

HARFORD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS

BID NO. 16 - 238

FOSTER BRANCH AT DEMBYTOWN ROAD STREAM RESTORATION

100% SUBMITTAL

GENERAL NOTES

1. SPECIFICATIONS: ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE MARYLAND STATE HIGHWAY ADMINISTRATIONS STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS DATED JULY 2008 AND WITH THE HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS ROADWAY AND STORMDRAIN DESIGN STANDARDS, DATED DECEMBER 2, 2008 AND THE MOST RECENT REVISIONS THEREOF AND ADDITIONS THERETO.
2. UTILITIES: UTILITY LOCATIONS SHOWN ON THE PLANS ARE BASED ON LIMITED INFORMATION AVAILABLE. HOWEVER, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ACCURACY OF THIS INFORMATION. THE COST OF REPAIR OR REPLACEMENT OF ANY SUCH FACILITIES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE BORNE BY HIM.

CONTACT "MISS UTILITY" PHONE 1-800-257-7777, 48 HOURS PRIOR TO THE START OF WORK. THERE SHOULD BE NO EXCAVATION UNTIL THE LOCATIONS OF UNDERGROUND UTILITIES HAVE BEEN DETERMINED.
3. STANDARD DETAILS: REFERENCE MADE TO STANDARDS ARE TAKEN FROM THE HARFORD COUNTY ROAD CODE "BOOK OF STANDARD DETAILS" AND FROM "THE MARYLAND STATE HIGHWAY ADMINISTRATION'S BOOK OF STANDARDS-HIGHWAY AND INCIDENTAL STRUCTURES". IT WILL BE THE CONTRACTOR'S RESPONSIBILITY THAT THE STANDARD DRAWINGS IN HIS POSSESSION ARE THE LATEST REVISED STANDARDS UP TO AND INCLUDING THE DATE OF THE ADVERTISEMENT OF THIS CONTRACT.
4. RIGHT-OF-WAY LINES: RIGHT-OF-WAY LINES SHOWN ON THESE PLANS DO NOT INCLUDE EASEMENTS. THEY ARE FOR ASSISTANCE IN INTERPRETING THE PLANS ONLY. THESE LINES DO NOT REPRESENT THE OFFICIAL PROPERTY ACQUISITION LINES. FOR OFFICIAL FEE RIGHT-OF-WAY AND EASEMENT INFORMATION, SEE THE APPROPRIATE RIGHT-OF-WAY PLATS.
5. NO STOCKPILING EQUIPMENT OR ERODIBLE MATERIAL IN THE 100-YEAR FLOODPLAIN.
6. EXISTING MAILBOXES AND EXISTING SIGNS: ALL EXISTING MAILBOXES, SIGNS AND PAPER BOXES DISTURBED DURING CONSTRUCTION SHALL BE TEMPORARILY RESET IMMEDIATELY AND PERMANENTLY RESET AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE INCIDENTAL TO ALL OTHER ITEMS IN THE CONTRACT.
7. SURVEYS:
HORIZONTAL CONTROL - COORDINATES AND COURSES SHOWN HEREON ARE REFERRED TO THE MARYLAND STATE PLANE COORDINATE SYSTEM, NAD 83 (2011), AS DETERMINED FROM THE FOLLOWING NATIONAL GEODETIC SURVEY HORIZONTAL CONTROL SURVEY MONUMENTS:

T BEAR: N 647,100.45, E 1,495,812.95; "CONCRETE MONUMENT FD"
GIS 24: N 638,588.12, E 1,488,114.47; "CONCRETE MONUMENT FD"

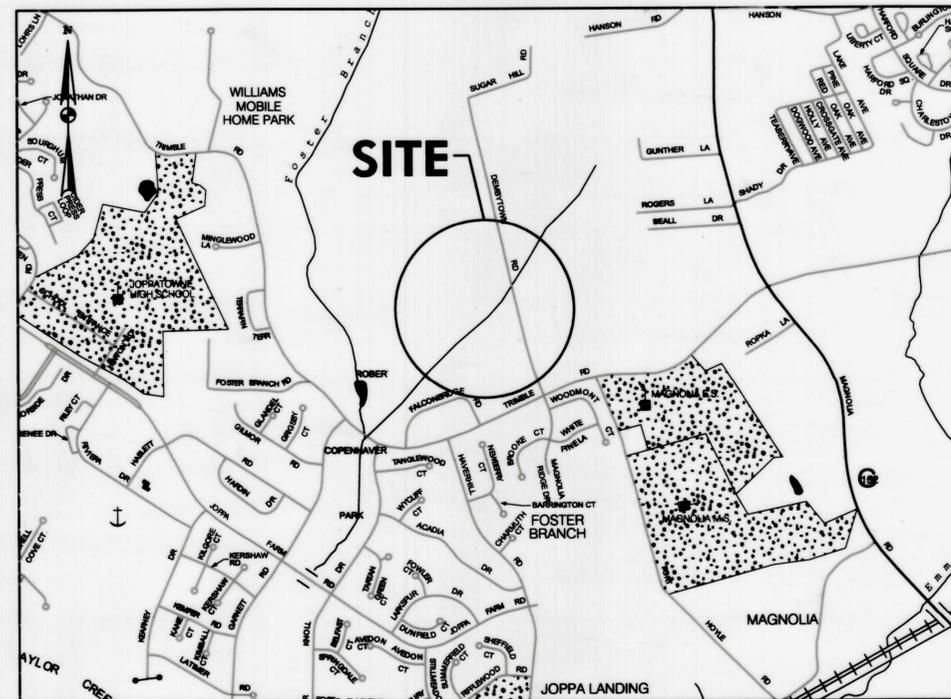
VERTICAL CONTROL - ELEVATIONS SHOWN HEREON ARE REFERRED TO THE MARYLAND STATE PLANE COORDINATE SYSTEM, NAVD 88, AS DETERMINED FROM THE FOLLOWING NATIONAL GEODETIC SURVEY VERTICAL CONTROL SURVEY MONUMENTS:

T BEAR: ELEV. 148.81 feet "CONCRETE MONUMENT FD"
GIS 24: ELEV. 34.75 feet "CONCRETE MONUMENT FD"

ONLY THOSE CONTROL POINTS SHOWN ON THESE PLANS ARE TO BE USED FOR THE CONSTRUCTION OF THIS PROJECT.
8. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE EXISTENCE OF PROPERTY MARKERS, PIPES, MONUMENTS, STAKES, ETC. THAT SHALL NOT BE DISTURBED. IN THE EVENT THESE MARKERS ARE REMOVED, DAMAGED, OR DESTROYED BY THE CONTRACTOR, THEY SHALL BE REPLACED IN KIND BY A LICENSED SURVEYOR AT THE CONTRACTOR'S EXPENSE.

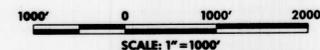
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LOCATION MAP

SCALE 1" = 1000'



DESIGN CERTIFICATION

<p><u>B. J. Meel</u> NAME</p> <p><u>25402</u> MARYLAND REGISTRATION NUMBER. (P.E., R.L.S. OR R.L.A. (if/ce))</p>	<p><u>B. J. Meel</u> SIGNATURE</p> <p><u>1/7/16</u> DATE</p>
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"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 25402, EXPIRATION DATE: 7/7/16."

STREAM CLOSURE:
THE FOSTER BRANCH IS CLASSIFIED AS A USE 1 STREAM BY MARYLAND DEPARTMENT OF THE ENVIRONMENT. INSTREAM CONSTRUCTION IS PROHIBITED FROM MARCH 1ST THROUGH JUNE 15TH INCLUSIVE EVERY YEAR.

Owner:
HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS
NAVEED SHAH
212 S. BOND ST., 3RD FLOOR
BEL AIR, MD 21014
1-410-638-3509

NOT FOR CONSTRUCTION

160076 S/C PLAN # 59818

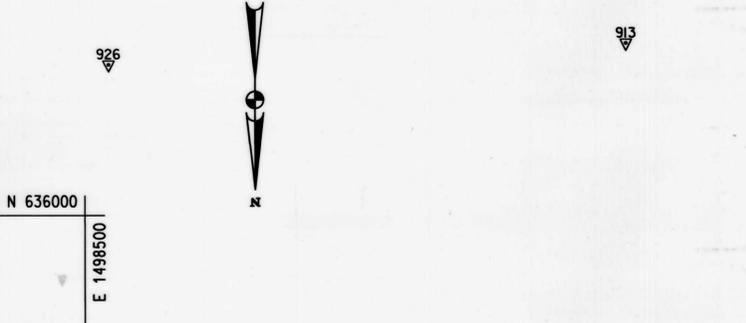
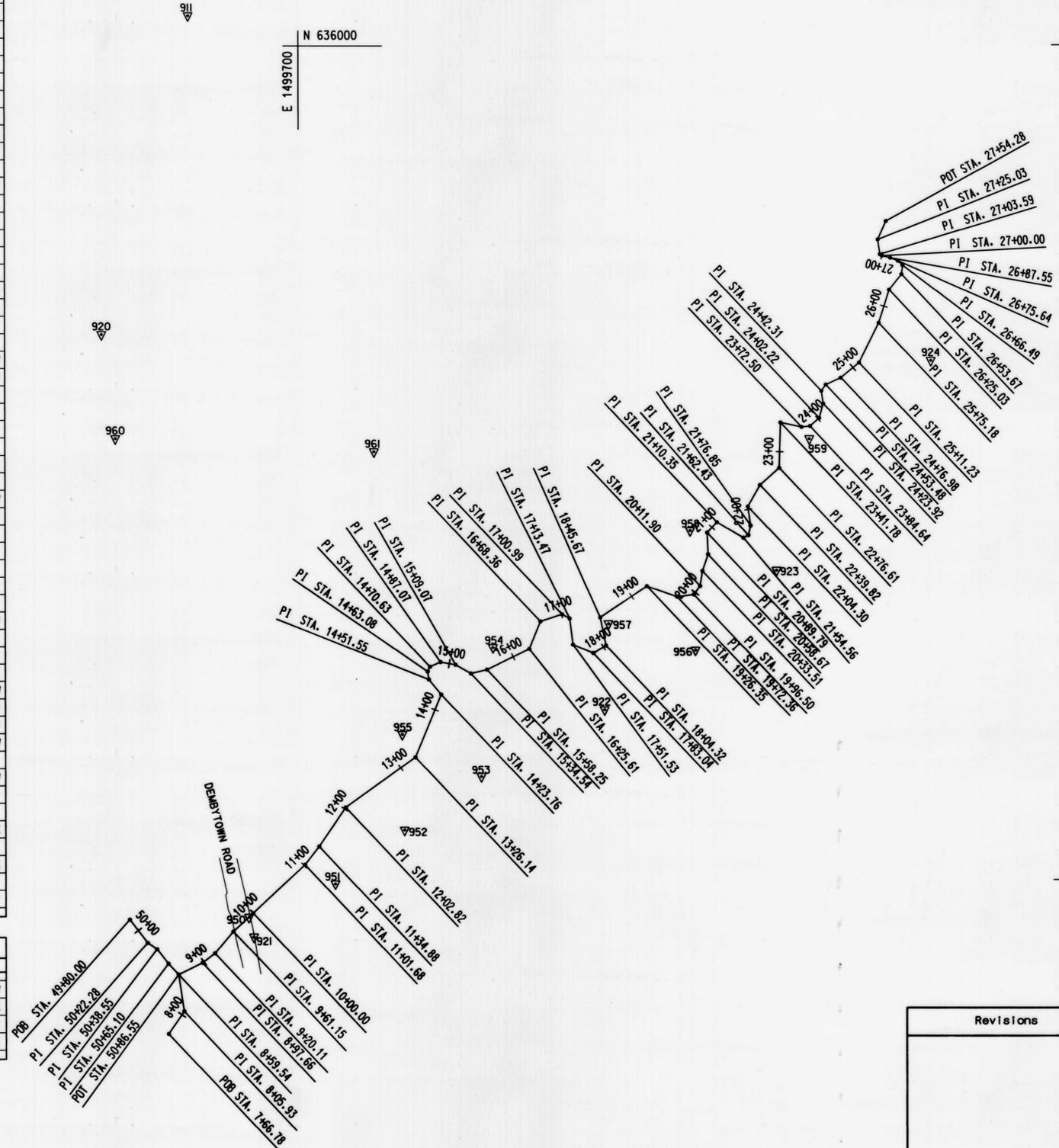
CAPITAL PROJECT APPROVAL	REVIEWED AND APPROVAL RECOMMENDED:	DATE
<u>B. J. Meel</u>	<u>3-17-16</u>	<u>3-17-16</u>
PROJECT ENGINEER	REVIEWED AND APPROVAL RECOMMENDED:	DATE
<u>Michael A. Birt</u>	<u>3/23/16</u>	<u>3/23/16</u>
CHIEF ENGINEER	APPROVAL RECOMMENDED:	DATE
<u>Shahid</u>	<u>03/24/16</u>	<u>03/24/16</u>
DEPUTY DIRECTOR OF PUBLIC WORKS	APPROVED:	DATE
<u>h. Cantel</u>	<u>for ss</u>	<u>3/29/2016</u>
DIRECTOR OF PUBLIC WORKS		



ADC MAP : TAX MAP : HCC BILLING ID NO. : 160582

MAIN STEM CONSTRUCTION BASELINE DATA				
POINT NO.	STATION	NORTH	EAST	BEARING
POB 1	7+66.78	637,419.60	1,499,888.84	N 34° 43' 1.48" E
Pt 2	8+05.93	637,387.43	1,499,866.54	N 8° 29' 56.38" W
Pt 3	8+59.54	637,334.40	1,499,874.46	N 64° 6' 47.69" E
Pt 4	8+97.66	637,317.76	1,499,840.17	N 52° 49' 46.01" E
Pt 5	9+20.11	637,304.20	1,499,822.28	N 40° 11' 26.69" E
Pt 6	9+61.15	637,272.85	1,499,795.80	S 47° 21' 52.68" W
Pt 7	10+00.00	637,246.53	1,499,767.22	S 46° 52' 39.72" W
Pt 8	11+01.68	637,177.03	1,499,693.00	S 38° 04' 24.28" W
Pt 9	11+34.88	637,150.90	1,499,672.53	S 34° 22' 13.30" W
Pt 10	12+02.82	637,094.82	1,499,634.17	S 54° 13' 50.58" W
Pt 11	13+26.14	637,022.73	1,499,534.11	S 22° 19' 32.15" W
Pt 12	14+23.76	636,932.43	1,499,497.03	S 39° 23' 24.85" E
Pt 13	14+51.55	636,910.95	1,499,514.67	S 8° 26' 54.77" E
Pt 14	14+63.08	636,899.55	1,499,516.36	S 26° 17' 28.00" W
Pt 15	14+70.63	636,892.78	1,499,513.01	S 65° 49' 57.51" W
Pt 16	14+87.07	636,886.05	1,499,498.02	N 79° 48' 23.32" W
Pt 17	15+09.07	636,889.94	1,499,476.37	N 60° 21' 13.65" W
Pt 18	15+34.54	636,902.54	1,499,454.23	S 76° 32' 46.34" W
Pt 19	15+58.25	636,897.03	1,499,431.17	S 64° 03' 21.27" W
Pt 20	16+25.61	636,867.56	1,499,370.60	S 21° 52' 14.07" W
Pt 21	16+68.36	636,827.88	1,499,354.67	S 71° 54' 06.33" W
Pt 22	17+00.99	636,817.74	1,499,323.66	N 61° 13' 18.95" W
Pt 23	17+13.47	636,823.75	1,499,312.72	N 7° 17' 50.41" W
Pt 24	17+51.53	636,861.50	1,499,307.89	N 67° 00' 00.15" W
Pt 25	17+83.04	636,873.81	1,499,278.88	S 59° 4' 28.69" W
Pt 26	18+04.32	636,862.88	1,499,260.62	S 11° 35' 11.48" E
Pt 27	18+45.67	636,822.37	1,499,268.93	S 56° 15' 57.03" W
Pt 28	19+26.35	636,777.57	1,499,201.83	N 70° 27' 36.06" W
Pt 29	19+72.36	636,792.95	1,499,158.48	S 82° 29' 27.20" W
Pt 30	19+96.50	636,789.80	1,499,134.53	S 36° 26' 00.11" W
Pt 31	20+11.90	636,777.41	1,499,125.39	S 9° 01' 58.46" W
Pt 32	20+33.51	636,756.07	1,499,122.00	S 18° 38' 51.78" W
Pt 33	20+58.67	636,732.23	1,499,113.95	S 2° 27' 54.59" E
Pt 34	20+89.79	636,701.13	1,499,115.29	S 43° 31' 42.40" W
Pt 35	21+10.35	636,686.23	1,499,101.13	N 59° 13' 51.06" W
Pt 36	21+54.56	636,708.85	1,499,063.15	S 62° 50' 26.58" W
Pt 37	21+62.43	636,705.25	1,499,056.15	S 13° 20' 20.35" W
Pt 38	21+76.85	636,691.23	1,499,052.82	S 8° 21' 04.76" E
Pt 39	22+04.30	636,664.06	1,499,056.81	S 29° 28' 42.21" W
Pt 40	22+39.82	636,633.14	1,499,039.33	S 48° 15' 17.55" W
Pt 41	22+76.61	636,608.64	1,499,011.88	S 1° 37' 47.04" W
Pt 42	23+41.78	636,543.51	1,499,010.02	N 77° 52' 13.78" W
Pt 43	23+72.50	636,549.96	1,498,979.99	S 83° 27' 27.98" W
Pt 44	23+84.64	636,548.58	1,498,967.93	S 48° 51' 27.98" W
Pt 45	24+02.22	636,537.01	1,498,954.69	S 15° 12' 06.59" W
Pt 46	24+23.92	636,516.06	1,498,949.00	S 8° 15' 21.43" E
Pt 47	24+42.31	636,497.86	1,498,951.64	S 35° 20' 25.09" W
Pt 48	24+53.48	636,488.76	1,498,945.18	S 65° 30' 17.46" W
Pt 49	24+76.98	636,479.01	1,498,923.79	S 50° 17' 27.06" W
Pt 50	25+11.23	636,457.13	1,498,897.44	S 26° 27' 05.99" W
Pt 51	25+75.18	636,399.88	1,498,868.96	S 17° 27' 12.9" W
Pt 52	26+25.03	636,352.32	1,498,854.00	S 38° 39' 47.27" W
Pt 53	26+53.67	636,329.96	1,498,836.11	S 6° 59' 02.05" W
Pt 54	26+66.49	636,317.23	1,498,834.55	S 45° 51' 16.85" E
Pt 55	26+75.64	636,310.86	1,498,841.11	S 68° 47' 22.55" E
Pt 56	26+87.55	636,306.55	1,498,852.22	S 76° 11' 10.62" E
Pt 57	27+00.00	636,303.58	1,498,864.31	S 52° 52' 52.94" E
Pt 58	27+03.59	636,301.42	1,498,867.17	S 8° 12' 41.33" E
Pt 59	27+25.03	636,280.20	1,498,870.23	S 23° 54' 13.96" W
POT 60	27+54.28	636,253.45	1,498,858.38	

TRIBUTARY CONSTRUCTION BASELINE DATA				
POINT NO.	STATION	NORTH	EAST	BEARING
POB 1	49+80.00	637,254.84	1,499,944.40	N 37° 17' 21.28" W
Pt 2	50+22.28	637,288.48	1,499,918.78	S 55° 0' 45.66" E
Pt 3	50+38.55	637,297.81	1,499,905.45	N 38° 5' 23.61" W
Pt 4	50+65.10	637,318.70	1,499,889.07	N 42° 56' 2.81" W
POT 5	50+86.55	637,334.40	1,499,874.46	



TRAVERSE POINTS				
POINT ID	POINT TYPE	NORTH	EAST	ELEVATION
911	TRV R&C	635,955.89	1,499,858.03	96.60
912	TRV R&C	635,622.06	1,498,232.13	17.56
913	TRV R&C	635,810.85	1,497,908.42	23.07
920	TRV PK NAIL	636,413.90	1,499,983.20	107.02
921	TRV PK NAIL	637,280.87	1,499,766.26	29.87
922	TRV R&C	636,955.06	1,499,262.84	36.32
923	TRV R&C	636,755.60	1,499,015.93	29.04
924	TRV R&C	636,453.73	1,498,784.67	37.18
926	TRV R&C	635,834.67	1,498,473.82	16.08
950	TRV PK NAIL	637,252.32	1,499,773.25	29.84
951	TRV R&C	637,204.56	1,499,649.38	29.40
952	TRV R&C	637,127.32	1,499,549.85	28.28
953	TRV R&C	637,050.75	1,499,439.54	31.41
954	TRV R&C	636,865.20	1,499,422.75	22.65
955	TRV R&C	636,989.74	1,499,552.91	23.92
956	TRV R&C	636,869.91	1,499,132.35	34.31
957	TRV R&C	636,831.51	1,499,257.04	21.16
958	TRV R&C	636,698.19	1,499,139.71	19.52
959	TRV R&C	636,566.64	1,498,969.04	19.14
960	TRV R&C	636,563.85	1,499,963.55	93.26
961	TRV R&C	636,583.43	1,499,592.70	72.68

- NOTES:
- HORIZONTAL CONTROL - COORDINATES AND COURSES SHOWN HEREON ARE REFERRED TO THE MARYLAND STATE PLANE COORDINATE SYSTEM, NAD 83 (2011), AS DETERMINED FROM THE FOLLOWING NATIONAL GEODETIC SURVEY HORIZONTAL CONTROL SURVEY MONUMENTS:

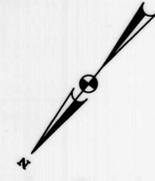
T BEAR: N 647.100.45, E 1.495.812.95; "CONCRETE MONUMENT FD"
GIS 24: N 638.588.12, E 1.488.114.47; "CONCRETE MONUMENT FD"
 - VERTICAL CONTROL - ELEVATIONS SHOWN HEREON ARE REFERRED TO THE MARYLAND STATE PLANE COORDINATE SYSTEM, NAVD 88, AS DETERMINED FROM THE FOLLOWING NATIONAL GEODETIC SURVEY VERTICAL CONTROL SURVEY MONUMENTS:

T BEAR: ELEV. 148.81 feet "CONCRETE MONUMENT FD"
GIS 24: ELEV. 34.75 feet "CONCRETE MONUMENT FD"
 - ONLY THOSE CONTROL POINTS SHOWN ON THESE PLANS ARE TO BE USED FOR THE CONSTRUCTION OF THIS PROJECT.



Revisions	HARFORD COUNTY, MARYLAND	
	STREAM RESTORATION FOSTER BRANCH	
	GEOMETRY SHEET (GS-01 OF 01)	
Drawn By : _____	Contract No : _____	
Designed By : _____	Scale : _____	1" = 100'
Reviewed By : _____	Sheet <u>2</u> Of <u>35</u>	
	Date : <u>JAN. 2016</u>	

ADC MAP : 4583 GRID: F 4
TAX MAP : 0065/0069
HCG BILLING ID NO. :
SCALE: 1" = 100'



Channel or Stream Change Excavation - Class 5	
Cut	387 C.Y.
Fill	98 C.Y.
Net Cut	289 C.Y.

Scour Pool Rock Mix			
SP#	Start Station	End Station	Cubic Yards
SP-1A-1	49+86	49+96	8
SP-1A-2	50+22	50+39	35
Totals			43

Channel Bed Material - Clean Sand Fill	
Sheet 3	0 C.Y.

18" RCP		
Start Station	End Station	Length
49+96	50+27	30

NOTE: EXCESS SOIL GENERATED DUE TO GRADING FOR THE PROJECT MUST BE REMOVED FROM THE 100-YEAR FLOODPLAIN AND ALL OTHER REGULATED RESOURCES AND HAULED TO AN APPROVED SITE.

- TRAFFIC CONTROL GENERAL NOTES**
- ALL STANDARD REGULATORY, WARNING AND CONSTRUCTION SIGNS USED FOR MAINTENANCE OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE MARYLAND EDITION OF STANDARD HIGHWAY SIGNS.
 - CONTRACTOR SHALL FIELD LOCATE ALL TEMPORARY SIGNS TO BE INSTALLED ON WOOD SUPPORTS A MINIMUM OF 7 CALENDAR DAYS PRIOR TO INITIATING WORK. CONTRACTOR MUST RECEIVE APPROVAL OF THE SIGN LOCATIONS AND MOUNTINGS FROM THE ENGINEER PRIOR TO INSTALLATION.
 - ALL TEMPORARY TRAFFIC SIGN LOCATIONS MAY BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
 - TRUCK CROSSING SIGNS SHALL BE INSTALLED IN ADVANCE OF CONSTRUCTION ACCESS POINTS PER STANDARD MD 104.00-08 AND MD 104.00-13.

RGC#	Material	Start Station	Soil Lift						Quantity (C.Y.)	Quantity (S.Y.)	
			Front Elevation	Front Offset	Back Offset	End Station	Back Elevation	Front Offset			
SL 1A-1	Class 1 Rock	8+12	26.0	7.2 RT	12.2 RT	8+69	27.0	4.8 RT	9.8 RT	11	
	Soil Lift 01	8+12	27.0	7.2 RT	15.1 RT	8+43	28.0	4.8 RT	14.9 RT		61
SL 1A-2	Class 1 Rock	8+86	25.0	3.3 RT	8.3 RT	9+08	26.0	5.0 RT	10.0 RT	4	
	Soil Lift 01	8+86	26.0	3.3 RT	12.6 RT	9+08	27.0	5.0 RT	14.4 RT		50
SL 1A-3	Class 1 Rock	9+28	25.0	8.0 RT	13.0 RT	9+40	26.0	11.5 RT	15.8 RT	2	
	Soil Lift 01	9+28	26.0	8.0 RT	13.4 RT	9+40	27.0	11.5 RT	13.4 RT		9
SL 1A-4	Class 1 Rock	8+86	25.0	1.0 LT	6.0 LT	9+08	26.0	5.0 LT	10.0 LT	4	
	Soil Lift 01	8+86	26.0	1.0 LT	9.5 LT	9+08	27.0	5.0 LT	10.1 LT		12
SL 1A-5	Class 1 Rock	50+53	26.0	2.5 LT	7.5 LT	50+86	27.0	9.8 LT	14.8 LT	6	
	Soil Lift 01	50+53	27.0	2.5 LT	8.0 LT	50+86	28.0	9.8 LT	16.0 LT		377
SL 1A-5	Class 1 Rock	50+53	26.0	2.5 LT	7.5 LT	50+86	27.0	9.8 LT	14.8 LT	6	
	Soil Lift 02	50+53	28.0	8.0 LT	16.0 LT	50+66	29.0	16.0 LT	23.3 LT		13
Totals										27	580

Pool Mix				
P#	Start Station	End Station	Average Width	Class 0 (CY)
P-1A-1	7+67	7+79	12.00	5
P-1A-2	8+12	8+68	17.60	29
P-1A-3	8+86	9+08	9.30	6
P-1A-4	9+28	9+57	18.90	16
P-1A-5	50+53	50+87	12.00	12
Totals				68

Riffle Grade Control										
RGC#	Material	Start Station	Right Offset	Left Offset	End Station	Right Offset	Left Offset	RGC MIX (CY)	*Class 0 (CY)	RBT MIX (CY)
RGC-1A-1	Riffle Grade Control Mix	7+78	2.5	2.5	8+12	2.5	2.5	15	6	30
	Riffle Bank Transition Mix		12.2	8.6		20.6	21.0			
RGC-1A-2	Riffle Grade Control Mix	8+69	2.5	2.5	8+86	2.5	2.5	8	3	29
	Riffle Bank Transition Mix		20.1	24.3		21.2	15.5			
RGC-1A-3	Riffle Grade Control Mix	9+08	2.5	2.5	9+28	2.5	2.5	9	4	25
	Riffle Bank Transition Mix		21.8	10.1		17.8	10.0			
RGC-1A-4	Riffle Grade Control Mix	9+55	2.5	2.5	9+63	2.5	2.5	3	1	4
	Riffle Bank Transition Mix		6.0	12.0		8.0	11.0			
RGC-1A-5	Riffle Grade Control Mix	50+39	2.5	2.5	50+53	2.5	2.5	7	3	15
	Riffle Bank Transition Mix		9.8	10.6		10.7	16.0			
Totals								42	17	103

*CHANNEL BED MATERIAL - CLASS 0 FILL

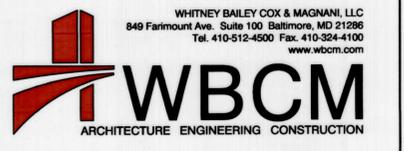
Revisions	

HARFORD COUNTY, MARYLAND

STREAM RESTORATION FOSTER BRANCH

PLAN SHEET AND MOT PLAN (PS-01A OF 03)

Drawn By : _____ CY	Contract No : _____
Designed By : _____ MH	Scale : 1" = 20'
Reviewed By : _____ BN	Sheet 3 Of 35
	Date : JAN. 2016



ADC MAP : 4583 GRID : F4
TAX MAP : 0065/0069
HCC BILLING ID No. :
HCC DWG ID No. : 160584

TRAFFIC CONTROL GENERAL NOTES

- ALL STANDARD REGULATORY, WARNING AND CONSTRUCTION SIGNS USED FOR MAINTENANCE OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE MARYLAND EDITION OF STANDARD HIGHWAY SIGNS.
- CONTRACTOR SHALL FIELD LOCATE ALL TEMPORARY SIGNS TO BE INSTALLED ON WOOD SUPPORTS A MINIMUM OF 7 CALENDAR DAYS PRIOR TO INITIATING WORK. CONTRACTOR MUST RECEIVE APPROVAL OF THE SIGN LOCATIONS AND MOUNTINGS FROM THE ENGINEER PRIOR TO INSTALLATION.
- ALL TEMPORARY TRAFFIC SIGN LOCATIONS MAY BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- TRUCK CROSSING SIGNS SHALL BE INSTALLED IN ADVANCE OF CONSTRUCTION ACCESS POINTS PER STANDARD MD 104.00-08 AND MD 104.00-13.

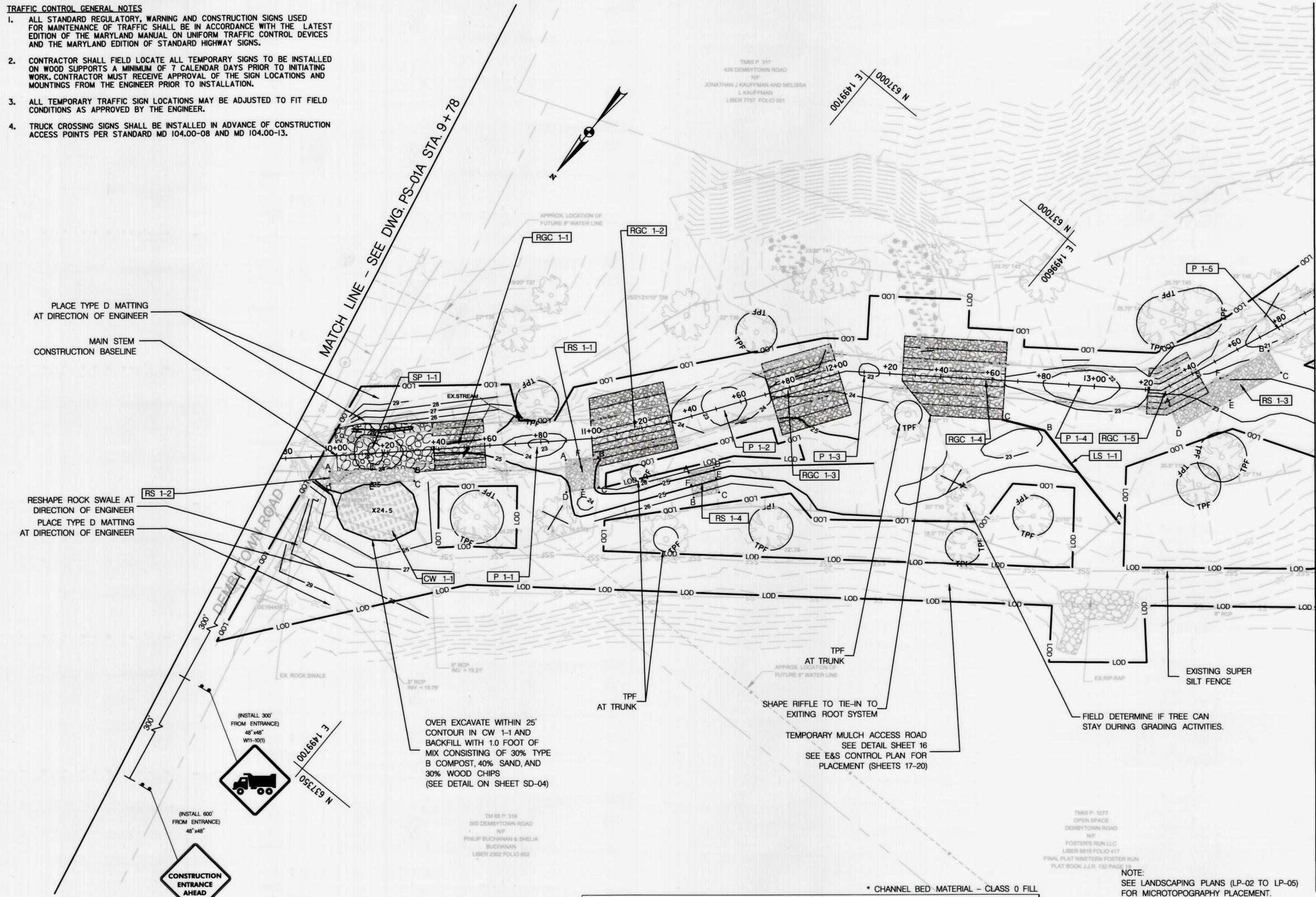
PLACE TYPE D MATTING AT DIRECTION OF ENGINEER

MAIN STEM CONSTRUCTION BASELINE

RESHAPE ROCK SWALE AT DIRECTION OF ENGINEER
PLACE TYPE D MATTING AT DIRECTION OF ENGINEER

MATCH LINE - SEE DWG. PS-01A STA. 9+78

MATCH LINE - SEE DWG. PS-02 STA. 13+94



OVER EXCAVATE WITHIN 25' CONTOUR IN CW 1-1 AND BACKFILL WITH 1.0 FOOT OF MIX CONSISTING OF 30% TYPE B COMPOST, 40% SAND, AND 30% WOOD CHIPS (SEE DETAIL ON SHEET SD-04)

TEMPORARY MULCH ACCESS ROAD SEE DETAIL SHEET 16 SEE E&S CONTROL PLAN FOR PLACEMENT (SHEETS 17-20)

FIELD DETERMINE IF TREE CAN STAY DURING GRADING ACTIVITIES.

