STATE	REFERENCE PROJECT NO.	YEAR	SHEET NO.	LAST SHEET
AL	EM11506	2012	1	19

WOLF CREEK STREAM RESTORATION

THE CITY OF FOLEY

FOLEY, BALDWIN COUNTY, ALABAMA

GMC PROJECT NO. EM11506

DRAFT 2 PLANS

VICINITY MAP

NOT TO SCALE

SHEET NUMBER AND DESCRIPTION

PLANS PREPARED BY:

GOODWYN | MILLS | CAWOOD

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Tel 205.879.4462 | **GMCNETWORK.COM**

WOLF CREEK STREAM RESTORATION
FOLEY, BALDWIN COUNTY, ALABAMA

EM11506

EXISTING CONDITIONS

ISSUE	DATE
DRAFT 1	03/29/2012
DRAFT 2	07/09/2013
drawn by:	WHM
checked by:	

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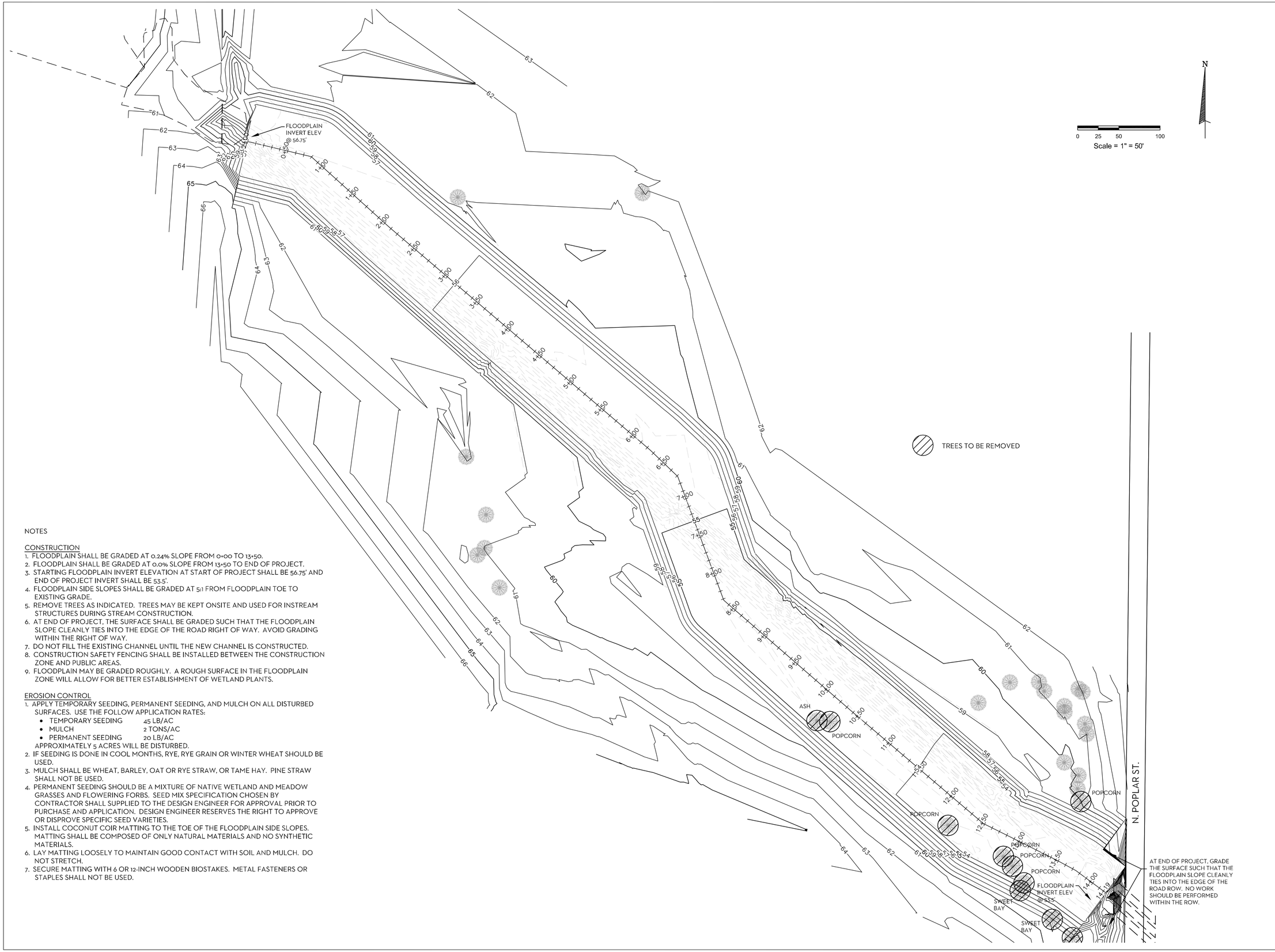

NOTES

CONSTRUCTION

1. FLOODPLAIN SHALL BE GRADED AT 0.24% SLOPE FROM 0+00 TO 13+50.
2. FLOODPLAIN SHALL BE GRADED AT 0.0% SLOPE FROM 13+50 TO END OF PROJECT.
3. STARTING FLOODPLAIN INVERT ELEVATION AT START OF PROJECT SHALL BE 56.75' AND END OF PROJECT INVERT SHALL BE 53.5'.
4. FLOODPLAIN SIDE SLOPES SHALL BE GRADED AT 5:1 FROM FLOODPLAIN TOE TO EXISTING GRADE.
5. REMOVE TREES AS INDICATED. TREES MAY BE KEPT ONSITE AND USED FOR INSTREAM STRUCTURES DURING STREAM CONSTRUCTION.
6. AT END OF PROJECT, THE SURFACE SHALL BE GRADED SUCH THAT THE FLOODPLAIN SLOPE CLEANLY TIES INTO THE EDGE OF THE ROAD RIGHT OF WAY. AVOID GRADING WITHIN THE RIGHT OF WAY.
7. DO NOT FILL THE EXISTING CHANNEL UNTIL THE NEW CHANNEL IS CONSTRUCTED.
8. CONSTRUCTION SAFETY FENCING SHALL BE INSTALLED BETWEEN THE CONSTRUCTION ZONE AND PUBLIC AREAS.
9. FLOODPLAIN MAY BE GRADED ROUGHLY. A ROUGH SURFACE IN THE FLOODPLAIN ZONE WILL ALLOW FOR BETTER ESTABLISHMENT OF WETLAND PLANTS.

EROSION CONTROL

1. APPLY TEMPORARY SEEDING, PERMANENT SEEDING, AND MULCH ON ALL DISTURBED SURFACES. USE THE FOLLOW APPLICATION RATES:
   - TEMPORARY SEEDING 45 LB/AC
   - MULCH 2 TONS/AC
   - PERMANENT SEEDING 20 LB/AC

   APPROXIMATELY 5 ACRES WILL BE DISTURBED.
2. IF SEEDING IS DONE IN COOL MONTHS, RYE, RYE GRAIN OR WINTER WHEAT SHOULD BE USED.
3. MULCH SHALL BE WHEAT, BARLEY, OAT OR RYE STRAW, OR TAME HAY. PINE STRAW SHALL NOT BE USED.
4. PERMANENT SEEDING SHOULD BE A MIXTURE OF NATIVE WETLAND AND MEADOW GRASSES AND FLOWERING FORBS. SEED MIX SPECIFICATION CHOSEN BY CONTRACTOR SHALL SUPPLIED TO THE DESIGN ENGINEER FOR APPROVAL PRIOR TO PURCHASE AND APPLICATION. DESIGN ENGINEER RESERVES THE RIGHT TO APPROVE OR DISPROVE SPECIFIC SEED VARIETIES.
5. INSTALL COCONUT COIR MATTING TO THE TOE OF THE FLOODPLAIN SIDE SLOPES. MATTING SHALL BE COMPOSED OF ONLY NATURAL MATERIALS AND NO SYNTHETIC MATERIALS.
6. LAY MATTING LOOSELY TO MAINTAIN GOOD CONTACT WITH SOIL AND MULCH. DO NOT STRETCH.
7. SECURE MATTING WITH 6 OR 12-INCH WOODEN BIOSTAKES. METAL FASTENERS OR STAPLES SHALL NOT BE USED.

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WOLF CREEK RESTORATION
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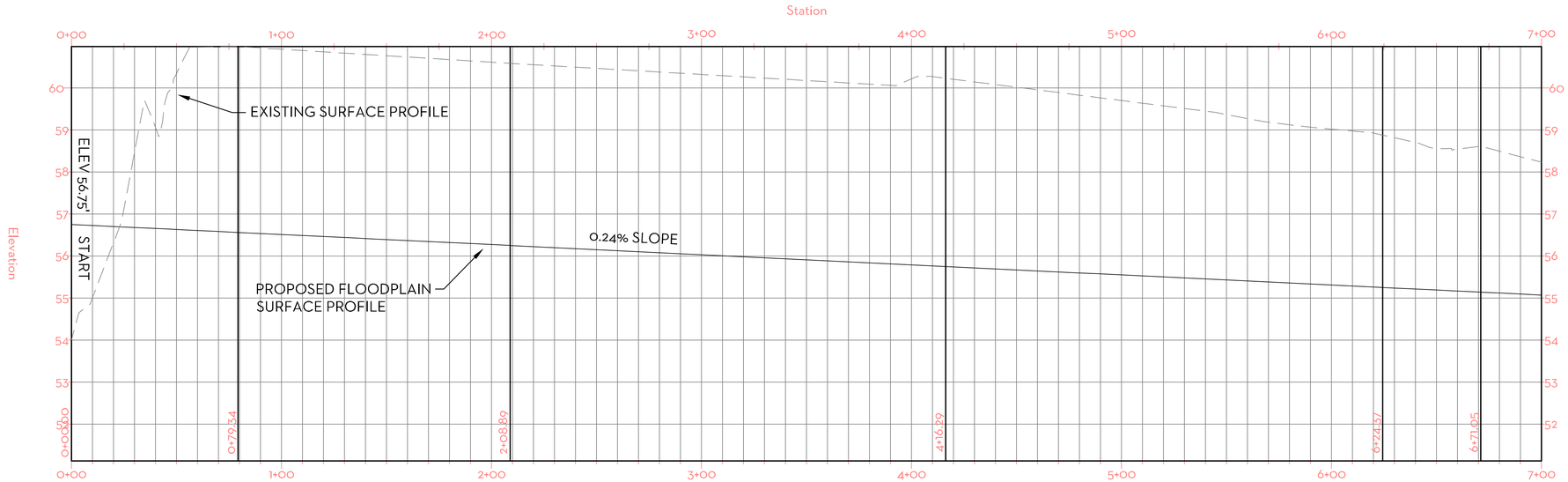
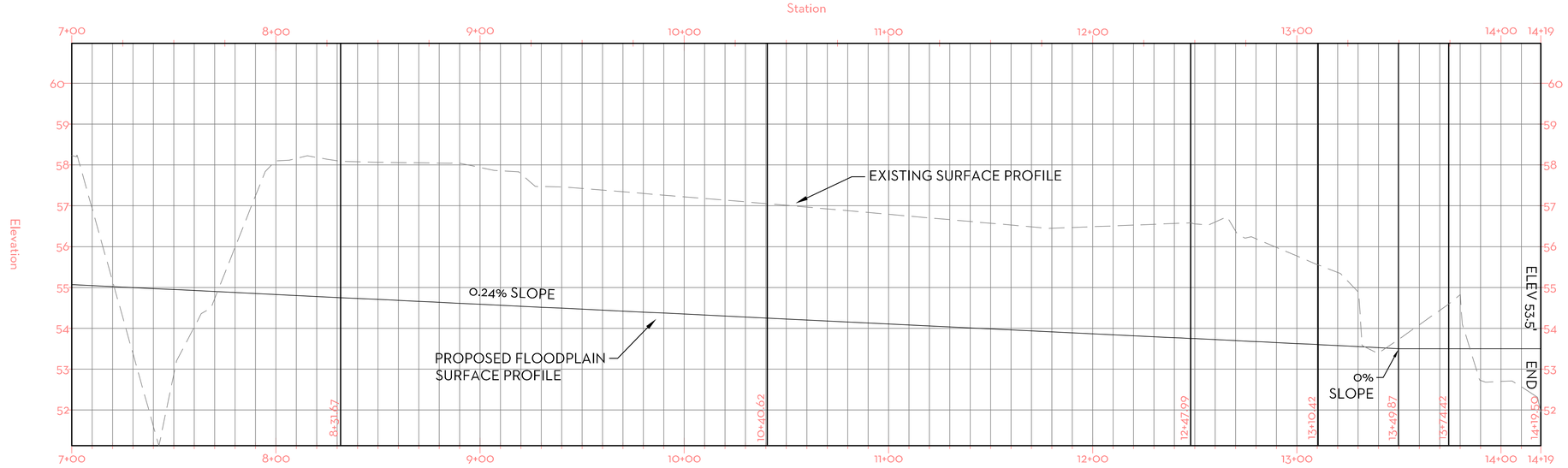
PROPOSED FLOODPLAIN LAYOUT

