

DAVIS BRANCH

STREAM RESTORATION PROJECT - CAPITAL PROJECT # D-1158

HOWARD COUNTY, MARYLAND - DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENVIRONMENTAL SERVICES, STORMWATER MANAGEMENT DIVISION

GENERAL NOTES

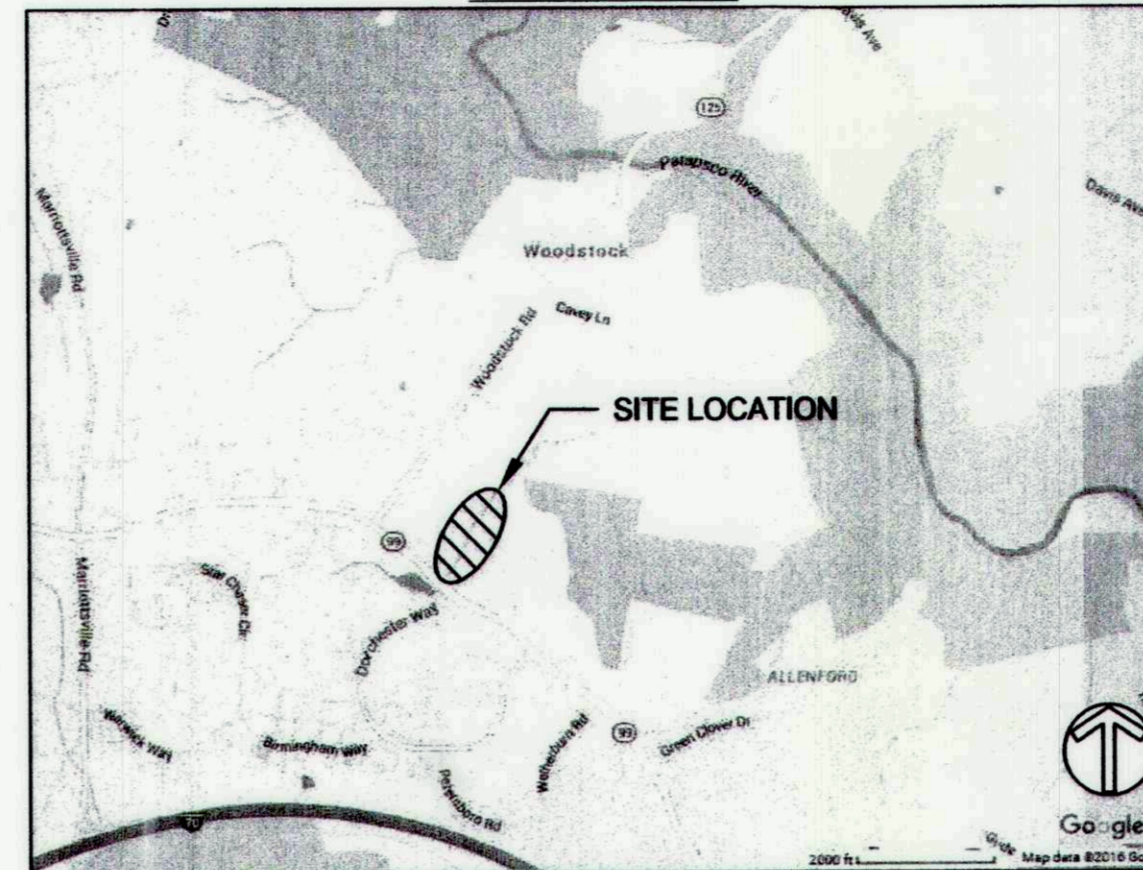
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE EXISTING INFORMATION SHOWN ON THESE PLANS WAS TAKEN FROM THE BEST AVAILABLE SOURCES AND SHALL BE VERIFIED BEFORE STARTING CONSTRUCTION. HOWARD COUNTY DOES NOT GUARANTEE THE COMPLETENESS OR THE CORRECTNESS OF THE SHOWN INFORMATION.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) WORKING DAYS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES, PHOTOGRAPHS OF THE PROPOSED WORK AREA AND ACCESS SHALL BE TAKEN.
- 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 START OF WORK.
- A JOINT PERMIT APPLICATION HAS BEEN SUBMITTED TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR THIS PROJECT. (TRACKING NUMBER AI #97224) PROJECT IMPACTS INCLUDE WORK IN A USE 1 STREAM. UNDER THIS PERMIT, IN-STREAM WORK IS PROHIBITED FROM MARCH 1 TO JUNE 15, INCLUSIVE OF ANY YEAR.
- THIS PLAN IS PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.
- THE EXISTING TOPOGRAPHY WAS TAKEN FROM FIELD RUN SURVEY WITH ONE FOOT CONTOUR INTERVALS PREPARED BY AB CONSULTANTS, INC. IN OCTOBER 2015.
- 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. 101A, 17AB, A ND 16CM1 WERE USED FOR THIS PROJECT.
- WATER IS PUBLIC.
- SEWER IS PUBLIC.
- 100-YR FLOODPLAIN ELEVATION IS SHOWN ON THE PLANS.
- THE STREAM IS NOT A TIER II WATER OR AN IMPAIRED WATERWAY WITH THE FOLLOWING TMDL'S:
 - TOTAL NITROGEN - GIS ID: G2390, REPORT: BALTIMORE HARBOR TIDAL NUTRIENTS
 - TOTAL PHOSPHORUS - GIS ID: G2390, REPORT: BALTIMORE HARBOR TIDAL NUTRIENTS
 - TSS - GIS ID: G1149, REPORT: PATAPSCO RIVER LOWER NORTH BRANCH SEDIMENT
 - ECOLI - GIS ID: G1149, REPORT: PATAPSCO RIVER LOWER NORTH BRANCH BACT
 - CHLORDANE - GIS ID: G2390, REPORT: BALTIMORE HARBOR CHLORDANE
- TEMPORARY STAGING AND/OR STOCKPILING OF ERODIBLE MATERIALS (E.G., EXCAVATED MATERIAL) WITHIN THE 100-YEAR FLOODPLAIN DESIGNATED ON THE PLANS SHALL BE LIMITED TO THE AMOUNT OF MATERIAL THE CONTRACTOR CAN PLACE AND/OR HAUL OFF IN A SINGLE DAY. THE CONTRACTOR SHALL MONITOR THE WEATHER FORECAST AND ADJUST STOCKPILE/STAGING OPERATIONS ACCORDINGLY TO MINIMIZE THE LOSS OF MATERIAL OR OTHER ADVERSE IMPACTS.
- THE CONTRACTOR SHALL NOT STORE EQUIPMENT, MATERIALS, AND/OR SUPPLIES BEYOND THE LIMIT OF DISTURBANCE SHOWN ON THE PLANS.
- EXISTING UTILITIES ARE BASED ON AVAILABLE RECORDS. THE CONTRACTOR MUST VERIFY INFORMATION TO HIS/HER SATISFACTION.
- THE WETLANDS DELINEATION FOR THIS SITE WAS PREPARED BY BIOHABITATS, DATED OCTOBER 2015.
- DPZ HAS DETERMINED THE DISTURBANCE WITHIN THE REGULATED 75' PERENNIAL STREAMBANK BUFFER, WETLANDS, WETLAND BUFFER, AND 100-YR FLOODPLAIN ARE ESSENTIAL AND NECESSARY FOR CONSTRUCTION OF THE STREAM STABILIZATION PROJECT IN ACCORDANCE WITH SECTION 16.116(C) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATION.
- NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
- THE SUBJECT PROPERTY IS ZONED RC-DEO PER THE 10/6/2013 COMPREHENSIVE ZONING PLAN.
- THERE ARE NO BURIAL GROUNDS OR CEMETERY SITES LOCATED ON THE PROJECT SITE.
- 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.
- THIS RESTORATION PROJECT FOR IMPROVEMENTS TO THE DAVIS BRANCH STREAM CORRIDOR UNDER CAPITAL PROJECT No. D1158 COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BY THE PAYMENT OF A FEE-IN-LIEU IN THE AMOUNT OF \$7,840.80 FOR THE REQUIRED 0.24 ACRE REFORESTATION OBLIGATION.
- 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. ALL UTILITIES SHALL HAVE A CLEARANCE BY A MINIMUM OF 6 INCHES VERTICALLY AND A MINIMUM OF 5 FEET HORIZONTALLY.
- THE CONTRACTOR SHALL EXERCISE CARE IN ACTIVITIES INVOLVING EITHER CUT AND FILL OR GRADING IN THE VICINITY OF TREES THAT ARE TO REMAIN. ALL EARTH CUTS AND ACTIVITIES IN THE VICINITY OF TREES TO REMAIN SHALL BE MADE IN A MANNER THAT DOES NOT DISTURB THE CRITICAL ROOT ZONE WITHIN THE DRIPLINE OF THE TREE. PROTECTIVE ORANGE FENCING SHALL BE INSTALLED AROUND THE PERIMETER OF THE CRITICAL ROOT ZONE PRIOR TO CONSTRUCTION. THE LOCATION OF THE PROTECTIVE ORANGE FENCING SHALL BE APPROVED BY THE ENGINEER OR HIS/HER REPRESENTATIVE PRIOR TO CONSTRUCTION.

- UPON COMPLETION OF THE WORK, BUT PRIOR TO DE-MOBILIZATION, THE CONTRACTOR SHALL REMOVE ALL REMNANTS OF CONSTRUCTION MATERIALS FROM THE SITE. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO A CONDITION EQUAL OR BETTER THAN THE PRE-CONSTRUCTION CONDITIONS.
- BIOHABITATS SHALL CERTIFY IN WRITTEN LETTER THAT THE CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED IN ACCORDANCE TO THESE PLANS.
- THIS PROJECT WILL REQUIRE A WAIVER PETITION TO WAIVE SECTION 16.155(a)(1)(ii) WHICH REQUIRES A SITE DEVELOPMENT PLAN FOR DISTURBANCE GREATER THAN 5,000 SQUARE FEET AND SECTION 16.120(n) TO ALLOW THE LIMIT OF DISTURBANCE TO SERVE AS THE NET TRACT AREA WHEN DETERMINING THE FOREST CONSERVATION OBLIGATION.

ADC MAP COORDINATES:
MAP: 11, 6, 6 LETTER: D,D,E NUMBER: 1, 13, 13

NOTE: SEE EROSION AND SEDIMENT CONTROL SHEETS FOR DESIGN NARRATIVE AND SITE ANALYSIS DATA SHEET

VICINITY MAP



LEGEND

EXISTING

MAJOR CONTOUR
MINOR CONTOUR
GIS 2' CONTOUR
PROPERTY LINE
ROAD EDGE
STREAM CENTERLINE
75' STREAM BUFFER
STORM DRAIN PIPE
OVERHEAD ELECTRIC
WATER LINE
GUARD RAIL
FOREST LINE
FOREST CONSERVATION EASEMENT
EX 100 YEAR FLOODPLAIN
WETLAND
25' WETLAND BUFFER
SOIL BOUNDARIES
HIGHLY ERODIBLE SOILS (15-19.99% SLOPES OR K _w > 0.35 WITH SLOPE > 5%)
STEEP SLOPES (20% OR GREATER SLOPES)
TREE
TRAVERSE POINT
STORMDRAIN MANHOLE
LIGHT POLE

PROPOSED

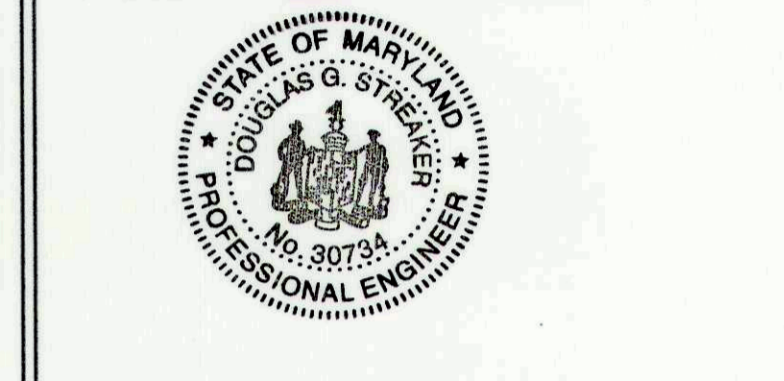
MAJOR CONTOUR	425
MINOR CONTOUR	424
CHANNEL ALIGNMENT	100YR
PROPOSED 100 YEAR FLOODPLAIN	LOD
LIMIT OF DISTURBANCE	DF
DIVERSION FENCE	DF
SUPER SILT FENCE	SSF
MOUNTABLE BERM	MB
STANDING SNAG	SS
LARGE WOODY DEBRIS (LWD)	LWD
LOG SILL	LS
0.5' COBBLE RIFFLE	CR
1.0' COBBLE RIFFLE	CR
CASCADE	CB
TREE REMOVAL	TR
TREE SAVE	TS
BOULDER GRADE CONTROL	BGC
TEMPORARY STONE OUTLET STRUCTURE	TSO
STAGING AND STOCKPILING AREA	SSA
MULCH ACCESS ROAD	MAR
SAME DAY SOIL STABILIZATION MATTING	SSM
HARDWOOD MATTING	HWM
CRITICAL ROOT ZONE	CRZ
STABILIZED CONSTRUCTION ENTRANCE	SCE
TEMPORARY BRIDGE	TB
FILTER BAG	FB
PUMP	P
INTAKE/DISCHARGE HOSE	IDH
SAND BAG DIKES	SBD
BURIED BOULDER SILL	BBS
IMPERVIOUS CHANNEL PLUG	ICP

SHEET LIST TABLE

Sheet #	Sheet Title
1	TITLE SHEET AS-BUILT
2	EXISTING CONDITIONS & GEOMETRY
3	EXISTING CONDITIONS & GEOMETRY
4	EXISTING CONDITIONS & GEOMETRY
5	EXISTING CONDITIONS & GEOMETRY
6	PROPOSED CONDITIONS AS-BUILT
7	PROPOSED CONDITIONS AS-BUILT
8	PROPOSED CONDITIONS AS-BUILT
9	PROPOSED CONDITIONS AS-BUILT
10	PROFILES
11	PROFILES
12	PROFILES
13	PROFILES
14	DETAILS
15	DETAILS
16	DETAILS
17	DETAILS
18	EROSION AND SEDIMENT CONTROL PLAN
19	EROSION AND SEDIMENT CONTROL PLAN
20	EROSION AND SEDIMENT CONTROL PLAN
21	EROSION AND SEDIMENT CONTROL PLAN
22	EROSION AND SEDIMENT CONTROL DETAILS
23	EROSION AND SEDIMENT CONTROL DETAILS
24	EROSION AND SEDIMENT CONTROL DETAILS
25	EROSION AND SEDIMENT CONTROL DETAILS
26	EROSION AND SEDIMENT CONTROL NOTES
27	PLANTING PLAN
28	PLANTING PLAN
29	PLANTING PLAN
30	PLANTING PLAN
31	PLANTING DETAILS
32	PLANTING SCHEDULES

CLIENT
HOWARD COUNTY
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-0522

DATE	ISSUES / REVISIONS
11/28/2016	REDLINE EXPAND LOD
01/23/2017	REDLINE EXPAND LOD



AS BUILT CERTIFICATION
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 PLANS AND SPECIFICATIONS.
NAME: Douglas S. Streaker DATE: 9/6/17

APPROVED: DEPARTMENT OF PUBLIC WORKS
Mark S. Richmond, Chief, Bureau of Environmental Services, DATE: 10/25/16

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

DAVIS BRANCH STREAM RESTORATION PROJECT

SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
ZONING: RC-DEO TAX MAP/GRIID/PARCEL: 01000240316
ELECTION DISTRICT: 03 OPEN LOT WA
WATER PETITION #WP-16-156

TITLE: **TITLE SHEET AS-BUILT**

PROJECT NO.: 13005.34 SCALE: AS SHOWN

SEAL: [Professional Engineer Seal] BY: KT/JC CHECK: DS/MT
DWG. NO.: 1 OF 32

This plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.
Howard Soil Conservation District DATE: 10/27/16

DESIGN CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
DESIGNER'S SIGNATURE: Douglas S. Streaker DATE: 10/24/16
PRINTED NAME: Douglas S. Streaker MD REGISTRATION No. 30734
P.E. R.L.S., or R.L.A. (circle one)

OWNERS/DEVELOPER CERTIFICATION
I HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.
OWNER'S/DEVELOPER'S SIGNATURE: Mark S. Richmond DATE: 10/25/16
PRINTED NAME: Mark S. Richmond

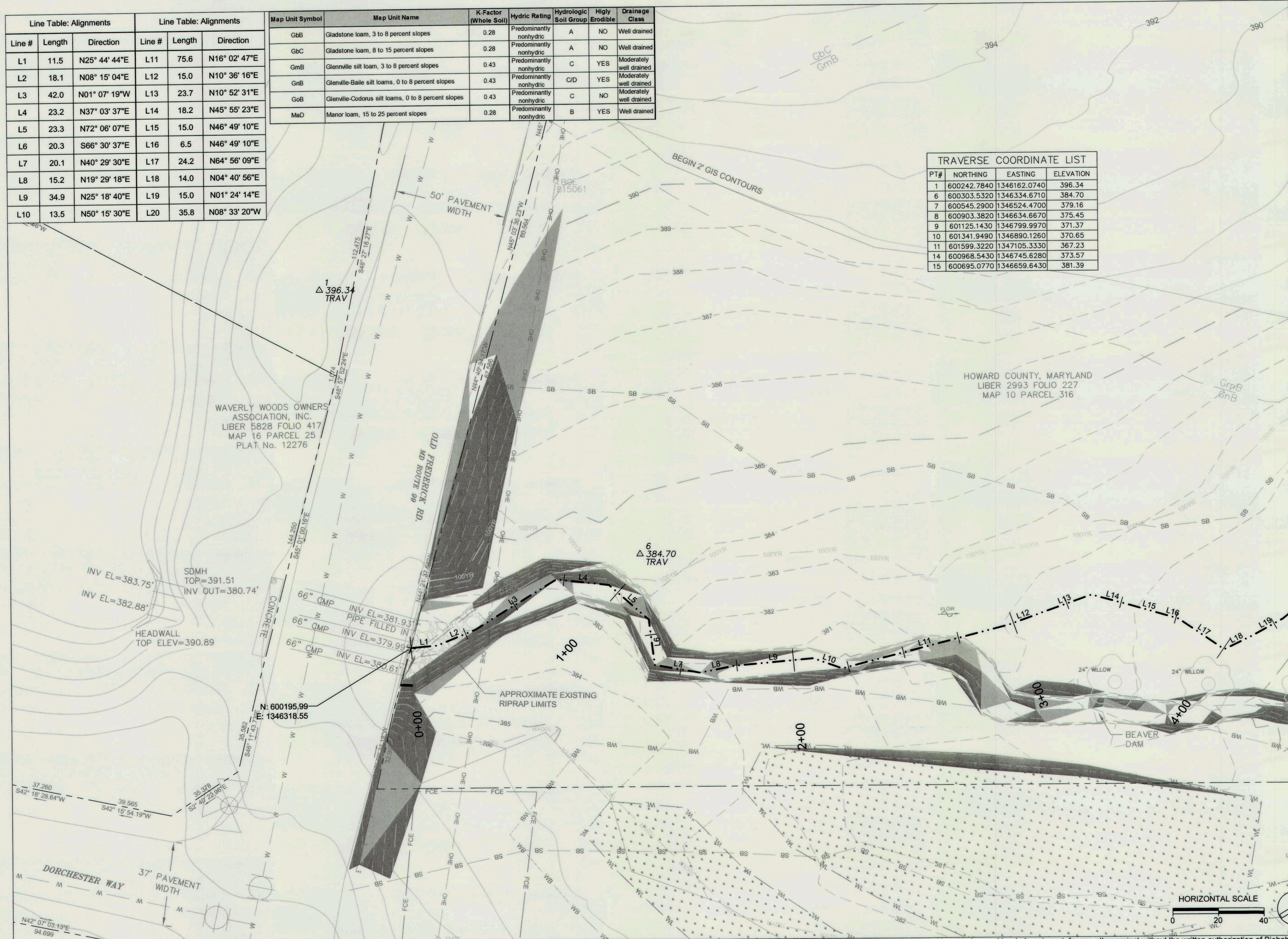
DEPARTMENT OF PUBLIC WORKS, HOWARD CO, MD
DIRECTOR, DEPARTMENT OF PUBLIC WORKS DATE: 10/26/16
Mark S. Richmond, CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE: 10/25/16
Mark S. Richmond, CHIEF, STORMWATER MANAGEMENT DIVISION DATE: 10/25/16

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 # 30734 EXPIRATION DATE: 6/28/2018

Line Table: Alignments			Line Table: Alignments		
Line #	Length	Direction	Line #	Length	Direction
L1	11.5	N25° 44' 44"E	L11	75.6	N16° 02' 47"E
L2	18.1	N08° 15' 04"E	L12	15.0	N10° 36' 16"E
L3	42.0	N01° 07' 19"W	L13	23.7	N10° 52' 31"E
L4	23.2	N37° 03' 37"E	L14	18.2	N45° 55' 23"E
L5	23.3	N72° 06' 07"E	L15	15.0	N46° 49' 10"E
L6	20.3	S66° 30' 37"E	L16	6.5	N46° 49' 10"E
L7	20.1	N40° 29' 30"E	L17	24.2	N64° 56' 09"E
L8	15.2	N19° 29' 18"E	L18	14.0	N04° 40' 56"E
L9	34.9	N25° 18' 40"E	L19	15.0	N01° 24' 14"E
L10	13.5	N50° 15' 30"E	L20	35.8	N08° 33' 20"W

Map Unit Symbol	Map Unit Name	K-Factor (Whole Soil)	Hydric Rating	Hydrologic Soil Group	Highly Erodible	Drainage Class
GbB	Gladstone loam, 3 to 8 percent slopes	0.28	Predominantly nonhydric	A	NO	Well drained
GbC	Gladstone loam, 8 to 15 percent slopes	0.28	Predominantly nonhydric	A	NO	Well drained
GmB	Glennville silt loam, 3 to 8 percent slopes	0.43	Predominantly nonhydric	C	YES	Moderately well drained
GnB	Glennville-Baile silt loams, 0 to 8 percent slopes	0.43	Predominantly nonhydric	C/D	YES	Moderately well drained
GoB	Glennville-Codorus silt loams, 0 to 8 percent slopes	0.43	Predominantly nonhydric	C	NO	Moderately well drained
MaD	Manor loam, 15 to 25 percent slopes	0.28	Predominantly nonhydric	B	YES	Well drained

TRAVERSE COORDINATE LIST			
PT#	NORTHING	EASTING	ELEVATION
1	600242.7840	1346162.0740	396.34
6	600303.5320	1346334.6710	384.70
7	600545.2900	1346524.4700	379.16
8	600903.3820	1346634.6670	375.45
9	601125.1430	1346799.9970	371.37
10	601341.9490	1346890.1260	370.65
11	601599.3220	1347105.3330	367.23
14	600968.5430	1346745.6280	373.57
15	600695.0770	1346659.6430	381.39



CLIENT
 HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046
 PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

AS BUILT CERTIFICATION
 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 PLANS AND SPECIFICATIONS.

NAME: DATE:

APPROVED: DEPARTMENT OF PUBLIC WORKS
Michael A. Luce 10/25/16
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

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

**DAVIS BRANCH
 STREAM
 RESTORATION
 PROJECT**
 SITE ADDRESS: 10520 OLD FREDERICK RD. WOODSTOCK, MD
 ZONING: RC-DEO TAX MAP/GRID/PARCEL: 0100204/0316
 ELECTION DISTRICT: 03 OPEN LOT N/A
 WAIVER PETITION #WP-16-156

**EXISTING
 CONDITIONS &
 GEOMETRY**
 PROJECT NO.: 13005.34 SCALE: 1" = 20'
 SEAL: BY: KT/JC CHECK: DSM/J
 DWG NO.:
 STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 No. 30734
 10/24/16
 2 OF 32

Line Table: Alignments			Line Table: Alignments			Line Table: Alignments			Line Table: Alignments		
Line #	Length	Direction	Line #	Length	Direction	Line #	Length	Direction	Line #	Length	Direction
L21	9.9	N13° 34' 46"E	L31	12.3	N22° 29' 49"E	L41	12.3	N04° 55' 50"W	L51	18.9	N69° 25' 51"E
L22	39.9	N10° 09' 33"E	L32	15.0	N23° 45' 29"E	L42	9.6	N37° 26' 35"E	L52	20.2	N33° 48' 26"E
L23	9.7	N29° 55' 50"E	L33	6.0	N19° 22' 05"E	L43	17.3	N53° 52' 26"E	L53	15.0	N30° 23' 10"E
L24	15.0	N29° 55' 50"E	L34	19.7	N35° 04' 49"E	L44	15.0	N50° 10' 48"E	L54	27.9	N23° 49' 07"E
L25	18.1	N30° 22' 32"E	L35	20.5	S24° 02' 35"E	L45	21.2	N53° 53' 11"E	L55	9.4	N68° 44' 05"E
L26	29.0	N73° 47' 25"E	L36	15.0	N24° 46' 05"W	L46	18.4	N19° 26' 34"E	L56	15.0	N68° 44' 05"E
L27	15.0	N63° 31' 52"E	L37	16.8	N19° 33' 36"W	L47	15.0	N22° 14' 17"E	L57	29.1	N71° 42' 50"E
L28	9.1	N63° 31' 52"E	L38	18.6	N08° 24' 13"E	L48	25.4	N24° 05' 18"E	L58	12.7	N15° 08' 03"E
L29	14.0	N81° 31' 17"E	L39	4.1	N05° 55' 21"W	L49	15.7	N67° 02' 44"E	L59	15.0	N15° 08' 03"E
L30	15.4	N63° 28' 20"E	L40	15.0	N05° 55' 21"W	L50	15.0	N67° 02' 44"E	L60	6.8	N15° 08' 03"E

TRAVERSE COORDINATE LIST			
PT#	NORTHING	EASTING	ELEVATION
1	600242.7840	1346162.0740	396.34
6	600303.5320	1346334.6710	384.70
7	600545.2900	1346524.4700	379.16
8	600903.3820	1346634.6670	375.45
9	601125.1430	1346799.9970	371.37
10	601341.9490	1346890.1260	370.65
11	601599.3220	1347105.3330	367.23
14	600968.5430	1346745.6280	373.57
15	600695.0770	1346659.6430	381.39

CLIENT
HOWARD COUNTY
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

AS BUILT CERTIFICATION
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 PLANS AND SPECIFICATIONS.

NAME: DATE:

APPROVED: DEPARTMENT OF PUBLIC WORKS
Mark D. Preece 1/25/16
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE



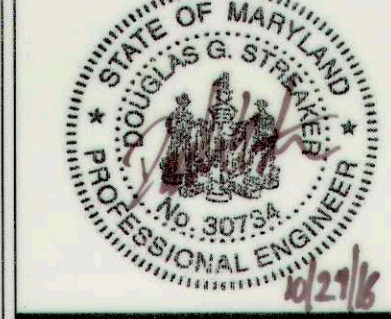
The Stables Building 2081 Clipper Park Road
Baltimore, MD 21211 / ph: 410.554.0156
fx: 410.554.0168 / www.biohabitats.com
Restore the Earth & Inspire Ecological Stewardship

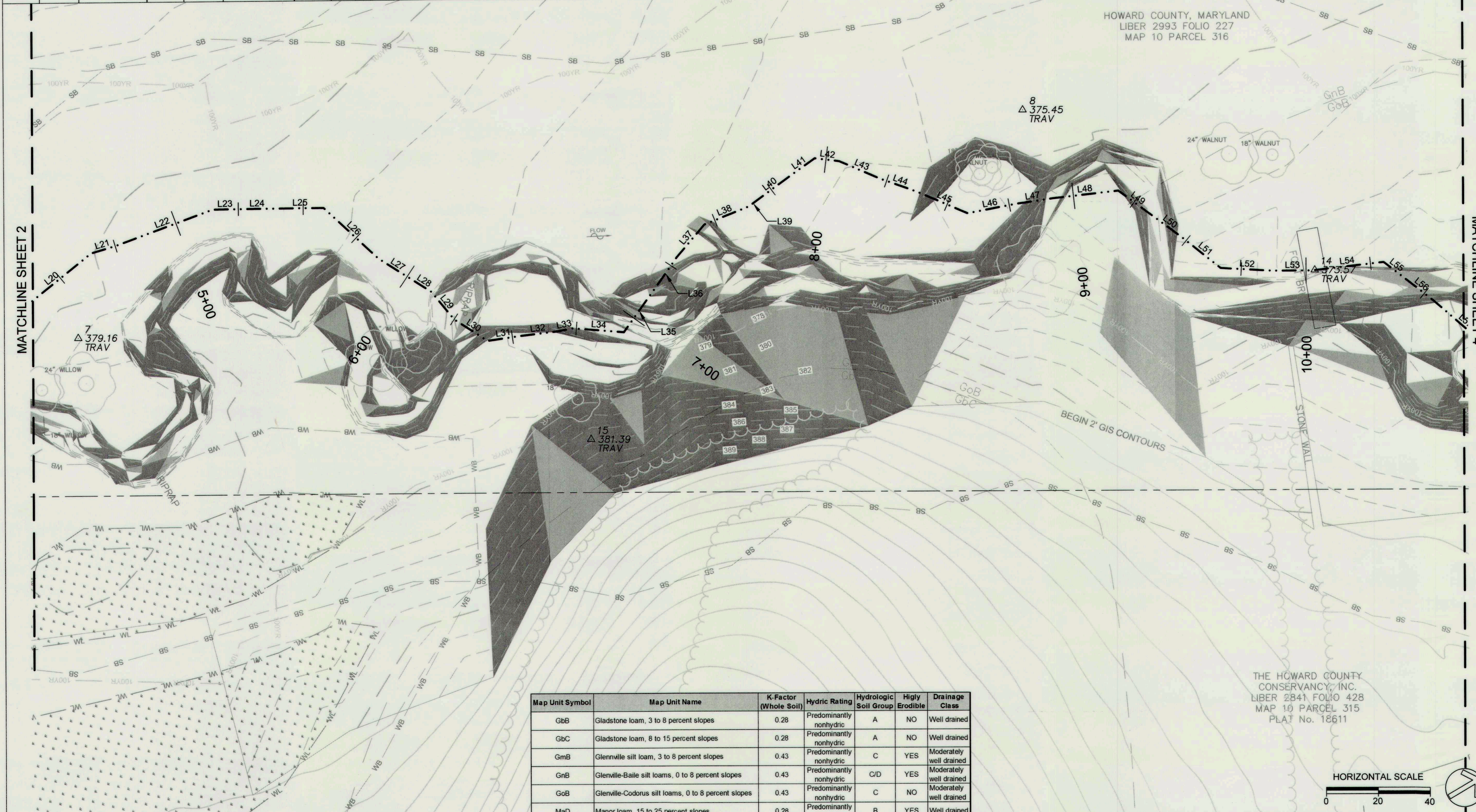
**DAVIS BRANCH
STREAM
RESTORATION
PROJECT**

SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
ZONING: RC-DEO TAX MAP/PRIOR/PARCEL: 01000240316
ELECTION DISTRICT: 03 OPEN LOT N/A
WAIVER PETITION #WP-16-156

**EXISTING
CONDITIONS &
GEOMETRY**

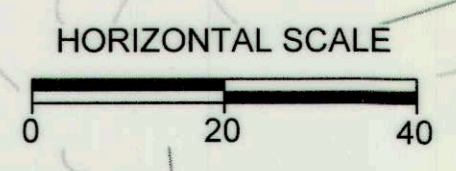
PROJECT NO.: 13005.34 SCALE: 1" = 20'

SEAL: BY: KT/JC CHECK: DSM
DWG. NO.:

3 OF 32



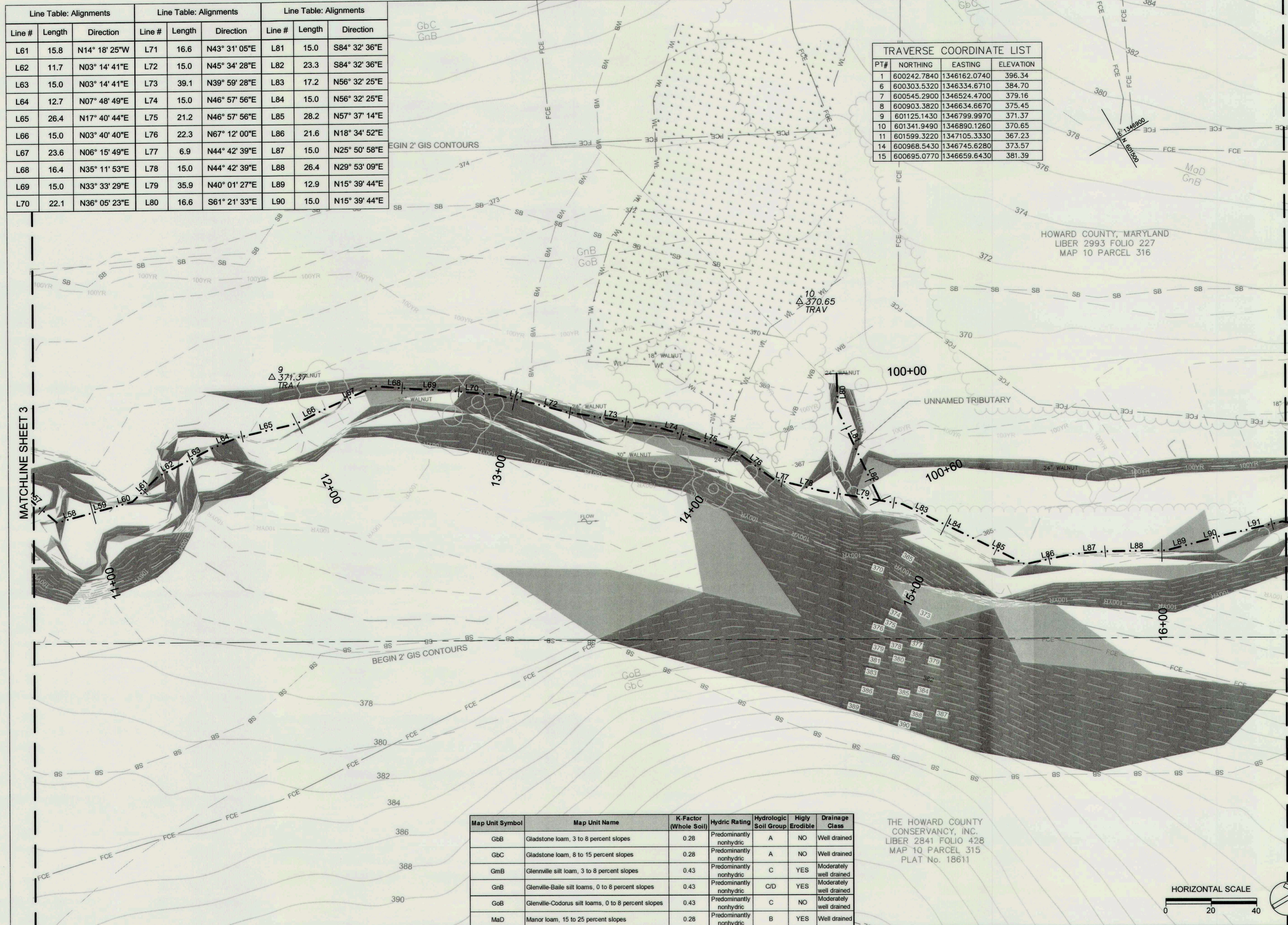
Map Unit Symbol	Map Unit Name	K-Factor (Whole Soil)	Hydric Rating	Hydrologic Soil Group	Highly Erodible	Drainage Class
GbB	Gladstone loam, 3 to 8 percent slopes	0.28	Predominantly nonhydric	A	NO	Well drained
GbC	Gladstone loam, 8 to 15 percent slopes	0.28	Predominantly nonhydric	A	NO	Well drained
GmB	Glennville silt loam, 3 to 8 percent slopes	0.43	Predominantly nonhydric	C	YES	Moderately well drained
GnB	Glennville-Baile silt loams, 0 to 8 percent slopes	0.43	Predominantly nonhydric	C/D	YES	Moderately well drained
GoB	Glennville-Codus silt loams, 0 to 8 percent slopes	0.43	Predominantly nonhydric	C	NO	Moderately well drained
MaD	Manor loam, 15 to 25 percent slopes	0.28	Predominantly nonhydric	B	YES	Well drained

THE HOWARD COUNTY
CONSERVANCY, INC.
LIBER 2841 FOLIO 428
MAP 10 PARCEL 315
PLAT No. 18611



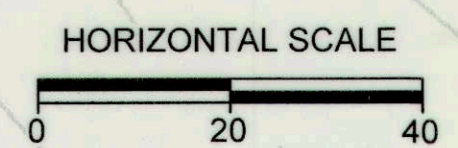
Line Table: Alignments			Line Table: Alignments			Line Table: Alignments		
Line #	Length	Direction	Line #	Length	Direction	Line #	Length	Direction
L61	15.8	N14° 18' 25"W	L71	16.6	N43° 31' 05"E	L81	15.0	S84° 32' 36"E
L62	11.7	N03° 14' 41"E	L72	15.0	N45° 34' 28"E	L82	23.3	S84° 32' 36"E
L63	15.0	N03° 14' 41"E	L73	39.1	N39° 59' 28"E	L83	17.2	N56° 32' 25"E
L64	12.7	N07° 48' 49"E	L74	15.0	N46° 57' 56"E	L84	15.0	N56° 32' 25"E
L65	26.4	N17° 40' 44"E	L75	21.2	N46° 57' 56"E	L85	28.2	N57° 37' 14"E
L66	15.0	N03° 40' 40"E	L76	22.3	N67° 12' 00"E	L86	21.6	N18° 34' 52"E
L67	23.6	N06° 15' 49"E	L77	6.9	N44° 42' 39"E	L87	15.0	N25° 50' 58"E
L68	16.4	N35° 11' 53"E	L78	15.0	N44° 42' 39"E	L88	26.4	N29° 53' 09"E
L69	15.0	N33° 33' 29"E	L79	35.9	N40° 01' 27"E	L89	12.9	N15° 39' 44"E
L70	22.1	N36° 05' 23"E	L80	16.6	S61° 21' 33"E	L90	15.0	N15° 39' 44"E

TRAVERSE COORDINATE LIST			
PT#	NORTHING	EASTING	ELEVATION
1	600242.7840	1346162.0740	396.34
6	600303.5320	1346334.6710	384.70
7	600545.2900	1346524.4700	379.16
8	600903.3820	1346634.6670	375.45
9	601125.1430	1346799.9970	371.37
10	601341.9490	1346890.1260	370.65
11	601599.3220	1347105.3330	367.23
14	600968.5430	1346745.6280	373.57
15	600695.0770	1346659.6430	381.39



Map Unit Symbol	Map Unit Name	K-Factor (Whole Soil)	Hydric Rating	Hydrologic Soil Group	Highly Erodible	Drainage Class
GbB	Gladstone loam, 3 to 8 percent slopes	0.28	Predominantly nonhydric	A	NO	Well drained
GbC	Gladstone loam, 8 to 15 percent slopes	0.28	Predominantly nonhydric	A	NO	Well drained
GmB	Glenville silt loam, 3 to 8 percent slopes	0.43	Predominantly nonhydric	C	YES	Moderately well drained
GnB	Glenville-Baile silt loams, 0 to 8 percent slopes	0.43	Predominantly nonhydric	C/D	YES	Moderately well drained
GoB	Glenville-Codorus silt loams, 0 to 8 percent slopes	0.43	Predominantly nonhydric	C	NO	Moderately well drained
MaD	Manor loam, 15 to 25 percent slopes	0.28	Predominantly nonhydric	B	YES	Well drained

THE HOWARD COUNTY CONSERVANCY, INC.
LIBER 2841 FOLIO 428
MAP 10 PARCEL 315
PLAT No. 18611



CLIENT
HOWARD COUNTY
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

AS BUILT CERTIFICATION
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 PLANS AND SPECIFICATIONS.

NAME: DATE:

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 10/29/16
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

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

DAVIS BRANCH STREAM RESTORATION PROJECT
SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
ZONING: RC-CED TAX MAP GRID/PARCEL: 0100024/0316
ELECTION DISTRICT: 03 OPEN LOT N/A
WAIVER PETITION #WP-16-156

EXISTING CONDITIONS & GEOMETRY

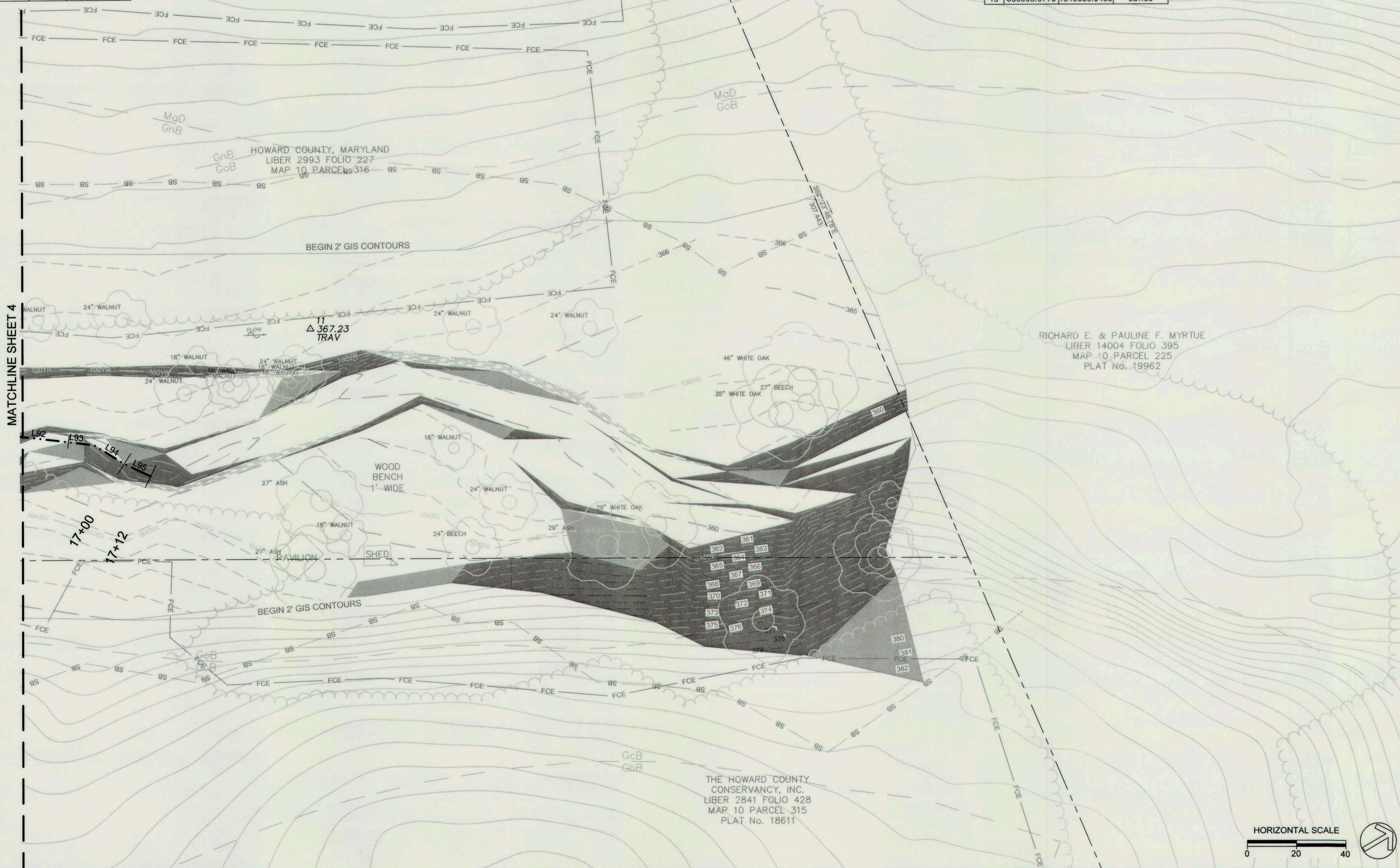
PROJECT NO.: 13005.34 SCALE: 1" = 20'

SEAL: *[Professional Engineer Seal]*
BY: KT/JC CHECK: DS/MT
DWG NO.: **4 OF 32**

Line Table: Alignments		
Line #	Length	Direction
L91	24.5	N17° 33' 25"E
L92	16.0	N37° 20' 52"E
L93	15.0	N37° 20' 52"E
L94	14.5	N62° 45' 58"E
L95	11.8	N56° 08' 10"E

Map Unit Symbol	Map Unit Name	K-Factor (Whole Soil)	Hydric Rating	Hydrologic Soil Group	Highly Erodible	Drainage Class
GbB	Gladstone loam, 3 to 8 percent slopes	0.28	Predominantly nonhydric	A	NO	Well drained
GbC	Gladstone loam, 8 to 15 percent slopes	0.28	Predominantly nonhydric	A	NO	Well drained
GmB	Glennville silt loam, 3 to 8 percent slopes	0.43	Predominantly nonhydric	C	YES	Moderately well drained
GnB	Glennville-Baile silt loams, 0 to 8 percent slopes	0.43	Predominantly nonhydric	C/D	YES	Moderately well drained
GoB	Glennville-Codorus silt loams, 0 to 8 percent slopes	0.43	Predominantly nonhydric	C	NO	Moderately well drained
MaD	Manor loam, 15 to 25 percent slopes	0.28	Predominantly nonhydric	B	YES	Well drained

TRAVERSE COORDINATE LIST			
PT#	NORTHING	EASTING	ELEVATION
1	600242.7840	1346162.0740	396.34
6	600303.5320	1346334.6710	384.70
7	600545.2900	1346524.4700	379.16
8	600903.3820	1346634.6670	375.45
9	601125.1430	1346799.9970	371.37
10	601341.9490	1346890.1260	370.65
11	601599.3220	1347105.3330	367.23
14	600968.5430	1346745.6280	373.57
15	600695.0770	1346659.6430	381.39



CLIENT
 HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046
 PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

AS BUILT CERTIFICATION
 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 PLANS AND SPECIFICATIONS.