* CHANNEL BED MATERIAL - CLASS 0 FILL

NOTE: SEE LANDSCAPING PLANS (LP-02 TO LP-05) FOR MICROTOPOGRAPHY PLACEMENT.

Rock Sill Mix					
RS#		Northing	Easting	Elev.	Cubic Yards
RS-1-1	Pt. A	637,191.08	1,499,696.88	25.00	8
	Pt. B	637,189.13	1,499,686.77	25.00	
	Pt. C	637,191.14	1,499,680.03	25.00	
	Pt. D	637,200.72	1,499,688.68	25.00	
	Pt. E	637,196.29	1,499,684.69	24.50	
	Pt. F	637,187.37	1,499,692.99	24.50	
RS-1-2	Pt. A	637,253.17	1,499,765.50	25.50	9
	Pt. B	637,231.25	1,499,740.70	25.50	
	Pt. C	637,234.99	1,499,737.39	25.50	
	Pt. D	637,256.92	1,499,762.19	25.50	
	Pt. E	637,245.95	1,499,749.79	25.50	
	Pt. F	637,242.21	1,499,753.10	25.50	
RS-1-3	Pt. A	637,026.68	1,499,525.46	23.40	21
	Pt. B	636,984.14	1,499,511.50	23.40	
	Pt. C	636,987.56	1,499,502.25	23.20	
	Pt. D	637,029.70	1,499,519.56	23.20	
	Pt. E	637,008.63	1,499,510.91	22.75	
	Pt. F	637,005.29	1,499,519.62	22.75	
RS-1-4	Pt. A	637,164.55	1,499,656.54	25.00	6
	Pt. B	637,156.68	1,499,650.15	25.00	
	Pt. C	637,162.98	1,499,642.39	25.00	
	Pt. D	637,170.85	1,499,648.78	25.00	
	Pt. E	637,166.92	1,499,645.58	24.50	
	Pt. F	637,160.62	1,499,653.34	24.50	
Total					44

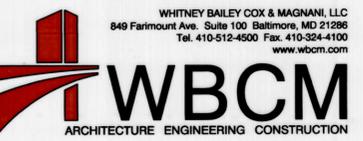
Log Sill					
LS#		Northing	Easting	Elevation	Linear Feet
LS 1-1	A	637,073.47	1,499,513.71	24	64
	B	637,063.83	1,499,559.31	24	
	C	637,070.96	1,499,574.72	23.8	

Channel Bed Material - Clean Sand Fill	
Sheet 4	150 C.Y.
Channel or Stream Change Excavation - Class 5	
Cut	160 C.Y.
Fill	45 C.Y.
Net Cut	135 C.Y.

NOTE: EXCESS SOIL GENERATED DUE TO GRADING FOR THE PROJECT MUST BE REMOVED FROM THE 100-YEAR FLOODPLAIN AND ALL OTHER REGULATED RESOURCES AND HAULED TO AN APPROVED SITE.

LEGEND

- PROPOSED CONTOUR
- EXISTING CONTOUR
- EXISTING SANITARY SEWER
- EXISTING WATER LINE
- LOW - LIMIT OF WORK
- LOD - LIMIT OF DISTURBANCE
- TPF - TREE PROTECTION FENCE
- REMOVE TREE
- ROCK SILL (RS)
- CONSTRUCTED WETLAND (CW)
- PREFORMED SCOUR POOL (SP)
- RIFFLE GRADE CONTROL WITH RIFFLE BANK TRANSITION MIX (RGC)
- CLAY CHANNEL BLOCK (CCB)
- SOIL LIFT
- VERNAL POOLS
- STONE SILL (SS)
- TOE WOOD (TW)
- LOG SILL (LS)
- WUS - WATERS OF THE U.S.
- NONTIDAL WETLAND BOUNDARY
- NONTIDAL WETLAND
- 25' NONTIDAL WETLAND BUFFER
- 100-YEAR FEMA FLOODPLAIN



Scour Pool Rock Mix			
SP#	Start Station	End Station	Cubic Yards
SP 1-1	10+00	10+38	78

Constructed Wetland Soil Mix				
CW 1-1 45 C.Y.				
Pool Mix				
PH	Start Station	End Station	Average Width	Class 0 (CY)
P 1-1	10+58	11+00	20.00	25
P 1-2	11+32	11+72	17.00	20
P 1-3	12+00	12+25	17.00	13
P 1-4	12+65	13+21	21.00	35
P 1-5	13+42	13+70	21.00	17
Total				110

Riffle Grade Control										
RGC#	Material	Start Station	Right Offset	Left Offset	End Station	Right Offset	Left Offset	RGC MIX (CY)	*Class 0 (CY)	RBT MIX (CY)
RGC 1-1	Riffle Grade Control Mix	10+38	2.5	2.5	10+58	2.5	2.5	20	7	5
	Riffle Bank Transition Mix		8.3	10.5		8.3	10.5			
RGC 1-2	Riffle Grade Control Mix	11+00	2.5	2.5	11+32	2.5	2.5	42	14	11
	Riffle Bank Transition Mix		10.9	15.8		10.9	15.8			
RGC 1-3	Riffle Grade Control Mix	11+72	2.5	2.5	12+00	2.5	2.5	28	9	15
	Riffle Bank Transition Mix		17.0	12.0		17.0	12.0			
RGC 1-4	Riffle Grade Control Mix	12+25	2.5	2.5	12+65	2.5	2.5	29	10	32
	Riffle Bank Transition Mix		15.4 (15+37)	15.1		15.4	15.1			
RGC 1-5	Riffle Grade Control Mix	13+21	2.5	2.5	13+42	2.5	2.5	25	8	5
	Riffle Bank Transition Mix		9.5	8.5		9.5	8.5			
Totals								143	48	68

Revisions	

HARFORD COUNTY, MARYLAND

STREAM RESTORATION FOSTER BRANCH

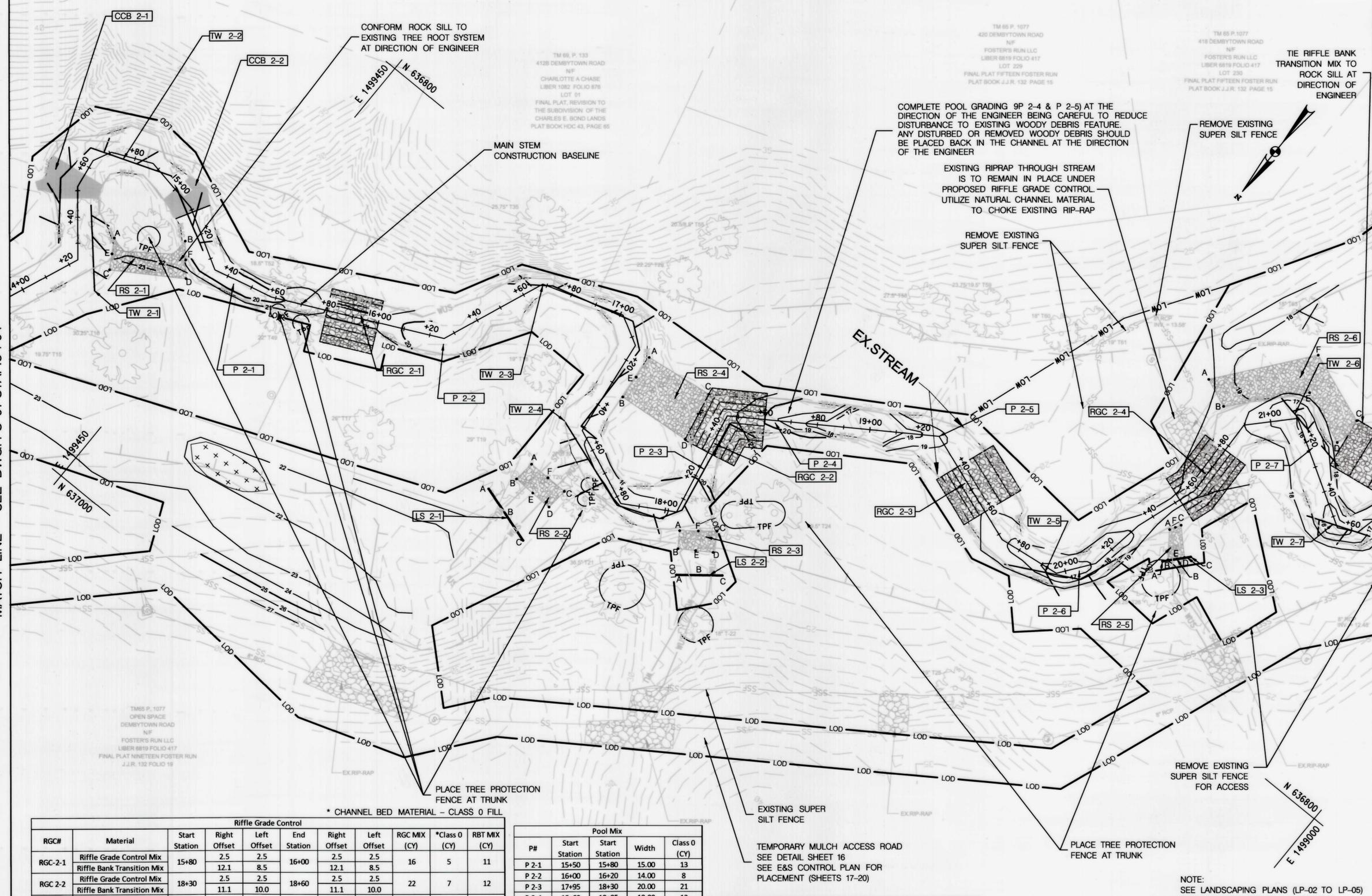
PLAN SHEET AND MOT PLAN (PS-01 OF 03)

Drawn By : _____	CY	Contract No : _____
Designed By : _____	MH	Scale : 1" = 20'
Reviewed By : _____	BN	Sheet 4 of 35
		Date : JAN. 2016

TAX MAP : 0065/0069 HCG BILLING ID No. : 160585 ADC MAP : 4583 GRID : F 4

MATCH LINE - SEE DWG. PS-01 STA. 13+94

MATCH LINE - SEE DWG. PS-03 STA. 21+72



Rock Sill Mix					
RS#		Northing	Easting	Elev.	Cubic Yards
RS-2-1	Pt. A	636,917.26	1,499,491.55	22.50	14
	Pt. B	636,901.18	1,499,469.90	22.10	
	Pt. C	636,927.78	1,499,485.28	22.50	
	Pt. D	636,912.04	1,499,460.55	22.50	
	Pt. E	636,922.52	1,499,488.42	22.10	
	Pt. F	636,907.45	1,499,464.36	22.00	
RS-2-2	Pt. A	636,883.54	1,499,314.67	22.00	7
	Pt. B	636,891.49	1,499,315.55	22.00	
	Pt. C	636,883.65	1,499,298.45	22.00	
	Pt. D	636,892.02	1,499,299.17	22.00	
	Pt. E	636,891.75	1,499,307.36	21.75	
	Pt. F	636,883.60	1,499,306.56	21.50	
RS-2-3	Pt. A	636,867.58	1,499,255.24	19.50	6
	Pt. B	636,873.31	1,499,251.34	19.50	
	Pt. C	636,858.75	1,499,244.14	19.50	
	Pt. D	636,865.97	1,499,240.18	19.50	
	Pt. E	636,869.69	1,499,245.90	19.30	
	Pt. F	636,863.16	1,499,249.69	19.10	
RS-2-4	Pt. A	636,823.91	1,499,305.82	21.00	29
	Pt. B	636,841.94	1,499,304.00	21.00	
	Pt. C	636,820.42	1,499,279.49	21.00	
	Pt. D	636,839.38	1,499,275.61	21.00	
	Pt. E	636,832.93	1,499,304.91	20.75	
	Pt. F	636,829.38	1,499,277.66	20.50	
RS-2-5	Pt. A	636,749.67	1,499,111.92	19.50	4
	Pt. B	636,759.07	1,499,105.14	19.50	
	Pt. C	636,745.65	1,499,109.58	19.50	
	Pt. D	636,754.29	1,499,100.89	19.50	
	Pt. E	636,756.68	1,499,103.01	19.25	
	Pt. F	636,747.66	1,499,110.75	19.00	
RS-2-6	Pt. A	636,696.11	1,499,136.58	18.50	41
	Pt. B	636,700.51	1,499,125.73	18.50	
	Pt. C	636,672.74	1,499,083.20	18.50	
	Pt. D	636,683.82	1,499,083.71	18.50	
	Pt. E	636,675.77	1,499,103.78	18.30	
	Pt. F	636,662.60	1,499,110.35	18.20	
Total					100

NOTE: EXCESS SOIL GENERATED DUE TO GRADING FOR THE PROJECT MUST BE REMOVED FROM THE 100-YEAR FLOODPLAIN AND ALL OTHER REGULATED RESOURCES AND HAULED TO AN APPROVED SITE.

LEGEND

- PROPOSED CONTOUR
- EXISTING CONTOUR
- SS EXISTING SANITARY SEWER
- EXISTING WATER LINE
- LOW — LIMIT OF WORK
- LOD — LIMIT OF DISTURBANCE
- TPF — TREE PROTECTION FENCE
- ✕ REMOVE TREE
- ROCK SILL (RS)
- CONSTRUCTED WETLAND (CW)
- PREFORMED SCOUR POOL (SP)
- RIFFLE GRADE CONTROL WITH RIFFLE BANK TRANSITION MIX (RGC)
- CLAY CHANNEL BLOCK (CCB)
- SOIL LIFT
- VERNAL POOLS
- STONE SILL (SS)
- TOE WOOD (TW)
- LOG SILL (LS)
- WUS — WATERS OF THE U.S.
- NONTIDAL WETLAND BOUNDARY
- NON TIDAL WETLAND
- B — 25' NONTIDAL WETLAND BUFFER
- 100-YEAR FEMA FLOODPLAIN

Riffle Grade Control										
RGC#	Material	Start Station	Right Offset	Left Offset	End Station	Right Offset	Left Offset	RGC MIX (CY)	*Class 0 (CY)	RBT MIX (CY)
RGC-2-1	Riffle Grade Control Mix	15+80	2.5	2.5	16+00	2.5	2.5	16	5	11
	Riffle Bank Transition Mix		12.1	8.5		12.1	8.5			
RGC-2-2	Riffle Grade Control Mix	18+30	2.5	2.5	18+60	2.5	2.5	22	7	12
	Riffle Bank Transition Mix		11.1	10.0		11.1	10.0			
RGC-3-3	Riffle Grade Control Mix	19+40	2.5	2.5	19+60	2.5	2.5	28	9	3
	Riffle Bank Transition Mix		9.4	15.7		9.4	15.7			
RGC-3-4	Riffle Grade Control Mix	20+52	2.5	2.5	20+78	2.5	2.5	24	8	2
	Riffle Bank Transition Mix		9.5	9.5		9.5	9.5			
Totals								90	29	28

Pool Mix				
P#	Start Station	Start Station	Width	Class 0 (CY)
P 2-1	15+50	15+80	15.00	13
P 2-2	16+00	16+20	14.00	8
P 2-3	17+95	18+30	20.00	21
P 2-4	18+60	18+85	18.00	13
P 2-5	19+15	19+40	18.00	13
P 2-6	19+60	20+52	18.00	49
P 2-7	20+78	21+80	20.00	60
Total				179

Clay Channel Block			
CCB#	Start Station	Start Station	Width
CCB-2-1	14+47	14+57	21.99
CCB-2-2	15+00	15+11	13.96

Log Sill					
LS#		Northing	Easting	Elevation	Linear Feet
LS 2-1	A	636,901.11	1,499,321.34	22.5	24
	B	636,904.58	1,499,310.07	22.2*	
	C	636,908.04	1,499,298.79	22.5	
LS 2-2	A	636,881.36	1,499,245.44	23.5	17
	B	636,875.94	1,499,238.66	23.2*	
	C	636,870.51	1,499,231.89	23.5	
LS 2-3	A	636,760.78	1,499,106.34	20	11
	B	636,756.70	1,499,102.75	19.8*	
	C	636,752.62	1,499,099.16	20	
Totals					52

Revisions	

HARFORD COUNTY, MARYLAND

STREAM RESTORATION FOSTER BRANCH

PLAN SHEET (PS-02 OF 03)

Drawn By: _____ CY

Designed By: _____ MH

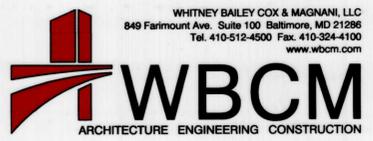
Reviewed By: _____ BN

Contract No: _____

Scale: 1" = 20'

Sheet 5 of 35

Date: JAN. 2016



Toe Wood							
Toe Wood Number	Start Station	Start Offset	End Station	End Offset	Member A	Member B	Linear Feet
TW 2-1	14+24	13.4 RT	14+45	5.1 RT	5	5	37
TW 2-2	14+30	7.3 LT	15+26	1.6 RT	11	11	123
TW 2-3	16+57	6.5 LT	17+59	4.5 RT	7	7	111
TW 2-4	17+52	7.7 RT	18+57	7.2 RT	7	7	119
TW 2-5	19+78	7.4 RT	20+28	5.8 RT	4	4	86
TW 2-6	21+05	8.3 LT	21+33	8.4 LT	3	3	35
TW 2-7	21+46	9.3 RT	21+65	4.0 RT	4	4	29
Total					41	41	540

Channel or Stream Change Excavation - Class 5	
CUT	90 C.Y.
Channel Bed Material - Clean Sand Fill	Sheet 5 211 C.Y.

* NOTCH LOG SILL WITH CHAINSAW AS NECESSARY TO CREATE THALWEG AT POINT B LOCATION.

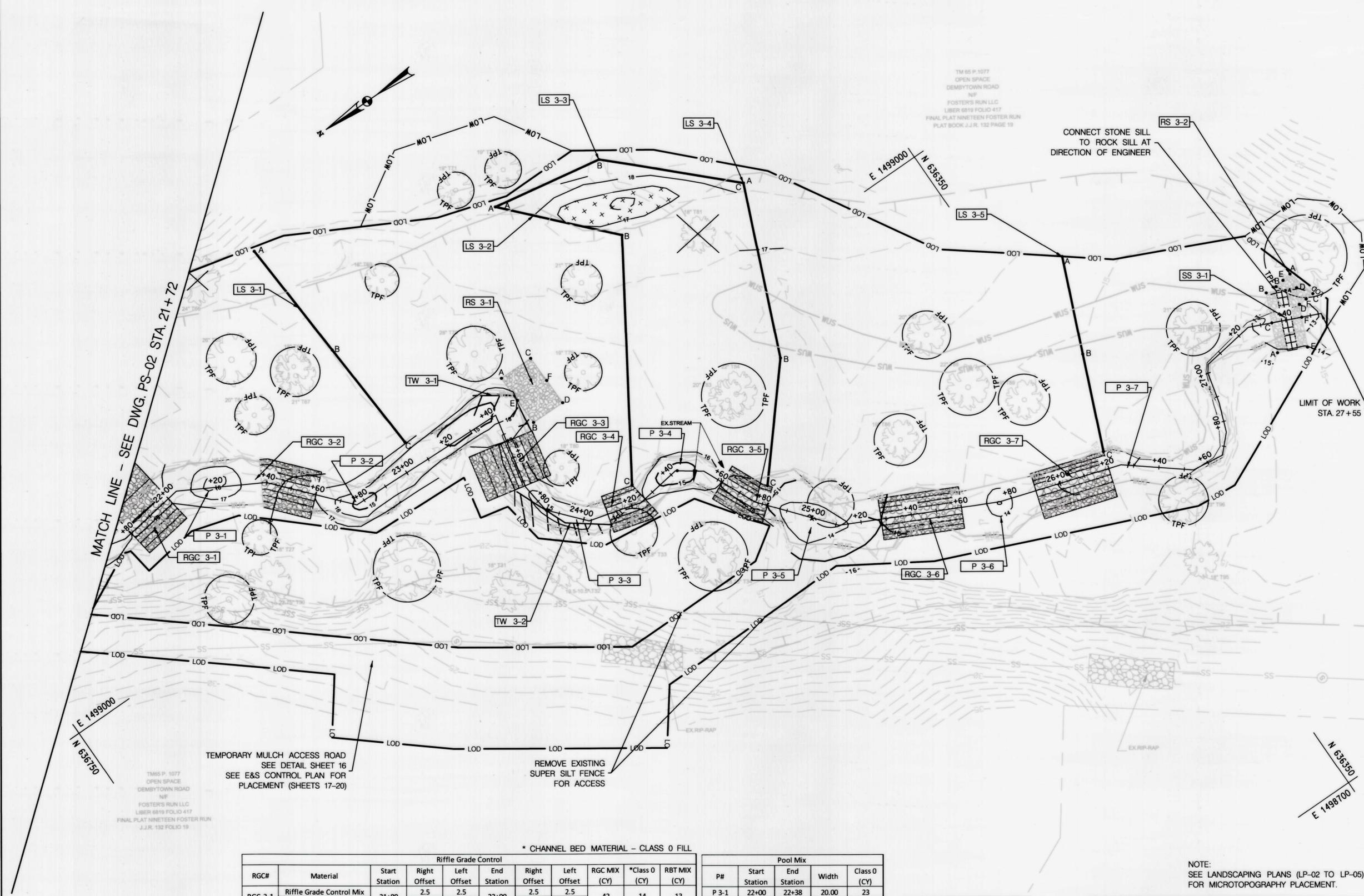
ADC MAP : 4583 GRID : F 4
TAX MAP : 0065/0069
HCC BILLING ID NO. : 760587
HCC DWG ID NO. : 760587

Log Sill					
LS#		Northing	Easting	Elevation	Linear Feet
LS 3-1	A	636,585.05	1,499,117.04	18.25	99
	B	636,581.91	1,499,067.70	18.1	
	C	636,578.97	1,499,021.57	17.5	
LS 3-2	A	646,496.86	1,499,077.66	18.25	150
	B	636,462.17	1,499,040.13	17.5	
	C	636,515.09	1,498,956.72	17.5	
LS 3-3	A	646,496.86	1,499,077.66	18.25	101
	B	636,452.63	1,499,069.81	18.0	
	C	636,411.14	1,499,029.92	18.5	
LS 3-4	A	636,411.14	1,499,029.92	18.5	121
	B	636,438.47	1,498,964.80	17.5	
	C	636,471.32	1,498,926.27	16.5	
LS 3-5	A	636,324.61	1,498,934.76	16	79
	B	636,339.80	1,498,898.52	15	
	C	636,354.99	1,498,862.28	14.5	
Totals					569

Rock Sill Mix					
RS#		Northing	Easting	Elev.	Cubic Yards
RS 3-1	Pt. A	636,533.43	1,499,020.66	17.50	17
	Pt. B	636,519.41	1,498,999.16	17.50	
	Pt. C	636,519.00	1,498,999.02	17.50	
	Pt. D	636,533.21	1,499,010.92	17.20	
	Pt. E	636,519.22	1,499,010.64	17.20	
	Pt. F	636,254.72	1,498,878.10	14.25	
RS 3-2	Pt. B	636,262.06	1,498,877.23	14.25	5
	Pt. C	636,251.73	1,498,866.65	14.00	
	Pt. D	636,259.74	1,498,866.15	14.00	
	Pt. E	636,258.23	1,498,877.77	13.75	
	Pt. F	636,255.73	1,498,866.40	13.50	
	Total				

STONE SILL					
RS#		Northing	Easting	Elev.	Quantity
SS 3-1	Pt. A	636,276.40	1,498,855.43	14.70	1
	Pt. B	636,266.67	1,498,877.37	14.70	
	Pt. C	636,271.54	1,498,866.40	13.70	
	Pt. D	636,255.64	1,498,872.24	14.10	
	Pt. E	636,265.43	1,498,850.57	14.10	
	Pt. F	636,260.57	1,498,861.53	13.70	
Total				1	

- LEGEND**
- PROPOSED CONTOUR
 - EXISTING CONTOUR
 - SS EXISTING SANITARY SEWER
 - EXISTING WATER LINE
 - LOW
 - LOD LIMIT OF WORK
 - LOD LIMIT OF DISTURBANCE
 - TPF TREE PROTECTION FENCE
 - ✕ REMOVE TREE
 - ███ ROCK SILL (RS)
 - ███ CONSTRUCTED WETLAND (CW)
 - ███ PREFORMED SCOUR POOL (SP)
 - ███ RIFFLE GRADE CONTROL WITH RIFFLE BANK TRANSITION MIX (RGC)
 - ███ CLAY CHANNEL BLOCK (CCB)
 - ███ SOIL LIFT
 - ███ VERNAL POOLS
 - ███ STONE SILL (SS)
 - ███ TOE WOOD (TW)
 - ███ LOG SILL (LS)
 - WUS WATERS OF THE U.S.
 - NONTIDAL WETLAND BOUNDARY
 - ███ NONTIDAL WETLAND
 - B 25' NONTIDAL WETLAND BUFFER
 - ███ 100-YEAR FEMA FLOODPLAIN



NOTE: EXCESS SOIL GENERATED DUE TO GRADING FOR THE PROJECT MUST BE REMOVED FROM THE 100-YEAR FLOODPLAIN AND ALL OTHER REGULATED RESOURCES AND HAULED TO AN APPROVED SITE.

* CHANNEL BED MATERIAL - CLASS 0 FILL

Riffle Grade Control										
RGC#	Material	Start Station	Right Offset	Left Offset	End Station	Right Offset	Left Offset	RGC MIX (CY)	*Class 0 (CY)	RBT MIX (CY)
RGC-3-1	Riffle Grade Control Mix	21+80	2.5	2.5	22+00	2.5	2.5	42	14	13
	Riffle Bank Transition Mix		10.7	27.4		10.7	27.4			
RGC-3-2	Riffle Grade Control Mix	22+38	2.5	2.5	22+60	2.5	2.5	30	10	8
	Riffle Bank Transition Mix		9.8	9.3		9.8	9.3			
RGC-3-3	Riffle Grade Control Mix	23+53	2.5	2.5	23+72	2.5	2.5	21	7	9
	Riffle Bank Transition Mix		16.0	10.5		16.0	10.5			
RGC-3-4	Riffle Grade Control Mix	24+10	2.5	2.5	24+26	2.5	2.5	11	4	2
	Riffle Bank Transition Mix		7.5	7.5		7.5	7.5			
RGC-3-5	Riffle Grade Control Mix	24+62	2.5	2.5	24+82	2.5	2.5	14	5	4
	Riffle Bank Transition Mix		7.5	7.5		7.5	7.5			
RGC-3-6	Riffle Grade Control Mix	25+28	2.5	2.5	25+60	2.5	2.5	27	9	6
	Riffle Bank Transition Mix		8.3	8.3		8.3	8.3			
RGC-3-7	Riffle Grade Control Mix	25+90	2.5	2.5	26+20	2.5	2.5	33	11	11
	Riffle Bank Transition Mix		11.6	7.1		11.6	7.1			
Totals								178	59	53

Pool Mix				
P#	Start Station	End Station	Width	Class 0 (CY)
P 3-1	22+00	22+38	20.00	23
P 3-2	22+60	23+55	22.00	62
P 3-3	23+72	24+10	17.00	19
P 3-4	24+26	24+62	18.00	19
P 3-5	24+82	25+28	16.00	17
P 3-6	25+60	25+90	15.00	13
P 3-7	26+20	26+35	15.00	7
Totals				160

Toe Wood							
Toe Wood Number	Start Station	Start Offset	End Station	End Offset	Member A	Member B	Linear Feet
TW 3-1	23+37	11.3 LT	23+53	10.5 LT	4	4	35
TW 3-2	23+72	3.8 RT	24+10	4.2 RT	4	4	48
Total					8	8	83

Channel Bed Material - Clean Sand Fill	Sheet 6	130 C.Y.
Channel or Stream Change Excavation - Class 5	Cut	68 C.Y.

Revisions	

HARFORD COUNTY, MARYLAND

STREAM RESTORATION FOSTER BRANCH

PLAN SHEET (PS-03 OF 03)

Drawn By : _____ CY

Designed By : _____ MH

Reviewed By : _____ BN

Contract No : _____

Scale : 1" = 20'

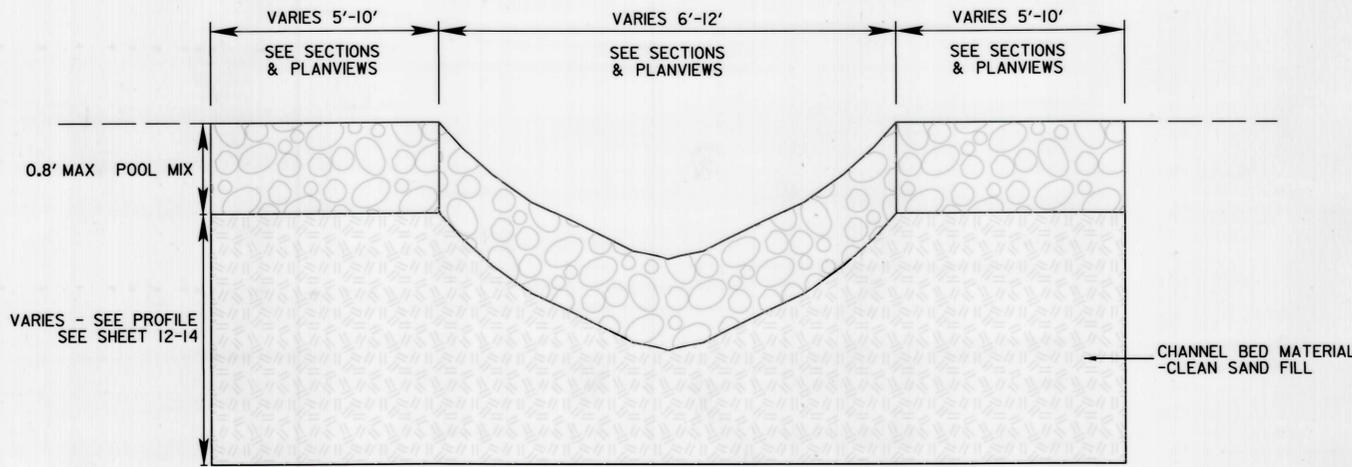
Sheet 6 of 35

Date : JAN. 2016

WHITNEY BAILEY COX & MAGNANI, LLC
849 Fairmount Ave. Suite 100 Baltimore, MD 21286
Tel. 410-512-4500 Fax. 410-524-4100
www.wbcm.com

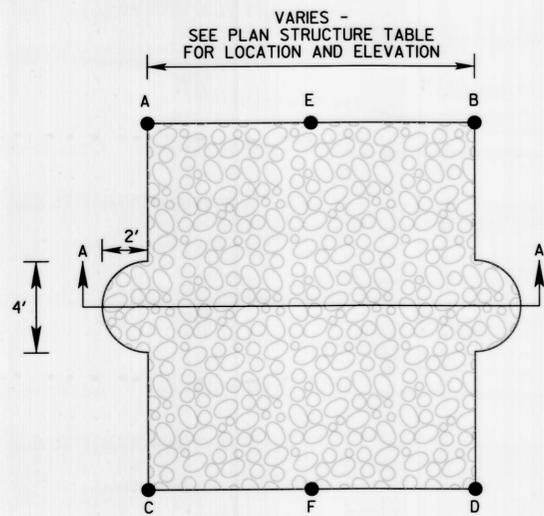
WBCM
ARCHITECTURE ENGINEERING CONSTRUCTION

ADC MAP : 4583 GRID : F 4
TAX MAP : 0065/0069
HCG BILLING ID NO. :
HCG DWG ID NO. : 160587
SCALE : 1" = 20'



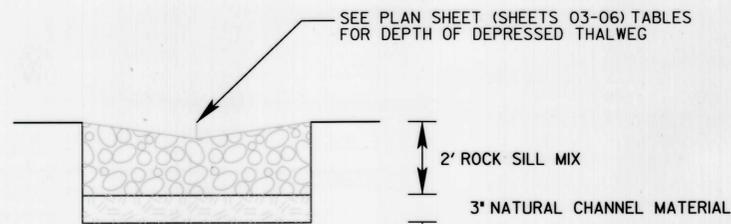
TYPICAL POOL SECTION
SCALE: N.T.S.

