

DRAINAGE AREAS FOR SEDIMENT CONTROL - INTERMEDIATE CONDITION				
AREA NO.	AREA (AC.)	PRACTICE TYPE	DETAIL NO.	REMARKS
1	1.55	STONE/RIP-RAP OUTLET SEDIMENT TRAP ST-II	G-1-2	INCLUDES SUBAREAS 1A-1D
1A	0.55	DIMENSION FENCE / EARTH DIKE (TYPE A-2)	C-9/C-1	
1B	0.22	DIMENSION FENCE / EARTH DIKE (TYPE A-2)	C-9/C-1	
1C	0.32	CURB INLET PROTECTION	E-9-3	
1D	0.18	CURB INLET PROTECTION	E-9-3	
2	0.20	SUPER SILT FENCE	E-3	
3	0.10	SUPER SILT FENCE	E-3	
4	0.26	CURB INLET PROTECTION	E-9-3	
5	0.27	CURB INLET PROTECTION	E-9-3	
6	0.26	SUPER SILT FENCE	E-3	
7	0.05	SUPER SILT FENCE	E-3	

SEDIMENT CONTROL - FINAL CONDITION				
AREA NO.	AREA (AC.)	PRACTICE TYPE	DETAIL NO.	REMARKS
1	0.43	STANDARD INLET PROTECTION	E-9-1	TYPE B
2	0.59	STANDARD INLET PROTECTION	E-9-1	TYPE B

MAPPED SOILS TYPES - CLARKSVILLE NW / NE MAP #16 / 17						
SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	HYDRIC	PRIME	<15% SLOPE
U-Sub	URBAN LAND-SASSAFRAS-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES	D	.37	NC	NO	NO
W	WATER			—	NO	NO

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

LEGEND	
308	EXISTING CONTOUR
408	PROPOSED CONTOUR
408	EXISTING CURB AND GUTTER
408	PROPOSED CURB AND GUTTER
W	EXISTING UTILITY POLE
W	EXISTING MAILBOX
S	EXISTING SANITARY LINE
S	EXISTING CLEANOUT
S	EXISTING FIRE HYDRANT
S	EXISTING WATER LINE
W	PROPERTY LINE
W	RIGHT-OF-WAY LINE
W	EXISTING TREELINE
W	PROPOSED TREELINE
S/C (B)	EXISTING SOILS
C/H (C)	PROPOSED SIDEWALK
C/H (C)	PROPOSED STORM DRAIN
LOD	STABILIZED CONSTRUCTION ENTRANCE
SSF	EXISTING SUPER SILT FENCE
SSF	100 YEAR FLOODPLAIN
SIP-B	STANDARD INLET PROTECTION
CIP	CURB INLET PROTECTION
DF	EARTH DIKE
SF	SILT FENCE
SSF	SUPER SILT FENCE
DF	DIVERSION FENCE
RRP	RIP-RAP INFLOW PROTECTION
RRP	SEDIMENT BASIN BAFFLES

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. ^ART
- DOUBLE ROWS OF SUPER SILT FENCE SHALL BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

OWNER
VBH LLC
9113 BRAE BROOKE DRIVE
LANHAM, MD 20706
DEVELOPER
J. KIRBY DEVELOPMENT, LLC
C/O JEFF KIRBY, PRESIDENT
5760 B FURNACE AVENUE
ELKBRIDGE, MD 21075
(410) 788-0027

2 PERMIT SET 2/13/19
1 HUD REV 1 1/18/19
NO. REVISION DATE

SITE DEVELOPMENT PLAN
PROPOSED CONDITIONS - INTERMEDIATE AND FINAL
GRADING, EROSION AND SEDIMENT CONTROL PLAN
AND DRAINGE MAP

RIVER WATCH II
5635-5659 FURNACE AVENUE
TAX MAP 38 GRID 04
1ST ELECTION DISTRICT
ZONED: CAC-CLI
HOWARD COUNTY, MARYLAND
PARCEL 782

Robert H. Vogel
Engineering, Inc.
Engineers • Surveyors • Planners
3300 N. Ridge Road, Suite 110
Ellicott City, MD 21043 Tel: 410.461.8966
Fax: 410.461.8961

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS
WERE PREPARED OR APPROVED BY ME, AND
THAT I AM A DULY LICENSED PROFESSIONAL
ENGINEER IN THE STATE OF MARYLAND, LICENSE NO. 16193
EXPIRATION DATE: 09/27/2020

DESIGN BY: GAH
DRAWN BY: LAG
CHECKED BY: RHV
DATE: JUNE 2019
SCALE: AS SHOWN
W.O. NO.: 17-00
ROBERT H. VOGEL, PE No. 16193

