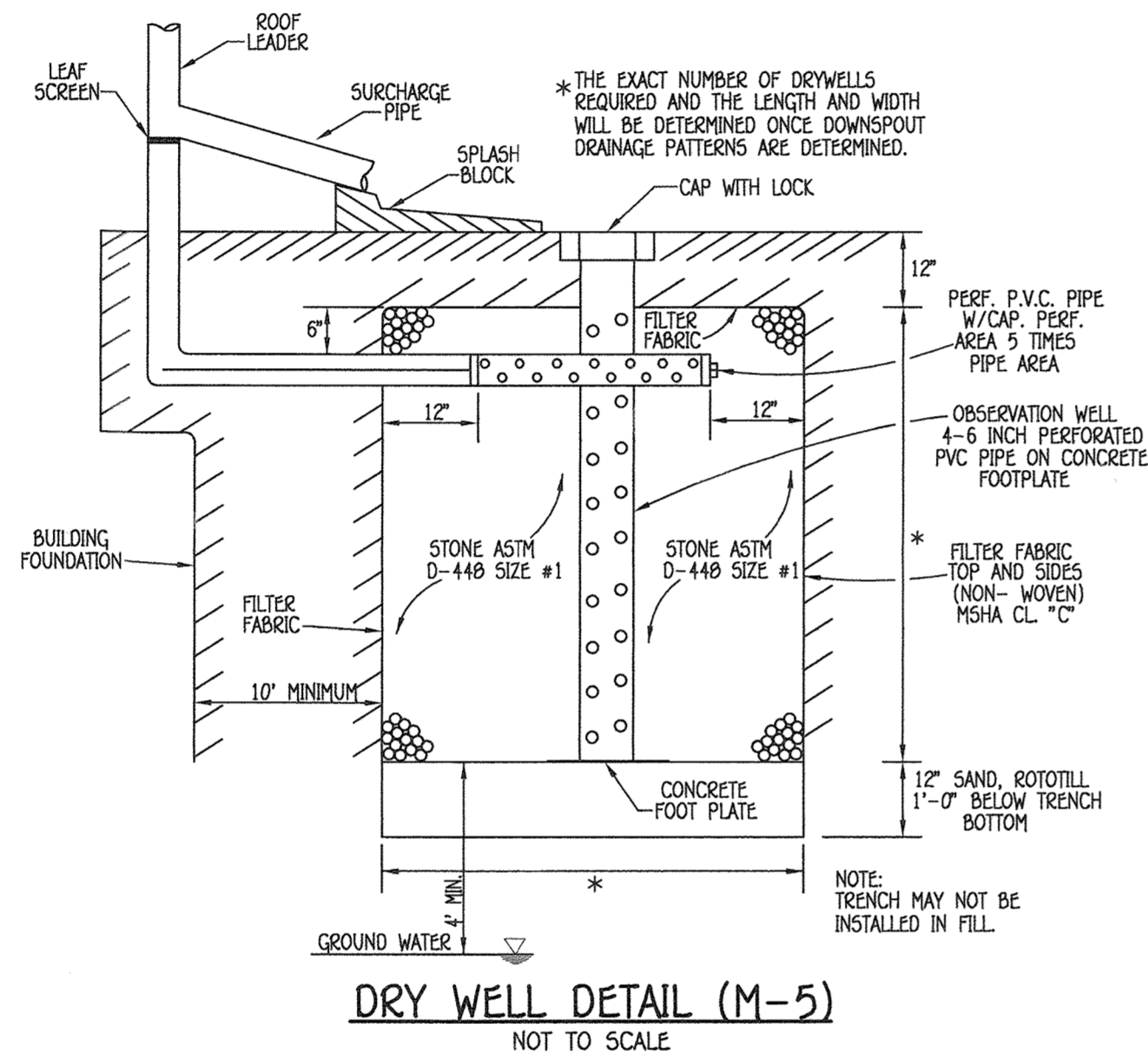


SHEET INDEX	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	ENVIRONMENTAL CONCEPT PLAN

STORMWATER MANAGEMENT PRACTICES						
LOT NO.	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	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, TWO (2)	YES, ONE (1)
6	NO	NO	NO	NO	NO	NO

STORMWATER MANAGEMENT SUMMARY			
AREA ID.	ESDV REQUIRED CU.FT.	ESDV PROVIDED CU.FT.	REMARKS
SITE	630	661	DRYWELLS (M-5) AND MICRO-BIORETENTION (M-6)
TOTAL	630	661	

GROSS AREA = 0.255 AC. (LOT 5) 0.614 AC. (TOTAL)
 LOD = 0.466 ACRES
 RCN = 59.7
 TARGET Pe = 1.4"



