

General Notes

- The project boundary is based on a deed plot prepared by Howard County in December 2013.
- The topography shown hereon is based on field run topography performed by Howard County in October 2013.
- Public water and public sewer are not available to this site.
- This site is not located in a historic district. However, the site contains historic structure HO-751.
- Subject property zoned B-1 & RC-DEO per 10/6/13 comprehensive zoning plan
- This plan is subject to the amended fifth edition of the subdivision and land development regulations (Council bill 45-2003). Development or construction on these lots must comply with setback and buffer regulations in effect at the time of submission of the site development plan. Waiver petition application or building/grading permit.
- The forest conservation requirement will be reviewed and approved under the SDP.
- Storm water management addressed for site using 2007 Maryland Stormwater Design Manual (Chapter 5).
 - Channel protection volume (CPv) is required (Pe for entire site is over 1.0").
 - Water quality volume (WQv) and recharge volume (REv) to be provided by micro bioretention facilities and open chanel flow (when impervious areas cannot be directed to one of the micro bioretention facilities).
- There are no wetlands or their buffers within the limits of disturbance of this site.
- Site development plan approval by the Department of Planning and Zoning is required prior to building permits being issued for the construction any structures on these lots.
- Approval of this ECP does not constitute an approval of any subsequent and associated submission and/or site development 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 site plan stage. Therefore the applicant and sub consultant should expect additional and more detailed comments (including those that may alter overall site design) as this project progresses.
- Should any tree designated for preservation, for which 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 a required in the landscape manual.
- A forest stand delineation was performed by Whitman Requardt & Associates LLP. Dated February 2014. Forest Conservation requirements per Section 16.1202 of the Howard County Code and the Forest Conservation Manual shall be complied with.

15. A waiver petition WP-14-101 was approved 3/18/2014 and waives section 16.115(c). The waiver of Section 16.115(c) will allow grading, construction and structures within the 100 Year floodplain. Approval of the plan will be predicated on the approval of this waiver petition.

Approval is subject to the following conditions:

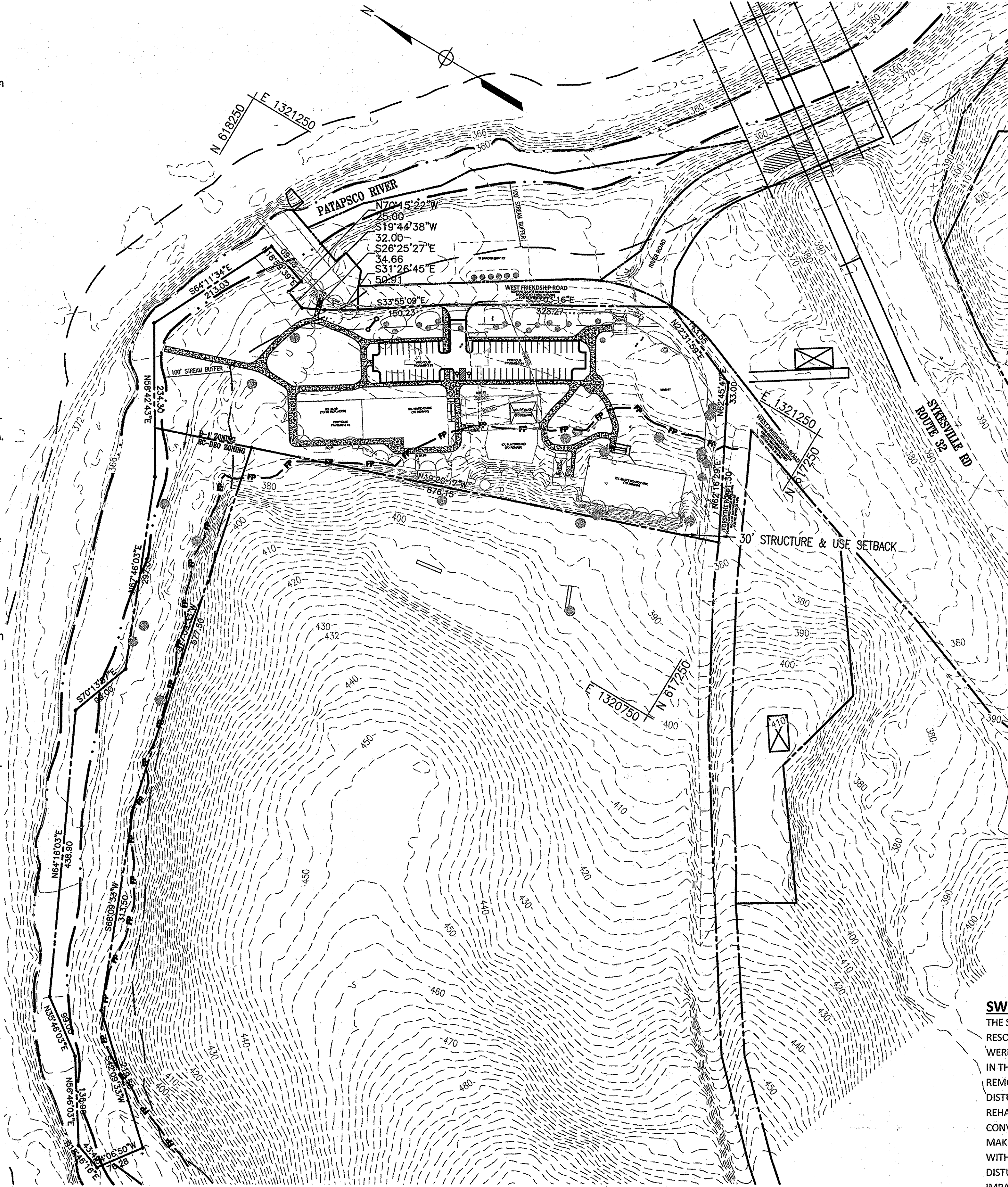
- Approval of this waiver is for the construction of the playground and associated wall, pavilion shelter, paved pathway, and paved handicap parking stalls. No additional structures or uses, or enlargement to the proposed limit of disturbance is permitted under this request.
- The proposed structures and uses shall comply with the minimum bulk requirements including the building setbacks and height requirements for the B-1 Zoning District in accordance with Section 118.0 of the Howard County Zoning Regulations.
- Compliance with all applicable County and State Regulations and obtain all necessary permits from the Department of Inspections, Licenses and Permits and the Maryland Department of the Environment prior to initiating development on-site.
- Approval of Section 16.1202(a) is only to allow temporary deferral to the forest conservation plan obligation and requirement until the site development plan for the overall park is submitted to the Department of Planning and Zoning. If the overall development of the park ceases for any reason or is not completed in a timely manner, the petitioner will be required to address the forest conservation obligation requirement for the limit of disturbance as indicated on the waiver petition exhibit in accordance with the County Code and Forest Conservation Manual.
- Approval of Section 16.124(a)(2)(i) is only to allow temporary deferral to the landscaping requirement until the site development plan for the overall park is submitted to the Department of Planning and Zoning. If the overall development of the park ceases for any reason or is not completed in a timely manner, the petitioner will be required to provide preserved landscaping for the development as indicated on the waiver petition in accordance with the County Code and Landscape Manual.
- Approval of Section 16.115(c) pertains only to the limit of disturbance as shown on the waiver exhibit for the construction of the pavilion shelter, paved pathway and paved handicap stalls. Any further disturbances to the floodplain will require additional approval by the Department of Planning and Zoning.
- In accordance with the Howard County Subdivision and Land Development Regulations, no grading, removal of vegetative cover or trees, paving and new structures shall be permitted within the required wetlands, streams or their associated buffers, and 100-year floodplain, except as permitted by this waiver request. Also, no removal of state champion trees, trees 75% of the diameter of a state champion tree, trees 30" in diameter or larger or other specimen trees is permitted.
- In compliance with the Health Department's comments dated March 18, 2014, no restroom facilities or onsite plumbing may be constructed or repaired anywhere on the property as part of this phase of the project. No future phases may be developed without Health Department approval. The property is currently not approved to utilize any onsite water or generate any onsite wastewater.

