Project 184

Alder Creek Spoils Disposal Site Restoration Report

August 2007

Table of Contents

1. Introduction

This report is the result of a collaborative effort between the El Dorado Irrigation District (EID), Project 184 Ecological Resources Committee (ERC), USDA Forest Service (Forest Service), and the State Water Resources Control Board (SWRCB). This restoration report was developed to satisfy the Alder Creek Spoils Disposal Site requirements set forth in the Federal Energy Regulatory Commission (FERC) Order Issuing New License October 18, 2006, Appendix A – Section 4(e) Condition No. 63 (Condition 63) and the Project 184 Settlement Agreement.

Condition 63 states:

"Condition No. 63 – Alder Creek Spoils Disposal Site

> *Within 1 year of license issuance, the licensee shall also develop a plan for restoration of the spoils disposal site that is approved by the FS prior to filing the plan with FERC. The plan shall be implemented once it is approved. The FERC license boundary shall be adjusted to include the Alder Creek spoils site."*

The Alder Creek Spoils Site report addresses the restoration of the Mill to Bull Tunnel spoils handling site near Alder Creek. This restoration took place in 2003, during the Settlement Agreement negotiations; therefore, this requirement was completed before the issuance of the FERC License in October 2006. This report documents the work completed and the process undergone to restore the Alder Creek Spoils Disposal Site.

2. Background

In the mid-1980s, PG&E constructed the El Dorado Tunnel to bypass a section of the El Dorado Canal that was damaged by a large landslide. Tunnel spoils from the El Dorado Tunnel were stored at the Alder Creek Spoils Disposal Site.

In 1997, prolonged rainfall caused several more landslides west of the El Dorado Tunnel along a two mile section of the canal. On February 8, 2001 the FERC issued an Order Amending License in order to construct a bypass tunnel to replace the damaged portion of the El Dorado Canal from Mill Creek to Bull Creek (Mill to Bull Tunnel). The Alder Creek Spoils Disposal Site was used again as a transfer station during construction of the Mill to Bull Tunnel. The site was used to load trucks to haul the spoils to the off-site spoils stockpile locations: Sand Flat, Webber Mill, and Plum Creek spoils sites.

The Alder Creek Spoils Site, shown on page RP1 of the attached as-built plan set (Appendix A), is located near Alder Creek. During the collaboration meetings for the Project 184 Relicensing, a requirement for EID to restore the site was established. In 2003, EID developed a plan for restoration of the Alder Creek site. Several meetings were held with the Forest Service to review the restoration plan. Approval for the final

plan was given by Kathy Hardy of the Forest Service on May 19, 2003. The approval letter is included in Attachment 1 to Appendix B (see following paragraph).

Appendix B contains a copy of the EID letter to FERC, dated August 25, 2003, which requests approval of the Alder Creek Spoils Site Restoration Plan. Attachment 1 to the letter contains the compete history of all correspondence regarding the Alder Creek Spoils Site.

3. Restoration

The restoration plan is illustrated in the plan set in Appendix A. The plan included removal of all remaining spoils and fine sediment with the goal of restoring of the site to its natural state. In October 2003, the work was contracted to Macauley Construction by EID. All construction work was inspected by EID staff. Geotechnical observation and testing was provided by Carlton Engineering under contract with EID. The restoration included:

- Removal of all remaining tunnel spoils
- Grading of the site to provide a natural slope
- Revegetation with USFS approved seed and fertilizer
- Erosion control measure of geotextile fabric on disturbed soils
- Placement of wattles and straw bales
- Installation of rip rap ditches for drainage
- Placement of logs, rocks and other natural features as access barriers
- Placement and compaction of aggregate base on the Camp 1 Road

On November 24, 2003 EID staff met with Ron Hancock to view the completed project work and received final acceptance from the USFS.

Appendix A

E.I.D. TUNNEL SPOILS HANDLING AREA RESTORATION PLAN

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALE FOR REDUCED PLOTS
0 1"

Sheet Index

RP1 COVER SHEET
RP2 DETAILS
RP3 RESTORATION PLAN – PART I
RP4 RESTORATION PLAN – PART II
RP5 SPECIFICATIONS – EARTHWORK, EROSION CONTROL FABRIC
RP6 SPECIFICATIONS – REVEGETATION
RP7 PHOTO EXHIBIT

Vicinity Map

General Notes

AS-BUILT 5722

CARLTON

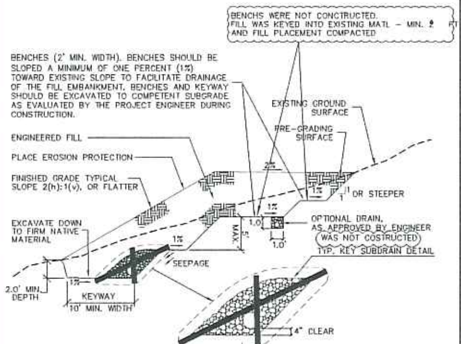
Revisions

COVER SHEET

Project Location:
EID Project 184
Sec 35, T 11 N, R 14 E
Alder Creek, El Dorado County

Ownership Information:
El Dorado Irrigation District
2890 Mosquito Road
Placerville, CA 95667

RP1



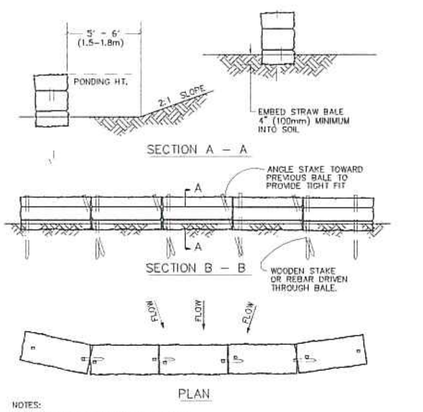
BENCHES WERE NOT CONCTRUCTED. FILL WAS KEYED INTO EXISTING MATL - MIN. 2' AND FILL PLACEMENT COMPACTED
BENCHES (2' MIN. WIDTH). BENCHES SHOULD BE SLOPED A MINIMUM OF ONE PERCENT (1%) TOWARD EXISTING SLOPE TO FACILITATE DRAINAGE OF THE FILL EMBANKMENT. BENCHES AND KEYWAY SHOULD BE EXCAVATED TO COMPETENT SUBGRADE AS EVALUATED BY THE PROJECT ENGINEER DURING CONSTRUCTION.
EXISTING GROUND SURFACE
PRE-GRADING SURFACE
ENGINEERED FILL
PLACE EROSION PROTECTION
FINISHED GRADE TYPICAL SLOPE 2(h):1(v), OR FLATTER
1 OR STEEPER
EXCAVATE DOWN TO FIRM NATIVE MATERIAL
OPTIONAL DRAIN, AS APPROVED BY ENGINEER (WAS NOT COSTRUCTED) TYP. KEY SUBDRAIN DETAIL
SEEPAGE
2.0' MIN. DEPTH
KEYWAY 10' MIN. WIDTH
4" CLEAR

DRAINS

1. INSTALL SUBDRAIN WHERE SUBSURFACE SATURATION IS ENCOUNTERED, OR SUSPECTED TO BE A POTENTIAL CONDITION OF CONCERN.
2. ALL DRAIN ROCK SHALL BE CALTRANS SECTION 68, CLASS 2 PERMEABLE MATERIAL, OR AS APPROVED BY CEI.
3. PERFORATED PIPE, (ADS N-12, OR APPROVED EQUAL) SLOPE 1% MIN. TO DRAIN. PIPE DRAINAGE SHOULD BE COLLECTED IN A SOLID CONDUIT AND DIRECTED TO A SUITABLE LOCATION FOR DRAINAGE. PIPE DIAMETER TO BE DETERMINED BY ENGINEER ON CASE-BY-CASE BASIS.

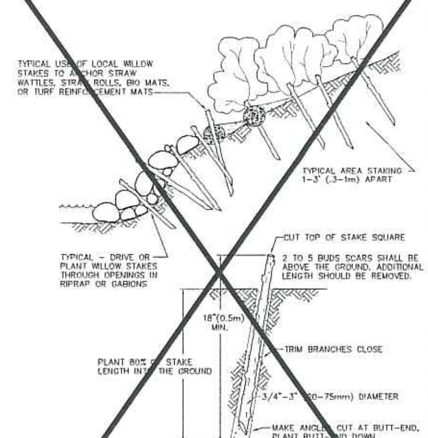
NO WATER ENCOUNTERED. PER CARLTON ENG. SUBDRAIN WAS NOT NEEDED AND WAS NOT INSTALLED

Keyway Detail NTS 1



NOTES:
1. THE STRAW BALES SHALL BE PLACED ON SLOPE CONTOUR.
2. BALES TO BE PLACED IN A ROW WITH THE ENDS TIGHTLY ABUTTING.
3. KEY IN BALES TO PREVENT EROSION OR FLOW UNDER BALES.

Straw Bale Dike Detail NTS 3

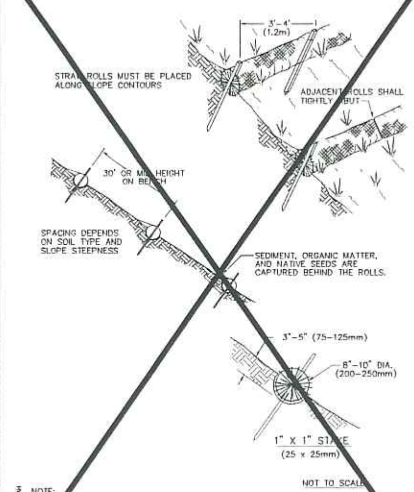


TYPICAL USE OF LOCAL WILLOW STAKES TO ANCHOR STRAW WATTLES, STRAW ROLLS, BIO MATS, OR TURF REINFORCEMENT MATS
TYPICAL AREA STAKING 1-3' (.3-1m) APART
CUT TOP OF STAKE SQUARE
TYPICAL - DRIVE OR PLANT WILLOW STAKES THROUGH OPENINGS IN RIPRAP OR GABIONS
2 TO 5 BUDS SCARS SHALL BE ABOVE THE GROUND. ADDITIONAL LENGTH SHOULD BE REMOVED.
18"(0.5m) MIN.
PLANT 80% OF STAKE LENGTH INTO THE GROUND
TRIM BRANCHES CLOSE
3/4"-3" (20-75mm) DIAMETER
MAKE ANGLE CUT AT BUTT-END, PLANT BUTT-END DOWN

NOTES:
1. HARVEST AND PLANT STAKES DURING THE DORMANT SEASON.
2. USE HEALTHY, STRAIGHT AND LIVE WOOD AT LEAST 1 YEAR OLD.
3. MAKE CLEAN CUTS AND DO NOT DAMAGE STAKES OR SPLIT ENDS DURING INSTALLATION. USE A PILOT BAR IN FIRM SOILS.
4. SOAK CUTTINGS FOR 24 HOURS (MIN.) PRIOR TO INSTALLATION.
5. TAMP THE SOIL AROUND THE STAKE.

