

GENERAL NOTES

- THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS ALTERNATIVE COMPLIANCE HAVE BEEN APPROVED.
- THE EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON A FIELD SURVEY BY VOGEL ENGINEERING + TIMMONS GROUP, DATED 05/2022, SUPPLEMENTED BY HOWARD COUNTY GIS.
- THE PROJECT BOUNDARY IS BASED ON A FIELD RUN BOUNDARY PERFORMED BY VOGEL ENGINEERING + TIMMONS GROUP, DATED MAY 2022.
- THE COORDINATES AND ELEVATIONS SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY CONTROL STATIONS 36BA AND 36BB WERE USED FOR THIS PROJECT.
- THE SUBJECT PROPERTY IS ZONED R-20 IN ACCORDANCE WITH THE ZONING REGULATIONS EFFECTIVE ON OCT. 06, 2013, AND IS SUBJECT TO SUBDIVISION AND LAND DEVELOPMENT REGULATIONS EFFECTIVE OCT. 07, 2007 PER COUNCIL BILL 47-2007 & 48-2007. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, ALTERNATIVE COMPLIANCE PETITION APPLICATION OR BUILDING/GRADING PERMIT APPLICATIONS.
- THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
 - WATER FOR THIS PROJECT SHALL BE FROM AN EXTENSION OF CONTRACT NO. #1134-W.
 - SEWER FOR THIS PROJECT SHALL BE FROM THE PROPOSED EXTENSION OF CONTRACT NO. #319-S.
 - WATER AND SEWER SERVICE WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.122.B OF THE HOWARD COUNTY CODE. ALLOCATIONS WILL BE GRANTED AT TIME OF ISSUANCE OF BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.
- EXISTING WATER HOUSE CONNECTION (WHC) AND SEWER HOUSE CONNECTION (SHC) TO BE CONFIRMED PRIOR TO CONSTRUCTION.
- THIS SITE IS NOT LOCATED IN A HISTORIC DISTRICT.
- NO RARE, THREATENED OR ENDANGERED SPECIES OR THEIR HABITATS WERE OBSERVED ON THE PROPERTY.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAM(S) OR THEIR REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATION EASEMENT AREAS.
- THERE ARE NO WETLANDS LOCATED WITHIN THE LIMIT OF DISTURBANCE FOR THIS PROJECT.
- THERE ARE NO FLOODPLAIN AREAS LOCATED WITHIN THE DEVELOPMENT AREA FOR THIS PROJECT.
- THERE ARE AREAS WITH SLOPES GREATER THAN 15% ON THIS SITE. REFERENCE SITE DATA BELOW.
- THIS PROJECT IS SUBJECT TO THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION, INCLUDING THE PROTECTION OF SPECIMEN TREES.
- THERE IS NO FOREST TO BE CLEARED AND THE SITE AREA IS LESS THAN 40,000 SF. THEREFORE, THIS PROJECT IS EXEMPT FROM FOREST CONSERVATION. REFERENCE SECTION 16.1202(b)(2)(i) OF THE HOWARD COUNTY CODE.
- A LANDSCAPE PLAN SHALL BE PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL IN CONJUNCTION WITH THE SITE DEVELOPMENT PLAN.
- GEOTECHNICAL INVESTIGATION SHALL BE PROVIDED IN CONJUNCTION WITH THE SITE DEVELOPMENT PLAN.
- ANY NECESSARY DESIGN MANUAL WAIVERS OR ALTERNATIVE COMPLIANCE APPLICATIONS SHALL BE FILED IN CONJUNCTION WITH THE SITE DEVELOPMENT PLAN.
- OWEN BROWN ROAD IS CLASSIFIED AS A LOCAL ROAD. SITE ACCESS SHALL BE VIA A PRIVATE DRIVEWAY FROM OWEN BROWN ROAD.
- A TRAFFIC STUDY IS NOT REQUIRED FOR THIS PROJECT.
- AN ADEQUATE ROADS FACILITIES TEST STUDY IS NOT REQUIRED FOR THIS PROJECT.
- TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS, HISTORIC STRUCTURES OR CEMETERIES, LOCATED WITHIN THE DEVELOPMENT AREA.
- STORMWATER MANAGEMENT FOR THIS PROJECT SHALL BE PROVIDED BY DRYWELLS (M-5) AND PERMEABLE PAVING (1.915 SQFT).
- SEDIMENT AND EROSION CONTROLS WILL BE PROVIDED BY PERIMETER CONTROLS FOR THIS SITE.
- THERE ARE 0.65 AC. OF HIGHLY ERODIBLE SOILS ON THIS PROJECT SITE, 0.31 AC. OF WHICH IS WITHIN THE DEVELOPMENT AREA.
- DRIVEWAY ACCESS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
 - A) WIDTH - 12 FEET (16 FEET SERVING MORE THAN ONE RESIDENCE).
 - B) SURFACE - 6 INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING. (1-1 1/2" MIN).
 - C) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% CHANGE AND MINIMUM OF 45-FOOT TURNING RADIUS.
 - D) STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING).
 - E) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100-YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE.
 - F) STRUCTURE CLEARANCES - MINIMUM 12 FEET.
 - G) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.
- DECLARATION OF COVENANTS SHALL BE RECORDED WITH THE SITE DEVELOPMENT PLAN AND SIMULTANEOUSLY WITH THE PRIVATE STORMWATER DEVICES LOCATED ON THESE LOTS. ALL STORMWATER DEVICES SHALL BE PRIVATE. ALL STORMWATER DEVICES SHALL BE LOCATED WITHIN THE PRIVATE LOT, AND OWNED AND MAINTAINED BY THE HOMEOWNER.
- APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED SUBDIVISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN AND/OR RED-LINE REVISION PLAN. REVIEW OF THIS PROJECT FOR COMPLIANCE WITH THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS SHALL OCCUR AT THE SUBDIVISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN STAGES AND/OR RED-LINE REVISION PROCESS. THE APPLICANT AND CONSULTANT SHOULD EXPECT ADDITIONAL AND MORE DETAILED REVIEW COMMENTS (INCLUDING COMMENTS THAT MAY ALTER THE OVERALL SITE DESIGN) AS THIS PROJECT PROGRESSES THROUGH THE PLAN REVIEW PROCESS.
- THERE IS NO RIGHT-OF-WAY DEDICATION REQUIRED OR PROPOSED FOR THIS PROJECT. THE RIGHT-OF-WAY SHOWN IS ONLY TO BE RESERVED FOR FUTURE CONSIDERATION. AT THE SITE DEVELOPMENT PLAN STAGE, FRONTAGE IMPROVEMENTS WILL BE ADDRESSED BY SHOWING THE IMPROVEMENTS UNLESS A WAIVER IS OBTAINED.

