

ROCKBURN BRANCH PARK

OUTFALL D ENVIRONMENTAL SITE DESIGN RETROFIT

CAPITAL PROJECT # D1160

CLIENT

HOWARD COUNTY
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
SUITE 514
COLUMBIA, MD 21046

GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- THE EXISTING TOPOGRAPHY IS TAKEN FROM AERIAL SURVEY WITH 1 FOOT CONTOUR INTERVALS PREPARED BY AERO-METRIC DATED 2/26/2012.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT Nos. 37BM2 AND 37BC WERE USED FOR THIS PROJECT.
- WATER IS PUBLIC.
- SEWER IS PUBLIC.
- THIS PROJECT RETROFITS EXISTING CONDITIONS WITH A BIORETENTION FACILITY. THIS FACILITY WILL BE OWNED AND MAINTAINED BY THE DEPARTMENT OF RECREATION AND PARKS.
- EXISTING UTILITIES ARE BASED ON AVAILABLE RECORDS.
- THERE IS NO FLOODPLAIN ON THIS SITE.
- THERE ARE NO WETLANDS ON THIS SITE.
- THERE ARE NO FOREST CONSERVATION EASEMENTS WITHIN THE PROJECT LIMITS.
- NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAMS, THEIR BUFFERS, FOREST CONSERVATION EASEMENTS AND 100-YEAR FLOODPLAIN, EXCEPT THOSE DISTURBANCES DEEMED NECESSARY BY DPZ.
- THE SUBJECT PROPERTY IS ZONED R-20 PER THE 10/6/2013 COMPREHENSIVE ZONING PLAN.
- THERE ARE NO BURIAL GROUNDS OR CEMETERY SITES LOCATED ON THE PROJECT SITE.
- THIS RENOVATION PROJECT FOR SITE IMPROVEMENTS TO THE ROCKBURN BRANCH PARK UNDER CAPITAL PROJECT No. D1160 IS CONSIDERED EXEMPT IN ACCORDANCE WITH APPENDIX 'O' OF THE FOREST CONSERVATION MANUAL BECAUSE THE ACTIVITY DOES NOT RESULT IN THE CUTTING, CLEARING OR GRADING OF MORE THAN 20,000 SQUARE FEET OF FOREST. THE TOTAL LOD WITHIN EXISTING FOREST IS 3,700 SF. TREE REMOVAL SHALL BE RESTRICTED TO THOSE REQUIRED TO BE COMPLETE THE WORK AS APPROVED BY DEPARTMENT OF RECREATION AND PARKS.
- OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY, AND BIOHABITATS, INC. DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR COMPLETENESS OF THE INFORMATION GIVEN. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES BETWEEN THE PLANS AND THE FIELD CONDITIONS, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT NOTIFYING THE ENGINEER, THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CHANGES.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO THE CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- BIOHABITATS SHALL CERTIFY IN WRITTEN LETTER THAT THE CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED IN ACCORDANCE TO THESE PLANS.
- DPZ has determined the disturbance within the regulated 75' perennial streambank buffer is essential and necessary for construction of the SWM system in accordance with Section 10.110(c) of the subdivision and land development regulations. No grading will occur within the streambank buffer; however, the contractor will need to place the filter log for sediment control on the existing grade within the buffer.

DEPARTMENT OF PUBLIC WORKS, HOWARD CO, MD
Mark S. Richmond 4/27/15
CHIEF STORMWATER MANAGEMENT DIVISION DATE

DEPARTMENT OF RECREATION AND PARKS, HOWARD CO, MD
John K. Blanton 5/15/15
DIRECTOR OF RECREATION AND PARKS DATE

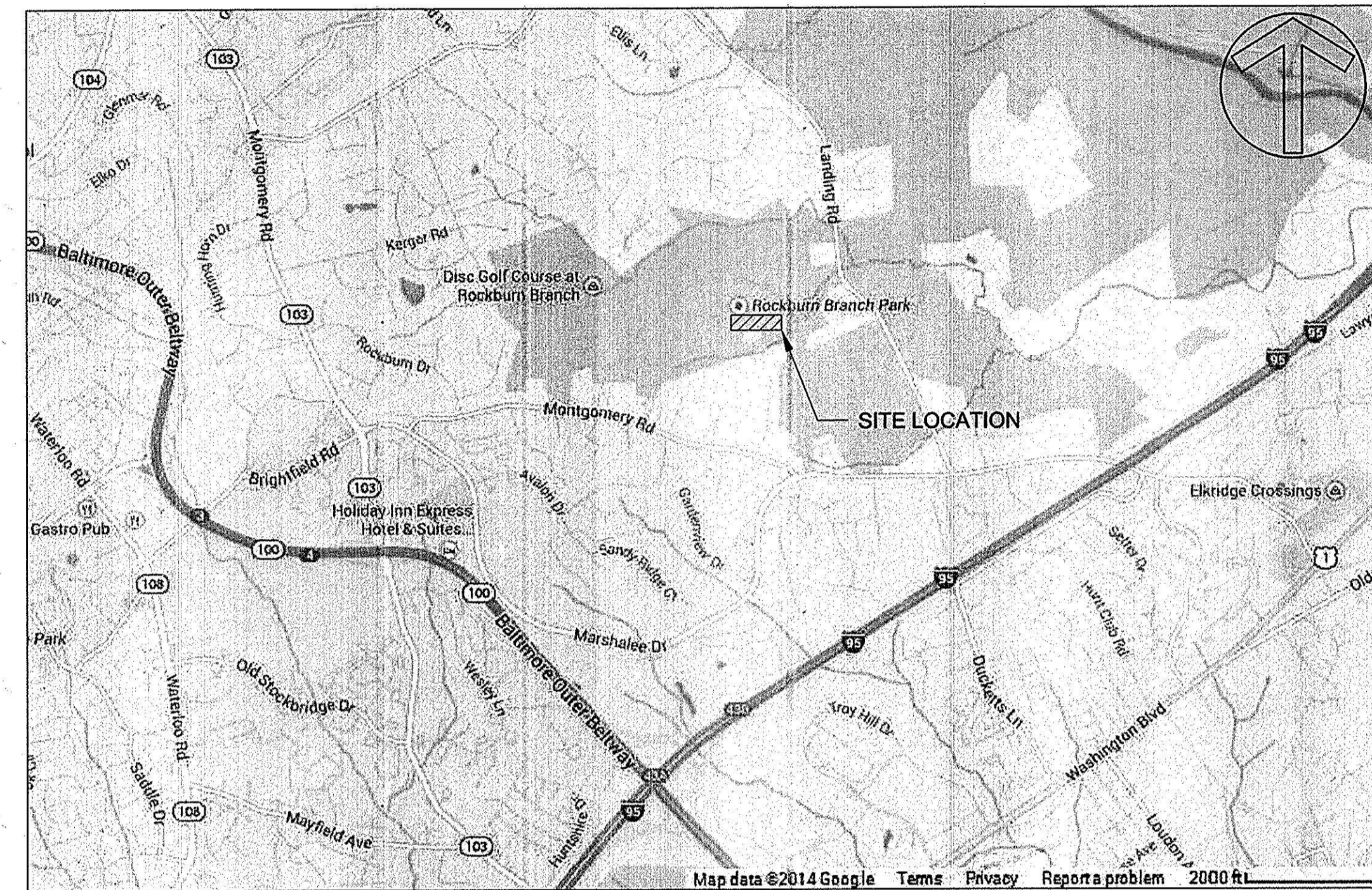
This development plan is approved for soil erosion and sediment control by the HOWARD COUNTY SOIL CONSERVATION DISTRICT
John K. Blanton 5/15/15
ward SCD Date

Sheet Number	Sheet Title
15	TITLE SHEET
16	GEOMETRY
17	GEOMETRY
18	PROPOSED CONDITIONS
19	PROPOSED CONDITIONS
20	PROFILE
21	DETAILS
22	EROSION & SEDIMENT CONTROL PLAN
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26	EROSION AND SEDIMENT CONTROL DETAILS
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28	EROSION AND SEDIMENT CONTROL DETAILS
29	PLANTING PLAN
30	PLANTING PLAN
31	PLANTING DETAILS
32	MATERIAL SPECIFICATIONS

LEGEND

EXISTING	PROPOSED
MAJOR CONTOUR	MAJOR CONTOUR
MINOR CONTOUR	MINOR CONTOUR
TREELINE	INTERMEDIATE CONTOUR
PROPERTY LINE	BASELINE
FENCE LINE	WATER SURFACE
LIGHT POLE	LIMIT OF DISTURBANCE
TREE	FILTER LOGS
CRITICAL ROOT ZONE	SILT FENCE
TRAIL	DIVERSION FENCE
WATERS OF THE U.S.	BLAZE ORANGE FENCE
75' PERENNIAL STREAM BUFFER	STAGING AND STOCKPILING AREA
	STABILIZED CONSTRUCTION ENTRANCE
	FILTER BAG
	PUMP AROUND LOCATION
	FLOW PIPE
	SUMP PIT

VICINITY MAP



I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLAN AND SPECIFICATIONS.
AMY LONGCRIER, PE# 45474 AS BUILT DATE: NOV. 30TH, 2015

DEPARTMENT OF PUBLIC WORKS, HOWARD CO, MD
Jan P. ... 5/5/15
DIRECTOR, DEPARTMENT OF PUBLIC WORKS DATE

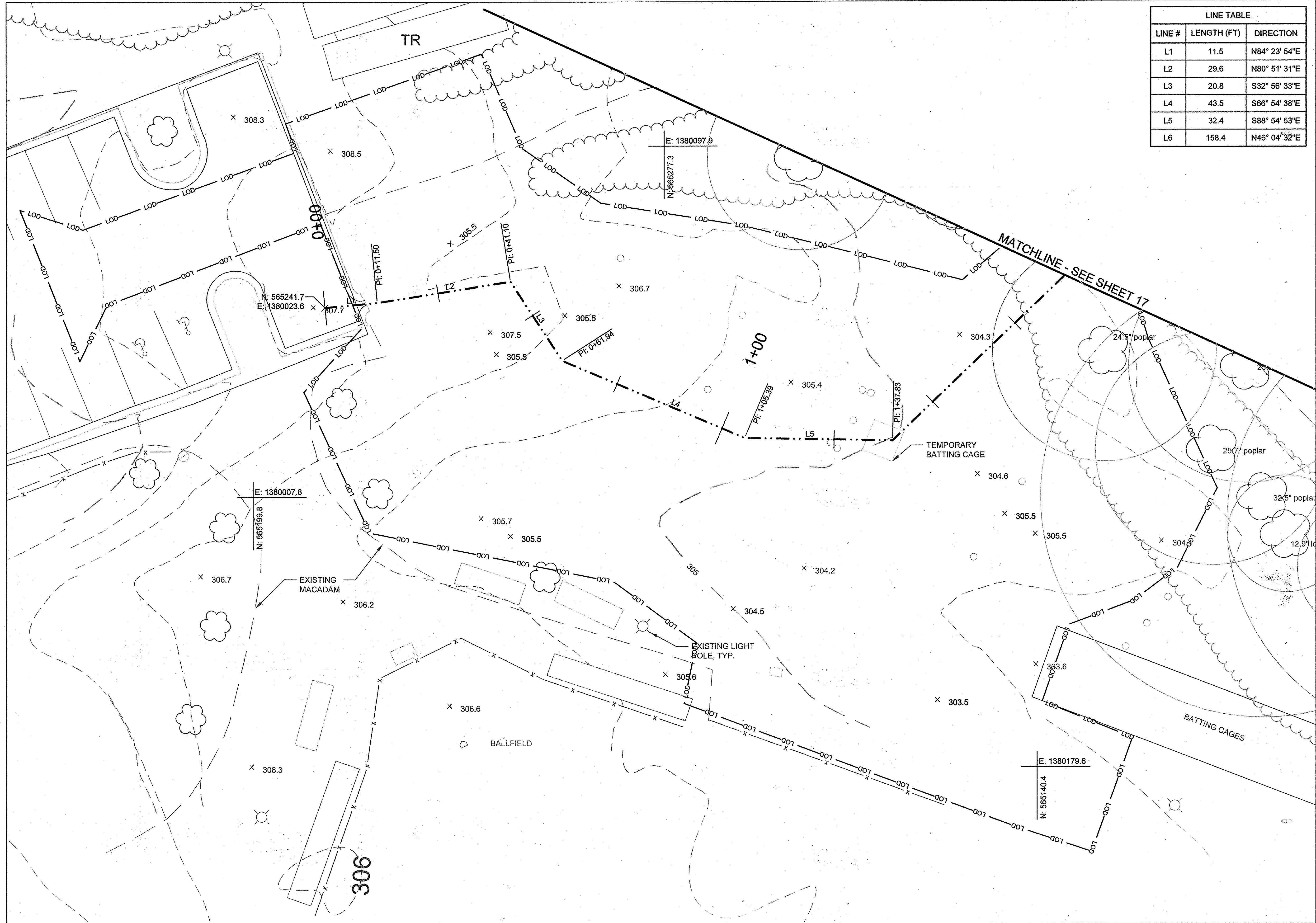
PROFESSIONAL ENGINEER
Amy Longcrier 4/15/15
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE # 45474
EXPIRATION DATE: 6/12/2016

ENGINEERS CERTIFICATE
"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT"
Amy Longcrier 4/15/15
SIGNATURE OF ENGINEER (PRINTNAME BELOW SIGNATURE) DATE

DEVELOPERS CERTIFICATE
"I WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE THE BEGINNING OF THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT"
Mark S. Richmond 4/27/15
SIGNATURE OF DEVELOPER (PRINTNAME BELOW SIGNATURE) DATE

REVISED SITE DEVELOPMENT PLAN
ROCKBURN BRANCH PARK
OUTFALL D RETROFIT
AS-BUILT

TITLE SHEET
PROJECT NO.: 13005.09 SCALE: AS SHOWN
SEAL: BY: AL/KT CHECK: MT/JZ/BA
DWG. NO.:
15 of 32

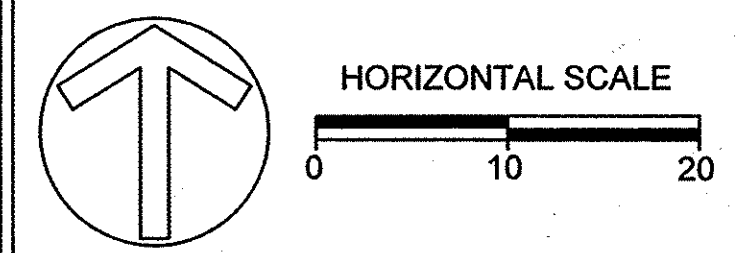


LINE TABLE		
LINE #	LENGTH (FT)	DIRECTION
L1	11.5	N84° 23' 54"E
L2	29.6	N80° 51' 31"E
L3	20.8	S32° 56' 33"E
L4	43.5	S66° 54' 38"E
L5	32.4	S88° 54' 53"E
L6	158.4	N46° 04' 32"E

CLIENT

HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046

DATE	ISSUES / REVISIONS
02/10/2015	SUPPLEMENTAL PLAN TO PROVIDE WATER QUALITY RETROFIT FOR 0.71 AC. OF SITE



APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 4/27/15
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 5-18-15
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 5-20-15
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

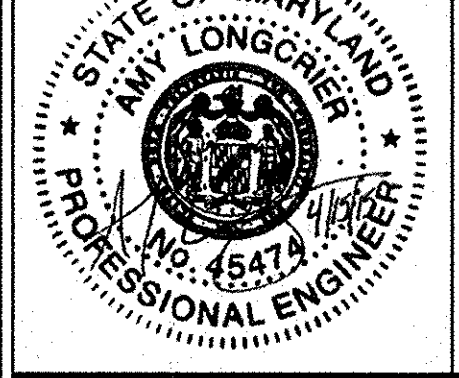
[Signature] 5/27/15
 DIRECTOR DATE

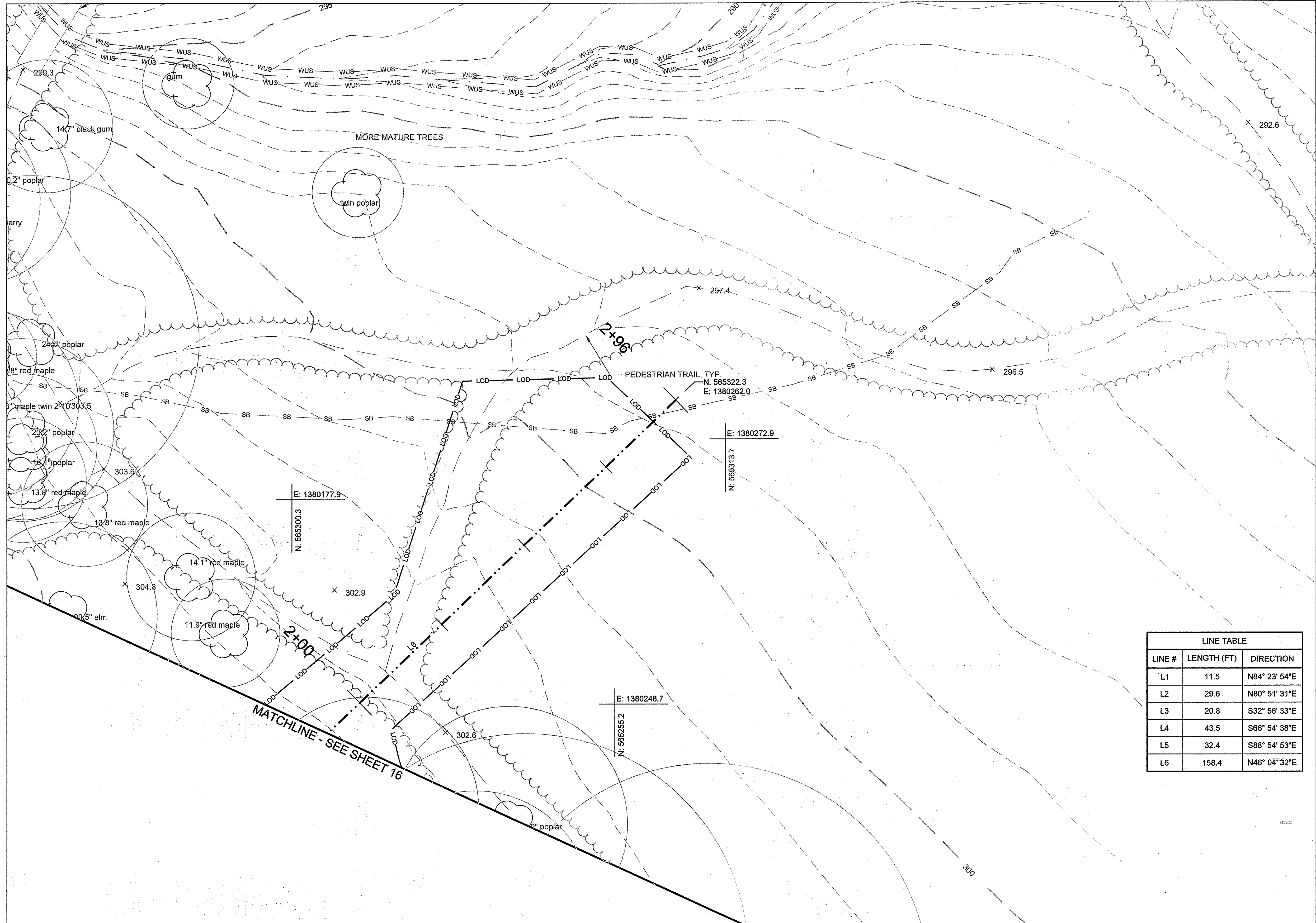
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REVISED SITE DEVELOPMENT PLAN
**ROCKBURN
 BRANCH PARK
 OUTFALL D RETROFIT**

GEOMETRY

PROJECT NO.:	13005.09	SCALE:	1" = 10'
SEAL:		BY:	AL/KT
		CHECK:	MT/JZ/BA
		DWG. NO.:	