PROPOSED WOLF CREEK FLOODPLAIN PROFILE



PROPOSED WOLF CREEK FLOODPLAIN PROFILE



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FLOODPLAIN LONGITUDINAL PROFILE

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WOLF CREEK STREAM RESTORATION

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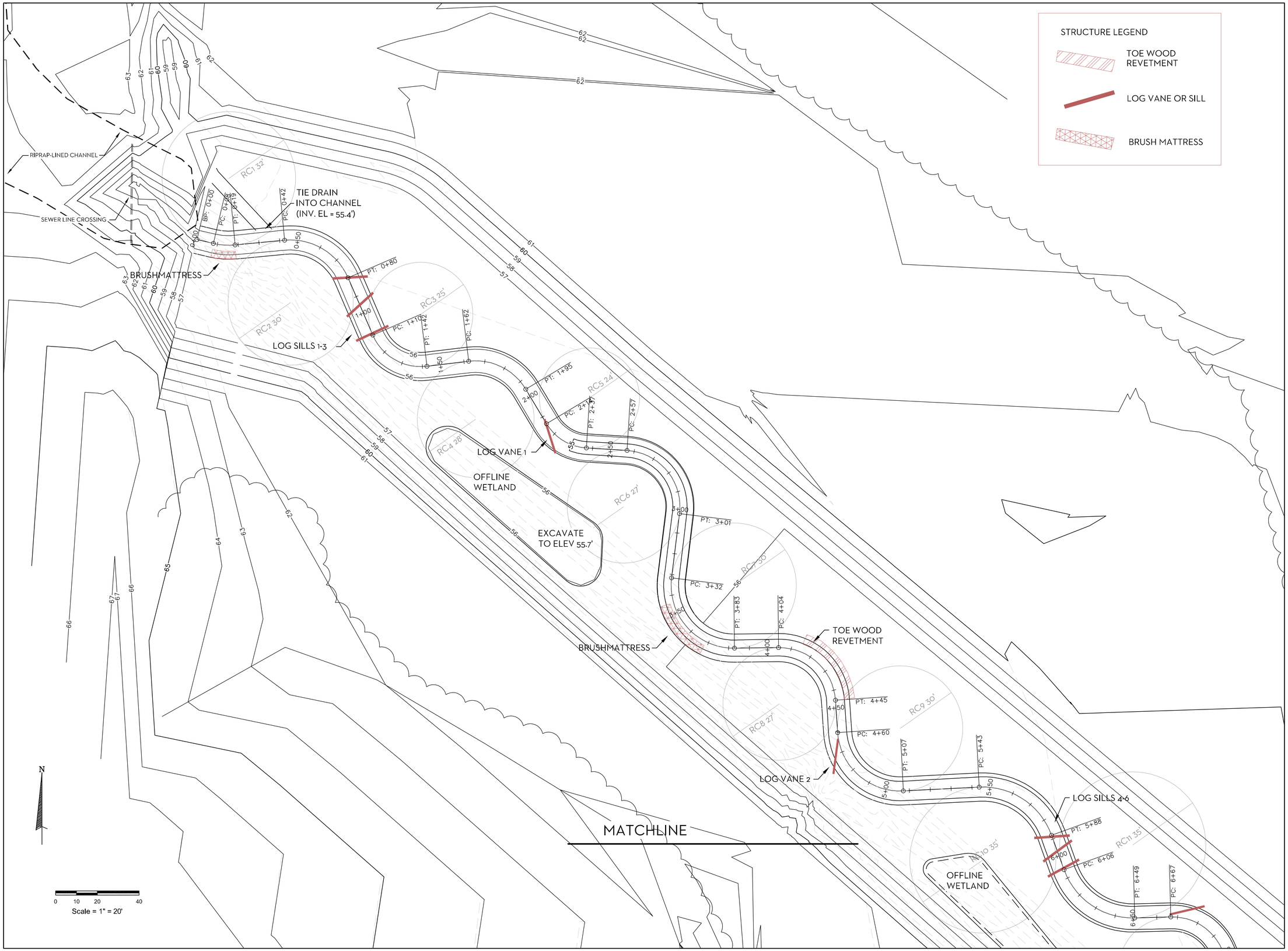
OVERALL STREAM LAYOUT

sheet 5 of 19



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WOLF CREEK STREAM RESTORATION

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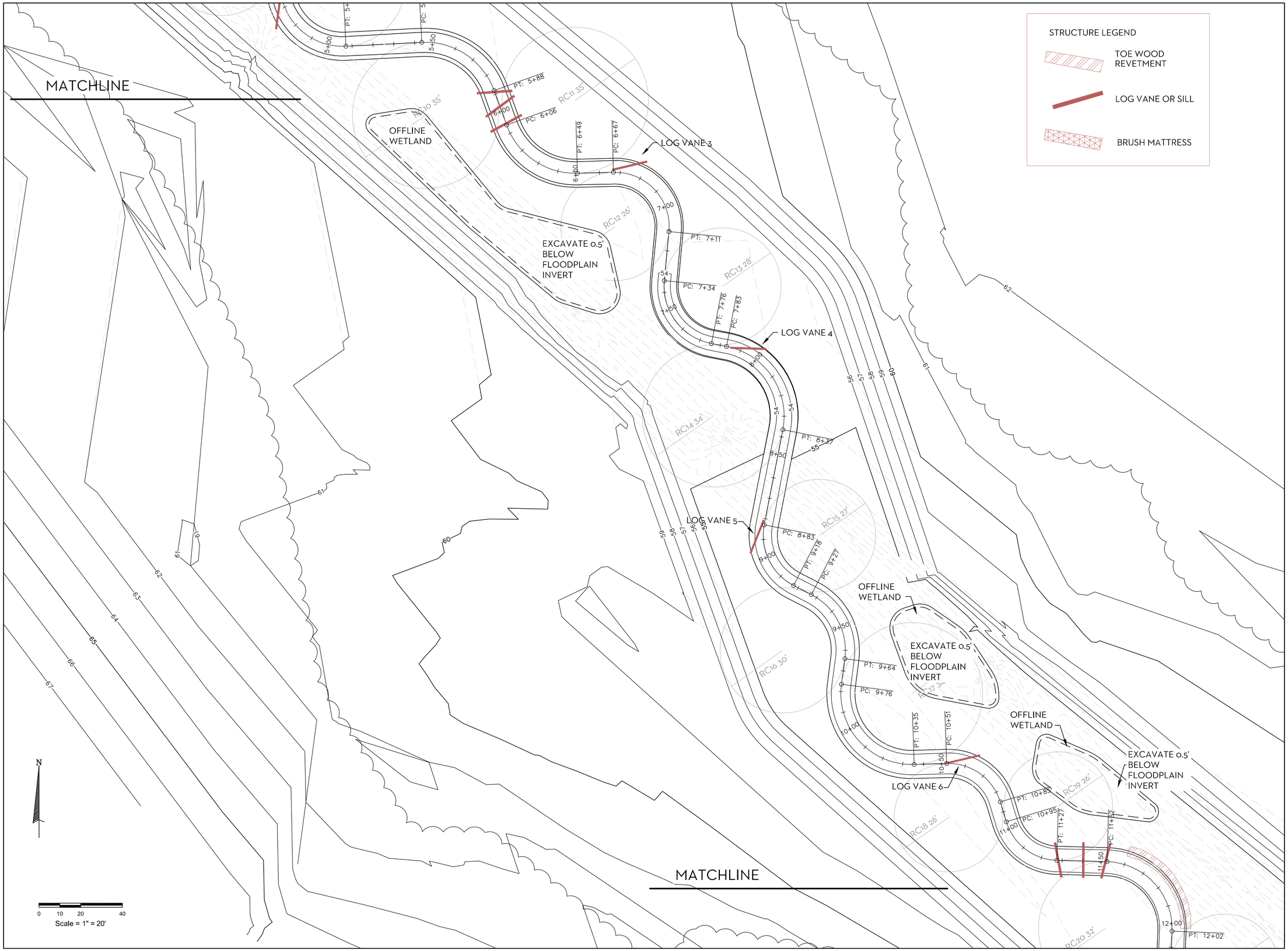
PLAN VIEW DETAIL A



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PLAN VIEW DETAIL B

MATCHLINE

BELOW FLOODPLAIN INVERT

TOE WOOD REVETMENT

LOG SILLS 7-9

LOG VANE 7

LOG VANE 8 AND BRUSHMATTRESS

OFFLINE WETLAND

EXCAVATE 0.5' BELOW FLOODPLAIN INVERT

BRUSHMATTRESS

EXPAND CHANNEL TO TIE INTO THE THREE CULVERTS

LOG SILLS 10-12

6'x10' BOX CULVERT

6'x10' BOX CULVERT

6'x10' BOX CULVERT

N. POPLAR ST.

RC18 26'

RC19 26'

RC20 32'

RC21 26'

RC22 26'

RC23 32'

RC24 28'

RC25 34'

RC26 28'

PT: 10+85

PC: 10+95

PT: 11+27

PC: 11+62

PT: 12+02

PC: 12+19

PT: 12+64

PC: 12+88

PT: 13+46

PC: 13+76

PT: 14+26

PC: 14+55

PT: 14+94

PC: 15+20

PT: 15+68

PC: 15+93

PT: 16+16

STRUCTURE LEGEND

TOE WOOD REVETMENT

LOG VANE OR SILL

BRUSH MATTRESS

N

0 10 20 40

Scale = 1" = 20'

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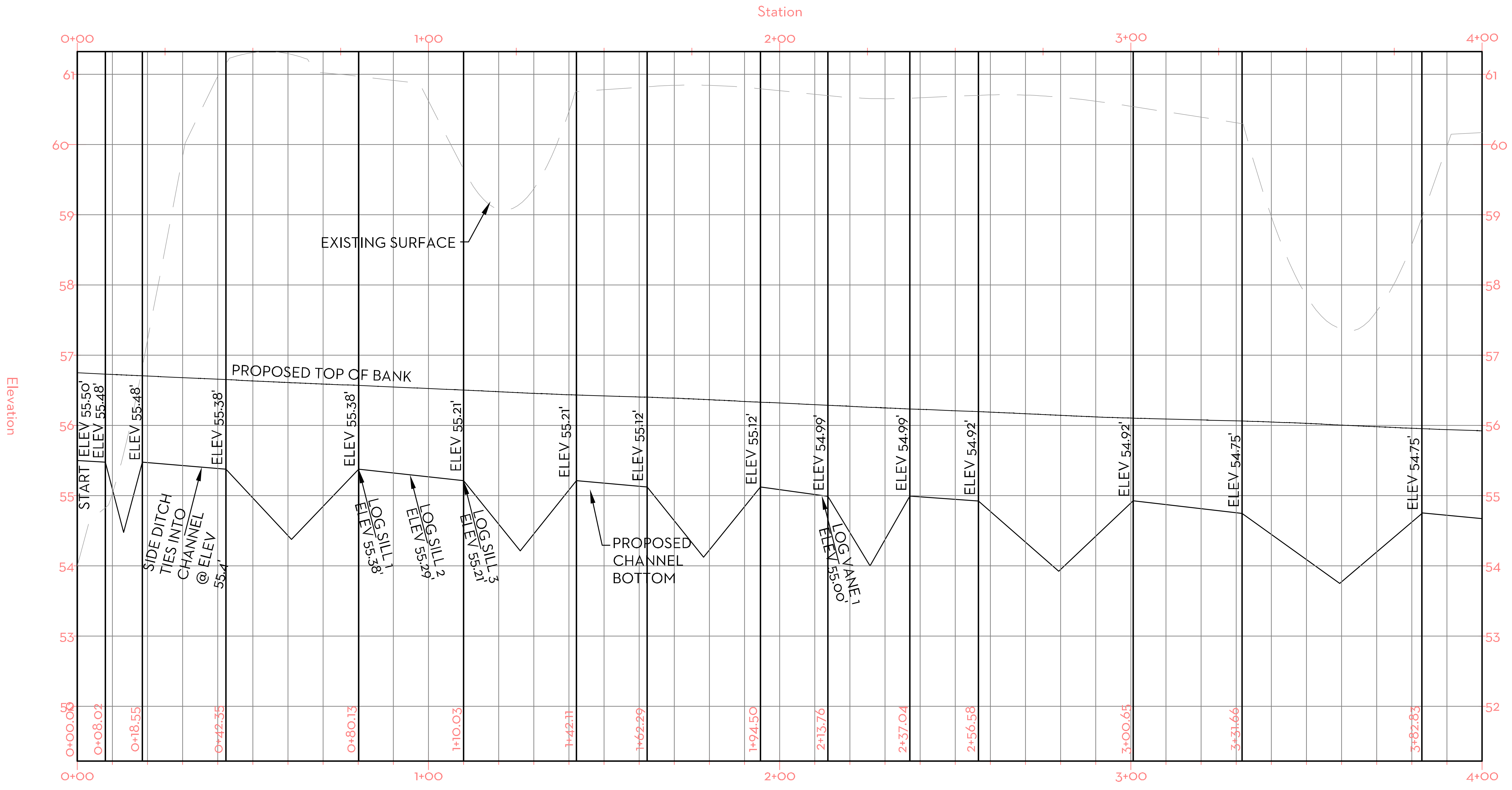
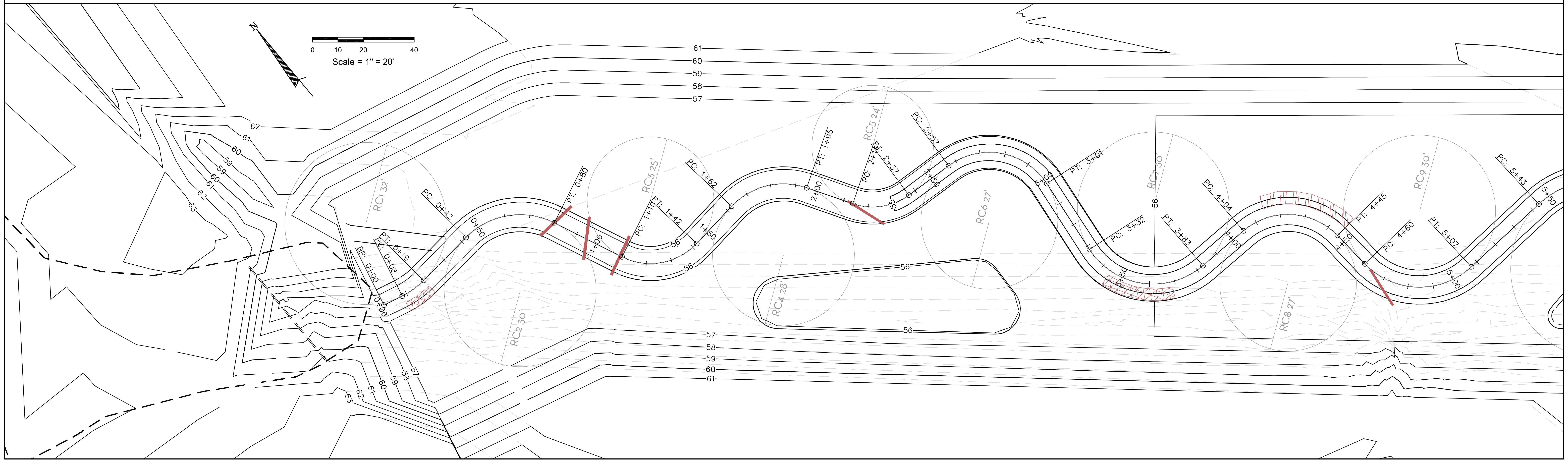
PLAN VIEW DETAIL C

