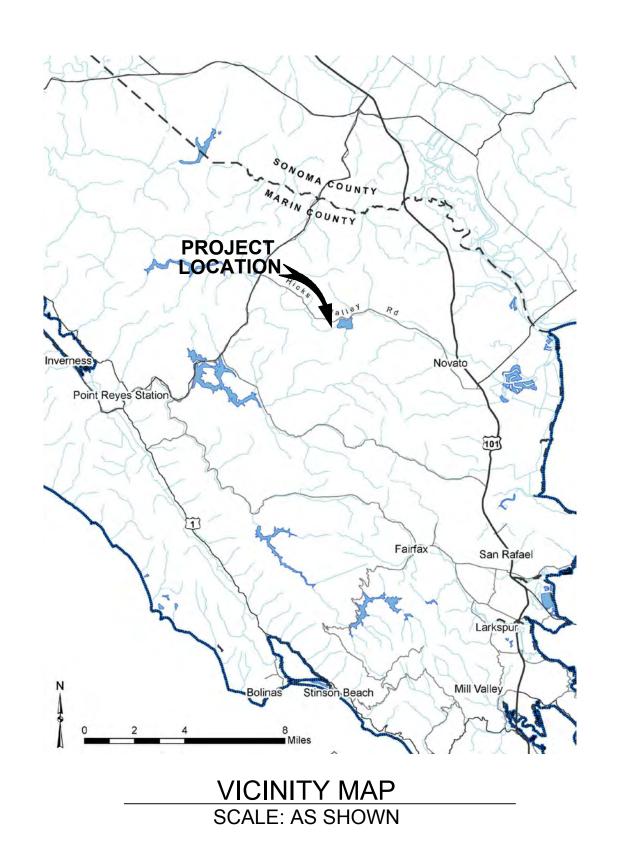
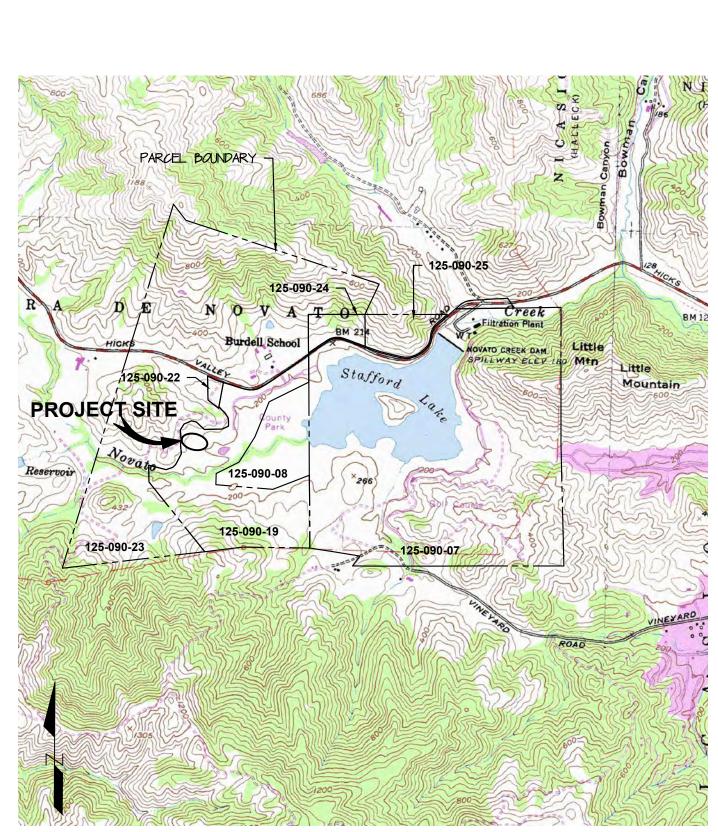
STAFFORD LAKE BIKE PARK TRAIL BRIDGE, HEADCUT AND GULLY STABILIZATION PROJECT

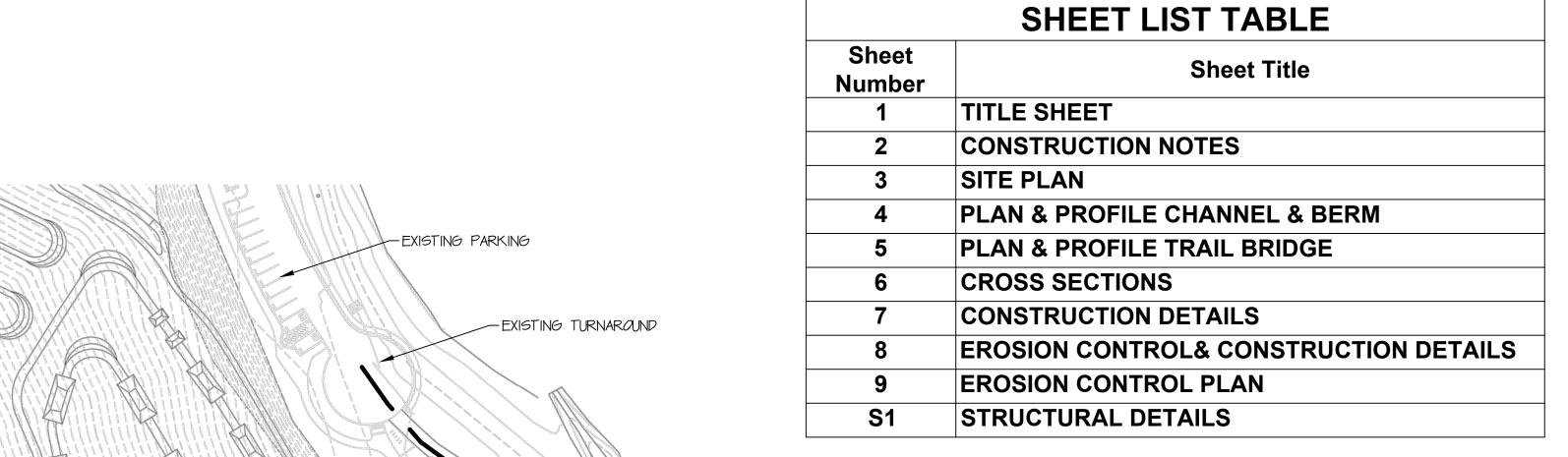




LOCATION MAP SCALE: 1" = 2000' USGS

PROJECT ADDRESS: 3549 Novato Blvd,

Novato, CA 94947



CONSULTANT CONTACT LIST:

DESIGN ENGINEERING:

LUCAS WALTON, P.E. - PROJECT ENGINEER JASPER J. RICE-HERDT, P.E. - INSPECTOR MIKE JENSEN, P.L.A - DESIGN MANAGER

PRUNUSKE CHATHAM INC. 400G MORRIS ST SEBASTOPOL, CA 95472 (707) 824-4600 (707) 824-6854 FAX

GEOTECHNICAL ENGINEERING:

ERIC DABANIAN, G.E.

MILLER PACIFIC ENGINEERING GROUP 504 REDWOOD BLVD., STE. 220 NOVATO, CA 94947 (415) 382-3444 (415) 382-3450 FAX

STRUCTURAL ENGINEERING (BRIDGE ABUTMENTS):

SECTION OR DETAIL

SHEET WHERE SECTION

DESIGNATION

STAGING AREA EXTENTS & SITE ACCESS

JACOB S. PROCTOR, S.E.

TR TOP OF ROCK

TL TOP OF LOG

TW TOP OF WALL EG EXISTING GRADE

OH OH OH OVERHEAD LINE

BRUSH/VEGETATION LINE

COIR/TWINE MAT

SAFETY FENCING

STRAW WATTLE

EROSION CONTROL BLANKET

COMPOST/SALVAGED TOPSOIL

EXISTING

ø DIAMETER

APPROXIMATE

VECTOR STRUCTURAL ENGINEERING, LLC. 651 W. GALENA PARK BLVD., STE 101 DRAPER, UT 84020 801-990-1775

TRAIL BRIDGE, **GULLY**

HEADCUT AND STABILIZATION

STAFFORD LAKE

BIKE PARK

3549 NOVATO BLVD. **NOVATO, CA 94947**

> MARIN COUNTY PARKS



CONTACT:
STEPHANIE TROYAN
MARIN COUNTY PARKS
3501 CIVIC CENTER DRIVE #260
SAN RAFAEL, CA 94903





STAFFORD LAKE

BIKE PARK TRAIL BRIDGE, HEADCUT AND GULLY STABILIZATION

2/7/18 ADDENDUM#1

TREES SURVEY CONTROL POINT

ROCK SLOPE PROTECTION

AGGREGATE BASE

FABRIC REINFORCED EARTH FILL

EROSION CONTROL BLANKET & MAT SEED & HYDROMULCH, STREAM CHANNEL & BANK SEED MIX

CONCRETE & CONCRETE DEBRIS

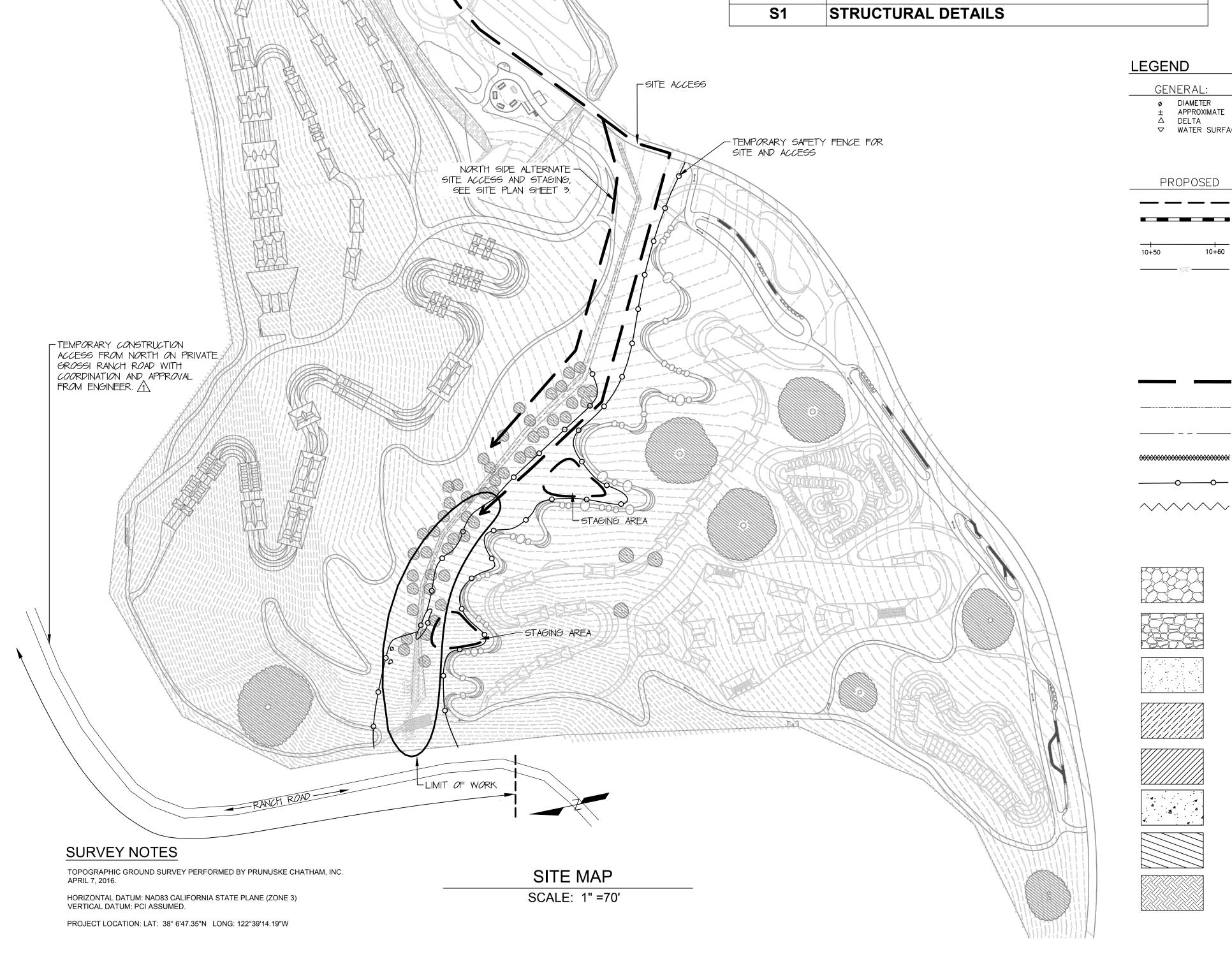
SEED & HYDROMULCH, TOP OF BANK & BEYOND

ENGINEERED FILL/EXISTING

SCALE: AS SHOWN

SHEET TITLE:

TITLE SHEET



A2. Contractor is responsible for complying with all project permits.