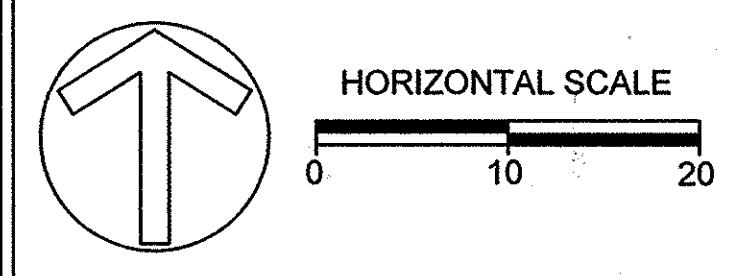




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[Signature] 4/27/15
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 5-18-15
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 5-20-15
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 5/20/15
 DIRECTOR DATE

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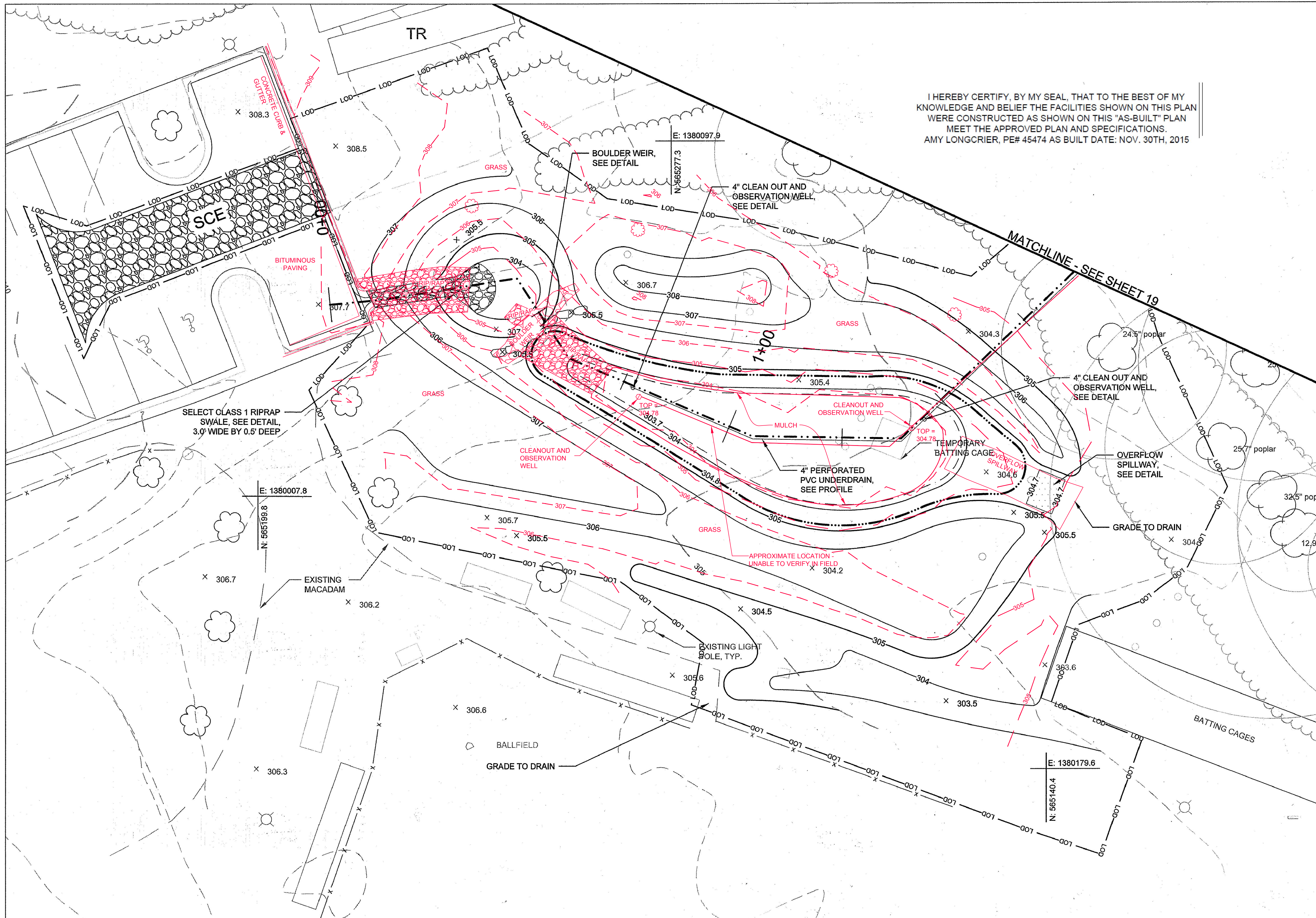
REVISED SITE DEVELOPMENT PLAN
**ROCKBURN
 BRANCH PARK
 OUTFALL D RETROFIT**

TITLE:
GEOMETRY

PROJECT NO.: 13005.09 SCALE: 1" = 10'

SEAL: BY: AL/KT CHECK: MT/JZ/BA
 DWS. NO.: 17 of 32

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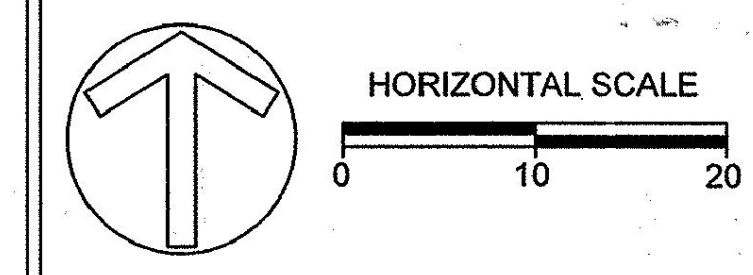


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APPROVED: DEPARTMENT OF PUBLIC WORKS
M. D. ... 4/27/15
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
... 5-18-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

... 5-20-15
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

... 5/21/15
DIRECTOR DATE

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AS-BUILT

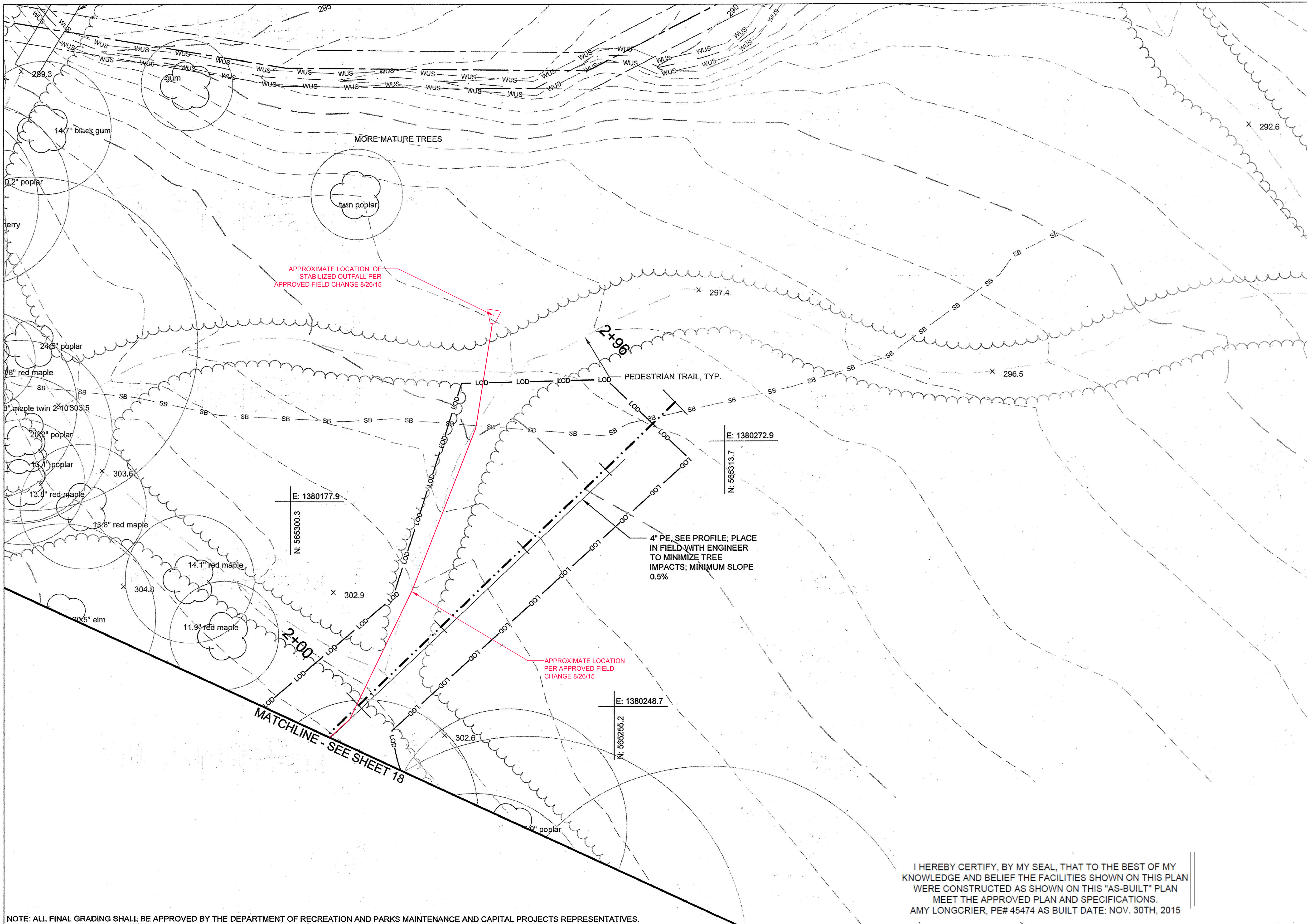
TITLE: **PROPOSED
CONDITIONS**

PROJECT NO.: 13005.09 SCALE: 1" = 10'

SEAL: BY: AL/KT CHECK: MT/UZ/BA
DWS. NO.:

STATE OF MARYLAND
AMY LONGCRIER
No. 45474
PROFESSIONAL ENGINEER

NOTE: ALL FINAL GRADING SHALL BE APPROVED BY THE DEPARTMENT OF RECREATION AND PARKS MAINTENANCE AND CAPITAL PROJECTS REPRESENTATIVES.



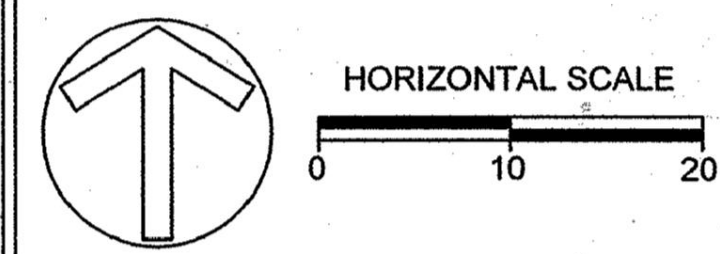
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 AMY LONGCRIER, PE# 45474 AS BUILT DATE: NOV. 30TH, 2015

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 SUITE 514
 COLUMBIA, MD 21046

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[Signature] 4/27/15
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APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 5-18-15
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 5-20-15
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 5/20/15
 DIRECTOR DATE

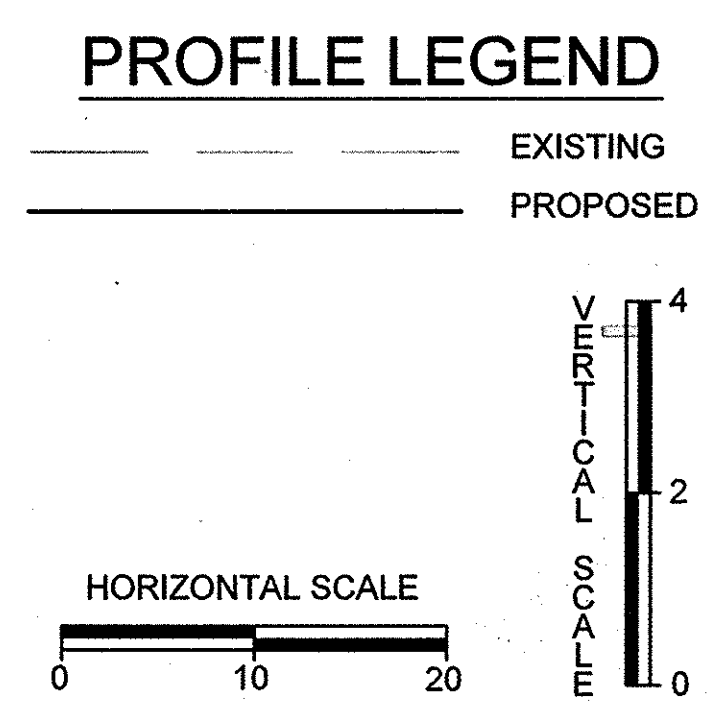
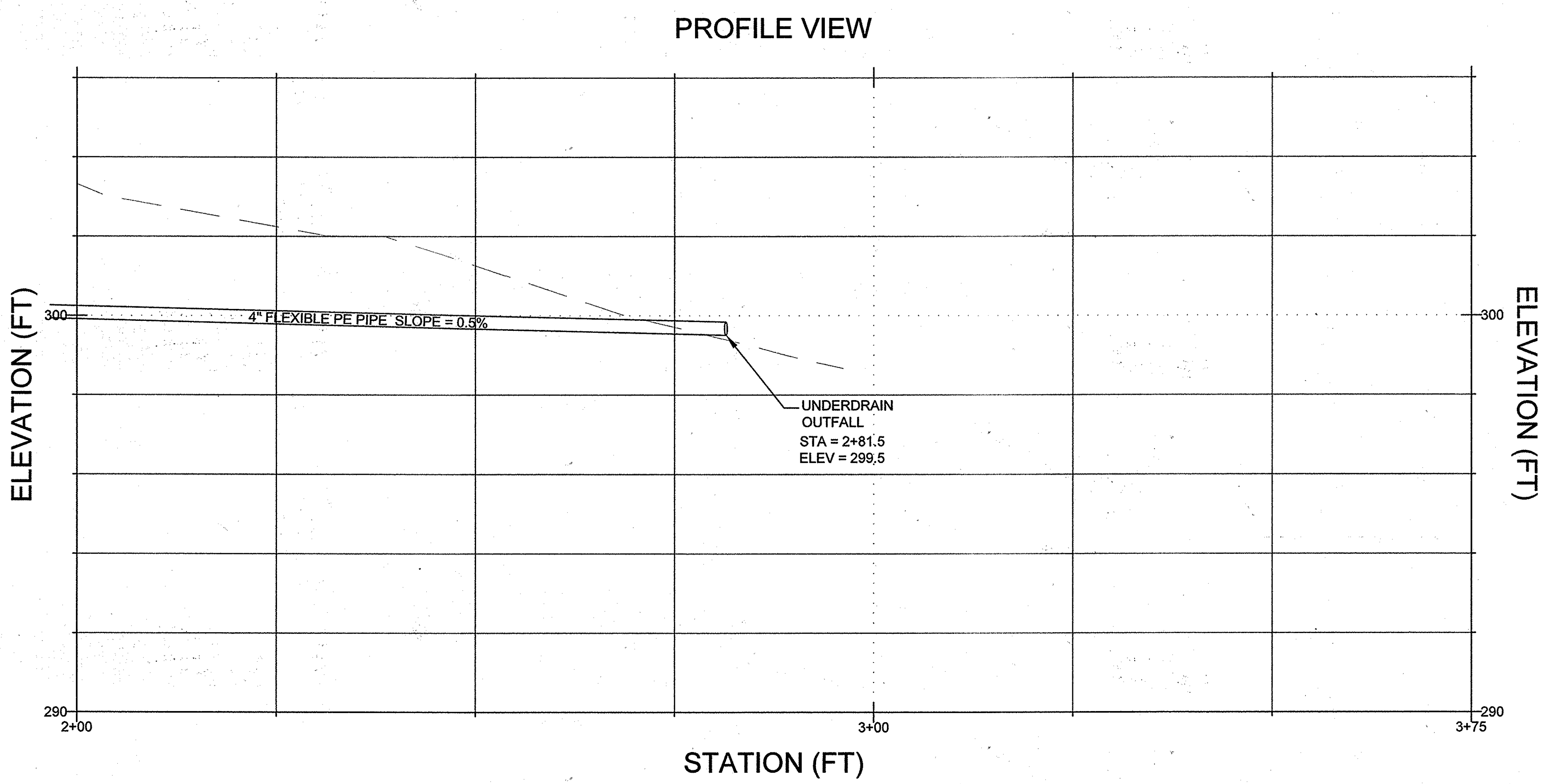
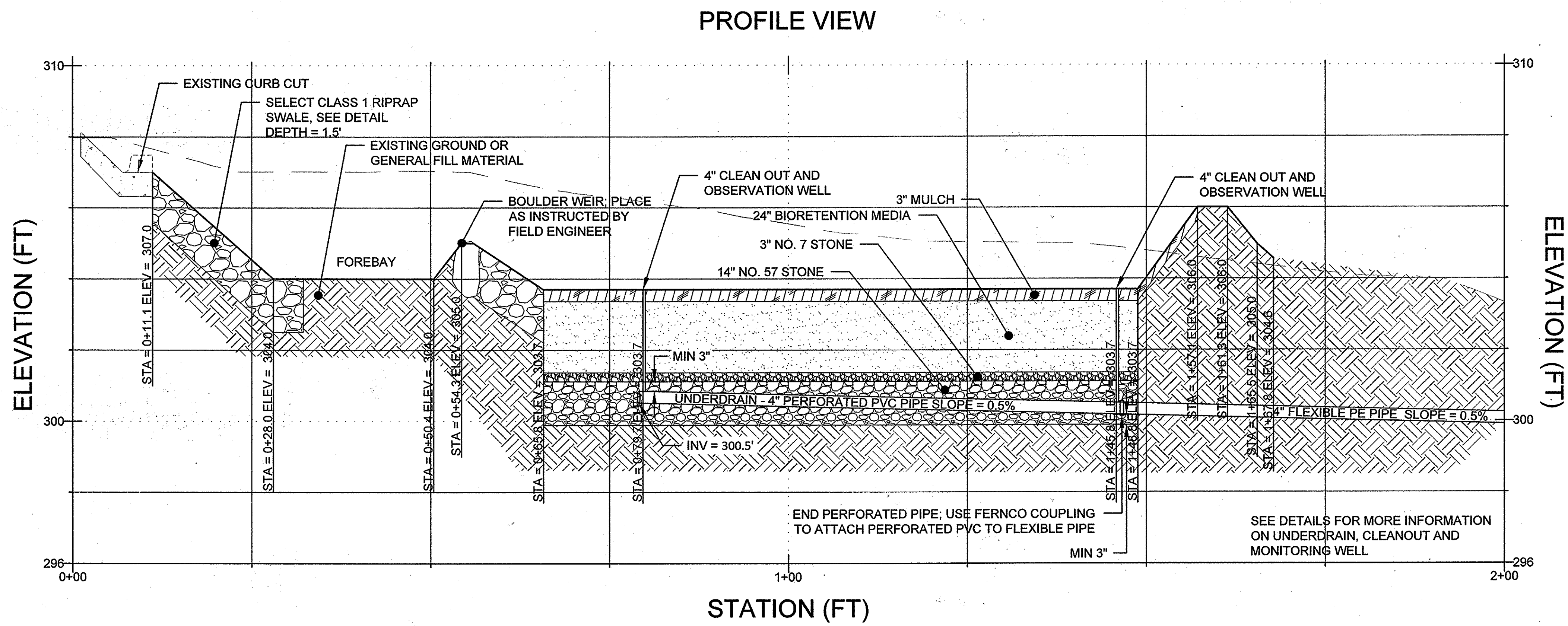
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REVISED SITE DEVELOPMENT PLAN
**ROCKBURN
 BRANCH PARK
 OUTFALL D RETROFIT**
 AS-BUILT

TITLE: **PROPOSED
 CONDITIONS**

PROJECT NO.: 13005.09 SCALE: 1" = 10'
 SEAL: BY: AL/KT CHECK: MT/JZ/BA
 DWG. NO.:

19 of 32



CLIENT

HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046

DATE	ISSUES / REVISIONS
02/10/2015	SUPPLEMENTAL PLAN TO PROVIDE WATER QUALITY RETROFIT FOR 0.71 AC. OF SITE

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 4/27/15
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 5-18-15
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 5-20-15
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 5/21/15
 DIRECTOR DATE

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REVISED SITE DEVELOPMENT PLAN
**ROCKBURN
 BRANCH PARK
 OUTFALL D RETROFIT**

TITLE:	
PROFILE	
PROJECT NO.:	13005.09
SCALE:	AS SHOWN
SEAL:	BY: AL/KT CHECK: MT/JZ/BA
DWG. NO.:	20 of 32

CLIENT

HOWARD COUNTY
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
SUITE 514
COLUMBIA, MD 21046

DATE	ISSUES / REVISIONS
02/10/2015	SUPPLEMENTAL PLAN TO PROVIDE WATER QUALITY RETROFIT FOR 0.71 AC. OF SITE

APPROVED: DEPARTMENT OF PUBLIC WORKS

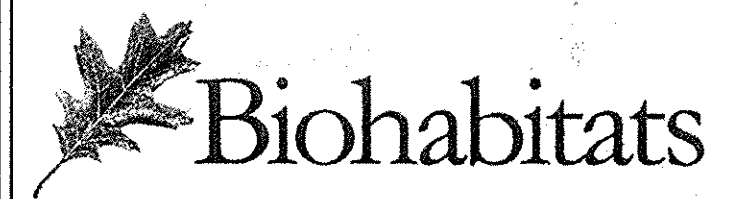
Michael R. Price 4/27/15
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chad Clark 5-18-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

West 5-20-15
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

David M. Long 5/24/15
DIRECTOR DATE



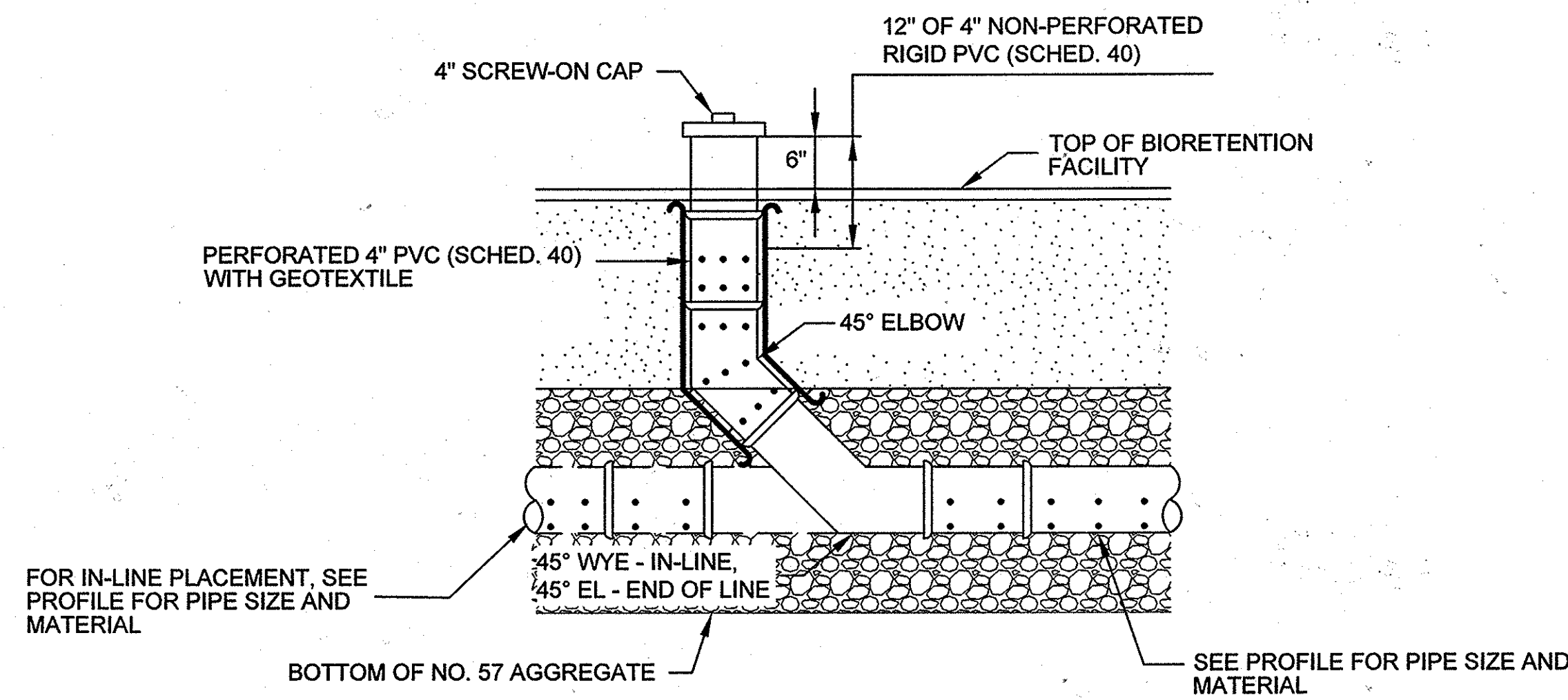
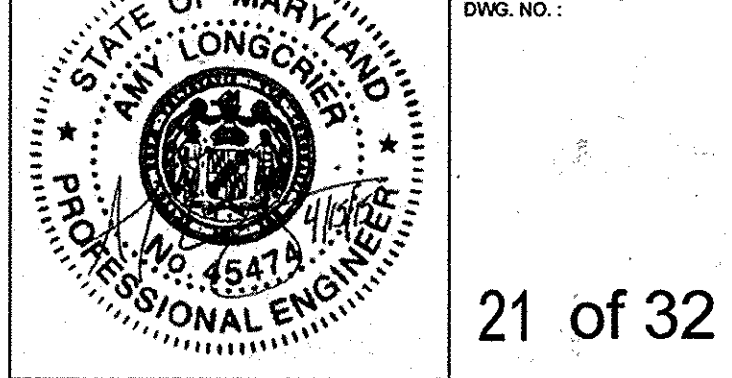
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REVISED SITE DEVELOPMENT PLAN
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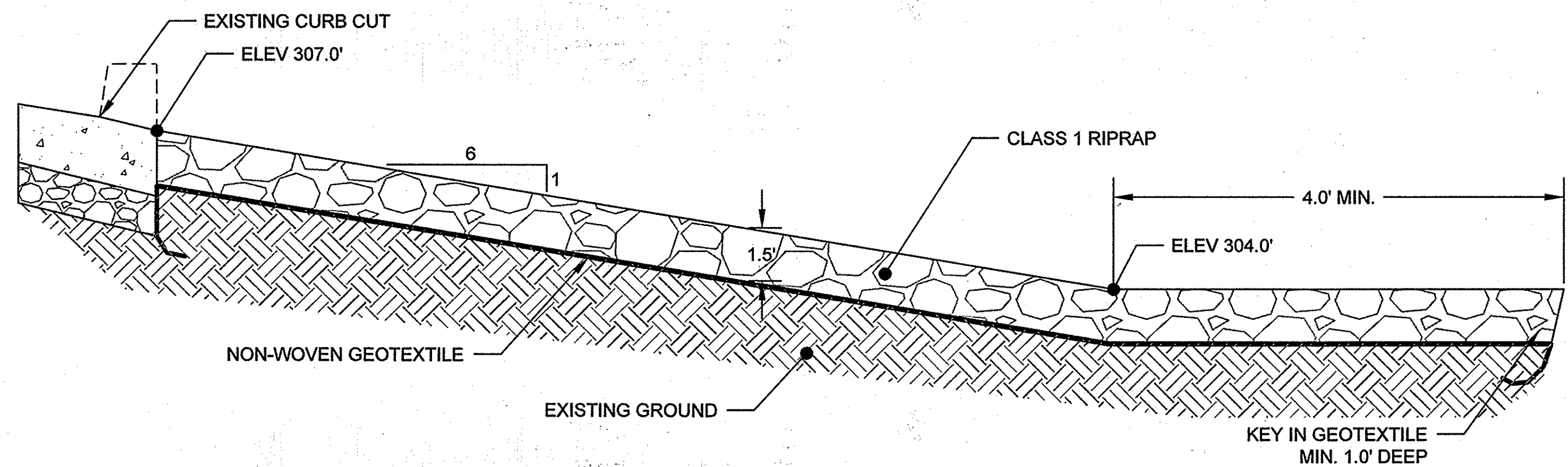
TITLE: **DETAILS**

PROJECT NO.: 13005.09 SCALE: AS SHOWN

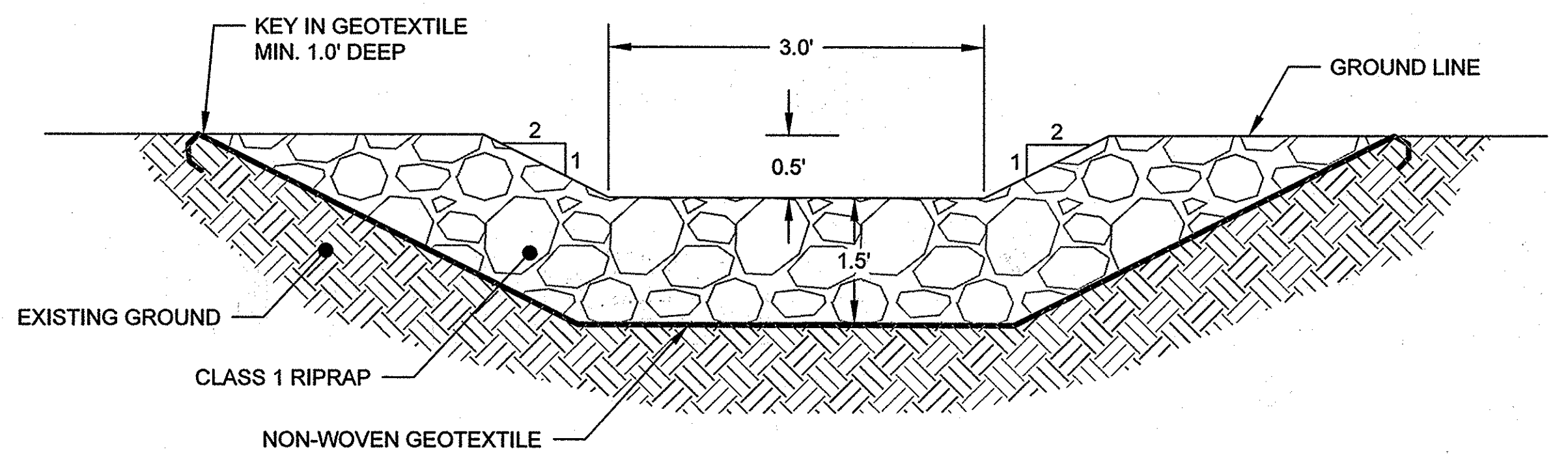
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DWG. NO.:



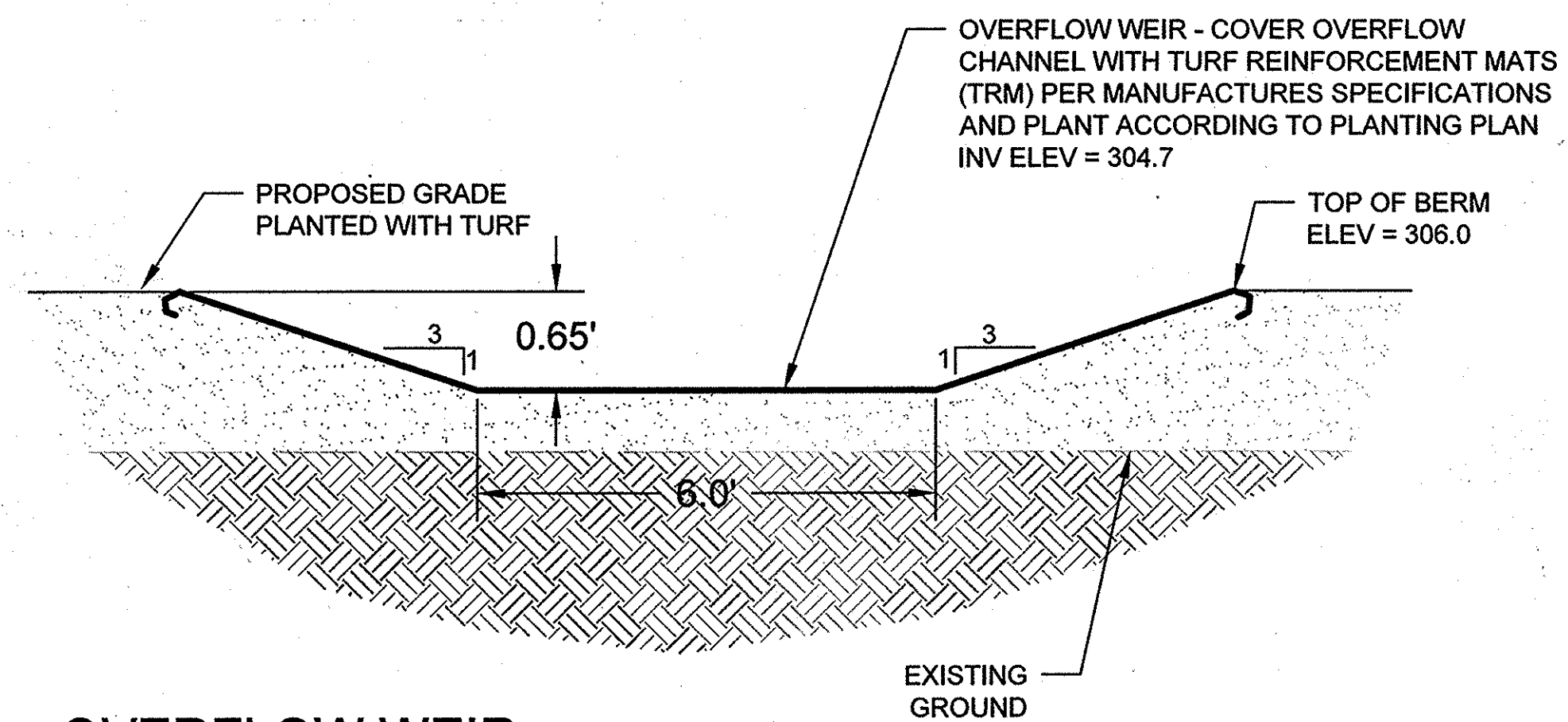
4" CLEANOUT AND MONITORING WELL DETAIL NTS



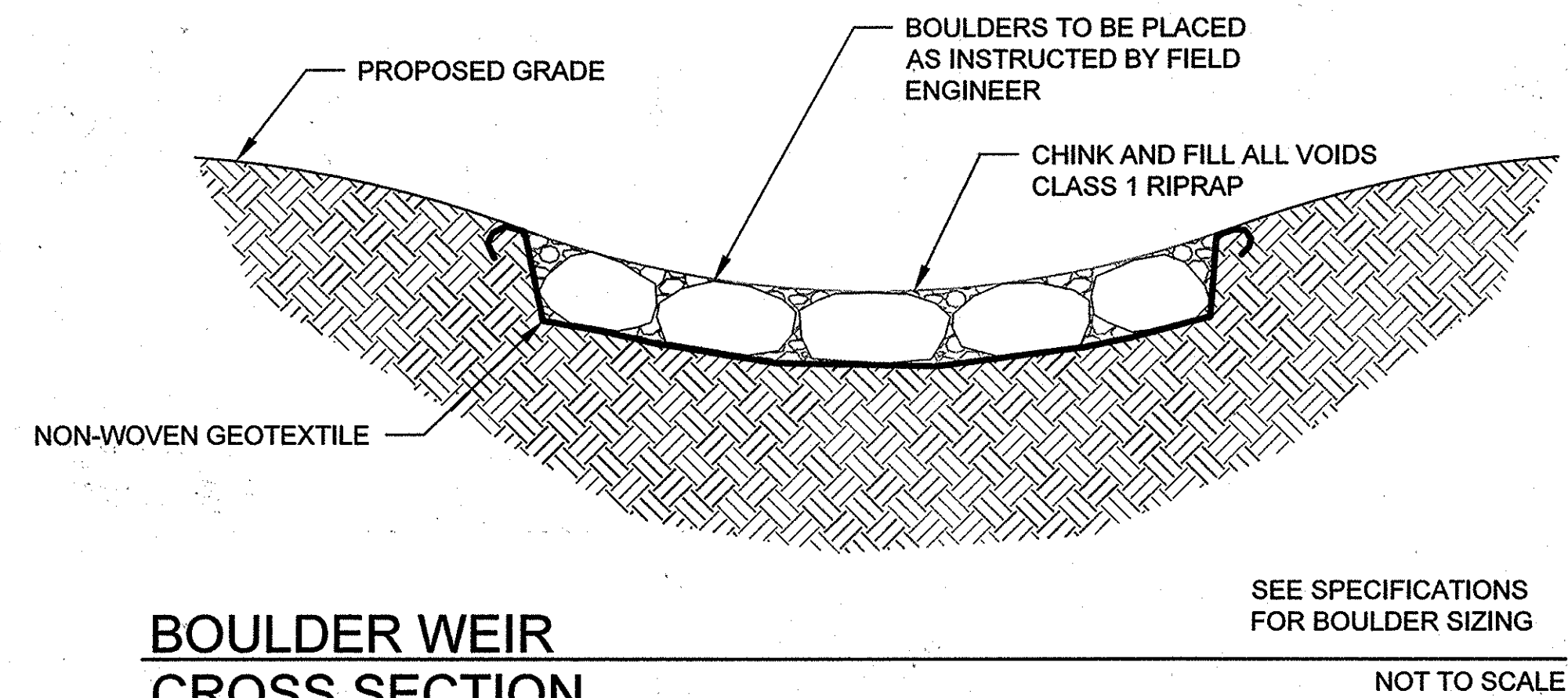
RIP RAP SWALE PROFILE



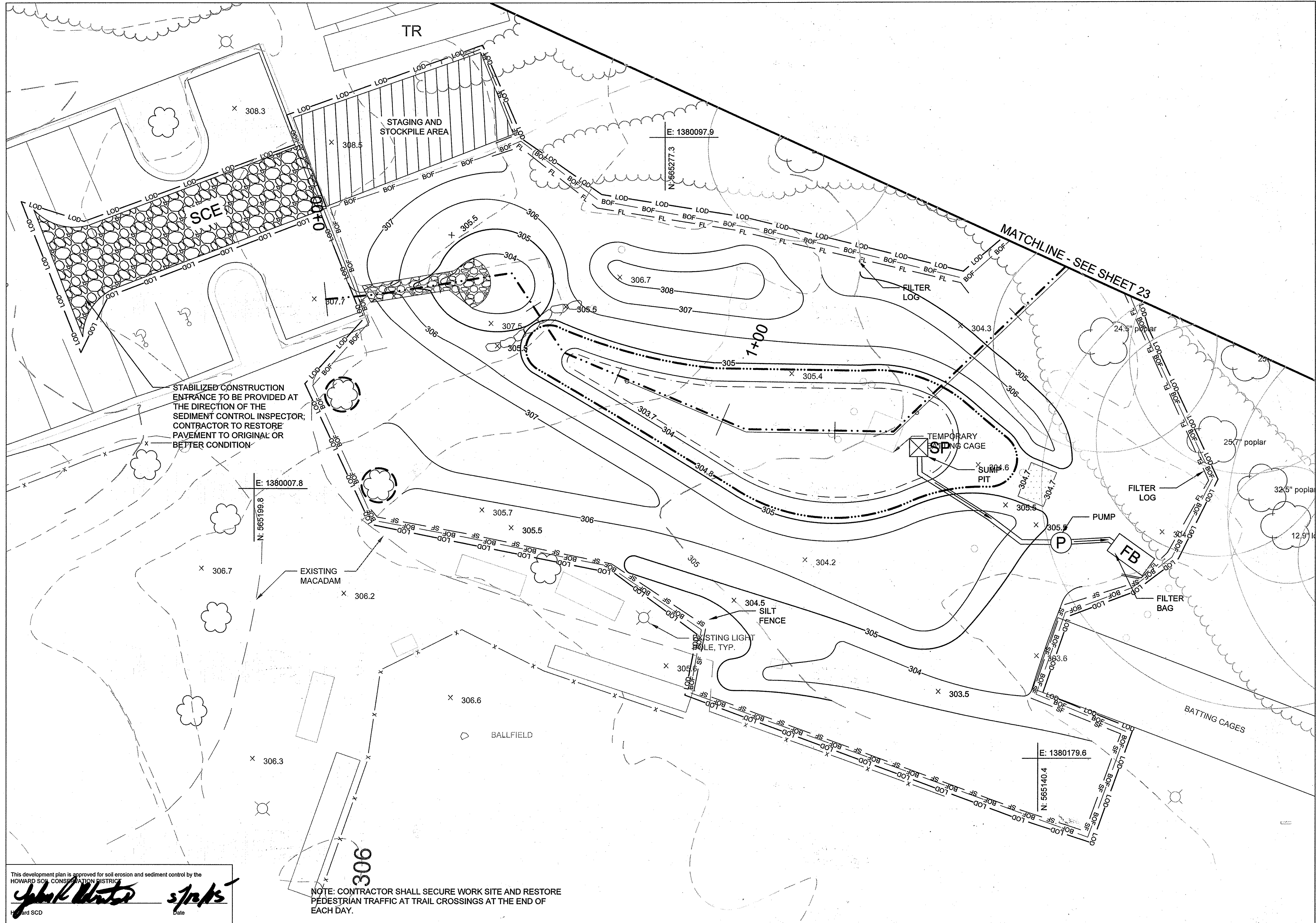
RIP RAP SWALE TYPICAL CROSS-SECTION



OVERFLOW WEIR CROSS SECTION



BOULDER WEIR CROSS SECTION



STABILIZED CONSTRUCTION ENTRANCE TO BE PROVIDED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR; CONTRACTOR TO RESTORE PAVEMENT TO ORIGINAL OR BETTER CONDITION

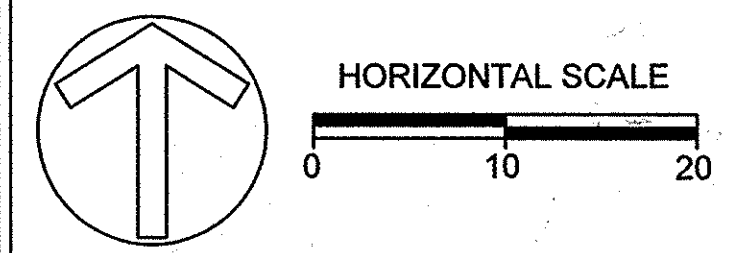
NOTE: CONTRACTOR SHALL SECURE WORK SITE AND RESTORE PEDESTRIAN TRAFFIC AT TRAIL CROSSINGS AT THE END OF EACH DAY.

