LONGVIEW DRIVE STREAM STABILIZATION

CAPITAL PROJECT # D-1175

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. THE EXISTING INFORMATION SHOWN ON THESE PLANS WAS TAKEN FROM THE BEST AVAILABLE SOURCES AND SHALL BE VERIFIED BEFORE STARTING CONSTRUCTION. HOWARD COUNTY DOES NOT GUARANTEE THE COMPLETENESS OR THE CORRECTNESS OF THE SHOWN INFORMATION.
3. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
4. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) DAYS PRIOR TO THE START OF WORK.
5. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) WORKING DAYS PRIOR TO ANY EXCAVATION WORK BEING DONE.
6. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES, PHOTOGRAPHS OF THE PROPOSED WORK AREA AND ACCESS SHALL BE TAKEN.
7. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING FOR LONGVIEW DRIVE AND US 40 SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE START OF WORK.
8. A JOINT PERMIT APPLICATION HAS BEEN SUBMITTED AND APPROVED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR THIS PROJECT [(HO SWM/PLUMTREE BRANCH STABILIZATION) 2017-61314]. PROJECT IMPACTS INCLUDE WORK IN A USE IV-P STREAM. UNDER THIS PERMIT, IN-STREAM WORK IS PROHIBITED FROM MARCH 1 TO MAY 31, INCLUSIVE OF ANY YEAR.
9. THE EXISTING TOPOGRAPHY WAS TAKEN FROM FIELD RUN SURVEY WITH ONE FOOT CONTOUR INTERVALS PREPARED BY AB CONSULTANTS, INC. IN DECEMBER 2016.
10. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 24B5, 24BB, AND 24BF WERE USED FOR THIS PROJECT.
11. WATER IS PUBLIC.
12. SEWER IS PUBLIC.
13. 100-YEAR FLOODPLAIN ELEVATION IS SHOWN ON THE PLANS. THERE ARE FEMA MAPPED FLOODPLAINS WITHIN THE PROJECT LIMITS.
14. PLUMTREE BRANCH IS NOT A TIER II WATER. AS A TRIBUTARY WITHIN THE LITTLE PATUXENT WATERSHED, THE STREAM IS AN IMPAIRED WATERWAY WITH THE FOLLOWING TMDL's:
    14.1. TSS - GIS ID: G1118, REPORT: LITTLE PATUXENT RIVER SEDIMENT
15. TEMPORARY STAGING AND/OR STOCKPILING OF ERODIBLE MATERIALS (E.G. EXCAVATED MATERIAL) WITHIN THE 100-YEAR FLOODPLAIN DESIGNATED ON THE PLANS SHALL BE LIMITED TO THE AMOUNT OF MATERIAL THE CONTRACTOR CAN PLACE AND/OR HAUL OFF IN A SINGLE DAY. THE CONTRACTOR SHALL MONITOR THE WEATHER FORECAST AND ADJUST STOCKPILE/STAGING OPERATIONS ACCORDINGLY TO MINIMIZE THE LOSS OF MATERIAL OR OTHER ADVERSE IMPACTS.
16. THE CONTRACTOR SHALL NOT STORE EQUIPMENT, MATERIALS, AND/OR SUPPLIES BEYOND THE LIMIT OF DISTURBANCE SHOWN ON THE PLANS.
17. EXISTING UTILITIES ARE BASED ON AVAILABLE RECORDS. THE CONTRACTOR MUST VERIFY INFORMATION TO HIS/HER SATISFACTION.
18. NO WETLANDS ARE LOCATED WITHIN THE PROJECT LIMITS.
19. NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
20. THERE ARE NO BURIAL GROUNDS OR CEMETERY SITES LOCATED ON THE PROJECT SITE.
21. THERE IS ONE EXISTING FOREST CONSERVATION EASEMENT LOCATED WITHIN PARCEL 810. 2,029 SF OF THIS FOREST CONSERVATION EASEMENT WILL BE DISTURBED. ALL FOREST CONSERVATION EASEMENT AREAS WILL BE REPLANTED IN COORDINATION WITH THE DEPARTMENT OF RECREATION AND PARKS.
22. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO THE CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. ALL UTILITIES SHALL HAVE A CLEARANCE BY A MINIMUM OF 6 INCHES VERTICALLY AND A MINIMUM OF 5 FEET HORIZONTALLY.
23. THE CONTRACTOR SHALL EXERCISE CARE IN ALL ACTIVITIES INVOLVING EITHER CUT AND FILL OR GRADING IN THE VICINITY OF TREES THAT ARE TO REMAIN. ALL EARTH CUTS AND ACTIVITIES IN THE VICINITY OF TREES TO REMAIN SHALL BE MADE IN A MANNER THAT DOES NOT DISTURB THE CRITICAL ROOT ZONE WITHIN THE DRIPLINE OF THE TREE. PROTECTIVE ORANGE FENCING SHALL BE INSTALLED AROUND THE PERIMETER OF THE CRITICAL ROOT ZONE PRIOR TO CONSTRUCTION. THE LOCATION OF THE PROTECTIVE ORANGE FENCING SHALL BE APPROVED BY THE ENGINEER OR HIS/HER REPRESENTATIVE PRIOR TO CONSTRUCTION.
24. UPON COMPLETION OF THE WORK, BUT PRIOR TO DE-MOBILIZATION, THE CONTRACTOR SHALL REMOVE ALL REMNANTS OF CONSTRUCTION MATERIALS FROM THE SITE. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO A CONDITION EQUAL OR BETTER THAN THE PRE-CONSTRUCTION CONDITIONS.
25. BIOHABITATS SHALL CERTIFY IN WRITTEN LETTER THAT THE CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED IN ACCORDANCE TO THESE PLANS.
26. TEMPORARY DISTURBANCE WITHIN THE 100' PERENNIAL STREAM BUFFER, STREAM CHANNEL, AND 100-YR FLOODPLAIN ARE NECESSARY FOR CONSTRUCTION OF THE STREAM RESTORATION PROJECT IN ACCORDANCE WITH SECTION 16.116(C) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATION.

AS-BUILT LEGEND

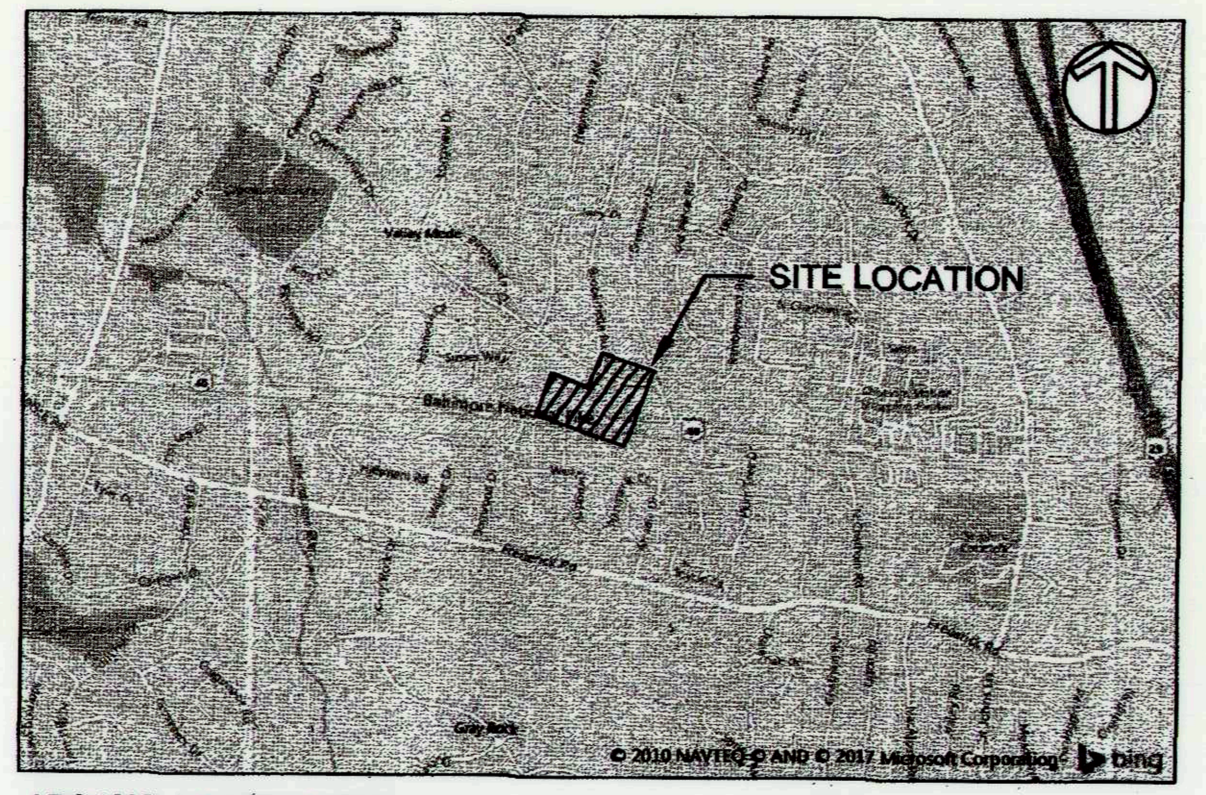
- STREAM CENTERLINE
- MAJOR CONTOUR
- MINOR CONTOUR
- CONSTRUCTED RIFFLE OUTLINE
- STONE TOE PROTECTION OUTLINE
- RIPRAP OUTFALL PROTECTION
- COIR LOG OUTLINE
- FENCE
- GUARDRAIL

Map Unit Symbol	Map Unit Name	K-Factor (Whole Soil)	Hydric Rating	Hydrologic Soil Group	Highly Erodible	Drainage Class
GbB	Gladstone loam, 3 to 8 percent slopes	0.20	Non-Hydric	A	NO	Well Drained
GbC	Gladstone loam, 8 to 15 percent slopes	0.20	Non-Hydric	A	NO	Well Drained
GfB	Gladstone-Urban land complex, 0 to 8 percent slopes	0.20	Non-Hydric	A	NO	Well Drained
GfC	Gladstone-Urban land complex, 8 to 15 percent slopes	0.20	Non-Hydric	A	N/A	Well Drained
GhB	Glenelg-Urban land complex, 0 to 8 percent slopes	0.20	Non-Hydric	B	N/A	Well Drained
GuB	Glenville-Urban land-Udorthents complex, 0 to 8 percent slopes	0.37	Non-Hydric	C	YES	Moderately Well Drained
Ha	Hatboro-Codorus silt loams, 0 to 3 percent slopes	0.37	Hydric	B/D	NO	Poorly Drained
UaF	Udorthents, Highway 0 to 65 percent slopes	N/A	Hydric	D	N/A	N/A

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

Howard SCD — Date 1/2/18

VICINITY MAP



ADC MAP COORDINATES:
MAP: 11 LETTER: K NUMBER: 7

0 1000 2000

SHEET LIST TABLE

Sheet #	Sheet Title	
1	TITLE SHEET	AS-BUILT
2	EXISTING CONDITIONS	
3	EXISTING CONDITIONS	
4	PROPOSED CONDITIONS	AS-BUILT
5	PROPOSED CONDITIONS	AS-BUILT
6	PROFILE AND CROSS SECTION	
7	DETAILS	
8	DETAILS	
9	EROSION & SEDIMENT CONTROL PLAN	
10	EROSION & SEDIMENT CONTROL PLAN	
11	EROSION & SEDIMENT CONTROL DETAILS	
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14	EROSION & SEDIMENT CONTROL DETAILS	
15	EROSION & SEDIMENT CONTROL DETAILS	
16	PLANTING PLAN	
17	PLANTING PLAN	
18	PLANTING DETAILS	

DEPARTMENT OF PUBLIC WORKS, HOWARD CO, MD

DIRECTOR, DEPARTMENT OF PUBLIC WORKS — DATE 12-21-17

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 12/19/17

CHIEF, STORMWATER MANAGEMENT DIVISION — DATE 12/14/17

SITE ANALYSIS DATA:

a. TOTAL PROJECT AREA = 0.94 AC
b. WETLAND TOTAL AREA = 0.00 AC
   WETLAND BUFFER TOTAL AREA = 0.00 AC
c. FLOODPLAIN AREA = 0.85 AC
d. FOREST AREA = 0.30 AC
e. STEEP SLOPES AREA = 0.22 AC
f. ERODIBLE SOILS AREA = 0.26 AC
g. DISTURBED AREA = 0.94 AC
h. PROPOSED SITE USE = FLOODPLAIN FOREST
i. PROPOSED IMPERVIOUS AREA = 0.00 AC

DESIGN NARRATIVE:
LONGVIEW STREAM STABILIZATION DESIGN WAS COMPLETED WITH THE FOLLOWING IN MIND:

a. STREAM STABILIZATION IS PROPOSED WITHIN THE LIMITS OF THE EXISTING CHANNEL TO ENHANCE STREAM FUNCTIONALITY AND REDUCE STREAM BED AND BANK EROSION. MAJOR IMPACTS TO TREES WERE AVOIDED AND MINIMIZED TO THE EXTENT POSSIBLE.
b. ALL PROPOSED GRADING MAINTAINS NATURAL FLOW PATTERNS OF THE SURROUNDING FLOODPLAIN FLOWING INTO PLUMTREE BRANCH, WHILE PLUMTREE BRANCH CONTINUES TO FLOW AND DISCHARGE INTO THE LITTLE PATUXENT RIVER.
c. NO CHANGES IN IMPERVIOUS COVER OR NON-IMPERVIOUS AREAS ARE PROPOSED.
d. EROSION AND SEDIMENT CONTROLS ARE PROPOSED TO PROPERLY CONTROL ALL SEDIMENT LADEN RUNOFF FROM THE CONSTRUCTION SITE AND PROTECT ALL DOWNSTREAM BODIES OF WATER IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. SWM IS NOT REQUIRED FOR THIS STREAM STABILIZATION PROJECT.
e. NO ESD PRACTICES ARE BEING IMPLEMENTED AS THERE IS NO IMPERVIOUS AREA REQUIRING TREATMENT ON SITE.
f. ALL EXISTING TREE LINES WILL BE REESTABLISHED WITH NATIVE VEGETATION.

LEGEND

EXISTING

- SS — SANITARY SEWER
- MAJOR CONTOUR
- MINOR CONTOUR
- GIS 2' CONTOURS
- SD — STORM DRAIN
- W — WATER SUPPLY
- OHE — OVERHEAD ELECTRIC
- UGE — UNDERGROUND ELECTRIC
- G — GAS SUPPLY
- 100YR — EX 100-YR FEMA FLOODPLAIN
- TREELINE
- GIS PROPERTY LINE
- SURVEYED PROPERTY LINE
- EASEMENT LINE
- FCE — GIS FOREST CONSERVATION EASEMENT
- GUARDRAIL
- BUILDINGS (GIS)
- ROADS AND DRIVEWAYS (GIS)
- STREAM CENTERLINE
- SB — 75' STREAM BUFFER
- GbC / UaF — SOIL BOUNDARIES
- HIGHLY ERODIBLE SOILS (15% - 19.99% OR Kw > 0.35 WITH SLOPE > 5%)
- STEEP SLOPES (20% OR GREATER SLOPES)
- TREE
- TREE > 30" DBH WITH CRITICAL ROOT ZONE
- TRAVERSE POINT
- MB — MAILBOX
- FIRE HYDRANT
- UTILITY POLE
- S — SEWER MANHOLE
- GUY — GUY WIRE
- CMP — CORRUGATED METAL PIPE

PROPOSED

- 425 — MAJOR CONTOUR
- 424 — MINOR CONTOUR
- STREAM CENTERLINE
- 100YR — PROP 100-YR FLOODPLAIN
- BOULDER TOE
- COIR FIBER LOG PLUG
- COBBLE RIFFLE GRADE CONTROL
- X — PROPOSED FENCE
- PROPOSED GUARDRAIL
- LOD — LIMIT OF DISTURBANCE
- LOW — LIMIT OF ACCESS
- SF — SILT FENCE
- SSF — SUPER SILT FENCE
- TREE REMOVAL
- TREE SAVE
- STAGING AND STOCKPILING AREA
- MULCH ACCESS ROAD
- SOIL STABILIZATION MATTING
- HARDWOOD MATTING
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- FB — FILTER BAG
- P — PUMP AROUND LOCATION
- FLOW DIVERSION PIPE
- SAND BAG DIKES
- MB — MOUNTABLE BERM

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 #: 36617

EXPIRATION DATE: 6/3/2018

(Seal: STATE OF MARYLAND, BRETT V. LONG, 36617, PROFESSIONAL ENGINEER) 12-13-2017

ENGINEERS CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT"

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) Brett Long — DATE 12-13-2017