WOLF CREEK CENTERLINE PROFILE





WOLF CREEK STREAM RESTORATION
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STREAM LONGITUDINAL PROFILE 1

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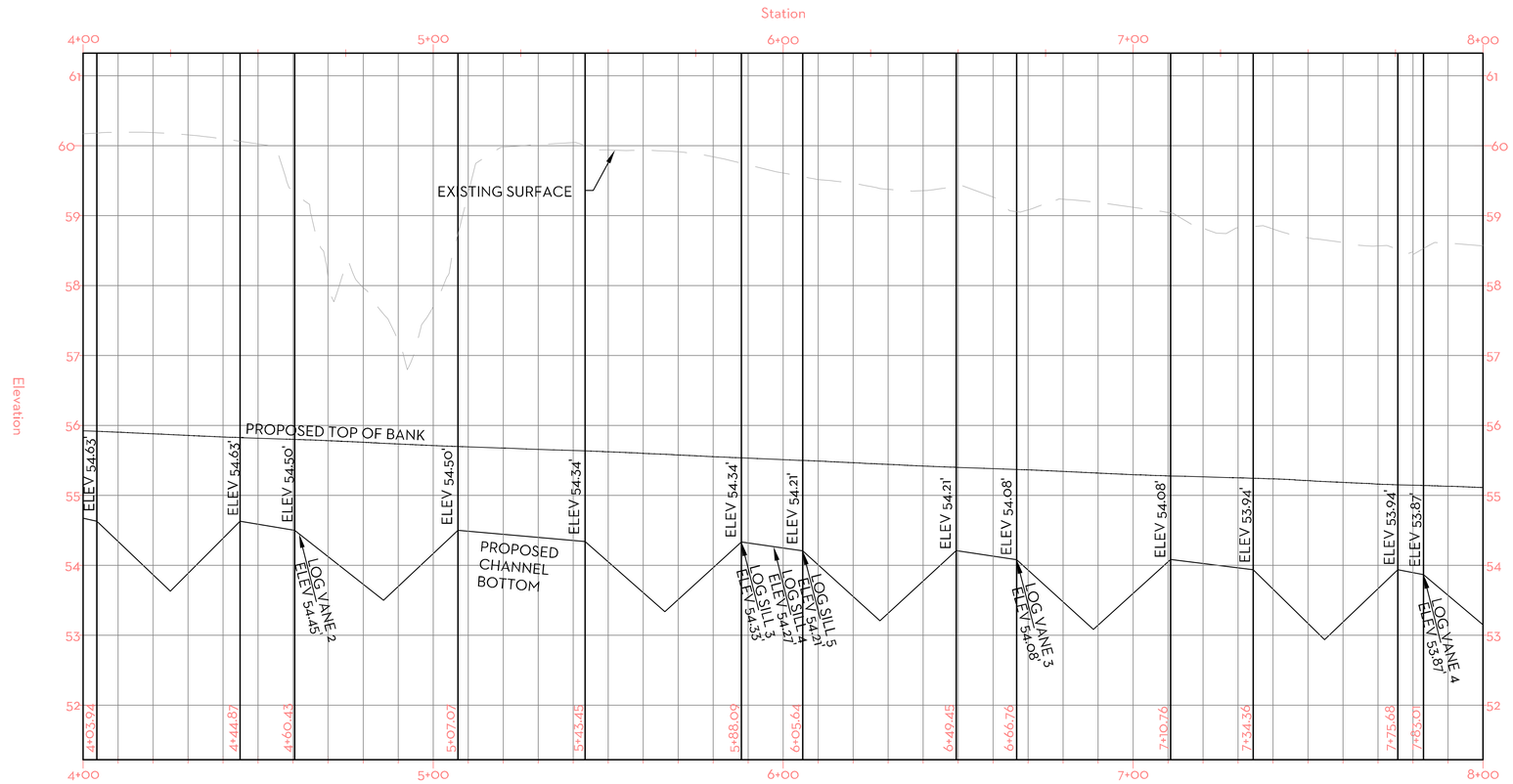
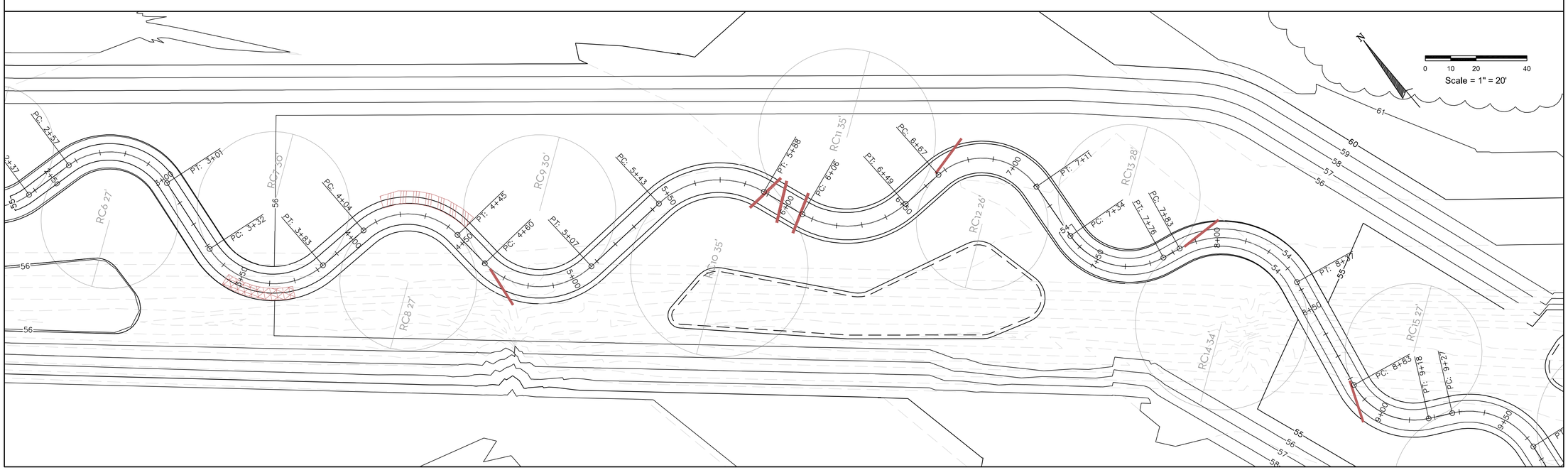
WOLF CREEK CENTERLINE PROFILE





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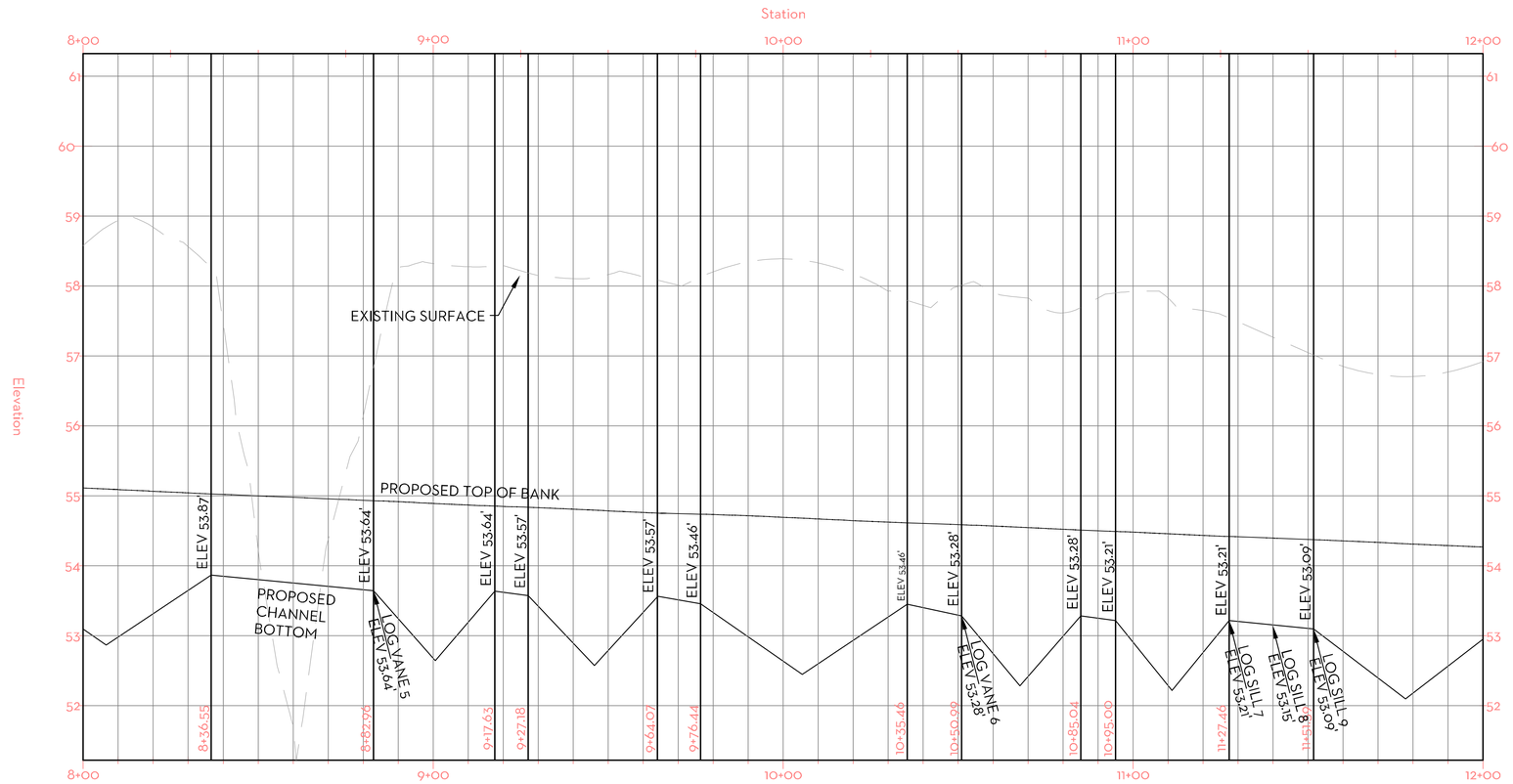
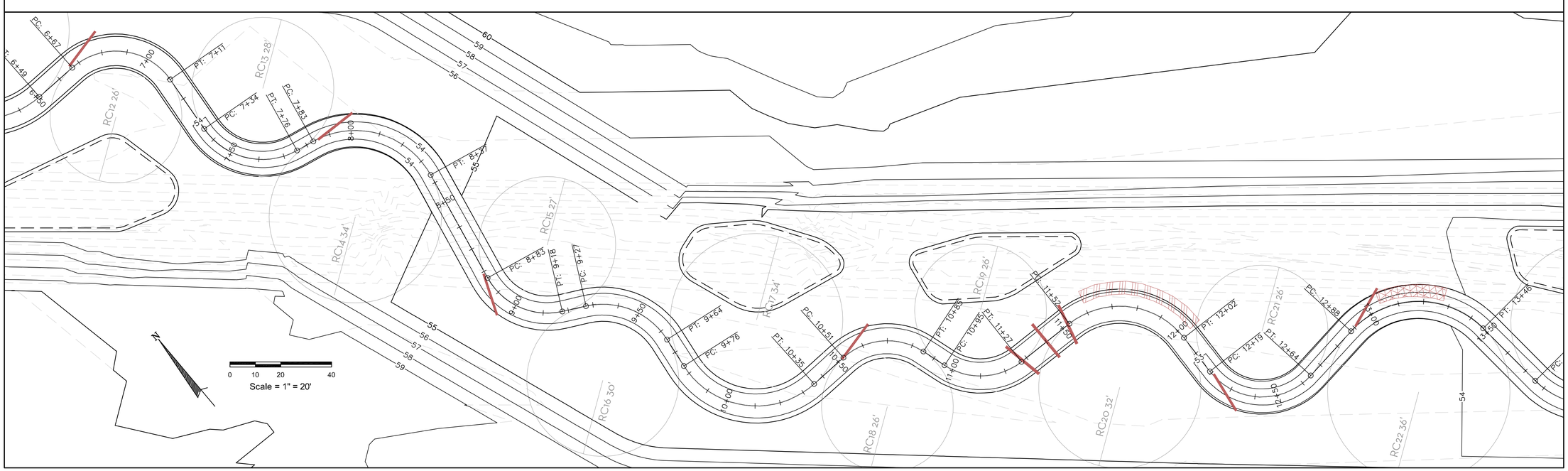
STREAM LONGITUDINAL PROFILE 2