DRY WELL CHART							
DRYWELL NO.	AREA OF ROOF PER DOWN SPOUT	VOLUME REQUIRED	VOLUME PROVIDED	AREA OF TREATMENT	L	W	D
5A	720 SQ. FT.	80 C.F.	140 C.F.	100%*	10'	7'	5'
5B	720 SQ. FT.	80 C.F.	140 C.F.	100%*	10'	7'	5'

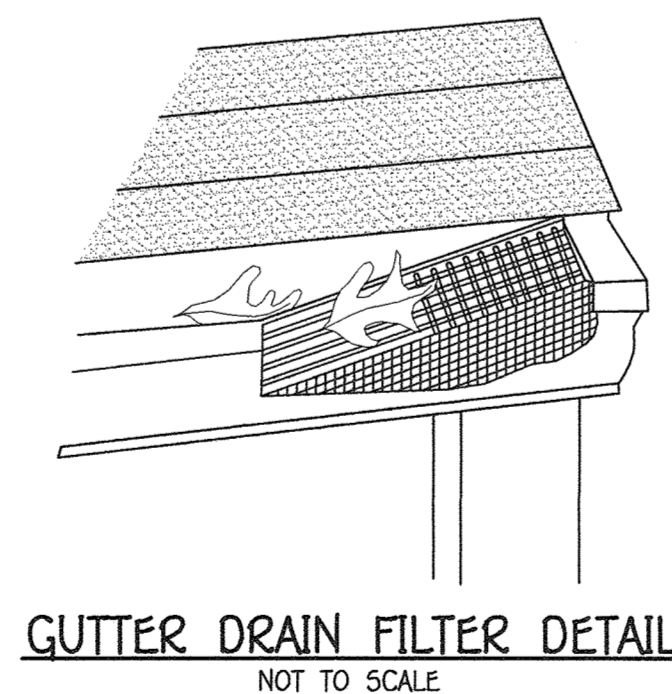
* AREA OF TREATMENT EXCEEDS THAT REQUIRED.

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.

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 60-85% compost 30-40% or sandy loam 30% coarse sand 30% compost 40%		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-448	No. 8 or No. 9 (1/8" to 3/8")	
Curbside drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile	n/a	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 790, Type P5 28 or ASHTO M-276	4" to 6" rigid schedule 40 PVC or 50635	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 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 site or local materials requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 308.8/89; vertical loading (H-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 Gyrstone (ASHTO #10) are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

