

CABIN BRANCH SWM RETROFITS

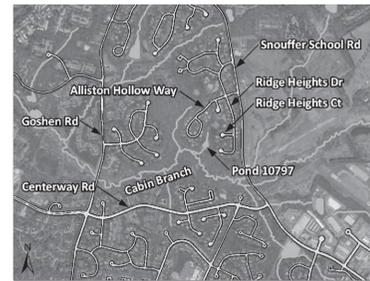
HUNTERS WOODS III SWM POND

(DEP SEQ. NO. 153 - ASSET 10797)

LEGEND

EXISTING		PROPOSED	
	FLOW LINE		425 CONTOURS
	SANITARY SEWER		ALIGNMENT
	STORM DRAIN		LIMIT OF DISTURBANCE
	CONTOUR LINE		TEMPORARY PROTECTION FENCE
	DRAINAGE DIVIDE		18" FILTER LOG
	PROPERTY LINE		WILDLIFE EXCLUSION FENCING
	TREE		DRIVEWAY APRON
	SANITARY SEWER MANHOLE		GRASS PAVERS
	STORM SEWER MANHOLE		HEAVY DUTY MULCH MAT
	TREE CANOPY		STANDARD DUTY MULCH MAT
	FOREST EDGE		4' CLAY LINER
	WATER SURFACE ELEVATION		SOIL BORING
	SANITARY SEWER (GIS)		INFILTRATION BORING
	STORM DRAIN (GIS)		TREE REMOVAL
	SANITARY SEWER MANHOLE (GIS)		TREE PLANTING
	STORM SEWER MANHOLE (GIS)		CRITICAL ROOT ZONE
			CONCRETE WASHOUT

SITE VICINITY MAP



1"=2000' IMAGE CREDIT: BING MAPS

SHEET LIST

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3	EXISTING CONDITIONS
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5	EROSION & SEDIMENT CONTROL PLAN
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15	PLANTING DETAILS
16	EROSION & SEDIMENT CONTROL DETAILS
17	EROSION & SEDIMENT CONTROL DETAILS
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19	CONSTRUCTION SPECIFICATIONS
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21	PLANTING PLAN & SCHEDULES

OWNERS/DEVELOPERS CERTIFICATION

I/WE HEREBY CERTIFY THAT ALL CLEARING, GRADING, CONSTRUCTION AND /OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT.

OWNER/DEVELOPER SIGNATURE _____ DATE _____
 CRAIG CARSON, MANAGER
 PRINTED NAME AND TITLE

DESIGN CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE "2011 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL," MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES EXECUTIVE REGULATIONS 5-90 7-02AM AND 36-90, AND MONTGOMERY COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION "STORM DRAIN DESIGN CRITERIA" DATED AUGUST 1988.

DESIGN ENGINEER SIGNATURE _____ DATE _____
 MEGHAN GLOYD
 PRINTED NAME REGISTRATION NUMBER

CUT AND FILL CERTIFICATION

I HEREBY CERTIFY THAT THE ESTIMATED TOTAL AMOUNT OF EXCAVATION AND FILL AS SHOWN ON THESE PLANS HAS BEEN COMPUTED TO BE 2,475 CU. YDS. OF EXCAVATION AND 1,680 CU.YDS. OF FILL AND THAT THE TOTAL AREA TO BE DISTURBED AS SHOWN ON THESE PLANS HAS BEEN DETERMINED TO BE 79,857 SQ. FT. = 1.8 AC.

 45058
 SIGNATURE (P.E.) MARYLAND REGISTRATION NO.
 MEGHAN GLOYD
 PRINTED NAME DATE

MISS UTILITY

CALL "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF WORK THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDERGROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH REQUIREMENTS OF CHAPTER 36A OF THE MONTGOMERY COUNTY CODE.

THE CONTRACTOR SHALL REFER TO THE PROJECT SPECIFICATIONS FOR ALL MATERIAL SPECIFICATIONS.

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING
 M-NCPPC RECORD FILE NO. _____
 TECHNICAL REVIEW CONCURRING BY _____
 DATE _____
 PARK FACILITY CODE _____

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING
 M-NCPPC PERMIT NO. _____
 M-NCPPC PARK FACILITY CODE _____
 REVIEWED BY _____
 APPROVED BY _____ CHIEF, CONSTRUCTION SECTION
 DATE APPROVED _____

THIS IS NOT A PERMIT TO BEGIN CONSTRUCTION
 This approval is for technical review only. For permit information, contact Jay Childs, Construction Supervisor at (301)495-2574.

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:		NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED FOR A MCDPS ACCESS PERMIT!
Stormwater Management: SEDIMENT CONTROL & SAFE CONVEYANCE REVIEW ONLY	Sediment Control Technical Requirements: Reviewed _____ Date _____ Approved _____ Date _____	Administrative Requirements: Reviewed _____ Date _____ 262615 SEDIMENT CONTROL PERMIT NO. _____
Approved _____ Date _____ 243711 SM FILE #		MCDPS APPROVAL OF THIS PLAN WILL EXPIRE TWO YEARS FROM THE DATE OF APPROVAL IF THE PROJECT HAS NOT STARTED.

RELATED REQUIRED PERMITS					
To be completed by the consultant and placed on the first sheet of the Sediment Control / Stormwater Management plan set for all projects.					
IT IS THE RESPONSIBILITY OF PERMITTEE/OWNER OF THIS SITE TO OBTAIN ALL REQUIRED PERMITS PRIOR TO ISSUANCE OF THE APPROVED SEDIMENT CONTROL PERMIT					
TYPE OF PERMIT	REQD	NOT REQD	PERMIT #	EXPIRATION DATE	WORK RESTRICTION DATES
MCDPS Floodplain District		X			
WATERWAYS/WETLAND(S):		X			
a. Corps of Engineers	X		201461012/14-NT-3183	SEPT 30, 2016	
b. MDE	X		201461012/14-NT-3183	SEPT 30, 2016	
c. MDE Water Quality Certification		X			
MDE Dam Safety	X		PENDING		
DNR Roadside Tree Care Permit		X		Approval Date _____	
DPS Roadside Tree Protection Plan		X		Approval Date _____	
N.P.D.E.S. NOTICE OF INTENT	X				DATE FILED _____
OTHERS (Please List):	X		1. PENDING		

TREE CANOPY REQUIREMENTS TABLE		
To be completed by the consultant and placed on the first sheet of the Sediment Control / Stormwater Management plan set for all projects.		
Exempt: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If exempt under Section 55-5 of the Code, please check the applicable exemption category below.		
Total Property Area	Total Disturbed Area	
square feet	square feet	
	Shade Trees Required	Shade Trees Proposed to be Planted
Fee In Lieu	\$ _____	
(Trees Required - Trees Planted) x \$250		
Required Number of Shade Trees		
Area (sq. ft.) of the Limits of Disturbance	Number of Shade Trees Required	
FROM TO		
1 6,000	3	
6,001 8,000	6	
8,001 12,000	9	
12,001 14,000	12	
14,001 40,000	15	
If the square footage of the limits of disturbance is more than 40,000, then the number of shade trees required must be calculated using the following formula: (Number of Square Feet in Limits of Disturbance ÷ 40,000) x 15		
EXEMPTION CATEGORIES:		
<input type="checkbox"/> 55-5(a) any activity that is subject to Article II of Chapter 29A;	<input type="checkbox"/> maintenance has obtained all required permits;	
<input type="checkbox"/> 55-5(b) any commercial logging or timber harvesting operation with an approved exemption from Article I of Chapter 29A;	<input type="checkbox"/> 55-5(b) any stream restoration project if the person performing the work has obtained all necessary permits;	
<input type="checkbox"/> 55-5(c) any activity conducted by the County Parks Department;	<input type="checkbox"/> 55-5(d) cutting or clearing any tree to comply with applicable provisions of any federal, state, or local law governing safety of dams;	
<input checked="" type="checkbox"/> 55-5(g) routine or emergency maintenance of an existing stormwater management facility, including an existing access road, if the person performing the	<input type="checkbox"/> OTHER: Specify per Section 55-5 of the Code.	

CLIENT

MR. CRAIG CARSON
 MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
 255 ROCKVILLE PIKE, SUITE 120
 ROCKVILLE, MD 20850
 (240) 777-7713



DEPARTMENT OF ENVIRONMENTAL PROTECTION

MONTGOMERY COUNTY • MARYLAND

DATE:	ISSUES / REVISIONS
6/15/2012	30% SUBMITTAL
3/21/2014	60% SUBMITTAL
10/10/2014	90% SUBMITTAL



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 #: 45058
 EXPIRATION DATE: 04/11/2016



The Stables Building 2081 Clipper Park Road
 Baltimore, MD 21211 / ph: 410.554.0156
 fx: 410.554.0168 / www.biohabitats.com
 Restore the Earth & Inspire Ecological Stewardship

HUNTERS WOODS III SWM RETROFIT

(DEP SEQ. NO. 153 - ASSET 10797)

90% DESIGN

MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION - WATER RESOURCES ENGINEERING CONTRACT #8803000101BD - TASK ORDER 16

TITLE SHEET

PROJECT NO.:	08041.05	SCALE:	AS SHOWN
SEAL:		BY:	BL/MG/TB/AG
		CHECK:	MG
		DWG. NO.:	

GENERAL NOTES FOR WORK ON M-NCPPC PROPERTY

- ALL NOTES SHOWN ON THE DRAWINGS ARE TYPICAL UNLESS OTHERWISE SHOWN OR NOTED.
- A PRE-CONSTRUCTION MEETING SHALL BE CONDUCTED BY THE M-NCPPC CONSTRUCTION MANAGER PRIOR TO START OF ANY CONSTRUCTION RELATED ACTIVITY AT THE PROJECT SITE. CONTACT JAY CHILDS (301-495-2574) TO SCHEDULE.
- NO CLEARING, GRUBBING, OR GRADING SHALL COMMENCE UNTIL THE LIMITS OF DISTURBANCE ARE STAKED IN THE FIELD AND ARE APPROVED BY THE M-NCPPC CONSTRUCTION MANAGER AS WELL AS ANY OTHER APPLICABLE PERMITTING AGENCIES. AFTER THE LIMITS ARE APPROVED, NO DISTURBANCE WILL BE ALLOWED OUTSIDE OF THE APPROVED LIMITS. ANY ITEMS DISTURBED OUTSIDE OF THE APPROVED LIMITS, WILL BE REPLACED AT THE CONTRACTORS OWN EXPENSE.
- THE ENTIRE LOD SHALL BE FENCED AS DIRECTED BY THE PARK CONSTRUCTION MANAGER. WHERE SILT FENCE, SUPER SILT FENCE, OR TREE PROTECTION FENCE IS NOT REQUIRED, ORANGE BLAZE SAFETY FENCE MAY BE USED. FIELD RUN TOPOGRAPHIC SURVEY PROVIDED BY CENTURY ENGINEERING IN 2011. SURVEY IS IN STATE PLANE DATUM NAD83 AND NAVD83. BOUNDARIES SHOWN ARE DERIVED FROM DEED AND PLAT INFORMATION.
- M-NCPPC RESERVES THE RIGHT TO ADJUST AND MODIFY THE LIMITS OF DISTURBANCE IN THE FIELD TO MINIMIZE IMPACTS OF WORK.
- CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MAINTAINING SAFE FACILITY ACCESS THROUGHOUT CONSTRUCTION AND PROVIDE ANY APPROPRIATE DETOURS, TEMPORARY FACILITIES, AND SIGNAGE AS REQUESTED BY THE M-NCPPC CONSTRUCTION MANAGER.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS SHOWN ON THE DRAWINGS AND REPORT TO M-NCPPC'S CONSTRUCTION MANAGER ANY ERROR OR INCONSISTENCY WITH THE ACTUAL CIRCUMSTANCES IN THE FIELD BEFORE COMMENCING WORK.
- THE CONTRACTOR SHALL STAKE-OUT THE LOCATION OF FACILITIES AND MEET WITH THE M-NCPPC CONSTRUCTION MANAGER TO REVIEW THE LOCATION. M-NCPPC RESERVES THE RIGHT TO ADJUST THE LOCATIONS AS NECESSARY.
- SITE RESTORATION AND REPAIR/REPLACEMENT OF DAMAGED INFRASTRUCTURE SHALL BE IN ACCORDANCE WITH M-NCPPC DETAILS, STANDARDS, AND SPECIFICATIONS AT THE DIRECTION OF THE M-NCPPC INSPECTOR AT NO COST TO M-NCPPC.
- TREE PROTECTION FENCING SHALL BE PER TREE PROTECTION FENCE DETAIL SHOWN ON PLANS. TREE PROTECTION FENCE SHALL BE INSTALLED BY THE CONTRACTOR AND INSPECTED BY M-NCPPC CONSTRUCTION MANAGER PRIOR TO START OF CONSTRUCTION.
- ALL PLANTING SUBSTITUTIONS SHALL BE APPROVED BY M-NCPPC CONSTRUCTION MANAGER. PLANT MATERIALS AND LOCATIONS MUST BE INSPECTED BY M-NCPPC PRIOR TO INSTALLATION.
- PROVIDE DEER PROTECTION FENCING PER M-NCPPC'S SPECIFICATIONS FOR ALL LANDSCAPE AND REFORESTATION TREES AND SHRUBS TO PREVENT DAMAGE FROM DEER. TUBEX SHALL NOT BE USED AS A SUBSTITUTE.
- STAGING AREAS AND ACCESS ROUTES SHALL BE DETERMINED IN FIELD AND APPROVED BY THE M-NCPPC CONSTRUCTION MANAGER TO MINIMIZE IMPACTS.
- M-NCPPC MAY INSPECT CONDITION OF TREES THROUGHOUT CONSTRUCTION AND REQUIRE REPAIR, REMOVAL, AND/OR REPLACEMENT OF ANY DAMAGED TREES AT NO COST TO M-NCPPC.
- CONSTRUCTION MANAGER MAY AUTHORIZE SPECIAL TREE AND TREE ROOT PROTECTION MEASURES OTHER THAN SHOWN ON THESE PLANS DURING CONSTRUCTION. THESE MAY INCLUDE, BUT NOT BE LIMITED TO 12-INCH THICK MULCH LAYER ACCESS BEDDING, MATTING, ADDITIONAL TREE PROTECTION FENCING, AND ADDITIONAL SEDIMENT CONTROLS.
- CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR IDENTIFYING THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION RELATED WORK AND SHALL COORDINATE THE WORK WITH M-NCPPC CONSTRUCTION MANAGER. THE CONTRACTOR SHALL MAINTAIN PROPER CLEARANCES BETWEEN ALL EXISTING AND PROPOSED UTILITIES AT ALL TIMES AS REQUIRED BY THE UTILITY COMPANIES.
- UTILITIES SHOWN HEREON ARE BASED ON BEST AVAILABLE INFORMATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ACCURACY OF THIS INFORMATION. ANY COST ASSOCIATED WITH THE REPAIR OR REPLACEMENT OF UTILITIES DAMAGED BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ANY DAMAGE MADE TO THE UTILITY SHALL BE REPAIRED ON AN EMERGENCY BASIS PER THE LATEST SPECIFICATIONS OF THE CONCERNED UTILITY AND COMPLETED WORK SHALL BE APPROVED BY THE CONCERNED UTILITY. ANY DAMAGE SHALL BE REPORTED AND DOCUMENTED IMMEDIATELY TO THE M-NCPPC CONSTRUCTION MANAGER. REPAIR APPROVALS SHALL BE PROVIDED TO THE M-NCPPC CONSTRUCTION MANAGER.
- DISCREPANCIES, OMISSIONS, AMBIGUITIES, OR CONFLICTS IN OR AMONG THE CONSTRUCTION DOCUMENTS OR DOUBT ABOUT THEIR MEANING SHALL BE BROUGHT TO THE ATTENTION OF THE MNCPPC CONSTRUCTION MANAGER FOR DIRECTION BEFORE PROCEEDING WITH WORK. IF CONFLICTS EXIST, THE MOST STRINGENT REQUIREMENT SHALL GOVERN UNLESS OTHERWISE STATED IN WRITING BY THE MNCPPC CONSTRUCTION MANAGER.
- PRIOR TO VEGETATIVE STABILIZATION, ALL DISTURBED AREAS MUST BE TOPSOILED PER THE MONTGOMERY COUNTY "STANDARDS AND SPECIFICATIONS FOR TOPSOIL". IF ON-SITE MATERIALS DO NOT MEET REQUIREMENTS OF TOPSOIL, COORDINATE WITH M-NCPPC REGARDING TILLING-IN OF CERTIFIED COMPOST TO ON-SITE SOILS IN ORDER TO MEET SPECIFICATIONS.
- PAVEMENT REMOVAL SHALL INCLUDE REMOVAL OF GRAVEL SUBBASE AND SCARIFICATION OF SUBGRADE, UNLESS OTHERWISE DIRECTED BY M-NCPPC.
- THIS SITE IS LOCATED IN THE SENECA CREEK WATERSHED OF MONTGOMERY COUNTY. RUNOFF FROM THIS SITE DRAINS INTO CABIN BRANCH TRIBUTARY.

GENERAL NOTES

- THE CONTRACTOR WILL IMMEDIATELY INFORM THE COUNTY OF ANY DISCREPANCIES FOUND BETWEEN THE PROJECT PLANS AND CONTRACT SPECIFICATIONS.
- FOR CONSTRUCTION, ALL HORIZONTAL CONTROL SHALL BE NAD 83/91 AND VERTICAL CONTROL NAVD 88.
- TYPES OF STORM DRAIN STRUCTURES REFER TO THE 'DESIGN STANDARDS' OF MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION, UNLESS OTHERWISE NOTED.
- INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS, THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATIONS OF THE LINES BY DIGGING TEST PITS BY HAND AT ALL UTILITY CROSSINGS WELL IN ADVANCE OF TRENCHING. IF CLEARANCES ARE LESS THAN SHOWN ON THIS PLAN OR SIX INCHES, WHICHEVER IS LESS, THE CONTRACTOR SHALL CONTACT THE COUNTY.
- REPAIRS TO UTILITIES OR PROPERTY DAMAGED AS A RESULT OF THE CONTRACTOR'S NEGLIGENCE OR METHOD OF OPERATION MUST BE MADE AT THE CONTRACTOR'S EXPENSE BEFORE PROCEEDING WITH CONSTRUCTION.
- CALL "MISS UTILITY" AT 1-800-257-7777 FOURTY-EIGHT (48) HOURS PRIOR TO BEGINNING EXCAVATION TO DETERMINE THE EXACT LOCATION OF EXISTING UTILITIES.
- CLEARING TO BE LIMITED TO THE "LIMIT OF DISTURBANCE" AS SHOWN ON THE PLANS.
- ALL GRADING SHALL BE DONE IN SUCH A MANNER AS TO PROVIDE POSITIVE DRAINAGE.
- THE CONTRACTOR SHALL OBTAIN A ROADSIDE TREE PERMIT FOR ANY MAINTENANCE, TREATMENT, PLANTING, REMOVAL OR ROOT CUTTING ON TREES WITHIN THE PUBLIC RIGHT-OF-WAY BEFORE STARTING A JOB. PERMIT REQUIREMENTS MAY BE OBTAINED FROM THE DEPARTMENT OF NATURAL RESOURCES - MARYLAND FOREST, PARK AND WILDLIFE SERVICE WHOSE TELEPHONE NUMBER IS (301) 854-6060.
- CONTACT THE WASHINGTON SUBURBAN SANITARY COMMISSION SYSTEM MAINTENANCE ENGINEER BEFORE EXCAVATING BENEATH OR IN THE VICINITY OF EXISTING WATER OR SEWER LINES. BACKFILL TO BE DONE UNDER THE SUPERVISION OF W.S.S.C. CALL 301-699-4420.
- CONTACT WASHINGTON GAS DISPATCH OFFICER AT (703) 750-4831 BEFORE EXCAVATING BENEATH OR IN THE VICINITY OF EXISTING GAS MAIN AND SERVICE LATERALS.
- PRIOR TO VEGETATIVE STABILIZATION, ALL DISTURBED AREAS MUST BE TOPSOILED PER THE MONTGOMERY COUNTY "STANDARDS AND SPECIFICATIONS FOR TOPSOIL".
- FOLLOW TREE AND INFRASTRUCTURE PROTECTION MEASURES SPECIFIED UNDER GENERAL NOTES FOR WORK ON M-NCPPC PROPERTY TO ALL RIGHT-OF-WAY AND PRIVATE PROPERTY AFFECTED.

MDE WETLANDS AND WATERWAYS APPROVAL LETTER

**STATE OF MARYLAND
DEPARTMENT OF THE ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION
AUTHORIZATION TO PROCEED**

AUTHORIZATION NUMBER: 2014610214NT-3183

EFFECTIVE DATE: August 14, 2014

EXPIRATION DATE: August 14, 2017

AUTHORIZED PERSON: Montgomery Co. Dept. of Environmental Protection
255 Rockville Pike, Suite 120
Rockville, Maryland 20850
Attn: Craig Carson

IN ACCORDANCE WITH ENVIRONMENT ARTICLE §5-503(a) AND §5-906(b), ANNOTATED CODE OF MARYLAND (2007 REPLACEMENT VOLUME), COMAR 26.17.04 AND 26.23.01, AND 26.08.02 AND THE ATTACHED CONDITIONS OF AUTHORIZATION, Montgomery Co. Dept. of Environmental Protection ("AUTHORIZED PERSON"), IS HEREBY AUTHORIZED BY THE WATER MANAGEMENT ADMINISTRATION ("ADMINISTRATION") TO CONDUCT A REGULATED ACTIVITY IN A NATURAL WETLAND, BUFFER, OR EXPANDED BUFFER, AND/OR TO CHANGE THE COURSE, CHANNEL OR CROSS-SECTION OF WATERS OF THE STATE, IN ACCORDANCE WITH THE ATTACHED PLANS APPROVED BY THE ADMINISTRATION ON August 14, 2014 ("APPROVED PLANS") AND PREPARED BY Biohabitats AND INCORPORATED HEREIN, AS DESCRIBED BELOW:

Upgrade the existing Hunter Wood III storm-water management pond. The work includes improvement to the outfall of the pond by installation of a plunge pool. The project will impact 20 linear feet (300 sq. ft.) of the stream. The project is located at near of 1570 Ridge Heights Drive in Gaithersburg, Montgomery County.

MD Grid Coordinates: 167296 x 384319

William Seiger
William Seiger, Chief
Waterway Construction Division

Attachments: Conditions of Authorization
MDSFCP-4 Cat A-B (1)

cc: WMA Compliance Division w/ Eric
Dian Salfy, MDE
Michael Thompson, Biohabitats

THE FOLLOWING CONDITIONS OF AUTHORIZATION APPLY TO ALL ACTIVITIES AUTHORIZED BY AUTHORIZATION NUMBER: 14-SF-3183/2014610214

- Validity:** Authorization is valid only for use by Authorized Person. Authorization may be transferred only with prior written approval of the Administration. In the event of transfer, transferee agrees to comply with all terms and conditions of Authorization.
- Limitation of Work, Modifications and Extension of Term:** Authorized Person shall initiate authorized activities within the (2) year of the Effective Date of this Authorization or the Authorization shall expire. Authorized Person may submit written requests to the Administration for (a) extension of the period for initiation of work, (b) modification of Authorization, including the Approved Plan, or (c) both later than 45 days prior to expiration date, or extension of the term. Requests for modification shall be in accordance with applicable regulations and shall state reasons for changes, and shall indicate the impacts on wetland wetlands, streams, and the floodplain, as applicable. The Administration may grant a request at its sole discretion.
- Responsibility and Compliance:** Authorized Person is fully responsible for all work performed and activities authorized by this Authorization shall be performed in compliance with this Authorization and Approved Plan. Authorized Person agrees that a copy of the Authorization and Approved Plan shall be kept at the construction site and provided to its employees, agents and contractors. A person (including Authorized Person, its employees, agents or contractors) who violates or fails to comply with the terms and conditions of this Authorization, Approved Plan or an administrative order may be subject to penalties in accordance with §5-514 and §5-911, Department of the Environment Article, Annotated Code of Maryland (2007 Replacement Volume).
- Failure to Comply:** If Authorized Person, its employees, agents or contractors fail to comply with this Authorization or Approved Plan, the Administration may, in its discretion, issue an administrative order requiring Authorized Person, its employees, agents and contractors to cease and desist any activities which violate this Authorization, or the Administration may take any other enforcement action available to it by law, including filing civil or criminal charges.
- Submission of Reports:** Authorization may be suspended or revoked by the Administration, after notice of opportunity for a hearing, if Authorized Person: (a) submits false or inaccurate information in Permit application or subsequently required submissions; (b) deviates from the Approved Plan, specifications, terms and conditions; (c) violates, or is about to violate terms and conditions of this Authorization; (d) violates, or is about to violate, any regulation promulgated pursuant to Title 5, Department of the Environment Article, Annotated Code of Maryland as amended; (e) fails to allow authorized representatives of the Administration to enter the site of authorized activity at any reasonable time to conduct inspections and evaluations; (f) fails to comply with the requirements of an administrative action or order issued by the Administration; or (g) does not have vested rights under this Authorization and new information, changes in site conditions, or unmet regulatory requirements necessitate revocation or suspension.
- Other Approvals:** Authorization does not authorize any injury to private property, any invasion of rights, or any siting of federal, State or local laws or regulations, nor does it obviate the need to obtain required authorizations or approvals from other State, federal or local agencies as required by law.
- Site Access:** Authorized Person shall allow authorized representatives of the Administration access to the site of authorized activities during normal business hours to conduct inspections and evaluations necessary to assure compliance with this Authorization. Authorized Person shall provide necessary assistance to effectively and safely conduct such inspections and evaluations.
- Inspection Notification:** Authorized Person shall notify the Administration's Compliance Program at least five (5) days before starting authorized activities and five (5) days after completion. For Allegany, Garrett, and Washington counties, Authorized Person shall call 301-689-1489. For Carroll, Frederick, Howard, Montgomery, and Prince George's counties, Authorized Person shall call 301-685-2959. For Baltimore City, Anne Arundel, Baltimore, Calvert, Charles, and St. Mary's, Authorized Person shall call 410-537-5510. For Carroll, Kent, Dorchester, Harford, Kent, Queen Anne's, Somerset, Talbot, Wicomico and Worcester, Authorized Person shall call 410-901-4020. If authorization is for a project that is part of a mining site, please contact the Land Management Administration's Mining Program at 410-537-5557 at least five (5) days before starting authorized activities and five (5) days after completion.
- Settlement Controls:** Authorized Person shall obtain approval from the Montgomery County Department of Permitting Services for a grading and sediment control plan specifying soil erosion control measures. The approved grading and sediment control plan shall be included in the Approved Plan, and shall be available at the construction site.
- Federal/ Maryland State Authorization:**
 - Water Quality Certification:** Water Quality Certification is granted for this project provided that all work is performed in accordance with the authorized project description and associated conditions.
 - Coastal Zone Consistency:** This Authorization constitutes official notification that authorized activities are consistent with the Maryland Coastal Zone Management Program, as required by Section 307 of the Federal Coastal Zone Management Act of 1972, as amended. Activities within the following counties are not subject to this requirement: Allegany, Carroll, Frederick, Garrett, Howard, Montgomery, and Washington.
- Best Management Practices During Construction:** Authorized Person, its employees, agents and contractors shall conduct authorized activities in a manner consistent with the Best Management Practices specified by the Administration.
- Disposal of Debris:** Unless otherwise shown on the Approved Plan, all excess fill, spoil material, debris, and construction material shall be disposed of outside of wetland wetlands, wetland wetlands buffers, and the 100-year floodplain, and in a location and manner which does not adversely impact surface or subsurface water flow into or out of wetland wetlands.
- Temporary Storage Areas:** Temporary construction trailers or structures, staging areas and stockpiles shall not be located within wetland wetlands, wetland wetlands buffers, or the 100-year floodplain unless specifically included on the Approved Plan.
- Temporary Stream Access Crossings:** Temporary stream access crossings shall not be constructed or utilized unless shown on the Approved Plan. If temporary stream access crossings are deemed necessary prior to initiation of work or at any time during construction, Authorized Person, its employees, agents or contractors shall submit a written request to the Administration and receive the necessary permits or approvals for each crossing before installation of the crossings. Temporary stream access crossings shall be removed and the disturbance stabilized prior to completion of authorized activity or within one (1) year of installation.
- Discharge:** Runoff or accumulated water containing sediment or other suspended materials shall not be discharged into waters of the State unless treated by an approved sediment control device or structure.
- Instream Construction Prohibition:**
 - [X] No instream construction is to occur under this Authorization;
 - [] To protect important aquatic species, motor driven construction equipment shall not be allowed within stream channels within or authorized flood crossings. Activities within stream channels are prohibited as determined by the classification of the stream (COMAR 26.08.02.08): Cabin Branch is a Use I waterway; no stream work may be conducted from March 1 through June 15 inclusive, of any year.
- Instream Blasting:** Authorized Person shall obtain prior written approval from the Administration before blasting or using explosives in the stream channel.
- Minimum Disturbance:** Any disturbance of stream banks, channel bottom, wetlands, and wetlands buffer authorized by this Authorization or Approved Plan shall be the minimum necessary to conduct permitted activities. All disturbed areas shall be stabilized vegetatively no later than seven (7) days after construction is completed or in accordance with the approved grading or sediment and erosion control plan.
- Restoration of Construction Site:** Authorized Person shall restore the construction site upon completion of authorized activities. Undercutting, encroachment or degradation of the stream banks or channel bottom, any deposition of sediment or other materials, and any alteration of wetland vegetation, soils, or hydrology, resulting directly or indirectly from construction or authorized activities, shall be corrected by Authorized Person as directed by the Administration.

U.S. ARMY CORPS OF ENGINEERS AUTHORIZATION

The U.S. Army Corps of Engineers has reviewed this activity and has granted authorization under the Maryland State Programmatic General Permit (MDSFCP-4, Use A Category A Activity B1). The terms and conditions of the MDSFCP-4, as outlined in the enclosed attachments, should be followed when performing the authorized work.

MCDPS STORMWATER CONCEPT APPROVAL LETTER

DEPARTMENT OF PERMITTING SERVICES

July 18, 2012

Philip Jones
Secretary, Inc.
2081 Clipper Park Road
Baltimore, MD 21211

Re: Stormwater Management CONCEPT Permit for Hunter Woods III SWM Pond Retrofit
Permit No. N/A
SM File # 243711
Total Concept Area: 1.52ac
Lot/Block: N/A
Parcel(s): B
Watershed: Seneca Creek

Dear Mr. Jones:

Based on a review by the Department of Permitting Services (DPS) Review Staff, the stormwater management concept for the above mentioned site is acceptable. The stormwater management concept consists of retrofitting an existing stormwater management structure to achieve what the Montgomery County Department of Environmental Protection (MCDPS) believes will be an additional environmental benefit. This project is not associated with new development, therefore it is not subject to minimum stormwater management treatment criteria. DPS will not review the plan for compliance with such standards. Site conveyance through the facility must be demonstrated.

The following items and conditions will need to be addressed during or prior to the detailed sediment control/stormwater management plan stage:

- Prior to permanent vegetative stabilization, all disturbed areas must be topsoiled per the latest Montgomery County Standards and Specifications for Topsoiling.
- A detailed review of the conveyance computations will occur at the time of detailed plan review.
- An engineered sediment control plan must be submitted for this project.
- A dam breach analysis must be approved by the Maryland Department of the Environment (MDE) prior to submission of detailed construction plans to DPS for review. If the breach analysis indicates that the pond is or will be considered a moderate or high hazard facility, DPS will urge MCDPS to consider removal of the pond, or to abandon the retrofit project. MCDPS and DPS have agreed not to allow construction of ponds that are considered to be moderate or high hazard facilities.
- Provide a copy of the approved as built drawings with the first submission of detailed plan review.
- DPS recommends that the existing inlet structure be replaced.