- NOTES:
1. SEE PROFILE FOR DEPTH OF CHANNEL BED MATERIAL-CLEAN SAND FILL AT STATION SPECIFIC LOCATIONS.
 2. SEE PROFILE, PLANVIEWS, AND SECTIONS FOR ELEVATIONS AND DIMENSIONS

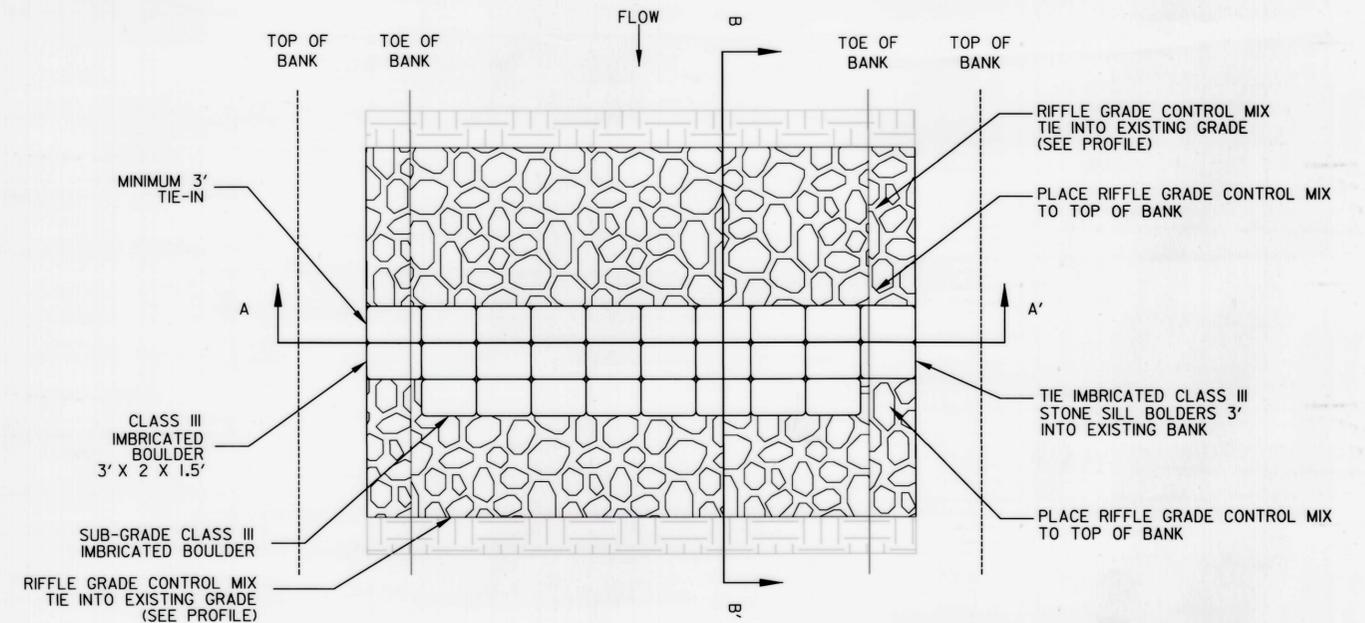


ROCK SILL - PLAN VIEW
SCALE: N.T.S.

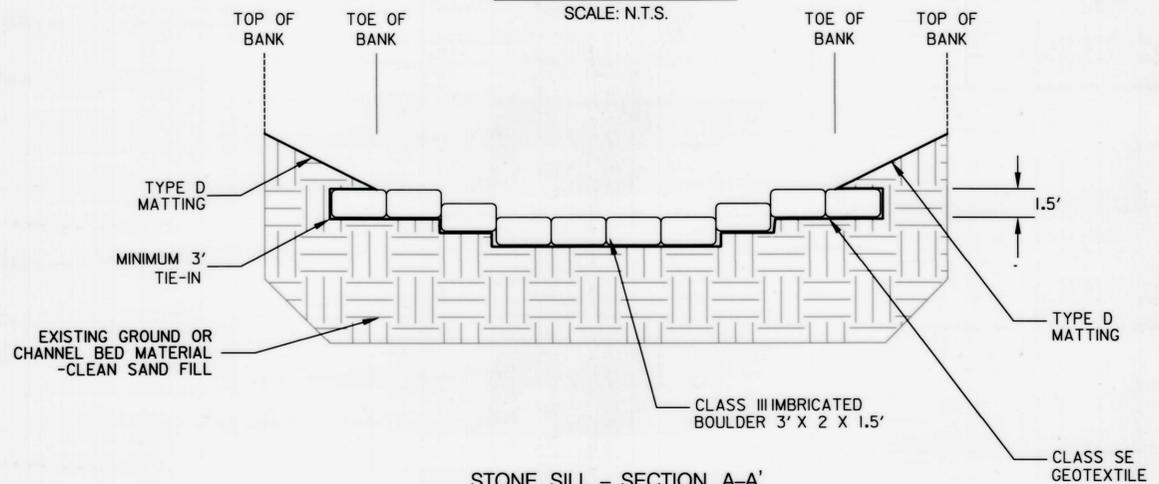
- NOTES:
1. WASH IN VOIDS WITH NATURAL CHANNEL MATERIAL
 2. SEE PLAN SHEETS FOR LOCATIONS AND DIMENSIONS
 3. ORIENTATION VARIES - SEE PLANVIEW FOR A-F LAYOUT FOR EACH ROCK SILL.



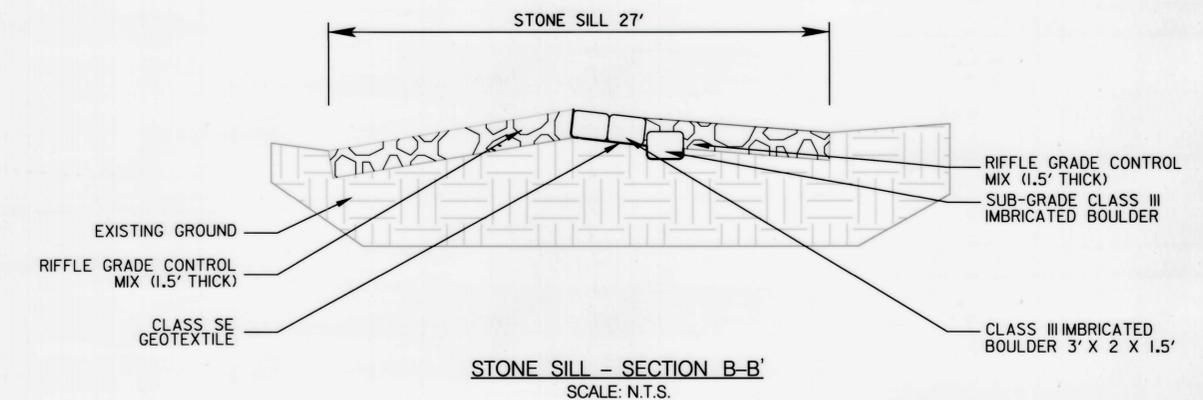
ROCK SILL - SECTION VIEW A-A
SCALE: N.T.S.



STONE SILL PLAN VIEW
SCALE: N.T.S.



STONE SILL - SECTION A-A
SCALE: N.T.S.



STONE SILL - SECTION B-B
SCALE: N.T.S.

POOL MIX MATERIAL		
MIX %	CLASS	
	CLASS 1	-
	CLASS 2	-
	CLASS 0	100 %

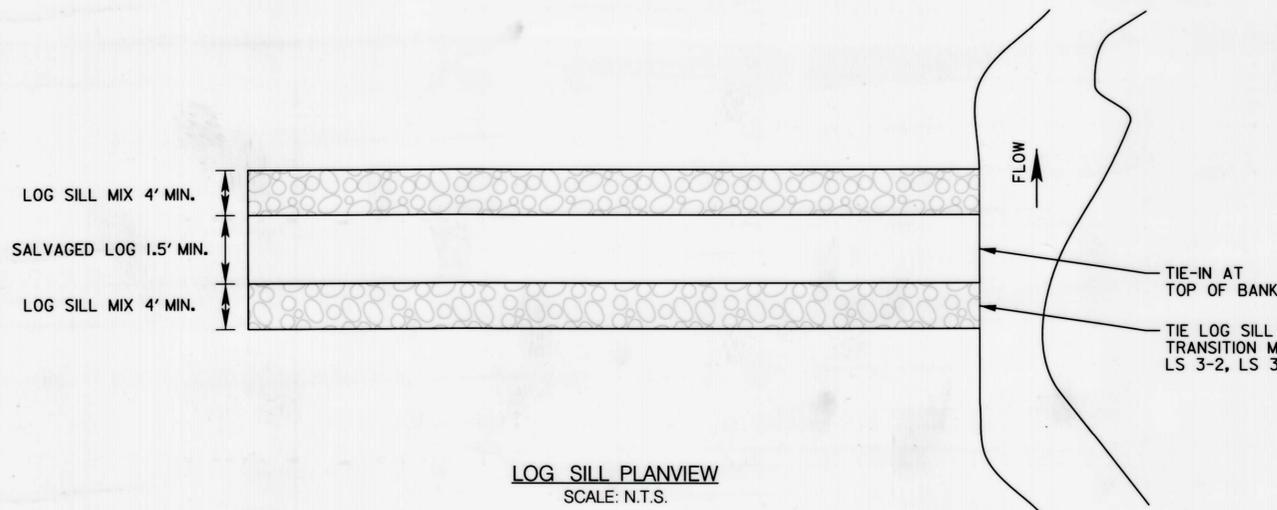
ROCK SILL MIX		
MIX %	CLASS	
	CLASS 1	60 %
	CLASS 2	-
	CLASS 0	40 %

RIFFLE GRADE CONTROL MIX		
MIX %	CLASS	
	CLASS 1	60 %
	CLASS 2	20 %
	CLASS 0	20 %

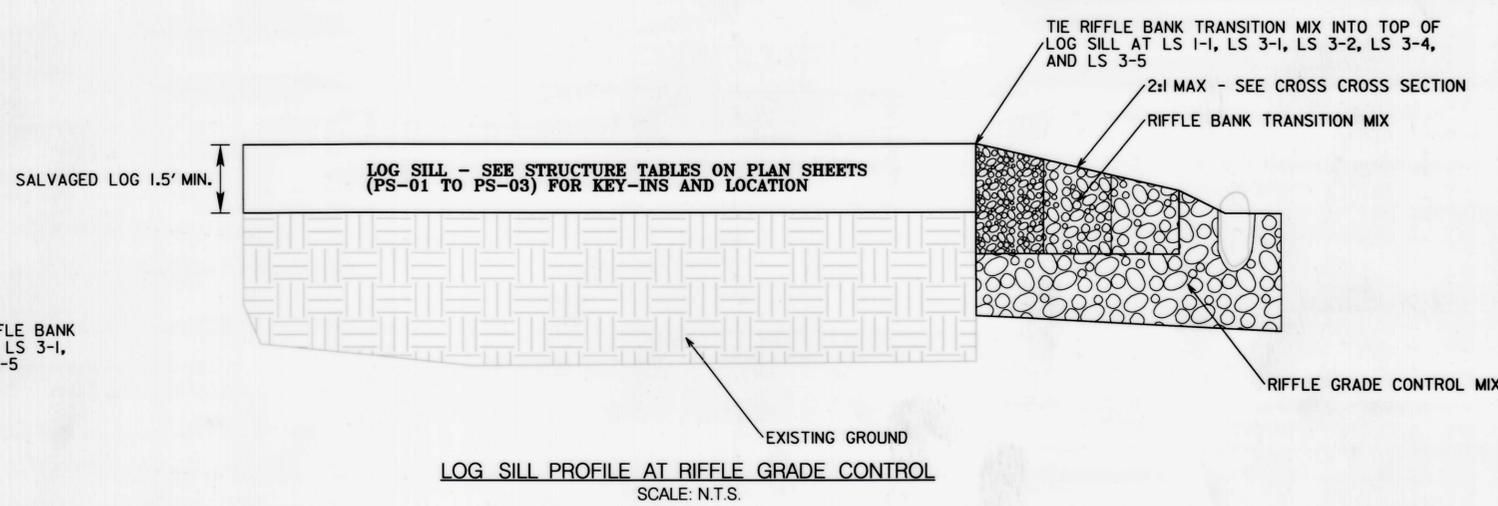
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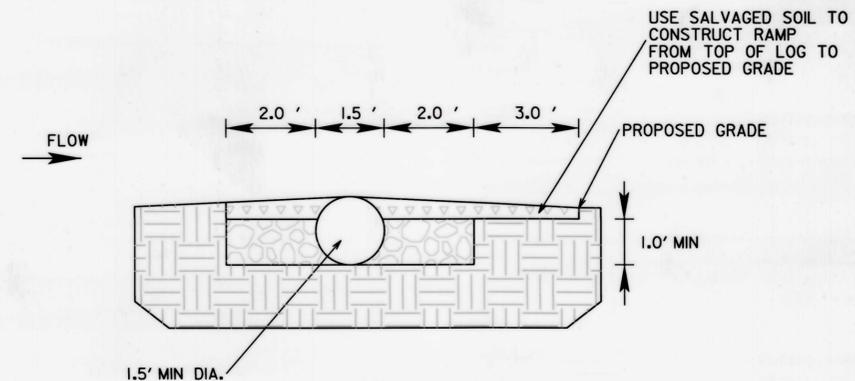


LOG SILL PLANVIEW
SCALE: N.T.S.

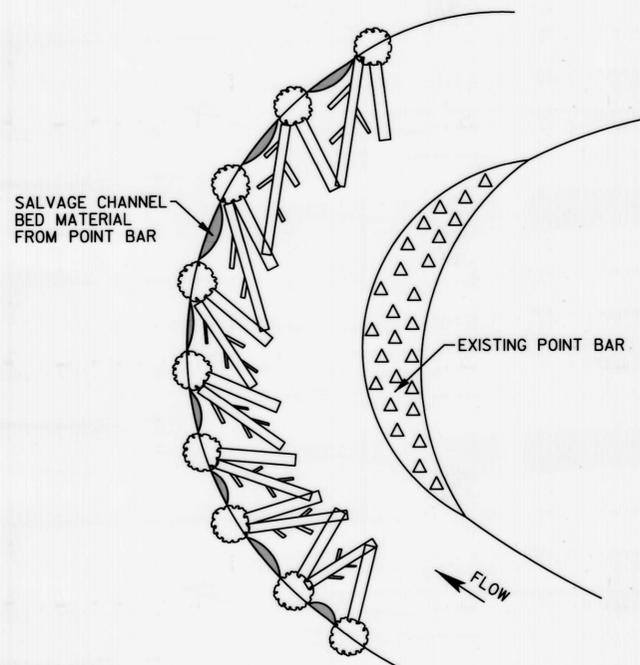


LOG SILL PROFILE AT RIFFLE GRADE CONTROL
SCALE: N.T.S.

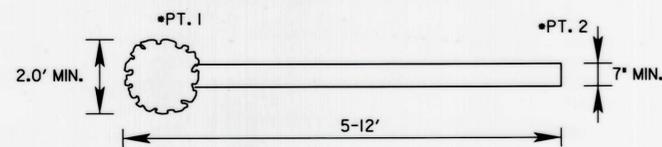
- NOTES:
1. TOP OF LOG IS 0.5' ABOVE PROPOSED GRADE.
 2. ROCK UPSTREAM AND DOWNSTREAM OF PROPOSED LOG SILL 0.5' BELOW TOP OF LOG.
 3. FILL ALL VOIDS WITH SALVAGED SOIL. RAMP SOIL TO MEET TOP OF LOG.
 4. SEE STRUCTURE TABLE (PS-01 - PS-03) FOR LOCATIONS AND ELEVATIONS.



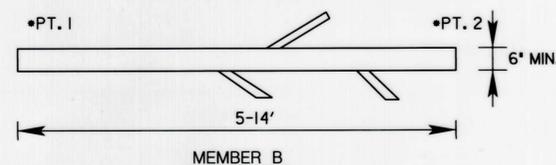
LOG SILL SECTION VIEW
SCALE: N.T.S.



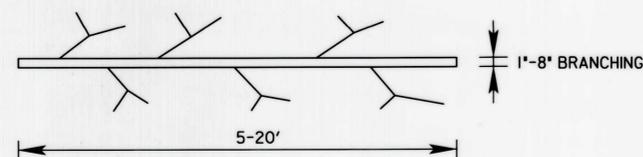
TOE WOOD DETAILS
SCALE: N.T.S.



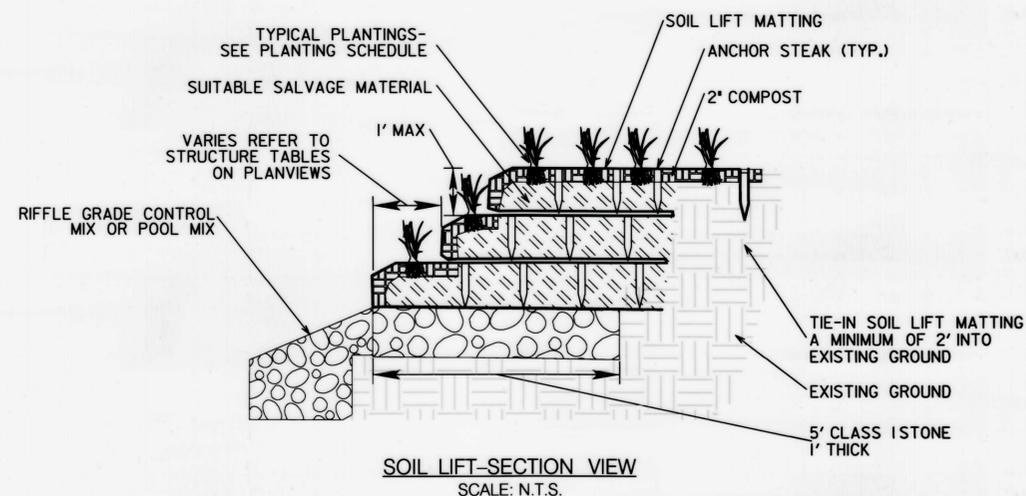
- NOTE:
1. MEMBER A MUST HAVE ROOTWAD.
MEMBER A



MEMBER B



MEMBER C



SOIL LIFT-SECTION VIEW
SCALE: N.T.S.

- NOTES:
1. SEE PLANVIEW STRUCTURE TABLES FOR LOCATIONS
 2. SEE CROSS SECTION STRUCTURE TABLES FOR FOR LIFT ELEVATIONS

- NOTES:
1. TOE WOOD:
MEMBER A, KEY MEMBERS WITH ROOTWAD
MEMBER B, LOGS
MEMBER C, BRANCHING
 2. REFER TO STRUCTURE TABLE FOR MEMBER A & B QUANTITIES AND APPROXIMATE LOCATIONS. ACTUAL PLACEMENT OF MEMBER A & B WILL BE FIELD LOCATED BY ENGINEER.
 3. SALVAGE NATURAL CHANNEL MATERIAL FROM POINT BAR AND FILL ALL VOIDS AT ROOTWAD/STREAMBANK INTERFACE.
 4. USE MEMBERS C TO FILL VOIDS BETWEEN MEMBERS A&B.
 5. SET POINT 1 OF MEMBER A AND B FLUSH AGAINST EXISTING BANK.
 6. SET POINT 2 OF MEMBERS A AND B BELOW GRADE IN CHANNEL

RIFFLE GRADE CONTROL MIX		
MIX %	CLASS	%
	CLASS 1	60 %
	CLASS 2	20 %
	CLASS 0	20 %

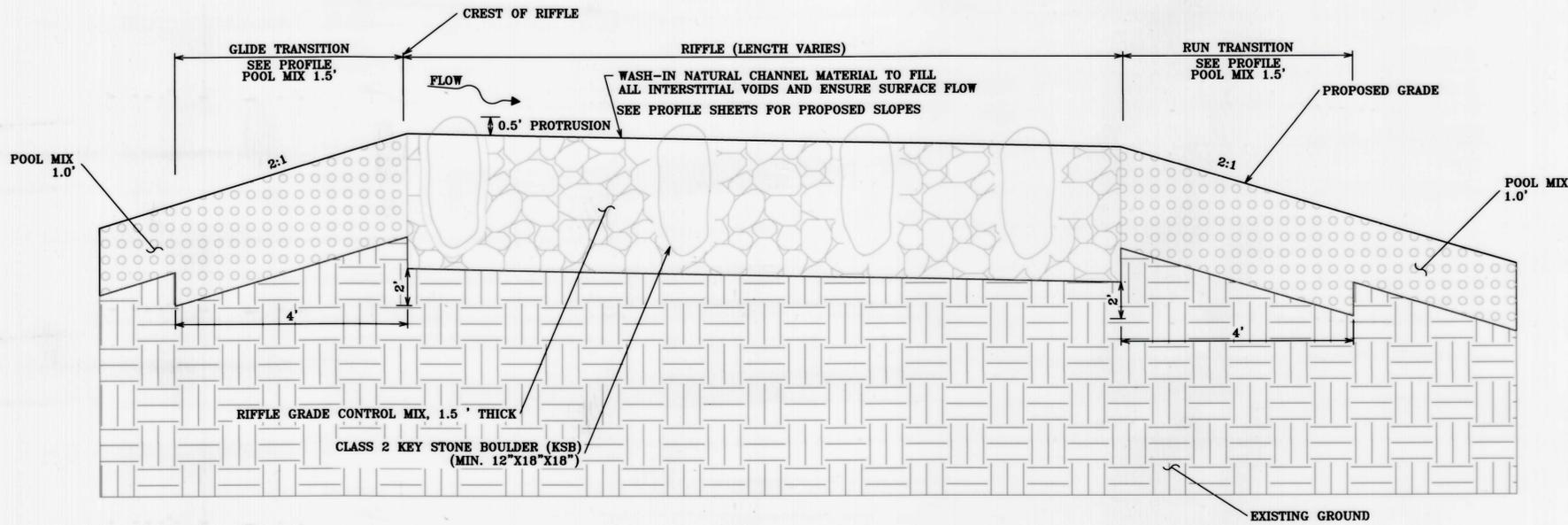
RIFFLE BANK TRANSITION MIX		
MIX %	CLASS	%
	CLASS 1	60 %
	CLASS 2	-
	CLASS 0	40 %

LOG SILL MIX		
MIX %	CLASS	%
	CLASS 1	60 %
	CLASS 2	-
	CLASS 0	40 %

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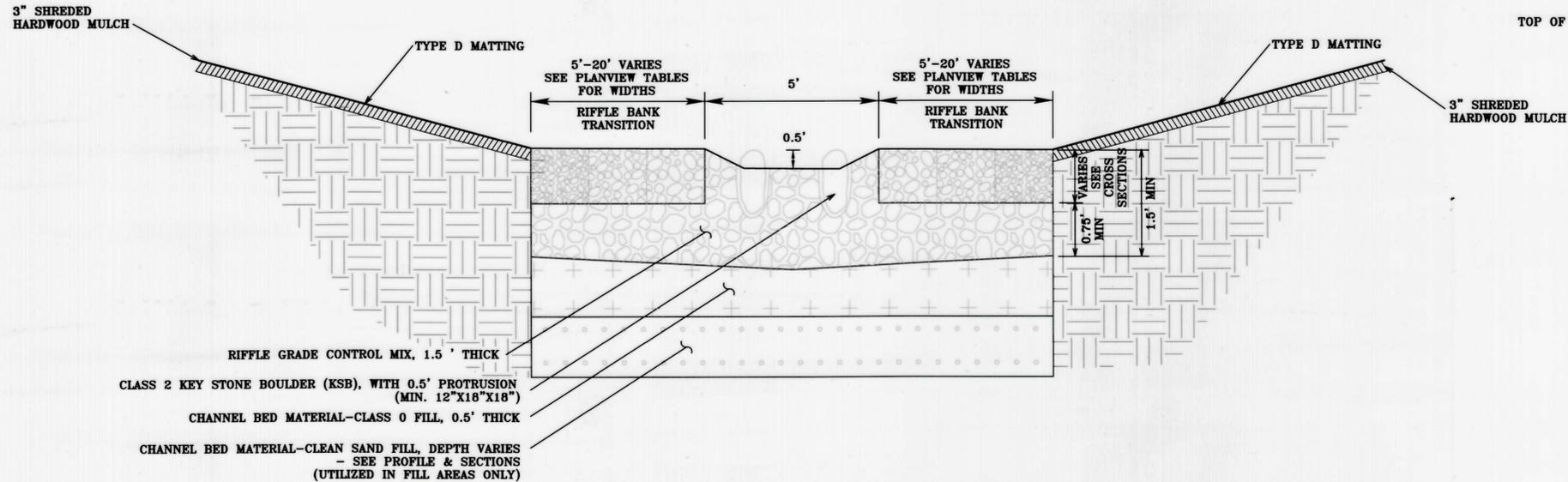
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RIFFLE GRADE CONTROL WITH RIFFLE BANK TRANSITION- PROFILE A-A

NOTES:

1. SEE CROSS SECTIONS AND PROFILE SHEETS FOR EXACT DIMENSIONS AND SLOPES. NOTE ONLY VISIBLE PORTIONS OF THE STRUCTURE ARE SHOWN IN PLANVIEW.
2. THE TOTAL NUMBER OF KEY STONE BOULDERS NEEDED FOR CONSTRUCTION IS BASED ON THE LENGTH AND WIDTH OF THE PROPOSED STRUCTURE. (UTILIZE CLASS 2 FROM RIFFLE GRADE CONTROL MIX)
3. SET KEY STONE BOULDERS SO THE TOP PROTRUDES 0.5' ABOVE PROPOSED ELEVATIONS PRIOR TO PLACING THE RIFFLE GRADE CONTROL MIX.
4. THE RIFFLE GRADE CONTROL MIX SHALL BE PLACED SO IT INTERLOCKS IN A DOWNSTREAM DIRECTION. SMALL AND LARGE STONES MUST BE MIXED TO MINIMIZE VOID SPACE AND PROMOTE INTERLOCKING. NATURAL CHANNEL MATERIAL SHALL BE WASHED INTO THE MIX TO ENSURE ALL INTERSTITIAL VOIDS ARE FILLED AND SURFACE FLOW IS ACHIEVED. DUMPING OF STONE WILL NOT BE PERMITTED.
5. SEE SPECIAL PROVISION FOR MORE INFORMATION REGARDING THIS TREATMENT.



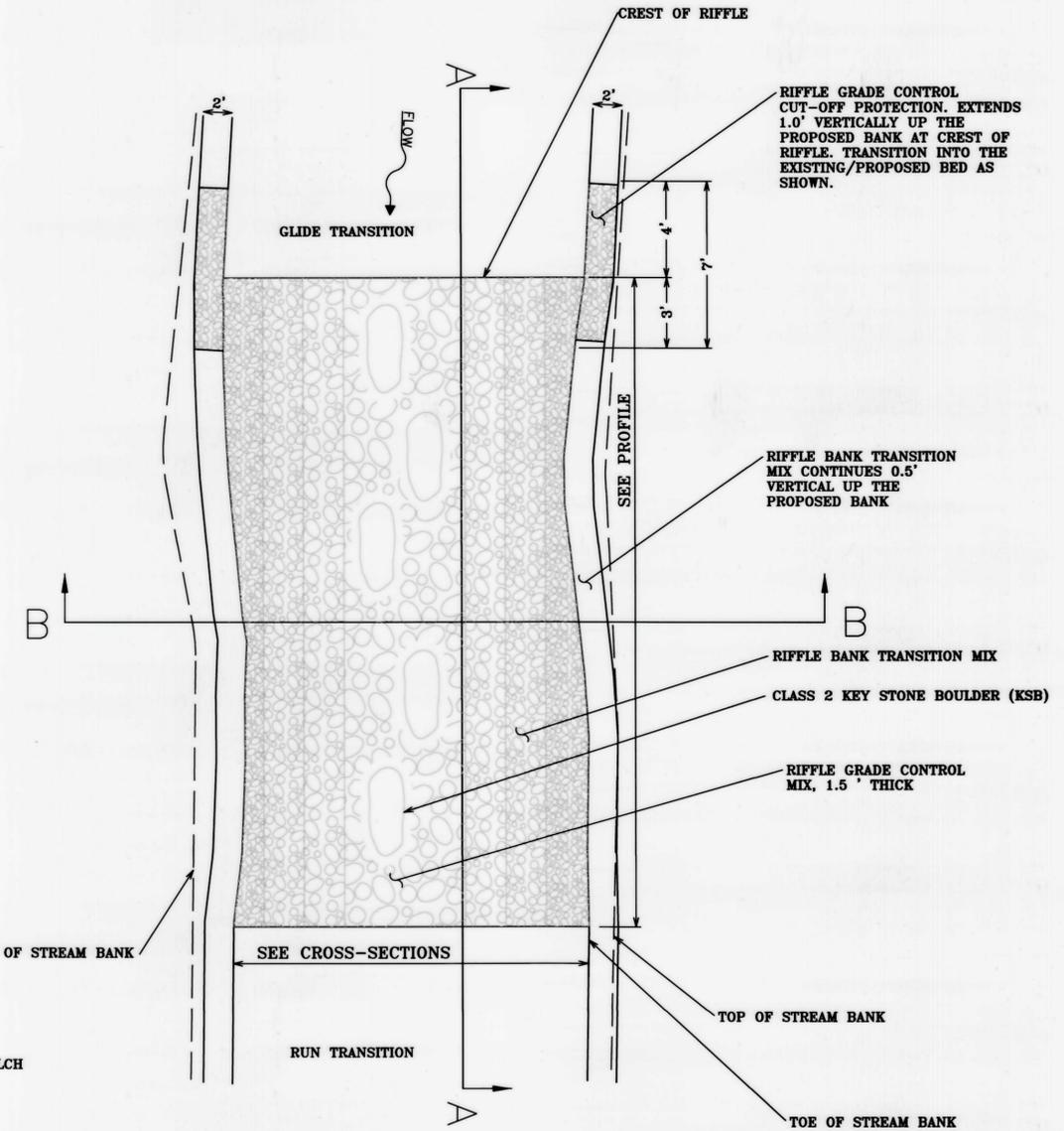
RIFFLE GRADE CONTROL WITH RIFFLE BANK TRANSITION- SECTION B-B

NOTES:

1. RIFFLE BANK TRANSITION MATERIAL SHALL BE PLACED TO CREATE A GRADATION OF MATERIAL FROM COARSE TO FINE AS DEPICTED IN DETAIL.
2. NATURAL CHANNEL MATERIAL SHALL BE SALVAGED AND WET WASHED INTO RIFFLE GRADE CONTROL MIX AND RIFFLE BANK TRANSITION MIX TO FILL ALL VOIDS.
3. CONTRACTOR SHALL PLACE RIFFLE BANK TRANSITION MATERIAL AT BANK INTERFACE AND PUSH LARGER MATERIAL TO RIFFLE GRADE CONTROL INTERFACE.
4. SEE PROFILE FOR DEPTH OF CHANNEL BED MATERIAL-CLASS 0 FILL AND CHANNEL BED MATERIAL-CLEAN SAND FILL AT STATION SPECIFIC LOCATIONS.
5. SEE CROSS SECTIONS FOR WIDTHS AND TIE-IN ELEVATIONS OF RIFFLE BANK TRANSITIONS

