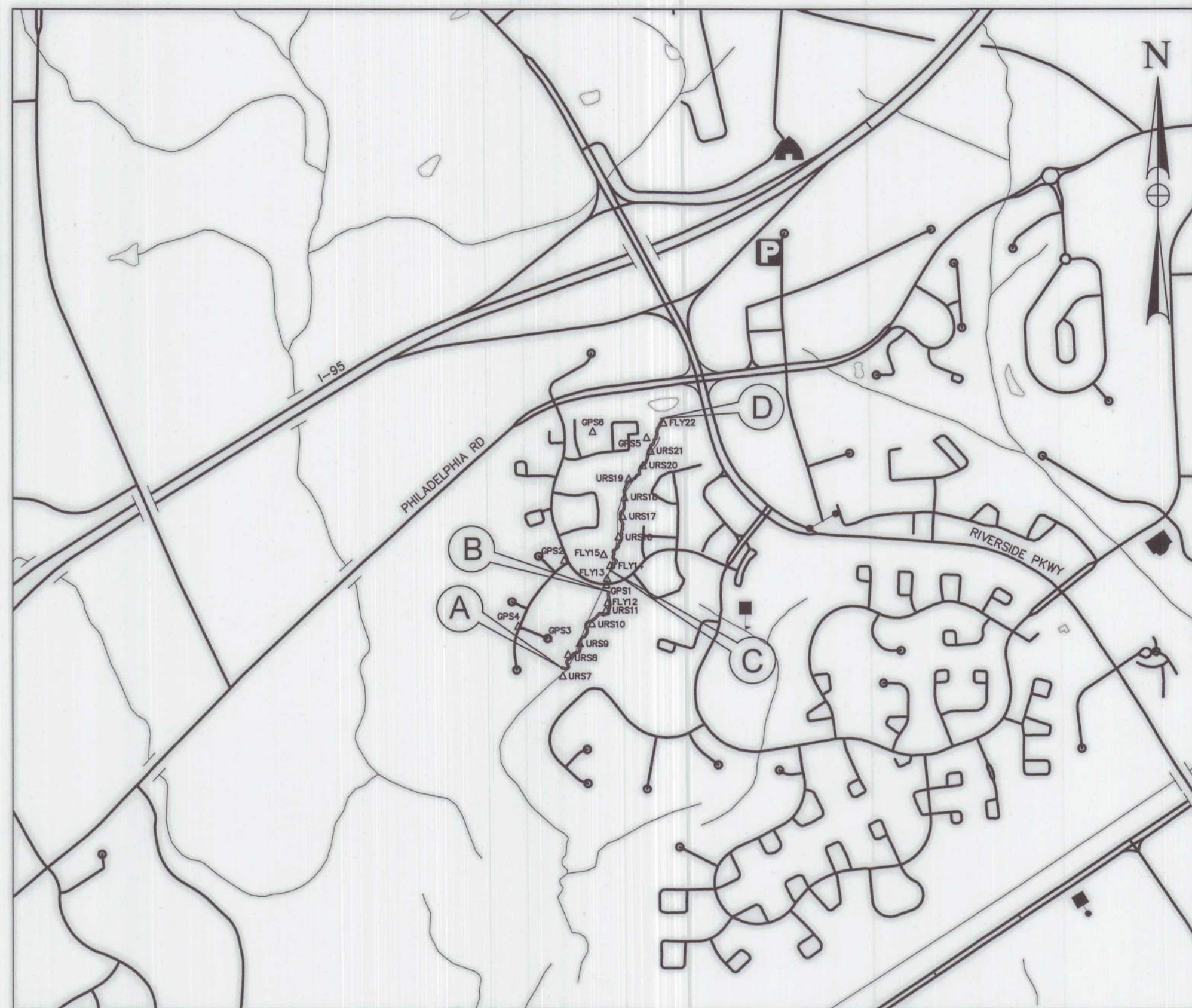


HARFORD COUNTY
MARYLAND
DEPARTMENT OF PUBLIC WORKS
BID NO. 25-295
DECLARATION RUN STREAM RESTORATION
FROM STA.1+20 TO 10+75 AND STA. 36+40 TO 52+28

INDEX OF SHEETS

SHEET NO.	SHEET DESIGNATION	DESCRIPTION
1	T-01	TITLE SHEET
2-4	G-01 TO G-03	STREAM GEOMETRY PLANS
5-9	SR-01 TO SR-05	STREAM PLANS
10-12	PR-01 TO PR-03	STREAM PROFILES
13-14	PR-04 TO PR-05	STEP POOL STORM CONVEYANCE PROFILES
15	DA-01	DRAINAGE AREA MAP
16-20	TD-01 TO TD-05	DETAILS I, II, III, IV & V
21-25	ES-01 TO ES-05	EROSION AND SEDIMENT CONTROL PLANS
26	ES-06	EROSION & SEDIMENT CONTROL LEGEND & SEQUENCE OF CONSTRUCTION
27-29	ES-07 TO ES-08	EROSION & SEDIMENT CONTROL NOTES & DETAILS
30-34	LD-1 TO LD-05	PLANTING PLANS
35	LD-06	PLANTING NOTES & SCHEDULES
36-47	CS-01 TO CS-12	CROSS SECTIONS



LOCATION MAP

SCALE 1" = 1000'

FIELD VERIFICATION CERTIFICATION

"I HEREBY CERTIFY THAT I AND OTHER AECOM STAFF COMPLETED A FIELD VERIFICATION TO THE INFORMATION SHOWN ON THE PLANS ON VARIOUS DATES WITH THE LAST DATE OF 2/25/25. THE INFORMATION SHOWN ON THE PLANS IS IN AGREEMENT WITH THE ACTUAL FIELD CONDITIONS."

JOHN J. WATSON

PRINTED NAME: John J. Watson DATE: 4/29/2025
SIGNATURE: [Signature] DATE: 4/29/2025

DEVELOPER'S / OWNER'S CERTIFICATION

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

SIGNATURE: [Signature] DATE: 5-5-25

PRINT NAME: JOSEPH J. SIEMASZKO
DIRECTOR 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 1994 MARYLAND STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL."

SIGNATURE: [Signature] DATE: 4/29/2025

PRINT NAME: JOHN J. WATSON

P.E. NO. 34691

GRADING PERMIT #

NO WORK SHALL START UNTIL ALL REQUIRED RESOURCES ARE ON SITE.

UPDATE

EROSION AND SEDIMENT CONTROL
PLAN# 59846

TECHNICAL REVIEW BY:

HARFORD SOIL CONSERVATION DISTRICT

APPROVED BY:

HARFORD SOIL CONSERVATION DISTRICT



PROFESSIONAL CERTIFICATION
"I HEREBY CERTIFY THAT 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. 34691, EXPIRATION DATE: 7/10/2025"

AECOM

REVISIONS

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION

TITLE SHEET

DRAWN BY : SAB

DESIGNED BY : BWA

REVIEWED BY : JJW

CONTRACT NO : 97040

SCALE : AS SHOWN

SHEET 1 OF 47

DATE : MARCH 2025

SCALE : 1 inch

GENERAL NOTES

1. SPECIFICATIONS: ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH MARYLAND STATE HIGHWAY ADMINISTRATIONS "SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS" DATED JULY 2019, AND THE MOST RECENT REVISIONS THEREOF AND ADDITIONS THERETO.

THE GENERAL PROVISIONS FOR THIS PROJECT ARE THOSE INCLUDED IN THE "HARFORD COUNTY ROAD CODE" GENERAL PROVISIONS COUNTY FUNDED PROJECTS, SECTIONS 100-110.

2. CONTRACTOR SHALL CONTACT HARFORD COUNTY BUREAU OF CONSTRUCTION MANAGEMENT AT 410-638-3217, 48 HOURS IN ADVANCE OF CONSTRUCTION.

3. DECLARATION RUN IS A USE I WATERWAY AND SUBJECT TO A STREAM CLOSURE MARCH 1 THROUGH JUNE 15, INCLUSIVE.

4. 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.

5. UTILITY RELOCATIONS: UTILITY RELOCATIONS MADE NECESSARY BY THE PROPOSED WORK WILL BE ACCOMPLISHED BY THE UTILITY OWNERS AT NO COST TO THE CONTRACTOR. WHEN SUCH WORK IS NECESSARY, THE CONTRACTOR SHALL NOTIFY APPROPRIATE PERSONNEL AS FOLLOWS:

CONTACT "MISS UTILITY" PHONE 1-800-257-7777, 48 HOURS IN ADVANCE FOR LOCATION OF ANY UTILITIES.

CONTACT HARFORD COUNTY D.P.W. DIVISION OF WATER AND SEWERS PHONE NO. 1-410-638-3289 OR 1-410-612-1612, 72 HOURS IN ADVANCE OF BEGINNING ANY CONSTRUCTION.

CONTACT BALTIMORE GAS & ELECTRIC CO. - PHONE NO. 1-410-291-3119, 48 HOURS IN ADVANCE OF BEGINNING ANY CONSTRUCTION.

6. STANDARD DETAILS: REFERENCE MADE TO STANDARDS ARE TAKEN FROM THE HARFORD COUNTY ROAD CODE "SPECIFICATIONS FOR CONSTRUCTION AND MATERIAL, STANDARD DETAILS FOR DESIGN AND CONSTRUCTION" 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.

7. 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.

8. SOIL CONSERVATION: THE CONTRACTOR SHALL NOT DISTURB THE EXISTING VEGETATION OUTSIDE THE LIMITS OF DISTURBANCE. MINIMAL STOCKPILING AND STAGING WILL BE PROVIDED ON SITE, THE CONTRACTOR MUST SECURE AN OFF-SITE AREA AND ANY NECESSARY PERMITS. SOIL STABILIZATION WILL CONFORM TO 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. THE CONTRACTOR WILL OBTAIN APPROVAL OF THE HARFORD COUNTY SOIL CONSERVATION DISTRICT FOR HIS PLANS IN CONTROLLING SEDIMENT EROSION FOR THE BORROW AREA AND DISPOSING OF ANY WASTE EXCAVATION.

9. 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.

10. SURVEYS: COORDINATES SHOWN ON THESE PLANS ARE BASED ON THE MARYLAND COORDINATE SYSTEM (NAD83/2011) AND WERE ESTABLISHED USING A GPS SITE CALIBRATION THROUGH THE FOLLOWING NATIONAL GEODETIC SURVEY (NGS) CONTROL STATIONS:

STATION	VERT	HARFORD AZ MK	ELEV.
JV0387	VERT	P173	179.44
JV6223	VERT	P173	42.75
JV6732	HOR VERT	CRANBERRY	72.27
		N 664,055.707 E 1,538,083.954	
JV6794	HOR	LAUREL	N. 658,115.852 E. 1,511,439.792
JV7320	HOR	RIVERSIDE 2	N. 660,367.915 E. 1,524,623.888
JV0458	VERT	P64	41.50
JV6275	VERT	OLD POST	90.76
JV6806	HOR	McCOMAS AZ MK	N. 647,729.827 E. 1,512,861.166

MAXIMUM HORIZONTAL RESIDUAL: 0.059'

MAXIMUM VERTICAL RESIDUAL: 0.058'

THREE-DIMENSIONAL RESIDUAL: 0.072'

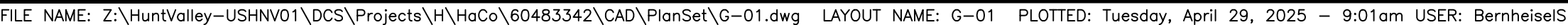
LOCAL ON-SITE CONTROL STATIONS:

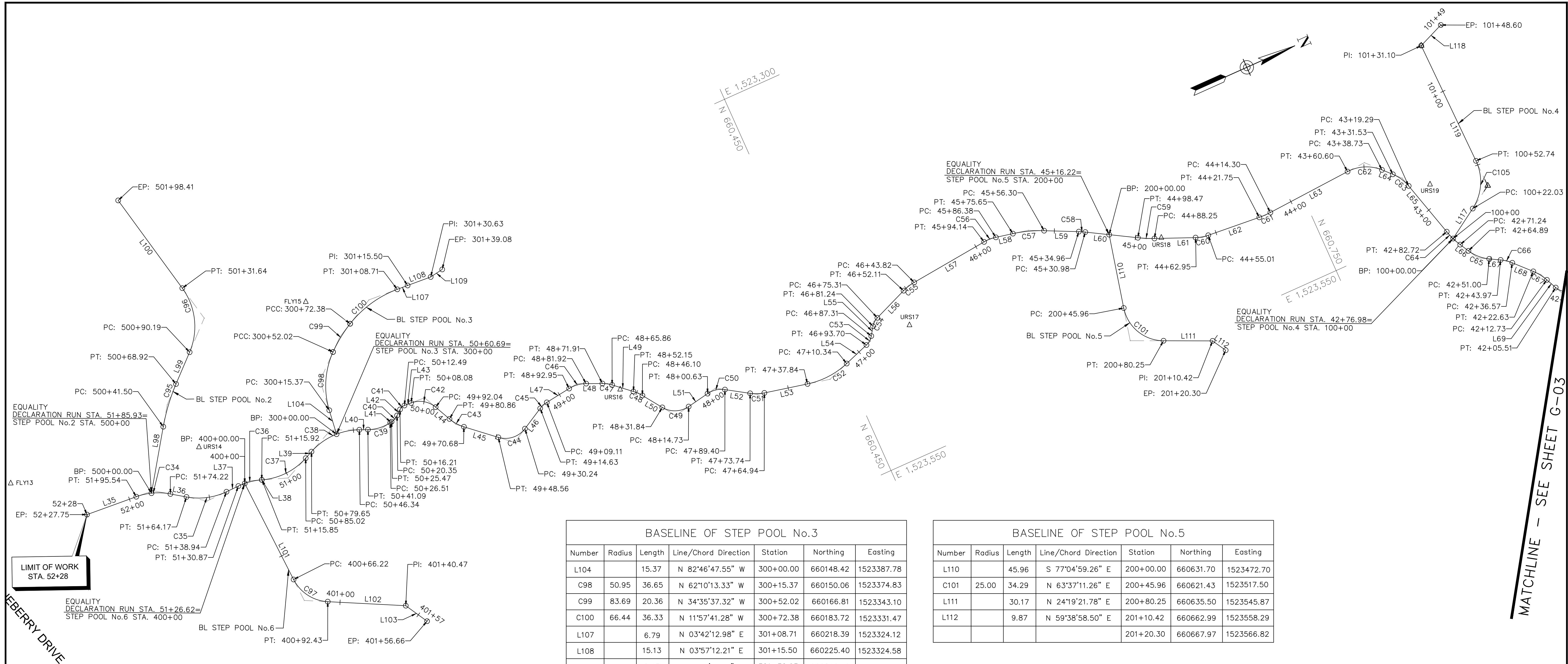
STATION	NORTHING	EASTING	ELEV.	DESC.
GPS1	659899.15700	1523330.99500	62.70	REBAR & CAP
GPS2	660111.59255	1522962.06981	86.80	REBAR & CAP
GPS3	659432.78000	1522823.76000	60.99	REBAR & CAP
GPS4	659539.36118	1522562.82226	68.89	REBAR & CAP
GPS5	661185.83800	1523682.74400	93.88	REBAR & CAP
GPS6	661239.42667	1523211.46860	125.53	REBAR & CAP

COMBINED SCALE FACTOR: (GPS1 - GRID TO GROUND) 0.99999311

VERTICAL DATUM: NAVD88 (GEOID 12B)

11. THE CONTRACTORS ATTENTION IS DIRECTED TO THE EXISTENCE OF PROPERTY MARKERS, PIPES, MONUMENTS, 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 MARYLAND LICENSED LAND SURVEYOR AT THE CONTRACTORS EXPENSE.





LEBBERRY DRIVE

LIMIT OF WORK
STA. 52+28

BASELINE OF STEP POOL No.2						
Number	Radius	Length	Line/Chord Direction	Station	Northing	Easting
L98		41.50	N 55°45'16.54" W	500+00.00	660029.45	1523376.55
C95	120.00	27.42	N 49°12'29.52" W	500+41.50	660052.81	1523342.24
L99		21.27	N 42°39'42.50" W	500+68.92	660070.69	1523321.52
C96	40.00	41.44	N 72°20'34.92" W	500+90.19	660086.33	1523307.11
L100		66.77	S 77°58'32.67" W	501+31.64	660098.34	1523269.36
				501+98.41	660084.43	1523204.06

BASELINE OF STEP POOL No.3						
Number	Radius	Length	Line/Chord Direction	Station	Northing	Easting
L104		15.37	N 82°46'47.55" W	300+00.00	660148.42	1523387.78
C98	50.95	36.65	N 62°10'13.33" W	300+15.37	660150.06	1523374.83
C99	83.69	20.36	N 34°35'37.32" W	300+52.02	660166.81	1523343.10
C100	66.44	36.33	N 11°57'41.28" W	300+72.38	660183.72	1523331.47
L107		6.79	N 03°42'12.98" E	301+08.71	660218.39	1523324.12
L108		15.13	N 03°57'12.21" E	301+15.50	660225.40	1523324.58
L109		8.45	N 08°58'15.08" W	301+30.63	660240.49	1523325.62
				301+39.08	660248.84	1523324.30

BASELINE OF STEP POOL No.4						
Number	Radius	Length	Line/Chord Direction	Station	Northing	Easting
L117		22.03	N 32°36'34.81" W	100+00.00	660823.64	1523561.47
C105	30.00	30.71	N 61°55'58.94" W	100+22.03	660842.20	1523549.60
L118		17.50	N 88°44'36.93" W	101+31.10	660854.31	1523445.33
L119		78.36	S 22°22'54.02" W	100+52.74	660856.03	1523523.67
				101+48.60	660870.49	1523438.67

BASELINE OF STEP POOL No.5						
Number	Radius	Length	Line/Chord Direction	Station	Northing	Easting
L110		45.96	S 77°04'59.26" E	200+00.00	660631.70	1523472.70
C101	25.00	34.29	N 63°37'11.26" E	200+45.96	660621.43	1523517.50
L111		30.17	N 24°19'21.78" E	200+80.25	660635.50	1523545.87
L112		9.87	N 59°38'58.50" E	201+10.42	660662.99	1523558.29
				201+20.30	660667.97	1523566.82

BASELINE OF STEP POOL No.6						
Number	Radius	Length	Line/Chord Direction	Station	Northing	Easting
L101		66.22	N 87°11'45.18" E	400+00.00	660084.23	1523394.55
C97	25.00	26.21	N 57°09'26.19" E	400+66.22	660087.47	1523460.69
L102		48.03	N 27°07'07.21" E	400+92.43	660101.05	1523481.72
L103		16.20	N 60°09'51.25" E	401+40.47	660143.80	1523503.62
				401+56.66	660151.86	1523517.67

NOTES:
1. FOR BASELINE OF DECLARATION RUN – UPPER SECTION
CURVE AND LINE DATA, SEE SHEET G-03.



PROFESSIONAL CERTIFICATION
"I HEREBY CERTIFY THAT 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. 34691
EXPIRATION DATE: 7/10/2025



REVISIONS

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION

GEOMETRY PLAN

DRAWN BY : SAB

DESIGNED BY : BWA

REVIEWED BY : JJW

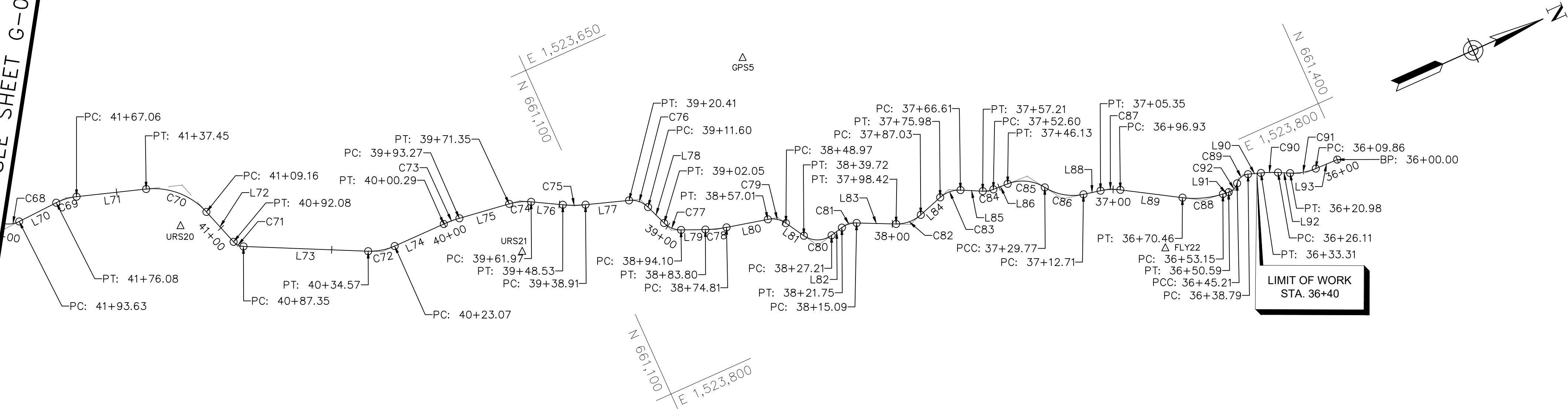
CONTRACT NO : 97040

SCALE : 1"=30'

SHEET 3 OF 47

DATE : MARCH 2025

MATCHLINE - SEE SHEET G-02



BASELINE OF DECLARATION RUN – UPPER SECTION						
Number	Radius	Length	Line/Chord Direction	Station	Northing	Easting
L35		30.20	S 04°15'49.85" W	52+27.75	659987.93	1523372.30
C34	40.00	21.33	S 19°32'09.23" W	51+95.54	660020.05	1523374.69
L36		10.05	S 34°48'28.61" W	51+74.22	660039.91	1523381.74
C35	39.98	25.23	S 16°43'58.15" W	51+64.17	660048.16	1523387.47
L37		8.08	S 01°20'32.31" E	51+38.94	660071.92	1523394.62
C36	40.15	14.95	S 09°19'18.21" W	51+30.87	660079.99	1523394.43
L38		0.07	S 19°59'08.74" W	51+15.92	660094.65	1523396.83
C37	39.94	30.82	S 02°07'18.93" E	51+15.85	660094.72	1523396.86
L39		5.37	S 24°13'46.61" E	50+85.02	660124.77	1523395.75
C38	40.02	33.31	S 00°23'16.50" E	50+79.65	660129.66	1523393.54
L40		5.25	S 23°27'13.60" W	50+46.34	660162.02	1523393.32
C39	25.00	14.59	S6° 45' 23.07"W	50+41.10	660166.83	1523395.41
L41		1.03	S9° 57' 32.40"E	50+26.51	660181.12	1523397.10
C40	10.00	5.12	S24° 37' 36.88"E	50+25.47	660182.13	1523396.92
L42		4.15	S39° 17' 41.36"E	50+20.35	660186.74	1523394.81
C41	5.00	3.71	S18° 01' 46.50"E	50+16.21	660189.95	1523392.19
L43		4.41	S3° 14' 08.36"W	50+12.49	660193.40	1523391.06
C42	15.00	16.04	S33° 52' 38.07"W	50+08.08	660197.80	1523391.31
L44		11.18	S64° 31' 07.78"W	49+92.04	660210.50	1523399.83
C43	25.00	10.18	S52° 51' 05.01"W	49+80.86	660215.31	1523409.92
L45		22.12	S41° 11' 02.24"W	49+70.68	660221.41	1523417.98
C44	15.00	18.32	S6° 11' 40.23"W	49+48.56	660238.06	1523432.55
L46		15.60	S28° 47' 41.77"E	49+30.24	660255.16	1523434.41
C45	15.00	5.52	S18° 15' 14.28"E	49+14.63	660268.84	1523426.89
L47		16.16	S7° 42' 46.80"E	49+09.11	660274.05	1523425.17

BASELINE OF DECLARATION RUN – UPPER SECTION						
Number	Radius	Length	Line/Chord Direction	Station	Northing	Easting
C46	20.00	11.03	S8° 04' 48.14"W	48+92.95	660290.07	1523423.00
L48		10.01	S23° 52' 23.08"W	48+81.92	660300.85	1523424.53
C47	20.00	6.05	S32° 32' 46.05"W	48+71.91	660310.00	1523428.58
L49		13.71	S41° 13' 09.03"W	48+65.86	660315.08	1523431.83
C48	25.00	6.05	S48° 08' 55.00"W	48+52.15	660325.40	1523440.86
L50		14.26	S55° 04' 40.97"W	48+46.10	660329.42	1523445.36
C49	15.00	17.11	S22° 23' 29.21"W	48+31.84	660337.59	1523457.05
L51		14.10	S10° 17' 42.55"E	48+14.73	660352.57	1523463.22
C50	15.00	11.23	S11° 08' 59.64"W	48+00.63	660366.43	1523460.70
L52		15.67	S32° 35' 41.82"W	47+89.40	660377.20	1523462.82
C51	25.00	8.79	S22° 31' 12.23"W	47+73.74	660390.39	1523471.26
L53		27.10	S12° 26' 42.64"W	47+64.94	660398.47	1523474.61
C52	50.00	27.50	S3° 18' 41.43"E	47+37.84	660424.94	1523480.45
L54		16.64	S19° 04' 05.51"E	47+10.34	660452.05	1523478.88
C53	10.00	6.40	S37° 23' 33.91"E	46+93.70	660467.77	1523473.45
L55		6.07	S55° 43' 02.32"E	46+87.31	660472.77	1523469.63
C54	10.00	5.93	S38° 43' 49.39"E	46+81.24	660476.19	1523464.61
L56		23.20	S21° 44' 36.46"E	46+75.31	660480.75	1523460.95
C55	30.00	8.29	S13° 49' 33.92"E	46+52.11	660502.29	1523452.36
L57		49.67	S5° 54' 31.37"E	46+43.82	660510.32	1523450.39
C56	25.00	7.77	S2° 59' 29.00"W	45+94.14	660559.73	1523445.27
L58		10.73	S11° 53' 29.37"W	45+86.38	660567.45	1523445.68
C57	80.00	19.35	S18° 49' 09.45"W	45+75.65	660577.95	1523447.89
L59		21.34	S25° 44' 49.52"W	45+56.30	660596.22	1523454.11
C58	50.00	3.98	S28° 01' 37.28"W	45+34.96	660615.44	1523463.38
L60		32.51	S30° 18' 25.05"W	45+30.98	660618.96	1523465.25
C59	80.00	10.22	S26° 38' 50.11"W	44+98.47	660647.02	1523481.66
L61		25.30	S22° 59' 15.17"W	44+88.25	660656.15	1523486.24
C60	25.00	7.94	S13° 53' 28.45"W	44+62.95	660679.44	1523496.12
L62		33.26	S4° 47' 41.73"W	44+55.01	660687.11	1523498.02
C61	50.00	7.45	S0° 31' 43.67"W	44+21.75	660720.26	1523500.80

BASELINE OF DECLARATION RUN – UPPER SECTION						
Number	Radius	Length	Line/Chord Direction	Station	Northing	Easting
L63		53.71	S3° 44' 14.39"E	44+14.30	660727.70	1523500.87
C62	25.00	21.87	S21° 19' 33.19"W	43+60.60	660781.29	1523497.37
L64		7.20	S46° 23' 20.77"W	43+38.73	660801.02	1523505.07
C63	25.00	12.23	S60° 24' 30.44"W	43+31.53	660805.99	1523510.28
L65		36.57	S74° 25' 40.12"W	43+19.29	660811.97	1523520.81
C64	50.00	11.48	S67° 51' 09.64"W	42+82.72	660821.79	1523556.05
L66		6.35	S61° 16' 39.15"W	42+71.24	660826.11	1523566.65
C65	25.00	13.89	S45° 21' 34.76"W	42+64.89	660829.16	1523572.22
L67		7.03	S29° 26' 30.36"W	42+51.00	660838.79	1523581.98
C66	25.00	7.41	S37° 55' 55.98"W	42+43.97	660844.91	1523585.43
L68		13.94	S46° 25' 21.61"W	42+36.57	660850.73	1523589.97
C67	30.00	9.90	S55° 52' 35.74"W	42+22.63	660860.34	1523600.07
L69		7.22	S65° 19' 49.88"W	42+12.73	660865.87	1523608.22
C68	10.00	11.88	S31° 17' 35.86"W	42+05.51	660868.88	1523614.78
L70		17.55	S2° 44' 38.17"E	41+93.63	660878.45	1523620.60
C69	25.00	9.02	S7° 35' 30.11"W	41+76.08	660895.98	1523619.76
L71		29.61	S17° 55' 38.39"W	41+67.06	660904.87	1523620.94
C70	30.00	28.29	S44° 56' 24.77"W	41+37.45	660933.04	1523630.06
L72		17.08	S71° 57' 11.15"W	41+09.16	660952.33	1523649.31
C71	5.95	4.73	S49° 09' 24.64"W	40+92.08	660957.62	1523665.55
L73		52.78	S26° 21' 38.13"W	40+87.35	660960.64	1523669.03
C72	25.00	11.50	S13° 10' 49.07"W	40+34.57	661007.93	1523692.47
L74		22.78	S0° 00' 00.00"E	40+23.07	661019.03	1523695.07
C73	50.00	7.01	S4° 01' 07.01"W	40+00.29	661041.81	1523695.07
L75		21.92	S8° 02' 14.03"W	39+93.27	661048.80	1523695.56
C74	25.00	9.37	S18° 46' 43.99"W	39+71.35	661070.51	1523698.63
L76		13.45	S29° 31' 13.96"W	39+61.97	661079.33	1523701.63
C75	50.00	9.62	S24° 00' 27.12"W	39+48.53	661091.03	1523708.25
L77		18.50	S18° 29' 40.29"W	39+38.91	661099.81	1523712.16
C76	10.00	8.81	S43° 44' 13.42"W	39+20.41	661117.35	1523718.03
L78		9.55	S68° 58' 46.55"W	39+11.60	661123.51	1523723.92

BASELINE OF DECLARATION RUN – UPPER SECTION						
Number	Radius	Length	Line/Chord Direction	Station	Northing	Easting
C77	10.00	7.95	S46° 11' 46.99"W	39+02.05	661126.94	1523732.83
L79		10.30	S23° 24' 47.42"W	38+94.10	661132.30	1523738.42
C78	50.00	8.99	S18° 15' 46.53"W	38+83.80	661141.75	1523742.52
L80		17.80	S13° 06' 45.63"W	38+74.81	661150.28	1523745.33
C79	10.00	8.04	S36° 08' 23.94"W	38+57.01	661167.62	1523749.37
L81		9.25	S59° 10' 02.24"W	38+48.97	661173.93	1523753.98
C80	10.00	12.51	S23° 20' 10.00"W	38+39.72	661178.68	1523761.93
L82		5.46	S12° 29' 42.25"E	38+27.21	661189.43	1523766.56
C81	10.00	6.66	S6° 34' 58.99"W	38+21.75	661194.75	1523765.38
L83		16.68	S25° 39' 40.22"W	38+15.09	661201.25	1523766.13
C82	15.00	11.39	S3° 54' 24.13"W	37+98.42	661216.28	1523773.35
L84		11.05	S17° 50' 51.95"E	37+87.03	661227.37	1523774.11
C83	12.00	9.36	S4° 30' 30.08"W	37+75.98	661237.89	1523770.72
L85		9.40	S26° 51' 52.12"W	37+66.61	661246.99	1523771.44
C84	11.00	4.61	S14° 51' 27.69"W	37+57.21	661255.38	1523775.69
L86		6.47	S2° 51' 03.26"W	37+52.60	661259.80	1523776.86
C85	17.28	16.36	S29° 40' 30.42"W	37+46.13	661266.27	1523777.19
C86	22.00	17.06	S34° 17' 15.32"W	37+29.77	661279.97	1523784.99
L88		7.36	S12° 04' 33.05"W	37+12.71	661293.71	1523794.36
C87	25.00	8.42	S21° 43' 14.99"W	37+05.35	661300.91	1523795.90
L89		26.47	S31° 21' 56.93"W	36+96.93	661308.69	1523799.00
C88	40.00	17.31	S18° 58' 16.17"W	36+70.46	661331.29	1523812.78
L91		2.56	S6° 34' 35.40"W	36+53.15	661347.53	1523818.36
C92	5.40	5.38	S21° 58' 45.44"E	36+50.59	661350.08	1523818.66
C89	5.31	6.42	S15° 55' 06.20"E	36+45.21	661354.86	1523816.73
L90		5.48	S18° 41' 53.89"W	36+38.79	661360.67	1523815.07
C90	50.00	7.19	S22° 49' 12.19"W	36+33.31	661365.86	1523816.83
L92		5.14	S26° 56' 30.49"W	36+26.11	661372.49	1523819.62
C91	25.00	11.12	S14° 12' 12.76"W	36+20.98	661377.07	1523821.94
L93		9.86	S1° 27' 55.03"W	36+09.86	661387.75	1523824.65
				36+00.00	661397.61	1523824.90

EG 263-2019; SWM 97049

G-03



PROFESSIONAL CERTIFICATION
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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. 34691
EXPIRATION DATE: 7/10/2025"

AECOM

REVISIONS

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION
GEOMETRY PLAN

DRAWN BY : SAB

DESIGNED BY : BWA

REVIEWED BY : JJW

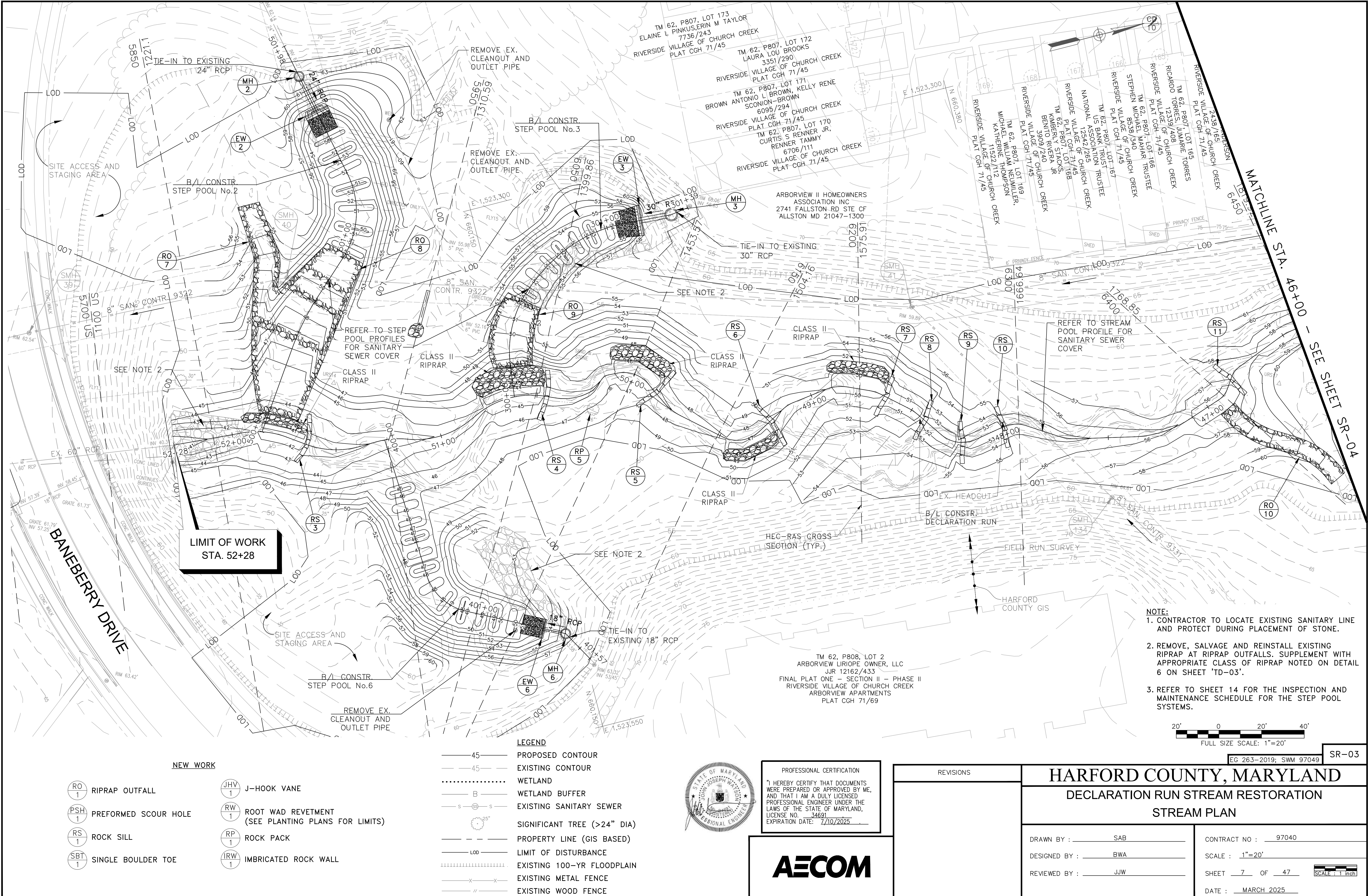
CONTRACT NO : 97040

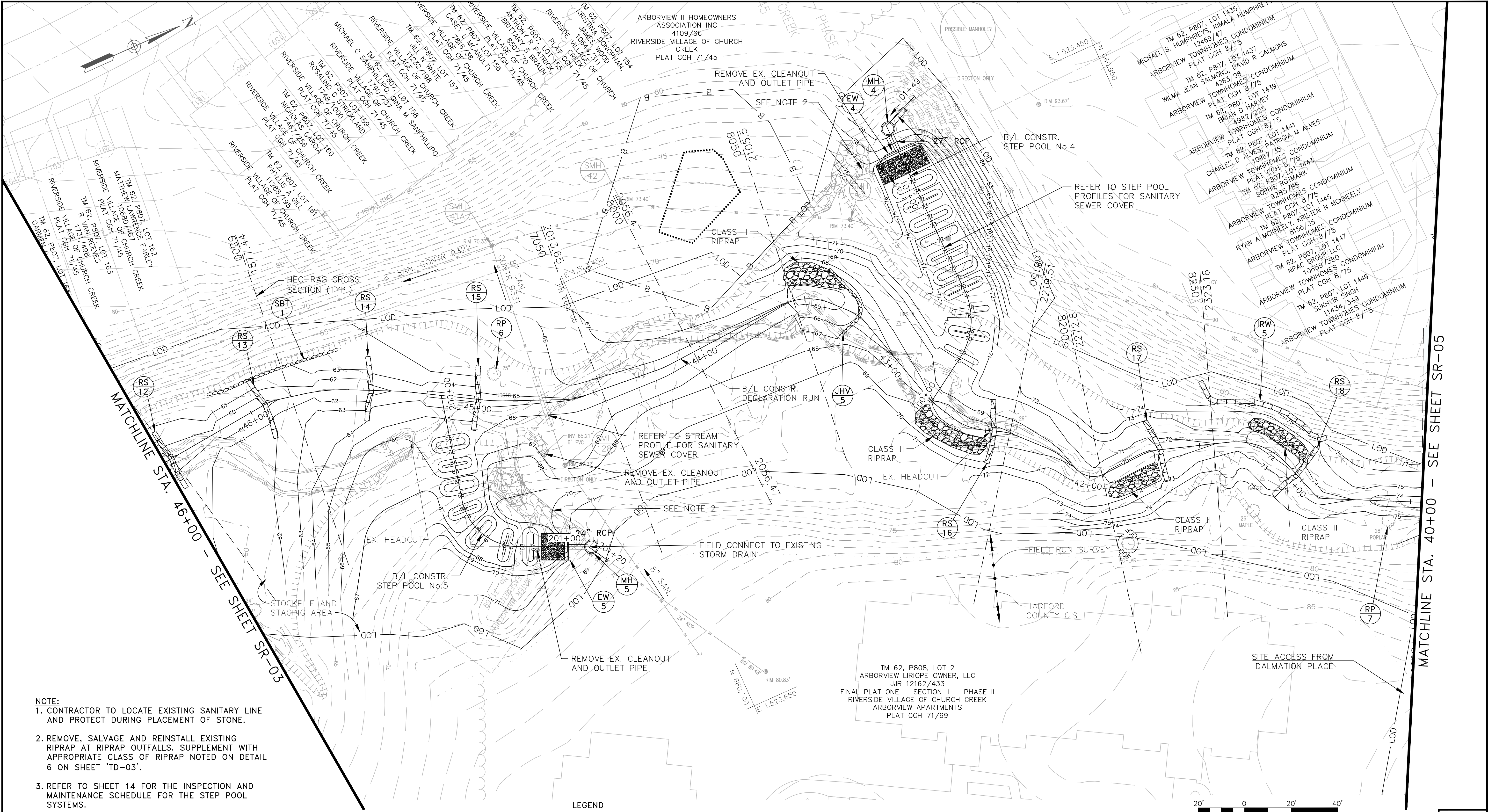
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SHEET 4 OF



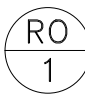
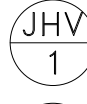
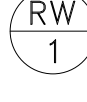
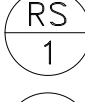
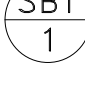
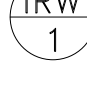






- NOTE:
1. CONTRACTOR TO LOCATE EXISTING SANITARY LINE AND PROTECT DURING PLACEMENT OF STONE.
 2. REMOVE, SALVAGE AND REINSTALL EXISTING RIPRAP AT RIPRAP OUTFALLS. SUPPLEMENT WITH APPROPRIATE CLASS OF RIPRAP NOTED ON DETAIL 6 ON SHEET 'TD-03'.
 3. REFER TO SHEET 14 FOR THE INSPECTION AND MAINTENANCE SCHEDULE FOR THE STEP POOL SYSTEMS.

NEW WORK

- | | | | | | |
|---|-------|----------------------|---|-------|---|
|  | RO 1 | RIPRAP OUTFALL |  | JHV 1 | J-HOOK VANE |
|  | PSH 1 | PREFORMED SCOUR HOLE |  | RW 1 | ROOT WAD REVETMENT
(SEE PLANTING PLANS FOR LIMITS) |
|  | RS 1 | ROCK SILL |  | RP 1 | ROCK PACK |
|  | SBT 1 | SINGLE BOULDER TOE |  | IRW 1 | IMBRICATED ROCK WALL |

- LEGEND
- | | | |
|---|-----|-----------------------------|
|  | 45 | PROPOSED CONTOUR |
|  | 45 | EXISTING CONTOUR |
|  | | WETLAND |
|  | B | WETLAND BUFFER |
|  | S | EXISTING SANITARY SEWER |
|  | 25" | SIGNIFICANT TREE (>24" DIA) |
|  | | PROPERTY LINE (GIS BASED) |
|  | LOD | LIMIT OF DISTURBANCE |
|  | | EXISTING 100-YR FLOODPLAIN |
|  | X-X | EXISTING METAL FENCE |
|  | // | EXISTING WOOD FENCE |



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AECOM

REVISIONS

HARFORD COUNTY, MARYLAND
DECLARATION RUN STREAM RESTORATION
STREAM PLAN

DRAWN BY : SAB
DESIGNED BY : BWA
REVIEWED BY : JJW

CONTRACT NO : 97040

SCALE : 1"=20'

SHEET 8 OF 47

DATE : MARCH 2025

MATCHLINE STA. 40+00 - SEE SHEET SR-05

SR-04

MATCHLINE STA. 40+00 - SEE SHEET SR-04

2421.44
8350

SITE ACCESS FROM DALMATION PLACE

FIELD RUN SURVEY

HARFORD COUNTY GIS

CLASS II RIPRAP
B/L CONSTR. DECLARATION RUN

MEET EXISTING RIPRAP

SEE NOTE 2
PLACE CLASS 2 RIPRAP TO MEET EXISTING RIPRAP

APPROXIMATE LIMIT OF WORK
STA. 36+40±

EXISTING SHA STORMWATER
MANAGEMENT POND
H 805-501-471
FAP 1X95-5(62)80

20' 0 20' 40'
FULL SIZE SCALE: 1"=20'

- NOTE:
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 3. REFER TO SHEET 14 FOR THE INSPECTION AND MAINTENANCE SCHEDULE FOR THE STEP POOL SYSTEMS.

TM 62, P808, LOT 2
ARBORVIEW LIRIOPE OWNER, LLC
JUR 12162/433
FINAL PLAT ONE - SECTION II - PHASE II
RIVERSIDE VILLAGE OF CHURCH CREEK
ARBORVIEW APARTMENTS
PLAT CGH 71/69

LEGEND

- 45— PROPOSED CONTOUR
- - -45- - - EXISTING CONTOUR
- WETLAND
- B — WETLAND BUFFER
- S — S — EXISTING SANITARY SEWER
- 25" SIGNIFICANT TREE (>24" DIA)
- - - - - PROPERTY LINE (GIS BASED)
- LOD — LIMIT OF DISTURBANCE
- ||||| EXISTING 100-YR FLOODPLAIN
- X — X — EXISTING METAL FENCE
- // — EXISTING WOOD FENCE

NEW WORK

- (RO 1) RIPRAP OUTFALL
- (PSH 1) PREFORMED SCOUR HOLE
- (RS 1) ROCK SILL
- (SBT 1) SINGLE BOULDER TOE
- (JHV 1) J-HOOK VANE
- (RW 1) ROOT WAD REVETMENT (SEE PLANTING PLANS FOR LIMITS)
- (RP 1) ROCK PACK
- (IRW 1) IMBRICATED ROCK WALL



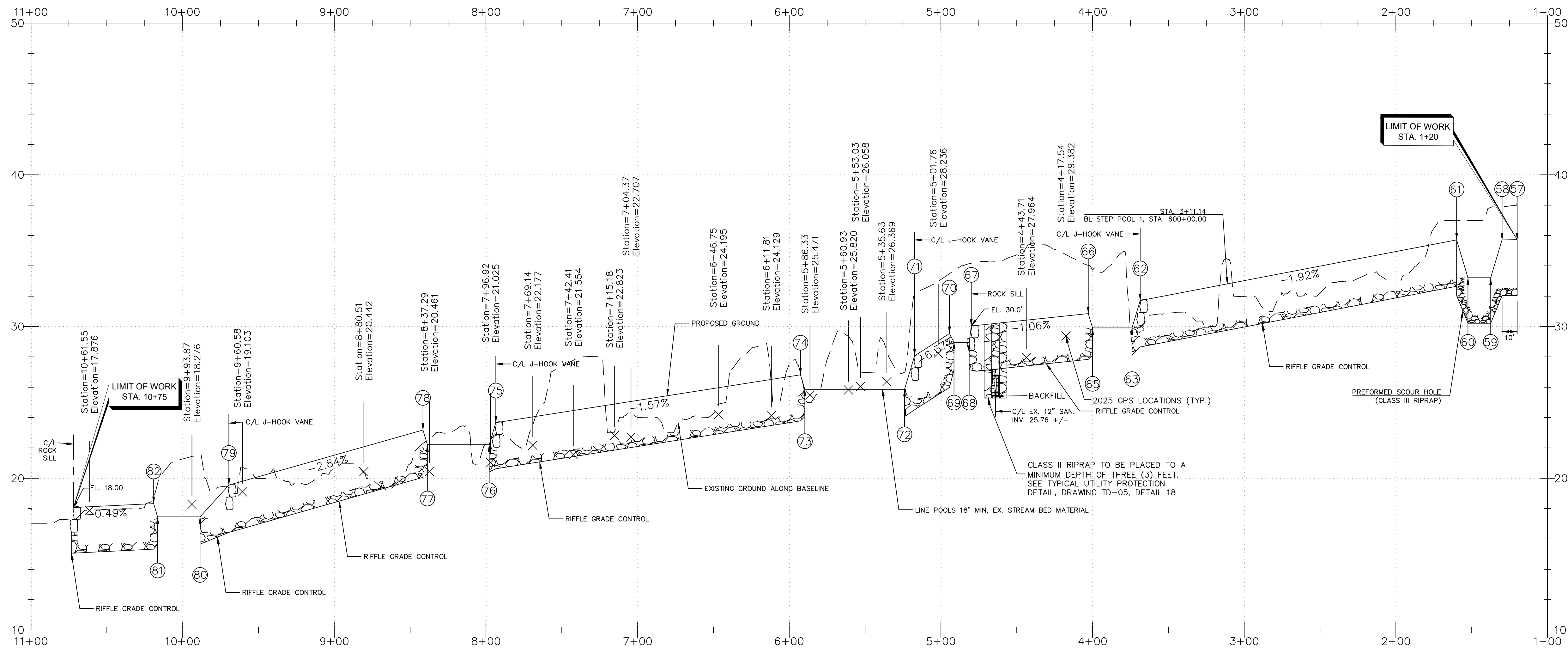
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EXPIRATION DATE: 7/10/2025

AECOM

REVISIONS

HARFORD COUNTY, MARYLAND
DECLARATION RUN STREAM RESTORATION
STREAM PLAN

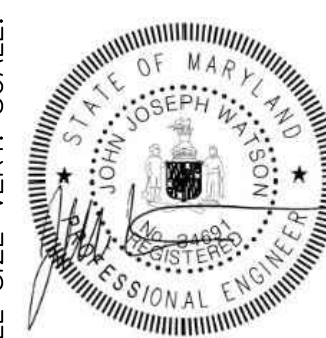
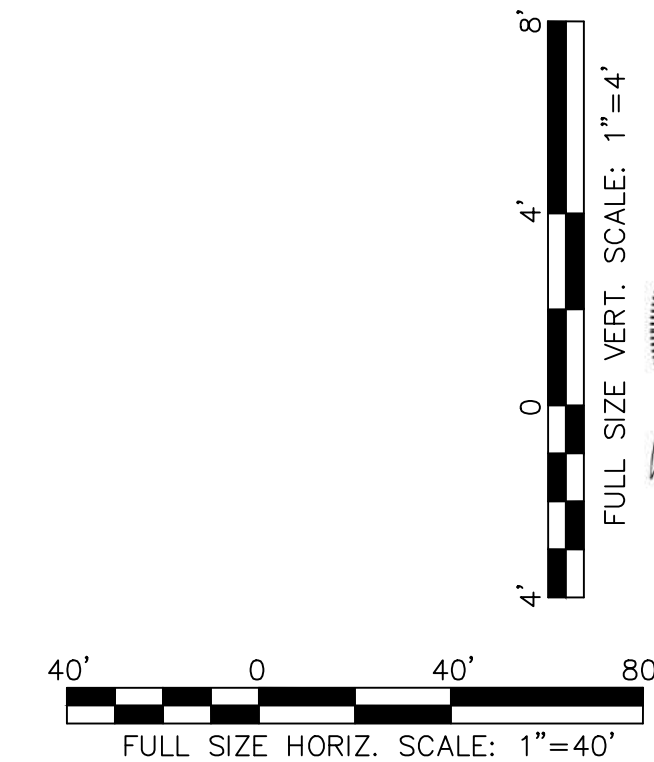
DRAWN BY : SAB
DESIGNED BY : BWA
REVIEWED BY : JJW
CONTRACT NO : 97040
SCALE : 1"=20'
SHEET 9 OF 47
DATE : MARCH 2025



LOWER DECLARATION RUN PROFILE

PVI No.	Sta.	Elev.
57	1+20.00	35.71
58	1+30.69	35.71
59	1+37.46	33.22
60	1+52.49	33.22
61	1+59.59	35.71
62	3+68.60	31.71
63	3+74.00	29.91
65	4+00.00	29.91
66	4+02.84	30.85
67	4+79.98	30.04
68	4+81.36	28.96
69	4+91.36	28.96
70	4+94.36	29.54
71	5+17.37	28.07
72	5+24.00	25.86
73	5+89.75	25.86
74	5+92.62	26.82
75	7+93.51	23.66
76	7+97.86	22.21
77	8+38.64	22.21
78	8+41.54	23.18
79	9+69.53	19.55
80	9+88.53	17.46
81	10+16.54	17.46
82	10+19.16	18.33

NOTE:
1. CONTRACTOR TO LOCATE EXISTING SANITARY LINE AND PROTECT DURING PLACEMENT OF STONE.



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AECOM

REVISIONS

HARFORD COUNTY, MARYLAND
DECLARATION RUN STREAM RESTORATION
STREAM PROFILE

DRAWN BY : SAB

DESIGNED BY : BWA

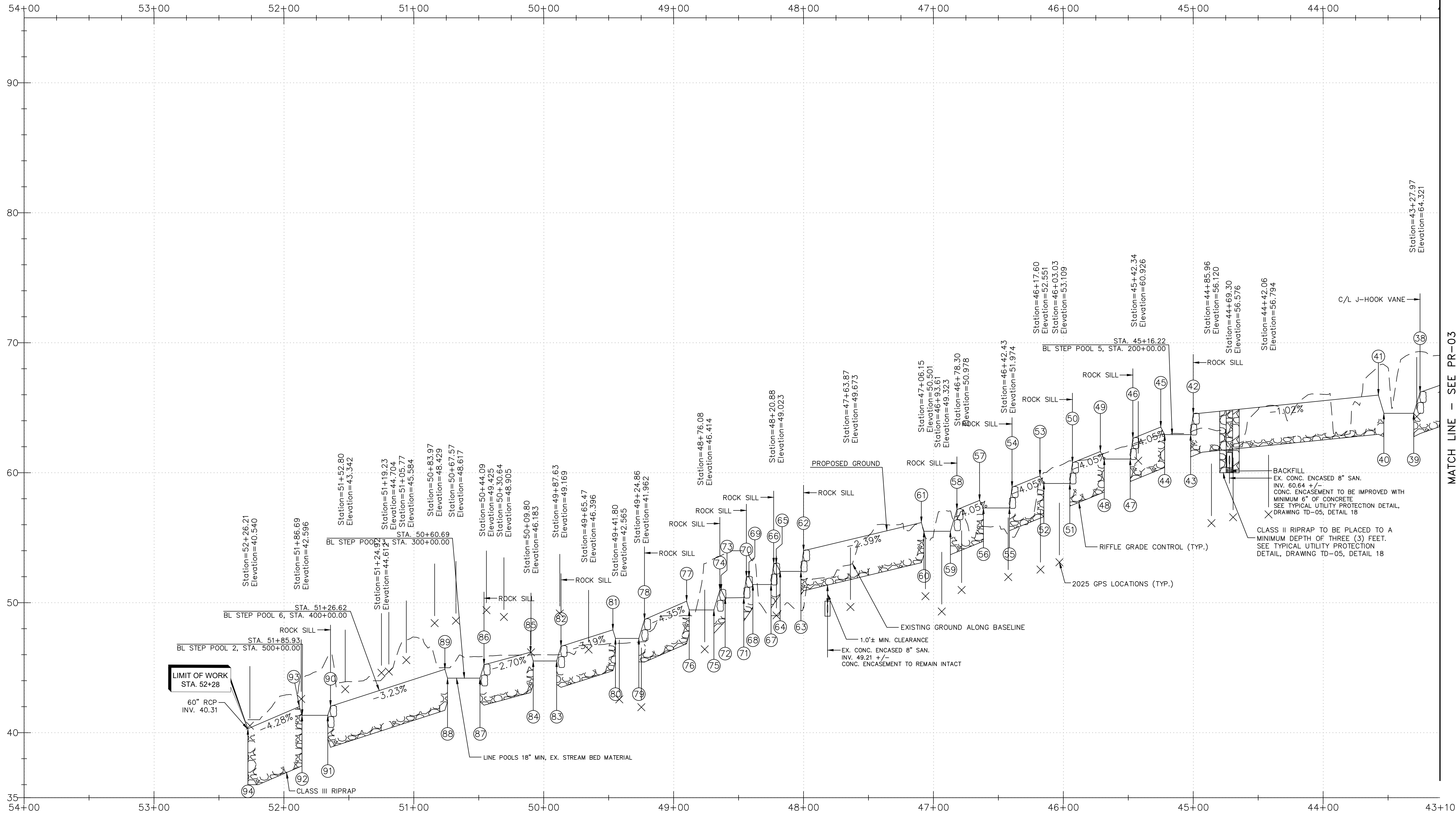
REVIEWED BY : JJW

CONTRACT NO : 97040

SCALE : 1"=40'

SHEET 10 OF 47

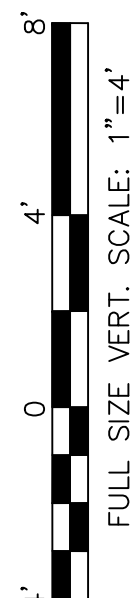
DATE : MARCH 2025



UPPER DECLARATION RUN PROFILE

NOTE:

- CONTRACTOR TO LOCATE EXISTING SANITARY LINE AND PROTECT DURING PLACEMENT OF STONE.
- 2025 GPS LOCATIONS SHOW APPROXIMATE ELEVATIONS AND MUST BE NOT BE CONSIDERED TOPOGRAPHIC SURVEY OF ACTUAL ELEVATIONS. CONTRACTOR SHALL FIELD VERIFY EXISTING SURFACE ELEVATIONS.