A1. Contractor shall assume sole and complete responsibility for job site conditions during the course of construction of the project, including safety of

A3. Contractor shall comply with all applicable county, state and federal codes, rules, regulations, and building and safety laws relating to construction, public health, and safety. Contractor shall comply with Marin County General Provisions.

A4. Contractor shall be responsible for traffic control and job site safety.

A5. No work shall commence prior to 8 am except in an emergency unless approved Engineer with 48 hours advanced notice.

all persons and property. This requirement shall be made to apply continuously and not be limited to normal working hours.

A6. Water for construction use is available for Contractor thru hose bib quick coupler, ±100 feet from Project site. /\

B. INSPECTION / OVERSIGHT

B1. A pre-construction site meeting will be held with County, Contractor, Engineer and any other applicable agencies to discuss construction methods, schedule, inspection points and frequency.

B2. Engineer shall observe and approve before further continuation of work: 1. Grade staking 2. After excavation. 3. After rock placement. 4. After fabric key placement before backfill. 5. After installation of abutment forms and reinforcement, before concrete pour. 6. After finish grading before erosion control. 7. After placement of erosion control blanket. Other inspections may be required by structural or geotechnical engineer.

B4. Samples of rock and borrow material shall be submitted to Engineer for approval prior to ordering. Photographs are acceptable.

C. ENVIRONMENTALLY SENSITIVE AREAS

C1. General: This construction site is considered an environmentally sensitive area. Contractor shall take all precautions and utilize all measures necessary to protect the environmental integrity of the site, including but not limited to the protection of plant, animal, and aquatic life.

C2. All vehicles and equipment on the site must not leak any type of hazardous materials such as oil, hydraulic fluid, or fuel. Vehicles and equipment 2.2. must be inspected and approved by County before use. Fueling shall take place a minimum of 50' away from channel or any water bodies.

C3. All onsite construction vehicles shall have emergency spill clean up gear (spill containment and absorption materials) and fire extinguisher available on site at all times.

C4. Trash, litter, construction debris, etc., must be stored in designated area approved by the Engineer or removed from the site at the end of each working day. Upon completion of work, Contractor is responsible for removing all debris to the satisfaction of the Engineer.

C5. Contractor to thoroughly clean excess debris gravel and rock fragments from staging area at job completion to satisfaction of Engineer.

C6. No smoking at any time on on County Park land.

D. SITE PREPARATION

D1. Utility Protection: Prior to construction, the Contractor is responsible for locating all existing underground utilities through coordination with the County Engineer, Underground Service Alert, and the various utility companies. Contractor shall protect all identified utilities.

D2. If utilities are required to be relocated, the Contractor shall submit a utility relocation plan for approval by Engineer as well as required County and Local agencies. Upon completion of the project, an as-built plan shall be completed and submitted to Engineer, if the constructed project deviates

D2. Clear and grub within areas to be graded. Remove all vegetation including roots greater than 2 inches in diameter, unless specified otherwise.

D3. Construction debris and green waste shall be off-hauled and disposed at a legal disposal site.

D4. Grade staking to be conducted by Contractor, in a manner that grade stakes can be used by engineer to verify accuracy of work.

D5. Orange Safety fence to be installed per sheet 1 and 3 for public safety and to protect native trees and shrubs. Additional fencing may be required at contractors expense to ensure project safety.

E. EARTHWORK

E1.0 Materials

E1.1 Suitable Fill Material: Salvaged native cut soil sourced from project site, approved for use by the Engineer.

E1.2. Unsuitable Fill Material: Soils that consist predominantly of sand and/or gravels, soil containing sod, organic matter, debris, or rocks larger than 4 inches, overwet soils that cannot meet compaction requirements, or other materials deemed unsuitable by the Engineer.

E1.3. Engineered Fill: Soil that is approved by the Geotechnical Engineer and can meet compaction requirements.

E2.0 Execution

E2.1. Excavation shall be conducted to the extent, depths, and grades as shown on the plans. Maximum finish grade cut slopes shall be 2:1 unless otherwise shown on plans or as directed by Engineer.

E2.2. Dust Control: Contractor shall adhere to Best Management Practices and apply water as needed to minimize wind-blown dust, and as directed

E2.3. Spoils Disposal: In areas that are outside any environmentally sensitive area and which are approved by Engineer, spread spoils in 6-8 inch lifts and compact to 85% relative compaction. Shape and smooth the final surface. Max slopes are 3:1. Cover graded slopes with seed and mulch as specified herein. Install appropriate erosion control measures as described on this sheet. Install straw wattles where necessary, or as directed by Engineer. The County will allow 60 cubic yards of excess clean soil (spoils) with no rock or gravel to remain onsite near existing Bike Park Phase 2 tarped piles. /1

E2.4. Native Topsoil Salvage: Areas to be excavated, graded or backfilled shall be stripped of topsoil by stripping the top 6 inches of soil and stockpiling the material separately. See Native Topsoil Salvage Notes "J"

E2.5. Engineered Fill: In areas that require engineered soil fill, place material in 12" maximum lifts, and compact to at least 90 percent relative compaction. Compaction testing required per Geotechnical Engineer.

G. ROCK GRADE CONTROL STRUCTURE

- 1. General
- 1.1. The work includes excavation to subgrade and placement of rock.

1.2. Rock shall be provided and placed in conformance with Section 72 of Caltrans specifications using rock placement Method A, these construction notes, the details and dimensions shown on the plans, or as directed by the Engineer.

1.3. Approval of materials: Certified copies of test results shall be submitted to Engineer not less than 5 days before material is required for the

- 1.4. All concrete debris to be removed from site at contractor's expense.

2.1. Rock: All rock shall be of sound quality, free of cracks, of sufficient durability, and not contain swelling type clay. All rock shall conform to Caltrans Standard Specifications, Section 72-2.02 for all material qualities including but not limited to durability, absorption, and apparent specific gravity.

1.2. Boulders:

1.2.1. 25% 1/4 Ton class rock. ∕\

1.2.2. 50% 1/2 Ton class, in conformance with State of California, Department of Transportation, Standard Specifications 72-2.02B, 1/2 T class, from "Rock Grading for Method A Placement" table. 25% 1 Ton class, in conformance with State of California, Department of Transportation, Standard Specifications 72-2.02B, 1 T class, from 3.8.

"Rock Grading for Method A Placement" table.

1.3. Backing Rock: 9"-18" rock. /\ 1.4. Chinking rock: 3"-9" rock. 🔨

1.5. River Run: Unprocessed alluvial fines and gravels from Syar Healdsburg or other approved quarry.

1.6. Filter Fabric: Mirafi 1100N or approved equivalent.

Execution

2.1. All rock structures shall be placed on excavated cut. No compacted soil fill shall be allowed below rock.

All toe rock for rock structures to bear on level excavated key way benches. Front wall of toe trench shall not be used to stack rock against for integrity of revetment. Begin constructing rock structures at bottom of slope to ensure each rock is interlocked.

2.3. Filter fabric shall be installed without rips or tears in one continuous piece. Install loosely to prevent tearing as rock is placed. Place a 4" thick course of River Run on blanket before installation of rock. Place rock fill slowly and carefully, hand shifting rocks as needed, to ensure rocks are well interlocked and to ensure the fabric does not tear. The fabric shall overlap a minimum of 18" shingled downstream. Backfill native fill to match existing grade.

2.4. All rock on structure to be individually placed. The surface of the structure ramp shall be rough to provide energy dissipation with 0"-12" rock

2.5. The objective of the rock placement is to create an interlocking matrix with each rock supported at a minimum of three points of contact. No movement shall be detected when walked on. All voids between rocks shall be filled with the largest possible rock to fill that void.

2.6. The interstices between rocks shall be filled with interstitial fill by water jetting in lifts during rock placement. 2.7. The faces of the rock spillways shall be hand chinked with backing rock and chinking rock to cap surface voids.

2.8. In areas where rubble is removed, fill and compact to 90% R.C. with native soil. Key soil into vertical soil edge with bench cuts.

H. EROSION CONTROL

This work includes site preparation, installing and maintenance of erosion control Best Management Practices, not limited to, seeding, laying 1.1. Native plants to be installed by Marin County Parks. and pinning of biodegradable erosion control blankets and mats.

1.2. Erosion control and revegetation shall be provided and placed in conformance with Section 20 of Caltrans specifications, the Caltrans Storm Water Quality Handbook, CASQA standards and handbooks, permit requirements, these construction notes, and the details and dimensions shown on the plans or as directed by the Engineer.

1.3. Product Data: Contractor shall submit manufacturer's literature including physical characteristics, application and installation instructions to the Engineer for all erosion control materials.

1.4. It is the Contractor's responsibility to minimize erosion and prevent the transport of sediment to Stafford Lake and adjacent sensitive areas.

1.5. All disturbed areas shall be seeded by hand broadcasting method or by hydroseeding method. 1.6. All disturbed areas not designated for coir twine mat shall be seeded and mulched. These areas include, but are not limited to temporary

access roads and staging areas outside of active channel. 1.7. All access routes and staging areas to be ripped on contour and track walked for decompaction prior to erosion control installation.

1.8. Seed Tags: Contractor shall submit documentation showing seed mix to Engineer prior to placement. 1.9. All seed shall include labeling indicating the supplier, formulation, germination rates and seed harvest date. Seed may be subject to retesting

by a certified lab. Contractor shall submit a copy of seed label for approval by Engineer prior to installation. 1.10. Schedule: Seed shall be applied before October 15 unless an extension is granted.

2.1. Coir Twine Mat shall be 100% coir fiber twine woven into high strength mats. Weight shall equal 700 grams per square meter or 26.6 ounces per square yard and shall be rated to withstand flows of 15 feet per second and a permissible shear stress of 4.5 pounds per square foot. Manufacturers:

a. Belton Industries Inc. Geocoir/ Dekowe 700

b. Or approved equal.

Erosion Control Blanket shall contain 0.5 lbs large coir fiber per sq. yd. stitched together with a coir or jute string netting. Manufacturers:

a. North American Green C125BN b. Or approved equal.

2.3. Soil pins to secure blankets shall be 18-inch long wire pins with a chisel point. Each pin shall be provided a fender washer. Pins shall be 6-gauge mild steel with a peened or welded head 1/4-inch in diameter. Fender washers shall be made of mild steel with a 11/2-inch diameter, I/16-inch thickness, and a 3/16-inch center hole. Location and spacing of pins are shown on the Contract Drawings.

2.4. Straw Wattle netting shall be non-plastic bio-degradable natural fiber.

2.5. Mulch: shall be weed free and may include wood fiber hydro mulch (not recycled paper) and irrigated crop certified weed-free rice, wheat or barley straw. Contractor shall submit weed-free mulch for approval by Engineer. Apply at rates indicated.