RIFFLE GRADE CONTROL MIX	
MIX %	CLASS 1 60 %
	CLASS 2 20 %
	CLASS 0 20 %

RIFFLE BANK TRANSITION MIX	
MIX %	CLASS 1 60 %
	CLASS 2 -
	CLASS 0 40 %



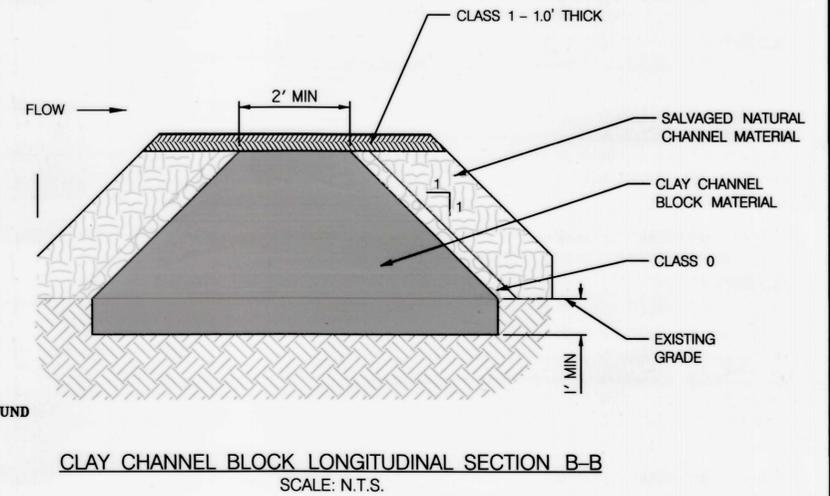
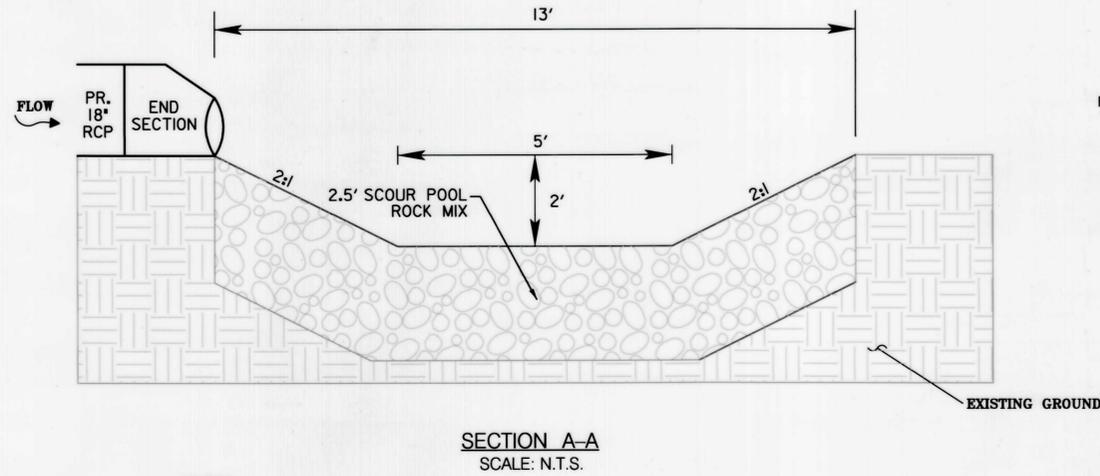
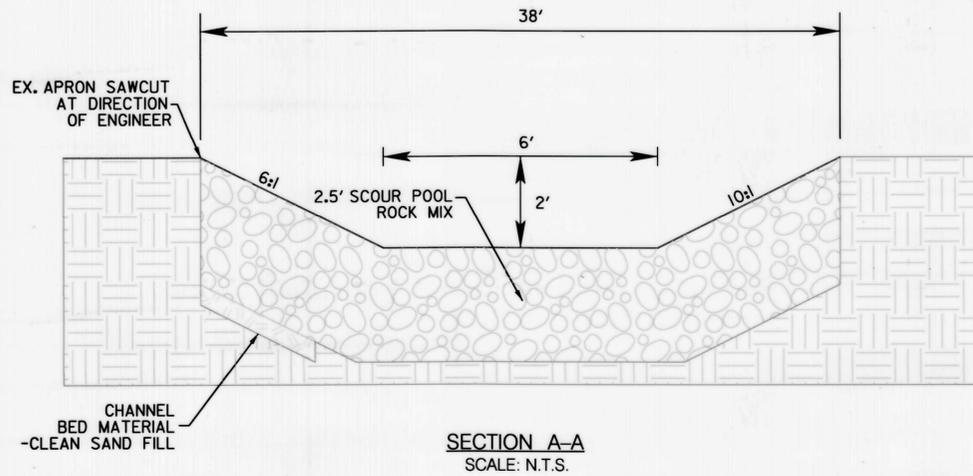
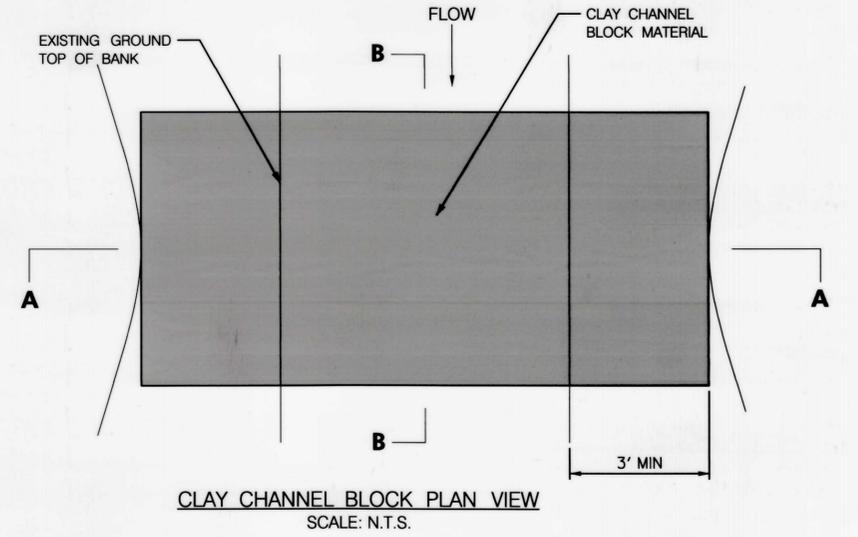
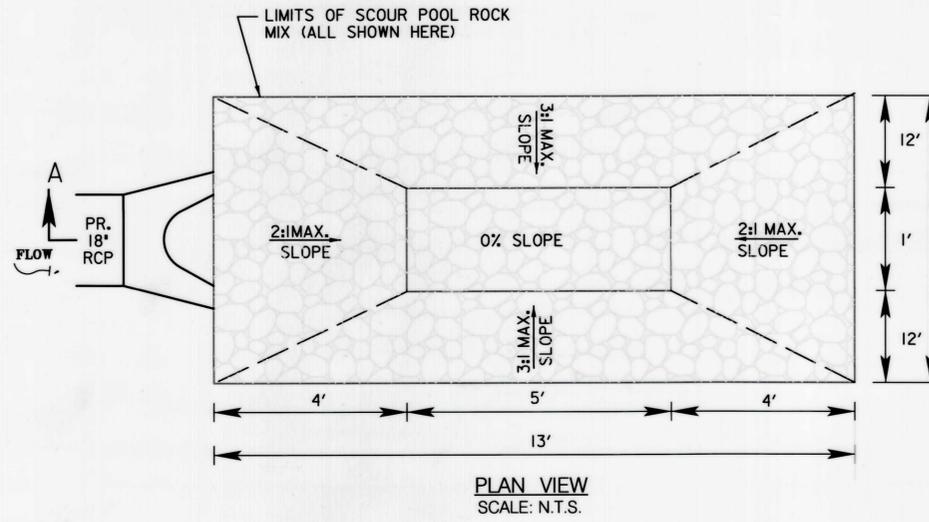
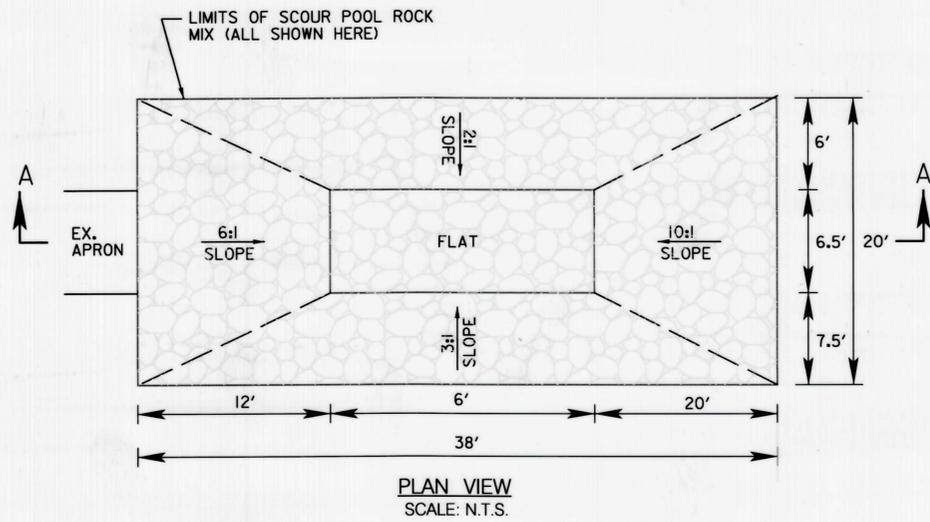
RIFFLE GRADE CONTROL WITH RIFFLE BANK TRANSITION - PLAN VIEW

NOTE:

1. WASH-IN NATURAL CHANNEL MATERIAL TO FILL ALL INTERSTITIAL VOIDS AND ENSURE SURFACE FLOW
2. SEE CROSS-SECTIONS AND GRADING PLANS FOR PROPOSED GRADES AND STRUCTURES. SEE LANDSCAPE PLAN AND SPECIAL PROVISIONS FOR MORE INFORMATION REGARDING PLANTINGS.



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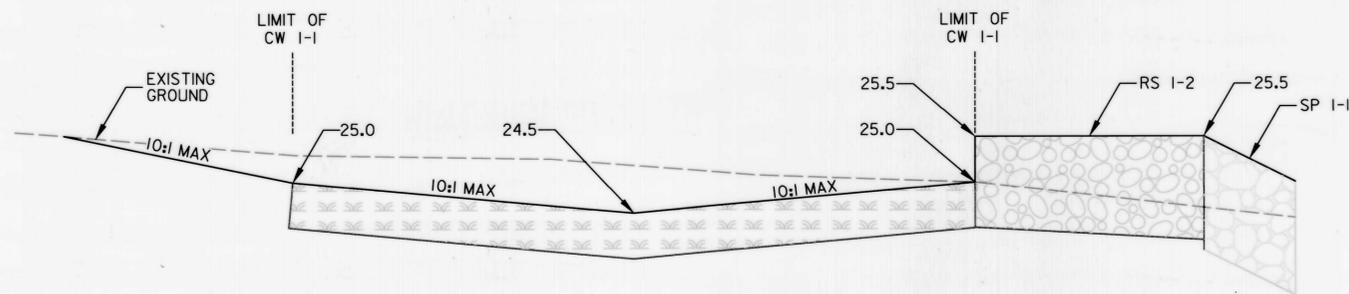
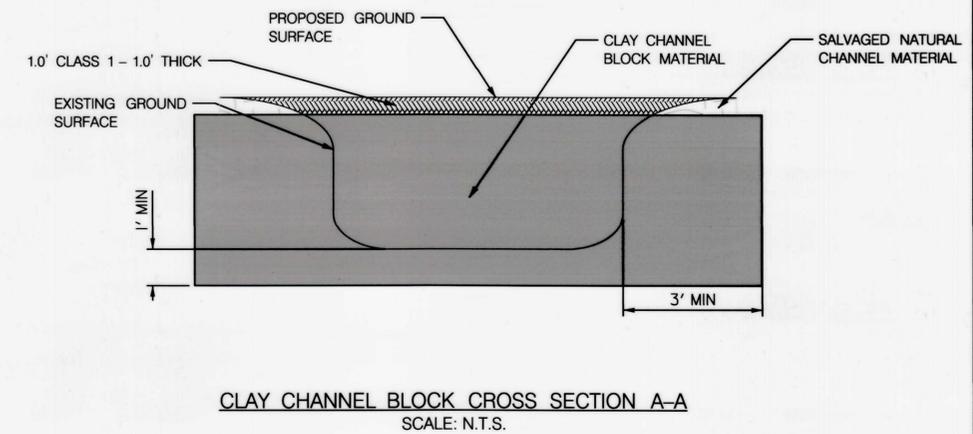
- NOTES:
- RIGHT BANK TIE-IN AT ROCK SILL (RS-2).
 - LEFT BANK TIE-IN SCOUR POOL ROCK MIX AT 26' CONTOUR.

PREFORMED SCOUR POOL 1-1 CONSTRUCTION DETAILS
SCALE: N.T.S.

- NOTES:
- LEFT BANK TIE-IN SCOUR POOL ROCK MIX AT 30' CONTOUR.
 - RIGHT BANK TIE-IN SCOUR POOL ROCK MIX AT 30' CONTOUR.

PREFORMED SCOUR POOL SP 1A-2 CONSTRUCTION DETAILS
SCALE: N.T.S.

NOTE: SP 1A-1 TO BE BUILT AT DIRECTION OF ENGINEER.

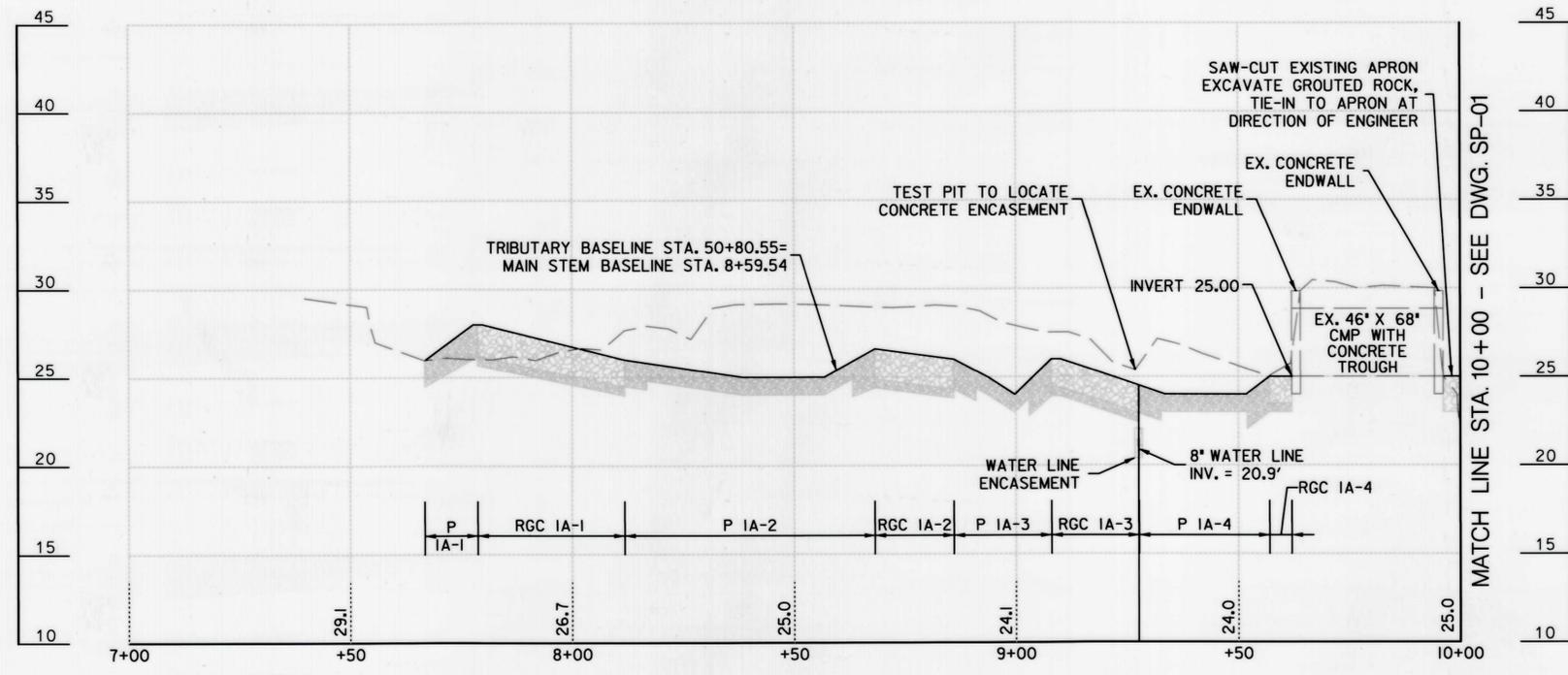


SCOUR POOL ROCK MIX

MIX %	CLASS 1	20 %
	CLASS 2	65 %
	CLASS 0	15 %

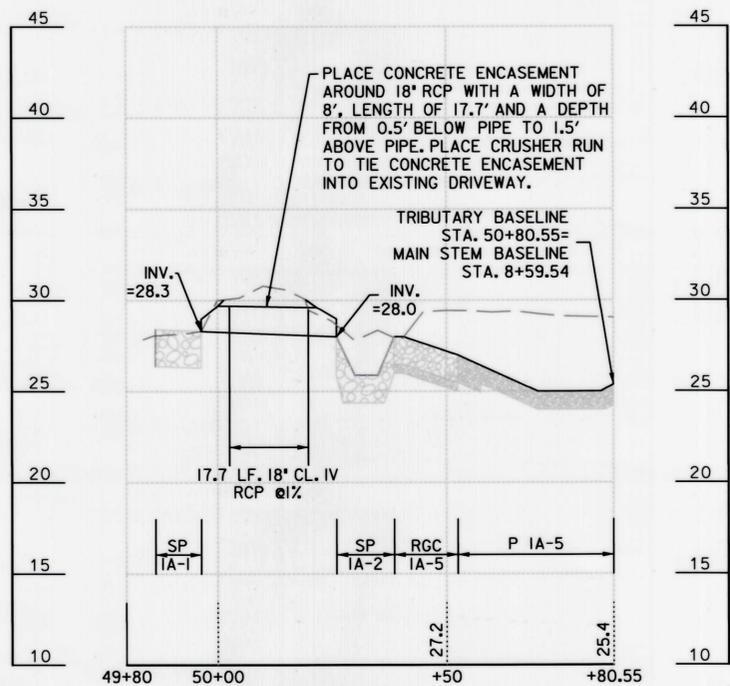
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FOSTER BRANCH MAIN STEM CONSTRUCTION BASELINE

H: 1" = 20'
V: 1" = 5'

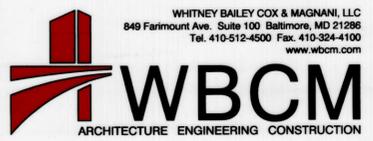


FOSTER BRANCH TRIBUTARY CONSTRUCTION BASELINE

H: 1" = 20'
V: 1" = 5'

LEGEND

- | | |
|--|---|
| PROPOSED GRADE | EXISTING GRADE |
| RIFFLE GRADE CONTROL WITH RIFFLE BANK TRANSITION (RGC) | CHANNEL BED MATERIAL -CLASS 0 FILL/POOL MIX (P) |
| CLAY CHANNEL BLOCK | CHANNEL BED MATERIAL -CLEAN SAND FILL |
| SCOUR POOL MIX (SP) | |



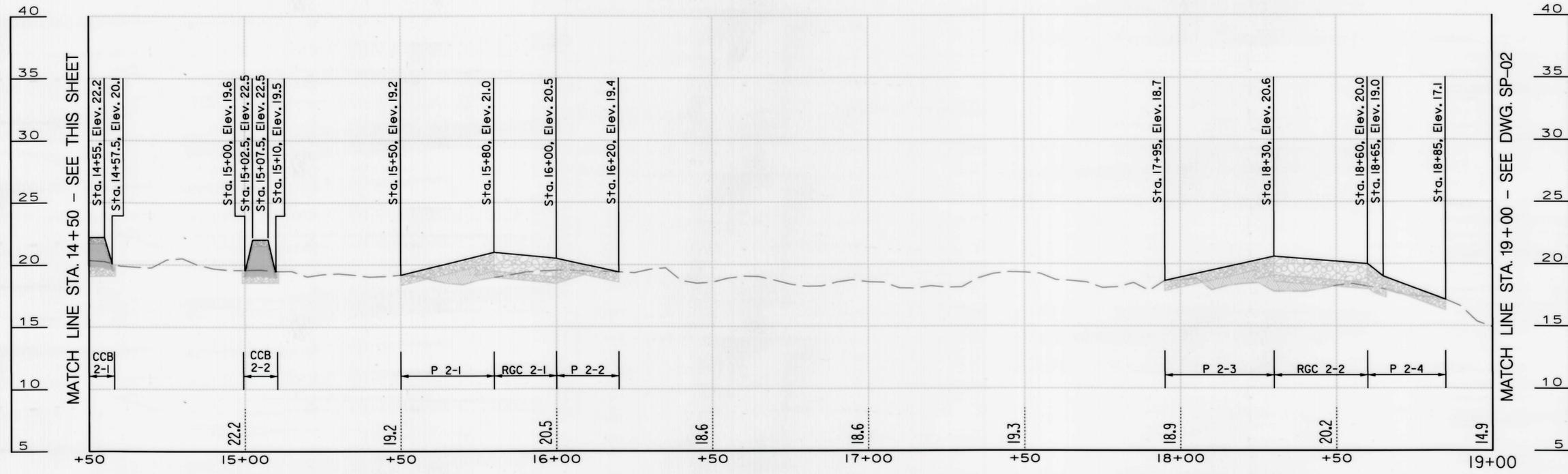
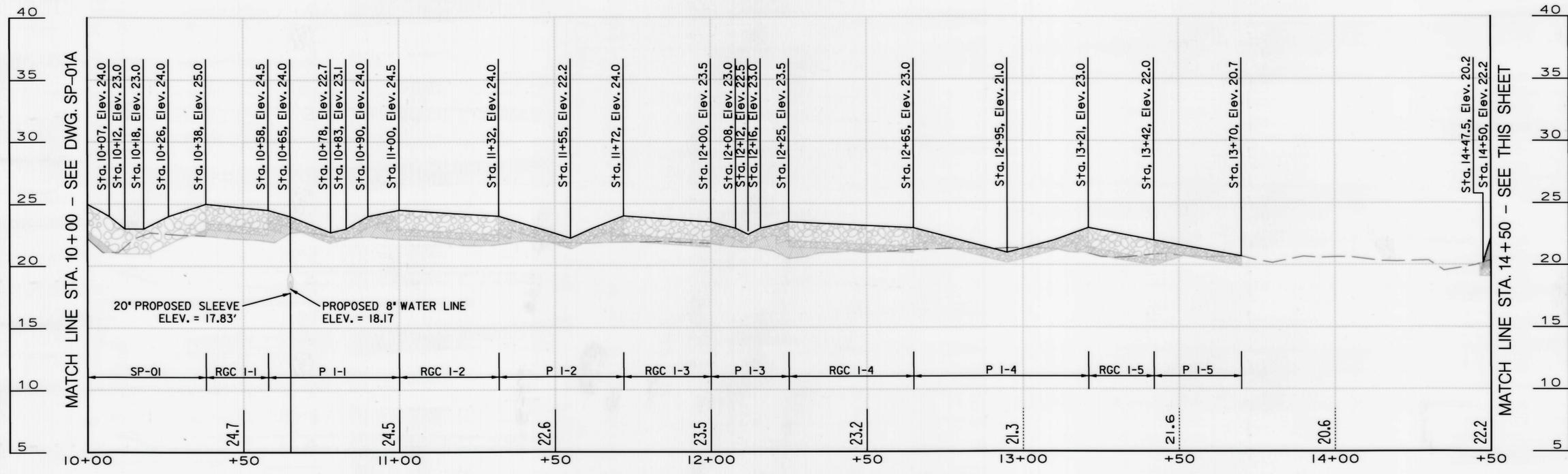
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ADC MAP : 4583 GRID: F4

TAX MAP : 0065/0069

HCG BILLING ID No. :

HCG DWG ID No. : 16 0591



FOSTER BRANCH

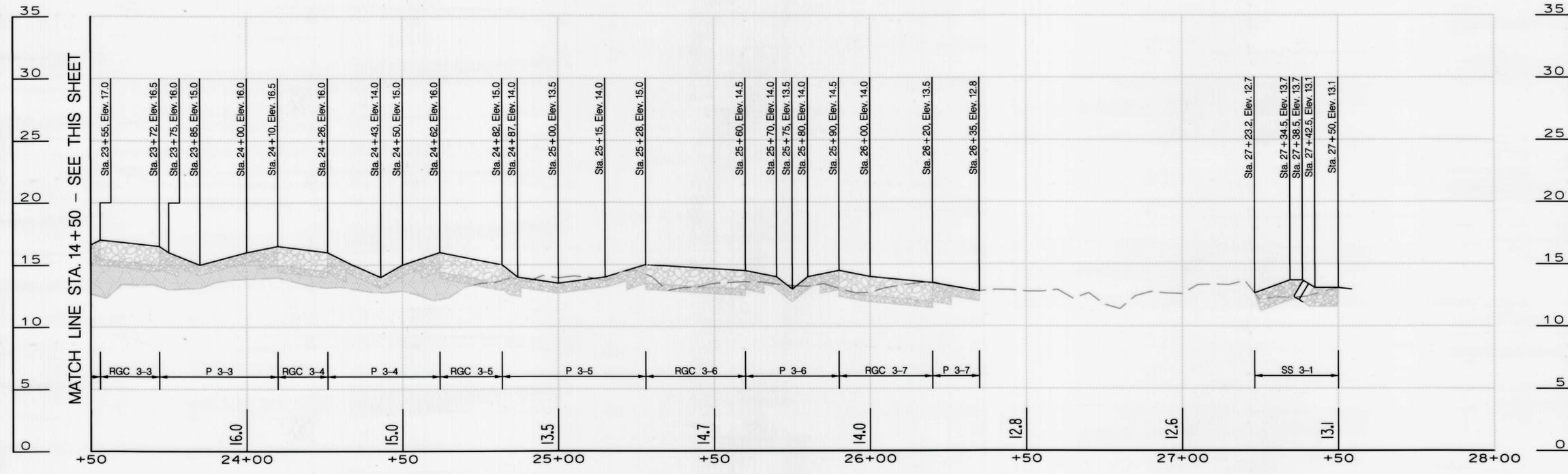
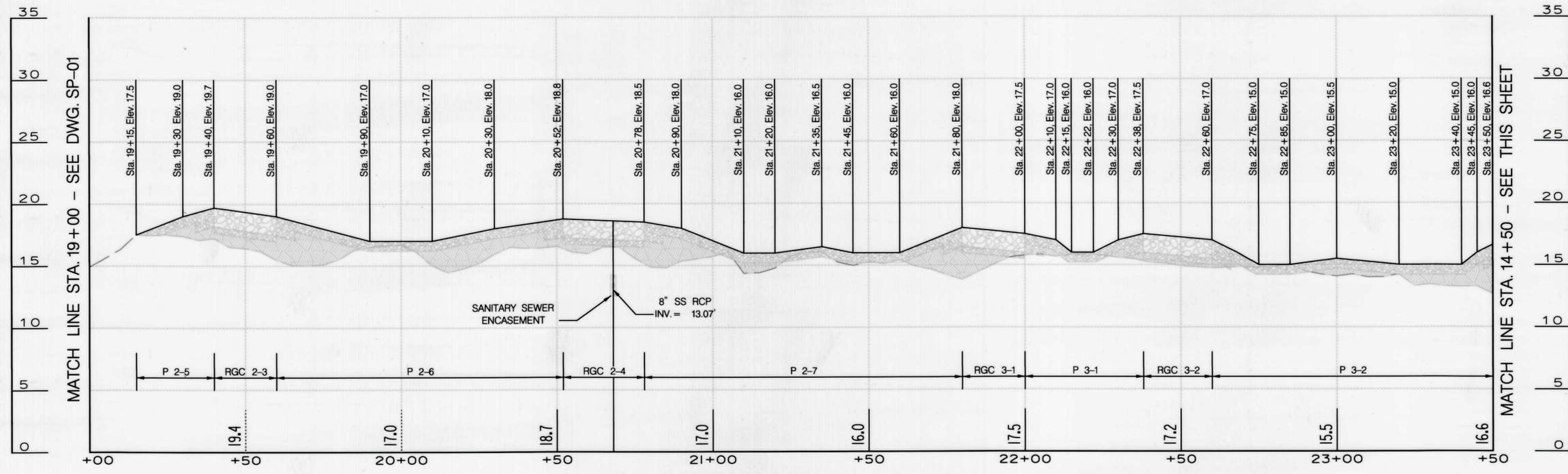
H: 1" = 20'
V: 1" = 5'

LEGEND

- PROPOSED GRADE
- EXISTING GRADE
- [Pattern] RIFFLE GRADE CONTROL WITH RIFFLE BANK TRANSITION (RGC)
- [Pattern] CLAY CHANNEL BLOCK
- [Pattern] SCOUR POOL MIX (SP)
- [Pattern] CHANNEL BED MATERIAL -CLASS 0 FILL/POOL MIX (P)
- [Pattern] CHANNEL BED MATERIAL -CLEAN SAND FILL

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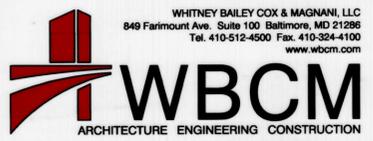


FOSTER BRANCH

H: 1" = 20'
V: 1" = 5'

LEGEND

- PROPOSED GRADE
- EXISTING GRADE
- ▨ RIFFLE GRADE CONTROL WITH RIFFLE BANK TRANSITION (RGC)
- ▨ CHANNEL BED MATERIAL -CLASS 0 FILL/POOL MIX (P)
- ▨ CLAY CHANNEL BLOCK
- ▨ CHANNEL BED MATERIAL -CLEAN SAND FILL
- ▨ SCOUR POOL MIX (SP)



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EROSION AND SEDIMENT CONTROL - GENERAL NOTES

HARFORD COUNTY EROSION & SEDIMENT CONTROL NOTES

- A GRADING UNIT OF 20 ACRES IS THE MAXIMUM CONTIGUOUS AREA ALLOWED TO BE GRADED AT A GIVEN TIME.
- A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT AT A TIME, WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PROCEEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY DPW. NO MORE THAN THIRTY ACRES UMULATIVELY MAY BE DISTURBED AT ANY GIVEN TIME.
- THE CONTRACTOR/OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS. FURTHER, NO CONSTRUCTION ACTIVITY SHALL TAKE PLACE UNTIL ALL REQUIRED PERMITS HAVE BEEN OBTAINED.
- THE LIMITS OF DISTURBANCE SHALL BE CLEARLY DELINEATED IN THE FIELD PRIOR TO GRADING OF THE SITE TO ENSURE COMPLIANCE WITH APPROVED PLANS. ALL FOREST RETENTION AREAS WILL BE DELINEATED WITH BLAZE ORANGE FENCE AS WELL AS ANY SWM INFILTRATION PRACTICE PRIOR TO ANY CLEARING. WORK BEYOND THE LIMITS OF DISTURBANCE AND IN ANY AREA INSIDE THE FOREST RETENTION AND SWM INFILTRATION AREA IS CONSIDERED TO BE A VIOLATION OF THIS PLAN.
- ALL SEDIMENT CONTROL PRACTICES MUST BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY. UPON COMPLETION OF THE INSTALLATION OF PERIMETER SEDIMENT CONTROL PRACTICES THE SITE MUST BE INSPECTED BY THE DEPARTMENT OF PUBLIC WORKS (DPW). NO ADDITIONAL CONSTRUCTION ACTIVITY WILL BE AUTHORIZED WITHOUT THE APPROVAL FROM DPW.
- ALL POINTS OF INGRESS AND EGRESS SHALL BE PROTECTED TO PREVENT TRACKING OF MUD INTO PUBLIC WAYS. DURING CONSTRUCTION, EVERY MEANS WILL BE TAKEN TO CONTROL SOIL EROSION AND SILTATION. IF NECESSARY A WASH RACK MAY NEED TO BE ESTABLISHED.
- EARTH DIKES, SEDIMENT TRAPS, ETC. WILL BE LOCATED AS SHOWN ON THESE DRAWINGS. FIELD CHANGES AND MINOR ADJUSTMENTS ARE PERMISSIBLE AS LONG AS THE INSTALLATION FUNCTIONS AND CONFORMS TO SPECIFICATIONS. THE SITE INSPECTOR PRIOR TO INSTALLATION MUST APPROVE ALL SUCH CHANGES. MAJOR CHANGES TO THE APPROVED PLAN WILL REQUIRE RE-APPROVAL BY THE HARFORD SOIL CONSERVATION DISTRICT.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
 - THREE CALENDAR DAYS ON SLOPES GREATER THAN 3:1, ALL WATERWAYS AND TO THE SURFACE OF ALL PERIMETER CONTROLS.
 - SEVEN CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS OF THE PROJECT SITE.
- DUST CONTROL MUST BE MANAGED AS PART OF ALL SEDIMENT CONTROL PLANS. FAILURE TO DO SO IS A VIOLATION OF THIS PLAN.
- SEDIMENT BASINS MUST BE BUILT TO DESIGN SPECIFICATIONS SHOWN ON THE PLAN. IF THE BASIN IS TO BE USED AS A FUTURE SWM FACILITY, THE BASIN WILL BE BUILT IN ACCORDANCE WITH THE LATEST MD-378 STANDARDS AND SPECIFICATIONS. SPECIFIED MATERIALS MUST BE USED. NO CHANGES OR MODIFICATIONS WILL BE MADE WITHOUT WRITTEN AUTHORIZATION OF THE HARFORD SOIL CONSERVATION DISTRICT.
- TEMPORARY FENCING SHALL BE PLACED AROUND ALL SEDIMENT BASINS, TRAPS, AND PONDS DURING CONSTRUCTION AND SITE GRADING.

- AT THE END OF EACH WORKING DAY ALL SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AND LEFT OPERATIONAL. A WEEKLY LOG WILL BE KEPT IN ACCORDANCE WITH NOI/NPDES REGULATIONS. A COPY OF THE APPROVED SEDIMENT CONTROL PLANS SHALL BE AVAILABLE AT THE SITE AT ALL TIMES.
- ENSURE POSITIVE DRAINAGE TO ALL ROAD INLETS DURING ALL PHASES OF ROAD CONSTRUCTION TO ENSURE POSITIVE FLOW TO TRAPS AND OR BASINS.
- CUT AND/OR FILL SHALL BE DONE IN CONFORMANCE WITH 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS FOR LAND GRADING. SURFACE FLOWS OVER CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER REDIRECTING FLOWS FROM TRAVERSING THE SLOPES OR BY INSTALLING MECHANICAL DEVICES TO SAFELY CONVEY WATER DOWN SLOPES WITHOUT CAUSING EROSION.
- SURFACE FLOWS OVER CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER REDIRECTING FLOWS FROM TRAVERSING THE SLOPES OR BY INSTALLING MECHANICAL DEVICES TO SAFELY CONVEY WATER DOWN SLOPES WITHOUT CAUSING EROSION.
- OFF-SITE WASTE OR BORROW AREAS SHALL HAVE AN APPROVED EROSION AND SEDIMENT CONTROL PLAN PRIOR TO THE IMPORT OR EXPORT OF MATERIAL TO/FROM THE PROJECT SITE.
- ALL MATERIAL ORIGINATING FROM THE DEVELOPMENT OF THE PROPERTY AND DEPOSITED ON THE PUBLIC RIGHT-OF-WAY SHALL BE IMMEDIATELY REMOVED.
- STORM DRAIN INLETS AND OUTLETS SHALL BE PROTECTED PER 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS.
- TOPSOIL, LIMING, FERTILIZING, SEEDING, MULCHING, SOD, ETC. ARE ALL ESSENTIAL PARTS OF THE SEDIMENT CONTROL PLAN AND MUST BE COMPLETED ALONG WITH ALL OTHER PRACTICES.
- TRAPS TO BE REMOVED SHALL BE DEWATERED AS PER THE 2011 EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS.
- PRIOR TO REMOVAL OF TRAPS OR CONVERSION OF SEDIMENT BASINS TO SWM FACILITIES, THE STORM DRAINS WILL BE FLUSHED
- SEDIMENT CONTROL PRACTICES WILL BE MAINTAINED UNTIL ALL DISTURBED AREAS FOR WHICH THE PRACTICES WERE INSTALLED HAVE BEEN STABILIZED. SEDIMENT CONTROL PRACTICES MAY BE REMOVED ONLY WITH THE AUTHORIZATION OF THE DPW INSPECTOR. ALL DISTURBED AREAS RESULTING FROM THE REMOVAL OF SEDIMENT CONTROL DEVICES SHALL BE STABILIZED IMMEDIATELY. REMOVAL PRIOR TO INSPECTOR'S APPROVAL CONSTITUTES A VIOLATION.

SITE ANALYSIS:

TOTAL SITE AREA: 5.31 ACRES
 TOTAL DISTURBED AREA: 3.75 ACRES
 AREA TO BE PAVED/ROOFED: 0 ACRES
 CUT: 705 CY
 FILL: 143 CY
 NET CUT: 562 CY

NPDES ID PT.: N. 637,211, E. 1,499,788

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS AND 100-YEAR FLOODPLAIN'S

- NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
- PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
- RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.

- ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS (*LOLIUM MULTIFLORUM*), MILLET SEVA ITALICA, BARLEY HORDEUM SP.), OATS (*UNIOLA SP.*), AND/OR RYE SECALE CERE AL.E). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.

- AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
- TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM:

USE I WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
 USE II WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OCTOBER 1 THROUGH APRIL 30, INCLUSIVE, DURING ANY YEAR.
 USE IV WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH MAY 31, INCLUSIVE, DURING ANY YEAR.

- STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
- CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

STANDARD SYMBOLS

AT-GRADE INLET PROTECTION		ROCK OUTLET PROTECTION II	
BAFFLE BOARDS		ROCK OUTLET PROTECTION III	
CATCH BASIN INSERT		SILT FENCE	
CLEAR WATER DIVERSION PIPE		SILT FENCE ON PAVEMENT	
COMBINATION INLET PROTECTION		SOD	
CURB INLET PROTECTION		STABILIZED CONSTRUCTION ENTRANCE	
DIVERSION FENCE		STANDARD INLET PROTECTION	
EARTH DIKE		STOCKPILE AREA	
EMERGENCY SPILLWAY		STONE CHECK DAM	
FILTER BAG		STONE/RIPRAP OUTLET SEDIMENT TRAP ST II	
FILTER BERM		SUBSURFACE DRAINS	
FILTER LOG		SUMP PIT	
GABION INFLOW PROTECTION		SUPER SILT FENCE	
GABION INLET PROTECTION		TEMPORARY ACCESS CULVERT	
LIMIT OF DISTURBANCE		TEMPORARY ASPHALT BERM	
MEDIAN INLET PROTECTION		TEMPORARY BARRIER DIVERSION	
MEDIAN SUMP INLET PROTECTION		TEMPORARY GABION OUTLET STRUCTURE	
MOUNTABLE BERM		TEMPORARY SOIL STABILIZATION MATTING-TYPE A	
PERIMETER DIKE/SWALE		TEMPORARY SOIL STABILIZATION MATTING-TYPE E	
PERMANENT SOIL STABILIZATION MATTING-TYPE B		TEMPORARY SOIL STABILIZATION MATTING-TYPE D	
PERMANENT SOIL STABILIZATION MATTING-TYPE C		TEMPORARY STONE OUTLET STRUCTURE	
PIPE OUTLET SEDIMENT TRAP ST I		TEMPORARY SWALE	
PIPE SLOPE DRAIN		WASH RACK OPTION	
PLUNGE POOL		CHESAPEAKE BAY CRITICAL AREA	
PORTABLE SEDIMENT TANK		DRAINAGE BOUNDARY	
REMOVABLE PUMPING STATION		EXISTING CONTOURS	
RIPRAP INFLOW PROTECTION		PROPOSED CONTOURS	
RIPRAP OUTLET SEDIMENT TRAP ST III		TREE PROTECTION FENCE	
ROCK OUTLET PROTECTION I		WETLAND	
		WETLAND BUFFER	
		100-YEAR FLOODPLAIN	

DEVELOPER'S CERTIFICATION

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

JEFFREY M. STRATMEYER
 DEVELOPER
 DATE: 1-7-14
 TITLE: Asst. Dir. of Public Works

ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE 2011 MARYLAND STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

Brian Noll
 ENGINEER
 DATE: 1/7/16
 NAME: BRIAN NOLL
 P.E. NO.: 25402

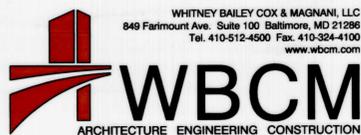
DESIGN CERTIFICATION

Brian Noll
 NAME
 Signature: Brian Noll
 DATE: 1/7/16

25402
 MARYLAND REGISTRATION NUMBER.
 P.E. R.L.S. OR R.L.A. (circle)
 PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 25402, EXPIRATION DATE: 7/17/16.

EROSION AND SEDIMENT CONTROL PLAN # 59818
 RECOMMENDED FOR APPROVAL:
 [Signature] 1/7/16
 HARFORD COUNTY, DPW
 TECHNICAL CONCURRENCE:
 [Signature] 1/20/16
 HARFORD SOIL CONSERVATION DISTRICT
 APPROVED:
 [Signature] 1/16/16
 HARFORD SOIL CONSERVATION DISTRICT

Revisions	HARFORD COUNTY, MARYLAND	
	STREAM RESTORATION FOSTER BRANCH	
	EROSION AND SEDIMENT CONTROL NOTES (EN-01 OF 01)	
Drawn By :	RLM	Contract No :
Designed By :	MH	Scale :
Reviewed By :	BN	Sheet 14 of 35
		Date : JAN. 2016



E&S CONTROL - DETAILS & SEQUENCE OF CONSTRUCTION

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

CONSTRUCTION SPECIFICATIONS

- 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 (430 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE TO 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
- 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.
- PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
- 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.
- MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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DETAIL F-4 FILTER BAG

CONSTRUCTION SPECIFICATIONS

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

GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT ²	ASTM D-4491
PERMITTIVITY (SEC ⁻¹)	1.2 SEC ⁻¹ ASTM D-4491	
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.15-0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632

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

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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DETAIL E-3 SUPER SILT FENCE

CONSTRUCTION SPECIFICATIONS

- INSTALL 2% INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND 36 FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF SIX INCHES INTO THE GROUND.
- FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2% INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
- 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.
- WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
- 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.
- PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
- 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
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SEQUENCE OF CONSTRUCTION

DETAIL E-1 SILT FENCE

CONSTRUCTION SPECIFICATIONS

- USE WOOD POSTS 1 1/4 X 1 1/4 X 1/2 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
- USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
- USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
- PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
- EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
- WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
- EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

JOINING TWO ADJACENT SILT FENCE SECTIONS (TOP VIEW)

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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DETAIL E-1 SILT FENCE

CONSTRUCTION SPECIFICATIONS

- USE WOOD POSTS 1 1/4 X 1 1/4 X 1/2 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
- USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
- USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
- PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
- EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
- WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
- EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

- THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT (800) 257-7777, THE MARYLAND DEPARTMENT OF THE ENVIRONMENT SEDIMENT CONTROL INSPECTOR AT (410) 901-4020 AND HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS SEDIMENT CONTROL INSPECTOR AT (410) 638-3127 AT LEAST 48 HOURS PRIOR TO COMMENCING ANY LAND DISTURBING ACTIVITIES AND, UNLESS WAIVED BY THE COUNTY SEDIMENT CONTROL INSPECTOR, SHALL BE REQUIRED TO HOLD A PRE-CONSTRUCTION MEETING AT THE PROJECT SITE. THE CONTRACTOR MUST PROVIDE THE NAME OF THE PERSON ON THE SITE WHO IS RESPONSIBLE FOR INSPECTION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES, ALONG WITH A COPY OF HIS/HER GREEN CARD CERTIFICATION.
- LOD, ACCESS ROUTES, AND STAGING AREAS SHALL BE STAKED AND REVIEWED IN THE FIELD WITH THE ENGINEER PRIOR TO CONSTRUCTION TO ALLOW FOR ADJUSTMENTS. ANY ADJUSTMENT MUST BE APPROVED BY THE ENGINEER AND HARFORD COUNTY SCD PRIOR TO CONSTRUCTION.
- BEFORE MATERIAL CAN LEAVE THE SITE, ALL OFF-SITE STOCKPILING MUST BE APPROVED BY HARFORD COUNTY SOIL CONSERVATION DISTRICT.
- NO TREES GREATER THAN 5" DBH SHALL BE REMOVED WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- WHEN PUMP AROUND PRACTICES ARE UTILIZED, THE EXACT LOCATION OF THE PIPES AND FILTER BAG MAY BE MODIFIED IN THE FIELD BASED ON EXISTING CONDITIONS. ANY ADJUSTMENTS MUST BE APPROVED BY THE ENGINEER AND HARFORD COUNTY SCD. AT THE END OF EACH WORK DAY THE CONTRACTOR SHALL STABILIZE ANY DISTURBED AREA WITHIN THE LOD NOT DIRECTED TO AN EROSION AND SEDIMENT CONTROL DEVICE AND AS NOTED NEEDING SAME DAY STABILIZATION. AT THE END OF EACH WORK DAY CONTRACTOR SHALL STABILIZE ANY DISTURBED AREA WITHIN THE LOD (LIMIT OF PLANTING). LOD WORK AREAS WILL BE UTILIZED FOR PLANTING THE RIPARIAN BUFFER OUTSIDE THE LOD. PUMP AROUND WILL NOT BE OPERATED BEYOND END OF WORK DAY.
- WORK MAY BE CONCURRENT IN SEPARATE STREAM CONSTRUCTION AREAS 1 - 4. MULTIPLE PUMP AROUND PRACTICES OR A MODIFICATION TO INSTALL A LONGER PUMP AROUND MAY BE NECESSARY TO FACILITATE IN-STREAM WORK IN MULTIPLE CONSTRUCTION AREAS. CONCURRENT WORK AREAS MAY NOT BE ADJACENT TO EACH OTHER. THE SEQUENCE OF CONSTRUCTION IS INDEPENDENT FOR EACH CONSTRUCTION AREA.
- AFTER COMPLETION OF GRADING AND STRUCTURE INSTALLATIONS IN CONSTRUCTION AREAS 1 - 4, REMOVE EROSION AND SEDIMENT CONTROLS WITH HARFORD COUNTY APPROVAL.
- COMPLETE ALL GRADING IN STREAM CONSTRUCTION AREAS SUBSEQUENT WITH INSTALLATION OF STRUCTURES/TREATMENTS.
- WORK ACTIVITIES WITHIN THE LOD SHOULD BE AS NOTED IN THE CONTRACT DOCUMENTS. THERE SHALL NO HERBICIDE OR FERTILIZER TREATMENTS.
- INSTALL SCE & PERIMETER CONTROLS PRIOR TO ANY CLEARING AND GRUBBING.
- ALL FLOODPLAIN GRADING AND CREATION OF MICROTOPOGRAPHY WILL BE STABILIZED THE SAME DAY WITH 3 INCHES OF SHREDDED HARDWOOD MULCH.
- REMOVE E&S DEVICES AFTER FINAL STABILIZATION AND WITH PERMISSION FROM HARFORD COUNTY SCD.
- EXISTING RIPRAP REMAINS IN ACCESS ROADS. PLACE MULCH OVER RIPRAP.
- REMOVE EXISTING SILT FENCE AND SUPER SILT FENCE AT COMPLETION OF PROJECT AND USE SAME DAY STABILIZATION FOR ANY DISTURBANCE DURING REMOVAL.

STREAM CONSTRUCTION AREA 1 (MAIN STEM CONSTRUCTION BASELINE STA. 21+72 TO STA. 27+55)

- INSTALL PUMP AROUND PRACTICE 3-1 TO 3-2, AND ACCESS ROUTES (TYPES A AND B).
- COMPLETE MICROTOPOGRAPHY 24+90 - 27+00.
- INSTALL STRUCTURES STONE SILL 3-1, ROCK SILL 3-2, RIFFLE GRADE CONTROL 3-7, RIFFLE GRADE CONTROL 3-6, LOG SILL 3-5, LOG SILL 3-4, LOG SILL 3-3 AND COMPLETE STREAM GRADING WORKING FROM DOWNSTREAM TO UPSTREAM.
- INSTALL PUMP AROUND PRACTICE 2-3 TO 3-1.
- COMPLETE MICROTOPOGRAPHY GRADING 22+00 - 24+90.
- INSTALL STRUCTURES LOG SILL 3-2, RIFFLE GRADE CONTROL 3-5, RIFFLE GRADE CONTROL 3-4, RIFFLE GRADE CONTROL 3-3, TOE WOOD 3-1, ROCK SILL 3-1, LOG SILL 3-1, RIFFLE GRADE CONTROL 3-2, RIFFLE GRADE CONTROL 3-1 AND COMPLETE STREAM GRADING WORKING FROM DOWNSTREAM TO UPSTREAM.
- INSTALL PLANTINGS PER THE LANDSCAPE SCHEDULE AFTER COMPLETION OF DISTURBANCE.

STREAM CONSTRUCTION AREA 2 (MAIN STEM CONSTRUCTION BASELINE STA. 13+94 TO STA. 21+72)

- INSTALL PUMP AROUND PRACTICE 2-2 TO 2-3.
- INSTALL ROCK SILL 2-6, TOE WOOD 2-7, TOE WOOD 2-6, LOG SILL 2-3, ROCK SILL 2-4, TOE WOOD 2-5, ROCK SILL 2-3, LOG SILL 2-3, LOG SILL 2-2, RIFFLE GRADE CONTROL 2-4, RIFFLE GRADE CONTROL 2-3, RIFFLE GRADE CONTROL 2-2, AND START TOE WOOD 2-4 AND COMPLETE STREAM GRADING.
- INSTALL PUMP AROUND PRACTICE 2-1 TO 2-2.
- COMPLETE TOE WOOD 2-4, AND INSTALL LOG SILL 2-1, ROCK SILL 2-2, RIFFLE GRADE CONTROL 2-1, TOE WOOD 2-3, ROCK SILL 2-1, CLAY CHANNEL BLOCK 2-2, CLAY CLAY CHANNEL BLOCK 2-1, TOE WOOD 2-2, TOE WOOD 2-1 AND COMPLETE STREAM AND FLOODPLAIN GRADING.
- INSTALL PLANTINGS PER THE LANDSCAPE SCHEDULE AFTER COMPLETION OF DISTURBANCE.

STREAM CONSTRUCTION AREA 3 (MAIN STEM CONSTRUCTION BASELINE STA. 10+00 TO STA. 13+94)

- INSTALL PUMP AROUND PRACTICE 1-1 TO 1-2.
- COMPLETE STREAM AND FLOODPLAIN GRADING & INSTALLATION OF STRUCTURES ROCK SILL 1-3, RIFFLE GRADE CONTROL 1-5, LOG SILL 1-1, RIFFLE GRADE CONTROL 1-4, RIFFLE GRADE CONTROL 1-3, RIFFLE GRADE CONTROL 1-2, ROCK SILL 1-4, ROCK SILL 1-1, RIFFLE GRADE CONTROL 1-1, SP 1-1, ROCK SILL 1-2, CW 1-1.
- INSTALL PLANTINGS PER THE LANDSCAPE SCHEDULE AFTER COMPLETION OF DISTURBANCE.

STREAM CONSTRUCTION AREA 4 (MAIN STEM CONSTRUCTION BASELINE STA. 7+50 TO STA. 9+63, TRIBUTARY CONSTRUCTION BASELINE STA. 40+80 TO STA. 50+86)

- INSTALL PUMP AROUND PRACTICE 1A-1 TO 1A-3 AND 1A-2 TO 1A-3.
- COMPLETE STREAM AND FLOODPLAIN GRADING & INSTALLATION OF THE 18" RCP PIPE AND SPLASH POOL 1A-1.
- INSTALL RIFFLE GRADE CONTROL 1A-1, RIFFLE GRADE CONTROL 1A-5, RIFFLE GRADE CONTROL 1A-3, RIFFLE GRADE CONTROL 1A-4 AND COMPLETE STREAM GRADING WORKING UPSTREAM TO DOWNSTREAM.
- INSTALL PLANTINGS PER THE LANDSCAPE SCHEDULE AFTER COMPLETION OF DISTURBANCE.

Revisions

HARFORD COUNTY, MARYLAND

STREAM RESTORATION FOSTER BRANCH

EROSION AND SEDIMENT CONTROL DETAILS & SOC (ED-01 OF 02)

160078 S/C PLAN #59818

Drawn By: _____ CY

Designed By: _____ MH

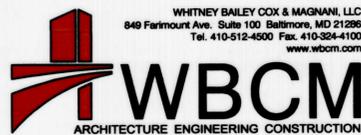
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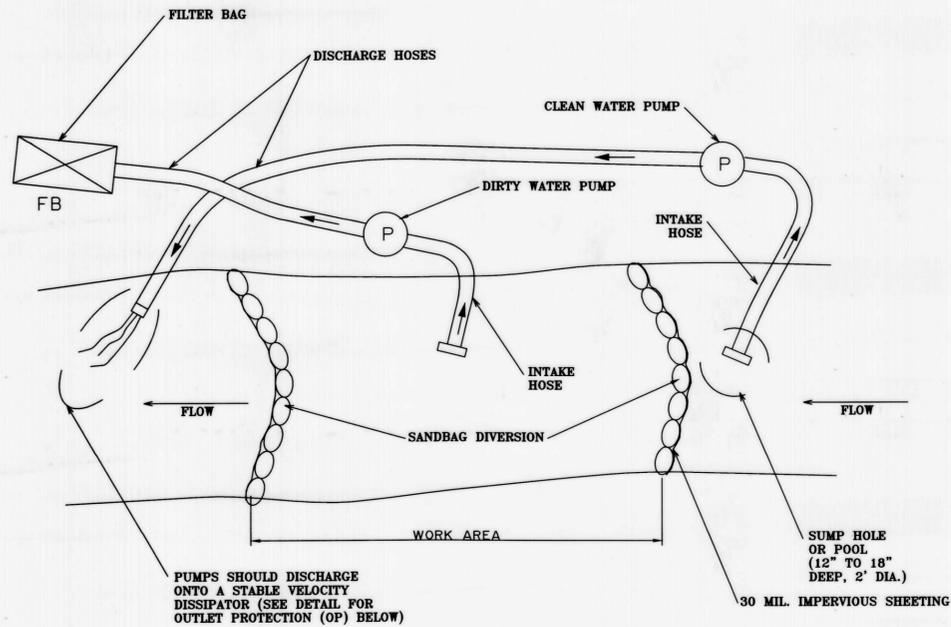
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Date: JAN. 2016

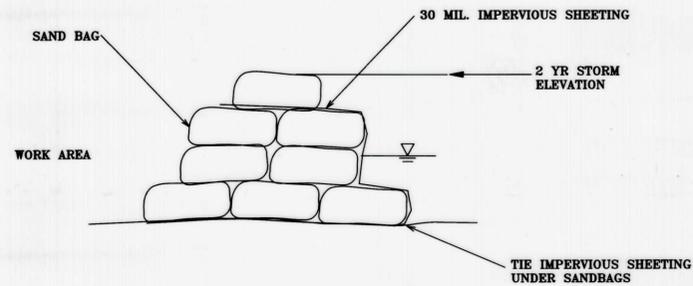


EROSION AND SEDIMENT CONTROL – DETAILS



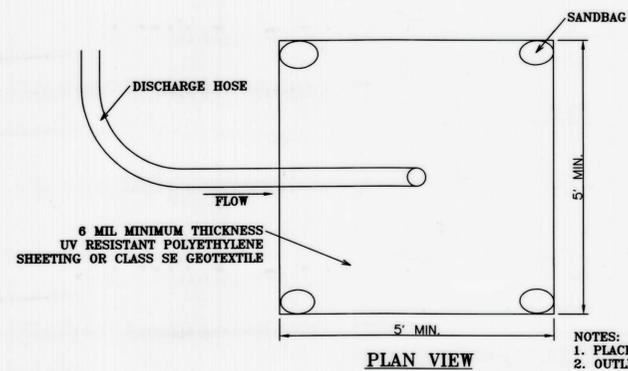
SANDBAG DIVERSION, WITH PUMP AROUND PRACTICE-PLAN VIEW

N.T.S.



SANDBAG DIVERSION, WITH PUMP AROUND PRACTICE-PLAN VIEW

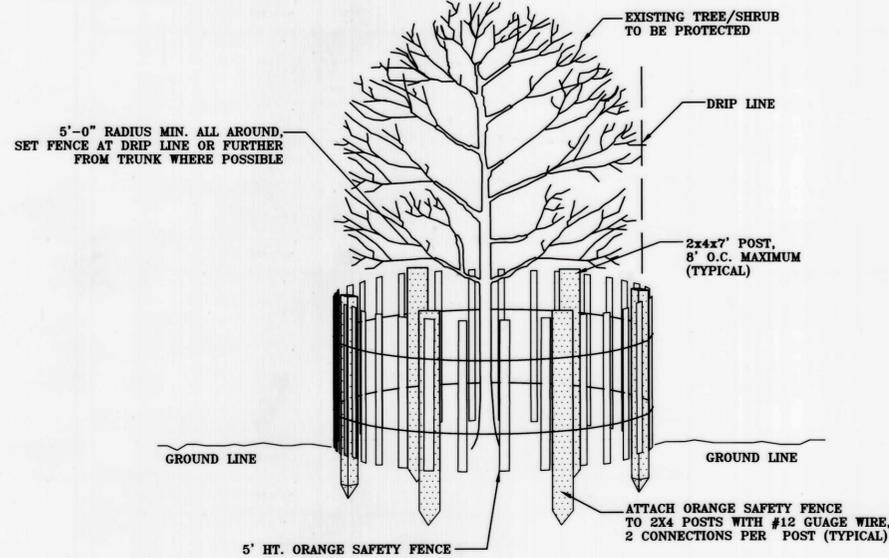
N.T.S.



OUTLET PROTECTION (OP)

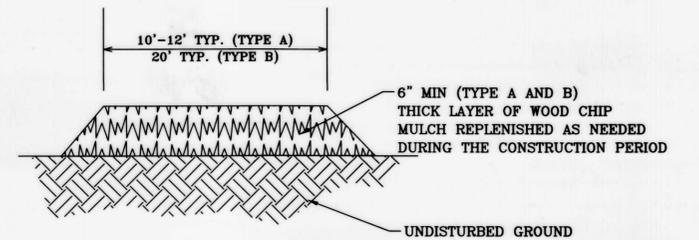
N.T.S.

- NOTES:
 1. PLACE DISCHARGE HOSE IN CENTER OF OUTLET PROTECTION.
 2. OUTLET PROTECTION SHALL BE LOCATED INSIDE THE LOD.



TREE PROTECTION FENCE (TPF)

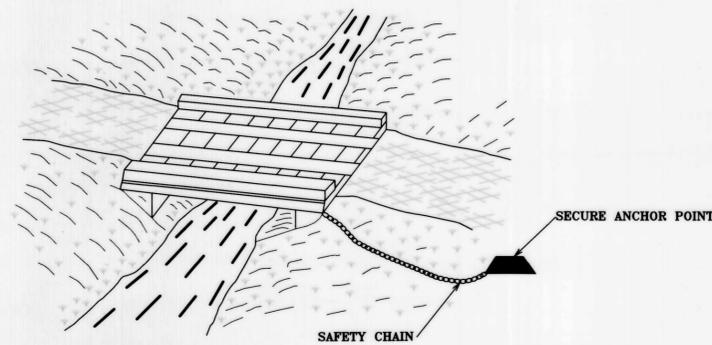
N.T.S.



TEMPORARY MULCH ACCESS ROAD

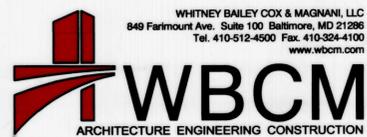
N.T.S.

1. MULCH SHALL BE PLACED PRIOR TO HEAVY EQUIPMENT UTILIZING THE ACCESS ROAD.
2. ACCESS ROUTES TO BE VERIFIED BY ENGINEER AT PRE-CONSTRUCTION MEETING. REVISIONS TO THE ALIGNMENT THAT MINIMIZE TREE DISTURBANCE ARE ENCOURAGED AND REQUIRE REVIEW AND APPROVAL BY THE ENGINEER.
3. CONTRACTOR SHALL MAINTAIN MULCH MAT THROUGHOUT CONSTRUCTION PERIOD. UPON COMPLETION OF THE PROJECT, MULCH CAN REMAIN IN PLACE AT A MAX. DEPTH OF 2".
4. SCARIFICATION OF COMPACTED MULCH TO OCCUR UPON REMOVAL OF ACCESS ROUTE. AT DIRECTION OF ENGINEER.
5. CONTRACTOR MAY SUPPLEMENT ACCESS ROAD WITH HARDWOOD TIMBER MATS.



TEMPORARY ACCESS BRIDGE DETAIL

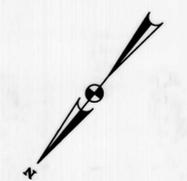
N.T.S.



WHITNEY BAILEY COX & MAGNANI, LLC
 849 Fairmount Ave. Suite 100 Baltimore, MD 21286
 Tel. 410-512-4500 Fax. 410-324-4100
 www.wbcm.com

Revisions	160079 S/C PLAN #59818 HARFORD COUNTY, MARYLAND	
	STREAM RESTORATION FOSTER BRANCH	
	EROSION AND SEDIMENT CONTROL DETAILS (ED-02 OF 02)	
Drawn By : _____	CY	Contract No : _____
Designed By : _____	MH	Scale : _____
Reviewed By : _____	BN	Sheet 16 of 35
		Date : JAN. 2016

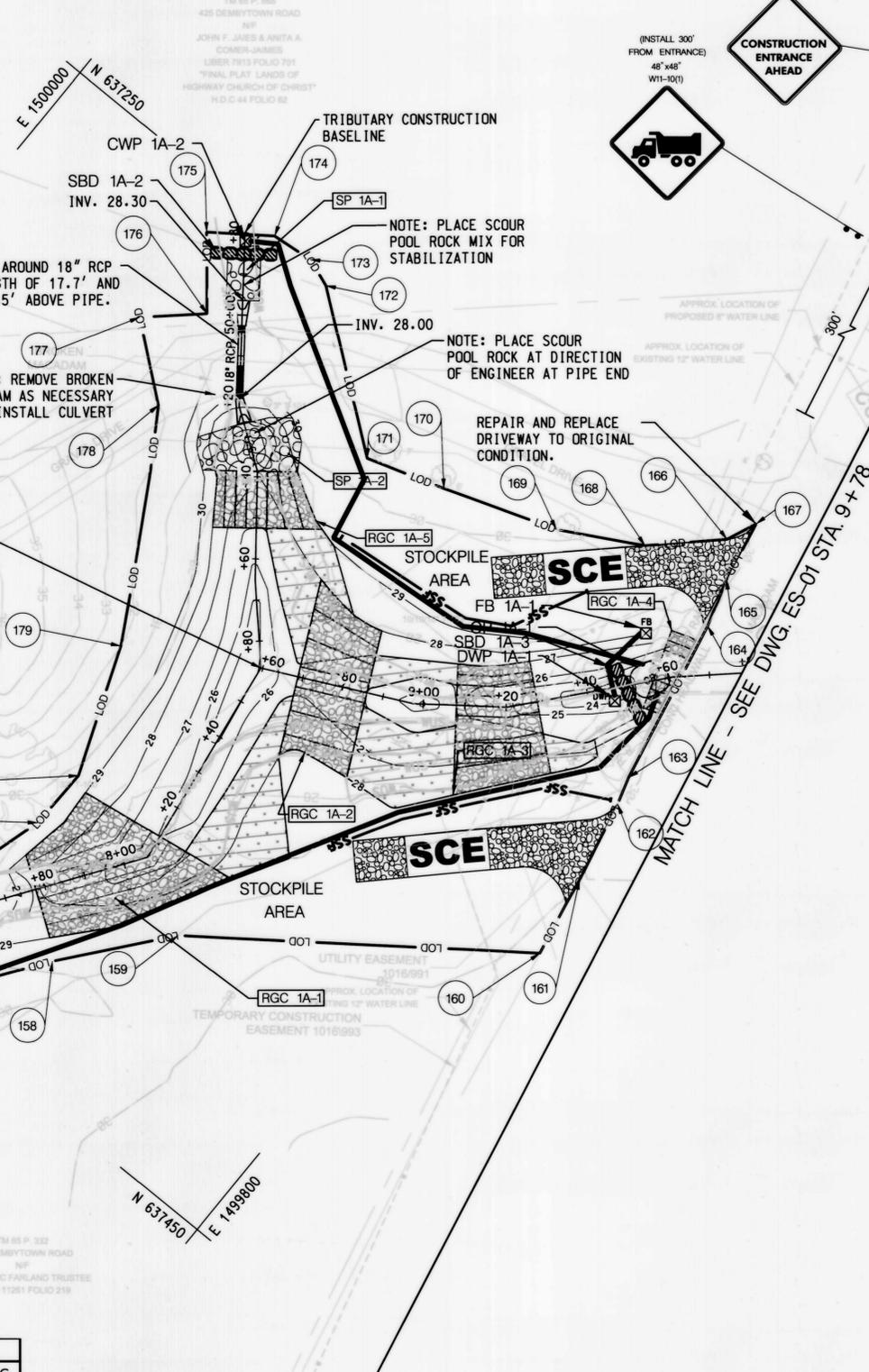
UTILIZE STRAW MULCH FOR TEMPORARY STABILIZATION IN LOCATIONS THAT WILL NEED TO BE RE-DISTURBED. UTILIZE 3 INCHES OF SHREDDED HARDWOOD MULCH FOR PERMANENT STABILIZATION UNLESS DIRECTED OTHERWISE.



TM 85 P. 445
PASSIVE OPEN SPACE
0.889 ACRES OFF ROGERS FORD LANE
NF
MOB LLC
LIBER 8793 FOLIO 036
REVISED FINAL FOUR PLAT ROGER FORD
J.J.R. 141 FOLIO 15

TM 85 P. 445
425 B DEMBYTOWN ROAD
NF
EUSA E. GARRISON
LIBER 11287 FOLIO 423

E 1500000
N 637450



Location Table	
Clean Water Pump***	
CWP 1A-1**	Sta. 7+50
CWP 1A-2**	Sta. 49+91
Dirty Water Pump***	
DWP 1A-1**	Sta. 9+46
Filter Bag	
FB 1A-1**	Sta. 9+56
Outlet protection	
OP 1A-1**	Sta. 9+51 Sta. 9+60
Sand Bag Diversion	
SBD 1A-1	Sta. 7+56
SBD 1A-2	Sta. 49+97
SBD 1A-3	Sta. 9+48

Stabilization / Temporary Seed			
Species	Common Name	Percentage of Mix	Rate
<i>Lolium multiflorum</i>	Annual Rye Grass	50%	50 lbs/acre
<i>Festuca Rubra</i>	Chewings Red Fescue	50%	

Super Silt Fence	
Super Silt Fence	138 LF

** FILTER BAG, CLEAN WATER PUMP, DIRTY WATER PUMP AND OUTLET PROTECTION LOCATION CAN BE FIELD DETERMINED WITH APPROVAL OF ENGINEER, PLACE TO PROMOTE INFILTRATION

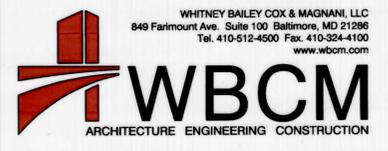
*** PUMP AROUND SHOWN TO MAXIMUM EXTENT ACTUAL LENGTH WILL VARY AS WORK PROGRESSES.

LEGEND

- PROPOSED CONTOUR
- EXISTING CONTOUR
- LOW LIMIT OF WORK
- LOD LIMIT OF DISTURBANCE
- TPF TREE PROTECTION FENCE
- SAND BAG DIVERSION
- OUTLET PROTECTION
- TOE WOOD (TW)
- LOG SILL (LS)
- WUS WATERS OF THE U.S.
- NONTIDAL WETLAND BOUNDARY
- NONTIDAL WETLAND
- 25' NONTIDAL WETLAND BUFFER
- 100-YEAR FEMA FLOODPLAIN
- STABILIZED CONSTRUCTION ENTRANCE
- TEMPORARY STREAM CROSSING
- REMOVE TREE
- ROCK SILL (RS)
- CONSTRUCTED WETLAND (CW)
- SCOUR POOL (SP)
- RIFFLE GRADE CONTROL (RGC)
- CLAY CHANNEL BLOCK (CCB)
- TEMPORARY MULCH ACCESS ROAD (TYPE A 10'-12' TYP.)
- CWP CLEAN WATER PUMP
- DWP DIRTY WATER PUMP
- FB FILTER BAG
- DIVERSION HOSE
- SSF SUPER SILT FENCE
- SF SILT FENCE
- TEMPORARY MULCH ACCESS ROAD (TYPE B 20' TYP.)

LIMITS OF DISTURBANCE (LOD) TABLE

LOCATION	NORTHING	EASTING	LOCATION	NORTHING	EASTING	LOCATION	NORTHING	EASTING
157	637450.06	1499888.64	168	637252.42	1499821.26	179	637351.74	1499904.15
158	637421.60	1499868.49	169	637263.05	1499840.36	180	637382.63	1499892.13
159	637397.52	1499848.84	170	637272.60	1499867.65	181	637397.78	1499892.55
160	637345.45	1499778.19	171	637278.55	1499886.72	182	637417.76	1499898.26
161	637325.43	1499782.04	172	637252.40	1499921.06	183	637439.35	1499905.34
162	637305.31	1499786.61	173	637249.88	1499928.00			
163	637298.69	1499788.61	174	637250.90	1499938.32			
164	637257.97	1499797.12	175	637260.61	1499951.70			
165	637246.25	1499800.71	176	637275.89	1499939.09			
166	637231.24	1499803.77	177	637286.88	1499951.21			
167	637238.56	1499806.84	178	637300.62	1499934.09			



160080 S/C PLAN # 59818

HARFORD COUNTY, MARYLAND

STREAM RESTORATION FOSTER BRANCH

EROSION AND SEDIMENT CONTROL PLAN (ES-01A OF 03)

Revisions

Drawn By : _____ CY
Designed By : _____ MH
Reviewed By : _____ BN

Contract No : _____
Scale : 1" = 20'
Sheet 17 of 35
Date : JAN. 2016

ADC MAP : 4583 GR ID : F 4
TAX MAP : 0065/0069
HCG BILLING ID No. :
SCALE : 1" = 20'

UTILIZE STRAW MULCH FOR TEMPORARY STABILIZATION IN LOCATIONS THAT WILL NEED TO BE RE-DISTURBED. UTILIZE 3 INCHES OF SHREDDED HARDWOOD MULCH FOR PERMANENT STABILIZATION UNLESS DIRECTED OTHERWISE.

TM 65 P. 317
426 DEMBYTOWN ROAD
N/F
JONATHAN J KAUFFMAN AND MELISSA
L KAUFFMAN
LIBER 7757 FOLIO 001

TM 65 P. 316
500 DEMBYTOWN ROAD
N/F
PHILIP BUCHANAN & SHELIA
BUCHANAN
LIBER 2302 FOLIO 652

TM 65 P. 1077
OPEN SPACE
DEMBYTOWN ROAD
N/F
FOSTER'S RUN LLC
LIBER 6819 FOLIO 417
FINAL PLAT NINETEEN FOSTER RUN
PLAT BOOK J.J.R. 132 PAGE 19

Location Table	
Clean Water Pump***	
CWP 1-1**	Sta. 9+86
Dirty Water Pump***	
DWP 1-1**	Sta. 13+59
Filter Bag	
FB 1-1**	Sta. 13+75
Outlet protection	
OP 1-1**	Sta. 13+68 Sta. 13+77
Sand Bag Diversion	
SBD 1-1	Sta. 10+01
SBD 1-2	Sta. 13+66

Access Road Lengths	
Type A	355 LF
Type B	95 LF

Existing Super Silt Fence *	
Rehab Existing Super Silt Fence	361 LF

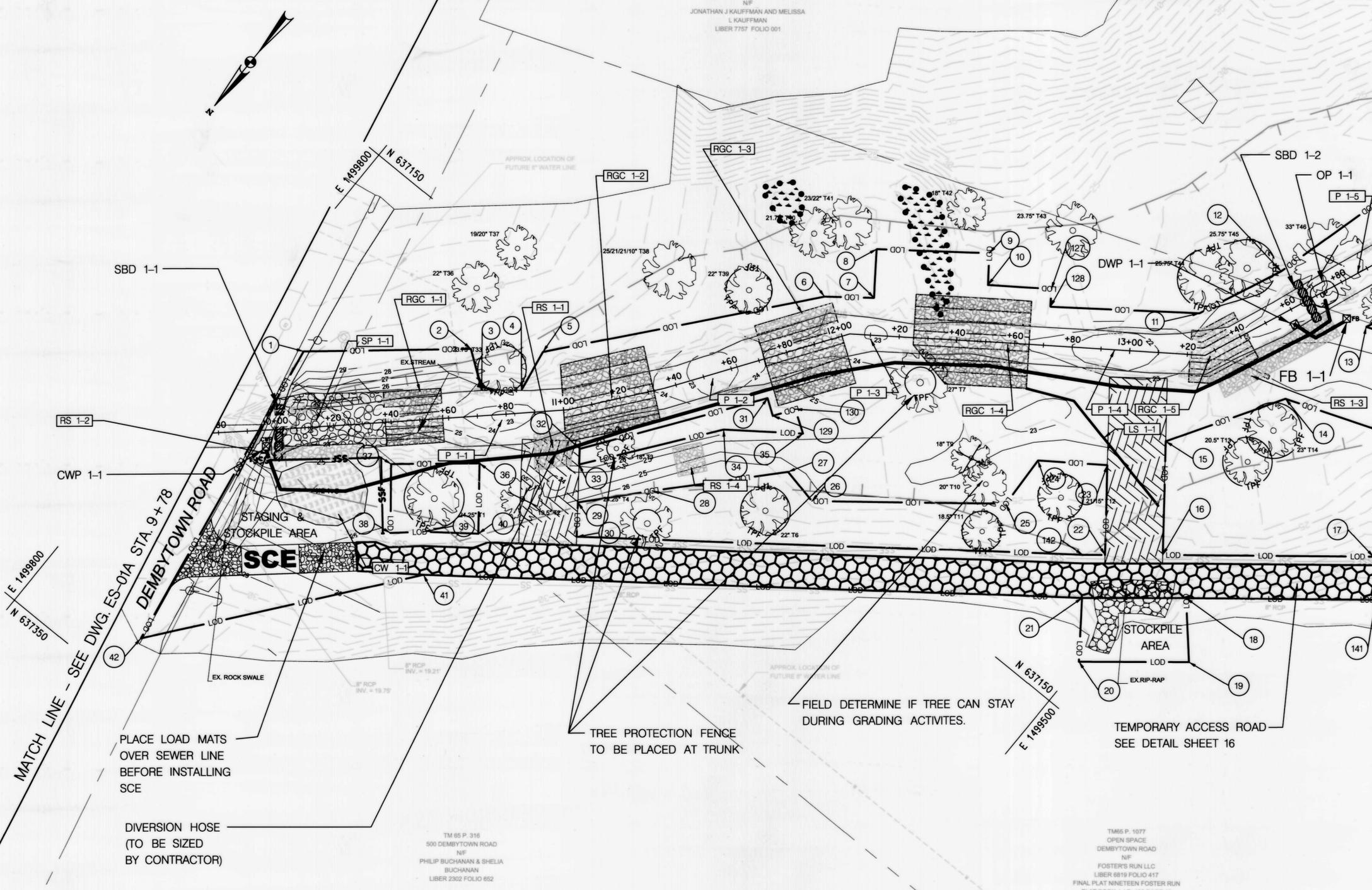
Stabilization / Temporary Seed			
Species	Common Name	Percentage of Mix	Rate
<i>Lolium multiflorum</i>	Annual Rye Grass	50%	50 lbs/acre
<i>Festuca Rubra</i>	Chewings Red Fescue	50%	

Super Silt Fence	
Super Silt Fence	72 LF

* REHABILITATE EXISTING SUPER SILT FENCE (REPLACE WHERE NECESSARY).
 ** FILTER BAG, CLEAN WATER PUMP, DIRTY WATER PUMP AND OUTLET PROTECTION LOCATION CAN BE FIELD DETERMINED WITH APPROVAL OF ENGINEER, PLACE TO PROMOTE INFILTRATION
 *** PUMP AROUND SHOWN TO MAXIMUM EXTENT ACTUAL LENGTH WILL VARY AS WORK PROGRESSES.
 REMOVE EXISTING SUPER SILT FENCE IN TYPE B TEMPORARY ACCESS ROADS
 TIE EXISTING SUPER SILT FENCE INTO TYPE B TEMPORARY ACCESS ROADS

LEGEND

— PROPOSED CONTOUR		TEMPORARY STREAM CROSSING
— EXISTING CONTOUR		REMOVE TREE
— LOW — LIMIT OF WORK		ROCK SILL (RS)
— LOD — LIMIT OF DISTURBANCE		CONSTRUCTED WETLAND (CW)
— TPF — TREE PROTECTION FENCE		SCOUR POOL (SP)
		RIFLE GRADE CONTROL (RGC)
		CLAY CHANNEL BLOCK (CCB)
		TEMPORARY MULCH ACCESS ROAD (TYPE A 10'-12' TYP.)
		LOG SILL (LS)
		WATERS OF THE U.S.
		NONTIDAL WETLAND BOUNDARY
		NONTIDAL WETLAND
		25' NONTIDAL WETLAND BUFFER
		100-YEAR FEMA FLOODPLAIN
		STABILIZED CONSTRUCTION ENTRANCE
		CWP CLEAN WATER PUMP
		DWP DIRTY WATER PUMP
		FB FILTER BAG
		DIVERSION HOSE
		SSF SUPER SILT FENCE
		SILT FENCE
		TEMPORARY MULCH ACCESS ROAD (TYPE B 20' TYP.)



MATCH LINE - SEE DWG. ES-01A STA. 9+78

PLACE LOAD MATS OVER SEWER LINE BEFORE INSTALLING SCE

DIVERSION HOSE (TO BE SIZED BY CONTRACTOR)

FIELD DETERMINE IF TREE CAN STAY DURING GRADING ACTIVITIES.

TEMPORARY ACCESS ROAD SEE DETAIL SHEET 16

LIMITS OF DISTURBANCE (LOD) TABLE

LOCATION	NORTHING	EASTING									
1	637219.48	1499776.98	12	636983.29	1499532.22	23	637073.75	1499536.19	34	637148.27	1499646.98
2	637182.02	1499732.58	13	636979.64	1499497.17	24	637087.79	1499555.79	35	637131.96	1499624.80
3	637190.67	1499720.67	14	637016.71	1499503.04	25	637106.47	1499554.87	36	637210.94	1499705.11
4	637181.87	1499710.00	15	637054.52	1499525.79	26	637148.20	1499607.57	37	637230.57	1499728.71
5	637167.06	1499712.50	16	637085.73	1499501.60	27	637145.51	1499620.41	38	637249.23	1499713.76
6	637090.37	1499649.11	17	637039.88	1499444.69	28	637180.48	1499652.69	39	637241.64	1499705.15
7	637079.85	1499635.54	18	637092.24	1499485.88	29	637199.97	1499670.04	40	637230.12	1499689.98
8	637066.08	1499645.58	19	637108.82	1499471.03	30	637209.48	1499662.81	41	637253.26	1499695.64
9	637042.57	1499614.38	20	637132.94	1499500.63	31	637130.17	1499642.10	42	637332.65	1499757.45
10	637051.41	1499607.74	21	637115.10	1499513.78	32	637185.15	1499681.29	127	637038.58	1499589.93
11	637012.59	1499544.94	22	637098.41	1499517.08	33	637189.45	1499678.02	128	637043.63	1499586.301



160081 S/C PLAN # 59818

HARFORD COUNTY, MARYLAND

STREAM RESTORATION FOSTER BRANCH

EROSION AND SEDIMENT CONTROL PLAN (ES-01 OF 03)

Revisions

Drawn By : _____ CY

Designed By : _____ MH

Reviewed By : _____ BN

Contract No : _____

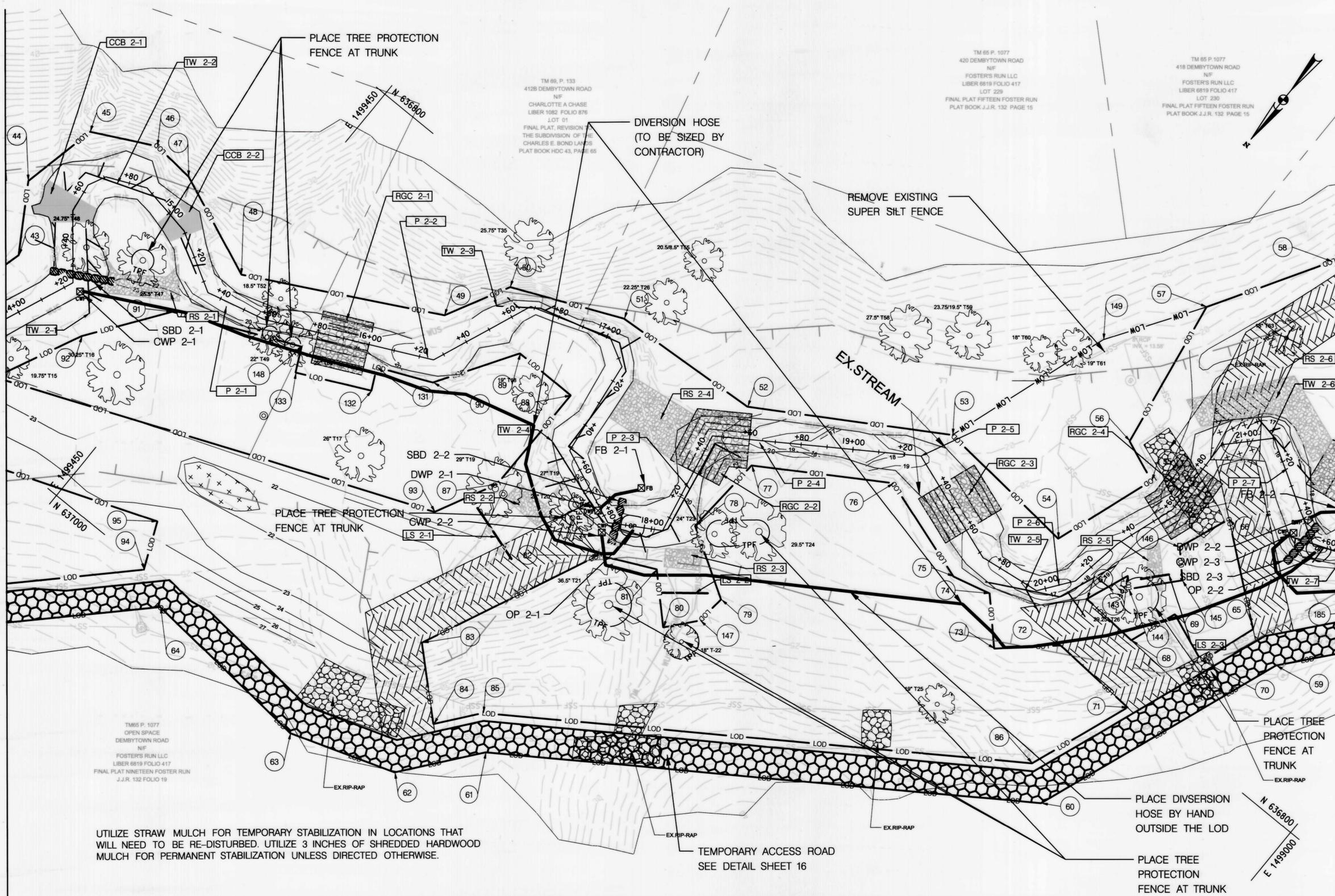
Scale : 1" = 20'

Sheet 18 of 35

Date : JAN. 2016

ADC MAP : 4583 GRID : F 4
TAX MAP : 0065/0069
HCC BILLING ID No. :
SCALE : 1" = 20'

MATCH LINE - SEE DWG. ES-02 STA. 13+94



Location Table		
Clean Water Pump***		
CWP 2-1**	Sta. 14+26	
CWP 2-2**	Sta. 17+83	
CWP 2-3**	Sta. 21+47	
Dirty Water Pump***		
DWP 2-1**	Sta. 17+75	
DWP 2-2**	Sta. 21+44	
Filter Bag		
FB 2-1**	Sta. 17+77	
FB 2-2**	Sta. 21+46	
Outlet protection		
OP 2-1**	Sta. 17+88	Sta. 17+97
OP 2-2**	Sta. 21+53	Sta. 21+61
Sand Bag Diversion		
SBD 2-1	Sta. 14+27	
SBD 2-2	Sta. 17+86	
SBD 2-3	Sta. 21+51	

Access Road Lengths	
Type A	558 LF
Type B	304 LF

Existing Super Silt Fence *	
Rehab Existing Super Silt Fence	621 LF
Remove Existing Super Silt Fence	175 LF

Stabilization / Temporary Seed

Species	Common Name	Percentage of Mix	Rate
Lolium multiflorum	Annual Rye Grass	50%	
Festuca Rubra	Chewings Red Fescue	50%	50 lbs/acre

* REHABILITATE EXISTING SUPER SILT FENCE (REPLACE WHERE NECESSARY).
 ** FILTER BAG, CLEAN WATER PUMP, DIRTY WATER PUMP AND OUTLET PROTECTION LOCATION CAN BE FIELD DETERMINED WITH APPROVAL OF ENGINEER, PLACE TO PROMOTE INFILTRATION
 *** PUMP AROUND SHOWN TO MAXIMUM EXTENT ACTUAL LENGTH WILL VARY AS WORK PROGRESSES.
 REMOVE EXISTING SUPER SILT FENCE IN TYPE B TEMPORARY ACCESS ROADS
 TIE EXISTING SUPER SILT FENCE INTO TYPE B TEMPORARY ACCESS ROADS

LEGEND

— PROPOSED CONTOUR	▨ TEMPORARY STREAM CROSSING
— EXISTING CONTOUR	✕ REMOVE TREE
— LOW — LIMIT OF WORK	▨ ROCK SILL (RS)
— LOD — LIMIT OF DISTURBANCE	▨ CONSTRUCTED WETLAND (CW)
— TPF — TREE PROTECTION FENCE	▨ SCOUR POOL (SP)
▨ SAND BAG DIVERSION	▨ RIFFLE GRADE CONTROL (RGC)
○ OUTLET PROTECTION	▨ CLAY CHANNEL BLOCK (CCB)
▨ TOE WOOD (TW)	▨ TEMPORARY MULCH ACCESS ROAD (TYPE A 10'-12' TYP.)
— LOG SILL (LS)	▨ TEMPORARY MULCH ACCESS ROAD (TYPE B 20' TYP.)
— WUS — WATERS OF THE U.S.	☒ CWP CLEAN WATER PUMP
••••• NONTIDAL WETLAND BOUNDARY	☒ DWP DIRTY WATER PUMP
▨ NONTIDAL WETLAND	☒ FB FILTER BAG
— B — 25' NONTIDAL WETLAND BUFFER	— DIVERSION HOSE
▨ 100-YEAR FEMA FLOODPLAIN	— SSF SUPER SILT FENCE
▨ STABILIZED CONSTRUCTION ENTRANCE	— SF SILT FENCE
	▨ TEMPORARY MULCH ACCESS ROAD (TYPE B 20' TYP.)

UTILIZE STRAW MULCH FOR TEMPORARY STABILIZATION IN LOCATIONS THAT WILL NEED TO BE RE-DISTURBED. UTILIZE 3 INCHES OF SHREDDED HARDWOOD MULCH FOR PERMANENT STABILIZATION UNLESS DIRECTED OTHERWISE.

LIMITS OF DISTURBANCE (LOD)/ LIMIT OF WORK (LOW) TABLE

LOCATION	NORTHING	EASTING	LOCATION	NORTHING	EASTING	LOCATION	NORTHING	EASTING	LOCATION	NORTHING	EASTING	LOCATION	NORTHING	EASTING	LOCATION	NORTHING	EASTING
43	636937.45	1499519.88	54	636768.94	1499140.86	65	636748.37	1499060.79	76	636792.47	1499203.51	87	636889.23	1499321.32	133	636905.10	1499408.61
44	636912.88	1499535.17	55	636728.91	1499127.25	66	636721.45	1499094.80	77	636821.64	1499250.06	88	636844.61	1499320.89	143	636763.12	1499111.05
45	636883.15	1499528.66	56	636722.39	1499143.24	67	636779.96	1499117.62	78	636853.51	1499252.12	89	636844.57	1499346.45	144	636766.71	1499107.49
46	636871.08	1499505.03	57	636663.42	1499153.29	68	636781.43	1499094.32	79	636869.12	1499226.42	90	636874.50	1499365.32	145	636751.08	1499093.72
47	636872.63	1499488.19	58	6366619.32	1499126.99	69	636763.06	1499087.74	80	636891.65	1499236.81	91	636916.97	1499460.21	146	636741.85	1499102.71
48	636889.06	1499448.53	59	636753.72	1499045.11	70	636770.87	1499068.03	81	636875.88	1499252.88	92	636946.30	1499481.40	147	636880.61	1499227.58
49	636851.53	1499378.23	60	636852.24	1499081.37	71	636802.30	1499079.02	82	636885.89	1499273.69	93	636912.78	1499333.22	148	636895.88	1499413.10
50	636827.05	1499365.53	61	636972.19	1499259.31	72	636800.22	1499113.92	83	636954.95	1499305.05	94	637000.98	1499405.74	149	636698.46	1499176.05
51	636808.86	1499323.84	62	637000.39	1499281.51	73	636817.45	1499132.98	84	636976.34	1499281.77	95	636983.24	1499413.52	185	636719.79	1499036.33
52	636805.04	1499265.63	63	637014.19	1499322.18	74	636802.02	1499147.80	85	636961.07	1499269.64	131	636883.62	1499385.70			
53	636763.73	1499197.59	64	637008.20	1499391.74	75	636805.72	1499162.72	86	636842.52	1499093.78	132	636891.98	1499381.48			



HARFORD COUNTY, MARYLAND

160082 S/C PLAN # 59818

STREAM RESTORATION FOSTER BRANCH

EROSION AND SEDIMENT CONTROL PLAN (ES-02 OF 03)

Revisions

Drawn By : _____ CY

Designed By : _____ MH

Reviewed By : _____ BN

Contract No : _____

Scale : 1" = 20'

Sheet 19 of 35

Date : JAN. 2016

ADC MAP : 4583 GRID : F 4

TAX MAP : 0065/0069

HCC BILLING ID NO. :

HCC DWG ID NO. : 160600

Location Table	
Clean Water Pump***	
CWP 3-1**	Sta. 24+76
Dirty Water Pump***	
DWP 3-1**	Sta. 24+75
DWP 3-2**	Sta. 27+38
Filter Bag	
FB 3-1**	Sta. 24+87
FB 3-2**	Sta. 27+49
Outlet protection	
OP 3-1**	Sta. 24+83
OP 3-2**	Sta. 27+46
Sand Bag Diversion	
SBD 3-1	Sta. 24+82
SBD 3-2	Sta. 27+44
Access Road Lengths	
Type A	234 LF
Type B	544 LF

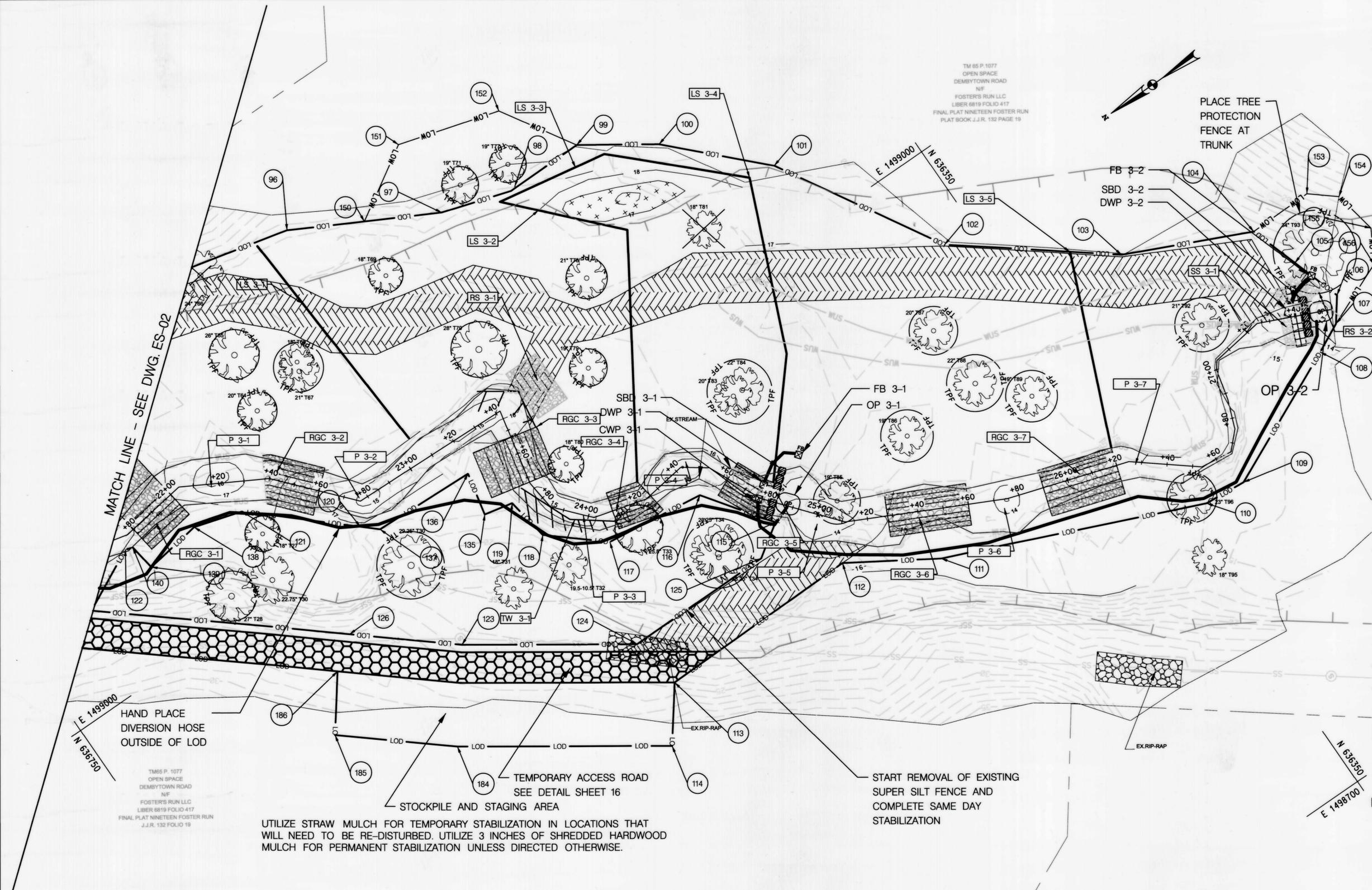
Existing Super Silt Fence *	
Rehab Existing Super Silt Fence	415 LF

Stabilization / Temporary Seed			
Species	Common Name	Percentage of Mix	Rate
<i>Lolium multiflorum</i>	Annual Rye Grass	50%	50 lbs/acre
<i>Festuca Rubra</i>	Chewings Red Fescue	50%	

- * REHABILITATE EXISTING SUPER SILT FENCE (REPLACE WHERE NECESSARY).
 - ** FILTER BAG, CLEAN WATER PUMP, DIRTY WATER PUMP AND OUTLET PROTECTION LOCATION CAN BE FIELD DETERMINED WITH APPROVAL OF ENGINEER, PLACE TO PROMOTE INFILTRATION
 - *** PUMP AROUND SHOWN TO MAXIMUM EXTENT ACTUAL LENGTH WILL VARY AS WORK PROGRESSES.
- REMOVE EXISTING SUPER SILT FENCE IN TYPE B TEMPORARY ACCESS ROADS
- TIE EXISTING SUPER SILT FENCE INTO TYPE B TEMPORARY ACCESS ROADS

LEGEND

- PROPOSED CONTOUR
- EXISTING CONTOUR
- LOW — LIMIT OF WORK
- LOD — LIMIT OF DISTURBANCE
- TPF — TREE PROTECTION FENCE
- SBD — SAND BAG DIVERSION
- OP — OUTLET PROTECTION
- TW — TOE WOOD (TW)
- LS — LOG SILL (LS)
- WUS — WATERS OF THE U.S. BOUNDARY
- NONTIDAL WETLAND
- 25' NONTIDAL WETLAND BUFFER
- 100-YEAR FEMA FLOODPLAIN
- STABILIZED CONSTRUCTION ENTRANCE
- TEMPORARY STREAM CROSSING
- REMOVE TREE
- ROCK SILL (RS)
- CONSTRUCTED WETLAND (CW)
- SCOUR POOL (SP)
- RIFFLE GRADE CONTROL (RGC)
- CLAY CHANNEL BLOCK (CCB)
- TEMPORARY MULCH ACCESS ROAD (TYPE A 10'-12' TYP.)
- CWP — CLEAN WATER PUMP
- DWP — DIRTY WATER PUMP
- FB — FILTER BAG
- DIVERSION HOSE
- SSF — SUPER SILT FENCE
- SF — SILT FENCE
- TEMPORARY MULCH ACCESS ROAD (TYPE B 20' TYP.)



UTILIZE STRAW MULCH FOR TEMPORARY STABILIZATION IN LOCATIONS THAT WILL NEED TO BE RE-DISTURBED. UTILIZE 3 INCHES OF SHREDDED HARDWOOD MULCH FOR PERMANENT STABILIZATION UNLESS DIRECTED OTHERWISE.

LIMITS OF DISTURBANCE (LOD)/ LIMIT OF WORK (LOW) TABLE														
LOCATION	NORTHING	EASTING	LOCATION	NORTHING	EASTING	LOCATION	NORTHING	EASTING	LOCATION	NORTHING	EASTING	LOCATION	NORTHING	EASTING
96	636,571.95	1,499,115.60	107	636,254.83	1,498,852.62	118	636,557.37	1,498,960.49	137	636,608.60	1,498,998.45	184	636,632.07	1,498,911.02
97	636,518.04	1,499,087.15	108	636,266.26	1,498,846.96	119	636,560.11	1,498,977.57	138	636,668.12	1,499,040.37	185	636,669.02	1,498,941.86
98	636,490.83	1,499,078.72	109	636,319.98	1,498,821.95	120	636,614.37	1,499,003.60	139	636,690.78	1,499,037.05	186	636,654.00	1,498,961.89
99	636,459.49	1,499,078.89	110	636,336.50	1,498,823.36	121	636,649.31	1,499,034.77	140	636,692.32	1,499,047.60			
100	636,432.84	1,499,060.78	111	636,434.34	1,498,864.33	122	636,695.23	1,499,048.45	150	636,545.00	1,499,101.37			
101	636,400.52	1,499,028.33	112	636,467.14	1,498,884.79	123	636,607.89	1,498,942.93	151	636,546.82	1,499,118.65			
102	636,363.32	1,498,964.90	113	636,547.79	1,498,883.50	124	636,551.35	1,498,904.14	152	636,476.96	1,499,107.27			
103	636,308.65	1,498,922.40	114	636,562.79	1,498,863.48	125	636,492.20	1,498,904.39	153	636,234.28	1,498,901.01			
104	636,260.82	1,498,900.61	115	636,479.66	1,498,912.80	126	636,641.87	1,498,971.26	154	636,225.59	1,498,893.06			
105	636,254.57	1,498,881.33	116	636,497.90	1,498,938.37	125	636,571.47	1,498,980.01	155	636,222.35	1,498,875.62			
106	636,248.14	1,498,861.60	117	636,537.31	1,498,943.24	136	636,567.85	1,498,996.84	156	636,229.53	1,498,863.28			

Revisions	

160083 S/C PLAN # 59818

HARFORD COUNTY, MARYLAND

STREAM RESTORATION FOSTER BRANCH

EROSION AND SEDIMENT CONTROL PLAN (ES-03 OF 03)

Drawn By : _____ CY	Contract No : _____
Designed By : _____ MH	Scale : 1" = 20'
Reviewed By : _____ BN	Sheet 20 of 35
	Date : JAN. 2016



ADC MAP : 4583 GRID : F 4
TAX MAP : 0065/0069
HCG BILLING ID NO. :
HCG DWG ID NO. : 160601

PLANT SCHEDULE

Plant Zone 1 - Floodplain Planting						
Quantity	Vegetation Strata/Species Name	Common Name	Wetland Indicator Status	Size	Type	Placement
Trees						
75	Betula nigra	River Birch	FACW	3 Gallon	Container Grown	Naturalized @ 20 OC'
50	Magnolia virginiana	Sweet Bay Magnolia	FACW	3 Gallon	Container Grown	Naturalized @ 20 OC'
50	Plantus occidentalis	Sycamore	FACW	3 Gallon	Container Grown	Naturalized @ 20 OC'
95	Quercus bicolor	Swamp White Oak	FACW	3 Gallon	Container Grown	Naturalized @ 20 OC'
95	Quercus palustris	Pin Oak	FACW	3 Gallon	Container Grown	Naturalized @ 20 OC'
25	Salix nigra	Black Willow	FACW	1 Gallon	Container Grown	Naturalized @ 20 OC'
390	Total					
Shrubs						
144	Cephalanthus occidentalis	Buttonbush	OBL	1 Gallon	Container Grown	Naturalized @ 16 OC'
144	Cornus amomum	Silky Dogwood	FACW	1 Gallon	Container Grown	Naturalized @ 16 OC'
90	Clethra alnifolia	Sweet Pepperbush	FAC	1 Gallon	Container Grown	Naturalized @ 16 OC'
90	Sambucus nigra	Black Elderberry	FACW	1 Gallon	Container Grown	Naturalized @ 16 OC'
468	Total					
Herbaceous						
100	Asclepias incarnata	Swamp Milkweed	OBL	2"	Peat Pot	Naturalized @ 12 OC'
80	Carex lurida	Shallow Sedge	OBL	2"	Peat Pot	Naturalized @ 12 OC'
20	Chelone glabra	White Turtlehead	OBL	2"	Peat Pot	Naturalized @ 12 OC'
40	Pontederia cordata	Pickrelweed	OBL	2"	Peat Pot	Naturalized @ 12 OC'
40	Sagittaria Latifolia	Duck-potato	OBL	2"	Peat Pot	Naturalized @ 12 OC'
100	Juncus effusus	Common Rush	FACW	2"	Peat Pot	Naturalized @ 12 OC'
200	Panicum Virgatum	Switch Grass	FAC	2"	Peat Pot	Naturalized @ 12 OC'
60	Scirpus cypernius	Woolgrass	OBL	2"	Peat Pot	Naturalized @ 12 OC'
60	Bidens aristosa	Tickseed Sunflower	FACW	2"	Peat Pot	Naturalized @ 12 OC'
700	Total					

Plant Zone 2 - Riffle Bank Transition @ RGC						
Quantity	Vegetation Strata/Species Name	Common Name	Wetland Indicator Status	Size	Type	Placement
Trees						
36	Betula nigra	River Birch	FACW	1 Gallon	Container Grown	Naturalized @ 10 OC'
33	Plantus occidentalis	Sycamore	FACW	1 Gallon	Container Grown	Naturalized @ 10 OC'
35	Salix nigra	Black Willow	FACW	1 Gallon	Container Grown	Naturalized @ 10 OC'
104	Total					
Shrubs						
38	Sambucus nigra	Black Elderberry	FACW	1 Gallon	Container Grown	Naturalized @ 7 OC'
38	Cephalanthus occidentalis	Buttonbush	OBL	1 Gallon	Container Grown	Naturalized @ 7 OC'
38	Cornus amomum	Silky Dogwood	FACW	1 Gallon	Container Grown	Naturalized @ 7 OC'
114	Total					
Herbaceous Layer						
43	Peltandra virginica	Green arrow-arum	OBL	2"	Peat Pot	Naturalized @ 4 OC'
60	Panicum Virgatum	Switch Grass	FAC	2"	Peat Pot	Naturalized @ 4 OC'
50	Scirpus cypernius	Woolgrass	OBL	2"	Peat Pot	Naturalized @ 4 OC'
43	Pontederia cordata	Pickrelweed	OBL	2"	Peat Pot	Naturalized @ 4 OC'
50	Eutrochium fistulosum	Trumpetweed	FACW	2"	Peat Pot	Naturalized @ 4 OC'
40	Ludwigia alternifolia	Seedbox	FACW	2"	Peat Pot	Naturalized @ 4 OC'
50	Carex lurida	Shallow Sedge	OBL	2"	Peat Pot	Naturalized @ 4 OC'
336	Total					

Plant Zone 3 - Vernal Pools						
Quantity	Vegetation Strata/Species Name	Common Name	Wetland Indicator Status	Size	Type	Placement
Trees						
23	Betula nigra	River Birch	FACW	1 Gallon	Container Grown	Naturalized @ 10 OC'
Total						
Shrubs						
24	Cephalanthus occidentalis	Buttonbush	OBL	1 Gallon	Container Grown	Naturalized @ 7 OC'
Total						
Herbaceous Layer						
16	Peltandra virginica	Green arrow-arum	OBL	2"	Peat Pot	Naturalized @ 4 OC'
16	Asclepias incarnata	Swamp Milkweed	OBL	2"	Peat Pot	Naturalized @ 4 OC'
15	Carex lurida	Shallow Sedge	OBL	2"	Peat Pot	Naturalized @ 4 OC'
16	Chelone glabra	White Turtlehead	OBL	2"	Peat Pot	Naturalized @ 4 OC'
16	Pontederia cordata	Pickrelweed	OBL	2"	Peat Pot	Naturalized @ 4 OC'
16	Sagittaria Latifolia	Duck-potato	OBL	2"	Peat Pot	Naturalized @ 4 OC'
95	Total					

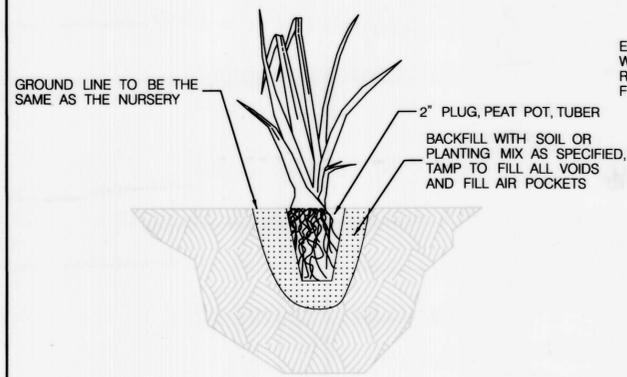
Seed Mix = 3.12 acres						
Quantity	Vegetation Strata/Species Name	Common Name	Wetland Indicator Status	Size	Type	Placement
12	Asclepias incarnata	Swamp Milkweed	OBL	lbs	SEED	100% Coverage
11	Elymus riparius	Riverbank Wild Rye	FACW	lbs	SEED	100% Coverage
11	Carex lurida	Shallow Sedge	OBL	lbs	SEED	100% Coverage
11	Eupatorium perfoliatum	Common Boneset	FACW	lbs	SEED	100% Coverage
10	Eutrochium fistulosum	Trumpetweed	FACW	lbs	SEED	100% Coverage
12	Ludwigia alternifolia	Seedbox	FACW	lbs	SEED	100% Coverage
10	Peltandra virginica	Green arrow-arum	OBL	lbs	SEED	100% Coverage
10	Vernonia novaboracensis	New York Ironweed	FACW	lbs	SEED	100% Coverage
16	Panicum Virgatum	Switch Grass	FAC	lbs	SEED	100% Coverage
7	Scirpus cypernius	Woolgrass	OBL	lbs	SEED	100% Coverage
78	Total					



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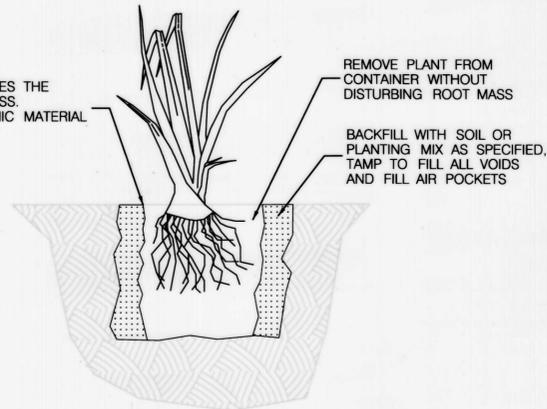
Revisions	HARFORD COUNTY, MARYLAND	
	STREAM RESTORATION FOSTER BRANCH	
	LANDSCAPE SCHEDULE (LS-01 OF 01)	
	Drawn By : _____ RLM Designed By : _____ MH Reviewed By : _____ BN	Contract No : _____ Scale : N.T.S. Sheet <u>21</u> of <u>35</u> Date : <u>JAN. 2016</u>

ADC MAP : 4583 GRID : F4
 TAX MAP : 0065/0069
 HCG BILLING ID No. :
 HCG DWG ID No. : 160602
 SCALE : 1"=100'



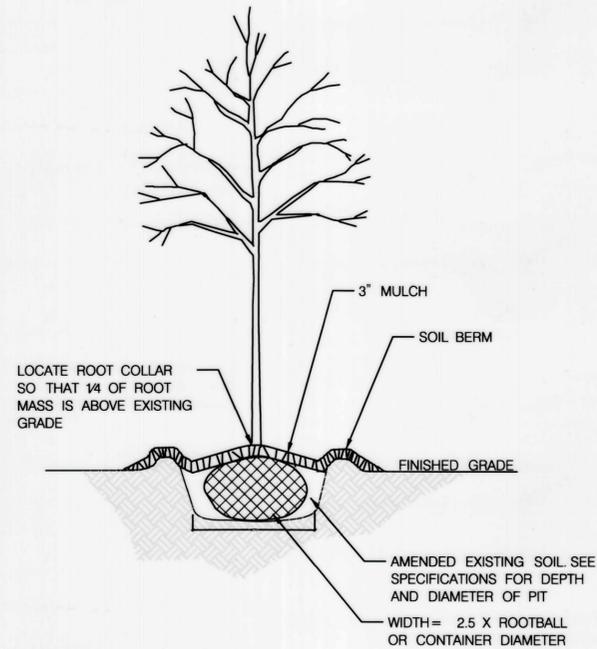
HERBACEOUS PLANTING - PLUG/PEAT POT
N.T.S.