DEVELOPERS CERTIFICATE

"WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE THE BEGINNING OF THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT"

SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) James M. Irvin — DATE 1/3/18

CLIENT

HOWARD COUNTY DPW
BUREAU OF ENVIRONMENTAL SERVICES
STORMWATER MANAGEMENT DIVISION
6751 GATEWAY DRIVE, SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-6413

DATE	ISSUES / REVISIONS

(Seal: STATE OF MARYLAND, BRETT V. LONG, 36617, PROFESSIONAL ENGINEER) 10-9-2018

AS BUILT CERTIFICATION

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

NAME Brett Long — DATE 10-9-2018

Biohabitats

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

Restore the Earth & Inspire Ecological Stewardship

LONGVIEW DRIVE STREAM STABILIZATION

SITE ADDRESS: 9509 LONGVIEW DR, ELLICOTT CITY, MD
ZONING: R-20, R-ED — TAX MAP/GRID/PARCEL: 0024/0003/0640
ELECTION DISTRICT: 02 — OPEN LOT N/A
WAIVER PETITION WP-18-022

TITLE:

TITLE SHEET

PROJECT NO.: 13005.50 — SCALE: NTS

SEAL: — BY: RWK/KT — CHECK: MDT/MWT

DWG. NO.:

(Seal: STATE OF MARYLAND, BRETT V. LONG, 36617, PROFESSIONAL ENGINEER) 12-13-2017

11/17/2018 I:\Projects\13005.50 Longview Stream Restoration\CAD\Plans\cv01ler.dwg

MATCHLINE - SHEET 3

BRICK HOUSE ON THE PIKE HOMEOWNERS ASSN INC
LIBER 4192 FOLIO 701
MAP 24 GRID 3 PARCEL 810

EX. PUBLIC 100 YR FLOOD PLAIN, DRAINAGE AND UTILITY EASEMENT P.N. 12148

RUSSEL AND CAROLYN RODER
LIBER 16406 FOLIO 329
MAP 24 GRID 3 PARCEL 640

BRIAN AND AMY DOCKINS
LIBER 8048 FOLIO 112
MAP 24 GRID 3 PARCEL 640

JANET FOW
LIBER 10497 FO
MAP 24 GRID 3 P

PAUL AND WF CO
LIBER 376 FOLIO
MAP 24 GRID 3 PARCEL 640

LUTHER AND ELIZABETH MASON
LIBER 8647 FOLIO 549
MAP 24 GRID 3 PARCEL 642

ZHONGYAN ZHANG AND WEIDONG LI
LIBER 16023 FOLIO 87
MAP 24 GRID 4 PARCEL 640

WILLIAM AND CYNTHIA MEYER
LIBER 2803 FOLIO 554
MAP 24 GRID 4 PARCEL 640

BROOKMEDE RD

LONGVIEW DRIVE

BALTIMORE NATIONAL PIKE MD ROUTE 40

N:586957.5082
E:1357453.1829

N:587356.5120
E:1357367.5324

E: 1357250.0
N: 587100.0
E: 1357500.0
N: 587100.0
E: 1357250.0
N: 587340.0

TRAVERSE TABLE			
POINT	NORTHING	EASTING	ELEVATION
1	586933.85	1357436.12	370.30
2	587105.39	1357380.04	362.69
3	587347.83	1357395.91	368.96
100	586832.01	1357441.76	370.88
101	586949.92	1357250.55	373.17
102	587465.41	1357384.47	368.63

NOTE: GEOMETRY TABLES FOR ALIGNMENT LOCATED ON SHEET 4

HORIZONTAL SCALE
0 20 40

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 12/7/17

12/13/2017 I:\Projects\13005.50 Longview Stream Restoration\CAD\Plans\ec01lsr.dwg

CLIENT

HOWARD COUNTY DPW
BUREAU OF ENVIRONMENTAL SERVICES
STORMWATER MANAGEMENT DIVISION
6751 GATEWAY DRIVE, SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-6413

DATE | ISSUES / REVISIONS

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

LONGVIEW DRIVE STREAM STABILIZATION

SITE ADDRESS: 9509 LONGVIEW DR, ELLICOTT CITY, MD
ZONING: R-20, R-ED | TAX MAP/GRID/PARCEL: 0024/0003/0640
ELECTION DISTRICT: 02 | OPEN LOT N/A
WAIVER PETITION WP-18-022

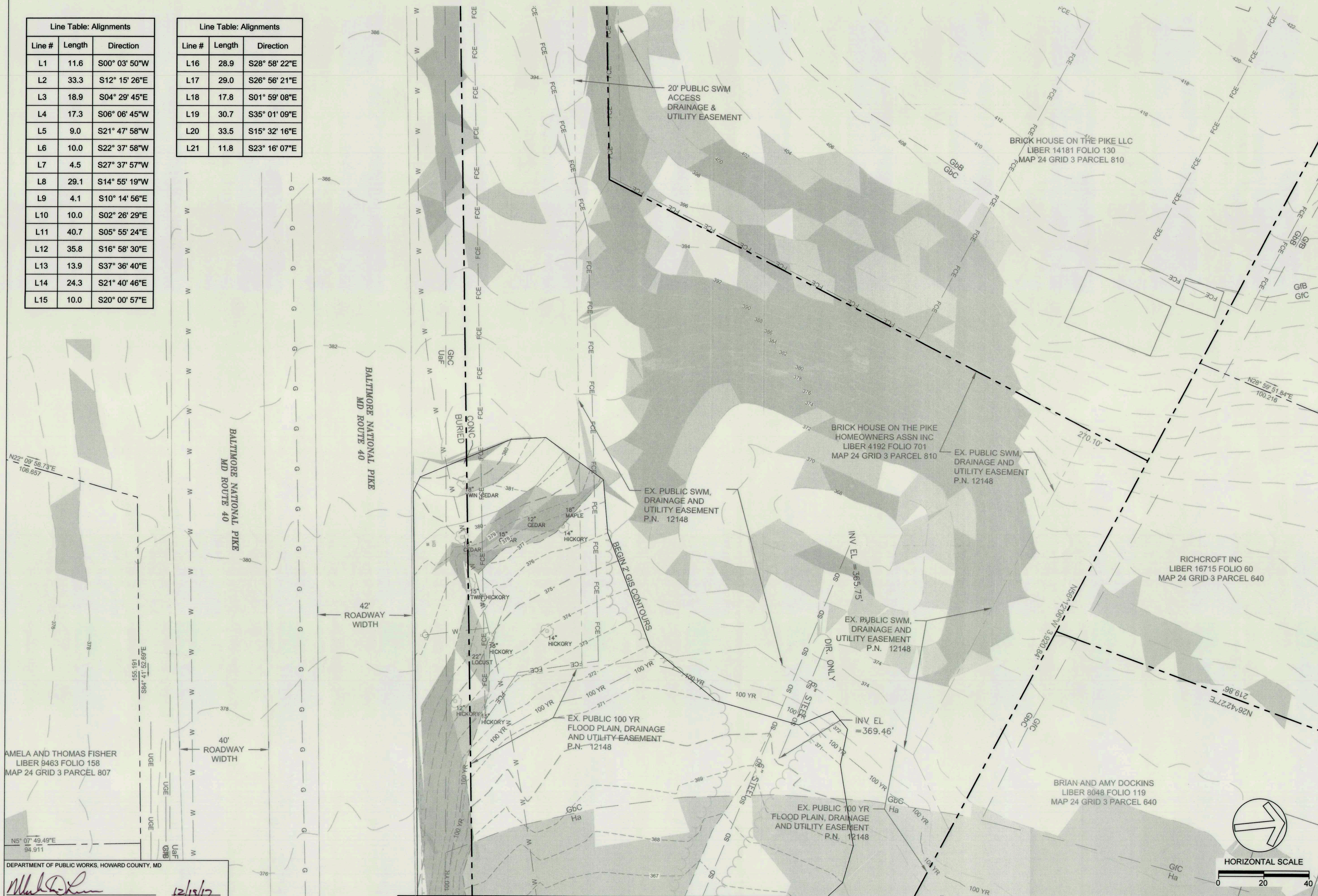
TITLE:

EXISTING CONDITIONS

PROJECT NO.: 13005.50 | SCALE: 1" = 20'
BY: RW/KT | CHECK: MDT/MWT
SEAL: STATE OF MARYLAND — BRETT V. LOVEJOY — 36617 — PROFESSIONAL ENGINEER — 12-13-2017
DWG. NO.: 2 OF 18

Line Table: Alignments		
Line #	Length	Direction
L1	11.6	S00° 03' 50"W
L2	33.3	S12° 15' 26"E
L3	18.9	S04° 29' 45"E
L4	17.3	S06° 06' 45"W
L5	9.0	S21° 47' 58"W
L6	10.0	S22° 37' 58"W
L7	4.5	S27° 37' 57"W
L8	29.1	S14° 55' 19"W
L9	4.1	S10° 14' 56"E
L10	10.0	S02° 26' 29"E
L11	40.7	S05° 55' 24"E
L12	35.8	S16° 58' 30"E
L13	13.9	S37° 36' 40"E
L14	24.3	S21° 40' 46"E
L15	10.0	S20° 00' 57"E

Line Table: Alignments		
Line #	Length	Direction
L16	28.9	S28° 58' 22"E
L17	29.0	S26° 56' 21"E
L18	17.8	S01° 59' 08"E
L19	30.7	S35° 01' 09"E
L20	33.5	S15° 32' 16"E
L21	11.8	S23° 16' 07"E



DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

DATE 12/13/17

MATCHLINE - SHEET 2

CLIENT

HOWARD COUNTY DPW
BUREAU OF ENVIRONMENTAL SERVICES
STORMWATER MANAGEMENT DIVISION
6751 GATEWAY DRIVE, SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-6413

DATE | ISSUES / REVISIONS

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

LONGVIEW DRIVE STREAM STABILIZATION

SITE ADDRESS: 9509 LONGVIEW DR, ELLICOTT CITY, MD
ZONING: R-20, R-ED
TAX MAP/GRID/PARCEL: 0024/0003/0640
ELECTION DISTRICT: 02
OPEN LOT N/A
WAIVER PETITION WP-18-022

TITLE:

EXISTING CONDITIONS

PROJECT NO.: 13005.50
SCALE: 1" = 20'
SEAL: STATE OF MARYLAND BRETT V. LONG 36617 PROFESSIONAL ENGINEER
12-13-2017
BY: RW/KT
CHECK: MDT/MWT
DWG. NO.:

12/13/2017 I:\Projects\13005.50 Longview Stream Restoration\CAD\Plans\ec01ler.dwg

MATCHLINE - SHEET 5

BRICK HOUSE ON THE PIKE HOMEOWNERS ASSN INC
LIBER 4192 FOLIO 701
MAP 24 GRID 3 PARCEL 640

RUSSEL AND CAROLYN RODER
LIBER 16406 FOLIO 329
MAP 24 GRID 3 PARCEL 649

BRIAN AND AMY DOCKINS
LIBER 8048 FOLIO 119
MAP 24 GRID 3 PARCEL 640

PAUL AND WF COLES
LIBER 376 FOLIO
MAP 24 GRID 3 PARCEL 640

LUTHER AND ELIZABETH MASON
LIBER 8647 FOLIO 549
MAP 24 GRID 3 PARCEL 642

ZHONGYAN ZHANG AND WEIDONG LI
LIBER 16023 FOLIO 87
MAP 24 GRID 4 PARCEL 640

BALTIMORE NATIONAL PIKE MD ROUTE 40

BROOKMEDE RD

LONGVIEW DRIVE

EX. PUBLIC 100 YR FLOOD PLAIN, DRAINAGE AND UTILITY EASEMENT P.N. 12148

PR. DRAINAGE EASEMENT

REPLACE SPLIT RAIL FENCE AS DIRECTED BY ON SITE ENGINEER

4' HIGH SPLIT RAIL FENCE

NO CONSTRUCTION VEHICLES PAST THIS POINT- ALL WORK TO BE CONDUCTED BY HAND

PLACE COIR LOG PLUGS BY HAND AS DIRECTED BY ON SITE ENGINEER

TIE INTO EX. UTILITY EASEMENT

STONE TOE PROTECTION

STONE : d_{50} = 6 IN

STONE : MD SHA CLASS I RIPRAP

FLOODPLAIN BENCH SEE TYPICAL XS DETAIL

BEGIN 2' GIS CONTOURS

END 2' GIS CONTOURS

REMOVE AND REPLACE ASPHALT AS DIRECTED BY ENGINEER ON SITE

GUARD RAIL W-BEAM

PLACE GUARDRAIL AS DIRECTED BY ON SITE ENGINEER

REMOVE AND REPLACE RIPRAP AS DIRECTED BY ENGINEER ON SITE

REINFORCE EXISTING GRASS SWALE WITH RIPRAP AS DIRECTED BY ENGINEER ON SITE

PLACE FENCE AS DIRECTED BY ON SITE ENGINEER

SEE REVISION NOTE 1

REVISION NOTE:
1. REPAIR OF THIS AREA WAS PERFORMED IN JULY 2018 AFTER MAY 2018 FLOODING DEVASTATED THE PROJECT AREA. DESIGN FOR REPAIRS WAS DEVELOPED COLLABORATIVELY BY THE CONTRACTOR, HOWARD COUNTY, AND BIOHABITATS. SURFACE REPAIRS ARE CAPTURED IN THIS AS-BUILT.

NOTES:
1. CONTRACTOR SHALL TEST PIT EXISTING 14" ACP SANITARY UTILITY PRIOR TO STARTING WORK TO CONFIRM HORIZONTAL LOCATION AND THAT DEPTH OF COVER IS TWO FEET MINIMUM.
2. CONTRACTOR SHALL PLACE HARDWOOD TIMBER MATS OVER THE EXISTING 14" ACP WITHIN 10 FEET OF THE UTILITY LOCATION. MATS SHALL BE PLACED SUCH THAT NO MAT JOINT IS LOCATED DIRECTLY OVER THE EXISTING UTILITY.
3. SUPPLEMENT EXISTING OUTFALL PROTECTION ALONG STREAM BED WITH CLASS I RIPRAP AS DIRECTED TO RESTORE TO A FUNCTIONING CONDITION. ADEQUATE PROTECTION SHALL EXTEND A MINIMUM OF 55' DOWNSTREAM OF THE LONGVIEW DRIVE CULVERT.