NAME: DATE:

APPROVED: DEPARTMENT OF PUBLIC WORKS
Mark D. ...
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

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

**DAVIS BRANCH
 STREAM
 RESTORATION
 PROJECT**
 SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
 ZONING: RC-DEU TAX MAP/PARCEL: 010/0024/0316
 ELECTION DISTRICT: 03 OPEN LOT: NA
 WAIVER PETITION #WP-16-156

TITLE: **EXISTING
 CONDITIONS &
 GEOMETRY**

PROJECT NO.: 13005.34 SCALE: 1" = 20'

SEAL: BY: KT/JC CHECK: DS/MT
 DWG. NO.: **5 OF 32**

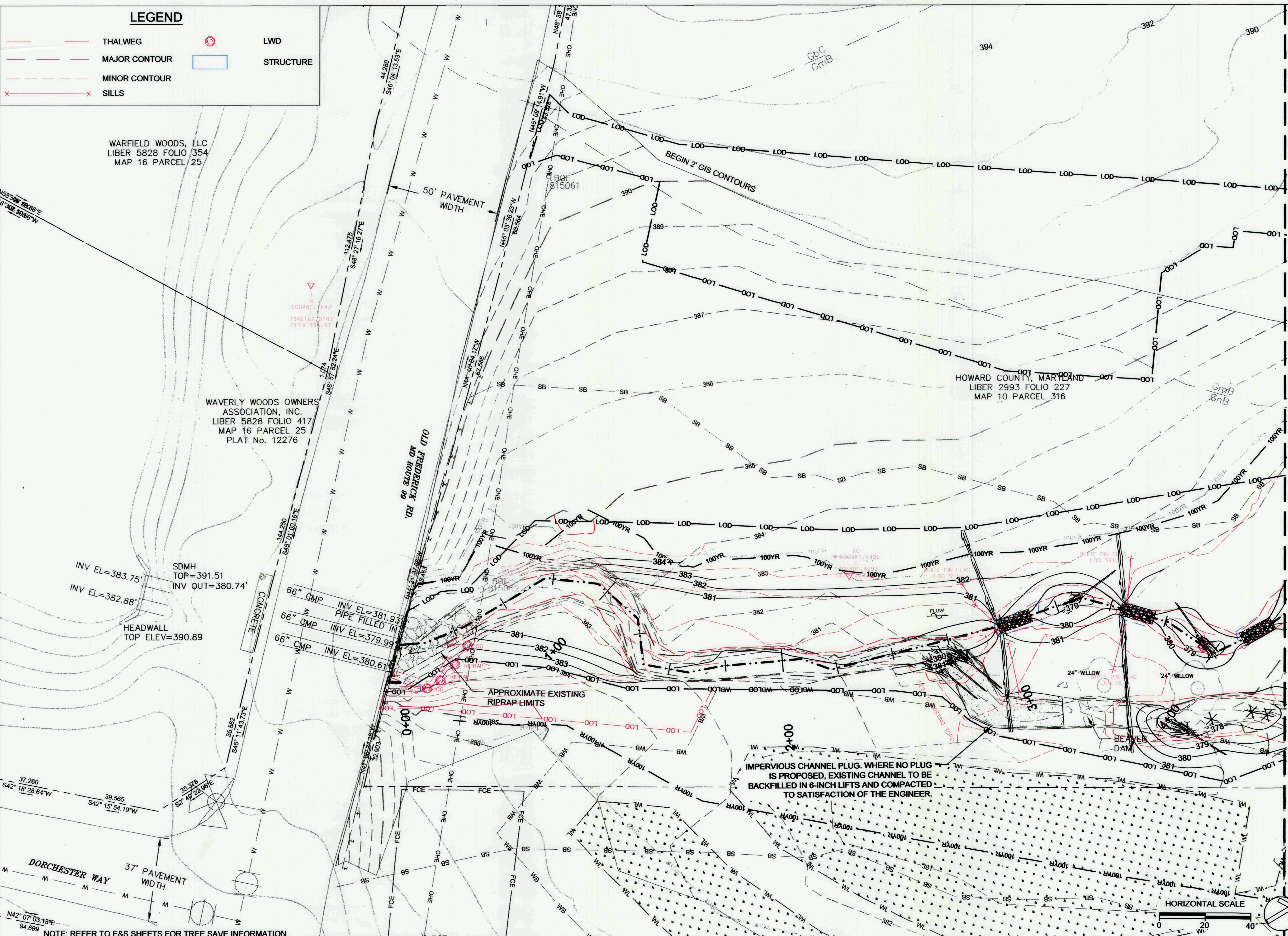
LEGEND

- THALWEG
- MAJOR CONTOUR
- MINOR CONTOUR
- ✕✕ SILLS
- LWD
- STRUCTURE

WARFIELD WOODS, LLC
LIBER 5828 FOLIO 354
MAP 16 PARCEL 25

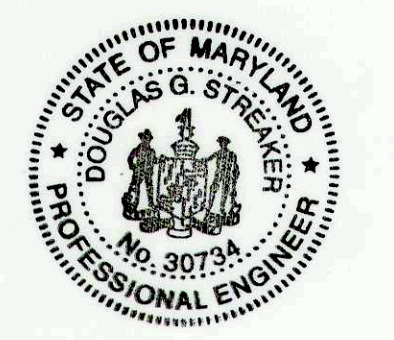
WAVERLY WOODS OWNERS
ASSOCIATION, INC.
LIBER 5828 FOLIO 417
MAP 16 PARCEL 25
PLAT No. 12276

HOWARD COUNTY, MARYLAND
LIBER 2993 FOLIO 227
MAP 10 PARCEL 316



CLIENT
HOWARD COUNTY
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-0522

DATE: 01/23/2017
ISSUES / REVISIONS: **REDLINE EXPAND LOD**



AS BUILT CERTIFICATION
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 PLANS AND SPECIFICATIONS.

NAME: Douglas Streaker
DATE: 9/6/17

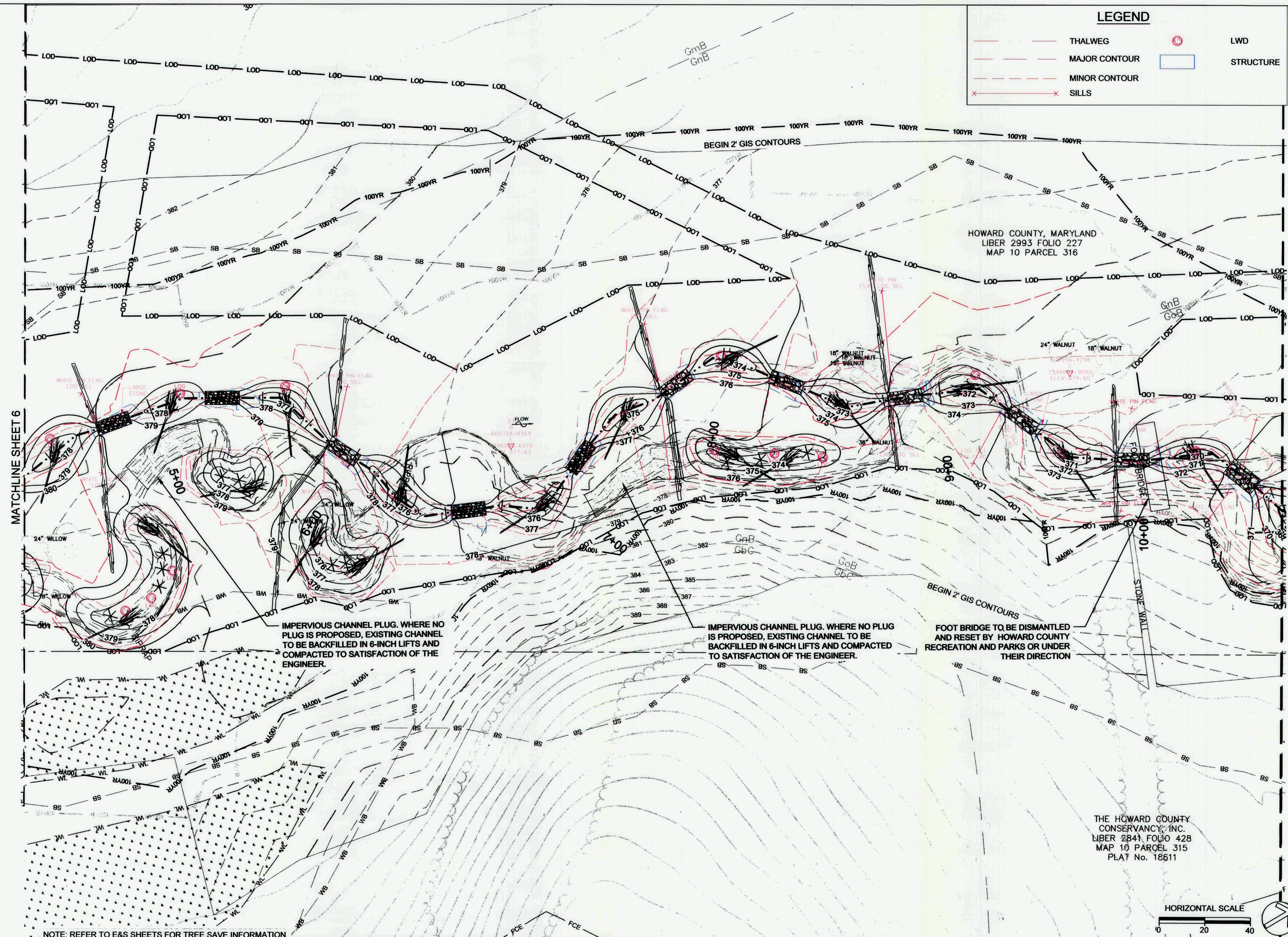
APPROVED: DEPARTMENT OF PUBLIC WORKS
M. D. P. [Signature]
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

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

**DAVIS BRANCH
STREAM
RESTORATION
PROJECT**
SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
ZONING: RC-DEO TAX MAP/GRID/PARCEL: 0100024/0316
ELECTION DISTRICT: 03 OPEN LOT N/A
WAVER PETITION #WP-16-156

**PROPOSED
CONDITIONS
AS-BUILT**
PROJECT NO.: 13005.34 SCALE: 1" = 20'
SEAL: [Professional Engineer Seal] BY: KT/JC CHECK: DS/MT
DWG. NO.: **6 OF 32**

NOTE: REFER TO E&S SHEETS FOR TREE SAVE INFORMATION.
1/4/2016 I:\Projects\13005.34 Davis Branch\CAD\Plans\As-Built\pc01db-ab.dwg



LEGEND

	THALWEG		LWD
	MAJOR CONTOUR		STRUCTURE
	MINOR CONTOUR		
	SILLS		

CLIENT

HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046
 PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS



AS BUILT CERTIFICATION

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 PLANS AND SPECIFICATIONS.

NAME: Douglas Streeker DATE: 9/6/17

APPROVED: DEPARTMENT OF PUBLIC WORKS
 M. D. Streeker DATE: 9/25/16
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

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

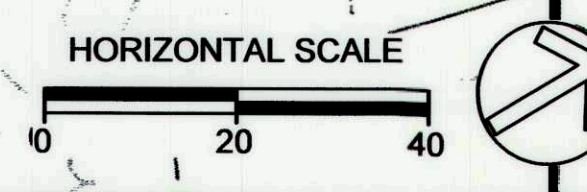
**DAVIS BRANCH
 STREAM
 RESTORATION
 PROJECT**

SITE ADDRESS: 10620 OLD FREDERICK RD, WOODSTOCK, MD
 ZONING: RC-DEO TAX MAP/GRID/PARCEL: 0100024/0318
 ELECTION DISTRICT: 03 OPEN LOT NO: NA
 WAIVER PETITION #WP-16-155

**PROPOSED
 CONDITIONS
 AS-BUILT**

PROJECT NO.: 13005.34	SCALE: 1" = 20'
SEAL:	BY: KT/JC CHECK: DS/MT
	DWG. NO.: 7 OF 32

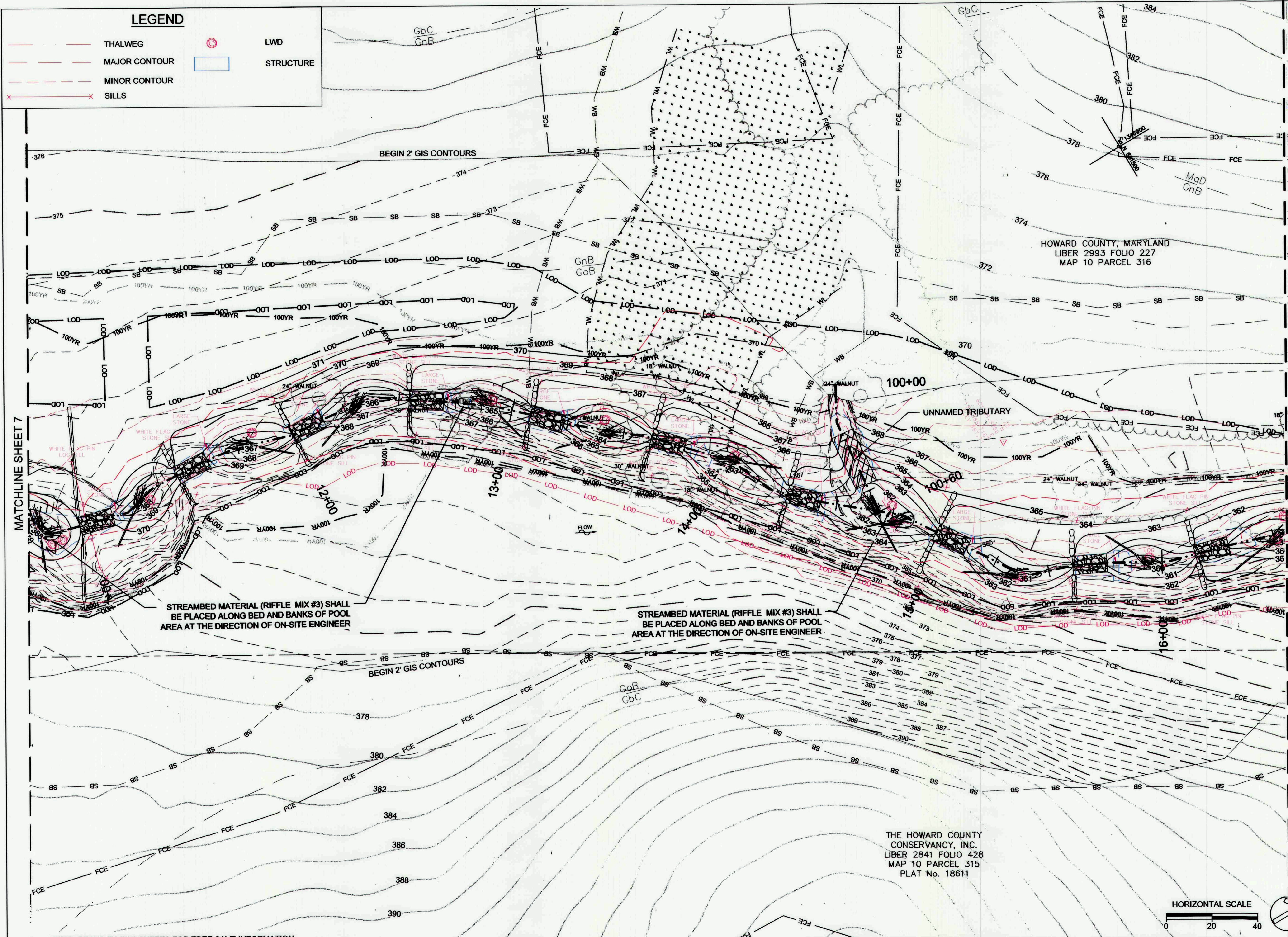
THE HOWARD COUNTY
 CONSERVANCY, INC.
 LIBER 2841 FOLIO 428
 MAP 10 PARCEL 315
 PLAT No. 18611



NOTE: REFER TO E&S SHEETS FOR TREE SAVE INFORMATION.
 1/4/2016 1:14:00 PM 13005.34 Davis Branch (CD) Plans (As-Built) (p01) ab.dwg

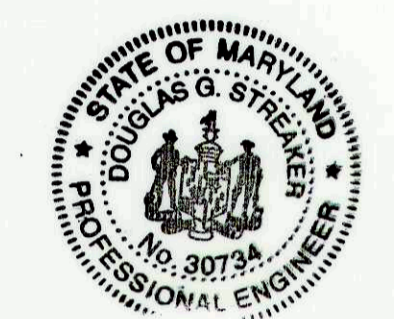
LEGEND

- THALWEG
- MAJOR CONTOUR
- - - MINOR CONTOUR
- ✕ SILLS
- LWD
- STRUCTURE



CLIENT
 HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046
 PHONE: (410) 313-0522

DATE: 11/28/2016
 ISSUES / REVISIONS: ▲ REDLINE EXPAND LOD



AS BUILT CERTIFICATION
 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 PLANS AND SPECIFICATIONS.

NAME: Douglas Streaker
 DATE: 9/6/17

APPROVED: [Signature]
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
 DATE: 10/25/16

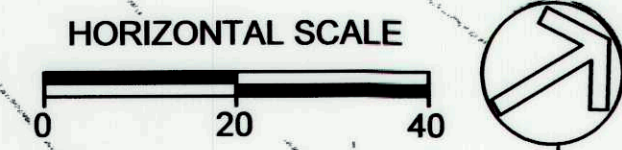
Biohabitats
 The Stables Building 2081 Clipper Park Road
 Baltimore, MD 21211 / ph: 410.554.0156
 fx: 410.554.0168 / www.biohabitats.com
 Restore the Earth & Inspire Ecological Stewardship

**DAVIS BRANCH
 STREAM
 RESTORATION
 PROJECT**

SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
 ZONING: RC-260 TAX MAP GRID/PARCEL: 0100024/0316
 ELECTION DISTRICT: 03 OPEN LOT NA
 WAIVER PETITION #WP-16-156

**PROPOSED
 CONDITIONS
 AS-BUILT**

PROJECT NO.: 13005.34 SCALE: 1" = 20'
 BY: KT/JC CHECK: DS/MT
 DWG. NO.:
8 OF 32



NOTE: REFER TO E&S SHEETS FOR TREE SAVE INFORMATION.

CLIENT

HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046
 PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

11/28/2016 REDLINE EXPAND LOD



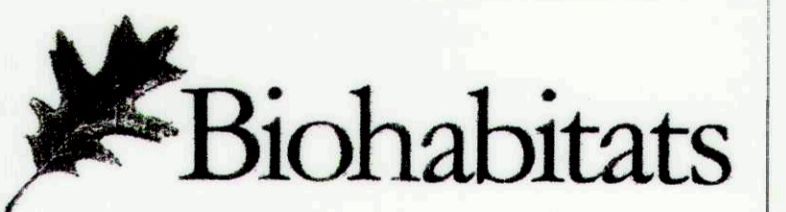
AS BUILT CERTIFICATION

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 PLANS AND SPECIFICATIONS.

NAME: *Douglas S. Streaker* DATE: 9/6/17

APPROVED: DEPARTMENT OF PUBLIC WORKS

M. D. [Signature] DATE: 10/20/16
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES



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

**DAVIS BRANCH
 STREAM
 RESTORATION
 PROJECT**

SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
 ZONING: RC-DEO TAX MAP/GRID/PARCEL: 01000240316
 ELECTION DISTRICT: 03 OPEN LOT #/A
 WAIVER PETITION #WP-16-196

**PROPOSED
 CONDITIONS
 AS-BUILT**

PROJECT NO.: 13005.34 SCALE: 1" = 20'

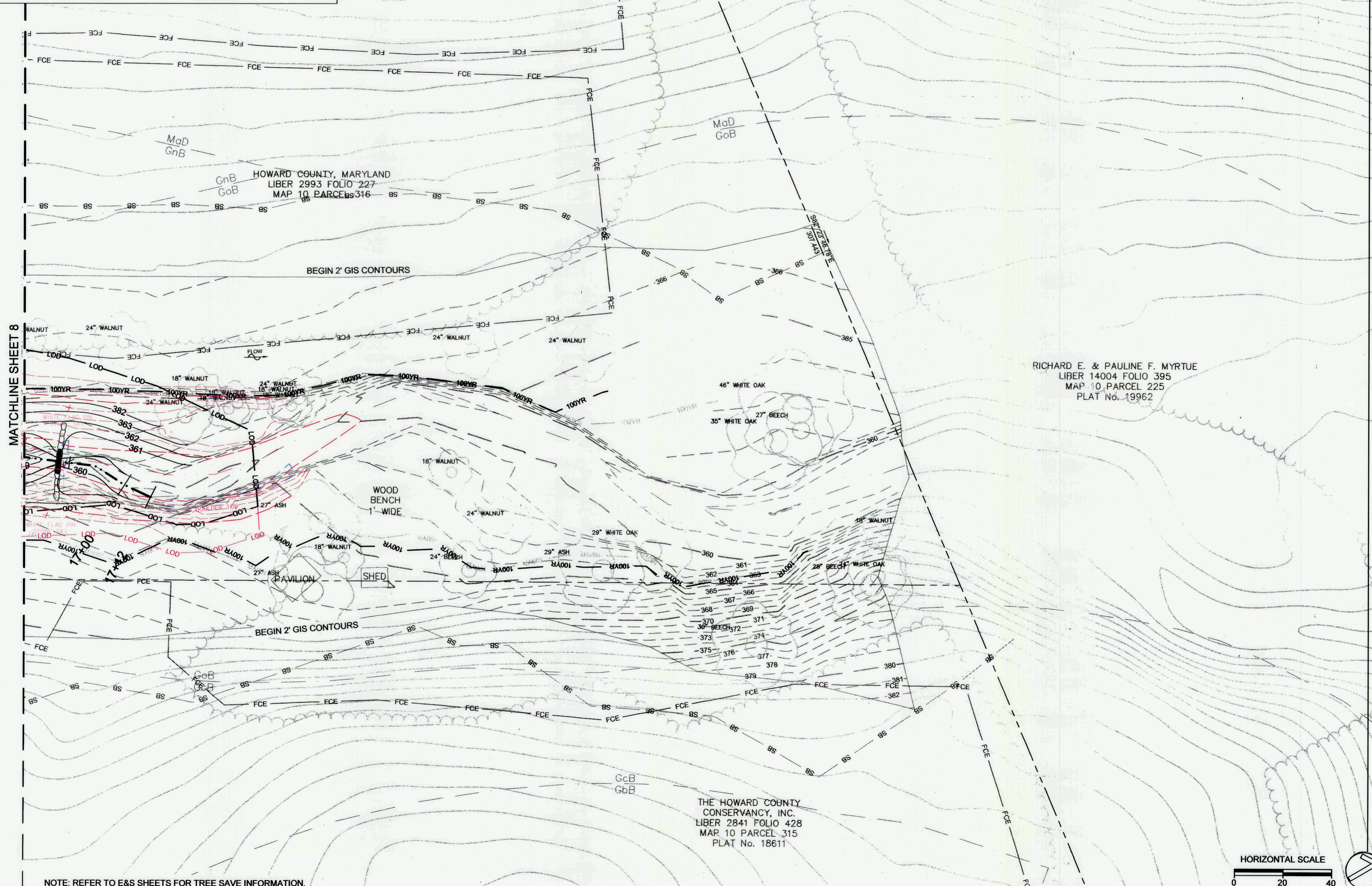
SEAL: BY: KT/JC CHECK: DSM/T

DWG. NO.: 9 OF 32

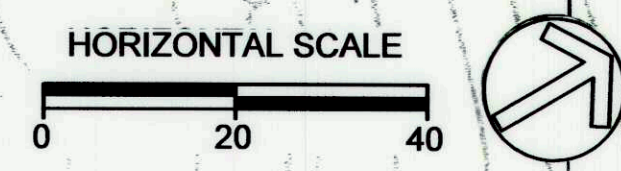


LEGEND

- THALWEG
- MAJOR CONTOUR
- MINOR CONTOUR
- SILLS
- LWD
- STRUCTURE



NOTE: REFER TO E&S SHEETS FOR TREE SAVE INFORMATION.



CLIENT

HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046
 PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

AS BUILT CERTIFICATION

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 PLANS AND SPECIFICATIONS.

NAME DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES 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

**DAVIS BRANCH
 STREAM
 RESTORATION
 PROJECT**

SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
 ZONING: RC-DEO TAX MAP/GRID/PARCEL: 010/0024/0316
 ELECTION DISTRICT: 03 OPEN LOT: N/A
 WAIVER PETITION #WP-16-156


TITLE:

PROFILES

PROJECT NO.: 13005.34 SCALE: AS SHOWN

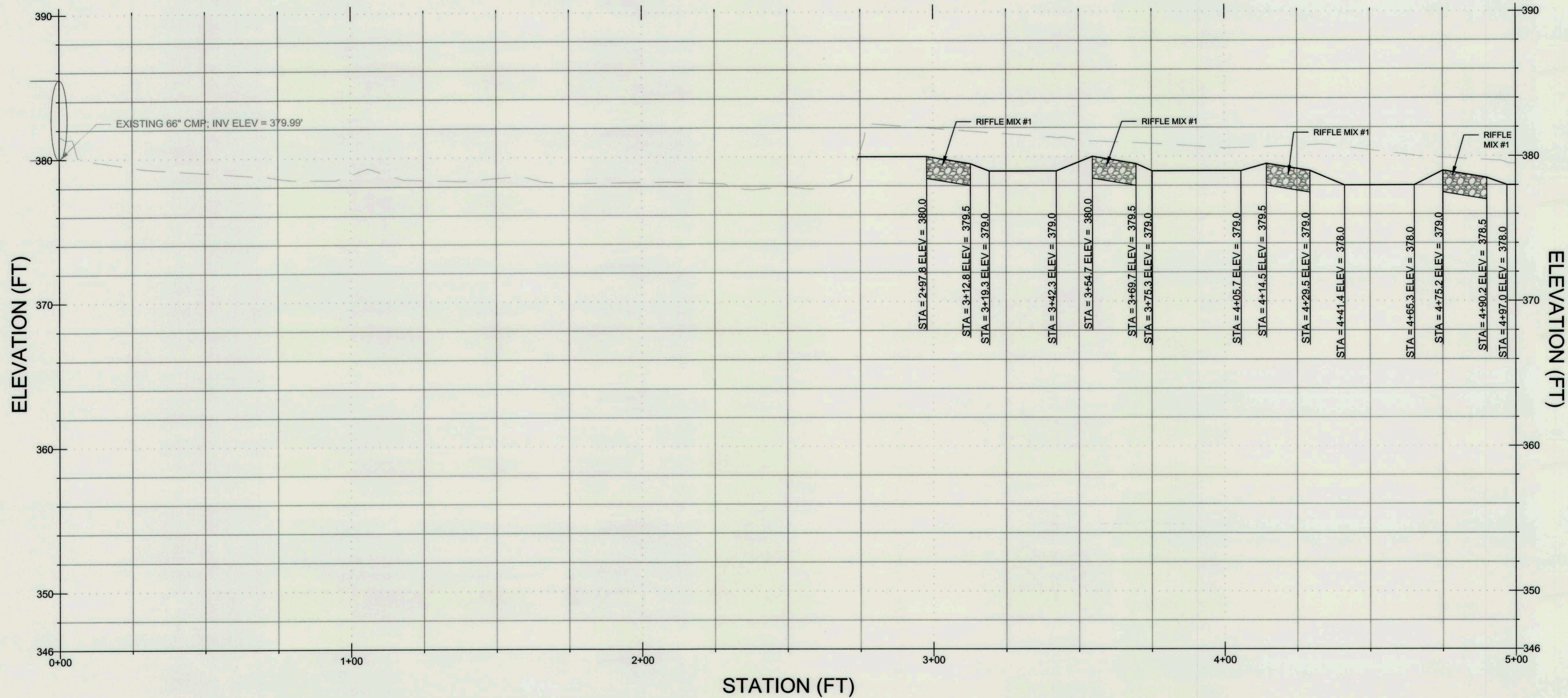
SEAL: BY: KT/JC CHECK: DS/MT

DWG. NO.:



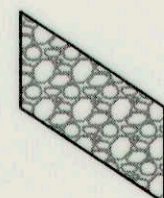
10 OF 32

PROFILE VIEW OF PROPOSED



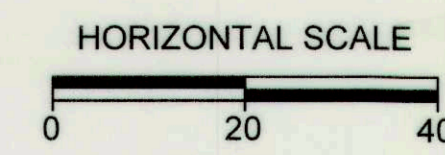
PROFILE LEGEND

--- EXISTING
 --- PROPOSED



COBBLE RIFFLE*

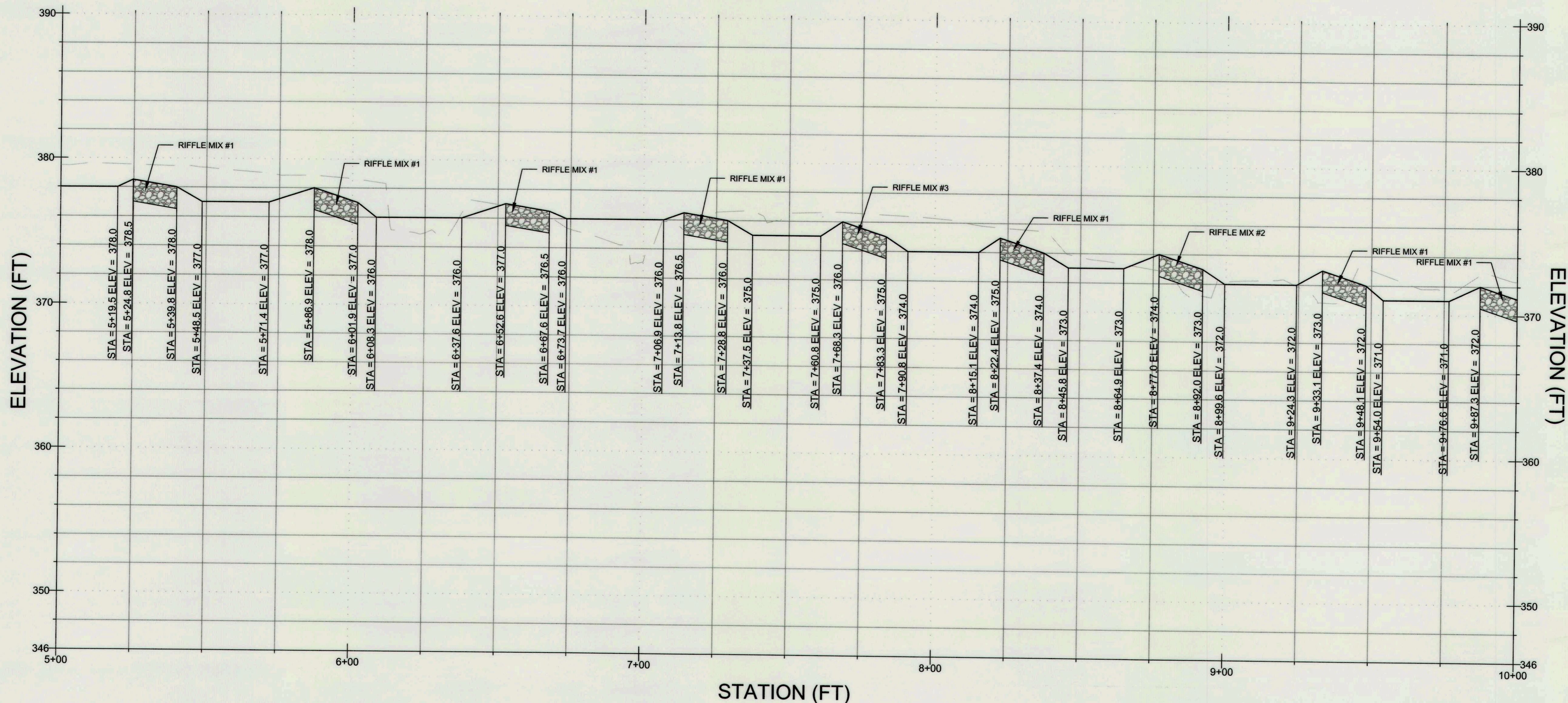
NOTE: COBBLE RIFFLES AS SHOWN ON PROFILE REPRESENTS THE RIFFLE LENGTH SHOWN ON THE RIFFLE DETAIL. THE GLIDE AND BOULDER SECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE RIFFLE DETAIL AND THE GRADES SHOWN ON THE PROFILE.



CLIENT

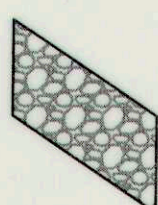
HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046
 PHONE: (410) 313-0522

PROFILE VIEW OF PROPOSED



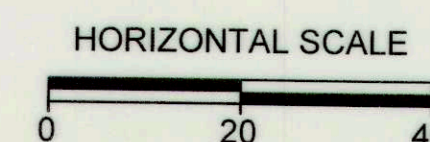
PROFILE LEGEND

- EXISTING
- PROPOSED



COBBLE RIFFLE*

NOTE: COBBLE RIFFLES AS SHOWN ON PROFILE REPRESENTS THE RIFFLE LENGTH SHOWN ON THE RIFFLE DETAIL. THE GLIDE AND BOULDER SECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE RIFFLE DETAIL AND THE GRADES SHOWN ON THE PROFILE.



DATE: ISSUES / REVISIONS

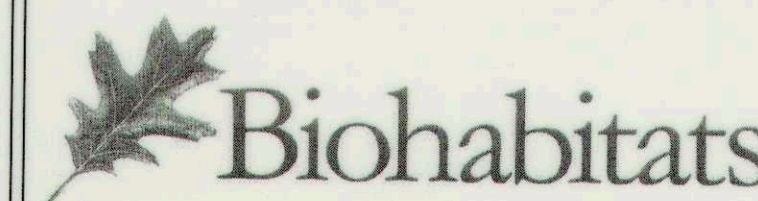
AS BUILT CERTIFICATION

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 PLANS AND SPECIFICATIONS.

NAME DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

[Signature]
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES 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

**DAVIS BRANCH
 STREAM
 RESTORATION
 PROJECT**

SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
 ZONING: RC-DEJ TAX MAP/GRID/PARCEL: 010/0024/0316
 ELECTION DISTRICT: 03 OPEN LOT N/A
 WAIVER PETITION #WP-16-156

PROFILES

PROJECT NO.: 13005.34 SCALE: AS SHOWN

SEAL: BY: KT/JC CHECK: DS/MT

DWG. NO.:

 11 OF 32

CLIENT

HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046
 PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

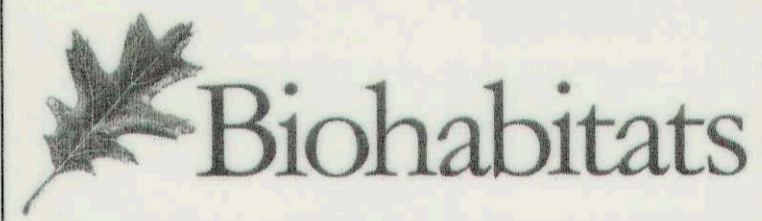
AS BUILT CERTIFICATION

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 PLANS AND SPECIFICATIONS.

NAME DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

[Signature]
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE *[Signature]*



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

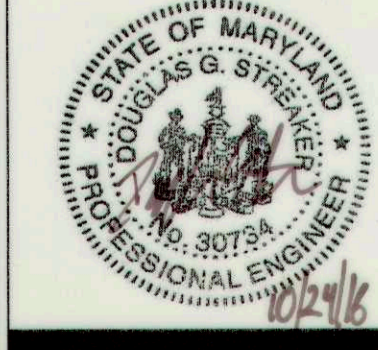
**DAVIS BRANCH
 STREAM
 RESTORATION
 PROJECT**

SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
 ZONING: RC-DEC TAX MAP/GRIID/PARCEL: 01010024/0316
 ELECTION DISTRICT: 03 OPEN LOT N/A
 WAIVER PETITION #WP-16-156

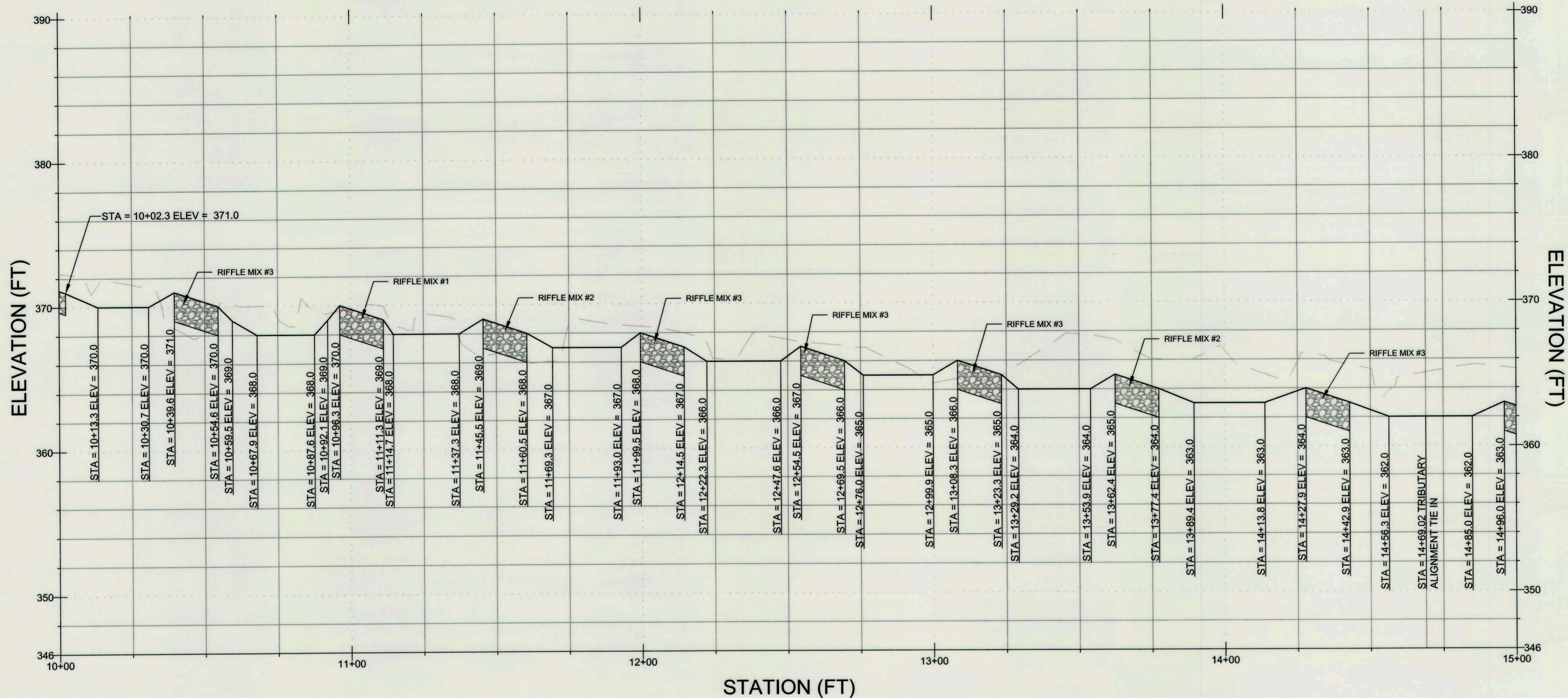
PROFILES

PROJECT NO.: 13005.34 SCALE: AS SHOWN

SEAL: BY: KT/JC CHECK: DS/MT

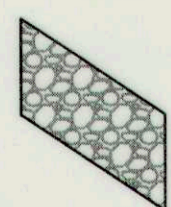


PROFILE VIEW OF PROPOSED



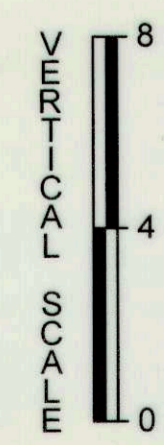
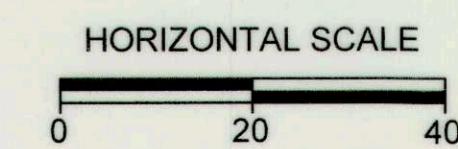
PROFILE LEGEND

- EXISTING
- PROPOSED



COBBLE RIFFLE*

NOTE: COBBLE RIFFLES AS SHOWN ON PROFILE REPRESENTS THE RIFFLE LENGTH SHOWN ON THE RIFFLE DETAIL. THE GLIDE AND BOULDER SECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE RIFFLE DETAIL AND THE GRADES SHOWN ON THE PROFILE.