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT
John Walter *sp/ps*
 Howard SCD Date

CLIENT

HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
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DATE	ISSUES / REVISIONS
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APPROVED: DEPARTMENT OF PUBLIC WORKS
Mark D'Arcy 4/27/15
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Paul E. Egan 5-18-15
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kevin Stalworth 5-20-15
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Mark Mayle 5/2/15
 DIRECTOR DATE

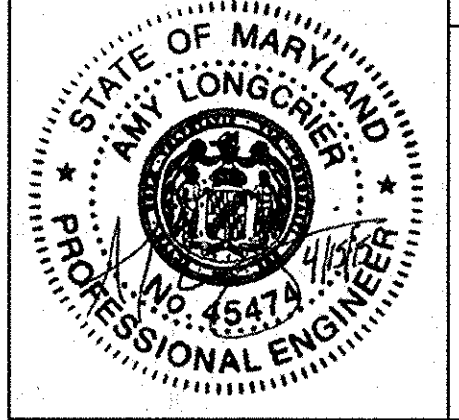
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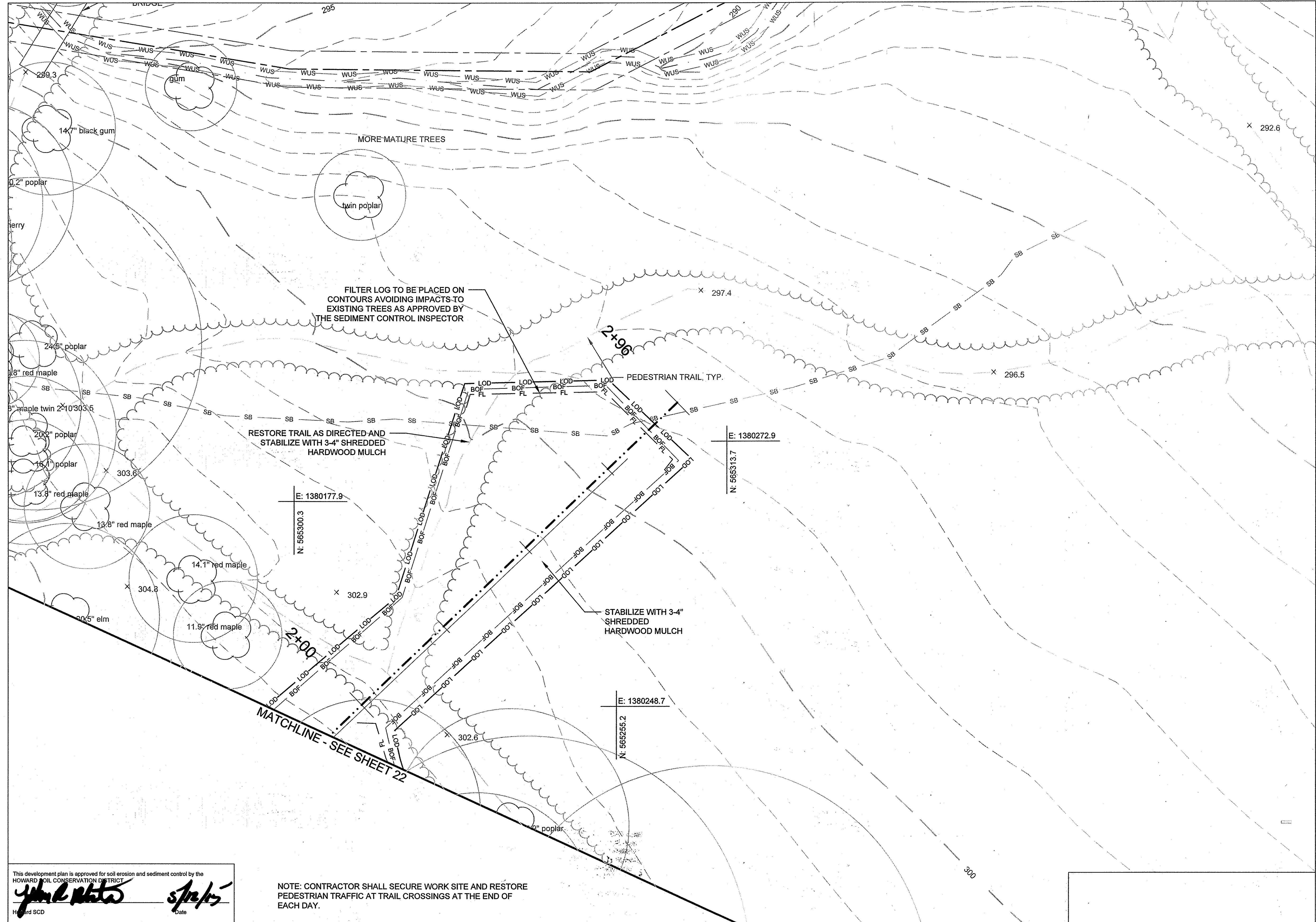
REVISED SITE DEVELOPMENT PLAN
**ROCKBURN
 BRANCH PARK
 OUTFALL D RETROFIT**

TITLE:
**EROSION & SEDIMENT
 CONTROL PLAN**

PROJECT NO.: 13005.09 SCALE: 1" = 10'

SEAL: BY: AL/KT CHECK: MT/JZ/BA
 DWG. NO.:





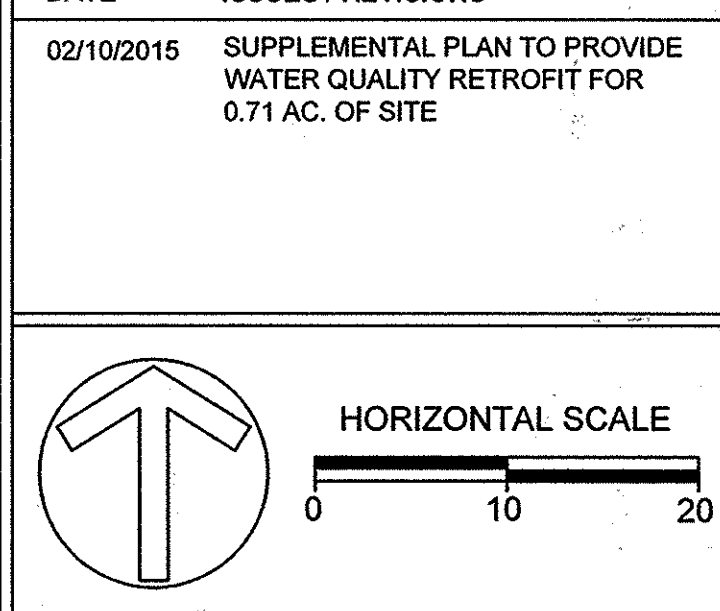
This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT

[Signature] s/p/r/s
 Date

NOTE: CONTRACTOR SHALL SECURE WORK SITE AND RESTORE PEDESTRIAN TRAFFIC AT TRAIL CROSSINGS AT THE END OF EACH DAY.

CLIENT
 HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046

DATE	ISSUES / REVISIONS
02/10/2015	SUPPLEMENTAL PLAN TO PROVIDE WATER QUALITY RETROFIT FOR 0.71 AC. OF SITE



APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 4/24/15
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 5-18-15
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 5-20-15
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 5/24/15
 DIRECTOR DATE

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REVISED SITE DEVELOPMENT PLAN
**ROCKBURN
 BRANCH PARK
 OUTFALL D RETROFIT**

TITLE:
**EROSION & SEDIMENT
 CONTROL PLAN**

PROJECT NO.: 13005.09 SCALE: 1" = 10'

SEAL: *[Professional Engineer Seal]*

BY: AL/KT CHECK: MT/UZ/BA
 DWG. NO.:
 23 of 32

SEDIMENT CONTROL NOTES

- NOTE: CONDUCT A PRE-CONSTRUCTION MEETING. NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT LEAST 48 HOURS BEFORE COMMENCING WORK AT (410) 313-1880. WORK MAY NOT COMMENCE UNTIL THE PERMITTEE OR THE RESPONSIBLE PE HAVE MET ON SITE WITH THE SEDIMENT AND EROSION CONTROL INSPECTOR TO REVIEW THE APPROVED PLANS.
- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENCES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
- THE CONTRACTOR SHALL NOTIFY "MISS-UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
- CONSTRUCTION ACTIVITIES INCLUDING THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES SHALL NOT BEGIN UNTIL ALL REQUIRED EASEMENTS AND RIGHT-OF-WAYS HAVE BEEN OBTAINED. CONSTRUCTION SHALL NOT BEGIN UNTIL ALL SEDIMENT AND EROSION CONTROL MEASURES HAVE BEEN INSTALLED AND APPROVED BY THE ENGINEER AND THE SEDIMENT CONTROL INSPECTOR. THE CONTRACTOR SHALL STAY WITHIN THE LIMIT OF DISTURBANCE AS SHOWN ON THE PLANS AND MINIMIZE DISTURBANCE WITHIN THE WORKING AREA WHEREEVER POSSIBLE. NO TREES SHALL BE REMOVED WITHIN THE LIMIT OF DISTURBANCE WITHOUT APPROVAL FROM THE ENGINEER. THE CONSTRUCTION SEQUENCE MUST BE FOLLOWED UNLESS THE CONTRACTOR GETS WRITTEN APPROVAL FROM THE HOWARD COUNTY SOIL CONSERVATION DISTRICT OR THE SEDIMENT CONTROL INSPECTOR.
- FOR ALL ASPECTS OF CONSTRUCTION FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:
 - 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.
- ANY SEDIMENT CONTROL PRACTICE THAT IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORK DAY, WHICHEVER IS SHORTER.

SEQUENCE OF CONSTRUCTION

- EROSION AND SEDIMENT CONTROL SETUP - 1 WEEK
- THE CONTRACTOR SHALL STAKE OUT THE LIMITS OF DISTURBANCE AS SHOWN ON THE GRADING PLAN. (1 DAY)
 - THE CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION MEETING ONSITE WITH SEDIMENT CONTROL INSPECTOR AND THE ENGINEER TO REVIEW THE LIMITS OF DISTURBANCE, STRUCTURE STAKEOUT, EROSION AND SEDIMENT CONTROL REQUIREMENTS, AND THE SEQUENCE OF CONSTRUCTION. THE PARTICIPANTS WILL ALSO VERIFY THE LOCATION OF THE TEMPORARY STOCKPILE AREA AND ANY NECESSARY STAGING AREA, AND FLAG ANY TREES WITHIN THE LIMITS OF DISTURBANCE WHICH WILL BE REMOVED FOR CONSTRUCTION ACCESS AND GRADING. (1 DAY)
 - THE CONTRACTOR SHALL INSTALL THE STABILIZED CONSTRUCTION ENTRANCE AND BLAZE ORANGE FENCE AND TREE PROTECTION AREAS AS SHOWN ON THE GRADING PLANS OR AS DIRECTED BY THE ENGINEER. (1 DAY)
 - THE CONTRACTOR SHALL ESTABLISH THE TEMPORARY STOCKPILE AREA IN THE LOCATION INDICATED ON THE GRADING PLAN (NOTE: INSTALL FILTER LOGS AROUND THE PERIMETER OF THE STOCKPILE AREA). (1 DAY)
 - INSTALL REMAINING PERIMETER EROSION AND SEDIMENT CONTROL DEVICES AS SHOWN ON THE PLANS, INCLUDING FENCING, FILTER LOGS, AND PUMPS. (1 DAY)
 - THE HOWARD COUNTY DEPARTMENT OF INSPECTION AND PERMITS SHALL BE NOTIFIED UPON COMPLETION OF CONTROL INSTALLATION FOR EACH PHASE OF CONSTRUCTION. UPON COMPLETION OF CONTROL INSTALLATION WITH APPROVAL OF SEDIMENT AND EROSION CONTROL INSPECTOR, THE CONTRACTOR MAY BEGIN GRADING OPERATIONS. CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION AND GRADING PLANS AND EROSION AND SEDIMENT CONTROL STANDARD DETAILS AND NOTES. DO NOT CLEAR AND GRUB THE ENTIRE PROJECT AREA. CLEAR AND GRUB ONLY AS DIRECTED BY THE ENGINEER AND ONLY WHERE CONSTRUCTION ACCESS IS NEEDED. (1 DAY)
 - EXCAVATE TO SUBGRADES INDICATED ON PLANS. (1 WEEK)
 - CONSTRUCT RISER, OUTFALL PIPE, BOULDER END WALL, AND ROCK OUTLET PROTECTION. (1 WEEK)
 - CONNECT UNDERDRAIN AND PLACE NO. 57 STONE, NO. 7 STONE, BIORETENTION SOIL, AND MULCH. (1 WEEK)
 - STABILIZE SITE. (1 DAY)
 - WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ENGINEER REMOVE ALL SEDIMENT AND EROSION CONTROL MEASURES. (1 DAY)
 - PLANT SITE ACCORDING TO PLANTING PLAN IN APPROPRIATE PLANTING SEASON. (1 DAY)

SEDIMENT CONTROL

() By the Developer: "I/We certify that all development and construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

Michael J. Beckman
Signature of Developer
Date 5/13/15

() By the Engineer: "I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

[Signature]
Signature of Engineer
Date 5/12/15

() For the Howard Soil Conservation District: This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

SEE SIGNATURE BELOW
Howard Soil Conservation District
Date

STANDARD SEDIMENT CONTROL NOTES

- A MINIMUM OF 48 NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENCES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE ANALYSIS:

TOTAL AREA OF SITE	0.5	ACRES
AREA DISTURBED	0.5	ACRES
AREA TO BE ROOFED OR PAVED	0	ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.5	ACRES
TOTAL CUT	438	CU. YDS.
TOTAL FILL	227	CU. YDS.
- ANY SEDIMENT CONTROL PRACTICE THAT IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.
- ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCEEDING WITH CONSTRUCTION.
- A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE ENFORCEMENT AUTHORITY. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE APPROVAL AUTHORITY, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
Approved: *[Signature]*
Date 5/13/15

B-4-5 STANDARDS AND SPECIFICATIONS

FOR

PERMANENT STABILIZATION

Definition

To stabilize disturbed soils with permanent vegetation.

Purpose

To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for 6 months or more.

Criteria

A. Seed Mixtures

1. General Use

- Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
- Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
- For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
- For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 1/2 pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.

2. Turfgrass Mixtures

- Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
- Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
 - Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
 - Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where

B.21

rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

- Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
- Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 1/2 to 3 pounds per 1000 square feet.

Notes:
Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"

Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line

c. Ideal Times of Seeding for Turf Grass Mixtures

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

Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1/4 inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.

If soil moisture is deficient, supply new seedlings with adequate water for plant growth (1/2 to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

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HOWARD COUNTY
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
SUITE 514
COLUMBIA, MD 21046

DATE ISSUES / REVISIONS

02/10/2015 SUPPLEMENTAL PLAN TO PROVIDE WATER QUALITY RETROFIT FOR 0.71 AC. OF SITE

APPROVED: DEPARTMENT OF PUBLIC WORKS

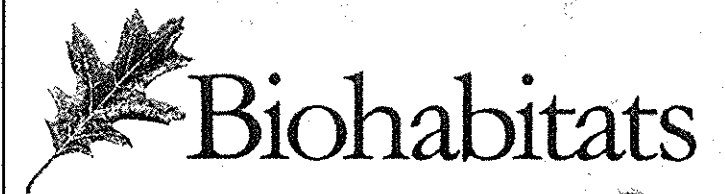
[Signature]
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE 4/27/15

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 5-18-15

[Signature]
CHIEF, DIVISION OF LAND DEVELOPMENT DATE 5-20-15

[Signature]
DIRECTOR DATE 5/20/15



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REVISED SITE DEVELOPMENT PLAN

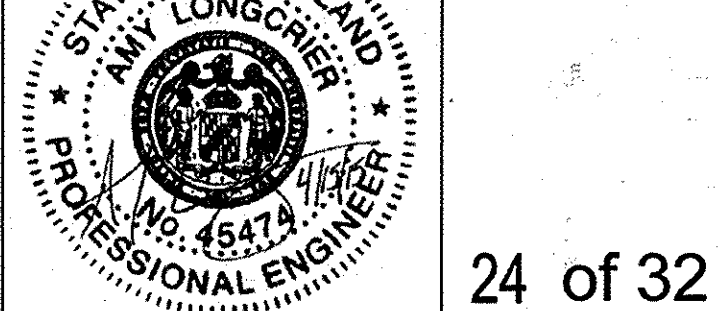
**ROCKBURN
BRANCH PARK
OUTFALL D RETROFIT**

GENERAL NOTES

PROJECT NO.: 13005.09 SCALE: AS SHOWN

SEAL: BY: AL/KT CHECK: MT/UZ/JBA

DWG. NO.:



CLIENT

HOWARD COUNTY
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
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DATE	ISSUES / REVISIONS
02/10/2015	SUPPLEMENTAL PLAN TO PROVIDE WATER QUALITY RETROFIT FOR 0.71 AC. OF SITE

APPROVED: DEPARTMENT OF PUBLIC WORKS
Mark D. P... 4/2/15
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chris P... 5-18-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Vest S... 5-20-15
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Debra M... 5/24/15
DIRECTOR DATE



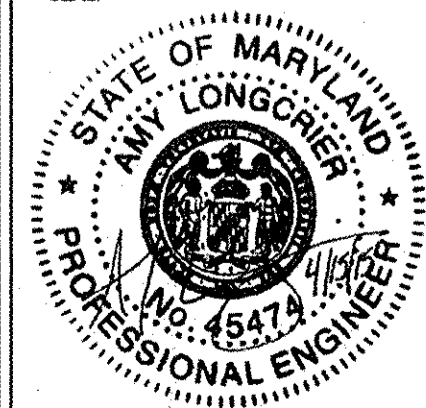
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REVISED SITE DEVELOPMENT PLAN
**ROCKBURN
BRANCH PARK
OUTFALL D RETROFIT**

TITLE:
GENERAL NOTES

PROJECT NO.: 13005.09 SCALE: AS SHOWN

SEAL: BY: AL/KT CHECK: MT/JZ/BA
DWG. NO.:



Permanent Seeding Summary

No.	Species	Hardiness Zone (from Figure B.3): Seed Mixture (from Table B.3):		Fertilizer Rate (10-20-20)			Lime Rate	
		Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P ₂ O ₅		K ₂ O
	TALL FESCUE	80	3/1-6/1 8/15-10/15	¼- ½ in	45 pounds per acre (1.0 lb/1000 sf)	90 lb/ac (2 lb/1000 sf)	90 lb/ac (2 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)
	KENTUCKY BLUEGRASS	20	3/1-6/1 8/15-10/15	¼- ½ in				

B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

1. General Specifications

- Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
- Sod must be machine cut at a uniform soil thickness of ¼ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
- Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
- Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.

