

GENERAL NOTES

- THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- THE EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON A TOPOGRAPHIC SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED MAY, 2015, AND FROM HOWARD COUNTY GIS.
- THE PROJECT BOUNDARY IS BASED ON PRECISION INPUT FROM EXISTING DEEDS BY ROBERT H. VOGEL ENGINEERING, INC., DATED MAY 2015.
- THE COORDINATES AND ELEVATIONS SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY CONTROL STATIONS 35-11 & 35-12 WERE USED FOR THIS PROJECT.
- THE SUBJECT PROPERTY IS ZONED RC-RURAL CONSERVATION IN ACCORDANCE WITH THE ZONING REGULATIONS EFFECTIVE ON OCT. 06, 2013, AND IS SUBJECT TO SUBDIVISION AND LAND DEVELOPMENT REGULATIONS EFFECTIVE OCT. 07, 2007 PER COUNCIL BILL 47-2007 & 48-2007. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION OR BUILDING/GRADING PERMIT APPLICATIONS.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAM(S) OR THEIR REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATION EASEMENT AREAS.
- THIS PROPERTY IS NOT LOCATED WITHIN THE METROPOLITAN DISTRICT.
- WATER FOR THIS PROJECT IS TO BE BY PRIVATE WELLS.
- SEWER FOR THIS PROJECT IS TO BE BY PRIVATE SEPTIC SYSTEMS.
- EXISTING UTILITIES LOCATED FROM TOPOGRAPHIC SURVEY AND AS-BUILT DRAWINGS. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE.
- THERE ARE NO "FLOODPLAIN" AREAS LOCATED WITHIN THE DEVELOPMENT AREA AS PER FEMA DFIRM MAPS APPROVED BY FEMA AND EFFECTIVE FOR COUNTY DEVELOPMENT RESTRICTIONS AS OF MAY 6, 2013.
- THERE ARE 0 S.F. (0.00 AC.) +/- 25% STEEP SLOPES, AND 0 S.F. (0.00 AC.) 15%-24.99% STEEP SLOPES OVER 20,000 SF CONTIGUOUS LOCATED WITHIN THE DEVELOPMENT AREA.
- FOREST CONSERVATION WILL NOT BE REQUIRED FOR THIS PROJECT, BECAUSE THE PROPERTY IS UNDER A RECORDED AGRICULTURAL EASEMENT AND THE NEW FOOD HUB USE IS ASSOCIATED WITH THE AGRICULTURAL USE.
- THERE ARE 0 S.F. (0.00 AC.) AREA OF WETLANDS PRESENT WITHIN THE DEVELOPMENT AREA PER ECO-SCIENCE PROFESSIONALS, INC. C/O MR. JOHN CANOLES, NOVEMBER 2015.
- IN ACCORDANCE WITH SECTION 16.121(A)(2) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, THERE IS NO OPEN SPACE REQUIREMENTS FOR THIS R-C-DEO (AGRICULTURAL PRESERVATION) PROJECT.
- GEOTECHNICAL INVESTIGATIONS SHALL COMPLETED AS PART OF THE FINAL PLAN SUBMISSION.
- A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
- A FOREST STAND DELINEATION PLAN, ENVIRONMENTAL STUDIES AND REPORT HAVE BEEN PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. C/O MR. JOHN CANOLES, NOVEMBER 2015. MR. CANOLES NOTED A SMALL AREA OF FOREST ENCROACHMENT IN THE NORTHWEST CORNER OF THE DEVELOPMENT AREA, BUT NO SPECIMEN TREES OR ANY OTHER REGULATED ENVIRONMENTAL FEATURES WERE FOUND WITHIN THE LIMITS OF THE DEVELOPMENT AREA FOR THIS PROJECT. SHEPPARD LANE IS CLASSIFIED AS A MINOR COLLECTOR. SITE ACCESS SHALL BE VIA A PRIVATE COMMERCIAL DRIVEWAY. TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS, CEMETERIES, OR HISTORIC STRUCTURES LOCATED WITHIN THE DEVELOPMENT AREA.
- THERE ARE NO EXISTING DWELLINGS OR STRUCTURES WITHIN THE DEVELOPMENT AREA.
- THE PROPOSED BUILDING SHALL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM.
- STORMWATER MANAGEMENT FOR THE PROJECT IS PROVIDED BY THE USE OF NON-STRUCTURAL AND MICRO-SCALE PRACTICES IN ACCORDANCE WITH ENVIRONMENTAL SITE DESIGN CRITERIA. MICRO-SCALE PRACTICES INCLUDE MICRO-BIORETENTION (M-6) FACILITIES, AND NON-ROOFTOP DISCONNECT (N-2) FOR A PORTION OF THE LOADING DOCK. THESE FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED.
- APPROVAL OF THIS ENVIRONMENTAL CONCEPT PLAN (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 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.
- APPROVAL OF THIS ENVIRONMENTAL CONCEPT PLAN (ECP) BY THE HOWARD SOIL CONSERVATION DISTRICT DOES NOT GRANT APPROVAL OF THE PROPOSED SEDIMENT CONTROL SCHEME.
- DEVELOPMENT OF THIS PROPERTY SHALL FOLLOW THE GUIDELINE CRITERIA ENUMERATED UNDER SECTION 16.125 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS FOR THE PROTECTION OF SCENIC ROADS.

