

ENVIRONMENTAL CONCEPT PLAN

UMSTEAD PROPERTY

PARCEL 1010

TAX MAP No. 38 GRID No. 03 PARCEL NO. 1010

FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

GENERAL NOTES

- BOUNDARY SHOWN HEREON IS BASED ON FIELD SURVEY MONUMENTED BOUNDARY SURVEY PERFORMED BY FISHER, COLLINS & CARTER, INC. DATED MAY, 2018. TOPOGRAPHY SHOWN HEREON IS BASED ON A TOPOGRAPHIC SURVEY PERFORMED BY FISHER, COLLINS & CARTER, INC. IN MAY, 2018 AND SUPPLEMENTED WITH HOWARD COUNTY GIS TOPOGRAPHY AT 5' CONTOUR INTERVAL INTERPOLATED FOR 2' CONTOUR INTERVAL.
- 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. 38BA AND 38AA WERE USED FOR THIS PROJECT.
598. 38BA N 562,553.314 E 1,390,967.956 Elev. = 166.174
598. 38AA N 561,158.815 E 1,389,726.426 Elev. = 220.036
- PREVIOUS DTPZ FILE NUMBERS: N/A
- STORM WATER MANAGEMENT IS IN ACCORDANCE WITH THE M.D.E. STORM WATER DESIGN MANUAL, VOLUMES I & II, REVISED 2009. NON-STRUCTURAL PRACTICES IN ACCORDANCE WITH CHAPTER 5 ARE BEING UTILIZED.
- THIS PROPERTY IS LOCATED INSIDE THE METROPOLITAN DISTRICT. LOTS TO BE SERVED PUBLIC WATER AND PUBLIC SEWER, CONTRACT #2-W & 10-1216.
- ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.
- THE SUBJECT PROPERTY IS ZONED R-ED (PER DATE 10/06/2013 COMPREHENSIVE ZONING PLAN).
- NO 100 YEAR FLOODPLAIN, WETLANDS, STREAM(S) AND/OR THEIR BUFFERS, NOR STEEP SLOPES EXIST ON-SITE.
- NO FOREST STANDS EXIST ON-SITE. SEE ENVIRONMENTAL FINDINGS LETTER PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED MARCH 15, 2017.
- LANDSCAPING WILL BE PROVIDED AT THE FINAL PLAN STAGE OF THIS PROJECT.
- THIS PROPERTY IS DISTURBING LESS THAN 20,000 SQUARE FEET AND AN ORIGINAL DOI WILL NEED TO BE SUBMITTED.
- A SOIL BORING WILL BE REQUIRED FOR THIS PROJECT SINCE DRYWELLS AND A MICRO-BIORETENTION POND IS BEING UTILIZED.
- APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT SUBDIVISION, FOREST CONSERVATION, OR SITE DEVELOPMENT PLANS. THE APPLICANT AND CONSULTANT SHOULD EXPECT ADDITIONAL AND MORE DETAILED COMMENTS THAT MAY ALTER THE SITE DESIGN, HOUSE LOCATION, DRIVEWAY LOCATION, GRADING, TREE CLEARING, AND/OR OTHER REQUIREMENTS AS THE DEVELOPMENT PLAN PROGRESSES THROUGH THE PLAN REVIEW PROCESS IN ACCORDANCE WITH THE SUBDIVISION AND ZONING REGULATIONS AND THE FOREST CONSERVATION REQUIREMENTS.
- APPROVAL OF THIS ECP BY THE HOWARD SOIL CONSERVATION DISTRICT DOES NOT PROVIDE APPROVAL OF THE SHOWN SEDIMENT CONTROLS.
- NO STRUCTURES EXIST ON THE PROPERTY.
- SOILS SHOWN HEREON ARE BASED ON THE NRCS WEBSOIL SURVEY AND HOWARD COUNTY SOIL MAP #20.
- NO HISTORICAL FEATURES OR CEMETERIES ARE ON SITE.

SHEET INDEX	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	ENVIRONMENTAL CONCEPT PLAN

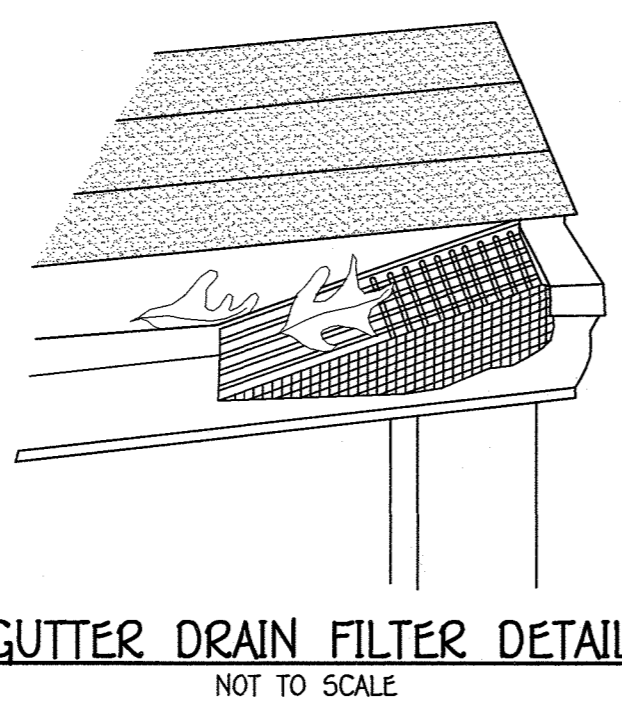
ADDRESS CHART	
PARCEL No.	DESCRIPTION
40 (First)	5807 BONNIE VIEW LANE (EXISTING HOUSE)
40 (Second)	5879 BONNIE VIEW LANE (PROPOSED HOUSE)

STORMWATER MANAGEMENT PRACTICES						
PARCEL	PERMEABLE CONCRETE (A-2) Y/N, NUMBER	DISCONNECTION OF ROOFTOP RUNOFF (N-1) Y/N, NUMBER	DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2) Y/N, NUMBER	INFILTRATION BERMS (M-4) Y/N, NUMBER	DRY WELLS (M-5) Y/N, NUMBER	MICRO-BIORETENTION (M-6) Y/N, NUMBER
40	NO	NO	NO	NO	YES, TWO (2)	YES, ONE (1)