WAS NOT DONE SEE SPEC. NOTE #5

Live Staking Detail NTS 5

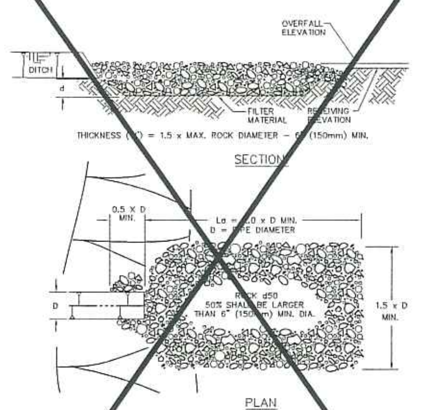


3'-4' (1.2m)
STRAW ROLLS MUST BE PLACED ALONG SLOPE CONTOURS
ADJACENT ROLLS SHALL TIGHTLY ABUT
30' OR MIN HEIGHT ON BENCH
SPACING DEPENDS ON SOIL TYPE AND SLOPE STEEPNESS
SEDIMENT, ORGANIC MATTER, AND NATIVE SEEDS ARE CAPTURED BEHIND THE ROLLS.
3"-5" (75-125mm)
8"-10" DIA. (200-250mm)
1" X 1" STAKE (25 x 25mm)
NOT TO SCALE

NOTE:
1. STRAW ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3"-5" (75-125mm) DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL.

WAS NOT DONE SEE SPEC. NOTE #5

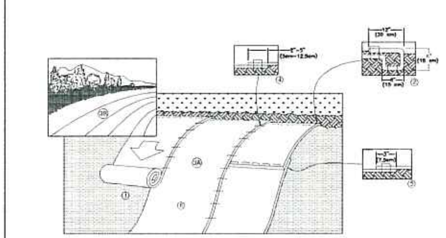
Straw Roll Detail NTS 7



NOTES:
1. La = LENGTH OF APRON. DISTANCE La SHALL BE OF SUFFICIENT LENGTH TO DISSIPATE ENERGY.
2. APRON SHALL BE SET AT A ZERO GRADE AND ALIGNED STRAIGHT.
3. FILTER MATERIAL SHALL BE FILTER FABRIC OR 6" (150mm) THICK MINIMUM GRADED GRAVEL LAYER.

DRAIN NOT REQUIRED PER CARLTON ENG. SO ENERGY DISAPATER WAS NOT INSTALLED

Energy Dissipator at CMP NTS 2



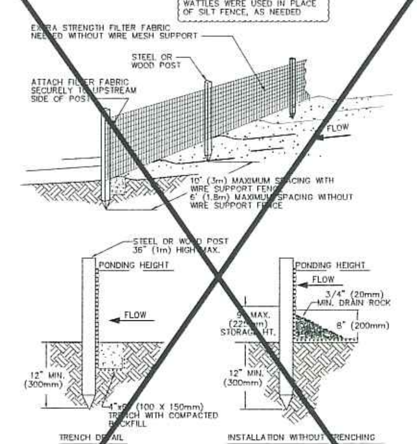
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH™ ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.
6. USE STAPLE PATTERN D.

NOTE:
*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

APPROVED BY USFS ERESION MATT USED
1. NORTH AMERICAN GREEN C350 MATT
2. LANMD LOCK #435

Erosion Control Blanket/Mat Detail NTS 4

SILT FENCE WAS NOT USED WATTLES WERE USED IN PLACE OF SILT FENCE, AS NEEDED



EXTRA STRENGTH FILTER FABRIC NEEDED WITHOUT WIRE MESH SUPPORT
STEEL OR WOOD POST
ATTACH FILTER FABRIC SECURELY TO UPSTREAM SIDE OF POST
FLOW
10' (3m) MAXIMUM SPACING WITH WIRE SUPPORT FENCE
6' (1.8m) MAXIMUM SPACING WITHOUT WIRE SUPPORT FENCE
STEEL OR WOOD POST 36" (1m) HIGH MAX.
PONDING HEIGHT
FLOW
9" MAX. (225mm) STORAGE HT.
12" MIN. (300mm)
4"x6" (100 X 150mm) TRENCH WITH COMPACTED BACKFILL
3/4" (20mm) MIN. DRAIN ROCK
8" (200mm)
TRENCH DETAIL
INSTALLATION WITHOUT TRENCHING

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.

NOT TO SCALE

Silt Fence NTS 6

AS-BUILT 5722

CARLTON Engineering Inc

Revisions

	DESCRIPTION	DATE	BY
	FOR CONSTRUCTION	9/7/05	BB
	DIMNS. BENCHS. ROADS	10/10/05	BB

E.I.D. TUNNEL SPOILS HANDLING AREA RESTORATION PLAN

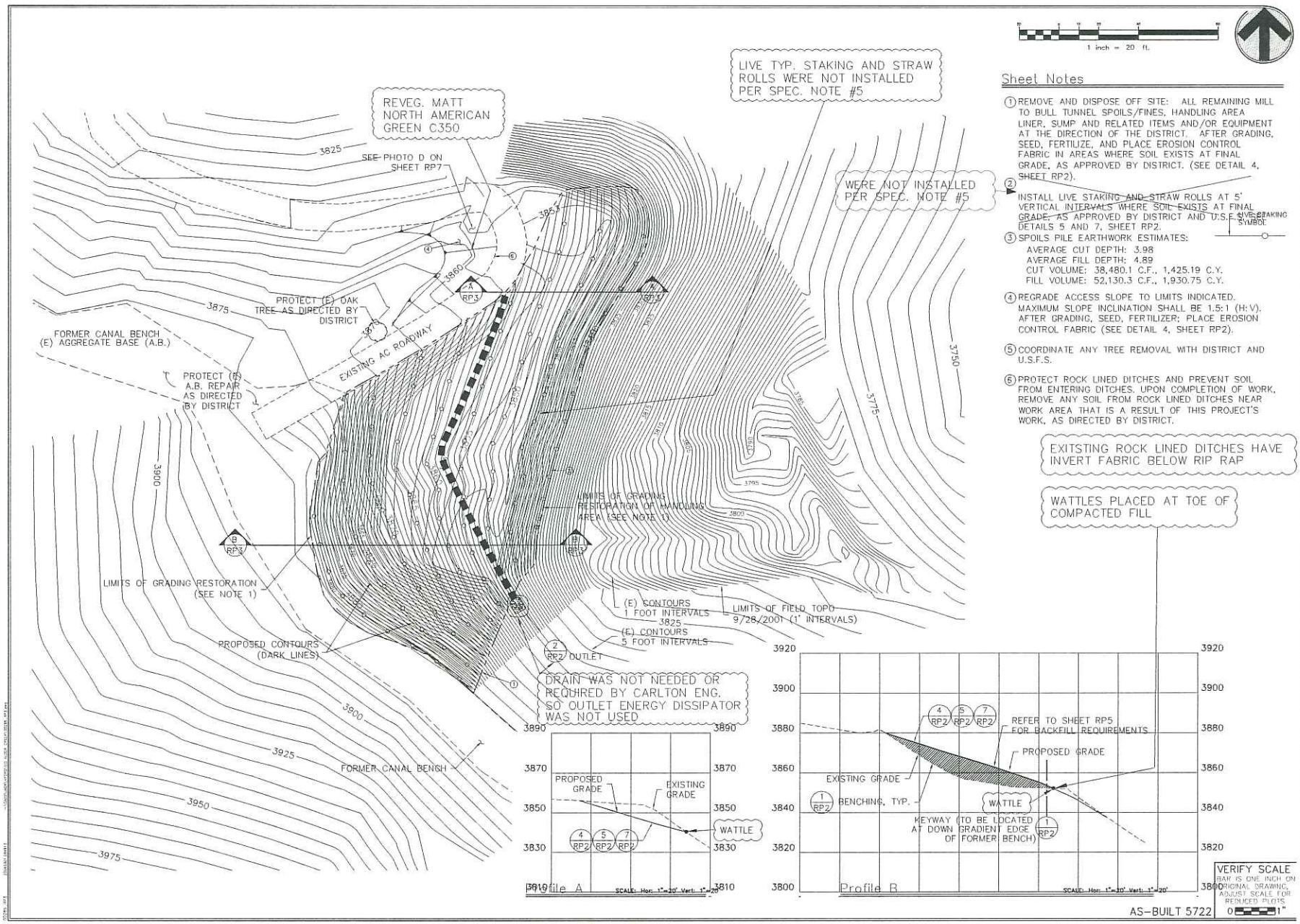
DETAILS

Project Location:
EID Project 184
Sec 35, T 11 N, R 14 E
Alder Creek, El Dorado County

Ownership Information:
El Dorado Irrigation District
2890 Mosquito Road
Placerville, CA 95667

DESIGNED: DD	DATE: 5/01/2007
DRAWN: DPG	HORIZ. SCALE: N/A
JOB No.: 2001-285	VERT. SCALE: N/A

RP2



Sheet Notes

1. REMOVE AND DISPOSE OFF SITE: ALL REMAINING MILL TO BULL TUNNEL SPOILS/FINES, HANDLING AREA LINER, SUMP AND RELATED ITEMS AND/OR EQUIPMENT AT THE DIRECTION OF THE DISTRICT. AFTER GRADING, SEED, FERTILIZE, AND PLACE EROSION CONTROL FABRIC IN AREAS WHERE SOIL EXISTS AT FINAL GRADE, AS APPROVED BY DISTRICT. (SEE DETAIL 4, SHEET RP2).
2. INSTALL LIVE STAKING AND STRAW ROLLS AT 5' VERTICAL INTERVALS WHERE SOIL EXISTS AT FINAL GRADE, AS APPROVED BY DISTRICT AND U.S.F.S. (SEE DETAILS 5 AND 7, SHEET RP2). LIVE STAKING SYMBOL
3. SPOILS PILE EARTHWORK ESTIMATES:
   AVERAGE CUT DEPTH: 3.98
   AVERAGE FILL DEPTH: 4.89
   CUT VOLUME: 38,480.1 C.F., 1,425.19 C.Y.
   FILL VOLUME: 52,130.3 C.F., 1,930.75 C.Y.
4. REGRADE ACCESS SLOPE TO LIMITS INDICATED. MAXIMUM SLOPE INCLINATION SHALL BE 1.5:1 (H:V). AFTER GRADING, SEED, FERTILIZER; PLACE EROSION CONTROL FABRIC (SEE DETAIL 4, SHEET RP2).
5. COORDINATE ANY TREE REMOVAL WITH DISTRICT AND U.S.F.S.
6. PROTECT ROCK LINED DITCHES AND PREVENT SOIL FROM ENTERING DITCHES. UPON COMPLETION OF WORK, REMOVE ANY SOIL FROM ROCK LINED DITCHES NEAR WORK AREA THAT IS A RESULT OF THIS PROJECT'S WORK, AS DIRECTED BY DISTRICT.