SITE DATA

TAX MAP 29, BLOCK 13, PARCEL 25
5TH ELECTION DISTRICT
PRESENT ZONING: R-C-DEO-RURAL RESIDENTIAL
TOTAL AREA OF PROPERTY: 162,07 AC.
DPZ REFERENCES: HO-10-03E
DEED/PLAT REFERENCES: L9771/F.214, L15767/F.420, L15767/F.530, L12661/F.466
AREA MANAGED BY ESDV (THIS PLAN-DEVELOPMENT AREA): 246,114 S.F./5.65 AC.
USE OF PROPOSED STRUCTURES (THIS PLAN): AGRICULTURAL/FOOD
*TOTAL BUILDING COVERAGE WITHIN THE DEVELOPMENT AREA: 6,598 SF (0.15 AC. OR 2.68%)
*PAVED AREA WITHIN THE DEVELOPMENT AREA: 24,468 SF (0.56 AC. OR 9.94%)
*AREA OF LANDSCAPE ISLANDS: 741 SF (0.17 AC. OR 0.2% OF GROSS AREA)
LIMIT OF DISTURBED AREA (THIS PLAN): 122,900 SF / 2.82 AC
*WETLANDS ON SITE: 0.00 AC.
*WETLAND BUFFERS ON SITE: 0.00 AC.
*STREAMS AND THEIR BUFFERS ON SITE: 0.00 AC.
*AREA OF 100 YEAR FLOODPLAIN: 0.00 AC.
*AREA OF EXISTING FOREST ON SITE: 0.14 AC.
*AREA OF STEEP SLOPES (15% OR GREATER): 0.00 AC.
*AREA OF ERODIBLE SOILS: 3.21 AC.
*IMPERVIOUS AREA: 31,066 S.F. / 0.71 AC.
*GREEN AREA 215,049 S.F. / 4.94 AC.
NOTE *WITHIN LIMITS OF DEVELOPMENT AREA ONLY

ENVIRONMENTAL SITE DESIGN NARRATIVE

IN ACCORDANCE WITH CHECKLIST ITEM III.C.

- THIS ENVIRONMENTAL CONCEPT PLAN PERTAINS ONLY TO THE 5.65 AC. DEVELOPMENT AREA FOR THE PROPOSED FOOD HUB INDICATED HEREON. AN ENVIRONMENTAL STUDY BY ECO-SCIENCE PROFESSIONALS, INC. DETERMINED THAT THERE ARE NO STREAMS, WETLANDS OR THEIR BUFFERS WITHIN THIS DEVELOPMENT AREA. THE TOPOGRAPHY DOES NOT RESULT IN ANY STEEP SLOPES OVER 25% WITHIN THIS DEVELOPMENT AREA ACCORDING TO CURRENT DFIRM APPROVED BY FEMA AND HOWARD COUNTY. THERE IS AN AREA OF 100YR FLOODPLAIN LOCATED WITHIN THE PROPERTY BOUNDARY, HOWEVER NONE EXISTS WITHIN THE DEVELOPMENT AREA FOR THIS PLAN. THE NATURAL RESOURCES WILL REMAIN UNDISTURBED, PROTECTED AND ENHANCED.
- THE SITE'S TOPOGRAPHY NATURALLY SLOPES FROM SOUTHEAST TO NORTHWEST. THE SITE HAS BEEN DESIGNED TO MAINTAIN THESE NATURAL FLOW PATTERNS.
- THE CONCEPTUAL REDUCTION IN IMPERVIOUS AREA THROUGH BETTER SITE DESIGN IS ACHIEVED THROUGH THE ENVIRONMENTAL SITE DESIGN (ESD) FOR THE PROJECT TO THE MAXIMUM EXTENT PRACTICABLE (MEP). THE ESD CONCEPT PROPOSES THE USE OF TWO (2) MICRO-BIORETENTION FACILITIES (M-6). THE OVERFLOW FOR THE MBR FACILITY #1 (M-6) WILL DISCHARGE BY WEIR OVER A PRIVATE, PAVED LOADING AREA AND THEN SHEETFLOW TO A WOODED AREA AND OFFSITE STREAM TOWARD THE NORTHWEST CORNER OF THE SITE. THE UNDERDRAINS WILL BE DIRECTED UNDER THE LOADING DOCK AND OUTFALL TOWARD THE NORTHWEST CORNER OF THE DEVELOPMENT AREA. THE OVERFLOW FOR MBR FACILITY # 2 WILL DISCHARGE BY WEIR FOR A SHORT DISTANCE OVER A GRASSED AREA, INTO A WOODED AREA AND EVENTUALLY TO A NEARBY STREAM LOCATED OFFSITE. THE UNDERDRAINS FOR MBR#2 WILL ALSO BE DIRECTED TOWARD THE WOODED AREA TO THE NORTHWEST. THE PROPOSED ESD PRACTICES SHALL BE PRIVATELY OWNED AND MAINTAINED.
- SEDIMENT CONTROL FOR THIS SPECIFIC SITE PLAN WILL BE PROVIDED THROUGH THE USE OF PERIMETER CONTROLS (SILT FENCE, SUPER SILT FENCE CLEAN WATER DIVERSION DIKE/SWALE, EARTH DIKES) AND INLET PROTECTION. SEDIMENT CONTROL SHALL BE IN ACCORDANCE WITH THE CURRENT REQUIREMENTS AND SHALL BE APPROVED BY THE HOWARD SOIL CONSERVATION DISTRICT.
- AS STATED IN #3 ABOVE, STORMWATER MANAGEMENT FOR THE PROJECT SHALL BE MET THROUGH THE USE OF A MICRO-BIORETENTION FACILITY (M-6) AND BY BIO-SWALE (M-B). THESE FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED. THE RESULTS OF THE ENVIRONMENTAL SITE DESIGN FOR THIS PROJECT WILL REFLECT "WOODS IN GOOD CONDITION".
- NO DESIGN MANUAL WAIVERS ARE ANTICIPATED TO FULFILL THIS SWM CONCEPT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Elaine Blum 7-10-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Michael 7-15-16
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

