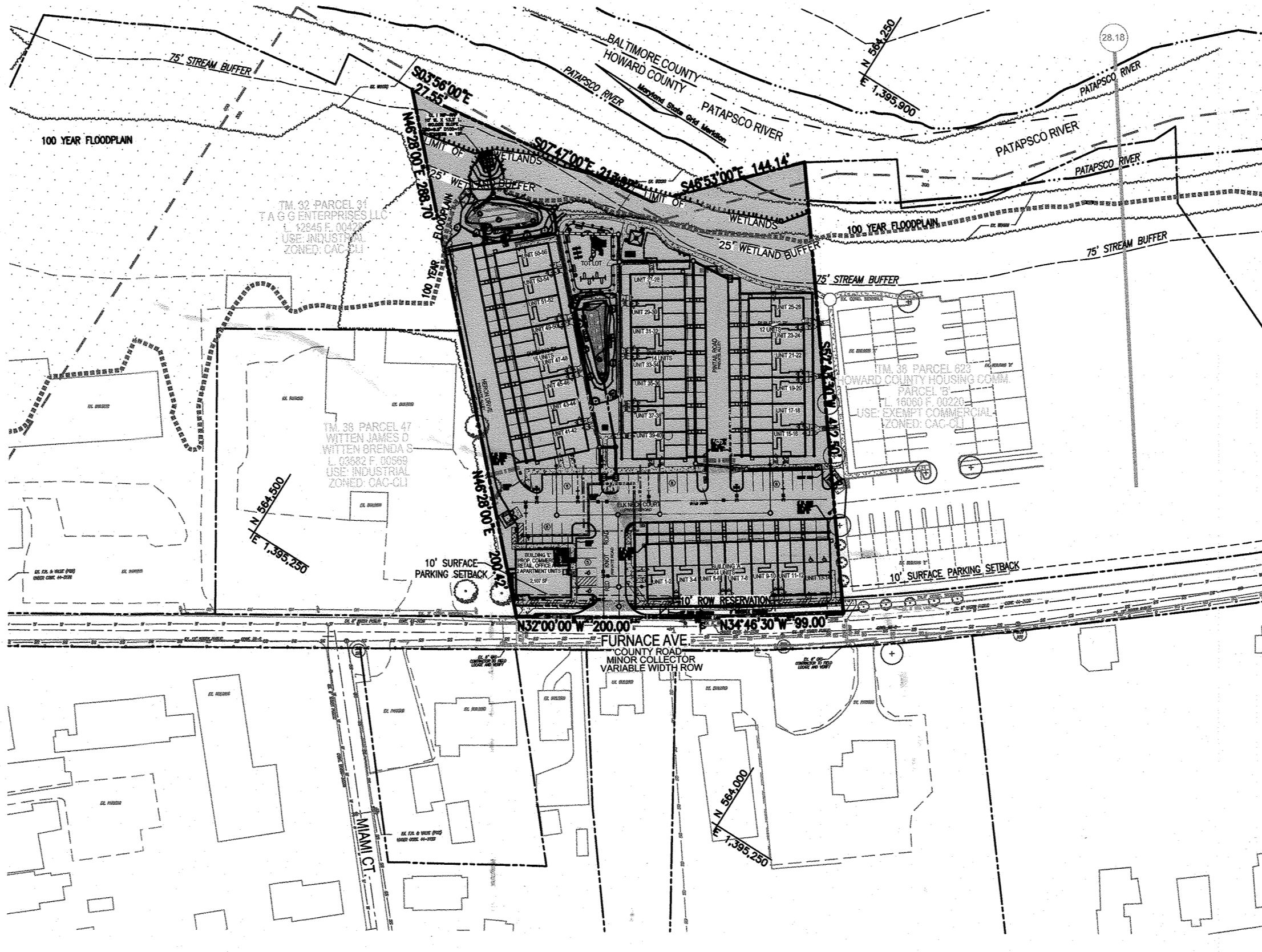


GENERAL NOTES

- 1. PROJECT BACKGROUND: SUBMISSION NAME: N/A, MAP 38 GRID 04, SECTION/AREA: N/A, PARCEL: 782, ZONING: CAC-CLU, ZB/BA REFERENCE: N/A, ELECTION DISTRICT: N/A, TOTAL (GROSS) TRACT AREA: 3.0654 ACRES, AREA OF R/W TRANSFER: 0.0687 AC, SECTION/AREA: N/A, NUMBER OF PROPOSED UNITS: 58 RESIDENTIAL APARTMENT UNITS, NET AREA OF PROJECT: 2,521.7 ACRES (3.0654 SITE-0.475 ENV.-0.0687 ROW=2,521.7 AC.), AREA OF PROPOSED R/W: 0.0687 AC, OPEN SPACE REQ.: N/A, GREEN AREA PROVIDED: 0.96 ACRES, PUBLIC WATER & SEWER: WATER CONTRACT NO. 44-3126, SEWER CONTRACT NO. 22-5, DPZ REF.'S: ECP-18-005, F-15-042, 14-5079-D

COORDINATE TABLE with columns for X, Y, Z coordinates and corresponding grid locations.

SITE DEVELOPMENT PLAN RIVER WATCH II 5635-5659 FURNACE AVENUE PARCEL 782



LOCATION MAP SCALE: 1"=100'

RIVER WATCH II - DENSITY TABULATION table with columns for FLOODPLAIN, STEEP SLOPES, NET AREA, UNITS PERMITTED BY NET, and UNITS PROPOSED.

AMENITY AREA TABULATION:

SECTION 127.5E.1.6 AMENITY AREAS: AMENITY AREAS SHALL INCLUDE AN AMENITY AREA OR AREAS. NO AMENITY AREA SHALL BE SMALLER THAN 0.25 ACRES...

SITE ANALYSIS DATA CHART

- A. TOTAL PROJECT AREA / GROSS TRACT AREA: 133,528 S.F. OR 3.0654 AC. +/- PARCEL 1: 91,587 S.F. OR 2.1021 AC. +/- PARCEL 2: 41,941 S.F. OR 0.9633 AC. +/- NON-BUILDABLE ENVIRONMENTAL AREAS: 16,747 S.F. OR 0.3844 AC. - NET TRACT AREA: 116,781 S.F. OR 2.6809 AC. +/-

FOREST CONSERVATION WORKSHEET

Table with columns for NET TRACT AREA, LAND USE CATEGORY, and FOREST CONSERVATION metrics.

SWM PRACTICE CHART PARCEL 782 (HOA)

ESD PRACTICES BY LOT table with columns for LOT #, ESD PRACTICE, and ADDRESS.

MODERATE INCOME HOUSING UNITS (MIHU) ALLOCATION EXEMPTIONS TRACKING

Table with columns for TOTAL NUMBER OF LOTS/UNITS PROPOSED, NUMBER OF MIHU REQUIRED, and NUMBER OF APFO ALLOCATIONS REQUIRED.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING. Chief, Development Engineering Division: [Signature], Date: 8/28/19.

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS. [Signature], Date: 9/3/19.



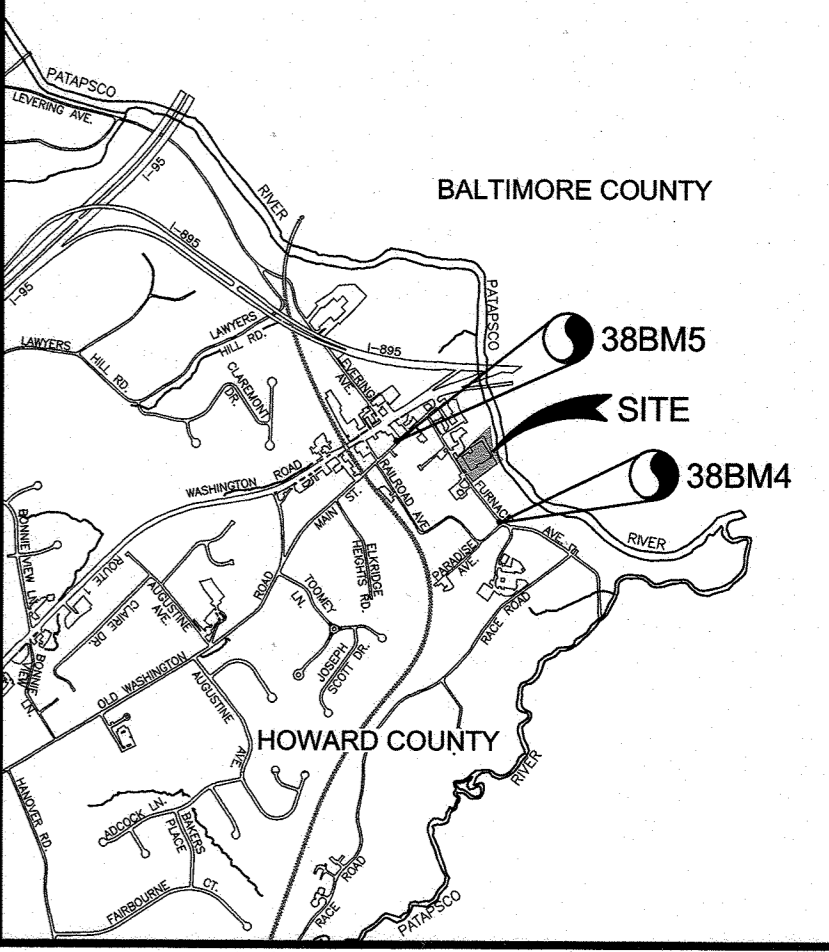
AS-BUILT CERTIFICATION FOR PSWM. I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE 'AS-BUILT' PLANS AND COMPLETES WITH THE APPROVED PLANS AND SPECIFICATIONS.

BENCHMARKS

Table with columns for BENCHMARK, ELEVATION, and COORDINATES.

ADDRESS CHART

Table with columns for UNIT NO., BUILDING A, BUILDING B, BUILDING C, BUILDING D, BUILDING E, and STREET ADDRESS.



VICINITY MAP SCALE: 1"=2000' ADC MAP COORDINATES: 4937-G6

LEGEND

- EXISTING CURB AND GUTTER, EXISTING UTILITY POLE, EXISTING OVERHEAD UTILITIES, EXISTING SANITARY MANHOLE, EXISTING SANITARY LINE, EXISTING VALVE, EXISTING FIRE HYDRANT, EXISTING WATER LINE, EXISTING GAS LINE, BALTIMORE COUNTY, HOWARD COUNTY, COUNTY LIMITS, PROPERTY LINE, RIGHT-OF-WAY LINE, EXISTING TREE LINE, SITE AREA, 100 YEAR FLOODPLAIN.

SHEET INDEX

Table with columns for COVER SHEET, DESCRIPTION, and SHEET NO.

OWNER DEVELOPER

OWNER: VBH LLC, 9113 BRAE BROOKE DRIVE, LANHAM, MD 20706. DEVELOPER: J. KIRBY DEVELOPMENT, LLC, C/O JEFF KIRBY, PRESIDENT, 5675 B FURNACE AVENUE, ELK RIDGE, MD 21075.

SITE DEVELOPMENT PLAN COVER SHEET

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



DESIGN BY: GAH, DRAWN BY: LAG, CHECKED BY: RHY, DATE: JUNE 2019, SCALE: AS SHOWN, W.O. NO.: 17-00. SHEET 1 OF 11.

\*SHARED PARKING TABULATION

Table with columns for USE, SPACES, WEEKDAY, WEEKEND, NIGHT, and MIDDAY-PM.

PARKING NOTES: PARKING PROVIDED IS IN ACCORDANCE WITH SECTION 133 OF THE HOWARD COUNTY ZONING REGULATIONS.

\*BASED ON HOWARD COUNTY SHARED PARKING ADJUSTMENT, WEEKDAY 8:00 AM TO 5:00 PM.

PARKING TABULATION:

RESIDENTIAL PARKING: TOTAL NUMBER OF DWELLING UNITS PROPOSED: 58. OFF-STREET PARKING SPACES REQUIRED: 2 SPACES PER 58 UNITS = 116 SPACES.

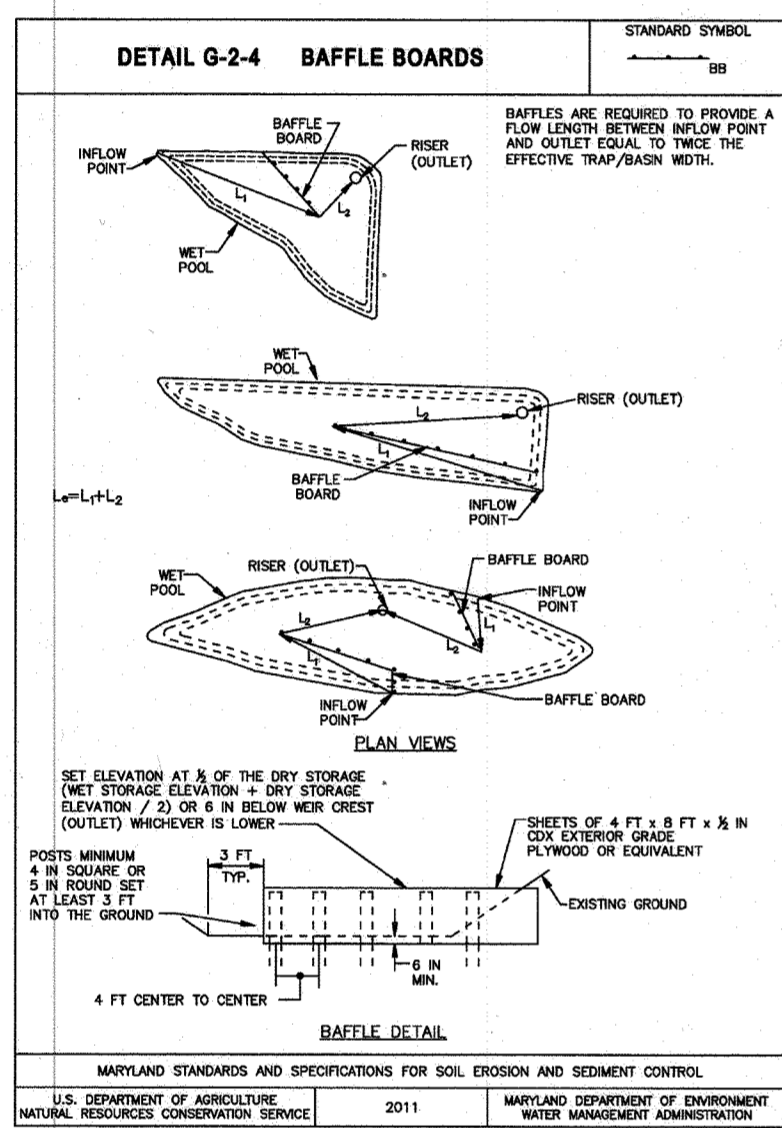
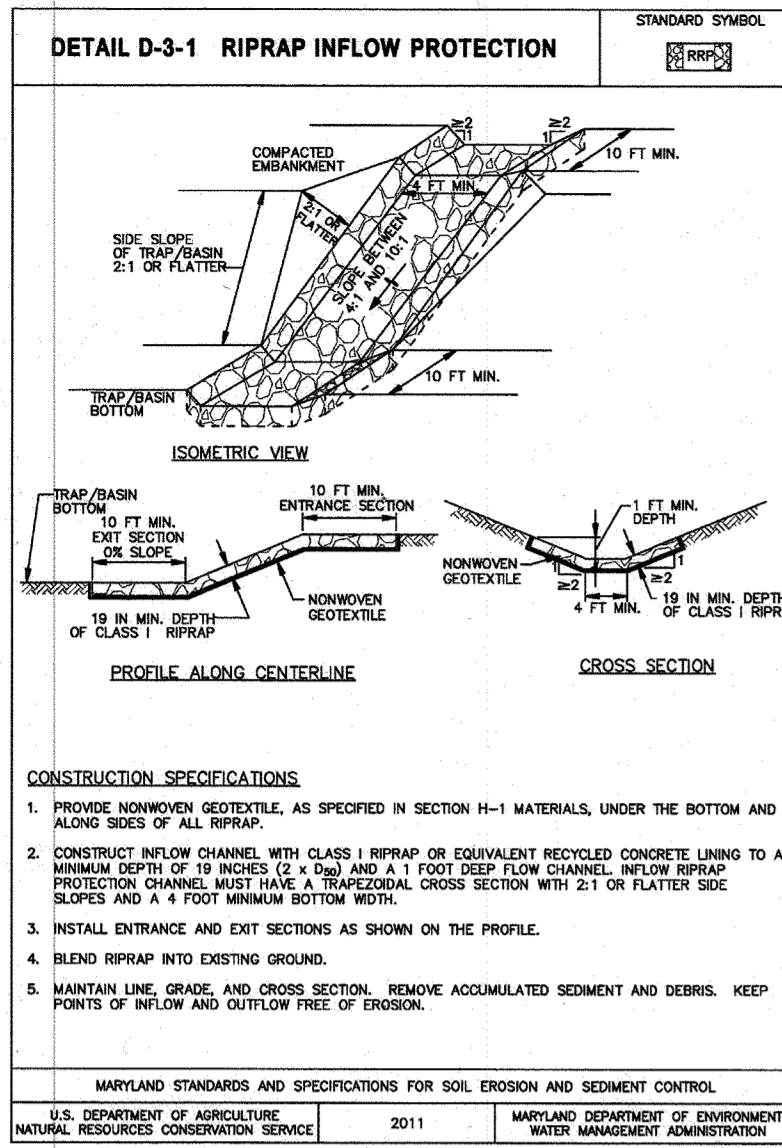
PERMIT INFORMATION CHART

Table with columns for SUBMISSION NAME, SECTION/AREA, and various permit requirements.



PROFESSIONAL CERTIFICATE. 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.

AS-BUILT, MARCH 2021 SDP19-027

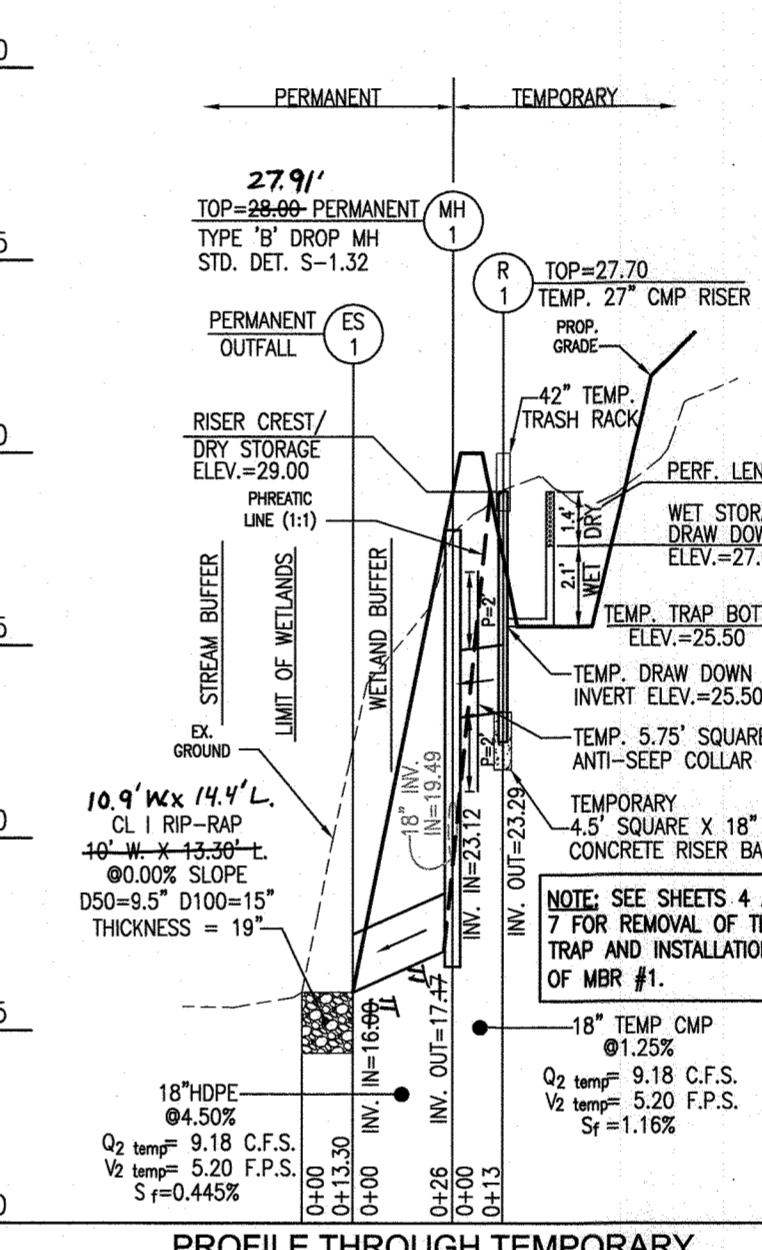
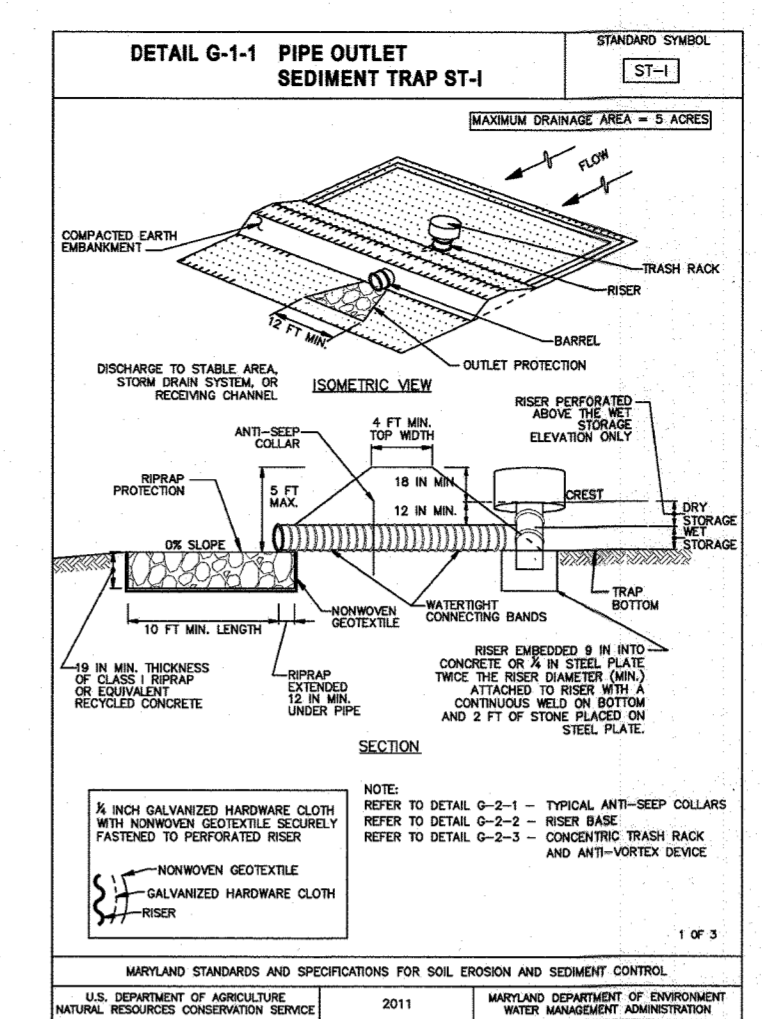
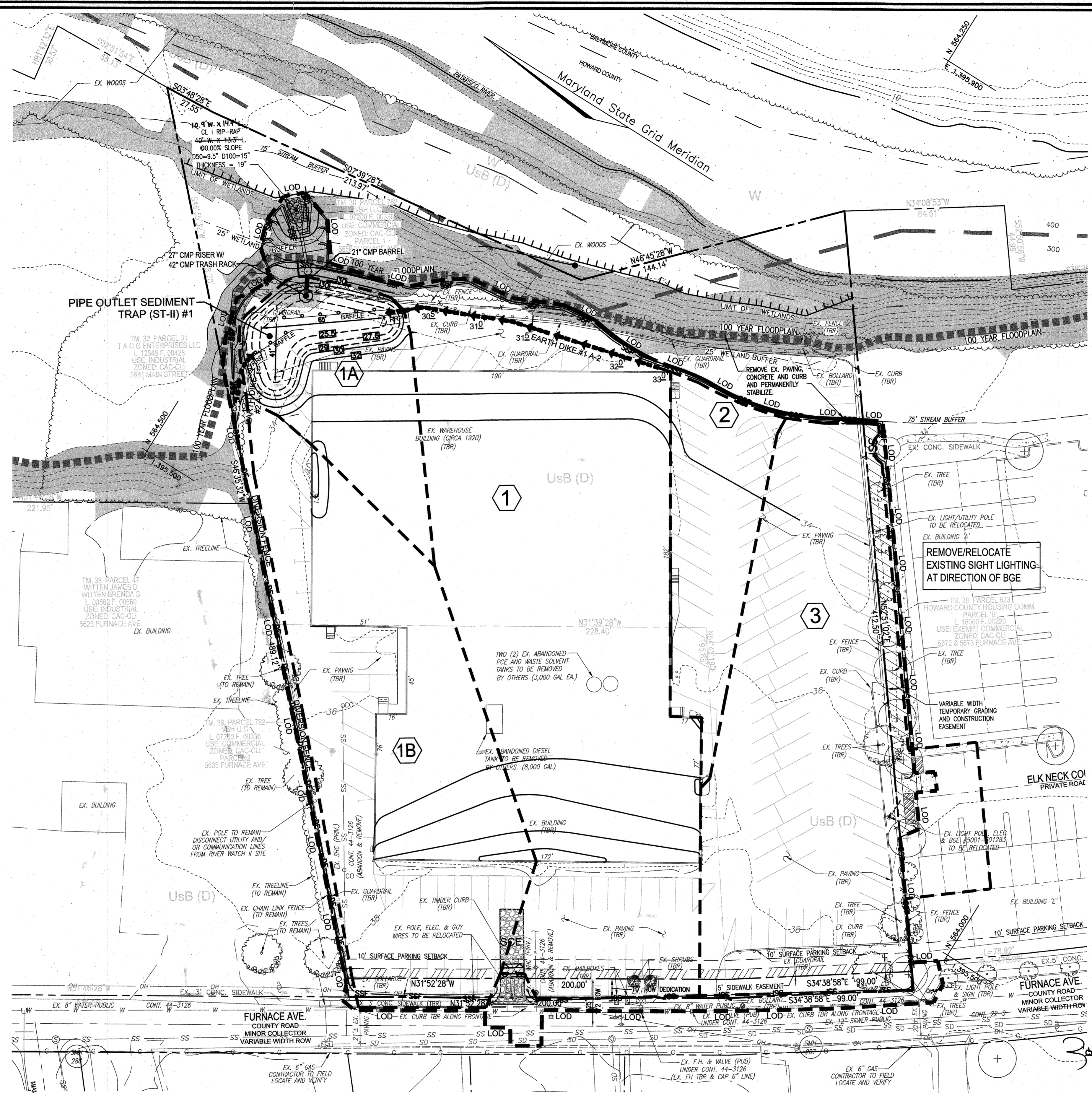


Earth Dike 1	Units
Drainage Area	1.05 Acres
2-year Peak Flow (WinTR-55)	3.9 cfs
Density of water	62.4 lb/ft <sup>3</sup>
Water surface slope	0.016134 ft/ft
Cross-slope	6.465 H:1V
Hydraulic Radius	0.282 ft
Shear Stress	0.283911 lb/ft <sup>2</sup>
Velocity	2.701 ft/s
Depth	0.593 ft
Dike Type	A-2

Div. Fence / Earth Dike 2	Units
Drainage Area	0.50 Acres
2-year Peak Flow (WinTR-55)	1.86 cfs
Density of water	62.4 lb/ft <sup>3</sup>
Water surface slope	0.048757 ft/ft
Cross-slope	9.765 H:1V
Hydraulic Radius	0.155 ft
Shear Stress	0.471575 lb/ft <sup>2</sup>
Velocity	3.151 ft/s
Depth	0.406 ft
Dike Type	A-2

Note: Hydraulic radius, depth, & velocity calculated using triangular channels on Hydraulic Toolbox.



