

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

STORMWATER MANAGEMENT PRACTICES						
LOT	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
5	NO	NO	NO	NO	YES, Four (4)	YES, One (1)

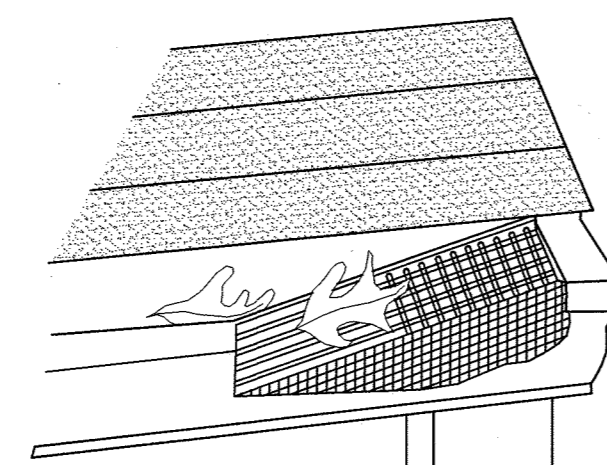
STORMWATER MANAGEMENT SUMMARY			
AREA ID.	ESD REQUIRED CU.FT.	ESD PROVIDED CU.FT.	REMARKS
SITE	796	903	DRYWELLS (M-5) & MICRO-BIORETENTION (M-6)
TOTAL	796	903	

GROSS AREA = 0.79 AC. (TOTAL)
 LOD = 0.69 ACRES
 RCN = 95.0
 TARGET Pe = 1.2"

$$R_v = 0.05 + (0.009)(I); I = 17 = 0.21$$

$$S = 0.26 (100\% \text{ 'B' Soils})$$

