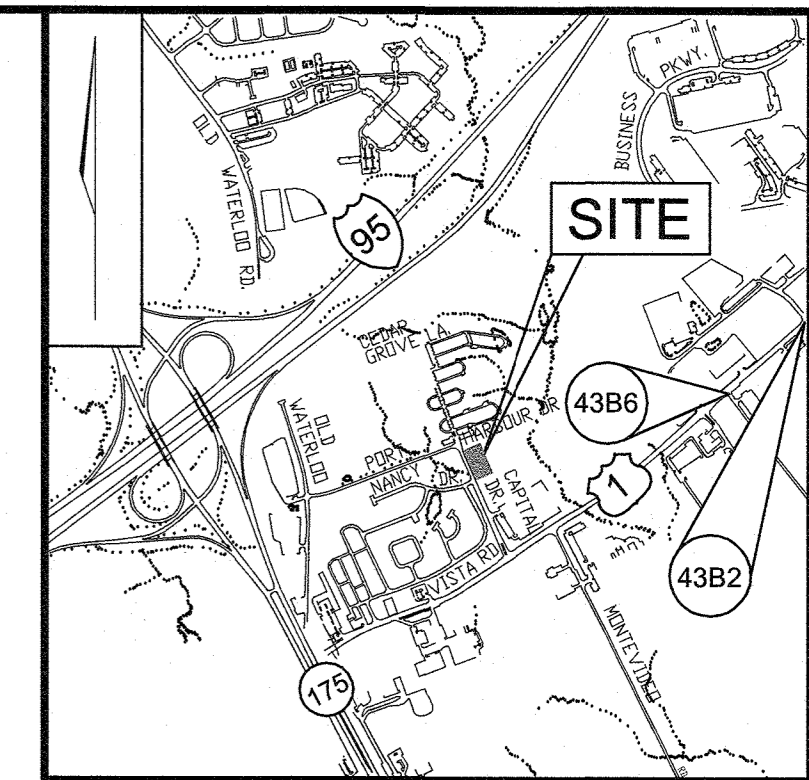


ENVIRONMENTAL CONCEPT PLAN "POTTER'S PLACE" THE OAKS AT WATERS EDGE PHASE III PARCEL 'A'

BENCHMARKS			
NO.	NORTHING	EASTING	ELEVATION
43B2	551,654.993	1,378,176.951	209.601'
43B6	550,801.597	1,376,866.072	210.559'