2. Sod Installation

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

B.23

3. Sod Maintenance

- In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
- After the first week, sod watering is required as necessary to maintain adequate moisture content.
- Do not mow until the sod is firmly rooted. No more than ½ of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Johal Kohler
Approved: 5/12/15

B-4.4 STANDARDS AND SPECIFICATIONS

**FOR
TEMPORARY STABILIZATION**

Definition

To stabilize disturbed soils with vegetation for up to 6 months.

Purpose

To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies

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

Criteria

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

Temporary Seeding Summary

No.	Hardiness Zone (from Figure B.3): Seed Mixture (from Table B.1):		Seeding Dates	Seeding Depths	Fertilizer Rate (10-20-20)	Lime Rate
	Species	Application Rate (lb/ac)				
	ANNUAL RYE	40	MAY 1 - MAY 15 AUG 1 - OCT 15	0.5	436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)

B.18

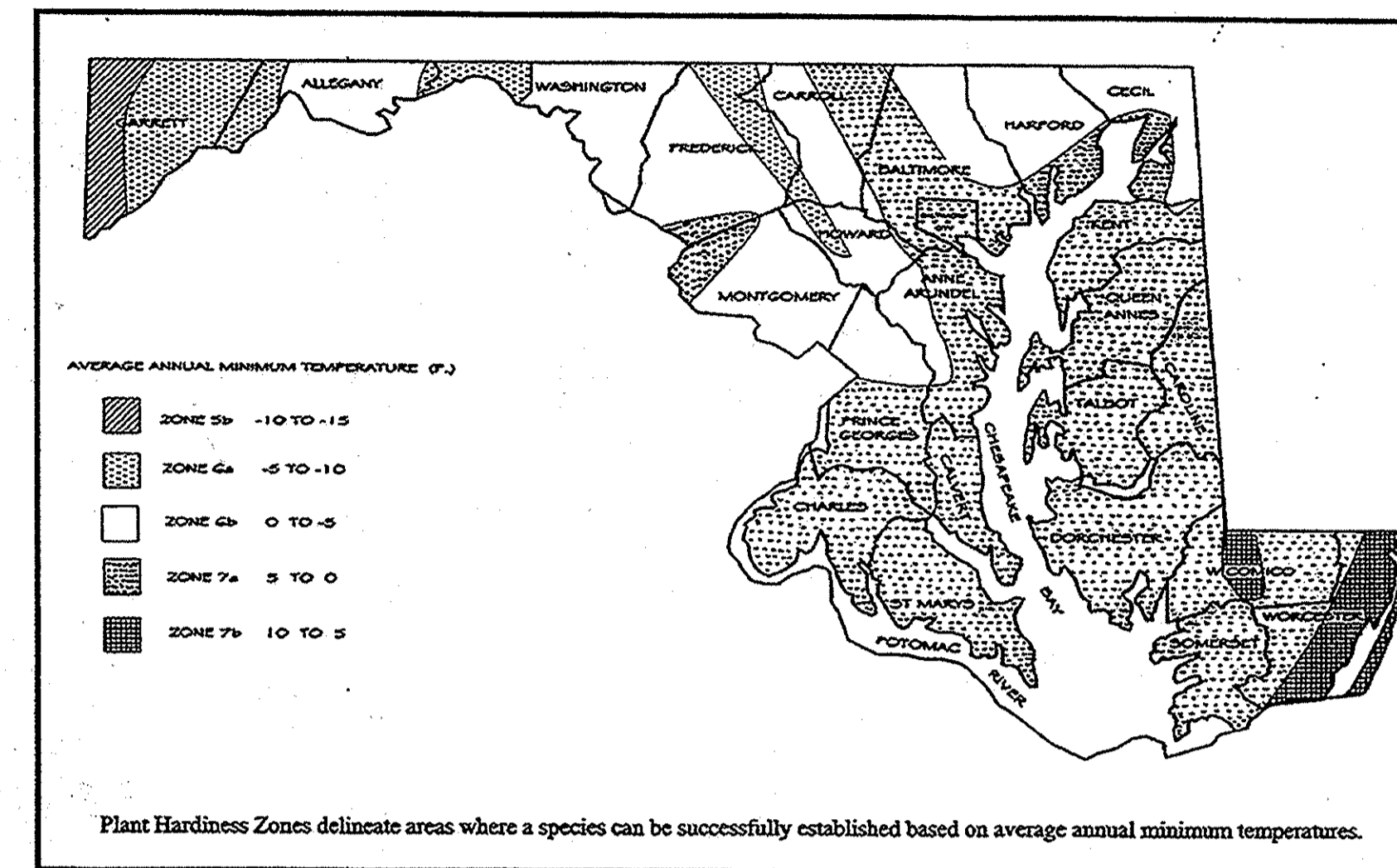


Figure B.3: U.S.D.A. Plant Hardiness Zones

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Table B.1: Temporary Seeding for Site Stabilization

Plant Species	Seeding Rate ^{1/}		Seeding Depth ^{2/} (inches)	Recommended Seeding Dates by Plant Hardiness Zone ^{3/}			
	lb/ac	lb/1000 ft ²		5b and 6a	6b	7a and 7b	
Cool-Season Grasses							
Annual Ryegrass (<i>Lolium perenne</i> ssp. <i>multiflorum</i>)	40	1.0	0.5	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30	
Barley (<i>Hordeum vulgare</i>)	96	2.2	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30	
Oats (<i>Avena sativa</i>)	72	1.7	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30	
Wheat (<i>Triticum aestivum</i>)	120	2.8	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30	
Cereal Rye (<i>Secale cereale</i>)	112	2.8	1.0	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Nov 15	Feb 15 to Apr 30; Aug 15 to Dec 15	
Warm-Season Grasses							
Foxtail Millet (<i>Setaria italica</i>)	30	0.7	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14	
Pearl Millet (<i>Pennisetum glaucum</i>)	20	0.5	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14	

NOTES:

^{1/} Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.

Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur in very late fall beyond the seeding dates for other temporary seedings. Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.

Oats are the recommended nurse crop for warm-season grasses.

^{2/} For sandy soils, plant seeds at twice the depth listed above.

^{3/} The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.

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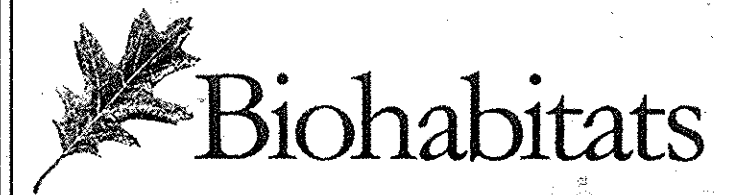
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APPROVED: DEPARTMENT OF PUBLIC WORKS
Michael... 4/20/15
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Paul... 5-18-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Keith... 5-20-15
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Joseph... 5/2/15
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**ROCKBURN
BRANCH PARK
OUTFALL D RETROFIT**

TITLE
**EROSION AND SEDIMENT
CONTROL DETAILS**

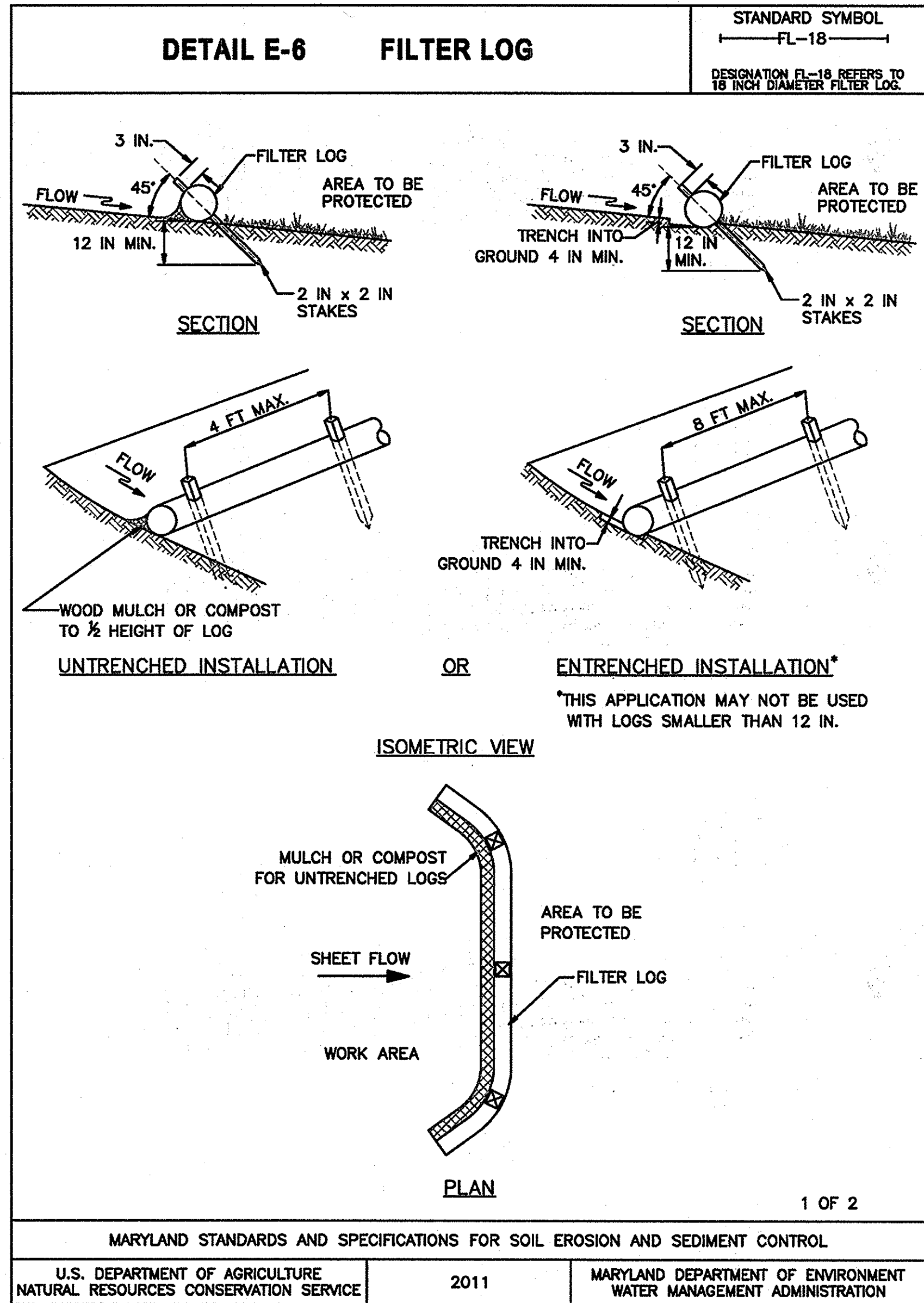
PROJECT NO.: 13005.09 SCALE: AS SHOWN

SEAL: BY: AL/KT CHECK: MT/UZ/BA
DWG. NO.:



DETAIL E-6 FILTER LOG STANDARD SYMBOL FL-18

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



SECTION PROFILE PLAN ISOMETRIC VIEW

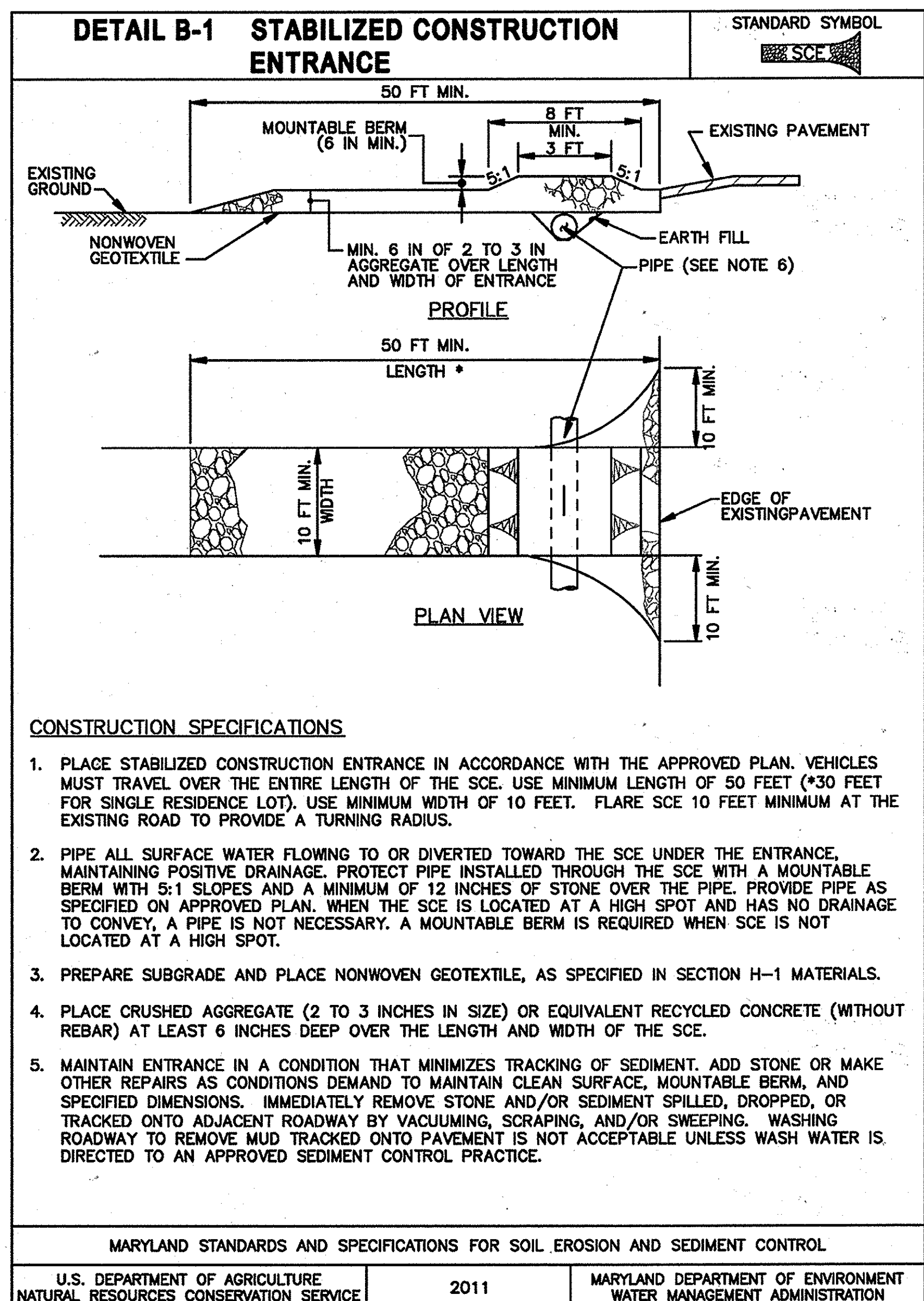
UNTRENCHED INSTALLATION OR ENTRENCHED INSTALLATION*

*THIS APPLICATION MAY NOT BE USED WITH LOGS SMALLER THAN 12 IN.

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
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DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE STANDARD SYMBOL SCE



PROFILE PLAN VIEW

CONSTRUCTION SPECIFICATIONS

1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

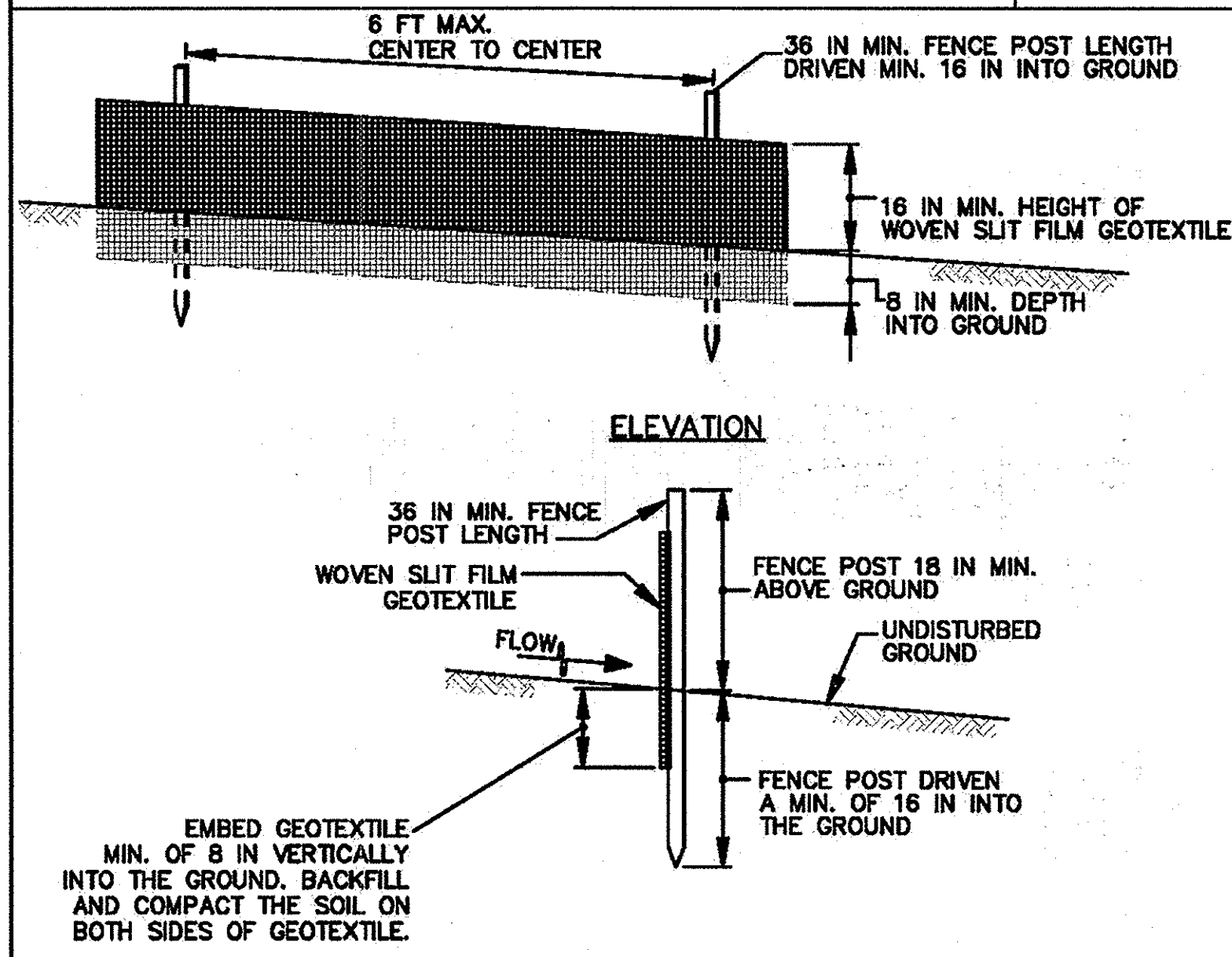
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION SERVICE