SOUTH BRANCH PARK ENVIRONMENTAL CONCEPT PLAN

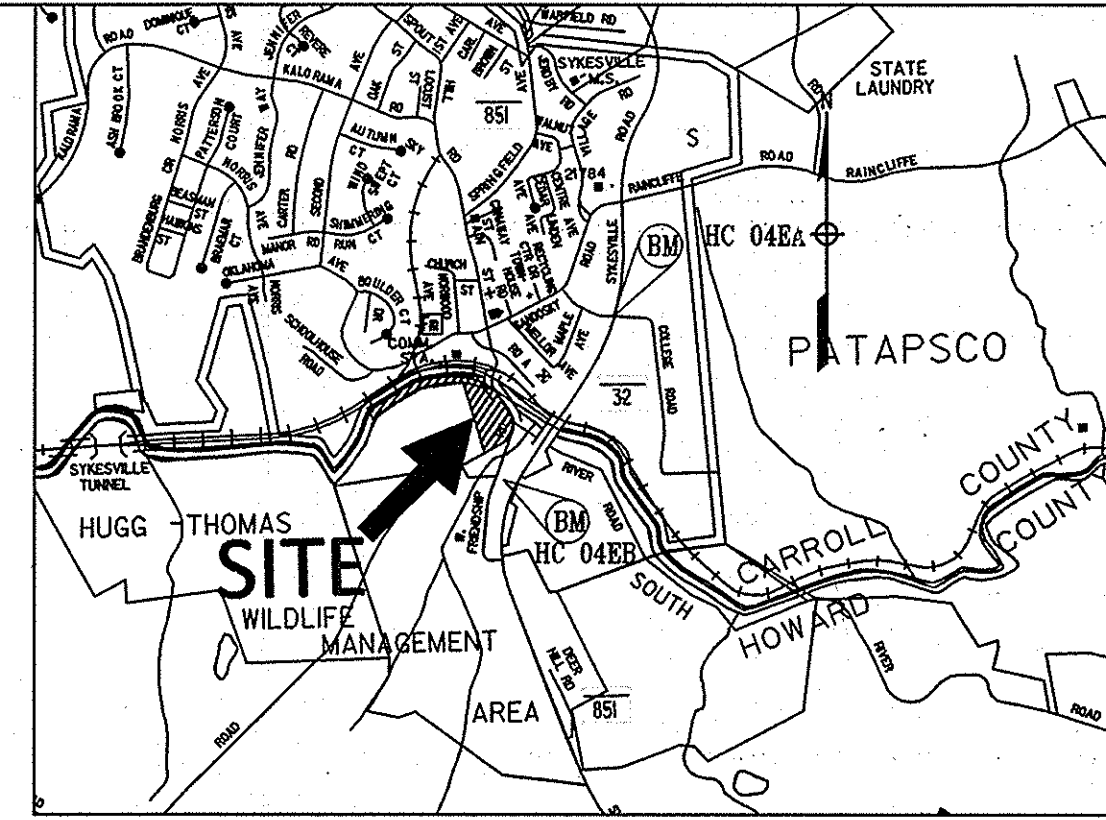
ECP-14-068

TAX MAP 4 PARCEL 54

L. 3483 F. 621



PARK LAYOUT PLAN A
SCALE: 1" = 100'



COPYRIGHT ADC THE MAP PEOPLE
PERMIT USE NUMBER 21002214
HOWARD COUNTY GRID C-11

VICINITY MAP
SCALE: 1"=2000'

CONTROL TIES:

HOWARD COUNTY CONTROL MONUMENT (04 EB):
N 617148.383
E 1321447.346
EL. 390.636

(04 EA):
N 618100.797
E 1322116.80
EL. 434.98

SHEET INDEX	
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SITE DATA

LOCATION: TAX MAP 4, GRID 15, PARCEL 54
DEED REFERENCE: L. 03483 F. 00621
ELECTION DISTRICT: 3RD
EXISTING ZONING: B-1, RC-DEO
(PER THE COMPREHENSIVE ZONING PLAN DATED 2/02/04)
GROSS AREA OF PARCEL: 7.369 ACRES
AREA OF RIGHT OF WAY: 0.00 ACRES
AREA OF FLOODPLAIN: 6.04 ACRES
AREA OF STEEP SLOPES: 0.20 ACRES (15-25%)
0.60 ACRES (>25%)
NET AREA OF SITE: 1.282 ACRES (SEE NOTES)
IMPERVIOUS AREA: 1.37 ACRES
AREA OF FOREST: 3.94 ACRES
AREA OF GREEN SPACE: 2.06 ACRES

- NOTES:**
- AREA OF WETLANDS IS WITHIN FLOODPLAIN
 - A WAIVER PETITION HAS BEEN SUBMITTED AND APPROVED TO ALLOW GRADING ACTIVITIES TO BE PERFORMED WITHIN THE 100 YEAR FLOODPLAIN LIMITS.

SWM NARRATIVE

THE STORMWATER MANAGEMENT FOR THIS SITE HAS BEEN DESIGNED TO PRESERVE THE NATURAL RESOURCES TO THE MAXIMUM EXTENT POSSIBLE. MICRO BIORETENTION AND PERVIOUS PAVEMENT WERE USED WHEREVER NON-STRUCTURAL MEASURES WERE NOT FEASIBLE. GREAT CARE WAS TAKEN IN THE SITE GRADING TO AVOID THE REMOVAL OF ANY EXISTING TREES. NO SPECIMEN TREES WILL BE REMOVED FOR THESE IMPROVEMENTS. NO WETLANDS OR THEIR ASSOCIATED BUFFERS WILL BE DISTURBED BY THE PROPOSED IMPROVEMENTS TO THIS SITE. THE DESIGN OF THE SITE ATTEMPTED TO REHABILITATE AND REUSE EXISTING IMPERVIOUS AREAS INSTEAD OF USING EXISTING OPEN SPACE AND CONVERTING IT TO IMPERVIOUS AREAS. THE MAJORITY OF THE EXISTING GRADES ON SITE EXCEED 5% MAKING ROOFTOP AND NON-ROOFTOP DISCONNECTS INFEASIBLE. MOST OF THIS SITE IS ENCUMBERED WITHIN THE 100 YEAR FLOODPLAIN. A WAIVER HAS BEEN SUBMITTED AND APPROVED FOR DISTURBANCE WITHIN THE FLOODPLAIN. THE DEVELOPMENT HAS BEEN DESIGNED TO MINIMIZE THE IMPACTS WITHIN THE FLOOD PLAIN AND MAINTAIN THE NATURAL FLOW PATTERNS IN THIS AREA. THE ORIGINAL NATURAL INTEGRITY OF THIS SITE WAS PRESERVED TO THE MAXIMUM EXTENT THAT WAS PRACTICAL.

REVISIONS	

HOWARD COUNTY

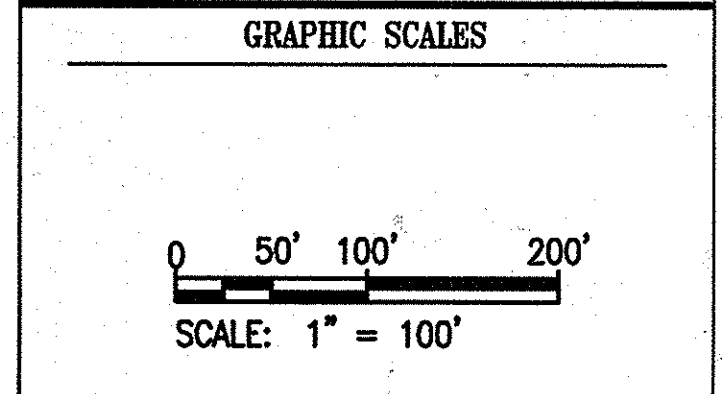
DEPARTMENT OF
RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

**SOUTH BRANCH PARK
ENVIRONMENTAL
CONCEPT PLAN
ECP-14-068**

PROPERTY

TAX MAP 4, GRID 15, PARCEL 54

ZONING: B-1, RC-DEO



SIGNATURE

PROFESSIONAL CERTIFICATION:
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. 19376
EXPIRATION DATE: 9/22/2015.

WR&A

**WHITMAN, REQUARDT
& ASSOCIATES, LLP**
801 South Caroline Street, Baltimore, Maryland 21231

C-1

Drawing No.