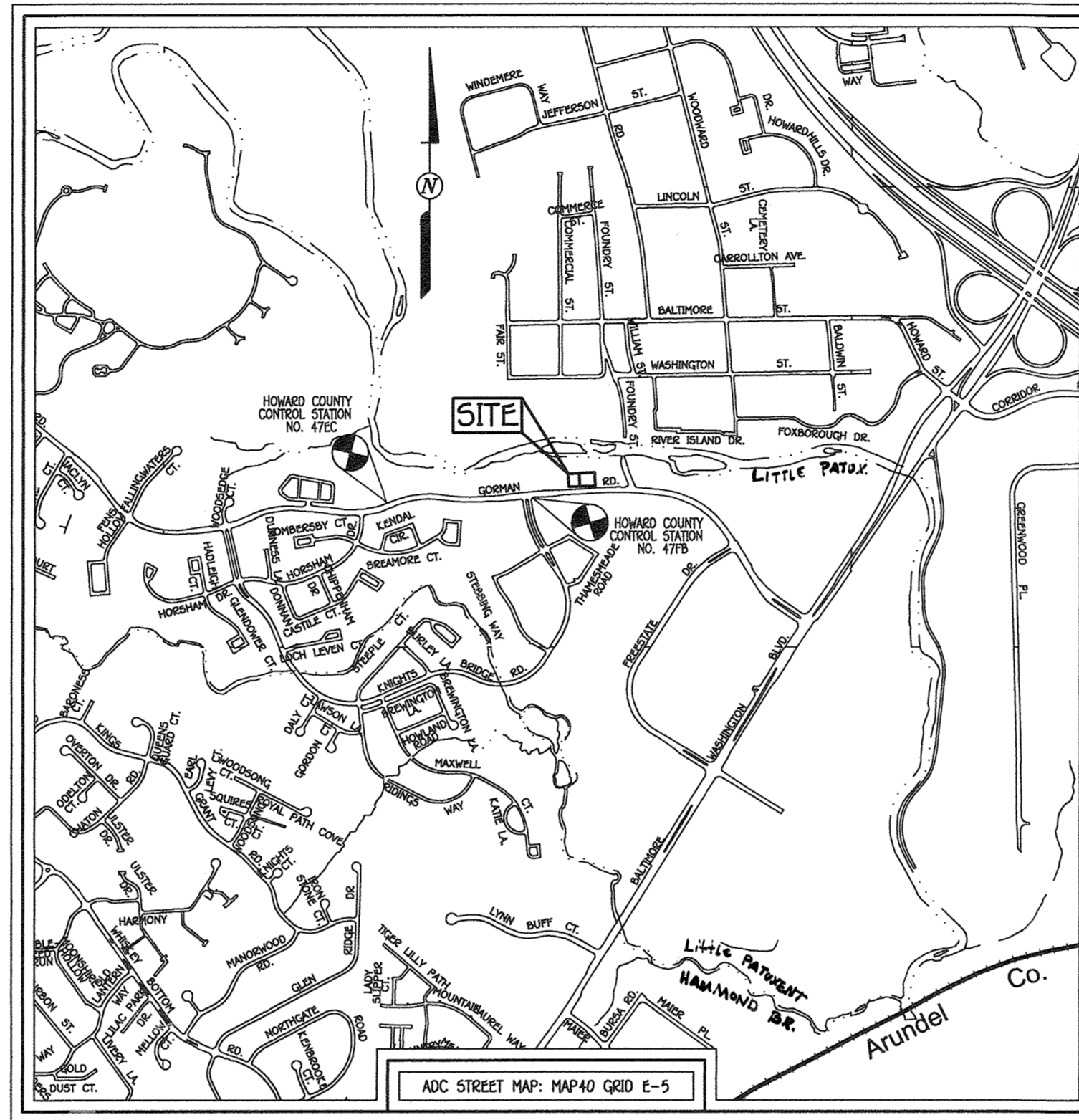


ENVIRONMENTAL CONCEPT PLAN

BOUNDS PROPERTY

LOTS 5 AND 6

TAX MAP No. 47 GRID No. 17 PARCEL NO. 341
 SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND



VICINITY MAP
 SCALE: 1" = 1200'

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.

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.1.1 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.

GENERAL NOTES

- BOUNDARY SHOWN HEREON IS BASED ON FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED BY FISHER, COLLINS & CARTER, INC. DATED JAN. 2018. TOPOGRAPHY SHOWN HEREON IS BASED ON A TOPOGRAPHIC SURVEY PERFORMED BY FISHER, COLLINS & CARTER, INC. IN JAN. 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. 4778 AND 477C WERE USED FOR THIS PROJECT.
 518. 4778 N 534,295.375 E 1,361,228.709 Elev. = 207.427
 518. 477C N 534,261.218 E 1,359,948.169 Elev. = 233.687
- PREVIOUS DPZ FILE NUMBERS: F-91-170, WP-91-08
- 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 #888-W & 20-1719.
- ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.
- THE SUBJECT PROPERTY IS ZONED R-5C (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.
- FOREST CONSERVATION REQUIREMENTS FOR THIS PROPOSED RESUBDIVISION WILL BE IN ACCORDANCE WITH THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION ACT. IT IS ANTICIPATED THAT A FEE-IN-LIEU OF AFFORESTATION WILL BE REQUESTED.
- A SOIL BORING WILL BE REQUIRED FOR THIS PROJECT. SINGLE DRIVENWELLS AND 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.
- A STRUCTURE EXISTS ON THE PROPERTY, KNOWN AS 9044 GORMAN ROAD, WHICH IS TO REMAIN.
- SOILS SHOWN HEREON ARE BASED ON THE NCS WESSOL SURVEY AND HOWARD COUNTY SOIL MAP #24.
- NO HISTORICAL FEATURES OR CEMETERIES ARE ON SITE.
- PER RECORD PLAN #10438 THE SUBDIVISION IS SUBJECT TO THE CONDITIONS OF WP-91-08B, WHICH, ON OCTOBER 9, 1990, GRANTED APPROVAL FOR DIRECT DRIVEWAY ACCESS TO GORMAN ROAD (A WAIVER OF SECTION 16.113.F.7).
- THE POTENTIAL REMOVAL OF SPECIMEN TREE #1 MAY REQUIRE APPROVAL OF AN ALTERNATIVE COMPLIANCE.
- THE EXISTING 25' WIDE EASEMENT FOR INGRESS, EGRESS AND MAINTENANCE FOR LOTS 3 AND 4 LOCATED AT THE SOUTH EAST CORNER OF THE PROPERTY WILL BE ADDRESSED AT THE NEXT PHASE OF THE PROJECT.
- THIS SUBDIVISION IS SUBJECT TO THE CONDITIONS OF WP-91-08 WHICH ON OCT. 9 1990 GRANTED APPROVAL FOR DIRECT DRIVEWAY ACCESS TO GORMAN ROAD (A WAIVER OF SECTION 16.113.F.7)