This list may not be all-inclusive and may change based on available information at the time.

255 Rockville Pike, 2nd Floor • Rockville, Maryland 20850 • 240-773-6260 • 240-773-6256 TTY: www.montgomerycountymd.gov

Payment of a stormwater management contribution in accordance with Section 2 of the Stormwater Management Regulation 4.90 is not required.

This letter must appear on the sediment control/stormwater management plan at its initial submission. This concept approval is based on all stormwater management structures being located outside of the Public Utility easement, the Environmental Easement, and the Public Right of Way unless specifically approved on the concept plan. Any divergence from the information provided to this office, or additional information received during the development process, or a change in an applicable Executive Regulation may constitute grounds to rescind or amend any approval actions taken, and to reevaluate the site for additional or expanded stormwater management treatment. If there are any subsequent additions or modifications to the development, a separate concept request shall be required.

If you have any questions regarding these actions, please feel free to contact Thomas Weedon at 240-773-6300.

Sincerely,
Robert R. Bush, Manager
Water Resource Section
Division of Land Development Services

RRB to CN 243711
cc: SM File # 243711

ESD Area: N/A
SRM/Storm Allowance: N/A
Watershed Area: N/A

MDE DAM SAFETY EXEMPTION LETTER

**STATE OF MARYLAND
DEPARTMENT OF THE ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION
AUTHORIZATION TO PROCEED**

AUTHORIZATION NUMBER: 2014610214NT-3183

EFFECTIVE DATE: August 14, 2014

EXPIRATION DATE: August 14, 2017

AUTHORIZED PERSON: Montgomery Co. Dept. of Environmental Protection
255 Rockville Pike, Suite 120
Rockville, Maryland 20850
Attn: Craig Carson

IN ACCORDANCE WITH ENVIRONMENT ARTICLE §5-503(a) AND §5-906(b), ANNOTATED CODE OF MARYLAND (2007 REPLACEMENT VOLUME), COMAR 26.17.04 AND 26.23.01, AND 26.08.02 AND THE ATTACHED CONDITIONS OF AUTHORIZATION, Montgomery Co. Dept. of Environmental Protection ("AUTHORIZED PERSON"), IS HEREBY AUTHORIZED BY THE WATER MANAGEMENT ADMINISTRATION ("ADMINISTRATION") TO CONDUCT A REGULATED ACTIVITY IN A NATURAL WETLAND, BUFFER, OR EXPANDED BUFFER, AND/OR TO CHANGE THE COURSE, CHANNEL OR CROSS-SECTION OF WATERS OF THE STATE, IN ACCORDANCE WITH THE ATTACHED PLANS APPROVED BY THE ADMINISTRATION ON August 14, 2014 ("APPROVED PLANS") AND PREPARED BY Biohabitats AND INCORPORATED HEREIN, AS DESCRIBED BELOW:

Upgrade the existing Hunter Wood III storm-water management pond. The work includes improvement to the outfall of the pond by installation of a plunge pool. The project will impact 20 linear feet (300 sq. ft.) of the stream. The project is located at near of 1570 Ridge Heights Drive in Gaithersburg, Montgomery County.

MD Grid Coordinates: 167296 x 384319

William Seiger
William Seiger, Chief
Waterway Construction Division

Attachments: Conditions of Authorization
MDSFCP-4 Cat A-B (1)

cc: WMA Compliance Division w/ Eric
Dian Salfy, MDE
Michael Thompson, Biohabitats

MNCPPC EXEMPTION LETTER

MONTGOMERY COUNTY PLANNING DEPARTMENT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

July 9, 2014

Mr. Craig Carson
Montgomery County
Dept. of Environmental Protection
255 Rockville Pike, Suite 120
Rockville, MD 20850

Re: Forest Conservation Exemption Request
Property Name: Task Order 16 Hunter Woods III
Plan Number: 42013084E - Amended

Dear Mr. Carson:

Based on the review by staff of the Montgomery County Planning Department, the Forest Conservation Exemption Request submitted on June 9, 2014 for the plan identified above, is confirmed. This amendment to the original forest conservation exemption plan was necessary due to a revision in the project limits of disturbance (LOD). The project site is exempt from Article II of the Montgomery County Code, Chapter 22A (Forest Conservation Law), Section 22A-5(f) because the site is a modification to an existing developed property; (1) the modification will not remove more than 5,000 square feet of forest; (2) does not affect any forest in a stream buffer or located on property in a special protection area which must submit a water quality plan and (3) the modification does not require approval of a new subdivision plan.

Any changes from the approved exemption request may constitute grounds to rescind or amend any approval actions taken and to take appropriate enforcement actions. If there are any subsequent modifications planned to the approved plan, a separate amendment must be submitted to M-NCPPC for review and approval prior to those activities occurring.

If you have any questions regarding these actions please feel free to contact me at 301-495-4712 or debra.la.sobers@montgomerycountymd.gov.

Sincerely,
Debra LaSobers, RLA
MNCPPC
DARC Division

Cc: 42013084E
Meghan Glynn (Biohabitats)

1111 Corporate Center, Silver Spring, Maryland 20907
Development Applications and Regulation/Coordination Division, 901 495 4500 Fax: 301 495 1336
www.MontgomeryPlanning.org

DATE:	ISSUES / REVISIONS
6/15/2012	30% SUBMITTAL
3/21/2014	60% SUBMITTAL
10/10/2014	90% SUBMITTAL

SEAL:

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 #: 45058

EXPIRATION DATE: 04/11/2016

THE MARYLAND -NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING

M-NCPPC PERMIT NO. _____

M-NCPPC PARK FACILITY CODE _____

REVIEWED BY _____

APPROVED BY _____ CHIEF, CONSTRUCTION SECTION

DATE APPROVED _____

M-NCPPC PERMIT SHEET # _____ OF _____

THIS IS NOT A PERMIT TO BEGIN CONSTRUCTION

M-NCPPC RECORD FILE NO. _____

TECHNICAL REVIEW CONCURRENCE BY DATE _____

PARK FACILITY CODE _____

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:		Administrative Requirements:	
Stormwater Management: SEDIMENT CONTROL & SAFE CONVEYANCE REVIEW ONLY	Reviewed	Date	Reviewed
	Approved	Date	262615
	Approved	Date	243711 SM FILE #

NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED FOR A MCDPS ACCESS PERMIT!

MCDPS APPROVAL OF THIS PLAN WILL EXPIRE TWO YEARS FROM THE DATE OF APPROVAL IF THE PROJECT HAS NOT STARTED.

CLIENT

MR. CRAIG CARSON
MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850
(240) 777-7713



DEPARTMENT OF ENVIRONMENTAL PROTECTION
MONTGOMERY COUNTY • MARYLAND

DATE:	ISSUES / REVISIONS
6/15/2012	30% SUBMITTAL
3/21/2014	60% SUBMITTAL
10/10/2014	90% SUBMITTAL



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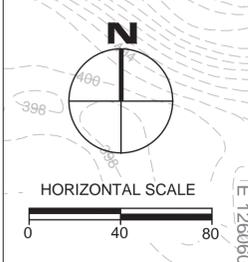
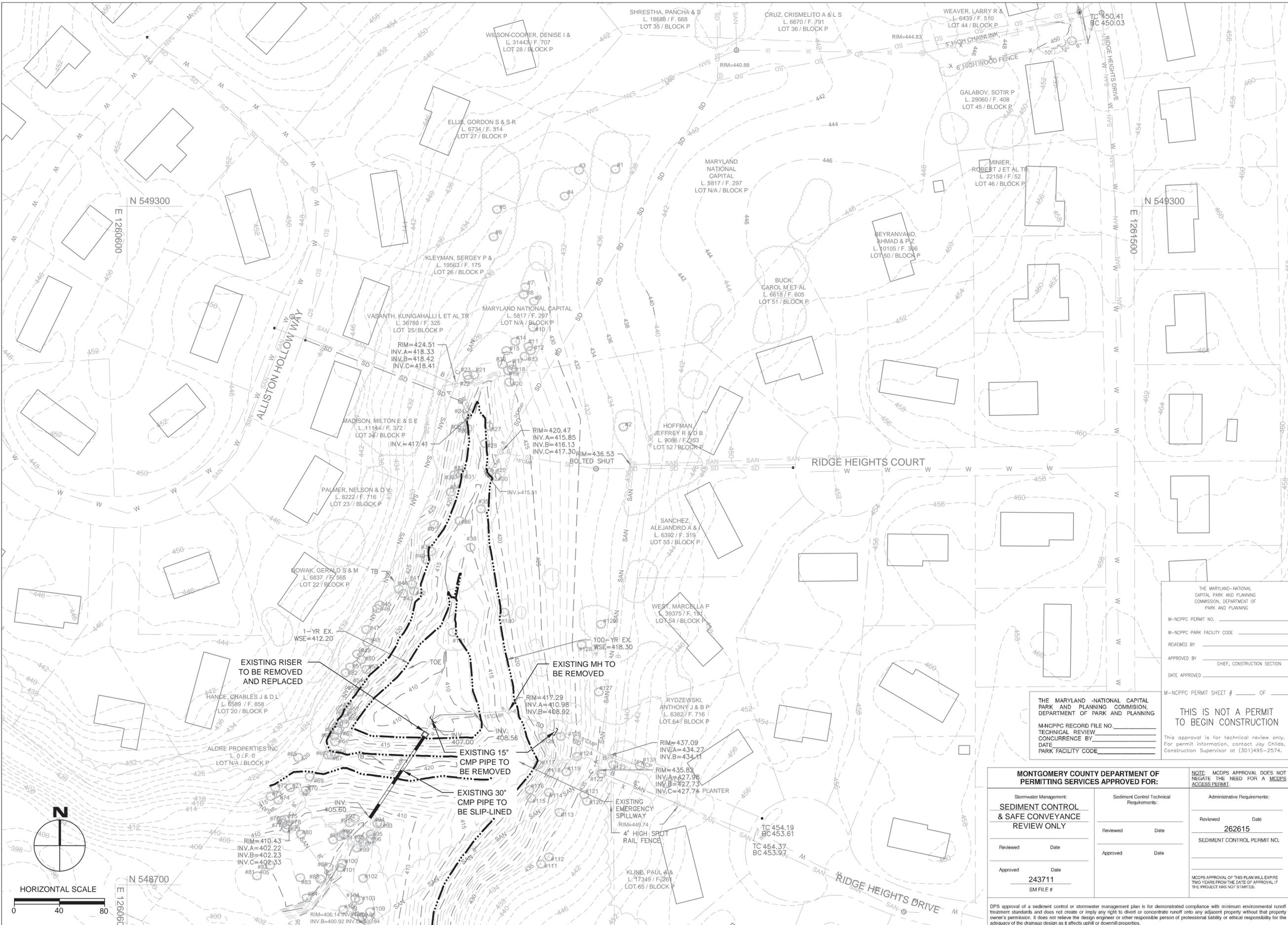
The Stables Building 2081 Clipper Park Road
Baltimore, MD 21211 / ph: 410.554.0156
fx: 410.554.0168 / www.biohabitats.com
Restore the Earth & Inspire Ecological Stewardship

HUNTERS WOODS III SWM RETROFIT
(DEP SEQ. NO. 153 - ASSET 10797)
90% DESIGN
MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION - WATER RESOURCES ENGINEERING CONTRACT #8803000101BD - TASK ORDER 16

GENERAL NOTES

PROJECT NO.:	08041.05	SCALE:	AS SHOWN
SEAL:	BY: BL/MG/TB/AG	CHECK:	MG
	DWG. NO.:		

2 of 21



CLIENT

MR. CRAIG CARSON
 MONTGOMERY COUNTY DEPARTMENT
 OF ENVIRONMENTAL PROTECTION
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DEPARTMENT OF ENVIRONMENTAL PROTECTION
 MONTGOMERY COUNTY • MARYLAND

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90% DESIGN

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EXISTING CONDITIONS

PROJECT NO.:	08041.05	SCALE:	1" = 40'
SEAL:	BY: BL/MG/TB/AG	CHECK:	MG
	DWG. NO.:		

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING

M-NCPPC PERMIT NO. _____

M-NCPPC PARK FACILITY CODE _____

REVIEWED BY _____

APPROVED BY _____ CHIEF, CONSTRUCTION SECTION

DATE APPROVED _____

M-NCPPC PERMIT SHEET # _____ OF _____

THIS IS NOT A PERMIT TO BEGIN CONSTRUCTION

This approval is for technical review only. For permit information, contact Jay Childs, Construction Supervisor at (301)495-2574.

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING

M-NCPPC RECORD FILE NO. _____

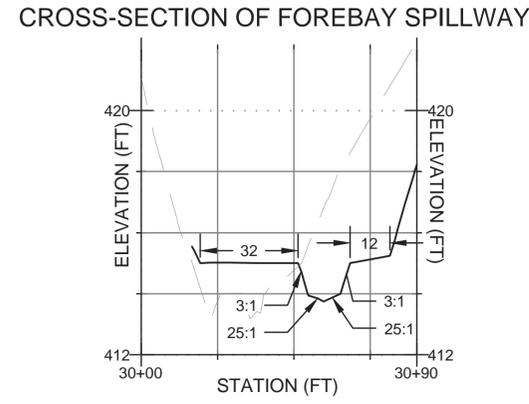
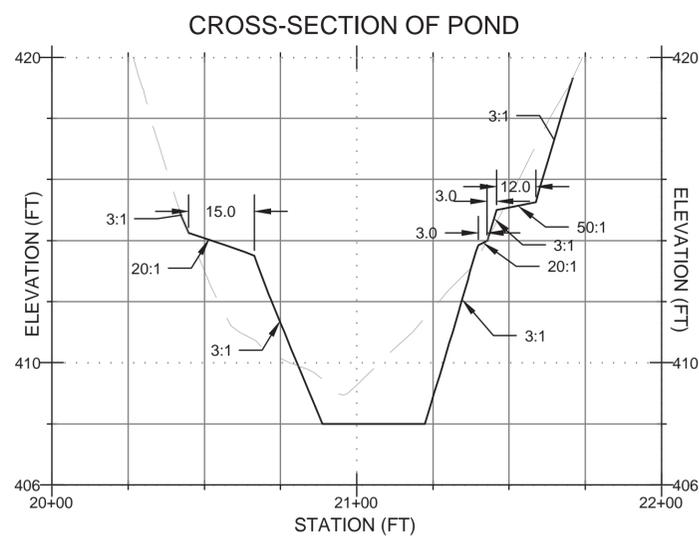
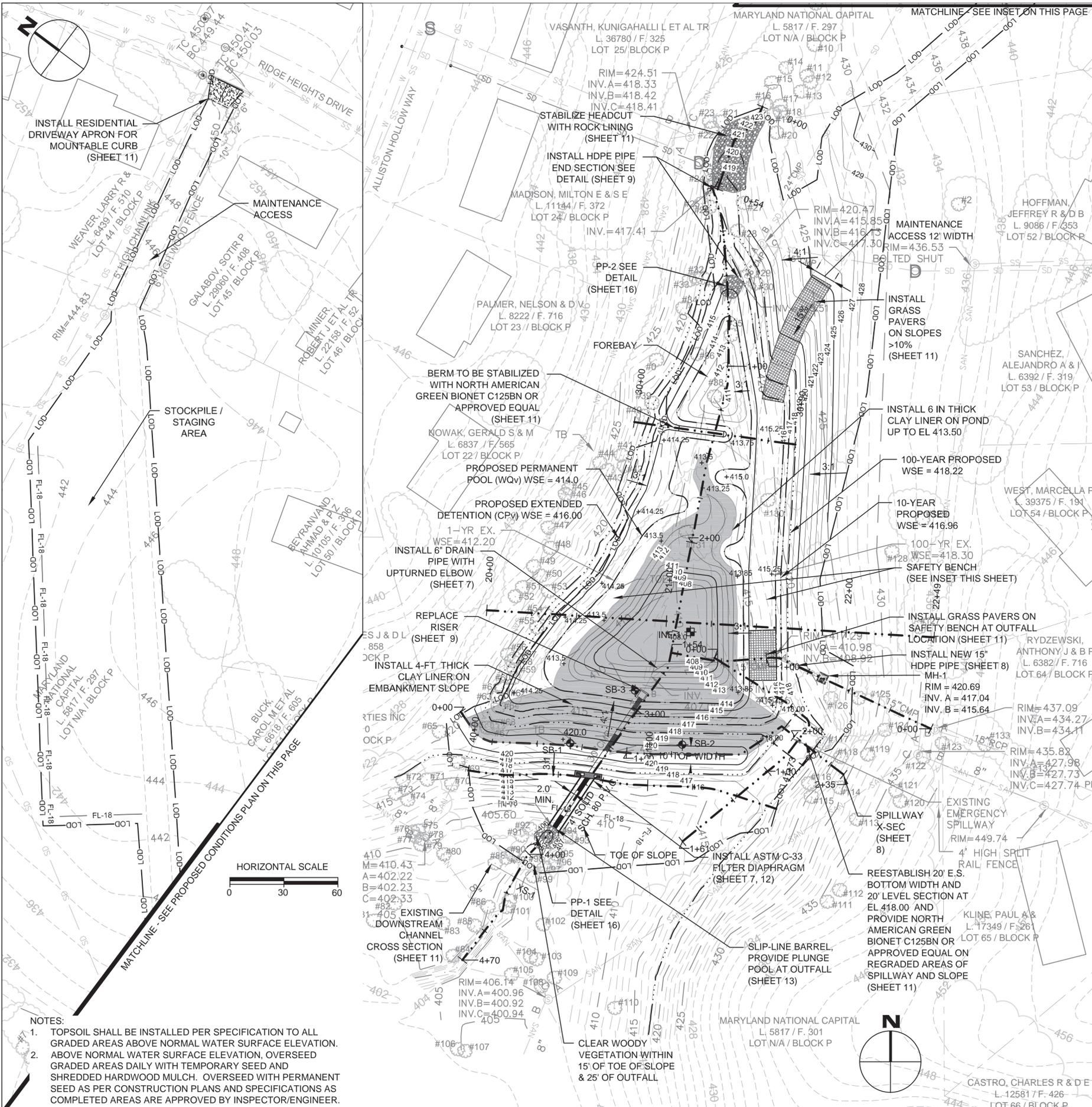
TECHNICAL REVIEW CONCURRENCE BY _____

DATE _____

PARK FACILITY CODE _____

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:		Administrative Requirements:	
Stormwater Management:	Sediment Control Technical Requirements:	Reviewed	Date
SEDIMENT CONTROL & SAFE CONVEYANCE REVIEW ONLY			262615
Reviewed	Date	SEDIMENT CONTROL PERMIT NO. _____	
Approved	Date		
243711		MCDPS APPROVAL OF THIS PLAN WILL EXPIRE TWO YEARS FROM THE DATE OF APPROVAL IF THE PROJECT HAS NOT STARTED.	
SM FILE #			

DPS approval of a sediment control or stormwater management plan is for demonstrated compliance with minimum environmental runoff treatment standards and does not create or imply any right to divert or concentrate runoff onto any adjacent property without that property owner's permission. It does not relieve the design engineer or other responsible person of professional liability or ethical responsibility for the adequacy of the drainage design as it affects uphill or downhill properties.



SOIL BORING DATA TABLE

BORING	NORTHING	EASTING	DEPTH (FT)	EX. GROUND ELEV.	PROP. GROUND ELEV.	BORING INVERT
SB-1	548,806	1,260,825	20	420.00	420.00	400.00
SB-2	548,805	1,260,887	20	420.00	420.00	400.00
SB-3	548,835	1,260,860	12	410.50	412.00	398.50
INF-1	548,868	1,260,891	12	410.50	408.00	398.50

THE MARYLAND NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING

M-NCPPC PERMIT NO. _____
M-NCPPC PARK FACILITY CODE _____
REVIEWED BY _____
APPROVED BY _____ CHIEF, CONSTRUCTION SECTION
DATE APPROVED _____
M-NCPPC PERMIT SHEET # _____ OF _____

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MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:		NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED FOR A MCDPS ACCESS PERMIT!
Stormwater Management: SEDIMENT CONTROL & SAFE CONVEYANCE REVIEW ONLY	Sediment Control Technical Requirements:	Administrative Requirements:
Reviewed Date	Reviewed Date	Reviewed Date
Approved Date	Approved Date	Reviewed Date
243711 SM FILE #		262615 SEDIMENT CONTROL PERMIT NO.
		MCDPS APPROVAL OF THIS PLAN WILL EXPIRE TWO YEARS FROM THE DATE OF APPROVAL IF THE PROJECT HAS NOT STARTED.

- NOTES:**
- TOPSOIL SHALL BE INSTALLED PER SPECIFICATION TO ALL GRADED AREAS ABOVE NORMAL WATER SURFACE ELEVATION.
 - ABOVE NORMAL WATER SURFACE ELEVATION, OVERSEED GRADED AREAS DAILY WITH TEMPORARY SEED AND SHREDDED HARDWOOD MULCH. OVERSEED WITH PERMANENT SEED AS PER CONSTRUCTION PLANS AND SPECIFICATIONS AS COMPLETED AREAS ARE APPROVED BY INSPECTOR/ENGINEER.

CLIENT

MR. CRAIG CARSON
MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850
(240) 777-7713

DEPARTMENT OF ENVIRONMENTAL PROTECTION

MONTGOMERY COUNTY • MARYLAND

DATE	ISSUES / REVISIONS
6/15/2012	30% SUBMITTAL
3/21/2014	60% SUBMITTAL
10/10/2014	90% SUBMITTAL

SEAL:

PROFESSIONAL CERTIFICATION
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LICENSE # 45058
EXPIRATION DATE: 04/11/2016

CENTURY ENGINEERING

Biohabitats

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fx: 410.554.0168 / www.biohabitats.com

Restore the Earth & Inspire Ecological Stewardship

HUNTERS WOODS III SWM RETROFIT

(DEP SEQ. NO. 153 - ASSET 10797)

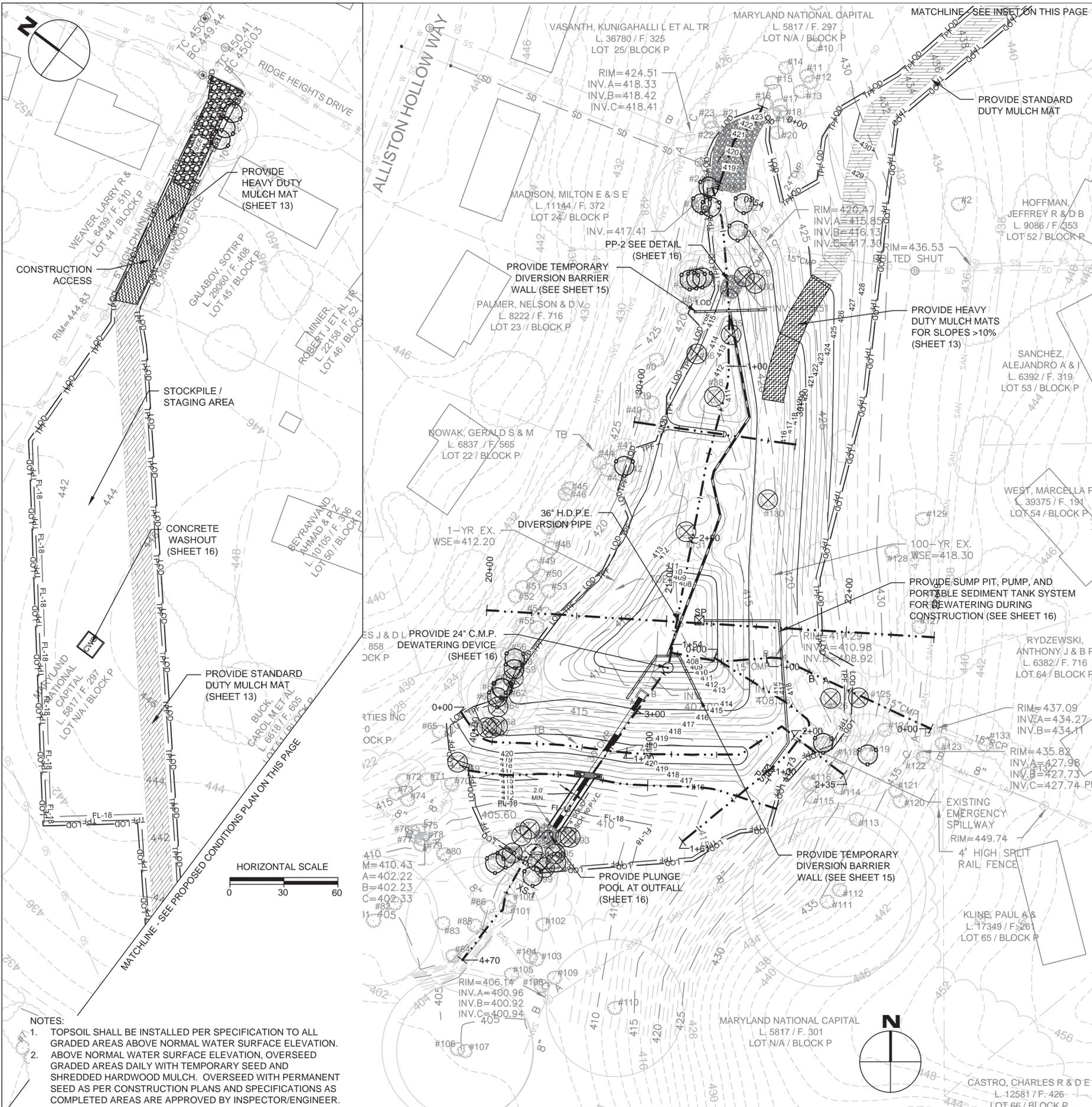
90% DESIGN

MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION - WATER RESOURCES ENGINEERING CONTRACT #8803000101BD - TASK ORDER 16

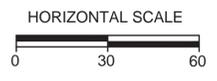
PROPOSED CONDITIONS

PROJECT NO.:	08041.05	SCALE:	1" = 30'
SEAL:	BY: BL/MG/TB/AG	CHECK:	MG
	DWG. NO.:		

4 of 21



- NOTES:**
1. TOPSOIL SHALL BE INSTALLED PER SPECIFICATION TO ALL GRADED AREAS ABOVE NORMAL WATER SURFACE ELEVATION.
 2. ABOVE NORMAL WATER SURFACE ELEVATION, OVERSEED GRADED AREAS DAILY WITH TEMPORARY SEED AND SHREDDED HARDWOOD MULCH. OVERSEED WITH PERMANENT SEED AS PER CONSTRUCTION PLANS AND SPECIFICATIONS AS COMPLETED AREAS ARE APPROVED BY INSPECTOR/ENGINEER.



TOTAL DISTURBED AREA = 1.78 ac

THE MARYLAND NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING
 M-NCPPC PERMIT NO. _____
 M-NCPPC PARK FACILITY CODE _____
 REVIEWED BY _____
 APPROVED BY _____ CHIEF, CONSTRUCTION SECTION
 DATE APPROVED _____
 M-NCPPC PERMIT SHEET # _____ OF _____

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MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:		NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED FOR A MCDPS ACCESS PERMIT!
Stormwater Management: SEDIMENT CONTROL & SAFE CONVEYANCE REVIEW ONLY	Sediment Control Technical Requirements:	Administrative Requirements:
Reviewed _____ Date _____	Reviewed _____ Date _____	Reviewed _____ Date _____
Approved _____ Date _____	Approved _____ Date _____	Reviewed _____ Date _____
243711 SM FILE #		262615 SEDIMENT CONTROL PERMIT NO.
		MCDPS APPROVAL OF THIS PLAN WILL EXPIRE TWO YEARS FROM THE DATE OF APPROVAL IF THE PROJECT HAS NOT STARTED.

DPS approval of a sediment control or stormwater management plan is for demonstrated compliance with minimum environmental runoff treatment standards and does not create or imply any right to divert or concentrate runoff onto any adjacent property without that property owner's permission. It does not relieve the design engineer or other responsible person of professional liability or ethical responsibility for the adequacy of the drainage design as it affects uphill or downhill properties.