4 SHEET OF 11

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
CHIEF, DIVISION OF LAND DEVELOPMENT DATE
DIRECTOR DATE

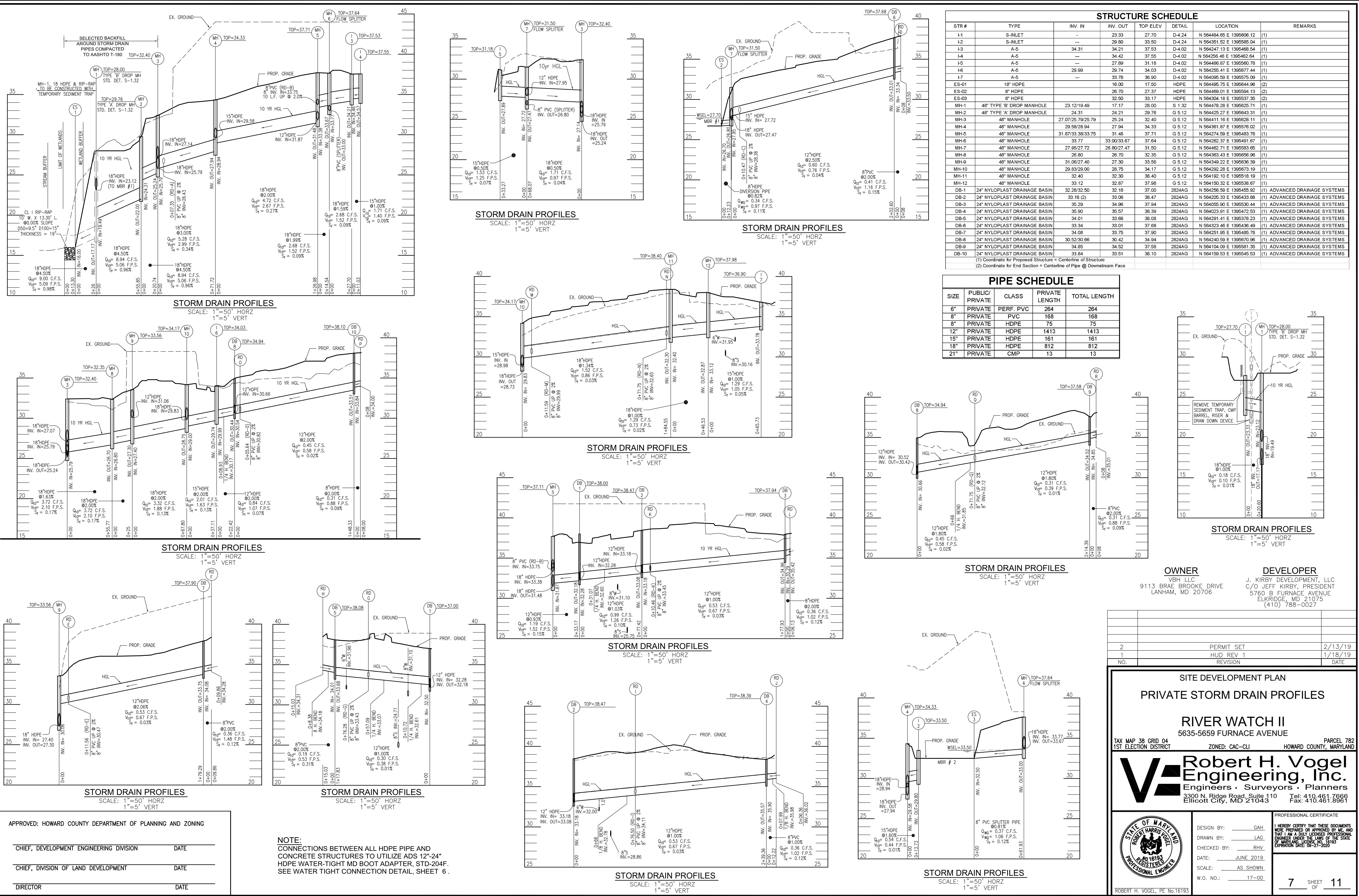
OWNER/DEVELOPER CERTIFICATION
I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT
MARYLAND STATE AND LOCAL EROSION, SEDIMENT, AND DRAINGE CONTROL
PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL
RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE
A CERTIFIED ATTENDING ENGINEER, MANAGER, OR SUPERVISOR OF THE ENVIRONMENT
AND A APPROVED EROSION, SEDIMENT, AND DRAINGE CONTROL ON-SITE
PERSONAL SUPERVISOR TO ATTEND THE CONSTRUCTION SITE DURING THE
CONSTRUCTION OF THE PROJECT. I CERTIFY RIGHT-OF-WAY FOR
PERIODIC ON-SITE INSPECTION BY HOWARD COUNTY, THE HOWARD SOIL
CONSERVATION DISTRICT AND/OR MDE.

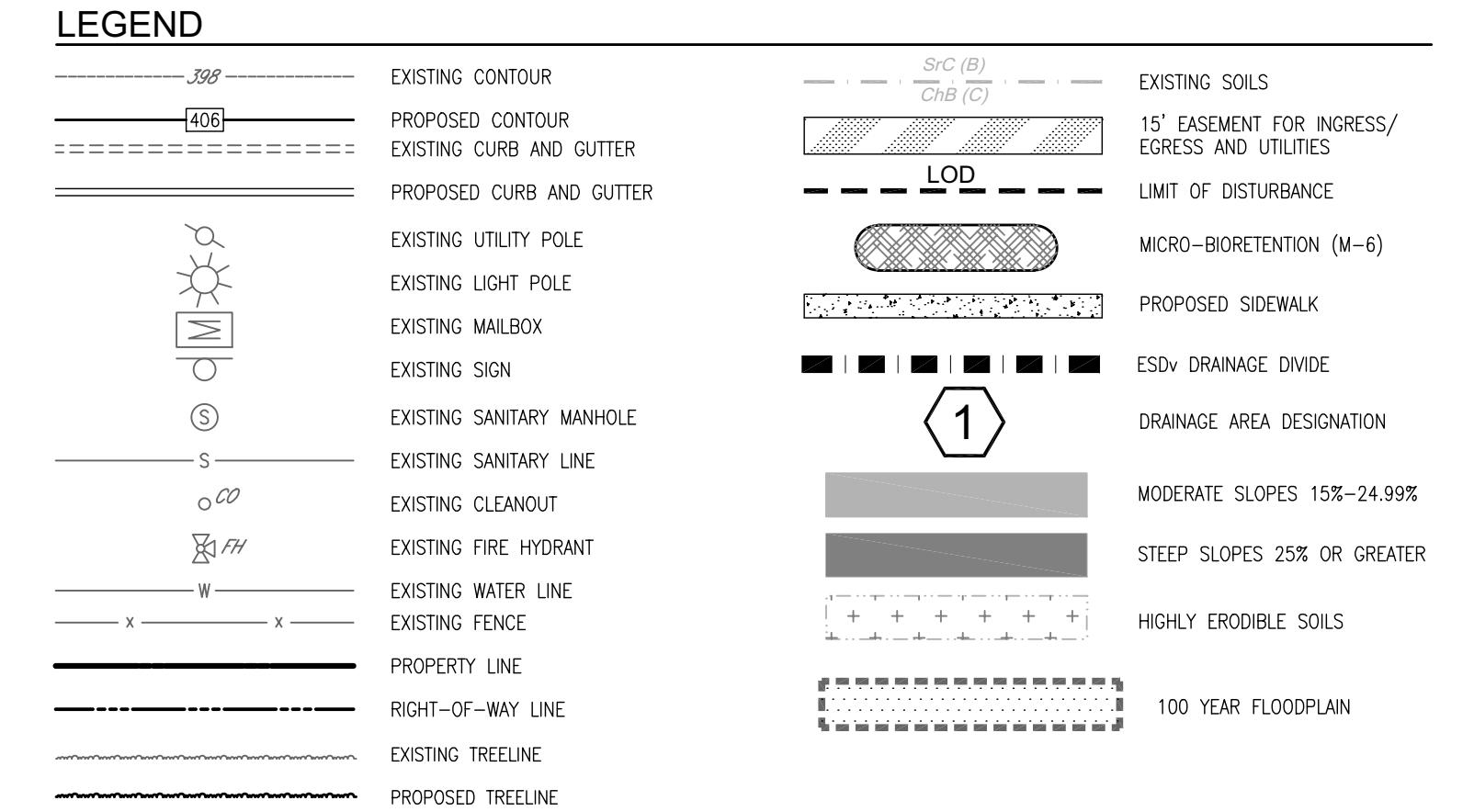
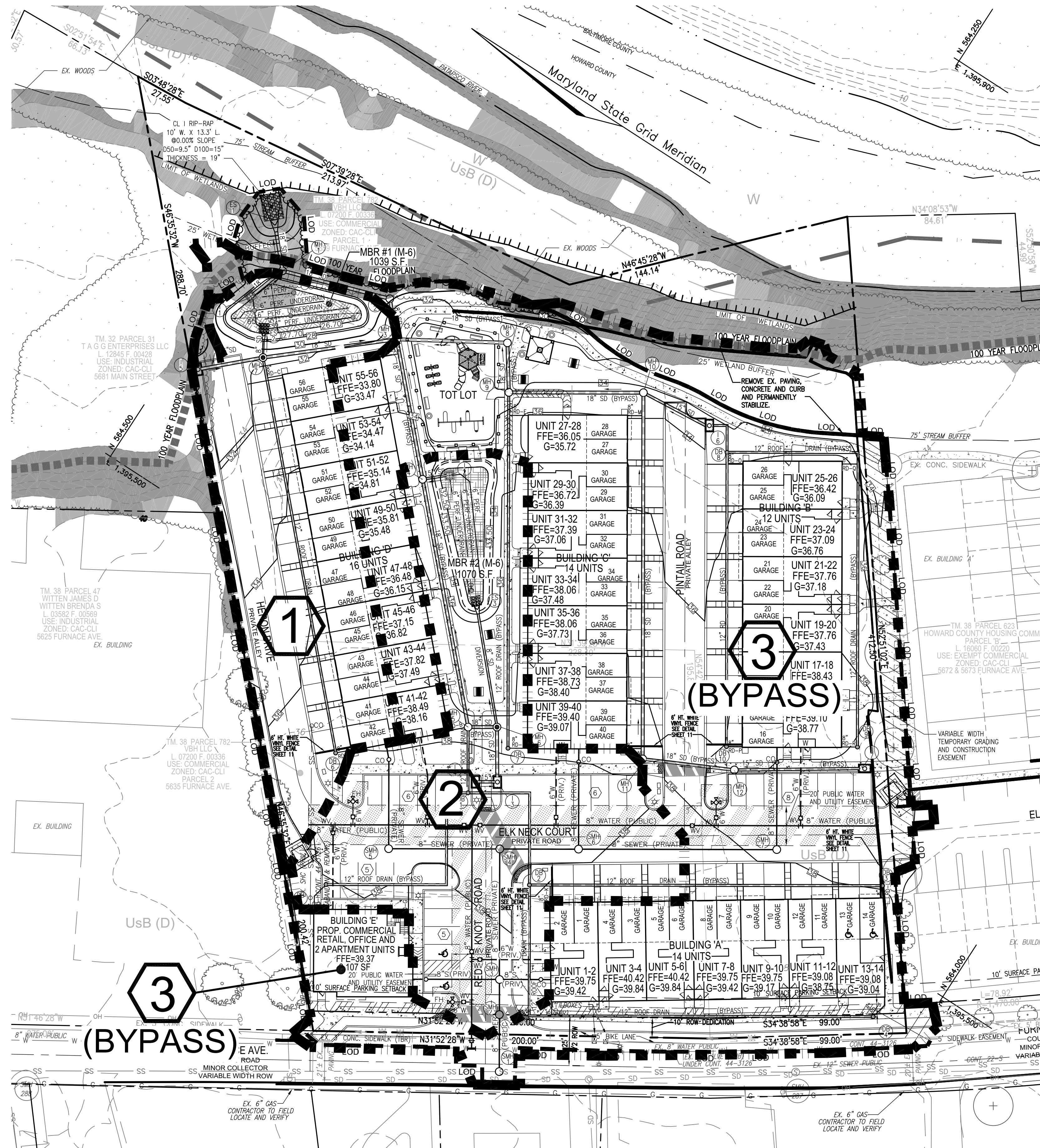
DESIGNER'S SIGNATURE DATE
ROBERT H. VOGEL
PRINTED NAME
P.E., R.L.S., OR R.L.A. (circle one)