TRAVERSE TABLE			
POINT	NORTHING	EASTING	ELEVATION
1	586933.85	1357436.12	370.30
2	587105.39	1357380.04	362.69
3	587347.83	1357395.91	368.96
100	586832.01	1357441.76	370.88
101	586949.92	1357250.55	373.17
102	587465.41	1357384.47	368.63

HORIZONTAL SCALE
0 20 40

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 12/19/17

12/13/2017 E:\Projects\13005.50 Longview Stream Restoration\CAD\Plans\pc01lar.dwg

CLIENT

HOWARD COUNTY DPW
BUREAU OF ENVIRONMENTAL SERVICES
STORMWATER MANAGEMENT DIVISION
6751 GATEWAY DRIVE, SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-6413

DATE	ISSUES / REVISIONS

STATE OF MARYLAND — BRETT V. LONG — 36611 — PROFESSIONAL ENGINEER
10-9-2018

AS BUILT CERTIFICATION

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

Brett Long — NAME — 10-9-2018 DATE

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Restore the Earth & Inspire Ecological Stewardship

LONGVIEW DRIVE STREAM STABILIZATION

SITE ADDRESS: 9509 LONGVIEW DR, ELLICOTT CITY, MD
ZONING: R-20, R-ED — TAX MAP/GRID/PARCEL: 0024/0003/0640
ELECTION DISTRICT: 02 — OPEN LOT N/A
WAIVER PETITION WP-18-022

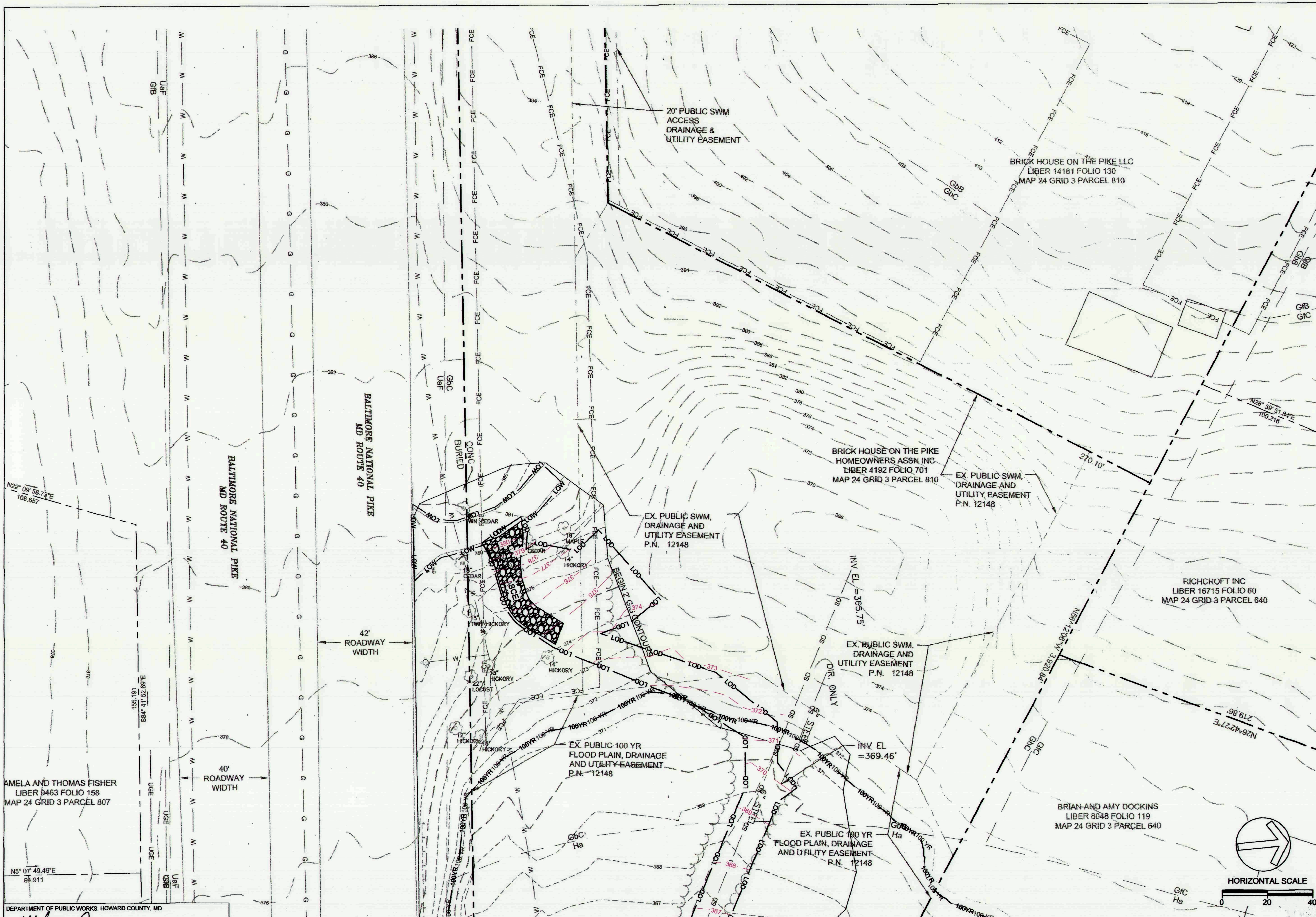
TITLE:

PROPOSED CONDITIONS

PROJECT NO.: 13005.50
SCALE: 1" = 20'
SEAL:
BY: RW/KT
CHECK: MDT/MWT
DWG. NO.:

STATE OF MARYLAND — BRETT V. LONG — 36611 — PROFESSIONAL ENGINEER
12-13-2017

4 OF 18



DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 12/19/17

MATCHLINE - SHEET 4

Reuse of

12/13/2017 I:\Projects\13005.50 Longview Stream Restoration\CAD\Plans\pc01sr.dwg

CLIENT

HOWARD COUNTY DPW
BUREAU OF ENVIRONMENTAL SERVICES
STORMWATER MANAGEMENT DIVISION
6751 GATEWAY DRIVE, SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-6413

DATE	ISSUES / REVISIONS

STATE OF MARYLAND — BRETT V. LONG — PROFESSIONAL ENGINEER — 36617

10-9-2018

AS BUILT CERTIFICATION

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

NAME: Brett Long — DATE: 10-9-2018

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

LONGVIEW DRIVE STREAM STABILIZATION

SITE ADDRESS: 9509 LONGVIEW DR, ELLICOTT CITY, MD
ZONING: R-20, R-ED — TAX MAP/GRID/PARCEL: 0024/0003/0640
ELECTION DISTRICT: 02 — OPEN LOT N/A
WAIVER PETITION WP-18-022

TITLE:

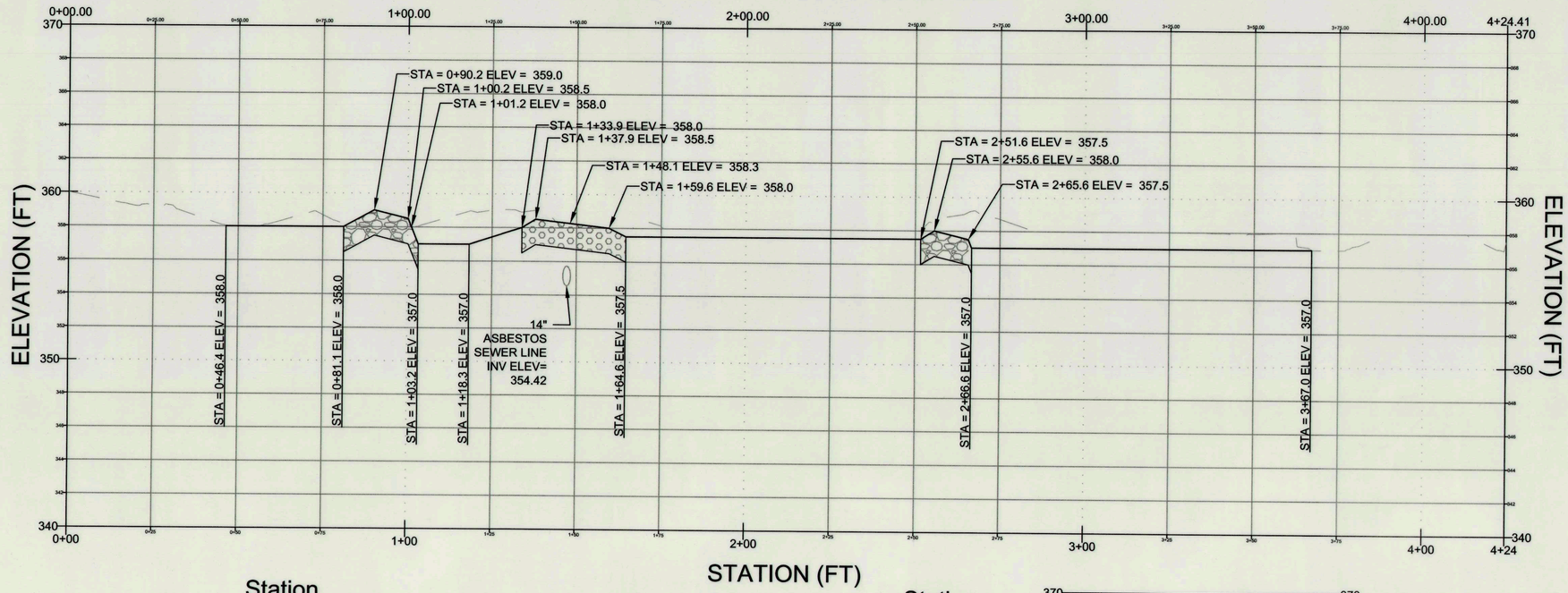
PROPOSED CONDITIONS

PROJECT NO.: 13005.50	SCALE: 1" = 20'
BY: RW/KT	CHECK: MDT/MWT
DWG. NO.:	5 OF 18

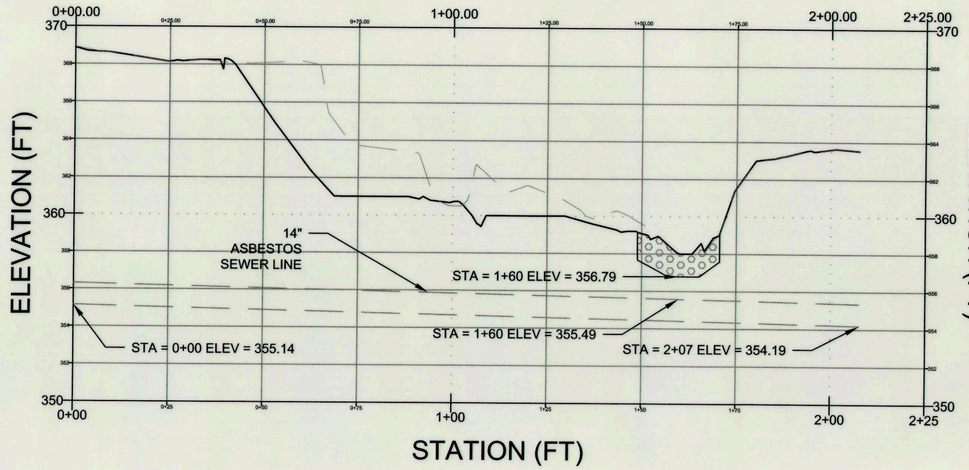
SEAL: STATE OF MARYLAND — BRETT V. LONG — PROFESSIONAL ENGINEER — 36617

12-13-2017

PROFILE VIEW OF PLUMTREE BRANCH



PROFILE VIEW OF SEWER



PROFILE LEGEND

- EXISTING GRADE
- PROPOSED GRADE
- 14" ASBESTOS SEWER LINE
- COBBLE RIFFLE GRADE CONTROL
- MD SHA CLASS I RIPRAP GRADE CONTROL

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

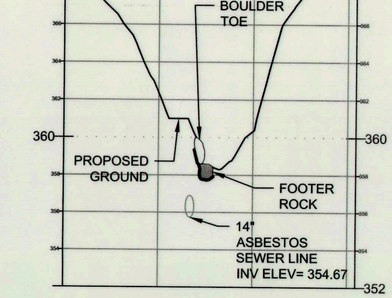
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 12/19/17

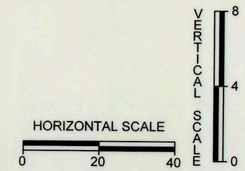
SEWER CROSS-SECTION WITH BOULDER TOE PROTECTION

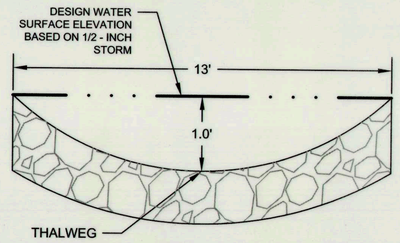
PROFILE STA 0+83.5

REFER TO SHEET 7 FOR DETAIL

VERT: 1" = 4'
HOR: 1" = 20'







COBBLE RIFFLE GRADE CONTROL CROSS-SECTIONS

PROFILE STA 0+90.2, 1+37.9; 2+55.6

NTS

CLIENT

HOWARD COUNTY DPW
BUREAU OF ENVIRONMENTAL SERVICES
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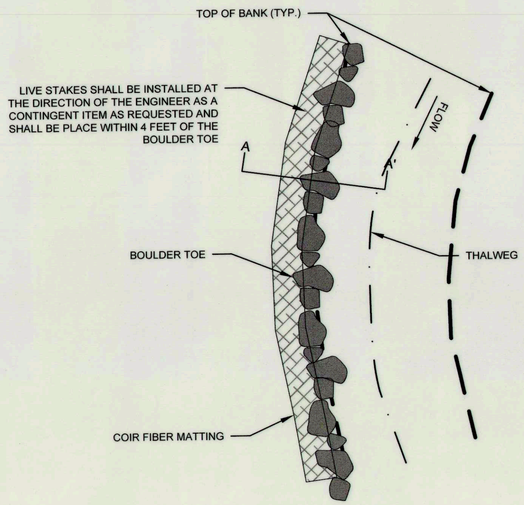
ELECTION DISTRICT: 02 — OPEN LOT N/A
WAIVER PETITION WP-18-022

TITLE:

PROFILE AND CROSS SECTION

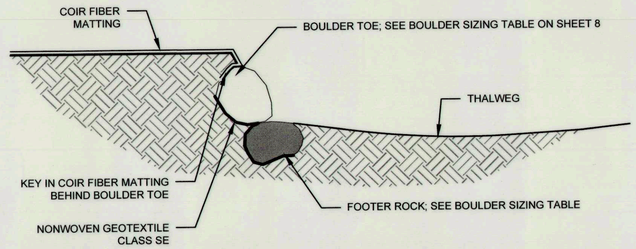
PROJECT NO.: 13005.50 — SCALE: NTS
SEAL: STATE OF MARYLAND — SCOTT V. LONG — 36617 — PROFESSIONAL ENGINEER — 12-13-2017
BY: RW/KT — CHECK: MDT/MWT
DWG. NO.: 6 OF 18

12/13/2017 I:\Projects\13005.50 Longview Stream Restoration\CAD\Plans\cs01lsr.dwg



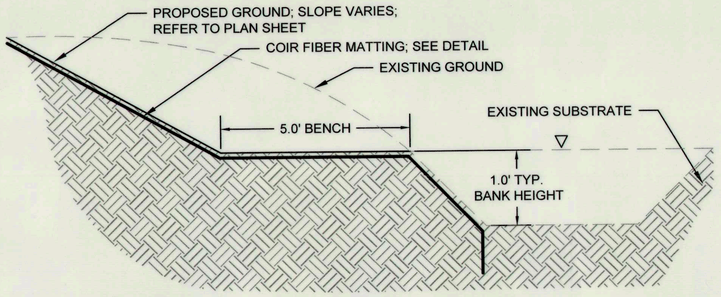
BOULDER TOE PROTECTION
PLAN -TYPICAL

NOT TO SCALE



BOULDER TOE PROTECTION
SECTION A-A'

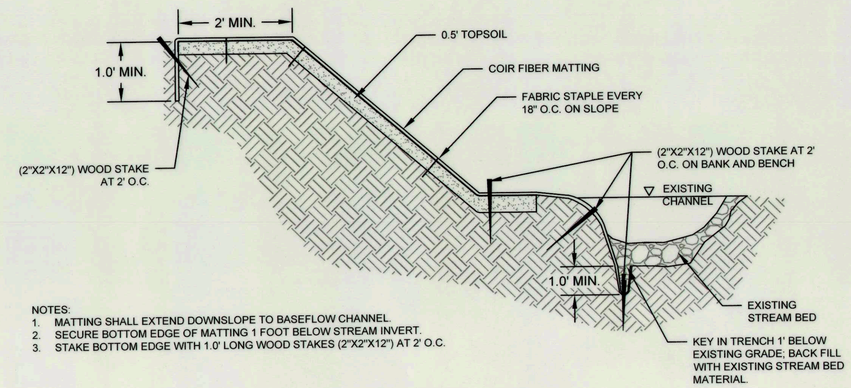
NOT TO SCALE



TYPICAL BANK HEIGHT- CROSS SECTION

STA 0+15.9 LT TO 2+36.3 LT

NOT TO SCALE

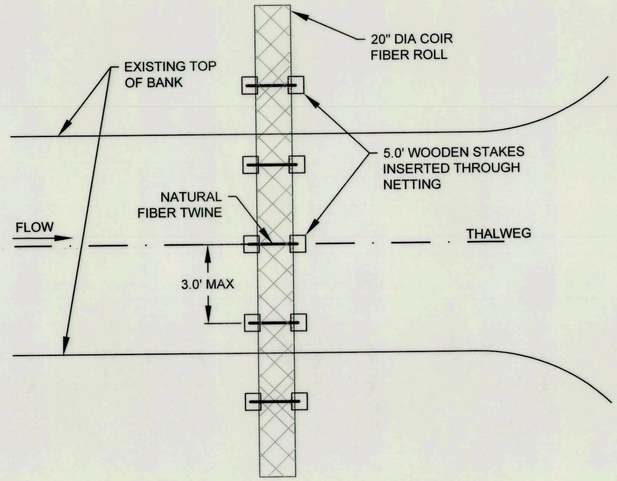


NOTES:
1. MATTING SHALL EXTEND DOWNSLOPE TO BASEFLOW CHANNEL.
2. SECURE BOTTOM EDGE OF MATTING 1 FOOT BELOW STREAM INVERT.
3. STAKE BOTTOM EDGE WITH 1.0' LONG WOOD STAKES (2"X2"X12") AT 2' O.C.