SITE DATA
 TAX MAP: 36, GRID: 9, PARCEL: 526
 6TH ELECTION DISTRICT
 PRESENT ZONING: R-20 RESIDENTIAL
 TOTAL AREA OF PROPERTY: 28,517 S.F. / 0.65 AC.
 DPZ REFERENCES: N/A
 DEED/PLAT REFERENCES: L. 21419 / F. 129
 PLAT NO. N/A
 AREA MANAGED BY ESDV: 5,732 S.F. / 0.13 AC.
 USE OF PROPOSED STRUCTURE: SINGLE FAMILY RESIDENTIAL
 TOTAL BUILDING COVERAGE WITHIN THE DEVELOPMENT AREA:
 3,026 SF (0.069 AC. OR 10.61%)
 PAVED AREA WITHIN THE DEVELOPMENT AREA:
 2,106 SF (0.048 AC. OR 7.39%)
 LIMIT OF DISTURBED AREA (INCLUDING ROW): 13,542 S.F. / 0.31 AC.
 WETLANDS ON SITE: 0.00 AC.
 WETLAND BUFFERS ON SITE: 0.00 AC.
 STREAMS AND THEIR BUFFERS ON SITE: 0.00 AC.
 AREA OF 100 YEAR FLOODPLAIN: 0.00 AC.
 AREA OF EXISTING FOREST ON SITE: 0.00 AC.
 AREA OF MODERATE SLOPES (15% TO 24.99%): 0.018 AC.
 AREA OF MDE STEEP SLOPES (20% OR GREATER): 0.10 AC.
 AREA OF STEEP SLOPES (25% OR GREATER): 0.003 AC.
 AREA OF ERODIBLE SOILS: 0.65 AC.
 IMPERVIOUS AREA: 5,132 S.F. (0.1178 AC. OR 18%)
 GREEN/OPEN AREA: 23,385 S.F. (0.5368 AC. OR 82%)

ENVIRONMENTAL SITE DESIGN NARRATIVE:

IN ACCORDANCE WITH THE DEVELOPMENT ENGINEERING DIVISION ECP CHECKLIST ITEM III.K.

- THERE ARE NO NATURAL AREAS LOCATED ON THE PROJECT SITE. THERE ARE NO STREAMS, FOREST, STEEP SLOPES, WETLANDS OR THEIR BUFFERS ON SITE AND NO DISTURBANCE TO ANY SUCH NATURAL FEATURES IS PROPOSED.
- NO DISTURBANCE TO THE NATURAL DRAINAGE PATTERNS IS PROPOSED.
- THE CONCEPTUAL REDUCTION IN IMPERVIOUS AREA THROUGH BETTER SITE DESIGN IS ACHIEVED THROUGH THE ENVIRONMENTAL SITE DESIGN (ESD) FOR THE PROJECT. THE ESD CONCEPT INCLUDES THE USE OF DRYWELLS (M-5) AND A-2 PERMEABLE PAVEMENT.
- SEDIMENT CONTROL FOR THIS SPECIFIC SITE PLAN WILL BE PROVIDED THROUGH THE USE OF PERIMETER CONTROLS INCLUDING DIVERSION FENCE AND SUPER SILT FENCE. SEDIMENT CONTROL SHALL BE IN ACCORDANCE WITH CURRENT REQUIREMENTS AND SHALL BE APPROVED BY THE HOWARD SOIL CONSERVATION DISTRICT.
- STORMWATER MANAGEMENT FOR THE PROJECT HAS BEEN CONCEPTUALLY MET THROUGH THE USE OF THREE (3) DRYWELLS (M-5) AND A-2 PERMEABLE PAVEMENT. THE RESULTS OF THE ENVIRONMENTAL SITE DESIGN FOR THIS PROJECT WILL REFLECT "WOODS IN GOOD CONDITION".

REQUIRED Pe = 1.60" PROVIDED Pe = 1.60"
 REQUIRED ESDv = 704 CU.FT. PROVIDED ESDv = 715 CU.FT.
 REQUIRED Rev = 114 CU.FT. PROVIDED Rev = 114 CU.FT.

- AT THIS CONCEPT STAGE OF DEVELOPMENT, NO WAIVER PETITIONS FOR THE STORMWATER MANAGEMENT DESIGN ARE REQUIRED.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

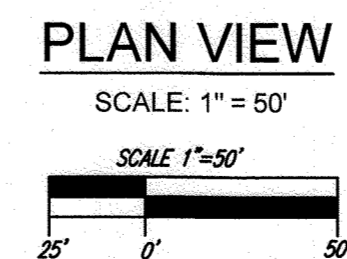
[Signature] 7-12-23
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 7/12/23
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

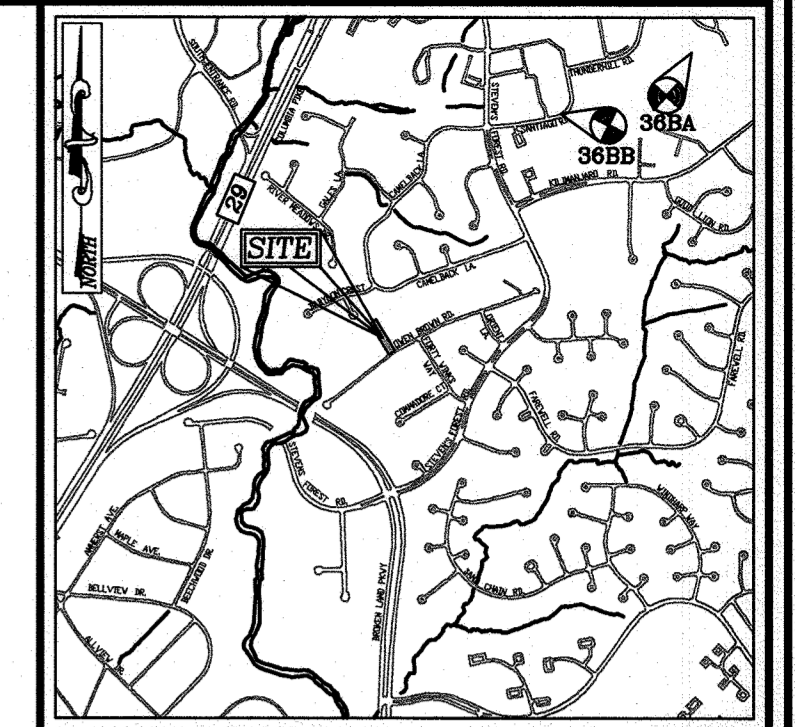
ENVIRONMENTAL CONCEPT PLAN

SAMES PROPERTY

L. 21419 / F. 00129
 ECP-23-018



BENCHMARKS
 HOWARD COUNTY BENCHMARK - 36BA
 N 562135.54 E 1357571.67 ELEV. 416.77
 HOWARD COUNTY BENCHMARK - 36BB
 N 561504.23 E 1356203.72 ELEV. 409.25



LEGEND

	EXISTING CONTOUR
	PROPOSED CONTOUR
	EXISTING MAILBOX
	EXISTING VERIZON
	EXISTING SANITARY MANHOLE
	EXISTING FIRE HYDRANT
	EXISTING BOLLARD
	EXISTING SEWER LINE
	EXISTING WATER LINE
	PROPERTY LINE
	FUTURE RIGHT-OF-WAY LINE
	EXISTING TREE LINE
	LIMIT OF DISTURBANCE
	BOUNDARY RESTRICTION LINE
	1.5" WATER HOUSE CONNECTION
	4" SEWER HOUSE CONNECTION
	ROOF DRAIN / UNDER DRAIN
	PUBLIC SEWER
	DRY WELL
	EXISTING TREES

SHEET INDEX

DESCRIPTION	SHEET NO.
COVER SHEET AND SITE LAYOUT	1 OF 3
SWM, SOILS MAPS, GRADING AND SOIL EROSION & SEDIMENT CONTROL	2 OF 3
ESDV, SWM AND SOIL EROSION & SEDIMENT CONTROL NOTES & DETAILS	3 OF 3

OWNER/DEVELOPER
 DAVID L. SAMES
 11637 SUN CIRCLE WAY - UNIT 221
 COLUMBIA, MD 21044
 443-707-0389

NO.	REVISION	DATE

ENVIRONMENTAL CONCEPT PLAN
 COVER SHEET AND SITE LAYOUT
SAMES PROPERTY
 9792 OWEN BROWN ROAD
 COLUMBIA, MD 21045

TAX MAP: 36 GRID: 9 ZONED: R-20 PARCEL: 526
 6TH ELECTION DISTRICT L.21419 / F.129 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

