PLAN PROPOSES THE USE OF ONE (1) M-6 BIO RETENTION FACILITY.
- PREVIOUS HOWARD COUNTY FILES: ECP-19-049, F-20-056
- THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT. PUBLIC WATER AND SEWER WILL BE UTILIZED FOR THIS PROJECT.
- ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.
- A PRE-SUBMISSION COMMUNITY MEETING WAS HELD ON APRIL 8, 2019 FOR THIS PROJECT.
- THIS PROJECT IS EXEMPT FROM FOREST CONSERVATION BASED ON SECTION 16.1202(b)(viii) OF HOWARD COUNTY CODE AND FOREST CONSERVATION MANUAL SINCE IT IS A MINOR SUBDIVISION THAT CREATES ONE ADDITIONAL LOT AND HAS NO FURTHER SUBDIVISION POTENTIAL.
- PERIMETER LANDSCAPING SHALL BE IN ACCORDANCE WITH SECTION 16.124 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF \$4,800.00 FOR 15 SHADE TREES (3000 #s) WILL BE PROVIDED AS PART OF THE BUILDING / GRADING PERMIT FOR LOT 2.
- DRIVEWAY SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO ENSURE 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 - SIX (6") INCHES OF COMPACTED CRUSHED RUN BASE WITH TAR AND CHIP COATING  
 C) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE 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 ENSURE ALL WEATHER USE
- STORM WATER MANAGEMENT DEVICES WILL BE OWNED AND MAINTAINED BY PROPERTY OWNER OF LOT 2.
- EXISTING UTILITIES ARE BASED ON MISS UTILITY MARKINGS, FIELD LOCATIONS AND AVAILABLE COUNTY INFORMATION.
- TO THE BEST OF OUR KNOWLEDGE NO CEMETERIES ARE LOCATED ON-SITE BASED ON THE HOWARD COUNTY CEMETERY INVENTORY MAP.
- B.R.L. DENOTES BUILDING RESTRICTION LINE.
- SITE IS NOT ADJACENT TO A SCENIC ROAD.
- ALL LOT/PARCEL AREAS ARE MORE OR LESS.
- LETTER OF FINDINGS DATED FEBRUARY 19, 2019 PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DETERMINED THAT THERE ARE NO WETLANDS, WETLAND BUFFERS, STREAM AND STREAM BUFFER LOCATED WITHIN THE LIMITS OF THE FINAL PLAN.
- THERE IS AN EXISTING DWELLING ON LOT 1 TO REMAIN AND AN EXISTING SHED TO REMAIN. NEW BUILDINGS, EXTENSIONS OR ADDITIONS TO THE EXISTING DWELLING ARE TO BE CONSTRUCTED AT A DISTANCE LESS THAN THE ZONING REGULATION REQUIREMENTS.
- WATER AND SEWER SERVICE TO THESE LOTS WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 16.1223 OF THE HOWARD COUNTY CODE.
- PUBLIC WATER AND SEWER ALLOCATION WILL BE GRANTED AT THE TIME OF ISSUANCE OF THE BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.
- THIS PLAN IS IN COMPLIANCE WITH THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE 10/06/13 COMPREHENSIVE ZONING PLAN. DEVELOPMENT OR CONSTRUCTION ON THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION, OR BUILDING/GRADING PERMIT.
- APPROVAL OF A SITE DEVELOPMENT PLAN IS REQUIRED FOR THE DEVELOPMENT OF ALL RESIDENTIAL LOTS WITHIN THIS SUBDIVISION PRIOR TO ISSUANCE OF ANY GRADING OR BUILDING PERMITS FOR NEW HOUSE CONSTRUCTION IN ACCORDANCE WITH SECTION 16.155 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
- FEE IN LIEU OF PROVIDING OPEN SPACE HAS BEEN PAID IN THE AMOUNT OF \$1,500.00 UNDER F-20-056.
- NO HISTORIC STRUCTURES EXIST WITHIN THE LIMITS OF THIS PLAN SUBMISSION.
- PROPERTY IS A MINOR SUBDIVISION AND IS EXEMPT FROM APFO TRAFFIC REPORT IN ACCORDANCE WITH SECTION 4.7.8.5. OF THE HOWARD COUNTY DESIGN MANUAL, VOLUME III - ROADS AND BRIDGES.
- THE 65 DBA NOISE CONTOUR LINE DRAWN ON THIS PLAN IS ADVISORY AS REQUIRED BY THE HOWARD COUNTY DESIGN MANUAL, CHAPTER 5, REVISED FEBRUARY, 1992, AND CANNOT BE CONSIDERED TO EXACTLY LOCATE THE 65 DBA NOISE EXPOSURE. THE 65 DBA NOISE LINE ESTABLISHED TO ALEST DEVELOPERS, BUILDERS AND FUTURE RESIDENTS THAT AREAS BEYOND THIS THRESHOLD MAY EXCEED GENERALLY ACCEPTED NOISE LEVELS ESTABLISHED BY THE U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT. THE LOCATION OF THE 65 DBA NOISE CONTOUR LINE IS BASED ON LOCATION SHOWN ON PLAT NO. (F-20-056).
- REFUSE COLLECTION AND MAIL DELIVERY FOR LOT 2 IS PROVIDED AT THE JUNCTION OF THE PRIVATE DRIVEWAY AND THE ROAD RIGHTWAY LINE.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING, CONSTRUCTION INSPECTION DIVISION AT (410) 313-1080 AT LEAST (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- PER LETTER DATED MAY 11, 2020, HOWARD COUNTY, OFFICE OF PLANNING AND ZONING, DEVELOPMENT ENGINEERING DIVISION APPROVED A FEE IN LIEU REQUEST FOR SIDEWALK IMPROVEMENTS IN THE AMOUNT OF \$15,923.70 TO BE PAID WITH F-20-056.
- PROPERTY SUBJECT TO SECTION 16.1107(b)(1)(v) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS TO ALLOW FOR A SINGLE LOT FAMILY MEMBER EXEMPTION. THIS EXEMPTION BECAME VALID ON OCTOBER 10, 2020 AND LOT 2 IS TO BE CONVEYED TO THE SISTER OF THE CURRENT OWNER UPON RECORDATION OF THE ASSOCIATED PLAN.