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

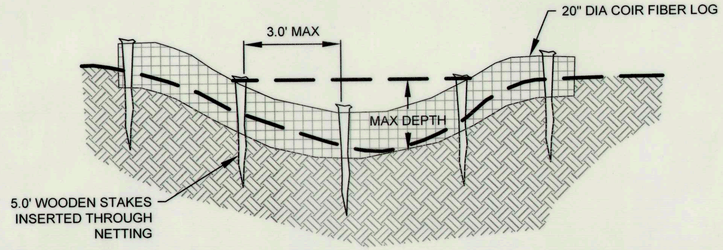
COIR FIBER MATTING - TYPICAL SLOPE CROSS SECTION

NOT TO SCALE



COIR FIBER LOG PLUG
PLAN VIEW - TYPICAL

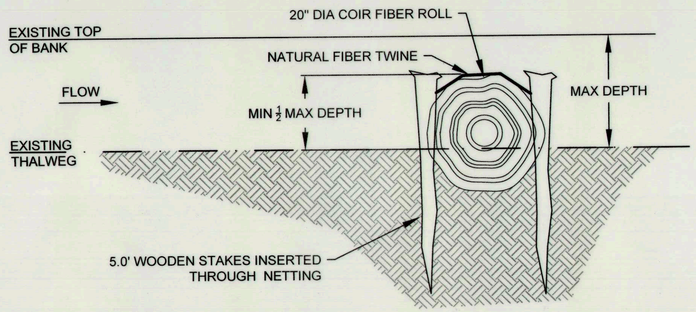
NOT TO SCALE



NOTES:
1. TOP OF PLUG SHALL BE AT LEAST $\frac{1}{2}$ BUT NOT GREATER THAN $\frac{3}{4}$ OF MAX DEPTH OF CHANNEL.
2. THE CONTRACTOR SHALL BE REQUIRED TO ADD ADDITIONAL STAKES AS NEEDED TO ENSURE STABILITY OF THE COIR LOG. THE CONTRACTOR MAY ALSO BE REQUIRED TO VARY THE ORIENTATION OF THE STAKE IN ORDER TO IMPROVE STABILITY AND/OR EASE OF INSTALLATION.

COIR FIBER LOG PLUG
CROSS SECTION- TYPICAL

NOT TO SCALE



COIR FIBER LOG PLUG
PROFILE VIEW- TYPICAL

NOT TO SCALE

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

Howard SCD — Date 1/2/18

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 12/19/17

12/13/2017 I:\Projects\13005.50 Longview Stream Restoration\CAD\Plans\dt011sr.dwg

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LONGVIEW DRIVE STREAM STABILIZATION

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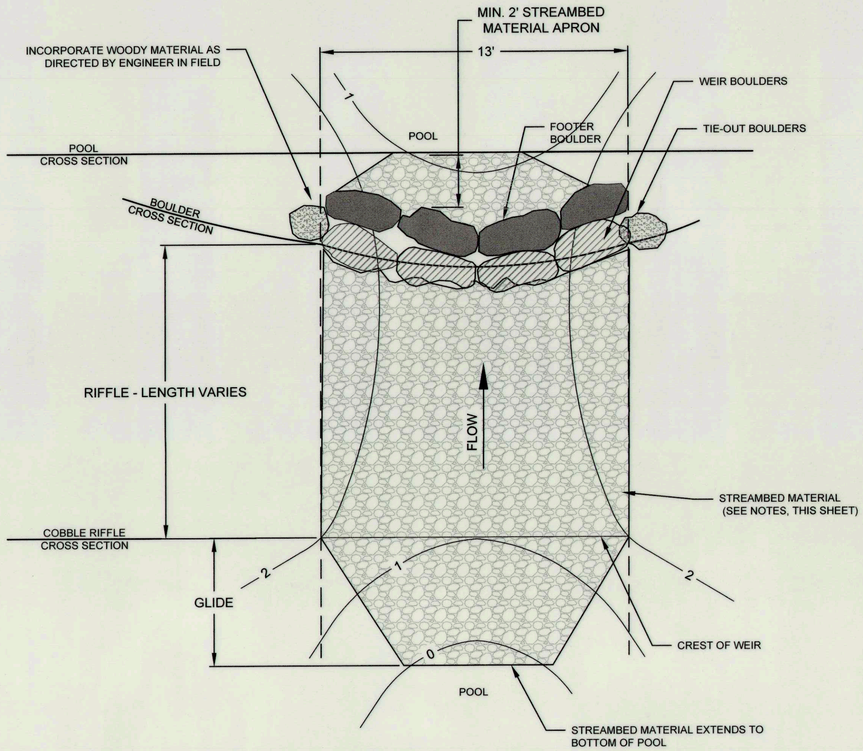
ELECTION DISTRICT: 02 — OPEN LOT N/A
WAIVER PETITION WP-18-022

TITLE:

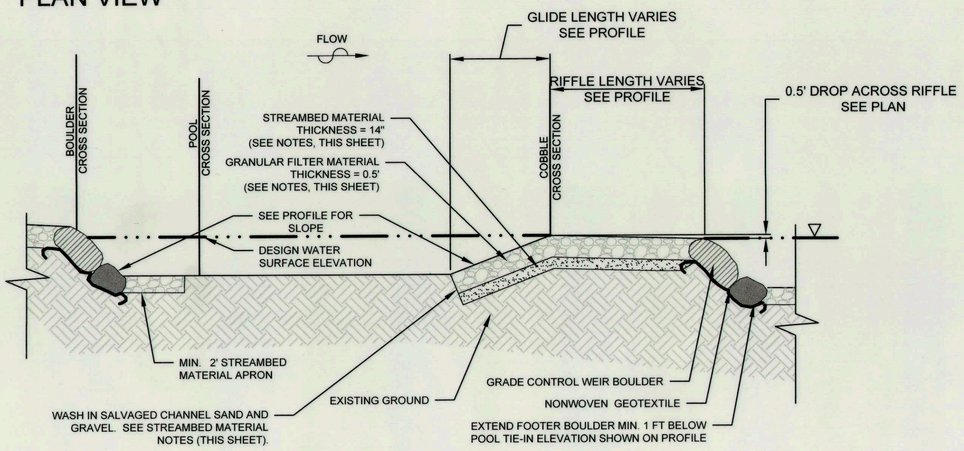
DETAILS

PROJECT NO.: 13005.50 — SCALE: NTS
SEAL: STATE OF MARYLAND — ROBERT V. LOGAN — 36611 — PROFESSIONAL ENGINEER — 12-18-2017
BY: RW/KT — CHECK: MDT/MWT
DWG. NO.: 7 OF 18



COBBLE RIFFLE GRADE CONTROL
PLAN VIEW

NOT TO SCALE



COBBLE RIFFLE GRADE CONTROL NOTES:
1. ALL COBBLE RIFFLE GRADE CONTROL STRUCTURES SHALL BE CONSTRUCTED FROM DOWNSTREAM TO UPSTREAM
2. REFER TO STREAMBED MATERIAL NOTES FOR DIRECTIONS FOR HOW RIFFLE GRADE CONTROL MATERIAL SHALL BE PLACED.
3. CONTRACTOR AND ENGINEER SHALL WALK SITE TO IDENTIFY SUITABLE MATERIAL FOR ALL COBBLE RIFFLE GRADE CONTROLS.
4. CONTRACTOR SHALL EXHAUST SUITABLE MATERIALS FROM ON-SITE EXCAVATION PRIOR TO IMPORTING NEW COBBLE RIFFLE GRADE CONTROL MATERIALS.
5. ENGINEER WILL APPROVE ALL ON-SITE MATERIAL.
6. ALL COBBLE RIFFLE GRADE CONTROL MATERIAL MUST BE CLEAN AND FREE FROM TRASH.
7. INCORPORATE LARGE WOODY DEBRIS IN POOLS AS DIRECTED BY ENGINEER IN FIELD.
8. WHERE EXISTING CHANNEL INVERT IS AT OR HIGHER THAN FINISHED GRADE, FILL IS NOT NEEDED.

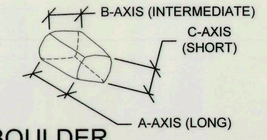
COBBLE RIFFLE GRADE CONTROL
PROFILE

NOT TO SCALE

COBBLE RIFFLE GRADATION TABLE		
CUMULATIVE % FINER	STREAMBED MATERIAL RIFFLES SIZE (IN)	GRAVEL ALL REACHES SIZE (IN)
10	2.6	1/4
15	3.0	N/A
30	4.3	1/2
50	6.0	1
85	8.5	2
100	9.6	3

GRANULAR FILTER MATERIAL	
CUMULATIVE % FINER	COBBLE SIZE (IN)
3-20	No. 200
20-50	No. 40
35-70	No. 10
60-100	½ in
85-100	1 in
100	2 ½ in

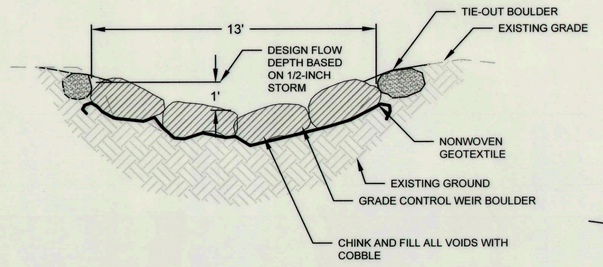
RIFFLE NOTES:
1. TIE-OUT BOULDER SHALL EXTEND A MIN. OF ONE BOULDER LENGTH INTO EXISTING BANK. WHERE THIS CONFLICTS WITH EXISTING TREE ROOTS OR BEDROCK, TIE-OUT BOULDER MAY BE ELIMINATED OR ADJUSTED AT DIRECTION OF OWNER.
2. SEE TYPICAL SECTIONS FOR DEPTH AND WIDTH AT BOULDER CROSS SECTION.
3. STREAMBED MATERIAL DEPTH VARIES BETWEEN MAINSTEM AND TRIBUTARY. SEE PROFILE.
4. APRON MATERIAL SHALL CONSIST OF STREAMBED MATERIAL OF THE SAME GRADATION AS THE RIFFLE.
5. GRAVEL MATERIAL SHALL BE MIXED, WORKED IN, OR WASHED INTO THE STREAMBED MATERIAL TO THE SATISFACTION OF THE ENGINEER. THE QUANTITY OF GRAVEL MATERIAL REQUIRED MAY BE UP TO 25% OF THE VOLUME OF STREAMBED MATERIAL.
6. SUITABLE GRAVEL MATERIAL HARVESTED ON-SITE SHALL BE USED PRIOR TO IMPORTING GRAVEL.
7. GRANULAR FILTER MATERIAL IS A SUITABLE SUBSTITUTION FOR GRAVEL MATERIAL.
8. NUMBER OF BOULDERS VARIES DEPENDING ON TYPICAL SECTIONS AND BOULDER DIMENSIONS.
9. ALL BOULDER RIFFLES SHALL USE CLASS 2 RIPRAP AS STREAM BED MATERIAL.



BOULDER
BOULDER AXIS

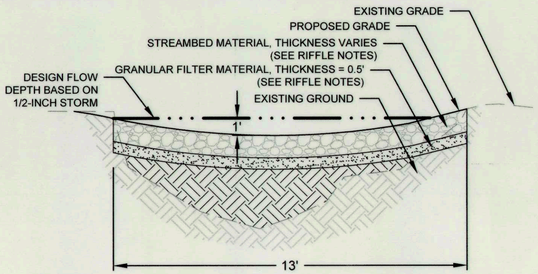
NOT TO SCALE

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



COBBLE RIFFLE GRADE CONTROL
BOULDER CROSS SECTION

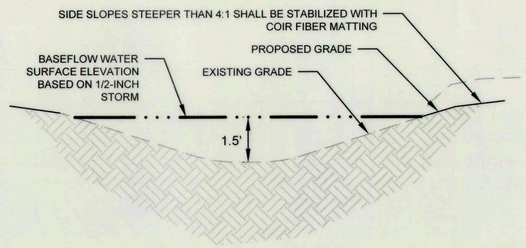
NOT TO SCALE



STREAMBED MATERIAL NOTES:
1. PLACE COBBLE IN A LIFT WITH THICKNESS EQUAL TO THE LARGEST STONE IN GRADATION. DO NOT DROP STONES FROM A HEIGHT GREATER THAN 2 FEET ABOVE THE FINISHED SUBGRADE.
2. PLACE SAND AND GRAVEL ON TOP OF EACH LIFT OF THE FRAMEWORK GRADATION AND USE PRESSURIZED WATER TO WASH THE FINES INTO THE VOIDS IN THE STONE LAYER. APPLY WATER SUFFICIENT TO ASSURE THAT ALL VOID SPACES ARE FILLED.
3. REMOVE ANY EXCESS SAND AND GRAVEL PRIOR TO PLACING THE NEXT LIFT OF COBBLE TO ASSURE COBBLE-TO-COBBLE CONTACT AND THAT THE SUBSEQUENT LIFT DOES NOT REST ON SAND AND GRAVEL.
4. PLACE THE NEXT LIFT AS DESCRIBED ABOVE UNTIL THE FINISH GRADE HAS BEEN REACHED.
5. ALL SAND AND GRAVEL SHALL BE APPROVED BY ENGINEER. SHOULD SUITABLE MATERIAL NOT BE AVAILABLE ON SITE, FURNISHED MATERIAL MEETING SPECIFICATIONS FOR GRANULAR FILL MAY BE USED AS APPROVED BY ENGINEER.

COBBLE RIFFLE GRADE CONTROL
COBBLE RIFFLE CROSS SECTION

NOT TO SCALE



FILL MATERIAL NOTES IF REQUIRED:
1. FILL MATERIAL SHALL BE SUITABLE MATERIAL FROM ON-SITE EXCAVATIONS FIRST, THEN FROM OTHER SOURCES.
2. THE MATERIAL SHALL BE CLEAN EARTH.
3. THE MATERIAL SHALL BE FREE FROM VEGETABLE MATTER, ORGANIC MATERIAL, SLUDGE, GRIT, TRASH, DEBRIS, MUCK, SWAMP MUCK, ROOTS, ROOT MAT,LOGS, STUMPS, TREE STUMPS, BRUSH, FROZEN MATERIAL OR OTHER DELETERIOUS SUBSTANCES.

COBBLE RIFFLE GRADE CONTROL
POOL CROSS SECTION

NOT TO SCALE

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

Howard SCD — Date 1/2/18

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 12/19/17

CLIENT

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LONGVIEW DRIVE STREAM STABILIZATION

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TITLE:

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CHECK: MDT/MWT
SEAL: STATE OF MARYLAND — BRETT V. LOVELL — 36617 — PROFESSIONAL ENGINEER — 12-13-2017
DWG. NO.: 8 OF 18

MATCHLINE - SHEET 10

BRICK HOUSE ON THE PIKE HOMEOWNERS ASSN INC
LIBER 4192 FOLIO 701
MAP 24 GRID 3 PARCEL 640

RUSSEL AND CAROLYN RODER
LIBER 16406 FOLIO 329
MAP 24 GRID 3 PARCEL 640

BRIAN AND AMY DOCKINS
LIBER 8048 FOLIO 119
MAP 24 GRID 3 PARCEL 640

ZHONGYAN ZHANG AND WEIDONG LI
LIBER 16023 FOLIO 87
MAP 24 GRID 4 PARCEL 640

WILLIAM AND CYNTHIA MEYER
LIBER 2803 FOLIO 554
MAP 24 GRID 4 PARCEL 640

PAUL AND WF COI
LIBER 376 FOLIO
MAP 24 GRID 3 PARCEL 640

LUTHER AND ELIZABETH M
LIBER 8647 FOLIO 54
MAP 24 GRID 3 PARCEL

JANET FOW
LIBER 10497 FO
MAP 24 GRID 3 P

BROOKMEDE RD

LONGVIEW DRIVE

BALTIMORE NATIONAL PIKE MD RO

EX. PUBLIC 100 YR FLOOD PLAIN, DRAINAGE AND UTILITY EASEMENT P.N. 12148

NO CONSTRUCTION VEHICLES PAST THIS POINT- ALL WORK TO BE CONDUCTED BY HAND

PROTECT SEWER MH IN PLACE WITH FENCING

PR. DRAINAGE EASEMENT

STUMP TO REMAIN

SANDBAG DIKE TOP ELEV 363'

STONE DELIVERIES SHALL NOT BE DUMPED IN THE VICINITY OF THE SANITARY SEWER

TIE INTO EX. UTILITY EASEMENT

REMOVE AND DISPOSE OF WOODY DEBRIS

SANDBAG DIKE TOP ELEV 361'

STONE : MD SHA CLASS I RIPRAP

STONE : d_{50} = 6 IN

PR. DRAINAGE EASEMENT

BEGIN 2' GIS CONTOURS

END MACADAM START CONCRETE

HEADWALL INV EL=359.74'

HEADWALL INV EL=359.83'

HEADWALL INV EL=359.39'

HEADWALL INV EL=359.44'

SSMH TOP=375.89 COULD NOT OPEN

SSMH TOP=364.25 INV IN=354.19 INV OUT=354.14

SSMH TOP=369.58 INV IN=353.60 INV OUT=353.56

SSMH TOP=368.87 INV IN=355.16 INV IN=355.16 INV OUT=355.14

SSMH TOP=371.98 INV EL=360.64

HEADWALL INV EL=350.67

E: 1357250.0
N: 587100.0

E: 1357500.0
N. 587100.0

E: 1357250.0
N: 587340.0

HORIZONTAL SCALE
0 20 40

TRAVERSE TABLE			
POINT	NORTHING	EASTING	ELEVATION
1	586933.85	1357436.12	370.30
2	587105.39	1357380.04	362.69
3	587347.83	1357395.91	368.96
100	586832.01	1357441.76	370.88
101	586949.92	1357250.55	373.17
102	587465.41	1357384.47	368.63

NOTES:
1. ORANGE CONSTRUCTION FENCE SHALL BE INSTALLED ALONG THE LOD AS DIRECTED BY THE ONSITE ENGINEER. FENCE SHALL BE PLACED TO FORCE TRAVEL ALONG FULL EXTENTS OF INGRESS AND EGRESS.
2. CONTRACTOR SHALL TEST PIT EXISTING 14" ACP SANITARY UTILITY PRIOR TO STARTING WORK TO CONFIRM HORIZONTAL LOCATION AND THAT DEPTH OF COVER IS TWO FEET MINIMUM.
3. CONTRACTOR SHALL PLACE HARDWOOD TIMBER MATS OVER THE EXISTING 14" ACP WITHIN 10 FEET OF THE UTILITY LOCATION. MATS SHALL BE PLACED SUCH THAT NO MAT JOINT IS LOCATED DIRECTLY OVER THE EXISTING UTILITY.
4. UNLESS OTHERWISE NOTED, ALL DISTURBED AREAS WITHIN L.O.D. CONSISTING OF EXISTING STEEP (>20%) SLOPES OR HIGHLY ERODIBLE SOILS SHALL BE STABILIZED USING TYPE A (NET FREE) SSM OR AS DIRECTED BY THE ON-SITE CID INSPECTOR AND/OR ENGINEER.
5. SUPPLEMENT EXISTING OUTFALL PROTECTION ALONG STREAM BED WITH CLASS I RIPRAP AS DIRECTED TO RESTORE TO A FUNCTIONING CONDITION. ADEQUATE PROTECTION SHALL EXTEND A MINIMUM OF 55' DOWNSTREAM OF THE LONGVIEW DRIVE CULVERT.