DESIGN BY: RHV
 DRAWN BY: MDA
 CHECKED BY: RHV
 DATE: MAY 2023
 SCALE: AS SHOWN
 W.O. NO.: 53185

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: 09-27-2024

1 SHEET OF 3

SOILS LEGEND						
SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE	HYDRIC	
GhB	GLENELG-URBAN LAND COMPLEX, 0-8 PERCENT SLOPES	B	.43	YES	NO	
GhC	GLENELG-URBAN LAND COMPLEX, 8-15 PERCENT SLOPES	B	.43	YES	NO	

-SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE
 -K VALUES PER <https://www.howardecod.org/documents> - "K" FACTORS (USE KW)
 -HOWARD COUNTY SOILS MAP NUMBER 5 - STYKESVILLE NE

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

ESD SUMMARY TABLE						
LOT AREA:	0.65 AC					
DISTURBED AREA:	13542 SF					
HOUSE FOOTPRINT:	3028 SF					
SIDEWALK AND DRIVEWAY:	2106 SF					
TOTAL IMPERVIOUS AREA:	5132 SF					
IMPERVIOUS PERCENTAGE:	38%					
Rv:	0.39					
Pe REQUIRED:	1.60'					
Pe PROVIDED:	1.60'					
ESDv REQUIRED:	704 CF					
ESDv PROVIDED:	715 CF					
Rev REQUIRED:	114 CF					
Rev PROVIDED:	114 CF					

DRAINAGE AREA #	SWM PRACTICE	TOTAL AREA (SF)	Rv IMP.	Rev (CF)	ESDv TARGET (CF)	ESDv MAX (CF)	ESDv PROVIDED (CF)
1	DRYWELL (M-5)	1064	0.95	22	127	135	127
2	DRYWELL (M-5)	1142	0.95	24	127	145	127
3	DRYWELL (M-5)	1200	0.95	25	127	152	127
4	PERMEABLE PAVING	1915	0.95	39	334	334	334
TOTAL ESDv PROVIDED:							715

ENVIRONMENTAL SITE DESIGN PRACTICE (CF)										
DRAINAGE AREA #	TREATED AREA	FACILITY NUMBER	PERMEABLE PAVEMENT	MICRO BIOTENTION	RAIN GARDEN	BIO SWALE	DRY WELL	NRD	RD	ESDv VOLUME
1	1064	DW-1	0	0	0	0	1	0	0	127
2	1142	DW-2	0	0	0	0	1	0	0	127
3	1200	DW-3	0	0	0	0	1	0	0	127
4	1915		1915	0	0	0	0	0	0	334
TOTAL PROVIDED										715 cf

PERMEABLE SURFACE UNDERDRAIN OUTFALL		
SWM DA #	UNDERDRAIN	OUTFALL LOCATION
	MIN. INVERT	
DA 4	341.80	UNDERDRAIN TO OUTFALL TO EX. CULVERT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Robert H. Vogel
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 7/12/23

Robert H. Vogel
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 7/16/23

PLAN VIEW
 SCALE: 1" = 20'
 SCALE: 1" = 20'



LEGEND	
	EXISTING CONTOUR
	PROPOSED CONTOUR
	EXISTING MAILBOX
	EXISTING VERIZON
	EXISTING SANITARY MANHOLE
	EXISTING FIRE HYDRANT
	EXISTING BOLLARD
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	LIMIT OF DISTURBANCE
	LOD
	BRL
	BOUNDARY RESTRICTION LINE
	1.5" WATER HOUSE CONNECTION
	4" SEWER HOUSE CONNECTION
	ROOF DRAIN / UNDER DRAIN
	PUBLIC SEWER
	DRY WELL
	ESDv DRAINAGE AREA LABEL
	ESDv DRAINAGE DIVIDE
	EXISTING TREES
	SOILS BOUNDARY
	STABILIZED CONSTRUCTION ENTRANCE
	SUPER SILT FENCE
	DIVERSION FENCE
	SILT FENCE
	PERMANENT SOIL STABILIZATION MATTING CHANNEL
	EXISTING MODERATE SLOPES (15%-24.99%)
	EXISTING MDE SLOPES (20% OR GREATER)
	EXISTING STEEP SLOPES (25% OR GREATER)