CLIENT

MR. CRAIG CARSON
 MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
 255 ROCKVILLE PIKE, SUITE 120
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 (240) 777-7713

DEPARTMENT OF ENVIRONMENTAL PROTECTION
 MONTGOMERY COUNTY • MARYLAND

DATE:	ISSUES / REVISIONS
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 EXPIRATION DATE: 04/11/2016

Biohabitats

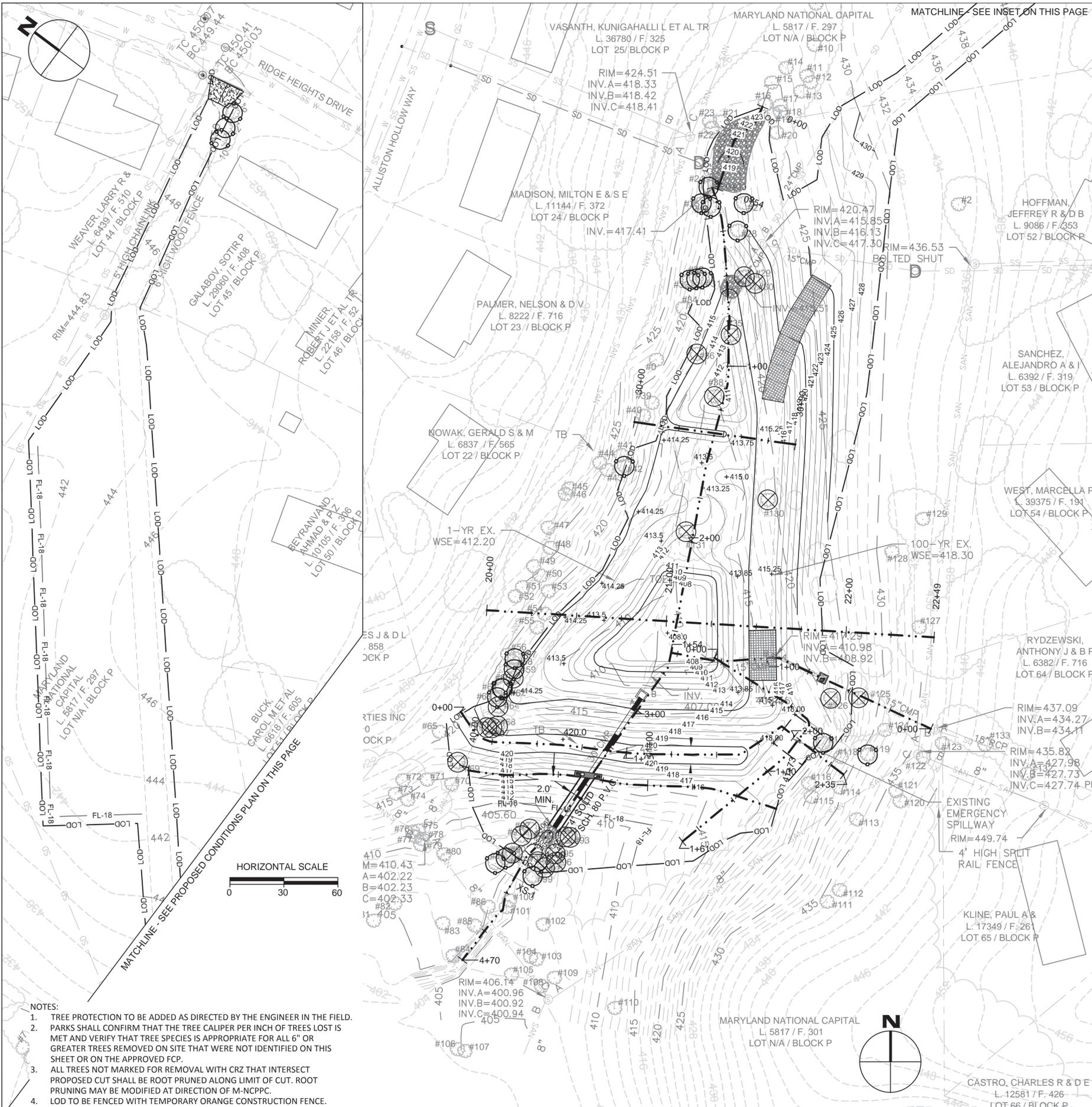
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 MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION - WATER RESOURCES ENGINEERING CONTRACT #8803000101BD - TASK ORDER 16

EROSION & SEDIMENT CONTROL PLAN

PROJECT NO.:	08041.05	SCALE:	1" = 30'
SEAL:		BY:	BL/MG/TB/AG
		CHECK:	MG
		DWG. NO.:	

5 of 21



TREE TABLE					
TREE REMOVAL			TREE PROTECTION WITHIN LOD		
ID	DBH (IN)	SPECIES	ID	DBH (IN)	SPECIES
29	6	Persimmon	24	15	Sycamore
30	6	Persimmon	26	9	Tulip Poplar
35	12	Green Ash	27	10	Tulip Poplar
36	7	Sycamore	28	9	Red Maple
38	6	Red Maple	117	14	Tulip Poplar
60	9	Black Willow	TREES WITHIN 4' OF LOD TO BE PROTECTED		
64	12	Sycamore			
66	8	Tulip Poplar	25	19	Sycamore
67	7	Cherry	31	10	Red Maple
68	7	Red Maple	32	7	Tulip Poplar
69	13	Tulip Poplar	33	7	Tulip Poplar
90	7	Black Willow	42	10	Tulip Poplar
91	10	Red Maple	57	8	Sycamore
92	6	Red Maple	59	10	Sycamore
93	7	Red Maple	61	15	Sycamore
94	11	Red Maple	62	8	Sycamore
95	11	Black Willow	63	11	Sycamore
96	11	Red Maple	88	8	Tulip Poplar
97	8	Black Willow	89	10	Black Willow
98	7	Black Willow	99	9	Black Willow
125	8	Red Cedar	119	15	Tulip Poplar
126	10	Walnut	N/A	6	Evergreen
130	7	Pear	N/A	10	Evergreen
131	10	Black Willow	N/A	12	Evergreen

CLIENT

MR. CRAIG CARSON
 MONTGOMERY COUNTY DEPARTMENT
 OF ENVIRONMENTAL PROTECTION
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 ROCKVILLE, MD 20850
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DEPARTMENT OF ENVIRONMENTAL PROTECTION
 MONTGOMERY COUNTY • MARYLAND

DATE:	ISSUES / REVISIONS
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CENTURY ENGINEERING

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HUNTERS WOODS III SWM RETROFIT
 (DEP SEQ. NO. 153 - ASSET 10797)

90% DESIGN

MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION - WATER RESOURCES ENGINEERING CONTRACT #8803000101BD - TASK ORDER 16

FORESTRY RESOURCES

PROJECT NO.:	08041.05	SCALE:	1" = 30'
SEAL:	BY: BL/MG/TB/AG	CHECK: MG	DWG. NO.:

6 of 21

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING

M-NCPPC PERMIT NO. _____

M-NCPPC PARK FACILITY CODE _____

REVIEWED BY _____

APPROVED BY _____ CHIEF, CONSTRUCTION SECTION

DATE APPROVED _____

M-NCPPC PERMIT SHEET # _____ OF _____

THIS IS NOT A PERMIT TO BEGIN CONSTRUCTION

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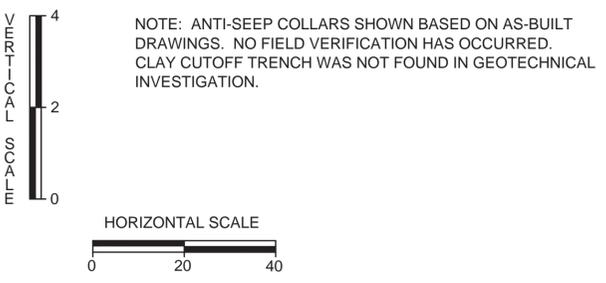
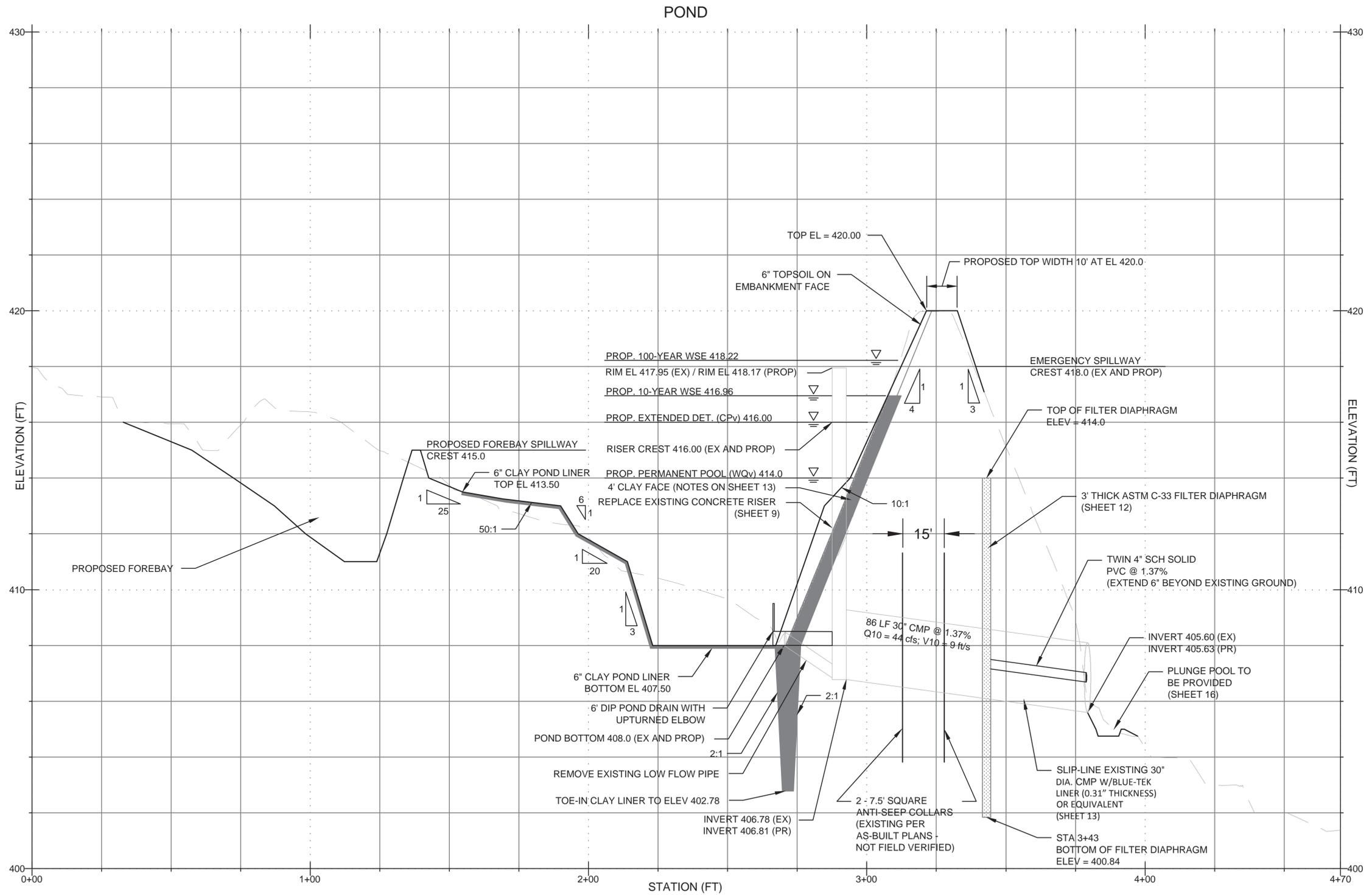
MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:

Stormwater Management:	Sediment Control Technical Requirements:	Administrative Requirements:
SEDIMENT CONTROL & SAFE CONVEYANCE REVIEW ONLY	Reviewed _____ Date _____	Reviewed _____ Date _____
Reviewed _____ Date _____	Approved _____ Date _____	262615
Approved _____ Date _____	SM FILE # _____	SEDIMENT CONTROL PERMIT NO. _____

MCDPS APPROVAL OF THIS PLAN WILL EXPIRE TWO YEARS FROM THE DATE OF APPROVAL IF THE PROJECT HAS NOT STARTED.

DPS approval of a sediment control or stormwater management plan is for demonstrated compliance with minimum environmental runoff treatment standards and does not create or imply any right to divert or concentrate runoff onto any adjacent property without that property owner's permission. It does not relieve the design engineer or other responsible person of professional liability or ethical responsibility for the adequacy of the drainage design as it affects uphill or downhill properties.

- NOTES:**
- TREE PROTECTION TO BE ADDED AS DIRECTED BY THE ENGINEER IN THE FIELD. PARKS SHALL CONFIRM THAT THE TREE CALIPER PER INCH OF TREES LOST IS MET AND VERIFY THAT TREE SPECIES IS APPROPRIATE FOR ALL 6" OR GREATER TREES REMOVED ON SITE THAT WERE NOT IDENTIFIED ON THIS SHEET OR ON THE APPROVED FCP.
 - ALL TREES NOT MARKED FOR REMOVAL WITH CRZ THAT INTERSECT PROPOSED CUT SHALL BE ROOT PRUNED ALONG LIMIT OF CUT. ROOT PRUNING MAY BE MODIFIED AT DIRECTION OF M-NCPPC.
 - LOD TO BE FENCED WITH TEMPORARY ORANGE CONSTRUCTION FENCE.



PROFILE LEGEND

	EXISTING
	PROPOSED
	CLAY LINER

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING

M-NCPPC RECORD FILE NO. _____
 TECHNICAL REVIEW CONCURRENCE BY _____
 DATE _____
 PARK FACILITY CODE _____

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:

STORMWATER MANAGEMENT	SEDIMENT CONTROL TECHNICAL REQUIREMENTS:
REVIEWED _____ DATE _____	REVIEWED _____ DATE _____
APPROVED _____ DATE _____	APPROVED _____ DATE _____

NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED OF A MCDPS ACCESS PERMIT

ADMINISTRATIVE REQUIREMENTS:

REVIEWED _____ DATE _____

262615

SEDIMENT CONTROL PERMIT NO.

MCDPS APPROVAL OF THIS PLAN WILL EXPIRE ONE YEAR FROM THE DATE OF APPROVAL. IF THE PROJECT HAS NOT STARTED, UNLESS THE PERMIT HAS BEEN EXTENDED.

CLIENT

MR. CRAIG CARSON
 MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
 255 ROCKVILLE PIKE, SUITE 120
 ROCKVILLE, MD 20850
 (240) 777-7713

Department of Environmental Protection
 Montgomery County Maryland

DATE: ISSUES / REVISIONS

6/15/2012	30% SUBMITTAL
3/21/2014	60% SUBMITTAL
10/10/2014	90% SUBMITTAL

SEAL:

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 #: 45058
 EXPIRATION DATE: 04/11/2016

CENTURY ENGINEERING

Biohabitats

The Stables Building 2081 Clipper Park Road
 Baltimore, MD 21211 / ph: 410.554.0156
 fx: 410.554.0168 / www.biohabitats.com

Restore the Earth & Inspire Ecological Stewardship

HUNTERS WOODS III SWM RETROFIT

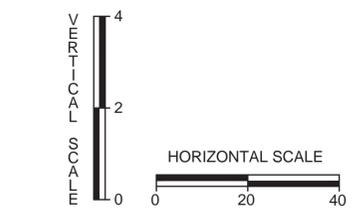
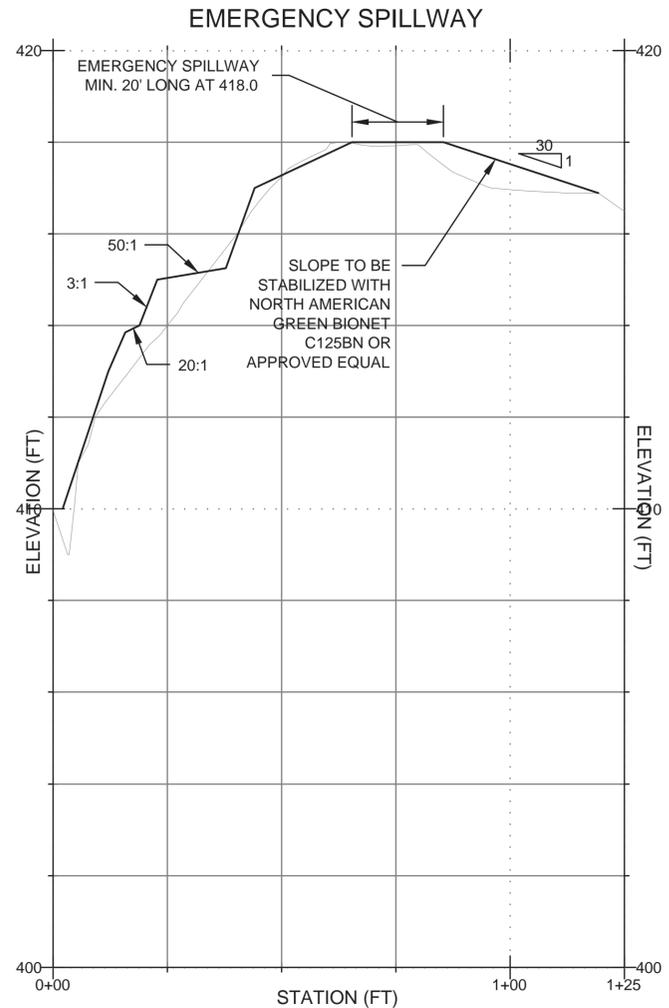
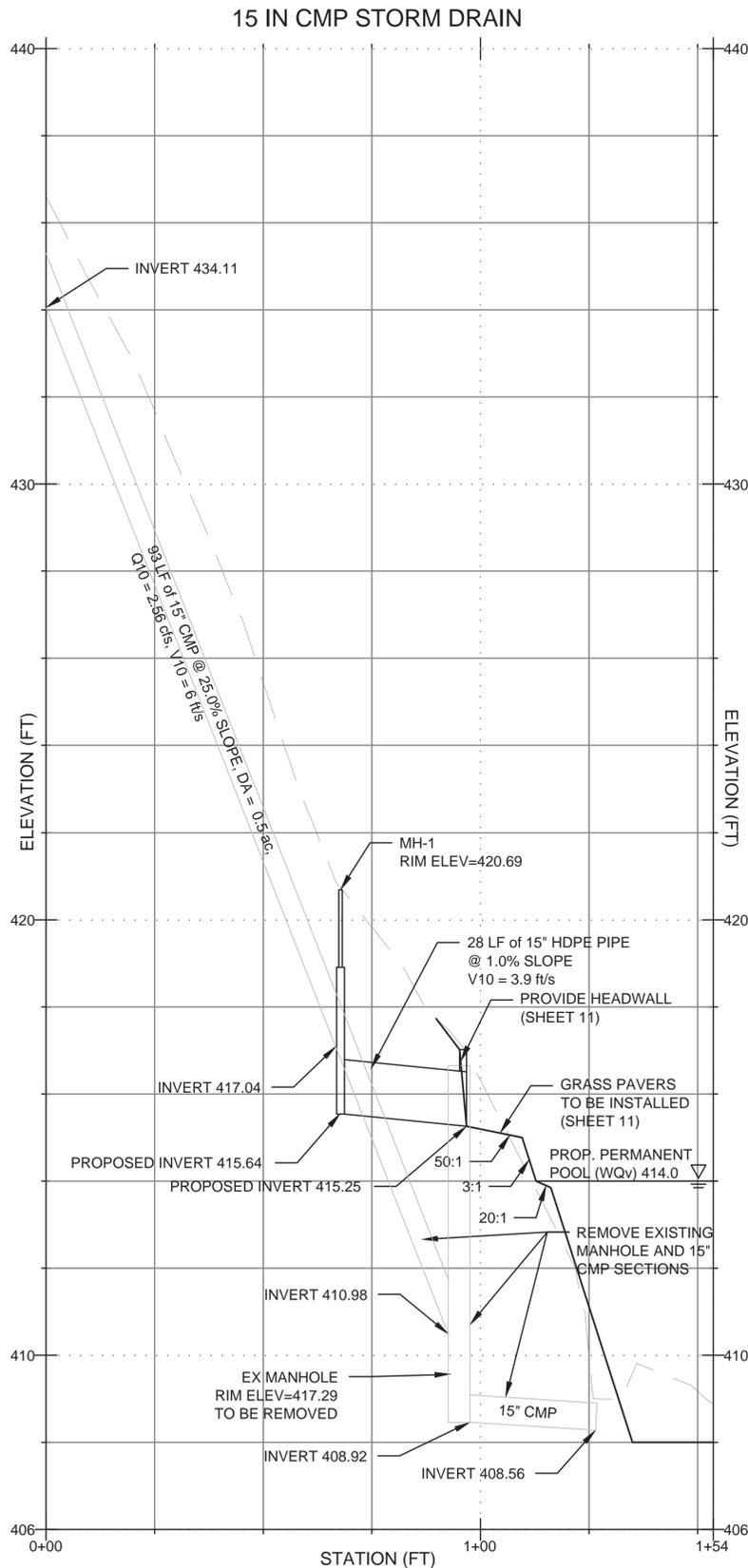
(DEP SEQ. NO. 153 - ASSET 10797)

90% DESIGN

MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION - WATER RESOURCES ENGINEERING CONTRACT #8803000101BD - TASK ORDER 16

TITLE: **PROFILE I**

PROJECT NO.: 08041.05	SCALE: AS SHOWN
SEAL:	BY: BL/MG/TB/AG CHECK: MG DWG. NO.: 7 of 20



PROFILE LEGEND

- EXISTING
- PROPOSED

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING

M-NCPPC PERMIT NO. _____

M-NCPPC PARK FACILITY CODE _____

REVIEWED BY _____

APPROVED BY _____ CHIEF, CONSTRUCTION SECTION

DATE APPROVED _____

M-NCPPC PERMIT SHEET # _____ OF _____

THIS IS NOT A PERMIT TO BEGIN CONSTRUCTION

This approval is for technical review only. For permit information, contact Jay Childs, Construction Supervisor at (301)495-2574.

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING

M-NCPPC RECORD FILE NO. _____

TECHNICAL REVIEW _____

CONCURRENCE BY _____

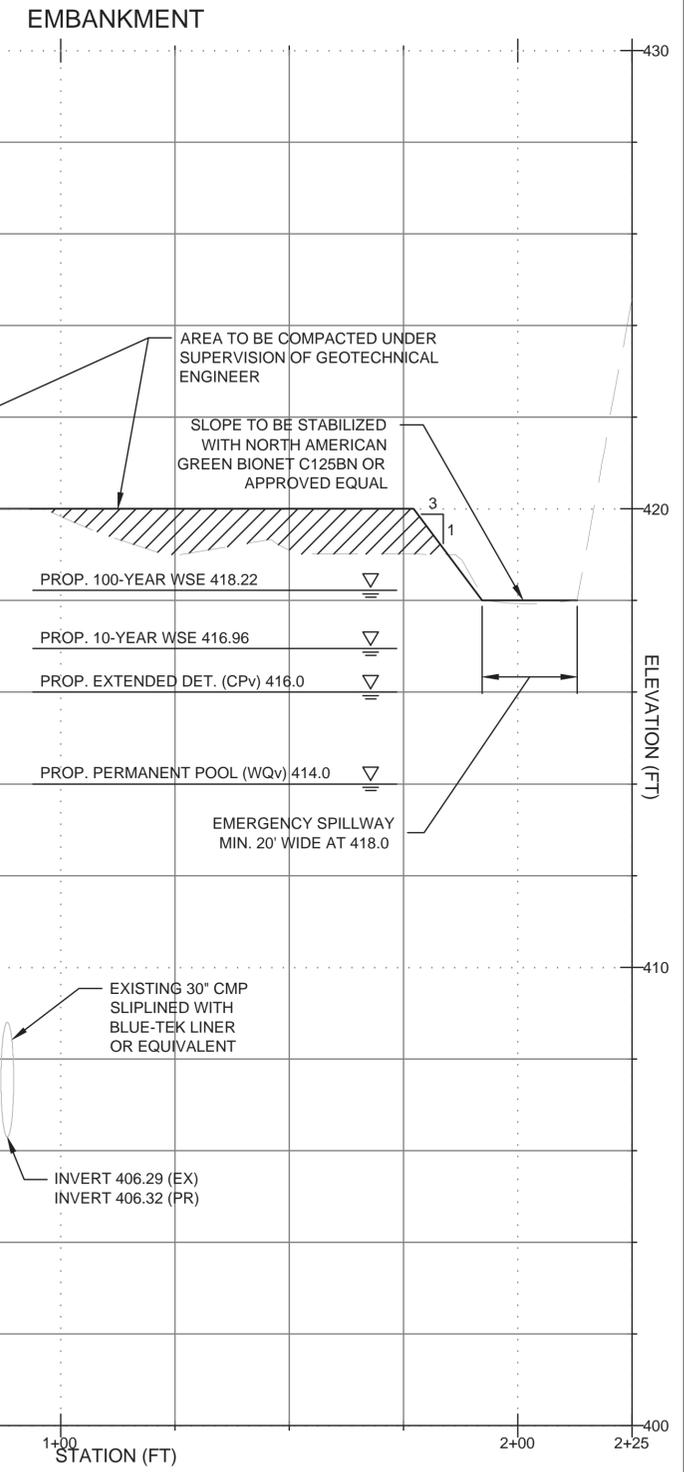
DATE _____

PARK FACILITY CODE _____

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:

STORMWATER MANAGEMENT	SEDIMENT CONTROL TECHNICAL REQUIREMENTS:	ADMINISTRATIVE REQUIREMENTS:
REVIEWED _____ DATE _____	REVIEWED _____ DATE _____	REVIEWED _____ DATE _____
APPROVED _____ DATE _____	APPROVED _____ DATE _____	262615 SEDIMENT CONTROL PERMIT NO.

MCDPS APPROVAL OF THIS PLAN WILL EXPIRE ONE YEAR FROM THE DATE OF APPROVAL. IF THE PROJECT HAS NOT STARTED, UNLESS THE PERMIT HAS BEEN EXTENDED.



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Restore the Earth & Inspire Ecological Stewardship

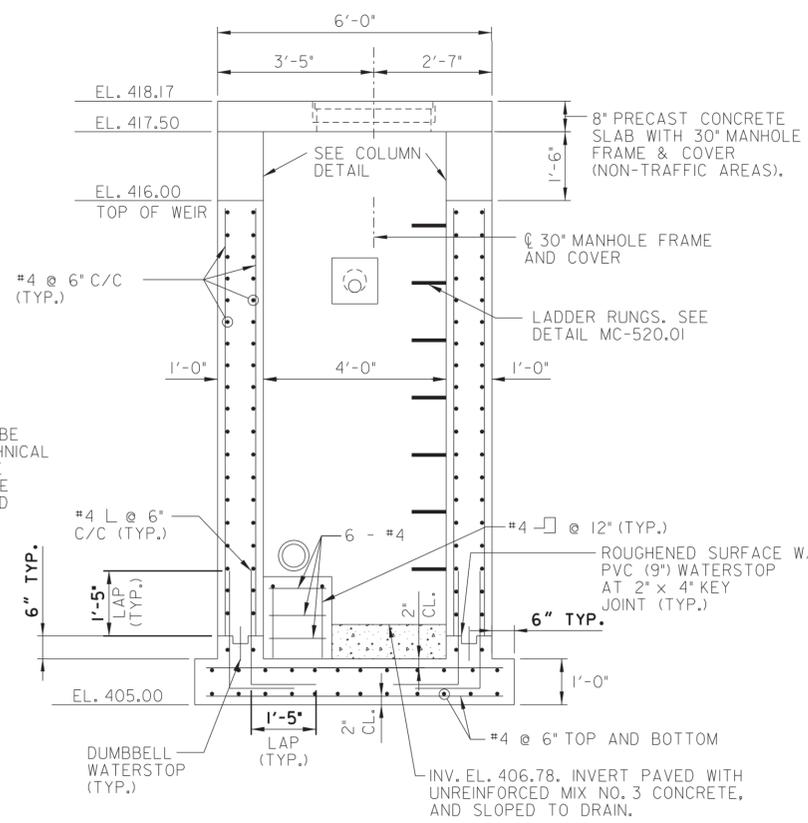
HUNTERS WOODS III SWM RETROFIT

(DEP SEQ. NO. 153 - ASSET 10797)

90% DESIGN

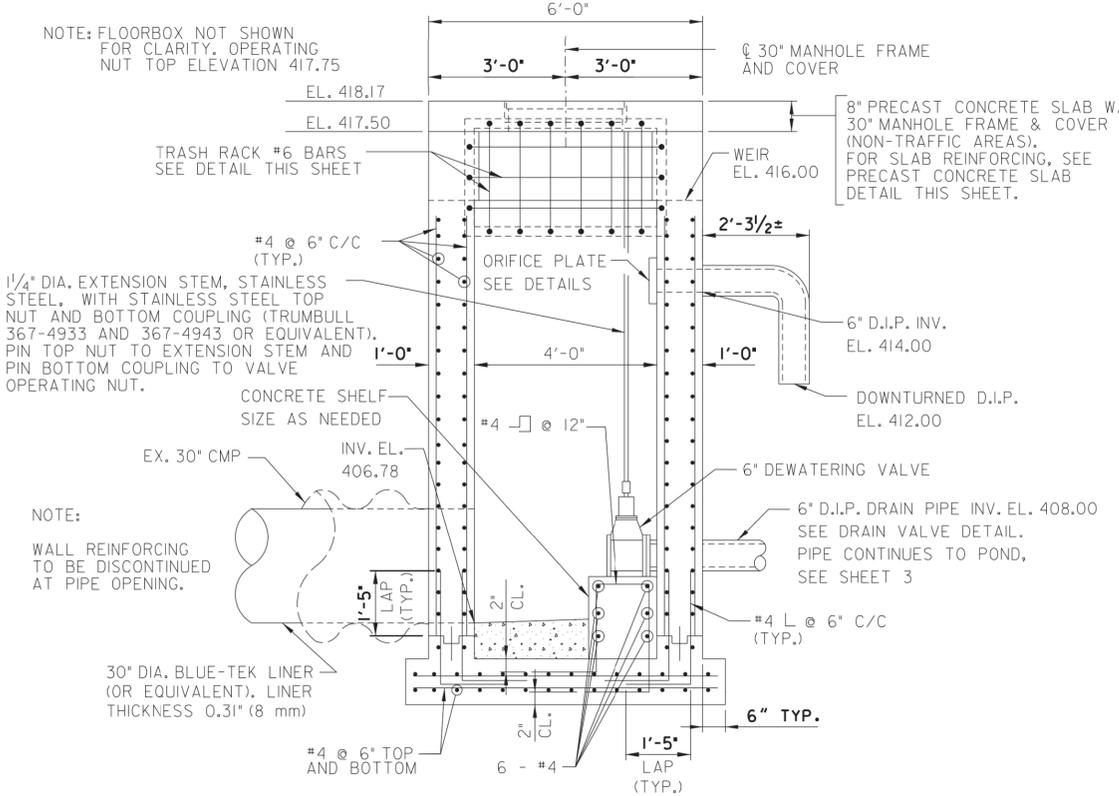
MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION - WATER RESOURCES ENGINEERING CONTRACT #8803000101BD - TASK ORDER 16

PROFILE II	
PROJECT NO.: 08041.05	SCALE: AS SHOWN
SEAL:	BY: BL/MG/TB/AG CHECK: MG DWG. NO.: 8 of 20



SECTION B-B

SCALE: 1/2" = 1'-0"



VIEW A-A

SCALE: 1/2" = 1'-0"

RISER SUBBASE MUST BE APPROVED BY GEOTECHNICAL ENGINEER. DO NOT USE STONE OR GRAVEL. USE MUD SLAB AS DIRECTED

NOTE: FLOORBOX NOT SHOWN FOR CLARITY. OPERATING NUT TOP ELEVATION 417.75

NOTE: WALL REINFORCING TO BE DISCONTINUED AT PIPE OPENING.

GENERAL NOTES:

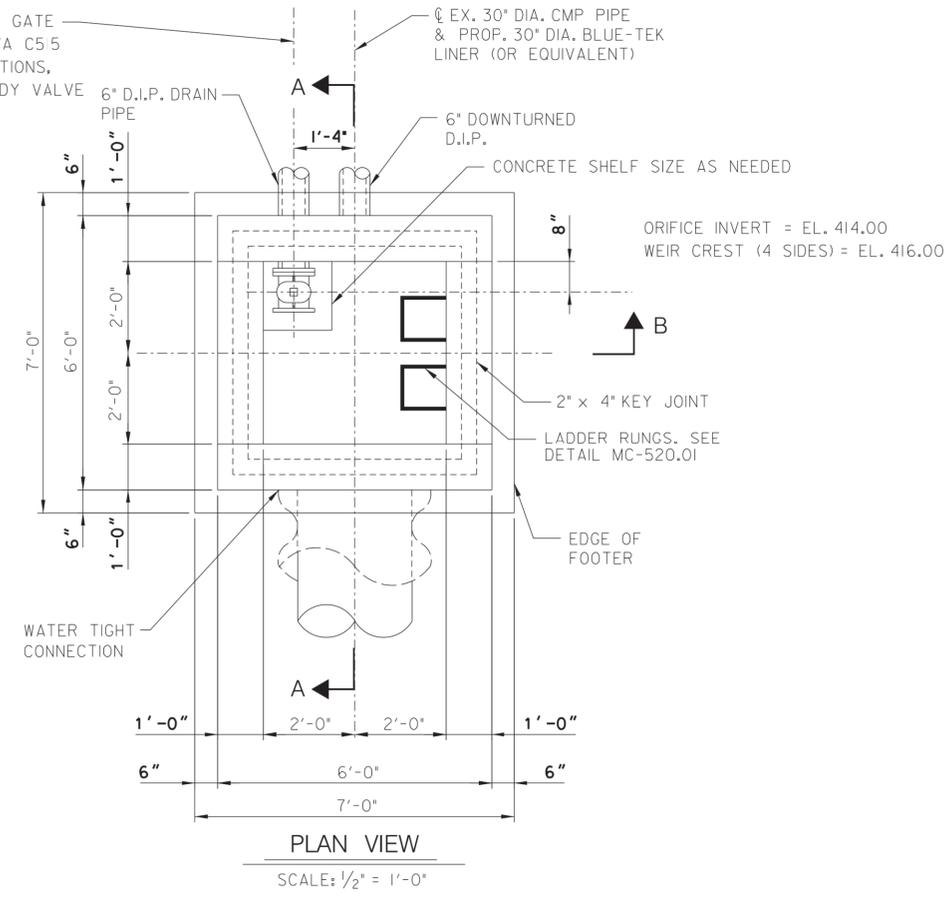
- SPECIFICATIONS : SHA SPECIFICATIONS DATED JULY 2008 REVISIONS THERE OF AND ADDITIONS THERE TO AND SPECIAL PROVISIONS FOR MATERIALS AND CONSTRUCTION.
- CONCRETE : CONCRETE DESIGN SHALL MEET THE REQUIREMENTS OF ACI350, ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES, WITH FREEZING AND THAWING EXPOSURES. CONCRETE SHALL BE A TYPE I OR IIA CEMENT, WITH A 28 COMPRESSIVE STRENGTH OF 4500 PSIFOR CAST IN PLACE AND 5000 PSIFOR PRE-CAST STRUCTURES. CONCRETE SHALL ALSO MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 420, MIX NO. 6.
- REINFORCING STEEL : ALL REINFORCING AND DIMENSIONS SHALL BE AS SHOWN. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.
- WATER TIGHT CONNECTION : RX-101 BENTONITE WATERSTOP OR APPROVED EQUAL TO BE CENTERED AROUND ALL D.I.P. PIPES AND C.M.P. PIPE INSIDE RISER WALL.

