

STAFFORD LAKE BIKE PARK

TRAIL BRIDGE, HEADCUT AND GULLY STABILIZATION PROJECT

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PROJECT: STAFFORD LAKE BIKE PARK

TRAIL BRIDGE, HEADCUT AND GULLY STABILIZATION

3549 NOVATO BLVD. NOVATO, CA 94947

PROJECT OWNER:

MARIN COUNTY PARKS PRESERVATION-RECREATION



CONTACT: STEPHANE TROYAN
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PROJECT DESIGNER:

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 SEBASTOPOL, CA 95472
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REGISTRATION & SIGNATURE



DATE:

6/27/2017

SUBMITAL:

STAFFORD LAKE BIKE PARK TRAIL BRIDGE, HEADCUT AND GULLY STABILIZATION

REVISIONS

No.	Date	Description
1	2/7/18	ADDENDUM #1

SCALE: AS SHOWN

SHEET TITLE:

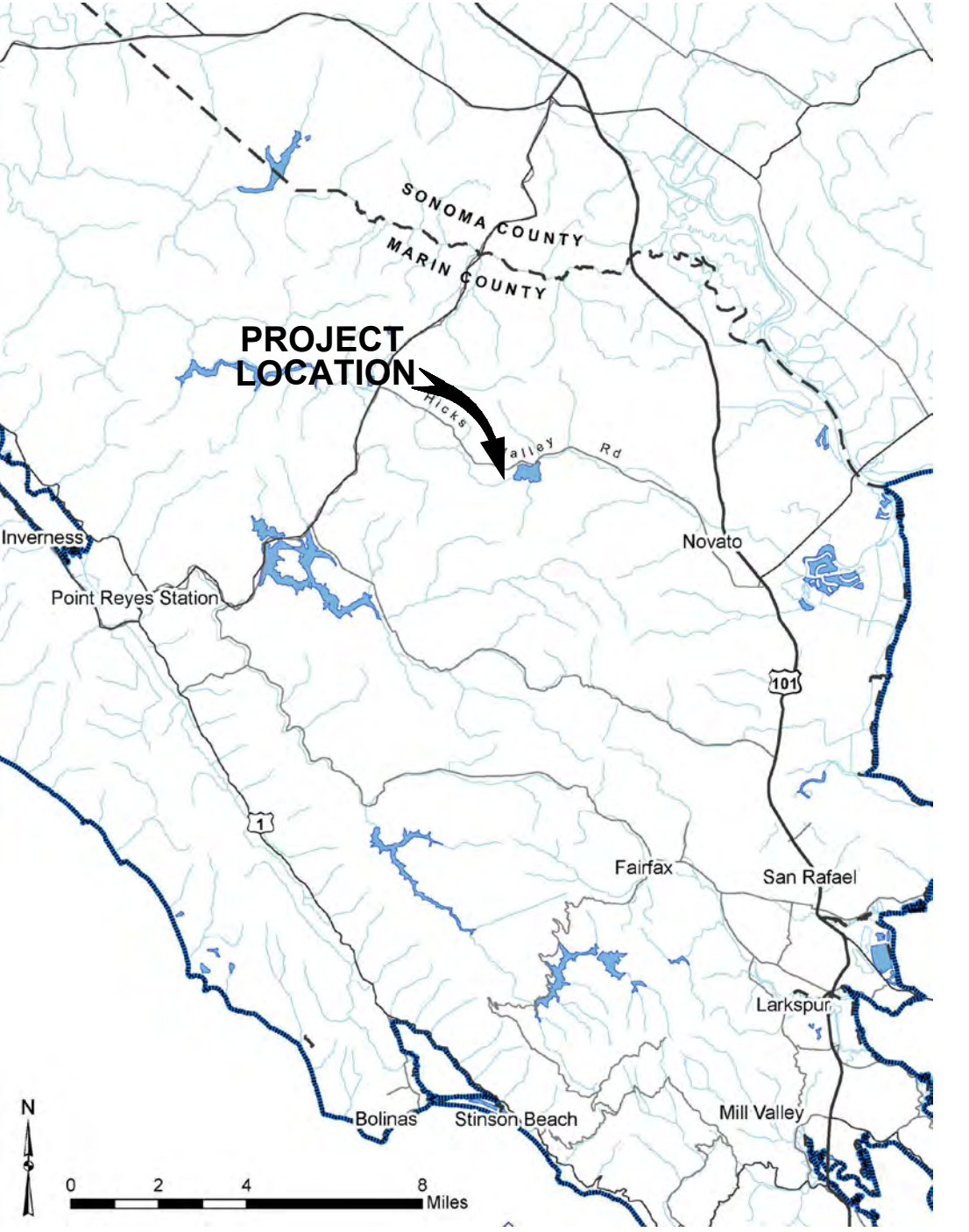
TITLE SHEET

SHEET NUMBER:

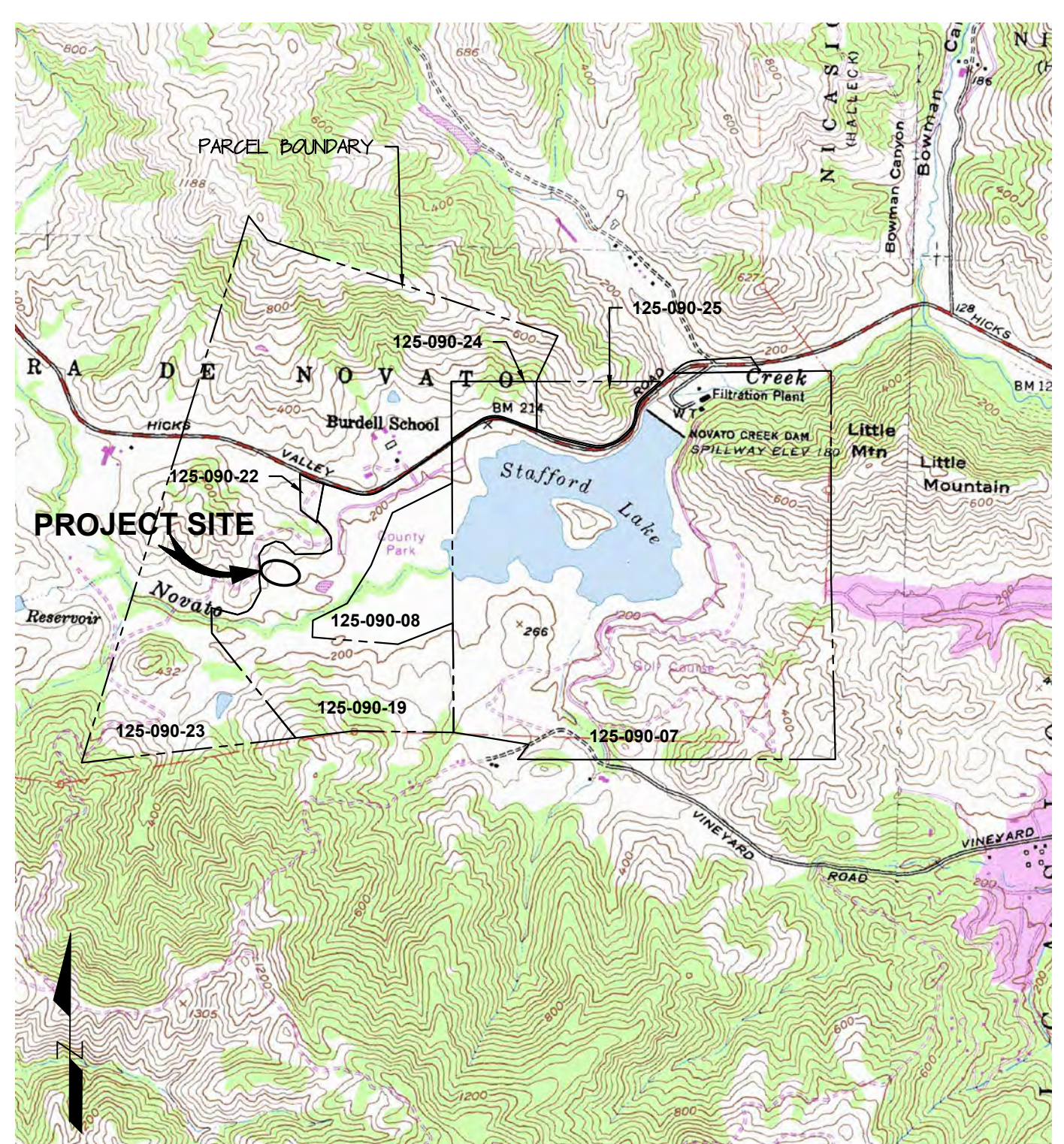
1

SHEET LIST TABLE

Sheet Number	Sheet Title
1	TITLE SHEET
2	CONSTRUCTION NOTES
3	SITE PLAN
4	PLAN & PROFILE CHANNEL & BERM
5	PLAN & PROFILE TRAIL BRIDGE
6	CROSS SECTIONS
7	CONSTRUCTION DETAILS
8	EROSION CONTROL & CONSTRUCTION DETAILS
9	EROSION CONTROL PLAN
S1	STRUCTURAL DETAILS

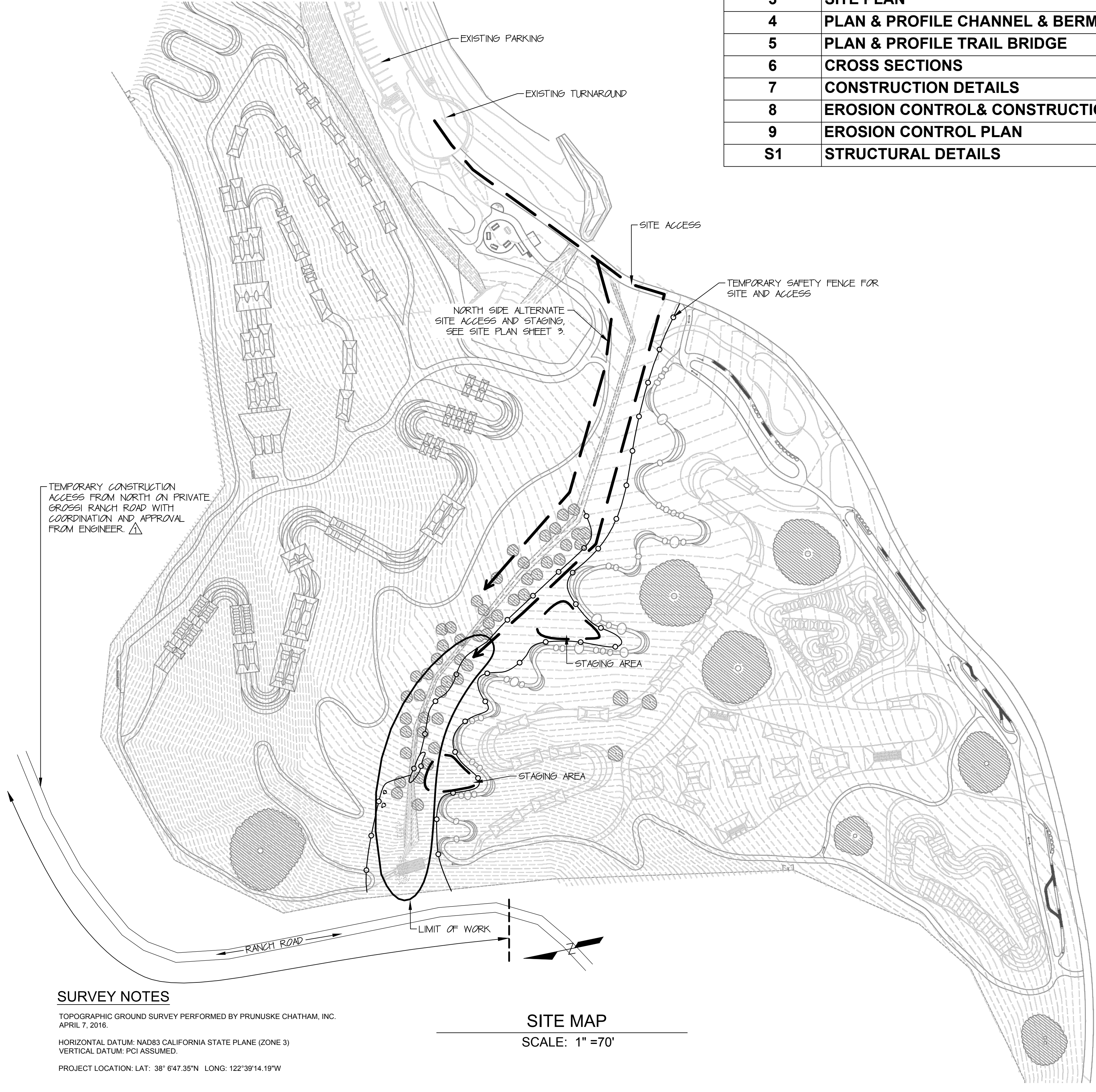


VICINITY MAP
 SCALE: AS SHOWN



LOCATION MAP
 SCALE: 1" = 2000'
 USGS

PROJECT ADDRESS: 3549 Novato Blvd, Novato, CA 94947



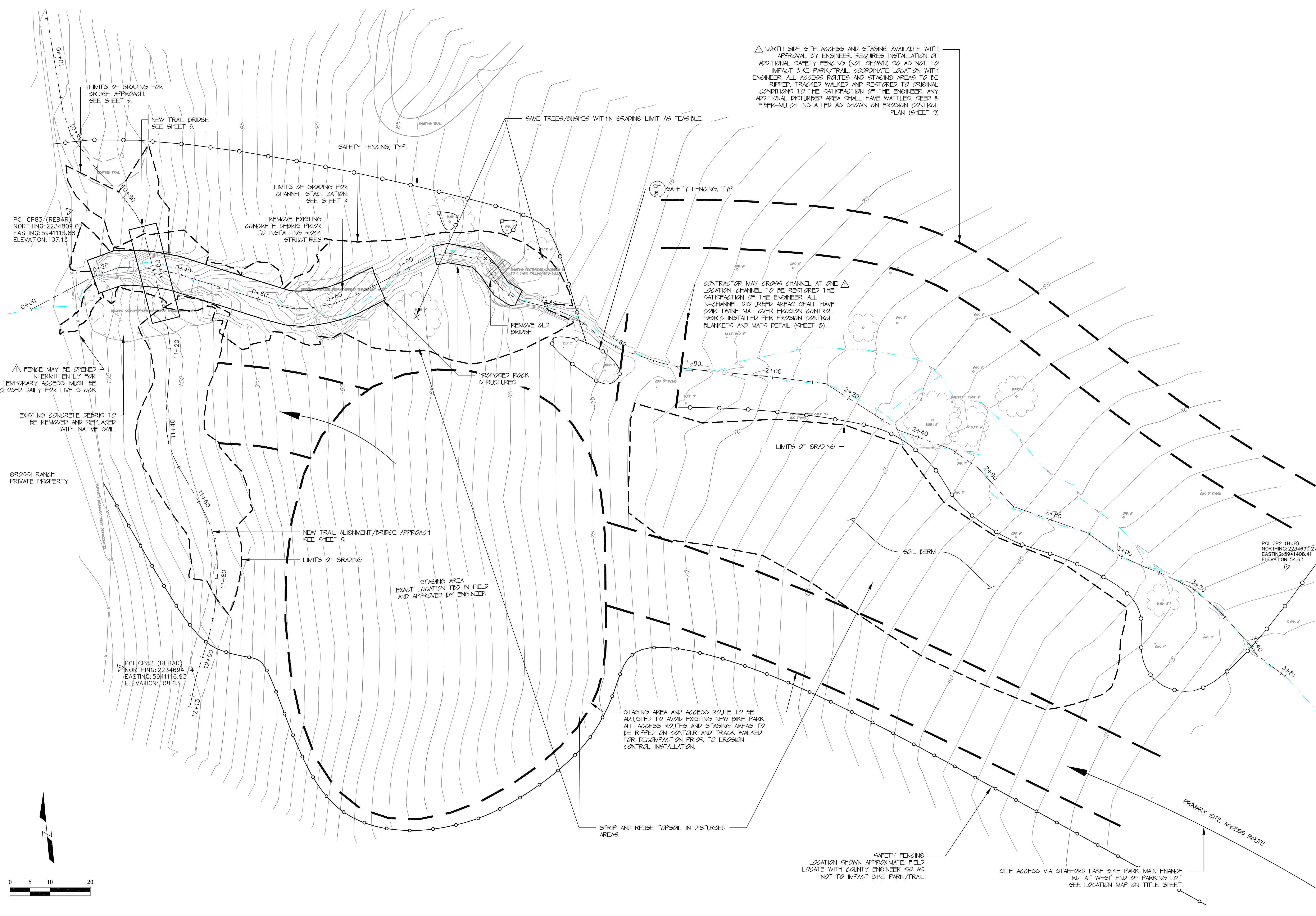
SURVEY NOTES
 TOPOGRAPHIC GROUND SURVEY PERFORMED BY PRUNUSKE CHATHAM, INC.
 APRIL 7, 2016.
 HORIZONTAL DATUM: NAD83 CALIFORNIA STATE PLANE (ZONE 3)
 VERTICAL DATUM: PCI ASSUMED.
 PROJECT LOCATION: LAT: 38° 6'47.35" N LONG: 122° 39'14.19" W

