

Notice of Determination

Appendix D

To:

Office of Planning and Research
 U.S. Mail: Street Address:
 P.O. Box 3044 1400 Tenth St., Rm 113
 Sacramento, CA 95812-3044 Sacramento, CA 95814

County Clerk
 County of: Placer
 Address: 2954 Richardson Drive, Auburn CA 95603

From:

Public Agency: Northstar Community Service District
 Address: 900 Northstar Drive, Northstar CA 96161

Contact: Eric Martin, PE
 Phone: (530) 550-6133

Lead Agency (if different from above):
 Same
 Address: _____

Contact: _____
 Phone: _____

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

FILED

State Clearinghouse Number (if submitted to State Clearinghouse): 2018022005

Project Title: Martis Wildlife Area Restoration Project

MAR 22 2018

Project Applicant: Northstar Community Services District

Ryan Ronco
 COUNTY CLERK OF PLACER COUNTY
 BY: [Signature]
 Deputy Clerk

Project Location (include county): Martis Valley, Placer County, CA

Project Description:

The Martis Wildlife Area Restoration Project (Project) consists of stream and habitat restoration on Martis Creek and tributaries to the creek. The project would improve the ecological function of the Martis Creek system, increase the floodplain area, restore riparian bed and aquatic habitat, and reduce excess sedimentation in Martis Creek. Restoration work would involve grading, introducing check dams, replacing failed culverts with a pedestrian bridge, and restoring native plant communities. The project is approximately three miles south of the Town of Truckee within the U.S. Army Corps of Engineers Martis Creek Lake and Dam Project.

This is to advise that the Northstar Community Services District has approved the above
 Lead Agency or Responsible Agency

described project on March 21, 2018 and has made the following determinations regarding the above
 (date)
 described project.

1. The project [will will not] have a significant effect on the environment.
2. An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
 A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [were were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [was was not] adopted for this project.
5. A statement of Overriding Considerations [was was not] adopted for this project.
6. Findings [were were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at:

<http://www.northstarcsd.org/>

Signature (Public Agency): [Signature] Title: Board President

Date: 3-21-18 Date Received for filing at OPR: _____

Authority cited: Sections 21083, Public Resources Code.
 Reference Section 21000-21174, Public Resources Code.

#18-081

POSTED 03/22/2018
 Through 05/03/2018
 RYAN RONCO, COUNTY CLERK
 By [Signature]
 Deputy Clerk

Truckee River Watershed Council Martis Wildlife Area Restoration Project

- Final -
Initial Study/ Mitigated Negative Declaration

March 2018

SCH# 2018022005



Project Sponsor
Truckee River Watershed Council
P.O. Box 8568
Truckee, CA 96162



CEQA Lead Agency
Northstar Community Services District
900 Northstar Drive
Northstar, CA 96161

Martis Wildlife Area Restoration Project

Final
Initial Study/ Mitigated Negative Declaration



Truckee River Watershed Council
P.O. Box 8568
Truckee, CA 96162

Prepared by



Sierra Ecosystem
Associates

Sierra Ecosystem Associates
P. O. Box 2260
Placerville, CA 95667; and
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South Lake Tahoe, CA 96150

March 2018

SCH# 2018022005

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1.0 INTRODUCTION

The Truckee River Watershed Council (TRWC) prepared an Initial Study/Proposed Mitigated Negative Declaration (IS/Proposed MND) in compliance with the California Environmental Quality Act (CEQA) to address the environmental consequences of the proposed Martis Wildlife Area Restoration Project (Project), which consists of stream and habitat restoration on Martis Creek and tributaries to the creek. The project is located in Martis Valley, California, approximately three miles south of the Town of Truckee within the U.S. Army Corps of Engineers Martis Creek Lake and Dam Project.

The Public Review Draft IS/Proposed MND was circulated for public and agency review from February 2, 2018 to March 5, 2018 (32 days). NCSD received one comment letter on the Public Review Draft IS/Proposed MND during the public comment period. This Final IS/MND includes this comment letter and NCSD's response. This document and the Public Review Draft IS/Proposed MND together constitute the Final IS/MND for the Project.

2.0 COMMENT AND RESPONSE TO COMMENT ON THE PUBLIC REVIEW DRAFT IS/PROPOSED MND

NCSD received one letter on the Public Review Draft IS/Proposed MND during the public comment period. The letter was received from the Sacramento Office of the U.S. Fish and Wildlife Service on March 5, 2018. The letter and NCSD's response to the letter are included as follows.

2.1 Comment Letter from the Sacramento Office of the U.S. Fish and Wildlife Service



In Reply Refer to:
08ESMF00-
2018-TA-1346

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846



MAR 05 2018

Northstar Community Services District
Attn: Eric Martin, PE
Proposed Mitigated Negative Declaration
Martis Wildlife Area Restoration Project
900 Northstar Drive
Northstar, California 96161

Subject: Initial Study/Proposed Mitigated Negative Declaration for the Martis Wildlife Area Restoration Project

Dear Mr. Martin:

This letter is provided in response to the Initial Study/Proposed Mitigated Negative Declaration (IS/PMND) for the Martis Wildlife Area Restoration Project (proposed project). We received the IS/PMND on February 5, 2018, from Sierra Ecosystem Associates. The proposed project would reduce excess sedimentation in Martis Creek, increase the floodplain area, restore the riparian and aquatic habitat, and improve the ecological function of the Martis Creek system. This restoration project would likely result in improved habitat for many wildlife species. Although the project is expected to benefit the overall habitat, our review focused on the potential impacts to federally listed species. The two listed species that have potential to occur in the project area are the federally-threatened Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*, LCT) and the federally-endangered Sierra Nevada yellow-legged frog (*Rana sierrae*, SNYLF). No federally designated critical habitat occurs in the project area.

The California Department of Fish and Wildlife (CDFW) annually stocks Martis Creek Lake with LCT, but it is unclear if LCT occurs in Martis Creek. We recommend that surveys for LCT be conducted prior to groundbreaking to better assess the likelihood of LCT presence in Martis Creek. The results of the survey would assist the Lead Federal Agency and the Service in better assessing the potential effects to the species. The Lead Agency should coordinate with the Forest Service and CDFW to review any survey information they may have.

The SNYLF historically occurred within the project area. While the species was not detected during surveys conducted in 2009, it appears that Martis Creek and the surrounding area provides suitable habitat for the species. While the proposed project will improve general ecosystem conditions, the project could incorporate specific habitat features that would further improve SNYLF habitat. Even though SNYLF have not recently been detected in Martis Valley, improving the suitability of the habitat may allow the listed species to reoccupy the area in the future. The following recommendations would improve habitat suitability for the SNYLF (Sennett 2017):

1. Create off-channel aquatic habitat that fish cannot access during most years. The presence of non-native, predatory trout is a limiting factor for SNYLF populations, mainly due to

predation on tadpoles. However, non-native trout and SNYLF can co-exist if there is available aquatic breeding habitat that fish cannot regularly access. Examples of off-channel aquatic habitat may include a secondary channel, an oxbow lake, a pond, etc. as long as fish cannot access the aquatic feature.

- a. Aquatic breeding habitat must be perennial and should not freeze to the bottom during winter, as SNYLF tadpoles require multiple years before metamorphosing.
2. Provide basking sites along and within aquatic habitat. This can include partially submerged boulders or logs, shallow/warm aquatic areas with limited emergent vegetation, and unshaded stream banks.
3. Restored streams should provide habitat complexity: provide partially and fully submerged rocks of varying sizes, woody debris, and emergent vegetation. These habitat components provide cover habitat, promote basking, allow for predator avoidance, provide oviposition sites, and promote aquatic invertebrates (prey).
4. Vegetation along the stream bank is necessary to provide cover for SNYLF. However, thick, grassy vegetation completely surrounding aquatic habitat decreases basking opportunities and restricts frog movements. Willows and other riparian vegetation provides cover habitat and allows for terrestrial movements better than thick, grassy vegetation.
5. Restore fluvial processes that will maintain and create habitat into the future. Habitat created by restored fluvial and sediment depositional processes is of higher value than constructed habitat. If the stream system energy and sediment supply are reconnected throughout the floodplain space, then it will likely change over time and provide habitat patch complexity that benefits the SNYLF and other plant and wildlife species.