STRUCTURAL CERTIFICATION

I hereby certify that the structural design of this stormwater management facility is in accordance with applicable codes and that the plan for this has been designed for specified loading(s) as indicated hereon.

Design Engineer Signature: Caleb Percy Date: 02/29/2016
 Printed Name: Caleb Percy Registration Number: 39263
 Design Loading: _____

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:		NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED FOR A MCDPS ACCESS PERMIT.	
Stormwater Management: SEDIMENT CONTROL & SAFE CONVEYANCE REVIEW ONLY	Sediment Control Technical Requirements:	Administrative Requirements:	
Reviewed _____ Date _____	Reviewed _____ Date _____	Reviewed _____ Date <u>262615</u>	
Approved _____ Date <u>243711</u>	Approved _____ Date _____	SEDIMENT CONTROL PERMIT NO. _____	
SM FILE # _____			
MCDPS APPROVAL OF THIS PLAN WILL EXPIRE TWO YEARS FROM THE DATE OF APPROVAL IF THE PROJECT HAS NOT STARTED.			



PLAN VIEW

SCALE: 1/2" = 1'-0"

CLIENT

MR. CRAIG CARSON
 MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
 255 ROCKVILLE PIKE, SUITE 120
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DEPARTMENT OF ENVIRONMENTAL PROTECTION
 MONTGOMERY COUNTY • MARYLAND

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HUNTERS WOODS III SWM RETROFIT
 (DEP SEQ. NO. 153 - ASSET 10797)
90% DESIGN
 MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION - WATER RESOURCES ENGINEERING CONTRACT #8803000101BD - TASK ORDER 16

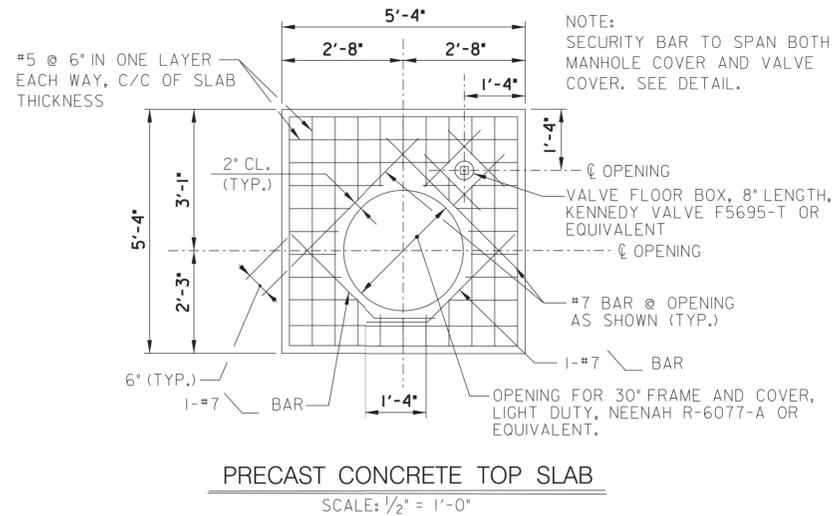
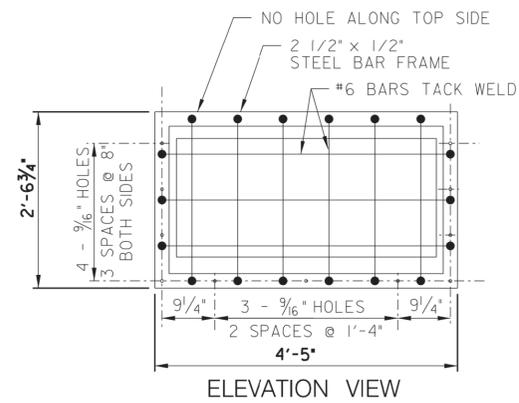
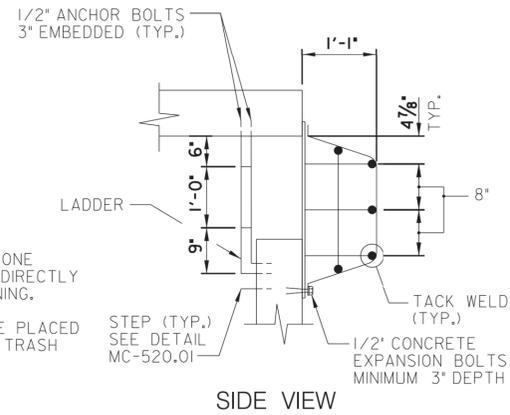
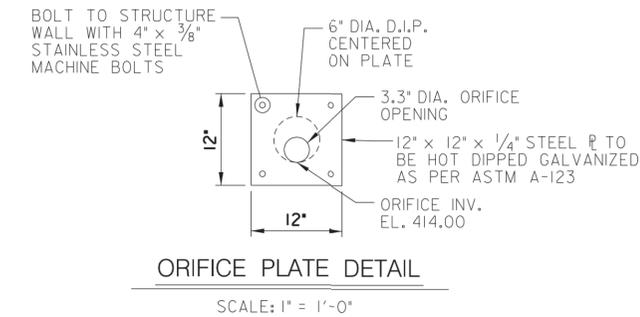
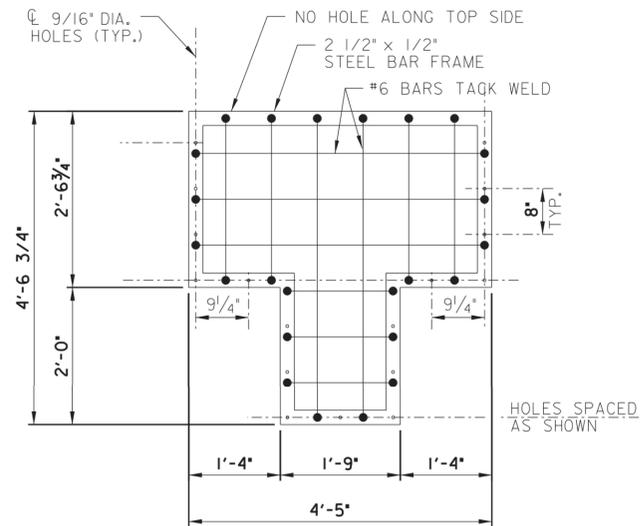
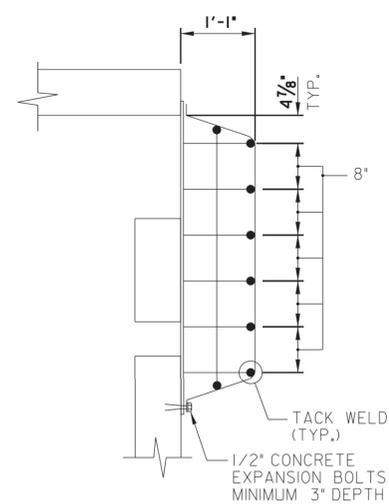
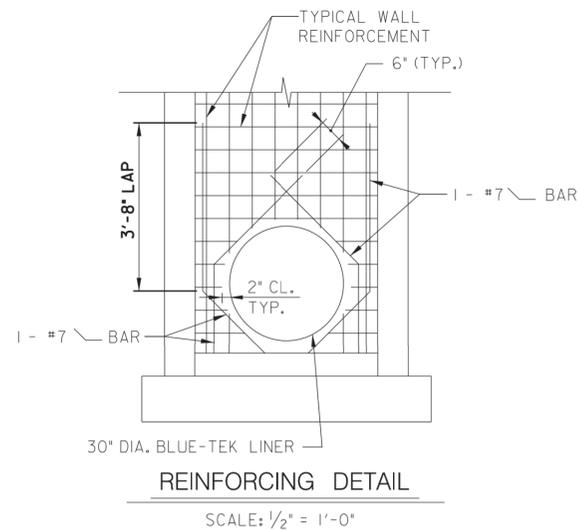
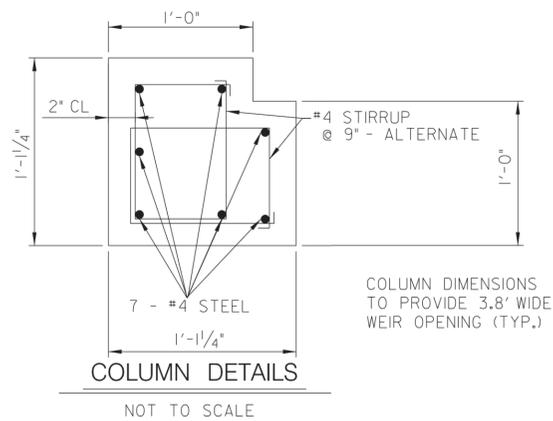
RISER STRUCTURAL DESIGN

PROJECT NO.: 08041.05 SCALE: NTS

SEAL: _____ BY: BL/MG/TB/AG CHECK: _____ MG

DWG. NO.: _____

9 of 21



NOTES:

LADDER LOCATED ON ONE SIDE OF RISER ONLY, DIRECTLY BELOW MANHOLE OPENING.

VERTICAL BARS TO BE PLACED ON OUTSIDE FACE OF TRASH RACK.

NOTE: FOR DETAILS NOT SHOWN, REFER TO STANDARD NO. MD-383.00

STRUCTURAL CERTIFICATION

I hereby certify that the structural design of this stormwater management facility is in accordance with applicable codes and that the plan for this has been designed for specified loading(s) as indicated hereon.

Design Engineer Signature: Caleb Percy Date: 02/29/2016
 Printed Name: Caleb Percy Registration Number: 39263
 Design Loading: _____

NOTE:

TRASH RACK BASIS OF PAYMENT IS INCIDENTAL TO COST OF RISER STRUCTURE. ONE UNIT IS TO BE INSTALLED ON EACH FACE OF WALL. HOT DIP GALVANIZED AFTER ASSEMBLING UNIT.

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:		MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION - WATER RESOURCES ENGINEERING CONTRACT #8803000101BD - TASK ORDER 16	
Stormwater Management:	Sediment Control Technical Requirements:	Administrative Requirements:	Reviewed Date:
SEDIMENT CONTROL & SAFE CONVEYANCE REVIEW ONLY	Reviewed Date:	Reviewed Date:	262615
Reviewed Date:	Approved Date:	SEDIMENT CONTROL PERMIT NO.:	
Approved Date:	SM FILE #:		
243711			

MCDPS APPROVAL OF THIS PLAN WILL EXPIRE TWO YEARS FROM THE DATE OF APPROVAL IF THE PROJECT HAS NOT STARTED.

CLIENT

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 MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
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DEPARTMENT OF ENVIRONMENTAL PROTECTION
 MONTGOMERY COUNTY • MARYLAND

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(DEP SEQ. NO. 153 - ASSET 10797)

90% DESIGN

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RISER STRUCTURAL DESIGN

PROJECT NO.:	08041.05	SCALE:	NTS
SEAL:	BY: BL/MG/TB/AG	CHECK: MG	DWG. NO.:
			10 of 21

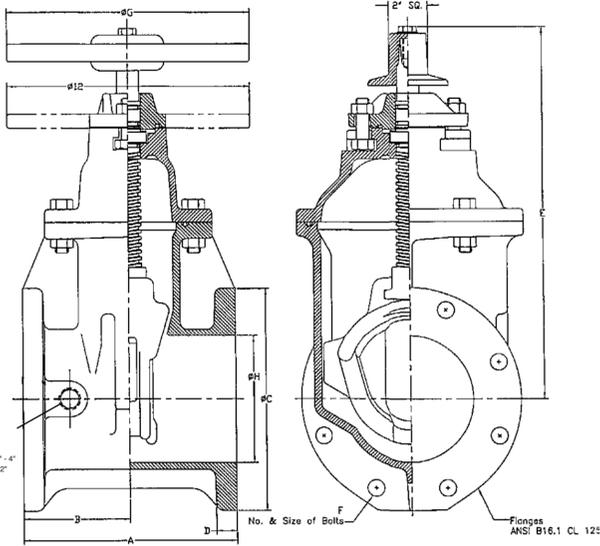


Complies with applicable requirements of AWWA C515

2" - 12" R/S VALVE NRS FLANGED ENDS GENERAL DIMENSIONS

KENNEDY VALVE MODEL KS-RW

7561ASS W/HANDWHEEL
7561ANSS W/NUT
7701ASS W/POST PLATE (3-12")



Standard Tap Sizes
1/2" NPT - 2 1/2" - 4"
3/4" NPT - 6" - 12"

* Face to face dimensions (inch) conform to ASME B16.10

ALL FLANGE VALVES ARE TAPPED & PLUGGED @ POSITION "A"

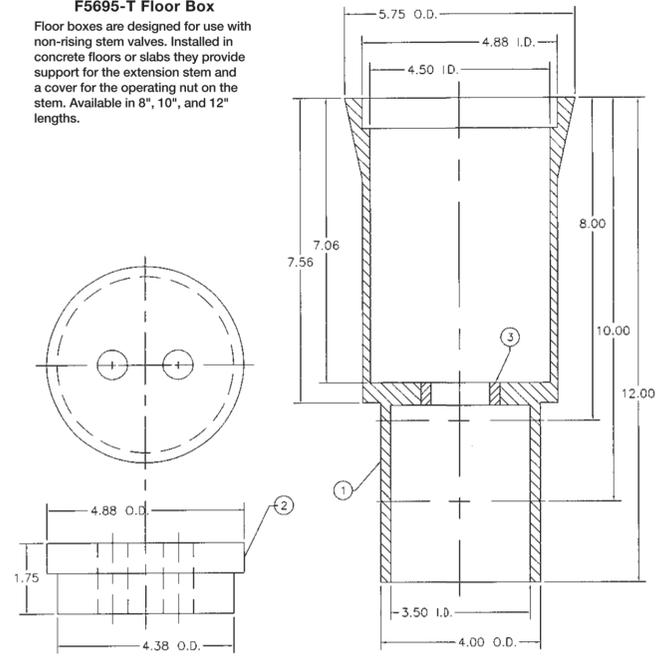
VALVE SIZE	* A	B	C	D	E	F	G	H
2	50	7	178	3 1/2	89	6	150	5/8
2 1/2	60	7 1/2	191	3 3/4	95	7	180	11/16
3	80	8	203	4	102	7 1/2	190	3/4
4	100	9	229	4 1/2	114	9	230	15/16
6	150	10 1/2	267	5 1/4	133	11	280	1
8	200	11 1/2	292	5 3/4	146	13 1/2	340	1 1/8
10	250	13	330	6 1/2	165	16	410	1 3/16
12	300	14	356	7	178	19	480	1 1/4

FLOOR BOX - PARTS LIST AND DIMENSIONS

KENNEDY VALVE

F5695-T Floor Box

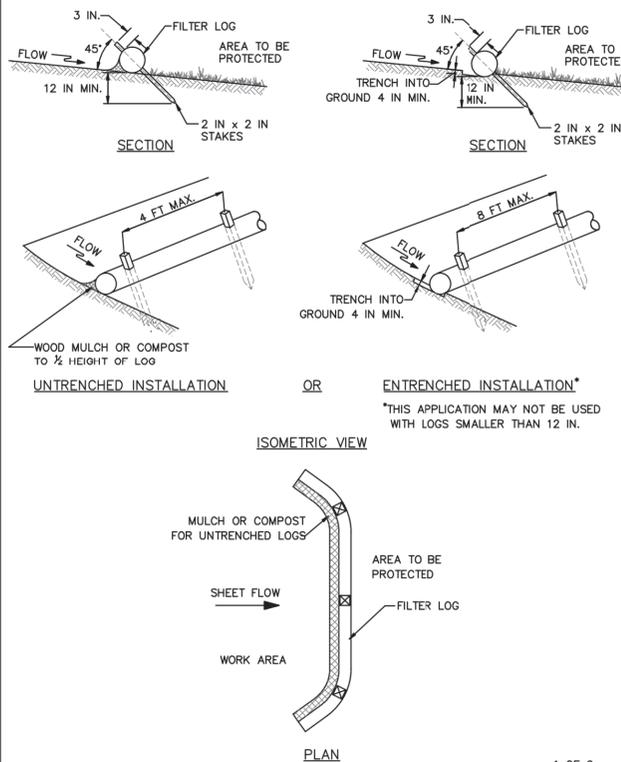
Floor boxes are designed for use with non-rising stem valves. Installed in concrete floors or slabs they provide support for the extension stem and a cover for the operating nut on the stem. Available in 8", 10", and 12" lengths.



Item	Description	Qty.	Material
1	BODY	1	CAST IRON A126B
2	COVER	1	CAST IRON A126B
3	BUSHING	1	BRASS CDA 360

DETAIL E-6 FILTER LOG

STANDARD SYMBOL FL-18
DESIGNATION FL-18 REFERS TO 18 INCH DIAMETER FILTER LOG.



MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-6 FILTER LOG

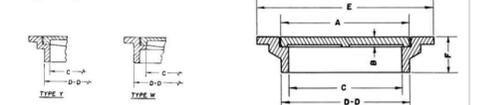
STANDARD SYMBOL FL-18
DESIGNATION FL-18 REFERS TO 18 INCH DIAMETER FILTER LOG.

CONSTRUCTION SPECIFICATIONS

- PRIOR TO INSTALLATION, CLEAR ALL OBSTRUCTIONS INCLUDING ROCKS, CLODS, AND DEBRIS GREATER THAN ONE INCH THAT MAY INTERFERE WITH PROPER FUNCTION OF FILTER LOG.
- FILL LOG NETTING UNIFORMLY WITH COMPOST (IN ACCORDANCE WITH SECTION H-1 MATERIALS), OR OTHER APPROVED BIODEGRADABLE MATERIAL TO DESIRED LENGTH SUCH THAT LOGS DO NOT DEFORM.
- INSTALL FILTER LOGS PERPENDICULAR TO THE FLOW DIRECTION AND PARALLEL TO THE SLOPE WITH THE BEGINNING AND END OF THE INSTALLATION POINTING SLIGHTLY UP THE SLOPE CREATING A "J" SHAPE AT EACH END TO PREVENT BYPASS.
- FOR UNTRENCHED INSTALLATION BLOW OR HAND PLACE MULCH OR COMPOST ON UPHILL SIDE OF THE SLOPE ALONG LOG.
- STAKE FILTER LOG EVERY 4 FEET OR CLOSER ALONG ENTIRE LENGTH OF LOG OR TRENCH LOG INTO GROUND A MINIMUM OF 4 INCHES AND STAKE LOG EVERY 8 FEET OR CLOSER.
- USE STAKES WITH A MINIMUM NOMINAL CROSS SECTION OF 2X2 INCH AND OF SUFFICIENT LENGTH TO ATTAIN A MINIMUM OF 12 INCHES INTO THE GROUND AND 3 INCHES PROTRUDING ABOVE LOG.
- WHEN MORE THAN ONE LOG IS NEEDED, OVERLAP ENDS 12 INCHES MINIMUM AND STAKE.
- REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO A DEPTH OF 1/2 THE EXPOSED HEIGHT OF LOG AND REPLACE MULCH. REPLACE FILTER LOG IF TORN, REINSTALL FILTER LOG IF UNDERMINING OR DISLOCATING OCCURS. REPLACE CLOGGED FILTER LOGS. FOR PERMANENT APPLICATIONS, ESTABLISH AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

R-6001 to R-6050 Series Manhole Frame, Solid Lid

Light Duty



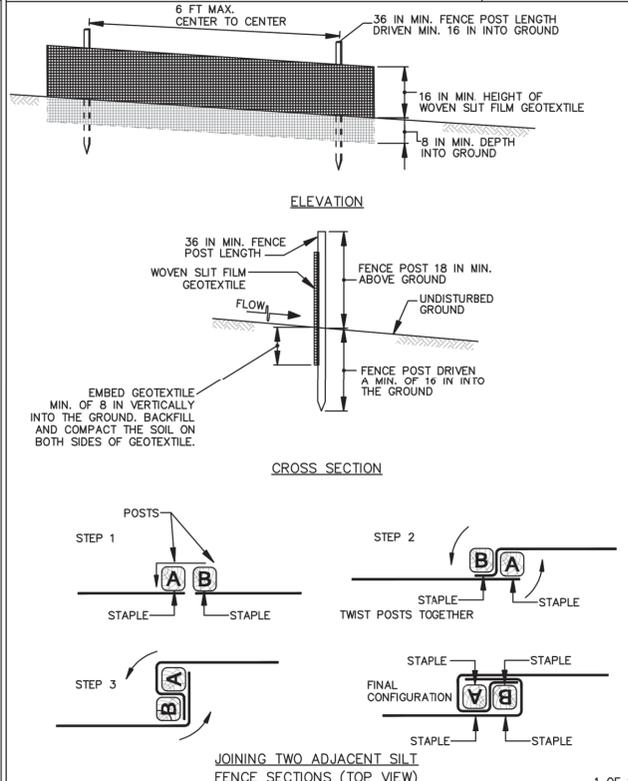
The manhole covers shown here, for off-the-street traffic, are specifically for use on sidewalks, coal holes, wells, pumps or for inspection openings. Lids are furnished standard with open type pickholes. However, they can be supplied with various types of lift handles. Fastening devices are available on special order.

Catalog No.	Dimensions in inches						Frame Type
	A	B	C	DD	E	F	
R-6077-A	31 3/4	3/4	30	31 1/2	36 1/2	3 1/2	Y

NEEHAH FOUNDRY

DETAIL E-1 SILT FENCE

STANDARD SYMBOL SF



MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

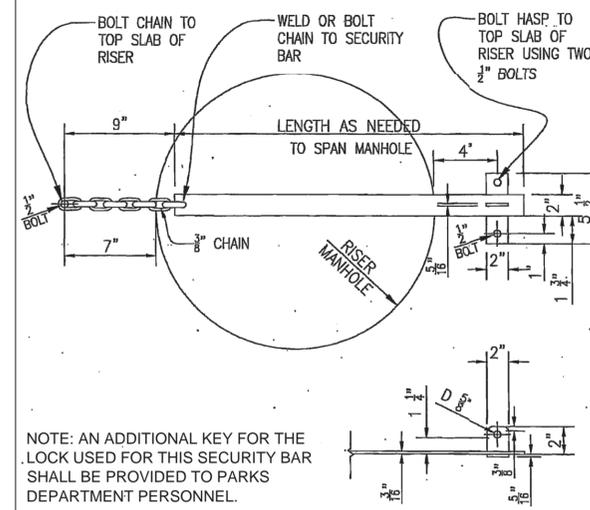
DETAIL E-1 SILT FENCE

STANDARD SYMBOL SF

CONSTRUCTION SPECIFICATIONS

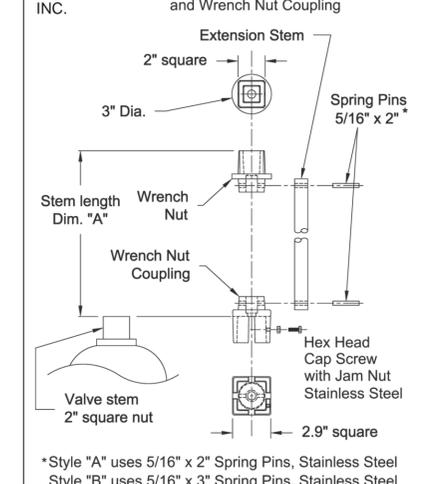
- USE WOOD POSTS 1 1/2 x 1 1/2 x 1/8 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
- USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
- USE WOVEN SILT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
- PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
- EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
- WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
- EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

DEP - RISER MANHOLE SECURITY BAR DETAIL



NOTE: AN ADDITIONAL KEY FOR THE LOCK USED FOR THIS SECURITY BAR SHALL BE PROVIDED TO PARKS DEPARTMENT PERSONNEL.

TRUMBULL INDUSTRIES, INC. Extension Stem Assembly Using Style "A" Wrench Nut and Wrench Nut Coupling



*Style "A" uses 5/16" x 2" Spring Pins, Stainless Steel
Style "B" uses 5/16" x 3" Spring Pins, Stainless Steel

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING

M-NPPC PERMIT NO. _____
M-NPPC PARK FACILITY CODE _____
REVIEWED BY _____
APPROVED BY _____ CHIEF, CONSTRUCTION SECTION
DATE APPROVED _____

M-NPPC PERMIT SHEET # _____ OF _____

THIS IS NOT A PERMIT TO BEGIN CONSTRUCTION

This approval is for technical review only. For permit information, contact Jay Childs, Construction Supervisor at (301)495-2574.

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:

Stormwater Management:	Sediment Control Technical Requirements:	Administrative Requirements:
SEDIMENT CONTROL & SAFE CONVEYANCE REVIEW ONLY	Reviewed Date	Reviewed Date
Reviewed Date	Approved Date	262615
Approved Date		SEDIMENT CONTROL PERMIT NO.
243711		
SM FILE #		

DPS approval of a sediment control or stormwater management plan is for demonstrated compliance with minimum environmental runoff treatment standards and does not create or imply any right to divert or concentrate runoff onto any adjacent property without that property owner's permission. It does not relieve the design engineer or other responsible person of professional liability or ethical responsibility for the adequacy of the drainage design as it affects uphill or downhill properties.

CLIENT

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255 ROCKVILLE PIKE, SUITE 120
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DEPARTMENT OF ENVIRONMENTAL PROTECTION MONTGOMERY COUNTY • MARYLAND

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(DEP SEQ. NO. 153 - ASSET 10797)

90% DESIGN

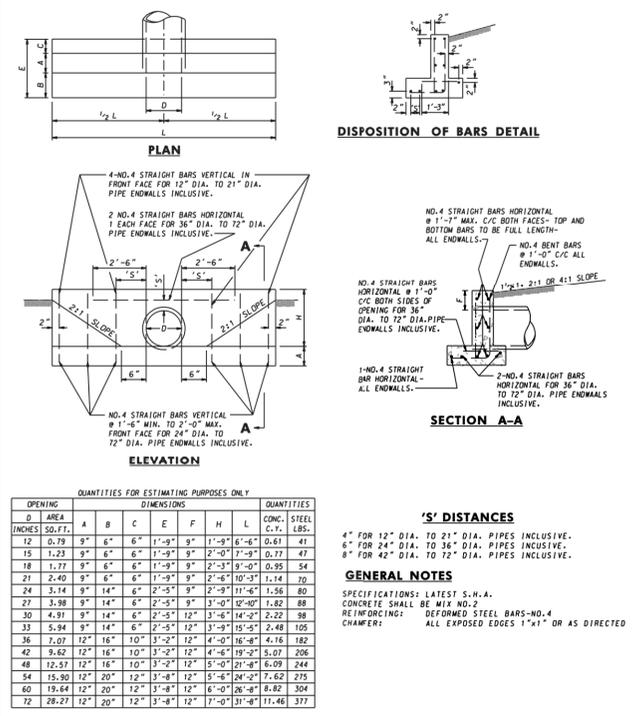
MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION - WATER RESOURCES ENGINEERING CONTRACT #8803000101BD - TASK ORDER 16

DETAILS

PROJECT NO.:	SCALE:
08041.05	AS SHOWN

SEAL:	BY:	CHECK:	MG
	BL/MG/TB/AG		

11 of 21



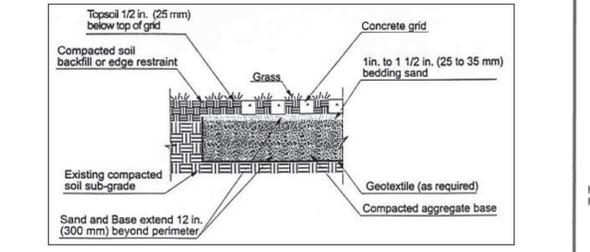
OPENING	DIMENSIONS								QUANTITIES
Ø	A	B	C	E	F	H	L	CONC. STEEL	
INCHES	SO. FT.							C.Y.	
12	0.79	9"	6"	6"	1'-9"	9"	1'-9"	6'-6"	0.61
15	1.25	9"	6"	6"	1'-9"	9"	2'-0"	7'-9"	0.77
18	1.71	9"	6"	6"	1'-9"	9"	2'-3"	9'-0"	0.95
21	2.40	9"	6"	6"	1'-9"	9"	2'-6"	10'-3"	1.14
24	3.14	9"	14"	6"	2'-5"	9"	2'-9"	11'-6"	1.56
27	3.98	9"	14"	6"	2'-5"	9"	3'-0"	12'-0"	1.82
30	4.91	9"	14"	6"	2'-5"	12"	3'-3"	12'-3"	2.22
33	5.24	9"	14"	6"	2'-5"	12"	3'-9"	15'-1"	2.48
36	7.07	12"	16"	10"	3'-2"	12"	4'-0"	16'-8"	4.16
42	9.62	12"	16"	10"	3'-2"	12"	4'-6"	19'-2"	5.07
48	12.57	12"	16"	10"	3'-2"	12"	5'-0"	21'-8"	6.09
54	15.50	12"	20"	12"	3'-8"	12"	5'-6"	24'-2"	7.62
60	19.64	12"	20"	12"	3'-8"	12"	6'-0"	26'-8"	8.82
72	28.27	12"	20"	12"	3'-8"	12"	7'-0"	31'-8"	11.46

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
 STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
STANDARD TYPE C ENDWALL
METAL OR CONCRETE ROUND PIPE
STANDARD NO. MD 354.01

GRASS PAVERS UTILIZE TURFSTONE OR APPROVED EQUAL

INSTALLATION GUIDELINES
 Excavate and compact the soil subgrade. The soil subgrade should be uniformly compacted to 95% of its optimum density prior to placing the gravel, sand and the Turfstone units.

Place and compact the gravel base. Gravel used for road bases is acceptable for use with Turfstone units. The compacted gravel base should extend beyond the edge of the Turfstone units a minimum of 6" where possible. The thickness of the gravel base depends on the loads and the strength of the soil subbase. For residential uses on adequately drained soil, 6" of gravel base should be used. For heavy vehicular loads such as fire trucks or repeated loads from cars, a minimum of 8" of compacted gravel base should be used (Figure 1).