CLIENT

HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046
 PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

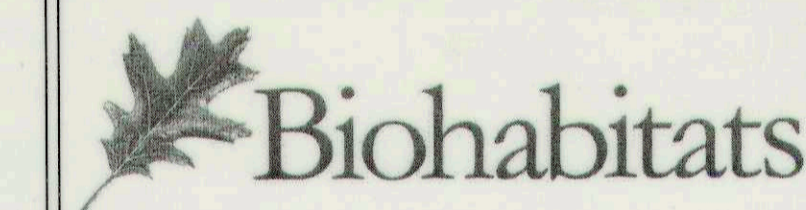
AS BUILT CERTIFICATION

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 PLANS AND SPECIFICATIONS.

NAME: DATE:

APPROVED: DEPARTMENT OF PUBLIC WORKS

Mark Palmer *12/2/16*
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES 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

**DAVIS BRANCH
 STREAM
 RESTORATION
 PROJECT**

SITE ADDRESS: 10520 OLD FREDERICK RD., WOODSTOCK, MD
 ZONING: RC-CDO TAX MAP/GRID/PARCEL: 010/00240316
 ELECTION DISTRICT: 03 OPEN LOT N/A
 WAIVER PETITION #WP-16-156

TITLE:

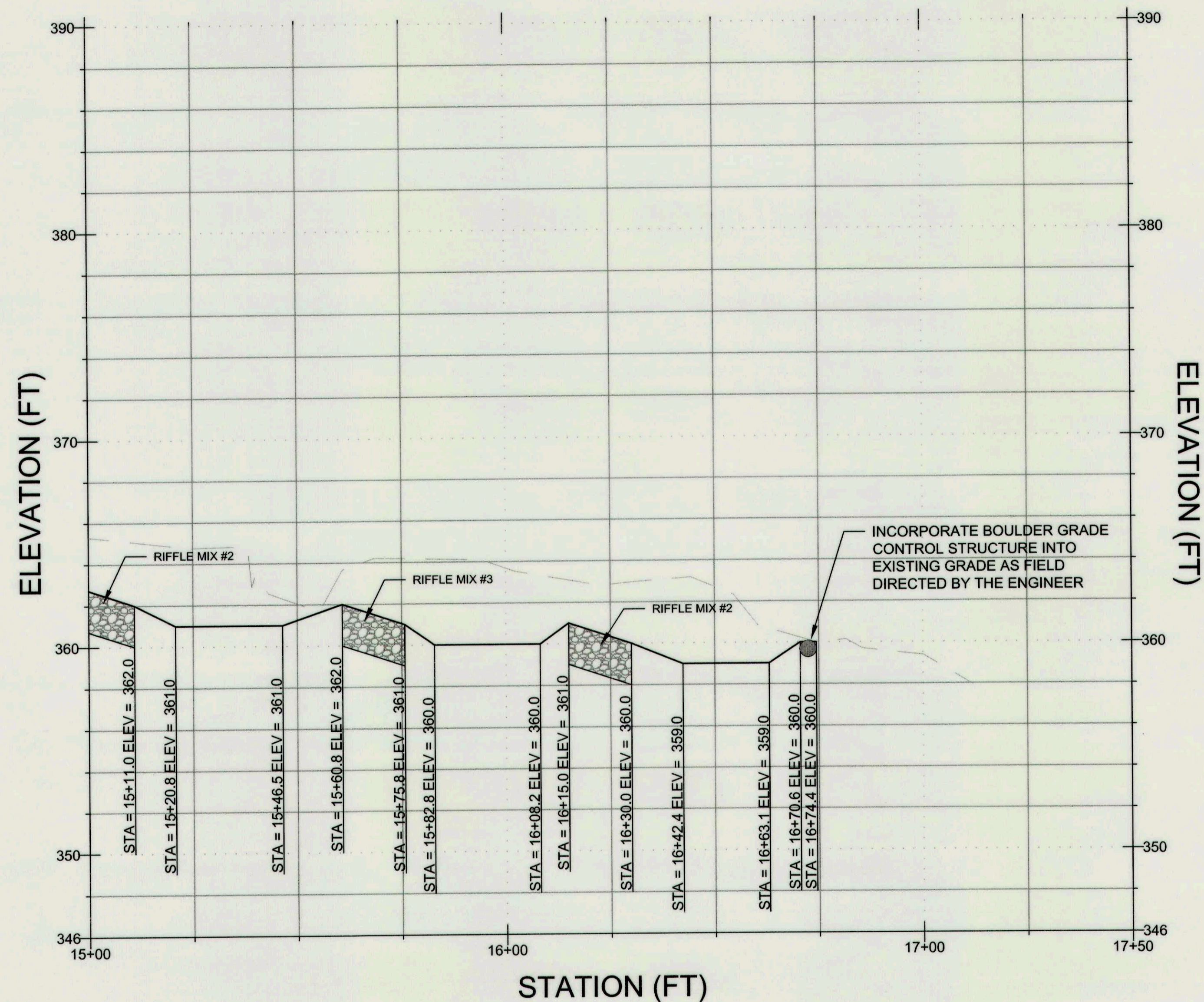
PROFILES

PROJECT NO.: 13005.34 SCALE: AS SHOWN

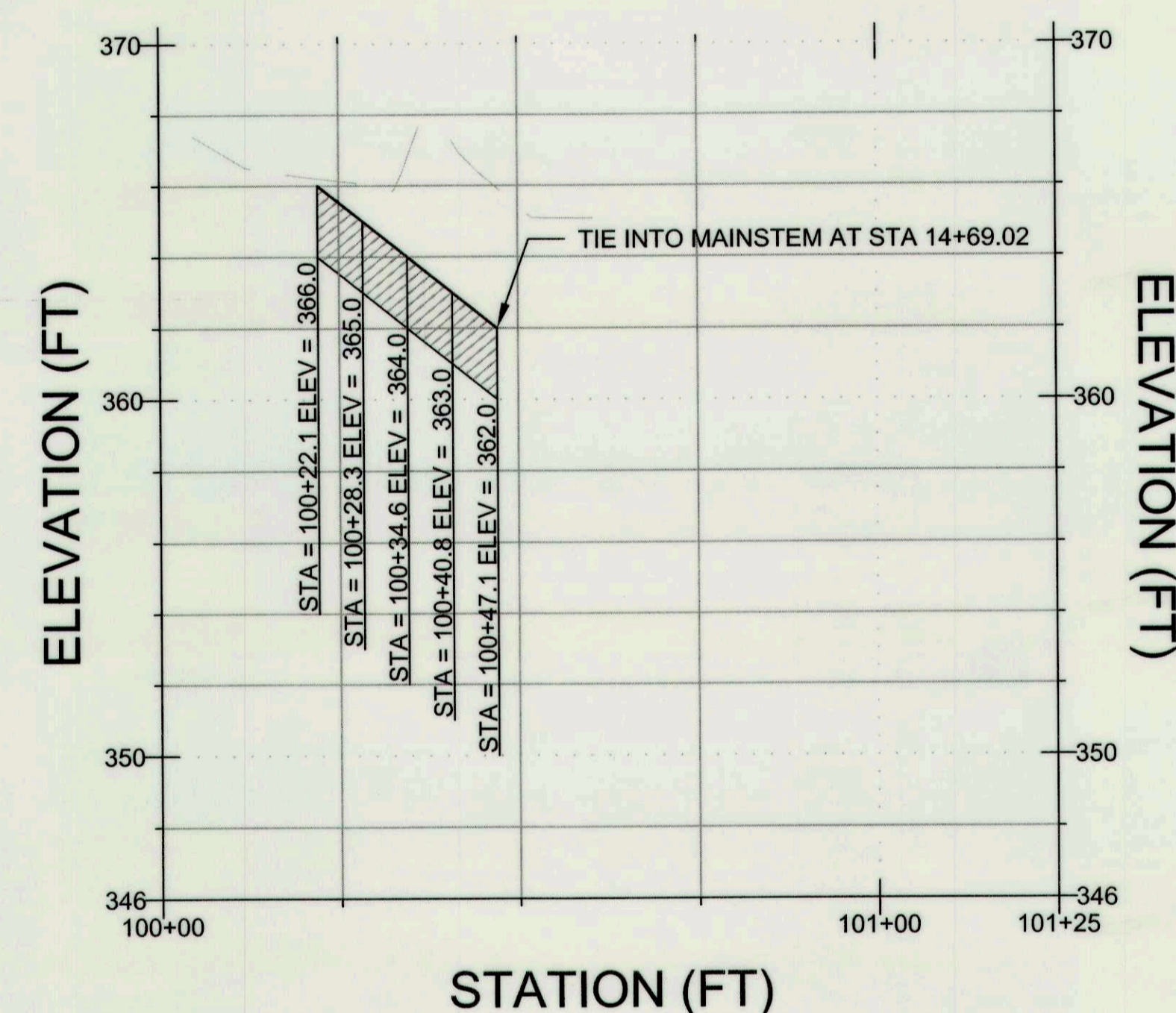
SEAL: BY: KT/JC CHECK: DS/MT

DWG NO.: 13 OF 32

PROFILE VIEW OF PROPOSED



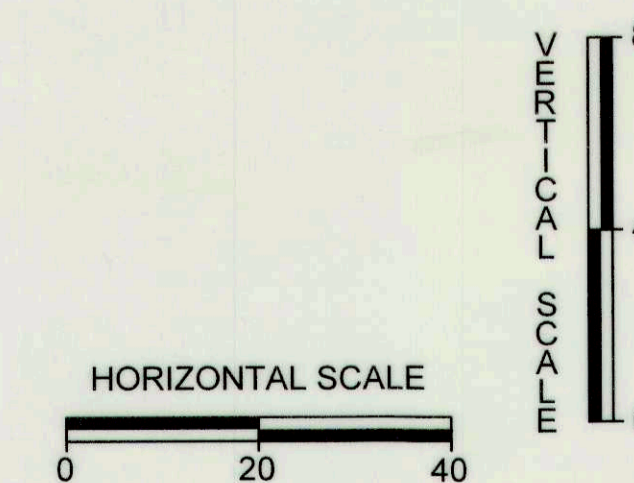
PROFILE VIEW OF TRIBUTARY



PROFILE LEGEND

- EXISTING
- PROPOSED
- COBBLE RIFFLE*
- CASCADE*
- BOULDER GRADE CONTROL*

NOTE: COBBLE RIFFLES AS SHOWN ON PROFILE REPRESENTS THE RIFFLE LENGTH SHOWN ON THE RIFFLE DETAIL. THE GLIDE AND BOULDER SECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE RIFFLE DETAIL AND THE GRADES SHOWN ON THE PROFILE.



CLIENT

HOWARD COUNTY
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

AS BUILT CERTIFICATION

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 PLANS AND SPECIFICATIONS.

NAME: DATE:

APPROVED: DEPARTMENT OF PUBLIC WORKS

[Signature]
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE: 10/25/16

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

**DAVIS BRANCH
STREAM
RESTORATION
PROJECT**

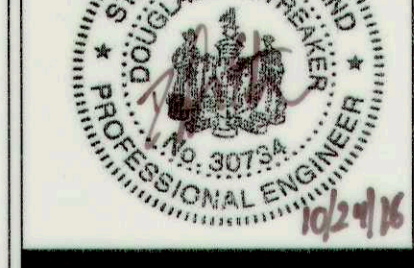
SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
ZONING: RC-DEO TAX MAP: GRD1/PARCEL: 010/0024/0316
ELECTION DISTRICT: 03 OPEN LOT: N/A
WAIVER PETITION #WP-16-156

DETAILS

PROJECT NO.: 13005.34 SCALE: AS SHOWN

SEAL: BY: KT/JC CHECK: DS/MT

DWG. NO.:

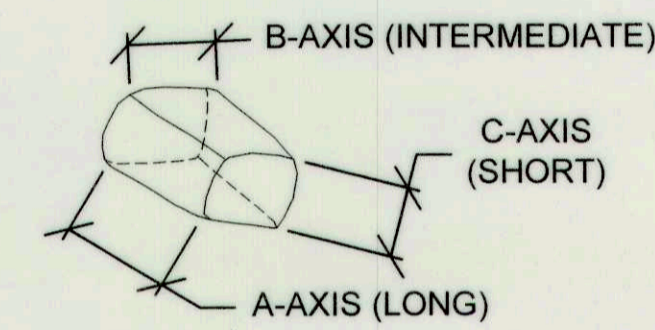


GRADATION TABLE	STREAMBED MATERIAL*			GRAVEL ALL REACHES
	RIFFLE MIX #1	RIFFLE MIX #2	RIFFLE MIX #3	
CUMULATIVE % FINER	SIZE (IN)	SIZE (IN)	SIZE (IN)	SIZE (IN)
10	1.9	2.9	4.0	1/4
15	2.2	3.3	4.7	X
30	3.1	4.7	6.6	1/2
50	4.3	6.6	9.3	1
85	6.1	9.3	13.2	2
100	6.9	10.5	14.8	3

*REFER TO PROFILE FOR ASSIGNED RIFFLE MIX FOR EACH PROPOSED STRUCTURE.
NOTE: IMPORTED GRAVEL SHALL BE INCORPORATED INTO STREAMBED MATERIAL TO FILL VOID SPACE. THE VOLUME OF GRAVEL REQUIRED MAY BE UP TO 25% OF THE STREAMBED MATERIAL VOLUME.

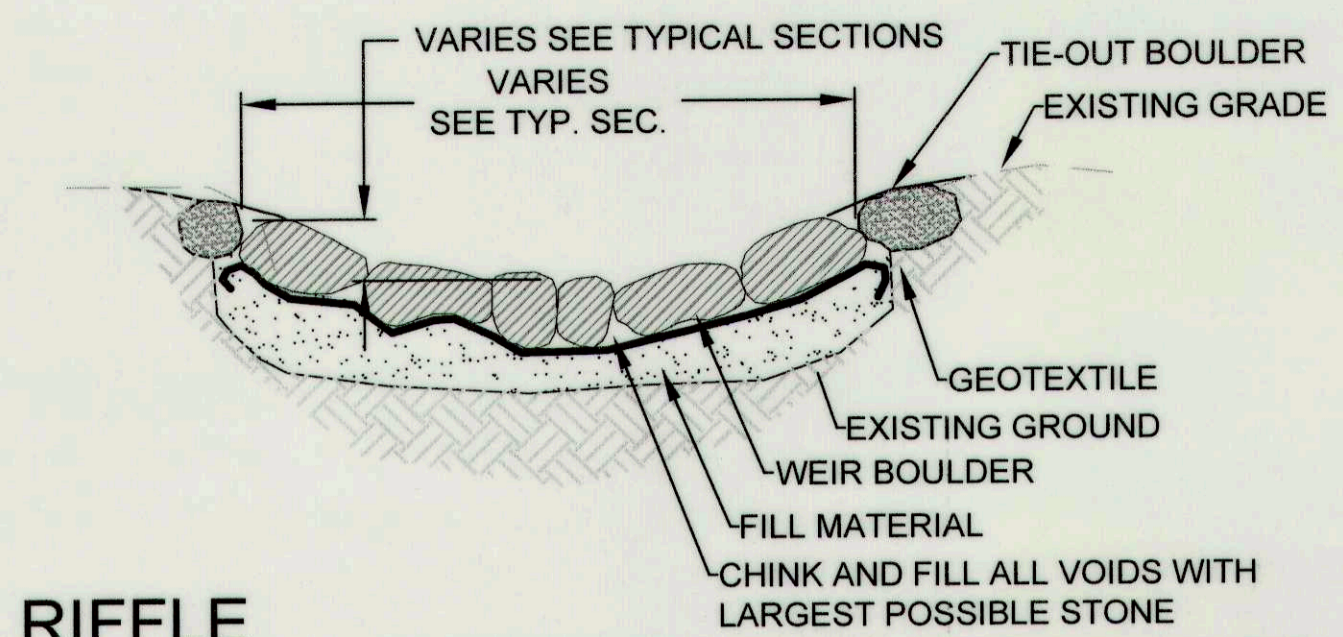
RIFFLE NOTES:

- SEE TYPICAL CROSS SECTIONS (ON THIS SHEET) FOR WIDTHS AND DEPTHS OF PROPOSED STRUCTURES.
- TIE-OUT BOULDER SHALL EXTEND A MIN. OF ONE BOULDER LENGTH INTO EXISTING BANK. WHERE THIS CONFLICTS WITH EXISTING TREE ROOTS OR BEDROCK, TIE-OUT BOULDER MAY BE ELIMINATED OR ADJUSTED AT DIRECTION OF OWNER.
- SEE TYPICAL SECTIONS FOR DEPTH AND WIDTH AT BOULDER CROSS SECTION.
- THREE (3) TO FIVE (5) RIFFLE BOULDERS SHALL BE INCORPORATED IN A RANDOM PLACEMENT WITHIN RIFFLE STRUCTURES AS FIELD DIRECTED BY THE ENGINEER.
- APRON MATERIAL SHALL CONSIST OF THE SAME SIZE CLASS OF MATERIAL AS SHOWN ABOVE. NO LIMESTONE OR ROUNDED ROCK SHALL BE USED; ONLY ANGULAR ROCK.
- NUMBER OF BOULDERS VARIES DEPENDING ON TYPICAL SECTIONS AND BOULDER DIMENSIONS.
- STREAMBED MATERIAL DEPTH IS MINIMUM 1.5' FOR 6' WIDTH AND 2' FOR 8' WIDTH RIFFLES (SEE PROFILE SHEETS).
- STREAMBED MATERIAL HARVESTED ON-SITE MAY BE SUBSTITUTED FOR IMPORTED GRAVEL AT THE DIRECTION OF THE ENGINEER.

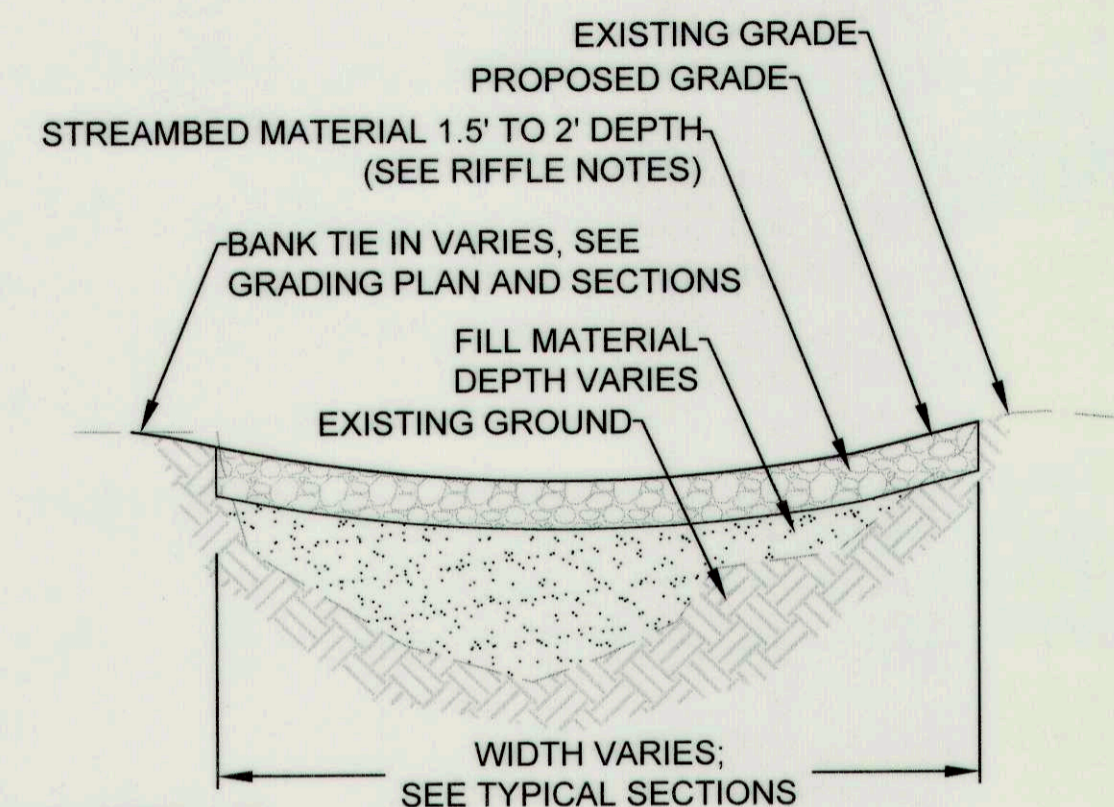


BOULDER DIMENSIONS (FT)			
BOULDER TYPE	A-AXIS	B-AXIS	C-AXIS
WEIR	2-3	2-3	1-2
FOOTER	2-3	2-3	1-2
TIE-OUT	2-3	2-3	1-2
SPLASH	2-3	2-3	1-2
RIFFLE	2-3	1-2	1-2

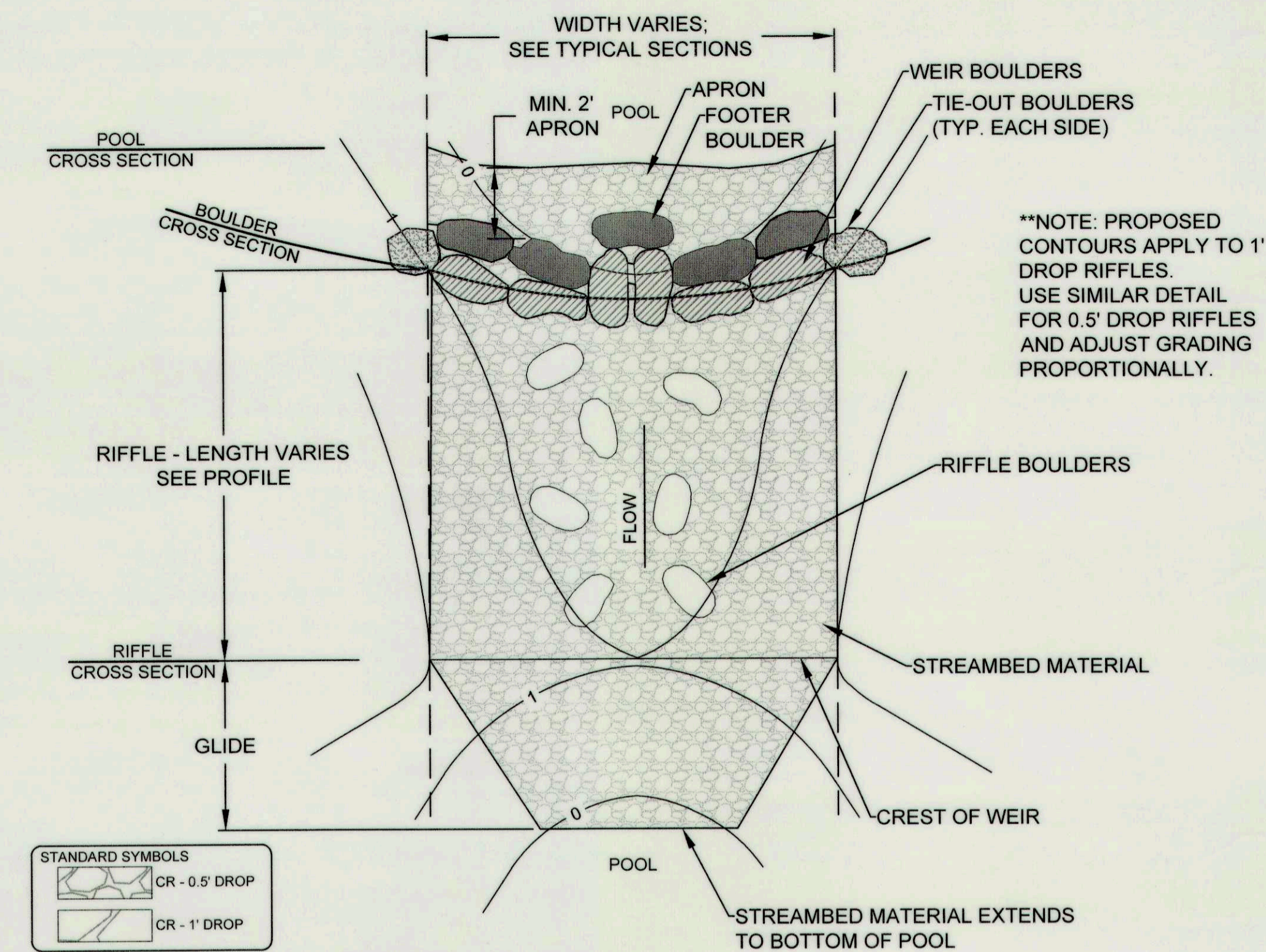
RIFFLE BOULDER AXIS NOT TO SCALE



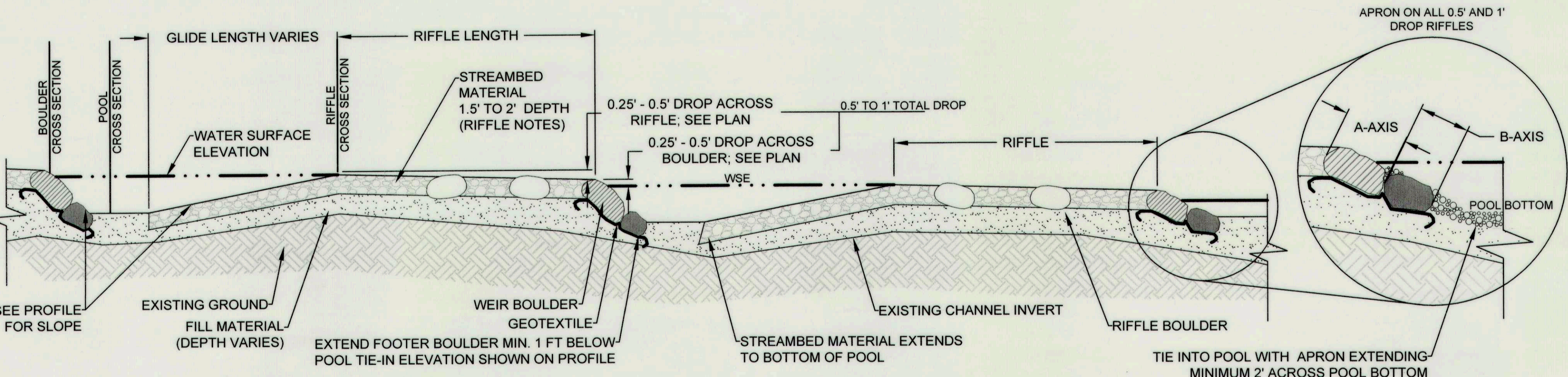
RIFFLE BOULDER CROSS SECTION NOT TO SCALE



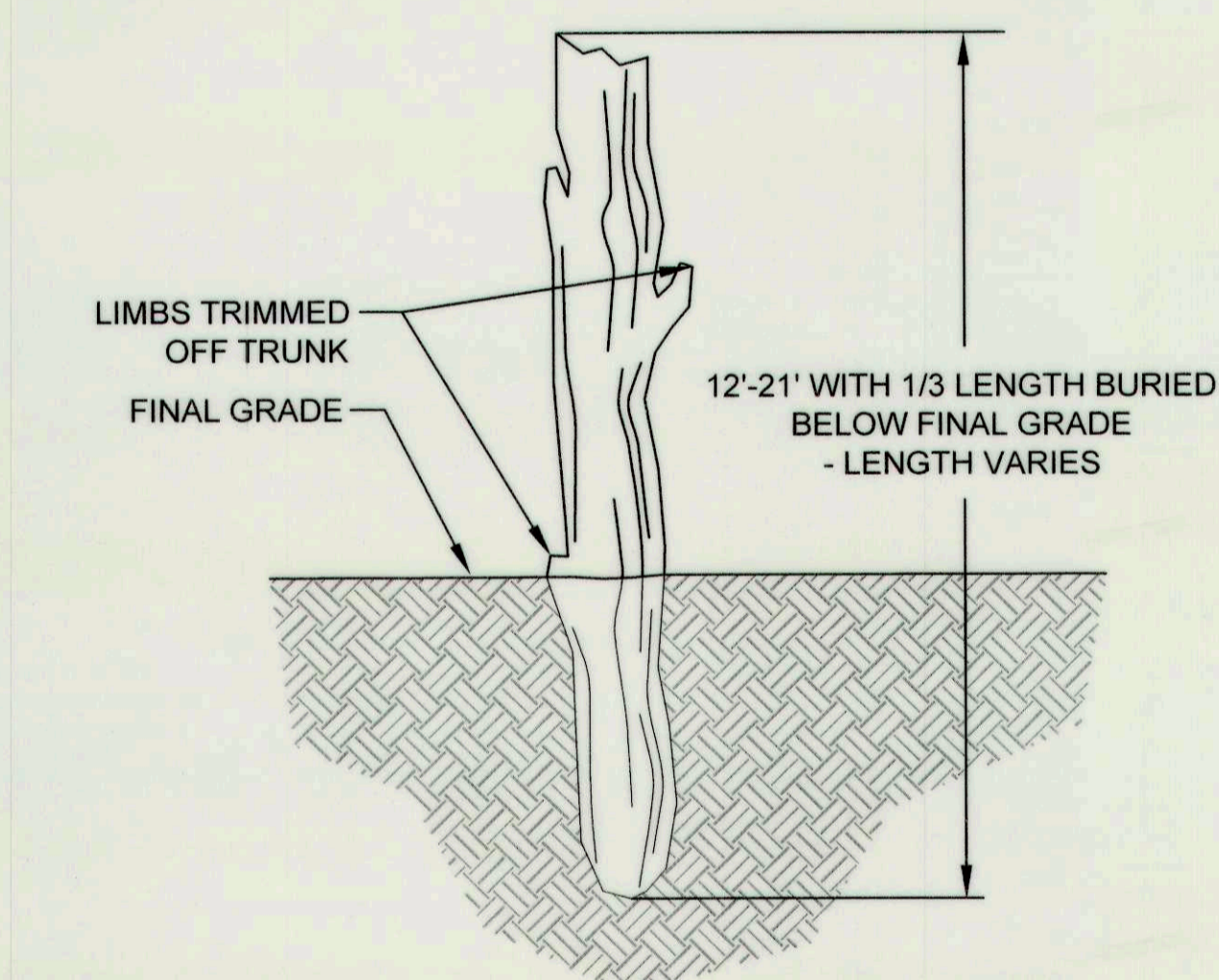
RIFFLE CROSS SECTION NOT TO SCALE



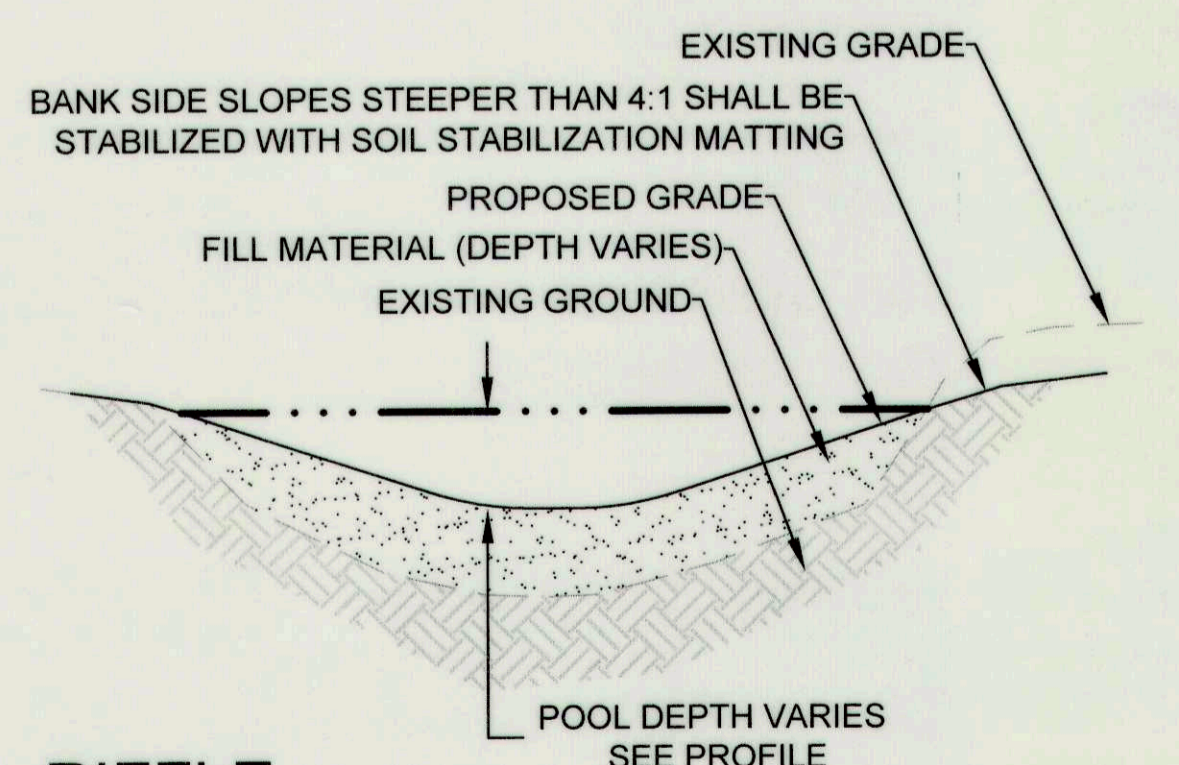
RIFFLE - 0.5' - 1' DROP PLAN VIEW NOT TO SCALE



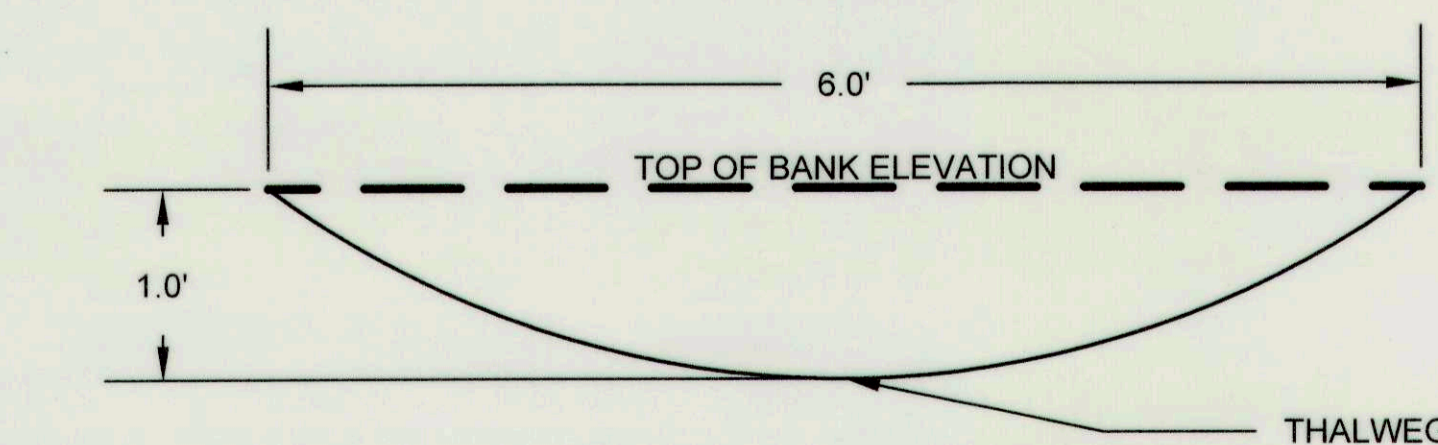
RIFFLE - 0.5' - 1' DROP PROFILE INDEX NOT TO SCALE



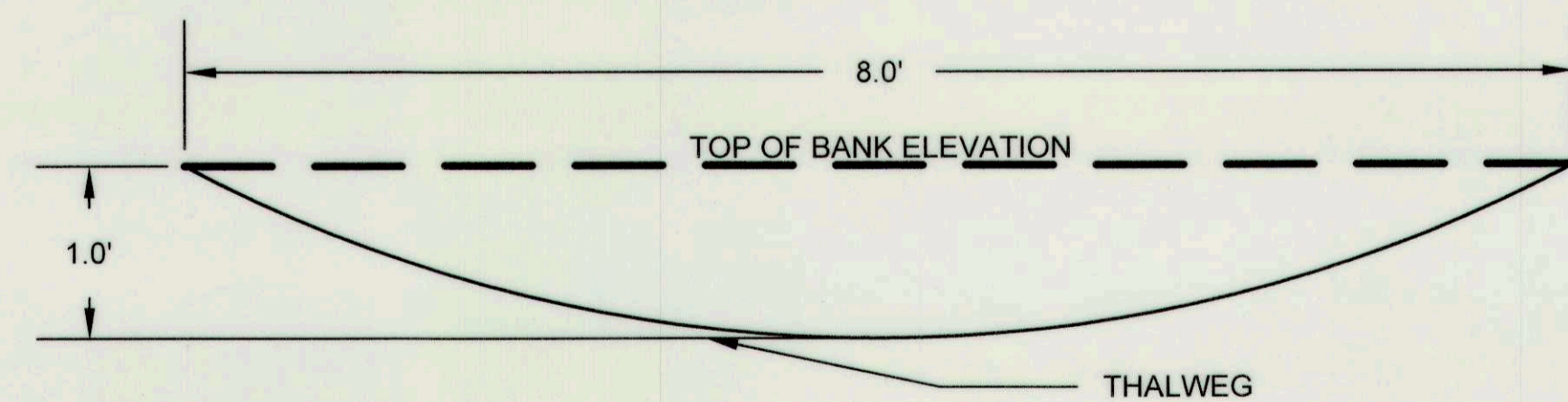
STANDING SNAG SECTION VIEW- TYPICAL NOT TO SCALE



RIFFLE POOL CROSS SECTION NOT TO SCALE



COBBLE RIFFLE TYPICAL SECTION - STA 2+97.8 TO 9+76.6 NTS



COBBLE RIFFLE AND BOULDER GRADE CONTROL TYPICAL SECTION - STA 10+13.3 TO 16+74.4 NTS

CLIENT

HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046
 PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

AS BUILT CERTIFICATION

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 PLANS AND SPECIFICATIONS.

NAME DATE

APPROVED DEPARTMENT OF PUBLIC WORKS
Mark G. P... 10/27/16
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

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

**DAVIS BRANCH
 STREAM
 RESTORATION
 PROJECT**

SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
 ZONING: RC-DEO TAX MAP/GRID/PARCEL: 010100240316
 ELECTION DISTRICT: 03 OPEN LOT: N/A
 WAIVER PETITION #WP-16-156

TITLE:

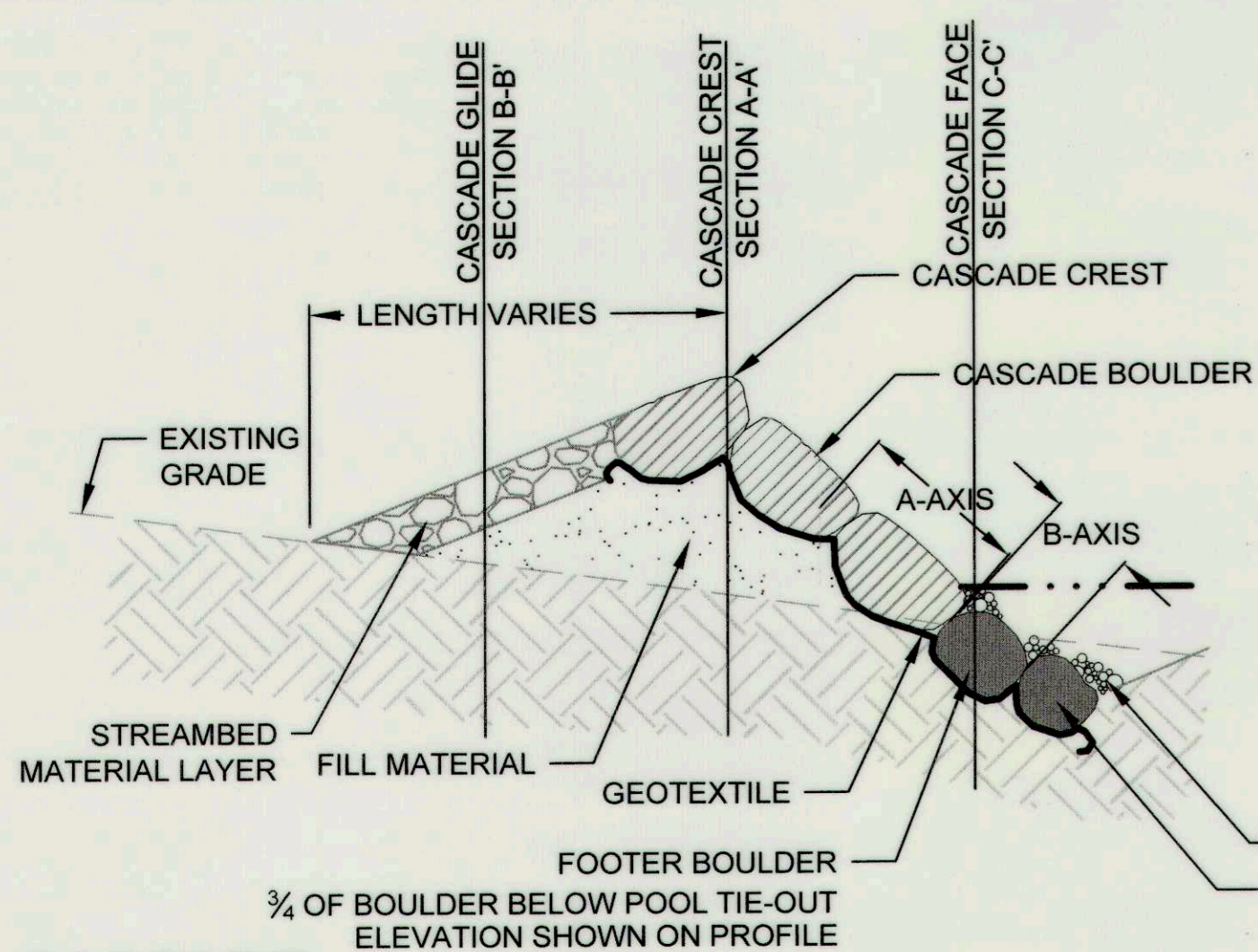
DETAILS

PROJECT NO.: 13005.34 SCALE: AS SHOWN

SEAL BY: KT/JC CHECK: DS/MT

DWG. NO.:

 15 OF 32

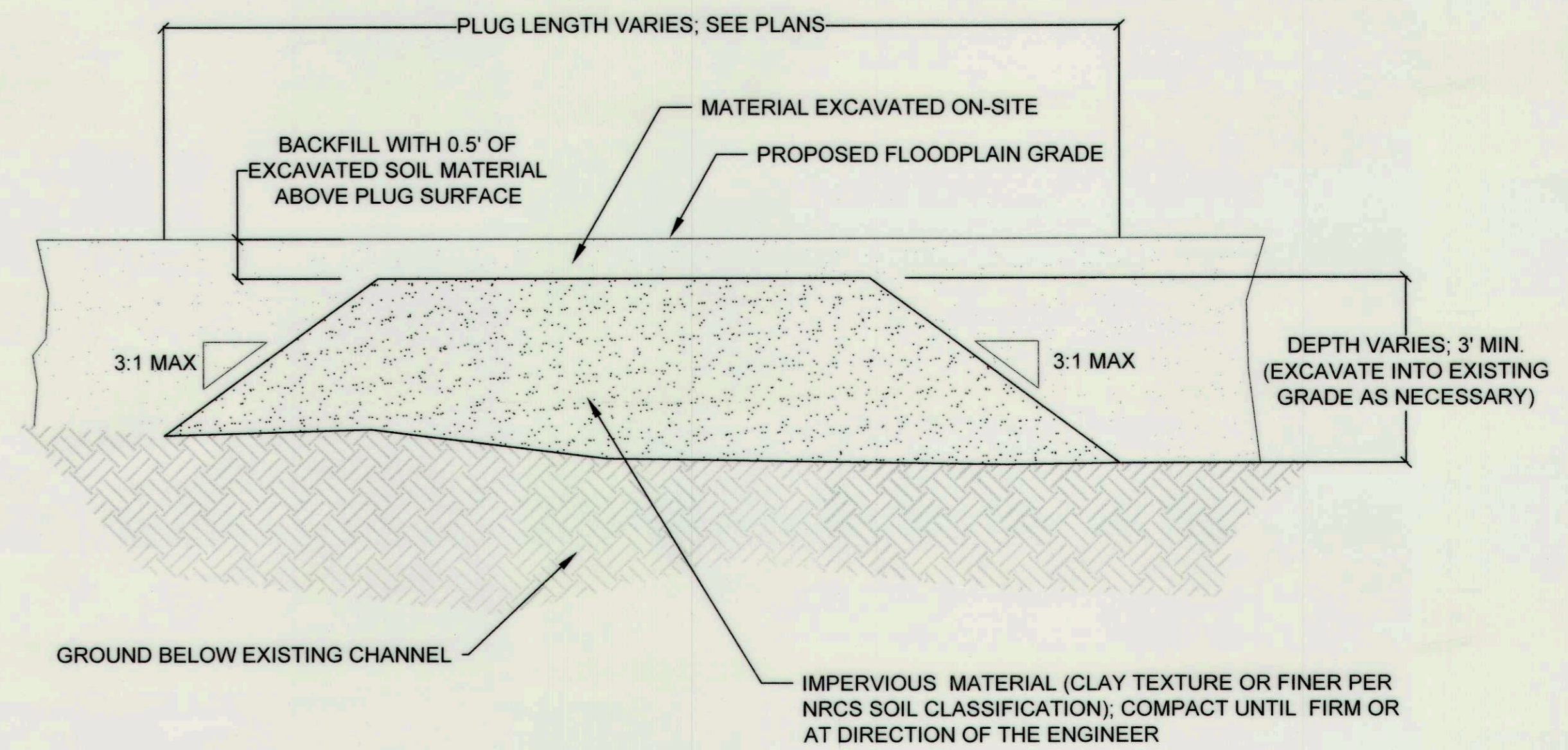


NOTES

- GAPS BETWEEN BOULDERS SHALL BE CHINKED WITH STREAMBED MATERIAL.
- TYPICALLY, CASCADE BOULDER A-AXIS WILL BE ORIENTED IN DIRECTION OF FLOW; FOOTER BOULDERS A-AXIS WILL BE ORIENTED PERPENDICULAR TO FLOW.
- SEE SPECIFICATIONS FOR STREAMBED MATERIAL SIZE AND DEPTH.
- PARABOLIC CROSS SECTION SHAPE SHALL BE MAINTAINED ACROSS ENTIRE CASCADE LENGTH.