Thank you for the opportunity to comment on the IS/PMND for the Martis Wildlife Area Restoration Project. For more information on restoring streams and meadows for the benefit of the SNYLF, refer to Sennett's (2017) *Opportunities and Constraints of Sierra Nevada Meadow Restoration for the Mountain Yellow-legged Frog Species Complex*.

If you have any questions or would like to discuss modifications to the proposed project to improve SNYLF habitat suitability, please contact Ian Vogel, Fish and Wildlife Biologist, by email at ian_vogel@fws.gov or by phone at (916) 414-6444, or myself by email at richard_kuyper@fws.gov; by phone at (916) 414-6621; or at the letterhead address.

Sincerely,



Rick Kuyper
Chief, Sierra-Cascades Division

2.2 Response to Comment Letter from the Sacramento Office of the U.S. Fish and Wildlife Service

Thank you for your comment letter on the proposed project. The Initial Study (IS) prepared for the project recognizes Lahontan cutthroat trout (LCT) habitat in the project area and the potential for LCT to migrate into the project area from Martis Creek Lake given that California Department of Fish and Wildlife (CDFW) annually stocks the lake with LCT fingerlings. Overall, the long term impacts of project activities are expected to improve and increase conditions favorable to LCT, including increasing pools close to cover and velocity breaks, and improving vegetated stream banks. The IS includes Mitigation Measure BIO.4 (below for reference) to avoid any adverse impacts to LCT.

Mitigation Measure BIO.4) Machinery, fencing and construction of check dams or of log jams shall not prevent the movement of LCT throughout their range through the project area. Check dams and log jams shall not be constructed to a height and width that would prevent upstream or downstream travel. In addition, the following Best Management Practices shall be adhered to:

- The adopted construction schedule shall avoid scheduling instream work during the spawning or migration seasons of resident or migratory fish, including LCT. A qualified fisheries biologist shall be consulted to determine those period when instream work should be avoided due to fish migration and spawning. Typically LCT spawn between April and July (USFWS 2013). Surveys for fish and other aquatic organisms shall be conducted prior to dewatering and subsequently removed from the area to be dewatered in accordance with a CDFW approved dewatering plan
- The Restoration Design Plans shall identify measures that delineate and provide specifications for any water crossings to minimize heavy equipment entry into or crossing water as is practicable

Because the impact analysis assumes the potential for LCT to be present in the project area and includes measures to avoid adverse impacts to LCT, the project sponsor, Truckee River Watershed Council (TRWC), does not plan to conduct additional surveys for LCT within the project area. TRWC also notes that multiple field surveys conducted since 2009 by North Fork Associates and Dudek for the Martis Valley Regional Trail Project did not detect LCT in Martis Creek. TRWC will continue to coordinate with CDFW regarding appropriate protection for LCT as the permitting and environmental review for the project proceeds. In particular, adequate protection of LCT will be revisited as part of the CDFW Section 1602 permitting process.

The Initial Study also recognizes the presence of Sierra Nevada yellow-legged frog (SNYLF) habitat in the project area, though, as referenced in your letter, recent surveys have not detected the presence of the frog in Martis Valley, and, given the identified presence of predatory trout, SNYLF is unlikely to be present. We appreciate your recommendations and reference to development of restoration design features beneficial to the SNYLF. The proposed project will improve habitat suitability for SNYLF consistent with several of the recommendations cited in your letter. In particular the project will provide basking sites along and within aquatic habitat, increase habitat complexity along restored sections of stream, increase the presence of riparian

vegetation that may provide cover habitat, and restore fluvial processes that will maintain and create habitat into the future. The project does not include the creation of off-channel aquatic habitat that is inaccessible to SNYLF predatory fish; however, such features may occur over time with maturation of the restoration project. TRWC will consider the recommendations cited for improved SNYLF habitat for future restoration projects.

3.0 UPDATES TO THE PUBLIC REVIEW DRAFT IS/PROPOSED MND

There are no editorial additions, corrections, clarifications or other changes of any kind to the Public Review Draft IS/Proposed MND as a result of comments received during the public comment period. This document and the Public Review Draft IS/Proposed MND constitute the Final IS/MND for the project.

Truckee River Watershed Council Martis Wildlife Area Restoration Project

- Public Review Draft -
Initial Study/Proposed Mitigated Negative Declaration

February 1, 2018

SCH# _____



Project Sponsor
Truckee River Watershed Council
P.O. Box 8568
Truckee, CA 96162



CEQA Lead Agency
Northstar Community Services District
900 Northstar Drive
Northstar, CA 96161

Martis Wildlife Area Restoration Project

Public Review Draft

Initial Study/Proposed Mitigated Negative Declaration



Truckee River Watershed Council
P.O. Box 8568
Truckee, CA 96162

Prepared by



Sierra Ecosystem
Associates

Sierra Ecosystem Associates
P. O. Box 2260
Placerville, CA 95667; and
2311 Lake Tahoe Blvd. Suite 8
South Lake Tahoe, CA 96150

February 1, 2018

SCH# _____

**NOTICE OF PUBLIC REVIEW AND
NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION**

The Truckee River Watershed Council (TRWC) is proposing the **Martis Wildlife Area Restoration Project** (Project), which consists of stream and habitat restoration on Martis Creek and tributaries to the creek. Objectives for the proposed project include improving the ecological function of the Martis Creek system, increasing the floodplain area, restoring riparian bed and aquatic habitat, and reducing excess sedimentation in Martis Creek. Restoration work will involve grading creek banks to reduce streambank erosion and improve floodplain function, introducing bioengineered check dams to increase water surface elevations, replacing aging and failed culverts, and restoring native plant communities. The proposed restoration work would take place along Martis Creek and tributaries to Martis Creek in Martis Valley, California. The project is approximately three miles south of the Town of Truckee within the U.S. Army Corps of Engineers (USACE) Martis Creek Lake and Dam Project.

The lead agency for the project is Northstar Community Services District (NCSD). NCSD reviewed the prepared Initial Study (IS) to assess the proposed Project's potential effects on the environment and the significance of those effects. Based on the results of the IS, the proposed project would not have any significant effects on the environment with the addition of identified mitigation measures. Accordingly, NCSD proposes to adopt a Mitigated Negative Declaration (MND) for the project.

The 30-day period for public review and comment on the proposed MND and supporting initial study begins February 2, 2018. All comments must be submitted by March 5, 2018. Please address written comments to:

Northstar Community Services District
Proposed Mitigated Negative Declaration
Martis Wildlife Area Restoration Project
900 Northstar Drive
Northstar CA 96161
Attn: Eric Martin, PE

Comments may also be sent via email to: ericm@northstarcsd.org. For emailed comments, please include the project title in the subject line, attach comments in MS Word or Adobe PDF format, and include the commenter's U.S. Postal Service mailing address.

A copy of the IS/Proposed MND can be reviewed at NCSD's office at the above address or online at <http://www.northstarcsd.org>. For further information regarding the IS/Proposed MND and NCSD's schedule to consider adoption of the document, please contact Eric Martin at (530) 550-6133.