**LEGEND**

	EXISTING CONTOUR
	PROPOSED CONTOUR
	EXISTING CURB AND GUTTER
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING MAILBOX
	EXISTING SIGN
	EXISTING SANITARY MANHOLE
	EXISTING SANITARY LINE
	EXISTING CLEANOUT
	EXISTING WATER LINE
	EXISTING GAS LINE
	EXISTING FENCE
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	EXISTING TREE LINE
	MODERATE SLOPES (15-25%)
	STEEP SLOPES (>25%)
	100 YEAR FLOODPLAIN
	DRAINAGE AREA FOR INITIAL SEDIMENT CONTROL INSTALLATION
	SUPER SILT FENCE
	LIMIT OF DISTURBANCE
	STABILIZED CONSTRUCTION ENTRANCE
	EARTH DIKE
	SOIL TYPE
	BAFFLE BOARD
	TO BE REMOVED

**PIPE OUTLET SEDIMENT TRAP ST-I, TRAP NO. 1**

DRAINAGE AREA - INITIAL	1.71	ACRES
DRAINAGE AREA - FINAL	1.55	ACRES
TOTAL STORAGE REQUIRED	656	CF
TOTAL STORAGE PROVIDED	6513	CF
WET STORAGE REQUIRED	3078	CF
WET STORAGE PROVIDED	3311	CF
DRY STORAGE REQUIRED	3078	CF
DRY STORAGE PROVIDED	3203	CF
TRAP BOTTOM ELEVATION	25.50	FT
TRAP BOTTOM DIMENSIONS	41 x 64	FT X FT
WET STORAGE ELEVATION	27.60	FT
RISER CREST (DRY STORAGE) ELEVATION	29.00	FT
CLEANOUT ELEVATION	26.55	FT
TOP OF EMBANKMENT ELEVATION	30.00	FT
SIDE SLOPE	3:1	HV RATIO
EMBANKMENT TOP WIDTH	4	FT
SPILLWAY MATERIAL	HDPE	
SPILLWAY (BARREL) DIAMETER	18	IN
RISER MATERIAL	CONCRETE	
RISER DIMENSIONS (INSIDE)	2'-7" x 2'-7"	SQUARE
TRASH RACK DIAMETER / HEIGHT	42 / 18	IN
ANTI-SEEP COLLAR DIMENSIONS	5.75 x 5.75	FT
OUTLET PROTECTION - LENGTH	26	FT
OUTLET PROTECTION - WIDTH	10	FT
OUTLET PROTECTION - DEPTH	19	IN

**OWNER**  
 VBH LLC  
 9113 BRAE BROOKE DRIVE  
 LANHAM, MD 20706

**DEVELOPER**  
 J. KIRBY DEVELOPMENT, LLC  
 C/O JEFF KIRBY, PRESIDENT  
 5670 B FURNACE AVENUE  
 ELK RIDGE, MD 21075  
 (410) 788-0027



AS-BUILT CERTIFICATION FOR PSWM  
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

P.E. NAME: *Robert H. Vogel* DATE: 4-20-21

**NOTE:**  
 CONNECTIONS BETWEEN ALL HDPE PIPE AND CONCRETE STRUCTURES TO UTILIZE ADS 12"-24" HDPE WATER-TIGHT MD BOOT ADAPTER, STD-204F. SEE WATER TIGHT CONNECTION DETAIL, SHEET 6.

**EXISTING CONDITIONS - DEMOLITION PLAN AND INITIAL GRADING, EROSION AND SEDIMENT CONTROL PLAN AND DRAINAGE MAP**

SCALE: 1"=30'

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

DATE: 8-20-19  
 DATE: 9/3/19  
 DATE: 9-3-19

**OWNER/DEVELOPER CERTIFICATION:**  
 I HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.

OWNER/DEVELOPER SIGNATURE: *Robert H. Vogel* DATE: 7-25-19  
 PRINTED NAME & TITLE: ROBERT H. VOGEL, P.E.

**DESIGN CERTIFICATION:**  
 I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

DESIGNER'S SIGNATURE: *Robert H. Vogel* DATE: 7-25-19  
 PRINTED NAME: ROBERT H. VOGEL, P.E. NO. 16193  
 REG. 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.

DATE: 8/10/19

**SEDIMENT CONTROL - INITIAL CONDITION**

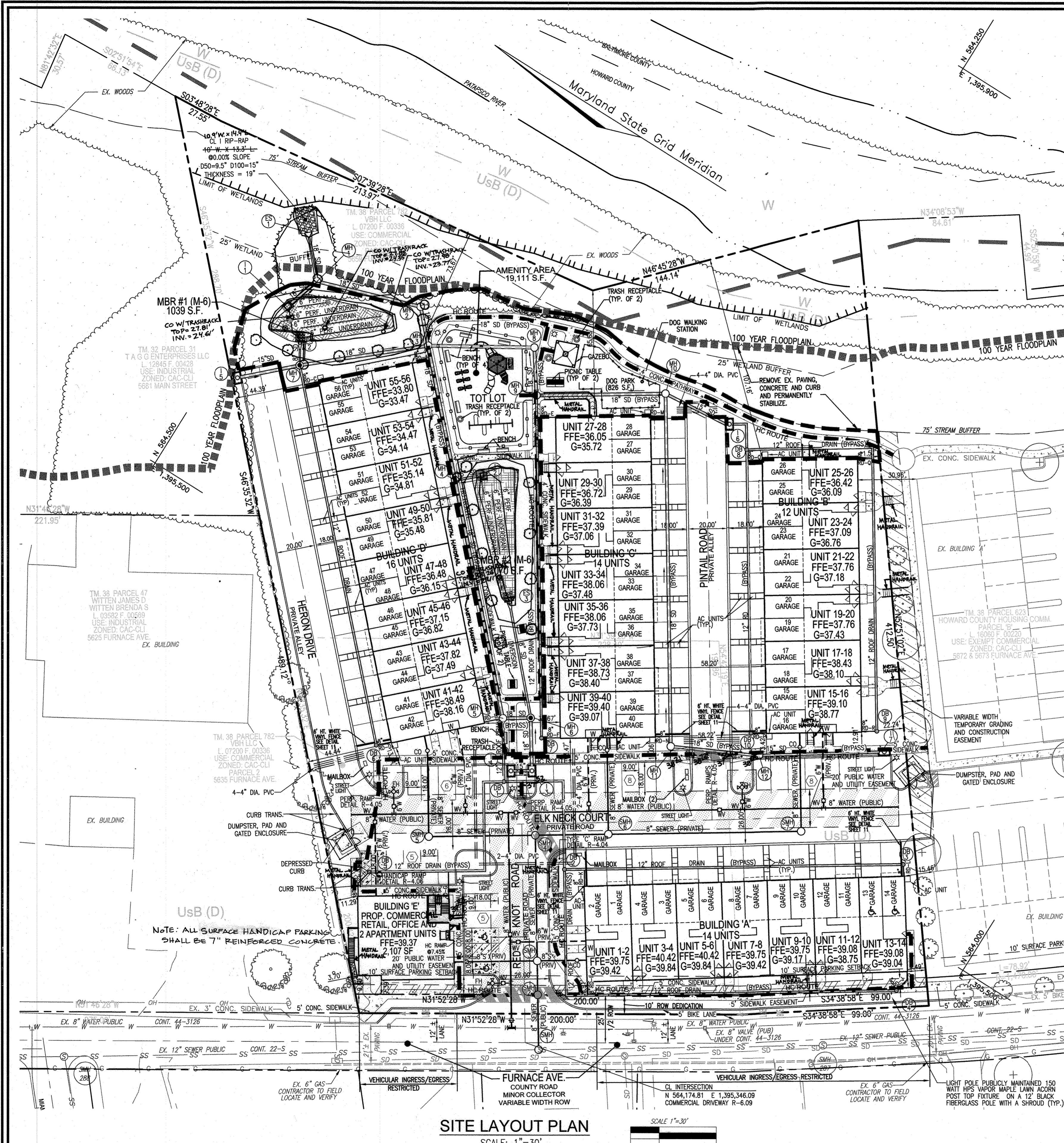
AREA NO.	AREA (AC.)	PRACTICE TYPE	DETAIL NO.	REMARKS
1	1.71	STONE/RIP-RAP OUTLET SEDIMENT TRAP ST-II	G-1-2	INCLUDES SUBAREAS 1A & 1B
1A	0.20	EARTH DIKE (TYPE A-2)	C-1	
1B	0.60	DIVERSION FENCE / EARTH DIKE (TYPE A-2)	C-1	
2	0.33	SUPER SILT FENCE	E-3	
3	0.72	SUPER SILT FENCE	E-3	

**PROFESSIONAL CERTIFICATE**  
 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.  
 EXPIRATION DATE: 08-27-2020

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

2 SHEET OF 11

AS-BUILT, MARCH 2021 SDP19-027



**SITE LAYOUT PLAN**  
SCALE: 1"=30'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 9-27-19  
CHIEF, DEVELOPMENT ENGINEERING DIVISION JR DATE

*[Signature]* 9/3/19  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

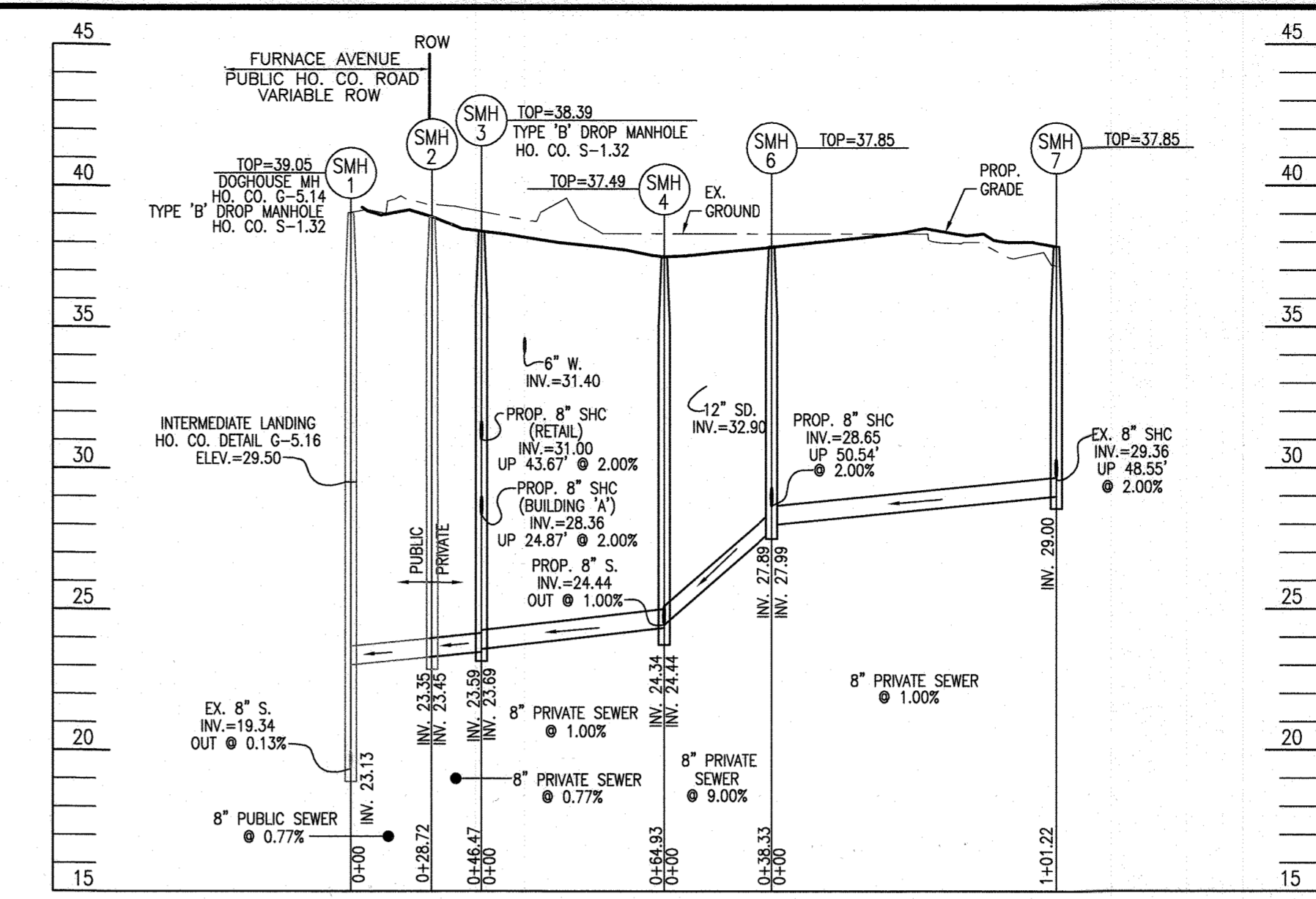
*[Signature]* 9-3-19  
DIRECTOR DATE

**PRIVATE MANHOLE LOCATION CHART**

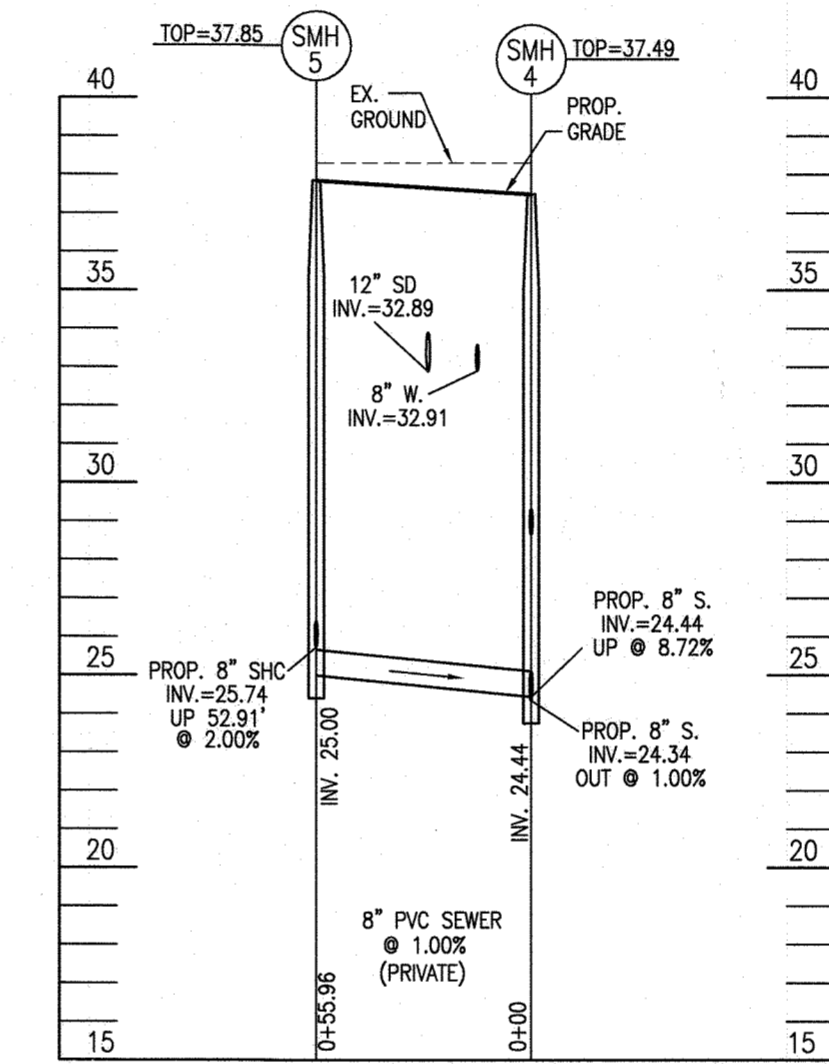
MANHOLE NO.	NORTHING	EASTING	TOP ELEV.
3	564,192.07	1,395,385.70	38.39
4	564,227.76	1,395,440.92	37.49
5	564,274.75	1,395,410.54	37.85
6	564,194.42	1,395,462.46	37.85
7	564,110.55	1,395,516.67	37.85

**SEWER HOUSE CONNECTION AS-BUILT LOCATION TABLE**

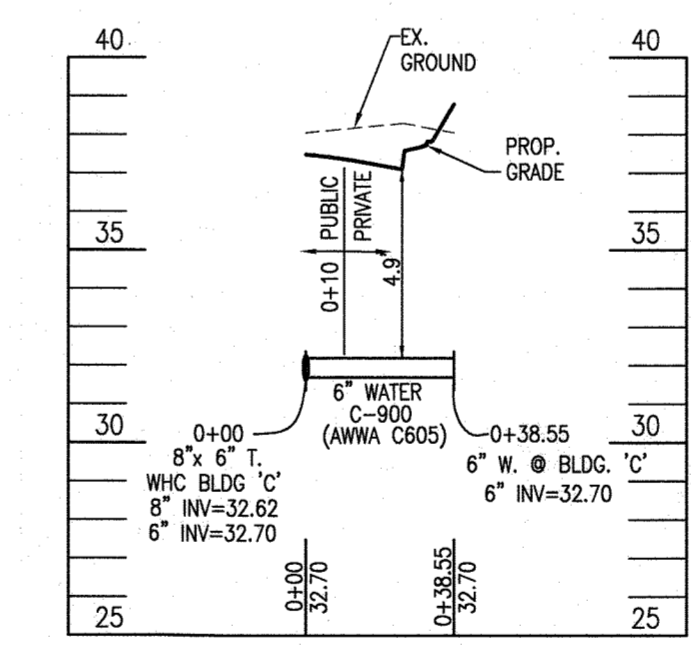
BUILDING	STREET ADDRESS	LOCATION DIMENSION 1	LOCATION DIMENSION 2
A	5649 FURNACE AVENUE		
B	5514 PINTAL ROAD		
C	5515 PINTAL ROAD		
D	5418 HERON DRIVE		
E	5631 FURNACE AVENUE		



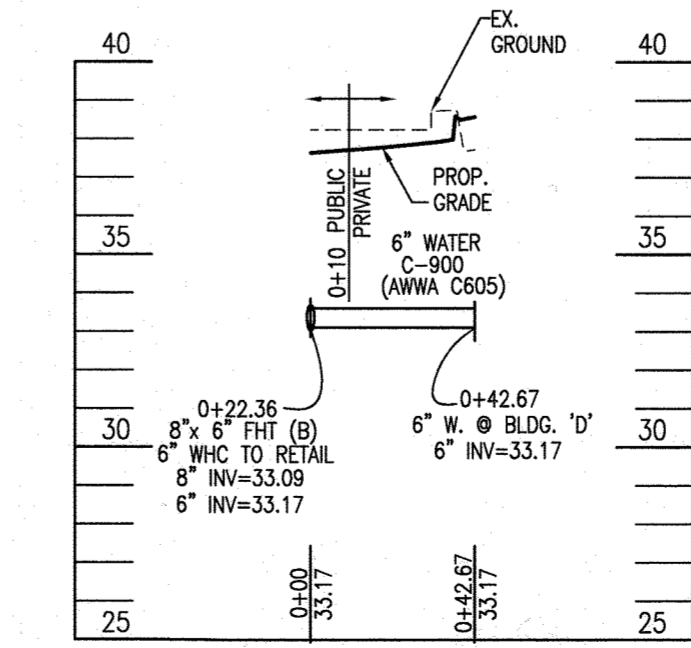
**PRIVATE SEWER PROFILE (PVC)**  
SCALE: 1"=50' HORIZ.  
1"=5' VERT.



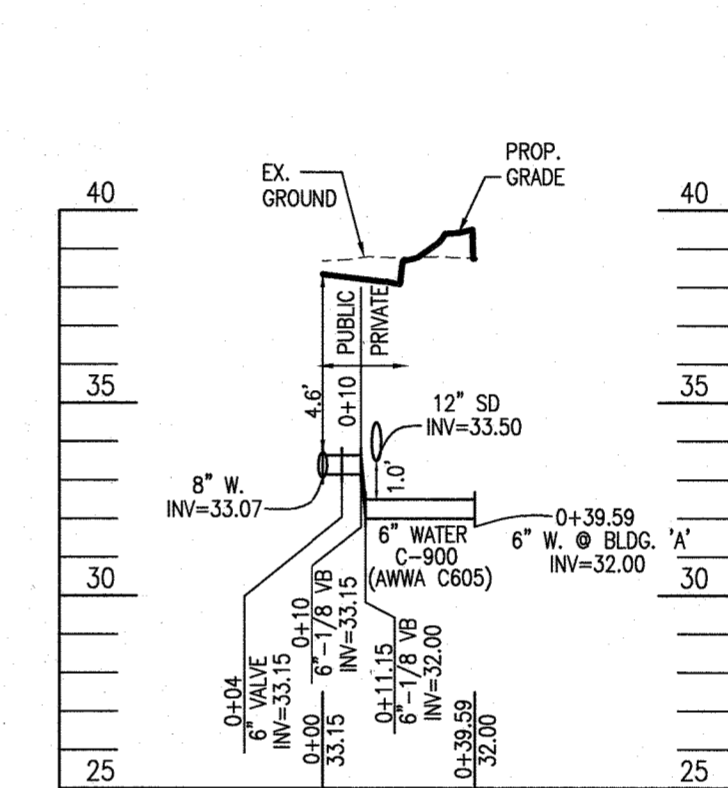
**PRIVATE SEWER PROFILE**  
SCALE: 1"=50' HORIZ.  
1"=5' VERT.



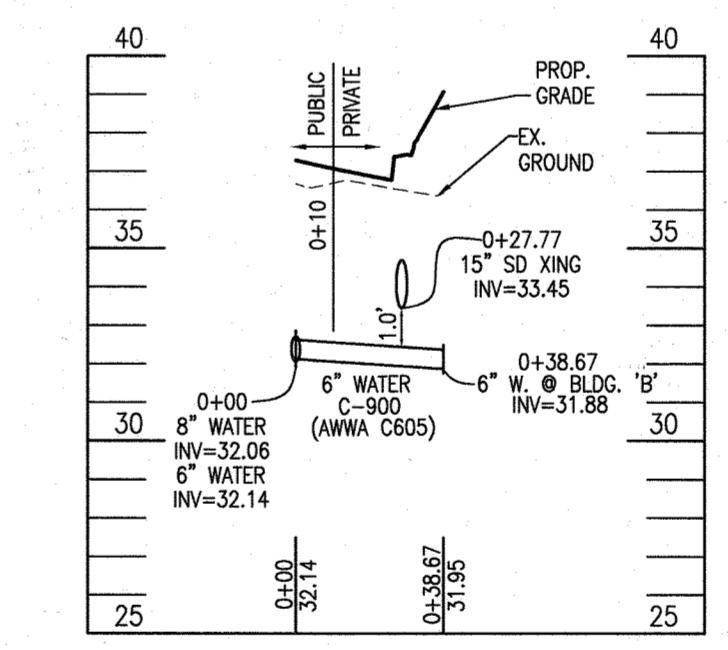
**WHC BLDG 'C' PROFILE**  
SCALE: 1"=50' HORIZ.  
1"=5' VERT.