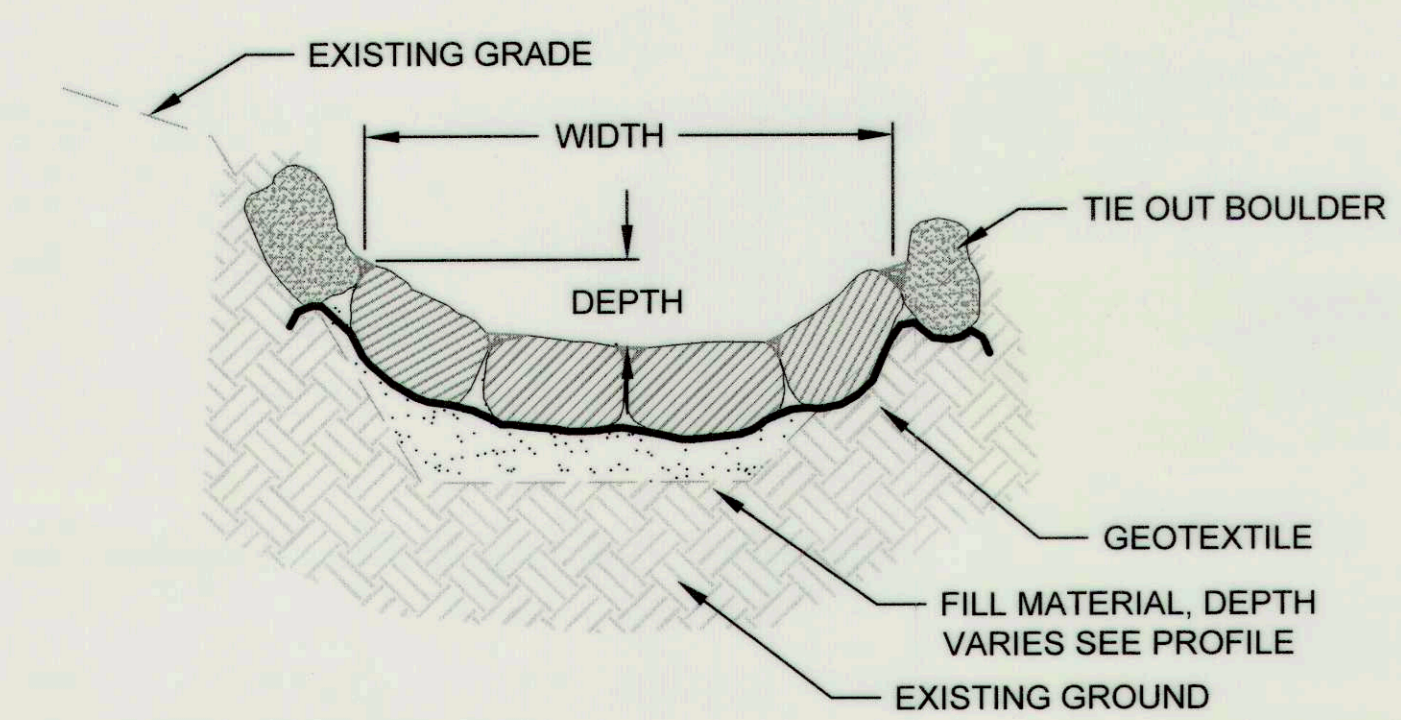
**CASCAD
 CENTERLINE PROFILE**

NOT TO SCALE



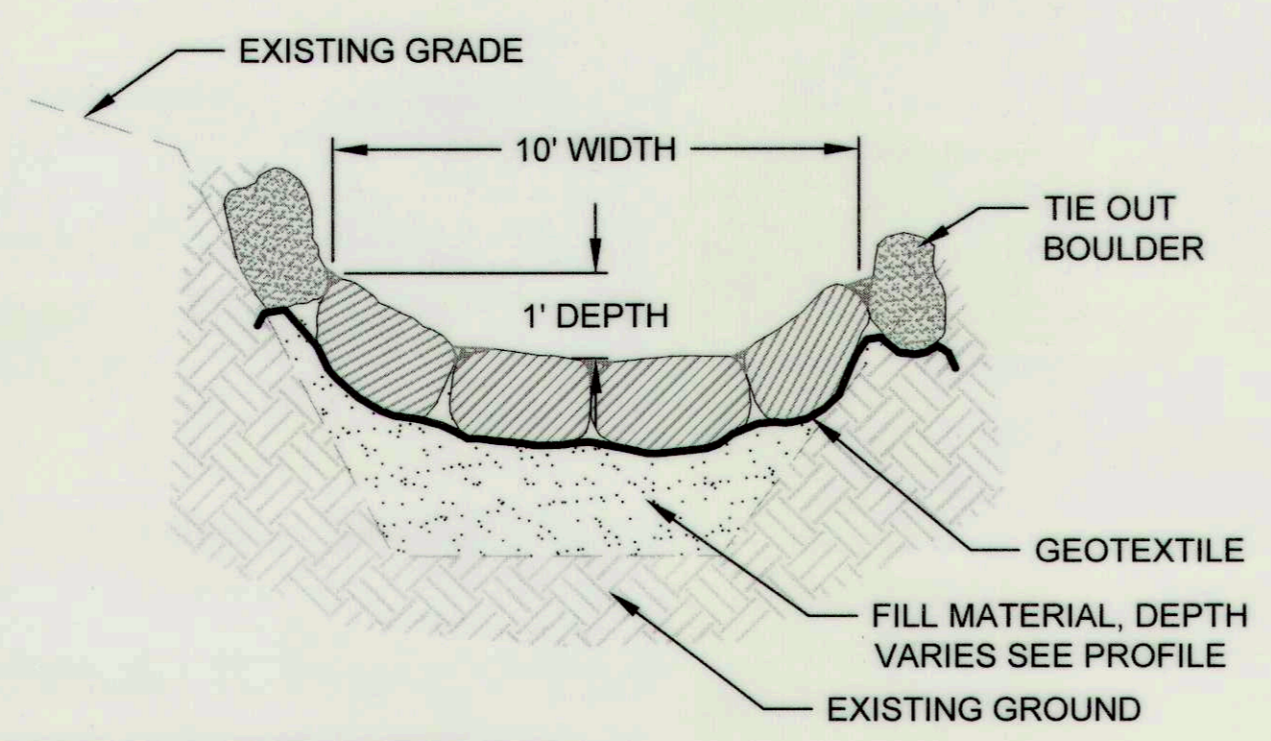
**IMPERVIOUS CHANNEL PLUG
 PROFILE**

NOT TO SCALE



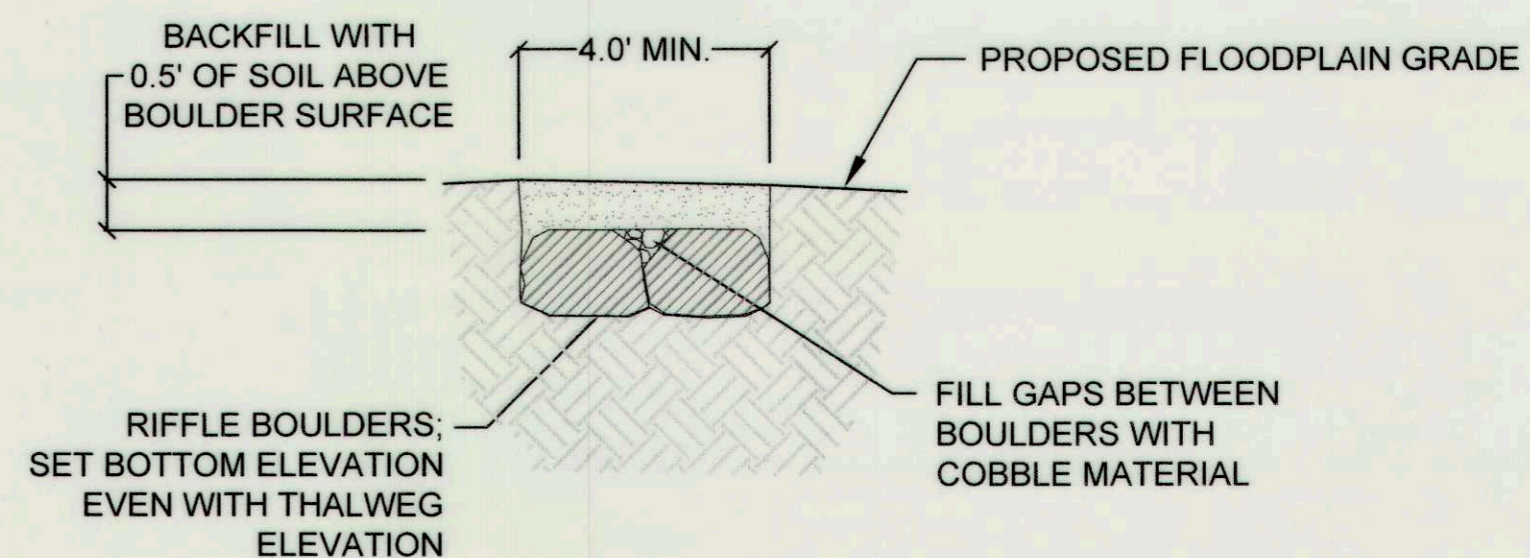
**CASCAD FACE
 SECTION C-C'**

NOT TO SCALE



**CASCAD CREST
 SECTION A-A'**

NOT TO SCALE

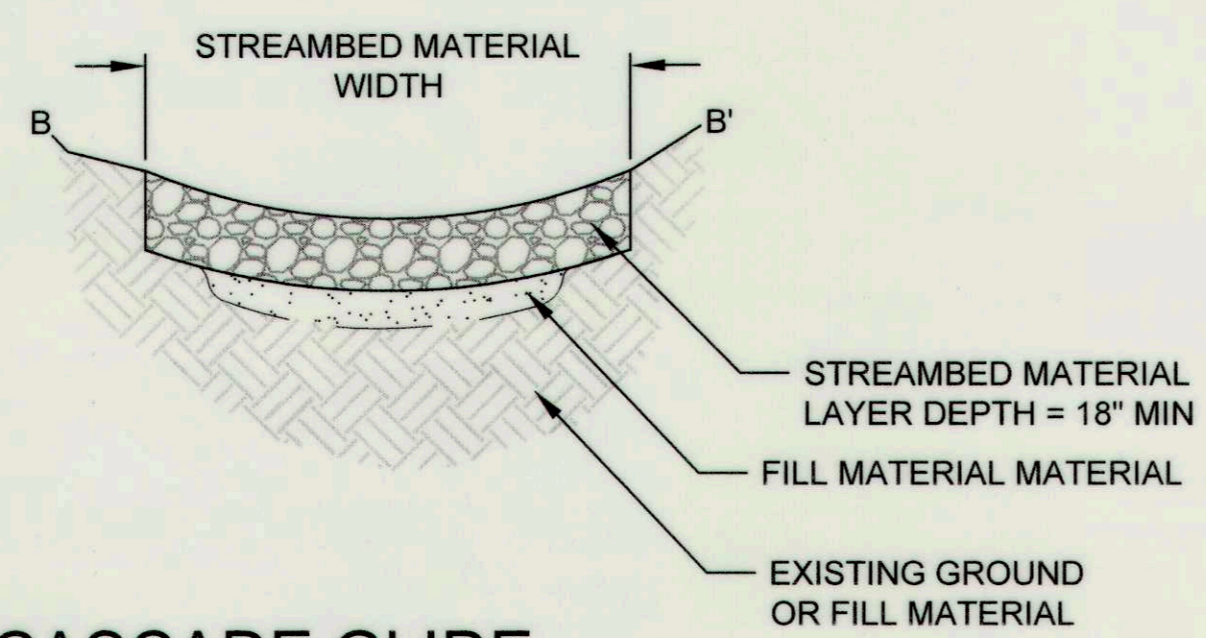


**BURIED BOULDER SILL
 SECTION**

NOT TO SCALE

CASCAD NOTES

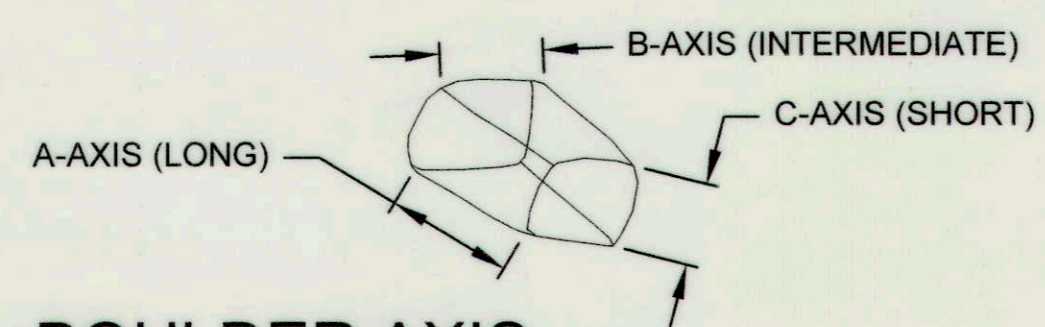
- GAPS BETWEEN BOULDERS SHALL BE CHINKED WITH STREAMBED MATERIAL.
- TYPICALLY, CASCADE BOULDER A-AXIS WILL BE ORIENTED IN DIRECTION OF FLOW AND FOOTER BOULDER A-AXIS WILL BE ORIENTED PERPENDICULAR TO FLOW.
- DEPTH OF STREAMBED MATERIAL = 1.0'
- SEE TYPICAL SECTION FOR DEPTH AND WIDTH AT CASCADE CREST.
- TYPICAL SECTION TO BE APPLIED THROUGHOUT LENGTH OF CASCADE.
- NUMBER OF BOULDERS VARIES DEPENDING ON TYPICAL SECTION AND BOULDER DIMENSIONS.
- STREAMBED MATERIAL FOR CASCADE GLIDES SHALL CONFORM TO GRADATION TABLE ON RIFFLE DETAIL FOR 1' DROPS.



**CASCAD GLIDE
 SECTION B-B'**

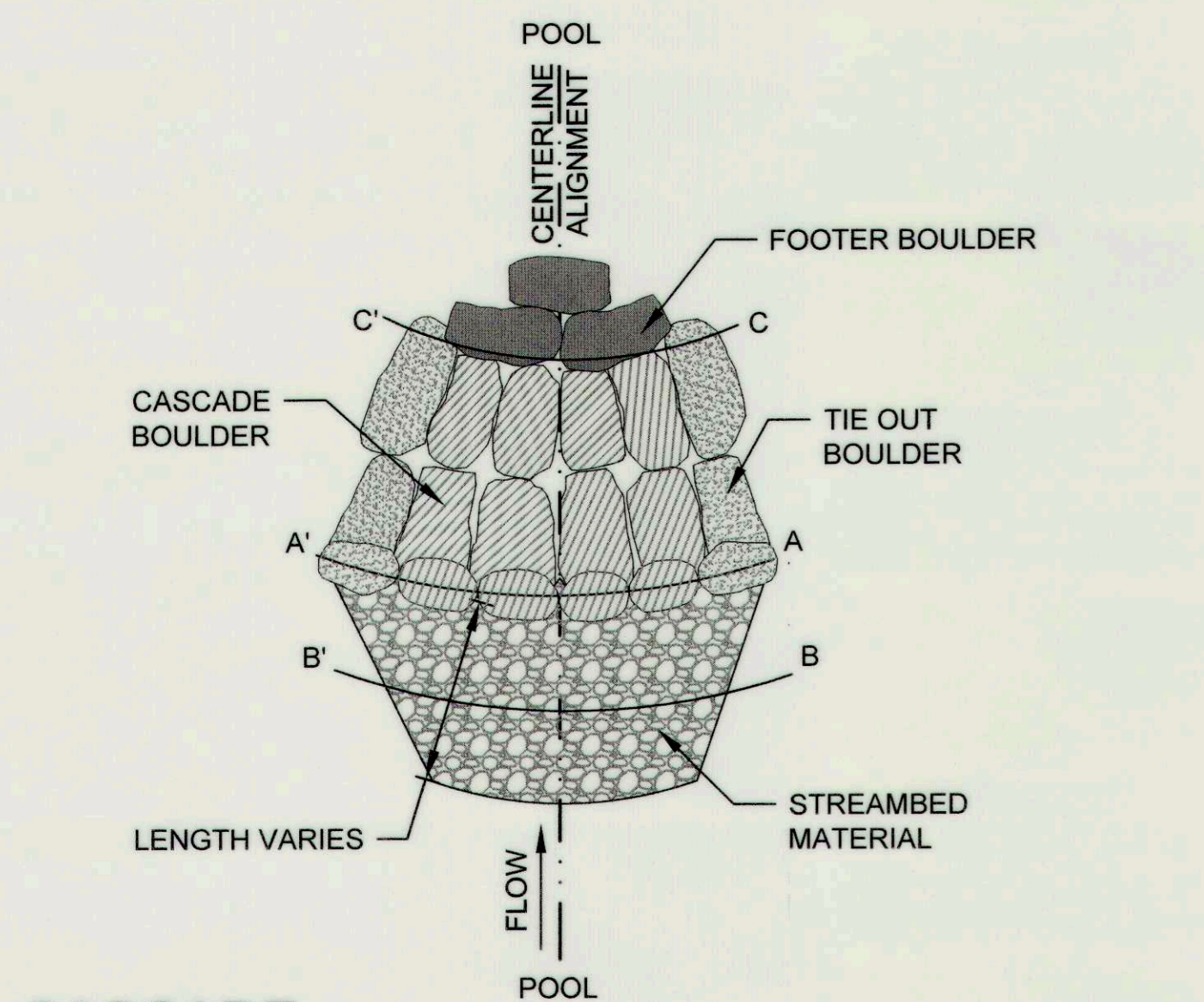
NOT TO SCALE

BOULDER DIMENSIONS (FT)			
	A-AXIS	B-AXIS	C-AXIS
CASCAD	3-4'	2.5-3.5'	1.5-2'
FOOTER	3-4'	2.5-3.5'	1.5-2'
TIE-OUT	2.5-3.5'	2.0-3.0'	1.5-2'



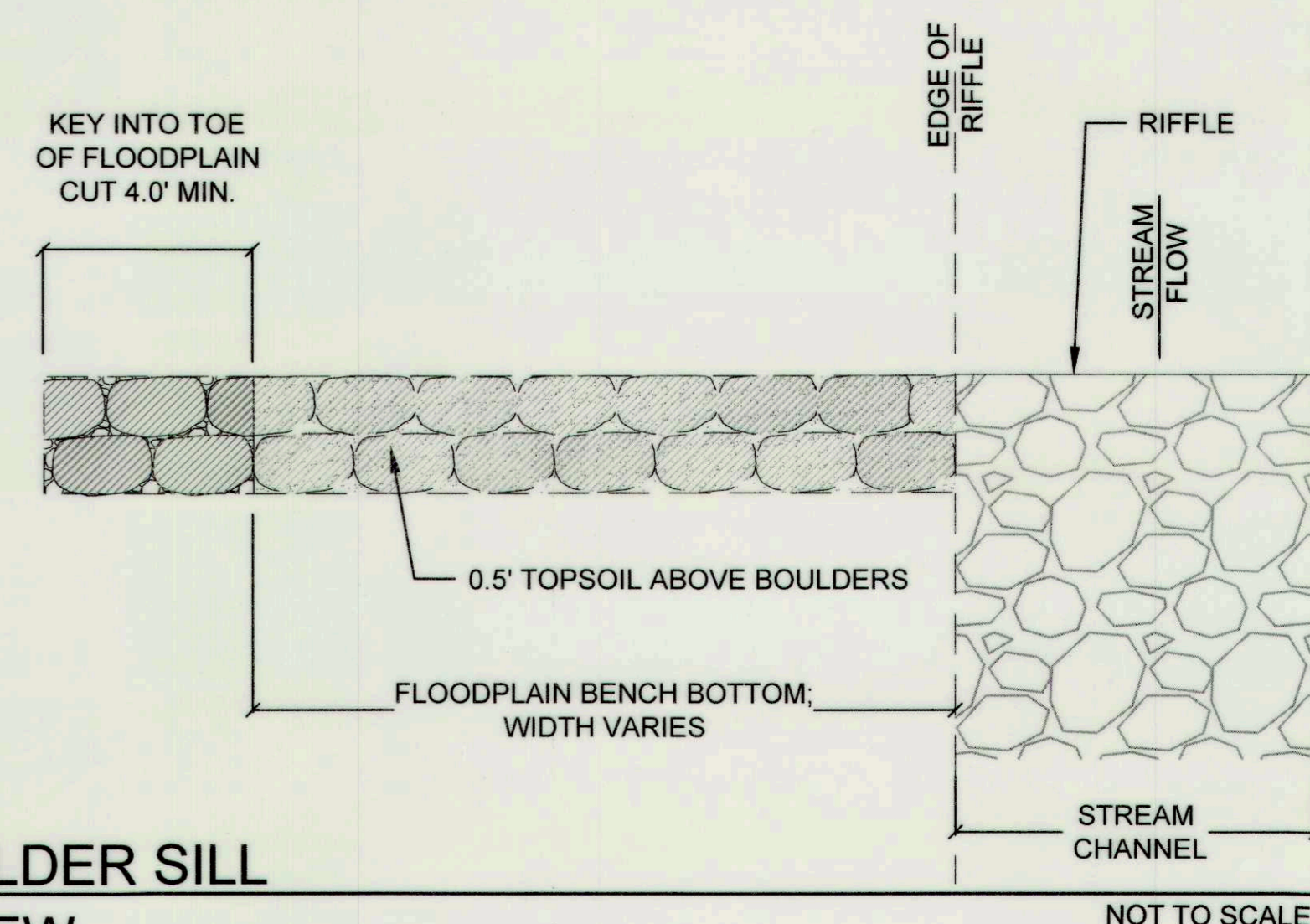
BOULDER AXIS

NOT TO SCALE



**CASCAD
 PLAN VIEW**

NOT TO SCALE



**BURIED BOULDER SILL
 TOP PLAN VIEW**

NOT TO SCALE

CLIENT

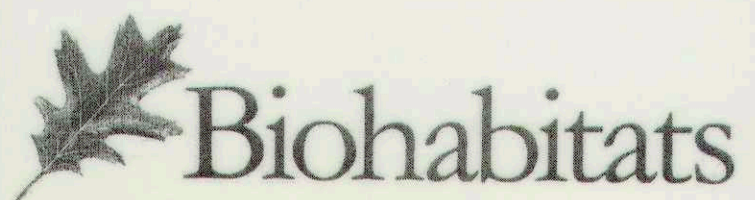
HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046
 PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

AS BUILT CERTIFICATION
 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 PLANS AND SPECIFICATIONS.

NAME: DATE:

APPROVED: DEPARTMENT OF PUBLIC WORKS
Michael A. ... DATE: *12/20/16*
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES



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

**DAVIS BRANCH
 STREAM
 RESTORATION
 PROJECT**

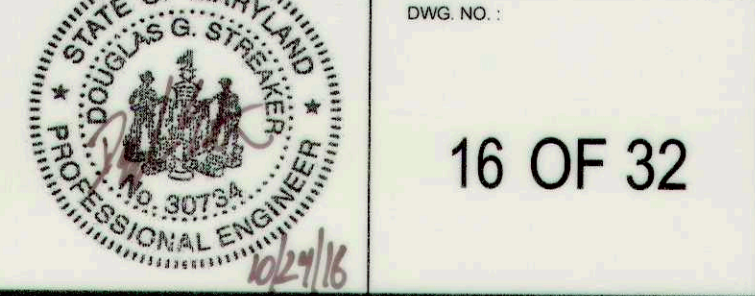
SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
 ZONING: RC-DEO TAX MAP/GRID/PARCEL: 0100024/0316
 ELECTION DISTRICT: 03 OPEN LOT N/A
 WAIVER PETITION #WP-16-156

TITLE:

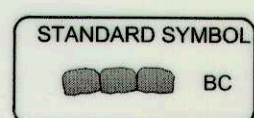
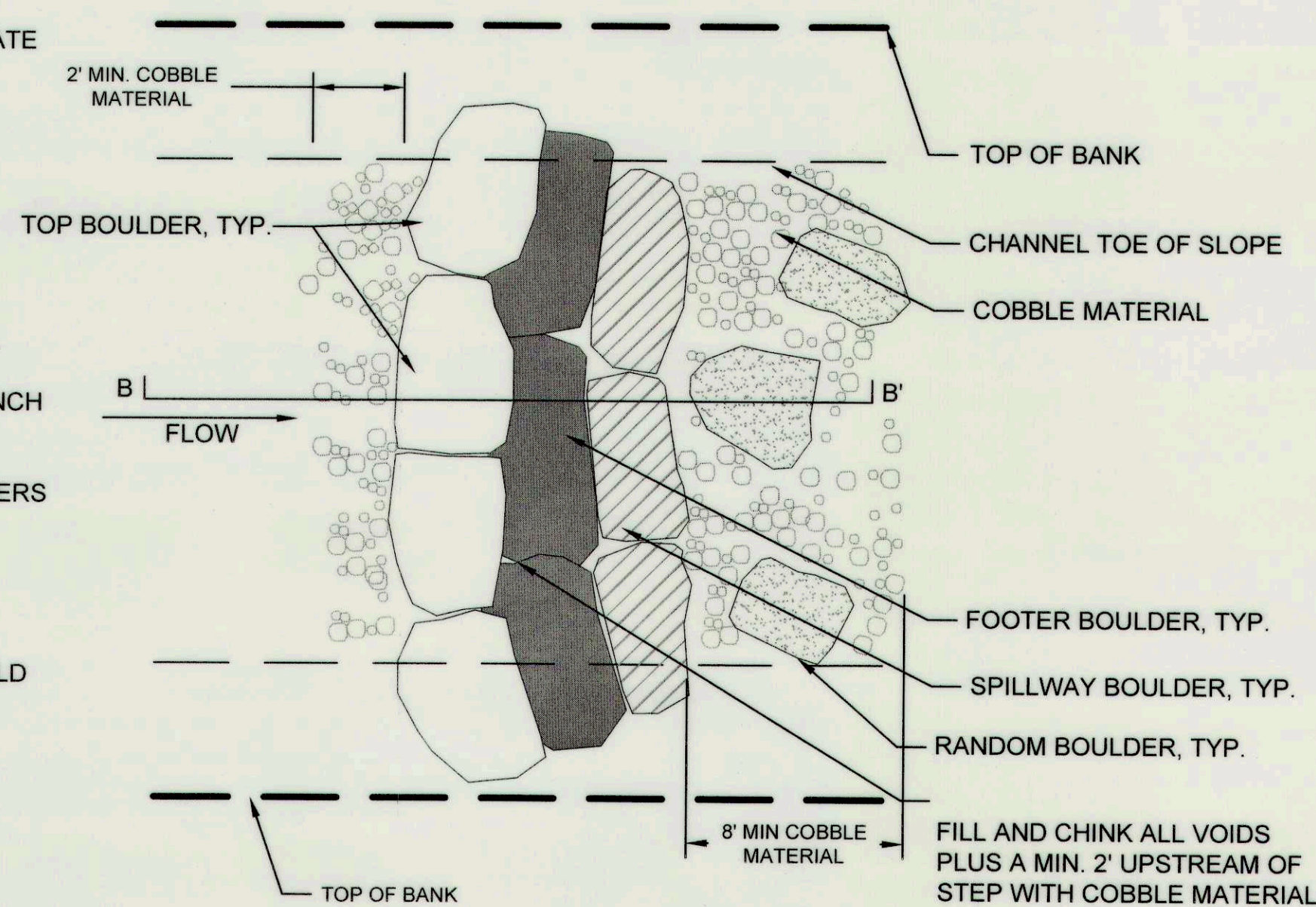
DETAILS

PROJECT NO.: 13005.34 SCALE: AS SHOWN

SEAL: BY: KT/JC CHECK: DS/MT

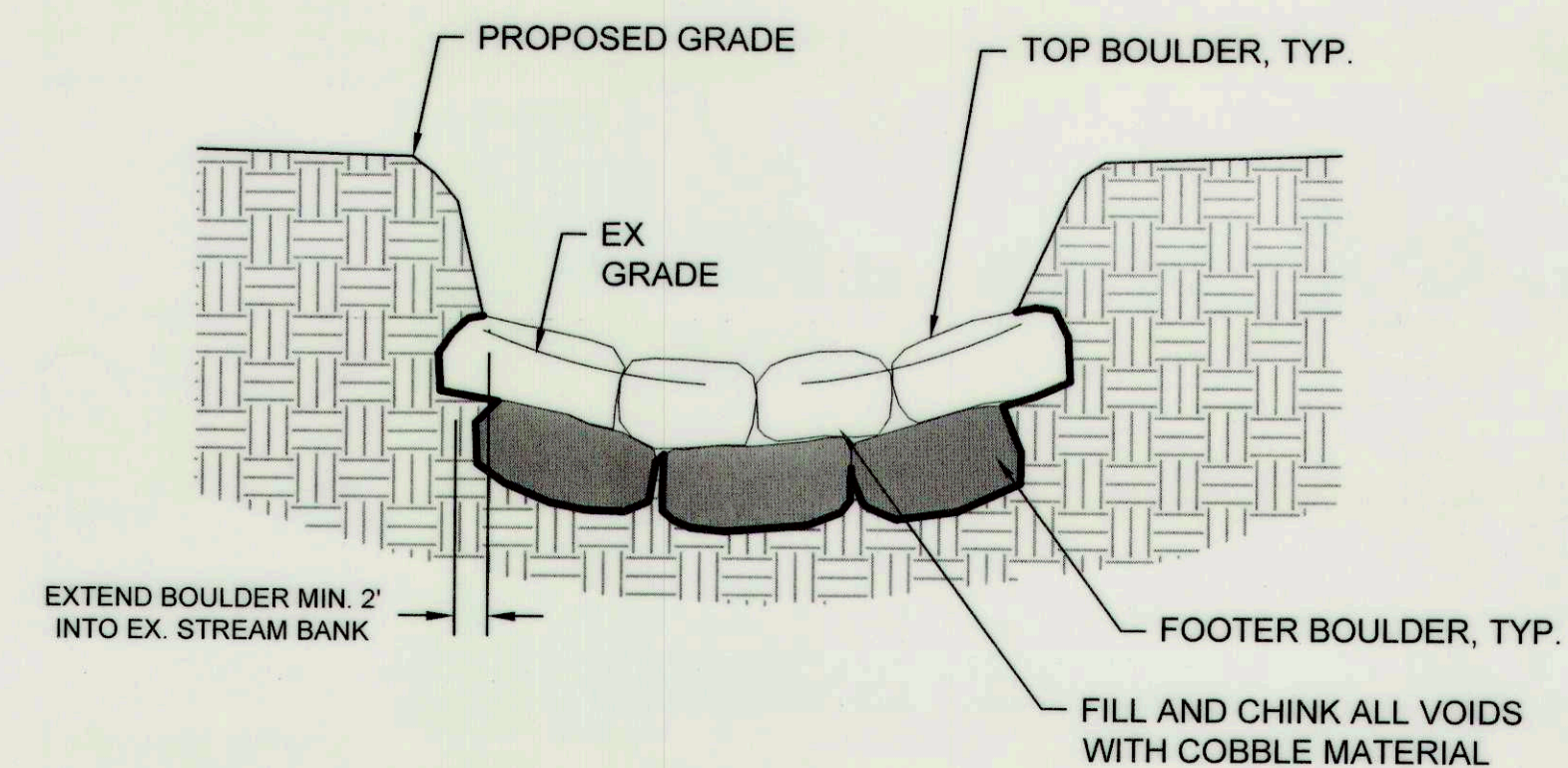


- NOTES:
- BOULDERS SHALL BE INTERLOCKED AND SHALL NOT ROCK OR ROTATE IN POSITION ONCE INSTALLED.
 - PLACEMENT OF TOP BOULDERS MUST BRIDGE SEAMS BETWEEN FOOTER BOULDERS BY 1/3 BOULDER WIDTH.
 - SEE "BOULDER" TABLE AND "COBBLE" STREAMBED MATERIAL GRADATION TABLE FOR MATERIAL PROPERTIES.
 - PLACE GEOTEXTILE ON THE UPSTREAM FACE OF THE BOULDERS ALONG THE STRUCTURES ENTIRE LENGTH AND BELOW THE FOOTERS.
 - COBBLE MATERIAL SHALL BE PLACED WITHIN FULL LENGTH OF TRENCH UPSTREAM OF FOOTER AND TOP BOULDERS.
 - SET TOP BOULDER(S) AT THALWEG 0.2' LOWER THAN OTHER BOULDERS TO FORM A LOW FLOW CHANNEL.
 - BOULDER SILL SHALL EXTEND A MINIMUM OF 2 FEET INTO STREAM BANKS.
 - RANDOM BOULDERS SHALL BE EMBEDDED INTO STREAMBED AS FIELD DIRECTED BY THE ENGINEER TO A DEPTH OF 2/3 THE SHORT (C) AXIS LENGTH.
 - TOP BOULDER ELEVATIONS SHALL FOLLOW PARABOLIC SHAPE OF TYPICAL SECTION TO THE EXTENT POSSIBLE.



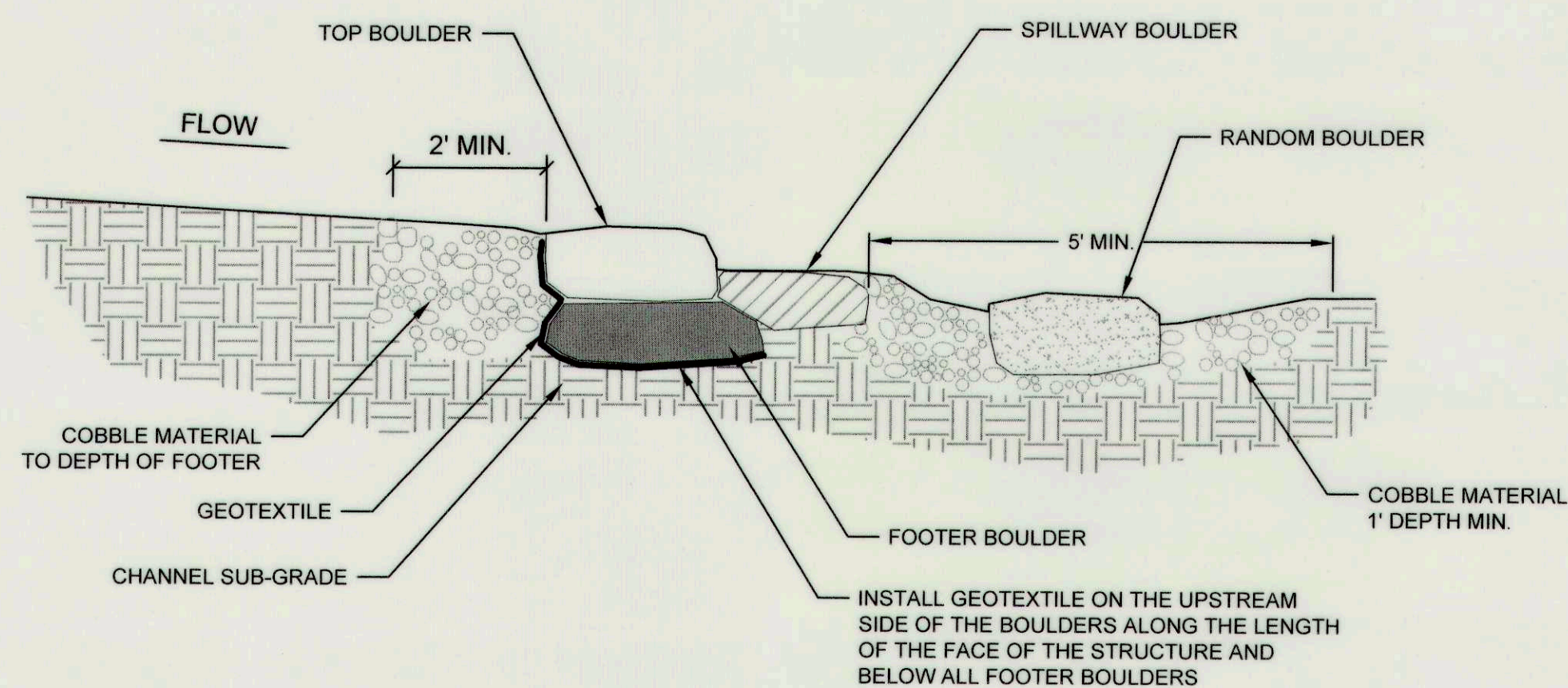
**BOULDER GRADE CONTROL
 PLAN**

N.T.S.



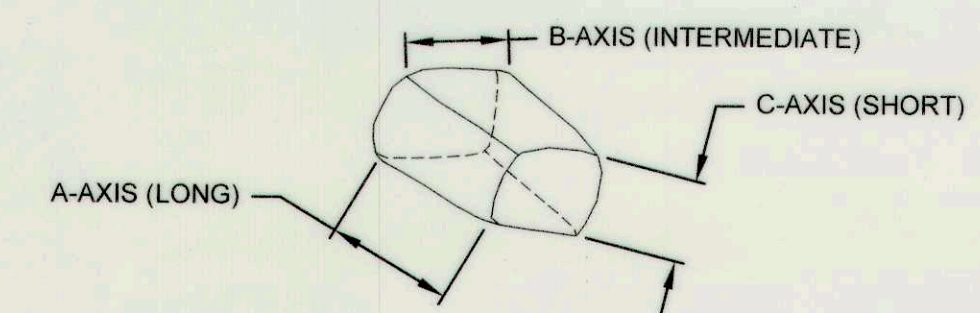
**BOULDER GRADE CONTROL
 SECTION**

NOT TO SCALE



**BOULDER GRADE CONTROL
 SECTION B-B'**

NOT TO SCALE



**BOULDER GRADE CONTROL
 BOULDER AXIS**

NOT TO SCALE

BOULDER DIMENSIONS (FT)			
BOULDER TYPE	A-AXIS DIMENSION	B-AXIS DIMENSION	C-AXIS DIMENSION
TOP	2-3 FT	2-3 FT	1-2 FT
FOOTER	2-3 FT	2-3 FT	1-2 FT
SPILLWAY	2-3 FT	2-3 FT	1-2 FT
RANDOM	2-3 FT	2-3 FT	1-2 FT

CLIENT

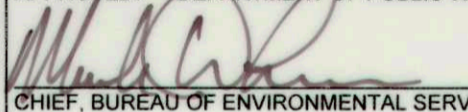
HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046
 PHONE: (410) 313-0522

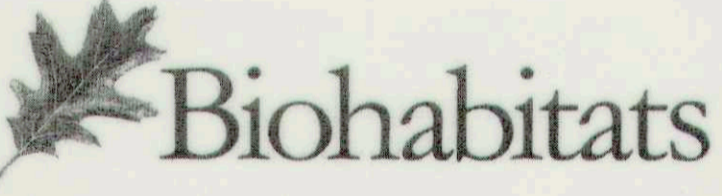
DATE: ISSUES / REVISIONS

AS BUILT CERTIFICATION

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 PLANS AND SPECIFICATIONS.