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:

9044 Gorman Road is zoned R-5C and is located on Tax Map 47, Parcel No.341 of the Howard County, Maryland Tax Map Database System. The property is Lot 4 of a subdivision entitled "Bounds Property" as Plat Number 10438, dated May 23, 1991. The site has an existing house and detached garage on an open lot (not forested) with some individual trees. Since this subdivision is a major subdivision, the Forest Conservation regulations will apply, it is anticipated that forest conservation requirements will be met by a Fee-In-Lieu. The proposed house will be served by public water and sewer as will the existing house which is currently served public water and public sewer. The runoff from the lot is mostly from south, along Gorman Road, to north side of the property parallel to the Little Patuxent River (021311051). Drywells and a Micro-Bioretenion will be utilized to treat the rooftop and driveway. Per the 2004 Web Soil Survey, soils on-site consist of "LrD" Legare-Belley gravelly loam, Type B soil and "MoB" Mount Lucas silt loam, Type C soil.

I. Natural Resource Protection:

Environmentally sensitive features such as wetlands, streams, their buffers, steep slopes, floodplain and forested areas do not exist on-site. The site contains two (2) existing specimen trees, one along the eastern property line (to remain) and one along the northern or rear property line (to remain) caution should be used when working within the Critical Root Zone for Specimen Tree #1.

II. Maintenance of Natural Flow Patterns:

Nature flow patterns will be maintained. Existing and proposed runoff flows mostly toward the northern portion of the site.

III. Reduction of impervious areas through better site design, alternative surfaces and Nonstructural Practices

Portions of the existing driveways are to remain and provide access to the existing house. A shared driveway is proposed that will reduce the amount of new impervious area needed to serve the new development.

IV. Integration of Erosion and Sediment Controls into Stormwater Strategy:

Super Silt Fence will be utilized to provide erosion and sediment control.

V. Implementation of ESD Planning Techniques and practices to the Maximum Extent Practicable (MEP)

The full required ESD volume is being provided.

VI. Request for a Design Manual Waiver:

No waivers related to stormwater management are required.

SITE ANALYSIS DATA CHART

- TOTAL AREA OF THIS SUBMISSION = 0.255 AC. + (Lot 5) & 0.359 AC. + (Lot 6)
- LIMIT OF DISTURBED AREA = 20,300 SQ.FT. OR 0.466 AC. +
- PRESENT ZONING DESIGNATION = R-5C (PER 10/06/2013 COMPREHENSIVE ZONING PLAN)
- PROPOSED USE: RESIDENTIAL
- PREVIOUS HOWARD COUNTY FILES: F-91-170, WP-91-08
- TOTAL AREA OF FLOODPLAIN LOCATED ON-SITE = 0.00 AC. +
- TOTAL AREA OF STEEP SLOPES: MODERATED STEEP SLOPES: 15%-24.9% = 0.00 AC. + 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 = 0.255 AC. +
- TOTAL GREEN OPEN AREA = 0.148 AC. +
- NATURAL IMPERVIOUS AREA = 0.107 AC. +
- TOTAL AREA OF ERODIBLE SOILS = 0.000 AC. +
- TOTAL AREA OF ROAD DEDICATION = 0.000 AC. +

FISHER, COLLINS & CARTER, INC.
 CIVIL, ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10672 BALTIMORE NATIONAL PIKE
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2855

NO.	REVISION	DATE

PROFESSIONAL CERTIFICATION

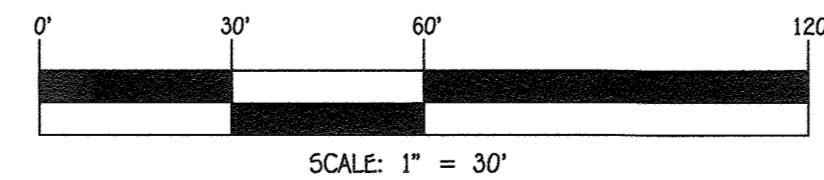
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31351, EXPIRATION DATE: 07/15/2019.