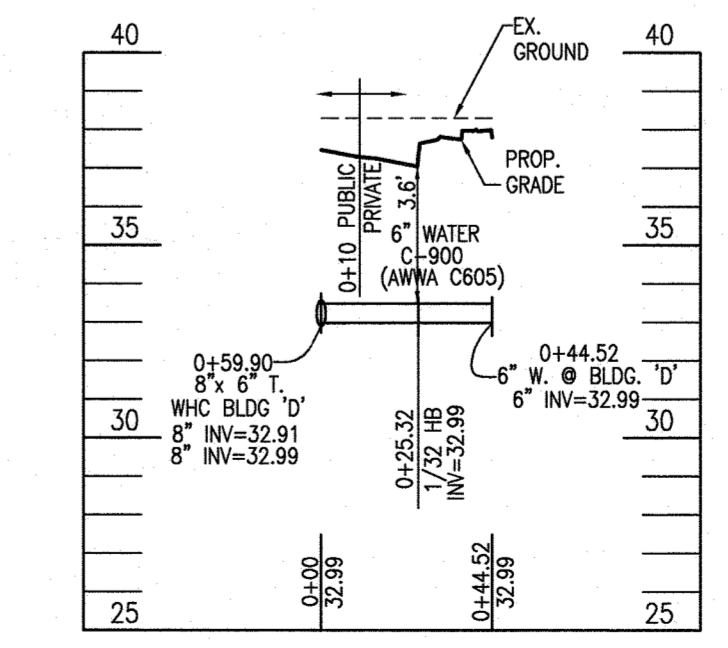
**WHC BLDG 'E' PROFILE**  
SCALE: 1"=50' HORIZ.  
1"=5' VERT.



**WHC BLDG 'A' PROFILE**  
SCALE: 1"=50' HORIZ.  
1"=5' VERT.



**WHC BLDG 'B' PROFILE**  
SCALE: 1"=50' HORIZ.  
1"=5' VERT.



**WHC BLDG 'D' PROFILE**  
SCALE: 1"=50' HORIZ.  
1"=5' VERT.

- LEGEND**
- EXISTING CONTOUR
  - PROPOSED CONTOUR
  - EXISTING CURB AND GUTTER
  - PROPOSED CURB AND GUTTER
  - EXISTING LIGHT POLE
  - EXISTING UTILITY POLE
  - EXISTING MAILBOX
  - EXISTING SIGN
  - EXISTING SANITARY MANHOLE
  - EXISTING SANITARY LINE
  - EXISTING CLEANOUT
  - EXISTING FIRE HYDRANT
  - EXISTING WATER LINE
  - EXISTING GAS LINE
  - EXISTING FENCE
  - PROPERTY LINE
  - RIGHT-OF-WAY LINE
  - EXISTING TREELINE
  - PROPOSED TREELINE
  - PROPOSED STORM DRAIN
  - PROPOSED MANHOLE
  - PROPOSED DIVERSION MANHOLE
  - PROPOSED CLEANOUT
  - PROPOSED WATER VALVE
  - PROPOSED FIRE HYDRANT
  - PROPOSED SIDEWALK
  - EASEMENT
  - HANDICAP ACCESSIBLE PATH
  - SPOT ELEVATION
  - LIGHT POLE - HOLOPHANE 'ESPLANADE' 150 WATT LED FULL CUTOFF LUMINAIRE, BLACK FINISH ON A 12" BLACK FIBERGLASS POLE (TYP.)
  - LIGHT POLE - HOLOPHANE 'ARLINGTON' 150 WATT LED FULL CUTOFF LUMINAIRE, BLACK FINISH ON A 12" BLACK FIBERGLASS POLE (TYP.)



AS-BUILT CERTIFICATION FOR PSWM

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

16193 4-26  
P.E. #

**PRIVATE STREET LIGHT LOCATION CHART**

DATE	NORTHING	EASTING
564,249.43	1,395,398.84	
564,318.38	1,395,421.58	
564,251.03	1,395,455.27	
564,175.27	1,395,503.27	
564,088.53	1,395,575.96	
564,410.63	1,395,636.47	
564,358.29	1,395,668.53	

**PRIVATE WATER AND SEWER QUANTITIES**

ITEMS	QUANTITIES
<b>WATER</b>	
6" WATER - C900 (ANNA C605) CL DR-14	154 LF
6" 1/8" VB	2 EA
6" 1/32" HB	1 EA
6" CAP AND BUTTRISS	5 EA
<b>SEWER</b>	
8" SEWER DIP (CL-52)	279 LF
TYPE 'B' DROP CONNECTION	1 EA
PRECAST MANHOLES	5 EA

**OWNER**  
VSH LLC  
9113 BRAE BROOKE DRIVE  
LANHAM, MD 20706

**DEVELOPER**  
J. KIRBY DEVELOPMENT, LLC  
C/O JEFF KIRBY, PRESIDENT  
5670 B FURNACE AVENUE  
ELKRIDGE, MD 21075  
(410) 788-0027

NO.	TO REVISE PLANS TO MATCH THE BUILDING PERMIT PLANS	REVISION	DATE
1			11-4-19

**SITE DEVELOPMENT PLAN**  
**SITE LAYOUT PLAN AND**  
**PRIVATE SEWER PROFILES**

**RIVER WATCH II**  
5635-5659 FURNACE AVENUE

TAX MAP 38 GRID 04  
1ST ELECTION DISTRICT

ZONED: CAC-CL1  
HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL**  
**ENGINEERING, INC.**  
ENGINEERS • SURVEYORS • PLANNERS

3300 N. RIDGE ROAD, SUITE 110  
ELLCOTT CITY, MD 21043  
TEL: 410.461.7666  
FAX: 410.461.8961

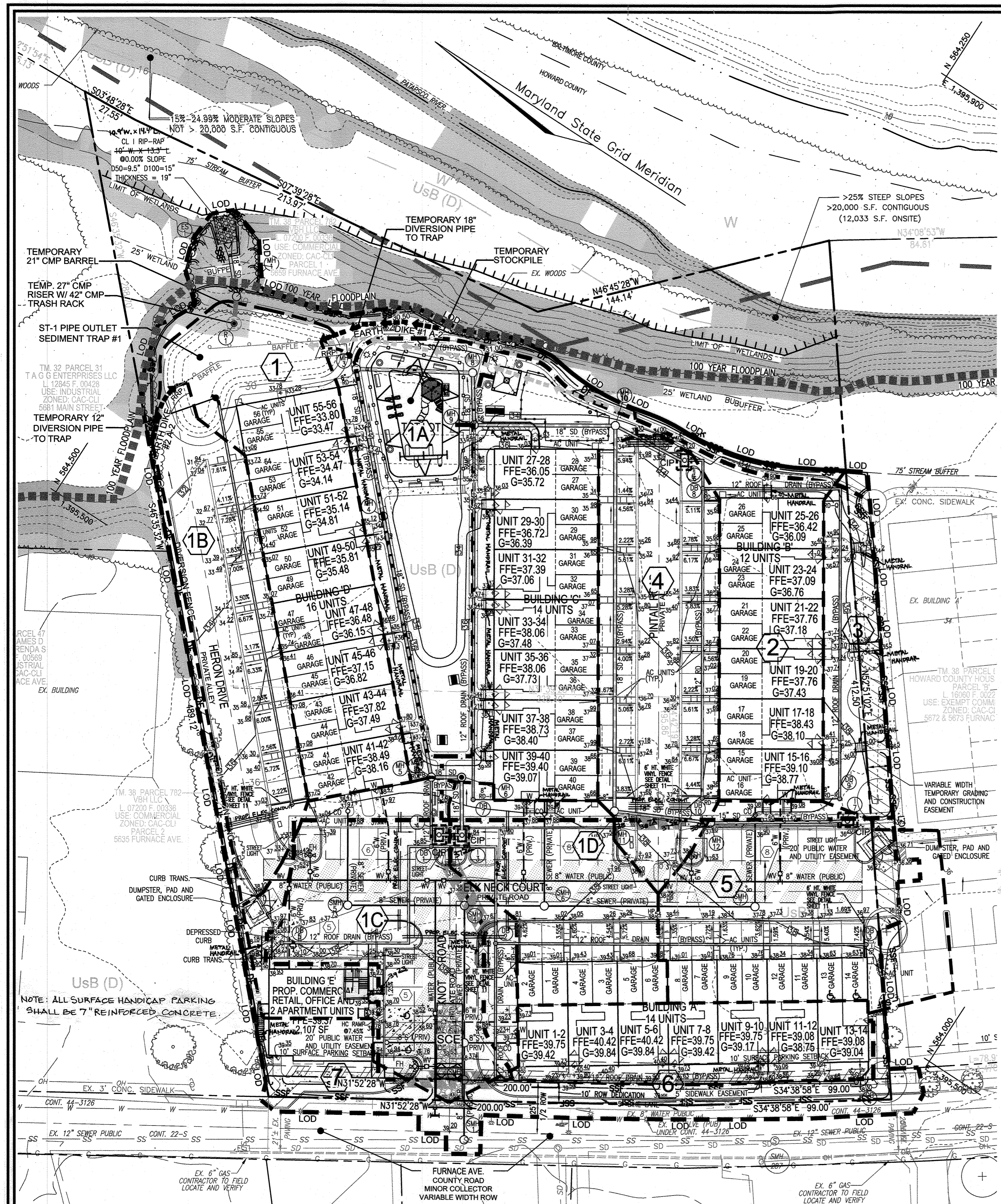
**PROFESSIONAL CERTIFICATE**

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. LICENSE NO. 16193 EXPIRATION DATE: 08-27-2020

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

3 SHEET OF 11

ROBERT H. VOGEL, P.E. No. 16193



**INTERMEDIATE GRADING, EROSION AND SEDIMENT CONTROL PLAN AND DRAINAGE MAP**

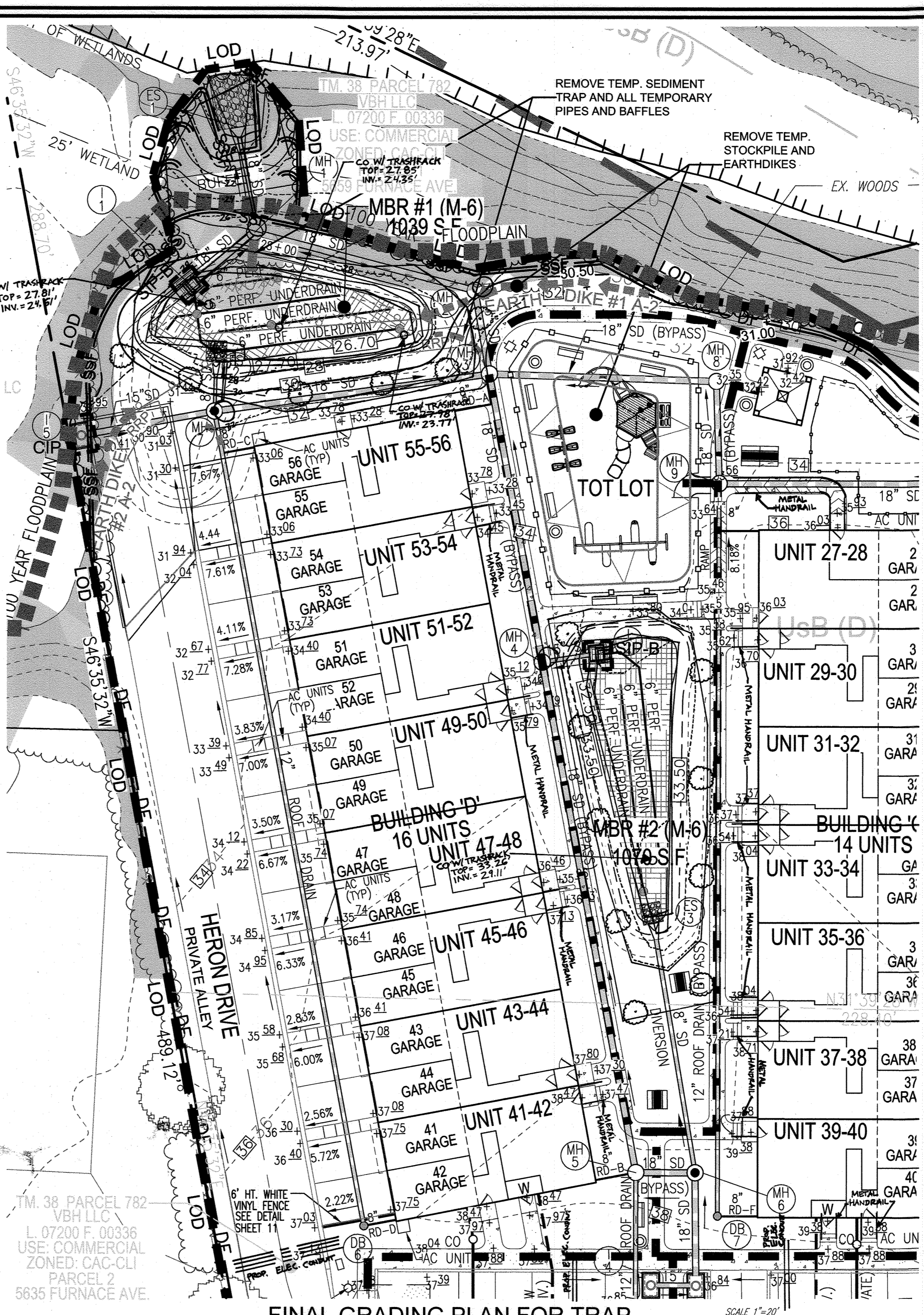
SCALE: 1"=30'

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

OWNER/DEVELOPER CERTIFICATION:  
 I/WE CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.

DESIGN CERTIFICATION:  
 I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

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



**FINAL GRADING PLAN FOR TRAP BACKFILL AND MBR CONSTRUCTION**

SCALE: 1"=20'



AS-BUILT CERTIFICATION FOR PSWM  
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

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-1	G-1.2	INCLUDES SUBAREAS 1A-1D
1A	0.55	DIVERSION FENCE / EARTH DIKE (TYPE A2)	C-9/C-1	
1B	0.22	DIVERSION FENCE / EARTH DIKE (TYPE A2)	C-9/C-1	
1C	0.32	CURB INLET PROTECTION	E-9.3	
1D	0.46	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	0.20	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 INCLUSIONS	HYDRIC	PRIME FARMLAND	<1% SLOPE W/ EROSION POTENTIAL
USB	URBAN LAND-SASSAFRAS-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES	D	.37	NO	NO	NO	NO
W	WATER	-	-	NO	NO	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**

	EXISTING CONTOUR
	PROPOSED CONTOUR
	EXISTING CURB AND GUTTER
	PROPOSED CURB AND GUTTER
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING SIGN
	EXISTING MAILBOX
	EXISTING SANITARY MANHOLE
	EXISTING SANITARY LINE
	EXISTING CLEANOUT
	EXISTING FIRE HYDRANT
	EXISTING WATER LINE
	EXISTING FENCE
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	EXISTING TREELINE
	PROPOSED TREELINE
	EXISTING SOILS
	20' PUBLIC WATER AND UTILITY EASEMENT
	LIMIT OF DISTURBANCE
	MICRO-BIORETENTION (M-B)
	PROPOSED SIDEWALK
	PROPOSED STORM DRAIN
	STABILIZED CONSTRUCTION ENTRANCE
	EXISTING SUPER SILT FENCE
	100 YEAR FLOODPLAIN
	STANDARD INLET PROTECTION
	CURB INLET PROTECTION
	EARTH DIKE
	SILT FENCE
	SUPER SILT FENCE
	DIVERSION FENCE
	RIP-RAP INFLOW PROTECTION
	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 UP HILL NO MORE THAN 35 FEET PART  
 - 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, 5670 B FURNACE AVENUE, ELKBRIDGE, MD 21075, (410) 788-0027

NO.	TO REVISE PLANS TO MATCH THE BUILDING PERMIT PLANS	11-9-19
1	REVISION	DATE

**SITE DEVELOPMENT PLAN**  
 PROPOSED CONDITIONS - INTERMEDIATE AND FINAL GRADING, EROSION AND SEDIMENT CONTROL PLAN AND DRAINAGE MAP  
**RIVER WATCH II**  
 5635-5659 FURNACE AVENUE  
 TAX MAP 38 GRID 04, 1ST ELECTION DISTRICT, ZONED: CAC-CL1, HOWARD COUNTY, MARYLAND, PARCEL 782

**ROBERT H. VOGEL ENGINEERING, INC.**  
 ENGINEERS • SURVEYORS • PLANNERS  
 3300 N. RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
 TEL: 410.461.7666, 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 UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 16193, EXPIRATION DATE: 09-27-2020

4 SHEET OF 11

AS-BUILT, MARCH 2021 SDP19-027

HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES

1. PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS... 2. PROTECT DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS...

3. TEMPORARY SEEDING SUMMARY TABLE with columns for Species, Application Rate, Seeding Dates, Seeding Depth, Fertilizer Rate, and Lime Rate.

B-4-4 STANDARDS AND CONSTRUCTION NOTES FOR TEMPORARY STABILIZATION

1. TEMPORARY STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON... 2. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)...

B-4-4 STANDARDS AND CONSTRUCTION NOTES FOR STOCKPILE AREA

1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN...

APPROVED BY PLANNING BOARD OF HOWARD COUNTY

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING. Includes signatures and dates for Chief, Development Engineering Division and Chief, Division of Land Development.

B-4-5 STANDARDS AND CONSTRUCTION NOTES FOR PERMANENT STABILIZATION

1. PERMANENT STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON... 2. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)...

B-4-5 STANDARDS AND CONSTRUCTION NOTES FOR STOCKPILE AREA

1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN...

APPROVED BY PLANNING BOARD OF HOWARD COUNTY

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING. Includes signatures and dates for Chief, Development Engineering Division and Chief, Division of Land Development.

B-4-2 STANDARDS AND CONSTRUCTION NOTES FOR SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS

1. SOIL PREPARATION... 2. TOPSOILING... 3. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)...

B-4-2 STANDARDS AND CONSTRUCTION NOTES FOR STOCKPILE AREA

1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN...

APPROVED BY PLANNING BOARD OF HOWARD COUNTY

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING. Includes signatures and dates for Chief, Development Engineering Division and Chief, Division of Land Development.

B-4-3 STANDARDS AND CONSTRUCTION NOTES FOR SEEDING AND MULCHING

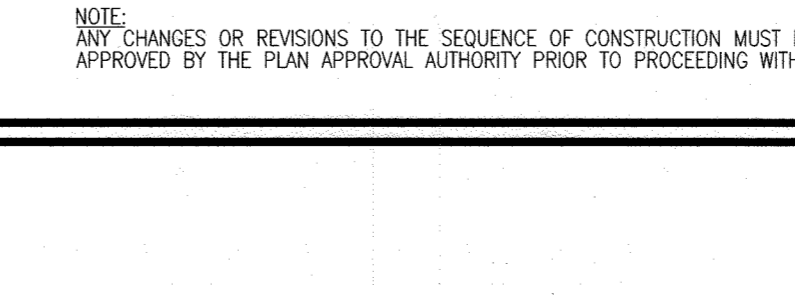
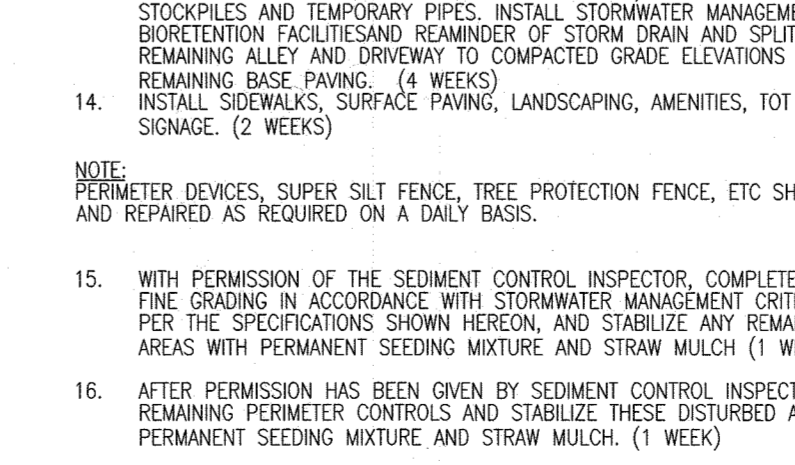
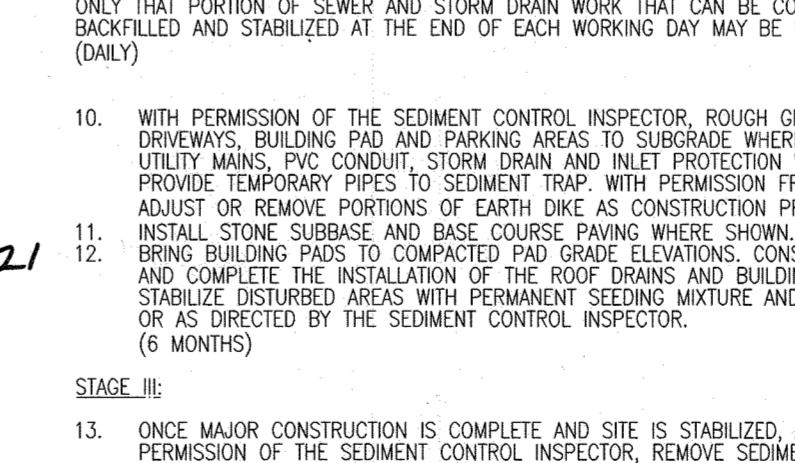
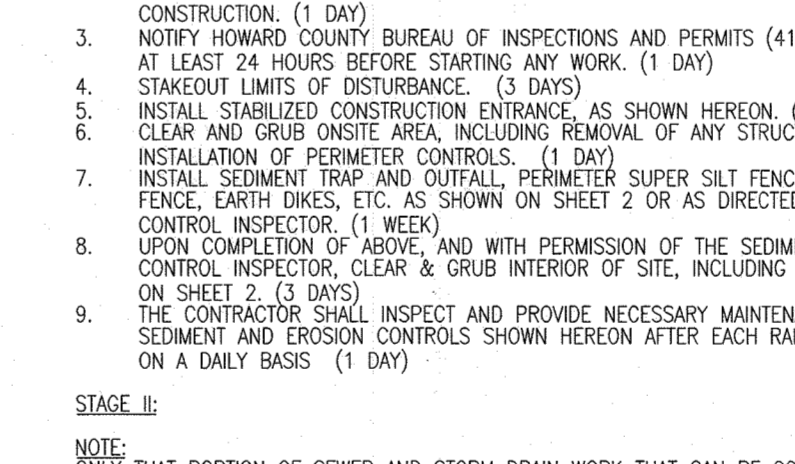
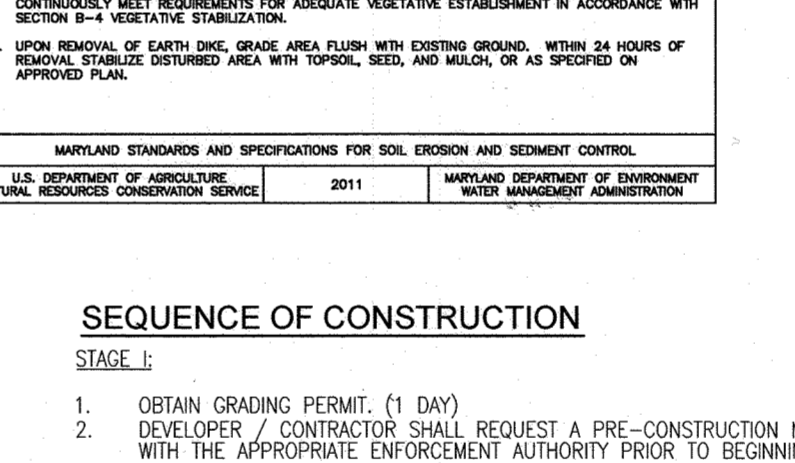
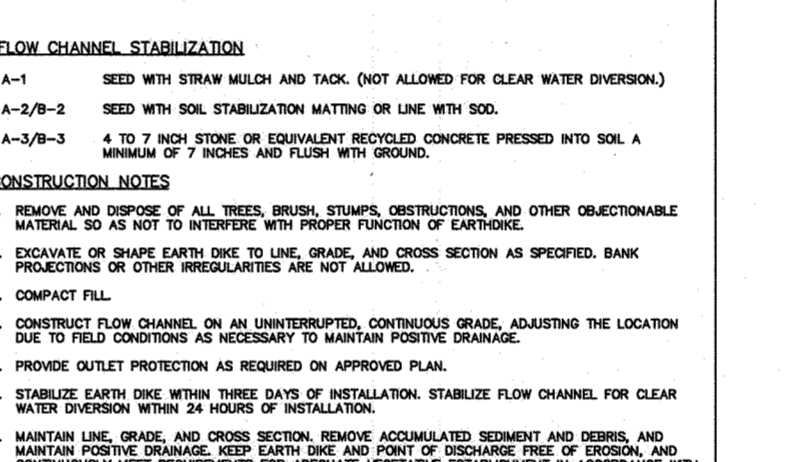
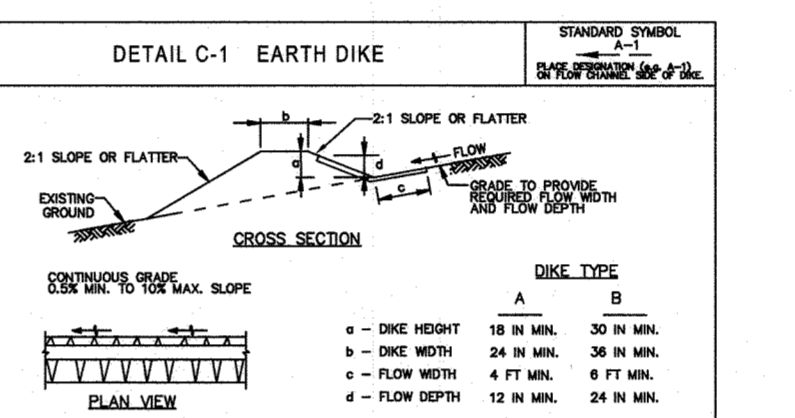
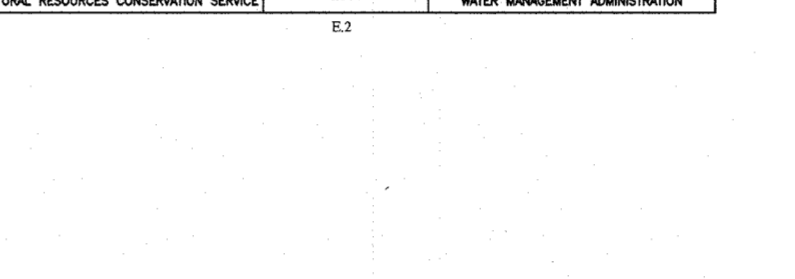
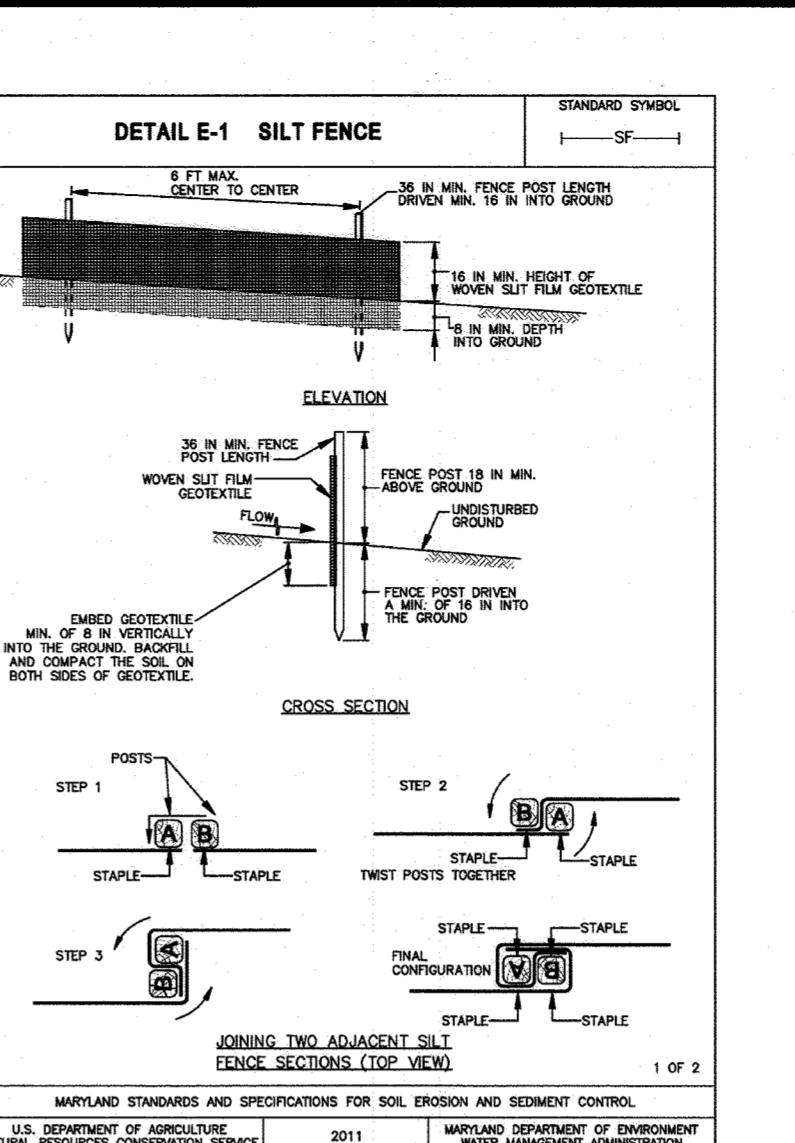
1. SEEDING... 2. MULCHING... 3. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)...

