

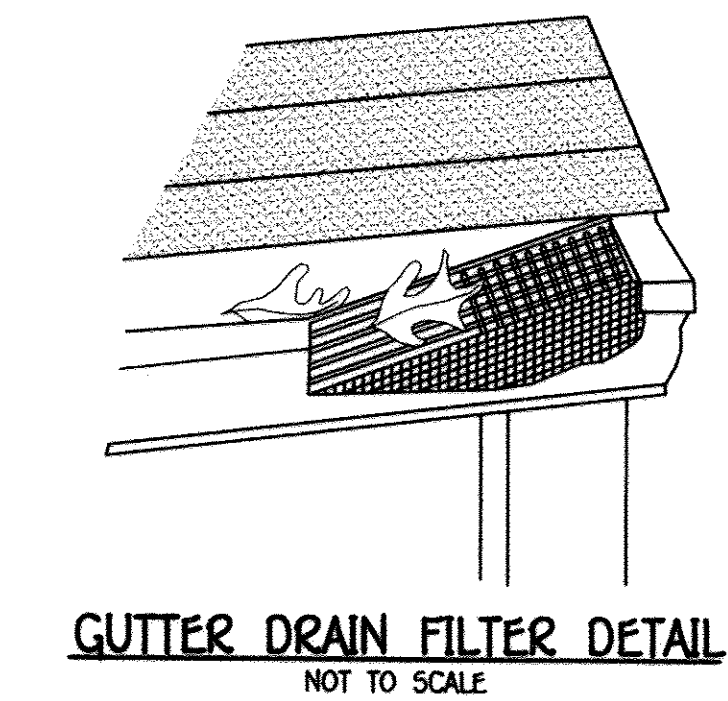
SHEET INDEX	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	ENVIRONMENTAL CONCEPT PLAN
3	PRELIMINARY GRADING & SEDIMENT CONTROL PLAN

SOILS LEGEND			
SOIL	NAME	CLASS	K FACTOR
M&C	Manor loam, 0 to 15 percent slopes	B	0.24
M&D	Manor loam, 15 to 25 percent slopes	B	0.24

Soil Map Number: 13 (ELICOTT CITY, SW)

STORMWATER MANAGEMENT SUMMARY			
AREA ID.	ESD PROVIDED CU.FT.	ESD REQUIRED CU.FT.	REMARKS
SITE	3,973	5,760	DRYWELLS (M-5 & MICRO-BIORETENTION (M-6) & INFILTRATION / STONE TRENCH
TOTAL	3,973	5,760	

GROSS AREA = 2.99 ACRES (SITE)
 LOD = 2.02 ACRES
 RCH = .95
 TARGET Pe = 1.4"



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% SLOPE 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
Mulch	see Appendix A, Table A.4	n/a	plantings are site-specific
Filtering soil (2" to 4" deep)	loamy sand 60-65% coarse sand 35-40% or sandy loam 30% coarse sand 30% compost 40%	n/a	USDA soil types loamy sand or sandy loam; clay content <5%
Organic Content	Min. 10% by dry weight (ASTM D 2974)	n/a	
Mulch	sterilized hardwood	n/a	aged 6 months, minimum
Post gravel/drainage	post gravel: ASTM-D-448	No. 8 or No. 9 (1/2" to 3/8")	
Curbside drain	ornamental stone: washed cobble	stone: 2" to 3"	PE Type 1 nonwoven
Gravel	n/a	n/a	
Gravel (underdrains and infiltration berms)	ASHTO #1-43	No. 37 or No. Aggregates (5/8" to 3/4")	
Underdrain piping	F 750, Type P5 28 or ASHTO #1-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe: 3/8" perf. @ 6" on center, 4 holes per row, minimum of 3" of gravel over pipe; 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 = 3000 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 state 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 308.6R9; vertical loading 01-10 or H-201; allowable horizontal loading (based on soil pressure); and analysis of potential cracking
Sand	ASHTO #1-6 or ASTM-C-33	0.02" to 0.04"	Standard substitution such as Dabbaw and Gypstone (ASHTO #10 are not acceptable. No calcium chlorinated or diatomic acid substitution are acceptable. No "rock dust" can be used for sand.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