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND
SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD S.C.D. DATE

PRINTED NAME & TITLE





RIVER WATCH II - ESDv COMPUTATIONS

															3300 N. Ridge Road, Suite 110, Ellicott City, MD 21043					
		SITE DEVELOPABLE AREA:		2.85	AC										Des:	GAH				
		TARGET Pe:		1.00	IN										Chk:	RHV				
Rv=0.05+0.009XI		SITE IMPERVIOUS:		68.50	PERCENT										Date:	3/15/2019				
V min=1.0" rainfall	(1.0x0.95xA)/12	SITE Rv:		0.6665																
Vmax=1yr rainfall=2.6"	(2.6x0.95xA)/12	SITE ESDV:		2,398	CF +/-		{Required storage volume = 1" over 100% of the remainder of 50% existing impervious area - proposed impervious reduction}													
DA #	% IMPERV	Rv	DA (SF)	DA (AC)	MINIMUM VOLUME	MAXIMUM VOLUME	1.00" VOLUME	VOLUME PROVIDED*	IMPERV (SF)	IMPERV (AC)	GREEN AREA	Rev REQUIRED	Rev PROVIDED	CF	SF	depth	REMARKS			
1 MBR #1	71.16	0.6905	18628	0.43	1072	2787	1072	1385	13256	0.3043	0.1233	346	0	MICROSCALE MICRO-BIO RETENTION						
														1385	1039	SF MBR @ 1.0 PONDING				
														0	1039	Rev Recharge	0.00	x	0.4	
														(Recharge volume required = 25% of total volume provided)						
2 MBR #1	63.73	0.6236	25614	0.59	1331	3461	1331	1427	16324	0.3747	0.2133	357	749	MICROSCALE MICRO-BIO RETENTION						
														1427	1070	SF MBR @ 1.0 PONDING				
														749	1070	Rev Recharge	1.75	x	0.4	
														(Recharge volume required = 25% of total volume provided)						
TOTALS	66.86	0.6517	11212	1.02	2422	6217	2422	2812	22522	0.6721	0.2266	722	742							

DA	% IMPERV	Rv	DA	ESDv	MINIMUM VOLUME	MAXIMUM VOLUME	VOLUME PROVIDED *	AREA SF	PERV AREA	IMP AREA
REQ										
1	71.16	0.69	0.43	1072	1072	2787	1385	18628	5372	13256
2	63.73	0.62	0.59	1331	1331	3461	1427	25614	9290	16324
TOTAL ESDv BY SUBAREA					2403	6247	2812	44242	14662	29580

DRAINAGE	AREA	FACILITY	ENVIRONMENTAL SITE DESIGN PRACTICE											
			PERMEABLE	ADD UNDER	SURFACE	FOCAL	R	GRAVEL	GREEN	MICRO BIO	ADD UNDER	Recharge	ESDv	
	AREA #	TREATED	NUMBER	PAVEMENT	PERM. PAVE	STORAGE	POINT	TANKS	TRENCH	ROOF	RETENTION	MICRO BIO	Volume (Rev)	VOLUME
1	18628	MBR #1	0	0	0	0	0	0	0	1385	0	0	1385	
2	25614	MBR #2	0	0	0	0	0	0	0	1427	0	749	1427	
		SUBTOTAL 1	0	0	0	0	0	0	0	2812	0	749	2812	
		TOTALS:	0	0	0	0	0	0	0	2812	0	749	2812	
ESDv REQUIRED (CF)			2398											TOTAL ESDv PROVIDED (CF): 2812