ENVIRONMENTAL CONCEPT PLAN

CUNNINGHAM PROPERTY - FOOD HUB

4979 SHEPPARD LANE

L.15767/F.530



LOCATION MAP
SCALE: 1"=300'

NOTES:

- APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED BUILDING AND/OR GRADING PERMIT
- REVIEW OF THIS PLAN FOR COMPLIANCE WITH ZONING AND SUBDIVISION AND LAND DEVELOPMENT REGULATIONS SHALL OCCUR AT THE PERMIT STAGES; AND THEREFORE, THIS PLAN IS SUBJECT TO ADDITIONAL AND MORE DETAILED COMMENTS AS THE PLAN PROGRESSES THROUGH THE PERMIT PROCESS.
- ENVIRONMENTAL FEATURES:
THERE ARE NO WETLANDS, STREAMS OR STEEP SLOPES WITHIN THE DEVELOPED AREA. THERE ARE TWO SMALL AREAS OF FOREST IN THE SOUTHEAST AND NORTHWEST CORNERS OF THE DEVELOPMENT AREA.
NO DISTURBANCE TO ANY STREAMS, FLOODPLAIN, WETLANDS OR THEIR BUFFERS ARE PROPOSED.

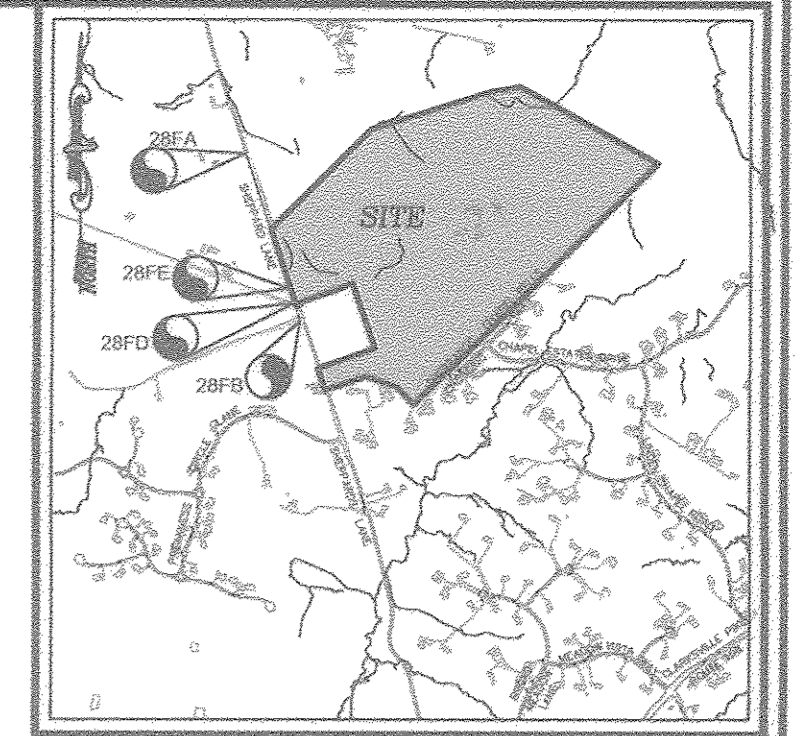
Eco-Science Professionals, Inc.
Consulting Ecologists
P.O. Box 5006 Glen Aron, Maryland 21057 Telephone (410) 832-2480 Fax (410) 832-2488