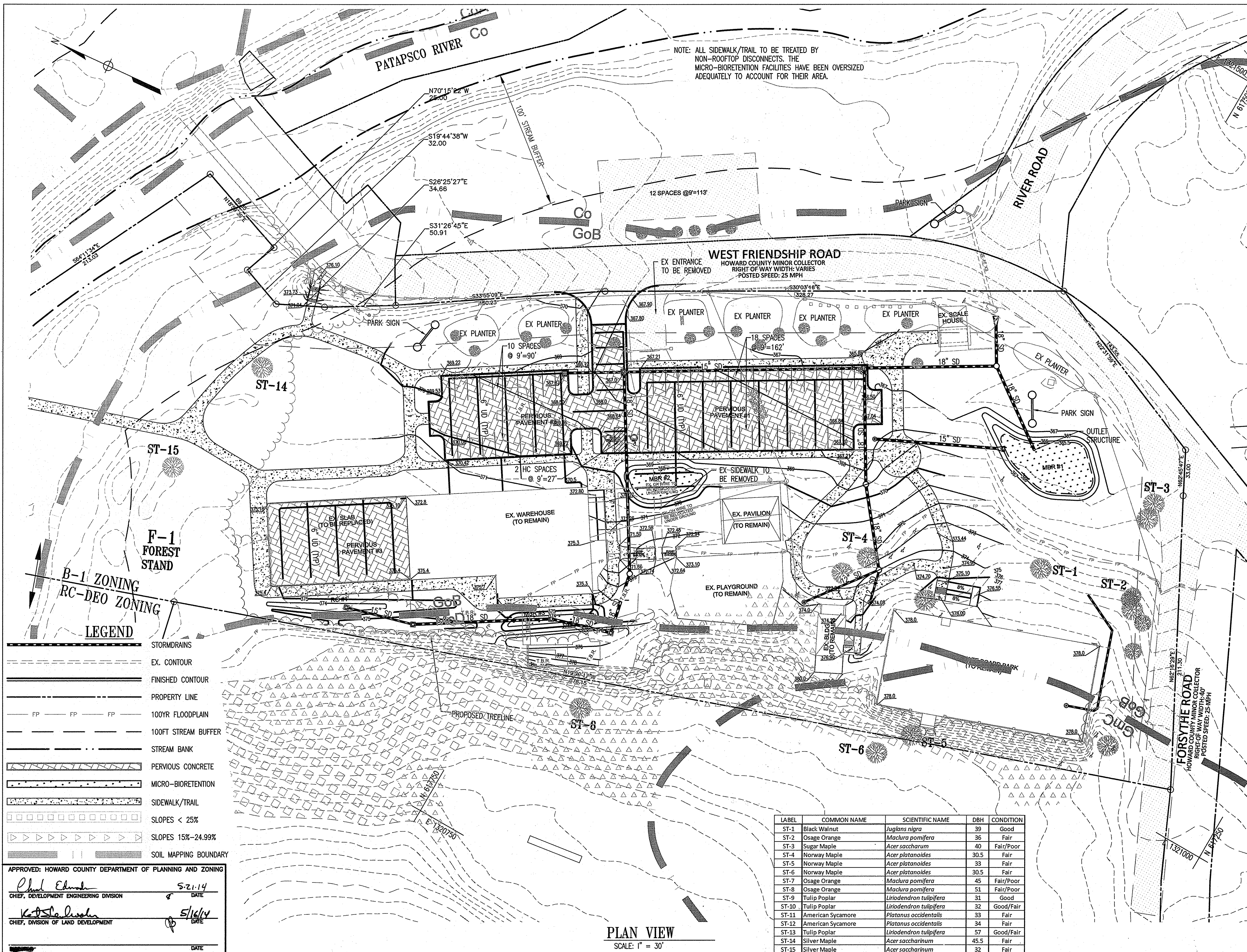
COVER SHEET

Scale: AS SHOWN
Date: MAY 2014 Sheet 1 of 4
Des: JTD Drawn: CK Check: AO

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Edwards 5-21-14
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kate Scovel 5/16/14
CHIEF, DIVISION OF LAND DEVELOPMENT DATE



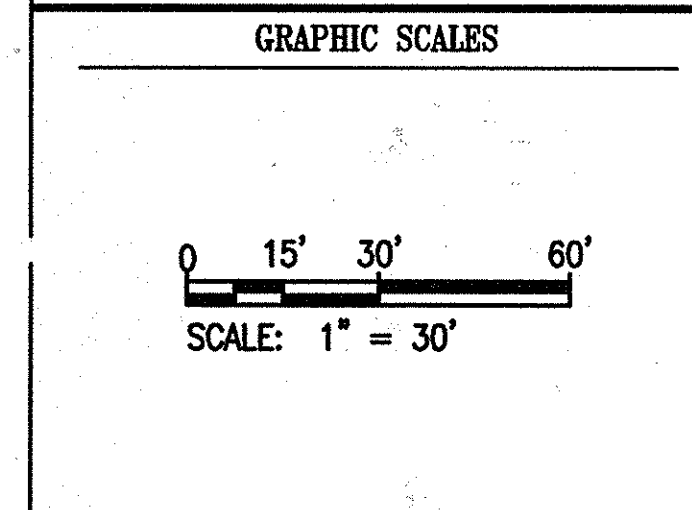
NOTE: ALL SIDEWALK/TRAIL TO BE TREATED BY NON-ROOFTOP DISCONNECTS. THE MICRO-BIORETENTION FACILITIES HAVE BEEN OVERSIZED ADEQUATELY TO ACCOUNT FOR THEIR AREA.

REVISIONS	

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

SOUTH BRANCH PARK ENVIRONMENTAL CONCEPT PLAN
 ECP-14-068

PROPERTY
 TAX MAP 4, GRID 15, PARCEL 54
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 EXPIRATION DATE: 9/22/2015

WR&A
 WHITMAN, REQUARDT & ASSOCIATES, LLP
 801 South Caroline Street, Baltimore, Maryland 21203

C-2
 Drawing No.
ENVIRONMENTAL CONCEPT PLAN

Scale: AS SHOWN
 Date: MAY 2014 Sheet 2 of 4
 Des: JTD Drawn: CK Check: AO

LEGEND

- STORMDRAINS
- EX. CONTOUR
- FINISHED CONTOUR
- PROPERTY LINE
- 100YR FLOODPLAIN
- 100FT STREAM BUFFER
- STREAM BANK
- PERVIOUS CONCRETE
- MICRO-BIORETENTION
- SIDEWALK/TRAIL
- SLOPES < 25%
- SLOPES 15%-24.99%
- SOIL MAPPING BOUNDARY

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division
 5-21-14
 DATE

Chief, Division of Land Development
 5/16/14
 DATE

PLAN VIEW
 SCALE: 1" = 30'

LABEL	COMMON NAME	SCIENTIFIC NAME	DBH	CONDITION
ST-1	Black Walnut	<i>Juglans nigra</i>	39	Good
ST-2	Osage Orange	<i>Maclura pomifera</i>	36	Fair
ST-3	Sugar Maple	<i>Acer saccharum</i>	40	Fair/Poor
ST-4	Norway Maple	<i>Acer platanoides</i>	30.5	Fair
ST-5	Norway Maple	<i>Acer platanoides</i>	33	Fair
ST-6	Norway Maple	<i>Acer platanoides</i>	30.5	Fair
ST-7	Osage Orange	<i>Maclura pomifera</i>	45	Fair/Poor
ST-8	Osage Orange	<i>Maclura pomifera</i>	51	Fair/Poor
ST-9	Tulip Poplar	<i>Liriodendron tulipifera</i>	31	Good
ST-10	Tulip Poplar	<i>Liriodendron tulipifera</i>	32	Good/Fair
ST-11	American Sycamore	<i>Platanus occidentalis</i>	33	Fair
ST-12	American Sycamore	<i>Platanus occidentalis</i>	34	Fair
ST-13	Tulip Poplar	<i>Liriodendron tulipifera</i>	57	Good/Fair
ST-14	Silver Maple	<i>Acer saccharinum</i>	45.5	Fair
ST-15	Silver Maple	<i>Acer saccharinum</i>	32	Fair

The following specifications are taken from the 2000 Maryland Stormwater Design Manual. All references within the specifications refer to the same.

B.4.C Specifications for Micro-Bioretenion, Rain Gardens, Landscape Infiltration & Infiltration Berms

1. Material Specifications

The allowable materials 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 substances shall be mixed or dumped within the micro-bioretenion practice that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, or other noxious weeds as specified under COMAR 15.08.01.05.

The planting soil shall be tested and shall meet the following criteria:

- Soil Component - Loamy Sand or Sandy Loam (USDA Soil Textural Classification)
- Organic Content - Minimum 10% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy sand (60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%).
- Clay Content - Media shall have a clay content of less than 5%.
- pH Range - Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pH.

There shall be at least one soil test per project. Each test shall consist of both the standard soil test for pH, and additional tests of organic matter, and soluble salts. A texture 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 very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoes to remove original soil. If practices are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting 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 a chisel plow, ripper, or subsoiler. These tilling operations are to restructure the soil profile through 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 12" to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

4. Plant Material

Recommended plant material for micro-bioretenion 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 surrounding 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 aged (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-grass ground cover planting specifications.

The topsoil specifications provide enough 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 at a minimum, impedes this goal. 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