Signature of Professional Land Surveyor: *[Signature]* DATE: 7/12/2018



OWNER/DEVELOPER

RT REALTY LLC
 C/O GOPI MANDELA
 6404 IVY LANE
 GREENBELT, MARYLAND 20770
 301-703-2020



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Signature: *[Signature]*
 Chief, Division of Land Development

7/24/18
 Date

Signature: *[Signature]*
 Chief, Development Engineering Division

7-23-18
 Date

PROJECT: BOUNDS PROPERTY, LOTS 5 AND 6

SECTION: - PARCEL NO.: 341

DEED: L 17976 F. 334 BLOCK NO.: 17 ZONE: R-5C TAX/ZONE: 47 ELEC. DIST.: 6th CENSUS TR.: 601105

TITLE SHEET

BOUNDS PROPERTY,
 LOTS 5 AND 6

9044 GORMAN ROAD
 ZONED R-5C
 TAX MAP No. 47 GRID No. 17 PARCEL No. 341
 SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN DATE: MAY 30, 2018
 SHEET 1 OF 2

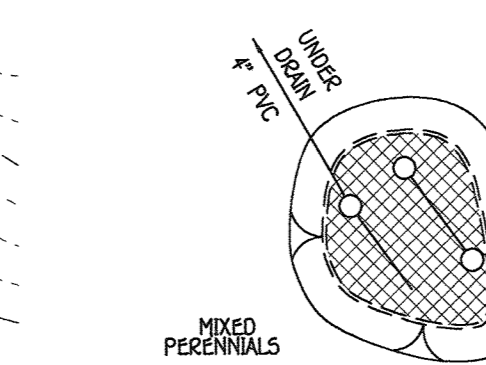
ECP-18-041

SOILS LEGEND				
SOIL	NAME	CLASS	K. FACTOR	
LrD	Legore-Relay pravelly loams, 15 to 25 percent slope	B	.02	
MoB	Mount Lucas silt loam, 3 to 8 percent slope	C	.32	
Soil Map Number: 24 (Savage, SW)				

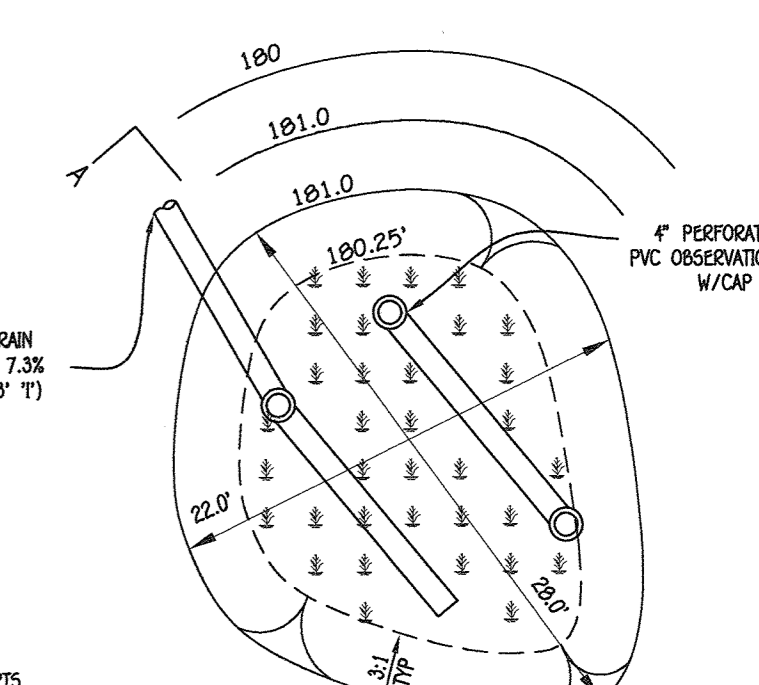
LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	EXISTING 2' CONTOURS		PROPOSED CONTOUR
	EXISTING 10' CONTOURS		SPOT ELEVATION
	SOILS LINES AND TYPE		LIMITS OF DISTURBANCE
	EXISTING TREELINE		DRAINAGE AREA DIVIDE
	PROPOSED TREELINE		SUPER SILT FENCE
	INDIVIDUAL TREES & SHRUBS		EROSION CONTROL MATTING
	EXISTING CHAIN LINK FENCE LINE (CLF)		STABILIZES CONSTRUCTION ENTRANCE
	EXISTING WOOD FENCE LINE		TREE PROTECTION FENCE
	EXISTING PAVING		PROPOSED 24' USE-IN-COMMON DRIVEWAY EASE.
	PROPOSED PAVING		TO BE REMOVED

SPECIMEN TREE TABLE				
KEY	SPECIES	SIZE (DBH)	CRZ (FT. RADIUS)	COMMENTS
1	WHITE OAK	45.5"	68.2'	TO REMAIN
2	RED OAK	55"	82.5'	TO REMAIN