William J. Davis
 Chief, Office of Land Development

William J. Davis
 Chief, Development Engineering Division

DATE: 1-31-18

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
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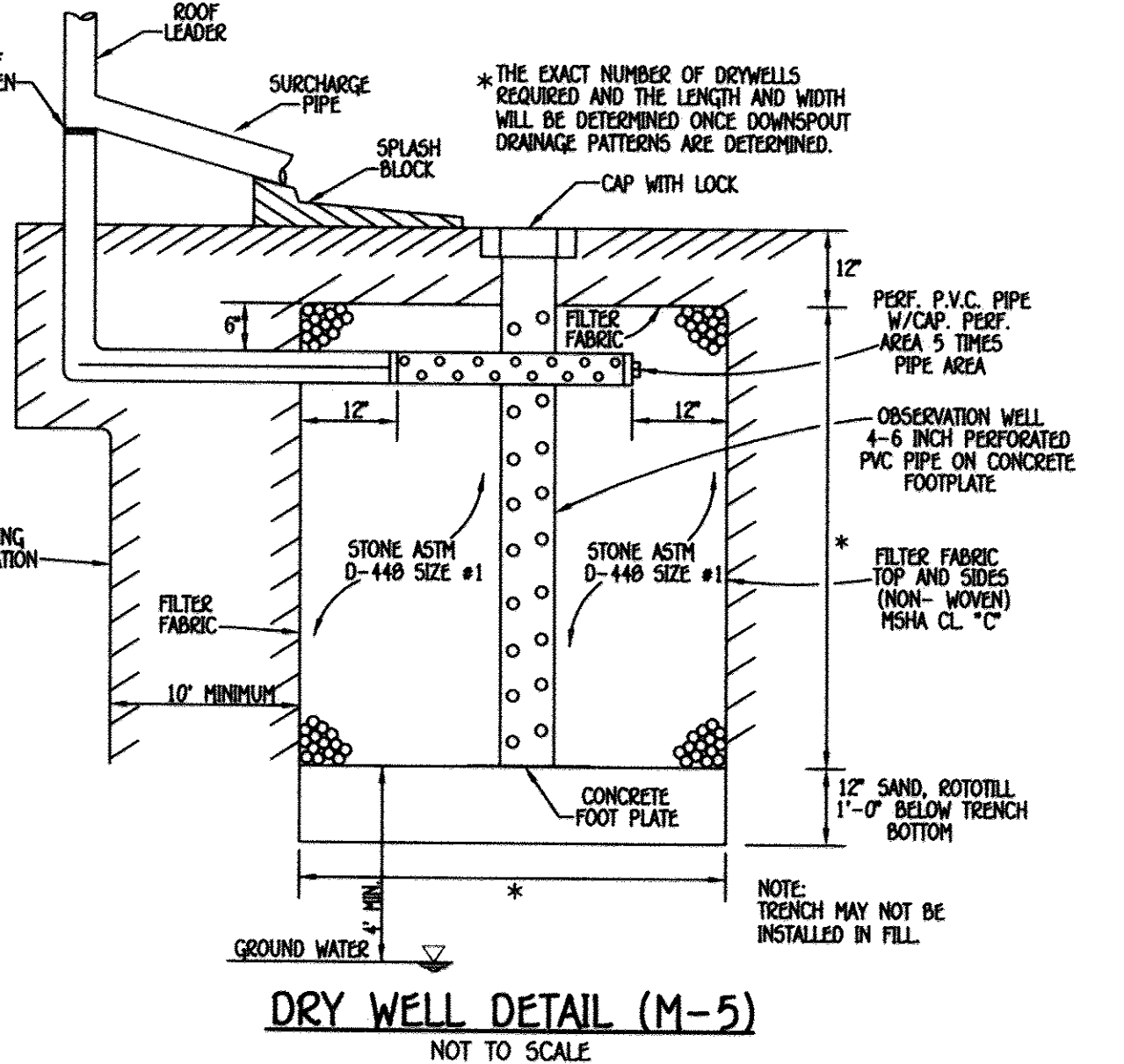
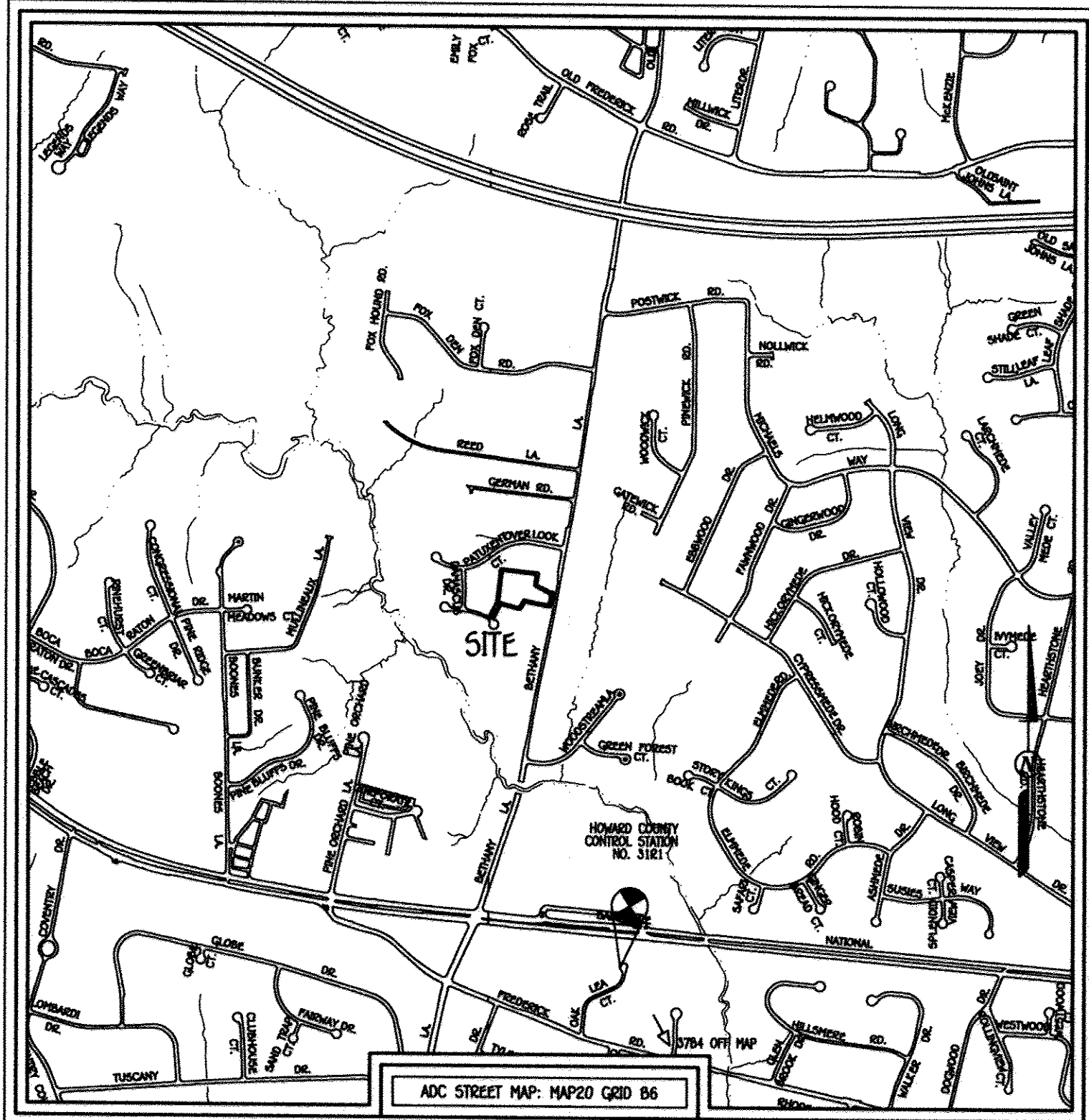
ENVIRONMENTAL CONCEPT PLAN GERMAN PROPERTY LOTS 27 THRU 31