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 12/9/17

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Howard SCD — Date 1/2/18

12/13/2017 I:\Projects\13005.50 Longview Stream Restoration\CAD\Plans\es01lsr.dwg

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TITLE:
EROSION & SEDIMENT CONTROL PLAN

PROJECT NO.: 13005.50
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BY: RW/KT
CHECK: MDT/MWT
DWG. NO.: 9 OF 18

NOTE:

1. ORANGE CONSTRUCTION FENCE SHALL BE INSTALLED ALONG THE LOD AS DIRECTED BY THE ONSITE ENGINEER. FENCE SHALL BE PLACED TO FORCE TRAVEL ALONG FULL EXTENTS OF INGRESS AND EGRESS.
2. UNLESS OTHERWISE NOTED, ALL DISTURBED AREAS WITHIN L.O.D. CONSISTING OF EXISTING STEEP (>20%) SLOPES OR HIGHLY ERODIBLE SOILS SHALL BE STABILIZED USING TYPE A (NET FREE) SSM OR AS DIRECTED BY THE ON-SITE CID INSPECTOR AND/OR ENGINEER.

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 12/19/17

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

Howard SCD — Date 1/2/18

12/13/2017 I:\Projects\13005.50 Longview Stream Restoration\CAD\Plans\es01lar.dwg

CLIENT

HOWARD COUNTY DPW
BUREAU OF ENVIRONMENTAL SERVICES
STORMWATER MANAGEMENT DIVISION
6751 GATEWAY DRIVE, SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-6413

DATE ISSUES / REVISIONS

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

LONGVIEW DRIVE STREAM STABILIZATION

SITE ADDRESS: 9509 LONGVIEW DR, ELLICOTT CITY, MD
ZONING: R-20, R-ED — TAX MAP/GRID/PARCEL: 0024/0003/0640
ELECTION DISTRICT: 02 — OPEN LOT N/A
WAIVER PETITION WP-18-022

TITLE:

EROSION & SEDIMENT CONTROL PLAN

PROJECT NO.: 13005.50 — SCALE: 1" = 20'

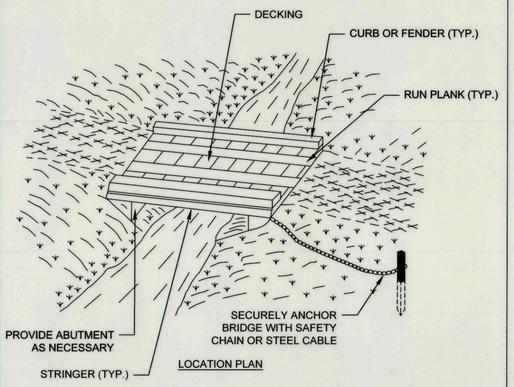
SEAL: STATE OF MARYLAND · BRENT V. LONG · 36617 · PROFESSIONAL ENGINEER · 12-13-2017

BY: RW/KT — CHECK: MDT/MWT

DWG. NO.: 10 OF 18

DETAIL H-4-1 TEMPORARY ACCESS BRIDGE

STANDARD SYMBOL: TB



LOCATION PLAN

NOTE:
TIME OF YEAR RESTRICTIONS DO NOT APPLY TO THE CONSTRUCTION OR REMOVAL OF A TEMPORARY ACESS BRIDGE UNLESS THERE IS DISTURBANCE TO THE STREAM CHANNEL.

1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL H-4-1 TEMPORARY ACCESS BRIDGE

STANDARD SYMBOL: TB

CONSTRUCTION SPECIFICATIONS

1. CONSTRUCT TEMPORARY BRIDGE STRUCTURE AT OR ABOVE THE BANK ELEVATION TO PREVENT IMPACTS FROM FLOATING MATERIALS AND DEBRIS.
2. PLACE ABUTMENTS PARALLEL TO, AND ON, STABLE BANKS.
3. CONSTRUCT BRIDGE TO SPAN ENTIRE CHANNEL UNLESS OTHERWISE INDICATED ON APPROVED PLAN.
4. USE STRINGERS CONSISTING OF LOGS, SAWN TIMBER, PRESTRESSED CONCRETE BEAMS, METAL BEAMS, OR OTHER APPROVED MATERIALS.
5. SELECT DECKING MATERIALS TO PROVIDE SUFFICIENT STRENGTH TO SUPPORT THE ANTICIPATED LOAD. PLACE ALL DECKING MEMBERS PERPENDICULAR TO THE STRINGERS, BUTT TIGHTLY, AND SECURELY FASTEN. DECKING MATERIALS MUST BE BUTTED TIGHTLY TO PREVENT ANY SOIL MATERIAL TRACKED ONTO THE BRIDGE FROM FALLING INTO THE WATERWAY BELOW.
6. SECURELY FASTEN OPTIONAL RUN PLANKING FOR THE LENGTH OF THE SPAN. PROVIDE A RUN PLANK FOR EACH TRACK OF THE EQUIPMENT WHEELS. ALTHOUGH RUN PLANKS ARE OPTIONAL, THEY MAY BE NECESSARY TO PROPERLY DISTRIBUTE LOADS.
7. INSTALL CURBS THE ENTIRE LENGTH OF THE OUTER SIDES OF THE DECK TO PREVENT SEDIMENT FROM ENTERING THE STREAM CHANNEL.
8. ANCHOR BRIDGE SECURELY AT ONLY ONE END USING STEEL CABLE OR CHAIN. ANCHORING AT ONLY ONE END WILL PREVENT CHANNEL OBSTRUCTION IN THE EVENT THAT FLOODWATERS FLOAT THE BRIDGE. ACCEPTABLE ANCHORS ARE LARGE TREES, LARGE BOULDERS, OR DRIVEN STEEL POSTS. ANCHOR MUST BE SUFFICIENT TO PREVENT THE BRIDGE FROM FLOATING DOWNSTREAM.
9. AREAS DISTURBED DURING BRIDGE INSTALLATION AND\OR REMOVAL MUST NOT BE LEFT UNSTABILIZED OVERNIGHT UNLESS THE RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.
10. STABILIZE APPROACH TO BRIDGE AND KEEP FREE OF EROSION. CLEAN SEDIMENT FROM DECKING AND CURBS DAILY BY SCRAPING, SWEEPING, AND/OR VACUUMING. ENSURE THAT DECKING AND CURBS REMAIN TIGHTLY BUTTED WITHOUT GAPS. REMOVE DEBRIS TRAPPED BY BRIDGE. MAINTAIN AREAS ADJACENT TO CROSSING TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
11. AFTER THE TEMPORARY CROSSING IS NO LONGER NEEDED, REMOVE IT WITHIN 14 CALENDAR DAYS.
IF SUBJECT TO THE USE DESIGNATION CLOSURE, REMOVE AT THE END OF CLOSURE PERIOD. PROTECT STREAM BANKS DURING BRIDGE REMOVAL AND STABILIZE ALL DISTURBED AREAS WITH EROSION CONTROL MATTING. ACCOMPLISH REMOVAL OF THE BRIDGE AND CLEAN UP OF THE AREA WITHOUT CONSTRUCTION EQUIPMENT WORKING IN THE WATERWAY CHANNEL. STORE ALL REMOVED MATERIALS IN AN APPROVED STAGING AREA.

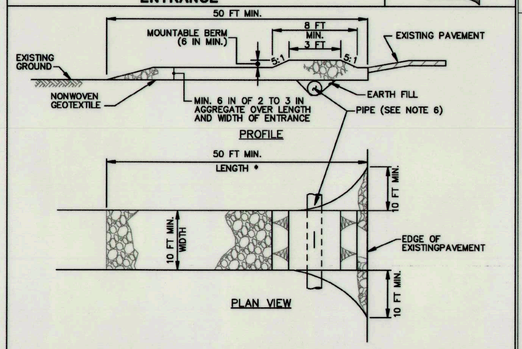
2 OF 2

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 B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

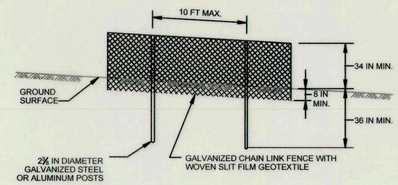
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*50 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING 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.

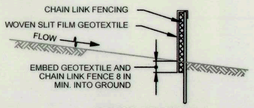
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: SSF





CONSTRUCTION SPECIFICATIONS

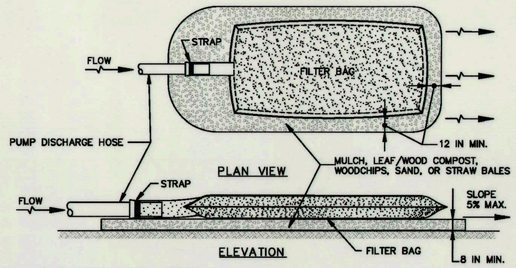
1. INSTALL 2½ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2½ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG 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 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

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 (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
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)	0.15–0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632

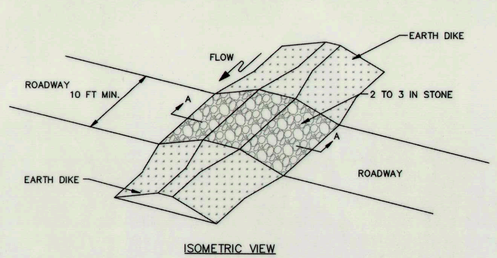
6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

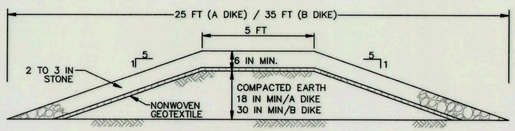
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL C-8 MOUNTABLE BERM

STANDARD SYMBOL: MB



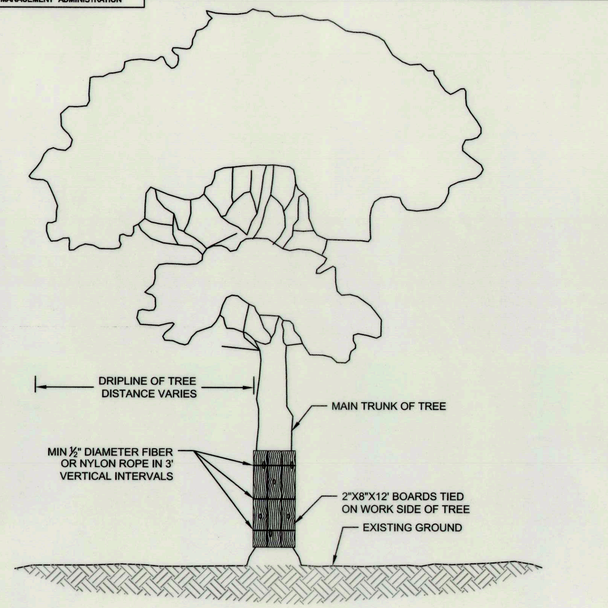


CONSTRUCTION SPECIFICATIONS

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



NOTES:
1. TIE SUFFICIENT 2"X8"X12' BOARDS AROUND MAIN TRUNK OF TREE WITH ½" DIAMETER ROPE (FIBER OR NYLON) TO PROTECT ALL AREAS EXPOSED TO CONSTRUCTION.
2. INSTALL WIRE EYE BOLTS WITH MINIMUM INNER DIAMETER OF ⅝" AND MINIMUM LENGTH OF 4" FIRMLY IN EACH PLANK WHERE FIBER OR NYLON ROPES CROSS OVER PLANKS.
3. WHERE SIGNIFICANT TREE BRANCHES EXIST WHICH PREVENT PLANK INSTALLATION, PLANKING SHALL EXTEND TO THE ELEVATION OF THE LOWEST BRANCH.

STANDARD SYMBOL: TS

TREE PLANKING

NOT TO SCALE

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

Howard SCD — Date 12/18

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 12/18/17

12/13/2017 I:\Projects\13005.50 Longview Stream Restoration\CAD\Plans\dt01lsr.dwg

CLIENT

HOWARD COUNTY DPW
BUREAU OF ENVIRONMENTAL SERVICES
STORMWATER MANAGEMENT DIVISION
6751 GATEWAY DRIVE, SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-6413

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Restore the Earth & Inspire Ecological Stewardship

LONGVIEW DRIVE STREAM STABILIZATION

SITE ADDRESS: 9509 LONGVIEW DR. ELLICOTT CITY, MD
ZONING: R-20, R-ED — TAX MAP/GRID/PARCEL: 0024/0003/0640
ELECTION DISTRICT: 02 — OPEN LOT N/A
WAIVER PETITION WP-18-022

TITLE:

EROSION & SEDIMENT CONTROL DETAILS

PROJECT NO.: 13005.50 — SCALE: NTS
SEAL: — BY: RW/KT — CHECK: MDT/MWT
DWG. NO.: 11 OF 18

STATE OF MARYLAND — BRENT V. TORCHIA — 36617 — PROFESSIONAL ENGINEER
12-13-2017

MGWC 1.2: PUMP-AROUND PRACTICE

Temporary measure for dewatering in-channel construction sites

DESCRIPTION

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

IMPLEMENTATION SEQUENCE

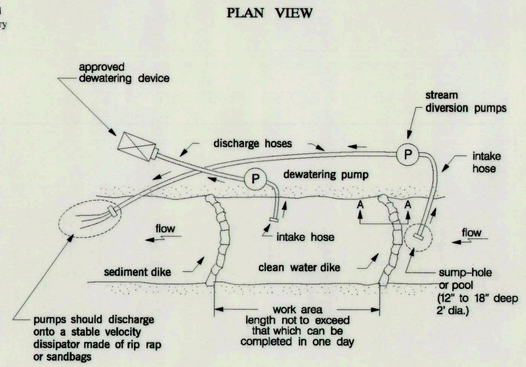
Sediment control measures, pump-around practices, and associated channel and bank construction should be completed in the following sequence (refer to Detail 1.2):

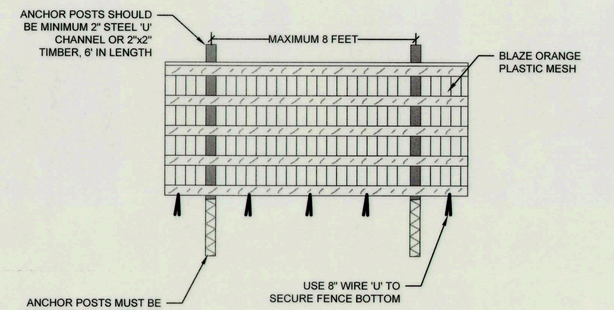
1. Construction activities including the installation of erosion and sediment control measures should not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities should be marked in the field prior to construction. The contractor is responsible for any damage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