NAME DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE



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

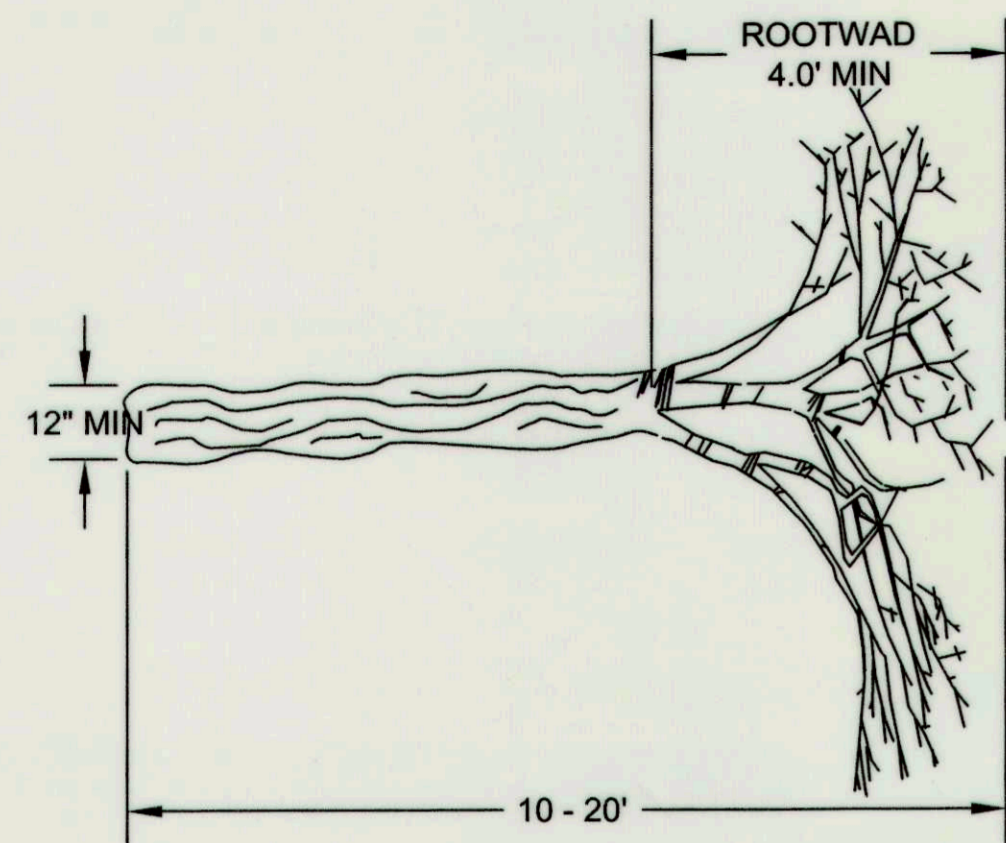
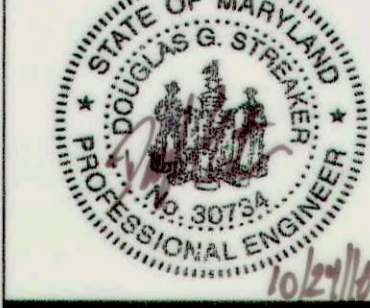
**DAVIS BRANCH
 STREAM
 RESTORATION
 PROJECT**

SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
 ZONING: RC-DEU TAX MAP/GRID/PARCEL: 01010024/0316
 ELECTION DISTRICT: 03 OPEN LOT N/A
 WAIVER PETITION #WP-16-156

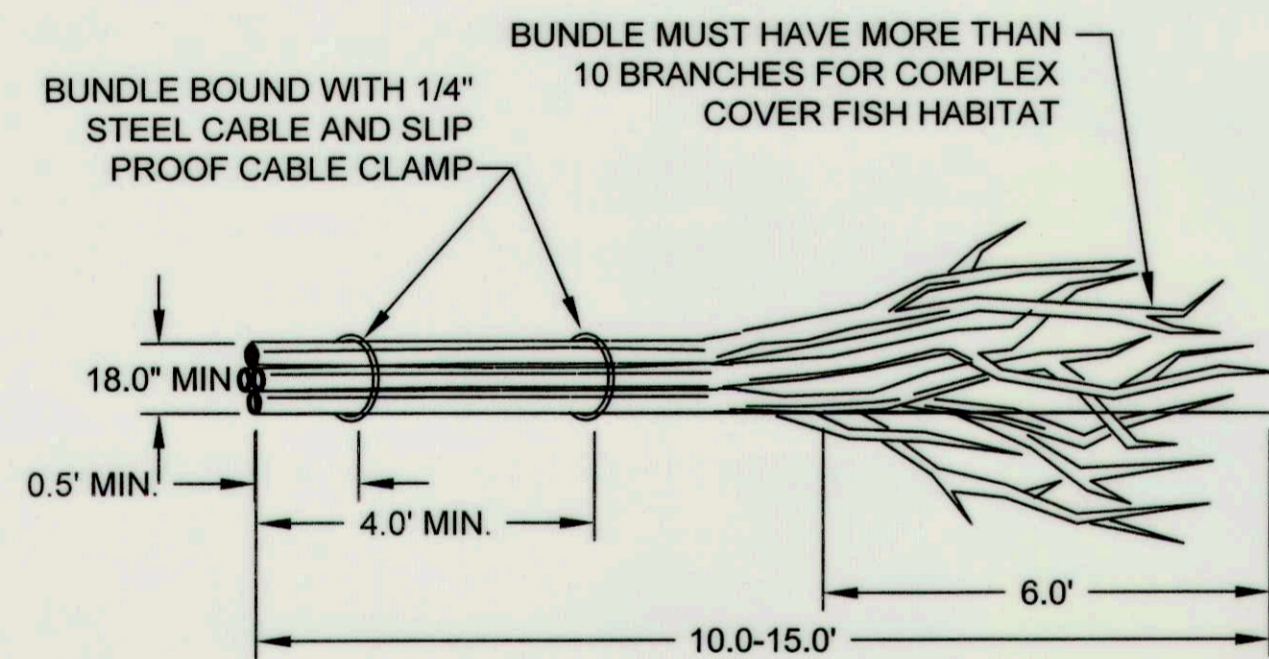
DETAILS

PROJECT NO: 13005.34 SCALE: AS SHOWN

SEAL: BY: KT/JC CHECK: DS/MT
 DWG NO:

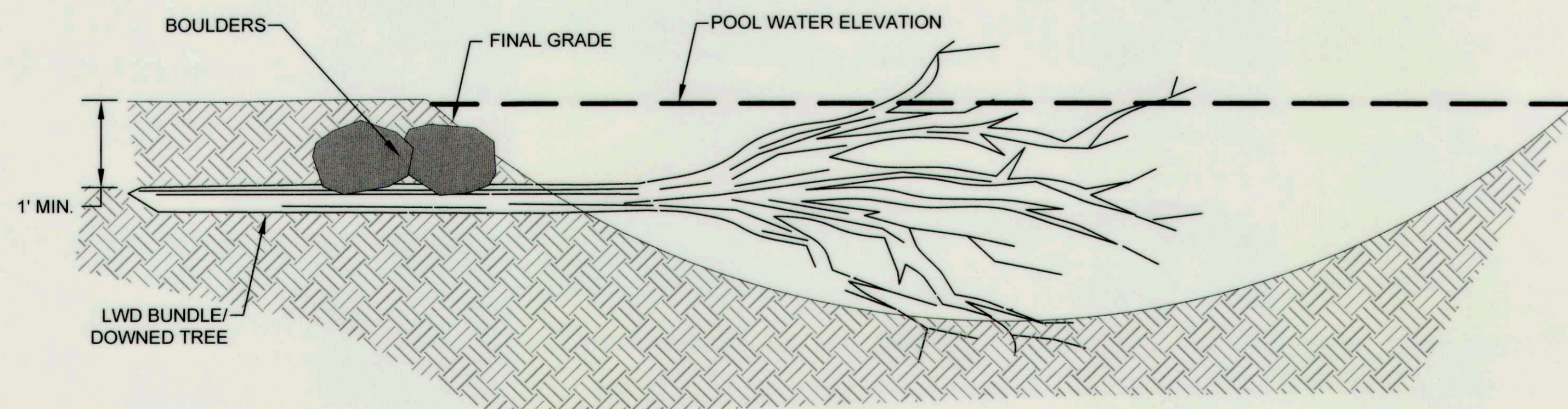


**INSTREAM LARGE WOODY DEBRIS (LWD)
 DOWNED LOG** NOT TO SCALE

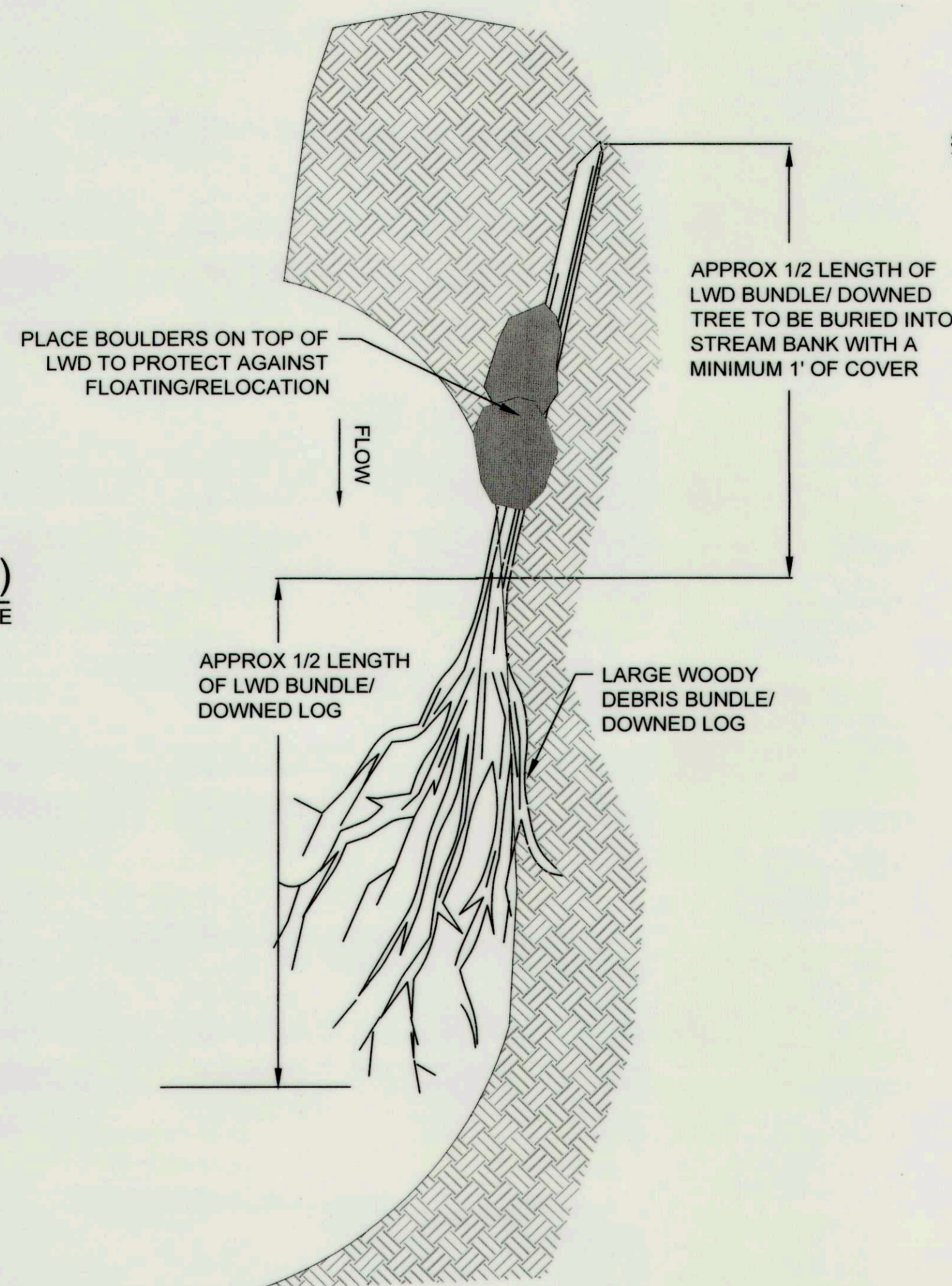


- NOTES:
1. BASED ON AVAILABLE ON-SITE WOODY MATERIALS, OR MATERIALS OF OPPORTUNITY, INSTALL IN-STREAM LARGE WOODY DEBRIS, TWO PER POOL AT LOCATIONS DETERMINED BY OWNER
 2. PARTIALLY BURY ONSITE LWD INTO THE STREAM BANK APPROXIMATELY 1/2 OF TOTAL LENGTH TO SECURE IN PLACE AS DIRECTED BY THE OWNER.
 3. IF DOWNED LOG IS BEING USED INSTEAD OF LWD, THE ROOTWAD SHALL BE PLACED WHERE BRANCHES ARE INDICATED ON THIS SHEET.

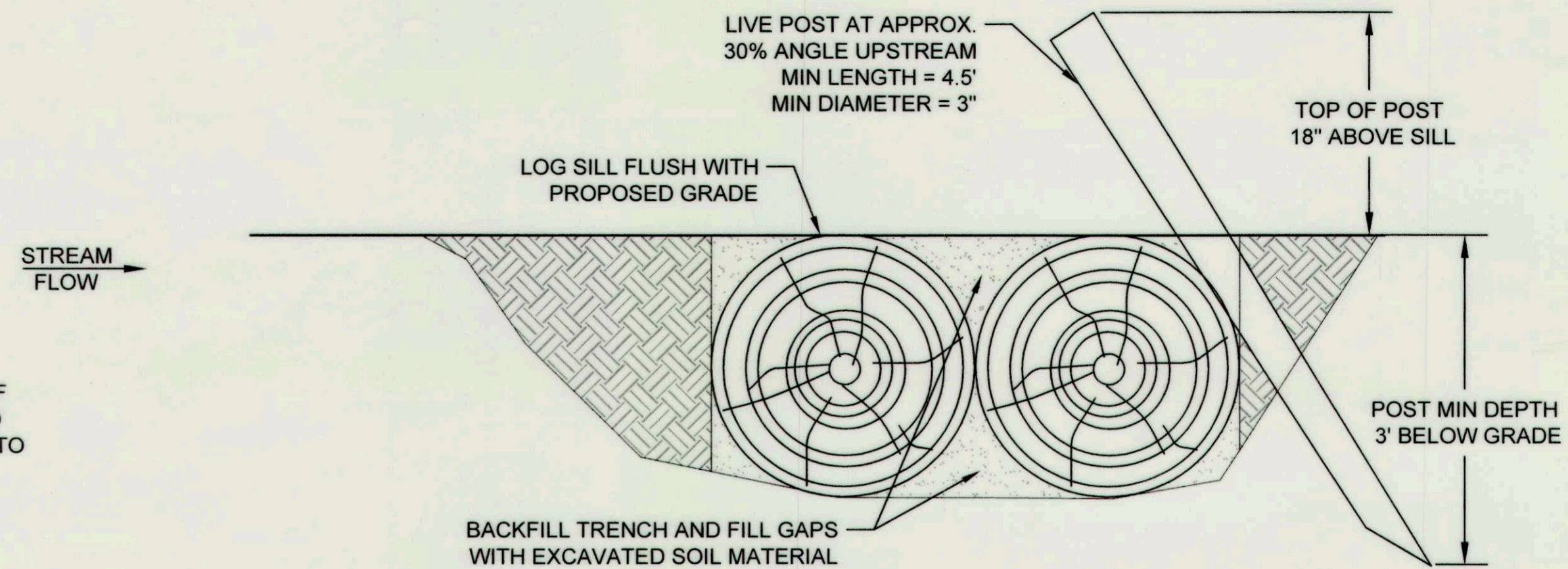
**INSTREAM LARGE WOODY DEBRIS (LWD)
 LARGE WOODY DEBRIS BUNDLE** NOT TO SCALE



**INSTREAM LARGE WOODY DEBRIS (LWD)
 CROSS SECTION** NOT TO SCALE

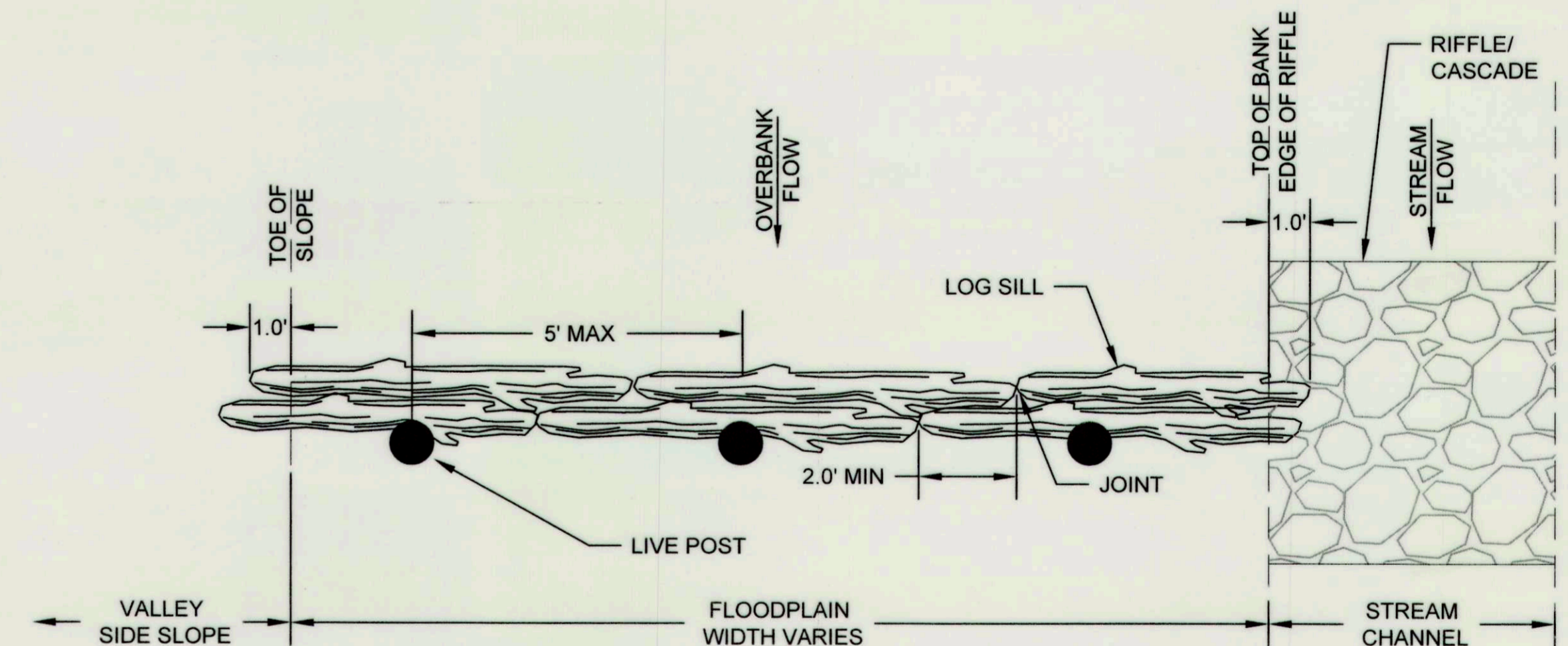


**INSTREAM LARGE WOODY DEBRIS (LWD)
 PLAN VIEW- TYPICAL** NOT TO SCALE



- NOTES:
1. SILL SHALL TIE BACK INTO VALLEY SLOPE 1' MINIMUM.
 2. SILLS SHALL BE FIELD LOCATED TO AVOID SIGNIFICANT IMPACTS TO EXISTING ROOT STRUCTURES, AT DIRECTION OF ENGINEER.
 3. INSTALLATION OF SILLS SHALL INCLUDE MINIMAL EXCAVATION. EXCAVATE TRENCH ONLY AS NECESSARY TO INSTALL SILL.
 4. JOINTS BETWEEN 2 ABUTTING LOGS SHALL BE STAGGERED SO THAT THEY ARE NO CLOSER THAN 2' FROM JOINTS ON SECOND ROW.
 5. LOG SILL SHALL SLOPE FROM TOE OF VALLEY SLOPE TO EDGE OF RIFFLE FOLLOWING SLOPE OF EXISTING GROUND.
 6. LIVE POSTS SHALL BE INSTALLED EVERY 5' MAX SPACING, NOT LOCATED AT JOINT BETWEEN 2 LOGS.

**LOG SILL
 SECTION VIEW** NOT TO SCALE



**LOG SILL
 PLAN VIEW** NOT TO SCALE

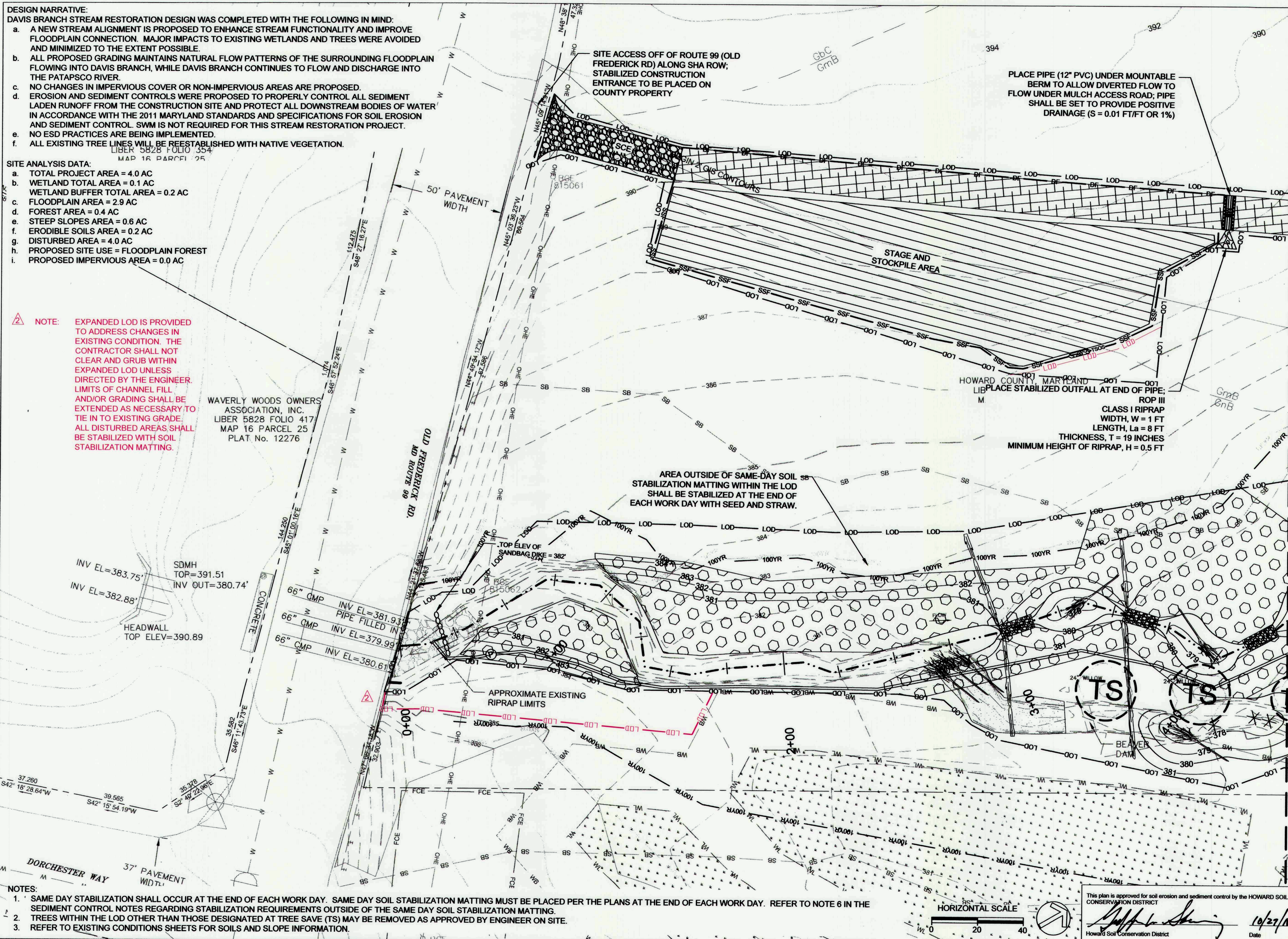
DESIGN NARRATIVE:

- DAVIS BRANCH STREAM RESTORATION DESIGN WAS COMPLETED WITH THE FOLLOWING IN MIND:
- A NEW STREAM ALIGNMENT IS PROPOSED TO ENHANCE STREAM FUNCTIONALITY AND IMPROVE FLOODPLAIN CONNECTION. MAJOR IMPACTS TO EXISTING WETLANDS AND TREES WERE AVOIDED AND MINIMIZED TO THE EXTENT POSSIBLE.
 - ALL PROPOSED GRADING MAINTAINS NATURAL FLOW PATTERNS OF THE SURROUNDING FLOODPLAIN FLOWING INTO DAVIS BRANCH, WHILE DAVIS BRANCH CONTINUES TO FLOW AND DISCHARGE INTO THE PATAPSCO RIVER.
 - NO CHANGES IN IMPERVIOUS COVER OR NON-IMPERVIOUS AREAS ARE PROPOSED.
 - EROSION AND SEDIMENT CONTROLS WERE PROPOSED TO PROPERLY CONTROL ALL SEDIMENT LADEN RUNOFF FROM THE CONSTRUCTION SITE AND PROTECT ALL DOWNSTREAM BODIES OF WATER IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. SWM IS NOT REQUIRED FOR THIS STREAM RESTORATION PROJECT.
 - NO ESD PRACTICES ARE BEING IMPLEMENTED.
 - ALL EXISTING TREE LINES WILL BE REESTABLISHED WITH NATIVE VEGETATION.

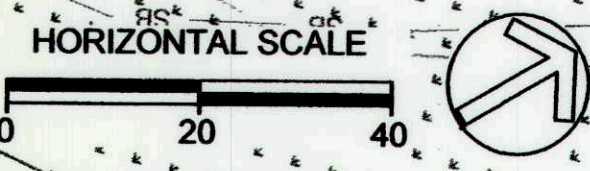
- SITE ANALYSIS DATA:**
- TOTAL PROJECT AREA = 4.0 AC
 - WETLAND TOTAL AREA = 0.1 AC
 - WETLAND BUFFER TOTAL AREA = 0.2 AC
 - FLOODPLAIN AREA = 2.9 AC
 - FOREST AREA = 0.4 AC
 - STEEP SLOPES AREA = 0.6 AC
 - ERODIBLE SOILS AREA = 0.2 AC
 - DISTURBED AREA = 4.0 AC
 - PROPOSED SITE USE = FLOODPLAIN FOREST
 - PROPOSED IMPERVIOUS AREA = 0.0 AC

NOTE: EXPANDED LOD IS PROVIDED TO ADDRESS CHANGES IN EXISTING CONDITION. THE CONTRACTOR SHALL NOT CLEAR AND GRUB WITHIN EXPANDED LOD UNLESS DIRECTED BY THE ENGINEER. LIMITS OF CHANNEL FILL AND/OR GRADING SHALL BE EXTENDED AS NECESSARY TO TIE IN TO EXISTING GRADE. ALL DISTURBED AREAS SHALL BE STABILIZED WITH SOIL STABILIZATION MATTING.

WAVERLY WOODS OWNERS ASSOCIATION, INC.
LIBER 5828 FOLIO 417
MAP 16 PARCEL 25
PLAT No. 12276



- NOTES:**
- SAME DAY STABILIZATION SHALL OCCUR AT THE END OF EACH WORK DAY. SAME DAY SOIL STABILIZATION MATTING MUST BE PLACED PER THE PLANS AT THE END OF EACH WORK DAY. REFER TO NOTE 6 IN THE SEDIMENT CONTROL NOTES REGARDING STABILIZATION REQUIREMENTS OUTSIDE OF THE SAME DAY SOIL STABILIZATION MATTING.
 - TREES WITHIN THE LOD OTHER THAN THOSE DESIGNATED AT TREE SAVE (TS) MAY BE REMOVED AS APPROVED BY ENGINEER ON SITE.
 - REFER TO EXISTING CONDITIONS SHEETS FOR SOILS AND SLOPE INFORMATION.



This plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT
[Signature]
Howard Soil Conservation District
Date: 10/27/16

CLIENT

HOWARD COUNTY
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

01/23/2017 REDLINE EXPAND LOD

MATCHLINE SHEET 18 19

APPROVED: DEPARTMENT OF PUBLIC WORKS

[Signature]
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES
DATE: *[Signature]*

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

**DAVIS BRANCH
STREAM
RESTORATION
PROJECT**

SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
ZONING: RC-DEO TAX MAP GRID/PARCEL: 010020040316
ELECTION DISTRICT: 03 OPEN LOT NA
WAMER PETITION RWP-16-156

**EROSION AND
SEDIMENT
CONTROL PLAN**

PROJECT NO.: 13005.34

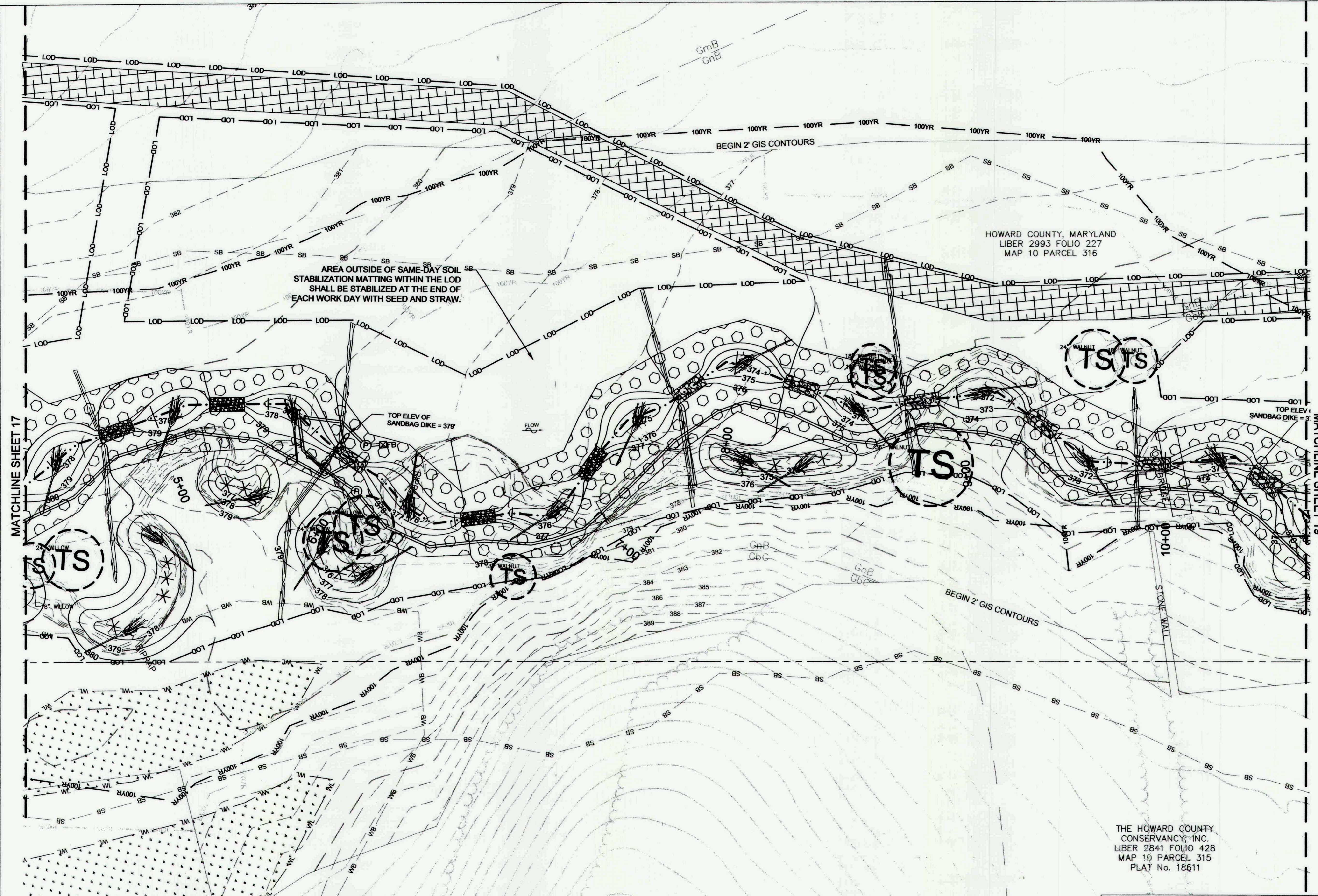
SCALE: 1" = 20'

SEAL:

BY: KT/JC CHECK: DS/MT

DWG. NO.:

18 OF 32

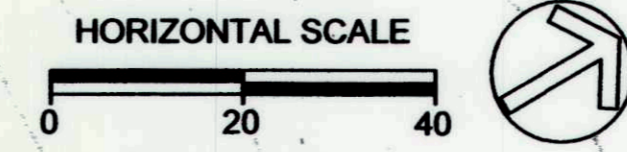


AREA OUTSIDE OF SAME-DAY SOIL STABILIZATION MATTING WITHIN THE LOD SHALL BE STABILIZED AT THE END OF EACH WORK DAY WITH SEED AND STRAW.

HOWARD COUNTY, MARYLAND
LIBER 2993 FOLIO 227
MAP 10 PARCEL 316

THE HOWARD COUNTY
CONSERVANCY, INC.
LIBER 2841 FOLIO 428
MAP 10 PARCEL 315
PLAT No. 18611

- NOTES:
1. SAME DAY STABILIZATION SHALL OCCUR AT THE END OF EACH WORK DAY. SAME DAY SOIL STABILIZATION MATTING MUST BE PLACED PER THE PLANS AT THE END OF EACH WORK DAY. REFER TO NOTE 6 IN THE SEDIMENT CONTROL NOTES REGARDING STABILIZATION REQUIREMENTS OUTSIDE OF THE SAME DAY SOIL STABILIZATION MATTING.
 2. TREES WITHIN THE LOD OTHER THAN THOSE DESIGNATED AT TREE SAVE (TS) MAY BE REMOVED AS APPROVED BY ENGINEER ON SITE.
 3. REFER TO EXISTING CONDITIONS SHEETS FOR SOILS AND SLOPE INFORMATION.



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

[Signature] 10/27/16
Date

CLIENT

HOWARD COUNTY
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] DATE
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

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

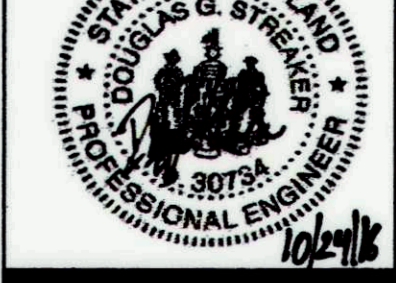
**DAVIS BRANCH
STREAM
RESTORATION
PROJECT**

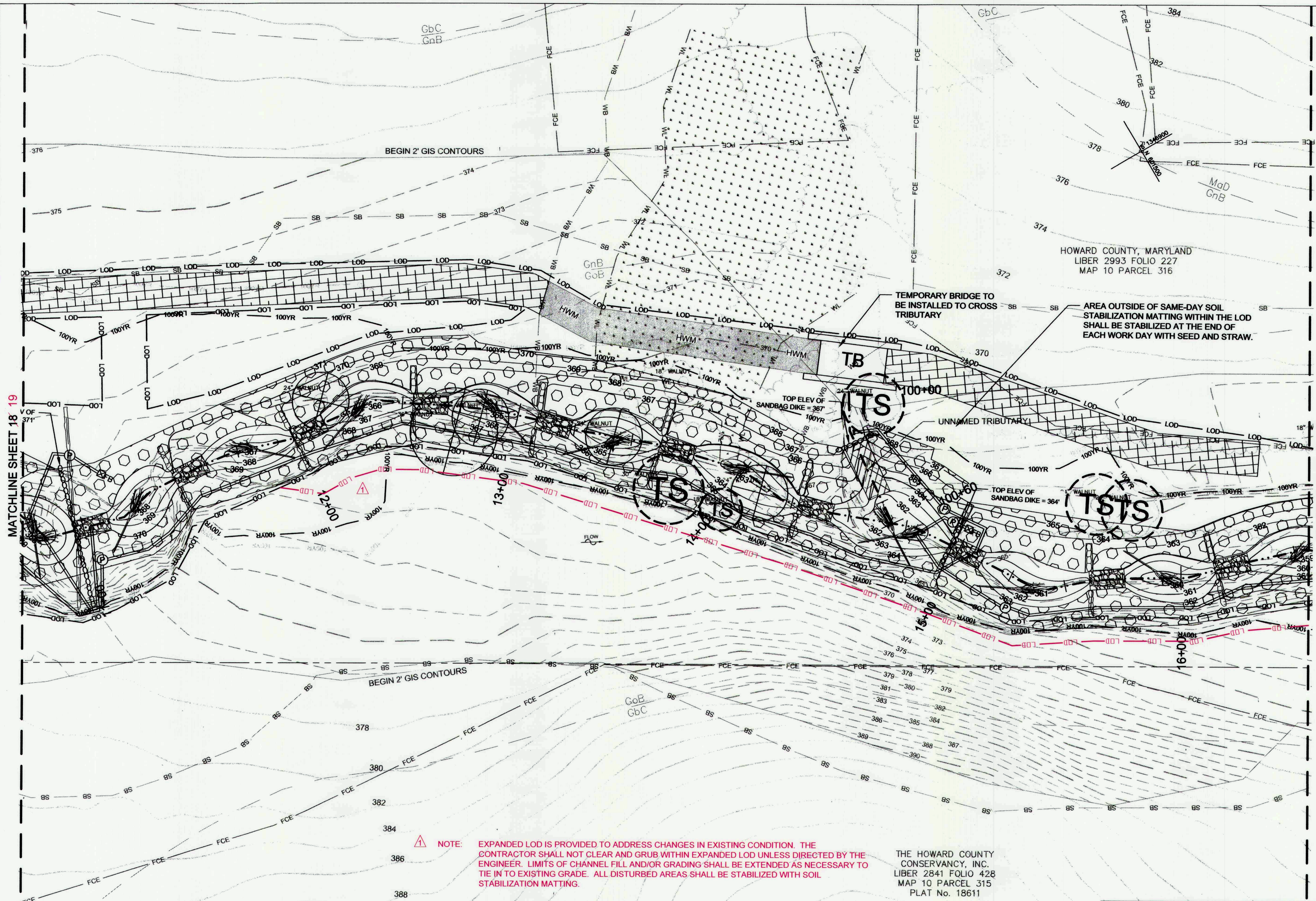
SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
ZONING: RC-DEO TAX MAP/GRD/PARCEL: 01000240316
ELECTION DISTRICT: 03 OPEN LOT N/A
WAIVER PETITION #WP-16-156

**EROSION AND
SEDIMENT
CONTROL PLAN**

PROJECT NO. 13005.34 SCALE: 1" = 20'

SEAL: BY: KT/JC CHECK: DS/MT
DWG. NO.:





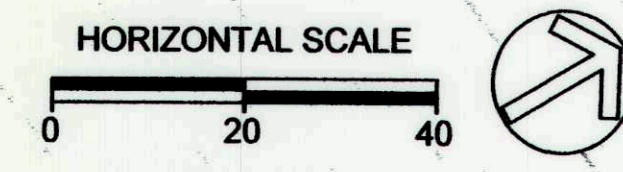
MATCHLINE SHEET 18 19

MATCHLINE SHEET 20 21

NOTE: EXPANDED LOD IS PROVIDED TO ADDRESS CHANGES IN EXISTING CONDITION. THE CONTRACTOR SHALL NOT CLEAR AND GRUB WITHIN EXPANDED LOD UNLESS DIRECTED BY THE ENGINEER. LIMITS OF CHANNEL FILL AND/OR GRADING SHALL BE EXTENDED AS NECESSARY TO TIE IN TO EXISTING GRADE. ALL DISTURBED AREAS SHALL BE STABILIZED WITH SOIL STABILIZATION MATTING.

THE HOWARD COUNTY CONSERVANCY, INC.
 LIBER 2841 FOLIO 428
 MAP 10 PARCEL 315
 PLAT No. 18611

- NOTES:**
- SAME DAY STABILIZATION SHALL OCCUR AT THE END OF EACH WORK DAY. SAME DAY SOIL STABILIZATION MATTING MUST BE PLACED PER THE PLANS AT THE END OF EACH WORK DAY. REFER TO NOTE 6 IN THE SEDIMENT CONTROL NOTES REGARDING STABILIZATION REQUIREMENTS OUTSIDE OF THE SAME DAY SOIL STABILIZATION MATTING.
 - TREES WITHIN THE LOD OTHER THAN THOSE DESIGNATED AT TREE SAVE (TS) MAY BE REMOVED AS APPROVED BY ENGINEER ON SITE.
 - REFER TO EXISTING CONDITIONS SHEETS FOR SOILS AND SLOPE INFORMATION.



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

 Howard Soil Conservation District
 Date: 1/27/16

CLIENT

HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046
 PHONE: (410) 313-0522

DATE: 11/28/2016
 ISSUES / REVISIONS: ▲ REDLINE EXPAND LOD

HOWARD COUNTY, MARYLAND
 LIBER 2993 FOLIO 227
 MAP 10 PARCEL 316

APPROVED: DEPARTMENT OF PUBLIC WORKS

 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

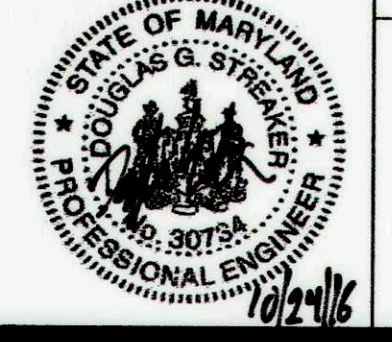
Biohabitats
 The Stables Building 2081 Clipper Park Road
 Baltimore, MD 21211 / ph: 410.554.0156
 fx: 410.554.0168 / www.biohabitats.com
 Restore the Earth & Inspire Ecological Stewardship

**DAVIS BRANCH
 STREAM
 RESTORATION
 PROJECT**

SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
 ZONING: RC-360 TAX MAP GRID/PARCEL: 01000240316
 ELECTION DISTRICT: 03 OPEN LOT NA
 WAIVER PETITION #WP-16-156

**EROSION AND
 SEDIMENT
 CONTROL PLAN**

PROJECT NO.: 13005.34 SCALE: 1" = 20'
 BY: KT/JC CHECK: DS/MT
 DWG. NO.:



CLIENT

HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046
 PHONE: (410) 313-0522

DATE: 11/28/2016
 ISSUES / REVISIONS: ▲ REDLINE EXPAND LOD

APPROVED: DEPARTMENT OF PUBLIC WORKS

 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE




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

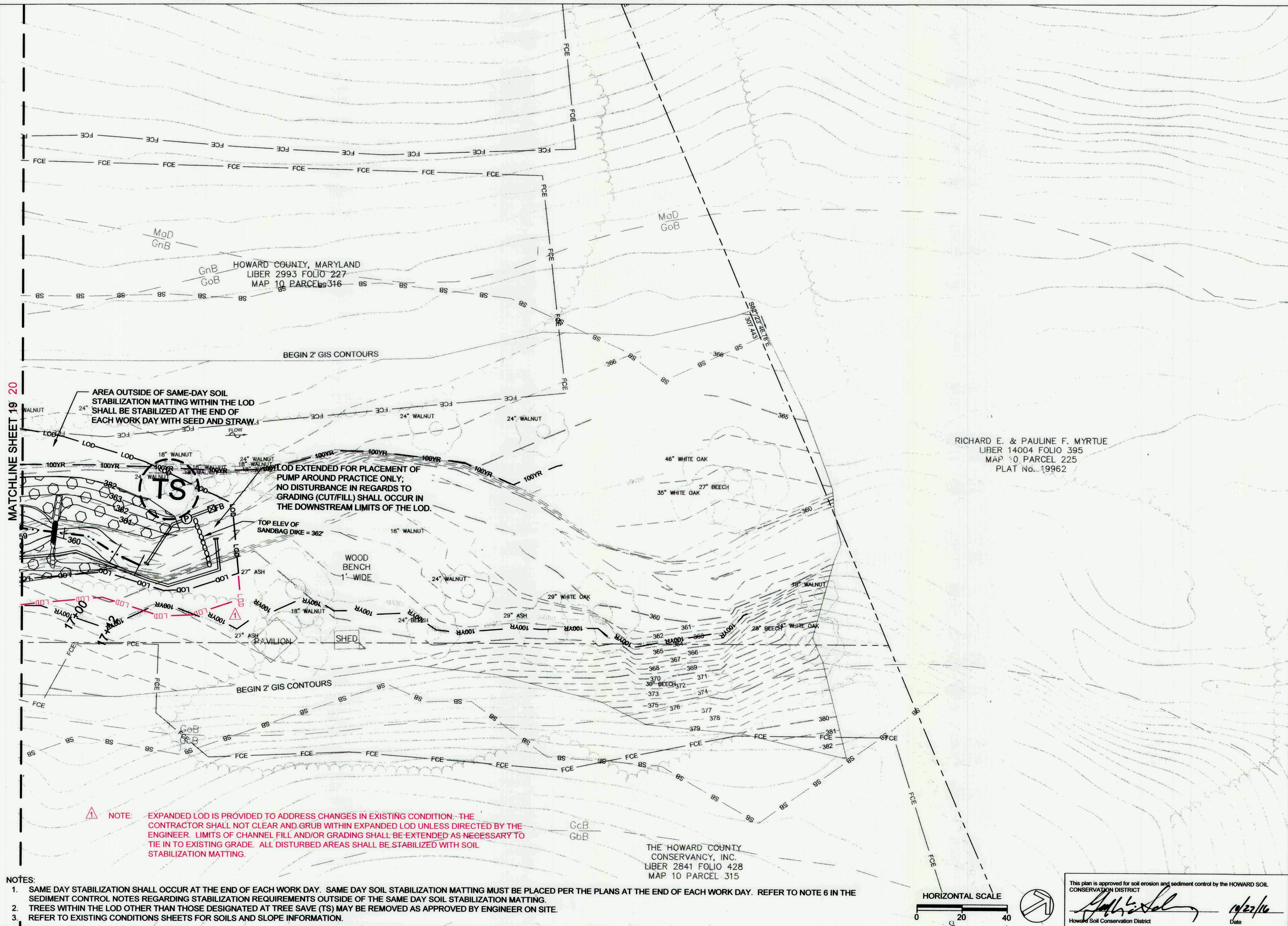
**DAVIS BRANCH
 STREAM
 RESTORATION
 PROJECT**

SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
 ZONING: RC-360 TAX MAP/GRID/PARCEL: 01000240016
 ELECTION DISTRICT: 03 OPEN LOT NA
 WAIVER PETITION #WP-16-156

**EROSION AND
 SEDIMENT
 CONTROL PLAN**

PROJECT NO.: 13005.34 SCALE: 1" = 20'

SEAL:  BY: KT/JC CHECK: DS/MT
 DWG. NO.: 21 OF 32



MATCHLINE SHEET 19 20

AREA OUTSIDE OF SAME-DAY SOIL STABILIZATION MATTING WITHIN THE LOD SHALL BE STABILIZED AT THE END OF EACH WORK DAY WITH SEED AND STRAW.