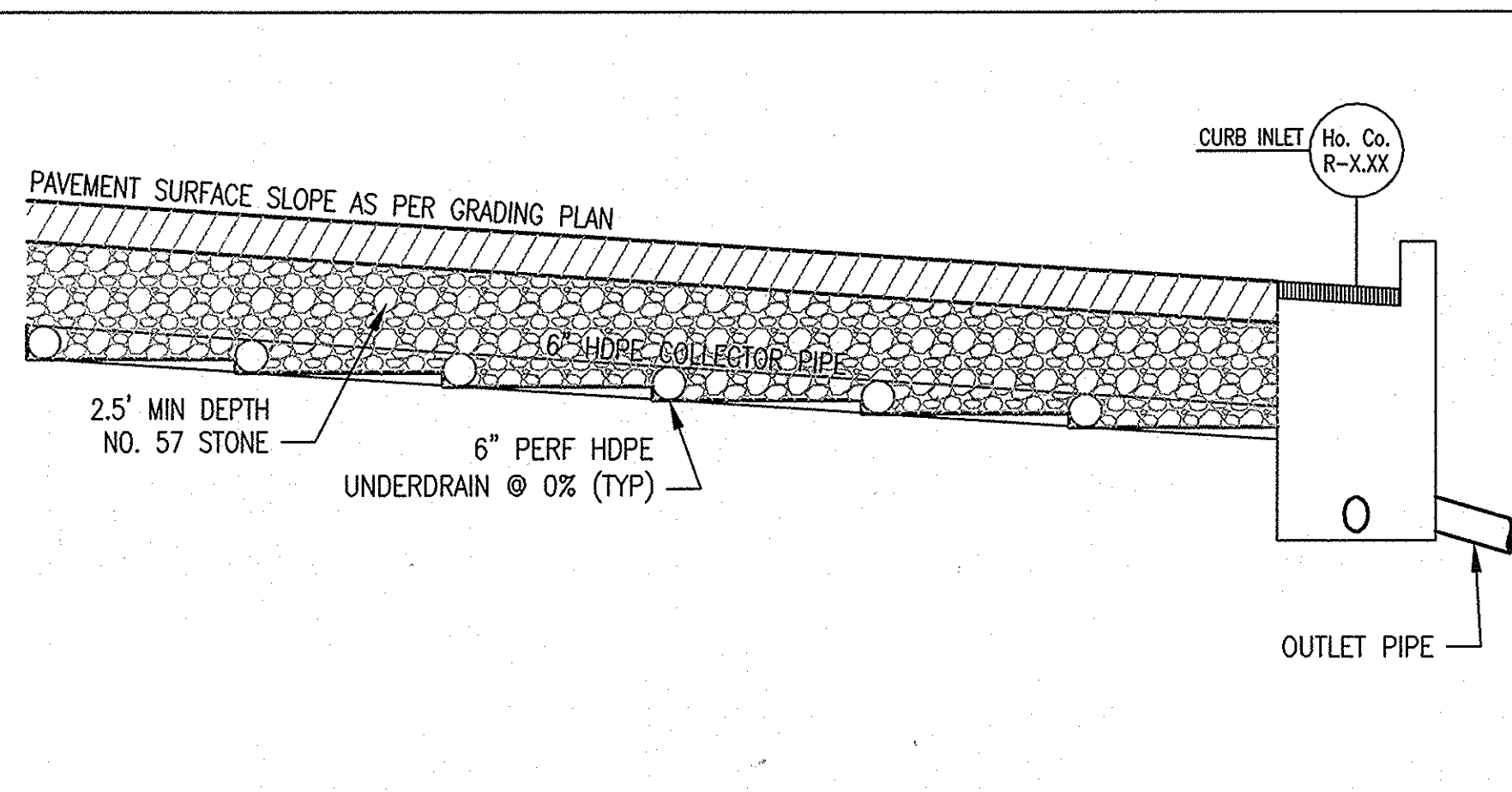
Underdrains should meet the following criteria:

- Pipe - Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTM F 758, Type PS 28, or AASHTO-M-278) in a gravel layer. The preferred material is slotted, 4" rigid pipe (e.g., PVC or 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 (3/8" to 3/4" stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain. This layer may be considered part of the filter bed when bed thickness exceeds 24".

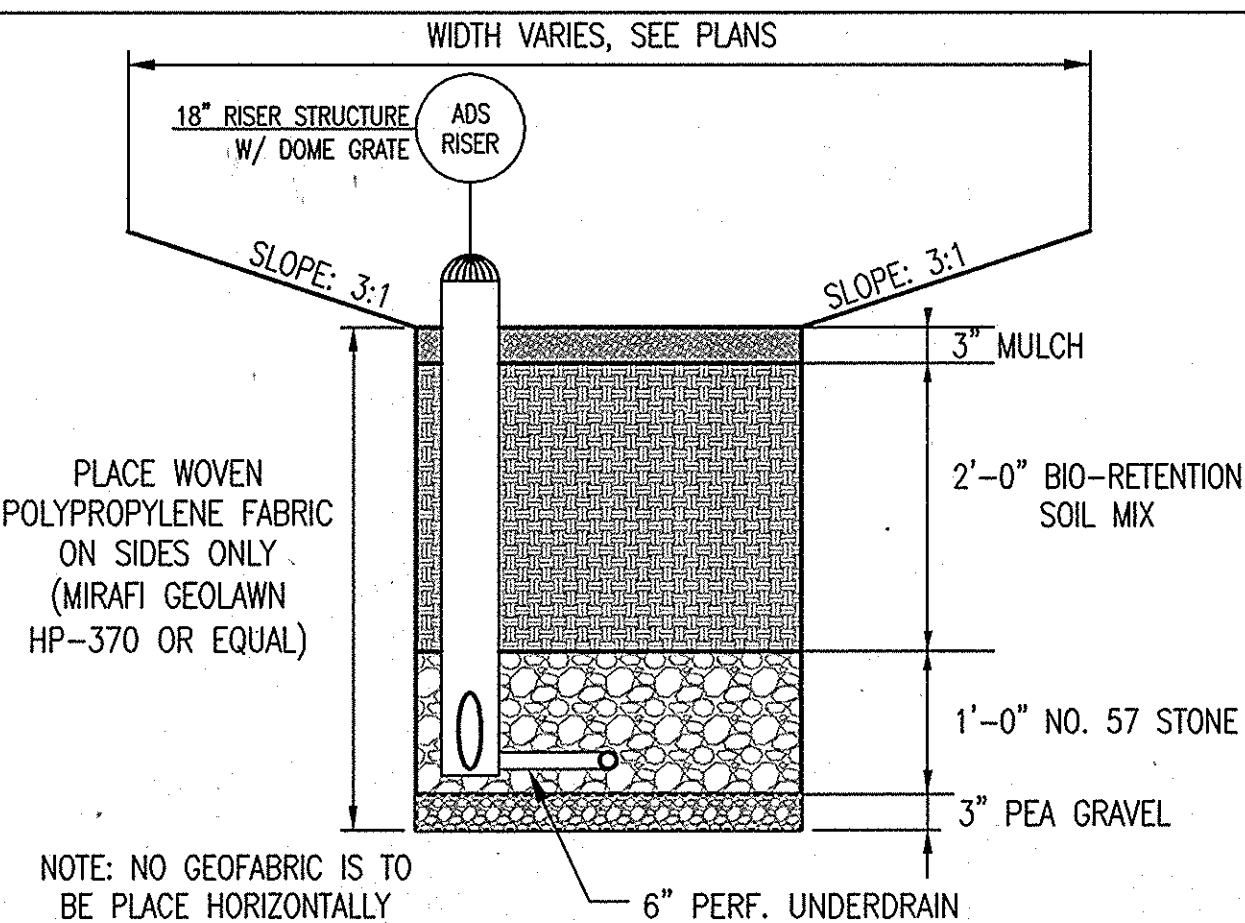
The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

7. Miscellaneous

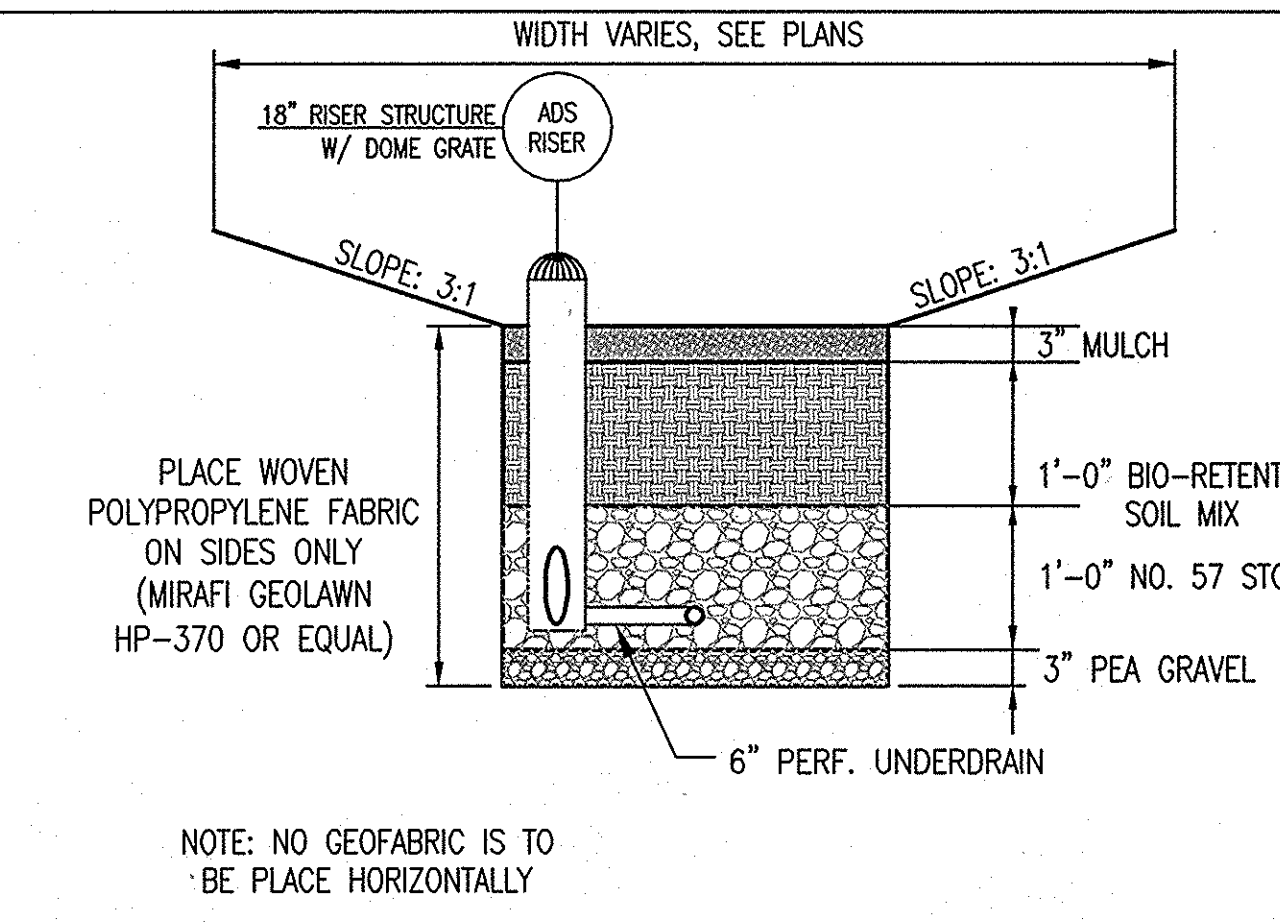
These practices may not be constructed until all contributing drainage area has been stabilized