MGWC 1.2: PUMP-AROUND PRACTICE

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

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



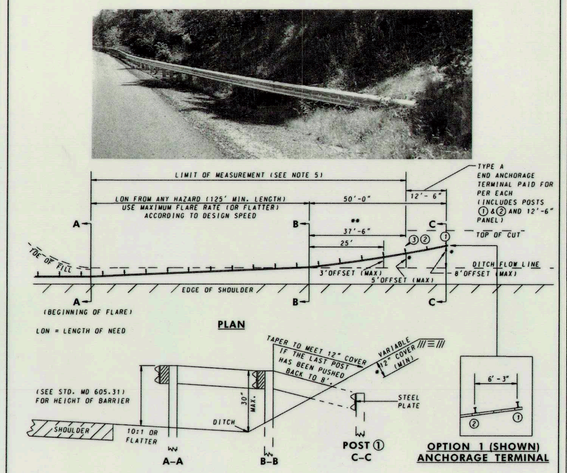


NOTES:

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

BLAZE ORANGE PLASTIC FENCE

NOT TO SCALE



* WHEN EARTH COVER OVER POST ① EXCEEDS 12". OFFSET DISTANCES 5" & 8" MAY BE LESSENED. HEIGHT OF THE PANEL MUST REMAIN CONSTANT RELATIVE TO DITCH ELEVATION.
** POSTS IN BACK OF DITCH BOTTOM MAY BE SHORTENED - MINIMUM EMBEDMENT INTO EXISTING GROUND IS 4'

NOTES

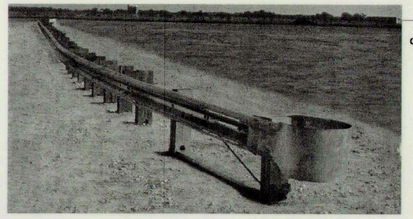
1. ALL POSTS SHALL BE 6' IN LENGTH. POSTS ① AND ② SHALL BE 4'- 0" IN LENGTH.
2. THE SLOPE BACK FILL MATERIAL SHALL BE COMPACTED FIRMLY TO THE ESTABLISHED SLOPE AND STABILIZED AS DIRECTED BY THE ENGINEER.
3. THE CONTRACTOR HAS THE OPTION TO CONSTRUCT THE END ANCHORAGE TERMINAL USING ONE OF THE TWO OPTIONS.
   OPTION 1 - 4" STEEL POSTS (SEE STD. MD 605.01-02).
   OPTION 2 - CONCRETE ANCHOR BLOCK (SEE STD. MD 605.01-03)
4. LOW SPEED INSTALLATIONS REQUIRES 50 FEET (MINIMUM) "LON".
5. PAID FOR PER LINEAR FOOT OF "TRAFFIC BARRIER W BEAM USING 6 FOOT POST." THE "END ANCHORAGE TERMINAL FOR TYPE A END TREATMENT EITHER OPTION." PAID FOR PER EACH.
6. FOR ALTERNATIVE OFFSET BLOCKS SEE STD. MD 605.21 NOTE 5.

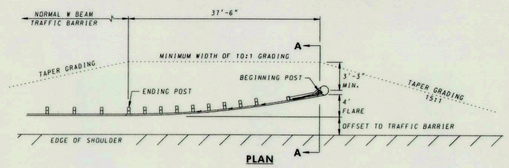
SPECIFICATION	CATEGORY CODE ITEMS
605	

APPROVED: Rick G. McCallett — DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT

SHA	APPROVAL • SHA	APPROVAL • FEDERAL HIGHWAY ADMINISTRATION
REVISIONS		
APPROVAL	11-10-99	7-3-99
REVISED	5-29-07	5-2-07
REVISED		
REVISED		

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
TRAFFIC BARRIER W BEAM WITH TYPE A END ANCHORAGE (SINGLE RAIL)
STANDARD NO. MD 605.01





NOTES APPLICABLE TO ALL TYPE B TERMINALS

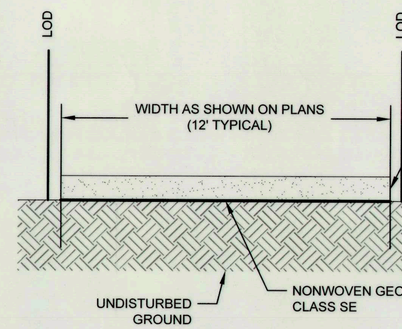
1. 6:1 MAX GRADING IS ALLOWABLE WHEN THE BARRIER IS LOCATED 12 FT. OR MORE FROM THE OUTSIDE EDGE OF SHOULDER.
2. END TREATMENT DELINEATION SHALL BE PLACED IN ACCORDANCE WITH STD. MD 605.02-01
3. 4' FLARE REQUIRED
4. TYPE B TERMINAL SHALL ONLY BE USED WHEN THE GRADING AS SHOWN AND THE REQUIRED LENGTH OF NEED IS PROVIDED.

SPECIFICATION	CATEGORY CODE ITEMS
605	

APPROVED: Rick G. McCallett — DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT

SHA	APPROVAL • SHA	APPROVAL • FEDERAL HIGHWAY ADMINISTRATION
REVISIONS		
APPROVAL	11-10-99	7-2-99
REVISED	12-17-12	12-17-12
REVISED		
REVISED		

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
TYPE B TRAFFIC BARRIER END TREATMENT
STANDARD NO. MD 605.02

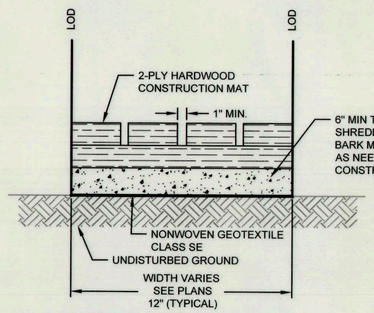


NOTES:

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

MULCH ACCESS ROAD

NOT TO SCALE



NOTES:

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

HARDWOOD MAT DETAIL
CROSS SECTION

NOT TO SCALE

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

Howard SCD — Date 1/2/18

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 12/13/17

CLIENT

HOWARD COUNTY DPW
BUREAU OF ENVIRONMENTAL SERVICES
STORMWATER MANAGEMENT DIVISION
6751 GATEWAY DRIVE, SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-6413

DATE | ISSUES / REVISIONS

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

LONGVIEW DRIVE STREAM STABILIZATION

SITE ADDRESS: 9509 LONGVIEW DR, ELLICOTT CITY, MD
ZONING: R-20, R-ED — TAX MAP/GRID/PARCEL: 0024/0003/0640
ELECTION DISTRICT: 02 — OPEN LOT N/A
WAIVER PETITION WP-18-022

TITLE:

EROSION & SEDIMENT CONTROL DETAILS

PROJECT NO.: 13005.50 | SCALE: NTS
SEAL: | BY: RW/KT | CHECK: MDT/MWT
DWG. NO.: 12 OF 18

STATE OF MARYLAND — SCOTT V. LONGO — 36617 — PROFESSIONAL ENGINEER
12-13-2017

B-4-3 STANDARDS AND SPECIFICATIONS

FOR

SEEDING AND MULCHING

Definition

The application of seed and mulch to establish vegetative cover.

Purpose

To protect disturbed soils from erosion during and at the end of construction.

Conditions Where Practice Applies

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

Criteria

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; P_2O_5 (phosphorous), 200 pounds per acre; K_2O (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, Terra Tack 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.

B-4-8 STANDARDS AND SPECIFICATIONS

FOR

STOCKPILE AREA

Definition

A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

Purpose

To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

Conditions Where Practice Applies

Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

Criteria

1. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.
3. Runoff from the stockpile area must drain to a suitable sediment control practice.
4. Access the stockpile area from the upgrade side.
5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.
7. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.
8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

Maintenance

The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land Grading.

B-4-1 STANDARDS AND SPECIFICATIONS

FOR

INCREMENTAL STABILIZATION

Definition

Establishment of vegetative cover on cut and fill slopes.

Purpose

To provide timely vegetative cover on cut and fill slopes as work progresses.

Conditions Where Practice Applies

Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles.

Criteria

A. Incremental Stabilization - Cut Slopes

1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses.
2. Construction sequence example (Refer to Figure B.1):
   a. Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation.
   b. Perform Phase 1 excavation, prepare seedbed, and stabilize.
   c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary.
   d. Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

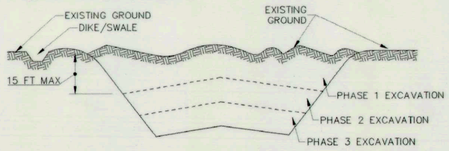


Figure B.1: Incremental Stabilization – Cut

B. Incremental Stabilization - Fill Slopes

1. Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all slopes as the work progresses.
2. Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed in the plans.
3. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
4. Construction sequence example (Refer to Figure B.2):
   a. Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. Construct silt fence on low side of fill unless other methods shown on the plans address this area.
   b. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
   c. Place Phase 1 fill, prepare seedbed, and stabilize.
   d. Place Phase 2 fill, prepare seedbed, and stabilize.
   e. Place final phase fill, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

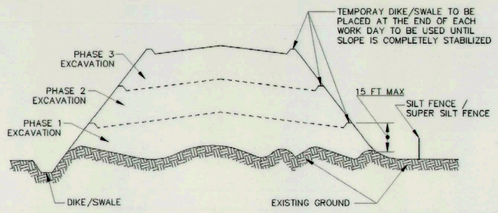


Figure B.2: Incremental Stabilization – Fill

B-4-6 STANDARDS AND SPECIFICATIONS

FOR

SOIL STABILIZATION MATTING

Definition

Material used to temporarily or permanently stabilize channels or steep slopes until groundcover is established.

Purpose

To protect the soils until vegetation is established.

Conditions Where Practice Applies

On newly seeded surfaces to prevent the applied seed from washing out; in channels and on steep slopes where the flow has erosive velocities or conveys clear water; on temporary swales, earth dikes, and perimeter dike swales as required by the respective design standard; and, on stream banks where moving water is likely to wash out new vegetative plantings.

Design Criteria

1. The soil stabilization matting that is used must withstand the flow velocities and shear stresses determined for the area, based on the 2-year, 24-hour frequency storm for temporary applications and the 10-year, 24-hour frequency storm for permanent applications. Designate on the plan the type of soil stabilization matting using the standard symbol and include the calculated shear stress for the respective treatment area.
2. Matting is required on permanent channels where the runoff velocity exceeds two and half feet per second (2.5 fps) or the shear stress exceeds two pounds per square foot (2 lbs/ft^2). On temporary channels discharging to a sediment trapping practice, provide matting where the runoff velocity exceeds four feet per second (4 fps).
3. Temporary soil stabilization matting is made with degradable (lasts 6 months minimum), natural, or manmade fibers of uniform thickness and distribution of fibers throughout and is smolder resistant. The maximum permissible velocity for temporary matting is 6 feet per second.
4. Permanent soil stabilization matting is an open weave, synthetic material consisting of non-degradable fibers or elements of uniform thickness and distribution of weave throughout. The maximum permissible velocity for permanent matting is 8.5 feet per second.
5. Calculate channel velocity and shear stress using the following procedure:

Shear Stress (τ) is a measure of the force of moving water against the substrate and is calculated as:

$\tau = \gamma \cdot R \cdot S_w$ where:

τ = shear stress (lb/ft^2)
γ = weight density of water (62.4 lb/ft^3)
R = average water depth (hydraulic radius) (ft)
S_w = water surface slope (ft/ft)

Velocity (v) measures the rate of flow through a defined area and is calculated as:

$$v = \frac{1.486 R^{2/3} s^{1/2}}{n}$$

where:
v = velocity (ft/sec)
n = Manning's roughness coefficient
R = hydraulic radius (ft)
s = channel slope (ft/ft)

6. Use Table B.7 to assist in selecting the appropriate soil stabilization matting for slope applications based on the slope, the slope length, and the soil-erodibility K factor.

Table B.7: Soil Stabilization on Slopes

Slope	20:1 or Flatter (≤5%)			<20:1 to 4:1 (>5 - 25%)			<4:1 to 3:1 (>25 - 33%)			<3:1 to 2.5:1 (>33 - 40%)			<2.5:1 to 2:1** (>40 - 50%)		
Slope Length (feet)*	0-30	30-60	60-120	0-30	30-60	60-120	0-30	30-60	60-120	0-30	30-60	60-120	0-30	30-60	60-120
Straw Mulch/Wood Cellulose Fiber				for K ≤ 0.35***											
Temporary Matting with Design Shear Stress ≥ 1.5 lb/sf															
Temporary Matting with Design Shear Stress ≥ 1.75 lb/sf															
Temporary Matting with Design Shear Stress ≥ 2.0 lb/sf															
Temporary Matting with Design Shear Stress ≥ 2.25 lb/sf															

Effective range for all K values unless otherwise specified

* Slope length includes contributing flow length.
** Slopes steeper than 2:1 must be engineered.
*** Soil having a K value less than or equal to 0.35 can be stabilized effectively with straw mulch or wood cellulose fiber when located on slopes steeper than 5%. Soil stabilization matting is required on all slopes steeper than 5% that have soil with a K factor greater than 0.35. K factor ratings are published in the NRCS Soil Survey http:// websoilsurvey.nrcs.usda.gov/app. During construction or reclamation, the soil-erodibility K value should represent the upper 6 inches of the final fill material re-spread as the last lift. Only the effects of rock fragments within the soil profile are considered in the estimation of the K value. Do not adjust K values to account for rocks on the soil surface or increases in soil organic matter related to management activities.

Maintenance

Vegetation must be established and maintained so that the requirements for Adequate Vegetative Establishment are continuously met in accordance with Section B-4 Vegetative Stabilization.

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

Howard SCD — Date 1/2/18

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 12/8/17

12/13/2017 I:\Projects\13005.50 Longview Stream Restoration\CAD\Plans\dt01lsr.dwg

CLIENT

HOWARD COUNTY DPW
BUREAU OF ENVIRONMENTAL SERVICES
STORMWATER MANAGEMENT DIVISION
6751 GATEWAY DRIVE, SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-6413

DATE ISSUES / REVISIONS

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

LONGVIEW DRIVE STREAM STABILIZATION

SITE ADDRESS: 9509 LONGVIEW DR, ELLICOTT CITY, MD
ZONING: R-20, R-ED — TAX MAP/GRID/PARCEL: 0024/0003/0640
ELECTION DISTRICT: 02 — OPEN LOT N/A
WAIVER PETITION WP-18-022

TITLE:

EROSION & SEDIMENT CONTROL DETAILS

PROJECT NO.: 13005.50
SCALE: 1" = 20'
SEAL: STATE OF MARYLAND — ROBERT V. LONGO — 36617 — PROFESSIONAL ENGINEER — 12-13-2017
BY: RW/KT
CHECK: MDT/MWT
DWG. NO.: 13 OF 18

B-4-2 STANDARDS AND SPECIFICATIONS

FOR

SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition

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

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

Criteria

A. Soil Preparation

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 soi test.
   e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rak lawn areas to smooth the surface, remove large objects like stones and branches, and ready th area for seed application. Loosen surface soil by dragging with a heavy chain or othe equipment to roughen the surface where site conditions will not permit normal seedbe preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregula condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches o 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 purpos is to provide a suitable soil medium for vegetative growth. Soils of concern have low moistur 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 ir 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.

B-4-5 STANDARDS AND SPECIFICATIONS

FOR

PERMANENT STABILIZATION

Definition

To stabilize disturbed soils with permanent vegetation.

Purpose

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

Conditions Where Practice Applies

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

Criteria

A. Seed Mixtures

1. General Use
   a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
   b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
   c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
   d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary .
2. Turfgrass Mixtures
   a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
   b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
      i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
      ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
      iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
      iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1½ to 3 pounds per 1000 square feet.

