BEFORE YOU DIG CALL
1-800-257-7777 OR DIAL 811

STILLMEADOW STREAM & OUTFALL RESTORATION
CONSTRUCTION DRAWINGS
HARFORD COUNTY, MARYLAND

BID NO. 20-166

GENERAL NOTES

1. TOPOGRAPHIC SURVEY WAS PERFORMED BY BAYLAND CONSULTANTS AND DESIGNERS, INC. IN MAY AND JUNE 2017. COORDINATES SHOWN HERE ON ARE REFERRED TO MARYLAND COORDINATE SYSTEM (NAD 83/1991) AND ARE BASED ON RTK GPS VIRTUAL NETWORK. ELEVATIONS SHOWN HERE ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAD 88) AND ARE BASED ON RTK GPS VIRTUAL NETWORK.

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
TPS 3	633,076.16	1,497,499.06	6.62	REBAR/CAP
TPS 6	632,922.65	1,497,873.19	17.29	REBAR/CAP
TPS 11	632,843.71	1,498,479.68	53.97	REBAR/CAP

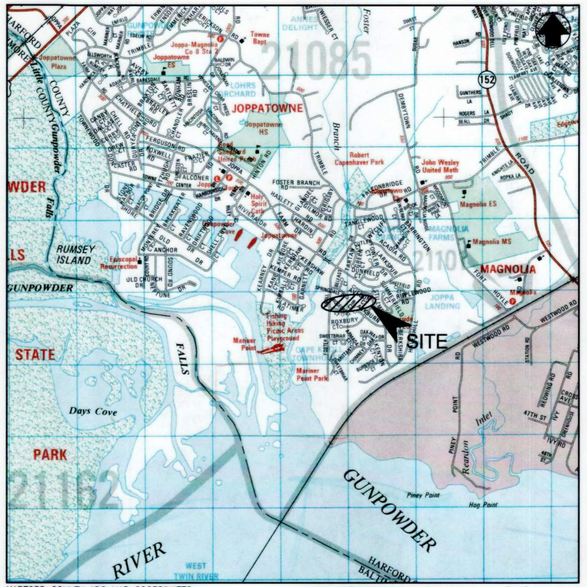
2. CONTOURS SHOWN OUTSIDE LIMIT OF WORK ARE BASED ON HARFORD COUNTY 2015 GIS TOPOGRAPHY.
3. EXISTING UTILITIES SHOWN OUTSIDE THE LIMIT OF WORK ARE BASED ON HARFORD COUNTY GIS & HAVE NOT BEEN FIELD LOCATED.
4. PROPERTY LINES AND EASEMENTS SHOWN ARE BASED ON HARFORD COUNTY 2017 CADASTRAL DATA
5. ONLY TREES WITH A 12" DIAMETER OR GREATER WITHIN THE LIMITS OF WORK WERE FIELD LOCATED.
6. WETLAND DELINEATION WAS PERFORMED BY BAYLAND CONSULTANTS AND DESIGNERS, INC IN JUNE 2017.
7. THE STREAM IS AN UNNAMED TRIBUTARY TO FOSTER BRANCH (GUNPOWDER WATERSHED MD BASIN CODE: 02130801) AND IS A USE I STREAM WITH A STREAM CLOSURE PERIOD OF MARCH 1ST TO JUNE 15TH.
8. FEMA FIRMS FM24025C0263E AND FM24025C0264E EFFECTIVE APRIL 19, 2016 SHOWS THAT NO PROPOSED WORK IS WITHIN THE 100-YEAR FLOODPLAIN.
9. THE PROJECT IS LOCATED WITHIN THE CRITICAL AREA.

GENERAL CONSTRUCTION NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE HARFORD COUNTY STANDARD SPECIFICATIONS OR DETAILS FOR CONSTRUCTION UNLESS OTHERWISE NOTED. THE STATE HIGHWAY ADMINISTRATION'S HIGHWAY'S STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS AND THE BOOK OF STANDARDS FOR HIGHWAY & INCIDENTAL STRUCTURES SHALL BE USED IF NO HARFORD COUNTY STANDARD OR DETAIL EXIST.
2. THE EXISTING UTILITIES AND OBSTRUCTIONS SHOWN ARE FROM THE BEST AVAILABLE RECORDS AND SHALL BE VERIFIED BY THE CONTRACTOR TO THEIR SATISFACTION PRIOR TO CONSTRUCTION. NECESSARY PRECAUTIONS SHALL BE TAKEN BY THE CONTRACTOR TO PROTECT EXISTING SERVICES AND MAINS AND ANY DAMAGE TO THEM SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTORS OWN EXPENSE.
3. THE CONTRACTOR SHALL CONTACT "MISS UTILITY" AT 1-800-257-7777 A MINIMUM OF 48 HOURS IN ADVANCE OF ANY EXCAVATION, BORING, PILE DRIVING AND/OR DIGGING FOR THE LOCATION OF GAS, ELECTRIC, TELEPHONE, WATER AND SEWER LINES.
4. MECHANICAL EXCAVATION SHALL NOT BE CONDUCTED WITHIN 3 FEET HORIZONTALLY OR WITHIN 2 FEET VERTICALLY OF KNOWN UTILITY LOCATIONS. HAND OR SOFT DIGGING SHALL BE DONE WITHIN THESE LIMITS. UNDERGROUND UTILITIES, ONCE UNCOVERED, SHALL BE PROTECTED FROM BEING STRUCK BY EQUIPMENT.
5. IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NATURALLY BE REQUIRED TO COMPLETE THE PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLETE SUCH WORK.
6. ALL TREES WITH A DIAMETER GREATER THAN 12 INCHES WITHIN THE LIMIT OF DISTURBANCE SHALL NOT BE REMOVED UNLESS PRIOR APPROVAL IS OBTAINED OR EXPLICITLY SHOWN ON THE PLANS TO BE REMOVED. ALL TREES TO REMAIN WITHIN THE LIMIT OF DISTURBANCE THAT ARE NOT TO BE REMOVED SHALL BE PROTECTED.
7. ALL FILL AREAS SHALL BE CLEANED OF ALL VEGETATION AND DEBRIS, SCARIFIED TO A MINIMUM DEPTH OF 12 INCHES PRIOR TO THE PLACEMENT OF FILL. FILL MATERIAL SHALL BE PLACED IN CONTROLLED LIFTS WITH A MAXIMUM THICKNESS OF 8" PRIOR TO COMPACTION THAT IS CONTINUOUS OVER THE ENTIRE AREA OF FILL. EACH LAYER OF FILL SHALL BE COMPACTED WITH THE MINIMUM NUMBER OF PASSES NECESSARY TO PRODUCE A FULL ASYMPTOTIC COMPACTION.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MATERIALS TESTING INCLUDING CONCRETE, FLOWABLE FILL, HOT MIX ASPHALT AND FILL COMPACTION. ALL MATERIALS TESTING SHALL BE PERFORMED BY THE CONTRACTOR AND SHALL BE COMPENSATED FOR AS PART OF THE APPROPRIATE PAY ITEM.
9. SEE STANDARD GEOTECHNICAL NOTES FOR FILL COMPACTION TESTING REQUIREMENTS.
10. ALL DISTURBED AREAS SHALL HAVE PERMANENT OR TEMPORARY STABILIZATION COMPLETED WITHIN:
    - 10.A. END OF THE WORK DAY FOR AREAS WITHIN WATERWAYS.
    - 10.B. THREE CALENDAR DAYS ON SLOPES GREATER THAN 3:1 AND TO THE SURFACE OF ALL PERIMETER SEDIMENT CONTROLS.
    - 10.C. SEVEN CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS.
    - 10.D. ALL STABILIZATION MUST BE IN ACCORDANCE WITH MARYLAND DEPARTMENT OF AGRICULTURE (MDA) FERTILIZER LAW.
11. ALL DISTURBED AREAS WITH SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH 100% BIODEGRADABLE SOIL STABILIZATION MATTING THAT HAS A SUFFICIENT DESIGN SHEAR STRESS FOR THE APPLICATION OR AS SHOWN ON THE APPROVED SEDIMENT AND EROSION CONTROL PLANS.
12. ALL PERMANENTLY STABILIZED AREAS SHALL INCLUDE A MINIMUM OF 4" OF TOPSOIL PER THE 2011 MDE SPECIFICATIONS.
13. ALL STAKING, RESTAKING, AND CUT SHEETS SHALL BE PERFORMED BY A REGISTERED LAND SURVEYOR OR PROFESSIONAL ENGINEER AT THE CONTRACTOR'S EXPENSE.
14. ALL CONSTRUCTION TO BE PERFORMED IN ACCORDANCE WITH STATE OF MARYLAND OCCUPATIONAL SAFETY LAWS.
15. CONTRACTOR MUST ENSURE THAT COPIES OF FEDERAL, STATE, AND LOCAL PERMITS ARE POSTED ON SITE PRIOR TO THE START OF ANY WORK.
16. ALL ROADS SHALL BE CLEANED AND CLEARED BY THE END OF EACH DAY. ANY MUD OR ROCKS TRACKED ON THE ROADWAYS SHALL BE SWEPT BEFORE THE END OF SHIFT EACH DAY.
17. CONTRACTOR SHALL RESTORE ALL AREAS IMPACTED BY CONSTRUCTION ACTIVITY. THIS SHALL INCLUDE BUT IS NOT LIMITED TO GRASS AREAS, ROADS, PAVED AREAS, ETC...

SHEET LIST

SHEET	DESCRIPTION
1	COVER SHEET
2	KEY SHEET
3	GEOMETRIC LAYOUT
4	GEOMETRIC LAYOUT
5	GEOMETRIC LAYOUT
6	EXISTING CONDITIONS & DEMOLITION PLAN
7	EXISTING CONDITIONS & DEMOLITION PLAN
8	EXISTING CONDITIONS & DEMOLITION PLAN
9	EXISTING TREE TABLES
10	SITE PLAN
11	SITE PLAN
12	SITE PLAN
13	PROFILES
14	PROFILES
15	CROSS SECTIONS
16	CROSS SECTIONS
17	CROSS SECTIONS
18	CROSS SECTIONS
19	CROSS SECTIONS
20	CROSS SECTIONS
21	CROSS SECTIONS
22	SPSC NOTES & DETAILS
23	STREAM DETAILS & NOTES
24	STREAM DETAILS & NOTES
25	EROSION & SEDIMENT CONTROL PLAN
26	EROSION & SEDIMENT CONTROL PLAN
27	EROSION & SEDIMENT CONTROL PLAN
28	SEDIMENT CONTROL NOTES & DETAILS
29	SEDIMENT CONTROL NOTES & DETAILS
30	LANDSCAPE & BUFFER MANAGEMENT PLAN
31	LANDSCAPE & BUFFER MANAGEMENT PLAN
32	LANDSCAPE & BUFFER MANAGEMENT PLAN
33	LANDSCAPE & BUFFER MANAGEMENT PLAN
34	PLANTING DETAILS, NOTES & BORINGS
35	DRAINAGE AREA MAP



HARFORD COUNTY ADC MAP COORDINATES:
MAP 28 GRID F-7, G-7

MAP COPYRIGHT KAPPA MAP GROUP LLC, (800) 829-6277
USED WITH PERMISSION, PERMITTED USE NUMBER 10222014

LOCATION MAP
SCALE: 1"=2000'

DEVELOPER
HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS AND STORMWATER MANAGEMENT
212 SOUTH BOND STREET, 3RD FLOOR
BEL AIR, MARYLAND 21014
CONTACT: GLEN HEBEL
PH: (410) 638-3509 EXT 1344

OWNERS
FOSTER BRANCH HOMEOWNERS ASSOCIATION, INC.
212 SOUTH BOND STREET, 3RD FLOOR
JOPPA, MARYLAND 21085

STEWART NASH
E S FOSTER KNOLL DRIVE
JOPPA, MARYLAND 21085

ENGINEER
BAYLAND CONSULTANTS & DESIGNERS, INC.
7455 NEW RIDGE ROAD, SUITE T
HANOVER, MARYLAND 21076
PH: 410-694-9401
FAX: 410-694-9405

LEGEND

TRAVERSE POINT TPS# 3
EX. PROPERTY LINE/RIGHT-OF-WAY
EX. MAJOR CONTOUR 70
EX. MINOR CONTOUR 64
EX. TOP OF BANK TOB
EX. 25' WETLAND BUFFER WB
EX. WIRE FENCE X
EX. WOOD FENCE
EX. THALWEG
EX. 100-YR FEMA FLOODPLAIN FEMA
EX. 100-YR FLOODPLAIN
EX. CRITICAL AREA
EX./PR. DRAINAGE AREA
EX. SOIL BoC
EX. SEWER & MANHOLE EX. 12" SS EX. 12" SS
EX. STORM DRAIN, INLET, & MANHOLE EX. 12" SD

EX. TREE
EX. TREE TO BE REMOVED
EX. TREE TO BE PROTECTED
EX. WATER & VALVE
EX. FIRE HYDRANT
EX. SIGN
EX. LIGHT POLE
EX. TELEPHONE PEDESTAL
EX. BORING B#1
EX. WETLANDS
EX. RIPRAP
PR. RIPRAP

PR. MAJOR CONTOUR 70
PR. MINOR CONTOUR 69
PR. ODD CONTOUR 68.5
PR. 100-YR FLOODPLAIN
PR. BANK FULL BF
PR. STREAM ℄ 0+00 0+15
PR. SILL ROCK GRADE CONTROL STRUCTURE
PR. SPSC RIFFLE & POOL
PR. LOG-BOULDER STEP & POOL
PR. CONSTRUCTED RIFFLE & POOL

FIELD VERIFICATION CERTIFICATION

I HEREBY CERTIFY THAT I COMPLETED A FIELD VERIFICATION TO THE INFORMATION SHOWN ON THE PLANS ON 01/18/2017 AND THAT THE INFORMATION SHOWN ON THE PLANS IS IN AGREEMENT WITH THE ACTUAL FIELD CONDITIONS.

CHRISTOPHER STEPP
PRINTED NAME

SIGNED 7/12/19 DATE

OWNER'S/DEVELOPER'S CERTIFICATION

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HARFORD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS DEEMED NECESSARY.

I/WE CERTIFY THAT ALL PROPOSED WORK SHOWN ON THESE CONSTRUCTION DRAWING(S) WILL BE ACCOMPLISHED PURSUANT TO THESE PLANS. I/WE ALSO UNDERSTAND THAT IT IS MY/OUR RESPONSIBILITY TO HAVE THE CONSTRUCTION SUPERVISED AND CERTIFIED, INCLUDING THE SUBMITTAL OF "AS-BUILT" PLANS WITHIN 30 DAYS OF COMPLETION, BY A REGISTERED PROFESSIONAL ENGINEER.

OWNER/DEVELOPER SIGNATURE 9.30.19 DATE

JOSEPH J. SIEMER, P.E. · DIRECTOR OF PUBLIC WORKS
PRINTED NAME

ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HARFORD SOIL CONSERVATION DISTRICT AND THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED BY ME, OR UNDER MY SUPERVISION, AND MEETS THE MINIMUM STANDARDS OF THE HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS AND/OR THE UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, AND/OR THE MARYLAND DEPARTMENT OF THE ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION.

ENGINEER'S SIGNATURE 7/12/19 DATE

CHRISTOPHER STEPP 31146
PRINTED NAME MD P.E. REGISTRATION NO.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

ENGINEER'S SIGNATURE DATE

PRINTED NAME MD P.E. REGISTRATION NO.

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 33146, EXPIRATION DATE: 01/14/2021.

EROSION AND SEDIMENT CONTROL PLAN #: 59838

RECOMMENDED FOR APPROVAL:
HARFORD COUNTY, DPW 10-11-18

TECHNICAL CONCURRENCE:
HARFORD SOIL CONSERVATION DISTRICT 10-16-18

APPROVED:
HARFORD SOIL CONSERVATION DISTRICT 10/18/19

NOTE: THE PURPOSE OF THIS PLAN IS TO ADDRESS SEDIMENT CONTROL FOR MASS GRADING, ROAD AND UTILITY CONSTRUCTION ONLY. INDIVIDUAL OR COLLECTIVE HOME/ COMMERCIAL BUILDING CONSTRUCTION WILL REQUIRE A SEPARATE SEDIMENT CONTROL PLAN. THE DEVELOPER/ CONTRACTOR SHALL COMPLY WITH ALL STABILIZATION REQUIREMENTS OF THIS PLAN. TEMPORARY BUILDINGS MAY BE PERMITTED WITH THE APPROVAL OF HARFORD COUNTY DPW.

SWM APPROVAL

HARFORD COUNTY BILLING NUMBER 97032
THESE PLANS HAVE BEEN REVIEWED BY HARFORD COUNTY AND MEET THE TECHNICAL REQUIREMENTS FOR STORMWATER MANAGEMENT ONLY.

REVIEWED & APPROVAL RECOMMENDED

WATER RESOURCES ENGINEERING R. Bruce Appell 10/2/19 DATE

APPROVAL RECOMMENDED
CHIEF ENGINEER Michael S. Reif 10/2/19 DATE

APPROVAL RECOMMENDED
DEPUTY DIRECTOR OF PUBLIC WORKS 10/02/19 DATE

APPROVAL
DIRECTOR OF PUBLIC WORKS 10.3.19 DATE

CAPITAL PROJECT APPROVAL

REVIEWED & APPROVAL RECOMMENDED
PROJECT ENGINEER 9/25/19 DATE

APPROVAL RECOMMENDED
CHIEF ENGINEER 09/25/19 DATE

APPROVAL RECOMMENDED
DEPUTY DIRECTOR OF PUBLIC WORKS 09/25/19 DATE

APPROVAL
DIRECTOR OF PUBLIC WORKS 9.30.19 DATE

ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.: 191590

SEE SHEET 2 FOR SITE INFORMATION AND SITE ANALYSIS

191411
EG-SWMENG- 000372-2018 # 97032

191486
S/C PLAN # 59838 GRA # 15387-2018

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

Bayland Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

7/12/19

REVISIONS

HARFORD COUNTY, MARYLAND

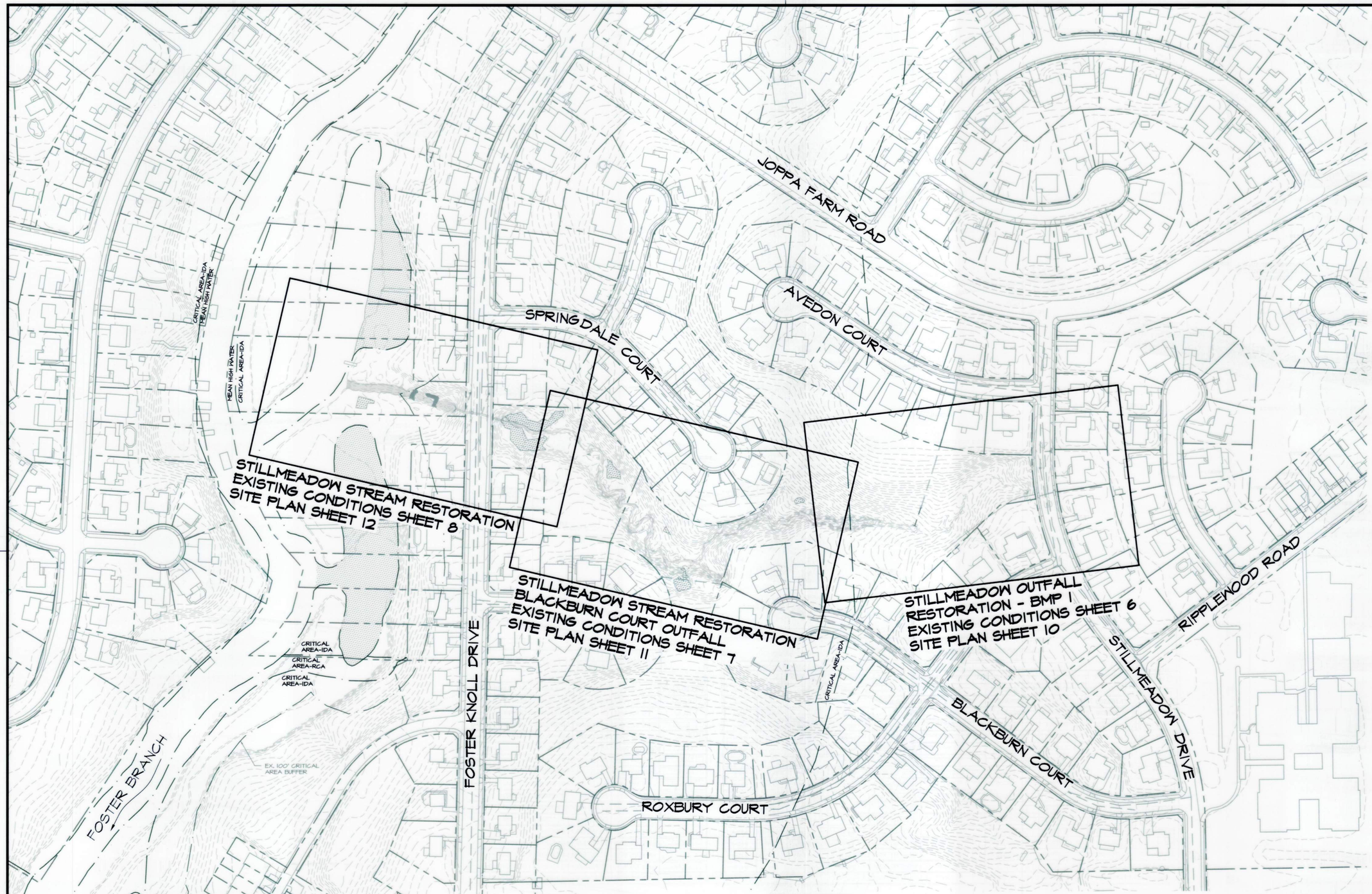
STILLMEADOW STREAM & OUTFALL RESTORATION
COVER SHEET

DRAWN BY: JP
DESIGNED BY: JP
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : AS SHOWN
SHEET 1 OF 35
DATE : 07/22/19

SCALE 1 inch

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_OVERALL\CAD Files\Sheet Files\4_3801_COV01.dwg



SITE INFORMATION

1.	OWNER INFORMATION:	FOSTER BRANCH HOMEOWNERS ASSOCIATION 1 INC JOPPA FARM/STILLMEADOW RD JOPPA, MD 21085
2.	TAX MAP:	69
3.	PARCEL:	207
4.	DEED REFERENCE:	848/226
5.	PLAT REFERENCE:	18/99
6.	PROPERTY AREA:	11.50 AC
1.	OWNER INFORMATION:	STEWART NASH E S FOSTER KNOLL DRIVE JOPPA, MD 21085
2.	TAX MAP:	69
3.	PARCEL:	217
4.	DEED REFERENCE:	1535/588
5.	PLAT REFERENCE:	23/94
6.	PROPERTY AREA:	1.53 AC

SITE ANALYSIS

1.	TOTAL SITE AREA:	1.99 AC
1.1.	PROPOSED DISTURBED AREA:	1.99 AC
2.	TOTAL AREA TO BE STABILIZED:	1.99 AC
2.1.	TOTAL EX. IMP. AREA:	0.00 AC
2.2.	TOTAL EX. IMP. AREA TO REMAIN:	0.00 AC
2.3.	TOTAL PR. IMPERVIOUS AREA:	0.00 AC
2.4.	TOTAL POOL AREA	0.46 AC
2.5.	TOTAL TO BE STABILIZED WITH VEGETATION:	1.53 AC
3.	PROPOSED IMPERVIOUS AREA:	0.00 AC
4.	ESTIMATED CUT:	1,735 CY
5.	ESTIMATED FILL:	1,590 CY

NOTES:

1. THE EARTHWORK QUANTITIES SHOWN HEREON ARE FOR INFORMATION PURPOSES ONLY. BAYLAND MAKES NO GUARANTEES OF ACCURACY OF QUANTITIES OR BALANCE OF SITE. THE DEVELOPER AND CONTRACTOR SHALL TAKE FULL RESPONSIBILITY OF ACTUAL EARTHWORK QUANTITIES ENCOUNTERED DURING CONSTRUCTION.
2. THE QUANTITY OF EXCAVATION HAS BEEN ESTIMATED BASED ON THE EXISTING CONDITIONS SURVEY SHOWN AND SHALL SERVE AS BASIS FOR PAYMENT. THE TOTAL QUANTITY SHALL BE CONSIDERED FIXED AND THE CONTRACTOR SHALL BE PAID THE TOTAL QUANTITY AT COMPLETION OF GRADING WITHOUT RECALCULATION OF ACTUAL QUANTITIES. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO VERIFY ANY CHANGE IN EXISTING CONDITIONS AND DETERMINE THE EFFORT NECESSARY TO ACHIEVE THE GRADE SHOWN WITHIN THE PAYMENT QUANTITIES LISTED.

PLAN VIEW

SCALE: 1" = 100'

0 50 100 200

1 INCH = 100 FEET

191412

EG-SWMENG- 000372-2018 | # 97032

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

7/22/19

REVISIONS

HARFORD COUNTY, MARYLAND

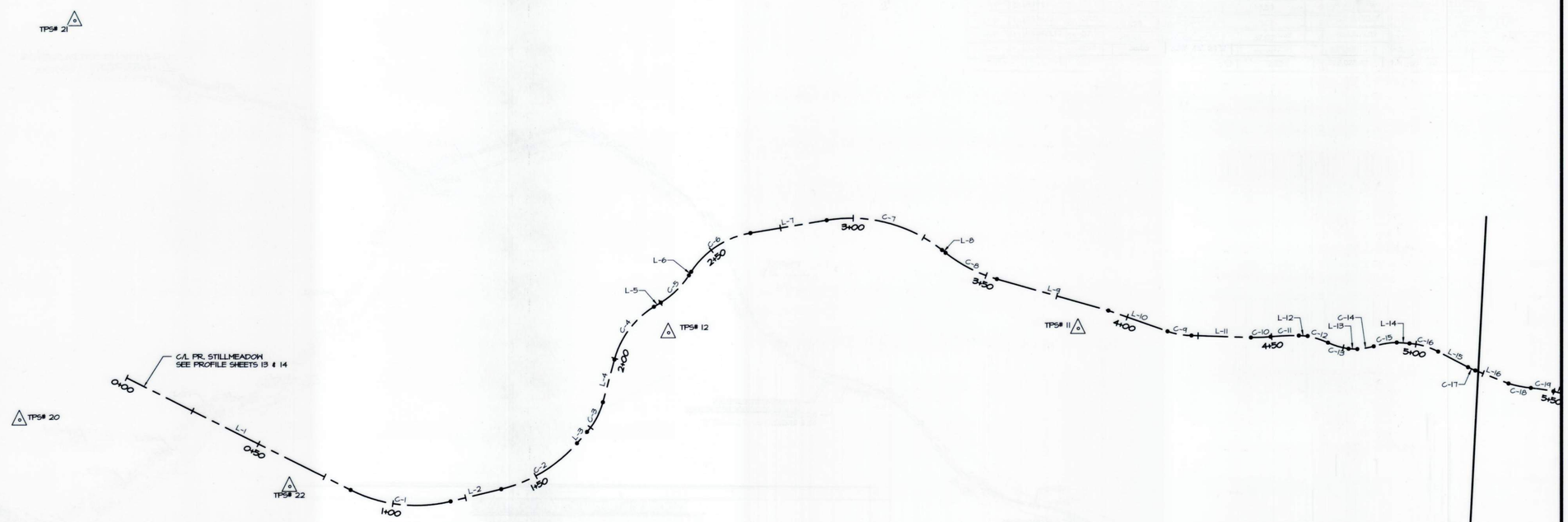
STILLMEADOW STREAM & OUTFALL RESTORATION
KEY SHEET

191691

DRAWN BY: JP	CONTRACT NO : 16-153
DESIGNED BY: JP	SCALE : 1" = 100'
REVIEWED BY: MKB	SHEET 2 OF 35
	DATE : 07/22/19

HCG BILLING ID No.:
HCG DWG ID No.:
ADC MAP :
TAX MAP :
SCALE 1 inch

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_OVERALL\CAD Files\Sheet Files\4_3801_KEY01.dwg



C/L PR. STILLMEADOW

LINE ID	STATION	NORTHING	EASTING	BEARING	DISTANCE (FT)
L-1	0+00.00	632,896.69	1,498,798.84	N70° 06' 36"W	84.90
L-2	1+19.77	632,925.52	1,498,684.84	S69° 55' 58"W	17.68
L-3	1+67.98	632,901.13	1,498,644.40	S34° 56' 44"W	5.17
L-4	1+84.61	632,886.34	1,498,637.22	S8° 39' 49"W	14.96
L-5	2+22.41	632,852.35	1,498,623.67	S52° 16' 44"W	2.72
L-6	2+38.50	632,840.45	1,498,613.08	S26° 44' 00"W	1.45
L-7	2+64.69	632,823.81	1,498,593.91	S73° 59' 00"W	26.25
L-8	3+32.61	632,822.10	1,498,528.58	N58° 15' 59"W	1.55
L-9	3+53.84	632,829.75	1,498,508.94	N80° 49' 15"W	39.36
L-10	3+93.20	632,836.03	1,498,470.09	N77° 23' 47"W	21.29
L-11	4+22.74	632,841.13	1,498,441.11	S85° 20' 19"W	20.22
L-12	4+59.25	632,837.02	1,498,404.86	S87° 23' 09"W	3.00
L-13	4+76.83	632,839.53	1,498,387.57	S85° 38' 52"W	3.00
L-14	4+93.43	632,835.59	1,498,371.53	S87° 38' 46"W	4.37
L-15	5+07.99	632,837.05	1,498,357.18	N69° 01' 12"W	11.43
L-16	5+22.15	632,841.98	1,498,343.91	N75° 15' 55"W	12.13

C/L PR. STILLMEADOW

CURVE ID	STATION	RADIUS (FT)	LENGTH (FT)	CHORD BEARING	CHORD LENGTH (FT)	START NORTHING	START EASTING	END NORTHING	END EASTING
C-1	0+84.90	50.00	34.87	S89° 54' 41"W	34.17	632,925.58	1,498,719.00	632,925.52	1,498,684.84
C-2	1+37.44	50.00	30.53	S52° 26' 21"W	30.06	632,919.46	1,498,668.23	632,901.13	1,498,644.40
C-3	1+73.14	25.00	11.47	S21° 48' 17"W	11.37	632,896.90	1,498,641.44	632,886.34	1,498,637.22
C-4	1+99.57	30.00	22.84	S30° 28' 17"W	22.29	632,871.56	1,498,634.97	632,852.35	1,498,623.67
C-5	2+25.12	30.00	13.38	S39° 30' 22"W	13.27	632,850.68	1,498,621.52	632,840.45	1,498,613.08
C-6	2+39.95	30.00	24.74	S50° 21' 30"W	24.04	632,839.15	1,498,612.43	632,823.81	1,498,593.91
C-7	2+90.94	50.00	41.67	N82° 08' 30"W	40.47	632,816.57	1,498,568.68	632,822.10	1,498,528.58
C-8	3+34.16	50.00	19.68	N69° 32' 37"W	19.56	632,822.92	1,498,527.26	632,829.75	1,498,508.94
C-9	4+14.49	25.00	8.25	N86° 06' 12"W	8.21	632,840.68	1,498,449.31	632,841.13	1,498,441.11
C-10	4+42.96	75.59	6.70	S81° 05' 43"W	6.70	632,839.48	1,498,420.96	632,838.47	1,498,414.33
C-11	4+49.67	85.03	9.58	S81° 37' 06"W	9.58	632,838.47	1,498,414.33	632,837.02	1,498,404.86
C-12	4+62.25	31.78	7.29	N79° 01' 48"W	7.28	632,836.88	1,498,401.87	632,838.26	1,498,394.73
C-13	4+69.54	27.23	7.29	N79° 58' 11"W	7.27	632,838.26	1,498,394.73	632,839.53	1,498,387.57
C-14	4+79.83	27.27	5.68	S74° 07' 36"W	5.67	632,839.30	1,498,384.58	632,837.75	1,498,379.13
C-15	4+85.51	29.05	7.93	S74° 16' 07"W	7.90	632,837.75	1,498,379.13	632,835.59	1,498,371.53
C-16	4+97.80	25.00	10.18	N79° 28' 37"W	10.11	632,835.41	1,498,367.16	632,837.05	1,498,357.18
C-17	5+19.42	25.00	2.73	N72° 01' 38"W	2.72	632,841.14	1,498,346.50	632,841.98	1,498,343.91

GENERAL NOTES

1. TOPOGRAPHIC SURVEY WAS PERFORMED BY BAYLAND CONSULTANTS AND DESIGNERS, INC. IN MAY AND JUNE 2017. COORDINATES SHOWN HERE ON ARE REFERRED TO MARYLAND COORDINATE SYSTEM (NAD 83/1991) AND ARE BASED ON RTK GPS VIRTUAL NETWORK. ELEVATIONS SHOWN HERE ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAD 88) AND ARE BASED ON RTK GPS VIRTUAL NETWORK.

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
TPS 11	632,843.18	1,498,479.56	53.97	REBAR/CAP
TPS 12	632,860.46	1,498,617.75	62.32	REBAR/CAP
TPS 20	632,914.94	1,498,833.33	78.21	REBAR/CAP
TPS 21	632,778.82	1,498,830.07	79.09	REBAR/CAP
TPS 22	632,926.76	1,498,739.62	70.78	REBAR/CAP

GEOMETRIC LAYOUT

SCALE: 1" = 20'

0 10 20 40

1 INCH = 20 FEET

REVISIONS

HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
GEOMETRIC LAYOUT

DRAWN BY: EM
DESIGNED BY: JP
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : 1" = 20'
SHEET 3 OF 35
DATE : 07/22/19

EG-SWMENG- 000372-2018 | # 97032

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

STATE OF MARYLAND · KARL M. BERGMANN · 21246 · REGISTERED PROFESSIONAL ENGINEER · CIVIL
7/22/19

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMSR_GEOM01.dwg

C/L PR. BLACKBURN CT OUTFALL

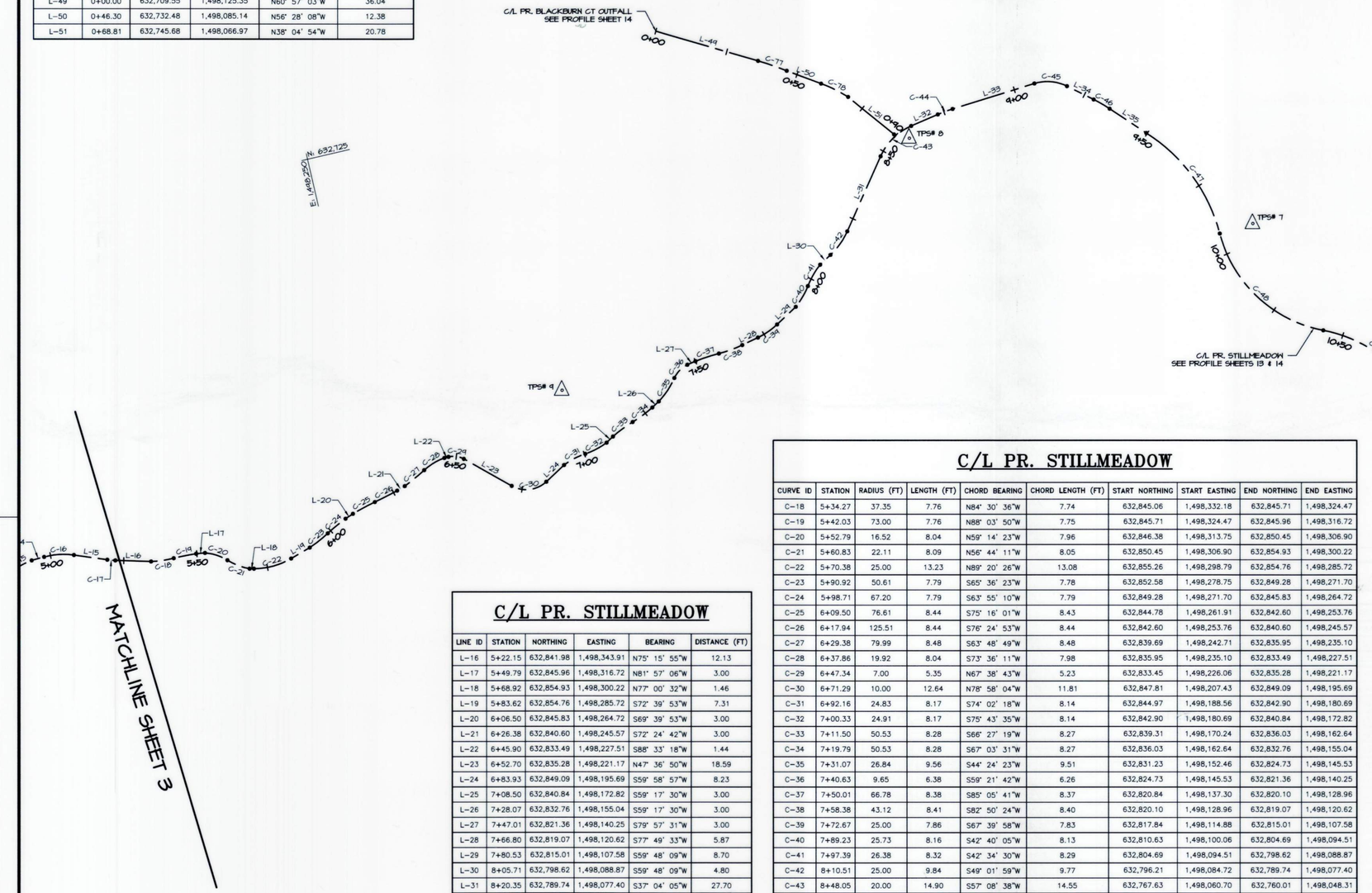
CURVE ID	STATION	RADIUS (FT)	LENGTH (FT)	CHORD BEARING	CHORD LENGTH (FT)	START NORTHING	START EASTING	END NORTHING	END EASTING
C-77	0+36.04	106.25	10.26	N56° 39' 39"W	10.26	632,727.05	1,498,093.84	632,732.48	1,498,085.14
C-78	0+58.68	43.75	10.13	N52° 05' 11"W	10.11	632,739.32	1,498,074.82	632,745.68	1,498,066.97

C/L PR. BLACKBURN CT OUTFALL

POINT ID	STATION	NORTHING	EASTING	BEARING	DISTANCE (FT)
L-49	0+00.00	632,709.55	1,498,125.35	N60° 57' 03"W	36.04
L-50	0+46.30	632,732.48	1,498,085.14	N56° 28' 08"W	12.38
L-51	0+68.81	632,745.68	1,498,066.97	N38° 04' 54"W	20.78

C/L PR. STILLMEADOW

CURVE ID	STATION	RADIUS (FT)	LENGTH (FT)	CHORD BEARING	CHORD LENGTH (FT)	START NORTHING	START EASTING	END NORTHING	END EASTING
C-48	9+92.67	44.83	50.50	N34° 03' 26"W	47.87	632,818.85	1,497,954.62	632,858.51	1,497,927.81
C-49	10+43.16	47.25	37.96	N43° 18' 44"W	36.94	632,858.51	1,497,927.81	632,885.39	1,497,902.47
C-50	10+81.12	50.97	42.97	N44° 27' 20"W	41.71	632,885.39	1,497,902.47	632,915.16	1,497,873.25
C-51	11+24.09	56.71	2.30	N67° 56' 19"W	2.30	632,915.16	1,497,873.25	632,916.03	1,497,871.12
C-52	11+26.39	38.83	53.78	N29° 25' 12"W	49.58	632,916.03	1,497,871.12	632,959.22	1,497,846.77
C-53	11+80.17	37.89	52.78	N29° 38' 44"W	48.62	632,959.22	1,497,846.77	633,001.47	1,497,822.72
C-54	12+32.95	58.74	38.55	N50° 45' 24"W	37.86	633,001.47	1,497,822.72	633,025.42	1,497,793.40
C-55	12+71.50	29.36	37.94	N64° 20' 20"W	35.35	633,025.42	1,497,793.40	633,040.73	1,497,761.54



C/L PR. STILLMEADOW

CURVE ID	STATION	RADIUS (FT)	LENGTH (FT)	CHORD BEARING	CHORD LENGTH (FT)	START NORTHING	START EASTING	END NORTHING	END EASTING
C-18	5+34.27	37.35	7.76	N84° 30' 36"W	7.74	632,845.06	1,498,332.18	632,845.71	1,498,324.47
C-19	5+42.03	73.00	7.76	N88° 03' 50"W	7.75	632,845.71	1,498,324.47	632,845.96	1,498,316.72
C-20	5+52.79	16.52	8.04	N59° 14' 23"W	7.96	632,846.38	1,498,313.75	632,850.45	1,498,306.90
C-21	5+60.83	22.11	8.09	N56° 44' 11"W	8.05	632,850.45	1,498,306.90	632,854.93	1,498,300.22
C-22	5+70.38	25.00	13.23	N89° 20' 26"W	13.08	632,855.26	1,498,298.79	632,854.76	1,498,285.72
C-23	5+90.92	50.61	7.79	S65° 36' 23"W	7.78	632,852.58	1,498,278.75	632,849.28	1,498,271.70
C-24	5+98.71	67.20	7.79	S63° 55' 10"W	7.79	632,849.28	1,498,271.70	632,845.83	1,498,264.72
C-25	6+09.50	76.61	8.44	S75° 16' 01"W	8.43	632,844.78	1,498,261.91	632,842.60	1,498,253.76
C-26	6+17.94	125.51	8.44	S76° 24' 53"W	8.44	632,842.60	1,498,253.76	632,840.60	1,498,245.57
C-27	6+29.38	79.99	8.48	S63° 48' 49"W	8.48	632,839.69	1,498,242.71	632,835.95	1,498,235.10
C-28	6+37.86	19.92	8.04	S73° 36' 11"W	7.98	632,835.95	1,498,235.10	632,833.49	1,498,227.51
C-29	6+47.34	7.00	5.35	N67° 38' 43"W	5.23	632,833.45	1,498,226.06	632,835.28	1,498,221.17
C-30	6+71.29	10.00	12.64	N78° 58' 04"W	11.81	632,847.81	1,498,207.43	632,849.09	1,498,195.69
C-31	6+92.16	24.83	8.17	S74° 02' 18"W	8.14	632,844.97	1,498,188.56	632,842.90	1,498,180.69
C-32	7+00.33	24.91	8.17	S75° 43' 35"W	8.14	632,842.90	1,498,180.69	632,840.84	1,498,172.82
C-33	7+11.50	50.53	8.28	S66° 27' 19"W	8.27	632,839.31	1,498,170.24	632,836.03	1,498,162.64
C-34	7+19.79	50.53	8.28	S67° 03' 31"W	8.27	632,836.03	1,498,162.64	632,832.76	1,498,155.04
C-35	7+31.07	26.84	9.56	S44° 24' 23"W	9.51	632,831.23	1,498,152.46	632,824.73	1,498,145.53
C-36	7+40.63	9.65	6.38	S59° 21' 42"W	6.26	632,824.73	1,498,145.53	632,821.36	1,498,140.25
C-37	7+50.01	66.78	8.38	S85° 05' 41"W	8.37	632,820.84	1,498,137.30	632,820.10	1,498,128.96
C-38	7+58.38	43.12	8.41	S82° 50' 24"W	8.40	632,820.10	1,498,128.96	632,819.07	1,498,120.62
C-39	7+72.67	25.00	7.86	S67° 39' 58"W	7.83	632,817.84	1,498,114.88	632,815.01	1,498,107.58
C-40	7+89.23	25.73	8.16	S42° 40' 05"W	8.13	632,810.63	1,498,100.06	632,804.69	1,498,094.51
C-41	7+97.39	26.38	8.32	S42° 34' 30"W	8.29	632,804.69	1,498,094.51	632,798.62	1,498,088.87
C-42	8+10.51	25.00	9.84	S49° 01' 59"W	9.77	632,796.21	1,498,084.72	632,789.74	1,498,077.40
C-43	8+48.05	20.00	14.90	S57° 08' 38"W	14.55	632,767.63	1,498,060.70	632,760.01	1,498,048.31
C-44	8+72.76	50.00	5.34	S82° 46' 31"W	5.34	632,758.26	1,498,038.65	632,757.59	1,498,033.35
C-45	9+07.07	15.00	11.37	N71° 12' 33"W	11.10	632,755.50	1,498,004.46	632,758.85	1,497,993.88
C-46	9+28.54	50.00	6.23	N47° 09' 16"W	6.23	632,765.25	1,497,986.06	632,769.49	1,497,981.49
C-47	9+49.63	57.30	43.04	N23° 18' 32"W	42.03	632,780.25	1,497,971.25	632,818.85	1,497,954.62

C/L PR. STILLMEADOW

LINE ID	STATION	NORTHING	EASTING	BEARING	DISTANCE (FT)
L-16	5+22.15	632,841.98	1,498,343.91	N75° 15' 55"W	12.13
L-17	5+49.79	632,845.96	1,498,316.72	N81° 57' 06"W	3.00
L-18	5+68.92	632,854.93	1,498,300.22	N77° 00' 32"W	1.46
L-19	5+83.62	632,854.76	1,498,285.72	S72° 39' 53"W	7.31
L-20	6+06.50	632,845.83	1,498,264.72	S69° 39' 53"W	3.00
L-21	6+26.38	632,840.60	1,498,245.57	S72° 24' 42"W	3.00
L-22	6+45.90	632,833.49	1,498,227.51	S88° 33' 18"W	1.44
L-23	6+52.70	632,835.28	1,498,221.17	N47° 36' 50"W	18.59
L-24	6+83.93	632,849.09	1,498,195.69	S59° 58' 57"W	8.23
L-25	7+08.50	632,840.84	1,498,172.82	S59° 17' 30"W	3.00
L-26	7+28.07	632,832.76	1,498,155.04	S59° 17' 30"W	3.00
L-27	7+47.01	632,821.36	1,498,140.25	S79° 57' 31"W	3.00
L-28	7+66.80	632,819.07	1,498,120.62	S77° 49' 33"W	5.87
L-29	7+80.53	632,815.01	1,498,107.58	S59° 48' 09"W	8.70
L-30	8+05.71	632,798.62	1,498,088.87	S59° 48' 09"W	4.80
L-31	8+20.35	632,789.74	1,498,077.40	S37° 04' 05"W	27.70
L-32	8+62.95	632,760.01	1,498,048.31	S79° 44' 24"W	9.81
L-33	8+78.10	632,757.59	1,498,033.35	S85° 51' 38"W	28.97
L-34	9+18.43	632,758.85	1,497,993.88	N50° 43' 36"W	10.11
L-35	9+34.77	632,769.49	1,497,981.49	N43° 34' 55"W	14.86

GEOMETRIC LAYOUT

SCALE: 1" = 20'

0 10 20 40

1 INCH = 20 FEET

GENERAL NOTES

1. TOPOGRAPHIC SURVEY WAS PERFORMED BY BAYLAND CONSULTANTS AND DESIGNERS, INC. IN MAY AND JUNE 2017. COORDINATES SHOWN HERE ON ARE REFERRED TO MARYLAND COORDINATE SYSTEM (NAD 83/1991) AND ARE BASED ON RTK GPS VIRTUAL NETWORK. ELEVATIONS SHOWN HERE ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAD 88) AND ARE BASED ON RTK GPS VIRTUAL NETWORK.