LOD EXTENDED FOR PLACEMENT OF PUMP AROUND PRACTICE ONLY; NO DISTURBANCE IN REGARDS TO GRADING (CUT/FILL) SHALL OCCUR IN THE DOWNSTREAM LIMITS OF THE LOD.

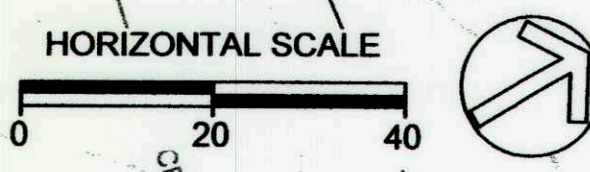
TOP ELEV OF SANDBAG DIKE = 362'

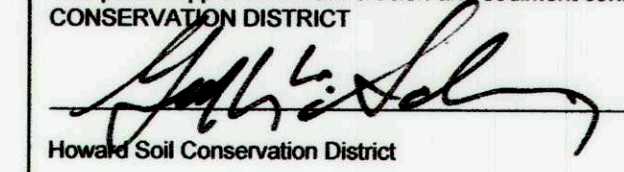
WOOD BENCH 1'-WIDE

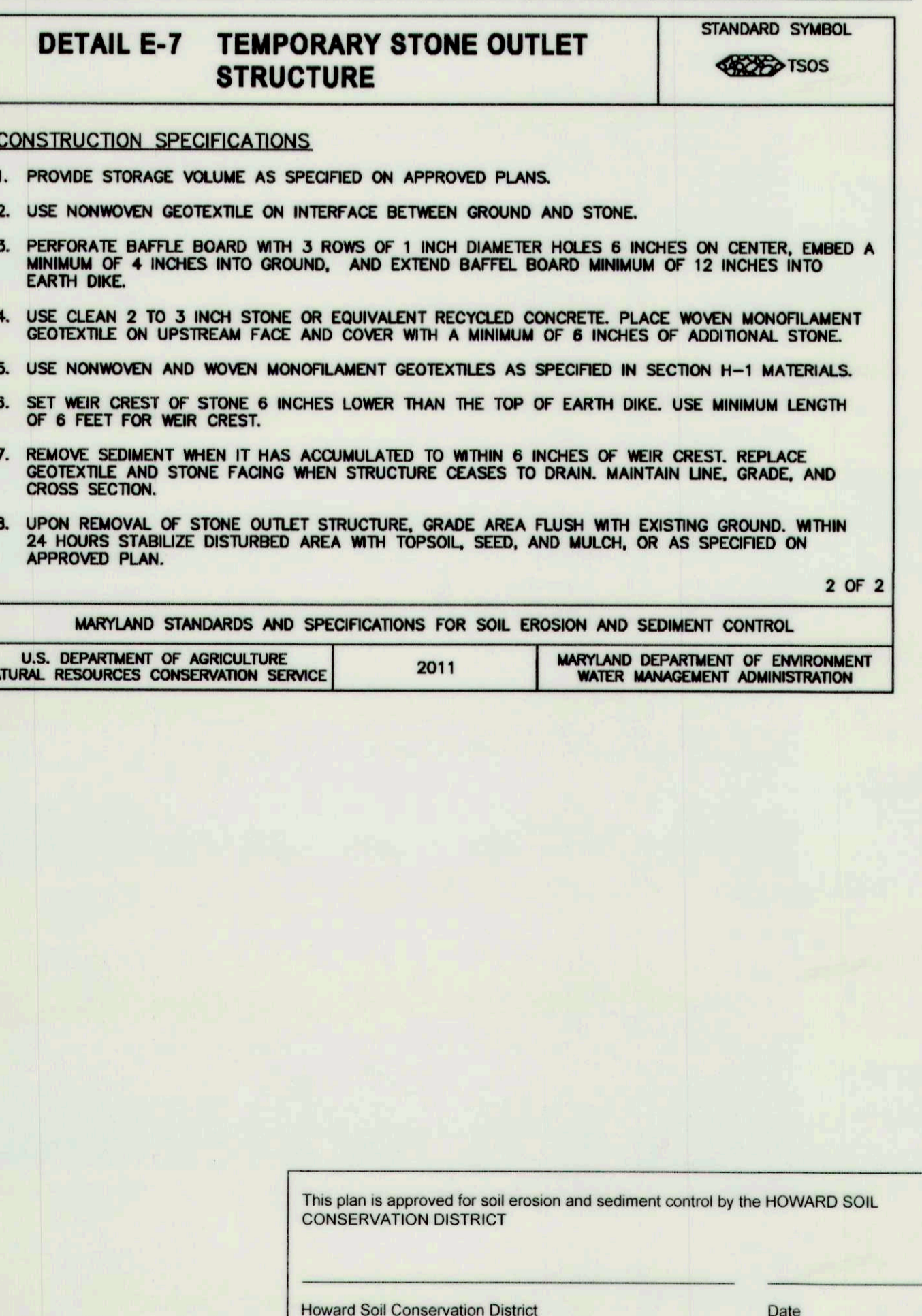
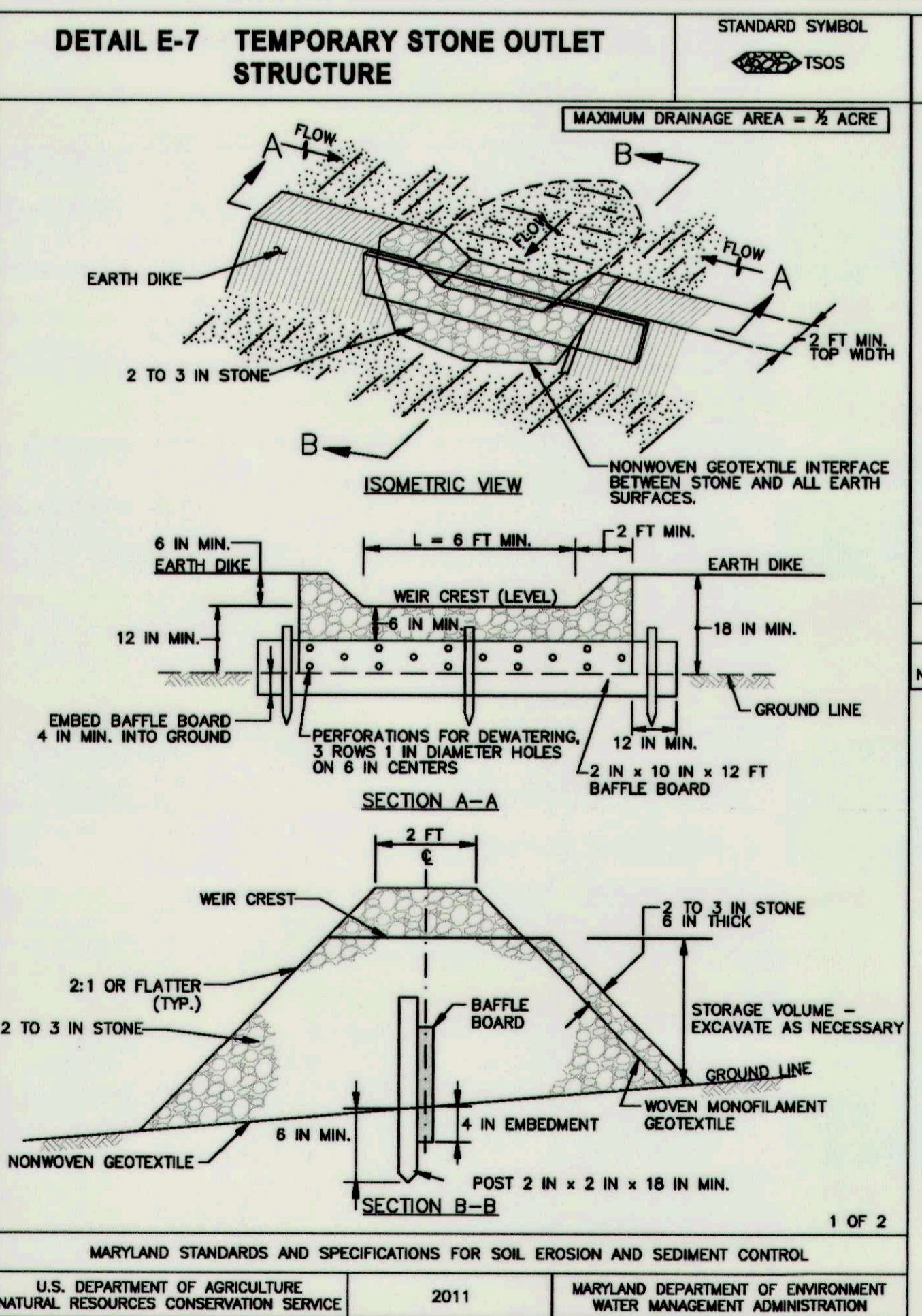
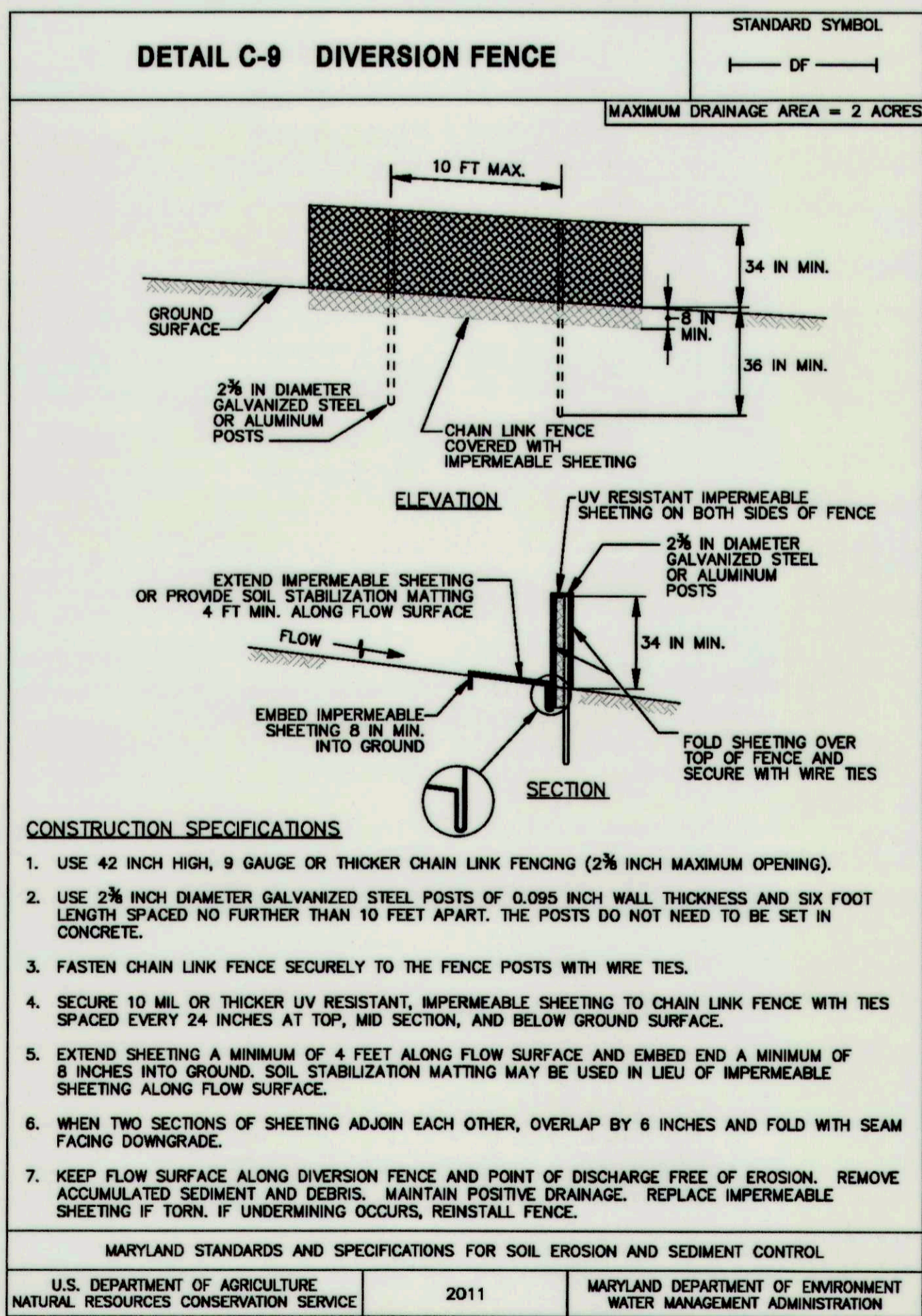
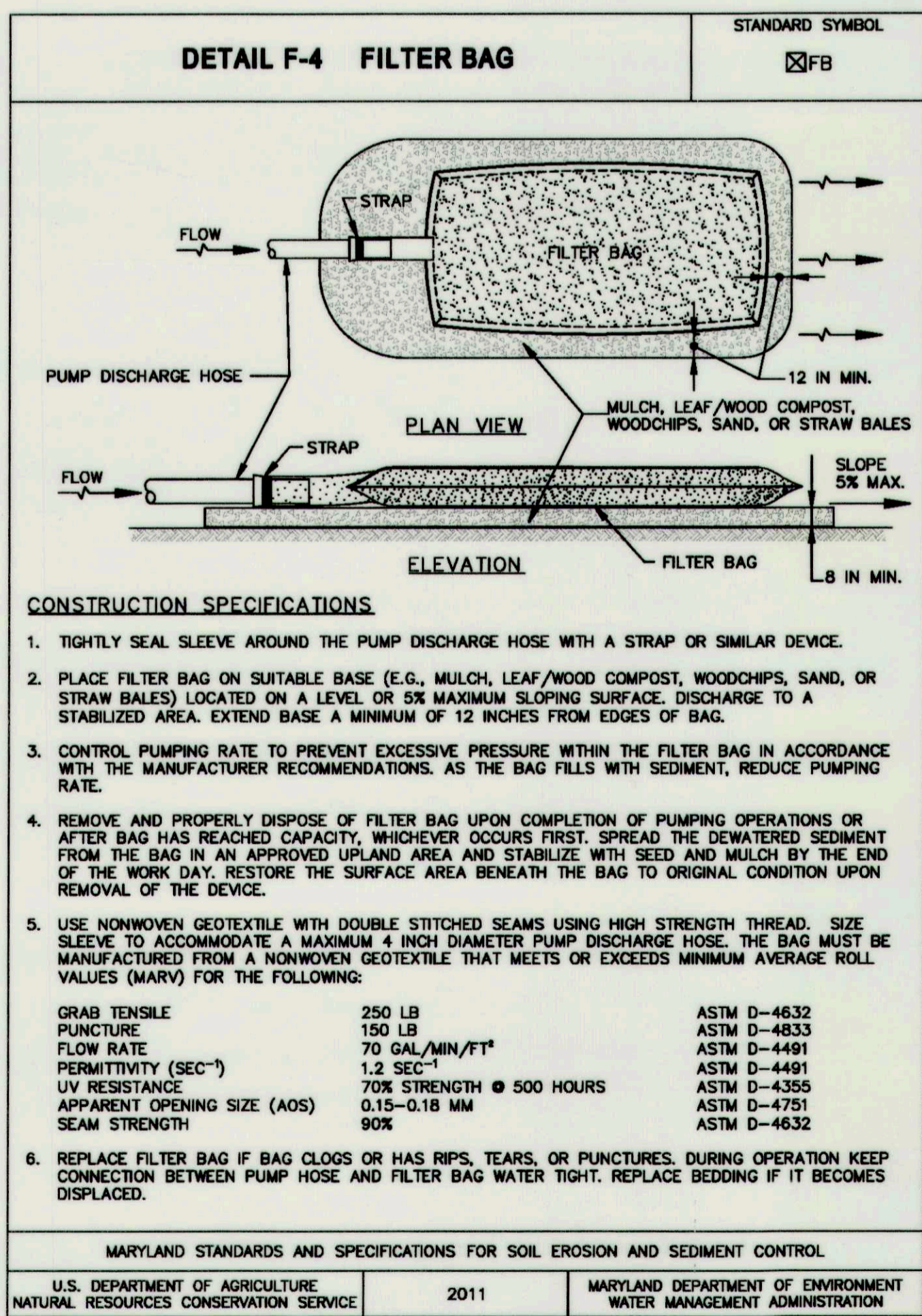
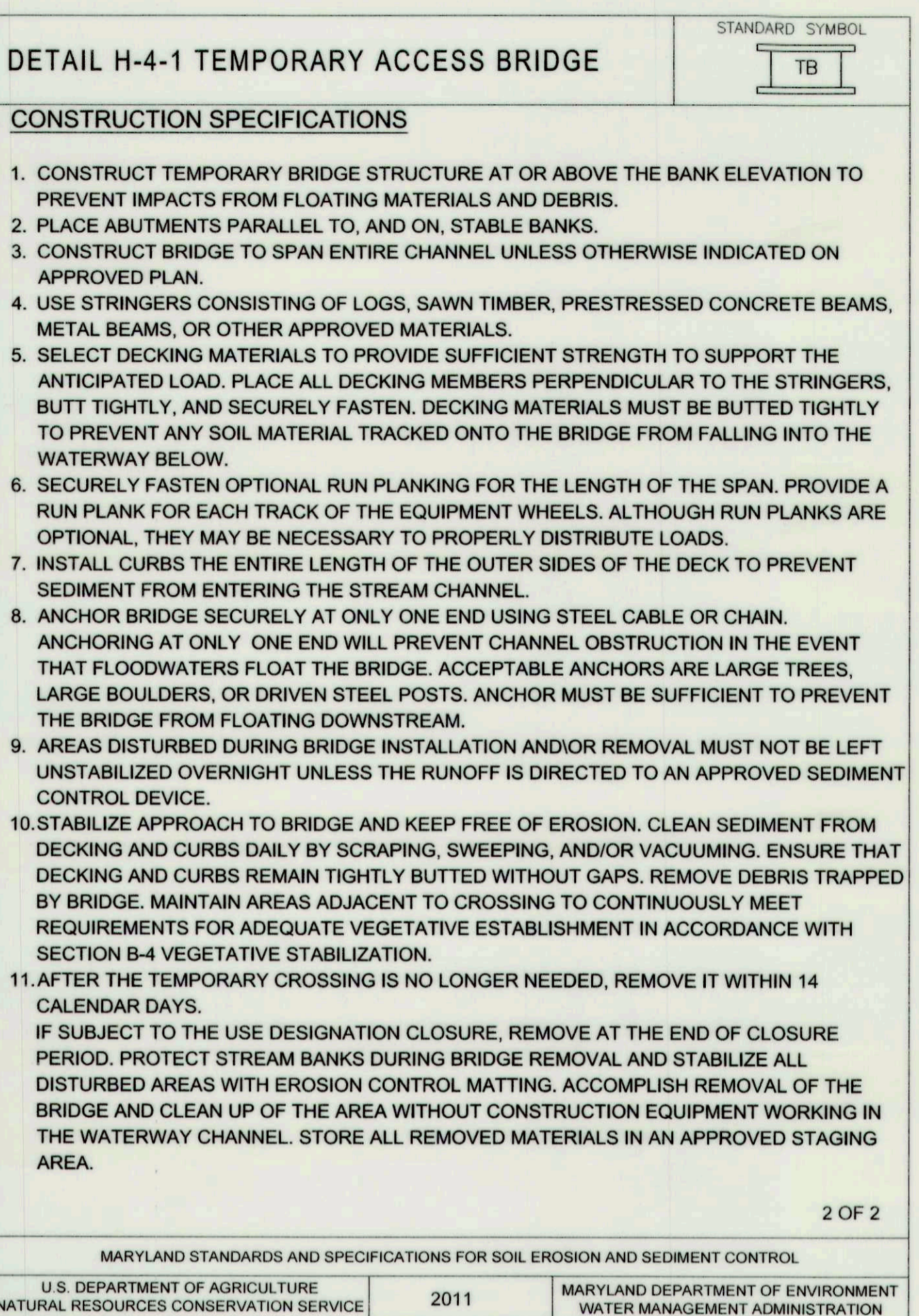
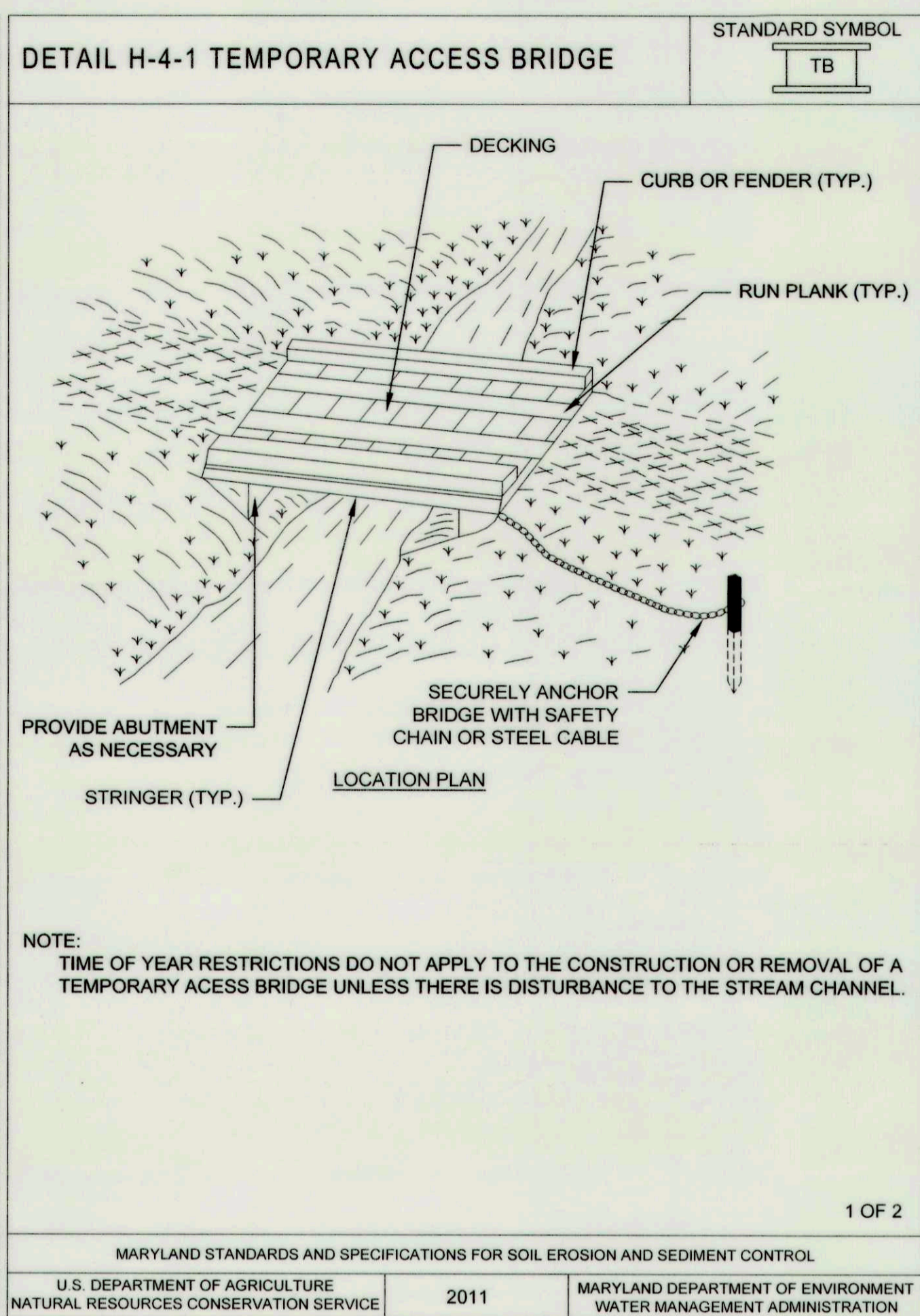
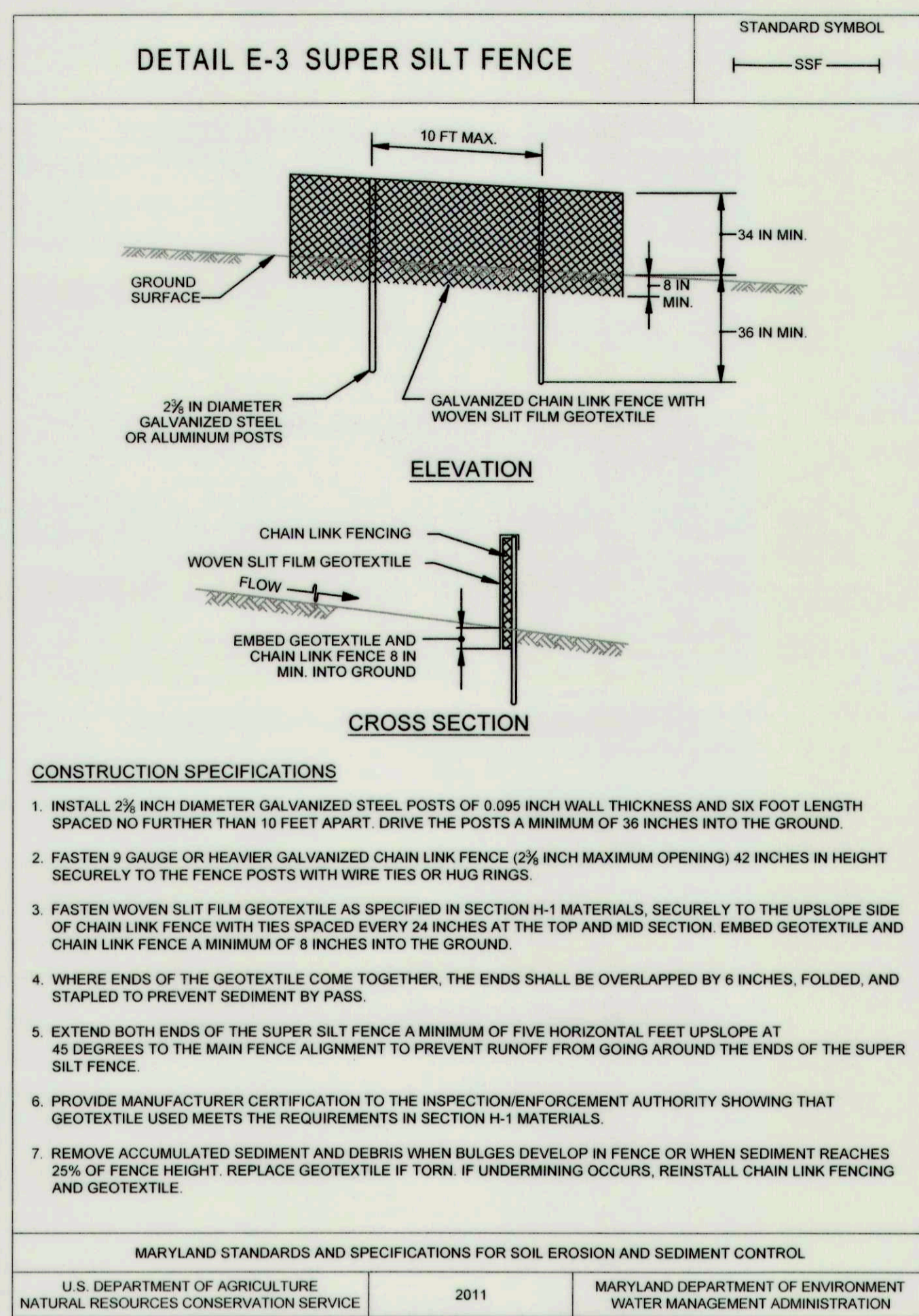
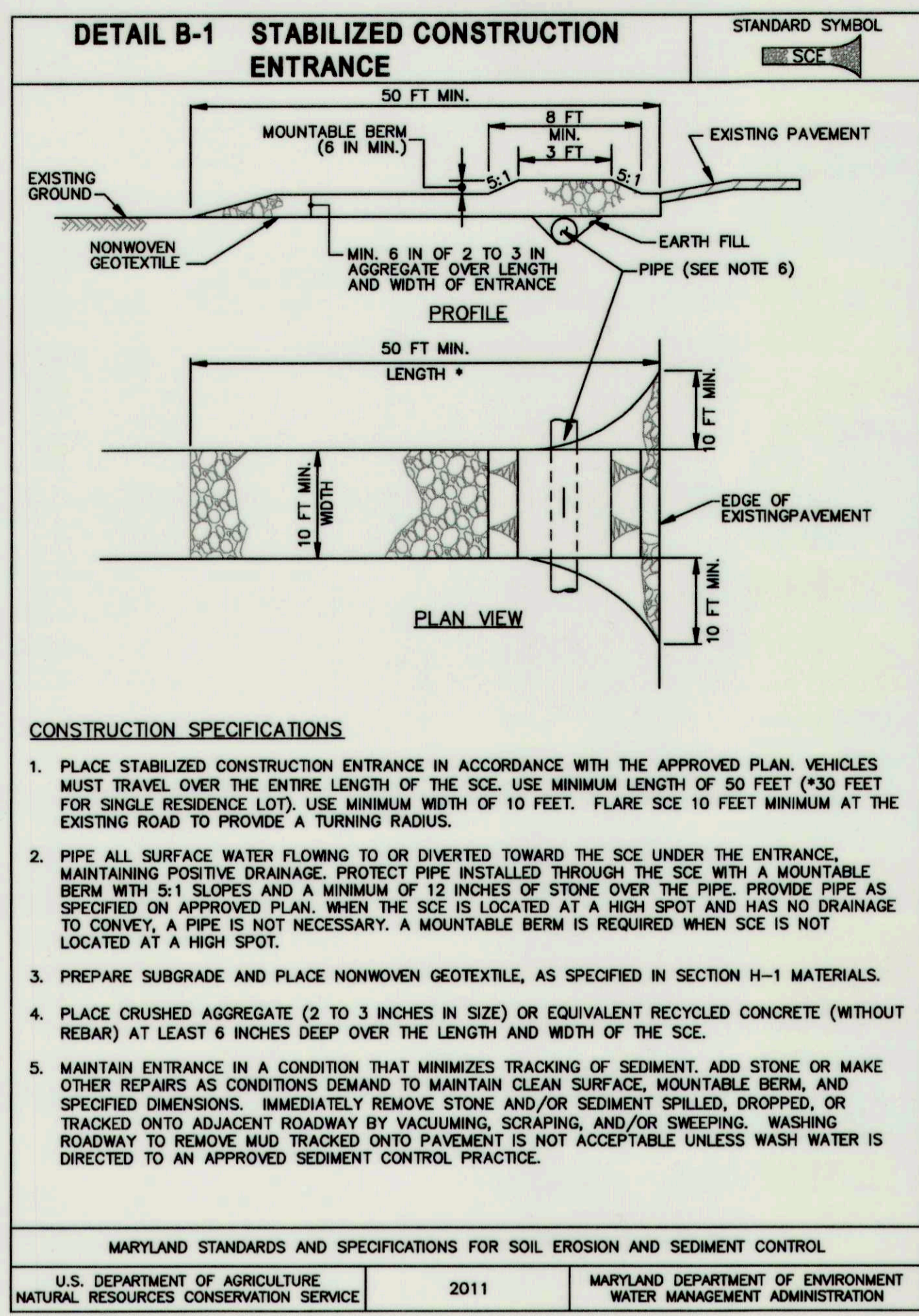
▲ NOTE: EXPANDED LOD IS PROVIDED TO ADDRESS CHANGES IN EXISTING CONDITION. THE CONTRACTOR SHALL NOT CLEAR AND GRUB WITHIN EXPANDED LOD UNLESS DIRECTED BY THE ENGINEER. LIMITS OF CHANNEL FILL AND/OR GRADING SHALL BE EXTENDED AS NECESSARY TO TIE IN TO EXISTING GRADE. ALL DISTURBED AREAS SHALL BE STABILIZED WITH SOIL STABILIZATION MATTING.

- NOTES:
- SAME DAY STABILIZATION SHALL OCCUR AT THE END OF EACH WORK DAY. SAME DAY SOIL STABILIZATION MATTING MUST BE PLACED PER THE PLANS AT THE END OF EACH WORK DAY. REFER TO NOTE 6 IN THE SEDIMENT CONTROL NOTES REGARDING STABILIZATION REQUIREMENTS OUTSIDE OF THE SAME DAY SOIL STABILIZATION MATTING.
 - TREES WITHIN THE LOD OTHER THAN THOSE DESIGNATED AT TREE SAVE (TS) MAY BE REMOVED AS APPROVED BY ENGINEER ON SITE.
 - REFER TO EXISTING CONDITIONS SHEETS FOR SOILS AND SLOPE INFORMATION.

THE HOWARD COUNTY
 CONSERVANCY, INC.
 LIBER 2841 FOLIO 428
 MAP 10 PARCEL 315



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

 Howard Soil Conservation District Date: 11/22/16



CLIENT

HOWARD COUNTY
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

AS BUILT CERTIFICATION

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 PLANS AND SPECIFICATIONS.

NAME: DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
Mark C. Lee 12/25/16
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

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

DAVIS BRANCH STREAM RESTORATION PROJECT

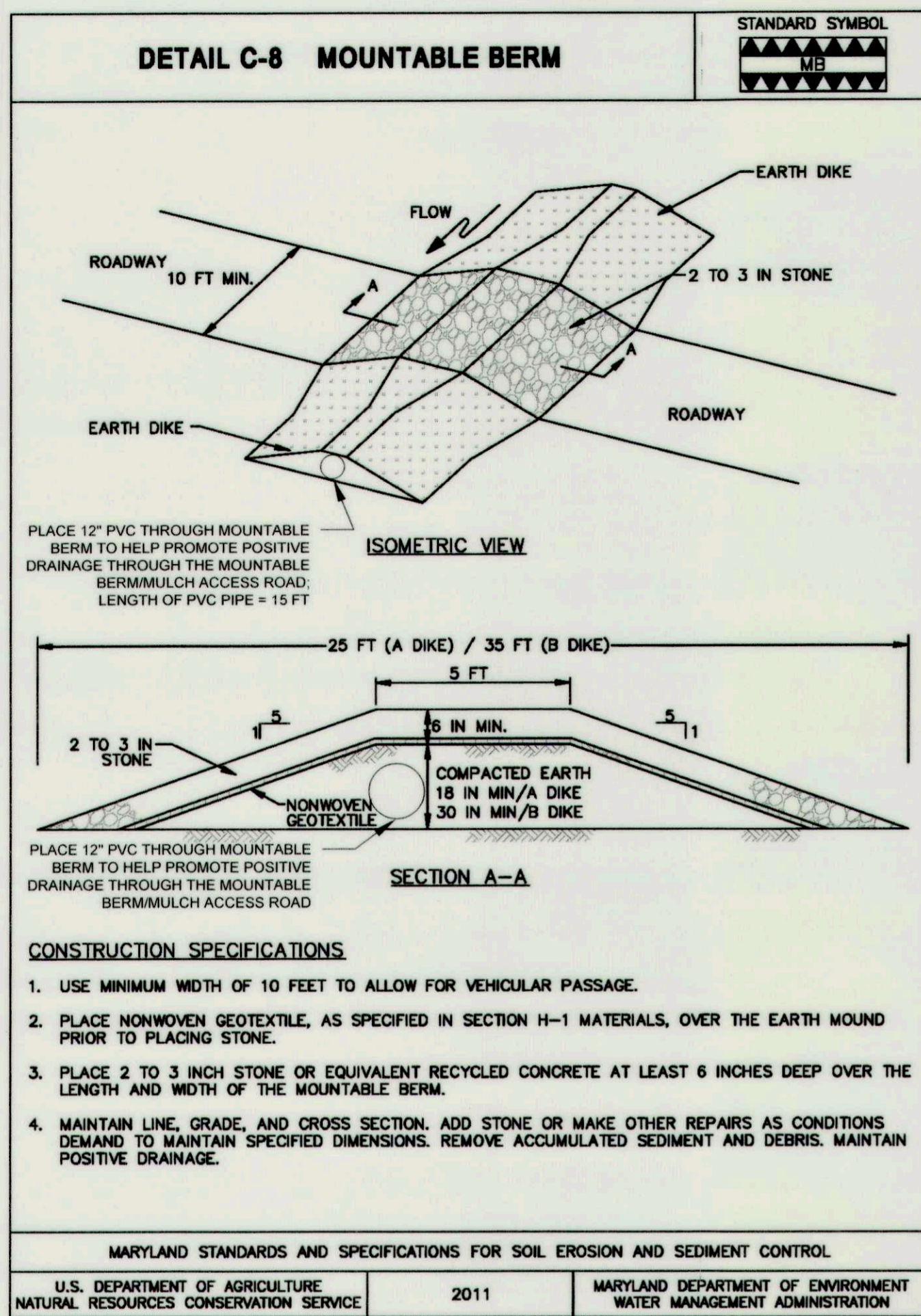
SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
ZONING: RC-DEE TAX MAP/GRID/PARCEL: 01000240316
ELECTION DISTRICT: 03 OPEN LOT #A
WAIVER PETITION #WP-16-156

EROSION AND SEDIMENT CONTROL DETAILS

PROJECT NO.: 13005.34 SCALE: AS SHOWN

SEAL: BY: KT/JC CHECK: DSM/MT
DWG. NO.: 22 OF 32

PROFESSIONAL ENGINEER



MGWC 1.2: PUMP-AROUND PRACTICE

Temporary measure for dewatering in-channel construction sites

DESCRIPTION

The work should consist of installing a temporary pump around and supporting measures to divert flow around in-stream construction sites.

IMPLEMENTATION SEQUENCE

Sediment control measures, pump-around practices, and associated channel and bank construction should be completed in the following sequence (refer to Detail 1.2):

- Construction activities including the installation of erosion and sediment control measures should not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities should be marked in the field prior to construction. The contractor is responsible for any damage to existing utilities that may result from construction and should repair the damage at his/her own expense to the county's or utility company's satisfaction.
- The contractor should notify the Maryland Department of the Environment or WMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor should inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting construction.
- The contractor should conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review limits of disturbance, erosion and sediment control requirements, and the sequence of construction. The contractor should stake out all limits of disturbance prior to the pre-construction meeting so they may be reviewed. The participants will also designate the contractor's staging areas and flag all trees within the limit of disturbance which will be removed for construction access. Trees should not be removed within the limit of disturbance without approval from the WMA or local authority.
- Construction should not begin until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor should stay within the limits of the disturbance as shown on the plans and minimize disturbance within the work area whenever possible.
- Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor should begin work at the upstream section and proceed downstream beginning with the establishment of stabilized construction entrances. In some cases, work may begin downstream if appropriate. The sequence of construction must be followed unless the contractor gets written approval for deviations from the WMA or local authority. The contractor should only begin work in an area which can be completed by the end of the day including grading adjacent to the channel. At the end of each work day, the work area must be stabilized and the pump around removed from the channel. Work should not be conducted in the channel during rain events.
- Sandbag dikes should be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow should be pumped around the work area. The pump should discharge onto a stable velocity dissipater made of riprap or sandbags.

TEMPORARY INSTREAM CONSTRUCTION MEASURES MARYLAND DEPARTMENT OF THE ENVIRONMENT WATERWAY CONSTRUCTION GUIDELINES REVISED NOVEMBER 2000
PAGE 1.2 - 1

B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

FOR VEGETATIVE STABILIZATION

Definition
Using vegetation as cover to protect exposed soil from erosion.

Purpose
To promote the establishment of vegetation on exposed soil.

Conditions Where Practice Applies
On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization, soil preparation, soil amendments and topsoiling, seeding and mulching, temporary stabilization, and permanent stabilization.

Effects on Water Quality and Quantity
Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas.

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Over time, vegetation will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and vegetative establishment.

Adequate Vegetative Establishment

Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseeding within the planting season.

- Adequate vegetative stabilization requires 95 percent groundcover.
- If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.
- If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified.
- Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

B.9

B-4.2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition
The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose
To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies
Where vegetative stabilization is to be established.