A PERVIOUS CONCRETE TYPICAL SECTION
C-3 NOT TO SCALE



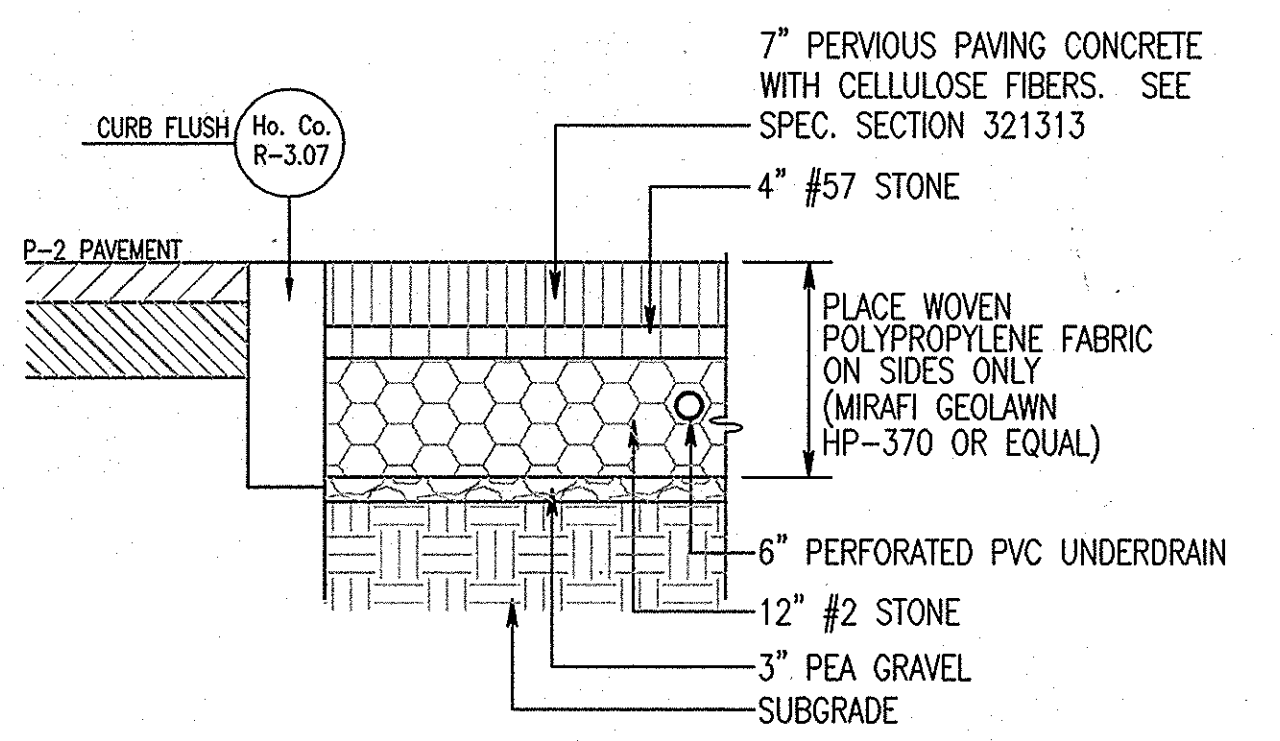
B MICRO-BIORETENTION DETAIL
C-3 NOT TO SCALE



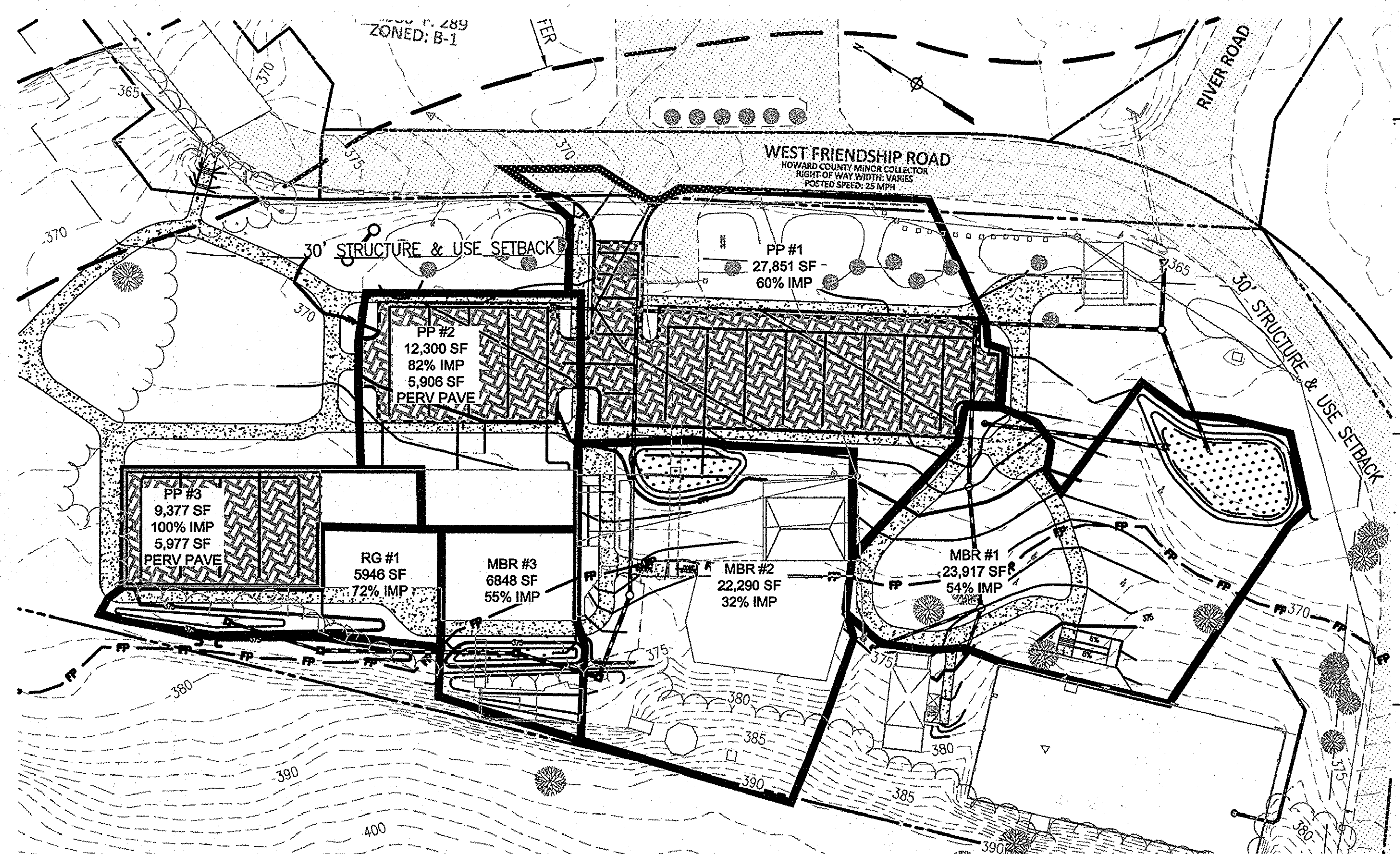
C RAIN GARDEN DETAIL
C-3 NOT TO SCALE

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

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	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%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type I nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 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 underneath pipes. Perforated pipe shall be wrapped with 1/4-inch galvanized hardware cloth.
Poured in place concrete (if required)	MSHA Mix No. 3; F _c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	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 standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.8R89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking.
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (AASHTO) #10 are not acceptable. No calcium carbide or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.



D PERVIOUS CONCRETE
C-3 NOT TO SCALE



SWM DRAINAGE AREAS
SCALE: 1" = 50'

OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTIONS

- 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 AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II TABLE A.4.1 AND 2.
- THE OWNER SHALL PERFORM A PLANT INSPECTION 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 DEFICIENT STAKES AND WIRES.
- 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 HEAVY STORM.