STORMWATER MANAGEMENT SUMMARY			
AREA ID.	ESDV REQUIRED CU.FT.	ESDV PROVIDED CU.FT.	REMARKS
SITE	261	366	DRYWELLS (M-5) & MICRO-BIORETENTION (M-6)
TOTAL	261	366	

GROSS AREA = 0.98 AC. (TOTAL)
 LOD = 0.45 ACRES
 RCN = 5.6
 TARGET Pc = 1.0'

$R_v = 0.05 + (0.009)(1); I = 12 = 0.16$
 $S = 0.25(96\% \text{ 'B' Soil}, 04\% \text{ 'C' Soils})$
 $Rev = (S)(R_v)(A)/12 = (0.25)(0.16)(0.98)/12 = 0.0033 \text{ ac-ft or } 142 \text{ cu-ft}$

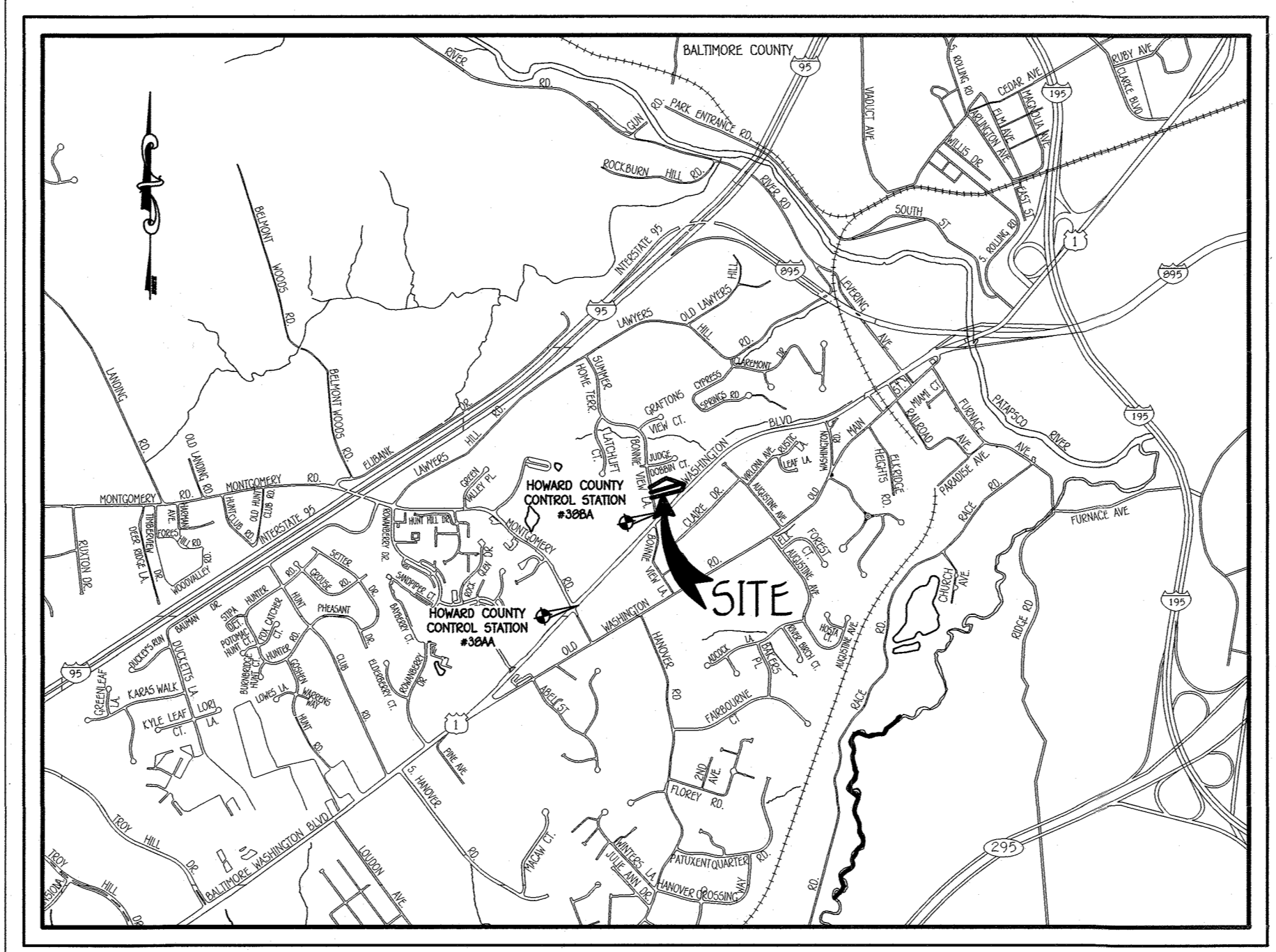


STORMWATER MANAGEMENT NOTES

- STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH WITH CHAPTER 5, "ENVIRONMENTAL SITE DESIGN" OF THE 2007 MARYLAND STORMWATER DESIGN MANUAL, EFFECTIVE MAY 4, 2010.
- MAXIMUM CONTRIBUTING ROOF TOP AREA TO EACH DOWNSPOUT SHALL BE 1,000 SQ. FT. OR LESS.
- DRYWELLS SHALL BE PROVIDED AT LOCATIONS WHERE THE LENGTH OF DISCONNECTION IS LESS THAN 75' AT 5%. THE SIZE AND CONSTRUCTION OF THE DRYWELL SHALL BE IN ACCORDANCE WITH THE DETAIL SHOWN ON THIS SHEET.
- FINAL GRADING IS SHOWN ON THIS SITE DEVELOPMENT PLAN.

DRY WELL CHART					
DRYWELL NO.	AREA OF ROOF PER DOWN SPOUT	VOLUME REQUIRED	VOLUME PROVIDED	AREA OF TREATMENT	L W D
D/W A	1,000 SQ. FT.	80 C.F.	96 C.F.	100%*	10' x 6' x 4'
D/W B	1,000 SQ. FT.	80 C.F.	96 C.F.	100%*	10' x 6' x 4'

* AREA OF TREATMENT EXCEEDS THAT REQUIRED.