Criteria

A. Soil Preparation

- Temporary Stabilization
 - Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
 - Apply fertilizer and lime as prescribed on the plans.
 - Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
- Permanent Stabilization
 - A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
 - Soil pH between 6.0 and 7.0.
 - Soluble salts less than 500 parts per million (ppm).
 - Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
 - Soil contains 1.5 percent minimum organic matter by weight.
 - Soil contains sufficient pore space to permit adequate root penetration.
 - Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
 - Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

B.12

MGWC 1.2: PUMP-AROUND PRACTICE

- Water from the work area should be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved source. The measure should be located such that the water drains back into the channel below the downstream sandbag dike.
- Traversing a channel reach with equipment within the work area where no work is proposed should be avoided. If equipment has to traverse such a reach to another area, then timber mats or similar measures should be used to minimize disturbance to the channel. Temporary stream crossings should be used only when necessary and only where noted on the plans or specified. (See Section 4, Stream Crossings, Maryland Guidelines to Waterway Construction).
- All stream restoration measures should be installed as indicated by the plans and all banks graded in accordance with the grading plans and typical cross-sections. All grading must be stabilized at the end of each day with seed and mulch or seed and matting as specified on the plans.
- After an area is completed and stabilized, the clean water dike should be removed. After the first sediment flush, a new clean water dike should be established upstream from the old sediment dike. Finally, upon establishment of a new sediment dike below the old one, the old sediment dike should be removed.
- A pump around must be installed on any tributary or storm drain outfall which contributes baseflow to the work area. This should be accomplished by locating a sandbag dike at the downstream end of the tributary or storm drain outfall and pumping the stream flow around the work area. This water should discharge onto the same velocity dissipater used for the main stem pump around.
- If a tributary is to be restored, construction should take place on the tributary before work on the main stem reaches the tributary confluence. Construction in the tributary, including pump around practices, should follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem should resume. Water from the tributary should continue to be pumped around the work area in the main stem.
- The contractor is responsible for providing access to and maintaining all erosion and sediment control devices until the sediment control inspector approves their removal.
- After construction, all disturbed areas should be regraded and revegetated as per the planting plan.

TEMPORARY INSTREAM CONSTRUCTION MEASURES MARYLAND DEPARTMENT OF THE ENVIRONMENT WATERWAY CONSTRUCTION GUIDELINES REVISED NOVEMBER 2000
PAGE 1.2 - 2

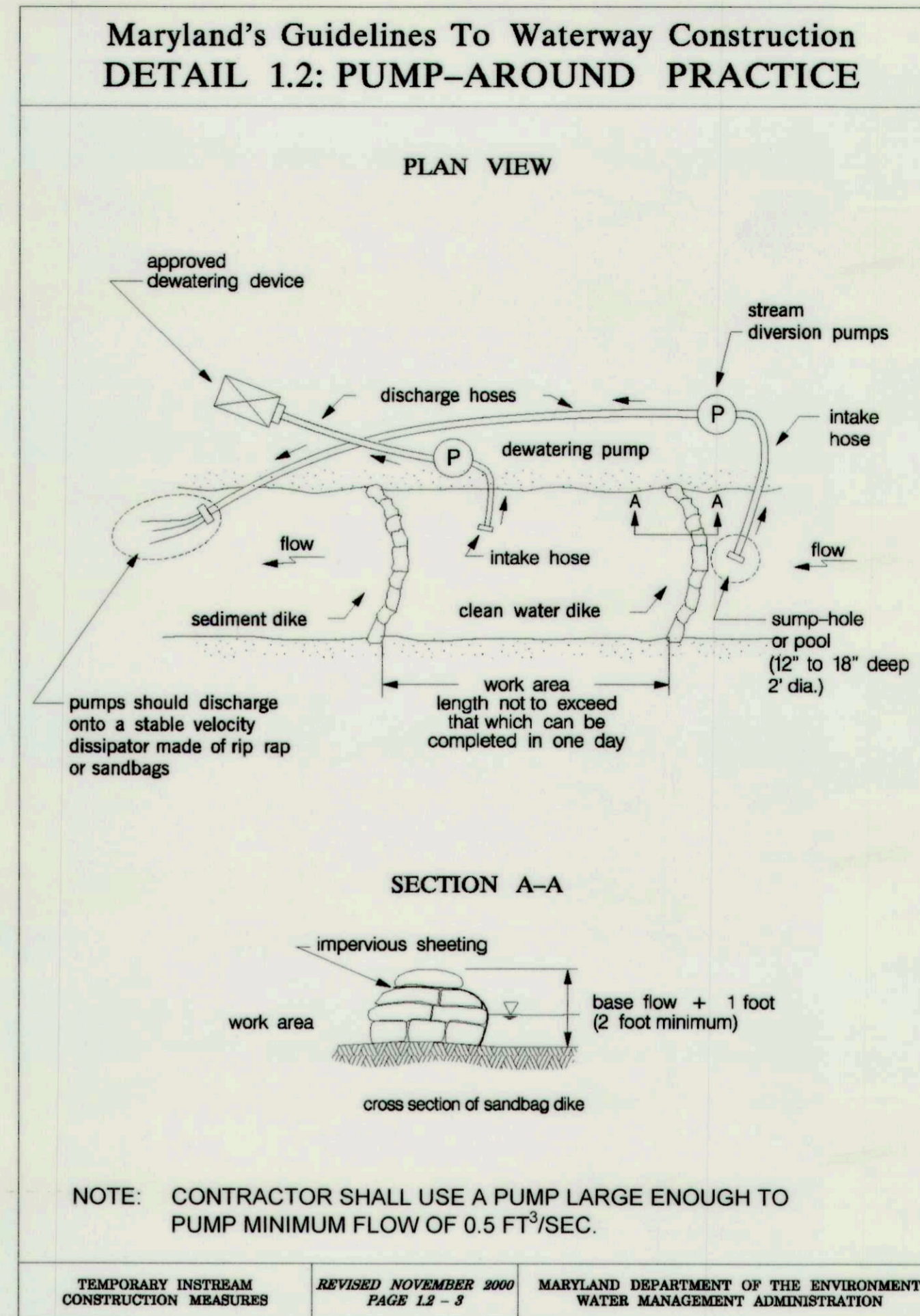
d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.

e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling

- Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is 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.
- Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
- Topsoiling is limited to areas having 2:1 or flatter slopes where:
 - The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
 - The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
 - The original soil to be vegetated contains material toxic to plant growth.
 - The soil is so acidic that treatment with limestone is not feasible.
- Areas having slopes steeper than 2:1 require special consideration and design.
- Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
 - Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter.
 - Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
 - Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
- Topsoil Application
 - Erosion and sediment control practices must be maintained when applying topsoil.
 - Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
 - Topsoil must not be placed if the topsoil or subsoil 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

B.13



and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)

- Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
- Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
- Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydrosedding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
- Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
- Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

This plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT
[Signature] 10/27/16
Howard Soil Conservation District Date

CLIENT

HOWARD COUNTY
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

AS BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

NAME DATE

APPROVED DEPARTMENT OF PUBLIC WORKS
[Signature] *[Signature]*
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

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

DAVIS BRANCH STREAM RESTORATION PROJECT

SITE ADDRESS: 10520 OLD FREDERICK RD. WOODSTOCK, MD
ZONING: RC-DEO TAX MAP/GRID/PARCEL: 0101020420316
ELECTION DISTRICT: 03 OPEN LOT #1A
WAIVER PETITION #WP-15-156

TITLE: **EROSION AND SEDIMENT CONTROL DETAILS**

PROJECT NO. 13005.34 SCALE: AS SHOWN

SEAL: BY: KT/JC CHECK: DS/MT
DWG NO.:

23 OF 32

DETAIL B-4-6-A TEMPORARY SOIL STABILIZATION MATTING CHANNEL APPLICATION

STANDARD SYMBOL
TSSMC - * 3.6 lb/ft²
(* INCLUDE SHEAR STRESS)

6 IN. MIN. OVERLAP OR ABUT ROLL EDGE (TYP.)

6 IN. MIN. DEPTH KEY TRENCH FOR UPPER END OF DOWNSLOPE ROLL (TYP.)

6 IN. MIN. DEPTH KEY TRENCH FOR UPPER END OF DOWNSLOPE ROLL (TYP.)

6 IN. MIN. OVERLAP AT ROLL END (TYP.)

PREPARED SURFACE WITH SEED IN PLACE

CONSTRUCTION SPECIFICATIONS

- USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
- USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
- SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
- PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
- UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTERLINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MAT SMOOTHLY AND FIRMLY ON THE SEEDBED SURFACE. AVOID STRETCHING THE MATTING.
- KEY-IN UPSTREAM END OF EACH MAT ROLL BY DIGGING A 6 INCH (MINIMUM) TRENCH AT THE UPSTREAM END OF THE MATTING, PLACING THE ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END.
- OVERLAP OR ABUT THE ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSLOPE MAT.
- STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
- ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

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 D-4-1-C ROCK OUTLET PROTECTION III

STANDARD SYMBOL
ROPIII

DISCHARGE TO AN UNCONFINED CHANNEL OR FLAT AREA

PLAN VIEW

SECTION A-A

SECTION B-B

EXISTING STABILIZED AREA

NONWOVEN GEOTEXTILE OR STONE FILTER

NONWOVEN GEOTEXTILE OR STONE FILTER

CONSTRUCTION SPECIFICATIONS

- RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
- USE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, 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 TOGETHER.
- PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (3/4 TO 1 1/2 INCH MINIMUM STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
- EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP.
- CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET 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 RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
- WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
- CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
- MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND RIPRAP DISLOADED 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

CLASS	THICKNESS (T)
I	19 IN
II	32 IN
III	46 IN

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

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

D. 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 1/2 inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.

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

Permanent Seeding Summary

No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	Fertilizer Rate (10-20-20)			Lime Rate
					N	P ₂ O ₅	K ₂ O	
4	DEERTONGUE	15	3/1 - 5/15, 5/16 - 8/15, 8/16 - 10/15	1/4 - 1/2 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)
	CREeping RED FESCUE	20	3/1 - 5/15, 5/16 - 8/15, 8/16 - 10/15	1/4 - 1/2 in				
	VIRGINIA WILD RYE	5	3/1 - 5/15, 5/16 - 8/15, 8/16 - 10/15	1/4 - 1/2 in				

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

- 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 3/4 inch, plus or minus 1/4 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.
- 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.
- Sod Maintenance
 - In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
 - After the first week, sod watering is required as necessary to maintain adequate moisture content.
 - Do not mow until the sod is firmly rooted. No more than 1/3 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.

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.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	Fertilizer Rate (10-20-20)		Lime Rate
					N	P ₂ O ₅	
	ANNUAL RYEGRASS	40	5/1 - 5/15, 8/1 - 10/15	0.5		436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)
	FOXTAIL MILLET	30	5/16 - 7/31	0.5			

SEEDING NOTES:

- IF PERMANENT STABILIZATION IS REQUIRED OUTSIDE OF SPECIFIED SEEDING DATES, THE CONTRACTOR SHALL PROVIDE TEMPORARY STABILIZATION MEASURES (SEED AND MULCH) UNTIL THE APPROPRIATE SEEDING DATES FOR THE SPECIFIED SEED MIXES OCCUR. THE CONTRACTOR SHALL PROVIDE PERMANENT STABILIZATION SEEDING WITHIN THE SPECIFIED SEEDING DATES.
- MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.

CLIENT

HOWARD COUNTY
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

AS BUILT CERTIFICATION

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 PLANS AND SPECIFICATIONS.

NAME: DATE:

APPROVED: DEPARTMENT OF PUBLIC WORKS
M. J. [Signature] DATE: 10/27/16
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

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

DAVIS BRANCH STREAM RESTORATION PROJECT

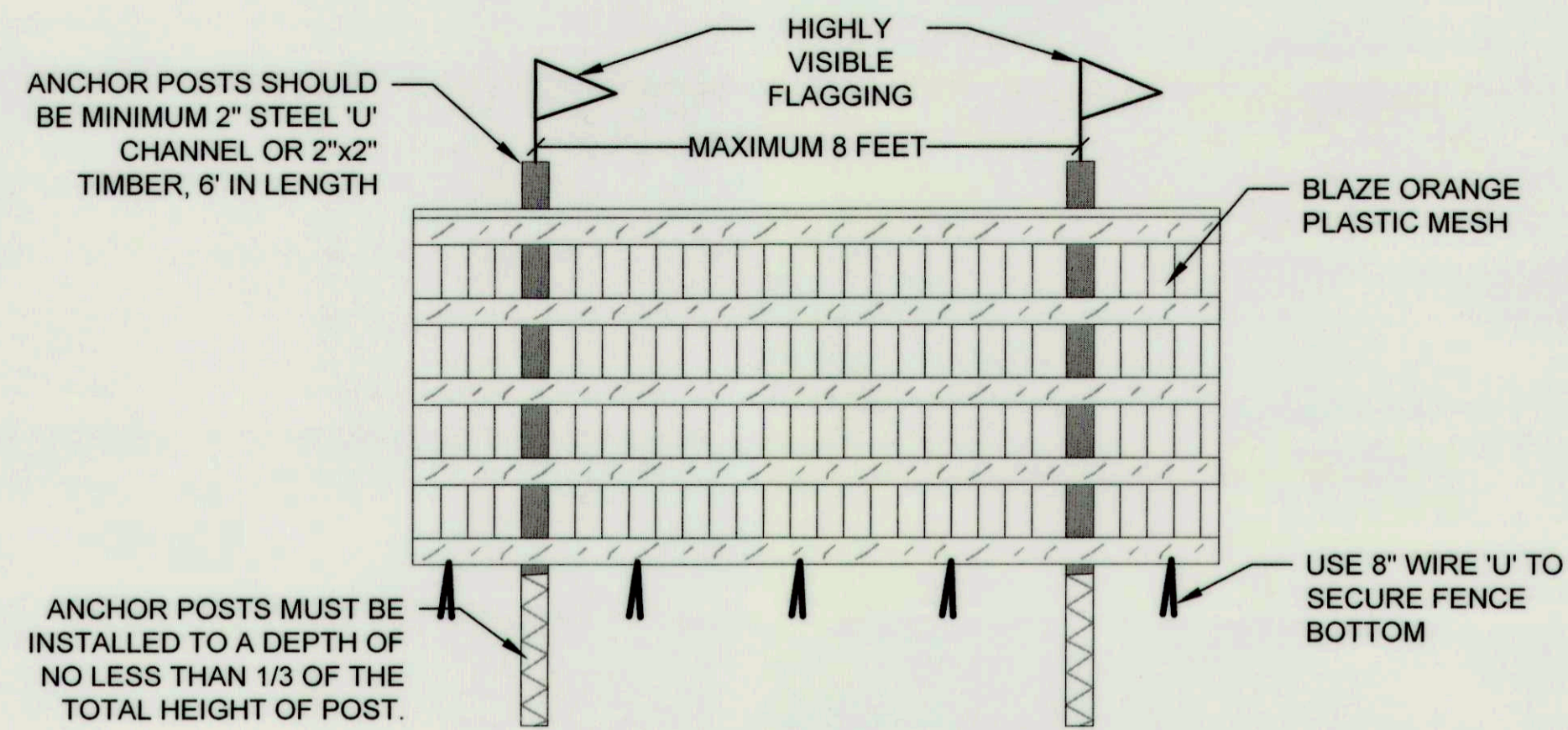
SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
ZONING: RES-250 TAX MAP: GRID/PARCEL: 010024/0318
ELECTION DISTRICT: 03 OPEN LOT: N/A
WAIVER PETITION #WP-16-156

EROSION AND SEDIMENT CONTROL DETAILS

PROJECT NO.: 13005.34 SCALE: AS SHOWN

SEAL: BY: KT/JC CHECK: DS/MT
DWG NO.: 24 OF 32

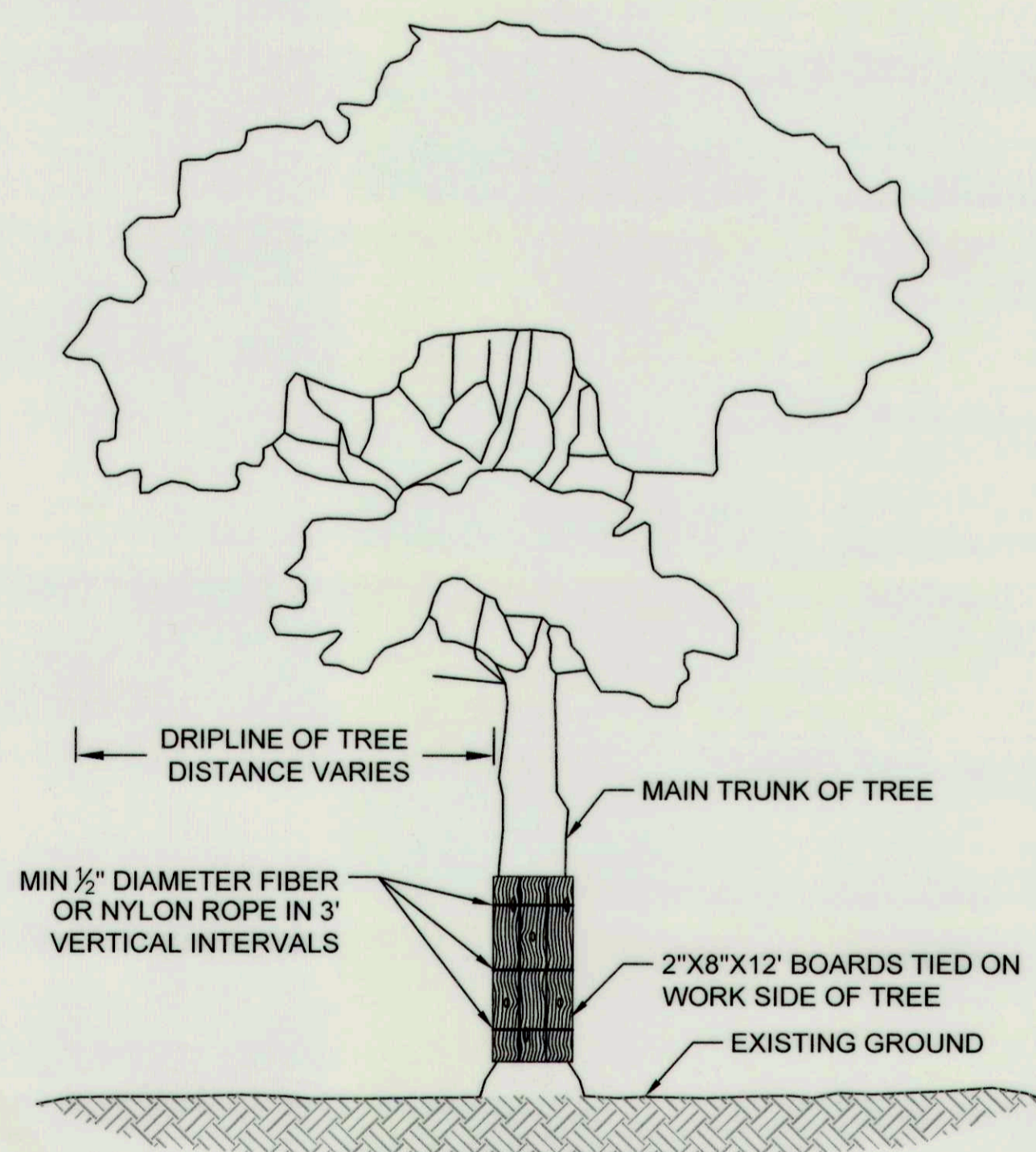
This plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT
Howard Soil Conservation District Date: 10/27/16



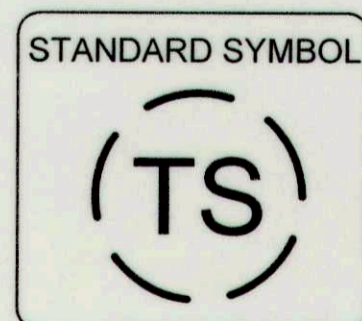
- NOTES:
1. PROTECTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
 2. BOUNDARIES OF PROTECTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICES.
 3. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

BLAZE ORANGE PLASTIC FENCE

NOT TO SCALE

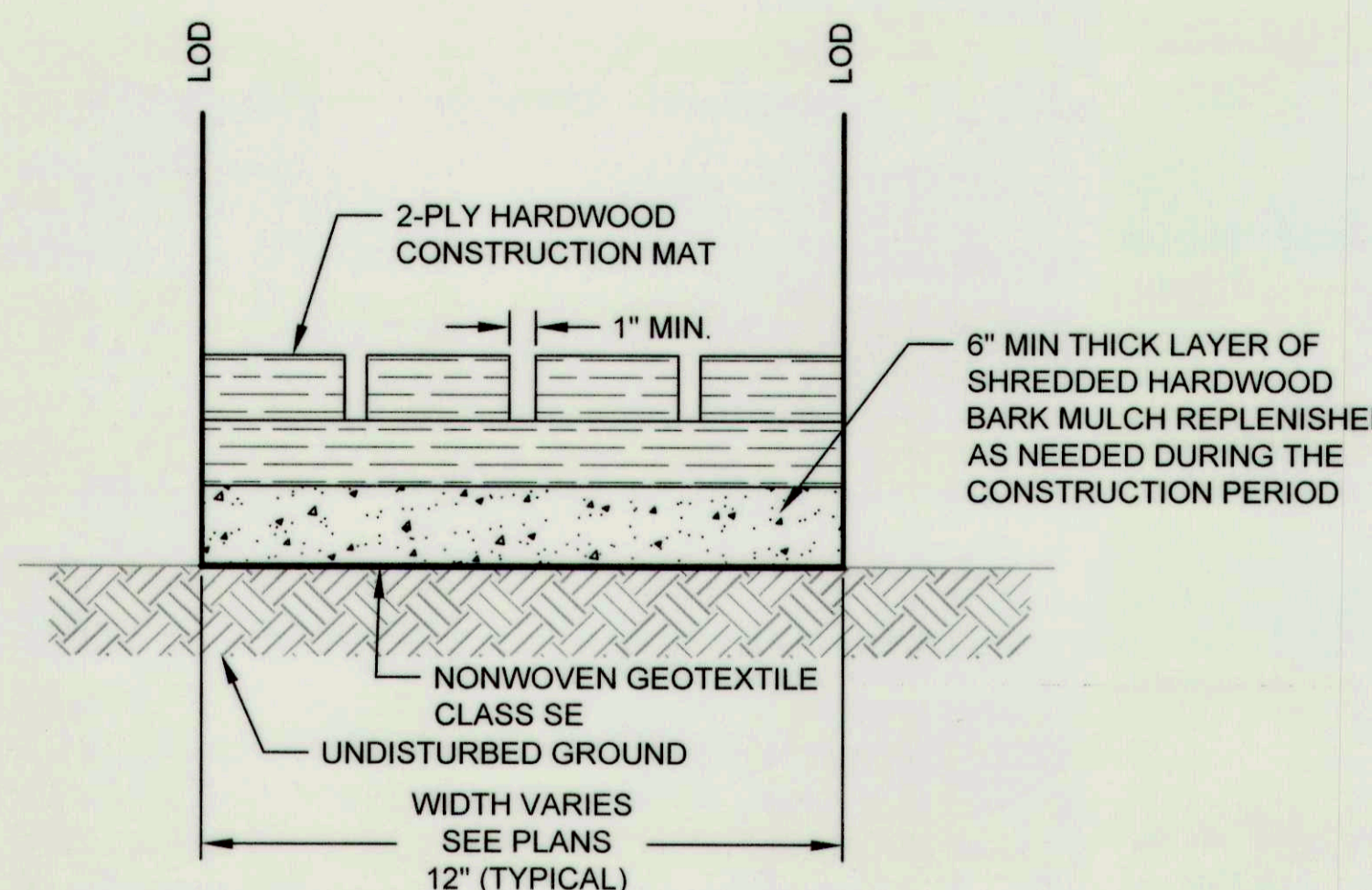


- NOTES:
1. TIE SUFFICIENT 2"X8"X12" BOARDS AROUND MAIN TRUNK OF TREE WITH 1/2" DIAMETER ROPE (FIBER OR NYLON) TO PROTECT ALL AREAS EXPOSED TO CONSTRUCTION.
 2. INSTALL WIRE EYE BOLTS WITH MINIMUM INNER DIAMETER OF 5/8" AND MINIMUM LENGTH OF 4" FIRMLY IN EACH PLANK WHERE FIBER OR NYLON ROPES CROSS OVER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



TREE PLANKING

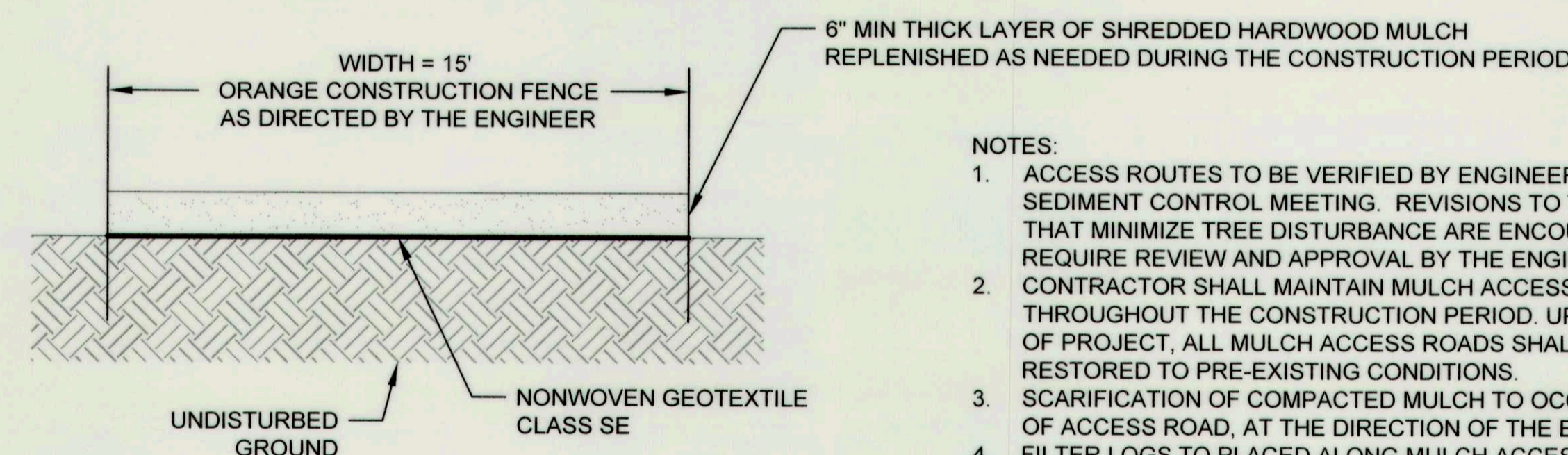
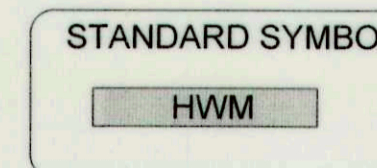
NOT TO SCALE



HARDWOOD MAT DETAIL CROSS SECTION

NOT TO SCALE

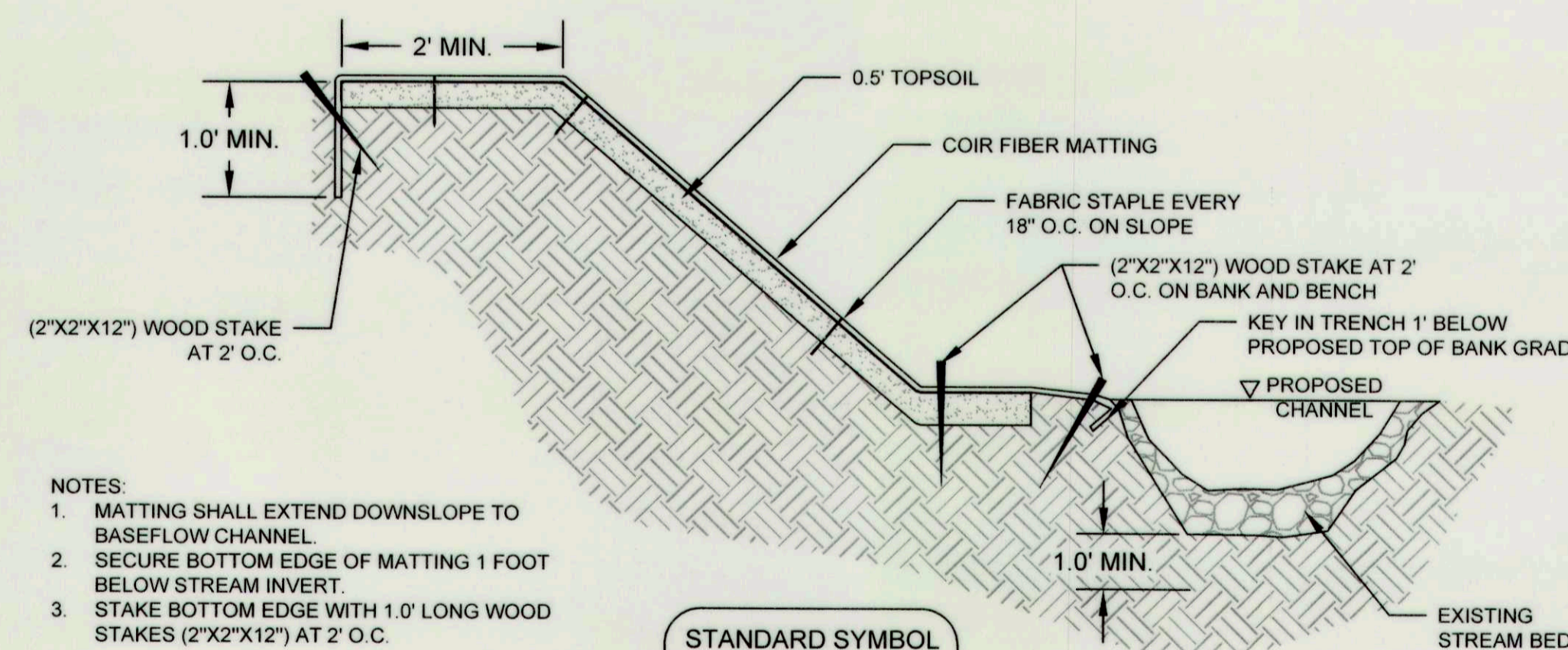
- NOTES:
1. HARDWOOD MATS TO BE INSTALLED AS SHOWN ON THE CONTRACT DOCUMENTS OR AS DIRECTED BY THE ENGINEER.
 2. ACCESS ROUTES TO BE VERIFIED BY THE ENGINEER AT THE EROSION AND SEDIMENT CONTROL MEETING. REVISIONS TO THE ALIGNMENT THAT MINIMIZE TREE DISTURBANCE ARE ENCOURAGED, AND REQUIRE REVIEW AND APPROVAL BY THE ENGINEER.
 3. THE CONTRACTOR SHALL ENSURE THAT EQUIPMENT IS KEPT ON MATS AT ALL TIMES WHERE MATS ARE PRESENT.
 4. THE CONTRACTOR SHALL MAINTAIN MULCH ACCESS ROADS THROUGHOUT THE CONSTRUCTION PERIOD. UPON COMPLETION OF PROJECT, ALL MULCH ACCESS ROADS SHALL BE REMOVED AND RESTORED TO PRE-EXISTING CONDITIONS.



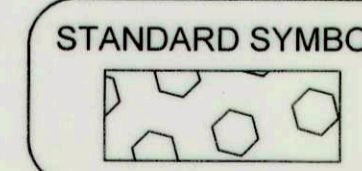
MULCH ACCESS ROAD

NOT TO SCALE

- NOTES:
1. ACCESS ROUTES TO BE VERIFIED BY ENGINEER AT EROSION AND SEDIMENT CONTROL MEETING. REVISIONS TO THE ALIGNMENT THAT MINIMIZE TREE DISTURBANCE ARE ENCOURAGED AND REQUIRE REVIEW AND APPROVAL BY THE ENGINEER.
 2. CONTRACTOR SHALL MAINTAIN MULCH ACCESS PATH THROUGHOUT THE CONSTRUCTION PERIOD. UPON COMPLETION OF PROJECT, ALL MULCH ACCESS ROADS SHALL BE REMOVED AND RESTORED TO PRE-EXISTING CONDITIONS.
 3. SCARIFICATION OF COMPACTED MULCH TO OCCUR UPON REMOVAL OF ACCESS ROAD, AT THE DIRECTION OF THE ENGINEER.
 4. FILTER LOGS TO PLACED ALONG MULCH ACCESS ROAD AS SHOWN ON EROSION AND SEDIMENT CONTROL PLANS.



- NOTES:
1. MATTING SHALL EXTEND DOWNSLOPE TO BASEFLOW CHANNEL.
 2. SECURE BOTTOM EDGE OF MATTING 1 FOOT BELOW STREAM INVERT.
 3. STAKE BOTTOM EDGE WITH 1.0' LONG WOOD STAKES (2"X2"X12") AT 2' O.C.



NOTE: COIR FIBER MATTING SHALL BE ROLLED LENGTH WISE ALONG EACH STREAM BANK EXTENDING FROM TOE OF SLOPE TO A MINIMUM OF TWO FEET PAST THE TOP OF SLOPE UPON COMPLETION OF GRADING AND APPLICATION OF HERBACEOUS PERMANENT SEEDING. IF MORE THAN ONE ROLL IS REQUIRED, MID-BANK OVERLAP SHOULD BE A MINIMUM OF ONE FOOT AND SECURELY FASTENED WITH STAPLES. MATTING CAN BE INSTALLED INCREMENTALLY AS CONSTRUCTION PROGRESSES, PER THE SEQUENCE OF CONSTRUCTION.

COIR FIBER MATTING - TYPICAL SLOPE CROSS SECTION

NOT TO SCALE

This plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT
[Signature] 10/27/16
 Howard Soil Conservation District Date

CLIENT

HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046
 PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

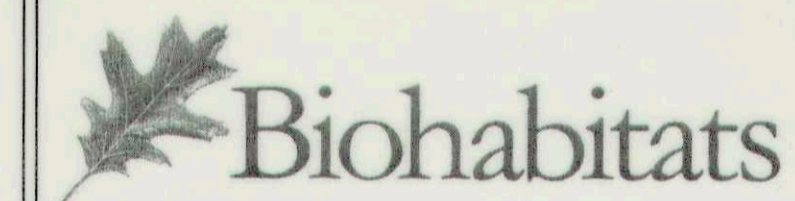
AS BUILT CERTIFICATION

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 PLANS AND SPECIFICATIONS.

NAME: DATE:

APPROVED: DEPARTMENT OF PUBLIC WORKS

[Signature] 10/27/16
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES 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

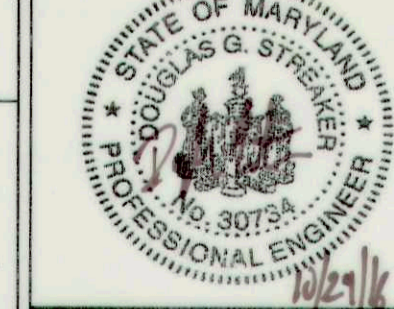
DAVIS BRANCH STREAM RESTORATION PROJECT

SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
 ZONING: RC-DEO TAX MAP/GRID/PARCEL: 010/0024/0316
 ELECTION DISTRICT: 03 OPEN LOT: NA
 WAIVER PETITION #WP-16-156

EROSION AND SEDIMENT CONTROL DETAILS

PROJECT NO.: 13005.34 SCALE: AS SHOWN

SEAL: BY: KT/JC CHECK: DS/MT



DWG NO.: 25 OF 32

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. STREAM CHANNEL MUST NOT BE DISTURBED DURING CLOSURE PERIOD FROM MARCH 1 TO JUNE 15. (1 DAY) THIS PROJECT IS SUBJECT TO THE FOLLOWING APPROVALS:
 - U.S. ARMY CORPS OF ENGINEERS NONTIDAL WETLANDS AND WATERWAYS PERMIT TRACKING #201660781
 - MDE NONTIDAL WETLANDS AND WATERWAYS PERMIT A#97224, TRACKING #201660781
 - MDE NOI PERMIT, REFERENCE #MDRCN02P9
 - THE CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION MEETING ONSITE WITH SEDIMENT CONTROL INSPECTOR AND THE ENGINEER TO REVIEW THE LIMITS OF DISTURBANCE, STRUCTURE TAKEOUT, 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 WEEK)
 - THE CONTRACTOR SHALL ESTABLISH THE TEMPORARY STOCKPILE AREA IN THE LOCATION INDICATED ON THE GRADING PLAN (NOTE: INSTALL FILTER LOGS AND SUPER SILT FENCE AROUND THE PERIMETER OF THE STOCKPILE AREA AS SHOWN). (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)
- DAVIS BRANCH: STA. 0+00 TO 17+12 (12 WEEKS)
- NOTE: A THREE DAY DRY WEATHER PERIOD PER THE NOAA FORECAST IS REQUIRED PRIOR TO INITIATING THE PHASE 1 WORK.
- CLEAR CORRIDOR ALONG DAVIS BRANCH AS REQUIRED TO INSTALL THE MULCH ACCESS ROAD IN THE LOCATION DEPICTED ON THE PLANS. CARE SHOULD BE TAKEN TO MINIMIZE ANY UNNECESSARY DISTURBANCE TO EXISTING VEGETATION AND ROOT ZONES. INSTALL MULCH ACCESS ROAD AND STABILIZE DISTURBED AREAS WITH MULCH AS WORK PROGRESSES. (3 DAYS)
 - INSTALL PUMP AROUND DIVERSION. (1 DAY)
 - CLEAR LIMITS OF DISTURBANCE AS NECESSARY AND BEGIN EXCAVATION AT THE DOWNSTREAM PROJECT LIMITS WORKING IN AN UPSTREAM DIRECTION. SCARIFY EXPOSED SOIL SURFACE ALONG FLOODPLAIN BENCH (APPROX. STA. 11+45 TO 17+12) AND INCORPORATE WOOD CHIPS WITHIN THE UPPER 6 INCHES OF FINISHED GRADE. GRADING SHALL BE LIMITED TO THE AREA THAT CAN BE STABILIZED IN A SINGLE WORK DAY. INSTALL IN-STREAM STRUCTURES (RIFFLES AND LWD) AND COIR MATTING AS WORK PROGRESSES DAILY. INSTALL CASCADE STRUCTURE ALONG TRIBUTARY AT APPROX. STA. 100+23. (4 WEEKS)
 - UPSTREAM OF FLOODPLAIN BENCH BEGINNING AT APPROX. STA. 11+45, CONTINUE EXCAVATION WORKING IN AN UPSTREAM DIRECTION ALONG THE UPPER REACH (STA. 0+00 TO 11+45). GRADING SHALL BE LIMITED TO THE AREA THAT CAN BE STABILIZED IN A SINGLE WORK DAY. PLACE IN-STREAM STRUCTURES (RIFFLES AND LWD) AND COIR MATTING AS WORK PROGRESSES DAILY. INSTALL LOG SILLS ALONG FLOODPLAIN AT THE LOCATIONS DEPICTED ON THE PLANS OR AS OTHERWISE DIRECTED BY THE ENGINEER. EXCAVATE OXBOWS AND INSTALL LWD AND STANDING SNAGS. (6 WEEKS)
 - STABILIZE REMAINDER OF WORK AREA. (1 DAY)
 - WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ENGINEER REMOVE ALL SEDIMENT AND EROSION CONTROL MEASURES. THE CONTRACTOR SHALL TAKE CARE TO REMOVE ALL EXCESS CONSTRUCTION DEBRIS AND TRASH GENERATED FROM CONSTRUCTION ACTIVITIES FROM THE SITE. (1 DAY)
 - PLANT SITE ACCORDING TO PLANTING PLAN IN APPROPRIATE PLANTING SEASON. (2 WEEKS)

HOWARD SOIL CONSERVATION DISTRICT STANDARD (HSCD)

SEDIMENT CONTROL NOTES

- A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410-313-1855 AFTER THE FUTURE LOD AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD. A MINIMUM OF 48 HOUR NOTICE TO CID MUST BE GIVEN AT THE FOLLOWING STAGES:
 - PRIOR TO THE START OF EARTH DISTURBANCE,
 - UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING,
 - PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT,
 - PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES.

OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION IS REQUIRED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, 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 AREAS ON THE PROJECT SITE EXCEPT FOR THOSE AREAS UNDER ACTIVE GRADING.
- 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 TOPSOIL (SEC. B-4-2), 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 APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN. INCREMENTAL STABILIZATION (SEC. B-4-1) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH >15' OF CUT AND/OR FILL. STOCKPILES (SEC. B-4-8) IN EXCESS OF 20 FT. MUST BE BENCHED WITH STABLE OUTLET. ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOIL STABILIZATION MATTING (SEC. B-4-6).
- 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 CID.
- SITE ANALYSIS:

TOTAL AREA OF SITE:	4.0 ACRES	4.1 ACRES	4.16 ACRES
AREA DISTURBED:	4.0 ACRES	4.1 ACRES	4.16 ACRES
AREA TO BE ROOFED OR PAVED:	0.0 ACRES		
AREA TO BE VEGETATIVELY STABILIZED:	4.0 ACRES	4.1 ACRES	4.16 ACRES
TOTAL CUT:	2154 CU. YDS.		
TOTAL FILL:	2470 CU. YDS.		
OFFSITE WASTE/BORROW AREA LOCATION:	ONSITE		
- ANY SEDIMENT CONTROL PRACTICE WHICH 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 CID. THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY, AND THE NEXT DAY AFTER EACH RAIN EVENT. A WRITTEN REPORT BY THE CONTRACTOR, MADE AVAILABLE UPON REQUEST, IS PART OF EVERY INSPECTION AND SHOULD INCLUDE:
 - INSPECTION DATE
 - INSPECTION TYPE (ROUTINE, PRE-STORM EVENT, DURING RAIN EVENT)
 - NAME AND TITLE OF INSPECTOR
 - WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST RECORDED PRECIPITATION)
 - BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES
 - EVIDENCE OF SEDIMENT DISCHARGES
 - IDENTIFICATION OF PLAN DEFICIENCIES
 - IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
 - IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
 - COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
 - PHOTOGRAPHS
 - MONITORING/SAMPLING
 - MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
 - OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES, MDE).
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.
- ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION. MINOR REVISIONS MAY ALLOWED BY THE CID PER THE LIST OF HSCD-APPROVED FIELD CHANGES.
- DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D. 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 CID. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE CID, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.
- WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.
- TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.
- ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBRICATED AT 25' MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPHILL BY 2' IN ELEVATION.
- STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE):
 - USE I AND IP MARCH 1 - JUNE 15
 - USE III AND IIIIP OCTOBER 1 - APRIL 30
 - USE IV MARCH 1 - MAY 31
- A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.

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 WHEREVER 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.

2011 MD STANDARDS & SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL - B-4-8 STOCKPILE AREA

DEFINITION - A MOUND OR PILE OF SOIL PROTECTED BY APPROPRIATELY DESIGNED EROSION AND SEDIMENT CONTROL MEASURES.

PURPOSE - TO PROVIDE A DESIGNATED LOCATION FOR THE TEMPORARY STORAGE OF SOIL THAT CONTROLS THE POTENTIAL FOR EROSION, SEDIMENTATION, AND CHANGES TO DRAINAGE PATTERNS. CONDITIONS WHERE PRACTICE APPLIES - STOCKPILE AREAS ARE UTILIZED WHEN IT IS NECESSARY TO SALVAGE AND STORE SOIL FOR LATER USE.