GENERAL NOTES FOR PERVIOUS PAVEMENT

- CONTRACTOR SHALL PROVIDE EVIDENCE OF EMPLOYMENT OF ONE (1) NRMCA CERTIFIED PERVIOUS CONCRETE CRAFTSMAN WHO MUST BE ON-SITE, OVERSEEING EACH PLACEMENT CREW, DURING ALL CONCRETE PLACEMENT, OR WITH THE APPROVAL OF ARCHITECT/ENGINEER, CONTRACTOR MAY PROVIDE WRITTEN EVIDENCE OF PROJECT EXPERIENCE AND PROFICIENCY IN SUCCESSFULLY COMPLETING PERVIOUS CONCRETE PLACEMENT CONSTRUCTION, AND SUBMIT EVIDENCE OF COMPLETION OF A PERVIOUS CONCRETE CRAFTSMAN CERTIFICATION PROGRAM.
- PERVIOUS CONCRETE MUST BE COVERED WITH PLASTIC FOR A MINIMUM OF 7 DAYS IMMEDIATELY AFTER PLACEMENT.
- PERFORATED PLUG SCHEDULE 40 3/4" DIAMETER PERFORATIONS AT 4" O.C. LENGTH WIDE AND 90 DEGREES RADIALLY AROUND. INSTALL END CAP ON OPEN END.

OPERATION AND MAINTENANCE SCHEDULE FOR PERVIOUS PAVEMENT

- THE OWNER SHALL PERIODICALLY SWEEP (OR VACUUM POROUS CONCRETE PAVEMENT) THE PAVEMENT SURFACES 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.
- THE OWNER SHALL PERIODICALLY CLEAN DRAINAGE PIPES, INLETS, STONE EDGE DRAINS AND OTHER STRUCTURES WITHIN OR DRAINING TO THE SUBGRADE.
- THE OWNER SHALL USE DEICERS IN MODERATION. DEICERS SHOULD BE NON-TOXIC AND BE APPLIED EITHER AS CALCIUM MAGNESIUM ACETATE OR AS PRETREATED SALT.
- THE OWNER SHALL ENSURE SNOW PLOWING IS PERFORMED CAREFULLY WITH BLADES SET ONE-INCH ABOVE THE SURFACE. PLOWED SNOW PILES AND SNOWMELT SHOULD NOT BE DIRECTED TO PERVIOUS PAVEMENT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Edwards 5-21-14
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kate S. Decker 5/16/14
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

REVISIONS	

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

SOUTH BRANCH PARK ENVIRONMENTAL CONCEPT PLAN
ECP-14-068

PROPERTY

TAX MAP 4, GRID 15, PARCEL 54

ZONING: B-1, RC-DEO

GRAPHIC SCALES

0 25' 50' 100'

SCALE: 1" = 50'

SIGNATURE

Anthony Miller

PROFESSIONAL CERTIFICATION:
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. 19376
EXPIRATION DATE: 9/22/2015

WR&A

WHITMAN, REQUARDT & ASSOCIATES, LLP
801 South Caroline Street, Baltimore, Maryland 21231

C-3

Drawing No.

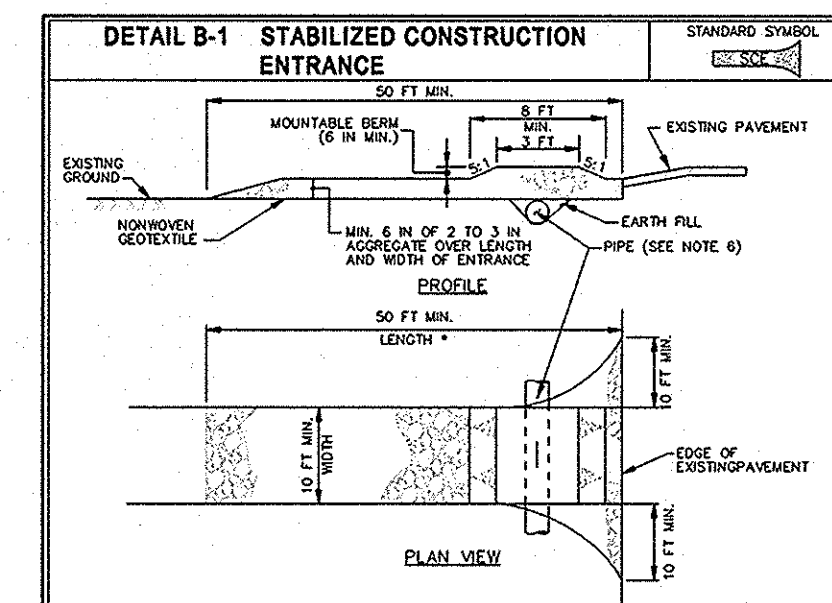
SWM NOTES & DETAILS

Scale: AS SHOWN

Date: MAY 2014 Sheet 3 of 4

Des: JTD Drawn: CK Check: AO

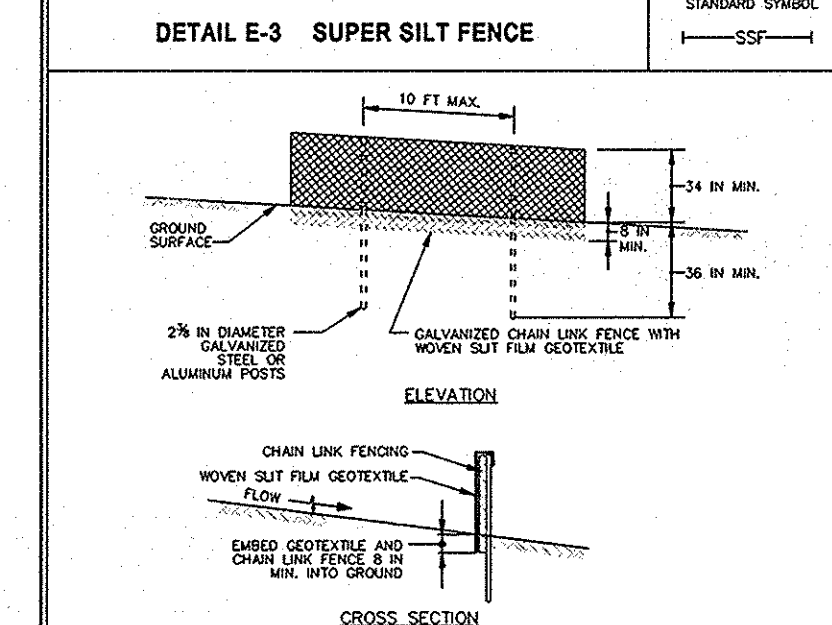
ECP-14-068



CONSTRUCTION SPECIFICATIONS

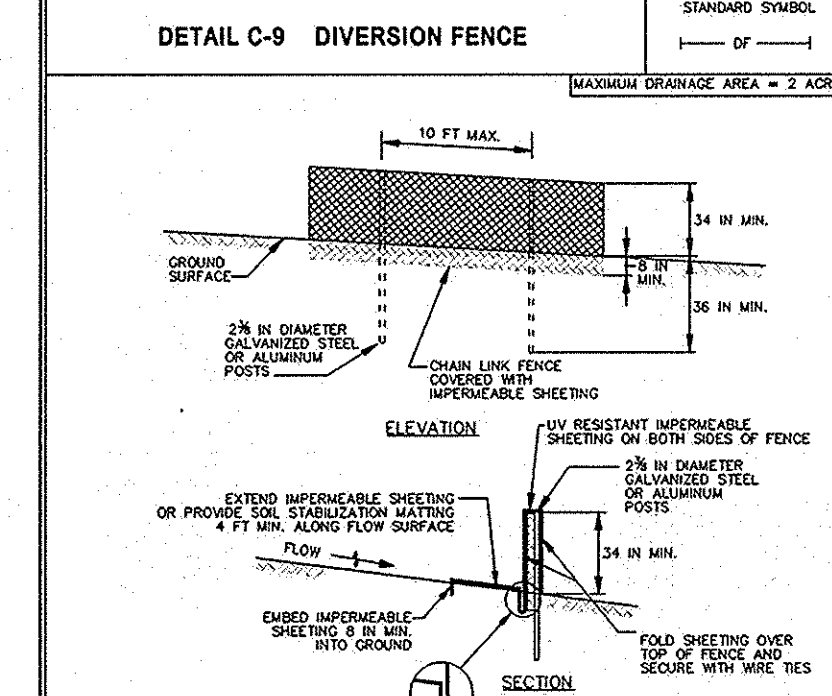
- PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE DIRT SIDE OF THE ENTRANCE. USE MINIMUM LENGTH OF 50 FEET (50 FEET FOR SINGLE RESIDENCE LOTS, USE MINIMUM WIDTH OF 10 FEET. FLARE SIDE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURN RADIUS).
- PIPE ALL SURFACE WATER FLOWING TO OR OVER THE ENTRANCE TO THE DIRT SIDE OF THE ENTRANCE. MAINTAIN A MINIMUM OF 12 INCHES OF COVER OVER THE PIPE. PROVIDE PIPE AS SPECIFIED OR APPROVED. PLACE ALUMINUM PLATE OR BRASS IDENTIFICATION LABELS AT 50 FT INTERVALS TO CONVEY. A PIPE IS NOT NECESSARY. A MOUNTABLE BEAM IS REQUIRED WHEN SIZE IS NOT LOCATED AT A HIGH SPOT.
- PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
- PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES OVER THE UNDERLAYER WITH A MINIMUM OF 10 FEET OF COVER.
- MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE. MOUNTABLE BEAM AND SPECIFIED OVERLAP. IMMEDIATELY REMOVE STONE AND SEDIMENT FROM SURFACE. DROPPED OR TRACKED INTO ADJACENT ROADWAY BY WINDING, SCISSORING, AND/OR SHEERING. WINDING BEHAVIOR TO REMOVE AND TRACKED INTO PAVEMENT IS NOT ACCEPTABLE. UNLESS WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
 U.S. DEPARTMENT OF AGRICULTURE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES CONSERVATION SERVICE 2011