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
TPS 5	630,007.32	1,497,773.86	14.01	REBAR/CAP
TPS 6	632,922.65	1,497,873.11	17.29	REBAR/CAP
TPS 7	632,818.07	1,497,942.98	20.27	REBAR/CAP
TPS 8	632,763.88	1,498,049.83	25.54	REBAR/CAP
TPS 9	632,820.24	1,498,183.54	38.65	REBAR/CAP

EG-SWMENG- 000372-2018 | # 97032

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com

BAYLAND JOB NO. 4_3801

7/22/19

REVISIONS

HARFORD COUNTY, MARYLAND

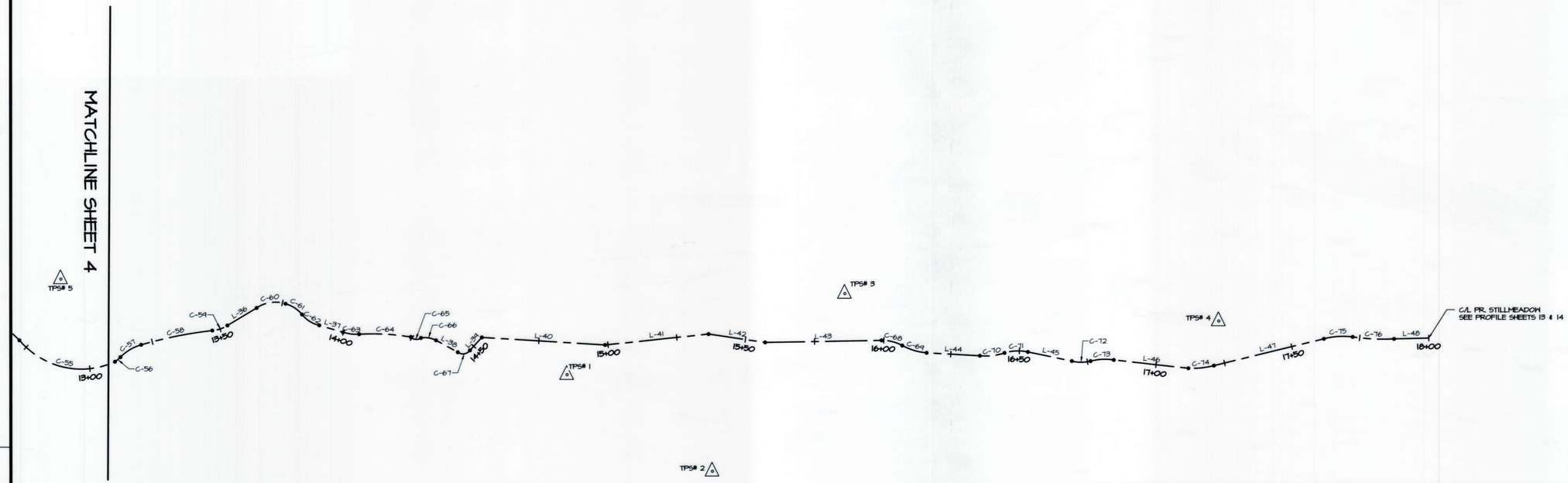
STILLMEADOW STREAM & OUTFALL RESTORATION
GEOMETRIC LAYOUT

DRAWN BY: EM
DESIGNED BY: RP/JP
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : 1" = 20'
SHEET 4 OF 35
DATE : 07/22/19

2:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMSR_GEO02.dwg

ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.: 191593



C/L PR. STILLMEADOW

CURVE ID	STATION	RADIUS (FT)	LENGTH (FT)	CHORD BEARING	CHORD LENGTH (FT)	START NORTHING	START EASTING	END NORTHING	END EASTING
C-55	12+71.50	29.36	37.94	N64° 20' 20"W	35.35	633,025.42	1,497,793.40	633,040.73	1,497,761.54
C-56	13+09.44	12.36	2.60	S63° 14' 38"W	2.59	633,040.73	1,497,761.54	633,039.56	1,497,759.22
C-57	13+12.03	16.92	8.83	S72° 26' 33"W	8.73	633,039.56	1,497,759.22	633,036.93	1,497,750.90
C-58	13+20.86	157.85	26.24	N88° 17' 29"W	26.21	633,036.93	1,497,750.90	633,037.71	1,497,724.70
C-59	13+47.10	11.40	5.83	S84° 31' 49"W	5.77	633,037.71	1,497,724.70	633,037.16	1,497,718.96
C-60	13+65.23	11.89	10.94	N85° 13' 31"W	10.56	633,033.40	1,497,707.25	633,034.28	1,497,696.73
C-61	13+76.17	11.51	7.22	N44° 03' 56"W	7.10	633,034.28	1,497,696.73	633,039.38	1,497,691.79
C-62	13+83.39	11.32	7.51	N45° 01' 15"W	7.37	633,039.38	1,497,691.79	633,044.59	1,497,686.58
C-63	13+99.81	16.51	5.93	N70° 12' 45"W	5.89	633,048.93	1,497,678.80	633,050.93	1,497,673.25
C-64	14+05.73	88.30	18.72	N73° 52' 51"W	18.68	633,050.93	1,497,673.25	633,056.12	1,497,655.30
C-65	14+24.45	2.71	4.03	N71° 37' 22"W	3.67	633,056.12	1,497,655.30	633,057.27	1,497,651.82
C-66	14+28.49	8.73	5.60	N67° 55' 14"W	5.50	633,057.27	1,497,651.82	633,059.34	1,497,646.72
C-67	14+43.07	3.09	4.92	N85° 47' 28"W	4.42	633,065.32	1,497,640.00	633,065.64	1,497,635.60
C-68	15+99.19	14.64	7.81	N63° 07' 24"W	7.72	633,095.57	1,497,489.96	633,099.06	1,497,483.07
C-69	16+07.00	21.87	9.24	N60° 18' 28"W	9.17	633,099.06	1,497,483.07	633,103.60	1,497,475.11
C-70	16+35.51	21.86	9.01	N83° 27' 10"W	8.95	633,108.97	1,497,456.59	633,109.99	1,497,447.70
C-71	16+44.53	16.88	8.59	N79° 24' 09"W	8.50	633,109.99	1,497,447.70	633,111.55	1,497,439.34
C-72	16+69.31	13.57	6.81	N76° 54' 31"W	6.74	633,118.33	1,497,424.64	633,119.85	1,497,418.07
C-73	16+76.12	20.81	8.49	N79° 50' 22"W	8.43	633,119.85	1,497,418.07	633,121.34	1,497,409.78
C-74	17+11.74	32.12	9.34	N82° 52' 48"W	9.30	633,130.29	1,497,384.17	633,131.45	1,497,374.94
C-75	17+61.94	26.30	10.51	N80° 38' 23"W	10.44	633,131.01	1,497,334.08	633,132.71	1,497,323.78
C-76	17+72.45	76.40	15.00	N74° 19' 53"W	14.98	633,132.71	1,497,323.78	633,136.76	1,497,309.35

C/L PR. STILLMEADOW

LINE ID	STATION	NORTHING	EASTING	BEARING	DISTANCE (FT)
L-36	13+52.93	633,037.16	1,497,718.96	S72° 10' 49"W	12.30
L-37	13+90.89	633,044.59	1,497,686.58	N60° 50' 12"W	8.91
L-38	14+34.09	633,059.34	1,497,646.72	N48° 19' 58"W	8.99
L-39	14+48.00	633,065.64	1,497,635.60	S55° 45' 56"W	6.33
L-40	14+54.33	633,062.08	1,497,630.37	N73° 31' 06"W	44.62
L-41	14+98.95	633,074.74	1,497,587.58	N83° 02' 31"W	37.61
L-42	15+36.56	633,079.30	1,497,550.24	N68° 33' 45"W	20.58
L-43	15+57.15	633,086.82	1,497,531.08	N77° 59' 31"W	42.04
L-44	16+16.24	633,103.60	1,497,475.11	N73° 50' 24"W	19.28
L-45	16+53.12	633,111.55	1,497,439.34	N65° 15' 19"W	16.19
L-46	16+84.61	633,121.34	1,497,409.78	N70° 43' 36"W	27.12
L-47	17+21.07	633,131.45	1,497,374.94	S89° 23' 36"W	40.86
L-48	17+87.45	633,136.76	1,497,309.35	N78° 19' 47"W	12.55

GEOMETRIC LAYOUT

SCALE: 1" = 20'

0 10 20 40

1 INCH = 20 FEET

GENERAL NOTES

1. TOPOGRAPHIC SURVEY WAS PERFORMED BY BAYLAND CONSULTANTS AND DESIGNERS, INC. IN MAY AND JUNE 2017. COORDINATES SHOWN HERE ON ARE REFERRED TO MARYLAND COORDINATE SYSTEM (NAD 83/1991) AND ARE BASED ON RTK GPS VIRTUAL NETWORK. ELEVATIONS SHOWN HERE ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAD 88) AND ARE BASED ON RTK GPS VIRTUAL NETWORK.

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
TPS 1	633,082.08	1,497,603.42	19.37	REBAR/CAP
TPS 2	633,127.67	1,497,560.06	19.07	REBAR/CAP
TPS 3	633,076.15	1,497,499.06	6.62	REBAR/CAP
TPS 4	633,116.18	1,497,369.67	4.16	REBAR/CAP

EG-SWMENG- 000372-2018 | # 97032

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com

BAYLAND JOB NO. 4_3801

STATE OF MARYLAND — CHRISTOPHER J. PHILLIPS — 25818 — REGISTERED PROFESSIONAL ENGINEER — 7/22/19

REVISIONS

HARFORD COUNTY, MARYLAND

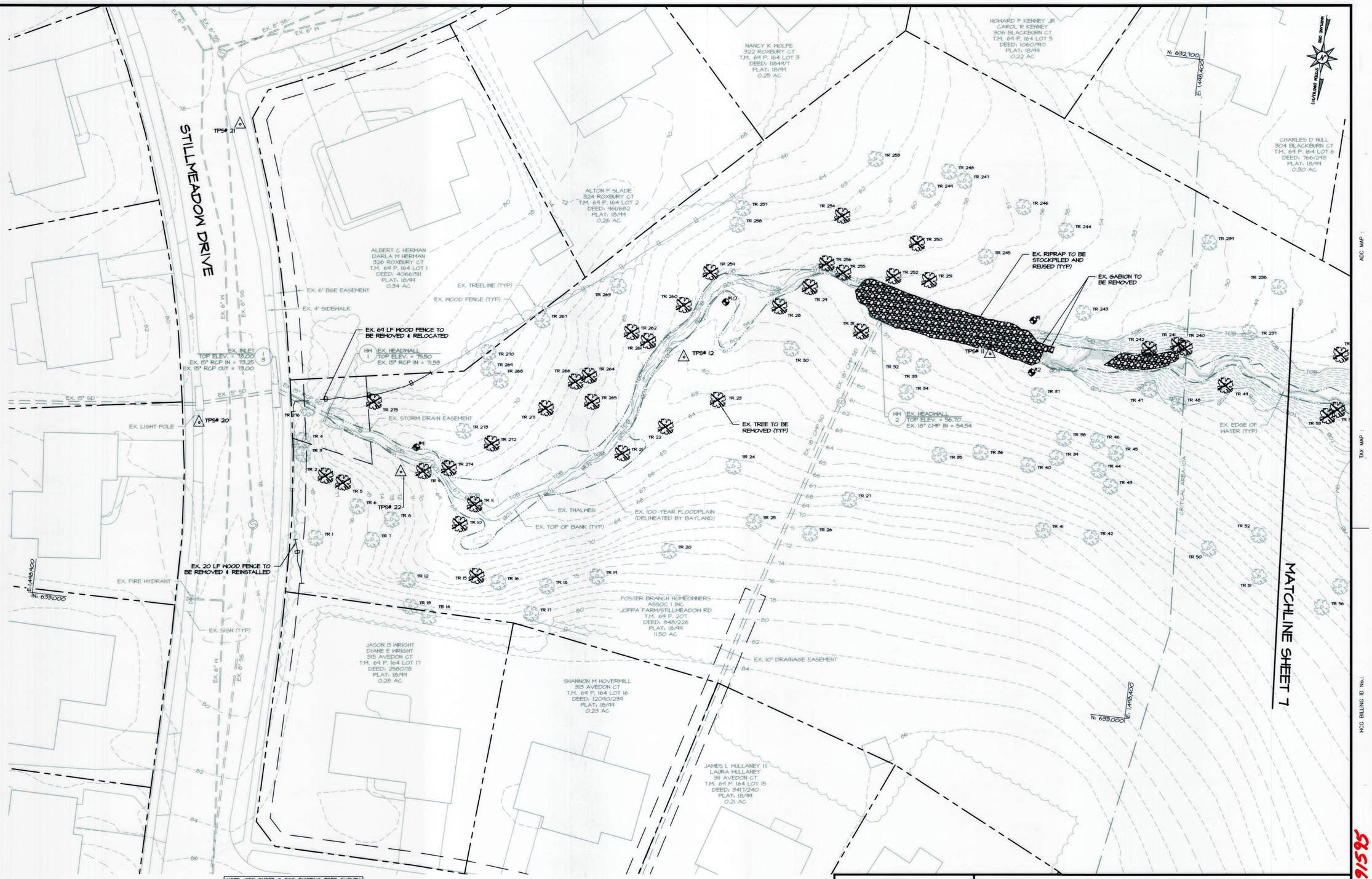
STILLMEADOW STREAM & OUTFALL RESTORATION
GEOMETRIC LAYOUT

DRAWN BY: EM
DESIGNED BY: RP/JP
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : 1" = 20'
SHEET 5 OF 35
DATE : 07/22/19

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMSR_GEOM03.dwg

ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No: 191594
SCALE: 1 inch



NOTE: SEE SHEET 9 FOR EXISTING TREE SURVEY

NOTE: SEE SHEET 34 FOR BORING LOGS

PLAN VIEW

SCALE: 1" = 20'

0 10 20 40

1 INCH = 20 FEET

191413

EG-SWMENG- 000372-2018 | # 97032

CLEAR CREEKS CONSULTING

1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.

"Integrating Engineering and Environment"

7455 New Ridge Road, Suite T
Hanover, Maryland 21076

Phone: (410) 694-9401
Fax: (410) 694-9105

www.baylandinc.com

BAYLAND JOB NO. 4_3801

STATE OF MARYLAND
CHRISTOPHER ON TEPP
33148
REGISTERED PROFESSIONAL ENGINEER

7/22/19

REVISIONS

HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
EXISTING CONDITIONS & DEMOLITION PLAN

DRAWN BY: EM	CONTRACT NO : 16-153
DESIGNED BY: MKB	SCALE : 1" = 20'
REVIEWED BY: MKB	SHEET 6 OF 35
	DATE : 07/22/19

ADC MAP :

TAX MAP :

HCG BILLING ID No.:

HCG DWG ID No.: 191595

SCALE : 1 inch

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMDBC_SP01.dwg

BLACKBURN COURT

SPRINGDALE COURT

MATCHLINE SHEET 6

MATCHLINE SHEET 8

DONNA K WELKER
301 BLACKBURN CT
T.M. 69 P. 164 LOT 9
DEED: 2127/840
PLAT: 18/99
0.29 AC

DALE M YOUNG
CAROLYN A YOUNG
300 BLACKBURN CT
T.M. 69 P. 164 LOT 8
DEED: 4418/260
PLAT: 18/99
0.28 AC

CORNELIS R WOLFF
TOOS F WOLFF TRUSTEES
302 BLACKBURN CT
T.M. 69 P. 164 LOT 7
DEED: 3436/679
PLAT: 18/99
0.22 AC

CHARLES A JR WEIRAUCH
JANICE I WEIRAUCH
308 ROSECREST CT
T.M. 69 P. 222 LOT 7
DEED: 4932/285
PLAT: 30/100
0.23 AC

BRIAN J WYBORSKI
306 ROSECREST CT
T.M. 69 P. 222 LOT 6
DEED: 4275/450
PLAT: 30/100
0.23 AC

DEANA M HOUSER
304 ROSECREST CT
T.M. 69 P. 222 LOT 5
DEED: 6384/499
PLAT: 30/100
0.20 AC

SHARON FERRARA
302 ROSECREST CT
T.M. 69 P. 222 LOT 4
DEED: 4944/171
PLAT: 30/100
0.19 AC

STEVEN DWAYNE GREER
JUDIE SUE GREER
303 FOSTER KNOLL DR
T.M. 69 P. 217 LOT 2
DEED: 8682/217
PLAT: 23/94
0.20 AC

STEWART S NASH
E S FOSTER KNOLL DRIVE
T.M. 69 P. 217
DEED: 1595/588
PLAT: 23/94
1.53 AC

WILLIAM R WEBSTER
MF WEBSTER
305 FOSTER KNOLL DR
T.M. 69 P. 217 LOT 1
DEED: 878/415
PLAT: 23/94
0.24 AC

FOSTER BRANCH HOMEOWNERS
ASSOC I INC.
JOPPA FARMS/STILLMEADOW RD
T.M. 69 P. 207
DEED: 848/226
PLAT: 18/99
11.50 AC

ALYSE GALLOWAY
UNA GALLOWAY
315 SPRINGSDALE CT
T.M. 69 P. 151 LOT 23
DEED: 12786/453
PLAT: 17/97
0.24 AC

EUGENE KENNETH FRIEBE
AND HEFE
313 SPRINGSDALE CT
T.M. 69 P. 151 LOT 24
DEED: 900/51
PLAT: 17/97
0.23 AC

SARA CARRINGTON
311 SPRINGSDALE CT
T.M. 69 P. 151 LOT 25
DEED: 8568/226
PLAT: 17/97
0.21 AC

GARY M BROWNING
JACQUELINE D BROWNING
309 SPRINGDALE CT
T.M. 69 P. 151 LOT 26
DEED: 1588/248
PLAT: 17/97
0.20 AC

MICHAEL JAMES EBERT
SHEILA MICHELLE EBERT
307 SPRINGDALE CT
T.M. 69 P. 151 LOT 27
DEED: 10585/165
PLAT: 17/97
0.20 AC

ADAM D HEAVNER
305 SPRINGDALE CT
T.M. 69 P. 151 LOT 28
DEED: 8854/451
PLAT: 17/97
0.25 AC

MICHAEL J KING
MARGARET R KING
314 SPRINGDALE CT
T.M. 69 P. 151 LOT 22
DEED: 1563/753
PLAT: 17/97
0.24 AC

EX. 10' DRAINAGE EASEMENT
EX. WETLANDS (TYP)
EX. 25' WETLAND BUFFER (TYP)
EX. 20' DRAINAGE EASEMENT
EX. 6' BGE EASEMENT
EX. 8" SS
EX. 4" W
EX. 21" RCP SD
EX. HEADWALL TOP ELEV. = 30.05 EX. 21" RCP IN = 26.20
EX. DRAINAGE & UTILITY EASEMENT
EX. RIPRAP TO BE REMOVED (TYP)
EX. 100-YEAR FLOODPLAIN (DELINEATED BY BAYLAND)
EX. WOOD FENCE (TYP)
EX. THALWEG (TYP)
EX. TOP OF BANK (TYP)
EX. TREELINE (TYP)
EX. TREE (TYP)
EX. GABION TO BE REMOVED
EX. TREE TO BE REMOVED (TYP)
EX. FALLEN TREE TO BE REMOVED
EX. EDGE OF WATER (TYP)
EX. PROPERTY LINE (TYP)
EX. 6" SS
EX. 4" W
N: 632,725
E: 1,449,050
N: 633,050
E: 1,447,800
TPS# 5
TPS# 6
TPS# 7
TPS# 8
TPS# 9
CRITICAL AREA 100

NOTE: SEE SHEET 9 FOR EXISTING TREE SURVEY
NOTE: SEE SHEET 34 FOR BORING LOGS

PLAN VIEW
SCALE: 1" = 20'

0 10 20 40
1 INCH = 20 FEET

REVISIONS

HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
EXISTING CONDITIONS & DEMOLITION PLAN

DRAWN BY: EM
DESIGNED BY: JP
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : 1" = 20'
SHEET 7 OF 35
DATE : 07/22/19

EG-SWMENG- 000372-2018 | # 97032

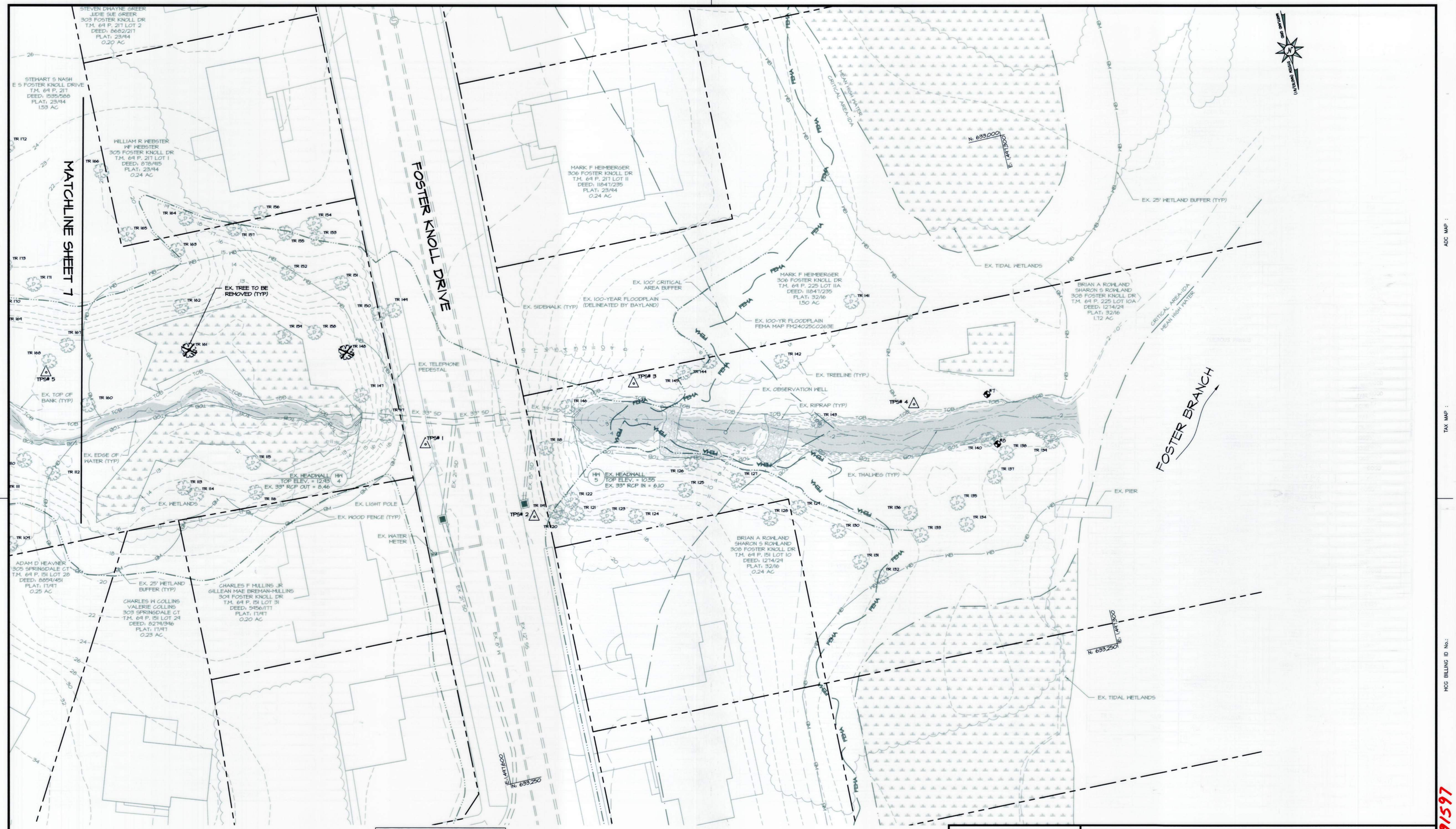
CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

Bayland Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

STATE OF MARYLAND — CHRISTOPHER JOHN PHILLIPS — 21615 — REGISTERED PROFESSIONAL ENGINEER
7/12/19

ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.: 191596
SCALE: 1 inch

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMOBC_SP02.dwg



NOTE: SEE FLOODPLAIN EXHIBIT APPENDIX K FOR FULL EXTENTS OF EX. 100-YEAR FLOODPLAIN.

NOTE: SEE SHEET 9 FOR EXISTING TREE SURVEY

NOTE: SEE SHEET 34 FOR BORING LOGS

PLAN VIEW

SCALE: 1" = 20'

0 10 20 40

1 INCH = 20 FEET

REVISIONS

HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
EXISTING CONDITIONS & DEMOLITION PLAN

DRAWN BY: EM	CONTRACT NO : 16-153
DESIGNED BY: JP	SCALE : 1" = 20'
REVIEWED BY: MKB	SHEET 8 OF 35
	DATE : 07/22/19

EG-SWMENG- 000372-2018 | # 97032

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T
Hanover, Maryland 21076
Phone: (410) 694-9401
Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

STATE OF MARYLAND CHRISTOPHER TOPPER REGISTERED PROFESSIONAL ENGINEER 35148
7/22/19

ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.: 191597
SCALE : 1 inch

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMDBC_SP03.dwg

EXISTING TREE SURVEY

TREE NUMBER	DBH (INCHES)	LATIN NAME	COMMON NAME	CONDITION/NOTES
TR 1	23.1	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 2*	22.5	QUERCUS RUBRA	NORTHERN RED OAK	FAIR (VINES)
TR 3	16.2	PRUNUS SEROTINA	BLACK CHERRY	FAIR (VINES)
TR 4	14.0	PRUNUS SEROTINA	BLACK CHERRY	GOOD
TR 5*	28.1	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 6	17.6	QUERCUS RUBRA	NORTHERN RED OAK	GOOD
TR 7	19.5	QUERCUS RUBRA	NORTHERN RED OAK	GOOD
TR 8	23.5	QUERCUS RUBRA	NORTHERN RED OAK	GOOD
TR 9*	25.8	QUERCUS ALBA	WHITE OAK	GOOD
TR 10*	14.4	QUERCUS ALBA	WHITE OAK	POOR
TR 11*	20.6	QUERCUS ALBA	WHITE OAK	GOOD
TR 12	15.1	ACER RUBRUM	RED MAPLE	GOOD
TR 13	17.8	ACER RUBRUM	RED MAPLE	GOOD
TR 14	14.3	ACER RUBRUM	RED MAPLE	GOOD
TR 15*	13.5	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 16	24.7	QUERCUS RUBRA	NORTHERN RED OAK	FAIR
TR 17	23.2	QUERCUS FALCATA	SOUTHERN RED OAK	GOOD
TR 18	14.7	QUERCUS FALCATA	SOUTHERN RED OAK	GOOD
TR 19	12.7	CARYA TOMENTOSA	MOCKERNUT HICKORY	GOOD
TR 20	13.6	QUERCUS ALBA	WHITE OAK	GOOD
TR 21*	20.1	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 22*	15.5	QUERCUS PRINUS	CHESTNUT OAK	FAIR (VINES)
TR 23*	22.0	QUERCUS ALBA	WHITE OAK	FAIR (VINES)
TR 24	25.2	QUERCUS ALBA	WHITE OAK	GOOD
TR 25	37.6	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 26	21.3	QUERCUS RUBRA	NORTHERN RED OAK	GOOD
TR 27	17.8	QUERCUS RUBRA	NORTHERN RED OAK	GOOD
TR 28*	27.1	LIRIODENDRON TULIPIFERA	TULIP POPLAR	FAIR (CAVITY)
TR 29*	28.9	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 30	23.8, 17.5	QUERCUS PRINUS	CHESTNUT OAK	MULTI-STEM, GOOD
TR 31*	18.4	QUERCUS ALBA	WHITE OAK	FAIR
TR 32	26.5	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 33	12.8	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 34	20.6	QUERCUS ALBA	WHITE OAK	GOOD
TR 35	32.8	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 36	23.9	QUERCUS VELUTINA	BLACK OAK	GOOD
TR 37	12.9	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 38	18.3	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 39	21.6	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 40	27.1	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 41	20.0	QUERCUS VELUTINA	BLACK OAK	GOOD
TR 42	14.8	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 43	18.7	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 44	25.0	QUERCUS VELUTINA	BLACK OAK	GOOD
TR 45	25.2	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 46	18.0	QUERCUS VELUTINA	BLACK OAK	GOOD
TR 47	20.8	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 48	13.0	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 49*	19.3	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 50	17.8	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 51	24.8	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 52	25.6	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 53*	19.3	NYSSA SYLVATICA	BLACK TUPELO	GOOD
TR 54*	13.1	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 55	22.0	QUERCUS VELUTINA	BLACK OAK	GOOD
TR 56	16.7	QUERCUS VELUTINA	BLACK OAK	GOOD
TR 57	20.1	NYSSA SYLVATICA	BLACK TUPELO	GOOD
TR 58	12.4	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 59	16.5	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 60	34.9	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 61	15.6	ACER RUBRUM	RED MAPLE	GOOD
TR 62	19.9	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 63	16.6	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 64	16.4	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 65	26.8	QUERCUS ALBA	WHITE OAK	GOOD
TR 66*	12.0	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	LAYING ACROSS STREAM, POOR
TR 67	17.5	NYSSA SYLVATICA	BLACK TUPELO	POOR
TR 68	17.2	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 69	14.7	QUERCUS ALBA	WHITE OAK	GOOD

* TREES TO BE REMOVED

TREE NUMBER	DBH (INCHES)	LATIN NAME	COMMON NAME	CONDITION/NOTES
TR 70	12.8	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 71	15.1	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 72*	16.7	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 73*	18.5	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 74*	13.2	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 75	21.9	ACER RUBRUM	RED MAPLE	GOOD
TR 76	13.9	ACER RUBRUM	RED MAPLE	POOR
TR 77	21.9	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 78	21.1	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 79	14.5	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 80*	27.7	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 81	35.1	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 82	20.5	QUERCUS ALBA	WHITE OAK	GOOD
TR 83	15.3	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 84	15.5	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 85*	18.7	NYSSA SYLVATICA	BLACK TUPELO	POOR
TR 86	22.9	QUERCUS RUBRA	NORTHERN RED OAK	GOOD
TR 87*	24.2	QUERCUS ALBA	WHITE OAK	GOOD
TR 88	26.3	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 89	14.2	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 90	31.4	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 91	14.7	QUERCUS ALBA	WHITE OAK	GOOD
TR 92	20.5	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 93	23.3	QUERCUS RUBRA	NORTHERN RED OAK	FAIR (VINES)
TR 94	21.0	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 95	27.5	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 96*	26.3	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 97	21.8	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 98	19.2	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 99	22.4	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 100	33.8	QUERCUS PRINUS	CHESTNUT OAK	FAIR
TR 101	17.3	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 102	14.3	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 103	13.4	ACER RUBRUM	RED MAPLE	GOOD
TR 104	26.6	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 105	32.0	QUERCUS ALBA	WHITE OAK	GOOD
TR 106	18.0	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 107	14.9	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 108	14.8	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 109	20.8	QUERCUS RUBRA	NORTHERN RED OAK	GOOD
TR 110	31.0	QUERCUS RUBRA	NORTHERN RED OAK	GOOD
TR 111	16.9	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 112	21.0	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 113	19.9	QUERCUS RUBRA	NORTHERN RED OAK	GOOD
TR 114	19.1	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 115	20.3	ACER RUBRUM	RED MAPLE	GOOD
TR 116	37.4	QUERCUS ALBA	WHITE OAK	MULTI-STEM ABOVE BH, GOOD
TR 117	24.0	MORUS RUBRA	RED MULBERRY	GOOD
TR 118	16.1	ROBINIA PSEUDOACACIA	BLACK LOCUST	GOOD
TR 119	12.6	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 120	14.0	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 121	17.5	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 122	12.3	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 123	14.7	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 124	20.2	QUERCUS ALBA	WHITE OAK	GOOD
TR 125	22, 19.4	QUERCUS PRINUS	CHESTNUT OAK	MULTI-STEM, GOOD
TR 126	15.6	NYSSA SYLVATICA	BLACK TUPELO	GOOD
TR 127	19.6	QUERCUS PRINUS	CHESTNUT OAK	FAIR
TR 128	19.2	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 129	19.0	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 130	20.7	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 131	12.9	ILEX OPACA	AMERICAN HOLLY	GOOD
TR 132	27.1	QUERCUS PRINUS	CHESTNUT OAK	POOR
TR 133	12.6, 5.4	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	MULTI-STEM, GOOD
TR 134	13.0	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 135	17.1	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 136	13.3	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 137	18.2	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	FAIR
TR 138	16.2	PRUNUS SEROTINA	BLACK CHERRY	POOR

TREE NUMBER	DBH (INCHES)	LATIN NAME	COMMON NAME	CONDITION/NOTES
TR 139	16.5	ROBINIA PSEUDOACACIA	BLACK LOCUST	FAIR
TR 140	15.9	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 141	20.2	ACER RUBRUM	RED MAPLE	GOOD
TR 142	17.7	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 143	15.8	PRUNUS SEROTINA	BLACK CHERRY	GOOD
TR 144	13.1	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	FAIR (CAVITY)
TR 145	19.9	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	FAIR (DEAD TOP)
TR 146	13.0	ROBINIA PSEUDOACACIA	BLACK LOCUST	GOOD
TR 147	13.6	ACER RUBRUM	RED MAPLE	GOOD
TR 148*	13.4	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 149	14.8	PRUNUS SEROTINA	BLACK CHERRY	GOOD
TR 150	13.6	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 151	17.5	ROBINIA PSEUDOACACIA	BLACK LOCUST	GOOD
TR 152	16.8	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 153	16.7	QUERCUS FALCATA	SOUTHERN RED OAK	GOOD
TR 154	12.4	QUERCUS FALCATA	SOUTHERN RED OAK	GOOD
TR 155	24.0	QUERCUS PRINUS	CHESTNUT OAK	FAIR
TR 156	17.8, 11.0	QUERCUS ALBA	WHITE OAK	MULTI-STEM, GOOD
TR 157	22.0	QUERCUS RUBRA	NORTHERN RED OAK	GOOD
TR 158	24.0	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 159	13.5	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 160	14.0	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 161*	13.2	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 162	13.7	QUERCUS PRINUS	CHESTNUT OAK	FAIR
TR 163	27.5	QUERCUS RUBRA	NORTHERN RED OAK	GOOD
TR 164	13.0	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 165	12.8	QUERCUS ALBA	WHITE OAK	GOOD
TR 166	13.5	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 167	27.6	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	FAIR (CAVITY)
TR 168	26.3	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 169	25.8	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	FAIR (CAVITY)
TR 170	28.6	QUERCUS ALBA	WHITE OAK	GOOD
TR 171	34.2	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 172	16.6	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 173	12.0	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 174	21.0	QUERCUS ALBA	WHITE OAK	GOOD
TR 175	21.0	QUERCUS ALBA	WHITE OAK	GOOD
TR 176	17.0	QUERCUS PRINUS	CHESTNUT OAK	FAIR
TR 177	12.3	QUERCUS RUBRA	NORTHERN RED OAK	GOOD
TR 178	23.1	QUERCUS ALBA	WHITE OAK	GOOD
TR 179	12.2	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 180	14.4	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 181	37.0	QUERCUS RUBRA	NORTHERN RED OAK	GOOD
TR 182	18.6	QUERCUS ALBA	WHITE OAK	GOOD
TR 183	13.8	QUERCUS PRINUS	CHESTNUT OAK	LEANING ACROSS STREAM, GOOD
TR 184	28.3	QUERCUS ALBA	WHITE OAK	GOOD
TR 185	33.1	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 186	12.0	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 187	12.9	QUERCUS ALBA	WHITE OAK	GOOD
TR 188	18.3	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 189	16.2	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 190	13.4	PRUNUS SEROTINA	BLACK CHERRY	GOOD
TR 191	12.3	NYSSA SYLVATICA	BLACK TUPELO	GOOD
TR 192*	13.6	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	LEANING ACROSS STREAM, GOOD
TR 193*	14.9	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 194	18.2	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 195	17.5, 10.3, 15.5, 14.0, 9.3	ACER RUBRUM	RED MAPLE	MULTI-STEM, GOOD
TR 196	14.0	ACER RUBRUM	RED MAPLE	GOOD
TR 197	15.4	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 198	16.6	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	GOOD
TR 199	15.1	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	GOOD
TR 200	17.7	ACER RUBRUM	RED MAPLE	GOOD
TR 201	16.6	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 202	28.5	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 203	15.6	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 204	32.8	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 205	14.4	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 206	14.6	ACER RUBRUM	RED MAPLE	GOOD

