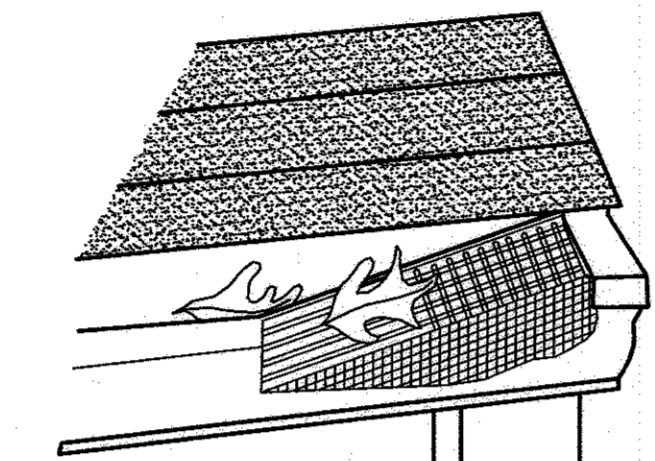
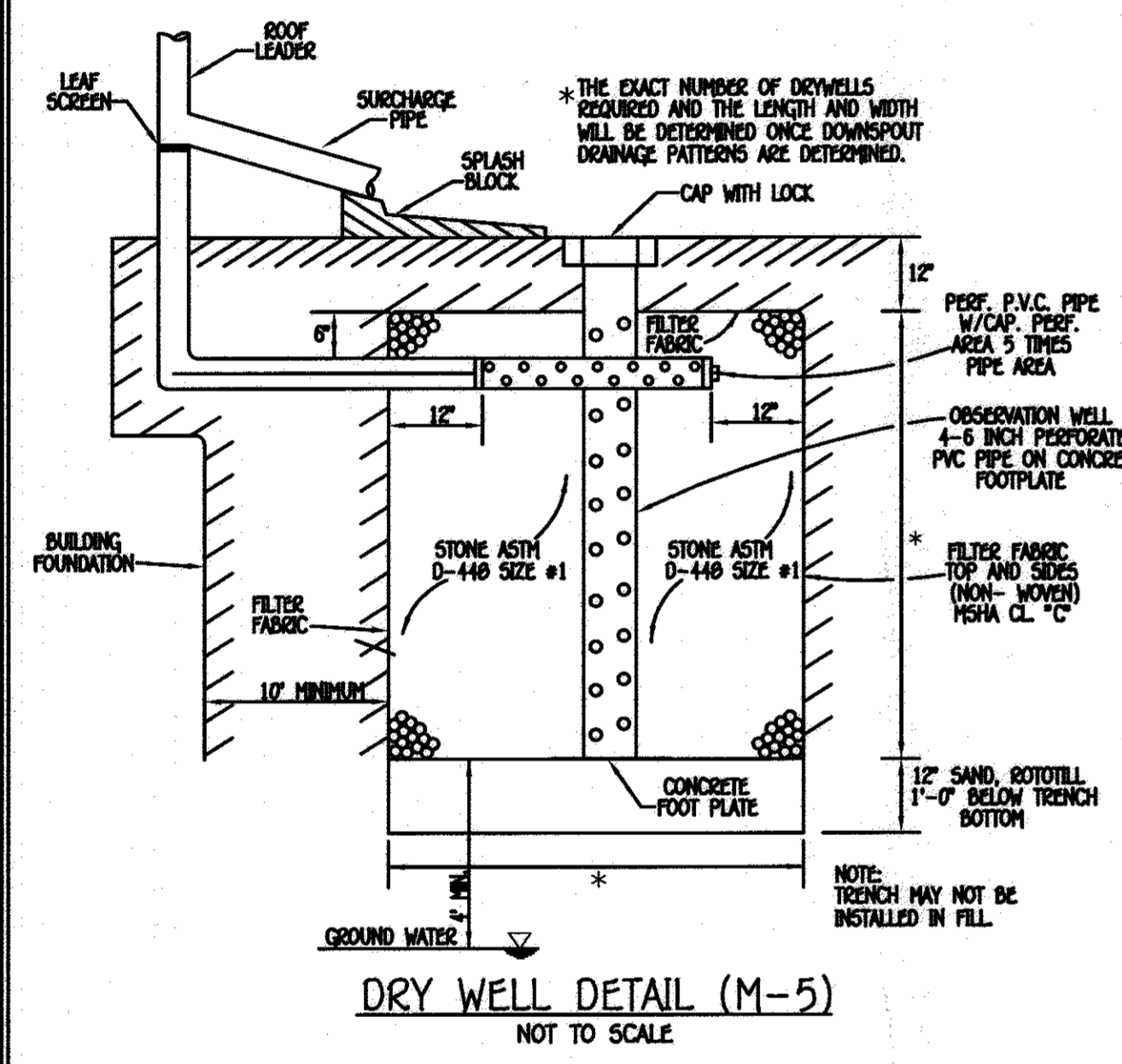