$$Rev = (S)(R_v)(A)/12 = (0.26)(0.21)(0.79)/12 = 0.0036 \text{ ac-ft or } 157 \text{ cu-ft}$$



GUTTER DRAIN FILTER DETAIL
NOT TO SCALE

STORMWATER MANAGEMENT NOTES

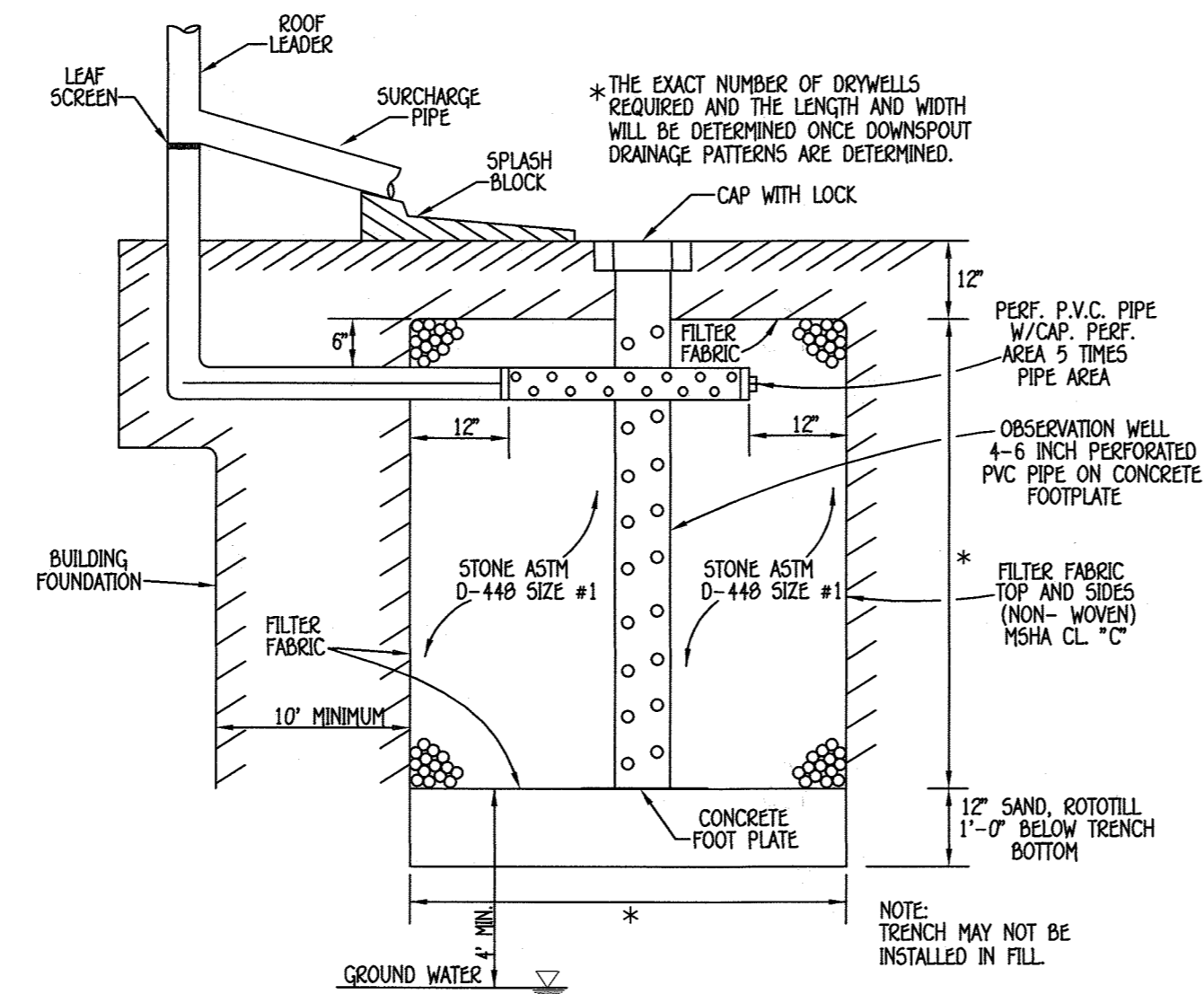
- STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH CHAPTER 5, "ENVIRONMENTAL SITE DESIGN" OF THE 2007 MARYLAND STORMWATER MANAGEMENT DESIGN MANUAL, EFFECTIVE MAY 4, 2010.
- MAXIMUM CONTRIBUTING ROOF TOP AREA TO EACH DOWNSPOUT SHALL BE 1,000 SQ. FT. OR LESS.
- DRYWELLS SHALL BE PROVIDED AT LOCATIONS 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.