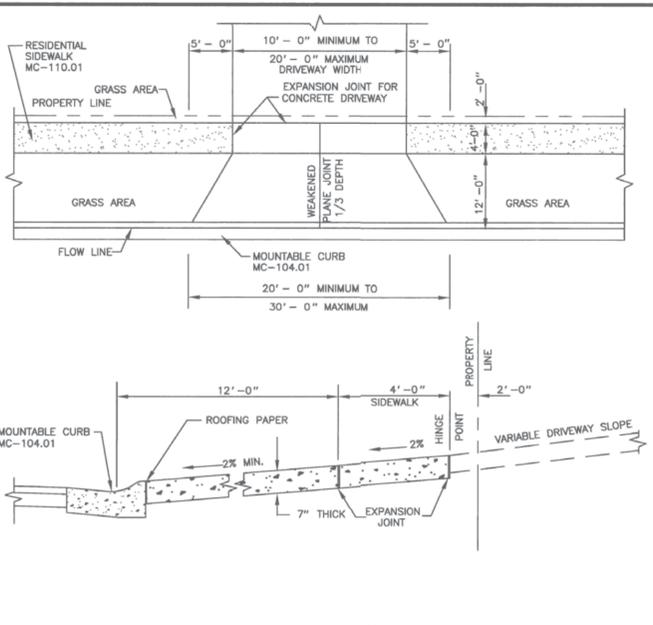
Filter cloth is recommended for use with low CBR soils (less than 4%), those with high clay and silt contents, soils in high water table areas, or soils in low lying areas subject to flooding. The filter cloth is placed over the compacted subgrade. The filter cloth should be fine enough to prevent migration of soil into the gravel base. Woven fabrics are preferred over non-woven materials when the cloth is placed directly under the sand layer in installations subject to traffic.

Spread and screed the bedding sand. Grading requirements for the concrete sand should conform to ASTM C 33. Do not use masonry sand. The sand should be screeded to proper elevations and have a uniform moisture content (not saturated) prior to placing the Turfstone units. The screeded sand should not be disturbed.

Place the Turfstone units on the bedding sand. The Turfstone units should be placed with the minimum joint spacing of at least 1/16" (2 mm). If the Turfstone units touch, they may chip and spall upon repetitive loading.

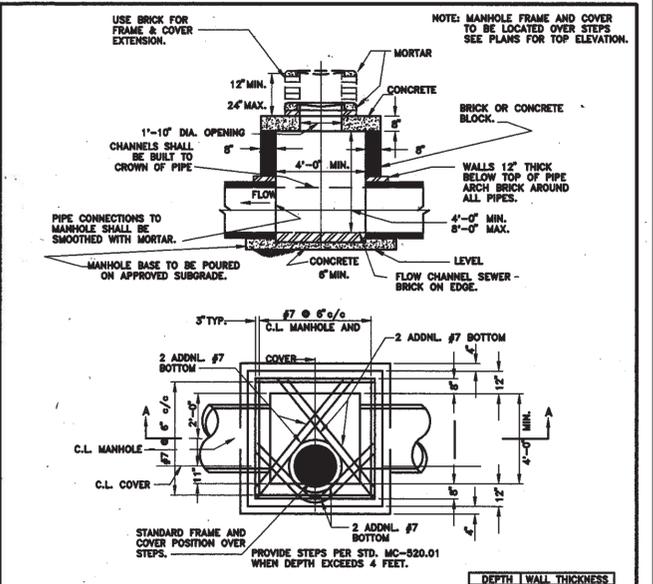
Vibrate the Turfstone units into the sand. Use a high-frequency (3500 - 5000 cycles per second), low amplitude plate vibrator. A rubber mat should be attached to the vibrator to protect the grids from cracking and chipping. Plywood sheets placed on the Turfstone units can be used for protection if a rubber mat is not available.

Spread topsoil or gravel into the Turfstone units and vibrate again. Grass seed and fertilizer can be mixed with the topsoil or broadcast directly on the surface and swept into the openings and joints. The Turfstone units should be vibrated again after the voids are full. The final level of the topsoil should be 1/2" (13mm) to 3/4" (20 mm) below the top surface. This will lend some protection to the grass from tires as it grows. When selecting grass for the openings, it's important that there be at least five hours of light on the Turfstone units each day.



- GENERAL NOTES**
- REFER TO MARYLAND STATE HIGHWAY ADMINISTRATION SPECIFICATIONS FOR MATERIALS AND METHODS OF CONSTRUCTION.
 - DRIVEWAY AND DRIVEWAY APRON TO BE MAINTAINED BY PROPERTY OWNER.
 - REFER TO MC-301.01 FOR DETAILS ON EXPANSION/CONTRACTION JOINTS.
 - THIS STANDARD SHALL BE USED WITH MC-104.01 MOUNTABLE CURB ON SECONDARY CUL-DE-SACS ONLY.
 - EXPANSION JOINT MATERIAL SHALL BE 1/2 INCH PREFORMED CORK, TRIMMED AND SEALED WITH NON-STAINING, TWO COMPONENT POLYSULFIDE OR POLYURETHANE ELASTOMERIC TYPE SEALANT, COMPLYING WITH ASTM-C920.

APPROVED 14 APR 06	REVISED	MONTGOMERY COUNTY
DATE	ASTM-C920 4/2006	DEPARTMENT OF TRANSPORTATION
<i>Carol Holst</i>		RESIDENTIAL DRIVEWAY WITH MOUNTABLE CURB
DIRECTOR, DEPT. OF TRANS.		
<i>Holger Seemann</i>		STANDARD NO. MC-301.02
CHIEF, DIV. OF CAP. DEV.		



- GENERAL NOTES**
- REFER TO MARYLAND STATE HIGHWAY ADMINISTRATION FOR MATERIALS AND METHODS OF CONSTRUCTION.
 - USE SOLID MASONRY (BRICK OR CONCRETE BLOCK) OR POURED CONCRETE FOR WALLS.
 - PARGE OUTSIDE WALLS.
 - MORTAR SHALL CONFORM TO ASTM SPECIFICATION C270 TYPE M.
 - Po = 3,500 P.S.I. at 28 DAYS.
 - FOR PIPES LARGER THAN 30" PROVIDE STEPS IN CHANNELS OF STRUCTURES. SEE STANDARD DETAIL.

APPROVED JAN 5 06	REVISED	MONTGOMERY COUNTY
DATE		DEPARTMENT OF TRANSPORTATION
<i>Ed Schumaker</i>		"6" MANHOLE
DIRECTOR, DEPT. OF TRANS.		
<i>Ed Schumaker</i>		STANDARD NO. MC-515.01
CHIEF, DIV. OF ENG. SERVICES		

ADS, Inc. Drainage Handbook Specifications ♦ 1-51

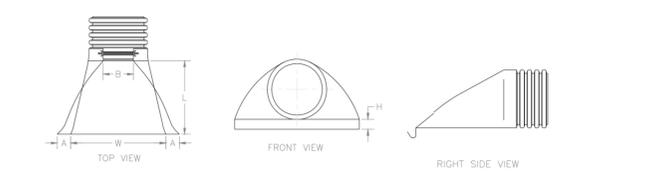
ADS FLARED END SECTION SPECIFICATION

Scope
 This specification describes 12- through 36-inch (300 to 900mm) ADS Flared End Sections for use in culvert and drainage outlet applications.

Requirements
 The invert of the pipe and the end section shall be at the same elevation. The ADS Flared End Section shall be high density polyethylene meeting ASTM D3350 minimum cell classification 213320C; contact manufacturer for additional cell classification information. When provided, the metal threaded fastening rod shall be stainless steel.

Installation
 Installation shall be in accordance with ADS installation instructions and with those issued by state or local authority. Contact your local ADS representative or visit www.ads-pipe.com for the latest installation instructions.

Diameter	PIPE DIAMETER, in (mm)					
	12	15	18	24	30	36
in (mm)	(300)	(375)	(450)	(600)	(750)	(900)
A	6.5	6.5	7.5	7.5	7.5	7.5
in (mm)	(165)	(165)	(191)	(191)	(191)	(191)
B (max)	10.0	10.0	15.0	18.0	22.0	25.0
in (mm)	(254)	(254)	(381)	(475)	(559)	(635)
H	6.5	6.5	6.5	6.5	6.6	6.6
in (mm)	(165)	(165)	(165)	(165)	(218)	(218)
L	25.0	25.0	32.0	36.0	58.0	58.0
in (mm)	(635)	(635)	(813)	(914)	(1473)	(1473)
W	29.0	29.0	35.0	45.0	63.0	63.0
in (mm)	(737)	(737)	(889)	(1143)	(1600)	(1600)



Product detail may differ slightly from actual product appearance. ©ADS, Inc., May 2009

ROLLMAX™
 ROLLED EROSION CONTROL

Specification Sheet - BioNet® C125BN™ Erosion Control Blanket

DESCRIPTION
 The long-term double net erosion control blanket shall be a machine-produced mat of 100% coconut fiber with a functional longevity of up to 24 months. NOTE: functional longevity may vary depending upon climatic conditions, soil, geographical location, and elevation. The blanket shall be of consistent thickness with the coconut evenly distributed over the entire area of the mat. The blanket shall be covered on the top and bottom sides with 100% biodegradable woven natural organic fiber netting. The netting shall consist of machine directional strands formed from two inter-twined yarns with cross directional strands interwoven through the twisted machine strands (commonly referred to as Leno weave) to form an approximate 0.50 x 0.10 in (1.27 x 2.54 cm) mesh. The blanket shall be sewn together on 150 inch (3.81 cm) centers with degradable thread. The blanket shall be manufactured with a colored thread stretched along both outer edges (approximately 2-5 inches [5-12.5 cm] from the edge) as an overlap guide for adjacent mats.

The C125BN shall meet Type 4 specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FP-63 Section 713.37

Index Property	Test Method	Typical
Thickness	ASTM D6525	0.29 in (7.38 mm)
Resiliency	ECTC Guidelines	85%
Water Absorbency	ASTM E117	365%
Mass/Unit Area	ASTM 6425	2.29 kg/m ² (0.57 lb/yd ²)
Swell	ECTC Guidelines	40%
Snapper Resistance	ECTC Guidelines	Yes
Stiffness	ASTM E1388	0.1162 in
Light Penetration	ASTM D6567	16.2%
Tensile Strength - MD	ASTM D6838	206.4 lb/ft (3.06 kN/m)
Elongation - MD	ASTM D6838	15.3%
Tensile Strength - TD	ASTM D6838	76.2 lb/ft (1.11 kN/m)
Elongation - TD	ASTM D6838	12.9%
Biomass Improvement	ASTM F222	43%

Design Permissible Shear Stress	
Unvegetated Shear Stress	2.85 psf (132 Pa)
Unvegetated Velocity	10.0 fpm (3.05 m/s)

Slope Design Data: C Factors	
Slope Length (L)	Slope Gradients (S)
≤ 26 ft (8 m)	0.0001
29.50 ft	0.0002
≤ 30 ft (9.14 m)	0.0007

Roughness Coefficients - Unveg.	
Flow Depth	Manning's n
≤ 0.50 (0.15 m)	0.322
0.50 - 2.6 ft	0.322-0.014
≥ 2.0 ft (0.60 m)	0.374

Material Content

Matrix	100% Coconut Fiber	0.5 lbs/sq yd (0.27 kg/sq m)
	Leno Woven 100% biodegradable jute	9.3 lbs/7630 sq ft (4.3 kg/700 sq m)
Netting	100% biodegradable jute	7.7 lb/7000 sq ft (3.5 kg/700 sq m)
Thread	Biodegradable	

Standard Roll Sizes

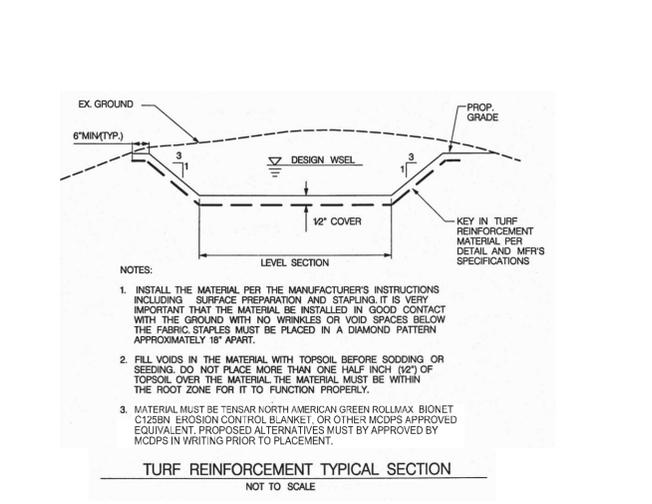
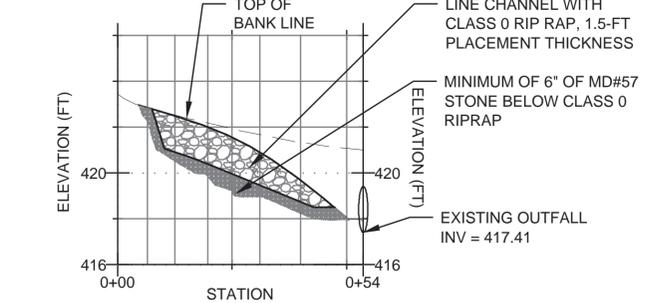
Width	6.67 (2.03 m)	8.0 ft (2.4 m)
Length	108 ft (32.92 m)	112 ft (34.14 m)
Weight ± 10%	52.22 lbs (23.69 kg)	65.25 lbs (29.61 kg)
Area	80 sq yd (66.9 sq m)	100 sq yd (81.61 sq m)
	Leno weave top only	Leno weave top and bottom

Tensar International Corporation
 2500 Northwoods Parkway
 Suite 500
 Alpharetta, GA 30009
 800-763-6681
 tensarcorp.com

Tensar
 NORTH AMERICAN GREEN™

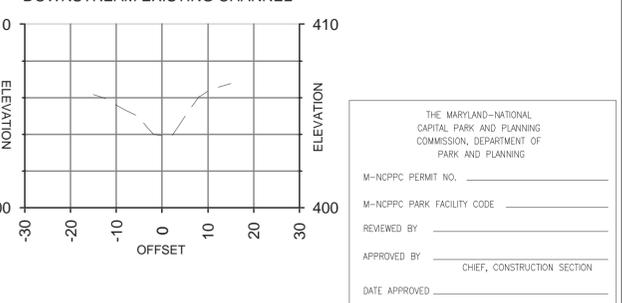
TURF REINFORCEMENT TYPICAL SECTION
 NOT TO SCALE

PROFILE OF HEADCUT STABILIZATION



- NOTES:**
- INSTALL THE MATERIAL PER THE MANUFACTURER'S INSTRUCTIONS INCLUDING SURFACE PREPARATION AND STAPLING. IT IS VERY IMPORTANT THAT THE MATERIAL BE INSTALLED IN GOOD CONTACT WITH THE GROUND WITH NO WRINKLES OR VOID SPACES BELOW THE FABRIC. STAPLES MUST BE PLACED IN A DIAMOND PATTERN APPROXIMATELY 18" APART.
 - FILL VOIDS IN THE MATERIAL WITH TOPSOIL BEFORE SOODING OR SEEDING. DO NOT PLACE MORE THAN ONE HALF INCH (127) OF TOPSOIL OVER THE MATERIAL. THE MATERIAL MUST BE WITHIN THE ROOT ZONE FOR IT TO FUNCTION PROPERLY.
 - MATERIAL MUST BE TENSAR NORTH AMERICAN GREEN ROLLMAX BIONET C125BN EROSION CONTROL BLANKET OR OTHER MCDPS APPROVED EQUIVALENT. PROPOSED ALTERNATIVES MUST BE APPROVED BY MCDPS IN WRITING PRIOR TO PLACEMENT.

XS-1 - STA 4+15.00



THE MARYLAND NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING

M-NCPCC PERMIT NO. _____

M-NCPCC PARK FACILITY CODE _____

REVIEWED BY _____

APPROVED BY _____ CHIEF, CONSTRUCTION SECTION

DATE APPROVED _____

M-NCPCC PERMIT SHEET # _____ OF _____

THIS IS NOT A PERMIT TO BEGIN CONSTRUCTION

This approval is for technical review only. For permit information, contact Jay Childs, Construction Supervisor at (301)495-2574.

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:		Administrative Requirements:	
Stormwater Management:	Sediment Control Technical Requirements:	Reviewed	Date
SEDIMENT CONTROL & SAFE CONVEYANCE REVIEW ONLY		Reviewed	262615
Reviewed	Date	Reviewed	DATE
Approved	Date	SEDIMENT CONTROL PERMIT NO.	
Approved	243711		
SM FILE #			

MCDPS APPROVAL OF THIS PLAN WILL EXPIRE TWO YEARS FROM THE DATE OF APPROVAL IF THE PROJECT HAS NOT STARTED.

DPS approval of a sediment control or stormwater management plan is for demonstrated compliance with minimum environmental runoff treatment standards and does not create or imply any right to divert or concentrate runoff onto any adjacent property without that property owner's permission. It does not relieve the design engineer or other responsible person of professional liability or ethical responsibility for the adequacy of the drainage design as it affects uphill or downhill properties.

CLIENT

MR. CRAIG CARSON
 MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
 255 ROCKVILLE PIKE, SUITE 120
 ROCKVILLE, MD 20850
 (240) 777-7713



DEPARTMENT OF ENVIRONMENTAL PROTECTION

MONTGOMERY COUNTY • MARYLAND

DATE	ISSUES / REVISIONS
6/15/2012	30% SUBMITTAL
3/21/2014	60% SUBMITTAL
10/10/2014	90% SUBMITTAL



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 #: 45058
 EXPIRATION DATE: 04/11/2016

CENTURY ENGINEERING

Biohabitats

The Stables Building 2081 Clipper Park Road
 Baltimore, MD 21211 / ph: 410.554.0156
 fx: 410.554.0168 / www.biohabitats.com

Restore the Earth & Inspire Ecological Stewardship

HUNTERS WOODS III SWM RETROFIT

(DEP SEQ. NO. 153 - ASSET 10797)

90% DESIGN

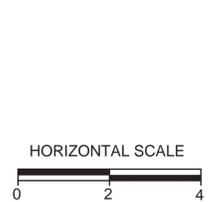
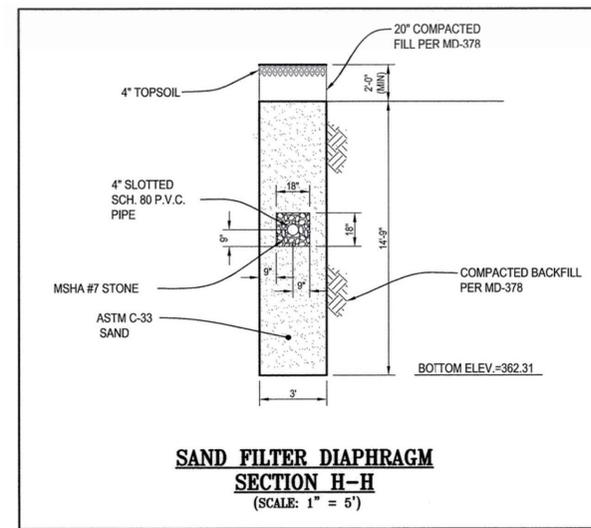
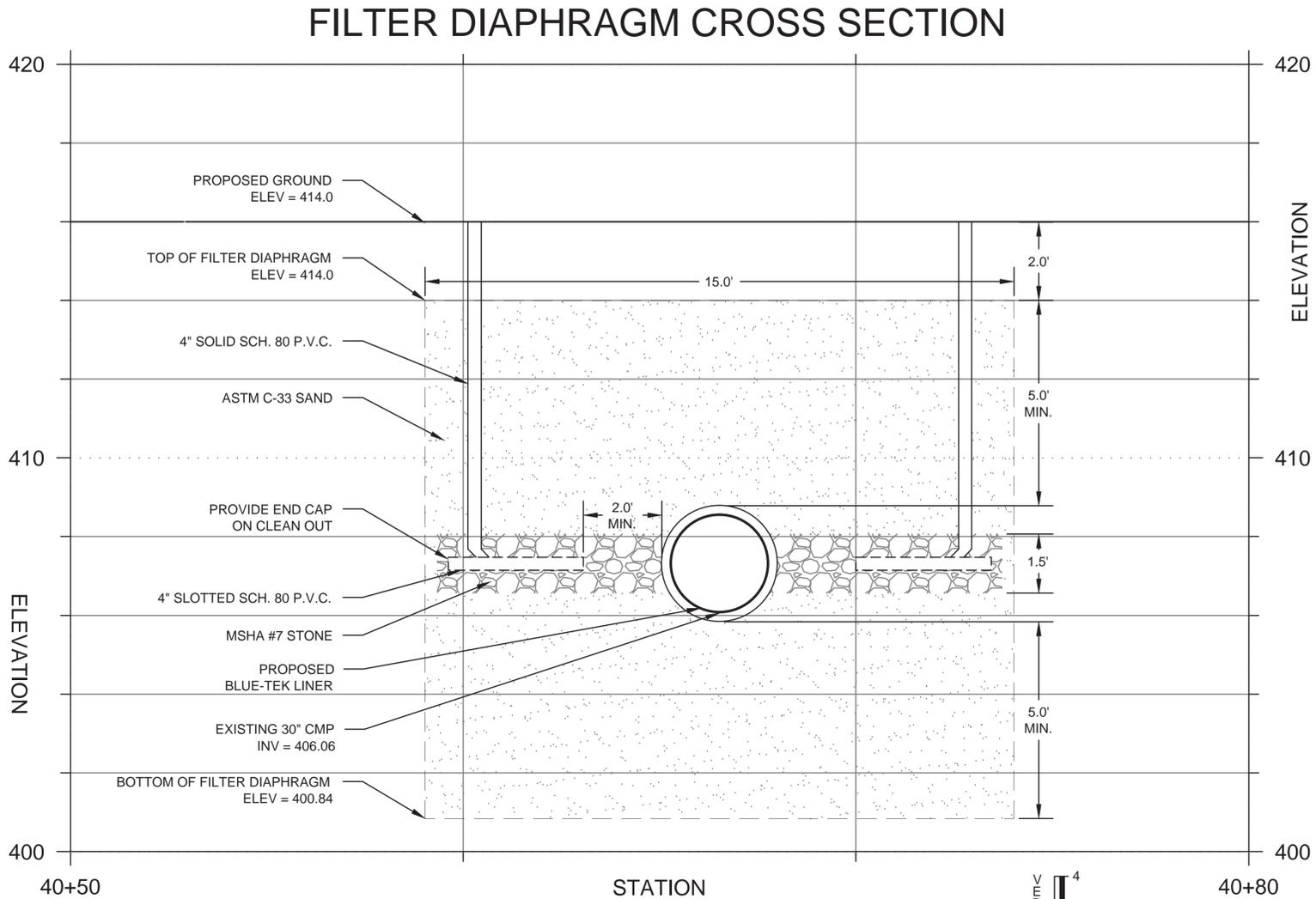
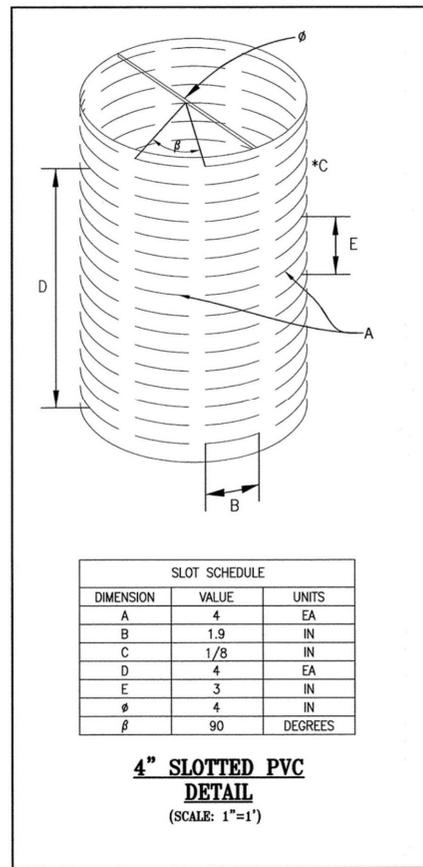
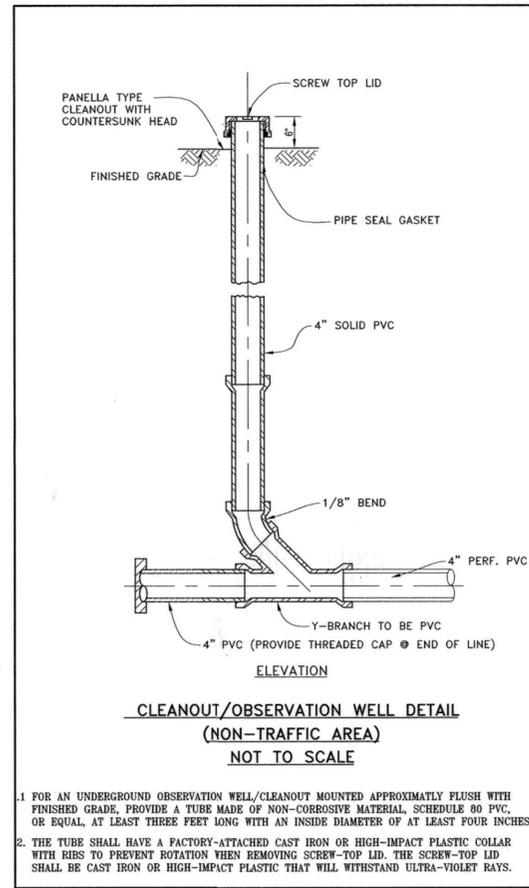
MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION - WATER RESOURCES ENGINEERING CONTRACT #8803000101BD - TASK ORDER 16

DETAILS	
PROJECT NO.:	08041.05
SCALE:	AS SHOWN
BY:	BL/MG/TB/AG
CHECK:	MG
DWG. NO.:	12 of 21

CONSTRUCTION NOTES

FILTER DIAPHRAGM INSTALLATION

- ALL MATERIALS FOR FILTER DIAPHRAGM INSTALLATION MUST BE SUBMITTED TO AND APPROVED BY THE ENGINEER-IN-CHARGE AND THE OWNER'S PROJECT MANAGER PRIOR TO DELIVERY TO SITE. SAMPLES OF SAND AND STONE MATERIAL TO BE USED IN THE FILTER DIAPHRAGM SHALL BE TESTED BY THE GEOTECHNICAL ENGINEER OF RECORD TO ENSURE COMPLIANCE WITH CORRECT GRADATIONS OF THE SPECIFIED MATERIALS.
- MATERIALS TO BE USED ON THIS PROJECT CONSIST OF THE FOLLOWING:
 - ASTM C-33 SAND - THE MINIMUM DRY DENSITY OF THE COMPACTED SAND SHALL BE EQUAL TO 70 PERCENT OF THE DRY DENSITY OBTAINED BY COMPACTING A SINGLE SPECIMEN OF SAND USING THE ENERGY AND METHODS DESCRIBED IN ASTM D698A. THE TEST CONSISTS OF A ONE POINT TEST PERFORMED ON SAND THAT HAS BEEN AIR DRIED THOROUGHLY PRIOR TO COMPACTION. THE SAND SHALL HAVE NO MORE THAN 3% MATERIAL PASSING A #200 SIEVE AS STOCKPILED ON-SITE AND NO MORE THAN 5% MATERIAL PASSING A #200 SIEVE AS INSTALLED. THE GEOTECHNICAL ENGINEER OF RECORD SHALL CONFIRM THIS REQUIREMENT.
 - STONE AGGREGATE SHALL BE DOUBLE-WASHED WITH A GRADATION MEETING AASHTO M43 SIZE #7.
 - UNDERDRAIN PIPE AND FITTINGS SHALL BE 4" DIAMETER POLYVINYL CHLORIDE (P.V.C.) MEETING SCHEDULE 80. SLOTTED PIPE, WHERE SHOWN, SHALL CONSIST OF 1/8" WIDE BY 1.9 INCHES LONG SLOTS ORIENTED FOUR (4) SLOTS PER LF. AND FOUR ROWS SPACED EQUALLY AROUND THE CIRCUMFERENCE OF THE PIPE. SLOTS MUST BE MACHINED PRIOR TO DELIVERY TO THE SITE.
- ALL FILTER DIAPHRAGM INSTALLATION WORK SI TO BE DONE UNDER SUPERVISION OF A PROFESSIONAL GEOTECHNICAL ENGINEER.
- FILTER DIAPHRAGM MATERIAL IS TO BE PLACED IN A MAXIMUM OF 8" THICK LIFTS COMPACTING IN BETWEEN EACH LIFT.
- COMPACTION OF EACH LIFT OF SAND SHALL BE ACCOMPLISHED VIA THE FOLLOWING PROCESS:
 - PLACE LIFT THE FULL LENGTH OF THE FILTER DIAPHRAGM PRIOR TO COMPACTION.
 - FLOOD THE LIFT WITH CLEAN POTABLE WATER IMMEDIATELY PRIOR TO COMPACTION FROM A SOURCE APPROVED BY THE ENGINEER-IN-CHARGE AND THE OWNER'S PROJECT MANAGER.
 - MAKE A MINIMUM OF TWO (2) PASSES WITH A VIBRATORY PLATE COMPACTOR WEIGHING AT LEAST 160 POUNDS WITH A MINIMUM CENTRIFUGAL WEIGHT OF 2,450 POUNDS AT A VIBRATING FREQUENCY OF NO LESS THAN 5,000 CYCLES PER MINUTE OR BY A VIBRATORY SMOOTH-WHEELED ROLLER WEIGHING AT LEAST 325 POUNDS WITH A CENTRIFUGAL WEIGHT OF 2,250 POUNDS AT A VIBRATING FREQUENCY OF NO LESS THAN 4,500 CYCLES PER MINUTE JUST AFTER THE WATER LEVEL HAS DROPPED BELOW THE SURFACE OF THE SAND.
- FILTER DIAPHRAGM MATERIAL SHALL BE PLACED TO AVOID SEGREGATION OF PARTICLE SIZES AND TO ENSURE THE CONTINUITY AND INTEGRITY OF ALL ZONES. NO FOREIGN MATERIAL SHALL BE ALLOWED TO INTERMIX WITH OR OTHERWISE CONTAMINATE THE FILTER DIAPHRAGM MATERIALS. THE CONTRACTOR SHALL COMPLETELY REMOVE ANY FILTER DIAPHRAGM MATERIAL FOUND TO BE CONTAMINATED WITH FOREIGN MATERIALS PRIOR TO INSTALLING ADDITIONAL DIAPHRAGM MATERIAL.
- TRAFFIC SHALL NOT BE PERMITTED TO CROSSOVER FILTER ZONES AT RANDOM. EQUIPMENT CROSSOVERS SHALL BE MAINTAINED, AND THE NUMBER AND LOCATION OF SUCH CROSSOVERS SHALL BE ESTABLISHED AND APPROVED PRIOR TO BEGINNING THE FILTER DIAPHRAGM PLACEMENT. EACH CROSS OVER SHALL BE CLEARED OF CONTAMINATING MATERIAL AND SHALL BE INSPECTED AND APPROVED BY THE PROFESSIONAL GEOTECHNICAL ENGINEER SUPERVISING THE INSTALLATION BEFORE PLACEMENT OF ADDITIONAL FILTER DIAPHRAGM MATERIAL.
- ANY DAMAGE TO THE FOUNDATION SURFACE OR THE TRENCH SIDES OR BOTTOM OCCURRING DURING PLACEMENT OF FILTER DIAPHRAGM MATERIAL SHALL BE REPAIRED BEFORE FILTER DIAPHRAGM PLACEMENT IS CONTINUED.
- THE UPPER SURFACE OF THE FILTER DIAPHRAGM SHOULD BE CONSTRUCTED CONCURRENTLY WITH ADJACENT ZONES OF EARTH FILL AND SHALL BE MAINTAINED AT A MINIMUM ONE LIFT ABOVE THE UPPER SURFACE OF THE ADJACENT EARTH FILL.



THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING
M-NCPPC RECORD FILE NO. _____
TECHNICAL REVIEW CONCURRENCE BY _____
DATE _____
PARK FACILITY CODE _____

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING
M-NCPPC PERMIT NO. _____
M-NCPPC PARK FACILITY CODE _____
REVIEWED BY _____
APPROVED BY _____ CHIEF, CONSTRUCTION SECTION
DATE APPROVED _____
M-NCPPC PERMIT SHEET # _____ OF _____

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:		NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED FOR A MCDPS ACCESS PERMIT!
Stormwater Management: SEDIMENT CONTROL & SAFE CONVEYANCE REVIEW ONLY	Sediment Control Technical Requirements:	Administrative Requirements:
Reviewed _____ Date _____	Reviewed _____ Date _____	Reviewed _____ Date _____
Approved _____ Date _____	Approved _____ Date _____	Reviewed _____ Date _____
243711 SM FILE #		262615 SEDIMENT CONTROL PERMIT NO.
		MCDPS APPROVAL OF THIS PLAN WILL EXPIRE TWO YEARS FROM THE DATE OF APPROVAL IF THE PROJECT HAS NOT STARTED.

DPS approval of a sediment control or stormwater management plan is for demonstrated compliance with minimum environmental runoff treatment standards and does not create or imply any right to divert or concentrate runoff onto any adjacent property without that property owner's permission. It does not relieve the design engineer or other responsible person of professional liability or ethical responsibility for the adequacy of the drainage design as it affects uphill or downhill properties.

CLIENT

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255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850
(240) 777-7713

DEPARTMENT OF ENVIRONMENTAL PROTECTION
MONTGOMERY COUNTY • MARYLAND

DATE:	ISSUES / REVISIONS
6/15/2012	30% SUBMITTAL
3/21/2014	60% SUBMITTAL
10/10/2014	90% SUBMITTAL

SEAL:

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.
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CENTURY ENGINEERING

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HUNTERS WOODS III SWM RETROFIT
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90% DESIGN
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SEAL:	BY: BL/MG/TB/AG	CHECK:	MG
		DWG. NO.:	13 of 21

Blue-Tek Liner Installation Instructions

Installation

Installation of the impregnated liner may be by inversion or insertion as specified by the manufacturer. All equipment, labor, materials, and processes required to complete the work must be ready on-site before installation begins.

The first segment shall be lined, completed and accepted to become the "job standard" against which all subsequent work is judged.

Pre-Installation

Prior to installation of the liner, the following activities are required.

- a. Receipt and approval of pre-installation submittals.
- b. Verification of line condition and any obstructions by video inspection.
- c. Verification of existing taps in service by flowing water, dye test, or visually with a pan and tilt head camera or other means.
- d. Cleaning of line (recorded on video tape).
- e. Construct and complete any and all point repairs deemed necessary shall receive Owner approval before reworking the lines and the liner is installed.

Prior to installation, the diversion pumping system, including back-up pumps, shall be tested and running.

Set-up

The installation area/equipment shall be securely protected and all damaged yards, driveways, walks, etc., shall be repaired at no cost to the Owner. Plastic sheeting will be used to cover the work area around the manholes and/or access points to eliminate the opportunity of environmental contamination to the above-ground setting during the installation process.

Preliner/Outer Film/Outer Liner

At all locations where the CIPP liner is inverted or inserted into the host pipe, a preliner tube shall be used to control resin loss, liner thickness, a reduction in physical properties, contamination of the resin by water or other contaminants, and prevent blocked or plugged services and laterals. The preliner tube shall be reinforced plastic sheet formed into a tube sized to fit the host pipe being lined and shall be continuous from manhole to manhole. The preliner tube shall be made of a styrene barrier material which is approved by the Owner or Engineer. Installation of the preliner tube shall be witnessed by the Owner or Engineer. Failure to install the required preliner tube or installation of preliner tube over only part of the segment shall result in the completed C.I.P.P. for that segment being rejected (regardless of physical tests and thickness test results). During thickness testing, the preliner tube shall be removed from the thickness test core sample along with the inner liner film used. If there is any damage to the preliner tube, it should be repaired immediately with styrene-proof tape.

Tube Insertion (for fiberglass/UV cured products)

- 1. A slip sheet shall be installed on the bottom half of the pipe prior to liner insertion, for the purpose of smoothing out the bottom of the liner to increase flow characteristics.
- 2. The preliner tube, or outer film, must be inserted into the pipe prior to inserting the liner, unless it is manufactured on the exterior of the liner, which is a normal characteristic of most fiberglass CIPP liners.
- 3. A constant tension winch should be used to pull the glass fiber liner into position in the pipe. Once inserted, end plugs shall be used to cap each end of the glass fiber liner to prepare for pressurizing the liner. The end plugs should be secured with straps to prevent them from being expelled due to pressure. Liner restraints should be used in manholes.
- 4. The glass fiber liner shall be cured with UV light sources at a constant inner pressure. When inserting the curing equipment in the liner, care should be taken to not damage the inner film material.
- a. The UV light sources should be assembled according to the manufacturer's specifications for the liner diameter. For the liner to achieve the required water tightness and specified mechanical properties, the following parameters must be controlled during the entire curing process, giving the Engineer a record of the curing parameters over every segment of the entire length of the liner. This demonstrates that the entire liner is cured properly. The recording will include: Curing speed, Light source working & wattage, Inner air pressure, Exothermic (curing) temperatures, Date and time, Length of liner

This will be accomplished using a computer and data base that are tamper proof. During the curing process, infrared sensors will be used to record curing data that will be submitted to the Engineer with a post CCTV inspection on DVD.

- b. The parameters for curing speed, inner air pressure and wattage are defined in the Quality Tracker UV curing protocol issued by the manufacturer. The optimal curing speed, or travel speed of the energized UV light sources, is determined for each length of liner based on liner diameter, liner thickness, and exothermic reaction temperature.

- 5. The inner film material should be removed and discarded after curing to provide optimal quality of the final product.

- 6. Flushing of the cured fiberglass/UV cured CIPP liner (to reduce styrene residual) is not required for fiberglass/UV cured CIPP products that provide 3rd party test results that document styrene residual levels (without flushing) within acceptable defined levels.

Tube Insertion/Inversion (for felt/hot water cured products)

- 1. The resin impregnated tube shall be transported and stored in a refrigerated truck until it is installed in an existing line by using an application of water, air, or cable and winch to properly place the tube between the upstream and downstream manholes.
- 2. A slip sheet shall be installed on the bottom half of the pipe prior to liner insertion, for the purpose of smoothing out the bottom of the liner to increase flow characteristics.
- 3. The preliner tube, or outer film, must be inserted into the pipe prior to inserting the liner.
- 4. The wet out felt tube shall be inserted, or inverted, through an existing manhole or other approved access. Liner installation head pressures (minimum and maximum for hot and cold conditions) shall not be exceeded, regardless of which method of installation (stand pipe, pressure unit, etc.) is used.

- 5. Using the "Inversion Procedure", the tube end shall initially be turned inside out and attached to a platform ring, standpipe, or as approved. The addition of water will be adjusted to sufficient height/pressure to cause the impregnated tube to invert from manhole to manhole, and hold the tube tight against the existing pipe wall.

- 6. Using the "Insertion Procedure", the tube is winched into position according to manufacturer's recommendations. The addition of water will be adjusted to sufficient height/pressure to cause the calibration hose to invert from manhole to manhole and hold the tube tight against the existing pipe wall.

- 7. Liner restraints should be used in manholes.

- 8. After the installation of the liner is completed, the Contractor shall use hot water system capable of providing the required amount of heat uniformly throughout the section for a complete cure of the resin. Boiler-truck operators must be fully certified by an approved certifying agency approved by the engineer. Certification documentation of at least two certified boiler-truck operators is a pre-contract requirement. Only fully-certified boiler-truck operators can operator boiler-trucks.

- 9. All water obtained from a City fire hydrant shall be metered and paid for by the Contractor. An air gap shall be provided between pipes/hoses connected to a fire hydrant and a storage tank/equipment used by the Contractor. The cost of said water shall be included in the cost of the project.

- 10. The curing temperature and schedule shall be as recommended by the resin/catalyst system manufacturer. The heat source shall be fitted with suitable monitors to gauge the temperature of the incoming and outgoing heat supply. Additionally, the Contractor is required to utilize a remote temperature sensing method to ensure adequate curing for every foot of liner in the pipe, considering the possibility of heat sinks. Temperatures monitored at the manholes do not guarantee an adequate representation of the temperatures for every foot of liner. Temperatures from each remote sensing device shall be recorded by a strip-chart recorder on a continuous tape. Graphs of the tape shall reflect readings from start of cure to completion of cure/drainage of line. Tapes for each segment shall be submitted upon completion of each section. Initial cure may be considered completed when the remote sensing device(s) reflect that the cure temperatures, as recommended by the resin/catalyst system manufacturer, have been achieved. Curing temperatures and schedule shall comply with submitted data and shall include an adequate "cool down" as recommended by the resin manufacturer.

- 11. Cool-Down - The Contractor shall cool the hardened pipe to a temperature below 100 degrees Fahrenheit, in accordance with the resin manufacturer's recommendation, before relieving the water column or pressure. Cool water may be added to the water column while maintaining circulation as water is drained from a small hole at the opposite end of the cured-in-place pipe, so that a constant water column height is maintained until cool-down is completed. Care shall be taken in the release of the water column so that a vacuum will not develop that could damage the newly installed pipe. Coupon samples shall be obtained for testing (Section 5.0/Testing).

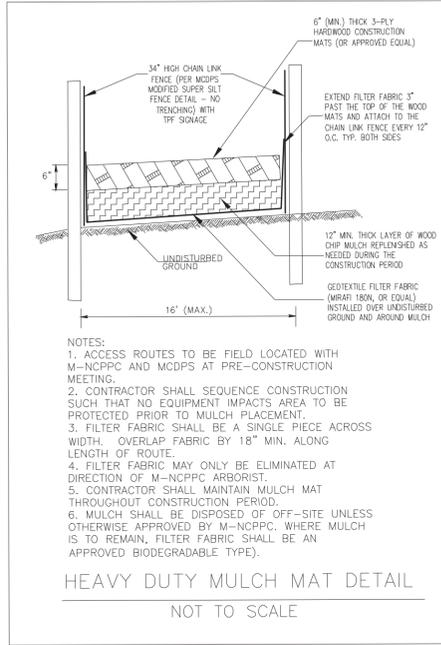
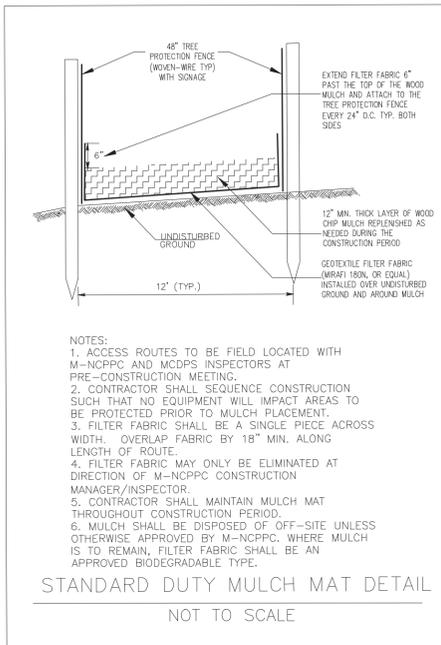
- 12. Since styrene is considered a volatile organic compound and a carcinogen, care must be taken to insure that styrene levels are below U.S.E.P.A. standards for airborne, surface and water contamination. The EPA has set the maximum contaminant level at 0.1 ppm for drinking water and other water sources that impact drinking water. For sanitary sewer flow to a sewage treatment plant, styrene contamination must be kept below 2.1 ppm so as to not interfere with the effectiveness of the plant.

- 13. Effluent from the curing process must be disposed of directly to a publicly owned treatment works (POTW) in full compliance with the POTW's Industrial Pretreatment Program requirements. The POTW must provide written documentation that the effluent content complies with their Industrial Pretreatment Program requirements, a copy of which must be submitted to the Engineer for each rehabilitated pipe line, or each day of lining work.

- 14. If EPA or waster water treatment levels are exceeded on the surface of the liner for storm water or sanitary sewer pipes (respectively), the Contractor must flush the line until styrene levels in flush-water are brought within the appropriate standard. The responsibility for disposal of contaminated water is the sole responsibility of the Contractor, and must be delivered to publicly owned treatment works (POTW) in full compliance with the POTW's Industrial Pretreatment Program requirements. The POTW must provide written documentation that the effluent content complies with their Industrial Pretreatment Program requirements. Proof of proper disposal, as specified above, must be presented to the engineer.

Clay Face Notes

- 1. The liner material should consist of CLAY (with USCS Classification of CL or CH), containing no lumps or chunks in size greater than 3".
- 2. All soft, loose and organic and topsoil should be removed from the surface prior to the placement of the clay liner.
- 3. Fill placement should start from near the existing toe and continue upwards in horizontal lifts.
- 4. The Clay liner material should be benched into the existing exterior surface of the existing embankment in order to prevent the formation of a weak plane.
- 5. The Clay liner soil should be placed in 6-inch thick loose lifts and compacted to at least 95% of standard Proctor maximum dry density.
- 6. The moisture content of the Clay fill should be maintained at +2% of the optimum moisture content.
- 7. In order to achieve the required compaction, the Clay fill soils may require moisture conditioning (i.e., wetting or drying) prior to its re-use as compacted fill.
- 8. In areas where planting shall occur, Clay Face should be covered with at least 4" of topsoil.



THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING

M-NCPPC PERMIT NO. _____

M-NCPPC PARK FACILITY CODE _____

REVIEWED BY _____

APPROVED BY _____ CHIEF, CONSTRUCTION SECTION

DATE APPROVED _____

M-NCPPC PERMIT SHEET # _____ OF _____

THIS IS NOT A PERMIT TO BEGIN CONSTRUCTION

This approval is for technical review only. For permit information, contact Jay Childs, Construction Supervisor at (301)495-2574.

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING

M-NCPPC RECORD FILE NO. _____

TECHNICAL REVIEW CONCURRENCE BY _____

DATE _____

PARK FACILITY CODE _____

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:		NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED FOR A MCDPS ACCESS PERMIT!	
Stormwater Management: SEDIMENT CONTROL & SAFE CONVEYANCE REVIEW ONLY	Sediment Control Technical Requirements:	Administrative Requirements:	
Reviewed _____ Date _____	Reviewed _____ Date _____	Reviewed _____ Date _____	
Approved _____ Date _____	Approved _____ Date _____	SEDIMENT CONTROL PERMIT NO. _____	
243711 SM FILE #			
MCDPS APPROVAL OF THIS PLAN WILL EXPIRE TWO YEARS FROM THE DATE OF APPROVAL IF THE PROJECT HAS NOT STARTED.			
DPS approval of a sediment control or stormwater management plan is for demonstrated compliance with minimum environmental runoff treatment standards and does not create or imply any right to divert or concentrate runoff onto any adjacent property without that property owner's permission. It does not relieve the design engineer or other responsible person of professional liability or ethical responsibility for the adequacy of the drainage design as it affects uphill or downhill properties.			

CLIENT

MR. CRAIG CARSON
 MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
 255 ROCKVILLE PIKE, SUITE 120
 ROCKVILLE, MD 20850
 (240) 777-7713



DEPARTMENT OF ENVIRONMENTAL PROTECTION

MONTGOMERY COUNTY • MARYLAND

DATE:	ISSUES / REVISIONS
6/15/2012	30% SUBMITTAL
3/21/2014	60% SUBMITTAL
10/10/2014	90% SUBMITTAL



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 #: 45058
 EXPIRATION DATE: 04/11/2016



The Stables Building 2081 Clipper Park Road
 Baltimore, MD 21211 / ph: 410.554.0156
 fx: 410.554.0168 / www:biohabitats.com
Restore the Earth & Inspire Ecological Stewardship

HUNTERS WOODS III SWM RETROFIT

(DEP SEQ. NO. 153 - ASSET 10797)

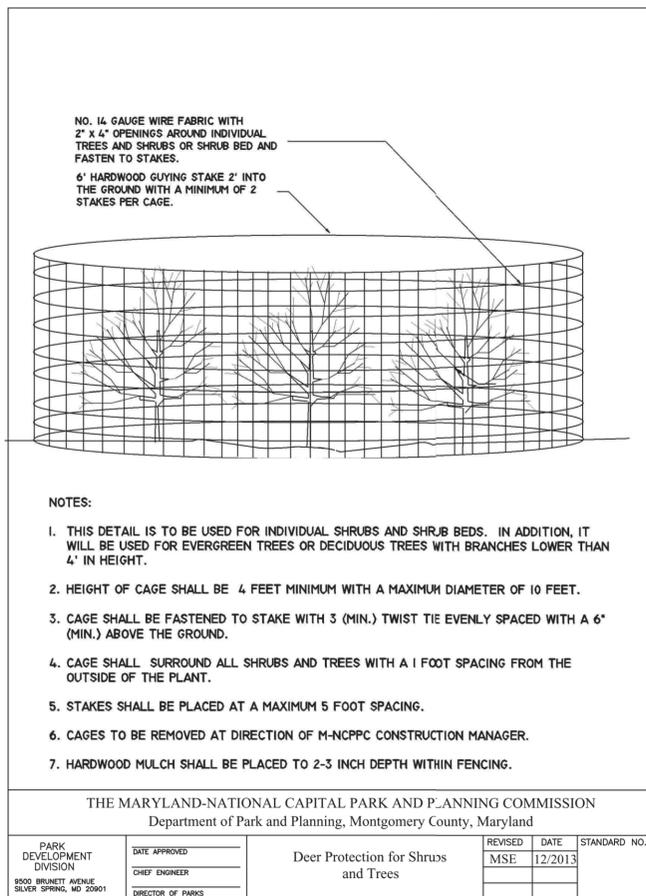
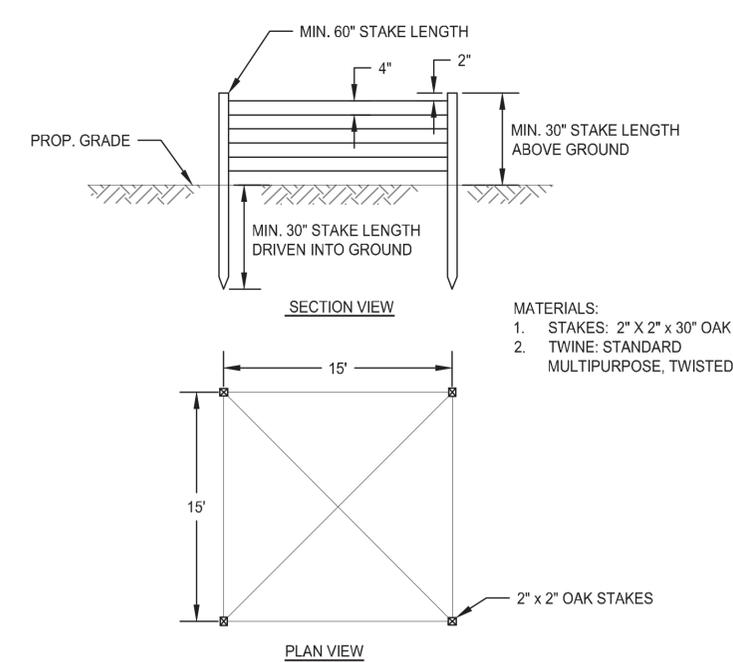
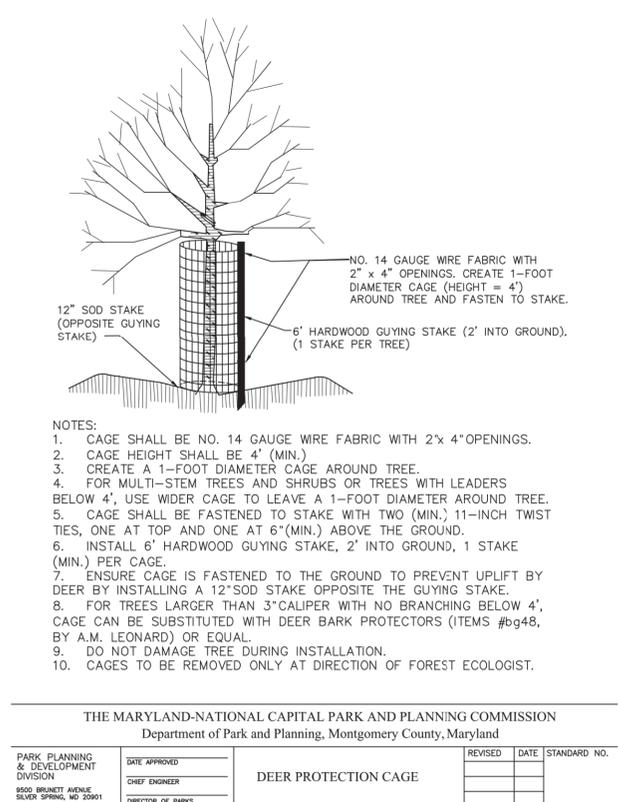
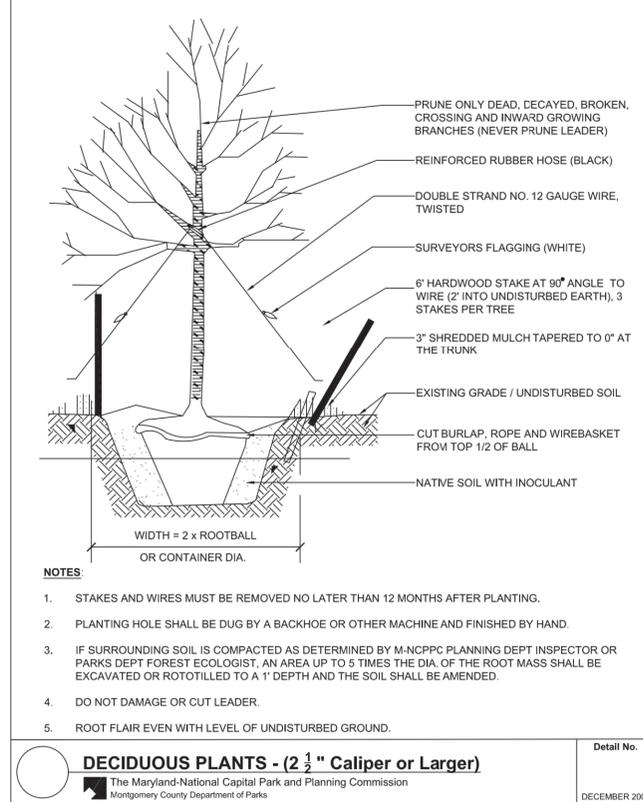
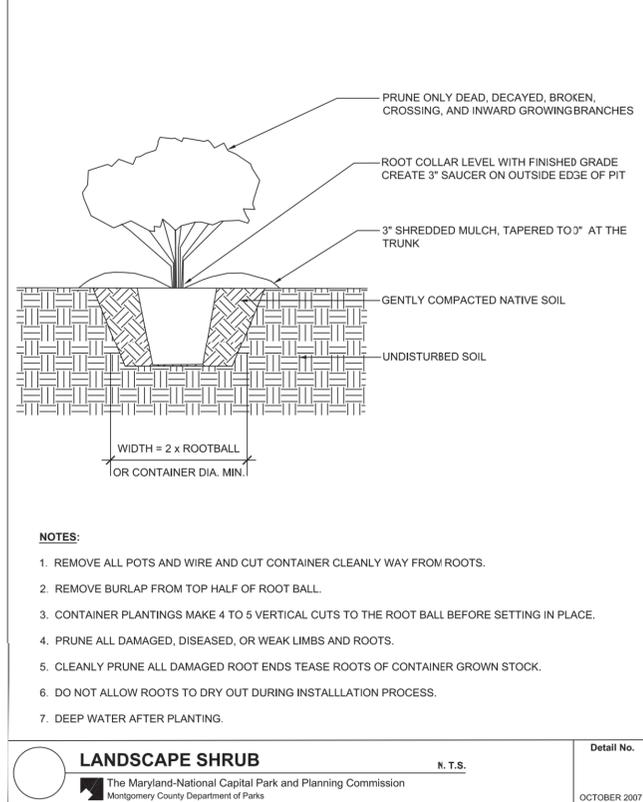
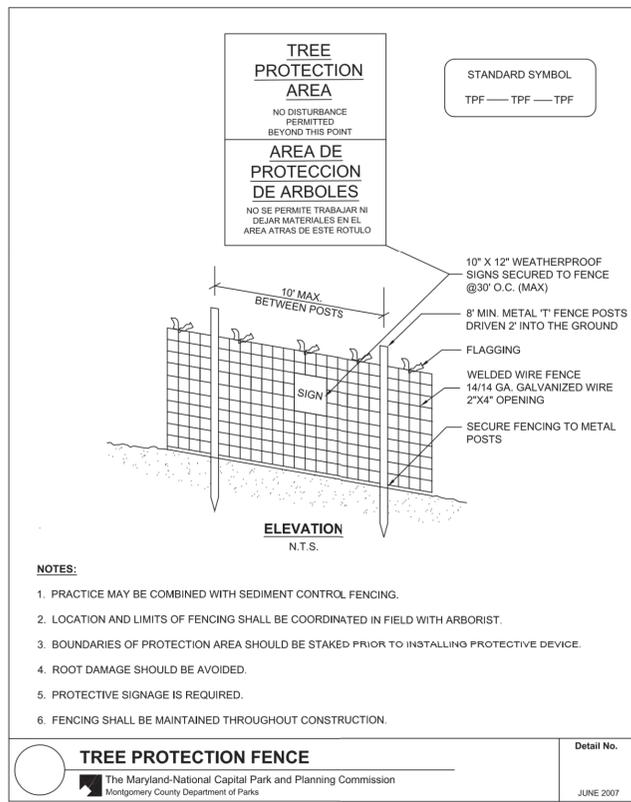
90% DESIGN

MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION - WATER RESOURCES ENGINEERING CONTRACT #8803000101BD - TASK ORDER 16

TITLE:

DETAILS

PROJECT NO.:	08041.05	SCALE:	AS SHOWN
SEAL:	BY: BL/MG/TB/AG	CHECK:	MG
	DWG. NO.:		
			14 of 21



Department of Permitting Services
Land Development Division
255 Rockville Pike, 2nd Floor
Rockville, MD 20850-4168
Phone: 311 in Montgomery County or (240)-777-0311
Fax (240)-777-8339
http://www.montgomerycountymd.gov/permitting-services/



Standard Tree Canopy Notes

Any shade tree planted to comply with Chapter 55 of the County Code must conform to the following:

- Each shade tree must meet the requirements for plant material in ANSI Z60.1;
- Each shade tree must be a minimum of 2" caliper;
- Installation of each shade tree must meet all requirements of ANSI A300;
- At the time of planting:
 - Tree guards to protect trees from deer rubbing, mowers, weed eaters, other equipment and large rodents must be installed on all shade trees;
 - Mulch must be applied;
 - Sufficient water must be applied to aid in proper planting.
- Shade trees must be installed between October 15th and May 15th as long as the ground is not frozen, saturated, or covered with snow such that a suitable hole cannot be dug;
- Shade trees must not be installed between May 16th and October 14th of each year. If installation cannot occur between October 15th and May 15th for any reason, or if proposed trees are not planted for any other reason, the permittee must pay the required fee in lieu.
- If shade trees are installed prior to final stabilization of the land disturbing activity then no additional disturbance must occur within five feet of the stem of the tree. Protective fencing must be installed at the edge of this area at the same time the tree is installed and must remain in place until final stabilization occurs.
- The location of growing zones and planting areas must be clearly marked in the field prior to installation of any shade tree.
- A copy of the approved sediment control plan showing all approved growing zones and planting areas must be available on the site at all times.
- At least one inspection must occur after all construction activities are completed to determine the level of compliance with shade tree planting requirements.

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING

M-NCPCC RECORD FILE NO. _____

TECHNICAL REVIEW CONCURRENCE BY _____

DATE _____

PARK FACILITY CODE _____

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING

M-NCPCC PERMIT NO. _____

M-NCPCC PARK FACILITY CODE _____

REVIEWED BY _____

APPROVED BY _____ CHIEF, CONSTRUCTION SECTION

DATE APPROVED _____

M-NCPCC PERMIT SHEET # _____ OF _____

THIS IS NOT A PERMIT TO BEGIN CONSTRUCTION

This approval is for technical review only. For permit information, contact Jay Childs, Construction Supervisor at (301)495-2574.

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:

Stormwater Management:	Sediment Control Technical Requirements:	Administrative Requirements:
SEDIMENT CONTROL & SAFE CONVEYANCE REVIEW ONLY	Reviewed Date	Reviewed Date
Reviewed Date	Approved Date	262615
Approved Date		SEDIMENT CONTROL PERMIT NO. _____
243711		
SM FILE #		

MCDPS APPROVAL OF THIS PLAN WILL EXPIRE TWO YEARS FROM THE DATE OF APPROVAL IF THE PROJECT HAS NOT STARTED.

DPS approval of a sediment control or stormwater management plan is for demonstrated compliance with minimum environmental runoff treatment standards and does not create or imply any right to divert or concentrate runoff onto any adjacent property without that property owner's permission. It does not relieve the design engineer or other responsible person of professional liability or ethical responsibility for the adequacy of the drainage design as it affects uphill or downhill properties.