B-4-3 STANDARDS AND CONSTRUCTION NOTES FOR STOCKPILE AREA

1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN...

APPROVED BY PLANNING BOARD OF HOWARD COUNTY

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING. Includes signatures and dates for Chief, Development Engineering Division and Chief, Division of Land Development.



CONSTRUCTION SPECIFICATIONS for Silt Fence, Diversion Fence, Super Silt Fence, Earth Dike, Standard Inlet Protection, and Stabilized Construction Entrance.

CONSTRUCTION SPECIFICATIONS for Earth Dike, Standard Inlet Protection, and Stabilized Construction Entrance.

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CONSTRUCTION SPECIFICATIONS for Earth Dike, Standard Inlet Protection, and Stabilized Construction Entrance.

SEQUENCE OF CONSTRUCTION

- 1. OBTAIN GRADING PERMIT. (1 DAY)
2. DEVELOPER/ CONTRACTOR SHALL REQUEST A PRE-CONSTRUCTION MEETING WITH THE APPROPRIATE ENFORCEMENT AUTHORITY PRIOR TO BEGINNING CONSTRUCTION. (1 DAY)
3. NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS (410-313-1880) AT LEAST 24 HOURS BEFORE STARTING ANY WORK. (1 DAY)
4. STAKEOUT LIMITS OF DISTURBANCE. (3 DAYS)
5. INSTALL STABILIZED CONSTRUCTION ENTRANCES, AS SHOWN HEREON. (1 DAY)
6. LEASE AND GRUB OUT AREA. (1 DAY)
7. INSTALL SEEDING TRAP AND OUTLET, PERMITTER SUPER SILT FENCE, DIVERSION FENCE, CURB INLET, ETC., AS SHOWN ON SHEET AS DIRECTED BY SEDIMENT CONTROL INSPECTOR. (1 WEEK)
8. UPON COMPLETION OF GRUB AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, CLEAR & GRUB INTERIOR OF SITE, INCLUDING DEMOLITION ITEMS ON SHEET 2. (3 DAYS)
9. THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON THE SEDIMENT AND EROSION CONTROLS SHOWN HEREON AFTER EACH RAINFALL AND ON A DAILY BASIS. (1 DAY)

- 10. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, BRUSH GRADE SITE, BRING TO FIELD CONDITIONS, BUILDING PAD AND PARKING AREAS TO SUBGRADE WHERE SHOWN, INSTALL UTILITY MANHOLES, PVC CONDUIT, STORM DRAIN AND INLET PROTECTION WHERE SHOWN, PROVIDE TEMPORARY PROTECTIVE SEEDING TRAP, WITH PERMISSION FROM INSPECTOR, ADJUST OR REMOVE PORTIONS OF EARTH CONSTRUCTION PROVISIONS. (6 WEEKS)
11. INSTALL STONE SUBBASE AND BASE COURSE PAVING WHERE SHOWN. (5 DAYS)
12. BRING BUILDING PAD TO COMPLETED GRADE, STORM DRAIN AND SPRIER PIPES, BRING REMAINING ALLEY AND DRIVEWAY TO COMPLETED GRADE ELEVATIONS AND INSTALL REMAINING BASE PAVING. (2 WEEKS)
13. INSTALL SIDEWALKS, SURFACE PAVING, LANDSCAPING, AMENITIES, TOT LOT, LIGHTING AND SIGNAGE. (2 WEEKS)

- 14. ONCE MAJOR CONSTRUCTION IS COMPLETE AND SITE IS STABILIZED, WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT TRAP, TEMPORARY STOCKPILES AND TEMPORARY PILES. INSTALL STORMWATER MANAGEMENT MICRO-BROKEN TRENCH FACILITIES AND REMAINING STORM DRAIN AND SPRIER PIPES. BRING REMAINING ALLEY AND DRIVEWAY TO COMPLETED GRADE ELEVATIONS AND INSTALL REMAINING BASE PAVING. (2 WEEKS)
15. AFTER PERMISSION HAS BEEN GIVEN BY SEDIMENT CONTROL INSPECTOR, REMOVE ANY REMAINING PERMITTER CONTROLS AND STABILIZE THESE DISTURBED AREAS WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH. (1 WEEK)

NOTE: PERMITTER DENCES, SUPER SILT FENCE, TREE PROTECTION FENCE, ETC SHALL BE INSPECTED AND REPAIRED AS REQUIRED ON A DAILY BASIS.

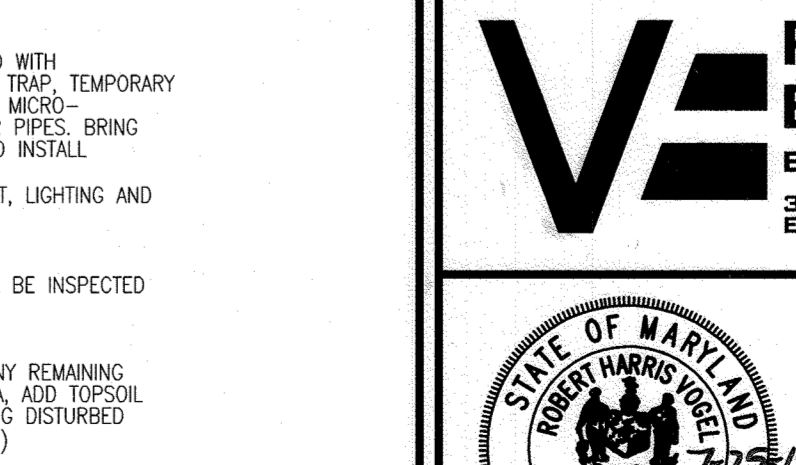
NO AS-BUILT INFORMATION ON THIS SHEET

OWNER: VBH LLC, 9113 BRAE BROOKE DRIVE, LANHAM, MD 20706. DEVELOPER: J. KIRBY DEVELOPMENT, LLC, C/O JEFF KIRBY, PRESIDENT, 5675 E. FURNACE AVENUE, ELKRIGHT, MD 21075, (410) 788-0027.

SITE DEVELOPMENT PLAN GRADING EROSION AND SEDIMENT CONTROL NOTES & DETAILS RIVER WATCH II 5635-5659 FURNACE AVENUE

TAX MAP 38 GRD 04 1ST ELECTION DISTRICT. ZONED: CAC-CLU. PARCEL 782. HOWARD COUNTY, MARYLAND.

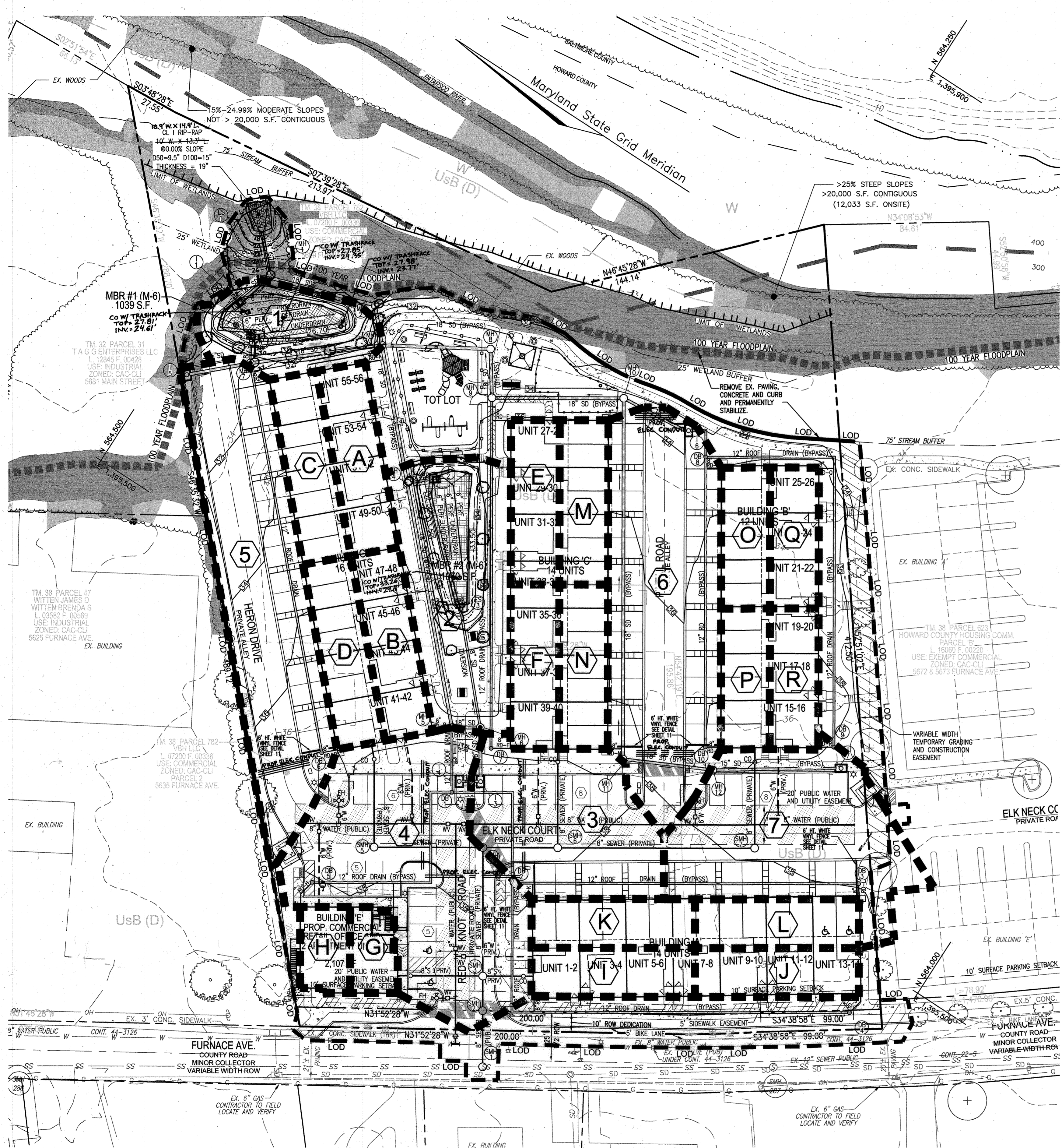
ROBERT H. VOGEL ENGINEERING, INC. ENGINEERS - SURVEYORS - PLANNERS. 3300 N. RIDGE ROAD, SUITE 110, ELICOTT CITY, MD 21043. TEL: 410.461.7666 FAX: 410.461.8961



DESIGN BY: GAH. DRAWN BY: LAG. CHECKED BY: RHW. DATE: JUNE 2019. SCALE: AS SHOWN. W.O. NO.: 17-00. 5 SHEET OF 11.

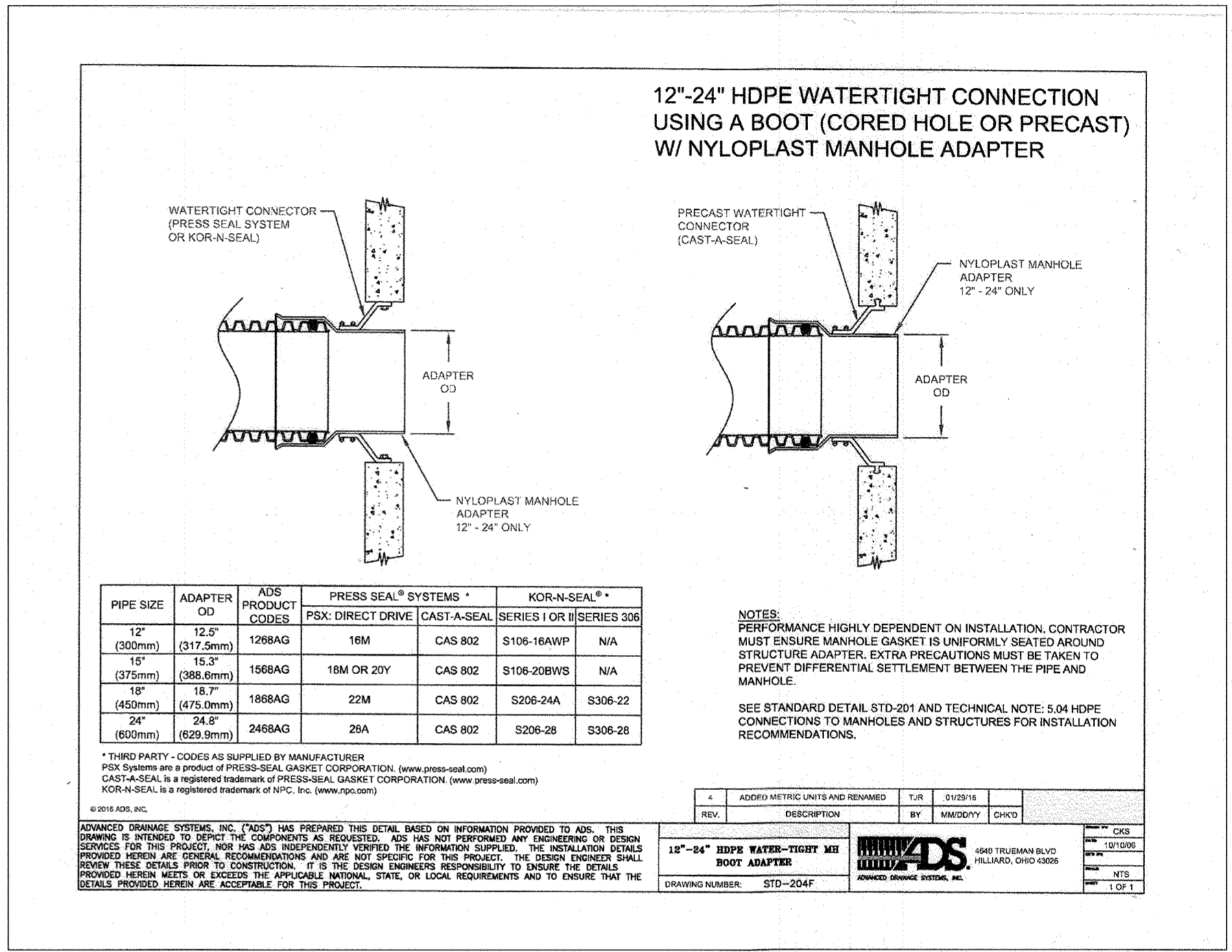
PROFESSIONAL CERTIFICATE. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. EXPIRATION DATE: 06-27-2020.

AS-BUILT, MARCH 2021. SDP19-027



**LEGEND**

	EXISTING CONTOUR		EXISTING SOILS
	PROPOSED CONTOUR		15' EASEMENT FOR INGRESS/EGRESS AND UTILITIES
	EXISTING CURB AND GUTTER		LIMIT OF DISTURBANCE
	PROPOSED CURB AND GUTTER		MICRO-BIORETENTION (M-6)
	EXISTING UTILITY POLE		PROPOSED SIDEWALK
	EXISTING LIGHT POLE		SD DRAINAGE DIVIDE
	EXISTING MAILBOX		DRAINAGE AREA DESIGNATION
	EXISTING SIGN		100 YEAR FLOODPLAIN
	EXISTING SANITARY MANHOLE		
	EXISTING SANITARY LINE		
	EXISTING CLEANOUT		
	EXISTING FIRE HYDRANT		
	EXISTING WATER LINE		
	EXISTING FENCE		
	PROPERTY LINE		
	RIGHT-OF-WAY LINE		
	EXISTING TREELINE		
	PROPOSED TREELINE		



**AS-BUILT CERTIFICATION FOR PSWM**

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

DATE: 4-20-21  
 P.E. # 16193  
 T.E. NAME: [Signature]

**WATER TIGHT CONNECTION DETAIL FOR HDPE PIPE AND CONCRETE STRUCTURES**

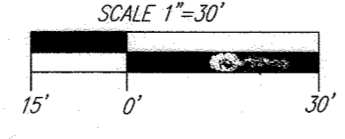
**OWNER**  
 VBH LLC  
 9113 BRAE BROOKE DRIVE  
 LANHAM, MD 20706

**DEVELOPER**  
 J. KIRBY DEVELOPMENT, LLC  
 C/O JEFF KIRBY, PRESIDENT  
 5670 B FURNACE AVENUE  
 ELK RIDGE, MD 21075  
 (410) 788-0027

**DRAINAGE AREAS FOR STORM DRAINAGE**

AREA NO.	AREA (AC.)	C FACTOR	IMPERVIOUS %
1	0.08	0.2636	3.74
2	0.17	0.3839	22.83
3	0.15	0.7744	84.83
4	0.27	0.7379	79.02
5	0.24	0.7532	81.46
6	0.26	0.7956	88.18
7	0.20	0.7582	82.25
RD-A	0.06	0.8700	100.00
RD-B	0.06	0.8700	100.00
RD-C	0.05	0.8700	100.00
RD-D	0.05	0.8700	100.00
RD-E	0.05	0.8700	100.00
RD-F	0.05	0.8700	100.00
RD-G	0.02	0.8700	100.00
RD-H	0.03	0.8700	100.00
RD-I	0.05	0.8700	100.00
RD-J	0.05	0.8700	100.00
RD-K	0.05	0.8700	100.00
RD-L	0.05	0.8700	100.00
RD-M	0.05	0.8700	100.00
RD-N	0.05	0.8700	100.00
RD-O	0.04	0.8700	100.00
RD-P	0.04	0.8700	100.00
RD-Q	0.04	0.8700	100.00
RD-R	0.04	0.8700	100.00

**DRAINAGE AREA MAP FOR STORM DRAIN**



**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
U5B 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

[Signature] 8-28-19  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 9-3-19  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 9-3-19  
 DIRECTOR DATE

TO REVISE PLANS TO MATCH THE BUILDING PERMIT PLANS REVISION 11-4-19 DATE

**SITE DEVELOPMENT PLAN  
 STORM DRAIN  
 DRAINAGE AREA MAP**

**RIVER WATCH II**  
 5635-5659 FURNACE AVENUE

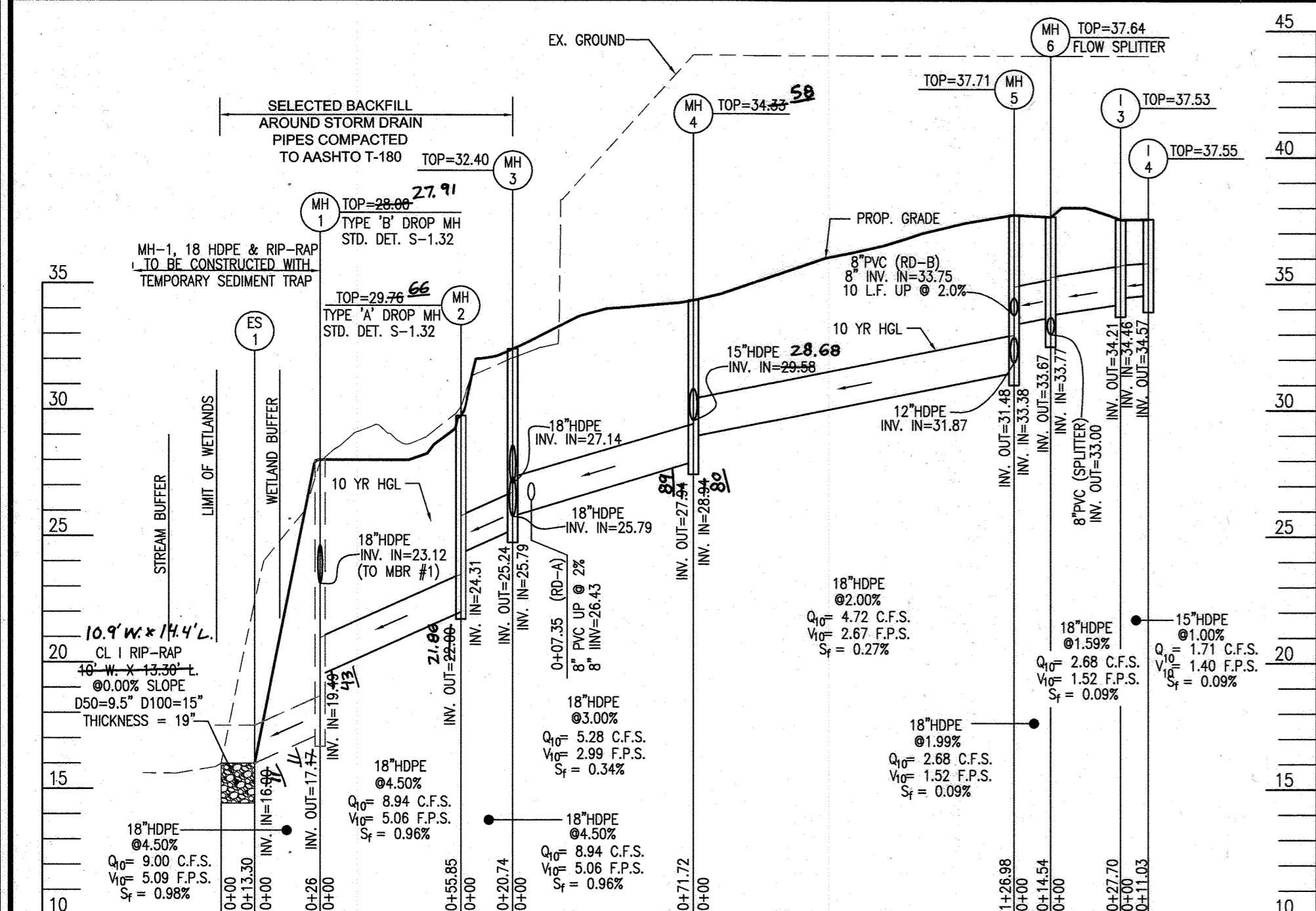
TAX MAP 38 GRID 04 PARCEL 782  
 1ST ELECTION DISTRICT ZONED: CAC-CLI HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL  
 ENGINEERING, INC.**  
 ENGINEERS • SURVEYORS • PLANNERS  
 3300 N. RIDGE ROAD, SUITE 110 TEL: 410.461.7666  
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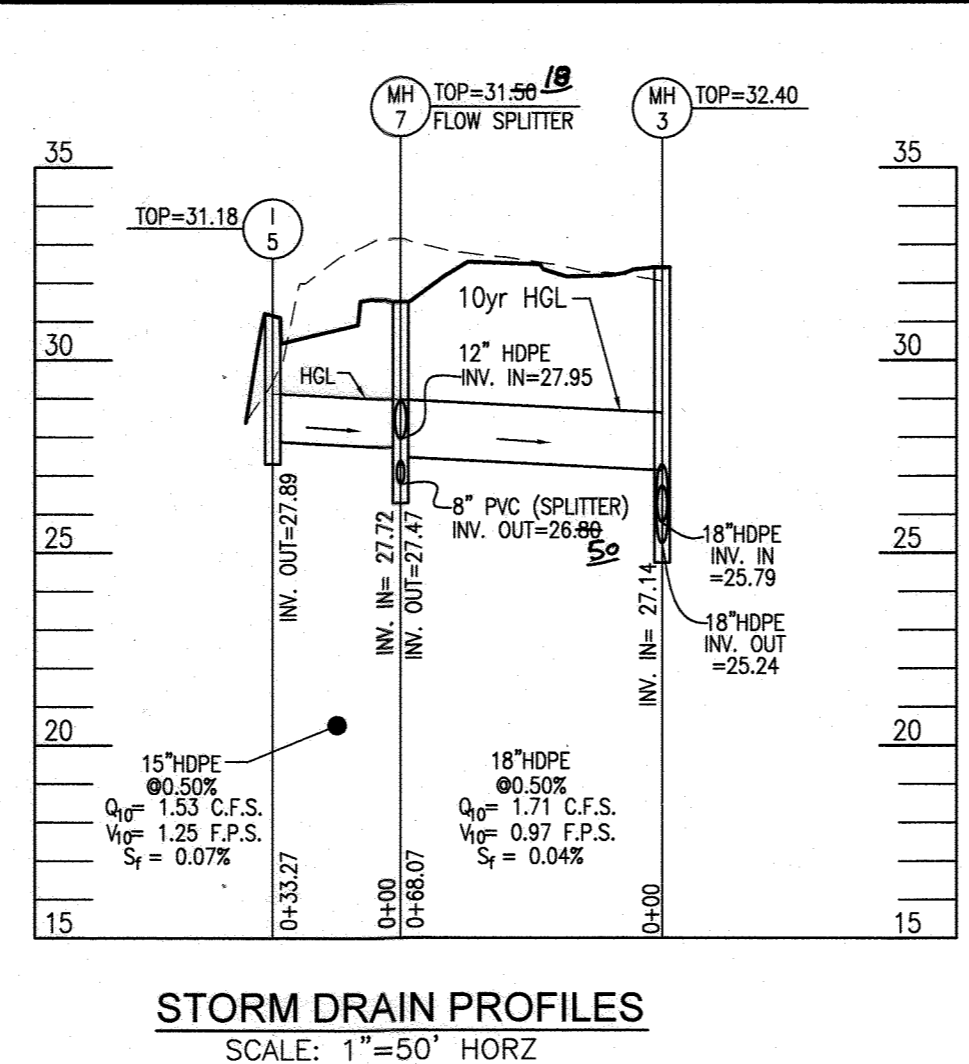
PROFESSIONAL CERTIFICATE  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 08-27-2020