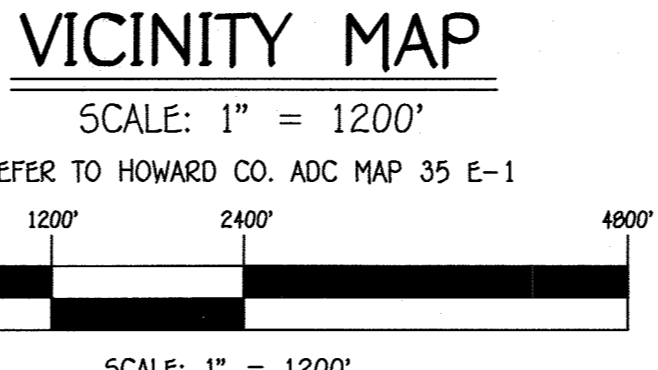
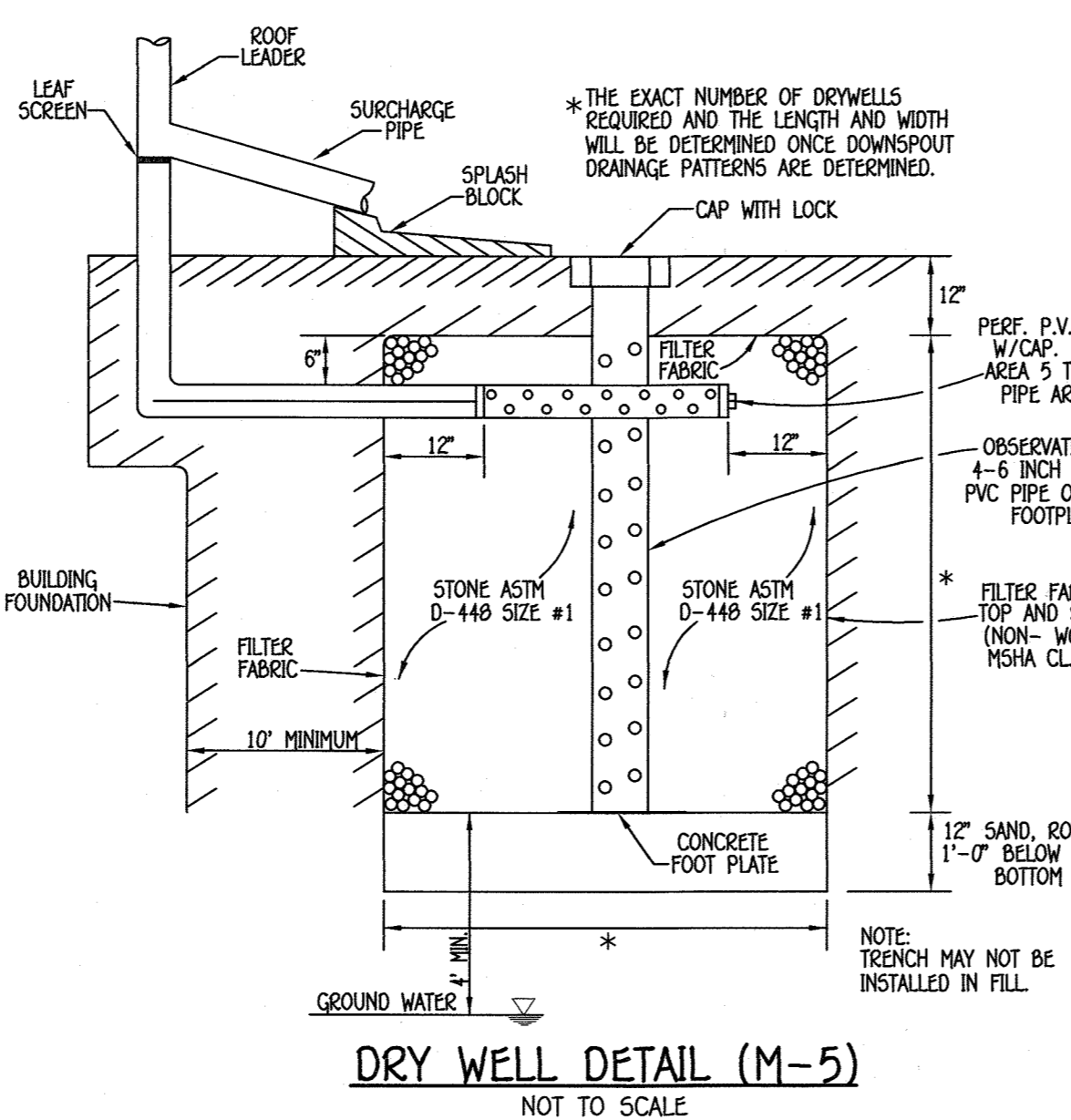


OPERATION & MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6)

- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUME II, TABLE A.4.1 AND 2.
- THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL, WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS AND REPLACE ALL DEFICIENT STAKES AND WIRES.
- THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE 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.

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

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4 loamy sand 60-65% compost 35-40% or sandy loam 30% coarse sand 30% compost 40%	n/a	plantings are site-specific USDA soil types loamy sand or sandy loam; clay content <5% 12" to 4" deep
Organic Content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum
Pea gravel diaphragm	pea gravel: ASTM-D-448	No. 8 or No. 9 (1/8" to 3/8")	
Curbs/drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	ASHTO M-43	No. 57 or No. Aggregate (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or ASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe 3/8" perft. @ 8" 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 at 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 98% 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 308.2R/09; vertical loading 11-10 or H-20; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	ASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Gneiss (ASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.