CONSTRUCTION SPECIFICATIONS

- INSTALL 2 1/2 IN. DIAMETER GALVANIZED STEEL POSTS OF 40S8 WALL THICKNESS AND 50 FT LENGTH SPACED 10 FEET FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
- FASTEN A GAUGE OR HEAVY GALVANIZED CHAIN LINK FENCE (2 1/2 IN. MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HOES.
- FASTEN WOVEN SILT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSIDE SIDE OF CHAIN LINK FENCE WITH WIRE TIES OR HOES. SECURE TO THE TOP AND MID SECTION. ENDED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
- WEDGE ENDS OF THE GEOTEXTILE TOGETHER. THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEPARATION BY WIND.
- EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE HORIZONTAL TO PREVENT BLASTING FROM WIND AROUND THE ENDS OF THE SUPER SILT FENCE.
- PROVIDE MANUFACTURER'S INFORMATION TO THE SUPERINTENDENT/ENVIRONMENTAL MONITORING SHOWING THAT GEOTEXTILE MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS FROM BLADES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES TOP OF FENCE. REPLACE GEOTEXTILE IF SIGN OF UNDERMINING OCCURS. REINSTALL CHAIN LINK FENCE AND GEOTEXTILE.



CONSTRUCTION SPECIFICATIONS

- USE 42 INCH HIGH, 9 GAUGE OR THICKER CHAIN LINK FENCING (2 1/2 IN. MAXIMUM OPENING).
- INSTALL 2 1/2 IN. DIAMETER GALVANIZED STEEL POSTS OF 40S8 WALL THICKNESS AND 50 FT LENGTH SPACED 10 FEET FURTHER THAN 10 FEET APART. DRIVE THE POSTS 50 FEET INTO THE GROUND.
- FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES.
- SECURE TO 1/4 IN. OR THICKER BY RESISTANT, IMPERMEABLE SHEETING TO CHAIN LINK FENCE WITH TIES SPACING EVERY 24 INCHES AT 10 FT. AND BELOW GROUND SURFACE.
- EXTEND SHEETING A MINIMUM OF 4 FEET ALONG FLOW SURFACE AND ENDED END A MINIMUM OF 8 INCHES INTO GROUND. SOIL STABILIZATION MATTING MAY BE USED IN LIEU OF IMPERMEABLE SHEETING ALONG FLOW SURFACE.
- WEDGE TWO SECTIONS OF SHEETING AGAIN EACH OTHER, OVERLAP BY 6 INCHES AND FOLD WITH SEAM FACING DOWNSTREAM.
- KEEP FLOW SURFACE ALONG DIVERSION FENCE AND POINT OF DISCHARGE FREE OF DEBRIS. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE. REPLACE IMPERMEABLE SHEETING IF SIGN OF UNDERMINING OCCURS. REINSTALL FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
 U.S. DEPARTMENT OF AGRICULTURE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES CONSERVATION SERVICE 2011

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division 5-21-14 DATE
 Chief, Division of Land Development 5/16/14 DATE

EROSION & SEDIMENT CONTROL NOTES

- The contractor will comply with all requirements of sediment and erosion control as set forth in the Maryland sediment and erosion manual and Baltimore city code section 72.
- Contractor must submit written notification 72 hours prior to any construction activity to the Baltimore City SWM/ESC inspection section stating:
 - When the contractor intends to begin work;
 - Source of the borrow material;
 - Disposal site for excess material;
 - Staging and/or storage location(s).
- Initial disturbance will be limited to that necessary to gain entrance to the site and install necessary sediment controls as per the approved plans.
- All sediment controls and critical slopes must be stabilized within three calendar days. All other inactive disturbed areas on the project site must be stabilized within seven calendar days.
- All excavated material shall be placed on the high side whenever possible and confined to an area where it will not obstruct the normal course of drainage.
- Pumping of sediment laden water will not be allowed unless it is filtered by way of an approved sediment trapping device.
- Continuous inspection and maintenance of all sediment control devices is mandatory. After each storm event, the silt fence shall be inspected and repaired or necessary, any sediment shall be removed.
- Any sediment control devices disturbed during utility construction must be restored immediately.
- All points of ingress and egress shall be protected to minimize tracking of mud on to public right-of-ways.
- Any earth, gravel, and/or other material tracked, applied or washed on to adjacent roads must be immediately removed and disposed of in a proper manner. Flushing will not be permitted. All material must be removed by means of shoveling and sweeping.
- On all sites with disturbed areas in excess of 5000 sq. ft., the contractor shall have a Baltimore city erosion and sediment control inspector inspect and approve the work completed at the stages of construction specified below:
 - Upon completion of the installation of the perimeter sediment controls;
 - During all grading and building operations;
 - Upon final stabilization of the entire site prior to removal of the sediment controls.
- The contractor shall not deviate from the approved sediment and erosion control plan without first receiving approval from the contractor management and sediment control plan review section. Revisions to the original plan must be submitted in writing with all proposed modifications still being highlighted. Substantial changes will necessitate amendment of the grading/building permit.

STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION
 Definition: To stabilize disturbed soils with vegetation for up to 6 months.
 Purpose: To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies
 Exposed soils where ground cover is required for a period of 6 months or less. For longer duration of time, permanent stabilization practices are needed.

Criteria

- Select one or more of the species or seed mixtures listed in Table B.3 for the appropriate plant Hardness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. This Summary is not put on the plan and contractor, then Table B.1 plus fertilizer and lime rates must be put on the plan.
- For sites having soil tests performed, use and show the recommended rates of the testing agency. Soil tests are not required for Temporary Seeding.
- When stabilization is required outside of a seeding season, apply seed and mulch or straw much close as prescribed in Section B-4-A.1.1.b and maintain until the next seeding season.

TEMPORARY SEEDING SUMMARY

SEED MIXTURE (FOR U.S.A. PLANT HARDNESS ZONE 7A)				SEEDING DEPTHS	FERTILIZER RATE (10-20-20)	LIME RATE
NO.	SPECIES	APPLICATION RATE(LB/AC)	SEEDING DATES			
1	ANNUAL RYEGRASS	40	2/15-4/30 8/15-11/30	0.5"	436 LB/AC (10 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)
2	BARLEY	96	2/15-4/30 8/15-11/30	1.0"		
3	DATS	72	2/15-4/30 8/15-11/30	1.0"		
4	WHEAT	120	2/15-4/30 8/15-11/30	1.0"		
5	CEREAL RYE	112	2/15-4/30 8/15-12/15	1.0"		
6	FOXTAIL MILLET	30	5/1-8/14	0.5"		
7	PEARL MILLET	20	5/1-8/14	0.5"		

STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION
 Definition: To stabilize disturbed soils with permanent vegetation.
 Purpose: To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies
 Exposed soils where ground cover is needed for 6 months or more.

Criteria

- Seed Mixtures**
 - General Use
 - Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
 - Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
 - For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
 - For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 1/2 pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.
 - Turfgrass Mixtures**
 - Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
 - Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
 - Kentucky Bluegrass:** Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
 - Kentucky Bluegrass/Perennial Rye:** Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Rye/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
 - Tall Fescue/Kentucky Bluegrass:** Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes: Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 6 pounds per 1000 square feet. One or more cultivars may be blended.
 - Kentucky Bluegrass/Fine Fescue:** Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes: Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 1/2 to 3 pounds per 1000 square feet.

Notes:
 Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland".
 Choose certified material. Certified material is the best guarantee of quality purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line.