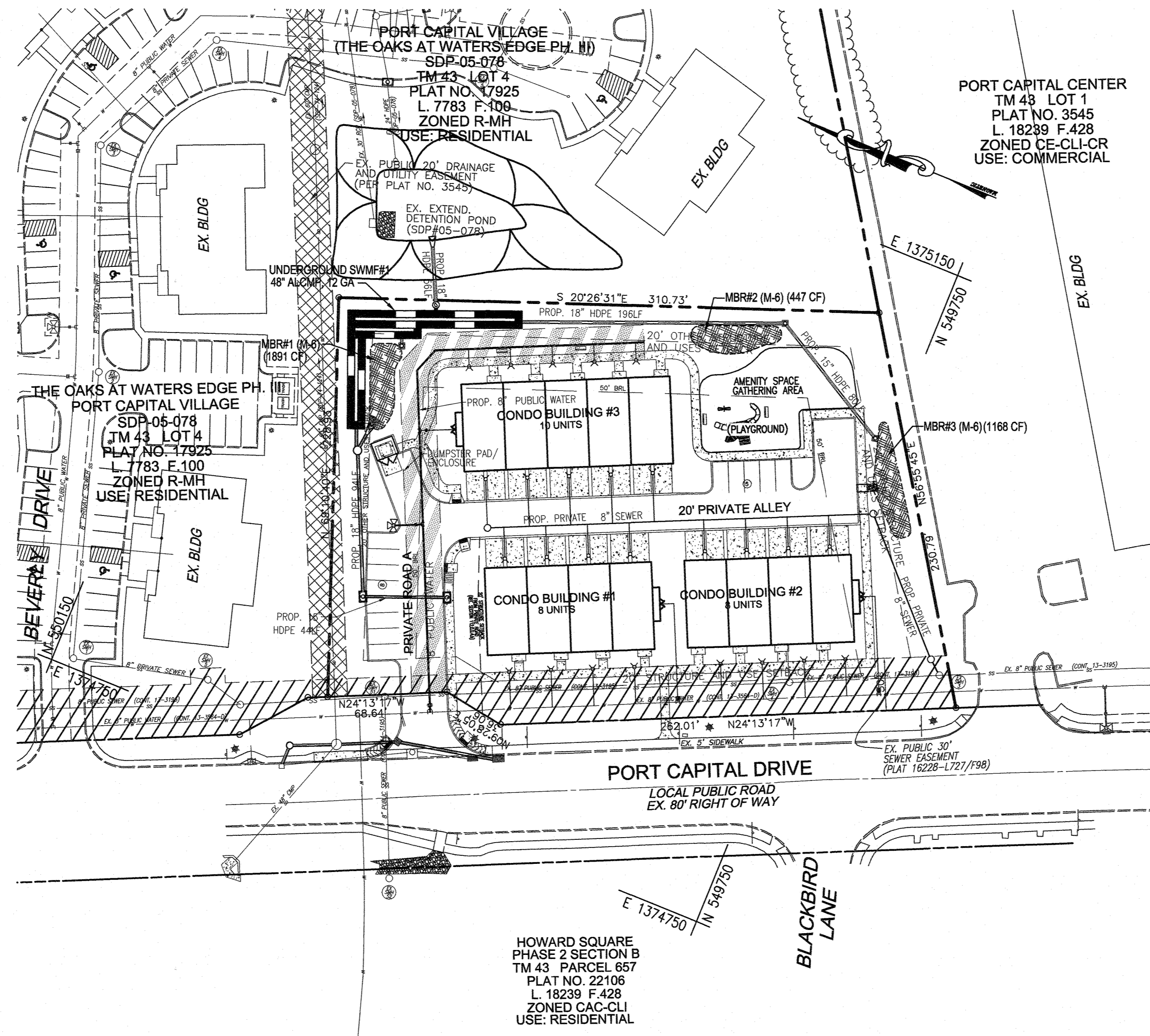


VICINITY MAP

SCALE: 1"=2000'
ADC MAP = PAGE 34 E6

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 AN AERIAL PHOTOGRAMETRIC SURVEY PERFORMED BY POTOMAC AERIAL SURVEY, DATED MARCH, 1998 AND FIELD RUN TOPO BY ROBERT H. VOGEL ENGINEERING+TIMMONS GROUP, DATED MAY, 2018, OFFSITE TOPOGRAPHY FROM HOWARD COUNTY GIS.
- THE PROJECT BOUNDARY IS BASED ON PLAT NO. 17925.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 43B2 AND 43B6 WERE USED FOR THIS PROJECT.
- THE SUBJECT PROPERTY IS ZONED "R-A-15" IN ACCORDANCE WITH THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN.
- THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
- PUBLIC WATER IS PROVIDED BY CONTRACT 13-3564-D. PUBLIC SEWER IS PROVIDED BY CONTRACT 13-1395.
- THERE ARE NO 100-YEAR FLOODPLAIN ON THIS SITE.
- THERE ARE NO STEEP SLOPES LOCATED ONSITE.
- FOREST STAND DELINEATION REPORT PREPARED BY ROBERT H. VOGEL ENGINEERING, INC. DATED DECEMBER, 2004.
- THERE ARE NO WETLANDS, STREAMS OR BUFFERS, OR SPECIMEN TREES WITHIN THE LOD.
- A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
- PORT CAPITAL ROAD IS CLASSIFIED AS A LOCAL ROAD.
- TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS OR CEMETERIES ON THIS PROPERTY. THERE ARE NO HISTORIC HOUSES LOCATED ON THIS PROPERTY.
- STORMWATER MANAGEMENT FOR THE PROJECT IS PROVIDED BY THREE MICRO-BIORETENTION FACILITIES (M-B). THIS FACILITIES WILL MANAGE THE 1-INCH RUNOFF. THIS FACILITIES SHALL BE PRIVATELY OWNED AND MAINTAINED.
- AN UNDERGROUND SWM DETENTION FACILITY IS PROPOSED TO MANAGE ONLY THE 100-YR. STORM EVENT. ALL OTHER STORM EVENTS WILL BE MANAGED BY THE EXISTING POND AS APPROVED IN SDP-05-078.
- 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 REDLINE 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 REDLINE 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. THE FINAL PLAN SHALL INCLUDE A SEQUENCE OF CONSTRUCTION WHICH SHALL DETAIL SEDIMENT & EROSION CONTROLS AND PHASING AND ADDRESS THE PROJECT TEMPORARY STORMWATER MANAGEMENT REQUIREMENTS. DPZ FILE REFERENCE NUMBERS: SDP-74-124, F73-85, SDP-79-170, SDP-05-078, SDP-05-131, F-04-044, ZB1028M.
-



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- CENTERLINE OF EXISTING STREAM
- STREAM BUFFER
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING SIGN
- SS --- EXISTING SANITARY SEWER
- W --- EXISTING WATER MAIN
- EX-24" BCCP --- EXISTING STORM DRAIN
- SS --- PROPOSED STORM DRAIN
- SS --- PROPOSED SANITARY SEWER
- LOD --- LOD --- LIMIT OF DISTURBANCE
- 5' CONCRETE SIDEWALK
- MBR --- MICRO-BIORETENTION AREA (M-B)
- AMENITY AREA
- FIRE HYDRANT

SITE DATA:

LOCATION: ELK RIDGE, MD.; TAX MAP 43, BLOCK 3, PARCEL 644
1ST ELECTION DISTRICT
PRESENT ZONING: R-A-15
PROJECT AREA: 1.79 AC.
DPZ REFERENCES: L-4393/F-343
USE OF STRUCTURE: CONDOMINIUM
TOTAL BUILDING COVERAGE: 15,832 SF (0.36 AC. OR 20.30% OF GROSS AREA)
PAVED PARKING LOT/AREA ON SITE: 11,066 SF (0.25 AC. OR 14.19% OF GROSS AREA)
AREA OF GREENSPACE: 38,768 SF (0.89 AC. OR 49.7% OF GROSS AREA)
LIMIT OF DISTURBANCE: 1.79 AC.
WETLANDS WITHIN LOD: 0.00 AC.
WETLAND BUFFERS WITHIN LOD: 0.00 AC.
STREAMS AND THEIR BUFFERS WITHIN LOD: 0.00 AC.
AREA OF ON-SITE 100 YEAR FLOODPLAIN WITHIN LOD: 0.00 AC.
AREA OF EXISTING FOREST WITHIN LOD: 0.00 AC.
AREA OF ON-SITE NRCS/WDE/HSCD STEEP SLOPES (20% OR GREATER): 0.00 AC.
AREA OF ON-SITE STEEP SLOPES (25% OR GREATER): 0.00 AC.
AREA OF ERODIBLE SOILS: 0.00 AC.
AREA MANAGED BY ESDV (THIS PLAN): 1.79 AC.
IMPERVIOUS AREA (MANAGED BY ESDV): 0.89 AC.
GREEN AREA (MANAGED BY ESDV): 0.90 AC.

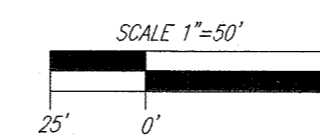
SHEET INDEX		
DESCRIPTION	SHEET NO.	
COVER SHEET	1	
LAYOUT, GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN	2	
STORM WATER MANAGEMENT DRAINAGE AREA MAP, NOTES AND DETAILS	3	

OWNER/DEVELOPER

PORT CAPITAL CENTER OF MARYLAND LLC
P.O. BOX 416
ELLCOTT CITY, MD 21041
(410) 465-2020

LOCATION PLAN

SCALE: 1"=50'



ENVIRONMENTAL SITE DESIGN NARRATIVE:

- THE OAKS AT WATERS EDGE III, PARCEL 'A', HAS NO ENVIRONMENTAL FEATURES, INCLUDING STEEP SLOPES, STREAM AND STREAM BUFFER, WETLAND AND WETLAND BUFFER, FLOODPLAIN AND WOODED RESOURCES.
- THE OAKS AT WATERS EDGE III, LOT 4, PREVIOUSLY CONSTRUCTED EXTENDED DETENTION POND UNDER SDP-05-078 PROVIDING CHANNEL PROTECTION STORAGE VOLUME FOR THIS SITE BUT NOT WATER QUALITY VOLUME (WQV) OR RECHARGE VOLUME (REV). WQV & REV IS PROVIDED FOR THIS SITE BY USING THREE MICRO-BIO FACILITIES (M-B).
- SEDIMENT CONTROL FOR THE SPECIFIC SITE PLAN WILL BE PROVIDED BY TWO PROPOSED SEDIMENT TRAPS AND EARTH DIKES. SEDIMENT CONTROL SHALL BE IN ACCORDANCE WITH CURRENT REQUIREMENTS AND WILL BE APPROVED BY THE HOWARD SOIL CONSERVATION DISTRICT.
- THE RESULTS OF THE ENVIRONMENTAL SITE DESIGN WILL REFLECT "WOODS IN GOOD CONDITION".

STORMWATER MANAGEMENT REQUIREMENTS				
AREA	REQUIREMENT	VOLUME REQUIREMENT	VOLUME PROVIDED	NOTES
1.79 AC.				
1	WATER QUALITY VOLUME (WQV)	0.0742 AC. FT.	0.0805 AC. FT.	MICRO-BIORETENTION
2	RECHARGE VOLUME (REV)	0.0183 AC. FT.	0.0210 AC. FT.	MICRO-BIORETENTION
3	CHANNEL PROTECTION VOLUME (CPV)	**	**	**
4	OVERHEAD FLOOD PROTECTION (O _{FP})	---	---	---
5	EXTREME FLOOD VOLUME (O _{EXT})	1,595 C.F.	1,595 C.F.	SWMF #1

**CPV PROVIDED BY MICROPOOL EXTENDED DETENTION POND ON ADJACENT LOT 4 (SDP-05-078)

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 8/9/21
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 8/5/21
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

NO.	REVISION	DATE

ENVIRONMENTAL CONCEPT PLAN
COVER SHEET

POTTER'S PLACE
THE OAKS AT WATERS EDGE PHASE III
PARCEL 'A'