MICRO-BIORETENTION DATA CHART											TOTAL REV PROVIDED (CF.)		745
MBR Facility	Ponding Depth (ft.)	Ponding/Grate Elevation ELEV. A	Top of Mulch ELEV. B	Bottom of Mulch ELEV. C	Bottom of Plant Mix ELEV. D	Bottom of Pea Gravel ELEV. E	Depth of Stone (ft.) ESDv	Bottom of Stone (ESDv) ELEV. F	Invert of Underdrain INV. ELEV. H	Depth of Stone (ft.) Rev	Bottom of Stone (Rev) ELEV. G	Surface Area (S.F.)	Approx. Dimensions (at midpoint)
1	1.00	27.70	26.70	26.45	24.45	24.12	1.00	23.12	23.37	0.00	23.12	1052	25' x 65'
2	1.00	33.50	32.50	32.25	30.25	29.92	1.00	28.92	29.17	1.75	27.17	1070	15' x 70'

OWNER VBH LLC DE J. KIRBY

VBH LLC
BRAE BROOKE DRIVE

DEVELOPER
KIRBY DEVELOPMENT, LLC
PO JEFF KIRBY, PRESIDENT
60 B FURNACE AVENUE
ELKRIDGE, MD 21075
(410) 788-0027

PERMIT SET
HUD REV 1

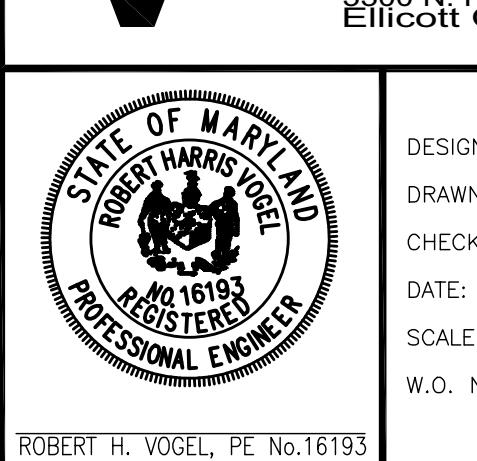
REVISION

DATE

SITE DEVELOPMENT PLAN STORMWATER MANAGEMENT DRAINAGE AREA MAP

RIVER WATCH II

5635-5659 FURNACE AVENUE



	PROFESSIONAL CERTIFICATE
GAH	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. 16193 EXPIRATION DATE: 09-27-2020
LAG	
RHV	
JUNE 2019	
AS SHOWN	
17-00	
	8 SHEET OF 11