SITE MAP
 SCALE: 1" = 70'

LEGEND

GENERAL:	CROSS SECTION LABELS:	PROPOSED	EXISTING
Ø DIAMETER	TR TOP OF ROCK	—	---
± APPROXIMATE	TL TOP OF LOG	---	---
Δ DELTA	TW TOP OF WALL	---	---
▽ WATER SURFACE	EG EXISTING GRADE	---	---
	FG FINISH GRADE	---	---
	SECTION OR DETAIL DESIGNATION	---	---
	SHEET WHERE SECTION OR DETAIL OCCURS	---	---
	OFFSET FROM CENTERLINE	---	---
	ELEVATION	---	---
	LIMITS OF GRADING/BREAKLINE	---	---
	STORM DRAIN/CULVERT PIPE	---	---
	ALIGNMENT/FLOWLINE	---	---
	CONTOUR LINE	---	---
	APPROXIMATE PROPERTY LINE	---	---
	FENCE	---	---
	BRUSH/VEGETATION LINE	---	---
	OVERHEAD LINE	---	---
	STAGING AREA EXTENTS & SITE ACCESS	---	---
	COIR/TWINE MAT	---	---
	EROSION CONTROL BLANKET	---	---
	COMPOST/SALVAGED TOPSOIL	---	---
	SAFETY FENCING	---	---
	STRAW WATTLE	---	---
	TREES	---	---
	SURVEY CONTROL POINT	---	---
	ROCK	---	---
	ROCK SLOPE PROTECTION	---	---
	AGGREGATE BASE	---	---
	FABRIC REINFORCED EARTH FILL	---	---
	EROSION CONTROL BLANKET & MAT SEED & HYDROMULCH, STREAM CHANNEL & BANK SEED MIX	---	---
	CONCRETE & CONCRETE DEBRIS	---	---
	SEED & HYDROMULCH, TOP OF BANK & BEYOND	---	---
	ENGINEERED FILL/EXISTING	---	---

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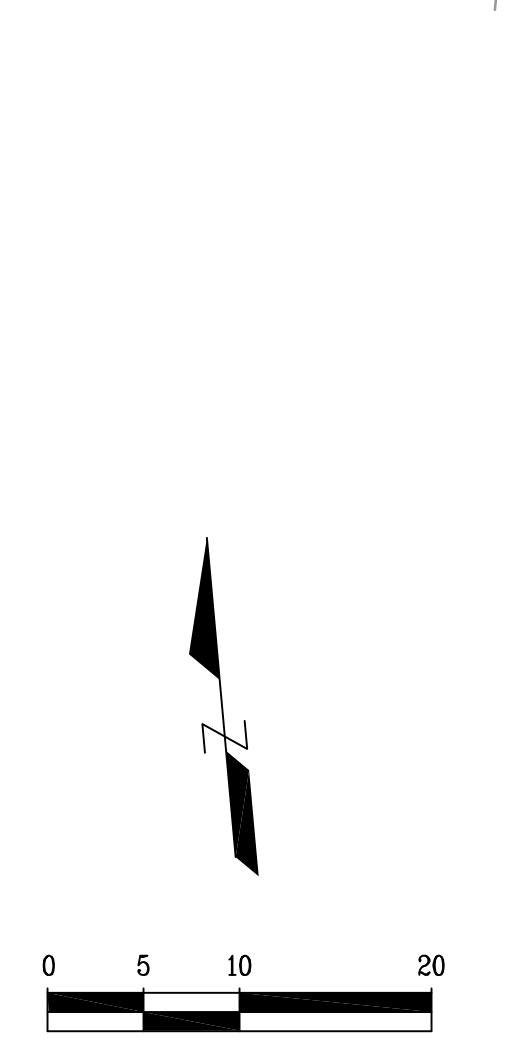
△ NORTH SIDE SITE ACCESS AND STAGING AVAILABLE WITH APPROVAL BY ENGINEER. REQUIRES INSTALLATION OF ADDITIONAL SAFETY FENCING (NOT SHOWN) SO AS NOT TO IMPACT BIKE PARK/TRAIL. COORDINATE LOCATION WITH ENGINEER. ALL ACCESS ROUTES AND STAGING AREAS TO BE RIPPED, TRACKED WALKED AND RESTORED TO ORIGINAL CONDITIONS TO THE SATISFACTION OF THE ENGINEER. ANY ADDITIONAL DISTURBED AREA SHALL HAVE WATTLES, SEED & FIBER-MULCH INSTALLED AS SHOWN ON EROSION CONTROL PLAN (SHEET 2)

CONTRACTOR MAY CROSS CHANNEL AT ONE LOCATION. CHANNEL TO BE RESTORED TO THE SATISFACTION OF THE ENGINEER. ALL IN-CHANNEL DISTURBED AREAS SHALL HAVE COIR TWINE MAT OVER EROSION CONTROL FABRIC INSTALLED PER EROSION CONTROL BLANKETS AND MATS DETAIL (SHEET 2).

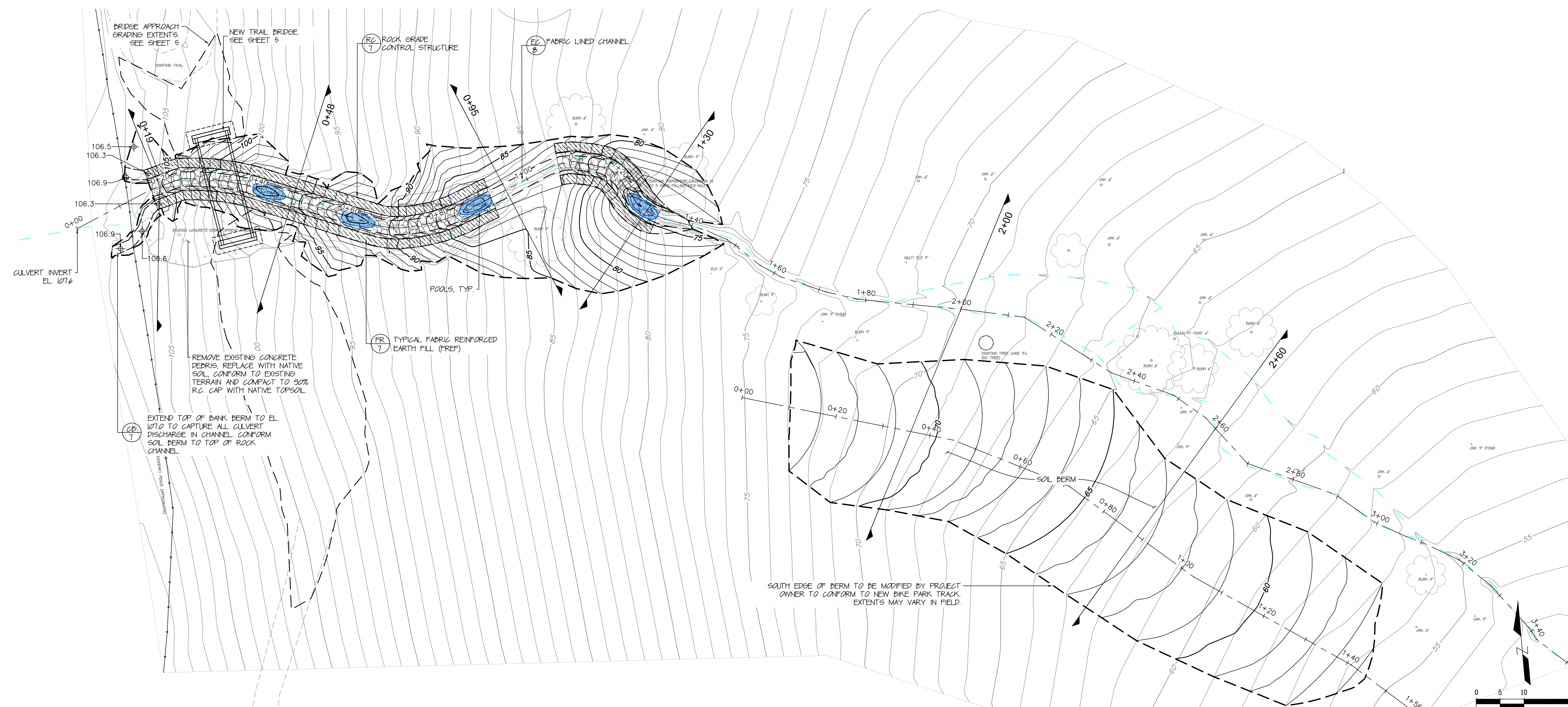
STAGING AREA AND ACCESS ROUTE TO BE ADJUSTED TO AVOID EXISTING NEW BIKE PARK. ALL ACCESS ROUTES AND STAGING AREAS TO BE RIPPED ON CONTOUR AND TRACK-WALKED FOR DECOMPACTION PRIOR TO EROSION CONTROL INSTALLATION.

SAFETY FENCING LOCATION SHOWN APPROXIMATE. FIELD LOCATE WITH COUNTY ENGINEER SO AS NOT TO IMPACT BIKE PARK/TRAIL

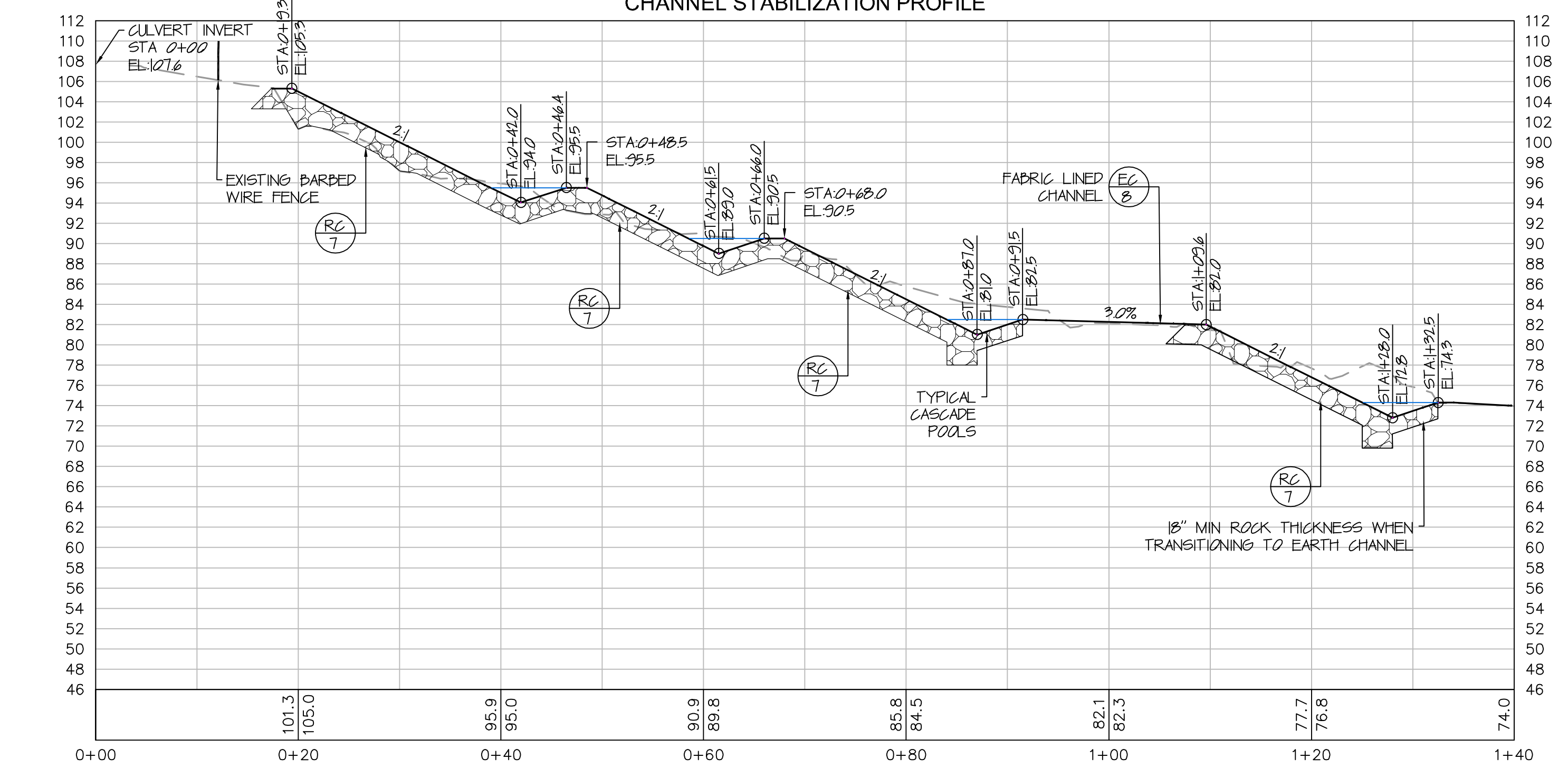
SITE ACCESS VIA STAFFORD LAKE BIKE PARK MAINTENANCE RD. AT WEST END OF PARKING LOT. SEE LOCATION MAP ON TITLE SHEET.