2.6. Fiber Mulch: shall be dyed wood cellulose fiber specially prepared for hydromulching, 100% biodegradable OR certified weed-free rice, wheat or barley straw. Contractor shall submit weed-free mulch for approval by Engineer. Apply at rates indicated. Manufacturers of dyed wood cellulose fiber:

a. Conwed 1000

b. Conwed Fibers

c approved equivalent

2.7. Stabilization Emulsion (Tackifier): shall be in a dry powder form, may be re-emulsifiable and shall be a processed organic derivative of Plantago insularies used as a soil binder.

Manufacturers:

a. TripleTac

 b. Hamilton Manufacturing, Inc. c. or approved equivalent.

2.8. Topsoil: Top 6" of soil containing organic material within grading limits shall be salvaged, stockpiled and utilized on site as approved by Engineer.

2.9. Compost Blanket

The compost blanket producer must be fully permitted as a compost producer in accordance with the requirements of the California Integrated Waste Management Board (CIWMB), local enforcement agencies (LEA) and any other State or Local Agencies that regulate 2.3. solid waste facilities. If exempt from state permitting requirements, the composting facility must certify that it follows all guidelines and procedures for production of compost meeting the environmental health standards of Title 14, California Code of Regulations, Division 7,

2.9.2. Composted plant matter, screened to include both rough and fine particles, for application to finish grade, 100% passing, 3 inch sieve: 90-100% passing 1 Inch sieve; 65-100% passing ¼ inch sieve; 0-75% passing ¼ inch sieve; Maximum length 6 inches.

2.10. Seed Mixes: Stream Channel and Bank Seed Mix, 40 pounds per acre (pure live seed):

California Brome

30% Bromus carinatus Blue Wild Rye 30% Elymus glaucus 20% Festuca idahoensis Idaho Fescue

10% Lupinus nanus Sky Lupine

Three Weeks Fescue

California Brome

Top of Bank and Beyond Seed Mix, 40 pounds per acre (pure live seed):

50% Bromus carinatus 50% Elymus glaucus

Fiber Mulch

10% Vulpia microstachys

Blue Wild Rye

3. Execution

3.1. Quality Assurance: Prior to purchase, products requiring Product Data submittals shall be approved by the Engineer.

3.2. Surface Preparation: After the slopes have been graded and prior to completion of rock work, the Contractor shall prepare slopes for Coir Twine Mat and Erosion Control Blanket at the locations shown on the Contract Drawings.

3.3. Compact finish grade to 85% relative compaction for revegetation areas if in fill.

3.4. Scarify surface on contour to prepare the seed bed. If slopes are rutted or uneven, these areas shall be smoothed to allow for even distribution and full soil contact of Coir Twine Mat and/or Erosion Control Blanket (no bridging).

3.5. Installation: Erosion Control Blanket and 1" compost blanket shall be installed on all graded slopes. Erosion Control Blanket shall be pinned with 18 inch pins on 24 inch centers with triangular spacing. 3.6. Install Erosion Control Blanket and Compost Blanket following Engineer's approval of surface preparation.

Straw wattles: place straw wattles along access routes and staging areas with a max of 5' vertical spacing and 25' horizontal spacing. Additional wattles may be required to control surface run-off.

Earth Channel Bottom shall be covered with Coir Twine Mat over Erosion Control Blanket over salvaged topsoil. Mat and Blanket shall extend approximately 1.5 feet above channel bottom. Seed shall be applied prior to erosion control blanket at a rate of 40 pounds per acre. Rake ground surface after broadcasting. Coir Twine Mat over Erosion Control Blanket shall be pinned with 18 inch pins on 18 inch centers with

3.9. Broadcast native perennial seed mixes to the specified rates and mixes (this sheet). 3.10. Seed shall be applied prior to Erosion Control Blanket at a rate of 40 pounds per acre. Rake ground surface after broadcasting. Erosion

Control Blanket shall be pinned with 18 inch pins on 24 inch centers with triangular spacing. 3.11. In the disturbed areas, including access routes and staging areas, that DO NOT specify Erosion Control Blanket or Mat, or as directed by the

Engineer, apply a mixture of fiber mulch or rice straw and stabilizing emulsion hydraulically at the following rates. Pounds Per Acre 200 Stabilizing Emulsion

3000

3.12. All areas that receive straw mulch which is NOT hydraulically applied shall be treated with stabilizing emulsion (tackifier) at a rate of 200 3.13. Compost Blanket is not required on berm, access routes or staging areas.

I. PLANTING

1.1. Areas to be excavated, graded or backfilled shall be stripped of topsoil by stripping top 6 inches of topsoil and stockpiling material

are to receive application of the topsoil later, or at locations directed by the Engineer.

1.3. Keep topsoil separate from other excavated materials, brush, litter, objectionable weeds, roots, stones larger than 1 inch in diameter, and other materials that would interfere with planting and maintenance operations.

Eliminate foreign materials, such as weeds, roots, stones, subsoil, and similar foreign materials larger than 1/2 cubic foot in volume, from

soil as it is stockpiled. Remove foreign materials larger than 4 inches in any dimension from topsoil used in final grading. 1.5. Topsoil work, such as stripping, stockpiling, and similar topsoil work shall not, under any circumstances, be carried out when soil is wet so

that the composition of the soil will be destroyed. 1.6. The soil berm and the replaced concrete debris are the only area to receive topsoil. Prior to placing topsoil, rip the subgrade soil to a 6

Spread topsoil evenly to a thickness of 6 inches. Do not spread topsoil when excessively wet or dry. Obtain material required for topsoil in excess of that produced by excavation within the grading limits from offsite areas.

Compact using non-vibratory compaction equipment to 85 percent maximum relative compaction (ASTM D1557) to finish grade elevations shown on Contract Drawings to achieve plant growth.

the finish grade surface shall meet the grade lines as indicated on the Contract Drawings.

1.1. Rock Slope Protection consists of excavation to subgrade and placement of rocks to protect over steepened banks.

1.2. The work includes excavation to subgrade including toe excavation, and placement of rock to create a stable rock slope. 1.3. Rock Slope Protection shall be provided and placed in conformance with Section 72 of Caltrans specifications using rock

1.4. Submittals: Certified copies of test results for all imported rock shall be submitted for Engineer approval not less than 5 days before material is required for the work.

conform to Caltrans Standard Specifications, Section 72-2.02 for all material qualities including but not limited to durability, absorption, and apparent specific gravity.

2.2. Interstitial Fill: River Run: Unprocessed alluvial fines and gravels from Syar Healdsburg or other approved quarry.

2.4. Rock Slope Protection material:

50% 1/4 Ton class, in conformance with State of California, Department of Transportation, Standard Specifications 72-2.02B, 1/4 T class, from "Rock Grading for Method A Placement" table.

50% 1/2 Ton class, in conformance with State of California, Department of Transportation, Standard Specifications 72-2.02B, 1/2 T class, from "Rock Grading for Method A Placement" table.

2.1. Quality Assurance: Engineer shall review certified test results and approve rock prior to delivery onsite.

shown on the Contract Drawings. Remove any organic matter or other objectionable material.

dimensions and grade of the rock meet or exceed design specifications for toe depth and thickness shown on the Contract Drawings. Allow for smooth transition and bank key-in at upstream and downstream ends and left and right streambanks. All rock placed in the toe that exceeds the specified width and depth shown on Contract Drawings shall be at the Contractor's cost. 2.4. Place rock so that it forms a dense, well-graded mass of stone with a minimum of voids. Larger footer rocks shall be placed

water-jet into the voids. Alternate between placement of more intersitial fill and water-jetting until refusal, when all voids are

supported at a minimum of 3 points on adjacent rocks so that every rock is firmly placed and unmovable before proceeding to the next. Fill larger voids between rocks by hand-chinking with smaller rocks. Place a layer of interstitial fill over the rocks and

2.6. Rock Slope Protection shall have all voids on the face filled by a gravel cap of river run gravel. The objective is to provide temporary protection from interstitial fill migration.

General

1.1. This work includes but is not limited to construction of cast in place concrete abutments, procurement and installation of a trail bridge as shown on these plans.

2. Materials

2.2. Reinforcing Steel: ASTM A615/A615M, 60 ksi yield grade, deformed billet bars, uncoated finish.

2.3. Trail Bridge: Excel Bridge Manufacturing, Model No. EXB1720R, 6 feet wide x 23 feet long, or approved equal.

2.3.1. Bridge Total Weight: 5,285 lbs

2.3.2. Rail: 54" height above decking with 4" max wide openings.

2.3.3. Decking Material: Redwood wear decking, 2"x6" 2.4. Drain Rock: 3/4" Drain Rock or approved equal

2.6. Base: Class 2 Aggregate Base.

2.7. Engineered Fill: In areas that require engineered soil fill, place material in 12" maximum lifts, and compact to at least 90 percent relative compaction. Measure compaction testing per Geotechnical Engineer..

3. Execution

Before installing abutments, prepare the subgrade to the required lines and grades. Finish grade at top of abutment is shown on the Contract Drawings. Remove any organic matter or other objectionable material

3.2. Toe shall be excavated sufficiently to allow placement of the concrete in a manner such that the finished inside dimensions and grade of the abutment meet or exceed design specifications for toe depth and thickness shown on the Contract Drawings. All concrete placed in the toe that exceeds the specified width and depth shown on Contract Drawings shall be at the Contractor's cost. 3.3. Comply with inspection points and notes on listed on sheet S1.

3.4. Place trail bridge on abutments, secure bridge to abutments using manufacturers recommendations.

3.5. Abutments are designed for the Excel Manufacturing Model No. EXB1720R Trail Bridge. If contractor is to use another approved trail bridge, structural engineering and design will be required for the abutments at the Contractor's cost.

CONSTRUCTION QUANTITIES QUANTITIES FOR PERMITTING: CONSTRUCTION QUANTITY NOTES: Total Cut = 220 CY 1. Construction quantities shown are approximations. It is the Contractor's Total Disturbed Area = 0.7 ACRES responsibility to determine proper earthwork, rock, and paving quantities. Soil Fill = 160 CY Total Project Area = 0.4 ACRES 2. Rock quantities based on conversion factor 1.6 tons per cubic yard. **180 TONS** Rock Fill = Spoils Offhaul = 60 CY

J. NATIVE TOPSOIL SALVAGE

Execution

1.2. Spread topsoil on areas already graded and prepared for topsoil, or transport and place in temporary stockpiles convenient to areas that

inch depth for bonding of topsoil with subsoil.

1.9. Finish grade in areas to receive topsoil shall include the incorporation of topsoil as described in this section. After incorporation of topsoil

ROCK SLOPE PROTECTION

General

placement Method A, these special provisions, the details and dimensions shown on the plans, or as directed by the Engineer.

Rock: All rock shall be of sound quality, free of cracks, of sufficient durability, and not contain swelling type clay. All rock shall

2.3. Chinking rock: 3"-9" rock. /\

1.3. Filter Fabric: Mirafi 1100N or approved equivalent

2. Execution

2.2. Subgrade Preparation: Before laying rock, prepare the subgrade to the required lines and grades. Finish grade at top of rock is

Toe Excavation: Toe shall be excavated sufficiently to allow placement of the rock in a manner such that the finished inside

firmly at the base of excavation and shall not rely on the excavated trench wall for stability. 2.5. Rock shall be individually placed in lifts, one course at at time,. The objective is to create an interlocking matrix with each rock

packed with gravel and no more interstitial fill can be jetted between rocks.

2.7. Rock Slope Protection shall be placed in a manner to prevent damage to structures. Hand placing will be required to the extent necessary to prevent damage to the permanent works and to achieve the finished surface placement.