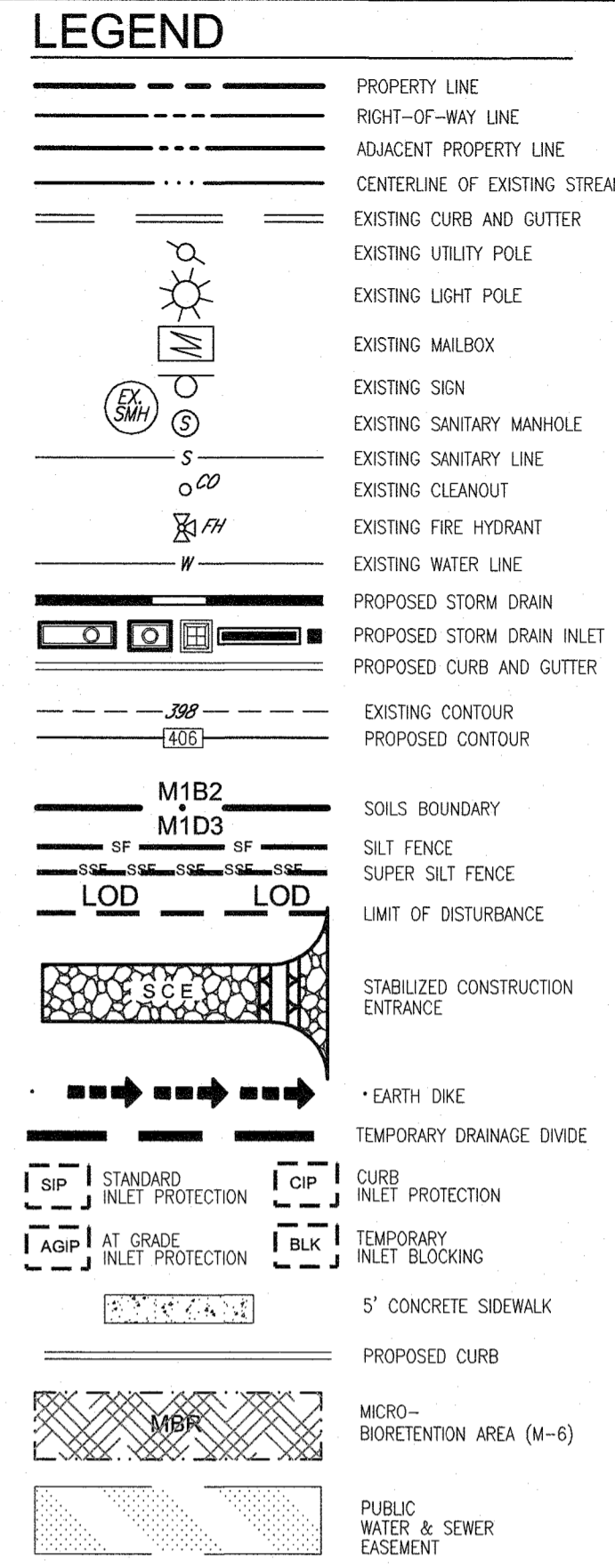
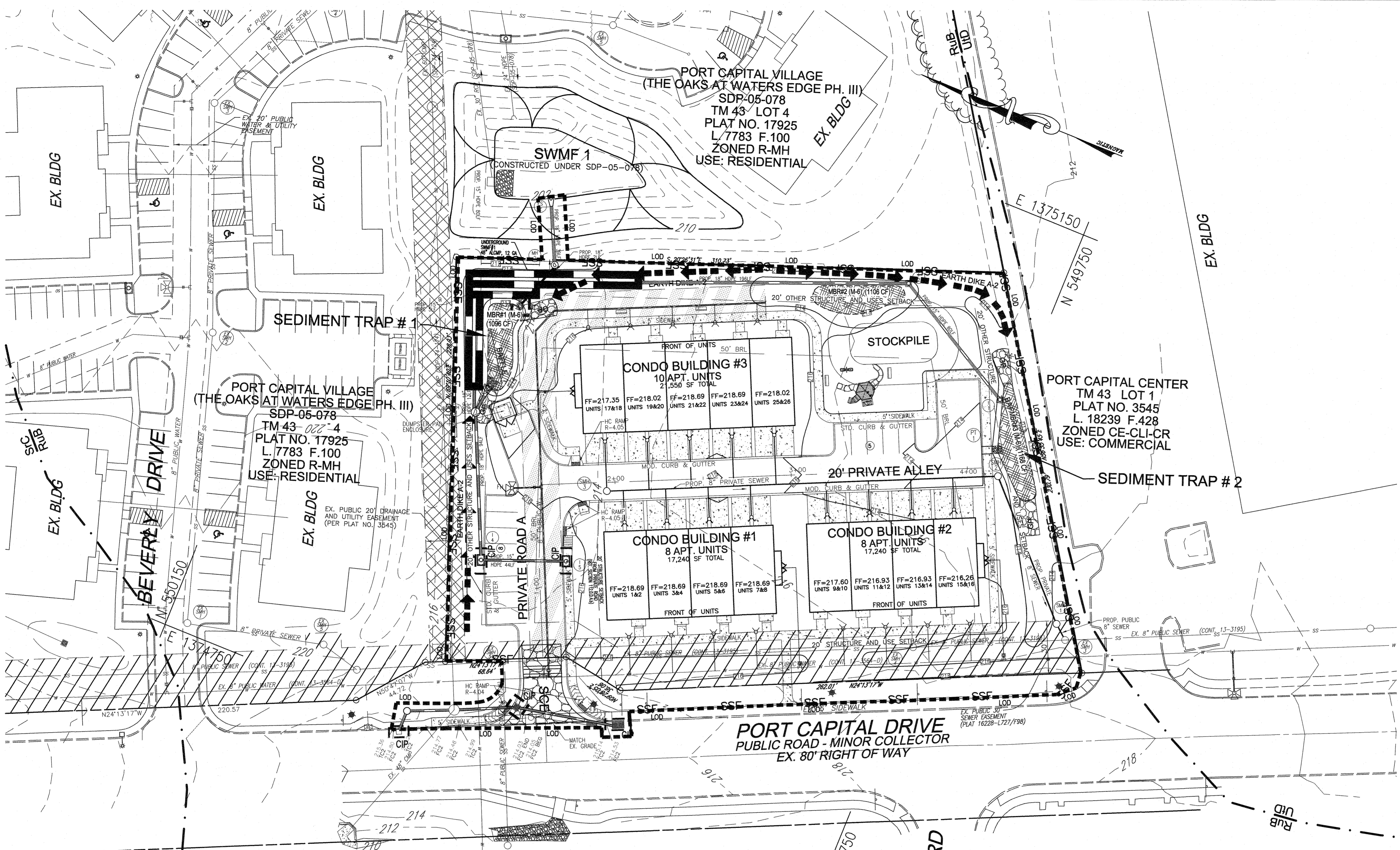
TAX MAP 43 GRID 3 1ST ELECTION DISTRICT PARCEL 644 HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