### SITE ANALYSIS DATA CHART

- TOTAL AREA OF THIS SUBMISSION: 32,802 SQ.FT. (0.753 AC.)
- LIMIT OF DISTURBED AREA = 0.391 AC.\*
- PRESENT ZONING DESIGNATION = R-20
- PROPOSED USE: SINGLE FAMILY DETACHED HOUSING
- NET TRACT AREA = 0.753 AC.
- DENSITY ALLOWED:  
2 UNITS/ACRE X 1.34 AC. = 2.68 UNITS
- BUILDING COVERAGE OF SITE: 3,400 SQ.FT. (0.078 AC\*) OR 10.4% (INCLUDES LOT 2 ONLY)
- PREVIOUS HOWARD COUNTY FILES: ECP-19-049, F-20-056
- TOTAL AREA OF FLOODPLAIN LOCATED ON SITE: 0.0 AC.
- TOTAL AREA OF SLOPES IN EXCESS OF 15% = 0 AC\*
- TOTAL AREA OF WETLANDS (INCLUDING BUFFER) LOCATED ON SITE = 0 AC.\*
- TOTAL AREA OF FOREST: 0.0 AC.\*
- TOTAL GREEN OPEN AREA OF LOT 2 = 0.62 AC.\*
- TOTAL IMPERVIOUS AREA = (0.161AC.\*) (INCLUDES LOT 2 ONLY)
- AREA OF ERODIBLE SOILS = 0.000AC.



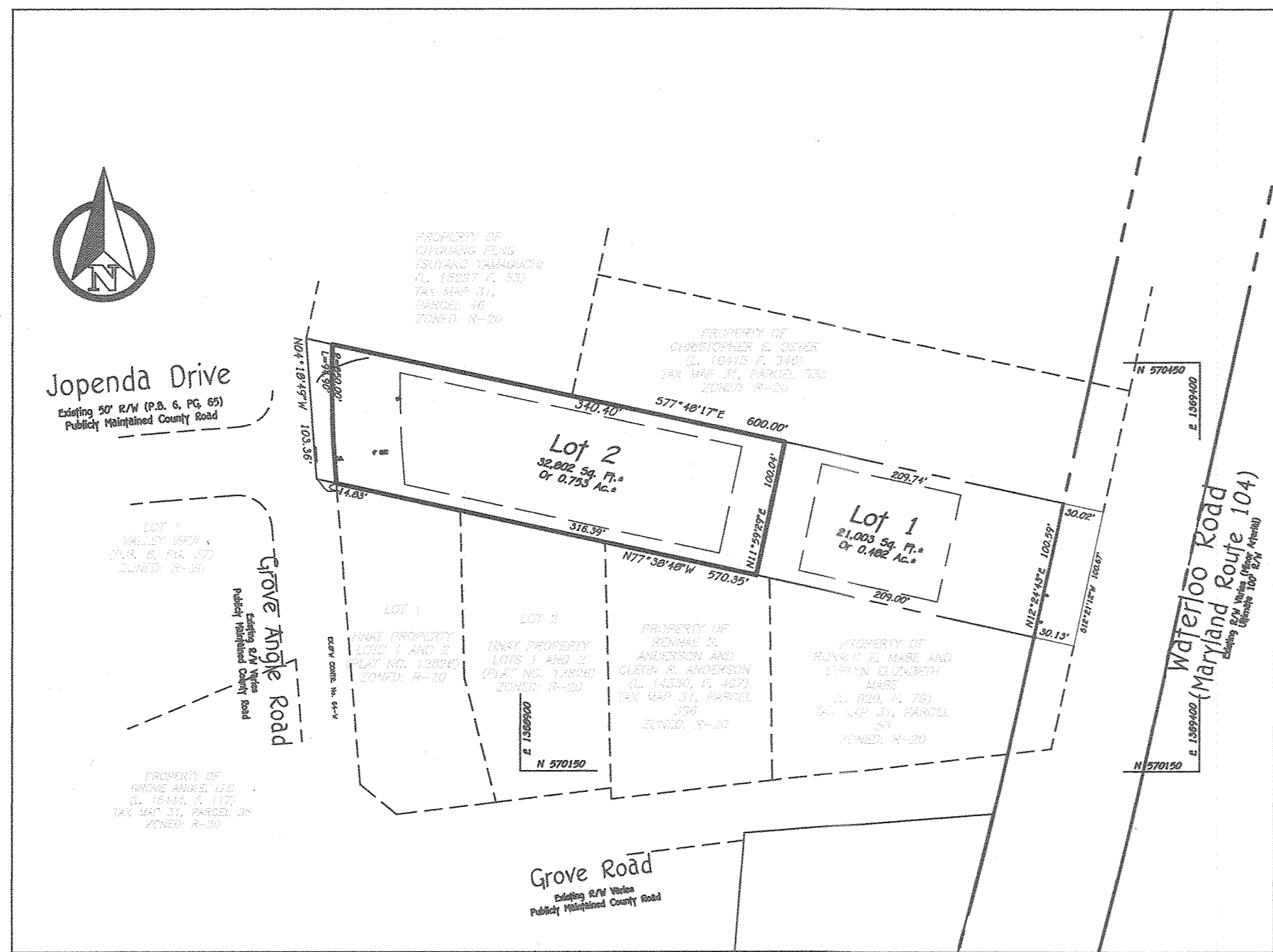
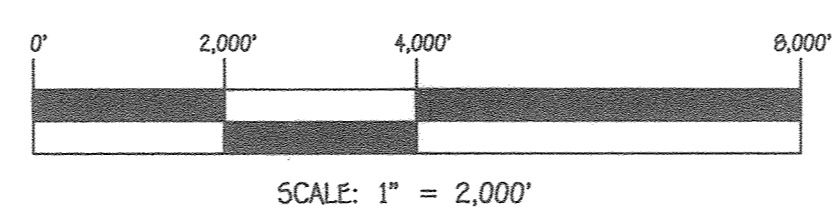
HOWARD COUNTY GEODETIC SURVEY CONTROL NO. 31D4  
 N 571,700.664 E 1,369,606.417 ELEVATION: 494.445'

HOWARD COUNTY GEODETIC SURVEY CONTROL NO. 31D8  
 N 569,583.589 E 1,359,155.211 ELEVATION: 429.348'