TAX MAP No. 17 GRID No. 20 PARCEL NO. 132
 SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
-492-	EXISTING 2' CONTOURS	-488-	PROPOSED CONTOUR
-490-	EXISTING 10' CONTOURS	+362.5	SPOT ELEVATION
G&B	SOILS LINES AND TYPE	LOD	LIMITS OF DISTURBANCE
G&C	EXISTING TREELINE	---	DRAINAGE AREA DIVIDE
○	INDIVIDUAL TREES & SHRUBS	---	SILT FENCE
---	EXISTING FENCE LINE	---	FLOW ARROWS
---	EXISTING & PROPOSED PAVING	---	STABILIZES CONSTRUCTION ENTRANCE

GENERAL NOTES

- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE (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.
- BOUNDARY SHOWN HEREON IS BASED ON FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED BY FISHER, COLLINS & CARTER, INC. DATED MARCH 2017. TOPOGRAPHY SHOWN HEREON IS BASED ON A TOPOGRAPHIC SURVEY PERFORMED BY FISHER, COLLINS & CARTER, INC. IN MARCH 2017 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. 17041 AND 17043 WERE USED FOR THIS PROJECT.
- PREVIOUS OPZ FILE NUMBERS: VP-83-02, F-83-037, F-88-269, 5-96-07, P-98-017, F-96-112, F-96-77, F-99-044.
- STORM WATER MANAGEMENT IS IN ACCORDANCE WITH THE H.C.E. STORM WATER DESIGN MANUAL, VOLUMES 1 & 2, REVISED 2009. NON-STRUCTURAL PRACTICES IN ACCORDANCE WITH CHAPTER 5 ARE BEING UTILIZED. 5' AND 6" MICRO-BIORETENTION (M-5) ARE PROPOSED. STORMWATER MANAGEMENT FOR THE ROAD WIDENING AND A PORTION OF THE PROPOSED COMMON DRIVEWAY CANNOT BE TREATED DUE TO LACK OF AREA DOWNHILL. MANAGEMENT OF THESE PROPOSED IMPERVIOUS SURFACES SINCE MANY STRUCTURES ARE BEING REMOVED THAT DID NOT HAVE STORMWATER MANAGEMENT ALREADY AND AN EXISTING STRUCTURE IS BEING TREATED IN THE PROPOSED MICRO-BIORETENTION. LACK OF TREATMENT FOR THESE AREAS IS FELT TO BE MITIGATED.
- THIS PROPERTY IS LOCATED INSIDE THE METROPOLITAN DISTRICT. LOTS TO BE SERVED PUBLIC WATER AND PRIVATE SEWER. CONTRACT #24-3749-D & 71-W.
- ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.
- THE SUBJECT PROPERTY IS ZONED R-20 (PREL. DATE 10/06/2013 COMPREHENSIVE ZONING PLAN).
- NO 100 YEAR FLOODPLAIN, WETLANDS, STREAM(S) AND/OR STEEP SLOPES, NOR STEEP SLOPES EXIST ON-SITE.
- NO FOREST STANDS EXIST ON-SITE. SEE ENVIRONMENTAL FINDINGS LETTER PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED SEPTEMBER 2017.
- LANDSCAPING WILL BE PROVIDED AT THE FINAL PLAN STAGE OF THIS PROJECT.
- THIS PROJECT IS SUBJECT TO FOREST CONSERVATION REQUIREMENTS. PAYMENT OF A FEE-IN-LIEU OF REFORESTATION OR USE OF FOREST BANK IS PROPOSED.
- SOIL BORINGS WILL BE REQUIRED FOR THIS PROJECT SINCE DRYWELLS AND A MICRO-BIORETENTION ARE 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 COUNTY COMMISSIONER DOES NOT PROVIDE APPROVAL OF THE SHOWN SEDIMENT CONTROL.
- STRUCTURES EXIST ON THE PROPERTY. THE HISTORIC DWELLING, KNOWN AS JOSE BETHANY LANE, IS PROPOSED TO BE REMOVED, ALONG WITH MOST OF THE ACCESSORY STRUCTURES. PLANS WENT TO THE HISTORIC PRESERVATION COMMISSION MEETING ON APRIL 6, 2017.
- SOILS SHOWN HEREON ARE BASED ON THE NECS WEBSOIL SURVEY AND HOWARD COUNTY SOIL MAP #13.
- THERE ARE NO CHANGES ON SITE.
- ON JULY 19, 2017, THE PLANNING DIRECTOR APPROVED THE ALTERNATIVE COMPLIANCE (WP-17-129) TO SECTION 16.119(F)(1) REQUIRING A RESIDENTIAL SUBDIVISION TO PROVIDE A MAJOR COLLECTOR TO ACCESS THE SUBDIVISION BY A LOWER CLASSIFICATION PUBLIC ROAD AND SECTION 16.120(A) (7) AND (10) WHICH REQUIRE THE REMOVAL OF 5 SPECIMEN TREES, BUT DENIED ALTERNATIVE COMPLIANCE TO SECTION 16.120(A) REQUIRING THE CONSTRUCTION OF SIDEWALKS AND SECTION 16.132(A)(3)(B)(C)(1) REQUIRING ROAD IMPROVEMENTS ON UP TO ONE-HALF OF THE MINIMUM USABLE PAVEMENT WIDTH FOR THE SUBDIVISION ROAD.