TREE NUMBER	DBH (INCHES)	LATIN NAME	COMMON NAME	CONDITION/NOTES
TR 207	27.4	QUERCUS FALCATA	SOUTHERN RED OAK	GOOD
TR 208	21.3	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 209	13.5	ACER RUBRUM	RED MAPLE	GOOD
TR 210*	16.6	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 211*	12.2	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 212	12.2	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 213	13.0, 12.0	ROBINIA PSEUDOACACIA	BLACK LOCUST	MULTI-STEM, FAIR (VINES)
TR 214	14.5	PRUNUS SEROTINA	BLACK CHERRY	POOR (VINES)
TR 215	13.0	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	FAIR (VINES)
TR 216	16.8	LIRIODENDRON TULIPIFERA	TULIP POPLAR	FAIR (VINES)
TR 217	19.2	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 218	20.9	LIRIODENDRON TULIPIFERA	TULIP POPLAR	FAIR (VINES)
TR 219	22.6	QUERCUS RUBRA	NORTHERN RED OAK	GOOD
TR 220	21.0	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 221	16.4	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 222	15.9	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 223	16.0	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 224	24.2	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 225	14.4	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 226	21.8	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 227	13.7	NYSSA SYLVATICA	BLACK TUPELO	GOOD
TR 228	22.1	QUERCUS ALBA	WHITE OAK	GOOD
TR 229	27.7	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 230	23.8	QUERCUS ALBA	WHITE OAK	GOOD
TR 231	15.4	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 232	14.8	NYSSA SYLVATICA	BLACK TUPELO	GOOD
TR 233	19.0	NYSSA SYLVATICA	BLACK TUPELO	GOOD
TR 234*	13.0	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 235	15.0	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 236*	13.0	ACER RUBRUM	RED MAPLE	GOOD
TR 237	16.1	QUERCUS PRINUS	CHESTNUT OAK	FAIR
TR 238	14.8	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 239	13.8	QUERCUS ALBA	WHITE OAK	FAIR
TR 240*	18.7	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 241*	15.4	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 242*	13.9	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 243	14.5	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 244	12.0	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 245	21.4	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 246	30.1	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 247	28.0	QUERCUS ALBA	WHITE OAK	GOOD
TR 248	14.5	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	GOOD
TR 249	17.4	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 250*	20.0	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 251*	31.0	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 252*	23.9	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 253	30.8	QUERCUS FALCATA	SOUTHERN RED OAK	GOOD
TR 254*	21.1	QUERCUS PRINUS	CHESTNUT OAK	FAIR
TR 255*	25.1	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 256*	16.3	LIRIODENDRON TULIPIFERA	TULIP POPLAR	FAIR
TR 257	12.1	ACER RUBRUM	RED MAPLE	FAIR (VINES)
TR 258	27.6	QUERCUS FALCATA	SOUTHERN RED OAK	GOOD
TR 259*	25.0	QUERCUS ALBA	WHITE OAK	GOOD
TR 260*	28.7	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 261*	23.1	QUERCUS ALBA	WHITE OAK	GOOD
TR 262*	19.6	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 263	26.7	QUERCUS VELUTINA	BLACK OAK	FAIR (VINES)
TR 264*	25.7	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 265*	12.4	QUERCUS VELUTINA	BLACK OAK	FAIR (VINES)
TR 266*	31.7	QUERCUS VELUTINA	BLACK OAK	FAIR (VINES)
TR 267	41.0	QUERCUS FALCATA	SOUTHERN RED OAK	FAIR (VINES)
TR 268	19.2	QUERCUS VELUTINA	BLACK OAK	GOOD
TR 269	33.5	LIRIODENDRON TULIPIFERA	TULIP POPLAR	GOOD
TR 270	13.9	QUERCUS ALBA	WHITE OAK	FAIR (VINES)
TR 271*	12.8, 10.7	QUERCUS PRINUS	CHESTNUT OAK	MULTI-STEM ,FAIR (VINES)
TR 272*	15.5	QUERCUS PRINUS	CHESTNUT OAK	GOOD
TR 273	25.8	QUERCUS VELUTINA	BLACK OAK	FAIR (VINES)
TR 274*	14.8	LIRIODENDRON TULIPIFERA	TULIP POPLAR	FAIR (CAVITY)
TR 275*	18.0	MORUS RUBRA	RED MULBERRY	FAIR (VINES)
TR 276	19.9	PINUS STROBUS	EASTERN WHITE PINE	FAIR (VINES)

ADC MAP :

TAX MAP :

HCG BILLING ID No.: 191598

HCG DWG ID No.:

EG-SWMENG- 000372-2018 | # 97032

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com

BAYLAND JOB NO. 4_3801

STATE OF MARYLAND CHRISTOPHER JON STEPP No. 33146 REGISTERED PROFESSIONAL ENGINEER 7/22/19

REVISIONS

HARFORD COUNTY, MARYLAND

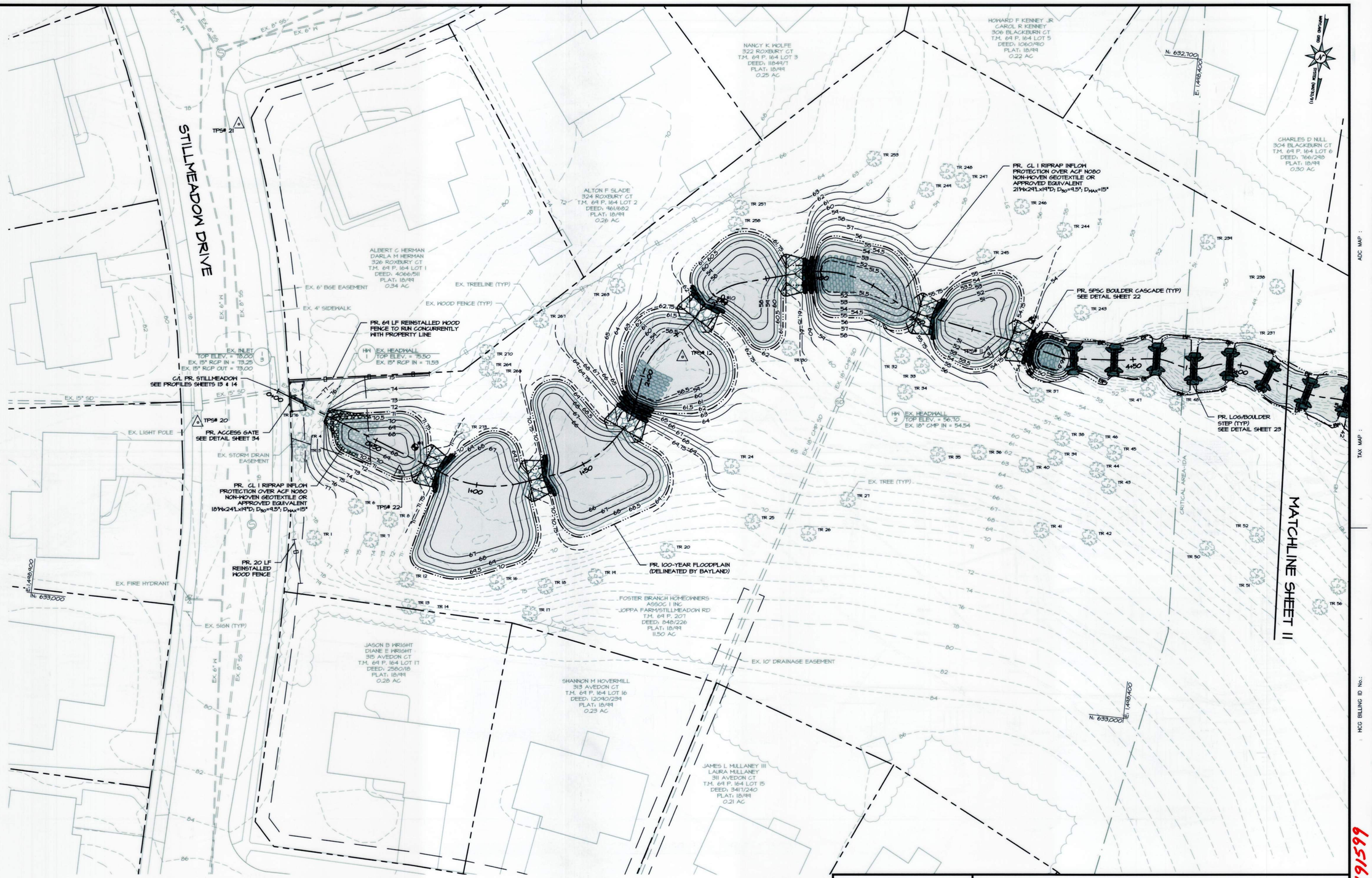
STILLMEADOW STREAM & OUTFALL RESTORATION
EXISTING TREE TABLES

DRAWN BY: JP
DESIGNED BY: JP
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : AS SHOWN
SHEET 9 OF 35
DATE : 07/22/19

SCALE : 1 inch

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMSR_DTL01.dwg



SITE PLAN

SCALE: 1" = 20'

0 10 20 40

1 INCH = 20 FEET

BMP ANALYSIS

DRAINAGE AREA:	7.35 ACRES
IMPERVIOUS AREA:	2.51 ACRES (34.1%)
LOCATION:	HARFORD COUNTY, MD
TARGET WQv STORAGE:	0.22 AC-FT
TARGET Cpv STORAGE:	0.41 AC-FT
TOTAL TARGET TREATMENT:	0.63 AC-FT
TOTAL TREATMENT PROVIDED:	0.60 AC-FT
RAINFALL DEPTH TREATED:	2.60 INCHES
IMPERVIOUS AREA TREATED:	3.51 ACRES
OUTFALL STABILIZATION:	400 LF
IMPERVIOUS ACRE CREDIT:	2.00 ACRES
TOTAL IMPERVIOUS AREA TREATED:	5.51 ACRES

NOTES:

1. CONTRACTOR SHALL REUSE EXISTING CL I RIPRAP FOR PROPOSED STRUCTURES WITHIN THE PROJECT LIMITS WHEN PERMITTED, AS DOCUMENTED IN THE SPECIFICATIONS.
2. ROCKS SHOWN ON PLAN AND PROFILE VIEW ARE SYMBOLIC AND DO NOT REPRESENT INDIVIDUAL STONES. SEE SPSC ROCK SIZING TABLE SHEET 22 AND STONE SIZING TABLE SHEET 24 FOR ACTUAL ROCK DIMENSIONS.

19414

EG-SWMENG- 000372-2018 | # 97032

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

Bayland Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

STATE OF MARYLAND — CHRISTOPHER M. KYLE — 21581 — REGISTERED PROFESSIONAL ENGINEER
7/22/19

REVISIONS

HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
SITE PLAN

DRAWN BY: EM
DESIGNED BY: MKB
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : 1" = 20'
SHEET 10 OF 35
DATE : 07/22/19

ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.: 191599
SCALE 1" inch

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMDBC_SP04.dwg

BLACKBURN COURT

SPRINGDALE COURT

DONNA K WELKER
301 BLACKBURN CT
T.M. 69 P. 164 LOT 9
DEED: 2121/840
PLAT: 18/98
0.29 AC

DALE M YOUNG
CAROLYN A YOUNG
300 BLACKBURN CT
T.M. 69 P. 164 LOT 8
DEED: 4418/260
PLAT: 18/98
0.28 AC

CORNELIS R WOLFF
TOOS F WOLFF TRUSTEES
302 BLACKBURN CT
T.M. 69 P. 164 LOT 7
DEED: 3936/479
PLAT: 18/98
0.22 AC

CHARLES A JR WEIRAUCH
JANICE I WEIRAUCH
308 ROSECREST CT
T.M. 69 P. 222 LOT 7
DEED: 4932/285
PLAT: 30/100
0.23 AC

BRIAN J WYBORSKI
306 ROSECREST CT
T.M. 69 P. 222 LOT 6
DEED: 4275/450
PLAT: 30/100
0.23 AC

DEANA M HOUSER
304 ROSECREST CT
T.M. 69 P. 222 LOT 5
DEED: 6384/499
PLAT: 30/100
0.20 AC

SHARON FERRARA
302 ROSECREST CT
T.M. 69 P. 222 LOT 4
DEED: 4144/171
PLAT: 30/100
0.19 AC

STEVEN DWAYNE GREER
LIDIE SUE GREER
303 FOSTER KNOLL DR
T.M. 69 P. 217 LOT 2
DEED: 8682/217
PLAT: 23/94
0.20 AC

STEWART S NASH
E S FOSTER KNOLL DRIVE
T.M. 69 P. 217
DEED: 1535/586
PLAT: 23/94
1.53 AC

WILLIAM R WEBSTER
NF WEBSTER
305 FOSTER KNOLL DR
T.M. 69 P. 217 LOT 1
DEED: 878/915
PLAT: 23/94
0.24 AC

ALYSE GALLOWAY
LINA GALLOWAY
315 SPRINGDALE CT
T.M. 69 P. 151 LOT 23
DEED: 12786/453
PLAT: 17/97
0.24 AC

EUGENE KENNETH PRIEBE
AND WIFE
313 SPRINGDALE CT
T.M. 69 P. 151 LOT 24
DEED: 900/51
PLAT: 17/97
0.23 AC

SARA CARRINGTON
311 SPRINGDALE CT
T.M. 69 P. 151 LOT 25
DEED: 8568/226
PLAT: 17/97
0.21 AC

GARY M BROWNING
JACQUELINE D BROWNING
309 SPRINGDALE CT
T.M. 69 P. 151 LOT 26
DEED: 1568/248
PLAT: 17/97
0.20 AC

MICHAEL J KING
MARGARET R KING
314 SPRINGDALE CT
T.M. 69 P. 151 LOT 22
DEED: 1569/753
PLAT: 17/97
0.24 AC

MICHAEL JAMES EBERT
SHEILA MICHELLE EBERT
307 SPRINGDALE CT
T.M. 69 P. 151 LOT 27
DEED: 10595/165
PLAT: 17/97
0.20 AC

ADAM D HEAVNER
305 SPRINGDALE CT
T.M. 69 P. 151 LOT 28
DEED: 8859/451
PLAT: 17/97
0.25 AC

EX. 8" SS
EX. 4" W
EX. 21" RCP SD
EX. 6' BGE EASEMENT
EX. 20' DRAINAGE EASEMENT
EX. 10' DRAINAGE EASEMENT
EX. WETLANDS (TYP)
EX. 25' WETLAND BUFFER (TYP)
EX. DRAINAGE & UTILITY EASEMENT
EX. WOOD FENCE (TYP)
EX. TREELINE (TYP)
EX. TREE (TYP)
EX. CHANNEL TO BE FILLED (TYP)
N: 632,725
E: 1,247,600
N: 633,050
E: 1,247,600

C/L PR. BLACKBURN CT OUTFALL
SEE PROFILE SHEET 14

EX. HEADWALL HW 3
TOP ELEV. = 30.05
EX. 21" RCP IN = 26.20

PR. LOG-BOULDER STEP (TYP)
SEE DETAIL SHEET 23

PR. CONSTRUCTED RIFFLE (TYP)
SEE DETAIL SHEET 24

C/L PR. STILLMEADOW
SEE PROFILES SHEETS 13 & 14

PR. 100-YEAR FLOODPLAIN
(DELINEATED BY BAYLAND)

PR. POOL (TYP)

TPS# 9
TPS# 8
TPS# 7
TPS# 6
TPS# 5

MATCHLINE SHEET 10

MATCHLINE SHEET 12

CRITICAL AREA/100

SITE PLAN

SCALE: 1" = 20'

0 10 20 40
1 INCH = 20 FEET

NOTES:

1. CONTRACTOR SHALL REUSE EXISTING CL I RIPRAP FOR PROPOSED STRUCTURES WITHIN THE PROJECT LIMITS WHEN PERMITTED, AS DOCUMENTED IN THE SPECIFICATIONS.
2. ROCKS SHOWN ON PLAN AND PROFILE VIEW ARE SYMBOLIC AND DO NOT REPRESENT INDIVIDUAL STONES. SEE SPSC ROCK SIZING TABLE SHEET 22 AND STONE SIZING TABLE SHEET 24 FOR ACTUAL ROCK DIMENSIONS.

EG-SWMENG- 000372-2018 | # 97032

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

7/22/19

REVISIONS

HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
SITE PLAN

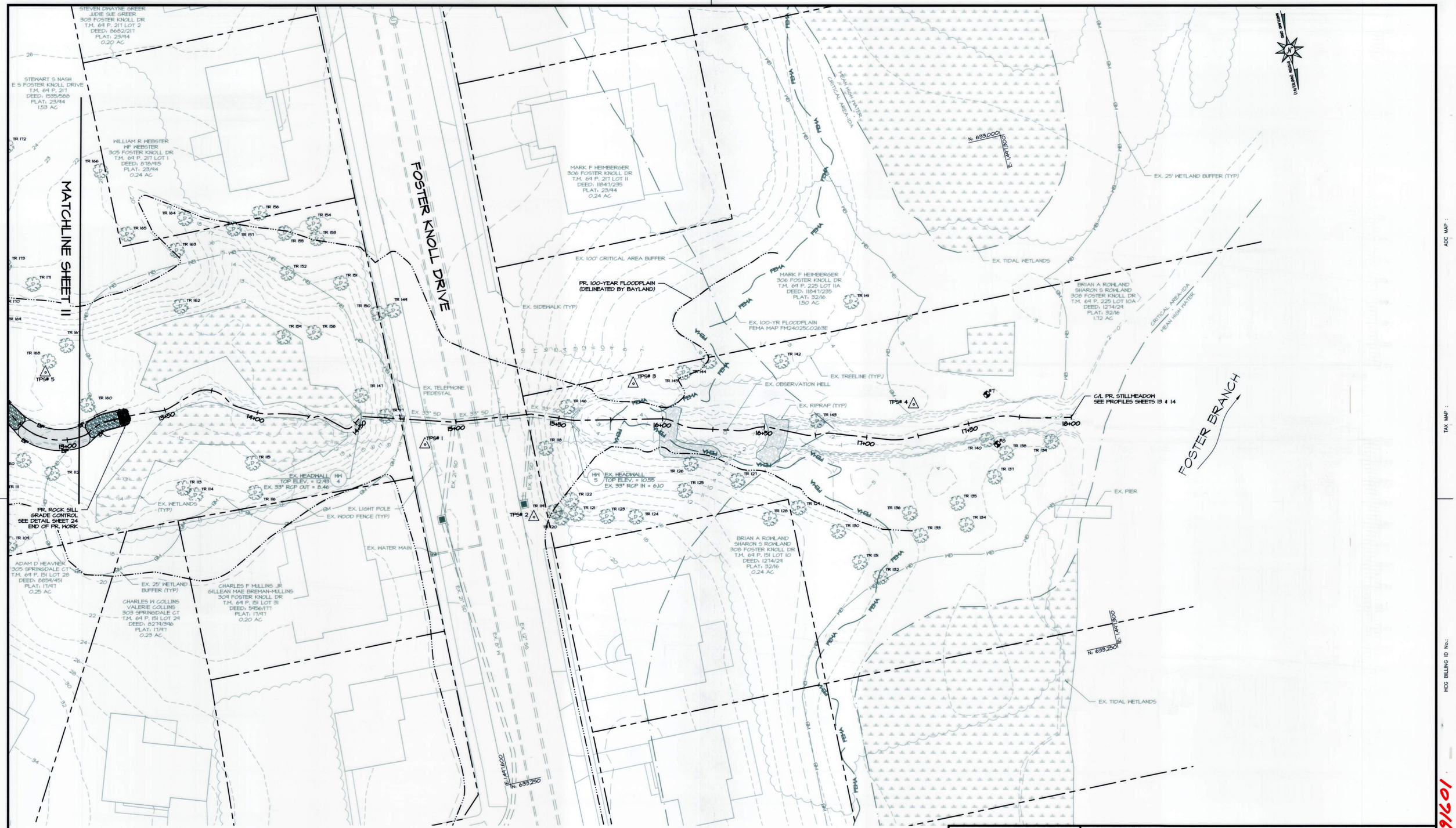
DRAWN BY: JP
DESIGNED BY: RP/JP
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : 1" = 20'
SHEET 11 OF 35
DATE : 07/22/19

ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.: 19/000

SCALE 1 inch

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMDBC_SP05.dwg



SITE PLAN

SCALE: 1" = 20'

0 10 20 40

1 INCH = 20 FEET

NOTE: SEE FLOODPLAIN EXHIBIT APPENDIX K FOR FULL EXTENTS OF PR. 100-YEAR FLOODPLAIN.

NOTES:

1. CONTRACTOR SHALL REUSE EXISTING CL I RIPRAP FOR PROPOSED STRUCTURES WITHIN THE PROJECT LIMITS WHEN PERMITTED, AS DOCUMENTED IN THE SPECIFICATIONS.
2. ROCKS SHOWN ON PLAN AND PROFILE VIEW ARE SYMBOLIC AND DO NOT REPRESENT INDIVIDUAL STONES. SEE SPSC ROCK SIZING TABLE SHEET 22 AND STONE SIZING TABLE SHEET 24 FOR ACTUAL ROCK DIMENSIONS.

EG-SWMENG- 000372-2018 | # 97032

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T
Hanover, Maryland 21076
Phone: (410) 694-9401
Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

STATE OF MARYLAND CHRISTOPHER ... REGISTERED PROFESSIONAL ENGINEER 7/22/19

REVISIONS

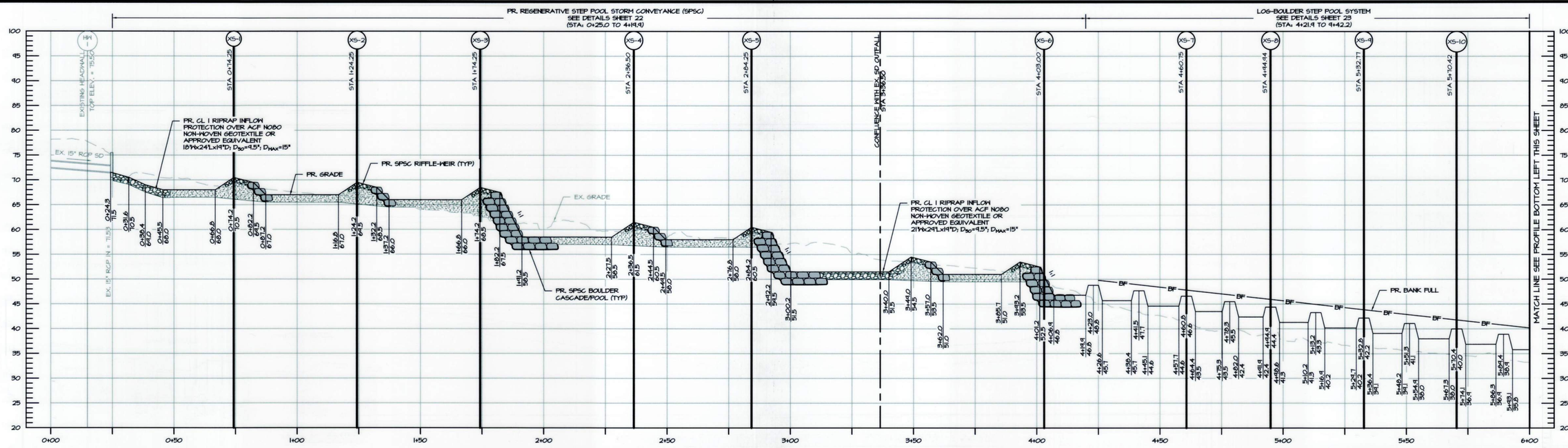
HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
SITE PLAN

DRAWN BY: JP	CONTRACT NO: 16-153
DESIGNED BY: RP/JP	SCALE: 1" = 20'
REVIEWED BY: MKB	SHEET 12 OF 35
	DATE: 07/22/19

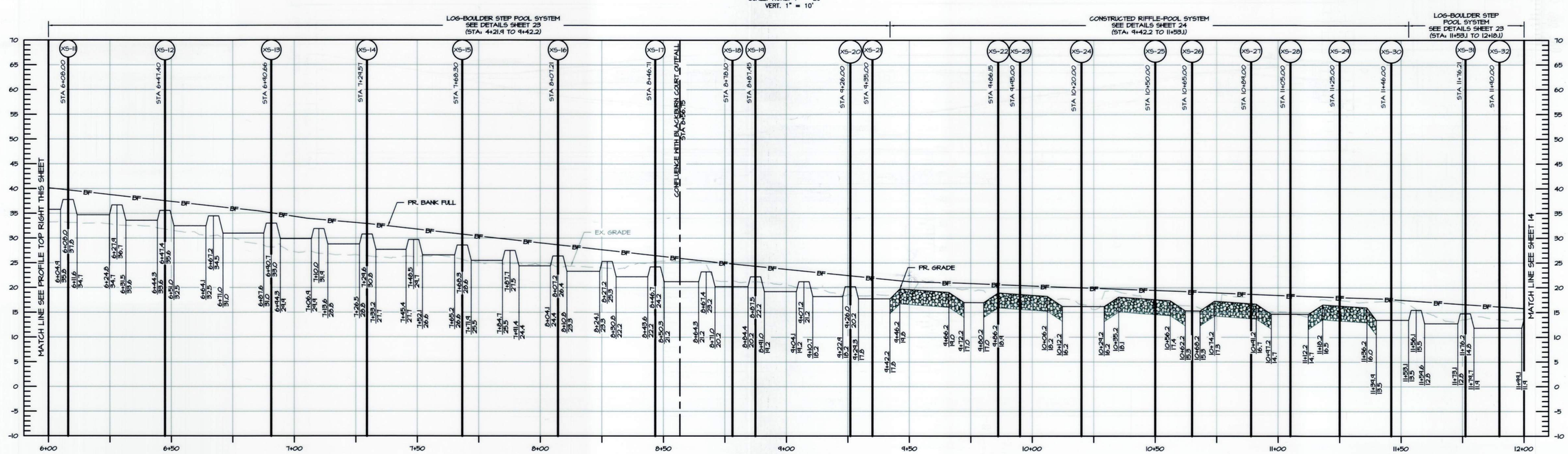
ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.: 191601
SCALE 1 inch

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMDBC_SP06.dwg



PROFILE C/L PR. STILLMEADOW STA: 0+00 TO STA: 6+00

SCALE: HORZ. 1" = 20'
VERT. 1" = 10'



PROFILE C/L PR. STILLMEADOW STA: 6+00 TO STA: 12+00

SCALE: HORZ. 1" = 20'
VERT. 1" = 10'

191415

EG-SWMENG- 000372-2018 | # 97032

S/C PLAN # 59838 | GRA # 15387-2018

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

7/22/19

REVISIONS

HARFORD COUNTY, MARYLAND

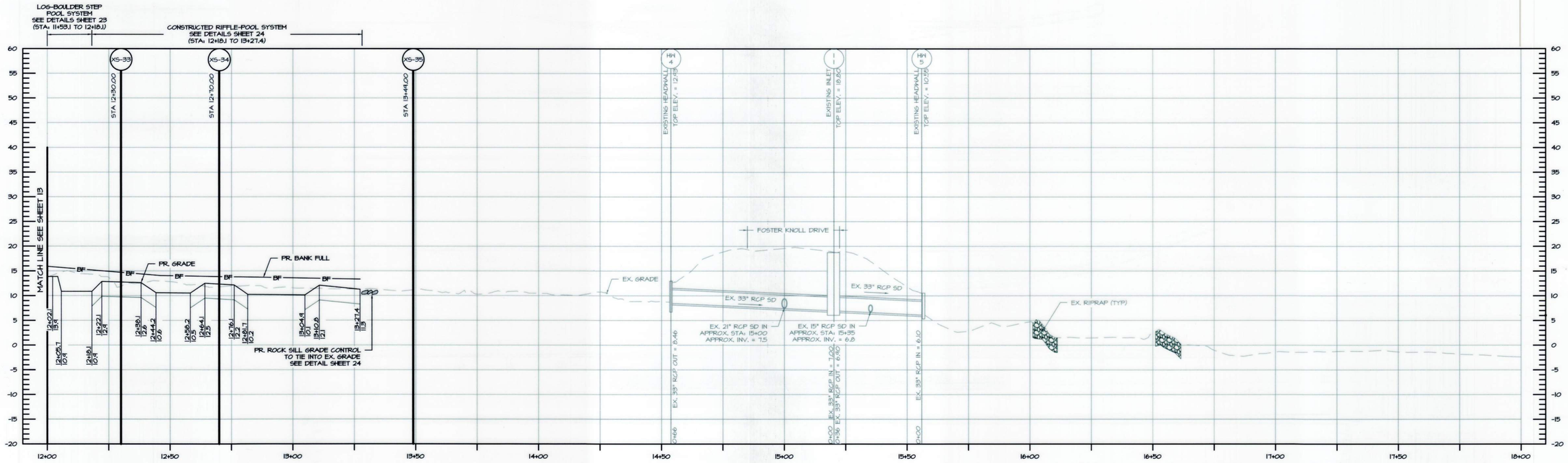
STILLMEADOW STREAM & OUTFALL RESTORATION
PROFILES

DRAWN BY: BF/EM/JP
DESIGNED BY: MKB/RP/JP
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : AS SHOWN
SHEET 13 OF 35
DATE : 07/22/19

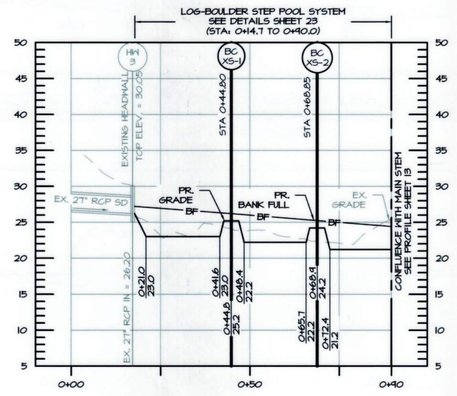
ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.: 191602
SCALE 1 inch

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMSR_PROF01.dwg



PROFILE C/L PR. STILLMEADOW STA: 12+00 TO STA: 18+00

SCALE: HORZ. 1" = 20'
VERT. 1" = 10'



PROFILE C/L PR. BLACKBURN CT OUTFALL STA: 0+00 TO STA: 0+90

SCALE: HORZ. 1" = 20'
VERT. 1" = 10'

EG-SWMENG- 000372-2018 | # 97032

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T
Hanover, Maryland 21076
Phone: (410) 694-9401
Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

STATE OF MARYLAND CHRISTOPHER TEPPER REGISTERED PROFESSIONAL ENGINEER 7/22/19

REVISIONS

HARFORD COUNTY, MARYLAND

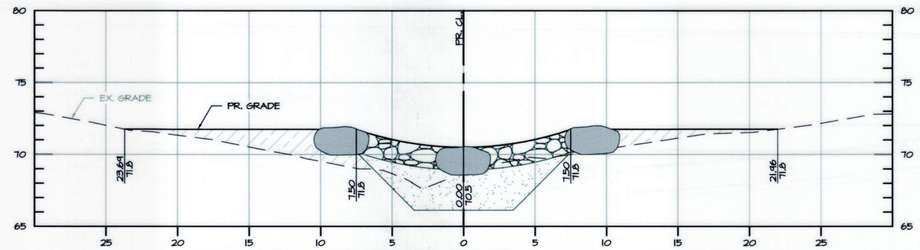
STILLMEADOW STREAM & OUTFALL RESTORATION PROFILES

DRAWN BY: EM/BF/JP
DESIGNED BY: RP/JP
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : AS SHOWN
SHEET 14 OF 35
DATE : 07/22/19

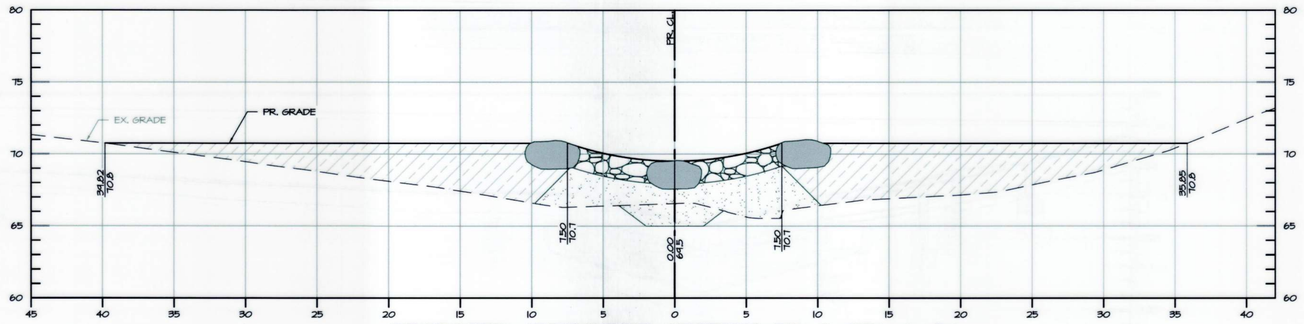
ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.: 191603
SCALE : 1 inch

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMSR_PROF02.dwg



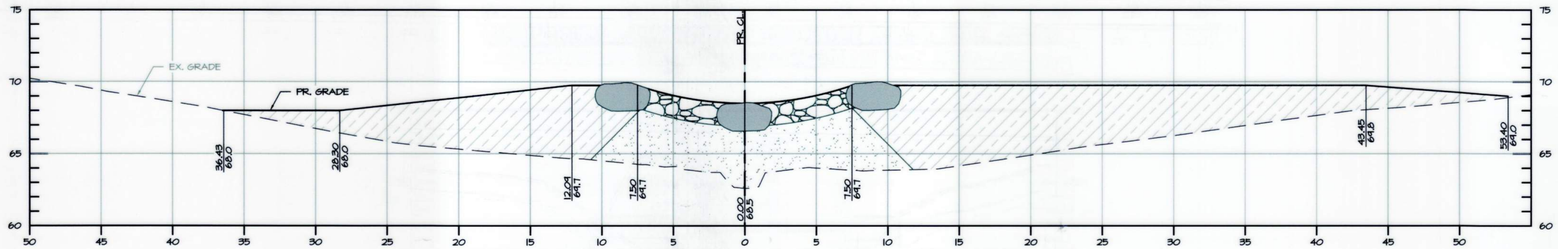
PROPOSED ALIGNMENT SECTION XS-1 STA 0+74

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



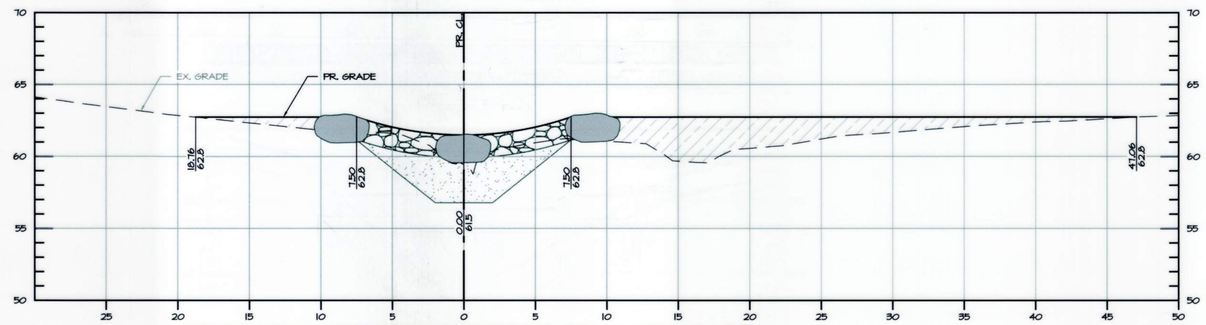
PROPOSED ALIGNMENT SECTION XS-2 STA 1+24

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



PROPOSED ALIGNMENT SECTION XS-3 STA 1+74

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



PROPOSED ALIGNMENT SECTION XS-4 STA 2+36

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'

CROSS SECTION LEGEND

EX. GRADE
PR. GRADE
PR. SPSC COBBLE (d_{50}=6")
PR. SPSC SAND/WOODCHIP MIX
PR. SPSC/STEP POOL BOULDERS
PR. FILTER FABRIC
PR. SUITABLE FILL MATERIAL

NOTE: ROCKS SHOWN ON CROSS SECTION VIEWS ARE SYMBOLIC AND DO NOT REPRESENT INDIVIDUAL STONES. SEE ROCK SIZING TABLES SHEET 22 FOR ACTUAL ROCK DIMENSIONS.

EG-SWMENG- 000372-2018 | # 97032

191416

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

CHRISTOPHER D. LAWRENCE — No. 21414 — STATE OF MARYLAND — PROFESSIONAL ENGINEER
7/22/19

REVISIONS

HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
CROSS SECTIONS

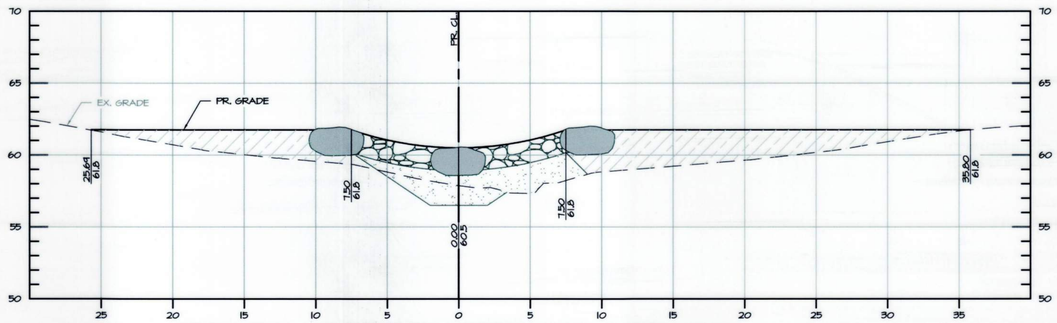
DRAWN BY: BF/EM/DL
DESIGNED BY: MKB
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : AS SHOWN
SHEET 15 OF 35
DATE : 07/22/19

ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.: 191604

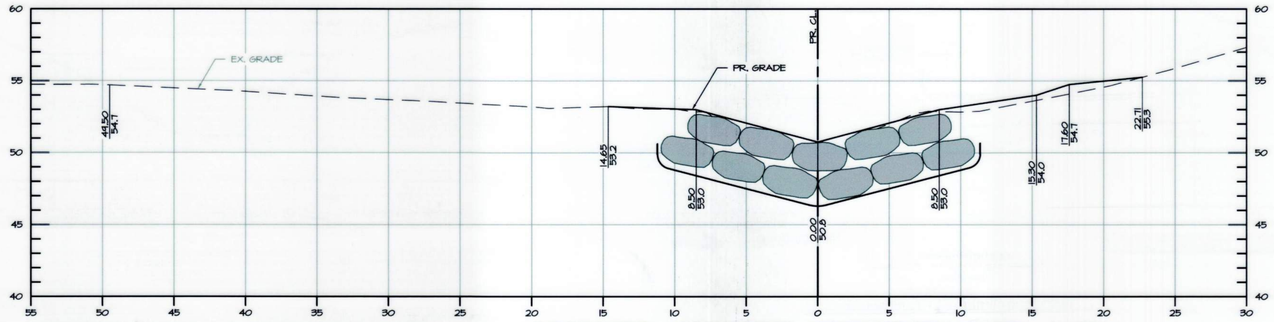
SCALE: 1 inch

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMSR_XSEC01.dwg



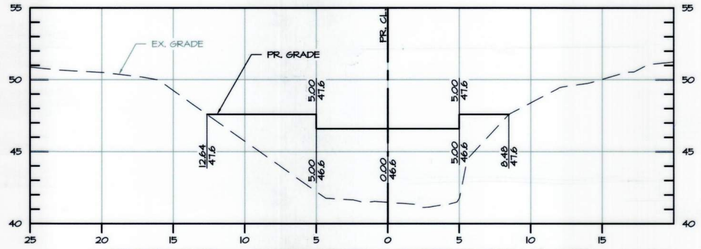
PROPOSED ALIGNMENT SECTION XS-5 STA 2+84

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



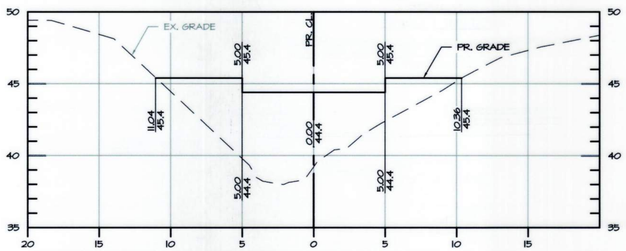
PROPOSED ALIGNMENT SECTION XS-6 STA 4+03

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



PROPOSED ALIGNMENT SECTION XS-7 STA 4+61

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



PROPOSED ALIGNMENT SECTION XS-8 STA 4+95

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'

CROSS SECTION LEGEND

EX. GRADE
PR. GRADE
PR. SPSC COBBLE (d_{50}=6")
PR. SPSC SAND/WOODCHIP MIX
PR. SPSC/STEP POOL BOULDERS
PR. FILTER FABRIC
PR. SUITABLE FILL MATERIAL

NOTE: ROCKS SHOWN ON CROSS SECTION VIEWS ARE SYMBOLIC AND DO NOT REPRESENT INDIVIDUAL STONES. SEE ROCK SIZING TABLES SHEET 22 FOR ACTUAL ROCK DIMENSIONS.