REFER TO HOWARD CO. ADC MAP 28-A6

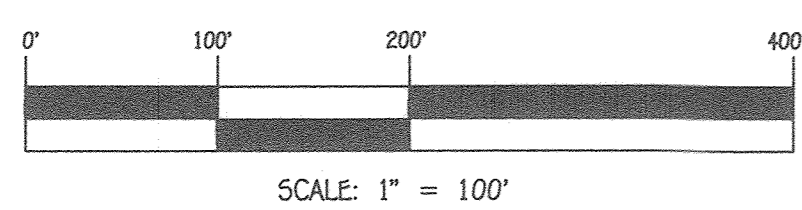
### VICINITY MAP

SCALE: 1" = 2,000'



### SITE MAP

SCALE: 1" = 100'



**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CONTINENTAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELLICOTT CITY, MARYLAND 21042  
 (410) 461-2099



### PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE: 7/14/23.

*Frank John Manalansan, II*  
 FRANK JOHN MANALANSAN, II  
 DATE: 9/22/21

### OWNER/DEVELOPER

GIGI & LINDA DANIEL  
 5020 WATERLOO ROAD  
 ELLICOTT CITY, MARYLAND 21043  
 267-253-4849

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Division of Land Development *gn* 12/20/21  
 Chief, Development Engineering Division *ksk* 10-14-21  
 Director, Department of Planning and Zoning *js* 12-20-21

PROJECT	PHASE	PARCEL NO.
DANIEL PROPERTY LOT 2	N/A	48
PLAT	BLOCK NO.	ZONE
25931	13	R-20
PREVIOUS HOWARD COUNTY FILES:	TAX/ZONE	ELEC. DIST.
ECP-19-059, F-20-056	31	SECOND
	CENSUS TR.	
	6023.02	

TITLE SHEET

SINGLE FAMILY HOUSE  
**DANIEL PROPERTY**  
 LOT 2  
 83 40 GROVE ANGLE ROAD

ZONED: R-20  
 TAX MAP NO.: 31 GRID NO.: 13 PARCEL NO.: 48  
 SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: SEPTEMBER, 2021

SHEET 1 OF 5

SDP-20-045



**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 OR GRAVEL, AND E.V. IN SOME INSTANCES WHERE PERMEABILITY IS GREAT, THESE FACILITIES MAY BE USED FOR OP AS WELL. THE MOST COMMON SYSTEMS INCLUDE INFILTRATION TRENCHES, INFILTRATION BASINS, SAND FILTERS, AND ORGANIC FILTERS. WHEN PROPERLY PLANTED, VEGETATION WILL THIVE 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 OVERSEED 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 CONTAIN A ROBUST VEGETATION COVER CROP. 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 60% SAND, BY VOLUME). THE CLAY CONTENT FOR THESE SOILS SHOULD BE LESS THAN 25% BY VOLUME (ENVIRONMENTAL QUALITY RESOURCES (EQ), 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 (0.577 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. BUSHES OR SEEDS FROM NOXIOUS WEEDS (E.G., JOHNSON GRASS, MUIGWORT, NUTSEDGE, 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 (TAMPED 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**