SHEET INDEX	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	ENVIRONMENTAL CONCEPT PLAN

SOILS LEGEND			
SOIL	NAME	CLASS	K FACTOR
GhB	Glenn-Urbán land complex, 0 to 8 percent slopes	B	0.20
GnB	Glennville-Báile silt loams, 0 to 8 percent slopes (HYDRIC)	C	0.37

STORMWATER MANAGEMENT SUMMARY			
AREA ID.	ESD PROVIDED CU.FT.	ESD REQUIRED CU.FT.	REMARKS
SITE	279	306	DRY WELLS (M-5)
TOTAL	279	306	

GROSS AREA = 0.459 ACRES
 LOD = 0.23 ACRES
 RCN = 50.9
 TARGET P_e = 1.0'



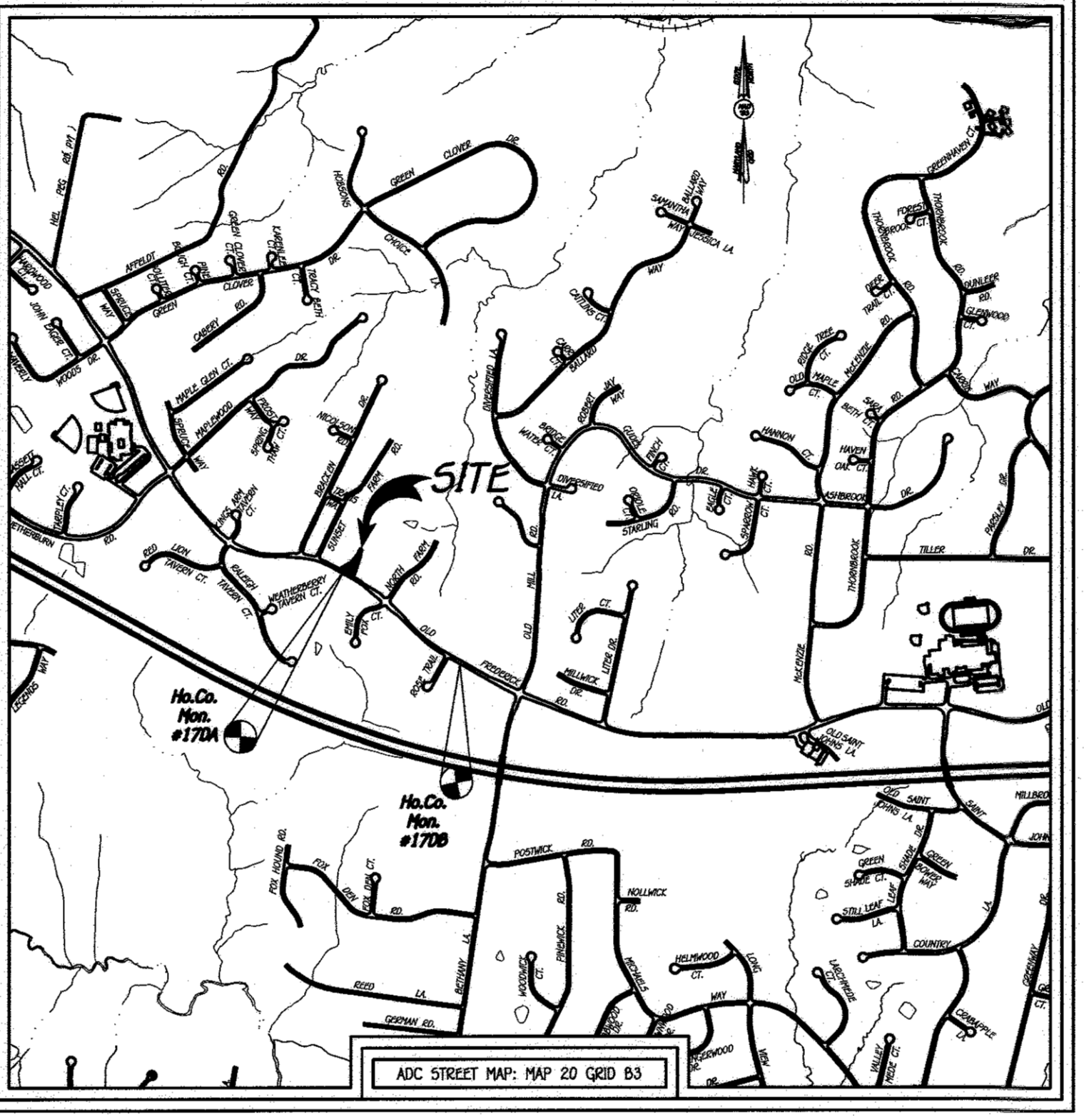
GUTTER DRAIN FILTER DETAIL
NOT TO SCALE

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.

DRY WELL CHART						
DRYWELL NO.	AREA OF ROOF PER DOWN SPOUT	VOLUME REQUIRED	VOLUME PROVIDED	AREA OF TREATMENT	L	W
FRONT LT	505 SQ. FT.	40 C.F.	72 C.F.	100%*	6'	6' x 5'
FRONT RT	502 SQ. FT.	47 C.F.	72 C.F.	100%*	6'	6' x 5'
REAR	798 SQ. FT.	64 C.F.	162 C.F.	100%*	9'	9' x 5'

* AREA OF TREATMENT EXCEEDS THAT REQUIRED.



VICINITY MAP
SCALE: 1" = 1200'

BENCHMARK INFORMATION	
B.M.#1 - HOWARD COUNTY CONTROL STATION #170A - HORIZONTAL - (NAD '83) (LOCATED ON RT. 99, 0.4 MILES WEST OF BETHANY LANE) N 595,410,810 E 1,351,641,181 ELEVATION = 481.246 - VERTICAL - (NAVD '88)	
B.M.#2 - HOWARD COUNTY CONTROL STATION #170B - HORIZONTAL - (NAD '83) (LOCATED ON RT. 99, 0.1 MILES WEST OF BETHANY LANE) N 594,529,513 E 1,352,722,655 ELEVATION = 475.219 - VERTICAL - (NAVD '88)	

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%		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")	