CARLTON Engineering Inc

Revisions

No.	Description	Date	By
1	FOR CONSTRUCTION	9/7/01	DD
2	CANAL BENCH NOTES	10/1/01	DD

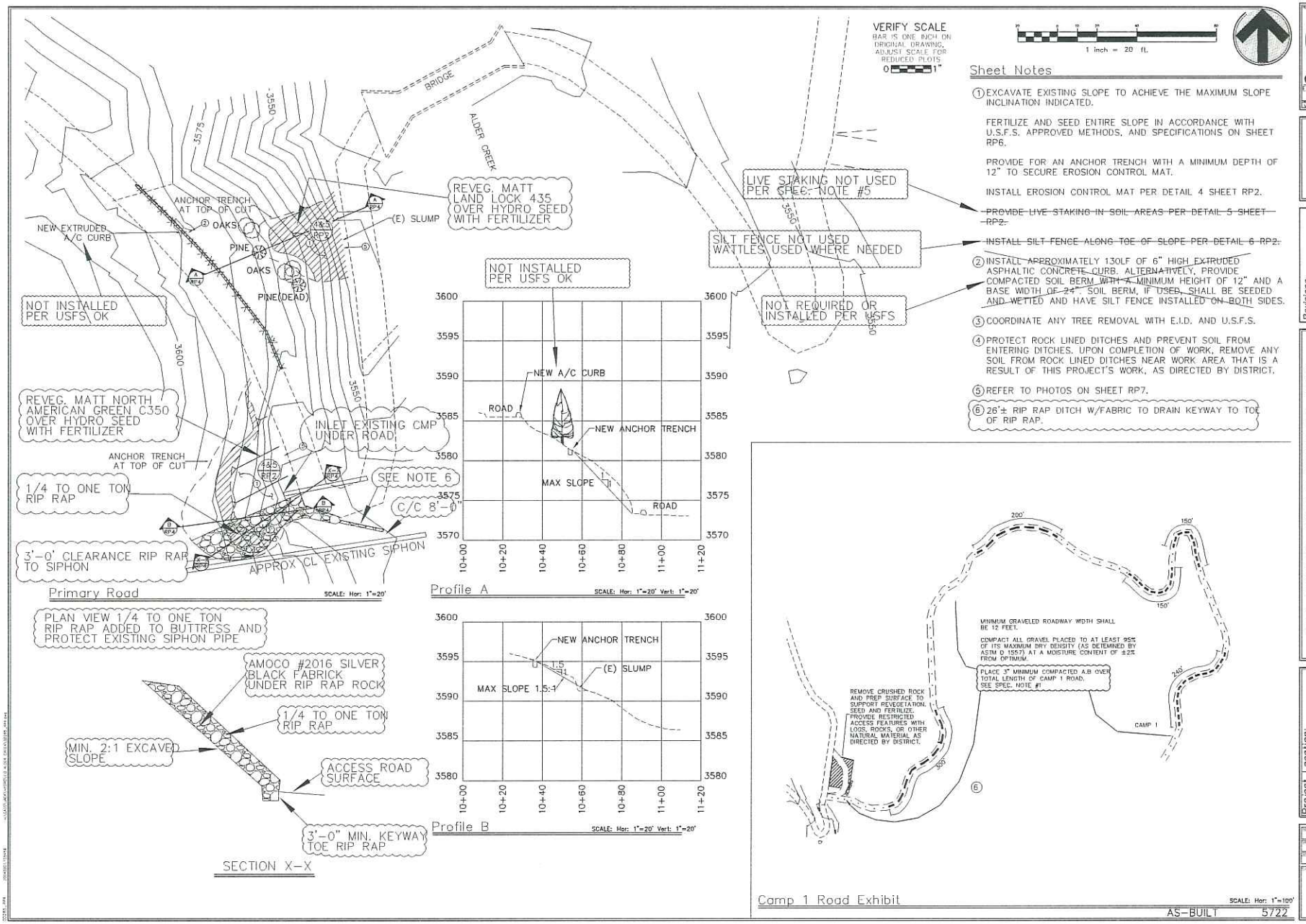
E.I.D. TUNNEL SPOILS HANDLING AREA
RESTORATION PLAN

RESTORATION PLAN - PART I

Project Location:
EID Project 184
Sec 35, T 11 N, R 14 E
Alder Creek, El Dorado County

Ownership Information:
El Dorado Irrigation District
2890 Mosquito Road
Placerville, CA 95667

DESIGNED	DD	DATE 5/01/2000
DRAWN	DPG	HORZ. SCALE 1"=20
JOB No.	2001-285	VERT. SCALE 1"=20
SHEET		RP3



Sheet Notes

1. EXCAVATE EXISTING SLOPE TO ACHIEVE THE MAXIMUM SLOPE INCLINATION INDICATED.

   FERTILIZE AND SEED ENTIRE SLOPE IN ACCORDANCE WITH U.S.F.S. APPROVED METHODS, AND SPECIFICATIONS ON SHEET RP6.

   PROVIDE FOR AN ANCHOR TRENCH WITH A MINIMUM DEPTH OF 12" TO SECURE EROSION CONTROL MAT.

   INSTALL EROSION CONTROL MAT PER DETAIL 4 SHEET RP2.

   ~~PROVIDE LIVE STAKING IN SOIL AREAS PER DETAIL 5 SHEET RP2.~~

   ~~INSTALL SILT FENCE ALONG TOE OF SLOPE PER DETAIL 6 RP2.~~

2. INSTALL APPROXIMATELY 130LF OF 6" HIGH EXTRUDED ASPHALTIC CONCRETE CURB. ALTERNATIVELY, PROVIDE COMPACTED SOIL BERM WITH A MINIMUM HEIGHT OF 12" AND A BASE WIDTH OF 24". SOIL BERM, IF USED, SHALL BE SEEDED AND WETTED AND HAVE SILT FENCE INSTALLED ON BOTH SIDES.
3. COORDINATE ANY TREE REMOVAL WITH E.I.D. AND U.S.F.S.
4. PROTECT ROCK LINED DITCHES AND PREVENT SOIL FROM ENTERING DITCHES. UPON COMPLETION OF WORK, REMOVE ANY SOIL FROM ROCK LINED DITCHES NEAR WORK AREA THAT IS A RESULT OF THIS PROJECT'S WORK, AS DIRECTED BY DISTRICT.
5. REFER TO PHOTOS ON SHEET RP7.
6. 26'± RIP RAP DITCH W/FABRIC TO DRAIN KEYWAY TO TOE OF RIP RAP.

CARLTON Engineering Inc

Revisions

No	Description	Date	By
1	FOR CONSTRUCTION	1/2/18	DB
2	CHANGE SECTION, ROADS	4/7/18	DB

E.I.D. TUNNEL SPOILS HANDLING AREA
RESTORATION PLAN

RESTORATION PLAN - PART II

Project Location:
E.I.D. Project 184
Sec 35, T 11 N, R 14 E
Alder Creek, El Dorado County

Ownership Information:
El Dorado Irrigation District
2890 Mosquito Road
Placerville, CA 95667

DESIGN: DBJ	DATE: 5/01/2001
DRAWN: DPG	PHYS. SCALE: AS NOTED
JOB No: 2001-285	PAPER SCALE: AS NOTED
SHEET: 15 OF 51 SHTS	RP4

AS-BUILT 5722

Earthwork

PART 1 – GENERAL

1.1 SCOPE
- A. All stripping, filling, excavation and grading for areas to receive building, concrete work. Providing and placing earth fill.

1.2 RELATED WORK SPECIFIED ELSEWHERE
- A. Excavation
  Backfilling
  Trenching

1.3 COORDINATION AND SCHEDULING
- A. The Contractor shall coordinate and schedule the work with other trades to avoid delays and conflicts of work.
- B. Meet with Owner prior to commencing operations to determine access and status of the site.
- C. Scheduling of operations shall be done to provide completion of work within the stipulated schedule.
- D. Protect all existing structures from damage. Take measures insuring existing improvements which are scheduled to remain are left in same condition as in beginning of the grading operations.
- E. Contractor shall familiarize himself with existing site conditions and shall use any equipment or method required to accomplish the earthwork specified herein.

1.4 PROTECTION
- A. Protect existing work, new work, and work of others in progress against damage. Protect trees scheduled to remain. Repair or replace same should any damage occur.
- B. Adequate protection measures shall be provided to protect workmen and passers–by the site. Streets and adjacent property shall be fully protected throughout the operations.
- C. Provide for surface drainage during the period of construction in a manner to avoid creating a nuisance to adjacent areas.
- D. Water as required to suppress dust nuisance.
- E. Drains to be kept free of mud, dirt, or similar nuisances resulting from Earthwork Operations.

1.5 SITE SURVEY
- A. Site survey was made by Carlton Engineering, Inc. Record information was added to the survey. The Contractor shall field verify all utilities and elevations in area of work, prior to start of construction. Notify Engineer and Owner of any deviations.
- B. If unknown active utilities are encountered during work, notify Engineer and Owner immediately for instructions.

PART 2 – PRODUCTS

2.1 FILL MATERIAL
- A. All fill shall be of approved local materials from required excavations, supplemented by imported fill, if necessary. Approved local materials are defined as local soils free of rubble, rubbish and vegetation, approved by Engineer and Owner prior to use. Clods, rocks or hard lumps exceeding six inches (8") in final size shall not be allowed in any fill supporting structural improvements.
- B. Imported fill materials shall meet the above requirements, shall have a plasticity index not exceeding twelve (12), when tested in accordance with ASTM Specification D4318–24; an expansion index not greater than (20), when tested in accordance with UBC Specification 29–9; and a eight inch (8") maximum particle size, when tested in accordance with ASTM Specification D422–72.
- C. Gravel Fill: Imported washed gravel, free from vegetation and debris, 1" maximum, and none passing #4 sieve.