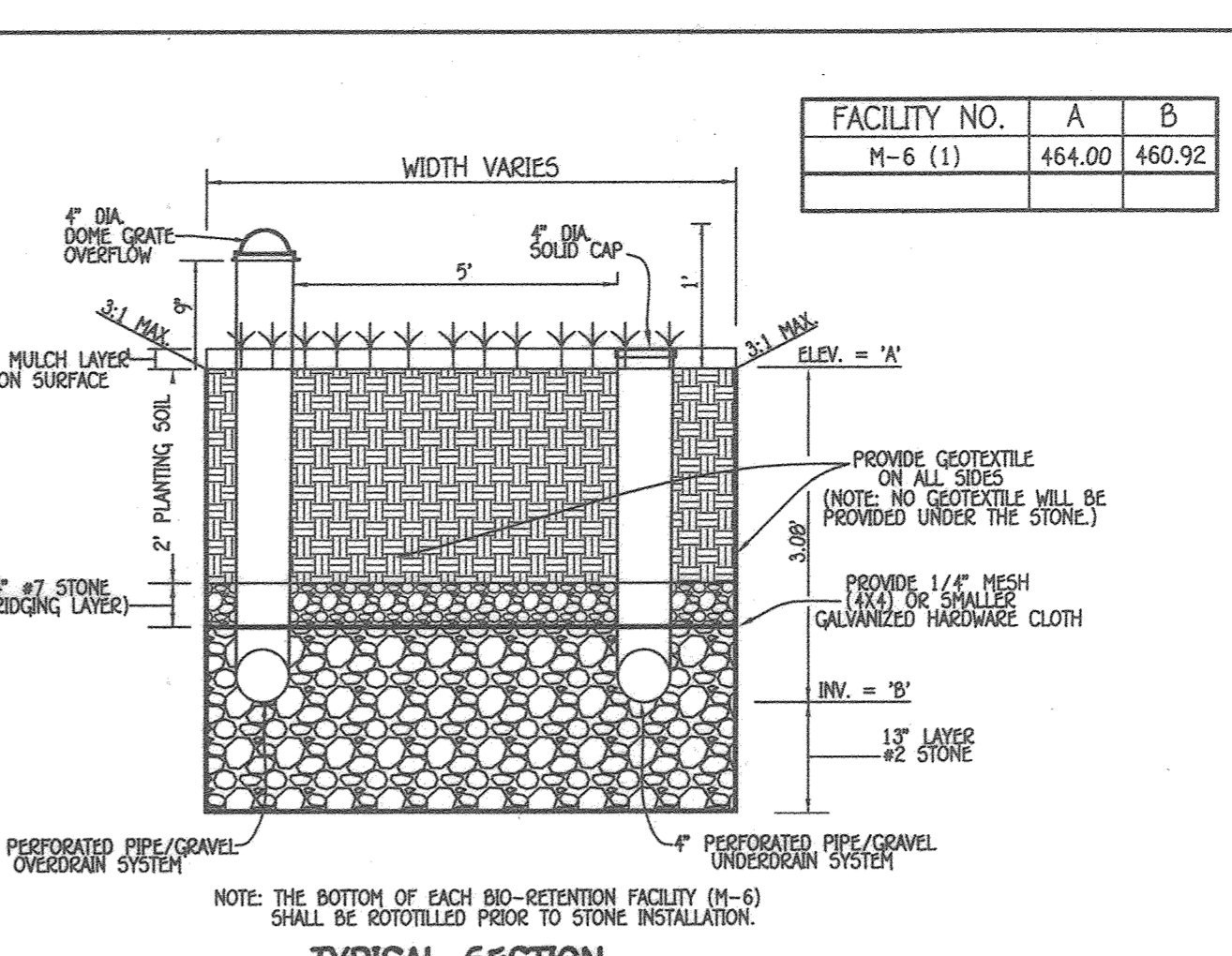
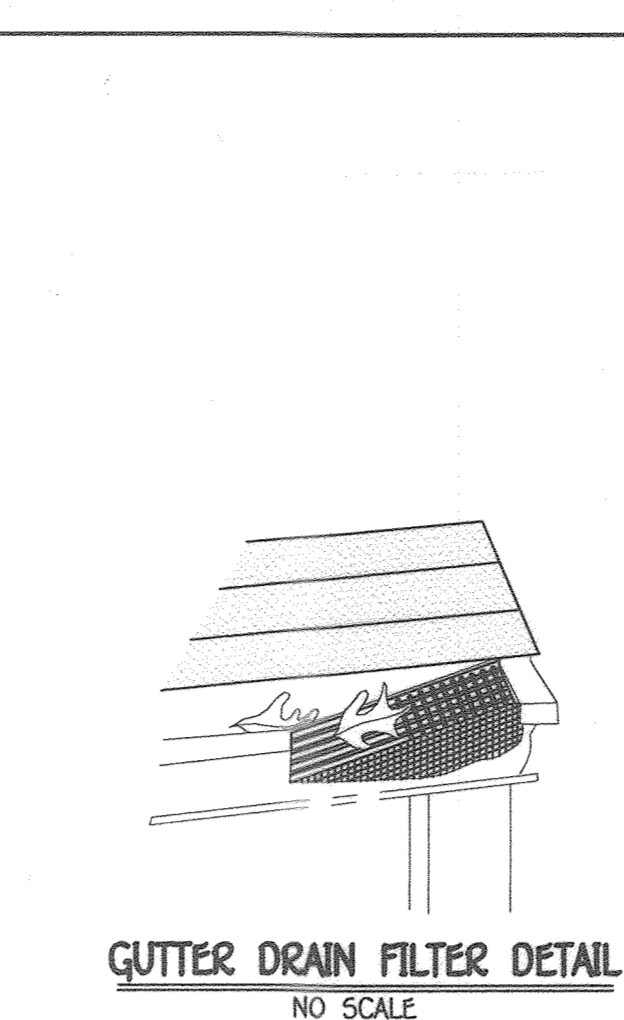
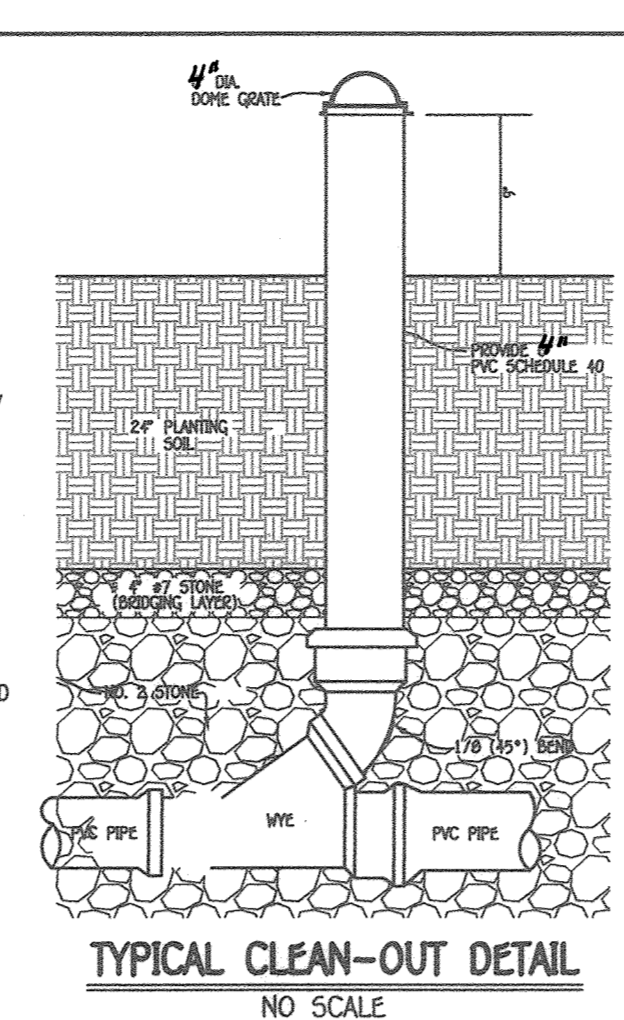
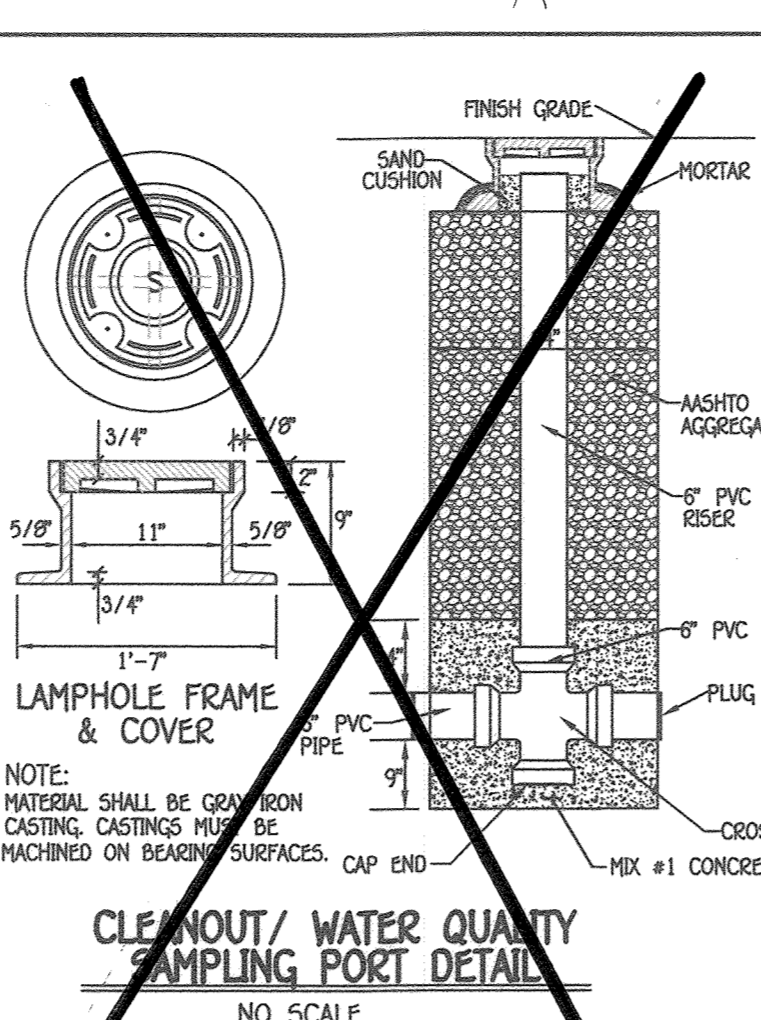
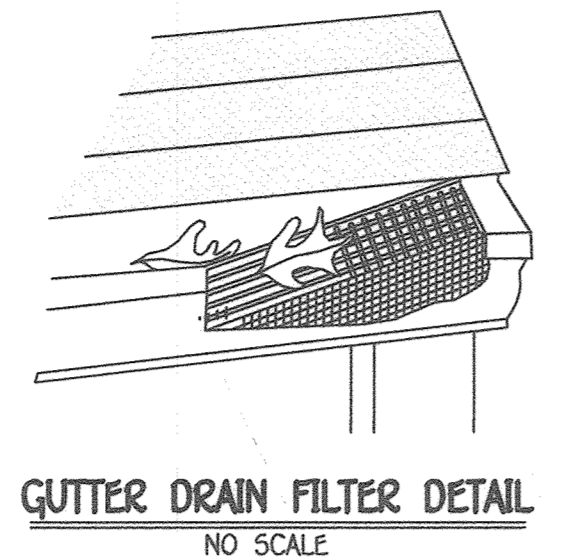
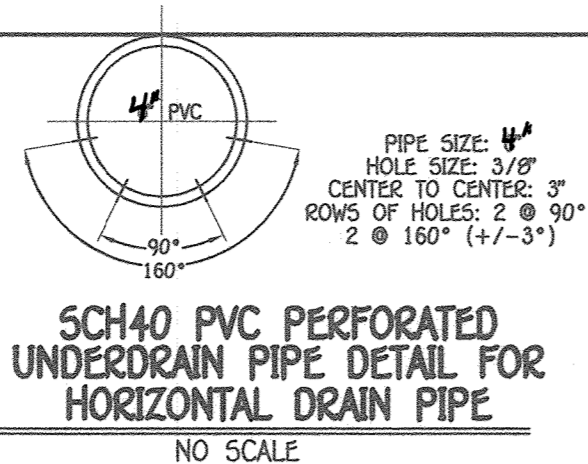
PARAMETER	VALUE
PH RANGE	5.2 TO 7.00
ORGANIC MATTER	1.5 TO 4.0% (BY WEIGHT)
MAGNESIUM	35 LBS. PER ACRE, MINIMUM
PHOSPHORUS (PHOSPHATE - P205)	75 LBS. PER ACRE, MINIMUM
POTASSIUM (POTASH - K2O)	85 LBS. PER ACRE, MINIMUM
SOLUBLE SALTS	500 PPM
CLAY	10 TO 25 %
SILT	30 TO 55 %
SAND	35 TO 60%