MD DNR Qualified Professional
USACOF Wetland Delineator
Certification # WDCP93MD0610044132
John F. Canoles

WATERSHED NAME: MIDDLE PATUXENT RIVER
SUB-BASIN NUMBER: 02-13-11
WATERSHED NUMBER: 2131106

BENCHMARKS

HOWARD COUNTY BENCHMARK 28FA	N 572,456.68	E 1,328,957.64	ELEV.: 348.21'
HOWARD COUNTY MONUMENT			
HOWARD COUNTY BENCHMARK 28FB	N 570,710.84	E 1,329,524.63	ELEV.: 385.45'
HOWARD COUNTY MONUMENT			
HOWARD COUNTY BENCHMARK 28FD	N 570,895.88	E 1,329,461.33	ELEV.: 381.91'
HOWARD COUNTY MONUMENT			
HOWARD COUNTY BENCHMARK 28FE	N 571,047.81	E 1,329,404.44	ELEV.: 380.85'
HOWARD COUNTY MONUMENT			



SHEET INDEX

DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 3
LAYOUT, GRADING & SEDIMENT CONTROL PLAN	2 OF 3
ESDV DRAINAGE AREA MAP AND DETAILS	3 OF 3

LEGEND

	EXISTING CONTOUR
	PROPOSED CONTOUR
	EXISTING CURB AND GUTTER
	PROPOSED CURB AND GUTTER
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING MAILBOX
	EXISTING SIGN
	EXISTING SANITARY MANHOLE
	EXISTING SANITARY LINE
	EXISTING CLEANOUT
	EXISTING FIRE HYDRANT
	EXISTING WATER LINE
	EXISTING FENCE
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	LIMIT OF EXISTING WETLANDS
	PROPOSED 100 YEAR DFIRM FLOODPLAIN
	EX. 50' BGE EASEMENT
	SOILS BOUNDARY
	EXISTING TREELINE
	PROPOSED TREELINE
	EX. PRIVATE SEPTIC EASEMENT
	PROPOSED PRIVATE SEPTIC EASEMENT
	EXISTING PRIVATE WELL
	PROPOSED PRIVATE WELL
	DEVELOPMENT AREA / LOD
	LIMIT OF DISTURBANCE / LIMIT OF DEVELOPMENT AREA

NO.	REVISION	DATE

ENVIRONMENTAL CONCEPT PLAN
COVER SHEET
CUNNINGHAM PROPERTY - FOOD HUB
4979 SHEPPARD LANE
L.15767/F.530

TAX MAP: 29 GRID: 13 PARCEL: 25
5TH ELECTION DISTRICT
ZONED: RC-DEO-RURAL RESIDENTIAL
HOWARD COUNTY, MARYLAND
DPZ REFERENCE: HO-10-03E

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET ELLICOTT CITY, MD 21043
TEL: 410.461.7666 FAX: 410.461.8961

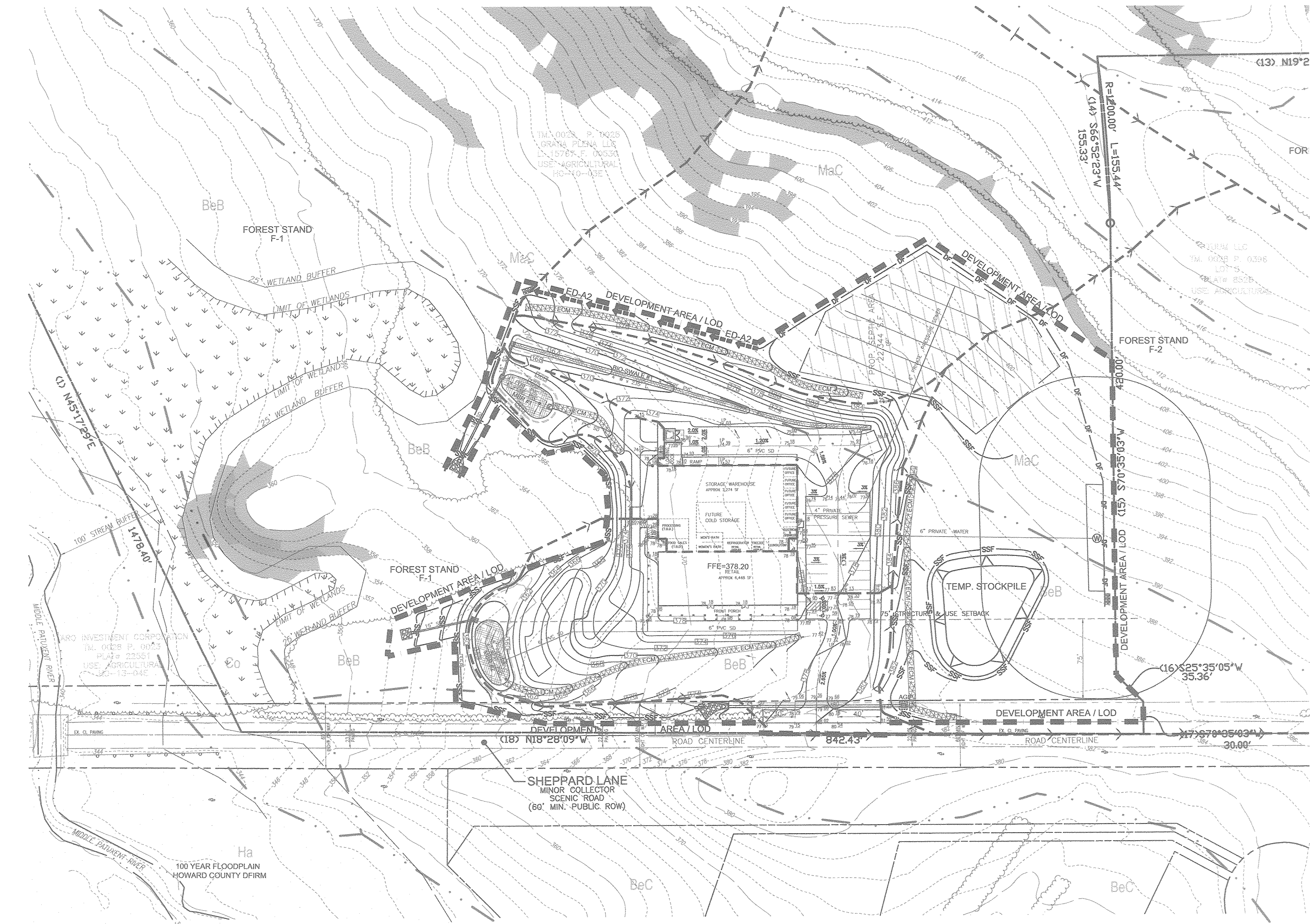
PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
EXPIRATION DATE: 08-27-2016