CRITERIA:

- THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN.
- THE FOOTPRINT OF THE STOCKPILE MUST BE SIZED TO ACCOMMODATE THE ANTICIPATED VOLUME OF MATERIAL AND BASED ON A SIDE SLOPE RATIO NO STEEPER THAN 2:1. BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.
- RUNOFF FROM THE STOCKPILE AREA MUST DRAIN TO A SUITABLE SEDIMENT CONTROL PRACTICE.
- ACCESS THE STOCKPILE AREA FROM THE UPGRADE SIDE.
- CLEAR WATER RUNOFF INTO THE STOCKPILE AREA MUST BE MINIMIZED BY USE OF A DIVERSION DEVICE SUCH AS AN EARTH DIKE, TEMPORARY SWALE OR DIVERSION FENCE. PROVISIONS MUST BE MADE FOR DISCHARGING CONCENTRATED FLOW IN A NON-EROSIVE MANNER.
- WHERE RUNOFF CONCENTRATES ALONG THE TOE OF THE STOCKPILE FILL, AN APPROPRIATE EROSION/SEDIMENT CONTROL PRACTICE MUST BE USED TO INTERCEPT THE DISCHARGE.
- STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-1 INCREMENTAL STABILIZATION AND STANDARD B-4-4 TEMPORARY STABILIZATION.
- IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LINER SHOULD BE PROVIDED BELOW THE STOCKPILE TO FACILITATE CLEANUP. STOCKPILES CONTAINING CONTAMINATED MATERIAL MUST BE COVERED WITH IMPERMEABLE SHEETING.

MAINTENANCE:

THE STOCKPILE AREA MUST CONTINUOUSLY MEET THE REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. SIDE SLOPES MUST BE MAINTAINED AT NO STEEPER THAN A 2:1 RATIO. THE STOCKPILE AREA MUST BE KEPT FREE OF EROSION. IF THE VERTICAL HEIGHT OF A STOCKPILE EXCEEDS 20 FEET FOR 2:1 SLOPES, 30 FEET FOR 3:1 SLOPES, OR 40 FEET FOR 4:1 SLOPES, BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.

CLIENT

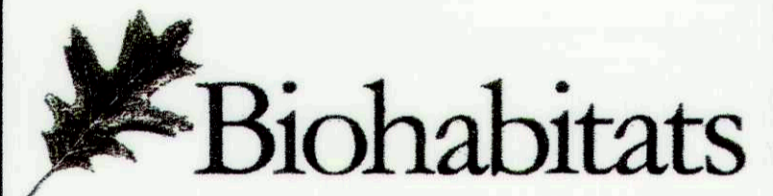
HOWARD COUNTY
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

11/28/2016 REDLINE EXPAND LOD
01/23/2017 REDLINE EXPAND LOD

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES 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

**DAVIS BRANCH
STREAM
RESTORATION
PROJECT**

SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK MD
ZONING: RC-DEO TAX MAP/GRID/PARCEL: 010002040318
ELECTION DISTRICT: 03 OPEN LOT N/A
WAIVER PETITION #WP-16-156

**EROSION AND
SEDIMENT
CONTROL NOTES**

PROJECT NO.: 13005.34 SCALE: AS SHOWN

SEAL: BY: KT/JC CHECK: DS/MT


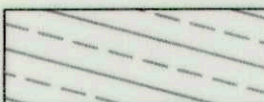
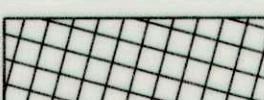




26 OF 32

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

Howard Soil Conservation District Date 10/27/16

PLANTING LEGEND

-  PLANTING ZONE 1
-  PLANTING ZONE 2
-  PLANTING ZONE 3
-  PLANTING ZONE 4
-  PLANTING ZONE 5



CLIENT

HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046
 PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

AS BUILT CERTIFICATION
 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 PLANS AND SPECIFICATIONS.

NAME: DATE:

APPROVED: DEPARTMENT OF PUBLIC WORKS
Mark W. ...
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE



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

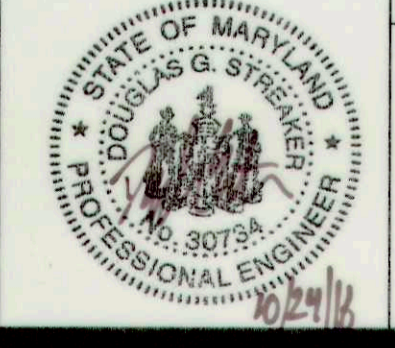
**DAVIS BRANCH
 STREAM
 RESTORATION
 PROJECT**

SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
 ZONING: RC-DEO TAX MAP/GRID/PARCEL: 010100240316
 ELECTION DISTRICT: 03 OPEN LOT NA
 WAIVER PETITION #WP-16-156

PLANTING PLAN


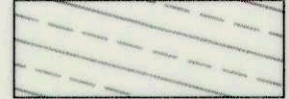
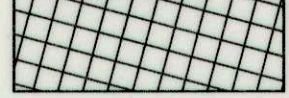

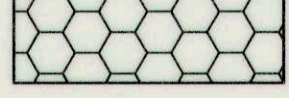
PROJECT NO.: 13005.34 SCALE: 1" = 20'

SEAL: BY: KT/JC CHECK: DS/MT
 DWG. NO.:





PLANTING LEGEND

-  PLANTING ZONE 1
-  PLANTING ZONE 2
-  PLANTING ZONE 3
-  PLANTING ZONE 4
-  PLANTING ZONE 5

CLIENT

HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046
 PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

AS BUILT CERTIFICATION
 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 PLANS AND SPECIFICATIONS.

NAME: DATE:

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] DATE: 11/25/16
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

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

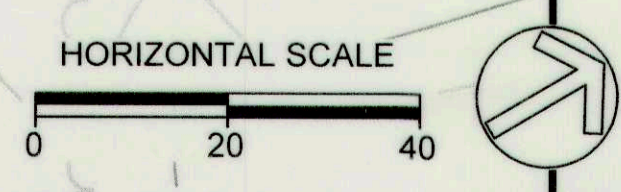
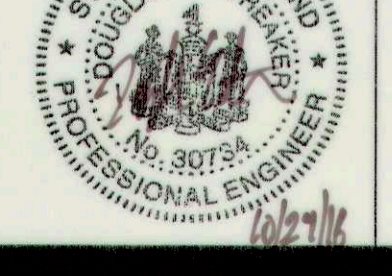
**DAVIS BRANCH
 STREAM
 RESTORATION
 PROJECT**

SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
 ZONING: RC-DEO TAX MAP/GRID/PARCEL: 01000240316
 ELECTION DISTRICT: 03 OPEN LOT NO:
 WAIVER PETITION #WP-16-156


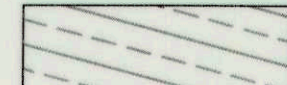
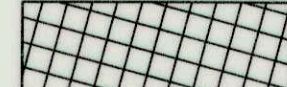


PLANTING PLAN

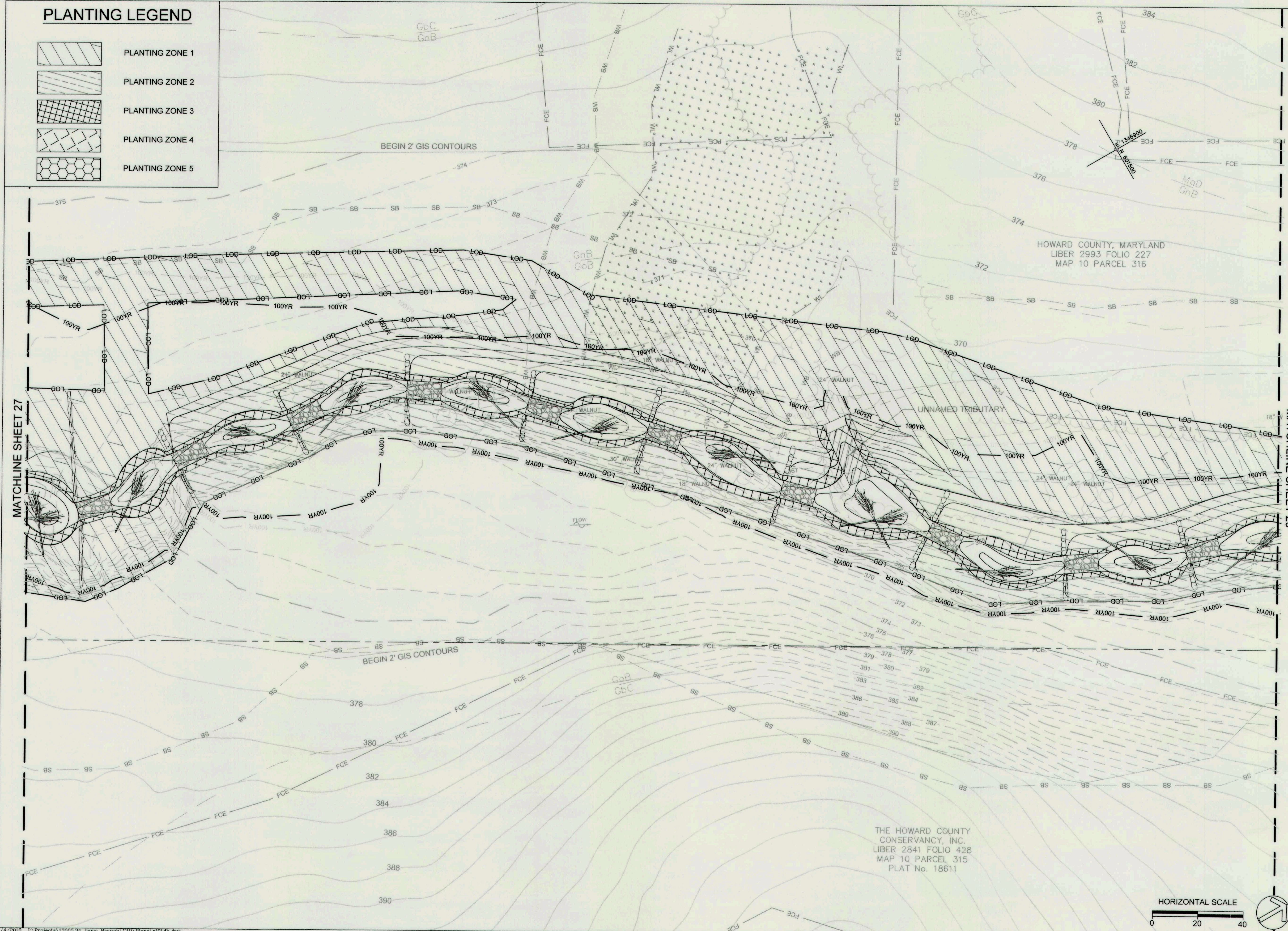
PROJECT NO: 13005.34 SCALE: 1" = 20'

SEAL: BY: KT/JC CHECK: DS/MT
 DWG. NO.:



PLANTING LEGEND

-  PLANTING ZONE 1
-  PLANTING ZONE 2
-  PLANTING ZONE 3
-  PLANTING ZONE 4
-  PLANTING ZONE 5



MATCHLINE SHEET 27

MATCHLINE SHEET 29

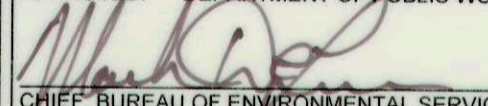
CLIENT

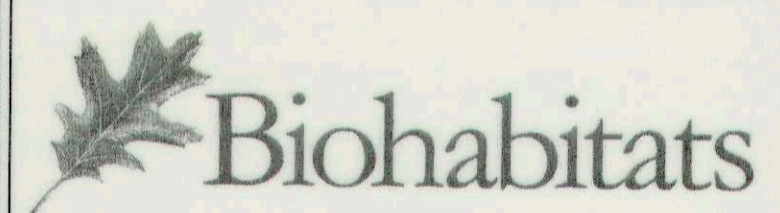
HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046
 PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

AS BUILT CERTIFICATION
 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 PLANS AND SPECIFICATIONS.

NAME: DATE:

APPROVED: DEPARTMENT OF PUBLIC WORKS

 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE: 6/25/16



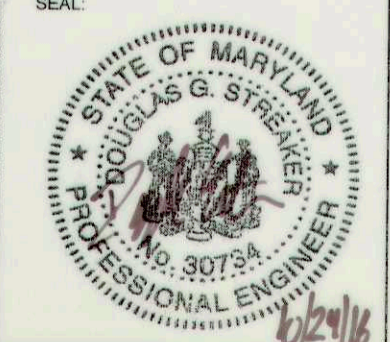
The Stables Building 2081 Clipper Park Road
 Baltimore, MD 21211 / ph: 410.554.0156
 fx: 410.554.0168 / www.biohabitats.com
 Restore the Earth & Inspire Ecological Stewardship

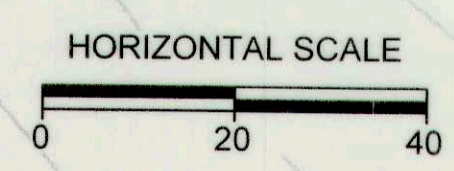
**DAVIS BRANCH
 STREAM
 RESTORATION
 PROJECT**

SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
 ZONING: RC-DEO TAX MAP/GRID/PARCEL: 010/0024/0316
 ELECTION DISTRICT: 03 OPEN LOT N/A
 WAIVER PETITION #WP-16-156


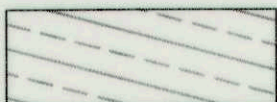
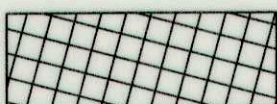

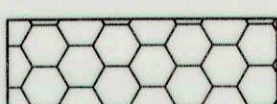
PLANTING PLAN

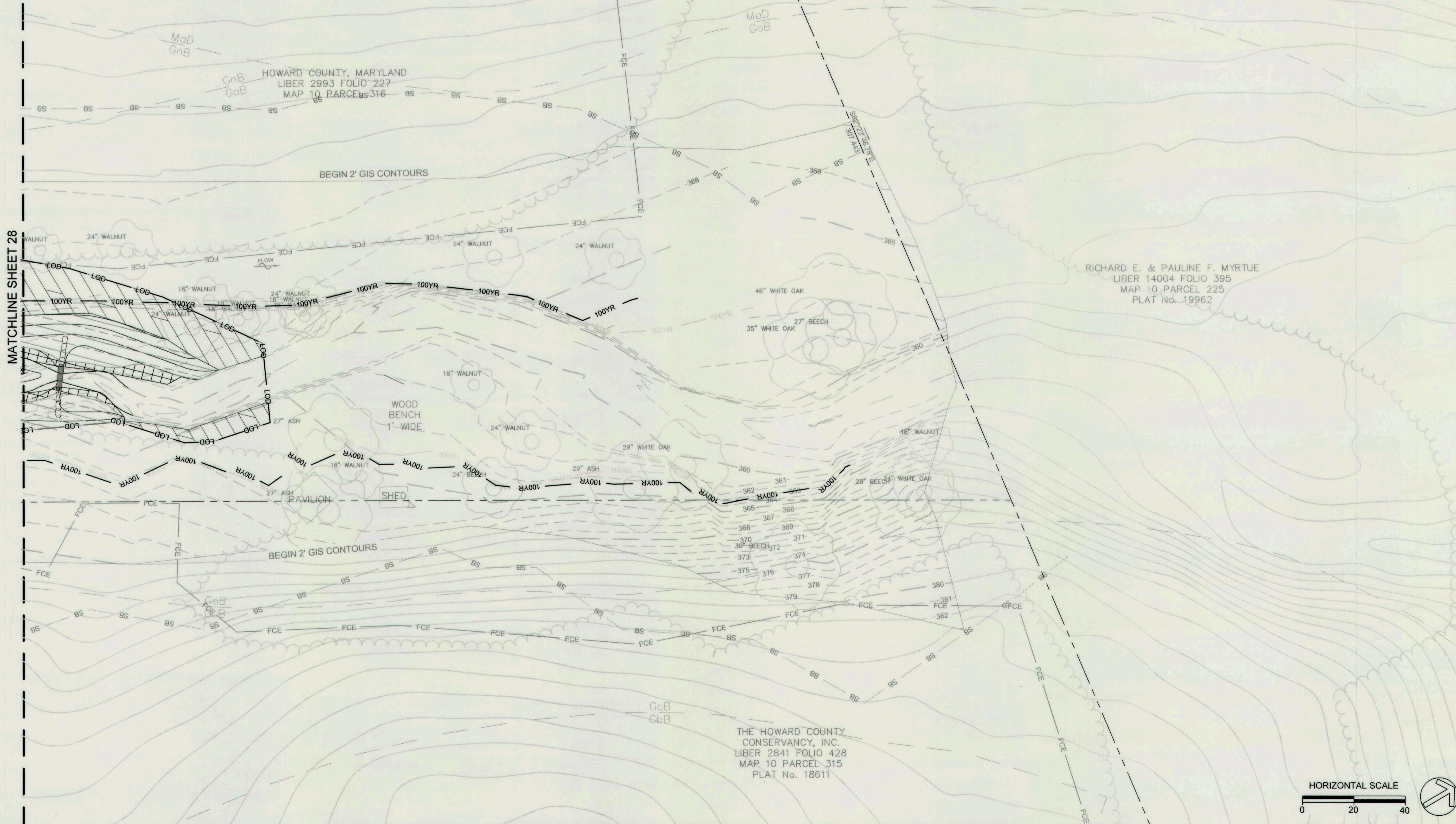
PROJECT NO.: 13005.34 SCALE: 1" = 20'

SEAL:  BY: KT/JC CHECK: DS/MT
 DWG NO.: 29 OF 32



PLANTING LEGEND

-  PLANTING ZONE 1
-  PLANTING ZONE 2
-  PLANTING ZONE 3
-  PLANTING ZONE 4
-  PLANTING ZONE 5



CLIENT

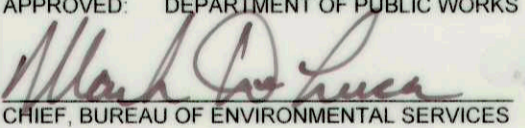
HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046
 PHONE: (410) 313-0522

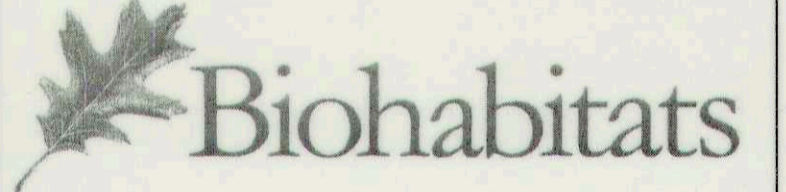
DATE: ISSUES / REVISIONS

AS BUILT CERTIFICATION

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 PLANS AND SPECIFICATIONS.

NAME: DATE:

APPROVED: DEPARTMENT OF PUBLIC WORKS

 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE: 10/2/16




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

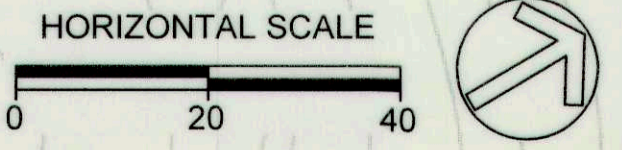
**DAVIS BRANCH
 STREAM
 RESTORATION
 PROJECT**

SITE ADDRESS: 10520 OLD FREDERICK RD. WOODSTOCK, MD
 ZONING: FC-DEG TAX MAP/GRID/PARCEL: 010/0024/0316
 ELECTION DISTRICT: 03 OPEN LOT N/A
 WAIVER PETITION #WP-16-156

TITLE:
PLANTING PLAN

PROJECT NO.: 13005.34 SCALE: 1" = 20'

SEAL:  BY: KT/JC CHECK: DS/MT
 DWG NO.: 30 OF 32



CLIENT

HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046
 PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

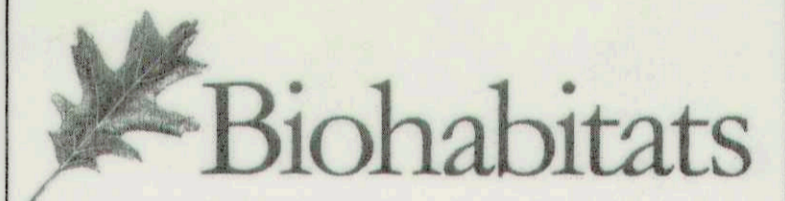
AS BUILT CERTIFICATION

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 PLANS AND SPECIFICATIONS.

NAME DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

[Signature] *[Signature]*
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES 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

**DAVIS BRANCH
 STREAM
 RESTORATION
 PROJECT**

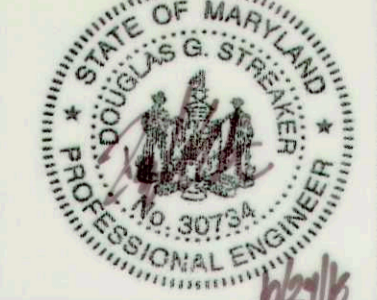
SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
 ZONING: RC-DEC TAX MAP/GRID/PARCEL: 01000240316
 ELECTION DISTRICT: 03 OPEN LOT #1A
 WAIVER PETITION #WP-16-155

TITLE:

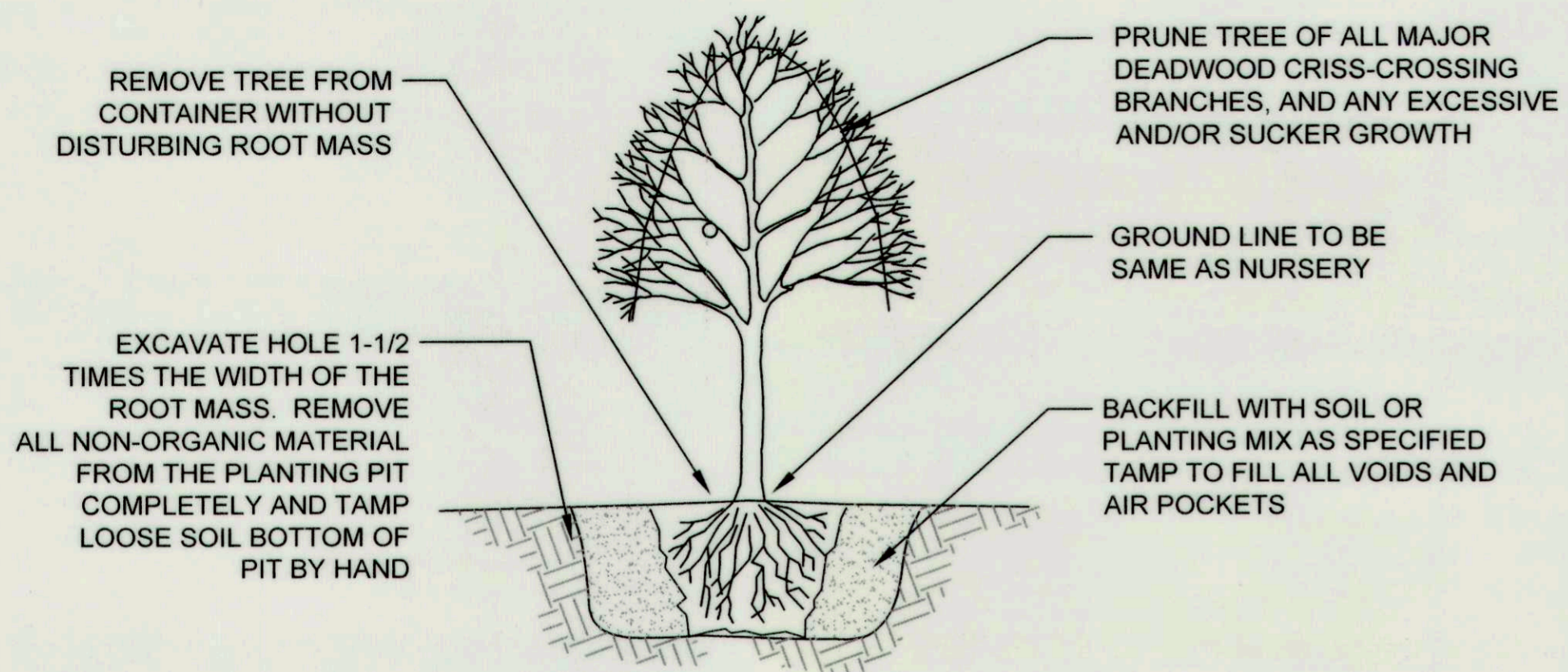
PLANTING DETAILS

PROJECT NO.: 13005.34 SCALE: AS SHOWN

SEAL: BY: KT/JC CHECK: DS/MT

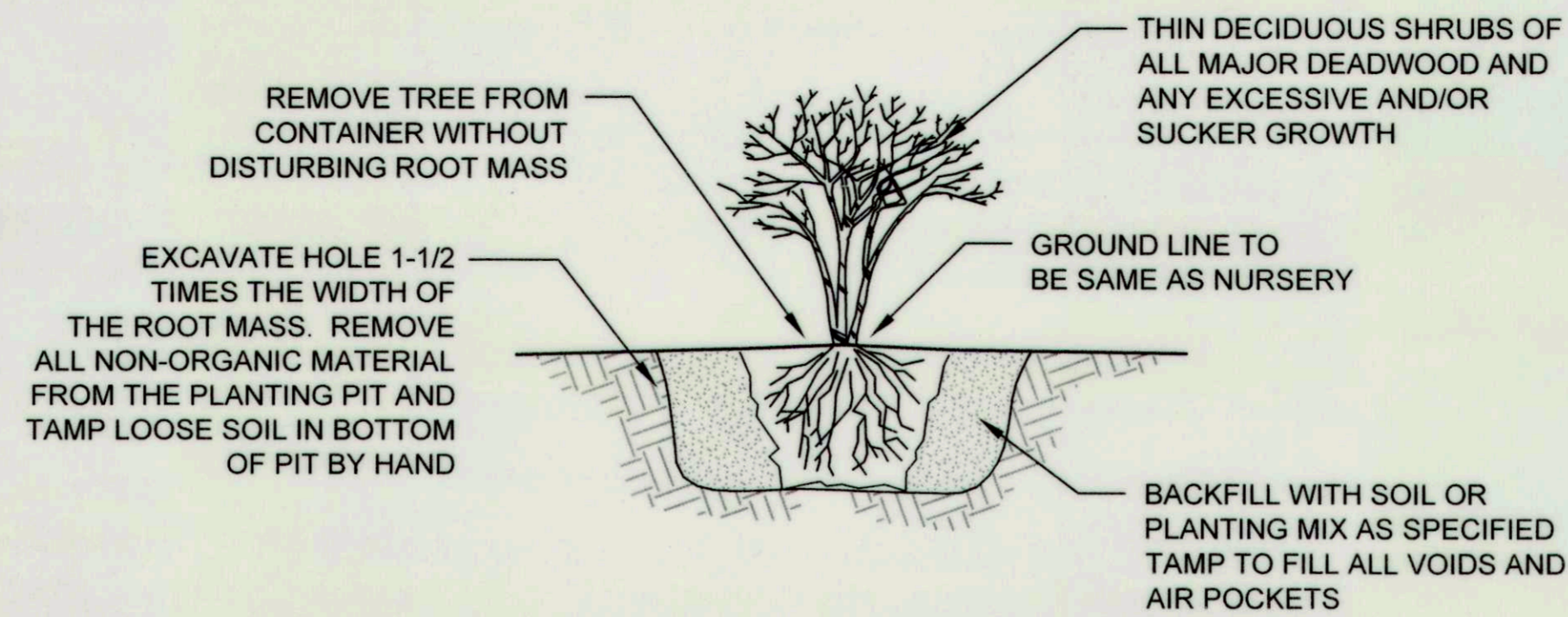


DWG NO.: 31 OF 32



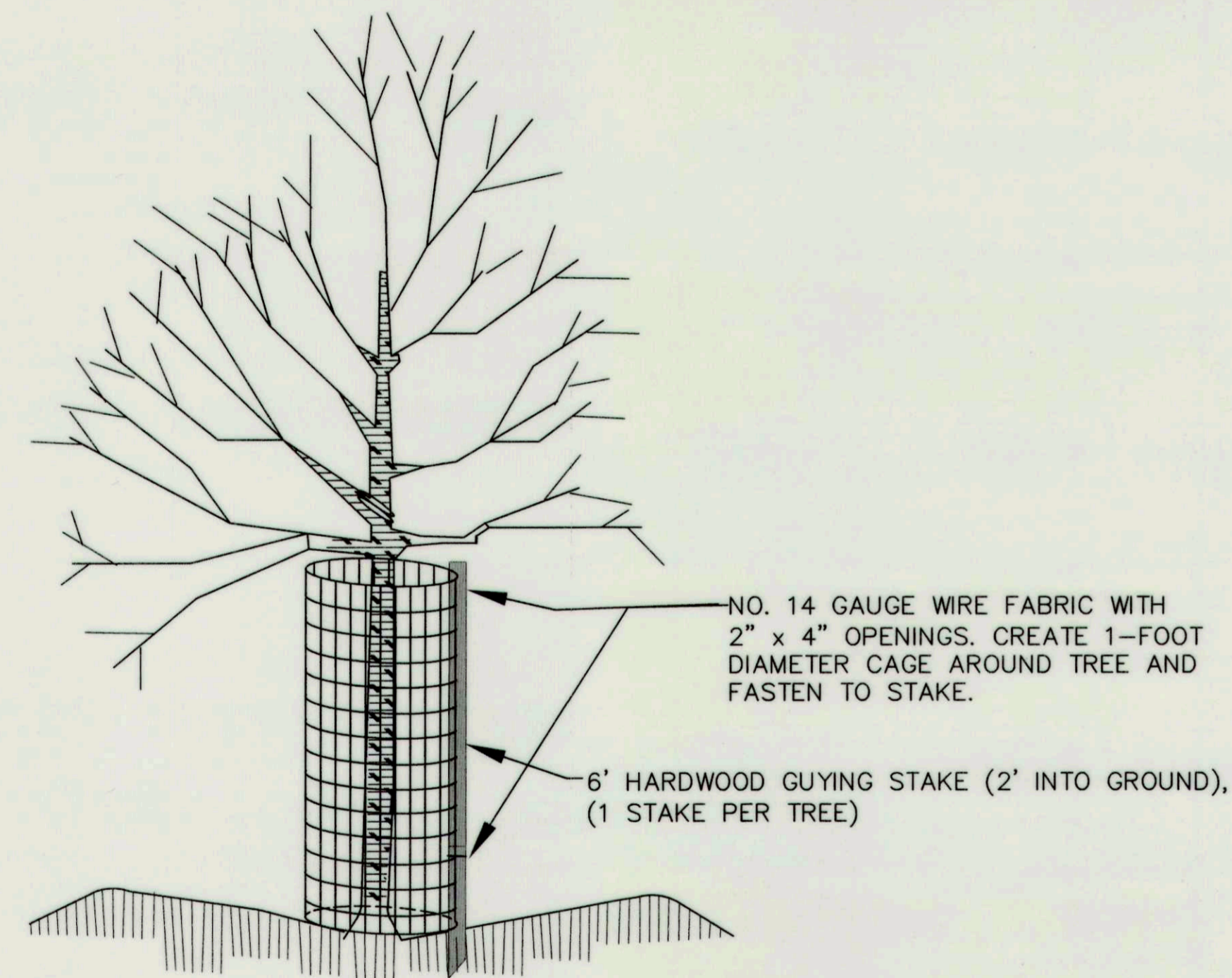
TREE PLANTING - CONTAINER GROWN

NOT TO SCALE



SHRUB PLANTING - CONTAINER GROWN

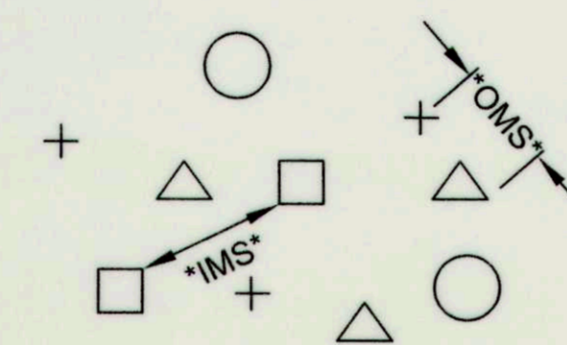
NOT TO SCALE



- NOTES:
1. DEER PROTECTION CAGES TO BE INSTALLED AROUND ALL PLANTED TREES AND SHRUBS.
 2. HEIGHT OF CAGE SHALL BE 4-FEET (MIN.)
 3. CAGE SHALL BE FASTENED TO STAKE WITH TWO (MIN.) 11-INCH RELEASABLE CABLE TIES (ONE AT TOP AND ONE 6" (MIN.) ABOVE THE GROUND.)
 4. DO NOT DAMAGE TREE DURING INSTALLATION.
 5. DEER BARK PROTECTORS (ITEM #bg48, BY A.M. LEONARD, OR EQUAL) MAY BE SUBSTITUTED FOR TREES GREATER THAN 3/4" CALIPER. ALL OTHER SUBSTITUTIONS MUST BE APPROVED BY FOREST ECOLOGIST.
 6. CAGES TO BE REMOVED AT DIRECTION OF FOREST ECOLOGIST.
 7. ENSURE CAGE IS SECURE TO GROUND TO PREVENT UPLIFT BY DEER.

DEER PROTECTION CAGE

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"

NOTE: EACH SYMBOL INDICATES A DIFFERENT SPECIES

PLANT SPACING - RANDOM

PLAN VIEW

NOT TO SCALE

CLIENT

HOWARD COUNTY
 STORMWATER MANAGEMENT DIVISION
 6751 COLUMBIA GATEWAY DRIVE
 SUITE 514
 COLUMBIA, MD 21046
 PHONE: (410) 313-0522

DATE: ISSUES / REVISIONS

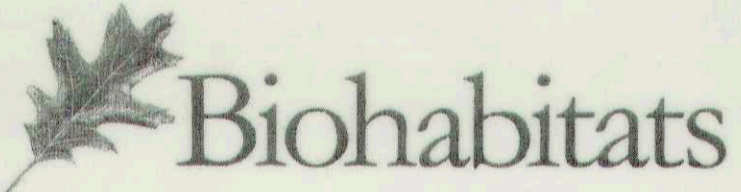
AS BUILT CERTIFICATION

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 PLANS AND SPECIFICATIONS.

NAME DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

Marked Sun 10/25/16
 CHIEF, BUREAU OF ENVIRONMENTAL SERVICES 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

DAVIS BRANCH
 STREAM
 RESTORATION
 PROJECT

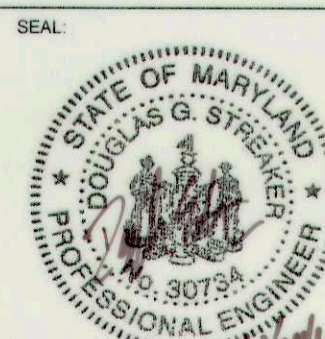
SITE ADDRESS: 10520 OLD FREDERICK RD, WOODSTOCK, MD
 ZONING: RC-DEO TAX MAP: GRID/PARCEL: 0100024/0316
 ELECTION DISTRICT: 03 OPEN LOT: N/A
 WALKER PETITION #WP-16-156

TITLE: **PLANTING SCHEDULES**

PROJECT NO.: 13005.34 SCALE: AS SHOWN

SEAL: BY: KT/JC CHECK: DS/MT

DWG NO.:



32 OF 32

PLANT COMPOSITION SCHEDULE											
Zone 4 - Oxbow Fringe										Size (acres): 0.10	
Overall Minimum Spacing (ft.)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Height	Size	Individual Minimum Spacing (ft.)	
2	10890			NATIVE SEED							
		7	76	Carex crinita	Fringed sedge		Plug	Random	2"	8	
		7	76	Carex stricta	Tussock sedge		Plug	Random	2"	8	
		7	76	Chelone glabra	White turtlehead		Plug	Random	2"	8	
		7	76	Cyperus strigosus	Strawcolored flatsedge		Plug	Random	2"	8	
		8	87	Iris versicolor	Blue flag		Plug	Random	2"	7	
		7	76	Juncus effusus	Soft rush		Plug	Random	2"	8	
		7	76	Lobelia cardinalis	Cardinal flower		Plug	Random	2"	8	
		7	76	Onoclea sensibilis	Sensitive fern		Plug	Random	2"	8	
		7	76	Osmunda regalis	Royal fern		Plug	Random	2"	8	
		7	76	Saururus cernuus	Lizard's tail		Plug	Random	2"	8	
		7	76	Scirpus validus	Softstem bulrush		Plug	Random	2"	8	
		78	847	= total							

PLANT COMPOSITION SCHEDULE											
Zone 5 - Pollinator Meadow										Size (acres): 0.51	
Overall Minimum Spacing (ft.)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Height	Size	Individual Minimum Spacing (ft.)	
N/A	70			NATIVE SEED							
		5	2	Asclepias tuberosa	Butterfly weed	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		5	2	Asclepias syriaca	Common milkweed	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		5	2	Baptisia tinctoria	Horseflyweed	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		5	2	Ceanothus americanus	New Jersey tea	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		5	2	Cirsium discolor	Field thistle	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		5	2	Coreopsis lanceolata	Lanceleaf coreopsis	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		5	2	Coreopsis verticillata	Threadleaf coreopsis	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		5	2	Danthonia spicata	Poverty grass	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		5	2	Echinacea purpurea	Purple coneflower	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		5	2	Elymus canadensis	Canada wildrye	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		5	2	Elymus hystrix	Bottlebrush grass	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		5	2	Eutrochium maculatum	Spotted Joe-pye weed	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		5	2	Helenium autumnale	Common sneezeweed	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		5	2	Liatris spicata	Dense blazing star	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		5	2	Monarda fistulosa	Beebalm	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		5	2	Schizachyrium scoparium	Little bluestem	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		5	2	Solidago rugosa	Wrinkleleaf goldenrod	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		5	2	Solidago sempervirens	Seaside goldenrod	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		5	2	Symphyotrichum novae-angliae	New England aster	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		5	2	Vernonia noveboracensis	New York ironweed	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		100	40	= total (lb)							

P.L.S.=pure live seed

PLANT COMPOSITION SCHEDULE											
Zone 1 - Piedmont Riparian Forest										Size (acres): 2.23	
Overall Minimum Spacing (ft.)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Height	Size	Individual Minimum Spacing (ft.)	
15	194			TREES							
		10	43	Acer rubrum	Red maple	CON (#10-15)	Random	6 ft. min.	48		
		10	43	Asimina triloba	Paw-paw	CON (#10-15)	Random	6 ft. min.	48		
		12	52	Betula nigra	River birch	CON (#10-15)	Random	6 ft. min.	43		
		12	52	Nyssa sylvatica	Black gum	CON (#10-15)	Random	6 ft. min.	43		
		12	52	Platanus occidentalis	Sycamore	CON (#10-15)	Random	6 ft. min.	43		
		12	52	Quercus bicolor	Swamp white oak	CON (#10-15)	Random	6 ft. min.	43		
		12	52	Quercus lyrata	Overcup oak	CON (#10-15)	Random	6 ft. min.	43		
		10	43	Carpinus caroliniana	Ironwood	CON (#10-15)	Random	6 ft. min.	48		
		10	43	Cercis canadensis	Eastern redbud	CON (#10-15)	Random	6 ft. min.	48		
		100	432	= total							
12	303			SHRUBS							
		20	135	Alnus serrulata	Smooth alder	CON (#2)	Random	3 - 4 ft (#2)	27		
		20	135	Ilex verticillata	Winterberry	CON (#2)	Random	3 - 4 ft (#2)	27		
		25	169	Lindera benzoin	Spicebush	CON (#2)	Random	3 - 4 ft (#2)	24		
		20	135	Vaccinium corymbosum	Highbush blueberry	CON (#2)	Random	3 - 4 ft (#2)	27		
		15	101	Viburnum dentatum	Southern arrowwood	CON (#2)	Random	3 - 4 ft (#2)	31		
		100	675	= total							
N/A	70			NATIVE SEED							
		15	23	Asclepias syriaca	Common milkweed	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		15	23	Chasanthium latifolium	River oats	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		12	19	Dichanthium clandestinum	Deer tongue	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		12	19	Elymus riparius	Riverbank wild rye	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		12	19	Elymus virginicus	Virginia wild rye	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		12	19	Eutrochium fistulosum	Joe-pye weed	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		10	16	Lolium multiflorum	Annual rye	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		12	19	Monarda fistulosa	Wild bergamot	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		100	157	= total							

CON=container; P.L.S.=pure live seed

PLANT COMPOSITION SCHEDULE											
Zone 2 - Floodplain Bench										Size (acres): 0.36	
Overall Minimum Spacing (ft.)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Height	Size	Individual Minimum Spacing (ft.)	
12	303			TREES							
		20	22	Acer rubrum	Red maple	CON (#10-15)	Random	6 ft. min.	27		
		20	22	Acer saccharinum	Silver maple	CON (#10-15)	Random	6 ft. min.	27		
		20	22	Betula nigra	River birch	CON (#10-15)	Random	6 ft. min.	27		
		20	22	Carpinus caroliniana	Ironwood	CON (#10-15)	Random	6 ft. min.	27		
		20	22	Platanus occidentalis	Sycamore	CON (#10-15)	Random	6 ft. min.	27		
		100	110	= total							
10	436			SHRUBS							
		14	22	Alnus serrulata	Smooth alder	CON (#2)	Random	3 - 4 ft (#2)	27		
		14	22	Ilex verticillata	Winterberry	CON (#2)	Random	3 - 4 ft (#2)	27		
		15	24	Lindera benzoin	Spicebush	CON (#2)	Random	3 - 4 ft (#2)	26		
		14	22	Sambucus nigra var. canadensis	Elderberry	CON (#2)	Random	3 - 4 ft (#2)	27		
		14	22	Viburnum nudum	Poosumhaw	CON (#2)	Random	3 - 4 ft (#2)	27		
		71	112	= total							
N/A	70			NATIVE SEED							
		15	4	Elymus riparius	Riverbank wild rye	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		15	4	Eupatorium fistulosum	Joe-pye weed	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		15	4	Lobelia cardinalis	Cardinal flower	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		15	4	Onoclea sensibilis	Sensitive fern	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		15	4	Osmunda regalis	Royal fern	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		15	4	Saururus cernuus	Lizard's tail	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		15	4	Woodwardia areolata	Netted chainfern	LB of P.L.S. 76 %	SEED	N/A	N/A	N/A	
		105	28	= total							

CON=container; P.L.S.=pure live seed

PLANT COMPOSITION SCHEDULE											
Zone 3 - Streambank Stabilization										Size (acres): 0.31	
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			TREES							
		20	675	Salix nigra	Black willow	18" LIVE STAKE	Random	2.5" CAL	4		
		20	675	Salix interior	Sandbar willow	18" LIVE STAKE	Random	2.5" CAL	4		
		20	675	Salix discolor	Pussy willow	18" LIVE STAKE	Random	2.5" CAL	4		
		20	675	Salix sericea	Silky willow	18" LIVE STAKE	Random	2.5" CAL	4		
		20	675	Sambucus canadensis	American elder	18" LIVE STAKE	Random	2.5" CAL	4		
		100	3376	= total							
20	109			SHRUB							
		50	17	Cornus sericea	Red-osier dogwood	18" LIVE STAKE	Random	0.5 - 1" CAL	28		
		50	17	Cornus amomum	Silky dogwood	18" LIVE STAKE	Random	0.5 - 1" CAL	28		
		100	34	= total							
2.5	6970			HERBACEOUS PLANTS							
		30	648	Scirpus cyperinus	Wool grass	PLUG	Clump	2" Plug	5		
		30	648	Elymus riparius	Riverbank wild rye	PLUG	Clump	2" Plug	5		
		40	864	Juncus effusus	Soft rush	PLUG	Clump	2" Plug	4		
		100	2160	= total							