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. 116183 EXPIRATION DATE: 06-27-2022

DESIGN BY: LRC
DRAWN BY: LRC
CHECKED BY: RHY
DATE: JULY 2021
SCALE: AS SHOWN
W.O. NO.: _____

1 SHEET OF 3

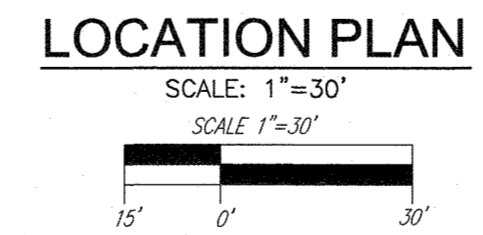


OWNER/DEVELOPER
 PORT CAPITAL CENTER OF MARYLAND LLC
 P.O. BOX 416
 ELLICOTT CITY, MD 21041
 (410) 465-2020

NO.	REVISION	DATE

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	K VALUE
RuB	RUSSETT AND BELTSVILLE LOAM 2 TO 5 PERCENT SLOPES, MODERATELY WELL DRAINED	C	0.0 - 0.06
UD	URBAN LAND-UDORTHENTS COMPLEX, 0 TO 15 PERCENT SLOPES, UPLAND FLATS	D	0.06 - 0.57



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature]
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 8.9.21

[Signature]
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 8/9/21

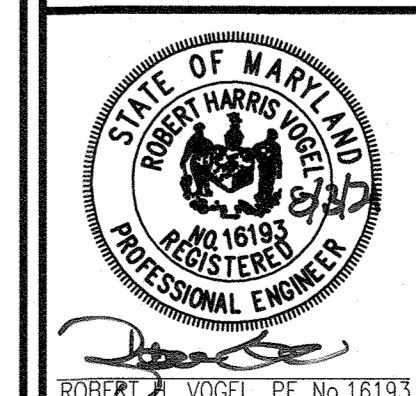
NOTE:
 - SILT FENCE IS TO BE REPLACED WITH SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
 - SILT FENCE SHALL BE CURLED UPHILL NO MORE THAN 35 FEET APART
 - DOUBLE ROWS OF SUPER SILT FENCE SHALL BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

NOTE: LOCATE STOCKPILE AS SHOWN HEREON OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. STOCKPILES EXCEEDING 15 FEET IN HEIGHT SHALL BE BENCHED. STOCKPILES SHALL BE IN ACCORDANCE WITH SECTION B.4.

- NOTES**
- ALL EARTH DIKES ARE TO BE PLACED IN WORKING ORDER AT THE END OF EACH WORKING DAY.
 - IMBRICATE SF/SSP IN 35' SEGMENTS AS REQUIRED UPHILL BY 2' IN ELEVATION.
 - 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.
 - THE FUTURE SITE DEVELOPMENT PLAN SHALL INCLUDE A SEQUENCE OF CONSTRUCTION OUTLINING THE INSTALLATION OF EARTHDIKES, PERIMETER CONTROLS AND BASIN CONSTRUCTION. ALSO INCLUDED WILL BE TIMING RELATED TO THE PROPOSED RETAINING WALL INSTALLATION.
 - 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 AND ADDRESS THE PROJECT TEMPORARY STORMWATER MANAGEMENT REQUIREMENTS.

ENVIRONMENTAL CONCEPT PLAN
LAYOUT, GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN
POTTER'S PLACE
 THE OAKS AT WATERS EDGE PHASE III
 PARCEL A
 ZONED: R-A-15
 TAX MAP 43 GRID 3
 1ST ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 PARCEL 644