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 on this project. The goal of creating hydrology similar to that of "woods in Good Condition" will be accomplished through the use of the practices contained within Chapter 5 of said manual. The achievement of this goal will remove the requirement of providing Channel Protection Volume.
- General Site Conditions:**
 Umstead property is zoned R-ED and being developed as R-20 and is located on Tax Map 38, Parcel No. 1010 of the Howard County, Maryland Tax Map Database System. The property has never been subdivided and remains two (2) parcels of land described in Liber 13787, Folio 226, dated January 30, 2012. One parcel contains an existing house and detached garage, while the other parcel is an open lot with forest on a portion of it. The subject property is less than 40,000 square feet and therefore is not subject to the requirements of the Forest Conservation Act. The proposed house will be served by public water and sewer, currently the existing house is served by public water and public sewer. The runoff from the lot is mostly from west to the east. Drywells will be utilized to treat the proposed rooftop and driveway. Per the 2004 Web Soil Survey, soils on-site consist of "RUC" Russett and Belleville soil, type C soil, and "S7U" Sassafras and Croom soil, type B soil.
- Natural Resource Protection:**
 Environmentally sensitive features such as wetlands, streams, steep slopes and floodplain do not exist on-site. The site contains Six (6) existing specimen trees, a forest, wetland buffer and stream-buffer on the site.
 - Maintenance of Natural Flow Patterns:**
 Nature flow patterns will be maintained. Existing and proposed runoff flows mostly toward the northeast portion of the site.
 - Reduction of impervious areas through better site design, alternative surfaces and Nonstructural Practices**
 This is an existing lot for a single dwelling with no way to share a driveway, however the house is located near the front of the lot to reduce that amount of pavement required.
 - Integration of Erosion and Sediment Controls into Stormwater Strategy:**
 Super Silt Fence will be utilized to provide erosion and sediment control.
 - Implementation of ESD Planning Techniques and practices to the Maximum Extent Practicable (MEP)**
 The full required ESD volume is being provided by Drywells (M-5) and Micro-bioretenion (M-6).
 - Request for a Design Manual Waiver:**
 No waivers related to stormwater management are required.

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

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

SITE ANALYSIS DATA CHART

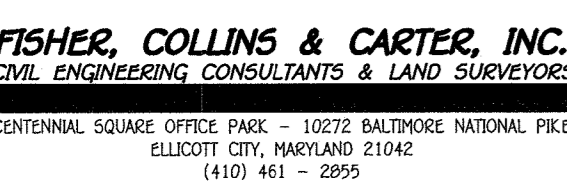
- TOTAL AREA OF THIS SUBMISSION = 0.985 AC.*
- LIMIT OF DISTURBED AREA = 19,800 SQ.FT. OR 0.454 AC.*
- PRESENT ZONING DESIGNATION R-ED (USING R-20) (PER 10/06/2013 COMPREHENSIVE ZONING PLAN)
- PROPOSED USE: RESIDENTIAL
- PREVIOUS HOWARD COUNTY FILES: N/A
- TOTAL AREA OF FLOODPLAIN LOCATED ON-SITE = 0.00 AC.*
- TOTAL AREA OF MODERATE STEEP SLOPES: 15%-24.9% = 0.12 AC.*
- TOTAL AREA OF STEEP SLOPES: 25% OR GREATER = 0.00 AC.*
- TOTAL AREA OF WETLANDS (INCLUDING BUFFER) = 0.08 AC.*
- TOTAL AREA OF STREAM (INCLUDING BUFFER) = 0.02 AC.*
- TOTAL AREA OF EXISTING FOREST = 0.833 AC.*
- TOTAL AREA OF FOREST TO BE RETAINED = 0.457 AC.*
- TOTAL AREA OF LOTS / BUILDABLE PARCELS = 0.985 AC.*
- TOTAL GREEN OPEN AREA = 0.06 AC.*
- N. TOTAL IMPERVIOUS AREA = 0.12 AC.*
- O. TOTAL AREA OF ERODIBLE SOILS = 0.02 AC.*
- P. TOTAL AREA OF ROAD DEDICATION = 0.00 AC.*

OWNER/DEVELOPER

DWIGHT AND ISABELLE UMSTEAD
 5807 BONNIE VIEW LANE
 ELKRIED, MARYLAND 21075

TITLE SHEET
UMSTEAD PROPERTY
 5879 BONNIE VIEW LANE
 ZONED: R-ED (USING R-20)

TAX MAP NO.: 38 GRID NO.: 03 PARCEL NO.: 1010
 FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN DATE: DECEMBER 12, 2019
 SHEET 1 OF 2