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

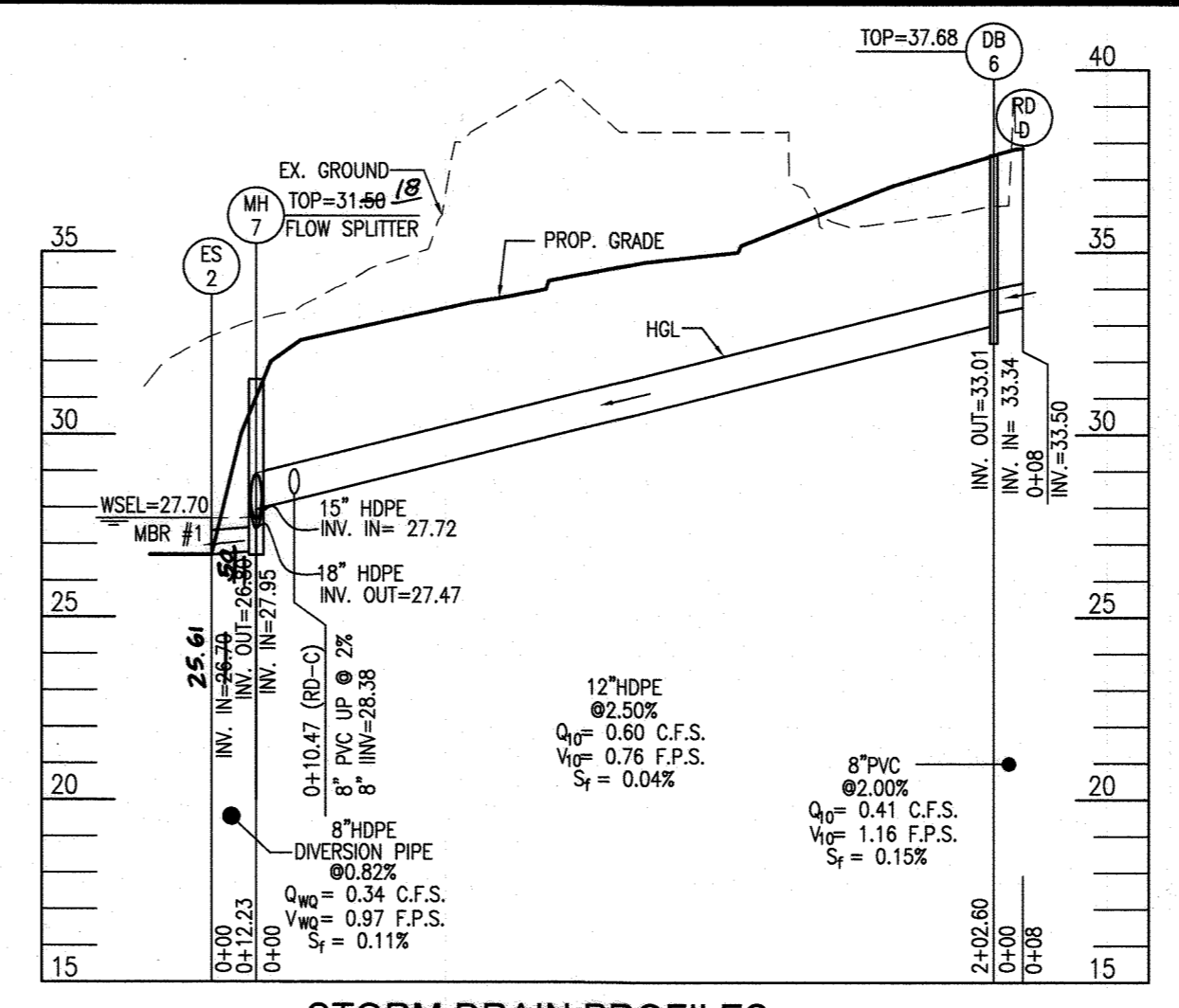
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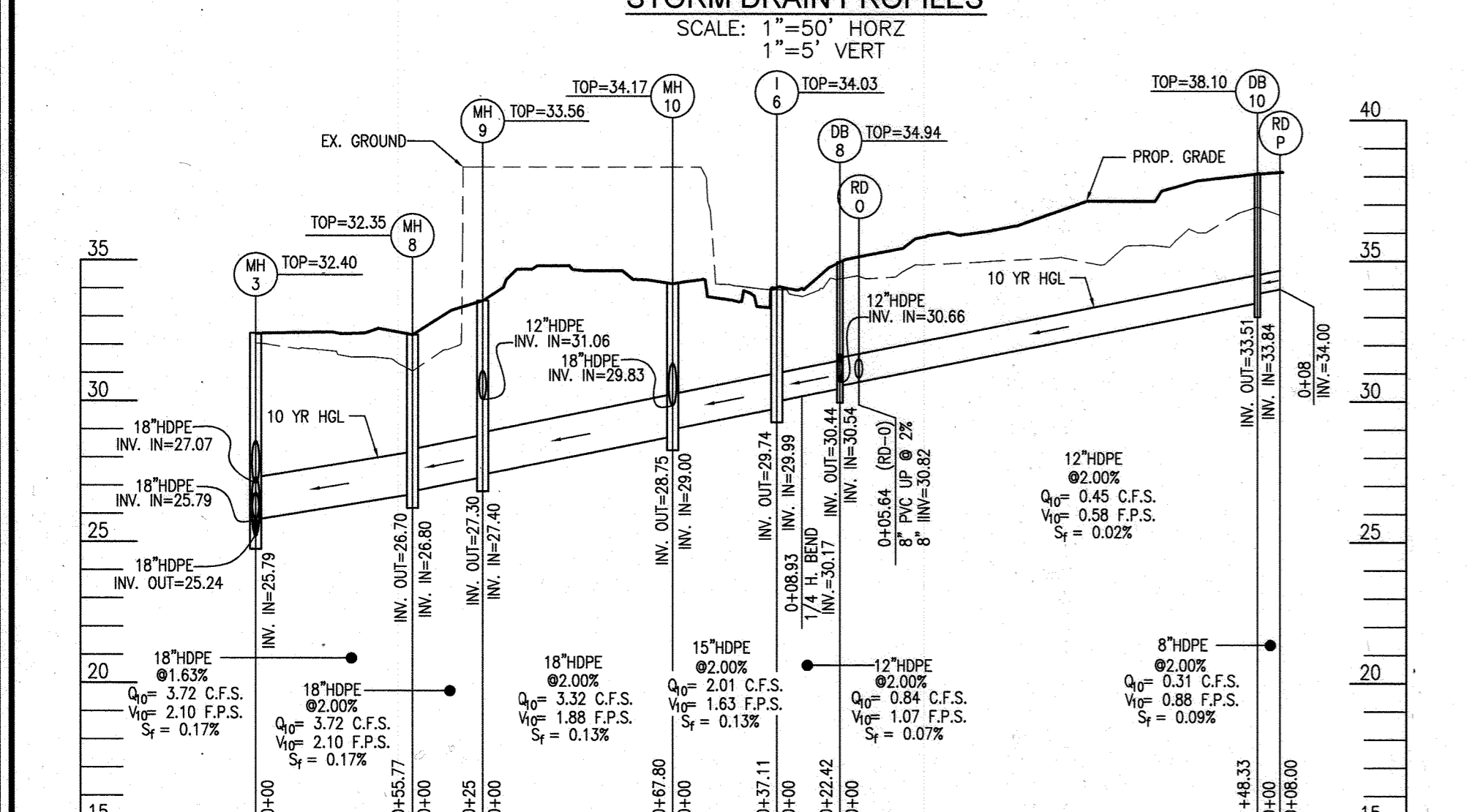
**STORM DRAIN PROFILES**  
SCALE: 1"=50' HORZ  
1"=5' VERT



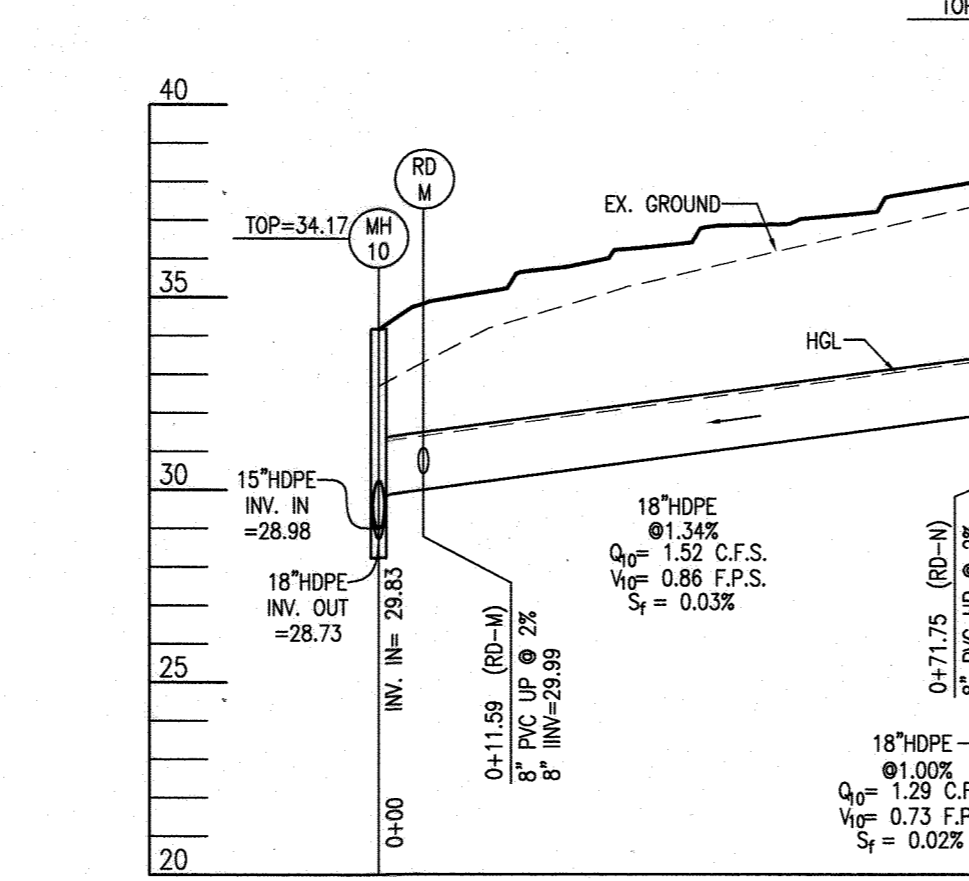
**STORM DRAIN PROFILES**  
SCALE: 1"=50' HORZ  
1"=5' VERT



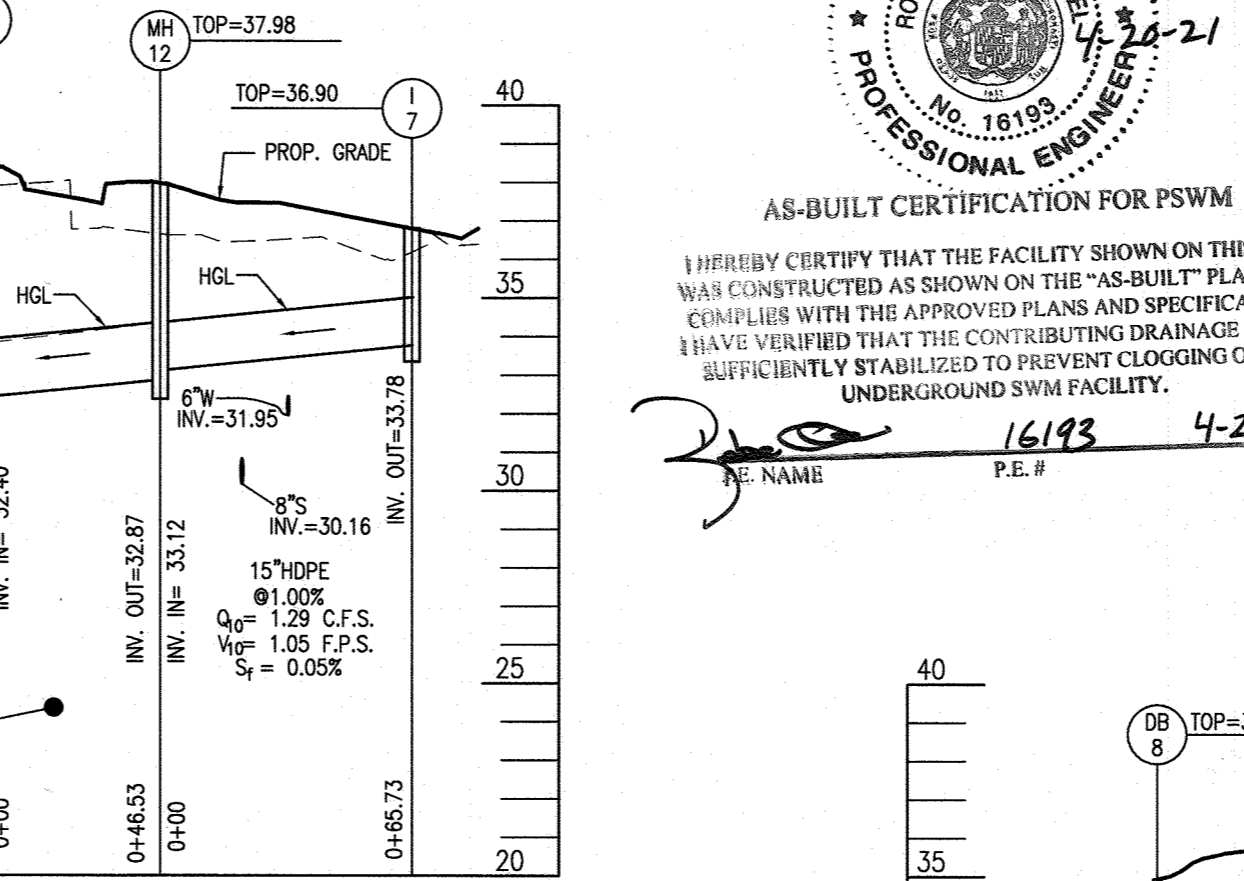
**STORM DRAIN PROFILES**  
SCALE: 1"=50' HORZ  
1"=5' VERT



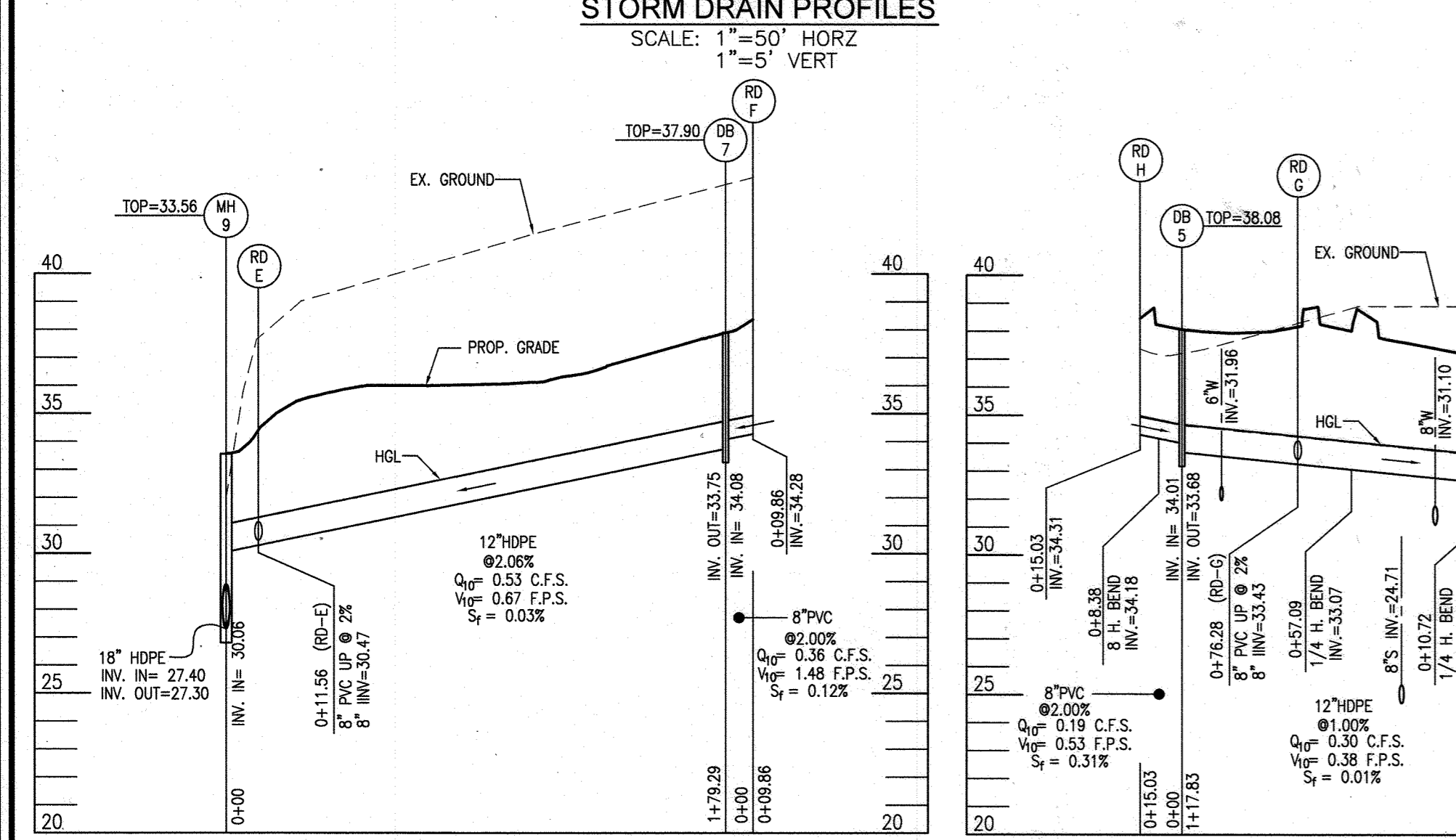
**STORM DRAIN PROFILES**  
SCALE: 1"=50' HORZ  
1"=5' VERT



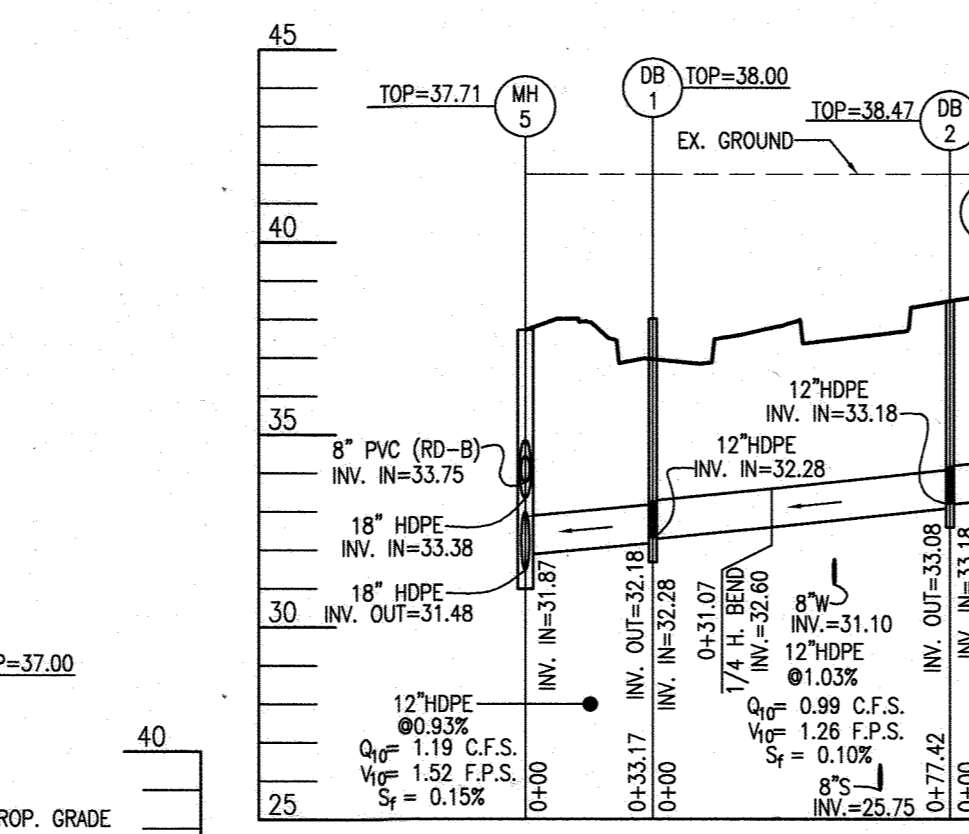
**STORM DRAIN PROFILES**  
SCALE: 1"=50' HORZ  
1"=5' VERT



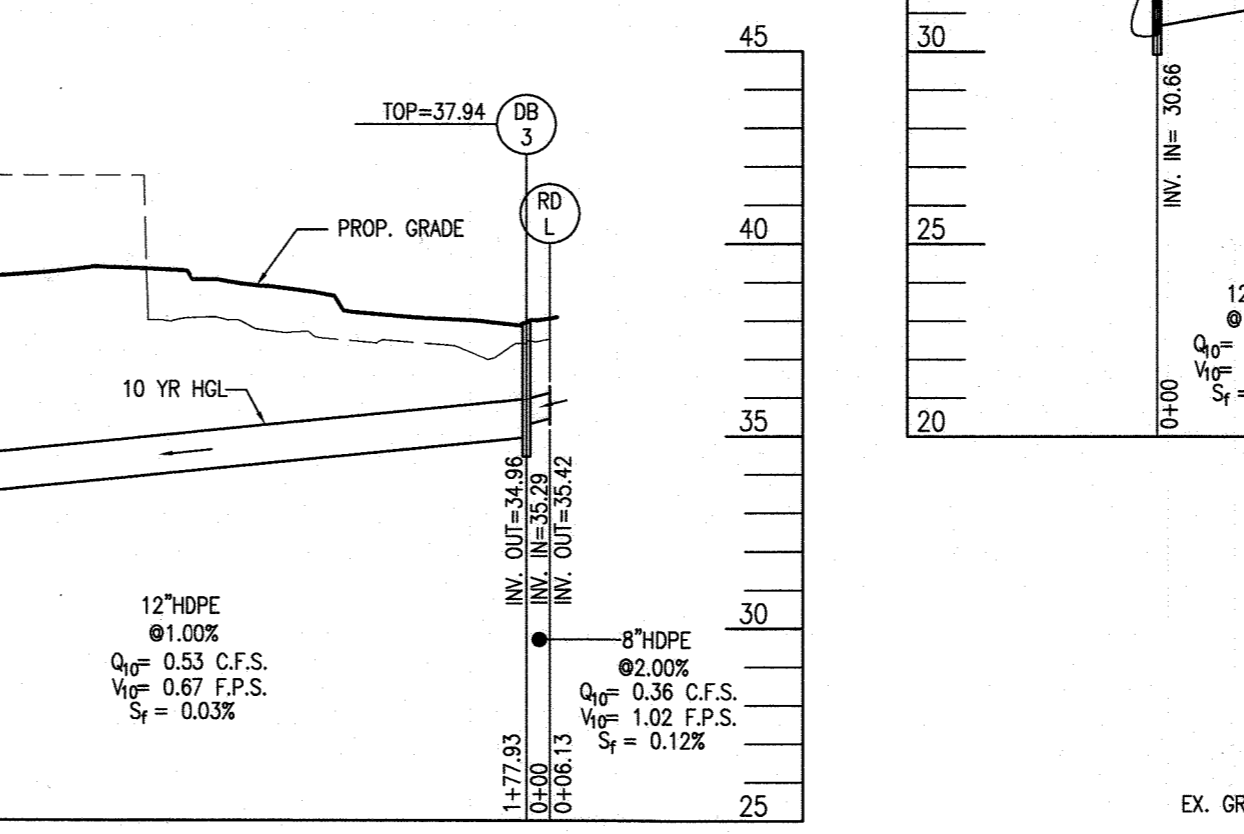
**STORM DRAIN PROFILES**  
SCALE: 1"=50' HORZ  
1"=5' VERT