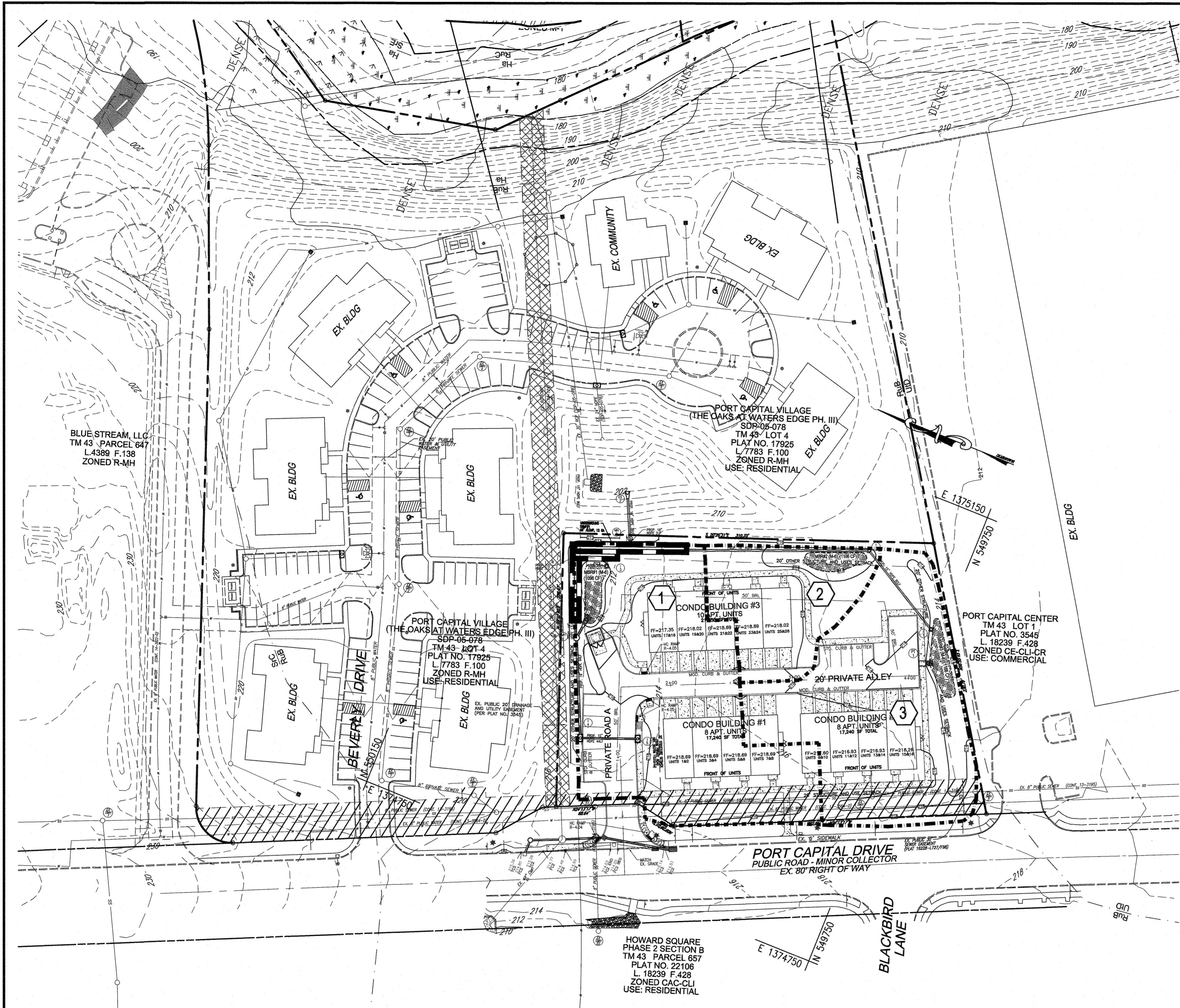
VOGEL ENGINEERING
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PROFESSIONAL CERTIFICATE

DESIGN BY: LRC
 DRAWN BY: LRC
 CHECKED BY: RHW
 DATE: JULY 2021
 SCALE: AS SHOWN
 W.O. NO.:
 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 07-27-2022.

2 SHEET OF 3



SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	K VALUE
RuB	RUSSETT AND BELTSVILLE LOAM, 2 TO 5 PERCENT SLOPES, MODERATELY WELL DRAINED	C	0.0 - 0.06
UD	URBAN LAND-UDORHTS COMPLEX, 0 TO 15 PERCENT SLOPES, UPLAND FLATS	D	0.06 - 0.57

NOTE: SWM CPV PROVIDED BY A MICROPOND EXTENDED DETENTION POND IN ADJACENT LOT 4 (ECP-16-031). THIS SITE PROVIDES REQUIRED WQV AND REV FOR 1" RUNOFF.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature]
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 8/21

[Signature]
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 8/21

ENVIRONMENTAL SITE DESIGN PRACTICE

DRAINAGE AREA #	AREA TREATED	FACILITY NUMBER	PERMEABLE PAVEMENT	ADD UNDER STORAGE	SURFACE STORAGE	GRAVEL FILTER	GREEN TRENCH	LANDSCAPE INFILTRATION	RECHARGE VOLUME (Rv)	ESDv VOLUME
1	3372	MBR #1	0	0	0	0	0	0	1096	417
2	1161	MBR #2	0	0	0	0	0	0	1106	112
3	2792	MBR #3	0	0	0	0	0	0	3370	886
SUBTOTAL 1			0	0	0	0	0	0	3370	886
SUBTOTAL 2			0	0	0	0	0	0	3370	886
TOTALS			0	0	0	0	0	0	3370	886
ESDv REQUIRED			3310 CF			TOTAL ESDv PROVIDED: 3370				