PART 3 – EXECUTION

3.1 REQUIREMENTS
- A. Lay out all work, establish grades, field locate existing underground utilities, set markers and stakes, set up and maintain barricades and protection of utilities; all prior to beginning actual earthwork operations.
- B. Contractor shall excavate and fill as necessary and fine grade the site to levels and slopes indicated.
- C. Excess soils from excavation that are not needed or useable for fill shall receive a compactive effort and be stabilized.
- D. Deposit waste material in legal, licensed solid waste disposal site. Open burning of combustible waste will not be permitted.
- E. Field locate existing utilities in area of work prior to excavation. Relocate existing utilities as shown on the Plans. Notify Engineer and Owner of any discrepancies encountered.
- F. When the work is interrupted by heavy rains, fill operations shall not resume until field tests indicate that the contents of the subgrade and fill materials are satisfactory, as determined by Engineer.

3.2 GRADING
- A. Grade in general conformance with Plan details. Extend excavations to dimensions required for foundation and footings.
- B. Fill Placement
- 1. Areas to be filled shall be cleared of all vegetation, existing structures, fences, rubbish and undesirable materials. Disturbed or wet areas shall be over excavated to firm undisturbed soil. Any soft or undesirable areas shall be over excavated to firm undisturbed soil. Fill material shall be spread in uniform layers not exceeding 8 inches in uncompacted thickness. Water shall be added to the fill, or the fill allowed to dry, and mixed as necessary to obtain a uniform fill moisture content at least 2% above optimum at which compaction as specified can be achieved. Before succeeding layers are applied, scarify underlayers for bond, then dampen.
- 2. Each layer of fill shall be compacted to not less than 90% of maximum dry density per ASTM D1557 unless otherwise specified.
- 3. Work that has been suspended by weather, scheduling or for any other reason, shall be protected against the effects of such weather or other conditions. Grading which has been considered acceptable but which has been subsequently damaged shall be re–worked to meet the requirements of the specifications.

3.3 TESTING AND OBSERVATION
- A. All grading operations shall be tested and observed by the Engineer, in accordance with the Quality Control Inspection Plan (QCIP).
- B. Field density tests shall be made by the Engineer after compaction of each layer of fill, or as directed by the Engineer. Where compaction equipment has disturbed the surface to a depth of several inches, density tests shall be taken in the compacted material below the disturbed surface. Additional layers of the fill shall not be spread until the field density tests indicated that the specified density has been obtained.
- C. Earthwork shall not be performed without the physical presence or approval of the Engineer. The contractor shall notify the Engineer at least two (2) working days prior to commencement of any aspect of the site earthwork.
- D. If the Contractor should fail to meet the technical or design requirements embodied in this document and on the applicable plan, he shall make the necessary readjustments until all work is deemed satisfactory as determined by the Engineer and the Owner or his representative. No deviation from the Specifications shall be made except upon written approval of the Engineer through the Change Order Procedure.

3.4 ERRORS AND SOFT OR UNSUITABLE FOUNDATIONS
- A. Where Contractor over–excavates footings through error, resulting excavation shall be recompacted as engineered fill at Contractor's expense. Where additional work is required by reason of soft or unsuitable natural ground or existing engineered fill, cost of additional excavation and filling will be borne by Owner.

3.5 FINISH GRADING
- A. After completion of structure; site within confines shown on Drawings shall be finish graded.
- B. The finish grades shown on Drawings may be slightly modified at their intersections and eased to existing grades. Finish grading to be properly pitched to prevent accumulation of water within the area. Tie in new and existing finish grades. Re–grade existing areas that have been disturbed by construction activities. In all cases, areas shall be graded to drain

3.6 UNUSED MATERIAL
- A. Debris and rubbish not to be disposed of in depressions or fill areas. Remove same from site.

3.7 CLEANUP
- A. The Contractor at all times shall keep the area free of accumulations of excavated material and/or rubbish and trash caused by his employees or work. At the completion of work, he shall remove all excavated materials, trash, and rubbish from and about the area of the premises and all his tools, shoring and surplus materials, and shall leave the site with a clean finished appearance.

Erosion Control Fabric Specifications

C350 Reinf MATERIAL(S)

PART 1 – GENERAL

1.01 Summary
This work consists of furnishing materials and performing all work necessary to install North American Green C350 Reinforcing material(s) on slopes or as directed by the engineer.

PART 2 – PRODUCTS

2.01 Materials
All materials shall meet the requirements of the following specifications.
2.02 C350 Reinforced Veg.
Fully Vegetated Permanent Triple Net Coconut Fiber Erosion Control Turf Reinforcement Mat

The erosion control turf reinforcement mat shall consist of a rolled erosion control product manufactured from long lasting natural fibers mechanically formed and/or bonded into synthetic nettings to produce a permanent three dimensional structure. The erosion control turf reinforcement mat in a fully vegetated state must be capable of permanently reducing average annual soil loss to 0.03 in (0.08 cm) on a 1:1, 22 ft (6.7 m) slope consisting of Sand soil. The erosion control turf enforcement mat shall be North American Green C350 or approved equal. Product performance documentation using soil loss calculations based on the USDA RUSLE method must be submitted for review. Product must be guaranteed to perform to the minimum performance standards under the specific conditions as stated above.

A. Three Dimensional Permanent Net with Coconut Fiber Erosion Control Turf Reinforcement Matting (North American Green C350)

1. Matrix: 100% coconut fiber, min. wt. .5 lbs/sy (.3 kg/m^2)
2. Netting: Top, heavyweight UV stabilized polypropylene with 0.5 in (1.3 cm) openings. Center, super heavyweight cuspated UV stable polypropylene (.5 in (1.3 cm) openings). Bottom, UV stabilized polypropylene with .5 in (1.3 cm) openings.
3. Stitching: Non–degradable thread on 1.5 in (3.8 cm) centers
4. Roll Size: 6.5 ft (2 m) x 55.5 ft (16.92 m), 40 sys (33 m^2)
5. Roll Weight: 37 lbs (16.8 kg) +/– 10%

The erosion control material(s) shall be anchored with "U" shaped 11 gauge wire staples or wooden stakes with a minimum top width of 1 in (2.5 cm) and length of 6 in (15.2 cm). Fastener type (metal or wood) shall be designated by the engineer. Longer and/or wider staples or stakes may be designated by the engineer as necessary for various soil types and specific application needs.

PART 3 – EXECUTION

3.01 EXAMINATION
A. The Contractor shall check the geotextile upon delivery to verify that the proper material has been received. The geotextile shall be inspected by the Contractor to be free of flaws or damage occurring during manufacturing, shipping, or handling.

3.02 PREPARATION
A. The subgrade soil shall be prepared as indicated on the construction drawings or as directed by the Engineer. Foundation soil shall be excavated to the lines and grades as shown on the drawings or as directed by the Engineer. Over excavated areas shall be filled with compacted backfill material.

3.03 INSTALLATION
- A. Prepare soil before installing blankets, including application of lime, fertilizer, and seed. Note: When using Cell–O–Seed do not seed prepared area. Cell–O–Seed must be installed with paper side down.
- B. Begin at the top of the slope by anchoring the blanket in a 12 in deep by 12 in wide trench. Backfill and compact the trench after stapling
- C. Roll the blankets (A.) down or (B.) horizontally across the slope.
- D. Refer to manufacturer's staple guide for correct staple pattern
- E. The edges of parallel blankets must be stapled with approximately 2 in (5.1 cm) of overlap.
- F. When blankets must be spliced down the slope, place blankets end over end (shingle style) with approximately 4 in (10.2 cm) of overlap. Staple through overlapped area, approximately 12 in (30.5 cm) apart.
- G. Use staple pattern D.

3.04 MEASUREMENT
A. North American Green C350 Reinf, or approved equivalent, including staples, completely in place and accepted, will be measured by the square yard of finished surface. No allowance will be made for overlap. Mat placed outside the specified limits will not be measured or paid for, and the contractor may be required to remove and dispose of the excess without cost.
B. Measurement may not be required as determined by Owner.

3.05 PAYMENT
A. Quantities shall be paid for at the contract unit price per square yard and shown in the bid schedule, which price shall be full compensation for furnishing all materials, tools, and labor; the preparation of the subgrade; the placing of the matting; and all other work incidental to finished construction in accordance with these specifications.
B. Payment may be by Lump sum or other determined by Owner.

3.06 PROTECTION OF FINISHED WORK
The contractor shall maintain the blanket until all work on the contract has been completed and accepted. Maintenance shall consist of the repair of areas where damaged by any cause. All damaged areas shall be repaired to reestablish the conditions and grade of the soil prior to application of the covering and shall be refertilized, reseeded, and remulched as directed.

3.07 ALTERNATES
Alternates shall be evaluated by the Engineer when proper and thorough documentation has been furnished by the Contractor. Alternate shall meet or exceed the specifications herein.

CARLTON
Engineering Inc

Revisions

SYM	DESCRIPTION	DATE	BY
A	FOR CONSTRUCTION	6/21/03	DD
A	CANAL BENCH ROADS	10/7/03	DD

E.I.D. TUNNEL SPOILS HANDLING AREA
RESTORATION PLAN

SPECIFICATIONS

Project Location:
EID Project 184
Sec 35, T 11 N, R 14 E
Alder Creek, El Dorado County

Ownership Information:
El Dorado Irrigation District
2890 Mosquito Road
Placerville, CA 95667

DESIGNED DD	DATE 5/01/2002
DRAWN DPG	HORZ. SCALE N/A
JOB No 2001-285	VERT. SCALE N/A

RP5

AS-BUILT 5722

Revegetation Specifications

PART ONE – GENERAL

1 WORK INCLUDED
A. Revegetation of the finished slope and disturbed areas within the limit of grading as specified herein and indicated on the Plans.
B. Installation of silt fence as specified herein at the locations indicated on the Plans, and as directed by the engineer.
C. All seeding and fertilizing shall conform with U.S. Forest Service (USFS) guidelines and directives.

1.2 JOB CONDITIONS
A. EXISTING CONDITIONS
1. Information shown on the Construction Plans regarding existing site conditions is believed to be correct, but it is not guaranteed. Contractor should visit the site and prepare surveys for necessary information and data regarding present ground levels, conditions of property, access and size of obstructions.

1.3 SUBMITTALS
A. The Contractor shall submit the following information at least 21 calendar days prior to hydromulching:
1. Signed statement from the seed supplier certifying that each lot of seed has been tested within 6 months of date of delivery. The certified statement shall include name and address of testing laboratory, date of test, lot number for each kind of seed, and the results of the test as to name, percentages of purity and of germination, and percentage of weed content for each kind of seed furnished. In the case of a mixture, the statement shall also report the proportions of each kind of seed.