TRAIL BRIDGE

2.1. Concrete: See notes on sheet S1.

Contact Information: Chad M. Vasquez (800)-548-0054

2.5. Filter Fabric: Mirafi 1100N or approved equal

BIKE PARK TRAIL BRIDGE,

STAFFORD LAKE

HEADCUT AND GULLY **STABILIZATION**

3549 NOVATO BLVD.

NOVATO, CA 94947 OJECT OWNER:

MARIN COUNTY PARKS PRESERVATION RECREATION

ROJECT DESIGNER:

STroyan@marincounty.org (415)473—6366

STEPHANIE TROYAN
MARIN COUNTY PARKS
3501 CIVIC CENTER DRIVE #260
SAN RAFAEL, CA 94903



SUBMITTAL: STAFFORD LAKE

BIKE PARK TRAIL

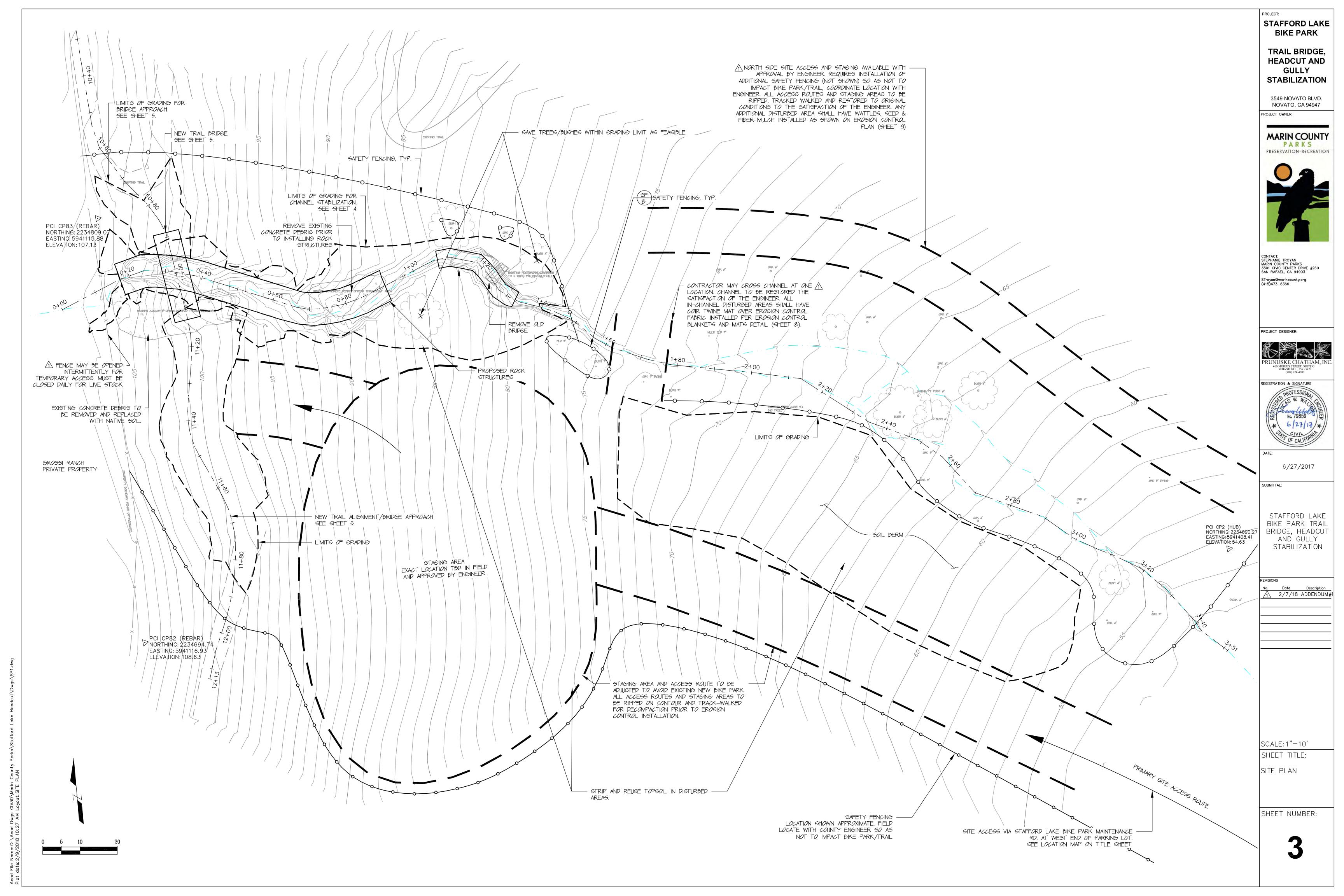
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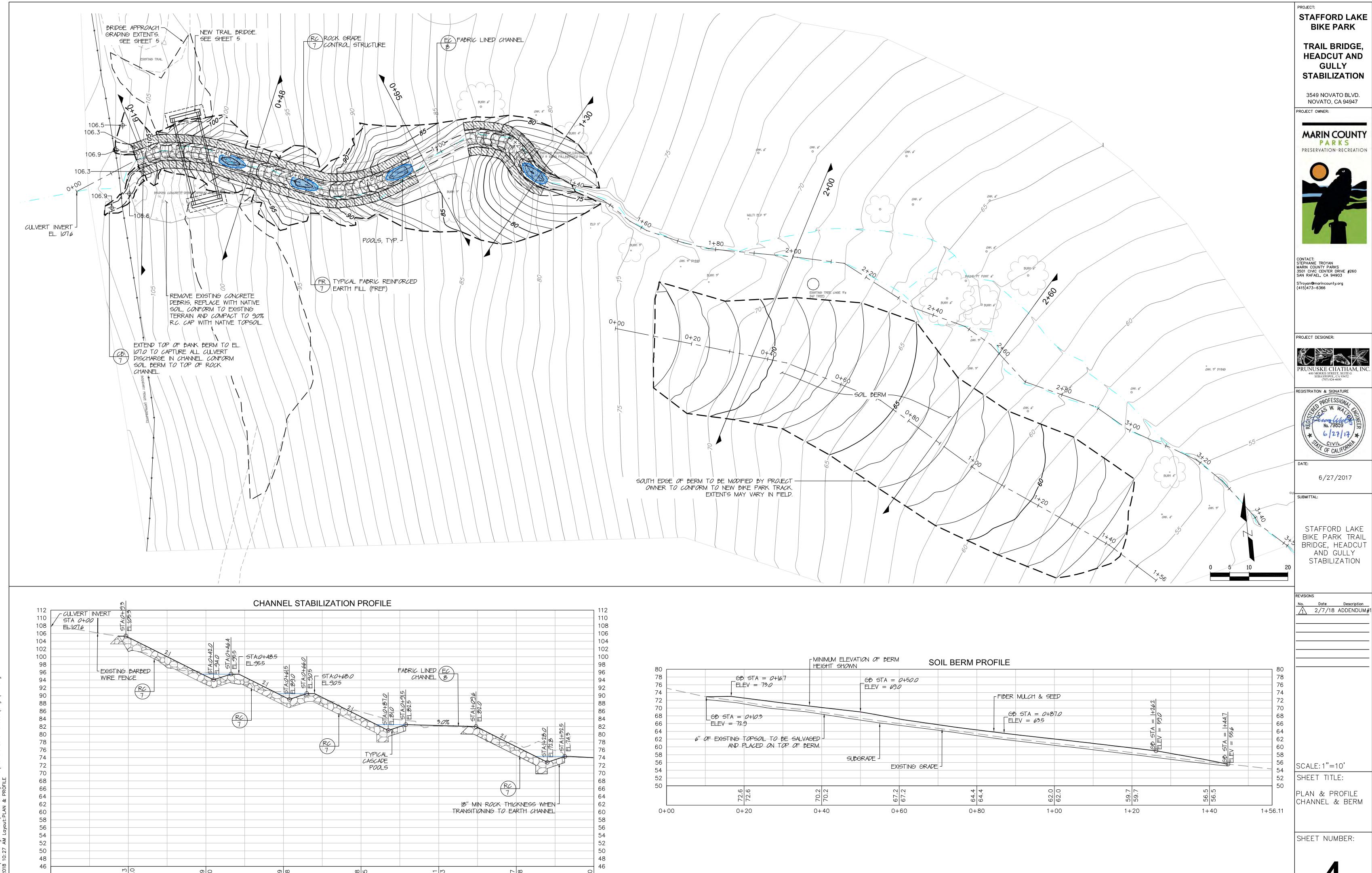
AND GULLY STABILIZATION

Description 2/7/18 ADDENDUM#

SCALE: N/A SHEET TITLE:

CONSTRUCTION IOTES





0+00

0 + 20

0 + 40

0+60

0+80

1+00

1+20

1 + 40

BIKE PARK

HEADCUT AND STABILIZATION

3549 NOVATO BLVD. NOVATO, CA 94947

MARIN COUNTY



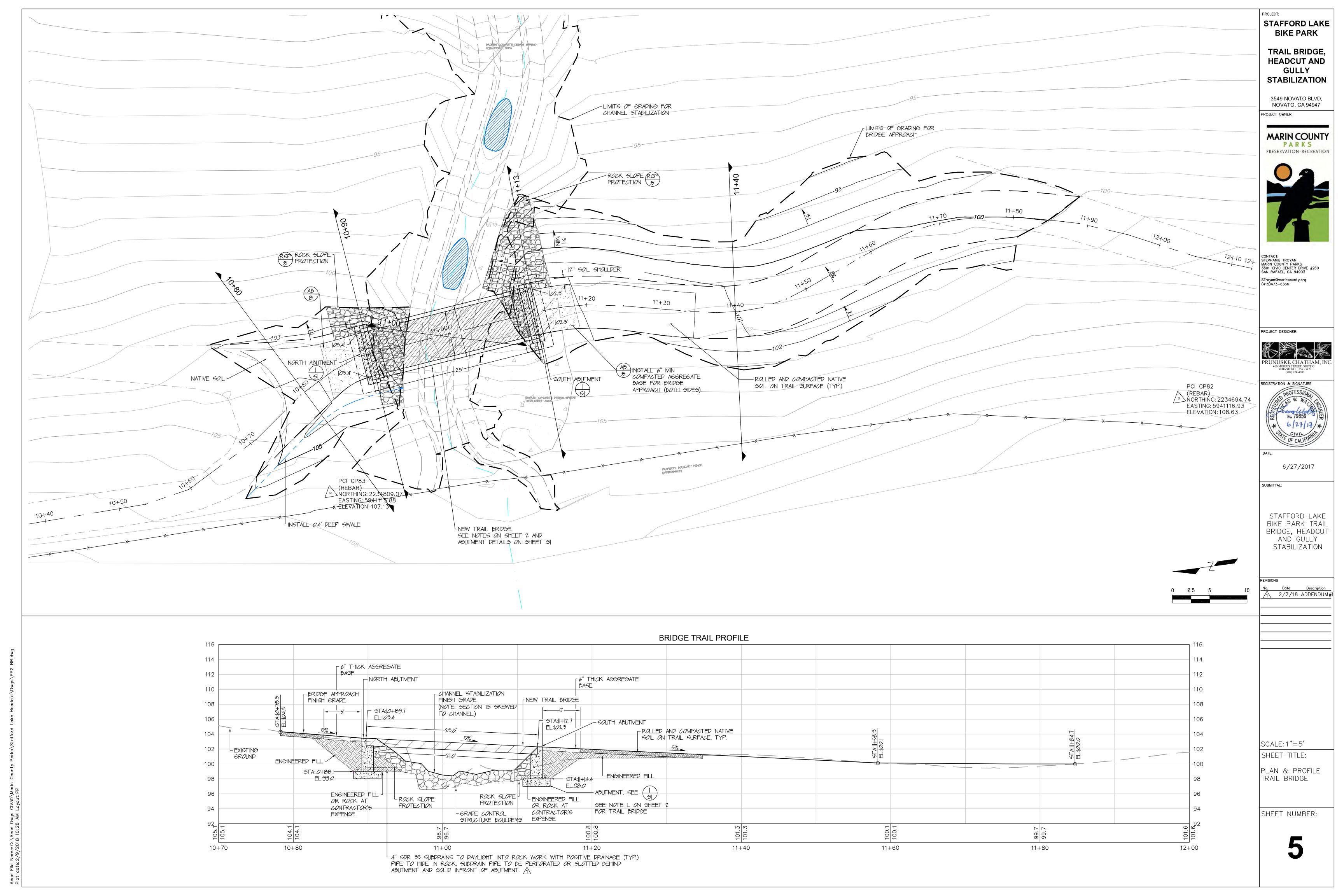


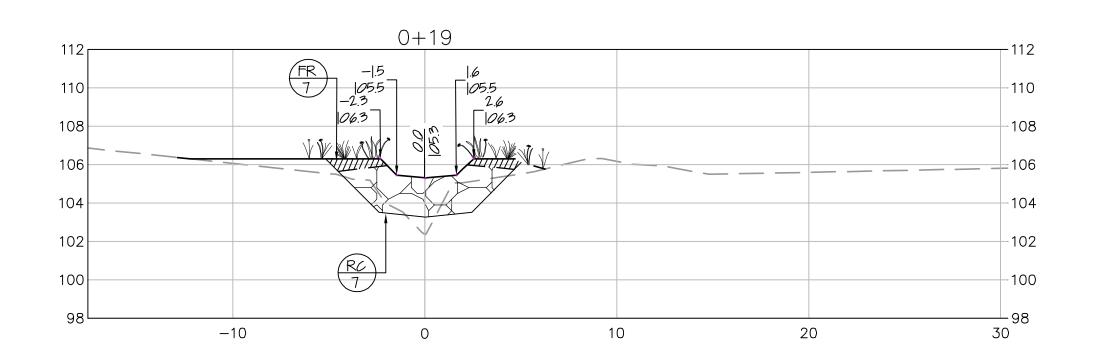


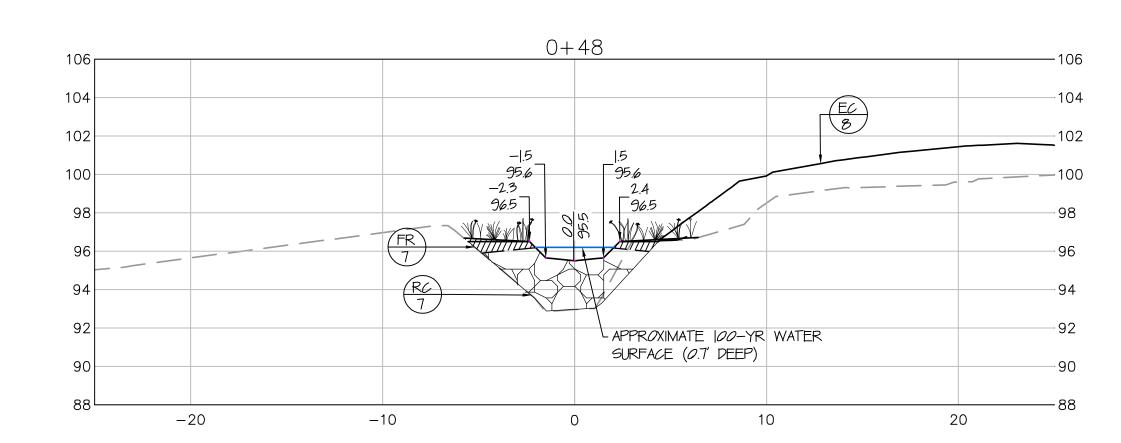
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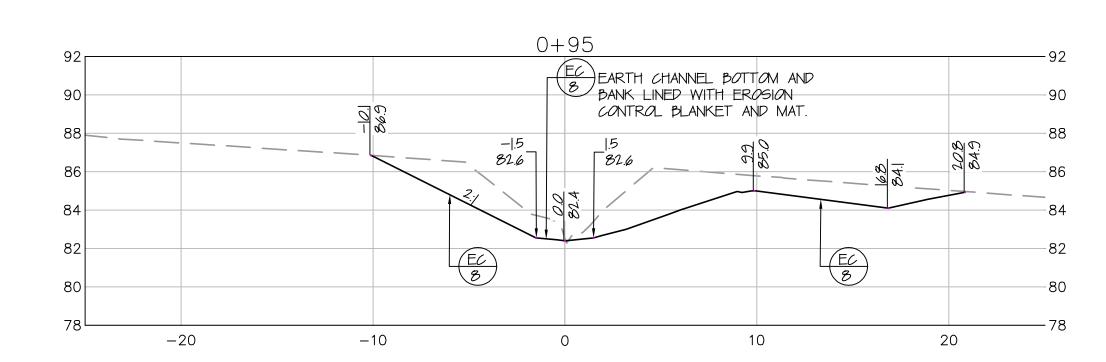
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2/7/18 ADDENDUM#1

