

HARFORD COUNTY

MARYLAND

DEPARTMENT OF PUBLIC WORKS

BID NO. 20-073

DECLARATION RUN STREAM RESTORATION

FROM STA. 1+20 TO 10+75 AND STA. 36+40 TO 52+28

INDEX OF SHEETS

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THESE PLANS HAVE BEEN REVIEWED BY HARFORD COUNTY AND MEET THE TECHNICAL REQUIREMENTS FOR STORMWATER QUANTITY AND/OR QUALITY MANAGEMENT ONLY. HARFORD COUNTY STORMWATER MANAGEMENT BILLING # 97040
REFER TO SHEET 14 FOR INSPECTION AND MAINTENANCE SCHEDULE FOR THE STEP POOL SYSTEMS.

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 4/29/19. THE INFORMATION SHOWN ON THE PLANS IS IN AGREEMENT WITH THE ACTUAL FIELD CONDITIONS."

DAVID T. MORICONI
PRINTED NAME

SIGNATURE DATE

DEVELOPER'S / OWNER'S CERTIFICATION

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

SIGNATURE: _____ DATE: _____

PRINT NAME: _____

ENGINEER'S CERTIFICATION

"I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED BY ME OR UNDER MY SUPERVISION AND MEETS THE MINIMUM STANDARDS OF THE HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS AND/OR THE U.S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE AND/OR THE MARYLAND DEPARTMENT OF NATURAL RESOURCES, WATER RESOURCES ADMINISTRATION"

SIGNATURE: _____ DATE: _____

PRINT NAME: DAVID T. MORICONI

P.E. NO. 16156

GRADING PERMIT #470-2019

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

AS-BUILT CERTIFICATION

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

SIGNATURE: _____ DATE: _____

PRINT NAME: _____

P.E. NO.: _____

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



LOCATION MAP

SCALE 1" = 1000'

| | |
|---|--|
| EROSION AND SEDIMENT CONTROL PLAN# 59846 | |
| RECOMMENDED FOR APPROVAL: | |
| HARFORD COUNTY DPW | |
| TECHNICAL CONCURRENCE: | |
| HARFORD SOIL CONSERVATION DISTRICT | |
| APPROVED: | |
| 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. 16156, EXPIRATION DATE: 8/28/2022."

AECOM

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.
2. THE GENERAL PROVISIONS FOR THIS PROJECT ARE THOSE INCLUDED IN THE "HARFORD COUNTY ROAD CODE" GENERAL PROVISIONS COUNTY FUNDED PROJECTS, SECTIONS 100-110.
3. CONTRACTOR SHALL CONTACT HARFORD COUNTY BUREAU OF CONSTRUCTION MANAGEMENT AT 410-638-3217, 48 HOURS IN ADVANCE OF CONSTRUCTION.
4. DECLARATION RUN IS A USE I WATERWAY AND SUBJECT TO A STREAM CLOSURE MARCH 1 THROUGH JUNE 15, INCLUSIVE.
5. 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.
6. 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.

7. 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.

8. 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 FEES, RIGHT-OF-WAY AND EASEMENT INFORMATION, SEE THE APPROPRIATE RIGHT-OF-WAY PLATS.

9. 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.

10. 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.

11. 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. 179.44 |
|---------|----------|----------------|---------------------------------|
| JV6223 | VERT | P173 | ELEV. 42.75 |
| JV6732 | HOR VERT | CRANBERRY | ELEV. 72.27 |
| JV6794 | HOR | N 664.055.707 | E 1,538.083.954 |
| JV7320 | HOR | LAUREL | N. 658,115.852 E. 1,511,439.792 |
| JV0458 | VERT | RIVERSIDE 2 | N. 660,367.915 E. 1,524,623.888 |
| JV6275 | VERT | P64 | ELEV. 41.50 |
| JV6806 | HOR | OLD POST | ELEV. 90.76 |
| | | MC COMAS 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 | 152330.99500 | 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 |

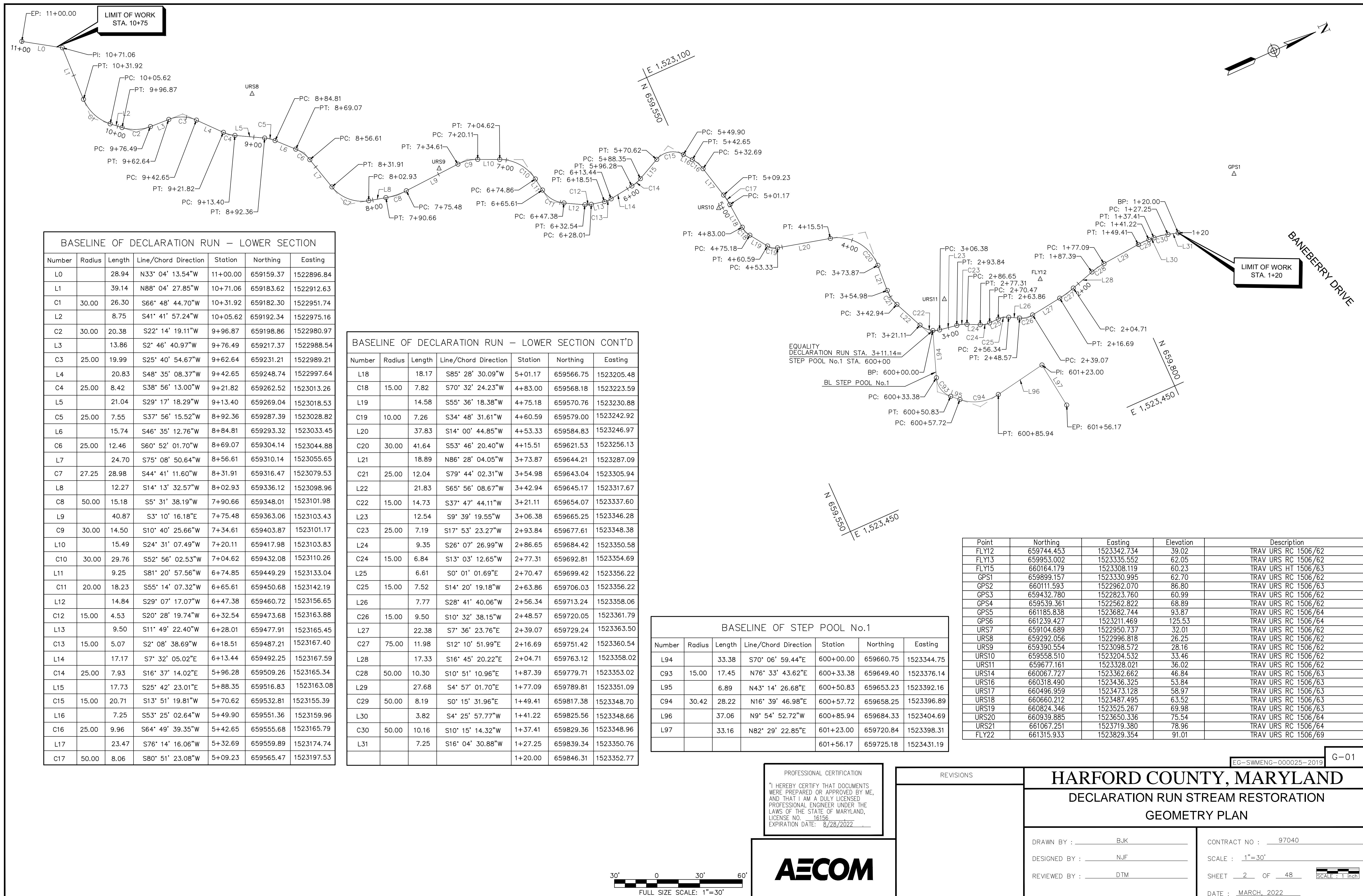
COMBINED SCALE FACTOR: (GPS1 - GRID TO GROUND) 0.99999311

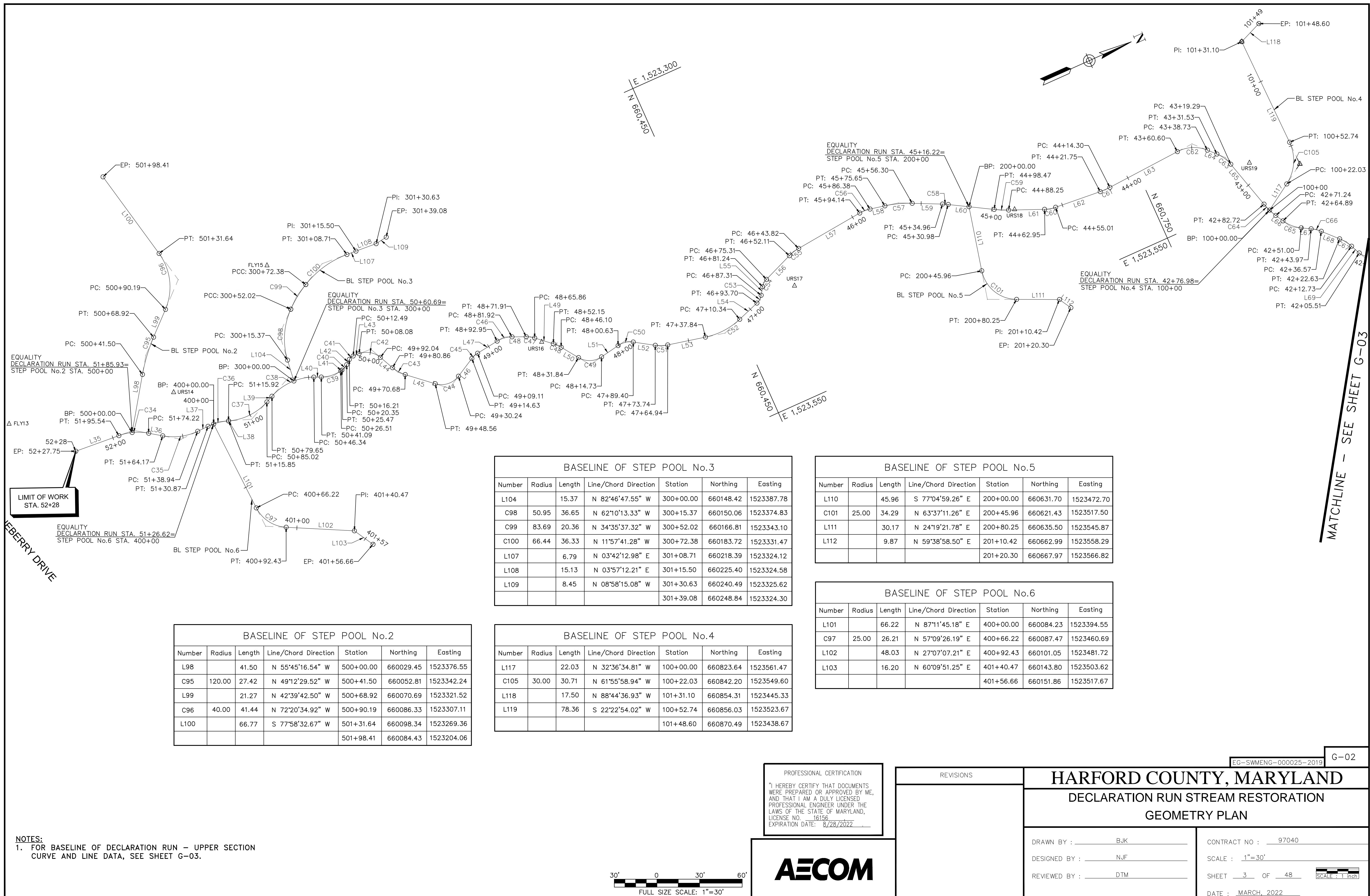
VERTICAL DATUM: NAVD88 (GEODETIC 12B)

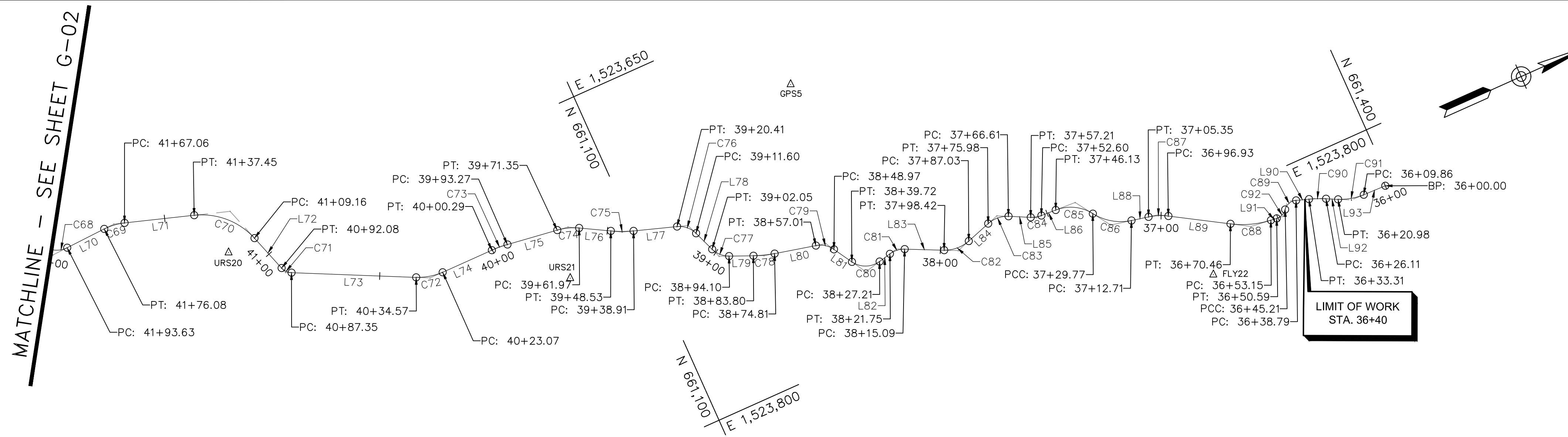
12. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE EXISTENCE OF PROPERTY MARKERS, PIPES, MONUMENTS, ETC. THAT SHALL NOT BE DISTURBED. IN THE EVENT THESE MARKERS ARE REMOVED, DAMAGED, OR DESTROYED BY THE CONTRACTOR, THEY SHALL BE REPLACED IN KIND BY A MARYLAND LICENSED LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE.

T-01
EG-SWMENG-000025-2019

| | |
|------------------------------------|---------------------|
| HARFORD COUNTY, MARYLAND | |
| DECLARATION RUN STREAM RESTORATION | |
| TITLE SHEET | |
| DRAWN BY : BJK | CONTRACT NO : 97040 |
| DESIGNED BY : NJF | SCALE : AS SHOWN |
| REVIEWED BY : DTM | SHEET 1 OF 48 |
| SCALE : 1 inch | |
| DATE : MARCH, 2022 | |



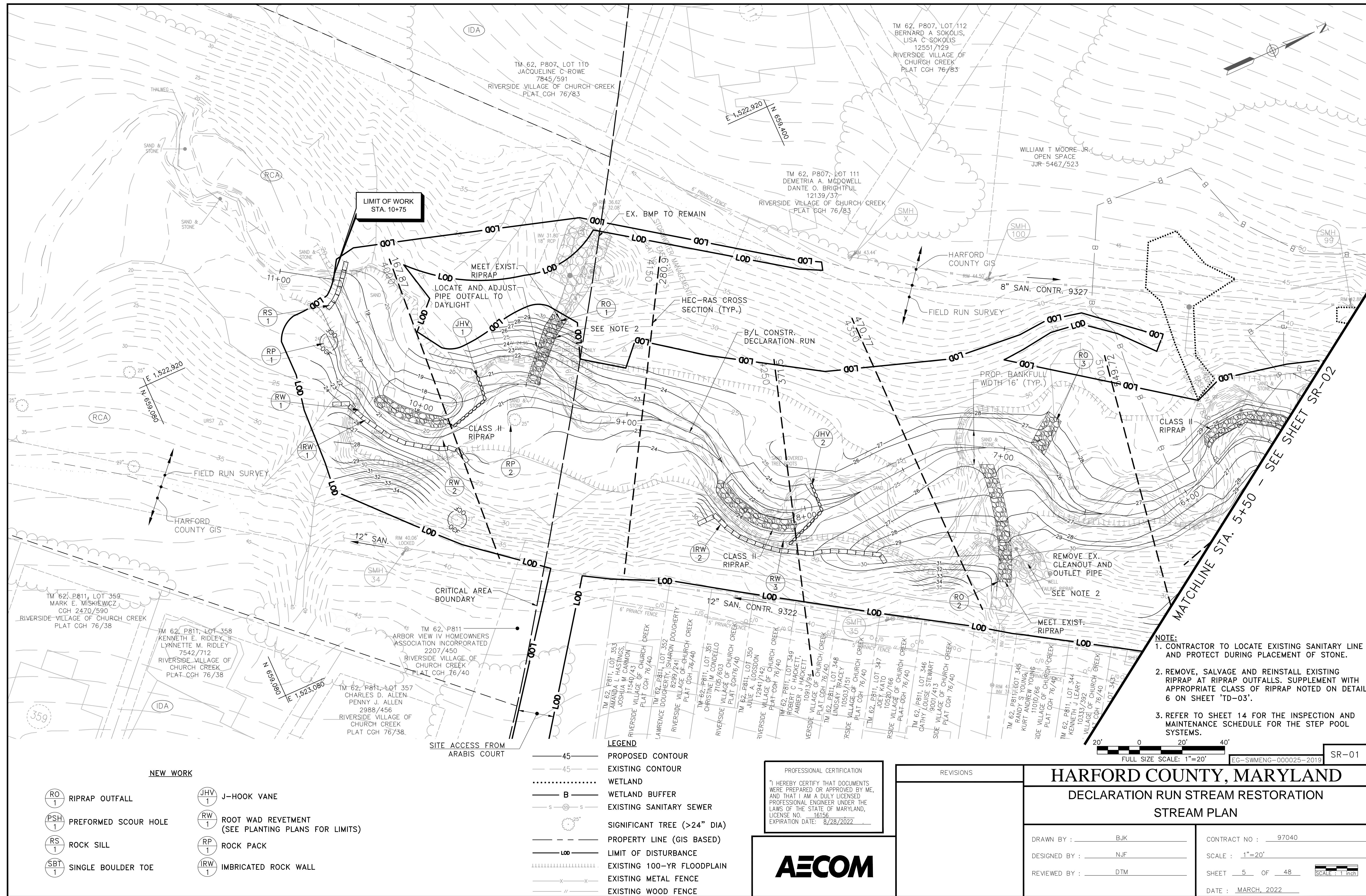


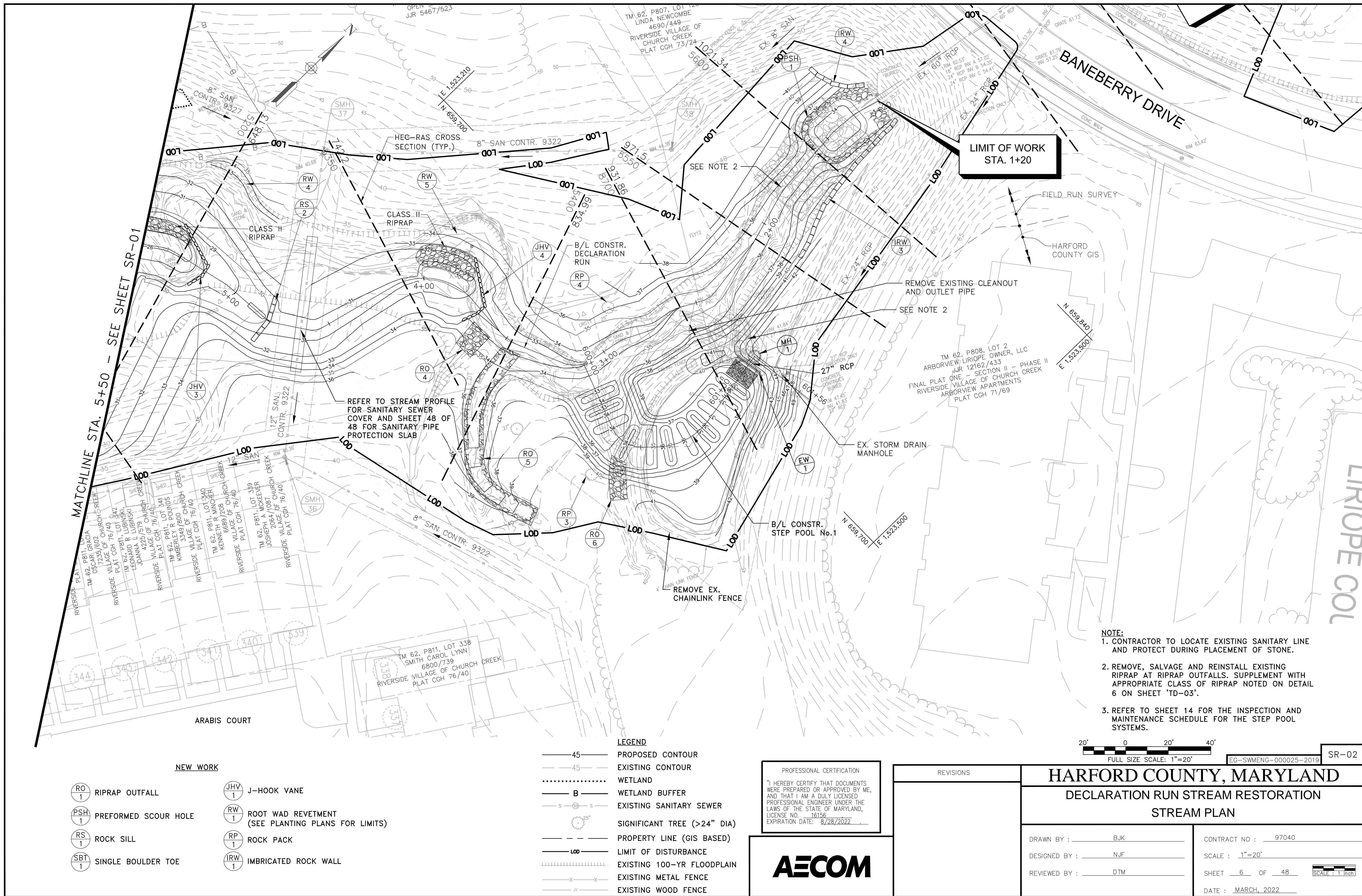


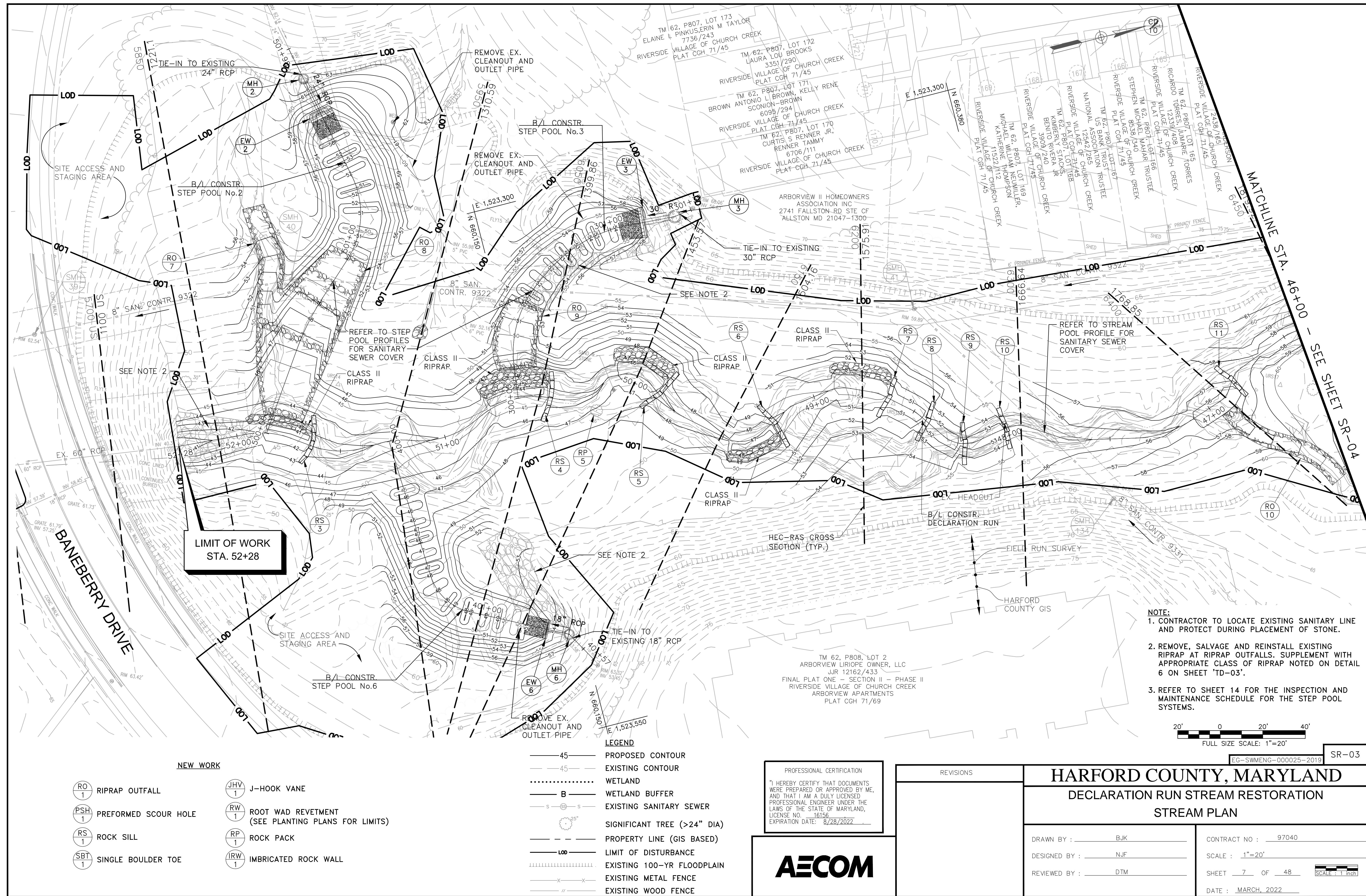
| BASELINE OF DECLARATION RUN – UPPER SECTION | | | | | | |
|---|--------|--------|----------------------|----------|-----------|------------|
| Number | Radius | Length | Line/Chord Direction | Station | Northing | Easting |
| L35 | | 30.20 | S 04°15'49.85" W | 52+27.75 | 659987.93 | 1523372.30 |
| 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 |

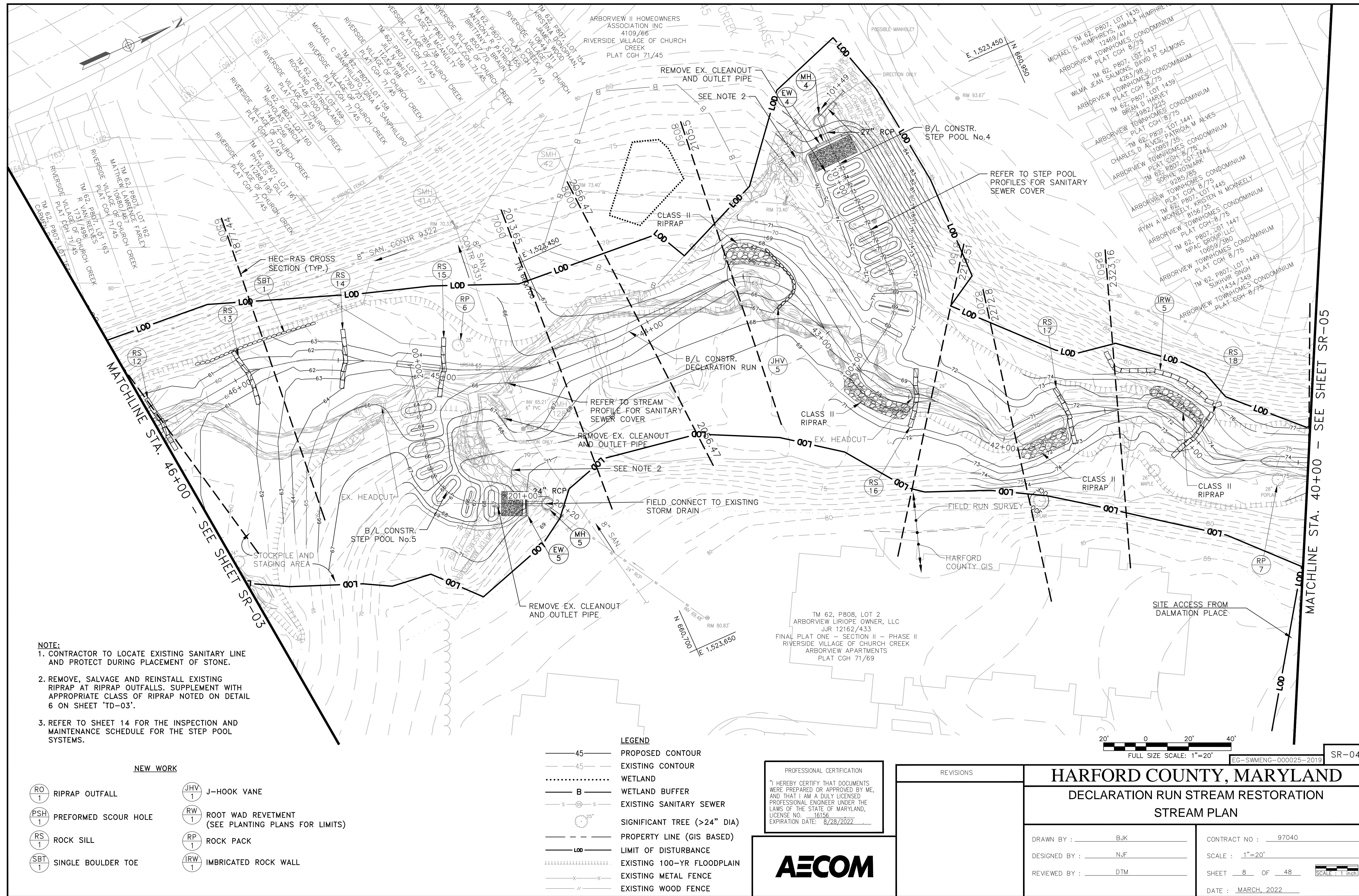
| BASELINE OF DECLARATION RUN – UPPER SECTION | | | | | | |
|---|--------|--------|----------------------|----------|-----------|------------|
| Number | Radius | Length | Line/Chord Direction | Station | Northing | Easting |
| C46 | 20.00 | 11.03 | S8° 04' 48.14"E | 48+92.95 | 660290.07 | 1523423.00 |
| 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 | | | |



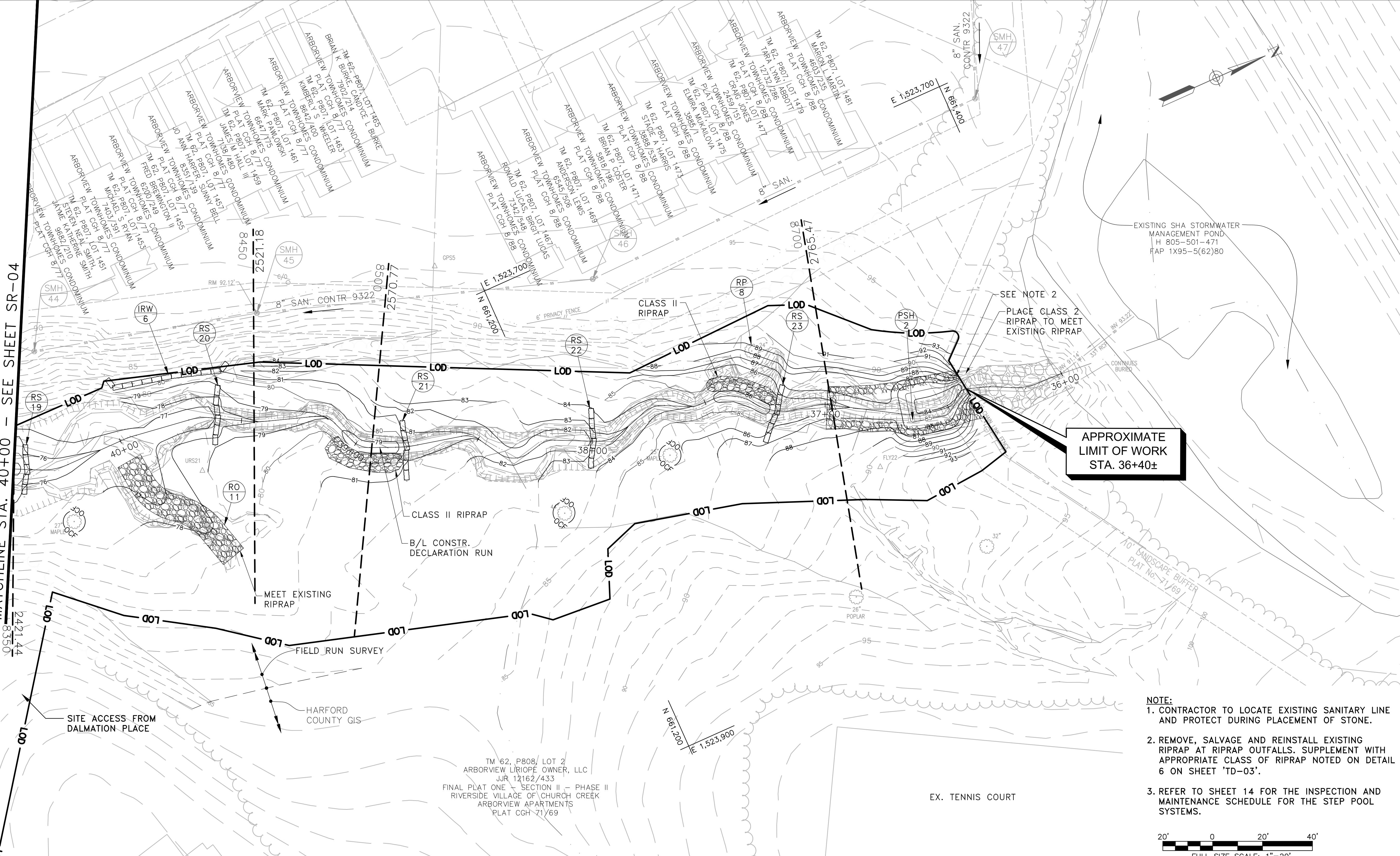






FILE NAME: L:\DCS\Projects\H\HaCo\60483342\CAD\PlanSet\SR-01.dwg LAYOUT NAME: SR-04 PLOTTED: Wednesday, February 23, 2022 – 9:51am USER: chris.fleming

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



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

AECOM

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION

STREAM PLAN

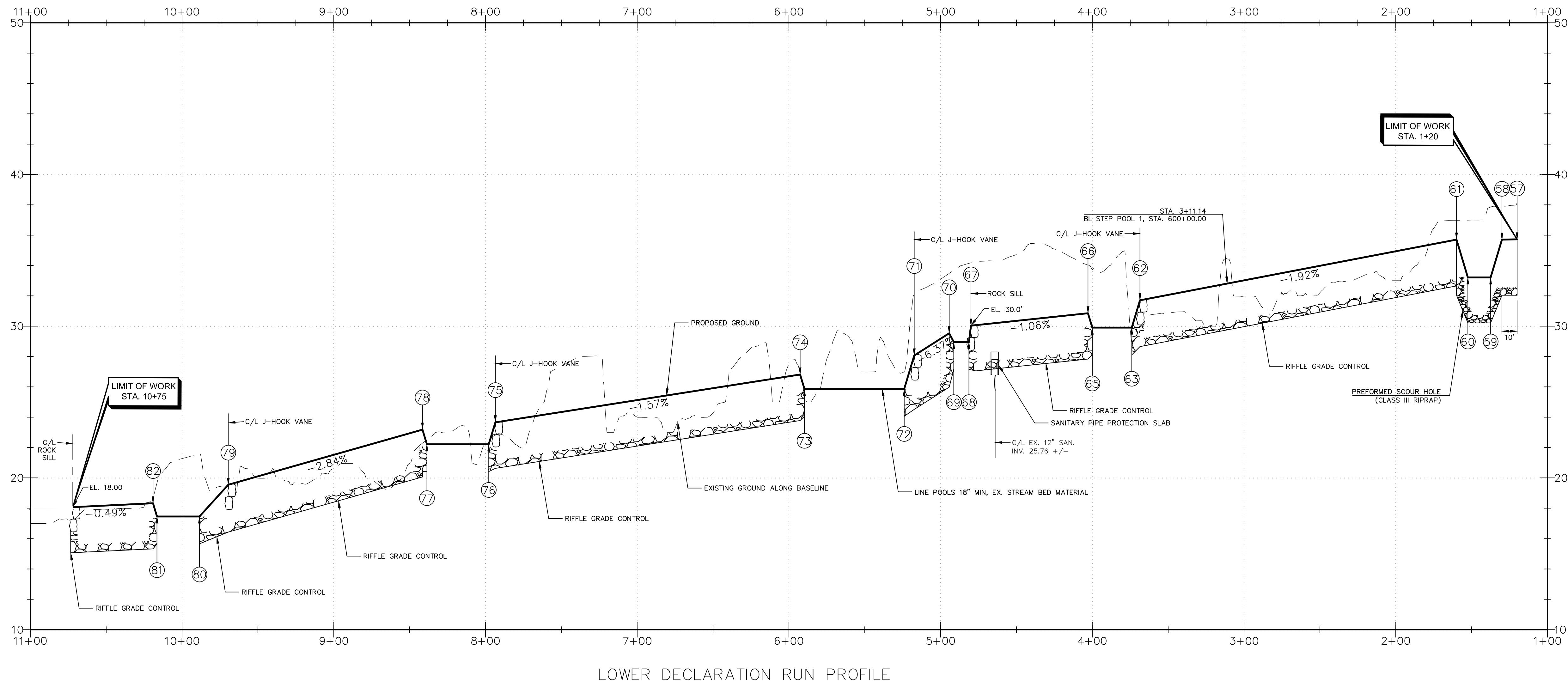
TM 62, P808, LOT 2
ARBORVIEW LIRIOPE OWNER, LLC
JUR 12162/433
FINAL PLAT ONE - SECTION II - PHASE II
RIVERSIDE VILLAGE OF CHURCH CREEK
ARBORVIEW APARTMENTS
PLAT CCH-71/69

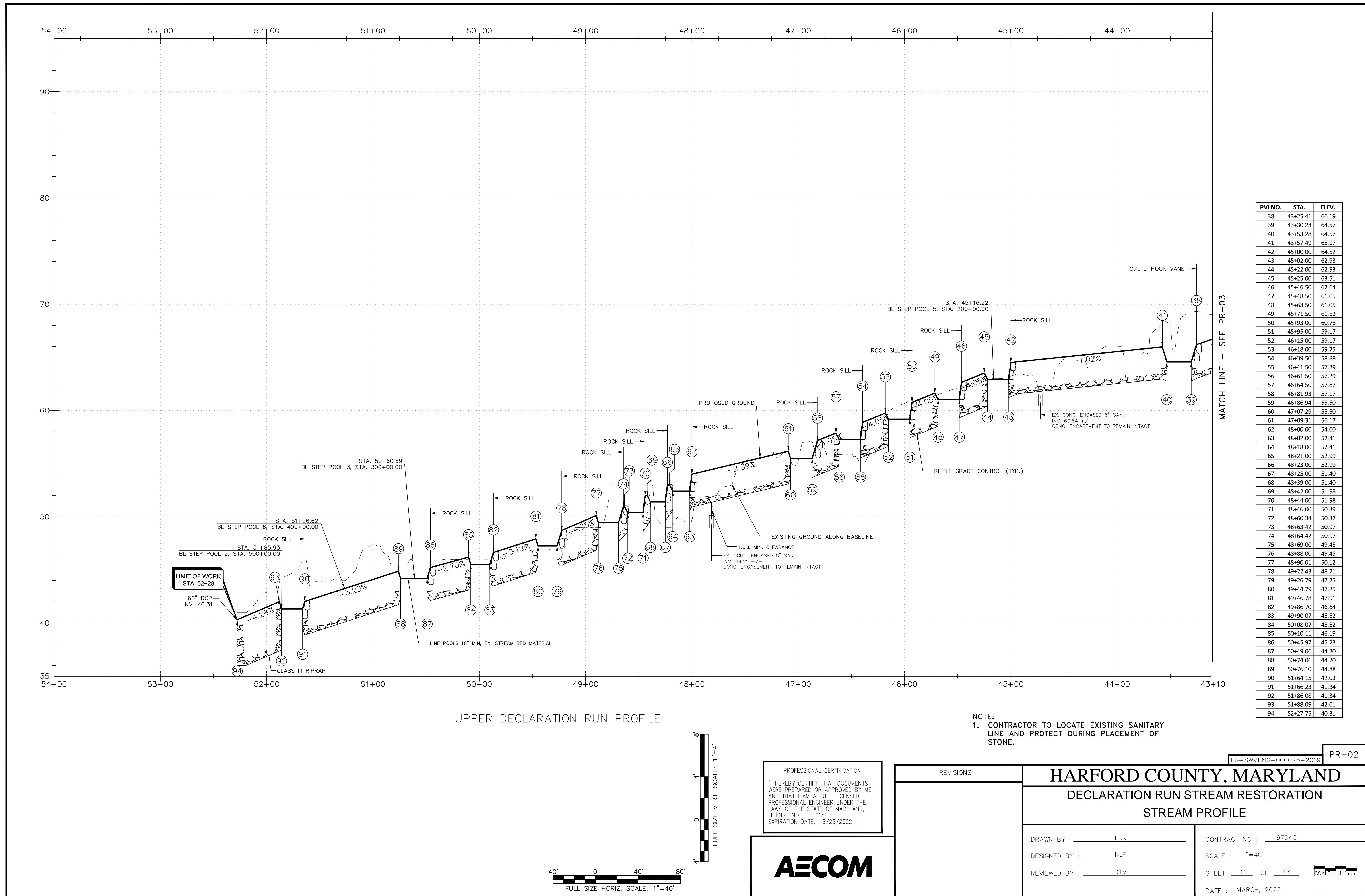
LEGEND

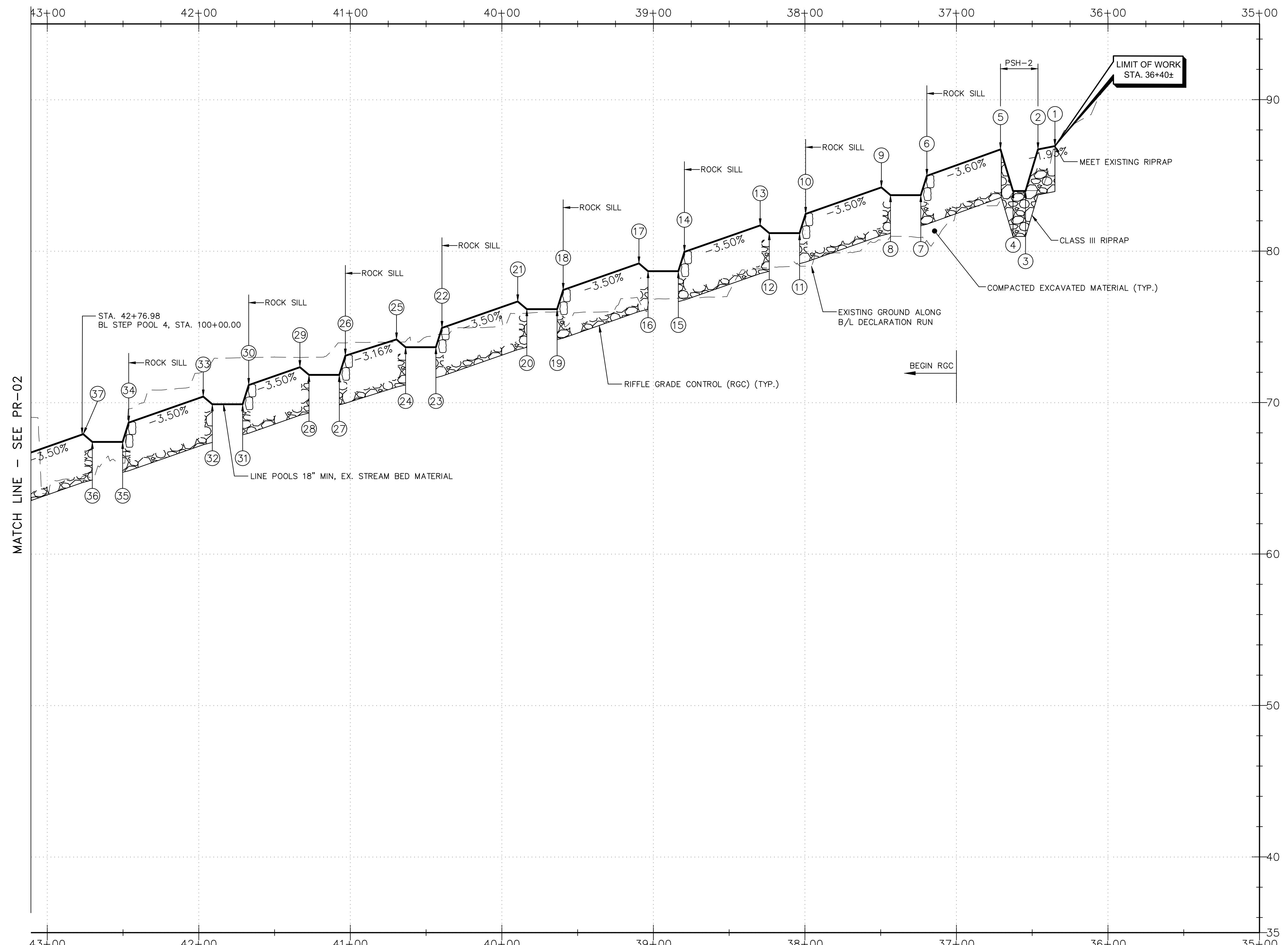
- 45 — PROPOSED CONTOUR
- 45 — EXISTING CONTOUR
- WETLAND
- B — WETLAND BUFFER
- S — EXISTING SANITARY SEWER
- 25" — SIGNIFICANT TREE (>24" DIA)
- PROPERTY LINE (GIS BASED)
- LOD — LIMIT OF DISTURBANCE
- EXISTING 100-YR FLOODPLAIN
- X — EXISTING METAL FENCE
- // — EXISTING WOOD FENCE

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. 16156 EXPIRATION DATE: 8/28/2022"



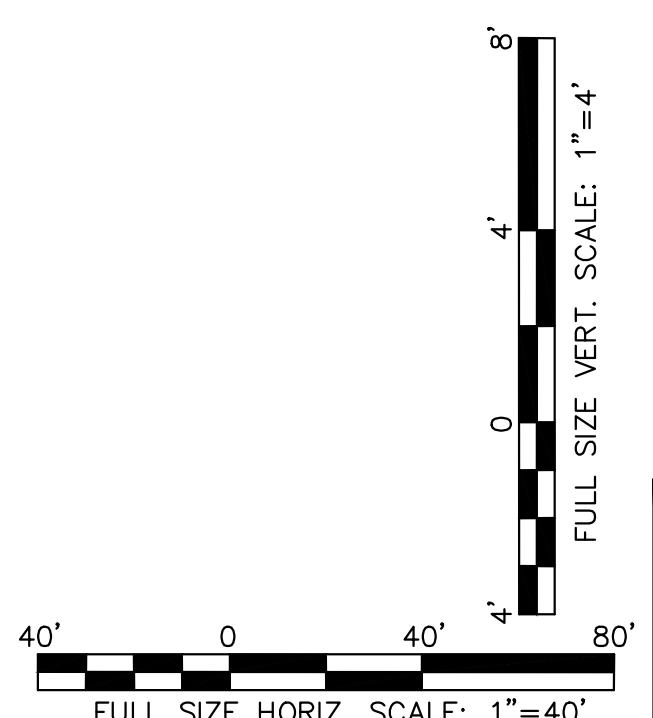




| PVI NO. | STA. | ELEV. | * |
|---------|----------|-------|---|
| 1 | 36+34.94 | 86.93 | * |
| 2 | 36+46.15 | 86.71 | * |
| 3 | 36+54.40 | 83.96 | |
| 4 | 36+62.65 | 83.96 | |
| 5 | 36+70.90 | 86.71 | |
| 6 | 37+19.49 | 84.96 | |
| 7 | 37+23.49 | 83.69 | |
| 8 | 37+43.49 | 83.69 | |
| 9 | 37+49.49 | 84.20 | |
| 10 | 37+99.49 | 82.45 | |
| 11 | 38+03.49 | 81.18 | |
| 12 | 38+23.49 | 81.18 | |
| 13 | 38+29.49 | 81.69 | |
| 14 | 38+79.49 | 79.94 | |
| 15 | 38+83.49 | 78.67 | |
| 16 | 39+03.49 | 78.67 | |
| 17 | 39+09.49 | 79.18 | |
| 18 | 39+59.49 | 77.43 | |
| 19 | 39+63.49 | 76.16 | |
| 20 | 39+83.49 | 76.16 | |
| 21 | 39+89.49 | 76.67 | |
| 22 | 40+39.49 | 74.92 | |
| 23 | 40+43.49 | 73.65 | |
| 24 | 40+63.49 | 73.65 | |
| 25 | 40+69.49 | 74.16 | |
| 26 | 41+03.28 | 73.10 | |
| 27 | 41+07.28 | 71.83 | |
| 28 | 41+27.28 | 71.83 | |
| 29 | 41+33.28 | 72.34 | |
| 30 | 41+67.06 | 71.15 | |
| 31 | 41+71.06 | 69.88 | |
| 32 | 41+91.06 | 69.88 | |
| 33 | 41+97.06 | 70.39 | |
| 34 | 42+46.24 | 68.67 | |
| 35 | 42+50.24 | 67.40 | |
| 36 | 42+70.24 | 67.40 | |
| 37 | 42+76.24 | 67.91 | |

* FIELD VERIFY

UPPER DECLARATION RUN PROFILE



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. 16156,
EXPIRATION DATE: 8/28/2022.

AECOM

EG-SWIMMING-000025-2019
HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION

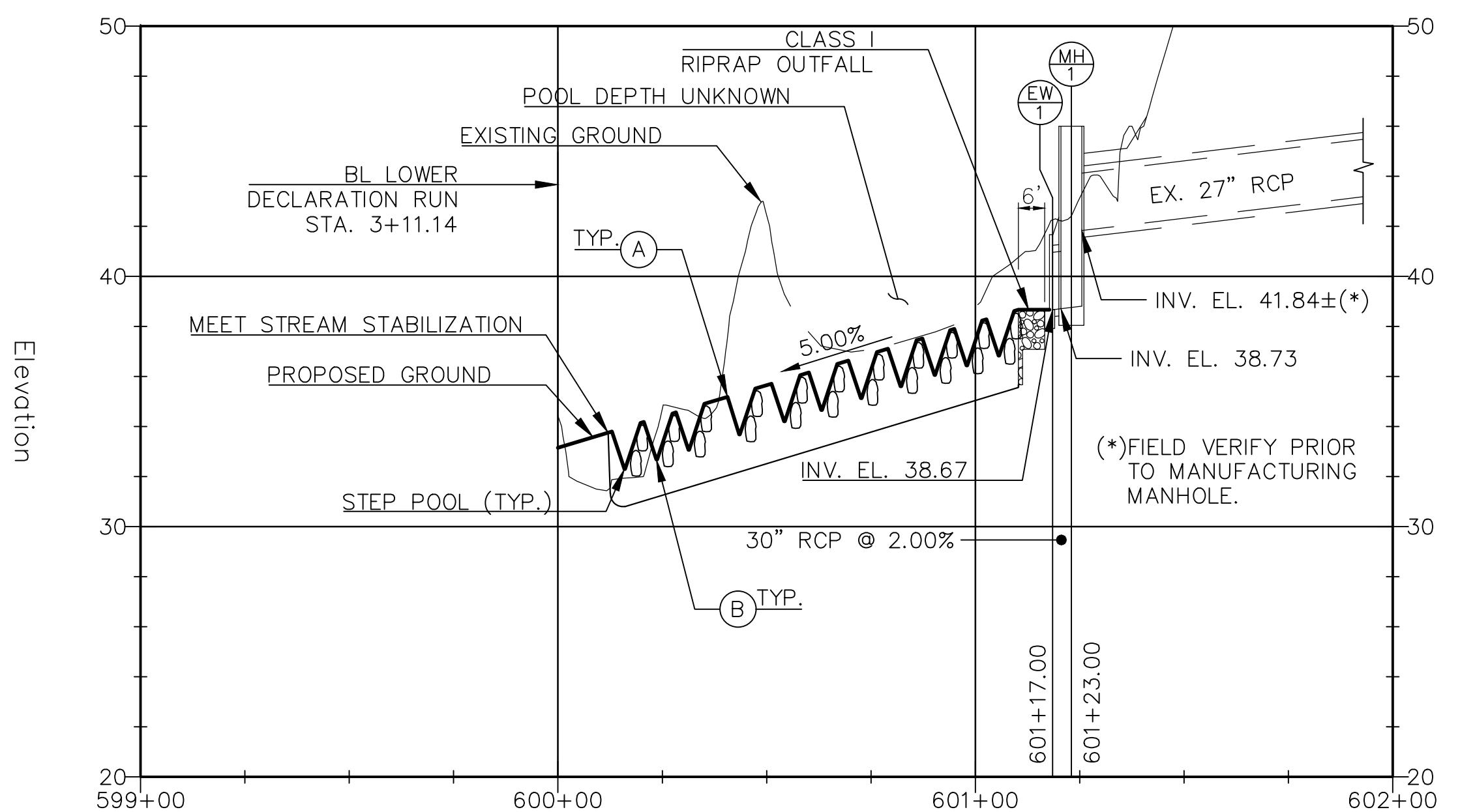
STREAM PROFILE

CONTRACT NO.:

SCALE : 1"=40'

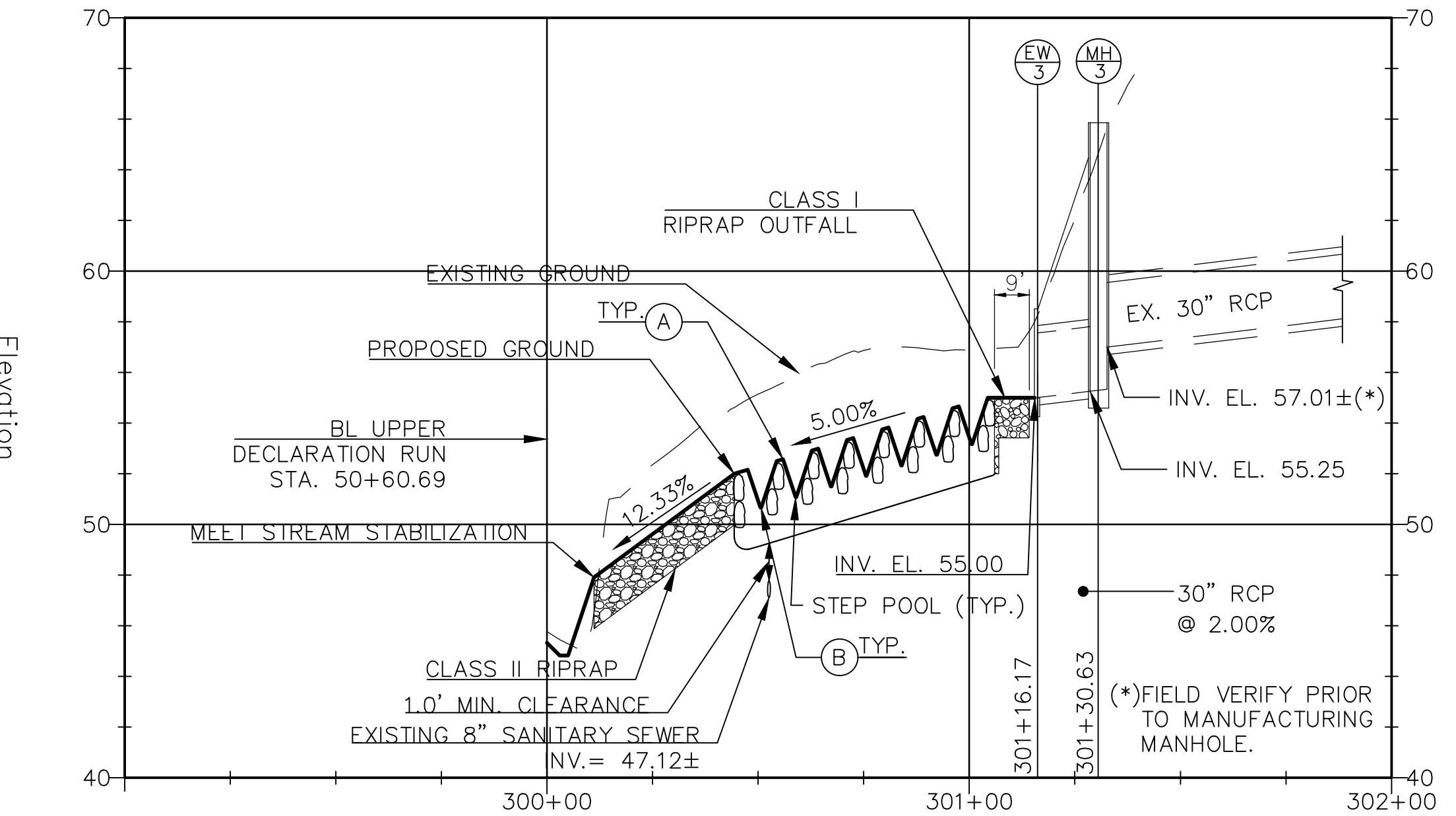
SHEET 12 OF 48

DATE : MARCH, 2022

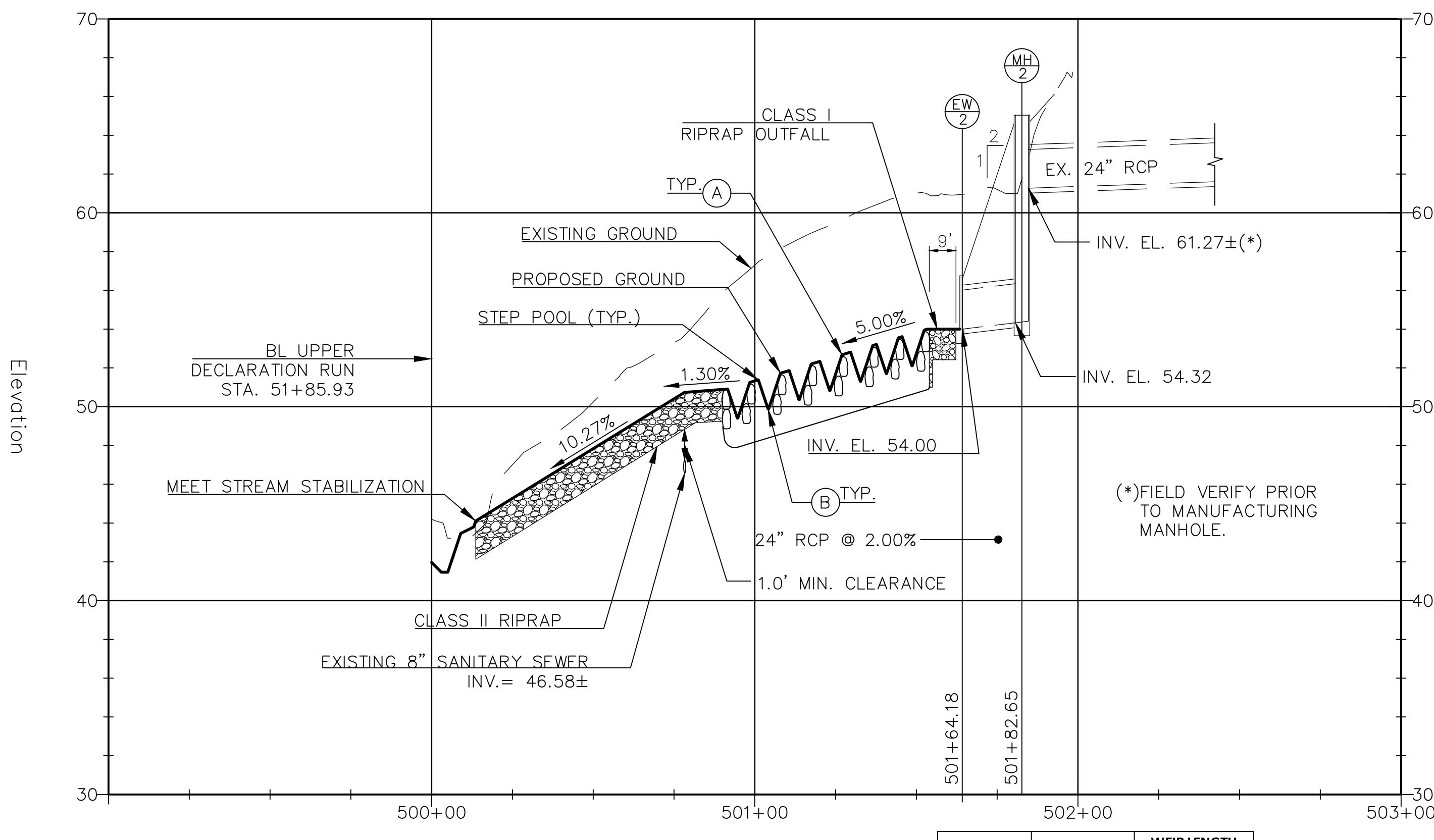


STEP POOL 1 PROFILE

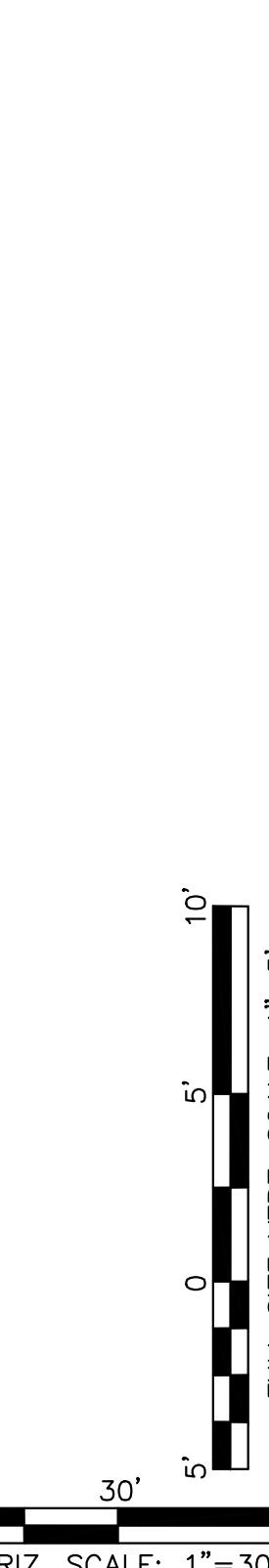
| STATION | ELEVATION | WEIR LENGTH (L FT) |
|-----------|-----------|--------------------|
| 600+12.92 | 33.80 (A) | |
| 600+16.00 | 32.30 (B) | |
| 600+20.17 | 34.16 (A) | 0.8 |
| 600+23.67 | 32.68 (B) | |
| 600+27.84 | 34.54 (A) | 0.8 |
| 600+31.33 | 33.07 (B) | |
| 600+37.85 | 35.04 (A) | 5.5 |
| 600+43.50 | 33.68 (B) | |
| 600+49.22 | 35.61 (A) | 3.9 |
| 600+54.26 | 34.21 (B) | |
| 600+59.07 | 36.10 (A) | 2 |
| 600+63.17 | 34.66 (B) | |
| 600+68.25 | 36.56 (A) | 2.7 |
| 600+72.67 | 35.13 (B) | |
| 600+77.77 | 37.03 (A) | 2.7 |
| 600+82.17 | 35.61 (B) | |
| 600+86.62 | 37.48 (A) | 1.4 |
| 600+91.17 | 36.06 (B) | |
| 600+94.47 | 37.87 (A) | 1 |
| 600+98.84 | 36.44 (B) | |
| 601+00.21 | 38.26 (A) | 1 |
| 601+06.50 | 36.83 (B) | |
| 601+10.03 | 38.67 (A) | 1 |



STEP POOL 3 PROFILE



STEP POOL 2 PROFILE



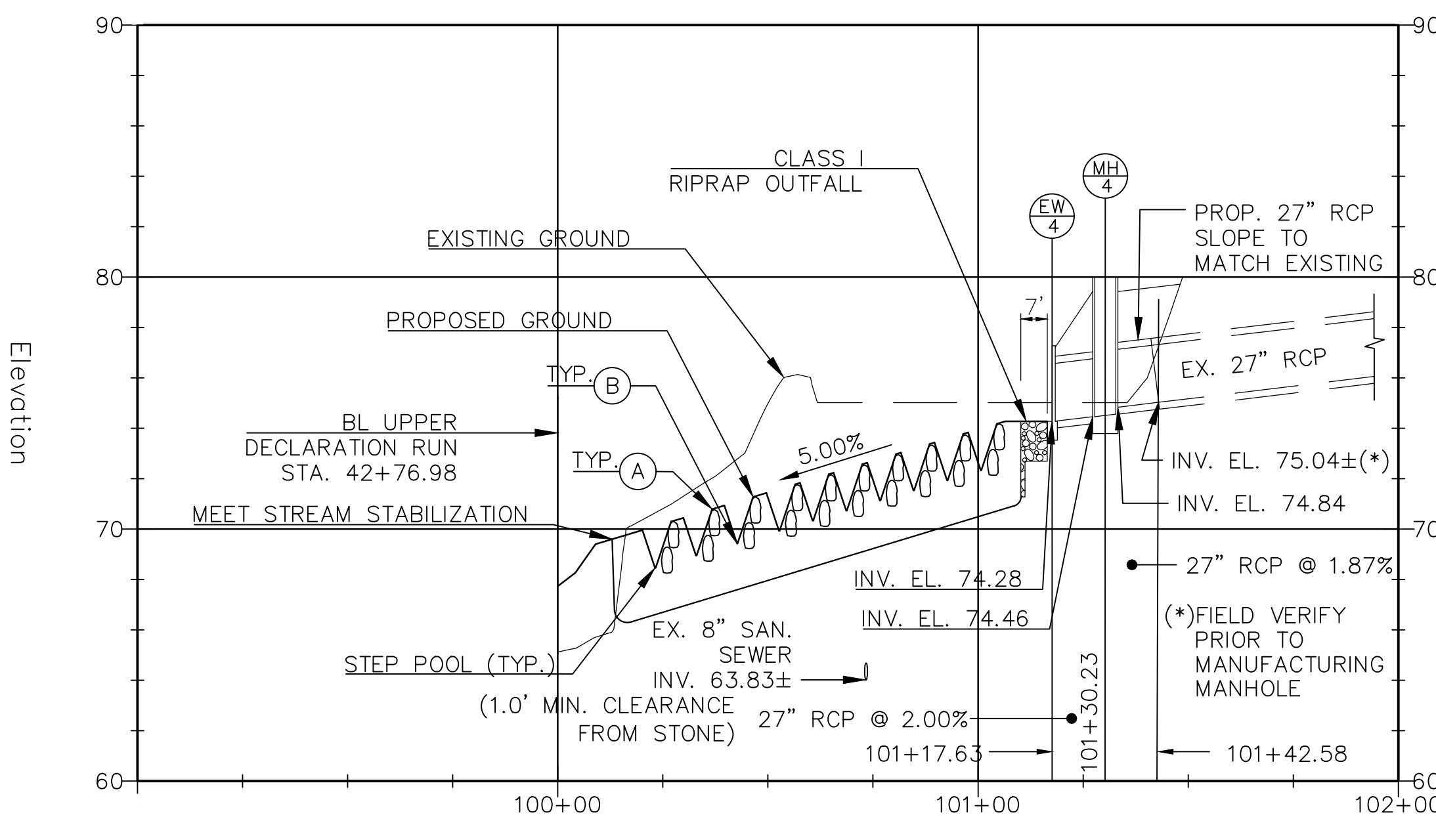
AECOM

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. 16156
EXPIRATION DATE: 8/28/2022

REVISIONS
DRAWN BY: BJK
DESIGNED BY: NJF
REVIEWED BY: DTM

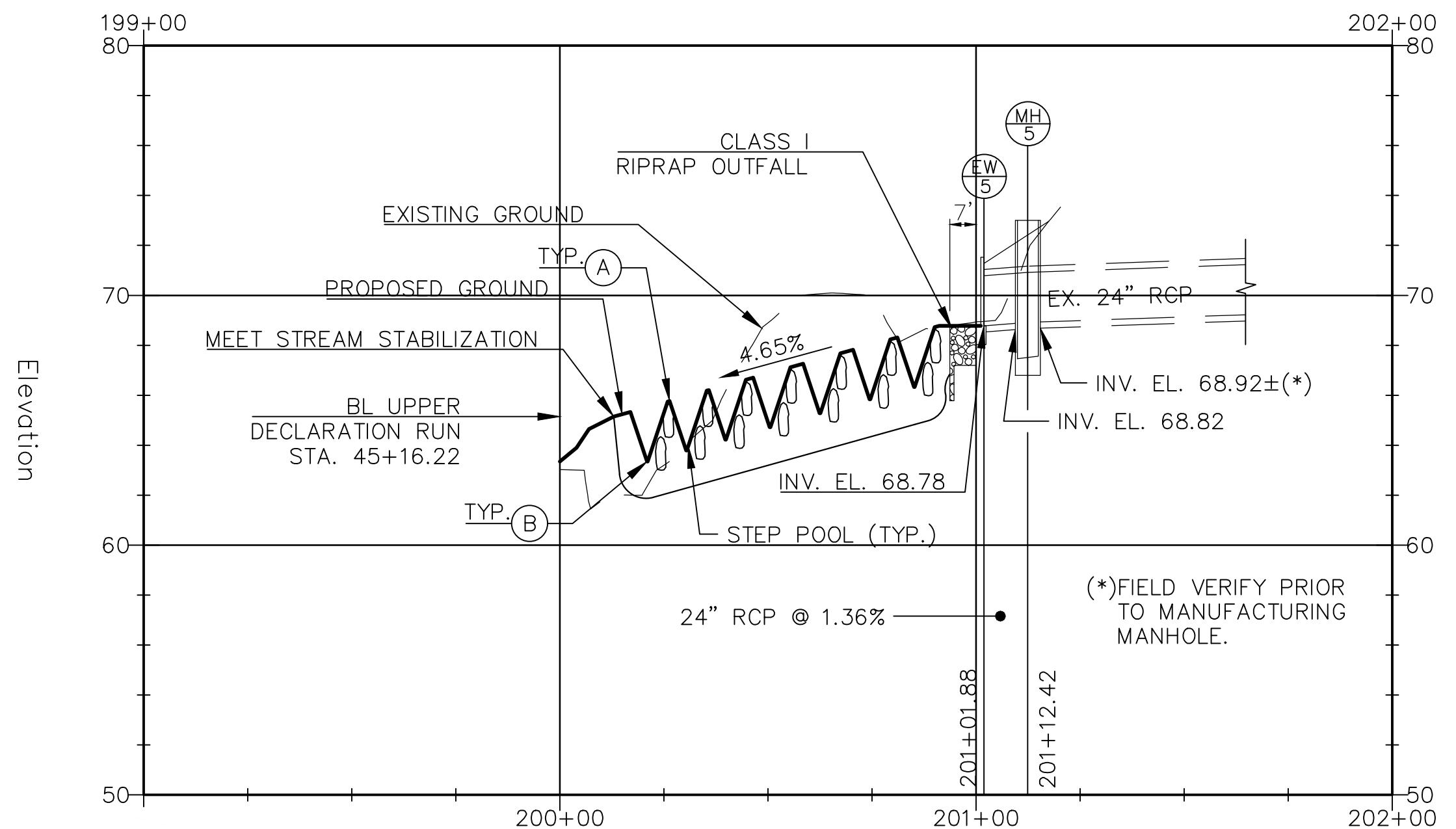
NOTE:

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



STEP POOL 4 PROFILE

PR-04
EG-SWMENG-000025-2019
HARFORD COUNTY, MARYLAND
DECLARATION RUN STREAM RESTORATION
STEP POOL PROFILE
DRAWN BY: BJK
DESIGNED BY: NJF
REVIEWED BY: DTM
CONTRACT NO: 97040
SCALE: 1"=30'
SHEET 13 OF 48
DATE: MARCH, 2022

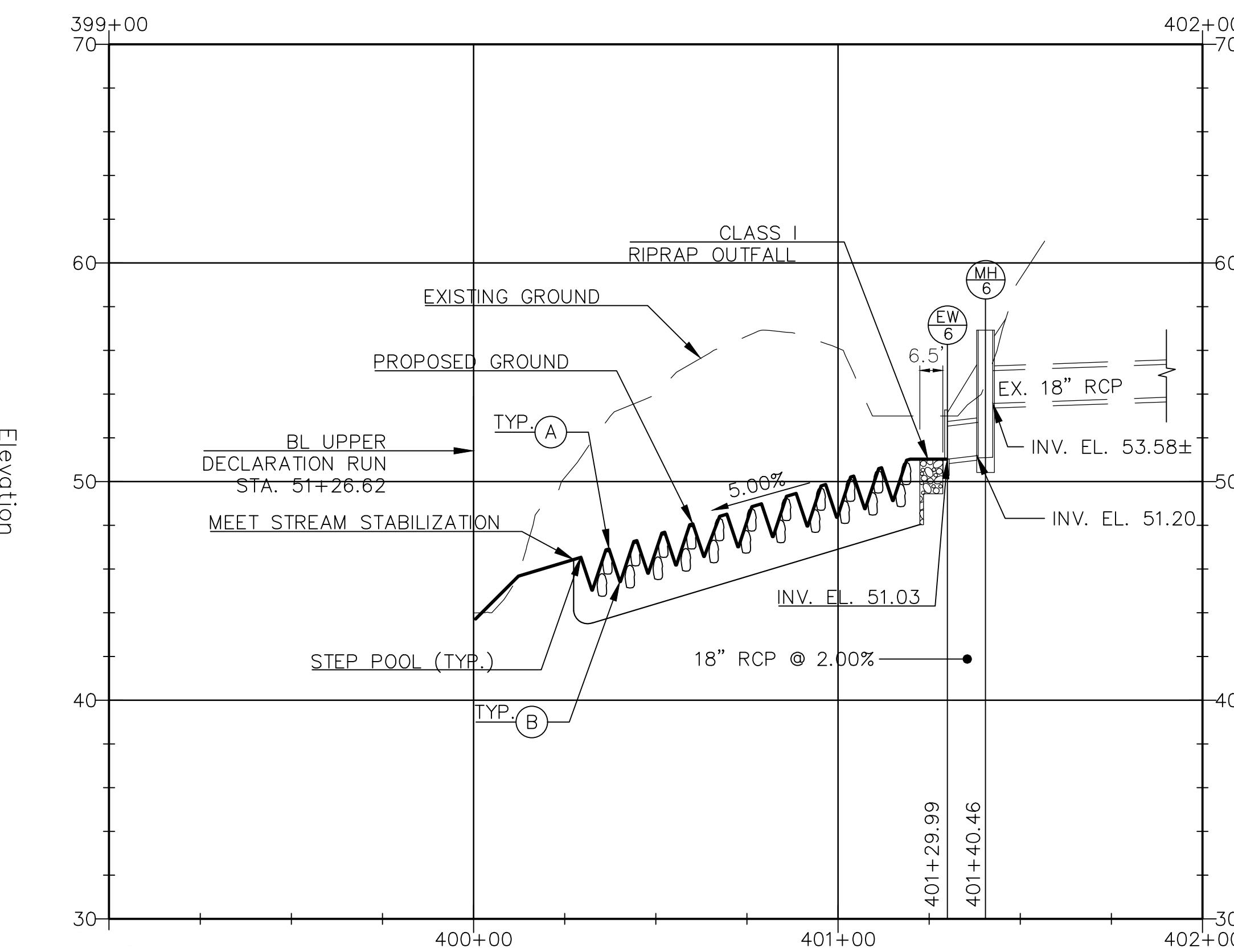


STEP POOL 5 PROFILE

MAINTENANCE SCHEDULE FOR EACH STEP POOL SYSTEM

1. STEP POOL SYSTEMS SHALL BE INSPECTED EVERY 12 MONTHS.
2. 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.
3. CHECK FOR EVIDENCE OF BOULDER MOVEMENTS. RESET BOULDERS THAT MAY HAVE SHIFTED OUT OF PLACE TO THEIR ORIGINAL LOCATION.
4. SILT, SEDIMENT, DEBRIS AND TRASH SHALL BE REMOVED FROM THE POOLS WHEN THE POOLS ARE NO LONGER FLOWED. WEIRS SHALL BE CLEARED OF DEBRIS AND TRASH.
5. CHECK FOR EVIDENCE OF SOIL EROSION AND LACK OF VEGETATIVE COVER. SEED AREAS REQUIRING A VEGETATIVE COVER.

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



STEP POOL 6 PROFILE

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 | 71,110 | |

*SEE NOTE 2 BELOW

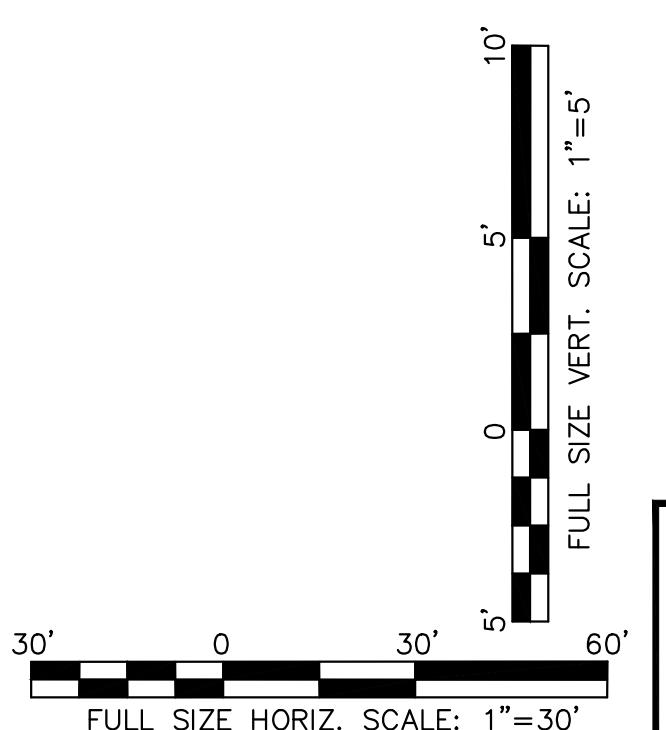
NOTES:

1. NO NEW IMPERVIOUS AREA ADDED TO THE PROJECT
2. 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.

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 cobble 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? | | |

| 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 |



AECOM

REVISIONS

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION

STEP POOL PROFILE

DRAWN BY : BJK

DESIGNED BY : NJF

REVIEWED BY : DTM

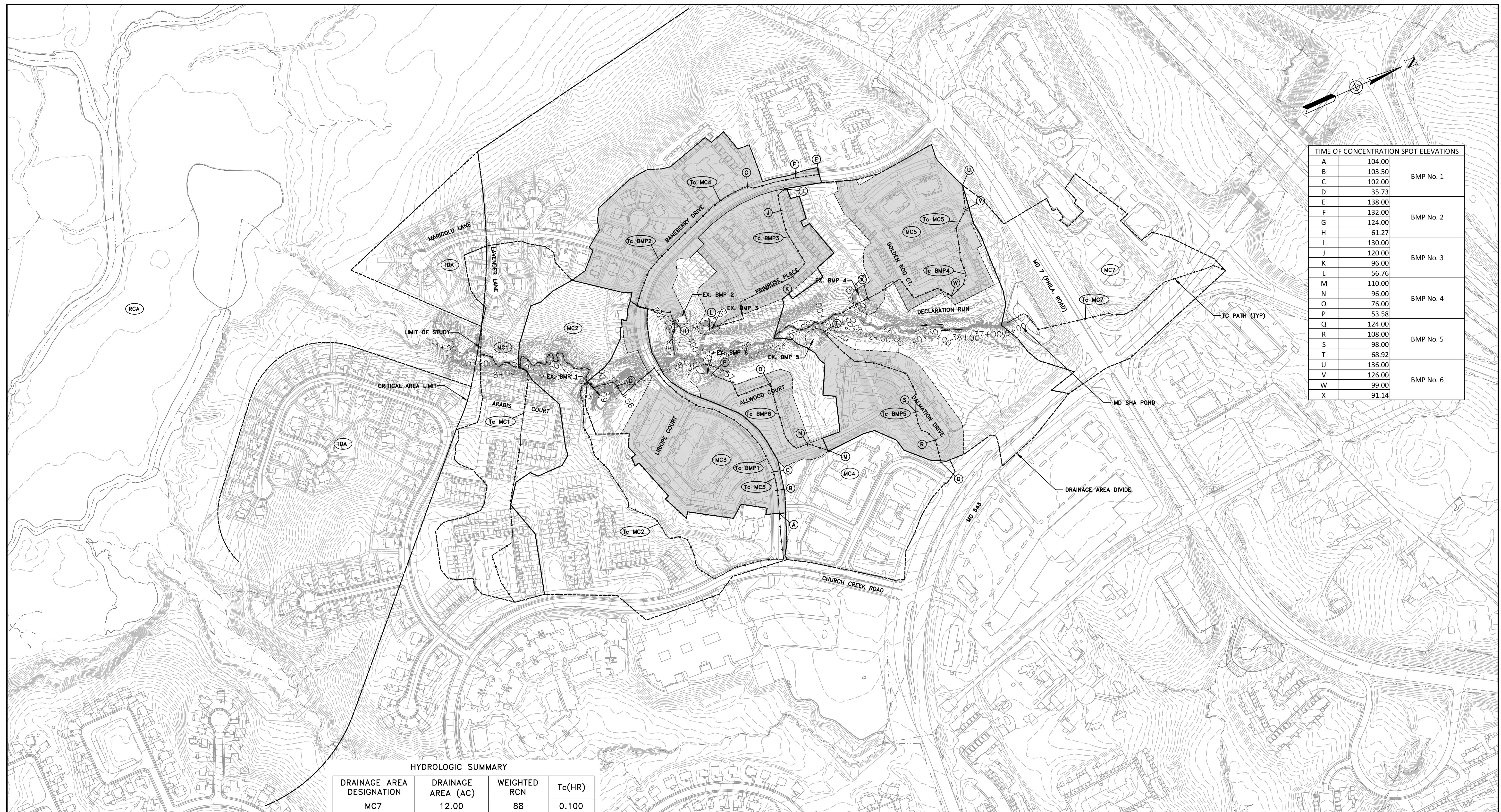
PR-05
EG-SWMENG-000025-2019

CONTRACT NO : 97040

SCALE : 1"=30'

SHEET 14 OF 48

DATE : MARCH, 2022



| 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

 DRAINAGE AREA DESIGNATION

PROFESSIONAL CERTIFICATION
HEREBY CERTIFY THAT DOCUMENTS
RE PREPARED OR APPROVED BY ME,
D THAT I AM A DULY LICENSED
PROFESSIONAL ENGINEER UNDER THE
LWS OF THE STATE OF MARYLAND,
ENSE NO. 16156 .
PIRATION DATE: 8/28/2022 .

REVISION

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION

DRAINAGE AREA MAP

DRAWN BY : _____ CDF _____

DESIGNED BY : ERF

REVIEWED BY : _____ DTM _____

Digitized by srujanika@gmail.com

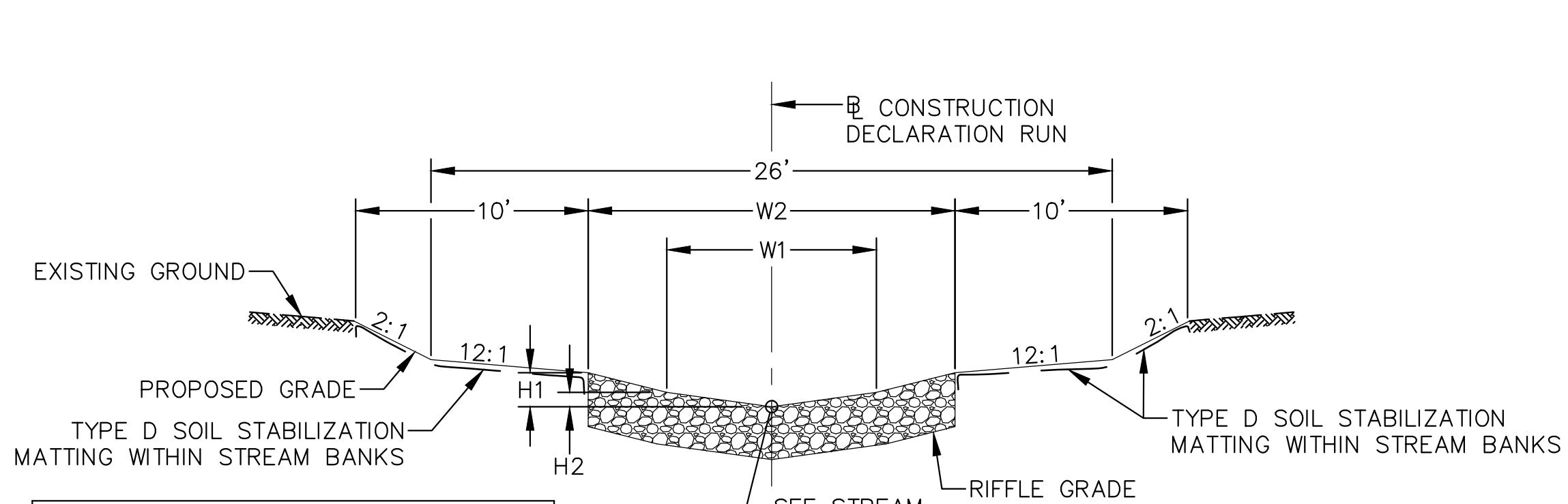
CONTRACT NO. : _____

SCALE : 1 - 200

SHEET 15 OF

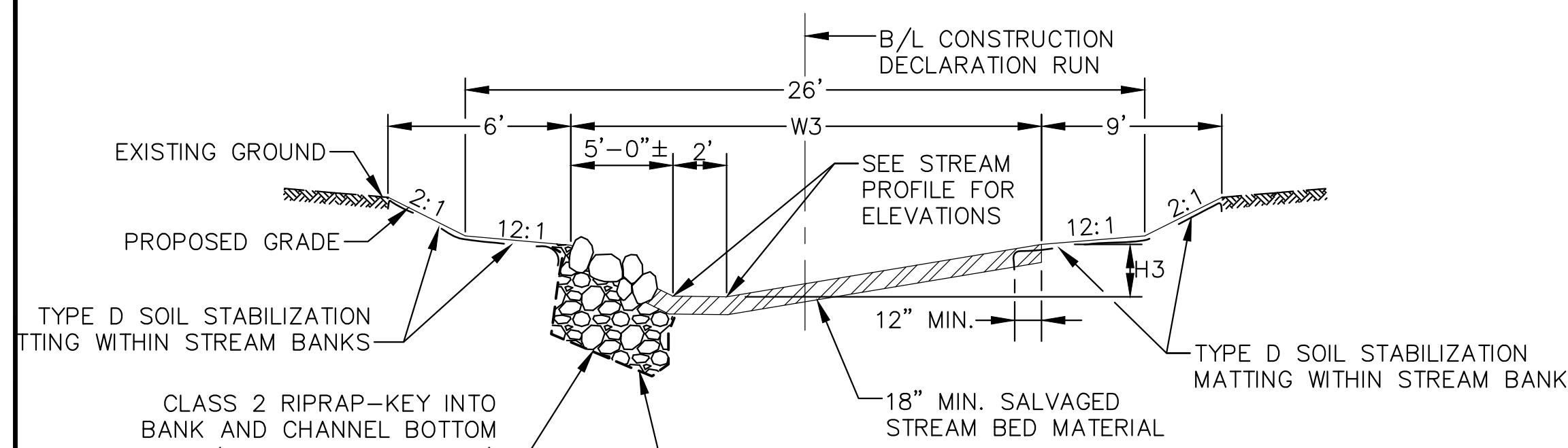
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AECOM

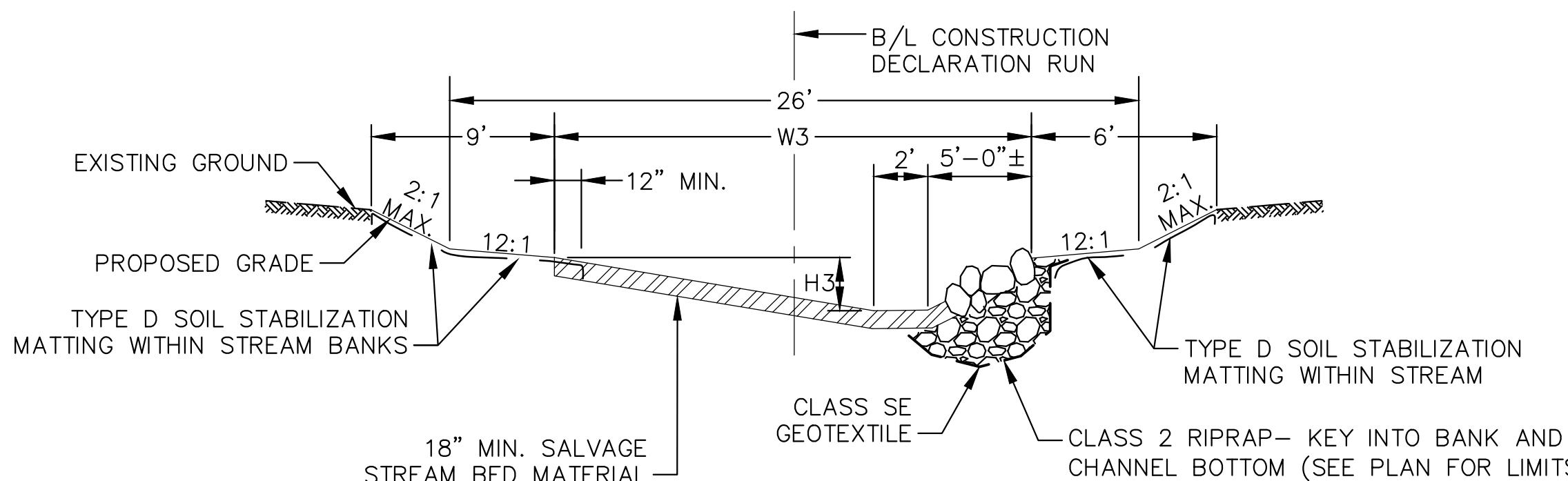


| DIMENSION | STREAM SECTION | |
|-----------|----------------|-------|
| | UPPER | LOWER |
| W1 | 6.5' | 8.0' |
| W2 | 14.0' | 16.0' |
| W3 | 18.0' | 19.6' |
| H1 | 1.3' | 1.5' |
| H2 | 0.5' | 0.5' |
| H3 | 2.0' | 2.2' |

BANKFULL CHANNEL
REFER TO TD-02 FOR ADDITIONAL INFORMATION

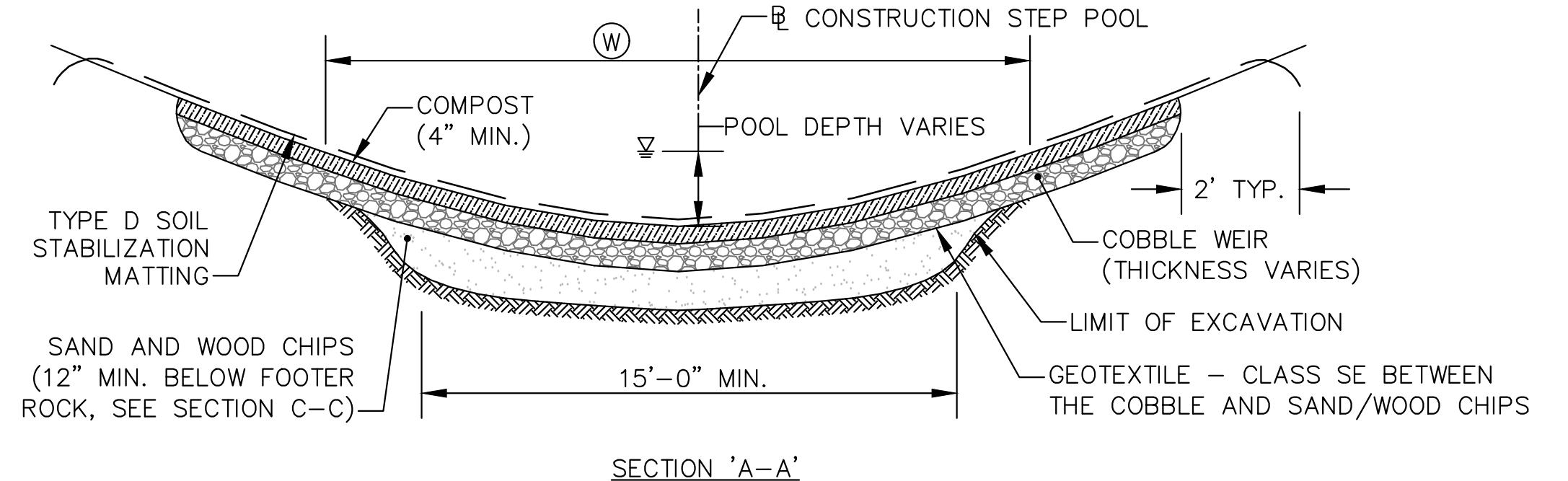


BANKFULL CHANNEL-POOL LEFT



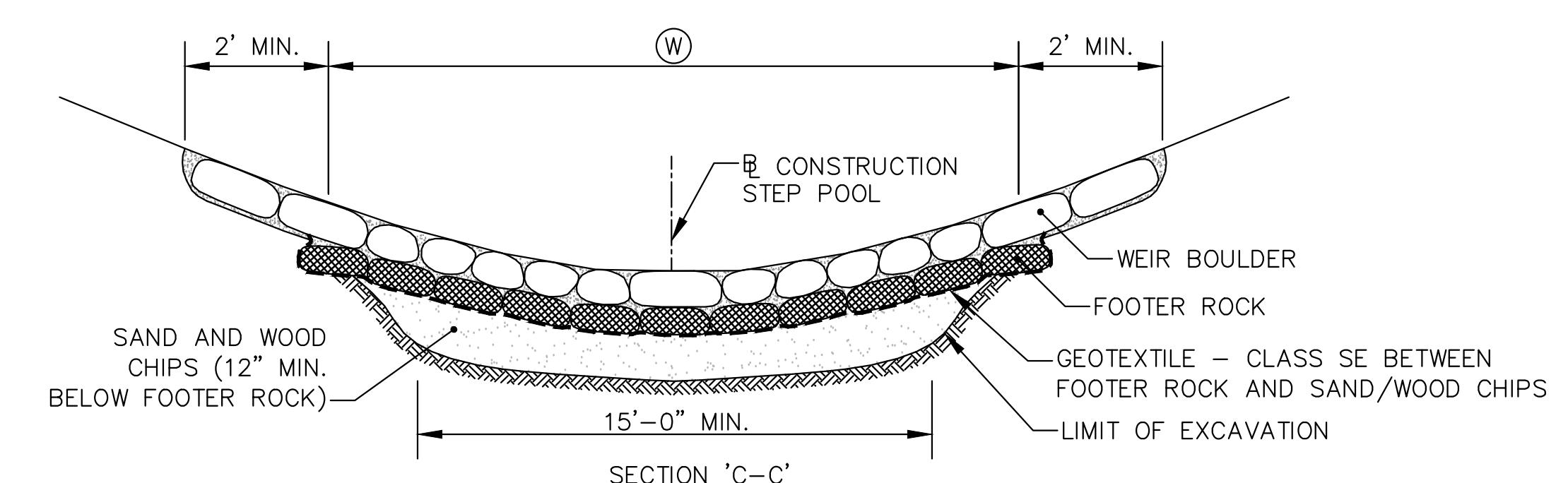
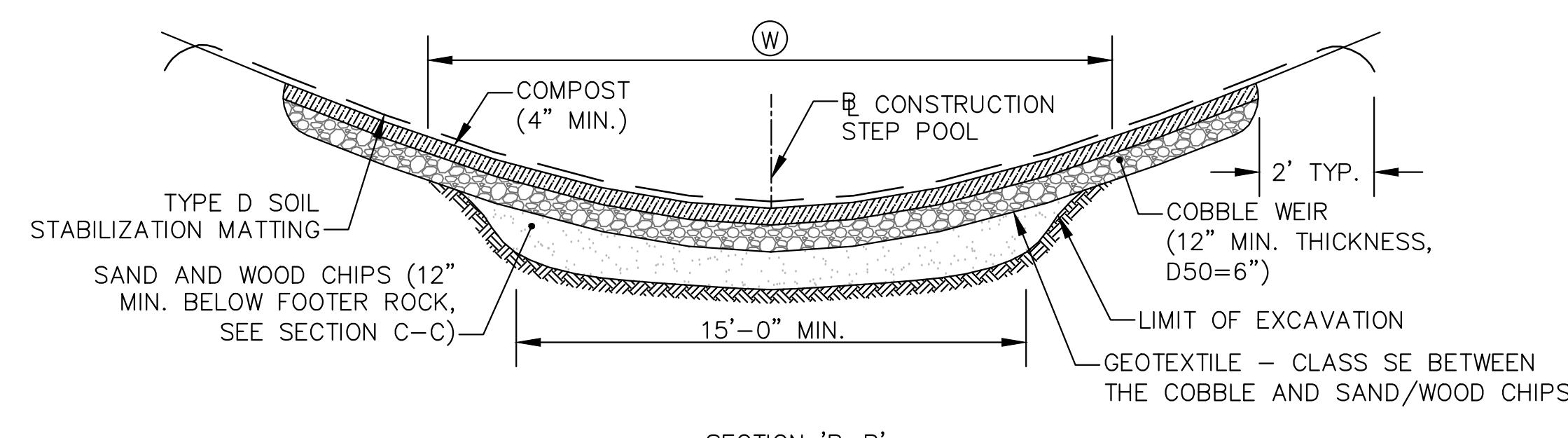
BANKFULL CHANNEL-POOL RIGHT

1 CHANNEL TYPICAL SECTIONS
NOT TO SCALE

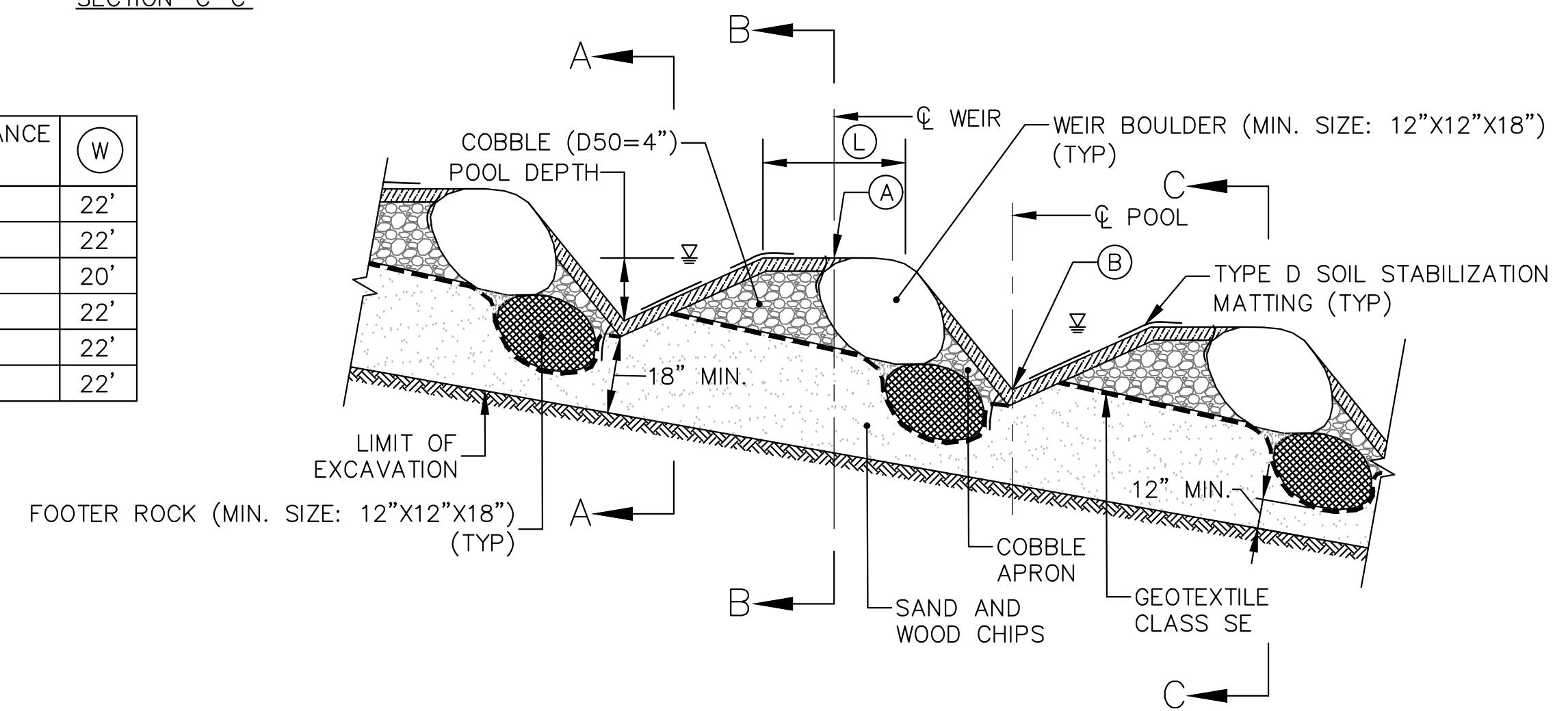


STEP POOL STORM CONVEYANCE SEQUENCE NOTES:

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 AT TOP 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.



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



TYPICAL ELEVATION

2 STEP POOL STORM CONVEYANCE
NOT TO SCALE

PROFESSIONAL CERTIFICATION
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REVISIONS

HARFORD COUNTY, MARYLAND
DECLARATION RUN STREAM RESTORATION
TYPICAL DETAILS I

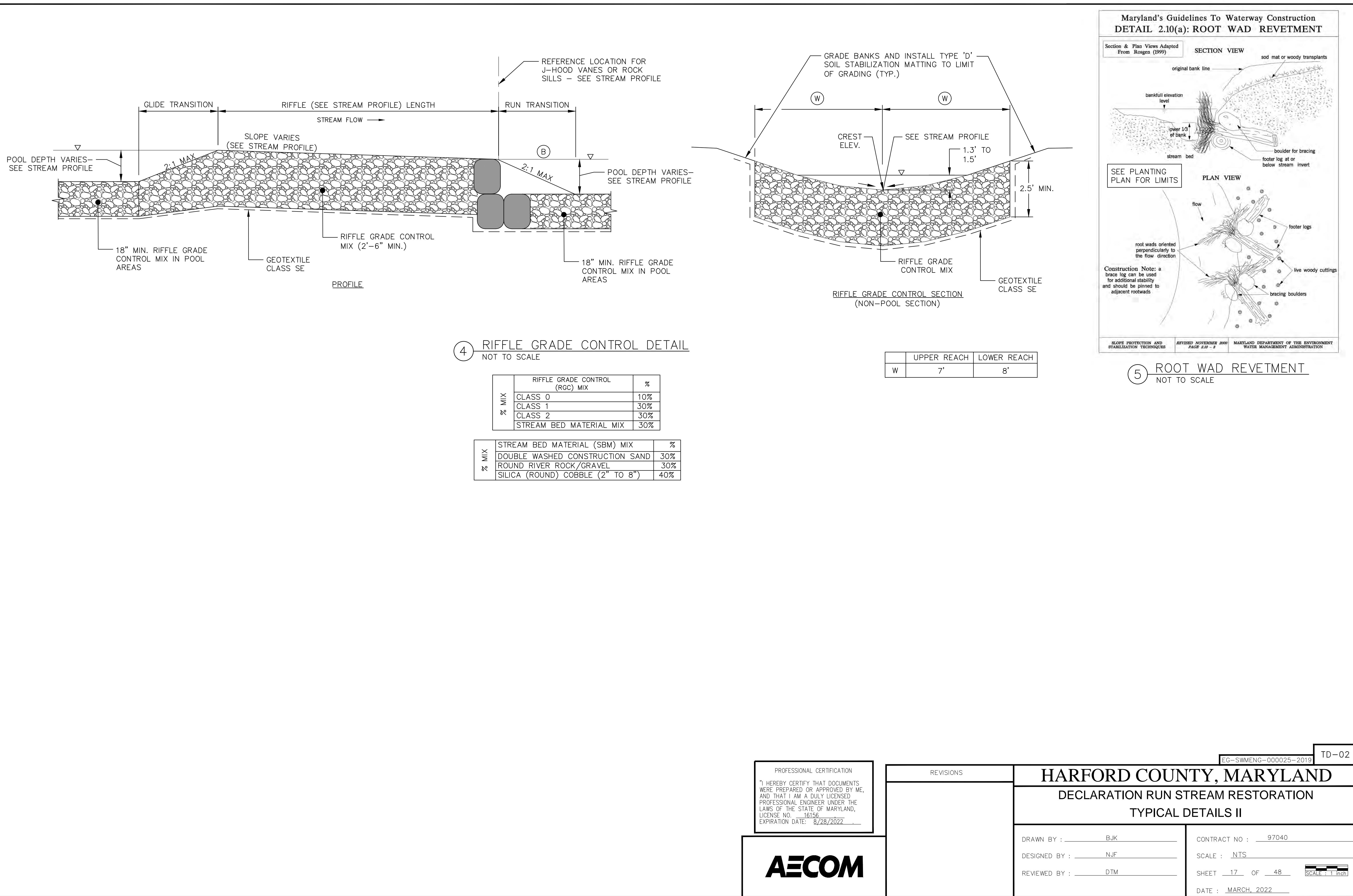
| | |
|--------------------|---------------------|
| DRAWN BY : BJK | CONTRACT NO : 97040 |
| DESIGNED BY : NJF | SCALE : NTS |
| REVIEWED BY : DTM | SHEET 16 OF 48 |
| DATE : MARCH, 2022 | |

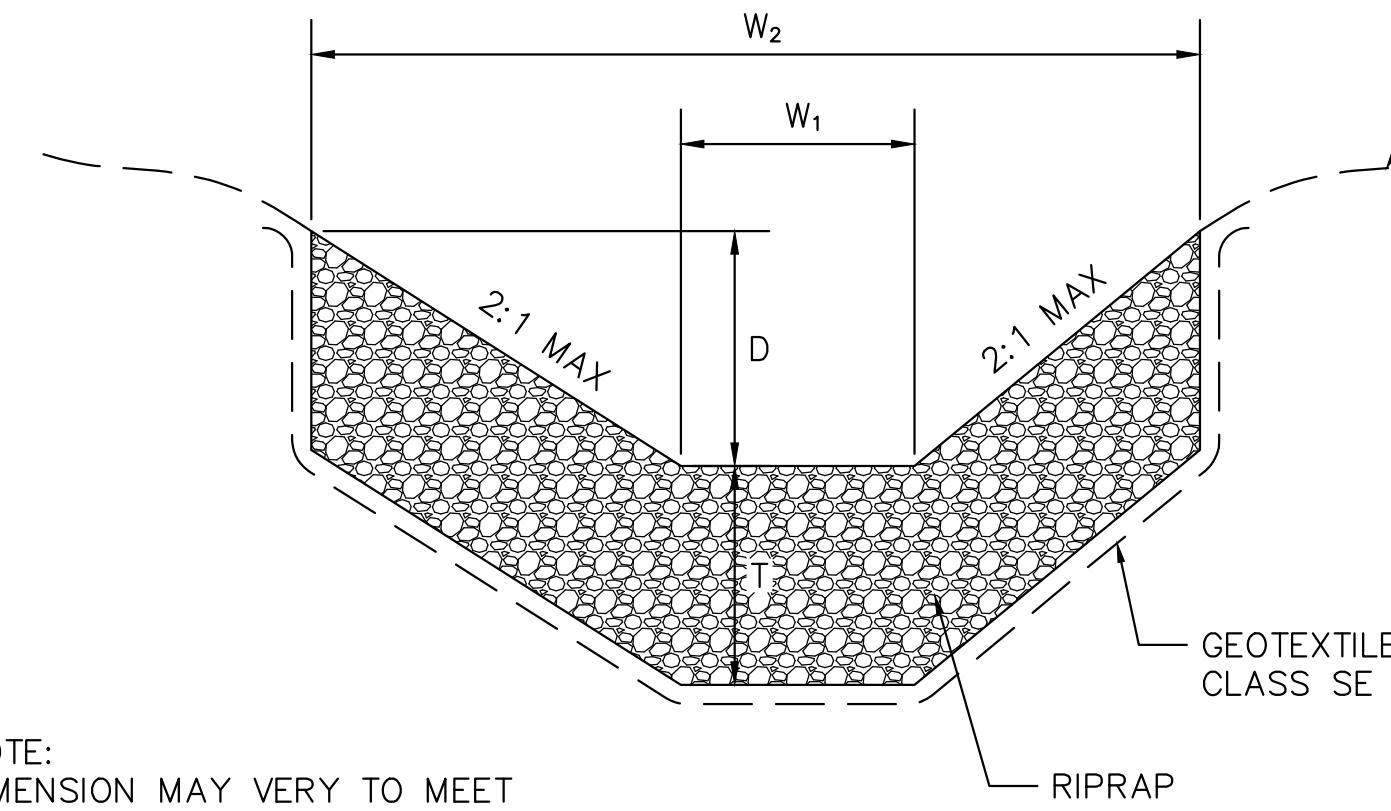
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AECOM

TD-01

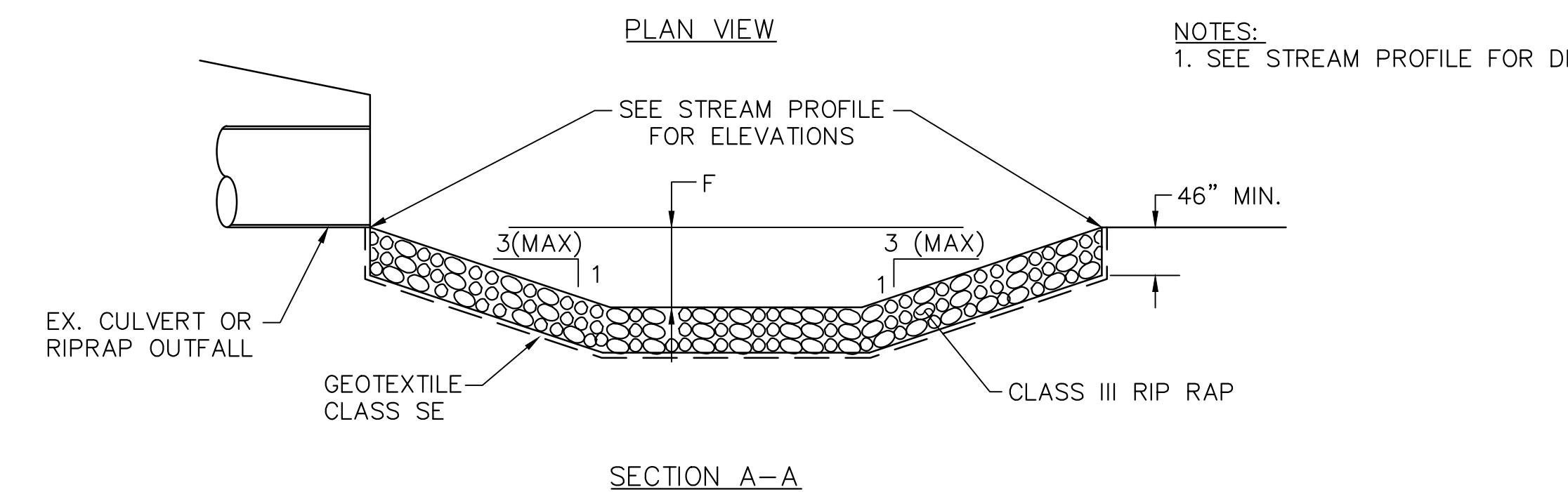
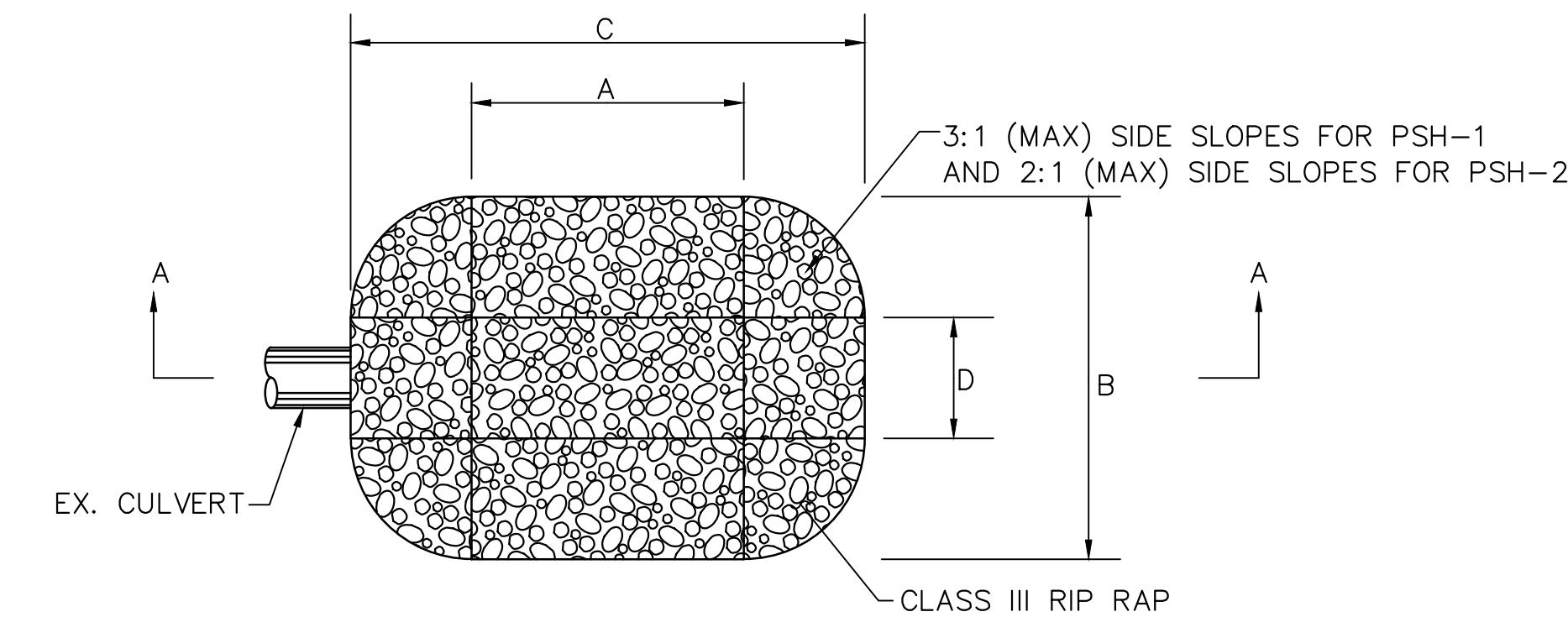
EG-SWMENG-000025-2019





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 |



7 PREFORMED SCOUR HOLE
NOT TO SCALE

| PREFORMED SCOUR HOLE (PSH) TABLE | | | | | |
|----------------------------------|--------|--------|--------|--------|--------|
| Structure No. | A (ft) | B (ft) | C (ft) | D (ft) | F (ft) |
| PSH-1 | 15.00 | 26.80 | 38.00 | 10.30 | 2.75 |
| PSH-2 | 8.25 | 23.00 | 36.00 | 5.50 | 2.75 |

PROFESSIONAL CERTIFICATION

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LAWS OF THE STATE OF MARYLAND,
LICENSE NO. 16156
EXPIRATION DATE: 8/28/2022"

REVISIONS

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION

TYPICAL DETAILS III

DRAWN BY : BJK

CONTRACT NO : 97040

DESIGNED BY : NJF

SCALE : NTS

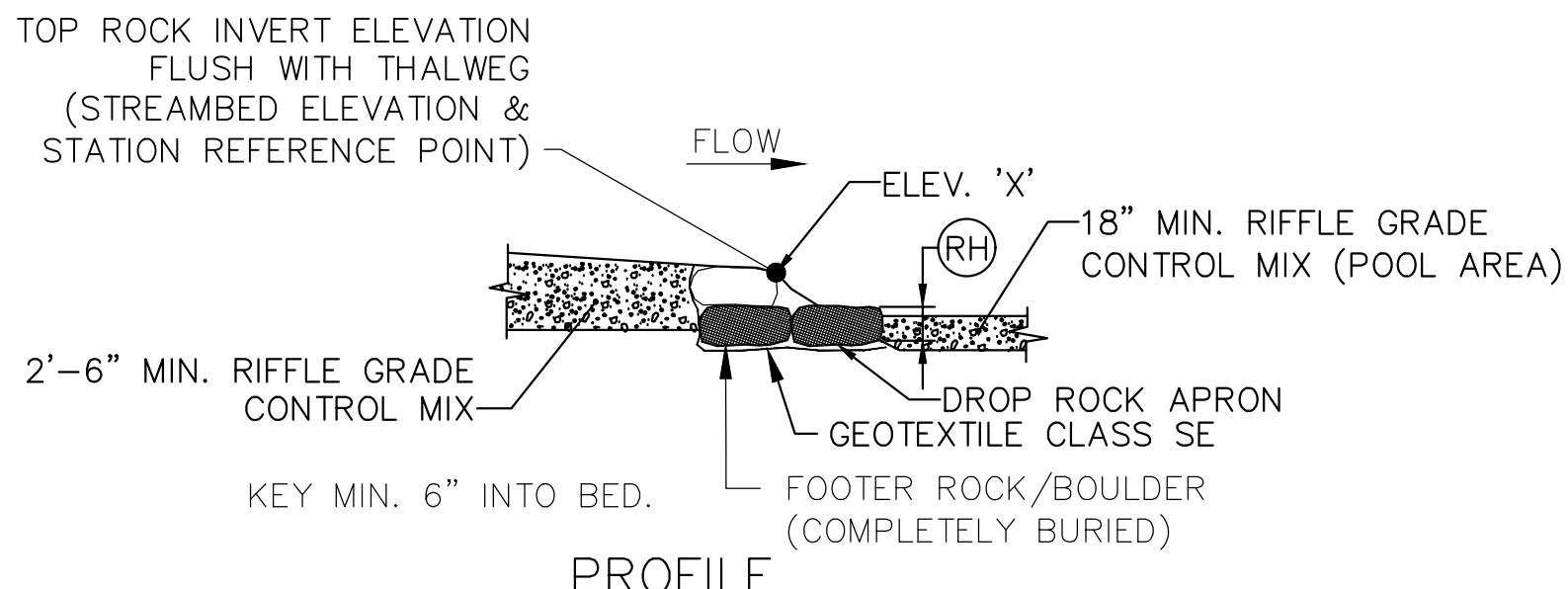
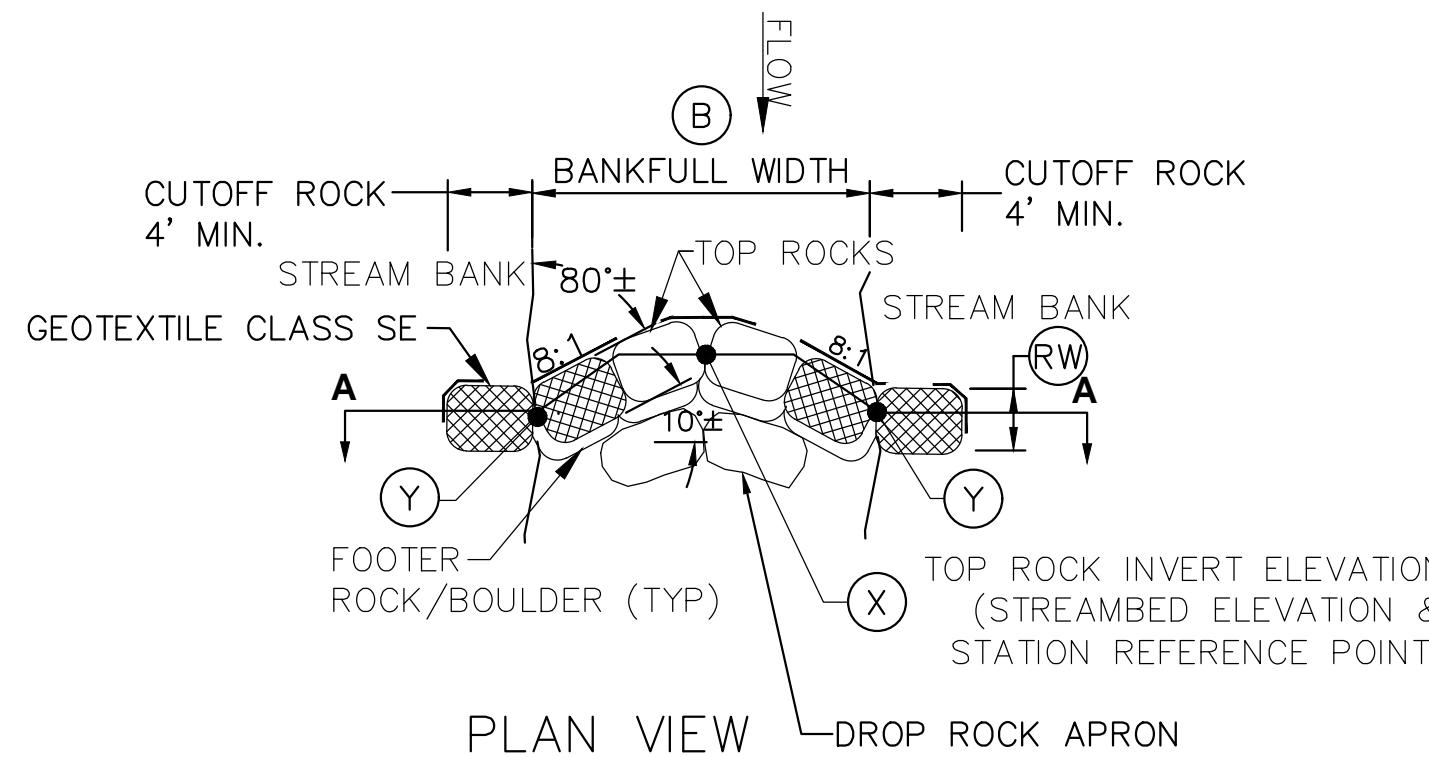
REVIEWED BY : DTM

SHEET 18 OF 48

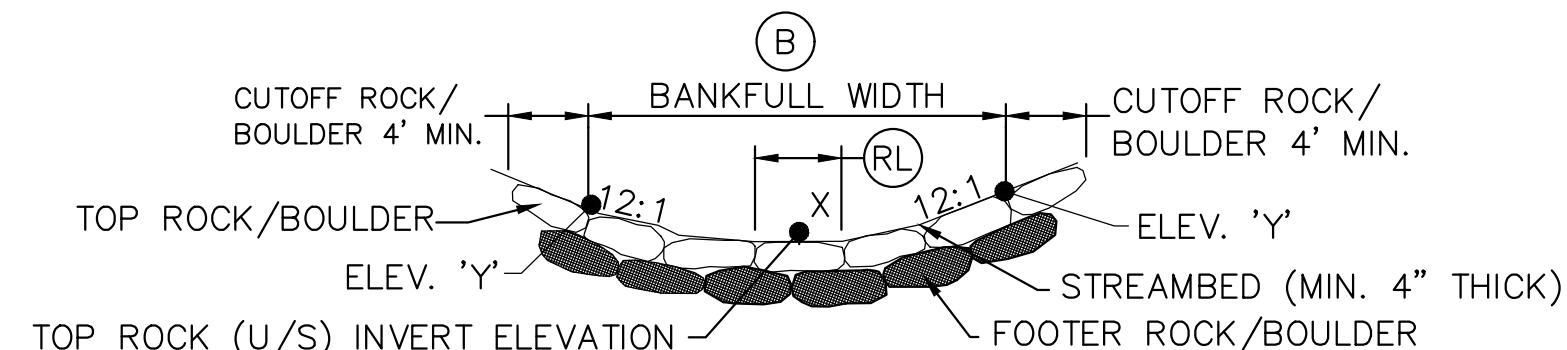
SCALE : 1 inch

DATE : MARCH, 2022

AECOM



PROFILE



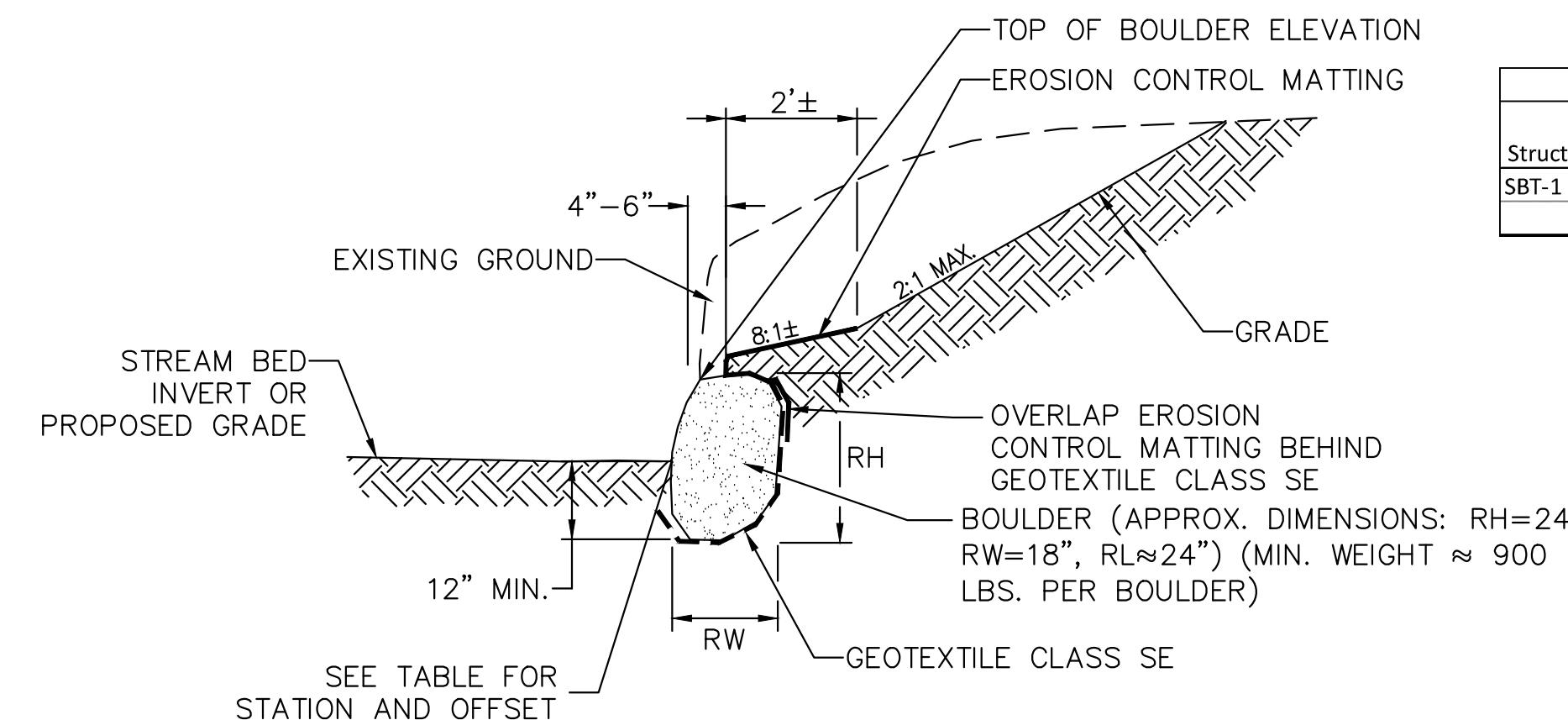
CROSS SECTION A-A

NOTES:

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 RCC MIX.

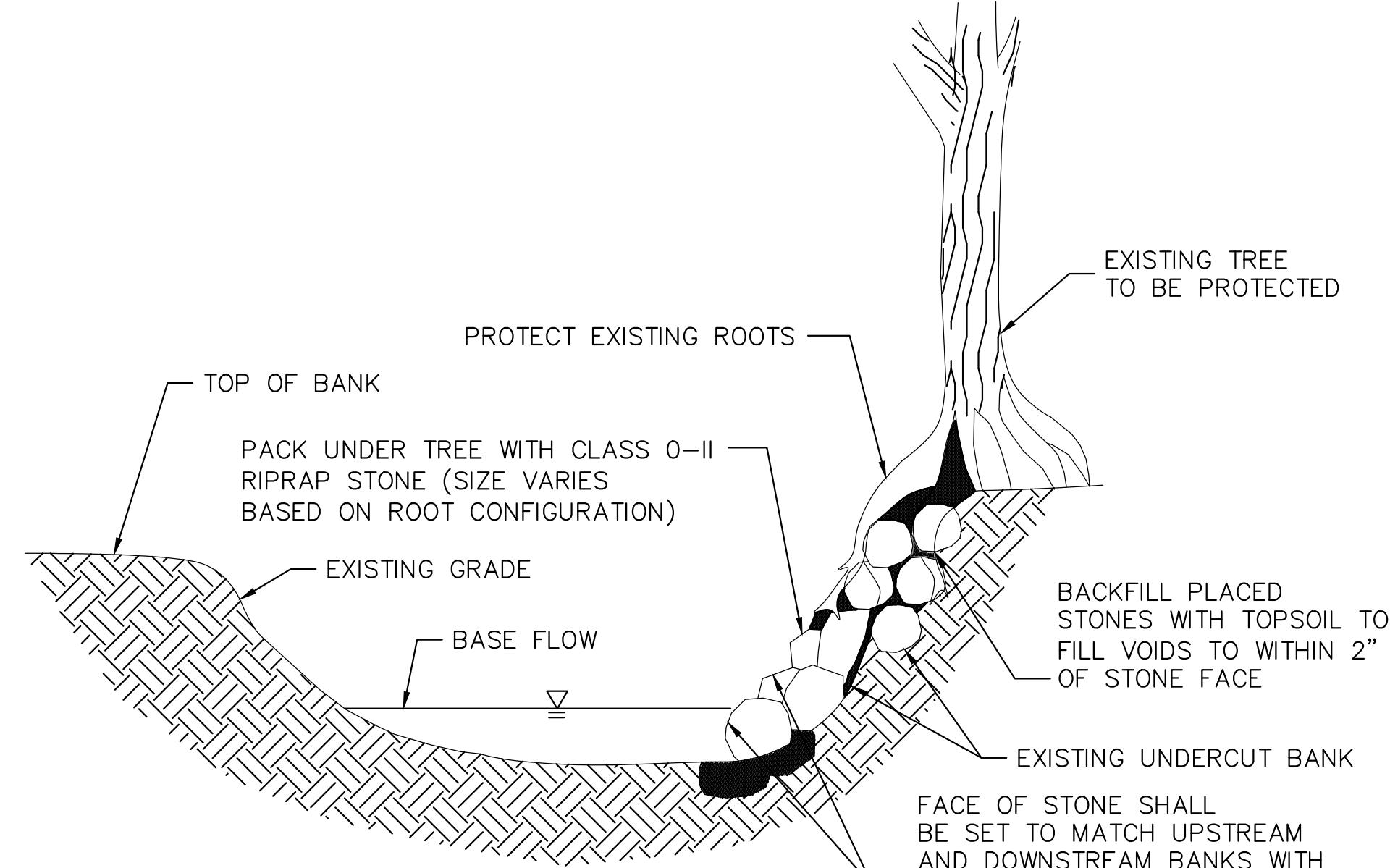
9) ROCK SILL DETAIL
NOT TO SCALE

| 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 |



| 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 | |

10) SINGLE BOULDER TOE DETAIL
NOT TO SCALE



11) ROCK PACK DETAIL
NOT TO SCALE

PROFESSIONAL CERTIFICATION
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LICENSE NO. 16156
EXPIRATION DATE: 8/28/2022"

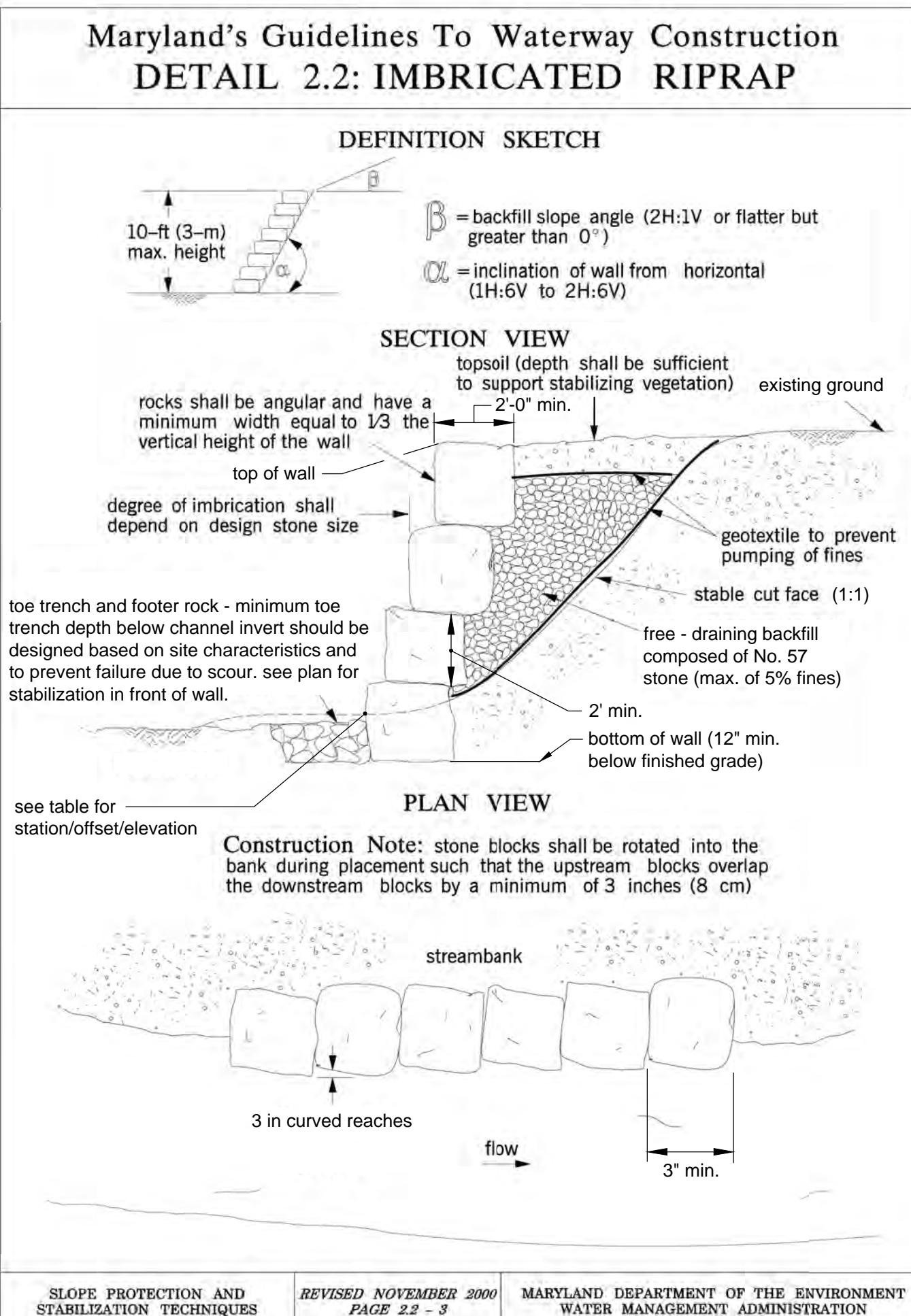
REVISIONS

| | |
|--------------------|---------------------|
| DRAWN BY : BJK | CONTRACT NO : 97040 |
| DESIGNED BY : NJF | SCALE : NTS |
| REVIEWED BY : DTM | SHEET 19 OF 48 |
| DATE : MARCH, 2022 | |

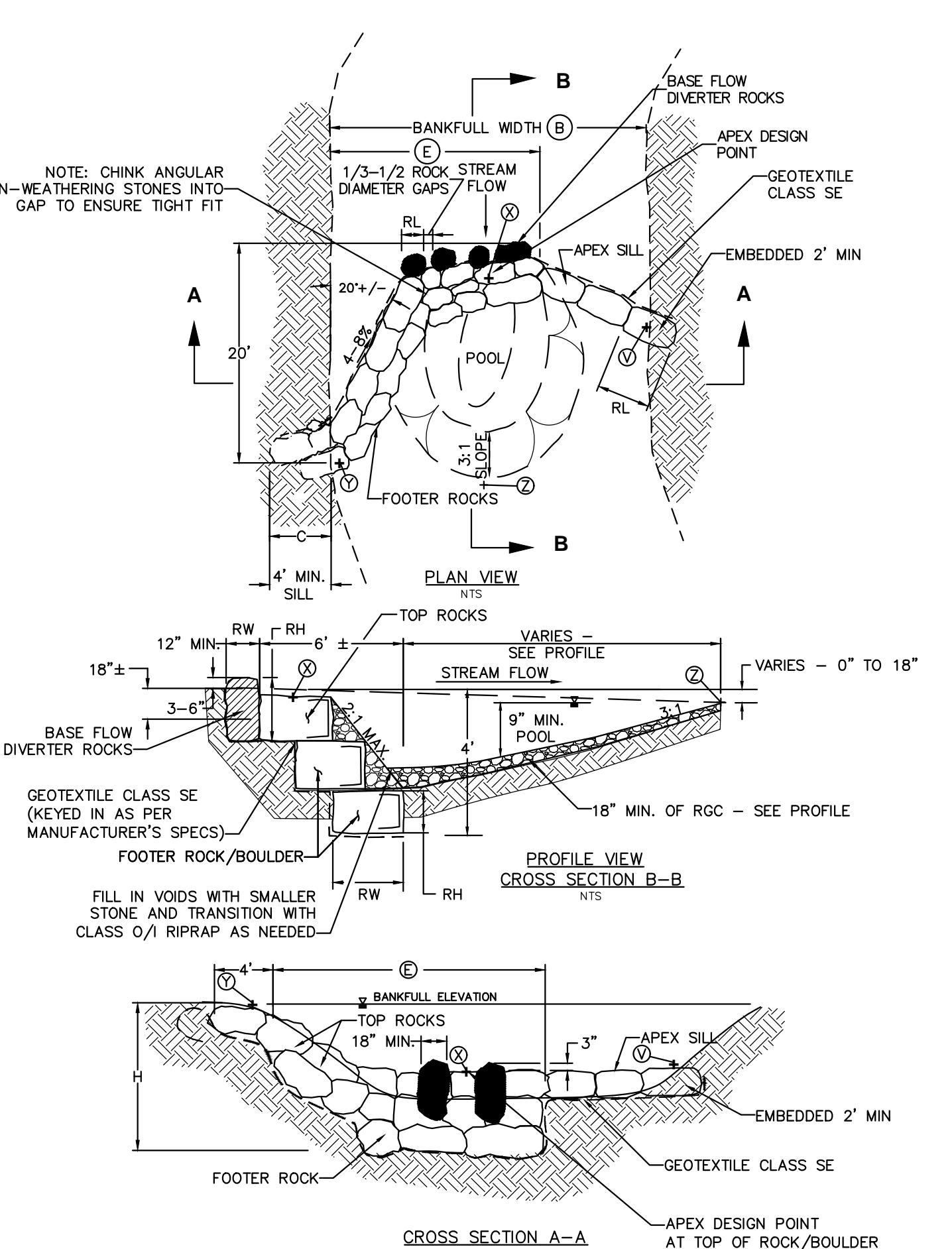
EG-SWMENG-000025-2019 TD-04

HARFORD COUNTY, MARYLAND
DECLARATION RUN STREAM RESTORATION
TYPICAL DETAILS IV

AECOM



16) IMBRICATED RIPRAP
NOT TO SCALE



17) J-HOOK VANE DETAIL
NOT TO SCALE

| J-HOOK VANE (JHV) TABLE | | | | | | | | | | | | | | | | | |
|-------------------------|---------|--------|-------------------|--|------------------|-----------------|---|------------------|-----------------|------------------------------|------------------|-----------------|------------------|------------------|-----------------|-----|-----|
| Structure No. | Station | Offset | Bankfull Width(B) | 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) | 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. | 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 | |
| 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 | |
| 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 |

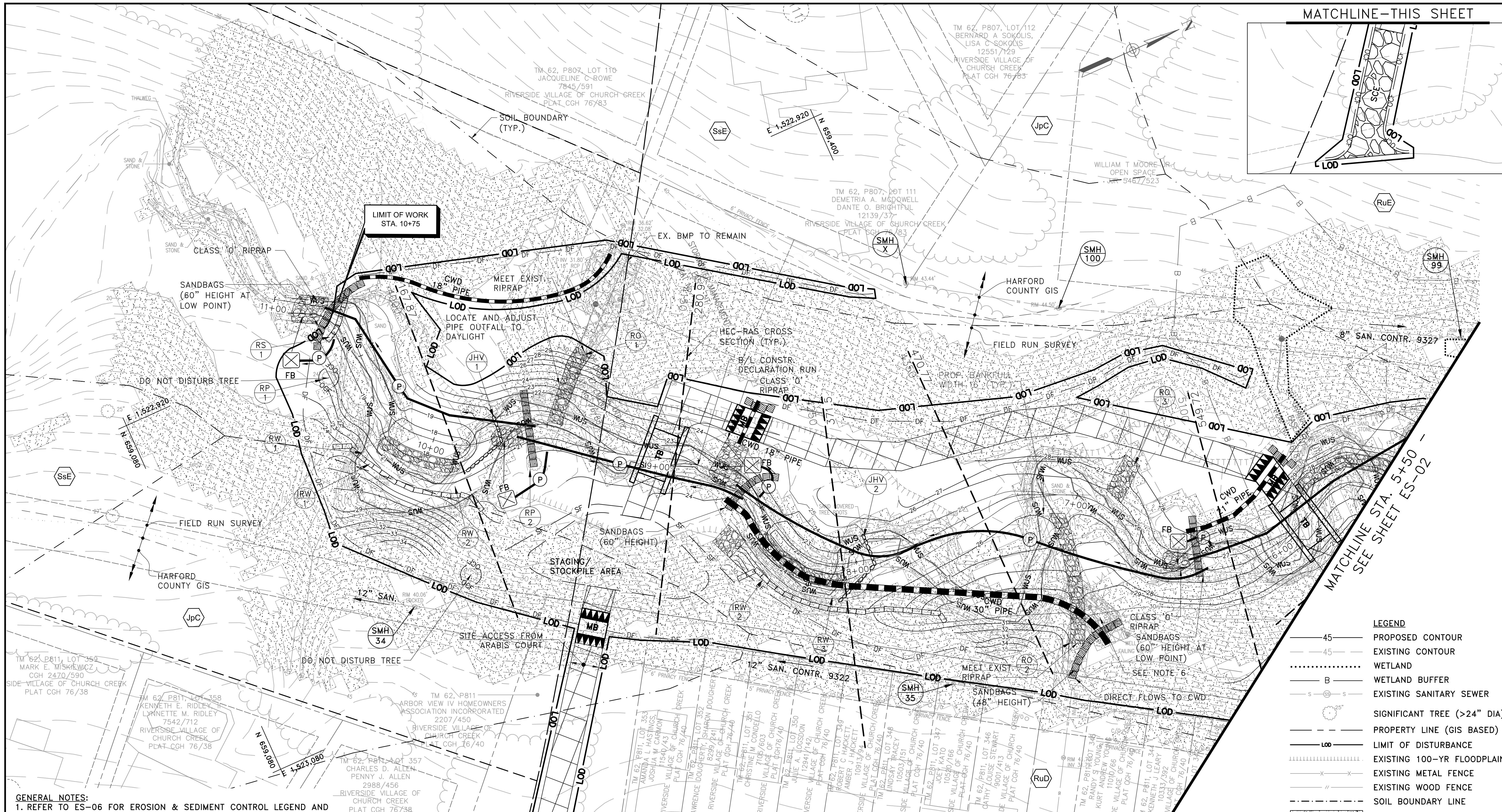
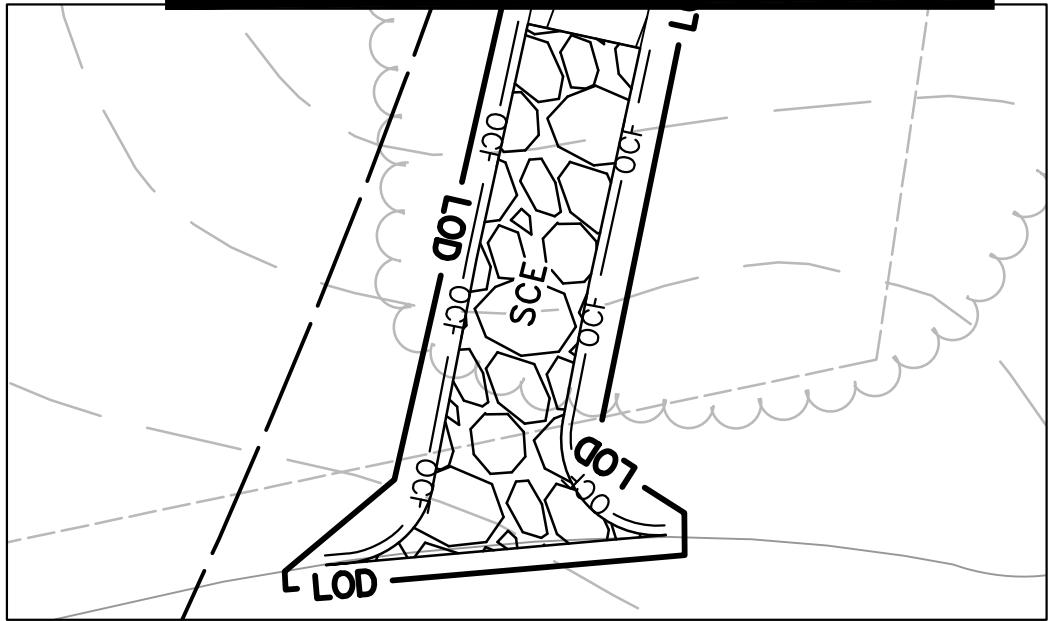
* BOTTOM WALL ELEVATION IS FINISHED ELEVATION.
ROCK TO BE EMBEDDED A MIN. OF 12"

PROFESSIONAL CERTIFICATION
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LICENSE NO. 16156
EXPIRATION DATE: 8/28/2022"

| | | | |
|------------------------------------|---------------------|--|--|
| REVISIONS | TD-05 | | |
| HARFORD COUNTY, MARYLAND | | | |
| DECLARATION RUN STREAM RESTORATION | | | |
| TYPICAL DETAILS V | | | |
| DRAWN BY : BJK | CONTRACT NO : 97040 | | |
| DESIGNED BY : NJF | SCALE : NTS | | |
| REVIEWED BY : DTM | SHEET 20 OF 48 | | |
| DATE : MARCH, 2022 | | | |

AECOM

MATCHLINE-THIS SHEET



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.

MATCHLINE-THIS SHEET

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

SC PLAN #59846
GRADING PERMIT #470-2019

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

AECOM

PROFESSIONAL CERTIFICATION
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REVISIONS

HARFORD COUNTY, MARYLAND

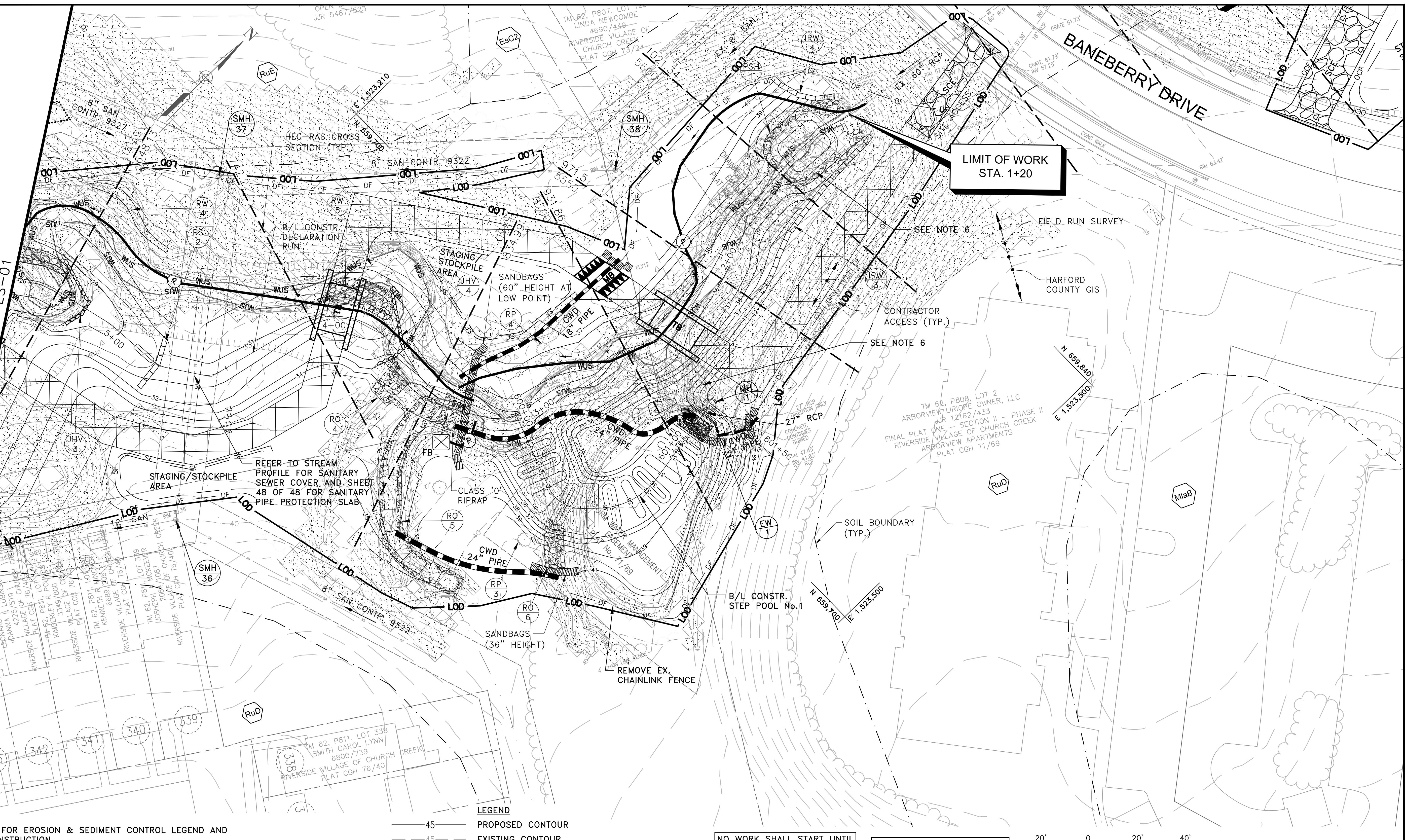
DECLARATION RUN STREAM RESTORATION
EROSION & SEDIMENT CONTROL PLAN

DRAWN BY: BJK
DESIGNED BY: NJF
REVIEWED BY: DTM

CONTRACT NO: 97040
SCALE: 1"=20'
SHEET 21 OF 48
DATE: MARCH, 2022

ES-01
EG-SWMENG-000025-2019

MATCHLINE STA. 5+50 - SEE SHEET ES-01



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| | |
|------------|-----------------------------|
| 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 |
| — - - - - | SOIL BOUNDARY LINE |
| ██████████ | SLOPES GREATER THAN 15% |

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

SC PLAN #59846
GRADING PERMIT #470-2019

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REVISIONS

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION
EROSION & SEDIMENT CONTROL PLAN

DRAWN BY: BJK

DESIGNED BY: NJF

REVIEWED BY: DTM

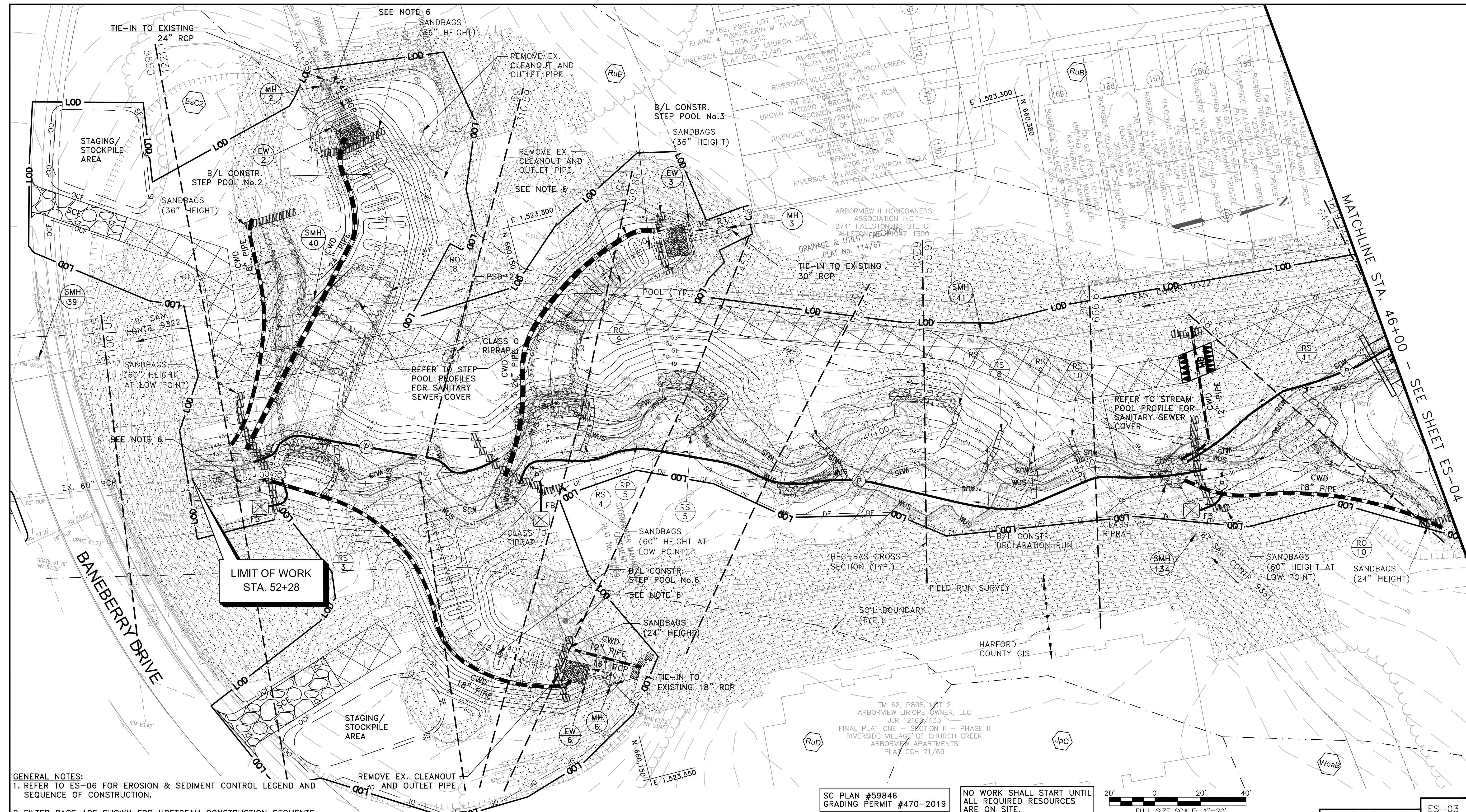
CONTRACT NO: 97040

SCALE: 1"=20'

DATE: MARCH, 2022

SCALE: 1 inch

AECOM



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LEGEND

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

SC PLAN #59846
GRADING PERMIT #470-2019

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ES-03
EG-SWMENG-000025-2019

AECOM

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION
EROSION & SEDIMENT CONTROL PLAN

DRAWN BY: BJK

DESIGNED BY: NJF

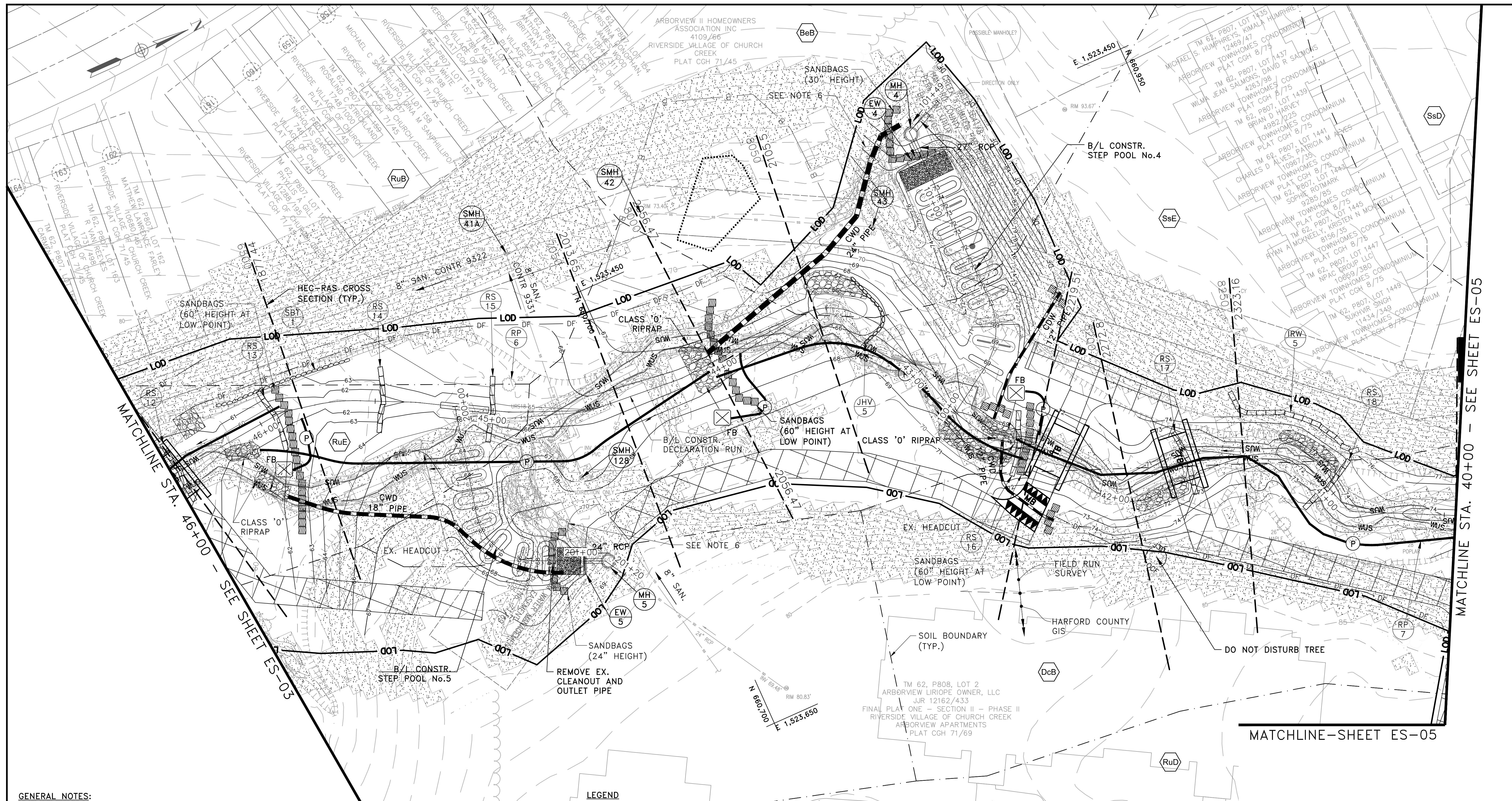
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CONTRACT NO: 97040

SCALE: 1"=20'

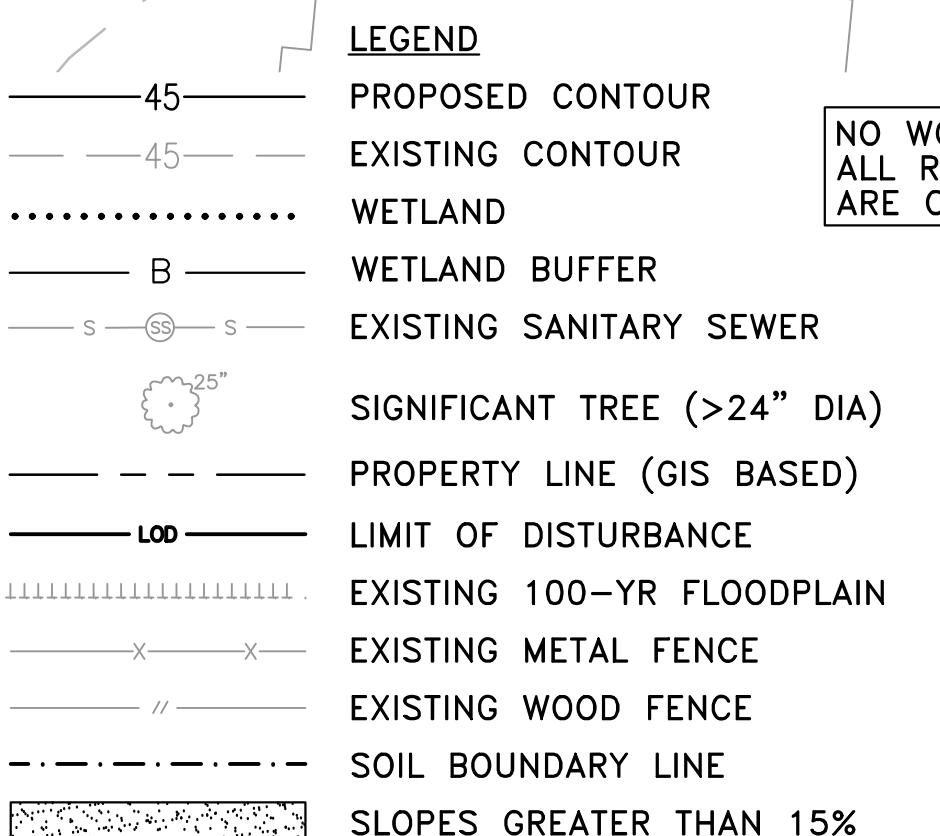
DATE: MARCH, 2022

SCALE: 1 inch



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GRADING PERMIT #470-2019

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

REVISIONS

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION EROSION & SEDIMENT CONTROL PLAN

DRAWN BY: BJK

DESIGNED BY: NJF

REVIEWED BY: DTM

CONTRACT NO: 97040

SCALE: 1"=20'

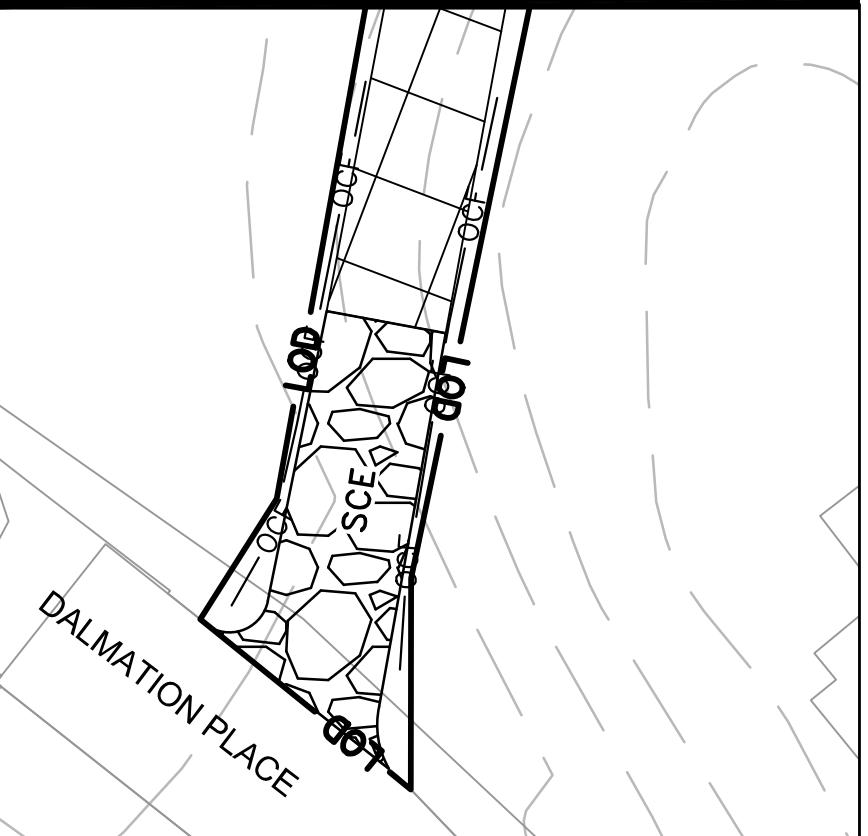
DATE: MARCH, 2022

ES-04

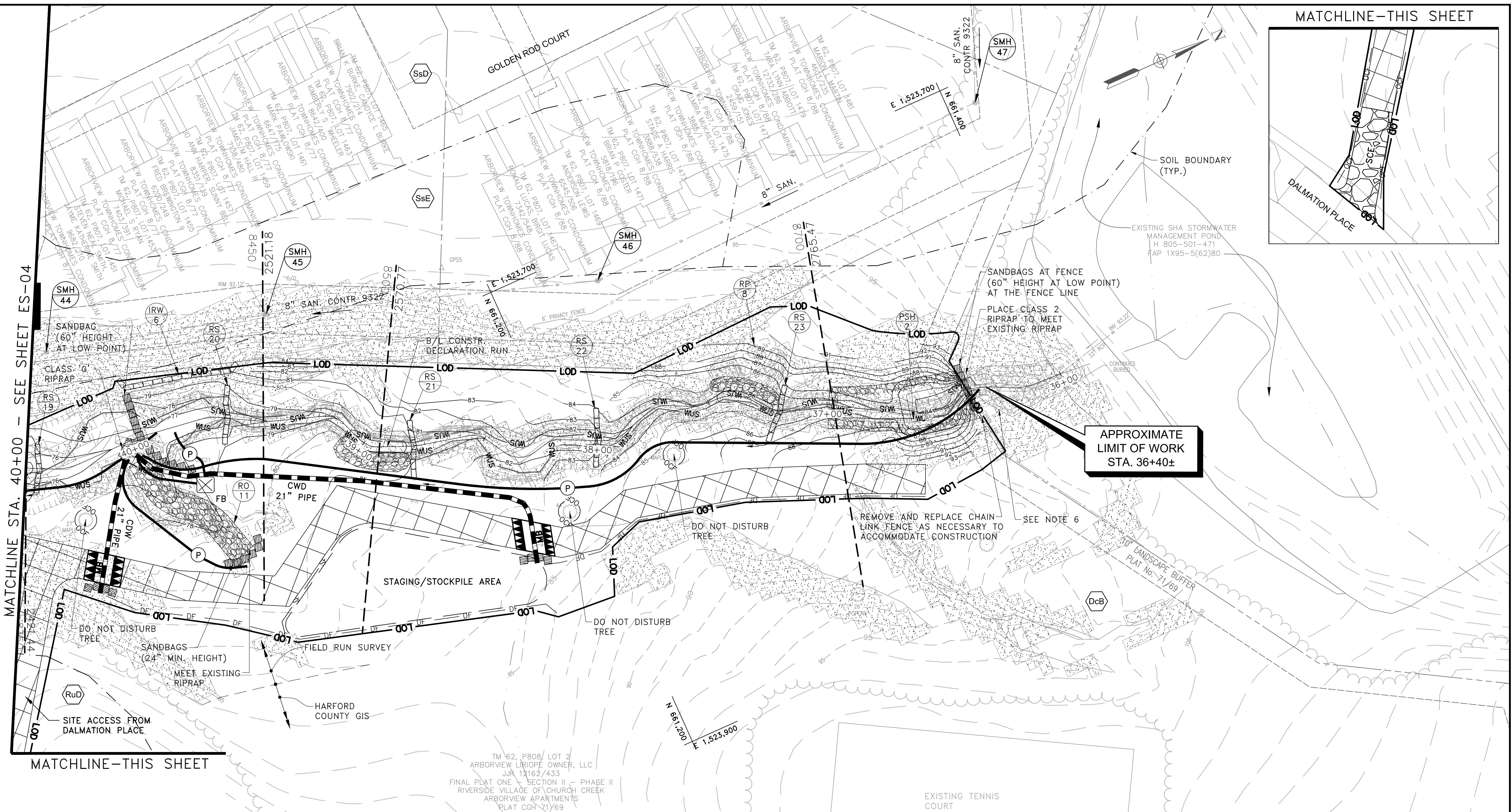
EG-SWMENG-000025-2019

AECOM

MATCHLINE-THIS SHEET



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



MATCHLINE-THIS SHEET

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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 |
| 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 |
| - - - | SOIL BOUNDARY LINE |
| | SLOPES GREATER THAN 15% |

AECOM

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

SC PLAN #59846
GRADING PERMIT #470-2019

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. 16156 EXPIRATION DATE: 8/28/2022"

REVISIONS

| HARFORD COUNTY, MARYLAND | |
|------------------------------------|---------------------|
| DECLARATION RUN STREAM RESTORATION | |
| DRAWN BY : BJK | CONTRACT NO : 97040 |
| DESIGNED BY : NJF | SCALE : 1"=20' |
| REVIEWED BY : DTM | SHEET 25 OF 48 |
| | DATE : MARCH, 2022 |

EG-SWMENG-000025-2019

ES-05

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 REFERENCED 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 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. 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:

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.

v. REMOVE AND STABILIZE AREA USED FOR TIMBER MAT ACCESS ROAD.

b. STATION 39+95 TO 42+50:

i. 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. REMOVE AND STABILIZE AREA USED FOR TIMBER MAT ACCESS ROAD.

c. STATION 42+50 TO 44+00:

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.

viii. REMOVE AND STABILIZE AREA USED FOR TIMBER MAT ACCESS ROAD.

d. STATION 44+00 TO 45+88:

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.

e. STATION 45+88 TO 47+50:

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.

vii. REMOVE AND STABILIZE AREA USED FOR TIMBER MAT ACCESS ROAD.

f. STATION 47+50 TO 50+90 +/-:

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 (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.

g. STATION 50+90 +/- TO 52+28±:

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. 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.

h. STATION 50+90 +/- TO 10+75±:

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.

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.

i. STATION 8+55 TO 10+75:

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.

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 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.

j. STATION 8+55 TO 10+75:

i. MONITOR UPSTREAM SEGMENT FOR CONTINUED STABILITY. RESTABILIZE AREAS AS WARRANTED.

ii. CLEAN ACCUMULATED SEDIMENT WITHIN THE EXISTING 60" RCP.

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.

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.

b. STATION 3+25 TO 6+35:

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.

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.

c. STATION 6+35 TO 8+55:

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.

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:

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.

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 +/-.

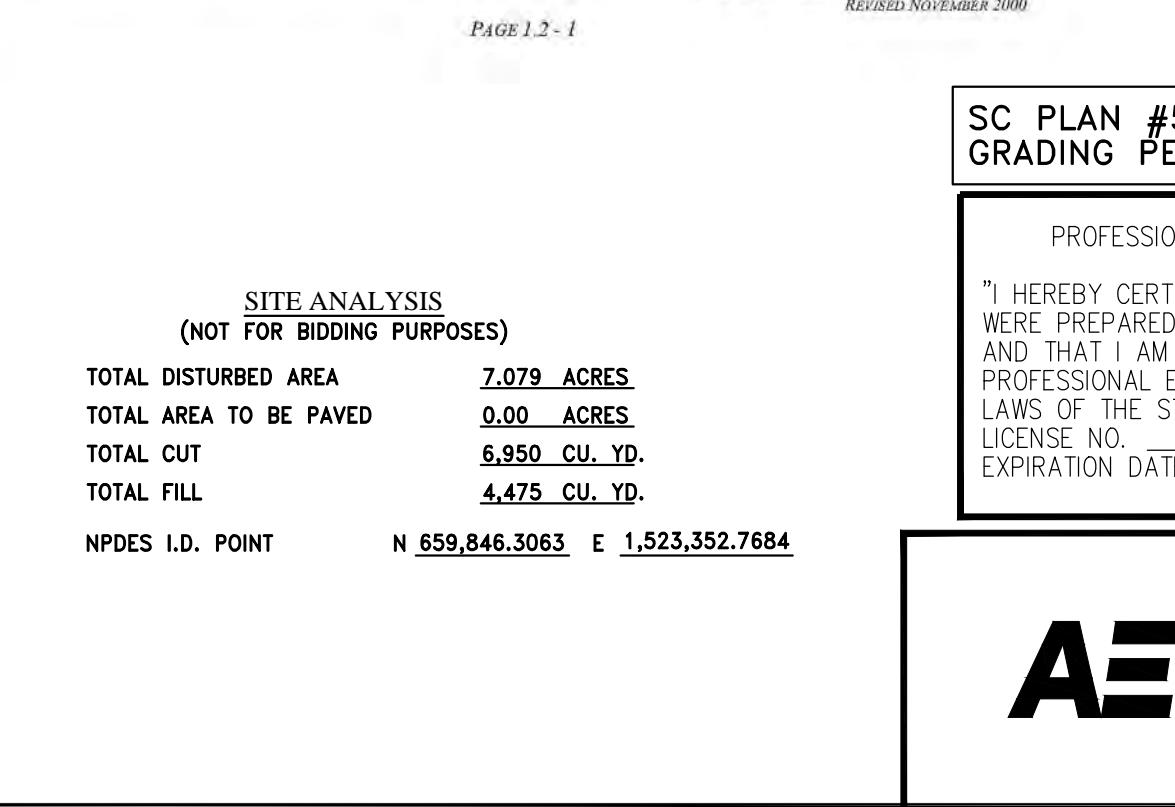
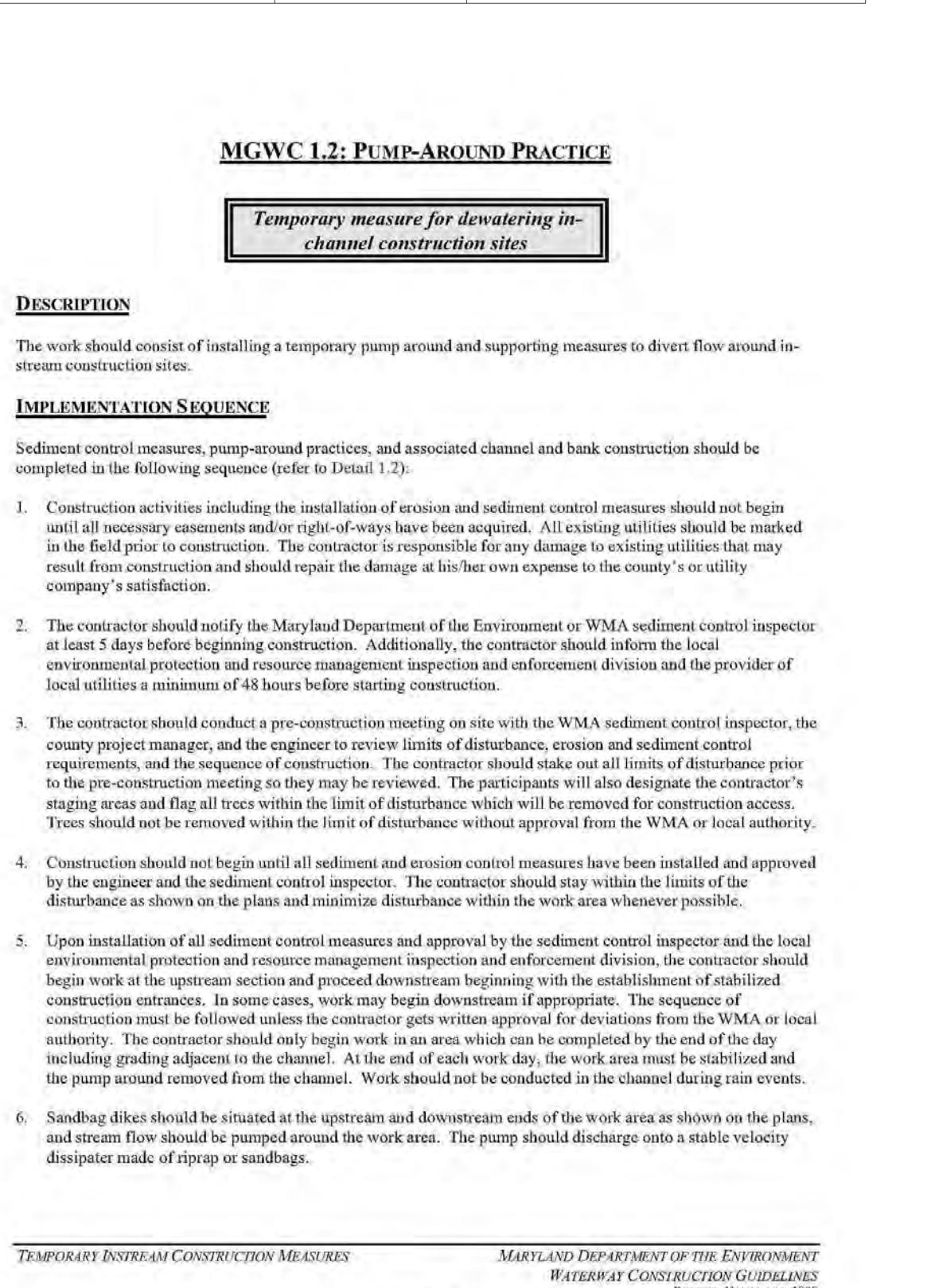
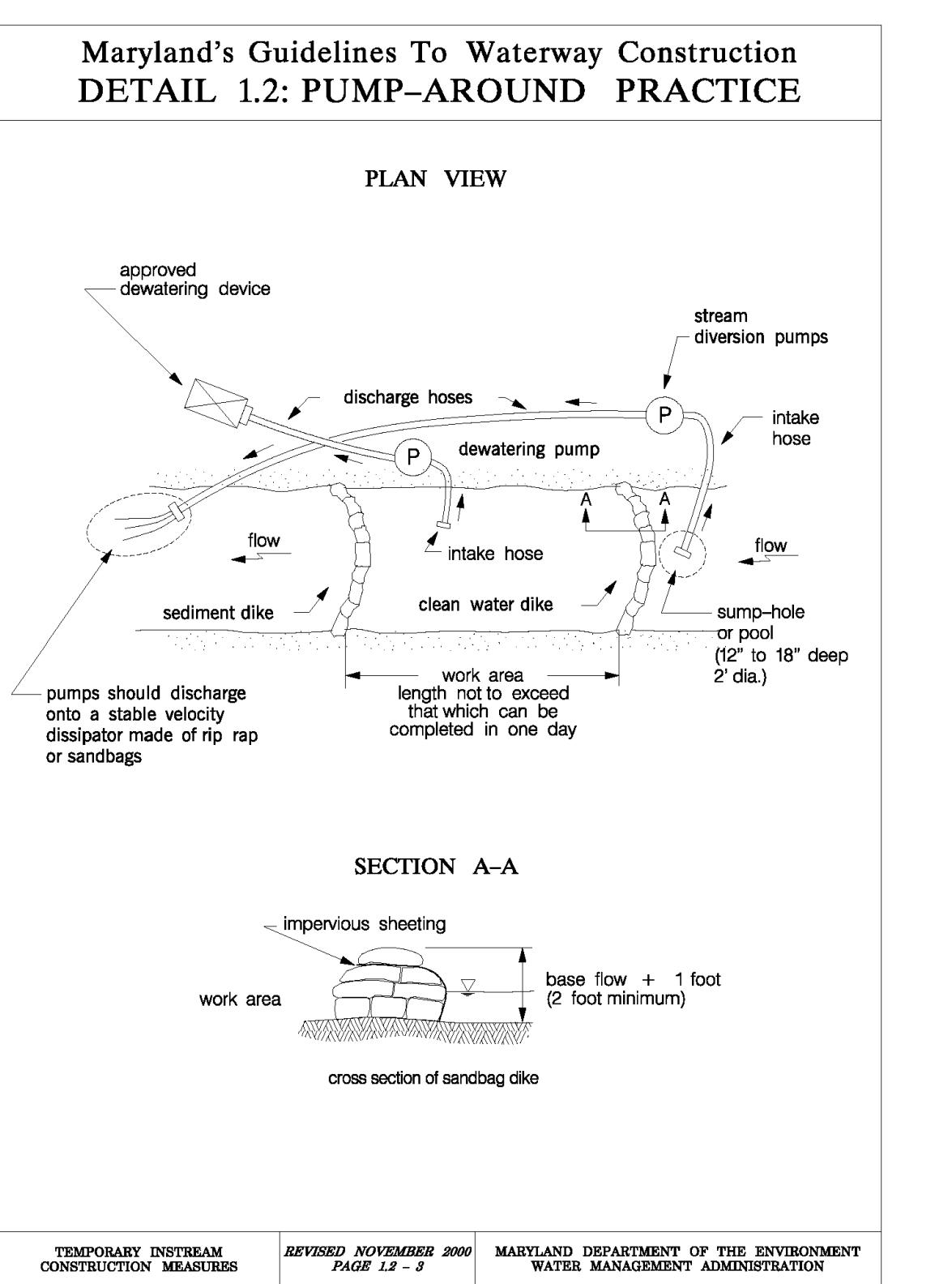
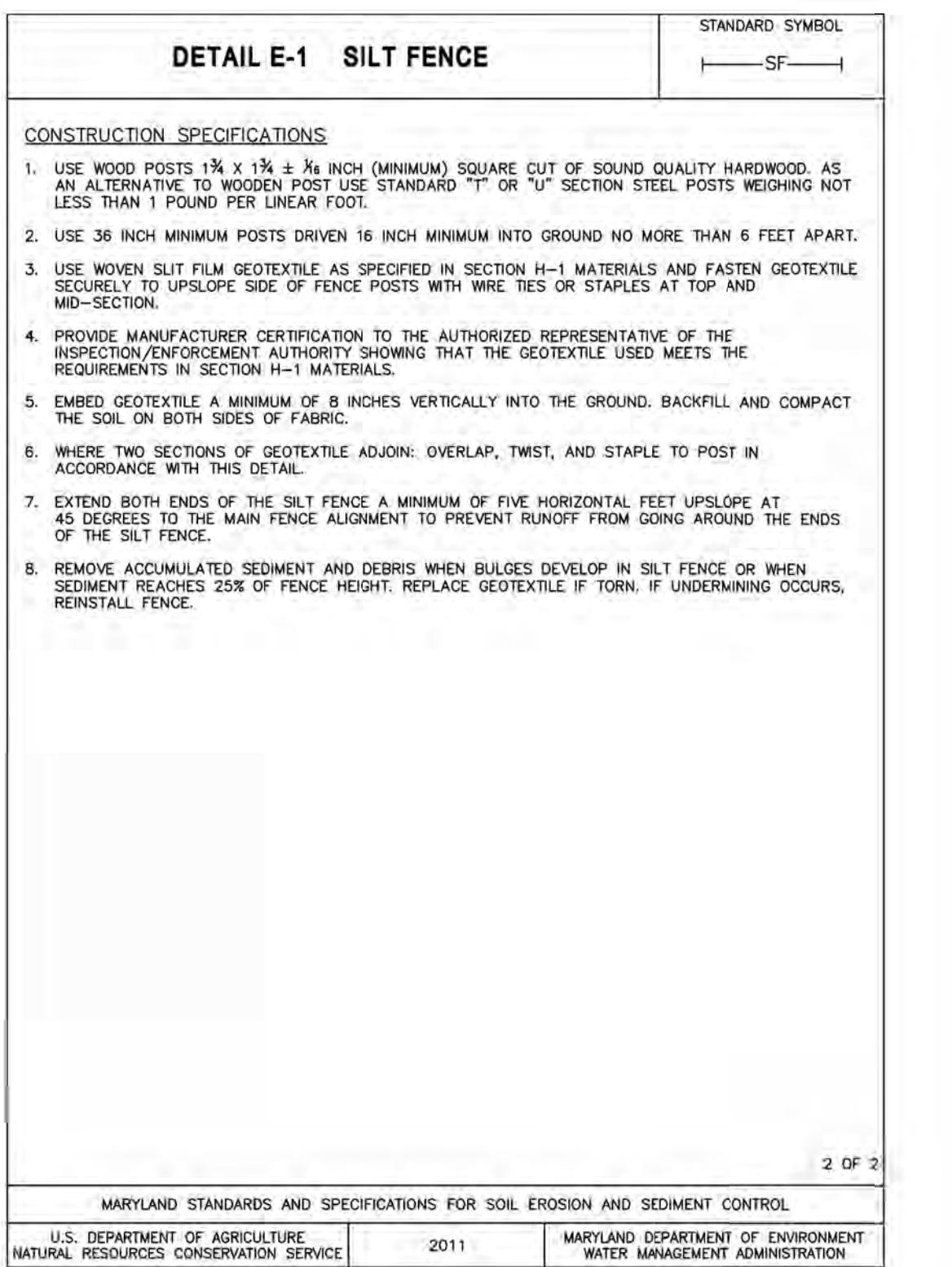
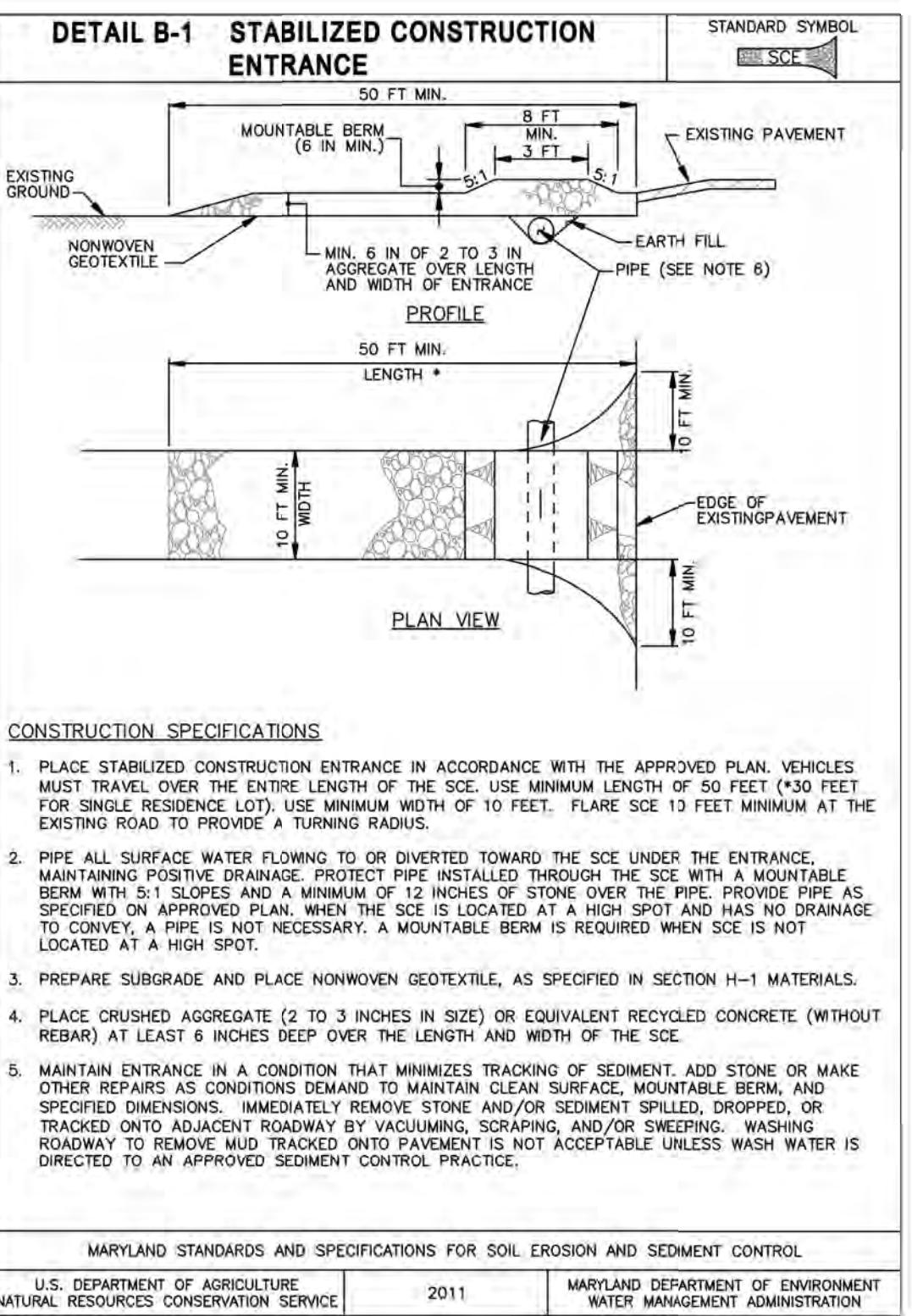
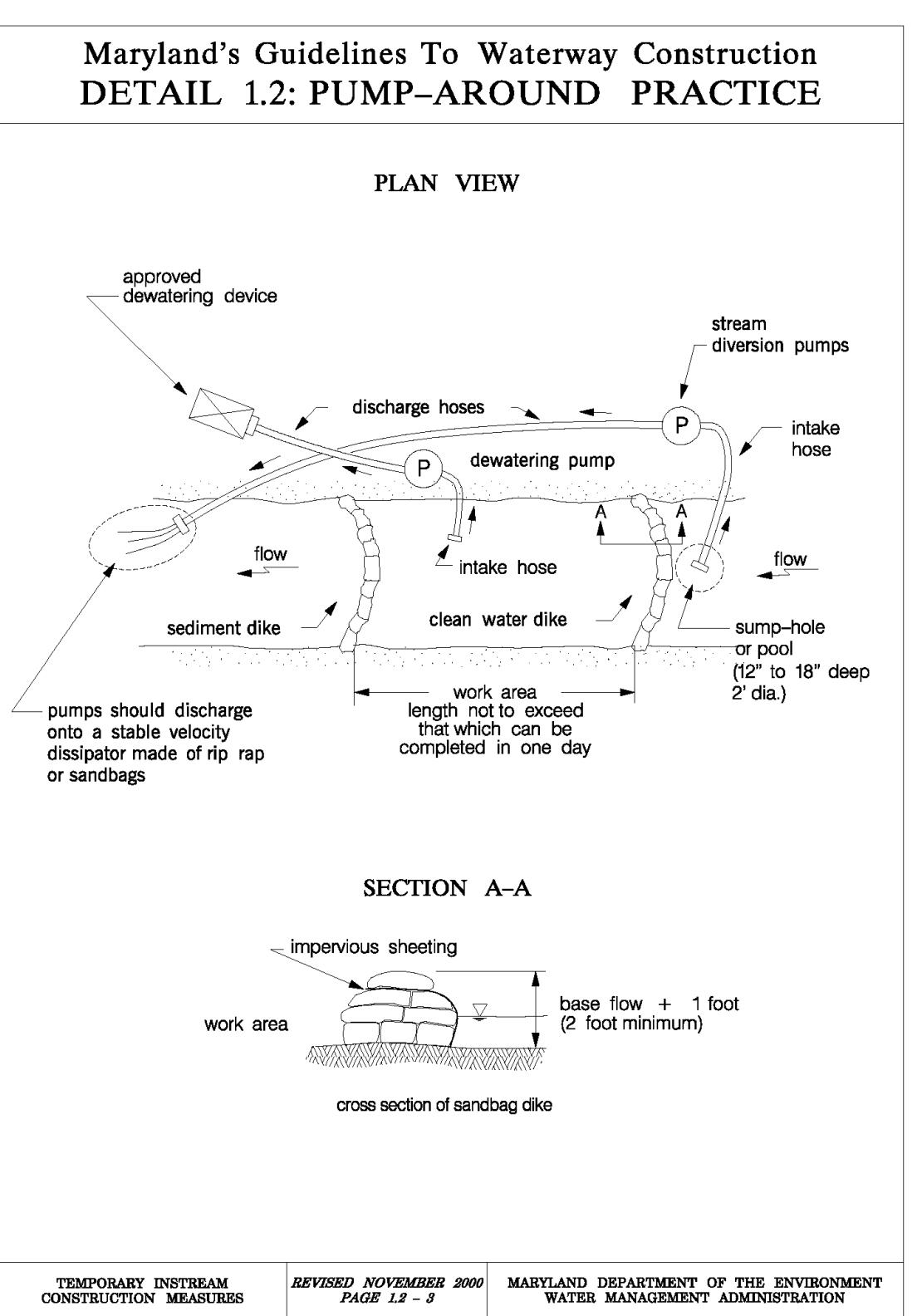
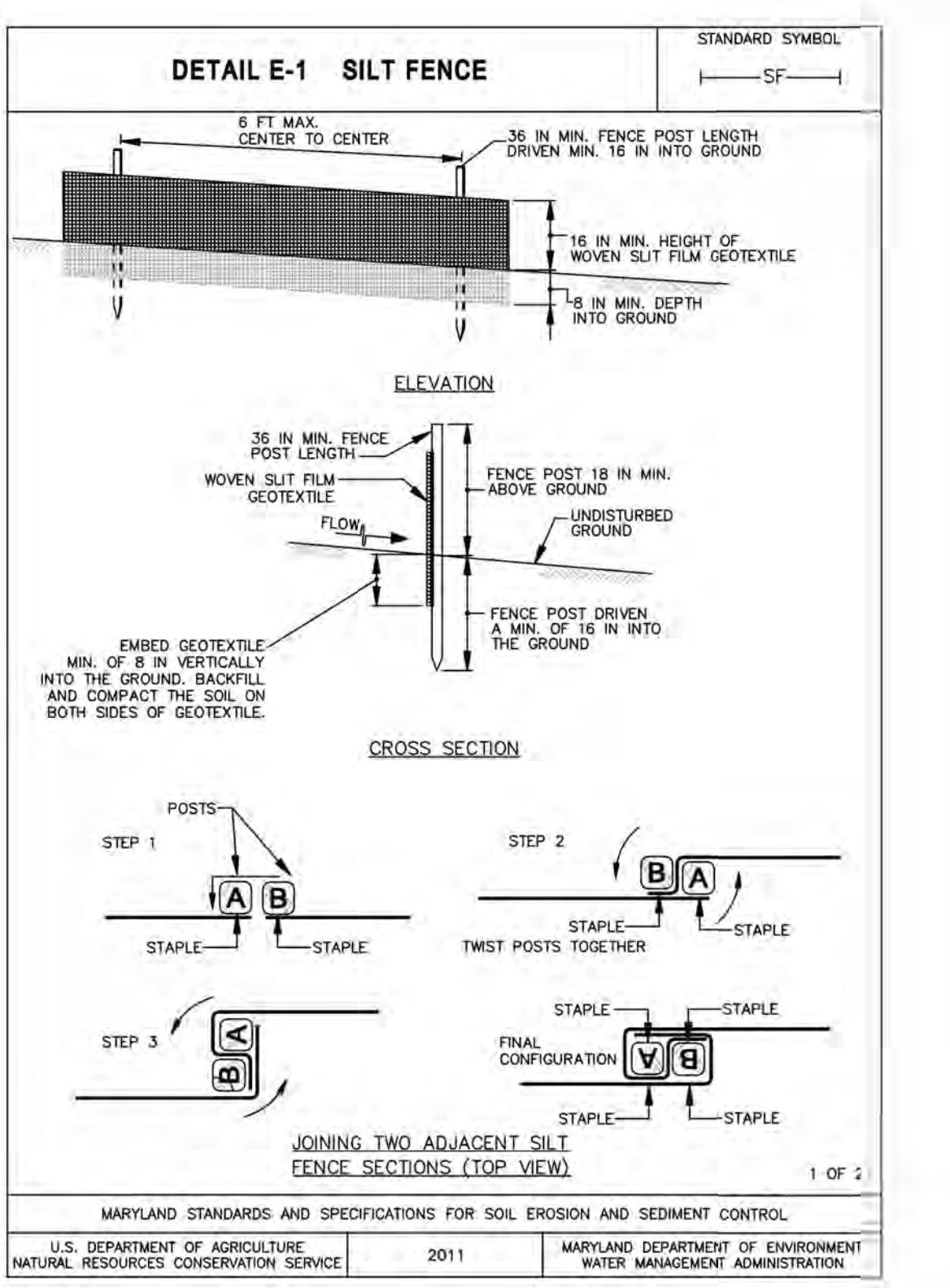
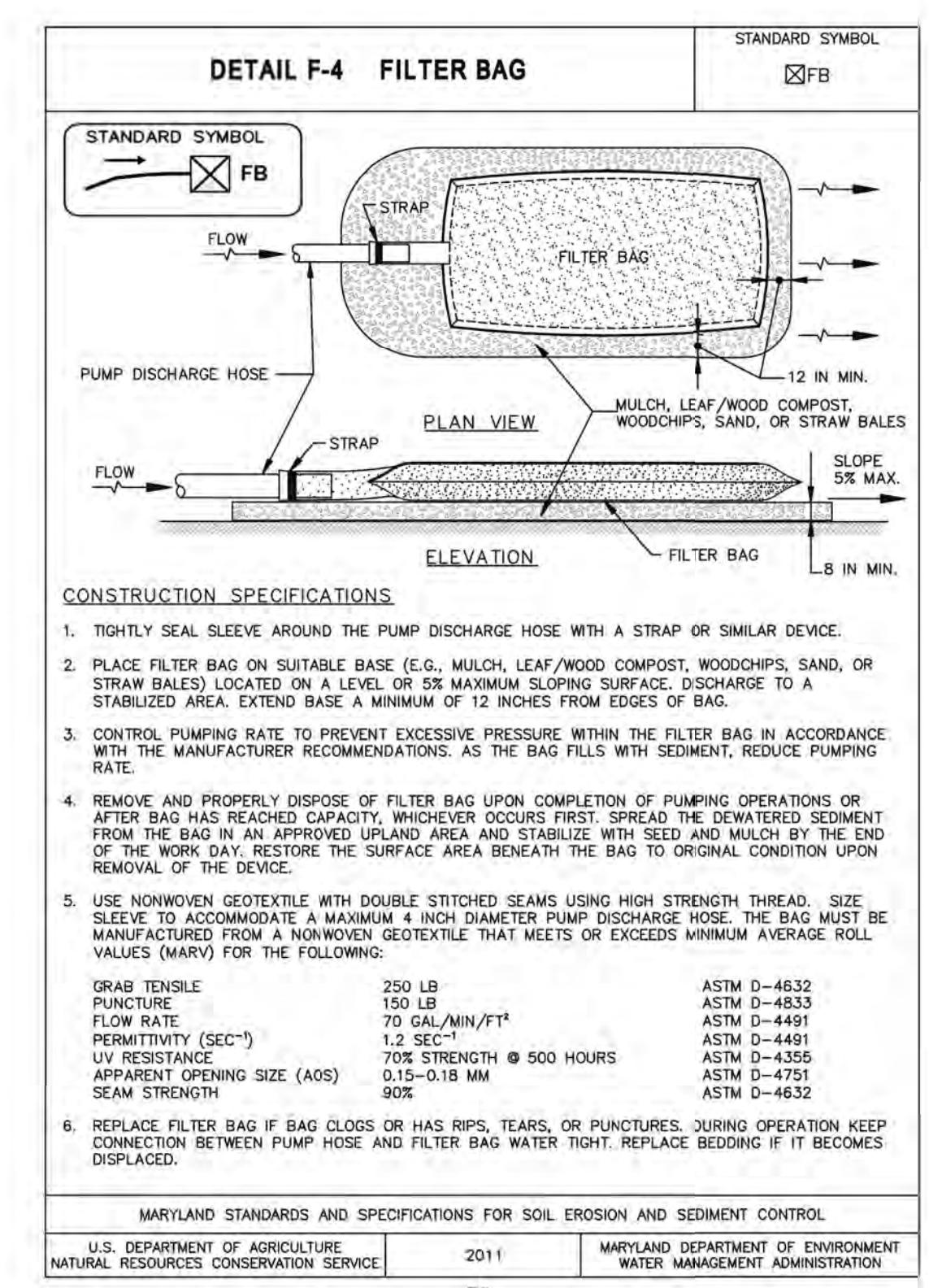
iv. BEGINNING UPSTREAM TO DOWNSTREAM, BEGIN STREAM GRADING, CONSTRUCTION OF ROCK SILLS, IMBRICATED ROCK WALL, PLACEMENT OF RIFFLE GRADE CONTROL MIX, TOPSOIL, SEED AND MULCH, TYPE 'D' SOIL STABILIZATION, AND PLANTINGS.

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.

e. STATION 10+75 TO 12+00:

i. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING EROSION AND SEDIMENT CONTROL MEASURES AND DEVICES. COMPLETE FINAL STABILIZATION.

ii. MON



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, stabilize 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

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

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

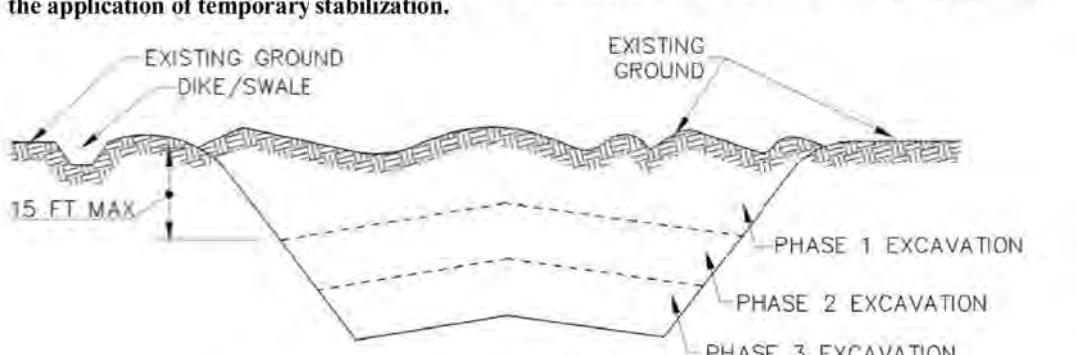


Figure B.1: Incremental Stabilization - Cut

B. Incremental Stabilization - Fill Slopes

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

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

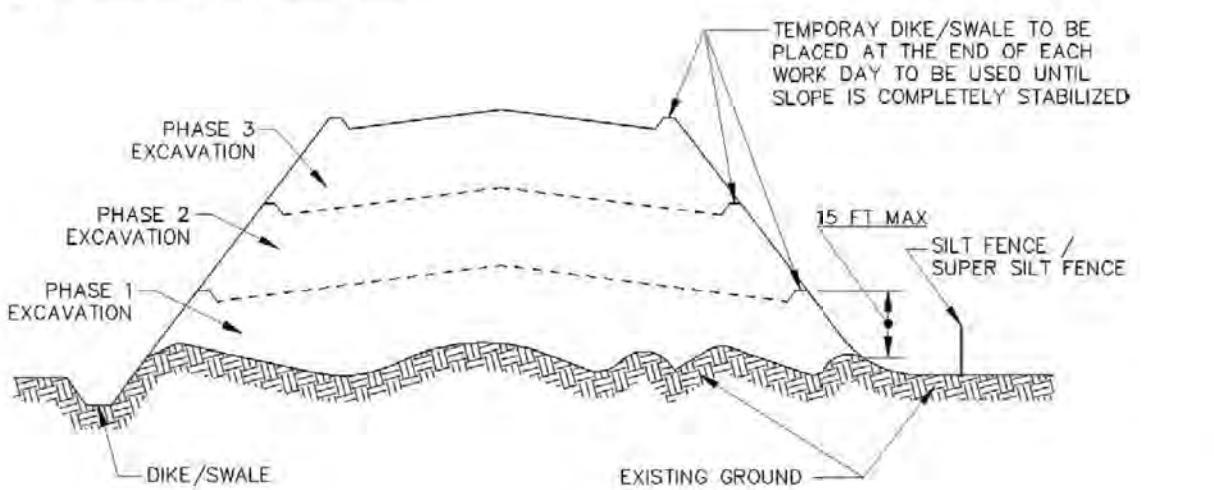


Figure B.2: Incremental Stabilization - Fill

B-4.2 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

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

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.

B-4.3 STANDARDS AND SPECIFICATIONS**FOR****SEEDING AND MULCHING****Definition**

The application of seed and mulch to establish vegetative cover.

Purpose

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

Conditions Where Practice Applies

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

Criteria**A. Seeding****1. Specifications**

- a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.

- b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaw.

- c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.

- d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phytotoxic materials.

2. Topsoiling**a. Erosion and sediment control practices must be maintained when applying topsoil.****b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.****c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seeded preparation.****d. Topsoil Application****a. Erosion and sediment control practices must be maintained when applying topsoil.****b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. 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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 1/2 pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.

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 Ryegrass: 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 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
 - Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes: Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1/2 to 3 pounds per 1000 square feet.

Notes:

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

Choose certified material. Certified material is the best guarantee of cultivar purity. 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 disk or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1/2 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 seedings with adequate water for plant growth (1/2 to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings 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): | | Fertilizer Rate (10-20-20) | | | Rate |
|-----------------------------------|---------|----------------------------|-------------------------------|-------------------------|---------------------------|
| Seed Mixture (from Table B.3): | | N | P ₂ O ₅ | K ₂ O | |
| No. | Species | Application Rate (lb/ac) | Seeding Dates | Seeding Depth | |
| | | 1/4 - 1/2 in | 45 pounds (1.0 lb/1000 sf) | 90 lb/ac (2 lb/1000 sf) | 90 lb/ac (2 lb/1000 sf) |
| | | 1/4 - 1/2 in | | | 2 tons/ac (90 lb/1000 sf) |
| | | 1/4 - 1/2 in | | | |

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 manager and inspector.
- Sod must be machine cut at a uniform soil thickness of 1/4 inch, plus or minus 1/4 inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
- Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
- Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.

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 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.

3. Sod Maintenance

- In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
- After the first week, sod watering is required as necessary to maintain adequate moisture content.
- Do not mow until the sod is firmly rooted. No more than 1/2 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.

4. Sod Maintenance

- Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
- Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
- For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
- For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 1/2 pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.

5. Sod Maintenance

- 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.

i. Kentucky Bluegrass:

Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

ii. Kentucky Bluegrass/Perennial Ryegrass:

Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

iii. Tall Fescue/Kentucky Bluegrass:

Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes: Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.

iv. Kentucky Bluegrass/Fine Fescue:

Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes: Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1/2 to 3 pounds per 1000 square feet.

Notes:

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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 disk or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1/2 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 seedings with adequate water for plant growth (1/2 to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings 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): | | Fertilizer Rate (10-20-20) | | | Rate |
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| Seed Mixture (from Table B.3): | | N | P ₂ O ₅ | K ₂ O | |
| No. | Species | Application Rate (lb/ac) | Seeding Dates | Seeding Depth | |
| | | 1/4 - 1/2 in | 45 pounds (1.0 lb/1000 sf) | 90 lb/ac (2 lb/1000 sf) | 90 lb/ac (2 lb/1000 sf) |
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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 manager and inspector.
- Sod must be machine cut at a uniform soil thickness of 1/4 inch, plus or minus 1/4 inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
- Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
- Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.

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 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.

3. Sod Maintenance

- In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
- After the first week, sod watering is required as necessary to maintain adequate moisture content.
- Do not mow until the sod is firmly rooted. No more than 1/2 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.

4. Sod Maintenance

- Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
- Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
- For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
- For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 1/2 pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.

5. Sod Maintenance

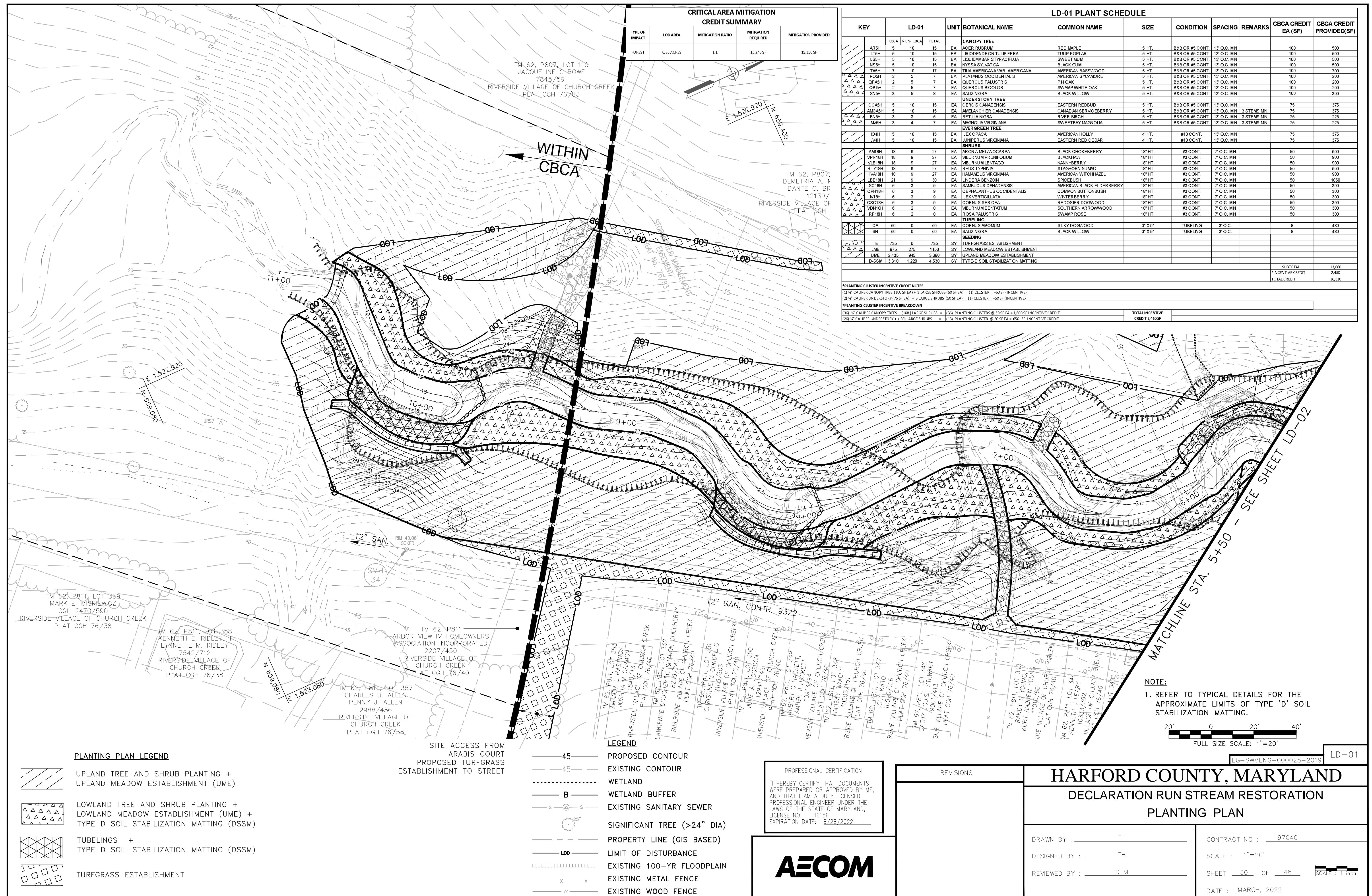
- Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
- Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.

i. Kentucky Bluegrass:

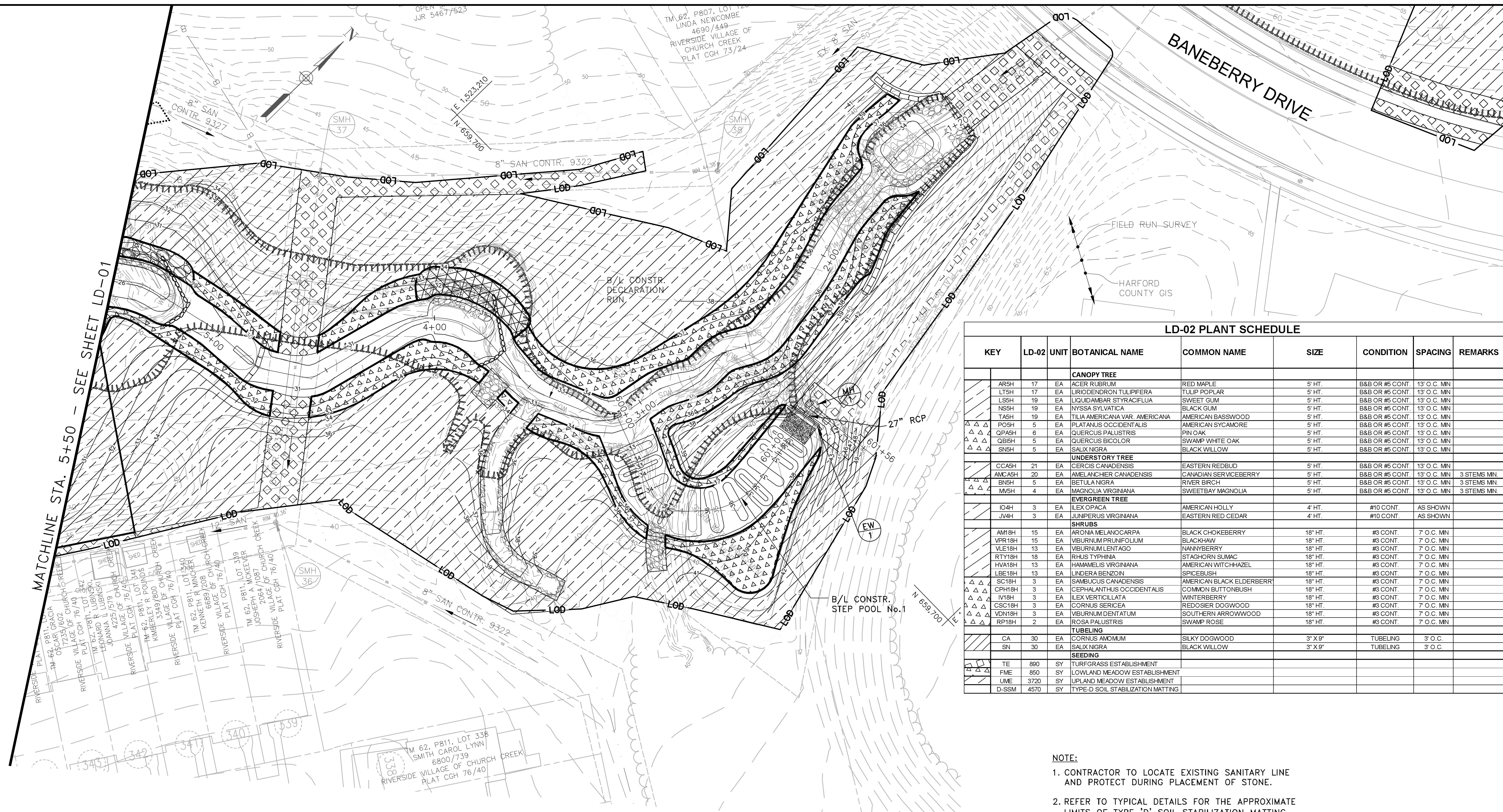
Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

ii. Kentucky Bluegrass/Perennial Ryegrass:

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



MATCHLINE STA. 5+50 - SEE SHEET LD-01



| KEY | LD-02 | UNIT | BOTANICAL NAME | COMMON NAME | SIZE | CONDITION | SPACING | REMARKS |
|------------------------|-------|------|-----------------------------------|---------------------------|---------|----------------|-------------|------------|
| CANOPY TREE | | | | | | | | |
| ARSH | 17 | EA | ACER RUBRUM | RED MAPLE | 5' HT. | B&B OR #5 CONT | 13' O.C. MN | |
| LTSH | 17 | EA | LIRIODENDRON TULIPIFERA | TULIP POPLAR | 5' HT. | B&B OR #5 CONT | 13' O.C. MN | |
| LSSH | 19 | EA | LIQUIDAMBAR STYRACIFLUA | SWEET GUM | 5' HT. | B&B OR #5 CONT | 13' O.C. MN | |
| NSSH | 19 | EA | NYSSA SYLVATICA | BLACK GUM | 5' HT. | B&B OR #5 CONT | 13' O.C. MN | |
| TASH | 19 | EA | TLIA AMERICANA VAR. AMERICANA | AMERICAN BASSWOOD | 5' HT. | B&B OR #5 CONT | 13' O.C. MN | |
| POSH | 5 | EA | PLATANUS OCCIDENTALIS | AMERICAN SycAMORE | 5' HT. | B&B OR #5 CONT | 13' O.C. MN | |
| QPAH | 6 | EA | QUERCUS PALUSTRIS | PIN OAK | 5' HT. | B&B OR #5 CONT | 13' O.C. MN | |
| QBH | 5 | EA | QUERCUS BICOLOR | SWAMP WHITE OAK | 5' HT. | B&B OR #5 CONT | 13' O.C. MN | |
| SNSH | 5 | EA | SALIX NIGRA | BLACK WILLOW | 5' HT. | B&B OR #5 CONT | 13' O.C. MN | |
| UNDERSTORY TREE | | | | | | | | |
| CCAH | 21 | EA | CERCIS CANADENSIS | EASTERN REDBUD | 5' HT. | B&B OR #5 CONT | 13' O.C. MN | |
| AMCAH | 20 | EA | AMELANCHIER CANADENSIS | CANADIAN SERVICEBERRY | 5' HT. | B&B OR #5 CONT | 13' O.C. MN | 3 STEMS MN |
| BNSH | 5 | EA | BETULA NIGRA | RIVER BIRCH | 5' HT. | B&B OR #5 CONT | 13' O.C. MN | 3 STEMS MN |
| MVSH | 4 | EA | MAGNOLIA VIRGINIANA | SWEETBAY MAGNOLIA | 5' HT. | B&B OR #5 CONT | 13' O.C. MN | 3 STEMS MN |
| IOAH | 3 | EA | ILEX OPACA | AMERICAN HOLLY | 4' HT. | #10 CONT. | AS SHOWN | |
| JVAH | 3 | EA | JUNIPERUS VIRGINIANA | EASTERN RED CEDAR | 4' HT. | #10 CONT. | AS SHOWN | |
| SHRUBS | | | | | | | | |
| AM18H | 15 | EA | ARONIA MELANOCARPA | BLACK CHokeBERRY | 18" HT. | #3 CONT. | 7 O.C. MN | |
| VPR18H | 15 | EA | VIBURNUM PRUNIFOLIUM | BLACKHAW | 18" HT. | #3 CONT. | 7 O.C. MN | |
| VLE18H | 13 | EA | VIBURNUM LENTAGO | NANNYBERRY | 18" HT. | #3 CONT. | 7 O.C. MN | |
| RTY18H | 18 | EA | RHUS TYPHINA | STAGHORN SUMAC | 18" HT. | #3 CONT. | 7 O.C. MN | |
| HVA18H | 13 | EA | HAMMELIS VIRGINIANA | AMERICAN WITCHHAZEL | 18" HT. | #3 CONT. | 7 O.C. MN | |
| LBE18H | 13 | EA | LINDERA BENZIN | SPICEBUSH | 18" HT. | #3 CONT. | 7 O.C. MN | |
| SC18H | 3 | EA | SAMBUCUS CANADENSIS | AMERICAN BLACK ELDERBERRY | 18" HT. | #3 CONT. | 7 O.C. MN | |
| CPH18H | 3 | EA | CEPHALANTHUS OCCIDENTALIS | COMMON BUTTONBUSH | 18" HT. | #3 CONT. | 7 O.C. MN | |
| IV18H | 3 | EA | ILEX VERTICILLATA | WINTERBERRY | 18" HT. | #3 CONT. | 7 O.C. MN | |
| CSC18H | 3 | EA | CORNUS SERICEA | REDOSIER DOGWOOD | 18" HT. | #3 CONT. | 7 O.C. MN | |
| VDN18H | 3 | EA | VIBURNUM DENTATUM | SOUTHERN ARROWWOOD | 18" HT. | #3 CONT. | 7 O.C. MN | |
| RP18H | 2 | EA | SWAMP ROSA | SWAMP ROSE | 18" HT. | #3 CONT. | 7 O.C. MN | |
| TUBELING | | | | | | | | |
| CA | 30 | EA | CORNUS AMOMUM | SILKY DOGWOOD | 3" X 9" | TUBELING | 3' O.C. | |
| SN | 30 | EA | SALIX NIGRA | BLACK WILLOW | 3" X 9" | TUBELING | 3' O.C. | |
| SEEDING | | | | | | | | |
| TE | 890 | SY | TURFGRASS ESTABLISHMENT | | | | | |
| FME | 850 | SY | LOWLAND MEADOW ESTABLISHMENT | | | | | |
| UME | 3720 | SY | UPLAND MEADOW ESTABLISHMENT | | | | | |
| D-SSM | 4570 | SY | TYPE-D SOIL STABILIZATION MATTING | | | | | |

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.

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

LD-02 EG-SWMENG-000025-2019

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION

PLANTING PLAN

DRAWN BY: TH

DESIGNED BY: TH

REVIEWED BY: DTM

CONTRACT NO: 97040

SCALE: 1"=20'

DATE: MARCH, 2022

SCALE: 1 inch

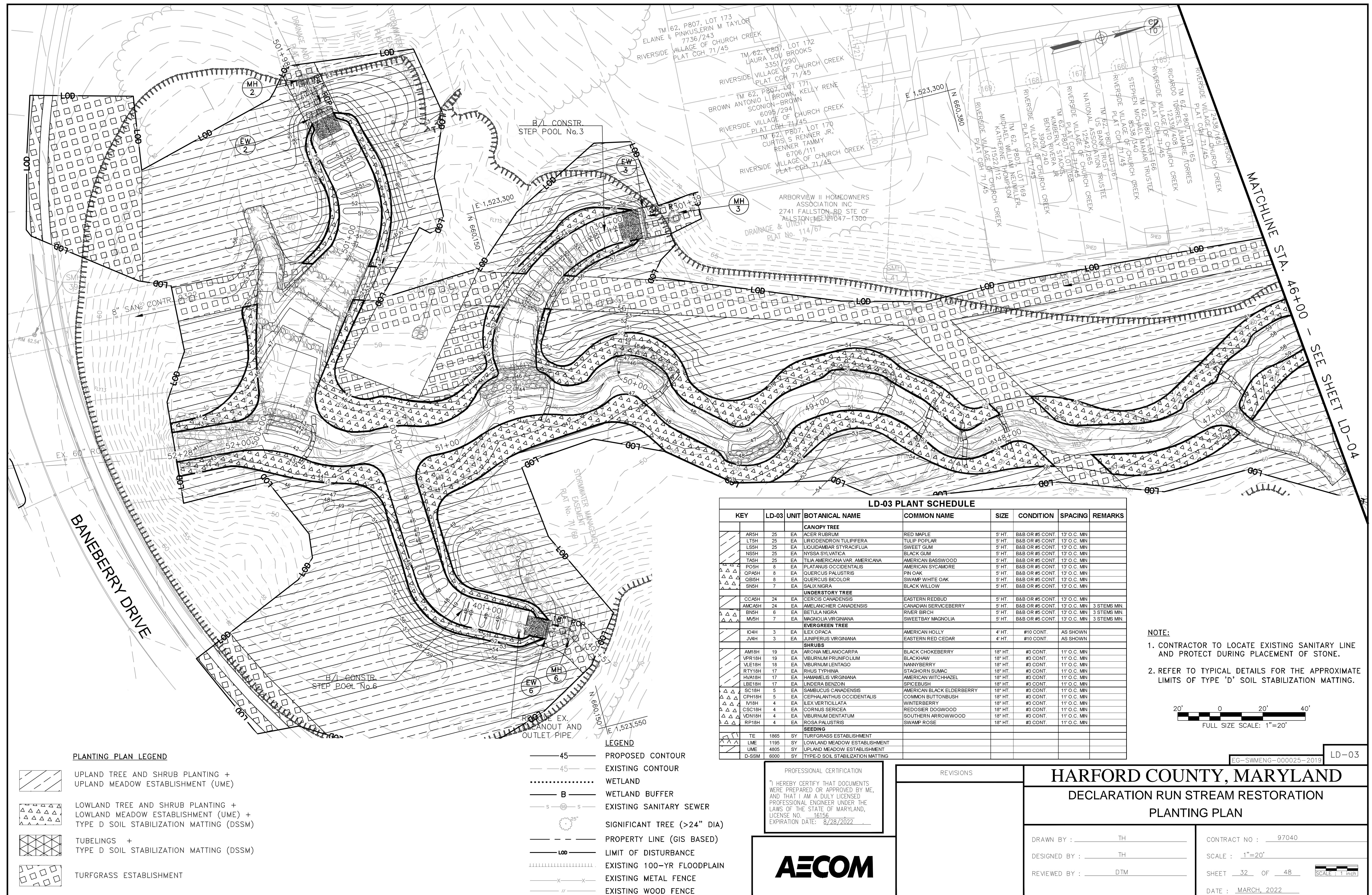
LEGEND

- 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. 16156
EXPIRATION DATE: 8/28/2022"

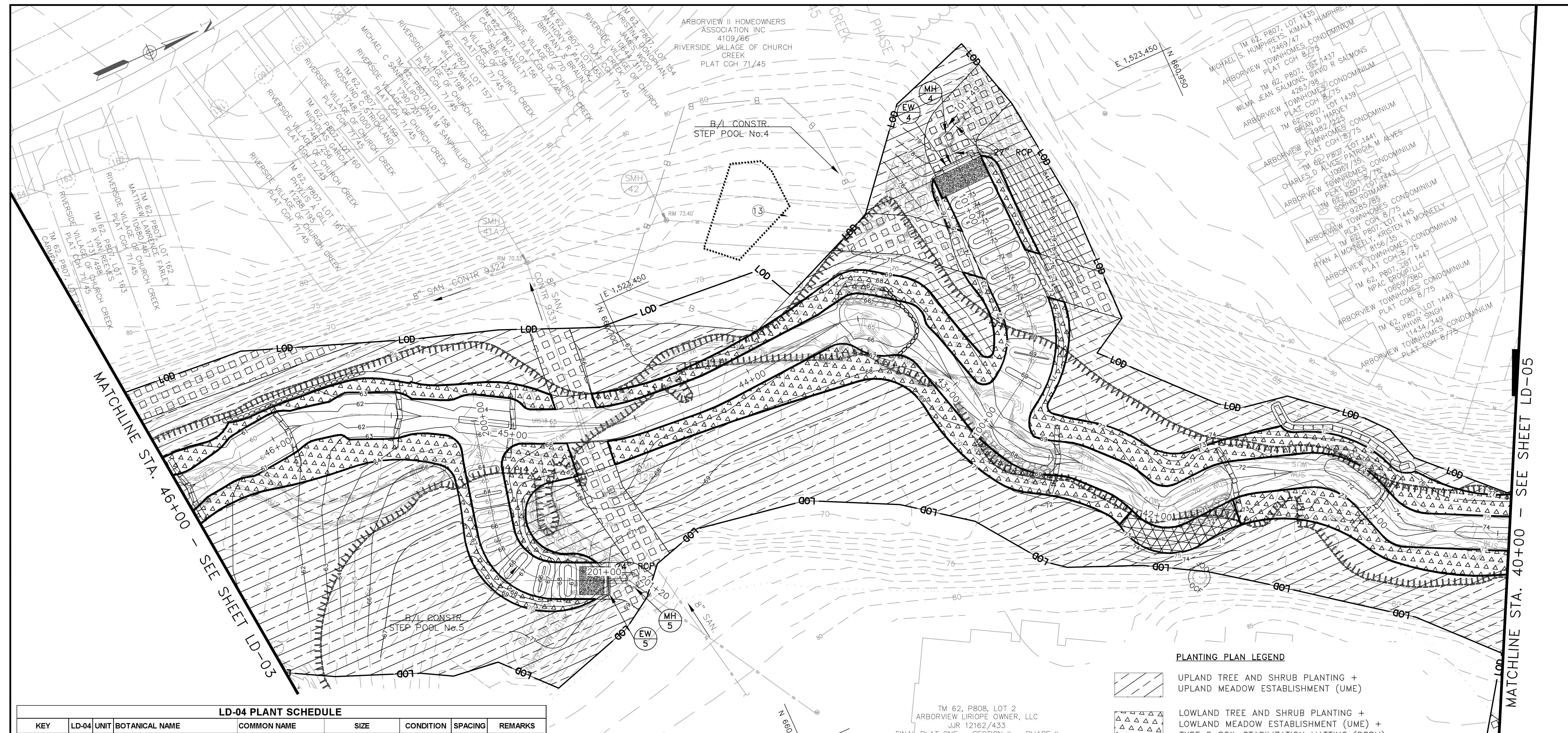
AECOM

REVISIONS



FILE NAME: L:\DCS\Projects\H\HaCo\60483342\CAD\PlanSet\LD-01.dwg LAYOUT NAME: LD-03 PLOTTED: Wednesday, March 09, 2022 – 11:11am USER: chris.flemire

FILE NAME: L:\DCS\Projects\H\HaCo\60483342\CAD\PlanSet\LD-01.dwg LAYOUT NAME: LD-03 PLOTTED: Wednesday, March 09, 2022 – 11:11am USER: chris.flemire



| LD-04 PLANT SCHEDULE | | | | | | | | |
|------------------------|-------|------|-----------------------------------|---------------------------|---------|-----------------|--------------|-------------|
| KEY | LD-04 | UNIT | BOTANICAL NAME | COMMON NAME | SIZE | CONDITION | SPACING | REMARKS |
| CANOPY TREE | | | | | | | | |
| ARSH | 15 | EA | ACER RUBRUM | RED MAPLE | 5' HT. | B&B OR #5 CONT. | 13' O.C. MIN | |
| LTSH | 15 | EA | LIRIODENDRON TULIPIFERA | TULIP POPLAR | 5' HT. | B&B OR #5 CONT. | 13' O.C. MIN | |
| LSSH | 18 | EA | LIQUIDAMBAR STYRACIFLUA | SWEET GUM | 5' HT. | B&B OR #5 CONT. | 13' O.C. MIN | |
| NSSH | 17 | EA | NYSSA SYLVATICA | BLACK GUM | 5' HT. | B&B OR #5 CONT. | 13' O.C. MIN | |
| TASH | 17 | EA | TILIA AMERICANA VAR. AMERICANA | AMERICAN BASSWOOD | 5' HT. | B&B OR #5 CONT. | 13' O.C. MIN | |
| POSH | 8 | EA | PLATANUS OCCIDENTALIS | AMERICAN Sycamore | 5' HT. | B&B OR #5 CONT. | 13' O.C. MIN | |
| QPASH | 8 | EA | QUERCUS PALUSTRIS | PIN OAK | 5' HT. | B&B OR #5 CONT. | 13' O.C. MIN | |
| QBHH | 8 | EA | QUERCUS BICOLOR | SWAMP WHITE OAK | 5' HT. | B&B OR #5 CONT. | 13' O.C. MIN | |
| SNSH | 8 | EA | SALIX NIGRA | BLACK WILLOW | 5' HT. | B&B OR #5 CONT. | 13' O.C. MIN | |
| UNDERSTORY TREE | | | | | | | | |
| CCASH | 20 | EA | CERCIS CANADENSIS | EASTERN REDBUD | 5' HT. | B&B OR #5 CONT. | 13' O.C. MIN | |
| AMCASH | 20 | EA | AMELANCHIER CANADENSIS | CANADIAN SERVICEBERRY | 5' HT. | B&B OR #5 CONT. | 13' O.C. MIN | 3 STEMS MIN |
| BNSH | 7 | EA | BETULANIGRA | RIVER BIRCH | 5' HT. | B&B OR #5 CONT. | 13' O.C. MIN | 3 STEMS MIN |
| MVSH | 6 | EA | MAGNOLIA VIRGINIANA | SWEETBAY MAGNOLIA | 5' HT. | B&B OR #5 CONT. | 13' O.C. MIN | 3 STEMS MIN |
| EVERGREEN TREE | | | | | | | | |
| IO4H | 3 | EA | ILEX OPACA | AMERICAN HOLLY | 4' HT. | #10 CONT. | AS SHOWN | |
| JV4H | 3 | EA | JUNIPERUS VIRGINIANA | EASTERN RED CEDAR | 4' HT. | #10 CONT. | AS SHOWN | |
| SHRUBS | | | | | | | | |
| AM18H | 13 | EA | ARONIA MELANOCARPA | BLACK CHokeBERRY | 18' HT. | #3 CONT. | 7' O.C. MIN | |
| VPR18H | 13 | EA | VIBURNUM PRUNIFOLIUM | BLACKHAW | 18' HT. | #3 CONT. | 7' O.C. MIN | |
| VLE18H | 13 | EA | VIBURNUM LENTAGO | NANNYBERRY | 18' HT. | #3 CONT. | 7' O.C. MIN | |
| RTY18H | 13 | EA | RHUS TYPHINA | STAGHORN SUMAC | 18' HT. | #3 CONT. | 7' O.C. MIN | |
| HVA18H | 13 | EA | HAMAMELIS VIRGINIANA | AMERICAN WITCHHAZEL | 18' HT. | #3 CONT. | 7' O.C. MIN | |
| LBE18H | 15 | EA | LINDERA BENZIN | SPICEBUSH | 18' HT. | #3 CONT. | 7' O.C. MIN | |
| SC18H | 5 | EA | SAMBucus CANADensis | AMERICAN BLACK ELDERBERRY | 18' HT. | #3 CONT. | 7' O.C. MIN | |
| CPH18H | 5 | EA | CEPHALANTHUS OCCIDENTALIS | COMMON BUTTONBUSH | 18' HT. | #3 CONT. | 7' O.C. MIN | |
| IV18H | 5 | EA | ILEX VERTICILLATA | WINTERBERRY | 18' HT. | #3 CONT. | 7' O.C. MIN | |
| CSC18H | 5 | EA | CORNUS SERICEA | REDOSIER DOGWOOD | 18' HT. | #3 CONT. | 7' O.C. MIN | |
| VDN18H | 5 | EA | VIBURNUM DENTATUM | SOUTHERN ARROWWOOD | 18' HT. | #3 CONT. | 7' O.C. MIN | |
| RP18H | 2 | EA | ROSA PALUSTRIS | SWAMP ROSE | 18' HT. | #3 CONT. | 7' O.C. MIN | |
| TUBELING | | | | | | | | |
| CA | 30 | EA | CORNUS AMMUM | SILKY DOGWOOD | 3' X 9" | TUBELING | 3' O.C. | |
| SN | 30 | EA | SALIX NIGRA | BLACK WILLOW | 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

- 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. 16156
EXPIRATION DATE: 8/28/2022"

REVISIONS

HARFORD COUNTY, MARYLAND
DECLARATION RUN STREAM RESTORATION
PLANTING PLAN

| | |
|-------------------|---------------------|
| DRAWN BY : TH | CONTRACT NO : 97040 |
| DESIGNED BY : TH | SCALE : 1"=20' |
| REVIEWED BY : DTM | DATE : MARCH, 2022 |
| SHEET 33 OF 48 | SCALE : 1 inch |

AECOM

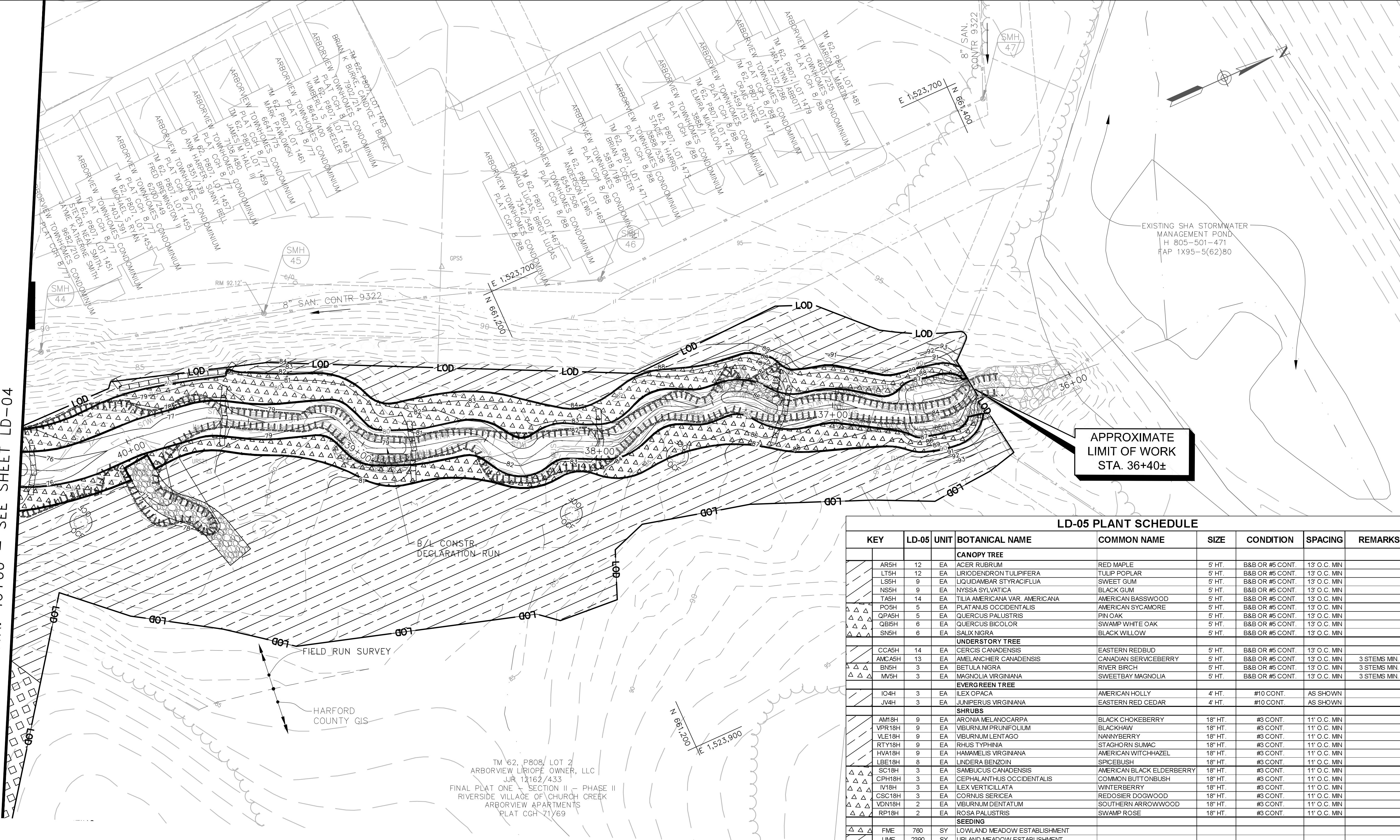
TM 62, P808, LOT 2
ARBORVIEW LIRIOP, OWNER, LLC
JUR 12162/433
FINAL PLAT ONE – SECTION II – PHASE II
RIVERSIDE VILLAGE OF CHURCH CREEK
ARBORVIEW APARTMENTS
PLAT CGH 71/69

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

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

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



MASTER PLANT SCHEDULE

| 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 | |
| BN5H | 3 | 3 | 5 | 6 | 7 | 3 | 27 | EA | BETULA NIGRA | | RIVER BIRCH | 5' HT. | B&B OR #5 CONT. | 13' O.C. MIN | |
| MV5H | 3 | 4 | 4 | 7 | 6 | 3 | 27 | EA | MAGNOLIA VIRGINIANA | | SWEETBAY MAGNOLIA | 5' HT. | B&B OR #5 CONT. | 13' O.C. 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 | |
| IV18H | 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 | | | | | | |

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 | 36.3 | | | |
| | GRAM/SY | LB/AC | | | |

UPLAND MEADOW ESTABLISHMENT

| SPECIES | APPLICATION RATE GRAM PER SY | APPLICATION RATE (LB/AC) | SEEDING DATES | SEEDING DEPTH | FERTILIZER AND LIME |
|-------------------------------------|---------------------------------|-----------------------------|--|---------------|--|
| FORBS | | | | | |
| 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 | 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 |

TURFGRASS ESTABLISHMENT

HARDINESS ZONE: ZONE 6B 0° TO -5°

HARDNESS 20 SEED MIXTURE

| 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 | | | | |

| | |
|--|--|
| PROFESSIONAL CERTIFICATION | |
| <p>"I HEREBY CERTIFY THAT DOCUMENTS WERE PREPARED OR APPROVED BY <u>ME</u> AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. <u>16156</u>, EXPIRATION DATE: <u>8/28/2022</u>.</p> | |

AECOM

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION

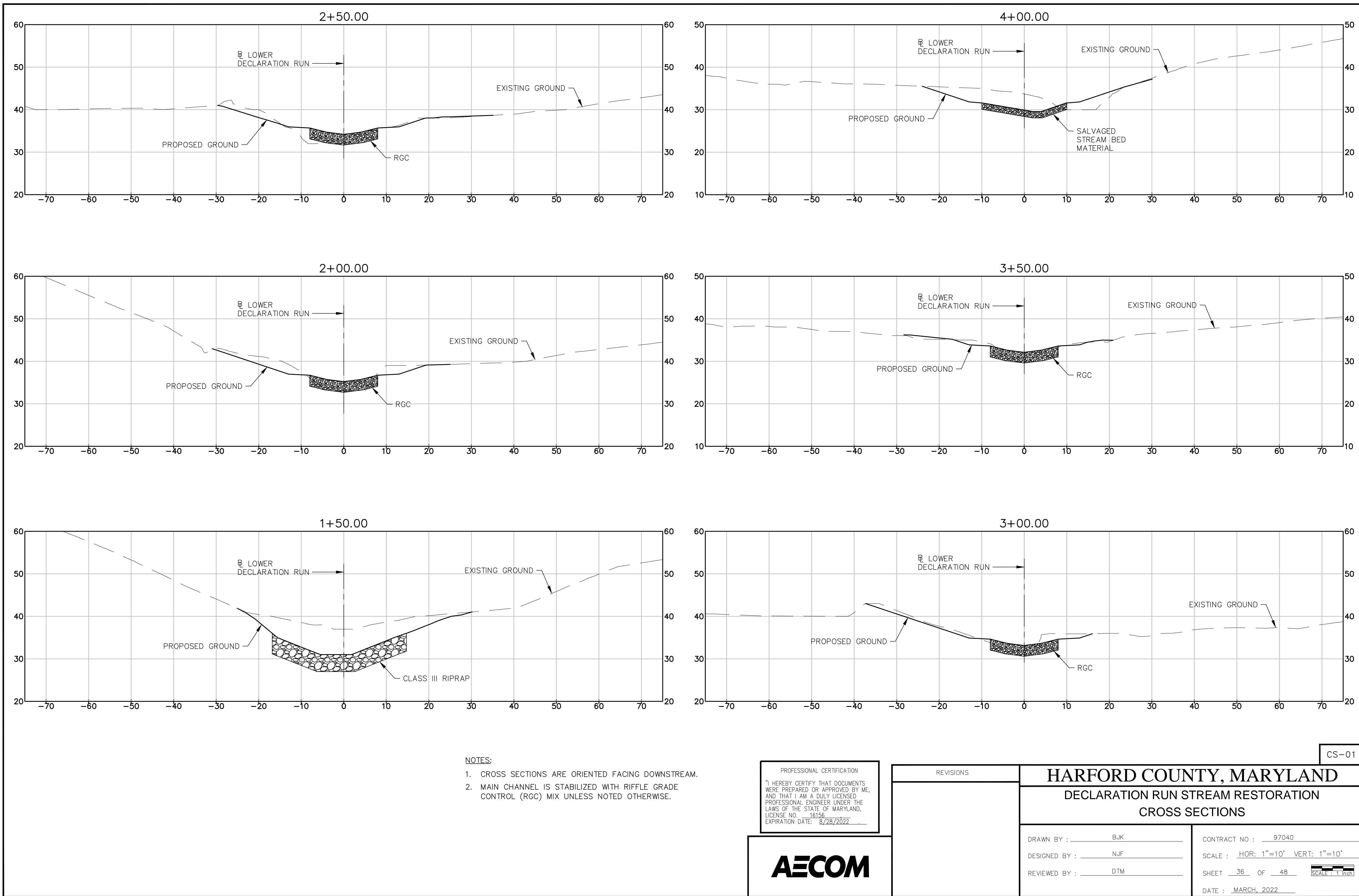
PLANTING NOTES AND SCHEDULES

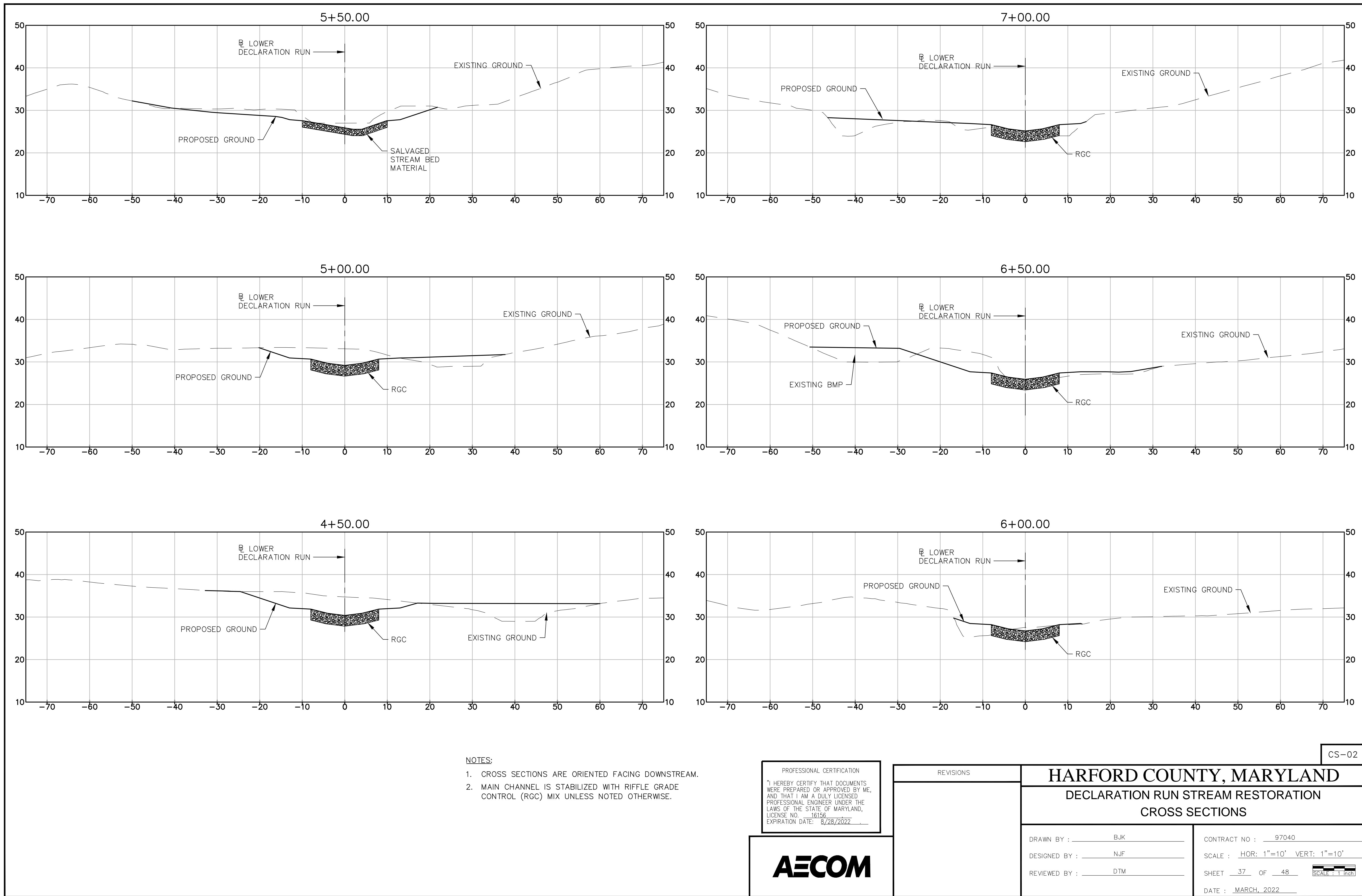
CONTRACT NO :

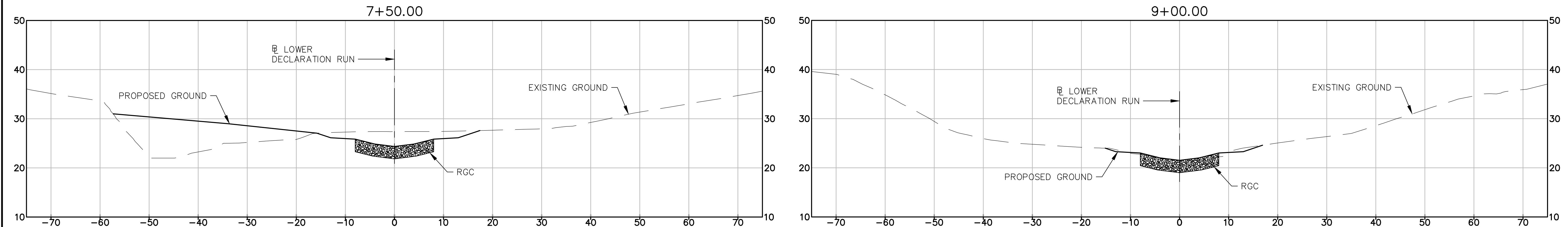
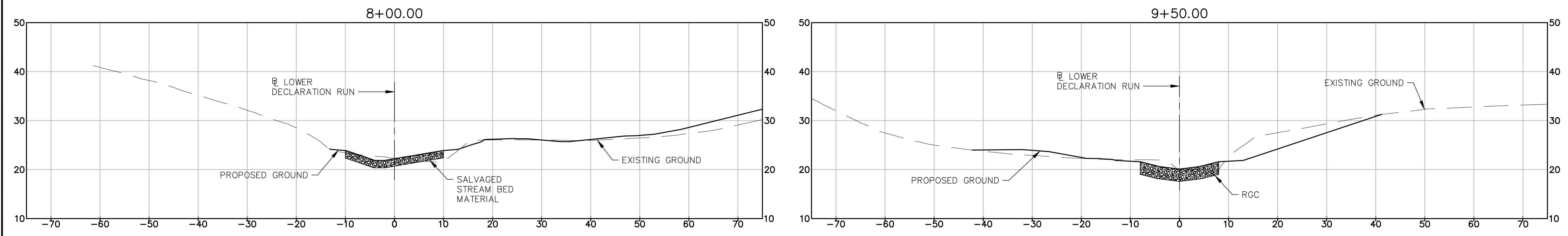
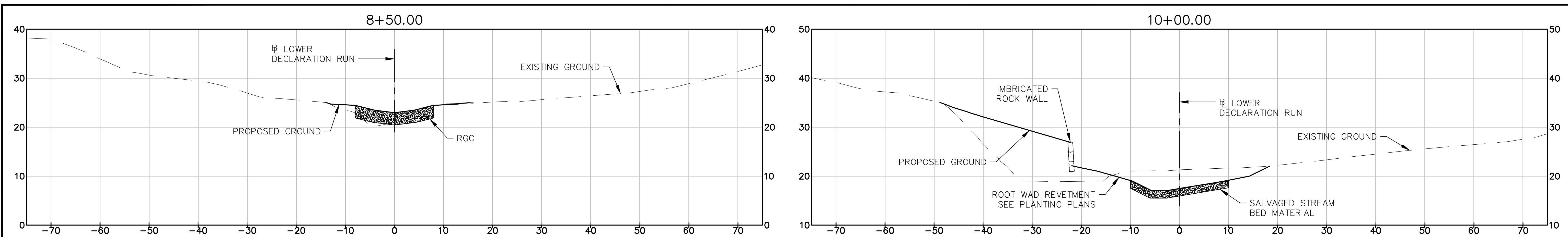
SCALE : 1"=20'

SHEET 35 OF 48

DATE : MARCH, 2022







NOTES:

1. CROSS SECTIONS ARE ORIENTED FACING DOWNSTREAM.
2. MAIN CHANNEL IS STABILIZED WITH RIFFLE GRADE CONTROL (RGC) MIX UNLESS NOTED OTHERWISE.

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. 16156
EXPIRATION DATE: 8/28/2022"

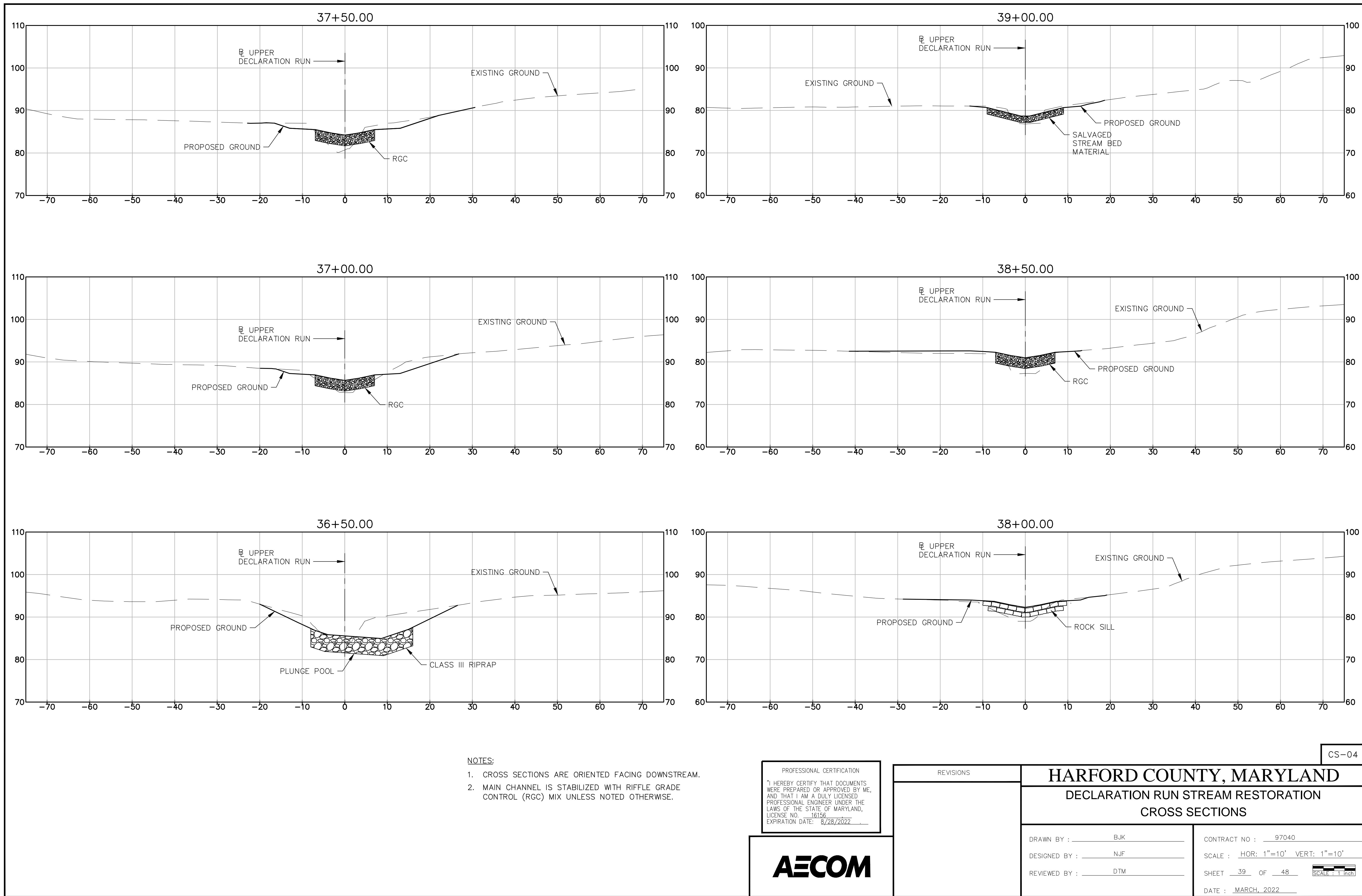
AECOM

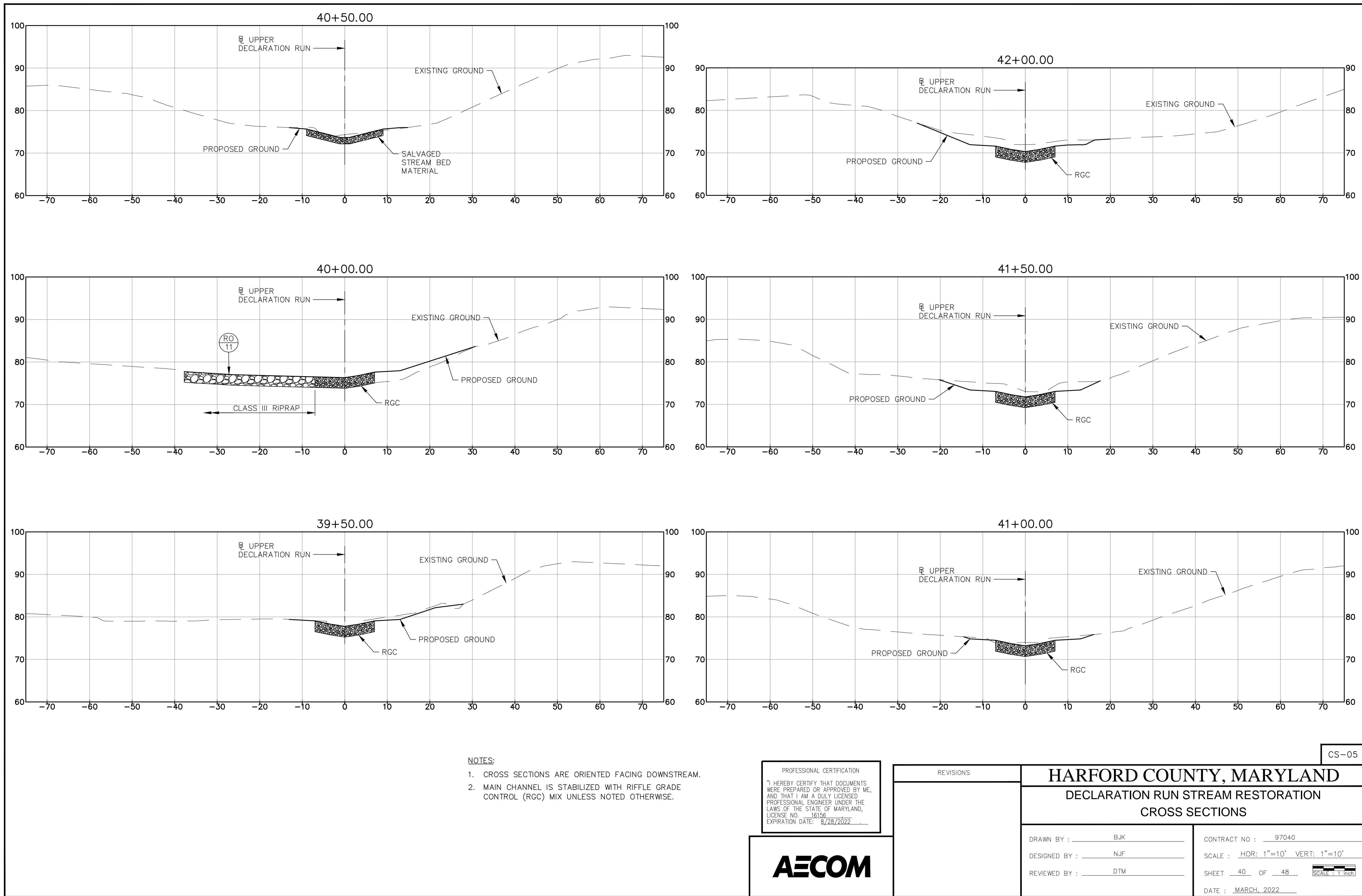
| |
|------------------|
| REVISIONS |
| DRAWN BY: BJK |
| DESIGNED BY: NJF |
| REVIEWED BY: DTM |

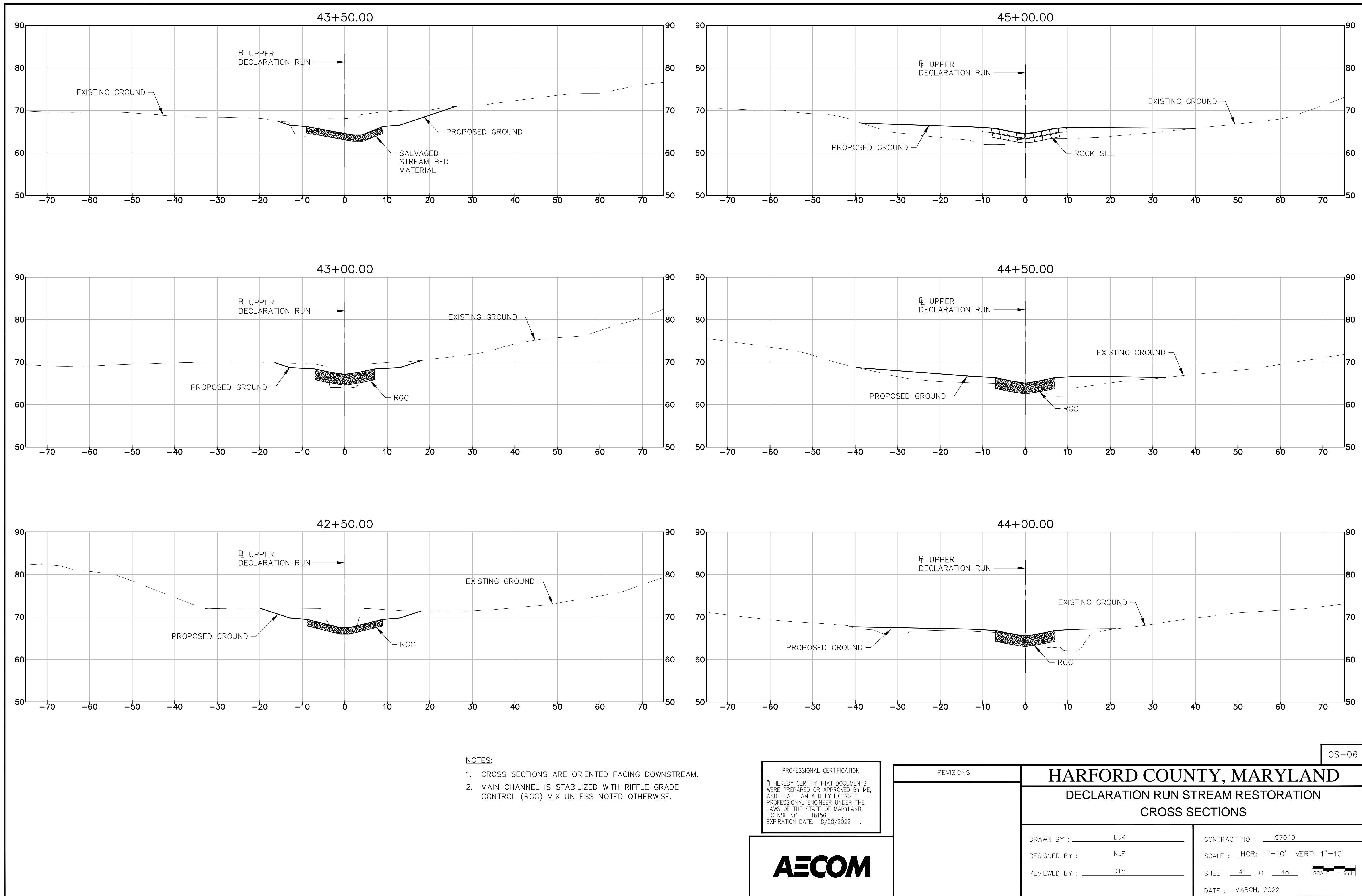
| |
|---------------------------------|
| CONTRACT NO.: 97040 |
| SCALE: HOR: 1"=10' VERT: 1"=10' |
| SHEET 38 OF 48 |
| DATE: MARCH, 2022 |

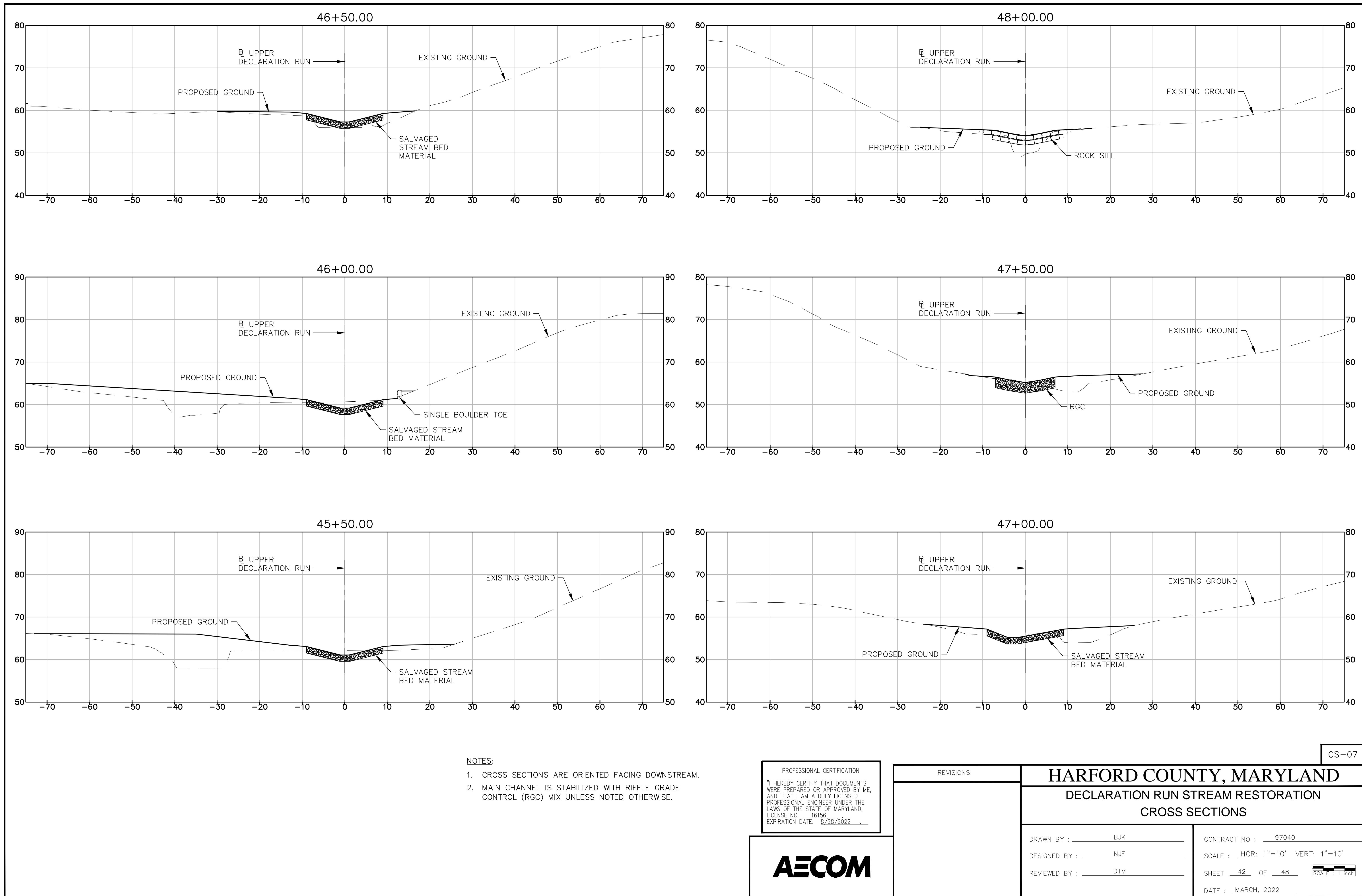
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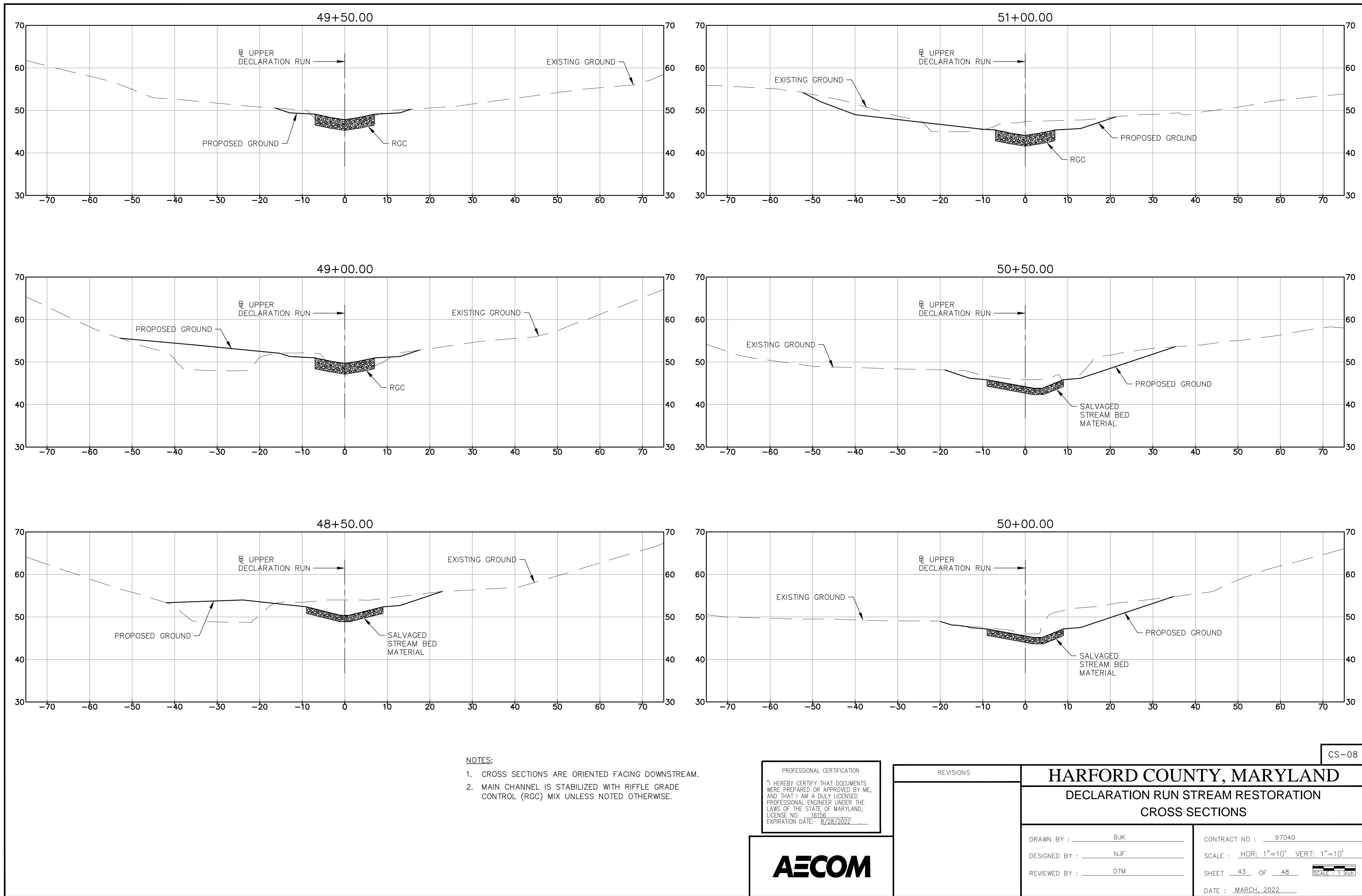
HARFORD COUNTY, MARYLAND
DECLARATION RUN STREAM RESTORATION
CROSS SECTIONS

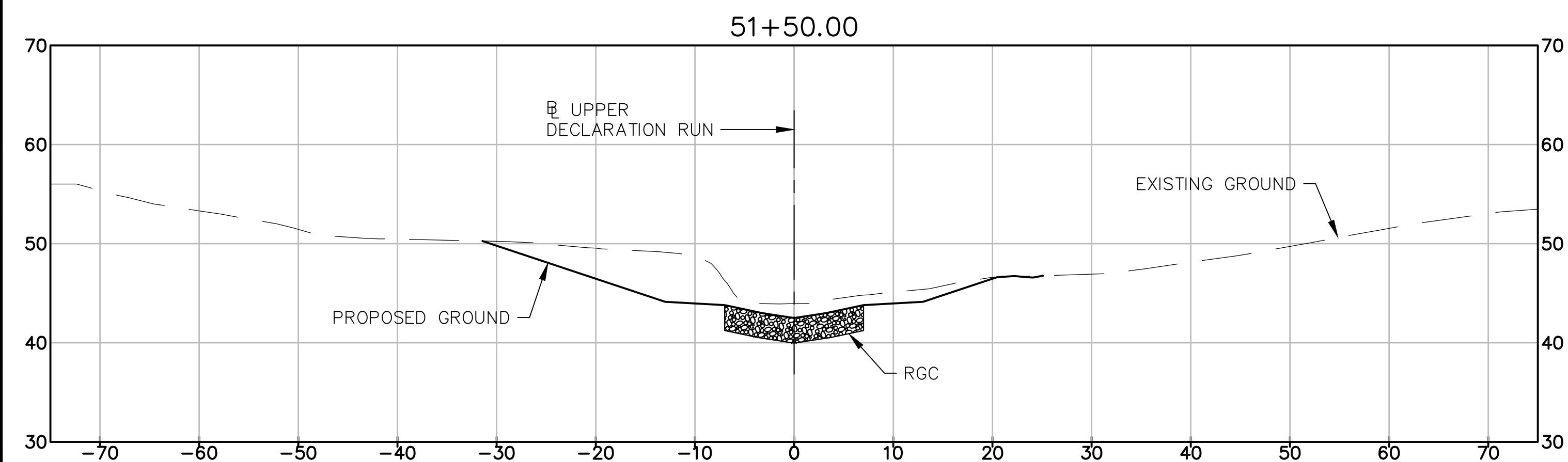
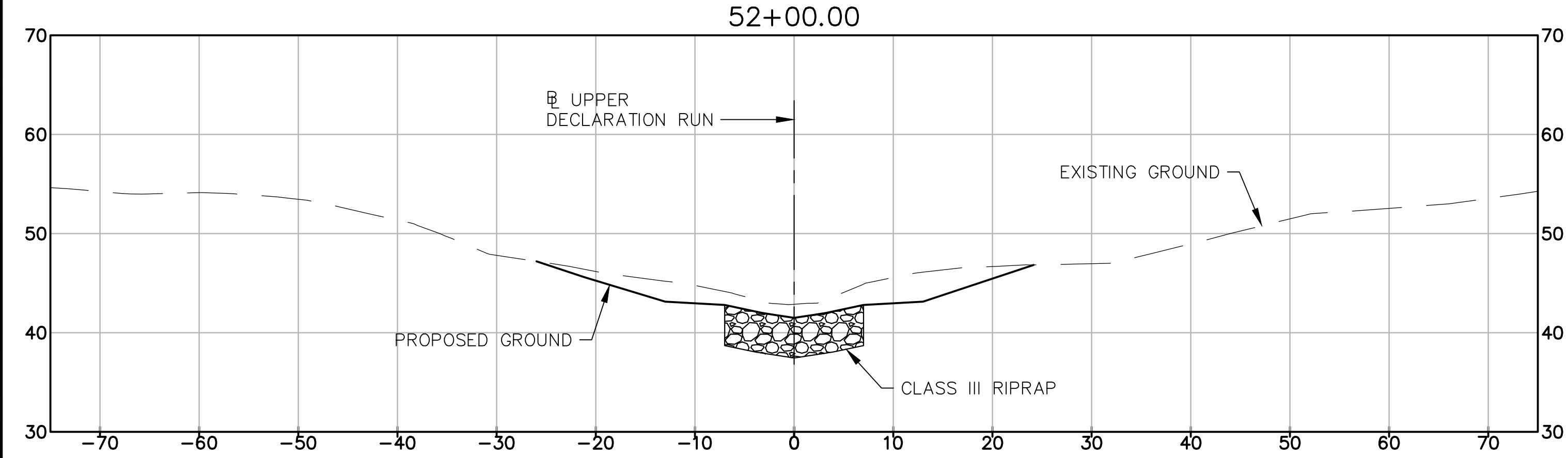












NOTES:

1. CROSS SECTIONS ARE ORIENTED FACING UPSTREAM.
2. MAIN CHANNEL IS STABILIZED WITH RIFFLE GRADE CONTROL (RGC) MIX UNLESS NOTED OTHERWISE.

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. 16156
EXPIRATION DATE: 8/28/2022

AECOM

REVISIONS

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION
CROSS SECTIONS

DRAWN BY : BJK

DESIGNED BY : NJF

REVIEWED BY : DTM

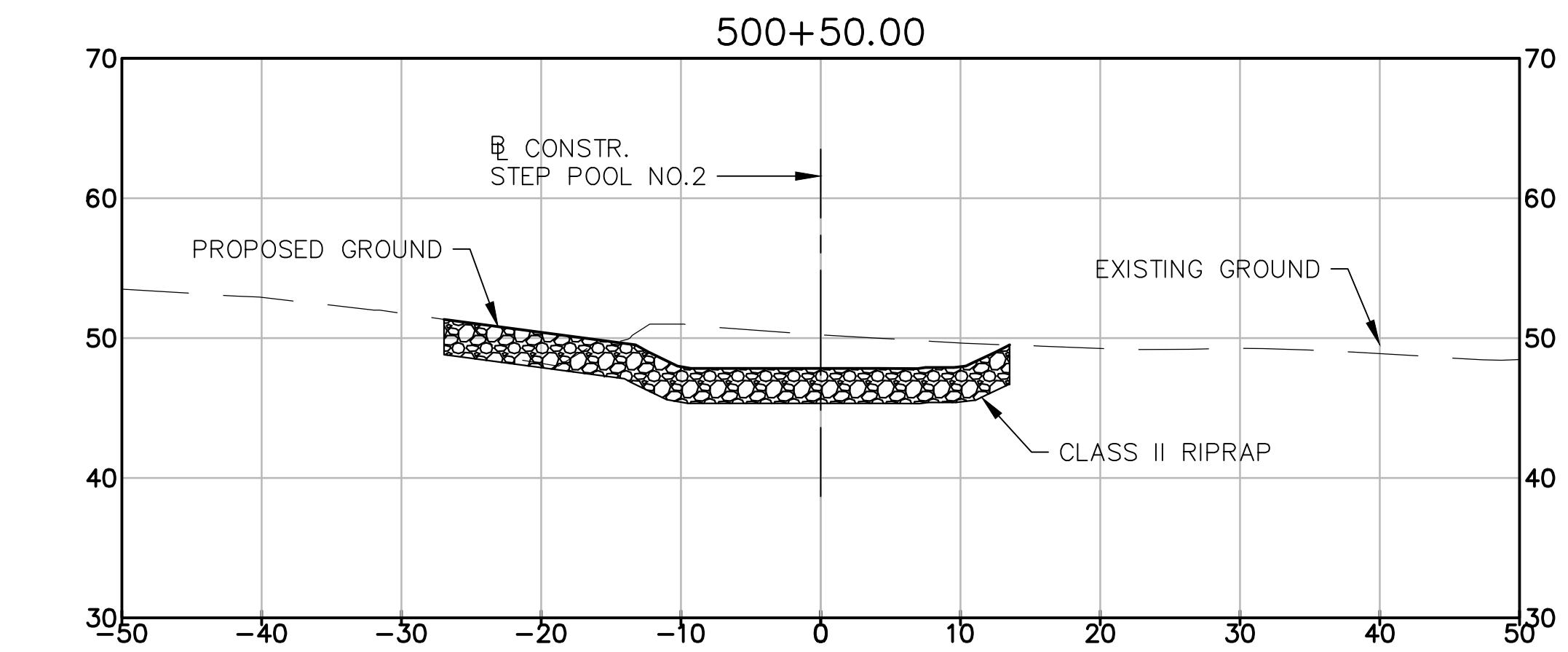
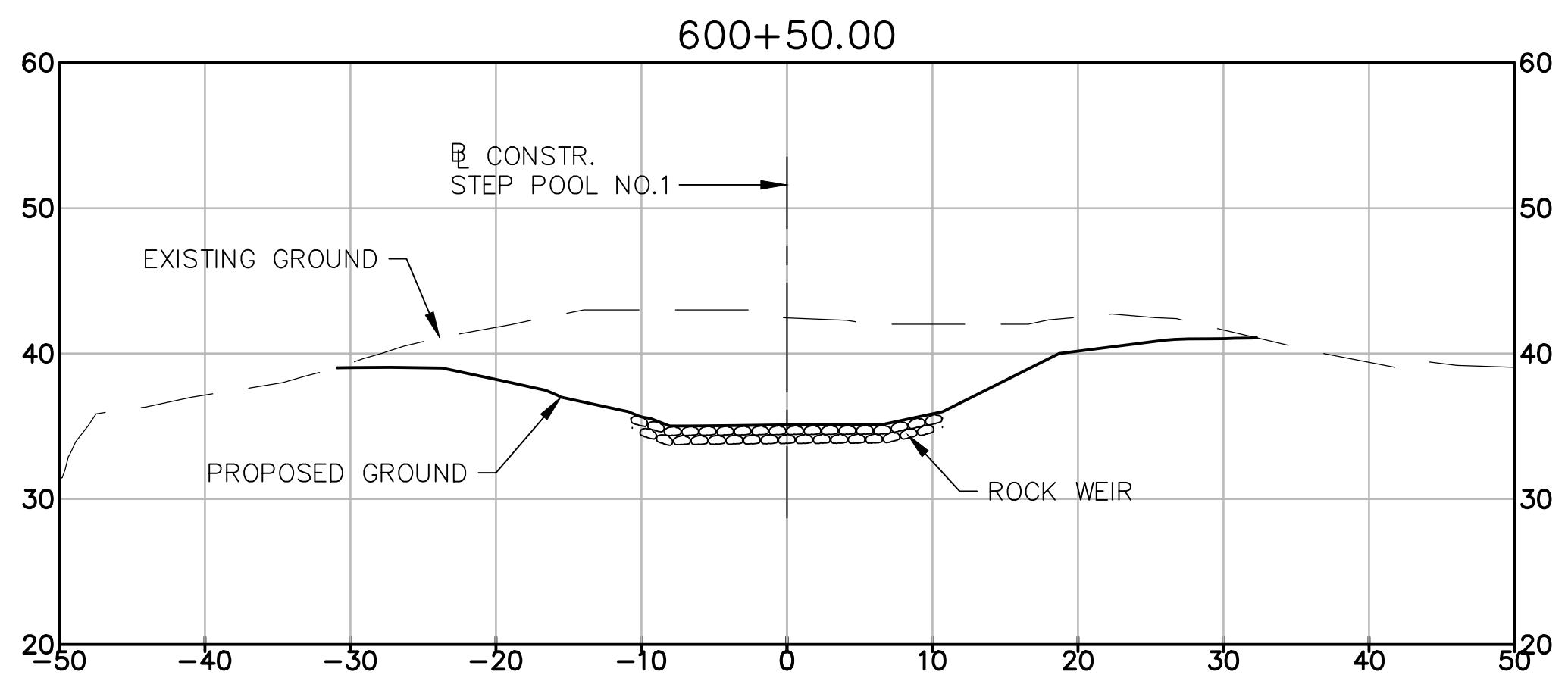
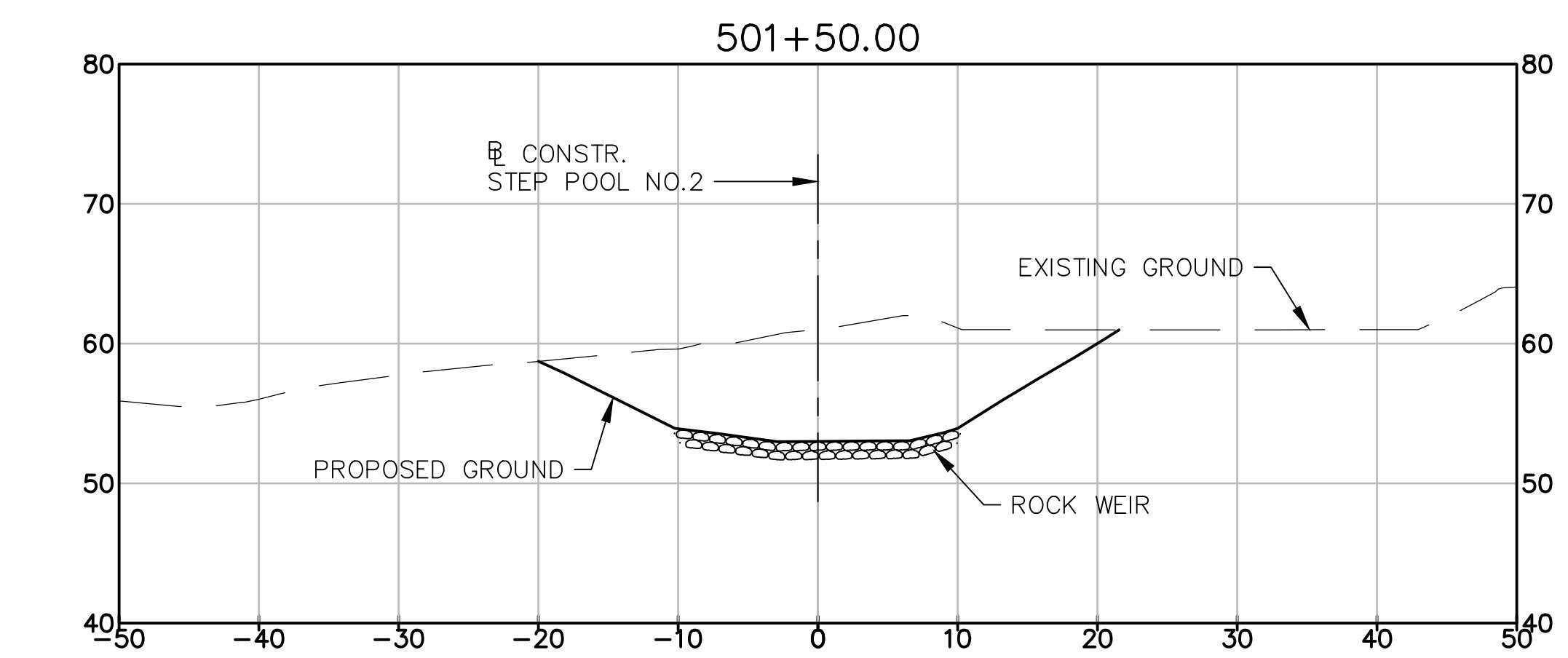
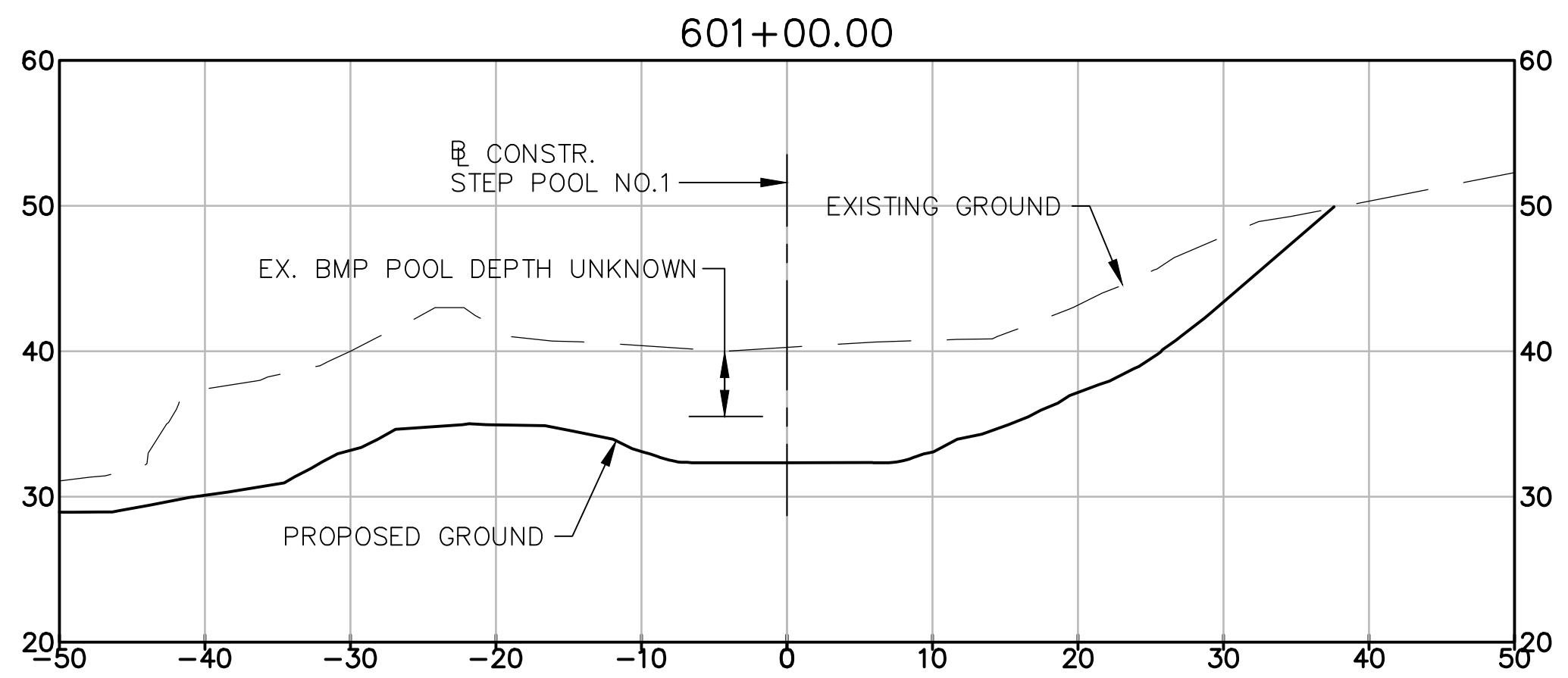
CONTRACT NO : 97040

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

SHEET 44 OF 48

SCALE : 1 inch

DATE : MARCH, 2022



NOTES:

1. CROSS SECTIONS ARE ORIENTED FACING UPSTREAM.

PROFESSIONAL CERTIFICATION

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EXPIRATION DATE: 8/28/2022"

AECOM

REVISIONS

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION
CROSS SECTIONS

DRAWN BY: BJK

DESIGNED BY: NJF

REVIEWED BY: DTM

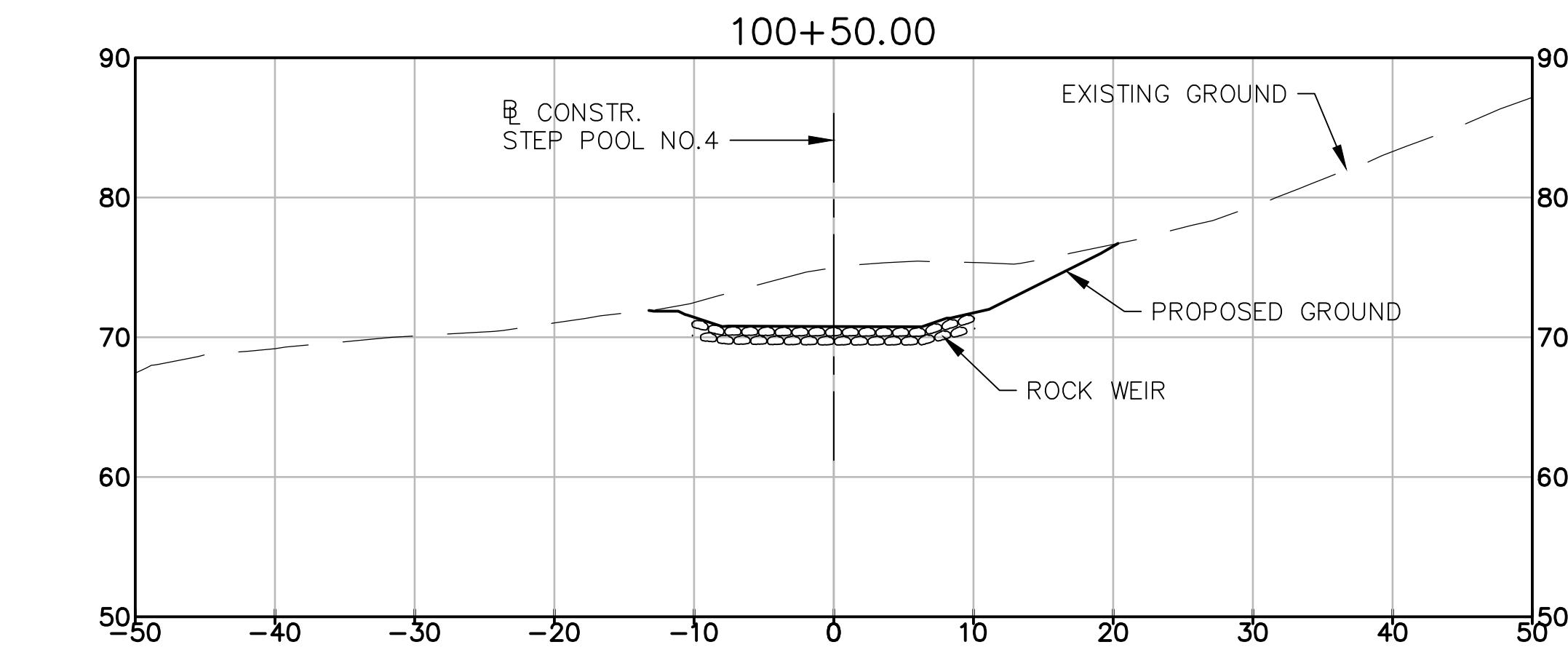
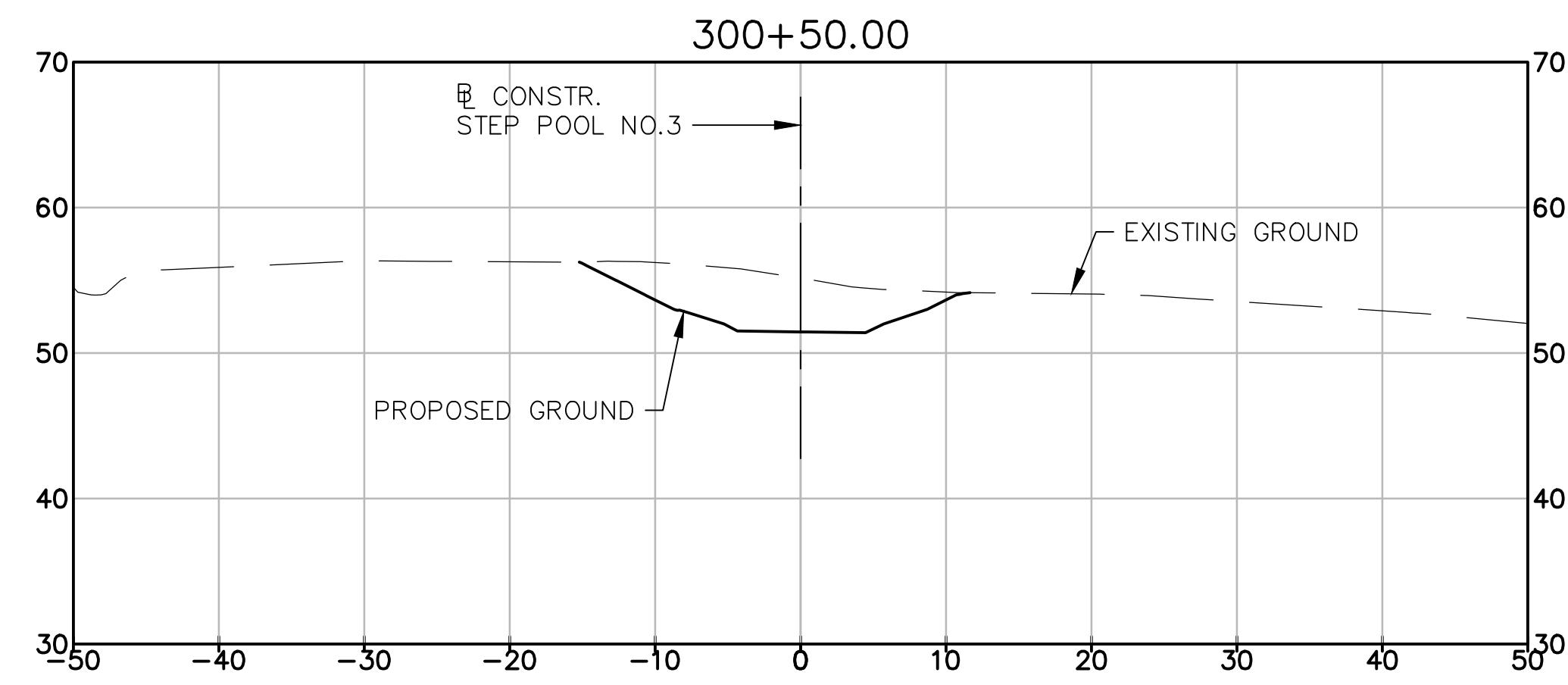
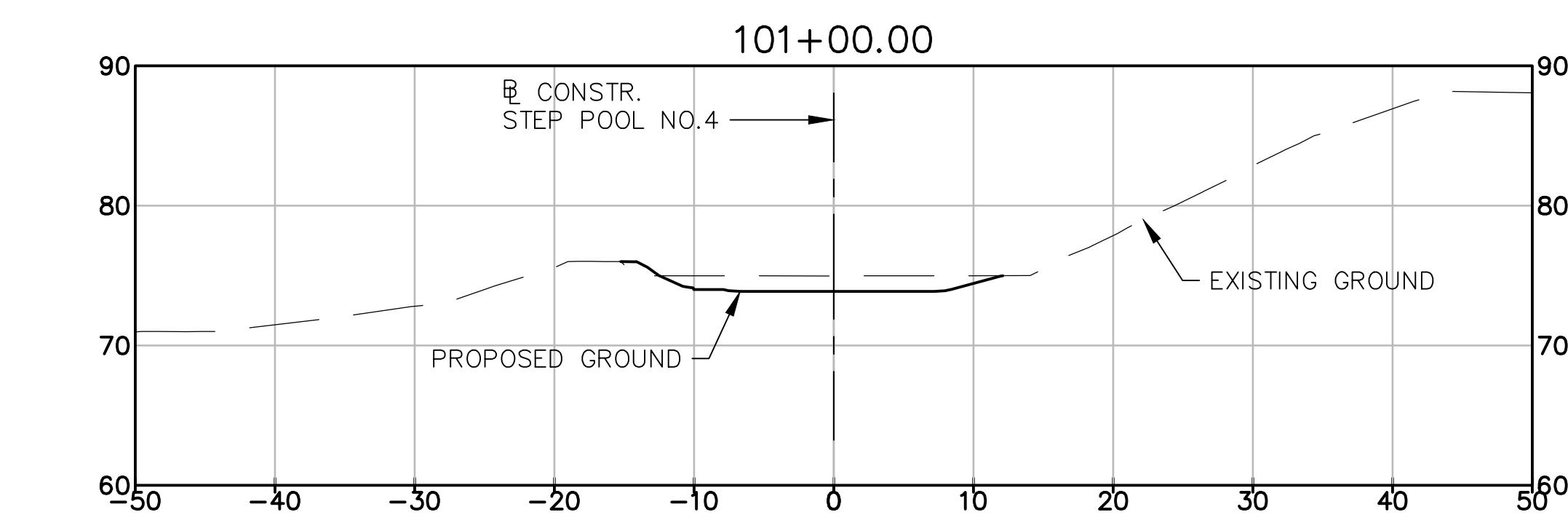
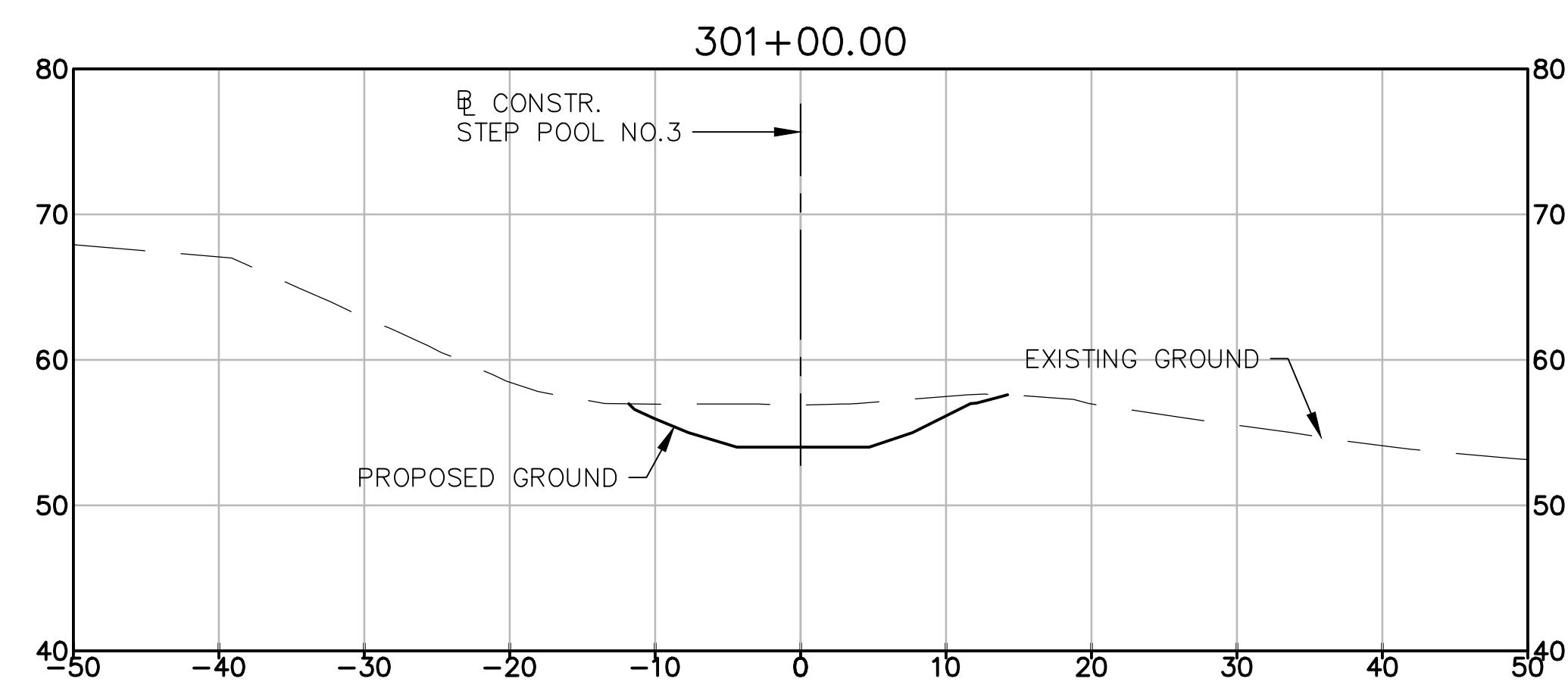
CONTRACT NO: 97040

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

SHEET 45 OF 48

SCALE: 1 inch

DATE: MARCH, 2022



NOTES:

- CROSS SECTIONS ARE ORIENTED FACING UPSTREAM.

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AECOM

REVISIONS

HARFORD COUNTY, MARYLAND

**DECLARATION RUN STREAM RESTORATION
CROSS SECTIONS**

DRAWN BY: BJK

DESIGNED BY: NJF

REVIEWED BY: DTM

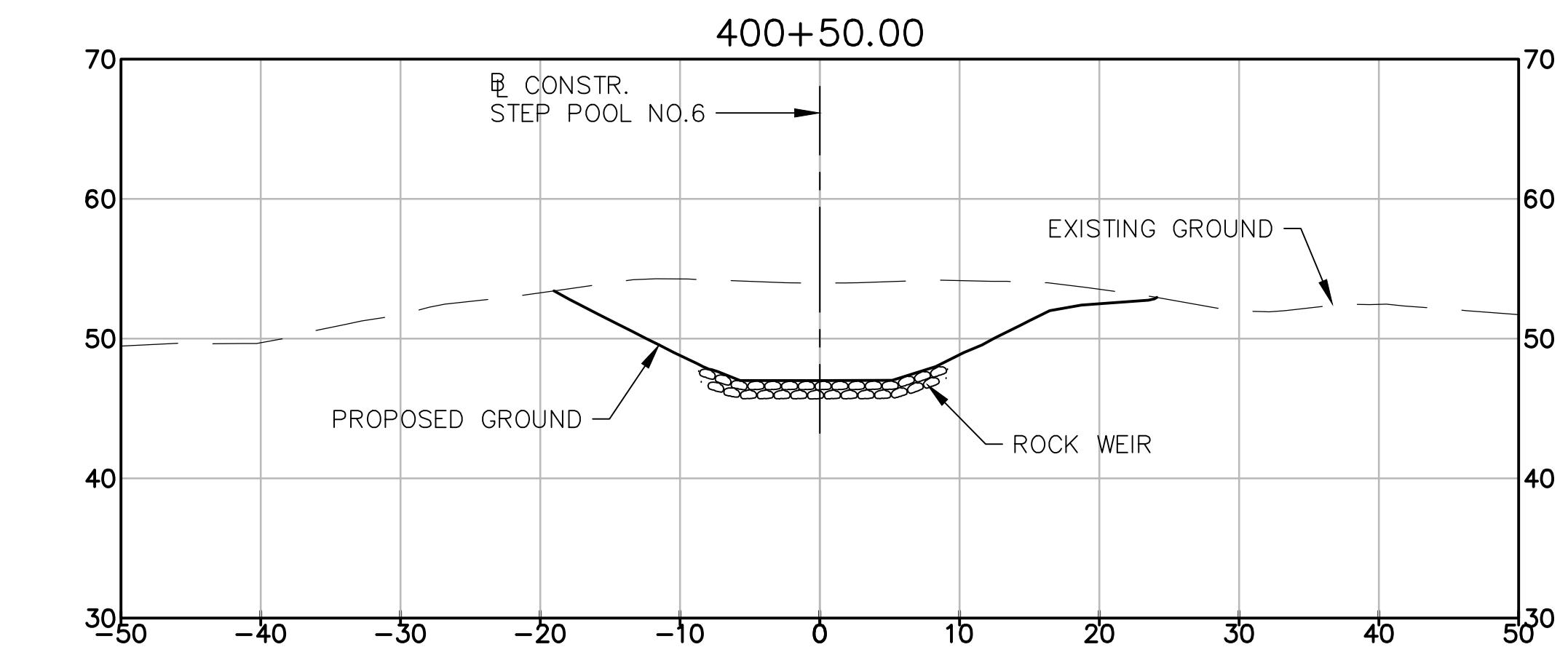
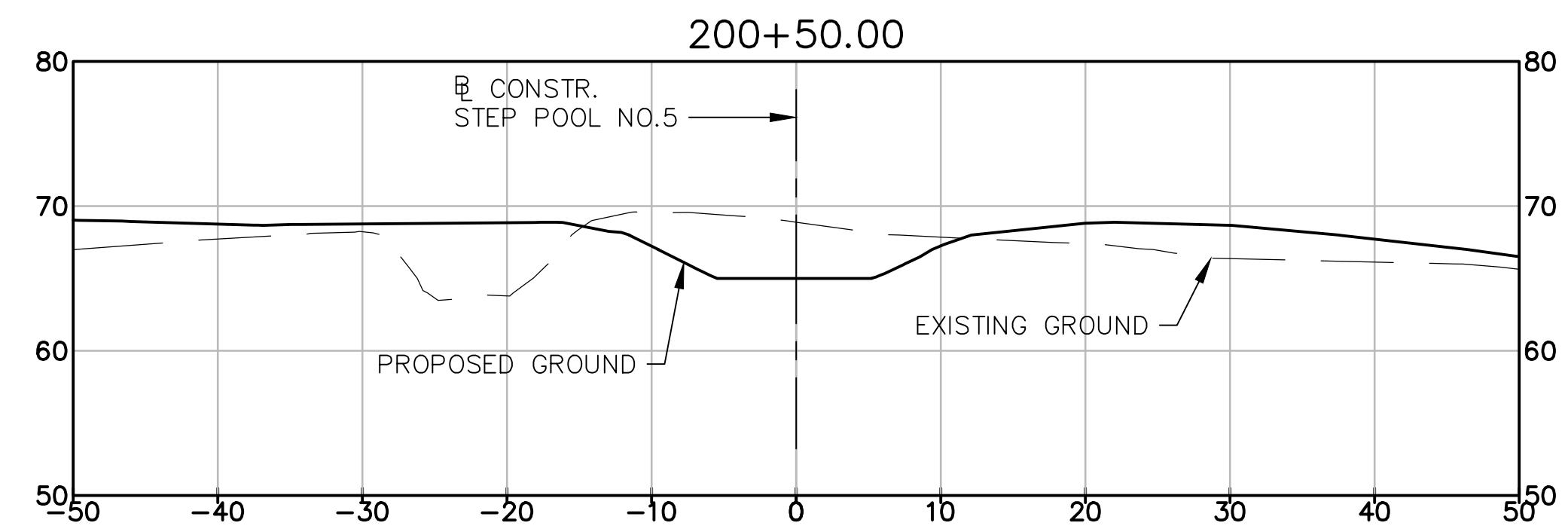
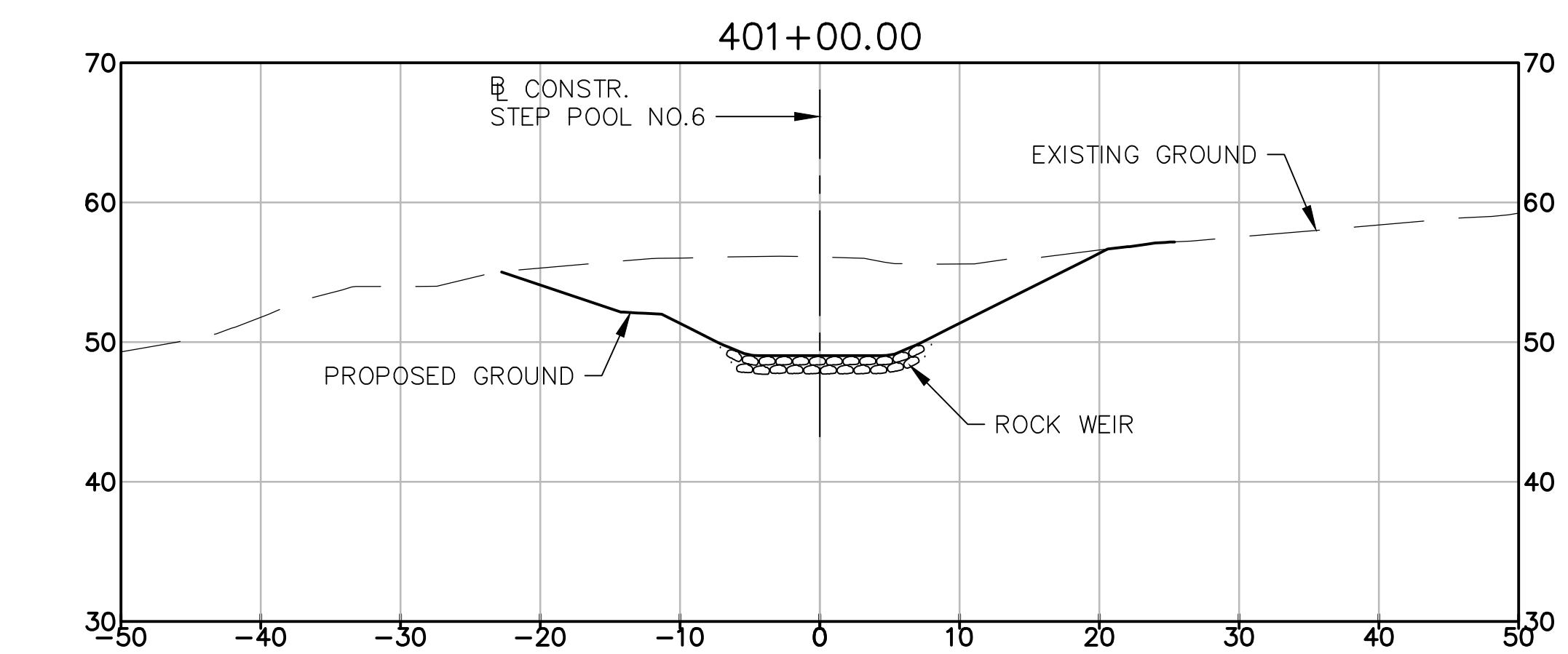
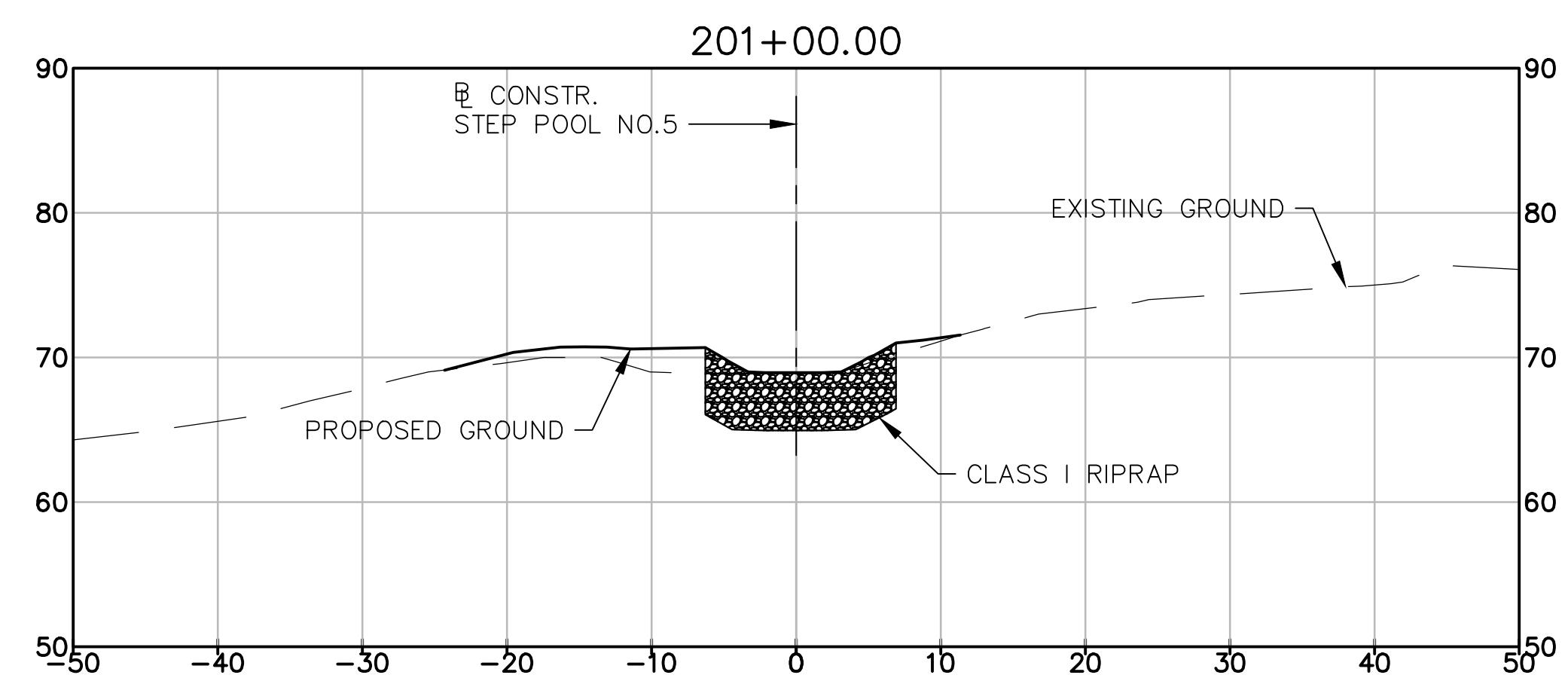
CONTRACT NO: 97040

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

SHEET 46 OF 48

SCALE: 1 inch

DATE: MARCH, 2022



NOTES:

1. CROSS SECTIONS ARE ORIENTED FACING UPSTREAM.

PROFESSIONAL CERTIFICATION

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LICENSE NO. 16156
EXPIRATION DATE: 8/28/2022

AECOM

REVISIONS

HARFORD COUNTY, MARYLAND

DECLARATION RUN STREAM RESTORATION
CROSS SECTIONS

DRAWN BY: BJK

DESIGNED BY: NJF

REVIEWED BY: DTM

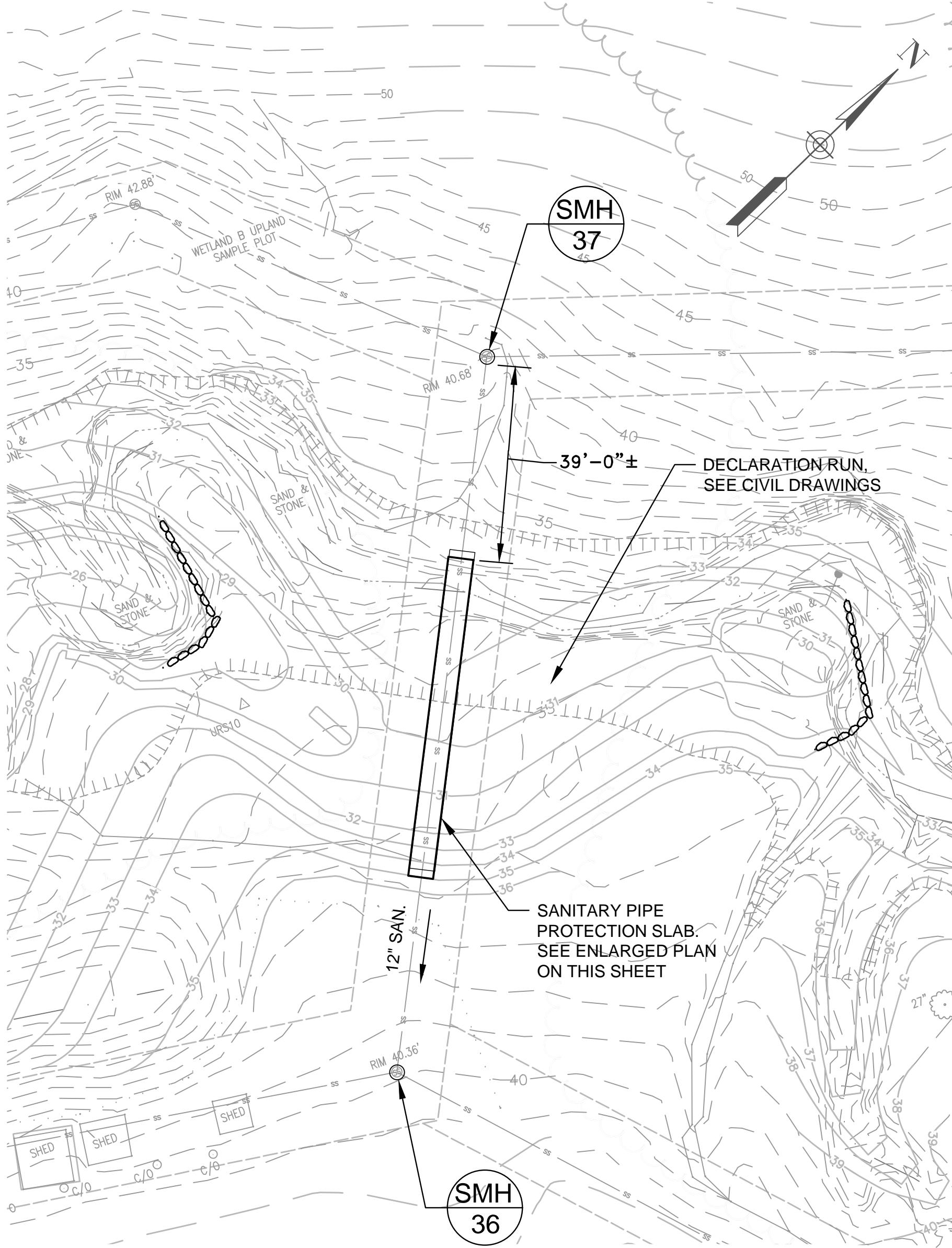
CONTRACT NO: 97040

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

SHEET 47 OF 48

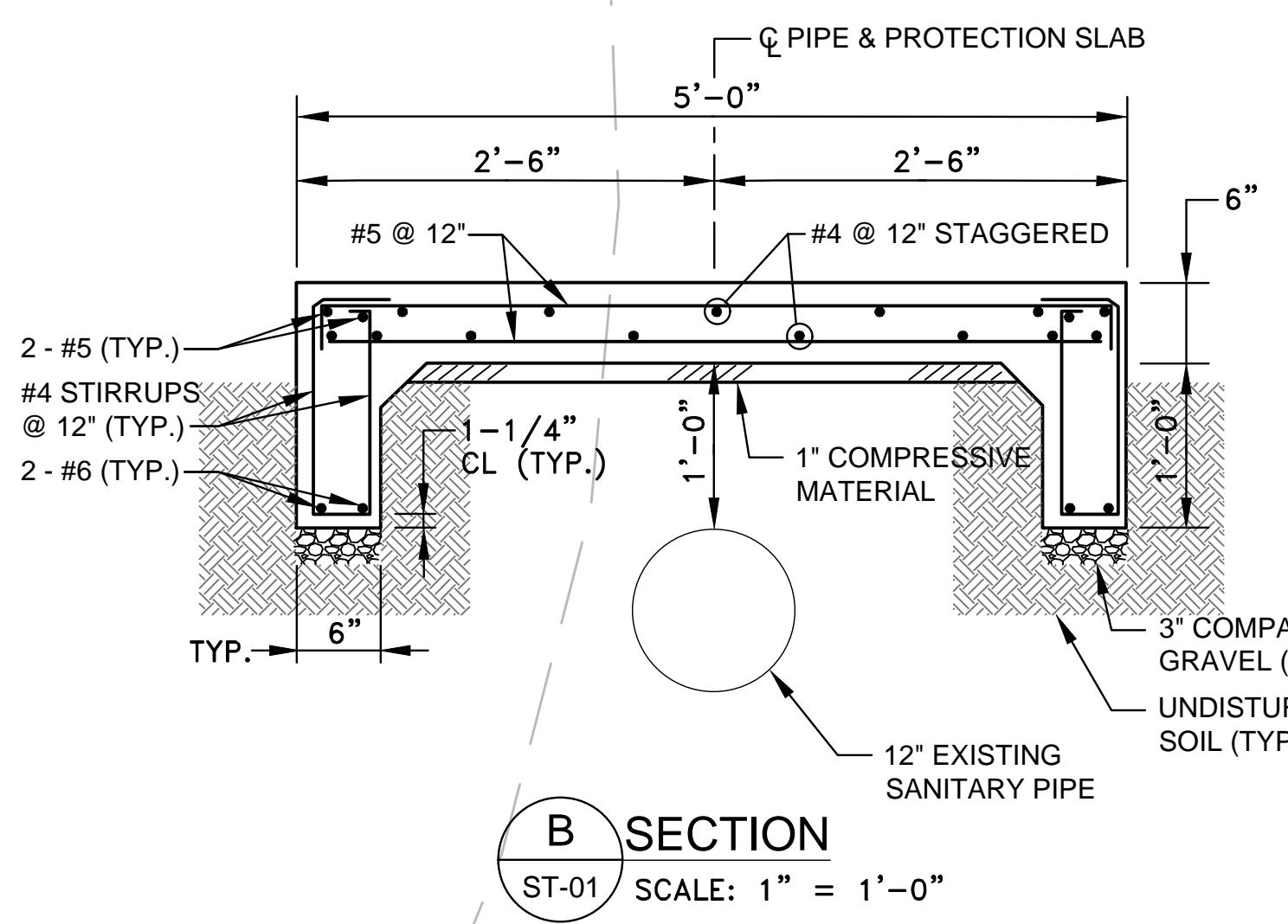
SCALE: 1 inch

DATE: MARCH, 2022

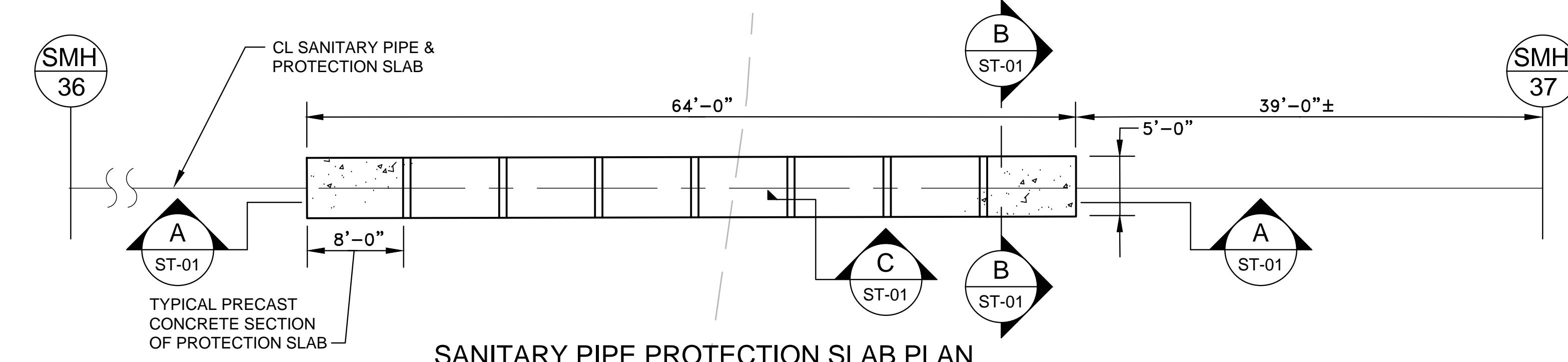


PROTECTION SLAB LOCATION PLAN

SCALE: 1" = 20'

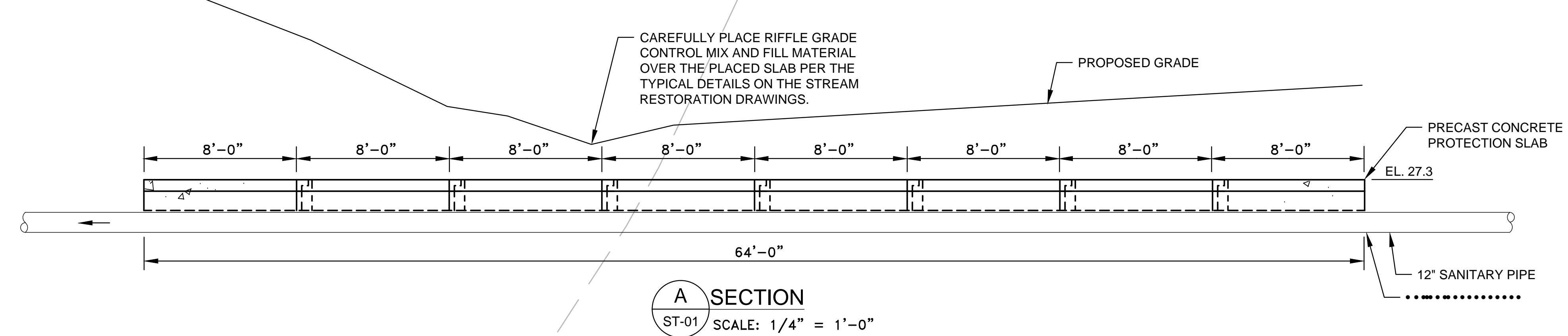


B SECTION
ST-01 SCALE: 1" = 1'-0"



SANITARY PIPE PROTECTION SLAB PLAN

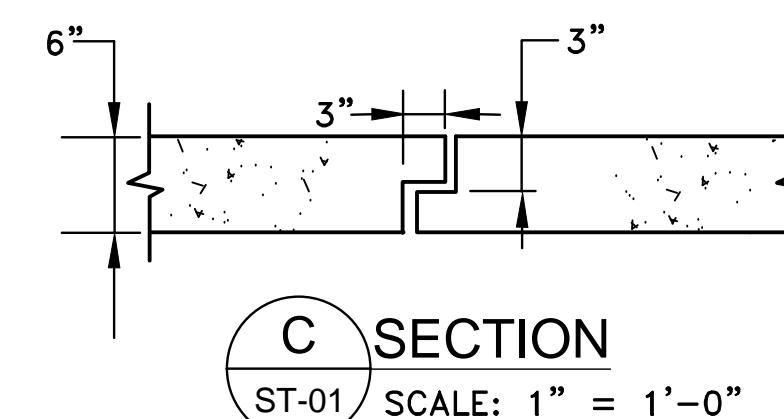
SCALE: 1/8" = 1'-0"



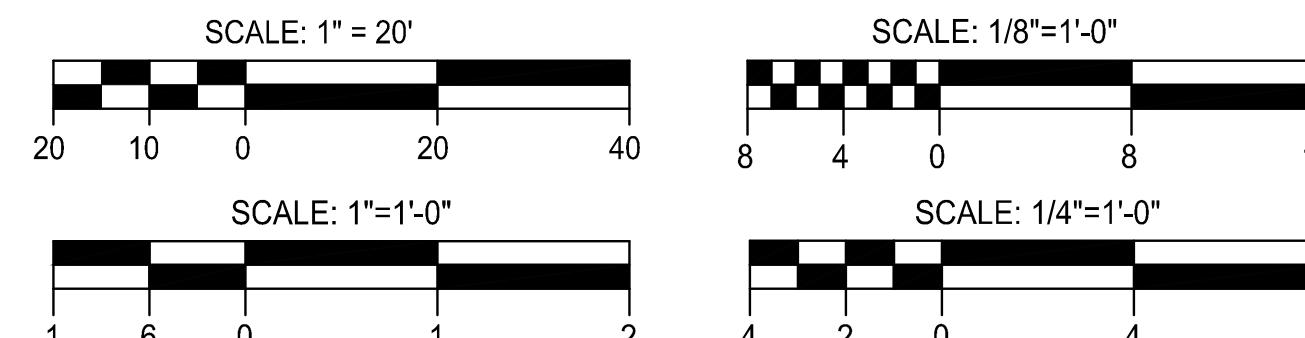
A SECTION
ST-01 SCALE: 1/4" = 1'-0"

DRAWING NOTES:

1. CONCRETE FOR PROTECTION SLAB OF THE SEWER PIPE SHALL BE NORMAL WEIGHT PRECAST CONCRETE HAVING STRENGTH 5000 PSI AT 28 DAY.
2. REINFORCEMENT SHALL CONFORM TO ASTM A 615 GRADE 60.
3. EXCAVATION OVER EXISTING SEWER PIPE FOR PLACING PROTECTION SLAB SHALL NOT DAMAGE THE PIPE.
4. EXCAVATION FOR TURNED DOWN PORTION OF PROTECTION SLAB WILL BE EXCAVATED BY LIGHT EQUIPMENT SUCH AS CONDUIT EXCAVATOR OR BY HAND SO THAT PIPE WILL NOT BE DAMAGED.
5. EACH SECTION OF PROTECTION SLAB WILL BE JOINTED BY TONGUE AND GROOVE JOINT TO OTHER SECTION.
6. TOP AREA OF EXCAVATED SOIL FOR PROTECTION SLAB WILL BE PREPARED TO THE REQUIRED ELEVATION. PLACE 1" THICK ASPHALT IMPREGNATED COMPRESSIBLE MATERIAL BETWEEN THE NATURAL GROUND AND PRECAST CONCRETE PROTECTION SLAB AS SHOWN ON DETAIL B.
7. LIFTING LUGS IF USED FOR PRECAST SECTION WILL BE FILLED WITH NON-SHRINK, NON-METALLIC GROUT BEFORE PLACING SOIL ON TOP.
8. COORDINATE ALL ELEVATIONS AND DISTANCES OF PROTECTION SLAB WITH CIVIL DRAWINGS.
9. IF EXCAVATED SOIL OVER THE PIPE FOUND TO BE UNSUITABLE FOR LOAD BEARING THEN REPLACE IT WITH STRUCTURAL BACKFILL.



TYPICAL TONGUE & GROOVE JOINT



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EXPIRATION DATE: 8/28/2022."

AECOM

HARFORD COUNTY, MARYLAND
DECLARATION RUN STREAM RESTORATION
STRUCTURAL - SANITARY PIPE PROTECTION SLAB

| | |
|---------------------|-------------------|
| REVISIONS | DRAWN BY: LEF |
| | DESIGNED BY: BJ |
| | REVIEWED BY: JB |
| CONTRACT NO: 97040 | SCALE: AS NOTED |
| SCALE: 1" = 20' | DATE: MARCH, 2022 |
| SCALE: 1/8" = 1'-0" | DATE: MARCH, 2022 |
| SCALE: 1/4" = 1'-0" | DATE: MARCH, 2022 |
| SHEET 48 OF 48 | SCALE: 1 inch |