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

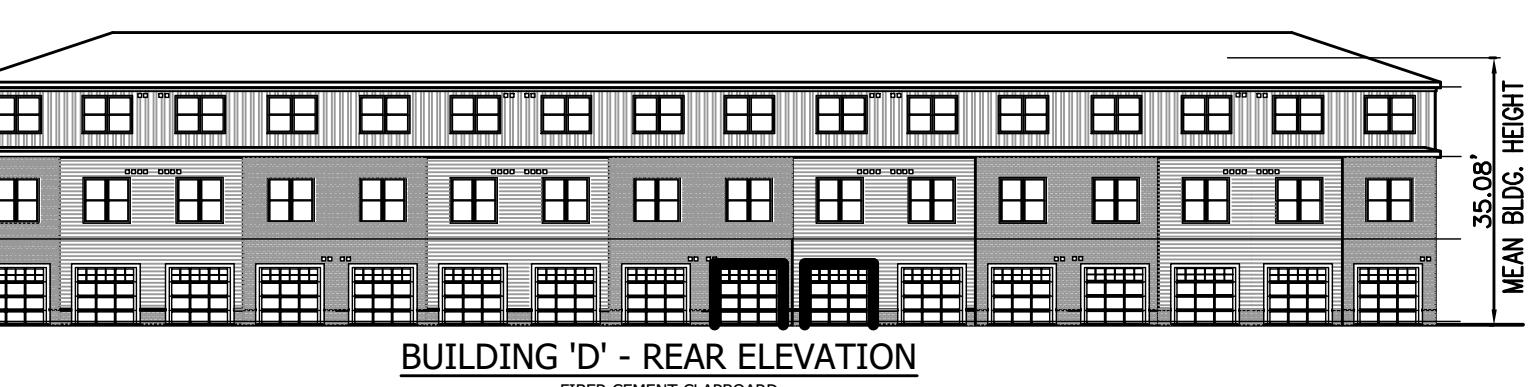
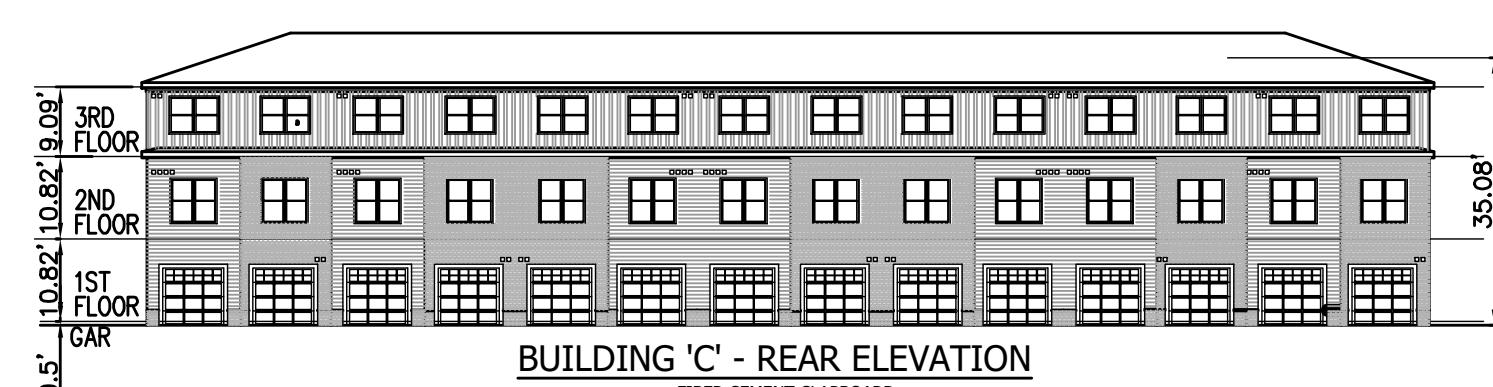
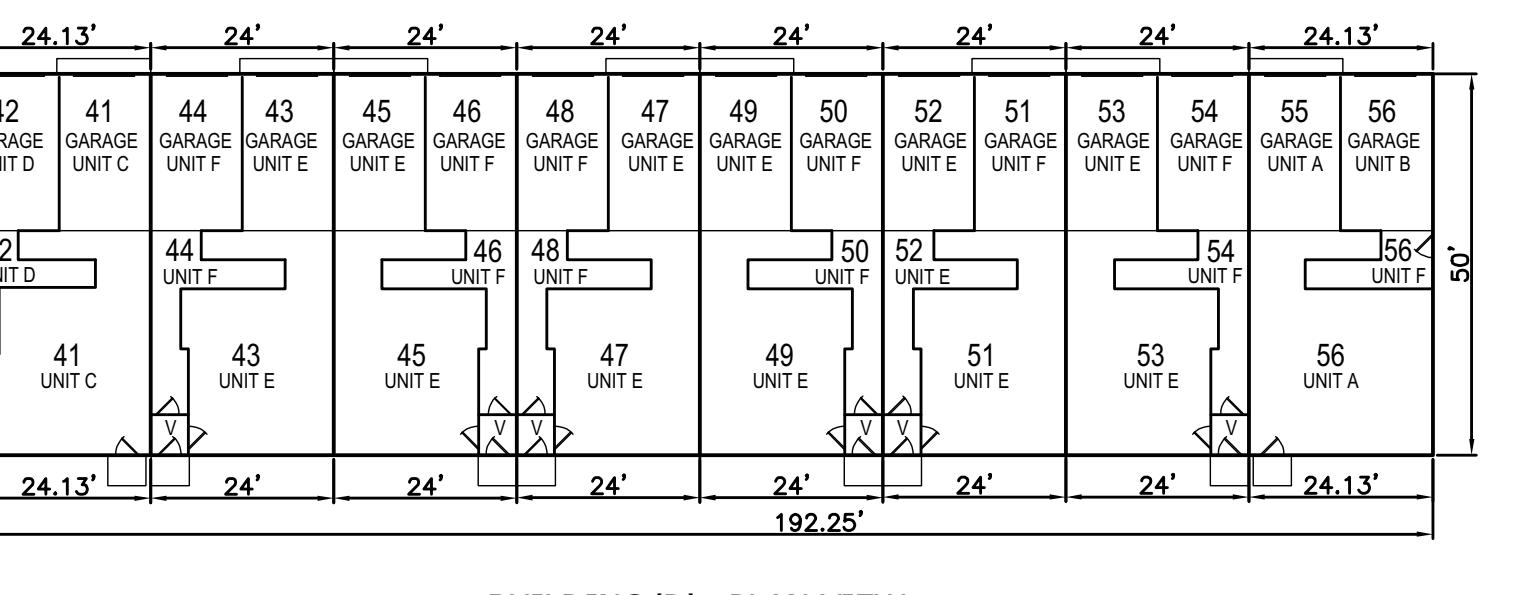