WOLF CREEK CENTERLINE PROFILE





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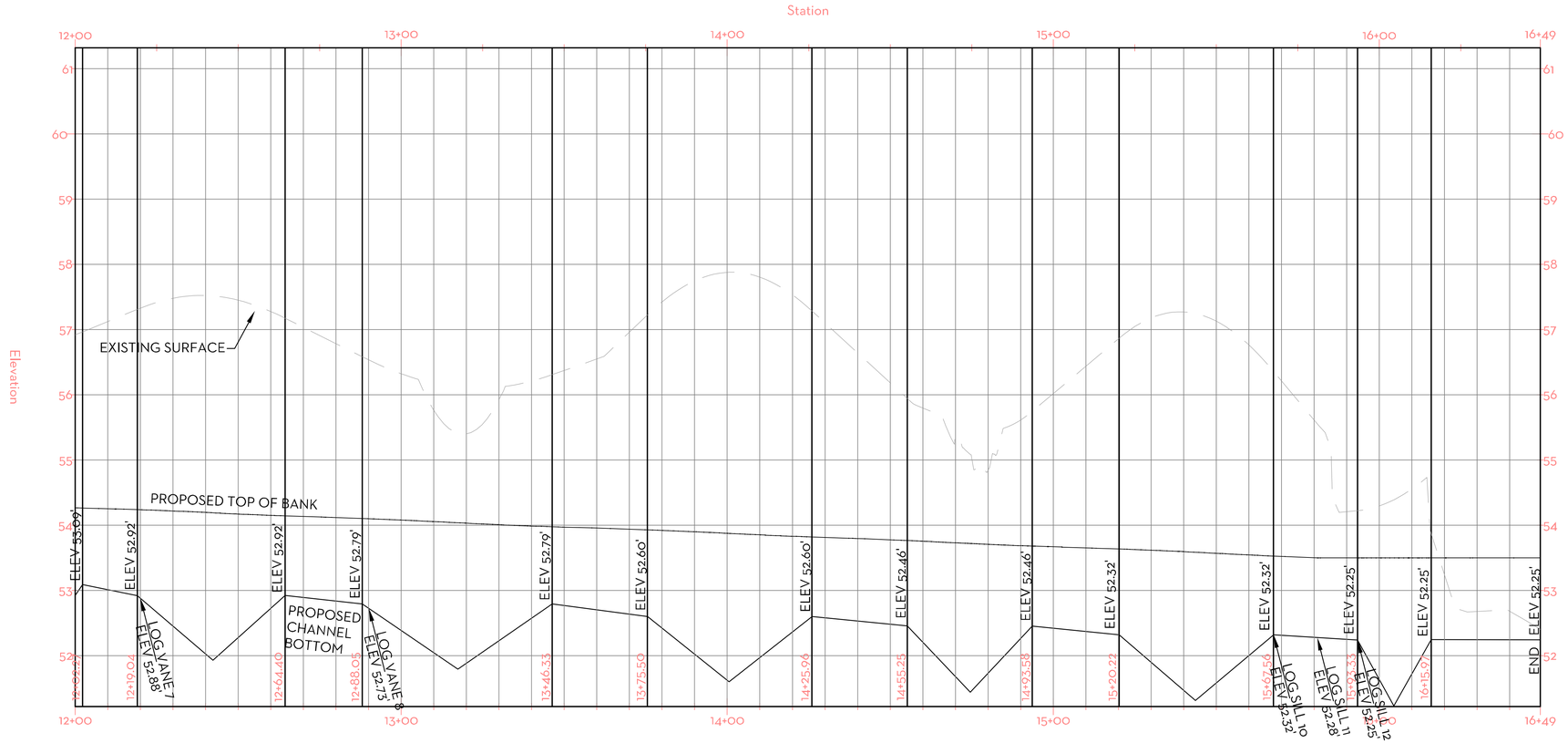
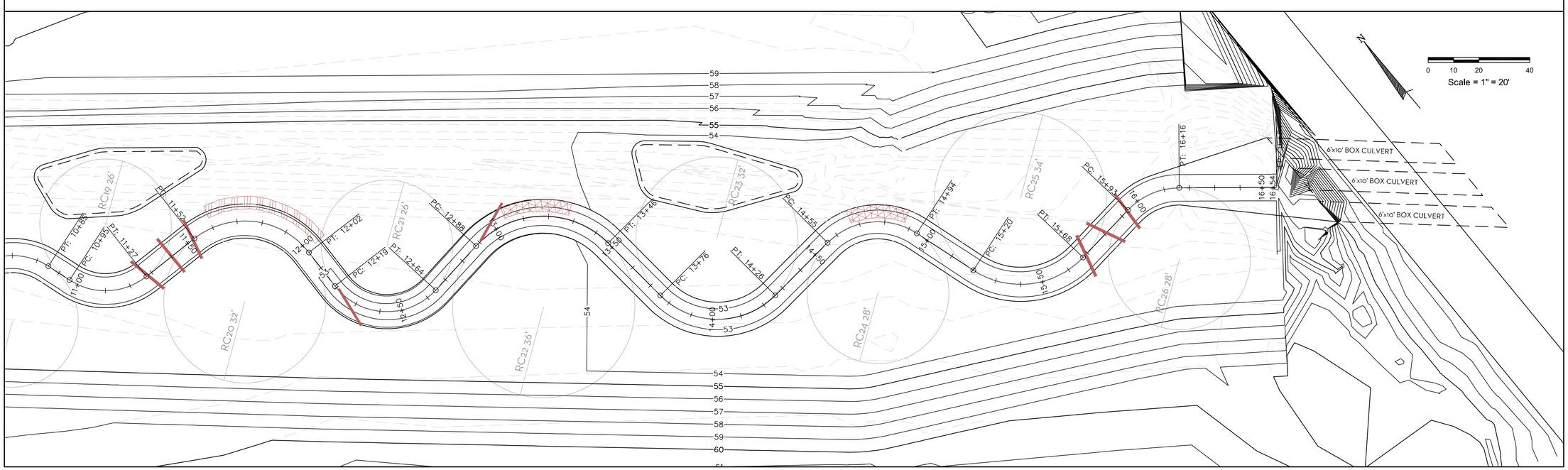
STREAM LONGITUDINAL PROFILE 3

WOLF CREEK CENTERLINE PROFILE





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WOLF CREEK STREAM RESTORATION
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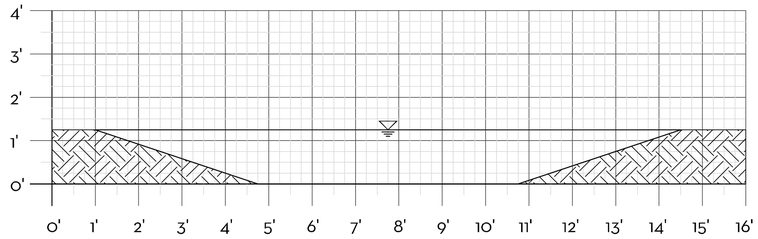
STREAM LONGITUDINAL PROFILE 4

STREAM CROSS SECTION TYPICALS

NTS

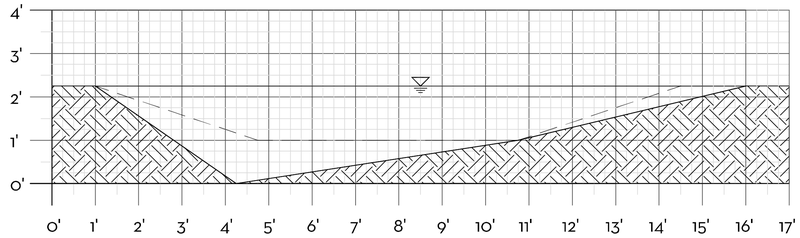
TYPICAL RIFFLE
TOP WIDTH = 13.5 FT
BOTTOM WIDTH = 6 FT
MAX DEPTH = 1.25 FT
MEAN DEPTH = 0.9 FT

CROSS-SECTION AREA = 12.2 FT2
W/D RATIO = 15.0
3:1 SIDE SLOPES



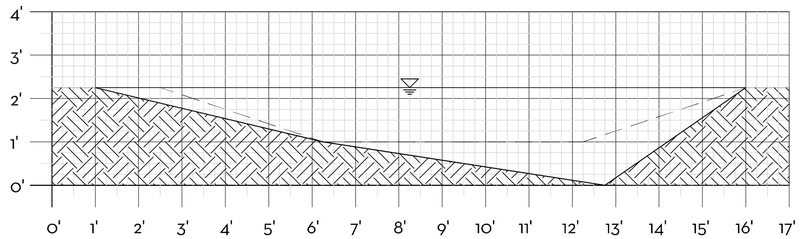
TYPICAL POOL, LEFT THALWEG
TOP WIDTH = 13.5 - 16 FT
MAX DEPTH = 1.25 - 2.25 FT

1.5:1 SIDE SLOPE, MAX (OUTSIDE BEND)
4:1 SIDE SLOPE (INSIDE BEND)



TYPICAL POOL, RIGHT THALWEG
TOP WIDTH = 13 - 15.25 FT
MAX DEPTH = 1.25 - 2.25 FT

1.5:1 SIDE SLOPE, MAX (OUTSIDE BEND)
4:1 SIDE SLOPE (INSIDE BEND)



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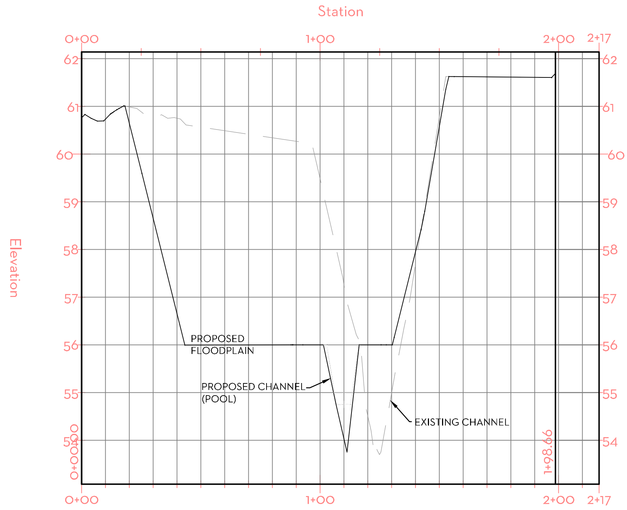
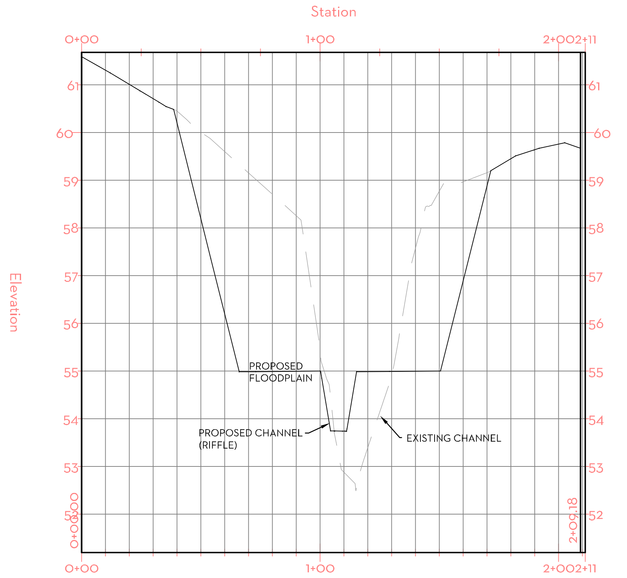
STREAM CROSS SECTION TYPICALS