191417

EG-SWMENG- 000372-2018 | # 97032

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

7/22/19

REVISIONS

HARFORD COUNTY, MARYLAND

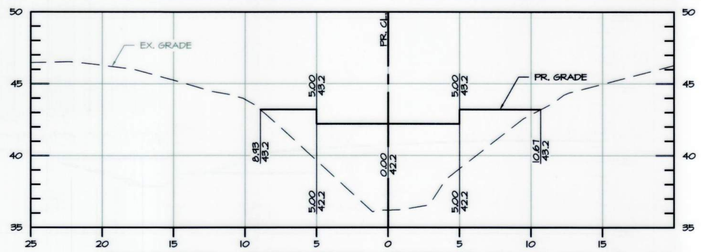
STILLMEADOW STREAM & OUTFALL RESTORATION
CROSS SECTIONS

DRAWN BY: EM/BF/DL
DESIGNED BY: MKB/RP/JP
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : AS SHOWN
SHEET 16 OF 35
DATE : 07/22/19

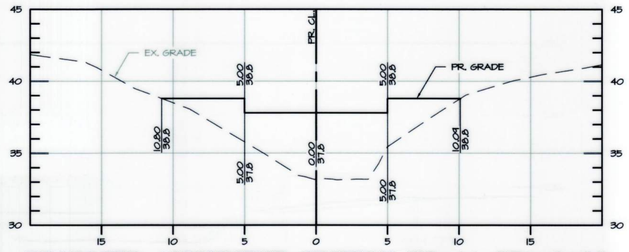
ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.: 191605

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMSR_XSEC02.dwg



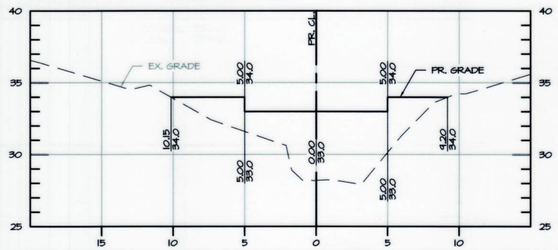
PROPOSED ALIGNMENT SECTION XS-9 STA 5+33

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



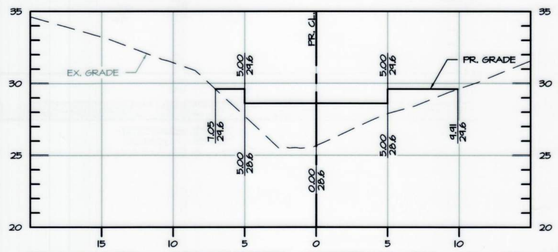
PROPOSED ALIGNMENT SECTION XS-11 STA 6+08

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



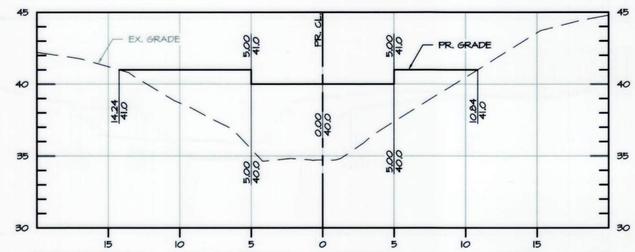
PROPOSED ALIGNMENT SECTION XS-13 STA 6+91

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



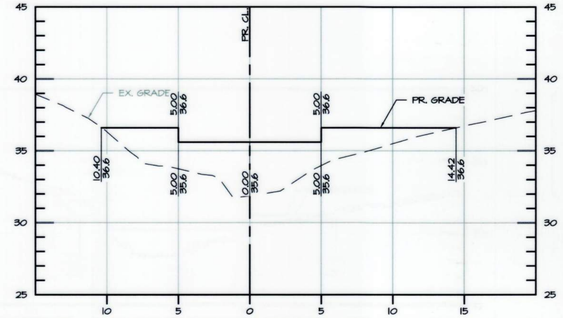
PROPOSED ALIGNMENT SECTION XS-15 STA 7+68

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



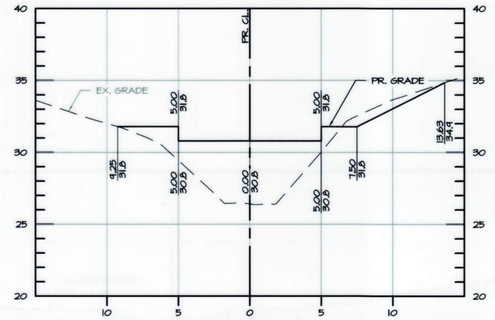
PROPOSED ALIGNMENT SECTION XS-10 STA 5+70

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



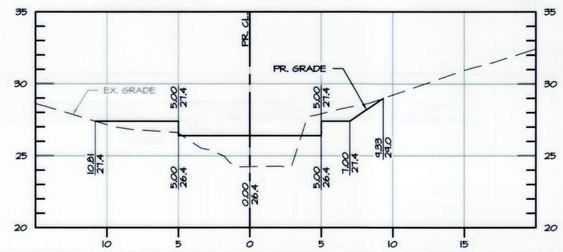
PROPOSED ALIGNMENT SECTION XS-12 STA 6+47

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



PROPOSED ALIGNMENT SECTION XS-14 STA 7+30

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



PROPOSED ALIGNMENT SECTION XS-16 STA 8+07

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'

ADC MAP :

TAX MAP :

HCG BILLING ID No.:

HCG DWG ID No.: 191606

SCALE : 1 inch

REVISIONS

HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
CROSS SECTIONS

DRAWN BY: EM/DL	CONTRACT NO : 16-153
DESIGNED BY: RP/JP	SCALE : AS SHOWN
REVIEWED BY: MKB	SHEET 17 OF 35
	DATE : 07/22/19

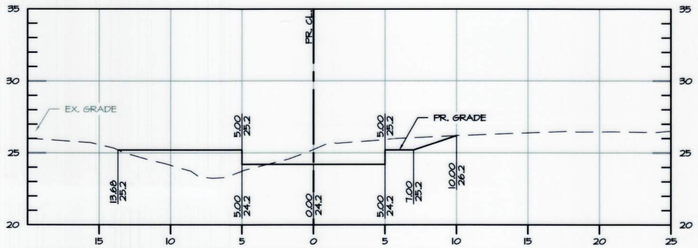
EG-SWMENG- 000372-2018 | # 97032

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T
Hanover, Maryland 21076
Phone: (410) 694-9401
Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

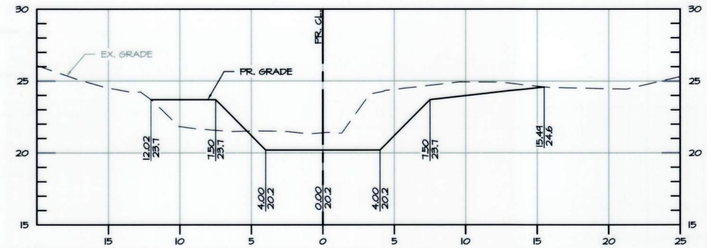
STATE OF MARYLAND
CHRISTOPHER TEPP
REGISTERED PROFESSIONAL ENGINEER
7/22/19

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMSR_XSEC03.dwg



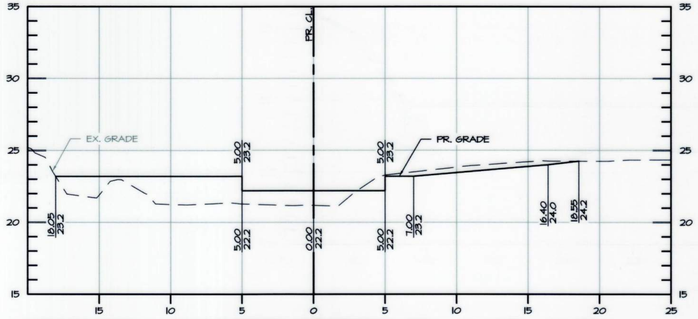
PROPOSED ALIGNMENT SECTION XS-17 STA 8+47

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



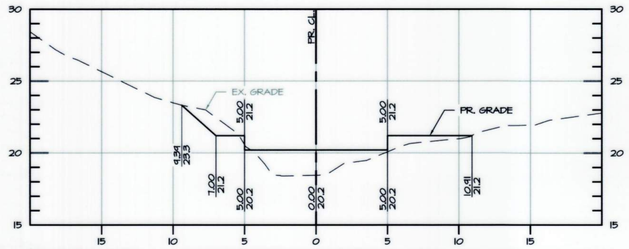
PROPOSED ALIGNMENT SECTION XS-18 STA 8+78

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



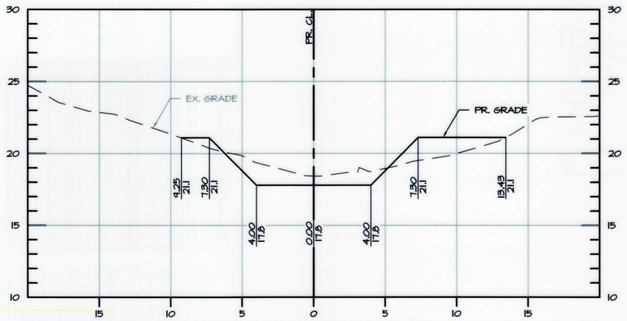
PROPOSED ALIGNMENT SECTION XS-19 STA 8+87

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



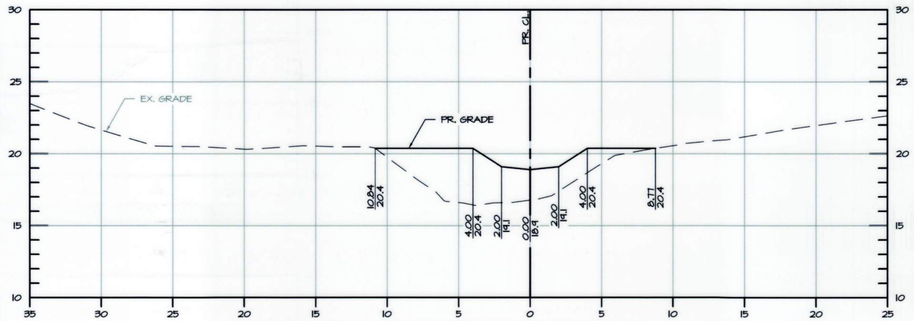
PROPOSED ALIGNMENT SECTION XS-20 STA 9+26

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



PROPOSED ALIGNMENT SECTION XS-21 STA 9+35

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



PROPOSED ALIGNMENT SECTION XS-22 STA 9+86

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'

EG-SWMENG- 000372-2018 | # 97032

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T
Hanover, Maryland 21076
Phone: (410) 694-9401
Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

STATE OF MARYLAND
CHRISTOPHER ... 33148
REGISTERED PROFESSIONAL ENGINEER
7/22/19

REVISIONS

HARFORD COUNTY, MARYLAND

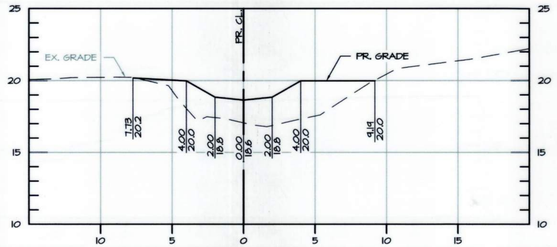
STILLMEADOW STREAM & OUTFALL RESTORATION
CROSS SECTIONS

DRAWN BY: EM/DL
DESIGNED BY: RP/JP
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : AS SHOWN
SHEET 18 OF 35
DATE : 07/22/19

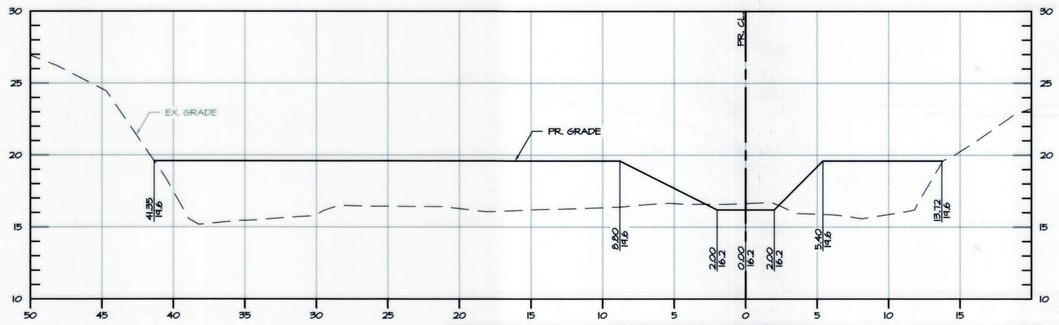
ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.: 191607
SCALE : 1 inch

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMSR_XSEC04.dwg



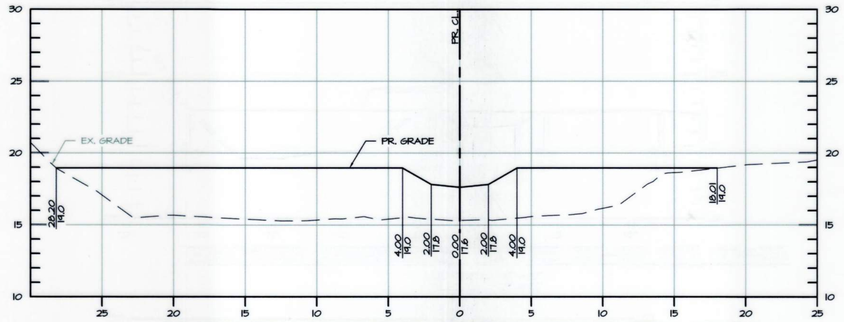
PROPOSED ALIGNMENT SECTION XS-23 STA 9+95

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



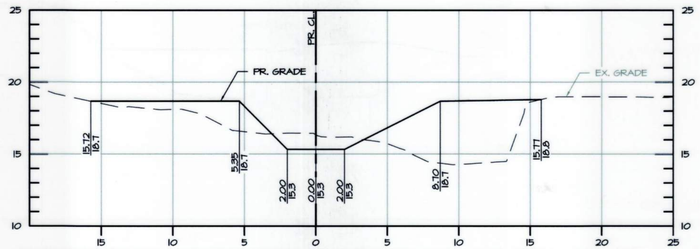
PROPOSED ALIGNMENT SECTION XS-24 STA 10+20

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



PROPOSED ALIGNMENT SECTION XS-25 STA 10+50

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



PROPOSED ALIGNMENT SECTION XS-26 STA 10+65

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'

REVISIONS

HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
CROSS SECTIONS

DRAWN BY: EM/DL
DESIGNED BY: RP/JP
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : AS SHOWN
SHEET 19 OF 35
DATE : 07/22/19

EG-SWMENG- 000372-2018 | # 97032

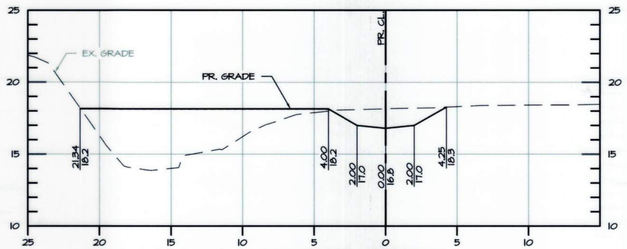
CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

Bayland Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4-3801

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER — 7/22/19

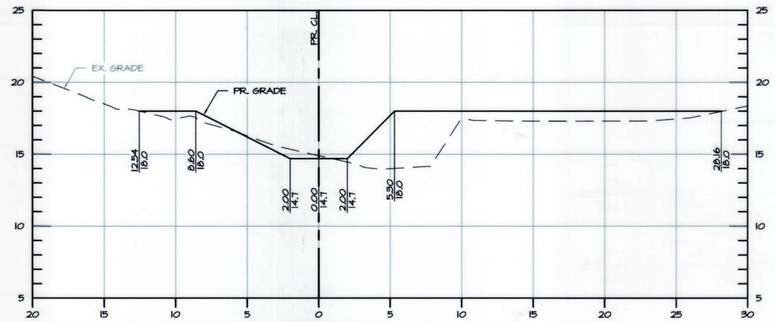
ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.: 191608
SCALE 1 inch

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMSR_XSEC05.dwg



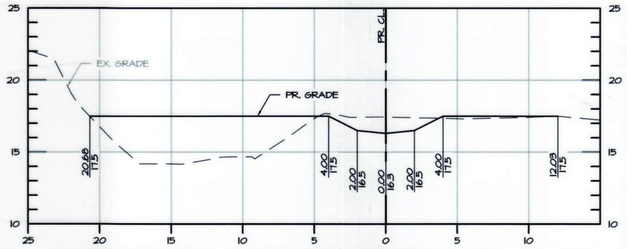
PROPOSED ALIGNMENT SECTION XS-27 STA 10+83

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



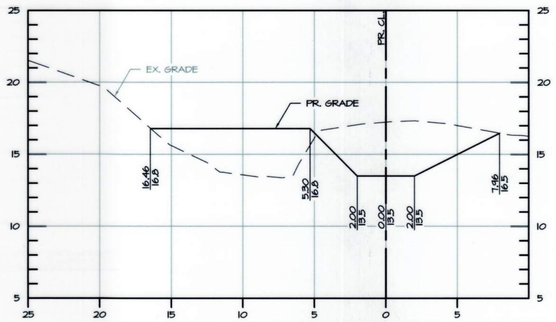
PROPOSED ALIGNMENT SECTION XS-28 STA 11+05

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



PROPOSED ALIGNMENT SECTION XS-29 STA 11+25

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



PROPOSED ALIGNMENT SECTION XS-30 STA 11+46

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'

REVISIONS

HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
CROSS SECTIONS

DRAWN BY: EM/DL
DESIGNED BY: RP/JP
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : AS SHOWN
SHEET 20 OF 35
DATE : 07/22/19

EG-SWMENG- 000372-2018 | # 97032

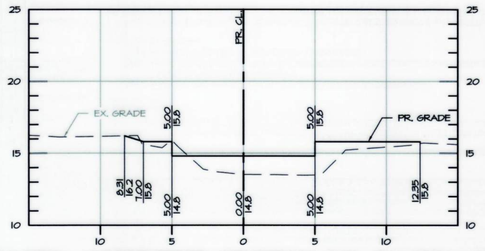
CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

7/22/19

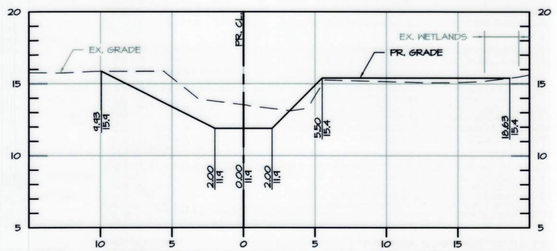
ADC MAP :
TAX MAP :
HCG BILLING ID No.:
191609
HCG DWG ID No.:
SCALE: 1 inch

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMSR_XSEC06.dwg



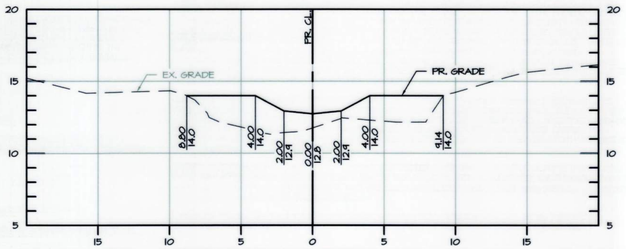
PROPOSED ALIGNMENT SECTION XS-31 STA 11+76

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



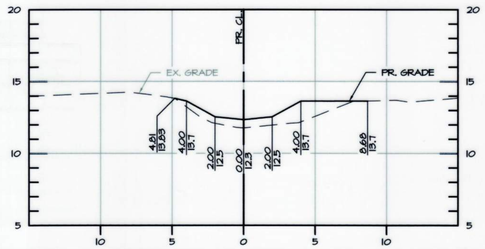
PROPOSED ALIGNMENT SECTION XS-32 STA 11+90

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



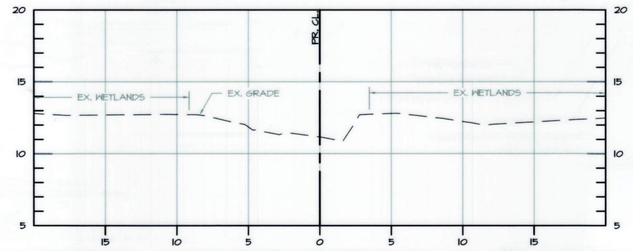
PROPOSED ALIGNMENT SECTION XS-33 STA 12+30

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



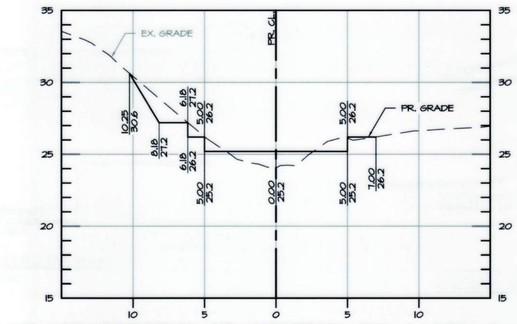
PROPOSED ALIGNMENT SECTION XS-34 STA 12+70

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



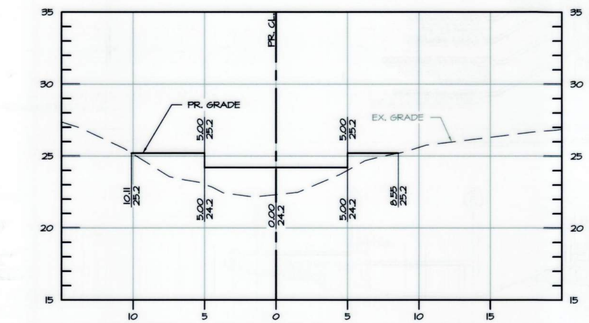
PROPOSED ALIGNMENT SECTION XS-35 STA 13+49

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



PR. BLACKBURN CT SECTION XS-1 STA 0+45

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'



PR. BLACKBURN CT SECTION XS-2 STA 0+69

HORIZONTAL: 1" = 5'
VERTICAL: 1" = 5'

ADC MAP :

TAX MAP :

HCG BILLING ID No.:

HCG DWG ID No.: 191610

EG-SWMENG- 000372-2018 | # 97032

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

CHRISTOPHER M. KELLY — STATE OF MARYLAND — 21610 — PROFESSIONAL ENGINEER
7/22/19

REVISIONS

HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
CROSS SECTIONS

DRAWN BY: EM/DL
DESIGNED BY: RP/JP
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : AS SHOWN
SHEET 21 OF 35
DATE : 07/22/19

SCALE: 1 inch

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMSR_XSEC07.dwg

SPSC CONSTRUCTION SPECIFICATIONS

MATERIALS

THE CONTRACTOR WILL NOT BE GRANTED AN EXTENSION OF EXTRA TIME OR EXTRA COMPENSATION DUE TO DELAY CAUSED BY SAMPLING, TESTING, APPROVAL OR DISAPPROVAL OF THE MATERIALS UNDER THE REQUIREMENTS OF THESE SPECIFICATIONS. THE MATERIAL SHALL BE AS SPECIFIED ON THE SPSC ROCK SIZE TABLE AND HEREIN. IF SUFFICIENT MATERIAL IS NOT AVAILABLE FROM THE SITE, THE CONTRACTOR SHALL OBTAIN MATERIAL FROM A QUARRY AND PROVIDE CERTIFICATION OF GRADATION ANALYSIS OR SAMPLE OF STONE TO THE COUNTY FOR APPROVAL PRIOR TO INSTALLATION. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO MAKE ALL NECESSARY ARRANGEMENTS WITH THE SOURCE OF SUPPLY IN A TIMELY FASHION, SO THAT THE CONTRACTOR SHALL MAINTAIN AN ADEQUATE SUPPLY OF ALL MATERIALS AND THAT WORK SHALL NOT BE UNNECESSARILY DELAYED DUE TO INSUFFICIENT SUPPLY.

- CASCADE, FOOTER, AND WEIR BOULDERS – BOULDERS SHALL BE AS SPECIFIED ON THE SPSC ROCK SIZE TABLE. BOULDERS SHALL BE SANDSTONE, STACKABLE, OBLONG, AND FLAT IN APPEARANCE, AND DARK BROWN OR DARK GRAY IN COLOR. IN GENERAL, FOOTER ROCKS SHALL BE SELECTED TO BE THE LARGEST ROCKS AVAILABLE. FOOTER ROCKS SHALL BE PLACED AT THE BOTTOM AND DOWNSTREAM SIDE OF THE TRENCH. FOOTER BOULDERS SHALL EXTEND 2 FEET BELOW THE LOWEST POINT IN THE EXCAVATED POOL. GRANITE BOULDERS MAY BE SUBSTITUTED FOR SANDSTONE BOULDERS IF THE CONTRACTOR SHOWS THE COUNTY DUE DILIGENCE IN ATTEMPTING TO LOCATE SANDSTONE BOULDERS. ANY SUBSTITUTION WILL BE AT NO COST TO THE COUNTY.
- SUBANGULAR SILICA COBBLE – THE STONE SHALL BE SUBANGULAR SILICA COBBLE AND THE STONE SIZE SHALL BE AS SPECIFIED ON THE SPSC ROCK SIZE TABLE. SUBANGULAR SILICA COBBLE SHALL BE COMPOSED OF A WELL-GRADED MIXTURE OF STONE SIZE SO THAT 50% OF THE PIECES, BY WEIGHT, SHALL BE LARGER THAN THE D50 SIZE DETERMINED BY USING CHARTS PREPARED BY THE US DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE. A WELL GRADED MIXTURE AS USED HEREIN IS DEFINED AS A MIXTURE COMPOSED PRIMARILY OF LARGER STONE SIZES BUT WITH A SUFFICIENT MIXTURE OF OTHER SIZES TO FILL THE LARGE VOIDS BETWEEN THE STONES. THE DIAMETER OF THE LARGEST STONE SIZE SHALL NOT EXCEED 1.5 TIMES THE SPECIFIED D50 SIZE.
- SAND/WOOD CHIP FILTER MEDIA – SAND SHALL BE AS SPECIFIED ON THE SPSC ROCK SIZE TABLE. SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE (AASHTO) #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.

  WOOD CHIPS SHALL BE EITHER HARDWOOD OR SOFTWOOD PRODUCED BY A CHIPPING MACHINE TO A MAXIMUM SIZE OF 2X2X0.5 INCHES. WOOD CHIPS SHALL BE FREE FROM LEAVES, TWIGS, WOOD SHAVINGS, FINES, SAWDUST, TOXIC SUBSTANCES, AND ALL FOREIGN MATERIAL. THE WOODCHIPS ARE ADDED TO THE SAND MIX (PRIOR TO PLACEMENT), APPROXIMATELY 20% BY VOLUME, TO INCREASE THE ORGANIC CONTENT AND PROMOTE PLANT GROWTH AND SUSTAINABILITY.

  THE SAND/WOODCHIP MIX FILTER BED SHALL HAVE A MINIMUM DEPTH OF EIGHTEEN (18) INCHES UNDER THE RIFFLE CHANNEL/POOL BOTTOM AND A MINIMUM WIDTH OF FOUR (4) FEET AND SHALL BE PLACED AS THE SUBSTRATE DRAINAGE MATERIAL ALONG THE ENTIRE PROJECT LENGTH.
- COMPOST – COMPOST SHALL HAVE A PH BETWEEN 5.0 AND 7.0. IT SHALL BE STABLE AND NOT REHEAT UPON RESTACKING. COMPOST SHALL HAVE A MOISTURE CONTENT BETWEEN 30 AND 55 PERCENT, AND A PARTICLE SIZE OF 0.5 INCHES OR LESS. COMPOST SHALL BE SOURCE-SEPARATED COMPOST (TYPE B), APPROVED BY THE MARYLAND DEPARTMENT OF AGRICULTURE (MDA). COMPOST SHALL BE PRODUCED BY AN MDA CERTIFIED COMPOST OPERATOR AND HAVE A SOLUBLE SALT CONCENTRATION NOT TO EXCEED 5 DS (MMHOS/CM). THE SOURCE-SEPARATED COMPOST SHALL BE ONE OF THE FOLLOWING TYPES:
  A. TREE LEAF COMPOST
  B. NON-TREE LEAF COMPOST. WHEN COMPOST IS FROM LAWN CLIPPINGS, IT SHALL BE TESTED IN CONFORMANCE WITH COMAR 15.18.04.05.
- GEOTEXTILE FABRIC – GEOTEXTILE FABRIC SHALL MEET OR EXCEED THE REQUIREMENTS OF ACF NO80 POLYPROPYLENE NONWOVEN GEOTEXTILE FABRIC. THE CONTRACTOR SHALL PROVIDE MATERIAL SPECIFICATION TO THE COUNTY FOR APPROVAL. GEOTEXTILE FABRIC SHALL BE PLACED UNDER ALL BOULDERS. REFER TO CONSTRUCTION DRAWINGS FOR PLACEMENT LOCATION. TO PREVENT UNDERCUTTING, A CONTINUOUS SHEET OF GEOTEXTILE FABRIC SHALL BE USED ALONG THE CROSS-SECTION. GEOTEXTILE FABRIC SHALL NOT BE PLACED IN THE POOLS SO AS NOT TO IMPEDE FILTRATION.
- CLASS I RIPRAP – RIPRAP SHALL MEET CLASS I RIPRAP REQUIREMENTS, PER HARFORD COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION, SECTION 901.02 AND AS DESCRIBED ON THE CONSTRUCTION DRAWINGS.
- BACKFILL – BACKFILL SHALL MEET HARFORD COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION, SECTION 916.01 AND AS DESCRIBED ON THE CONSTRUCTION DRAWINGS.

SUBMITTALS

- CASCADE, FOOTER, AND WEIR BOULDERS – THE CONTRACTOR WILL LOCATE POTENTIAL SOURCES FOR THE STONE. THE CONTRACTOR AND THE COUNTY OR ITS AGENT WILL JOINTLY VISIT THE SOURCE SITES TO DETERMINE WHETHER THE STONE MEETS THE SPECIFIED REQUIREMENTS AND WHETHER THERE ARE SUFFICIENT QUANTITIES OF THE STONE TO MEET THE PROJECT REQUIREMENTS. THE CONTRACTOR SHALL SUBMIT TO THE COUNTY A CERTIFICATE VERIFYING THE FOLLOWING BOULDER INFORMATION:

  (1) STONE CLASSIFICATION
  (2) STONE DENSITY (I.E., WEIGHT PER CUBIC FOOT)
  (3) WEIGHT OF STONE BEING SUPPLIED.
  (4) STONE QUALITY SHALL MEET ALL OF THE ABOVE SPECIFICATIONS.
- SUBANGULAR SILICA COBBLE – THE CONTRACTOR SHALL OBTAIN COBBLE SAMPLES FROM THE QUARRY AND SUBMIT TO THE COUNTY THE SAMPLES AND A CERTIFICATE VERIFYING THE FOLLOWING BOULDER INFORMATION:

  (1) STONE CLASSIFICATION
  (2) STONE DENSITY (I.E., WEIGHT PER CUBIC FOOT)
  (3) WEIGHT OF STONE BEING SUPPLIED.
  (4) STONE QUALITY SHALL MEET ALL OF THE ABOVE SPECIFICATIONS.
- SAND/WOOD CHIP FILTER MEDIA – THE CONTRACTOR SHALL PROVIDE THE SOURCE AND MATERIAL SPECIFICATIONS TO THE COUNTY FOR APPROVAL.
- COMPOST – THE CONTRACTOR SHALL OBTAIN A COMPOST SAMPLE AND SUBMIT TO THE COUNTY FOR APPROVAL THE SAMPLE AND CERTIFICATE WITH THE SOURCE AND SPECIFICATIONS OF THE COMPOST.
- GEOTEXTILE FABRIC – THE CONTRACTOR SHALL PROVIDE MATERIAL SPECIFICATION TO THE COUNTY FOR APPROVAL.
- CLASS I RIPRAP – THE CONTRACTOR SHALL OBTAIN CERTIFICATION FROM THE QUARRY FOR THE ROCK AND SUBMIT TO THE COUNTY FOR APPROVAL. THE CERTIFICATION SHALL INCLUDE:

  (1) STONE SIZE
  (2) STONE DENSITY (I.E., WEIGHT PER CUBIC FOOT)
  (3) THAT SIZES STIPULATED IN THE SPECIFICATIONS ARE BEING SUPPLIED TO THE SITE, WITH SOURCE(S) OF STONE INDICATED
  (4) THAT STONE QUALITY WILL MEET ALL PROJECT SPECIFICATIONS.

CONSTRUCTION

THE SPSC SYSTEM SHALL BE INSTALLED ACCORDING TO THE SEQUENCE OF CONSTRUCTION, THE CONSTRUCTION DRAWINGS, THESE SPECIFICATIONS, AND AS DIRECTED BY THE COUNTY.

CONSTRUCTION OF THE SPSC SYSTEM SHALL BEGIN AT THE DOWNSTREAM END AND PROCEED UPSTREAM TO THE OUTFALL.

THE SAND/WOOD CHIP FILTER MEDIA SHALL BE USED FOR FILLING THE FACILITY BOTTOM TO ACHIEVE THE GRADE NECESSARY FOR THE INSTALLATION OF THE WEIRS. THE SAND/WOODCHIP FILTER BED SHALL HAVE A MINIMUM DEPTH OF 18 INCHES UNDER THE RIFFLE CHANNEL AND A MINIMUM WIDTH OF 4 FEET AND SHALL BE PLACED AS THE SUBSTRATE DRAINAGE MATERIAL ALONG THE ENTIRE PROJECT LENGTH.

THE CASCADE SHALL BE CONSTRUCTED WITH A SERIES OF RIBS IN AN ARC FORMATION PERPENDICULAR TO THE FACILITY. THE CENTER AND UPSTREAM APEX OF EACH RIB SHALL BE SET IN THE PROPOSED SPILLWAY CENTERLINE. RIBS ARE ARRANGED IN A SERIES WITH LOCATIONS INDICATED IN THE CONSTRUCTION DRAWINGS.

FOOTER ROCKS FOR EACH INDIVIDUAL RIB SHALL BE INSTALLED BY EXCAVATING A TRENCH TO ACCOMMODATE BOTH THE FOOTER ROCKS AND A 2-FOOT AREA UPSTREAM. GEOTEXTILE FABRIC SHALL BE PLACED ON THE UPSTREAM SIDE OF THE TRENCH OF EACH RIB, SO THE FOOTER ROCK OVERLAPS THE MATERIAL A MINIMUM OF 1.0 FOOT. THE GEOTEXTILE FABRIC SHALL SPAN THE WIDTH OF THE RIB. THE FOOTER ROCKS SHALL BE PLACED AT THE BOTTOM OF THE TRENCH AND SHALL ABUT ONE ANOTHER. FOOTER ROCKS SHALL BE FIRMLY EMBEDDED INTO THE TRENCH BOTTOM. THE TOP ELEVATION OF THE FOOTER ROCK PLACED AT THE CENTERLINE OF THE SPILLWAY SHALL BE BELOW THE PROPOSED FINISHED GRADE.

THE TRENCH BEHIND THE FOOTER ROCKS SHALL BE BACKFILLED BEFORE THE TOP ROCKS ARE SET, WITH THE GEOTEXTILE FABRIC BETWEEN THE FOOTER ROCK AND STREAM BED MATERIAL, TAKING CARE TO FILL ALL VOIDS BETWEEN THE FOOTER ROCKS WITH THE BED MATERIAL.

TOP ROCKS SHALL BE PLACED DIRECTLY ON TOP OF THE FOOTER ROCKS AND FIT TIGHTLY AGAINST EACH OTHER. CARE SHOULD BE TAKEN WHEN PLACING TOP ROCKS THAT THE SEAMS BETWEEN TOP ROCKS DO NOT LINE UP WITH THE SEAMS BETWEEN THE FOOTER ROCKS. THE TOP ELEVATION OF THE TOP ROCK PLACED AT THE CENTERLINE OF THE STREAM SHALL BE FLUSH WITH THE PROPOSED STREAM GRADE IMMEDIATELY UPSTREAM AND DOWNSTREAM OF THE CASCADE RIB. STARTING AT THE CENTERLINE, ADJACENT ROCKS SHALL TAPER TO THE OUTSIDE LIMIT OF THE RIB WHERE ½ THE DIAMETER OF THE END ROCK SHALL BE KEYED INTO THE BANK.

THE TRENCH BEHIND THE TOP ROCKS SHALL BE BACK-FILLED WITH CASCADE BED MATERIAL, WITH THE GEOTEXTILE FABRIC BETWEEN THE TOP ROCK AND CASCADE BED MATERIAL. THE GEOTEXTILE FABRIC SHALL BE KEYED IN A MINIMUM OF 1 FOOT BELOW THE TOP ROCK OR CUT A MINIMUM OF SIX INCHES BELOW THE TOP ROCK, BEFORE INSTALLING THE STREAM BED MATERIAL TO THE PROPOSED GRADE. THE CONTRACTOR SHALL TAKE CARE TO FILL ALL VOIDS UNDERNEATH AND BETWEEN THE TOP ROCKS. CASCADE BED MATERIAL SHALL BE PLACED A MINIMUM OF 2 FEET UPSTREAM OF THE FIRST RIB OF EACH CASCADE STRUCTURE AS SPECIFIED IN THE CONSTRUCTION DRAWINGS.

EACH SUCCESSIVE CASCADE RIB SHALL BE INSTALLED FOLLOWING THE STEPS ABOVE. THE TOP ELEVATION OF ROCKS ALONG RIBS SHALL VARY UP TO 1 FOOT TO CREATE VARIED FLOW PATTERNS. THE EXISTING GULLY SHALL BE BACKFILLED PER THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS WITH THE CASCADE INSTALLATION. ONCE THE CASCADE IS COMPLETE AND GULLY HAS BEEN BACKFILLED, THE CONTRACTOR SHALL INSTALL THE RIPRAP OUTFALL PROTECTION FROM THE OUTFALL AND TIE-INTO THE TOP CASCADE RIB.

FOOTER BOULDERS SHALL BE PLACED AT THE INTERFACE OF THE POOLS AND RIFFLES AS SHOWN ON THE CONSTRUCTION DRAWINGS. A CONTINUOUS SHEET OF GEOTEXTILE FABRIC SHALL BE USED TO SEPARATE THE SAND/WOOD CHIP FILTER MEDIA AND THE BOULDERS THAT LINE THE FACILITY BOTTOM. ADDITIONAL BOULDERS SHALL BE PLACED ON TOP OF THE FOOTER BOULDERS AT THE WEIR ELEVATION UPSTREAM OF THE FOOTER BOULDERS TO FORM THE WEIR CHANNEL PARABOLIC SHAPE. BOULDERS SHALL BE ARRANGED HORIZONTALLY IN THE CENTER OF THE CHANNEL AND THE ARMS ON EITHER SIDE OF THE CHANNEL SHALL BE EXTENDED PARABOLICALLY/APPROXIMATELY 20 DEGREE ANGLE LONGITUDINALLY TO THE CENTER OF THE POOL. THE BOULDERS SHALL BE ARRANGED TO MAXIMIZE INTERLOCKING. THE FACE OF THE BOULDERS SHALL BE TILTED DOWNSTREAM TO OCCUPY HALF OF THE INCLINE (6"VERTICAL) MADE UP OVER THE ENTIRE LENGTH OF THE WEIR.

ONCE THE BOULDERS HAVE BEEN PLACED, FILL WITH 75% SUBANGULAR SILICA COBBLE AND 25% BOULDERS TO FORM THE BACKSIDE OF THE WEIR. A SMALL SUBANGULAR SILICA COBBLE APRON SHALL BE PLACED WHERE THE BOULDERS MEET THE POOL ON THE DOWNSTREAM SIDE. ONCE THE WEIR-POOL COMBINATION IS COMPLETE, THE ENTIRE SURFACE SHALL BE STABILIZED WITH WOOD CHIPS AND TEMPORARY SEEDING. ANY DISTURBED AREA SHALL BE STABILIZED AT THE END OF EACH WORKING DAY WITH WOOD CHIPS AND TEMPORARY SEEDING.

DISCONNECT THE DIVERSION PIPE ABOVE THE COMPLETED WEIR IN THE UPSTREAM POOL AND EXCAVATE UPSTREAM POOL FROM SAND BED USING EXCAVATED MATERIAL TO BLEND EDGES OF DOWNSTREAM WEIR AND SURROUNDING GRADE. CONTINUE THE PROCESS OF ALTERNATING POOLS AND RIFFLES/WEIRS UP THROUGH THE SYSTEM TO THE CASCADE.

COMPOST SHALL BE BLOWN OVER THE ENTIRE SPSC SITE, INCLUDING IN THE POOL FOR FINAL STABILIZATION AND PERMANENT SEEDING AS INDICATED IN THESE CONSTRUCTION DRAWINGS.

SPSC ROCK SIZE TABLE

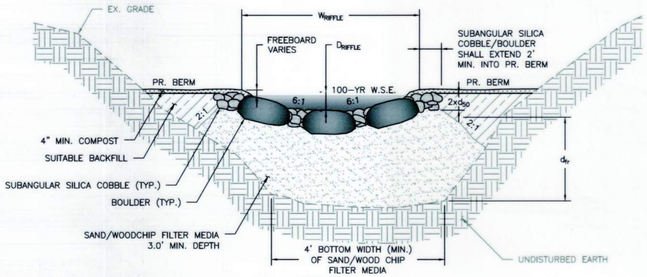
ROCK SIZE TABLE		
ROCK TYPE	ROCK SIZE	% BY WEIGHT
SUBANGULAR SILICA COBBLE	D_{50} = 6"	–
BOULDERS	GREATER THAN 6'X2'X2'	10
	3'X2'X2' TO 6'X2'X2'	80
	LESS THAN 3'X2'X2'	10
SAND/WOODCHIP FILTER MEDIA	SAND: 0.02"-0.04" (AASHTO M-6 OR ASTM C-33)	–

NOTE:
1. BOULDERS SHALL BE STACKABLE, OBLONG AND FLAT IN APPEARANCE
2. PERCENTAGES BY WEIGHT SHOWN REFER TO THE MAXIMUM ALLOWABLE ROCK SIZE DISTRIBUTION
3. SEE CROSS SECTIONS FOR FILTER MEDIA PLACEMENT

SPSC DATA TABLE

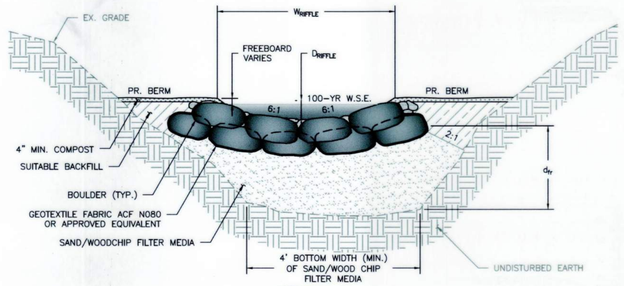
	STILLMEADOW SPSC
L_{RIFFLE} (RIFFLE LENGTH)	8 FT.
L_{POOL} (POOL LENGTH)	36.2 – 52.0 FT.
h_T (POOL DEPTH)	2.5 – 3.0 FT.
W_{POOL} (POOL WIDTH)	25.5 FT. – 67.0 FT.
W_{RIFFLE} (RIFFLE WIDTH)	15 FT.
D_{RIFFLE} (RIFFLE DEPTH)	1.25 FT.
R_{DRP} (DROP ACROSS RIFFLE)	1 FT.
SUBANGULAR SILICA COBBLE d_{50}	0.50 FT.
d_{fr} (RIFFLE FILTER MEDIA DEPTH)	3.0 FT. – 5.0 FT.
d_{fp} (POOL FILTER MEDIA DEPTH)	1.5 FT. – 2.7 FT.