2. List of all equipment to be used in the placement of the seed mix, including make and age of the hydromulcher, tank size, method of mixing, and maximum spray distance of hydromulching equipment.
3. List of equipment to be used in placement of the straw.
4. Description of the method that will be used for irrigation of the vegetated areas, if required.

B. Contractor shall submit Manufacture's product data sheet for the silt fence at least 21 calendar days prior to installing the silt fence.

1.4 REGULATORY REQUIREMENTS
A. Contractor shall conform to applicable Local, State, and Federal codes and ordinances.

1.5 APPLICABLE PUBLICATIONS: The following publications form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only.
A. Standard Specifications, State of California, Department of Transportation:
Section 20 Erosion Control and Highway Planting
Section 58 Preservative Treatment of Lumber, Timber and Piling

PART TWO – PRODUCTS

HYDROMULCH MIX
A. Plant seed shall be furnished premixed in a container sized to provide seed coverage. Container shall be labeled with the seed name, lot number, net weight, percentage of purity and of germination of hard seed, and percentage of maximum weed seed content clearly marked for each kind of seed used in the mixture.
B. Plant seed mix shall consist of the following:

Plant Species	Application Rate pounds/acre (PPA)	Purity	Germination
Deschampsia elongata, ssp. "El Dorado Canal"	4.0 PPA	95%	85%
Bromus carinatus var. carintus (Eldorado or Mokelumne Brome)	9.0 PPA	95%	85%
Lotus purshianus, ssp. "Sierra"	7.0 PPA	95%	85%
Elymus elymoides, ssp. "3000"	4.0 PPA	95%	85%
Elymus glaucus, ssp. "El Dorado"	8.0 PPA	95%	85%
Festuca rubra, ssp. "Mokelumne Fescue"	5.0 PPA	95%	85%
Vulpia microstachys, ssp. "Sierra"	6.0 PPA	95%	85%

NOTE:
- Use 3/4 seeding rate (above) when soil conditions are optimum, chances of weed invasion are low, site is level, duff is being returned after disturbance, etc.
- Use recommended rate when "normal" adversity is expected.
- Use 1.25X recommended rate when on poor site, hot dry south aspect, serpentine soil, poor soil prep, or additional speed or efficacy is required.
- Continue to increase up to 2X recommended rate as overall conditions deteriorate or demand for fast establishment is of the essence.
- The seed and fertilizer shall be mixed with water to produce a slurry and then applied under pressure at the following rates. Vegetative mulch (wood cellulose or weed-free grass straw fiber) may be applied with the seed and fertilizer.

C. Fiber shall be wood cellulose or weed-free grass straw fiber and applied at the rate of 1,500 pounds per acre.
D. Fertilizer shall be "BIOSOL MIX" 7-2-3 and applied at a rate of 1,000 pounds per acre.
E. Tacking agent shall meet the requirements of Section 20 Erosion Control and Highway Planting, Paragraph 20-2.11 of the CalTrans Standard Specifications. Tacking agent quantities are based on a dry ingredient.
F. Straw shall meet the requirements of Section 20 Erosion Control and Highway Planting, Paragraph 20-2.06 of the CalTrans Standard Specifications.

SILT FENCE
A. Silt fence filter fabric shall be propylene, nylon, polyester or ethylene tarn containing ultraviolet inhibitors and stabilizers to provide a minimum construction life of 6 months at a temperature range of 00F to 1200F. Filter fabric shall be woven and reinforced with a wire or scrim backing. Filter fabric shall have a minimum efficiency of 75 percent and a minimum tensile strength of 50 pounds per lineal foot at 20 percent maximum elongation. Filter fabric shall have a minimum expected life of 6 months

B. Silt fence supports shall be 2 inch by 2 inch minimum Douglas Fir Construction Grade treated in accordance with Section 58 of the Standard Specifications or steel "T" posts. Supports shall be spaced a maximum of 6 feet apart.

PART THREE – EXECUTION

3.1 SUBGRADE PREPARATION
A. The general earthfills shall be prepared and accepted in accordance with the requirements of "Earthwork".
B. Disturbed areas shall be graded in accordance with the Plans and shall be accepted by the Owner.
C. The top 2 inches of the general earthfill surface shall be disked, raked, or otherwise loosened prior to hydroseeding. The prepared surface shall be watered to provide a wet but not saturated surface within 4 hours prior to hydroseeding. Seed shall not be applied to hot, dry surfaces.

3.2 SLOPE HYDROMULCHING
A. Slopes greater that or equal to 5:1 (horizontal to vertical) and as indicated on the Construction Plans shall be hydromulched using a 2-step application process. The second application shall be placed over the first application within 4 hours.
B. Hydromulching equipment shall be equipped with a gear driven pump and paddle agitator. Agitation by recirculation of the pump will not be allowed.
C. Agitation shall be sufficient to produce a homogeneous slurry of tacking agent, mulch, plant seed, fertilizer, and water that can be applied.
D. No seed shall be added to the slurry mix until immediately prior to the beginning of the hydromulching application.
E. The time allowed between the placement of the seed in the hydroseeding tank and emptying of the hydromulching tank shall not exceed 30 minutes.
F. Hydroseeding shall be performed to provide a uniformly covered surface based on visual observation. The hydromulched surface shall be free of bare spots and thin areas.0
G. Hydromulching equipment shall not drive on slopes. Slopes shall be hydromulched from the top and bottom of slopes or by applying the hydromulch with a hose attached to the hydromulching equipment.
H. If hydromulching is performed between April 15 and October 1, irrigation shall be provided such that vegetation will be established without erosion or scouring of the finished surface. Hydromulching applied after October 1 shall be kept moist until onset of rains.
I. Hydromulching equipment shall travel on designated areas on the final cover of the landfill surface. Hydromulching equipment shall minimize access paths on the final cover and shall not cause tire ruts in the final cover.
J. Weather Requirements: Hydromulching shall not occur during unfavorable weather conditions, such as high winds, high temperatures, heavy rains or other conditions not conductive to seed placement or germination. When Work is interrupted by weather conditions, hydramulching shall not resume until approved by the Owner.

3.4 SILT FENCE
A. Silt fence shall be installed as indicated in the Stormwater Pollution Prevention Plan prepared by the Owner.

3.5 PROTECTION
A. The finished revegetation shall not be disturbed by traffic or other operations and shall be maintained by the Contractor in a satisfactory condition. Areas of finished revegetation which are subsequently disturbed by the Contractor shall be repaired by the Contractor at no expense to Owner.
B. Ruts or other depressions formed in areas which have been finish graded as a result of the hydroseeding operation shall be repaired by the Contractor as they occur, and any repair areas shall be re-hydroseeded at no additional cost to the Owner.
C. Damage that occurs to areas which have been finish graded during or after the revegetation activity shall be reconditioned in accordance with Section "Earthwork ".
D. Contractor shall protect revegetation and erosion control Work until the completion of Work at no additional cost to the Owner. Any area where vegetation is thin or bare, erosion has occurred, silt fences fail, tear, or tip over due to silt load, or other erosion control measures fail shall be repaired by the Contractor for a period of 1 year after completion of the Work at no additional cost to the Owner.

3.6 REMOVAL
A. All unsatisfactory revegetation materials shall be disposed of by the Contractor off-site at no additional cost to the Owner.

3.7 EROSION AND SEDIMENT CONTROL
A. If weather conditions require the Contractor to suspend work activities during any part of the Work for 1 week or longer, the Contractor shall implement erosion and sedimentation control measures to close and protect the Work area during the Contractors absence. Implementation of such activities will be at the direction of the Owner and not at the Contractors discretion.
B. Erosion and siltation control measures shall be in accordance with the Stormwater Pollution Prevention Plan prepared by the Owner.
C. Contractor shall provide erosion and sedimentation control measures during all portions of the Work as required by the Stormwater Pollution Prevention Plan prepared by the Owner.

3.8 CONSTRUCTION QUALITY CONTROL
A. Revegetation and installation of erosion control measure will be observed by the QCIP Inspector for conformance with this Specification, requirements of the CQIP Plan, and good workmanship. All Work is subject to approval by the Owner.
B. Contractor shall provide verbal notice to the QCIP Inspector a minimum of 48 hours before Work is ready for observation. The time required to test the material or inspect an area after the notice is given and any additional time required for retesting areas that did not meet the specification requirements shall not be cause for a delay claim or a time extension request by the Contractor.

PART FOUR – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT
A. Revegetation: The unit of measurement for revegetation shall be the square foot (plan view). The Contractor shall be responsible for measurement of the area of revegetated slopes. Requests for payment shall include the summary of quantities, field notes or a printout from the field data collector, map showing location of placement, method used to compute the volume, and any office calculations performed.
B. Silt Fence: The unit of measurement for silt fence shall be the lineal foot (plan view). The Contractor shall be responsible for measurement of the length of silt fence installed. Requests for payment shall include the summary of quantities, field notes or a printout from the field data collector, map showing location of placement, method used to compute the volume, and any office calculations performed.
C. Measurement may not be required as determined by Owner.

4.2 PAYMENT
A. Revegetation – Slopes: Payment for revegetation of slopes will be at the unit price per square foot, based upon measured quantities of approved placement. Payment shall be full compensation for mobilization, procuring, preparing, mixing, hydromulching, protecting, dust control, erosion control, health and safety, and all other costs in connection therewith.
B. Silt Fence: Payment for silt fence will be at the unit price per lineal foot in the Proposal, based upon measured quantities of approved placement. Payment shall be full compensation for procuring, installing, protecting, dust control, erosion control, health and safety, and all other costs in connection therewith.
C. Payment may be by Lumpsum or other determined by Owner.

CARLTON Engineering Inc

E.I.D. TUNNEL SPOILS HANDLING AREA
RESTORATION PLAN

SPECIFICATIONS

Project Location:
EID Project 184
Sec 35, T 11 N, R 14 E
Alder Creek, El Dorado County

Ownership Information:
El Dorado Irrigation District
2890 Mosquito Road
Placerville, CA 95667

DD 5/01/2002
DPG N/A
2001-285 N/A

RP6

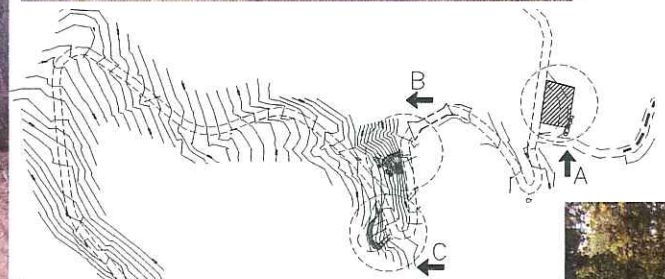
AS-BUILT 5722

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALE FOR REDUCED PLOTS.
0 1"

1 inch = 20 ft.