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Appendix A Mitigation Monitoring and Reporting Program

Appendix B Restoration Design Plans

1.0 INTRODUCTION

This document is an Initial Study/Proposed Mitigated Negative Declaration (IS/Proposed MND) prepared by Truckee River Watershed Council (TRWC) for the Martis Wildlife Area Restoration Project (Project) in Martis Valley, California. The document was prepared under the direction of the lead agency under California Environmental Quality Act (CEQA), Northstar Community Services District (NCS), and in accordance with CEQA (Public Resources Code Section 21000 et seq.) and the CEQA Guidelines (Title 14, Section 15000 et seq. of the California Code of Regulations). The purpose of this IS/Proposed MND is to: 1) determine whether project implementation would result in potentially significant or significant effects on the environment; and, 2) incorporate mitigation measures into the project design, where feasible, to eliminate the project's potentially significant or significant project effects or reduce them to a less than significant level. An IS/MND presents the environmental analysis and substantial evidence supporting its conclusions regarding the significance of environmental impacts. Substantial evidence may include expert opinion based on facts, technical studies, or reasonable assumptions based on facts (CEQA Guidelines, Section 15063[a] and 15064[f]).

CEQA requires that all state and local government agencies consider the environmental consequences of projects they propose to implement, or over which they have discretionary authority, before implementing or approving those projects. As specified in Section 15367 of the CEQA Guidelines, the public agency that has the principal responsibility for carrying out or approving a project is the lead agency for CEQA compliance. NCS has principal responsibility for approving the proposed project and is therefore the CEQA lead agency for this IS/Proposed MND.

As specified in Section 15064(a) of the CEQA Guidelines, if there is substantial evidence (such as the results of an IS) that a project, either individually or cumulatively, may have a significant effect on the environment, then the lead agency must prepare an Environmental Impact Report. The lead agency may instead prepare a Negative Declaration if it determines there is no substantial evidence that the project may cause a significant impact on the environment. The lead agency may prepare an MND if, in the course of the IS analysis, it is recognized that the project may have a significant impact on the environment but that implementing specific mitigation measures would reduce any such impacts to a less-than-significant level (CEQA Guidelines, Section 15064[f]).

2.0 PROJECT DESCRIPTION

2.1 General Information

Project Title: Martis Wildlife Area Restoration Project

Lead Agency: Northstar Community Services District
900 Northstar Drive
Northstar CA 96161

Contact Person: Eric Martin, PE, District Engineer
Northstar Community Services District
(530) 550-6133
ericm@northstarcsd.org

Project Location: Martis Creek and tributaries are located on parcels of land in Martis Valley, California, in the U.S. Army Corps of Engineers (USACE) Martis Creek Lake and Dam Project, an area of land that encompasses Martis Creek Lake, a reservoir managed by USACE, and parcels south of the lake. Martis Valley is a valley on the eastern side of the Sierra Nevada Mountains in Placer County. The project area is approximately three miles south of the Town of Truckee. Figure 1 shows the regional location of the proposed project. Figure 2 shows the boundaries of the USACE Martis Creek Lake and Dam Project. Figure 3 shows the project area.

Project Sponsor: Truckee River Watershed Council
P.O. Box 8568
Truckee, CA 96162
Contact: Project Manager, Michele Prestowitz
(530) 550-8760
mprestowitz@truckeeriverwc.org

General Plan Designation: The project falls within areas designated as either Water Influence or Open Space in both the Placer County General Plan and the Martis Valley Community Plan.

Zoning: The project area is zoned by Placer County as either Water Influence combined with Airport Overflight (W-AO) or Open Space combined with Airport Overflight (O-AO). The USACE Martis Creek Lake and Dam Master Plan Update classifies lands within the project area as either: low-density recreation, high-density recreation, wildlife management, or environmentally sensitive.

Figure 1. Project Vicinity



Figure 2. USACE Martis Creek Lake and Dam Project

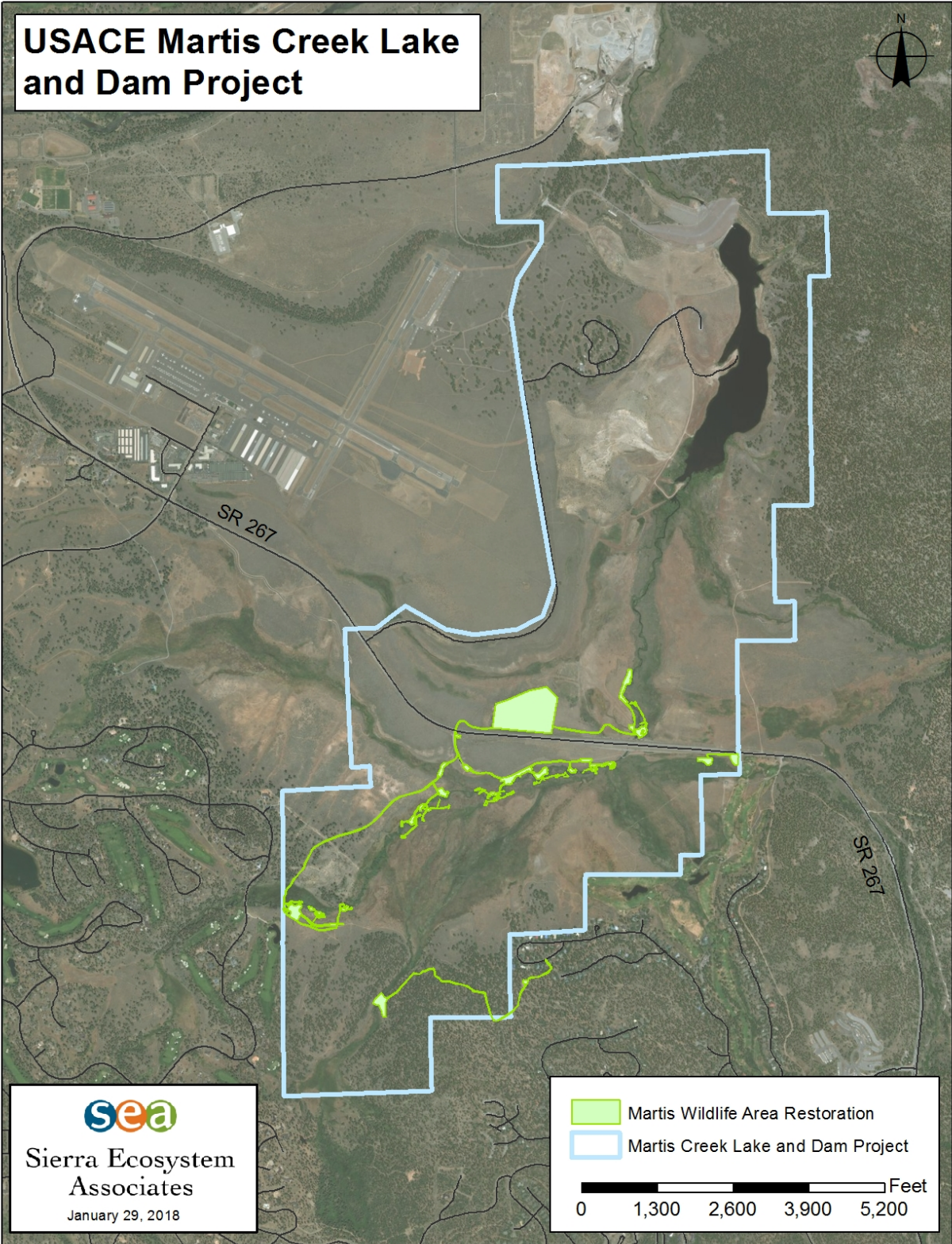
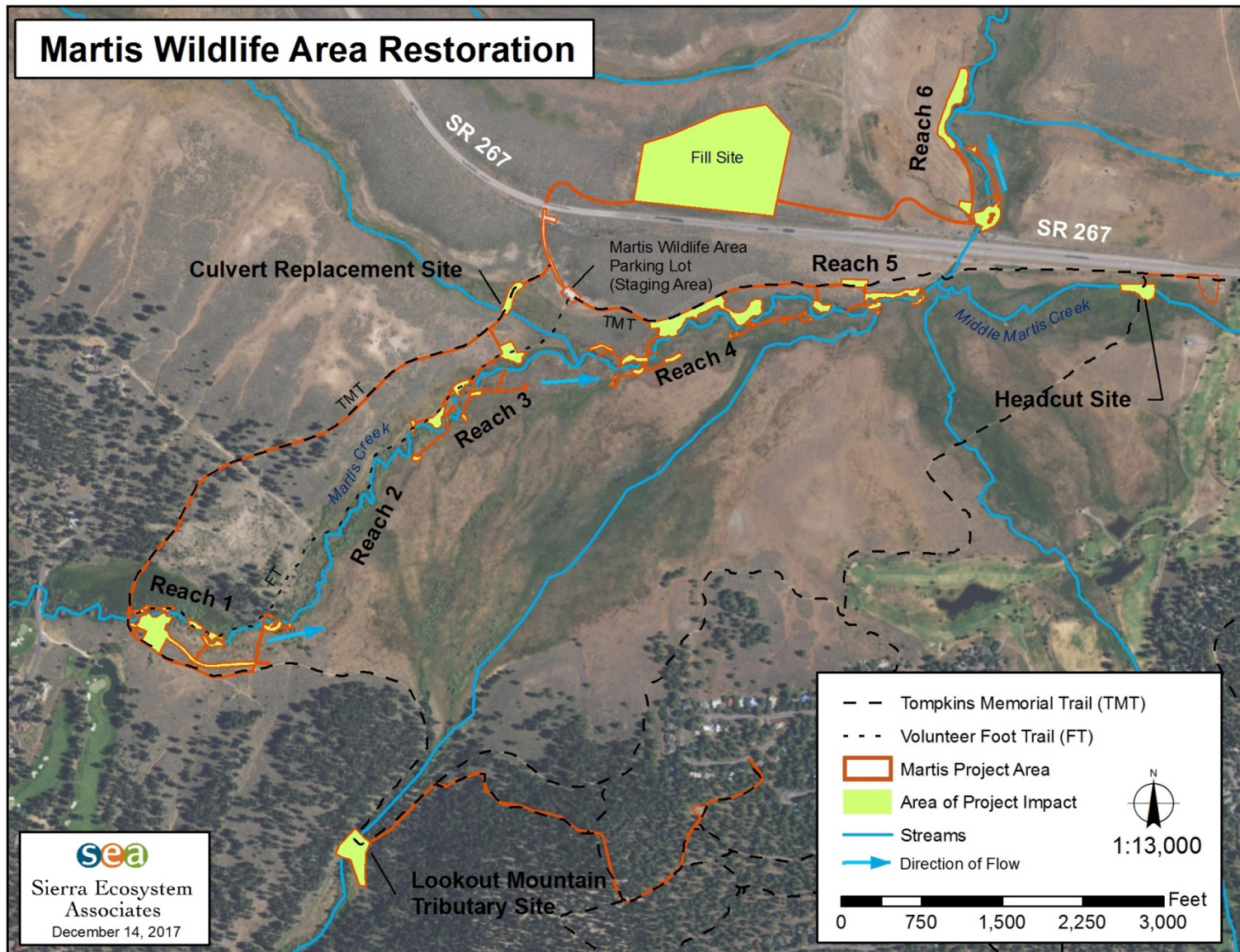