Approved: Department of Planning And Zoning

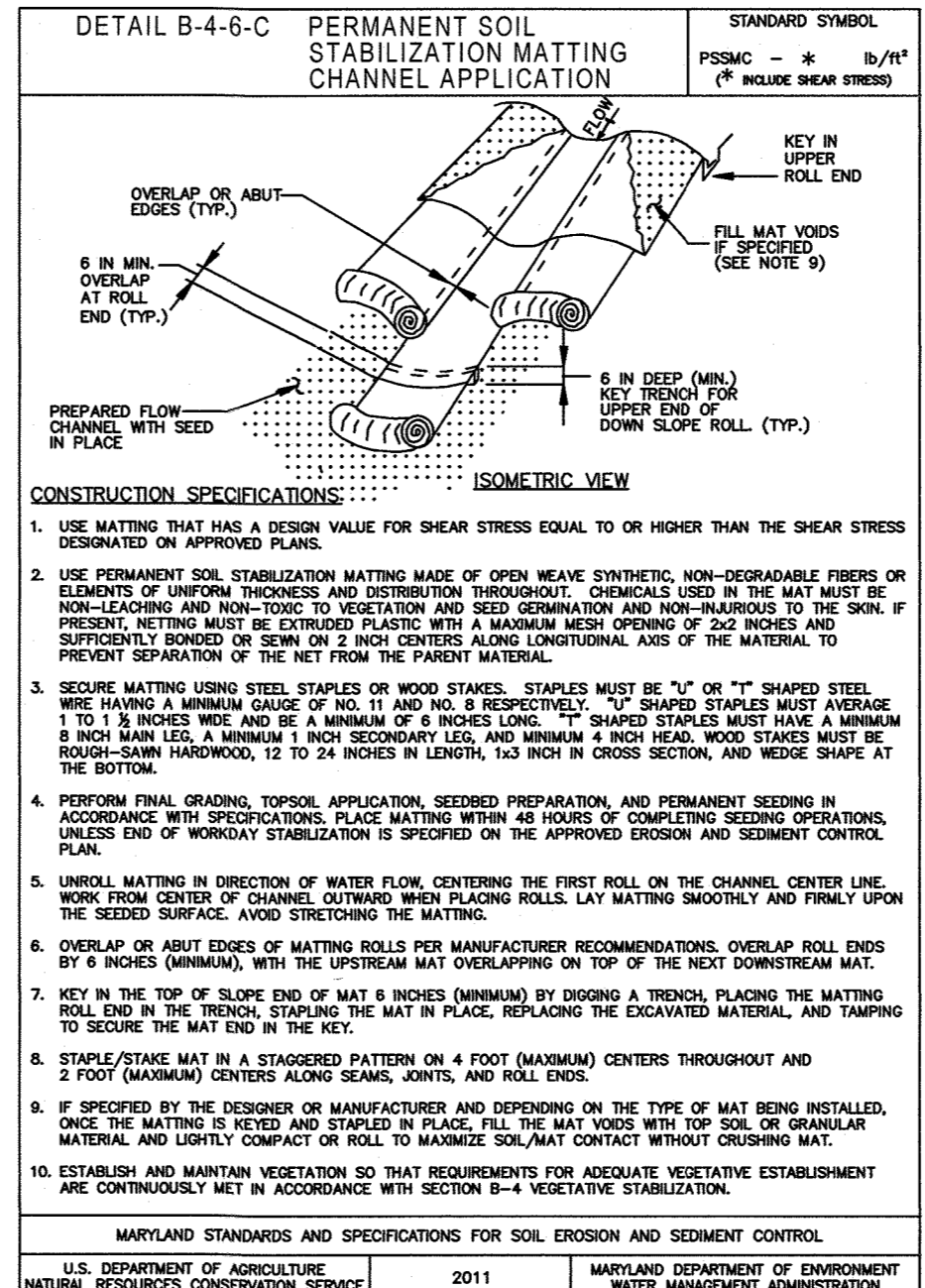
David P. ...
 Chief, Development Engineering Division

Z. C. Zo
 Date: 2/5/20

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. 21351. EXPIRATION DATE: 07/15/2021.

John ...
 Signature Of Professional Land Surveyor
 Date: 1/30/2020



CONSTRUCTION SPECIFICATIONS:
 1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
 2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SOIL ORGANISMS AND NON-HARMFUL TO THE SOIL. IF PRESENT, NETTING MUST BE EXTENDED ALONG THE SEAMING AND NON-SEAMING TO THE SOIL. IF PRESENT, NETTING MUST BE EXTENDED ALONG THE SEAMING AND NON-SEAMING TO THE SOIL. IF PRESENT, NETTING MUST BE EXTENDED ALONG THE SEAMING AND NON-SEAMING TO THE SOIL.
 3. SECURE MATTING USING STEEL STAPLES OR WOOD STAPLES. STAPLES MUST BE "U" OR "T" SHAPED STEEL, HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAPLES MUST BE SUGG-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1/2 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
 4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDING PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
 5. UNROLL MATTING IN DIRECTION OF WATER FLOW CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE, WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEDED SURFACE, AVOID STRETCHING THE MATTING.
 6. OVERLAP OR ABUT EDGES OF MATTING ROLLS FOR MANUFACTURER'S RECOMMENDATIONS. OVERLAP ROLL ENDS BY 1/2 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
 7. KEY IN THE TOP OF SLOPE END OF MAT 4 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
 8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MINIMUM) CENTERS THROUGHOUT AND 2 FOOT (MINIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
 9. IF SPECIFIED BY THE EROSION OR MAINTENANCE AND DEPENDENT ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEPT AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR COMPACT OR ROLL TO MAXIMIZE CONTACT OF MAT WITH SUBSTRATE WITHOUT OVERLAP MAT.
 10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
 U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, 2011 MARYLAND DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