Curbin drain	ornamental stone: washed cobbles	approx. 2" to 3"	
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 750, Type P5 28 or ASHTO M-276	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 pipe; not necessary underneath pipe. Perforated pipe shall be wrapped with 1/4 inch galvanized hardware cloth
Poured in place concrete (if required)	NSHA Mix No. 3, f = 3500 psi at 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-80	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design and approved by a professional structural engineer. (cast-in-place or pre-cast) not using preapproved aggregate 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 308.6R; 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 Dabase and Graystone (ASHTO) #10 are not acceptable. No calcium carbonate or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

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.

SITE ANALYSIS DATA CHART

- TOTAL AREA OF THIS SUBMISSION = 20,000 SQ.FT. OR 0.459 AC.
- LIMIT OF DISTURBED AREA = 10,202 SQ.FT. OR 0.23 AC.
- PRESENT ZONING DESIGNATION = R-20
(PER 10/06/2013 COMPREHENSIVE ZONING PLAN)
- PROPOSED USE: RESIDENTIAL
- PREVIOUS HOWARD COUNTY FILES: F-91-43, F-15-107, & WP-91-037
- TOTAL AREA OF FLOODPLAIN LOCATED ON-SITE = 0.00 AC
- TOTAL AREA OF SLOPES IN EXCESS OF 15% = 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 GREEN OPEN AREA = 0.40 AC
- TOTAL IMPERVIOUS AREA = 0.06 AC
- TOTAL AREA OF ERODIBLE SOILS = 0.12 AC. (HYDRIC SOILS)
- TOTAL AREA OF ROAD DEDICATION = 0.00 AC.