DESIGN BY: GAH
DRAWN BY: GAH
CHECKED BY: RHY
DATE: MAY 2016
SCALE: AS SHOWN
W.O. NO.: 14-62

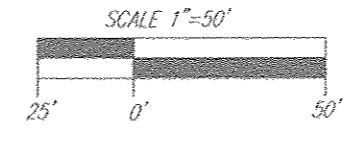
1 SHEET OF 3

OWNER/DEVELOPER:
GRATIA PLENA, LLC
11140 HOMEWOOD ROAD
ELLICOTT CITY, MD 21042
PHONE: 443-677-4612

NOTE:
ONLY A PORTION OF THE PARCEL (AREA OF LOD)
IS SHOWN ON THE ECP.



LAYOUT, GRADING AND SEDIMENT CONTROL PLAN
SCALE: 1" = 50'



LEGEND

	EXISTING CONTOUR
	PROPOSED CONTOUR
	EXISTING CURB AND GUTTER
	PROPOSED CURB AND GUTTER
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING MAILBOX
	EXISTING SIGN
	EXISTING SANITARY MANHOLE
	EXISTING SANITARY LINE
	EXISTING CLEANOUT
	EXISTING FIRE HYDRANT
	EXISTING WATER LINE
	EXISTING FENCE
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	LIMIT OF EXISTING WETLANDS
	PROPOSED 100 YEAR DFIRM FLOODPLAIN
	EX. 50' BCE EASEMENT
	SOILS BOUNDARY
	EXISTING TREELINE
	PROPOSED TREELINE
	PROPOSED SIDEWALK
	PROPOSED CONCRETE LOADING DOCK
	EX. PRIVATE SEPTIC EASEMENT
	PROPOSED PRIVATE SEPTIC EASEMENT
	EXISTING PRIVATE WELL
	PROPOSED PRIVATE WELL
	4" PRIVATE PRESSURE SEWER
	PROPOSED 6" PRIVATE WATER
	PROPOSED STORM DRAIN UNDERDRAIN / CLEANOUT
	SUPER SILT FENCE
	DEVELOPMENT AREA / LOD
	LIMIT OF DISTURBANCE
	ESv DRAINAGE DIVIDE
	CLEAN WATER DIVERSION
	DIVERSION DIKE
	STABILIZED CONSTRUCTION ENTRANCE
	EROSION CONTROL MATTING
	MICRO-BIORETENTION (M-6)
	BIO-SWALE (M-6)
	MODERATELY STEEP SLOPES 15% - 25% SLOPES
	STEEP SLOPES >25%

NOTE:
THE DEVELOPMENT AREA WITHIN THE LIMIT OF DISTURBANCE SHOWN ON THIS PLAN REPRESENTS A 5.16 AC. PORTION OF THE ENTIRE 162.07 AC. GRATIA PLENA, LLC. PARCEL AND IS FOR THE DEVELOPMENT OF THE FOOD HUB ONLY. DEVELOPMENT FOR OTHER PORTIONS OF THIS PROPERTY ARE NOT INCLUDED IN THIS PLAN.