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 DOWN 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.

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% compost 40%		USGA 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-448	No. 8 or No. 9 (1/8" to 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile	AASHTO M-43	n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	Aggregate	No. 57 or No. Aggregate (3/8" to 3/4")	
Underdrain piping	F 750, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" pert. @ 6" on center; 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath 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 of 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 tests; all concrete design (cast-in-place or pre-cast) not using previously approved site or local methods requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 308.6(9); vertical loading 1H-10 or H-20; allowable horizontal loading (based on soil pressures), and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (AASHTO #10) are not acceptable. No calcium chlorinated or dolomitic sand substitutions are acceptable. No rock dust can be used for sand.

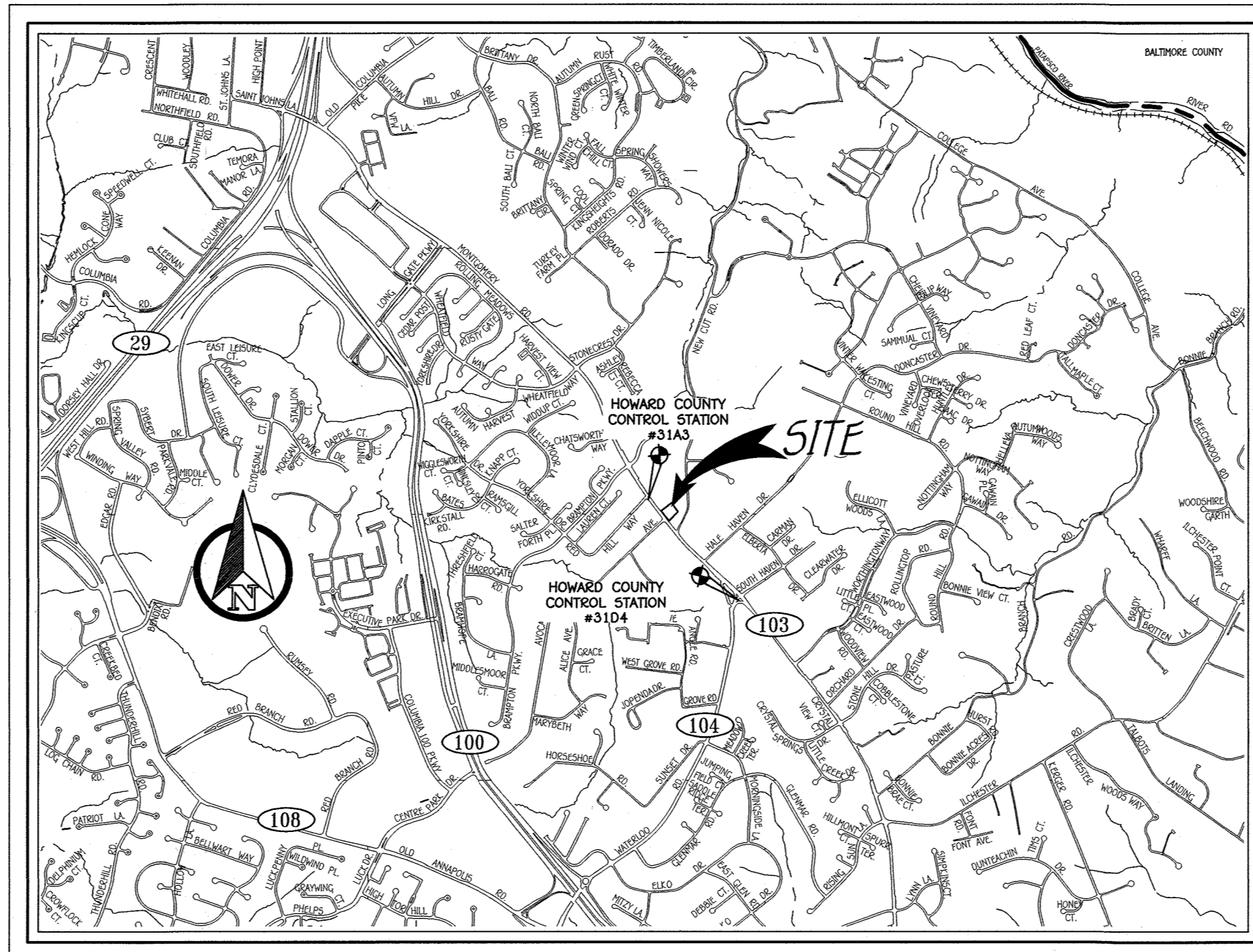


DRY WELL DETAIL (M-5)
NOT TO SCALE

ENVIRONMENTAL CONCEPT PLAN BAUGHER PROPERTY

LOT 5

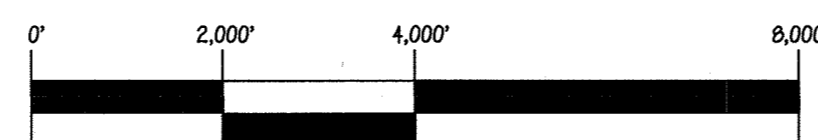
TAX MAP No.31 GRID No. 07 PARCEL NO. 415
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND



VICINITY MAP

SCALE: 1" = 2,000'

REFER TO HOWARD CO. ADC MAP 28-A5



SCALE: 1" = 2,000'

DRY WELL CHART					
DRYWELL NO.	AREA OF ROOF PER DOWN GROUT	VOLUME REQUIRED	VOLUME PROVIDED	AREA OF TREATMENT	L W D
5-A	900 SQ. FT.	86 C.F.	128 C.F.	100%*	10' x 8' x 4'
5-B	900 SQ. FT.	86 C.F.	128 C.F.	100%*	10' x 8' x 4'
5-C	900 SQ. FT.	86 C.F.	128 C.F.	100%*	10' x 8' x 4'
5-D	900 SQ. FT.	86 C.F.	128 C.F.	100%*	10' x 8' x 4'