SEE SHEET 24 FOR STRUCTURE TABLE



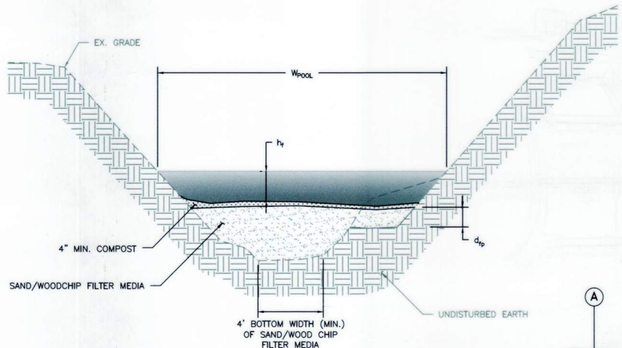
SECTION A
WEIR BACK VIEW (THROUGH COBBLE)
FILTER MEDIA IN FILL

SCALE: NOT TO SCALE



SECTION B
WEIR FRONT VIEW (THROUGH BOULDER)

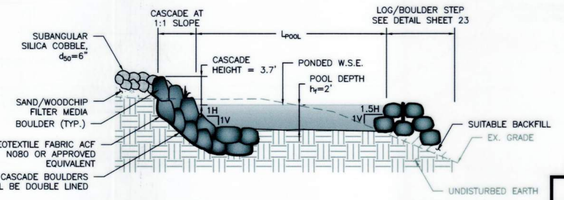
SCALE: NOT TO SCALE



SECTION C
THROUGH POOL

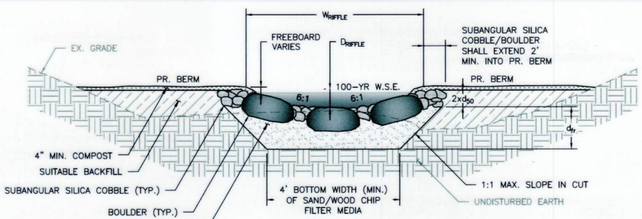
TYPICAL SPSC SECTIONS

SCALE: NOT TO SCALE



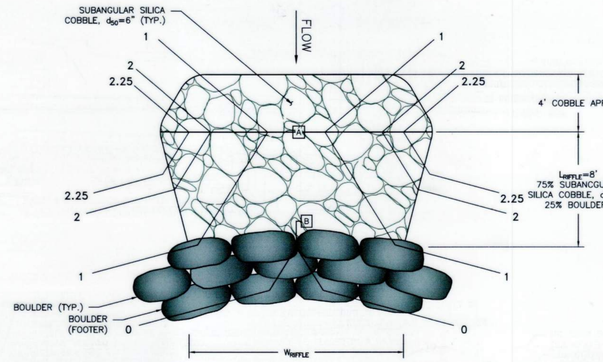
SPSC CASCADE/POOL TO LOG/BOULDER STEP

SCALE: NOT TO SCALE



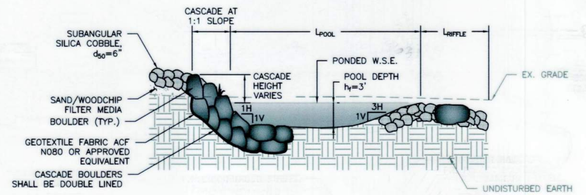
SECTION A
WEIR BACK VIEW (THROUGH COBBLE)
FILTER MEDIA IN CUT

SCALE: NOT TO SCALE



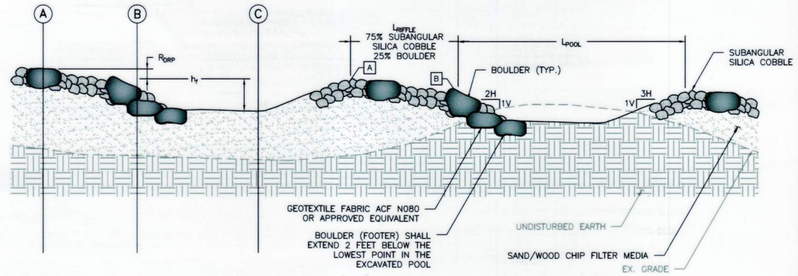
SPSC RIFFLE-WEIR TYPICAL PLAN VIEW

SCALE: NOT TO SCALE



SPSC CASCADE/POOL TYPICAL PROFILE

SCALE: NOT TO SCALE



SPSC RIFFLE/POOL TYPICAL PROFILE

SCALE: NOT TO SCALE

19M18

EG-SWMENG- 000372-2018 | # 97032

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

Bay Land Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

7/22/19

REVISIONS

HARFORD COUNTY, MARYLAND

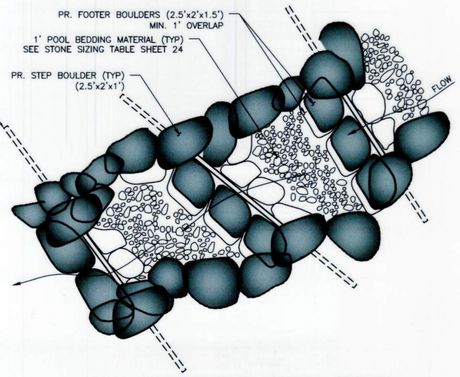
STILLMEADOW STREAM & OUTFALL RESTORATION
SPSC NOTES & DETAILS

DRAWN BY: BF	CONTRACT NO : 16-153
DESIGNED BY: BF	SCALE : AS SHOWN
REVIEWED BY: MKB	SHEET 22 OF 35
	DATE : 07/22/19

ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.: 19161

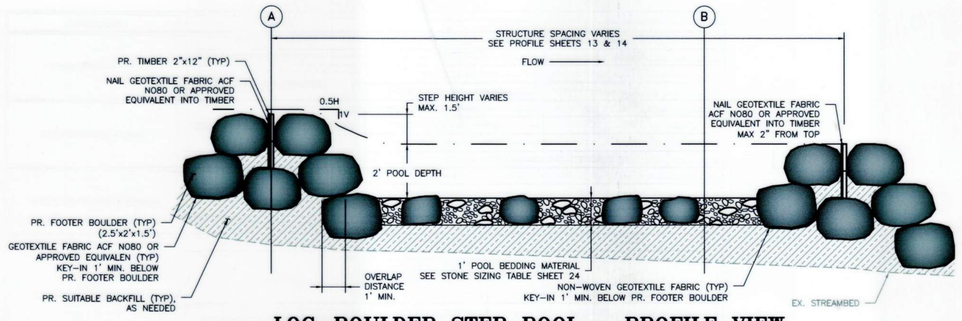
SCALE: 1 inch

2:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMSR_PROF03.dwg



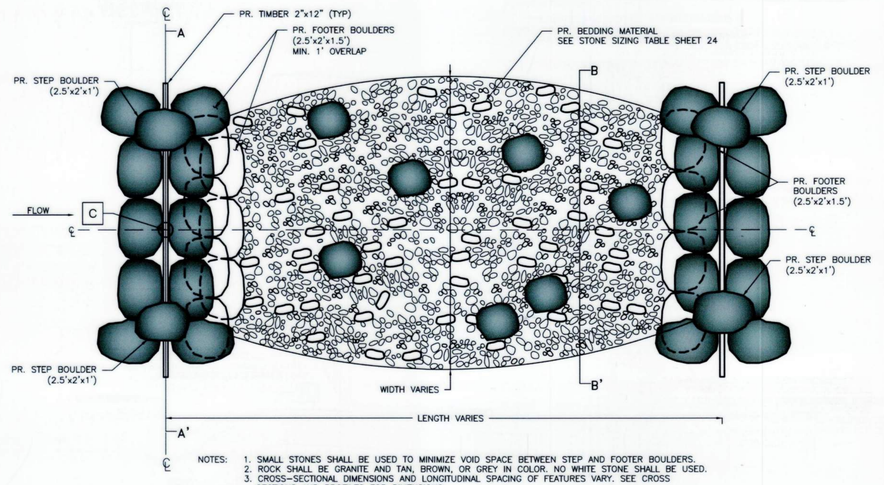
LOG-BOULDER STEP POOL - ISOMETRIC VIEW

SCALE: NOT TO SCALE



LOG-BOULDER STEP POOL - PROFILE VIEW

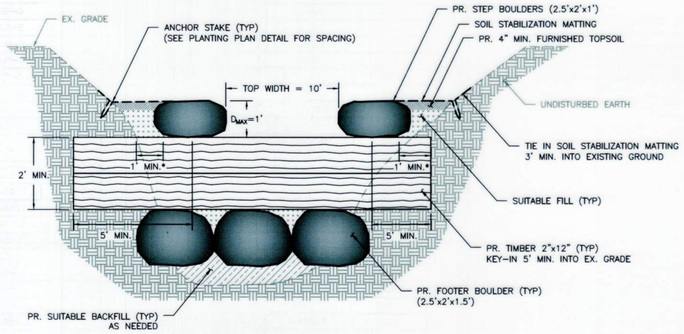
SCALE: NOT TO SCALE



NOTES:
1. SMALL STONES SHALL BE USED TO MINIMIZE VOID SPACE BETWEEN STEP AND FOOTER BOULDERS.
2. ROCK SHALL BE GRANITE AND TAN, BROWN, OR GREY IN COLOR. NO WHITE STONE SHALL BE USED.
3. CROSS-SECTIONAL DIMENSIONS AND LONGITUDINAL SPACING OF FEATURES VARY. SEE CROSS SECTIONS AND PROFILES FOR DIMENSIONS.

LOG-BOULDER STEP POOL - PLAN VIEW

SCALE: NOT TO SCALE

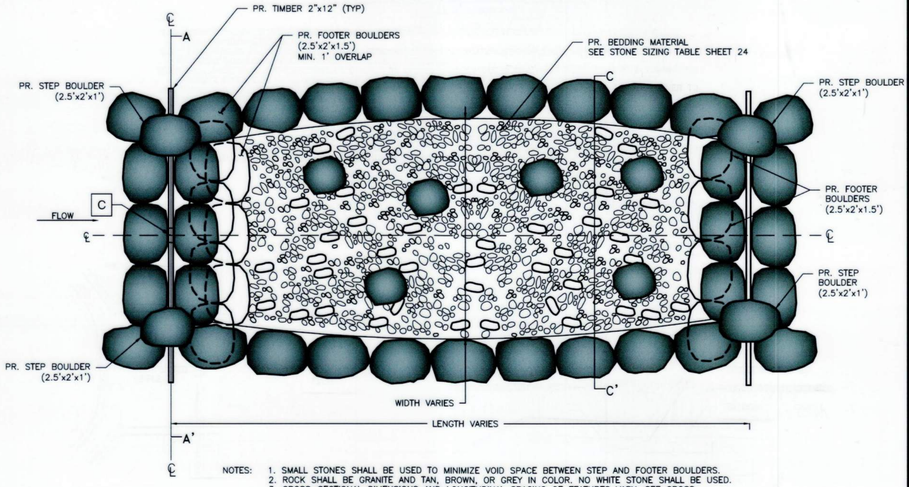


NOTES:
1. SEE CROSS SECTIONS AND GRADING PLANS FOR PROPOSED GRADES.
2. PLACE ANCHOR STAKES IN FLOODPLAIN UPSTREAM AND DOWNSTREAM OF LOG STEP.
3. IF ONE TIMBER BOARD IS NOT OF SUFFICIENT LENGTH TO KEY-INTO EX. GRADE A MINIMUM OF 5' ON BOTH BANKS, THEN TWO TIMBER BOARDS SHALL BE USED WITH A MINIMUM OF 1' OVERLAP BETWEEN BOARDS.

*WRAP SOIL STABILIZATION MATTING 1' MIN. UNDER FILL AND NAIL TO PR. TIMBER.

LOG-BOULDER STEP POOL - SECTION A-A'

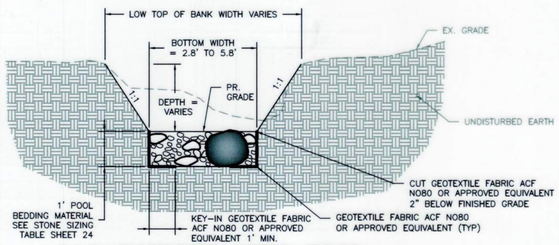
SCALE: NOT TO SCALE



NOTES:
1. SMALL STONES SHALL BE USED TO MINIMIZE VOID SPACE BETWEEN STEP AND FOOTER BOULDERS.
2. ROCK SHALL BE GRANITE AND TAN, BROWN, OR GREY IN COLOR. NO WHITE STONE SHALL BE USED.
3. CROSS-SECTIONAL DIMENSIONS AND LONGITUDINAL SPACING OF FEATURES VARY. SEE CROSS SECTIONS AND PROFILES FOR DIMENSIONS.

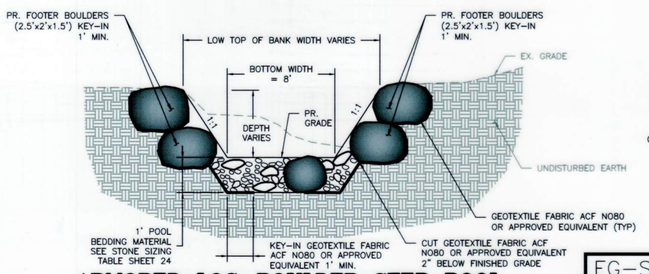
ARMORED LOG-BOULDER STEP POOL - PLAN VIEW (NEAR BLACKBURN COURT ONLY)

SCALE: NOT TO SCALE



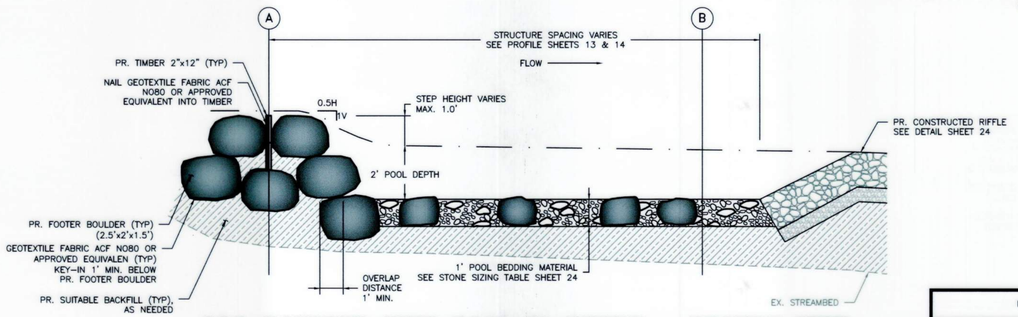
LOG-BOULDER STEP POOL - SECTION VIEW B-B'

SCALE: NOT TO SCALE



ARMORED LOG-BOULDER STEP POOL - SECTION VIEW C-C' (NEAR BLACKBURN COURT ONLY)

SCALE: NOT TO SCALE



LOG-BOULDER STEP POOL TO RIFFLE - PROFILE VIEW

SCALE: NOT TO SCALE

REVISIONS

HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
STREAM DETAILS & NOTES

DRAWN BY: JP/EM
DESIGNED BY: JP
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : AS SHOWN
SHEET 23 OF 35
DATE : 07/22/19

EG-SWMENG- 000372-2018 | # 97032

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

STEPHEN O'BRIEN 20148 REGISTERED PROFESSIONAL ENGINEER STATE OF MARYLAND
7/22/19

ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.: 191612
SCALE: 1 inch

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_OVERALL\CAD Files\Sheet Files\4_3801_DTL01.dwg

SPSC STRUCTURE TABLE

STRUCTURE ID	POINT ID	NORTHING	EASTING	STATION (PR. MAIN STEM)	GRADE BREAK ELEVATION
SPSC-1	A	632,921.95	1,498,729.02	0+74.25	70.5
	B	632,924.68	1,498,721.49	0+82.25	69.5
SPSC-2	A	632,923.99	1,498,680.63	1+24.25	69.5
	B	632,921.24	1,498,673.11	1+32.25	68.5
SPSC-3	A	632,895.98	1,498,640.83	1+74.25	68.5
	B	632,888.66	1,498,637.69	1+82.25	67.5
SPSC-4	A	632,842.20	1,498,614.04	2+36.50	61.5
	B	632,835.26	1,498,610.08	2+44.50	60.5
SPSC-5	A	632,818.42	1,498,575.11	2+84.25	60.5
	B	632,816.23	1,498,567.41	2+92.25	59.5
SPSC-6	A	632,828.75	1,498,513.68	3+49.00	54.5
	B	632,830.26	1,498,505.83	3+57.00	53.5
SPSC-7	A	632,836.03	1,498,470.09	3+93.20	53.5
	B	632,837.77	1,498,462.33	4+01.20	52.5

STEP POOL STRUCTURE TABLE

STRUCTURE ID	POINT ID	NORTHING	EASTING	STATION (PR. MAIN STEM)	GRADE BREAK ELEVATION
SP-1	C	632,841.13	1,498,440.63	4+22.97	48.8
SP-2	C	632,839.61	1,498,422.55	4+41.47	47.7
SP-3	C	632,836.95	1,498,403.37	4+60.75	46.6
SP-4	C	632,839.42	1,498,386.07	4+78.33	45.5
SP-5	C	632,835.53	1,498,370.03	4+94.94	44.4
SP-6	C	632,838.93	1,498,352.14	5+13.24	43.3
SP-7	C	632,844.77	1,498,333.47	5+32.78	42.2
SP-8	C	632,846.08	1,498,315.24	5+51.29	41.1
SP-9	C	632,855.26	1,498,298.78	5+70.42	40.0
SP-10	C	632,853.03	1,498,280.17	5+89.42	38.9
SP-11	C	632,845.30	1,498,263.31	6+08.00	37.8
SP-12	C	632,840.14	1,498,244.14	6+27.87	36.7
SP-13	C	632,833.45	1,498,226.01	6+47.40	35.6
SP-14	C	632,845.07	1,498,210.50	6+67.15	34.5
SP-15	C	632,845.71	1,498,189.87	6+90.66	33.0
SP-16	C	632,840.07	1,498,171.54	7+10.00	31.9
SP-17	C	632,832.00	1,498,153.76	7+29.58	30.8
SP-18	C	632,821.11	1,498,138.77	7+48.51	29.7
SP-19	C	632,818.76	1,498,119.15	7+68.30	28.6
SP-20	C	632,811.31	1,498,101.36	7+87.73	27.5
SP-21	C	632,797.87	1,498,087.60	8+07.21	26.4
SP-22	C	632,784.30	1,498,073.30	8+27.17	25.3
SP-23	C	632,768.69	1,498,061.50	8+46.71	24.2
SP-24	C	632,759.22	1,498,043.94	8+67.42	23.2
SP-25	C	632,756.91	1,498,024.04	8+87.46	22.2
SP-26	C	632,755.50	1,498,004.43	9+07.15	21.2
SP-27	C	632,763.64	1,497,988.02	9+26.01	20.2
SP-28	C	632,935.77	1,497,849.84	11+56.14	15.5
SP-29	C	632,955.22	1,497,846.26	11+76.21	14.8
SP-30	C	632,980.75	1,497,844.37	12+02.14	13.9
STRUCTURE ID	POINT ID	NORTHING	EASTING	STATION (PR. BLACKBURN COURT)	GRADE BREAK ELEVATION
SP-31	C	632,731.64	1,498,086.39	0+44.80	25.2
SP-32	C	632,745.70	1,498,066.93	0+68.85	24.2

CONSTRUCTED RIFFLE STRUCTURE TABLE

STRUCTURE ID	POINT ID	NORTHING	EASTING	STATION (PR. MAIN STEM)	GRADE BREAK ELEVATION
CR-1	D	632,777.75	1,497,973.69	9+46.15	19.8
	E	632,793.48	1,497,961.43	9+66.15	19.0
CR-2	D	632,812.35	1,497,955.20	9+86.15	18.9
	E	632,832.08	1,497,952.18	10+06.15	18.2
CR-3	D	632,854.55	1,497,934.97	10+35.15	18.1
	E	632,865.28	1,497,916.78	10+56.15	17.4
CR-4	D	632,879.03	1,497,905.36	10+74.15	17.3
	E	632,894.38	1,497,898.08	10+91.15	16.7
CR-5	D	632,912.72	1,497,878.68	11+18.15	16.5
	E	632,920.60	1,497,862.54	11+36.15	16.0
CR-6	D	632,996.30	1,497,832.17	11+22.14	12.9
	E	633,003.49	1,497,817.94	12+38.14	12.6
CR-7	D	633,019.43	1,497,797.68	12+64.14	12.5
	E	633,029.30	1,497,790.99	12+76.14	12.2
CR-8	D	633,040.18	1,497,760.31	13+10.78	12.1
	E	633,036.71	1,497,744.39	13+27.37	11.3

STONE SIZING TABLE

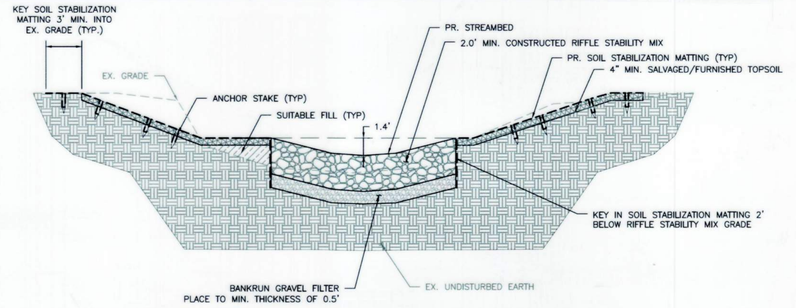
STRUCTURE	MATERIAL	SIZING	% OF MIX
LOG-BOULDER STEP	FOOTER BOULDER	2.5'x2'x1.5'	---
	STEP BOULDER	2.5'x2'x1'	---
	POOL BEDDING MATERIAL	COBBLE = 6"	70
		CL. I RIPRAP D_{50} = 9.5"	30
CONSTRUCTED RIFFLE	CONSTRUCTED RIFFLE STABILITY MIX	COBBLE = 6"	20
		CL. I RIPRAP D_{50} = 9.5"	50
		CL. II RIPRAP D_{50} = 16"	30
	BANKRUN GRAVEL	SEE BANKRUN GRAVEL NOTE THIS SHEET	
SILL ROCK GRADE CONTROL	CL. II RIPRAP	D_{50} = 16"	---
	CL. I RIPRAP	D_{50} = 9.5"	---
	COBBLE	D_{50} = 6"	---
	BANKRUN GRAVEL	SEE BANKRUN GRAVEL NOTE THIS SHEET	
SPSC	SUBANGULAR SILICA COBBLE	D_{50} = 6"	---
	BOULDERS	GREATER THAN 6'X2'X2'	10
		3'X2'X2' TO 6'X2'X2'	80
		LESS THAN 3'X2'X2'	10
	SAND/WOODCHIP FILTER MEDIA	SAND: 0.02"-0.04" (AASHTO M-6 OR ASTM C-33)	---

SUITABLE BACKFILL

SUITABLE BACKFILL MATERIAL SHALL MEET THE REQUIREMENTS OF HARFORD COUNTY SPEC 916.01.01 OR AS DIRECTED BY THE COUNTY. CONTRACTOR SHALL USE ALL SUITABLE ONSITE MATERIAL PRIOR TO IMPORT OF MATERIAL. ANY REMOVAL OF ONSITE MATERIAL REQUIRES APPROVAL FROM THE COUNTY.

BANK RUN GRAVEL

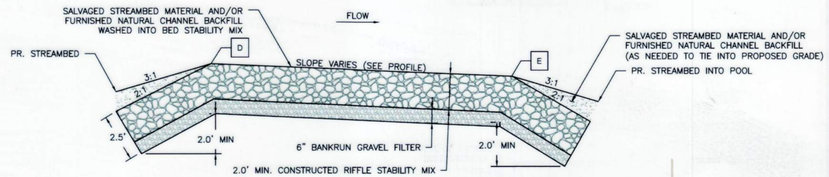
BANK RUN GRAVEL SHALL MEET THE AGGREGATE GRADING REQUIREMENTS AS SPECIFIED IN AGGREGATE BASE AND SUBBASE COURSES OF HARFORD COUNTY SPEC 901.01 OR AS DIRECTED BY THE COUNTY. IT SHALL BE A MIX OF EQUAL PARTS BANK RUN GRAVEL SUBBASE COURSE AND COARSE AGGREGATE FOR BASE COURSE.



NOTE: SEE CROSS SECTIONS AND GRADING PLANS FOR PROPOSED GRADES

CONSTRUCTED RIFFLE - SECTION VIEW

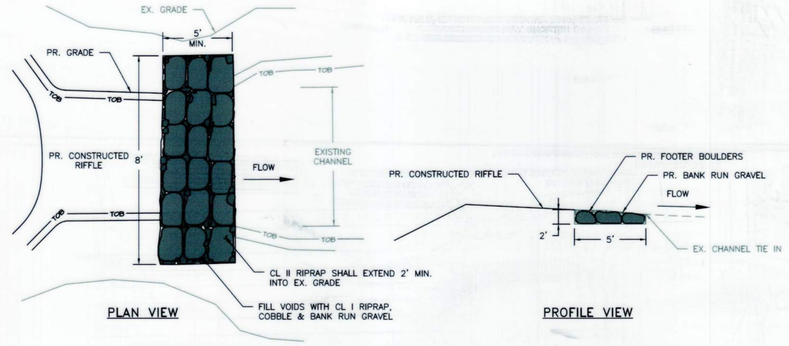
SCALE: NOT TO SCALE



CONSTRUCTED RIFFLE PROFILE (SHOWN AT THALWEG)

SCALE: NOT TO SCALE

1. COMPACT SALVAGED STREAMBED MATERIAL AND/OR NATURAL CHANNEL BACKFILL TO MATCH PROPOSED GRADE UNLESS OTHERWISE SPECIFIED.
2. CROSS-SECTIONAL DIMENSIONS AND LONGITUDINAL SPACING OF FEATURES VARY. SEE CROSS-SECTIONS AND PROFILES FOR DIMENSIONS OF EACH INDIVIDUAL STRUCTURE.
3. SMALL AND LARGE STONES SHALL BE MIXED TO MINIMIZE VOID SPACES. STONE MUST BE PLACED IN A MANNER TO PROMOTE INTERLOCKING. DUMPING STONE WILL NOT BE PERMITTED.
4. THALWEG SHALL BE CONSTRUCTED PER THE CROSS SECTIONS.
5. SALVAGED STREAM BED MATERIAL SHALL BE WASHED INTO BED STABILITY MIX TO ENSURE SURFACE FLOW.
6. POINT COORDINATES ARE LOCATED AT THE GRADE BREAKS OF THE RIFFLE ALONG THE PROPOSED CENTERLINE.
7. IF FURNISHED NATURAL CHANNEL BACKFILL IS NECESSARY, IT SHALL BE COMPRISED OF EQUAL PARTS WASHED RIVER COBBLE/GRAVEL MEETING ASTM D448-86 DESIGNATIONS FOR SIZE NUMBER 1, WASHED PEA GRAVEL MEETING ASTM D448-86 DESIGNATIONS FOR SIZE NUMBER 6, AND SAND MEETING ASTM D448-86 DESIGNATIONS FOR SIZE NUMBER 9. NATURAL CHANNEL BACKFILL SHALL BE MIXED PRIOR TO THE MATERIAL BEING BROUGHT ON SITE. NO SALVAGED MATERIAL SHALL BE USED AS NATURAL CHANNEL BACKFILL.



SILL ROCK GRADE CONTROL STRUCTURE DETAIL

SCALE: NOT TO SCALE

SILL ROCK GRADE CONTROL STRUCTURE NOTES

1. INSTALLATION OF THE ROCK SILL WILL INVOLVE EXCAVATING A TRENCH ACROSS THE EXISTING STREAMBED AND BACKFILLING WITH CL II RIPRAP TO FORM THE MAIN COMPONENTS OF THE SILL STRUCTURE. CL I RIPRAP, COBBLE AND GRAVEL SIZED MATERIAL WILL BE UTILIZED TO FILL THE VOIDS BETWEEN THE BOULDERS AND COMPLETE THE SILL STRUCTURES.
2. THE ROCKS SHALL CONSIST OF ROUND, SUBANGULAR, OR ANGULAR ROCK, SIMILAR IN COLOR, TEXTURE AND DENSITY TO THE NATIVE ROCK ON THE SITE.
3. THE COBBLE SIZE MATERIAL WILL RANGE FROM 2.5 INCHES TO 9 INCHES IN DIAMETER AND THE GRAVEL SIZE MATERIAL WILL RANGE FROM 0.5 INCHES TO 2 INCHES IN DIAMETER.
4. THE ROCK SILLS SHALL BE CONSTRUCTED PERPENDICULAR TO THE FLOW, EXTENDING A MINIMUM OF 2 FT INTO THE EXISTING CHANNEL SLOPE FROM BOTTOM OF SLOPE.

ADC MAP :

TAX MAP :

HCG BILLING ID No.:

HCG DWG ID No.: 19/6/13

191419

EG-SWMENG- 000372-2018 | # 97032

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

7/22/19

REVISIONS

HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
STREAM DETAILS & NOTES

DRAWN BY: JP/EM/BF
DESIGNED BY: JP
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : AS SHOWN
SHEET 24 OF 35
DATE : 07/22/19

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_OVERALL\CAD Files\Sheet Files\4_3801_DTL03.dwg

STILLMEADOW DRIVE
SEQUENCE OF CONSTRUCTION

	DAYS
STILLMEADOW DRIVE GENERAL	
1. HOLD A PRE-CONSTRUCTION MEETING WITH CONTRACTORS, INSPECTORS & ENGINEERS AS NEEDED.	1 DAY
2. 48 HOURS PRIOR TO THE START OF CONSTRUCTION, NOTIFY HARFORD COUNTY S/C INSPECTOR AND MDE, AS REQUIRED, PER STATE PERMITS.	
3. THE CONTRACTOR SHALL CALL "MISS UTILITY" (1-800-257-7777) A MINIMUM OF 48 HOURS IN ADVANCE OF ANY EXCAVATION, BORING, PILE DRIVING AND/OR DIGGING FOR THE LOCATION OF GAS, ELECTRIC, TELEPHONE, WATER AND SEWER LINES.	
PHASE 1 – CONSTRUCTION ACCESS AND EROSION AND SEDIMENT CONTROL	
1. PROJECT CONSTRUCTION SHALL NOT START UNTIL ALL RESOURCES NEEDED FOR CONSTRUCTION ARE AT THE PROJECT LOCATION. CLEAR AND GRUB AS NECESSARY TO ESTABLISH LIMITS OF DISTURBANCE AND INSTALL PERIMETER HIGH VISIBILITY FENCE.	2 DAYS
2. CLEAR AND GRUB AS NECESSARY TO INSTALL STILLMEADOW DRIVE STABILIZED CONSTRUCTION ENTRANCE, HAUL ROAD, TEMPORARY STOCKPILE AREAS, AND ASSOCIATED SEDIMENT AND EROSION CONTROL DEVICES.	1 DAY
3. INSTALL STILLMEADOW DRIVE STABILIZED CONSTRUCTION ENTRANCE AND TEMPORARY STOCKPILE AREA TO FACILITATE INSTALLATION OF THE HAUL ROAD. INSTALL SUPER SILT FENCE, TEMPORARY STONE OUTLET STRUCTURE, AND TREE PROTECTION FOR THE PHASE 1 PROPOSED GRADING.	1 DAY
4. GRADE OUTFALL POOL AND INSTALL THE SANDBAG DIKE, CLEARWATER DIVERSION PIPE, AND HAUL ROAD.	2 DAYS
5. REMOVE AND STOCKPILE EXISTING CLASS I RIPRAP AND MASS GRADE THE DOWNSTREAM SLOPES TO INSTALL THE HAUL ROAD AND CLEARWATER DIVERSION PIPE. STOCKPILE SUITABLE MATERIAL FOR PROPOSED DOWNSTREAM EARTHWORK. STABILIZE ANY DISTURBED EARTH. REMOVE SUPER SILT FENCE AND THE TEMPORARY STONE OUTLET STRUCTURE.	5 DAYS
6. CLEAR AND GRUB AS NECESSARY TO INSTALL THE FOSTER KNOLL DRIVE STABILIZED CONSTRUCTION ENTRANCE, TEMPORARY CONSTRUCTION ACCESS ROAD, TEMPORARY STOCKPILE AREAS, TEMPORARY STREAM CROSSINGS, AND ASSOCIATED SEDIMENT AND EROSION CONTROL DEVICES.	2 DAYS
7. INSTALL FOSTER KNOLL DRIVE STABILIZED CONSTRUCTION ENTRANCE, TEMPORARY CONSTRUCTION ACCESS ROAD, TEMPORARY STREAM CROSSINGS, TEMPORARY STOCKPILE AREAS, TREE PROTECTIONS AND ASSOCIATED SEDIMENT AND EROSION CONTROL DEVICES.	2 DAYS
PHASE 2 – RIFFLE POOL SYSTEM AND LOG-BOULDER STEP POOL SYSTEM	
1. CLEAR AND GRUB TO FACILITATE CHANNEL CONSTRUCTION AND INSTALLATION OF ALL PHASE 2 SEDIMENT AND EROSION CONTROL DEVICES.	1 DAY
2. INSTALL ALL PHASE 2 SEDIMENT AND EROSION CONTROL DEVICES AS SHOWN ON THE CONSTRUCTION DRAWINGS.	1 DAY
3. START PUMP DIVERSION OPERATION IN ORDER TO DEWATER THE PHASE 2 WORK AREA.	
4. STARTING AT THE DOWNSTREAM END OF PHASE 2 AND WORKING UPSTREAM ALONG THE STREAM a. GRADE THE BANKS, AS SHOWN ON THE CONSTRUCTION DRAWINGS AND AS DIRECTED IN THE FIELD BY THE PROJECT MANAGER. b. INSTALL IN-STREAM STRUCTURES, AS SHOWN ON THE CONSTRUCTION DRAWINGS AND AS DIRECTED IN THE FIELD BY THE PROJECT MANAGER.	25 DAYS
7. SHUT DOWN AND REMOVE THE PHASE 2 PUMP DIVERSION AND DOWNSTREAM SANDBAG DIKE.	1 DAY
8. RAKE ALL DISTURBED AREAS ALONG BANKS, APPLY PERMANENT SEED MIX AND, FERTILIZER. INSTALL COIR FIBER BLANKETS ALONG BANKS, AS OUTLINED IN THE CONSTRUCTION SPECIFICATIONS.	2 DAYS
9. DISK AND RAKE ALL DISTURBED AREAS WITHIN THE FLOODPLAIN AND OUTSIDE THE IMMEDIATE CONSTRUCTION AREA.	1 DAY
10. APPLY PERMANENT SEED MIX AND FERTILIZER FOR ALL DISTURBED AREAS WITHIN THE FLOODPLAIN AND OUTSIDE THE IMMEDIATE CONSTRUCTION AREA.	1 DAY
PHASE 3 – LOG-BOULDER STEP POOL SYSTEM	
1. CLEAR AND GRUB TO FACILITATE CHANNEL CONSTRUCTION AND INSTALLATION OF ALL PHASE 3 SEDIMENT AND EROSION CONTROL DEVICES.	1 DAY
2. INSTALL ALL PHASE 3 SEDIMENT AND EROSION CONTROL DEVICES AS SHOWN ON THE CONSTRUCTION DRAWINGS.	1 DAY
3. START PUMP DIVERSION OPERATION IN ORDER TO DEWATER THE PHASE 3 WORK AREA.	
4. STARTING AT THE DOWNSTREAM END OF PHASE 3 AND WORKING UPSTREAM ALONG THE STREAM a. GRADE THE BANKS, AS SHOWN ON THE CONSTRUCTION DRAWINGS AND AS DIRECTED IN THE FIELD BY THE PROJECT MANAGER. b. INSTALL IN-STREAM STRUCTURES, AS SHOWN ON THE CONSTRUCTION DRAWINGS AND AS DIRECTED IN THE FIELD BY THE PROJECT MANAGER.	22 DAYS
7. SHUT DOWN AND REMOVE THE PHASE 3 PUMP DIVERSION AND PHASE 3 SANDBAG DIKES.	1 DAY
8. RAKE ALL DISTURBED AREAS ALONG BANKS, APPLY PERMANENT SEED MIX AND, FERTILIZER. INSTALL COIR FIBER BLANKETS ALONG BANKS, AS OUTLINED IN THE CONSTRUCTION SPECIFICATIONS.	2 DAYS
9. DISK AND RAKE ALL DISTURBED AREAS WITHIN THE FLOODPLAIN AND OUTSIDE THE IMMEDIATE CONSTRUCTION AREA.	1 DAYS
10. APPLY PERMANENT SEED MIX AND FERTILIZER FOR ALL DISTURBED AREAS WITHIN THE FLOODPLAIN AND OUTSIDE THE IMMEDIATE CONSTRUCTION AREA.	1 DAYS
PHASE 4 – STEP POOL STORM CONVEYANCE (SPSC)	
1. CLEAR AND GRUB TO FACILITATE SPSC INSTALLATION OF SEDIMENT AND EROSION CONTROL DEVICES.	1 DAY
2. INSTALL ALL SEDIMENT AND EROSION CONTROL DEVICES AS SHOWN ON THE CONSTRUCTION DRAWINGS.	1 DAY
3. STARTING AT THE DOWNSTREAM END OF PHASE 4 AND WORKING UPSTREAM TOWARDS THE EXISTING STILLMEADOW DRIVE a. GRADE AND INSTALL THE SPSC'S AND CASCADES AS DIRECTED IN THE FIELD BY THE PROJECT MANAGER. b. RAKE ALL DISTURBED AREAS, APPLY PERMANENT SEED MIX AND FERTILIZER, AS OUTLINED IN THE CONSTRUCTION SPECIFICATIONS.	15 DAYS
5. DISK AND RAKE ALL DISTURBED AREAS WITHIN THE FLOODPLAIN AND OUTSIDE OF THE IMMEDIATE CONSTRUCTION AREA.	1 DAY
6. APPLY PERMANENT SEED MIX AND FERTILIZER FOR ALL DISTURBED AREAS WITHIN THE FLOODPLAIN AND OUTSIDE OF THE IMMEDIATE CONSTRUCTION AREA.	1 DAY
7. INSTALL ALL PLANT MATERIAL, AS SHOWN IN THE PLANTING PLANS AND OUTLINED IN THE CONSTRUCTION SPECIFICATIONS.	1 DAY
PHASE 5 – GENERAL	
1. REMOVE REMAINING TEMPORARY STOCKPILE AREAS, CONSTRUCTION ACCESS ROADS, TEMPORARY BRIDGE CROSSING, EROSION AND SEDIMENT CONTROL DEVICES, STABILIZED CONSTRUCTION ENTRANCE, ORANGE SAFETY FENCE ALONG LIMITS OF DISTURBANCE (LOD), AND TREE PROTECTIONS.	1 DAY
2. DISK AND RAKE ALL REMAINING DISTURBED AREAS WITHIN THE FLOODPLAIN AND SLOPES OUTSIDE OF IMMEDIATE CONSTRUCTION AREA.	1 DAY
3. APPLY PERMANENT SEED MIX AND FERTILIZER FOR ALL REMAINING DISTURBED AREAS WITHIN THE FLOODPLAIN AND OUTSIDE OF THE IMMEDIATE CONSTRUCTION AREA.	1 DAY
4. INSTALL REMAINING WOODY PLANT MATERIAL, AS SHOWN IN THE PLANTING PLANS AND OUTLINED IN THE CONSTRUCTION SPECIFICATIONS.	2 DAYS
	TOTAL 102 DAYS

NOTES:
1. THE SEQUENCE OF CONSTRUCTION IS INTENDED TO CONVEY INSTALLATION OF SEDIMENT CONTROLS AND GENERAL INSTRUCTION TO THE CONTRACTOR. THE SEQUENCE MAY BE ADJUSTED IN THE FIELD WITH THE SEDIMENT CONTROL INSPECTOR'S PERMISSION TO ACCOMMODATE CONTRACTOR'S MEANS AND METHODS.
2. CONTRACTOR SHALL ONLY REMOVE EROSION AND SEDIMENT CONTROL DEVICES WITH SEDIMENT CONTROL INSPECTOR'S PERMISSION.

SUMMARY OF ESC QUANTITIES

PHASE 1

STABILIZED CONSTRUCTION ENTRANCE:	2	EA
CONSTRUCTION ACCESS ROAD:	800	LF
HAUL ROAD:	410	LF
HIGH VISIBILITY FENCE:	3,120	LF
DIVERSION PIPE:	350	LF
SAND BAG DIKE:	60	LF
SUPER SILT FENCE:	60	LF
FILTER LOG:	125	LF
WETLAND PROTECTION MATTING:	130	LF
TEMPORARY STONE OUTLET STRUCTURE:	1	EA
TREE PROTECTION FENCE:	700	LF
TREE PROTECTION PLANKING:	38	EA

PHASE 3

DIVERSION PIPE:	540	LF
FILTER BAG:	1	EA
DIVERSION/DEWATERING PUMP:	2	EA
SUMP PIT:	1	EA
SAND BAG DIKE:	50	LF
MOUNTABLE BERM:	2	EA

PHASE 4

DIVERSION PIPE:	30	LF
FILTER BAG:	1	EA
DIVERSION/DEWATERING PUMP:	1	EA
SUMP PIT:	1	EA
SAND BAG DIKE:	25	LF

NOTES:
1. THIS SUMMARY OF SEDIMENT CONTROL QUANTITIES IS FOR USE BY THE HARFORD COUNTY SOIL CONSERVATION DISTRICT ONLY. THIS SUMMARY IS NOT INTENDED TO BE USED BY THE CONTRACTOR FOR ESTIMATING AND BIDDING PURPOSES.
2. STOCKPILE HEIGHT CANNOT EXCEED 15'. STOCKPILE MAX SLOPE CANNOT EXCEED 2:1. IF ADDITIONAL STOCKPILE AREAS ARE NEEDED WITHIN THE LOD, THE CONTRACTOR MUST GET APPROVAL FROM THE INSPECTOR. ADDITIONAL STOCKPILES MUST BE WRAPPED WITH SILT FENCE.
3. NO DISTURBED AREA SHALL BE LEFT OVERNIGHT. STABILIZE ON DAILY BASIS.
4. MATTING SHOWN SHALL BE INSTALLED OVER EX. WETLANDS WHERE CONSTRUCTION ACCESS IS REQUIRED.
5. FOR EROSION AND SEDIMENT CONTROL DETAILS, SEE SHEETS 28 & 29.