Figure 3: Project Area



2.2 Project Description and Background

2.2.1 Project Overview

In cooperation with USACE, NCSO and other neighboring land managers, the TRWC developed the Martis Wildlife Area Restoration Project (project) to improve the ecological function of the Martis Creek watershed via restoration of five reaches on Martis Creek and additional restoration at three small sites, each located on a tributary to Martis Creek. The project is located in Martis Valley, California, a large valley in the Sierra Nevada Mountains, approximately three miles south of the Town of Truckee. Restoration project work includes:

- removing levees to increase areas subject to overbank flow;
- grading banks to address incision and reduce streambank erosion;
- introducing bioengineered check dams and instream log jams to increase water surface elevations;
- replacing failed culverts with a full span bridge to restore stream conveyance and continuity; and,
- restoring and protecting targeted plant communities to improve floodplain function and habitat.

The project is expected to improve the resilience and ecological function of the Martis Creek watershed by reducing creek erosion and sedimentation transport, reconnecting floodplain areas, enhancing impaired meadow habitats and vegetation, and protecting functioning habitats.

The restoration planned for the five reaches along Martis Creek extends along approximately 1.6 miles of the creek, and includes four reaches south of State Route (SR) 267 and one reach immediately north of SR 267. The three additional small sites identified for restoration are all located south of SR 267, and include: a) replacement of failed culverts and associated stream restoration at an unnamed tributary to the west of Martis Creek (culvert and stream restoration site), b) restoration to address channel incision on an approximately 300-foot-long section of an unnamed tributary south of Martis Creek and below Lookout Mountain (Lookout Mountain Tributary restoration site), and c) resolving a 3- to 4-foot headcut on Middle Martis Creek, just east of the confluence between Middle Martis Creek and Martis Creek (headcut restoration site).

The total footprint of the area where restoration activity would take place – including areas subject to disturbance by temporary stockpiling of fill or compaction by construction equipment—is approximately 12 acres. An approximately 15-acre site on the north side of SR 267 would be used as the ultimate receiving site for fill. The receiving site for fill is an existing disturbed site, previously a rock quarry, where deposited material would be laid to grade and re-seeded at the completion of the project. Together these two areas encompass approximately 27 acres and, for the purposes of this document, are referred to as the “area of project impact.” The “project area” includes these 27 acres, as well as those existing disturbed sites that would be used for equipment staging and the existing roads and trails that would be used to access the restoration sites. These access routes include portions of the existing Tompkins Memorial Trail (TMT) and an existing volunteer foot trail along Martis Creek. The TMT is an existing gravel track that is frequently used by pedestrians and cyclists, and occasionally by maintenance

vehicles. The existing volunteer foot trail is an informal but frequently used trail that follows Martis Creek from the Martis Wildlife Area parking lot upstream to an intersection with the TMT around reach 1 of the creek. The foot trail, much of which will be incidentally removed due to grading and other restoration activities, will not be reinstated post project. Including all staging sites and access routes the total project area is approximately 30 acres. Figure 3, Project Area, shows the areas of project impact and total project area.

Funding for the Martis Wildlife Area Restoration Project is provided by USACE, NCSD, U.S. Bureau of Reclamation (Reclamation), The Martis Fund, and donors to TRWC.

2.2.2 Background

The Martis Watershed Assessment (Assessment), a report prepared for TRWC in 2012 by Balance Hydrologics Inc., provided TRWC with the science and policy information needed to direct restoration and conservation projects within the Martis Creek watershed. As identified by the Assessment, many stream reaches and sections of meadow in the Martis Creek watershed are significantly degraded, with multiple reaches along Martis Creek and tributaries to Martis Creek exhibiting channel incision and active erosion. The Martis Wildlife Area Restoration Project is one of several river and habitat restoration projects TRWC is leading in the Truckee region, and the second restoration project TRWC has sponsored in Martis Valley since the Assessment was published in 2012. In 2015, TRWC sponsored the Middle Martis Creek Restoration Project, which involved restoration of a portion of Middle Martis Creek just east of the project area. Construction of the Middle Martis Creek Restoration Project was completed in the fall of 2016.