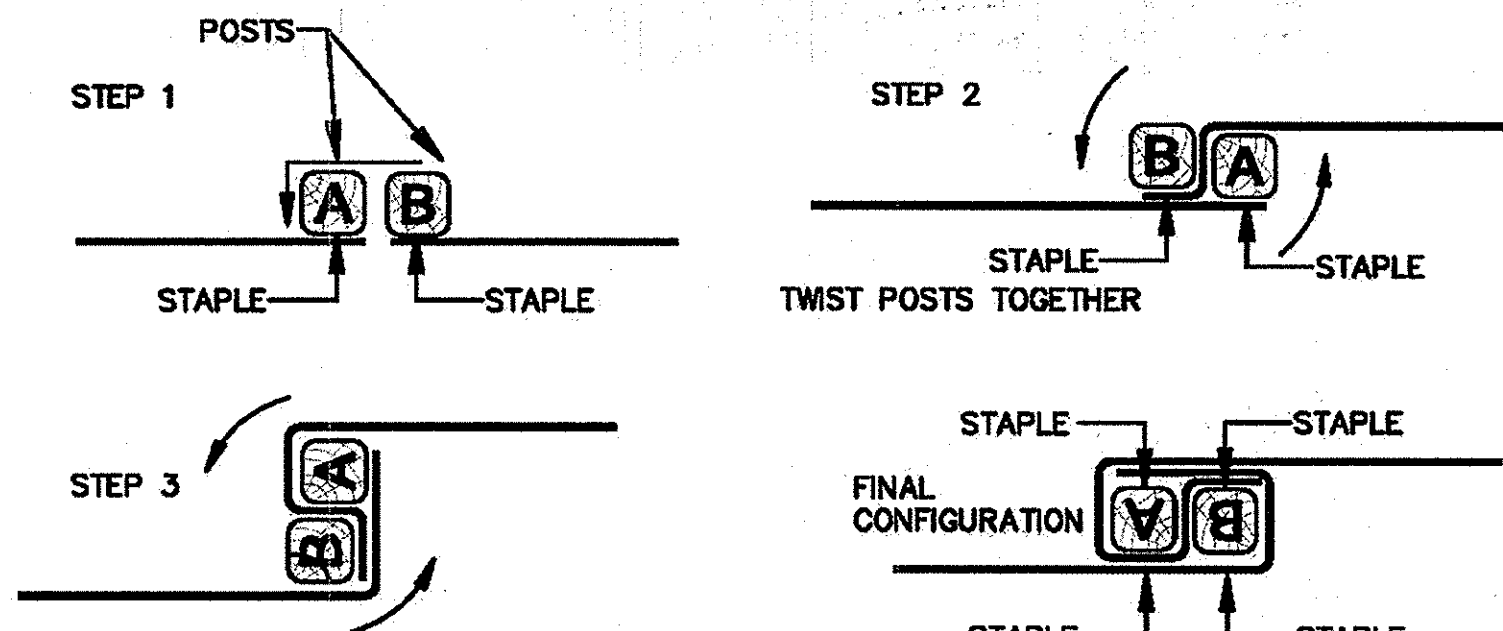
John... *sp/ps*
Date

DETAIL E-1 SILT FENCE

STANDARD SYMBOL
—SF—



CROSS SECTION



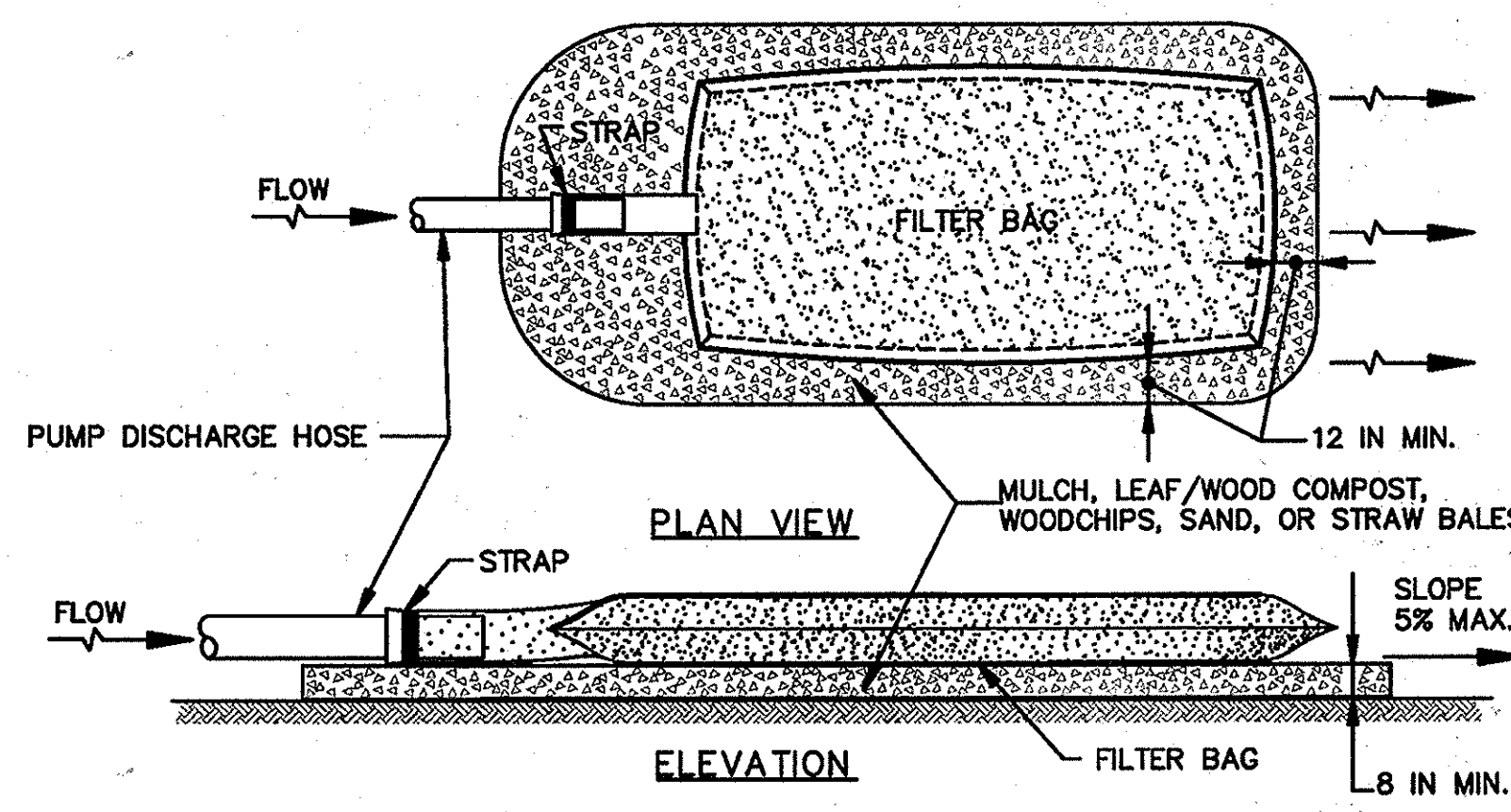
JOINING TWO ADJACENT SILT FENCE SECTIONS (TOP VIEW)

1 OF 2

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 F-4 FILTER BAG

STANDARD SYMBOL
☒FB



CONSTRUCTION SPECIFICATIONS

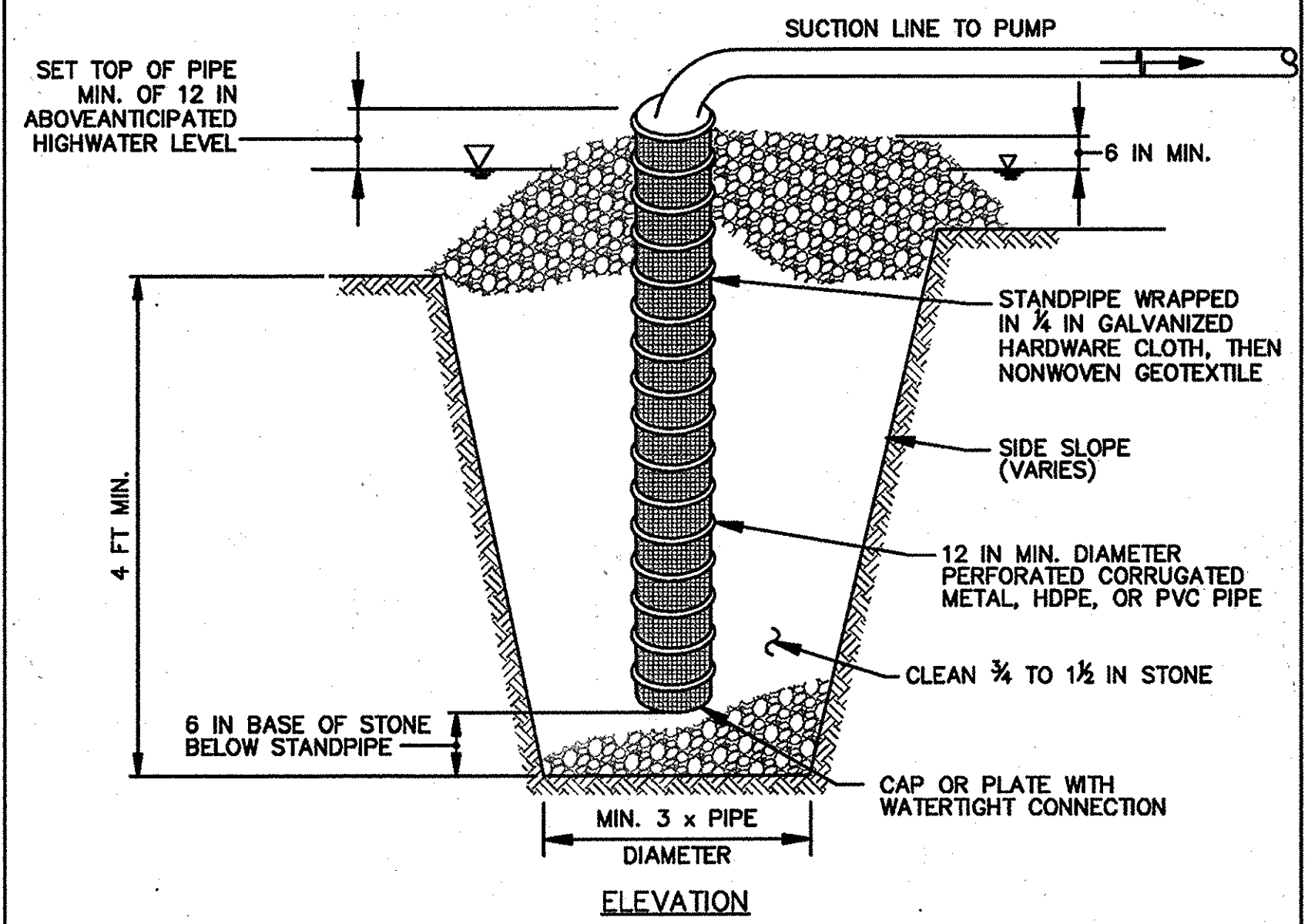
- TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
- PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
- CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
- REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
- USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:

GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT ²	ASTM D-4491
PERMITTIVITY (SEC ⁻¹)	1.2 SEC ⁻¹	ASTM D-4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.15-0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632
- REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

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 F-2 SUMP PIT

STANDARD SYMBOL
☒SP



CONSTRUCTION SPECIFICATIONS

- USE 12 INCH OR LARGER DIAMETER CORRUGATED METAL, HDPE, OR PVC PIPE WITH 1 INCH DIAMETER PERFORATIONS, 6 INCHES ON CENTER. BOTTOM OF PIPE MUST BE CAPPED WITH WATERTIGHT SEAL.
- WRAP PIPE WITH 1/4 INCH GALVANIZED HARDWARE CLOTH AND WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE HARDWARE CLOTH.
- EXCAVATE PIT TO THREE TIMES THE PIPE DIAMETER AND FOUR FEET IN DEPTH. PLACE 3/4 TO 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
- SET TOP OF PIPE MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
- BACKFILL PIT AROUND THE PIPE WITH 3/4 TO 1/2 INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
- DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
- A SUMP PIT REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, REMOVE PERFORATED PIPE AND REPLACE GEOTEXTILE AND STONE. KEEP POINT OF DISCHARGE FREE OF EROSION.

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

CLIENT

HOWARD COUNTY
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
SUITE 514
COLUMBIA, MD 21046

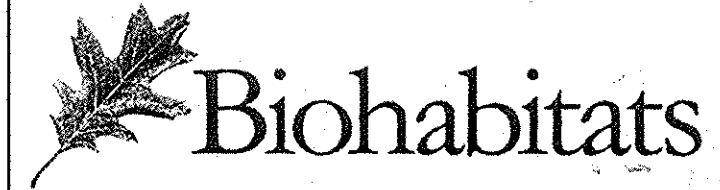
DATE	ISSUES / REVISIONS
02/10/2015	SUPPLEMENTAL PLAN TO PROVIDE WATER QUALITY RETROFIT FOR 0.71 AC. OF SITE

APPROVED: DEPARTMENT OF PUBLIC WORKS
Mark D. ... 4/27/15
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
... 5-18-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

... 5-20-15
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

... 5/21/15
DIRECTOR DATE



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Baltimore, MD 21211 / ph: 410.554.0156
fx: 410.554.0168 / www.biohabitats.com
Restore the Earth & Inspire Ecological Stewardship

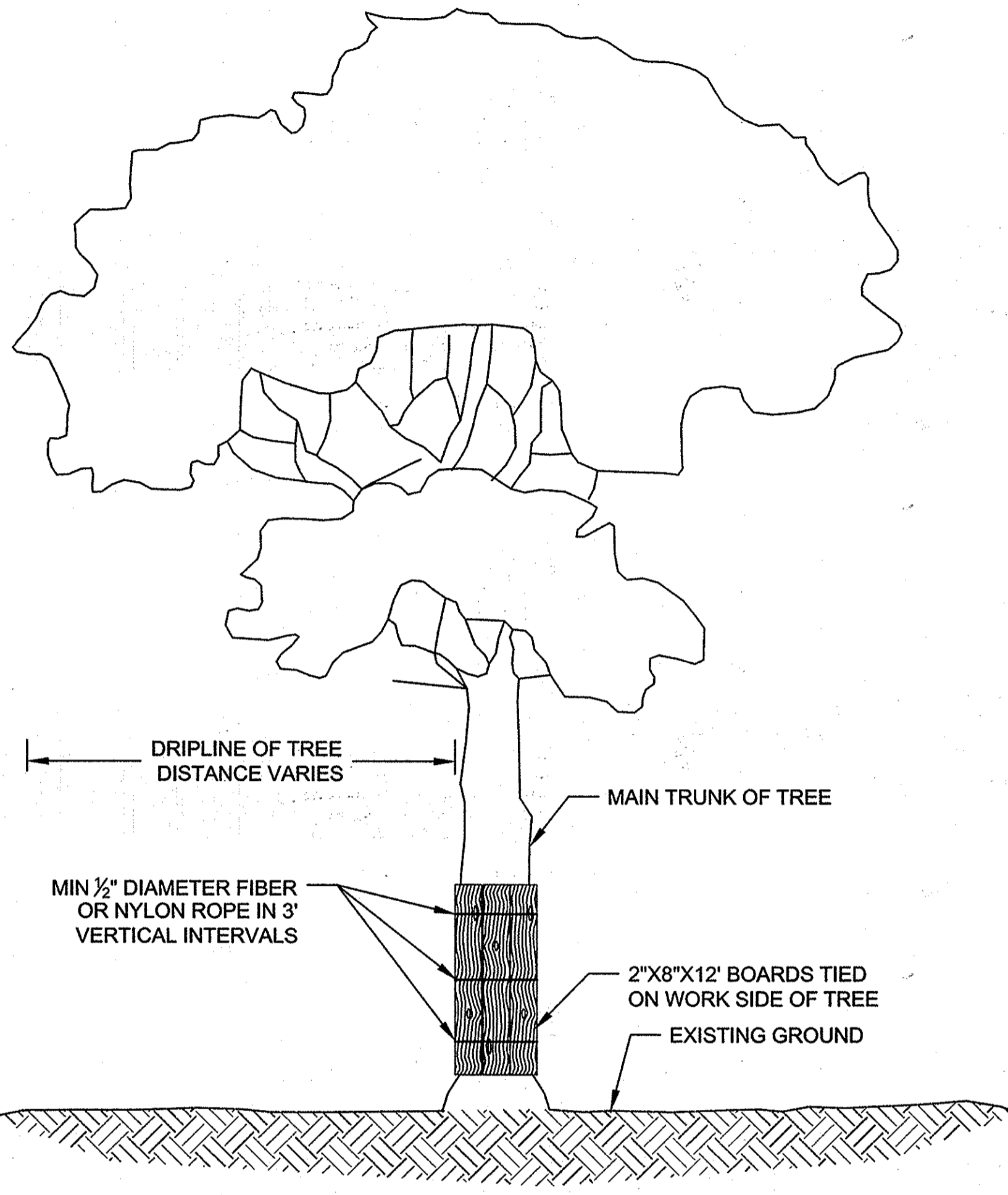
REVISED SITE DEVELOPMENT PLAN
**ROCKBURN
BRANCH PARK
OUTFALL D RETROFIT**

TITLE:
EROSION AND SEDIMENT CONTROL DETAILS

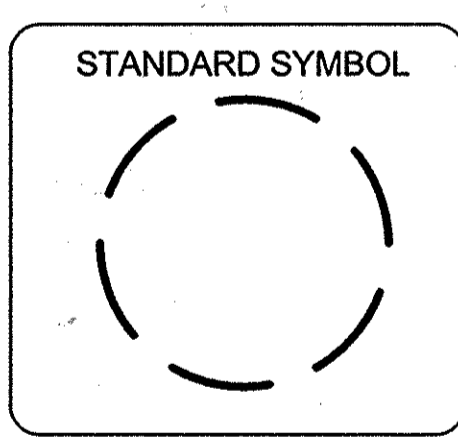
PROJECT NO.:	13005.09	SCALE:	AS SHOWN
SEAL:	BY: AL/KT	CHECK:	MT/JZ/BJA
	DWG. NO.:		



This development plan is approved for soil erosion and sediment control by the HOWARD COUNTY CONSERVATION DISTRICT
John L. ... 5/21/15
Howard SCD Date