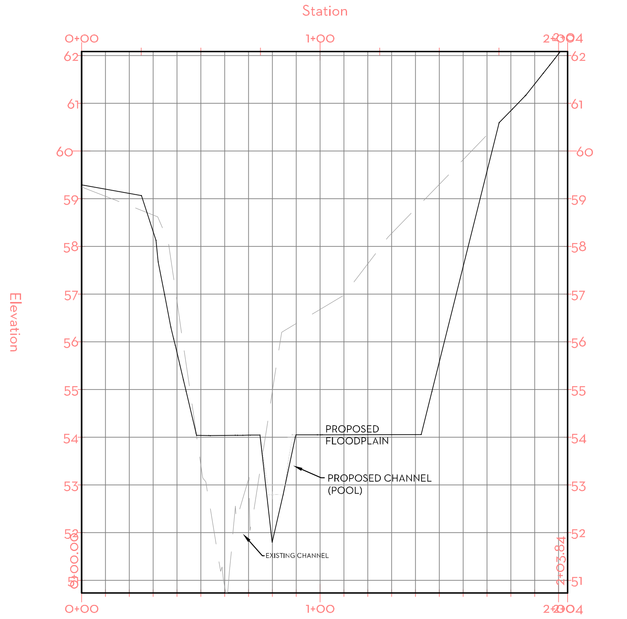
CROSS SECTION 1 PROFILE

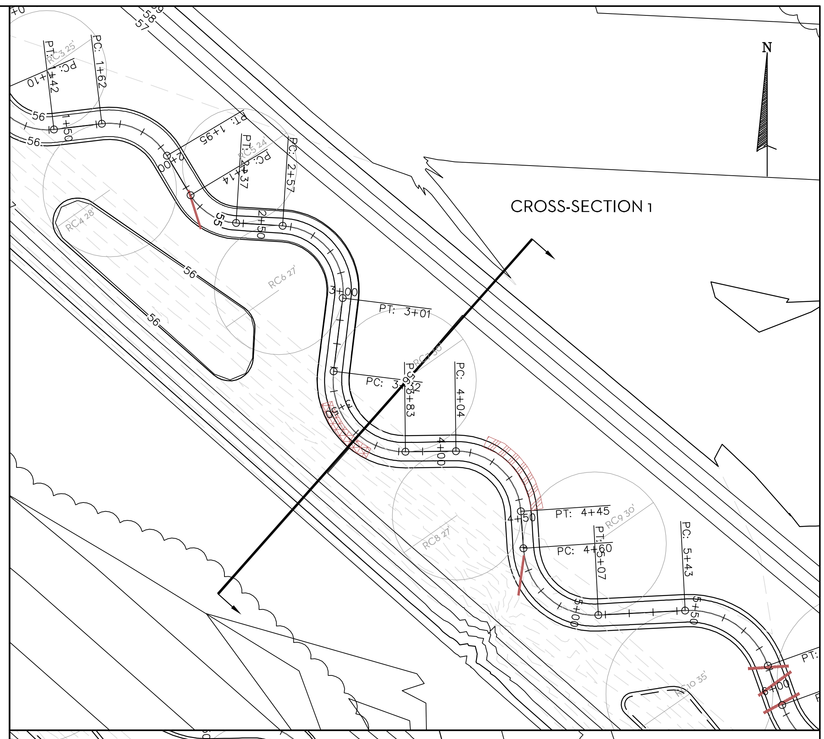


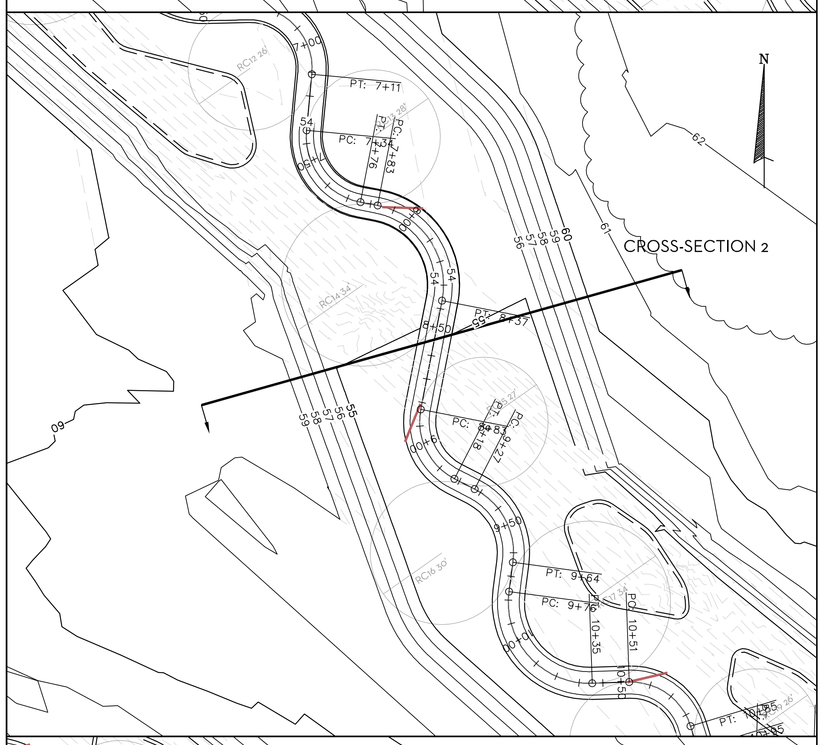
CROSS SECTION 2 PROFILE

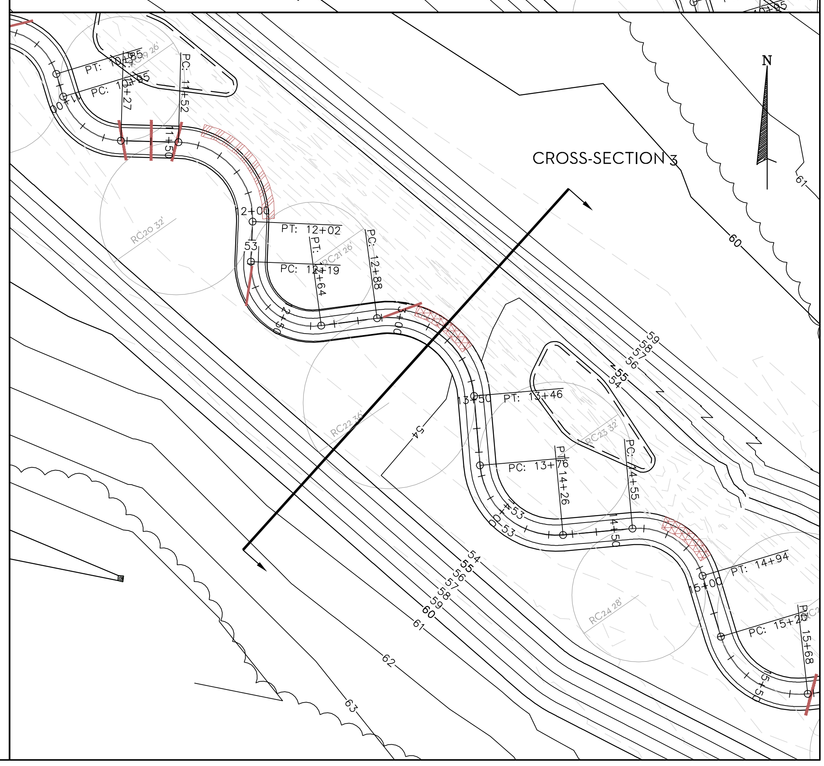


CROSS SECTION 3 PROFILE









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WOLF CREEK STREAM RESTORATION
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EXISTING VS PROPOSED CROSS SECTIONS

drawn by: WHM
checked by: GJ

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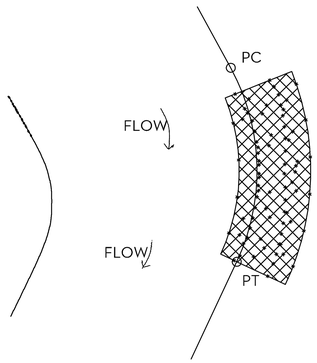
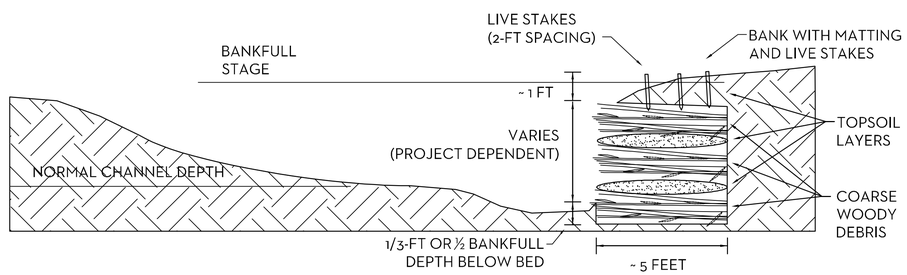
TOE WOOD REVETMENT



PLAN VIEW

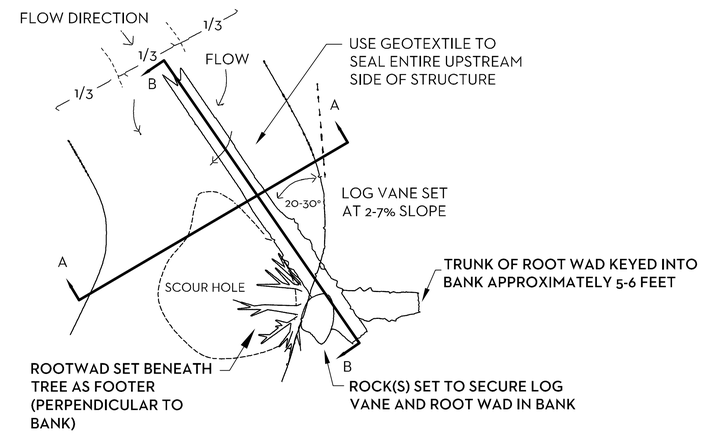


CROSS-SECTION VIEW

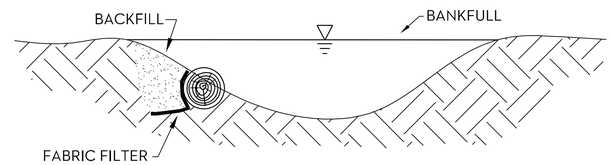
NOTES

1. MIX LAYERS OF TOPSOIL ON TOP OF COARSE WOODY DEBRIS. ALTERNATE LAYERS OF WOODY DEBRIS AND TOPSOIL.
2. FOR THE BOTTOM LAYER, INSTALL LIVE STAKES ON TOP OF COARSE WOODY DEBRIS AND COVER WITH A LAYER OF TOPSOIL. THIS SHALL BE AT A DEPTH OF 1/3-FT OR 1/2-BANKFULL BELOW THE BOTTOM OF THE BED.
3. WOOD DEBRIS SHALL NOT EXTEND INTO THE CHANNEL MORE THAN 2/3-FT.
4. INSTALL LIVE STAKES INTO THE COCONUT COIR MATTING ON THE ENTIRE BANK OF THE STRUCTURE