**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 STRESSES FROM INSECTS, DISEASE, DROUGHT, TEMPERATURE, WIND, AND EXPOSURE.

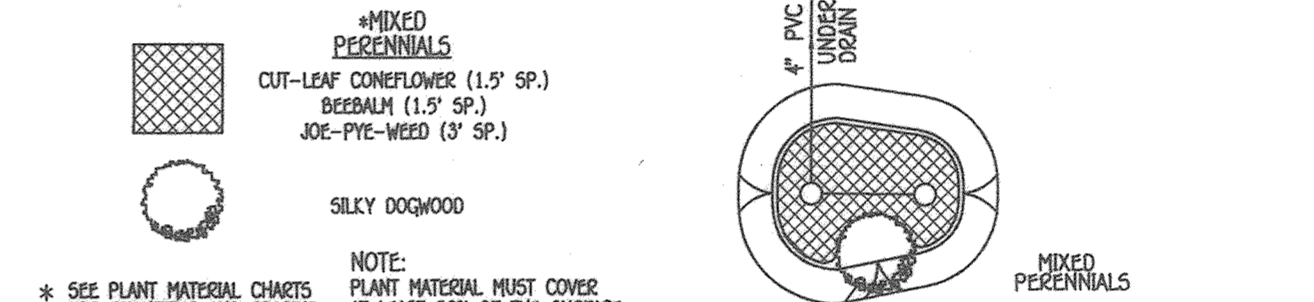
THE PROPER SELECTION AND INSTALLATION OF PLANT MATERIALS IS KEY TO A SUCCESSFUL SYSTEM. THERE ARE ESSENTIALLY THREE ZONES WITHIN A BIORETENTION FACILITY (FIGURE A.5). THE LOWEST ELEVATION SUPPORTS PLANT SPECIES ADAPTED TO STANDING AND FLUCTUATING WATER LEVELS. THE MIDDLE ELEVATION SUPPORTS PLANTS THAT 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 CLAYTON AND SCHUELER, 1997.