SEDIMENT CONTROL LEGEND

LIMIT OF DISTURBANCE	LOD
LIMIT OF DISTURBANCE/ HIGH VISIBILITY FENCE	LOD HVF
HIGH VISIBILITY FENCE	HVF
SUPER SILT FENCE	SSF
TREE PROTECTION FENCE	TPF
DIVERSION/DEWATERING PIPE	
SANDBAG DIKE	
TEMPORARY STONE OUTFALL STRUCTURE	
STABILIZED CONSTRUCTION ENTRANCE	
CONSTRUCTION ACCESS ROAD	
HAUL ROAD	

PROJECT CONSTRUCTION SHALL NOT START UNTIL ALL RESOURCES NEEDED FOR CONSTRUCTION ARE AT THE PROJECT LOCATION

191487

S/C PLAN # 59838 | GRA # 15387-2018

EG-SWMENG- 000372-2018 | # 97032

191420

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 20'

0 10 20 40
1 INCH = 20 FEET

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

7/22/19

PHASE 1 HAUL ROAD GRADING INSET

SCALE: 1" = 40'

REVISIONS

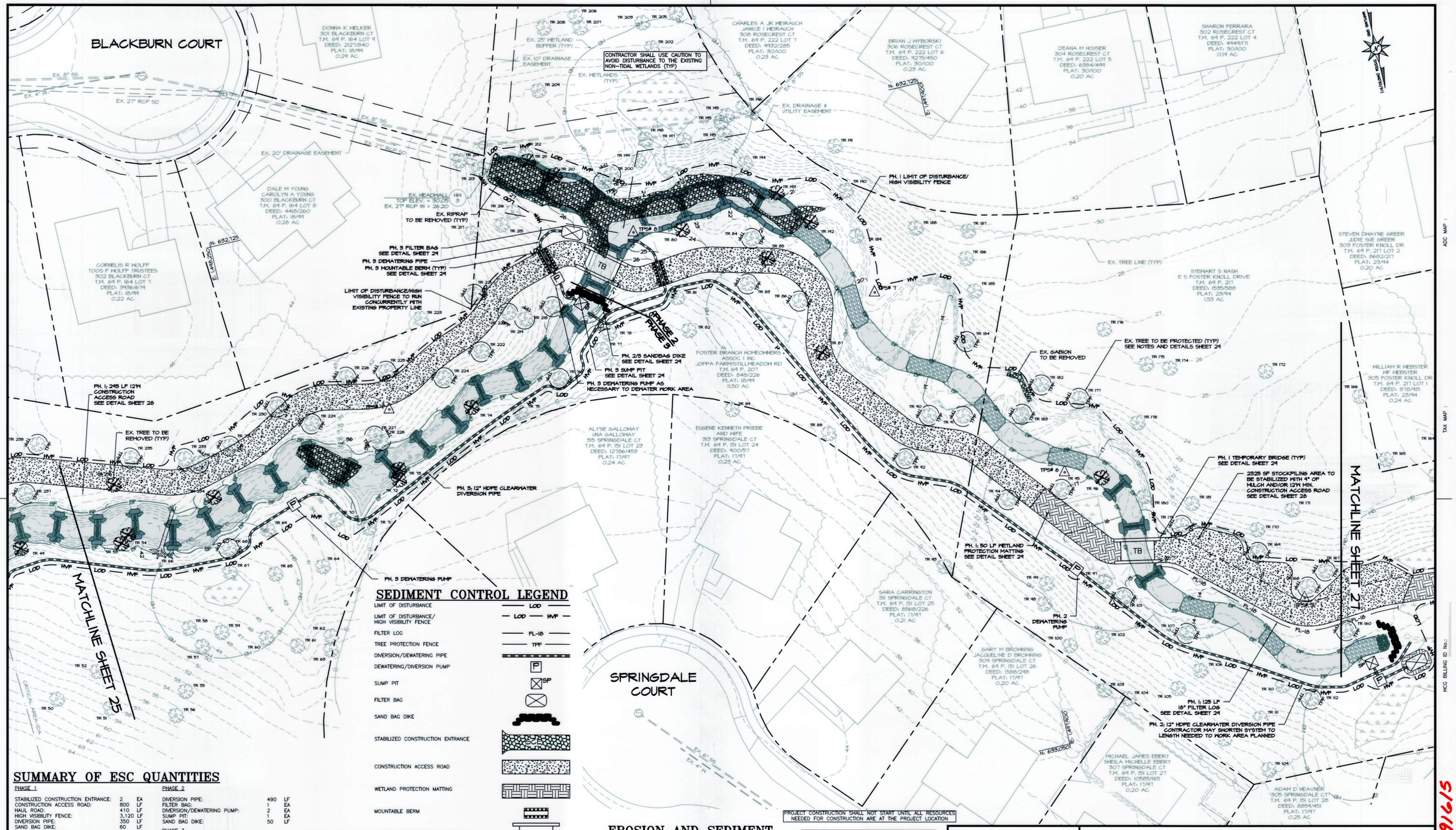
HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
EROSION & SEDIMENT CONTROL PLAN

DRAWN BY: BF/EM	CONTRACT NO : 16-153
DESIGNED BY: MKB	SCALE : 1" = 20'
REVIEWED BY: MKB	SHEET 25 OF 35
	DATE : 07/22/19

191419

2:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMSR_ESC01.dwg



SEDIMENT CONTROL LEGEND

LIMIT OF DISTURBANCE	LOD
LIMIT OF DISTURBANCE/ HIGH VISIBILITY FENCE	LOD — HVF
FILTER LOG	FL-18
TREE PROTECTION FENCE	TPF
DIVERSION/DEWATERING PIPE	
DEWATERING/DIVERSION PUMP	P
SUMP PIT	SP
FILTER BAG	
SAND BAG DIKE	
STABILIZED CONSTRUCTION ENTRANCE	SCE
CONSTRUCTION ACCESS ROAD	
WETLAND PROTECTION MATTING	
MOUNTABLE BERM	
TEMPORARY CONSTRUCTION BRIDGE	TB

SUMMARY OF ESC QUANTITIES

PHASE 1			PHASE 2		
STABILIZED CONSTRUCTION ENTRANCE:	2	EA	DIVERSION PIPE:	490	LF
CONSTRUCTION ACCESS ROAD:	800	LF	FILTER BAG:	1	EA
HAUL ROAD:	410	LF	DIVERSION/DEWATERING PUMP:	2	EA
HIGH VISIBILITY FENCE:	3,120	LF	SUMP PIT:	1	EA
DIVERSION PIPE:	350	LF	SAND BAG DIKE:	50	LF
SAND BAG DIKE:	60	LF	PHASE 3		
SUPER SILT FENCE:	60	LF	DIVERSION PIPE:	540	LF
FILTER LOG:	125	LF	FILTER BAG:	1	EA
WETLAND PROTECTION MATTING:	130	LF	DIVERSION/DEWATERING PUMP:	2	EA
TEMPORARY STONE OUTLET STRUCTURE:	1	EA	SUMP PIT:	1	EA
TREE PROTECTION FENCE:	700	LF	SAND BAG DIKE:	50	LF
TREE PROTECTION PLANKING:	38	EA	MOUNTABLE BERM:	2	EA

NOTES:
1. THIS SUMMARY OF SEDIMENT CONTROL QUANTITIES IS FOR USE BY THE HARFORD COUNTY SOIL CONSERVATION DISTRICT ONLY. THIS SUMMARY IS NOT INTENDED TO BE USED BY THE CONTRACTOR FOR ESTIMATING AND BIDDING PURPOSES.
2. STOCKPILE HEIGHT CANNOT EXCEED 15'. STOCKPILE MAX SLOPE CANNOT EXCEED 2:1. IF ADDITIONAL STOCKPILE AREAS ARE NEEDED WITHIN THE LOD, THE CONTRACTOR MUST GET APPROVAL FROM THE INSPECTOR. ADDITIONAL STOCKPILES MUST BE WRAPPED WITH SILT FENCE.
3. NO DISTURBED AREA SHALL BE LEFT OVERNIGHT. STABILIZE ON DAILY BASIS.
4. MATTING SHOWN SHALL BE INSTALLED OVER EX. WETLANDS WHERE CONSTRUCTION ACCESS IS REQUIRED.
5. FOR EROSION AND SEDIMENT CONTROL DETAILS, SEE SHEETS 28 & 29.

PROJECT CONSTRUCTION SHALL NOT START UNTIL ALL RESOURCES NEEDED FOR CONSTRUCTION ARE AT THE PROJECT LOCATION

SEE SHEET 25 FOR SEQUENCE OF CONSTRUCTION

0 10 20 40

1 INCH = 20 FEET

EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 20'

191488

S/C PLAN # 59838 | GRA # 15387-2018

EG-SWMENG- 000372-2018 | # 97032

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

7/22/19

REVISIONS

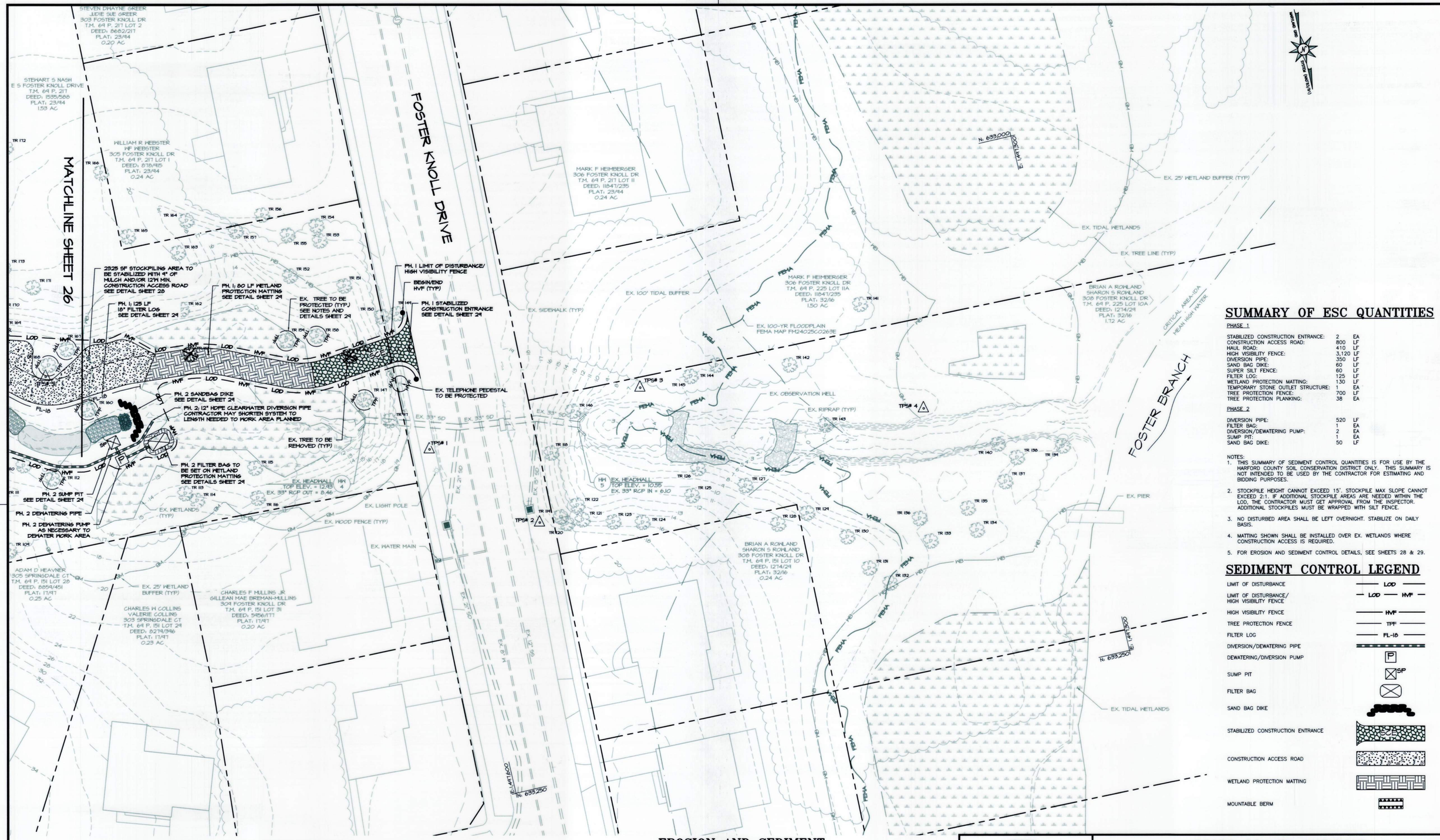
HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
EROSION & SEDIMENT CONTROL PLAN

DRAWN BY: BF/EM	CONTRACT NO : 16-153
DESIGNED BY: RP/JP	SCALE : 1" = 20'
REVIEWED BY: MKB	SHEET 26 OF 35
	DATE : 07/22/19

HCG BILLING ID No.:
HCG DWG ID No.: 191615

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMSR_ESC02.dwg



SUMMARY OF ESC QUANTITIES

PHASE 1

STABILIZED CONSTRUCTION ENTRANCE:	2	EA
CONSTRUCTION ACCESS ROAD:	800	LF
HAUL ROAD:	410	LF
HIGH VISIBILITY FENCE:	3,120	LF
DIVERSION PIPE:	350	LF
SAND BAG DIKE:	60	LF
SUPER SILT FENCE:	60	LF
FILTER LOG:	125	LF
WETLAND PROTECTION MATTING:	130	LF
TEMPORARY STONE OUTLET STRUCTURE:	1	EA
TREE PROTECTION FENCE:	700	LF
TREE PROTECTION PLANKING:	38	EA

PHASE 2

DIVERSION PIPE:	520	LF
FILTER BAG:	1	EA
DIVERSION/DEWATERING PUMP:	2	EA
SUMP PIT:	1	EA
SAND BAG DIKE:	50	LF

NOTES:

1. THIS SUMMARY OF SEDIMENT CONTROL QUANTITIES IS FOR USE BY THE HARFORD COUNTY SOIL CONSERVATION DISTRICT ONLY. THIS SUMMARY IS NOT INTENDED TO BE USED BY THE CONTRACTOR FOR ESTIMATING AND BIDDING PURPOSES.
2. STOCKPILE HEIGHT CANNOT EXCEED 15'. STOCKPILE MAX SLOPE CANNOT EXCEED 2:1. IF ADDITIONAL STOCKPILE AREAS ARE NEEDED WITHIN THE LOD, THE CONTRACTOR MUST GET APPROVAL FROM THE INSPECTOR. ADDITIONAL STOCKPILES MUST BE WRAPPED WITH SILT FENCE.
3. NO DISTURBED AREA SHALL BE LEFT OVERNIGHT. STABILIZE ON DAILY BASIS.
4. MATTING SHOWN SHALL BE INSTALLED OVER EX. WETLANDS WHERE CONSTRUCTION ACCESS IS REQUIRED.
5. FOR EROSION AND SEDIMENT CONTROL DETAILS, SEE SHEETS 28 & 29.

SEDIMENT CONTROL LEGEND

- LIMIT OF DISTURBANCE — LOD
- LIMIT OF DISTURBANCE/ HIGH VISIBILITY FENCE — LOD — HVF
- HIGH VISIBILITY FENCE — HVF
- TREE PROTECTION FENCE — TPF
- FILTER LOG — FL-18
- DIVERSION/DEWATERING PIPE
- DEWATERING/DIVERSION PUMP — P
- SUMP PIT — SP
- FILTER BAG
- SAND BAG DIKE
- STABILIZED CONSTRUCTION ENTRANCE — SCE
- CONSTRUCTION ACCESS ROAD
- WETLAND PROTECTION MATTING
- MOUNTABLE BERM

PROJECT CONSTRUCTION SHALL NOT START UNTIL ALL RESOURCES NEEDED FOR CONSTRUCTION ARE AT THE PROJECT LOCATION

SEE SHEET 25 FOR SEQUENCE OF CONSTRUCTION

191489

S/C PLAN # 59838 | GRA # 15387-2018

EG-SWMENG- 000372-2018 | # 97032

EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 20'

0 10 20 40

1 INCH = 20 FEET

REVISIONS

HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
EROSION & SEDIMENT CONTROL PLAN

DRAWN BY: BF/EM
DESIGNED BY: JP
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : 1" = 20'
SHEET 27 OF 35
DATE : 07/22/19

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

STATE OF MARYLAND — ROBERT STOPPER JR. — PROFESSIONAL ENGINEER — 7/12/19

ADC MAP :

TAX MAP :

HCG BILLING ID No.:

HCG DWG ID No.: 191616

SCALE: 1 inch

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMSR_ESC03.dwg

STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

A. SOIL PREPARATION

1. TEMPORARY STABILIZATION
   a. 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.
   b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
   c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
2. PERMANENT STABILIZATION
   a. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
      i. SOIL PH BETWEEN 6.0 AND 7.0.
      ii. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
      iii. 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.
      iv. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
      v. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
   b. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
   c. 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.
   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

1. 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.
2. 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.
3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
   a. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
   b. 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.
   c. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
   d. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
   a. 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.
   b. 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.
   c. 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.
6. TOPSOIL APPLICATION
   a. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
   b. 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.
   c. 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 AND SEEDBED PREPARATION.

C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)

1. 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.
2. 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.
3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) 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.
4. 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.
5. 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.

TEMPORARY SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): 7a SEED MIXTURE (FROM TABLE B.1)					FERTILIZER RATE (10-20-20)	LIME RATE
NO.	SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS		
1	ANNUAL RYEGRASS	40 (1lb/1000 sf)	2/15 - 4/30 8/15 - 11/30	0.5"	436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)
2	BARLEY	96 (2.2lb/1000 sf)	2/15 - 4/30 8/15 - 11/30	1.0"		
3	OATS	72 (1.7lb/1000 sf)	2/15 - 4/30 8/15 - 11/30	1.0"		
4	RYE	112 (2.8lb/1000 sf)	2/15 - 4/30 8/15 - 12/15	1.0"		
5	FOXTAIL MILLET	30 (0.7lb/1000 sf)	5/1 - 8/14	0.5"		

SPSC STABILIZATION NOTES

1. TEMPORARY STABILIZATION FOR ANY AREA OF EARTH DISTURBANCE AROUND THE POOLS AND RIFFLE ZONES OF A STREAM RESTORATION PROJECT SHALL BE CONSIDERED ACHIEVED WHEN COVERING AREA WITH 4 TO 8 INCHES OF COMPOST OR 2 TO 4 INCHES OF WOOD CHIPS.
2. PERMANENT STABILIZATION FOR AN AREA OF EARTH DISTURBANCE AROUND THE POOLS AND RIFFLES ZONE OF A STREAM RESTORATION PROJECT SHALL BE CONSIDERED ACHIEVED WHEN COVERING THE AREA WITH 4 INCHES OF COMPOST OR 2 TO 4 INCHES OF WOOD CHIPS AND THE PLANTING PLAN HAS BEEN IMPLEMENTED.
3. THE CONTRACTOR WILL NEED TO DEWATER VIA SUMP PIT AND FILTER BAG WHEN NECESSARY DURING GRADING OF STEP POOLS.

STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

A. SEEDING

1. SPECIFICATIONS
   a. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
   b. 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.
   c. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
   d. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
2. APPLICATION
   a. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
      i. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
      ii. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
   b. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
      i. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
      ii. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
   c. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
      i. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P2O5 (PHOSPHOROUS), 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
      ii. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
      iii. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
      iv. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B. MULCHING

1. MULCH MATERIALS (IN ORDER OF PREFERENCE)
   a. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
   b. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
      i. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
      ii. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
      iii. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
      iv. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
      v. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.
2. APPLICATION
   a. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
   b. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
   c. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
3. ANCHORING
   a. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
      i. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
      ii. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
      iii. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRATACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
      iv. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

PERMANENT SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): 7a SEED MIXTURE (FROM TABLE B.3)					FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS	N	P_2O_5	K_2O	
1	SWITCHGRASS CREEPING RED FESCUE BUSH CLOVER	10 10 2	2/15 - 4/30 5/1 - 5/15	½" - ¾"	45 lb/ac (1.0 lb/ 1000 sf)	90 lb/ac (2.0 lb/ 1000 sf)	90 lb/ac (2.0 lb/ 1000 sf)	2 tons/ac (90 lb/ 1000 sf)
3	DEERTONGUE SHEEP FESCUE COMMON LESPEDEZA	20 20 10	2/15 - 4/30 5/1 - 5/15	½" - ¾"				

NOTES:
1. SEEDING RATES FOR THE WARM-SEASON GRASSES ARE IN POUNDS OF PURE LIVE SEED (PLS). ACTUAL PLANTING RATES SHALL BE ADJUSTED TO REFLECT PERCENT SEED GERMINATION AND PURITY, AS TESTED. ADJUSTMENTS ARE USUALLY NOT NEEDED FOR THE COOL-SEASON GRASSES. SEEDING RATES LISTED ABOVE ARE FOR TEMPORARY SEEDINGS, WHEN PLANTED ALONE. WHEN PLANTED AS A NURSE CROP WITH PERMANENT SEED MIXES, USE 1/3 OF THE SEEDING RATE LISTED ABOVE FOR BARLEY, OATS, AND WHEAT. FOR SMALLER-SEEDED GRASSES (ANNUAL RYEGRASS, PEARL MILLET, FOXTAIL MILLET), DO NOT EXCEED MORE THAN 5% (BY WEIGHT) OF THE OVERALL PERMANENT SEEDING MIX. CEREAL RYE GENERALLY SHOULD NOT BE USED AS A NURSE CROP, UNLESS PLANTING WILL OCCUR IN VERY LATE FALL BEYOND THE SEEDING DATES FOR OTHER TEMPORARY SEEDINGS. CEREAL RYE HAS ALLELOPATHIC PROPERTIES THAT INHIBIT THE GERMINATION AND GROWTH OF OTHER PLANTS. IF IT MUST BE USED AS A NURSE CROP, SEED AT 1/3 OF THE RATE LISTED ABOVE. OATS ARE THE RECOMMENDED NURSE CROP FOR WARM-SEASON GRASSES.
2. FOR SANDY SOILS, PLANT SEEDS AT TWICE THE DEPTH LISTED ABOVE.
3. THE PLANTING DATES LISTED ARE AVERAGES FOR EACH ZONE AND MAY REQUIRE ADJUSTMENT TO REFLECT LOCAL CONDITIONS, ESPECIALLY NEAR THE BOUNDARIES OF THE ZONE.

191490

S/C PLAN # 59838 GRA # 15387-2018

EG-SWMENG- 000372-2018 # 97032

19/421

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

HARFORD COUNTY SEDIMENT CONTROL NOTES

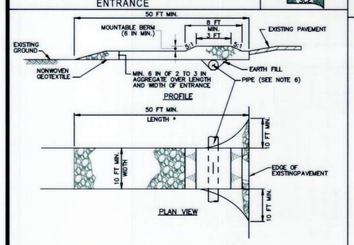
1. THE CONTRACTOR/OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS. FURTHER, NO CONSTRUCTION ACTIVITY SHALL TAKE PLACE UNTIL ALL REQUIRED PERMITS HAVE BEEN OBTAINED.
2. THE LIMITS OF DISTURBANCE SHALL BE CLEARLY DELINEATED IN THE FIELD PRIOR TO GRADING OF THE SITE TO ENSURE COMPLIANCE WITH APPROVED PLANS. ALL FOREST RETENTION AREAS WILL BE DELINEATED WITH BLAZE ORANGE FENCE AS WELL AS ANY SWM INFILTRATION PRACTICE PRIOR TO ANY CLEARING. WORK BEYOND THE LIMITS OF DISTURBANCE AND IN ANY AREA INSIDE THE FOREST RETENTION AND SWM INFILTRATION AREA IS CONSIDERED TO BE A VIOLATION OF THIS PLAN.
3. ALL SEDIMENT CONTROL PRACTICES MUST BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY. UPON COMPLETION OF THE INSTALLATION OF PERIMETER SEDIMENT CONTROL PRACTICES THE SITE MUST BE INSPECTED BY THE DEPARTMENT OF PUBLIC WORKS (DPW). NO ADDITIONAL CONSTRUCTION ACTIVITY WILL BE AUTHORIZED WITHOUT THE APPROVAL FROM DPW.
4. ALL POINTS OF INGRESS AND EGRESS SHALL BE PROTECTED TO PREVENT TRACKING OF MUD INTO PUBLIC WAYS. DURING CONSTRUCTION, EVERY MEANS WILL BE TAKEN TO CONTROL SOIL EROSION AND SILTATION. IF NECESSARY A WASH RACK MAY NEED TO BE ESTABLISHED.
5. EARTH DIKES, SEDIMENT TRAPS, ETC. WILL BE LOCATED AS SHOWN ON THESE DRAWINGS. FIELD CHANGES AND MINOR ADJUSTMENTS ARE PERMISSIBLE AS LONG AS THE INSTALLATION FUNCTIONS AND CONFORMS TO SPECIFICATIONS. THE SITE INSPECTOR PRIOR TO INSTALLATION MUST APPROVE ALL SUCH CHANGES. MAJOR CHANGES TO THE APPROVED PLAN WILL REQUIRE RE-APPROVAL BY THE HARFORD SOIL CONSERVATION DISTRICT.
6. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
   A) THREE CALENDAR DAYS ON SLOPES GREATER THAN 3:1, ALL WATERWAYS AND TO THE SURFACE OF ALL PERIMETER CONTROLS.
   B) SEVEN CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS OF THE PROJECT SITE.
7. DUST CONTROL MUST BE MANAGED AS PART OF ALL SEDIMENT CONTROL PLANS. FAILURE TO DO SO IS A VIOLATION OF THIS PLAN.
8. SEDIMENT BASINS MUST BE BUILT TO DESIGN SPECIFICATIONS SHOWN ON THE PLAN. IF THE BASIN IS TO BE USED AS A FUTURE SWM FACILITY, THE BASIN WILL BE BUILT IN ACCORDANCE WITH THE LATEST MD-378 STANDARDS AND SPECIFICATIONS. SPECIFIED MATERIALS MUST BE USED. NO CHANGES OR MODIFICATIONS WILL BE MADE WITHOUT WRITTEN AUTHORIZATION OF THE HARFORD SOIL CONSERVATION DISTRICT.
9. TEMPORARY FENCING SHALL BE PLACED AROUND ALL SEDIMENT BASINS, TRAPS, AND PONDS DURING CONSTRUCTION AND SITE GRADING.
10. AT THE END OF EACH WORKING DAY ALL SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AND LEFT OPERATIONAL. A WEEKLY LOG WILL BE KEPT IN ACCORDANCE WITH NOI/NPDES REGULATIONS. A COPY OF THE APPROVED SEDIMENT CONTROL PLANS SHALL BE AVAILABLE AT THE SITE AT ALL TIMES.
11. ENSURE POSITIVE DRAINAGE TO ALL ROAD INLETS DURING ALL PHASES OF ROAD CONSTRUCTION TO ENSURE POSITIVE FLOW TO TRAPS AND OR BASINS.
12. CUT AND/OR FILL SHALL BE DONE IN CONFORMANCE WITH 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS FOR LAND GRADING.
13. SURFACE FLOWS OVER CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER REDIRECTING FLOWS FROM TRAVERSING THE SLOPES OR BY INSTALLING MECHANICAL DEVICES TO SAFELY CONVEY WATER DOWN SLOPES WITHOUT CAUSING EROSION.
14. OFF-SITE WASTE OR BORROW AREAS SHALL HAVE AN APPROVED EROSION AND SEDIMENT CONTROL PLAN PRIOR TO THE IMPORT OR EXPORT OF MATERIAL TO/FROM THE PROJECT SITE.
15. ALL MATERIAL ORIGINATING FROM THE DEVELOPMENT OF THE PROPERTY AND DEPOSITED ON THE PUBLIC RIGHT-OF-WAY SHALL BE IMMEDIATELY REMOVED.
16. STORM DRAIN INLETS AND OUTLETS SHALL BE PROTECTED PER 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS.
17. TOPSOIL, LIMING, FERTILIZING, SEEDING, MULCHING, SOD, ETC. ARE ALL ESSENTIAL PARTS OF THE SEDIMENT CONTROL PLAN AND MUST BE COMPLETED ALONG WITH ALL OTHER PRACTICES.
18. TRAPS TO BE REMOVED SHALL BE DEWATERED AS PER THE 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS.
19. PRIOR TO REMOVAL OF TRAPS OR CONVERSION OF SEDIMENT BASINS TO SWM FACILITIES, THE STORM DRAINS WILL BE FLUSHED.
20. SEDIMENT CONTROL PRACTICES WILL BE MAINTAINED UNTIL ALL DISTURBED AREAS FOR WHICH THE PRACTICES WERE INSTALLED HAVE BEEN STABILIZED. SEDIMENT CONTROL PRACTICES MAY BE REMOVED ONLY WITH THE AUTHORIZATION OF THE DPW INSPECTOR. ALL DISTURBED AREAS RESULTING FROM THE REMOVAL OF SEDIMENT CONTROL DEVICES SHALL BE STABILIZED IMMEDIATELY. REMOVAL PRIOR TO INSPECTOR'S APPROVAL CONSTITUTES A VIOLATION.

BEST MANAGEMENT PRACTICES FOR WORKING IN NON TIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS AND 100 YEAR FLOOD PLAINS

1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NON TIDAL WETLANDS, NON TIDAL WETLAND BUFFERS, WATERWAYS OR THE 100-YEAR FLOODPLAIN.
2. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NON TIDAL WETLANDS, NON TIDAL WETLAND BUFFERS, WATERWAYS OR THE 100 YEAR FLOODPLAIN.
3. DO NOT USE EXCAVATED MATERIAL AS BACK FILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACK FILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NON TIDAL WETLANDS, NON TIDAL WETLAND BUFFERS, OR WATERWAYS OR THE 100 YEAR FLOODPLAIN.
5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NON TIDAL WETLANDS, NON TIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100 YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
6. RECTIFY ANY NON TIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS OR 100 YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
7. ALL STABILIZATION IN THE NON TIDAL WETLAND AND NON TIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS(LOLIUM MULTIFLORUM), MILLET(SETARIA ITALICA), BARLEY(HORDEUM SP.), OATS (UNIOLA SP), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NON TIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION
8. AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED, AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PROTECT AQUATIC SPECIES, IN STREAM WORK IS PROHIBITED A

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

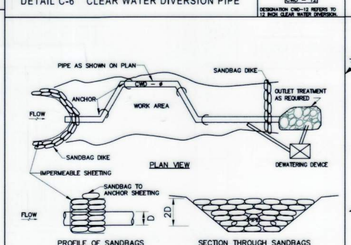
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*50 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING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

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL C-6 CLEAR WATER DIVERSION PIPE

STANDARD SYMBOL: CWD – 12 (DIMENSION (12) REFERS TO 12 INCH CLEAR WATER DIVERSION)



CONSTRUCTION SPECIFICATIONS

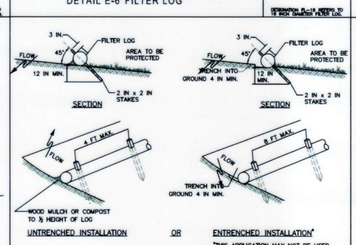
1. FLEXIBLE PIPE IS PREFERRED. HOWEVER, CORRUGATED METAL PIPE OR EQUIVALENT PVC PIPE CAN BE USED. MAKE ALL JOINTS WATERTIGHT.
2. FOR SANDBAGS USE MATERIALS THAT ARE RESISTANT TO ULTRA-VIOLENT RADIATION, TEARING, AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL.
3. USE 10 MIL OR THICKER, UV RESISTANT, IMPERMEABLE SHEETING OR OTHER APPROVED MATERIAL THAT IS IMPERMEABLE AND RESISTANT TO PUNCTURING AND TEARING.
4. PLACE IMPERMEABLE SHEETING SUCH THAT UPGRADE PORTION OVERLAPS DOWNGRADE PORTION BY A MINIMUM OF 18 INCHES.
5. SET HEIGHT OF SANDBAG DIKE AT TWICE THE PIPE DIAMETER. MAINTAIN HEIGHT ALONG LENGTH OF SANDBAG DIKE. PLACE DOUBLE ROW OF SANDBAGS.
6. AT A MINIMUM, SECURELY ANCHOR DIVERSION PIPE AT EACH DOWNGRADE JOINT.
7. SET OUTLET END OF DIVERSION PIPE LOWER THAN INLET END.
8. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
9. DEWATER WORK AREA USING AN APPROVED EROSION AND SEDIMENT CONTROL PRACTICE AS SPECIFIED ON APPROVED PLAN.
10. KEEP POINT OF DISCHARGE FREE OF EROSION. MAINTAIN WATER TIGHT CONNECTIONS AND POSITIVE DRAINAGE. REPLACE SANDBAGS AND IMPERMEABLE SHEETING IF TORN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL E-6 FILTER LOG

STANDARD SYMBOL: FL–18 (DIMENSION (18) REFERS TO 18 INCH DIAMETER FILTER LOG)



1 OF 2

DETAIL E-6 FILTER LOG

STANDARD SYMBOL: FL–18 (DIMENSION (18) REFERS TO 18 INCH DIAMETER FILTER LOG)

CONSTRUCTION SPECIFICATIONS

1. PRIOR TO INSTALLATION, CLEAR ALL OBSTRUCTIONS INCLUDING ROCKS, CLODS, AND DEBRIS GREATER THAN ONE INCH THAT MAY INTERFERE WITH PROPER FUNCTION OF FILTER LOG.
2. FILL LOG NETTING UNIFORMLY WITH COMPOST (IN ACCORDANCE WITH SECTION H–1 MATERIALS), OR OTHER APPROVED BIODEGRADABLE MATERIAL TO DESIRED LENGTH SUCH THAT LOGS DO NOT DEFORM.
3. INSTALL FILTER LOGS PERPENDICULAR TO THE FLOW DIRECTION AND PARALLEL TO THE SLOPE, WITH THE BEGINNING AND END OF THE INSTALLATION POINTING SLIGHTLY UP THE SLOPE CREATING A "J" SHAPE AT EACH END TO PREVENT BYPASS.
4. FOR UNTRENCHED INSTALLATION BLOW OR HAND PLACE MULCH OR COMPOST ON UPHILL SIDE OF THE SLOPE ALONG LOG.
5. STAKE FILTER LOG EVERY 4 FEET OR CLOSER ALONG ENTIRE LENGTH OF LOG OR TRENCH LOG INTO GROUND A MINIMUM OF 4 INCHES AND STAKE LOG EVERY 8 FEET OR CLOSER.
6. USE STAKES WITH A MINIMUM NOMINAL CROSS SECTION OF 2X2 INCH AND OF SUFFICIENT LENGTH TO ATTAIN A MINIMUM OF 12 INCHES INTO THE GROUND AND 3 INCHES PROTRUDING ABOVE LOG.
7. WHEN MORE THAN ONE LOG IS NEEDED, OVERLAP ENDS 12 INCHES MINIMUM AND STAKE.
8. REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO A DEPTH OF ½ THE EXPOSED HEIGHT OF LOG AND REPLACE MULCH. REPLACE FILTER LOG IF TORN, REINSTALL FILTER LOG IF UNDERMINING OR DISLODGING OCCURS. REPLACE CLOGGED FILTER LOGS. FOR PERMANENT APPLICATIONS, ESTABLISH AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B–4 VEGETATIVE STABILIZATION.

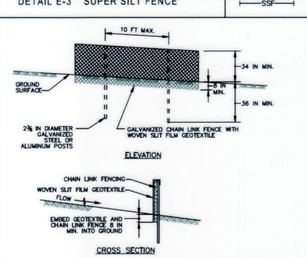
2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: SSF



CONSTRUCTION SPECIFICATIONS

1. INSTALL 2½ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅛ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HOG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H–1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES EARLIER FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

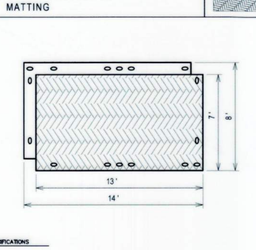
2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

WETLAND PROTECTION MATTING

STANDARD SYMBOL



GENERAL SPECIFICATIONS

LARGE MAT
- OVERALL DIMENSIONS: 8 ' x 14 '
- SURFACE DIMENSIONS: 7 ' x 13 '
- WEIGHT: VARIABLE (SEE BELOW)

ALL MEASUREMENTS AND WEIGHTS ARE NOMINAL.

EACH MAT IS EQUIPPED WITH A UP ON TWO SIDES THAT CREATE AN OVERLAPPING JOINT WITH AN ADJOINING MAT. EACH SIDE OF ADJOINING MATS IS SECURED INTO 12 SLOTS (INTO WHICH LOOPING PINS ARE INSERTED AND ENGAGED IN ORDER TO FASTEN MULTIPLE MATS TOGETHER. WETLAND PROTECTION MATTING MUST BE INSTALLED AT RIGHT ANGLES AND JOINED TOGETHER WITH PINS WHEN USED FOR WETLAND PROTECTION.

THE USE OF INTERLOCKING COMPOSITE MATTING IS THE PREFERRED CHOICE FOR ACCESSING WETLANDS. ALL MATTING INSTALLATIONS MUST ADHERE TO AVOIDANCE AND MINIMIZATION PRINCIPLES TO CREATE THE LEAST POTENTIAL IMPACT OF THE PROTECTED RESOURCE WHILE SAFELY ACCOMPLISHING THE NECESSARY WORK. THE TYPE OF MATTING, QUANTITY, SIZE AND DESIGN MUST TAKE INTO CONSIDERATION THE WEIGHT, SIZE AND CONFIGURATION OF THE EQUIPMENT TO BE USED. THE INSTALLATION OF THE MATTING AND EQUIPMENT IS EXPECTED TO FOLLOW MANUFACTURER RECOMMENDATIONS (WHEN CONSIDERING GROUND LOADING PRESSURE/ WEIGHT), ONE MUST INCLUDE THE WEIGHT OF MATERIALS THAT THE EQUIPMENT WILL BE HANDLING SUCH AS PILES, STRUCTURES, LOADED CONCRETE TRUCKS, BUCKETS, CRANES AND OTHER APPARENT IMPACTS TO WEIGHT OR STRESSES. THIS GUIDANCE IS BASED UPON THE ENHANCED ABILITY TO OBTAIN PERMISSION FROM THE APPROPRIATE AGENCIES BY UTILIZING THIS TECHNOLOGY TO PERFORM WORK WITHIN ENVIRONMENTALLY SENSITIVE AREAS.

ALL CONSTRUCTION TRAFFIC AND WORK AREAS IN WETLANDS AND WETLAND BUFFERS TO USE COMPOSITE MATTING APPROVED COMPOSITE MATTING SUPPLIERS INCLUDE:

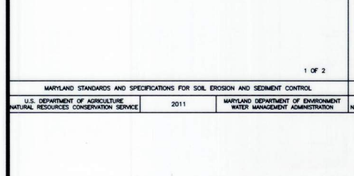
– DURA BASE	1000 LBS	COMPOSITE CAM LOCKING SYSTEM	48K HOLLOW REINFORCED CORE
– SURETRAK	800 LBS	ALUMINUM CAM LOCKING SYSTEM	1.3M SOLID
– RUGGED ROAD	1050 LBS	ALUMINUM CAM LOCKING SYSTEM	4.25M REINFORCED HOLLOW CORE
– MESA DECK	1050 LBS	ALUMINUM CAM LOCKING SYSTEM	4.25M REINFORCED HOLLOW CORE
– MESA DECK SLP	800 LBS	ALUMINUM CAM LOCKING SYSTEM	1.5M SOLID

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL F-4 FILTER BAG

STANDARD SYMBOL: FB



CONSTRUCTION SPECIFICATIONS

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

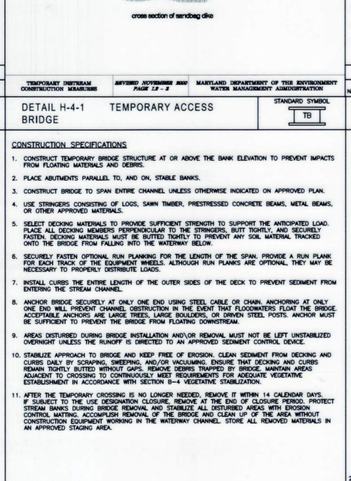
GRAB TENSILE	250 LB	ASTM D–4632
PUNCTURE	150 LB	ASTM D–4833
FLOW RATE	70 GAL/MIN/FT²	ASTM D–4491
PERMITTIVITY (SEC⁻¹)	1.2 SEC⁻¹	ASTM D–4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D–4355
APPARENT OPENING SIZE (AOS)	0.10–0.18 MM	ASTM D–4751
SEAM STRENGTH	90%	ASTM D–4632

6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

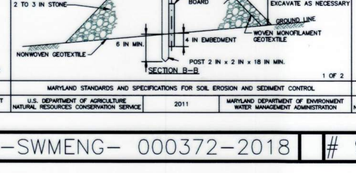
Maryland's Guidelines To Waterway Construction
DETAIL 1.2: PUMP–AROUND PRACTICE



TEMPORARY STREAMBANK CONSTRUCTION ROAD/MBR — REVISED NOVEMBER 2000 PAGE 1.2 – 2 — MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL F-2 SUMP PIT

STANDARD SYMBOL: SP



CONSTRUCTION SPECIFICATIONS

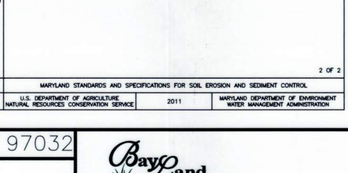
1. USE 12 INCH OR LARGER DIAMETER CORRUGATED METAL, HDPE, OR PVC PIPE WITH 1 INCH DIAMETER PERFORATIONS, 6 INCHES ON CENTER. BOTTOM OF PIPE MUST BE CAPPED WITH WATERTIGHT SEAL.
2. WRAP PIPE WITH ½ INCH GALVANIZED HARDWARE CLOTH AND WRAP NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS, OVER THE HARDWARE CLOTH.
3. EXCAVATE PIT TO THREE TIMES THE PIPE DIAMETER AND FOUR FEET IN DEPTH. PLACE ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
4. SET TOP OF PIPE MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
5. BACKFILL PIT AROUND THE PIPE WITH ¾ TO 1½ INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
6. DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
7. A SUMP PIT REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, REMOVE PERFORATED PIPE AND REPLACE GEOTEXTILE AND STONE. KEEP POINT OF DISCHARGE FREE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL C-8 MOUNTABLE BERM

STANDARD SYMBOL: MB



CONSTRUCTION SPECIFICATIONS

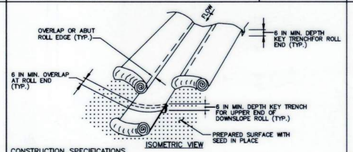
1. USE MINIMUM WIDTH OF 10 FEET TO ALLOW FOR VEHICULAR PASSAGE.
2. PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, OVER THE EARTH MOUND PRIOR TO PLACING STONE.
3. PLACE 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE MOUNTABLE BERM.
4. MAINTAIN LINE, GRADE, AND CROSS SECTION. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN SPECIFIED DIMENSIONS. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE.

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

STANDARD SYMBOL: TSSMC – * lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

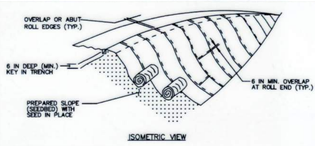
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN–MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE BIODEGRADABLE, 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.
3. 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 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 2 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 1 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.
4. 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.
5. 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 SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. 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 IN THE TRENCH.
7. 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 DOWNSTREAM MAT.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. 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 B-4-6-B TEMPORARY SOIL STABILIZATION MATTING SLOPE

STANDARD SYMBOL: TSSMS – * lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

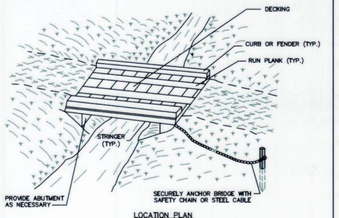
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN–MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE BIODEGRADABLE. 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.
3. 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 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 2 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 1 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.
4. 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 & SEDIMENT CONTROL PLAN.
5. UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
7. KEY IN THE UPSLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B–4 VEGETATIVE STABILIZATION.