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 (M&S 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, 2015. TOPOGRAPHY SHOWN HEREON IS BASED ON FIELD RUN TOPOGRAPHY PERFORMED BY FISHER, COLLINS & CARTER, INC. DATED MARCH, 2015 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. 170A AND 170B WERE USED FOR THIS PROJECT.
- PREVIOUS DPZ FILE NUMBERS: F-91-43, F-15-107, & WP-91-037.
- 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. LOT IS TO BE SERVED PUBLIC WATER AND PUBLIC SEWER, CONTRACT #34-3643-D.
- ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.
- THE SUBJECT PROPERTY IS ZONED R-20 (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 FISHER, COLLINS & CARTER, INC. DATED OCTOBER, 2016.
- THIS LOT IS EXEMPT FROM FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1202(b)(1)(i), SINCE IT IS A LOT LESS THAN 40,000 SQ.FT. IN SIZE.
- APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED SUBDIVISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN AND/OR RED-LINE REVISION PLAN. REVIEW OF THIS PROJECT FOR COMPLIANCE WITH THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE HOWARD COUNTY ZONING REGULATIONS SHALL OCCUR AT THE SUBDIVISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN STAGES AND/OR RED-LINE REVISION PROCESS. THE APPLICANT AND CONSULTANT SHOULD EXPECT ADDITIONAL AND MORE DETAILED REVIEW COMMENTS (INCLUDING COMMENTS THAT MAY ALTER THE OVERALL SITE DESIGN) AS THIS PROJECT PROGRESSES THROUGH THE PLAN REVIEW PROCESS.
- NO STRUCTURES EXIST ON THIS LOT.
- COORDINATES BASED ON NAD '83, MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 170A AND 170B.
STATION NO. 170A NORTH 595,410,830 EAST 1,351,641,100 ELEV.=481.26
STATION NO. 170B NORTH 594,529,510 EAST 1,352,722,920 ELEV.=475.23
- ALL LOT AREAS ARE MOVED OR RELOCATED (A) ALLOWING DIRECT ACCESS ONTO OLD FREDERICK ROAD (A MINOR ARTERIAL) FOR THE PROPOSED LOTS; AND ALSO TO SECTIONS 16.115.B.2 AND 16.115.C.1 TO REDUCE THE FLAG OR PIPESTEM WIDTH TO 10 FEET AND TO CLUSTER THREE FLAG OR PIPESTEMS TOGETHER.
- NO DISTANCES SHOWN ARE BASED ON SURFACE MEASUREMENT AND NOT REDUCED TO NAD '83 GRID MEASUREMENT.
- TRAFFIC STUDY IS NOT REQUIRED FOR THIS PROJECT.
- NO CEMETERIES EXIST ON THIS SITE BASED ON A VISUAL SITE VISIT AND BASED ON THE EXAMINATION OF THE HOWARD COUNTY CEMETERY INVENTORY MAP.
- PUBLIC WATER AND PUBLIC SEWER SERVICE HAS BEEN GRANTED UNDER THE TERMS AND PROVISIONS THEREOF, EFFECTIVE 08-23-91 ON WHICH DATE DEVELOPER AGREEMENT NO. 24-3113-D WAS FILED AND ACCEPTED.
- NO NOISE STUDY IS REQUIRED FOR THIS PROJECT.
- THIS PLAN IS SUBJECT TO WP-91-037 WHICH ON DECEMBER 11, 1990 THE PLANNING DIRECTOR APPROVED A WAIVER TO SECTION 16.115.C.4 ALLOWING DIRECT ACCESS ONTO OLD FREDERICK ROAD (A MINOR ARTERIAL) FOR THE PROPOSED LOTS; AND ALSO TO SECTIONS 16.115.B.2 AND 16.115.C.1 TO REDUCE THE FLAG OR PIPESTEM WIDTH TO 10 FEET AND TO CLUSTER THREE FLAG OR PIPESTEMS TOGETHER.
- SOILS SHOWN HEREON ARE BASED ON HOWARD COUNTY SOIL SURVEY, MAP #13.