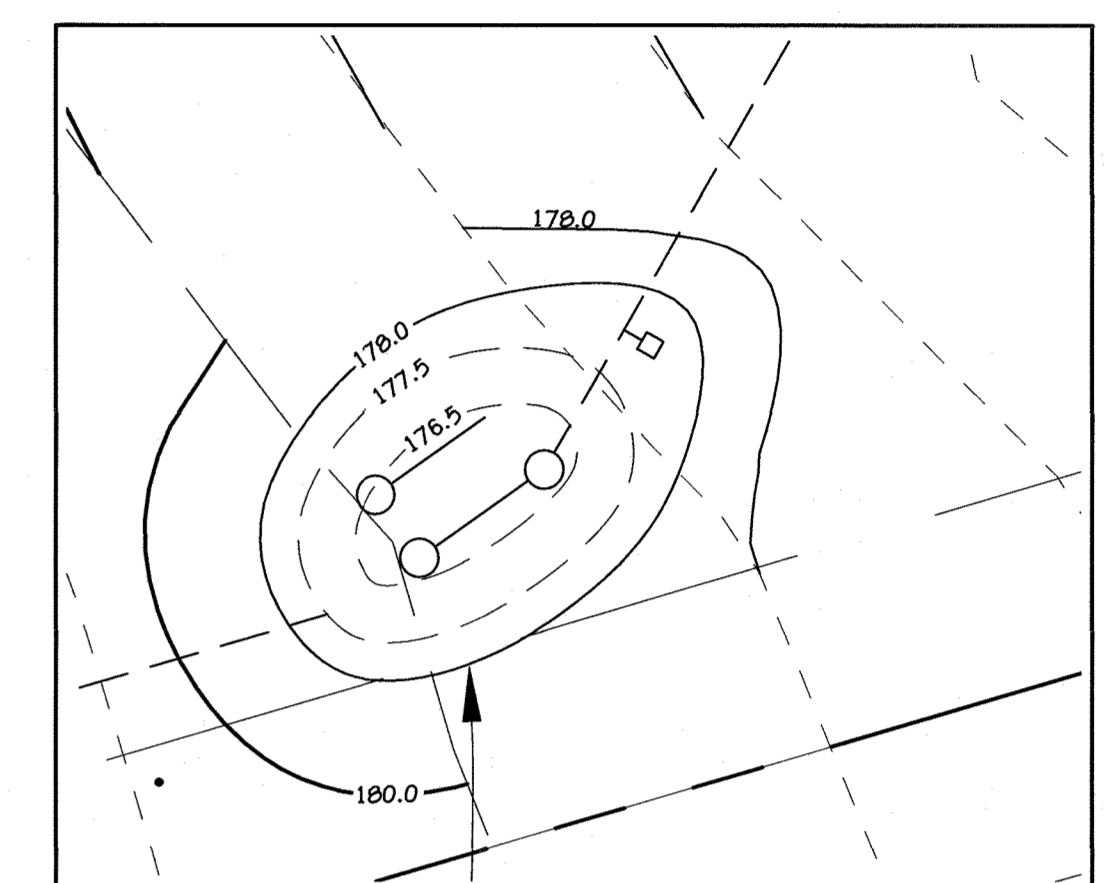
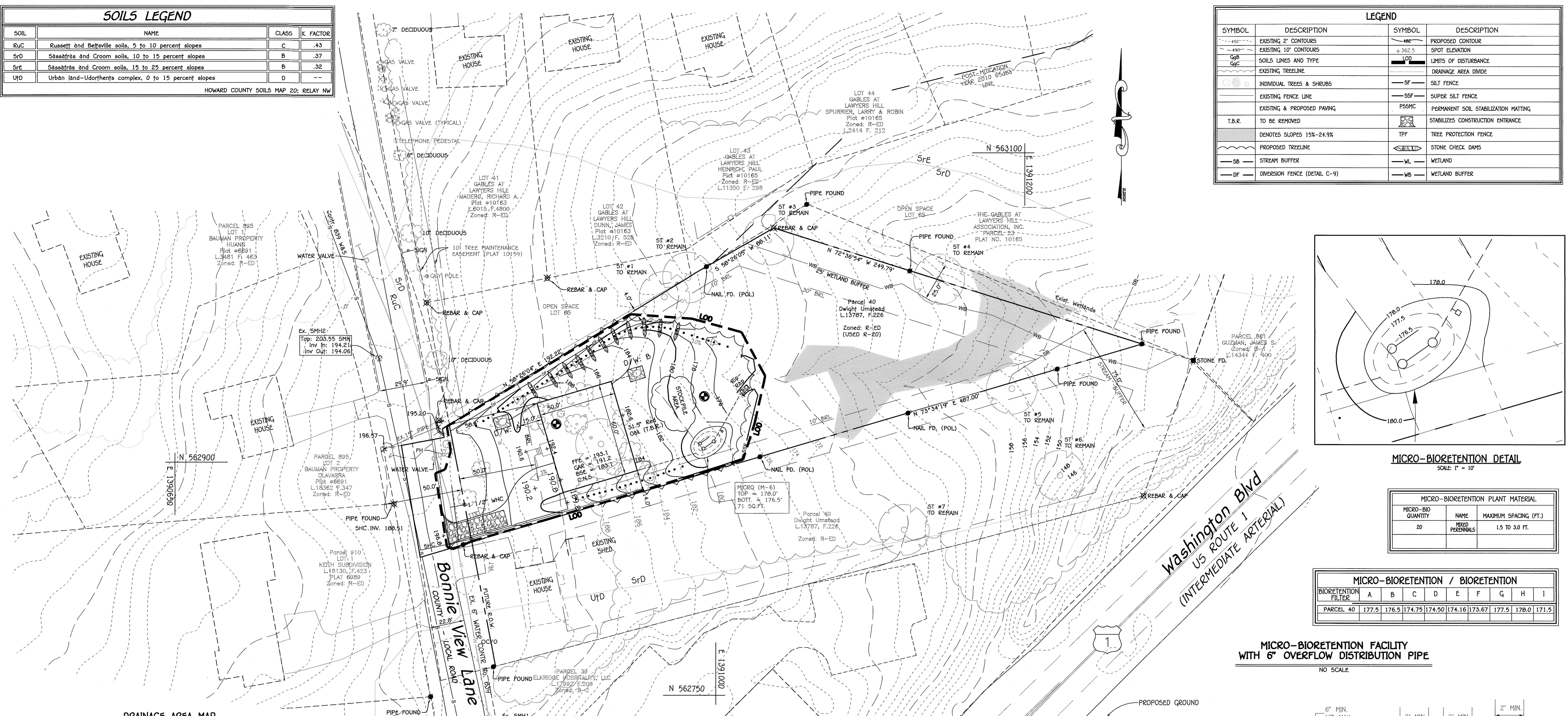
SHEAR STRESS FOR PSSMC = (weight density) * (water depth) * (slope) = shear stress
 SHEAR STRESS FOR PSSMC (PAR.1010 North) = 62.4 LBS/FT³ * 0.191 FT * 0.100 = 1.19 LBS/FT²
 SHEAR STRESS FOR PSSMC (PAR.1010 South) = 62.4 LBS/FT³ * 0.073 FT * 0.100 = 0.46 LBS/FT²

SOILS LEGEND

SOIL	NAME	CLASS	K FACTOR
RuC	Russett and Beltville soils, 5 to 10 percent slopes	C	.43
SrD	Sassafras and Croom soils, 10 to 15 percent slopes	B	.37
SrE	Sassafras and Croom soils, 15 to 25 percent slopes	B	.32
UfD	Urban land-Udorhente complex, 0 to 15 percent slopes	D	--

HOWARD COUNTY SOILS MAP 20; RELAY NW

LEGEND		LEGEND	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	EXISTING 2' CONTOURS		PROPOSED CONTOUR
	EXISTING 10' CONTOURS		SPOT ELEVATION
	SOILS LINES AND TYPE		LIMITS OF DISTURBANCE
	EXISTING TREELINE		DRAINAGE AREA DIVIDE
	INDIVIDUAL TREES & SHRUBS		SILT FENCE
	EXISTING FENCE LINE		SUPER SILT FENCE
	EXISTING & PROPOSED PAVING		PERMANENT SOIL STABILIZATION MATTING
	TO BE REMOVED		STABILIZES CONSTRUCTION ENTRANCE
	DENOTES SLOPES 15%-24.9%		TREE PROTECTION FENCE
	PROPOSED TREELINE		STONE CHECK DAMS
	STREAM BUFFER		WETLAND
	DIVERSION FENCE (DETAIL C-9)		WETLAND BUFFER