2.2.3 Design Features and Expected Benefits of Proposed Restoration

Design plans for restoration along Martis Creek were prepared by Balance Hydrologics Inc. Design plans for restoration of each of the three project tributary sites were prepared by Natural Systems Design. The 95% design plans for Martis Creek and the 60% design plans for the tributary sites are included as Appendix B, Restoration Design Plans. The following detail describes the proposed restoration planned for each reach of Martis Creek, and for each of the three separate tributary sites.

2.2.3.1 *Martis Creek Mainstem Restoration*

Existing Problem

Each of the five reaches along the Martis Creek mainstem that are targeted for restoration exhibit channel incision, erosion, and bank failures, with several 1- to 2-foot headcuts that are actively progressing upstream. In addition, several of the reaches contain aged infrastructure from prior use of the area that exacerbate erosion and incision processes. This infrastructure includes old irrigation ditches, aged diversion structures, and more than 1,000 feet of degraded rip-rap.

Restoration Plan

- Reach 1: Grade portions of the streambank channel; fill abandoned irrigation ditches; remove old diversion works; introduce three instream wood jams and extend one instream wood jam into the floodplain. Instream wood jams would be composed of logs and rootwads.
- Reach 2: No restoration planned.
- Reach 3: Grade portions of the streambank channel; perform breakout channel enhancements; introduce approximately eight bioengineered check dams; introduce four instream wood jams; and introduce several buried log-grade controls. Bioengineered check dams are small dams used to counteract erosion by reducing water flow velocity and raising surface water elevations. Bioengineered check dams introduced along Martis Creek would be composed of posts and woven willow branches.
- Reach 4: Grade portions of the streambank channel; introduce buried log grade controls; and introduce three bioengineered check dams.
- Reach 5: Grade portions of the streambank channel; remove approximately 1,300 square feet of rip rap; and introduce buried log grade control.
- Reach 6: Grade portions of the streambank channel and introduce bioengineered check dams.

Expected Benefits

Benefits of the restoration would include: restored floodplain and meadow function, reconnected floodplain, and reduced erosion and sediment transport. A memo prepared by Balance Hydrologics for TRWC in 2017 estimated a near 100 percent reduction of excessive sediment entering the Martis Creek channel at each of the reaches where restoration is planned, resulting in an estimated annual reduction of roughly 14 tons of sediment to the creek and an estimated total annual sediment retention of roughly 5.1 tons per year. In addition, Balance Hydrologics estimated a wet meadow gain of approximately nine acres (Balance Hydrologics Inc. 2017). An indirect outcome of the restoration activity will be removal of the existing volunteer foot trail along Martis Creek. As this informal foot trail contributes to creek bank instability and erosion, it will not be reinstated following project completion; instead, foot traffic will be directed to the existing TMT.

2.2.3.2 Culvert Replacement and Stream Restoration

Existing Problem

Failed culverts on the unnamed tributary upstream and west of its confluence with Martis Creek have caused streambank erosion. In addition, the failed culverts increase the risk of flood damage and erosion to the TMT under which the failed culverts are located.

Restoration Plan

Remove the existing road grade and culverts, excavate a new channel, and install a full-span bridge measuring approximately 89 feet long and 8 feet 6 inches wide. Channel design would involve grading of the floodplain surface and vegetation planting.

Expected Benefits

Benefits of the restoration would include: improved floodplain connectivity and water conveyance, reduced erosion and sediment transport, and unimpaired recreation access with resistance to damage from high water events

2.2.3.3 Lookout Mountain Tributary Restoration

Existing Problem

An approximately 200-foot section of the unnamed tributary, referred to for the purpose of this document as “Lookout Mountain Tributary,” is incised 2 to 3 feet. Incision is most pronounced at the upper end of the meadow and in the vicinity of Jake’s Bridge, with bank erosion which appears to be exacerbated by hikers, bikers, and dogs (Balance Hydrologics Inc. 2012).

Restoration Plan

Install up to five incision treatments along approximately 300 feet of the tributary. Incision treatments would be composed of logs, with rootwads attached where available, along with bundles composed of sapling trees and branches. Existing downed timber in and around the restoration site is expected to be the primary source of logs and rootwads for the incision treatments. The incision treatments would raise the surface water elevation such that the height of Jake’s Bridge would be raised to facilitate pedestrian travel at high water. The anticipated increased elevation of surface waters resulting from the restoration project could cause seasonal flooding of the area where the existing picnic table at the site is located. Therefore, as part of the restoration project, the picnic table would be relocated to a slightly higher elevation on the southeast side of the tributary.

Expected Benefits

Benefits of the restoration would include: restored floodplain and meadow function, and reduced erosion and sedimentation associated with the existing incision.

2.2.3.4 Middle Martis Creek Headcut Restoration

Existing Problem

Flow concentration and confinement in a single channel has led to channel instability, erosion, and headcut development in a number of locations near the Middle Martis Creek crossing of SR 267. The restoration site associated with this project is a headcut 3 to 4 feet in height and located just east of Middle Martis Creek’s confluence with Martis Creek. A headcut is an abrupt vertical drop in a stream, like a mini waterfall, that increases erosion and incision, and poses habitat connectivity issues for aquatic and riparian species.

Restoration Plan

Grade around the headcut and embed logs in the regraded headcut location. In addition, install up to seven bioengineered check dams composed of posts and racking bundles (made of saplings and branches).

Expected Benefits

Benefits of the restoration would include: restored floodplain and meadow function, and reduced erosion and sedimentation associated with the headcut.

2.2.3.5 Post project restoration

Ensuring long-term erosion control, bank stability and vegetative health of the project area is a component of all the restoration work. Restoration plans identify standard grading, filling, streambank stability, erosion control, and revegetation practices depending on the geomorphology of each identified streambank section and the objective of the planned restoration. All revegetation work shall be overseen by a certified professional erosion and sediment control (CPESC) and shall be documented on a daily basis. Revegetation and erosion control details – including details about design of willow wattles, erosion control blankets, salvaged sod, coir mats, and required seed mixes – can be found in Appendix B, Restoration Design Plans (Balance Hydrologics Inc. 95% Design Plans, sheets 4.0-4.2 and 5.0-5.3; NSD 60% Drawings, sheet 2). Standard erosion control and restoration practices include the following:

- Restore areas disturbed during construction to pre-construction conditions including with appropriate plantings, installation of erosion control fabric, seed, and mulch.
- For inset floodplains – a floodplain that remains isolated within the incised main channel of a creek or river – preserve bank vegetation where the bank cut is less than two feet deep and revegetate floodplain areas with a combination of salvaged sod and coir mats.
- Where grading is used to reduce the angle of the bank (a bank layback), revegetate slopes and bring the toe elevation of the bank (where the bank meets the streambed) to around bankfull level.
- To improve breakout channels, reduce the angle of the side slopes of the channel at its upstream and downstream ends and revegetate and stabilize channel banks with salvaged sod and coir mats.
- Fill ditches and grade overbank areas to prevent flow capture from upland areas and revegetate all filled ditches with appropriate seed mixes at the direction of the revegetation specialist.

2.2.4 Construction Schedule, Equipment and Best Management Practices

2.2.4.1 Schedule

All restoration associated with the project is scheduled to commence in late spring/early summer as soon as necessary permits are received, and the area is determined to be dry enough to support construction equipment without causing unnecessary soil compaction, erosion or other avoidable environmental impacts. TRWC, in consultation with USACE and the project contractor will be responsible for determining when conditions are suitable for ground disturbing activities to commence. The entire project, including revegetation of disturbed areas, is expected to be completed in one construction season (May to October). TRWC currently estimates construction will take place in the spring/summer of 2019. Restoration would be completed in stages over the course of the summer season. The chosen contractor would be required to develop a construction schedule organized to minimize total overall disturbance to soils, and in accordance with limitations dictated by the results of field surveys, relevant permits and this document.

2.2.4.2 Equipment, Staging and Access

Design plans specify small low ground pressure equipment and hand labor where possible. In addition, TRWC is committed to conditioning Requests For Proposals (RFPs) that specify prioritization of low impact construction methods appropriate to working in and adjacent to stream channels and wet meadow area. Likely equipment would include excavators, backhoes, and mini track loaders, and may include a low ground pressure bulldozer or wheel dozer and self-loading log truck. Construction of the full-span bridge at the culvert replacement site may involve a crane. As much as possible metal track-driven equipment would be avoided in wet-meadow areas.

Access route and staging areas for construction equipment were designated with the consideration given to reducing the distance equipment would need to travel, and to avoiding known sensitive resources. As much as possible, all access routes and staging areas take advantage of existing trails, roads, and disturbed areas. Figure 3, Project Area, shows the access routes and staging areas for the restoration activities. Additional detail describing access routes and staging areas is provided in Appendix B, Restoration Design Plans (Balance Hydrologics Inc. 95% Design Plans Sheet 3.0; and NSD, 60% Design Plans, Sheet 5). Specific access routes and staging areas for the restoration sites include the following.

- Access routes and staging areas for the restoration sites along Martis Creek and to the culvert restoration site take advantage of the Martis Wildlife Area parking lot, the TMT, and the existing volunteer foot trail along that follows Martis Creek from the Martis Wildlife Area parking lot south to an intersection with the TMT near reach 1 of Martis Creek.
- The access route to the headcut site would utilize the existing footprint of the TMT. The designated staging area for the headcut restoration site is an existing disturbed area along SR 267, immediately northeast of the restoration project site. In addition, the highway shoulder may be utilized for staging if needed.
- The access route for the Lookout Mountain Tributary site begins on an undeveloped property owned by Trimont Land Company off of Basque Drive, a residential neighborhood just west of the Northstar Golf Course. The access route utilizes the TMT,

which runs from Basque Drive to the Lookout Mountain Tributary site. There are two staging areas associated with the project site: a gravel lot immediately adjacent to the TMT, approximately ¼ mile from the point of ingress on Basque Drive, and a designated area immediately adjacent to the restoration site.

2.2.4.3 Best Management Practices

Any construction equipment travelling off the TMT, the existing volunteer foot trail or other existing disturbed areas would use meadow protection mats to reduce soil compaction and protect vegetation. Any temporary access routes created as part of the project would be restored by the contractor to pre-project conditions. All construction activity would adhere to applicable local, state, and federal regulations, including requirements associated with State Water Resources Control Board Water Quality Order No. 99-08 – National Pollution Discharge Elimination System (NPDES) General Permit for Stormwater Discharges associated with Construction Activity and the associated Stormwater Pollution Prevention Plan (SWPPP) developed for the project by a Qualified SWPPP Developer (QSD). The SWPPP will provide the plans and specifications for best management practices intended to prevent and control erosion and siltation to the extent feasible. Except for the specific areas under construction, public areas around the project area would remain open during construction, where possible, subject to public health and safety considerations. Restricted areas would be secured or fenced to deter unauthorized entry. In addition, the restoration design plans include dewatering, diversion, and sediment control requirements associated with the restoration activity, as well as general construction, earthwork, and revegetation best management practices. In general, temporary silt fencing, cofferdams and stream diversions will be installed as needed at all sites. These additional construction conditions can be found in Appendix B, Restoration Design Plans.

2.2.5 Required Permits and Approvals

TRWC is seeking approvals from the two lead agencies with primary discretionary approval for the project: USACE and NCSO. Specifically, TRWC, as the project proponent, is seeking a Real Estate license from USACE to access the property, complete the restoration work, and complete associated follow-up monitoring and mitigation as needed. USACE is also the federal lead agency for the project for compliance with the National Environmental Policy Act (NEPA). As the federal lead agency, USACE would be responsible for compliance with Section 404 of the Clean Water Act, Section 7 of the federal Endangered Species Act, and Section 106 of the National Historic Preservation Act. NCSO is the lead agency for compliance with the CEQA, would review the CEQA document for adequacy, and could subsequently adopt the CEQA document and approve the project following an appropriate public notification and review process in accordance with CEQA Guidelines 15070. TRWC would obtain all other applicable permits for the project from federal, state, regional, and local agencies, with approval authority over various project actions. Table 1, Required Permits and Approvals, lists the potential permits and approvals required for project implementation.

Table 1: Required Permits and Approvals

Agency	Permit or Approval	Action Requiring Permit Approval or Review
Federal		
U.S. Army Corps of Engineers	Real Estate License	License required to access the property, complete the restoration work, and complete associated follow-up monitoring and mitigation
U.S. Army Corps of Engineers	Permit for compliance with Section 404 of the Clean Water Act and Section 10 of the River and Harbors Act (likely Nationwide Permit #23)	Clean Water Act Section 404 regulates the placement of dredged or fill material in waters of the US. Rivers and Harbors Act Section 10 regulates all structures and work in over and under navigable waters.
State Historic Preservation Officer (SHPO)	SHPO Consultation (through the National Historic Preservation Act Section 106 process)	Potential impacts on cultural resources
U.S. Fish and Wildlife Service	Federal Endangered Species Act Section 7 Consultation	Potential impacts on a federally listed species or its habitat
State		
California Department of Fish and Wildlife	Section 1602 Streambed Alteration Agreement	Potential disturbance to the bed or bank of jurisdictional waters
California Department of Fish and Wildlife	California Endangered Species Act Consultation	Potential impacts on state-listed species and habitats
State Water Resources Control Board	Water Quality Order No. 99-08 – NPDES General Permit for Stormwater Discharges associated with Construction Activity	Discharges of stormwater runoff associated with construction activity involving land disturbance of 1 or more acres
Lahontan Regional Water Quality Control Board	Clean Water Act Section 401 Water Quality Certification	Potential impacts on state water quality; required when a federal permit is issued
Lahontan Regional Water Quality Control Board	Porter Cologne Water Quality Control Act- Lahontan Basin Plan - Exemption for discharge of fill in the 100-year floodplain of drainages within the Truckee River Hydrologic Unit	Discharge of waste materials to lands within the 100-year floodplain
California Department of Transportation	Encroachment Permit	Any work or traffic control that encroaches on a state highway (e.g. SR 267) requires an encroachment permit.
Local		

Washoe Tribe	AB 52 Consultation	AB 52 requires a project lead agency to consult with any California Native American tribes affiliated with the geographic area of the proposed project
Placer County	Placer County Grading Permit/Improvement Plan Approval	A grading permit is required for any grading and/or other construction activity with ground disturbance of 1 acre or more.
Placer County	Dust Control Plan	Disturbance of more than 1 acre of topsoil

2.3 Surrounding Land Uses and Setting

2.3.1 Regional Setting

The Martis Creek watershed is located in the Sierra Nevada Geomorphic Province, east of the Sierra Nevada crest and part of the larger Tahoe-Truckee River Basin of California and Nevada. The watershed covers an area of approximately 42.7 square miles and drains to the Truckee River in the Town of Truckee, California. Elevations in the Martis Creek watershed range from 8,617 feet in the headwaters to 5,680 feet at the mouth. The upper watershed is mountainous, underlain by volcanic bedrock. Upper elevations near Mt. Pluto and Northstar have been glaciated, leaving relatively old and well-developed fine-grained soils in most of the upper watershed. Many past and current land uses (such as urbanization, grazing, or road-building) compact or diminish the infiltration capacity and overall function of the soils while increasing runoff and nutrient release to streams. Since these geologic units and fine-grained soils are prone to rapid erosion when disturbed, extensive incision often occurs in channels downstream of disturbed areas. The lower watershed is located in Martis Valley, with well-developed alluvial fans at the mouths of upper drainages that interfinger with a deep sequence of layered glacial outwash, volcanic deposits of the Lousetown Formation, and water-bearing alluvium of the Prosser and Truckee Formations.

The Martis watershed has a clear signature of complex historical and present-day human uses, differentiating it from most Middle Truckee River tributaries. Historically, the watershed has supported a variety of land uses back to the mid-1800s including logging, mining, and grazing, with increasing residential and resort development near the Tahoe-Truckee Airport, Northstar and in the central lower portions of the watershed. Legacy impacts associated with logging, grazing, and dairying have been documented in the watershed, and a number of sensitive archaeological sites have been identified. Most land in the watershed is now privately owned while some lands are managed as open space and/or recreation by special districts or agencies such as the Truckee-Donner Land Trust (Waddle Ranch), Truckee-Tahoe Airport District, USACE, Truckee Donner Public Utility District, and NCSD, among others. Forest management practices are carried out by a number of different entities. In Martis Valley, water treatment and infiltration facilities managed by the Truckee-Tahoe Sanitation Agency (T-TSA) are located adjacent to the mouth of Martis Creek near the Truckee River. Groundwater stored in valley sediments provides most of the drinking water to residents of the watershed and the Town of Truckee. Aggregate mining takes place adjacent to the lower-most reaches of the stream, immediately below Martis Dam. Additional information about the watershed, including its

hydrography, geology, water quality, habitat, history, heritage resources, climate and other attributes are discussed in detail in the Martis Watershed Assessment (Balance Hydrologics Inc. 2012).

2.3.2 Project Area

The entire project area is within the portion of the USACE Martis Creek Lake and Dam Project allocated as low-density recreation, high-density recreation, wildlife management, or environmentally sensitive. The majority of the area of project impact is within the gross pool of Martis Creek Lake. The gross pool is defined by the surface water elevation of the lake if the reservoir was filled to capacity. Martis Creek Lake is a reservoir operated by USACE. Its construction was originally authorized for flood risk management and water supply, and later its operation was authorized for recreation. Construction of the reservoir was completed in 1972. Due to compromised dam integrity the reservoir is kept at a minimum pool with a surface area of 72 acres and containing roughly 800 acre-feet of water (USACE 2016). All of the area of project impact is within the 100-year floodplain. With the exception of the Lookout Mountain Tributary restoration site, the entire project area is within the area designated as “Open Scenic Vista” in the Martis Valley Community Plan Constraints Map. Habitat types in the project area include open waters, wet meadow, montane riparian, sagebrush, ponderosa pine, riverine, and lacustrine.

The project area is a popular recreation area for hikers, bicyclists, and walkers who primarily access the TMT and existing volunteer foot trail via the Martis Wildlife Area parking lot, and the Lahontan and Martis Camp neighborhoods. The TMT crosses creeks in the project area at four locations including: 1) the TMT crossing of the culvert restoration site on the unnamed tributary west of Martis Creek, 2) the TMT pedestrian bridge crossing of Martis Creek just south of the reach 1 restoration site, known as “Pappe’s Bridge,” 3) the TMT pedestrian bridge crossing on the northern edge of the Lookout Mountain Tributary site, known as “Jake’s Bridge” and, 4) a pedestrian bridge crossing of Middle Martis Creek immediately downstream of the headcut site.

3.0 ENVIRONMENTAL CHECKLIST

This Initial Study is a public document being used by NCSO, the designated lead agency for CEQA purposes, to determine whether the project may have a significant effect on the environment. This section provides an evaluation of the potential environmental impacts of the proposed project, followed by the CEQA Mandatory Findings of Significance. The degree of change from existing conditions caused by the project is compared to the impact evaluation criteria to determine if the change is significant. Where it is determined that one or more significant impacts could result from implementation of the project, mitigation measures are identified, and if feasible, incorporated as part of the project to reduce or eliminate the significant impacts. Existing conditions serve as a baseline for evaluating the impacts of the project.

The following terminology is used to describe the various levels of environmental impacts associated with the project:

- A finding of *no impact* is identified if the analysis concludes that the proposed project would not affect a particular environmental topical area in any way.
- An impact is considered *less than significant* if the analysis concludes that the proposed project would not cause a substantial adverse change in the environment, or would result in a positive change to the environment.
- An impact is considered *less than significant with mitigation* if the analysis concludes that the proposed project has the potential to cause a substantial adverse change in the environment, but the proposed project includes measures to mitigate the potential impact to a less than significant level.
- An impact would be considered a *potentially significant impact* if the analysis concludes that the proposed project could cause a significant environmental effect. Proposed projects that potentially produce a significant impact(s) warrant the greater level of analysis and consideration provided by an Environmental Impact Report (EIR).

3.1 Environmental Factors Potentially Affected

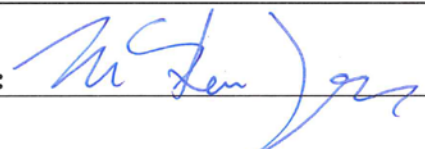
The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as identified by the checklist in the following pages.

<input checked="" type="checkbox"/>	Aesthetics	<input type="checkbox"/>	Agriculture and Forestry	<input type="checkbox"/>	Air Quality
<input checked="" type="checkbox"/>	Biological Resources	<input checked="" type="checkbox"/>	Cultural Resources	<input checked="" type="checkbox"/>	Geology/Soils
<input type="checkbox"/>	Greenhouse Gas Emissions	<input checked="" type="checkbox"/>	Hazards and Hazardous Materials	<input checked="" type="checkbox"/>	Hydrology/Water Quality
<input type="checkbox"/>	Land Use/Planning	<input type="checkbox"/>	Mineral Resources	<input type="checkbox"/>	Noise
<input type="checkbox"/>	Population/Housing	<input type="checkbox"/>	Public Services	<input checked="" type="checkbox"/>	Recreation
<input checked="" type="checkbox"/>	Transportation/Traffic	<input checked="" type="checkbox"/>	Tribal Cultural Resources	<input type="checkbox"/>	Utilities/Service Systems
<input type="checkbox"/>	Mandatory Findings of Significance				

3.2 Determination

On the basis of this initial evaluation:

<input type="checkbox"/>	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
<input checked="" type="checkbox"/>	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
<input type="checkbox"/>	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
<input type="checkbox"/>	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
<input type="checkbox"/>	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature:  Date: 1/31/18

Printed Name: Mike Staudenmayer For: _____

3.3 Evaluation of Environmental Impacts

3.3.1 Aesthetics

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.3.1.1 Discussion of Impact on Aesthetics

Setting

Both plans applicable to the project area, the 2016 USACE Martis Creek Lake and Dam Master Plan Update (Master Plan), and the 2003 Martis Valley Community Plan (MVCP), identify and discuss the importance of maintaining the highly scenic qualities of Martis Valley. The majority of the project area is designated as “Open Scenic Vista” in the MVCP. In addition, section VII “Recreation and Trails” of the MVCP identifies the Martis Wildlife Area parking lot as a Scenic Overlook. Section I.E “Major Plan Area Findings” of the MVCP identifies the valley as moderately to highly scenic, but states that recreational and other development, if carefully sited, can be accommodated within the valley without significant negative impacts on the visual quality of the valley. Section I.E specifically states that “Any development within the open meadow and sagebrush flats of the Martis Valley visible from Highway 267, must be considered very carefully.”