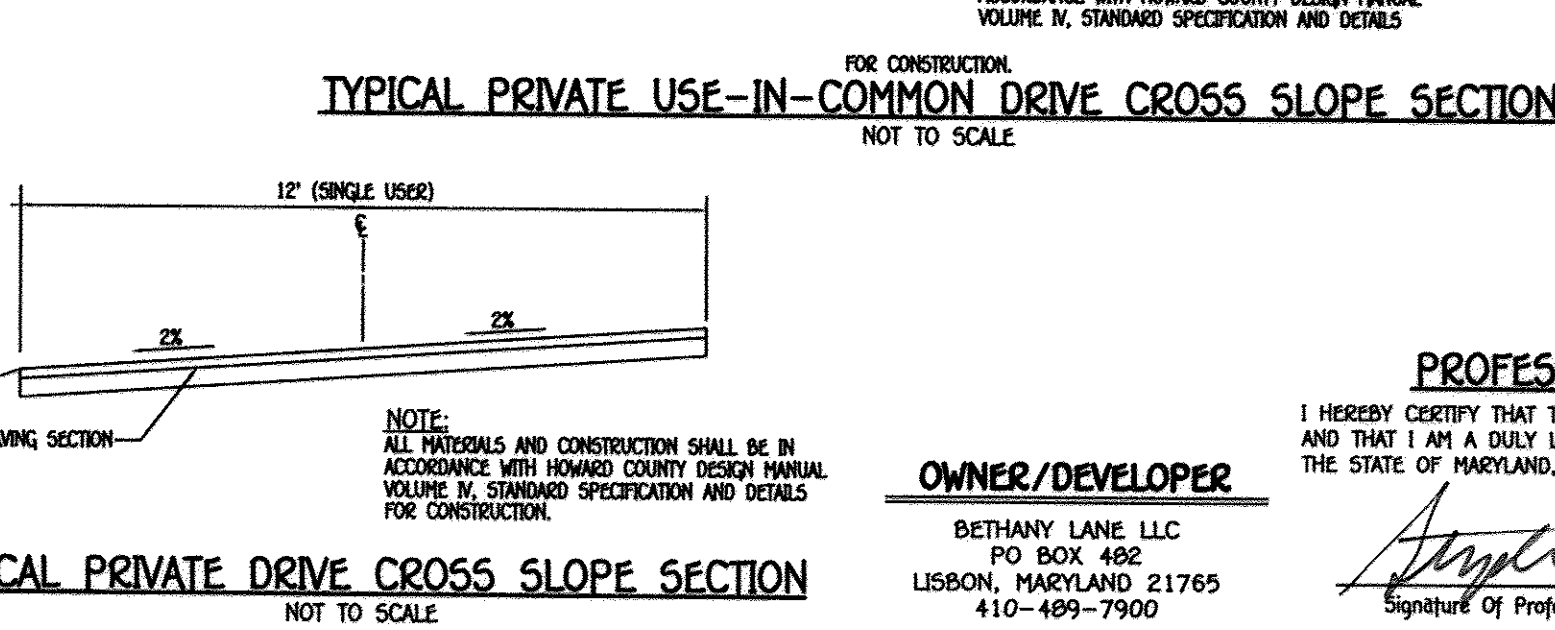


DRY WELL CHART					
DRYWELL NO.	AREA OF ROOF PER DOWN SPOUT	VOLUME REQUIRED	VOLUME PROVIDED	AREA OF TREATMENT	L W D
27A	750 SQ. FT.	84 C.F.	128 C.F.	100%	8' x 8' x 5'
27B	750 SQ. FT.	84 C.F.	128 C.F.	100%	8' x 8' x 5'
27C	750 SQ. FT.	84 C.F.	128 C.F.	100%	8' x 8' x 5'
27D	750 SQ. FT.	84 C.F.	128 C.F.	100%	8' x 8' x 5'
28A	750 SQ. FT.	84 C.F.	128 C.F.	100%	8' x 8' x 5'
28B	750 SQ. FT.	84 C.F.	128 C.F.	100%	8' x 8' x 5'
28C	750 SQ. FT.	84 C.F.	128 C.F.	100%	8' x 8' x 5'
28D	750 SQ. FT.	84 C.F.	128 C.F.	100%	8' x 8' x 5'
29A	750 SQ. FT.	84 C.F.	128 C.F.	100%	8' x 8' x 5'
29B	750 SQ. FT.	84 C.F.	128 C.F.	100%	8' x 8' x 5'
29C	750 SQ. FT.	84 C.F.	128 C.F.	100%	8' x 8' x 5'
29D	750 SQ. FT.	84 C.F.	128 C.F.	100%	8' x 8' x 5'
30A	750 SQ. FT.	84 C.F.	128 C.F.	100%	8' x 8' x 5'
30B	750 SQ. FT.	84 C.F.	128 C.F.	100%	8' x 8' x 5'
30C	750 SQ. FT.	84 C.F.	128 C.F.	100%	8' x 8' x 5'
30D	750 SQ. FT.	84 C.F.	128 C.F.	100%	8' x 8' x 5'
31A	750 SQ. FT.	84 C.F.	128 C.F.	100%	8' x 8' x 5'
31B	750 SQ. FT.	84 C.F.	128 C.F.	100%	8' x 8' x 5'
31C	750 SQ. FT.	84 C.F.	128 C.F.	100%	8' x 8' x 5'
31D	750 SQ. FT.	84 C.F.	128 C.F.	100%	8' x 8' x 5'

* AREA OF TREATMENT EXCEEDS THAT REQUIRED.

SITE ANALYSIS DATA CHART

- TOTAL AREA OF THIS SUBDIVISION = 2.99 AC.
- LIMIT OF DISTURBED AREA = 87,926 SQ.FT. OR 2.02 AC.
- PRESENT ZONING DESIGNATION = R-20 (PREL. 10/06/2013 COMPREHENSIVE ZONING PLAN)
- PROPOSED USE: RESIDENTIAL
- PREVIOUS HOWARD COUNTY FILES: VP-83-02, F-83-037, F-88-269, 5-96-07, P-98-017, F-96-112, WP-96-77, F-99-044.
- 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 OBTAINED = 0.00 AC.
- TOTAL AREA OF LOTS / BUILDABLE PARCELS = 2.99 AC.
- TOTAL GREEN OPEN AREA = 1.88 AC.
- TOTAL IMPERVIOUS AREA = 0.71 AC.
- TOTAL AREA OF FERROUS SOILS = 0.00 AC.
- TOTAL AREA OF ROAD DEDICATION = 0.00 AC.



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

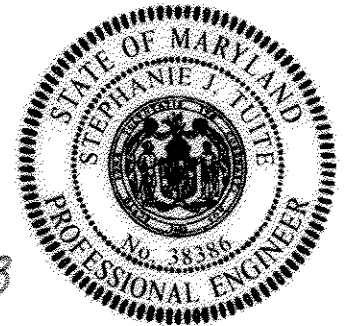
- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE 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 POSTMOW A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISCARDED VEGETATION CONSIDERED BEYOND TREATMENT. REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL. TREAT DISCARDED TREES AND SHRUBS AND REPLACE ALL DEFICIENT STAKES AND WIRDS.
- 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.

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. 30066, EXPIRATION DATE: 01/12/2020.