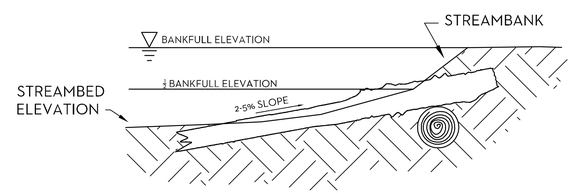
ROOTWAD/ LOG VANE COMBO



PLAN VIEW



SECTION A-A



SECTION B-B

NOTES

1. FOR LOG VANE STRUCTURES, STRAIGHT LOGS WITH DIAMETERS OF AT LEAST 18" AND LENGTH OF APPROXIMATELY 15'-20' SHALL BE USED. ONSITE TREES REMOVED DUE TO CONSTRUCTION MAY BE USED.
2. PREPARE A TRENCH IN THE BANK WHERE THE ROOT END OF THE LOG VANE WILL TIE INTO THE BANK, AND SET A ROOTWAD IN THE TRENCH. THE TOP OF THE ROOTWAD SHALL BE APPROXIMATELY AT CHANNEL INVERT ELEVATION.
3. EXCAVATE ANOTHER TRENCH IN THE CHANNEL FOR PLACEMENT OF THE LOG. THE FIRST COUPLE FEET OF THE LOG SHOULD BE INBEDDED IN THE CHANNEL (BETWEEN THE CENTERLINE AND TOE OF THE BANK) SUCH THAT THE TOP SURFACE OF THE LOG IS BELOW THE CHANNEL INVERT. THE LOG SHOULD BE AT A 20-30 DEGREE ANGLE FROM THE BANK AND RUN AT A 2-5% SLOPE UP INTO THE BANK TO APPROXIMATELY 1/2 BANKFULL ELEVATION. THE UPPER SURFACE OF THE LOG MAY BE PLANED TO ADJUST THE SLOPE IF NEEDED.
4. A NONWOVEN GEOTEXTILE SHALL BE PLACED IN THE EXCAVATED TRENCH UPSTREAM OF THE LOG AND RUN ALONG THE UPSTREAM FACE OF THE LOG AS TO PREVENT CHANNEL MATERIAL FROM PASSING UNDERNEATH THE LOG. THE FABRIC SHOULD BE SECURED TO THE FACE OF THE LOG WITH 3-IN 10d GALVINIZED COMMON NAILS ON 1-FT SPACING.
5. ONCE THE LOG AND GEOTEXTILE ARE IN PLACE, BACKFILL THE REMNANTS OF THE TRENCH AND GEOTEXTILE WITH BED MATERIAL. TRIM ANY EXPOSED GEOTEXTILE
6. (A) LARGE BOULDER(S) SHOULD BE PLACED JUST DOWNSTREAM OF THE END OF THE LOG TO SECURE THE LOG. THE BOULDER SHOULD BE SET BELOW INVERT ELEVATION OF THE CHANNEL. WHERE THE LOG VANE TIES INTO THE CHANNEL, ITS ROOTWAD END SHOULD BE SET ON TOP OF A ROOT WAD. ONE OR TWO BOULDERS SHOULD BE KEYED INTO THE BANK THAT WILL SECURE THE LOG VANE AND ROOT WAD. THOUGH RECOMMENDED, BOULDERS MAY BE OMITTED IF RESOURCES ARE NOT READILY AVAILABLE.
7. REPAIR ANY AREAS OF THE CHANNEL BANK DISTURBED BY THE INSTALLATION. LIVE STAKING MAY BE INSTALLED AROUND THE STRUCTURE FOR ADDED BANK STABILITY.

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WOLF CREEK STREAM RESTORATION
FOLEY, BALDWIN COUNTY, ALABAMA

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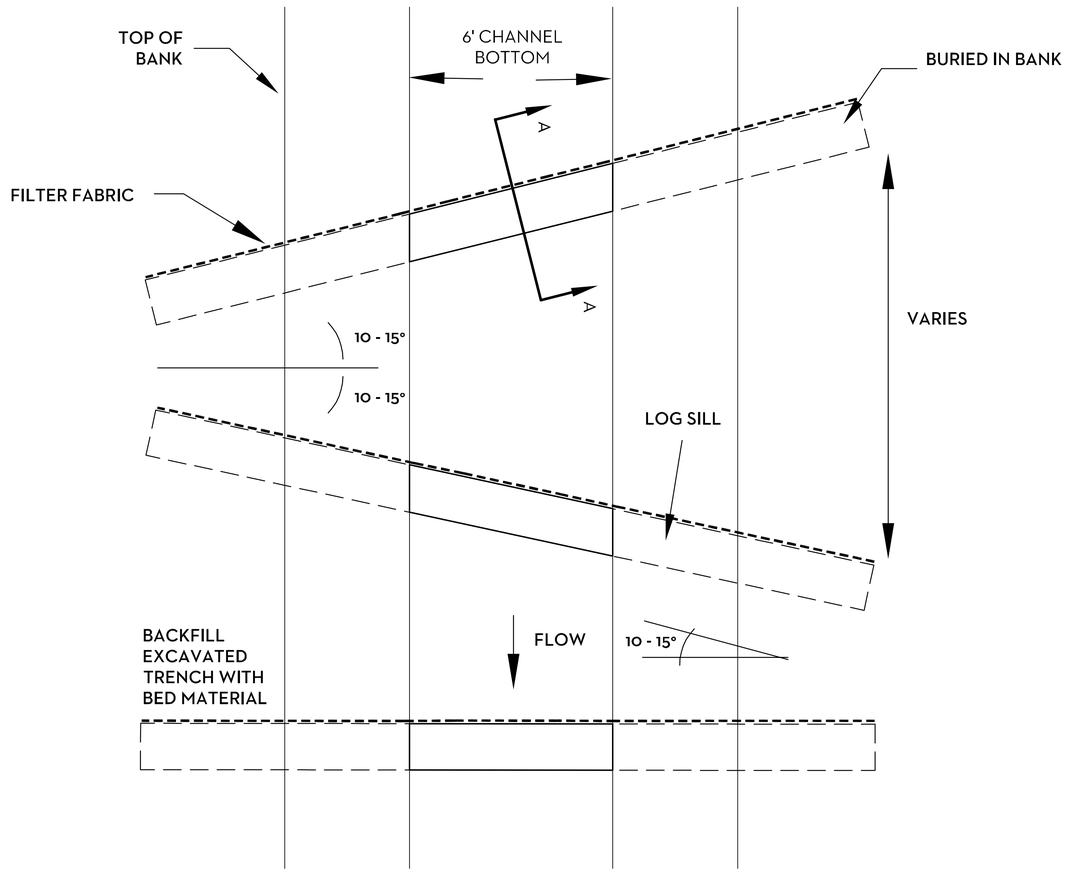
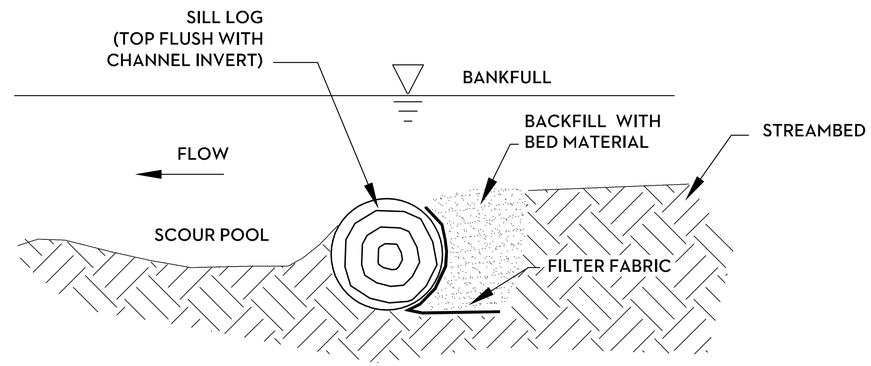
TYPICAL IN-STREAM STRUCTURES 1

LOG SILLS, TYPICAL

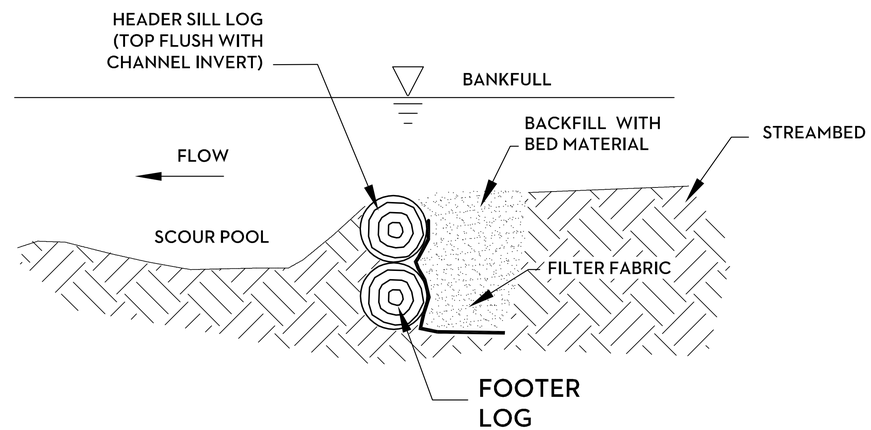
NTS



PLAN VIEW



ONE LOG SILL



TWO LOG SILL

SECTION A-A

NOTES

1. LOG SILLS MAY BE CONSTRUCTED USING TREES FROM WITHIN THE CONSTRUCTION AREA.
2. EACH LOG SHALL BE APPROXIMATELY 1-1.5-FT IN DIAMETER, ~22-FT IN LENGTH, AND STRAIGHT. IF THE LOG IS LESS THAN ONE FOOT IN DIAMETER, A SECOND LOG SHALL BE USED IN CONJUNCTION WITH THAT LOG, WITH ONE STACKED ON TOP OF THE OTHER, TO CREATE A LOG SILL WITH AN EFFECTIVE DIAMETER OF AT LEAST ONE FOOT .
3. THE MOST DOWNSTREAM LOG SILL IN A SERIES OF SILLS SHALL HAVE A FOOTER LOG, REGARDLESS OF THE HEADER LOG"S DIAMETER. THE EFFECTIVE DIAMETER OF THIS LOG SILL SHALL BE AT LEAST TWO FEET.
4. EXCAVATE A TRENCH FOR EACH LOG. TRENCH SHALL BE DEEP AND LONG ENOUGH FOR PLACEMENT OF LOGS AND WIDE ENOUGH FOR PLACEMENT OF FABRIC FILTER ON THE UPSTREAM SIDE OF THE LOGS. SET LOGS INTO THE TRENCH SUCH THAT THE TOP OF EACH LOG IS FLUSH WITH THE CHANNEL INVERT AND LEVEL. THE TOP OF THE LOG MAY BE PLANED TO MAKE IT LEVEL.
5. PLACE NON-WOVEN FILTER FABRIC ALONG THE UPSTREAM FACE OF LOGS, SECURED WITH 3-IN 10d GALVANIZED COMMON NAIL ON 1-FT SPACING ALONG THE VERTICAL FACE OF THE LOGS.
6. BACKFILL TRENCH WITH BED MATERIAL AND RESHAPE THE CHANNEL TO THE APPROPRIATE DIMENSIONS. ENSURE FILTER FABRIC IS NOT EXPOSED AND TRIM AWAY ANY THAT MAY BE EXPOSED. ONLY THE TOP SURFACE OF THE LOG SHALL BE EXPOSED.
7. INSTALL LIVE STAKES AROUND THE LOGS WHERE THEY ARE KEYED INTO THE BANK. APPROXIMATELY 8 STAKES SHALL BE USED PER LOG SILL. STAKES SHALL BE SPACED APPROXIMATELY 6 TO 12 INCHES FROM EACH OTHER.

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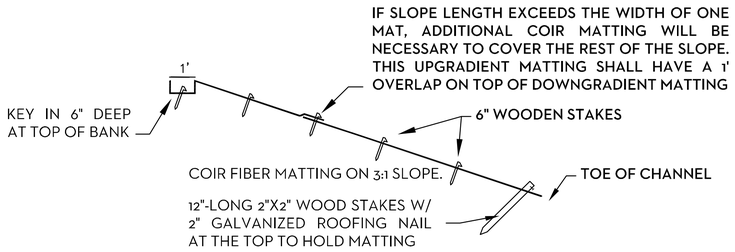
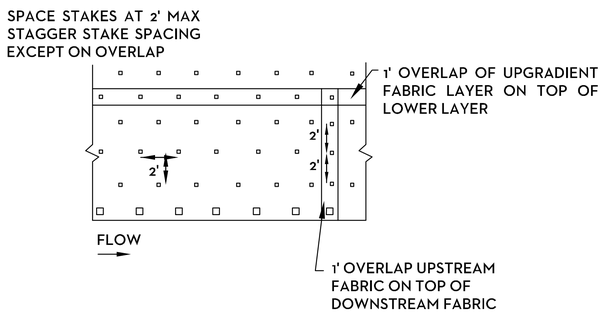
TYPICAL IN-STREAM STRUCTURES 2



NOTES
1. MAT SHALL HAVE GOOD SOIL/MULCH CONTACT.
2. APPLY TEMORARY AND PERMANENT SEEDING AND MULCH BEFORE PLACING MATTING.
3. LAY BLANKETS LOOSELY AND STAKE TO MAINTAIN CONTACT WITH SOIL. DO NOT STRETCH.
4. LIVE STAKING MAY BE IMPLEMENTED DURING THE DORMANT SEASON.