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

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

   c. Ideal Times of Seeding for Turf Grass Mixtures

      Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)

      Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)

      Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)

   d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
   e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (½ to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

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

Howard SCD — Date 1/2/18

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 12/8/17

Permanent Seeding Summary

Hardiness Zone (from Figure B.3): 6b Seed Mixture (from Table B.3): 4					Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P_2O_5	K_20	
4	DEERTONGUE	15	3/1- 5/15; 5/16 - 6/15; 8/15 -10/15	¼- ½ in	45 pounds per acre (1.0 lb/ 1000 sf)	90 lb/ac (2 lb/ 1000 sf)	90 lb/ac (2 lb/ 1000 sf)	2 tons/ac (90 lb/ 1000 sf)
	CREEPING RED FESCUE	20	3/1- 5/15; 5/16 - 6/15; 8/15 -10/15	¼- ½ in				
	VIRGINIA WILD RYE	5	3/1- 5/15; 5/16 - 6/15; 8/15 -10/15	¼- ½ in				

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

1. General Specifications
   a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
   b. Sod must be machine cut at a uniform soil thickness of ¾ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
   c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
   d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
   e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.
2. Sod Installation
   a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
   b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
   c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.
   d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.
3. Sod Maintenance
   a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
   b. After the first week, sod watering is required as necessary to maintain adequate moisture content.
   c. Do not mow until the sod is firmly rooted. No more than ⅓ of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

B-4-4 STANDARDS AND SPECIFICATIONS

FOR

TEMPORARY STABILIZATION

Definition

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

Purpose

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

Conditions Where Practice Applies

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

Criteria

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

Temporary Seeding Summary

Hardiness Zone (from Figure B.3): 6b Seed Mixture (from Table B.1): ANNUAL RYEGRASS/ FOXTAIL MILLET					Fertilizer Rate (10-20-20)	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths		
	ANNUAL RYEGRASS	40	5/1 - 5/15 8/1 - 10/15	0.5 in	436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)
	FOXTAIL MILLET	30	5/16 - 7/31	0.5 in		

B-4 STANDARDS AND SPECIFICATIONS

FOR

VEGETATIVE STABILIZATION

Definition

Using vegetation as cover to protect exposed soil from erosion.

Purpose

To promote the establishment of vegetation on exposed soil.

Conditions Where Practice Applies

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

Effects on Water Quality and Quantity

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

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

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

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

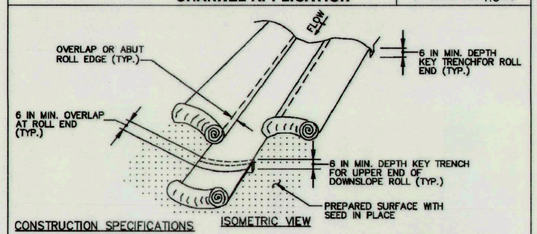
Adequate Vegetative Establishment

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

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

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

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



CONSTRUCTION SPECIFICATIONS — ISOMETRIC VIEW

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 SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON–LEACHING AND NON–TOXIC TO VEGETATION AND SEED GERMINATION AND NON–INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "I" 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. "I" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH–SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
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.
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

CLIENT

HOWARD COUNTY DPW
BUREAU OF ENVIRONMENTAL SERVICES
STORMWATER MANAGEMENT DIVISION
6751 GATEWAY DRIVE, SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-6413

DATE | ISSUES / REVISIONS

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

LONGVIEW DRIVE STREAM STABILIZATION

SITE ADDRESS: 9509 LONGVIEW DR, ELLICOTT CITY, MD
ZONING: R-20, R-ED — TAX MAP/GRID/PARCEL: 0024/0003/0640
ELECTION DISTRICT: 02 — OPEN LOT N/A
WAIVER PETITION WP-18-022

TITLE:

EROSION & SEDIMENT CONTROL DETAILS

PROJECT NO.: 13005.50 | SCALE: NTS
SEAL: STATE OF MARYLAND — BRETT V. LONGLEY — 36617 — PROFESSIONAL ENGINEER — 12-13-2017
BY: RW/KT | CHECK: MDT/MWT
DWG. NO.:

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SEQUENCE OF CONSTRUCTION

EROSION AND SEDIMENT CONTROL SETUP - 1.5 WEEKS

1. SEVEN DAYS PRIOR TO THE COMMENCEMENT OF MOBILIZATION ACTIVITIES, THE CONTRACTOR SHALL NOTIFY THE MARYLAND STATE HIGHWAY DISTRICT OFFICE OF THEIR SCHEDULED START DATE.
2. THE CONTRACTOR SHALL STAKE OUT THE LIMITS OF DISTURBANCE AS SHOWN ON THE GRADING PLAN. THE CONTRACTOR MUST OBTAIN A GRADING PERMIT. STREAM CHANNEL MUST NOT BE DISTURBED DURING MARCH 1 TO MAY 31. (1 DAY) THIS PROJECT IS SUBJECT TO THE FOLLOWING APPROVALS:
   - 2.1. U.S. ARMY CORPS OF ENGINEERS NONTIDAL WETLANDS AND WATERWAYS PERMIT #TBD
   - 2.2. MDE NONTIDAL WETLANDS AND WATERWAYS PERMIT AI #156538, TRACKING #201761314
   - 2.3. OBTAIN GRADING PERMIT FROM DILP
3. THE CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION MEETING ONSITE WITH SEDIMENT CONTROL INSPECTOR AND THE ENGINEER TO REVIEW THE LIMITS OF DISTURBANCE, STRUCTURE STAKEOUT, EROSION AND SEDIMENT CONTROL REQUIREMENTS, AND THE SEQUENCE OF CONSTRUCTION. THE PARTICIPANTS WILL ALSO VERIFY THE LOCATION OF THE TEMPORARY STOCKPILE AREA AND ANY NECESSARY STAGING AREA, AND FLAG ANY TREES WITHIN THE LIMITS OF DISTURBANCE WHICH WILL BE REMOVED FOR CONSTRUCTION ACCESS AND GRADING. (1 DAY)
4. THE CONTRACTOR SHALL INSTALL THE STABILIZED CONSTRUCTION ENTRANCE AND BLAZE ORANCE FENCE AND TREE PROTECTION AREAS AND PLANKING AS SHOWN ON THE GRADING PLANS OR AS DIRECTED BY THE ENGINEER. (1 DAY)
5. THE CONTRACTOR SHALL ESTABLISH THE TEMPORARY STOCKPILE AREA IN THE LOCATION INDICATED ON THE GRADING PLAN (NOTE: INSTALL SUPER SILT FENCE AROUND THE PERIMETER OF THE STOCKPILE AREA AS SHOWN). (1 DAY)
6. INSTALL REMAINING PERIMETER EROSION AND SEDIMENT CONTROL DEVICES AS SHOWN ON THE PLANS. (1 DAY)
7. CLEAR CORRIDOR AS REQUIRED TO INSTALL THE MULCH ACCESS ROAD IN THE LOCATION DEPICTED ON THE PLANS. CARE SHOULD BE TAKEN TO MINIMIZE ANY UNNECESSARY DISTURBANCE TO EXISTING VEGETATION AND ROOT ZONES. INSTALL MULCH ACCESS ROAD AND STABILIZE DISTURBED AREAS WITH MULCH AS WORK PROGRESSES. (3 DAYS)
8. INSTALL PUMP AROUND DIVERSIONS. (1 DAY)

STA 0+00 TO 4+24 (2 WEEKS)

NOTE: A THREE DAY DRY WEATHER PERIOD PER THE NOAA FORECAST IS REQUIRED PRIOR TO INITIATING WORK.

9. CONSTRUCTION SHALL NOT BEGIN UNTIL ALL SEDIMENT AND EROSION CONTROL MEASURES HAVE BEEN INSTALLED AND APPROVED BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION INSPECTOR. CLEAR LIMITS OF DISTURBANCE AS REQUIRED. WORK SHALL PROGRESS IN AN UPSTREAM DIRECTION FROM STA 4+24 TO STA 2+00 AND IN A DOWNSTREAM DIRECTION FROM STA 0+00 TO 2+00. BOTH WORK AREAS MAY BE CONSTRUCTED CONCURRENTLY OR SEPARATELY AS APPROVED BY THE SEDIMENT CONTROL INSPECTOR. GRADING SHALL BE LIMITED TO THE AREA THAT CAN BE STABILIZED IN A SINGLE WORK DAY. INSTALL IN-STREAM STRUCTURES (COBBLE RIFFLES AND BOULDER TOE) AND COIR MATTING AS WORK PROGRESSES DAILY. (1 WEEK)
10. STABILIZE REMAINDER OF WORK AREA. (1 DAY)
11. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE ENGINEER REMOVE ALL SEDIMENT AND EROSION CONTROL MEASURES. THE CONTRACTOR SHALL TAKE CARE TO REMOVE ALL EXCESS CONSTRUCTION DEBRIS AND TRASH GENERATED FROM CONSTRUCTION ACTIVITIES FROM THE SITE. (1 DAY)
12. PLANT SITE ACCORDING TO PLANTING PLAN IN APPROPRIATE PLANTING SEASON. (3 DAYS)

HOWARD SOIL CONSERVATION DISTRICT STANDARD (HSCD)
SEDIMENT CONTROL NOTES

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

OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.

2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION IS REQUIRED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED AREAS ON THE PROJECT SITE EXCEPT FOR THOSE AREAS UNDER ACTIVE GRADING.
4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR TOPSOIL (SEC. B-4-2), PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN. INCREMENTAL STABILIZATION (SEC. B-4-1) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH >15' OF CUT AND/OR FILL. STOCKPILES (SEC. B-4-8) IN EXCESS OF 20 FT. MUST BE BENCHED WITH STABLE OUTLET. ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOIL STABILIZATION MATTING (SEC. B-4-6).
5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE, AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE CID.
6. SITE ANALYSIS:

TOTAL AREA OF SITE:	0.94 ACRES
AREA DISTURBED:	0.94 ACRES
AREA TO BE ROOFED OR PAVED:	0.00 ACRES
AREA TO BE VEGETATIVELY STABILIZED:	0.80 ACRES
TOTAL CUT:	375 CU. YDS.
TOTAL FILL:	105 CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION:	TBD AS APPROVED BY CID; SITE MUST HAVE AN ACTIVE GRADING PERMIT

7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE CID. THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY; AND THE NEXT DAY AFTER EACH RAIN EVENT. A WRITTEN REPORT BY THE CONTRACTOR, MADE AVAILABLE UPON REQUEST, IS PART OF EVERY INSPECTION AND SHOULD INCLUDE:
   - INSPECTION DATE
   - INSPECTION TYPE (ROUTINE, PRE-STORM EVENT, DURING RAIN EVENT)
   - NAME AND TITLE OF INSPECTOR
   - WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST RECORDED PRECIPITATION)
   - BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES
   - EVIDENCE OF SEDIMENT DISCHARGES
   - IDENTIFICATION OF PLAN DEFICIENCIES
   - IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
   - IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
   - COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
   - PHOTOGRAPHS
   - MONITORING/SAMPLING
   - MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
   - OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES, MDE).
9. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.
10. ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION. MINOR REVISIONS MAY ALLOWED BY THE CID PER THE LIST OF HSCD-APPROVED FIELD CHANGES.
11. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE CID. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE CID, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.
12. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.
13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.
14. ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBRICATED AT 25' MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPHILL BY 2' IN ELEVATION.
15. STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE):
   - USE I AND IP MARCH 1 - JUNE 15
   - USE III AND IIIP OCTOBER 1 - APRIL 30
   - USE IV MARCH 1 - MAY 31
16. A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.

SEDIMENT CONTROL NOTES

1. NOTE: CONDUCT A PRE-CONSTRUCTION MEETING. NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT LEAST 48 HOURS BEFORE COMMENCING WORK AT (410) 313-1855. WORK MAY NOT COMMENCE UNTIL THE PERMITTEE OR THE RESPONSIBLE ENGINEER HAVE MET ON SITE WITH THE SEDIMENT AND EROSION CONTROL INSPECTOR TO REVIEW THE APPROVED PLANS.
2. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENCES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
3. THE CONTRACTOR SHALL NOTIFY "MISS-UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
4. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
5. CONSTRUCTION ACTIVITIES INCLUDING THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES SHALL NOT BEGIN UNTIL ALL REQUIRED EASEMENTS AND RIGHT-OF-WAYS HAVE BEEN OBTAINED.
6. CONSTRUCTION SHALL NOT BEGIN UNTIL ALL SEDIMENT AND EROSION CONTROL MEASURES HAVE BEEN INSTALLED AND APPROVED BY THE ENGINEER AND THE SEDIMENT CONTROL INSPECTOR. THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION INSPECTOR SHALL BE NOTIFIED UPON COMPLETION OF CONTROL INSTALLATION FOR EACH PHASE OF CONSTRUCTION.
7. THE CONTRACTOR SHALL STAY WITHIN THE LIMIT OF DISTURBANCE AS SHOWN ON THE PLANS AND MINIMIZE DISTURBANCE WITHIN THE WORKING AREA WHEREVER POSSIBLE. NO TREES SHALL BE REMOVED WITHIN THE LIMIT OF DISTURBANCE WITHOUT APPROVAL FROM THE ENGINEER.
8. THE CONSTRUCTION SEQUENCE MUST BE FOLLOWED UNLESS THE CONTRACTOR GETS WRITTEN APPROVAL FROM THE HOWARD SOIL CONSERVATION DISTRICT OR THE SEDIMENT CONTROL INSPECTOR.
9. FOR ALL ASPECTS OF CONSTRUCTION FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:
   - 9.1. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND
   - 9.2. SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
10. ANY SEDIMENT CONTROL PRACTICE THAT IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
11. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
12. TRENCHES FOR THE CONSTRUCTION OF UTLITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORK DAY, WHICHEVER IS SHORTER.

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

Howard SCD — Date 1/2/18

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 12/9/17

12/13/2017 I:\Projects\13005.50 Longview Stream Restoration\CAD\Plans\dt01lsr.dwg

CLIENT

HOWARD COUNTY DPW
BUREAU OF ENVIRONMENTAL SERVICES
STORMWATER MANAGEMENT DIVISION
6751 GATEWAY DRIVE, SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-6413

DATE ISSUES / REVISIONS

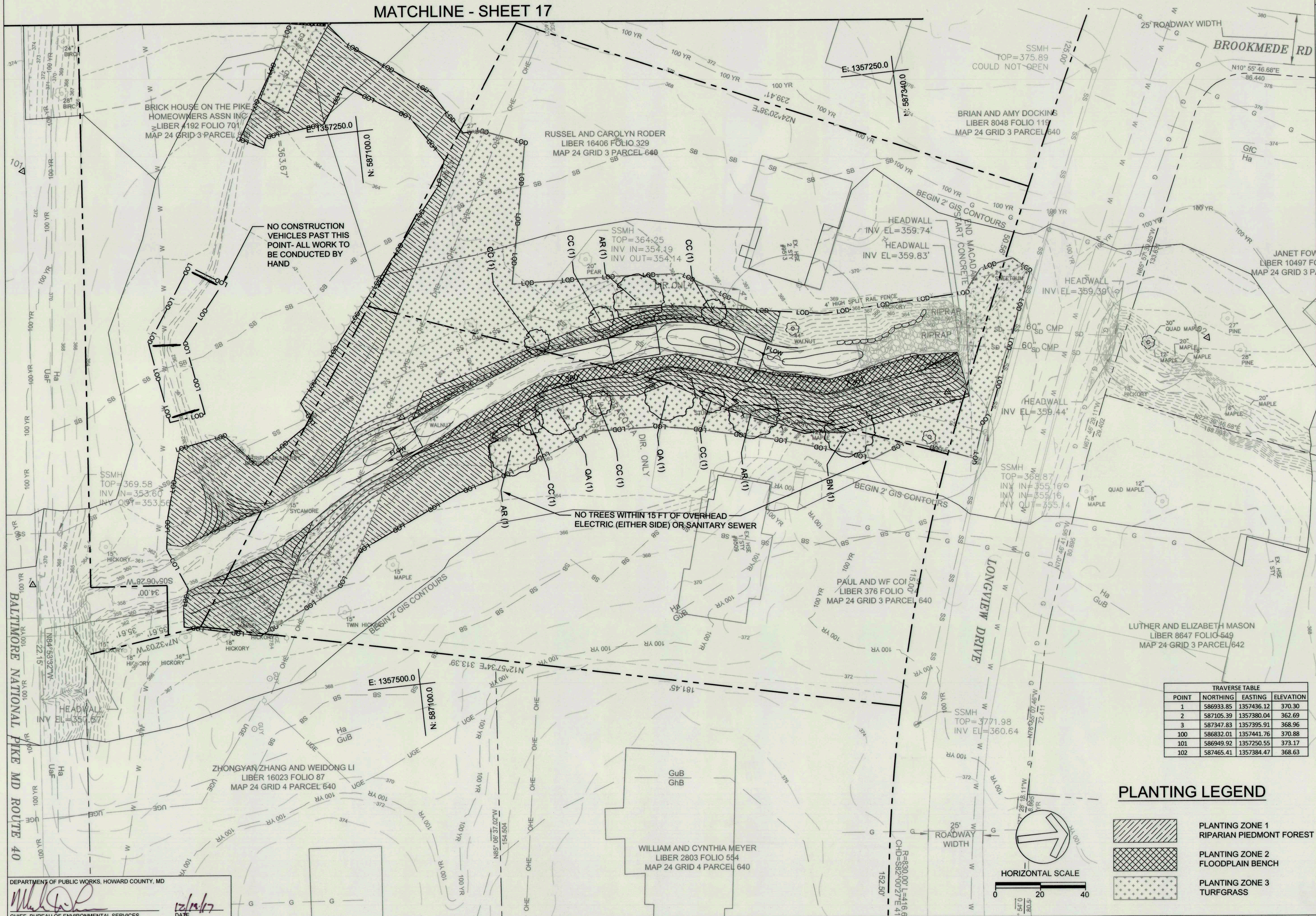
Biohabitats
The Stables Building 2081 Clipper Park Road
Baltimore, MD 21211 / ph: 410.554.0156
fx: 410.554.0168 / www.biohabitats.com
Restore the Earth & Inspire Ecological Stewardship