Stephan J. Jantz
 Signature of Professional Engineer

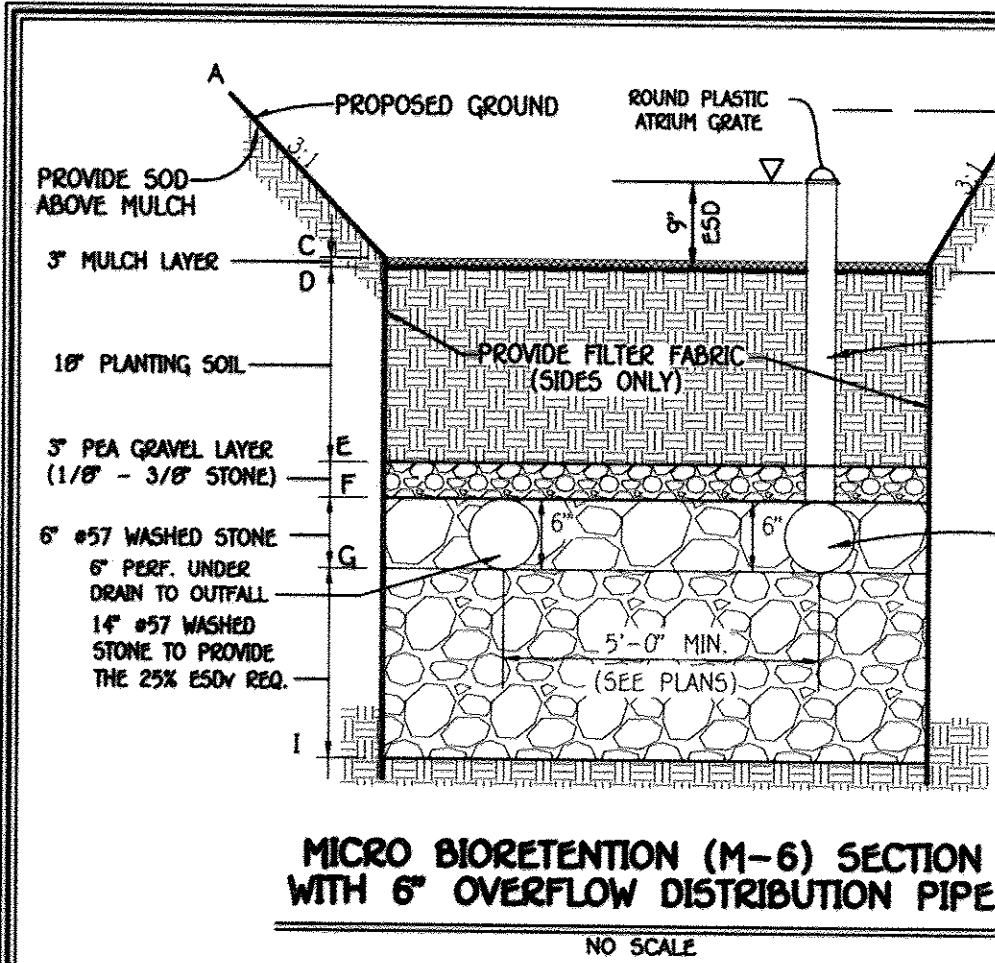
DATE: 10/20/18



OWNER/DEVELOPER
 BETHANY LANE LLC
 20 BOWERS
 LISBON, MARYLAND 21765
 410-489-7900

TITLE SHEET
GERMAN PROPERTY, LOTS 27 THRU 31
(A RESUBDIVISION OF LOT 22)
 3062 BETHANY LANE (9015 BARNHILL COURT)

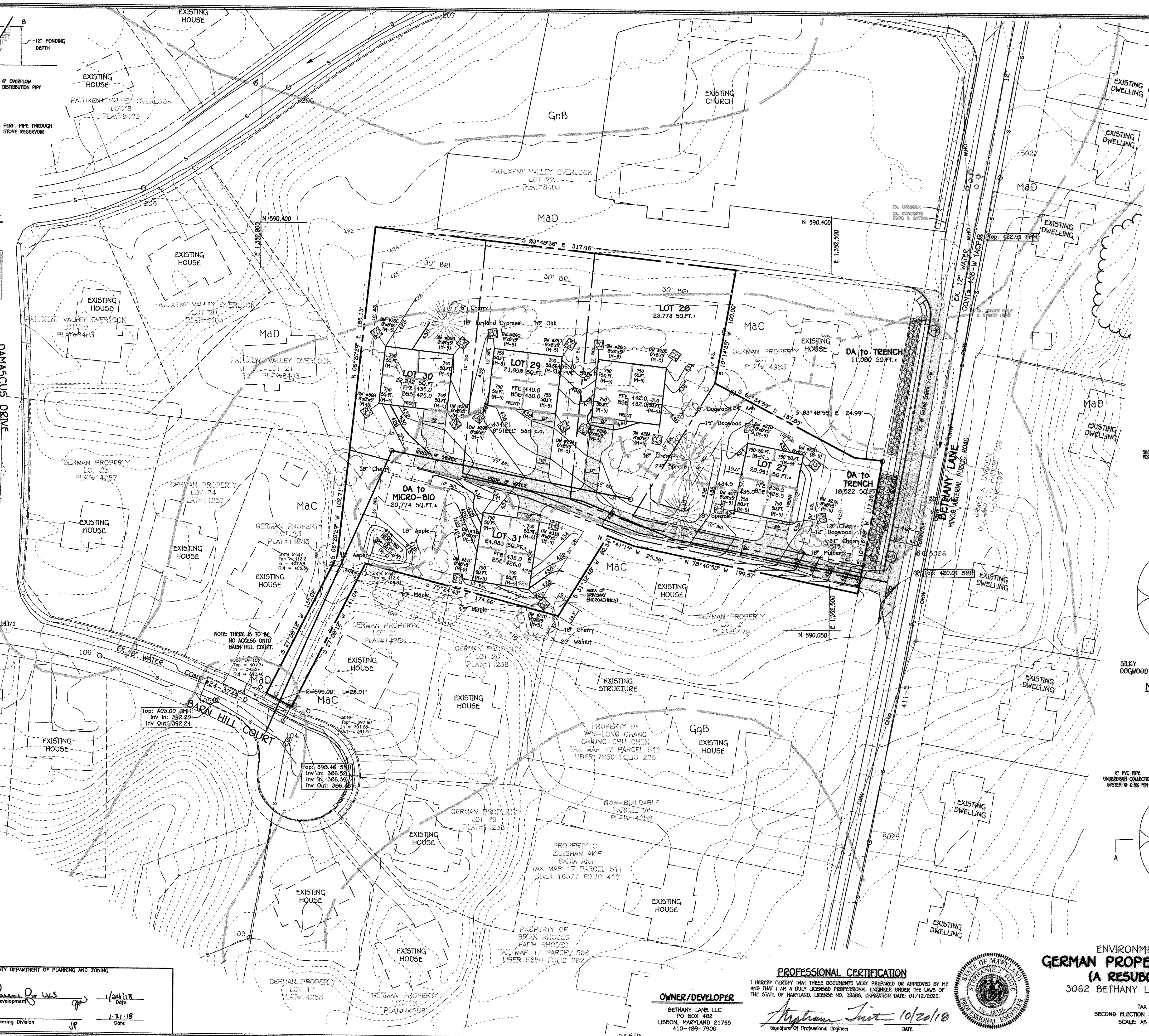
ZONED: R-20
 TAX MAP #17: PARCEL: 132
 SECOND ELECTION DISTRICT: HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN DATE: JANUARY, 2018
 SHEET 1 OF 3