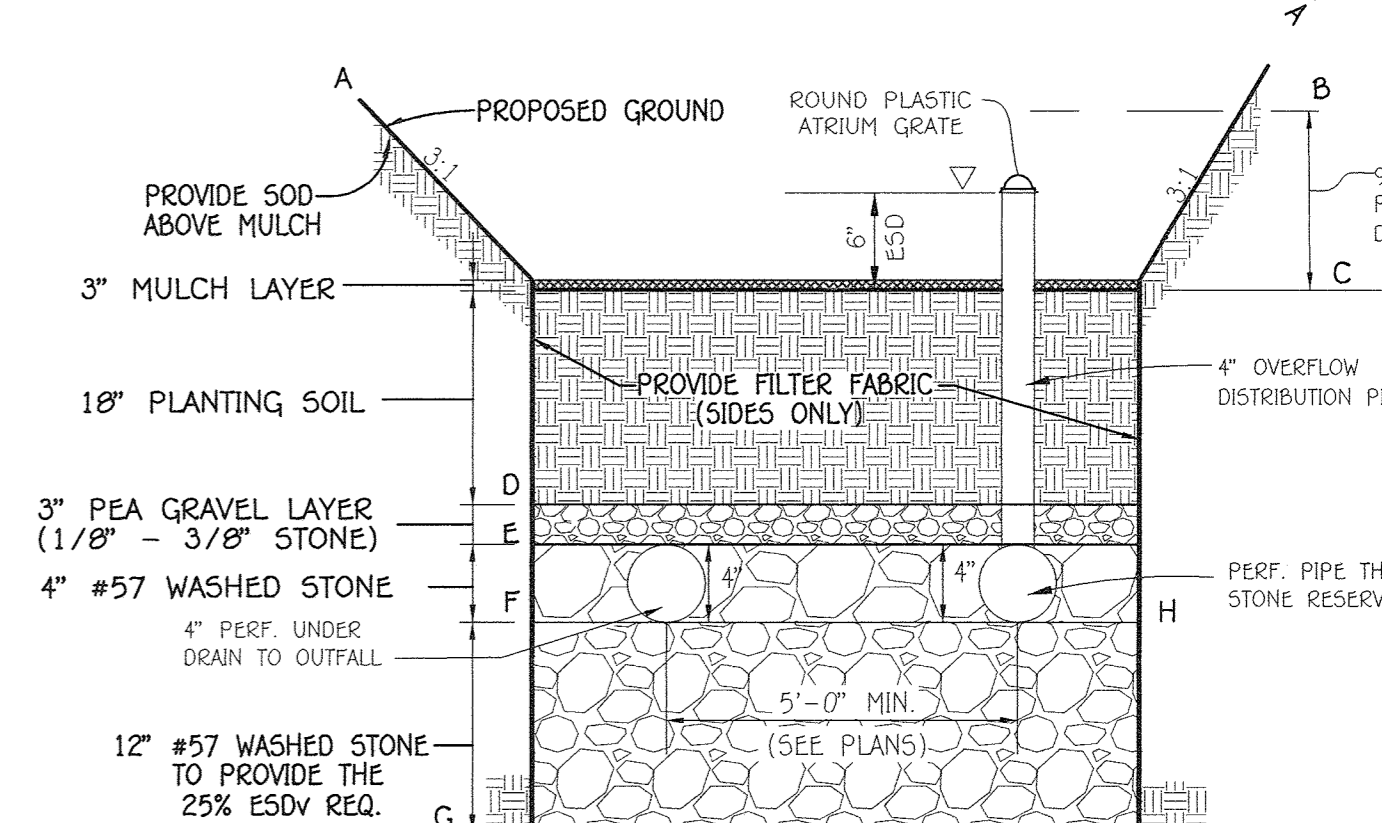
MICRO-BIORETENTION PLANT MATERIAL		
MICRO-BIO QUANTITY	NAME	MAXIMUM SPACING (FT.)
25	MIXED PERENNIALS	1.5 TO 3.0 FT.