LONGVIEW DRIVE STREAM STABILIZATION

SITE ADDRESS: 9509 LONGVIEW DR, ELLICOTT CITY, MD
ZONING: R-20, R-ED — TAX MAP/GRID/PARCEL: 0024/0003/0640
ELECTION DISTRICT: 02 — OPEN LOT N/A
WAIVER PETITION WP-18-022

TITLE:
EROSION & SEDIMENT CONTROL DETAILS

PROJECT NO.: 13005.50 — SCALE: NTS
SEAL: STATE OF MARYLAND — ROBERT V. LONGO — 36611 — PROFESSIONAL ENGINEER — 12-13-2017
BY: RW/KT — CHECK: MDT/MWT
DWG. NO.:


MATCHLINE - SHEET 17
BRICK HOUSE ON THE PIKE HOMEOWNERS ASSN INC LIBER 4192 FOLIO 701 MAP 24 GRID 3 PARCEL 640
RUSSEL AND CAROLYN RODER LIBER 16406 FOLIO 329 MAP 24 GRID 3 PARCEL 640
BRIAN AND AMY DOCKINS LIBER 8048 FOLIO 119 MAP 24 GRID 3 PARCEL 640
25' ROADWAY WIDTH
BROOKMEDE RD
SSMH TOP=375.89 COULD NOT OPEN
E: 1357250.0
N: 587340.0
N: 587100.0
NO CONSTRUCTION VEHICLES PAST THIS POINT- ALL WORK TO BE CONDUCTED BY HAND
SSMH TOP=364.25 INV IN=354.19 INV OUT=354.14
HEADWALL INV EL=359.74'
HEADWALL INV EL=359.83'
HEADWALL INV EL=359.39'
HEADWALL INV EL=359.44'
BEGIN 2' GIS CONTOURS
4' HIGH SPLIT RAIL FENCE
RIPRAP
60" CMP
FLOW
JANET FOW LIBER 10497 F MAP 24 GRID 3 P
SSMH TOP=369.58 INV IN=353.60 INV OUT=353.56
SSMH TOP=368.87 INV IN=355.16 INV IN=355.16 INV OUT=355.14
NO TREES WITHIN 15 FT OF OVERHEAD ELECTRIC (EITHER SIDE) OR SANITARY SEWER
CC (1)
AR (1)
QA (1)
BN (1)
PAUL AND WF CO LIBER 376 FOLIO MAP 24 GRID 3 PARCEL 640
LONGVIEW DRIVE
LUTHER AND ELIZABETH MASON LIBER 8647 FOLIO 549 MAP 24 GRID 3 PARCEL 642
BALTIMORE NATIONAL PIKE MD ROUTE 40
E: 1357500.0
N: 587100.0
HEADWALL INV EL=350.57
ZHONGYAN ZHANG AND WEIDONG LI LIBER 16023 FOLIO 87 MAP 24 GRID 4 PARCEL 640
WILLIAM AND CYNTHIA MEYER LIBER 2803 FOLIO 554 MAP 24 GRID 4 PARCEL 640
SSMH TOP=3771.98 INV EL=360.64
25' ROADWAY WIDTH
HORIZONTAL SCALE
0 20 40

TRAVERSE TABLE			
POINT	NORTHING	EASTING	ELEVATION
1	586933.85	1357436.12	370.30
2	587105.39	1357380.04	362.69
3	587347.83	1357395.91	368.96
100	586832.01	1357441.76	370.88
101	586949.92	1357250.55	373.17
102	587465.41	1357384.47	368.63

PLANTING LEGEND

- PLANTING ZONE 1 RIPARIAN PIEDMONT FOREST
- PLANTING ZONE 2 FLOODPLAIN BENCH
- PLANTING ZONE 3 TURFGRASS

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

12/13/17

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

12/13/2017I:\Projects\13005.50 Longview Stream Restoration\CAD\Plans\pl01lsr.dwg

CLIENT

HOWARD COUNTY DPW
BUREAU OF ENVIRONMENTAL SERVICES
STORMWATER MANAGEMENT DIVISION
6751 GATEWAY DRIVE, SUITE 514
COLUMBIA, MD 21046
PHONE: (410) 313-6413

DATE	ISSUES / REVISIONS

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Restore the Earth & Inspire Ecological Stewardship

LONGVIEW DRIVE STREAM STABILIZATION

SITE ADDRESS: 9509 LONGVIEW DR, ELLICOTT CITY, MD
ZONING: R-20, R-ED
ELECTION DISTRICT: 02
WAIVER PETITION WP-18-022
TAX MAP/GRID/PARCEL: 0024/0003/0640
OPEN LOT N/A

TITLE:

PLANTING PLAN

PROJECT NO.: 13005.50
SCALE: 1" = 20'
SEAL:
BY: RW/KT
CHECK: MDT/MWT
DWG. NO.:

STATE OF MARYLAND PROFESSIONAL ENGINEER

12-13-2017

PLANTING LEGEND

- PLANTING ZONE 1 RIPARIAN PIEDMONT FOREST
- PLANTING ZONE 2 FLOODPLAIN BENCH
- PLANTING ZONE 3 TURFGRASS

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 12/19/17

CLIENT

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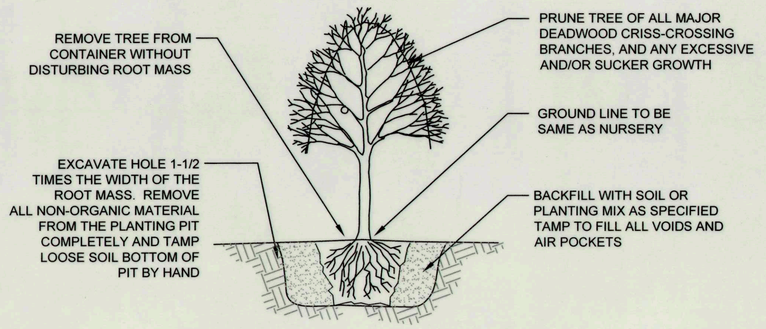
ELECTION DISTRICT: 02 | OPEN LOT N/A
WAIVER PETITION WP-18-022

TITLE:

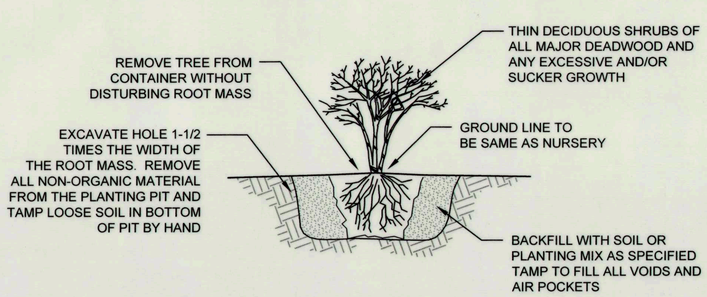
PLANTING PLAN

PROJECT NO.: 13005.50 | SCALE: 1" = 20'
BY: RW/KT | CHECK: MDT/MWT
SEAL: STATE OF MARYLAND — BRETT V. LONG — 36611 — PROFESSIONAL ENGINEER
12-13-2017
DWG. NO.:
17 OF 18



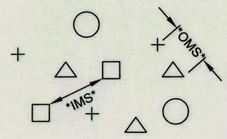
TREE PLANTING - CONTAINER GROWN

NOT TO SCALE



SHRUB PLANTING - CONTAINER GROWN

NOT TO SCALE



OMS- AN OVERALL MINIMUM SPACING DISTANCE *OMS* IS ASSIGNED TO THE PLANTING CONFIGURATION *SEE PLANT SCHEDULE*

IMS- AN INDIVIDUAL MINIMUM SPACING DISTANCES *IMS* IS ASSIGNED TO EACH INDIVIDUAL SPECIES *SEE PLANT SCHEDULE*

PLANT SPACING - RANDOM

NOTE: EACH SYMBOL INDICATES A DIFFERENT SPECIES

NOT TO SCALE

PLAN VIEW

PLANT COMPOSITION SCHEDULE

Zone 1 - Riparian Forest — Size (acres): 0.35

Overall Minimum Spacing (ft.)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Height	Individual Minimum Spacing (ft.)
20	109			TREES*					
		20	8	*Acer rubrum*	Red maple	CON (#10-15)	Random	6 ft. min.	44
		5	2	*Betula nigra*	River birch	CON (#10-15)	Random	6 ft. min.	87
		10	4	*Nyssa sylvatica*	Black gum	CON (#10-15)	Random	6 ft. min.	62
		10	4	*Platanus occidentalis*	Sycamore	CON (#10-15)	Random	6 ft. min.	62
		15	6	*Quercus alba*	White oak	CON (#10-15)	Random	6 ft. min.	50
		15	6	*Cornus florida*	Flowering dogwood	CON (#10-15)	Random	5 ft. min.	50
		10	4	*Sassafras albidum*	Sasafrass	CON (#10-15)	Random	5 ft. min.	62
		15	6	*Cercis canadensis*	Eastern redbud	CON (#10-15)	Random	5 ft. min.	50
		100	40	= total					
13.4	243			SHRUBS					
		25	21	*Amelanchier arborea*	Common Serviceberry	CON (#2)	Random	3 - 4 ft (#2)	27
		25	21	*Ilex verticillata*	Winterberry	CON (#2)	Random	3 - 4 ft (#2)	27
		30	26	*Lindera benzoin*	Spicebush	CON (#2)	Random	3 - 4 ft (#2)	24
		20	17	*Viburnum dentatum*	Southern arrowwood	CON (#2)	Random	3 - 4 ft (#2)	30
		100	85	= total					
N/A	70			NATIVE SEED					
		15	0.37	*Asclepias syriaca*	Common milkweed	LB of P.L.S. 76 %	SEED	N/A	N/A
		15	0.37	*Chasmanthium latifolium*	River oats	LB of P.L.S. 76 %	SEED	N/A	N/A
		12	0.29	*Dichanthelium clandestinum*	Deer tongue	LB of P.L.S. 76 %	SEED	N/A	N/A
		12	0.29	*Elymus riparius*	Riverbank wild rye	LB of P.L.S. 76 %	SEED	N/A	N/A
		12	0.29	*Elymus virginicus*	Virginia wild rye	LB of P.L.S. 76 %	SEED	N/A	N/A
		12	0.29	*Eutrochium fistulosum*	Joe-pye weed	LB of P.L.S. 76 %	SEED	N/A	N/A
		10	0.25	*Lolium multiflorum*	Annual rye	LB of P.L.S. 76 %	SEED	N/A	N/A
		12	0.29	*Monadra fistulosa*	Wild bergamot	LB of P.L.S. 76 %	SEED	N/A	N/A
		100	2.45	= total					

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

* No trees are to be planted within 15' on either side of the sanitary sewer and overhead utility lines

PLANT COMPOSITION SCHEDULE

Zone 2 - Floodplain Bench — Size (acres): 0.03

Overall Minimum Spacing (ft.)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Height	Individual Minimum Spacing (ft.)
6	1210			SHRUBS					
		25	9	*Alnus serrulata*	Smooth alder	CON (#2)	Random	3 - 4 ft (#2)	12
		20	7	*Ilex verticillata*	Winterberry	CON (#2)	Random	3 - 4 ft (#2)	14
		15	6	*Lindera benzoin*	Spicebush	CON (#2)	Random	3 - 4 ft (#2)	15
		20	7	*Sambucus nigra var. canadensis*	Elderberry	CON (#2)	Random	3 - 4 ft (#2)	14
		20	7	*Viburnum acerifolium*	Mapleleaf viburnum	CON (#2)	Random	3 - 4 ft (#2)	14
		100	36	= total					
N/A	70			NATIVE SEED					
		15	0.03	*Elymus riparius*	Riverbank wild rye	LB of P.L.S. 76 %	SEED	N/A	N/A
		25	0.05	*Dichanthelium clandestinum*	Deer tongue grass	LB of P.L.S. 76 %	SEED	N/A	N/A
		10	0.02	*Eupatorium fistulosum*	Joe-pye weed	LB of P.L.S. 76 %	SEED	N/A	N/A
		5	0.01	*Lobelia cardinalis*	Cardinal flower	LB of P.L.S. 76 %	SEED	N/A	N/A
		10	0.02	*Onoclea sensibilis*	Sensitive fern	LB of P.L.S. 76 %	SEED	N/A	N/A
		10	0.02	*Osmunda regalis*	Royal fern	LB of P.L.S. 76 %	SEED	N/A	N/A
		15	0.03	*Saururus cernuus*	Lizards tail	LB of P.L.S. 76 %	SEED	N/A	N/A
		10	0.02	*Woodwardia areolata*	Netted chainfern	LB of P.L.S. 76 %	SEED	N/A	N/A
		100	0.21	= total					

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

PLANT COMPOSITION SCHEDULE

ZONE 3 - TURF GRASS — Size (acres): 0.39

Overall Minimum Spacing (ft.)	Quantity per acre	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Size	Individual Minimum Spacing (ft.)
N/A	40			NATIVE SEED					
		25	3.9	Agrostis alba	Red top	LB of P.L.S. 76 %	SEED	N/A	N/A
		30	4.7	Festuca ovina	Sheeps fescue	LB of P.L.S. 76 %	SEED	N/A	N/A
		45	7	Festuca rubra	Red fescue	LB of P.L.S. 76 %	SEED	N/A	N/A
		100	15.6	= total					

CON=container

PLANT COMPOSITION SCHEDULE: REFER TO PLANTING SHEETS 32-35

ZONE 4 - LANDSCAPE TREES — Size (acres): n/a

Overall Minimum Spacing (ft.)	Species Quantity	ID	Vegetation Strata/Species Name	Common Name	Unit	Form	Size	Individual Minimum Spacing (ft.)
N/A			OVERSTORY TREES					
	1	BN	Betula nigra	River birch	B&B	Clump Form	2" cal.	Per Plan
	3	AR	Acer rubrum	Red Maple (October Glory)	B&B	Single Stem	4" cal.	Per Plan
	6	CC	Cercis canadensis	Redbud	B&B	Single Stem	2" cal.	Per Plan
	2	QA	Quercus alba	White oak	B&B	Single Stem	4" cal.	Per Plan
	12		= total					

B&B= Balled & Burlapped

PLANT COMPOSITION SCHEDULE

ZONE 5 - LIVE STAKES — Size (acres): 0.027

Individual Plant Minimum Spacing (ft.)	Quantity per AC	Frequency (%)	Species Quantity	Vegetation Strata/ Species Name	Common Name	Unit	Spacing Type	Size (ft)	Overall Minimum Species Spacing (ft.)*
1	43560	LF		SHRUBS - LIVE BRANCH LAYERING					
		25	294	*Cornus amomum*	Silky dogwood	live branch	N/A	3	N/A
		25	294	*Cornus sericea*	Redosier dogwood	live branch	N/A	3	N/A
		15	176.4	*Salix discolor*	Pussy willow	live branch	N/A	3	N/A
		15	176.4	*Salix exigua ssp. Interior*	Sandbar willow	live branch	N/A	3	N/A
		10	117.6	*Salix sericea*	Silky willow	live branch	N/A	3	N/A
		10	117.6	*Viburnum dentatum*	Arrowleaf viburnum	live branch	N/A	3	N/A
		100	1176	= total					

Live Stakes are a contingent item and shall be installed at the direction of the engineer

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MD

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 12/13/17

12/13/2017 I:\Projects\13005.50 Longview Stream Restoration\CAD\Plans\dt01lsr.dwg

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ELECTION DISTRICT: 02 — OPEN LOT N/A
WAIVER PETITION WP-18-022

TITLE:

PLANTING DETAILS

PROJECT NO.: 13005.50 — SCALE: NTS
SEAL: STATE OF MARYLAND — BRETT V. LONG — 36611 — PROFESSIONAL ENGINEER — 12-13-2017
BY: RW/KT — CHECK: MDT/MWT
DWG. NO.: 18 OF 18