NOTE:
EITHER PERMANENT OR TEMPORARY STABILIZATION IS TO BE APPLIED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR REGARDLESS OF DAYS/DATES IN THE STANDARD SEDIMENT CONTROL NOTES AND/OR SEEDING SPECIFICATIONS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Anderson
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 7-18-16

Kurt Stalder
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 7-15-16

HSCD NOTE:
APPROVAL OF THIS ENVIRONMENTAL CONCEPT PLAN (ECP) BY THE HOWARD SOIL CONSERVATION DISTRICT DOES NOT GRANT APPROVAL OF THE PROPOSED SEDIMENT CONTROL SCHEME.

- THE FINAL PLAN SHALL INCLUDE A SEQUENCE OF CONSTRUCTION WHICH SHALL DETAIL SEDIMENT & EROSION CONTROLS AND PHASING
- THE PROJECT SHALL ADDRESS ANY TEMPORARY STORMWATER MANAGEMENT REQUIREMENTS.
- THE FINAL PLAN SUBMISSION SHALL PROVIDE A DRAINAGE AREA MAP SPECIFIC TO CHOSEN SEDIMENT CONTROLS
- THE FINAL PLAN SUBMISSION SHALL PROVIDE COMPUTATIONS TO VERIFY VELOCITIES ALONG DIKES, SWALES AND AT DIKES OUTLET LOCATIONS

NOTE:
- SILT FENCE IS TO BE REPLACED WITH SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- SILT FENCE SHALL BE CURLED UPHILL NO MORE THAN 35 FEET APART
- DOUBLE ROWS OF SUPER SILT FENCE SHALL BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

MAPPED SOILS TYPES - CLARKSVILLE NW / NE MAP #16 / 17

SYMBOL NAME / DESCRIPTION	GROUP	K-FACTOR	HYDRIC	HYDRIC INCLUSIONS	PRIME FARMLAND	<15% SLOPE W/ EROSION POTENTIAL
BeB BENEVOLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	.43	NO	NO	YES	YES
MaC MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	.28	NO	NO	**YES	NO

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY
*FARMLAND OF STATEWIDE IMPORTANCE

NOTE:
HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

OWNER/DEVELOPER:
GRATIA PLENA, LLC
11140 HOMEWOOD ROAD
ELLCOTT CITY, MD 21042
PHONE: 443-677-4612

NO.	REVISION	DATE

ENVIRONMENTAL CONCEPT PLAN
LAYOUT, GRADING AND SEDIMENT CONTROL PLAN
CUNNINGHAM PROPERTY - FOOD HUB
4979 SHEPPARD LANE
L.15767/F.530

TAX MAP:29 GRID:13 PARCEL:25
5TH ELECTION DISTRICT

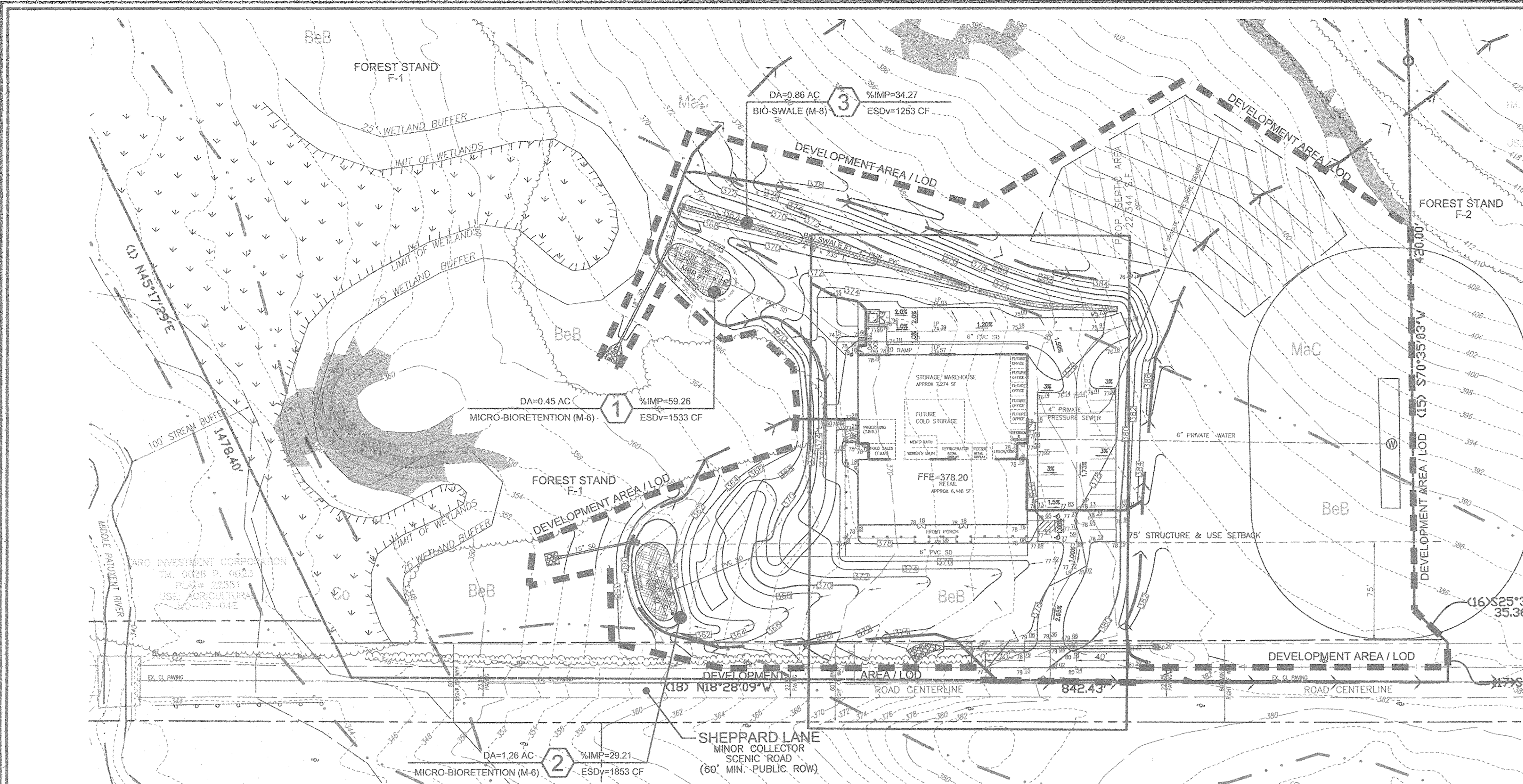
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ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLCOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.9961