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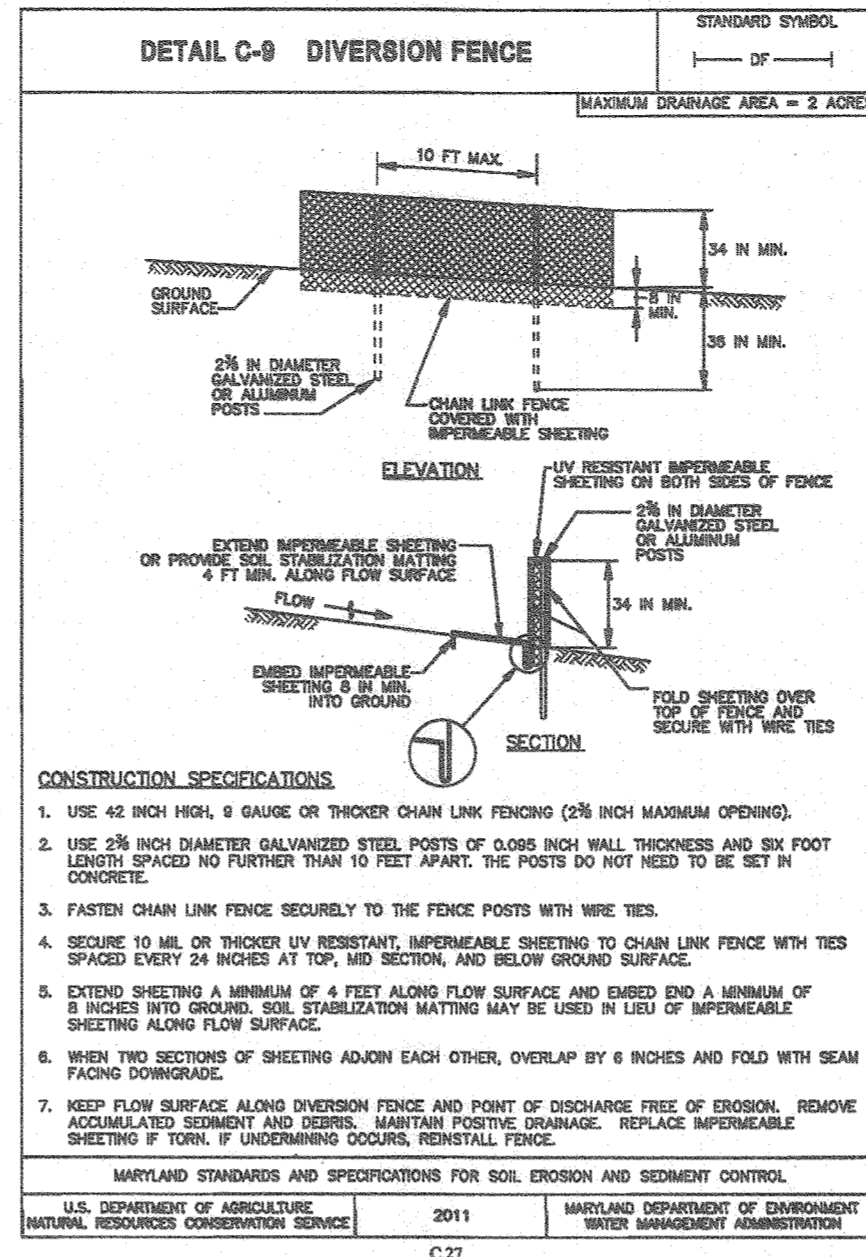
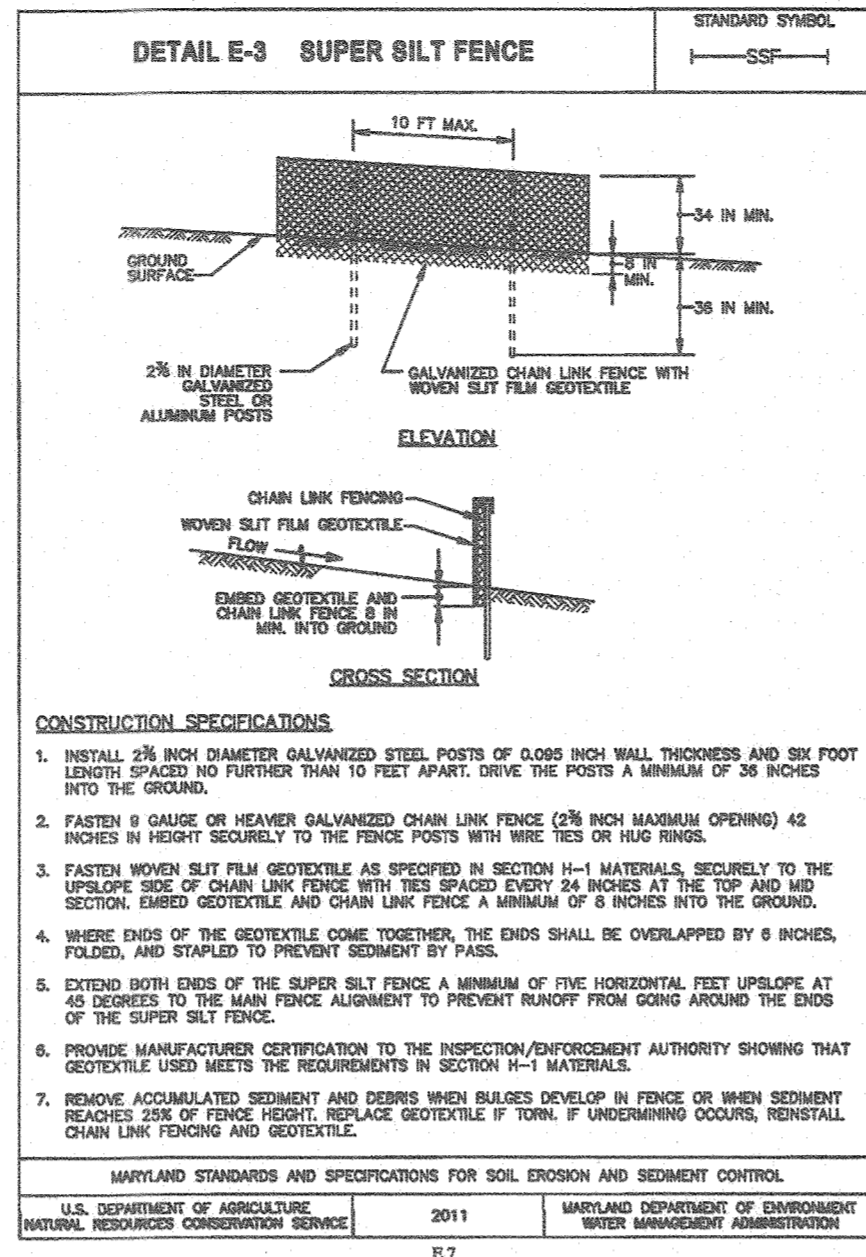
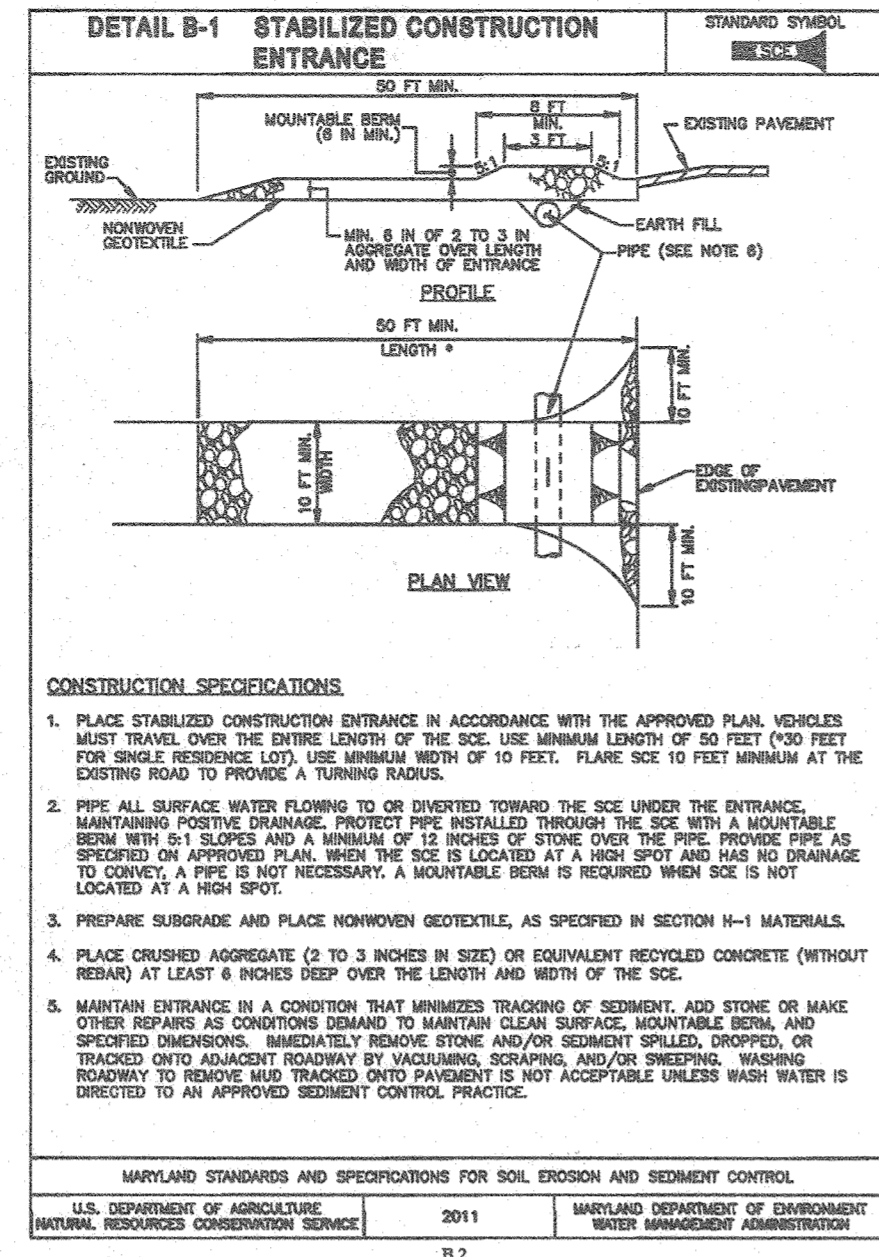
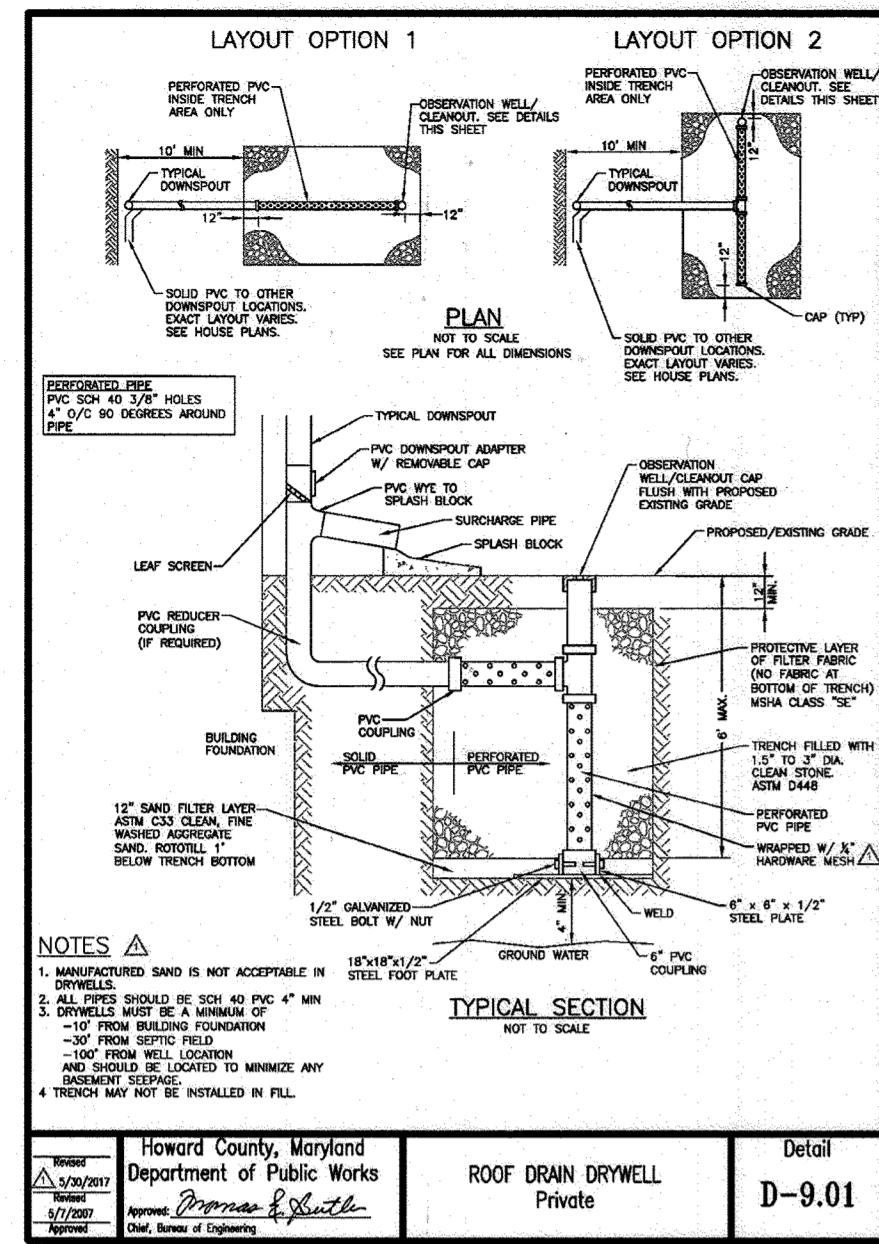
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2 SHEET OF 3