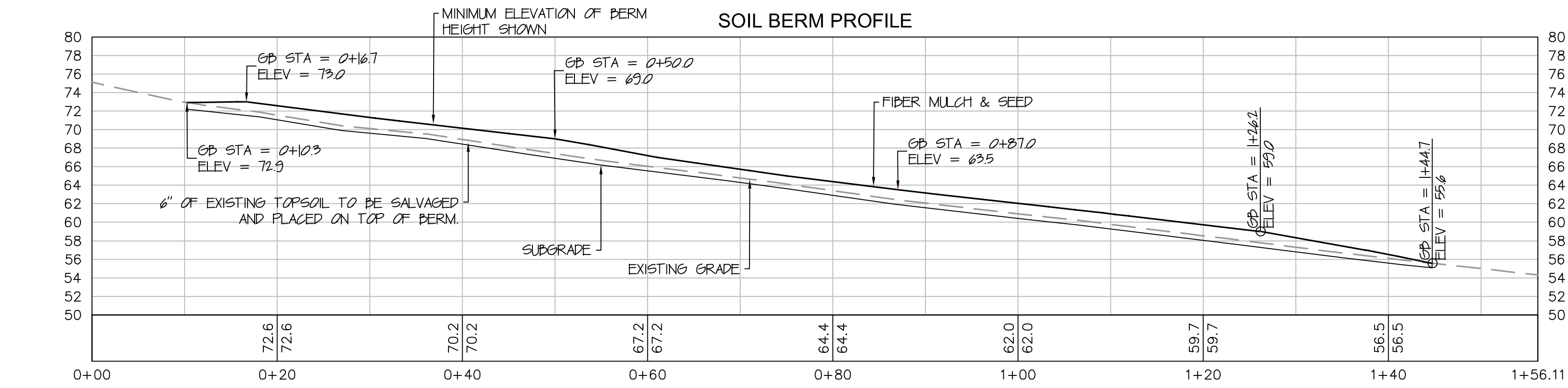
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Plot Date: 2/9/2018 10:27 AM Layout: SITE PLAN

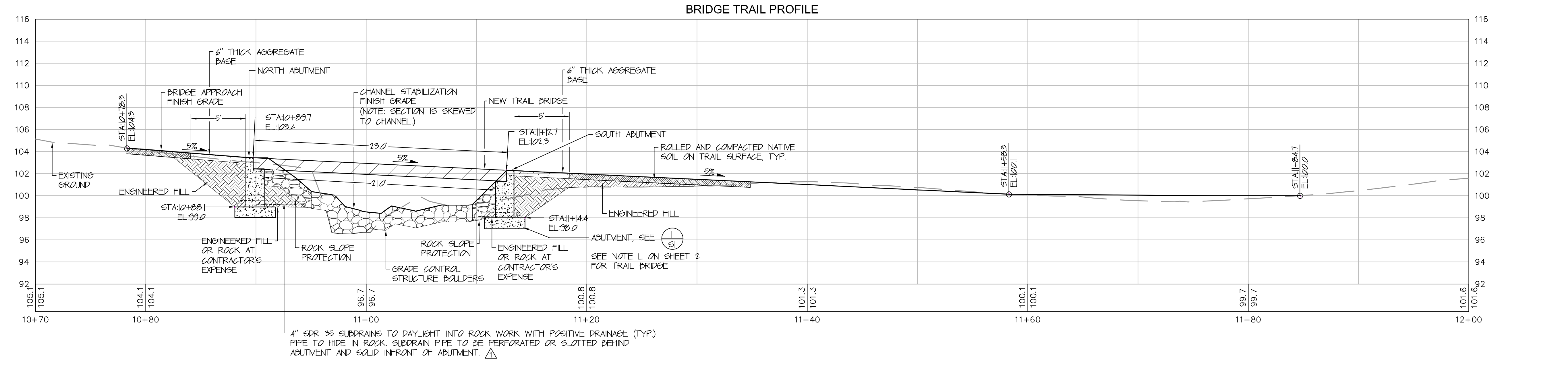
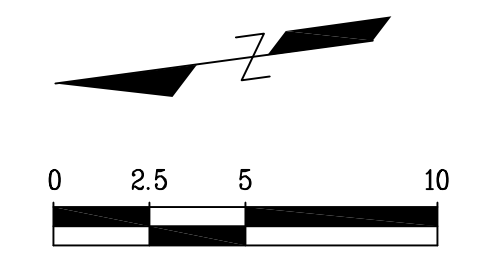
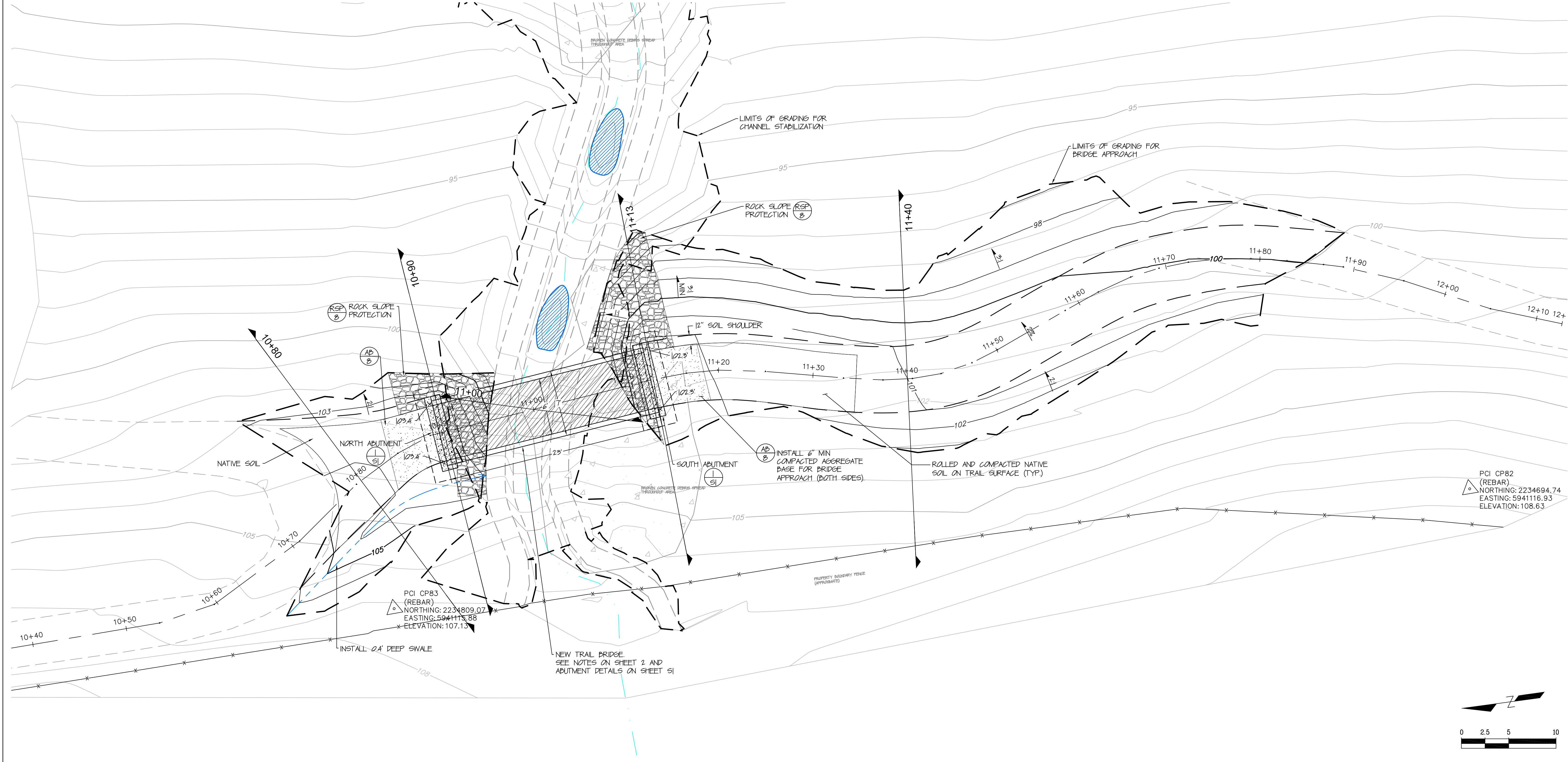


CHANNEL STABILIZATION PROFILE



SOIL BERM PROFILE





PROJECT: STAFFORD LAKE BIKE PARK

TRAIL BRIDGE, HEADCUT AND GULLY STABILIZATION

3549 NOVATO BLVD. NOVATO, CA 94947

PROJECT OWNER: MARIN COUNTY PARKS PRESERVATION/RECREATION

CONTACT: STEPHANE TROYAN MARIN COUNTY PARKS 3501 CIVIC CENTER DRIVE #260 SAN RAFAEL, CA 94903
Stroyan@marincounty.org (415)473-6366