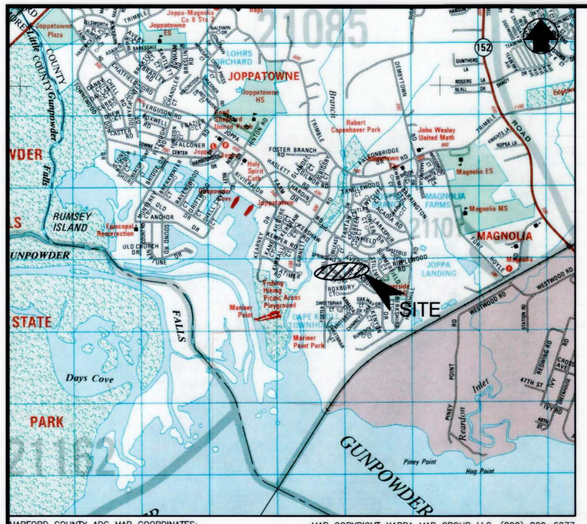
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL H-4-1 TEMPORARY ACCESS BRIDGE

STANDARD SYMBOL: TB


DECKING
CUR



HARFORD COUNTY ADC MAP COORDINATES:
MAP 28 GRID F-7, G-7

MAP COPYRIGHT KAPPA MAP GROUP LLC, (800) 829-6277
USED WITH PERMISSION, PERMITTED USE NUMBER 10222014

LOCATION MAP

SCALE: 1"=2000'

GENERAL NOTES

1. THE PURPOSE OF THIS LANDSCAPE & BUFFER MANAGEMENT PLAN IS AS FOLLOWS:
   A. TO REFOREST TO THE MAXIMUM EXTENT PRACTICABLE ALL DISTRUBED AREAS OUTSIDE OF THE CRITICAL AREA
   B. TO COMPLY WITH THE BUFFER MITIGATION REQUIREMENTS WITHIN THE CRITICAL AREA.
2. PROJECT AREA WITHIN THE CRITICAL AREA DESIGNATION IS INTENSE DEVELOPMENT AREA (IDA).
3. ACCESS TO THE SITE IS PROVIDED VIA STILLMEADOW DRIVE AND FOSTER KNOLL DRIVE.
4. ALL PLANT MATERIALS SHALL BE NURSERY GROWN AND SHALL CONFORM TO AMERICAN ASSOCIATION OF NURSERYMEN, INC. STANDARDS.
5. CONTRACTOR IS RESPONSIBLE TO VERIFY ALL UTILITY LOCATIONS PRIOR TO PLANTING MATERIAL. IF CONFLICTS ARISE, BAYLAND, INC. MUST BE NOTIFIED PRIOR TO ANY GROUND BREAKING.
6. PERMANENT SEEDING SHALL BE COMPLETED BETWEEN FEBRUARY 15 AND APRIL 30. SEEDING MAY OCCUR DURING OTHER TIMES OF THE YEAR BUT MAY REQUIRE SUPPLEMENTAL WATERING AND SEEDING TO INSURE ADEQUATE COVERAGE.
7. CONTAINER PLANTINGS WILL BE ACCOMPLISHED BETWEEN FEBRUARY 15 AND APRIL 30 (SPRING PLANTING SEASON) OR OCTOBER 1ST AND DECEMBER 15TH (FALL PLANTING SEASON).
8. TREES & SHRUBS PLANTING MAY BE CONTINUED DURING THE WINTER MONTHS PROVIDING THERE IS NO FROST IN THE GROUND AND FROST FREE TOPSOIL PLANTING MIXTURES ARE USED.
9. NO CONTAINER-GROWN MATERIAL SHALL BE PLANTED IF NOT ACCLIMATED TO THE CURRENT WEATHER CONDITIONS. CONTRACTOR IS RESPONSIBLE FOR GENERAL MAINTENANCE INCLUDING WATERING.
10. LIVE STAKES SHALL BE INSTALLED DURING A PERIOD OF DORMANCY.
11. ALL PLANTING MATERIAL AND PLANTING METHODS SHALL CONFORM TO CONSTRUCTION SPECIFICATIONS AND DETAILS.
12. DISTURBED AREAS WITHIN THE LIMITS OF DISTURBANCE SHALL BE STABILIZED PER THE DETAILS AND SPECIFICATIONS FOR VEGETATIVE ESTABLISHMENT (SHEET 39).

SEQUENCE OF IMPLEMENTATION

1. CONTRACTOR SHALL ARRANGE PRE-PLANTING MEETINGS WITH COUNTY PLANNING & ZONING DEPARTMENT STAFF AT LEAST 5 DAYS IN ADVANCE OF DISTURBANCES OF ANY LAND ON SITE.
2. INSTALL PLANTS IN ACCORDANCE WITH DETAILS AND SPECIFICATIONS.
3. MONITOR THE PLANTINGS OFTEN TO REDUCE PLANT STRESS SUCH AS WATER DEFICIENCY, NUTRIENT DEFICIENCY, INVASIVE SPECIES COMPETITION, PEST DAMAGE, AND DISEASE.
4. THE CONTRACTOR SHALL OBSERVE MINIMAL SITE PREPARATION/DISTRUBANCE, PROTECTION OF PLANTS AFTER DELIVERY UNTIL THEY ARE PLANTED, PROPER DIGGING AND HANDLING OF PLANT MATERIALS, PROPER EXCAVATION OF PLANTING AREAS, PLANTING OPERATIONS, STABILIZATION OF THE PLANTING AREAS WITH MULCH AFTER PLANTING, STAKING AND PRUNING, AND INSTALLATION OF BUFFER PROTECTION SIGNAGE.

MAINTENANCE PLAN

1. WATER ONLY AS NECESSARY BUT AT LEAST ONCE EVERY 10 DAYS WITHOUT RAINFALL FROM MAY THROUGH SEPTEMBER, DEPENDING ON SOIL MOISTURE LEVELS. MONITOR TO ENSURE THAT OVER-WATERING DOES NOT OCCUR.
2. USE LOW NITROGEN AND SLOW RELEASE FERTILIZERS AND APPLY IN LATE FALL OR EARLY SPRING.
3. INSPECTIONS FOR SURVIVAL SHALL BE PERFORMED ANNUALLY AND PLANTS REPLACED AS NEEDED IN THE NEXT APPROPRIATE PLANTING SEASON. THE GOAL IS THAT AT THE END OF THE 2-YEAR OR 5-YEAR PERIOD, THE SURVIVAL REQUIREMENTS CAN BE MET. IF THE COUNTY DETERMINES THAT SURVIVAL IS NOT ADEQUATE, THE MONITORING PERIOD MAY BE EXTENDED AND ADDITIONAL INSPECTIONS MAY BE REQUIRED AT THE DISCRETION OF THE COUNTY.

LONG TERM PROTECTION PLAN

1. THE PLANTINGS WILL BE PLANTED AND A BOND WILL BE POSTED COVERING THE COST OF SURVIVAL GUARANTEE PRIOR TO STARTING CONSTRUCTION.
2. AT THE END OF THE 2-YEAR MONITORING PERIOD FOR PLANTED LANDSCAPE STOCK, 100% OF THE PLANTS ARE REQUIRED TO SURVIVE PER COMAR 27.01.09.01-2J. ANY LANDSCAPE STOCK PLANT OR PLANTS THAT DID NOT SURVIVE SHALL BE REPLACED.

BUFFER MANAGEMENT & PROTECTION STANDARDS

1. REMOVAL OF VEGETATION WITHIN THE BUFFER IS PROHIBITED. CUTTING AND CLEARING OF NATURAL VEGETATION WITHIN THE BUFFER SHALL BE AS SHOWN ON THIS BUFFER MANAGEMENT PLAN AS SUBMITTED AND/OR AS SUBSEQUENTLY AMENDED AND APPROVED BY THE COUNTY PLANNING AND ZONING OFFICE. ADDITIONAL INFORMATION CAN BE OBTAINED BY CONTACTING THE HARFORD COUNTY DEPARTMENT OF PLANNING AND ZONING OFFICE AT 220 SOUTH MAIN STREET, BEL AIR MARYLAND 21014.
2. THE 100-FOOT BUFFER FOR THE PROPOSED DESIGN SHALL BE ESTABLISHED IN ACCORDANCE WITH THIS PLAN. ALL EXISTING AND PLANTED VEGETATION WITHIN THE BUFFER SHALL BE MAINTAINED AND SURVIVAL OF PLANTED AND NATURALLY REGENERATED AREAS OF THE BUFFER SHALL BE AS DESCRIBED IN THIS PLAN.

BUFFER MANAGEMENT PLAN APPROVAL

THIS MAJOR BUFFER MANAGEMENT PLAN HAS BEEN REVIEWED AND APPROVED FOR CONSISTENCY WITH THE LOCAL CRITICAL AREA PROGRAM AND PROVISIONS OF COMAR 27.01.09.01-1-7

STAFF NAME _____ STAFF TITLE _____ DATE _____

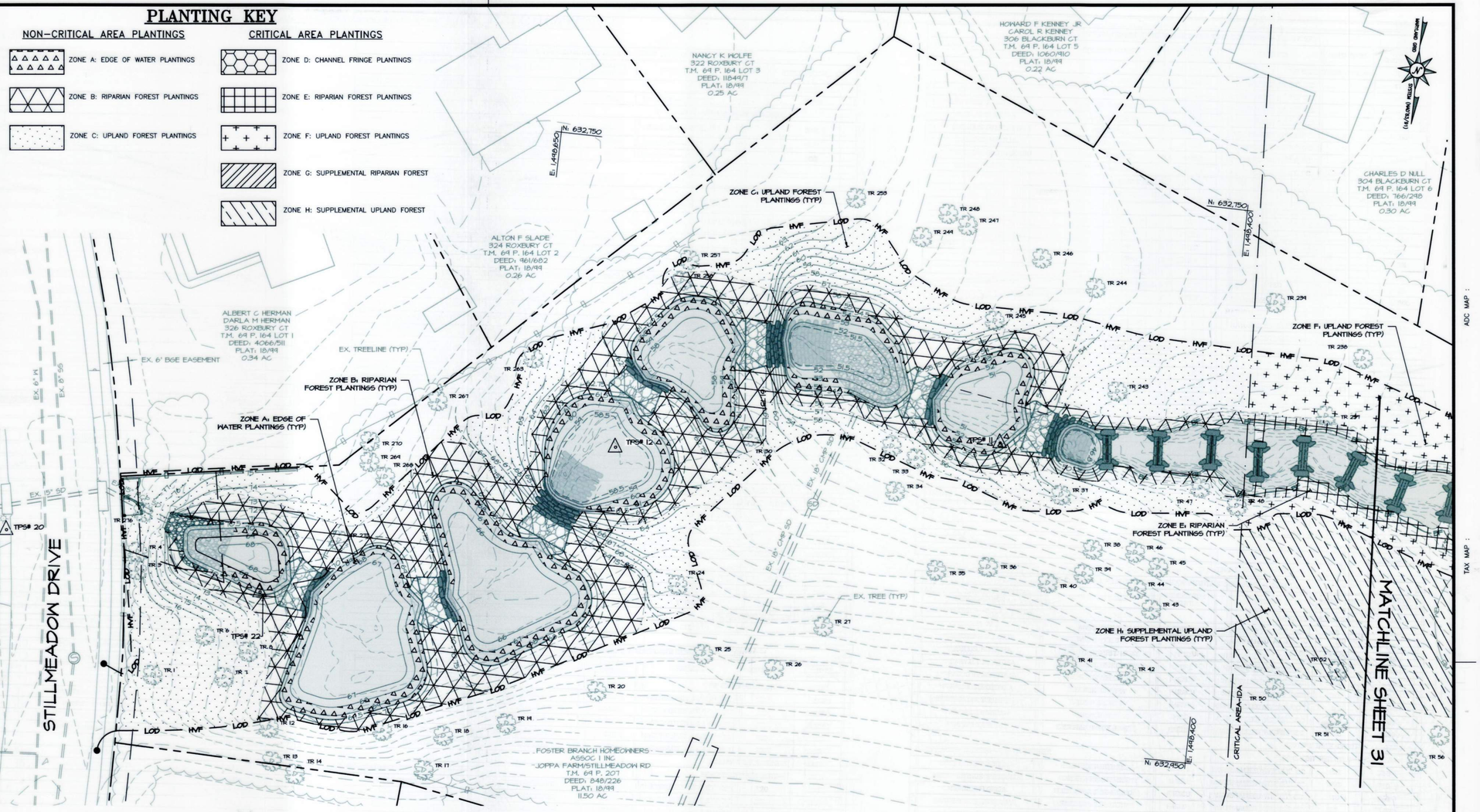
PLANTING KEY

NON-CRITICAL AREA PLANTINGS

- ZONE A: EDGE OF WATER PLANTINGS
- ZONE B: RIPARIAN FOREST PLANTINGS
- ZONE C: UPLAND FOREST PLANTINGS

CRITICAL AREA PLANTINGS

- ZONE D: CHANNEL FRINGE PLANTINGS
- ZONE E: RIPARIAN FOREST PLANTINGS
- ZONE F: UPLAND FOREST PLANTINGS
- ZONE G: SUPPLEMENTAL RIPARIAN FOREST
- ZONE H: SUPPLEMENTAL UPLAND FOREST



ZONE B: RIPARIAN FOREST PLANTING SCHEDULE - 9,272 SF

BOTANICAL NAME/ TECHNICAL DESCRIPTION	COMMON NAME	INDICATOR STATUS	SIZE	TYPE	SPACING	QUANTITY
OVERSTORY TREES						
BETULA NIGRA	RIVER BIRCH	FACW	4-5 FT	CONTAINER	NATURALIZED AT 12' OC	5
QUERCUS PALUSTRIS	PIN OAK	FACW	4-5 FT	CONTAINER	NATURALIZED AT 12' OC	5
QUERCUS PHELLOS	WILLOW OAK	FACW	4-5 FT	CONTAINER	NATURALIZED AT 12' OC	5
QUERCUS BICOLOR	SWAMP WHITE OAK	FACW	4-5 FT	CONTAINER	NATURALIZED AT 12' OC	5
LIQUIDAMBAR STYRACIFLUA	SWEETGUM	FAC	4-5 FT	CONTAINER	NATURALIZED AT 12' OC	6
PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	FACW	4-5 FT	CONTAINER	NATURALIZED AT 12' OC	7
ULMUS AMERICANA	AMERICAN ELM	FAC	4-5 FT	CONTAINER	NATURALIZED AT 12' OC	4
NYSSA SYLVATICA	BLACK GUM	FAC	4-5 FT	CONTAINER	NATURALIZED AT 12' OC	5
UNDERSTORY TREES						
ASIMINA TRILOBA	PAW PAW	FAC	3-4 FT	CONTAINER	NATURALIZED AT 10' OC	5
CARPINUS CAROLINIANA	IRONWOOD	FAC	3-4 FT	CONTAINER	NATURALIZED AT 10' OC	5
MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	FACW	3-4 FT	CONTAINER	NATURALIZED AT 10' OC	5
AMELANCHIER CANADENSIS	SERVICEBERRY	FAC	3-4 FT	CONTAINER	NATURALIZED AT 10' OC	5
SHRUBS						
CLETHRA ALNIFOLIA	COASTAL SWEETPEPPERBUSH	FACW	3-4 FT	CONTAINER	NATURALIZED AT 8' OC	6
ILEX VERTICILATTA	WINTERBERRY	FACW	3-4 FT	CONTAINER	NATURALIZED AT 8' OC	6
VACCINIUM CORYMBOSUM	HIGHBUSH BLUEBERRY	FACW	3-4 FT	CONTAINER	NATURALIZED AT 8' OC	6
LINDERA BENZOIN	SPICEBUSH	FACW	3-4 FT	CONTAINER	NATURALIZED AT 8' OC	6
SEEDING						
NATIVE SEED MIX (ERNMX 154 OR EQUIVALENT)	NATIVE FLOODPLAIN SEED MIX	N/A	N/A	SEED	N/A	4.5 LB
COVER/NURSE CROP, SEE TABLE FOR RATE & DATES		N/A	N/A	SEED	N/A	

PLANTING PLAN

SCALE: 1" = 20'

0 10 20 40

1 INCH = 20 FEET

NOTE: ALL DISTURBED AREAS AND PLANTING ZONES SHALL BE STABILIZED PER PERMANENT STABILIZATION SPECIFICATIONS ON SHEET 28.

SEE THIS SHEET AND SHEETS 32 - 33 FOR PLANTING SCHEDULES

ZONE A: EDGE OF WATER PLANTING SCHEDULE - 3,064 SF

BOTANICAL NAME/ TECHNICAL DESCRIPTION	COMMON NAME	INDICATOR STATUS	SIZE	TYPE	SPACING	QUANTITY
OVERSTORY TREES						
CHAMAECYPARIS THYOIDES	ATLANTIC WHITE CEDAR	OBL	4-5 FT	CONTAINER	RANDOM - 12' OC	5
SALIX NIGRA	BLACK WILLOW	OBL	4-5 FT	CONTAINER	RANDOM - 12' OC	5
TAXODIUM DISTICHUM	BALD CYPRESS	OBL	4-5 FT	CONTAINER	RANDOM - 12' OC	5
SHRUBS						
CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH	OBL	2-3 FT	CONTAINER	RANDOM - 8' OC	10
ITEA VIRGINICA	VIRGINIA SWEETSPIRE	OBL	2-3 FT	CONTAINER	RANDOM - 8' OC	10
HERBACEOUS						
ASCLEPIAS INCARNATA	SWAMP MILKWEED	OBL	QUART	CONTAINER	RANDOM - 3' OC	10
ONOCLEA SENSIBILIS	SENSITIVE FERN	FACW	QUART	CONTAINER	RANDOM - 3' OC	10
IRIS VERSICOLOR	BLUE FLAG	OBL	PLUG	CONTAINER/TRAY	RANDOM - 18" OC	50
HIBISCUS MOSCHEUTOS	ROSE MALLOW	OBL	PLUG	CONTAINER/TRAY	RANDOM - 18" OC	50
JUNCUS EFFUSUS	SOFT RUSH	OBL	PLUG	CONTAINER/TRAY	RANDOM - 18" OC	50
SAURURUS CERNUUS	LIZARD'S TAIL	OBL	PLUG	CONTAINER/TRAY	RANDOM - 18" OC	50
VERNONIA NOVEBORACENSIS	NEW YORK IRONWEED	FACW	PLUG	CONTAINER/TRAY	RANDOM - 18" OC	50

EG-SWMENG- 000372-2018 | # 97032

191472

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

Bayland Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

S/C 191492

7/22/19

REVISIONS

HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
LANDSCAPE & BUFFER MANAGEMENT PLAN

DRAWN BY: JT/EM	CONTRACT NO : 16-153
DESIGNED BY: MKB/JT	SCALE : 1" = 20'
REVIEWED BY: MKB	SHEET 30 OF 35
	DATE : 07/22/19

ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.: 191619

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMSR_PLNT01.dwg

BLACKBURN COURT

SPRINGDALE COURT

DONNA K HELKER
301 BLACKBURN CT
T.M. 69 P. 164 LOT 9
DEED: 2127/840
PLAT: 18/99
0.29 AC

DALE M YOUNG
CAROLYN A YOUNG
300 BLACKBURN CT
T.M. 69 P. 164 LOT 8
DEED: 4418/260
PLAT: 18/99
0.28 AC

CORNELIS R WOLFF
TOOS F WOLFF TRUSTEES
302 BLACKBURN CT
T.M. 69 P. 164 LOT 7
DEED: 3436/679
PLAT: 18/99
0.22 AC

CHARLES A JR WEIRAUCH
JANICE I WEIRAUCH
308 ROSECREST CT
T.M. 69 P. 222 LOT 7
DEED: 4932/285
PLAT: 30/100
0.23 AC

BRIAN J MYBORSKI
306 ROSECREST CT
T.M. 69 P. 222 LOT 6
DEED: 4275/450
PLAT: 30/100
0.23 AC

DEANA M HOUSER
304 ROSECREST CT
T.M. 69 P. 222 LOT 5
DEED: 6384/449
PLAT: 30/100
0.20 AC

SHARON FERRARA
302 ROSECREST CT
T.M. 69 P. 222 LOT 4
DEED: 4944/171
PLAT: 30/100
0.19 AC

STEVEN DWAYNE GREER
JUDIE SUE GREER
309 FOSTER KNOLL DR
T.M. 69 P. 211 LOT 2
DEED: 8662/217
PLAT: 23/94
0.20 AC

STEWART S NASH
E S FOSTER KNOLL DRIVE
T.M. 69 P. 217
DEED: 1535/566
PLAT: 23/94
1.53 AC

WILLIAM R WEBSTER
NF WEBSTER
305 FOSTER KNOLL DR
T.M. 69 P. 211 LOT 1
DEED: 878/415
PLAT: 23/94
0.24 AC

FOSTER BRANCH HOMEOWNERS ASSOC I INC
T.M. JOPPA FARMS/STILLMEADOW RD
T.M. 69 P. 207
DEED: 846/226
PLAT: 18/99
11.50 AC

ALYSE GALLOWAY
UNA GALLOWAY
315 SPRINGDALE CT
T.M. 69 P. 151 LOT 23
DEED: 12786/453
PLAT: 17/97
0.24 AC

EUGENE KENNETH PRIEBE
AND WIFE
313 SPRINGDALE CT
T.M. 69 P. 151 LOT 24
DEED: 900/51
PLAT: 17/97
0.23 AC

SARA GARRINGTON
311 SPRINGDALE CT
T.M. 69 P. 151 LOT 25
DEED: 8568/226
PLAT: 17/97
0.21 AC

GARY M BROWNING
JACQUELINE D BROWNING
309 SPRINGDALE CT
T.M. 69 P. 151 LOT 26
DEED: 1586/248
PLAT: 17/97
0.20 AC

MICHAEL J KING
MARGARET R KING
314 SPRINGDALE CT
T.M. 69 P. 151 LOT 22
DEED: 1563/753
PLAT: 17/97
0.24 AC

MICHAEL JAMES EBERT
SHEILA MICHELLE EBERT
307 SPRINGDALE CT
T.M. 69 P. 151 LOT 27
DEED: 10585/165
PLAT: 17/97
0.20 AC

ADAM D HEAVNER
305 SPRINGDALE CT
T.M. 69 P. 151 LOT 28
DEED: 8854/451
PLAT: 17/97
0.25 AC

EX. 10' DRAINAGE EASEMENT
EX. WETLANDS (TYP)
EX. 25' WETLAND BUFFER (TYP)
EX. DRAINAGE & UTILITY EASEMENT
EX. 20' DRAINAGE EASEMENT
EX. TREELINE (TYP)
EX. TREE (TYP)
EX. 8" SS
EX. 4" W
EX. 27" RCP SD
EX. 6" SS
EX. 4" W

N: 632,725
E: 1,247,800
N: 633,050
E: 1,247,620

ZONE D: CHANNEL FRINGE PLANTINGS (TYP)
ZONE F: UPLAND FOREST PLANTINGS (TYP)
ZONE E: RIPARIAN FOREST PLANTINGS (TYP)
ZONE H: SUPPLEMENTAL UPLAND FOREST PLANTINGS (TYP)
ZONE G: SUPPLEMENTAL RIPARIAN FOREST PLANTINGS (TYP)

TPS# 6
TPS# 7
TPS# 8
TPS# 9

LOD
HWF

MATCHLINE SHEET 30
MATCHLINE SHEET 32
CRITICAL AREA 10A

UPLAND AND STREAM PLANTINGS

ADC MAP :
TAX MAP :

PLANTING KEY

CRITICAL AREA PLANTINGS

- ZONE D: CHANNEL FRINGE PLANTINGS
- ZONE E: RIPARIAN FOREST PLANTINGS
- ZONE F: UPLAND FOREST PLANTINGS
- ZONE G: SUPPLEMENTAL RIPARIAN FOREST PLANTINGS
- ZONE H: SUPPLEMENTAL UPLAND FOREST PLANTINGS

SEE SHEET 33 FOR PLANTING SCHEDULE

PLANTING PLAN

SCALE: 1" = 20'

0 10 20 40
1 INCH = 20 FEET

S/C 19193

EG-SWMENG- 000372-2018 # 97032

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com

BAYLAND JOB NO. 4_3801

7/22/19

REVISIONS

HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
LANDSCAPE & BUFFER MANAGEMENT PLAN

DRAWN BY: JT/EM
DESIGNED BY: RP/JP
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : 1" = 20'
SHEET 31 OF 35
DATE : 07/22/19

HCG BILLING ID No.:
HCG DWG ID No.: 191620

SCALE 1 inch

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMSR_PLNT02.dwg

ZONE C : UPLAND FOREST PLANTING SCHEDULE – 11,877 SF						
BOTANICAL NAME/ TECHNICAL DESCRIPTION	COMMON NAME	INDICATOR STATUS	SIZE	TYPE	SPACING	QUANTITY
OVERSTORY TREES						
QUERCUS ALBA	WHITE OAK	FACU	4–5 FT	CONTAINER	NATURALIZED AT 12' OC	7
QUERCUS RUBRA	NORTHERN RED OAK	FACU	4–5 FT	CONTAINER	NATURALIZED AT 12' OC	7
CARYA TOMENTOSA	MOCKERNUT HICKORY	UPL	4–5 FT	CONTAINER	NATURALIZED AT 12' OC	7
FAGUS GRANDIFOLIA	AMERICAN BEECH	FACU	4–5 FT	CONTAINER	NATURALIZED AT 12' OC	7
PRUNUS SEROTINA	BLACK CHERRY	FACU	4–5 FT	CONTAINER	NATURALIZED AT 12' OC	4
LIRIODENDRON TULIPIFERA	TULIP POPLAR	FACU	4–5 FT	CONTAINER	NATURALIZED AT 12' OC	4
NYSSA SYLVATICA	BLACK GUM	FAC	4–5 FT	CONTAINER	NATURALIZED AT 12' OC	4
PINUS STROBUS	EASTERN WHITE PINE	FACU	4–5 FT	CONTAINER	NATURALIZED AT 12' OC	6
UNDERSTORY TREES						
CERCIS CANADENSIS	EASTERN REDBUD	UPL	3–4 FT	CONTAINER	NATURALIZED AT 10' OC	10
CHIONANTHUS VIRGINICUS	WHITE FRINGETREE	UPL	3–4 FT	CONTAINER	NATURALIZED AT 10' OC	8
ILEX OPACA	AMERICAN HOLLY	FAC	3–4 FT	CONTAINER	NATURALIZED AT 10' OC	5
JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	FACU	3–4 FT	CONTAINER	NATURALIZED AT 10' OC	5
CORNUS FLORIDA	FLOWERING DOGWOOD	FACU	3–4 FT	CONTAINER	NATURALIZED AT 10' OC	7
SHRUBS						
VACCINIUM ANGUSTIFOLIUM	LOWBUSH BLUEBERRY	FACU	1–2 FT	CONTAINER	NATURALIZED AT 6' OC	11
ILEX GLABRA	INKBERRY	FACW	3–4 FT	CONTAINER	NATURALIZED AT 8' OC	11
KALMIA LATIFOLIA	MOUNTAIN LAUREL	FACU	3–4 FT	CONTAINER	NATURALIZED AT 8' OC	15
SEEDING						
NATIVE SEED MIX (ERNMX 140 OR EQUIVALENT)	NATIVE UPLAND SEED MIX	N/A	N/A	SEED	N/A	4.5 LB
COVER/NURSE CROP, SEE TABLE FOR RATE & DATES		N/A	N/A	SEED	N/A	

PLANTING KEY

CRITICAL AREA PLANTINGS

- ZONE D: CHANNEL FRINGE PLANTINGS
- ZONE E: RIPARIAN FOREST PLANTINGS
- ZONE F: UPLAND FOREST PLANTINGS
- ZONE G: SUPPLEMENTAL RIPARIAN FOREST PLANTINGS
- ZONE H: SUPPLEMENTAL UPLAND FOREST PLANTINGS

SEE SHEET 33 FOR PLANTING SCHEDULE

PLANTING PLAN

SCALE: 1" = 20'

0 10 20 40

1 INCH = 20 FEET

S/C 191494

EG-SWMENG- 000372-2018 | # 97032

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

7/22/19

REVISIONS

HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
LANDSCAPE & BUFFER MANAGEMENT PLAN

DRAWN BY: JT/EM
DESIGNED BY: JP
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : 1" = 20'
SHEET 32 OF 35
DATE : 07/22/19

HCG DWG ID No.: 191621
HCG BILLING ID No.:
ADC MAP :
TAX MAP :

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMSR_PLNT03.dwg

BUFFER MANAGEMENT PLAN CALCULATIONS

STEP 1: ESTABLISHMENT OR MITIGATION

DISTURBANCE TO THE 100–FOOT AND/OR EXPANDED BUFFER? (YES / NO) [YES circled]
IF YES, MITIGATION IS REQUIRED, PROCEED TO STEP 2. OTHERWISE, SKIP TO STEP 5.

SELECT	ACTIVITY	ACTION
	PROJECT COMPLETELY OUTSIDE BUFFER, NO BUFFER IMPACTS	ESTABLISHMENT
X	DISTURBANCE TO BUFFER OR VEGETATION REMOVAL IN BUFFER	MITIGATION
	SOME DISTURBANCE IN BUFFER AND SOME OUTSIDE BUFFER	ESTABLISHMENT & MITIGATION

STEP 2, 3 & 4: DETERMINING MITIGATION FOR WORK IN THE BUFFER

SELECT	ACTIVITY	MITIGATION RATIO
X	SHORE EROSION CONTROL*	1:1
	RIPARIAN WATER ACCESS (TEMPORARY DISTURBANCE)	1:1
	RIPARIAN WATER ACCESS (PERMANENT DISTURBANCE)	2:1
	WATER–DEPENDENT FACILITIES	2:1
	VARIANCE	3:1
	VIOLATION	4:1

*RESTORATION ACTIVITY PROPOSED TO REDUCE EROSION THOUGH CONTROLLED CONVEYANCE AND TREATMENT OF STORMWATER RUNOFF.

MITIGATION CALCULATIONS	
DISTURBANCE AREA	**AREA, SF**
TOTAL DISTURBANCE IN THE BUFFER	51,933
SHORE EROSION CONTROL DISTURBANCE RATIOS	
PERMANENT (1:1)	0
TEMPORARY (1:1)	51,933
TOTAL MITIGATION REQUIRED FOR DISTURBANCE	51,933
TREE REMOVAL MITIGATION (BASED ON CANOPY REDUCTION)*	
19.3" DBH TREE (TR49)	607
19.3" DBH TREE (TR53)	569
13.1" DBH TREE (TR54)	955
16.7" DBH TREE (TR72)	380
18.5" DBH TREE (TR73)	52
13.2" DBH TREE (TR74)	99
27.7" DBH TREE (TR80)	1590
18.7" DBH TREE (TR85)	65
24.2" DBH TREE (TR87)	986
26.3" DBH TREE (TR96)	0
13.4" DBH TREE (TR148)	66
13.2" DBH TREE (TR161)	802
13.6" DBH TREE (TR192)	177
14.9" DBH TREE (TR193)	32
16.6" DBH TREE (TR210)	94
12.2" DBH TREE (TR211)	0
13.0" DBH TREE (TR234)	56
13.0" DBH TREE (TR236)	199
18.7" DBH TREE (TR240)	44
15.4" DBH TREE (TR241)	158
13.9" DBH TREE (TR242)	26
TOTAL MITIGATION REQUIRED FOR TREE REMOVAL	6,957
TOTAL MITIGATION REQUIRED	
TOTAL MITIGATION REQUIRED FOR DISTURBANCE	51,933
TOTAL MITIGATION REQUIRED FOR TREE REMOVAL	6,957
TOTAL MITIGATION REQUIRED	58,890

*MITIGATION REQUIREMENTS FOR TREE REMOVAL HAVE BEEN ADJUSTED TO REFLECT THE REDUCTION OF FOREST CANOPY CREATED DUE TO THE TREE REMOVAL.

STEP 5: ESTABLISHMENT FOR DEVELOPMENT

ESTABLISHMENT REQUIRED? (YES / NO) ** [YES circled]

YEAR LOT CREATED: N/A

SELECT	DEVELOPMENT CATEGORY	BEFORE PROGRAM DATE	BEFORE PROGRAM DATE
N/A	NEW DEVELOPMENT ON VACANT LOT	TOTAL LOT COVERAGE	FULL ESTABLISHMENT
N/A	NEW SUBDIVISION OR NEW LOT	FULL ESTABLISHMENT	
N/A	NEW LOT WITH EXISTING DWELLING UNIT	ESTABLISHMENT = TOTAL LOT COVERAGE	
N/A	CONVERSION OF LAND USE TO ANOTHER LAND USE	FULL ESTABLISHMENT	
N/A	ADDITION OR ACCESSORY STRUCTURE	ESTABLISHMENT = INCREASE IN LOT COVERAGE	
N/A	SUBSTANTIAL ALTERATION	ESTABLISHMENT = TOTAL LOT COVERAGE	

STEP 6: ADJUST FOR EXISTING FOREST COVER

FULL ESTABLISHMENT OF BUFFER REQUIRED? (YES/NO) [NO circled]

STEP 7: ELIGIBILITY FOR NATURAL REGENERATION

IF THE PROJECT REQUIRES BUFFER ESTABLISHMENT GREATER THAN ONE ACRE, THEN 50% OF THE AREA REQUIRED CAN BE ESTABLISHED THROUGH NATURAL REGENERATION, AS LONG AS IT IS WITHIN 50 FEET OF MATURE FOREST, AND A SUPPLEMENTAL PLANTING PLAN & FINANCIAL ASSURANCE ARE PROVIDED. IF ELIGIBLE, IDENTIFY THE NATURAL REGENERATION AREA ON THE PLAN AND REDUCE THE PLANTING REQUIREMENT BY THE NATURAL REGENERATION SQUARE FOOTAGE.

TOTAL AREA OF BUFFER REQUIRED TO BE ESTABLISHED (STEP 5 OR STEP 6)

NONE

TOTAL ESTABLISHMENT > 1 ACRE? (YES / NO)

NATURAL REGENERATION PERMITTED? (IF ESTABLISHMENT > 1 ACRE, YES. OTHERWISE, NO)

STEP 8: DETERMINE STOCKING

1. IDENTIFY AREAS OF NATURAL REGENERATION
2. USE TABLE BELOW TO EVALUATE THE AREA THAT MUST BE PLANTED USING LANDSCAPING STOCK AND AREA THAT MAY BE PLANTED USING FLEXIBLE STOCKING

SELECT	AMOUNT	OPTIONS
MITIGATION		
X	LESS THAN 1 ACRE	LANDSCAPING STOCK
	1 ACRE OR MORE	MIN. 50% LANDSCAPING STOCK, REMAINDER FLEXIBLE

MITIGATION REQUIREMENT:

STOCKING REQUIREMENT: LANDSCAPE STOCK: 100% X (ACRES) = (ACRES)
FLEXIBLE STOCK: 0% X (ACRES) = 0.0 (ACRES)

STEP 9: CLUSTER PLANTING EVALUATION

SEE STEP 10 FOR PLANTING

STEP 10: LANDSCAPE SCHEDULE: SPECIES, STOCK, SIZE, AND QUANTITY

BUFFER PLANTING AREA SCHEDULE

NATIVE FLOODPLAIN SEED MIX COMPOSITION		
% COMPOSITION	BOTANICAL NAME	COMMON NAME
20.60%	PANICUM CLANDESTINUM	DEERTONGUE
20.00%	ELYMUS RIPARIUS	RIVERBANK WILDRYE
10.00%	ANDROPOGON GERARDII	BIG BLUESTEM
10.00%	CAREX LURIDA	LURID (SHALLOW) SEDGE
10.00%	CAREX VULPINOIDEA	FOX SEDGE
8.00%	CAREX SCOPARIA	BLUNT BROOM SEDGE
7.20%	PANICUM VIRGATUM	SWITCHGRASS
3.00%	JUNCUS EFFUSUS	SOFT RUSH
2.00%	HELIOPSIS HELIANTHOIDES	OXEYE SUNFLOWER
2.00%	VERBENA HASTATA	BLUE VERVAIN
1.00%	ASCLEPIAS INCARNATA	SWAMP MILKWEED
1.00%	ASTER PUNICEUS	PURPLESTEM ASTER
1.00%	DESMODIUM PANICULATUM	PANICLEDLEAF TICKREFOIL
1.00%	EUPARTORIUM PERFOLIATUM	BONESET
0.50%	ASTER NOVAE–ANGLIAE	NEW ENGLAND ASTER
0.50%	ASTER UMBELLATUS	FLAT TOPPED WHITE ASTER
0.50%	EUPATORIUM FISTULOSUM	JOE PYE WEED
0.50%	MONARDA FISTULOSA	WILD BERGAMOT
0.50%	VERNONIA NOVEBORACENSIS	NEW YORK IRONWEED
0.50%	ZIZIA AUREA	GOLDEN ALEXANDERS
0.10%	MIMULUS RINGENS	SQUARE STEMMED MONKEYFLOWER
0.10%	PYCNANTHEMUM TENUIFOLIUM	NARROWLEAF MOUNTAINMINT

NATIVE UPLAND SEED MIX COMPOSITION		
% COMPOSTION	BOTANICAL NAME	COMMON NAME
55.40%	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM
15.00%	ELYMUS VIRGINICUS	VIRGINIA WILDRYE
5.00%	ELYMUS HYSTRIX	BOTTLEBRUH GRASS
3.60%	ECHINACEA PURPUREA	PURPLE CONEFLOWER
3.50%	CHAMAECRISTA FASCICULATA	PARTRIDGE PEA
3.00%	PENSTEMON DIGITALIS	TALL WHITE BEARDTOUNGE
3.00%	RUDBECKIA HIRTA	BLACKEYED SUSAN
2.00%	HELIOPSIS HALIANTHOIDES	OXEYE SUNFLOWER
2.00%	LIATRIS SPICATA	MARSH (DENSE) BLAZING STAR
1.00%	ANEMONE VIRGINIANA	THIMBLEWEED
1.00%	ASTER PRENANTHOIDES	ZIGZAG ASTER
1.00%	PENSTEMON LAEVIGATUS	APPALACHIAN BEARDTONGUE
1.00%	RUDBECKIA FULGIDA VAR. FULGIDA	ORANGE CONEFLOWER
0.50%	JUNCUS TENUIS	PATH RUSH
0.50%	SOLIDAGO BICOLOR	WHITE (SILVER ROD) GOLDENROD
0.50%	ZIZIA AUREA	GOLDEN ALEXANDERS
0.40%	ASTER LOWRIEANUS	LOWRIES BLUE WOOD ASTER
0.40%	MONARDA FISTULOSA	WILD BERGAMOT
0.40%	PYCNANTHEMUM TENUIFOLIUM	NARROWLEAF MOUNTAINMINT
0.30%	SOLIDAGO JUNCEA	EARLY GOLDENROD
0.20%	BAPTISIA TINCTORIA	YELLOW FALSE INDIGO
0.20%	EUPATORIUM RUGOSUM	WHITE SNAKEROOT
0.10%	PENSTEMON HIRSUTUS	HAIRY BEARDTONGUE

COVER/NURSE CROP SEEDING TABLE			
SEEDING RATE	BOTANICAL NAME	COMMON NAME	SEEDING DATE
30 LB/AC	SECALE CEREAL	CEREAL RYE	11/1–2/28
30 LB/AC	AVENA SATIVA	GRAIN OATS	3/1–4/30
10 LB/AC	SETARIA ITALICA	FOXTAIL MILLET	5/1–8/31
10 LB/AC	LOLIUM MULTFLORUM	ANNUAL RYEGRASS	9/1–10/31

CRICICAL AREA MITIGATION SUMMARY

CATEGORY	AREA, SF
TOTAL MITIGATION REQUIRED	54,267
MITIGATION PROVIDED	
ZONE D	6,508
ZONE E	21,852
ZONE F	15,575
ZONE G	4,413
ZONE H	6,110
TOTAL MITIGATION PROVIDED	54,458

ZONE D: CHANNEL FRINGE CRITICAL AREA PLANTING SCHEDULE – 4,841 SF					
BOTANICAL NAME/ TECHNICAL DESCRIPTION	COMMON NAME	INDICATOR STATUS	SPACING	QUANTITY	CREDIT TOTAL, SF
SMALL SHRUBS –18" CONTAINERIZED				SF CREDIT PER UNIT =	25
VIBURNUM NUDUM	POSSUMHAW	OBL	RANDOM – 5' OC	100	2500
TUBELINGS		SF CREDIT BASED ON AREA COVERED			
CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH	OBL	RANDOM – 4' OC	50	800
QUERCUS BICOLOR	SWAMP WHITE OAK	FACW	RANDOM – 4' OC	100	1600
VIBURNUM DENTATUM	ARROWWOOD	FAC	RANDOM – 4' OC	50	800
LIVE STAKES		SF CREDIT BASED ON AREA COVERED			
CORNUS AMOMUM	SILKY DOGWOOD	FACW	12" OC	404	404
SALIX NIGRA	BLACK WILLOW	OBL	12" OC	404	404
SEEDING		SF CREDIT BASED ON AREA COVERED			
NATIVE SEED MIX (ERNMX 154 OR EQUIVALENT)	NATIVE FLOODPLAIN SEED MIX	N/A	N/A	1 LB	4,841
COVER/NURSE CROP, SEE TABLE FOR RATE & DATES		N/A	N/A	SEED	N/A
			TOTAL:	1108	6,508

ZONE G: SUPPLEMENTAL RIPARIAN FOREST CRITICAL AREA PLANTING SCHEDULE – 8,109 SF					
BOTANICAL NAME/ TECHNICAL DESCRIPTION	COMMON NAME	INDICATOR STATUS	SPACING	QUANTITY	CREDIT TOTAL, SF
CANOPY TREES – 3/4" CALIPER			SF CREDIT PER UNIT =		100
NYSSA SYLVATICA	BLACK GUM	FAC	NATURALIZED AT 10' OC	10	1000
QUERCUS BICOLOR	SWAMP WHITE OAK	FACW	NATURALIZED AT 10' OC	10	1000
QUERCUS PHELLOS	WILLOW OAK	FACW	NATURALIZED AT 10' OC	10	1000
			CANOPY TREE CREDIT		34.0%
UNDERSTORY TREES – 3/4" CALIPER			SF CREDIT PER UNIT =		75
ASIMINA TRILOBA	PAW PAW	FAC	NATURALIZED AT 8.5' OC	15	1125
CARPINUS CAROLIANA	IRONWOOD	FAC	NATURALIZED AT 8.5' OC	15	1125
MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	FACW	NATURALIZED AT 8.5' OC	15	1125
			UNDERSTORY TREE CREDIT		38.2%
LARGE SHRUBS – 36" CONTAINERIZED					50
ILEX VERTICILATTA	WINTERBERRY	FACW	NATURALIZED AT 7' OC	10	500
VACCINIUM CORYMBOSUM	HIGHBUSH BLUEBERRY	FACW	NATURALIZED AT 7' OC	10	500
VIBURNUM DENTATUM	SOUTHERN ARROWWOOD	FAC	NATURALIZED AT 7' OC	10	500
			LARGE SHRUB TREE CREDIT		17.0%
SMALL SHRUBS –18" CONTAINERIZED			SF CREDIT PER UNIT =		25
CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH	OBL	NATURALIZED AT 5' OC	10	250
PHOTONIA MELANOCARPA	BLACK CHOKEBERRY	FAC	NATURALIZED AT 5' OC	10	250
ROSA PALUSTRIS	SWAMP ROSE	OBL	NATURALIZED AT 5' OC	10	250
			SMALL SHRUB TREE CREDIT		8.5%
HERBACEOUS					
QUARTS			SF CREDIT PER UNIT =		2
ONOCLEA SENSIBILIS	SENSITIVE FERN	FACW	1' O.C.	50	100
OSMUNDIA CINNAMOMEA	CINNAMON FERN	FACW	1' O.C.	50	100
			HERBACEOUS CREDIT		2.3%
			215		8,825