MICRO BIORETENTION (M-6) SECTION WITH 6" OVERFLOW DISTRIBUTION PIPE
NO SCALE

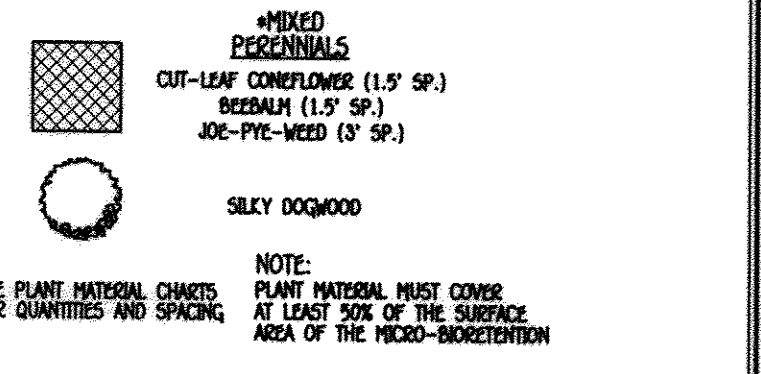
MICRO-BIORETENTION									
MICRO-BIO FILTER	A	B	C	D	E	F	G	H	I
1	416.00	416.00	415.00	414.75	412.75	412.50	412.00	409.94	410.85

NOTE: FOR LOCATIONS OF EXISTING STRUCTURES, PAVING, AND TREES TO BE REMOVED SEE SHEET 3.

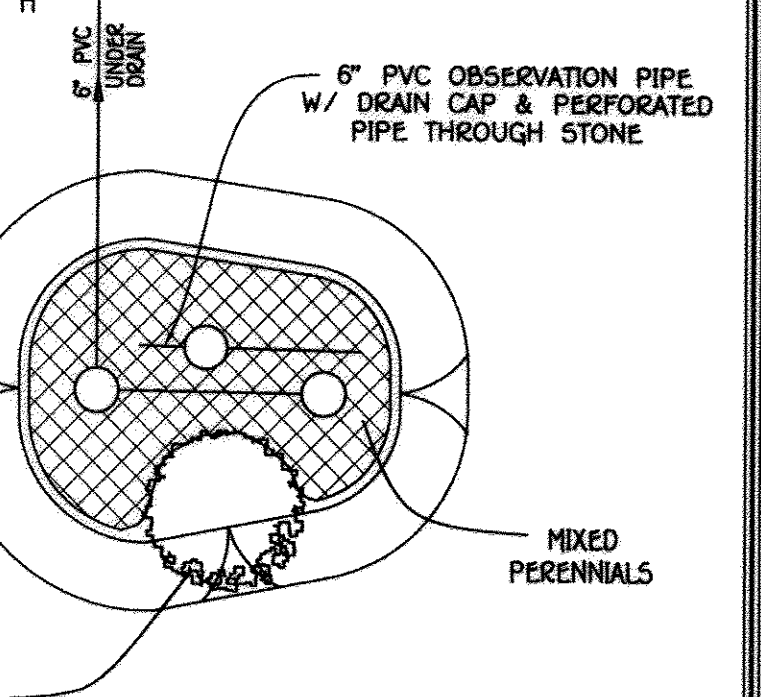


LEGEND	
SYMBOL	DESCRIPTION
-422	EXISTING 2' CONTOURS
-430	EXISTING 10' CONTOURS
GgB	SOILS LINES AND TYPE
GgC	EXISTING TREELINE
(Tree symbols)	INDIVIDUAL TREES & SHRUBS
(Dashed line)	EXISTING FENCE LINE
(Dotted line)	EXISTING & PROPOSED PAVING
T.B.R.	TO BE REMOVED
-422	PROPOSED CONTOUR
+362.5	SPOT ELEVATION
100	LIMITS OF DISTURBANCE
(Dashed line)	DRAINAGE AREA DIVIDE
-5F	SILT FENCE
ECH	EROSION CONTROL MATTING
(Symbol)	STABILIZES CONSTRUCTION ENTRANCE
TPF	TREE PROTECTION FENCE