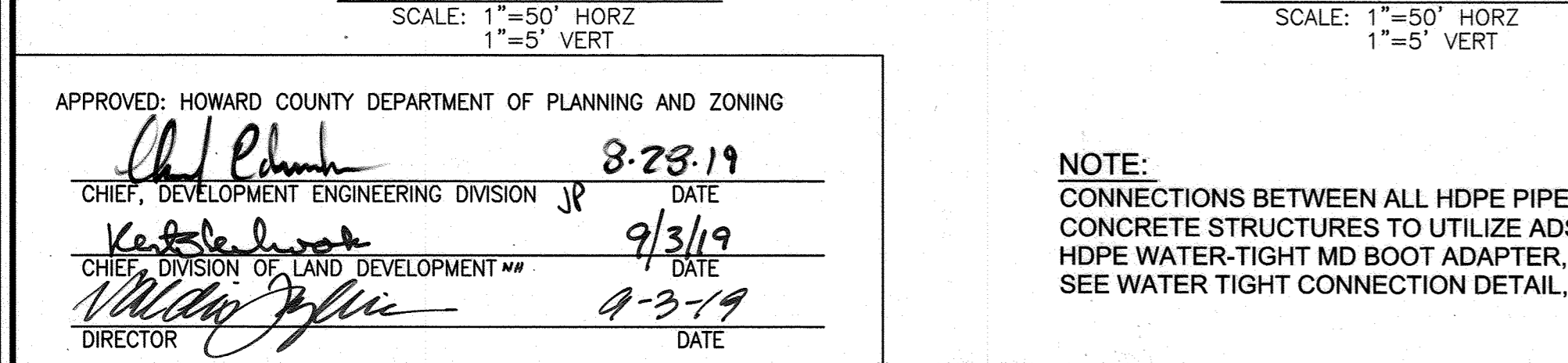
**STORM DRAIN PROFILES**  
SCALE: 1"=50' HORZ  
1"=5' VERT



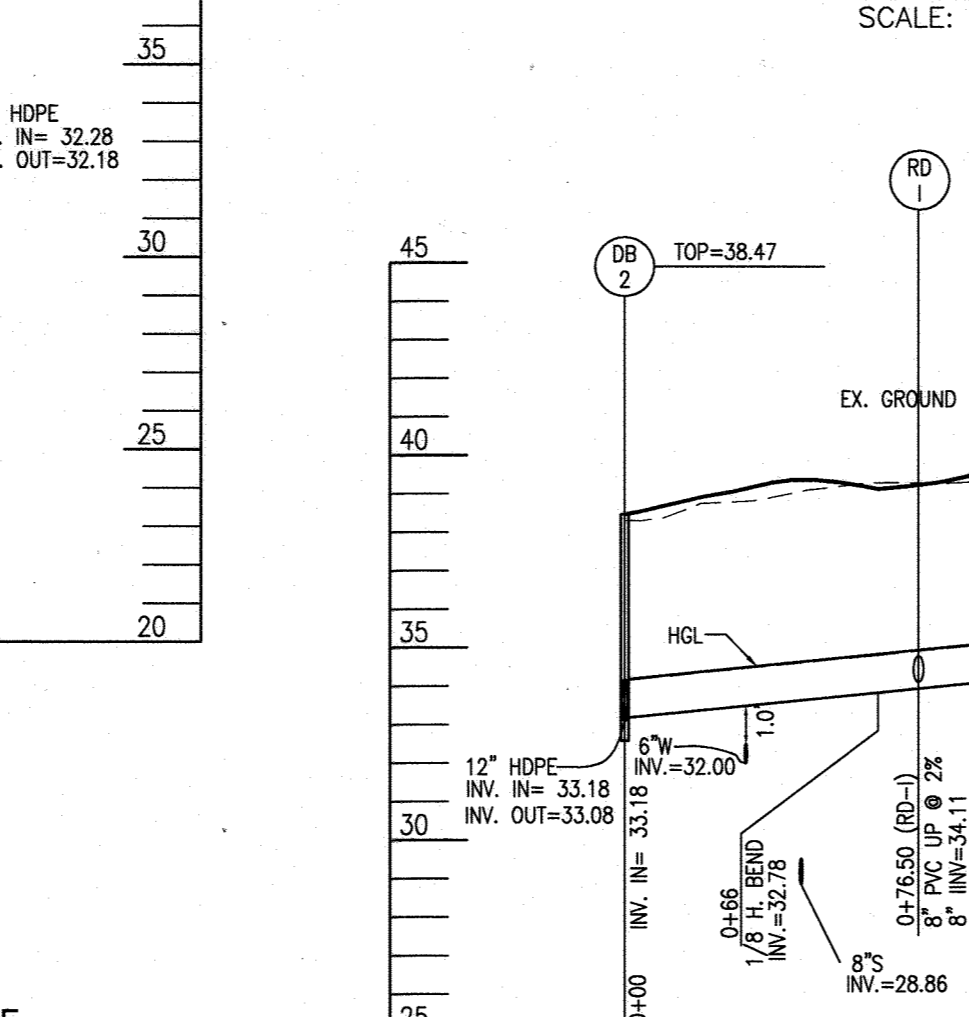
**STORM DRAIN PROFILES**  
SCALE: 1"=50' HORZ  
1"=5' VERT



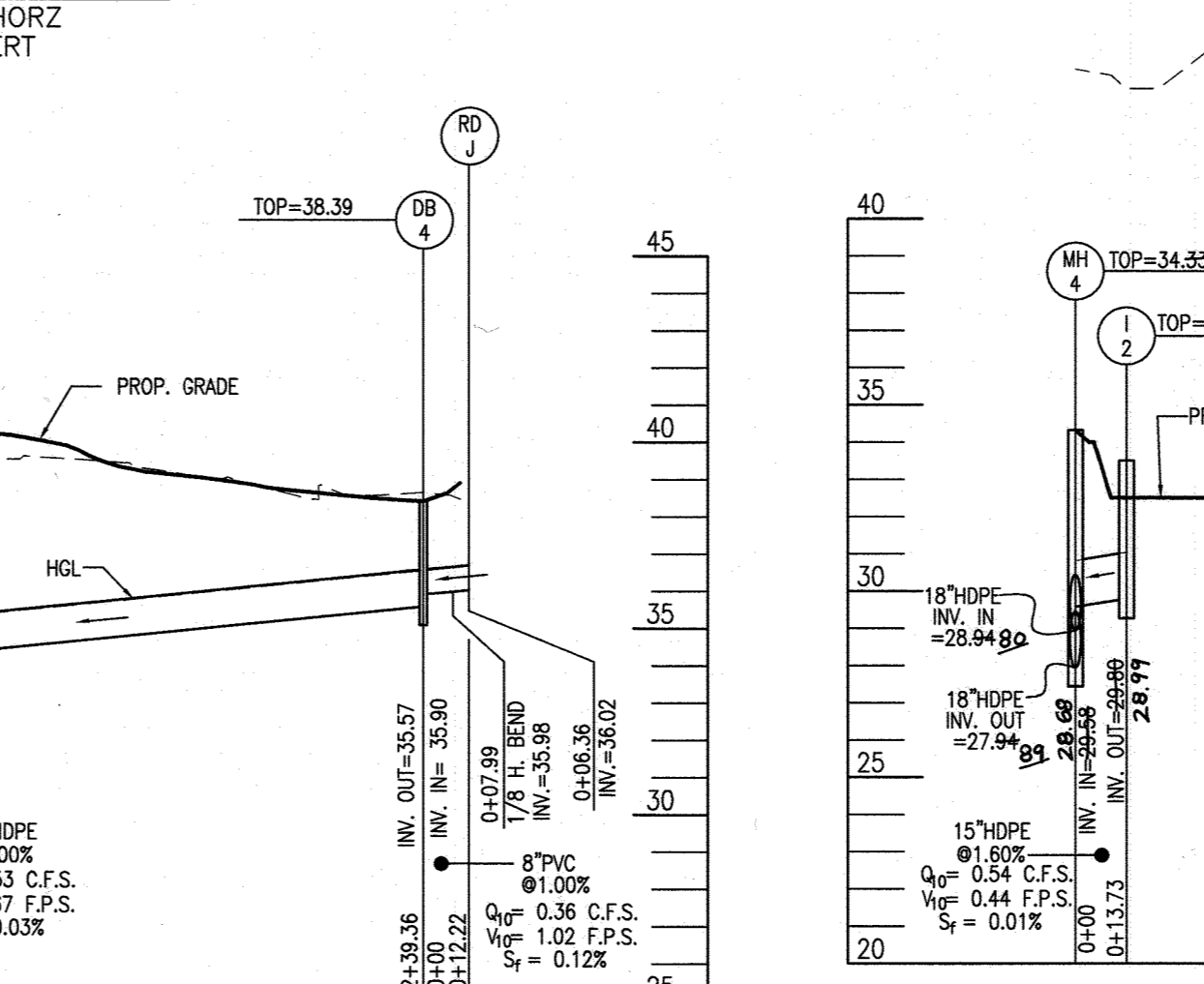
**STORM DRAIN PROFILES**  
SCALE: 1"=50' HORZ  
1"=5' VERT



**STORM DRAIN PROFILES**  
SCALE: 1"=50' HORZ  
1"=5' VERT



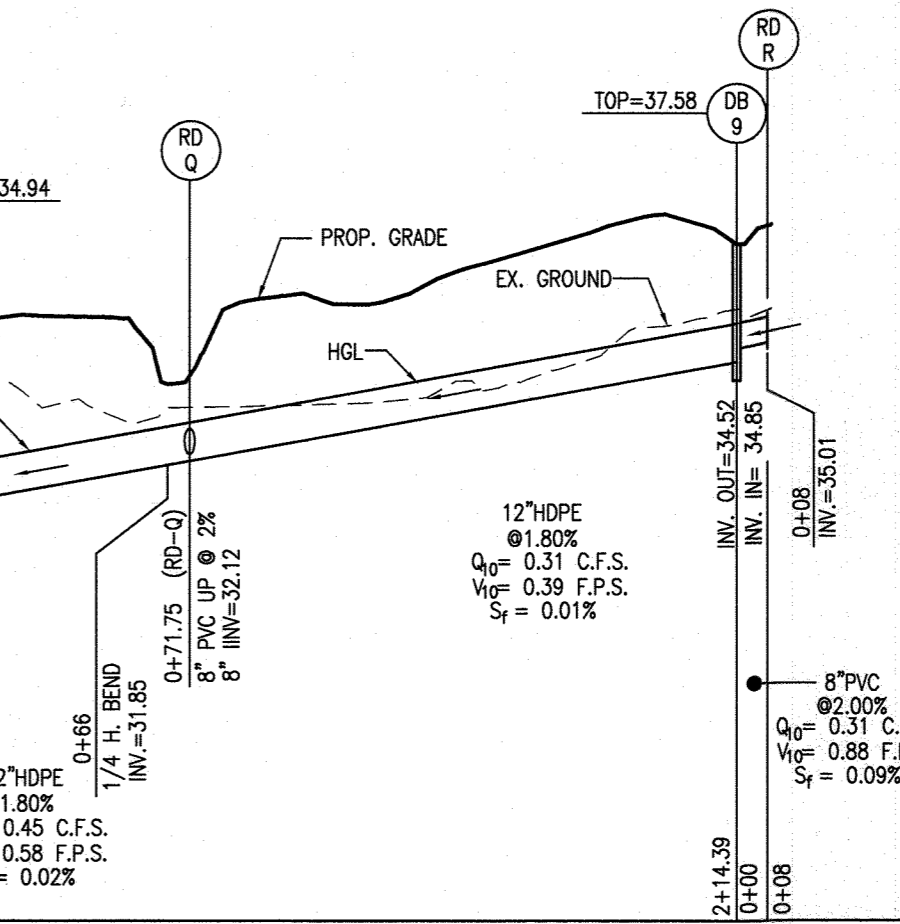
**STORM DRAIN PROFILES**  
SCALE: 1"=50' HORZ  
1"=5' VERT



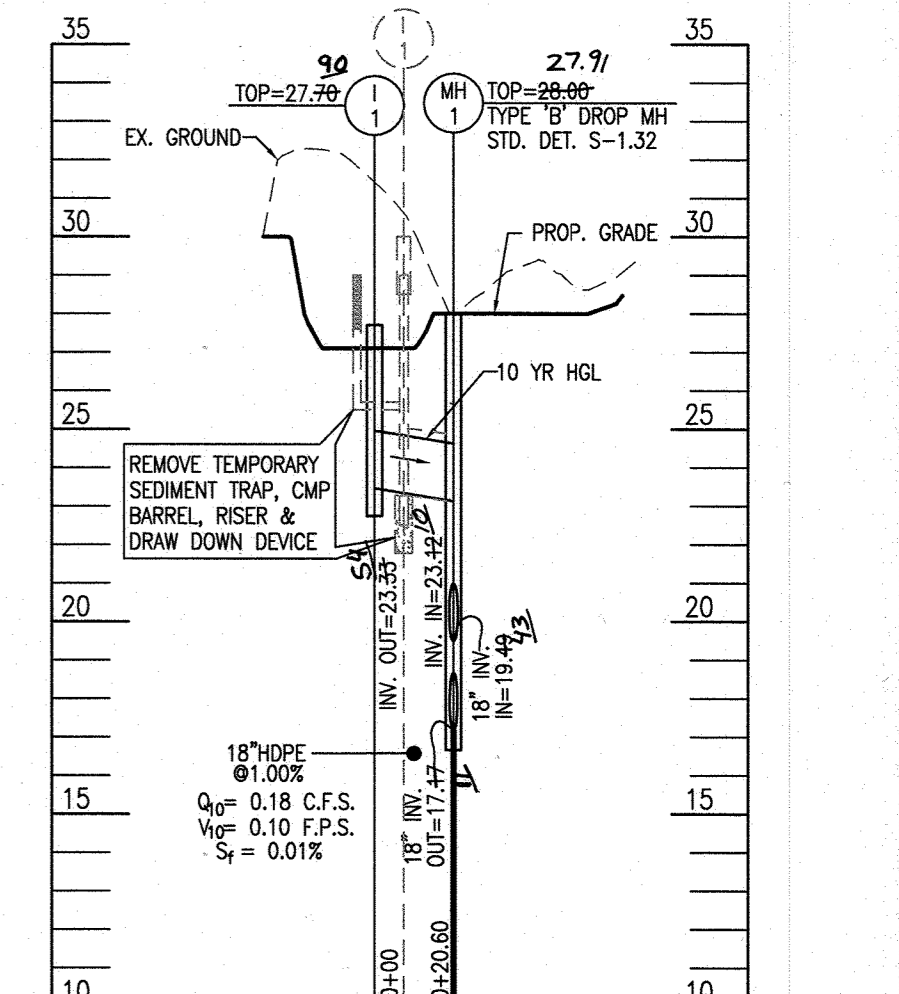
**STORM DRAIN PROFILES**  
SCALE: 1"=50' HORZ  
1"=5' VERT

STRUCTURE SCHEDULE										
STR #	TYPE	INV. IN	INV. OUT	TOP ELEV	DETAIL	LOCATION	REMARKS			
I-1	S-INLET	-	23.85	27.76	D-2.24	N 564484.85 E 1395608.12	(1)			
I-2	S-INLET	-	23.46	27.76	D-2.24	N 564351.52 E 1395585.04	(1)			
I-3	A-5	34.31	34.21	37.53	D-4.02	N 564247.13 E 1395468.54	(1)			
I-4	A-5	-	34.21	37.56	D-4.02	N 564256.46 E 1395462.64	(1)			
I-5	A-5	-	27.89	31.18	D-4.02	N 564486.87 E 1395560.78	(1)			
I-6	A-5	29.99	29.74	34.03	D-4.02	N 564255.41 E 1395677.44	(1)			
I-7	A-5	-	33.78	36.90	D-4.02	N 564095.59 E 1395575.09	(1)			
ES-01	18" HDPE	-	17.66	17.66	HOPE	N 564495.75 E 1395584.96	(2)			
ES-02	8" HDPE	-	27.76	27.76	HOPE	N 564495.01 E 1395594.13	(2)			
ES-03	8" HDPE	-	33.44	33.44	HOPE	N 564494.18 E 1395573.75	(2)			
MH-1	48" TYPE 'B' DROP MANHOLE	23.12/19.49	-	27.76	S 1.32	N 564478.29 E 1395625.71	(1)			
MH-2	48" TYPE 'A' DROP MANHOLE	24.31	-	29.76	G 5.12	N 564225.27 E 1395643.31	(1)			
MH-3	48" MANHOLE	27.07/25.79/25.79	25.24	32.40	G 5.12	N 564411.16 E 1395628.11	(1)			
MH-4	48" MANHOLE	29.58/28.94	27.84	34.28	G 5.12	N 564381.87 E 1395607.02	(1)			
MH-5	48" MANHOLE	31.87/33.38/33.75	31.48	37.71	G 5.12	N 564274.59 E 1395483.78	(1)			
MH-6	48" MANHOLE	33.77	33.00/33.67	37.64	G 5.12	N 564282.37 E 1395491.67	(1)			
MH-7	48" MANHOLE	27.95/27.72	26.84	31.66	G 5.12	N 564462.71 E 1395583.65	(1)			
MH-8	48" MANHOLE	26.80	26.70	32.35	G 5.12	N 564363.43 E 1395556.96	(1)			
MH-9	48" MANHOLE	31.09/27.40	27.30	33.56	G 5.12	N 564349.22 E 1395636.39	(1)			
MH-10	48" MANHOLE	29.83/29.00	28.75	34.17	G 5.12	N 564282.28 E 1395673.19	(1)			
MH-11	48" MANHOLE	32.40	32.30	38.40	G 5.12	N 564192.10 E 1395518.19	(1)			
MH-12	48" MANHOLE	33.12	32.87	37.98	G 5.12	N 564150.32 E 1395538.67	(1)			
DB-1	24" NYLOPLAST DRAINAGE BASIN	32.28/32.50	32.18	37.00	2824AG	N 564256.59 E 1395455.92	(1) ADVANCED DRAINAGE SYSTEMS			
DB-2	24" NYLOPLAST DRAINAGE BASIN	33.18 (2)	33.08	38.47	2824AG	N 564205.33 E 1395433.86	(1) ADVANCED DRAINAGE SYSTEMS			
DB-3	24" NYLOPLAST DRAINAGE BASIN	32.29	34.90	37.94	2824AG	N 564055.90 E 1395639.44	(1) ADVANCED DRAINAGE SYSTEMS			
DB-4	24" NYLOPLAST DRAINAGE BASIN	35.90	35.57	38.39	2824AG	N 564023.91 E 1395472.63	(1) ADVANCED DRAINAGE SYSTEMS			
DB-5	24" NYLOPLAST DRAINAGE BASIN	34.01	33.68	38.08	2824AG	N 564291.41 E 1395378.23	(1) ADVANCED DRAINAGE SYSTEMS			
DB-6	24" NYLOPLAST DRAINAGE BASIN	33.34	33.01	37.68	2824AG	N 564323.46 E 1395438.49	(1) ADVANCED DRAINAGE SYSTEMS			
DB-7	24" NYLOPLAST DRAINAGE BASIN	34.08	33.75	37.90	2824AG	N 564251.95 E 1395485.78	(1) ADVANCED DRAINAGE SYSTEMS			
DB-8	24" NYLOPLAST DRAINAGE BASIN	30.52/30.66	30.42	34.94	2824AG	N 564240.59 E 1395670.96	(1) ADVANCED DRAINAGE SYSTEMS			
DB-9	24" NYLOPLAST DRAINAGE BASIN	34.85	34.52	37.58	2824AG	N 564104.09 E 1395581.35	(1) ADVANCED DRAINAGE SYSTEMS			
DB-10	24" NYLOPLAST DRAINAGE BASIN	33.84	33.51	38.10	2824AG	N 564159.53 E 1395545.53	(1) ADVANCED DRAINAGE SYSTEMS			

PIPE SCHEDULE				
SIZE	PUBLIC/PRIVATE	CLASS	PRIVATE LENGTH	TOTAL LENGTH
12"	PRIVATE	PERF. PVC	264	264
12"	PRIVATE	PVC	168	168
12"	PRIVATE	HDPE	75	75
12"	PRIVATE	HDPE	1413	1413
15"	PRIVATE	HDPE	161	161
18"	PRIVATE	HDPE	812	812
21"	PRIVATE	CMP	13	13



**STORM DRAIN PROFILES**  
SCALE: 1"=50' HORZ  
1"=5' VERT



**STORM DRAIN PROFILES**  
SCALE: 1"=50' HORZ  
1"=5' VERT



AS-BUILT CERTIFICATION FOR PSWM  
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.  
DATE: 4-20-21  
P.E. # 16193

**OWNER**  
VBH LLC  
9113 BRAE BROOKE DRIVE  
LANHAM, MD 20706

**DEVELOPER**  
J. KIRBY DEVELOPMENT, LLC  
C/O JEFF KIRBY, PRESIDENT  
5670 B FURNACE AVENUE  
ELKCRIDGE, MD 21075  
(410) 788-0027

NO. \_\_\_\_\_ REVISION \_\_\_\_\_ DATE \_\_\_\_\_

**SITE DEVELOPMENT PLAN**  
**PRIVATE STORM DRAIN PROFILES**  
**RIVER WATCH II**  
5635-5659 FURNACE AVENUE  
TAX MAP 38 GRID 04  
1ST ELECTION DISTRICT  
ZONED: CAC-CL1  
HOWARD COUNTY, MARYLAND  
PARCEL 782

**ROBERT H. VOGEL ENGINEERING, INC.**  
ENGINEERS • SURVEYORS • PLANNERS  
3300 N. RIDGE ROAD, SUITE 110  
ELLCOTT CITY, MD 21043  
TEL: 410.461.7666  
FAX: 410.461.8961

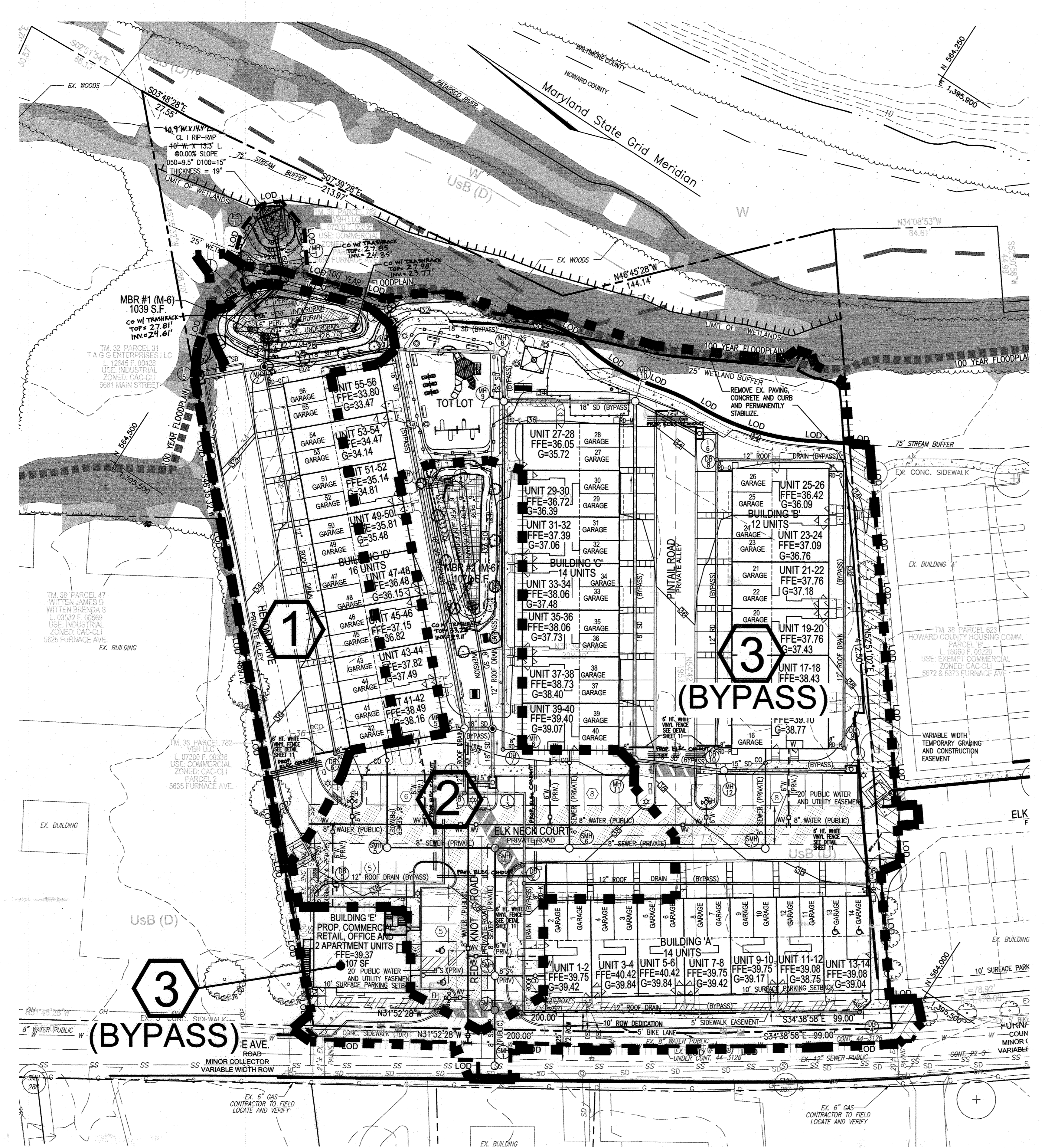
DESIGN BY: GAH  
DRAWN BY: LAG  
CHECKED BY: RHY  
DATE: JUNE 2019  
SCALE: AS SHOWN  
W.O. NO.: 17-00

PROFESSIONAL CERTIFICATE  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 08-27-2020

7 SHEET OF 11

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
DATE: 8-23-19  
DATE: 9/3/19  
DATE: 9-3-19

**NOTE:**  
CONNECTIONS BETWEEN ALL HDPE PIPE AND CONCRETE STRUCTURES TO UTILIZE ADS 12"-24" HDPE WATER-TIGHT MD BOOT ADAPTER, STD-204F. SEE WATER TIGHT CONNECTION DETAIL, SHEET 6.



**LEGEND**

	EXISTING CONTOUR		EXISTING SOILS
	PROPOSED CONTOUR		15' EASEMENT FOR INGRESS/EGRESS AND UTILITIES
	EXISTING CURB AND GUTTER		LIMIT OF DISTURBANCE
	PROPOSED CURB AND GUTTER		MICRO-BIORETENTION (M-6)
	EXISTING UTILITY POLE		PROPOSED SIDEWALK
	EXISTING LIGHT POLE		ESDV DRAINAGE DIVIDE
	EXISTING MAILBOX		DRAINAGE AREA DESIGNATION
	EXISTING SIGN		MODERATE SLOPES 15%-24.99%
	EXISTING SANITARY MANHOLE		STEEP SLOPES 25% OR GREATER
	EXISTING SANITARY LINE		HIGHLY ERODIBLE SOILS
	EXISTING CLEANOUT		100 YEAR FLOODPLAIN
	EXISTING FIRE HYDRANT		
	EXISTING WATER LINE		
	PROPERTY LINE		
	RIGHT-OF-WAY LINE		
	EXISTING TREELINE		
	PROPOSED TREELINE		

**RIVER WATCH II - ESDv COMPUTATIONS**

**VOGEL ENGINEERING + TIMMONS GROUP**  
3300 N. Ridge Road, Suite 110, Ellicott City, MD 21043  
Des: GAH  
Chk: RHV  
Date: 3/15/2019

SITE DEVELOPABLE AREA:	2.85	AC
TARGET Pp:	1.00	IN
SITE IMPERVIOUS:	88.59	PERCENT
SITE Rv:	0.6665	
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	1.0" PROVIDED*	VOLUME IMPERV (SF)	IMPERV (AC)	GREEN AREA	REV REQUIRED	REV PROVIDED	CF	SF	REMARKS
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	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)
<b>TOTALS</b>	<b>66.86</b>	<b>0.6517</b>	<b>44242</b>	<b>1.02</b>	<b>2403</b>	<b>6247</b>	<b>2403</b>	<b>2812</b>	<b>29580</b>	<b>0.6791</b>	<b>0.3366</b>	<b>703</b>	<b>749</b>		

DA	% IMPERV	Rv	DA	ESDv REQ	MINIMUM VOLUME	MAXIMUM VOLUME	VOLUME PROVIDED*	AREA SF	PERV AREA	IMP AREA
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
<b>TOTAL ESDv BY SUBAREA</b>				<b>2403</b>	<b>6247</b>	<b>2812</b>	<b>44242</b>	<b>14662</b>	<b>29580</b>	

DRAINAGE AREA #	AREA TREATED	FACILITY NUMBER	PERMEABLE PAVEMENT	ADD UNDER PERM. PAVE	SURFACE STORAGE	FOCAL POINT	R TRENCH	GRAVEL ROOF	MICRO BIO RETENTION	ADD UNDER MICRO BIO	Recharge (Rev)	ESDv VOLUME
1	18628	MBR #1	0	0	0	0	0	0	1385	0	0	1385
2	25614	MBR #2	0	0	0	0	0	0	1427	0	749	1427
<b>SUBTOTAL 1</b>			0	0	0	0	0	0	2812	0	749	2812
<b>TOTALS:</b>			0	0	0	0	0	0	2812	0	749	2812

ESDv REQUIRED (CF) 2398      TOTAL ESDv PROVIDED (CF): 2812      TOTAL REV PROVIDED (CF): 749

**MICRO-BIORETENTION DATA CHART**

MBR Facility	Ponding Depth (ft.)	Top of Mulch ELEV. A	Bottom of Mulch ELEV. B	Bottom of Plant Mix ELEV. C	Bottom of Pea Gravel ELEV. D	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	27.76	26.76	26.46	24.45	24.12	23.12	23.37	0.00	23.42	1062.00	26'-6" x 27'-6"
2	1.00	33.66	32.66	32.25	30.25	29.92	28.92	29.47	1.75	27.47	1070.00	46'-7" x 15'-6"

**OWNER**  
VBH LLC  
9113 BRAE BROOKE DRIVE  
LANHAM, MD 20706

**DEVELOPER**  
J. KIRBY DEVELOPMENT, LLC  
C/O JEFF KIRBY, PRESIDENT  
5670 B FURNACE AVENUE  
ELK RIDGE, MD 21075  
(410) 788-0027

NO.	TO REVISE PLANS TO MATCH THE BUILDING PERMIT PLANS	REVISION	DATE
1			11-4-19

**SITE DEVELOPMENT PLAN  
STORMWATER MANAGEMENT  
DRAINAGE AREA MAP**

**RIVER WATCH II**  
5635-5659 FURNACE AVENUE

TAX MAP 38 GRID 04  
1ST ELECTION DISTRICT

ZONED: CAC-CLU      PARCEL 782  
HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL ENGINEERING, INC.**  
ENGINEERS • SURVEYORS • PLANNERS

3300 N. RIDGE ROAD, SUITE 110  
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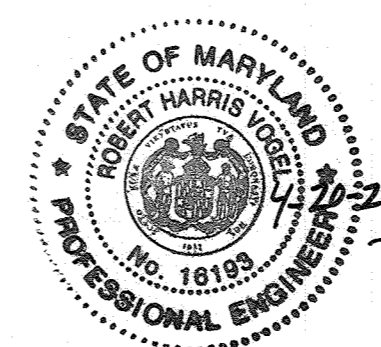
TEL: 410.461.7666  
FAX: 410.461.8961

**PROFESSIONAL CERTIFICATE**

DESIGN BY: GAH  
DRAWN BY: LAG  
CHECKED BY: RHV  
DATE: JUNE 2019  
SCALE: AS SHOWN  
W.O. NO.: 17-80

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, EXPIRES DATE 06-27-2020

8 SHEET OF 11



**AS-BUILT CERTIFICATION FOR PSWM**

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

DATE: 4-20-21  
P.E. # 16193

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

SYMBOL NAME / DESCRIPTION	GROUP	K-FACTOR	HYDRIC	HYDRIC INCLUSIONS	PRIME FARMLAND	<15% SLOPE	EROSION POTENTIAL
UsB URBAN LAND-SASSAFRAS-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES	D	.37	NO	NO	NO	NO	NO
W WATER	-	-	NO	NO	NO	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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division  
9/3/19

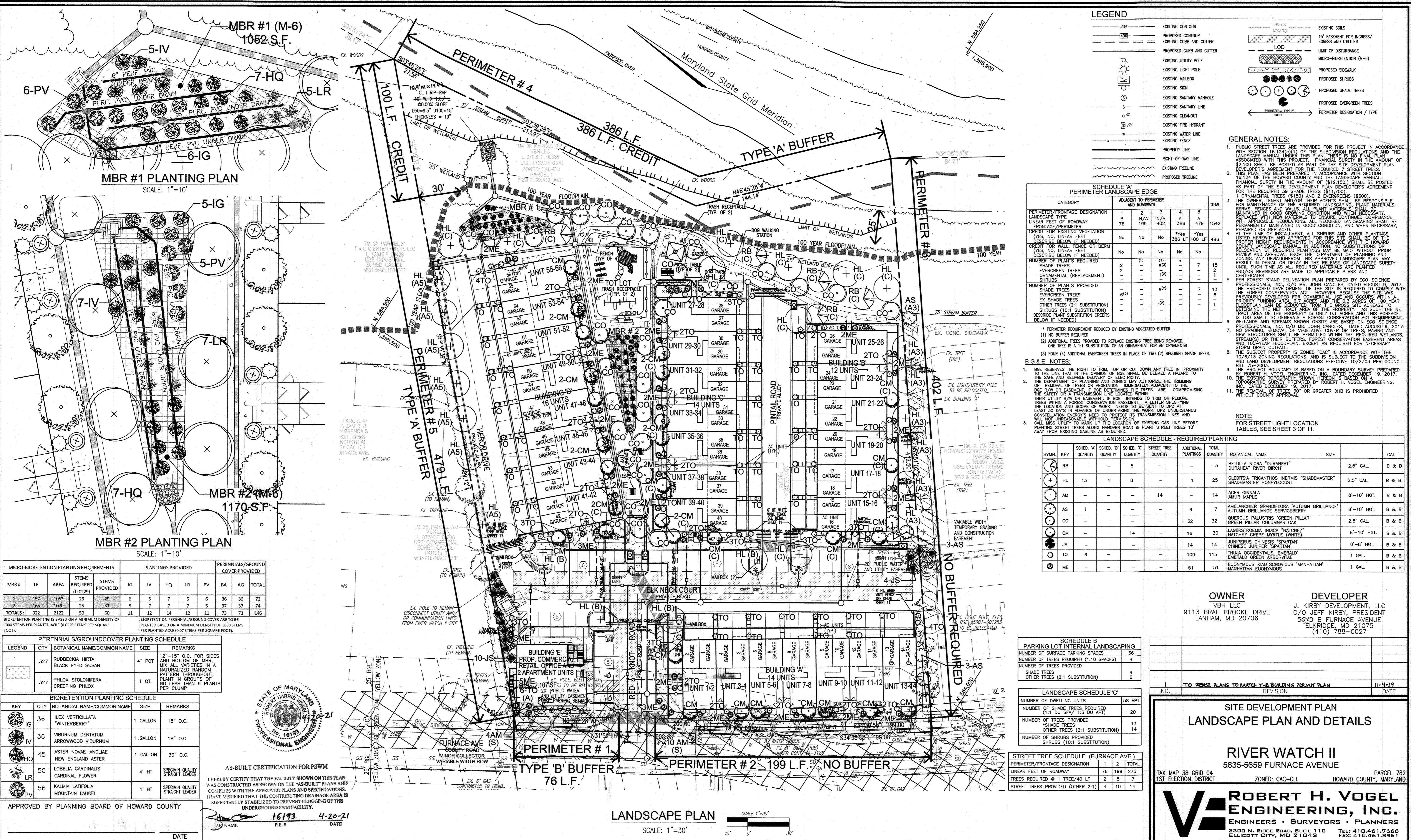
Chief, Division of Land Development  
9-3-19

**DRAINAGE AREA MAP FOR SWM**  
SCALE: 1"=30'

**AS-BUILT, MARCH 2021** SDP19-027







### LEGEND

	EXISTING CONTOUR		EXISTING SOILS
	PROPOSED CONTOUR		15' EASEMENT FOR INGRESS/EGRESS AND UTILITIES
	EXISTING CURB AND GUTTER		LIMIT OF DISTURBANCE
	PROPOSED CURB AND GUTTER		MICRO-BIORETENTION (M-B)
	EXISTING UTILITY POLE		PROPOSED SIDEWALK
	EXISTING LIGHT POLE		PROPOSED SHRUBS
	EXISTING MAILBOX		PROPOSED SHADE TREES
	EXISTING SIGN		PROPOSED EVERGREEN TREES
	EXISTING SANITARY MANHOLE		PERIMETER DESIGNATION / TYPE
	EXISTING SANITARY LINE		
	EXISTING FIRE HYDRANT		
	EXISTING WATER LINE		
	EXISTING FENCE		
	RIGHT-OF-WAY LINE		
	EXISTING TREE LINE		
	PROPOSED TREE LINE		

### GENERAL NOTES:

- PUBLIC STREET TREES ARE PROVIDED FOR THIS PROJECT IN ACCORDANCE WITH SECTION 16.124(C)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL. UNDER THIS PLAN, THERE IS NO FINAL PLAN ASSOCIATED WITH THIS PROJECT. FINANCIAL SURETY IN THE AMOUNT OF \$2,100 SHALL BE POSTED AS PART OF THE SITE DEVELOPMENT PLAN DEVELOPER'S AGREEMENT FOR THE REQUIRED 7 STREET TREES.
- THE PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY AND THE LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF (\$12,150) SHALL BE POSTED AS PART OF THE SITE DEVELOPMENT PLAN DEVELOPER'S AGREEMENT FOR THE REQUIRED 39 SHADE TREES (\$11,700), 1 ORNAMENTAL TREES (\$150) AND 2 EVERGREENS (\$300).
- THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING. PLANT MATERIALS, PERMS, FENCE, EGRESS AND UTILITIES SHALL BE MAINTAINED IN GOOD GROWING CONDITION AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION AND WHEN NECESSARY, REPAIRED OR REPLACED.
- AT THE TIME OF PERMITTING, ALL SHRUBS AND OTHER PLANTINGS LISTED HEREWITH AND APPROVED FOR THIS SITE SHALL BE OF THE PROPOSED HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY APPROVED PLANTING MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATES.
- PER FOREST STAND DELINEATION PLAN PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. (C/O MR. JOHN GANGLER, DATED AUGUST 9, 2017), THE FOREST CONSERVATION ACT HOWEVER, BECAUSE THE SITE WAS WITH PRIORITY FUNDING AREA, 2.7 ACRES AND THE 0.3 ACRES OF 100 YEAR FLOODPLAIN CAN BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM(S) OR THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100-YEAR FLOODPLAIN, EXCEPT AS REQUIRED FOR NECESSARY STORM DRAIN OUTFALL.
- THE SUBJECT PROPERTY IS ZONED "C" IN ACCORDANCE WITH THE 10/6/13 ZONING REGULATIONS, AND IS SUBJECT TO THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS EFFECTIVE 10/2/03 PER COUNCIL BILL 02-020.
- THE PROJECT LOCATION IS BASED ON A BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC. DATED DECEMBER 19, 2017.
- THE EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON A TOPOGRAPHIC SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC. DATED DECEMBER 19, 2017.
- THE REMOVAL OF TREES 30' OR GREATER DBH IS PROHIBITED WITHOUT COUNTY APPROVAL.

### SCHEDULE 'A' PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO PERIMETER AND ROADWAYS	TOTAL
PERIMETER/FRONTAGE DESIGNATION	1 2 3 4 5	
LANDSCAPE TYPE	N/A N/A N/A N/A N/A	
LINEAR FEET OF ROADWAY	76 199 402 386 479	1542
FRONTAGE/PERIMETER		
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	No No No No No	486
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	No No No No No	
NUMBER OF PLANTS REQUIRED		
SHADE TREES	0 (1) 0 (1) 0 (1) 0 (1) 0 (1)	7 15 2 1 1
EVERGREEN TREES	2 2 2 2 2	2 2 2 2 2
ORNAMENTAL (REPLACEMENT)	2 2 2 2 2	2 2 2 2 2
NUMBER OF PLANTS PROVIDED		
SHADE TREES	6(3) 6(3) 6(3) 6(3) 6(3)	7 13 6 6 6
EVERGREEN TREES		
EX SHADE TREES		
OTHER TREES (2:1 SUBSTITUTION)		
SHRUBS (10:1 SUBSTITUTION)		
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED.		

### B.G. & E. NOTES:

- BCE RESERVES THE RIGHT TO TRIM, TOP OR CUT DOWN ANY TREE IN PROXIMITY TO THE LINE THAT THE OPTION OF BCE SHALL BE DEEMED A HAZARD TO THE SAFETY AND RELIABLE DELIVERY OF ELECTRICITY.
- THE DEPARTMENT OF PLANNING AND ZONING MAY AUTHORIZE THE TRIMMING OR REMOVAL OF TREES OR VEGETATION IMMEDIATELY ADJACENT TO THE BERM OR EASEMENT, IF THE TREE DETERMINES THE TREES ARE COMPROMISING THE SAFETY OF A TRANSMISSION LINE LOCATED WITHIN THEIR UTILITY R/W OR EASEMENT. BCE INTENDS TO TRIM OR REMOVE TREES WITHIN A FOREST CONSERVATION EASEMENT. A LETTER SPECIFYING THE LOCATION AND SCOPE OF WORK NEEDS TO BE SENT TO DPZ AT LEAST 30 DAYS IN ADVANCE OF UNDERTAKING THE WORK. DPZ UNDERSTANDS CONSULTATION ENDS THE NEED TO PROTECT ITS TRANSMISSION LINES AND WILL NOT UNREASONABLE WITHHOLD PERMISSION.
- CALL MMS UTILITY TO MARK UP THE LOCATION OF EXISTING GAS LINE BEFORE PLANTING STREET TREES ALONG HANOVER ROAD & PLANT STREET TREES 10' AWAY FROM EXISTING GASLINE AS REQUIRED.

### LANDSCAPE SCHEDULE - REQUIRED PLANTING

SYMB.	KEY	SCHED. 'A' QUANTITY	SCHED. 'B' QUANTITY	SCHED. 'C' QUANTITY	STREET TREE QUANTITY	ADDITIONAL PLANTINGS	TOTAL QUANTITY	BOTANICAL NAME	SIZE	CAT.
RB	+	5	5	5	5	5	5	BETULA NIGRA "DURAMEAT"	2.5" CAL.	B & B
HL	+	13	4	8	1	25	25	GLEDITSIA TRICANTHOS INERMIS "SHADEMASTER"	2.5" CAL.	B & B
AM	+				14	14	14	ACER GINNALA AMUR MAPLE	8"-10" HGT.	B & B
AS	+	1				6	7	AMELANCHIER GRANDIFLORA "AUTUMN BRILLIANCE"	8"-10" HGT.	B & B
CO	+					32	32	QUERCUS PALUSTRIS "GREEN PILLAR"	2.5" CAL.	B & B
CM	+					14	16	LAGERSTROEMIA INDICA "NATCHEZ"	8"-10" HGT.	B & B
JS	+					14	14	JUNIPERUS CHINENSIS "SPARTAN"	6"-8" HGT.	B & B
TO	+	6				109	115	THILIA OCCIDENTALIS "EMERALD"	1 CAL.	B & B
ME	+					51	51	EUNYMOMUS QUALITORSCHIAE "MANHATTAN"	1 CAL.	B & B

**OWNER:** VBH LLC, 9113 BRAD BROOKE DRIVE, LANHAM, MD 20706

**DEVELOPER:** J. KIRBY DEVELOPMENT, LLC, C/O JEFF KIRBY, PRESIDENT, 550 FURNACE AVENUE, ELKBRIDGE, MD 21075, (410) 788-0027

**NO.:** 1  
**REVISION:** TO REVISE PLANS TO MATCH THE BUILDING PERMIT PLAN  
**DATE:** 11-4-19

### MICRO-BIORETENTION PLANTING REQUIREMENTS

MBR #	LF	AREA	STEMS REQUIRED (0.0229)	STEMS PROVIDED	IG	IV	HQ	LR	PV	BA	AG	TOTAL	
1	157	1052	25	29	6	5	7	7	5	6	36	36	72
2	165	1070	25	31	5	7	7	7	5	3	37	37	74
<b>TOTALS:</b>	<b>322</b>	<b>2122</b>	<b>50</b>	<b>60</b>	<b>11</b>	<b>12</b>	<b>14</b>	<b>14</b>	<b>10</b>	<b>9</b>	<b>73</b>	<b>73</b>	<b>146</b>

BIORETENTION PLANTING IS BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (0.0229 STEMS PER SQUARE FOOT).  
BIORETENTION PLANTING IS BASED ON A MINIMUM DENSITY OF 3000 STEMS PER PLANTED ACRE (0.0727 STEMS PER SQUARE FOOT).

### PERENNIALS/GROUNDCOVER PLANTING SCHEDULE

LEGEND	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
	327	RUDEBECKIA HIRTA	4" POT	12"-15" O.C. FOR SIDES AND BOTTOM OF MBR. MIX ALL VARIETIES IN A NATURALIZED RANDOM PATTERN THROUGHOUT.
	327	PHLOX STOLONIFERA	1 QT.	PLANT IN GROUPS OF NO LESS THAN 9 PLANTS PER CLUMP.

### BIORETENTION PLANTING SCHEDULE

KEY	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
IG	36	ILEX VERTICILLATA "WINTERBERRY"	1 GALLON	18" O.C.
IV	36	VIURNUM DENTATUM ARROWWOOD	1 GALLON	18" O.C.
HQ	45	ASTER NOVAE-ANGIAE NEW ENGLAND ASTER	1 GALLON	30" O.C.
LR	50	LOBELIA CARDINALIS CARDINAL FLOWER	4" HT	SPECIM QUALITY STRAIGHT LEADER
PV	56	KALMIA LATIFOLIA MOUNTAIN LAUREL	4" HT	SPECIM QUALITY STRAIGHT LEADER

APPROVED BY PLANNING BOARD OF HOWARD COUNTY

**AS-BUILT CERTIFICATION FOR PSWM**

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWIM FACILITY.

**16193** 4-20-21  
P.E. # DATE

### DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE (1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

**9/28/19** DATE  
**9/3/19** DATE  
**9-3-19** DATE

SIGNATURE OF DEVELOPER:   
DATE: **9/23/19**

### LANDSCAPE NOTES

- SHOULD ANY TREE DESIGNATED FOR PRESERVATION FOR WHICH LANDSCAPING CREDIT IS GIVEN, DIE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD, AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIPER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL.
- PLANTINGS SHOWN HEREON ARE THE RESPONSIBILITY OF THE DEVELOPER TO INSTALL DURING THE CONSTRUCTION OF THE FINAL PLAN.
- SURETY FOR THE PROPOSED LANDSCAPING SHALL BE BASED ON THE NUMBER OF PLANTINGS REQUIRED.

### LANDSCAPE / MBR PLANTING SCHEDULE NOTES:

- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAA SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HOWARD COUNTY PLANTING SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING. FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
- CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
- SEE THIS SHEET FOR TYPICAL PLANTING SPECIFICATIONS AND DETAILS.
- MICROBIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (0.0229 STEMS PER SQUARE FOOT). ABOVE PLANTING RATIOS ARE TO BE APPLIED TO THE AREAS PROVIDED IN THE ESDV SUMMARY.