PROFESSIONAL CERTIFICATION
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AECOM

REVISIONS

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION
STREAM PROFILE

DRAWN BY : SAB
DESIGNED BY : BWA
REVIEWED BY : JJW

CONTRACT NO : 97040

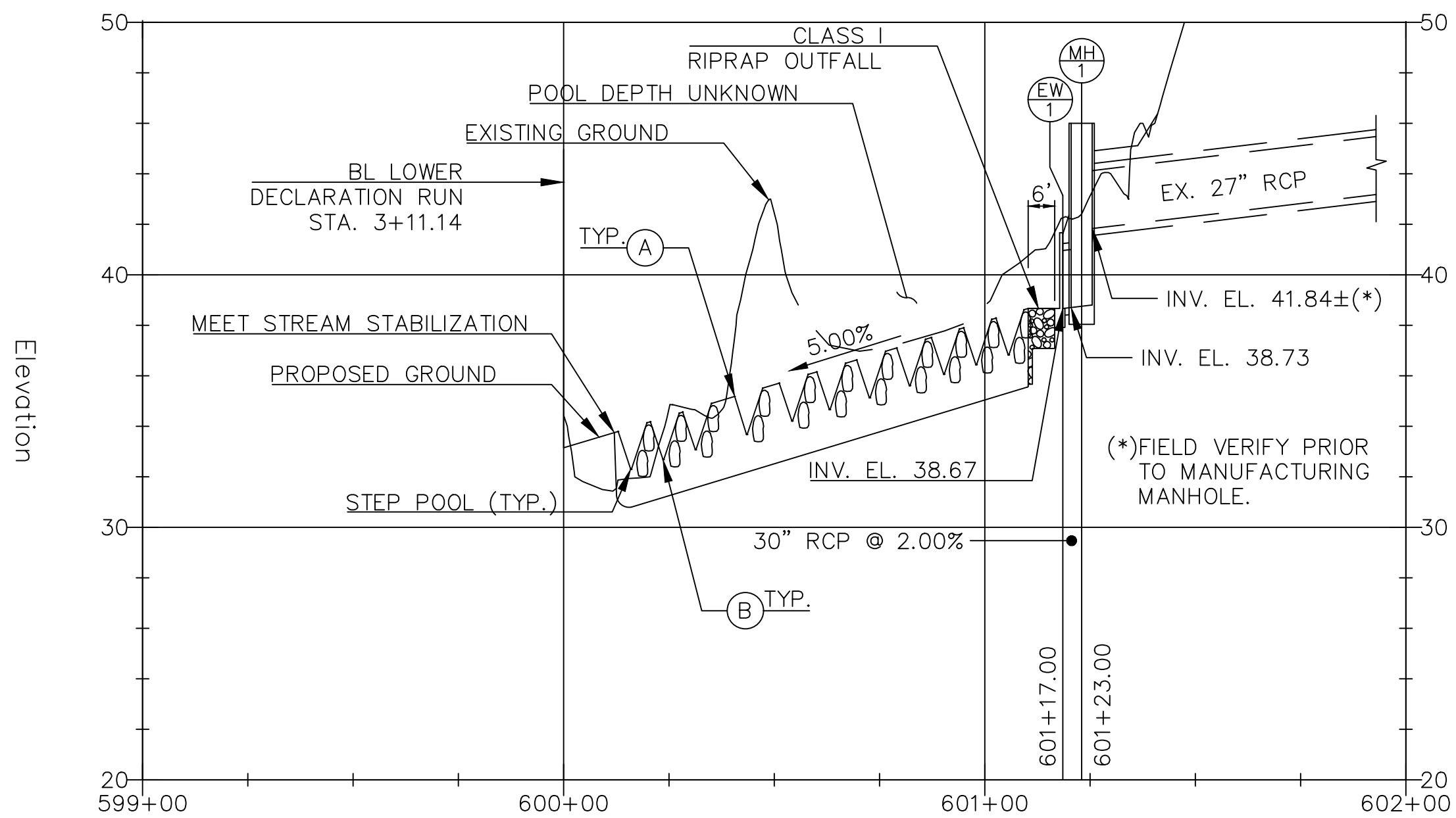
SCALE : 1"=40'

SHEET 11 OF 47

DATE : MARCH 2025

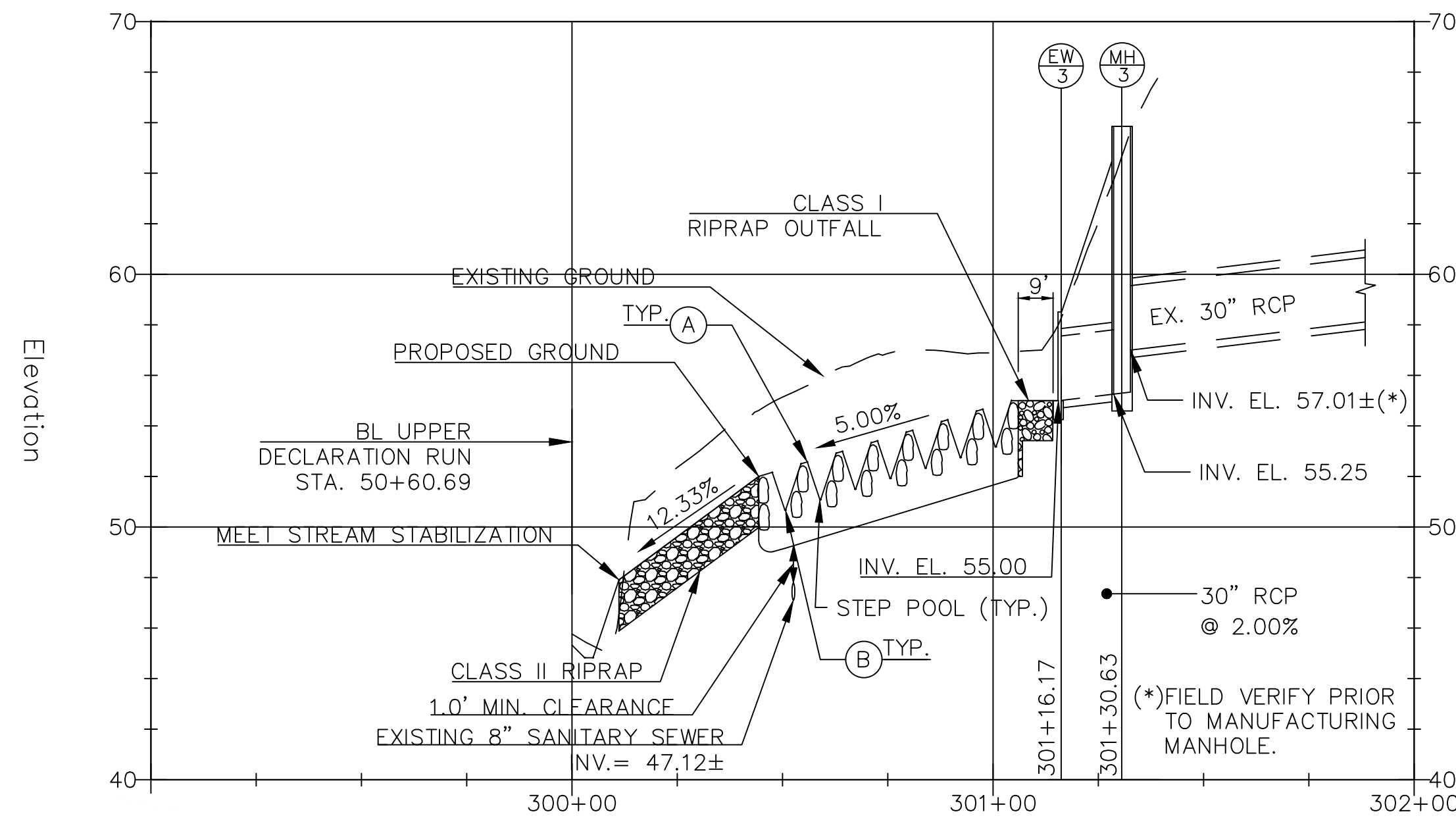
PVI NO.	STA.	ELEV.
38	43+25.41	66.19
39	43+30.28	64.57
40	43+53.28	64.57
41	43+57.49	65.97
42	45+00.00	64.52
43	45+02.00	62.93
44	45+22.00	62.93
45	45+25.00	63.51
46	45+46.50	62.64
47	45+48.50	61.05
48	45+68.50	61.05
49	45+71.50	61.63
50	45+93.00	60.76
51	45+95.00	59.17
52	46+15.00	59.17
53	46+18.00	59.75
54	46+39.50	58.88
55	46+41.50	57.29
56	46+61.50	57.29
57	46+64.50	57.87
58	46+81.93	57.17
59	46+86.94	55.50
60	47+07.29	55.50
61	47+09.31	56.17
62	48+00.00	54.00
63	48+02.00	52.41
64	48+18.00	52.41
65	48+21.00	52.99
66	48+23.00	52.99
67	48+25.00	51.40
68	48+39.00	51.40
69	48+42.00	51.98
70	48+44.00	51.98
71	48+46.00	50.39
72	48+60.34	50.37
73	48+63.42	50.97
74	48+64.42	50.97
75	48+69.00	49.45
76	48+88.00	49.45
77	48+90.01	50.12
78	49+22.43	48.71
79	49+26.79	47.25
80	49+44.79	47.25
81	49+46.78	47.91
82	49+86.70	46.64
83	49+90.07	45.52
84	50+08.07	45.52
85	50+10.11	46.19
86	50+45.97	45.23
87	50+49.06	44.20
88	50+74.06	44.20
89	50+76.10	44.88
90	51+64.15	42.03
91	51+66.23	41.34
92	51+86.08	41.34
93	51+88.09	42.01
94	52+27.75	40.31

MATCH LINE - SEE PR-03



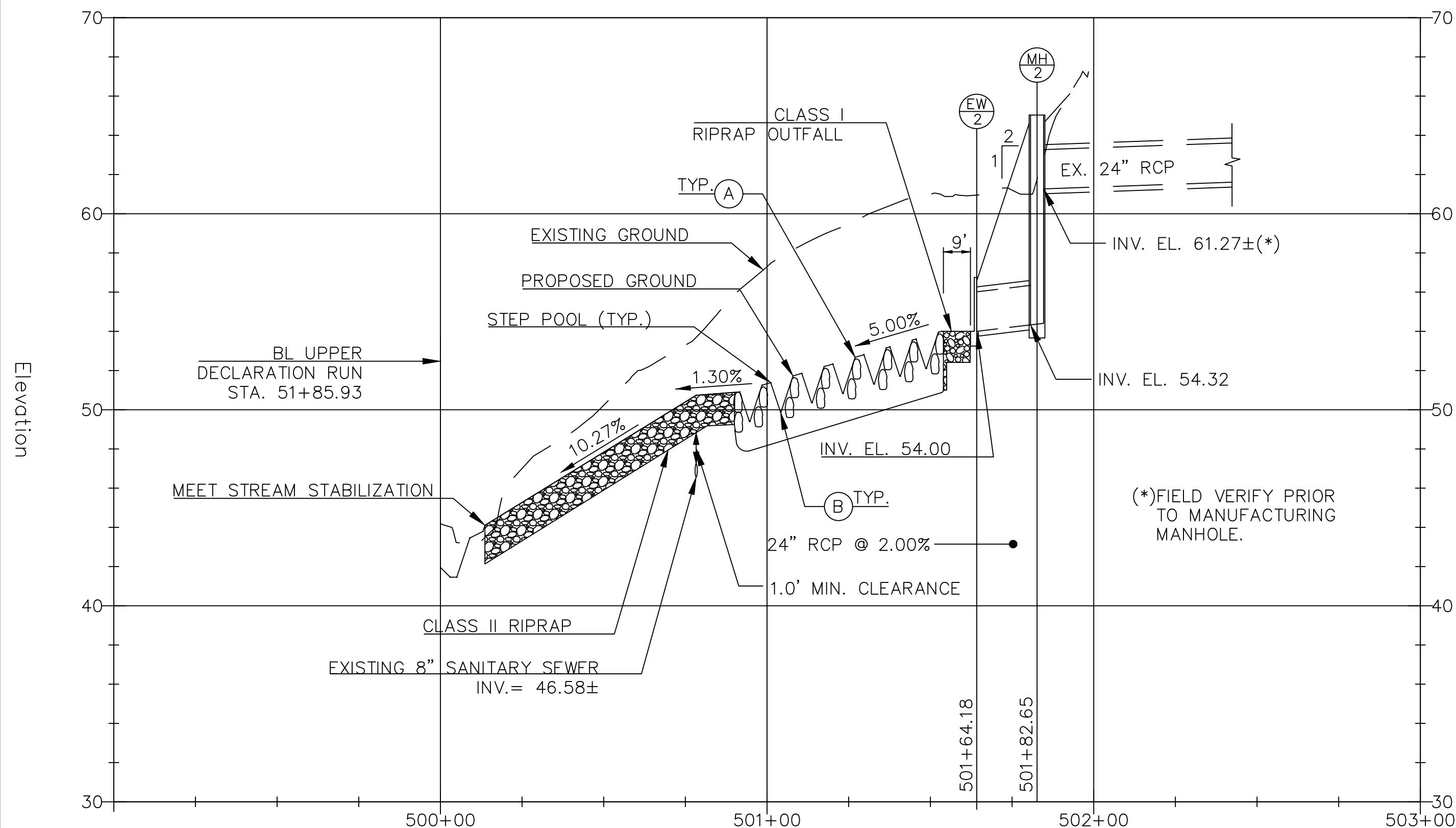
STATION	ELEVATION	WEIR LENGTH L (FT)
600+12.92	33.80 (A)	
600+16.00	(B) 32.30	
600+20.17	34.16 (A)	0.8
600+23.67	(B) 32.68	
600+27.84	34.54 (A)	0.8
600+31.33	(B) 33.07	
600+37.85	35.04 (A)	5.5
600+43.50	(B) 33.68	
600+49.22	35.61 (A)	3.9
600+54.26	(B) 34.21	
600+59.07	36.10 (A)	2
600+63.17	(B) 34.66	
600+68.25	36.56 (A)	2.7
600+72.67	(B) 35.13	
600+77.77	37.03 (A)	2.7
600+82.17	(B) 35.61	
600+86.62	37.48 (A)	1.4
600+91.17	(B) 36.06	
600+94.47	37.87 (A)	1
600+98.84	(B) 36.44	
601+02.15	38.26 (A)	1
601+06.50	(B) 36.83	
601+10.03	38.67 (A)	1

STEP POOL 1 PROFILE



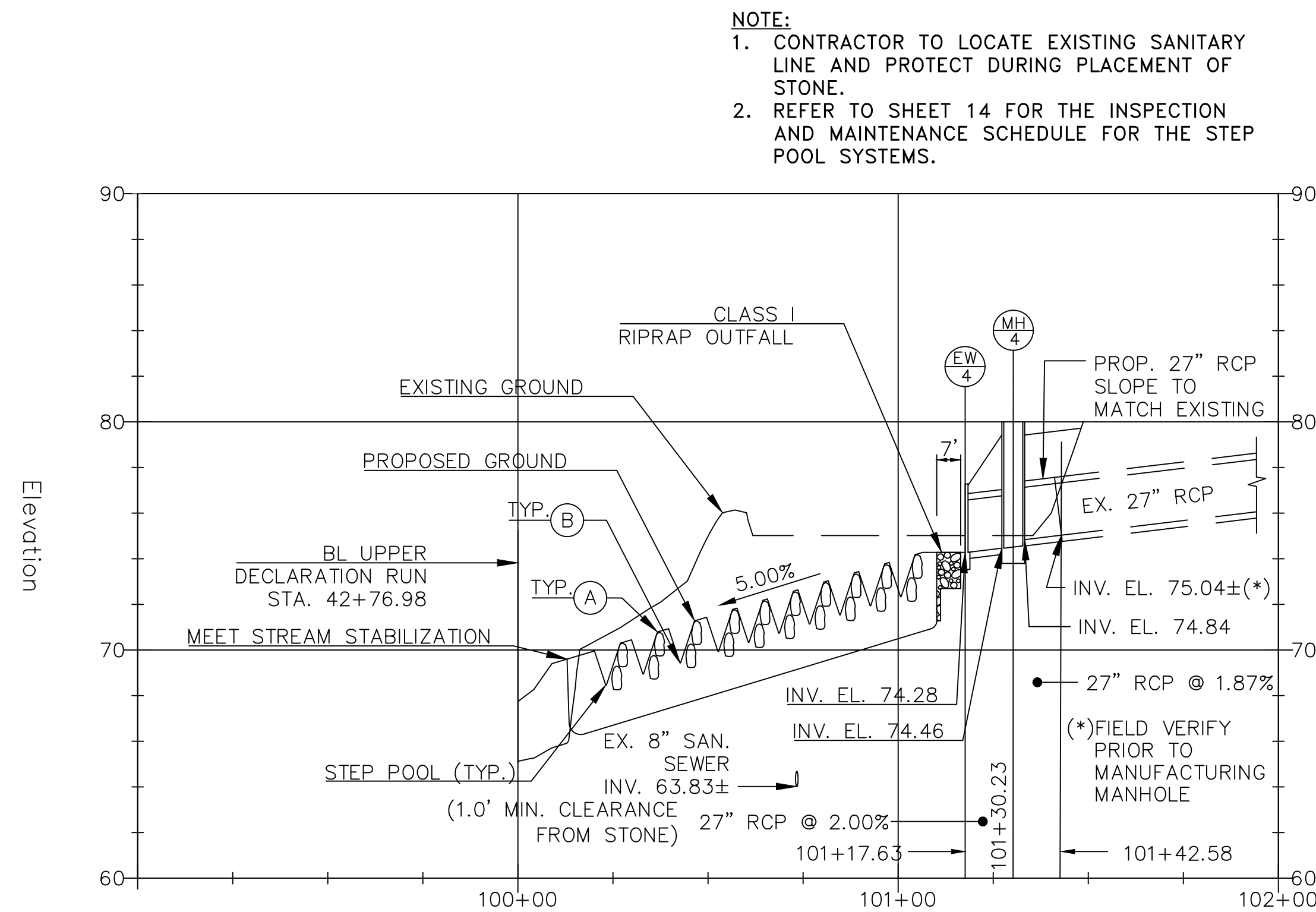
STATION	ELEVATION	WEIR LENGTH L FT
300+47.08	52.16 (A)	
300+50.15	(B) 50.66	
300+54.65	52.54 (A)	1.50
300+58.48	(B) 51.08	
300+62.92	52.96 (A)	1.50
300+66.81	(B) 51.49	
300+71.25	53.37 (A)	1.50
300+75.14	(B) 51.91	
300+79.57	53.79 (A)	1.50
300+83.47	(B) 52.33	
000+87.91	54.21 (A)	1.50
300+91.80	(B) 52.74	
300+96.24	54.62 (A)	1.50
301+00.13	(B) 53.16	
301+03.81	55.00 (A)	1.50

STEP POOL 3 PROFILE



STATION	ELEVATION	WEIR LENGTH L FT
500+80.65	50.91 (A)	
500+94.68	(B) 49.41	
500+99.78	51.36 (A)	2.70
501+04.19	(B) 49.89	
501+09.29	51.79 (A)	2.70
501+13.70	(B) 50.36	
501+18.80	52.27 (A)	2.70
501+23.21	(B) 50.84	
501+28.31	52.74 (A)	2.70
501+32.72	(B) 51.31	
501+37.05	53.18 (A)	1.10
501+40.70	(B) 51.71	
501+45.03	53.58 (A)	1.10
501+48.68	(B) 52.11	
501+52.94	53.98 (A)	1.60

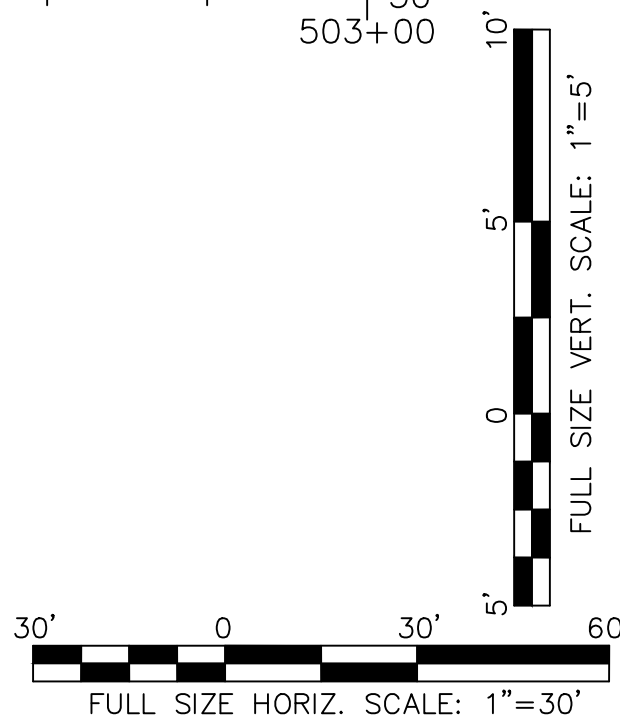
STEP POOL 2 PROFILE



STATION	ELEVATION	WEIR LENGTH L FT
100+20.00	69.92 (A)	
100+23.08	(B) 68.44	
100+28.30	70.36 (A)	3.30
100+32.83	(B) 68.93	
100+38.05	70.84 (A)	3.30
100+42.58	(B) 69.42	
100+47.92	71.34 (A)	3.50
100+52.58	(B) 69.92	
100+56.93	71.79 (A)	1.30
100+60.58	(B) 70.32	
100+64.92	72.19 (A)	1.30
100+68.58	(B) 70.72	
100+72.92	72.59 (A)	1.30
100+76.58	(B) 71.12	
100+80.92	72.99 (A)	1.30
100+84.58	(B) 71.52	
100+88.92	73.39 (A)	1.30
100+92.58	(B) 71.92	
100+96.94	73.79 (A)	1.30
101+00.58	(B) 72.32	
101+04.34	74.16 (A)	2.20

STEP POOL 4 PROFILE

- NOTE:
- CONTRACTOR TO LOCATE EXISTING SANITARY LINE AND PROTECT DURING PLACEMENT OF STONE.
 - REFER TO SHEET 14 FOR THE INSPECTION AND MAINTENANCE SCHEDULE FOR THE STEP POOL SYSTEMS.



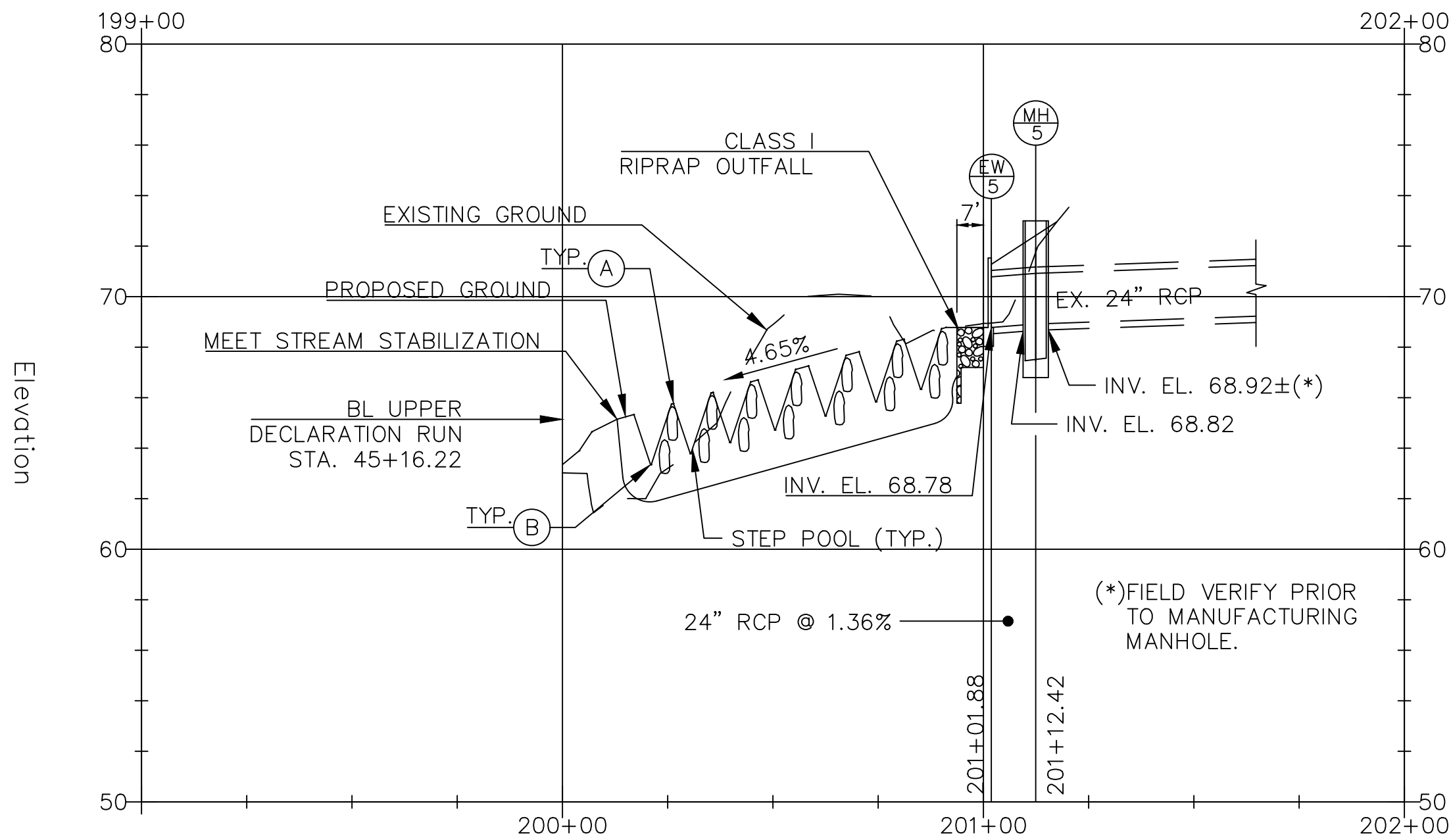
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AECOM

REVISIONS

HARFORD COUNTY, MARYLAND	
DECLARATION RUN STREAM RESTORATION	
STEP POOL PROFILE	
DRAWN BY : SAB	CONTRACT NO : 97040
DESIGNED BY : BWA	SCALE : 1"=30'
REVIEWED BY : JJW	SHEET 13 OF 47
DATE : MARCH 2025	



STEP POOL 5 PROFILE

MAINTENANCE SCHEDULE FOR EACH STEP POOL SYSTEM

- STEP POOL SYSTEMS SHALL BE INSPECTED EVERY 12 MONTHS.
- CHECK FOR STEP POOL SYSTEM DEWATERING CAPACITY. WATER SHOULD NOT BE STANDING IN THE POOLS AFTER 48 HOURS OF A STORM EVENT. IF INADEQUATE DEWATERING IS NOTED, REMOVE THE COMPOST LAYER WITHIN THE POOL AREA, REMOVE COBBLE FOR REUSE, AND REMOVE/REPLACE 6-INCH MINIMUM OF SAND/WOOD CHIP MIXTURE (80% SAND/20% WOOD CHIPS). REPLACE IMPACTED GEOTEXTILE. RESET COBBLE. REPLACE 4-INCH MINIMUM OF COMPOST.
- CHECK FOR EVIDENCE OF BOULDER MOVEMENTS. RESET BOULDERS THAT MAY HAVE SHIFTED OUT OF PLACE TO THEIR ORIGINAL LOCATION.
- SILT, SEDIMENT, DEBRIS AND TRASH SHALL BE REMOVED FROM THE POOLS WHEN THE POOLS ARE NO LONGER FORMED. WEIRS SHALL BE CLEARED OF DEBRIS AND TRASH.
- CHECK FOR EVIDENCE OF SOIL EROSION AND LACK OF VEGETATIVE COVER. SEED AREAS REQUIRING A VEGETATIVE COVER.

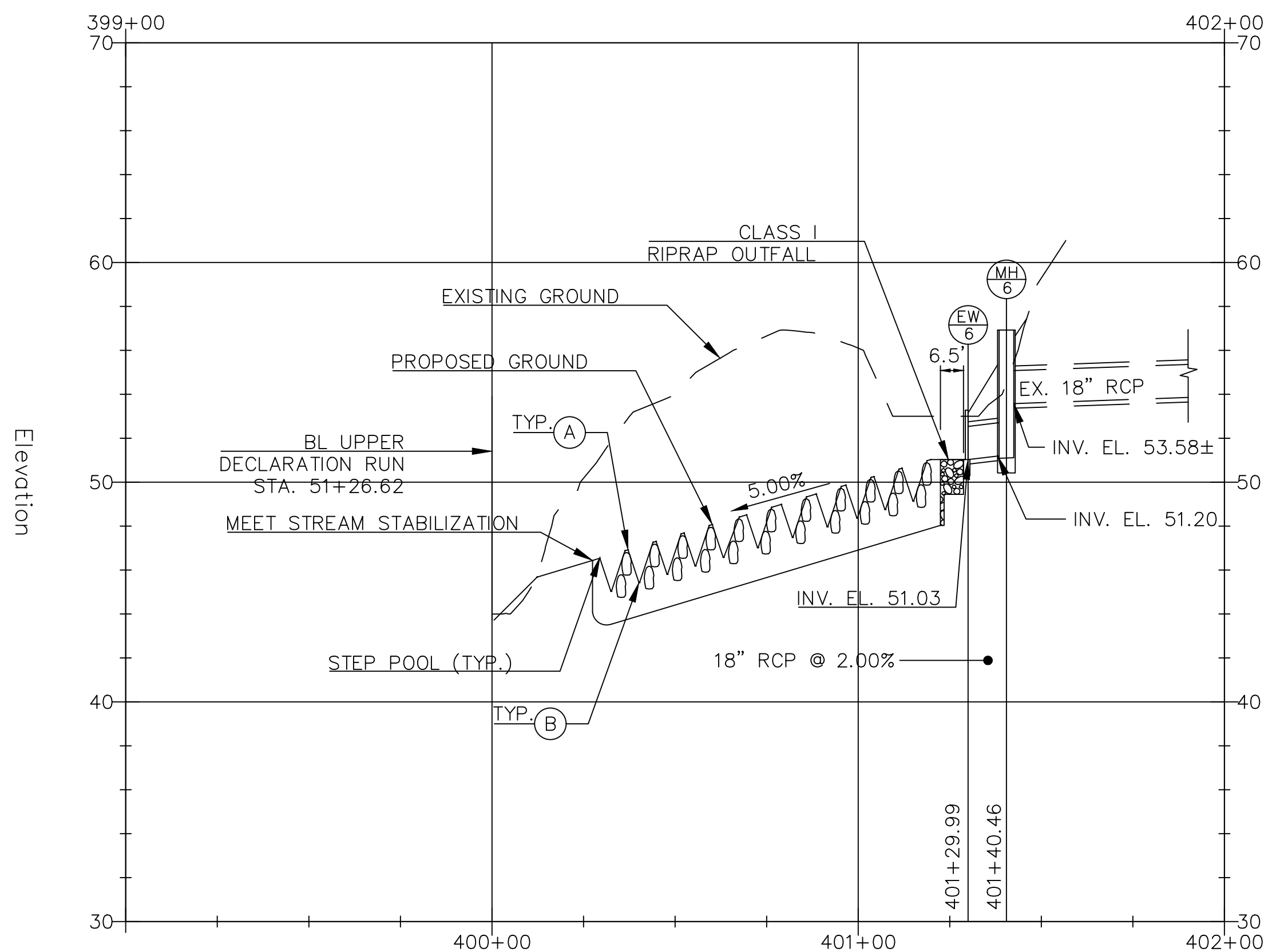
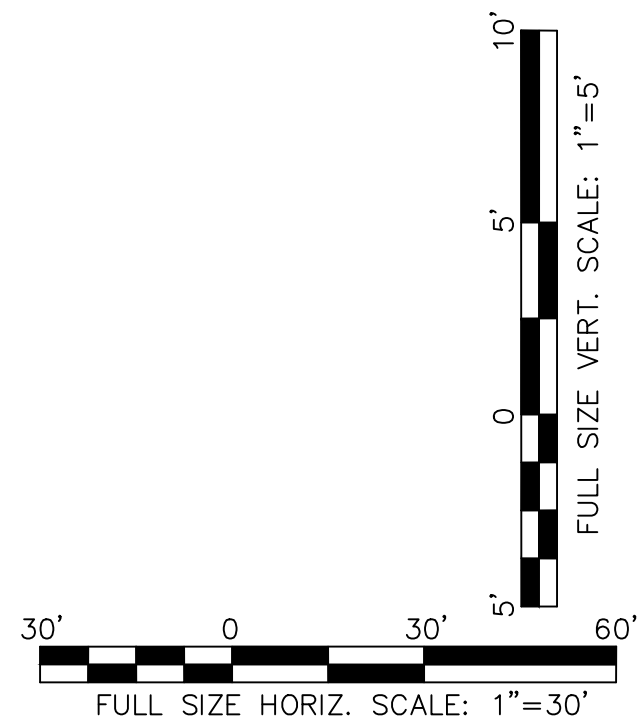
INSPECTION SCHEDULE FOR EACH STEP POOL SYSTEM

ITEM	CHECK	YES/NO	INSPECTOR COMMENTS
Alignment	Does the alignment match the plans?		
Length	Does the length match the length on the plans?		
Elevation Difference	Does the elevation difference from weir to weir match the profile?		
Number of Weirs	Does the number of weirs match the number specified on the plans and profiles?		
Outfall Condition and Tie-In	Is the connecting outfall physically stable with no signs of erosion and is the structure properly tied into the outfall as specified on the plans?		
Pools	Do the number pools match the number specified on the plans? Does the depth of any given pool exceed the minimum required depth as shown on the plans?		
Weir Cross Section	Is the cross section parabolic with adequate depth to match the plans? Are the boulders forming the weir 3 times larger than the D50 for the cobbles and underlined by filter fabric as specified on the plans?		
Cobbles	Does the cobble size meet the D50 requirements? Are the cobbles rounded?		
Sand/Wood Chip Mix	Has the contractor placed the required volume of sand/wood chip mix below the system?		
Geotextile	Has the geotextile been placed		
Plantings	Has the Step Pool System been seeded?		
Maintenance Access	Has vehicular access been provided?		

STATION	ELEVATION	WEIR LENGTH Ⓕ FT
200+16.87	65.33 (A)	
200+21.00	Ⓑ 63.34	
200+26.13	65.76 (A)	0.50
200+30.37	Ⓑ 63.79	
200+35.44	66.20 (A)	0.50
200+39.78	Ⓑ 64.23	
200+45.48	66.66 (A)	1.70
200+50.46	Ⓑ 64.72	
200+56.82	67.19 (A)	3.00
200+62.46	Ⓑ 65.28	
200+68.81	67.75 (A)	3.00
200+74.46	Ⓑ 65.84	
200+80.15	68.27 (A)	1.70
200+85.14	Ⓑ 66.33	
200+91.03	68.78 (A)	3.60

PIPE SCHEDULE						
FROM	TO	DIA.	TYPE	LENGTH	INV. IN ELEV.	INV. OUT ELEV.
MH-1	EW-1	30"	RCP	3.0'	38.73	38.67
MH-2	EW-2	24"	RCP	16.5'	54.32	54.00
MH-3	EW-3	30"	RCP	12.5'	55.25	55.00
MH-4	EW-4	27"	RCP	21'	75.04	74.28
MH-5	EW-5	24"	RCP	8.5'	68.82	68.78
MH-6	EW-6	18"	RCP	8.5'	51.20	51.03

STRUCTURE SCHEDULE					
STR. NO.	STATION	BASELINE	TOP COVER ELEVATION	INVERTS	HARFORD COUNTY STANDARD NO.
EW-1	601+17.00	STEP POOL 1	—	38.67	STD TYPE 'C' ENDWALL, ROUND PIPE — PLATE D-11
MH-1	601+23.00	STEP POOL 1	46.00	41.84± IN 38.69 OUT	PRECAST TYPE B MANHOLE — PLATE D-43
EW-2	501+64.18	STEP POOL 2	—	54.00	STD TYPE 'C' ENDWALL, ROUND PIPE — PLATE D-11
MH-2	501+82.65	STEP POOL 2	65.00	61.27± IN 54.32 OUT	PRECAST TYPE B MANHOLE — PLATE D-43
EW-3	301+16.17	STEP POOL 3	—	55.00	STD TYPE 'C' ENDWALL, ROUND PIPE — PLATE D-11
MH-3	301+30.63	STEP POOL 3	66.00	57.01± IN 55.25 OUT	PRECAST TYPE B MANHOLE — PLATE D-43
EW-4	101+17.63	STEP POOL 4	—	74.28	STD TYPE 'C' ENDWALL, ROUND PIPE — PLATE D-11
MH-4	101+30.23	STEP POOL 4	80.00	74.84± IN 74.46 OUT	PRECAST TYPE A MANHOLE — PLATE D-43
EW-5	201+01.88	STEP POOL 5	—	68.78	STD TYPE 'C' ENDWALL, ROUND PIPE — PLATE D-11
MH-5	201+12.42	STEP POOL 5	73.00	68.92± IN 68.82 OUT	PRECAST TYPE B MANHOLE — PLATE D-43
EW-6	401+29.99	STEP POOL 6	—	51.03	STD TYPE 'C' ENDWALL, ROUND PIPE — PLATE D-11
MH-6	401+40.46	STEP POOL 6	57.00	53.58± IN 51.20 OUT	PRECAST TYPE B MANHOLE — PLATE D-43



STEP POOL 6 PROFILE

STATION	ELEVATION	WEIR LENGTH Ⓕ FT
400+29.48	46.54 (A)	
400+32.55	Ⓑ 45.04	
400+36.73	46.90 (A)	0.80
400+40.22	Ⓑ 45.43	
400+44.39	47.29 (A)	0.80
400+47.88	Ⓑ 45.81	
400+52.06	47.69 (A)	0.80
400+55.55	Ⓑ 46.19	
400+59.73	48.05 (A)	0.80
400+63.22	Ⓑ 46.58	
400+67.97	48.47 (A)	2.00
400+72.05	Ⓑ 47.02	
400+77.13	48.92 (A)	2.70
400+81.55	Ⓑ 47.49	
400+86.64	49.40 (A)	2.70
400+91.60	Ⓑ 47.97	
400+95.44	49.84 (A)	1.30
400+96.16	Ⓑ 48.37	
401+03.33	50.23 (A)	0.80
401+03.83	Ⓑ 48.76	
401+10.99	50.62 (A)	0.80
401+11.50	Ⓑ 49.14	
401+19.24	51.03 (A)	1.00

STEP POOL SYSTEM DESIGN DATA

TOTAL SITE AREA: 7.079 AC

TOTAL DISTURBED AREA: 7.079 AC

WATERSHED: BUSH RIVER (HUC 02060003)

STEP POOL SYSTEM NO.	DRAINAGE AREA (ACRES)	TOTAL IMPERVIOUS AREA TREATED (ACRES)	UNIFIED SIZING CRITERIA	
			WQV Required (CF)	WQV Provided (CF)
1	7.45	4.30	15,415	15,898
2	8.02	3.60	13,392	7,119*
3	4.28	2.10	7,769	7,248*
4	6.07	4.00	14,323	19,405
5	4.06	3.25	11,496	14,075
6	2.20	1.98	6,868	7,365
TOTALS	19.23	69,263	69,263	71,110

*SEE NOTE 2 BELOW

NOTES:

- NO NEW IMPERVIOUS AREA ADDED TO THE PROJECT
- STEP POOL SYSTEMS 4, 5 AND 6 OVERCOMPENSATE FOR THE STEP POOL SYSTEMS 2 AND 3 FALLING SHORT OF THE REQUIRED WATER QUALITY VOLUME. SANITARY SEWER CONFLICTS SHORTENED THE STEP POOL SYSTEMS 2 AND 3. THE OVERALL WATER QUALITY VOLUME TARGET HAS BEEN ACHIEVED.

EG 263-2019; SWM 97049

PR-05

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION
STEP POOL PROFILE

DRAWN BY : SAB

CONTRACT NO : 97040

DESIGNED BY : BNWA

SCALE : 1"=30'

REVIEWED BY : DJM

SHEET 14 OF 47

SCALE : 1"=30'

DATE : MARCH 2025



TIME OF CONCENTRATION SPOT ELEVATIONS		
A	104.00	BMP No. 1
B	103.50	
C	102.00	
D	35.73	
E	138.00	BMP No. 2
F	132.00	
G	124.00	
H	61.27	
I	130.00	BMP No. 3
J	120.00	
K	96.00	
L	56.76	
M	110.00	BMP No. 4
N	96.00	
O	76.00	
P	53.58	
Q	124.00	BMP No. 5
R	108.00	
S	98.00	
T	68.92	
U	136.00	BMP No. 6
V	126.00	
W	99.00	
X	91.14	

HYDROLOGIC SUMMARY

DRAINAGE AREA DESIGNATION	DRAINAGE AREA (AC)	WEIGHTED RCN	Tc(HR)
MC7	12.00	88	0.100
MC5	24.16	82	0.100
MC4	27.65	83	0.100
MC3	8.87	87	0.100
MC2	18.77	81	0.103
MC1	10.90	81	0.100
EX. BMP 1	7.45	87	0.100
EX. BMP 2	8.02	75	0.100
EX. BMP 3	4.28	83	0.100
EX. BMP 4	6.07	85	0.100
EX. BMP 5	4.06	90	0.100
EX. BMP 6	2.20	80	0.100

- LEGEND
- DRAINAGE AREA DIVIDE
 - >->->- TIME OF CONCENTRATION (Tc) PATH
 - BMP DRAINAGE DIVIDE
 - MC1 DRAINAGE AREA DESIGNATION



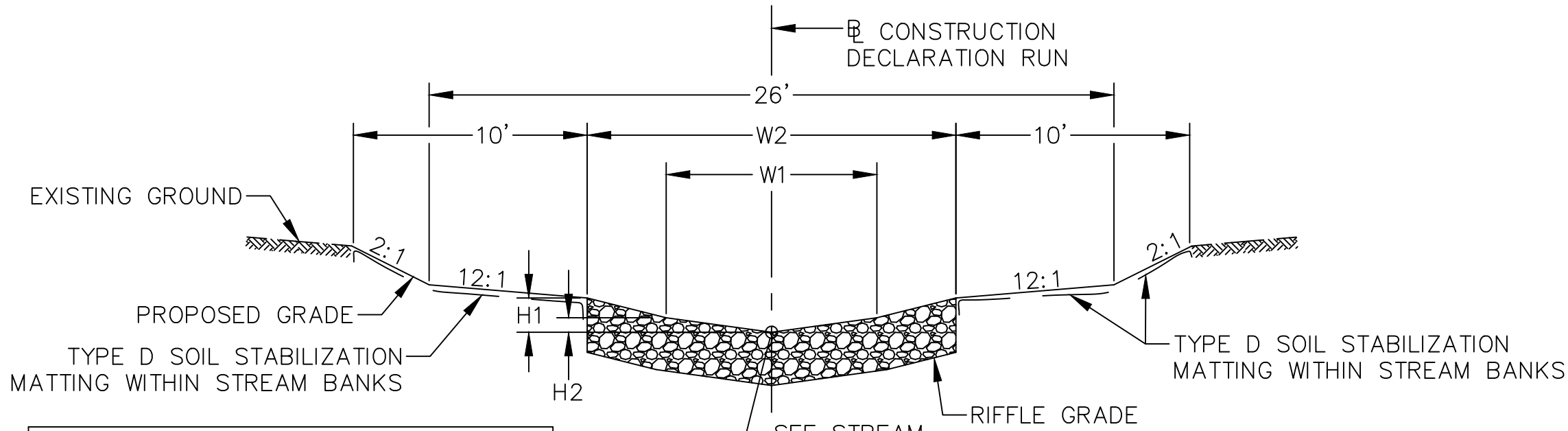
PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT 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. 34691, EXPIRATION DATE: 7/10/2025"

AECOM

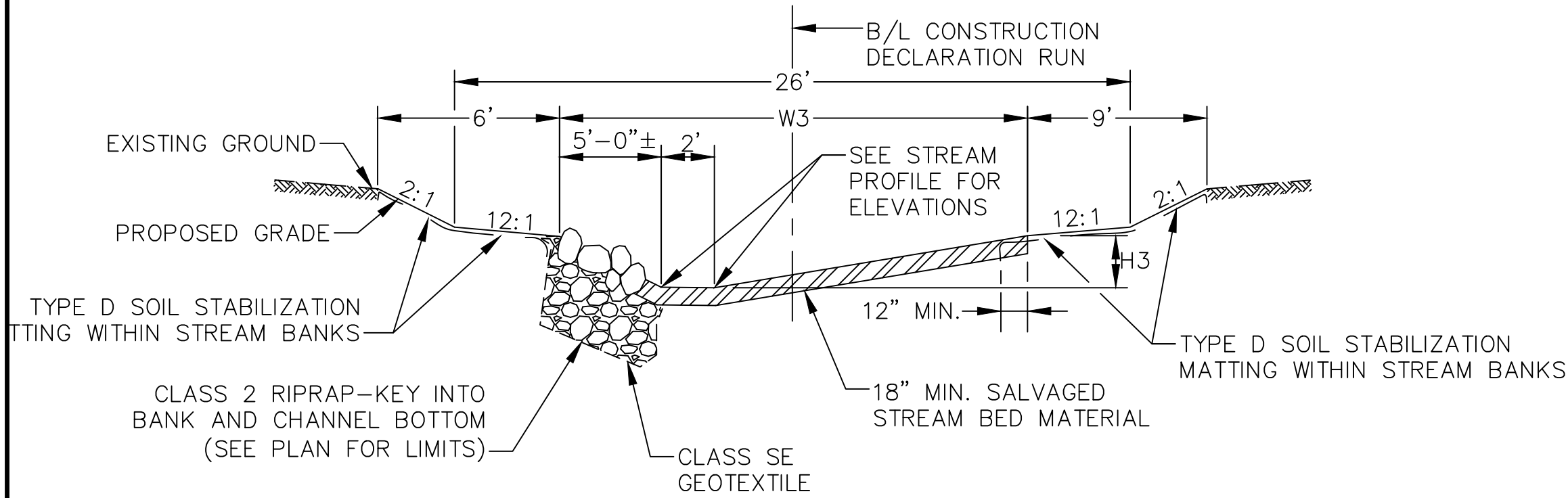


REVISIONS		EG 263-2019; SWM 97049		DA-01
		HARFORD COUNTY, MARYLAND		
		DECLARATION RUN STREAM RESTORATION		
		DRAINAGE AREA MAP		
DRAWN BY : SAB		CONTRACT NO : 97040		
DESIGNED BY : BWA		SCALE : 1"=200'		
REVIEWED BY : JJW		SHEET 15 OF 47		
		DATE : MARCH 2025		

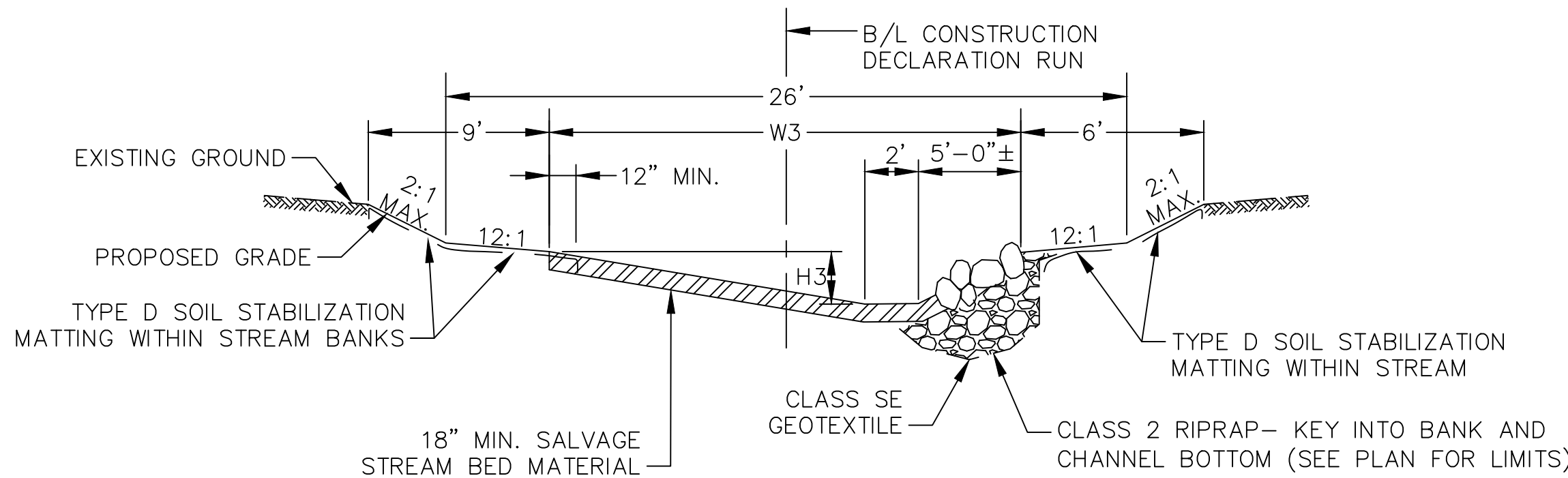


DIMENSION	STREAM SECTION	
	UPPER	LOWER
W1	6.5'	8.0'
W2	14.0'	16.0'
W3	18.0'	19.6'
H1	1.3'	1.5'
H2	0.5'	0.5'
H3	2.0'	2.2'

BANKFULL CHANNEL
REFER TO TD-02 FOR
ADDITIONAL INFORMATION

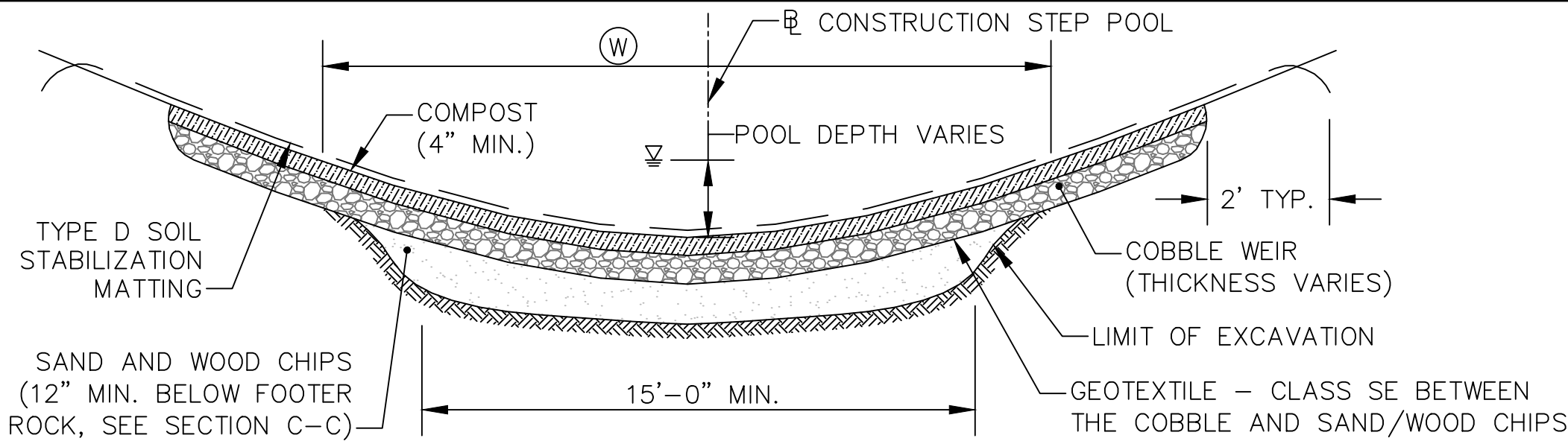


BANKFULL CHANNEL-POL LEFT

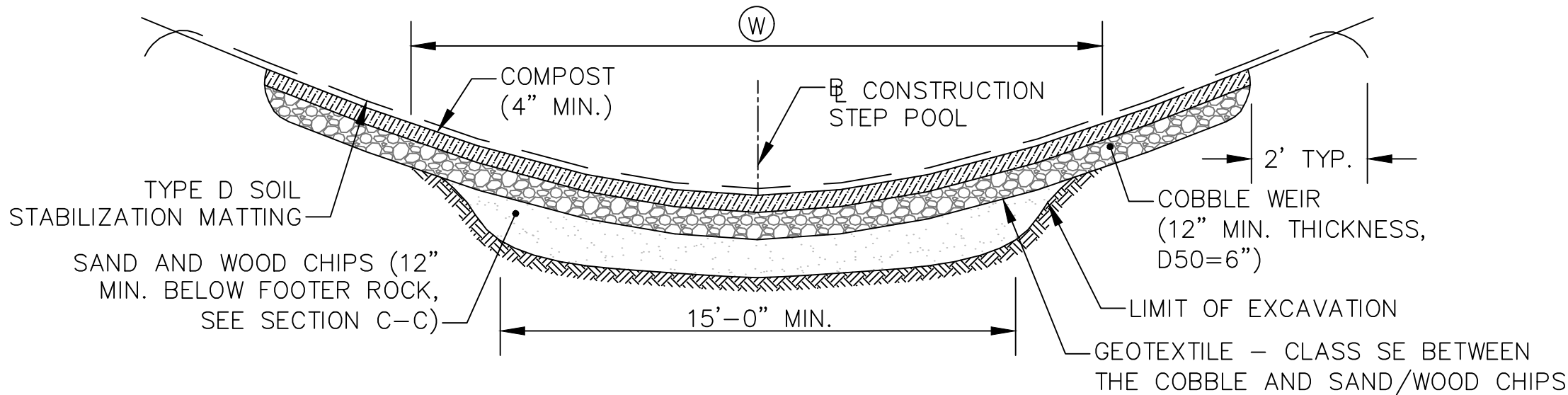


BANKFULL CHANNEL-POL RIGHT

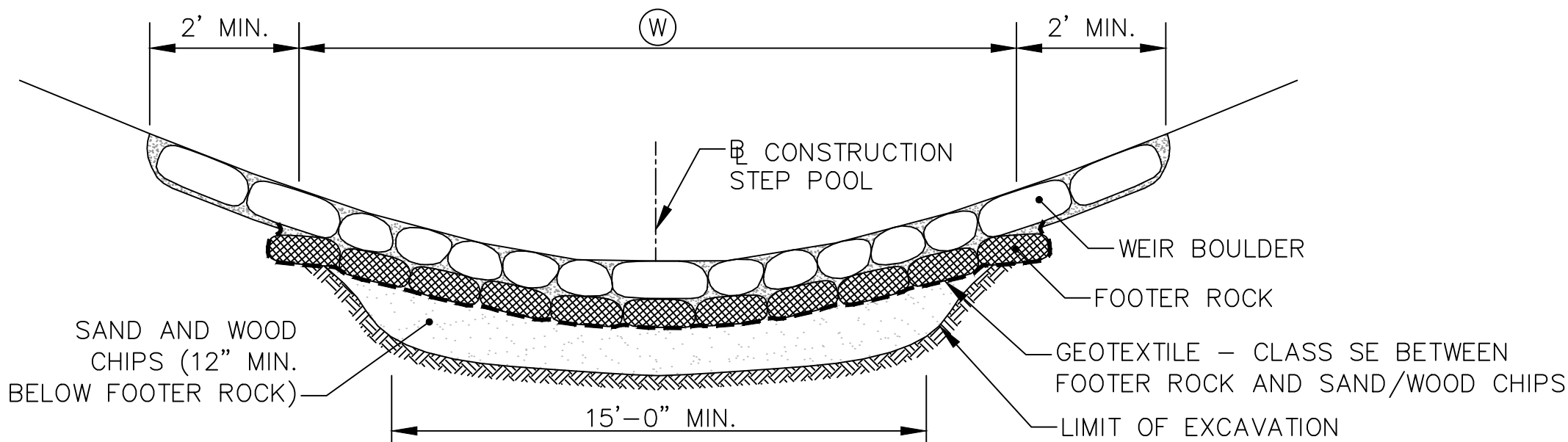
1 CHANNEL TYPICAL SECTIONS
NOT TO SCALE



SECTION 'A-A'



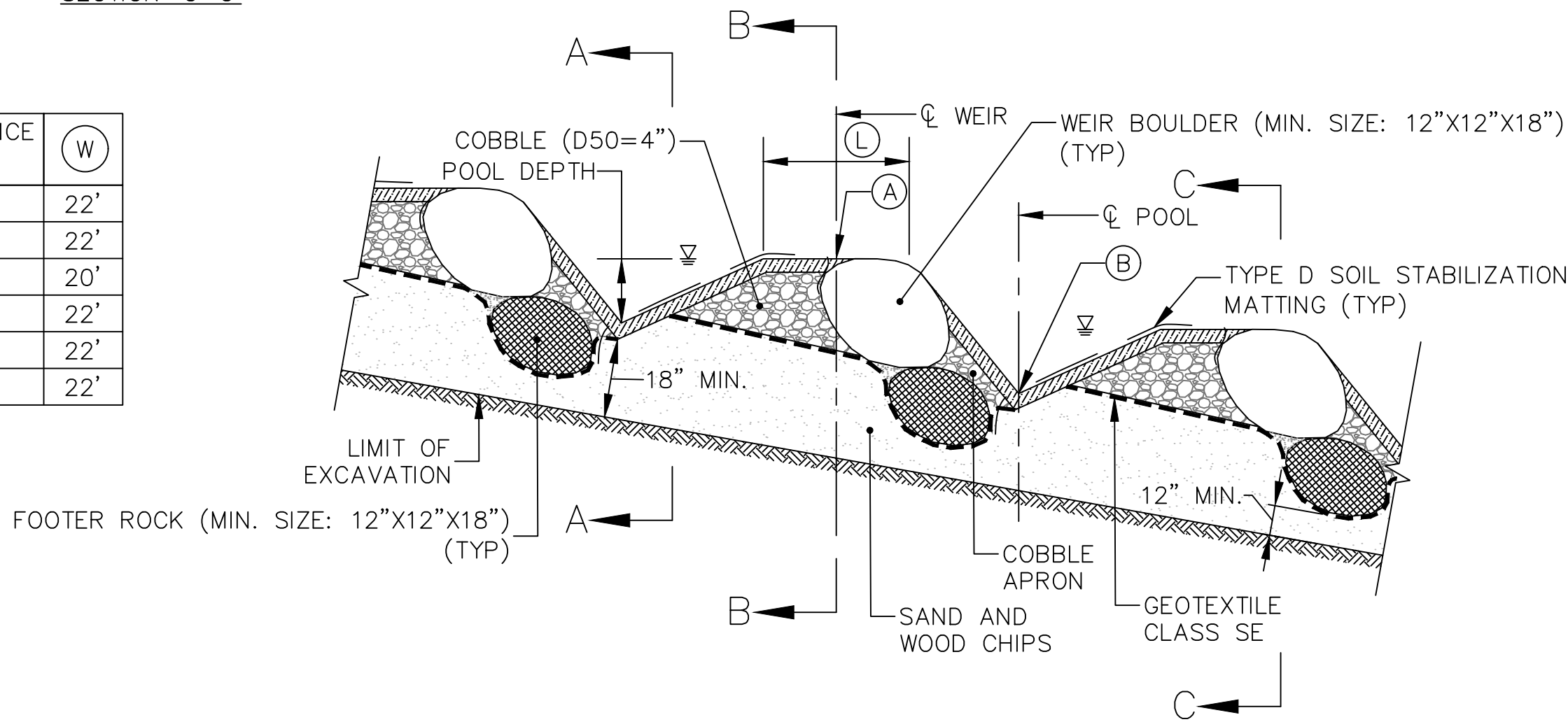
SECTION 'B-B'



SECTION 'C-C'

STEP POOL CONVEYANCE SYSTEM No.	W
1	22'
2	22'
3	20'
4	22'
5	22'
6	22'

NOTE: STATION AND ELEVATION INFORMATION FOR POINTS (A) AND (B) AND LENGTHS FOR DIMENSION (L) ARE PROVIDED ON SHEETS PR-04 AND PR-05 FOR EACH STEP POOL STORM CONVEYANCE SYSTEM.