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2016

DESIGN BY: GAH
DRAWN BY: GAH
CHECKED BY: RHV
DATE: MAY 2016
SCALE: AS SHOWN
W.O. NO.: 14-62

2 SHEET OF 3



- ### LEGEND
- EXISTING CONTOUR
 - PROPOSED CONTOUR
 - EXISTING CURB AND GUTTER
 - PROPOSED CURB AND GUTTER
 - EXISTING UTILITY POLE
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 - EX. PRIVATE SEPTIC EASEMENT
 - PROPOSED PRIVATE SEPTIC EASEMENT
 - EXISTING PRIVATE WELL
 - PROPOSED PRIVATE WELL
 -

APPENDIX B.4.C SPECIFICATIONS FOR MICRO-BIORETENTION, RAIN GARDEN, LANDSCAPE INFILTRATION & INFILTRATION BERMS

1. MATERIAL SPECIFICATIONS
 THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.

2. FILTERING MEDIA OR PLANTING SOIL
 THE SOIL SHALL BE A UNIFORM MIXTURE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES, NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED WITH THE MICRO-BIORETENTION PRACTICES THAT MAY BE HARMFUL TO PLANT GROWTH OR TO PLANTS. IN ADDITION TO THE PLANTING OR MAINTENANCE OPERATIONS, THE PLANTING SOIL SHALL BE FREE OF WEEDS, GRASS, GUANO, URIC ACID, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.06.01.05. THE PLANTING SOIL SHALL MEET THE FOLLOWING CRITERIA:
 • SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION).
 • ORGANIC CONTENT - MINIMUM 2% BY DRY WEIGHT (ASTM D 2974). GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60S-65S) AND COMPOST (30S TO 40S) OR SANDY LOAM (30S), COMPOST SAND (30S), AND COMPOST (40).
 • CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 2%.
 • PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0. ACIDIFIERS (E.G., LIMON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE PH.
 • PH BUFFER - SHOULD BE BETWEEN 5.5 - 7.0. ACIDIFIERS (E.G., LIMON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE PH.
 EACH BEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, AND ADDITIONAL TESTS OF ORGANIC MATTER AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED MATERIALS. TESTS OF ORGANIC MATTER AND SOLUBLE SALTS ARE NOT ACCEPTABLE. COMPACTION SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

3. COMPACTION
 IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. PRACTICES ARE EXCAVATED USING LONGER. THE CONTRACTOR SHOULD USE NEW TRUCKS OR MACHINERY EQUIPMENT WITH TUFF TIRE TREADS. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LOGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.
 COMPACTION CAN BE AVOIDED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS CHISEL PLOW, RIPPER, OR SUBGRIDER. THESE TILLING OPERATIONS ARE TO REFRACATURE THE SOIL PROFILE THROUGHOUT THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. MOTORIZERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
 ROTILLAGE 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY EXCESS WATER BEFORE PREPARING (ROTILLAGE) BASE. WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTILLAGE THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE SOIL TO THE TOP OF THE BIORETENTION FACILITY. THE BIORETENTION FACILITY SHALL BE 2\"/>

OPERATION AND MAINTENANCE SCHEDULE FOR LANDSCAPE INFILTRATION (M-3), MICRO-BIORETENTION (M-6), RAIN GARDENS (M-7), BIORETENTION SWALE (M-8), AND ENHANCED FILTERS (M-9)

- 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 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.