### STREET TREE SCHEDULE (FURNACE AVE.)

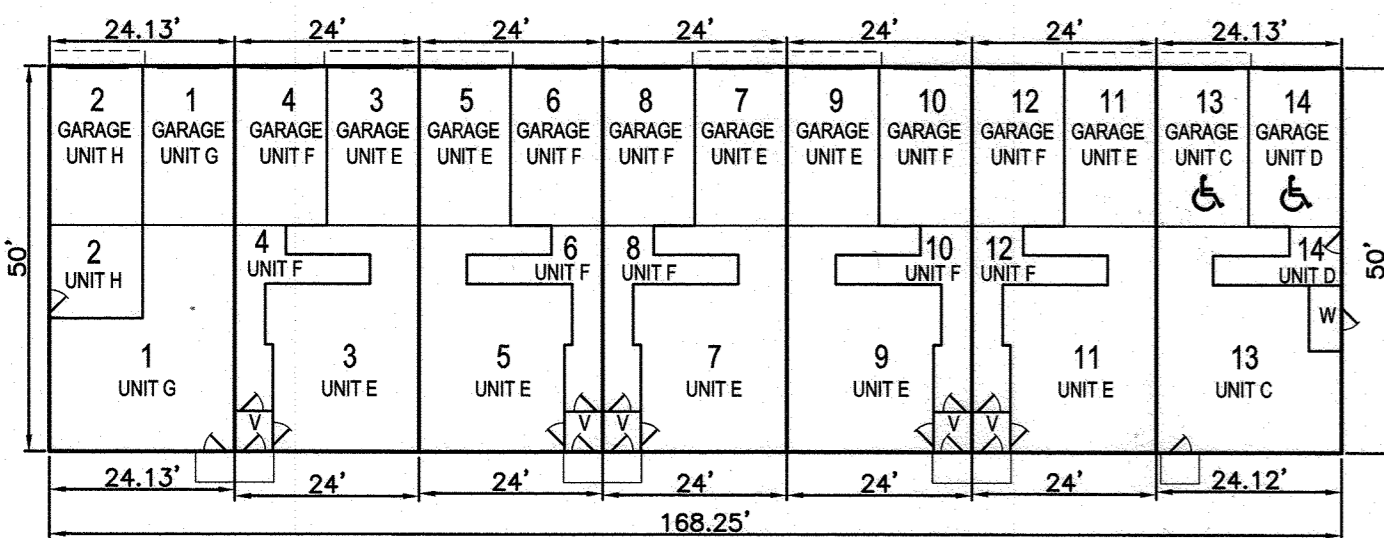
PERIMETER/FRONTAGE DESIGNATION	1	2	TOTAL
LINEAR FEET OF ROADWAY	76	199	275
TREES REQUIRED @ 1 TREE/40 LF	2	5	7
TREES PROVIDED (OTHER 2:1)	4	10	14

**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

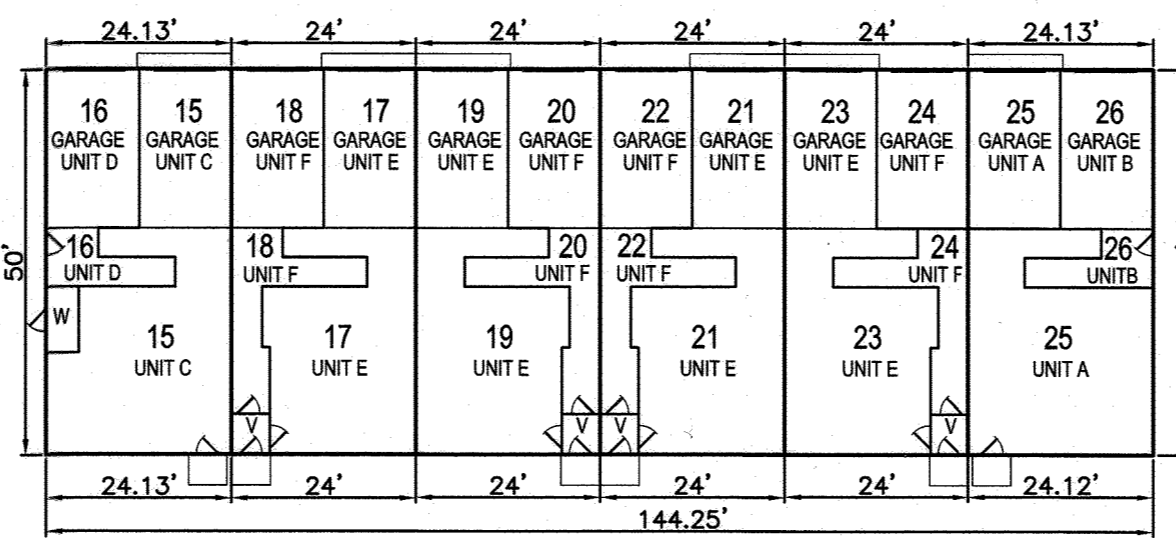
DESIGN BY: GAH  
DRAWN BY: LAG  
CHECKED BY: RHW  
DATE: JUNE 2019  
SCALE: AS SHOWN  
W.O. NO.: 17-00

PROFESSIONAL CERTIFICATE  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. EXPIRATION DATE: 09-27-2020

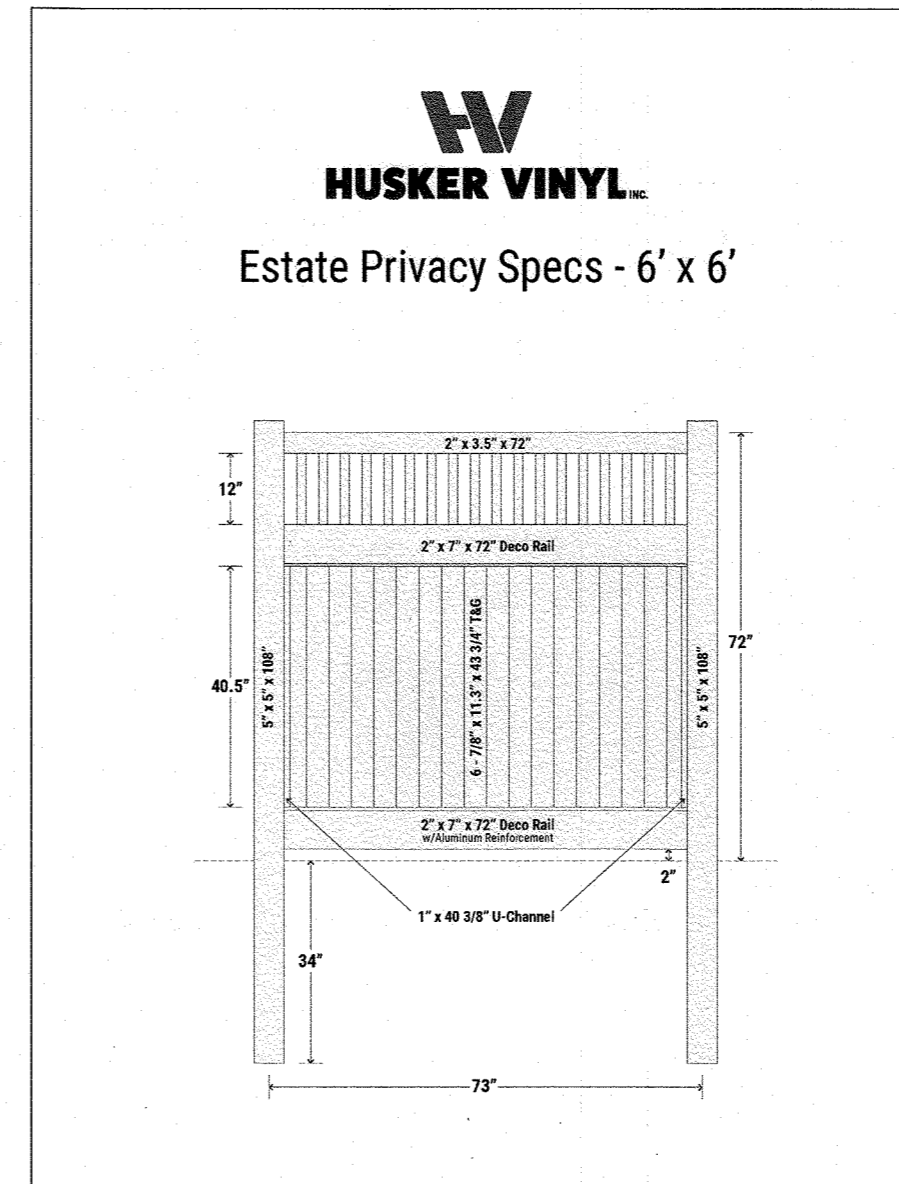
10 SHEET OF 11



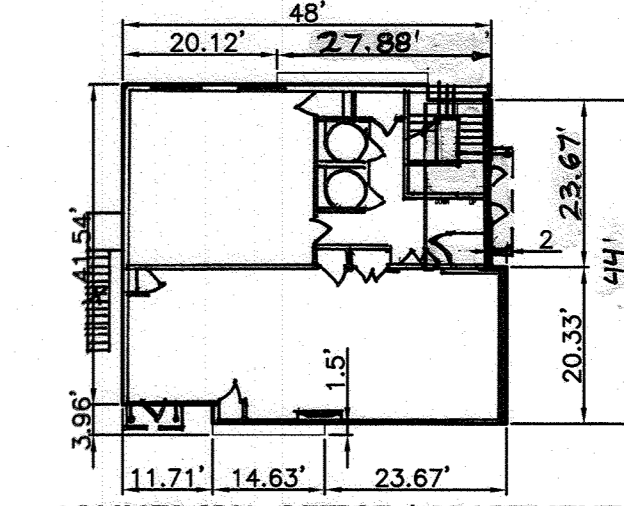
BUILDING 'A' - PLAN VIEW



BUILDING 'B' - PLAN VIEW



6' VINYL FENCE DETAIL  
N.T.S.



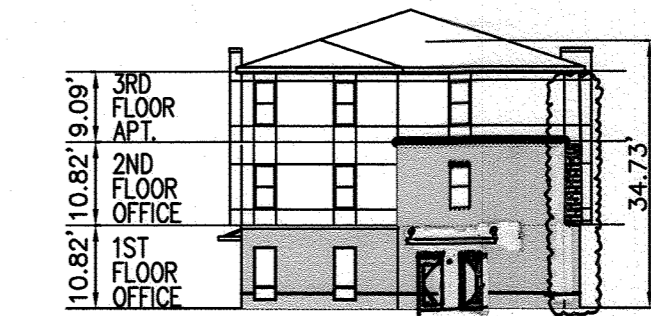
COMMERCIAL OFFICE / APARTMENTS  
PLAN VIEW



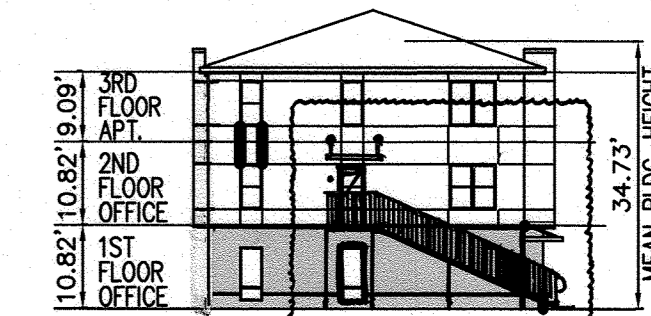
BUILDING 'A' - FRONT ELEVATION  
FIBER CEMENT CLAPBOARD,  
VINYL BOARD AND BATTON  
AND BRICK VENEER SIDING



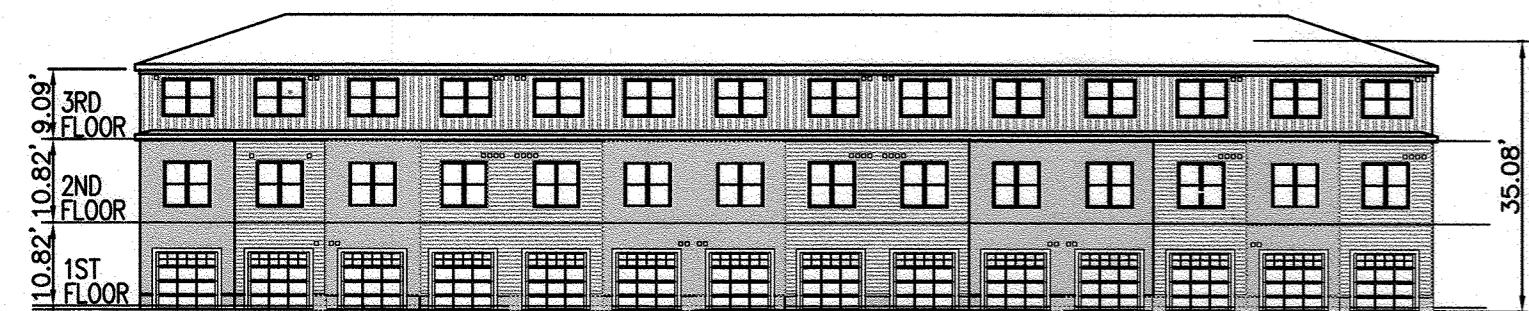
BUILDING 'B' - FRONT ELEVATION  
FIBER CEMENT CLAPBOARD,  
VINYL BOARD AND BATTON  
AND BRICK VENEER SIDING



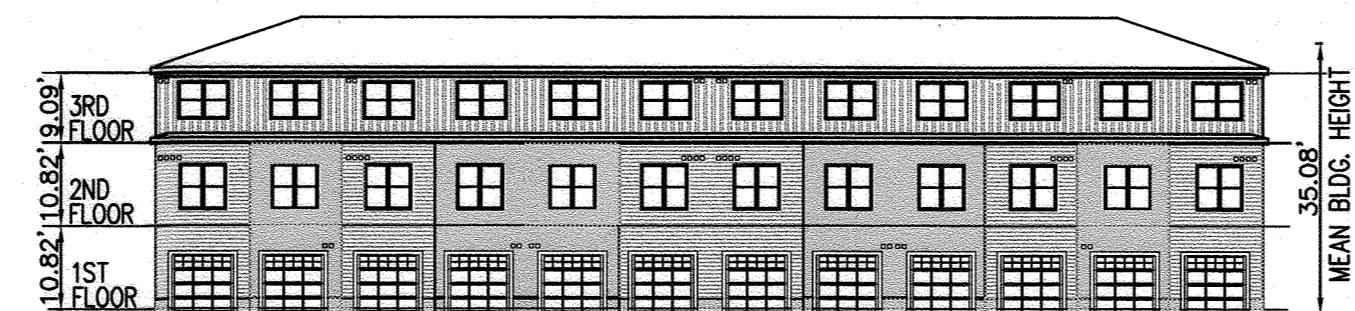
COMMERCIAL OFFICE / APARTMENTS  
FRONT ELEVATION  
FIBER CEMENT PANEL, VINYL  
BOARD AND BATTON AND  
BRICK VENEER SIDING



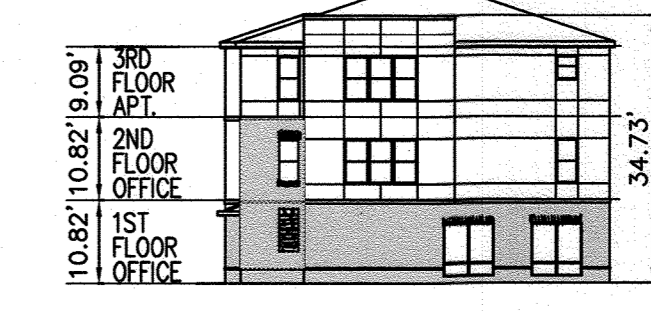
COMMERCIAL OFFICE / APARTMENTS  
BACK ELEVATION  
FIBER CEMENT PANEL, VINYL  
BOARD AND BATTON AND  
BRICK VENEER SIDING



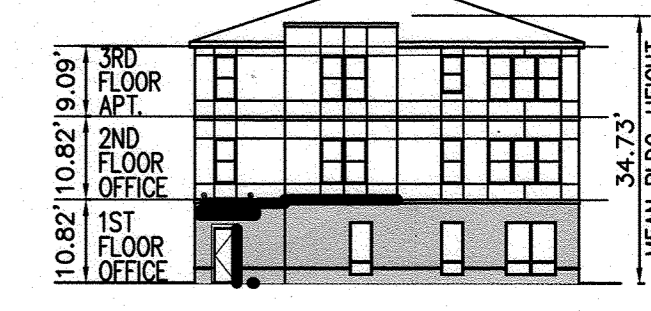
BUILDING 'A' - REAR ELEVATION  
FIBER CEMENT CLAPBOARD,  
VINYL BOARD AND BATTON  
AND BRICK VENEER SIDING



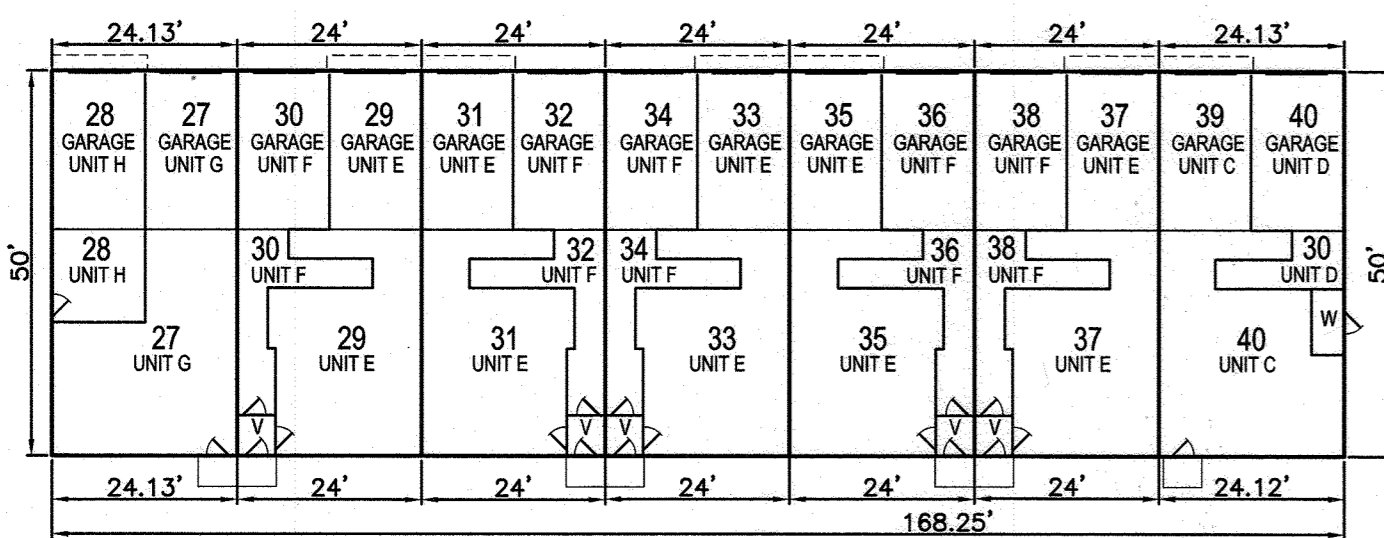
BUILDING 'B' - REAR ELEVATION  
FIBER CEMENT CLAPBOARD,  
VINYL BOARD AND BATTON  
AND BRICK VENEER SIDING



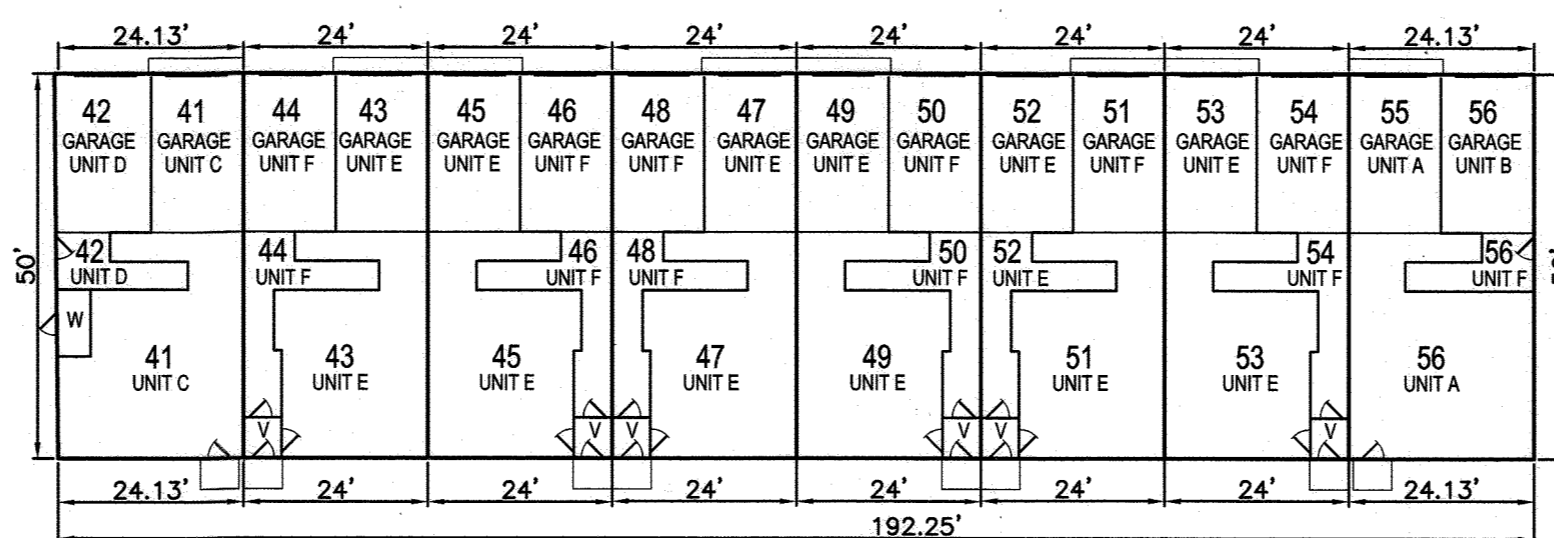
COMMERCIAL OFFICE / APARTMENTS  
RIGHT SIDE ELEVATION  
FIBER CEMENT PANEL, VINYL  
BOARD AND BATTON AND  
BRICK VENEER SIDING



COMMERCIAL OFFICE / APARTMENTS  
LEFT SIDE ELEVATION  
FIBER CEMENT PANEL, VINYL  
BOARD AND BATTON AND  
BRICK VENEER SIDING



BUILDING 'C' - PLAN VIEW



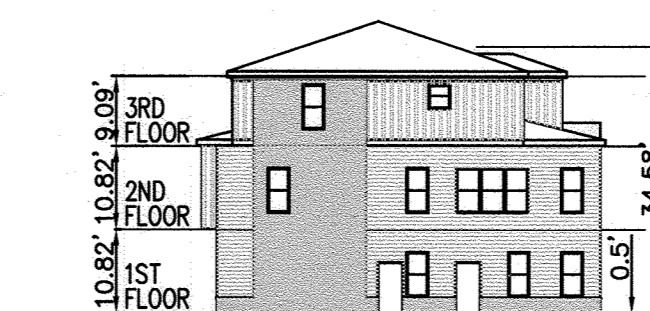
BUILDING 'D' - PLAN VIEW



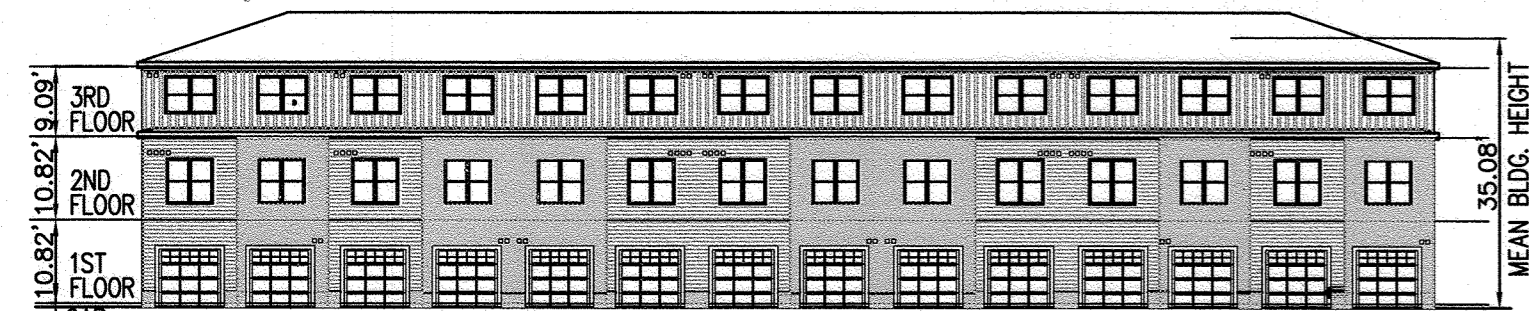
BUILDING 'C' - FRONT ELEVATION  
FIBER CEMENT CLAPBOARD,  
VINYL BOARD AND BATTON  
AND BRICK VENEER SIDING



BUILDING 'D' - FRONT ELEVATION  
FIBER CEMENT CLAPBOARD,  
VINYL BOARD AND BATTON  
AND BRICK VENEER SIDING



UNIT 'A' AND 'B' - SIDE ELEVATION  
FIBER CEMENT CLAPBOARD,  
VINYL BOARD AND BATTON  
AND BRICK VENEER SIDING



BUILDING 'C' - REAR ELEVATION  
FIBER CEMENT CLAPBOARD,  
VINYL BOARD AND BATTON  
AND BRICK VENEER SIDING



BUILDING 'D' - REAR ELEVATION  
FIBER CEMENT CLAPBOARD,  
VINYL BOARD AND BATTON  
AND BRICK VENEER SIDING



UNIT 'C' AND 'D' - SIDE ELEVATION  
FIBER CEMENT CLAPBOARD,  
VINYL BOARD AND BATTON  
AND BRICK VENEER SIDING

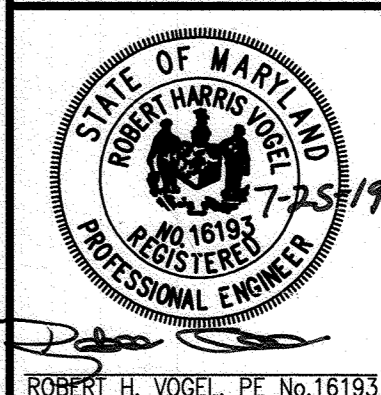
OWNER  
VBH LLC  
9113 BRAE BROOKE DRIVE  
LANHAM, MD 20706

DEVELOPER  
J. KIRBY DEVELOPMENT, LLC  
C/O JEFF KIRBY, PRESIDENT  
5670 B FURNACE AVENUE  
ELKRIDGE, MD 21075  
(410) 788-0027

NO.	TO REVISE PLANS TO MATCH THE BUILDING PERMIT PLANS	11-4-19
	REVISION	DATE

SITE DEVELOPMENT PLAN  
BUILDING DETAILS AND ELEVATIONS  
RIVER WATCH II  
5635-5659 FURNACE AVENUE  
TAX MAP 38 GRID 04  
1ST ELECTION DISTRICT  
ZONED: CAC-CL1  
HOWARD COUNTY, MARYLAND

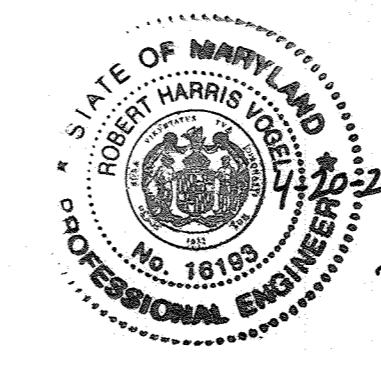
**ROBERT H. VOGEL ENGINEERING, INC.**  
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ELLICOTT CITY, MD 21043  
TEL: 410.461.7666  
FAX: 410.461.8961



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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
[Signature] 8-28-19  
CHIEF, DEVELOPMENT ENGINEERING DIVISION JR  
[Signature] 9/3/19  
CHIEF, DIVISION OF LAND DEVELOPMENT  
[Signature] 9-3-19  
DIRECTOR

BUILDING ELEVATIONS  
N.T.S.



AS-BUILT CERTIFICATION FOR PSMW  
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.  
[Signature] 16193 4-20-21  
P.E. # DATE

NO AS-BUILT INFORMATION ON THIS SHEET