B

C



A

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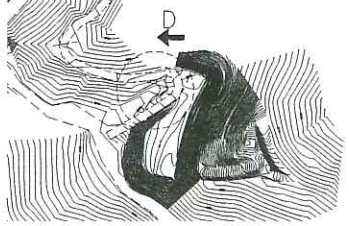

CARLTON Engineering Inc

Revisions

NUM	DESCRIPTION	DATE	BY
1	FOR CONSTRUCTION	9/7/18	DD
2	CANAL SECTION, ROADS	10/7/18	DD

E.I.D. TUNNEL SPOILS HANDLING AREA
RESTORATION PLAN

PHOTO EXHIBIT

Project Location:
EID Project 184
Sec 35, T 11 N, R 14 E
Alder Creek, El Dorado County

Ownership Information:
El Dorado Irrigation District
2890 Mosquito Road
Placerville, CA 95667

DESIGNED DBJ	DATE 5/01/2001
DRAWN DPG	HORZ. SCALE NTS
JOB No. 2001-285	VERT. SCALE NTS
SHEET	

RP7

AS-BUILT 5722

Appendix B

El Dorado Irrigation District

ORIGINAL

In Reply Refer to: M0803-146

August 25, 2003

FILED
OFFICE OF THE SECRETARY
03 AUG 26 AM 9:58
FEDERAL ENERGY
REGULATORY COMMISSION

093

Magalie R. Salas
Office of the Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington D.C. 20426

Subject: El Dorado Irrigation District (District), FERC Project No. 184
Mill Creek to Bull Creek Tunnel
Request for Expedited Approval of Alder Spoils Site Restoration Plan

Dear Ms. Salas:

In accordance with the Commission's Order Modifying and Approving the Geology and Soils Plan Pursuant to Article 68 (issued June 6, 2001), the El Dorado Irrigation District (District) hereby submits an original and eight copies of the restoration plan for the Alder Creek Spoils Site. The Commission's approval of the plan is requested on an expedited basis to enable the District to complete site restoration work prior to the onset of the upcoming winter season.

The magnitude of the Alder site restoration work is greatly reduced over the original plans due to the change in disposition of the Mill Creek to Bull Creek Tunnel spoils. The original plan was to stockpile all tunnel spoils (estimated at roughly 35,000 cubic yards) at the Alder spoils site. With the project changes approved by the U. S. Forest Service and Regional Water Quality Control Board and submitted to FERC over the 2001-2002 period, all tunnel boring machine spoils were transferred to three off-site locations for reuse on USFS road surfacing projects. The Alder Spoils Site Restoration Plan is now essentially a minimal action, with Alder site restoration work limited to restoring the much smaller area used as a transfer station for loading trucks to haul the spoils to the off-site spoils stockpile locations (i.e., Sand Flat, Webber Mill, and Plum Creek spoils stockpile sites).

From the above, the Alder Spoils Site Restoration Plan no longer addresses the approximately 35,000 cubic yards of tunnel spoils that were generated by tunnel construction and transported off-site. As shown on the attached plans, restoration is now limited to re-contouring approximately 1,300 cubic yards of pre-existing earthen and El

Dorado Tunnel spoils material that was used to establish a transfer station for off-site hauling of the Mill Creek to Bull Creek Tunnel spoils. A supplemental engineering report on the site, which was reviewed by the USFS, has been attached to the plans. The USFS review concurs with Carlton Engineering, Inc.'s assessment regarding the geologic stability of the site.

For your information and reference, the following correspondence with the USFS, Regional Water Quality Control Board (RWQCB), and Federal Energy Regulatory Commission (FERC) summarizes the approved changes in the project design and is appended as Attachment 1:

- February 12, 2001 letter from Mr. William Wilkins of the District to Mr. Bill Croyle of the RWQCB regarding USFS decision to relocate Mill Creek to Bull Creek Tunnel spoils to three off-site locations for reuse on USFS road projects;
- August 29, 2001 letter from Mr. George Lockwood of the RWQCB to Mr. William Wilkins of the District and Mr. John Berry of the USFS regarding a RWQCB determination that the Waste Discharge Requirements do not need to be modified for stockpiling the tunnel spoils at the three off-site locations;
- October 29, 2001 letter from Ms. Kathryn Hardy of the USFS to Mr. George Lockwood of the RWQCB regarding a change in one of the three off-site tunnel spoils stockpile sites;
- January 29, 2002 letter from Mr. William Perley to FERC's Office of the Secretary regarding factors (including the change in tunnel spoils stockpile sites) that were contributing to delays in submitting the District's Alder Spoils Site Restoration Plan and Groundwater Monitoring Plan; and
- May 19, 2003 letter from Ms. Kathryn Hardy to Ms. Ane D. Deister approving the Alder Spoils Site Restoration Plan.

In addition to the above, agency consultations and other approvals related to stockpiling the tunnel spoils at the three off-site locations are described in the District's monthly construction progress reports to FERC.

The District's tunnel construction contractor (Traylor Brothers, Inc.) vacated the Alder construction site and spoils transfer area in July 2003. The District has since been performing site abandonment and clean-up work. The District is now working to implement the USFS approved restoration plan in the next several weeks in advance of the upcoming rainy season. The District estimates that the work will likely commence in mid-September and be completed prior to October 15, 2003.

The District respectfully requests the Commission's expedited review of the enclosed Alder Spoils Site Restoration Plan as soon as possible so that construction activities can be completed, erosion control measures can be in-place, and the site can be revegetated prior to the onset of the rainy season. To facilitate your review, the District is available for teleconferences or on-site inspections at your staff's convenience.

If the Commission has questions regarding the restoration plan, please contact the District's engineering consultant, Mr. Dana Dean, at (530) 677-5515, or the District's Project Engineer, Mr. Dan Downey, at (530) 642-4176.

Sincerely,

EL DORADO IRRIGATION DISTRICT

Ane D. Deister
General Manager

ADD/DD/RL:map

Enclosures: 9 sets of Plans and Attachment 1

c: James Goris, Tom Papsidero, Federal Energy Regulatory Commission
888 First Street, N.E., Washington, DC 20426
Jon Morgan, Director, El Dorado County Environmental Management Department
2850 Fairlane Ct. Bldg. C, Placerville, CA 95667
John Berry, Kathryn Hardy, U.S. Forrest Service, 100 Forni Rd,
Placerville, CA 95667
Bill Croyle, Scott Kranhold, Regional Water Quality Control Board
3443 Routier Road, Suite A, Rancho Cordova, CA 95670
Dave Rogers, Tom Erdman, MWH Global, 1340 Treat Blvd., Suite 300, Walnut Creek, CA 94597-7966
Dave Jermstad, Dana Dean, Carlton Engineering, Inc., 3932 Ponderosa Road,
Suite 200, Shingle Springs, CA 95682
Rick Lind, EN2 Resources, Inc., P.O. Box 2260, Placerville, CA 95667
David Powell, Mark Korkowski, Dan Downey, El Dorado Irrigation District

ATTACHMENT 1

El Dorado Irrigation District

In Reply Refer To: M0201-032

February 12, 2001

Mr. Bill Croyle, P.E.
California Regional Water Quality Control Board
3443 Routier Road, Suite A
Sacramento, CA 95827-3098

Subject: El Dorado Canal Mill Creek to Bull Creek Tunnel
Waste Discharge Requirements
FERC Project 184
Project No. 99004H

Dear Mr. Croyle:

Waste Discharge Requirements Order No. 5-00-215 for the El Dorado Canal, Mill Creek to Bull Creek Tunnel (WDRs), describe: placement of tunnel spoils to be generated during the project on an existing spoils pile; discharge of groundwater encountered during tunneling to Mill Creek; and containment and re-circulation of tunnel boring machine process water. Since adoption of the WDRs in September, revisions in District construction plans, and agreements with the US Forest Service include a change in the disposition of the tunnel spoils and in construction dewatering processes.

The Forest Service has determined that the tunel spoils are to be considered a commodity, and that the spoils will be transported off the District's project site (using the existing stockpile as a transfer point) to three stockpile locations on Forest Service land, from which the spoils will be distributed for use in Forest Service road surfacing projects.

Tunnel water is to be discharged to the District's Canal and downstream treatment and distribution system, and will not be discharged to any "waters of the State".

We appreciate your past consideration of the project's timing and permitting processes, and now request that the requirements contained in Order No. 5-00-215 be put on hold pending finalization of the current plans. Please feel free to call with any questions.

Sincerely,

William L. Wilkins
General Manager

DR:dlm

2890 Mosquito Road, Placerville, California 95667 • (530) 622-4513

c: Ms. Kathy Hardy, U.S. Forest Service, District Ranger, Placerville Ranger District
4260 Eight Mile Road, Camino, CA 95709
Mr. Kenneth W. Pence, U.S. Forest Service, Civil Engineering Technician
Eldorado National Forest, 100 Forni Road, Placerville, CA 95667
Mr. David Rogers, P.E., C.E.G., Program Manager , Harza Engineering Company
c/o El Dorado Irrigation District, 2890 Mosquito Road, Placerville, CA 95667
Mr. David Powell, P.E., El Dorado Irrigation District
2890 Mosquito Road, Placerville, CA 95667
Mr. James Goris, Regional Director, Federal Energy Regulatory Commission
901 Market Street, Room 350, San Francisco, CA 94102
Mr. Russ Kanz, State Water Resources Control Board
P.O. Box 2000, Sacramento, CA 95812-2000
State Water Resources Control Board, Division of Water Quality,
Attn: Storm Water Permit Unit, P.O. Box 1977, Sacramento CA 95812-1977
Mr. R. Kyle Ericson. P.E., CA Regional Water Quality Control Board
3443 Routier Road, Suite A, Sacramento, CA 95827-3098
Mr. Leo Sarmiento, CA Regional Water Quality Control Board
3443 Routier Road, Suite A, Sacramento, CA 95827-3098
Mr. Dannas J. Berchtold, CA Regional Water Quality Control Board
3443 Routier Road, Suite A, Sacramento, CA 95827-3098
Mr. Stafford Lehr, California Department of Fish and Game
1701 Nimbus Road, Suite A, Rancho Cordova, CA 95670
Mr. William C. "Sam" Neasham, Neasham & Kramer LLP., Attorneys at Law
11201 Gold Express Drive, Suite 202, Gold River, CA 95670

California Regional Water Quality Control Board
Central Valley Region
Robert Schneider, Chair

Winston H. Hickox
Secretary for
Environmental
Protection

Sacramento Main Office
Internet Address: http://www.swrcb.ca.gov/rwqcb5
3443 Routier Road, Suite A, Sacramento, California 95827-3003
Phone (916) 255-3000 • FAX (916) 255-3015

Gray Davis
Governor

29 August 2001

RECEIVED
AUG 31 2001

William Wilkins
El Dorado Irrigation District
2890 Mosquito Road
Placerville, CA 95667

John Berry
Eldorado National Forest
100 Forni Road
Placerville, CA 95667

EL DORADO CANAL, MILL CREEK TO BULL CREEK TUNNEL, EL DORADO IRRIGATION DISTRICT, U.S. FOREST SERVICE, ELDORADO NATIONAL FOREST, EL DORADO COUNTY

On 3 August 2001, an inspection of the El Dorado Canal, Mill to Bull Creek Tunnel temporary/permanent solid waste disposal sites was completed. Enclosed for your information is a copy of the report dated 3 August 2001, covering our recent inspection.