CLIENT

MR. CRAIG CARSON
MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850
(240) 777-7713

DEPARTMENT OF ENVIRONMENTAL PROTECTION
MONTGOMERY COUNTY • MARYLAND

DATE	ISSUES / REVISIONS
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SEAL:

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LICENSE #: 45058
EXPIRATION DATE: 04/11/2016

M CENTURY ENGINEERING

Biohabitats

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HUNTERS WOODS III SWM RETROFIT
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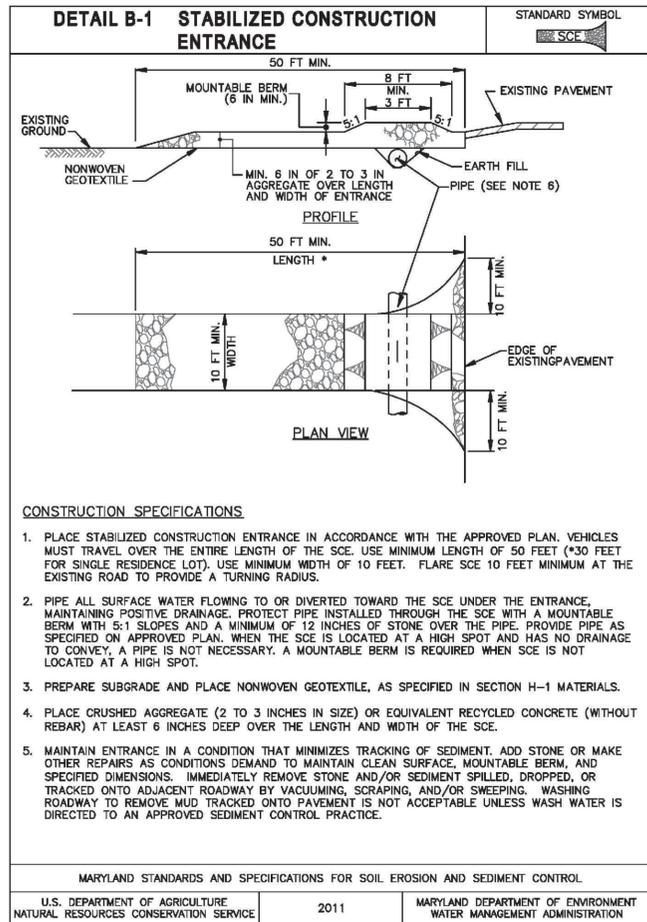
MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION - WATER RESOURCES ENGINEERING CONTRACT #8803000101BD - TASK ORDER 16

DETAILS

PROJECT NO.	SCALE
08041.05	NTS

SEAL	BY	CHECK
	BL/MG/TB/AG	MG

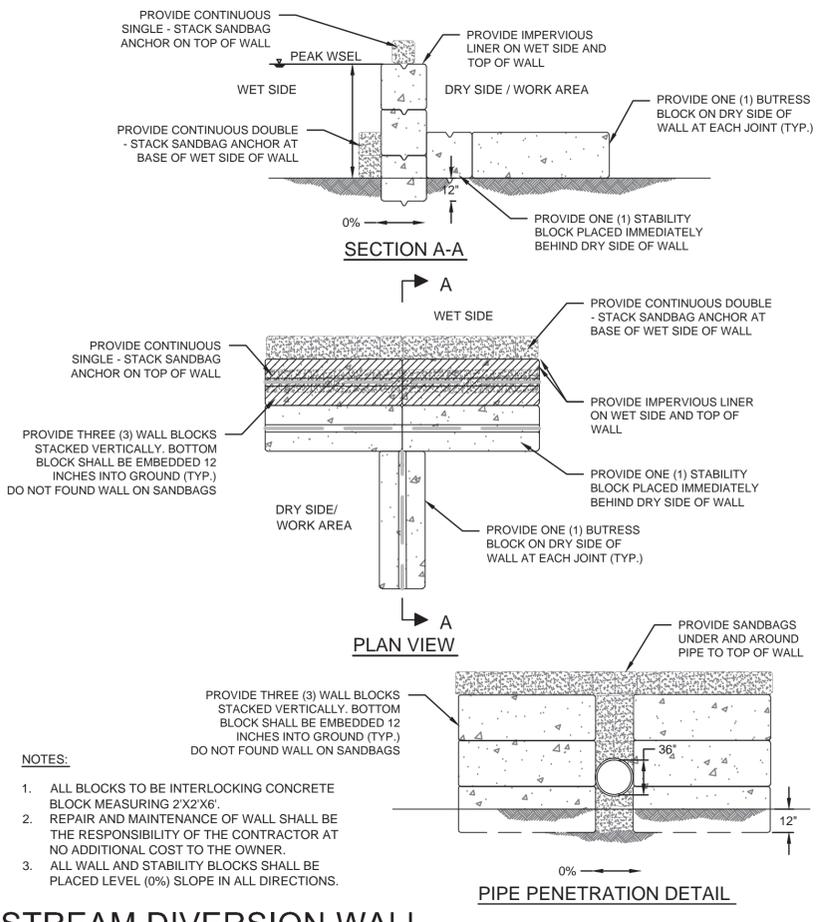
DWG. NO. 15 of 21



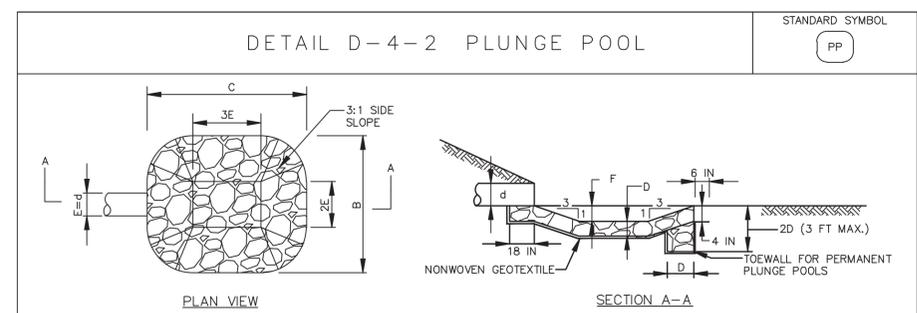
STAGE	DESIGN ENGINEER (DE)	GEOTECHNICAL ENGINEER (GEO)	COUNTY INSPECTOR	M-NCPPC & OTHER
1. Pre-construction meeting & field review of tree save flagging/trim protection	*	*	*	*
2. Sediment control installation	*	*	*	*
3. Dewatering (GEO) and stream diversion (DE)	*	*	*	*
4. Clearing, staking, subgrade preparation	*	*	*	*
5. Core trench excavation and dewatering, if required (GEO)	*	*	*	*
6. Core trench dimensions, location (DE) or (GEO), backfill and compaction tests (GEO)	*	*	*	*
7. Construction of principal spillway and riser: <ul style="list-style-type: none"> 7a. Barrel class. (ASTM C361) (DE) 7b. Pipe certification from supplier (DE) 7c. Pipe assembled in place on acceptable subgrade (GEO) 7d. Watertight joints (DE) 7e. Articulated joint 4 feet from riser (DE) 7f. Lifts, compaction, soil material (GEO) 7g. Location, dimensions (DE) 	*	*	*	*
7b. Concrete cradle dimensions (DE)	*	*	*	*
7c. Anti-seep collars (location, collar dimensions and re-bar size) (DE)	*	*	*	*
7d. Concrete strength tests (GEO)	*	*	*	*
7e. Filter discharge gradation and dimensions (if applicable) (GEO)	*	*	*	*
7f. Riser footing subgrade (GEO), dimensions, re-bar (DE)	*	*	*	*
7g. Concrete strength tests (GEO)	*	*	*	*

7f. Precast Riser: <ul style="list-style-type: none"> -Shop drawings approved by DE, accepted by County -Visual inspection of riser (no cracks, spalling, engaged steel, incorrect dimensions, honeycombing) (DE) -Certification from supplier (DE) -Watertight joints (DE) -Wall and opening dimensions per plan (DE) 	*	*	*	*
7g. Cast-in-Place Riser: <ul style="list-style-type: none"> -Wall and opening dimensions per plan (DE) -Rebar size, number, spacing acceptable (DE) -Concrete testing and certification (GEO) -Watertight joints (DE) -Extreme weather provisions (DE) 	*	*	*	*
8. Backfilling of principal spillway (GEO)	*	*	*	*
9. Underdrain (if applicable) location (DE), pipe size (DE), filter cloth (DE), gravel (DE), field adjustments (GEO)	*	*	*	*
10. Channelization work and pond outlet protection (DE) or (GEO)	*	*	*	*
11. Diversion of stream through principal spillway (DE)	*	*	*	*
12. Construction of embankment <ul style="list-style-type: none"> -Lifts, compaction, soil material (GEO) -Location, dimension (DE) 	*	*	*	*
13. Construction of emergency spillway in cut (DE)	*	*	*	*
14. Field application of constructed contours (DE)	*	*	*	*
15. Permanent vegetative stabilization, delivery tickets from supplier	*	*	*	*
16. Submit record drawings and documentation (DE) and (GEO)	*	*	*	*
17. Other items. (Set values) to design opening values, if required (DE)	*	*	*	*
18. Final inspection (DE) and (GEO)	*	*	*	*

NOTES:
 1. Permittee to supply Design Engineer with delivery tickets for all materials used in Pond construction, for submission with the as-built package. DPS Inspection Telephone: (410) 777-4210
 2. See construction specifications this plan for detailed requirements.
 3. A copy of this completed checklist must be submitted as part of the stormwater management as-built package. M-NCPPC Inspection Telephone: (301) 495-4571



IN-STREAM DIVERSION WALL NOT TO SCALE



- CONSTRUCTION SPECIFICATIONS**
- USE SPECIFIED CLASS OF RIPRAP.
 - USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCHING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE.
 - PREPARE THE SUBGRADE FOR THE PLUNGE POOL TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
 - EMBED THE GEOTEXTILE A MINIMUM OF 4 INCHES AND EXTEND THE GEOTEXTILE A MINIMUM OF 6 INCHES BEYOND THE EDGE OF THE SCOUR HOLE.
 - STONE FOR THE PLUNGE POOL MAY BE PLACED BY EQUIPMENT. CONSTRUCT TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. DELIVER AND PLACE THE STONE FOR THE PLUNGE POOL IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE STONE FOR THE PLUNGE POOL IN A MANNER TO PREVENT DAMAGE TO THE GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
 - AT THE PLUNGE POOL OUTLET, PLACE THE STONE SO THAT IT MEETS THE EXISTING GRADE.
 - MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

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

ID	B (ft)	C (ft)	D (ft)	E (ft)	F (ft)
PP-1	12.5	15	1	2.5	1.25
PP-2	15	18	0.67	3	1.5

SEQUENCE OF CONSTRUCTION

- PRIOR TO CLEARING TREES, INSTALLING SEDIMENT CONTROL MEASURES, OR GRADING, A PRE-CONSTRUCTION MEETING MUST BE CONDUCTED ON-SITE WITH THE MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES (MCDPS) SEDIMENT CONTROL INSPECTOR (240) 777-6210 (48 HOUR NOTICE), AND THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION (M-NCPPC) PLANNING DEPARTMENT PLANS ENFORCEMENT INSPECTOR (301) 495-4521 (48 HOUR NOTICE), THE OWNER'S REPRESENTATIVE, AND THE SITE ENGINEER.
- SEDIMENT SHALL NOT BE RELEASED INTO THE STREAM. CLEAN WATER ONLY IS TO BE DISCHARGED INTO THE STREAM. NO WORK SHALL BE CONDUCTED DURING STORM EVENTS.
- THE LIMITS OF DISTURBANCE MUST BE FIELD MARKED AND ORANGE CONSTRUCTION FENCE INSTALLED PRIOR TO CLEARING OF TREES. INSTALLATION OF SEDIMENT CONTROL MEASURES, CONSTRUCTION, OR OTHER LAND DISTURBING ACTIVITIES. FLAG ALL TREES TO BE SAVED.
- THE PERMITTEE MUST OBTAIN WRITTEN APPROVAL FROM THE M-NCPPC INSPECTOR, CERTIFYING THAT THE LIMITS OF DISTURBANCE AND TREE PROTECTION MEASURES ARE CORRECTLY MARKED AND INSTALLED PRIOR TO INSTALLING.
- CLEAR AND GRADE FOR INSTALLATION OF SEDIMENT CONTROL DEVICES. INSTALL STABILIZED CONSTRUCTION ENTRANCE, CONSTRUCTION ACCESS ROAD, AND FILTER LOGS AS SHOWN ON PLAN. STABILIZE THE PORTION OF THE ACCESS ROAD >10% SLOPE WITH A TEMPORARY CONSTRUCTION MAT SYSTEM. STABILIZE THE REMAINING PORTIONS OF THE ACCESS ROAD WITH 6 INCHES OF MULCH.
- THE CONTRACTOR SHALL ESTABLISH THE STAGING AND STOCKPILE AREAS AND INSTALL FILTER LOGS AROUND EACH.
- THE CONTRACTOR SHALL INSTALL THE TEMPORARY DIVERSION WALL AROUND THE EXISTING RISER STRUCTURE. TEMPORARILY COVER THE HOLE FOR THE DIVERSION PIPE. THE CONTRACTOR SHALL INSTALL A SUMP PIT, PUMP, AND PORTABLE SEDIMENT TANK AS NECESSARY TO DEWATER THE WORK AREA DURING CONSTRUCTION. INSTALL 24-INCH CMP DEWATERING DEVICE BUT DO NOT CONNECT THE OUTLET TO THE RISER STRUCTURE.
- ONCE THE SEDIMENT CONTROL DEVICES ARE INSTALLED, THE PERMITTEE MUST OBTAIN WRITTEN APPROVAL FROM THE MCDPS INSPECTOR BEFORE PROCEEDING WITH ANY ADDITIONAL CLEARING, GRUBBING, OR GRADING.
- DURING A THREE-DAY DRY PERIOD, DEMOLISH THE EXISTING RISER AND INSTALL THE PROPOSED RISER, POND DRAIN, PLUNGE POOL AT THE POND OUTLET, AND OUTFALL BARREL LINER. DURING THIS OPERATION, THE POND SHALL BE DEWATERED VIA THE TEMPORARY DIVERSION WALL, SUMP PIT, PUMP, AND PORTABLE SEDIMENT TANK. UTILIZE ONSITE CONCRETE WASHOUT STRUCTURE DURING CONCRETE CONSTRUCTION. 24 HOUR PUMPING MAY BE REQUIRED.
- FOLLOWING CONSTRUCTION OF THE PROPOSED RISER AND POND DRAIN, THE 24-INCH CMP DEWATERING DEVICE SHALL BE CONNECTED TO THE POND DRAIN.
- THE CONTRACTOR SHALL INSTALL A TEMPORARY DIVERSION BARRIER AT THE POND INFLOW POINT AND DIVERSION PIPE AS NECESSARY TO DIVERT STREAM FLOW AROUND THE WORK AREA. CONNECT THE DOWNSTREAM END OF THE DIVERSION PIPE TO THE PREVIOUSLY INSTALLED TEMPORARY DIVERSION BARRIER.
- USING A STREAM DIVERSION PRACTICE, COMPLETE GRADING OPERATION OF POND AND STABILIZE. DEWATER THE POND AS NECESSARY USING THE SUMP PIT, PUMP, AND PORTABLE SEDIMENT TANK.
- PERFORM MINOR GRADING OF EMERGENCY SPILLWAY AND INSTALL EROSION CONTROL MATTING.
- OBTAIN WRITTEN APPROVAL FROM MCDPS SEDIMENT CONTROL INSPECTOR PRIOR TO THE REMOVAL OF ANY SEDIMENT CONTROL DEVICE.
- REMOVE TEMPORARY CONSTRUCTION MATTING AND PLACE SOIL STABILIZATION SYSTEM ON MAINTENANCE ROAD LOCATION >10% SLOPE.
- ONCE ALL DISTURBED AREA HAS BEEN STABILIZED, REMOVE FILTER LOGS, SUMP PIT, PUMP, PORTABLE SEDIMENT TANK, 24-INCH CMP DEWATERING DEVICE, STABILIZED CONSTRUCTION ENTRANCE, AND ORANGE CONSTRUCTION FENCE.
- INSTALL EROSION CONTROL MATTING AND TEMPORARY SEEDING ON DISTURBED AREAS ABOVE THE PERMANENT POOL WITH SLOPES OF 3:1 OR GREATER, AND ON ALL DISTURBED PORTIONS OF THE EMBANKMENT.
- PROVIDE TEMPORARY SEEDING AND STRAW MULCH IN ALL OTHER DISTURBED AREAS ABOVE THE PERMANENT POOL.
- INSTALL PLANT MATERIAL.
- PERMANENTLY STABILIZE SITE.
- PERFORM AS-BUILT SURVEY. SUBMIT AS-BUILT PLANS AND MATERIAL AND DELIVERY TICKETS TO MCDPS FOR APPROVAL AND PROVIDE COPIES TO M-NCPPC. OBTAIN AS-BUILT PERMIT AND HAVE FINAL INSPECTION MADE BETWEEN CONTRACTOR, MCDPS, AND M-NCPPC FOR PUNCHLIST. PERFORM PUNCHLIST ITEMS AND OBTAIN FINAL APPROVAL OF COMPLETION OF PUNCHLIST FROM MCDPS AND M-NCPPC.

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING

M-NCPPC PERMIT NO. _____

M-NCPPC PARK FACILITY CODE _____

REVIEWED BY _____

APPROVED BY _____ CHIEF, CONSTRUCTION SECTION

DATE APPROVED _____

M-NCPPC PERMIT SHEET # _____ OF _____

THIS IS NOT A PERMIT TO BEGIN CONSTRUCTION

This approval is for technical review only. For permit information, contact Jay Childs, Construction Supervisor at (301)495-2574.

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:

Reviewed	Date	Reviewed	Date

Approved Date: 243711
SIM FILE # _____

NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED FOR A MCDPS ACCESS PERMIT!

MCDPS APPROVAL OF THIS PLAN WILL EXPIRE TWO YEARS FROM THE DATE OF APPROVAL IF THE PROJECT HAS NOT STARTED.

DPS approval of a sediment control or stormwater management plan is for demonstrated compliance with minimum environmental runoff treatment standards and does not create or imply any right to divert or concentrate runoff onto any adjacent property without that property owner's permission. It does not relieve the design engineer or other responsible person of professional liability or ethical responsibility for the adequacy of the drainage design as it affects uphill or downhill properties.

CLIENT

MR. CRAIG CARSON
 MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
 255 ROCKVILLE PIKE, SUITE 120
 ROCKVILLE, MD 20850
 (240) 777-7713

DEPARTMENT OF ENVIRONMENTAL PROTECTION
 MONTGOMERY COUNTY • MARYLAND

DATE	ISSUES / REVISIONS
6/15/2012	30% SUBMITTAL
3/21/2014	60% SUBMITTAL
10/10/2014	90% SUBMITTAL

SEAL:

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 #: 45058
 EXPIRATION DATE: 04/11/2016

CENTURY ENGINEERING

Biohabitats

The Stables Building 2081 Clipper Park Road
 Baltimore, MD 21211 / ph: 410.554.0156
 fx: 410.554.0168 / www.biohabitats.com

Restore the Earth & Inspire Ecological Stewardship

HUNTERS WOODS III SWM RETROFIT
 (DEP SEQ. NO. 153 - ASSET 10797)

90% DESIGN

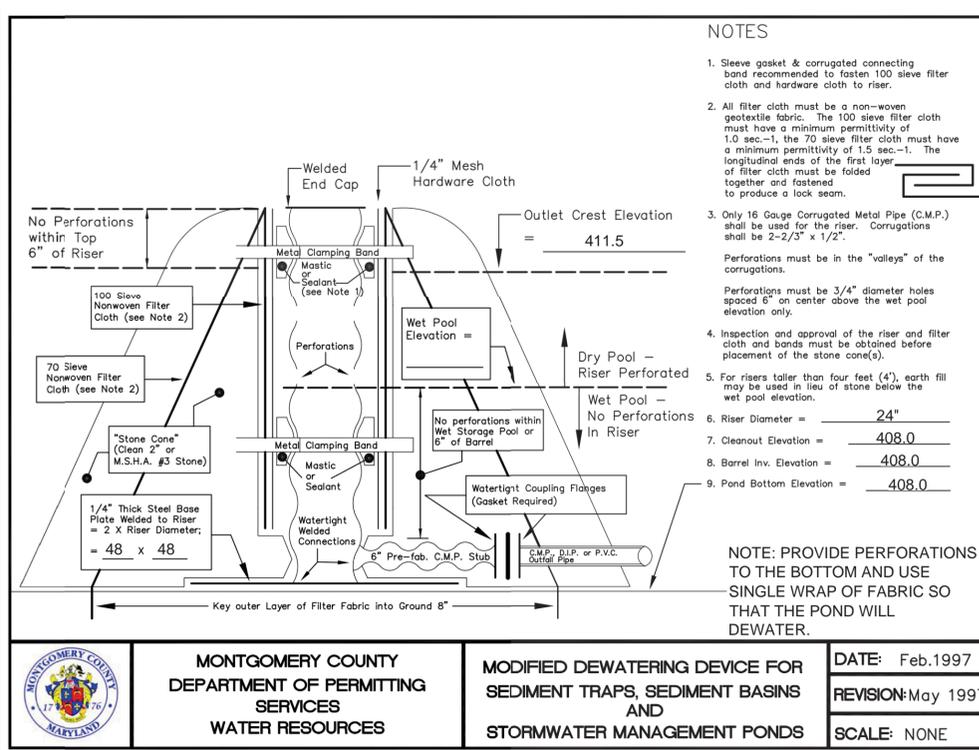
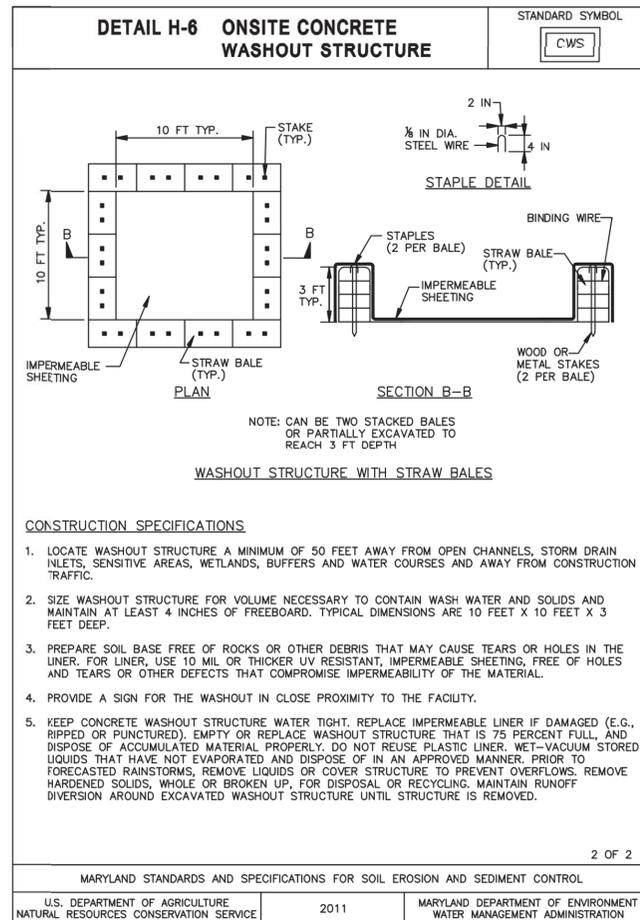
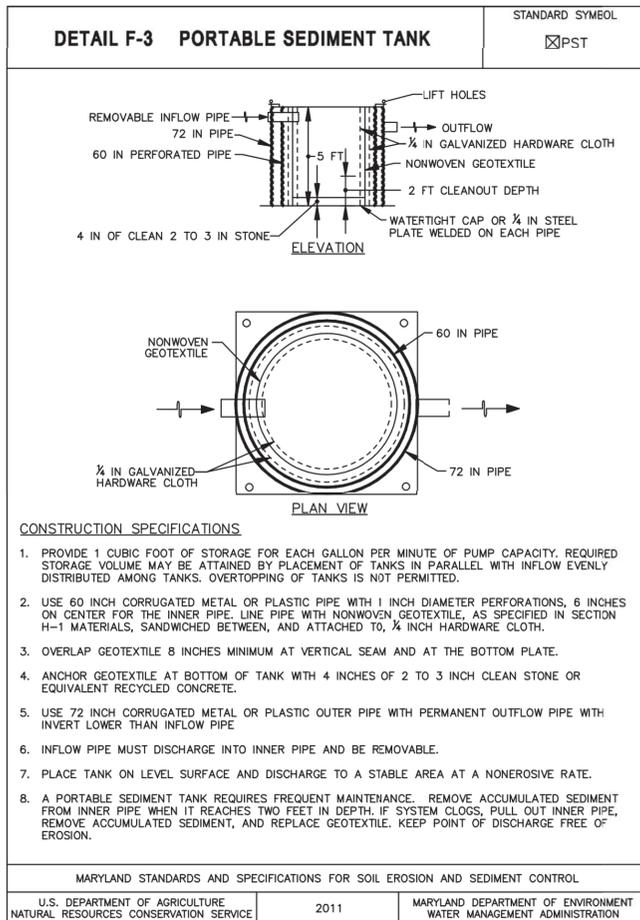
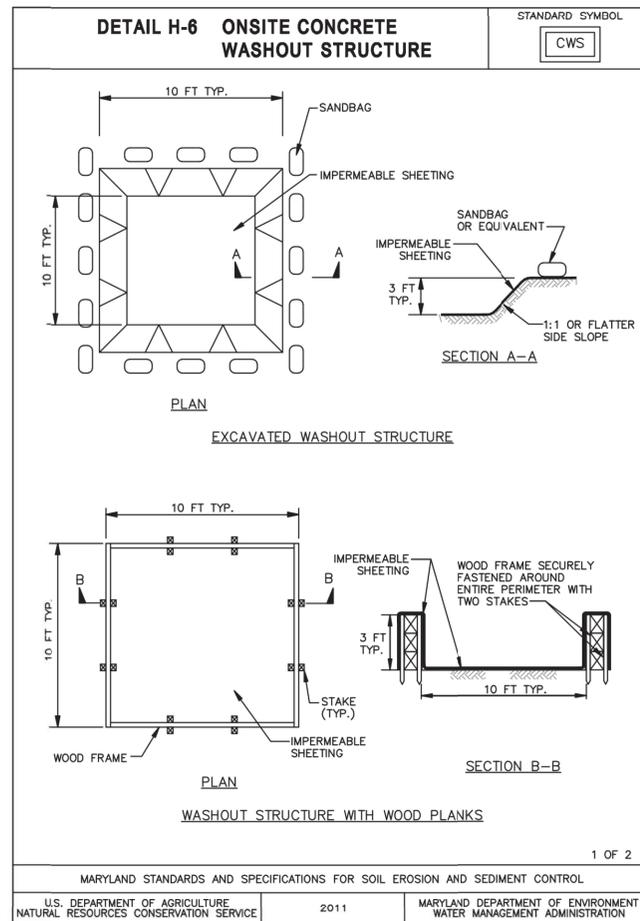
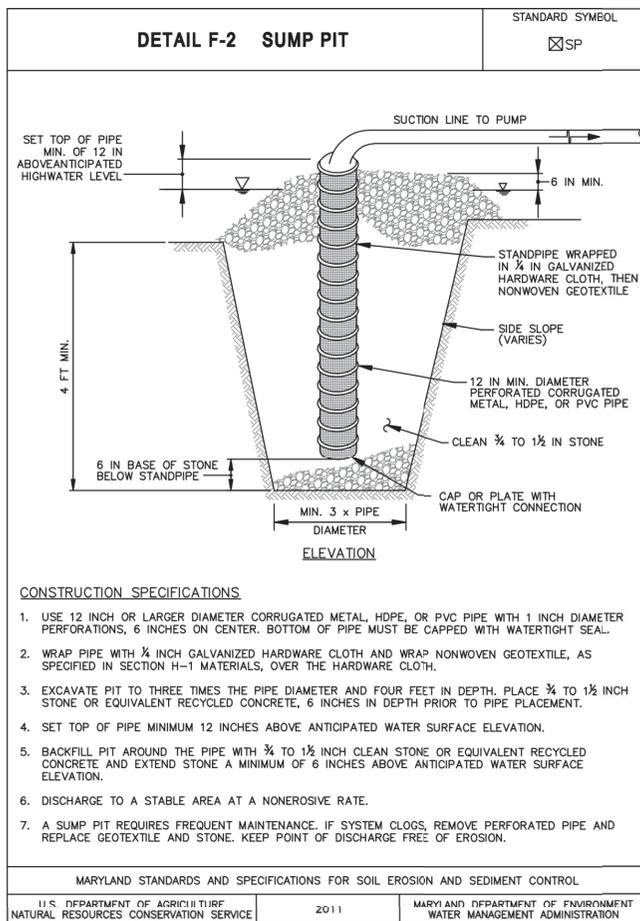
MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION - WATER RESOURCES ENGINEERING CONTRACT #8803000101BD - TASK ORDER 16

EROSION & SEDIMENT CONTROL DETAILS

PROJECT NO.: 08041.05 SCALE: NTS

SEAL: _____ BY: BL/MG/TB/AG CHECK: MG
 DWG. NO.: _____

16 of 21



CLIENT

MR. CRAIG CARSON
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MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION - WATER RESOURCES ENGINEERING CONTRACT #8803000101BD - TASK ORDER 16

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MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:		NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED FOR A MCDPS ACCESS PERMIT!	
Stormwater Management: SEDIMENT CONTROL & SAFE CONVEYANCE REVIEW ONLY	Sediment Control Technical Requirements:	Administrative Requirements:	
Reviewed Date	Reviewed Date	Reviewed Date	262615
Approved Date	Approved Date	SEDIMENT CONTROL PERMIT NO.	
243711 SM FILE #		MCDPS APPROVAL OF THIS PLAN WILL EXPIRE TWO YEARS FROM THE DATE OF APPROVAL IF THE PROJECT HAS NOT STARTED.	

PROJECT NO.: 08041.05 SCALE: NTS

SEAL:



STANDARD EROSION AND SEDIMENT CONTROL NOTES

- The permittee shall notify the Department of Permitting Services (DPS) forty-eight (48) hours before commencing any land disturbing activity and, unless waived by the Department, shall be required to hold a pre-construction meeting between them or their representative, their engineer and an authorized representative of the Department.
 - The permittee must obtain inspection and approval by DPS at the following points:
 - At the required pre-construction meeting.
 - Following installation of sediment control measures and prior to any other land disturbing activity.
 - During the installation of a sediment basin or stormwater management structure at the required inspection points (see Inspection Checklist on plan). Notification prior to commencing construction is mandatory.
 - Prior to removal or modification of any sediment control structure(s).
 - Prior to final acceptance.
 - The permittee shall construct all erosion and sediment control measures per the approved plan and construction sequence, shall have them inspected and approved by the Department prior to beginning any other land disturbances, shall ensure that all runoff from disturbed areas is directed to the sediment control devices, and shall not remove any erosion or sediment control measure without prior permission from the Department.
 - The permittee shall protect all points of construction ingress and egress to prevent the deposition of materials onto traversed public thoroughfare(s). All materials deposited onto public thoroughfare(s) shall be removed immediately.
 - The permittee shall inspect periodically and maintain continuously in effective operating condition, all erosion and sediment control measures until such time as they are removed with prior permission from the Department. The permittee is responsible for immediately repairing or replacing any sediment control measures which have been damaged or removed by the permittee or any other person.
 - Three (3) calendar days as to the surface of all perimeter dikes, swales, ditches, perimeter slopes and all slopes steeper than 3 horizontal to 1 vertical (3:1), and
 - Seven (7) calendar days as to all other disturbed or graded areas on the project site not under active grading.
- All areas disturbed outside of the perimeter sediment control system must be minimized and stabilized immediately. Maintenance must be performed as necessary to ensure continued stabilization.
- The permittee shall apply sod, seed, and anchored straw mulch, or other approved stabilization measures to all disturbed areas within seven (7) calendar days after stripping and grading activities have ceased on that area. Maintenance shall be performed as necessary to ensure continued stabilization. Active construction areas such as borrow or stockpile areas, roadway improvements, and areas within fifty (50) feet of a building under construction may be exempt from this requirement, provided that erosion and sediment control measures are installed and maintained to protect those areas.
 - Prior to removal of sediment control measures, the permittee shall stabilize all contributory disturbed areas with required soil amendments and topsoil, using sod or an approved permanent seed mixture and an approved anchored mulch. Wood fiber mulch may only be used in seeding season when the slope does not exceed 10% and grading has been done to promote sheet flow drainage. Areas brought to finished grade during the seeding season shall be permanently stabilized within seven (7) calendar days of establishment. When property is brought to finished grade during the months of November through February, and permanent stabilization is found to be impractical, an approved temporary seed and straw anchored mulch shall be applied to disturbed areas. The final permanent stabilization of such property shall be completed prior to the following April 15.
 - The site permit, work, materials, approved SC/SM plans, and test reports shall be available at the site for inspection by duly authorized officials of Montgomery County.
 - Surface drainage flows over unstabilized cut and fill slopes shall be controlled by either preventing drainage flows from traversing the slopes or by installing mechanical devices to lower the water down slope without causing erosion. Dikes shall be installed and maintained at the top of cut or fill slopes until the slope and drainage area to it are fully stabilized, at which time they must be removed and final grading done to promote sheet flow drainage. Mechanical devices must be provided at points of concentrated flow where erosion is likely to occur.
 - Permanent swales or other points of concentrated water flow shall be stabilized within 3 calendar days of establishment with sod or seed with an approved erosion control matting or by other approved stabilization measures.
 - Sediment control devices shall be removed, with permission of the Department, within thirty (30) calendar days following establishment of permanent stabilization in all contributory drainage areas. Stormwater management structures used temporarily for sediment control shall be converted to the permanent configuration within this time period as well.
 - No permanent cut or fill slope with a gradient steeper than 3:1 will be permitted in lawn maintenance areas or on residential lots. A slope gradient of up to 2:1 will be permitted in non-maintenance areas provided that those areas are indicated on the erosion and sediment control plan with a low-maintenance ground cover specified for permanent stabilization. Slope gradient steeper than 2:1 will not be permitted with vegetative stabilization.
 - The permittee shall install a splashblock at the bottom of each downspout unless the downspout is connected by a drain line to an acceptable outlet.