PROJECT DESIGNER: PRUNUSKE CHATHAM, INC. 400 MORRIS STREET, SUITE G SERRA STOPIA, CA 94942 (707) 424-6000

REGISTRATION & SIGNATURE: REGISTERED PROFESSIONAL ENGINEER STEPHANE TROYAN No. 79859 6/23/17 CIVIL STATE OF CALIFORNIA

DATE: 6/27/2017

SUBMITTAL: STAFFORD LAKE BIKE PARK TRAIL BRIDGE, HEADCUT AND GULLY STABILIZATION

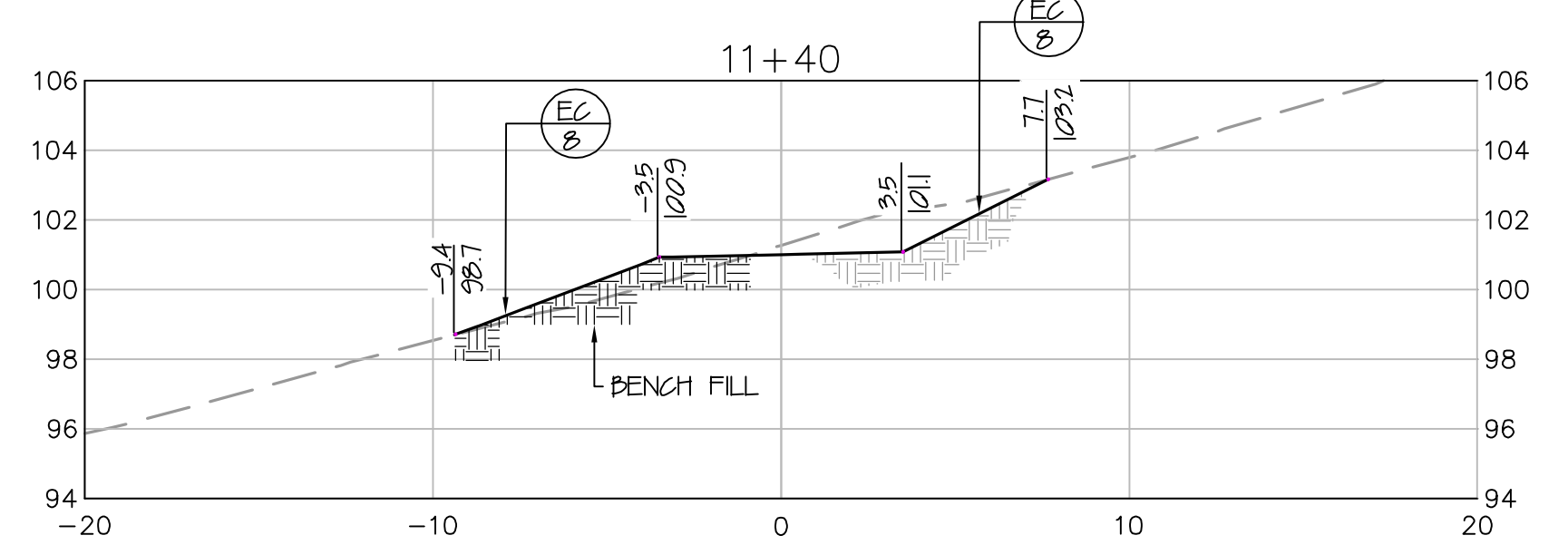
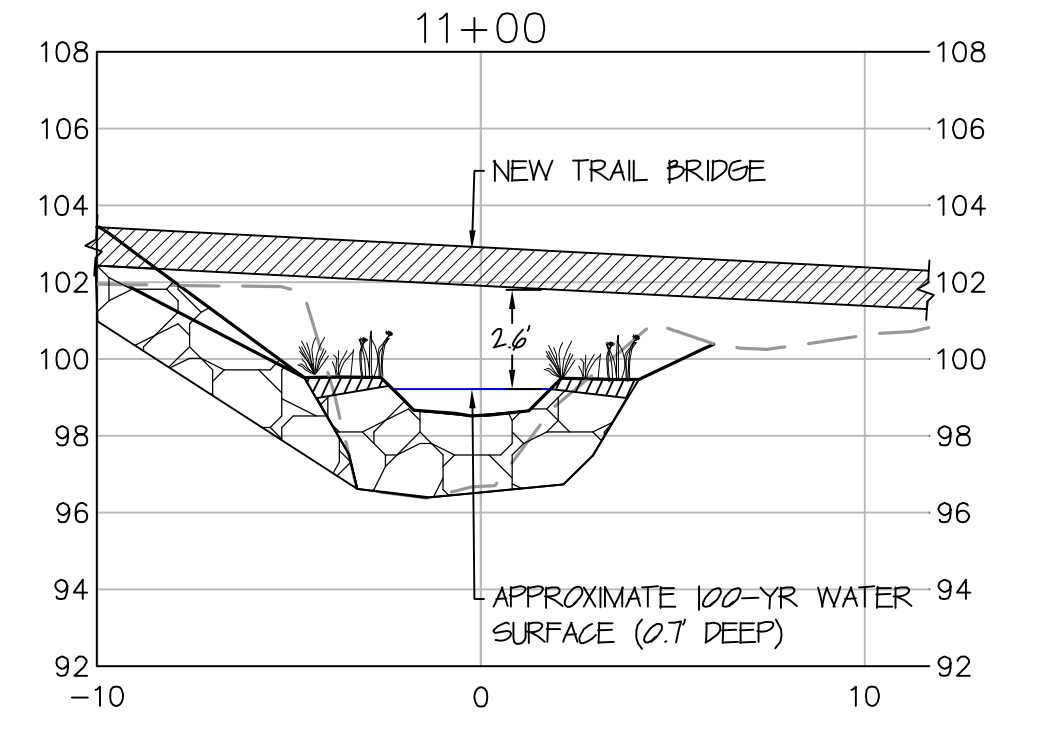
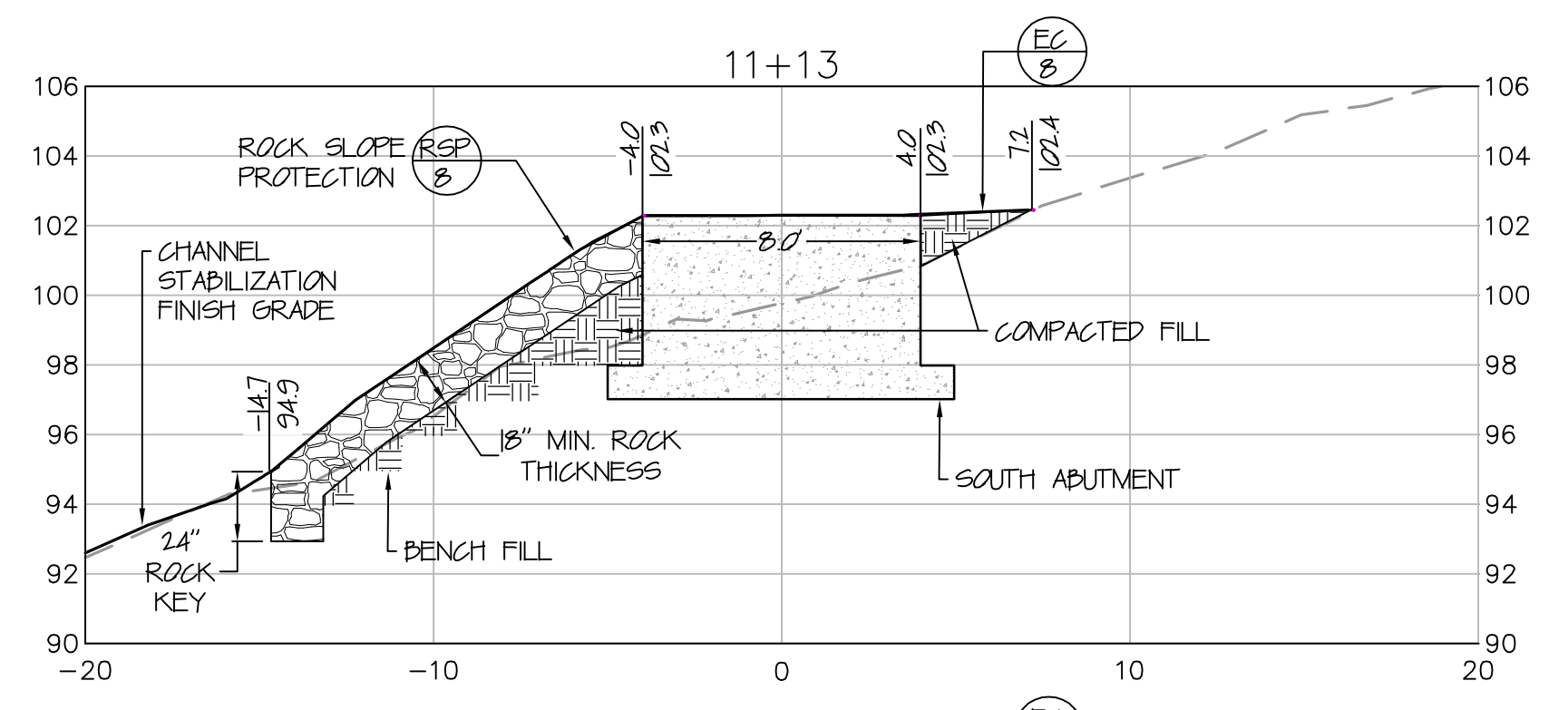
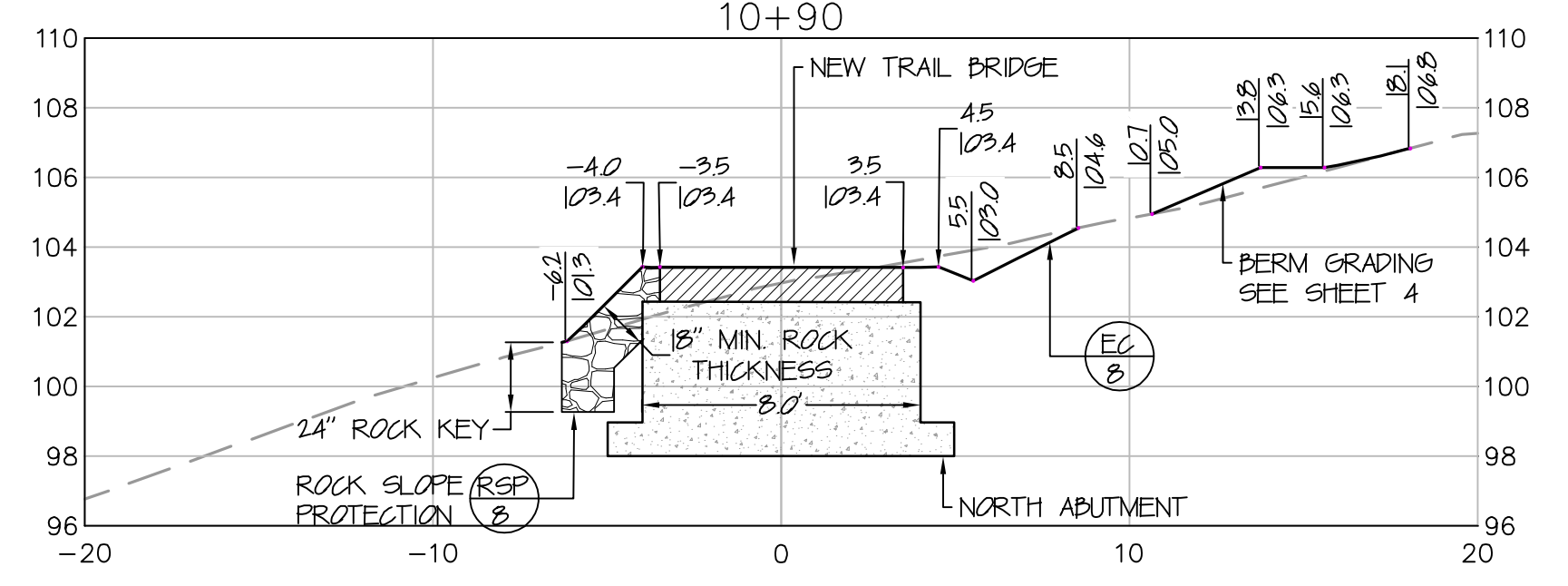
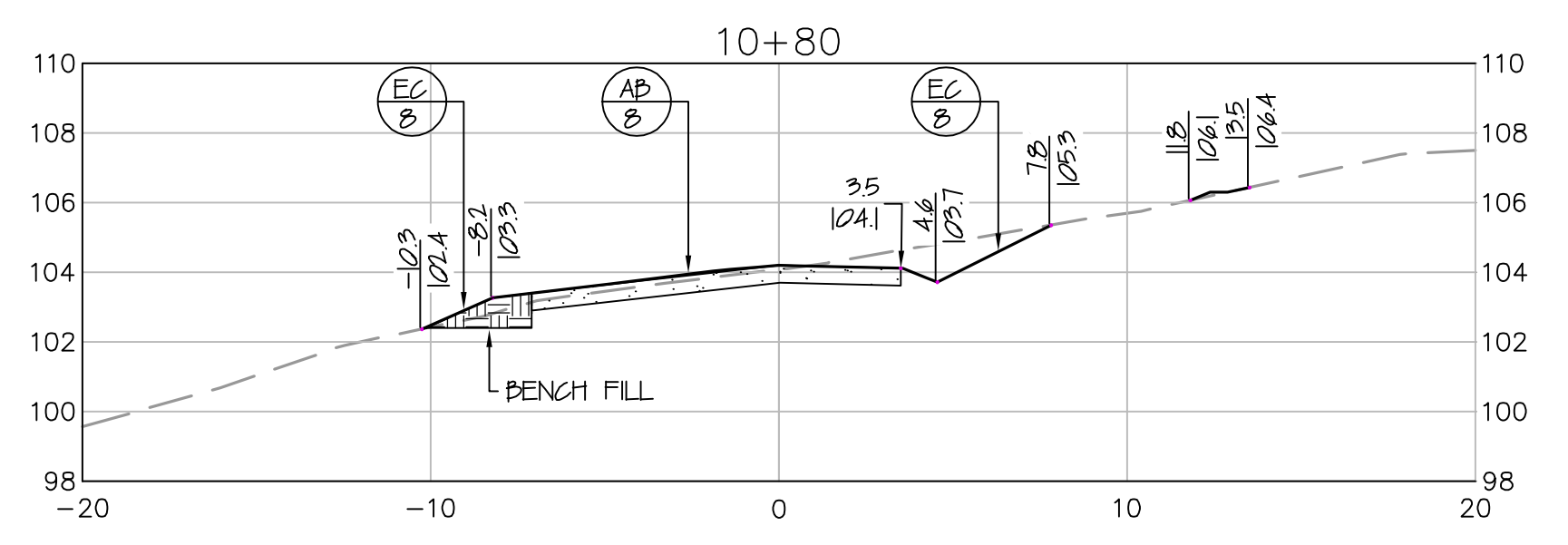
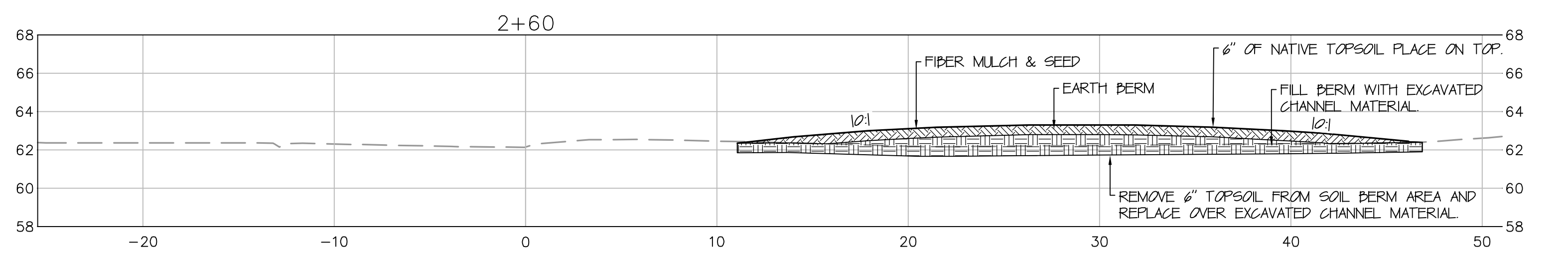
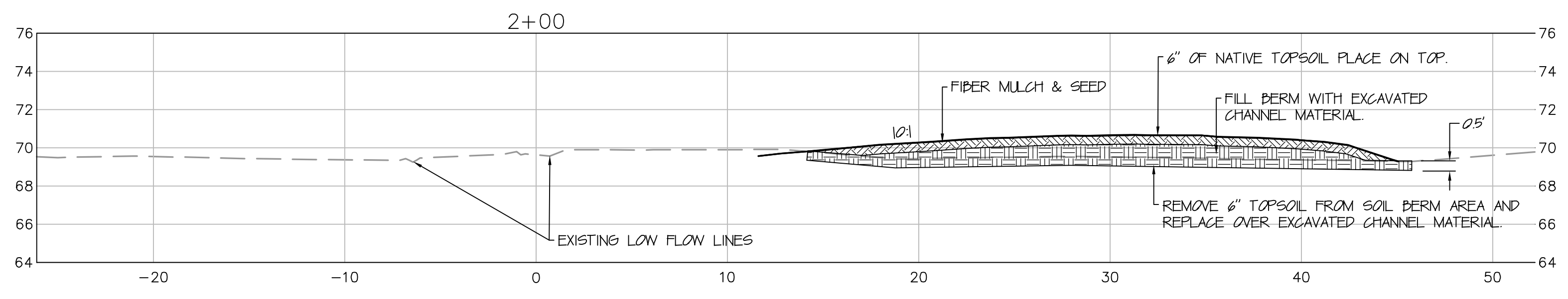
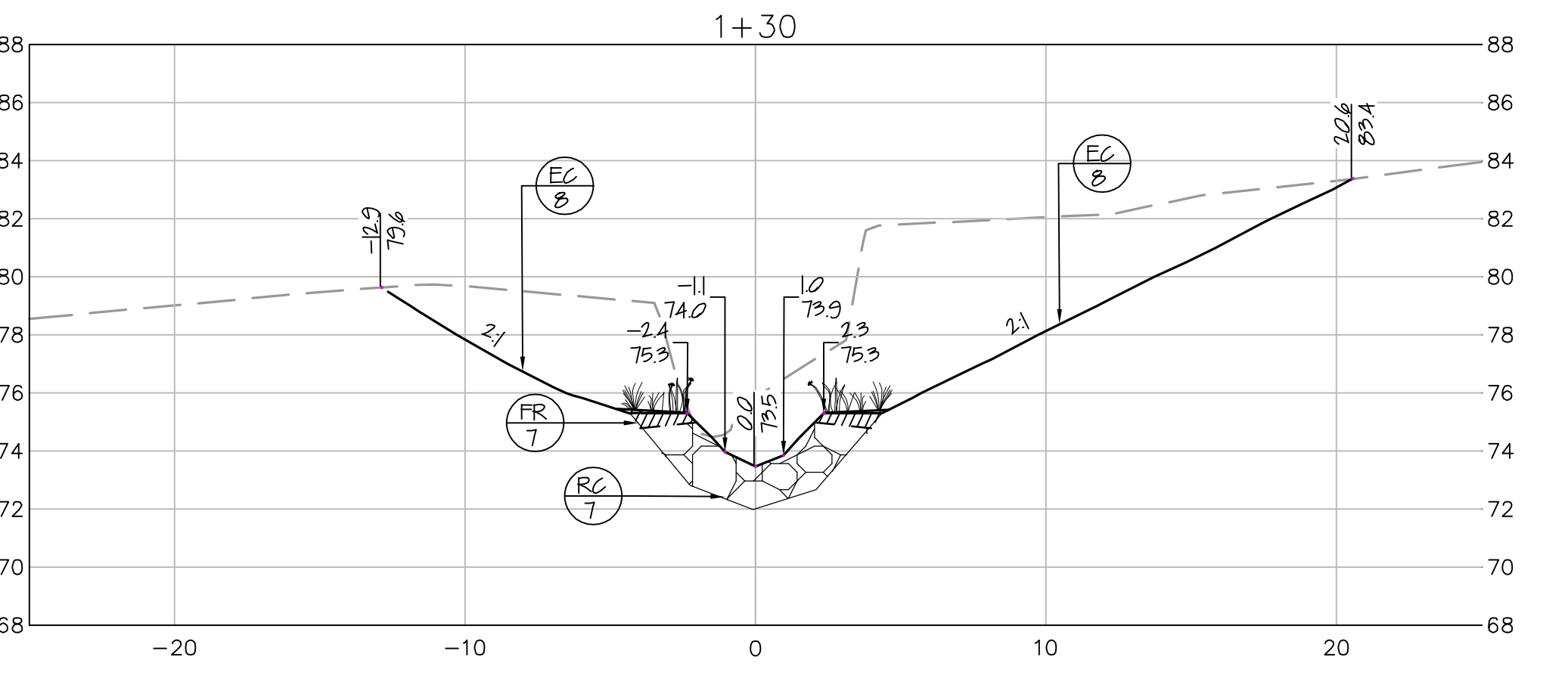
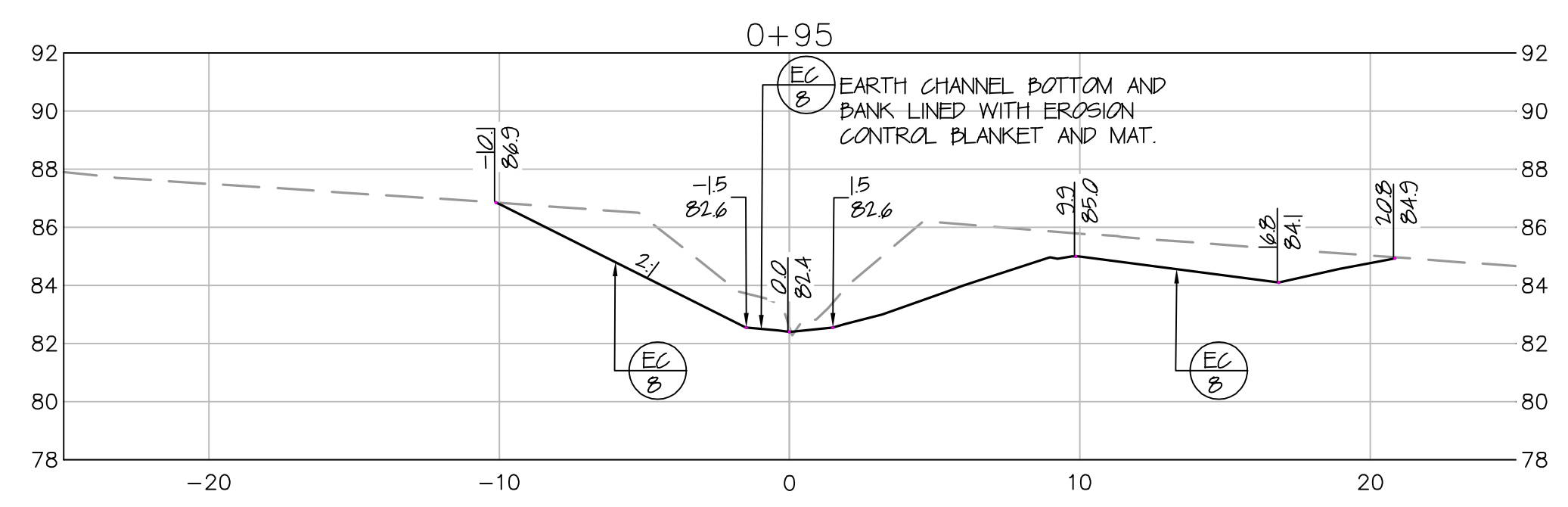
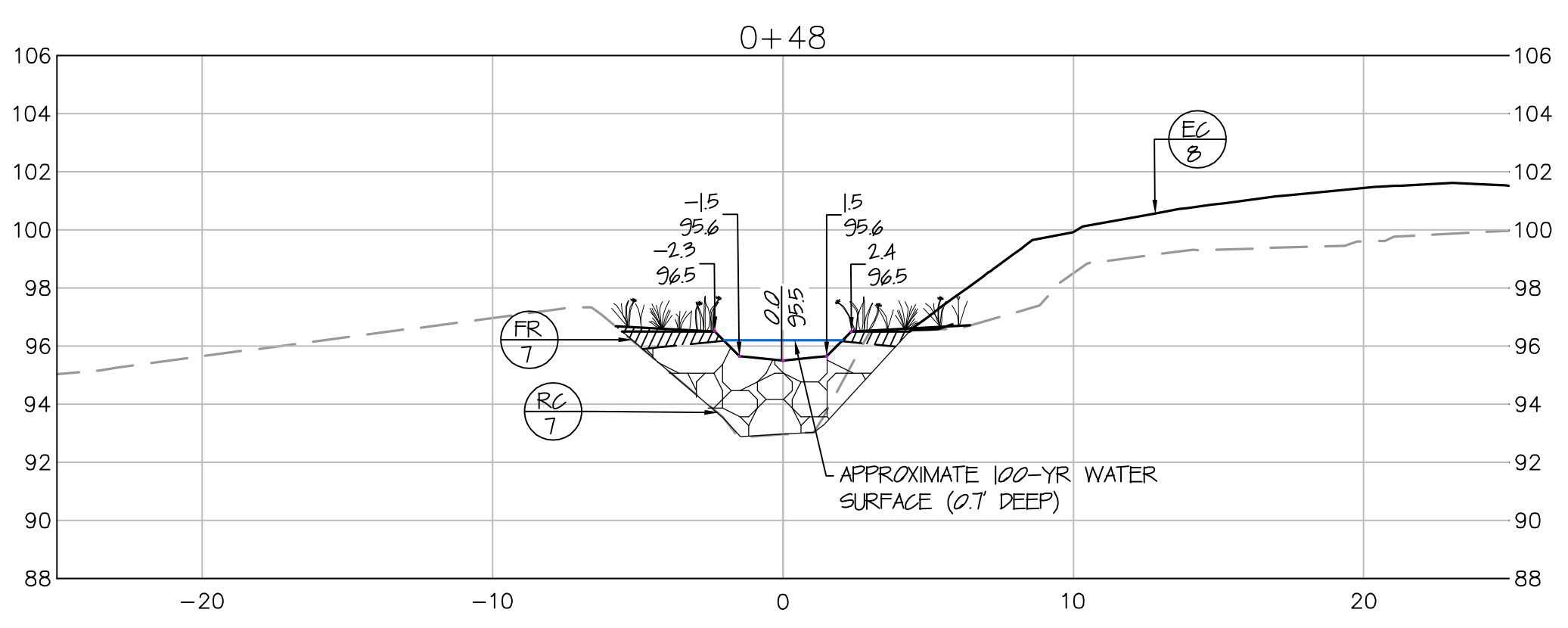
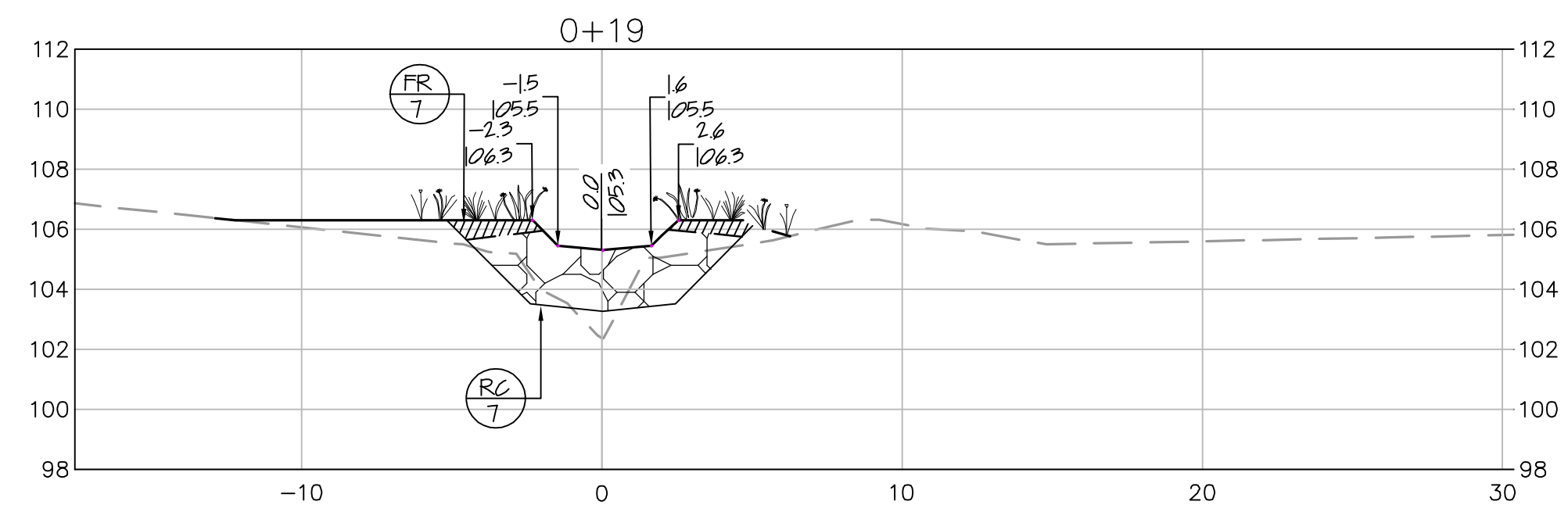
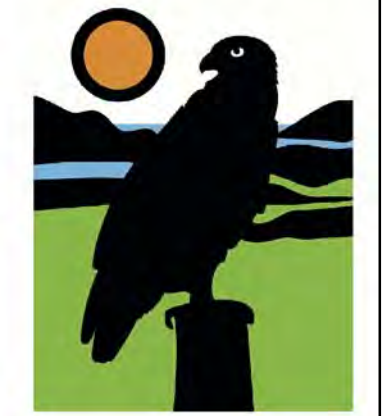
REVISIONS	No.	Date	Description
	1	2/7/18	ADDENDUM #1