ZONE H: SUPPLEMENTAL UPLAND FOREST CRITICAL AREA PLANTING SCHEDULE – 22,107 SF					
BOTANICAL NAME/ TECHNICAL DESCRIPTION	COMMON NAME	INDICATOR STATUS	SPACING	QUANTITY	CREDIT TOTAL, SF
CANOPY TREES – 3/4" CALIPER			SF CREDIT PER UNIT =		100
QUERCUS ALBA	WHITE OAK	FACU	NATURALIZED AT 10' OC	20	2000
QUERCUS FALCATA	SOUTHERN RED OAK	FACU	NATURALIZED AT 10' OC	20	2000
QUERCUS RUBRA	NORTHERN RED OAK	FACU	NATURALIZED AT 10' OC	20	2000
FAGUS GRANDIFOLIA	AMERICAN BEECH	FACU	NATURALIZED AT 10' OC	20	2000
NYSSA SYLVATICA	BLACK GUM	FAC	NATURALIZED AT 10' OC	20	2000
			CANOPY TREE CREDIT		41.6%
UNDERSTORY TREES – 3/4" CALIPER			SF CREDIT PER UNIT =		75
CERCIS CANADENSIS	EASTERN REDBUD	UPL	NATURALIZED AT 8.5' OC	20	1500
CHIONANTHUS VIRGINICUS	WHITE FRINGETREE	UPL	NATURALIZED AT 8.5' OC	20	1500
CORNUS FLORIDA	FLOWERING DOGWOOD	FACU	NATURALIZED AT 8.5' OC	20	1500
			UNDERSTORY TREE CREDIT		18.7%
LARGE SHRUBS – 36" CONTAINERIZED					50
HAMAMELIS VIRGINIANA	WITCH HAZEL	FACW	NATURALIZED AT 7' OC	10	500
ILEX GLABRA	INKBERRY	FACU	NATURALIZED AT 7' OC	10	500
KALMIA LATIFOLIA	MOUNTAIN LAUREL	FACU	NATURALIZED AT 7' OC	10	500
MORELLA PENNSYLVANICA	NORTHERN BAYBERRY	FAC	NATURALIZED AT 7' OC	10	500
			LARGE SHRUB TREE CREDIT		8.3%
SMALL SHRUBS –18" CONTAINERIZED			SF CREDIT PER UNIT =		25
VACCINIUM ANGUSTIFOLIUM	LOWBUSH BLUEBERRY	FACU	NATURALIZED AT 5' OC	100	2500
VIBURNUM ACERIFOLIUM	MAPLE–LEAF VIBURNUM	FACU	NATURALIZED AT 5' OC	100	5000
			SMALL SHRUB TREE CREDIT		20.8%
HERBACEOUS					
QUARTS			SF CREDIT PER UNIT =		2
POLYSTICHUM ACROSTICHOIDES	CHRISTMAS FERN	FACU	1' O.C.	10	20
			HERBACEOUS CREDIT		0.1%
				300	24,020

ZONE E: RIPARIAN FOREST CRITICAL AREA PLANTING SCHEDULE – 18,867 SF					
BOTANICAL NAME/ TECHNICAL DESCRIPTION	COMMON NAME	INDICATOR STATUS	SPACING	QUANTITY	CREDIT TOTAL, SF
CANOPY TREES – 3/4" CALIPER			SF CREDIT PER UNIT =		100
BETULA NIGRA	RIVER BIRCH	FACW	NATURALIZED AT 10' OC	17	1700
NYSSA SYLVATICA	BLACK GUM	FAC	NATURALIZED AT 10' OC	20	2000
PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	FACW	NATURALIZED AT 10' OC	15	1500
QUERCUS BICOLOR	SWAMP WHITE OAK	FACW	NATURALIZED AT 10' OC	15	1500
QUERCUS PALUSTRIS	PIN OAK	FACW	NATURALIZED AT 10' OC	15	1500
QUERCUS PHELLOS	WILLOW OAK	FACW	NATURALIZED AT 10' OC	15	1500
TAXODIUM DISTUCHUM	BALD CYPRESS	OBL	NATURALIZED AT 10' OC	12	1200
ULMUS AMERICANA	AMERICAN ELM	FAC	NATURALIZED AT 10' OC	12	1200
CANOPY TREE CREDIT					55.4%
UNDERSTORY TREES – 3/4" CALIPER			SF CREDIT PER UNIT =		75
ASIMINA TRILOBA	PAW PAW	FAC	NATURALIZED AT 8.5' OC	14	1050
CARPINUS CAROLIANA	IRONWOOD	FAC	NATURALIZED AT 8.5' OC	14	1050
MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	FACW	NATURALIZED AT 8.5' OC	14	1050
AMELANCHIER CANADENSIS	SERVICEBERRY	FAC	NATURALIZED AT 8.5' OC	14	1050
UNDERSTORY TREE CREDIT					19.2%
LARGE SHRUBS – 36" CONTAINERIZED					50
CLETHRA ALNIFOLIA	COASTAL SWEETPEPPERBUSH	FACW	NATURALIZED AT 7' OC	10	500
ILEX VERTICILATTA	WINTERBERRY	FACW	NATURALIZED AT 7' OC	12	600
LINDERA BENZOIN	SPICEBUSH	FACW	NATURALIZED AT 7' OC	10	500
VACCINIUM CORYMBOSUM	HIGHBUSH BLUEBERRY	FACW	NATURALIZED AT 7' OC	10	500
VIBURNUM DENTATUM	SOUTHERN ARROWWOOD	FAC	NATURALIZED AT 7' OC	12	600
LARGE SHRUB TREE CREDIT					12.4%
SMALL SHRUBS –18" CONTAINERIZED			SF CREDIT PER UNIT =		25
CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH	OBL	NATURALIZED AT 5' OC	12	300
PHOTONIA MELANOCARPA	BLACK CHOKEBERRY	FAC	NATURALIZED AT 5' OC	12	300
ROSA PALUSTRIS	SWAMP ROSE	OBL	NATURALIZED AT 5' OC	10	250
SMALL SHRUB TREE CREDIT					3.9%
HERBACEOUS					
QUARTS			SF CREDIT PER UNIT =		2
ONOCLEA SENSIBILIS	SENSITIVE FERN	FACW	1' O.C.	20	42
OSMUNDIA CINNAMOMEA	CINNAMON FERN	FACW	1' O.C.	20	42
RUDBECKIA LACINATA	CUTLEAF CONEFLOWER	FACW	1' O.C.	18	38
SEEDING	SF CREDIT BASED ON AREA COVERED				
NATIVE SEED MIX ERNMX 154 OR EQUIVALENT)	NATIVE FLOODPLAIN SEED MIX	N/A	N/A	9.0 LB	1880
		N/A	N/A		0
HERBACEOUS CREDIT					9.2%
			299		21,852

ZONE F: UPLAND FOREST CRITICAL AREA PLANTING SCHEDULE – 13,113 SF					
BOTANICAL NAME/ TECHNICAL DESCRIPTION	COMMON NAME	INDICATOR STATUS	SPACING	QUANTITY	CREDIT TOTAL, SF
CANOPY TREES – 3/4" CALIPER			SF CREDIT PER UNIT =		100
QUERCUS ALBA	WHITE OAK	FACU	NATURALIZED AT 10' OC	10	1000
QUERCUS FALCATA	SOUTHERN RED OAK	FACU	NATURALIZED AT 10' OC	10	1000
QUERCUS RUBRA	NORTHERN RED OAK	FACU	NATURALIZED AT 10' OC	10	1000
CARYA TOMENTOSA	MOCKERNUT HICKORY	UPL	NATURALIZED AT 10' OC	10	1000
FAGUS GRANDIFOLIA	AMERICAN BEECH	FACU	NATURALIZED AT 10' OC	6	600
PRUNUS SEROTINA	BLACK CHERRY	FACU	NATURALIZED AT 10' OC	5	500
LIRIODENDRON TULIPIFERA	TULIP POPLAR	FACU	NATURALIZED AT 10' OC	5	500
NYSSA SYLVATICA	BLACK GUM	FAC	NATURALIZED AT 10' OC	8	800
PINUS STROBUS	EASTERN WHITE PINE	FACU	NATURALIZED AT 10' OC	8	800
			CANOPY TREE CREDIT		46.2%
UNDERSTORY TREES – 3/4" CALIPER			SF CREDIT PER UNIT =		75
CERCIS CANADENSIS	EASTERN REDBUD	UPL	NATURALIZED AT 8.5' OC	10	750
CHIONANTHUS VIRGINICUS	WHITE FRINGETREE	UPL	NATURALIZED AT 8.5' OC	10	750
CORNUS FLORIDA	FLOWERING DOGWOOD	FACU	NATURALIZED AT 8.5' OC	10	750
JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	FACU	NATURALIZED AT 8.5' OC	5	375
ILEX OPACA	AMERICAN HOLLY	FAC	NATURALIZED AT 8.5' OC	10	750
OSTRYA VIRGINIANA	EASTERN HOPHORNBEAM	FACU	NATURALIZED AT 8.5' OC	10	750
			UNDERSTORY TREE CREDIT		26.5%
LARGE SHRUBS – 36" CONTAINERIZED					50
HAMAMELIS VIRGINIANA	WITCH HAZEL	FACW	NATURALIZED AT 7' OC	12	600
ILEX GLABRA	INKBERRY	FACW	NATURALIZED AT 7' OC	12	600
KALMIA LATIFOLIA	MOUNTAIN LAUREL	FACU	NATURALIZED AT 7' OC	12	600
MORELLA PENNSYLVANICA	NORTHERN BAYBERRY	FAC	NATURALIZED AT 7' OC	12	600
			LARGE SHRUB TREE CREDIT		15.4%
SMALL SHRUBS –18" CONTAINERIZED			SF CREDIT PER UNIT =		25
VACCINIUM ANGUSTIFOLIUM	LOWBUSH BLUEBERRY	FACU	NATURALIZED AT 5' OC	10	250
VIBURNUM ACERIFOLIUM	MAPLE–LEAF VIBURNUM	FACU	NATURALIZED AT 5' OC	10	500
			SMALL SHRUB TREE CREDIT		3.2%
HERBACEOUS					
QUARTS			SF CREDIT PER UNIT =		2
POLYSTICHUM ACROSTICHOIDES	CHRISTMAS FERN	FACU	1' O.C.	20	40
SEEDING			SF CREDIT BASED ON AREA COVERED		
NATIVE SEED MIX (ERNMX 140 OR EQUIVALENT)	NATIVE UPLAND SEED MIX	N/A	N/A	4 LB	1310
COVER/NURSE CROP, SEE TABLE FOR RATE & DATES			N/A	N/A	0
			HERBACEOUS CREDIT		8.7%
				193	15,575

191423   S/C 191495

EG–SWMENG– 000372–2018 | # 97032

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

7/22/19

REVISIONS

HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
LANDSCAPE & BUFFER MANAGEMENT PLAN

DRAWN BY:	JT	CONTRACT NO :	16–153
DESIGNED BY:	JP	SCALE :	AS SHOWN
REVIEWED BY:	MKB	SHEET	33 OF 35
		DATE :	07/22/19

ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.: 191622
SCALE : 1 inch

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_SR\CAD Files\Sheet Files\4_3801_SMSR_PLNT04.dwg

GENERAL GEOTECHNICAL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SUBGRADE INSPECTIONS AND SOIL COMPACTION TESTING ASSOCIATED WITH THE PROPOSED WORK. THIS WORK SHALL BE COMPLETED BY OR UNDER THE SUPERVISION OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MARYLAND, IF REQUESTED BY THE OWNER/DEVELOPER OR AS INDICATED ON THE APPROVED PLANS. THIS ENGINEER IS HEREON REFERRED TO AS THE GEOTECHNICAL ENGINEER AND SHALL BE FROM AN INDEPENDENT FIRM FROM THAT OF THE CONTRACTOR.
2. ALL FILL AREAS SHALL BE CLEANED OF ALL VEGETATION AND DEBRIS, STRIPPED OF ALL TOPSOIL, AND THEN SCARIFIED TO A MINIMUM DEPTH OF 12 INCHES PRIOR TO THE PLACEMENT OF FILL. FILL MATERIAL SHALL BE PLACED IN CONTROLLED LIFTS WITH A MAXIMUM THICKNESS OF 8" PRIOR TO COMPACTION THAT IS CONTINUOUS OVER THE ENTIRE AREA WHERE FILL IS TO BE PLACED. EACH LAYER OF FILL SHALL BE COMPACTED WITH THE MINIMUM NUMBER OF PASSES NECESSARY TO PRODUCE A FULL ASYMPTOTIC COMPACTION.
3. FOR STRUCTURAL AREAS, UNLESS OTHERWISE NOTED BY THE APPROVED PLANS, COMPACTION SHALL BE CARRIED OUT WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT TO A DRY DENSITY OF 95% OF THE MAXIMUM DENSITY (STANDARD PROCTOR DENSITY PER ASTM D-698 AND AASHTO METHOD T-99).
4. FOR VEGETATIVE AREAS, UNLESS OTHERWISE NOTED BY THE APPROVED PLANS, COMPACTION SHALL BE CARRIED OUT AT A LESS THAN OPTIMUM MOISTURE CONTENT (E.G., AT A WATER CONTENT OF LESS THAN 13% ON A SOIL HAVING AN OPTIMUM CONTENT OF 15%) TO A DRY DENSITY OF BETWEEN 80% AND 85% OF THE MAXIMUM DENSITY (STANDARD PROCTOR DENSITY PER ASTM D-698).
5. ALL SOILS USED IN FILL AND BACKFILL MUST BE MOISTENED OR AERATED TO WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT. WHERE THE SOIL LAYER IS TOO DRY, THE CONTRACTOR MUST APPLY WATER UNIFORMLY USING APPROVED EQUIPMENT TO INCREASE THE MOISTURE CONTENT TO WITHIN 2% OF THE OPTIMUM. WHERE THE SOIL LAYER IS TOO WET, THE CONTRACTOR MUST DRY THE SOILS BY PLOWING OR DISKING TO AERATE THE SOIL AND REDUCE THE MOISTURE CONTENT TO WITHIN 2% OF THE OPTIMUM.
6. IF THE EXISTING ONSITE MATERIAL IS ROCKY, THEN THE SAME CAN BE USED UP TO 9 INCHES BELOW THE FINAL ELEVATION OR SUBBASE. THE REMAINING FILL MUST BE SELECT EARTH FILL. SOFT SPOTS IDENTIFIED DURING COMPACTION SHALL BE UNDERCUT AND BACKFILLED APPROPRIATELY.
7. ALL SELECT EARTH FILL SHALL BE FREE FROM ORGANICS, FROZEN MATERIAL, AND ROCKS/STONES GREATER THAN 2" INCHES IN ANY DIMENSION. ALL FILL MATERIAL MUST BE FREE FROM WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL OR OTHER DELETERIOUS MATERIALS.
8. ALL IMPORTED EARTH FILL MATERIAL SHALL HAVE A MINIMUM DENISTY OF 105 POUNDS PER CUBIC FOOT FOR THE MAXIMUM DRY DENSITY ACCORDING TO AASHTO T-180, METHOD C; AND SHALL NOT HAVE A LIQUID LIMIT GREATER THAN 30 NOR A PLASTICITY INDEX GREATER THAN 6 ACCORDING TO ASTM D-4318. ALL OTHER MATERIALS SHALL MEET THE REQUIREMENTS STATED IN CATEGORY 900 OF THE LATEST EDITION OF THE MARYLAND STATE HIGHWAY ADMINISTRATION (MSHA) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS.
9. NRCS-MD POND CODE NO. 378 STANDARDS/SPECIFICATIONS (MD-378) SHALL SUPERSEDE THESE NOTES FOR ANY FILL SUBJECT TO MD-378 WHEN THESE NOTES ARE LESS STRINGENT AND/OR IN THE CASE OF CONFLICT. ANY REFERENCE TO THE ENGINEER IN THE MD-378 SHALL BE THE PROFESSIONAL ENGINEER WHO SIGNED AND SEALED THE DESIGN PLANS. ANY REFERENCE TO THE GEOTECHNICAL ENGINEER SHALL BE THE GEOTECHNICAL ENGINEER IN THESE GENERAL NOTES.
10. THE CONTRACTOR SHALL SUBMIT ALL REQUIRED PROCTOR DENSITY RESULTS OF TESTED FILL TO THE OWNER/DEVELOPER FOR REVIEW AND ACCEPTANCE. AT A MINIMUM, WHEN TESTING IS REQUIRED, COMPACTION TESTS SHALL BE COMPLETED FOR EVERY LIFT OF FILL AND THE TESTING FREQUENCY SHALL BE AT LEAST ONCE PER 150 LINEAR FEET OF TRENCH OR ONCE PER 1,500 SQUARE FEET OF FILL. AT A MINIMUM, WHEN TESTING IS REQUIRED, THERE SHALL BE AT LEAST ONE COMPACTION TEST PER LIFT AND AT LEAST TWO COMPACTION TESTS PER DAY. THE GEOTECHNICAL ENGINEER SHALL SUPPLY THE OWNER/DEVELOPER WITH CERTIFIED COMPACTION TEST RESULTS, INCLUDING CERTIFICATION OF PIPE BEDDING SUBGRADE AND/OR FILL SUBGRADE, WHERE APPROPRIATE.
11. ALL REQUIRED INSPECTIONS, TESTS, SUPPORTING DATA, REPORTS, AND CERTIFICATIONS SHALL BE PROVIDED TO THE OWNER/DEVELOPER AND SHALL BE SIGNED AND SEALED BY THE GEOTECHNICAL ENGINEER. DAILY INSPECTION REPORTS, IF REQUESTED, MAY BE PROVIDED WITHOUT BEING IMMEDIATELY SIGNED AND SEALED BY THE GEOTECHNICAL ENGINEER. THESE REPORTS SHALL BE COMPILED, REVIEWED, SIGNED AND SEALED, AND SUBMITTED TO THE OWNER/DEVELOPER NO LATER THAN 30 DAYS AFTER THE COMPLETION OF THE PROJECT.

SOIL BORING LOG

BORING #1

DEPTH	EL.	
0.0'	61.9	GROUND SURFACE
		BROWN SANDY LOAM (SW)
2.0'/59.9		
		TAN CLAYEY SAND (SC)
4.0'/57.9		
		TAN CLAYEY SAND WITH REDOX (SC)
5.0'/56.9		

BOTTOM EL. 56.9
SCALE: NOT TO SCALE

SOIL BORING LOG

BORING #2

DEPTH	EL.	
0.0'	61.0	GROUND SURFACE
		TAN SAND WITH GRAVEL (SW)
2.5'/58.5		
		TAN SANDY CLAY WITH GRAVEL (SC)
5.0'/56.0		

BOTTOM EL. 56.0
SCALE: NOT TO SCALE

SOIL BORING LOG

BORING #3

DEPTH	EL.	
0.0'	35.4	GROUND SURFACE
0.5'/34.9		DARK BROWN SAND WITH ORGANICS (SM)
1.0'/34.4		TAN/ GREY SAND WITH GRAVEL (SW)
		RED CLAY (CL)
5.0'/30.4		

BOTTOM EL. 30.4
SCALE: NOT TO SCALE

SOIL BORING LOG

BORING #4

DEPTH	EL.	
0.0'	34.9	GROUND SURFACE
0.5'/34.4		DARK BROWN SAND WITH ORGANICS (SM)
1.5'/33.4		TAN SANDY CLAY WITH GRAVEL (SW)
		RED/ GREY CLAY (CL)
5.0'/29.9		

BOTTOM EL. 29.9
SCALE: NOT TO SCALE

SOIL BORING LOG

BORING #5

DEPTH	EL.	
0.0'	14.7	GROUND SURFACE
1.0'/13.7		DARK BROWN SAND WITH ORGANICS (SM)
2.0'/12.7		DARK BROWN/ GREY CLAYEY SAND WITH GRAVEL (SC)
3.0'/11.7		WET TAN CLAY (CL)
4.5'/10.2		WET GREY CLAYEY SAND WITH GRAVEL (SC)

BOTTOM EL. 10.2
SCALE: NOT TO SCALE

SOIL BORING LOG

BORING #6

DEPTH	EL.	
0.0'	14.6	GROUND SURFACE
1.0'/13.6		DARK BROWN SAND WITH ORGANICS (SM)
		TAN CLAYEY SAND WITH GRAVEL (SC)
3.0'/11.6		
3.5'/11.1		TAN/ ORANGE CLAY WITH TRACE GRAVEL/ SAND (CL)
		WET ORANGE/ GREY CLAY WITH TRACE GRAVEL/SAND (CL)
5.0'/9.6		

BOTTOM EL. 9.6
SCALE: NOT TO SCALE

SOIL BORING LOG

BORING #7

DEPTH	EL.	
0.0'	3.4	GROUND SURFACE
1.0'/2.4		DARK BROWN SAND WITH GRAVEL (SW)
2.0'/1.4		MOIST TAN/ ORANGE SAND WITH GRAVEL (SG)
		MOIST GREY CLAY WITH REDOX (CL)
3.5'/-0.1		
4.0'/-0.6		MOIST TAN/ ORANGE CLAY WITH GRAVEL (CL)
5.0'/-1.6		WET GREY CLAYEY SAND WITH GRAVEL (SC)

BOTTOM EL. -1.6
SCALE: NOT TO SCALE

SOIL BORING LOG

BORING #8

DEPTH	EL.	
0.0'	2.7	GROUND SURFACE
1.5'/1.2		DARK BROWN SANDY LOAM WITH ORGANICS (SM)
2.5'/0.2		WET GREY CLAYEY SAND WITH GRAVEL (SC)
3.0'/-0.3		MOIST GREY CLAY WITH RED/ BLACK REDOX (CL)
4.0'/-1.3		WET GREY/ ORANGE CLAY (CL)
5.0'/-2.3		WET GREY/ TAN CLAYEY SAND (SC)

BOTTOM EL. -2.3
SCALE: NOT TO SCALE

SOIL BORING LOG

BORING #9

DEPTH	EL.	
0.0'	69.3	GROUND SURFACE
1.0'/68.3		DARK BROWN SANDY LOAM (SW)
2.0'/67.3		DARK BROWN SANDY CLAY (CH)
3.0'/66.3		TAN SILTY SAND (CL-ML)
3.5'/62.8		SANDY CLAY WITH GRAVEL (CH)

BOTTOM EL. 62.8
SCALE: NOT TO SCALE

SOIL BORING LOG

BORING #10

DEPTH	EL.	
0.0'	60.4	GROUND SURFACE
1.0'/59.4		DARK BROWN SANDY LOAM (SW)
2.0'/58.4		BROWN SANDY CLAY (CH)
3.0'/57.4		TAN SANDY CLAY (CH)
3.5'/56.9		ORANGE/TAN CLAYEY SAND (SM)
4.5'/55.9 ▽		GREY CLAY WITH REDOX (CH)
5.0'/55.4		WATER TABLE

BOTTOM EL. 55.4
SCALE: NOT TO SCALE

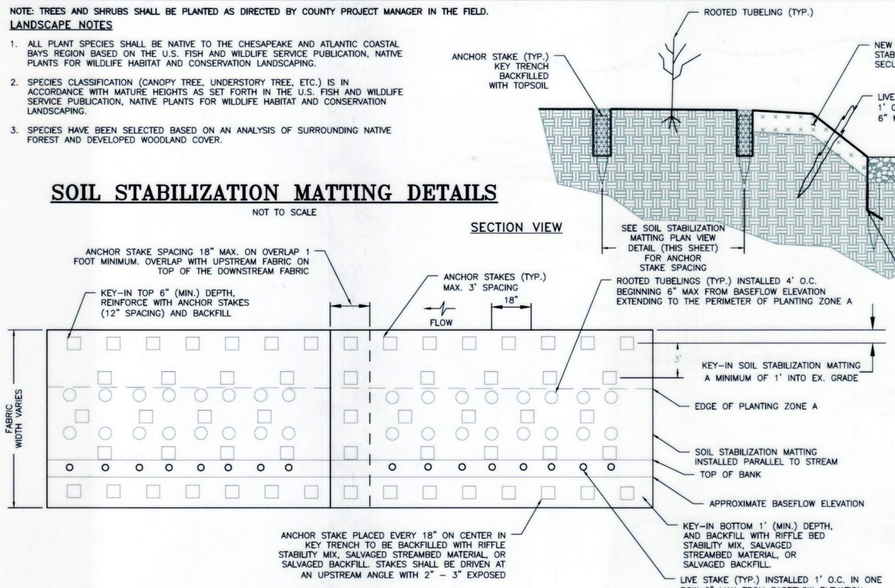
NOTE: TREES AND SHRUBS SHALL BE PLANTED AS DIRECTED BY COUNTY PROJECT MANAGER IN THE FIELD.

LANDSCAPE NOTES

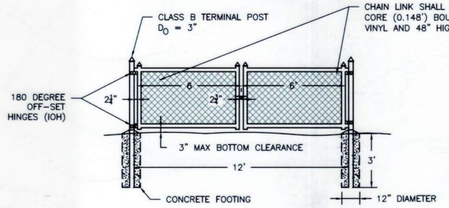
1. ALL PLANT SPECIES SHALL BE NATIVE TO THE CHESAPEAKE AND ATLANTIC COASTAL BAYS REGION BASED ON THE U.S. FISH AND WILDLIFE SERVICE PUBLICATION, NATIVE PLANTS FOR WILDLIFE HABITAT AND CONSERVATION LANDSCAPING.
2. SPECIES CLASSIFICATION (CANOPY TREE, UNDERSTORY TREE, ETC.) IS IN ACCORDANCE WITH MATURE HEIGHTS AS SET FORTH IN THE U.S. FISH AND WILDLIFE SERVICE PUBLICATION, NATIVE PLANTS FOR WILDLIFE HABITAT AND CONSERVATION LANDSCAPING.
3. SPECIES HAVE BEEN SELECTED BASED ON AN ANALYSIS OF SURROUNDING NATIVE FOREST AND DEVELOPED WOODLAND COVER.

SOIL STABILIZATION MATTING DETAILS

NOT TO SCALE



1. ALL PROPOSED STREAMBANKS TO BE STABILIZED WITH SOIL STABILIZATION MATTING.
2. SOIL STABILIZATION MATTING SHALL BE A WOVEN MATTING OF COIR MADE FROM HIGH STRENGTH COCONUT FIBER.
3. SOIL STABILIZATION MATTING SHALL BE A MINIMUM OF 0.30 INCHES THICK, WITH A MINIMUM WEIGHT OF 19 OUNCES PER SQUARE YARD.
4. AREAS TO BE COVERED WITH SOIL STABILIZATION MATTING SHALL BE RAKED TO GRADE, AND ANY ROCKS OR OTHER DEBRIS LARGER THAN 2 IN. SHALL BE REMOVED. NATIVE FLOODPLAIN SEED MIX SHALL BE APPLIED TO THESE AREAS AT A RATE OF 2 LB/1000 FT².



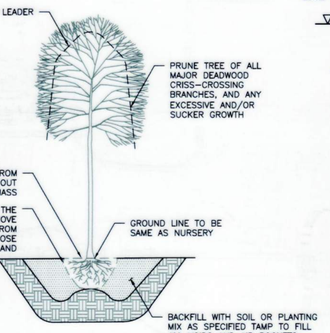
ACCESS GATE DETAIL

SCALE: 1" = 4'

NOTE: EACH GATE HALF SHALL HAVE A CENTER ANCHOR INDUSTRIAL LOCKING DEVICE INCLUDING RECEIVING PIPE, SET IN 24" X 9" CONCRETE TO SUPPORT THE GATE WHEN CLOSED. EACH SECTION SHALL ALSO BE SUPPLIED WITH A HOLD BACK DEVICE TO SECURE THE GATE IN AN OPEN POSITION WHEN NEEDED

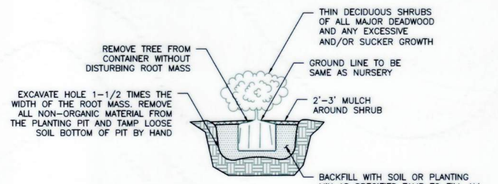
GENERAL PLANTING NOTES

1. ALL PLANT MATERIALS SHALL BE NURSERY GROWN AND SHALL CONFORM TO AMERICAN ASSOCIATION OF NURSERYMEN, INC. STANDARDS.
2. CONTRACTOR IS RESPONSIBLE TO VERIFY ALL UTILITY LOCATIONS PRIOR TO PLANTING MATERIAL. IF CONFLICTS ARISE, BAYLAND, INC. MUST BE NOTIFIED PRIOR TO ANY GROUND BREAKING.
3. WETLAND PLANTING WILL BE ACCOMPLISHED BETWEEN MARCH 15TH AND MAY 15TH (SPRING PLANTING SEASON) OR SEPTEMBER 15TH AND NOVEMBER 15TH (FALL PLANTING SEASON).
4. TREES AND SHRUBS SHALL BE PLANTED FROM MARCH 1 TO JUNE 15 AND FROM SEPTEMBER 15 TO DECEMBER 15. PLANTING MAY BE CONTINUED DURING THE WINTER MONTHS PROVIDING THERE IS NO FROST IN THE GROUND AND FROST FREE TOPSOIL PLANTING MIXTURES ARE USED.
5. NO CONTAINER-GROWN MATERIAL SHALL BE PLANTED IF NOT ACCLIMATED TO THE CURRENT WEATHER CONDITIONS. CONTRACTOR IS RESPONSIBLE FOR GENERAL MAINTENANCE INCLUDING WATERING.
6. ALL PLANTING MATERIAL AND PLANTING METHODS SHALL CONFORM TO CONSTRUCTION SPECIFICATIONS.
7. DISTURBED AREAS WITHIN THE LIMITS OF DISTURBANCE SHALL BE STABILIZED PER THE DETAILS AND SPECIFICATIONS FOR VEGETATIVE ESTABLISHMENT.
8. IF A MINIMUM COVERAGE OF 80% IS NOT ACHIEVED IN THE PLANTED AQUATIC BENCH AFTER THE SECOND GROWING SEASON, A REINFORCEMENT PLANTING WILL BE REQUIRED.



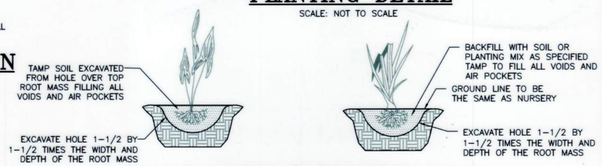
TREE PLANTING - CONTAINER GROWN

SCALE: NOT TO SCALE



SHRUB PLANTING - CONTAINER GROWN

SCALE: NOT TO SCALE

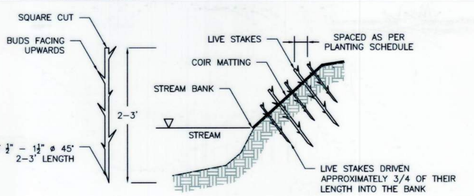


PLUG PLANTING

SCALE: NOT TO SCALE

QUART PLANTING

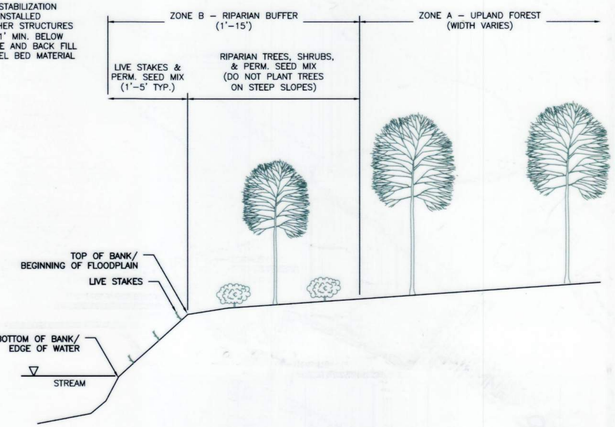
SCALE: NOT TO SCALE



NOTES:
1. NATURAL FIBER MATTING SHALL ONLY BE INSTALLED IN AREAS OF GRADING AND DISTURBANCE.
2. LIVESTAKES SHALL BE INSTALLED DURING THE DORMANT SEASON DECEMBER 1 THROUGH APRIL 1.

LIVE STAKE DETAIL

SCALE: NOT TO SCALE



TYPICAL RIPARIAN ZONES SECTION

SCALE: NOT TO SCALE

TYPICAL 30'X30' NATURALIZED PLANTING DETAIL

SCALE: NOT TO SCALE

191424

EG-SWMENG- 000372-2018 | # 97032

191496

S/C PLAN # 59838 | GRA # 15387-2018

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

7/22/19

REVISIONS

HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
PLANTING DETAILS, NOTES & BORINGS

DRAWN BY: JT/EM
DESIGNED BY: JP
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : AS SHOWN
SHEET 34 OF 35
DATE : 07/22/19

ADC MAP :
TAX MAP :
HCG BILLING ID No.:
HCG DWG ID No.: 191623

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_OVERALL\CAD Files\Sheet Files\4_3801_PLNT01.dwg

SOILS CHART

SYMBOL	SOIL	HSG	K
BeC	BELTSVILLE SILT LOAM (SLOPES 5%–10%)	C	0.43
Cx	CUT AND FILL LAND	–	–
EsB2	ELSINBORO LOAM (SLOPES 2%–5%) MODERATELY ERODED	B	0.49
MlaA	MATTAPEX SILT LOAM (SLOPES 0%–2%) NORTHERN COASTAL PLAIN	C	0.49
MlaB	MATTAPEX SILT LOAM (SLOPES 2%–5%) NORTHERN COASTAL PLAIN	C	0.49
RuB	RUSSETT FINE SANDY LOAM (SLOPES 0%–5%)	C	0.32
RuD	RUSSETT FINE SANDY LOAM (SLOPES 5%–15%)	C	0.32
SlC2	SASSAFRAS LOAM (SLOPES 10%–15%) MODERATELY ERODED	B	0.32
SsD	SASSAFRAS AND JOPPA SOILS (SLOPES 10%–15%)	B	0.49
Tm	TIDAL MARSH	D	–

TC NODES CHART

DRAINAGE AREA	POINT	ELEVATION
1	A	98
	B	94
	C	79
	D	71.5
	E/SP01	67.5
2	A	95
	B	94
	C	90
	D	86
	E	81.5
	F	60
	G	26.25
	H/SP05	24.25
3	A	88
	B	86.25
	C	49
	D/SP02	21.5
4	A	88
	B	78.5
	C/SP03	21.5
	D	8.5
	E	6.1
	F/SP04	0

EXISTING CONDITIONS HYDROLOGY

	AREA (AC.)	CN	Tc (hr)	Q_1 (cfs)	Q_2 (cfs)	Q_{10} (cfs)	Q_{100} (cfs)
DA 1 (SP01)	7.4	80	0.211	3.92	5.99	16.51	27.34
DA 3	3.7	68	0.374	0.32	0.67	3.66	7.89
SP02	11.1	–	–	4.09	6.43	19.64	34.53
DA 2 (SP05)	34.4	81	0.238	18.66	28.14	74.29	122.53
SP03	45.5	–	–	22.71	34.55	96.06	161.36
DA 4	18.3	80	0.231	9.19	14.11	39.85	66.93
OUTLET (SP04)	63.8	–	–	31.73	48.36	131.43	220.34

PROPOSED CONDITIONS HYDROLOGY

	AREA (AC.)	CN	Tc (hr)	Q_1 (cfs)	Q_2 (cfs)	Q_{10} (cfs)	Q_{100} (cfs)
DA 1 (BMP 1) (SP01)	7.4	80	0.211	3.92	5.99	16.51	27.34
DA 3	3.7	68	0.374	0.32	0.67	3.66	7.89
SP02	11.1	–	–	3.91	5.99	16.47	27.34
DA 2 (SP05)	34.4	81	0.238	18.66	28.14	74.29	122.53
SP03	45.5	–	–	22.71	34.55	93.69	156.69
DA 4	18.3	80	0.231	9.19	14.11	38.89	64.91
OUTLET (SP04)	63.8	–	–	31.62	48.19	131.28	219.72

LAND USE MATRICES

DA 1

	A	B	C	D	TOTAL
OPEN SPACE	–	0.23	3.83	–	4.06
IMPERVIOUS	–	0.19	2.32	–	2.51
WOODS	–	0.59	0.20	–	0.79
TOTAL	–	1.01	6.35	–	7.36

DA 2

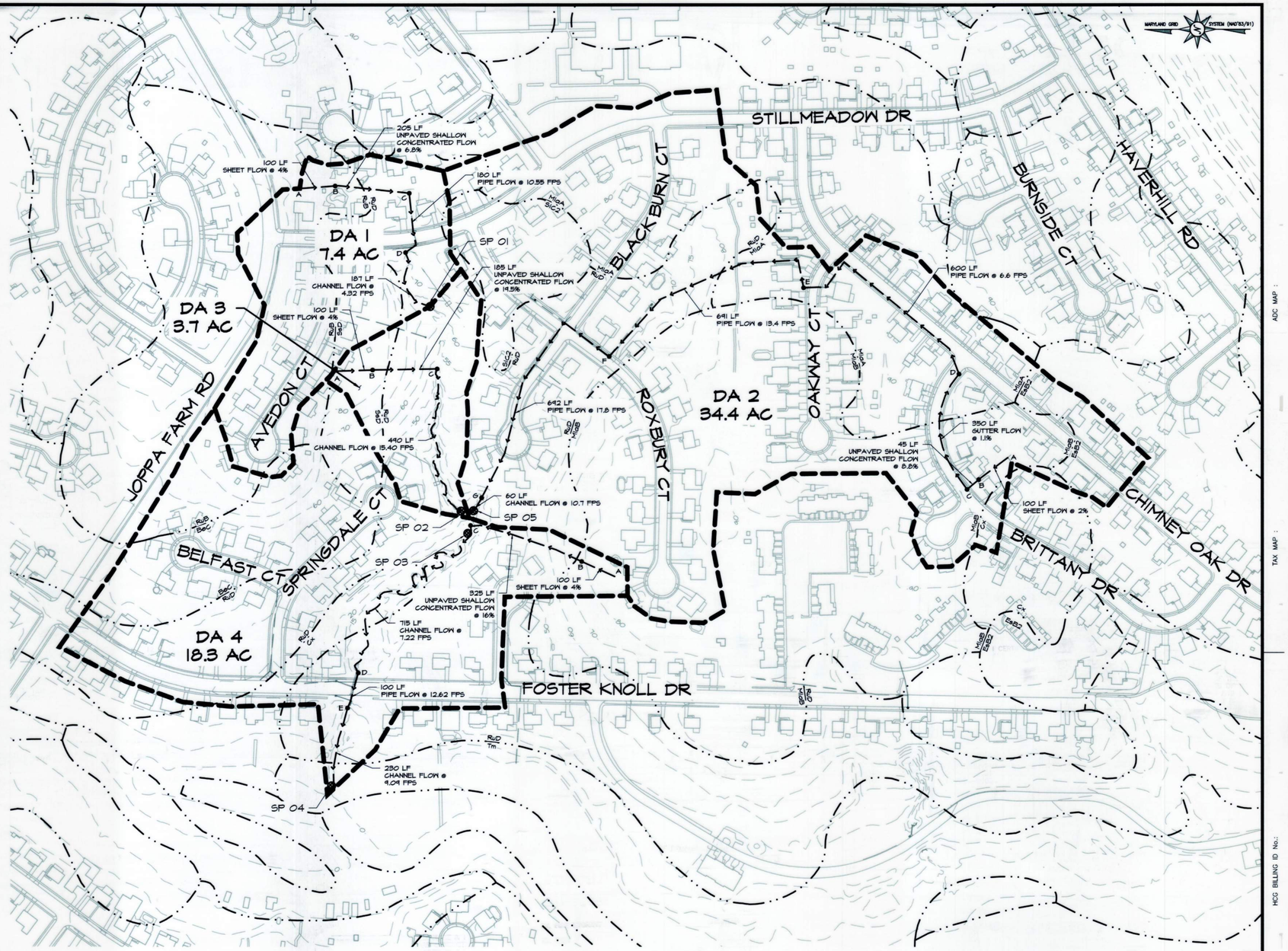
	A	B	C	D	TOTAL
OPEN SPACE	–	1.69	16.88	0.43	19.00
IMPERVIOUS	–	1.43	9.71	0.31	11.45
WOODS	–	0.35	3.63	–	3.98
TOTAL	–	3.47	30.22	0.74	34.43

DA 3

	A	B	C	D	TOTAL
OPEN SPACE	–	0.14	0.48	–	0.62
IMPERVIOUS	–	0.05	0.15	–	0.20
WOODS	–	0.88	1.96	–	2.84
TOTAL	–	1.01	6.35	–	7.36

DA 4

	A	B	C	D	TOTAL
OPEN SPACE	–	0.13	6.74	1.40	8.27
IMPERVIOUS	–	0.12	4.34	0.75	5.21
WOODS	–	0.25	3.98	0.58	4.81
TOTAL	–	0.50	15.06	2.73	18.39



DRAINAGE AREA MAP

SCALE: 1" = 150'

0 75 150 300

1 INCH = 150 FEET

ADC MAP :

TAX MAP :

HCG BILLING ID No.:

HCG DWG ID No.: 191624

191425

191497

EG-SWMENG- 000372-2018 | # 97032 | S/C PLAN # 59838 | GRA # 15387-2018

CLEAR CREEKS CONSULTING
1317 Knopp Road, Jarrettsville, Maryland 21084 (410) 692-2164

BayLand Consultants & Designers, Inc.
"Integrating Engineering and Environment"
7455 New Ridge Road, Suite T Phone: (410) 694-9401
Hanover, Maryland 21076 Fax: (410) 694-9105
www.baylandinc.com
BAYLAND JOB NO. 4_3801

STATE OF MARYLAND — CHRISTOPHER M. BYLAND — No. 21678 — REGISTERED PROFESSIONAL ENGINEER

7/22/19

REVISIONS

HARFORD COUNTY, MARYLAND

STILLMEADOW STREAM & OUTFALL RESTORATION
DRAINAGE AREA MAP

DRAWN BY: EM/BF
DESIGNED BY: FHM
REVIEWED BY: MKB

CONTRACT NO : 16-153
SCALE : AS SHOWN
SHEET 35 OF 35
DATE : 07/22/19

SCALE 1 inch

Z:\4_3801_STILLMEADOW_STREAM_&_OUTFALL\STILLMEADOW_OVERALL\CAD Files\Sheet Files\4_3801_DA01.dwg