**TYPICAL SECTION BIO-RETENTION FACILITY (M-6)**  
NO SCALE

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

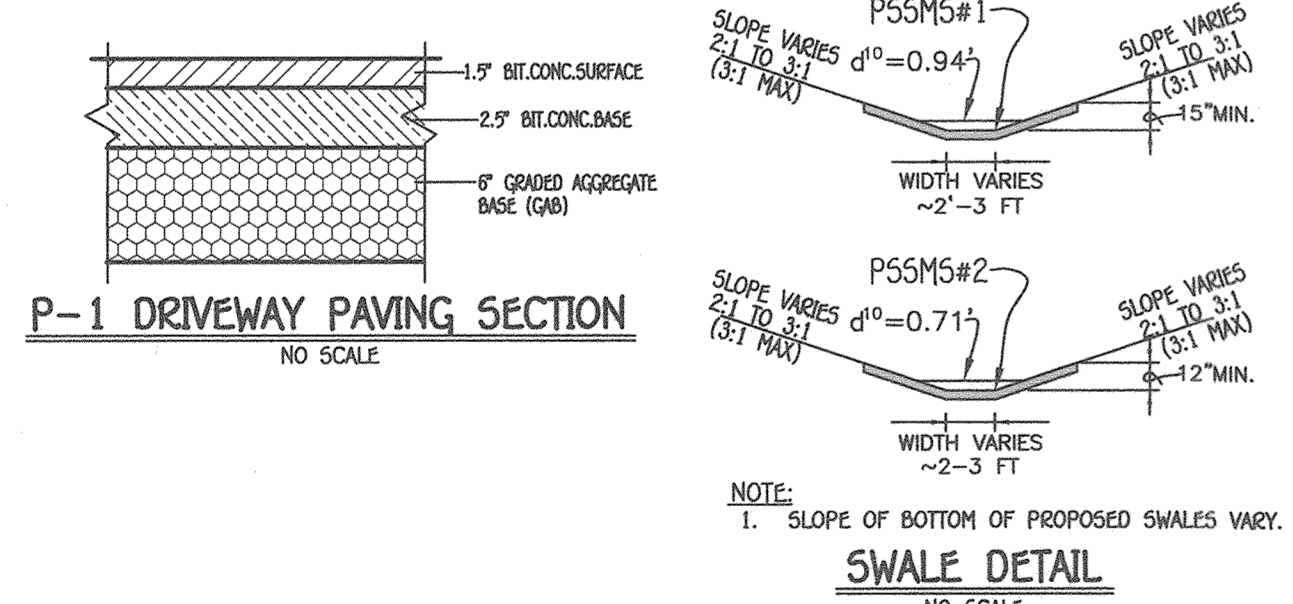
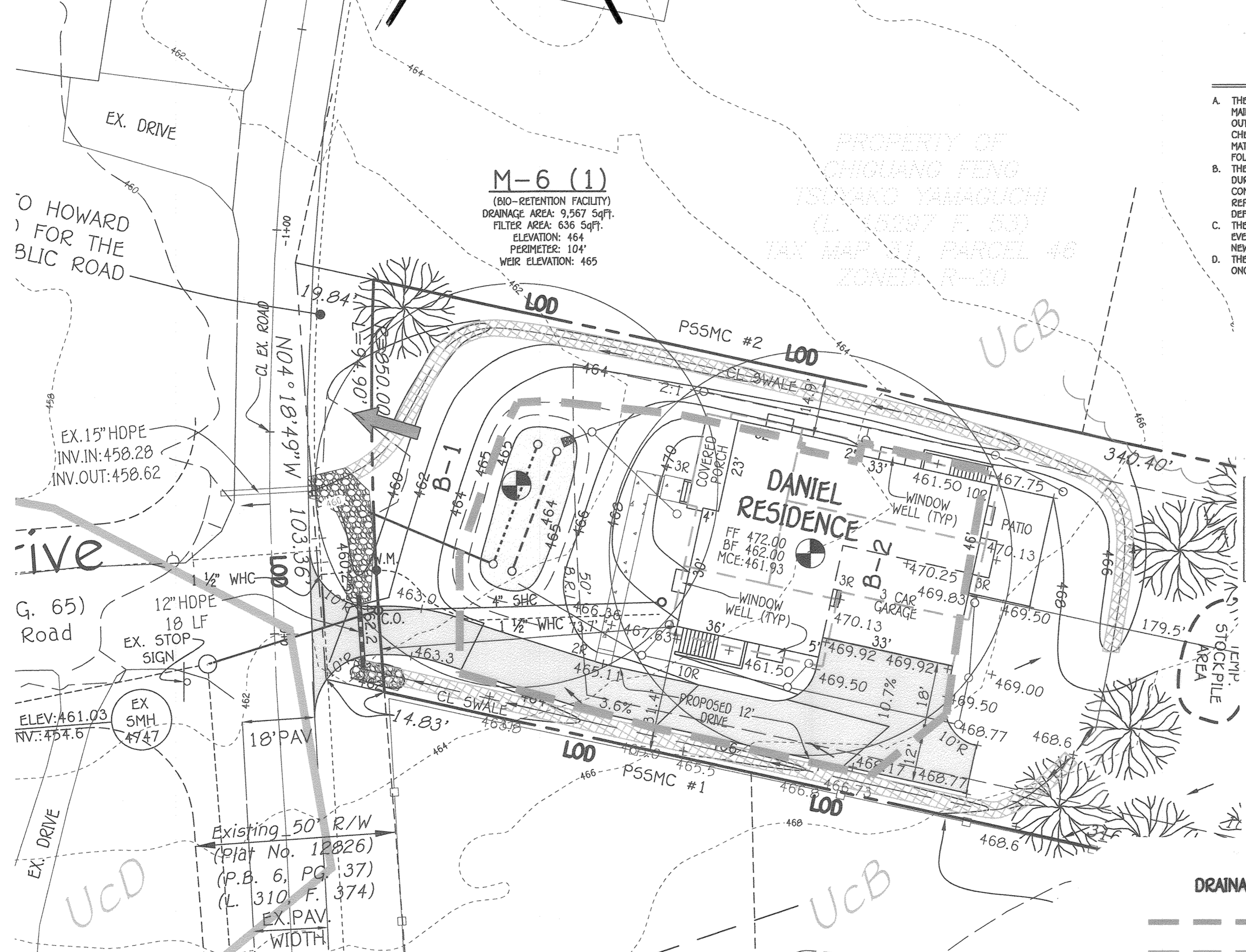
- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE 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 VIGES.
- 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.