PLAN SCALE: 1"=50'

DA	% IMPERV	Rv	DA	ESDv	MINIMUM VOLUME	MAXIMUM VOLUME	VOLUME PROVIDED*	AREA SF	PERV AREA	IMP AREA
1	57.84	0.57	1603	1603	4168	3372	14212	19500		
2	47.46	0.48	262	464	1208	1161	6137	5444		
3	49.55	0.50	1149	1149	2586	1168	27792	14021	13771	
TOTAL ESDv BY SUBAREA			3216	8362	3370	73185	34370	38815		

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

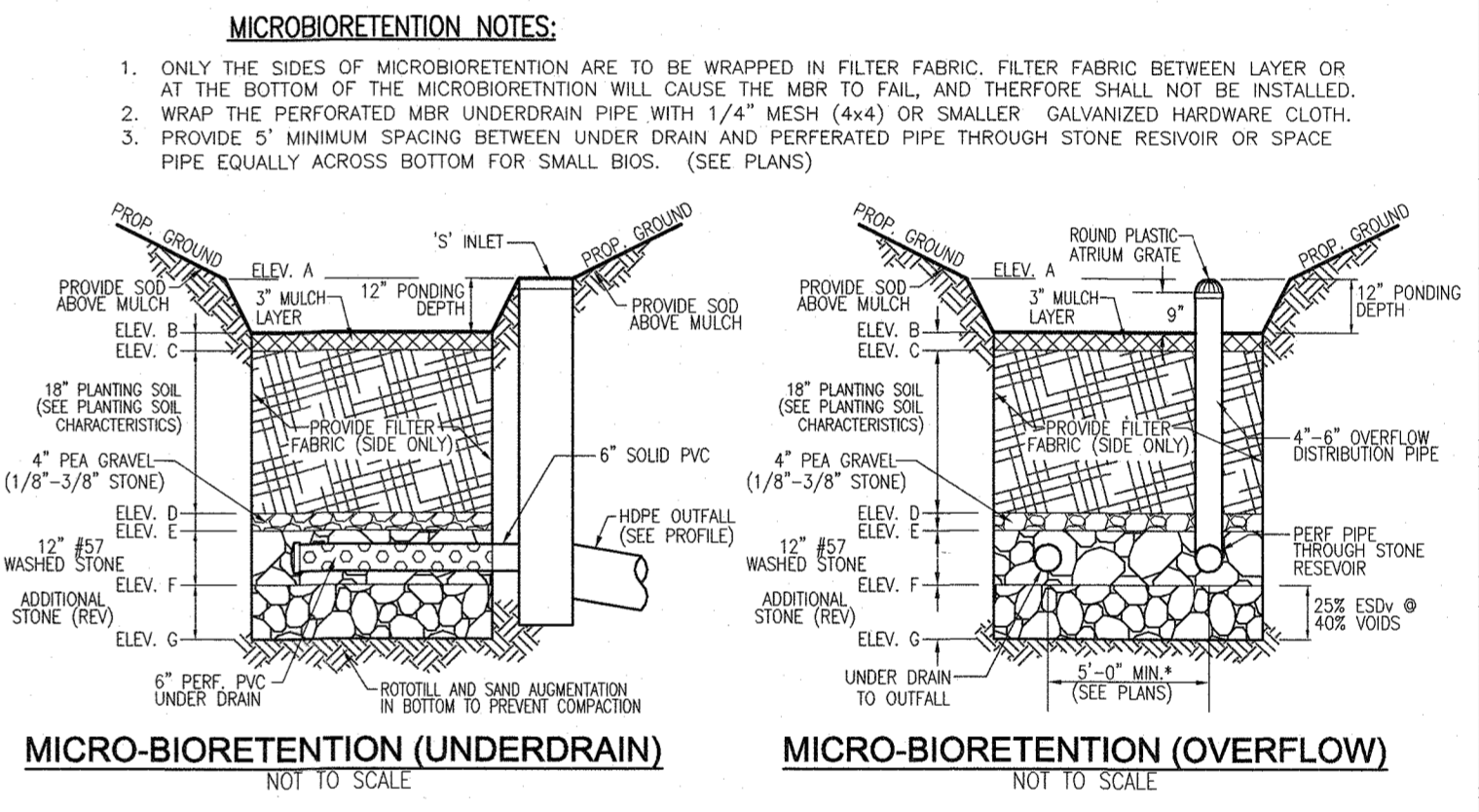
Table B.4.1 Materials Specifications for Micro-Bioretenion, Rain Gardens & Landscape Infiltration.