SITE ANALYSIS DATA CHART

- TOTAL AREA OF THIS SUBMISSION = 0.794 AC.±
- LIMIT OF DISTURBED AREA = 29,900 SQ.FT. OR 0.69 AC.±
- PRESENT ZONING DESIGNATION = 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% = 0.00 AC.±
- TOTAL AREA OF STEEP SLOPES: 25% OR GREATER = 0.00 AC.±
- TOTAL AREA OF WETLANDS (INCLUDING BUFFER) = 0.00 AC.±
- TOTAL AREA OF STREAM (INCLUDING BUFFER) = 0.00 AC.±
- TOTAL AREA OF EXISTING FOREST = 0.00 AC.±
- TOTAL AREA OF FOREST TO BE RETAINED = 0.00 AC.±
- TOTAL AREA OF LOTS / BUILDABLE PARCELS = 0.794 AC.±
- TOTAL GREEN OPEN AREA = 0.65 AC.±
- N. TOTAL IMPERVIOUS AREA = 0.14 AC.±
- O. TOTAL AREA OF ERODIBLE SOILS = 0.00 AC.±
- P. TOTAL AREA OF ROAD DEDICATION = 0.00 AC.±

BAUGHER PROPERTY
LOT 5

4773 MONTGOMERY ROAD
TAX MAP NO.: 31 GRID NO.: 7 PARCEL NO.: 415

Zoned R-20

FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN DATE: DEC. 10, 2019
SHEET 1 OF 2

OWNER/DEVELOPER

ANDY AHN & PARK JIWOON
4596 ROUNDHILL ROAD
ELLCOTT CITY, MARYLAND 21043
410-440-9706

Approved: Department of Planning And Zoning

Chief, Development Engineering Division
Chief, Division Of Land Development

1.15.20
Date

1/2/2019
Date

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.

Dec. 11, 2019
DATE

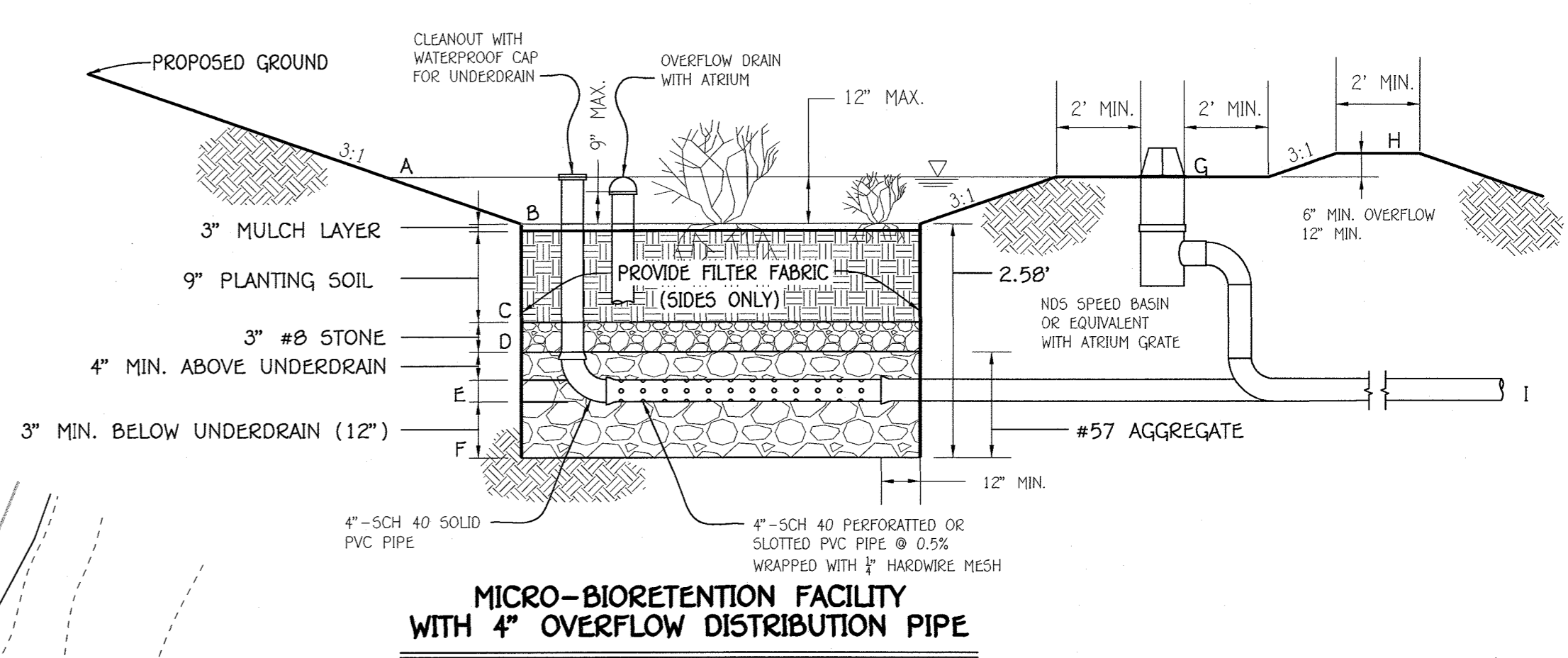
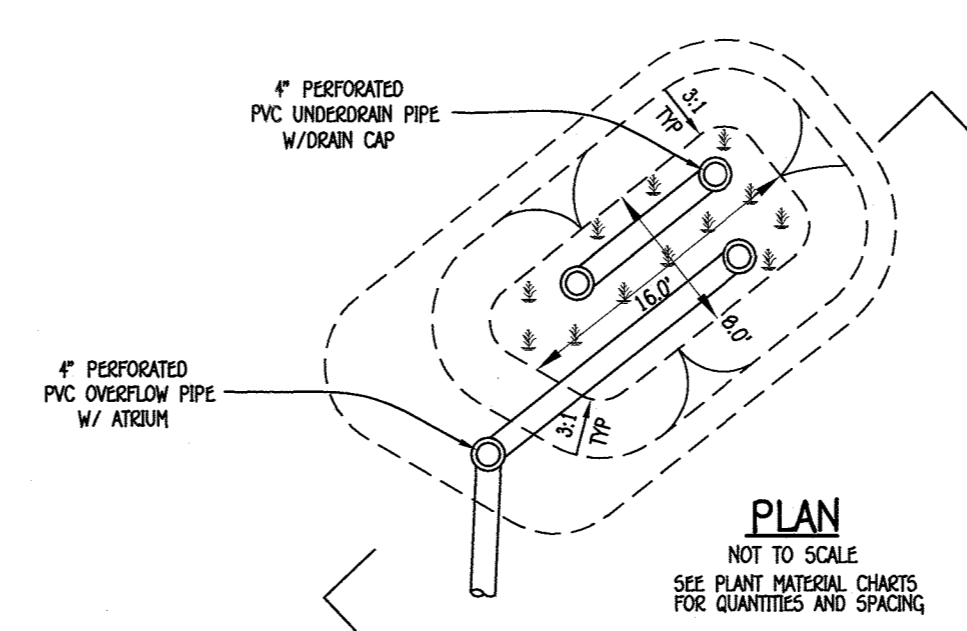


FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLCOTT CITY, MARYLAND 21042
(410) 481-2000

SOILS LEGEND			
SOIL	NAME	CLASS	K VALUE
LmB	Legore-Montalto silt loams, 3 to 8 percent slopes	B	0.64

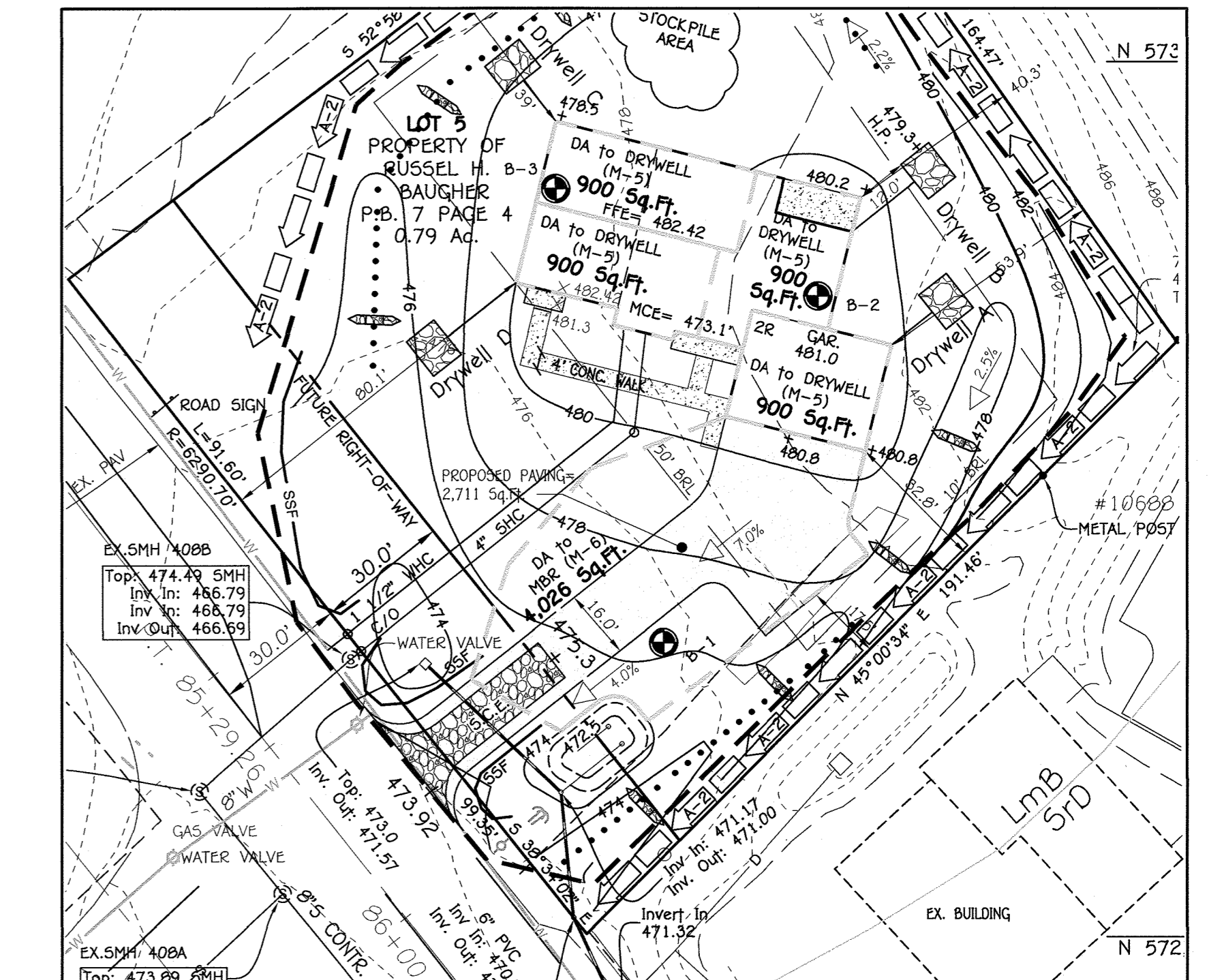
HOWARD COUNTY SOILS MAP No. 19; SAVAGE NE

LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
---	EXISTING 2' CONTOURS	---	PROPOSED CONTOUR
---	EXISTING 10' CONTOURS	---	SPOT ELEVATION
GgB	SOILS LINES AND TYPE	---	LIMITS OF DISTURBANCE
GgC	EXISTING TREELINE	---	DRAINAGE AREA DIVIDE
---	INDIVIDUAL TREES & SHRUBS	---	SILT FENCE
---	EXISTING FENCE LINE	---	SUPER SILT FENCE
---	EXISTING & PROPOSED PAVING	---	TEMPORARY SOIL STABILIZATION MATTING
T.B.R.	TO BE REMOVED	---	STABILIZES CONSTRUCTION ENTRANCE
●	PROPOSED BORINGS	---	PROPOSED EARTH DIKE
---		---	STONE CHECK DAMS



MICRO-BIORETENTION / BIORETENTION									
BIORETENTION FILTER	A	B	C	D	E	F	G	H	I
LOT 5	473.5	472.5	471.5	471.25	470.50	469.50	472.5	474.0	470.5

DRAINAGE AREA MAP
SCALE: 1" = 30'