**MICRO-BIORETENTION PLANTING DETAIL**  
NOT TO SCALE

**LEGEND**

SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	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
○	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 TREE LINE
○	PROPOSED TREE LINE
○	DRAINAGE DIVIDE
○	PERMANENT SOIL STABILIZATION CONTROL MATTING
○	SOIL LINES AND TYPES
○	BIO RETENTION FACILITY (M-6) OR (M-6) AS NOTED
○	PROPOSED ROOF LEADER
○	DENOTES EXISTING TREES TO BE REMOVED
○	DENOTES EXISTING TREES TO REMAIN
○	SPECIMEN TREE
○	CRITICAL ROOT ZONE
○	DENOTES SWM TEST BORING LOCATION
○	FUTURE 2040 UN-MITIGATED 65DBA NOISE LINE
○	DENOTES MBR OVERLAND FLOWPATH



**STORMWATER MANAGEMENT PRACTICES BY LOT**

AREA ID	MICRO-BIO (M-6) NUMBER	REMARKS
LOT 1	N/A	EXISTING HOUSE/DRIVEWAY TO REMAIN
LOT 2	1	HOUSE AND PORTION OF UIC DRIVEWAY DRAINS TO BIO ON LOT

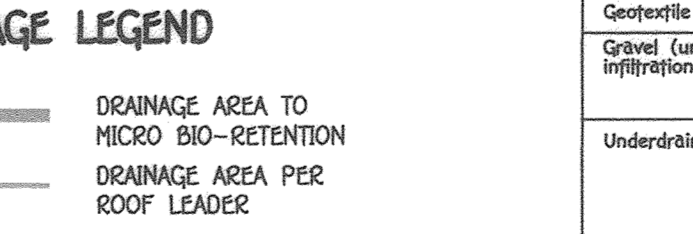
**STORMWATER MANAGEMENT PRACTICES**

AREA ID	LOCATION	DRAINAGE AREA SF	% IMPERVIOUS	ESDV REQUIRED CUFT	ESDV PROVIDED CUFT	BIO-RETENTION (Y/N)
1	LOT 2	9,987	63.0%	882	1,054*	Y

GROSS AREA = 0.75 ACRES  
LOD = 0.38 ACRES  
RCN = 77  
TARGET Pe = 1.6"  
\*ADDITIONAL ESDV PROVIDED TO AID IN THE DRAINAGE ISSUES OF THE COMMUNITY

**STORMWATER MANAGEMENT NOTES**

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



**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
18272 BALTIMORE NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21146  
(410) 461-2995



**PROFESSIONAL CERTIFICATION**  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE: 7/14/23.  
*Frank John Manalansan II*  
FRANK JOHN MANALANSAN II  
9/22/21  
DATE

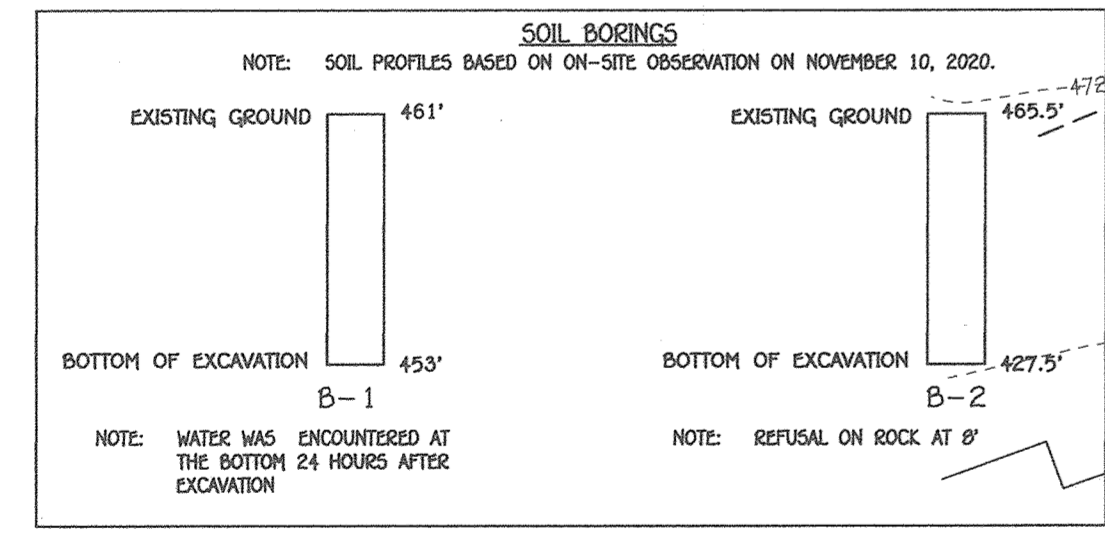
**OWNER/DEVELOPER**  
GCI & LINDA DANIEL  
5020 WATERLOO ROAD  
ELICOTT CITY, MARYLAND 21143  
267-253-4849

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
Chief, Division of Land Development  
Chief, Development Engineering Division  
Director, Department of Planning and Zoning  
PROJECT: DANIEL PROPERTY LOT 2  
PHASE: N/A  
PARCEL NO.: 48  
PLAT: 25931  
BLOCK NO.: 13  
ZONE: R-20  
TAX/ZONE: 31  
ELEC. DIST.: SECOND  
CENSUS TR.: 6023.02  
PREVIOUS HOWARD COUNTY FILES: ECP-19-099, F-20-096

**STORMWATER MANAGEMENT PLAN, NOTES AND DETAILS**  
SINGLE FAMILY HOUSE  
**DANIEL PROPERTY**  
LOT 2  
8340 GROVE ANGLE ROAD  
ZONED: R-20  
TAX MAP NO.: 31  
GRID NO.: 13  
PARCEL NO.: 48  
SECOND ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
DATE: SEPTEMBER, 2021  
SHEET 3 OF 5