SCALE: 1" = 5'

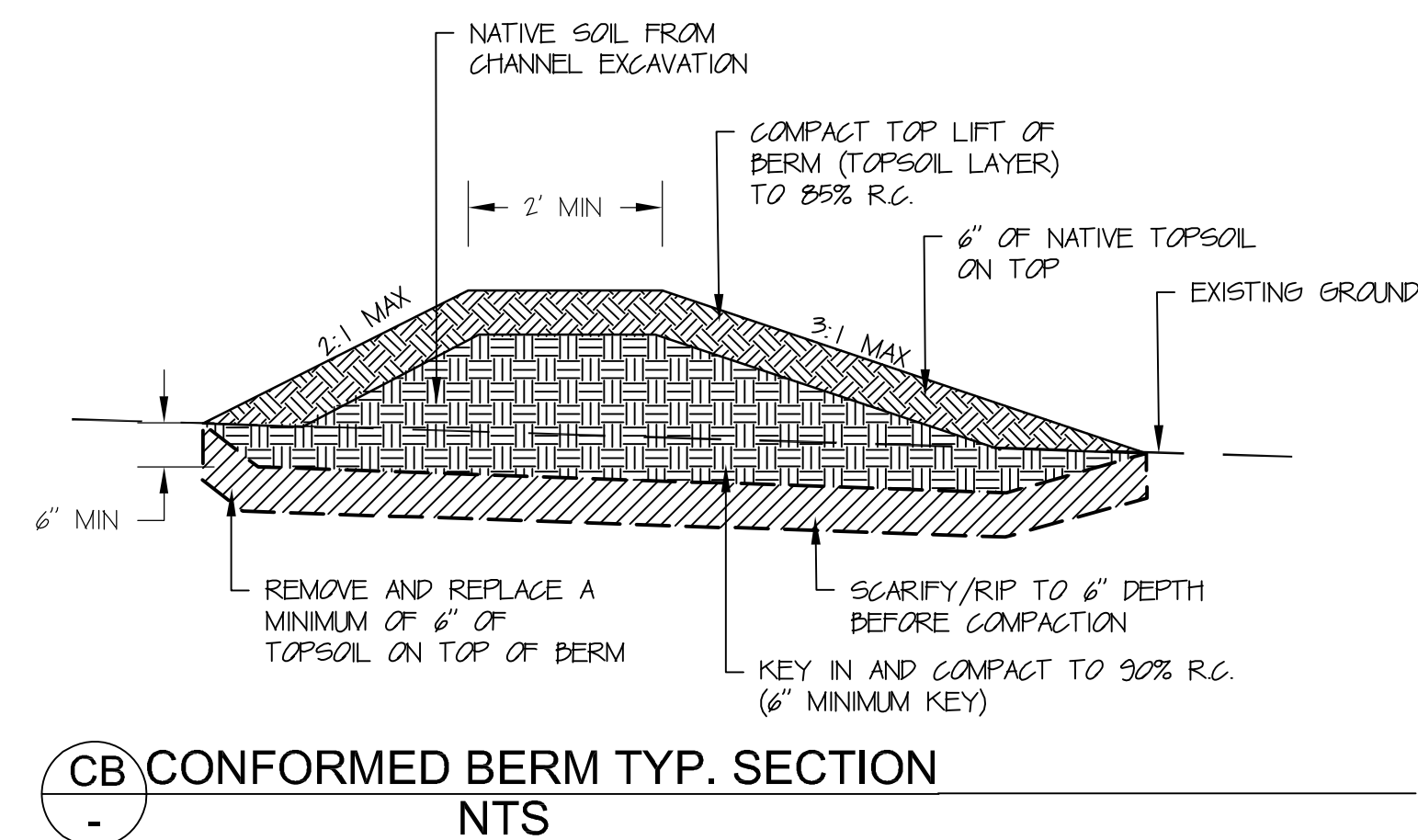
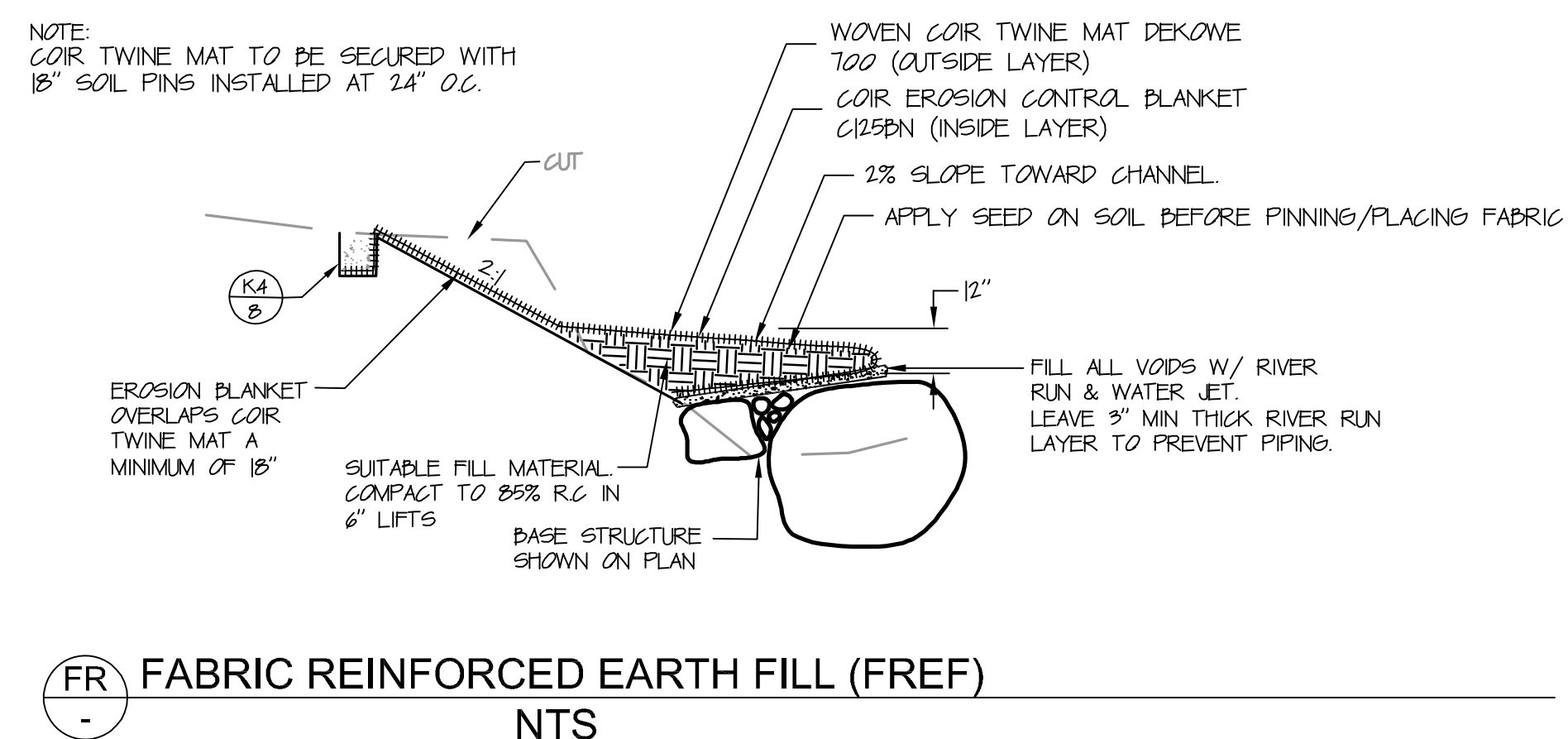
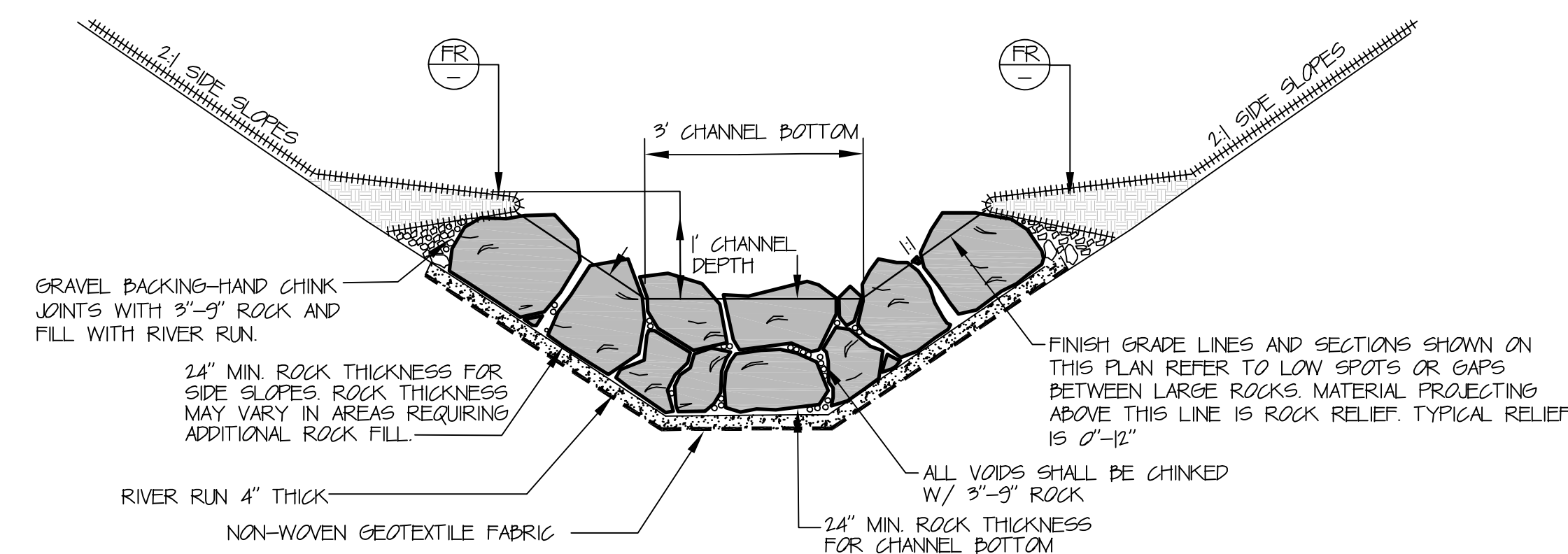
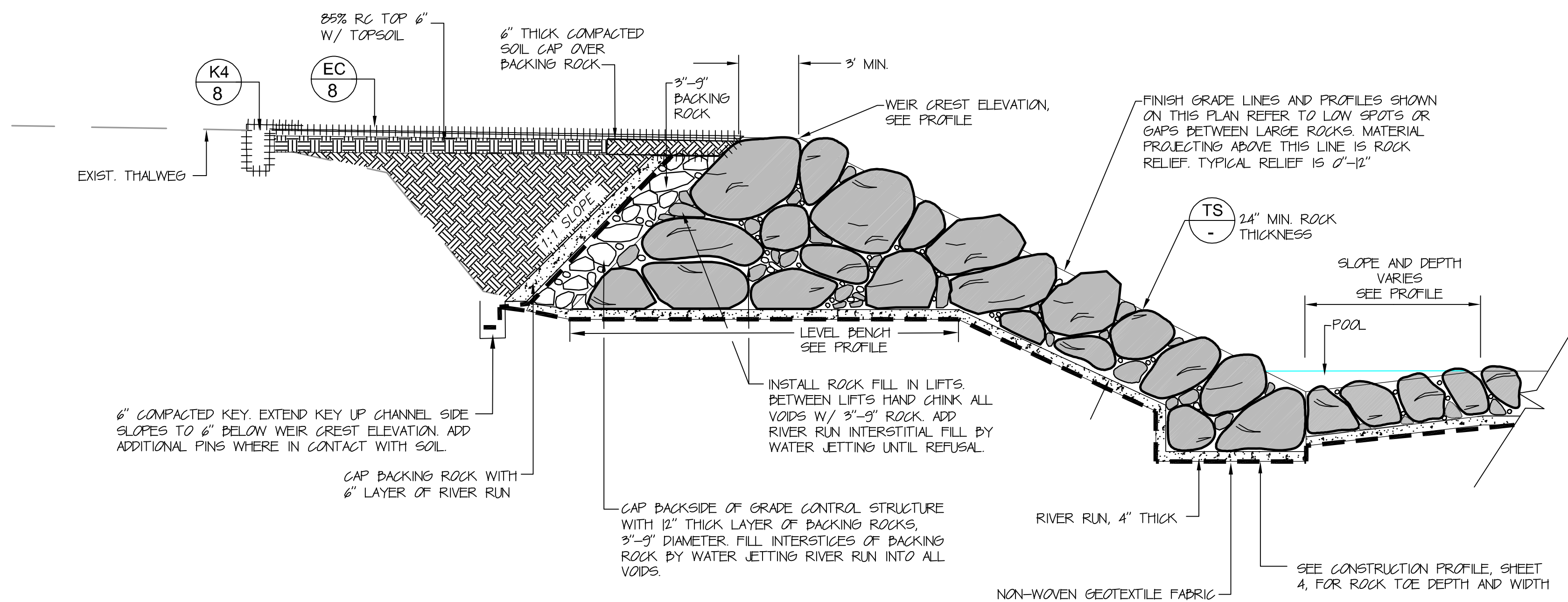
SHEET TITLE: PLAN & PROFILE TRAIL BRIDGE