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 "wooded 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:
 Klein Property, Lot 5 involves development of a single family lot that is currently unimproved and has a number of individual trees on-site. Property is zoned R-20 and located on Tax Map 17, Grid B, Parcel No. 613, Lot 5 of the Howard County, Maryland Tax Map Database System. Lot will utilize connections to existing water and sewer mains. The property is located in the Ellicott City area of Howard County in the watershed of the Lower North Branch of the Patuxent River (02130906). This property is trapezoidal in shape (long and narrow) and runoff on-site is mainly from north to south. The existing off-site house to the west acts as a high point for runoff to Lot 5. The individual driveway will connect to existing common driveway onto Old Frederick Road per plat #23410. Being that the lot is less than 40,000 sq.ft., it is not subject to the forest conservation regulations. Also, according to a field inspection, no wetlands or streams are present on-site. The Web Soil Survey shows soils on the site consist of Glenn-Urbán Complex (GhB), Type "B" soils and Glennville silt loam (GnB), Type "C" soils exist on the property. Rooftop runoff will be treated by three (3) Dry Wells (M-5) and oversized to account for runoff from the short proposed driveway which cannot be treated.

- Natural Resource Protection:**
 Environmentally sensitive areas do not exist on-site, therefore no special effort is required to protect natural resource on-site.
- Maintenance of Natural Flow Patterns:**
 It is the intent of the proposed design to discharge runoff similar to the characteristics and direction of this site prior to any of the proposed improvements.
- Reduction of impervious areas through better site design, alternative surfaces and Nonstructural Practices:**
 The design will make use of the design of this project utilizes an individual driveway that will access the existing common driveway. Non-structural practices as permitted in Chapter 5, three (3) Dry Wells (M-5) will be used to attend ESD to the MEP requirements.
- Integration of Erosion and Sediment Controls into Stormwater Strategy:**
 Since this is a small drainage area (site sheet flows mainly from the northern property line to the southern property line, silt fence, super silt fence, and permanent soil stabilization matting will be utilized for erosion & sediment control. There is no direct discharge of runoff directly to a stream. All site runoff will discharge to the existing ground then eventually to the Patuxent River. No drainage easements will be required. It is anticipated that all cut will be utilized on-site for construction at time of Site Development Plans.
- Implementation of ESD Planning Techniques and practices to the Maximum Extent Practicable (MEP):**
 The full required ESD volume is being provided.
- Request for a Design Manual Waiver:**
 No waivers related to stormwater management are being requested in the project.

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SERVICE OFFICE: PARK - 10772 BALTIMORE NATIONAL PIKE
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2999

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 ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38386, EXPIRATION DATE: 01/12/2018.
 Signature of Professional Engineer: [Signature]
 DATE: 11/12/17

BUILDER / DEVELOPER
 BURKARD HOMES
 2500 DORSEY HALL ROAD
 SUITE 102
 ELICOTT CITY, MD 21042
 240-375-1012

OWNER
 KAREN KILLIAN
 10080 OLD FREDERICK ROAD
 SUITE 102
 443-864-1403

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Division of Land Development: [Signature] 1-18-17 Date

Chief, Development Engineering Division: [Signature] 1-20-17 Date

PROJECT
 10078 OLD FREDERICK ROAD
 MARK KLEIN PROPERTY, LOT 5

SECTION
 N/A

PARCEL NO.
 613

DEED	BLOCK NO.	ZONE	TAX/ZONE	ELEC. DIST.	CENSUS TR.
12051/371	B	R-20	17	SECOND	602100

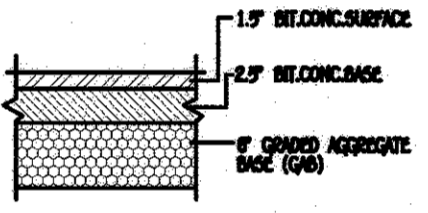
TITLE SHEET

10078 OLD FREDERICK ROAD
 MARK KLEIN PROPERTY, LOT 5
 ZONED R-20
 TAX MAP No. 17 GRID No. B PARCEL No.613
 SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN DATE: DECEMBER, 2016
 SHEET 1 OF 2