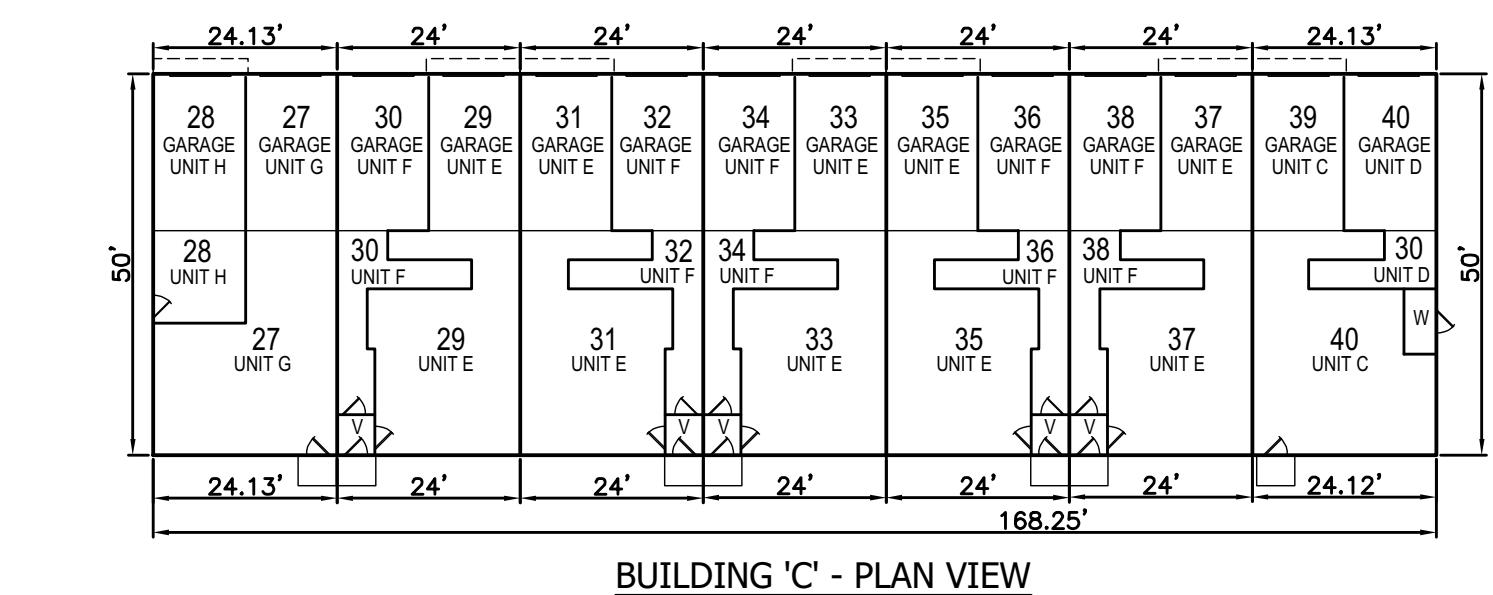
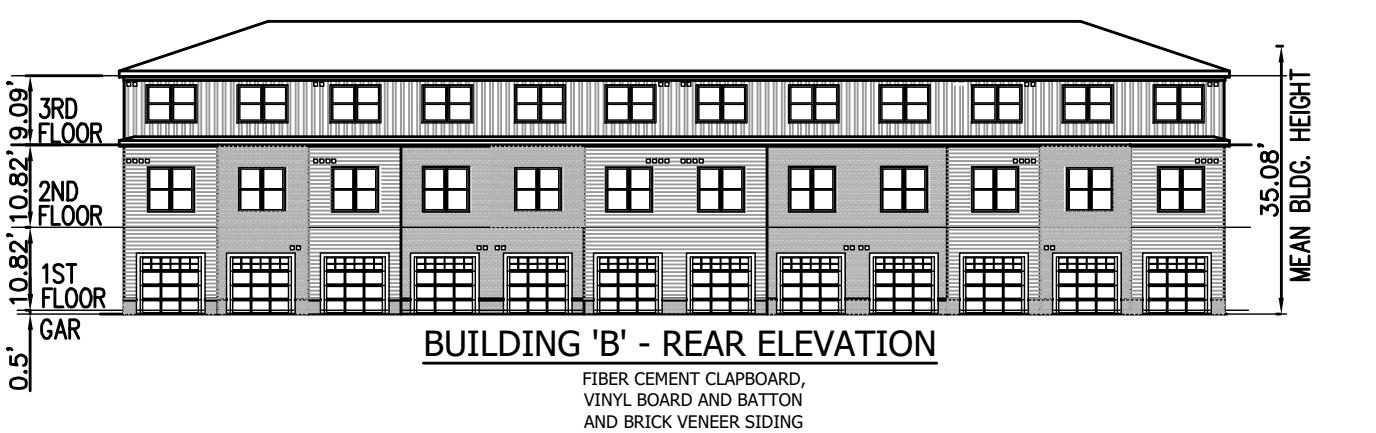
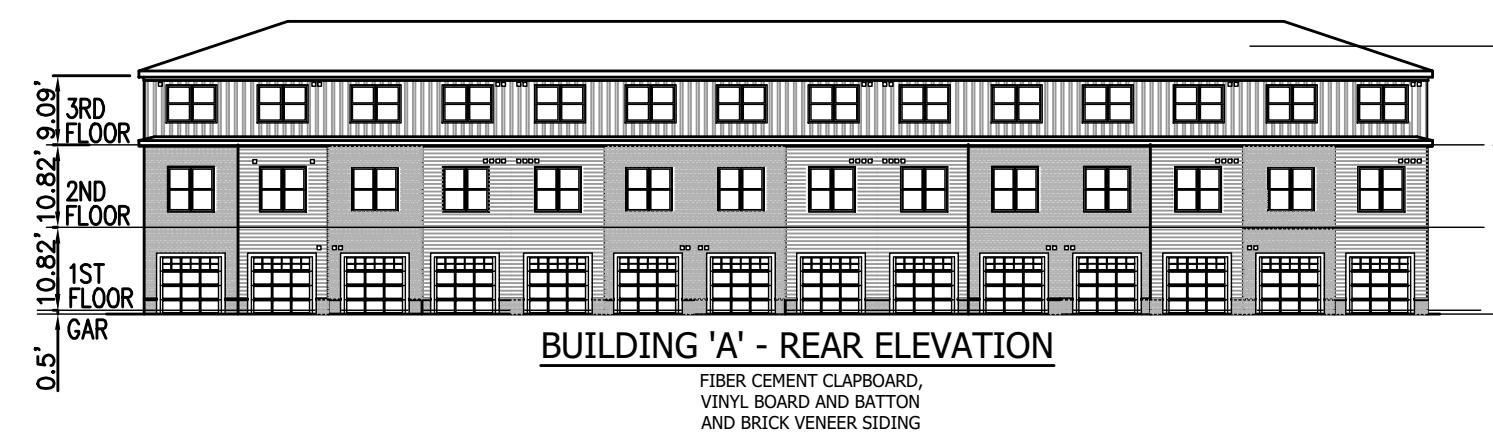
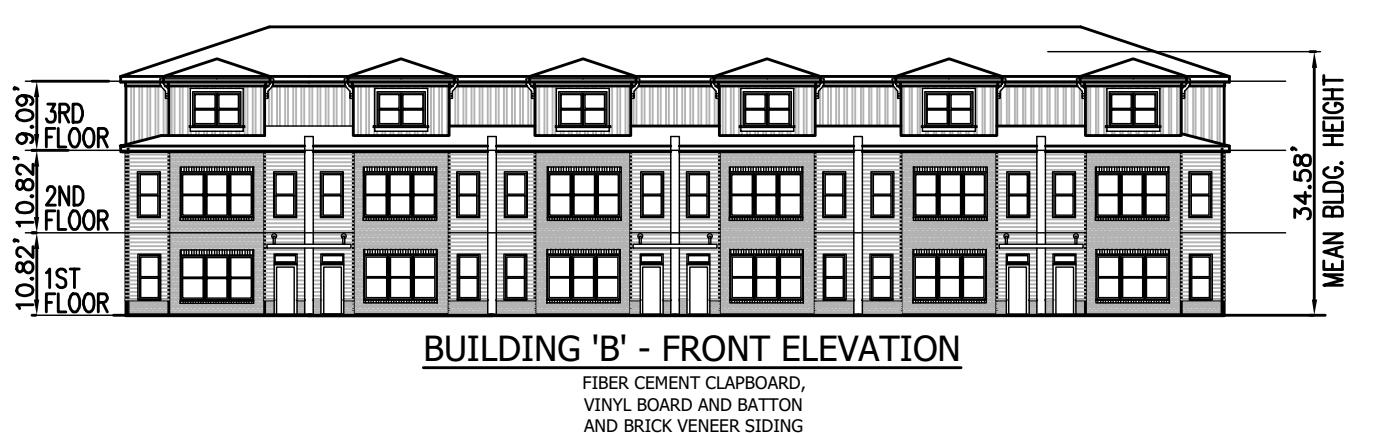