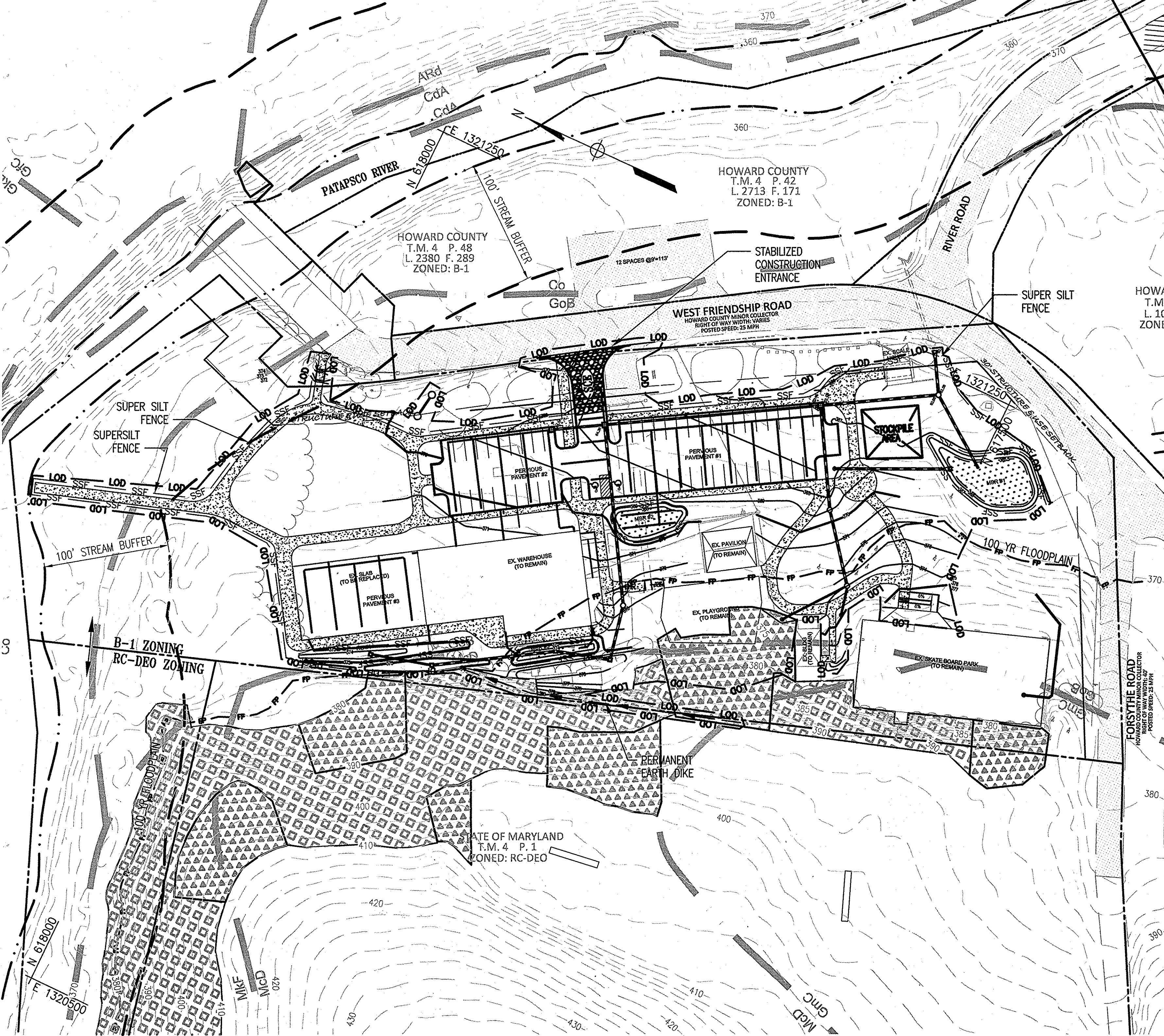
MEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES

Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6b)
 Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6a)
 Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)

d. Till areas to receive seed by disk or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1/2 inch in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
 e. If soil moisture is deficient, supply new seedlings with adequate water for plant growth (1/2 to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedlings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

PERMANENT SEEDING SUMMARY

SEED MIXTURE (FOR U.S.A. PLANT HARDNESS ZONE 7A)				SEEDING DEPTHS	FERTILIZER RATE (10-20-20)	LIME RATE
NO.	SPECIES	APPLICATION RATE(LB/AC)	SEEDING DATES			
3	DEERTONGUE	20	2/15-4/30	1/2"	45 lb/96 (1.0 lb/ 1000 sf)	80 lb/AC (2 lb/ 1000 sf)
3	SHEEP FESCUE	20	5/1-10/31	1/2"		
3	COMMON LEPPEDAZA	1				
10	ORCHARDGRASS	25	2/15-4/30	1/2"	45 lb/96 (1.0 lb/ 1000 sf)	80 lb/AC (2 lb/ 1000 sf)
10	ORCHARDGRASS	1	8/15-10/31	1/2"		
10	ALSKIE CLOVER	3	11/1-11/30	1/2"		



STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION (CONTINUED)
 B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

LEGEND

SYMBOL	SOIL NAME	HYDRIC	K-FACTOR	ERODIBLE
MkF	Manor-Brinklow complex, 25 to 65% slopes, very rocky	N	0.24	N
Co	Codorus and Haboro silt loams, 0 to 3% slopes	Y	0.37	Y
GoB	Glennville-Codorus silt loams, 0 to 8% slopes	N	0.37	Y
McD	Manor loam, 15 to 25% slopes, very rocky	N	0.24	N
GmC	Glennville silt loam, 8 to 15% slopes	N	0.37	Y

SOILS MAP 5 OF 29

AREA	VALUE
AREA DISTURBED (EARTHEN)	138,033 SF
AREA TO BE ROOFED OR PAVED	64,270 SF
AREA TO BE STABILIZED	73,763 SF
TOTAL CUT	25 CY
TOTAL FILL	25 CY
CUT/FILL RATIO	1
OFF SITE WASTE/BORROW AREA LOCATION	N/A

1. General Specifications

- Areas of turfgrass and sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
- Sod must be machine cut at a uniform soil thickness of 1/2 inch, plus or minus 1/8 inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pods and torn or uneven ends will not be accepted.
- Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
- Sod must not be harvested or transported when moisture content (excessively dry or wet) may adversely affect its survival.
- Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transported within this period must be approved by an agronomist or soil scientist prior to its installation.

2. Sod Installation

- During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
- Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause drying of the roots.
- Water the sod immediately following rolling and tamping until the underside of the new sod and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.

3. Sod Maintenance

- In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
- After the first week, sod watering is required as necessary to maintain adequate moisture content.
- Do not mow until the sod is firmly rooted. No more than 1/4 of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

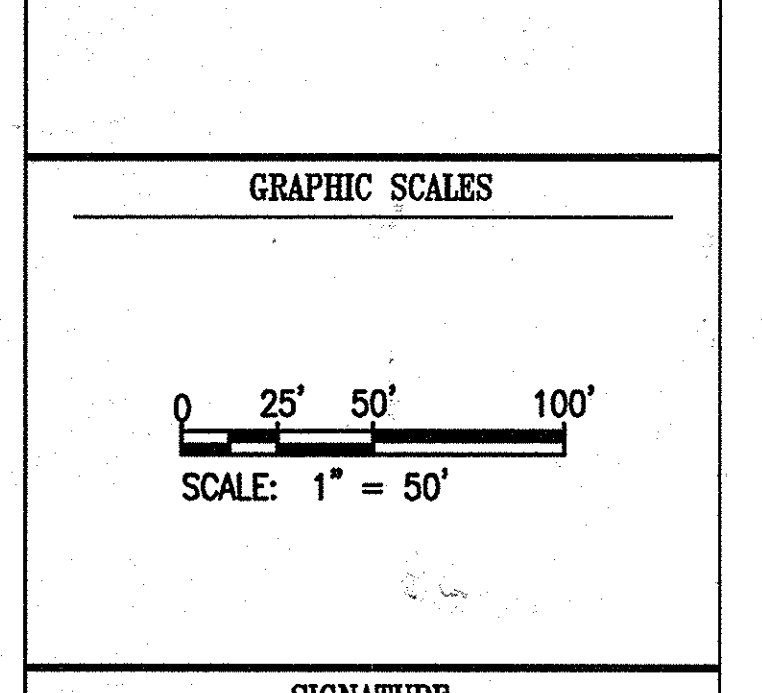
REVISIONS

NO.	DESCRIPTION

HOWARD COUNTY
 DEPARTMENT OF RECREATION AND PARKS
 7120 OAKLAND MILLS ROAD
 COLUMBIA, MD 21046

SOUTH BRANCH PARK
 ENVIRONMENTAL
 CONCEPT PLAN
 ECP-14-068

PROPERTY
 TAX MAP 4, GRID 15, PARCEL 54
 ZONING: B-1, RC-DEO



SIGNATURE

PROFESSIONAL CERTIFICATION:
 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. 19376
 EXPIRATION DATE: 9/22/2015

WR&A
 WHITMAN, REQUARDT & ASSOCIATES, LLP
 801 South Caroline Street, Baltimore, Maryland 21213

C-4
 Drawing No.
PRELIMINARY SEDIMENT CONTROL PLAN

Scale: AS SHOWN
 Date: MAY 2014 Sheet 4 of 4
 Des: JTD Drawn: CK Check: AO
 ECP-14-068