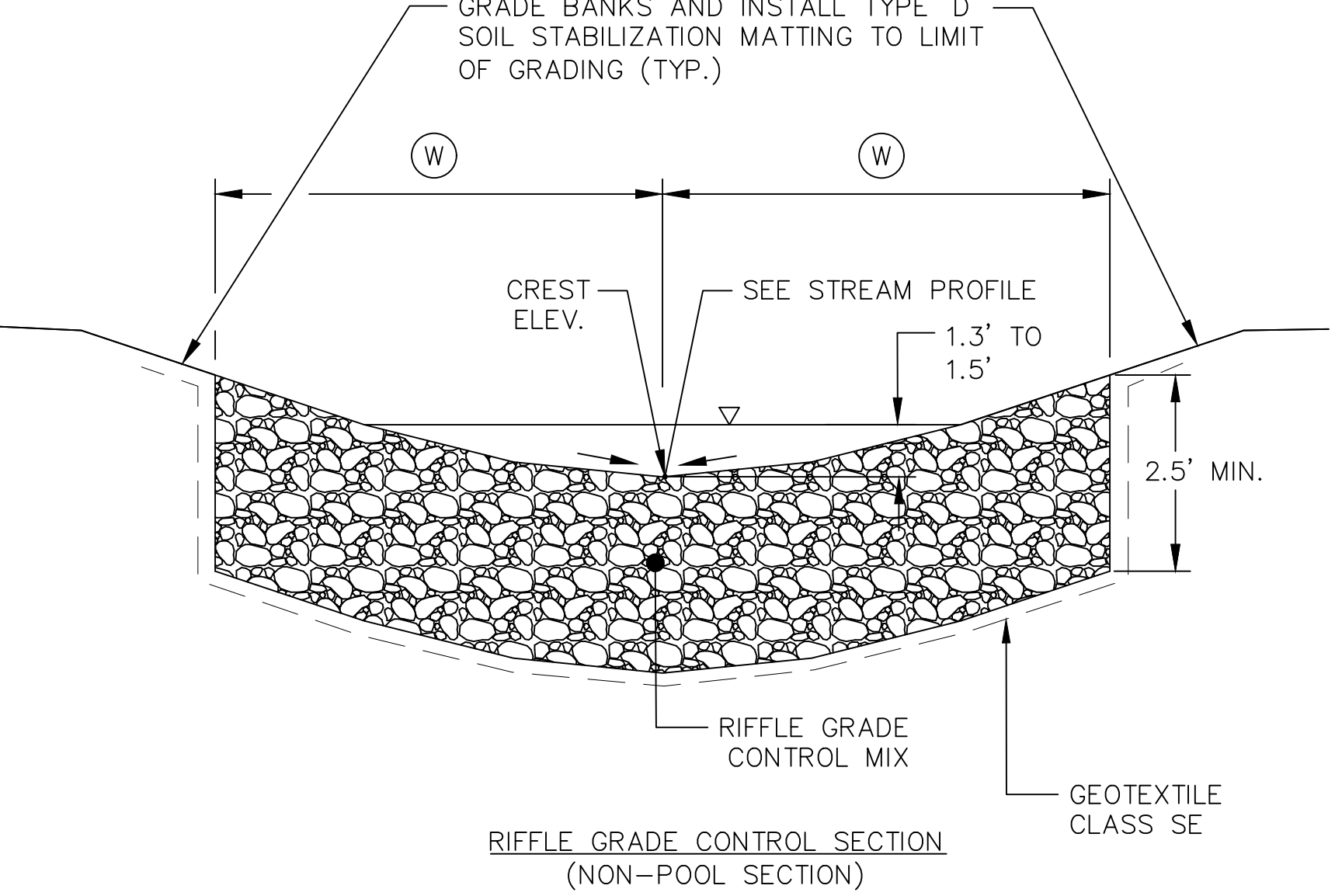
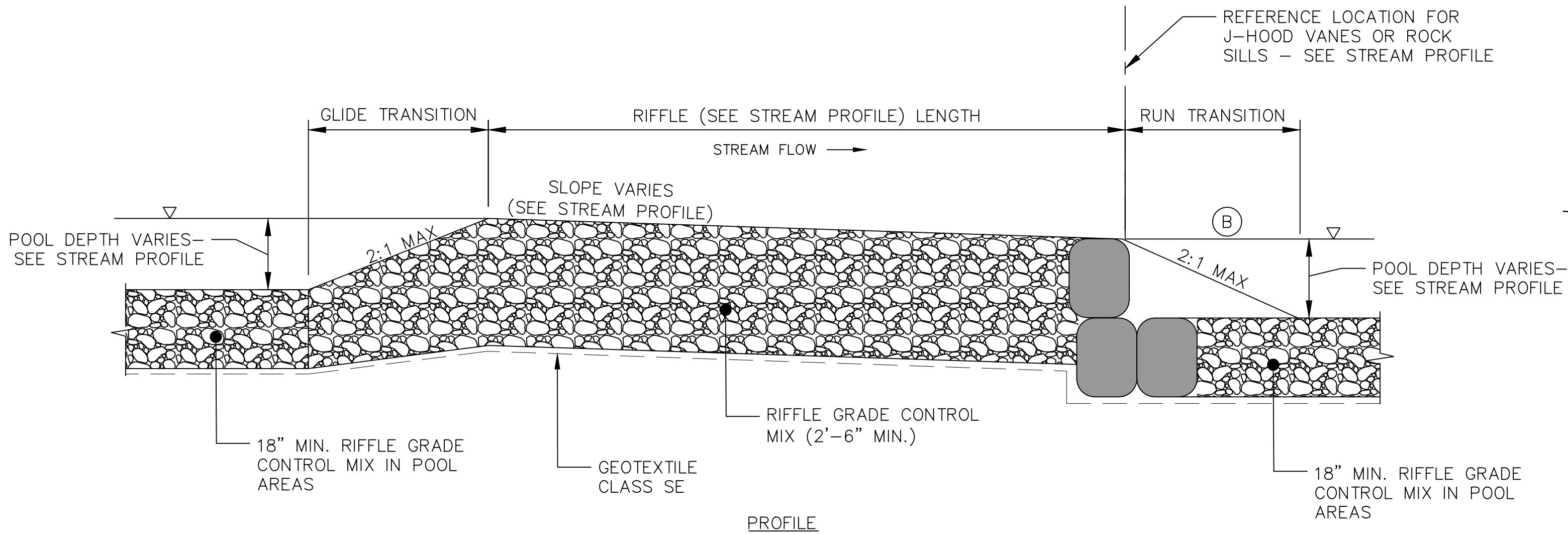


TYPICAL ELEVATION

2 STEP POOL STORM CONVEYANCE
NOT TO SCALE

STEP POOL STORM CONVEYANCE SEQUENCE NOTES:

1. SELECTION OF BOULDERS TO BE USED FOR WEIR BOULDERS AND DROP ROCKS AND THE LOCATIONS AT WHICH THEY ARE TO BE INSTALLED SHALL BE COORDINATED WITH THE DESIGNATED SPECIALIST OR ENGINEER PRIOR TO PLACEMENT.
2. STEPS SHALL BE CONSTRUCTED BY EXCAVATING A TRENCH SLIGHTLY LARGER THAN THE DIMENSIONS OF EACH STEP, INCLUDING WEIR BOULDERS AND DROP ROCKS. A SAND AND WOOD CHIP LAYER SHALL BE PLACED TO MINIMUM DEPTH OF 12 INCHES.
3. GEOTEXTILE IS TO BE PLACED ON TOP OF THE SAND AND WOOD CHIP LAYER PRIOR TO PLACING THE FOOTER ROCKS AS DEPICTED ON THE DETAIL, TO PREVENT THE SAND AND WOOD CHIP LAYER FROM MIXING WITH THE COBBLE LAYER. THE GEOTEXTILE SHALL BE KEYED IN TO ENSURE THAT NO FABRIC IS VISIBLE ABOVE THE FINISHED SURFACE.
4. FOOTER ROCKS SHALL BE PLACED ON TOP OF THE GEOTEXTILE AND ANCHORED INTO THE SIDE SLOPE. WEIR BOULDERS ARE TO BE SET ATOP FOOTER ROCKS, CREATING AN OFFSET / SHINGLED EFFECT. THE EDGES OF WEIR BOULDERS AND THEIR FOOTER ROCKS SHALL NOT ALIGN AND THERE SHALL BE NO GAP BETWEEN ADJOINING FOOTER ROCKS OR WEIR BOULDERS. WEIR BOULDERS SHALL BE PLACED A MINIMUM OF 2 FEET BEYOND THE LIMITS OF THE FOOTER ROCKS AS SHOWN ON THE DETAIL.
5. REFERENCE POINT ELEVATIONS HAVE BEEN PROVIDED AT SEVERAL CRITICAL LOCATIONS ALONG EACH STEP POOL STRUCTURE. INDIVIDUAL ROCKS WITHIN THE FINISHED INSTALLATION SHALL BE WITHIN 0.1 FEET OF THE REFERENCE POINT ELEVATIONS, AS SPECIFIED ON THE CONSTRUCTION DRAWING.
6. COBBLE WITH A D50 OF 4 INCHES SHALL BE PLACED TO A MINIMUM DEPTH OF 12 INCHES OVER THE GEOTEXTILE. COBBLE SHALL BE PLACED AND SHAPED SUCH THAT MATERIAL IS PILED HIGHER ON THE SIDES, PRODUCING A DEEPER POOL IN THE MIDDLE OF THE STEP POOL SEQUENCE.
7. THE GAPS IN THE STEPS SHALL BE FILLED WITH COBBLE TO FORM A SLOPED CHANNEL SECTION THAT CONNECTS THE ELEVATION OF THE WEIR BOULDER TO THE MATERIAL LINING THE UPSTREAM POOL. THE LARGEST POSSIBLE ROCK MATERIALS SHALL BE USED FOR THIS TO PROVIDE A TIGHT, NON-MOBILE FIT IN THE GAPS.



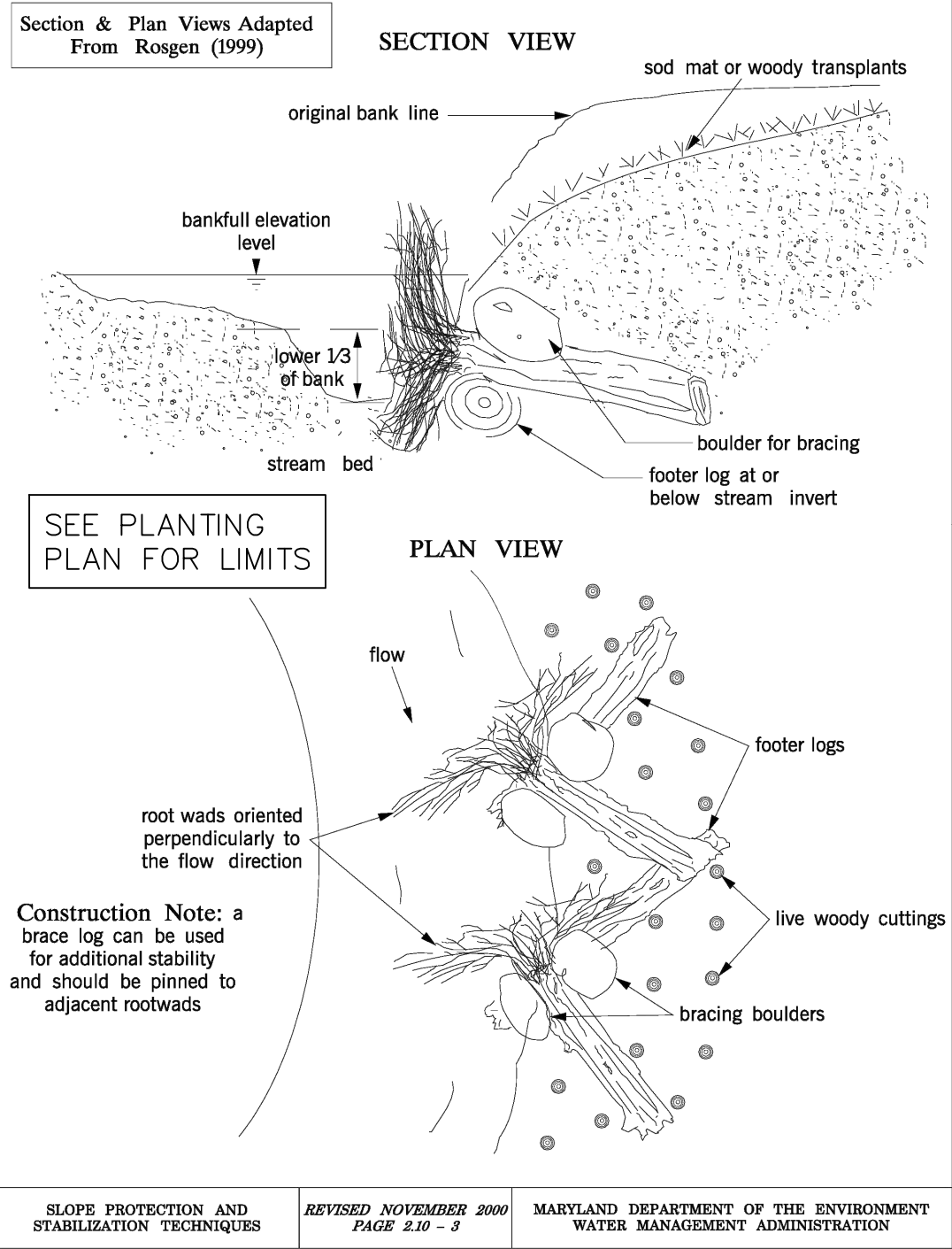
4 RIFFLE GRADE CONTROL DETAIL
NOT TO SCALE

% MIX	RIFFLE GRADE CONTROL (RGC) MIX	%
	CLASS 0	10%
	CLASS 1	30%
	CLASS 2	30%
	STREAM BED MATERIAL MIX	30%

% MIX	STREAM BED MATERIAL (SBM) MIX	%
	DOUBLE WASHED CONSTRUCTION SAND	30%
	ROUND RIVER ROCK/GRAVEL	30%
	SILICA (ROUND) COBBLE (2" TO 8")	40%

	UPPER REACH	LOWER REACH
W	7'	8'

Maryland's Guidelines To Waterway Construction
DETAIL 2.10(a): ROOT WAD REVETMENT



5 ROOT WAD REVETMENT
NOT TO SCALE

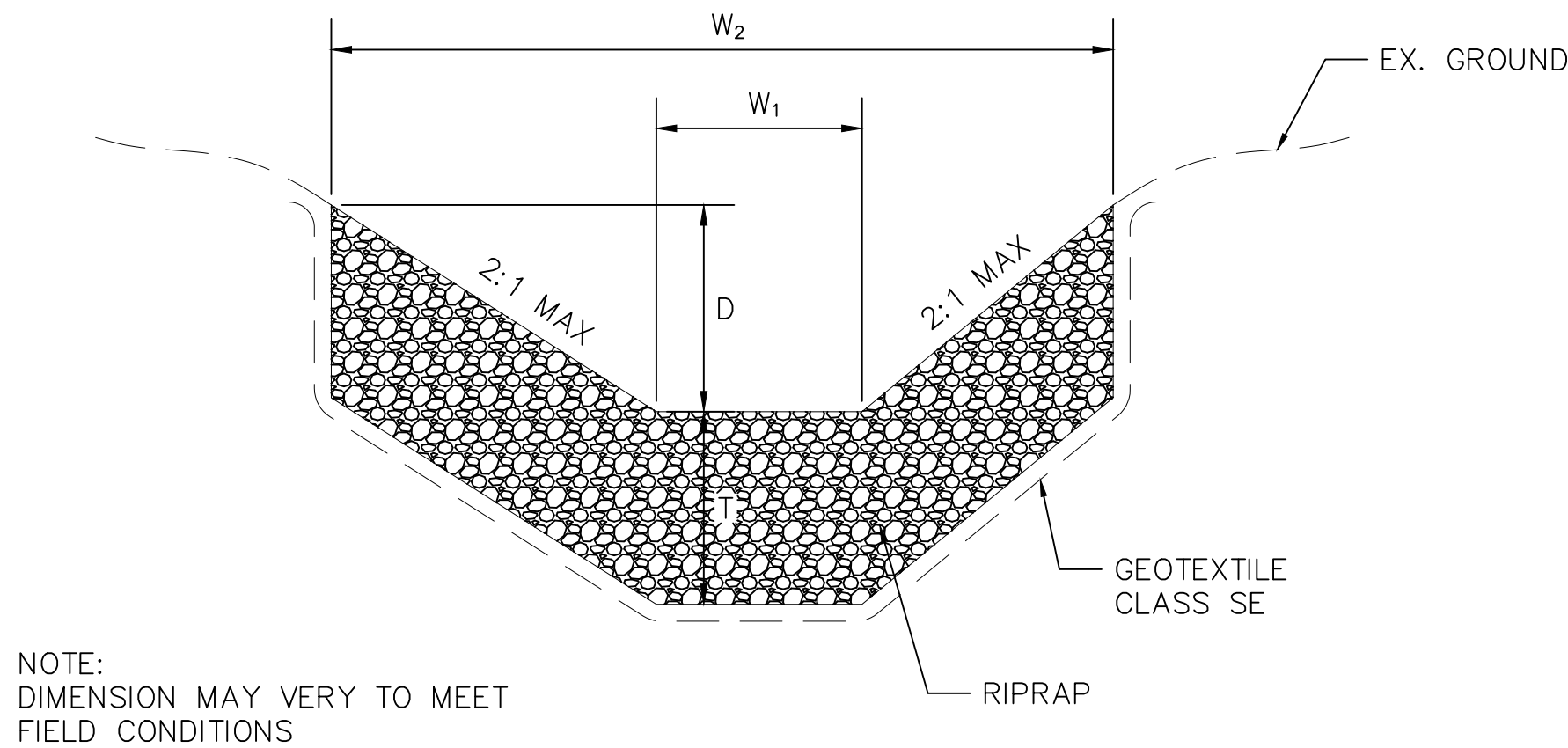


PROFESSIONAL CERTIFICATION
"I HEREBY CERTIFY THAT DOCUMENTS
WERE PREPARED OR APPROVED BY ME,
AND THAT I AM A DULY LICENSED
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EXPIRATION DATE: 7/10/2025"

AECOM

REVISIONS

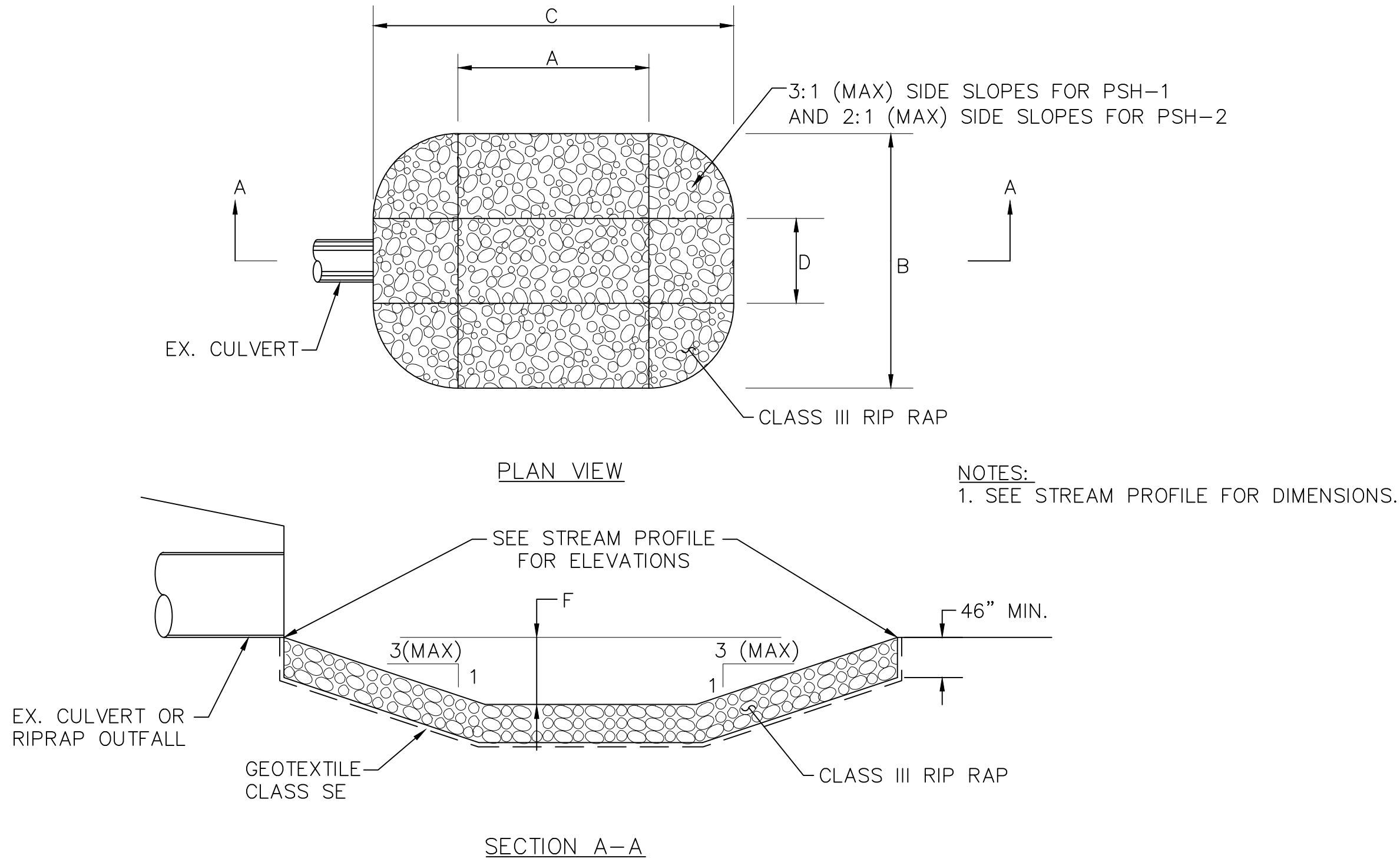
HARFORD COUNTY, MARYLAND	
DECLARATION RUN STREAM RESTORATION TYPICAL DETAILS II	
DRAWN BY : SAB	CONTRACT NO : 97040
DESIGNED BY : BWA	SCALE : NTS
REVIEWED BY : JJW	SHEET 17 OF 47
DATE : MARCH 2025	SCALE : 1"=10'



NOTE:
DIMENSION MAY VARY TO MEET
FIELD CONDITIONS

6 RIPRAP OUTFALL PROTECTION
NOT TO SCALE

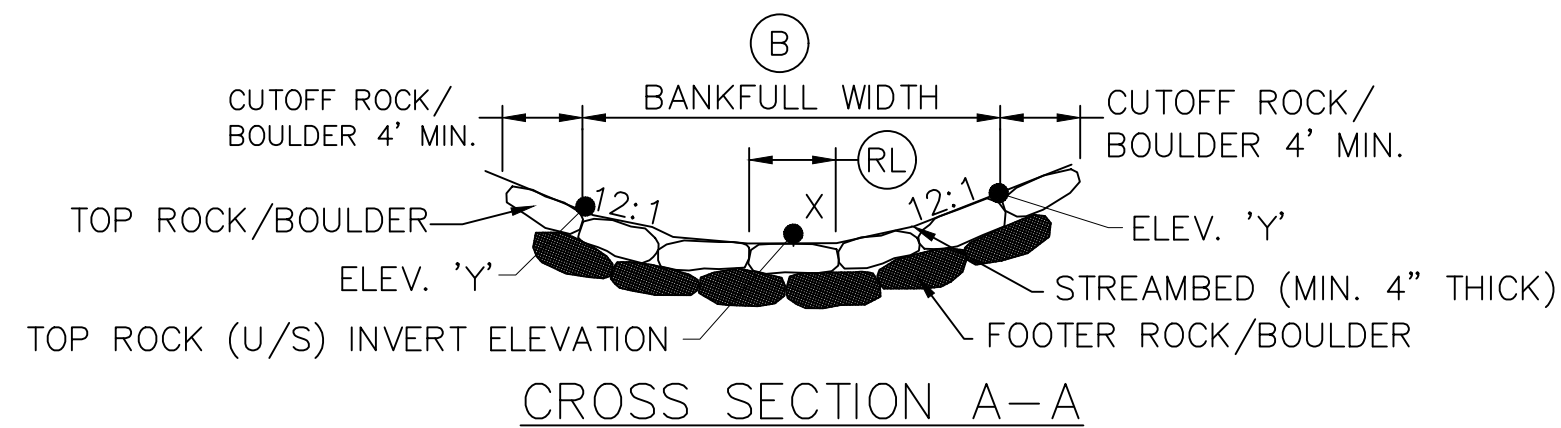
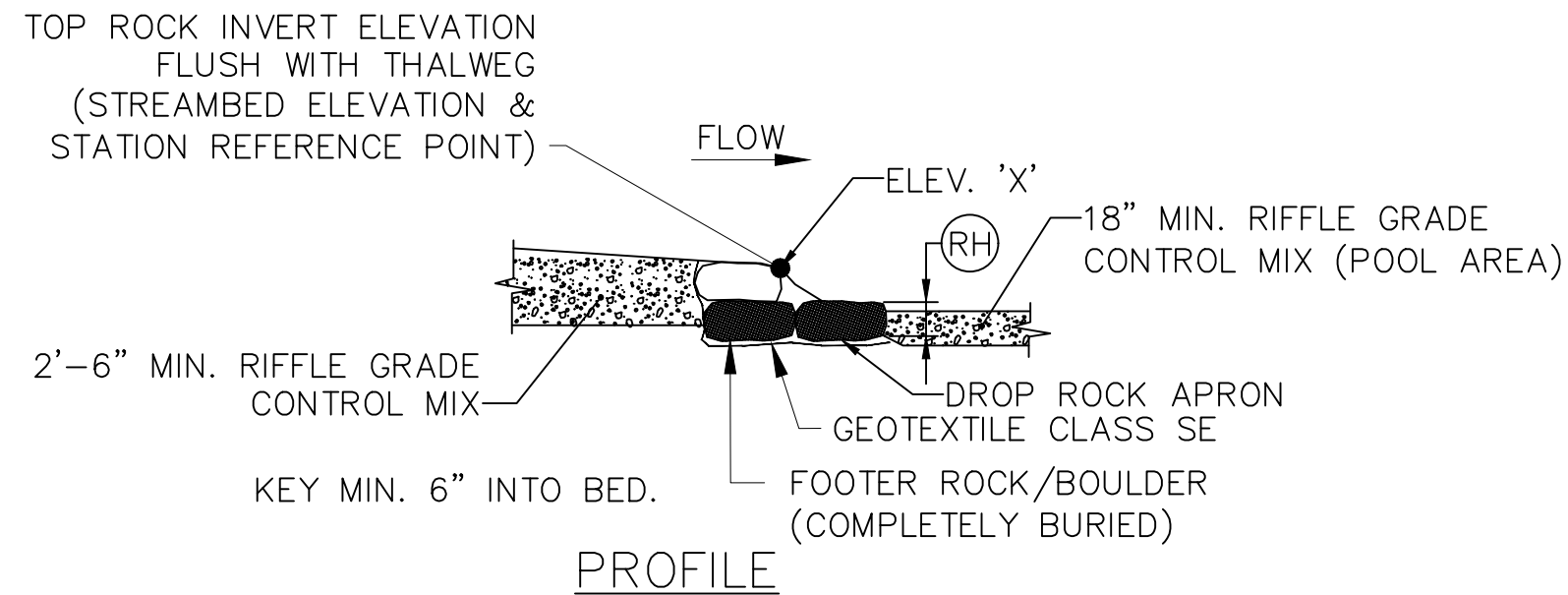
RIPRAP OUTFALL PROTECTION (RO) TABLE								
Structure No.	Begin Station	Offset	End Station	Offset	W ₁ (ft)	D	Riprap Class	T (inches)
RO-1	9+45	34' RT	9+47	1.4' RT	2.0	1	I	19
RO-2	6+60	48' LT	7+08	8' LT	4.0	1	I	19
RO-3	6+88	23' RT	6+87	5.7' RT	3.0	1	I	19
RO-4	3+59.5	18.66 LT	3+61	5.7' LT	5.5	1	I	19
RO-5	3+18.5	73.50 LT	3+45	3.9' LT	5.0	1	II	32
RO-6	3+11.50	66' LT	3+10	48' LT	4.0	1	I	19
RO-7	51+88	106' RT	51+85	55' RT	8.0	1	I	19
RO-8	51+71	91' RT	51+83	8' RT	10.0	2	II	32
RO-9	51+53	45' RT	50+60.5	14' RT	15.0	1.5	II	32
RO-10	46+73	69' LT	46+93	7.5' LT	4.0	1	I	19
RO-11	39+48	54.50' LT	40+00	8.5' LT	4.0	2	I	19



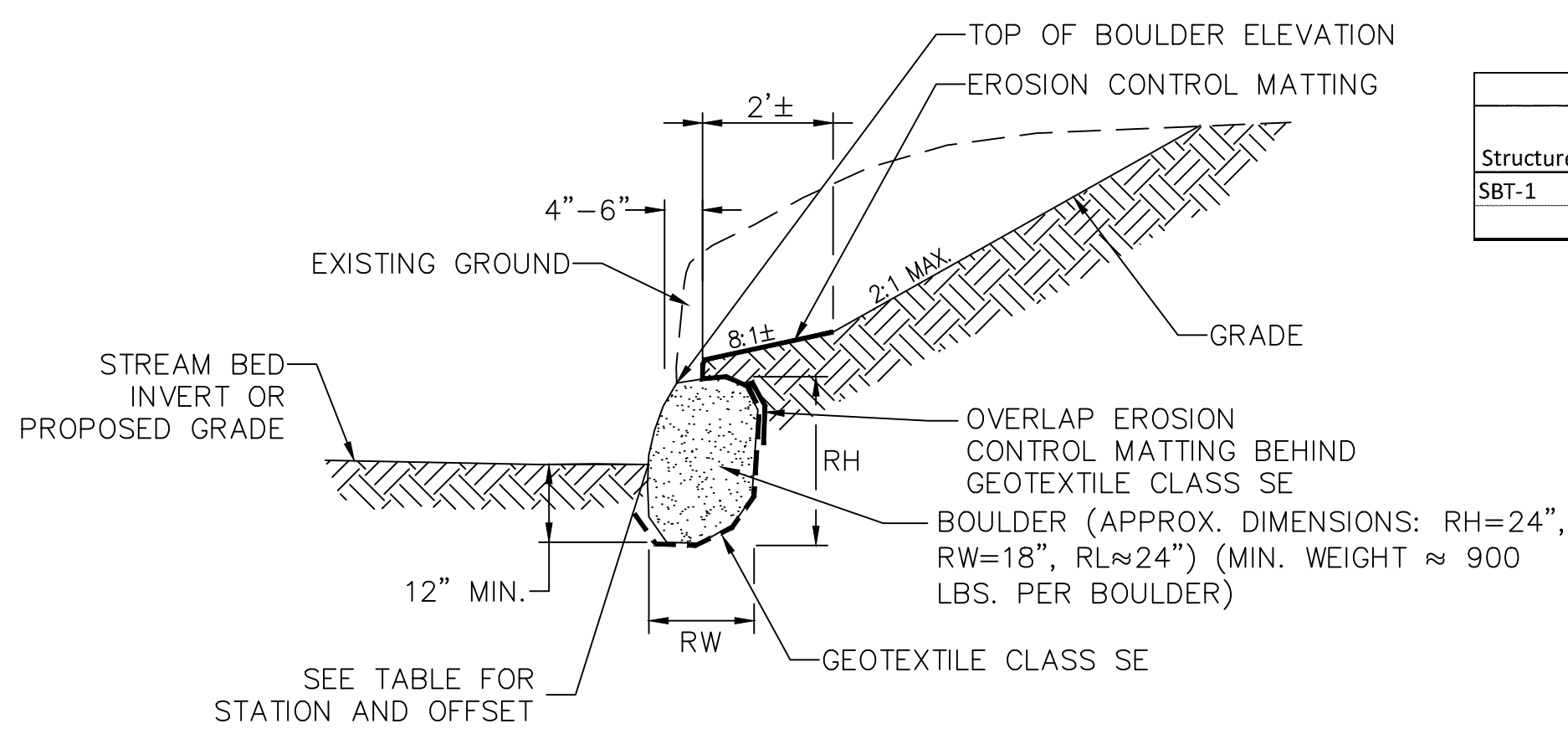
NOTES:
1. SEE STREAM PROFILE FOR DIMENSIONS.

7 PREFORMED SCOUR HOLE
NOT TO SCALE

PREFORMED SCOUR HOLE (PSH) TABLE						
Structure No.	A (ft)	B (ft)	C (ft)	D (ft)	F (ft)	REMARKS
PSH-1	15.00	26.80	38.00	10.30	2.75	'C' dimension includes the 10' level section exiting the existing culvert
PSH-2	8.25	23.00	36.00	5.50	2.75	

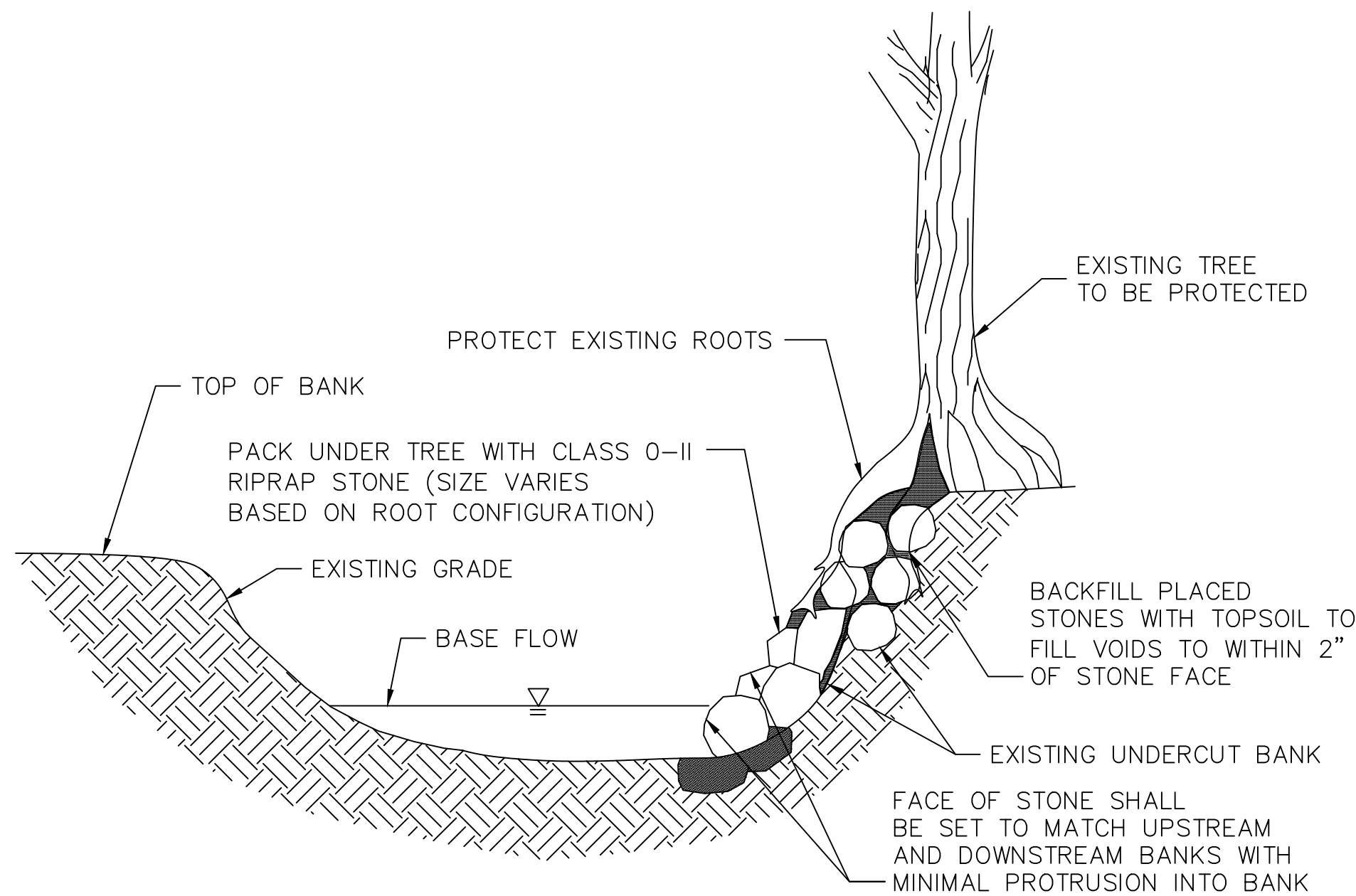


1. ROCK SILL SHALL BE CONSTRUCTED BY EXCAVATING A TRENCH SLIGHTLY LARGER THAN THE SILL DIMENSIONS.
2. TOP ROCKS SHALL BE SUPPORTED BY A FOOTER ROCK AND SHINGLED UPSTREAM AND INTO STREAM BANK. ALL ROCKS SHALL BE INTERLOCKED MINIMIZING OR ELIMINATING GAPS WITH NO VOIDS/GAPS LARGER THAN 4 INCHES.
3. THE MINIMUM VERTICAL ELEVATION DIFFERENCE BETWEEN ELEVATION "X" AND ELEVATION "Y" IS 4-INCHES.
4. PLACE GEOTEXTILE CLASS SE ON UPSTREAM SIDE OF ROCK SILL. FABRIC SHALL COVER THE UPSTREAM FACE OF THE ENTIRE SILL (EXCLUDING CUTOFF SILL) AND SHALL EXTEND A MAXIMUM OF 2 FEET UPSTREAM OF STRUCTURE.
5. DISTURBED STREAMBED SHALL BE BACKFILLED WITH 6" MIN. OF STREAMBED MATERIAL OR RIFFLE GRADE CONTROL MIX TO MEET FINISHED GRADE.
6. STREAM BANK AROUND STRUCTURE SHALL BE BACKFILLED AND HAND COMPACTED.
7. SEE STRUCTURE TABLE (BELOW), STREAM PROFILE, AND PLAN FOR ALL DIMENSIONS AND ELEVATIONS.
8. SILL ROCKS/BOULDERS SHALL BE FLUSH WITH FINISHED GRADE AND CUTOFF ROCKS SHALL EXTEND A MINIMUM OF 4 FEET INTO STREAMBANK.
9. PROVIDE DROP STONE/RIPRAP APRON DOWNSTREAM OF SILL AS DIRECTED.
10. SEE STREAM PROFILE FOR LIMITS OF RCG MIX.



10 SINGLE BOULDER TOE DETAIL
NOT TO SCALE

SINGLE BOULDER TOE (SBT) DETAIL							
Structure No.	Begin Station	Offset	Top of Boulder Elevation	End Station	Offset	Top of Boulder Elevation	Remarks
SBT-1	45+60	17' RT.	63.8	46+13	15.5' RT	61.8	



1. CONTRACTOR SHALL USE EXTREME CAUTION WHEN PLACING ROCKS IN AND AROUND EXPOSED ROOTS.
2. DO NOT USE FILTER FABRIC.
3. USE AS DIRECTED BY INSPECTION REPRESENTATIVE.
4. THIS DETAIL SHALL ONLY BE USED WHEN AN EXISTING TREE IS TO REMAIN AND IT IS EXPERIENCING EXPOSED ROOTS THAT REQUIRE PROTECTION.

11 ROCK PACK DETAIL
NOT TO SCALE

ROCK SILL (RS) TABLE														
Structure No.	Station	Offset	Elev. X	Bankfull Width (B) (ft)	Elev. Y	Top Rocks (Grade Control) Min. Dimensions.			Drop Rocks Min. Dimensions			Footer Rocks Min. Dimensions		
						Length (RL) (ft)	Height (RH) (ft)	Width (RW) (ft)	Length (RL) (ft)	Height (RH) (ft)	Width (RW) (ft)	Length (RL) (ft)	Height (RH) (ft)	Width (RW) (ft)
RS-1	10+72	0.00	18.00	16.0	18.70	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-2	4+80	0.00	30.00	16.0	30.70	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-3	51+64	0.00	42.00	14.0	42.60	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-4	50+46	0.00	45.25	14.0	45.85	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-5	49+86	0.00	46.65	14.0	47.25	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-6	49+22	0.00	48.70	14.0	49.30	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-7	48+64	0.00	51.00	14.0	51.60	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-8	48+44	0.00	52.00	14.0	52.60	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-9	48+23	0.00	53.00	14.0	53.60	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-10	48+00	0.00	54.00	14.0	54.60	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-11	46+81	0.00	57.20	14.0	57.80	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-12	46+39	0.00	58.90	14.0	59.50	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-13	45+93	0.00	60.80	14.0	61.40	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-14	45+46	0.00	62.65	14.0	63.25	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-15	45+00	0.00	64.50	14.0	65.10	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-16	42+46	0.00	68.70	14.0	69.30	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-17	41+67	0.00	71.15	14.0	71.75	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-18	41+03	0.00	73.10	14.0	73.70	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-19	40+39	0.00	74.90	14.0	75.50	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-20	39+59	0.00	77.40	14.0	78.00	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-21	38+79	0.00	79.95	14.0	80.55	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-22	37+99	0.00	82.45	14.0	83.05	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0
RS-23	37+19	0.00	85.00	14.0	85.60	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0



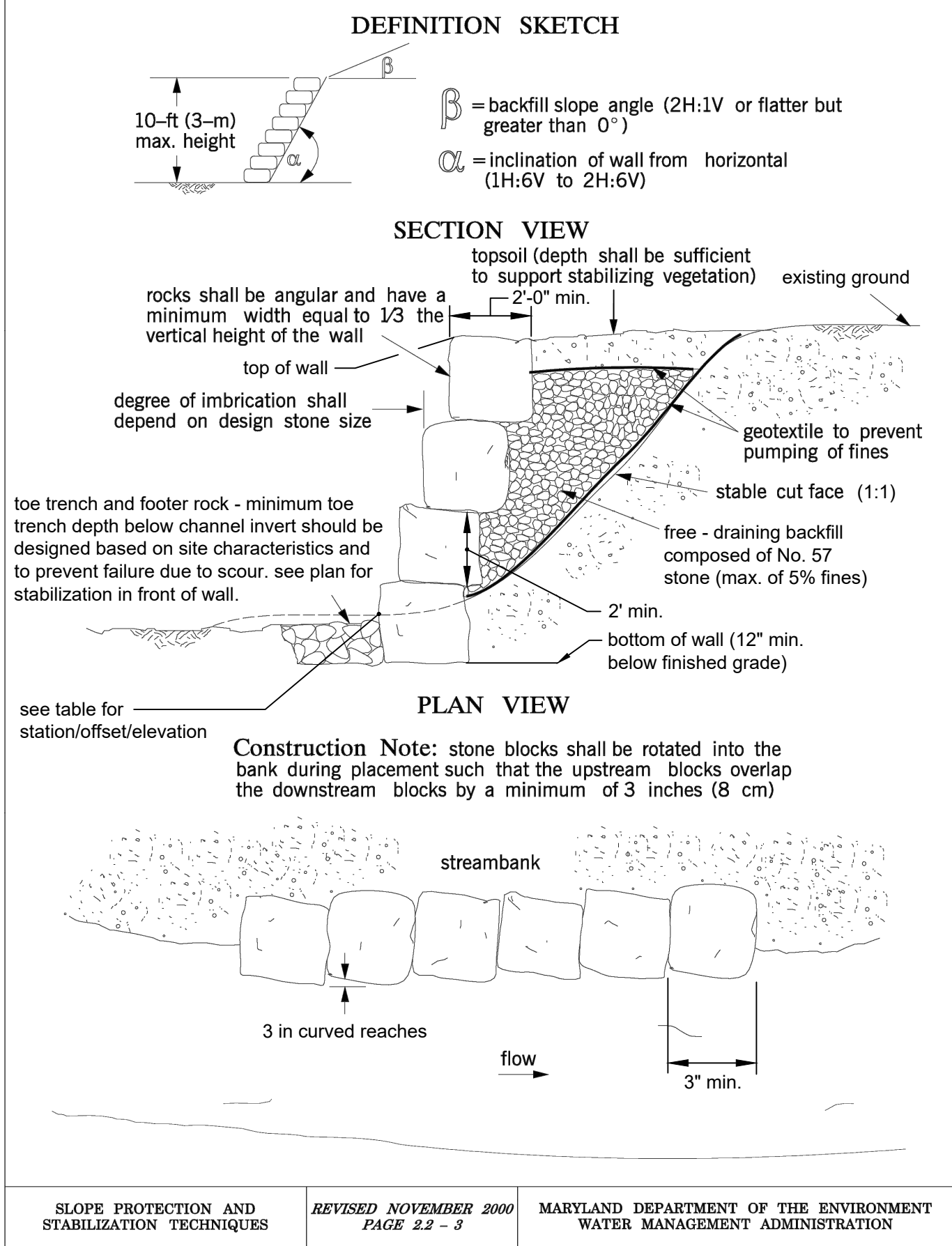
PROFESSIONAL CERTIFICATION

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PROFESSIONAL ENGINEER UNDER THE
LAWS OF THE STATE OF MARYLAND,
LICENSE NO. 34691
EXPIRATION DATE: 7/10/2025

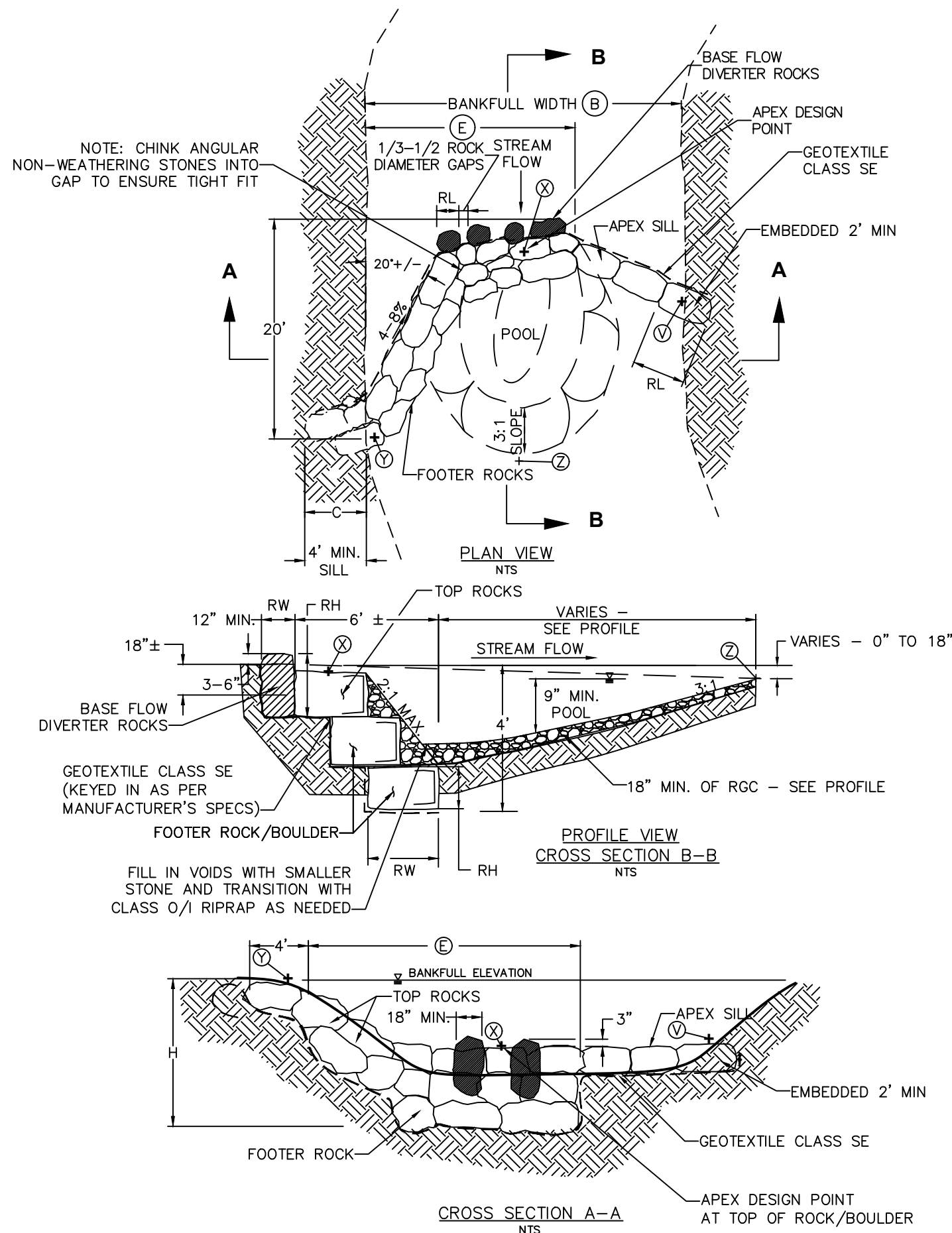
AECOM

REVISIONS	HARFORD COUNTY, MARYLAND	
	DECLARATION RUN STREAM RESTORATION TYPICAL DETAILS IV	
	DRAWN BY : <u>SAB</u> DESIGNED BY : <u>BWA</u> REVIEWED BY : <u>JJW</u>	CONTRACT NO : <u>97040</u> SCALE : <u>NTS</u> SHEET <u>19</u> OF <u>47</u>  SCALE : 1 inch DATE : <u>MARCH 2025</u>

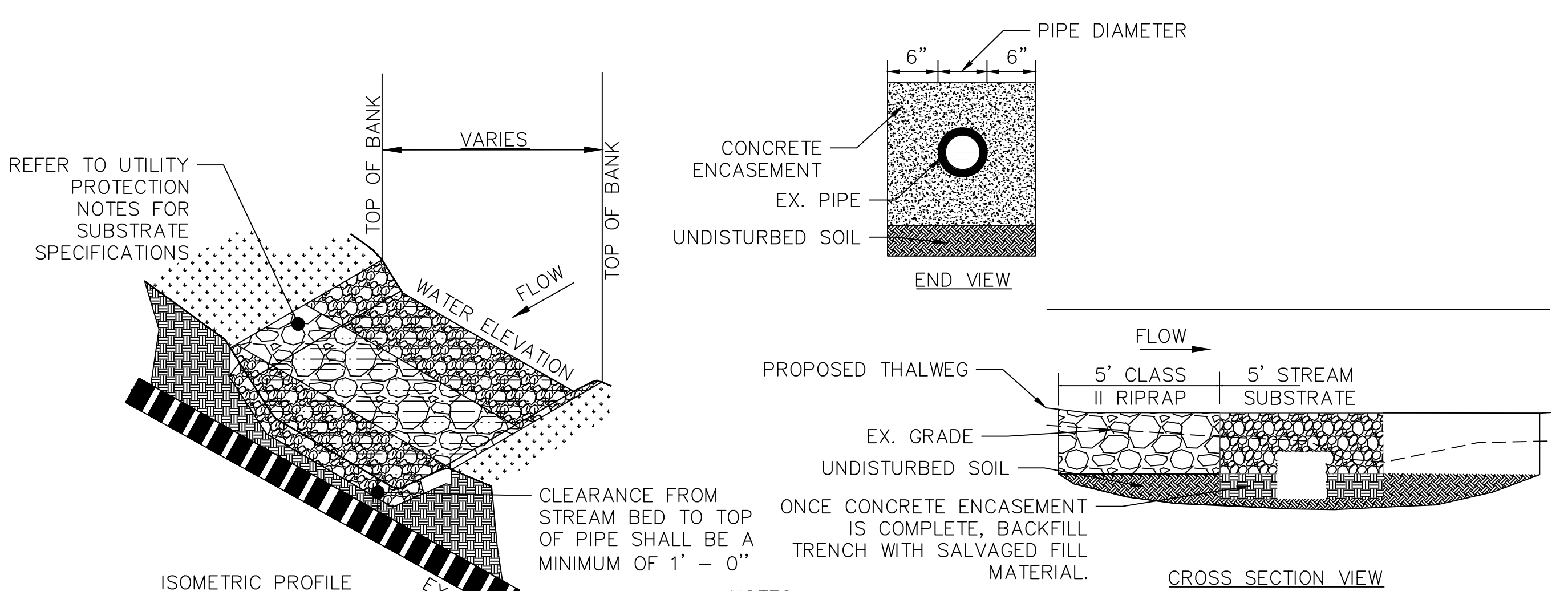
Maryland's Guidelines To Waterway Construction
DETAIL 2.2: IMBRICATED RIPRAP



16 IMBRICATED RIPRAP
NOT TO SCALE



17 J-HOOK VANES DETAIL
NOT TO SCALE



NOTES

1. CONTRACTOR SHALL CALL MISS UTILITY 811 PRIOR TO COMMENCING ANY WORK.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR COST OF ANY DAMAGES TO UTILITIES CAUSED BY THE CONSTRUCTION, AND WILL BE REQUIRED TO PERFORM REPAIRS AT THE COUNTY'S REQUEST.
3. STREAM SUBSTRATE SHALL BE USED AS FILL MATERIAL TO RAISE THE EXISTING GRADE TO THE ELEVATION SPECIFIED IN PROFILE SHEETS.
4. CLASS II RIPRAP SHALL BE PLACED TO A MINIMUM DEPTH OF THREE (3) FEET.
5. CONCRETE ENCASEMENT SHALL EXTEND A MINIMUM OF 5 FEET BEYOND THE TOP OF BANK ON THE LEFT AND RIGHT.
6. CONCRETE USED FOR THE ENCASEMENT SHALL BE 3000 P.S.I. OR GREATER.