CUNNINGHAM PROPERTY FOOD HUB - ESDv COMPUTATIONS

DA #	% IMPERV	Rv	DA (SF)	DA (AC)	MINIMUM VOLUME	MAXIMUM VOLUME	LOD VOLUME	VOLUME PROVIDED*	IMPERV (SF)	IMPERV (AC)	GREEN AREA	Rv REQUIRED	Rv PROVIDED	CF	SF	REMARKS
1	59.26	0.5833	19400	0.45	943	2452	1000	1533	11496	0.26	0.18	383	407			MICROSCALE MICRO-BIO RETENTION 1533 SF MBR @ 1.0 PONDING 407 SF Rev/Recharge: 0.83 x 0.4 (Recharge volume required = 25% of total volume provided)
2	29.21	0.3129	54794	1.26	1420	3714	1514	1851	36094	0.37	0.89	463	463			MICROSCALE MICRO-BIO RETENTION 1851 SF MBR @ 1.0 PONDING 463 SF Rev/Recharge: 0.83 x 0.4 (Recharge volume required = 25% of total volume provided)
3	34.27	0.3584	17314	0.86	1114	2898	1181	1253	12780	0.29	0.56	313	0			MICROSCALE BIO SWALE (4.0X 23.9) 1253 SF BIO SWALE @ 1.0 PONDING
TOTALS	36.13	0.3752	111408	2.56	3486	9064	3695	4639	40286	0.92	1.63	1160	870			

PROJECT: CUNNINGHAM PROPERTY FOOD HUB
 DESIGNER: GH
 DATE: 05/18/16
 REV: ROBERT H. VOGEL ENGINEERING, INC.

DRAINAGE AREA #	AREA TREATED	FACILITY NUMBER	PERMEABLE PAVEMENT	BIO LANDSCAPE	GREEN INFILTRATION	ROOF	BIO SWALE	TRENCH	X	Recharge Volume (cf)	ESDv VOLUME
1	19400	MBR #1	0	1533	0	0	0	0	0	407	1940
2	54794	MBR #2	0	1851	0	0	0	0	0	463	2706
3	17314	BIO SWALE #3	0	0	0	0	1253	0	0	0	1253
TOTALS			0	3336	0	0	1253	0	0	870	5569

* STORAGE: 75% OF ESDv TREATED
 ESDv REQUIRED: 4178 CF TOTAL ESDv PROVIDED: 5569

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad... 7-18-16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Kat... 7-15-16
 CHIEF, DIVISION OF LAND DEVELOPMENT

ESDv DRAINAGE AREA MAP

SCALE: 1" = 50'

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Material	Specification	Note
Plantings	see Appendix A, Table A.4	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	sterilized hardwood pea gravel, ASTM D-448	aged 6 months, minimum; no pine or wood chips
Curtain drain	ornamental stone: washed cobblestones	stone: 2" to 5"
Geotextile		PE Type I nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (25" to 3/8")
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipe; not necessary underdrain pipe. 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 @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	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 318 R-09; vertical loading 150 lb or 10,000; allowable horizontal loading (based on soil pressure); and analysis of potential cracking.
Sand	AASHTO M-6 or ASTM-C-33	0.075" to 0.04"

NOTES:

- APPROVAL OF THIS SIMPLIFIED ECD DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED BUILDING AND/OR GRADING PERMIT.
- REVIEW OF THIS PLAN FOR COMPLIANCE WITH ZONING AND SUBDIVISION AND LAND DEVELOPMENT REGULATIONS SHALL OCCUR AT THE PERMIT STAGES, AND THEREFORE, THIS PLAN IS SUBJECT TO ADDITIONAL AND MORE DETAILED COMMENTS AS THE PLAN PROGRESSES THROUGH THE PERMIT PROCESS.
- THERE IS AN INTERMITTENT STREAM WHICH CROSSES THE SOUTHWEST CORNER OF THE SITE AND HAS A 50' STREAM BUFFER. THERE IS A SMALL AREA OF WETLANDS ALSO IN THE SOUTHWEST CORNER OF THE SITE. THE TOPOGRAPHY DOES NOT RESULT IN ANY STEEP SLOPES, ACCORDING TO CURRENT DFRM APPROVED BY FEMA AND HOWARD COUNTY, THERE IS NO 100YR FLOODPLAIN LOCATED ON THIS PROPERTY.

SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	HYDRIC	HYDRIC INCLUSIONS	PRIME FARMLAND	<15% SLOPE	<5% SLOPE
BeB	BENEVOLENT SILT LOAM, 3 TO 8 PERCENT SLOPES	C	.43	NO	NO	YES	YES	
McC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	.28	NO	NO	YES	NO	

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY *FARMLAND OF STATEWIDE IMPORTANCE

NOTE: HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT.