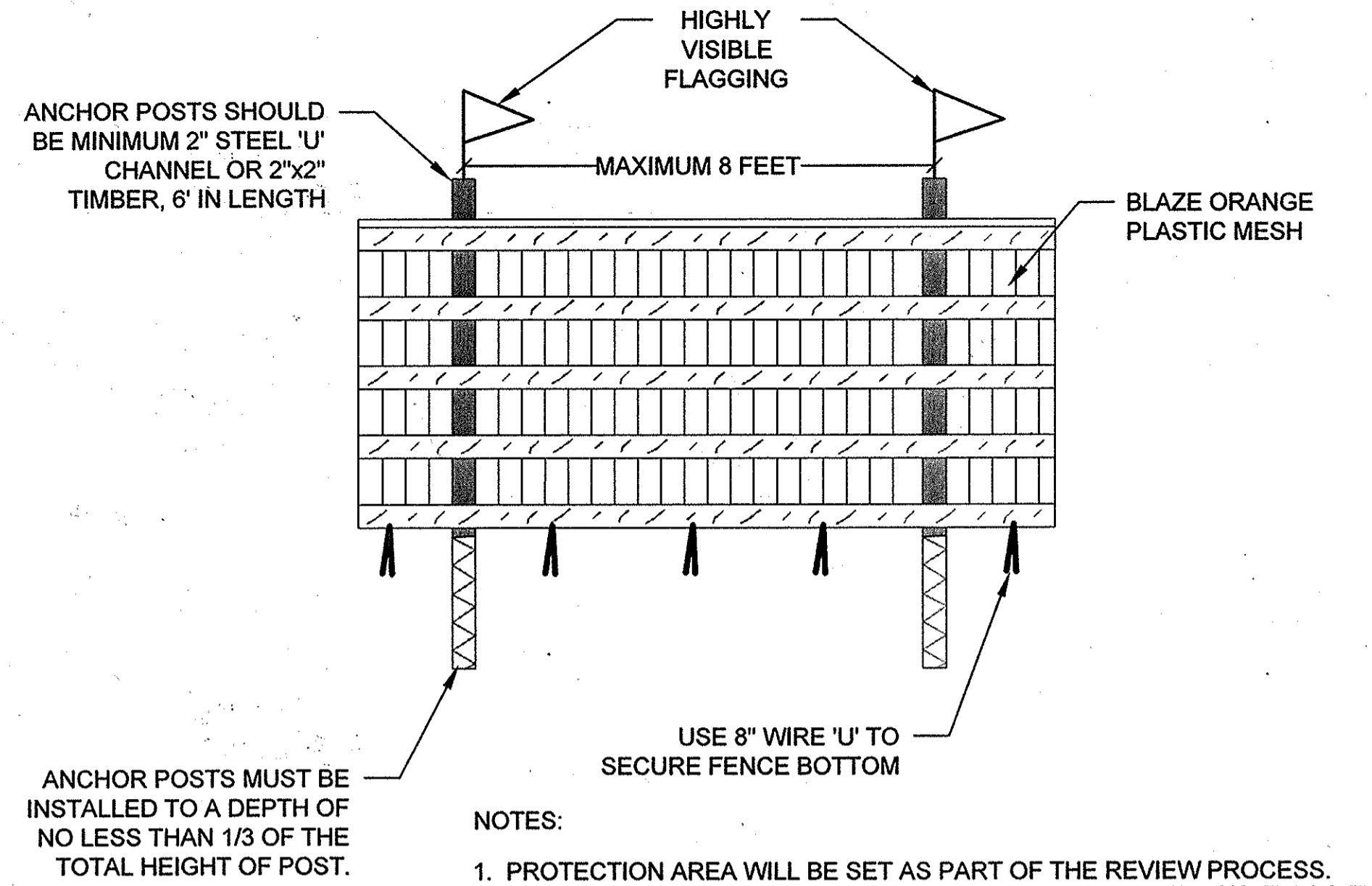


- NOTES:
1. TIE SUFFICIENT 2"X8"X12' BOARDS AROUND MAIN TRUNK OF TREE WITH 1/2" DIAMETER ROPE (FIBER OR NYLON) TO PROTECT ALL AREAS EXPOSED TO CONSTRUCTION.
 2. INSTALL WIRE EYE BOLTS WITH MINIMUM INNER DIAMETER OF 5/8" AND MINIMUM LENGTH OF 4" FIRMLY IN EACH PLANK WHERE FIBER OR NYLON ROPES CROSS OVER PLANKS.
 3. WHERE SIGNIFICANT TREE BRANCHES EXIST WHICH PREVENT PLANK INSTALLATION, PLANKING SHALL EXTEND TO THE ELEVATION OF THE LOWEST BRANCH.



TREE PLANKING

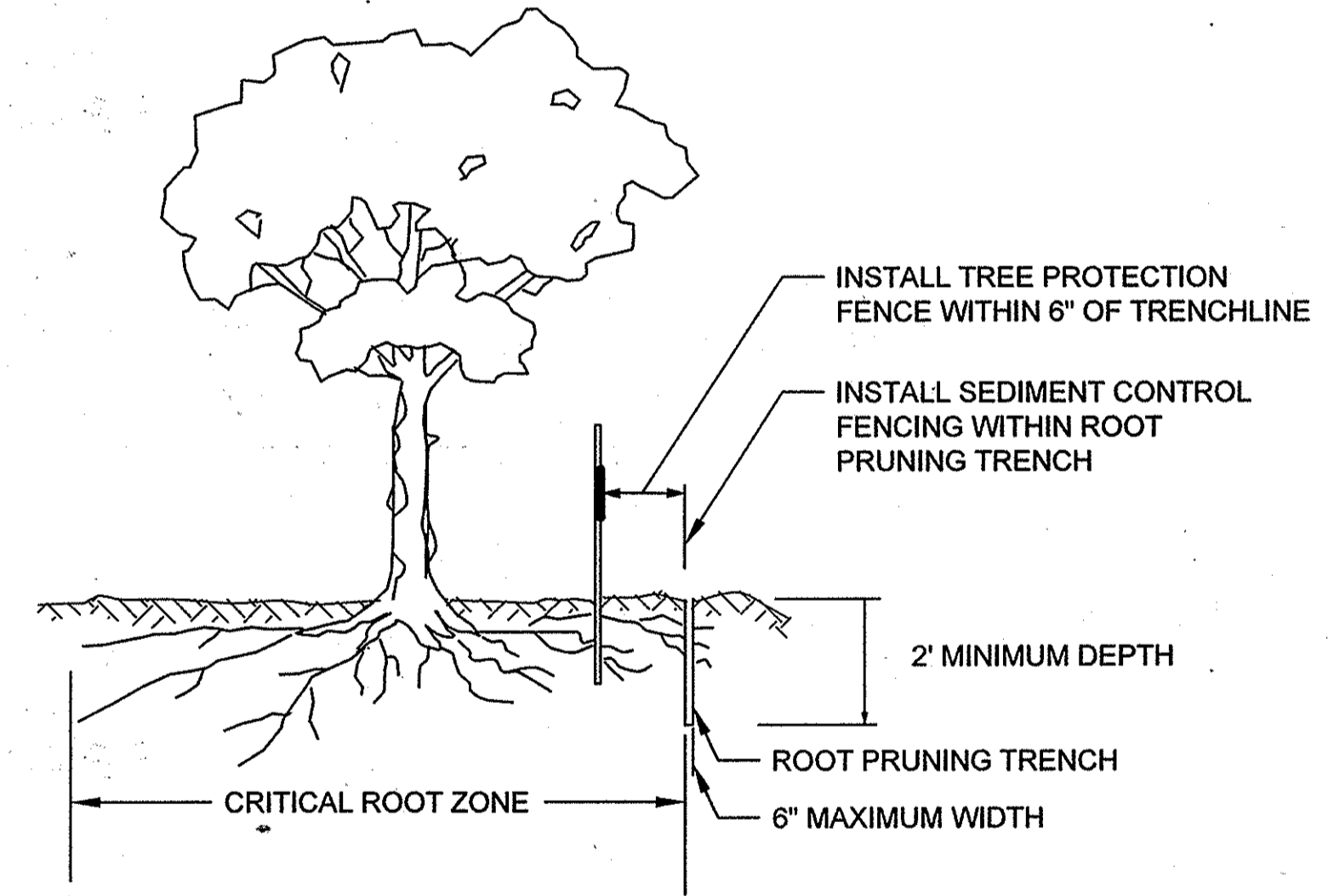
NOT TO SCALE



- NOTES:
1. PROTECTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
 2. BOUNDARIES OF PROTECTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICES.
 3. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

**TREE PROTECTION
BLAZE ORANGE PLASTIC FENCE**

NOT TO SCALE



- NOTES:
1. RETENTION AREAS TO BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
 2. BOUNDARIES OF RETENTION AREAS TO BE STAKED, FLAGGED AND/OR FENCED PRIOR TO TRENCHING.
 3. EXACT LOCATION OF TRENCH SHOULD BE IDENTIFIED IN FIELD WITH THE ENGINEER.
 4. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH SOIL REMOVED OR ORGANIC SOIL.
 5. ROOTS SHOULD BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT.

ROOT PRUNING

NOT TO SCALE

CLIENT

HOWARD COUNTY
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
SUITE 514
COLUMBIA, MD 21046

DATE	ISSUES / REVISIONS
02/10/2015	SUPPLEMENTAL PLAN TO PROVIDE WATER QUALITY RETROFIT FOR 0.71 AC. OF SITE

APPROVED: DEPARTMENT OF PUBLIC WORKS
Mark D. ... 4/27/15
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Phil ... 5-18-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Keith ... 5-20-15
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Mark ... 5/21/15
DIRECTOR DATE

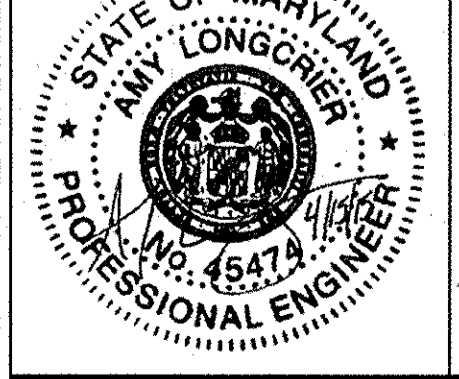
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fx: 410.554.0168 / www.biohabitats.com
Restore the Earth & Inspire Ecological Stewardship

REVISED SITE DEVELOPMENT PLAN
**ROCKBURN
BRANCH PARK
OUTFALL D RETROFIT**

TITLE:
**EROSION AND SEDIMENT
CONTROL DETAILS**

PROJECT NO.: 13005.09 SCALE: AS SHOWN

SEAL: BY: AL/KT CHECK: MT/JZ/BA
DWG. NO.:



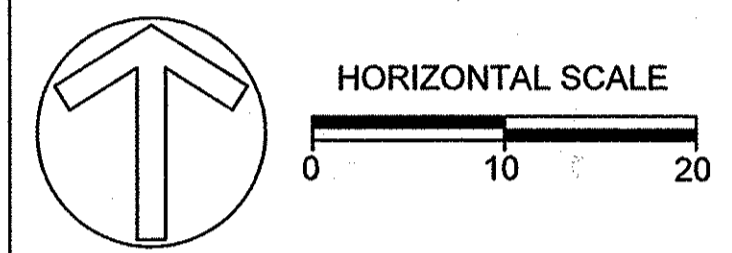
This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT
John ... 5/21/15
Date

NOTE: ALL PLANTING SHALL BE APPROVED BY THE DEPARTMENT OF RECREATION AND PARKS MAINTENANCE AND CAPITAL PROJECTS REPRESENTATIVES.

CLIENT

HOWARD COUNTY
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
SUITE 514
COLUMBIA, MD 21046

DATE	ISSUES / REVISIONS
02/10/2015	SUPPLEMENTAL PLAN TO PROVIDE WATER QUALITY RETROFIT FOR 0.71 AC. OF SITE



APPROVED: DEPARTMENT OF PUBLIC WORKS
M. K. ...
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chad ... 5-18-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Val ... 5-20-15
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Josh ... 5/20/15
DIRECTOR DATE

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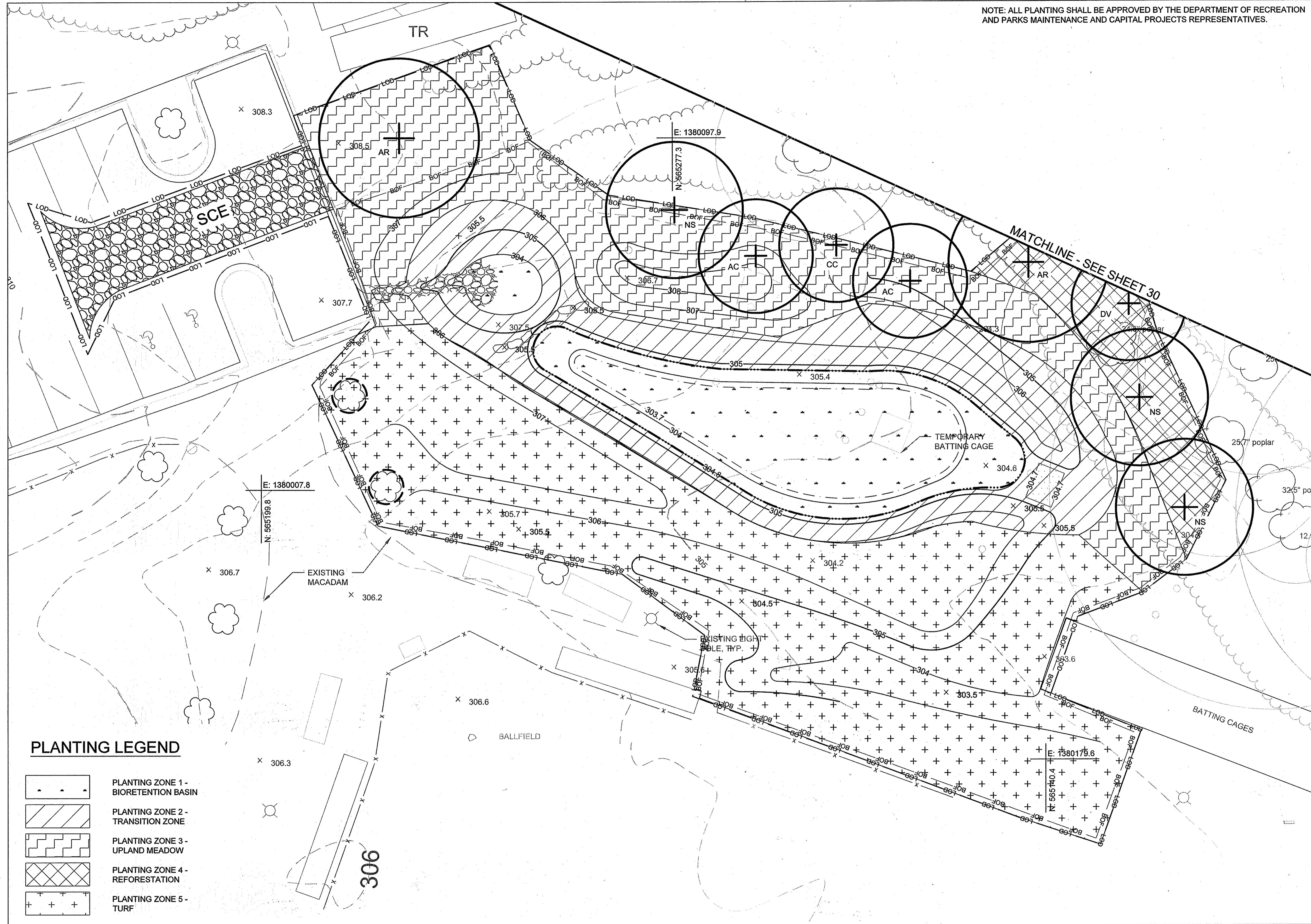
REVISED SITE DEVELOPMENT PLAN
**ROCKBURN
BRANCH PARK
OUTFALL D RETROFIT**

TITLE:
PLANTING PLAN

PROJECT NO.: 13005.09 SCALE: 1" = 10'

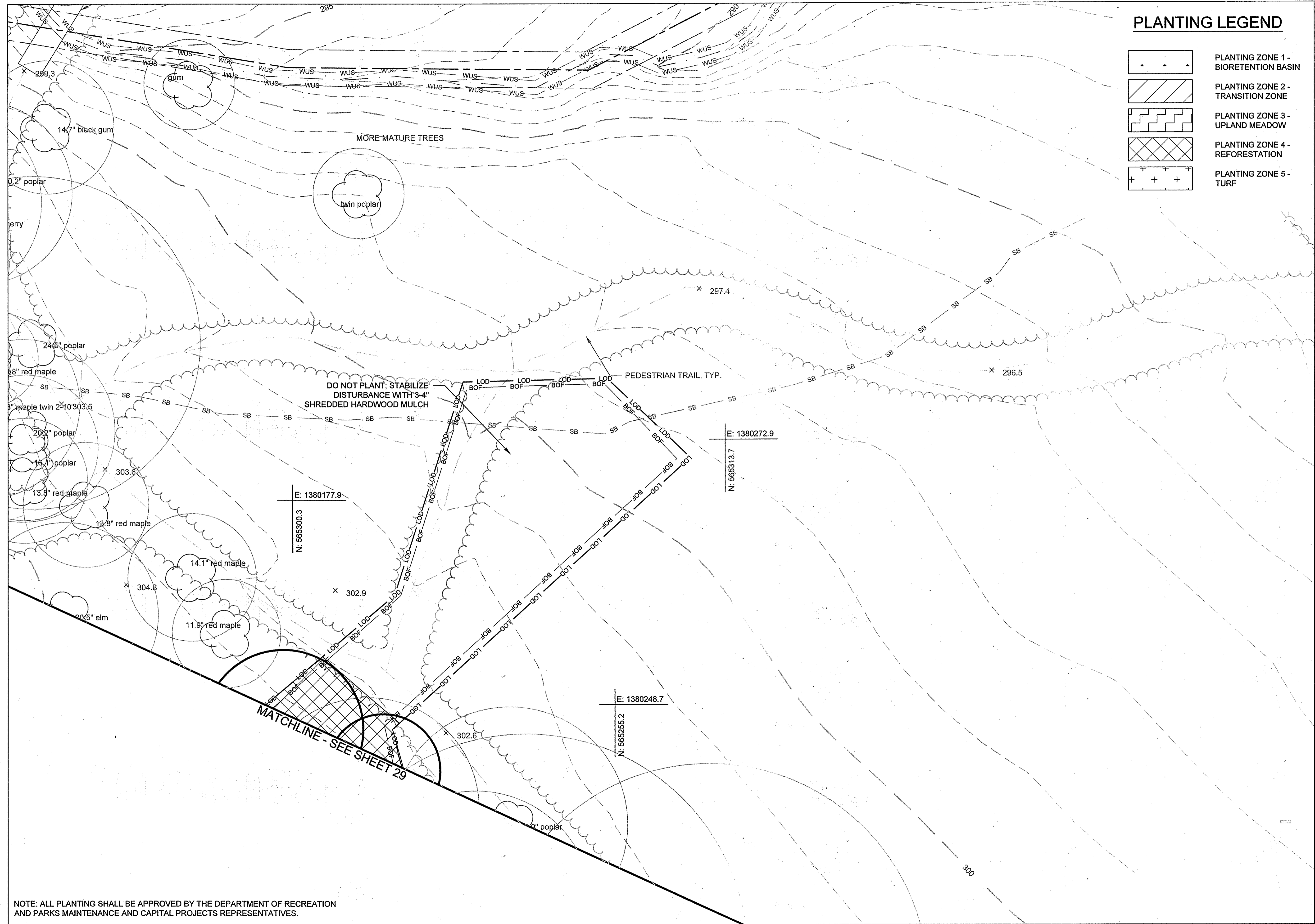
SEAL: BY: AL/KT CHECK: MT/JZ/BA
DWG. NO.:

STATE OF MARYLAND
ANY LONGORIER
PROFESSIONAL ENGINEER
No. 45474


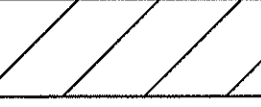
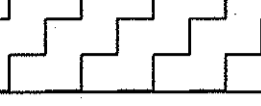

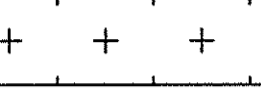


PLANTING LEGEND

- PLANTING ZONE 1 - BIORETENTION BASIN
- PLANTING ZONE 2 - TRANSITION ZONE
- PLANTING ZONE 3 - UPLAND MEADOW
- PLANTING ZONE 4 - REFORESTATION
- PLANTING ZONE 5 - TURF



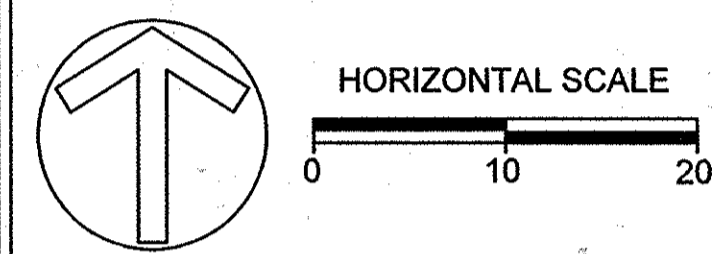
PLANTING LEGEND

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CLIENT

HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
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DATE	ISSUES / REVISIONS
02/10/2015	SUPPLEMENTAL PLAN TO PROVIDE WATER QUALITY RETROFIT FOR 0.71 AC. OF SITE

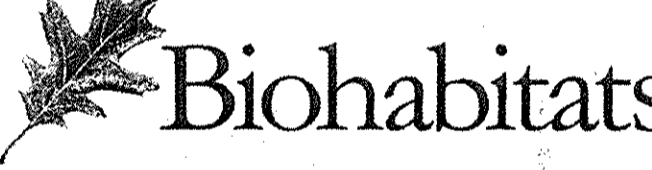


APPROVED: DEPARTMENT OF PUBLIC WORKS
Michael... 4/21/15
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
John... 5-18-15
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

West... 5-20-15
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Frank... 5/21/15
 DIRECTOR DATE



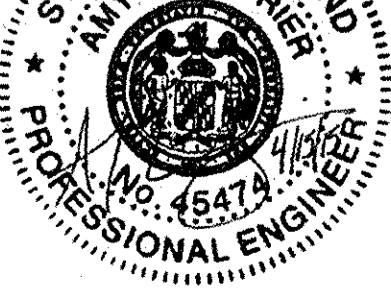
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REVISED SITE DEVELOPMENT PLAN
**ROCKBURN
 BRANCH PARK
 OUTFALL D RETROFIT**

PLANTING PLAN

PROJECT NO.: 13005.09 SCALE: AS SHOWN

SEAL: BY: AL/KT CHECK: MT/JZ/BA
 DWG. NO.:



30 of 32

NOTE: ALL PLANTING SHALL BE APPROVED BY THE DEPARTMENT OF RECREATION AND PARKS MAINTENANCE AND CAPITAL PROJECTS REPRESENTATIVES.