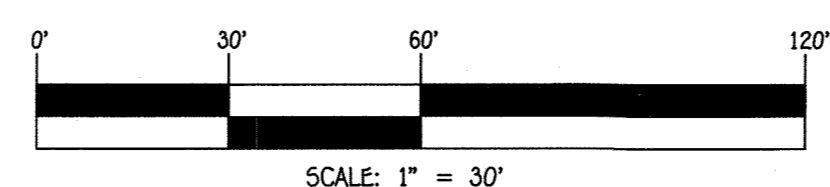
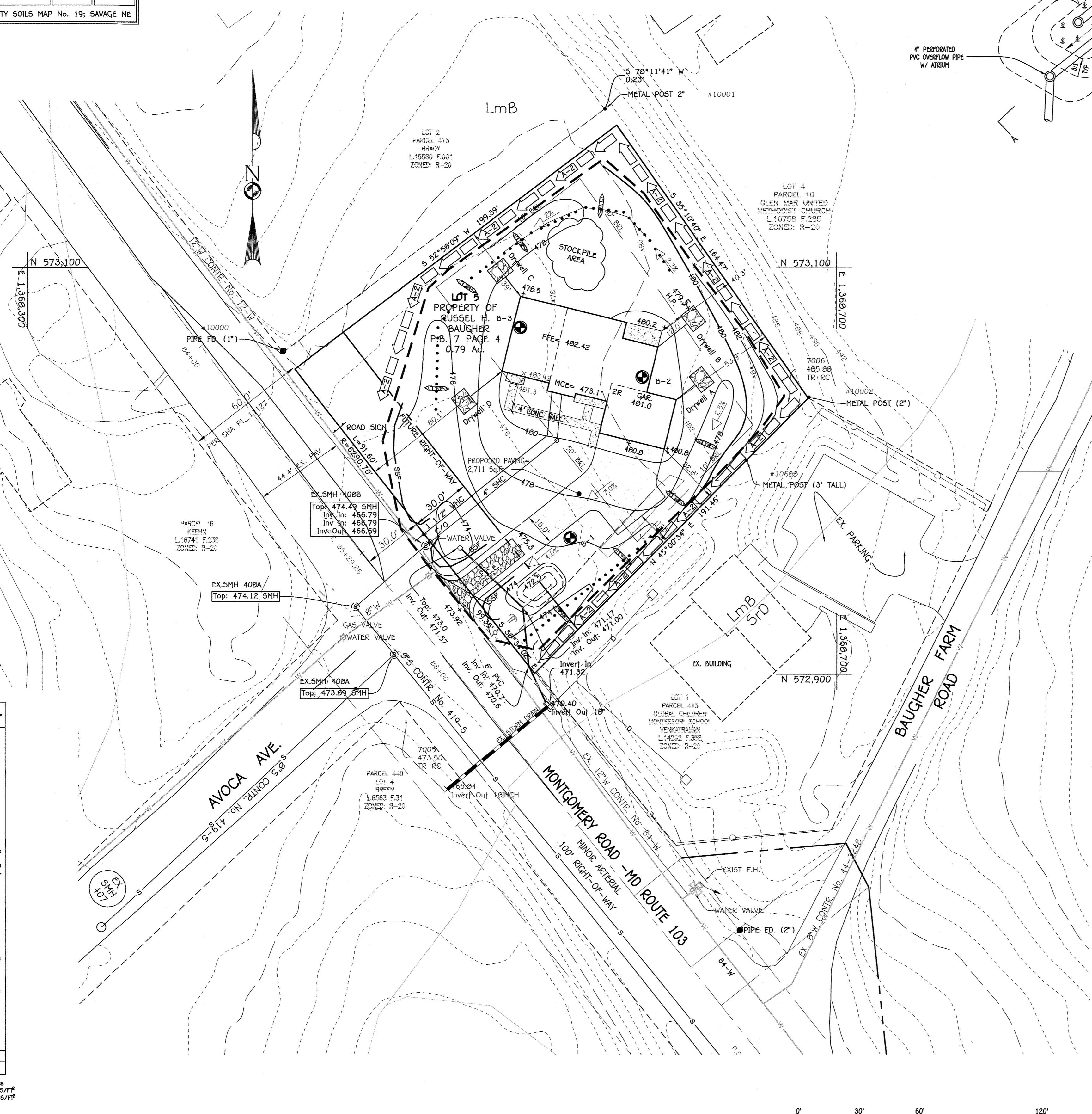
DETAIL B-4-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION

CONSTRUCTION SPECIFICATIONS:

- USE MATTING THAT HAS A TENSILE STRENGTH EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
- USE PERMANENT SOIL STABILIZATION MATTING MADE OF SYNTHETIC, NON-DEGRADABLE FIBERS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND NON-HARMFUL TO SOILS. IF PRESENT, MATTING MUST BE EXTENDED PAST THE MAXIMUM WIDTH OF THE CHANNEL AND PROPERLY BOUND ON ALL SIDES TO PREVENT LATERAL MOVEMENT OF THE MATTING. TO PREVENT SEPARATION OF THE MAT FROM THE CHANNEL WALLS, STAPLES MUST BE 1/4" OR 1/2" SHARPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. 1/2" SHARPED STEEL MUST AVERAGE 1 TO 1.5 POUNDS PER YARD AND BE A MINIMUM OF 6 INCHES LONG. 1/4" SHARPED STEEL MUST AVERAGE 2 POUNDS PER YARD AND BE A MINIMUM OF 8 INCHES LONG. 1/4" SHARPED STEEL MUST AVERAGE 2 POUNDS PER YARD AND BE A MINIMUM OF 8 INCHES LONG. 1/4" SHARPED STEEL MUST AVERAGE 2 POUNDS PER YARD AND BE A MINIMUM OF 8 INCHES LONG. 1/4" SHARPED STEEL MUST AVERAGE 2 POUNDS PER YARD AND BE A MINIMUM OF 8 INCHES LONG. 1/4" SHARPED STEEL MUST AVERAGE 2 POUNDS PER YARD AND BE A MINIMUM OF 8 INCHES LONG.
- SECURE MATTING USING STEEL STAPLES OR WOOD STAPLES. STAPLES MUST BE 1/4" OR 1/2" SHARPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. 1/2" SHARPED STEEL MUST AVERAGE 1 TO 1.5 POUNDS PER YARD AND BE A MINIMUM OF 6 INCHES LONG. 1/4" SHARPED STEEL MUST AVERAGE 2 POUNDS PER YARD AND BE A MINIMUM OF 8 INCHES LONG. 1/4" SHARPED STEEL MUST AVERAGE 2 POUNDS PER YARD AND BE A MINIMUM OF 8 INCHES LONG. 1/4" SHARPED STEEL MUST AVERAGE 2 POUNDS PER YARD AND BE A MINIMUM OF 8 INCHES LONG.
- PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDING PREPARATION AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS. PLACE ONE OF EVERY FOUR STAPLES OR WOOD STAPLES ON THE EXPOSED SURFACE AND SEVENTH ONE AT THE BOTTOM.
- 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 SEEDING SURFACE, AVOID STRETCHING THE MATTING.
- OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER'S RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM) WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
- KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING TO SECURE THE MAT END IN THE KEY.
- STAPLE/STAKE MAT IN A STAGGERED PATTERN ON A FOOT (MINIMUM) CENTERS THROUGHOUT AND 2 FOOT (MINIMUM) CENTERS ALONG BEARS, CORNERS AND ROLL ENDS.
- IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND APPROVED ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEPT AND STAPLED IN PLACE, TIE THE MAT WITH WIRE TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
- EXTERMINATE AND MAINTAIN VEGETATION TO MEET REQUIREMENTS FOR ADOPTIVE VEGETATION ESTABLISHMENT AND CONTINUOUSLY MAINTAIN IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT
NATIONAL ENGINEERING SPECIFICATIONS MDCS MANAGEMENT ADMINISTRATION

SHEAR STRESS FOR PSSMC = (weight density) x (water depth) x (Sediment) = shear stress
SHEAR STRESS FOR PSSMC (LOT 5, North) = 62.4 LBS/FT³ x 0.155 FT x 0.020 = 0.19 LBS/FT²
SHEAR STRESS FOR PSSMC (LOT 5, South) = 62.4 LBS/FT³ x 0.146 FT x 0.025 = 0.23 LBS/FT²



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(410) 481-2995

Approved: Department of Planning And Zoning
Chief, Division Of Land Development
Date: 1/15/20
Date: 12/23/17

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
Dec. 11, 2019
DATE



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BAUGHER PROPERTY
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TAX MAP NO.: 31 GRID NO.: 7 PARCEL NO.: 415
ZONED R-20
2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: A5 SHOWN DATE: DEC. 10, 2019
SHEET 2 OF 2