18 UTILITY PROTECTION
NOT TO SCALE

J-HOOK VANE (JHV) TABLE																	
Structure No.	Station	Offset	Bankfull Width (B)	Dim. E	Elev. X	Elev. V	Elev. Y	Elev. Z	Top Rocks (Grade Control) Min. Dimensions.			Baseflow Diverter Rocks Min. Dimensions			Footer Rocks Min. Dimensions		
									Length (RL) (ft)	Height (RH) (ft)	Width (RW) (ft)	Length (RL) (ft)	Height (RH) (ft)	Width (RW) (ft)	Length (RL) (ft)	Height (RH) (ft)	Width (RW) (ft)
JHV-1	9+69	0.00	16.0	10.5	19.6	20.1	21.1	18.33	3.0	2.0	2.0	1.5	2.0	1.0	3.0	2.0	2.0
JHV-2	7+93	0.00	14.0	9.5	23.7	24.2	25.2	23.30	3.0	2.0	2.0	1.5	2.0	1.0	3.0	2.0	2.0
JHV-3	5+17	0.00	14.0	9.5	28.1	28.6	29.6	26.80	3.0	2.0	2.0	1.5	2.0	1.0	3.0	2.0	2.0
JHV-4	3+68	0.00	14.0	9.5	31.7	32.2	33.2	30.85	3.0	2.0	2.0	1.5	2.0	1.0	3.0	2.0	2.0
JHV-5	43+25	0.00	14.0	9.5	66.2	66.7	67.7	66.00	3.0	2.0	2.0	1.5	2.0	1.0	3.0	2.0	2.0

(B), (E), (X), ETC. - SEE TABLE THIS SHEET

IMBRICATED ROCK WALL (IRW) TABLE																						
Segment No.	Begin Station	Offset	Bottom Wall Elev.*	Top Wall Elev.	Station	Offset	Bottom Wall Elev.*	Top Wall Elev.	Station	Offset	Bottom Wall Elev.*	Top Wall Elev.	Station	Offset	Bottom Wall Elev.*	Top Wall Elev.	End Station	Offset	Bottom Wall Elev.*	Top Wall Elev.	Remarks	
IRW-1	9+83	27.5' LT	22.0	24.0	9+87	21' LT	22.0	24.5	10+00	21' LT	21.0	25.5	10+20	21' LT	22.0	25.5	10+25.00	26.5' LT	24.0	25.0		
IRW-2	7+86	34' LT	27.5	29.5	7+88	28' LT	27.5	29.5	8+00	21' LT	25.0	31.0	8+33	28' LT	25.5	31.0	8+39	25' LT	29.0	30.0		
IRW-3	1+20	11.5' LT	35.0	41.0	1+50	17' LT	36.0	41.0	2+00	21.5' LT	39.0	41.5	-	-	-	-	2+06	21.5' LT	39.0	41.0		
IRW-4	1+20	10' RT	35.0	41.0	-	-	-	-	-	-	-	-	-	-	-	-	1+36	29.5' RT	40.0	42.0		
IRW-5	41+04	20' RT	74.0	77.0	41+08	16' RT	74.0	78.0	41+28	16' RT	74.0	81.0	41+45	19' RT	74.0	78.0	41+49	28' RT	78.0	80.0		
IRW-6	39+56	22' RT	81.0	83.0	39+60	20' RT	80.0	83.0	39+94	20' RT	80.0	83.0	-	-	-	-	39+96	24' RT	81.0	83.0		

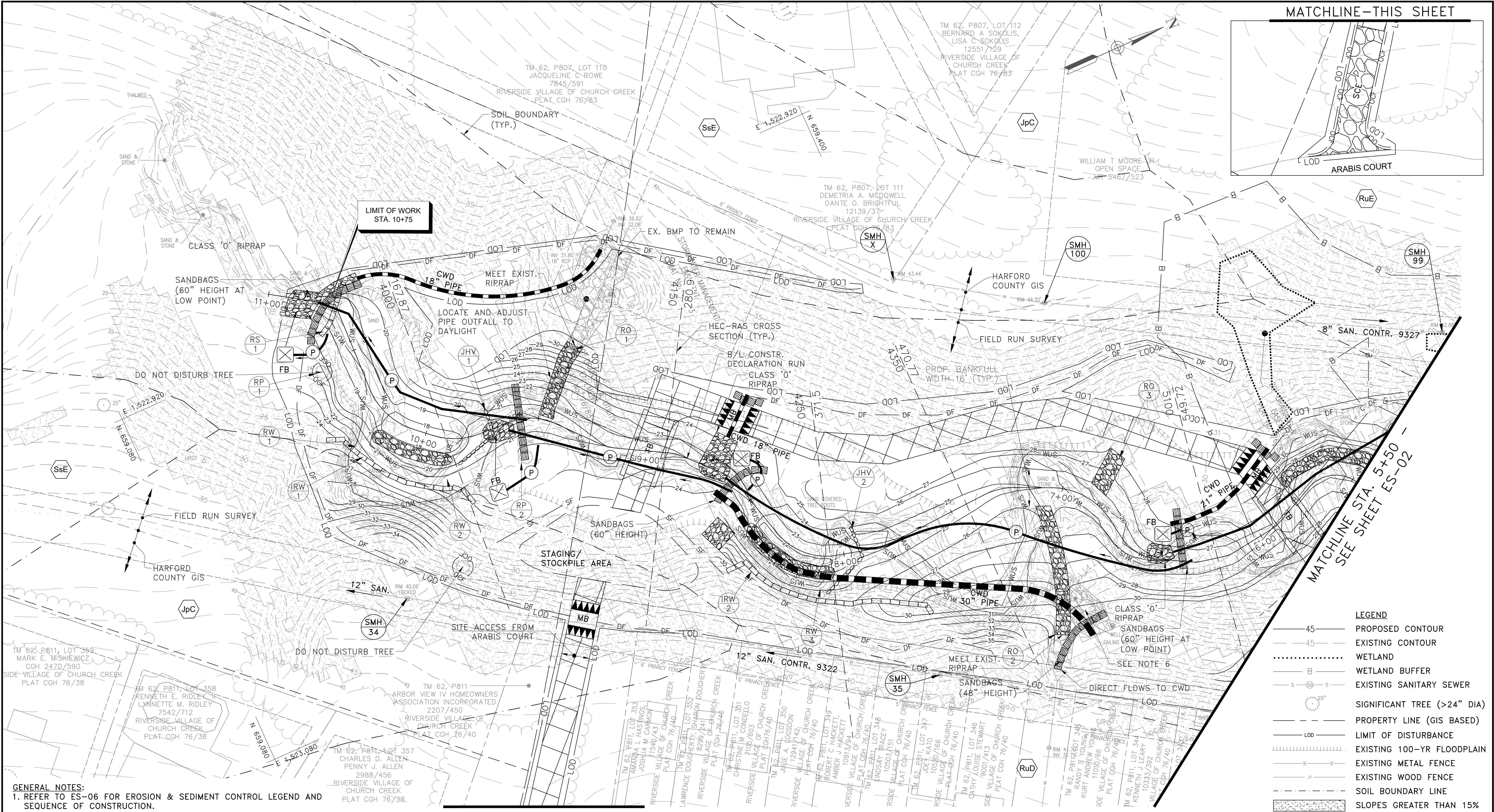
* BOTTOM WALL ELEVATION IS FINISHED ELEVATION.
ROCK TO BE EMBEDDED A MIN. OF 12"



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AECOM

REVISIONS		HARFORD COUNTY, MARYLAND	
		DECLARATION RUN STREAM RESTORATION	
		TYPICAL DETAILS V	
DRAWN BY : SAB		CONTRACT NO : 97040	
DESIGNED BY : BWA		SCALE : NTS	
REVIEWED BY : JJW		SHEET 20 OF 47	
		DATE : MARCH 2025	



- GENERAL NOTES:**
1. REFER TO ES-06 FOR EROSION & SEDIMENT CONTROL LEGEND AND SEQUENCE OF CONSTRUCTION.
 2. FILTER BAGS ARE SHOWN FOR UPSTREAM CONSTRUCTION SEGMENTS ONLY.
 3. CONTRACTOR SHALL ENSURE POSITIVE FLOW ALONG DIVERSION FENCES.
 4. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED OR TRACKED ONTO ADJACENT ROADWAY.
 5. THE CONTRACTOR SHALL NOT DISTURB MORE THAN CAN BE STABILIZED IN ONE DAY. LIMITS OF MAINTENANCE OF STREAM FLOW MAY BE SHORTER THAN SHOWN TO ACCOMMODATE A ONE DAY WORK TIME FRAME.
 6. REMOVE, SALVAGE AND REINSTALL EXISTING RIPRAP AFTER CLEAR WATER DEVICES ARE IN PLACE. SUPPLEMENT WITH APPROPRIATE CLASS OF RIPRAP NOTED ON DETAIL 6 ON SHEET TD-03.

PUMP AROUND NOTE:
THE PUMP AROUND SHOWS THE MAXIMUM EXTENT OF THE STREAM TO BE DIVERTED. THE ACTUAL PUMP AROUND LENGTH WILL BE THE LENGTH THAT CAN BE COMPLETED IN A WORK DAY.

NO WORK SHALL START UNTIL ALL REQUIRED RESOURCES ARE ON SITE.

SC PLAN #59846
GRADING PERMIT #



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- LEGEND**
- 45 PROPOSED CONTOUR
 - 45 EXISTING CONTOUR
 - WETLAND
 - B WETLAND BUFFER
 - s-s EXISTING SANITARY SEWER
 - 25\"/>

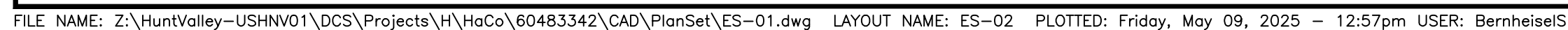
EG 263-2019; SWM 97049 ES-01

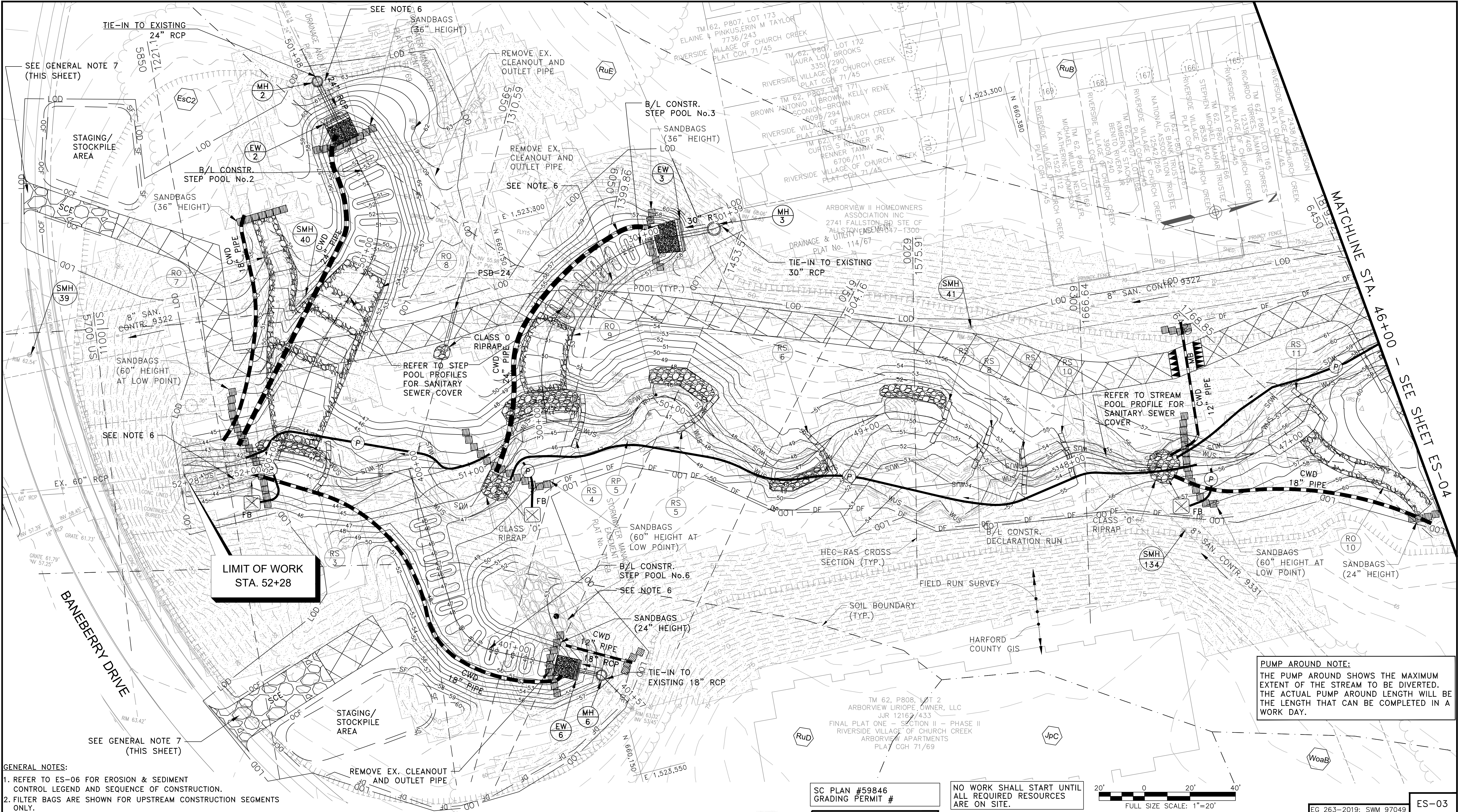
HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION

EROSION & SEDIMENT CONTROL PLAN

DRAWN BY : SAB	CONTRACT NO : 97040
DESIGNED BY : BWA	SCALE : 1\"/>
REVIEWED BY : JJW	SHEET 21 OF 47
DATE : MARCH 2025	





- GENERAL NOTES:**
1. REFER TO ES-06 FOR EROSION & SEDIMENT CONTROL LEGEND AND SEQUENCE OF CONSTRUCTION.
 2. FILTER BAGS ARE SHOWN FOR UPSTREAM CONSTRUCTION SEGMENTS ONLY.
 3. CONTRACTOR SHALL ENSURE POSITIVE FLOW ALONG DIVERSION FENCES.
 4. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED OR TRACKED ONTO ADJACENT ROADWAY.
 5. THE CONTRACTOR SHALL NOT DISTURB MORE THAN CAN BE STABILIZED IN ONE DAY. LIMITS OF MAINTENANCE OF STREAM FLOW MAY BE SHORTER THAN SHOWN TO ACCOMMODATE A ONE DAY WORK TIME FRAME.
 6. REMOVE, SALVAGE AND REINSTALL EXISTING RIPRAP AFTER CLEAR WATER DEVICES ARE IN PLACE. SUPPLEMENT WITH APPROPRIATE CLASS OF RIPRAP NOTED ON DETAIL 6 ON SHEET TD-03.
 7. CONTRACTOR SHALL REMOVE NECESSARY SEGMENTS OF THE EXISTING TRAFFIC BARRIER (W-BEAM AND POSTS) TO FACILITATE THE INSTALLATION OF THE STABILIZED CONSTRUCTION ENTRANCE (SCE). THE CONTRACTOR SHALL RESET THE SALVAGED SEGMENTS OF TRAFFIC BARRIER AT THE TIME OF THE REMOVAL OF THE SCE.

<u>LEGEND</u>				
	45	PROPOSED CONTOUR		PROPERTY LINE (GIS BASED)
	45	EXISTING CONTOUR		LIMIT OF DISTURBANCE
		WETLAND		EXISTING 100-YR FLOODPLAIN
	B	WETLAND BUFFER		EXISTING METAL FENCE
	S	EXISTING SANITARY SEWER		EXISTING WOOD FENCE
	25"	SIGNIFICANT TREE (>24" DIA)		SOIL BOUNDARY LINE
				SLOPES GREATER THAN 15%



SC PLAN #59846
GRADING PERMIT #

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AECOM

NO WORK SHALL START UNTIL ALL REQUIRED RESOURCES ARE ON SITE.

REVISIONS	



PUMP AROUND NOTE:

THE PUMP AROUND SHOWS THE MAXIMUM EXTENT OF THE STREAM TO BE DIVERTED. THE ACTUAL PUMP AROUND LENGTH WILL BE THE LENGTH THAT CAN BE COMPLETED IN A WORK DAY.

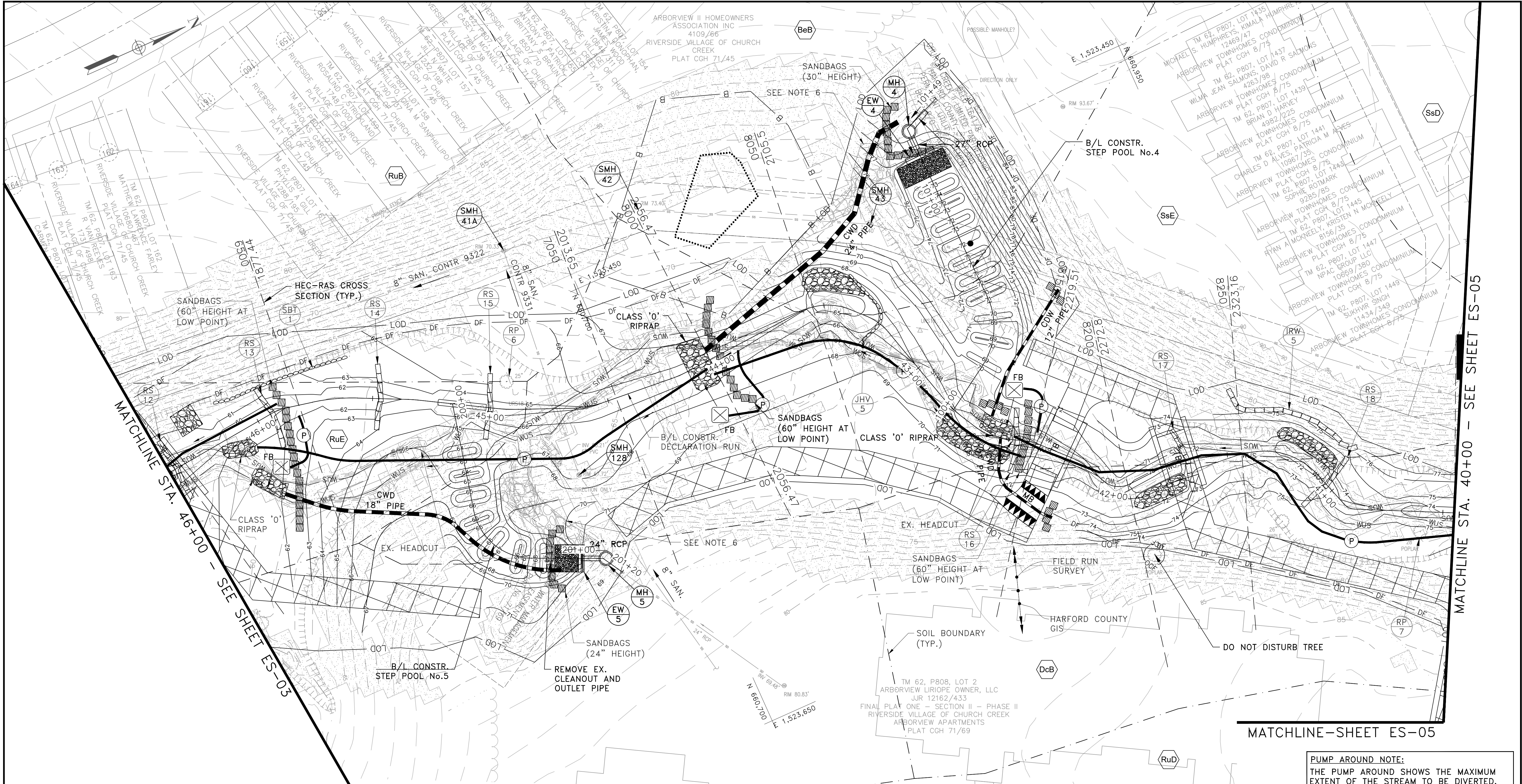
EG 263-2019; SWM 97049 ES-03

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION

EROSION & SEDIMENT CONTROL PLAN

DRAWN BY : SAB	CONTRACT NO : 97040
DESIGNED BY : BWA	SCALE : 1"=20'
REVIEWED BY : JJW	SHEET 23 OF 47
	DATE : MARCH 2025



- GENERAL NOTES:**
1. REFER TO ES-06 FOR EROSION & SEDIMENT CONTROL LEGEND AND SEQUENCE OF CONSTRUCTION.
 2. FILTER BAGS ARE SHOWN FOR UPSTREAM CONSTRUCTION SEGMENTS ONLY.
 3. CONTRACTOR SHALL ENSURE POSITIVE FLOW ALONG DIVERSION FENCES.
 4. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED OR TRACKED ONTO ADJACENT ROADWAY.
 5. THE CONTRACTOR SHALL NOT DISTURB MORE THAN CAN BE STABILIZED IN ONE DAY. LIMITS OF MAINTENANCE OF STREAM FLOW MAY BE SHORTER THAN SHOWN TO ACCOMMODATE A ONE DAY WORK TIME FRAME.
 6. REMOVE, SALVAGE AND REINSTALL EXISTING RIPRAP AFTER CLEAR WATER DEVICES ARE IN PLACE. SUPPLEMENT WITH APPROPRIATE CLASS OF RIPRAP NOTED ON DETAIL 6 ON SHEET TD-03.

LEGEND

—45—	PROPOSED CONTOUR
- - -45- - -	EXISTING CONTOUR
.....	WETLAND
—B—	WETLAND BUFFER
—S—(S)—S—	EXISTING SANITARY SEWER
(24")	SIGNIFICANT TREE (>24" DIA)
—LOD—	PROPERTY LINE (GIS BASED)
	LIMIT OF DISTURBANCE
—X—X—	EXISTING 100-YR FLOODPLAIN
—X—X—	EXISTING METAL FENCE
—//—	EXISTING WOOD FENCE
- - - - -	SOIL BOUNDARY LINE
[Pattern]	SLOPES GREATER THAN 15%

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AECOM

20' 0 20' 40'

FULL SIZE SCALE: 1"=20'

REVISIONS

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HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION

EROSION & SEDIMENT CONTROL PLAN

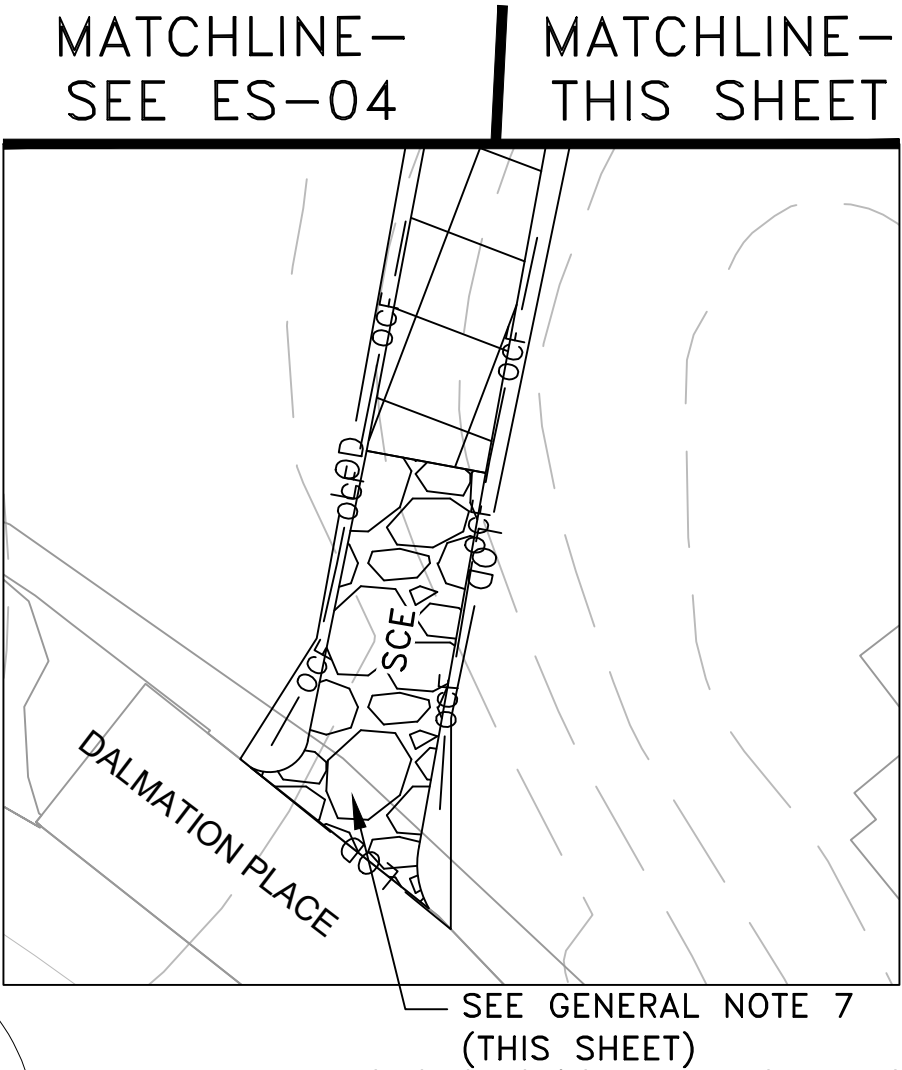
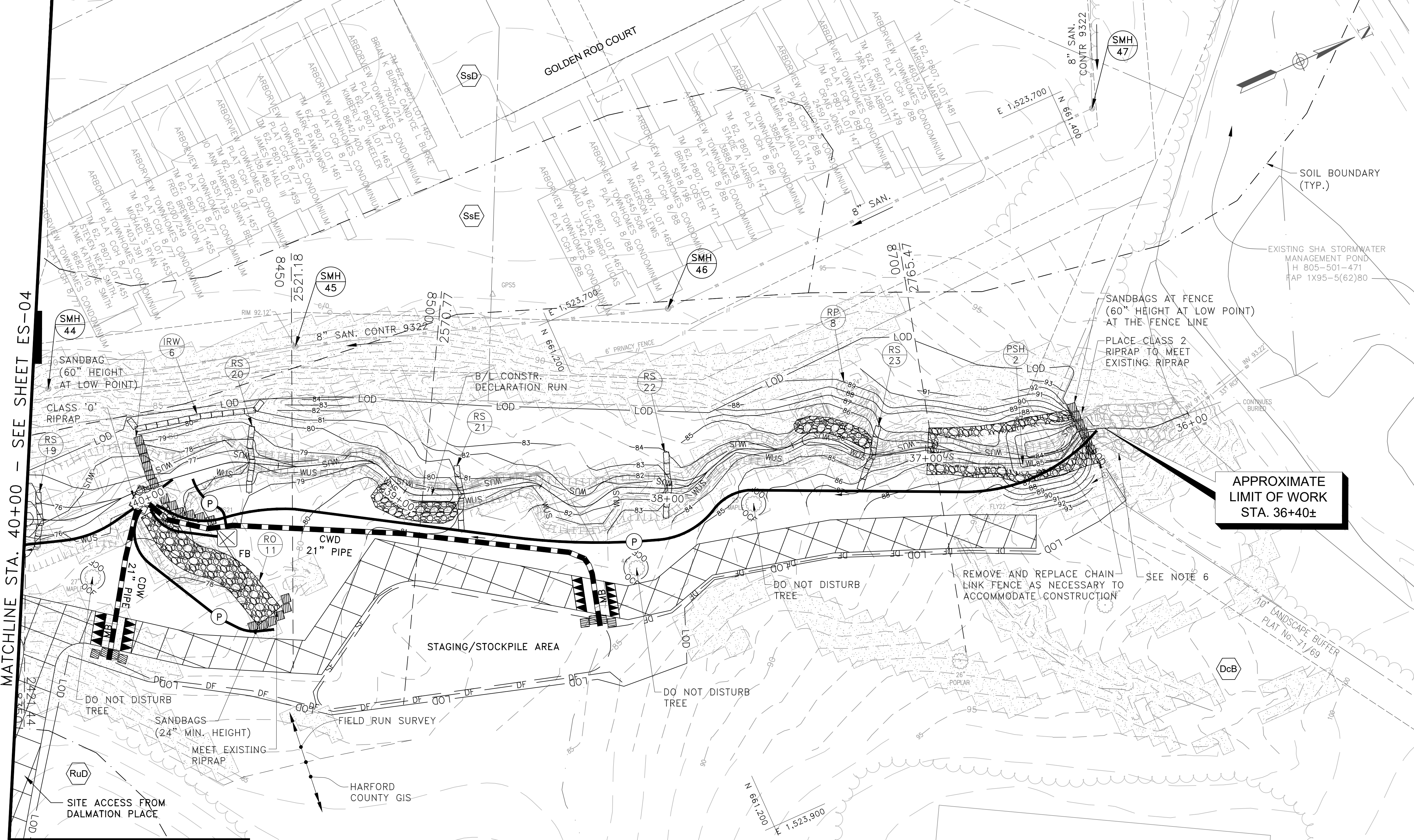
DRAWN BY : SAB	CONTRACT NO : 97040
DESIGNED BY : BWA	SCALE : 1"=20'
REVIEWED BY : JJW	SHEET 24 OF 47
DATE : MARCH 2025	SCALE: 1"=20'

PUMP AROUND NOTE:

THE PUMP AROUND SHOWS THE MAXIMUM EXTENT OF THE STREAM TO BE DIVERTED. THE ACTUAL PUMP AROUND LENGTH WILL BE THE LENGTH THAT CAN BE COMPLETED IN A WORK DAY.

EG 263-2019; SWM 97049

ES-04



- GENERAL NOTES:**
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 - FILTER BAGS ARE SHOWN FOR UPSTREAM CONSTRUCTION SEGMENTS ONLY.
 - CONTRACTOR SHALL ENSURE POSITIVE FLOW ALONG DIVERSION FENCES.
 - IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED OR TRACKED ONTO ADJACENT ROADWAY.
 - THE CONTRACTOR SHALL NOT DISTURB MORE THAN CAN BE STABILIZED IN ONE DAY. LIMITS OF MAINTENANCE OF STREAM FLOW MAY BE SHORTER THAN SHOWN TO ACCOMMODATE A ONE DAY WORK TIME FRAME.
 - REMOVE, SALVAGE AND REINSTALL EXISTING RIPRAP AFTER CLEAR WATER DEVICES ARE IN PLACE. SUPPLEMENT WITH APPROPRIATE CLASS OF RIPRAP NOTED ON DETAIL 6 ON SHEET TD-03.
 - THE LOCATION OF THE STABILIZED CONSTRUCTION ENTRANCE AND ACCESS ROAD MAY SHIFT TO AVOID UTILITIES AND OTHER SITE CONSTRAINTS WITH THE APPROVAL OF THE COUNTY INSPECTOR. EXISTING PARKING MAY BE TEMPORARILY IMPACTED DURING CONSTRUCTION.

- LEGEND**
- 45— PROPOSED CONTOUR
 - - -45- - - EXISTING CONTOUR
 - WETLAND
 - B — WETLAND BUFFER
 - S — S — EXISTING SANITARY SEWER
 - 5" — SIGNIFICANT TREE (>24" DIA)
 - LOD — PROPERTY LINE (GIS BASED)
 - EXISTING 100-YR FLOODPLAIN
 - X — X — EXISTING METAL FENCE
 - // — EXISTING WOOD FENCE
 - - - - - SOIL BOUNDARY LINE
 - [Pattern] SLOPES GREATER THAN 15%

NO WORK SHALL START UNTIL ALL REQUIRED RESOURCES ARE ON SITE.

SC PLAN #59846
GRADING PERMIT #



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AECOM



PUMP AROUND NOTE:
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REVISIONS		HARFORD COUNTY, MARYLAND	
		DECLARATION RUN STREAM RESTORATION EROSION & SEDIMENT CONTROL PLAN	
		DRAWN BY : <u>SAB</u>	CONTRACT NO : <u>97040</u>
		DESIGNED BY : <u>BWA</u>	SCALE : <u>1"=20'</u>
		REVIEWED BY : <u>JJW</u>	SHEET <u>25</u> OF <u>47</u>
			 SCALE : 1 inch
		DATE : <u>MARCH 2025</u>	

SEQUENCE OF CONSTRUCTION

NOTE THAT SOME SEQUENCE STEPS MAY BE PERFORMED CONCURRENTLY WITH THE APPROVAL OF THE COUNTY INSPECTOR. THE SEQUENCE IS BASED ON THE UPSTREAM SEGMENT (UPSTREAM OF BANEERRY DRIVE) BEING CONSTRUCTED FIRST, THEN DOWNSTREAM OF BANEERRY DRIVE. EACH SEGMENT SHOULD BE CONSTRUCTED UPSTREAM TO DOWNSTREAM.

1. CONTACT MISS UTILITY 72 HOURS PRIOR TO THE START OF WORK AT 1-800-257-7777. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REFERENCE AND MAINTAIN UTILITY LOCATION MARKINGS DURING CONSTRUCTION.
2. CONDUCT ON-SITE CONSTRUCTION /EROSION AND SEDIMENT CONTROL MEETING WITH DPW, THE ENGINEER AND MDE INSPECTOR PRIOR TO COMMENCING WORK. REFER TO THE EROSION AND SEDIMENT CONTROL STANDARD NOTES AND DETAILS.
3. INSTALL STABILIZED CONSTRUCTION ENTRANCES (SCE) AT THE LOCATIONS INDICATED. INSTALL ORANGE CONSTRUCTION FENCE AS SHOWN AND AS DIRECTED BY THE COUNTY INSPECTOR.
4. NOTE THAT CLEAR WATER DIVERSION PIPES ARE SHOWN FOR GRAPHICAL PURPOSES ONLY. THE PIPE WILL NEED TO BE SHIFTED AS NECESSARY TO ACCOMMODATE CONSTRUCTION. DURING DRY WEATHER PERIODS, THE PIPES MAY BE MOVED AWAY FROM THE WORK ZONE AND RESET AT THE END OF EACH WORK DAY. PUMP-AROUND PRACTICES SHALL BE USED DURING THE WORK DAY IF FLOWS ARE ENCOUNTERED DURING CONSTRUCTION.
5. BEGIN CLEARING AND GRUBBING FOR THE STAGING/STOCKPILE AREA, 12' MINIMUM WIDTH TIMBER MAT ACCESS ROADS, TEMPORARY BRIDGES AND PERIMETER EROSION AND SEDIMENT CONTROL DEVICES BEGINNING AT THE UPSTREAM SEGMENT IN THE RECOMMENDED SEQUENCE. INSTALL TIMBER MAT ACCESS ROADS, TEMPORARY BRIDGES, SILT FENCE AROUND STAGING/STOCKPILE AREAS, MOUNTABLE BERMS. CONSTRUCTION SEGMENTS MAY BE ADJUSTED WITH THE APPROVAL OF THE COUNTY INSPECTOR. ADJUST TEMPORARY BRIDGES TO FACILITATE CONSTRUCTION.
6. THE FOLLOWING SEQUENCE STATION LIMITS MAY BE ADJUSTED BASED ON WORK PROGRESS WITH APPROVAL FROM THE COUNTY INSPECTOR:

a. STATION 36+40± TO 39+95 (ES-05, SHEET 25):

- i. INSTALL CLEAR WATER DIVERSION PIPE, SANDBAG DIKES, FILTER BAG, AND INCIDENTALS AS SHOWN ON DETAIL C-6 (CLEAR WATER DIVERSION PIPE).
- ii. INSTALL DIVERSION FENCING (MAINTAIN POSITIVE DRAINAGE). PLACE CLASS '0' RIPRAP (5' x 5') AT THE OUTFALL OF THE FILTER BAG AT STATION 40+00.
- iii. BEGINNING UPSTREAM TO DOWNSTREAM, BEGIN STREAM GRADING, CONSTRUCTION OF ROCK SILLS, PLACEMENT OF RIFFLE GRADE CONTROL MIX, TOPSOIL, SEED AND MULCH, TYPE 'D' SOIL STABILIZATION, AND PLANTINGS.
- iv. ONCE PERMANENT STABILIZATION MEASURES ARE IN PLACE, REMOVE AND SALVAGE THE CLEAR WATER DIVERSION PIPE FOR LATER USE, REMOVE THE DIVERSION FENCE, REMOVE THE FILTER BAG AND COMPLETE FINAL STABILIZATION.

b. STATION 39+95 TO 42+50 (ES-04 & 05; SHEETS 24 & 25):

- v. MONITOR UPSTREAM SEGMENT FOR CONTINUED STABILITY. RESTABILIZE AREAS AS WARRANTED.
- ii. INSTALL PUMP-AROUND PRACTICE FOR RIPRAP INFLOW CHANNEL, STATION 40+00 LEFT.
- iii. INSTALL CLEAR WATER DIVERSION PIPE, SANDBAG DIKES, FILTER BAG, AND INCIDENTALS AS SHOWN ON DETAIL C-6 (CLEAR WATER DIVERSION PIPE). ADJUST UPSTREAM SANDBAGS AS REQUIRED TO ACCOMMODATE CONSTRUCTION. REMOVE AND SALVAGE THE 30" CLEAR WATER DIVERSION PIPE FOR LATER USE.
- iv. INSTALL DIVERSION FENCING (MAINTAIN POSITIVE DRAINAGE). PLACE CLASS '0' RIPRAP (5' x 10') AT THE OUTFALL OF THE FILTER BAG AND CWD PIPE AT STATION 42+50.
- v. BEGINNING UPSTREAM TO DOWNSTREAM, BEGIN STREAM GRADING, CONSTRUCTION OF ROCK SILLS, IMBRICATED ROCK WALL, PLACEMENT OF RIFFLE GRADE CONTROL MIX, TOPSOIL, SEED AND MULCH, TYPE 'D' SOIL STABILIZATION, AND PLANTINGS.
- vi. ONCE PERMANENT STABILIZATION MEASURES ARE IN PLACE, REMOVE AND SALVAGE THE CLEAR WATER DIVERSION PIPE FOR LATER USE, REMOVE THE DIVERSION FENCE, REMOVE THE FILTER BAG AND COMPLETE FINAL STABILIZATION.
- vii. ADJUST TEMPORARY BRIDGES TO FACILITATE CONSTRUCTION AS NEEDED.

c. STATION 42+50 TO 44+00 (ES-04, SHEET 24):

- i. MONITOR RECENTLY COMPLETED UPSTREAM SEGMENTS FOR CONTINUED STABILITY. RESTABILIZE AREAS AS WARRANTED.
- ii. INSTALL CLEAR WATER DIVERSION PIPE, SANDBAG DIKES, FILTER BAG, AND INCIDENTALS AS SHOWN ON DETAIL C-6 (CLEAR WATER DIVERSION PIPE). ADJUST UPSTREAM SANDBAGS AS REQUIRED TO ACCOMMODATE CONSTRUCTION.
- iii. INSTALL DIVERSION FENCING (MAINTAIN POSITIVE DRAINAGE). PLACE CLASS '0' RIPRAP (5' x 20') AT THE OUTFALL OF THE FILTER BAG AND CWD PIPE AT STATION 44+00.
- iv. BEGINNING UPSTREAM TO DOWNSTREAM, BEGIN STREAM GRADING, CONSTRUCTION OF ROCK SILLS, J-HOOK VANES, PLACEMENT OF RIFFLE GRADE CONTROL MIX, TOPSOIL, SEED AND MULCH, TYPE 'D' SOIL STABILIZATION, AND PLANTINGS.
- v. CONCURRENTLY, CONSTRUCT RIPRAP OUTFALL AT EW-4 WITH EW-4, MH-4 AND CONNECTING PIPE DURING A 3 DAY DRY PERIOD. INSTALL SANDBAGS FOR CLEAR WATER DIVERSION AT OUTFALL OF EW-4.
- vi. BEGINNING UPSTREAM TO DOWNSTREAM, CONSTRUCT THE STEP POOL SYSTEM NO. 4.
- vii. ONCE PERMANENT STABILIZATION MEASURES ARE IN PLACE, REMOVE AND SALVAGE THE CLEAR WATER DIVERSION PIPE FOR LATER USE, REMOVE THE DIVERSION FENCE, REMOVE THE FILTER BAG AND COMPLETE FINAL STABILIZATION.

d. STATION 44+00 TO 45+88 (ES-04, SHEET 24):

- i. MONITOR RECENTLY COMPLETED UPSTREAM SEGMENTS FOR CONTINUED STABILITY. RESTABILIZE AREAS AS WARRANTED.
- ii. INSTALL CLEAR WATER DIVERSION PIPE, SANDBAG DIKES, FILTER BAG, AND INCIDENTALS AS SHOWN ON DETAIL C-6 (CLEAR WATER DIVERSION PIPE). ADJUST UPSTREAM SANDBAGS AS REQUIRED TO ACCOMMODATE CONSTRUCTION.
- iii. INSTALL DIVERSION FENCING (MAINTAIN POSITIVE DRAINAGE). PLACE CLASS '0' RIPRAP (5' x 10' x 2 EACH) AT THE OUTFALL OF THE FILTER BAG AND CWD PIPE AT STATION 45+90 +/-.
- iv. BEGINNING UPSTREAM TO DOWNSTREAM, BEGIN STREAM GRADING, CONSTRUCTION OF ROCK SILLS, J-HOOK VANES, PLACEMENT OF RIFFLE GRADE CONTROL MIX, TOPSOIL, SEED AND MULCH, TYPE 'D' SOIL STABILIZATION, AND PLANTINGS.
- v. CONCURRENTLY, CONSTRUCT RIPRAP OUTFALL AT EW-5 WITH EW-5, MH-5 AND CONNECTING PIPE DURING A 3 DAY DRY PERIOD. INSTALL SANDBAGS FOR CLEAR WATER DIVERSION AT OUTFALL OF EW-5.
- vi. BEGINNING UPSTREAM TO DOWNSTREAM, CONSTRUCT THE STEP POOL SYSTEM NO. 5.
- vii. ONCE PERMANENT STABILIZATION MEASURES ARE IN PLACE, REMOVE AND SALVAGE THE CLEAR WATER DIVERSION PIPE FOR LATER USE, REMOVE THE DIVERSION FENCE, REMOVE THE FILTER BAG AND COMPLETE FINAL STABILIZATION.
- viii. REMOVE AND STABILIZE AREA USED FOR TIMBER MAT ACCESS ROAD, DIVERSION, MOUNTABLE BERMS AND STABILIZED CONSTRUCTION ENTRANCE ONCE THE FINAL STABILIZATION IS COMPLETE FOR STEPS 6a THRU 6d.

e. STATION 45+88 TO 47+50 (ES-03 & 04, SHEET 23 & 24):

- i. MONITOR RECENTLY COMPLETED UPSTREAM SEGMENTS FOR CONTINUED STABILITY. RESTABILIZE AREAS AS WARRANTED.
- ii. INSTALL CLEAR WATER DIVERSION PIPE, SANDBAG DIKES, FILTER BAG, AND INCIDENTALS AS SHOWN ON DETAIL C-6 (CLEAR WATER DIVERSION PIPE). ADJUST UPSTREAM SANDBAGS AS REQUIRED TO ACCOMMODATE CONSTRUCTION.
- iii. INSTALL DIVERSION FENCING (MAINTAIN POSITIVE DRAINAGE). PLACE CLASS '0' RIPRAP (10' x 10') AT THE OUTFALL OF THE FILTER BAG AND CWD PIPE AT STATION 47+50 +/-.
- iv. BEGINNING UPSTREAM TO DOWNSTREAM, BEGIN STREAM GRADING, CONSTRUCTION OF ROCK SILL, PLACEMENT OF RIFFLE GRADE CONTROL MIX, TOPSOIL, SEED AND MULCH, TYPE 'D' SOIL STABILIZATION, AND PLANTINGS.
- v. CONCURRENTLY, CONSTRUCT RIPRAP OUTFALL AT STATION 47+00 LEFT DURING A 3 DAY DRY PERIOD. INSTALL SANDBAGS FOR CLEAR WATER DIVERSION AT STATION 46+80 LEFT IN THE EVENT FLOWS ARE ENCOUNTERED.
- vi. ONCE PERMANENT STABILIZATION MEASURES ARE IN PLACE, REMOVE AND SALVAGE THE CLEAR WATER DIVERSION PIPE FOR LATER USE, REMOVE THE DIVERSION FENCE, REMOVE THE FILTER BAG AND COMPLETE FINAL STABILIZATION.

f. STATION 47+50 TO 50+90 +/- (ES-03, SHEET 23):

- vii. MONITOR RECENTLY COMPLETED UPSTREAM SEGMENTS FOR CONTINUED STABILITY. RESTABILIZE AREAS AS WARRANTED.
- ii. INSTALL CLEAR WATER DIVERSION PIPE, SANDBAG DIKES, FILTER BAG, AND INCIDENTALS AS SHOWN ON DETAIL C-6 (CLEAR WATER DIVERSION PIPE). ADJUST UPSTREAM SANDBAGS AS REQUIRED TO ACCOMMODATE CONSTRUCTION.
- iii. INSTALL DIVERSION FENCING (MAINTAIN POSITIVE DRAINAGE). PLACE CLASS '0' RIPRAP (6' x 12') AT THE OUTFALL OF THE FILTER BAG AND CWD PIPE AT STATION 51+00 +/-.
- iv. BEGINNING UPSTREAM TO DOWNSTREAM, BEGIN STREAM GRADING, CONSTRUCTION OF ROCK SILLS, J-HOOK VANES, PLACEMENT OF RIFFLE GRADE CONTROL MIX, TOPSOIL, SEED AND MULCH, TYPE 'D' SOIL STABILIZATION, AND PLANTINGS.
- v. ONCE PERMANENT STABILIZATION MEASURES ARE IN PLACE, REMOVE AND SALVAGE THE CLEAR WATER DIVERSION PIPE FOR LATER USE, REMOVE THE DIVERSION FENCE, REMOVE THE FILTER BAG AND COMPLETE FINAL STABILIZATION.
- vi. REMOVE AND STABILIZE AREA USED FOR TIMBER MAT ACCESS ROAD, DIVERSIONS, TEMPORARY BRIDGES, AND MOUNTABLE BERMS ONCE FINAL STABILIZATION IS COMPLETE FOR STEPS 6e AND 6f. (EXCEPT AS NEEDED TO CONSTRUCT STEP POOL SYSTEM NO. 3).

g. STATION 50+90 +/- TO 52+28± (ES-02 & 03, SHEET 22 & 23):

- i. MONITOR RECENTLY COMPLETED UPSTREAM SEGMENTS FOR CONTINUED STABILITY. RESTABILIZE AREAS AS WARRANTED.
- ii. INSTALL CLEAR WATER DIVERSION PIPE, SANDBAG DIKES, FILTER BAG, AND INCIDENTALS AS SHOWN ON DETAIL C-6 (CLEAR WATER DIVERSION PIPE). ADJUST UPSTREAM SANDBAGS AS REQUIRED TO ACCOMMODATE CONSTRUCTION.
- iii. INSTALL DIVERSION FENCING (MAINTAIN POSITIVE DRAINAGE).
- iv. BEGINNING UPSTREAM TO DOWNSTREAM, BEGIN STREAM GRADING, CONSTRUCTION OF ROCK SILLS, J-HOOK VANES, PLACEMENT OF RIFFLE GRADE CONTROL MIX, TOPSOIL, SEED AND MULCH, TYPE 'D' SOIL STABILIZATION, AND PLANTINGS.
- v. CONCURRENTLY, CONSTRUCT RIPRAP OUTFALL AT EW-6 WITH EW-6, MH-6 AND CONNECTING PIPE DURING A 3 DAY DRY PERIOD. INSTALL SANDBAGS FOR CLEAR WATER DIVERSION AT OUTFALL OF EW-6.
- vi. BEGINNING UPSTREAM TO DOWNSTREAM, CONSTRUCT THE STEP POOL SYSTEM NO. 6.
- vii. DURING A 3-DAY DRY PERIOD, INSTALL RIPRAP INFLOW TO EXISTING 60" RCP. USE PUMP-AROUND PRACTICE IF STREAM FLOWS ARE ENCOUNTERED DURING INSTALLATION.
- viii. ONCE PERMANENT STABILIZATION MEASURES ARE IN PLACE, REMOVE AND SALVAGE THE CLEAR WATER DIVERSION PIPE FOR LATER USE, REMOVE THE DIVERSION FENCE, REMOVE THE FILTER BAG AND COMPLETE FINAL STABILIZATION.
- ix. REMOVE AND STABILIZE AREA USED FOR TIMBER MAT ACCESS ROAD AND DIVERSIONS ONCE FINAL STABILIZATION IS COMPLETE FOR STEP 6f. (EXCEPT AS NEEDED TO CONSTRUCT STEP POOL SYSTEM NO. 2).

h. STEP POOL SYSTEM NO. 2 AND 3 (ES-03, SHEET 23):

- i. CONCURRENTLY, CONSTRUCT RIPRAP OUTFALL AT EW-3 WITH EW-3, MH-3 AND CONNECTING PIPE DURING A 3 DAY DRY PERIOD. INSTALL SANDBAGS FOR CLEAR WATER DIVERSION AT OUTFALL OF EW-3.
- ii. BEGINNING UPSTREAM TO DOWNSTREAM, CONSTRUCT THE STEP POOL SYSTEM NO. 3.
- iii. CONCURRENTLY, CONSTRUCT RIPRAP OUTFALL AT EW-2 WITH EW-2, MH-2 AND CONNECTING PIPE DURING A 3 DAY DRY PERIOD. INSTALL SANDBAGS FOR CLEAR WATER DIVERSION AT OUTFALL OF EW-2.
- iv. BEGINNING UPSTREAM TO DOWNSTREAM, CONSTRUCT THE STEP POOL SYSTEM NO. 2.
- v. ONCE THE STEP POOL SYSTEMS ARE STABILIZED, REMOVE CLEAR WATER DIVERSIONS AND COMPLETE FINAL STABILIZATION.
- vi. REMOVE AND RESTABILIZE AREA USED FOR REMAINING TIMBER MAT ACCESS ROAD AND COMPLETE FINAL STABILIZATION ASSOCIATED WITH STEPS 6g AND 6h.