CLIENT

HOWARD COUNTY
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
SUITE 514
COLUMBIA, MD 21046

DATE ISSUES / REVISIONS
02/10/2015 SUPPLEMENTAL PLAN TO PROVIDE WATER QUALITY RETROFIT FOR 0.71 AC. OF SITE

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 4/2/15
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 5-18-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 5-20-15
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 5/26/15
DIRECTOR DATE

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REVISED SITE DEVELOPMENT PLAN
**ROCKBURN
BRANCH PARK
OUTFALL D RETROFIT**

TITLE:
PLANTING DETAILS

PROJECT NO.: 13005.09 SCALE: AS SHOWN

SEAL: BY: AL/KT CHECK: MT/JZ/BA
DWG. NO.: 31 of 32

PLANT COMPOSITION SCHEDULE
ZONE 1 - BIORETENTION BASIN Size (acres): 0.05

Overall Minimum Spacing (ft.)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Size	Individual Minimum Spacing (ft.)
2	10890			HERBACEOUS					
		10	60	<i>Andropogon gerardii</i>	Big bluestem	con	random	QT	2 ft
		5	30	<i>Asclepias tuberosa</i>	Butterflyweed	con	random	QT	2 ft
		5	30	<i>Aster novae-angliae</i>	New England aster	con	random	QT	2 ft
		10	60	<i>Carex stipata</i>	Awlfruit sedge	con	random	QT	2 ft
		10	60	<i>Eupatorium perfoliatum</i>	Common boneset	con	random	QT	2 ft
		5	30	<i>Goldenrod sp.</i>	Solidago sp.	con	random	QT	2 ft
		5	30	<i>Iris versicolor</i>	Blue flag iris	con	random	QT	2 ft
		15	89	<i>Juncus effusus</i>	Soft rush	con	random	QT	2 ft
		10	60	<i>Liatris spicata</i>	Gayfeather	con	random	QT	2 ft
		10	60	<i>Lobelia cardinalis</i>	Cardinal flower	con	random	QT	2 ft
		5	30	<i>Panicum virgatum</i>	Switch grass	con	random	QT	2 ft
		5	30	<i>Penstemon digitalis</i>	Talus slope penstemon	con	random	QT	2 ft
			100		= total				

CON=container

PLANT COMPOSITION SCHEDULE
ZONE 2 - TRANSITION ZONE Size (acres): 0.08

Overall Minimum Spacing (ft.)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Size	Individual Minimum Spacing (ft.)
2	10890			HERBACEOUS					
		20	174	<i>Andropogon gerardii</i>	Big bluestem	con	random	QT	2 ft
		10	87	<i>Asclepias tuberosa</i>	Butterflyweed	con	random	QT	2 ft
		10	87	<i>Aster novae-angliae</i>	New England aster	con	random	QT	2 ft
		10	87	<i>Goldenrod sp.</i>	Solidago sp.	con	random	QT	2 ft
		5	43	<i>Helianthus angustifolius</i>	Swamp sunflower	con	random	QT	2 ft
		15	130	<i>Panicum virgatum</i>	Switch grass	con	random	QT	2 ft
		10	87	<i>Penstemon digitalis</i>	Talus slope penstemon	con	random	QT	2 ft
		10	87	<i>Rudbeckia hirta</i>	Black eyed susan	con	random	QT	2 ft
		10	87	<i>Senecio aureus</i>	Golden groundsel	con	random	QT	2 ft
			100		= total				

CON=container

PLANT COMPOSITION SCHEDULE
ZONE 3 - UPLAND MEADOW Size (acres): 0.10

Overall Minimum Spacing (ft.)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Size	Individual Minimum Spacing (ft.)
2.5	6970			Herbaceous/ Grasses/ Ferns					
		12	86	<i>Andropogon virginicus</i>	Broomsedge	plug	Clusters of 3	2"	2 ft
		8	57	<i>Aster novae-angliae</i>	New England aster	plug	Clusters of 3	2"	2 ft
		8	57	<i>Echinacea purpurea</i>	Purple coneflower	plug	Clusters of 3	2"	2 ft
		6	43	<i>Eupatorium fistulosum</i>	Joe-Pye weed	plug	Clusters of 3	2"	2 ft
		8	57	<i>Helopsis helianthoides</i>	Oxeye sunflower	plug	Clusters of 3	2"	2 ft
		10	71	<i>Lupinus perennis</i>	Sundial lupine	plug	Clusters of 3	2"	2 ft
		10	71	<i>Monarda fistulosa</i>	Wild bergamot	plug	Clusters of 3	2"	2 ft
		15	107	<i>Panicum virgatum</i>	Switchgrass	plug	Clusters of 3	2"	2 ft
		8	57	<i>Sorghastrum nutans</i>	Indiangrass	plug	Clusters of 3	2"	2 ft
		15	107	<i>Solidago sempervirens</i>	Seaside goldenrod	plug	Clusters of 3	2"	2 ft
			100		= total				

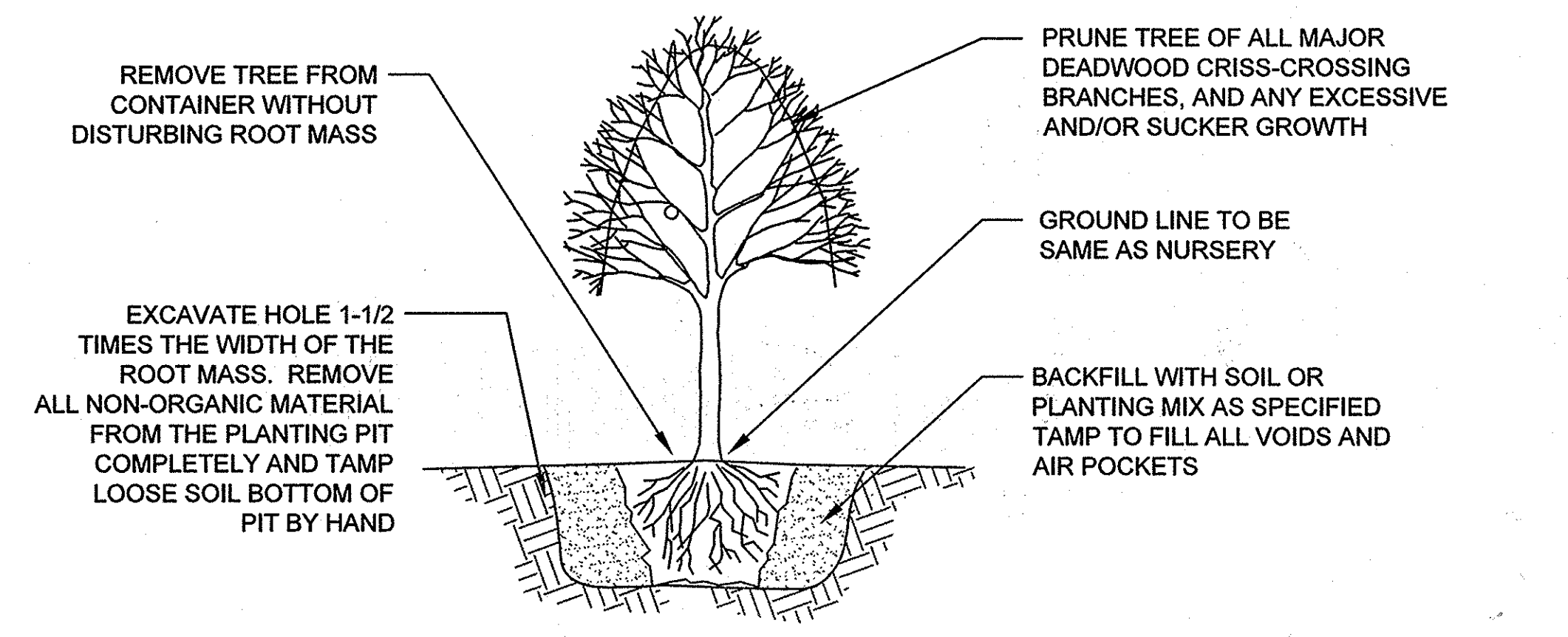
*Minimum spacing between unique species. For clustered plantings, distribute clusters of species evenly across the planting zone.
CON=container

PLANT COMPOSITION SCHEDULE
TREES Size (acres): NA

Overall Minimum Spacing (ft.)	Quantity per acre	Frequency (%)	Species Quantity	ID	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Size	Individual Minimum Spacing (ft.)
	na		2	AR	<i>Acer rubrum</i>	Red maple	con	AS SHOWN	1.5 cal.	AS SHOWN
	na		2	AC	<i>Amelanchier canadensis</i>	Serviceberry	con	AS SHOWN	1.5 cal.	AS SHOWN
	na		1	CC	<i>Cercis canadensis</i>	Redbud	con	AS SHOWN	1.5 cal.	AS SHOWN
	na		3	NS	<i>Nyssa sylvatica</i>	Black gum	con	AS SHOWN	1.5 cal.	AS SHOWN
	na		1	DV	<i>Diospyros virginiana</i>	American persimmon	con	AS SHOWN	1.5 cal.	AS SHOWN

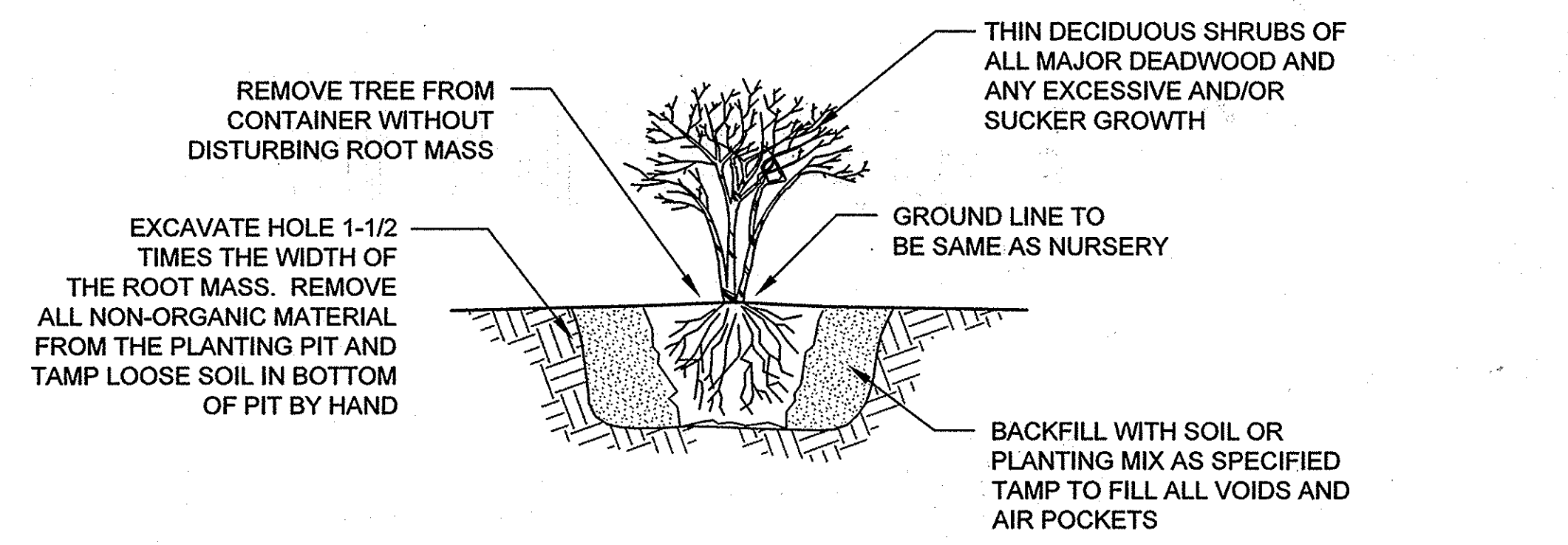
CON=container

ZONE 5 - TURF = APPROXIMATELY 7,000 SQ FT



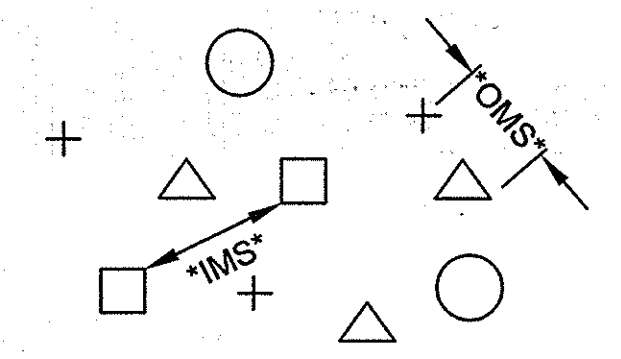
TREE PLANTING - CONTAINER GROWN

NOT TO SCALE



SHRUB PLANTING - CONTAINER GROWN

NOT TO SCALE



OMS- AN OVERALL MINIMUM SPACING DISTANCE *OMS* IS ASSIGNED TO THE PLANTING CONFIGURATION *SEE PLANT SCHEDULE*
IMS- AN INDIVIDUAL MINIMUM SPACING DISTANCES *IMS* IS ASSIGNED TO EACH INDIVIDUAL SPECIES *SEE PLANT SCHEDULE*

PLANT SPACING - RANDOM

NOTE: EACH SYMBOL INDICATES A DIFFERENT SPECIES

PLAN VIEW

NOT TO SCALE

MATERIAL	SPECIFICATIONS
Select Class 1 Rip Rap*	Class 1 Riprap shall be locally sourced stone that is dark in color and meets the requirements for Class 1 Riprap as set forth in the Maryland State Highway Administration (MDSHA) Material Specification 901.02.01 Stone for Riprap.
Boulders*	Boulders shall have a minimum dimension of 2 feet on any axis and a maximum dimension of 4 feet on any axis. Boulders shall be placed in coordination with on-site engineer and should be flush with proposed grade.
Mulch	3" depth of shredded hardwood mulch; aged for a minimum 6 months; no pine or wood chips
Bioretention Soil	Bioretention media shall consist of 60-65% loamy sand & 35-40% compost OR 30% sandy loam, 30% coarse sand, & 40% compost; USDA soil types loamy sand or sandy loam; clay content < 5%; minimum 10% organic content by dry weight (ASTM-D-2974); Required permeability rate of 1 inch per hour. Bioretention soil shall meet Appendix B.4.C Specifications for Micro-Bioretention in the Maryland Stormwater Design Manual. Engineer shall provide reference standard at kickoff meeting.
No. 7 Stone*	Double washed, AASHTO No. 7 stone (AASHTO T-27)
No. 57 Stone*	Double Washed, AASHTO No 57. Stone (meets AASHTO M-43)
4" Perforated PVC Pipe	4" rigid schedule 40 PVC or SDR35; 3/8" perf. @ 6" on center, 4 holes per row; minimum 3" of gravel over pipes. Meets F758, Type PS 28 or AASHTO M-278
4" Flexible PE Pipe	4" corrugated nonperforated flexible HDPE pipe. Meets AASHTO M-252. Install per manufactures instructions.
Non-woven Geotextile	Meets Class "C" - apparent opening size (ASTM-D-4751), grap tensile strength (ASTM-D-4632), puncture resistance (ASTM-D-4833)
Turf Reinforcement Mat (TRM)	Tensar Rollmax Eronet P300 or approved equal, as approved by engineer, and meeting Type 5A, 5B, specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FP-03 Section 713.18.

* NOTE: ALL STONE AND RIPRAP SHALL BE SOURCED FROM SAVAGE QUARRY

EARTHWORK

Item	Quantity	Units	Notes
Cut	438	CY	Includes surface cuts, all material cuts, and pipe excavation cuts
Fill	227	CY	Use cut to fill
Net Cut/Fill	211	CY	Net adjusted (Cut-Fill); Will have excess cut material
Area of Disturbance	0.5	AC	Entire LOD area

MATERIALS

Item	Quantity	Units	Notes
Mulch	715	SY	See specs.
Bioretention Soil	110	CY	See specs.
No. 7 Stone	15	CY	See specs.
No. 57 Stone	66	CY	See specs.
Select Class 1 Rip Rap	17	CY	Used for riprap swale and boulder weir. See specs.
Boulders	5	CY	Used for boulder weir. See specs.
4" Perforated PVC Pipe	70	LF	See specs.
4" Flexible PE Pipe	135	LF	See specs.
Geotextile	455	SF	See specs.
Turf Reinforcement Mat (TFM)	25	SY	See specs.

SEDIMENT AND EROSION CONTROL

Item	Quantity	Units	Notes
Blaze Orange Fence (Construction Fence)	894	LF	
Silt Fence	332	LF	
Filter Logs	286	LF	
Tree Protection	2	EA	
Sump Pit	1	EA	
Pump	1	EA	
Filter Bag	1	EA	
Stabilized Construction Entrance	40	TONS	

CLIENT

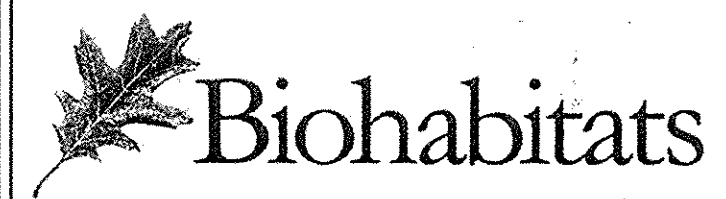
HOWARD COUNTY
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
SUITE 514
COLUMBIA, MD 21046

DATE	ISSUES / REVISIONS
02/10/2015	SUPPLEMENTAL PLAN TO PROVIDE WATER QUALITY RETROFIT FOR 0.71 AC. OF SITE

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 4/2/15
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 5-18-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 5-20-15
CHIEF, DIVISION OF LAND DEVELOPMENT DATE
[Signature] 5/24/15
DIRECTOR DATE


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

REVISED SITE DEVELOPMENT PLAN
**ROCKBURN
BRANCH PARK
OUTFALL D RETROFIT**

TITLE: MATERIAL SPECIFICATIONS

PROJECT NO.: 13005.09 SCALE: AS SHOWN

SEAL: BY: AL/KT CHECK: MT/JZ/BA
DWG. NO.:

