

Construction Drawings for Sugar Creek Streambank Stabilization Project

FORT MILL, SOUTH CAROLINA
FORT MILL TOWNSHIP
COUNCIL DISTRICT #1

JULY 2024



COUNTY COUNCIL

Christi Cox, Chairwoman
Allison Love, Vice Chairwoman
Ton Audette
Tommy Adkins
William "Bump" Roddey
A. Watts Huckabee, Sr.
Debi Cloniger

SCDES Permit to Construct/Operate # N/A

System Inventory List	
4' Diameter Manhole	6
4' Diameter Manhole (Doghouse)	
4' Diameter Manhole (Outside Drop)	
5' Diameter Manhole	
5' Diameter Manhole (Outside Drop)	
18" Ductile Iron Pipe	
18" Restrained Joint Ductile Iron Pipe	
Gravity Sewer - 12" Ductile Iron Pipe	1394
Force Main Sewer - size unk	1187
30" Steel Casing	

APPLICANT'S CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

"I (We) hereby certify that to the best of my knowledge, these plans contain all information required by the Zoning Ordinance of York County SC and as referenced by this application. "I (We) hereby certify that all land disturbing activities including clearing, grading, construction and/or development will be done pursuant to this plan and agree to indemnify any person damaged by failure to comply with the approved plan. County and state authorities will be allowed to enter upon the project site provided the present the appropriate credentials."

Date _____ Permit Applicant _____

LEGEND

- PROPOSED CONTOUR MAJOR _____ 50 _____
- PROPOSED CONTOUR MINOR _____
- PROPOSED SPOT ELEVATION + 511.75
- PROPOSED STORM DRAINAGE EASEMENT _____ SDE _____ SDE _____
- PROPOSED TEMPORARY CONSTRUCTION EASEMENT _____ TCE _____
- EXISTING CONTOUR MAJOR _____ 50 _____
- EXISTING CONTOUR MINOR _____ 45 _____
- STREAM CENTERLINE (PER FEMA) _____
- EXISTING PROPERTY LINE _____
- EXISTING TREELINE _____
- EXISTING STREAM CENTERLINE _____
- EXISTING CHAIN LINK FENCE _____
- EXISTING GRAVITY SANITARY SEWER _____ SS _____ SS _____ SS _____
- EXISTING FORCE MAIN SANITARY SEWER _____ FM _____ FM _____ FM _____
- RELOCATED FORCE MAIN SANITARY SEWER _____ FM _____ FM _____
- FEMA 100-YEAR FLOODPLAIN _____ 100YR _____ 100YR _____
- EXISTING STORM DRAINAGE _____
- EXISTING WETLAND _____
- EXISTING SANITARY SEWER MANHOLE (S)
- SURVEY BENCHMARK (B)
- EXISTING IRRIGATION CONTROL VALVE (X)
- EXISTING ELECTRIC TRANSFORMER (E)
- EXISTING UTILITY POLE (P)
- EXISTING IRON PIN (EIP) (O)
- EXISTING STORM DRAIN INLET (I)

Sheet List Table

Sheet Number	Sheet Title
1	COVER
2	NOTES
3	EXISTING CONDITIONS
4	PLAN - 1
5	PLAN - 2
6	EROSION CONTROL PLAN
7	PLANTING PLAN
8	DETAILS - 1
9	DETAILS - 2
10	DETAILS - 3

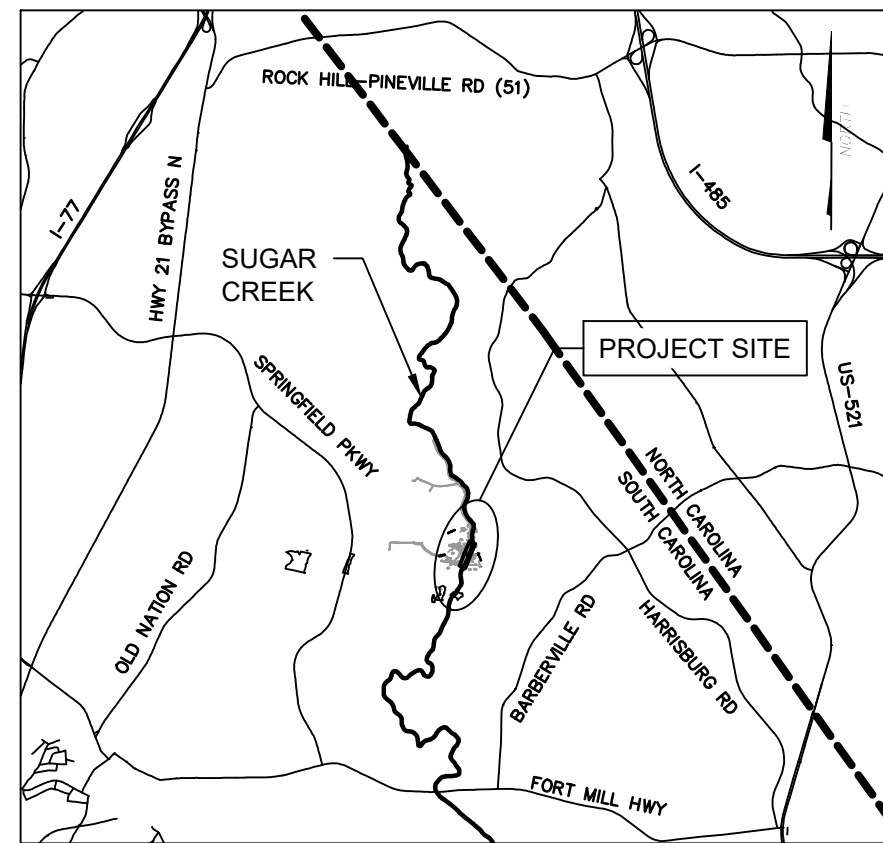
PROFESSIONAL'S CERTIFICATION

I hereby certify that this plan is designed to contain sediment on the property concerned and to provide for the control of stormwater runoff from the property and that to the best of my knowledge and belief all the provisions are in accordance with the Stormwater Management and Sediment control Ordinance of York County, South Carolina.

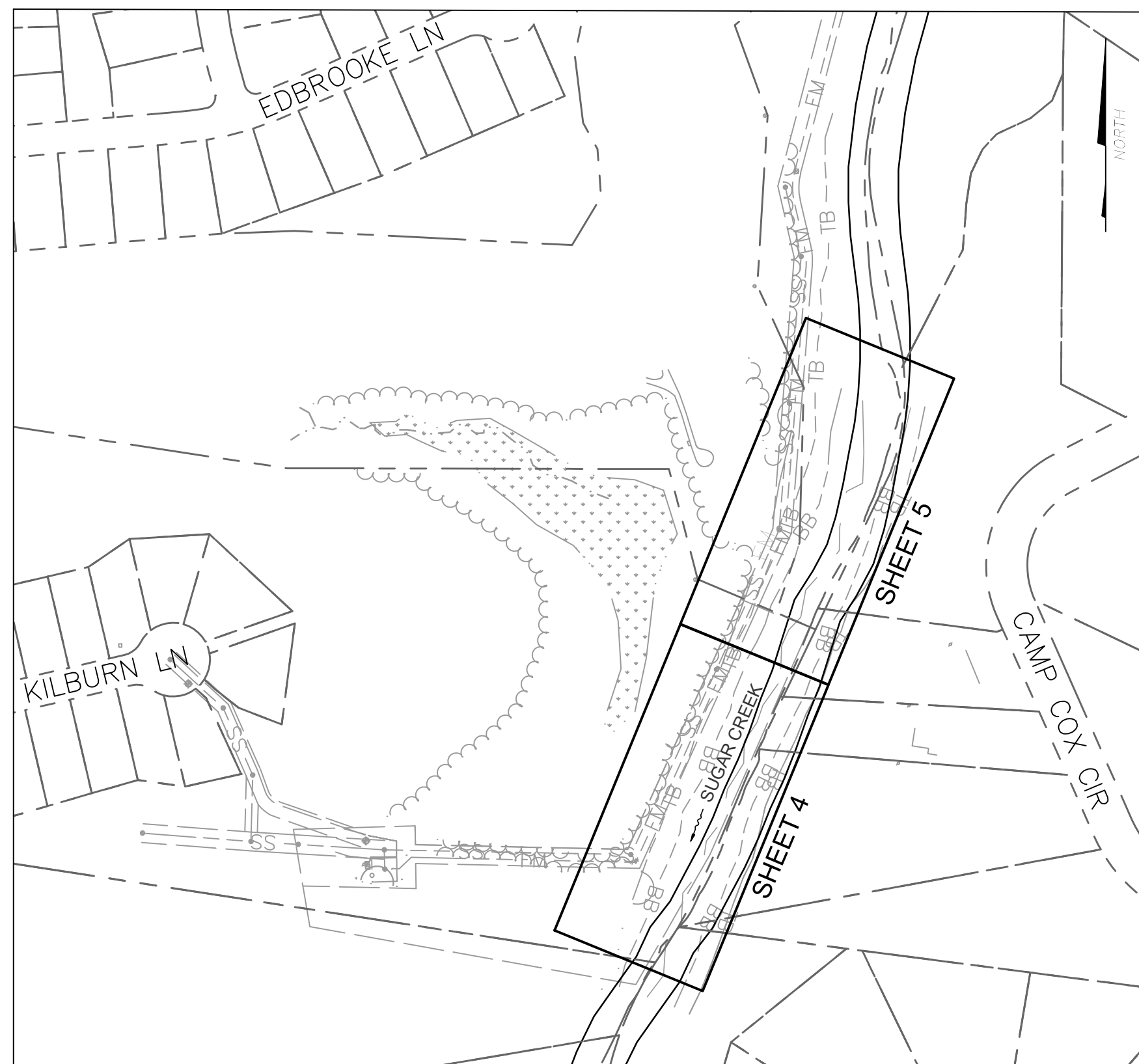
Date 7-30-2024

 Registered Landscape Architect
 Registered Tier B Land Surveyor
 Registered Professional Engineer

APPROVAL STAMP/PERMIT LOCATION TO BE COMPLETED BY YORK COUNTY



VICINITY MAP
NOT TO SCALE



LOCATION MAP
1"=200'

UTILITY PROVIDERS:

WATER/SEWER

YORK COUNTY
220 Publis Works Road
York, S.C. 29745
(803) 628-3211
Contact: Raymond Bailey

ELECTRIC

City of Rock Hill
155 Johnston Street
Rock Hill, S.C. 29730
(803) 329-7000
Contact: David Hope

NATURAL GAS

York County Natural Gas
979 W. Main Street
Rock Hill, S.C. 29730
(803) 329-5255
Contact: Stephen Comer

CABLE/INTERNET/TELEPHONE

Comporium Communications
P.O. Box 470
Rock Hill, S.C. 29730
Contact: Sam Prete (803-326-6160)
John Collins (803-487-6675)

BASE DATA
 BASE SURVEY INFORMATION OBTAINED FROM STEWART, INC. SC FIRM LICENSE C-1882, SEALED BY J. TIMOTHY THOMAS (SC PLSL-28148) ON 7/30/19.
 THE COORDINATE SYSTEM IS BASED ON S.C. N.A.D. 83 (N.S.R.S. 2011) AND THE ELEVATIONS ARE BASED ON N.A.V.D. 88. INITIAL POSITIONS WERE DETERMINED WITH A REAL TIME KINEMATIC GPS UNIT USING THE SOUTH CAROLINA GEODETIC SURVEY REAL TIME NETWORK, AND WERE TIED TO THE N.G.S. MONUMENT "CCC", 1,170,215.74', E: 2,018,246.16', ELEV: 552.80.
 THE INITIAL STATE PLANE POSITIONS FOR THIS PROJECT WERE SCALED FROM GRID TO HORIZONTAL GROUND USING THE INVERSE OF A COMBINED GRID FACTOR OF 1.00006234 AT THE LOCATION OF N(Y): 1,163,818.142' U.S. FT., E(X): 2,029,871.430' U.S. FT. AND ELEVATION OF 520.38' U.S. FT.
 TOPOGRAPHIC INFORMATION OUTSIDE SURVEYED AREA (5' CONTOURS) DERIVED FROM LIDAR DATA (SC DEPARTMENT OF NATURAL RESOURCES, 2011).

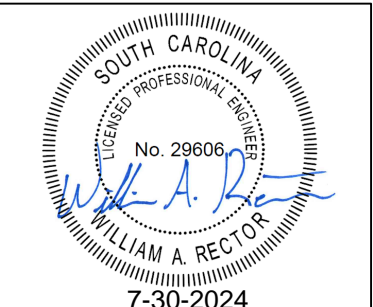


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YORK COUNTY ENGINEERING DEPARTMENT
POST OFFICE BOX 148
6 SOUTH CONGRESS STREET
YORK, SOUTH CAROLINA 29745
(803) 684-8571

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community infrastructure consultants
1213 W. MOREHEAD STREET
SUITE 300
CHARLOTTE, NC 28208
(704) 334-5348
(704) 334-0078
WWW.WKDICKSON.COM

PROJECT #:
20190232.00.CL



NO.	DATE	REVISION

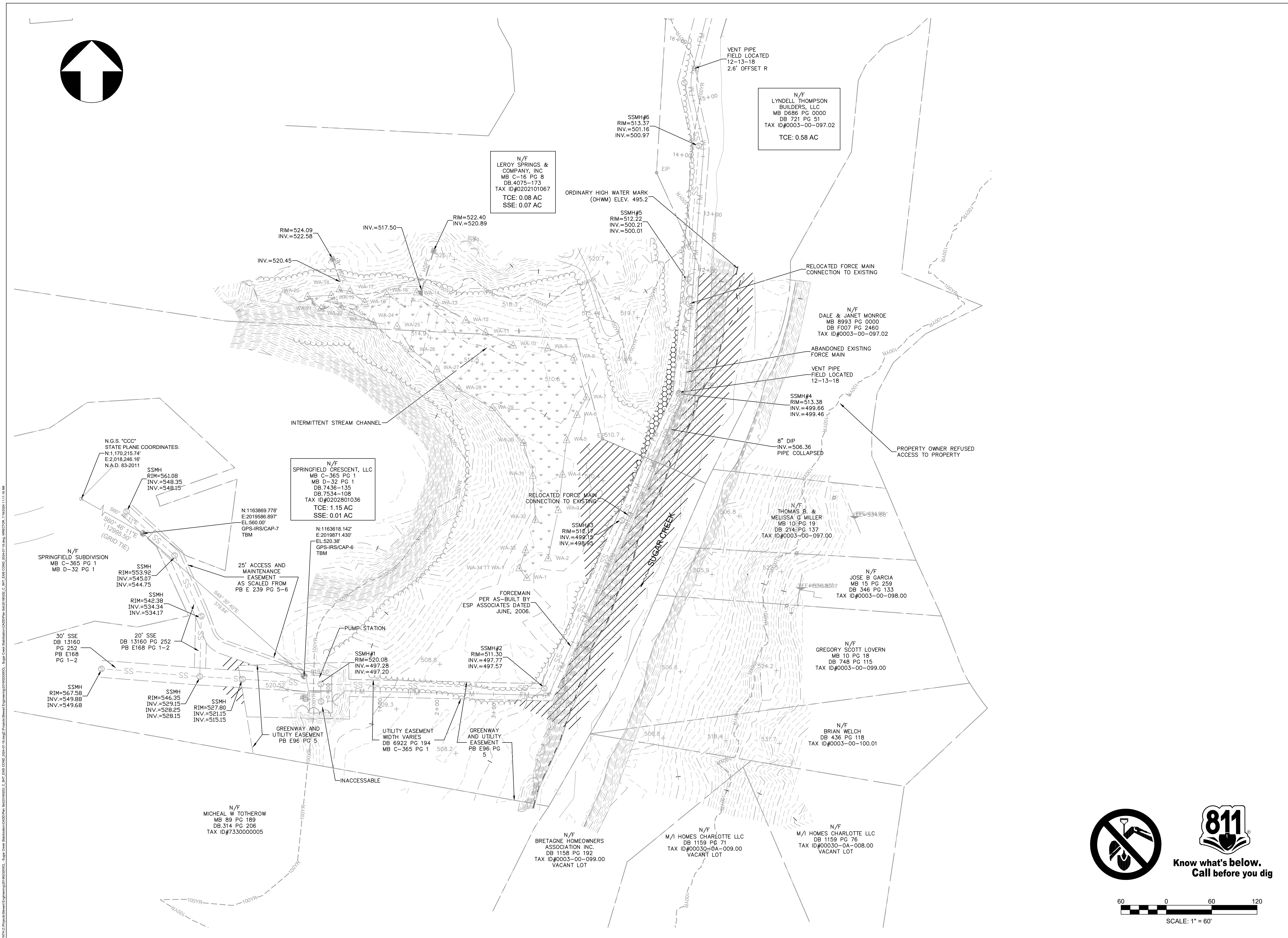
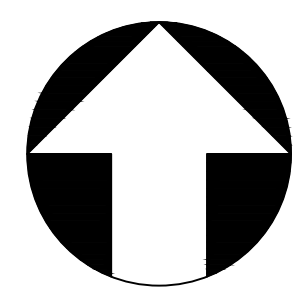
York County
SUGAR CREEK STREAMBANK STABILIZATION PROJECT
COVER

CONSTRUCTION SET

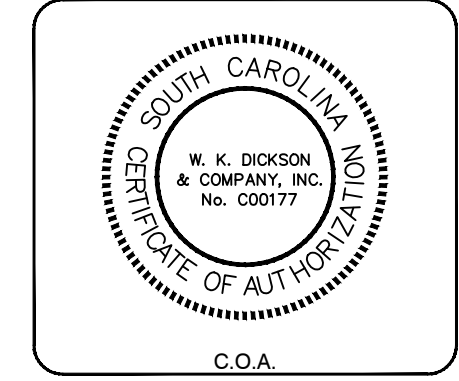
Project Manager: WAR
Drawn By NBH Checked By WAR
Date: JULY 2024
Scale: VARIES
Engineering Project No.: #19299
Drawing No.: 1 OF 10

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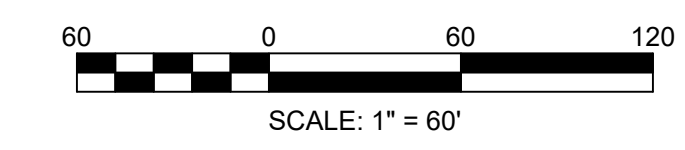
REVISION RECORD	DESCRIPTION	DATE	BY

PROJECT NAME:
SUGAR CREEK STREAMBANK STABILIZATION PROJECT
 FOR
 YORK COUNTY, SOUTH CAROLINA
 DRAWING TITLE:
EXISTING CONDITIONS

PROJ. MGR.: WAR
 DESIGN BY: DNP
 DRAWN BY: NBH
 PROJ. DATE: JULY 2024
 DRAWING NUMBER:
3 OF 10
 WKD PROJ. NO.:
 20190232.00.CL

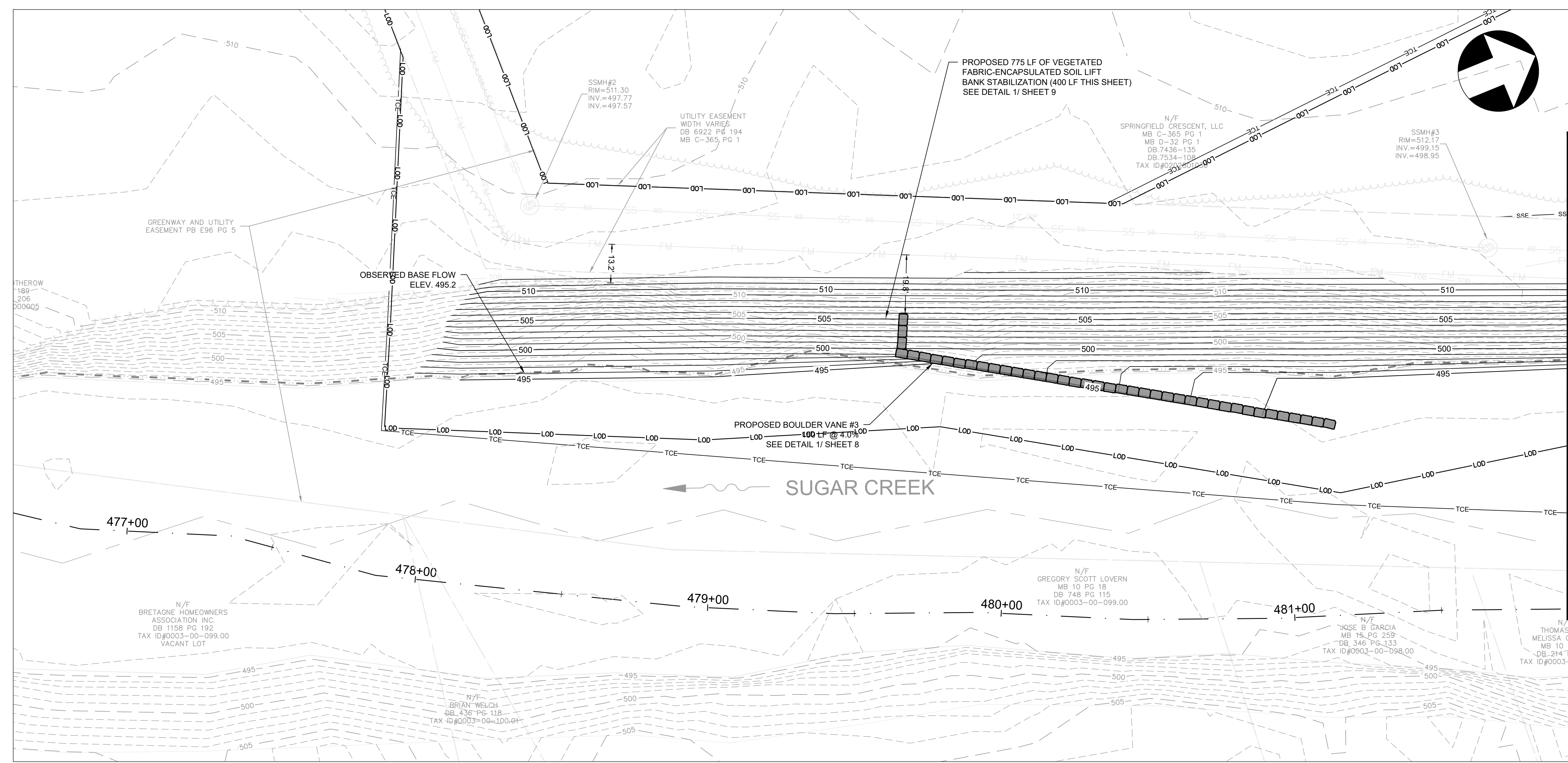


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MATCHLINE SEE SHEET 5

PROPOSED 775 LF OF VEGETATED
FABRIC-ENCAPSULATED SOIL LIFT
BANK STABILIZATION (400 LF THIS SHEET)
SEE DETAIL 1/ SHEET 9

PROPOSED BOULDER VANE #3
100 LF @ 4.0%
SEE DETAIL 1/ SHEET 8

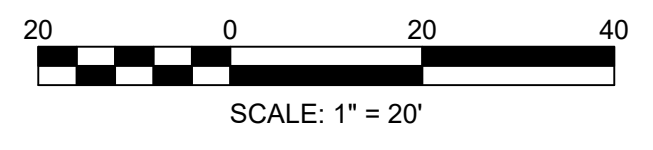
SUGAR CREEK

NOTES:

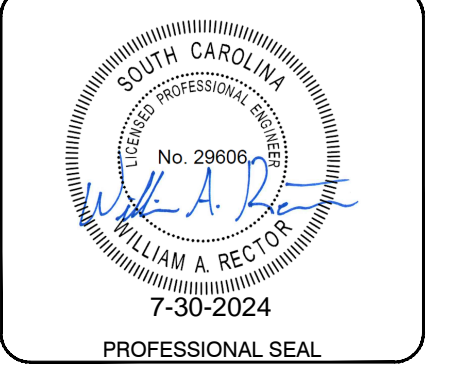
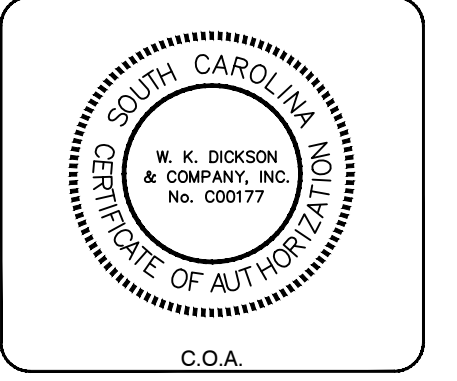
1. STORAGE OF MATERIALS IN THE FEMA FLOODPLAIN IS PROHIBITED. ALL AREAS SHOWN ON THIS SHEET ARE WITHIN THE FLOODPLAIN.
2. CONTRACTOR SHALL PROVIDE SHORING TO PROTECT SANITARY SEWER FORCE MAIN AND GRAVITY SEWER. CONTRACTOR SHALL SUBMIT SHORING PLAN WITH SHORING LIMITS IDENTIFIED TO ENGINEER FOR APPROVAL AND PRIOR TO INSTALLATION.
3. CONTRACTOR SHALL NOT EXCAVATE WITHIN FIVE FEET (5') HORIZONTALLY OF ACTIVE SANITARY SEWER.
4. CONTRACTOR SHALL PROVIDE AND UTILIZE TEMPORARY COFFERDAM TO CONSTRUCT IN DRY CONDITION. (90 DAYS MAXIMUM) SEE DETAIL 7 SHEET 10.
- 4.1. CONTRACTOR TO PROVIDE ENGINEER WITH SEALED SHOP DRAWING PRIOR TO INSTALLATION.



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NO.	DATE	DESCRIPTION	BY

PROJECT NAME:
SUGAR CREEK STREAMBANK STABILIZATION PROJECT
FOR
YORK COUNTY, SOUTH CAROLINA

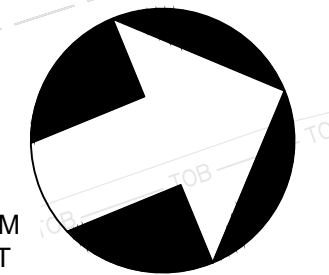
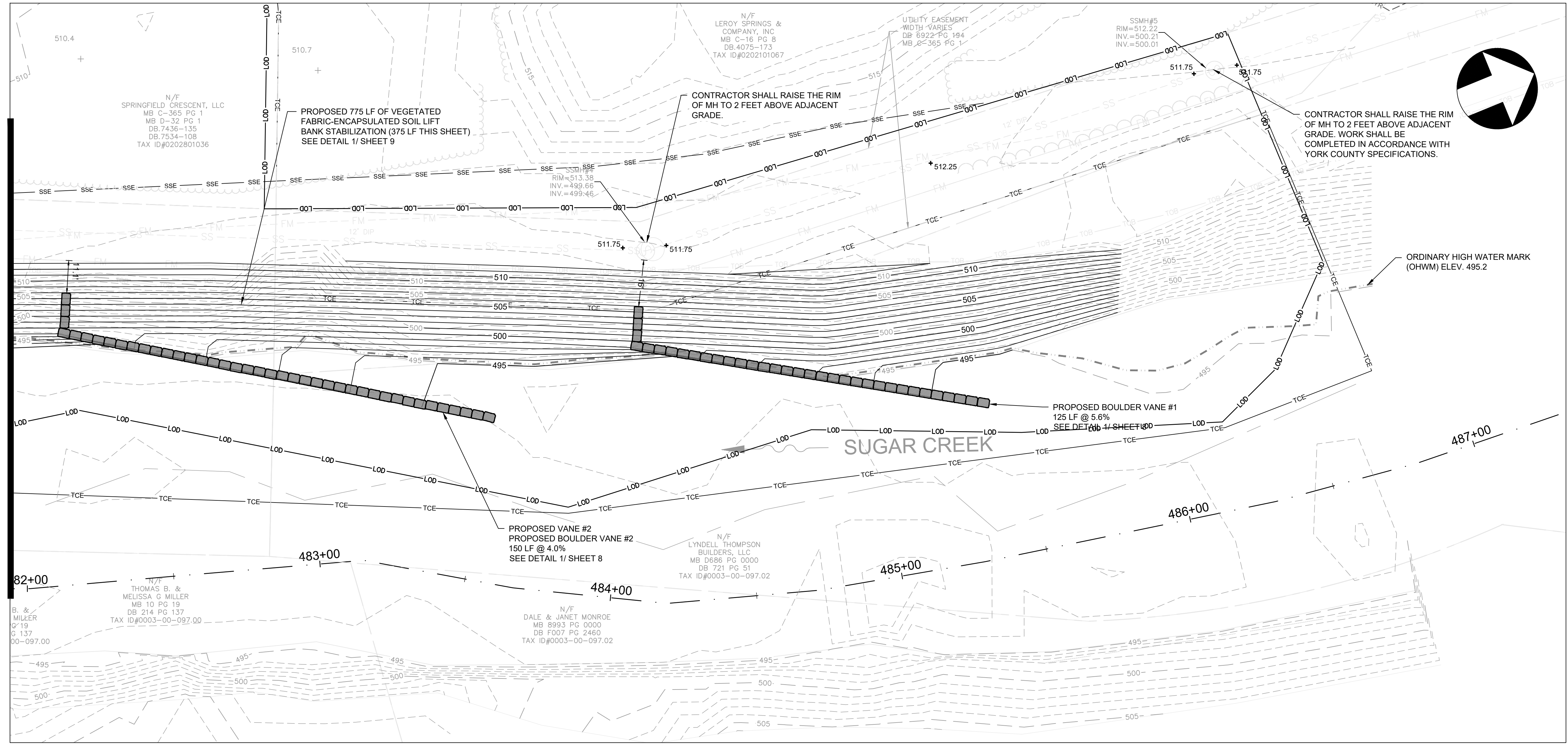
DRAWING TITLE:
PLAN - 1

PROJ. MGR.: WAR
DESIGN BY: DNP/WAR
DRAWN BY: WAR
PROJ. DATE: JULY 2024
DRAWING NUMBER:
4 OF 10
WKD PROJ. NO.:
20190232.00.CL

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CONTRACTOR SHALL RAISE THE RIM OF MH TO 2 FEET ABOVE ADJACENT GRADE. WORK SHALL BE COMPLETED IN ACCORDANCE WITH YORK COUNTY SPECIFICATIONS.

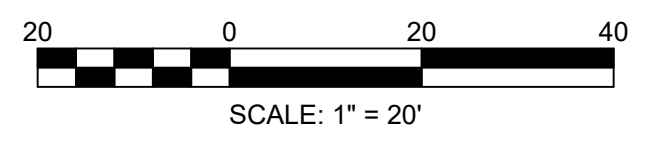
MATCHLINE SEE SHEET 4



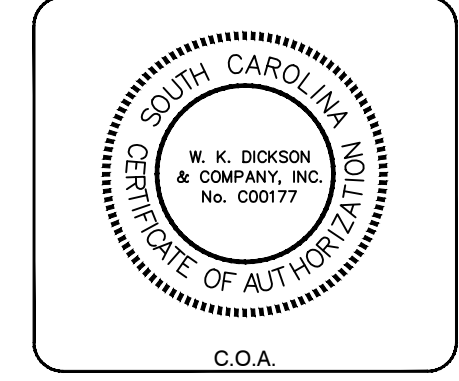
- NOTES:**
1. STORAGE OF MATERIALS IN THE FEMA FLOODPLAIN IS PROHIBITED. ALL AREAS SHOWN ON THIS SHEET ARE WITHIN THE FLOODPLAIN.
 2. CONTRACTOR SHALL PROVIDE SHORING TO PROTECT SANITARY SEWER FORCE MAIN AND GRAVITY SEWER. CONTRACTOR SHALL SUBMIT SHORING PLAN WITH SHORING LIMITS IDENTIFIED TO ENGINEER FOR APPROVAL AND PRIOR TO INSTALLATION.
 3. CONTRACTOR SHALL NOT EXCAVATE WITHIN FIVE FEET (5') HORIZONTALLY OF ACTIVE SANITARY SEWER.
 4. CONTRACTOR SHALL PROVIDE AND UTILIZE TEMPORARY COFFERDAM TO CONSTRUCT IN DRY CONDITION. (90 DAYS MAXIMUM) SEE DETAIL 7 SHEET 10.
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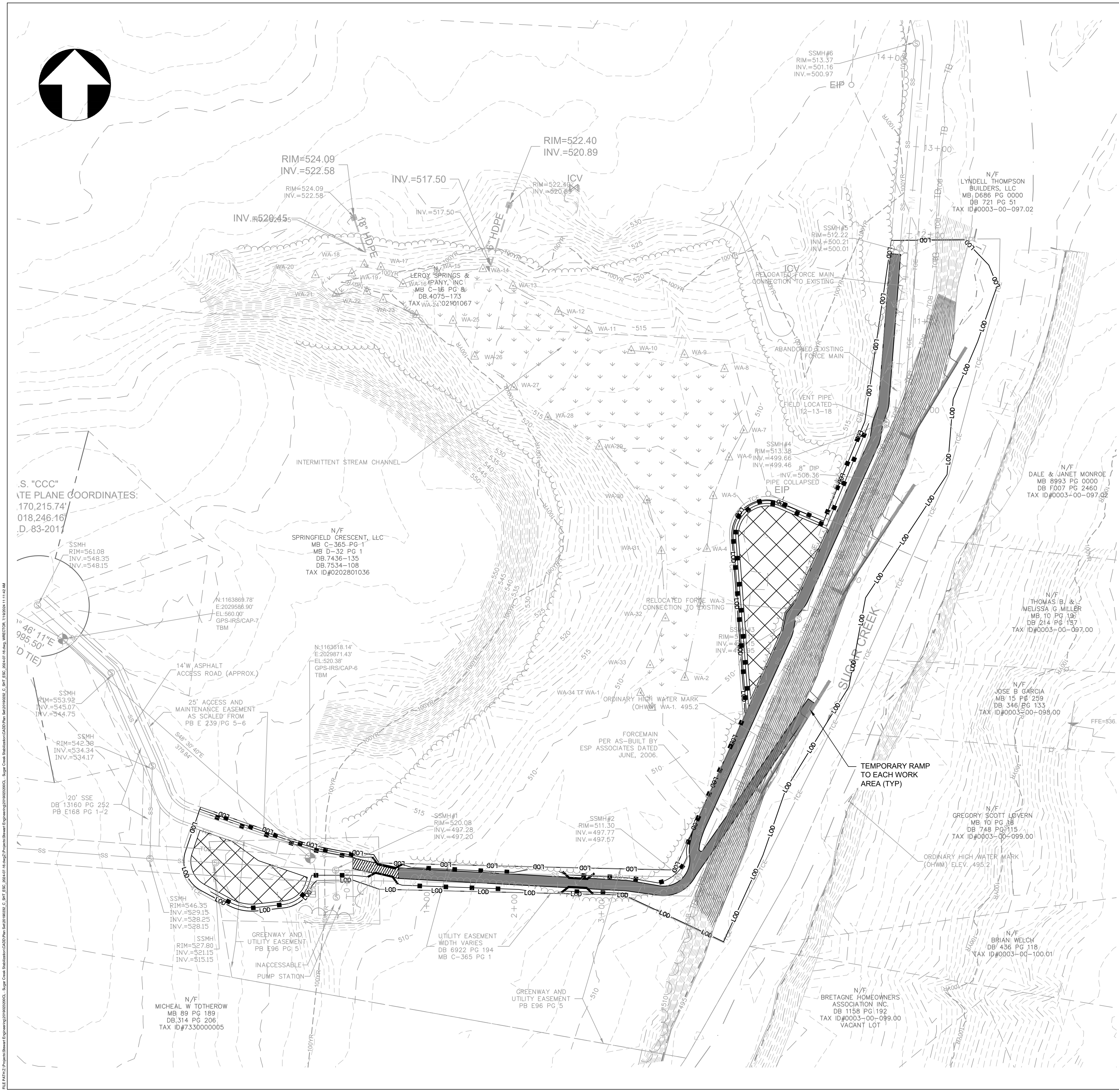
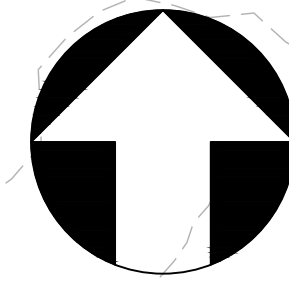
NO.	DATE	DESCRIPTION	BY

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 PROJECT NAME:
 SUGAR CREEK STREAMBANK STABILIZATION PROJECT
 FOR
 YORK COUNTY, SOUTH CAROLINA
 DRAWING TITLE:
 PLAN - 2

PROJ. MGR.: WAR
 DESIGN BY: DNP/WAR
 DRAWN BY: WAR
 PROJ. DATE: JULY 2024
 DRAWING NUMBER:
5 OF 10
 WKD PROJ. NO.:
 20190232.00.CL

P:\2024\Projects\Streambank Stabilization\Drawings\Sheet\Streambank Stabilization.dwg, 11/11/24 11:34 AM

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EROSION CONTROL LEGEND

- LOD — LIMITS OF DISTURBANCE
- TEMPORARY CONSTRUCTION ENTRANCE (SEE DETAIL 1 / SHEET 10)
- CONSTRUCTION ACCESS/HAUL ROAD (SEE DETAIL 2 / SHEET 10)
- STAGING/LAY-DOWN/STOCKPILE AREA (SEE DETAIL 3 / SHEET 10)
- SILT FENCE (SEE DETAIL 6 / SHEET 10)
- TEMPORARY DEPRESSION CROSSING (SEE DETAIL 5 / SHEET 10)

TOTAL AREA OF DISTURBANCE: 2.7 ACRES

NOTE:

1. CONSTRUCTION ACCESS ROAD SHALL BE MAINTAINED. ANY DAMAGES RESULTING FROM CONSTRUCTION EQUIPMENT INGRESS/EGRESS SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE. ALL ROAD REPAIRS SHALL BE COMPLETED IN ACCORDANCE WITH YORK COUNTY SPECIFICATIONS.
2. WETLANDS AS ILLUSTRATED ON THIS SHEET AND LOCATED ADJACENT TO THE IDENTIFIED STAGING AREA SHALL BE MAINTAINED. NO CONSTRUCTION EQUIPMENT OR MATERIALS ARE ALLOWED TO ENTER THIS AREA. CONTRACTOR SHALL DEMARCATÉ THIS AREA WITH ORANGE CONSTRUCTION FENCING PRIOR TO THE COMMENCEMENT OF CLEARING AND GRUBBING ACTIVITIES.
3. CONTRACTOR SHALL PROTECT EXISTING SEWER MANHOLES AND FORCE MAIN. SEE CONSTRUCTION SEQUENCE AND NOTES ON SHEET 2.
4. CONCRETE WASH-OUT (IF NEEDED) SHALL BE LOCATED OUTSIDE THE 100-YEAR FLOODPLAIN.
5. ALL PORTABLE TOILETS, EQUIPMENT, AND ANY HAZARDOUS OR TOXIC MATERIAL SHALL BE STORED OUTSIDE OF THE 100-YEAR FLOODPLAIN BOUNDARY.

.S. "CCC"
 (TE PLANE COORDINATES:
 170,215.74'
 018,246.16'
 D. 83-2017

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SOUTH CAROLINA
 W. K. DICKSON & COMPANY, INC.
 No. 00011
 CERTIFICATE OF AUTHORIZATION
 C.O.A.

SOUTH CAROLINA
 No. 29606
 WILLIAM A. RESTOR
 7-30-2024
 PROFESSIONAL SEAL

REVISION RECORD	DESCRIPTION	DATE	BY

PROJECT NAME:
SUGAR CREEK STREAMBANK STABILIZATION PROJECT
 FOR
 YORK COUNTY, SOUTH CAROLINA

DRAWING TITLE:
EROSION CONTROL PLAN

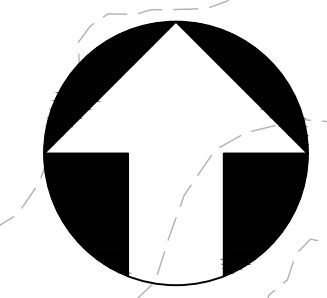
PROJ. MGR.: WAR
 DESIGN BY: DNP
 DRAWN BY: NBH
 PROJ. DATE: JULY 2024
 DRAWING NUMBER:
6 OF 10
 WKD PROJ. NO.:
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60 0 60 120
 SCALE: 1" = 60'

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PLANTING LEGEND

- PERMANENT SEEDING (1.5 ACRES)
- LIVE STAKES, LIVE CUTTING, AND PERMANENT SEEDING (0.7 ACRES)

NOTES:

1. SEE SHEET 2 FOR SEEDING NOTES.
2. SEE DETAIL 2 / SHEET 8 FOR TEMPORARY AND PERMANENT SEEDING MIXTURES AND RATES OF APPLICATION.

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 WILLIAM A. REEDER
 7-30-2024
 PROFESSIONAL SEAL

NO.	DATE	DESCRIPTION	BY

PROJECT NAME:
SUGAR CREEK STREAMBANK STABILIZATION PROJECT
 FOR
 YORK COUNTY, SOUTH CAROLINA

DRAWING TITLE:
PLANTING PLAN

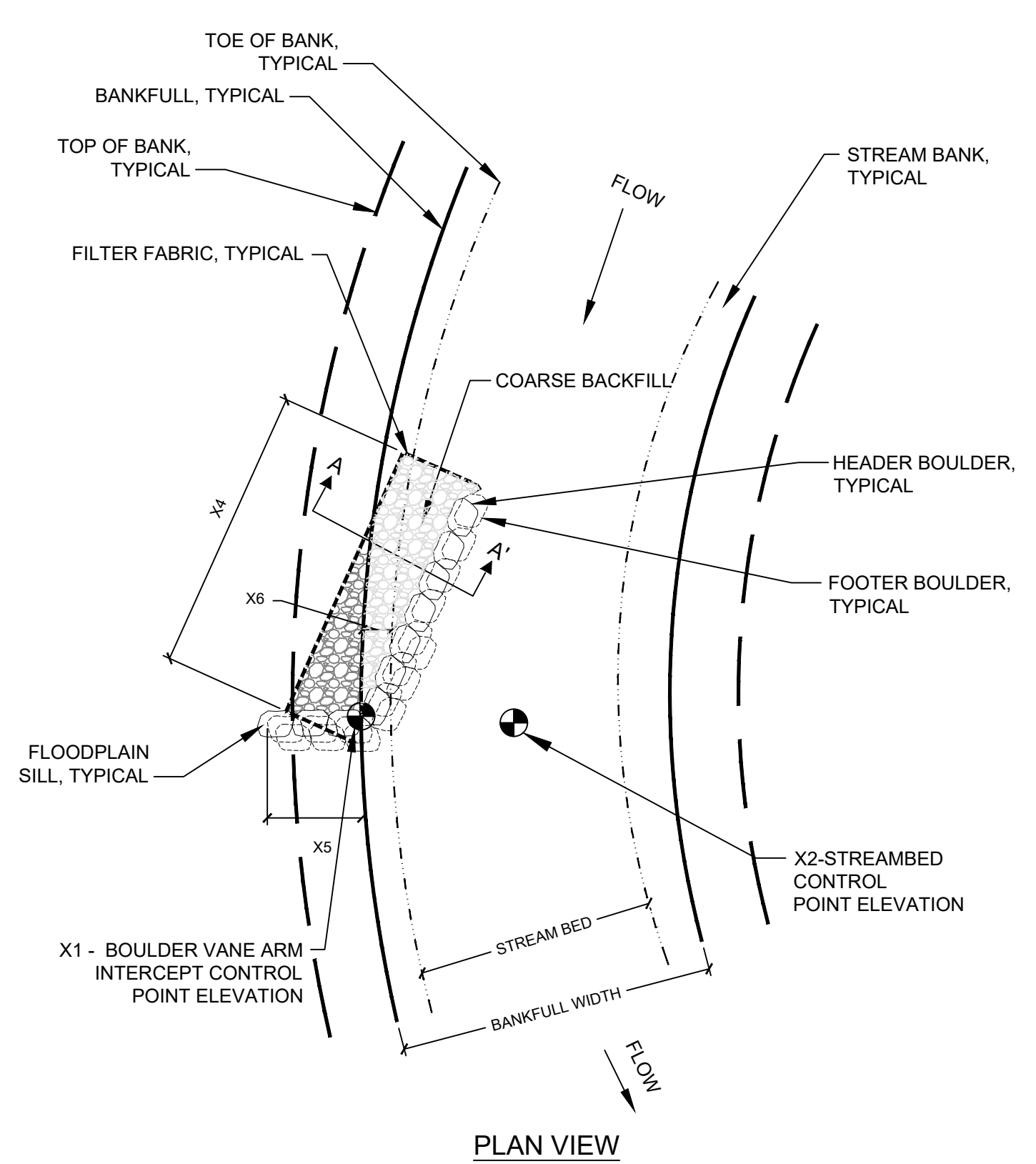
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PROJ. MGR.:	WAR
DESIGN BY:	DNP
DRAWN BY:	NBH
PROJ. DATE:	JULY 2024
DRAWING NUMBER:	

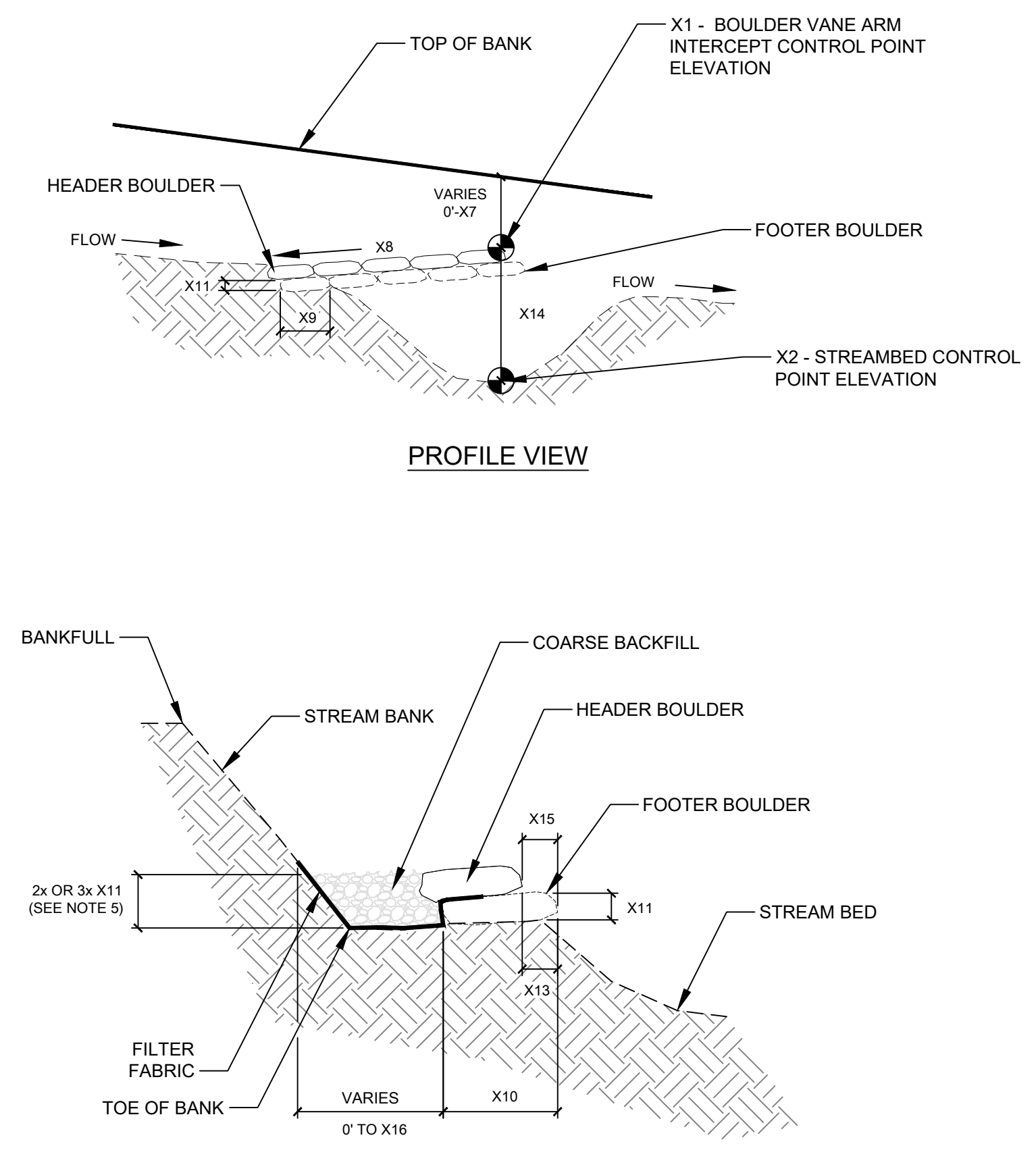
7 OF 10
 WKD PROJ. NO.:
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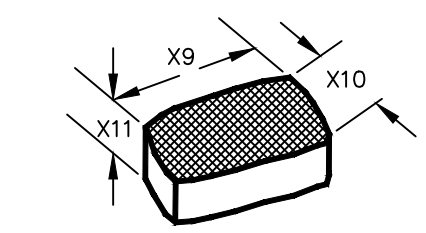
SCALE: 1" = 50'



1 BOULDER VANE
8 NOT TO SCALE



VANE ARM SECTION A - A'



3 PRIMARY ROCK DIMENSIONS:
 X9. LONGEST DIMENSION
 X10. INTERMEDIATE DIMENSION
 X11. SHORTEST DIMENSION

DIMENSIONS						
VARIABLE	VANE #1	VANE #2	VANE #3	TYPICAL UNIT	DESCRIPTION	
X1	500	500	500	FT. (NAVD)	LEFT OR RIGHT BOULDER VANE BANK INTERCEPT CONTROL POINT ELEVATION	
X2	493.4	493.6	492.6	FT. (NAVD)	POOL CONTROL POINT ELEVATION	
X3	90	90	90	FT.	BANKFULL WIDTH	
X4	125	150	150	FT.	VANE ARM LENGTH	
X5	12	12	12	FT.	LENGTH OF FLOODPLAIN SILL	
X6	VARIES 6.5 - 21.2	9.9	9.4	DEGREES	VANE ANGLE WITH STREAM BANK	
X7	12	11	12	FT.	DIFFERENCE BETWEEN TOP OF BANK (BANKFULL) AND VANE ARM INTERCEPT POINT	
X8	5.6	4.0	4.0	PERCENT	VANE ARM SLOPE	
X9	4	4	4	FT.	BOULDER LENGTH	
X10	3	3	3	FT.	BOULDER WIDTH	
X11	2	2	2	FT.	BOULDER THICKNESS	
X12	4	4	4	IN.	D50 OF COARSE BACKFILL	
X13	6	6	6	IN.	BOULDER PLACEMENT OFFSET	
X14	11.6	11.4	12.4	FT.	MAXIMUM POOL DEPTH	
X15	6	6	6	IN.	HEADER BOULDER SETBACK	
X16	16	16	16	FT.	COARSE BACKFILL MAXIMUM WIDTH	

SEEDING MIXTURE	SEEDING DATES	SEEDING AMENDMENTS
20 Bales of SEE CHART + TEMPORARY SEEDING AT 8 LBS/ACRE SHOWN IN DETAIL B BELOW	OPTIMAL SEEDING MONTHS: NOVEMBER, FEBRUARY, OR MARCH	Temporary seeding will be required on all stream restoration areas disturbed following all land disturbing activities. All soil in planting areas shall be tested and the rate of fertilization and lining shall be in accordance with the test results. The planting of any species of fescue grass along or adjacent to streams and channels is prohibited unless otherwise approved by the Engineer. All areas shall be mulched for erosion control upon completion of construction activities or as directed by the Engineer.

Scientific Name	Common Name	Percent Mix
<i>Andropogon glomeratus</i>	Bushy Broomsedge	5%
<i>Carex crinita</i>	Sedge, Fringed	5%
<i>Carex lurida</i>	Sedge, Shallow	5%
<i>Carex stricta</i>	Sedge, Tussock	5%
<i>Elymus virginicus</i>	Virginia Wildrye	25%
<i>Eragrostis spectabilis</i>	Purple Lovegrass	10%
<i>Muhlenbergia capillaris</i>	Hairawn Muhly	5%
<i>Panicum clandestinum</i>	Doctongue	10%
<i>Panicum virgatum</i>	Switchgrass	10%
<i>Schizachyrium scoparium</i>	Little Blue Stem	10%
<i>Panicum anceps</i>	Beaked Panic Grass	10%
Total		100%

A PERMANENT SEEDING FOR STREAM BANK STABILIZATION

Seed Mix A – Winter (Select at least 2)		
Scientific Name	Common Name	Seeding Rate
<i>Hordeum sp.</i>	Barley	Apply at 25 lb/ac
<i>Secale cereale</i>	Winter Rye	
Seed Mix B – Summer (Select at least 2)		
<i>Panicum ramosum</i>	Browntop Millet	Apply at 25 lb/ac
<i>Pennisetum glaucum</i>	Pearl Millet	
October through April Plant Winter Mix		
February 15 through April Winter Mix and Replant with Summer Mix in May		
May through September Plant Summer Mix		
July 15 through September Summer Mix and Replant with Winter Mix in October		

B TEMPORARY SEEDING AND MULCHING FOR STREAM BANK STABILIZATION

2 SEEDING DETAILS
8 NOT TO SCALE

NOTES:

- A BOULDER VANE IS A STREAM BANK PROTECTION, IN-STREAM STRUCTURE THAT DIRECTS STREAM FLOW AWAY FROM THE STREAM BANK AND IN TOWARD THE CENTER OF THE CHANNEL. THE DETAIL SHALL BE "FLIPPED" DEPENDING ON WHICH STREAM BANK (LEFT OR RIGHT) IS ON THE OUTSIDE OF THE MEANDER BEND.
- BOULDER VANES SHALL BE CONSTRUCTED OF FLAT-SIDED BOULDERS OF AT LEAST 4' x 3' x 2' IN SIZE.
- 10 OZ. NON-WOVEN GEOTEXTILE FILTER FABRIC SHALL BE USED TO SEAL THE GAPS BETWEEN THE BOULDERS AND UNDER THE COARSE BACKFILL MATERIAL OF THE VANE. THERE SHALL BE NO NON-WOVEN GEOTEXTILE VISIBLE IN THE FINISHED WORK; EDGES SHALL BE FOLDED, TUCKED, OR TRIMMED AS NEEDED. CONTRACTOR SHALL SUBMIT MATERIAL SPECIFICATION FOR REVIEW AND APPROVAL BY ENGINEER PRIOR TO USE.
- COARSE BACKFILL SHALL BE A 50/50 MIX OF SCDOT CLASS A RIPRAP AND #5 COURSE AGGREGATE. COARSE BACKFILL SHALL BE PLACED TO A THICKNESS EQUAL TO THE DEPTH OF THE HEADER AND FOOTER BOULDERS AND SHALL EXTEND OUT FROM THE VANE TO THE STREAM BANK.
- A THIRD-ROW OF BOULDERS WILL BE REQUIRED AS STATED BELOW. ALL DISTANCES ARE MEASURED FROM THE LEADING EDGE OF THE MOST UPSTREAM BOULDER BEGINNING AT THE INTERCEPT CONTROL POINT.
 A. VANE #1: FROM 0 LF TO 45 LF
 B. VANE #2: FROM 0 LF TO 50 LF
 C. VANE #3: FROM 0 LF TO 50 LF
- BOULDER VANES SHALL BE BUILT TYPICALLY AS FOLLOWS:
 A. OVER-EXCAVATE STREAM BED TO A DEPTH EQUAL TO THE TOTAL HEIGHT OF THE FOOTER BOULDER AND BACKFILL WITH COARSE BACKFILL. THIS WORK SHALL BE REVIEWED BY THE ENGINEER AND APPROVED PRIOR TO PROCEEDING TO THE NEXT STEP.
 B. PLACE FOOTER BOULDERS OF VANE AND FLOODPLAIN SILL. THIS WORK SHALL BE REVIEWED BY THE ENGINEER AND APPROVED PRIOR TO PROCEEDING TO THE NEXT STEP. A MINIMUM OF 24 HOURS SHALL PASS PRIOR TO EVALUATING SETTLING. ADDITIONAL BEDDING AND RESETTling OF BOULDERS MAY BE REQUIRED PRIOR TO PROCEEDING TO THE NEXT STEP.
 C. INSTALL FILTER FABRIC OVER FOOTERS OF VANE.
 D. PLACE COARSE BACKFILL ON NON-WOVEN GEOTEXTILE AND UP TO THE TOP OF THE FOOTER BOULDERS. ALSO PLACE BEHIND FLOODPLAIN SILL FOOTERS. THIS WORK SHALL BE REVIEWED BY THE ENGINEER AND APPROVED PRIOR TO PROCEEDING TO THE NEXT STEP.
 E. INSTALL HEADER BOULDERS ON TOP OF AND SET SLIGHTLY BACK FROM THE FOOTER BOULDERS. THE NON-WOVEN GEOTEXTILE WILL BE SECURED BETWEEN THE HEADER AND FOOTER BOULDERS OF THE VANE AND EXTENDED UP THE BACK OF THE HEADERS. THE SLOPE OF THE VANE ARM IS MEASURED ALONG THE VANE ARM WHICH IS INSTALLED AT AN ANGLE TO THE STREAM BANK AND PROFILE. SILL HEADER BOULDERS ARE AT CONSTANT ELEVATION (X1) INTO THE BANK. THIS WORK SHALL BE REVIEWED BY THE ENGINEER AND APPROVED PRIOR TO PROCEEDING TO THE NEXT STEP.
 F. PLACE REMAINING COARSE BACKFILL BEHIND HEADER BOULDERS OF THE VANE OVER TO THE STREAM BANK, ENSURING THAT ANY VOIDS BETWEEN THE BOULDERS ARE FILLED. COMPACT TO 80% STANDARD PROCTOR DENSITY.
 G. BACKFILL REMAINDER OF VANE AND FLOODPLAIN SILL WITH PREVIOUSLY EXCAVATED MATERIAL. COMPACT TO 80% STANDARD PROCTOR DENSITY.
- IF ANY EROSION CONTROL MATTING IS SPECIFIED FOR USE IN THE VICINITY OF THE STREAM BANK/VANE INTERCEPT POINT THE MATTING EDGES SHALL BE NEATLY SECURED AROUND THE BOULDERS.

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PROFESSIONAL SEAL

REVISION RECORD	WAR	DESCRIPTION	BY
	NO.		DATE

PROJECT NAME:
 SUGAR CREEK STREAMBANK STABILIZATION PROJECT
 FOR YORK COUNTY, SOUTH CAROLINA

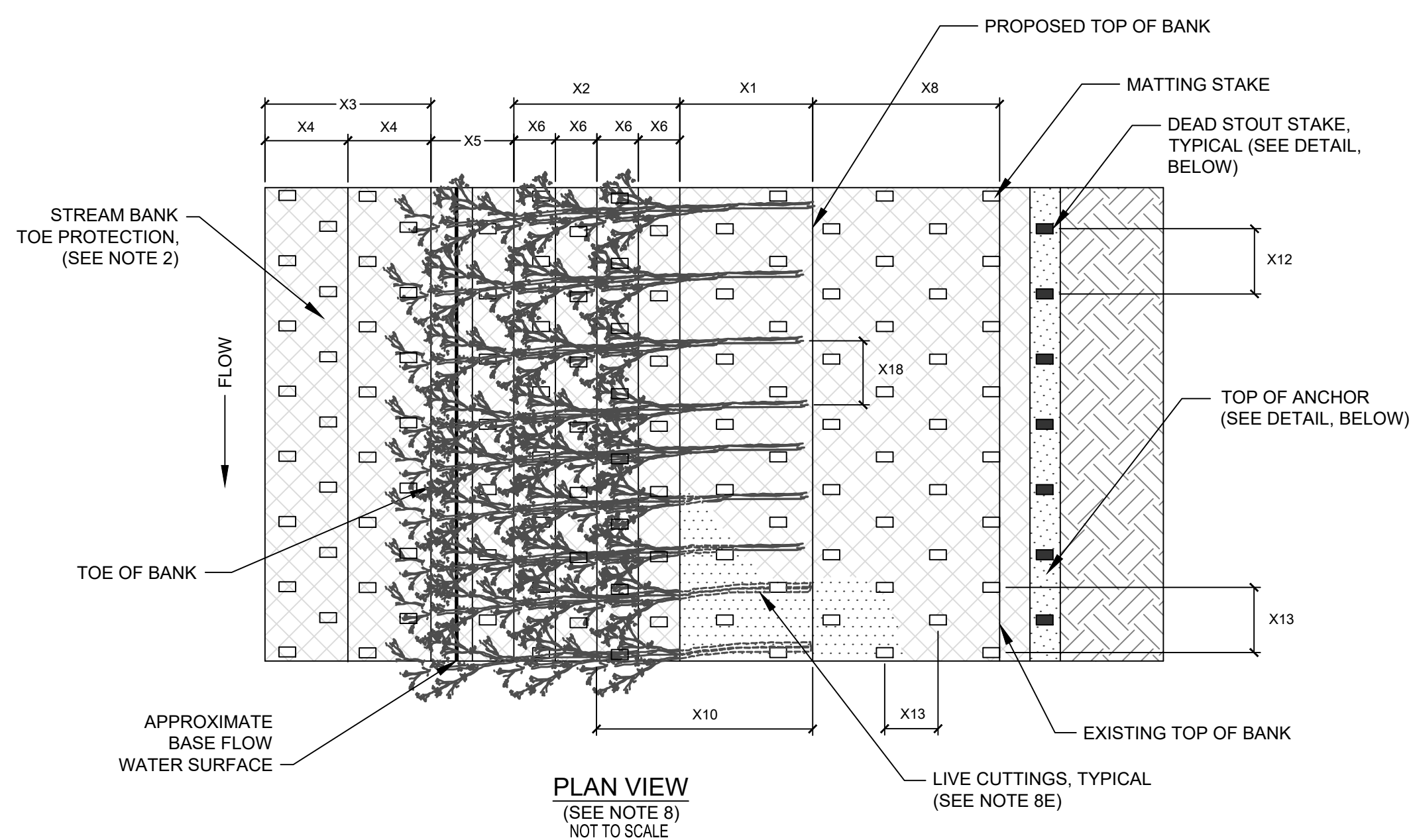
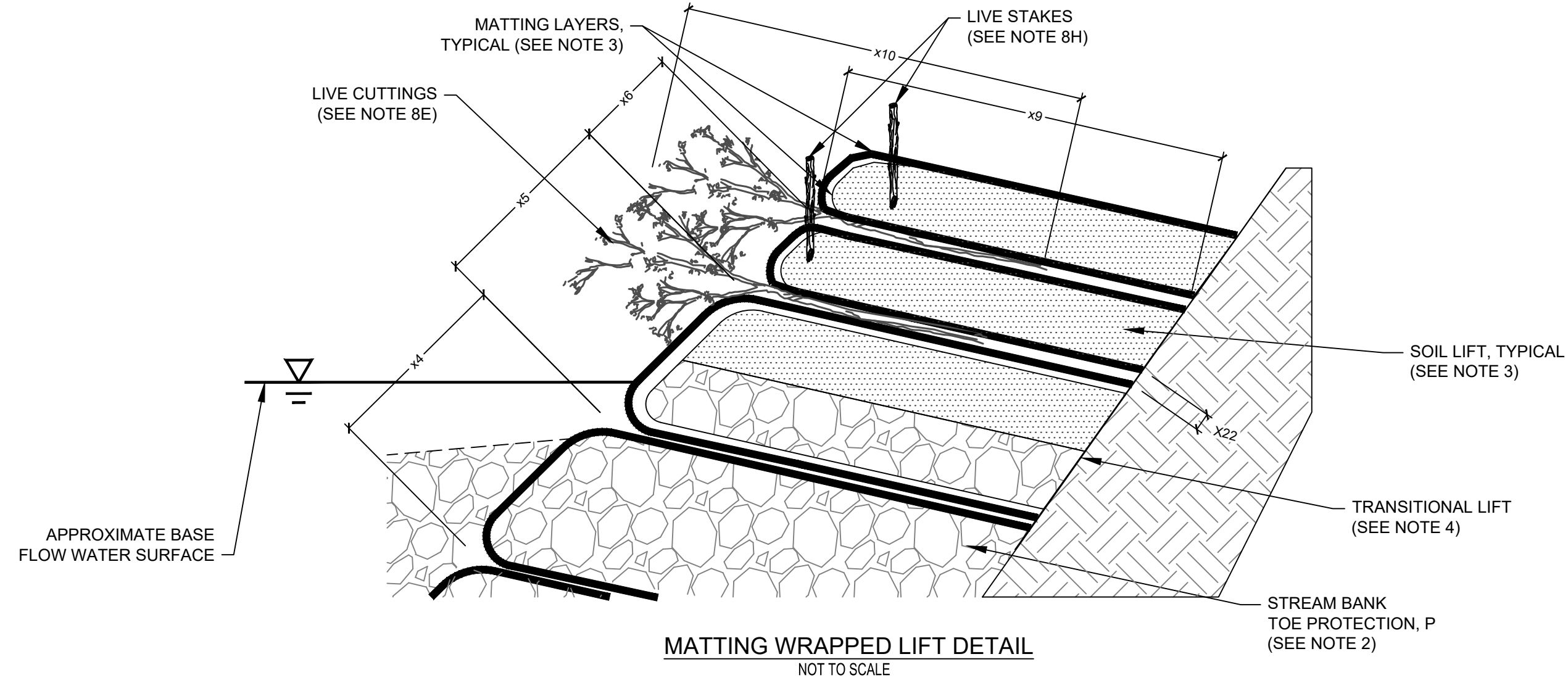
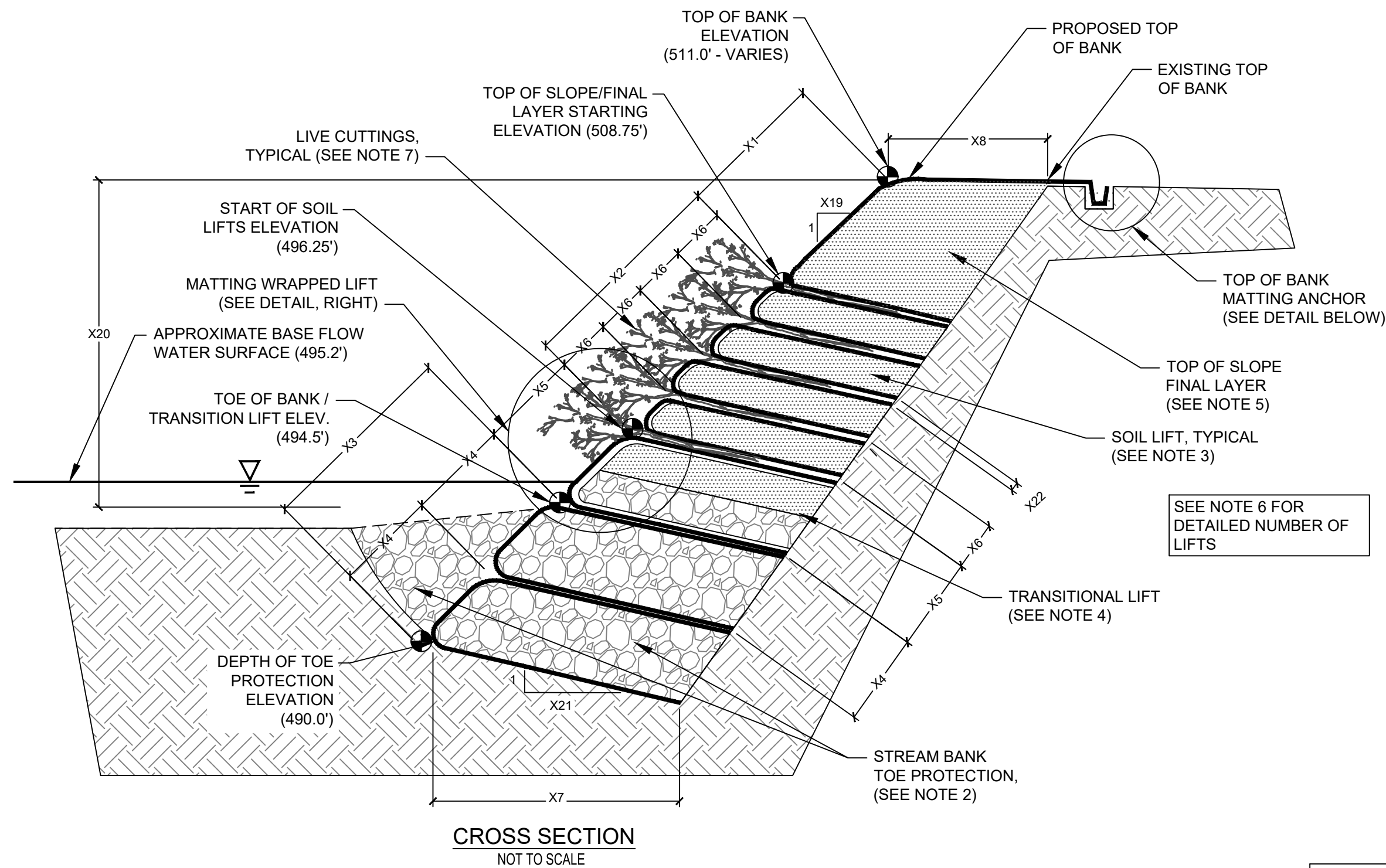
DRAWING TITLE:
 DETAILS - 1

PROJ. MGR.:	WAR
DESIGN BY:	DNP/WAR
DRAWN BY:	NBH
PROJ. DATE:	JULY 2024
DRAWING NUMBER:	

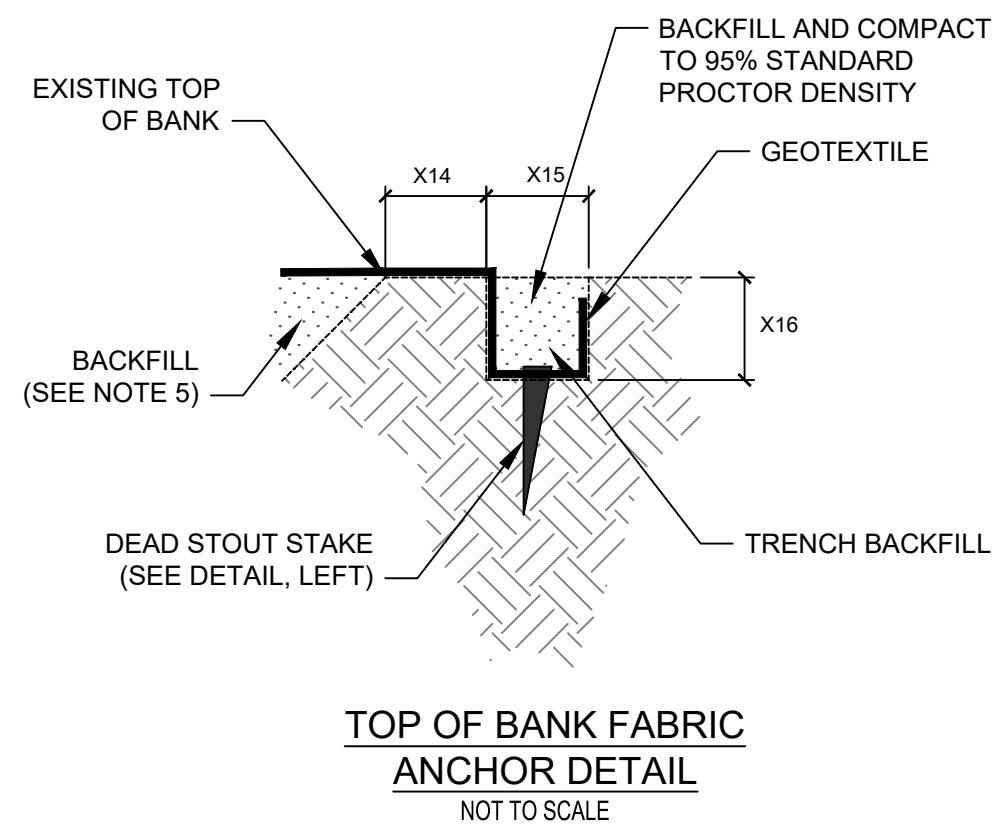
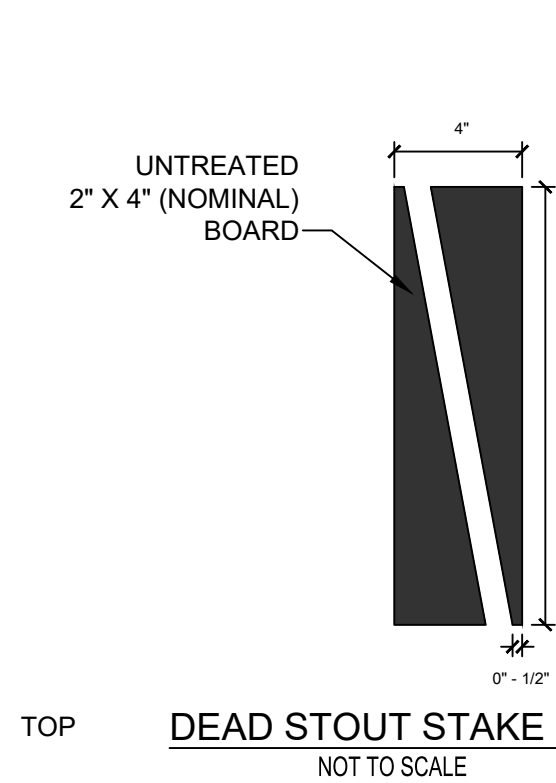
8 OF 10
 WKD PROJ. NO.:
 20190232.00.CL

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THE PARTIAL PERCENTAGE OF SOIL LOSS THAT MAY OCCUR DURING THE CONSTRUCTION OF THIS PROJECT IS ESTIMATED TO BE 10%. THE PERCENTAGE OF SOIL LOSS THAT MAY OCCUR DURING THE CONSTRUCTION OF THIS PROJECT IS ESTIMATED TO BE 10%. THE PERCENTAGE OF SOIL LOSS THAT MAY OCCUR DURING THE CONSTRUCTION OF THIS PROJECT IS ESTIMATED TO BE 10%.



DIMENSIONS (VALUES TO BE PROVIDED BY DESIGNER)			
VARIABLE	VALUES	TYPICAL UNIT	DESCRIPTION
X1	2.25	FT.	SOIL LIFT PLACEMENT FROM TOP OF BANK
X2	13	FT.	SOIL LIFT HEIGHT
X3	5.0	FT.	TOE PROTECTION HEIGHT
X4	1.5	FT.	ROCK LIFT FACE HEIGHT
X5	1.5	FT.	TRANSITIONAL LIFT FACE HEIGHT
X6	1	FT.	SOIL LIFT FACE HEIGHT
X7	14	FT.	BASE DEPTH OF STREAM BANK/SLOPE REPAIR
X8	3	FT.	TOP DEPTH OF STREAM BANK/SLOPE REPAIR
X9	6-14	FT.	DEPTH OF LIFTS (MIN. AND MAX. IF APPLICABLE), SEE NOTE 6
X10	4-5	FT.	LIVE CUTTING LENGTH
X11	0.5-3.0	IN.	LIVE CUTTING DIAMETER (MIN. AND MAX.)
X12	2	FT.	DEAD STOUT STAKE SPACING - TOP OF ANCHOR
X13	2	FT.	MATTING STAKE SPACING
X14	8	FT.	TOP OF BANK ANCHOR TRENCH SETBACK FROM TOP OF BANK (2' BEYOND END OF SOIL LIFT)
X15	8	IN.	TOP OF BANK ANCHOR TRENCH WIDTH
X16	8	IN.	TOP OF BANK ANCHOR TRENCH DEPTH
X17	2	FT.	DEAD STOUT STAKE LENGTH
X18	6	IN.	LIVE CUTTING SPACING
X19	2	NONE	BANK SLOPE (HORIZONTAL COMPONENT)
X20	16.5	FT.	SLOPE/BANK HEIGHT
X21	10	NONE	LIFT SLOPE (HORIZONTAL COMPONENT)
X22	3	IN.	SPACE BETWEEN SOIL LIFTS



LIVE CUTTINGS & LIVE STAKE TREE SPECIES	
SCIENTIFIC NAME	COMMON NAME
<i>Cornus Amomum</i>	Silky Dogwood
<i>Salix Sericea</i>	Silky Willow

NOTE: CONTRACTOR SHALL USE A MIX OF 50% OF EACH SPECIES.

**VEGETATED FABRIC-ENCAPSULATED
SOIL LIFTS (FESLs)**
 NOT TO SCALE

- NOTES:**
- VEGETATED FABRIC-ENCAPSULATED SOIL LIFTS (FESLs) CONSIST OF LAYERS OF SOIL WRAPPED IN GEOTEXTILE MATTING (SOIL LIFTS) WITH LIVE CUTTINGS INSTALLED BETWEEN THE LAYERS. THE SYSTEM IS INSTALLED OVER A STREAM BANK TOE PROTECTION.
 - STREAM BANK TOE PROTECTION SHALL CONSIST OF SCDOT CLASS A RIPRAP ROCK LIFTS WRAPPED WITH SCDOT 804.2.11 CLASS 2 GEOTEXTILE TO THE SPECIFIED DEPTH BELOW THE BANK TOE.
 - SOIL LIFTS SHALL CONSIST OF SOIL MEETING SCDOT STANDARD 713.2.7.6 WRAPPED IN TWO (2) LAYERS OF GEOTEXTILE (OUTER LAYER: TURF-REINFORCEMENT MATTING AS SPECIFIED, INNER LAYER: COIR MATTING - 900G/M2). SOIL BACKFILL SHOULD BE TESTED AND AMELIORATED WITH THE REQUIRED FERTILIZERS AND LIME AS NEEDED TO PROMOTE HEALTHY GROWTH PER TECHNICAL SPECIFICATIONS.
 - A TRANSITIONAL LIFT SHALL BE PLACED OVER THE TOE PROTECTION AND UNDER SOIL LIFTS AND CONTAIN BOTH LAYERS OF GEOTEXTILE. THIS LIFT SHALL CONSIST OF A BOTTOM LAYER OF THE SAME MATERIAL USED IN THE ROCK LIFTS AND A TOP LAYER OF THE SAME MATERIAL USED IN THE SOIL LIFTS. ENOUGH MATERIAL SHOULD BE USED IN THE BOTTOM ROCK LAYER SO THAT ROCK MATERIAL EXTENDS A FEW INCHES ABOVE THE LEVEL OF STREAM BASE FLOW.
 - THE TOP OF BANK ABOVE THE LAST SOIL LIFT (FINAL LAYER) SHALL BE WRAPPED WITH TURF REINFORCEMENT MATTING ONLY, SEEDED, AND MULCHED. SOIL USED IN THIS LAYER SHALL BE THE SAME AS IN THE SOIL LIFTS AND COMPACTED IN THE SAME FASHION.
 - THE APPROXIMATE NUMBER AND DEPTH INTO BANK OF THE LIFTS ARE AS FOLLOWS:
 - TOE PROTECTION ROCK LIFTS: 3 LAYERS AT 14' DEPTH (LENGTH INTO BANK) (STARTING ELEV. = 490.0')
 - TRANSITION LIFT: 1 LAYER AT 14' DEPTH (STARTING ELEV. = 494.50')
 - SOIL LIFTS: 3 LAYERS AT 14' DEPTH (STARTING ELEV. = 496.25'), 3 LAYERS AT 10' DEPTH (STARTING ELEV. = 500.00'), AND 4 LAYERS AT 6' DEPTH (STARTING ELEV. = 503.75')
 - TOP-OF SLOPE "LIFT": 1 LAYER AT 2.25' DEPTH AT BOTTOM (STARTING ELEV. = 508.75'). TOP DEPTH VARIES. FOLLOW PROPOSED GRADING PLAN FOR FINAL TOP OF BANK ELEVATION.
 - THE LIVE CUTTINGS USED IN THE VEGETATED FESL ARE SPECIFIED IN THE TABLE BELOW. ADDITIONAL INFORMATION ABOUT LIVE CUTTINGS INCLUDING HARVESTING AND HANDLING INFORMATION SHALL BE DETAILED IN THE SPECIFICATIONS.
 - INSTALLATION OF VEGETATED FESL SHALL PROGRESS GENERALLY AS FOLLOWS:
 - COLLECT AND SOAK THE LIVE CUTTINGS IN WATER FOR 5-7 DAYS BEFORE PLANTING.
 - EXCAVATE THE EXISTING STREAMBANK SLOPE UNTIL A STABLE, UNDISTURBED SURFACE IS ENCOUNTERED. AN ANGLED BENCH OF SPECIFIED SLOPE SHOULD BE CREATED SLOPING UPWARD FROM THE TOE OF THE STABLE CUT SLOPE TO THE TOE OF THE PROPOSED STREAMBANK. EXCAVATE A TRENCH ALONG THE PROPOSED TOE OF THE STREAM BANK TO THE SPECIFIED DEPTH BELOW EXISTING BANK TOE.
 - CONSTRUCT ROCK LIFTS. LAY GEOTEXTILE ON THE BENCH FROM THE BACK OF EXCAVATION. A SUFFICIENT AMOUNT OF MATTING SHOULD REMAIN TO WRAP THE FACE OF THE LIFT AND EXTEND BACK ON TOP OF THE LIFT. OVERLAP EXISTING MATTING BY 1 FOOT. PLACE ROCK FILL AND WRAP COMPACTED ROCK LIFT WITH THE REMAINING MATTING AND STAKE. LIFTS SHALL SLOPE UPWARD TOWARD THE PROPOSED SLOPE FACE TO ACHIEVE THE SPECIFIED SLOPE OF THE PROPOSED STREAM BANK FACE. BACKFILL TRENCH FROM THE POINT OF EXCAVATION TO THE BOTTOM LIFT WITH ROCK.
 - CONSTRUCT TRANSITIONAL LIFT. PLACE DOUBLE LAYER OF EROSION CONTROL MATTING AS DESCRIBED IN NOTE 3 FROM THE BACK EXCAVATION OVER TOE PROTECTION. STAKE BOTTOM OF MATTING WITH A MINIMUM OF THREE (3) ROWS OF STAKING. FILL BOTTOM 3/4 OF THE TRANSITIONAL LAYER WITH ROCK AND THE REMAINDER WITH THE SOIL. SOIL BACKFILL SHALL BE PLACED IN 4-6 INCH LIFTS AND COMPACTED TO 80-90% STANDARD PROCTOR DENSITY WITH A SKID-TYPE, ROLLER, OR VIBRATORY COMPACTOR. WRAP COMPACTED SOIL LIFT WITH THE REMAINING MATTING AND STAKE.
 - PLACE A 1-2 IN. LAYER OF SOIL EVENLY OVER TERRACE. PLACE LAYER OF LIVE CUTTINGS ON TOP OF THE LIFT AT THE SPECIFIED SPACING. THE BUDDING END SHALL PROJECT NO MORE THAN 6 INCHES FROM THE PROPOSED SLOPE FACE. PLACE BRANCHES ORIENTED AT RIGHT ANGLES TO STREAM. COVER THE LIVE BRANCHES WITH 1-2 IN. OF TOPSOIL TO ENSURE ROOTING MEDIUM AND CREATE AN EVEN SURFACE FOR NEXT LIFT.
 - CONSTRUCT SOIL LIFTS FOLLOWING METHOD DESCRIBED IN NOTE 8D SUBSTITUTING SOIL FOR THE ROCK COMPONENT.
 - CONSTRUCT FINAL, TOP OF BANK LAYER ABOVE LAST SOIL LIFT. SEED AND MULCH AS SPECIFIED.
 - INSTALL LIVE STAKES ON HORIZONTAL SURFACE OF EACH SOIL LIFT, ONE ROW WITH THREE FOOT (3') SPACING.
 - THE FACE OF THE COMPLETED VEGETATED FESL SHALL HAVE TERRACES, AND OVERALL SHALL MATCH THE PROPOSED BANK SLOPE.
 - THE PLAN VIEW ILLUSTRATES A PERPENDICULAR PERSPECTIVE OF EACH SURFACE DEPICTED IN THE CROSS SECTION. THERE IS NO FORESHORTENING OF THE STREAM BANK (OR ANY OTHER SLOPED SURFACE) IN THE PLAN VIEW.

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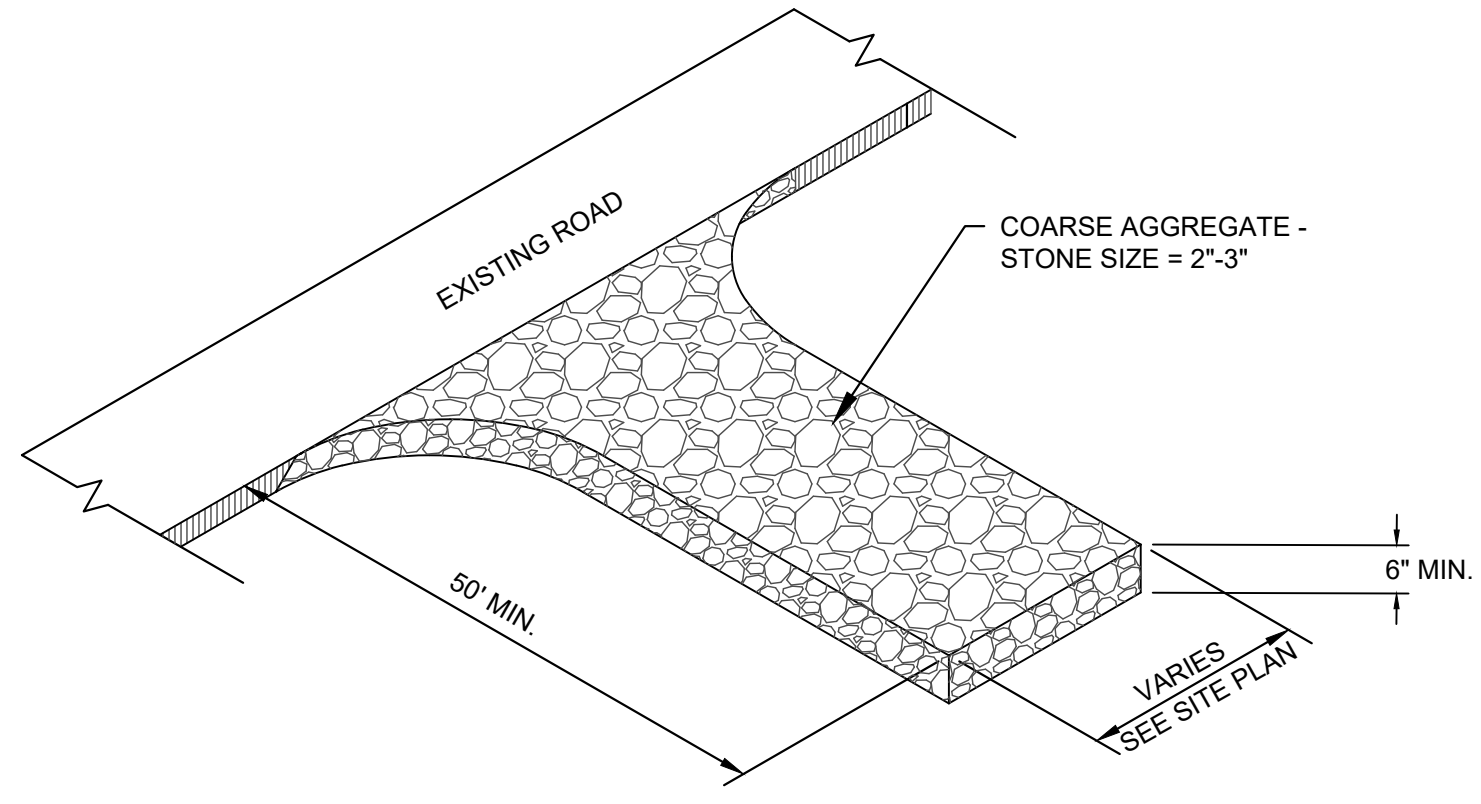
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SUGAR CREEK STREAMBANK STABILIZATION PROJECT
 FOR
 YORK COUNTY, SOUTH CAROLINA
 PROJECT NAME: _____
 DRAWING TITLE: **DETAILS - 2**

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 WKD PROJ. NO.: 20190232.00.CL

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THE INTENT OF THIS DOCUMENT IS TO PROVIDE INFORMATION TO THE USER. THE INFORMATION IS NOT TO BE USED AS A BASIS FOR LIABILITY. THE USER SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE PROJECT. THE INFORMATION IS NOT TO BE USED AS A BASIS FOR LIABILITY. THE USER SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE PROJECT.

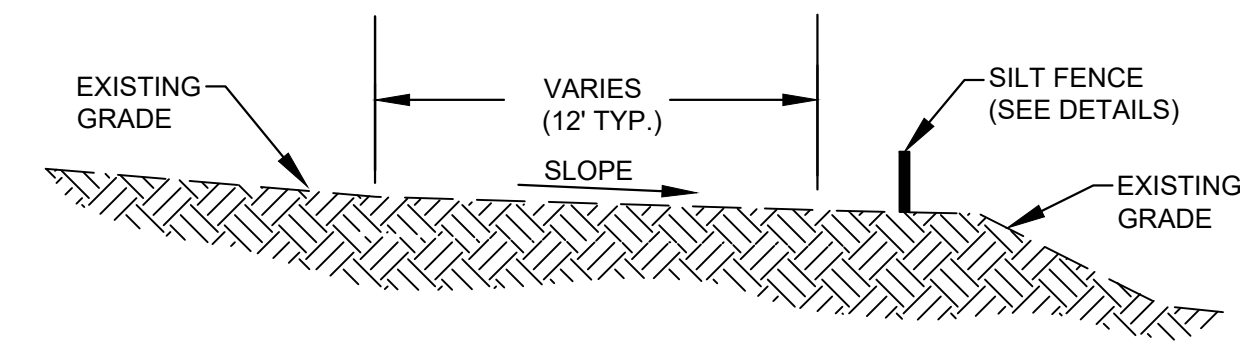


PURPOSE:
 STABILIZED CONSTRUCTION ENTRANCES SHOULD BE USED AT ALL POINTS WHERE TRAFFIC WILL BE LEAVING A CONSTRUCTION SITE AND MOVING DIRECTLY ONTO A PUBLIC ROAD.

- CONSTRUCTION SPECIFICATIONS:**
- CLEAR THE ENTRANCE AND EXIT AREA OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL AND PROPERLY GRADE IT.
 - PLACE THE GRAVEL TO THE SPECIFIC GRADE AND DIMENSIONS SHOWN ON THE DETAIL, AND SMOOTH IT.
 - PROVIDE DRAINAGE TO CARRY WATER TO A SEDIMENT TRAP OR OTHER SUITABLE OUTLET.
 - USE GEOTEXTILE FABRICS BECAUSE THEY IMPROVE STABILITY OF THE FOUNDATION IN LOCATIONS SUBJECT TO SEEPAGE OR HIGH WATER TABLE.

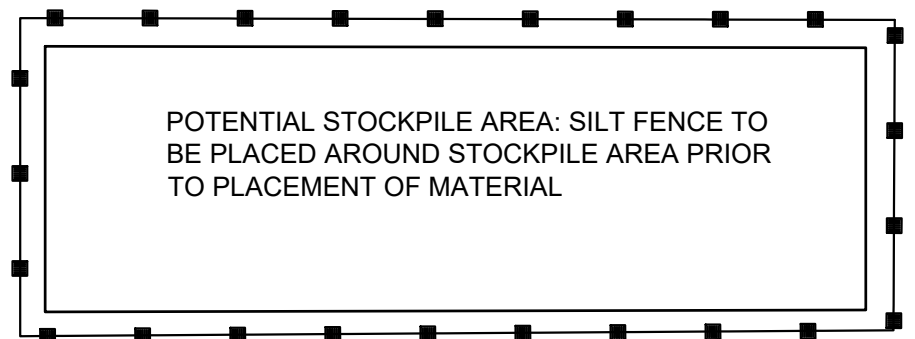
MAINTENANCE:
 MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2-INCH STONE. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS, OR AIRFIELD PAVEMENTS.

1
10
 TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
 NOT TO SCALE



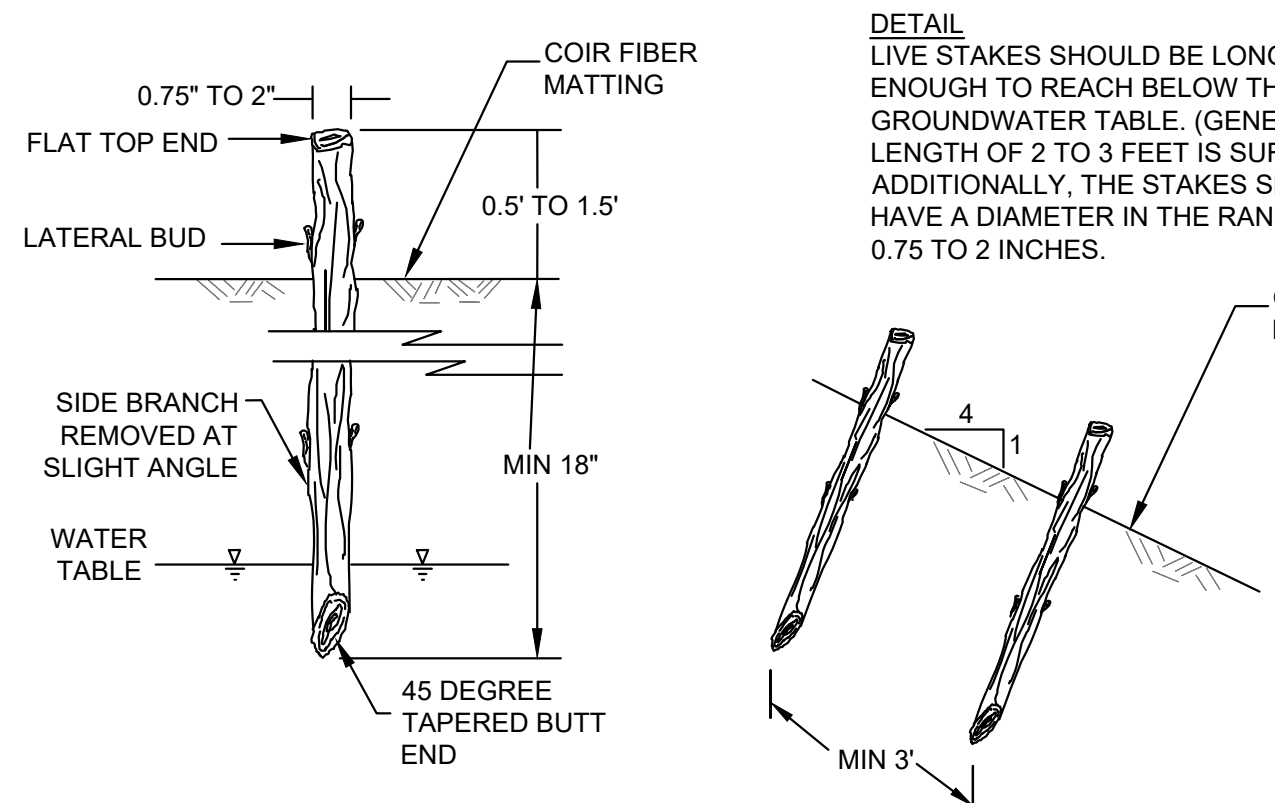
- NOTE:**
- MAINTAIN HAUL ROAD IN A SERVICEABLE CONDITION DURING CONSTRUCTION.
 - RETURN TO ORIGINAL GRADE AT THE COMPLETION OF WORK.
 - VEGETATE ALL DISTURBED AREAS.
 - REMOVE SILT FENCE UPON ESTABLISHMENT OF VEGETATION.

2
10
 TYPICAL HAUL ROAD SECTION
 NOT TO SCALE



NOTE:
 SILT FENCE IS TO BE INSTALLED ONLY ON THE DOWNHILL SLOPE. OPEN AND CLOSE AS NEEDED FOR TEMPORARY ACCESS.

3
10
 STOCKPILE STORAGE AREA
 NOT TO SCALE



DETAIL
 LIVE STAKES SHOULD BE LONG ENOUGH TO REACH BELOW THE GROUNDWATER TABLE. (GENERALLY, A LENGTH OF 2 TO 3 FEET IS SUFFICIENT.) ADDITIONALLY, THE STAKES SHOULD HAVE A DIAMETER IN THE RANGE OF 0.75 TO 2 INCHES.

SECTION VIEW
 LIVE STAKES SHALL BE SPACED 3 FEET APART, ALTERNATE SPACING.

4
10
 LIVE STAKE
 NOT TO SCALE

WHEN AND WHERE TO USE IT
 SILT FENCE IS APPLICABLE IN AREAS:
 • WHERE THE MAXIMUM SHEET OR OVERLAND FLOW PATH LENGTH TO THE FENCE IS 100-FEET.
 • WHERE THE MAXIMUM SLOPE STEEPNESS (NORMAL [PERPENDICULAR] TO FENCE LINE) IS 2H:1V.
 • THAT DO NOT RECEIVE CONCENTRATED FLOWS GREATER THAN 0.5 CFS.

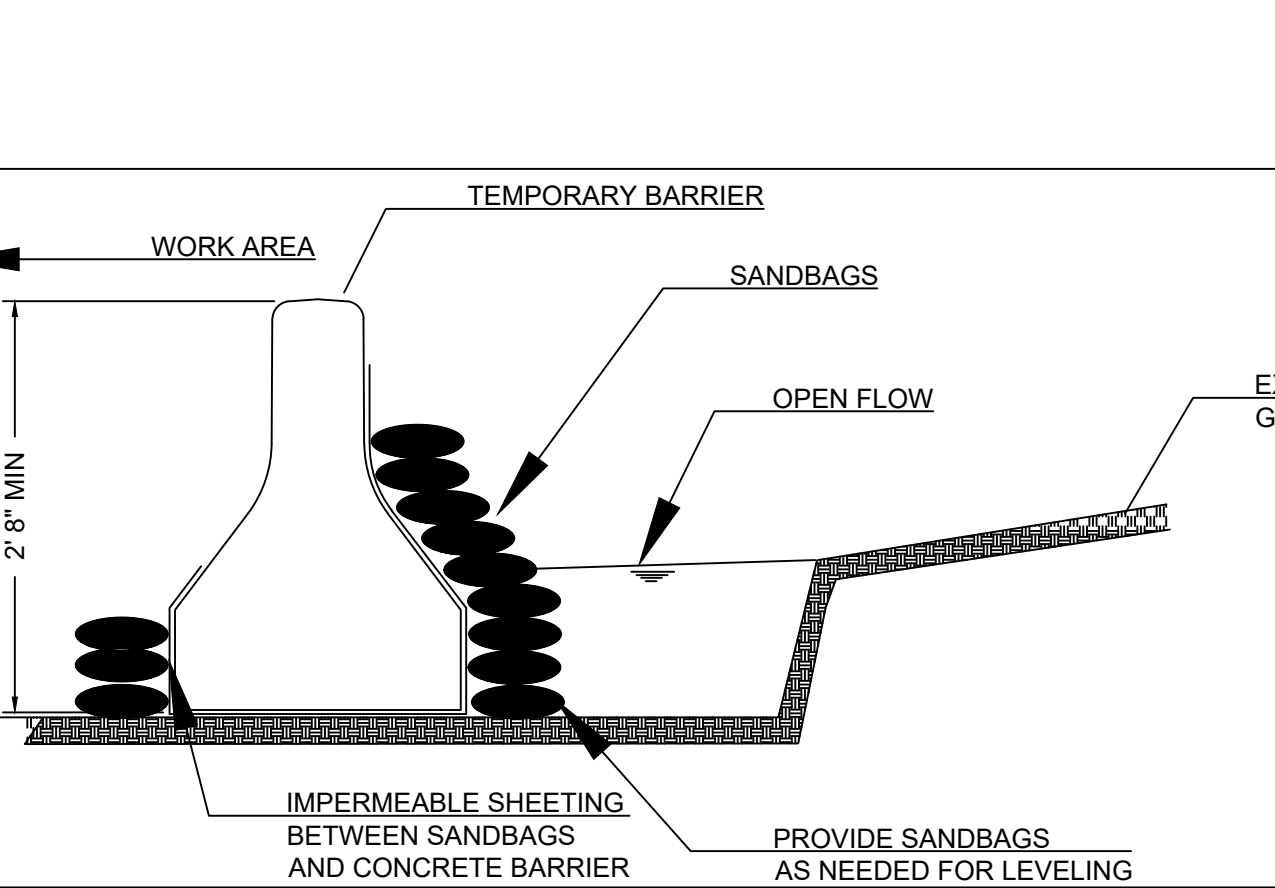
DO NOT PLACE SILT FENCE ACROSS CHANNELS OR USE IT AS A VELOCITY CONTROL BMP.

CONSTRUCTION SPECIFICATIONS:

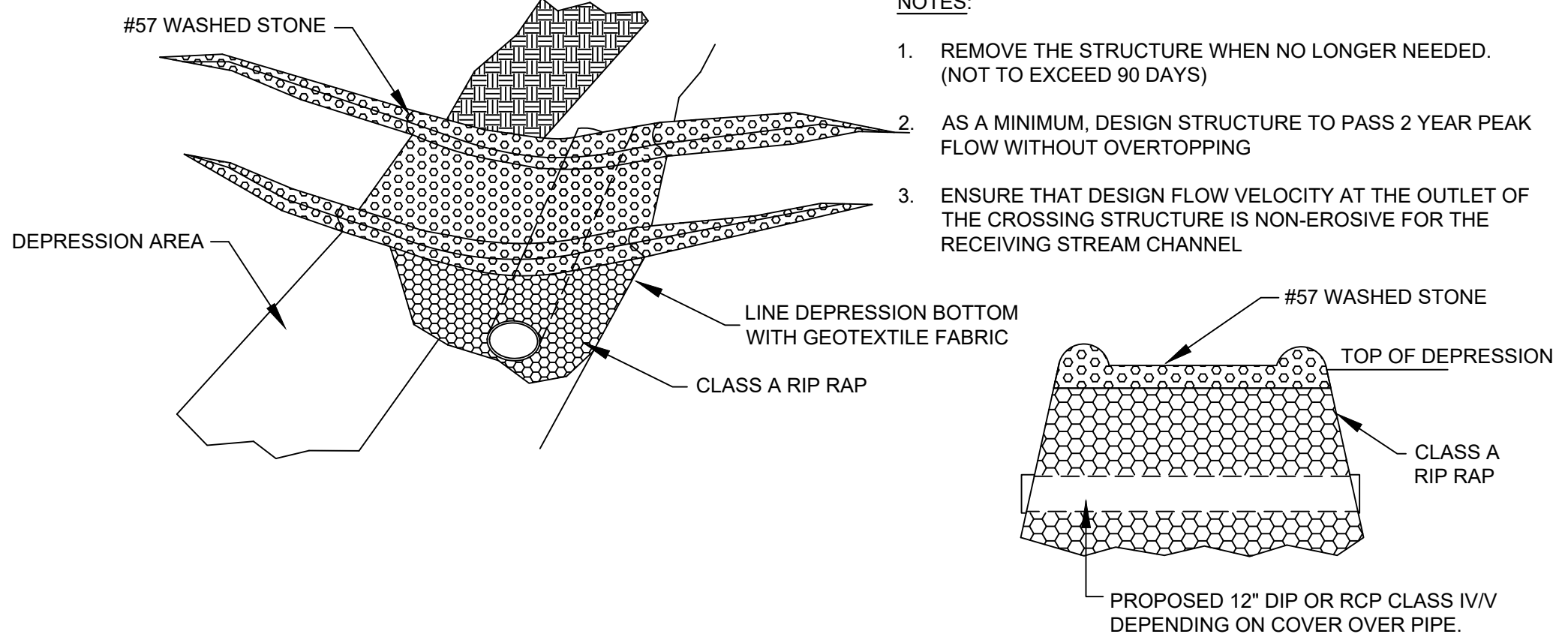
- USE A SYNTHETIC FILTER FABRIC OF AT LEAST 95% BY WEIGHT OF POLYOLEFINS OR POLYESTER, WHICH IS CERTIFIED BY THE MANUFACTURER OR SUPPLIER AS CONFORMING TO THE REQUIREMENTS IN ASTM D 6461. SYNTHETIC FILTER FABRIC SHOULD CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF 6 MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0° TO 120° F.
- EXTRA STRENGTH FILTER FABRICS ARE 1.33 LB/LINEAR FT STEEL WITH A MINIMUM LENGTH OF 5 FEET. MAKE SURE THAT STEEL POSTS HAVE PROJECTIONS TO FACILITATE FASTENING THE FABRIC.

- CONSTRUCTION:**
- CONSTRUCT THE SEDIMENT BARRIER OF EXTRA STRENGTH SYNTHETIC FILTER FABRICS.
 - ENSURE THAT THE HEIGHT OF THE SEDIMENT FENCE DOES NOT EXCEED 24 INCHES ABOVE THE GROUND SURFACE. (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE.)
 - CONSTRUCT THE FILTER FABRIC FROM A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID JOINTS. WHEN JOINTS ARE NECESSARY, SECURELY FASTEN THE FILTER CLOTH ONLY AT A SUPPORT POST WITH 4 FEET MINIMUM OVERLAP TO THE NEXT POST.
 - EXTRA STRENGTH FILTER FABRIC WITH 6 FEET POST SPACING DOES NOT REQUIRE WIRE MESH SUPPORT FENCE. SECURELY FASTEN THE FILTER FABRIC DIRECTLY TO POSTS. WIRE OR PLASTIC ZIP TIES SHOULD HAVE MINIMUM 50 POUND TENSILE STRENGTH.
 - EXCAVATE A TRENCH APPROXIMATELY 4 INCHES WIDE AND 8 INCHES DEEP ALONG THE PROPOSED LINE OF POSTS AND UPSLOPE FROM THE BARRIER.
 - PLACE 12 INCHES OF THE FABRIC ALONGS THE BOTTOM AND SIDE OF THE TRENCH.
 - BACKFILL THE TRENCH WITH SOIL PLACED OVER THE FILTER FABRIC AND COMPACT. THOROUGH COMPACTION OF THE BACKFILL IS CRITICAL TO SILT FENCE PERFORMANCE.
 - DO NOT ATTACH FILTER FABRIC TO EXISTING TREES.

- MAINTENANCE:**
- INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
 - SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
 - REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.
 - REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

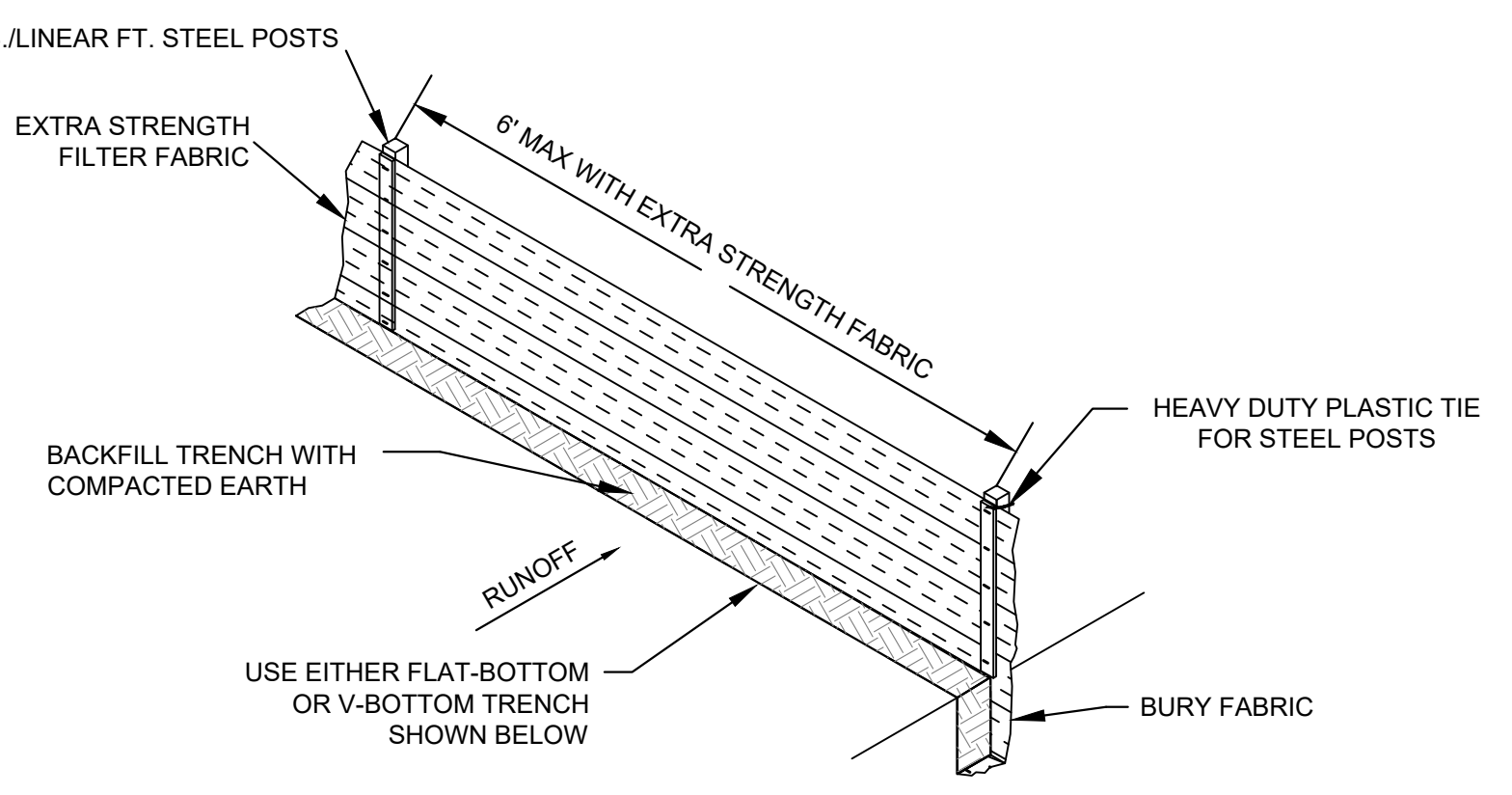


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 COFFER DAM
 NOT TO SCALE

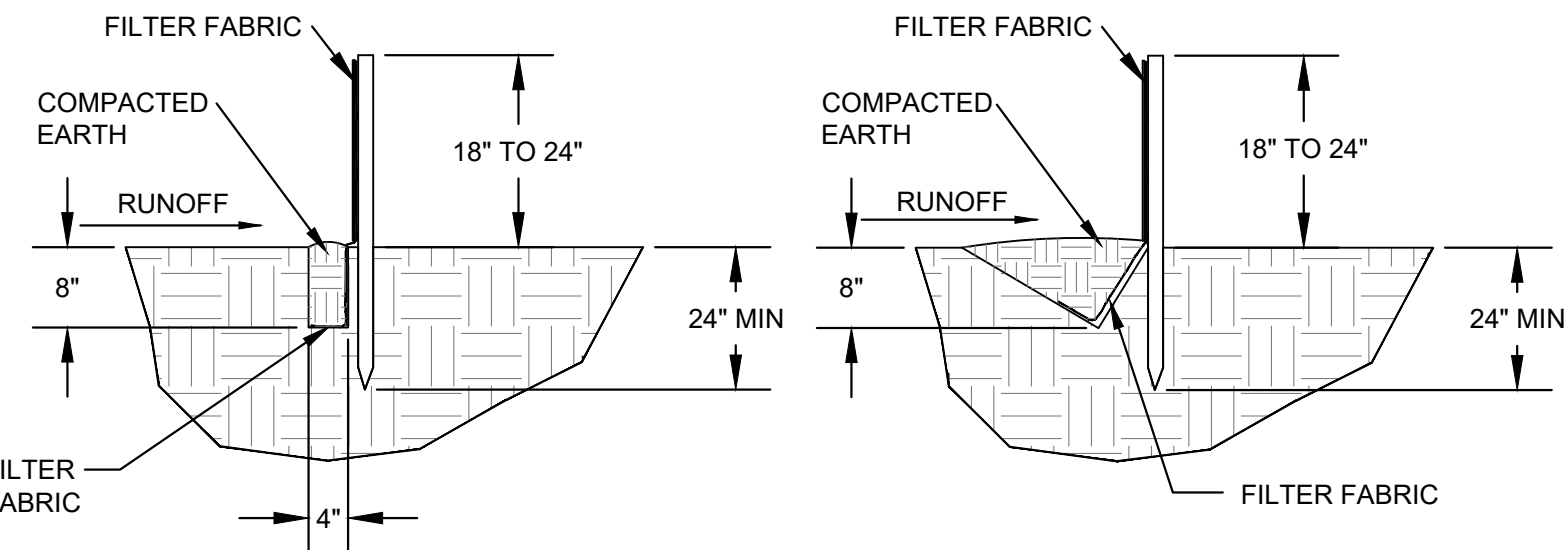


- NOTES:**
- REMOVE THE STRUCTURE WHEN NO LONGER NEEDED. (NOT TO EXCEED 90 DAYS)
 - AS A MINIMUM, DESIGN STRUCTURE TO PASS 2 YEAR PEAK FLOW WITHOUT OVERTOPPING
 - ENSURE THAT DESIGN FLOW VELOCITY AT THE OUTLET OF THE CROSSING STRUCTURE IS NON-EROSIVE FOR THE RECEIVING STREAM CHANNEL

5
10
 TEMPORARY DEPRESSION CROSSING
 NOT TO SCALE



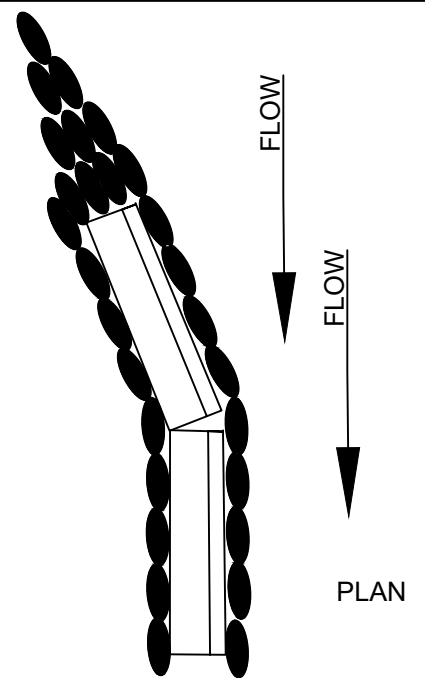
SILT FENCE INSTALLATION



FLAT-BOTTOM TRENCH DETAIL **V-SHAPED TRENCH DETAIL**

6
10
 SILT FENCE
 NOT TO SCALE

- NOTES:**
- FOR SANDBAGS, USE MATERIALS THAT ARE RESISTANT TO UV RADIATION, TEARING AND PUNCTURE AND ARE TIGHTLY WOVEN SO AS TO NOT SPILL CONTENTS.
 - USE BARRIER MADE OF CONCRETE, WATER BAGS, OR OTHER APPROVED MATERIAL.
 - USE 10 MIL OR THICKER IMPERMEABLE SHEETING.
 - OVERLAP SHEETING FROM UPSTREAM TO DOWNSTREAM A MIN OF 18 INCHES.
 - INSTALL BARRIER FROM UPSTREAM TO DOWNSTREAM.
 - DE-WATER WORK AREA AS SHOWN.
 - KEEP ABUTMENTS BETWEEN CONCRETE BARRIERS WATER TIGHT, REPLACE SANDBAGS AND IMPERMEABLE SHEETING AS NEEDED.
 - PROVIDE SEALED SHOP DRAWING FOR REVIEW BY ENGINEER PRIOR TO INSTALLATION.



7
10
 COFFER DAM
 NOT TO SCALE

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 W. K. DICKSON & COMPANY, INC.
 No. 29606
 WILLIAM A. RECTOR
 7-30-2024
 PROFESSIONAL SEAL

NO.	DATE	DESCRIPTION	BY

PROJECT NAME:
 SUGAR CREEK STREAMBANK STABILIZATION PROJECT
 FOR YORK COUNTY, SOUTH CAROLINA

DRAWING TITLE:
 DETAILS - 3

PROJ. MGR.: WAR
DESIGN BY: DNP
DRAWN BY: NBH
PROJ. DATE: JULY 2024
DRAWING NUMBER:

10 OF 10
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