7. BEGIN CLEARING AND GRUBBING FOR THE 12' MINIMUM WIDTH TIMBER MAT ACCESS ROADS AND PERIMETER EROSION AND SEDIMENT CONTROL DEVICES BEGINNING AT THE DOWNSTREAM SEGMENT IN THE RECOMMENDED SEQUENCE. CONSTRUCTION SEGMENTS MAY BE ADJUSTED WITH THE APPROVAL OF THE COUNTY INSPECTOR

8. THE FOLLOWING SEQUENCE STATION LIMITS MAY BE ADJUSTED BASED ON WORK PROGRESS WITH THE APPROVAL FROM THE COUNTY INSPECTOR:

a. STATION 1+20 TO 3+25 (ES-02, SHEET 22):

- vj. MONITOR RECENTLY COMPLETED UPSTREAM SEGMENTS FOR CONTINUED STABILITY. RESTABILIZE AREAS AS WARRANTED.
- ii. FLUSH ACCUMULATED SEDIMENT WITHIN THE EXISTING 60" RCP.
- iii. INSTALL CLEAR WATER DIVERSION PIPE, SANDBAG DIKES, FILTER BAG, MOUNTABLE BERM AND INCIDENTALS AS SHOWN ON DETAIL C-6 (CLEAR WATER DIVERSION PIPE). ADJUST UPSTREAM SANDBAGS AS REQUIRED TO ACCOMMODATE CONSTRUCTION.
- iv. INSTALL DIVERSION FENCING (MAINTAIN POSITIVE DRAINAGE). PLACE CLASS '0' RIPRAP (8' x 15') AT THE OUTFALL OF THE FILTER BAG AND CWD PIPE AT STATION 3+40 +/-.
- v. BEGINNING UPSTREAM TO DOWNSTREAM, BEGIN STREAM GRADING, CONSTRUCTION OF ROCK SILLS, J-HOOK VANES, PLACEMENT OF RIFFLE GRADE CONTROL MIX, TOPSOIL, SEED AND MULCH, TYPE 'D' SOIL STABILIZATION, AND PLANTINGS.
- vi. CONCURRENTLY, CONSTRUCT RIPRAP OUTFALL AT EW-1, EW-1, MH-1 AND CONNECTING PIPE DURING A 3 DAY DRY PERIOD. INSTALL SANDBAGS FOR CLEAR WATER DIVERSION AT OUTFALL OF EW-1. CONSTRUCT RIPRAP OUTFALL AT STA. 600+40, RT. B/L CONSTR. STEP POOL NO. 1.
- vii. BEGINNING UPSTREAM TO DOWNSTREAM, CONSTRUCT THE STEP POOL SYSTEM NO. 1.
- viii. ONCE PERMANENT STABILIZATION MEASURES ARE IN PLACE, REMOVE AND SALVAGE THE CLEAR WATER DIVERSION PIPE FOR LATER USE, REMOVE THE DIVERSION FENCE, REMOVE THE FILTER BAG AND COMPLETE FINAL STABILIZATION.
- ix. ADJUST TEMPORARY BRIDGES TO FACILITATE CONSTRUCTION AS NEEDED.

b. STATION 3+25 TO 6+35 (ES-01 & 02, SHEET 21 & 22):

- i. MONITOR UPSTREAM SEGMENT FOR CONTINUED STABILITY. RESTABILIZE AREAS AS WARRANTED.
- ii. INSTALL CLEAR WATER DIVERSION PIPE, SANDBAG DIKES, FILTER BAG, AND INCIDENTALS AS SHOWN ON DETAIL C-6 (CLEAR WATER DIVERSION PIPE). ADJUST UPSTREAM SANDBAGS AS REQUIRED TO ACCOMMODATE CONSTRUCTION. REMOVE AND SALVAGE THE 30" CLEAR WATER DIVERSION PIPE FOR LATER USE.
- iii. INSTALL DIVERSION FENCING (MAINTAIN POSITIVE DRAINAGE). PLACE CLASS '0' RIPRAP (5' x 10') AT THE OUTFALL OF THE FILTER BAG AND CWD PIPE AT STATION 6+45 +/-.
- iv. BEGINNING UPSTREAM TO DOWNSTREAM, BEGIN STREAM GRADING, CONSTRUCTION OF ROCK SILLS, IMBRICATED ROCK WALL, PLACEMENT OF RIFFLE GRADE CONTROL MIX, TOPSOIL, SEED AND MULCH, TYPE 'D' SOIL STABILIZATION, AND PLANTINGS.
- v. ONCE PERMANENT STABILIZATION MEASURES ARE IN PLACE, REMOVE AND SALVAGE THE CLEAR WATER DIVERSION PIPE FOR LATER USE, REMOVE THE DIVERSION FENCE, REMOVE THE FILTER BAG AND COMPLETE FINAL STABILIZATION.
- vi. ADJUST TEMPORARY BRIDGES TO FACILITATE CONSTRUCTION AS NEEDED.

c. STATION 6+35 TO 8+55 (ES-01, SHEET 21):

- i. MONITOR UPSTREAM SEGMENT FOR CONTINUED STABILITY. RESTABILIZE AREAS AS WARRANTED.
- ii. INSTALL CLEAR WATER DIVERSION PIPE, SANDBAG DIKES, FILTER BAG, AND INCIDENTALS AS SHOWN ON DETAIL C-6 (CLEAR WATER DIVERSION PIPE). ADJUST UPSTREAM SANDBAGS AS REQUIRED TO ACCOMMODATE CONSTRUCTION. REMOVE AND SALVAGE THE 30" CLEAR WATER DIVERSION PIPE FOR LATER USE.
- iii. INSTALL DIVERSION FENCING (MAINTAIN POSITIVE DRAINAGE). PLACE CLASS '0' RIPRAP (5' x 10') AT THE OUTFALL OF THE FILTER BAG AND CWD PIPE AT STATION 8+65 +/-.
- iv. BEGINNING UPSTREAM TO DOWNSTREAM, BEGIN STREAM GRADING, CONSTRUCTION OF ROCK SILLS, IMBRICATED ROCK WALL, PLACEMENT OF RIFFLE GRADE CONTROL MIX, TOPSOIL, SEED AND MULCH, TYPE 'D' SOIL STABILIZATION, AND PLANTINGS.
- v. ONCE PERMANENT STABILIZATION MEASURES ARE IN PLACE, REMOVE AND SALVAGE THE CLEAR WATER DIVERSION PIPE FOR LATER USE, REMOVE THE DIVERSION FENCE, REMOVE THE FILTER BAG AND COMPLETE FINAL STABILIZATION.

d. STATION 8+55 TO 10+75 (ES-01, SHEET 21):

- i. MONITOR UPSTREAM SEGMENT FOR CONTINUED STABILITY. RESTABILIZE AREAS AS WARRANTED.
- ii. INSTALL CLEAR WATER DIVERSION PIPE, SANDBAG DIKES, FILTER BAG, AND INCIDENTALS AS SHOWN ON DETAIL C-6 (CLEAR WATER DIVERSION PIPE). ADJUST UPSTREAM SANDBAGS AS REQUIRED TO ACCOMMODATE CONSTRUCTION. REMOVE AND SALVAGE THE 30" CLEAR WATER DIVERSION PIPE FOR LATER USE.
- iii. INSTALL DIVERSION FENCING (MAINTAIN POSITIVE DRAINAGE). PLACE CLASS '0' RIPRAP (10' x 10') AT THE OUTFALL OF THE FILTER BAG AND CWD PIPE AT STATION 10+75 +/-.
- iv. BEGINNING UPSTREAM TO DOWNSTREAM, BEGIN STREAM GRADING, CONSTRUCTION OF ROCK SILLS, IMBRICATED ROCK WALL, PLACEMENT OF RIFFLE GRADE CONTROL MIX, TOPSOIL, SEED AND MULCH, TYPE 'D' SOIL STABILIZATION, AND PLANTINGS.
- v. ONCE PERMANENT STABILIZATION MEASURES ARE IN PLACE, REMOVE AND SALVAGE THE CLEAR WATER DIVERSION PIPE FOR LATER USE, REMOVE THE DIVERSION FENCE, REMOVE THE FILTER BAG AND COMPLETE FINAL STABILIZATION.
- vi. REMOVE AND STABILIZE AREA USED FOR TIMBER MAT ACCESS ROAD, DIVERSIONS, TEMPORARY BRIDGES, AND MOUNTABLE BERMS ONCE FINAL STABILIZATION IS COMPLETE FOR STEPS 8a THRU 8d.

9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING EROSION AND SEDIMENT CONTROL MEASURES AND DEVICES. COMPLETE FINAL STABILIZATION. REMOVE STAGING/STOCKPILE AREAS AND COMPLETE FINAL STABILIZATION.

LEGEND

	MOUNTABLE BERM		PROPOSED STORM DRAIN PIPE
	TEMPORARY ACCESS BRIDGE		FLOW DIRECTION
	CONSTRUCTION ACCESS ROAD		EXISTING 100-YEAR FLOOD PLAIN
	PUMP AROUND PRACTICE		PROPOSED CONTOURS
	STABILIZED CONSTRUCTION ENTRANCE		EXISTING CONTOURS
	FILTER BAG W/ HOSE ON MULCH		LIMIT OF FIELD RUN SURVEY
	SANDBAGS		LIMIT OF DISTURBANCE (LOD)
	TREE REMOVAL (SEE PLANTING PLANS)		ORANGE CONSTRUCTION FENCE (OCF)
	TREE TRUNK PROTECTION		SILT FENCE (SF)
	STEEP SLOPES >15%		DIVERSION FENCE (DF)
			TREE ROOT PRUNING
			WATERS OF THE U.S.
			WETLAND
			SOIL BOUNDARY
			CLEAR WATER DIVERSION

SC PLAN #59846
GRADING PERMIT #



PROFESSIONAL CERTIFICATION
"I HEREBY CERTIFY THAT 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. 34691
EXPIRATION DATE: 7/10/2025"

AECOM

REVISIONS

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION
EROSION & SEDIMENT CONTROL LEGEND &
SEQUENCE OF CONSTRUCTON

DRAWN BY : SAB

DESIGNED BY : BWA

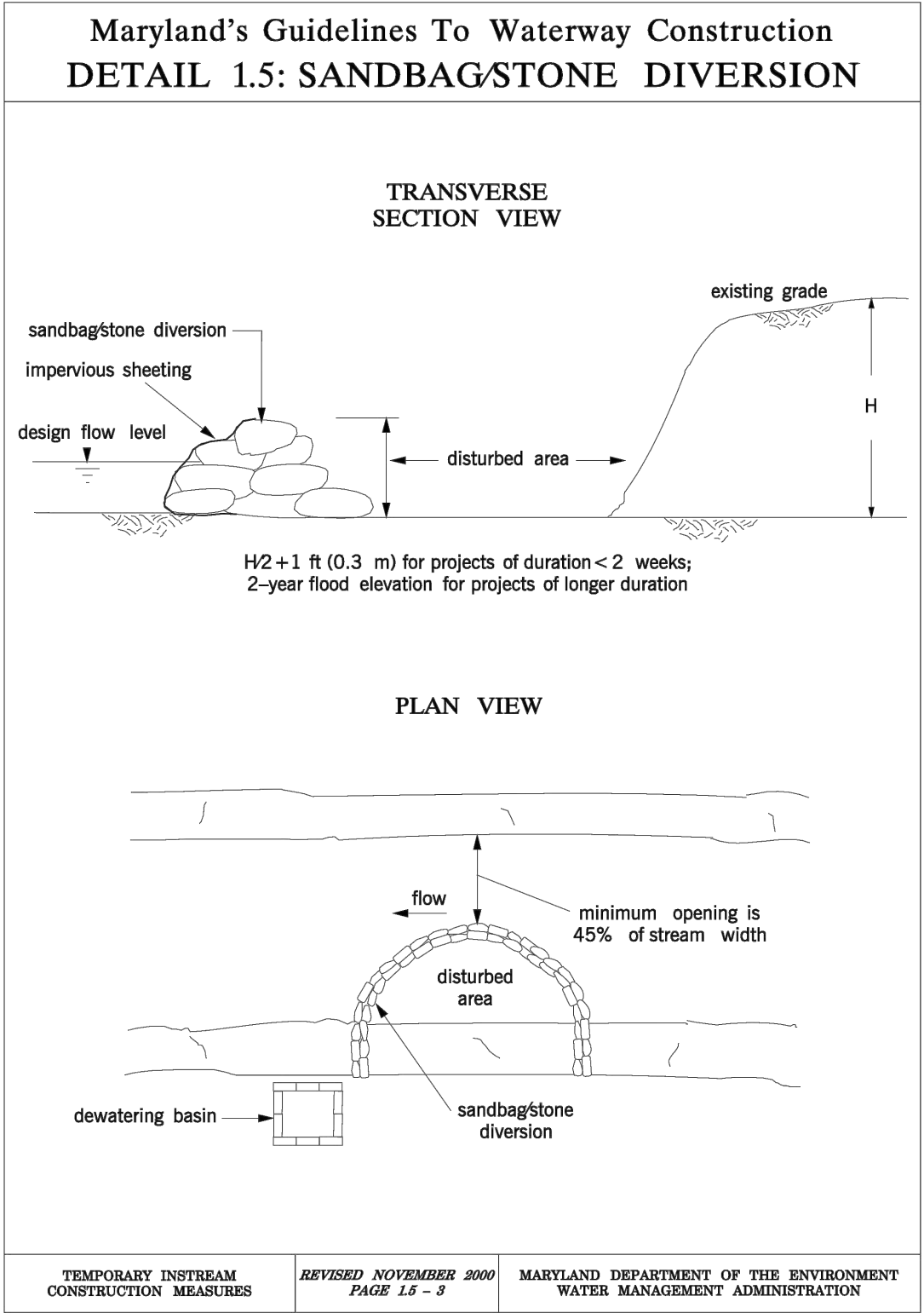
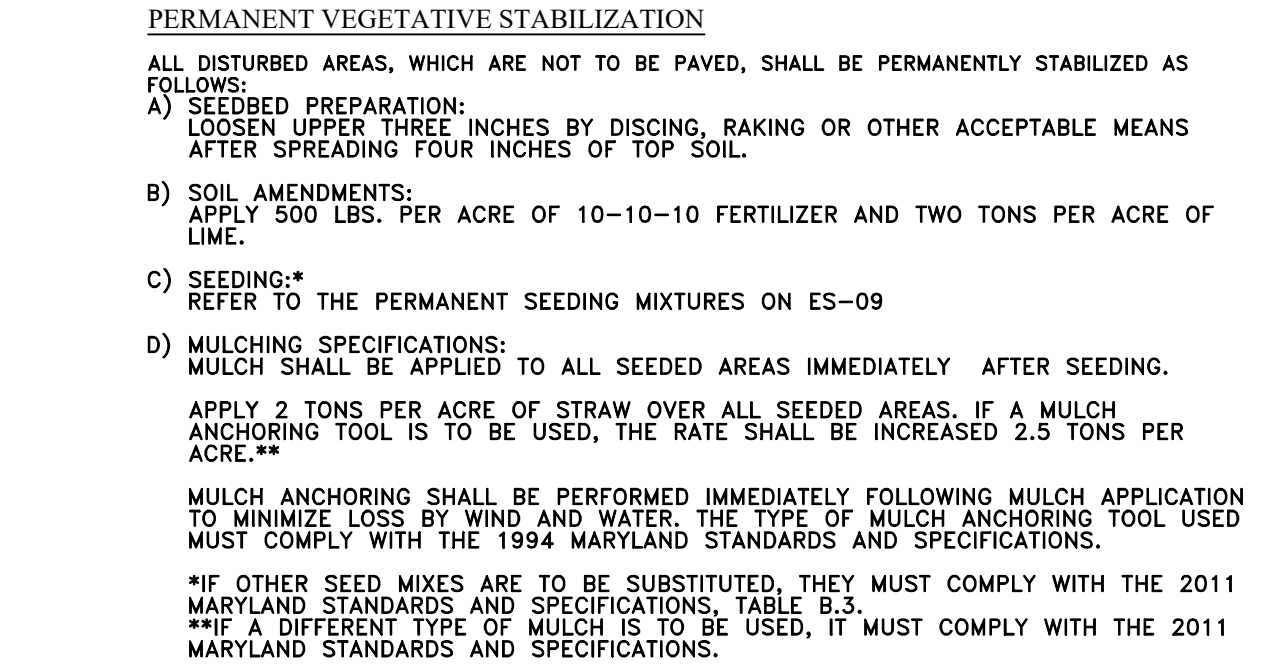
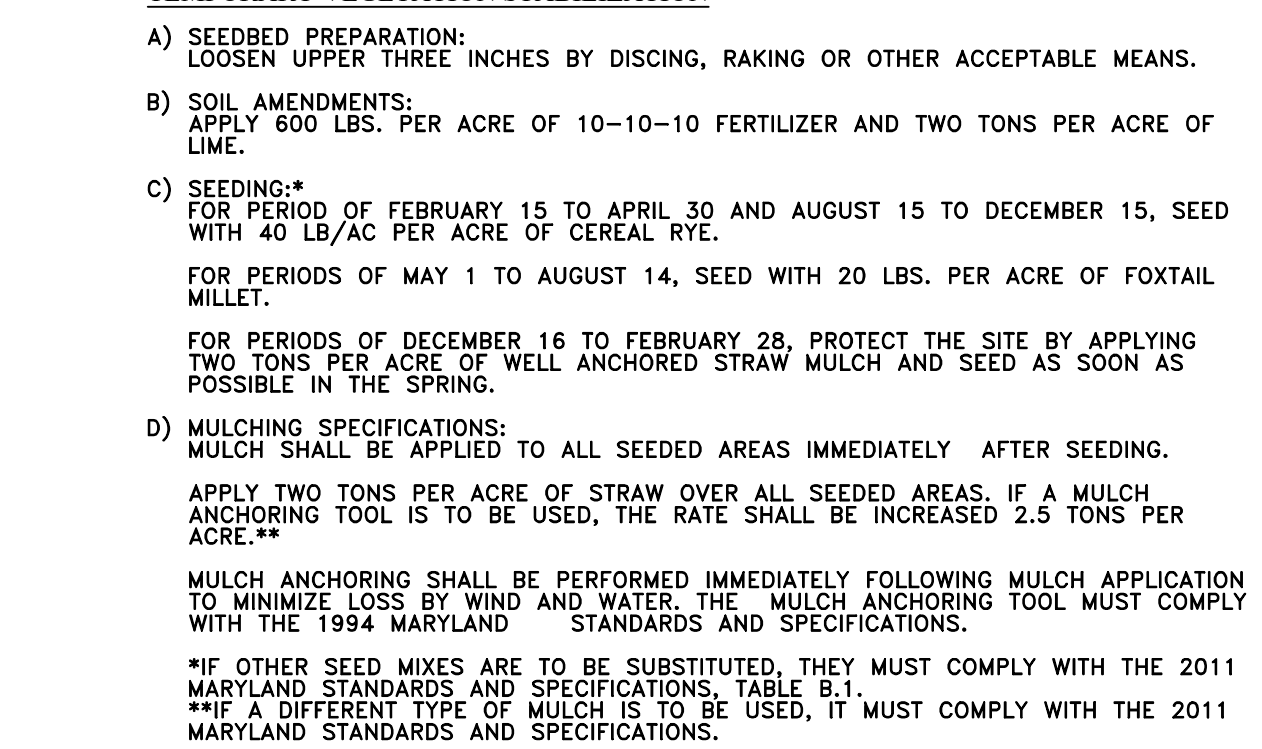
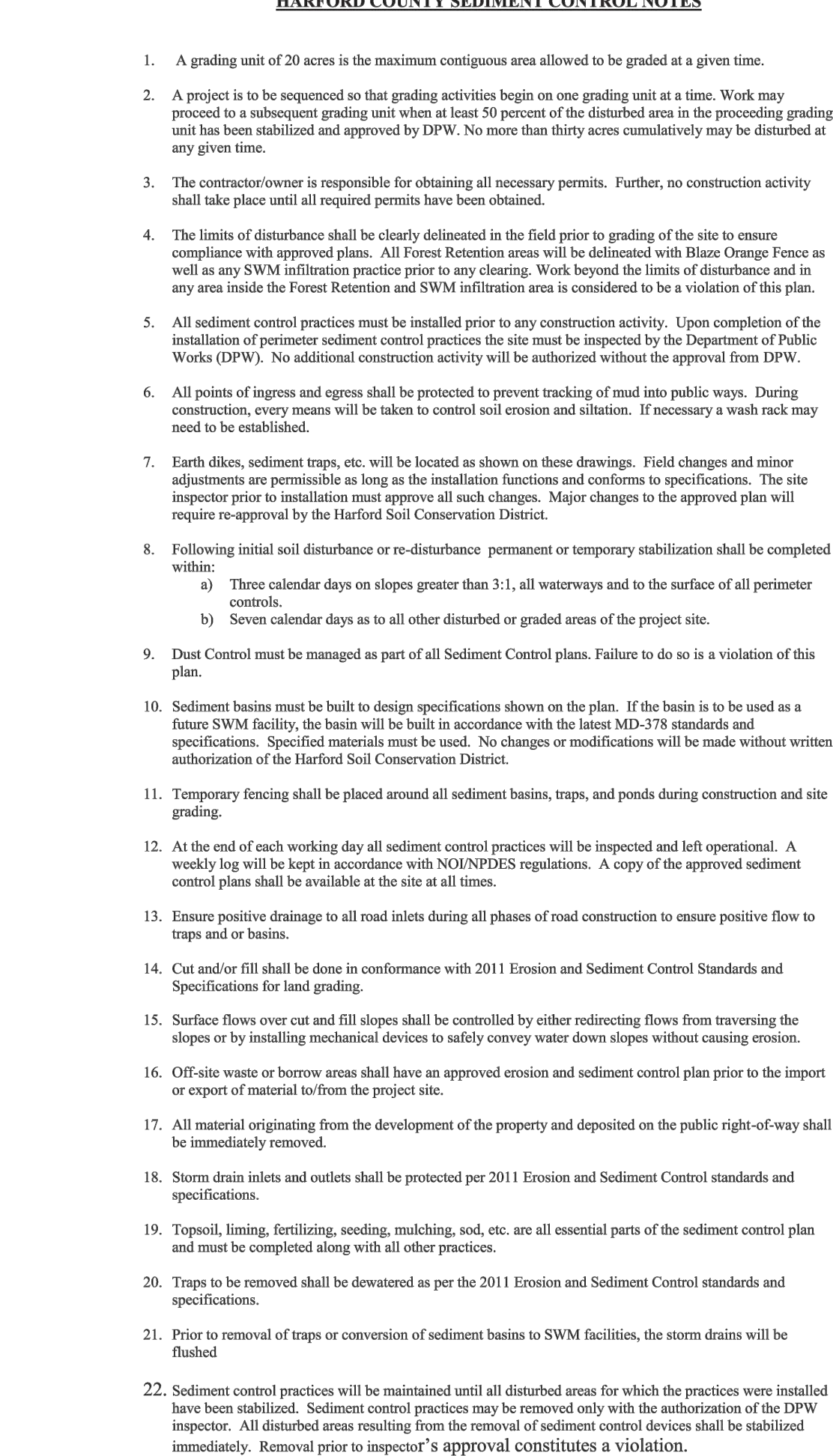
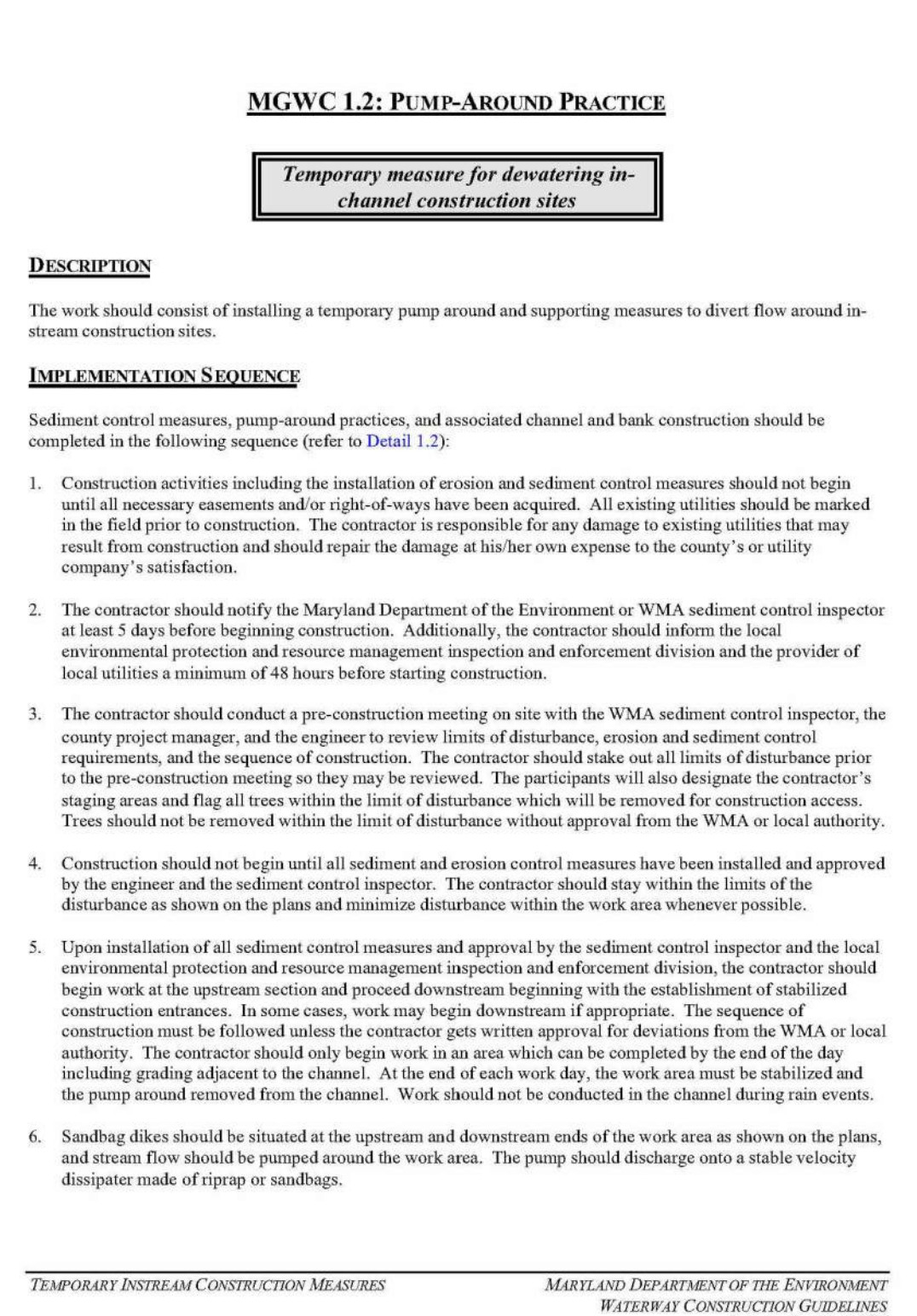
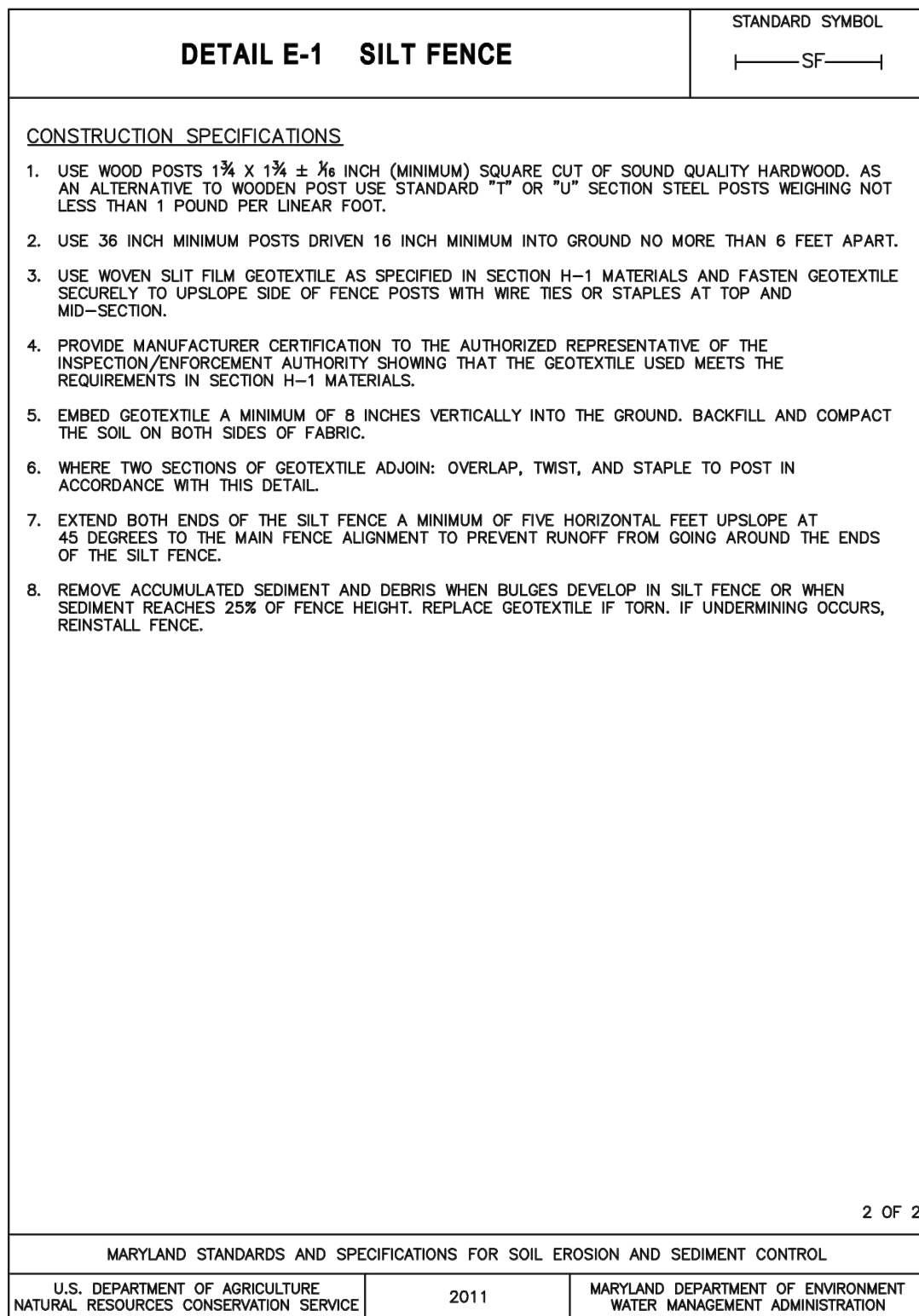
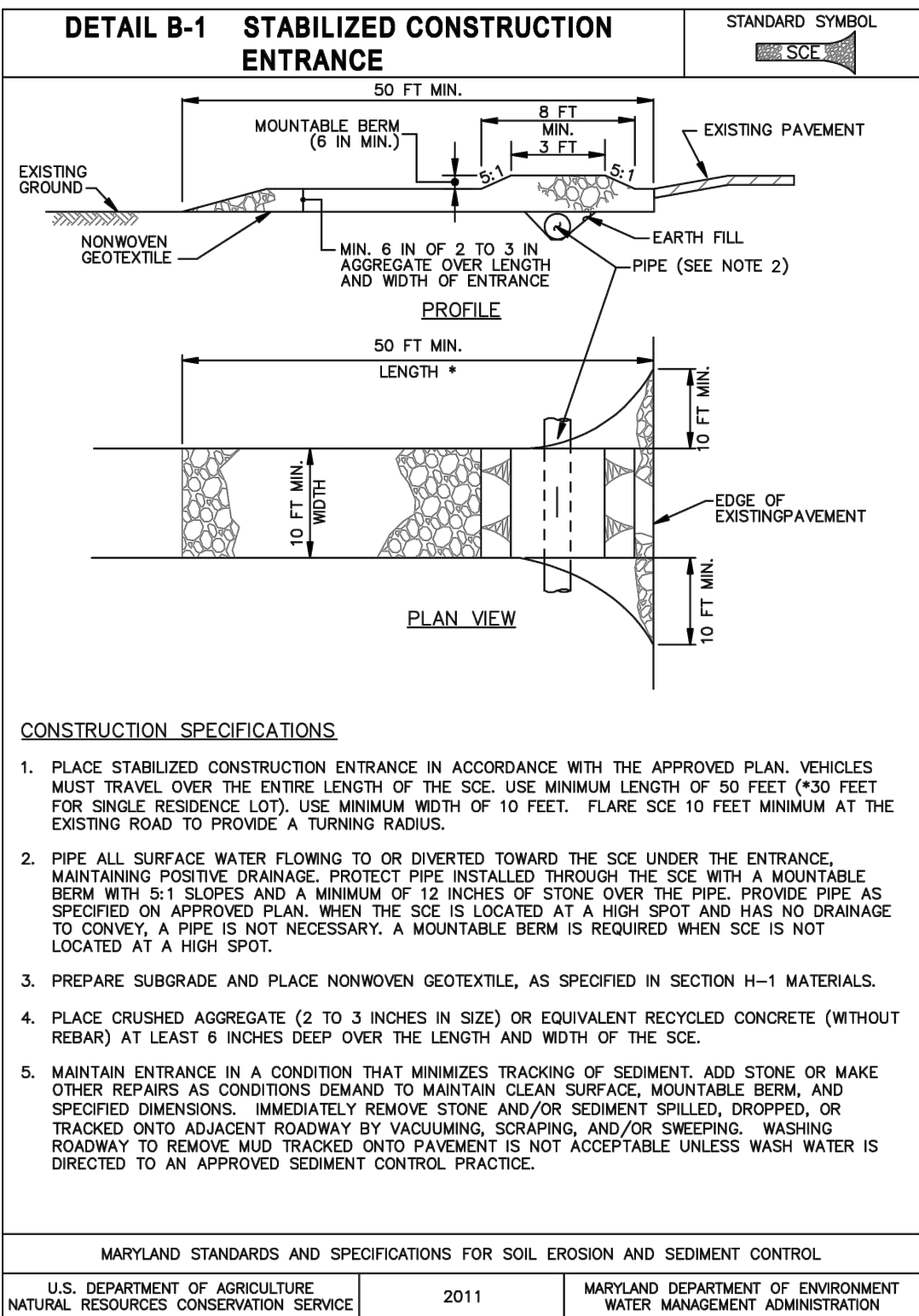
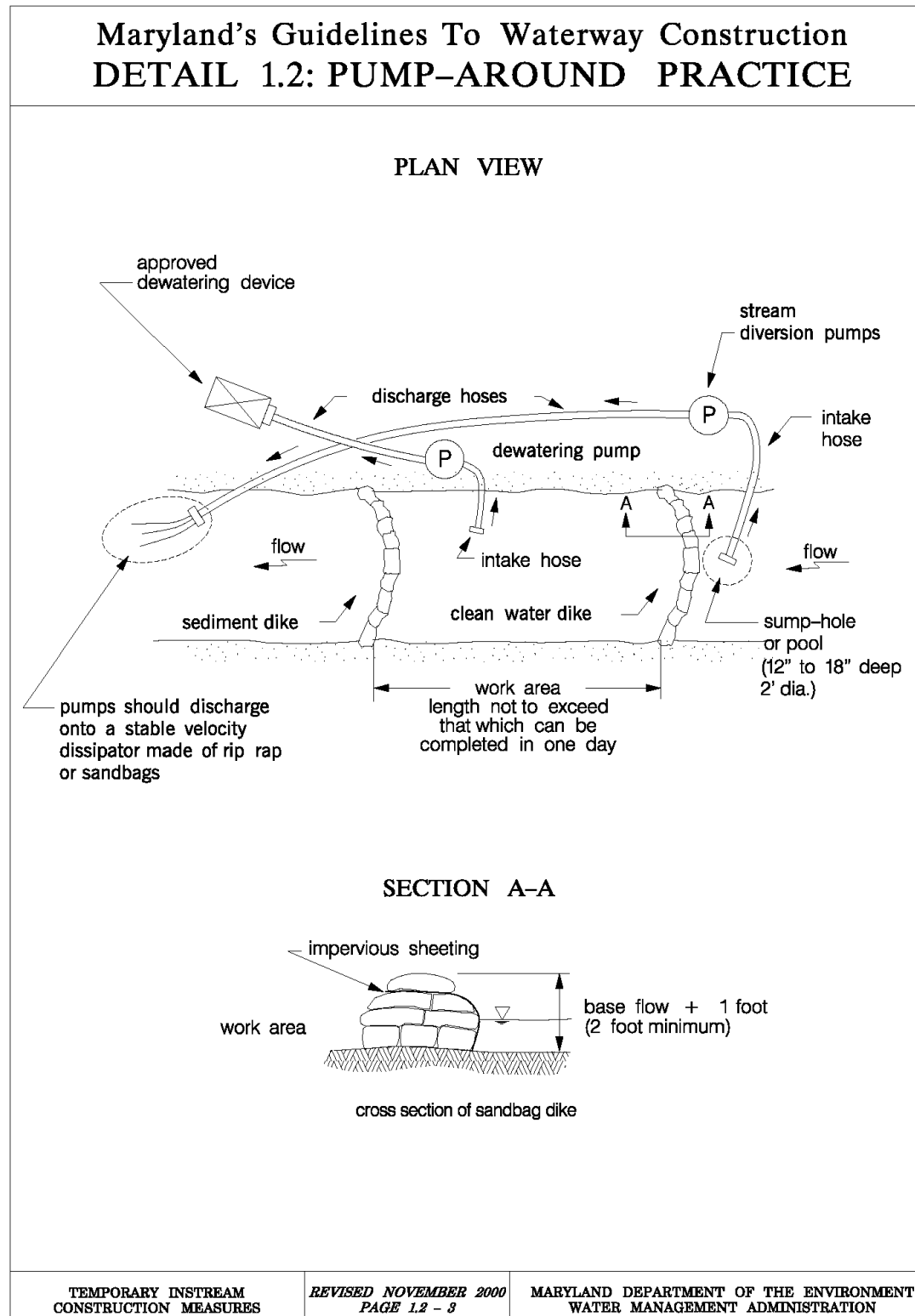
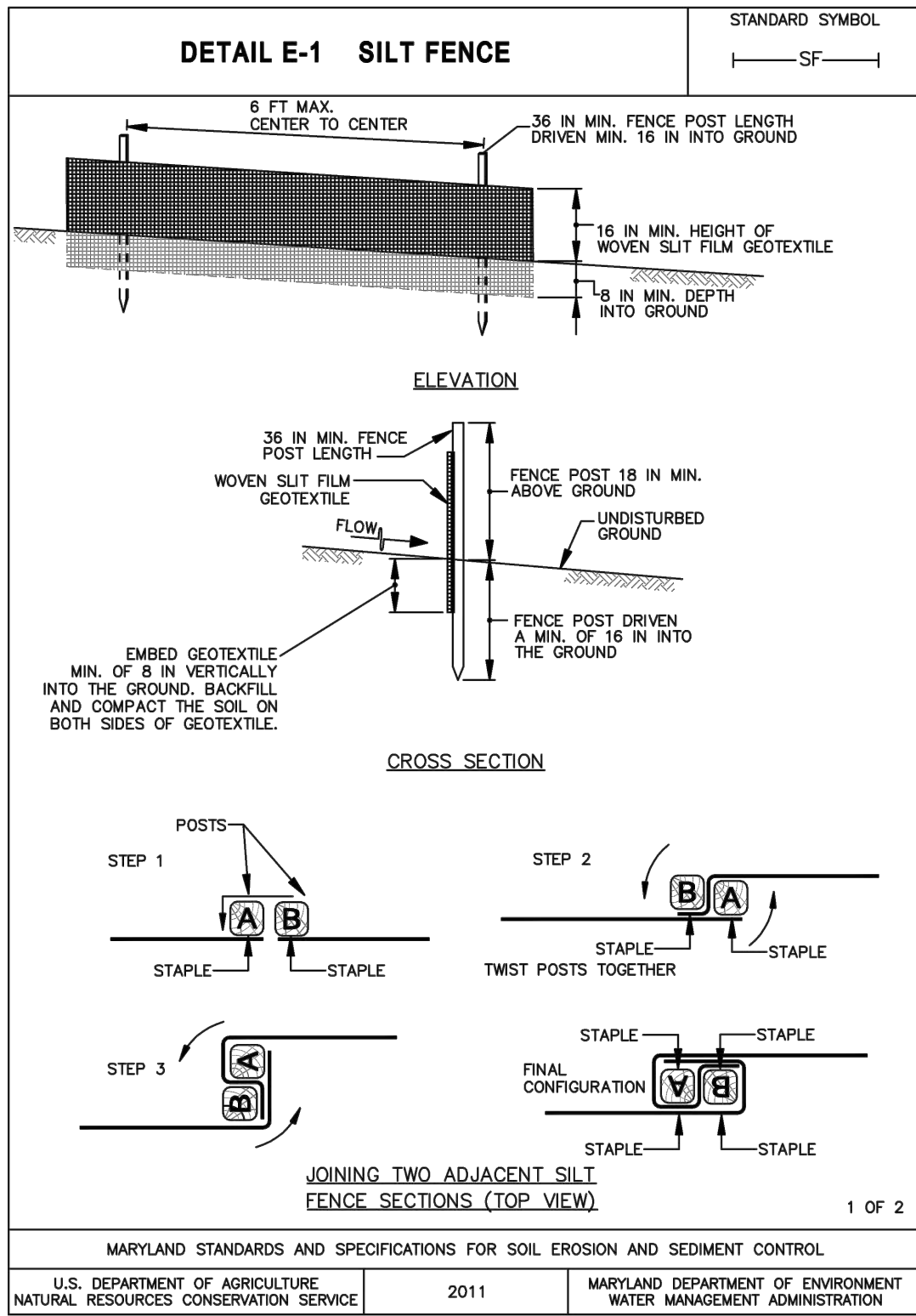
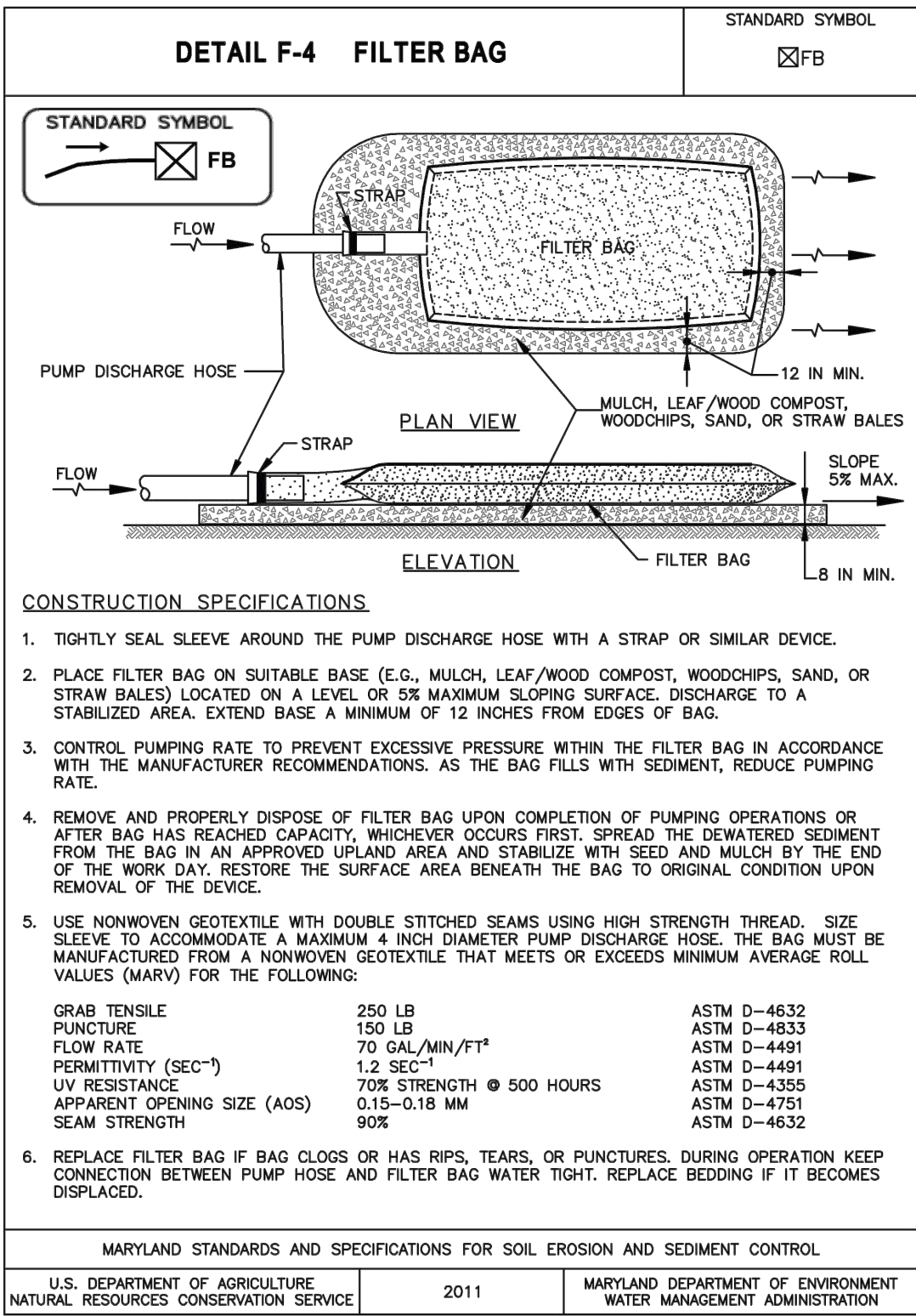
REVIEWED BY : JJW

CONTRACT NO : 97040

SCALE : NTS

SHEET 26 OF 47

DATE : MARCH 2025



SC PLAN #59846
GRADING PERMIT #

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT 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. 34691, EXPIRATION DATE: 7/10/2025



AECOM

REVISIONS		HARFORD COUNTY, MARYLAND	
DECLARATION RUN STREAM RESTORATION		EROSION & SEDIMENT CONTROL DETAILS	
DRAWN BY : _____ SAB	CONTRACT NO : _____ 97040		
DESIGNED BY : _____ BWA	SCALE : _____ NTS		
REVIEWED BY : _____ JJW	SHEET _____ 27 OF _____ 47	SCALE : 1" = 1'	
DATE : _____ MARCH 2025			

B-4 STANDARDS AND SPECIFICATIONS
FOR
VEGETATIVE STABILIZATION
Definition
Using vegetation as cover to protect exposed soil from erosion.
Purpose
To promote the establishment of vegetation on exposed soil.
Conditions Where Practice Applies
On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization; soil preparation, soil amendments and topsoiling; seeding and mulching; temporary stabilization; and permanent stabilization.
Effects on Water Quality and Quantity

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

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

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

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

Adequate Vegetative Establishment
Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the planting season.
1. Adequate vegetative stabilization requires 95 percent groundcover.
2. If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.
3. If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified.
4. Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

B-4-1 STANDARDS AND SPECIFICATIONS
FOR
INCREMENTAL STABILIZATION
Definition
Establishment of vegetative cover on cut and fill slopes.
Purpose
To provide timely vegetative cover on cut and fill slopes as work progresses.
Conditions Where Practice Applies
Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles.
Criteria

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

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

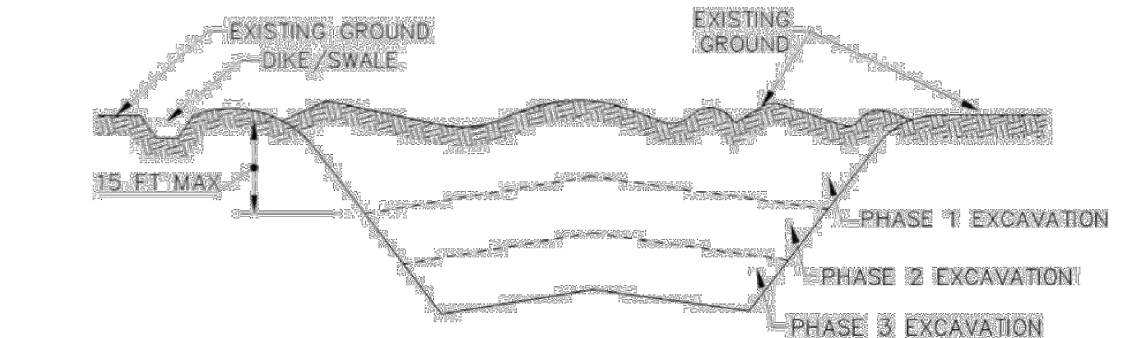


Figure B.1: Incremental Stabilization – Cut

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

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

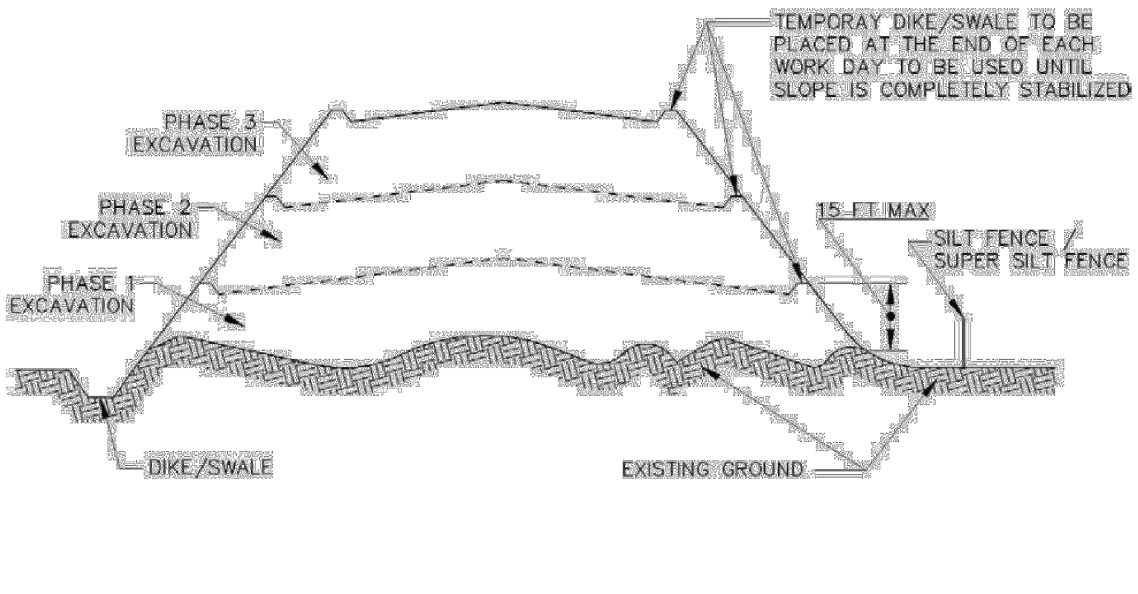


Figure B.2: Incremental Stabilization – Fill

B-4-2 STANDARDS AND SPECIFICATIONS
FOR
SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS
Definition
The process of preparing the soils to sustain adequate vegetative stabilization.
Purpose
To provide a suitable soil medium for vegetative growth.
Conditions Where Practice Applies
Where vegetative stabilization is to be established.
Criteria

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

- Mix soil amendments into the top 3 to 5 inches of soil by diskimg or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.
- B. Topsoiling
- Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
 - Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
 - Topsoiling is limited to areas having 2:1 or flatter slopes where:
 - The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
 - The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
 - The original soil to be vegetated contains material toxic to plant growth.
 - The soil is so acidic that treatment with limestone is not feasible.
 - Areas having slopes steeper than 2:1 require special consideration and design.
 - Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
 - Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter.
 - Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
 - Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
 - Topsoil Application
 - Erosion and sediment control practices must be maintained when applying topsoil.
 - Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
 - Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

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

- B. Mulching
- Mulch Materials (in order of preference)
 - Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. **Note: Use only sterile straw mulch in areas where one species of grass is desired.**
 - Wood Cellulose Fiber Mulch (WCFCM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
 - WCFCM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
 - WCFCM, including dye, must contain no germination or growth inhibiting factors.
 - WCFCM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
 - WCFCM material must not contain elements or compounds at concentration levels that will be phyto-toxic.
 - WCFCM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

B-4-3 STANDARDS AND SPECIFICATIONS
FOR
SEEDING AND MULCHING
Definition
The application of seed and mulch to establish vegetative cover.
Purpose
To protect disturbed soils from erosion during and at the end of construction.
Conditions Where Practice Applies
To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.
Criteria

- A. Seeding
- Specifications
 - All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
 - Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
 - Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.
 - Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

2. Application
- Dry Seeding: This includes use of conventional drop or broadcast spreaders.
 - Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
 - Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.
 - Drill and Broadcast Seeding: Mechanized seeders that apply and cover seed with soil.
 - Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
 - Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
 - Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
 - If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P₂O₅ (phosphorous), 200 pounds per acre; K₂O (potassium), 200 pounds per acre.
 - Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
 - Mix seed and fertilizer on site and seed immediately and without interruption.
 - When hydroseeding do not incorporate seed into the soil.

- B. Mulching
- Mulch Materials (in order of preference)
 - Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. **Note: Use only sterile straw mulch in areas where one species of grass is desired.**
 - Wood Cellulose Fiber Mulch (WCFCM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
 - WCFCM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
 - WCFCM, including dye, must contain no germination or growth inhibiting factors.
 - WCFCM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
 - WCFCM material must not contain elements or compounds at concentration levels that will be phyto-toxic.
 - WCFCM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

2. Application
- Apply mulch to all seeded areas immediately after seeding.
 - When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
 - Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
3. Anchoring
- Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:
 - A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.
 - Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
 - Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. **Use of asphalt binders is strictly prohibited.**
 - Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

DETAIL C-6 CLEAR WATER DIVERSION PIPE	STANDARD SYMBOL CWD - 12
DESIGNATION CWD-12 REFERS TO 12 INCH CLEAR WATER DIVERSION	
CONSTRUCTION SPECIFICATIONS	
1. FLEXIBLE PIPE IS PREFERRED. HOWEVER, CORRUGATED METAL PIPE OR EQUIVALENT PVC PIPE CAN BE USED. MAKE ALL JOINTS WATER-TIGHT.	
2. FOR SANDBAGS USE MATERIALS THAT ARE RESISTANT TO ULTRA-VIOLET RADIATION, TEARING, AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL.	
3. USE 10 MIL OR THICKER, UV RESISTANT, IMPERMEABLE SHEETING OR OTHER APPROVED MATERIAL THAT IS IMPERMEABLE AND RESISTANT TO PUNCTURING AND TEARING.	
4. PLACE IMPERMEABLE SHEETING SUCH THAT UPGRADE PORTION OVERLAPS DOWNGRADE PORTION BY A MINIMUM OF 18 INCHES.	
5. SET HEIGHT OF SANDBAG DIKE AT TWICE THE PIPE DIAMETER. MAINTAIN HEIGHT ALONG LENGTH OF SANDBAG DIKE. PLACE DOUBLE ROW OF SANDBAGS.	
6. AT A MINIMUM, SECURELY ANCHOR DIVERSION PIPE AT EACH DOWNGRADE JOINT.	
7. SET OUTLET END OF DIVERSION PIPE LOWER THAN INLET END.	
8. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.	
9. DEWATER WORK AREA USING AN APPROVED EROSION AND SEDIMENT CONTROL PRACTICE AS SPECIFIED ON APPROVED PLAN.	
10. KEEP POINT OF DISCHARGE FREE OF EROSION. MAINTAIN WATER TIGHT CONNECTIONS AND POSITIVE DRAINAGE. REPLACE SANDBAGS AND IMPERMEABLE SHEETING IF TORN.	
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL	
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

B-4-5 STANDARDS AND SPECIFICATIONS

FOR
PERMANENT STABILIZATION

Definition

To stabilize disturbed soils with permanent vegetation.