COCONUT COIR MATTING INSTALLATION - CROSS SECTION VIEW

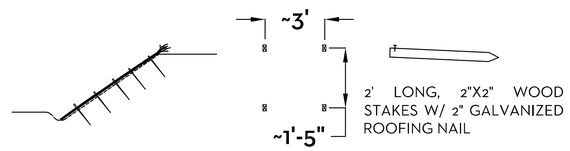
NOT TO SCALE



COCONUT COIR MATTING INSTALLATION - LAYOUT VIEW

NOT TO SCALE

STEP 1
- REMOVE LOOSE OR FAILED MATERIAL.
- EXCAVATE TO THE SPECIFIED SLOPE.
- EXCAVATE A TRENCH AT TOE TO LOWEST WATER TABLE LEVEL OF THE YEAR.
- COCONUT COIR MATTING SHALL NOT BE INSTALLED ON CHANNEL SIDE SLOPES WHERE BRUSH MATTRESSING IS USED. IF BRUSH MATTRESSING IS NOT INSTALLED IMMEDIATELY AFTER GRADING, APPLY MULCH, TEMPORARY SEEDING, AND COIR MATTING UNTIL BRUSH MATTRESS CAN BE INSTALLED. REMOVE THE COIR MATTING IN THE INSTALLATION ZONE WHEN MATTING IS READY FOR INSTALLATION.



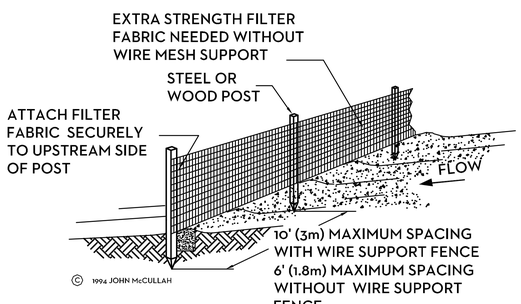
STEP 2
- DRIVE STAKES INTO SLOPE ON AN APPROXIMATE 3'X3' GRID.
- STAKES SHALL EXTEND ~12" ABOVE SURFACE.
- PLACE WHIPS WITH ½ TO 1 INCH DIAMETER ON SLOPE. (12 TO 24 BRANCHES PER FOOT). WHIPS SHALL BE PLACED SIDE-BY-SIDE TIGHTLY SUCH THAT THEY SECURE THE SOIL UNDERNEATH THEM.
- EACH BRANCH SHALL BE APPROXIMATELY 1' LONG. SILKY WILLOW, SILKY DOGWOOD, PUSSY WILLOW, AND ELDERBERRY CUTTINGS ARE RECOMMENDED.
- SIDE BRANCHES CAN BE LEFT INTACT.
- BASIL (I.E., CUT) END SHOULD BE IN TRENCH AND BELOW LOWEST WATER TABLE ELEVATIONS.
- TERMINAL BUD MAY EXTEND ABOVE TOP OF SLOPE.

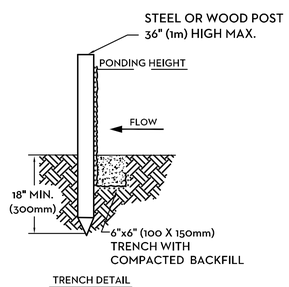
STEP 3
- SECURE CUTTINGS BY TIEING WITH SHORT LENGTHS OF WIRE TO STAKES. USE A DIAMOND PATTERN AND SET WIRE BENEATH ROOFING NAIL.
- HAMMER STAKES TO FIRMLY PULL CUTTINGS AGAINST SOIL.
- APPLY WET, LOOSE SOIL OVER CUTTINGS. APPROXIMATELY HALF OF THE DEPTH OF THE MATTRESS SHOULD BE COVERED.
- BACKFILL TRENCH WITH SOIL.

BRUSH MATTRESS SHOULD BE INSTALLED IN LATE WINTER OR EARLY SPRING WHILE THE PLANT IS DORMANT. KEEP STAKES COOL AND MOIST UNTIL INSTALLATION. STAKES SHALL BE SOAKED FOR 24 HOURS PRIOR TO INSTALLATION.

BRUSHMATTRESS INSTALLATION DETAIL

COURTESY OF NRCS NOT TO SCALE

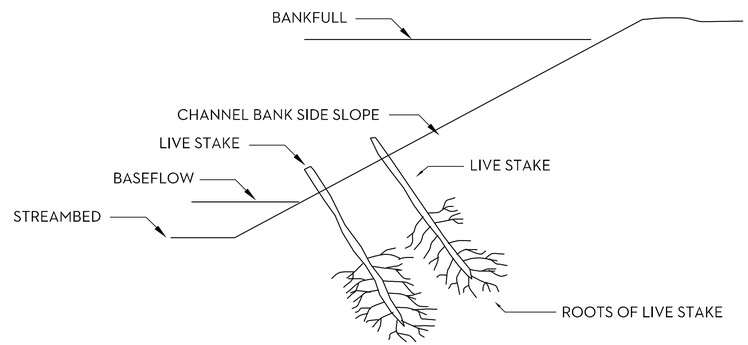




NOTES
1. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
2. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY. 9" (225mm) MAXIMUM RECOMMENDED STORAGE HEIGHT.
3. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED

SILT FENCE INSTALLATION

NOT TO SCALE



NOTES

1. LIVE STAKES ARE TYPICALLY INSTALLED IN HIGH STRESS AREAS, PARTICULARLY ON THE OUTSIDE SIDE SLOPE OF MEANDER BENDS.
2. STAKES SHALL BE MADE FROM THE CUT BRANCHES OF LARGER TREES AND SHRUBS, PARTICULARLY SILKY DOGWOOD, SILKY WILLOW, AND ELDERBERRY.
3. STAKES SHALL HAVE A DIAMETER OF $\frac{1}{2}$ TO 1 INCH AND AN AVERAGE LENGTH OF ONE FOOT.
4. CUT STAKES WITH AN ANGLED BOTTOM AND FLAT TOP. TRIM OFF ANY SIDE BRANCHES ON THE STAKE.
5. INSTALL STAKES INTO THE TOE OF THE STREAMBANK, PERPENDICULAR TO THE BANK, WITH A RUBBER MALLET, AND SPACED 1-2' APART. APPROXIMATELY $\frac{3}{4}$ OF THE STAKE LENGTH SHOULD BE HAMMERED BELOW GROUND SURFACE. CLIP OFF THE TOP 1/2-INCH OF THE STAKE THAT MAY HAVE BEEN DAMAGED DURING INSTALLATION. AT LEAST TWO BUDS AND/OR BUD SCARS SHALL BE ABOVE THE GROUND AFTER PLANTING AND CLIPPING.
6. IF SOIL IS TOO COMPACT TO DRIVE STAKE INTO WITHOUT DAMAGING THE STAKE, HAMMER A LENGTH OF REBAR INTO THE SOIL TO CREATE A HOLE FOR THE STAKE. REBAR SHOULD HAVE SIMILAR DIAMETER TO LIVE STAKES.
7. KEEP STAKES COOL AND MOIST UNTIL INSTALLATION. STAKES SHALL BE SOAKED FOR 24 HOURS PRIOR TO INSTALLATION. STAKES SHALL BE HARVESTED (IF NECESSARY) AND INSTALLED IN THE WINTER OR EARLY SPRING WHILE THE PLANT IS DORMANT.

LIVE STAKE INSTALLATION

COURTESY OF NRCS NOT TO SCALE

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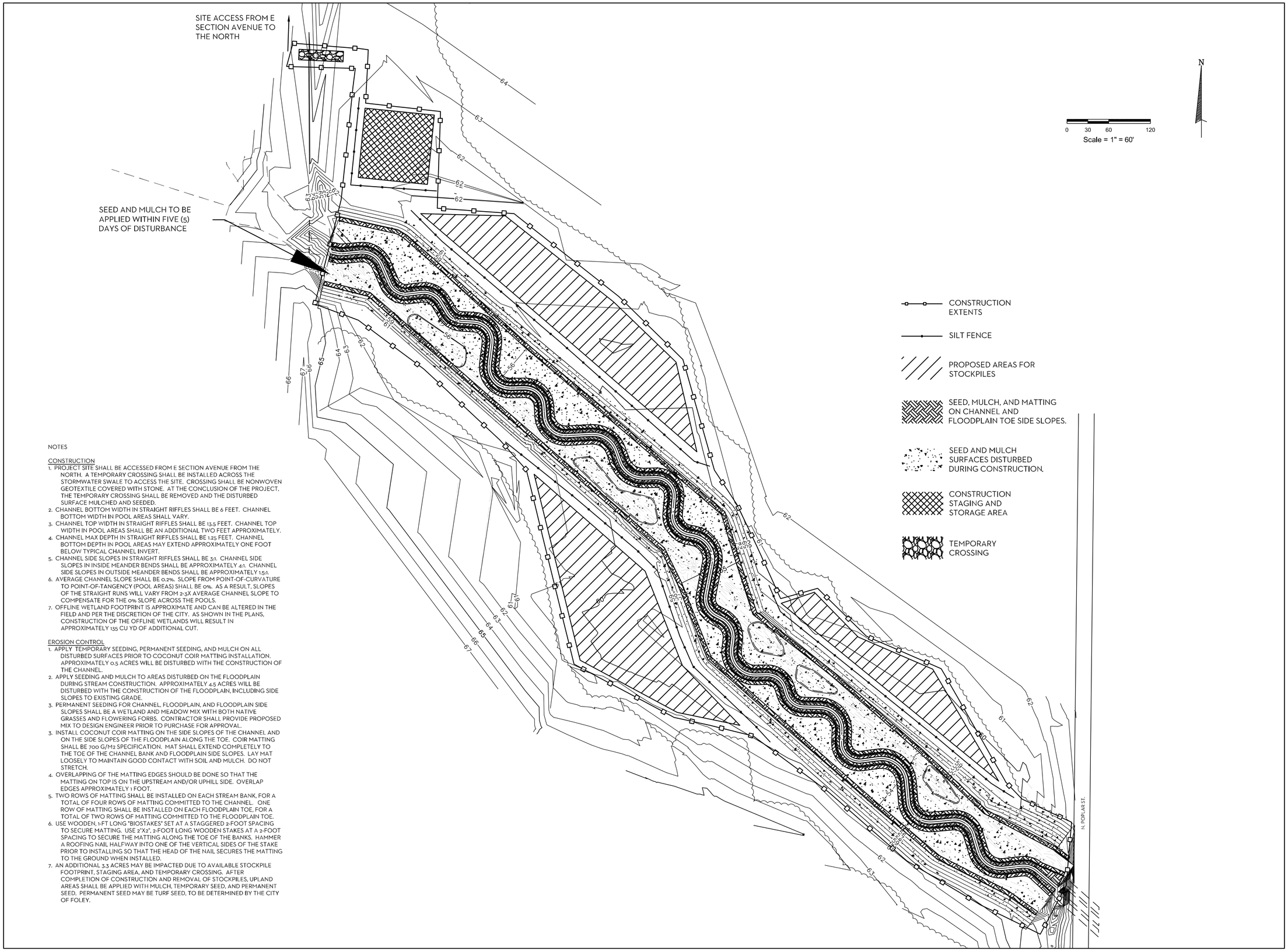
BMP AND BIOENGINEERING TYPICALS



NOTES

CONSTRUCTION

1. PROJECT SITE SHALL BE ACCESSED FROM E SECTION AVENUE FROM THE NORTH. A TEMPORARY CROSSING SHALL BE INSTALLED ACROSS THE STORMWATER SWALE TO ACCESS THE SITE. CROSSING SHALL BE NONWOVEN GEOTEXTILE COVERED WITH STONE. AT THE CONCLUSION OF THE PROJECT, THE TEMPORARY CROSSING SHALL BE REMOVED AND THE DISTURBED SURFACE MULCHED AND SEEDED.
2. CHANNEL BOTTOM WIDTH IN STRAIGHT RIFFLES SHALL BE 6 FEET. CHANNEL BOTTOM WIDTH IN POOL AREAS SHALL VARY.
3. CHANNEL TOP WIDTH IN STRAIGHT RIFFLES SHALL BE 13.5 FEET. CHANNEL TOP WIDTH IN POOL AREAS SHALL BE AN ADDITIONAL TWO FEET APPROXIMATELY.
4. CHANNEL MAX DEPTH IN STRAIGHT RIFFLES SHALL BE 1.25 FEET. CHANNEL BOTTOM DEPTH IN POOL AREAS MAY EXTEND APPROXIMATELY ONE FOOT BELOW TYPICAL CHANNEL INVERT.
5. CHANNEL SIDE SLOPES IN STRAIGHT RIFFLES SHALL BE 3:1. CHANNEL SIDE SLOPES IN INSIDE MEANDER BENDS SHALL BE APPROXIMATELY 4:1. CHANNEL SIDE SLOPES IN OUTSIDE MEANDER BENDS SHALL BE APPROXIMATELY 1.5:1.
6. AVERAGE CHANNEL SLOPE SHALL BE 0.2%. SLOPE FROM POINT-OF-CURVATURE TO POINT-OF-TANGENCY (POOL AREAS) SHALL BE 0%. AS A RESULT, SLOPES OF THE STRAIGHT RUNS WILL VARY FROM 2-3X AVERAGE CHANNEL SLOPE TO COMPENSATE FOR THE 0% SLOPE ACROSS THE POOLS.
7. OFFLINE WETLAND FOOTPRINT IS APPROXIMATE AND CAN BE ALTERED IN THE FIELD AND PER THE DISCRETION OF THE CITY. AS SHOWN IN THE PLANS, CONSTRUCTION OF THE OFFLINE WETLANDS WILL RESULT IN APPROXIMATELY 1,35 CU YD OF ADDITIONAL CUT.