ECP-17-008

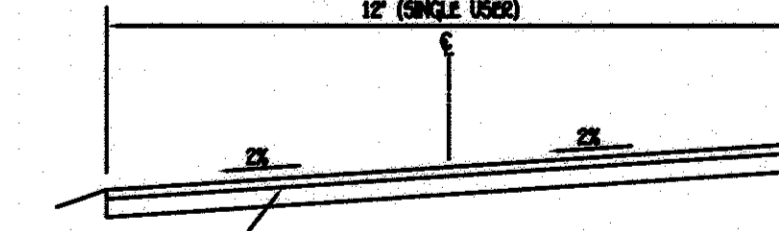
LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
---	EXISTING 2' CONTOURS	---	PROPOSED CONTOUR
---	EXISTING 10' CONTOURS	+	SPOT ELEVATION
GfB GfC	SOILS LINES AND TYPE	---	LIMITS OF DISTURBANCE
---	EXISTING TREELINE	---	PROPOSED TREELINE
---	EXISTING FENCE LINE	---	SILT FENCE
---	EXISTING PAVING	---	PERMANENT SOIL STABILIZATION MATTING
---	DRAINAGE AREA DIVIDE	---	SUPER SILT FENCE
---	EXISTING 65 DBA NOISE LINE (PLAT NO. 10092)	---	STABILIZED CONSTRUCTION ENTRANCE
---	EX. 30' PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 1-4 (PLAT NO. 10092 & L. 2392, F. 009) LOTS 1 & 2 RENUMBERED AS 5 & 6	---	EX. 30' PRIVATE ACCESS EASEMENT FOR THE USE AND BENEFIT OF LOT 6
---	EX. 30' PUBLIC WATER, SEWER & UTILITY EASEMENT (PLAT NO. 10092)	---	EX. 30' PRIVATE SEWER, WATER EASEMENT FOR THE USE AND BENEFIT OF LOT 6

STORMWATER MANAGEMENT PRACTICES				
LOT NO.	DISCONNECTION OF ROOFTOP RUNOFF (N-1) Y/N, NUMBER	DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2) Y/N	DRY WELLS (M-3) Y/N, NUMBER	MICRO-BIORETENTION (M-6) Y/N, NUMBER
5	NO	NO	YES, THREE (3)	NO