Purpose

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

Conditions Where Practice Applies

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

Criteria

A. Seed Mixtures

1. General Use

- Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
- Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
- For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
- For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.

2. Turfgrass Mixtures

- Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
- Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
 - Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
 - Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
 - Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
- Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1½ to 3 pounds per 1000 square feet.

Notes:

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

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

c. Ideal Times of Seeding for Turf Grass Mixtures

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

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

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

- Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.

- If soil moisture is deficient, supply new seedlings with adequate water for plant growth (½ to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedlings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

Permanent Seeding Summary

Hardiness Zone (from Figure B.3): 7a				Fertilizer Rate (10-20-20)			Lime Rate
Seed Mixture (from Table B.3): 6 and 1				N	P ₂ O ₅	K ₂ O	
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths			
6 and 1	Tall Fescue	40	2/15-4/30,	¼ - ½ in	45 pounds	90 lb/ac	2 tons/ac
	Perennial Ryegrass	25	8/15-11/30	¼ - ½ in	per acre	(2 lb/	(90 lb/
	White Clover	8		¼ - ½ in	(1.0 lb/	(2 lb/	(90 lb/
	Switch Grass	10	5/1-5/31	¼ - ½ in	1000 sf)	1000 sf)	1000 sf)

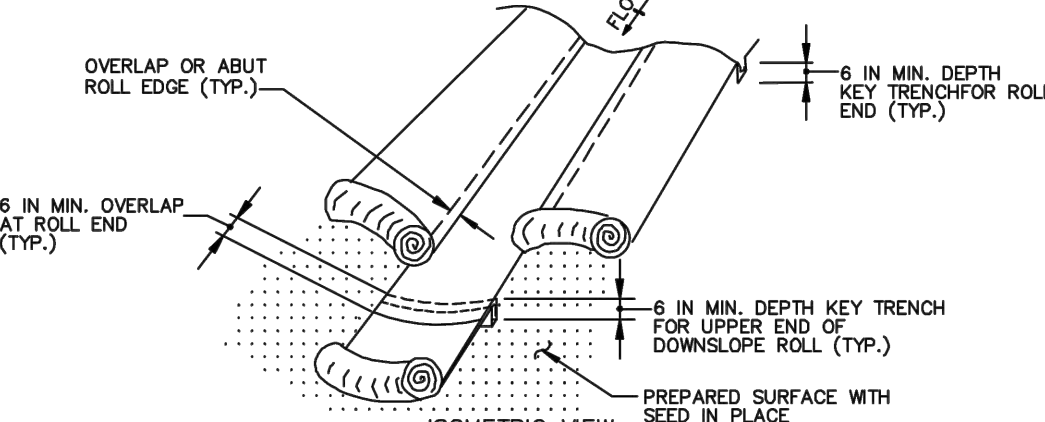
B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

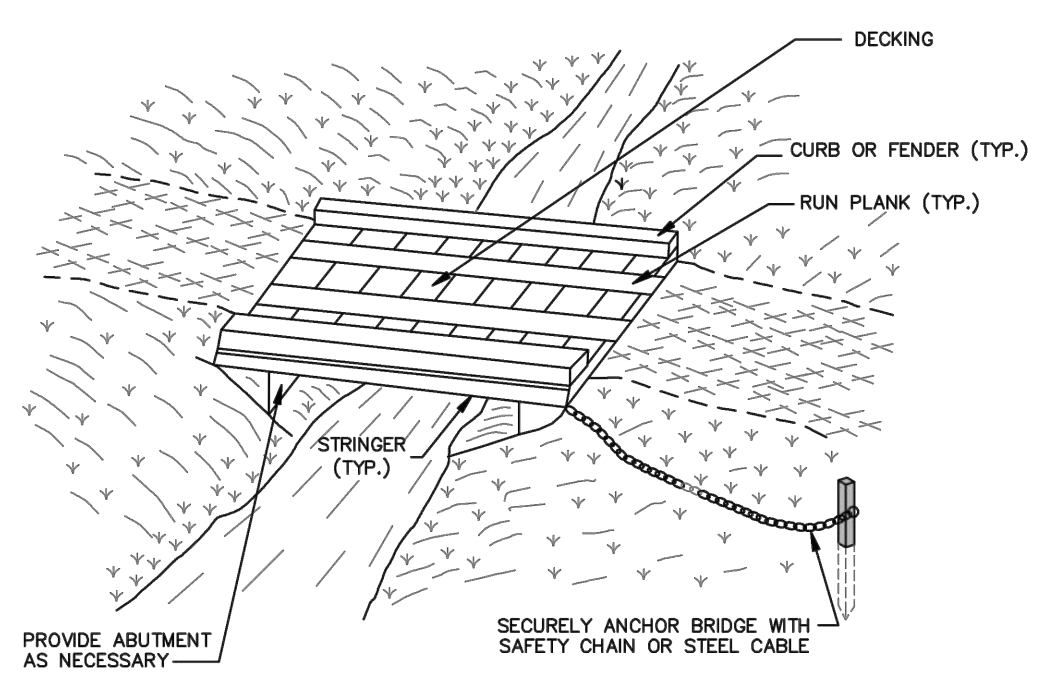
1. General Specifications

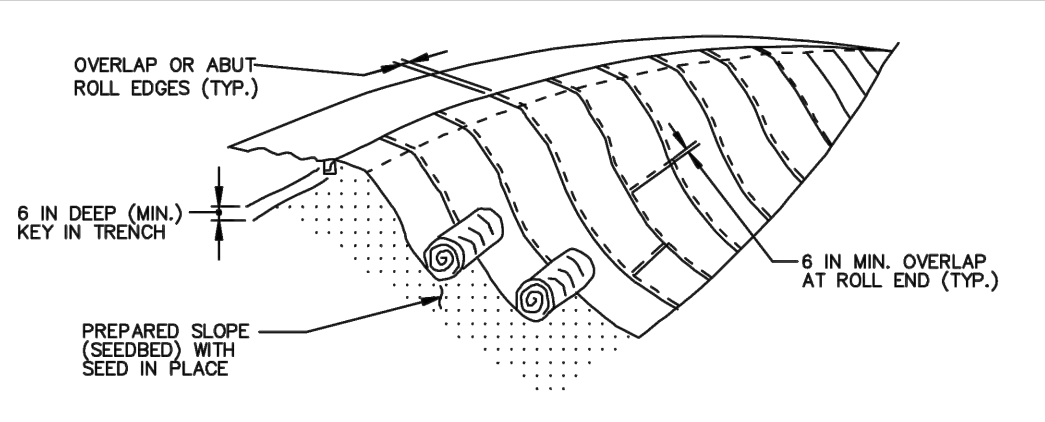
- Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
- Sod must be machine cut at a uniform soil thickness of ¾ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
- Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
- Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.

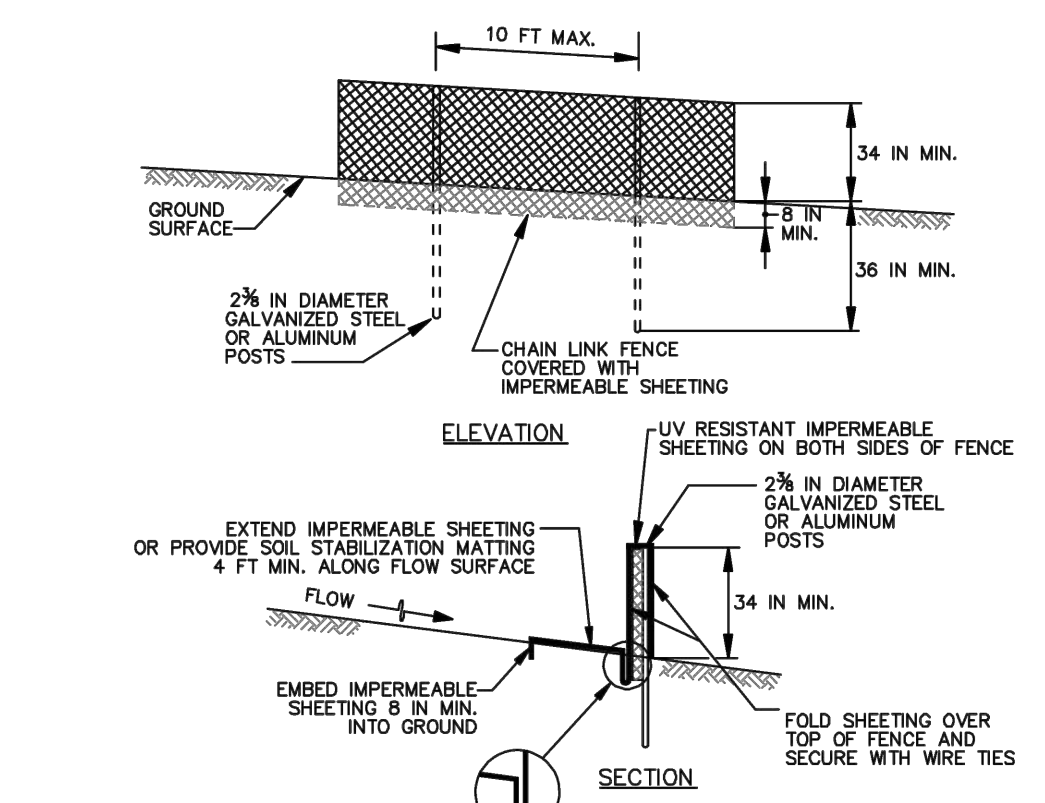
2. Sod Installation

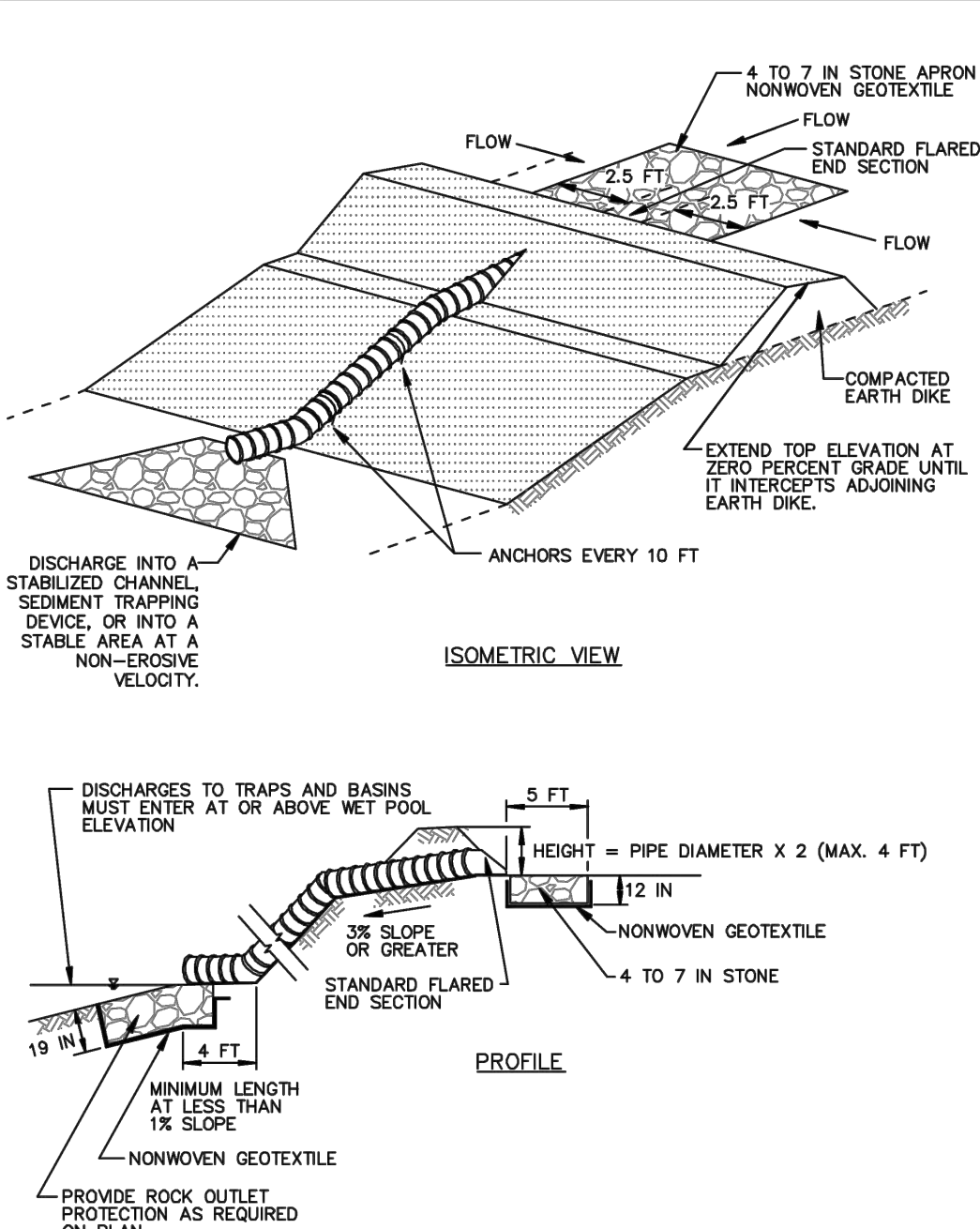
- During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
 - Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
 - Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.
 - Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.
- Sod Maintenance
- In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
 - After the first week, sod watering is required as necessary to maintain adequate moisture content.
 - Do not mow until the sod is firmly rooted. No more than ½ of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

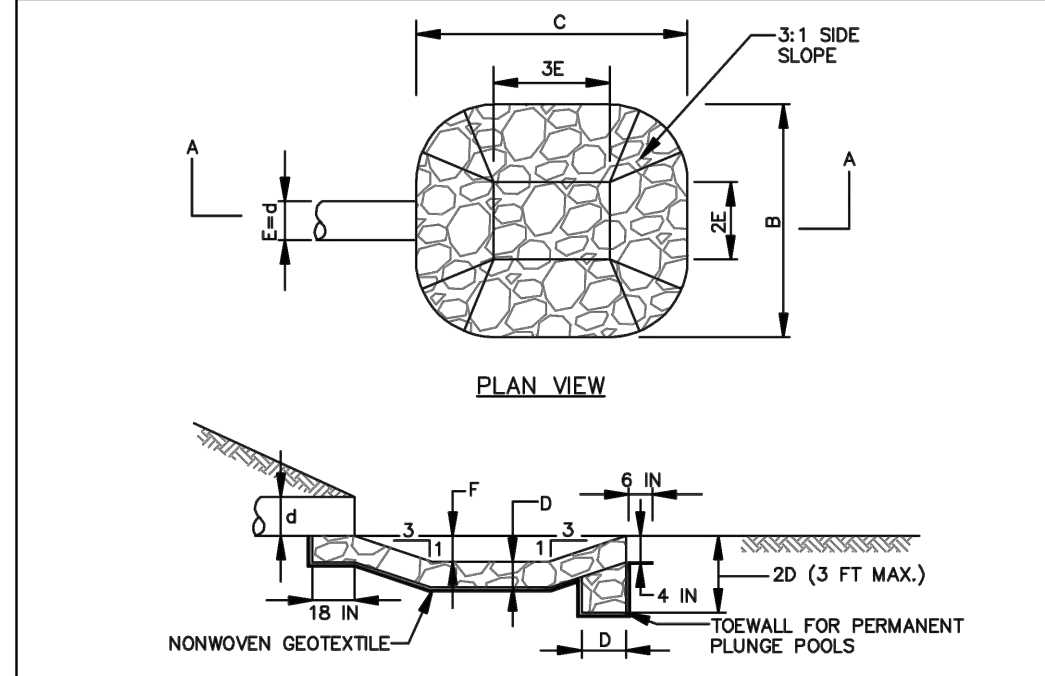
DETAIL B-4-6-A TEMPORARY SOIL STABILIZATION MATTING CHANNEL APPLICATION		STANDARD SYMBOL
		TSSMC — >2.0 LB/SF
		
CONSTRUCTION SPECIFICATIONS		
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.		
2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INAJROUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.		
3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1½ INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.		
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.		
5. UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.		
6. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.		
7. KEY-IN THE UPSLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.		
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.		
9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.		
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

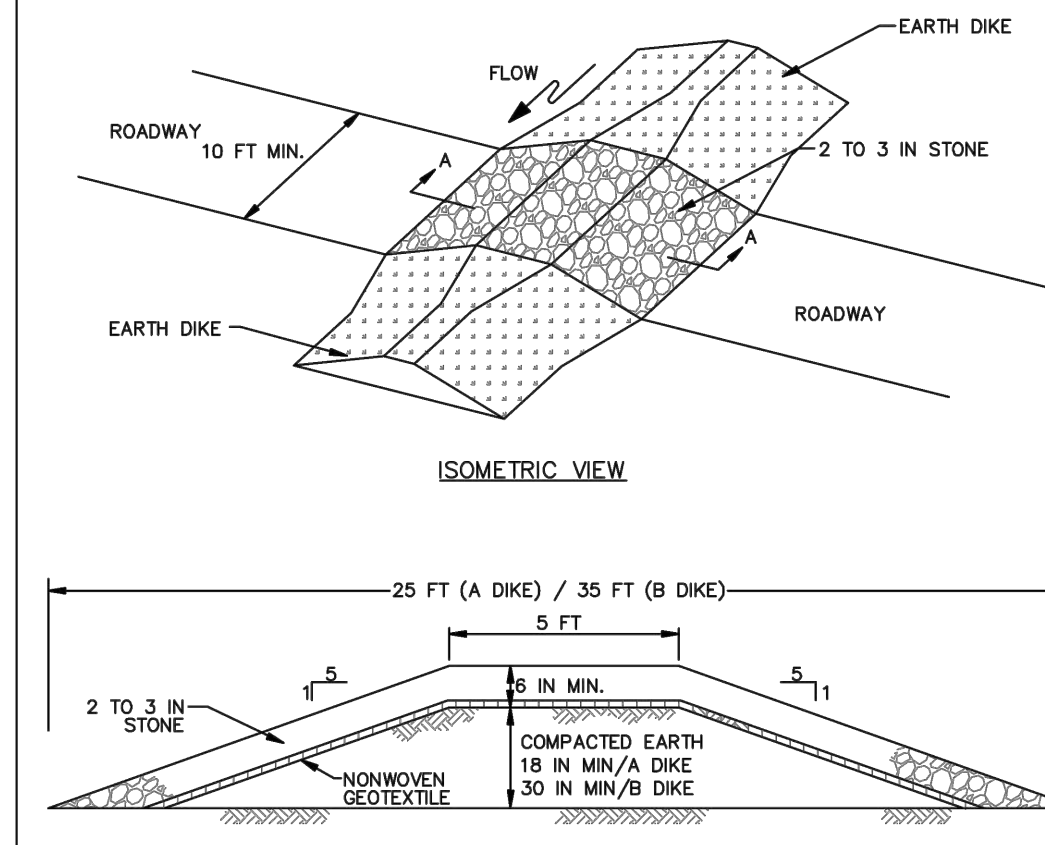
DETAIL H-4-1 TEMPORARY ACCESS BRIDGE		STANDARD SYMBOL
		TB
		
LOCATION PLAN		
NOTE: 1. TIME OF YEAR RESTRICTIONS DO NOT APPLY TO THE CONSTRUCTION OR REMOVAL OF A TEMPORARY ACCESS BRIDGE UNLESS THERE IS DISTURBANCE TO THE STREAM CHANNEL. 2. THE CONTRACTOR MUST DETERMINE THE LENGTH OF TEMPORARY ACCESS BRIDGE, AND THE NEED FOR ABUTMENTS TO SUPPORT AND PROTECT THE BRIDGE.		
1 OF 2		
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-B TEMPORARY SOIL STABILIZATION MATTING SLOPE APPLICATION		STANDARD SYMBOL
		TSSMS — >2.0 LB/SF
		
CONSTRUCTION SPECIFICATIONS		
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.		
2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INAJROUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.		
3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1½ INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.		
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION & SEDIMENT CONTROL PLAN.		
5. UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.		
6. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.		
7. KEY-IN THE UPSLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.		
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.		
9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.		
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-9 DIVERSION FENCE		STANDARD SYMBOL
		DF
		
CONSTRUCTION SPECIFICATIONS		
1. USE 42 INCH HIGH, 9 GAUGE OR THICKER CHAIN LINK FENCING (2½ INCH MAXIMUM OPENING).		
2. USE 2½ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.		
3. FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES.		
4. SECURE 10 MIL OR THICKER U.V. RESISTANT, IMPERMEABLE SHEETING TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT TOP, MID SECTION, AND BELOW GROUND SURFACE.		
5. EXTEND SHEETING A MINIMUM OF 4 FEET ALONG FLOW SURFACE AND EMBED END A MINIMUM OF 8 INCHES INTO GROUND. SOIL STABILIZATION MATTING MAY BE USED IN LIEU OF IMPERMEABLE SHEETING ALONG FLOW SURFACE.		
6. WHEN TWO SECTIONS OF SHEETING ADJOIN EACH OTHER, OVERLAP BY 6 INCHES AND FOLD WITH SEAM FACING DOWNGRADE.		
7. KEEP FLOW SURFACE ALONG DIVERSION FENCE AND POINT OF DISCHARGE FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE. REPLACE IMPERMEABLE SHEETING IF TORN. IF UNDERMINING OCCURS, REINSTATE 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

DETAIL D-1 PIPE SLOPE DRAIN		STANDARD SYMBOL
		PSD — 12
		DESIGNATION PSD-12 REFERS TO 12 IN PIPE SLOPE DRAIN.
		
CONSTRUCTION SPECIFICATIONS		
1. THE HEIGHT OF THE EARTH DIKE MUST BE AT LEAST 2 TIMES THE PIPE DIAMETER MEASURED FROM THE INVERT OF THE PIPE. EXTEND THE TOP ELEVATION OF DIKE AT ZERO PERCENT GRADE UNTIL IT INTERCEPTS THE TOP OF THE ADJOINING EARTH DIKE.		
2. FLEXIBLE PIPE IS PREFERRED. HOWEVER, CORRUGATED METAL PIPE OR EQUIVALENT PVC PIPE CAN BE USED. ALL CONNECTIONS MUST BE WATERTIGHT.		
3. ATTACH A FLARED END SECTION TO THE INLET END OF PIPE WITH A WATERIGHT CONNECTION. AT THE INLET OF THE PIPE SLOPE DRAIN, INSTALL 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PLACED 12 INCHES IN DEPTH ON NONWOVEN GEOTEXTILE AND EXTEND OUT 5 FEET FROM THE INLET IN ALL DIRECTIONS.		
4. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL RIPRAP.		
5. SECURELY ANCHOR THE PIPE SLOPE DRAIN (PSD) TO THE SLOPE. SPACE THE ANCHORS EVERY 10 FEET.		
6. HAND TAMP THE SOIL AROUND AND UNDER THE PIPE AND END SECTION IN 4 INCH LIFTS TO THE TOP OF THE EARTH DIKE.		
7. UPON COMPLETING INSTALLATION OF THE PSD, STABILIZE ASSOCIATED DISTURBANCES WITH SEED, MULCH, AND TACK.		
8. INSTALL OUTLET PROTECTION AS SPECIFIED ON APPROVED PLAN.		
9. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION. MAINTAIN WATER TIGHT CONNECTIONS AND POSITIVE DRAINAGE. REMOVE ACCUMULATED SEDIMENT AND DEBRIS.		
2 OF 2		
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-4-2 PLUNGE POOL		STANDARD SYMBOL
		PP
		
CONSTRUCTION SPECIFICATIONS		
1. USE SPECIFIED CLASS OF RIPRAP.		
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCHING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE.		
3. PREPARE THE SUBGRADE FOR THE PLUNGE POOL TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.		
4. EMBED THE GEOTEXTILE A MINIMUM OF 4 INCHES AND EXTEND THE GEOTEXTILE A MINIMUM OF 6 INCHES BEYOND THE EDGE OF THE SCOUR HOLE.		
5. STONE FOR THE PLUNGE POOL MAY BE PLACED BY EQUIPMENT. CONSTRUCT TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. DELIVER AND PLACE THE STONE FOR THE PLUNGE POOL IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE STONE FOR THE PLUNGE POOL IN A MANNER TO PREVENT DAMAGE TO THE GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.		
6. AT THE PLUNGE POOL OUTLET, PLACE THE STONE SO THAT IT MEETS THE EXISTING GRADE.		
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLOGGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.		
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-8 MOUNTABLE BERM		STANDARD SYMBOL
		MB
		
CONSTRUCTION SPECIFICATIONS		
1. USE MINIMUM WIDTH OF 10 FEET TO ALLOW FOR VEHICULAR PASSAGE.		
2. PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE EARTH MOUND PRIOR TO PLACING STONE.		
3. PLACE 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE MOUNTABLE BERM.		
4. MAINTAIN LINE, GRADE, AND CROSS SECTION. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN SPECIFIED DIMENSIONS. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE.		
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

EG 263-2019; SWM 97049

ES-09

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION

EROSION & SEDIMENT CONTROL DETAILS

DRAWN BY : SAB

CONTRACT NO : 97040

DESIGNED BY : BWA

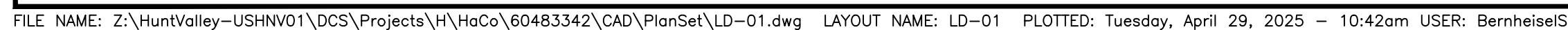
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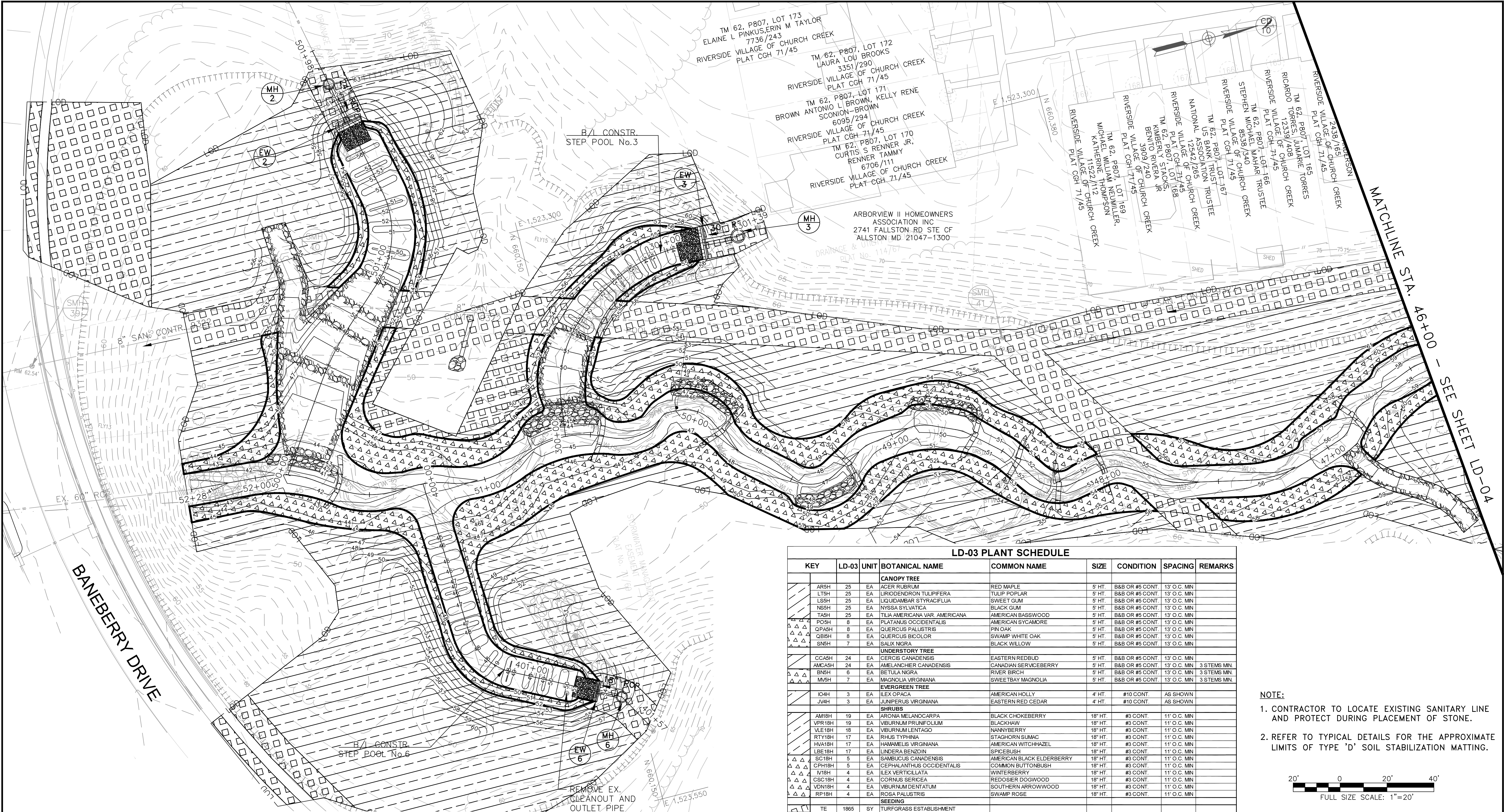
REVIEWED BY : JJW

SHEET 29 OF 47

SCALE : 1 inch

DATE : MARCH 2025





LD-03 PLANT SCHEDULE								
KEY	LD-03	UNIT	BOTANICAL NAME	COMMON NAME	SIZE	CONDITION	SPACING	REMARKS
<								

- NOTE:
1. CONTRACTOR TO LOCATE EXISTING SANITARY LINE AND PROTECT DURING PLACEMENT OF STONE.
 2. REFER TO TYPICAL DETAILS FOR THE APPROXIMATE LIMITS OF TYPE 'D' SOIL STABILIZATION MATTING.

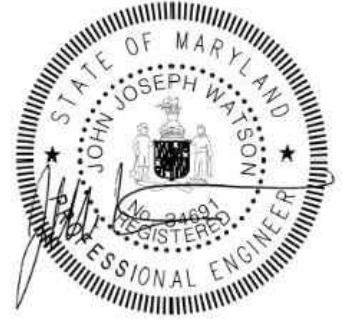


PLANTING PLAN LEGEND

- UPLAND TREE AND SHRUB PLANTING + UPLAND MEADOW ESTABLISHMENT (UME)
- LOWLAND TREE AND SHRUB PLANTING + LOWLAND MEADOW ESTABLISHMENT (UME) + TYPE D SOIL STABILIZATION MATTING (DSSM)
- TUBELINGS + TYPE D SOIL STABILIZATION MATTING (DSSM)
- TURFGRASS ESTABLISHMENT

LEGEND

- PROPOSED CONTOUR
- EXISTING CONTOUR
- WETLAND
- WETLAND BUFFER
- EXISTING SANITARY SEWER
- SIGNIFICANT TREE (>24" DIA)
- PROPERTY LINE (GIS BASED)
- LIMIT OF DISTURBANCE
- EXISTING 100-YR FLOODPLAIN
- EXISTING METAL FENCE
- EXISTING WOOD FENCE



PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT 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. 34691, EXPIRATION DATE: 7/10/2025"



REVISIONS

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION

PLANTING PLAN

DRAWN BY : SAB

DESIGNED BY : BWA

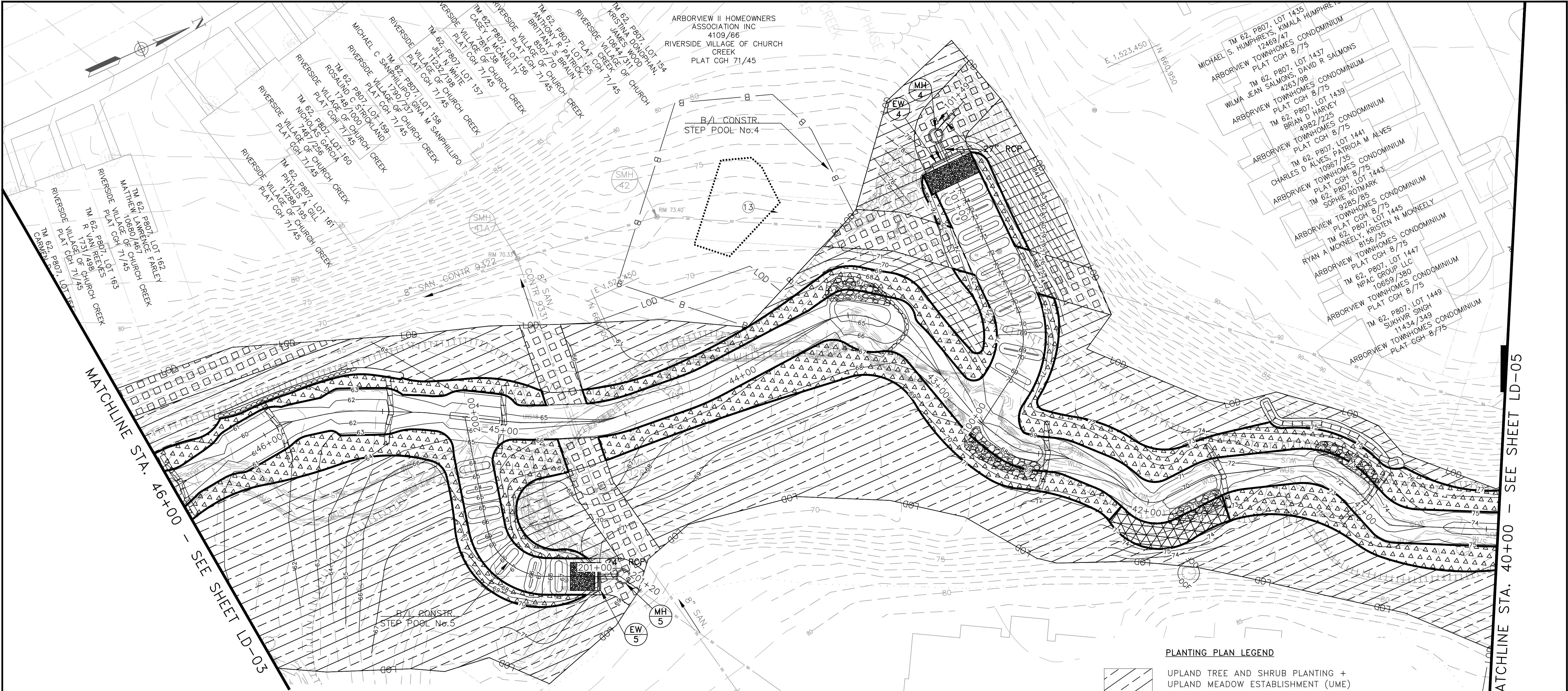
REVIEWED BY : JJW

CONTRACT NO : 97040

SCALE : 1"=20'

SHEET 32 OF 47

DATE : MARCH 2025



LD-04 PLANT SCHEDULE								
KEY	LD-04	UNIT	BOTANICAL NAME	COMMON NAME	SIZE	CONDITION	SPACING	REMARKS
CANOPY TREE								
	AR5H	15	EA	ACER RUBRUM	5' HT.	B&B OR #5 CONT.	13' O.C. MN	
	LT5H	15	EA	LIRIODENDRON TULIPIFERA	5' HT.	B&B OR #5 CONT.	13' O.C. MN	
	LS5H	18	EA	LIQUIDAMBAR STYRACIFLUA	5' HT.	B&B OR #5 CONT.	13' O.C. MN	
	NS5H	17	EA	NYSSA SYLVATICA	5' HT.	B&B OR #5 CONT.	13' O.C. MN	
	TA5H	17	EA	TILIA AMERICANA VAR. AMERICANA	5' HT.	B&B OR #5 CONT.	13' O.C. MN	
	PO5H	8	EA	PLATANUS OCCIDENTALIS	5' HT.	B&B OR #5 CONT.	13' O.C. MN	
	QPA5H	8	EA	QUERCUS PALUSTRIS	5' HT.	B&B OR #5 CONT.	13' O.C. MN	
	QB5H	8	EA	QUERCUS BICOLOR	5' HT.	B&B OR #5 CONT.	13' O.C. MN	
	SN5H	8	EA	SALIX NIGRA	5' HT.	B&B OR #5 CONT.	13' O.C. MN	
UNDERSTORY TREE								
	CCA5H	20	EA	CERCIS CANADENSIS	5' HT.	B&B OR #5 CONT.	13' O.C. MN	
	AMCASH	20	EA	AMELANCHIER CANADENSIS	5' HT.	B&B OR #5 CONT.	13' O.C. MN	3 STEMS MN.
	BN5H	7	EA	BETULA NIGRA	5' HT.	B&B OR #5 CONT.	13' O.C. MN	3 STEMS MN.
	MV5H	6	EA	MAGNOLIA VIRGINIANA	5' HT.	B&B OR #5 CONT.	13' O.C. MN	3 STEMS MN.
EVERGREEN TREE								
	IQ4H	3	EA	ILEX OPACA	4' HT.	#10 CONT.	AS SHOWN	
	JV4H	3	EA	JUNIPERUS VIRGINIANA	4' HT.	#10 CONT.	AS SHOWN	
SHRUBS								
	AM18H	13	EA	ARONIA MELANOCARPA	18" HT.	#3 CONT.	7' O.C. MN	
	VPR18H	13	EA	VIBURNUM PRUNIFOLIUM	18" HT.	#3 CONT.	7' O.C. MN	
	VLE18H	13	EA	VIBURNUM LENTAGO	18" HT.	#3 CONT.	7' O.C. MN	
	RTY18H	13	EA	RHUS TYPHINA	18" HT.	#3 CONT.	7' O.C. MN	
	HVA18H	13	EA	HAMMELIS VIRGINIANA	18" HT.	#3 CONT.	7' O.C. MN	
	LBE18H	15	EA	LINDERA BENZOIN	18" HT.	#3 CONT.	7' O.C. MN	
	SC18H	5	EA	SAMBUCUS CANADENSIS	18" HT.	#3 CONT.	7' O.C. MN	
	CPH18H	5	EA	CEPHALANTHUS OCCIDENTALIS	18" HT.	#3 CONT.	7' O.C. MN	
	IV18H	5	EA	ILEX VERTICILLATA	18" HT.	#3 CONT.	7' O.C. MN	
	CSC18H	5	EA	CORNUS SERICEA	18" HT.	#3 CONT.	7' O.C. MN	
	VDN18H	5	EA	VIBURNUM DENTATUM	18" HT.	#3 CONT.	7' O.C. MN	
	RP18H	2	EA	ROSA PALUSTRIS	18" HT.	#3 CONT.	7' O.C. MN	
TUBELING								
	CA	30	EA	CORNUS AMOMUM	3" X 9"	TUBELING	3' O.C.	
	SN	30	EA	SALIX NIGRA	3" X 9"	TUBELING	3' O.C.	
SEEDING								
	TE	735	SY	TURFGRASS ESTABLISHMENT				
	FME	1300	SY	LOWLAND MEADOW ESTABLISHMENT				
	UME	3590	SY	UPLAND MEADOW ESTABLISHMENT				
	D-SSM	4890	SY	TYPE-D SOIL STABILIZATION MATTING				

- LEGEND
- 45 PROPOSED CONTOUR
 - 45 EXISTING CONTOUR
 - WETLAND
 - B WETLAND BUFFER
 - S-SAN EXISTING SANITARY SEWER
 - 25" SIGNIFICANT TREE (>24" DIA)
 - PROPERTY LINE (GIS BASED)
 - LOD LIMIT OF DISTURBANCE
 - EXISTING 100-YR FLOODPLAIN
 - X-X EXISTING METAL FENCE
 - // EXISTING WOOD FENCE



PROFESSIONAL CERTIFICATION

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AECOM

TM 62, P808, LOT 2
ARBORVIEW LIRIOPE OWNER, LLC
JUR 12162/433
FINAL PLAT ONE - SECTION II - PHASE II
RIVERSIDE VILLAGE OF CHURCH CREEK
ARBORVIEW APARTMENTS
PLAT CGH 71/69

NOTE:
1. REFER TO TYPICAL DETAILS FOR THE APPROXIMATE LIMITS OF TYPE 'D' SOIL STABILIZATION MATTING.

- PLANTING PLAN LEGEND
- UPLAND TREE AND SHRUB PLANTING + UPLAND MEADOW ESTABLISHMENT (UME)
 - LOWLAND TREE AND SHRUB PLANTING + LOWLAND MEADOW ESTABLISHMENT (UME) + TYPE D SOIL STABILIZATION MATTING (DSSM)
 - TUBELINGS + TYPE D SOIL STABILIZATION MATTING (DSSM)
 - TURFGRASS ESTABLISHMENT



EG 263-2019; SWM 97049

LD-04

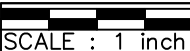
HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION

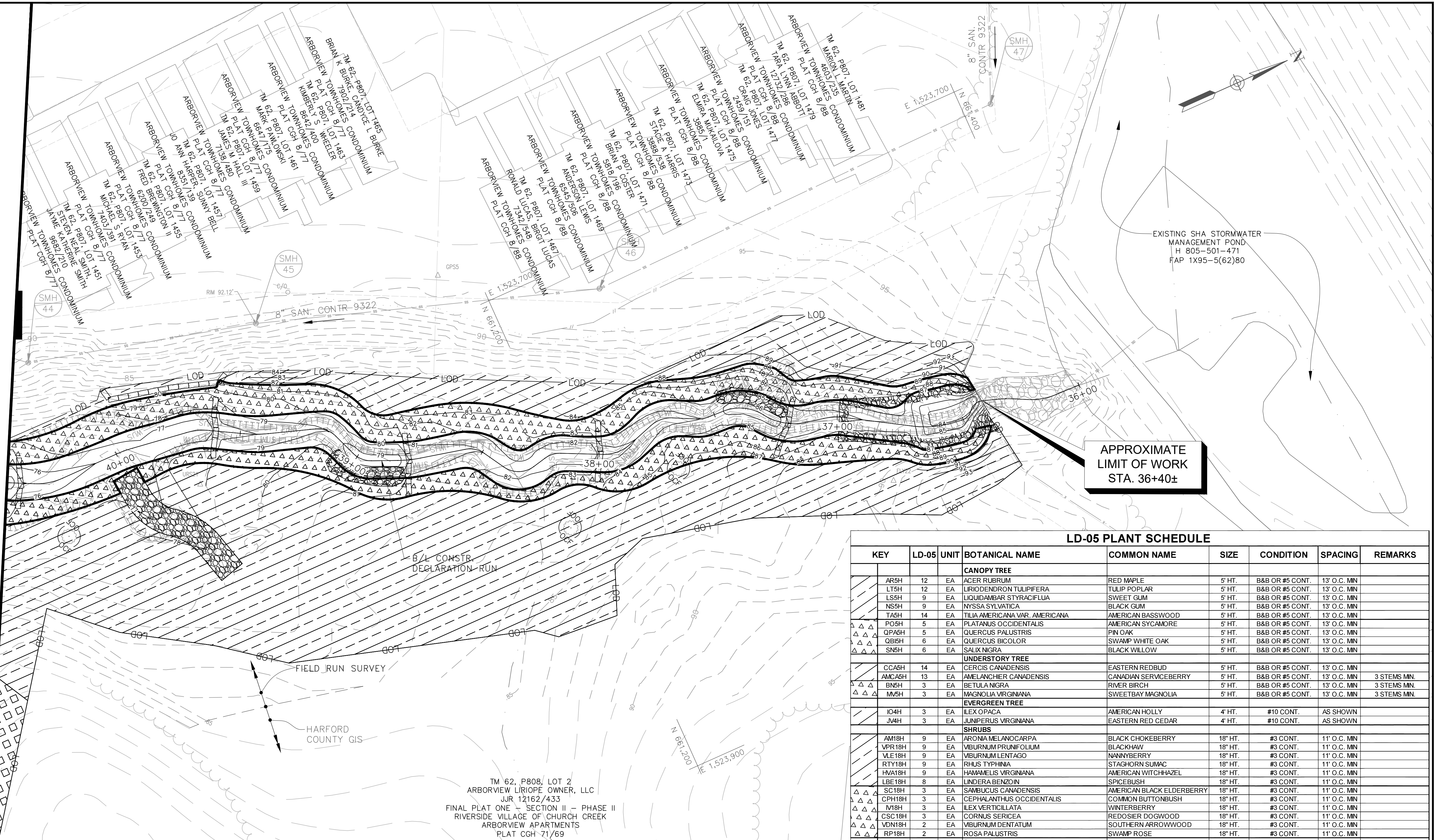
PLANTING PLAN

DRAWN BY : SAB
DESIGNED BY : BWA
REVIEWED BY : JJW

CONTRACT NO : 97040
SCALE : 1"=20'
SHEET 33 OF 47
DATE : MARCH 2025



MATCHLINE STA. 40+00 - SEE SHEET LD-04



TM 62, P808, LOT 2
ARBORVIEW LIRIOPE OWNER, LLC
JUR 12162/433
FINAL PLAT ONE - SECTION II - PHASE II
RIVERSIDE VILLAGE OF CHURCH CREEK
ARBORVIEW APARTMENTS
PLAT CGH 71/69

APPROXIMATE
LIMIT OF WORK
STA. 36+40±

LD-05 PLANT SCHEDULE

KEY	LD-05	UNIT	BOTANICAL NAME	COMMON NAME	SIZE	CONDITION	SPACING	REMARKS
CANOPY TREE								
AR5H	12	EA	ACER RUBRUM	RED MAPLE	5' HT.	B&B OR #5 CONT.	13' O.C. MN	
LT5H	12	EA	LIRIODENDRON TULIPIFERA	TULIP POPLAR	5' HT.	B&B OR #5 CONT.	13' O.C. MN	
L5SH	9	EA	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	5' HT.	B&B OR #5 CONT.	13' O.C. MN	
NS5H	9	EA	NYSSA SYLVATICA	BLACK GUM	5' HT.	B&B OR #5 CONT.	13' O.C. MN	
TA5H	14	EA	TILIA AMERICANA VAR. AMERICANA	AMERICAN BASSWOOD	5' HT.	B&B OR #5 CONT.	13' O.C. MN	
PO5H	5	EA	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	5' HT.	B&B OR #5 CONT.	13' O.C. MN	
OP5H	5	EA	QUERCUS PALUSTRIS	PIN OAK	5' HT.	B&B OR #5 CONT.	13' O.C. MN	
QB5H	6	EA	QUERCUS BICOLOR	SWAMP WHITE OAK	5' HT.	B&B OR #5 CONT.	13' O.C. MN	
SN5H	6	EA	SALIX NIGRA	BLACK WILLOW	5' HT.	B&B OR #5 CONT.	13' O.C. MN	
UNDERSTORY TREE								
CC5H	14	EA	CERCIS CANADENSIS	EASTERN REDBUD	5' HT.	B&B OR #5 CONT.	13' O.C. MN	
AMC5H	13	EA	AMELANCHIER CANADENSIS	CANADIAN SERVICEBERRY	5' HT.	B&B OR #5 CONT.	13' O.C. MN	3 STEMS MN.
BN5H	3	EA	BETULA NIGRA	RIVER BIRCH	5' HT.	B&B OR #5 CONT.	13' O.C. MN	3 STEMS MN.
MV5H	3	EA	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	5' HT.	B&B OR #5 CONT.	13' O.C. MN	3 STEMS MN.
EVERGREEN TREE								
IO4H	3	EA	ILEX OPACA	AMERICAN HOLLY	4' HT.	#10 CONT.	AS SHOWN	
JN4H	3	EA	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	4' HT.	#10 CONT.	AS SHOWN	
SHRUBS								
AM18H	9	EA	ARONIA MELANOCARPA	BLACK CHOKEBERRY	18" HT.	#3 CONT.	11' O.C. MN	
VPR18H	9	EA	VIBURNUM PRUNIFOLIUM	BLACKHAW	18" HT.	#3 CONT.	11' O.C. MN	
VLE18H	9	EA	VIBURNUM LENTAGO	NANNYBERRY	18" HT.	#3 CONT.	11' O.C. MN	
RTY18H	9	EA	RHUS TYPHINIA	STAGHORN SUMAC	18" HT.	#3 CONT.	11' O.C. MN	
HVA18H	9	EA	HAMAMELIS VIRGINIANA	AMERICAN WITCHHAZEL	18" HT.	#3 CONT.	11' O.C. MN	
LBE18H	8	EA	LINDERA BENZOIN	SPICEBUSH	18" HT.	#3 CONT.	11' O.C. MN	
SC18H	3	EA	SAMBUCUS CANADENSIS	AMERICAN BLACK ELDERBERRY	18" HT.	#3 CONT.	11' O.C. MN	
CPH18H	3	EA	CEPHALANTHUS OCCIDENTALIS	COMMON BUTTONBUSH	18" HT.	#3 CONT.	11' O.C. MN	
NI18H	3	EA	ILEX VERTICILLATA	WINTERBERRY	18" HT.	#3 CONT.	11' O.C. MN	
CSC18H	3	EA	CORNUS SERICEA	REDOsier DOGWOOD	18" HT.	#3 CONT.	11' O.C. MN	
VDN18H	2	EA	VIBURNUM DENTATUM	SOUTHERN ARROWWOOD	18" HT.	#3 CONT.	11' O.C. MN	
RP18H	2	EA	ROSA PALUSTRIS	SWAMP ROSE	18" HT.	#3 CONT.	11' O.C. MN	
SEEDING								
FME	760	SY	LOWLAND MEADOW ESTABLISHMENT					
UME	2390	SY	UPLAND MEADOW ESTABLISHMENT					
D-SSM	3150	SY	TYPE-D SOIL STABILIZATION MATTING					

EG 263-2019; SWM 97049

LD-05

PLANTING PLAN LEGEND

- UPLAND TREE AND SHRUB PLANTING + UPLAND MEADOW ESTABLISHMENT (UME)
- LOWLAND TREE AND SHRUB PLANTING + LOWLAND MEADOW ESTABLISHMENT (UME) + TYPE D SOIL STABILIZATION MATTING (DSSM)
- TUBELINGS + TYPE D SOIL STABILIZATION MATTING (DSSM)
- TURFGRASS ESTABLISHMENT

NOTE:

- REFER TO TYPICAL DETAILS FOR THE APPROXIMATE LIMITS OF TYPE 'D' SOIL STABILIZATION MATTING.



LEGEND

- PROPOSED CONTOUR
- EXISTING CONTOUR
- WETLAND
- WETLAND BUFFER
- EXISTING SANITARY SEWER
- SIGNIFICANT TREE (>24" DIA)
- PROPERTY LINE (GIS BASED)
- LIMIT OF DISTURBANCE
- EXISTING 100-YR FLOODPLAIN
- EXISTING METAL FENCE
- EXISTING WOOD FENCE



PROFESSIONAL CERTIFICATION
"I HEREBY CERTIFY THAT 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. 34691, EXPIRATION DATE: 7/10/2025"

AECOM

REVISIONS

HARFORD COUNTY, MARYLAND
DECLARATION RUN STREAM RESTORATION
PLANTING PLAN

DRAWN BY : SAB
DESIGNED BY : BWA
REVIEWED BY : JJW

CONTRACT NO : 97040

SCALE : 1"=20'

SHEET 34 OF 47

DATE : MARCH 2025

SCALE : 1"=10'

MASTER PLANT SCHEDULE														
KEY	LD-01		LD-02	LD-03	LD-04	LD-05	TOTAL QUANTITY	UNIT	BOTANICAL NAME	COMMON NAME	SIZE	CONDITION	SPACING	REMARKS
	CBCA	NON- CBCA							CANOPY TREE					
AR5H	5	10	17	25	15	12	84	EA	ACER RUBRUM	RED MAPLE	5' HT.	B&B OR #5 CONT.	13' O.C. MIN	
LT5H	5	10	17	25	15	12	84	EA	LIRIODENDRON TULIPIFERA	TULIP POPLAR	5' HT.	B&B OR #5 CONT.	13' O.C. MIN	
LS5H	5	10	19	25	18	9	86	EA	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	5' HT.	B&B OR #5 CONT.	13' O.C. MIN	
NS5H	5	10	19	25	17	9	85	EA	NYSSA SYLVATICA	BLACK GUM	5' HT.	B&B OR #5 CONT.	13' O.C. MIN	
TA5H	7	10	19	25	17	14	92	EA	TILIA AMERICANA VAR. AMERICANA	AMERICAN BASSWOOD	5' HT.	B&B OR #5 CONT.	13' O.C. MIN	
PO5H	2	5	5	8	8	5	33	EA	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	5' HT.	B&B OR #5 CONT.	13' O.C. MIN	
QPA5H	2	5	6	8	8	5	34	EA	QUERCUS PALUSTRIS	PIN OAK	5' HT.	B&B OR #5 CONT.	13' O.C. MIN	
QB15H	2	5	5	8	8	6	34	EA	QUERCUS BICOLOR	SWAMP WHITE OAK	5' HT.	B&B OR #5 CONT.	13' O.C. MIN	
SN5H	3	5	5	7	8	6	34	EA	SALIX NIGRA	BLACK WILLOW	5' HT.	B&B OR #5 CONT.	13' O.C. MIN	
									UNDERSTORY TREE					
CCA5H	5	10	21	24	20	14	94	EA	CERCIS CANADENSIS	EASTERN REDBUD	5' HT.	B&B OR #5 CONT.	13' O.C. MIN	
AMCA5H	5	10	20	24	20	13	92	EA	AMELANCHIER CANADENSIS	CANADIAN SERVICEBERRY	5' HT.	B&B OR #5 CONT.	13' O.C. MIN	3 STEMS MIN.
BN5H	3	3	5	6	7	3	27	EA	BETULA NIGRA	RIVER BIRCH	5' HT.	B&B OR #5 CONT.	13' O.C. MIN	3 STEMS MIN.
MM5H	3	4	4	7	6	3	27	EA	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	5' HT.	B&B OR #5 CONT.	13' O.C. MIN	3 STEMS MIN.
									EVERGREEN TREE					
IO4H	5	10	3	3	3	3	27	EA	ILEX OPACA	AMERICAN HOLLY	4' HT.	#10 CONT.	AS SHOWN	
JV4H	5	10	3	3	3	3	27	EA	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	4' HT.	#10 CONT.	AS SHOWN	
									SHRUBS					
AM18H	18	9	15	19	13	9	83	EA	ARONIA MELANOCARPA	BLACK CHOKEBERRY	18" HT.	#3 CONT.	7' O.C. MIN	
VPR18H	18	9	15	19	13	9	83	EA	VIBURNUM PRUNIFOLIUM	BLACKHAW	18" HT.	#3 CONT.	7' O.C. MIN	
VLE18H	18	9	13	18	13	9	80	EA	VIBURNUM LENTAGO	NANNYBERRY	18" HT.	#3 CONT.	7' O.C. MIN	
RTY18H	18	9	18	17	13	9	84	EA	RHUS TYPHINIA	STAGHORN SUMAC	18" HT.	#3 CONT.	7' O.C. MIN	
HVA18H	18	9	13	17	13	9	79	EA	HAMAMELIS VIRGINIANA	AMERICAN WITCHHAZEL	18" HT.	#3 CONT.	7' O.C. MIN	
LBE18H	21	9	13	17	15	8	83	EA	LINDERA BENZOIN	SPICEBUSH	18" HT.	#3 CONT.	7' O.C. MIN	
SC18H	6	3	3	5	5	3	25	EA	SAMBUCUS CANADENSIS	AMERICAN BLACK ELDERBERRY	18" HT.	#3 CONT.	7' O.C. MIN	
CPH18H	6	3	3	5	5	3	25	EA	CEPHALANTHUS OCCIDENTALIS	COMMON BUTTONBUSH	18" HT.	#3 CONT.	7' O.C. MIN	
M18H	6	3	3	4	5	3	24	EA	ILEX VERTICILLATA	WINTERBERRY	18" HT.	#3 CONT.	7' O.C. MIN	
CSC18H	6	3	3	4	5	3	24	EA	CORNUS SERICEA	REDOSIER DOGWOOD	18" HT.	#3 CONT.	7' O.C. MIN	
VDN18H	6	2	3	4	5	2	22	EA	VIBURNUM DENTATUM	SOUTHERN ARROWWOOD	18" HT.	#3 CONT.	7' O.C. MIN	
RP18H	6	2	2	4	2	2	18	EA	ROSA PALUSTRIS	SWAMP ROSE	18" HT.	#3 CONT.	7' O.C. MIN	
									TUBELING					
CA	60	0	30	0	30	0	120	EA	CORNUS AMOMUM	SILKY DOGWOOD	3" X 9"	TUBELING	3' O.C.	
SN	60	0	30	0	30	0	120	EA	SALIX NIGRA	BLACK WILLOW	3" X 9"	TUBELING	3' O.C.	
									SEEDING					
TE	735	0	890	1865	735	0	4,225	SY	TURFGRASS ESTABLISHMENT					
LME	875	275	850	1,195	1,300	760	5,255	SY	LOWLAND MEADOW ESTABLISHMENT					
UME	2,435	945	3,720	4,805	3,590	2,390	17,885	SY	UPLAND MEADOW ESTABLISHMENT					
D-SSM	3,310	1,220	4,570	6,000	4,890	3,150	23,140	SY	TYPE-D SOIL STABILIZATION MATTING					

LANDSCAPE NOTES:

1. LANDSCAPE CONSTRUCTION SHALL CONFORM TO THE LATEST SHA STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS.
2. A LAYER OF APPROVED TOPSOIL OF AT LEAST A 4–INCH DEPTH SHALL BE PLACED ON ALL DISTURBED AREAS PRIOR TO SEEDING, UNLESS OTHERWISE SPECIFIED (SEE TYPICAL SECTIONS FOR ADDITIONAL INFORMATION). AREAS WITH SLOPES 2:1 AND STEEPER SHALL RECEIVE 2–INCH DEPTH TOPSOIL.
3. TURFGRASS ESTABLISHMENT SHALL BE PERFORMED IN ALL DISTURBED AREAS, OR WITHIN THE AREAS INDICATED IN THE PLANS, IN CONFORMANCE WITH SECTION 705 OF THE SHA STANDARD SPECIFICATIONS.
4. MEADOW ESTABLISHMENT SHALL BE PERFORMED IN AREAS AS INDICATED IN THE PLANS, IN CONFORMANCE WITH SECTIONS 706 AND 707 OF THE SHA STANDARD SPECIFICATIONS.
5. THE INSTALLATION OF TREES, SHRUBS, PLANTING BEDS AND OTHER LANDSCAPE CONSTRUCTION RELATED TO SECTION 710 OF THE SHA STANDARD SPECIFICATIONS SHALL CONFORM TO THE ‘SHA BOOK OF STANDARDS FOR HIGHWAY & INCIDENTAL STRUCTURES – CATEGORY 7.
6. TREES AND OTHER PLANT MATERIAL INSTALLATION. TREES, SHRUBS, PERENNIALS, ANNUALS, BULBS, LANDSCAPE BEDS, BARK MULCH AND SIMILAR MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH SECTION 710 AND 920 OF THE SHA STANDARD SPECIFICATIONS.

