

DESIGN NARRATIVE:
 The subject site is a residential zoned R-20 parcel, which consists of a single family detached residential unit and a driveway. There are few areas with existing woods. A target P_e was determined based on the impervious area measured and based on H₂O soil group, as per MD's SWM design guidelines. The target P_e for this site is 1.12 inches. The target P_e was treated using Environmental Site Design practices as outlined in Chapter 5 of the 2007 Maryland Stormwater Design Manual, as amended by Maryland's Stormwater Management Act of 2007. SWM requirement for the overall development has been satisfied via utilizing non rooftop disconnection, rooftop disconnection and Micro Bio-retention.

This site is located near wetland area. However, there are no wetlands that present on-site. The site has some areas of steep slopes in excess of 15%. To protect natural resources areas, it is critical to manage the safe conveyance flow and provide stormwater treatment for the development. The design consists of sharing the driveways where possible to minimize proposal of impervious area and provide sheet flow with flatter slopes in the backyards.

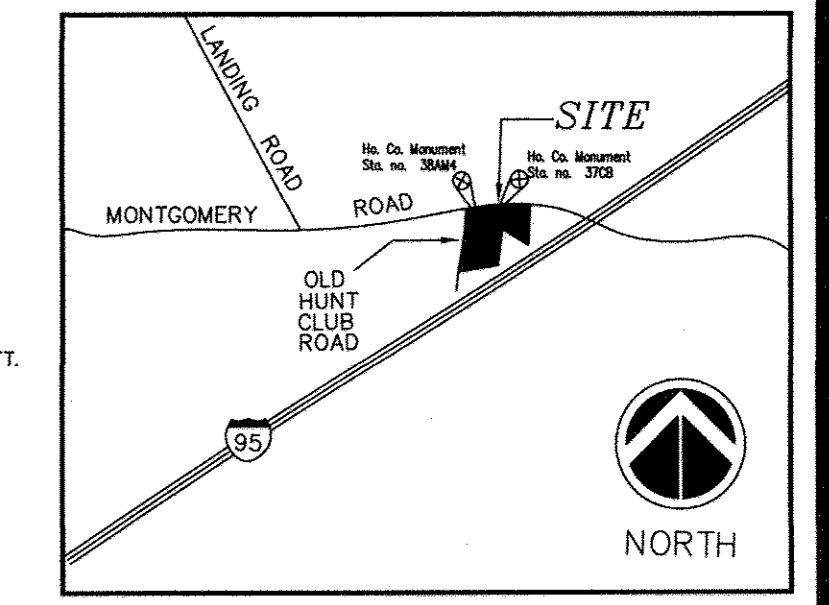
Conceptual treatment has been designed based on grading, house location and natural outfall location. A shared driveway of Lot 1 and Lot 2, as well as portion of Lot 3 driveway will be treated by Micro-Bio-retention. Drywell will be provided to treat the entire rooftop runoff from Lot 3. The rest of the runoff will be treated by Micro Bio-retention facility #1 and #2. These facility takes runoff from all three lots. The ESD for overall site will be met by exceeding required ESD for the site.

Sediment and erosion controls have been designed based on the 2011 Maryland Specifications for Soil Erosion and Sediment Control. Super silt fence will be used to prevent runoff containing sediments and thus discharging clean water to receiving stream. Two specimen trees on site east n-site. One of these two trees will be protected via tree protection fence.

The target P_e for this site is 1.12 inches. By using ESD practices as outlined in Maryland Design Manual, full treatment of 1.12 inches will be achieved. No design waiver are anticipated at this time.

SITE ANALYSIS DATA/TABULATION

A) TOTAL PROJECT AREA	1.44 +/- AC.
B) AREA OF WETLANDS AND BUFFER	0.90 +/- AC.
C) AREA OF 100-YR FLOODPLAIN	0.00 +/- AC.
D) AREA OF FOREST	0.00 +/- AC.
E) AREA OF STEEP SLOPES 15% OR GREATER	0.11 +/- AC.
F) LAND DEDICATE TO HOWARD COUNTY, MD. FOR PURPOSE OF A PUBLIC ROAD	4,032 SQ.FT.
G) HIGHLY ERODIBLE SOILS (K<0.35)	0.12 +/- AC.
H) MINIMUM SQ.FT. OF LOTS	20,000 SQ.FT.
I) NUMBER OF RESIDENTIAL UNITS PROPOSED	3
J) AREA OF PLAN SUBMISSION	1.44 +/- AC.
K) LIMIT OF DISTURBED AREA	1.15 +/- AC.
L) OPEN SPACE REQUIRED	N/A
M) OPEN SPACE PROVIDED	N/A
N) PRESENT ZONING DESIGNATION	R-20
O) PROPOSED USE	SINGLE FAMILY DETACHED DWELLINGS
P) IMPERVIOUS COVER	0.29 +/- AC.