SHEET NUMBER: 5

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Plot Date: 2/9/2018 10:28 AM Layout: CROSS SECTIONS





WATTLE SPACING NOTE:

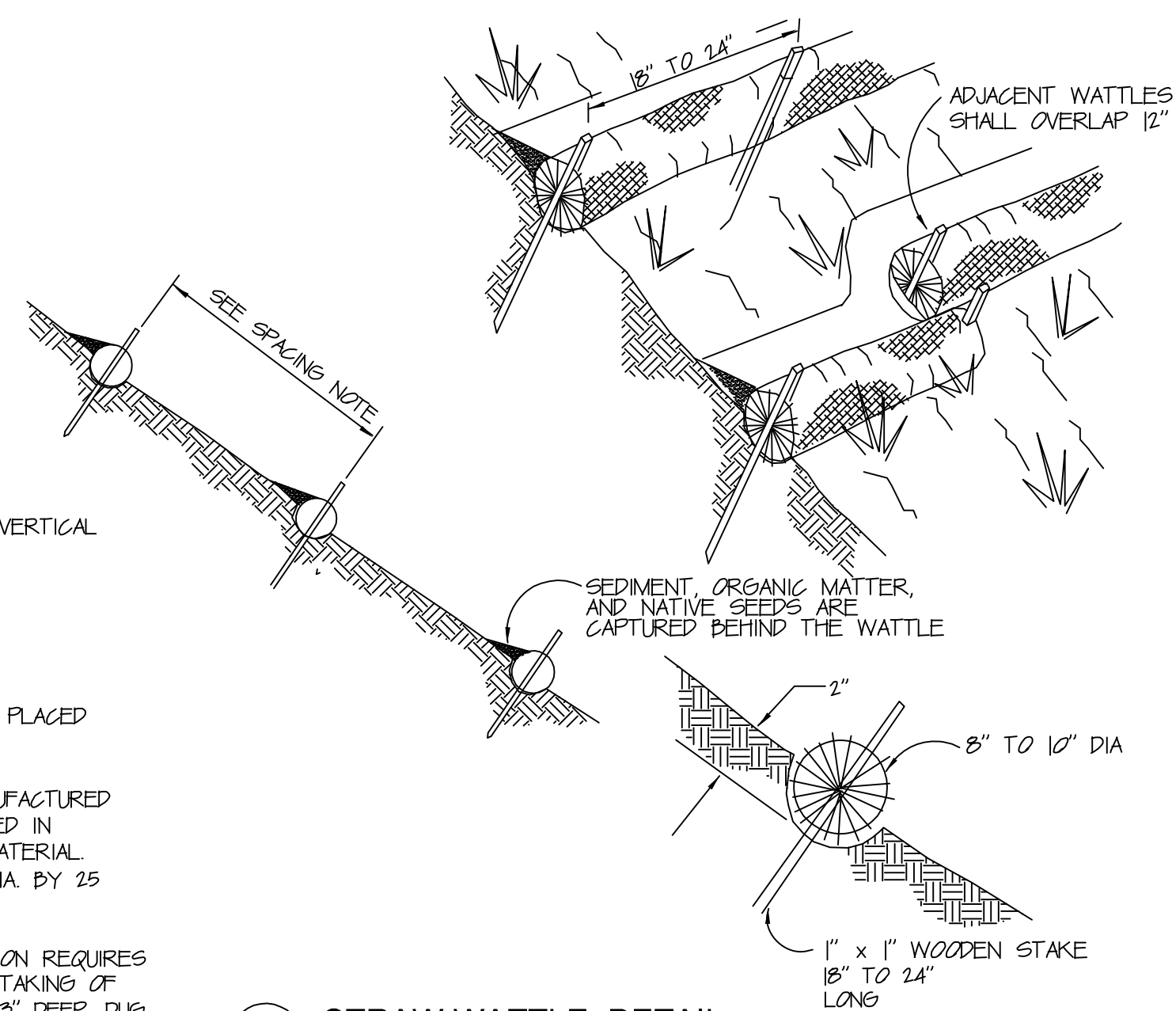
SPACE WATTLES EVERY 5 VERTICAL FEET.

GENERAL NOTES:

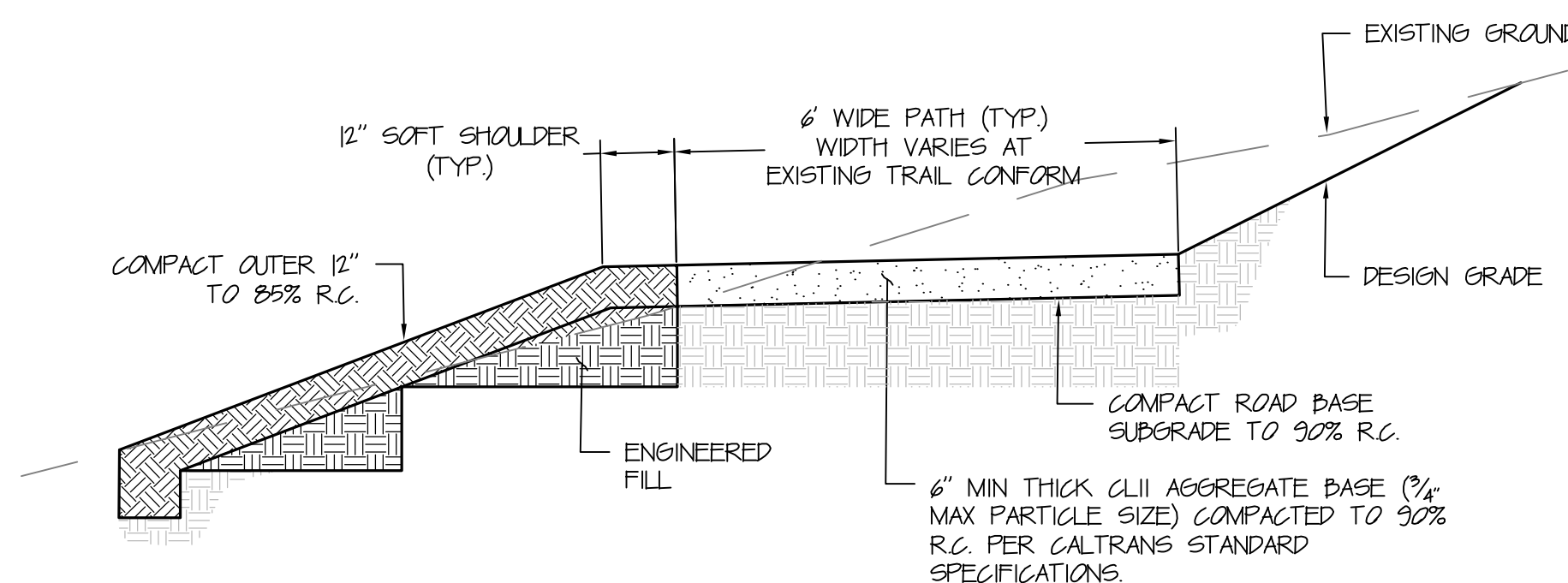
STRAW WATTLES MUST BE PLACED ALONG SLOPE CONTOURS

STRAW WATTLES ARE MANUFACTURED FROM RICE STRAW WRAPPED IN BIODEGRADABLE NETTING MATERIAL. THEY ARE APPROX. 9" IN DIA. BY 25 TO 30 FEET LONG.

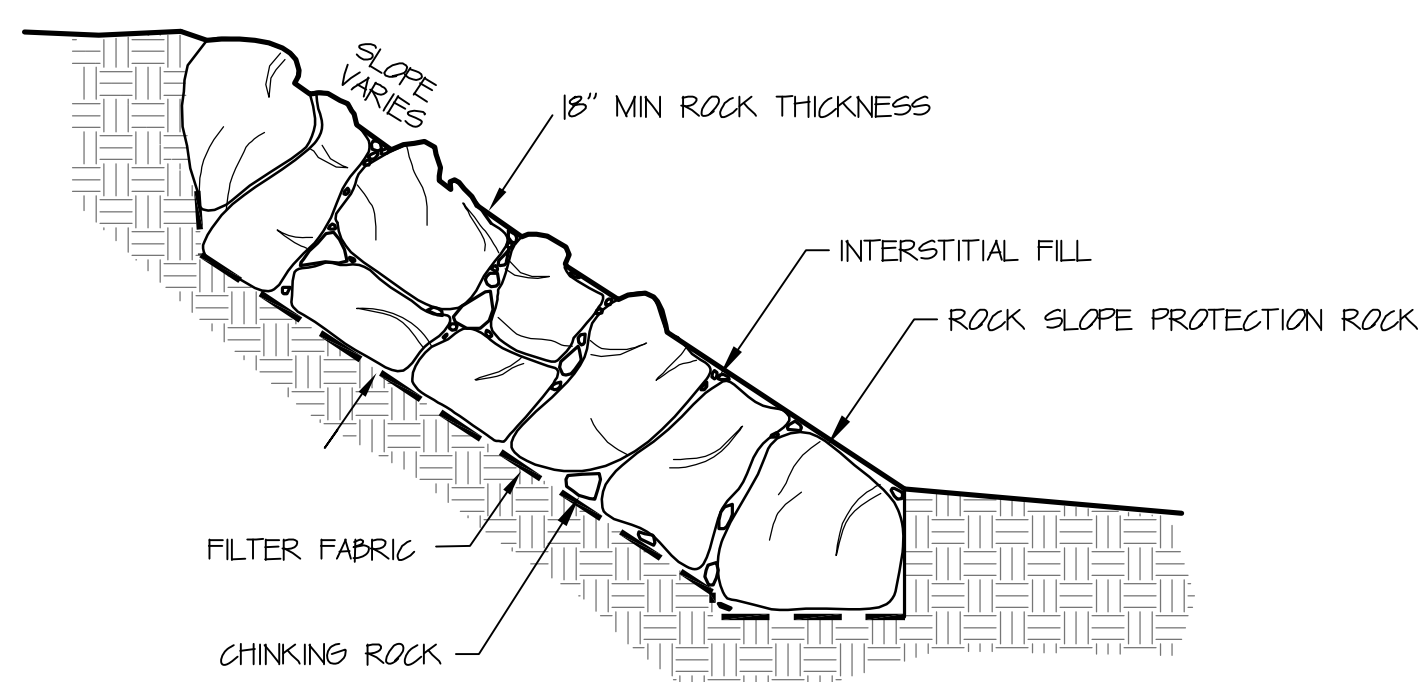
STRAW WATTLE INSTALLATION REQUIRES PLACEMENT AND SECURE STAKING OF ROLL IN A TRENCH 2" TO 3" DEEP, DUG ON CONTOUR. RUNOFF SHALL NOT BE ALLOWED UNDER OR AROUND ROLL.



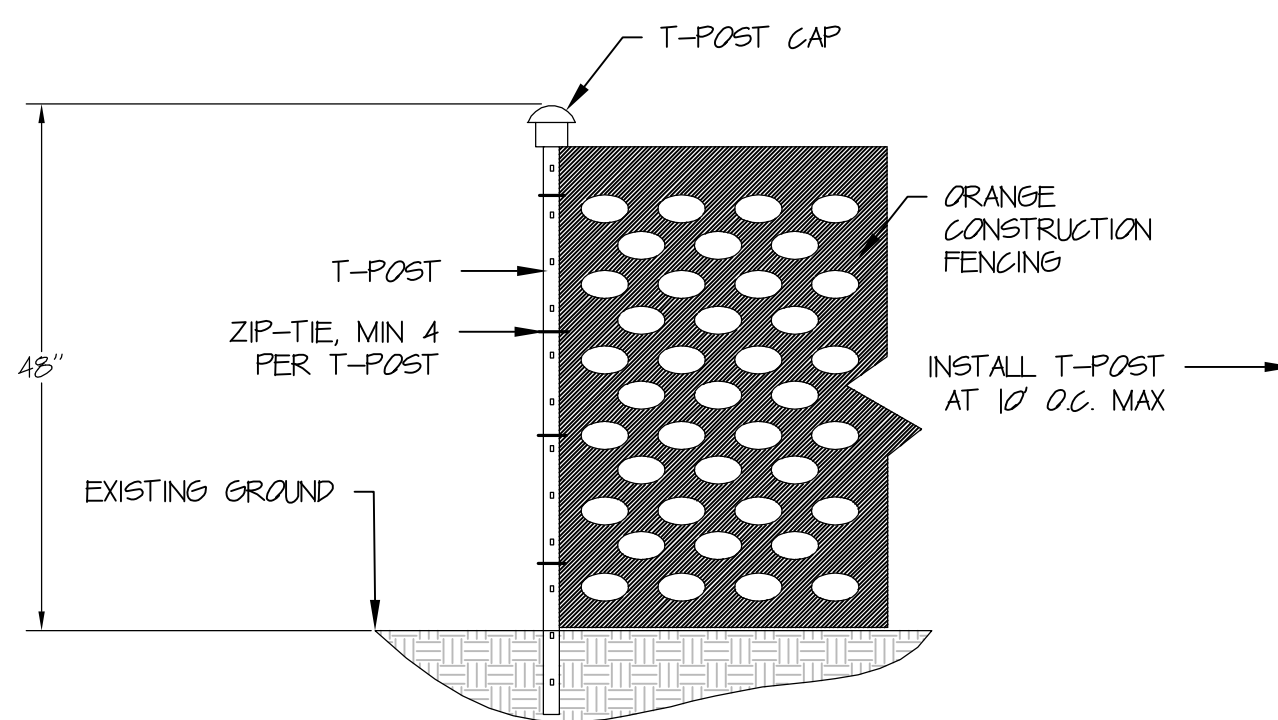
(SW) STRAW WATTLE DETAIL (SLOPE INSTALLATION, NTS)