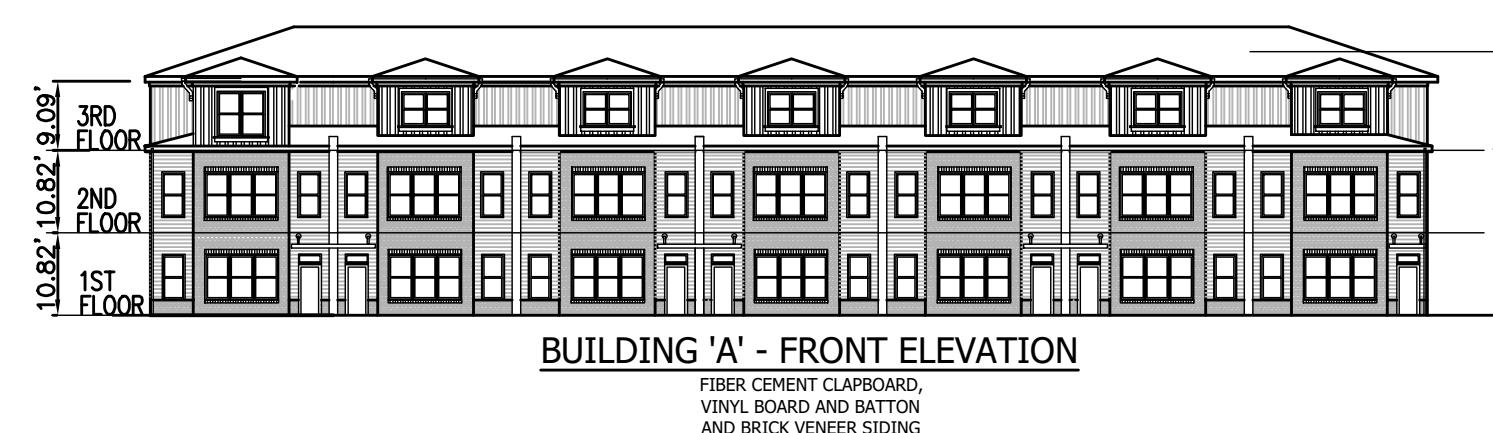
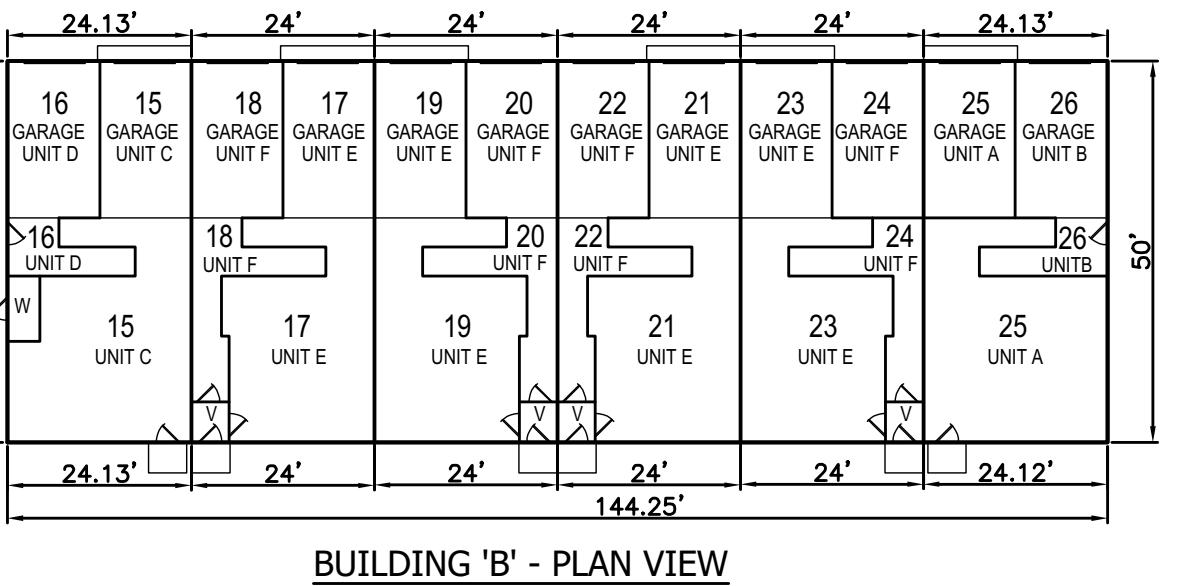
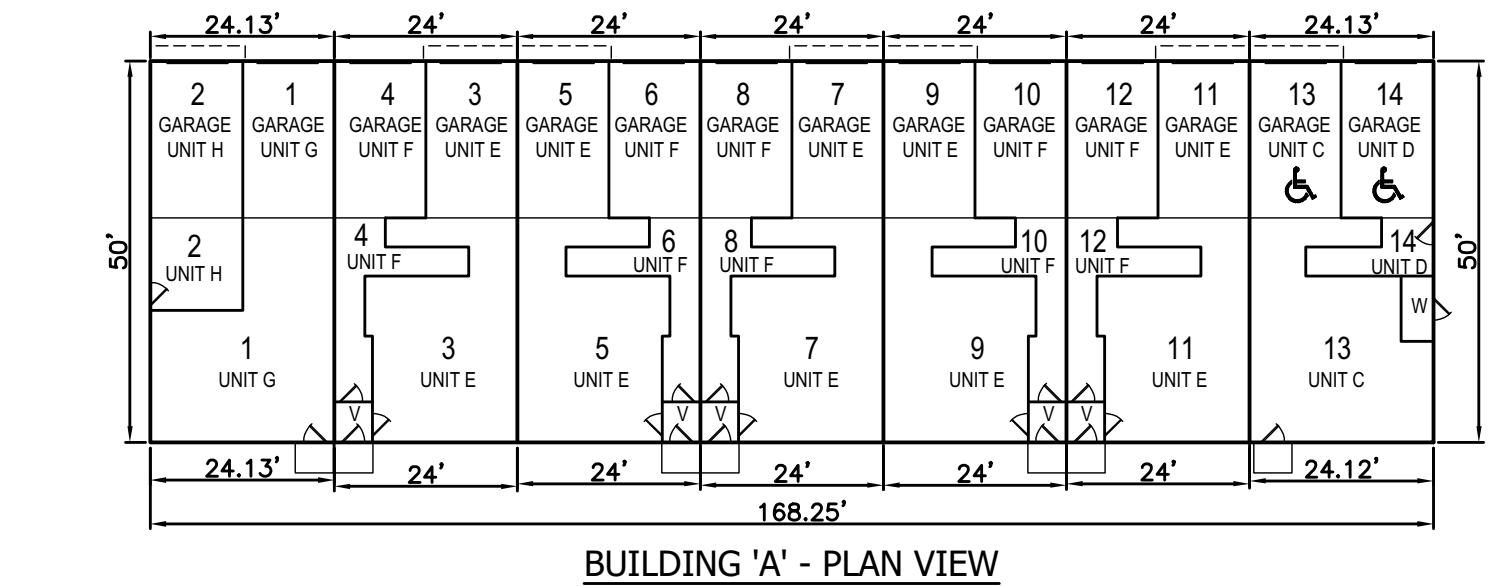
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DIRECTOR DATE