- For finished grading, the permittee shall provide adequate gradients so as to prevent water from standing on the surface of lawns more than twenty-four (24) hours after the end of a rainfall, except in designated drainage courses and swale flow areas, which may drain as long as forty-eight (48) hours after the end of a rainfall.
- Sediment traps or basins are not permitted within 20 feet of a building which is existing or under construction. No building may be constructed within 20 feet of a sediment trap or basin.
- All inlets in non-sump areas shall have asphalt berms installed at the time of base paving establishment.
- The sediment control inspector has the option of requiring additional sediment control measures, as deemed necessary.
- All trap elevations are relative to the outlet elevation, which must be on existing undisturbed ground.
- Vegetative stabilization shall be performed in accordance with the Standards and Specifications for Soil Erosion and Sediment Control.
- Sediment trap(s)/basin(s) shall be cleaned out and restored to the original dimensions when sediment has accumulated to the point of one-half (1/2) the wet storage depth of the trap/basin (1/4 the wet storage depth for ST-III) or when required by the sediment control inspector.
- Sediment removed from traps/basins shall be placed and stabilized in approved areas, but not within a floodplain.
- All sediment basins and traps must be surrounded with a welded wire safety fence. The fence must be at least 42 inches high, have posts spaced no farther apart than 8 feet, have mesh openings no greater than two inches in width and four inches in height, with a minimum of 14 gauge wire. Safety fence must be maintained in good condition at all times.
- No excavation in the areas of existing utilities is permitted unless their location has been determined. Call "Miss Utility" at 1-800-257-7777, 48 hours prior to the start of work.
- Off-site spoil or borrow areas must have prior approval by DPS.
- Sediment trap/basin dewatering for cleanout or repair may only be done with the DPS inspector's permission. The inspector must approve the dewatering method for each application. The following methods may be considered:
 - Pump discharge may be directed to another on-site sediment trap or basin, provided it is of sufficient volume and the pump intake is floated to prevent agitation or suction of deposited sediments; or
 - the pump intake may utilize a Removable Pumping Station and must discharge into an undisturbed area through a non-erosive outlet; or
 - the pump intake may be floated and discharge into a Dirt Bag (12 oz. non-woven fabric), or approved equivalent, located in an undisturbed buffer area.

Remember: Dewatering operation and method must have prior approval by the DPS inspector.

- The permittee must notify the Department of all utility construction activities within the permitted limits of disturbance prior to the commencement of those activities.
- Topsoil must be applied to all pervious areas within the limits of disturbance prior to permanent stabilization in accordance with MDE "Standards and Specifications for Soil Preparation, Topsoiling, and Soil Amendments".

STANDARDS AND SPECIFICATIONS FOR TOPSOIL

Definition
Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.
Purpose
To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
Conditions Where Practice Applies
This practice is limited to areas having 2:1 or flatter slopes.
For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.
Construction and Material Specifications
Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications.
Topsoil Specifications - Soil to be used as topsoil must meet the following:
<ol style="list-style-type: none"> Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by DPS. Regardless, topsoil shall not be a mixture of contrasting textured subsoils, and shall contain less than 5 % by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2" in diameter.
The subsoil shall be tilled to a minimum depth of 6 inches before placement of topsoil.
Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 lbs per 1,000 sq ft) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil.
Topsoil shall be tested and amended as per soil test recommendations.
Topsoil Application.
<ol style="list-style-type: none"> When topsoiling, maintain needed erosion and sediment control practices. Topsoil shall be uniformly distributed in a 4-8 inch layer and lightly compacted to a minimum thickness of 4 inches. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets. Topsoil shall not be placed while the topsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

PERMANENT SEEDING AND SODDING SPECIFICATIONS

- All disturbed areas shall be seeded and mulched.
- Seeded preparation – apply 2 tons per acre of lime and 100 lb. Per acre of 10-10-10 fertilizer or equivalent. Thoroughly mix into soil to a minimum of 3".**
- Seeding – use 40" kentucky bluegrass, 10% annual rye and 25% red fescue at the rate of 250 lb. Per acre.**
- Mulching – use clean, unweathered, unchopping small grain straw at the rate of 1 1/2 to 2 tons per acre anchored down with cutback asphalt at the rate of 5-8 gallons per 1000 sq. Ft.**
- Discing and harrowing shall be done on contour.
- Sod shall be state "approved sod" inspected and approved by Md. Dept. of Agriculture. All sod shall be laid on site no more than 36 hours after harvest, and shall be a mixture of 60% (min.) Kentucky 31 tall fescue and 40% (min.) Kentucky bluegrass.**
- Sod pegs or stakes be untreated wood pegs driven through, and flush with sod. All slopes with a grade 3 to 1 or steeper shall be pegged at a minimum of 4 pegs per square yard of sod.**
- Soil preparation weeds and undesirable grasses growing on existing grade that is to be seeded and/or sodded must be cut and removed before soil preparation begins. Before seeding or sodding all soils shall be loosened by means of tilling and/or discing. All trash, debris, roots, brush, wire, rocks, stone and other foreign debris over one inch in diameter shall be removed prior to seeding and/or sodding, to a depth of four (4") inches.**
- Sodding, seeding and mulching – may be done immediately after final grading, provided that bed has remained in good, friable condition and has not become muddy or hard. If it has become hard, it shall be filled to friable condition again.**
- Seed shall be worked into the top 1/4" of soil by means of raking, wire drag or other approved equipment. During periods of high temperature and/or drought. The soil shall be watered immediately prior to laying the sod. All sod shall be laid at right angles to slopes. No sod shall be applied to frozen ground and no frozen sod is to be laid. Watering shall commence immediately during or after the laying operation, and shall be sufficient to thoroughly wet the sod roots and the soil below.**

Permanent seeding: shall be done february 1 through 30, and may 1 through october 31. Irrigation for permanent seeding shall be done between may 1 and august 14.

Temporary seeding: shall be done between february 1 through april 30 and august 15 through november 30. All other disturbed areas requiring stabilization not within the seeding dates shall be mulched.

Sediment control devices (ditches – dikes – traps, etc.) are to remain in place until contributing watershed has been stabilized. Maintenance to sediment control devices during the under going grading, construction and development should be done as necessary. Removal of these devices shall be with the approval of the montgomery county sediment control inspector.

Temporary Seeding Specifications

- All temporary seeded areas shall be mulched immediately after seeding. Mulch materials should be unweathered, unchopped, small grain straw spread at a rate of 1 1/2 to 2 tons per acre. The mulch shall be anchored immediately after placement with asphalt, peg and twine, plastic nettings or by a mulch anchoring tool.
- Lime and fertilizer shall be required for temporary seeding in accordance with the following procedures:
 - Pulverized dolomitic limestone is to be applied at the rate of 46 lbs. Per 1,000 sq. Ft.
 - Fertilizer shall be 10-10-10 or equivalent and applied at the rate of 12 to 18 lbs. Per 1,000 sq. Ft.

Seeding preparation

The top layer of soil shall be loosened by discing or raking (shall be done on contour) at a depth of at least 3", before seeding occurs.

Seeding

LIME: 50 lbs. Of dolomitic limestone per 1,000 sq. Ft.
FERTILIZER: 15 lbs. Of 10-10-10 per 1,000 sq. Ft.
SEED: Italian rye or perennial rye at 0.92 Lbs. Per 1,000 sq. Ft.
 (Notes: february 1st-april 30th, or august 15-november 1st)
 millet – same rate as above (date: november 2-january 31, mulch only)
MULCH: same rate as above (date: november 2-january 31, mulch only)
 planting depth: 1" to 2" for all of the above.

THE MARYLAND NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING
 M-NCPPC RECORD FILE NO. _____
 TECHNICAL REVIEW CONCURRING BY: _____
 DATE: _____
 PARK FACILITY CODE: _____

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:		NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED FOR A MCDPS ACCESS PERMIT!
Stormwater Management: SEDIMENT CONTROL & SAFE CONVEYANCE REVIEW ONLY	Sediment Control Technical Requirements:	Administrative Requirements:
Reviewed Date	Reviewed Date	Reviewed Date
Approved Date	Approved Date	262615
Approved Date 243711 SM FILE #		SEDIMENT CONTROL PERMIT NO.
		MCDPS APPROVAL OF THIS PLAN WILL EXPIRE TWO YEARS FROM THE DATE OF APPROVAL IF THE PROJECT HAS NOT STARTED.
DPS approval of a sediment control or stormwater management plan is for demonstrated compliance with minimum environmental runoff treatment standards and does not create or imply any right to divert or concentrate runoff onto any adjacent property without that property owner's permission. It does not relieve the design engineer or other responsible person of professional liability or ethical responsibility for the adequacy of the drainage design as it affects uphill or downhill properties.		

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING
 M-NCPPC PERMIT NO. _____
 M-NCPPC PARK FACILITY CODE _____
 REVIEWED BY _____
 APPROVED BY _____ CHIEF, CONSTRUCTION SECTION
 DATE APPROVED _____
 M-NCPPC PERMIT SHEET # _____ OF _____
THIS IS NOT A PERMIT TO BEGIN CONSTRUCTION
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CLIENT

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 MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
 255 ROCKVILLE PIKE, SUITE 120
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DEPARTMENT OF ENVIRONMENTAL PROTECTION
 MONTGOMERY COUNTY • MARYLAND

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SEAL:



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HUNTERS WOODS III SWM RETROFIT

(DEP SEQ. NO. 153 - ASSET 10797)

90% DESIGN

MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION - WATER RESOURCES ENGINEERING CONTRACT #8803000101BD - TASK ORDER 16

EROSION & SEDIMENT CONTROL NOTES

PROJECT NO.:	08041.05	SCALE:	NTS
SEAL:		BY:	BL/MG/TB/AG
		CHECK:	MG
		DWG. NO.:	
18 of 21			



Montgomery County Maryland
 Department of Permitting Services
 (240) 777-6300 Fax (240) 777-6339
<http://www.montgomerycountymd.gov/permittingservices/>



MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES
Stormwater Management Pond Construction Specifications
 Revised January 2009

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM, MSHA, and AASHTO specifications apply to the most recent version.

A. Construction Inspection by Designated Engineer

The construction of the pond and embankment shall be under the supervision of a Registered Professional Engineer. The engineer must submit written certification that the pond and embankment have been built in accordance with the approved plans to the Department of Permitting Services (DPS) along with a record drawing, soil compaction tests, concrete tests, and other required construction documentation. This should be done immediately following the completion of the project, unless otherwise designated on the plans. The engineer shall have the responsibility and authority to make minor changes in the plans in order to compensate for unusual soil conditions encountered during construction as long as changes do not adversely affect the integrity of the dam. Major changes to the design, which may result from site conditions encountered during construction, must be reviewed and approved by the Design Engineer, DPS, and the Montgomery Soil Conservation District prior to initiation of construction.

B. Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed, and stripped of topsoil. All trees, vegetation, roots, and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish, and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. A sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

C. Earth Fill

Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 4 inches, frozen or other objectionable materials. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer. Materials used in the outer shell of the embankment must have the ability to support vegetation of the quality required to prevent erosion of the embankment.

Placement - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portion of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one track tread of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball, it will not crumble, yet, not be so wet that water can be squeezed out.

The density of each lift shall not be less than 95% of maximum dry density with a moisture content within ±2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

Cut Off Trench - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be one to one or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Embankment Core

The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be minimum of four feet. The height shall extend up to at least the 10-year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

D. Structure Backfill

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material must fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24 inches or greater over the structure or pipe.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi; 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of six inches (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump

of the fill shall be 7 inches to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the back filling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24 inches or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

E. Pipe Conduits

All pipes shall be circular in cross section.

Corrugated Metal Pipe - All of the following criteria shall apply for corrugated metal pipe:

- Materials - (Polymer Coated Steel Pipe) - Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-245 & M-246 with watertight coupling bands or flanges.

Materials - (aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO specification M-274 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt.

Materials - (aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

- Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

- Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connections to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the band width. Pipe ends must be matched and numbered by the manufacturer. The following type connections are acceptable for pipes less than 24 inches in diameter; flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, pre-punched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lap type band with 12-inch wide by 3/8 inch thick, closed cell circular neoprene gasket; and a 12-inch wide hugger type band with o-ring gaskets having a minimum diameter of 1/2-inch greater than the corrugation depth. Pipes 24 inches in diameter and larger shall be connected by a 24-inch long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end, per current DPS band detail. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with 3/8-inch closed cell gaskets the full width of the flange is also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene bead.

- Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

- Backfilling shall conform to "Structure Backfill."

- Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Reinforced Concrete Pipe - All of the following criteria shall apply for reinforced concrete pipe:

- Materials - RCP shall have bell and spigot joints with rubber gaskets and shall meet ASTM Designation C-361. Pipes must be labeled in full accordance with ASTM C-361, including the ASTM C-361 designation on the inside of each section of pipe, and all pipes must be clearly marked by the manufacturer prior to delivery to the job site. Pipes with multiple designations will be rejected.

- Bedding - Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6-inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.

- Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within four feet from the riser.

- Backfilling shall conform to "Structure Backfill."

- Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Plastic Pipe - The following criteria shall apply for plastic pipe:

- Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4 - 10 inch pipe shall meet the requirement of AASHTO M252 Type S, and 12 through 24 inch shall meet the requirements of AASHTO M294 Type S.
- Joints and connections to anti-seep collars shall be completely watertight.
- Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
- Backfilling shall conform to "Structure Backfill."
- Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

F. Drainage Diaphragms

When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

G. Concrete

Concrete design shall meet the requirements of ACI 350, Environmental Engineering Concrete Structures, with freezing and thawing exposures. Concrete shall be a type II or IIA cement, with a 28 day compressive strength of 4500 psi for cast in place and 5000 psi for pre-cast structures. Concrete shall also meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 420, Mix No. 6.

H. Rock Rip-rap

Rock rip-rap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specification for Construction and Materials, Section 311.

Geotextile shall be placed under all rip-rap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

I. Care of Water during Construction

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from the various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled, and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works, and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water to sumps from which the water shall be pumped.

J. Stabilization

All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Maryland Soil Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

K. Erosion and Sediment Control

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction process.

THE MARYLAND -NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING
 M-NCPPC RECORD FILE NO. _____
 TECHNICAL REVIEW _____
 CONCURRENCE BY _____
 DATE _____
 PARK FACILITY CODE _____

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING

M-NCPPC PERMIT NO. _____

M-NCPPC PARK FACILITY CODE _____

REVIEWED BY _____

APPROVED BY _____ CHIEF, CONSTRUCTION SECTION

DATE APPROVED _____

M-NCPPC PERMIT SHEET # _____ OF _____

THIS IS NOT A PERMIT TO BEGIN CONSTRUCTION

This approval is for technical review only. For permit information, contact Jay Childs, Construction Supervisor at (301)495-2574.

MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:		NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED FOR A MCDPS ACCESS PERMIT!	
Stormwater Management: SEDIMENT CONTROL & SAFE CONVEYANCE REVIEW ONLY	Sediment Control Technical Requirements:	Administrative Requirements:	
Reviewed _____ Date _____	Reviewed _____ Date _____	Reviewed _____ Date _____	
Approved _____ Date _____	Approved _____ Date _____	Reviewed _____ Date _____	
243711 SM FILE #		262615 SEDIMENT CONTROL PERMIT NO.	
		MCDPS APPROVAL OF THIS PLAN WILL EXPIRE TWO YEARS FROM THE DATE OF APPROVAL IF THE PROJECT HAS NOT STARTED.	
DPS approval of a sediment control or stormwater management plan is for demonstrated compliance with minimum environmental runoff treatment standards and does not create or imply any right to divert or concentrate runoff onto any adjacent property without that property owner's permission. It does not relieve the design engineer or other responsible person of professional liability or ethical responsibility for the adequacy of the drainage design as it affects uphill or downhill properties.			

CLIENT

MR. CRAIG CARSON
 MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
 255 ROCKVILLE PIKE, SUITE 120
 ROCKVILLE, MD 20850
 (240) 777-7713



DEPARTMENT OF ENVIRONMENTAL PROTECTION
 MONTGOMERY COUNTY • MARYLAND

DATE:	ISSUES / REVISIONS
6/15/2012	30% SUBMITTAL
3/21/2014	60% SUBMITTAL
10/10/2014	90% SUBMITTAL



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 #: 45058
 EXPIRATION DATE: 04/11/2016



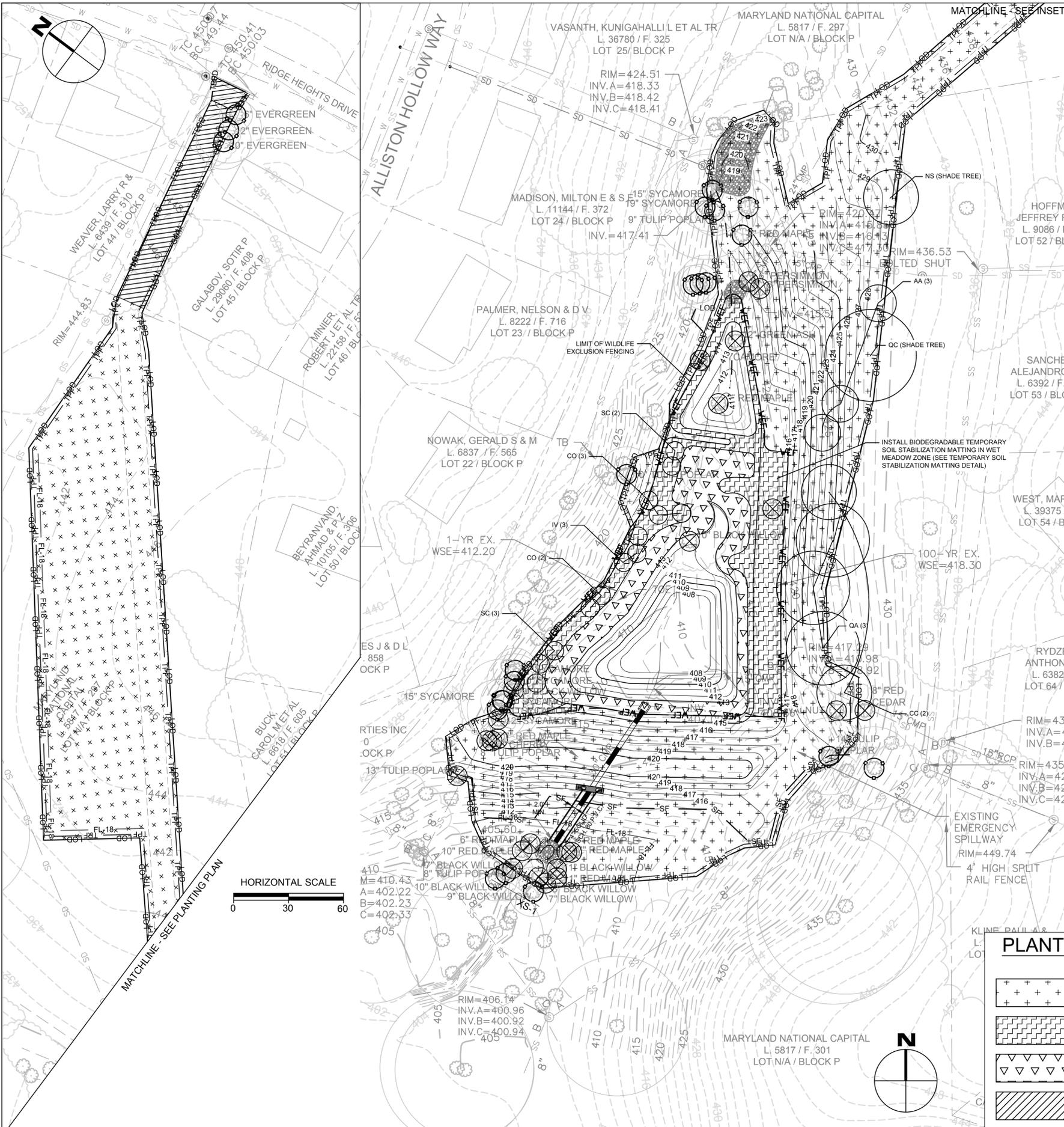
The Stables Building 2081 Clipper Park Road
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 fx: 410.554.0168 / www:biohabitats.com
Restore the Earth & Inspire Ecological Stewardship

HUNTERS WOODS III SWM RETROFIT

(DEP SEQ. NO. 153 - ASSET 10797)
90% DESIGN
 MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION - WATER RESOURCES ENGINEERING CONTRACT #8803000101BD - TASK ORDER 16

CONSTRUCTION SPECIFICATIONS

PROJECT NO.:	08041.05	SCALE:	NTS
SEAL:		BY:	BL/MG/TB/AG
		CHECK:	MG
		DWG. NO.:	19 of 21



PLANT COMPOSITION SCHEDULE
Dry Meadow

Overall Minimum Spacing (ft)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Size	Spacing Type	Individual Minimum Spacing (ft)
N/A	40			Grasses					
	15	7.9	1	<i>Andropogon virginicus</i>	Broomsedge	SEED	N/A	LB of P.L.S. 100%	N/A
	20	10.5	1	<i>Elmyrus virginicus</i>	Virginia wild rye	SEED	N/A	LB of P.L.S. 100%	N/A
	5	2.6	1	<i>Eragrostis spectabilis</i>	Purple lovegrass	SEED	N/A	LB of P.L.S. 100%	N/A
	5	2.6	1	<i>Schizachyrium scoparium</i>	Little bluestem	SEED	N/A	LB of P.L.S. 100%	N/A
	10	5.3	1	<i>Tridens flavus</i>	purpletop tridens	SEED	N/A	LB of P.L.S. 100%	N/A
				Forbs					
	4	2.1	1	<i>Apocynum cannabinum</i>	Dogbane	SEED	N/A	LB of P.L.S. 100%	N/A
	4	2.1	1	<i>Asclepias syriaca</i>	Common milkweed	SEED	N/A	LB of P.L.S. 100%	N/A
	4	2.1	1	<i>Aster pilosus</i>	Frost aster	SEED	N/A	LB of P.L.S. 100%	N/A
	4	2.1	1	<i>Aster divaricatus</i>	White wood aster	SEED	N/A	LB of P.L.S. 100%	N/A
	4	2.1	1	<i>Oenothera biennis</i>	Common evening primrose	SEED	N/A	LB of P.L.S. 100%	N/A
	5	2.6	1	<i>Rudbeckia hirta</i>	Black-eyed susan	SEED	N/A	LB of P.L.S. 100%	N/A
	5	2.6	1	<i>Solidago altissima</i>	Tall goldenrod	SEED	N/A	LB of P.L.S. 100%	N/A
	10	5.3	1	<i>Solidago caesia</i>	Bluestem goldenrod	SEED	N/A	LB of P.L.S. 100%	N/A
	5	2.6	1	<i>Verbena urticifolia</i>	White vervain	SEED	N/A	LB of P.L.S. 100%	N/A
	100	52.5		= Total					

PLANT COMPOSITION SCHEDULE
Wet Meadow

Overall Minimum Spacing (ft)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Size	Spacing Type	Individual Minimum Spacing (ft)
N/A	30			Grasses					
	15	0.6	1	<i>Carex vulpinoidea</i>	Fox sedge	SEED	N/A	LB of P.L.S. 100%	N/A
	15	0.6	1	<i>Carex scoparia</i>	Blunt broom sedge	SEED	N/A	LB of P.L.S. 100%	N/A
	15	0.6	1	<i>Elmyrus virginicus</i>	Virginia wild rye	SEED	N/A	LB of P.L.S. 100%	N/A
	5	0.4	1	<i>Carex stipata</i>	Awnfruit sedge	SEED	N/A	LB of P.L.S. 100%	N/A
	15	0.6	1	<i>Juncus effusus</i>	Soft rush	SEED	N/A	LB of P.L.S. 100%	N/A
				Forbs					
	2	0.1	1	<i>Asclepias incarnata</i>	Swamp milkweed	SEED	N/A	LB of P.L.S. 100%	N/A
	1	0.1	1	<i>Bidens frondosa</i>	Beggars licks	SEED	N/A	LB of P.L.S. 100%	N/A
	5	0.4	1	<i>Eupatorium fistulosum</i>	Joe pye weed	SEED	N/A	LB of P.L.S. 100%	N/A
	4	0.2	1	<i>Eupatorium perfoliatum</i>	Boneset	SEED	N/A	LB of P.L.S. 100%	N/A
	2	0.1	1	<i>Iris versicolor</i>	Blue flag	SEED	N/A	LB of P.L.S. 100%	N/A
	1	0.1	1	<i>Lobelia cardinalis</i>	Cardinal flower	SEED	N/A	LB of P.L.S. 100%	N/A
	5	0.4	1	<i>Rudbeckia laciniata</i>	Cutleaf coneflower	SEED	N/A	LB of P.L.S. 100%	N/A
	5	0.4	1	<i>Solidago rugosa</i>	Wrinkleleaf goldenrod	SEED	N/A	LB of P.L.S. 100%	N/A
	5	0.4	1	<i>Verbena hastata</i>	Blue vervain	SEED	N/A	LB of P.L.S. 100%	N/A
	5	0.4	1	<i>Veronica noveboracensis</i>	New York ironweed	SEED	N/A	LB of P.L.S. 100%	N/A
	100	5.4		= Total					

PLANT COMPOSITION SCHEDULE
Low Marsh

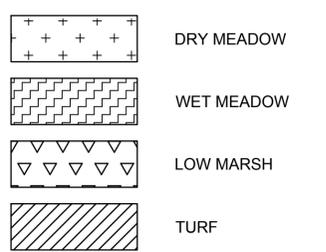
Overall Minimum Spacing (ft)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Size	Spacing Type	Individual Minimum Spacing (ft)
1	43560			Herbaceous Plugs					
	20	871	1	<i>Sagittaria latifolia</i>	Arrowhead	Gallon	2"	Random	2
	8	348	1	<i>Iris versicolor</i>	Blue flag	Plug	2"	Random	4
	6	261	1	<i>Scirpus americanus</i>	Common three-square	Gallon	2"	Random	4
	2	87	1	<i>Leersia oryzoides</i>	Rice cutgrass	Plug	2"	Random	7
	17	741	1	<i>Juncus effusus</i>	Soft rush	Plug	2"	Random	2
	12	523	1	<i>Scirpus validus</i>	Softstem bulrush	Gallon	2"	Random	3
	17	741	1	<i>Scirpus cyperinus</i>	Woolgrass	Plug	2"	Random	2
	17	741	1	<i>Carex comosa</i>	Longhare Sedge	Plug	2"	Random	2
	1	44	1	<i>Chelone glabra</i>	White turtlehead	Plug	2"	Random	10
	100	4357		= Total					

PLANT COMPOSITION SCHEDULE
TREES + SHRUBS

Overall Minimum Spacing (ft)	Species Quantity	ID	Vegetation Strata/ Species Name	Common Name	Unit	Form	Size	Individual Minimum Spacing (ft)
N/A			OVERSTORY TREES					
	3	QA	<i>Quercus alba</i>	White oak	b + b	single stem	2" - 2.5" cal	per plan
	1	NS	<i>Nyssa sylvatica</i>	Black gum	b + b	single stem	2" - 2.5" cal	per plan
	1	QC	<i>Quercus coccinea</i>	Scarlet oak	b + b	single stem	2" - 2.5" cal	per plan
	5		= total					
	3	AA	<i>Ameianchier arborea</i>	Dowry serviceberry	CON	single stem	1" - 1.5" cal	per plan
	2	CC	<i>Cercis canadensis</i>	Eastern redbud	CON	single stem	1" - 1.5" cal	per plan
	5		= total					
	5	CO	<i>Cephalanthus occidentalis</i>	Butterbush	CON	N/A	3 - 4 ft.	clusters +3
	3	IV	<i>Ilex verticillata</i>	Winterberry	CON	N/A	3 - 4 ft.	clusters +3
	5	SC	<i>Sambucus canadensis</i>	American elder	CON	N/A	3 - 4 ft.	clusters +3
	13		= total					

NOTE:
1) UP TO 19 ADDITIONAL OVERSTORY AND MID-STORY TREES MAY BE PLANTED OUTSIDE THE LOD AT THE DISCRETION OF DEP AND MNPCPC STAFF. SELECTED TREES SHOULD BE A COMBINATION OF THE SINGLE STEM FORM OF THE FOLLOWING SPECIES: QUERCUS ALBA, QUERCUS COCCINEA, QUERCUS...

PLANTING LEGEND



MONTGOMERY COUNTY DEPARTMENT OF PERMITTING SERVICES APPROVED FOR:

Stormwater Management: SEDIMENT CONTROL & SAFE CONVEYANCE REVIEW ONLY	Sediment Control Technical Requirements: Reviewed _____ Date _____ Approved _____ Date _____	Administrative Requirements: Reviewed _____ Date 262615 SEDMIMENT CONTROL PERMIT NO. _____
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M-NPCPC RECORD FILE NO. **243711**
SM FILE # _____

NOTE: MCDPS APPROVAL DOES NOT NEGATE THE NEED FOR A MCDPS ACCESS PERMIT.
MCDPS APPROVAL OF THIS PLAN WILL EXPIRE TWO YEARS FROM THE DATE OF APPROVAL IF THE PROJECT HAS NOT STARTED.

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION, DEPARTMENT OF PARK AND PLANNING

M-NPCPC PERMIT NO. _____
M-NPCPC PARK FACILITY CODE _____

REVIEWED BY _____
APPROVED BY _____ CHIEF, CONSTRUCTION SECTION
DATE APPROVED _____

M-NPCPC PERMIT SHEET # _____ OF _____

THIS IS NOT A PERMIT TO BEGIN CONSTRUCTION

This approval is for technical review only. For permit information, contact Jay Childs, Construction Supervisor at (301)495-2574.

CLIENT

MR. CRAIG CARSON
MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION
255 ROCKVILLE PIKE, SUITE 120
ROCKVILLE, MD 20850
(240) 777-7713



DEPARTMENT OF ENVIRONMENTAL PROTECTION
MONTGOMERY COUNTY • MARYLAND

DATE: ISSUES / REVISIONS

6/15/2012	30% SUBMITTAL
3/21/2014	60% SUBMITTAL
10/10/2014	90% SUBMITTAL

SEAL:
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 # 45058
EXPIRATION DATE: 04/11/2016



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fx: 410.554.0168 / www.biohabitats.com
Restore the Earth & Inspire Ecological Stewardship

HUNTERS WOODS III SWM RETROFIT

(DEP SEQ. NO. 153 - ASSET 10797)
90% DESIGN
MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION - WATER RESOURCES ENGINEERING CONTRACT #8803000101BD - TASK ORDER 16

PLANTING PLAN & SCHEDULES

PROJECT NO.: 08041.05 SCALE: 1" = 30'

SEAL: _____ BY: BL/MG/TB/AG CHECK: _____ MG
DWG. NO.: _____

21 of 21