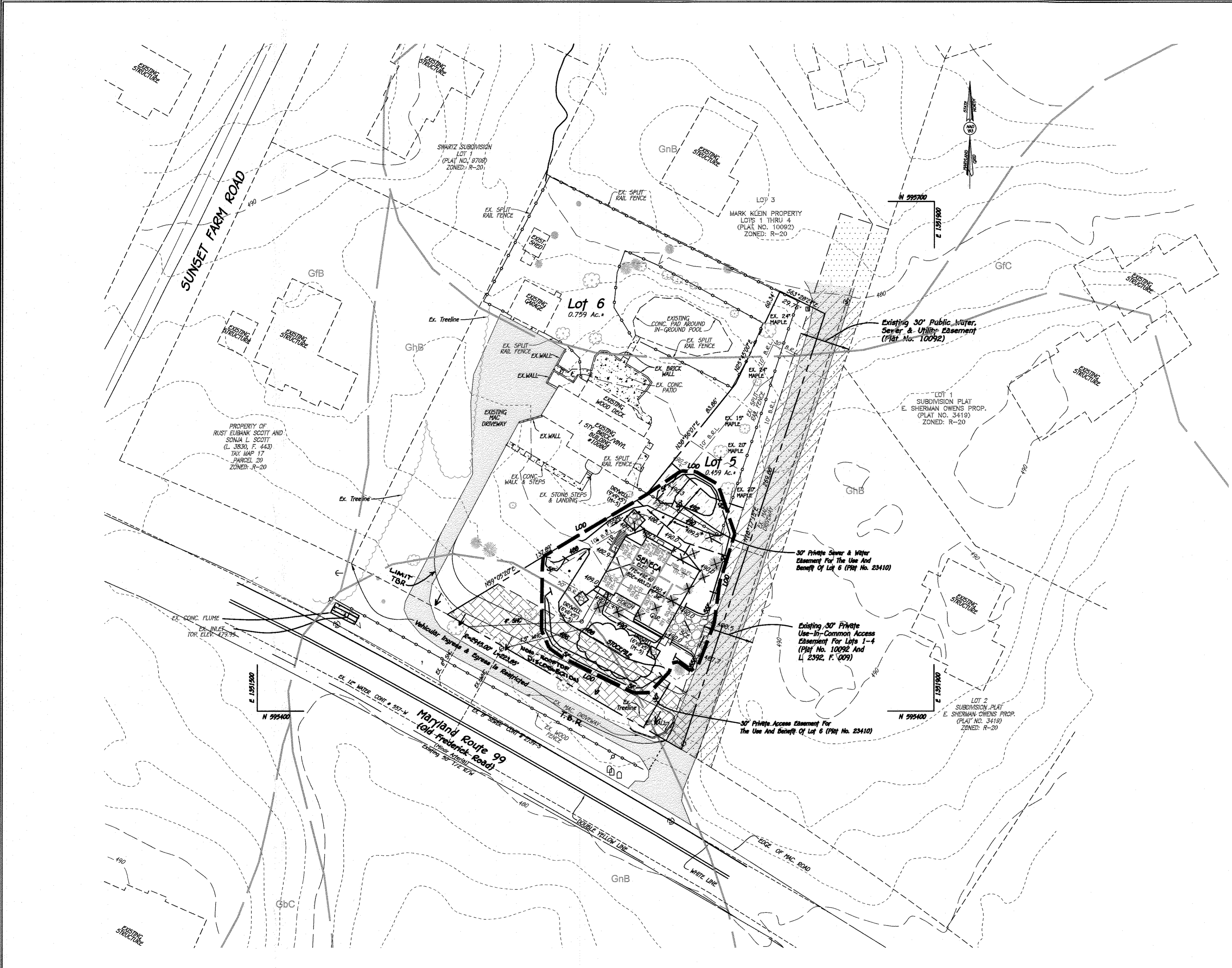


P-1 DRIVEWAY PAVING SECTION
NOT TO SCALE

NOTE: APPROVAL OF THIS PLAN BY HOWARD SOIL CONSERVATION DISTRICT DOES NOT PROVIDE APPROVAL OF THE SHOWN SEDIMENT CONTROLS.



TYPICAL PRIVATE DRIVE CROSS SLOPE SECTION
NOT TO SCALE



FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CONTINENTAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 481-2299

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 ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38366, EXPIRATION DATE: 01/12/2018.

Signature 11/2/17 DATE

Signature Of Professional Engineer DATE

BUILDER / DEVELOPER
BUREKARD HOMES
5300 DORSEY HALL ROAD
SUITE 102
ELLICOTT CITY, MD 21042
240-375-1012

OWNER
KAREN KILLIAN
10078 OLD FREDERICK ROAD
ELLICOTT CITY, MD 21042
443-864-1403

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Signature 1-18-17 Date
Chief, Division of Land Development

Signature 1-20-16 Date
Chief, Development Engineering Division

PROJECT	SECTION	PARCEL NO.
10078 OLD FREDERICK ROAD MARK KLEIN PROPERTY, LOT 5	N/A	613

DEED	BLOCK NO.	ZONE	TAX/ZONE	ELEC. DIST.	CENSUS TR.
12051/371	8	R-20	17	SECOND	602100

ENVIRONMENTAL CONCEPT PLAN

10078 OLD FREDERICK ROAD
MARK KLEIN PROPERTY, LOT 5
ZONED R-20
TAX MAP No. 17 GRID No. 8 PARCEL No. 613
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: DECEMBER, 2016
SHEET 2 OF 2

ECP-17-008