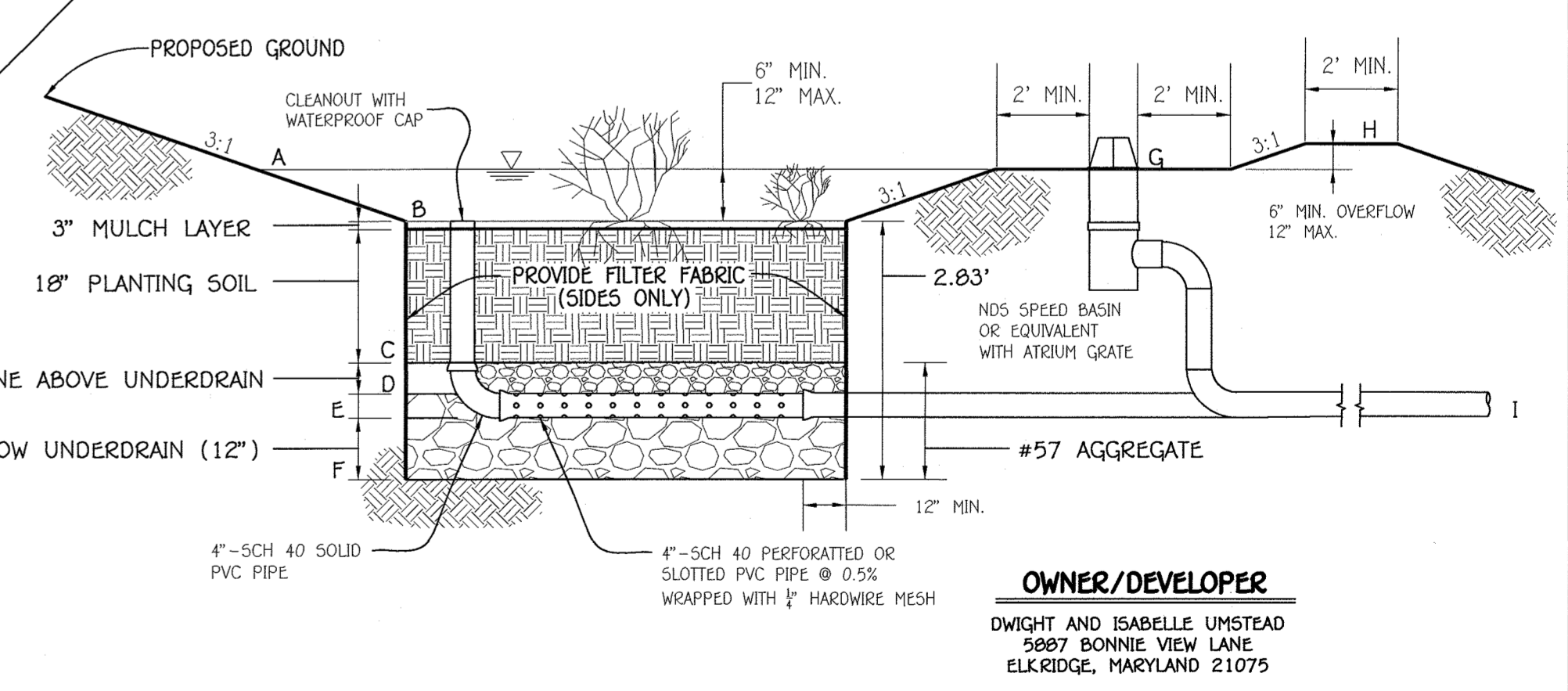


MICRO-BIORETENTION DETAIL
SCALE: 1" = 10'

MICRO-BIORETENTION PLANT MATERIAL		
MICRO-BIO QUANTITY	NAME	MAXIMUM SPACING (FT.)
20	MIXED PERENNIALS	1.5 TO 3.0 FT.

MICRO-BIORETENTION / BIORETENTION									
BIORETENTION FILTER	A	B	C	D	E	F	G	H	I
PARCEL 40	177.5	176.5	174.75	174.50	174.16	173.67	177.5	178.0	171.5