DRAINAGE AREA MAP FOR SWM

MAPPED SOILS TYPES - CLARKSVILLE NW / NE MAP #16 / 17					HYDRIC INCLUSIONS	PRIME FARMLAND	<15% SLOPE W/ EROSION POTENTIAL
SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	HYDRIC			
UsB	URBAN LAND-SASSAFRAS-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES	D	.37	NO	NO	NO	NO
W	WATER	-	-	NO	NO	NO	NO

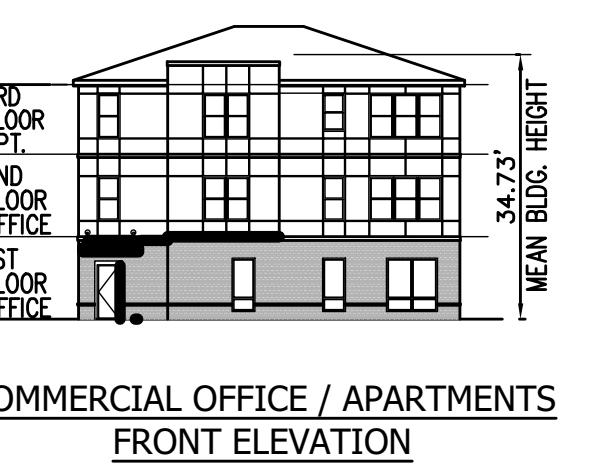
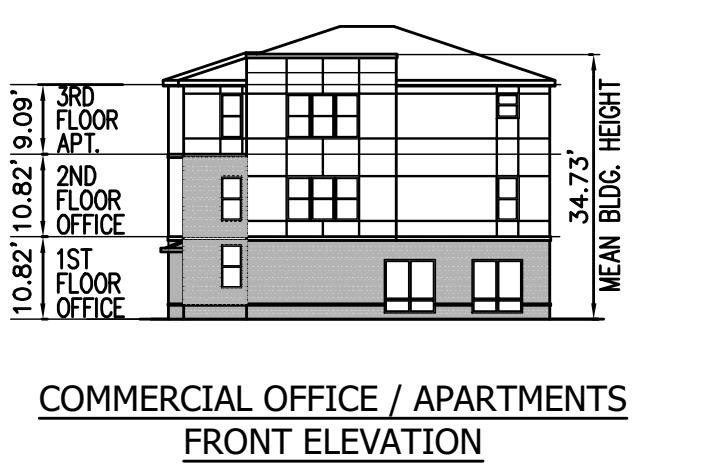
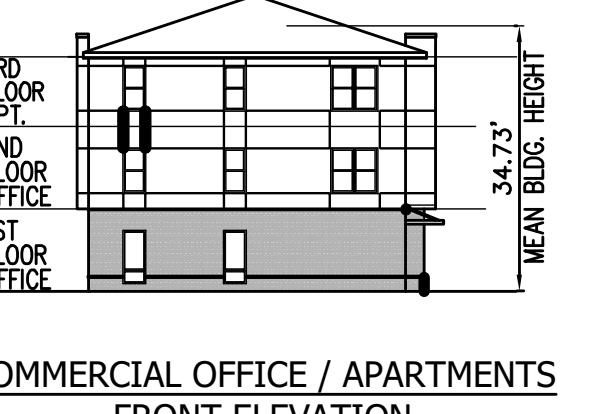
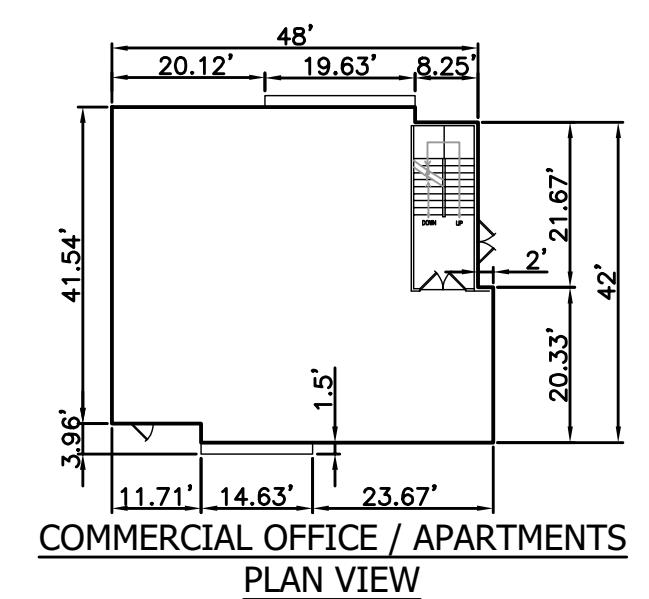
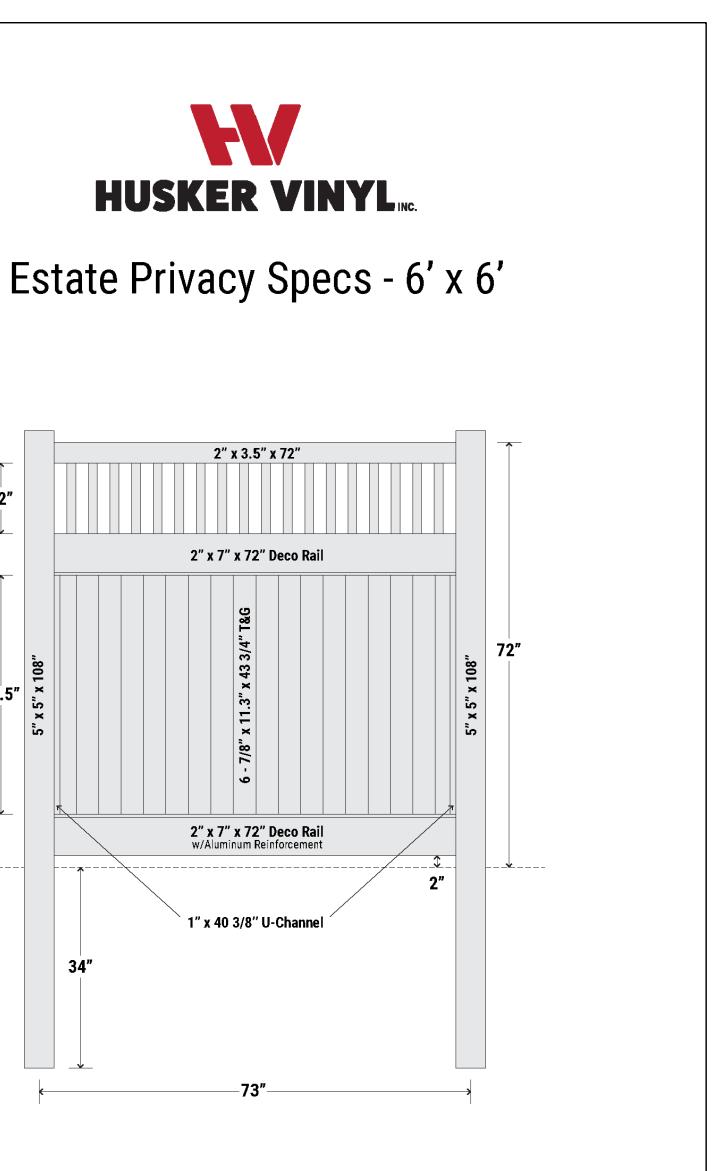
NOTE: TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY
HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH
A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING	DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
DIRECTOR	DATE

BUILDING ELEVATIONS

N.T.S.



OWNER
VBH LLC
9113 BRAE BROOKE DRIVE
LANHAM, MD 20706

DEVELOPER
J. KIRBY DEVELOPMENT, LLC
C/O JEFF KIRBY, PRESIDENT
5780 D FURNACE AVENUE
ELKRIDGE, MD 2075
(410) 788-0027

2	PERMIT SET	2/13/19
1	HUD REV 1	1/18/19
NO.	REVISION	DATE

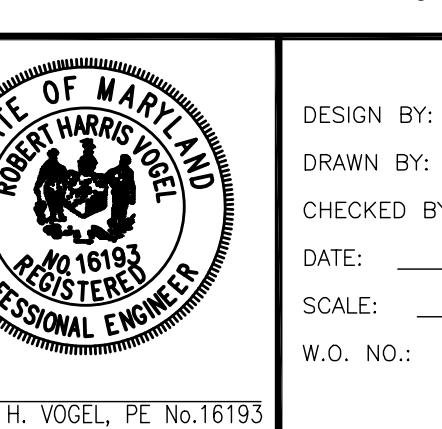
SITE DEVELOPMENT PLAN

BUILDING DETAILS AND ELEVATIONS

RIVER WATCH II
5635-5659 FURNACE AVENUE

TAX MAP 38, GRID 04
1ST ELECTION DISTRICT
ZONE: CAC-CLI
PARCEL 782
HOWARD COUNTY, MARYLAND

Robert H. Vogel
Engineering, Inc.
Engineers • Surveyors • Planners
3300 N. Ridge Road, Suite 110
Ellicott City, MD 21043
Tel: 410.461.7666
Fax: 410.461.8961



DESIGN BY:	GAH
DRAWN BY:	LAG
CHECKED BY:	RHV
DATE:	JUNE 2019
SCALE:	AS SHOWN
W.O. NO.:	17-00

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS
WERE PREPARED OR APPROVED BY ME, AND
THAT I AM A DULY LICENSED PROFESSIONAL
ENGINEER IN THE STATE OF
MARYLAND, LICENSE NO. 16193
EXPIRATION DATE: 06-27-2020