SECTION NUMBER	ROAD AND STREET CLASSIFICATION / TYPE	RETROFIT PROJECTS ONLY	PAVEMENT MATERIAL (INCHES)	CALIFORNIA BEARING RATIO (CBR)	3 TO <5	5 TO <7	> 7	3 TO <5	5 TO <7	> 7	
P-1	NEW STREET TYPE	PARKING BAYS: RESIDENTIAL AND NON-RESIDENTIAL WITH MORE THAN 2 HEAVY TRUCKS PER DAY	SUPERPAVE ASPHALT MIX FINAL SURFACE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
			SUPERPAVE ASPHALT MIX INTERMEDIATE SURFACE (M)	NA	NA	NA	NA	NA	NA	NA	NA
			SUPERPAVE ASPHALT MIX BASE	2.0	2.0	2.0	3.5	3.0	2.5		
P-2	ALLEY	PARKING DRIVE AYLES: RESIDENTIAL AND NON-RESIDENTIAL WITH LOCAL ROADWAY ACCESS PLACE, ACCESS STREET CUL-DE-SACS: RESIDENTIAL	SUPERPAVE ASPHALT MIX FINAL SURFACE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
			SUPERPAVE ASPHALT MIX INTERMEDIATE SURFACE (M)	1.0	1.0	1.0	1.0	1.0	1.0		
			SUPERPAVE ASPHALT MIX BASE	2.0	2.0	2.0	3.5	3.0	2.0		
P-3	RURAL DEVELOPMENT STREET	PARKING DRIVE AYLES: RESIDENTIAL AND NON-RESIDENTIAL WITH EXCEPT SINGLE FAMILY DETACHED TOWN CENTER STREET	SUPERPAVE ASPHALT MIX FINAL SURFACE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
			SUPERPAVE ASPHALT MIX INTERMEDIATE SURFACE (M)	1.0	1.0	1.0	1.0	1.0	1.0		
			SUPERPAVE ASPHALT MIX BASE	3.0	3.0	3.0	4.5	3.0	2.0		
P-4	NEIGHBORHOOD STREET 1	MINOR COLLECTORS: NON-RESIDENTIAL MAJOR COLLECTORS	SUPERPAVE ASPHALT MIX FINAL SURFACE	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
			SUPERPAVE ASPHALT MIX INTERMEDIATE SURFACE (M)	1.0	1.0	1.0	1.0	1.0	1.0		
			SUPERPAVE ASPHALT MIX BASE	2.0	2.0	2.0	3.5	3.0	2.0		