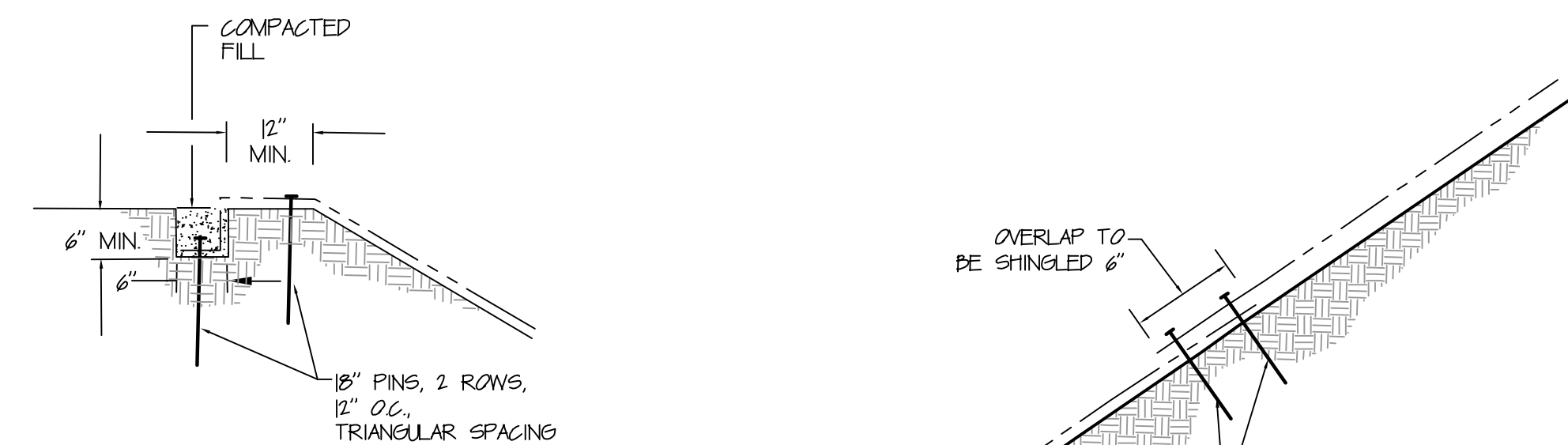
(AB) AGGREGATE BASE DETAIL (NTS)



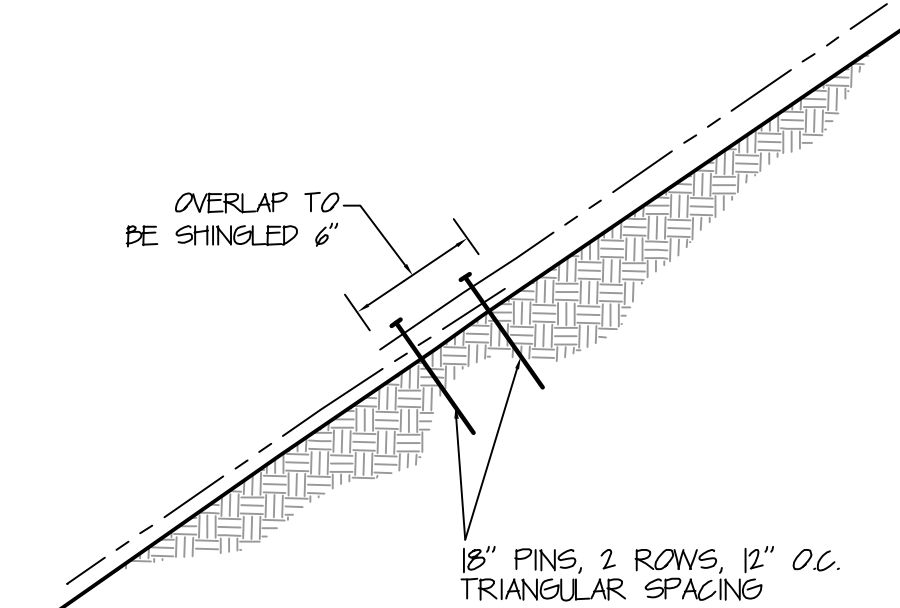
(RSP) ROCK SLOPE PROTECTION DETAIL (NTS)



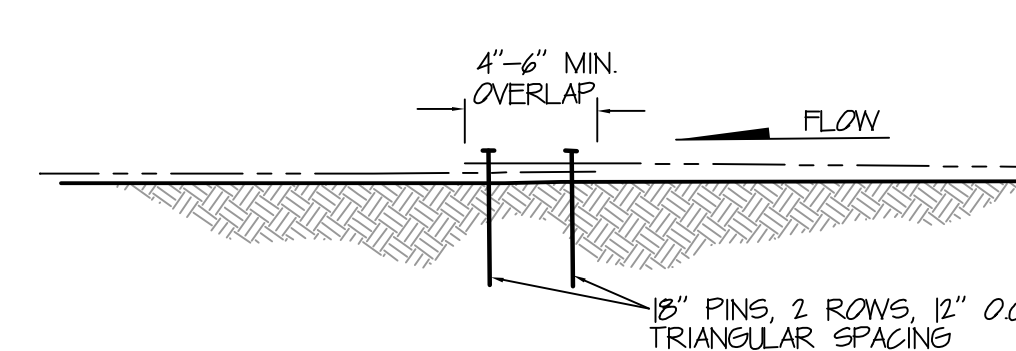
(SF) SAFETY FENCING (NTS)



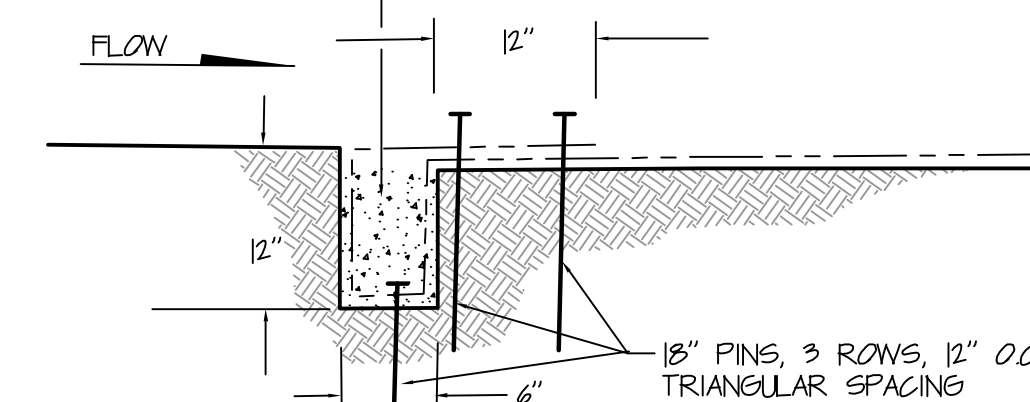
(K1) KEY 1 DETAIL (TOP OF SLOPE, NTS)



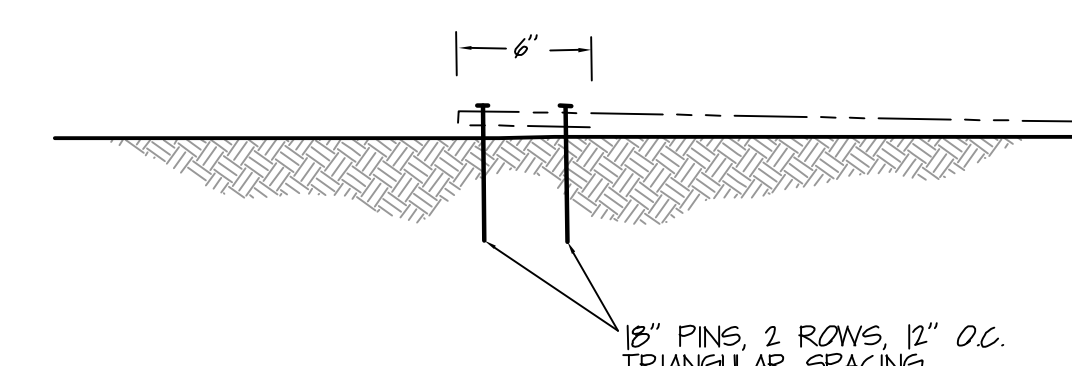
(K2) KEY 2 DETAIL (SLOPE & TOE OVERLAP, NTS)



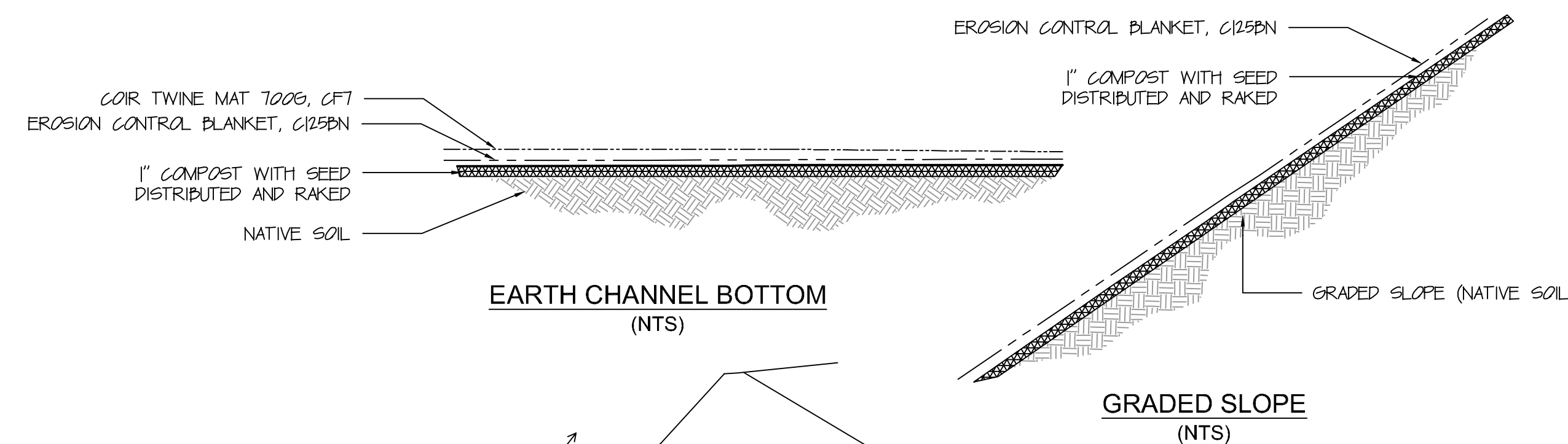
(K3) KEY 3 DETAIL (SIDE SLOPE OVERLAP, NTS)



(K4) KEY 4 DETAIL (UPSTREAM/DOWNSTREAM END, NTS)

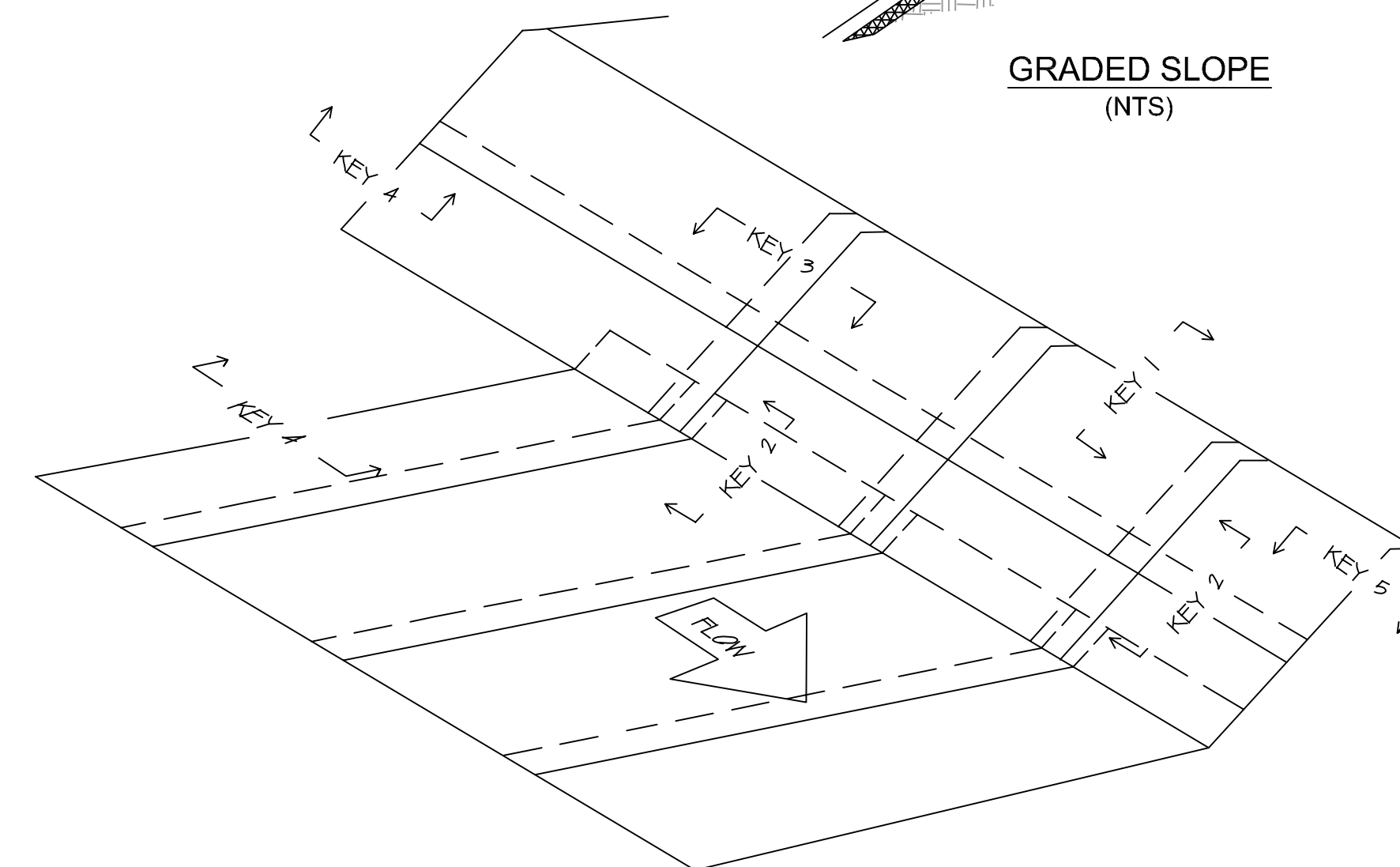


(K5) KEY 5 DETAIL (SIDE SLOPE TERMINATION, NTS)



EARTH CHANNEL BOTTOM (NTS)

GRADED SLOPE (NTS)



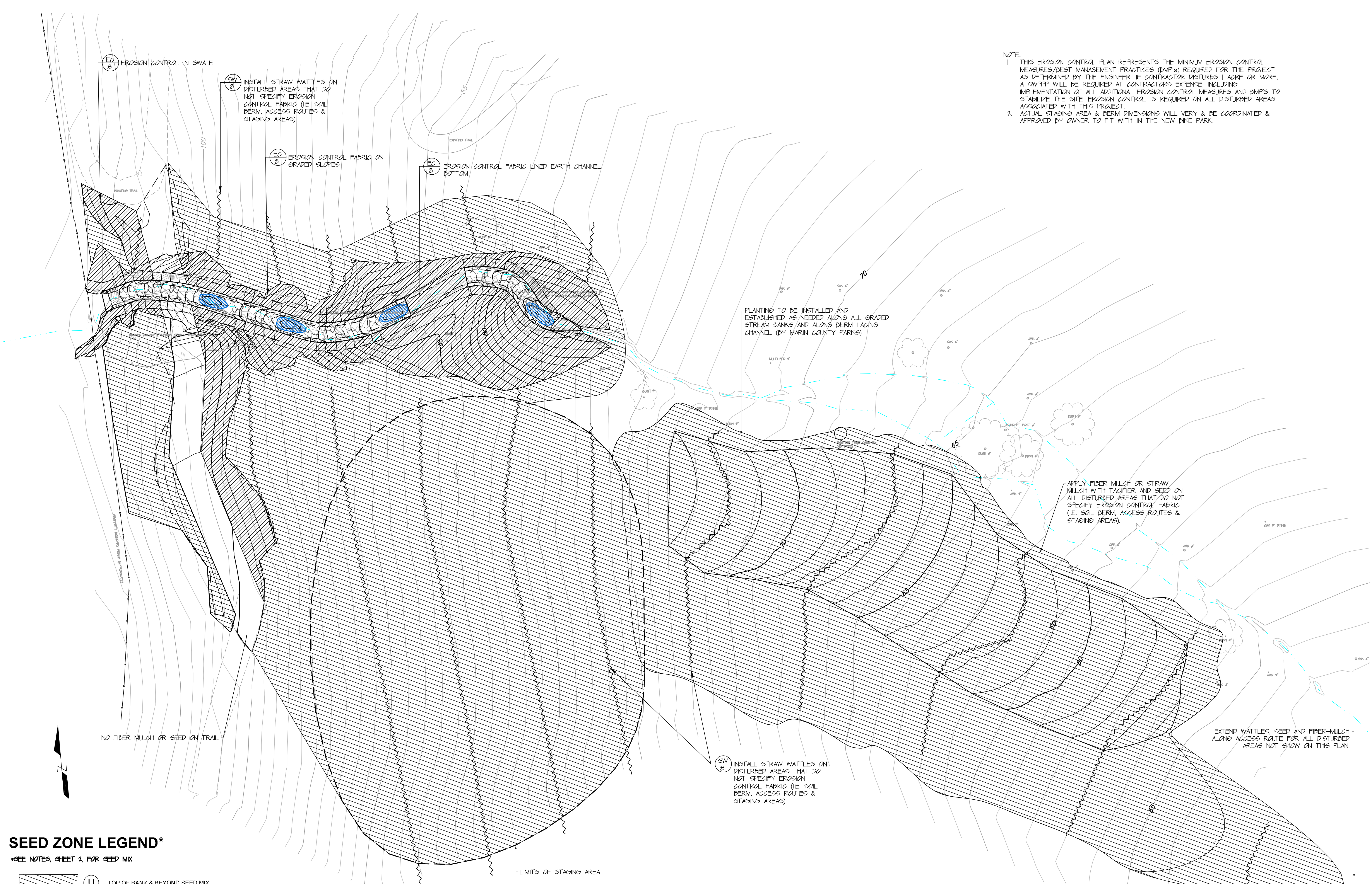
NOTES:

1. THIS DETAIL APPLIES TO BOTH COIR TWINE MAT AND EROSION CONTROL BLANKET.
2. GRADED SLOPES: INSTALL EROSION CONTROL BLANKET OVER SEED AND COMPOST BLANKET ON ALL GRADED SLOPES UNLESS INDICATED OTHERWISE.
3. EARTH CHANNEL BOTTOM: INSTALL COIR TWINE MAT OVER EROSION CONTROL BLANKET OVER SEED AND SALVAGE TOPSOIL ON EARTH CHANNEL BOTTOM (EXTEND FABRIC 15' UP SLOPE IN CHANNEL).
4. PREPARE SOIL BEFORE INSTALLING COIR TWINE MAT AND/OR EROSION CONTROL BLANKET, INCLUDING APPLICATION OF COMPOST (OR SALVAGE TOPSOIL) AND SEED.
5. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING IN A 6" DEEP BY 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER PINNING (KEY 1).
6. BEGIN PLACEMENT AT THE DOWNSTREAM END OF PROJECT.
7. OVERLAP ALL ADJACENT EDGES 6" MIN.
8. ON GRADED SLOPES INSTALL 18" PINS 24" O.C. (MIN) TRIANGULAR SPACING IN THE FIELD. ON THE CHANNEL BOTTOM INSTALL 18" PINS 24" O.C. (MIN) TRIANGULAR SPACING IN THE FIELD.
9. LOWER END OF FABRIC ON SLOPE TO BE FOLDED UNDER AT THE TOE OF SLOPE.

(EC) EROSION CONTROL BLANKETS AND MATS (NTS)



NOTE:
1. THIS EROSION CONTROL PLAN REPRESENTS THE MINIMUM EROSION CONTROL MEASURES/BEST MANAGEMENT PRACTICES (BMP'S) REQUIRED FOR THE PROJECT AS DETERMINED BY THE ENGINEER. IF CONTRACTOR DISTURBS 1 ACRE OR MORE, A SWPPP WILL BE REQUIRED AT CONTRACTOR'S EXPENSE, INCLUDING IMPLEMENTATION OF ALL ADDITIONAL EROSION CONTROL MEASURES AND BMP'S TO STABILIZE THE SITE. EROSION CONTROL IS REQUIRED ON ALL DISTURBED AREAS ASSOCIATED WITH THIS PROJECT.
2. ACTUAL STAGING AREA & BERM DIMENSIONS WILL VARY & BE COORDINATED & APPROVED BY OWNER TO FIT WITH IN THE NEW BIKE PARK.



EROSION CONTROL IN SWALE

INSTALL STRAW WATTLES ON DISTURBED AREAS THAT DO NOT SPECIFY EROSION CONTROL FABRIC (IE. SOIL BERM, ACCESS ROUTES & STAGING AREAS)

EROSION CONTROL FABRIC ON GRADED SLOPES

EROSION CONTROL FABRIC LINED EARTH CHANNEL BOTTOM

PLANTING TO BE INSTALLED AND ESTABLISHED AS NEEDED ALONG ALL GRADED STREAM BANKS AND ALONG BERM FACING CHANNEL (BY MARIN COUNTY PARKS)

APPLY FIBER MULCH OR STRAW MULCH WITH TACIFIER AND SEED ON ALL DISTURBED AREAS THAT DO NOT SPECIFY EROSION CONTROL FABRIC (IE. SOIL BERM, ACCESS ROUTES & STAGING AREAS).

EXTEND WATTLES, SEED AND FIBER-MULCH ALONG ACCESS ROUTE FOR ALL DISTURBED AREAS NOT SHOW ON THIS PLAN.

INSTALL STRAW WATTLES ON DISTURBED AREAS THAT DO NOT SPECIFY EROSION CONTROL FABRIC (IE. SOIL BERM, ACCESS ROUTES & STAGING AREAS)

NO FIBER MULCH OR SEED ON TRAIL

LIMITS OF STAGING AREA

SEED ZONE LEGEND*

*SEE NOTES, SHEET 2, FOR SEED MIX

- U TOP OF BANK & BEYOND SEED MIX
- C STREAM CHANNEL & BANK SEED MIX EROSION CONTROL BLANKET & MAT

Acad File Name: G:\Acad Drawings\Marin County Parks\Stafford Lake Headcut\Drawings\RP1.dwg Plot Date: 2/7/2018 10:29 AM Layout: EROSION CONTROL PLAN

FOUNDATIONS:

Abutment design based upon assumed allowable soil bearing pressure of 2,000 psf w/ 1/4 stress increase for seismic & wind loading. Based on soil recommendation provided by:

Miller Pacific Engineering Group
Date: 4/12/2017

Expected bridge reactions from Excel Pratt bridge at each bearing plate:

- DL = 1.3 kips
- LL = 3.1 kips
- VL = 3 kips
- WL = 1.1 kips Horiz.
- 1.9 kips Uplift
- EQ = 0.65 kips Horiz
- 1.3 kips Longitudinal

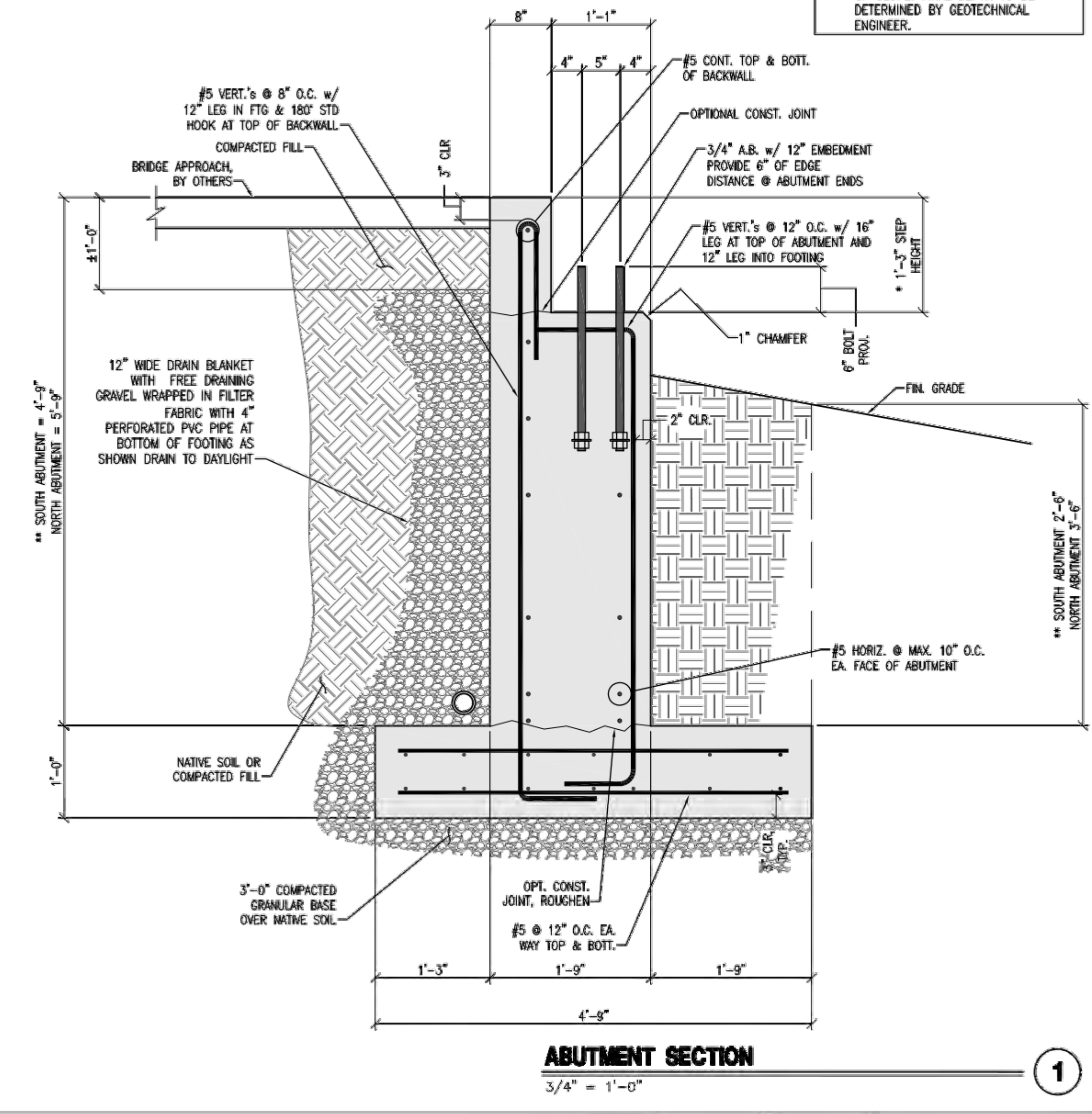
ABUTMENT CONCRETE:

1. All phases of work pertaining to the concrete construction shall conform to the "Building Code Requirements for Reinforced Concrete" (ACI 318 latest approved edition) with modifications as noted in the drawings and specifications.
2. Reinforced concrete design is by the "Ultimate Strength Design Method", ACI 318-(latest edition)
3. Schedule of structural concrete 28-day strengths and types:

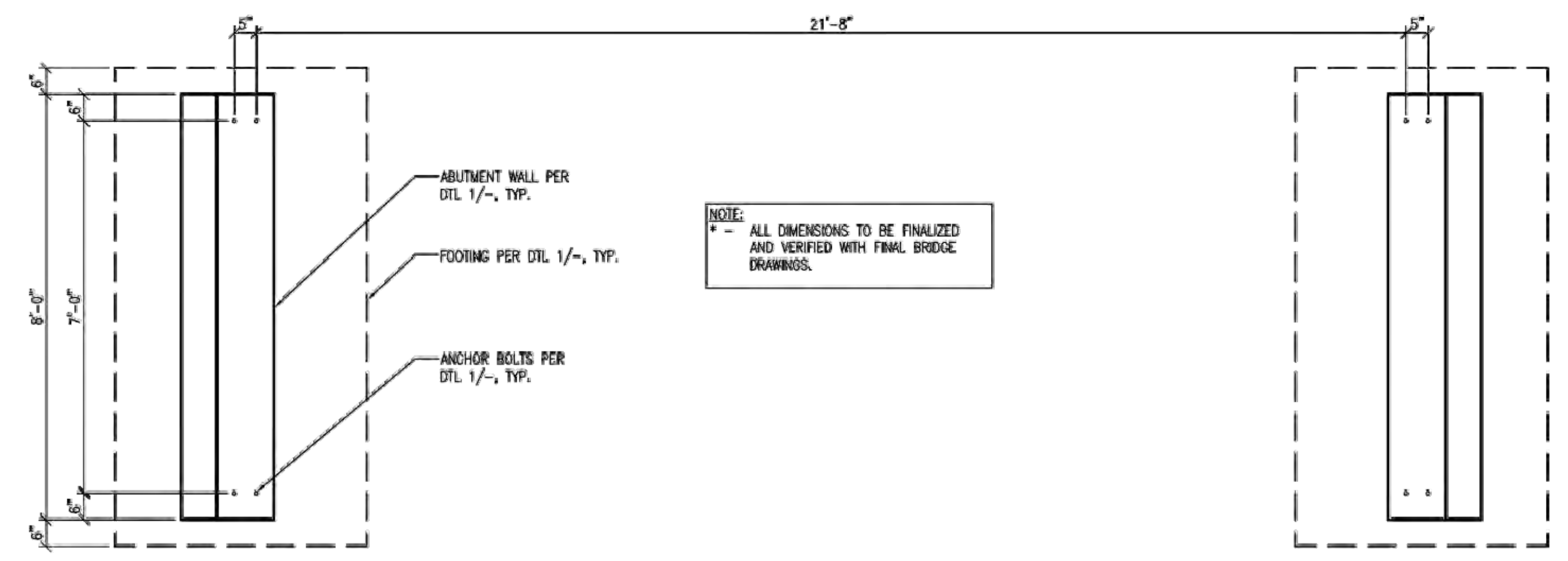
Location in structure	Strength PSI	Type
Abutment Walls	4,000	Hard rock
Footings	4,000	Hard rock

4. Periodic special inspection is required for placement of rebar, anchor bolts, & concrete mix design.
5. Concrete mix design shall be submitted to the engineer for approval with the following requirements:
 - a. Compressive strength at age 28 days as specified above.
 - b. Large aggregate-hardrock, 3/4" maximum size conforming to ASTM C-33
 - c. Cement-ASTM C-150, Type I of II Portland cement
 - d. Maximum slump 5-inches, max water cement ratio: 0.50
 - e. No admixtures, except for entrained air, and as approved by the engineer.
6. Concrete mixing operations, etc. shall conform to ASTM C-94
7. Placement of concrete shall conform to ACI standard 514 and project specifications.
8. Unless Noted Otherwise, clear coverage of concrete over outer reinforcing bars shall be as follows: Concrete poured directly against earth - 3 inches clear, structural slabs - 3/4 inches clear (top and bottom), formed concrete with earth back fill - 2 inches clear. Reinforcement for slabs-on-grade shall be centered in the slab, U.N.O.
9. All reinforcing bars, anchor bolts and other concrete inserts shall be well secured in position prior to placing concrete.
10. Provide sleeves for plumbing and electrical openings in concrete before placing. Do not cut any reinforcing that may conflict. Coring in concrete is not permitted except as shown. Notify the structural engineer in advance of conditions not shown on the drawings.
11. Conduit or pipe size (O.D.) shall not exceed 30% of slab thickness and shall be placed between the top and bottom reinforcing, unless specifically detailed otherwise. Concentrations of conduits or pipes shall be avoided except where detailed openings are provided.
12. Modulus of elasticity of concrete, when tested in accordance with ASTM C-469, shall be at least the value given by the equations in section 8.5.1 of ACI 318 for the specified 28-day strength.
13. Shrinkage of concrete, when tested in accordance with ASTM C-157, shall not exceed 0.00040 inches/inch.

NOTE:
 * - COORDINATE FINAL STEP HEIGHT w/ BRIDGE FINAL DRAWINGS
 ** - PER GEOTECHNICAL REPORT MAINTAIN AT LEAST 7'-0" HORIZONTAL DISTANCE FROM BASE OF FOUNDATION TO FACE OF SLOPE. FINAL DEPTH TO BE DETERMINED BY GEOTECHNICAL ENGINEER.



ABUTMENT SECTION 1



ABUTMENT PLAN VIEW 2

NOTE:
 * - ALL DIMENSIONS TO BE FINALIZED AND VERIFIED WITH FINAL BRIDGE DRAWINGS.

DATE	REV. #	DESCRIPTION
05-02-17	1	ENCL. 158 CHK. WCH

VECTOR ENGINEERS
 SANDY, UTAH
 (801) 990-1775
 (801) 990-1776
 LAYTON, UTAH (801) 927-2254

EXCEL BRIDGE MANUFACTURING CO.
 23'x16'-0" PED. BRIDGE ABUTMENT, NOVATO, CA
 (EXCEL JOB NO. 975-0807)
FOUNDATION



JACOB S. PROCTOR
 PE 70587

U0009-453-171

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