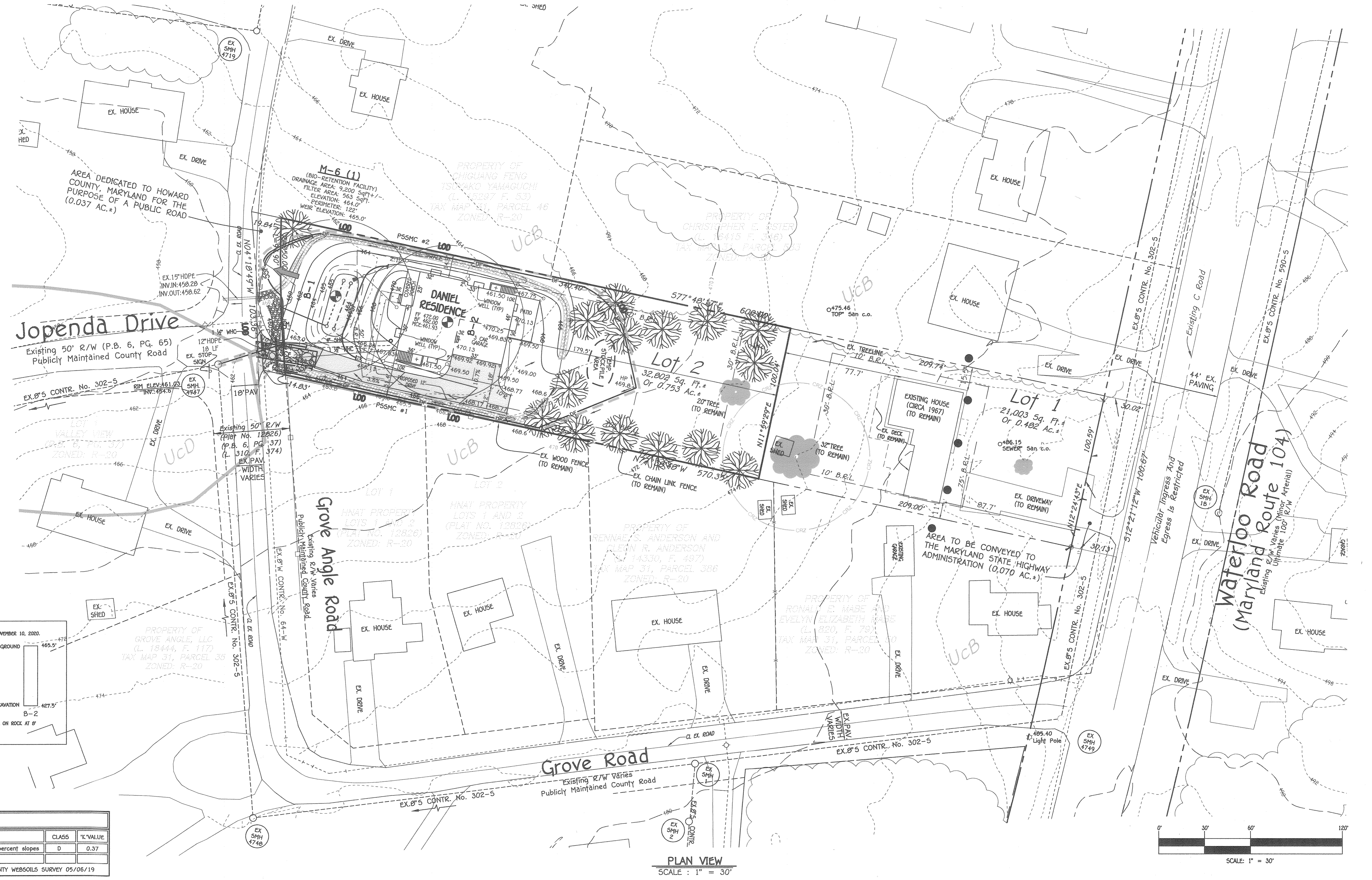
LEGEND	
SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	EXISTING CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
---	EXISTING FENCE
○	SPOT ELEVATION
---	EXISTING STORM DRAIN
---	EXISTING WATER LINE
---	EXISTING SEWER LINE
---	EXISTING OVERHEAD WIRE
---	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 TREE LINE
---	PROPOSED TREE 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
---	DENOTES EXISTING TREES TO BE REMOVED
---	DENOTES EXISTING TREES TO REMAIN
○	SPECIMEN TREE
○	CRITICAL ROOT ZONE
○	DENOTES SWM TEST BORING LOCATION
○	FUTURE 2040 UN-MITIGATED 65dBA NOISE LINE
---	DENOTES MBR OVERLAND FLOWPATH

SEDIMENT CONTROL LEGEND	
SYMBOL	DESCRIPTION
---	LIMIT OF DISTURBANCE
---	SUPER SILT FENCE
---	SILT FENCE
---	STABILIZED CONSTRUCTION ENTRANCE/MOUNTABLE BERM
---	EARTH DIKE
---	PERMANENT SOIL STABILIZATION CONTROL MATTING



SOILS LEGEND			
SOIL	NAME	CLASS	Kc VALUE
UcB	Urban land-Chillum-Beltsville complex, 0 to 5 percent slopes	D	0.37

HOWARD COUNTY WEBSOILS SURVEY 05/06/19



**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELLICOTT CITY, MARYLAND 21042  
 (410) 461-2055

NO.	REVISION	DATE



**BUILDER/DEVELOPER'S CERTIFICATE**  
 "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, FOR SEDIMENT AND EROSION CONTROL AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."  
 Signature of Developer: *Mr. Daniel* Date: *Sept 17, 2021*

**PROFESSIONAL CERTIFICATE**  
 "I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."  
 Signature of Licensed Professional: *Frank John Manalansan II* Date: *9/22/21*

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 Signature: *Alexander Brodsky* Date: *10/12/21*  
 HOWARD SOIL CONSERVATION DISTRICT

**OWNER/DEVELOPER**  
 GIGI & LINDA DANIEL  
 5020 WATERLOO ROAD  
 ELLICOTT CITY, MARYLAND 21043  
 267-253-4849

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Division of Land Development: *gn* Date: *12/02/21*  
 Chief, Development Engineering Division: *HSA* Date: *10-14-21*  
 Director, Department of Planning and Zoning: *Ag* Date: *12-20-21*

PROJECT	PHASE	PARCEL NO.
DANIEL PROPERTY LOT 2	N/A	48

PLAT	BLOCK NO.	ZONE	TAX/ZONE	ELEC. DIST.	CENSUS TR.
25493	13	R-20	31	SECOND	6023.02

PREVIOUS HOWARD COUNTY FILES:  
 ECP-19-059, F-20-056

**GRADING AND EROSION/SEDIMENT CONTROL PLAN**

SINGLE FAMILY HOUSE  
**DANIEL PROPERTY**  
 LOT 2  
 8340 GROVE ANGLE ROAD  
 ZONED: R-20  
 TAX MAP NO.: 31 GRID NO.: 13 PARCEL NO.: 48  
 SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: SEPTEMBER, 2021  
 SHEET 4 OF 5