EXCAVATE HOLE 1-1/2 TIMES THE WIDTH OF THE ROOT MASS. REMOVE ALL NON-ORGANIC MATERIAL FROM PLANTING PIT.

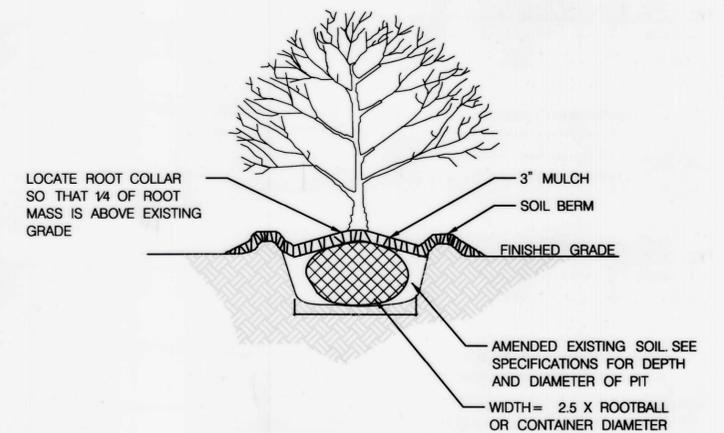


HERBACEOUS PLANTING - CONTAINER GROWN
N.T.S.

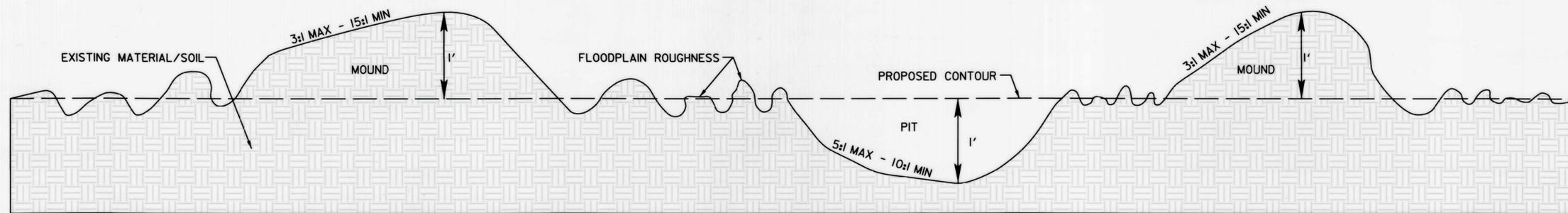
REMOVE PLANT FROM CONTAINER WITHOUT DISTURBING ROOT MASS
BACKFILL WITH SOIL OR PLANTING MIX AS SPECIFIED. TAMP TO FILL ALL VOIDS AND FILL AIR POCKETS



TREE PLANTING
N.T.S.

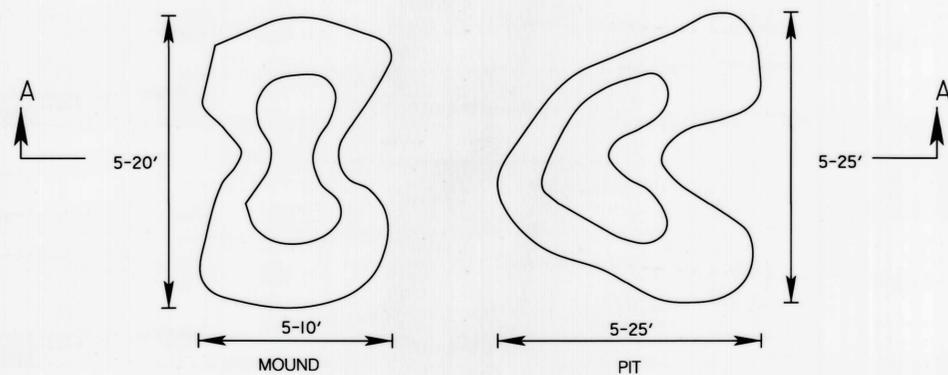


SHRUB PLANTING
N.T.S.



MICROTOPOGRAPHY - SECTION A-A'
N.T.S.

NOTES:
SEE SHEET LP-03 FOR MICROTOPOGRAPHY LOCATIONS.
CONSTRUCT MICROTOPOGRAPHY AT DIRECTION OF DESIGN ENGINEER.



MICROTOPOGRAPHY - PLAN VIEW
N.T.S.



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Revisions		HARFORD COUNTY, MARYLAND	
		STREAM RESTORATION FOSTER BRANCH	
		LANDSCAPE DETAILS (LD-01 OF 01)	
Drawn By :	RG	Contract No :	
Designed By :	MH	Scale :	N.T.S.
Reviewed By :	BN	Sheet	22 of 35
		Date :	JAN. 2016



E 1499950 / N 637200

N 637200 / E 1499950

E 1499950 / N 637350

DEMBYTOWN ROAD

MATCH LINE -- SEE DWG. LD-01A STA. 9+78

APPROX. LOCATION OF FUTURE WATER LINE

QUANTITY TABLE	
TYPE	AREA
ZONE 1	12,926 SQ. FT.
ZONE 2	2,036 SQ. FT.
ZONE 3	0 SQ. FT.
SEED MIX	14,962 SQ. FT.
MICROTOPOGRAPHY ZONE	0 SQ. FT.

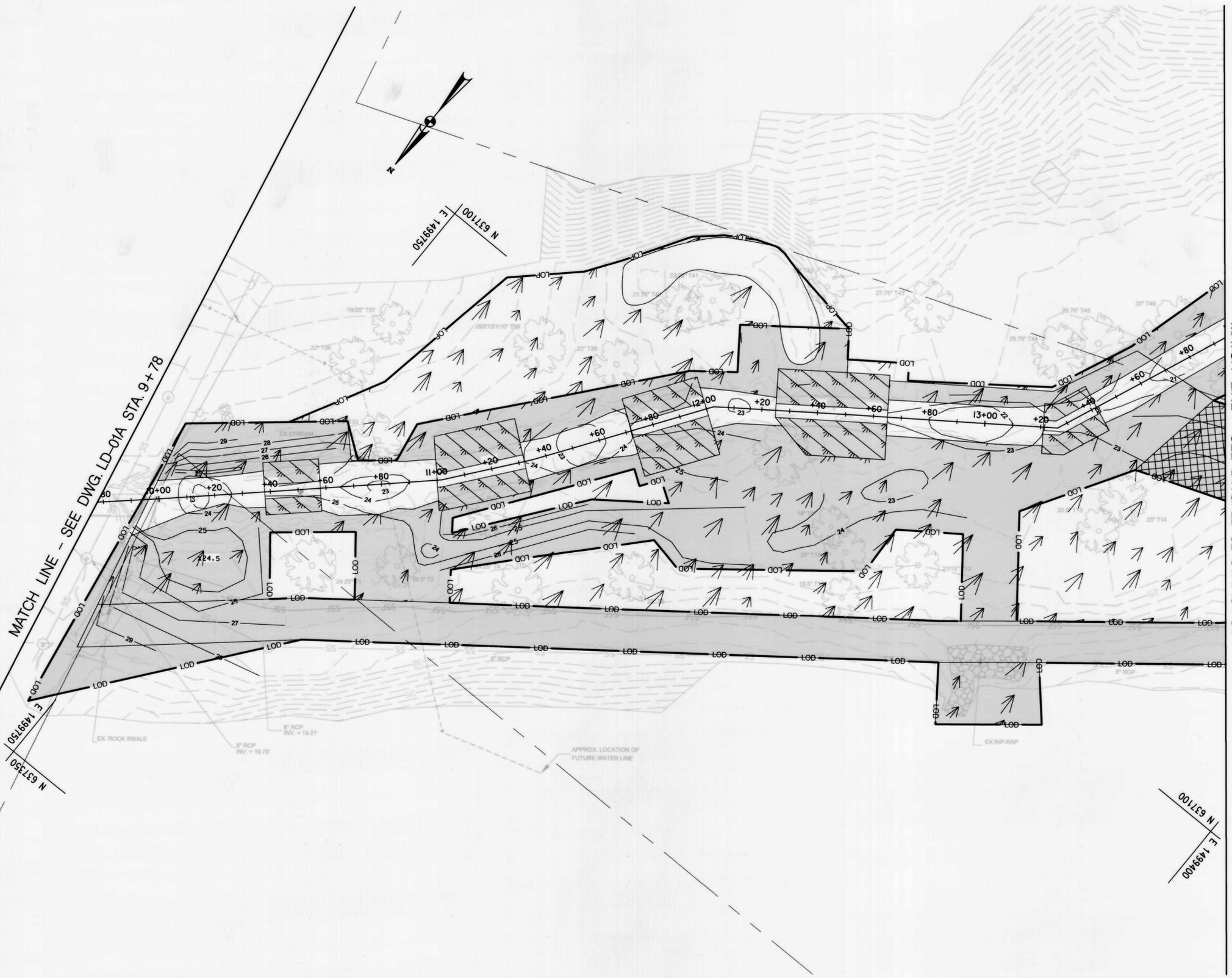
LEGEND

- ZONE 1 - FLOODPLAIN PLANTING
- ZONE 2 - RIFFLE BANK TRANSITION
- ZONE 3 - VERNAL POOLS
- SEED MIX
- MICROTOPOGRAPHY ZONE
- LIMIT OF PLANTING
- LIMIT OF DISTURBANCE
- LIMIT OF WORK

Revisions	HARFORD COUNTY, MARYLAND	
	STREAM RESTORATION FOSTER BRANCH	
	LANDSCAPE PLAN (LP-01A OF 03)	
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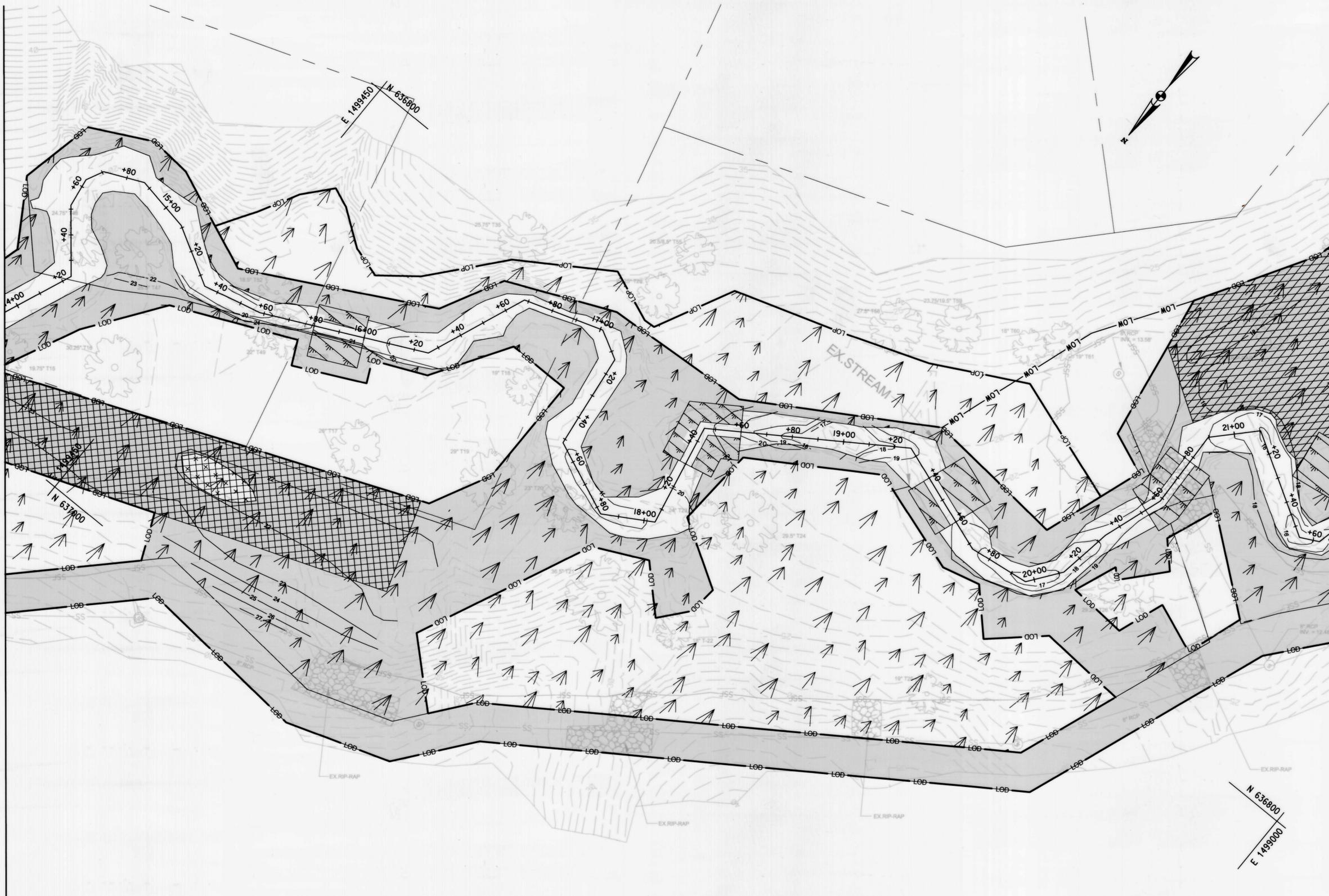
QUANTITY TABLE	
TYPE	AREA
ZONE 1	31,774 SQ. FT.
ZONE 2	2,851 SQ. FT.
ZONE 3	1,209 SQ. FT.
SEED MIX	26,633 SQ. FT.
MICROTOPOGRAPHY ZONE	630 SQ. FT.

LEGEND	
	ZONE 1 - FLOODPLAIN PLANTING
	ZONE 2 - RIFFLE BANK TRANSITION
	ZONE 3 - VERNAL POOLS
	SEED MIX
	MICROTOPOGRAPHY ZONE
	LIMIT OF PLANTING
	LIMIT OF DISTURBANCE
	LIMIT OF WORK

Revisions	HARFORD COUNTY, MARYLAND	
	STREAM RESTORATION FOSTER BRANCH	
	LANDSCAPE PLAN (LP-01 OF 03)	
	Drawn By : _____ RG Designed By : _____ MH Reviewed By : _____ BN	Contract No : _____ Scale : 1" = 20' Sheet <u>24</u> of <u>35</u> Date : <u>JAN. 2016</u>

MATCH LINE - SEE DWG. LD-02 STA. 13+94

MATCH LINE - SEE DWG. LD-03 STA. 21+72



QUANTITY TABLE	
TYPE	AREA
ZONE 1	58,493 SQ. FT.
ZONE 2	1822 SQ. FT.
ZONE 3	311 SQ. FT.
SEED MIX	41,776 SQ. FT.
MICROTOPOGRAPHY ZONE	6,211 SQ. FT.

LEGEND

- ZONE 1 - FLOODPLAIN PLANTING
- ZONE 2 - RIFFLE BANK TRANSITION
- ZONE 3 - VERNAL POOLS
- SEED MIX
- MICROTOPOGRAPHY ZONE
- LOP - LIMIT OF PLANTING
- LOD - LIMIT OF DISTURBANCE
- LOW - LIMIT OF WORK

Revisions

HARFORD COUNTY, MARYLAND

STREAM RESTORATION FOSTER BRANCH

LANDSCAPE PLAN (LP-02 OF 03)

Drawn By : _____ RG	Contract No : _____
Designed By : _____ MH	Scale : 1" = 20'
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	Date : JAN. 2016



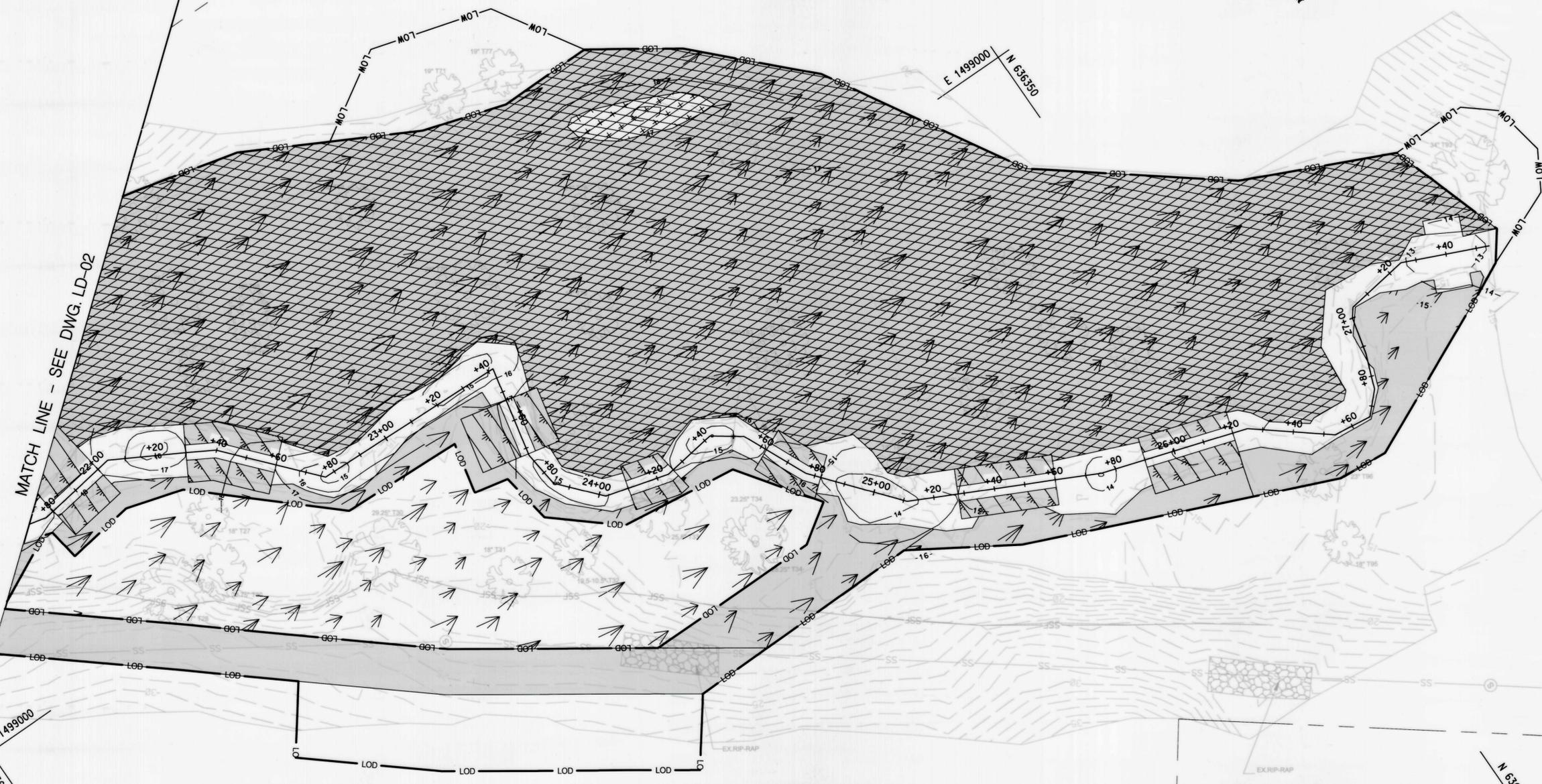
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ADC MAP : 4583 GRID: F 4

TAX MAP : 0065/0069

HCG BILLING ID No. :

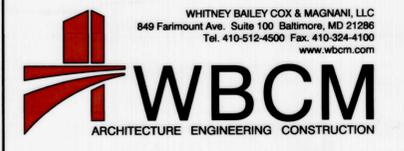
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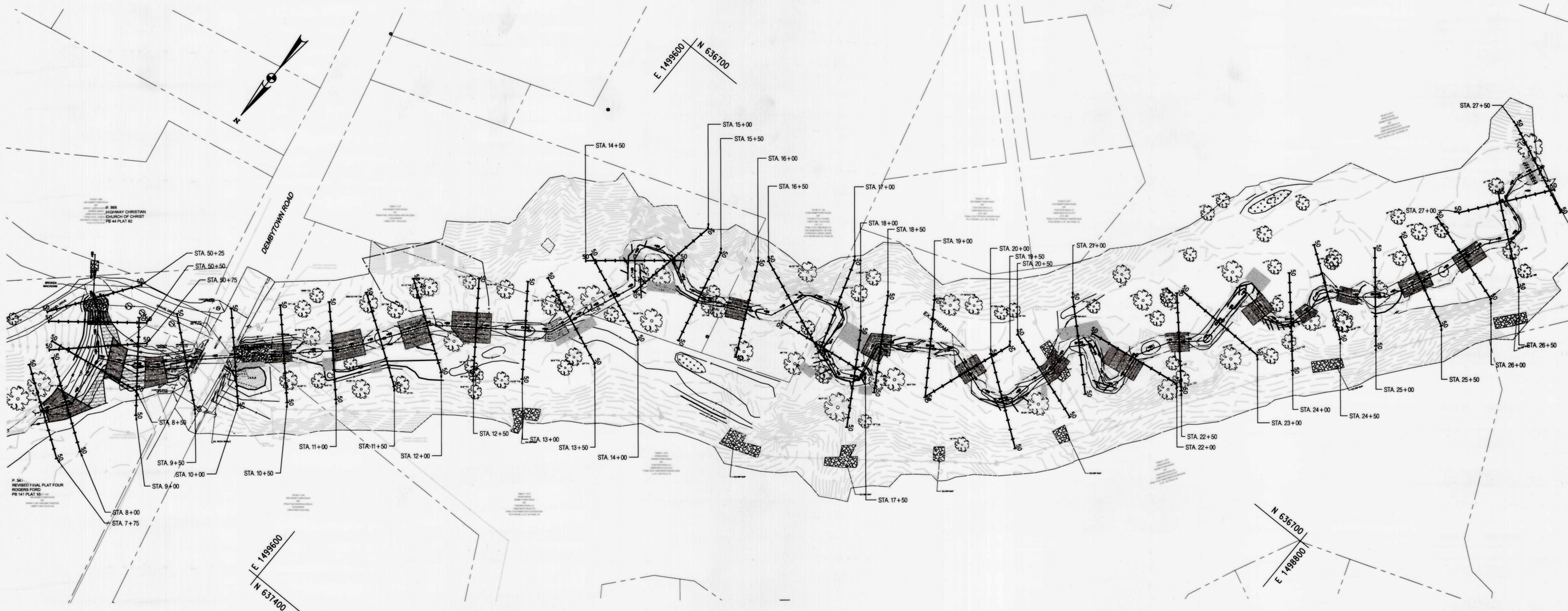


QUANTITY TABLE	
TYPE	AREA
ZONE 1	56,289 SQ. FT.
ZONE 2	2,370 SQ. FT.
ZONE 3	453 SQ. FT.
SEED MIX	52,564 SQ. FT.
MICROTOPOGRAPHY ZONE	40,090 SQ. FT.

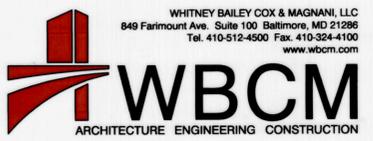
- LEGEND**
- ZONE 1 - FLOODPLAIN PLANTING
 - ZONE 2 - RIFFLE BANK TRANSITION
 - ZONE 3 - VERNAL POOLS
 - SEED MIX
 - MICROTOPOGRAPHY ZONE
 - LOP - LIMIT OF PLANTING
 - LOD - LIMIT OF DISTURBANCE
 - LOW - LIMIT OF WORK

Revisions	HARFORD COUNTY, MARYLAND	
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	LANDSCAPE PLAN (LP-03 OF 03)	
Drawn By : _____ RG Designed By : _____ MH Reviewed By : _____ BN	Contract No : _____ Scale : 1" = 20' Sheet 26 of 35 Date : JAN. 2016	

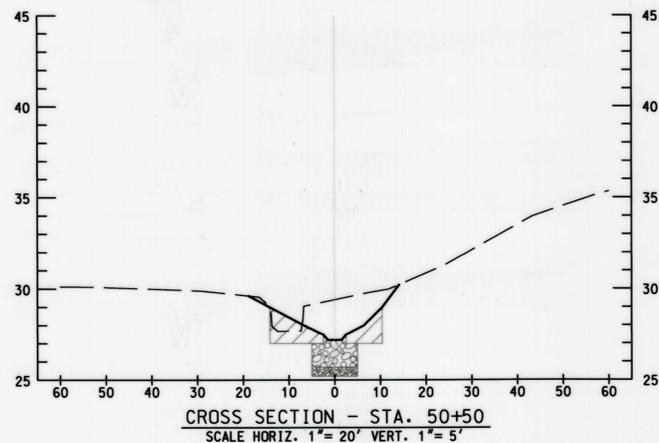
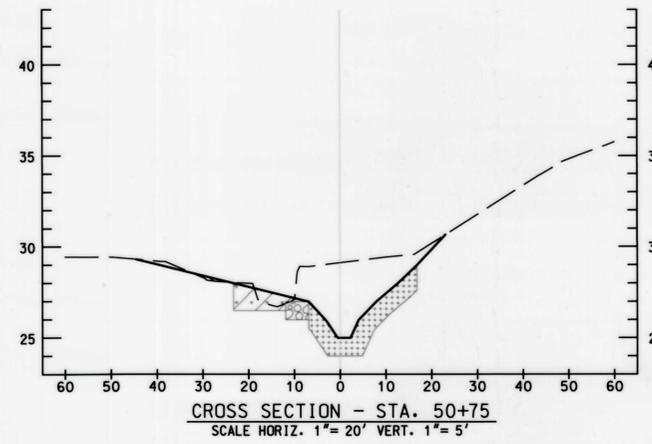
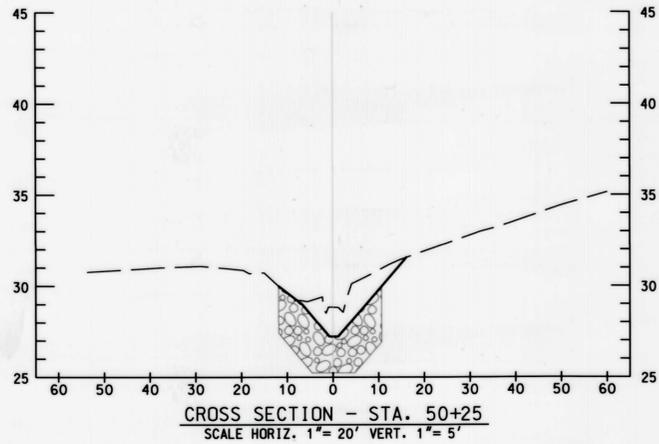




CROSS SECTION LOCATIONS
 50' 0 50' 100'
 SCALE: 1" = 50'

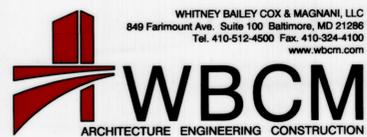


Revisions	HARFORD COUNTY, MARYLAND	
	STREAM RESTORATION FOSTER BRANCH CROSS SECTION LOCATIONS (HC-01 OF 09)	
Drawn By : _____	RG	Contract No : _____
Designed By : _____	MH	Scale : 1" = 50'
Reviewed By : _____	BN	Sheet <u>27</u> Of <u>35</u>
		Date : <u>JAN. 2016</u>

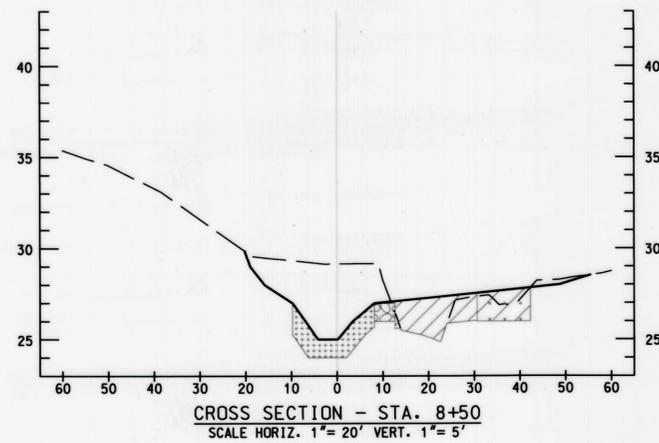
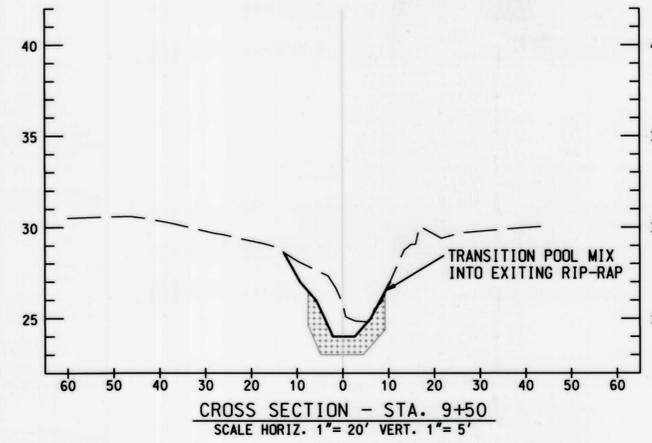
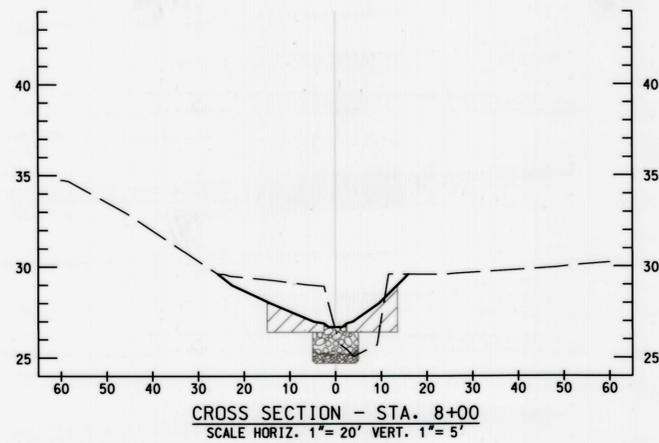
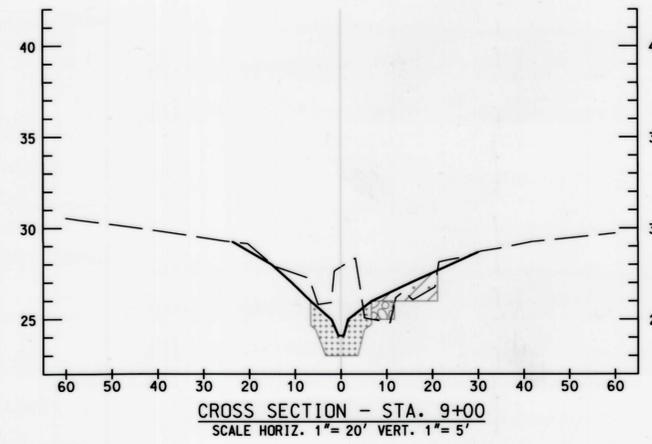
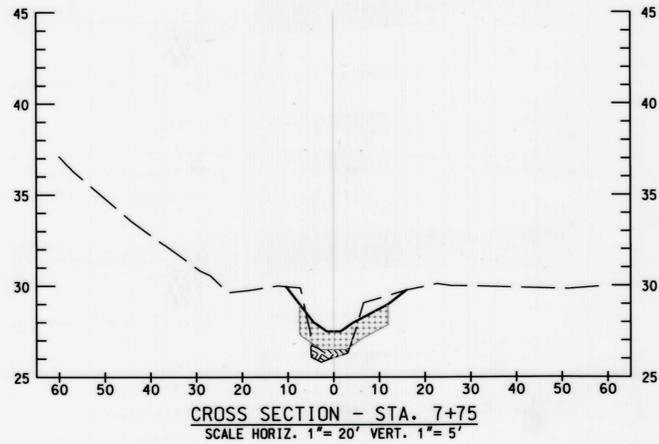


NOTE:
TOE WOOD IS NOT SHOWN ON CROSS SECTIONS.
EXACT LOCATION TO BE FIELD DETERMINED.