We believe that these sites can be properly regulated to control fines migration with storm water runoff Best Management Practices (BMPs) required under the storm water program. We feel that it is not necessary to modify the existing Waste Discharge Requirements Order No. 5-00-215 for the El Dorado Canal, Mill Creek to Bull Creek Tunnel as adopted by the California Regional Water Quality Control Board, Central Valley Region, at its 15 September 2000 meeting.

We request that either El Dorado Irrigation District or Eldorado National Forest ensure that the three sites, Sand Flat, Kyburz Dump, and Weber Mill Road, are enrolled into the storm water program and employ storm water BMPs.

If you have any questions, please call me at (916) 255-3054 or E-mail <lockwog@rb5s.swrcb.ca.gov>.

GEORGE W. LOCKWOOD
Waste Discharge to Land Unit
Lower Sacramento River Watershed

Enclosure

cc: Jon Morgan, El Dorado County Environmental Management Department, Placerville

United States Department of Agriculture | Forest Service | Eldorado National Forest | Placerville Ranger District
4260 Eight Mile Road
Camino, CA 95709
(530) 647-5300

File Code: 2770

Date: October 29, 2001

George W. Lockwood
California Regional Water Quality Control Board
Central Valley Region
3443 Routier Road, Suite A
Sacramento, CA 95827-3003

Dear Mr. Lockwood:

I am writing to update you on the status of the storage sites for the tunnel muck related to Project 184 Amendment. Since you visited the sites, we have been notified by the Placer County Department of Health and Human Services, acting as the Local Enforcement Agency for El Dorado County, that we cannot continue to use the old Kyburz landfill site without completing a postclosure land use plan. Based upon concerns for the issues associated with continued use of the Kyburz site, we selected another stockpile location.

The new site is a very large old quarry site, located on SPI lands along the Plum Creek Road, in township 11 N, range 13 east, section 36. The site is located near the center of the section, just south of road 10N40.2 (Plum Creek Road). A map of the location is attached. Carlton Engineering is preparing a Storm Water Pollution Prevention Plan for all three storage sites.

If you have any questions, or would like to visit the new site, please contact George Elliott at (530) 621-5216 or Ken Pence at (530) 621-5244.

Sincerely,

KATHRYN D. HARDY
District Ranger

Enclosure

El Dorado Irrigation District

In reply refer to: H0102-049

January 29, 2002

Office of the Secretary
Federal Energy Regulatory Commission
888 First Street NE
Washington, DC 20426

Subject: Mill-Bull Tunnel FERC Project No. 184
Restoration Plan and Ground Water Management Plan

Dear Secretary,

The FERC Permit issued June 6, 2001 specifies on Page 7 – Director Orders - **Item "B"** a spoils site **Restoration Plan** be submitted for Commission approval 90 days prior to completion of the tunnel work or within 6 months of the date of this order which ever is earlier. Since the Order is dated June 6, 2001, the submittal deadline of December 5, 2001 is earlier and therefore takes precedence.

Likewise, the FERC Permit issued June 6; 2001specifies on Page 7 – Director Orders - **Item "C"** a revised **Groundwater Monitoring Plan** be submitted for Commission approval under the same guidelines as the Restoration Plan.

We hereby request extension of the project completion date from December 1, 2001 to October 1, 2002 for the following reasons:

1. On September 15, 2000 the District was issued Waste Discharge Requirement (WDR) No. 5-00-215 for the El Dorado Canal, Mill Creek to Bull Creek Tunnel. This original permit required closure of the spoils storage area by December 1, 2001.

2. Despite our best efforts, several factors delayed the Mill-Bull Tunnel Notice to Proceed (NTP), including the initial mobilization and set-up phase which took several months due to the following conditions:
   - A severe water shortage situation required construction of a temporary bypass water system to meet water supply demands. The Contractor's temporary consumptive water supply system required design by a registered professional engineer and took several weeks to install, test, balance and run.
   - Site preparation including SWPPP installation took longer than the Contractor anticipated.
   - Off-site spoils stockpile sites were changed by the USFS.
   - Problems transporting the TBM over the SAD Bridge were encountered.

2890 Mosquito Road, Placerville, California 95667 • (530) 622-4513

- Approval of a water treatment plant system took extra time.

Requests have been submitted to the California Water Quality Control Board for a completion date of October 1, 2002 and we hear they have no problem approving it. Also, the USFS has issued an extension to February 28, 2003.

This request for extension to October 1, 2002 for the Mill-Bull Tunnel FERC Project 184 completion date is in response to a request from Ms. Diane Murray of FERC.

Please contact us if you have questions.

Sincerely,

William Perley
Program Manager

WP/tge

cc: Gerald Lutticken, FERC, S.F.
Philip Scordelis, FERC, S.F.
Ken Pence, USFS
Dave Rogers, P.E., C.E.G., and MWH Vice President
Rick Lind, EN2 Resources, Environmental Compliance Manager
Dave Power, Facilities Management Director
Scott Shewbridge, Senior Engineer

United States Department of Agriculture
Forest Service
Eldorado National Forest
Placerville Ranger District
4260 8 Mile Road
Camino, CA 95709
(530) 644-2324
(530) 647-5314 (TTY)

File Code: 2770

Date: May 19, 2003

Ane Deister
General Manager
El Dorado Irrigation District
2890 Mosquito Road
Placerville, CA 95667

Dear Ms Deister:

Pursuant to 4(e) condition #15, for the Mill Creek to Bull Creek Tunnel Amendment of License for the El Dorado Hydroelectric Project, FERC No. 184, I approve the plan for restoration of the Alder Creek tunnel spoils handling area as described in the Carlton Engineering preliminary plans dated 5/01/2002. The plans include the minor changes to the SWPPP BMPs that were submitted to MWH on May 2, 2002. The test pits for the foundation were excavated last year, and the slope stability analysis completed by Carlton Engineering had similar results to those that were submitted to you by Forest Geologist, Tom Koler, in a report entitled "Geologic Review: Slope Stability of the El Dorado Irrigation District Mill Creek to Bull Creek Tunnel" (Scott Gerwe, Forest Service geologist, 6/28/02).

Sincerely,

Kathryn D. Hardy

KATHRYN D. HARDY
District Ranger

CC: Mark Korkowski, EID
Rick Lind, EN2 Resources, Inc.
Beth Paulson, ENF

USDA Forest Service
Eldorado National Forest

Geological Review

Slope Stability
of the
El Dorado Irrigation District Mill Creek to Bull Creek Tunnel

Prepared By: _____ **Date:** June 26 2003

Scott Gerwe
Geologist

Prepared and Submitted By: _____ **Date:** June 26 2003

REGISTERED GEOLOGIST
THOMAS E. KOLER
No. 7041
STATE OF CALIFORNIA

Thomas E. Koler
Forest Geologist

Purpose and Scope

Purpose of this report was to provide a slope stability review of the El Dorado Irrigation District (EID) Mill Creek to Bull Creek Tunnel spoils site (see Figure 1 for location). Part of this review included soil and rock slope stability analyses. Scope of this work is site-specific and the site is less than 2-acres in size (Carlton and Jernstad, 1997).

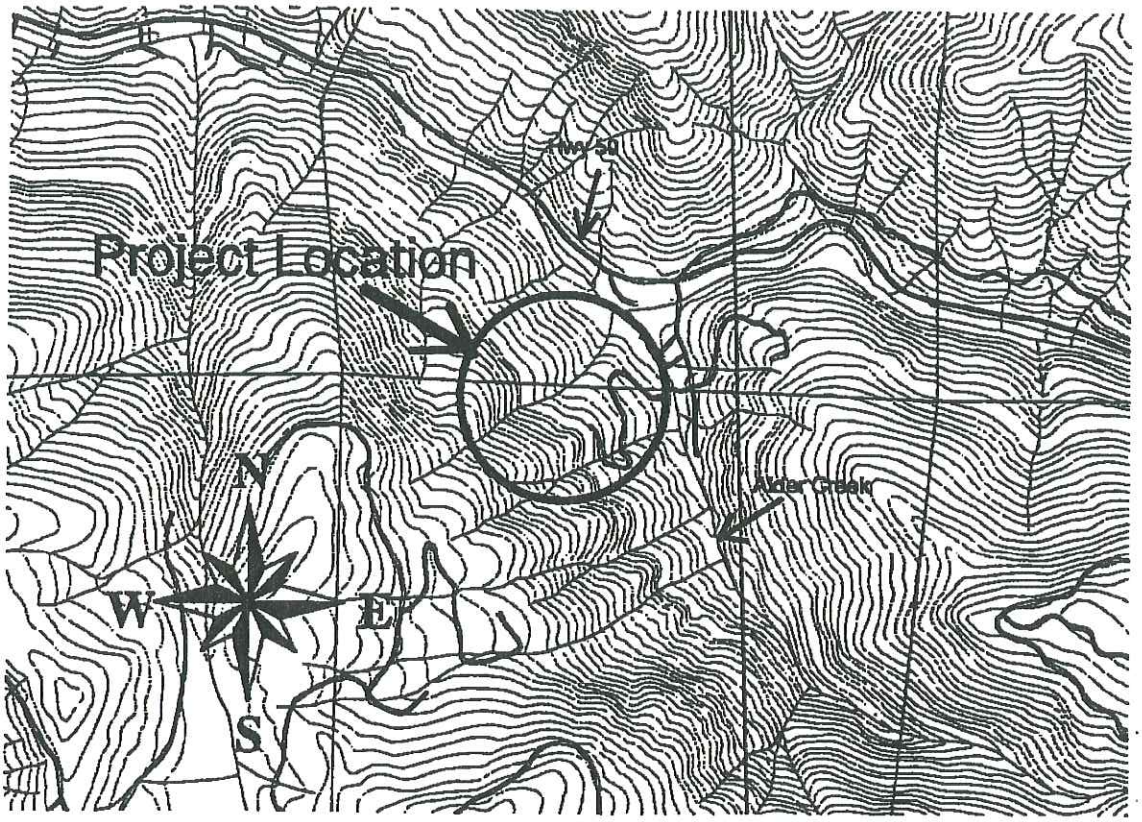

Figure 1: Project location. Site is located within the southeastern quarter of the circle (NE ¼ of the NW ¼ of Section 35; T 11 N, R 14 E, Mount Diablo Meridian). Scale is approximately 2 inches = 1 mile.