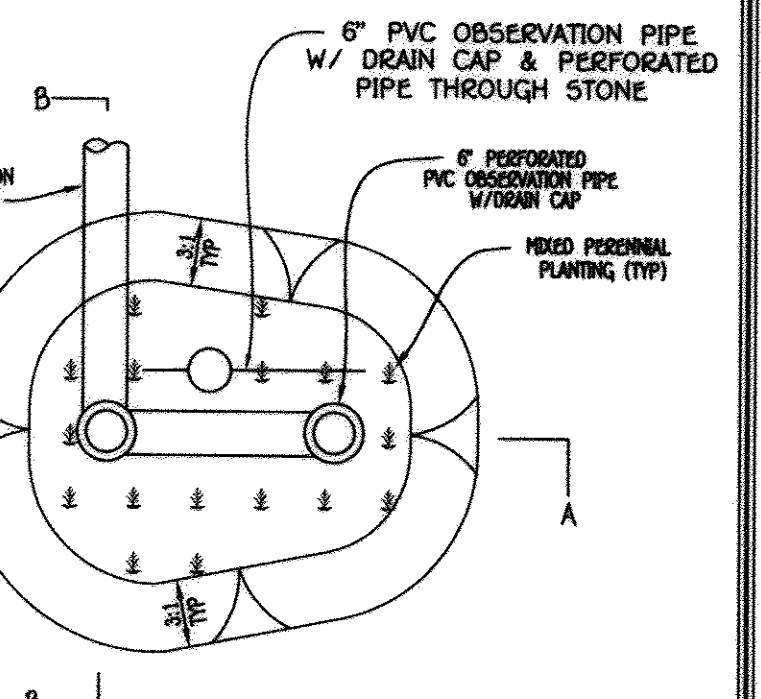
MICRO-BIORETENTION PLANT MATERIAL		
MICRO-BIO QUANTITY	NAME	MAXIMUM SPACING (FT.)
60	MIXED PERENNIALS	1.5 TO 3.0 FT.
2	SILKY DOGWOOD	PLANT AWAY FROM INFLOW LOCATION



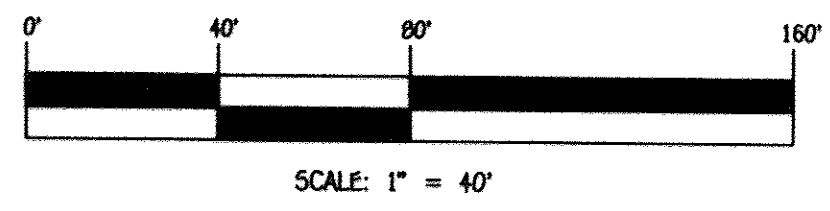
MICRO-BIORETENTION PLANTING DETAIL
NOT TO SCALE



MICRO-BIORETENTION PLANTING DETAIL
NOT TO SCALE



PLAN
NOT TO SCALE

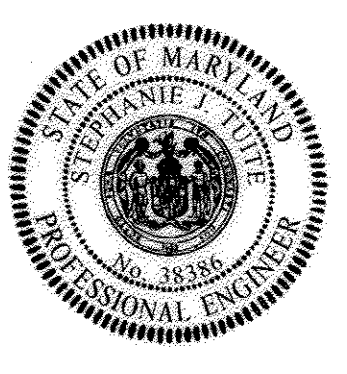


APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Division of Land Development
 Chief, Development Engineering Division

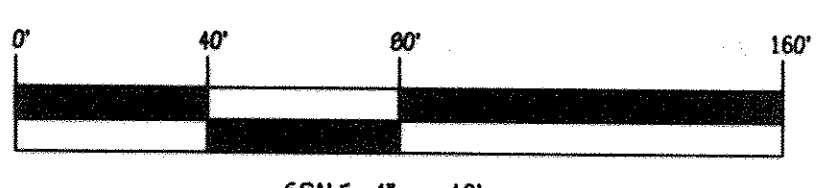
FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELLETT CITY, MARYLAND 21042
 410.651-3295

OWNER/DEVELOPER
 BETHANY LANE LLC
 PO BOX 492
 LISBON, MARYLAND 21765
 410-499-7900

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38366, EXPIRATION DATE: 01/12/2020.
 Signature of Professional Engineer: *Abraham J. J. J.* 10/20/18
 DATE



ENVIRONMENTAL CONCEPT PLAN
GERMAN PROPERTY, LOTS 27 THRU 31
(A RESUBDIVISION OF LOT 22)
 3062 BETHANY LANE (9015 BARNHILL COURT)
 ZONED: R-20
 TAX MAP #17 PARCEL 132
 SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN DATE: JANUARY, 2018
 SHEET 2 OF 3



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature]
 Chief, Development Engineering Division

[Signature]
 Chief, Development Engineering Division

1/31/18
 Date

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELLSWORTH CITY, MARYLAND 21042
 (410) 461-2295

GERMAN PROPERTY LOT 17 PLAT#14258
 GERMAN PROPERTY LOT 18 PLAT#14258

OWNER/DEVELOPER
 BETHANY LANE LLC
 PO BOX 482
 LISBON, MARYLAND 21765
 410-489-7900

PROFESSIONAL CERTIFICATION
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[Signature]
 Signature of Professional Engineer

10/20/18
 DATE



PRELIMINARY GRADING & SEDIMENT CONTROL PLAN
GERMAN PROPERTY, LOTS 27 THRU 31
(A RESUBDIVISION OF LOT 22)
 3062 BETHANY LANE (9015 BARNHILL COURT)

ZONED: R-20
 TAX MAP #17 PARCEL: 132
 SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN DATE: JANUARY, 2018
 SHEET 3 OF 3