EROSION CONTROL

1. APPLY TEMPORARY SEEDING, PERMANENT SEEDING, AND MULCH ON ALL DISTURBED SURFACES PRIOR TO COCONUT COIR MATTING INSTALLATION. APPROXIMATELY 0.5 ACRES WILL BE DISTURBED WITH THE CONSTRUCTION OF THE CHANNEL.
2. APPLY SEEDING AND MULCH TO AREAS DISTURBED ON THE FLOODPLAIN DURING STREAM CONSTRUCTION. APPROXIMATELY 4.5 ACRES WILL BE DISTURBED WITH THE CONSTRUCTION OF THE FLOODPLAIN, INCLUDING SIDE SLOPES TO EXISTING GRADE.
3. PERMANENT SEEDING FOR CHANNEL, FLOODPLAIN, AND FLOODPLAIN SIDE SLOPES SHALL BE A WETLAND AND MEADOW MIX WITH BOTH NATIVE GRASSES AND FLOWERING FORBS. CONTRACTOR SHALL PROVIDE PROPOSED MIX TO DESIGN ENGINEER PRIOR TO PURCHASE FOR APPROVAL.
3. INSTALL COCONUT COIR MATTING ON THE SIDE SLOPES OF THE CHANNEL AND ON THE SIDE SLOPES OF THE FLOODPLAIN ALONG THE TOE. COIR MATTING SHALL BE 700 G/M2 SPECIFICATION. MAT SHALL EXTEND COMPLETELY TO THE TOE OF THE CHANNEL BANK AND FLOODPLAIN SIDE SLOPES. LAY MAT LOOSELY TO MAINTAIN GOOD CONTACT WITH SOIL AND MULCH. DO NOT STRETCH.
4. OVERLAPPING OF THE MATTING EDGES SHOULD BE DONE SO THAT THE MATTING ON TOP IS ON THE UPSTREAM AND/OR UPHILL SIDE. OVERLAP EDGES APPROXIMATELY 1 FOOT.
5. TWO ROWS OF MATTING SHALL BE INSTALLED ON EACH STREAM BANK, FOR A TOTAL OF FOUR ROWS OF MATTING COMMITTED TO THE CHANNEL. ONE ROW OF MATTING SHALL BE INSTALLED ON EACH FLOODPLAIN TOE, FOR A TOTAL OF TWO ROWS OF MATTING COMMITTED TO THE FLOODPLAIN TOE.
6. USE WOODEN, 1-FT LONG "BIOSTAKES" SET AT A STAGGERED 2-FOOT SPACING TO SECURE MATTING. USE 2"X2", 2-FOOT LONG WOODEN STAKES AT A 2-FOOT SPACING TO SECURE THE MATTING ALONG THE TOE OF THE BANKS. HAMMER A ROOFING NAIL HALFWAY INTO ONE OF THE VERTICAL SIDES OF THE STAKE PRIOR TO INSTALLING SO THAT THE HEAD OF THE NAIL SECURES THE MATTING TO THE GROUND WHEN INSTALLED.
7. AN ADDITIONAL 3.3 ACRES MAY BE IMPACTED DUE TO AVAILABLE STOCKPILE FOOTPRINT, STAGING AREA, AND TEMPORARY CROSSING. AFTER COMPLETION OF CONSTRUCTION AND REMOVAL OF STOCKPILES, UPLAND AREAS SHALL BE APPLIED WITH MULCH, TEMPORARY SEED, AND PERMANENT SEED. PERMANENT SEED MAY BE TURF SEED, TO BE DETERMINED BY THE CITY OF FOLEY.

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FOLEY, BALDWIN COUNTY, ALABAMA

EM11506

EROSION CONTROL PLAN

NOTES AND QUANTITIES

GENERAL CONSTRUCTION NOTES

1. The work on this project shall adhere to the following specifications, standards and/or regulations:

   Alabama Handbook for Erosion Control
   ADEM NPDES Construction General Permit conditions
   United States Army Corps of Engineers Nationwide Permit Number 27
   The Project Plans and Specifications

2. Portions of this project are located in a Zone A floodplain as indicated by FEMA FIRM Panel 01003C0820L. The project will include the excavation of earth that will result in a net reduction of over 15,000 cubic yards of material from the floodplain; therefore, flood elevations are not expected to rise as a result of the project.

3. Construction of the stream shall be performed by a qualified contractor experienced with natural channel restoration construction procedures.

4. Construction safety fencing shall be installed between the construction zone and public access areas.

5. Instream structures shall be installed as the channel is being constructed and not post construction. Filter fabric installed as part of the instream structure shall be a nonwoven geotextile.

6. Side slopes of channel shall be constructed at 3:1 on average but no steeper than 1.5:1 along runs and on outside meander bends.

7. Trees, shrubs, and brush mattresses should be installed towards the end of the dormant period, either late winter or early spring.

8. Where practicable, existing trees and vegetation should be left in place to facilitate natural regeneration and soil stabilization.

EROSION/SEDIMENTATION CONTROL NOTES

1. All Erosion/Sediment Control measures shall be implemented and maintained in accordance with the Alabama Handbook for Erosion Control and ADEM NPDES Construction General Permit conditions. Measures shown on the plans should be considered minimums. The Engineer, QCP, ADEM and/or Local Authorities may require clean up of silt/sediment, replacement of erosion control measures or additional erosion control measures at any time over the course of the project, if the measures in place do not appear to be adequate and/or functioning properly.

2. All control measures shall be checked, and repaired as necessary, monthly and within 24 hours after any rainfall at the site of .75 inches or greater within a 24 hour period. Daily checking and, if necessary, repairing shall be done during prolonged rainfalls. The permittee shall maintain written records of such checks and repairs on site at all times, and records shall be subject to inspection at any reasonable time.

3. The Construction Entrance shall be maintained as required to prevent silt/sediment from leaving the site. This includes but is not limited to wash down of the construction entrance, installing and utilizing a vehicle wash down area, installing additional stone, etc.

4. Any and all silt/sedimentation shall be frequently removed from the silt fence, ditches, check dams and retention areas. At the end of construction these areas shall be completely free of silt/sedimentation and shall be stabilized as stated in the Plans and Specifications.

5. All BMPs shall be designed and installed in accordance with the Alabama Handbook for Erosion Control, Sediment Control and Storm Water Management on Construction Sites and Urban Areas, Local Standards for Erosion and Sediment Control and the Plans and Specifications. If conflicts arise between these requirements, the more stringent shall apply.

6. BMP's shown along the perimeter of the disturbed areas shall be installed prior to disturbance activity. Other BMP's shall be installed as soon as construction sequences allow.

7. Temporary diversion of runoff/runon water shall be installed as needed to facilitate construction or as directed on-site by the engineer.

8. All disturbed areas shall be permanently stabilized immediately after the completion of the grading operation. Areas requiring coconut coir matting, shall be seeded and mulched for stabilization prior to the installation of the matting.

9. Temporary stabilization of disturbed areas must be initiated immediately whenever work toward project completion and final stabilization of any portion of the site has temporarily ceased and will not resume for a period exceeding thirteen (13) calendar days. Those areas shall be seeded and mulched in accordance with the plans and specifications.

10. Necessary measures shall be taken to produce and maintain an acceptable stand of grass. Said measures to include (but not limited to) watering, re-seeding, regrading eroded areas, re-fertilizing, etc.

11. Contractor is responsible for keeping mud and debris off City/State Streets and ROW. Cleanup is required daily.

12. Contractor shall keep a copy of the NPDES Construction General Permit and the "Construction Best Management Practices Plan" on site at all times for the life of the project.

13. All hazardous substances used for this project (paint, oil, grease, and other petroleum products) shall be stored in accordance with SPCC regulations. These substances shall be stored away from drains and ditches in watertight containers. Disposal of these substances shall be in accordance with ADEM regulations. Daily inspections shall be performed for leak detection. If leaks occur, appropriate action shall be taken to contain and remediate the spill. Adequate trash containers shall be kept on site for the disposal of construction materials waste. Necessary measures shall be taken to prevent any trash or other pollutants from enterings "waters of the United States.

14. All temporary measures shall be removed once acceptable permanent stabilization is achieved. The Owner and QCP/Engineer shall determine if the permanent stabilization is acceptable.

WOLF CREEK

ITEM	QUANTITY	UNITS	NOTES
IN-STREAM AND BIOENGINEERING STRUCTURES			
LOG SILLS	12	EA	EACH SILL IS COMPOSED OF ONE OR TWO LOGS. EACH LOG SHALL BE HARDWOOD SPECIES, APPROXIMATELY 20-FT IN LENGTH, AND STRAIGHT
TOE WOOD REVETMENT	70	LF	(SEE "TYPICAL IN-STREAM STRUCTURES 1" SHEET)
LOG VANE	8	EA	EACH VANE IS COMPOSE OF 2 LOGS. EACH LOG SHALL BE OF A HARDWOOD SPECIES, APPROXIMATELY 20-FT IN LENGTH, AND STRAIGHT
BRUSHMATTRESS	85	LF	(SEE "BMP AND BIOENGINEERING TYPICALS" SHEET)
LIVE STAKES	250	EA	(SEE "BMP AND BIOENGINEERING TYPICALS" SHEET) TO BE INSTALLED ALONG WOOD TOE REVETMENT, LOG SILLS, AND LOG VANES
NON-WOVEN GEOTEXTILE FILTER FABRIC	447	SQ YD	PROVIDE ADEQUATE AMOUNT OF FILTER FABRIC TO SEAL EACH LOG SILL SYSTEM AND UNDERLAY THE TEMPORARY CROSSING
EROSION CONTROL			
COCONUT COIR MATTING	9,920	LF	700 G/M2; FOR USE ON STREAM BANK AND FLOODPLAIN SIDE SLOPE TOE; WIDTH OF MATTING APPROXIMATELY 6½ - FT. TWO ROWS OF MATTING SHALL BE INSTALLED ON EACH STREAM BANK, FROM TOE OF CHANNEL EXTENDING INTO THE FLOODPLAIN.
12" WOODEN STAKES	1.2 X # OF STAKES RECOMMENDED BY MANUFACTURER	EA	STAKES SHALL BE 12-INCHES IN LENGTH AND PLACED ON 2-FT BY 2-FT STAGGERED SPACING ALONG THE COIR MATTING
STRAW MULCH	8.3	ACRES	BASED ON SURFACE AREA OF CHANNEL SIDE SLOPES AND DISTURBED SURFACES
TEMPORARY SEED	8.3	ACRES	SELECTION BASED ON SEASON; QUANTITY BASED ON SURFACE AREA OF DISTURBED AREAS. IF CONSTRUCTION OCCURS DURING TRANSITION OF SEASONS, BOTH WARM AND COOL-SEASON SEED SHALL BE APPLIED
PERMANENT NATIVE SEED	5	ACRES	PERMANENT SEED SHALL BE A MIX OF NATIVE WETLAND AND MEADOW FLOWERING FORBS AND GRASSES. THIS WILL BE APPLIED TO THE CONSTRUCTED CHANNEL AND FLOODPLAIN, INCLUDING FLOODPLAIN SIDE SLOPES
PERMANENT SEED	3.3	ACRES	PERMANENT SEED SHALL BE APPLIED TO UPLAND AREAS DISTURBED BY STAGING AREA, STOCKPILES, AND TEMPORARY CROSSING. SEED SHALL BE DETERMINED PER THE DISCRETION OF THE CONTRACTOR AND CITY OF FOLEY
SILT FENCE	1935	LF	TO BE PLACED AROUND STAGING AREA AND STOCKPILES
EARTHWORK			
CUT	17,545	CU YD	
FILL	1920	CU YD	
NET	15,625	CU YD	
VEGETATION			
BARE ROOT SEEDLINGS	TBD	EA	SEEDLING VARIETY TO BE DETERMINED BASED ON TARGET FOREST TYPE AND BE PLANTED AT 10'X10' SPACING
BLUE GROWING TUBES (48"-LENGTH)	TBD	EA	THE BLUE TUBES SHALL BE INSTALLED WITH EACH BAREROOT TREE PLANTED. EACH TUBE IS COMPOSED OF AN OUTER, BLUE SLEEVE AND AN INNER SHEET.
WOODEN STAKES (48"-LENGTH)	TBD	EA	STAKES SHALL BE INSTALLED BETWEEN THE TWO LAYERS OF THE BLUE TUBE FOR STABILITY.

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NOTES AND QUANTITIES