Material	Specifications	Notes
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-5974)	
Planting fabric	shredded landscape fabric	aged 6 months, minimum no pins or wood clips
Plus gravel diaphragm	see general: A5140-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")
Curtain drain	ornamental stone: washed cobble	stone: 2" to 3"
Geotextile	AASHTO M-43	NO. 57 OR NO. 6 APPROPRIATE (28" TO 36")
Underdrain piping	F 75L Type F5 28 or AASHTO M-278	4" or 6" rigid schedule 40 PVC or SDR35
Filter in place concrete (if required)	MSHA Min No. 3, F ₄ = 1000 psi @ 28 days, normal weight, air-entrained, nonshrink to meet ASTM C-672-00	Shaded or perforated pipe 1/8" per (8" on center, 4 holes per row, minimum of 1" of gravel over pipes, not necessary underdrain pipes. Perforated pipe shall be wrapped with 1/2 inch galvanized hardware cloth. 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 standard requires design drawing sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 508.9(R) vertical loading [11-10 or 11-20]; allowable horizontal loading (based on soil pressure) and modulus of potential cracking. Sand substitutions such as Diabase and Gneissstone (AASHTO) #10 are not acceptable. No column, overhead or oblique load substitutions are acceptable. No "rock dust" can be used for sand.
Sand	AASHTO M-4 or ASTM C-33	0.075 to 0.04"

- APPENDIX B.4.C SPECIFICATIONS FOR MICRO-BIORETENTION, RAIN GARDEN, LANDSCAPE INFILTRATION & INFILTRATION BERMS**
- THESE PRACTICES 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 MIX FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR DEBRIS SHALL BE PLACED WITHIN THE MICRO-BIORETENTION PRACTICE. THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR ANY OTHER WEEDS OR INVASIVE SPECIES. THE PLANTING SOIL SHALL MEET THE FOLLOWING CRITERIA:
 • SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION)
 • ORGANIC CONTENT - MINIMUM 10% DRY WEIGHT (ASTM D 5974). IN GENERAL, THIS SHALL BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (35-40%) OR SANDY LOAM (30%) AND COMPOST (40%).
 • CLAY CONTENT - SHOULD BE BETWEEN 5.5 - 10.0%. AMENDMENTS (E.G., LIMES, IRON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE CLAY CONTENT.
 • PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0.
 THERE SHALL BE ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBILITY. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL, IF TOPSOIL IS IMPORTED. THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.
- 3. COMPACTION**
 IT IS IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE USE EQUIPMENT OR LIGHT EQUIPMENT WITH TIRE TYPE TRACKS OR TRACKS WITH NARROW TRACKS. NARROW TRACKS, RUBBER TIRES WITH LARGE LUGS, OR HEAVY EQUIPMENT BE USED AROUND THE PERIMETER OF THE BASIN IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.
 COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS CHISEL FLOW, RIPPER, OR BEETLE. THESE TILLING OPERATIONS ARE REFRUITFUL TO SOIL PROFILE THROUGHOUT THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
 ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE. WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE. WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 15" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT SHOULD BE USED AROUND THE PERIMETER OF THE BASIN IN SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENTSUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.
- 4. PLANT MATERIAL**
 RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION PRACTICES CAN BE FOUND IN APPENDIX A, SECTION A.2.3.
- 5. PLANT INSTALLATION**
 COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SUBORDINATE TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AERATED (6 TO 12 MONTHS) FOR ACCEPTANCE. ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION. TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL. GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRAVE GROUND COVER PLANTING SPECIFICATIONS. THE TOPSOIL SPECIFICATIONS PROVIDED INCLUDE ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS, PESTICIDES, OR 1/4" MINIMUM IMPEDES THIS SOIL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.
- 6. UNDERDRAINS**
 UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:
 • PIPE - SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM 758, TYPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G., PVC OF HDPE).
 • PERFORATIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4x4) GALVANIZED HARDWARE CLOTH.
 • GRAVEL - THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
 • THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.
 • A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.
 • A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES IN TO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".
 THIS MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).
- 7. MISCELLANEOUS**
 THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

OPERATION AND MAINTENANCE SCHEDULE FOR RAIN GARDENS (M-7), BIORETENTION SWALE (M-8), LANDSCAPE INFILTRATION (M-3), MICRO-BIORETENTION (M-6), 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 10, 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 DEFUNCT GRASSES AND WEEDS.
- 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 WET STORM.



OWNER/DEVELOPER
 PORT CAPITAL CENTER OF MARYLAND LLC
 P.O. BOX 416
 ELLICOTT CITY, MD 21041
 (410) 465-2020

NO.	REVISION	DATE

ENVIRONMENTAL CONCEPT PLAN
EXISTING CONDITIONS AND STORM WATER MANAGEMENT DRAINAGE AREA MAP, NOTES AND DETAILS
POTTER'S PHASE
 THE OAKS AT WATERS EDGE PHASE III
 PARCEL A
 ZONED: R-A-15
 TAX MAP 43 GRID 3
 1ST ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 PARCEL 644

VOGEL ENGINEERING
TIMMONS GROUP
 3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
 P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 118183 EXPIRATION DATE: 08-27-2022

DESIGN BY: LRC
 DRAWN BY: LRC
 CHECKED BY: RHY
 DATE: JULY 2021
 SCALE: AS SHOWN
 W.O. NO.:
 3 SHEET OF 3

- 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.
 - THERE ARE NO STREAMS, WETLANDS AND ACCORDING TO CURRENT FIRM APPROVED BY FEMA AND HOWARD COUNTY, THERE IS NO 100YR FLOODPLAIN LOCATED ON THIS PROPERTY.