MICRO-BIORETENTION FACILITY WITH 6" OVERFLOW DISTRIBUTION PIPE
NO SCALE

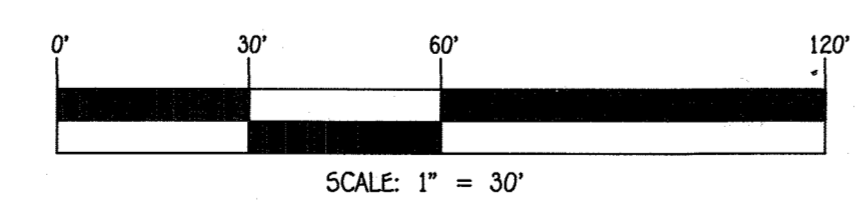
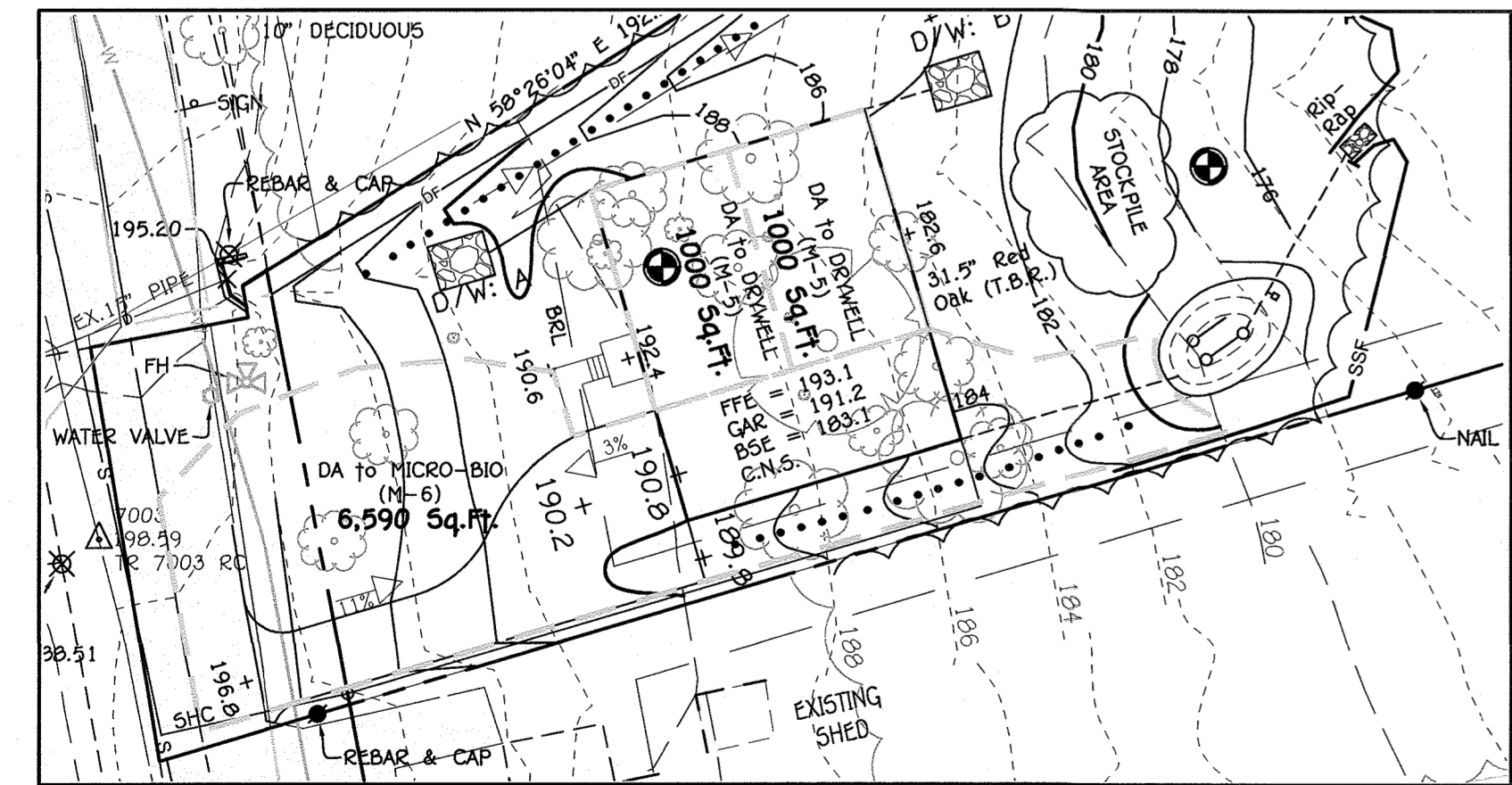


OWNER/DEVELOPER
Dwight and Isabelle Umstead
5879 Bonnie View Lane
Elkridge, Maryland 21075

ENVIRONMENTAL CONCEPT PLAN
UMSTEAD PROPERTY
5879 BONNIE VIEW LANE
ZONED: R-ED (USING R-20)

TAX MAP NO.: 38 GRID NO.: 03 PARCEL NO.: 1010
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: A5 SHOWN DATE: DECEMBER 12, 2019
SHEET 2 OF 2

DRAINAGE AREA MAP
SCALE: 1" = 30'



SCALE: 1" = 30'

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. 21351, EXPIRATION DATE: 07/15/2021.

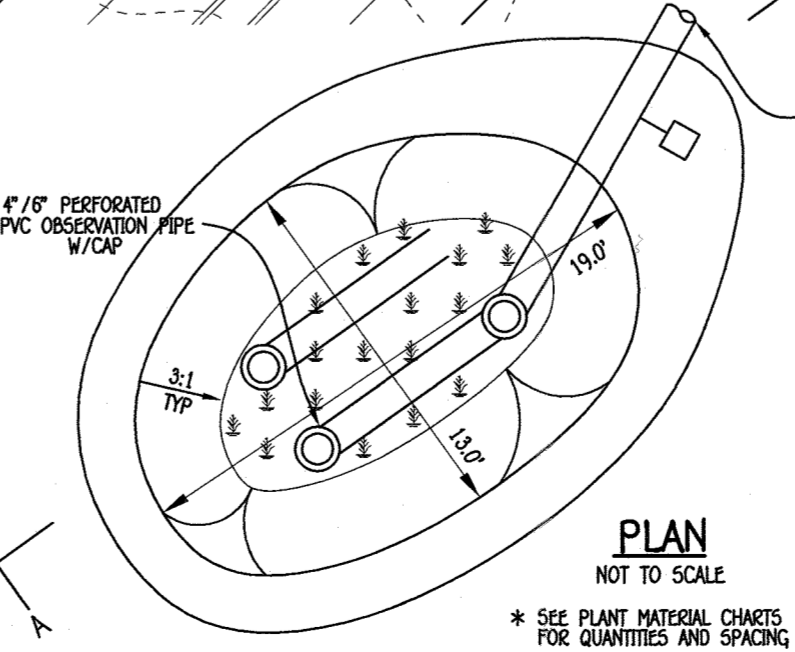
Signature of Professional Land Surveyor: *[Signature]* DATE: 1/20/2020



Approved: Department of Planning And Zoning

Signature of Chief, Development Engineering Division: *[Signature]*
DATE: 2/6/20
Signature of Chief, Division of Land Development: *[Signature]*
DATE: 2/5/20

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELICOTT CITY, MARYLAND 21042
(410) 441-2200



PLAN
NOT TO SCALE
* SEE PLANT MATERIAL CHARTS FOR QUANTITIES AND SPACING

MICRO-BIORETENTION PLANTING DETAIL
NOT TO SCALE