LEGEND

EXISTING SIGN	[Symbol]	STABILIZED CONSTRUCTION AREA	[Symbol]
EXISTING TREE	[Symbol]	SUPER SILT FENCE	[Symbol]
SOIL LINE	[Symbol]	TREE SAVE FENCE	[Symbol]
SOIL LABEL	Soc	MICRO BIO-RETENTION	[Symbol]
SOIL GROUP LABEL	"B Soil"	PROPOSED LOD	[Symbol]
EXISTING CONTOURS	[Symbol]	DOWN SPOUT LOCATION	[Symbol]
PROPOSED CONTOURS	[Symbol]	RIGHT OF WAY DEDICATION	[Symbol]
EXISTING WETLANDS	[Symbol]	WETLAND BUFFER	[Symbol]
PROPOSED TREE LINE	[Symbol]		
EXISTING WETLAND	[Symbol]		

SPECIMEN TREE CHART

Key	Species	Size	Comments
1	Red Maple	30" dbh	In the open field and is very healthy
2	Red Oak	36" dbh	Close to the property line and northwest corner of the property near Montgomery Road. It is in moderate health with some dieback and broken limbs in the crown

LOT SIZE CHART

Lot No.	Lot Sit
1	20,010.00
2	20,123.00
3	19,947.00

SOIL DATA TABLE

Map Sym.	Map Unit Name	Slope %	Landform	Drain Class	Hydro Group	Farm Class	Land Use	K _s (in/hr)
FoaA	Falkington sandy loam	0 to 2	Depression	Poor	B1D	FOS1	Sw	0.57-1.08
R5B	Russell fine sandy loam	2 to 5	Divides	Mod	C	PRD1C	Sw	0.66-0.97
R5C	Russell fine sandy loam	5 to 10	Divides	Mod	C	FOS1	Sw	0.66-0.97
SaC	Sassafras loam	5 to 10	Low Hills	Well	B	FOS1	Sw	0.57-1.08
UaF	Urban land Chatham	0 to 65	Highway	na	D	na	na	na
UcB	Urban land Chatham	0 to 5	Divides	Mod	C	NFF	Sw	0.20-1.08
								0.00-0.06

Project Name: Montgomery Patel Property

Date: 9/20/2017

ENVIRONMENTAL SWM SUMMARY TABLE

Required P _e	2.60 in.								
ESD Volume Required	1218.52 (cu.ft.)								
FACILITY	Total Area (sq.ft.)	(acre)	Impervious Area (sq.ft.)	(acre)	Percent	Rv	Proived PE	ESDv Required (cf)	ESDv Provided (cf)
MICRO BIORETENTION #1	19,427	0.45	5,603	0.13	29.0%	0.31	1.65	1,321 cf	832 cf
MICRO BIORETENTION #2	19,432	0.45	4,012	0.09	20.0%	0.23	1.22	977 cf	455 cf
MICRO BIORETENTION #3	19,947	0.46	1,625	0.04	0.2%	0.12	2.25	530 cf	455 cf
Total ESDv Provided								1,743 cf	
									1.61 in.

Required P_e 2.60 in.

ESD Volume Required 1218.52 cu.ft.

Lot Number	Micr-Bioretenion	Dry Well	Total ESD Provided (cu.ft.)
Lot #1	832		831.7
Lot #2	455		455.5
Lot #3	455		455.5
Total ESDv Provided			1,743 cf

GENERAL NOTES:

- TAX MAP: 38, PARCEL: 554, BLOCK: 1
- SUBJECT PROPERTY ZONED R-20 PER COMPREHENSIVE ZONING PLAN EFFECTIVE 10-6-2013.
- THIS PLAN IS BASED ON A FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED SEPT. 2014 BY NFR ASSOCIATES, INC.
- COORDINATES BASED ON NAD 83 MARYLAND COORDINATE SYSTEM.
- BRL DENOTES A BUILDING RESTRICTION LINE.
- THE FOREST STAND DELINEATION WAS PREPARED FORENSIC ENVIRONMENTAL CONSULTANTS ON FEBRUARY 03, 2014.
- THIS SUBDIVISION IS IN THE METROPOLITAN DISTRICT.
- TO THE BEST OF OUR KNOWLEDGE, NO HISTORICAL STRUCTURES OR BURIAL GROUNDS EXIST ON-SITE.
- SOME STEEP SLOPES EXIST ON-SITE. NO FLOODPLAINS EXIST ON-SITE.
- WETLANDS EXIST OFF-SITE PER FIELD INVESTIGATION BY FORENTVCON, INC. IN FEBRUARY, 2014.
- THE FOREST CONSERVATION OBLIGATIONS PER SECTION 16.102 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION MANUAL SHALL BE FULFILLED BY PAYMENT OF A FEE IN-LIEU FOR 0.22 AC. OF AFForestation IN THE AMOUNT OF \$4791.60.
- THERE IS NO OPEN SPACE REQUIREMENT FOR THIS SITE.
- DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO ENSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
 - WIDTH - 12 FEET (16 FEET SERVING MORE THAN ONE RESIDENT)
 - SURFACE - 6 INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING
 - GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM OF 45-FOOT TURNING RADIUS.
 - STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (HEAVY LOADINGS)
 - DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100-YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE
 - STRUCTURE CLEARANCES - MINIMUM 12 FEET WEATHER USE
- FOR FLAG OR PIPESYSTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESYSTEM AND ROAD RIGHT-OF-WAY LINE AND NOT TO THE PIPESYSTEM DRIVEWAY.
- AREA OF SUBDIVISION = 1.44 AC. +/-
 a. AREA OF SMALLEST LOT = 14,006 SQ. FT.
- WATER AND SEWER SERVICE TO THESE LOTS WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.122.B OF THE HOWARD COUNTY CODE. SIEC & WIC CONNECTIONS SHALL BE PROVIDED BY EXISTING PUBLIC WATER (44-3116) & PUBLIC SEWER (347-S) ALONG MONTGOMERY ROAD.
- LANDSCAPING FOR LOTS 1-3 SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL AT SDP STAGE.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING IN AN AMOUNT TO BE DETERMINED AT SDP STAGE FOR LOTS 1-3 SHALL BE POSTED AS PART OF THE GRADING PERMIT.
- THERE IS AN EXISTING DWELLING LOCATED ON PARCEL 554 KNOWN AS 6908 MONTGOMERY ROAD, ELKRDIDGE, MARYLAND, 21075 WHICH IS TO BE DEMOLISHED.
- A USE-IN-COMMON DRIVEWAY MAINTENANCE AGREEMENT FOR LOTS 1 AND 3 SHALL BE RECORDED SIMULTANEOUSLY WITH THE RECORD PLAT IN THE LAND RECORDS OFFICE OF HOWARD COUNTY, MARYLAND.
- SURVEY WORK AND DOCUMENTS ARE TO BE PERFORMED IN CONFORMANCE WITH SUBTITLE 13, BOARD OF PROFESSIONAL LAND SURVEYORS, 09-13.06 STATE OF MARYLAND MINIMUM STANDARDS OF PROFESSIONAL PRACTICE.
- TWO SPECIMEN TREES EXIST ON SITE.

APPROVED: DEPARTMENT OF PLANNING & ZONING
 Chief, Division of Land Development
 Chief, Development Engineering Division

ARYA CIVIL LLC
 Design Engineers
 10,400 Shaker Drive, UNIT 6A, MD 21046
 Contact: Nandini Gavarra, PE
 Phone: (443) 535-2325, email:ngavarra@aryacivil.com

DES. AS	DRN. CF	CHK. AS	DATE	REVISION	BY	APPR.

APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED SUBDIVISION PLAN/PLAT AND/OR RED-LINE REVISION PLAN. REVIEW OF THIS PROJECT FOR COMPLIANCE WITH THE HOWARD COUNTY SUBDIVISION PLAN/PLAT AND/OR THE 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.

PRAKESH PATEL
 C/O KAJAL & HASU PATEL
 6908 MONTGOMERY RD.
 ELKRDIDGE, MD 21075
 ATTN: PRAKESH PATEL
 (240) 485-8173



ENVIRONMENTAL CONCEPT AND SEDIMENT CONTROL PLAN
 MONTGOMERY PATEL PROPERTY
 PARCEL 554, FIRST ELECTION DISTRICT
 LOTS 1-3
 RECORDING REFERENCE 15956/61
 HOWARD COUNTY, MD

SCALE	ZONING	FILE No.
AS SHOWN	R-20	ECP-15-055
DATE	TAX MAP/GRID	SHEET
APRIL, 2017	38-1	1 OF 1