LOWLAND MEADOW ESTABLISHMENT

SPECIES	APPLICATION RATE GRAM PER SY	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTH	FERTILIZER AND LIME
FORBS			SPRING 3/1 TO 4/30 SUMMER 5/1 to 7/31 FALL 8/1 to 10/30	0.5"	NO FERTILIZER OR LIME TO BE APPLIED
COMMON BONESET	0.019	0.2			
COMMON EVENING PRIMROSE	0.019	0.2			
LANCELEAF TICKSEED	0.141	1.5			
NEW ENGLAND ASTER	0.019	0.2			
NEW YORK IRONWEED	0.019	0.2			
BEARDED BEGGARTICKS	0.019	0.2			
SWAMP VERBENA	0.066	0.7			
SPOTTED TRUMPETWEED	0.019	0.2			
SWAMP MILKWEED	0.038	0.4			
GRASSES, SEDGES & RUSHES					
BIG BLUESTEM	0.088	2.0			
EASTERN GAMAGRASS	0.188	2.0			
HARD FESCUE	1.876	20.0			
INDIANGRASS	0.188	2.0			
KENTUCKY BLUEGRASS	0.469	5.0			
SWITCHGRASS	0.094	1.0			
VIRGINIA WILDRYE	0.047	0.5			
	3.309 GRAM/SY	36.3 LB/AC			

UPLAND MEADOW ESTABLISHMENT

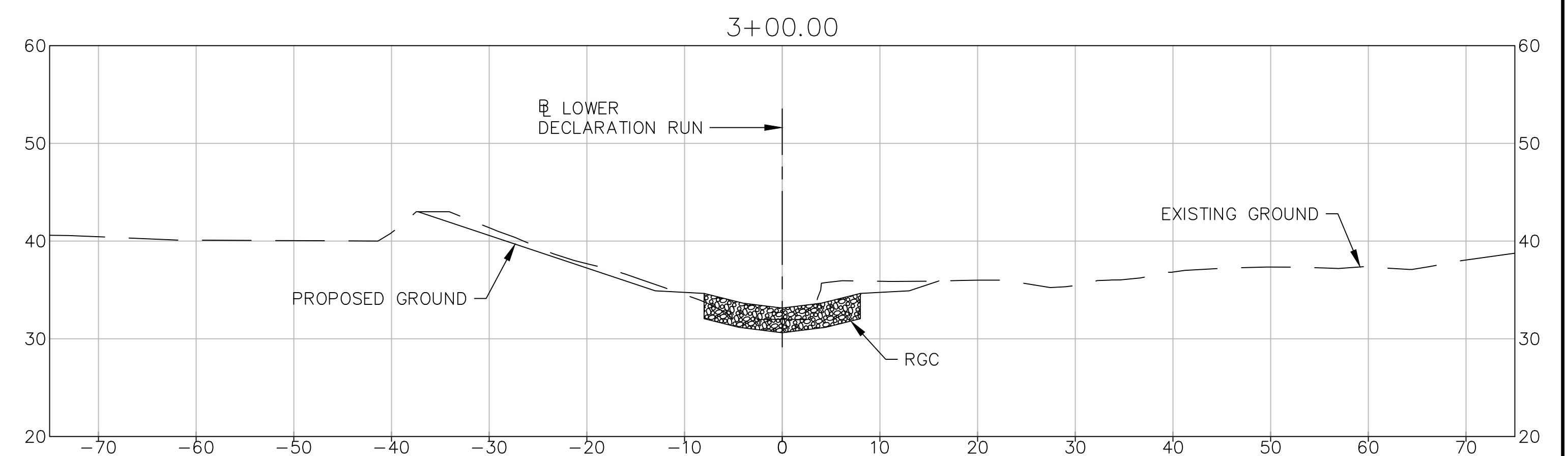
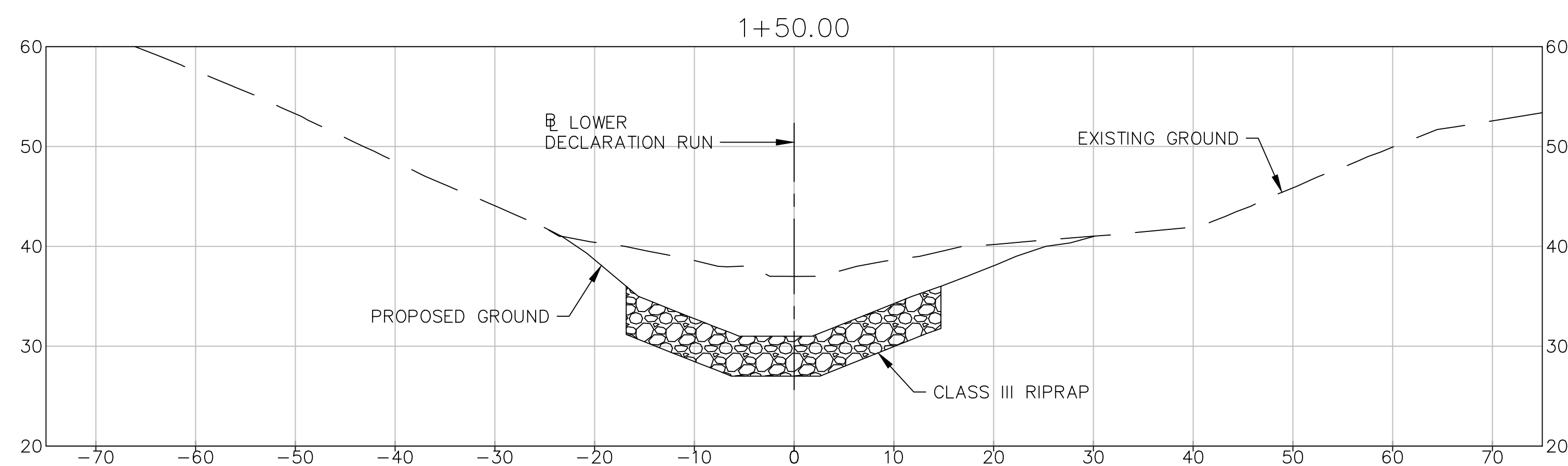
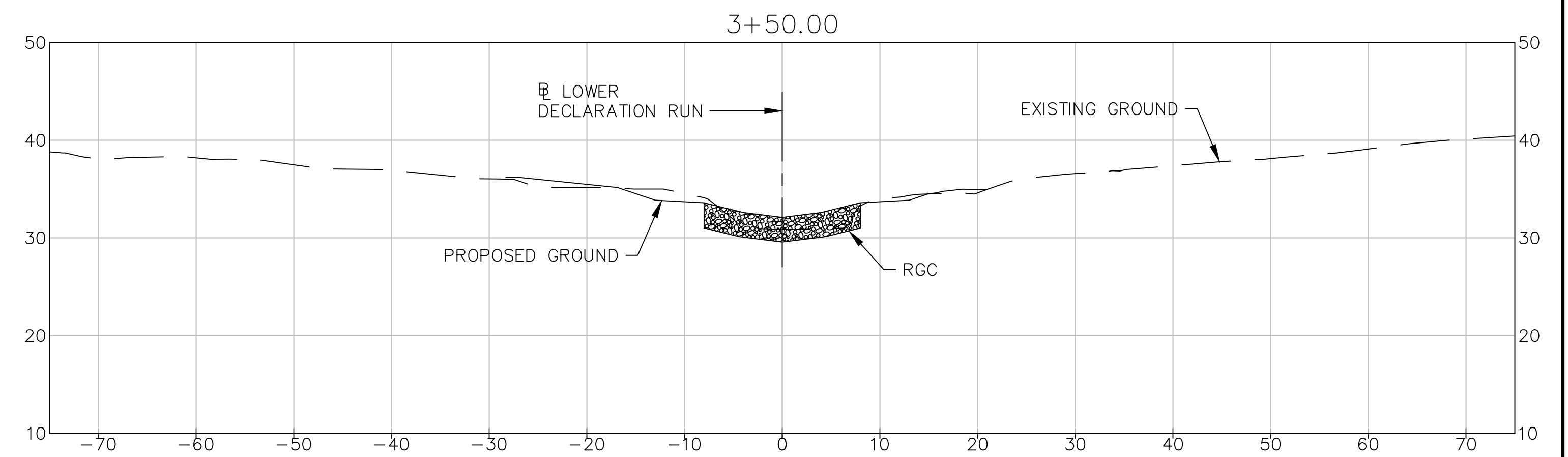
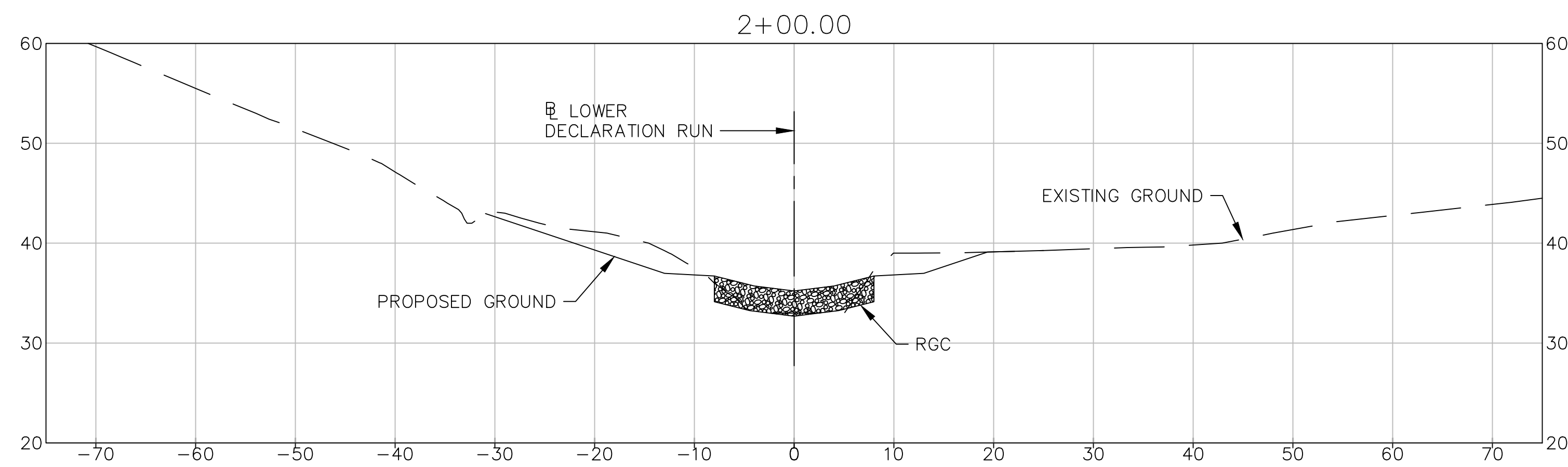
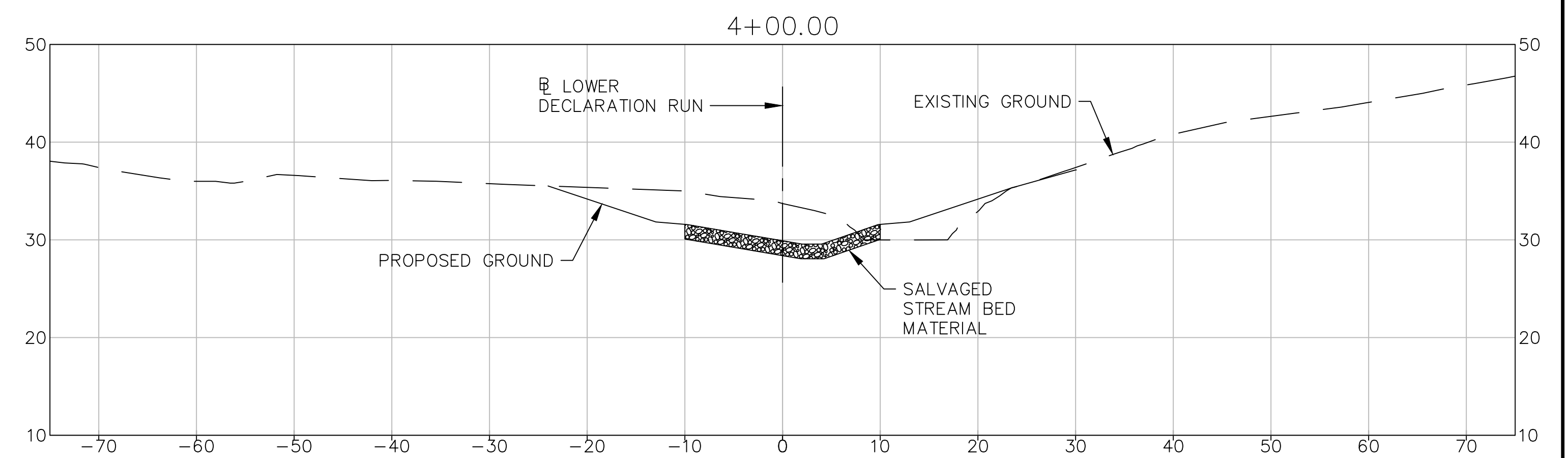
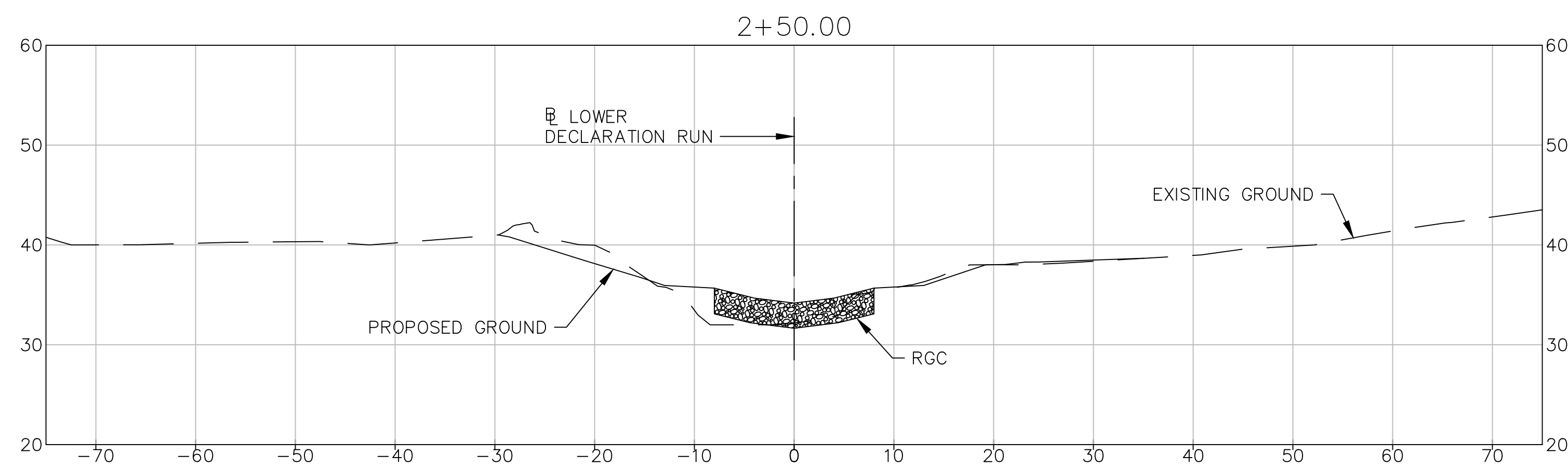
SPECIES	APPLICATION RATE GRAM PER SY	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTH	FERTILIZER AND LIME
FORBS			SPRING 3/1 TO 4/30 SUMMER 5/1 to 7/31 FALL 8/1 to 10/30	0.5"	NO FERTILIZER OR LIME TO BE APPLIED
BLACKEYED SUSAN	0.094	1.0			
EASTERN PURPLE CONEFLOWER	0.094	1.0			
GRAY GOLDENROD	0.038	0.4			
LANCELEAF TICKSEED	0.263	2.8			
MARYLAND SENNA	0.056	0.6			
PARTRIDGE PEA	0.225	2.4			
SMOOTH BLUE ASTER	0.038	0.4			
SUNDIAL LUPINE	0.263	2.8			
BUTTERFLY MILKWEED	0.038	0.4			
NARROWLEAF MOUNTAINMINT	0.094	1.0			
BLANKETFLOWER	0.047	0.5			
GRASSES, SEDGES & RUSHES					
BROOMSEDGE BLUESTEM	0.094	1.0			
DEERTONGUE	0.188	2.0			
HARD FESCUE	1.876	20.0			
LITTLE BLUESTEM	0.188	2.0			
PURPLETOP	0.094	1.0			
VIRGINIA WILDRYE	0.047	0.5			
	3.737 GRAM/SY	39.8 LB/AC			

TURFGRASS ESTABLISHMENT

HARDINESS ZONE: ZONE 6B 0° TO -5°

SEED MIXTURE :

NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTH	FERTILIZER RATE (10-20-20)	LIME RATE
9	TALL FESCUE (LOLIUM ARUNDINACEUM)	60	MAR 1 TO MAY 15 AUG 1 TO OCT 15	0.5"	436 LB/AC (10 LB/1,000 SF)	2 TONS/AC (90 LB/1,000 SF)
	KENTUCKY BLUEGRASS (POA PRATENSIS)	40				
	PERENNIAL RYEGRASS (LOLIUM PERENNE)	20				
	120 LB/AC					



NOTES:

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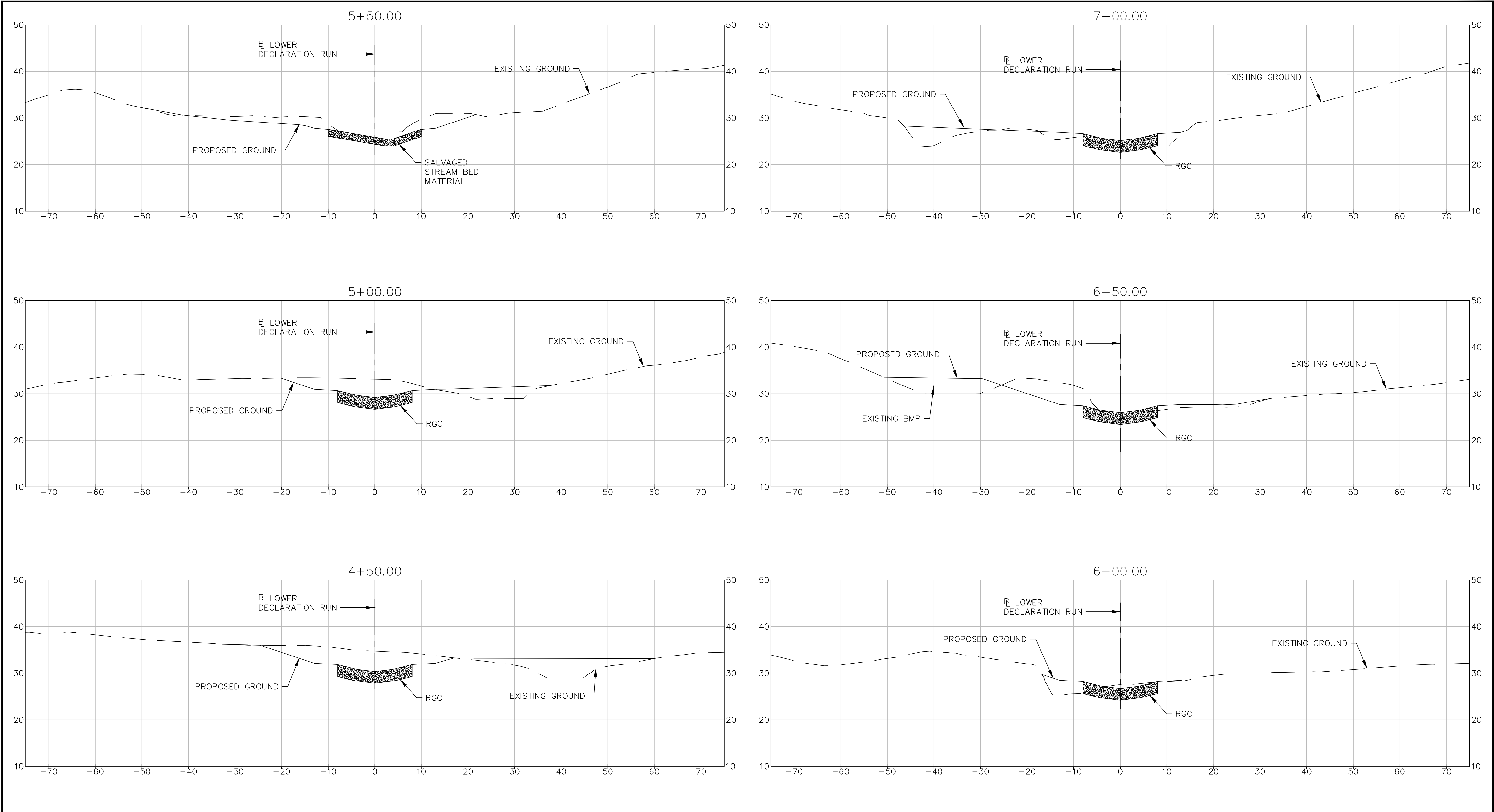


PROFESSIONAL CERTIFICATION

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AND THAT I AM A DULY LICENSED
PROFESSIONAL ENGINEER UNDER THE
LAWS OF THE STATE OF MARYLAND,
LICENSE NO. 34691
EXPIRATION DATE: 7/10/2025

AECOM

REVISIONS	HARFORD COUNTY, MARYLAND	
	DECLARATION RUN STREAM RESTORATION CROSS SECTIONS	
	DRAWN BY : _____ SAB _____ DESIGNED BY : _____ BWA _____ REVIEWED BY : _____ JJW _____	CONTRACT NO : <u>97040</u> SCALE : HOR: 1"=10' VERT: 1"=10' SHEET <u>36</u> OF <u>47</u>  DATE : <u>MARCH 2025</u>



- NOTES:
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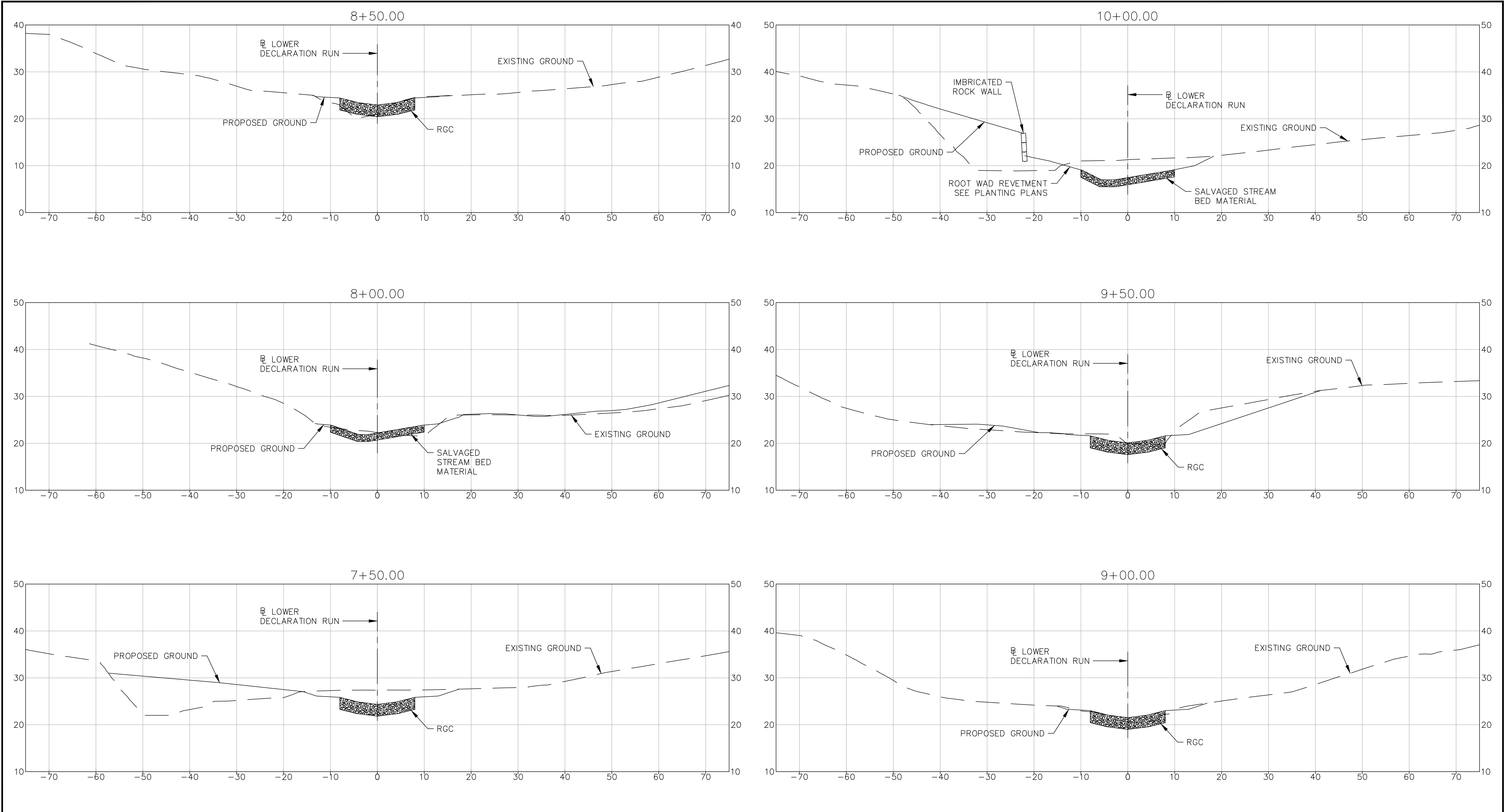


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AECOM

REVISIONS

EG 263-2019; SWM 97049		CS-02
HARFORD COUNTY, MARYLAND		
DECLARATION RUN STREAM RESTORATION		
CROSS SECTIONS		
DRAWN BY : <u> SAB </u>	CONTRACT NO : <u> 97040 </u>	
DESIGNED BY : <u> BWA </u>	SCALE : <u> HOR: 1"=10' </u> <u> VERT: 1"=10' </u>	
REVIEWED BY : <u> JJW </u>	SHEET <u> 37 </u> OF <u> 47 </u>	
	 SCALE : 1 inch	
	DATE : <u> MARCH 2025 </u>	



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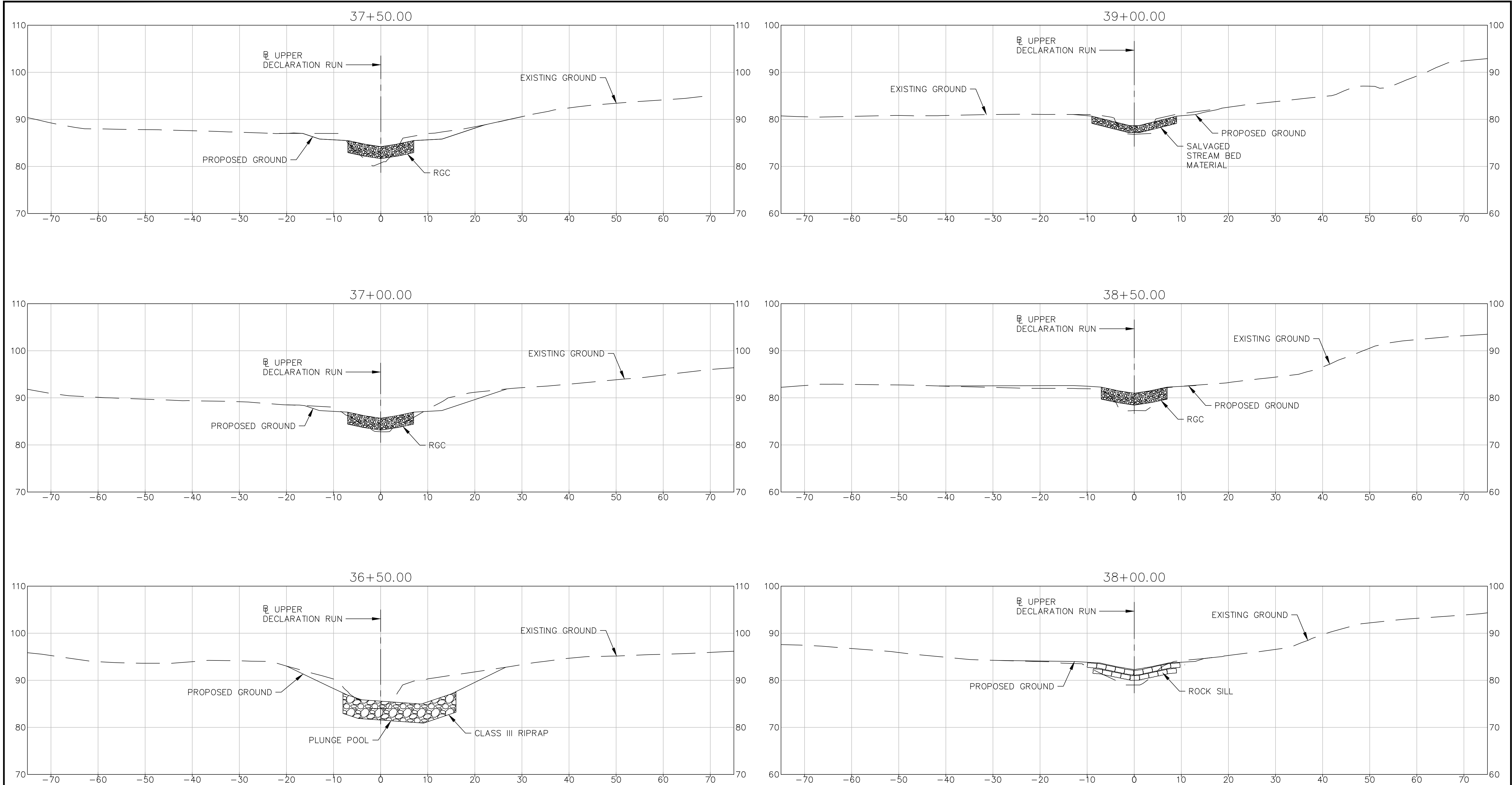


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EXPIRATION DATE: 7/10/2025

AECOM

REVISIONS

HARFORD COUNTY, MARYLAND	
DECLARATION RUN STREAM RESTORATION	
CROSS SECTIONS	
DRAWN BY : <u>SAB</u>	CONTRACT NO : <u>97040</u>
DESIGNED BY : <u>BWA</u>	SCALE : <u>HOR: 1"=10'</u> <u>VERT: 1"=10'</u>
REVIEWED BY : <u>JJW</u>	SHEET <u>38</u> OF <u>47</u> SCALE : 1 inch
	DATE : <u>MARCH 2025</u>



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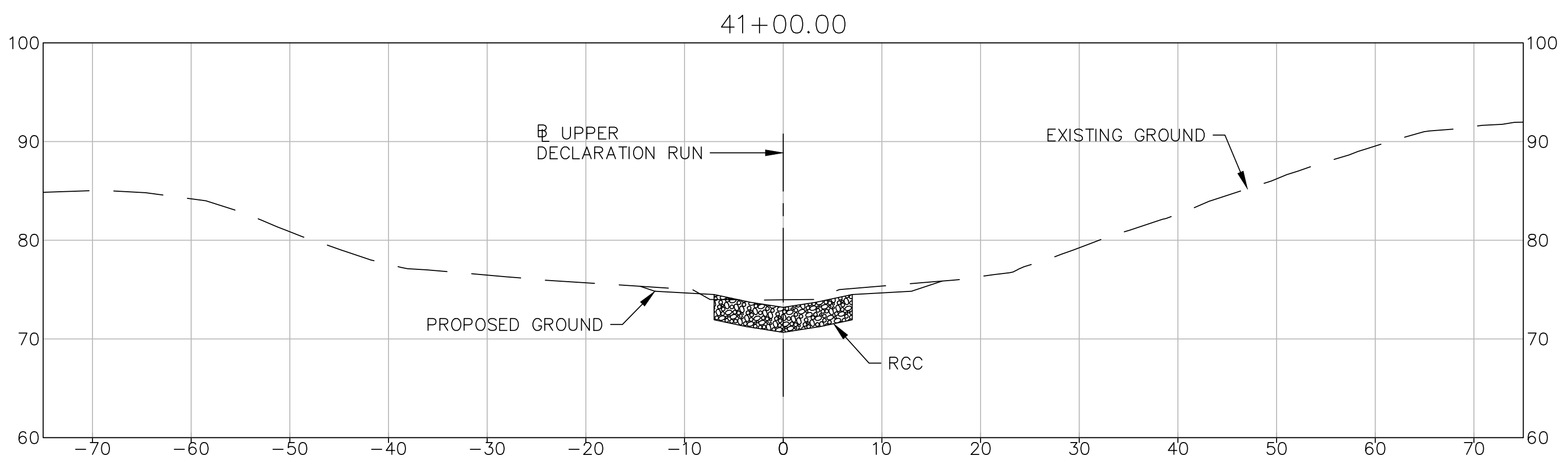
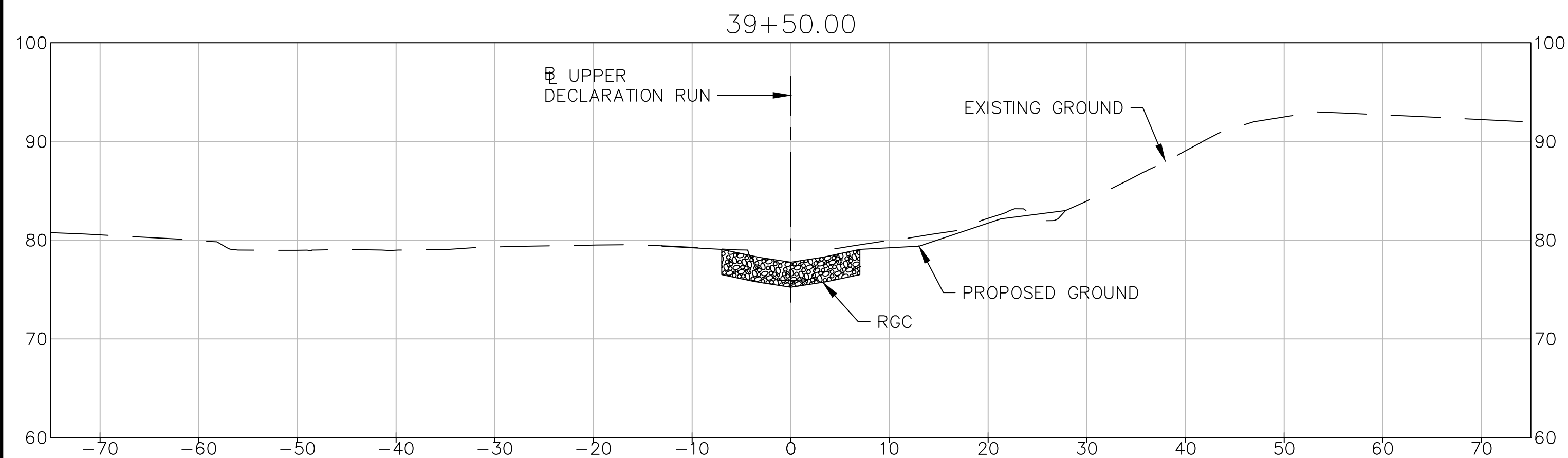
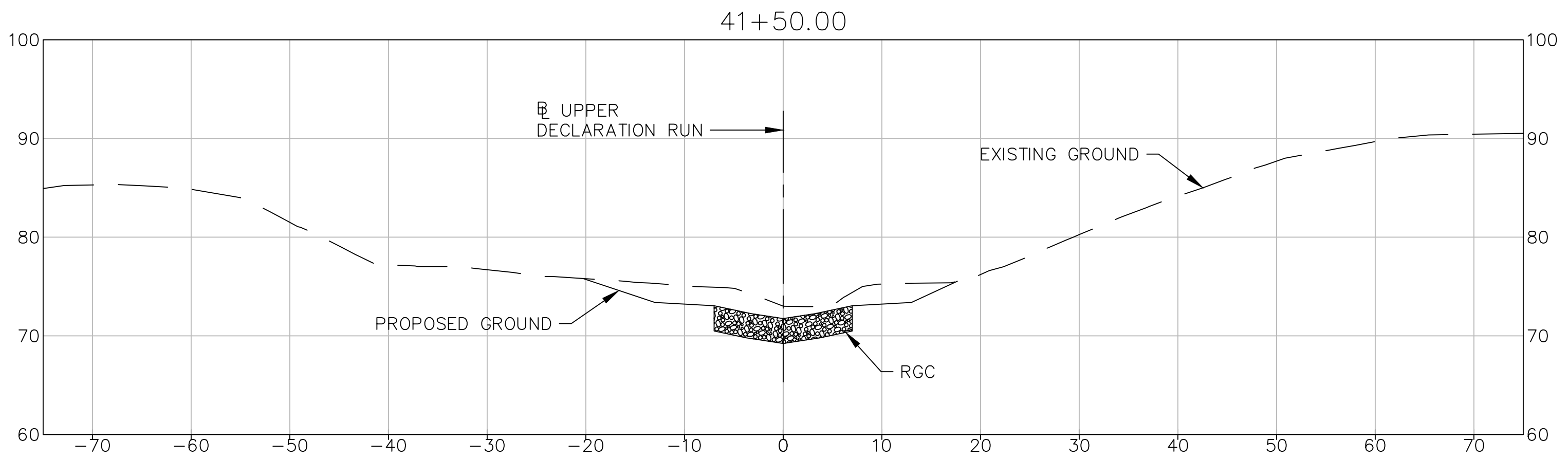
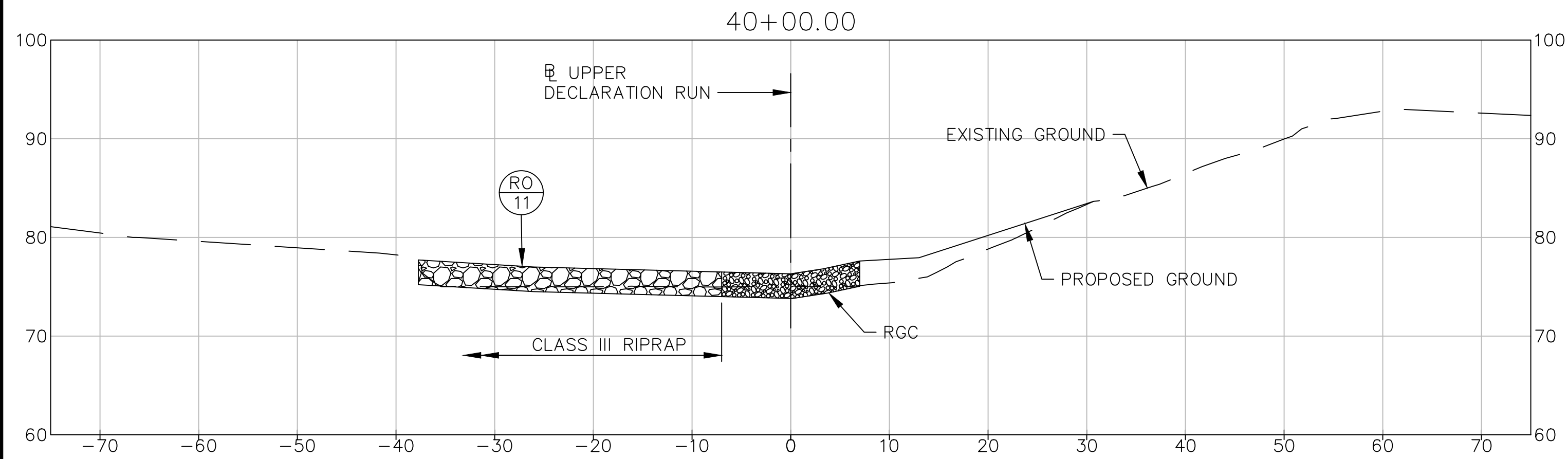
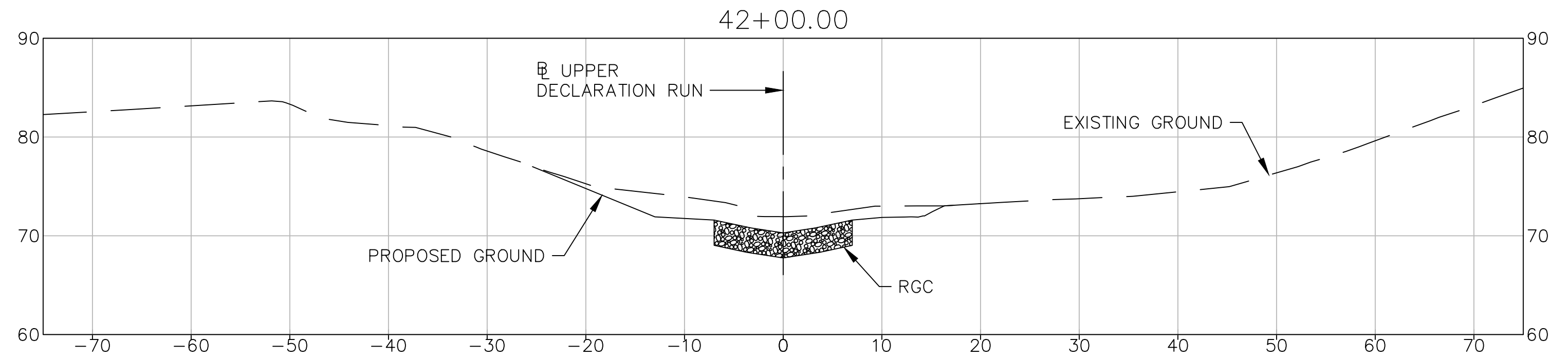
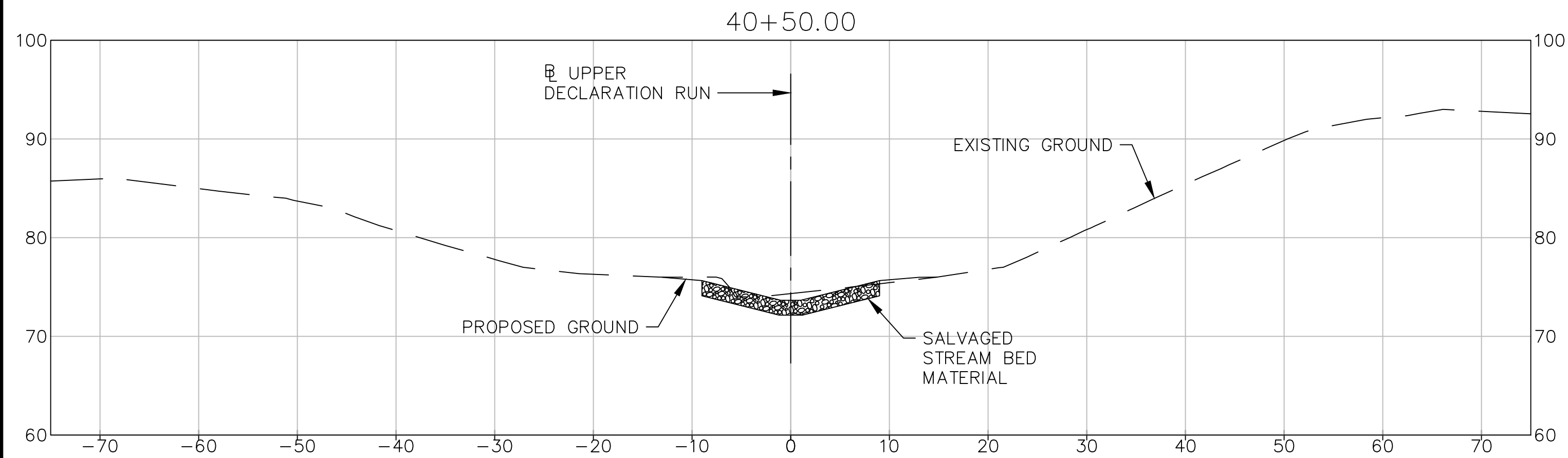


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EXPIRATION DATE: 7/10/2025

AECOM

REVISIONS	

EG 263—2019; SWM 97049		CS—04
HARFORD COUNTY, MARYLAND		
DECLARATION RUN STREAM RESTORATION CROSS SECTIONS		
DRAWN BY : <u>SAB</u>	CONTRACT NO : <u>97040</u>	
DESIGNED BY : <u>BWA</u>	SCALE : <u>HOR: 1"=10'</u> <u>VERT: 1"=10'</u>	
REVIEWED BY : <u>JJW</u>	SHEET <u>39</u> OF <u>47</u>  SCALE : 1"=10'	
DATE : <u>MARCH 2025</u>		



NOTES:

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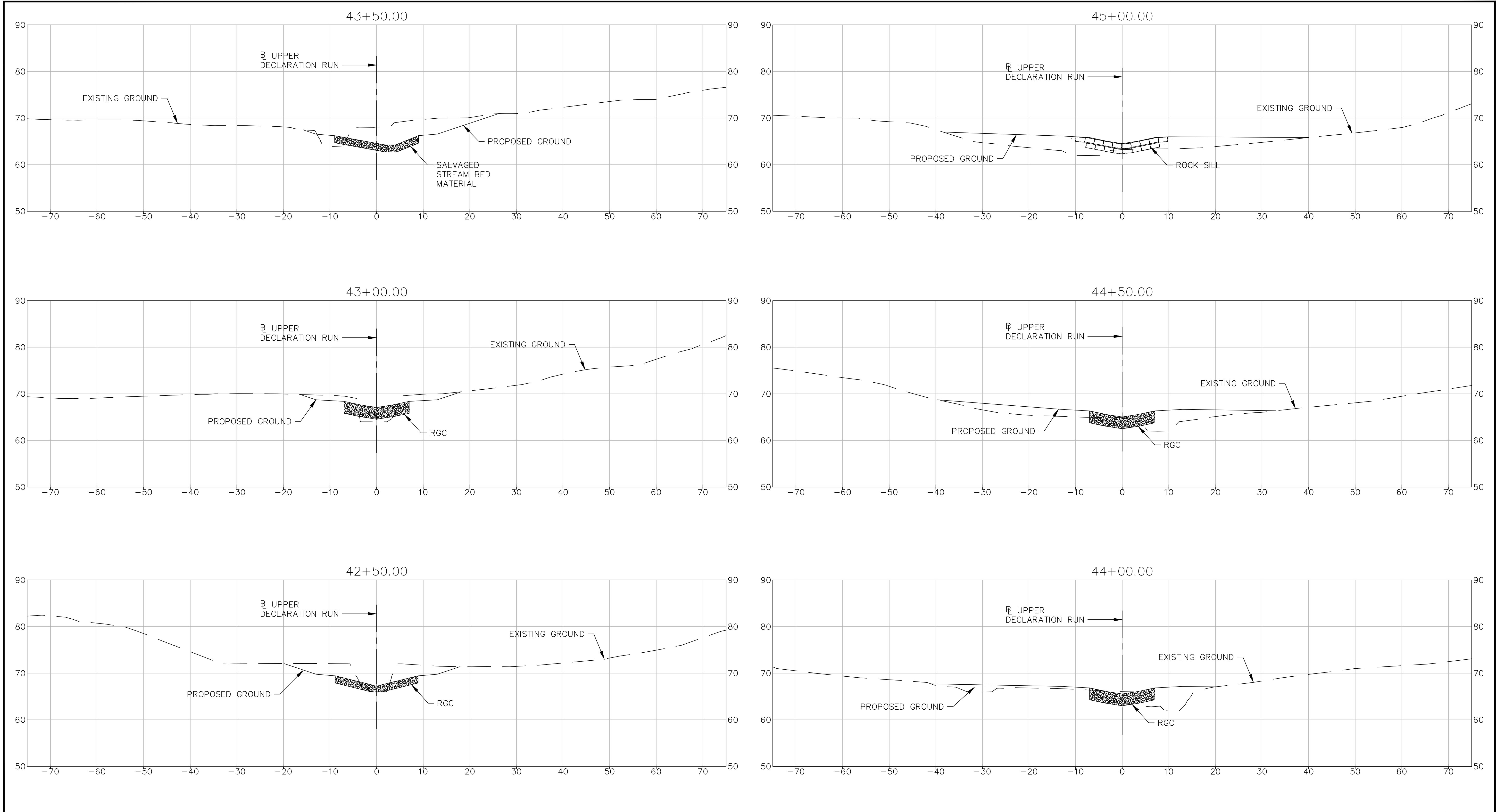
AECOM

REVISIONS

HARFORD COUNTY, MARYLAND
DECLARATION RUN STREAM RESTORATION
CROSS SECTIONS

DRAWN BY : SAB
DESIGNED BY : BWA
REVIEWED BY : JJW

CONTRACT NO : 97040
SCALE : HOR: 1"=10' VERT: 1"=10'
SHEET 40 OF 47
DATE : MARCH 2025



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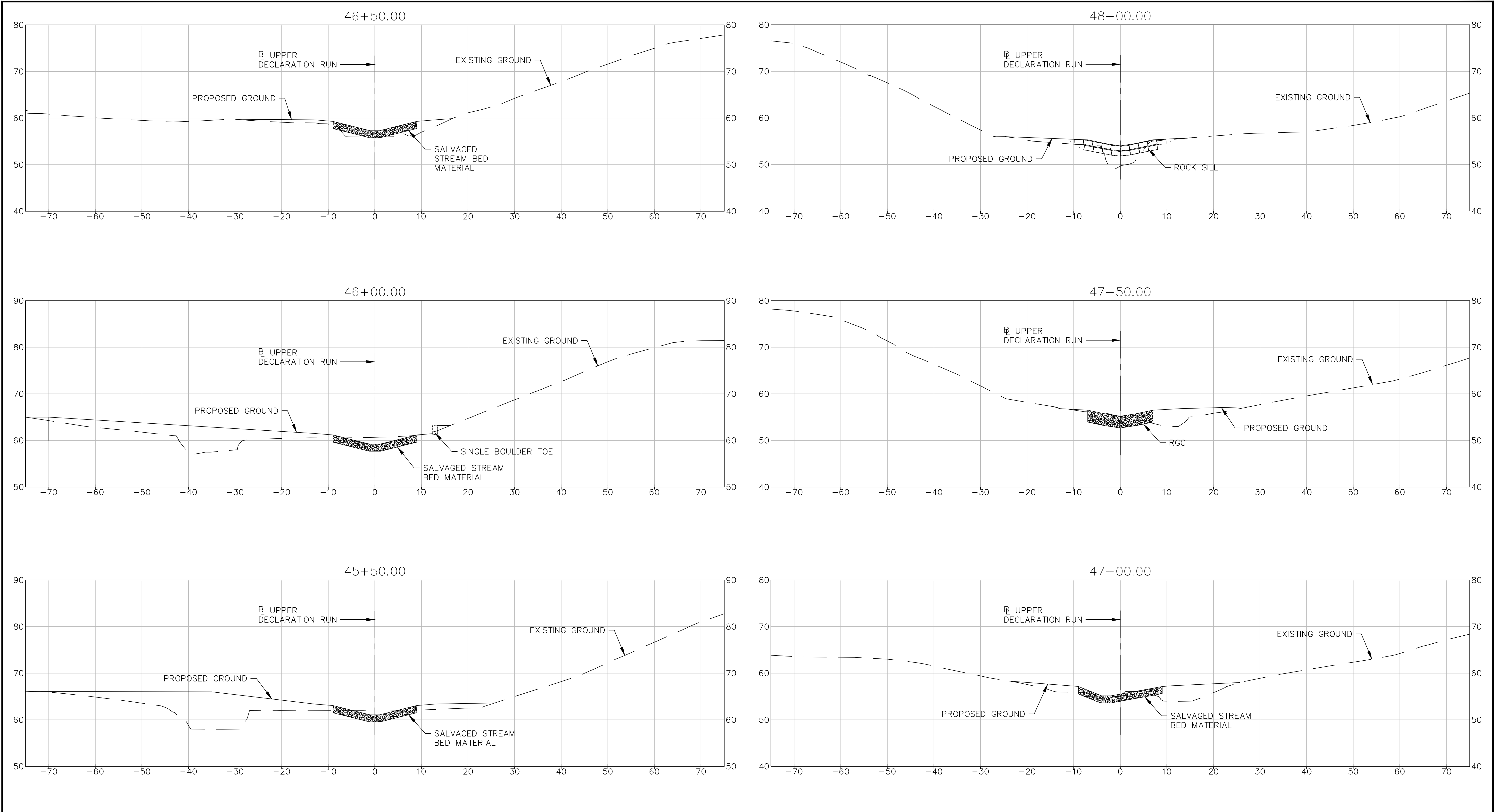