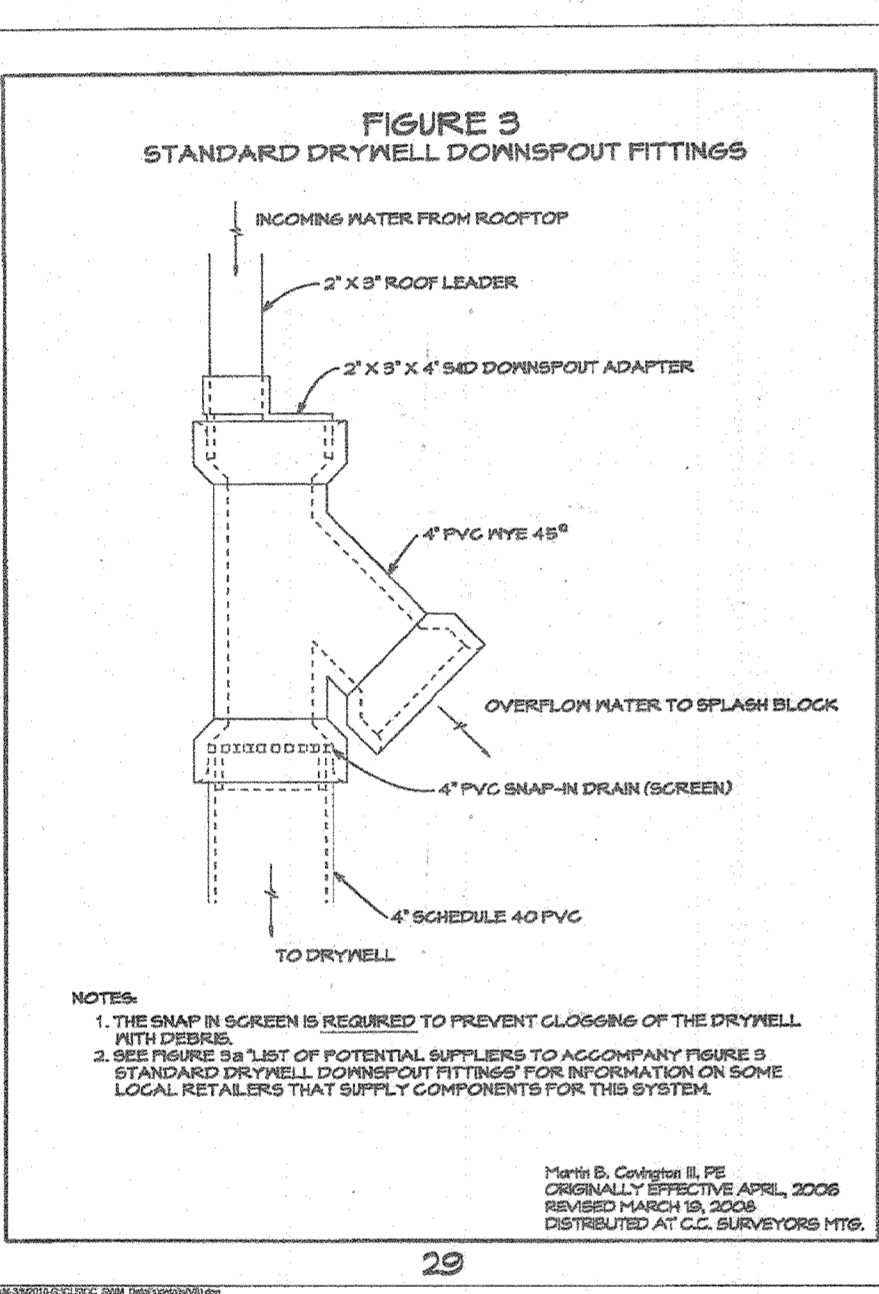
NOTES

1. HEAVY TRUCKS ARE DEFINED AS THOSE WITH 50 (4) WHEELS OR MORE INCLUDING GARAGE TRUCKS.
2. SUPERPAVE ASPHALT MIX LAYERS SHALL BE PLACED IN APPROPRIATE COMPACTED LAY THICKNESS: 19.0 MM BASE (2.0" MIN. TO 4.0" MAX.), 12.5 MM SURFACE (1.5" MIN. TO 3.0" MAX.), AND 9.5 MM SURFACE (1.0" MIN. TO 2.0" MAX.).
3. GRADED AGGREGATE BASE (GAB) TO BE PLACED AND COMPACTED TO 6" MAX. COMPACTED THICKNESS LAYERS.
4. THE INTERMEDIATE SURFACE COURSE LAYER MUST BE PLACED WITHIN 5 WEEKS OF PLACEMENT OF BASE COURSE, AND IS REQUIRED PRIOR TO SUBSTANTIAL COMPLETION INSPECTION AND BOND REDUCTION.
5. IN LIEU OF PLACING THE INTERMEDIATE SURFACE COURSE LAYER FOR COMMERCIAL/INDUSTRIAL ENTRANCE APRONS WITHIN THE COUNTY RIGHT-OF-WAY WHERE ADJACENT LANES ARE NOT REQUIRED, THE THICKNESS OF THE INTERMEDIATE PAVEMENT LAYER CAN BE ADDED TO THE REQUIRED THICKNESS OF THE BASE ASPHALT LAYER.
6. THE CONSTRUCTION DRAWINGS SHALL SHOW THE PAVING SECTION, ROAD CLASSIFICATION AND CBR VALUE FOR EACH ROADWAY.

Howard County, Maryland
 Department of Public Works
 Approved: *Priscilla S. Smith*
 Chief, Bureau of Engineering

PAVING SECTIONS
 P-1 to P-4

Detail
 R-2.01



A-2. PERMEABLE PAVEMENTS

CONSTRUCTION CRITERIA:

THE FOLLOWING ITEMS SHOULD BE ADDRESSED DURING CONSTRUCTION OF PROJECTS WITH PERMEABLE PAVEMENT:

- EROSION AND SEDIMENT CONTROL: FINAL GRADING FOR INSTALLATION SHOULD NOT TAKE PLACE UNTIL THE SURROUNDING SITE IS STABILIZED. IF THIS CANNOT BE ACCOMPLISHED, RUNOFF FROM DISTURBED AREAS SHALL BE DIVERTED AROUND PROPOSED PAVEMENT LOCATIONS.
- SOIL COMPACTION: SUB SOILS SHALL NOT BE COMPACTED. CONSTRUCTION SHOULD BE PERFORMED WITH LIGHTWEIGHT, WIDE TRACKED EQUIPMENT TO MINIMIZE COMPACTION. EXCAVATED MATERIALS SHOULD BE PLACED IN A CONTAINED AREA.
- DISTRIBUTION SYSTEMS: OVERDRAIN, UNDERDRAIN, AND DISTRIBUTION PIPES SHALL BE CHECKED TO ENSURE THAT BOTH THE MATERIAL AND PERFORATIONS MEET SPECIFICATIONS (SEE APPENDIX B. 4). THE UPSTREAM ENDS OF PIPES SHOULD BE CAPPED PRIOR TO INSTALLATION. ALL UNDERDRAIN OR DISTRIBUTION PIPES USED SHOULD BE INSTALLED FLAT ALONG THE BED BOTTOM.
- SUBBASE INSTALLATION: SUBBASE AGGREGATE SHALL BE CLEAN AND FREE OF FINES. THE SUBBASE SHALL BE PLACED IN LIFTS AND LIGHTLY ROLLED ACCORDING TO THE SPECIFICATIONS (SEE APPENDIX B.4).

INSPECTION:

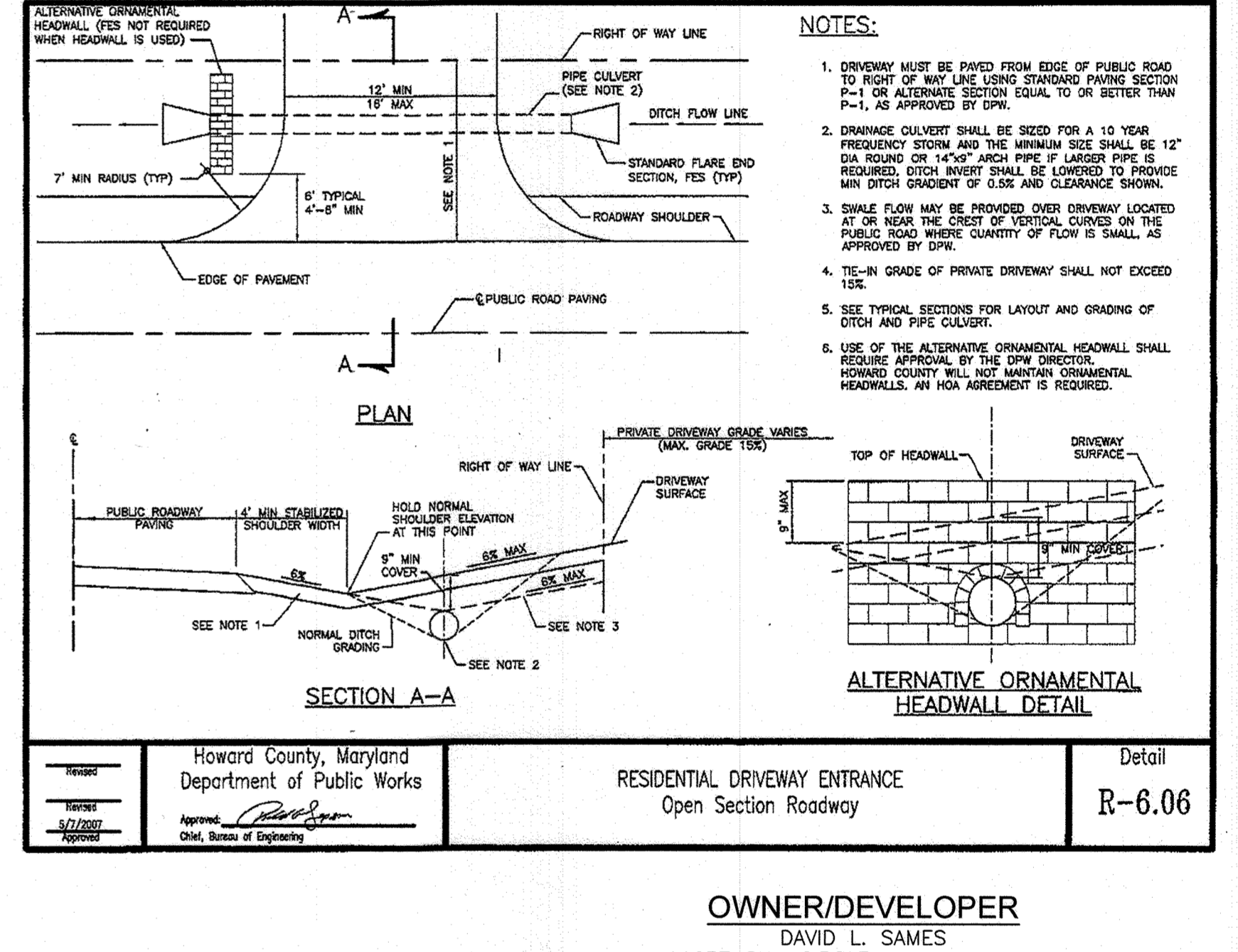
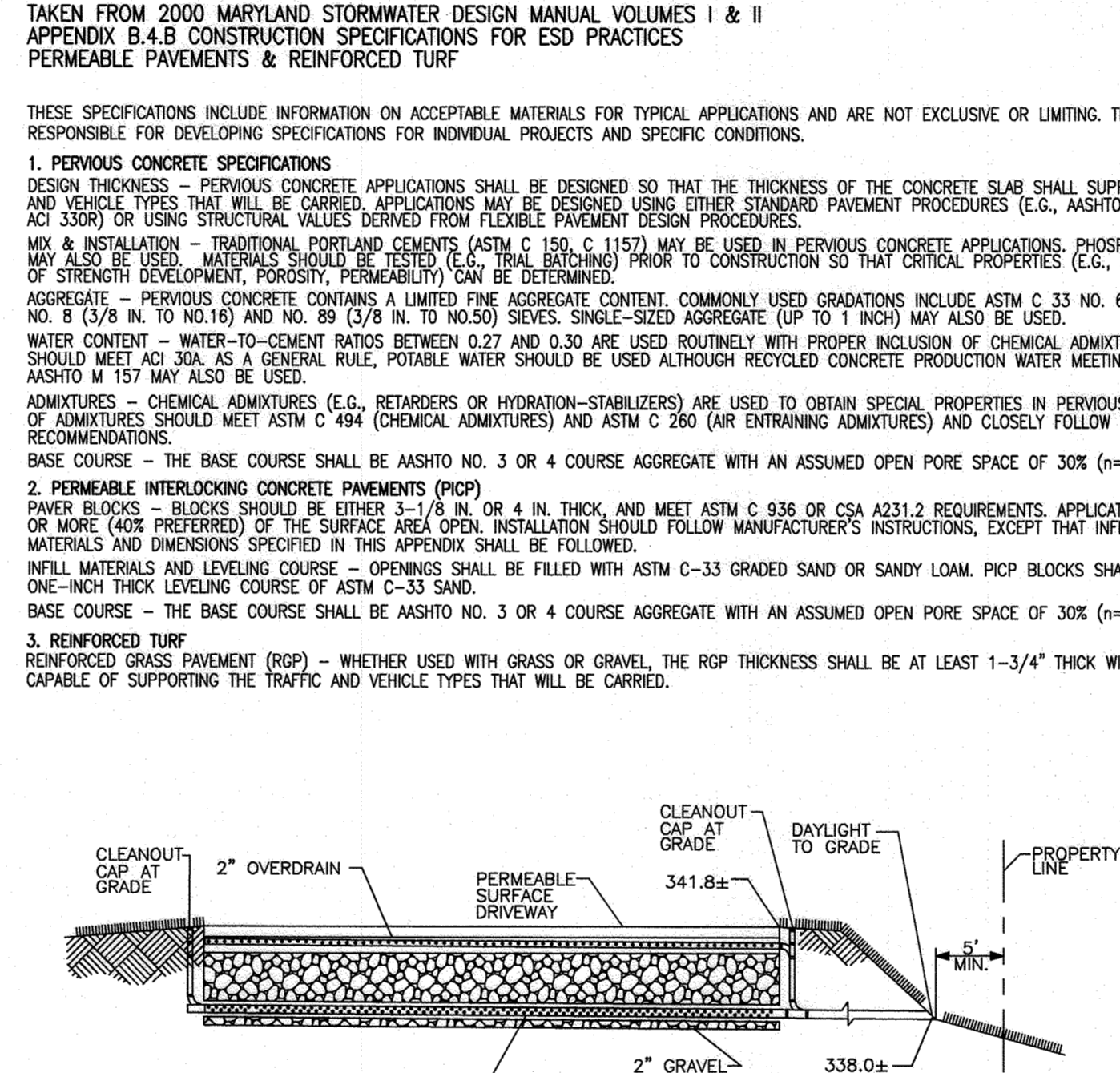
REGULAR INSPECTIONS SHALL BE MADE DURING THE FOLLOWING STAGES OF CONSTRUCTION:

- DURING EXCAVATION TO SUB GRADE.
- DURING PLACEMENT AND BACKFILL OF ANY DRAINAGE OR DISTRIBUTION SYSTEM(S).
- DURING PLACEMENT OF THE CRUSHED STONE SUBBASE MATERIAL.
- DURING PLACEMENT OF THE SURFACE MATERIAL.
- UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.

MAINTENANCE CRITERIA:

THE FOLLOWING PROCEDURES SHOULD BE CONSIDERED ESSENTIAL FOR MAINTAINING PERMEABLE PAVEMENT SYSTEMS:

- PAVEMENTS SHOULD BE USED ONLY WHERE REGULAR MAINTENANCE CAN BE PERFORMED. MAINTENANCE AGREEMENTS SHOULD CLEARLY SPECIFY HOW TO CONDUCT ROUTINE TASKS TO ENSURE LONG-TERM PERFORMANCE.
- PAVEMENT SURFACES SHOULD BE SWEEPED AND VACUUMED TO REDUCE SEDIMENT ACCUMULATION AND ENSURE CONTINUED SURFACE POROSITY. SWEEPING SHOULD BE PERFORMED AT LEAST TWICE ANNUALLY WITH A COMMERCIAL CLEANING UNIT. WASHING OR COMPRESSED AIR UNITS SHOULD NOT BE USED TO PERFORM SURFACE CLEANING.
- DRAINAGE PIPES, INLETS, STONE EDGE DRAINS, AND OTHER STRUCTURES WITHIN OR DRAINING TO THE SUBBASE SHOULD BE CLEANED OUT AT REGULAR INTERVALS.
- TRUCKS AND OTHER HEAVY VEHICLES CAN GRIND DIRT AND GRIT INTO THE POROUS SURFACES, LEADING TO CLOGGING AND PREMATURE FAILURE. THESE VEHICLES SHOULD BE PREVENTED FROM TRACKING AND SPILLING MATERIAL ONTO THE PAVEMENT.
- DEICERS SHOULD BE USED IN MODERATION. WHEN USED, DEICERS SHOULD BE NON-TOXIC AND ORGANIC AND CAN BE APPLIED EITHER AS CALCIUM MAGNESIUM ACETATE OR AS PRETREATED SALT. SNOW PLOWING SHOULD BE DONE CAREFULLY WITH BLADES SET ONE-INCH HIGHER THAN NORMAL. PLOWED SNOW PILES AND SNOW MELT SHOULD NOT BE DIRECTED TO PERMEABLE PAVEMENT.



OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER DRYWELLS (M-5)

1. THE MONITORING WELLS AND STRUCTURES SHALL BE INSPECTED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.
2. WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS SHALL BE RECORDED OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.
3. A LOG BOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
4. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN THE 72 HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
5. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
6. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Clark
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 7/2/23

Chad Clark
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 7/6/23

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

Material	Specification	Size	Notes
Underdrain piping	1" 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underdrain pipes. Perforated pipe shall be wrapped with 1/4-inch galvanized hardware cloth

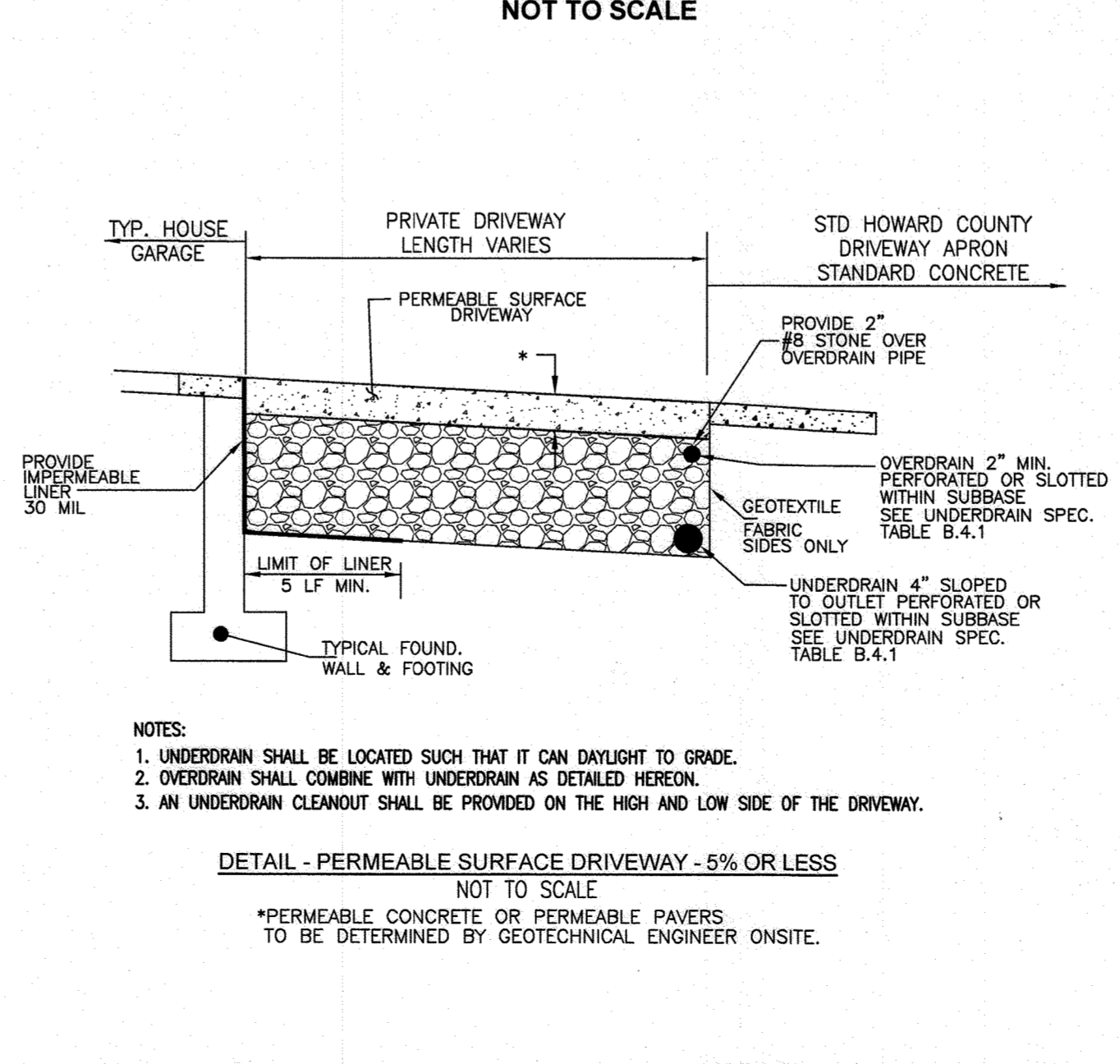
Table B.4.1 Materials Specifications

NOTES:

1. UNDERDRAIN SHALL BE LOCATED SUCH THAT IT CAN DAYLIGHT TO GRADE.
2. OVERDRAIN SHALL COMBINE WITH UNDERDRAIN AS DETAILED HEREON.
3. AN UNDERDRAIN CLEANOUT SHALL BE PROVIDED ON THE HIGH AND LOW SIDE OF THE DRIVEWAY.

DETAIL - PERMEABLE SURFACE DRIVEWAY - 5% OR LESS
 NOT TO SCALE

*PERMEABLE CONCRETE OR PERMEABLE PAVERS TO BE DETERMINED BY GEOTECHNICAL ENGINEER ONSITE.



B.4.8 STANDARDS AND SPECIFICATIONS

SOIL STOCKPILE AREA

Definition

A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

Purpose

To provide a designated location for the temporary storage of soil that contains the potential for erosion, sedimentation, and changes to drainage patterns.

Conditions Where Practices Apply

Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

Criteria

1. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Stockpiling must be provided in accordance with Section H-1.3 Land Grading.
3. Runoff from the stockpile area must drain to a suitable sediment control practice.
4. Access the stockpile area from the updrains side.
5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary apron or diversion fence. Provisions must be made for discharging concentrated flow in a non-erodive manner.
6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.
7. Stockpiles must be stabilized in accordance with the 3:7 day stabilization requirement as well as Standard H-4.4 Incremental Stabilization and Standard H-4.4 Temporary Stabilization.
8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impervious sheeting.

Measurements

The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section H-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section H-1.3 Land Grading.

6-0

ENVIRONMENTAL CONCEPT PLAN
ENVIRONMENTAL SITE DESIGN (ESD), SWM AND SOIL EROSION & SEDIMENT CONTROL NOTES & DETAILS
SAMES PROPERTY
 9792 OWEN BROWN ROAD
 COLUMBIA, MD 21045

TAX MAP: 36 GRID: 9
 6TH ELECTION DISTRICT

ZONED: R-20
 L21419 / F.129

PARCEL: 526
 HOWARD COUNTY, MARYLAND

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

PROFESSIONAL CERTIFICATE

DESIGN BY: *RHV*
 DRAWN BY: *MDA*
 CHECKED BY: *RHV*
 DATE: MAY 2023
 SCALE: AS SHOWN
 W.O. NO.: 53185

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, EXPIRES DATE 06-27-2024

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