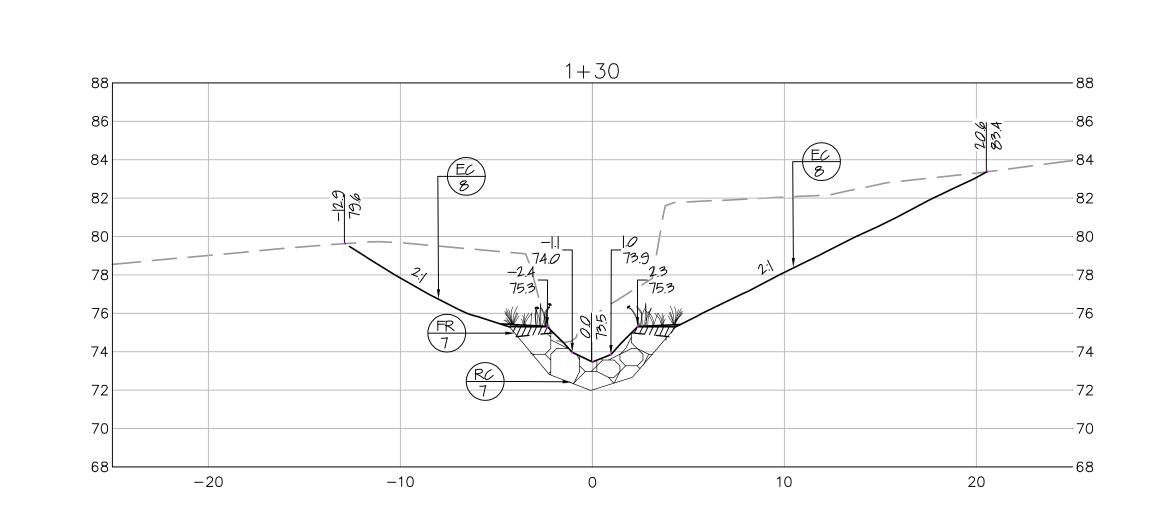
CHANNEL & BERM

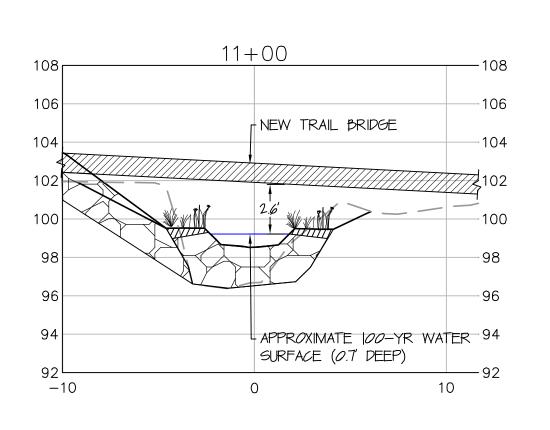


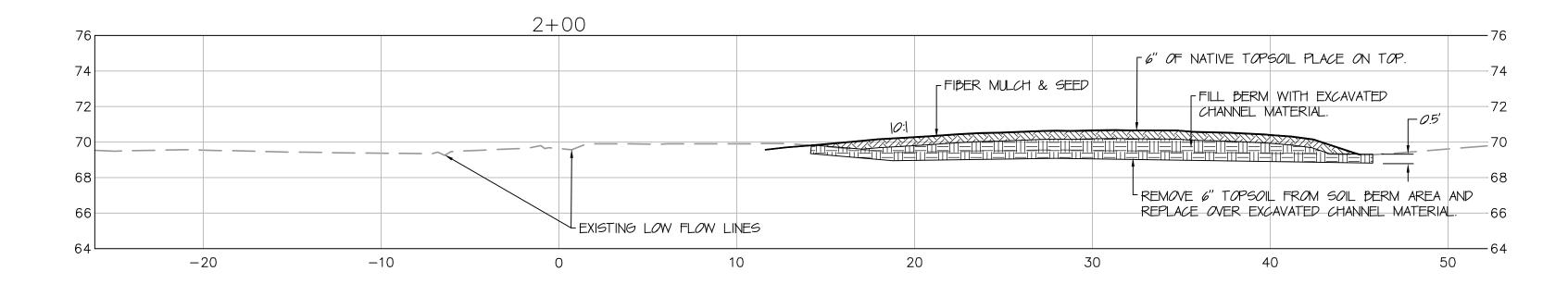


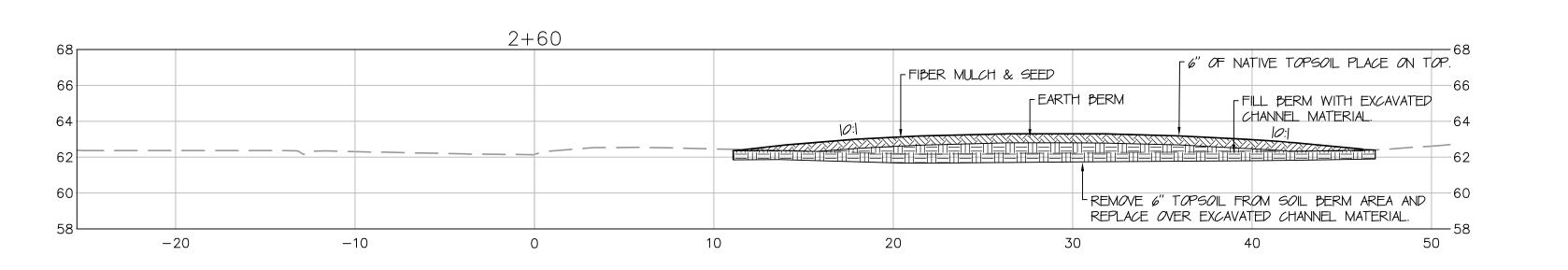


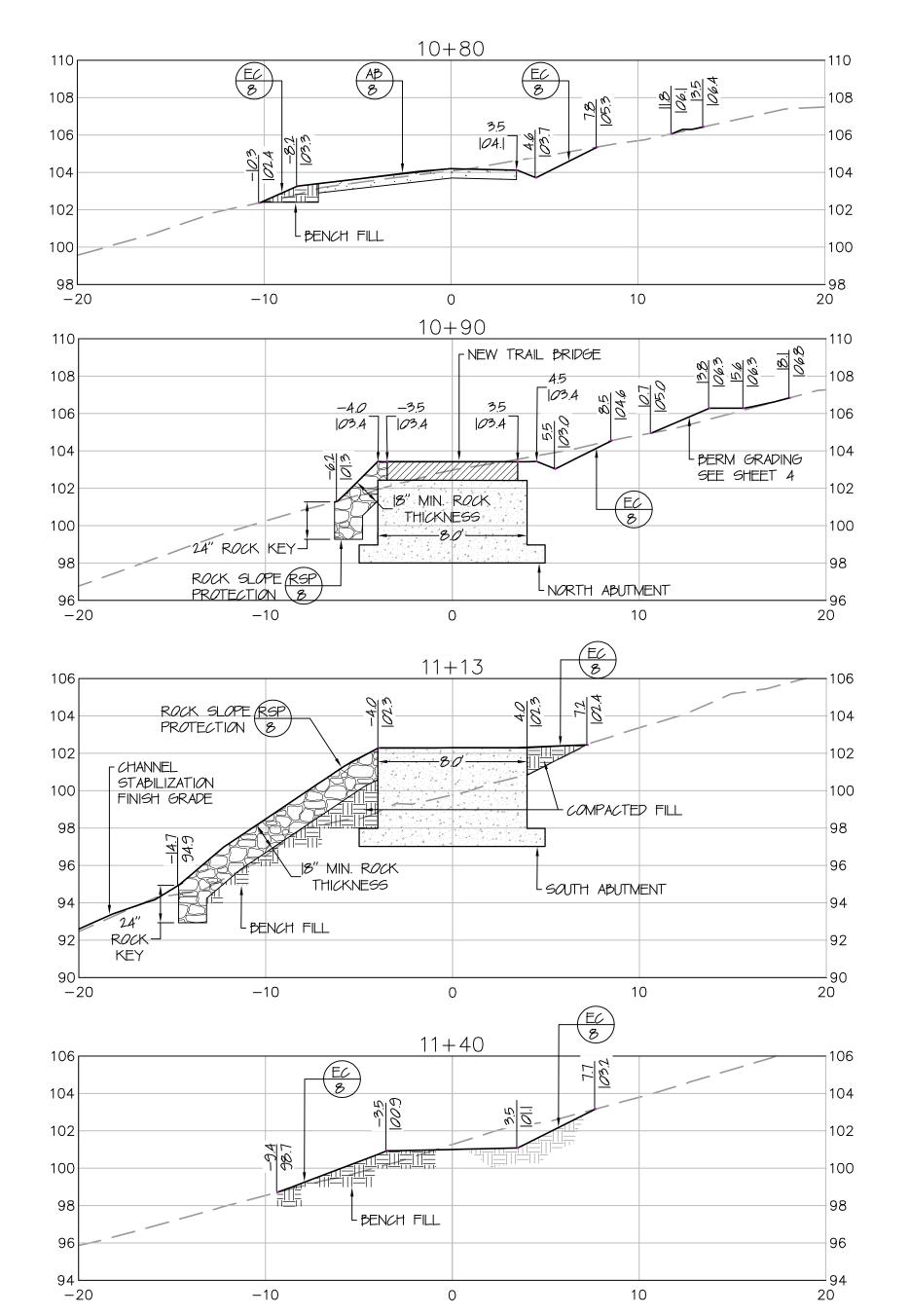












PROJECT:

STAFFORD LAKE BIKE PARK

TRAIL BRIDGE,
HEADCUT AND
GULLY
STABILIZATION

3549 NOVATO BLVD. NOVATO, CA 94947 PROJECT OWNER:

MARIN COUNTY PARKS



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

PROJECT DESIGNER:





6/27/2017

SUBMITTAL:

STAFFORD LAKE BIKE PARK TRAIL BRIDGE, HEADCUT AND GULLY

STABILIZATION

<u>/1\</u> 2///10 ADDLINDO

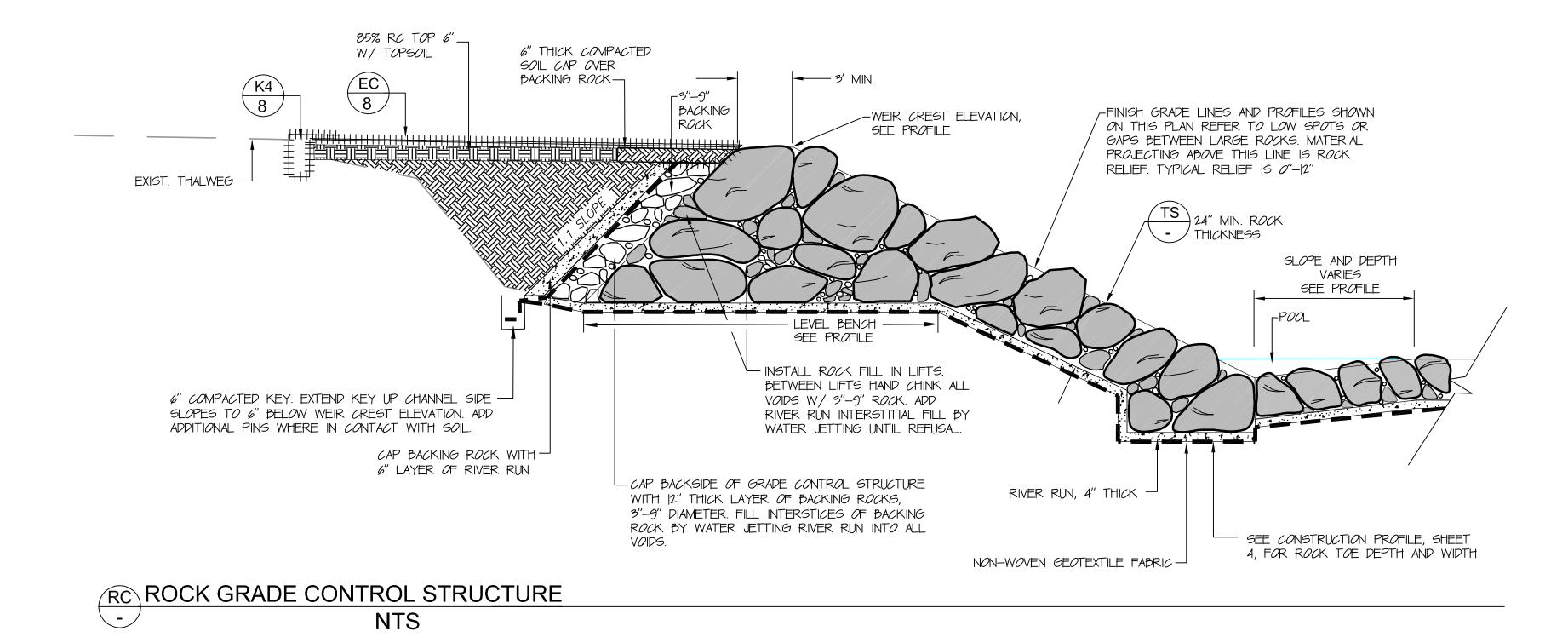
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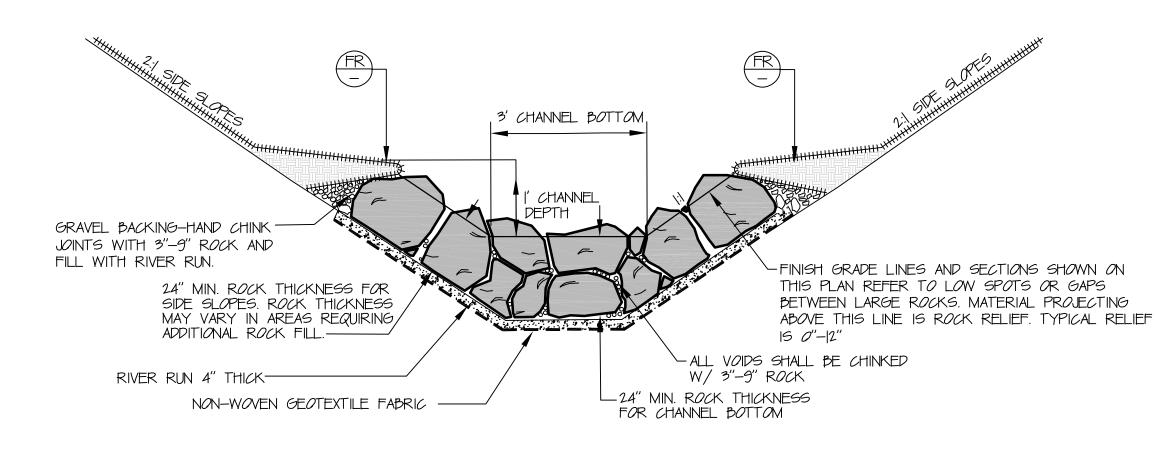
SHEET TITLE:

CROSS SECTIONS

SHEET NUMBER:

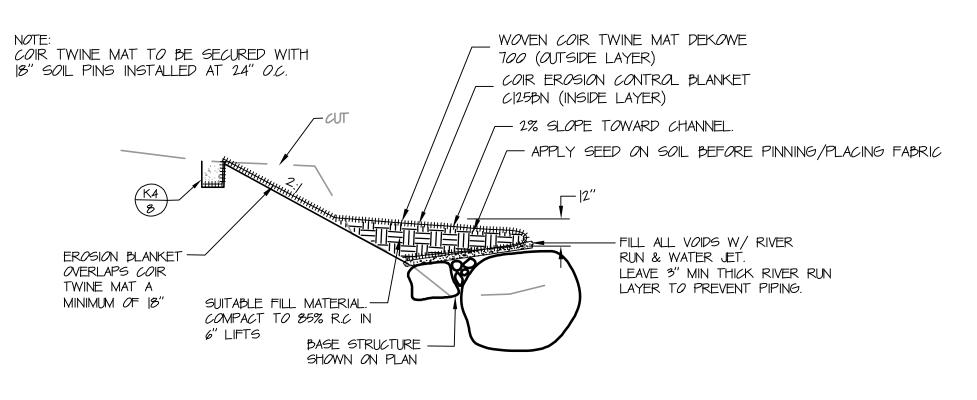
6



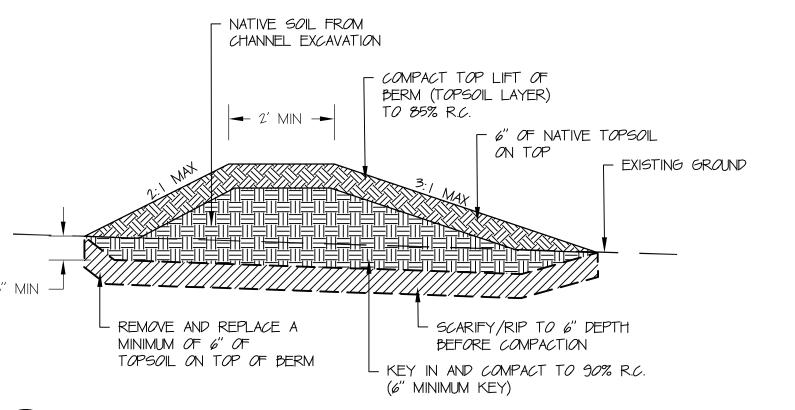


TS TYPICAL SECTION

NTS



FR FABRIC REINFORCED EARTH FILL (FREF)



CB CONFORMED BERM TYP. SECTION NTS

STAFFORD LAKE **BIKE PARK**

TRAIL BRIDGE, **HEADCUT AND GULLY STABILIZATION**

3549 NOVATO BLVD. NOVATO, CA 94947





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PROJECT DESIGNER:





6/27/2017

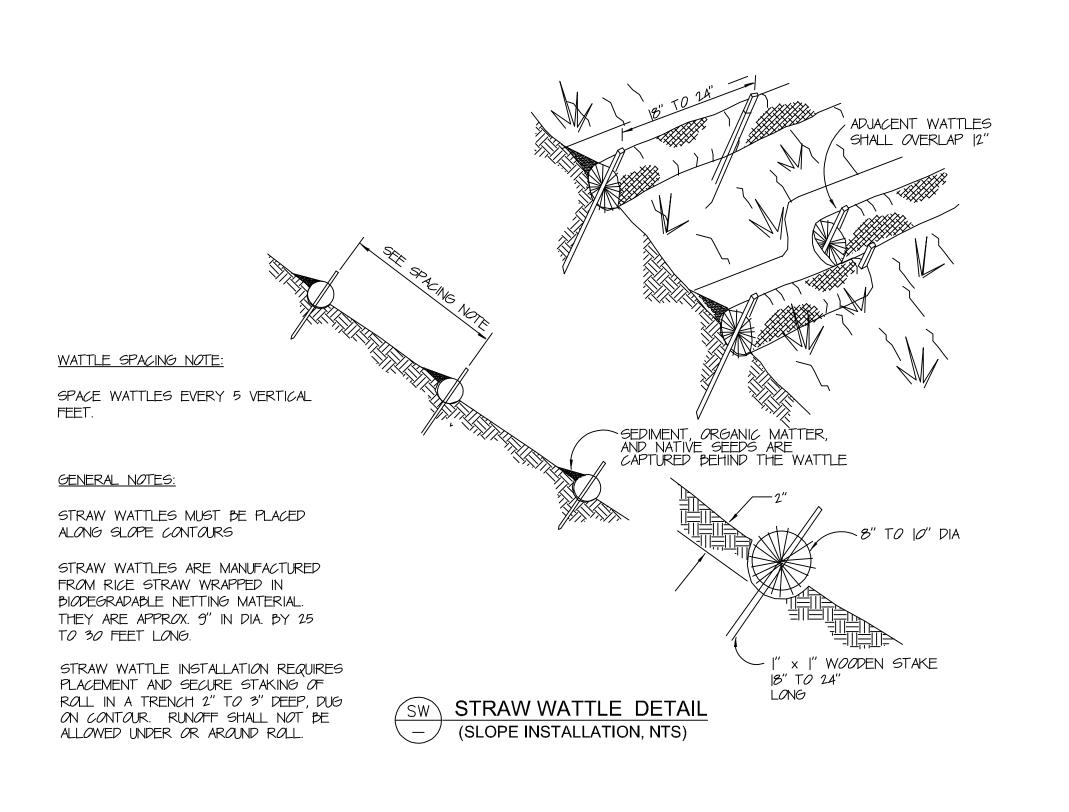
STAFFORD LAKE BIKE PARK TRAIL BRIDGE, HEADCUT AND GULLY STABILIZATION

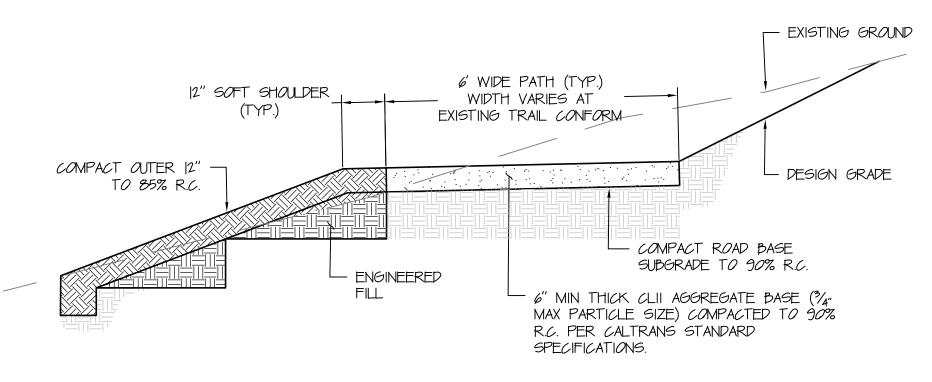
Date Description 2/7/18 ADDENDUM#1

SCALE: AS SHOWN

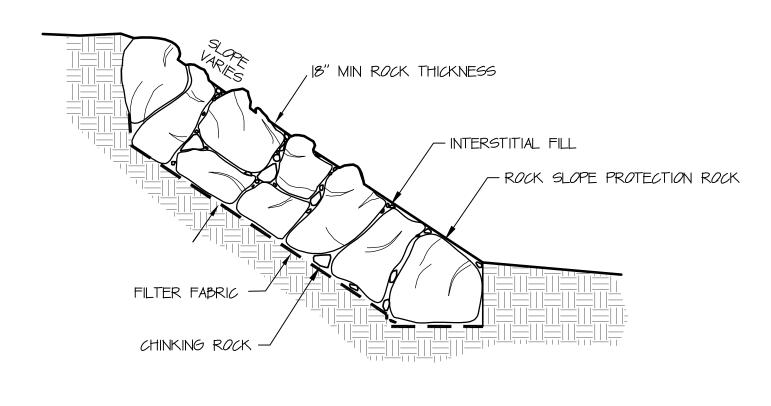
SHEET TITLE:

CONSTRUCTION DETAILS

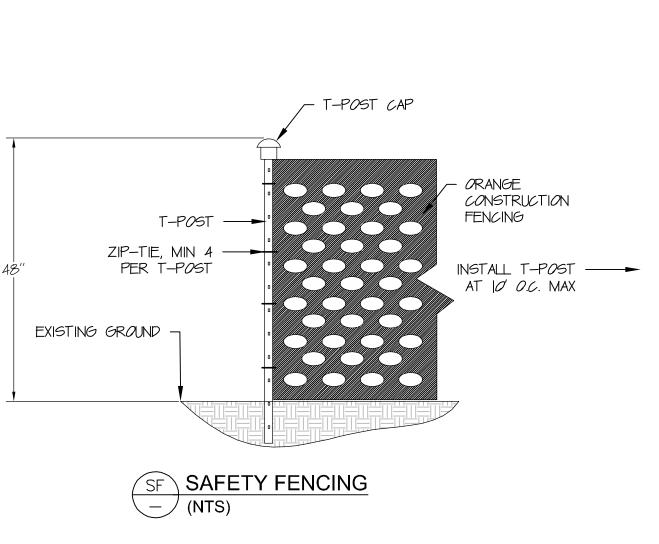


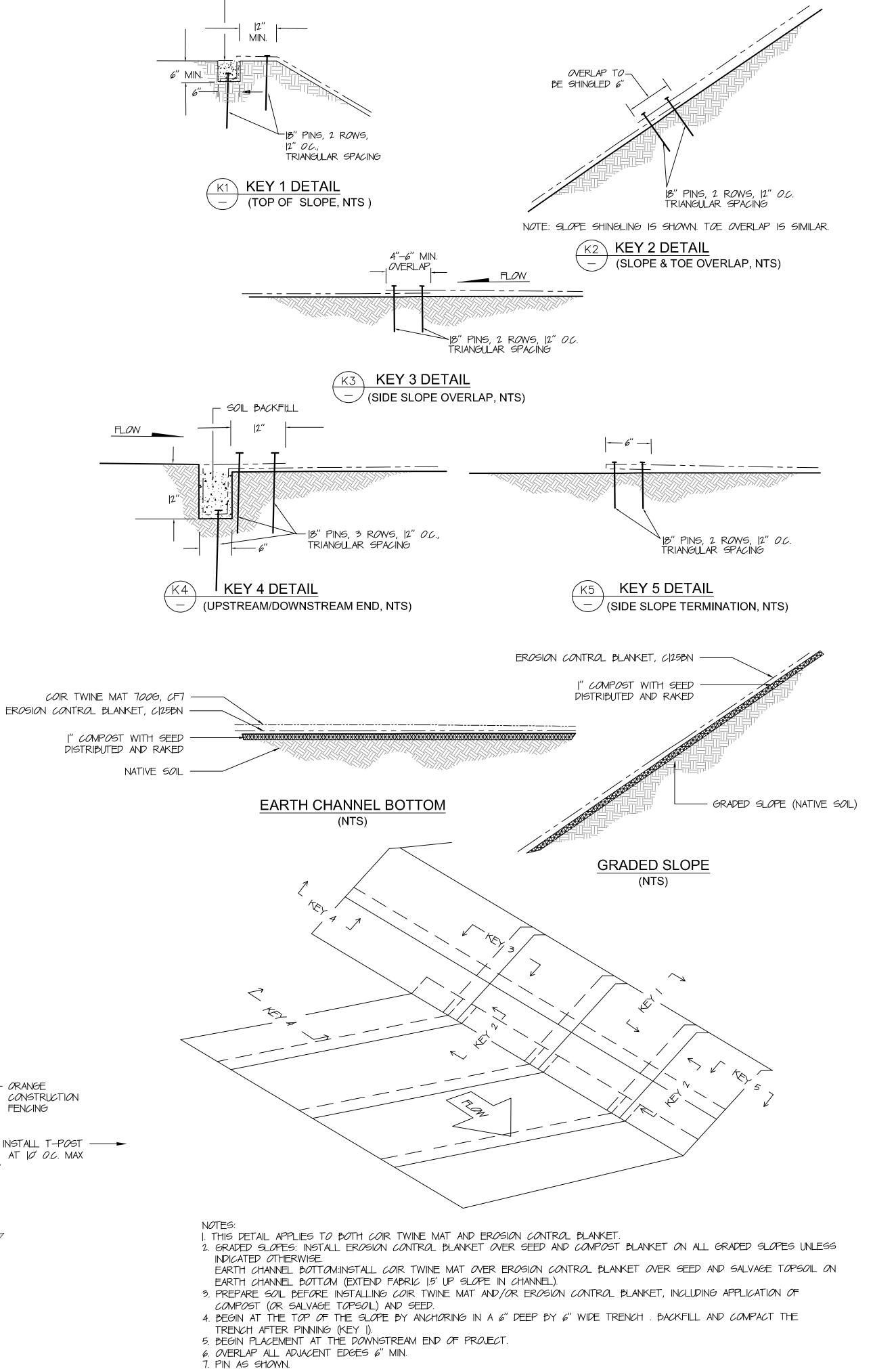






RSP ROCK SLOPE PROTECTION DETAIL (NTS)





- COMPACTED

FILL

PROJECT:

STAFFORD LAKE BIKE PARK

TRAIL BRIDGE,
HEADCUT AND
GULLY
STABILIZATION

3549 NOVATO BLVD. NOVATO, CA 94947

PROJECT OWNER:

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(415)473-6366

PROJECT DESIGNER:



PROFESSIONAL PROFE

6/27/2017

IDMITTAL

SUBMITTAL:

STAFFORD LAKE
BIKE PARK TRAIL
BRIDGE, HEADCUT
AND GULLY
STABILIZATION

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

SCALE: AS SHOWN

SHEET TITLE:

EROSION CONTROL& CONSTRUCTION DETAILS

SHEET NUMBER:

BOTTOM

8

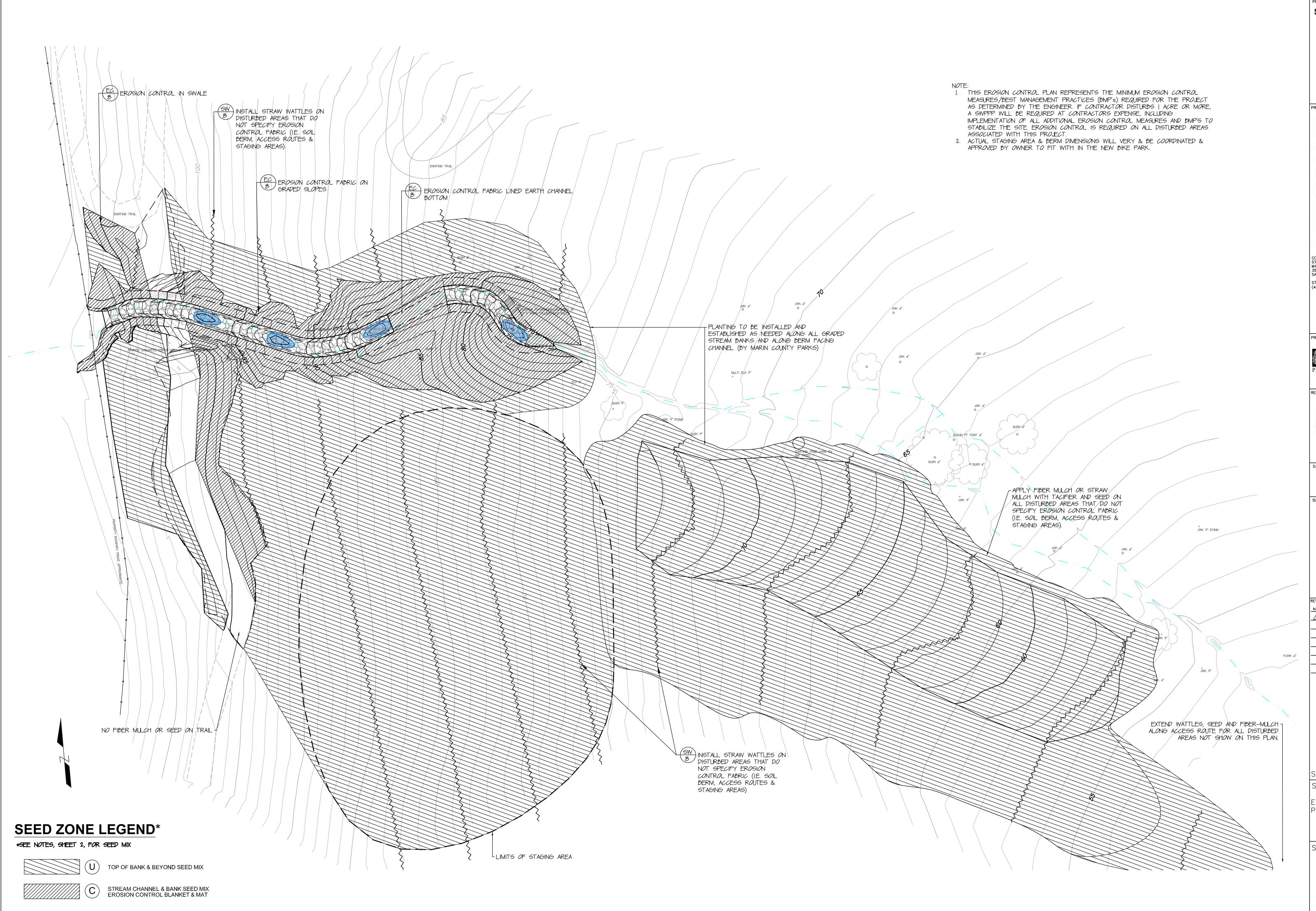
EC EROSION CONTROL BLANKETS AND MATS (NTS)

8. ON GRADED SLOPES INSTALL 18" PINS 24" O.C. (MIN) TRIANGULAR SPACING IN THE FIELD. ON THE CHANNEL

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.

:\Acad Dwgs CIV3D\Marin County Parks\Stafford Lake Hec 18 10:28 AM Layout:EROSION CONTROL DETAILS



STAFFORD LAKE **BIKE PARK**

TRAIL BRIDGE, **HEADCUT AND GULLY STABILIZATION**

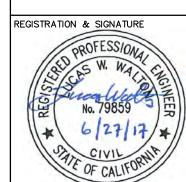
> 3549 NOVATO BLVD. NOVATO, CA 94947

MARIN COUNTY PARKS
PRESERVATION RECREATION



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STAFFORD LAKE BIKE PARK TRAIL BRIDGE, HEADCUT
AND GULLY STABILIZATION

lo. Date Description

2/7/18 ADDENDUM#1

SCALE: 1"=10'

SHEET TITLE:

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:

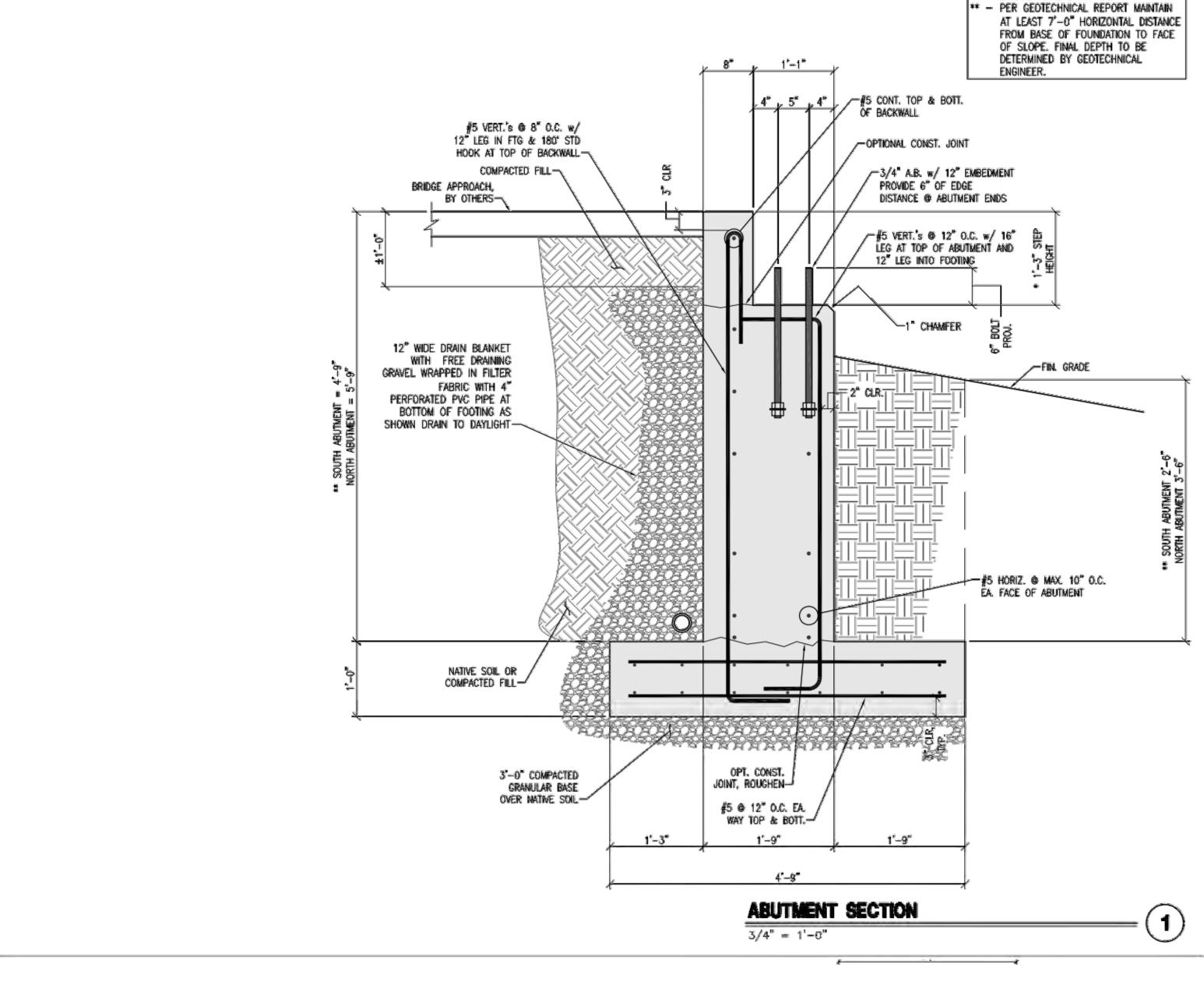
- 1. All phases of work pertaining to the concrete construction shall conform to the "Building Code Requirements for Reinforced Concrete" (ACI 318 latest approved edition) with modifications as noted in the drawings and specifications.
- 2. Reinforced concrete design is by the "Ultimate Strength Design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

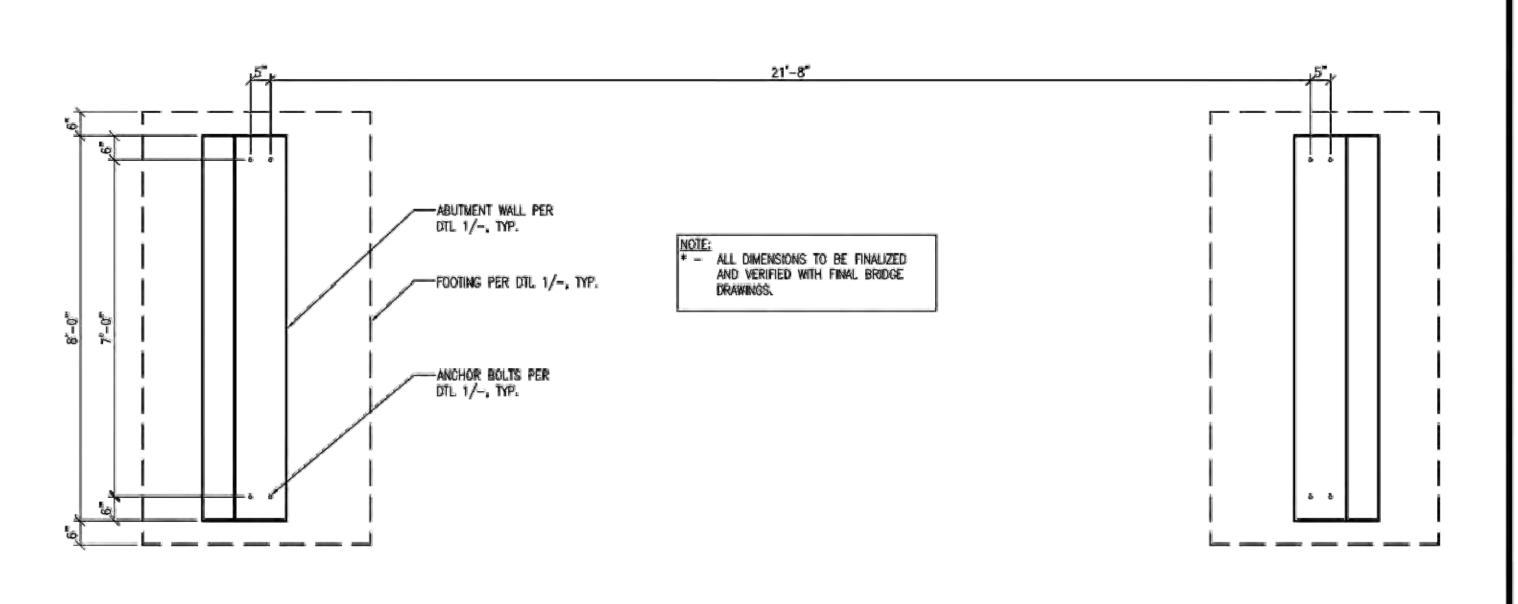
Location in structure Strength PSI Type
Abutment Walls 4,000 Hard rock
Footings 4,000 Hard rock

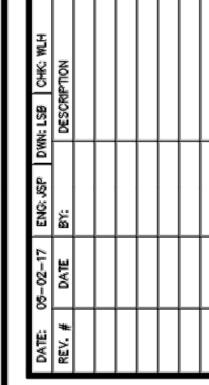
Periodic special inspection is required for placement of rebar, anchor bolts, & concrete mix design.

4. 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.
 - Large aggregate-hardrock, ¾" maximum size conforming to ASTM C-33
 - . 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.
- concrete mixing operations, etc. shall conform to ASTM C-94
- Placement of concrete shall conform to ACI standard 514 and project specifications.
- 7. 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.
- 8. All reinforcing bars, anchor bolts and other concrete inserts shall be well secured in position prior to placing concrete.
 9. Provide sleeves for plumbing and electrical openings in concrete before placing. Do not cut any reinforcing that may
- 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.
- 10. Conduit or pipe size (0.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.
- 11. 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.
- 12. Shrinkage of concrete, when tested in accordance with ASTM C-157, shall not exceed 0.00040 inches/inch.







COORDINATE FINAL STEP HEIGHT w/ BRIDGE FINAL DRAWINGS



7-0" PED. BRIDGE ABUTMENT, NOV.
(EXCEL JOS NO. 178-020)
FOLIND A TION



Jacob S. Proctor PE 70567

U0009-453-171

(2

S1

ABUTMENT PLAN VIEW

3/4" = 1'-0"