- LEGEND**
- RIFFLE GRADE CONTROL MIX
 - RIFFLE BANK TRANSITION MIX
 - ROCK SILL MIX
 - CHANNEL BED MATERIAL -CLASS 0 FILL
 - POOL MIX
 - SCOUR POOL MIX
 - CLASS 1 ROCK
 - SOIL LIFTS
 - CHANNEL BED MATERIAL -CLEAN SAND FILL
 - CLAY CHANNEL BLOCK
 - - EXISTING GROUND
 - PROPOSED GROUND

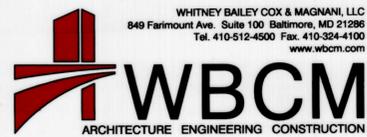


Revisions	HARFORD COUNTY, MARYLAND	
	STREAM RESTORATION FOSTER BRANCH	
	CROSS SECTIONS (HC-02 OF 09)	
	Drawn By : _____ RG _____ Designed By : _____ MH _____ Reviewed By : _____ BN _____	Contract No : _____ Scale : 1" = 20' Sheet 28 of 35 Date : JAN. 2016



NOTE:
TOE WOOD IS NOT SHOWN ON CROSS SECTIONS.
EXACT LOCATION TO BE FIELD DETERMINED.

- LEGEND**
- RIFFLE GRADE CONTROL MIX
 - RIFFLE BANK TRANSITION MIX
 - ROCK SILL MIX
 - CHANNEL BED MATERIAL - CLASS 0 FILL
 - POOL MIX
 - SCOUR POOL MIX
 - CLASS 1 ROCK
 - SOIL LIFTS
 - CHANNEL BED MATERIAL - CLEAN SAND FILL
 - CLAY CHANNEL BLOCK
 - - - EXISTING GROUND
 - PROPOSED GROUND



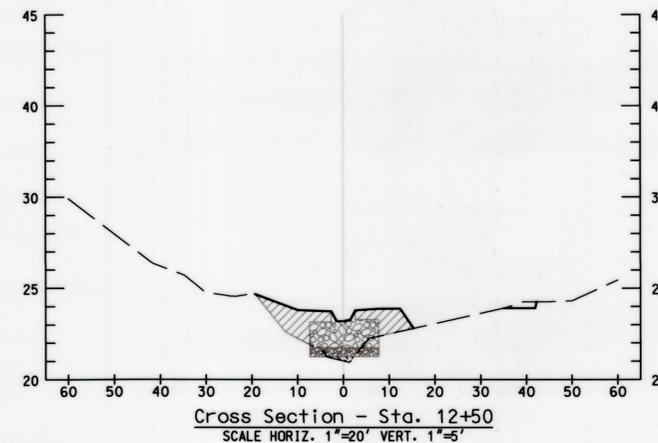
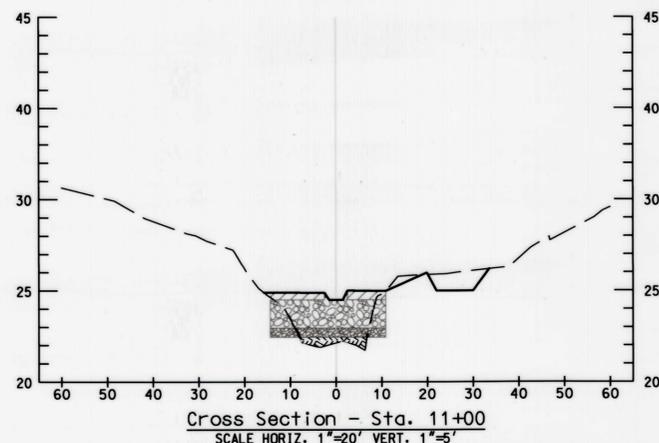
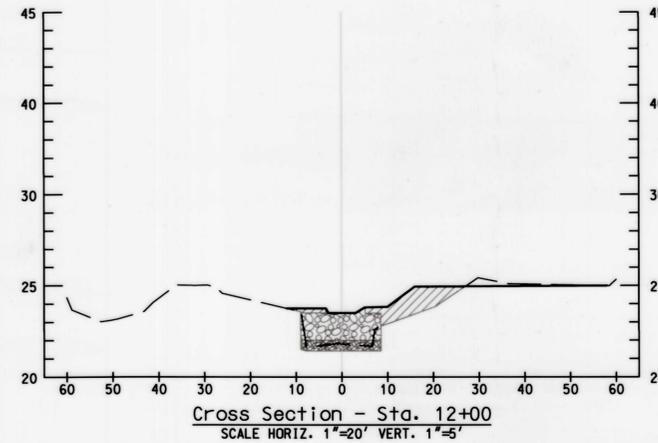
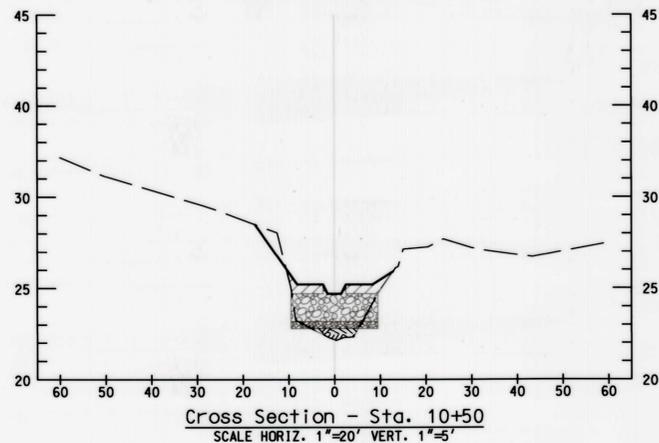
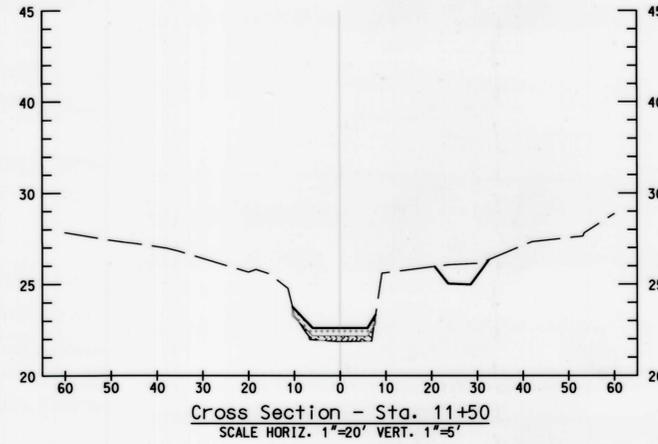
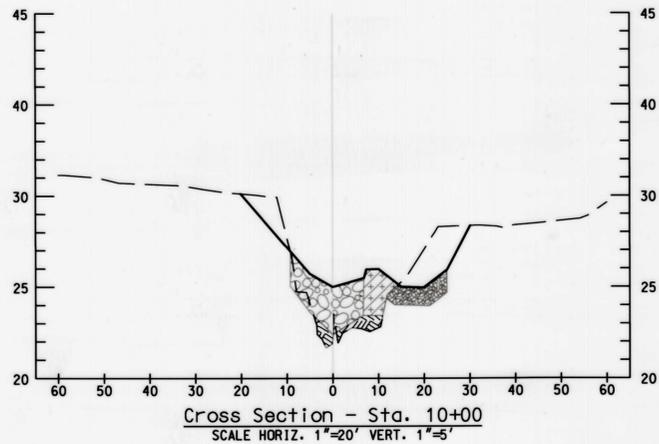
Revisions	HARFORD COUNTY, MARYLAND	
	STREAM RESTORATION FOSTER BRANCH	
	CROSS SECTIONS (HC-03 OF 09)	
	Drawn By : _____ RG _____	Contract No : _____
Designed By : _____ MH _____	Scale : 1" = 20'	
Reviewed By : _____ BN _____	Sheet 29 of 35	
	Date : JAN. 2016	

ADC MAP : 4583 GRID: F4

TAX MAP : 0065/0069

HCG BILLING ID No. :

HCG DWG ID No. : 160610

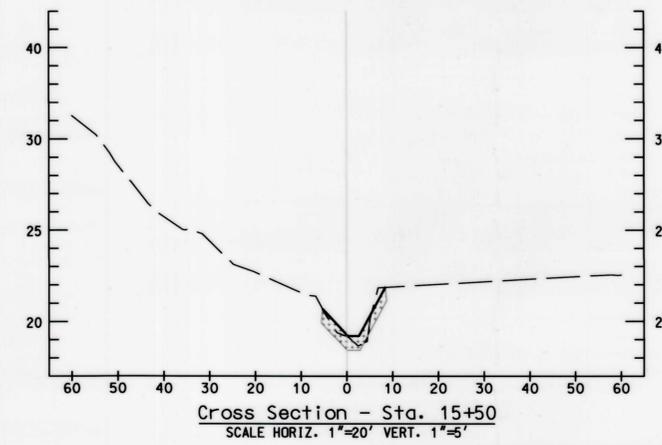
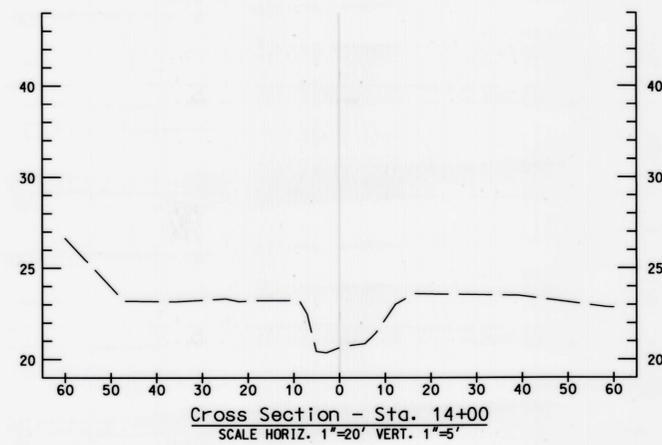
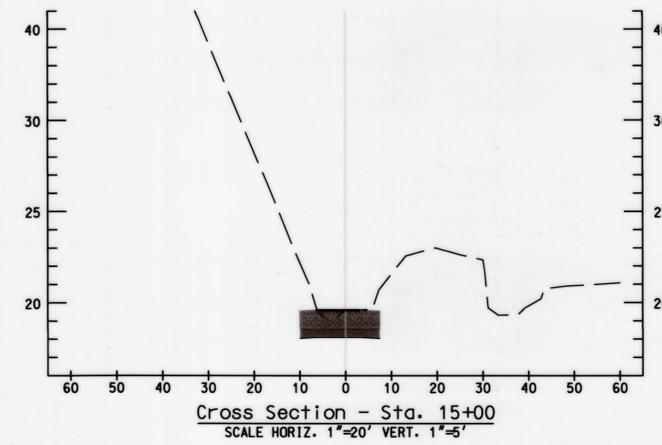
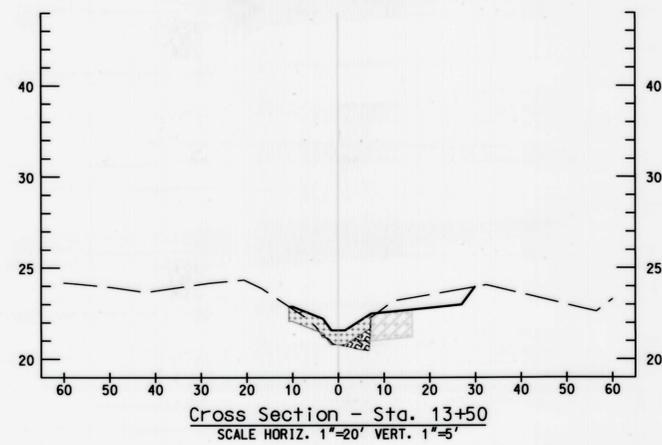
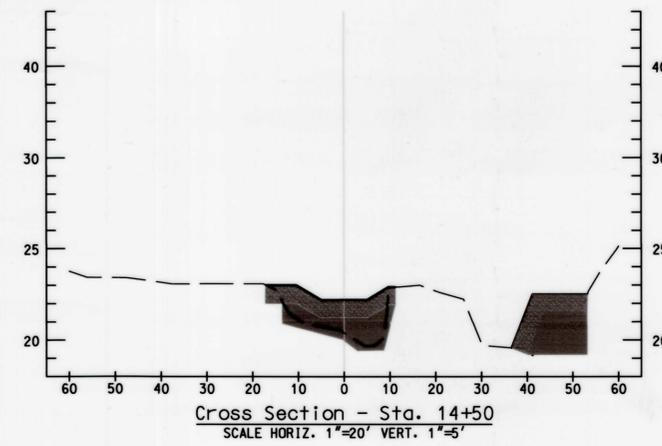
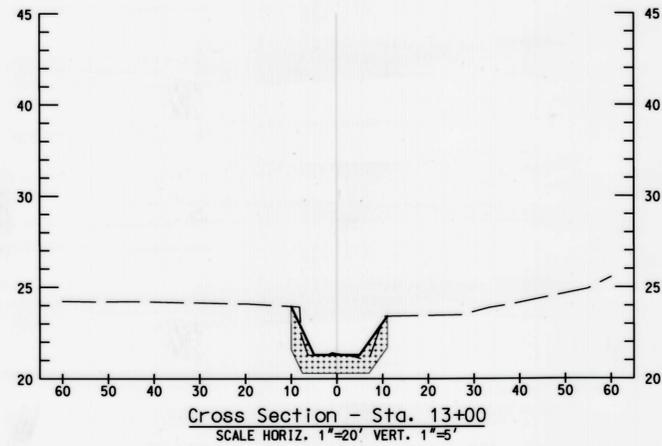


NOTE:
TOE WOOD IS NOT SHOWN ON CROSS SECTIONS.
EXACT LOCATION TO BE FIELD DETERMINED.

- LEGEND**
- RIFFLE GRADE CONTROL MIX
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 - POOL MIX
 - SCOUR POOL MIX
 - CLASS 1 ROCK
 - SOIL LIFTS
 - CHANNEL BED MATERIAL - CLEAN SAND FILL
 - CLAY CHANNEL BLOCK
 - EXISTING GROUND
 - PROPOSED GROUND



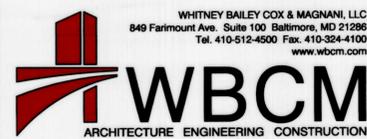
Revisions		HARFORD COUNTY, MARYLAND	
		STREAM RESTORATION FOSTER BRANCH	
		CROSS SECTIONS (HC-04 OF 09)	
Drawn By :	CY	Contract No :	
Designed By :	MH	Scale :	1" = 20'
Reviewed By :	BN	Sheet	30 of 35
		Date :	JAN. 2016

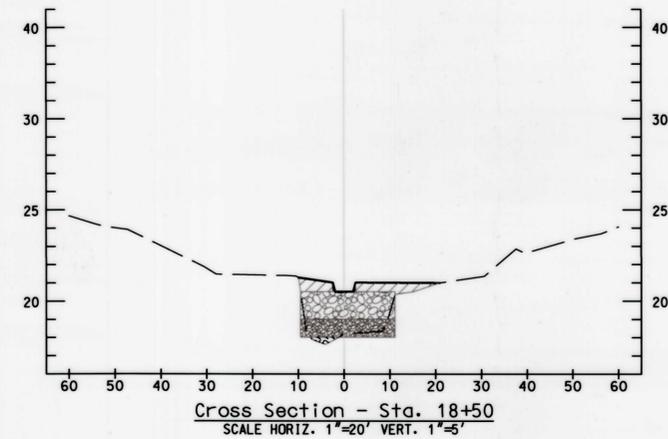
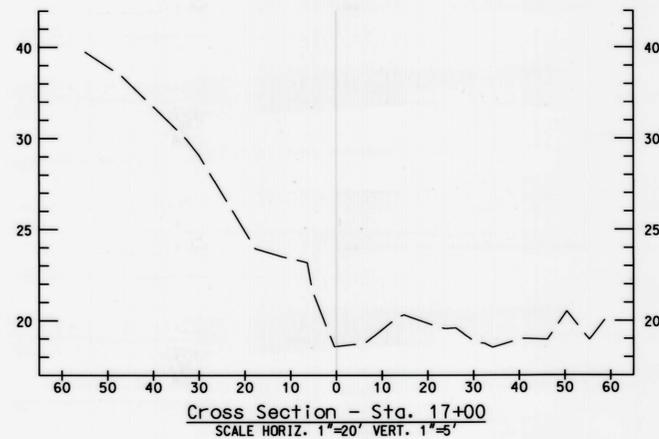
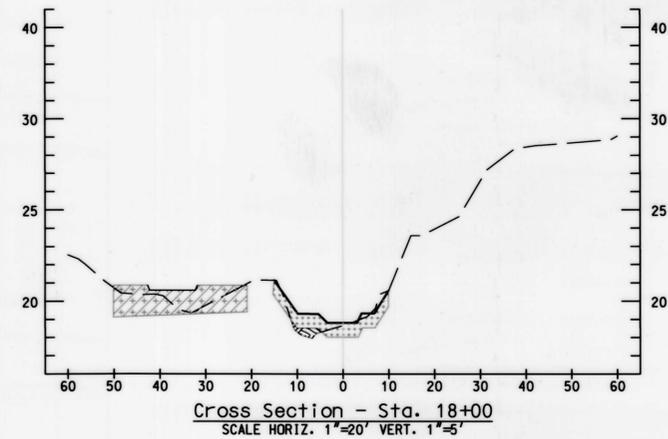
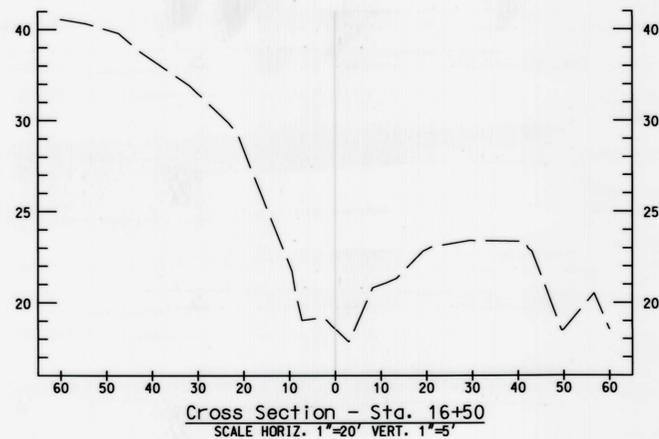
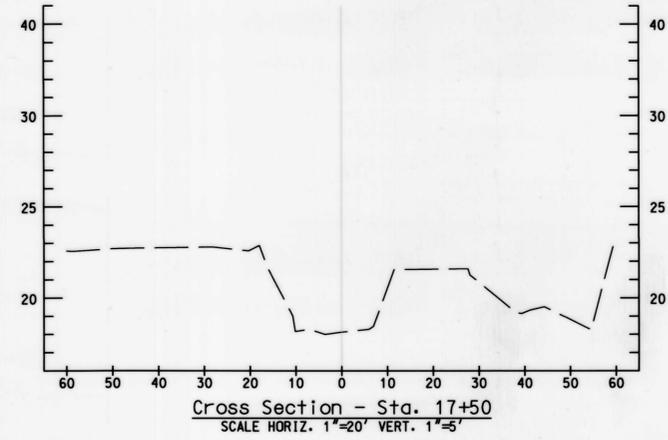
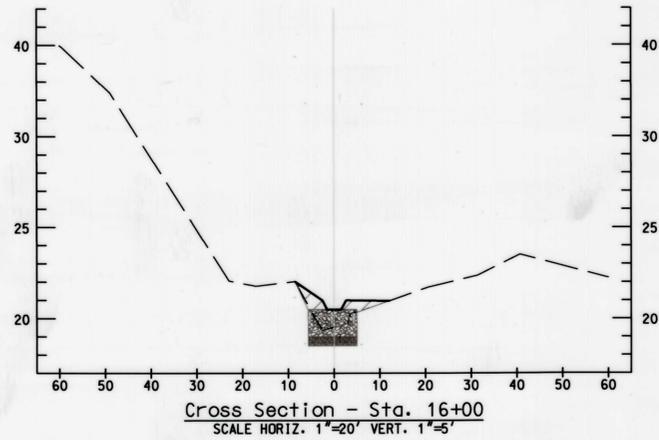


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Revisions		HARFORD COUNTY, MARYLAND	
		STREAM RESTORATION FOSTER BRANCH	
		CROSS SECTIONS (HC-05 OF 09)	
Drawn By :	CY	Contract No :	
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Reviewed By :	BN	Sheet :	31 of 35
		Date :	JAN. 2016

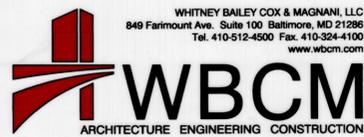




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Revisions	HARFORD COUNTY, MARYLAND	
	STREAM RESTORATION FOSTER BRANCH	
	CROSS SECTIONS (HC-06 OF 09)	
	Drawn By : <u> CY </u>	Contract No : <u> </u>
	Designed By : <u> MH </u>	Scale : <u>1" = 20'</u>
	Reviewed By : <u> BN </u>	Sheet <u>32</u> Of <u>35</u>
		Date : <u>JAN, 2016</u>

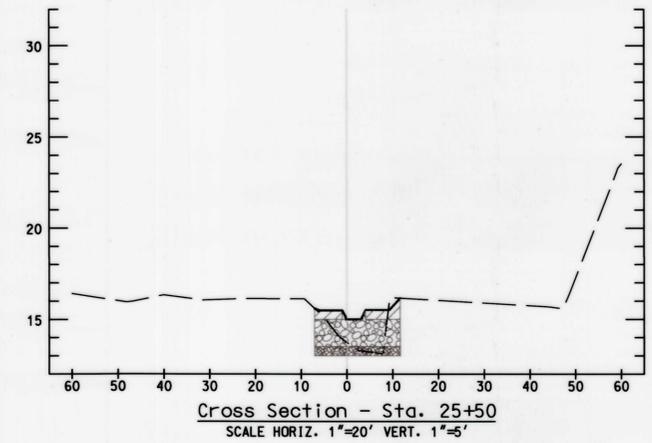
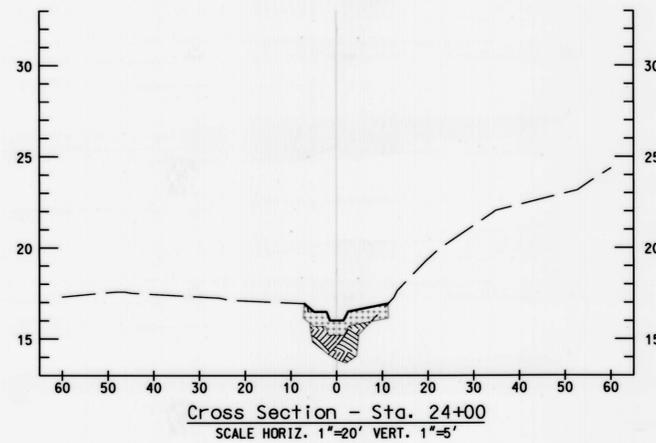
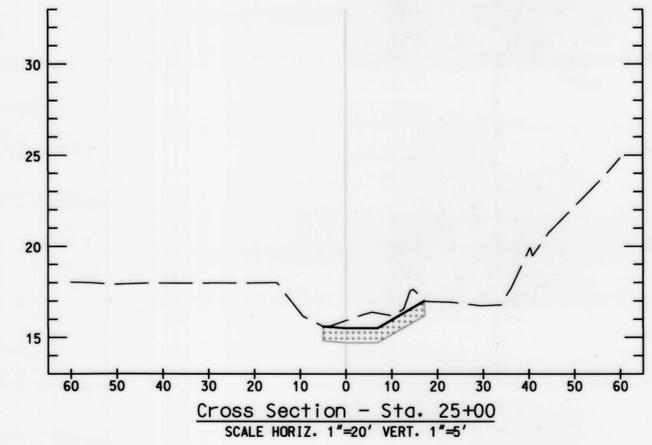
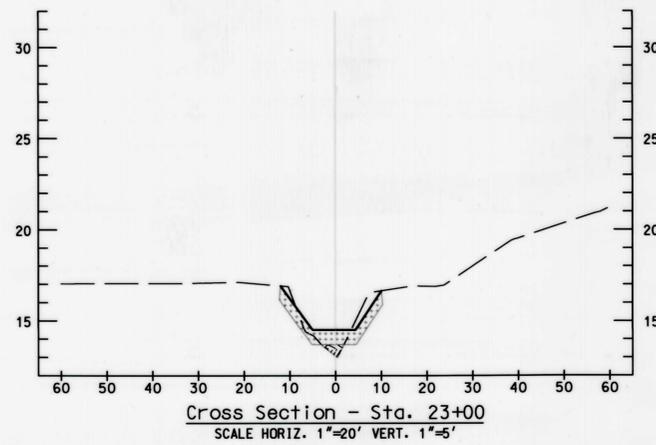
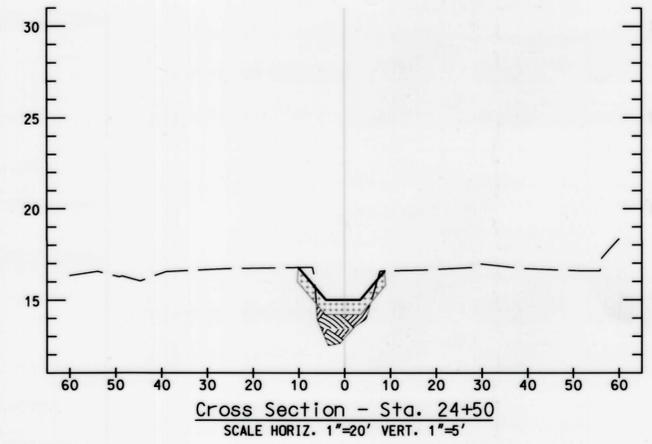
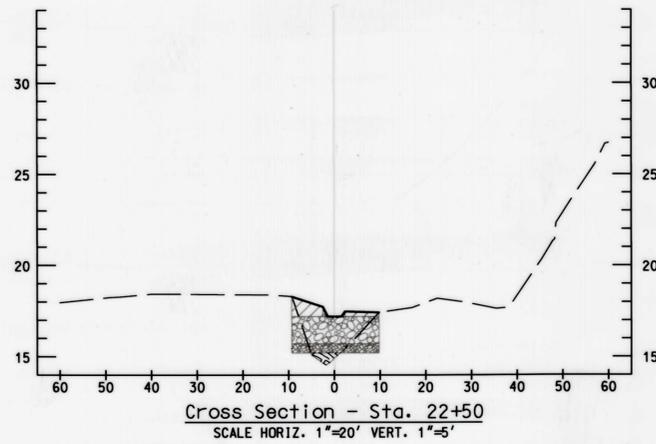


ADC MAP : 4583 GRID: F4

TAX MAP : 0065/0069

HCG BILLING ID No.:

HCG DWG ID No.: **160613**

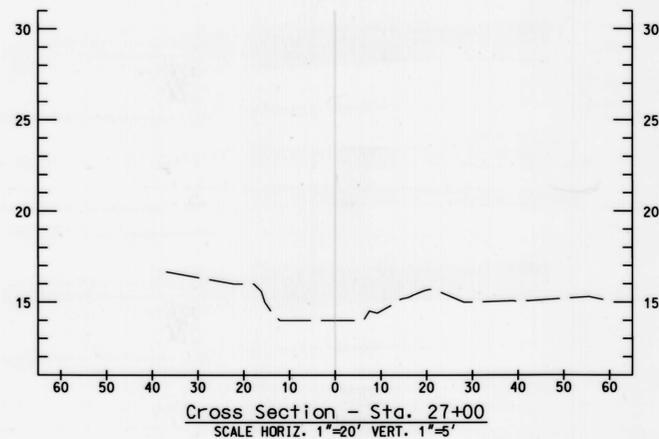
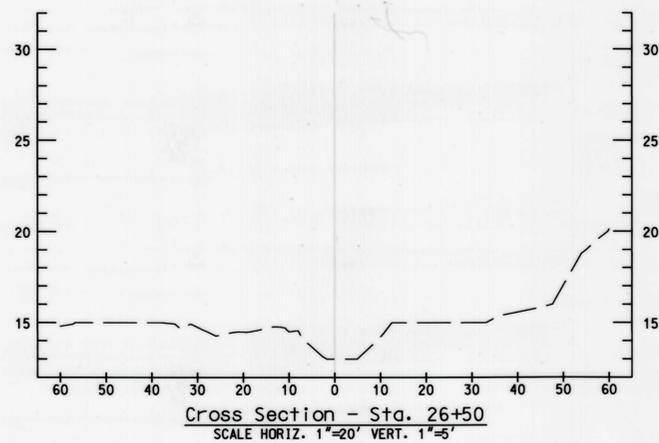
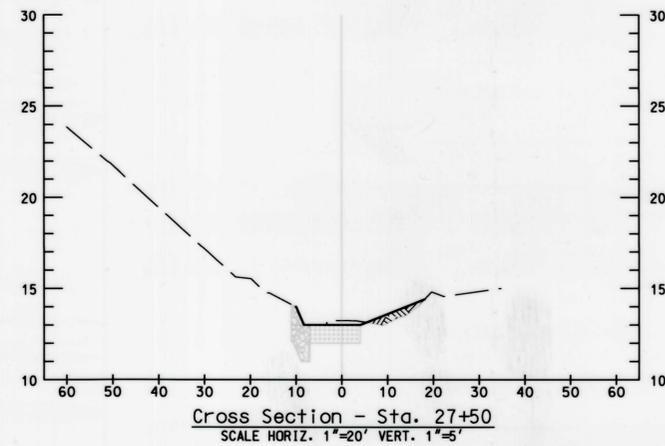
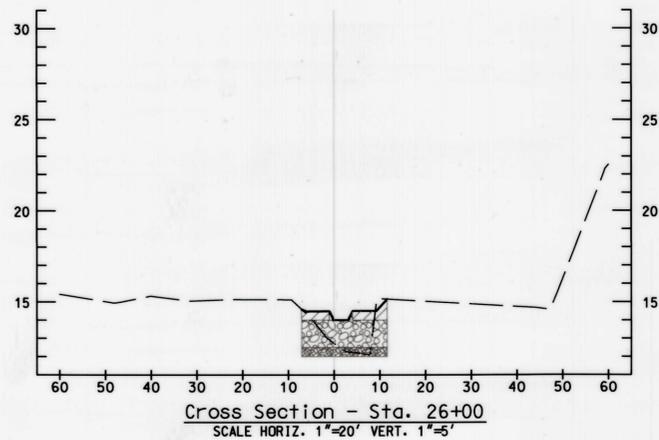


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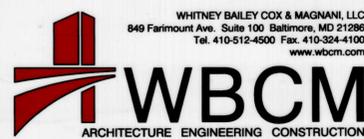
Revisions	HARFORD COUNTY, MARYLAND	
	STREAM RESTORATION FOSTER BRANCH	
	CROSS SECTIONS (HC-08 OF 09)	
	Drawn By : _____ CY	Contract No : _____
Designed By : _____ MH	Scale : 1" = 20'	
Reviewed By : _____ BN	Sheet 34 of 35	
	Date : JAN. 2016	





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Revisions	HARFORD COUNTY, MARYLAND	
	STREAM RESTORATION FOSTER BRANCH	
	CROSS SECTIONS (HC-09 OF 09)	
	Drawn By : _____ CY	Contract No : _____
	Designed By : _____ MH	Scale : 1" = 20'
	Reviewed By : _____ BN	Sheet 35 of 35
		Date : JAN. 2016