MICRO-BIORETENTION PLANTING DETAIL
NOT TO SCALE

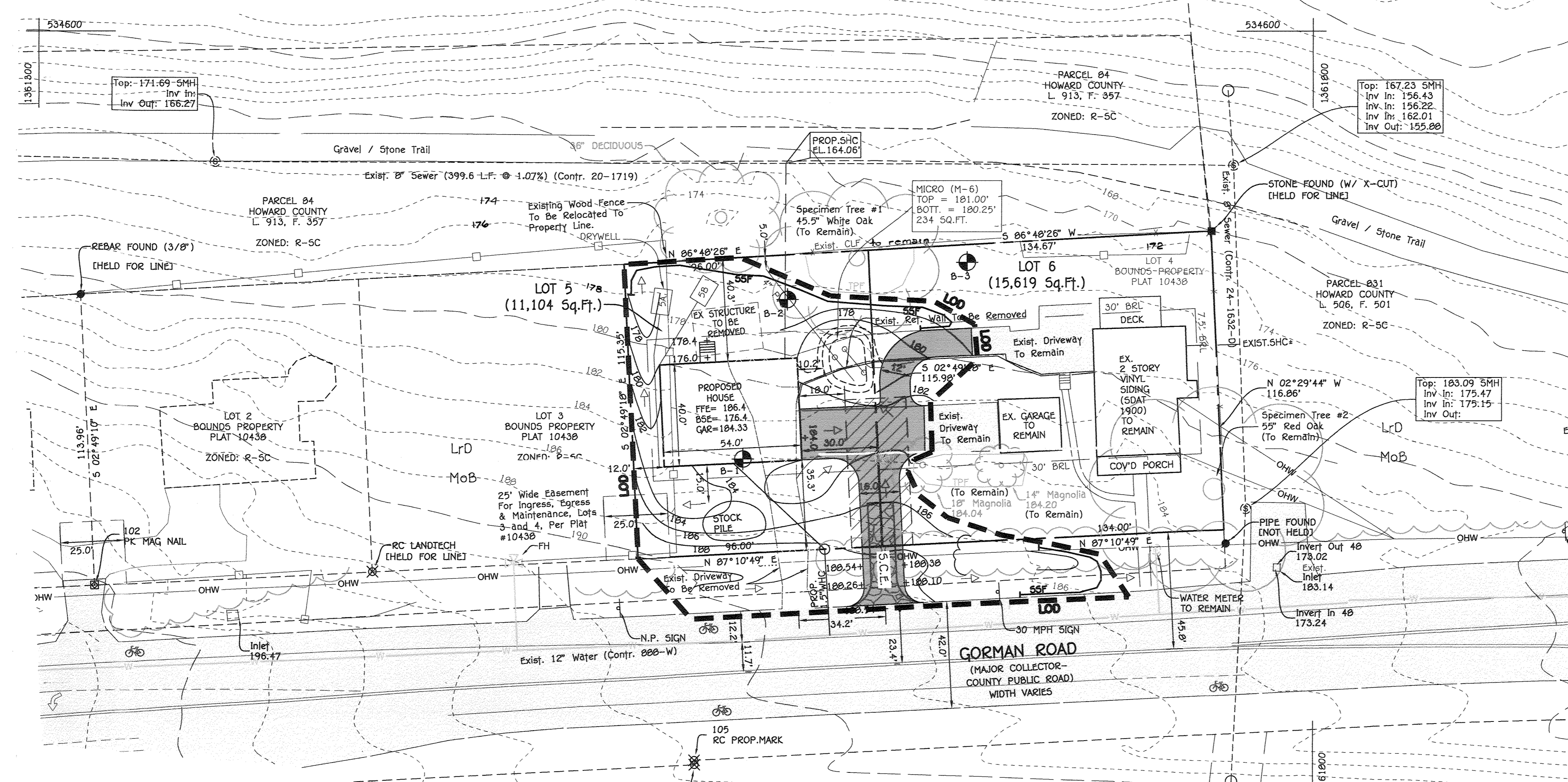


PLAN
NOT TO SCALE
SEE PLANT MATERIAL CHARTS FOR QUANTITIES AND SPACING

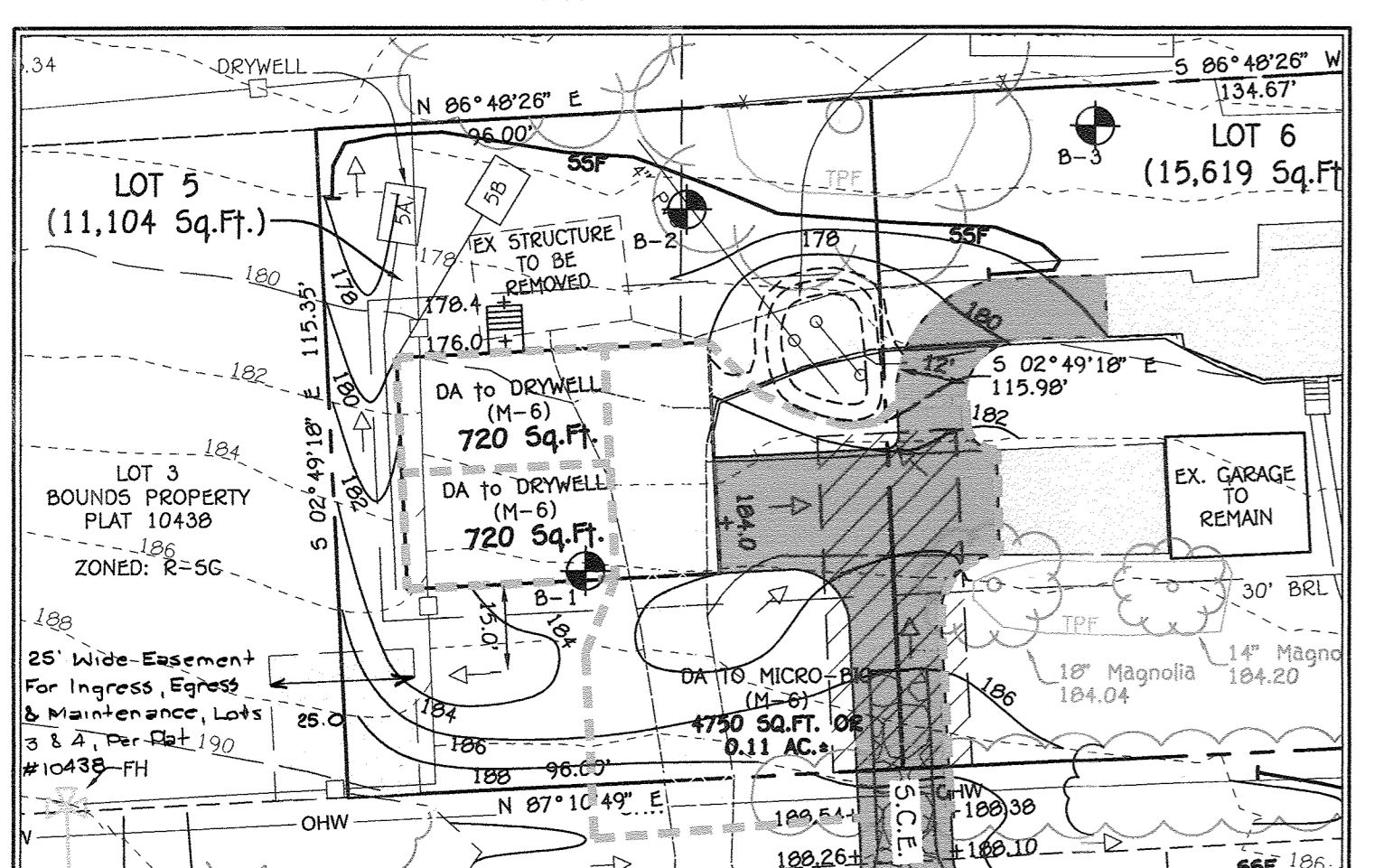


MICRO BIO-RETENTION SECTION WITH 4" OVERFLOW DISTRIBUTION PIPE
NO SCALE

MICRO-BIORETENTION / BIORETENTION									
BIORETENTION FILTER	A	B	C	D	E	F	G	H	I
LOT 2	181.0	181.0	180.25	178.75	178.50	178.17	177.17	178.17	175.30



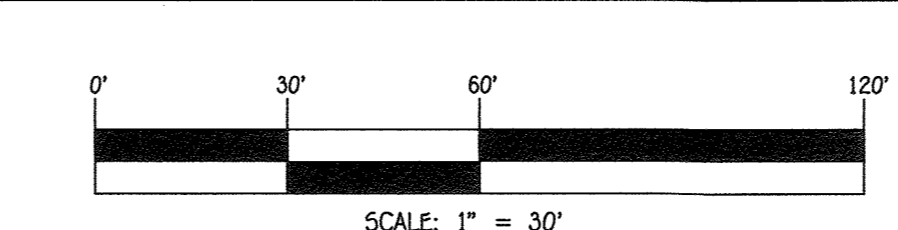
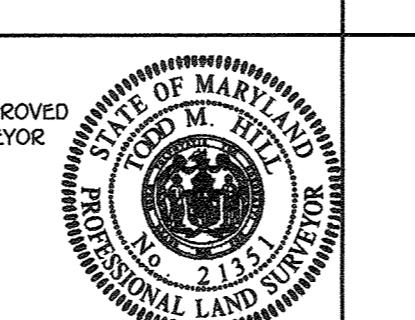
DRAINAGE AREA MAP
SCALE: 1" = 30'



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Signature 7/24/18
Chief, Division of Land Development

Signature 7-21-18
Chief, Development Engineering Division

PROJECT	SECTION	PARCEL NO.
BOUNDS PROPERTY, LOTS 5 AND 6	-	341

DEED	BLOCK NO.	ZONE	TAX/ZONE	ELEC. DIST.	CENSUS TR.
L 17976 F. 334	17	R-5C	47	6th	601105

ENVIRONMENTAL CONCEPT PLAN

BOUNDS PROPERTY,
LOTS 5 AND 6
9044 GORMAN ROAD
ZONED R-5C
TAX MAP No. 47 GRID No. 17 PARCEL No. 341
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MAY 30, 2018
SHEET 2 OF 2

ECP-10-041