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REVISIONS

EG 263-2019; SWM 97049		CS-06
HARFORD COUNTY, MARYLAND		
DECLARATION RUN STREAM RESTORATION CROSS SECTIONS		
DRAWN BY : _____ SAB _____	CONTRACT NO : 97040	
DESIGNED BY : _____ BWA _____	SCALE : HOR: 1"=10' VERT: 1"=10'	
REVIEWED BY : _____ JJW _____	SHEET 41 OF 47	
DATE : MARCH 2025		SCALE : 1 inch



- NOTES:
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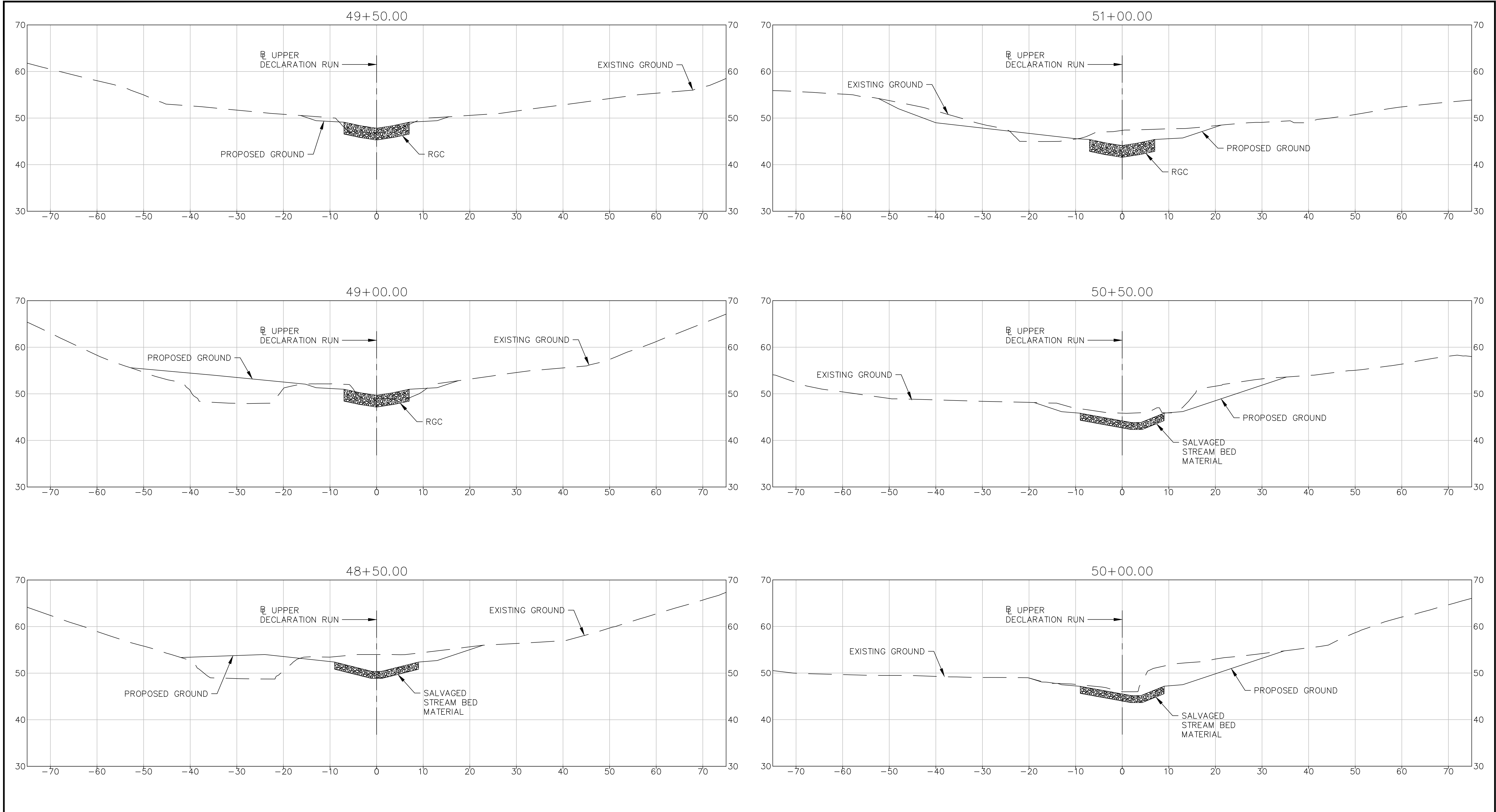


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REVISIONS

EG 263-2019; SWM 97049		CS-07
HARFORD COUNTY, MARYLAND		
DECLARATION RUN STREAM RESTORATION		
CROSS SECTIONS		
DRAWN BY : <u>SAB</u>	CONTRACT NO : <u>97040</u>	
DESIGNED BY : <u>BWA</u>	SCALE : <u>HOR: 1"=10'</u> <u>VERT: 1"=10'</u>	
REVIEWED BY : <u>JJW</u>	SHEET <u>42</u> OF <u>47</u> 	
DATE : <u>MARCH 2025</u>		



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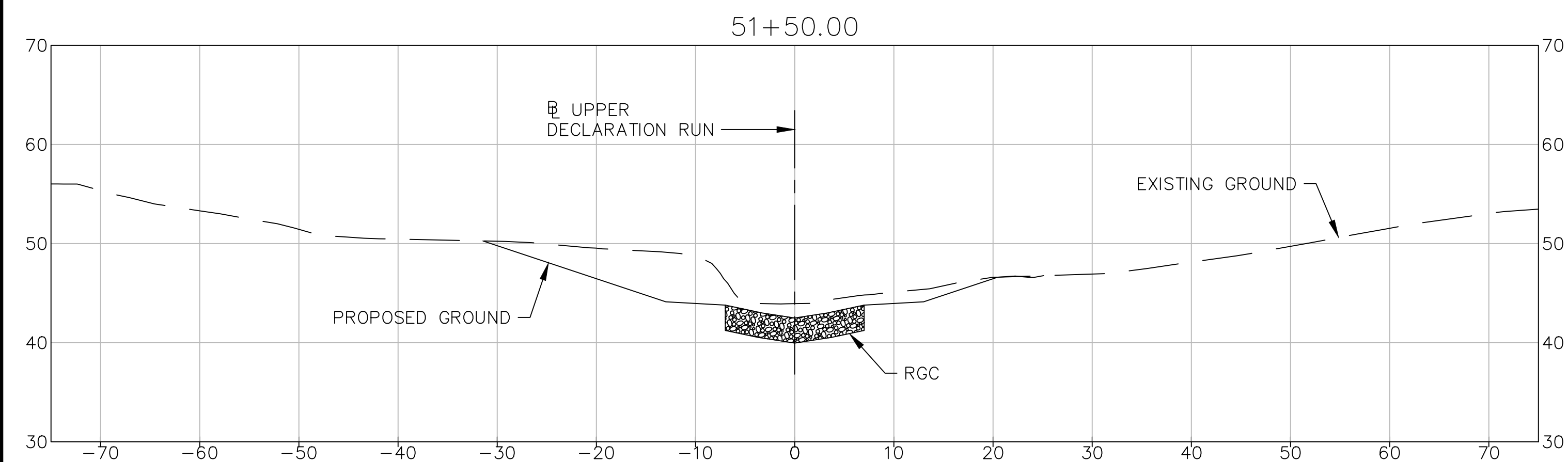
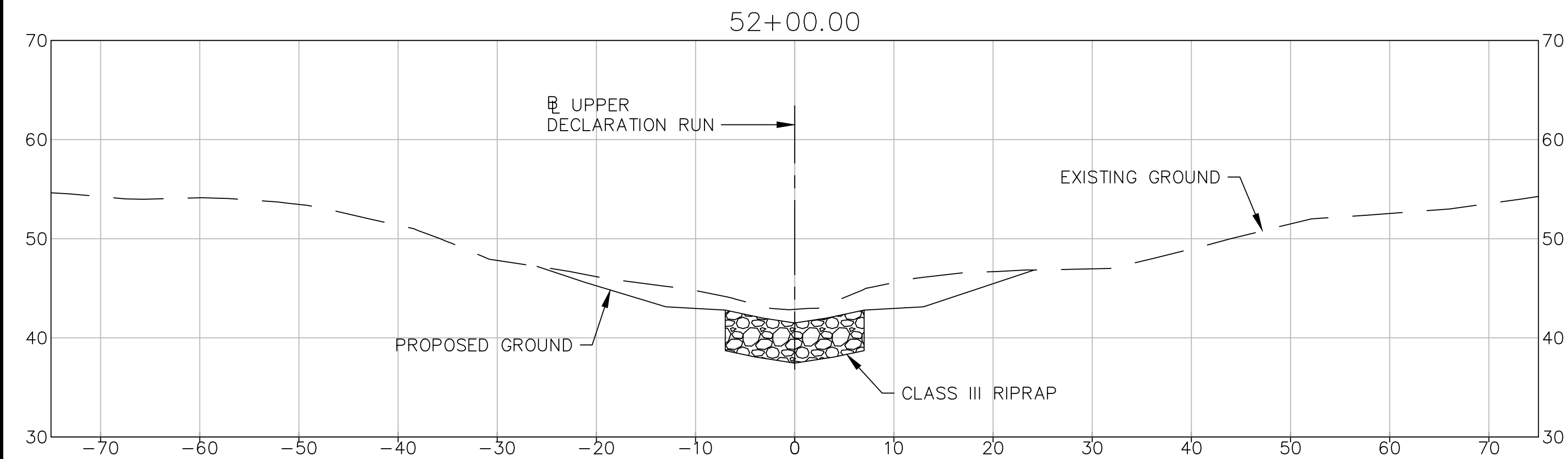


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REVISIONS

EG 263-2019; SWM 97049		CS-08
HARFORD COUNTY, MARYLAND		
DECLARATION RUN STREAM RESTORATION CROSS SECTIONS		
DRAWN BY : <u>SAB</u>	CONTRACT NO : <u>97040</u>	
DESIGNED BY : <u>BWA</u>	SCALE : HOR: 1"=10' VERT: 1"=10'	
REVIEWED BY : <u>JJW</u>	SHEET <u>43</u> OF <u>47</u> 	
DATE : <u>MARCH 2025</u>		



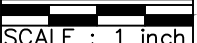
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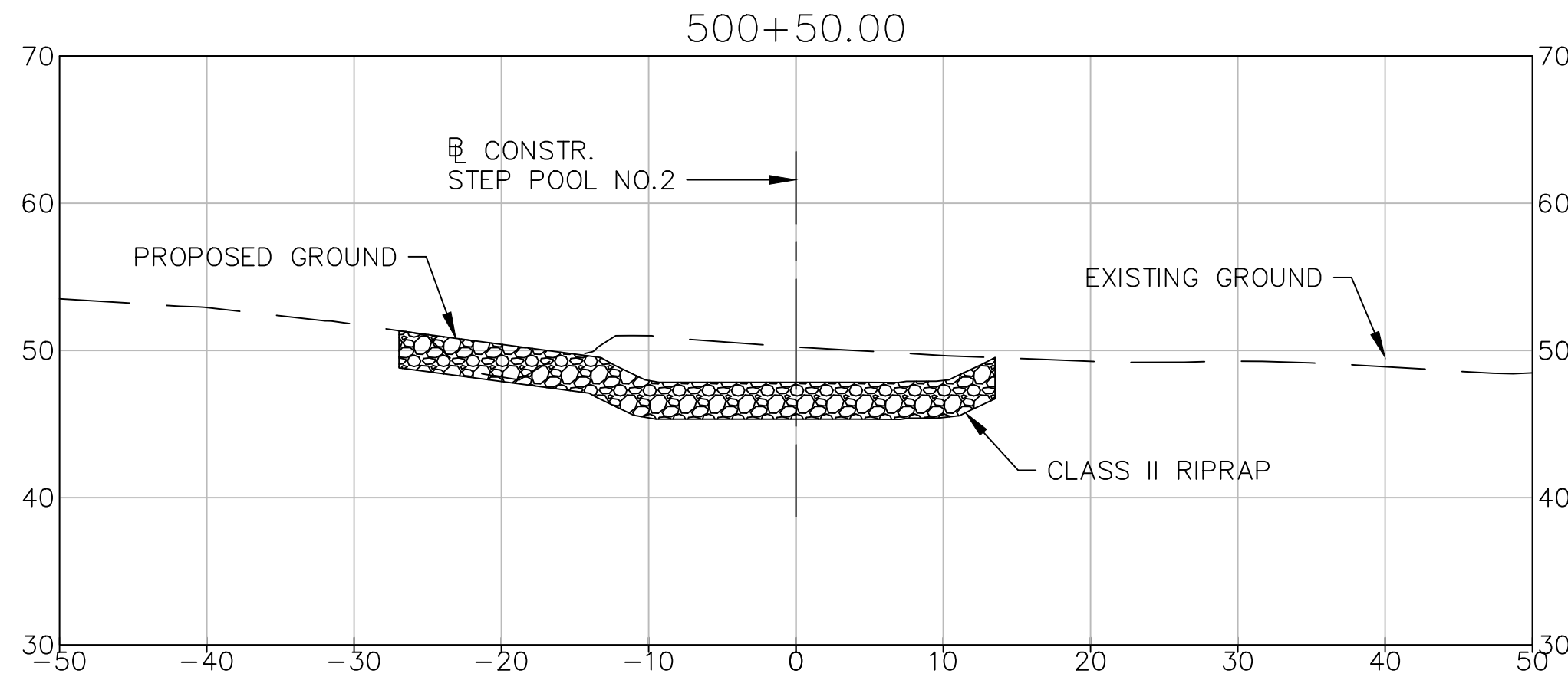
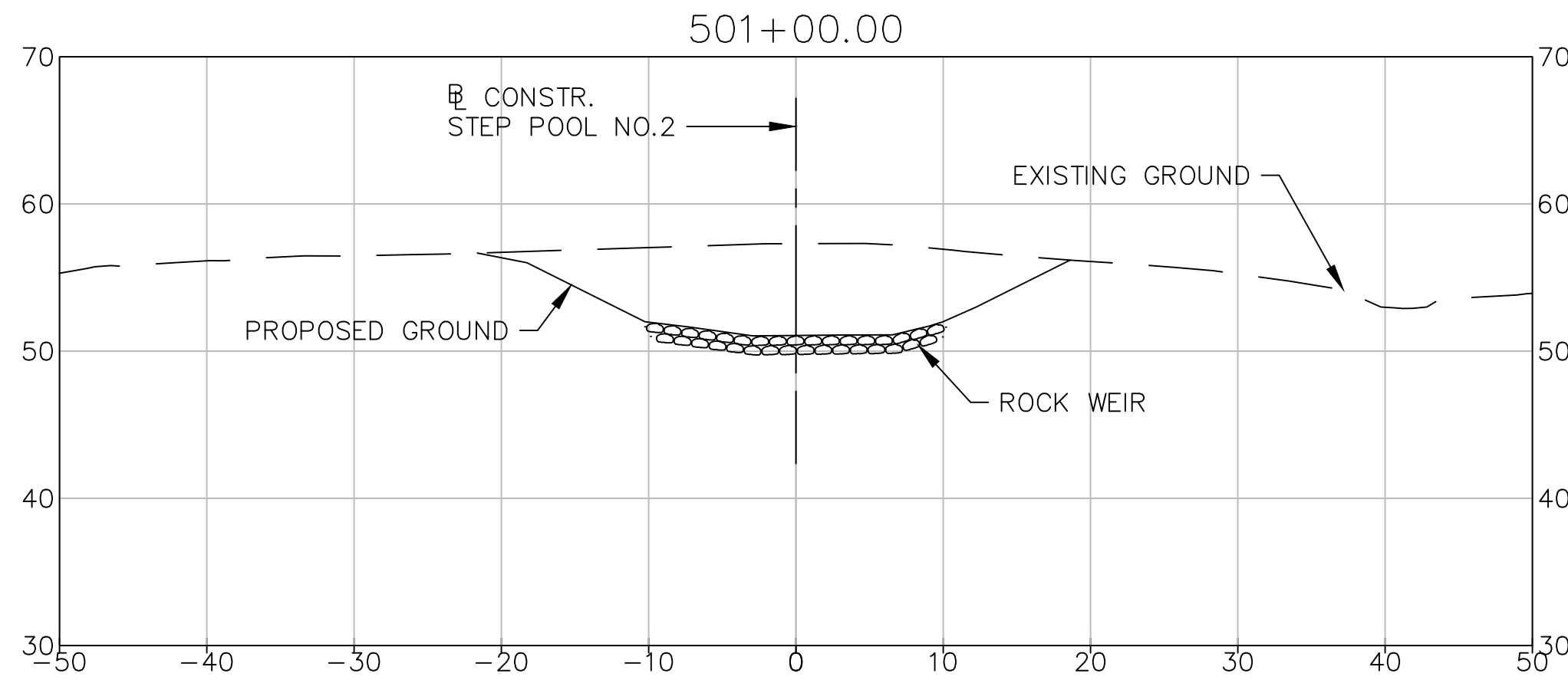
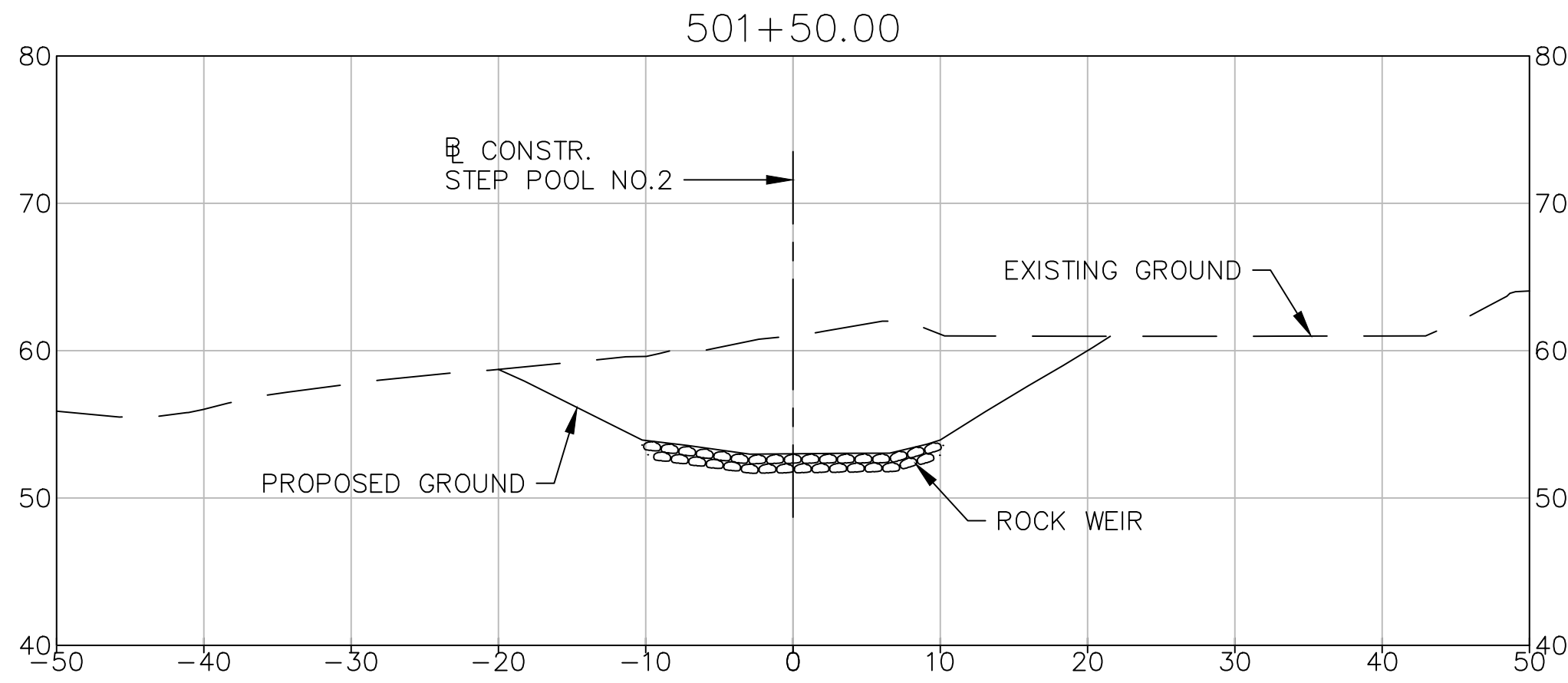
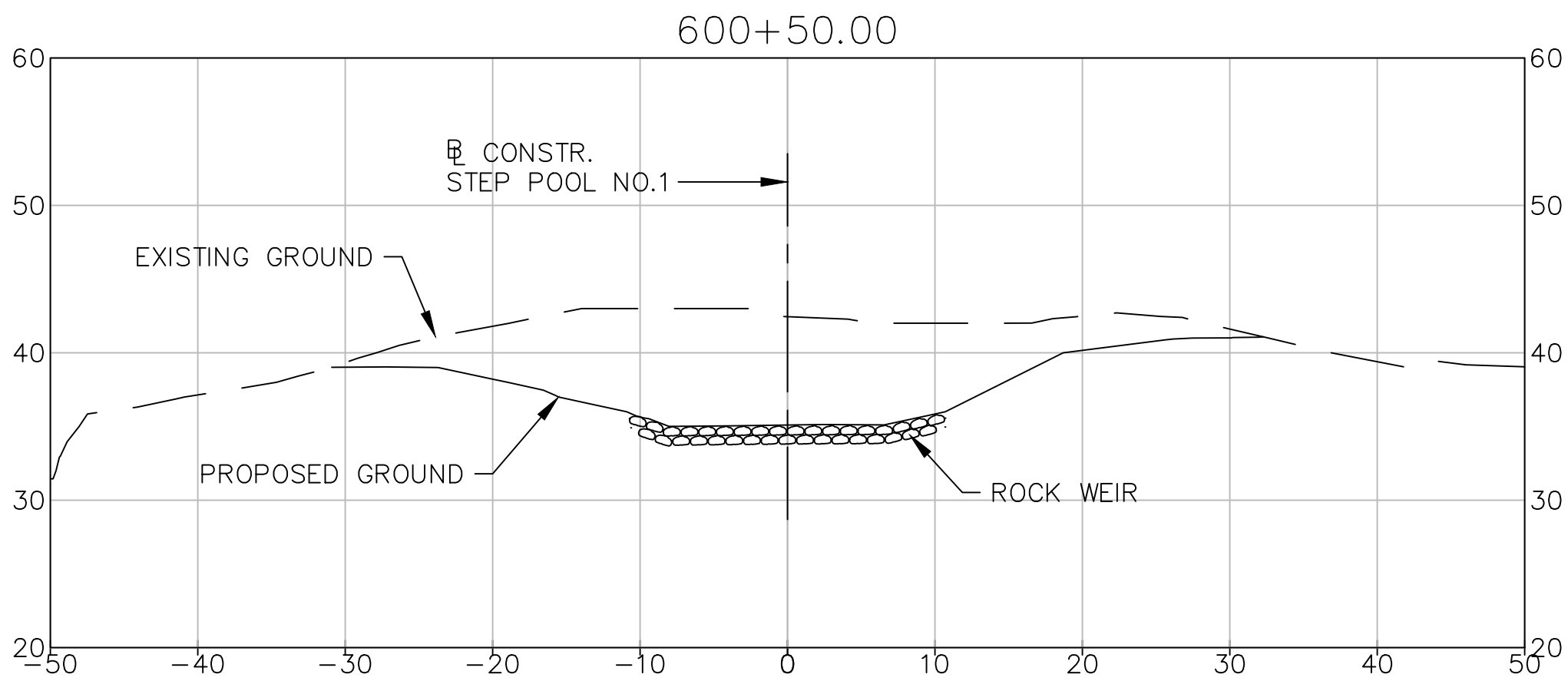
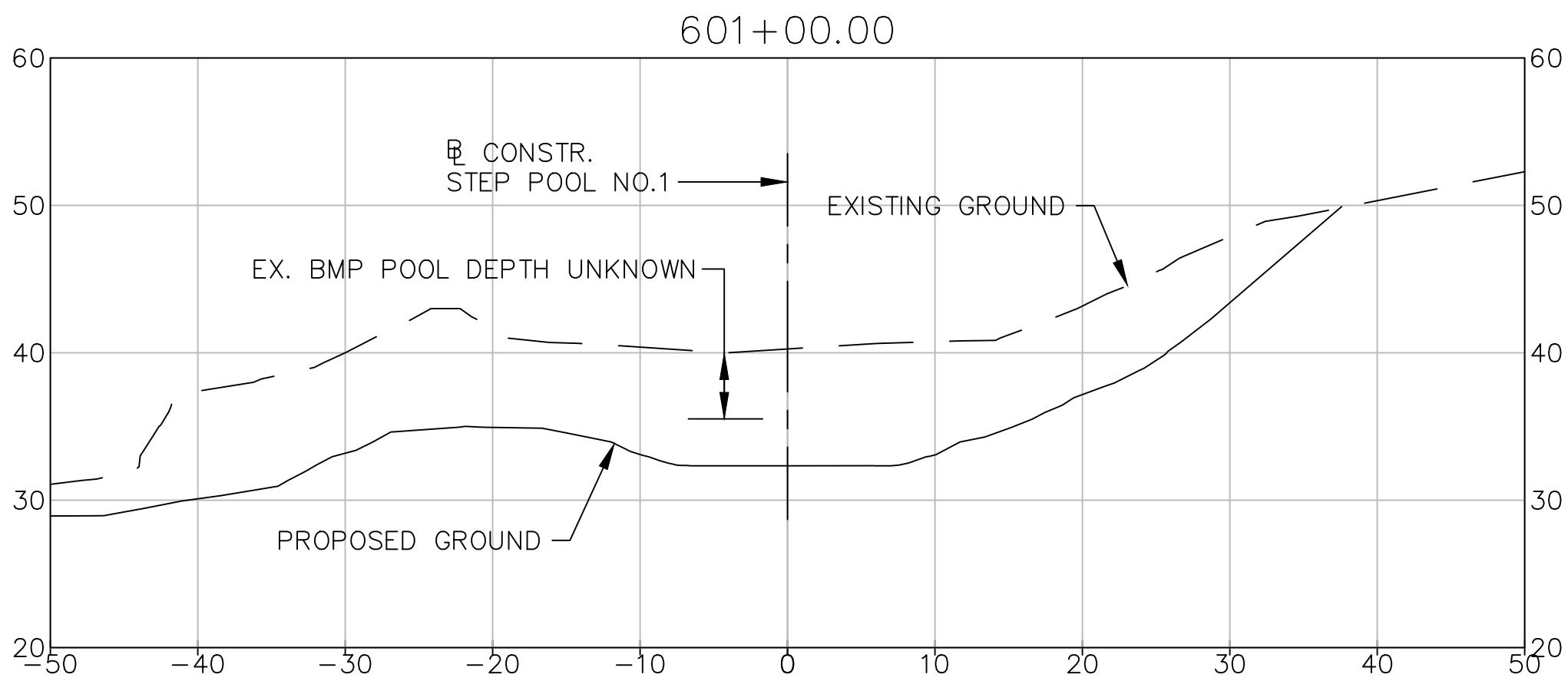


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AECOM

REVISIONS		EG 263-2019; SWM 97049	
		CS-09	
		HARFORD COUNTY, MARYLAND	
		DECLARATION RUN STREAM RESTORATION	
		CROSS SECTIONS	
DRAWN BY : <u>SAB</u>		CONTRACT NO : <u>97040</u>	
DESIGNED BY : <u>BWA</u>		SCALE : <u>HOR: 1"=10'</u> <u>VERT: 1"=10'</u>	
REVIEWED BY : <u>JJW</u>		SHEET <u>44</u> OF <u>47</u> 	
		DATE : <u>MARCH 2025</u>	



NOTES:

1. CROSS SECTIONS ARE ORIENTED FACING UPSTREAM.



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AECOM

REVISIONS

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION

CROSS SECTIONS

DRAWN BY : SAB

DESIGNED BY : BWA

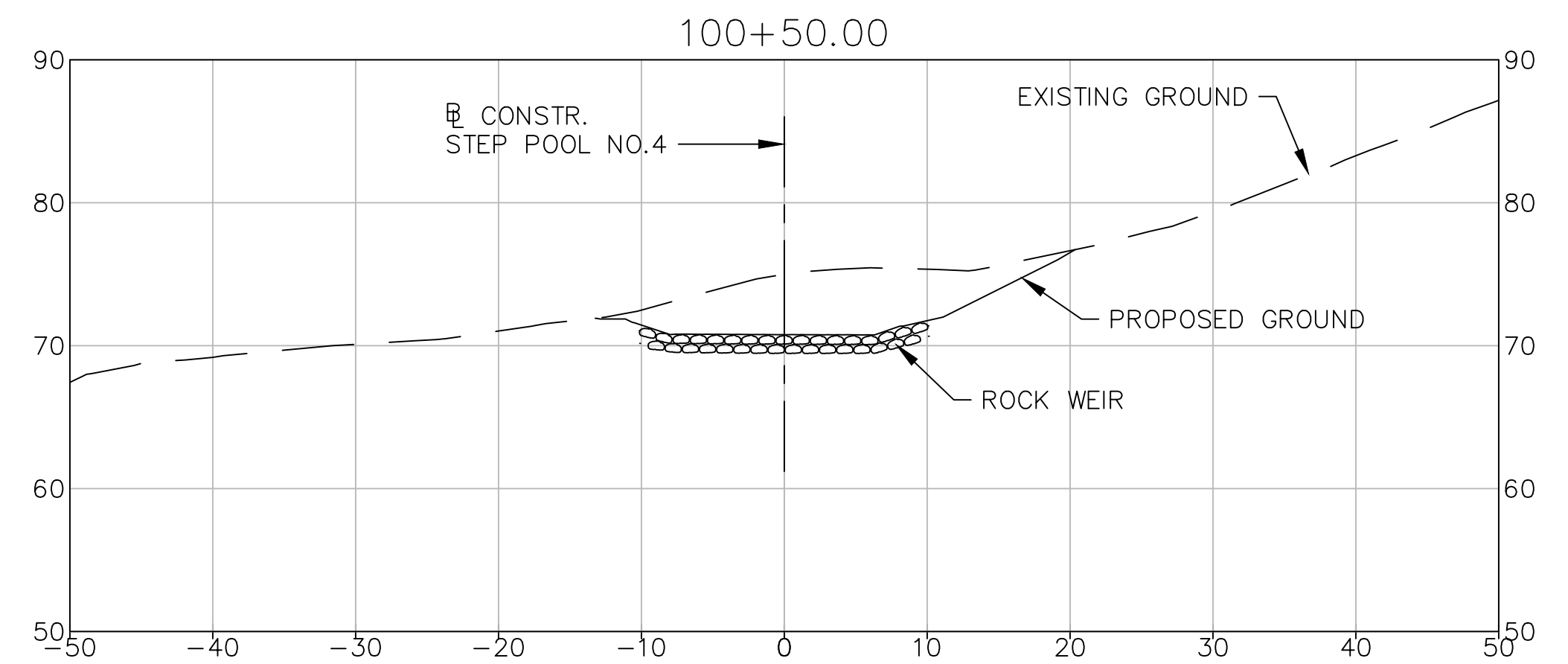
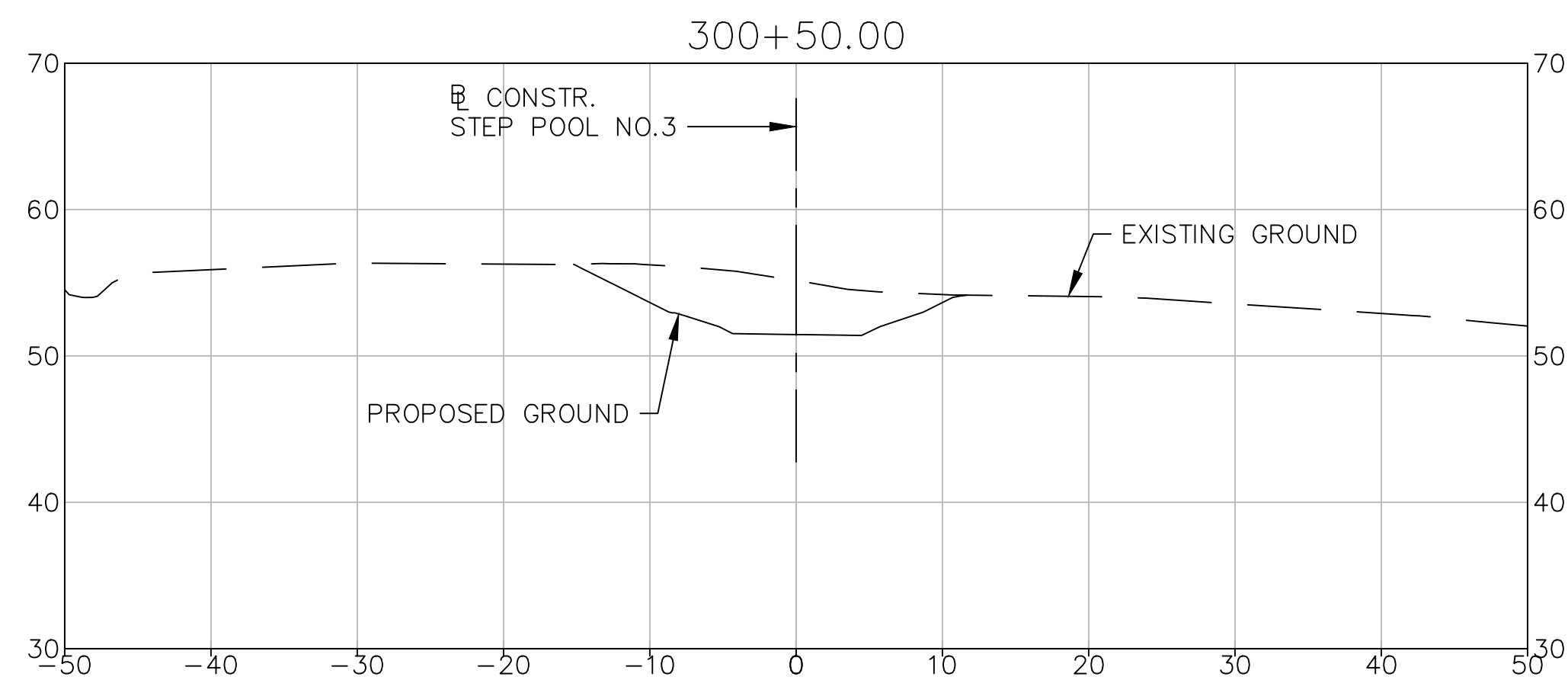
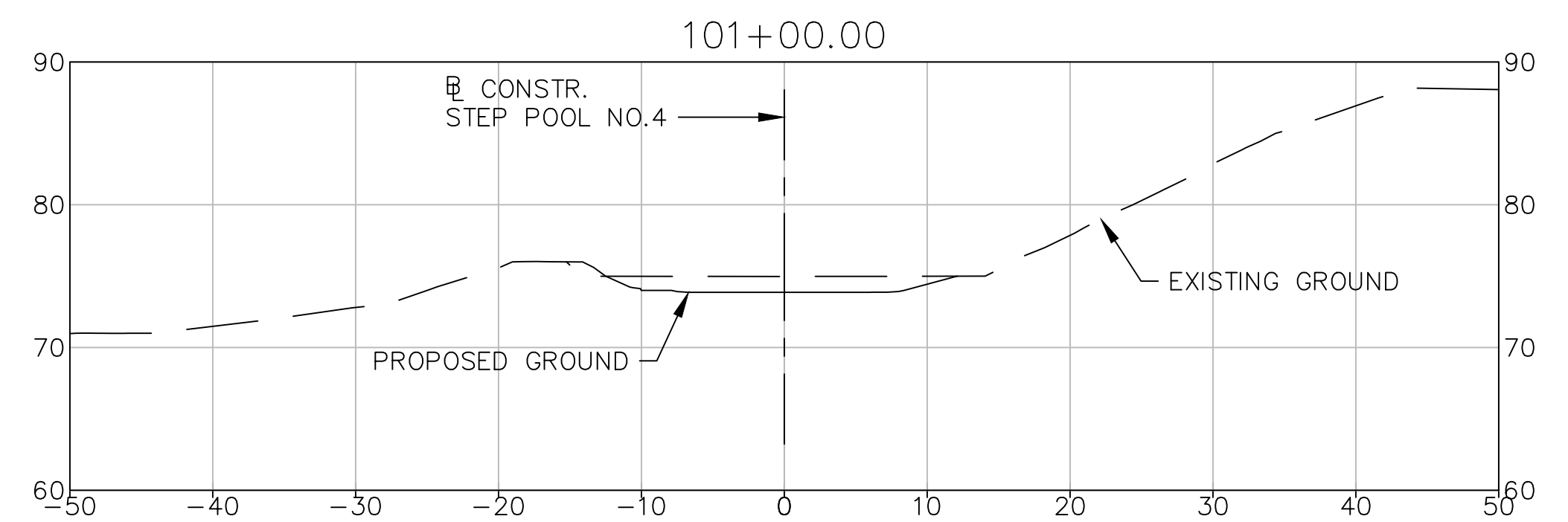
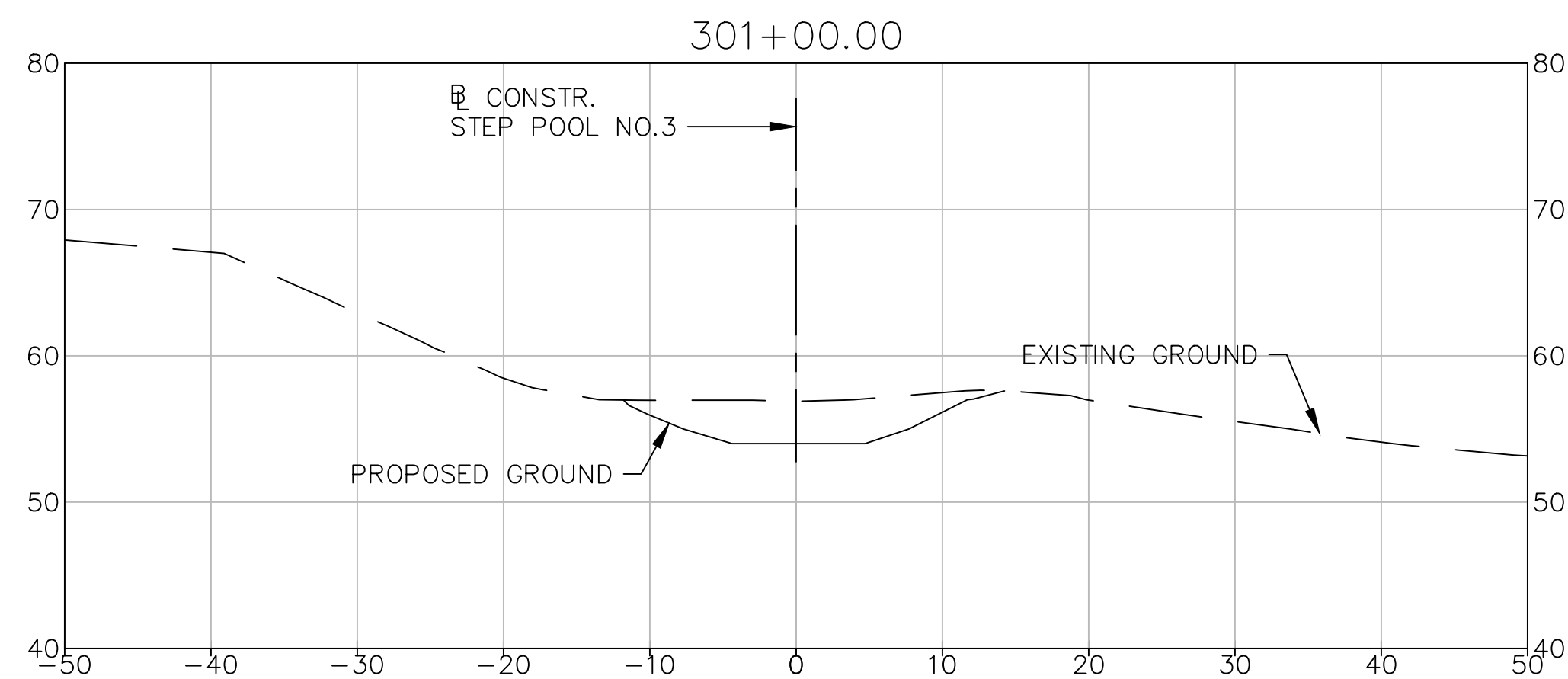
REVIEWED BY : JJW

CONTRACT NO : 97040

SCALE : HOR: 1"=10' VERT: 1"=10'

SHEET 45 OF 47

DATE : MARCH 2025



NOTES:

- CROSS SECTIONS ARE ORIENTED FACING UPSTREAM.



PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT 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. 34691, EXPIRATION DATE: 7/10/2025."

AECOM

REVISIONS

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION

CROSS SECTIONS

DRAWN BY : SAB

DESIGNED BY : BWA

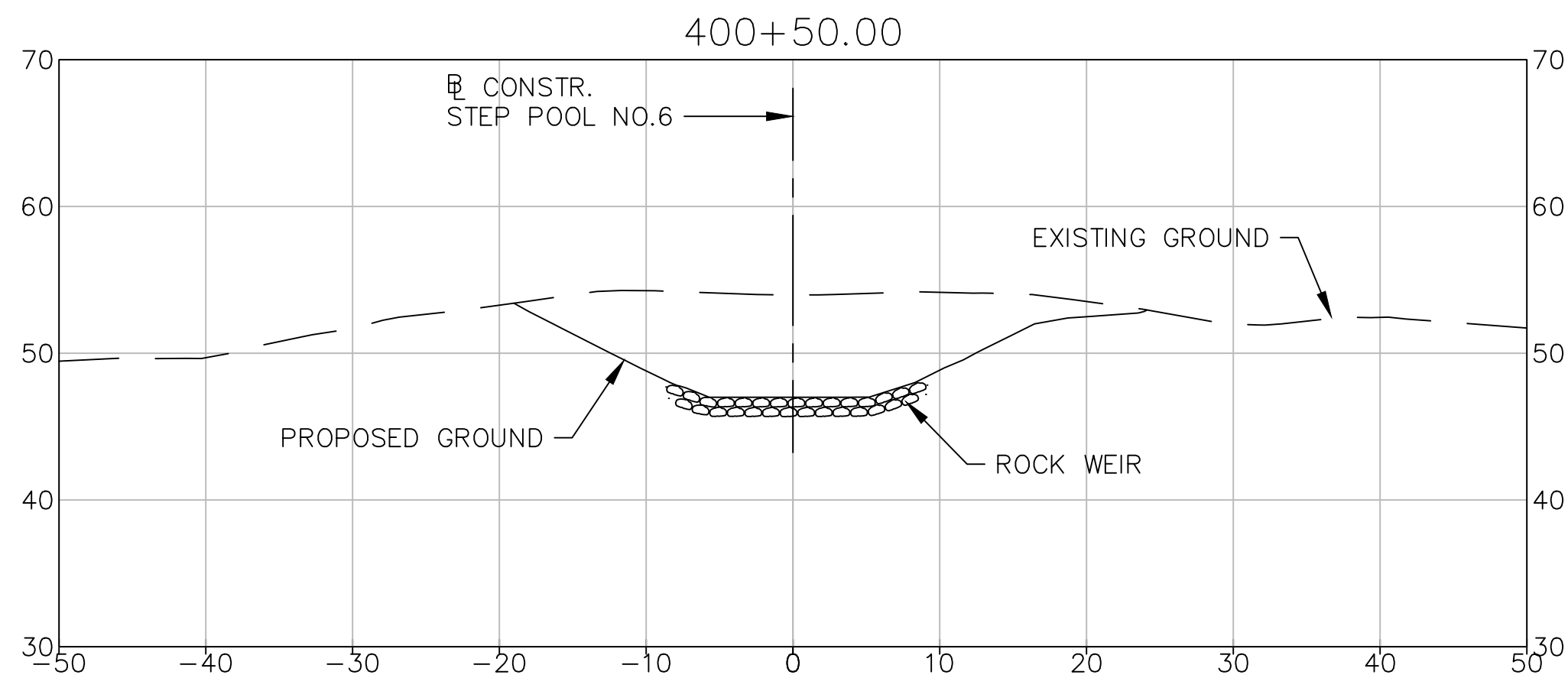
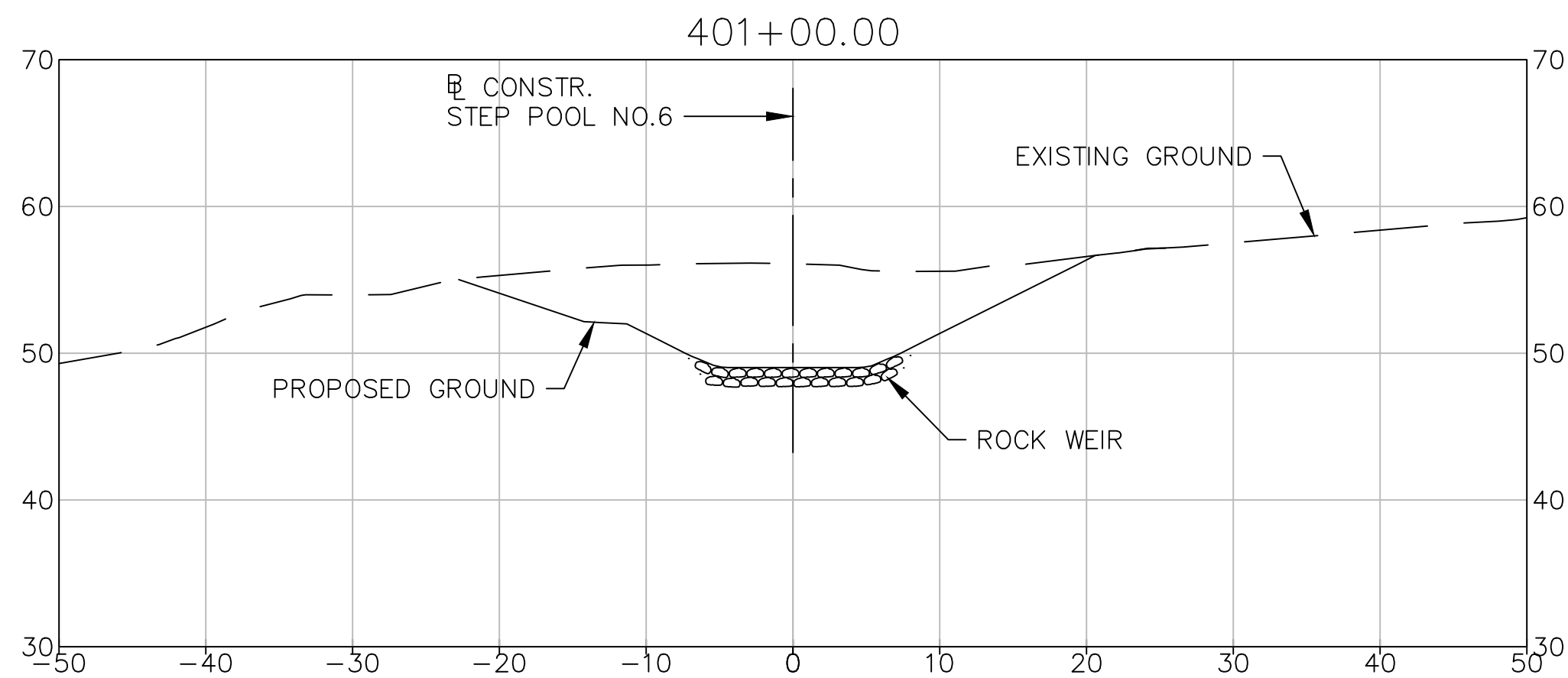
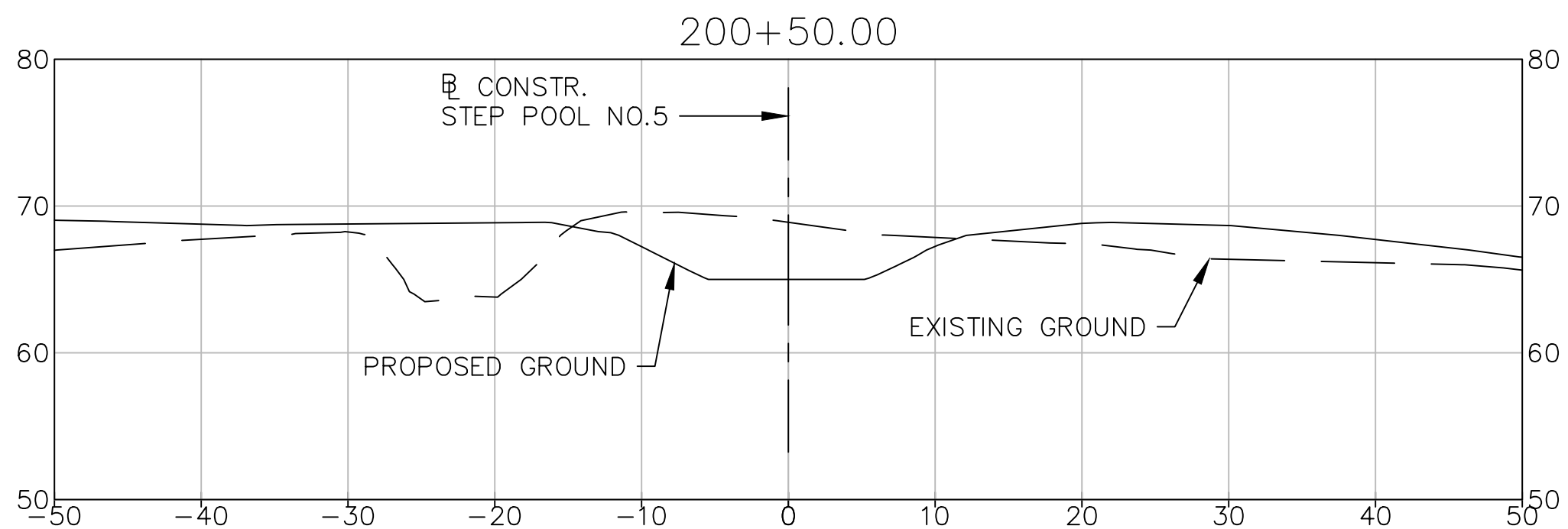
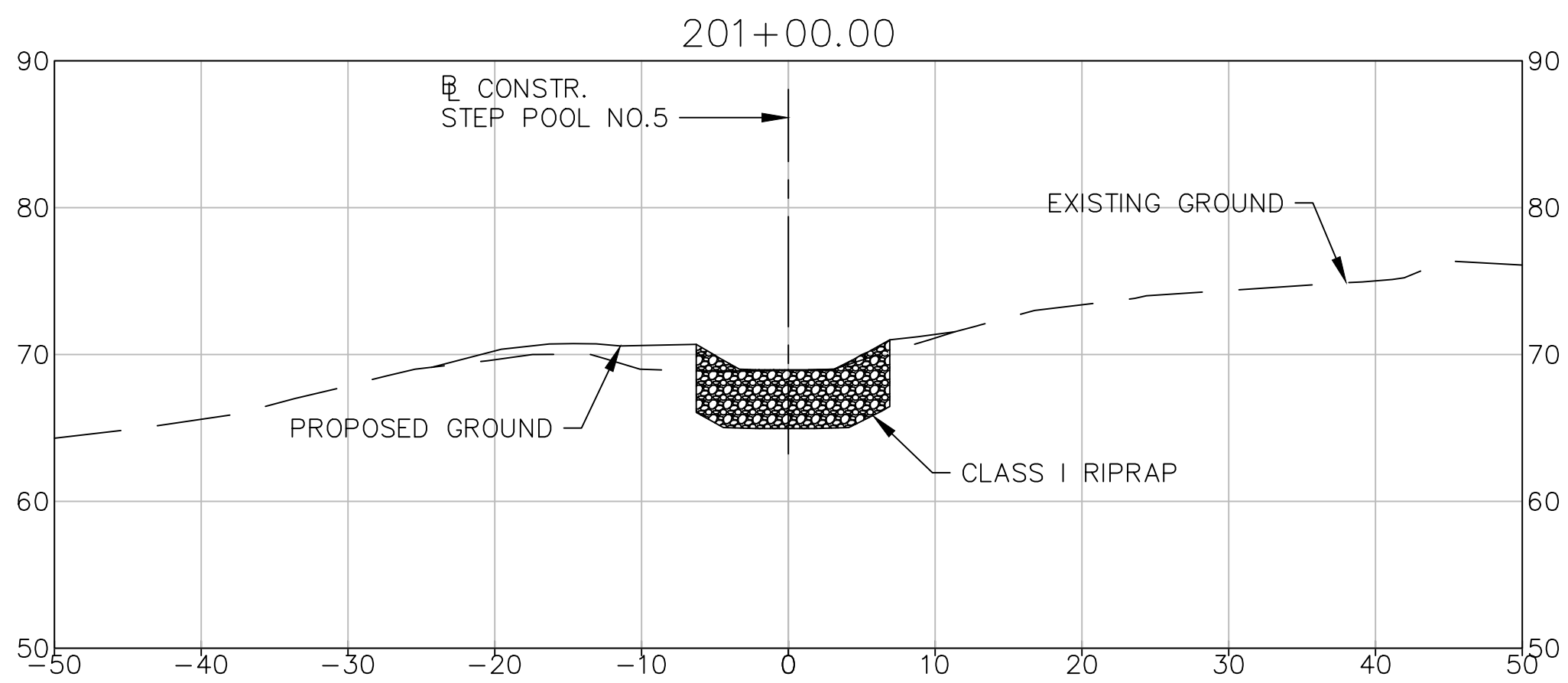
REVIEWED BY : JJW

CONTRACT NO : 97040

SCALE : HOR: 1"=10' VERT: 1"=10'

SHEET 46 OF 47

DATE : MARCH 2025



NOTES:

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DECLARATION RUN STREAM RESTORATION

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SCALE : HOR: 1"=10' VERT: 1"=10'

SHEET 47 OF 47

DATE : MARCH 2025