Background

Ken Pence, Eldorado NF (ENF) Engineering Technician, and Cheryl Mulder, ENF Hydrologist, requested in April of this year that we provide a review and slope stability analysis of the EID spoils site for the Mill Creek to Bull Creek Tunnel. Previous slope stability work was completed by Carlton and Jernstad (1997) using the Infinite Slope Equation, and Wright and Gamble (1984) who provided a qualitative assessment based on field observations.

Methods

The following steps were applied in our review and slope stability analysis as described in USDA Forest Service Slope Stability Guide (Hall et al., 1994).

1. Office review of available reports, maps, and logs.
2. Field measurements on the site including a field-developed cross-section portraying subsurface geometry of rock, soil and groundwater units.
3. Classification of soil and rock using the Unified Soil and Rock Classification Systems (ASTM, 1987; Williamson, 1984).
4. Reduction of field data for slope stability analyses.
5. Back-calculation of soil parameters.
6. Limit equilibrium analyses using modified Bishop and Janbu Methods of Slices (Sharma, 1992).
7. Kinematic π-S analysis for potential rock failure (Hoek and Bray, 1981).
8. Documentation of findings.

Geological Setting

Previous work documented in the Harza Construction Plan and Document Summary (2001) provides a thorough description of the geological setting. To summarize, the underlying bedrock is composed of massive intrusive igneous rock with an overall petrologic composition that is or approximates quartz granodiorite or granodiorite. This massive rock has few discontinuities and has high uniaxial compressive strength values. Overlying the bedrock are colluvial soil units that are dominated by a clayey SAND (SC, Unified Soil Classification) with minor units of poorly-graded gravelly SAND (SP), silty SAND with gravel (SM), and sandy GRAVEL with fines (GM). Previous workers have identified areas of recent landslide activity that they interpret as the re-activation of a larger deep-seated landslide. Although these workers do not provide an activity level to this older landslide it is probably a dormant-young landslide (100 to 5,000 years old) based on our cursory observations and following protocol by Keaton and DeGraff (1996).

Findings

In our review we noted that it appeared that two slope stability analyses were not completed. The first was a limit equilibrium analysis of soil slope stability under unsaturated and saturated conditions. This in itself was not problematic because the analysis results completed by Carlton and Jermstad included both static and dynamic loads. However, our curiosity was peaked to see what would happen if a kinematic groundwater wave was included in the analysis under an unsteady state (i.e., time-series analysis). The second piece of missing information was a rock slope stability analysis of the discontinuities exposed topographically. This was also not a major concern because the focus of the reports on rock stability was placed where it should be: within construction conditions of the tunnel. Therefore our analyses were simply used to fill in the "small holes" in the overall picture of the soil and rock slope stability.

Previous work documented in the Hazra Construction Plan and Document Summary (2001) provided us with a wealth of useful information. Contained within this document were the slope stability studies completed by Carlton Engineering (Carlton and Jermstad, 1997) and Wright and Gamble (1984). We used these data in combination with our field inventory to complete the two analyses that were missing from this previous work.

For the soil slope stability analysis we used deterministic back calculations using the soil data in these reports as well as soil data contained in the Slope Stability Guide (Hall et al., 1994) following examples by Koler (1998). From this analysis we built a range of values for the internal angle of friction ranging from 30° to 42°, cohesion ranging from 0 psf to 80 psf, dry soil

unit weight ranging from 80 pcf to 95 pcf, moist soil unit weight ranging from 82 pcf to 110 pcf, and saturated soil unit weight ranging from 112 pcf to 125 pcf. The 132 pcf unit weight used by Carlton and Jermstad is a bit on the high side for the SC colluvial soil they had classified but certainly within limits of dense sands and gravels from the tunnel spoils (e.g., D_r = 65% +, see the modified NAVFAC DM-7 (US Department of the Navy, 1981) chart for D_r, γ, and ϕ by Hammond et al., 1992). We simulated the kinematic groundwater wave within unsteady state conditions by several iterations of the modified Bishop and Janbu Methods of Slices. Results showed that even under very unusual conditions of nearly complete saturation the factor of safety (FOS) never fell below 1.10[1]. Under more common conditions of unsteady state the FOS ranged from 1.5 to over 2.0. Carlton and Jermstad had similar findings for their range of FOS under static and dynamic loads.

For the rock slope stability analysis we used the available structural measurements collected by previous workers. This data set has 65 measurements that show a general structural "fabric" of bedrock discontinuities dipping into the hillslope (see Figure 2). Although there is a wedge-shaped geometric relationship the fact that the intersection trace dips into the slope indicates a stable hillslope.

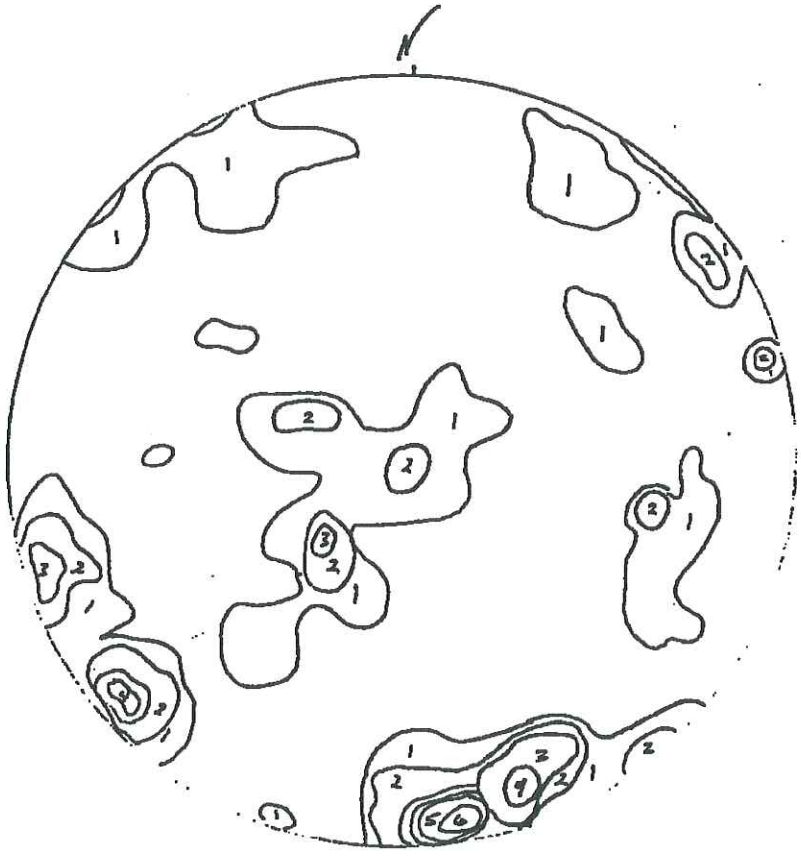

Figure 2: Rock slope stability analysis using a kinematic approach plotted on an equal area stereonet.

[1] A FOS of 1.0 equates to equilibrium of driving and resisting forces acting on the hillslope. Above 1.0 the hillslope is "stable" whereas below 1.0 the hillslope is "unstable."

Conclusions

We are in agreement with the slope stability work completed by previous workers and documented in the Harza report for FERC Project 184. For the most part this work was comprehensive but lacked two small pieces of the overall slope stability – an unsteady state limit equilibrium analysis incorporating groundwater kinematic waves, and a topographical rock slope stability assessment using a kinematic approach. These two missing pieces of analysis did not detract from the findings of the previous workers. In conclusion, the current hillslope conditions for the tunnel spoils area are stable and will remain so under the proposed future activities.

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MEGERDIGIAN
GUNTER
CORCORAN

FEDERAL ENERGY REGULATORY COMMISSION
Washington, D. C. 20426

ORIGINAL IN FILE

OFFICE OF ENERGY PROJECTS

Project No. 184-132—California
El Dorado Project
El Dorado Irrigation District

FEB 11 2008

RECEIVED
FEB 13 2008
ADMINISTRATIVE SERVICES

Ms. Cheri Jaggers
El Dorado Irrigation District
2890 Mosquito Road
Placerville, CA 95667

RE: Alder Creek Spoils Plan pursuant to Appendix A Condition 63.

Dear Ms. Jaggers:

This is in reference to the material you filed on September 11, 2007, to comply with the U.S. Forest Services' (FS) Condition 63 contained in Appendix A of the Order Issuing New License for the El Dorado Project. Condition 63 requires you to file a plan for restoration of the Alder Creek spoils disposal site that is approved by the FS.

Your September 11 filing includes the Alder Creek spoils disposal site restoration report and a letter from the FS dated September 7, 2007, documenting their approval of the plan. The filed material satisfies the requirements of Condition 63. If you have any questions concerning this matter, please call me at (202) 502-6012.

Sincerely,

Rebecca M Martin

Rebecca M. Martin
Environmental Biologist
Division of Hydropower
Administration and Compliance

USDA United States Department of Agriculture | Forest Service | Eldorado National Forest | 100 Forni Road
Placerville, CA 95667
(530) 622-5061 (Voice)
(530) 642-5122 (TTY)

File Code: 2770
Date: September 7, 2007

Ms. Cheri Jaggers
Project 184 Coordinator
El Dorado Irrigation District
2890 Mosquito Road
Placerville, CA 95667

SUBJECT: Approval of Alder Creek Spoils Restoration Plan El Dorado Hydroelectric Project, FERC No. 184

Dear Ms. Jaggers:

The Forest Service has reviewed the Project 184 Alder Creek Spoils Restoration Plan for the El Dorado Hydroelectric Project, FERC No. 184. The plan has been developed to address a portion of Section 4(e) Condition No. 63, Alder Creek Spoils Disposal Site, of the El Dorado Hydroelectric Project license, issued October 18, 2006. The plan may be considered approved by the Forest Service. If you have questions, please call Beth Paulson at 530-642-5174.

Sincerely,

RAMIRO VILLALVAZO
Forest Supervisor

cc: Beth Paulson, SO, District Ranger, Placerville, Cindy Oswald, Placerville, Ron Hancock, Placerville