Impact Discussion

- a) **Less Than Significant Impact With Mitigation** – The primary viewshed from the Martis Wildlife Area parking lot overlook is generally to the southwest, south, and southeast and is characterized by the prominent natural features of the meadow and sagebrush areas. As the project is a creek restoration project and would not change the scenic description of the Martis Valley viewshed, there are no long-term scenic impacts associated with the restoration work, with one exception: the restoration design plans for the culvert replacement site propose installation of a new full span bridge, which may be visible from the Martis Wildlife Area parking lot and from SR 267. This potential impact could be mitigated to a less than significant effect with implementation of Mitigation Measure AES 1. Mitigation Measure AES.1 requires that the design of the planned bridge adhere to the Community Design Goals and Policies set forth in the MVCP. This includes ensuring no portion of the bridge

silhouettes against the sky, that the bridge's vertical architecture features do not detract from the natural background, and that the materials, colors and textures of the bridge blend as much as possible with the natural landscape.

Beyond the potential long-term scenic impact of the bridge, there may also be visual impacts associated with the temporary existence of equipment, fencing, stockpiles, and other construction-related materials during the summer construction period. These impacts could be mitigated with implementation of Mitigation Measure AES.2. Mitigation Measure AES.2 requires that construction material staging areas be located, to the extent possible without harm to biological or soil resources, to screen views of construction equipment and other project materials from the viewing area of the Martis Wildlife Area parking lot and SR 267. While some equipment and materials will actually be staged in the Martis Wildlife Area parking lot, this mitigation measure is meant to assist with protection of the viewshed as experienced by a person standing in the parking lot and looking south across Martis Valley. Implementation of Mitigation Measure AES.2 would ensure that temporary impacts associated with construction materials in the viewshed of SR 267 and of the Martis Wildlife Area parking lot are minimized to the extent possible.

- b) No Impact – None of the roadways in the vicinity of the project area are designated as state scenic highways. In addition, though Policy 4.C.1 of the MVCP designates SR 267, as a scenic route, the restoration project does not damage any scenic resources and Mitigation Measure AES.2 regarding the placement and screening of construction equipment would ensure that any temporary scenic impacts to the view from SR 267 are mitigated to a less than significant impact.
- c) Less Than Significant Impact With Mitigation – The impact discussion associated with potential impact a) “Would the project have a substantial adverse effect on a scenic vista?” applies also to this question as to whether the visual character or quality of the site and surroundings would be degraded. Any impacts associated with the project would be mitigated to a less than significant impact with implementation of Mitigation Measures AES.1 and AES 2.
- d) No Impact – No lighting or reflective materials are associated with the project that would affect day or nighttime views in the area.

3.3.1.2 Mitigation Measures for Aesthetics

Mitigation Measure AES.1) The design of the full span bridge planned for the culvert replacement site shall adhere to the Community Design Goals and Policies set forth in the MVCP. In addition, the design of the bridge, including its colors and materials for its constructions shall be approved by TRWC, NCSD and USACE. MVCP Design Goals and Policies include the following requirements applicable to the proposed bridge.

- The bridge shall be planned and designed in a manner which employs design construction and maintenance techniques that:
 - Incorporate design and screening measures to minimize the visibility of structures and graded areas;

- Maintain the character and visual quality of the area.
- The bridge shall be designed to be compatible with the scale and character of the area. The bridge should be designed so that:
 - it does not silhouette against the sky above the ridge lines or hilltops;
 - vertical architectural features blend and do not detract from the natural background;
 - it fits the natural terrain, and,
 - building materials, colors, and textures that blend with the natural landscape are used to avoid high contrasts.
- Materials and methods of construction shall be specific to the region, exhibiting continuity of history and culture and compatibility with the climate to encourage the development of local character and community identity.

Mitigation Measure AES.2) Stockpiling of materials onsite shall be minimized during construction. Construction staging areas and stockpile storage locations shall be located within existing disturbed areas and/or within the area of construction, and shall be located to screen views of staging areas from the Martis Wildlife Area parking lot and SR 267 to the extent feasible – including without creating potential impacts to any biological resources.

3.3.2 Agriculture and Forest Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
--------------------------------	---------------------------------------	------------------------------	-----------

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Result in the loss of forest land or conversion of forest land to non-forest use? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

3.3.2.1 *Discussion of Impact on Agriculture and Forest Resources*

a,b,c) No Impact – There is no prime or unique farmland, farmlands of statewide importance, or Williamson Act properties within the project area. There is currently no agricultural activity on the project site or on adjacent parcels. The project area is zoned as either Open Space or Water Use and thus the restoration project will not conflict with any existing zoning for forest land or timberland.

d,e) Less Than Significant Impact – Aspects of the planed restoration are intended to increase areas subject to overbank flow, raise water surface elevations and improve floodplain function and habitat. These desired results may replace existing sagebrush habitat near the restoration sites with wet meadow or riparian habitat. This outcome is most possible at the Lookout Mountain Tributary site, where there is existing timber within the area of project impact. While sagebrush habitat is more likely than wet meadow or riparian habitat to support growth of timber, any tree mortality or gradual transition of sagebrush habitat to wet meadow or riparian habitat associated with the project would be limited and would not be a substantive loss or conversion of forest land to a non-forest use.

3.3.2.2 Mitigation Measures for Agriculture and Forest Resources

No potentially significant impacts have been identified, so no mitigation is required.

3.3.3 Air Quality

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.3.3.1 *Discussion of Impact on Air Quality*

Setting

The project site is located in the Mountain Counties Air Basin (MCAB) (California Air Resources Board 2017a) and under the jurisdiction of the Placer County Air Pollution Control District (PCAPCD). Placer County is designated as nonattainment for federal and state ozone (O3) standard and nonattainment for the state particulate matter standard that is 10 microns or less in diameter (PM10) (California Air Resources Board 2017). Ozone is not emitted directly into the air but is formed through a complex series of chemical reactions involving other compounds that are directly emitted. These directly emitted pollutants (also known as ozone precursors) include reactive organic gases (ROG) and generic nitrogen oxides (NOX). Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions.

Air quality impacts associated with the project are limited to the period of project construction and consist of a) air quality impacts associated with emissions from construction equipment and b) air quality impacts associated with dust created during ground disturbance activities. Fugitive dust emissions would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions.

On October 13, 2016, the PCAPCD Board of Directors adopted the Review of Land Use Projects under CEQA Policy (Policy). The Policy establishes the thresholds of significance for criteria pollutants as well as greenhouse gases and the review principles which serve as guidelines for the District staff when the District acts as a commenting agency to review and comment on the

environmental documents prepared by lead agencies (PCAPCD 2017). The PCAPCD significance threshold for criteria pollutants during the construction phase of a project is:

- 82 lbs./day for ROG
- 82 lbs./day NOX
- 82 lbs./day PM10

Impact Discussion

- a) No Impact – The project is a creek restoration project and would not conflict with or obstruct implementation of an applicable air quality plan.
- b,c) Less Than Significant Impact – Factors that contribute to an analysis of air quality emissions associated with a construction activity include the anticipated construction schedule, equipment to be used and the number of estimated truck trips. Construction activities associated with implementation of the project are expected to contribute to a temporary increase in local levels of criteria pollutants but will not exceed the PCAPCD threshold of 82 lbs/day. In addition, PCAPCD Rule 228, Fugitive Dust, requires the project to comply with standards to ensure the project will limit the amount of short-term dust emission impacts generated during construction (PCAPCD 2017a). Therefore, the project is not anticipated to violate any air quality standard or contribute substantially to an existing or projected air quality violation, or to result in a cumulatively considerable net increase of any criteria air pollutants for which the PCAPCD is already designated as non-attainment
- d) Less Than Significant Impact – Potential sensitive receptors in the vicinity of the project include residential uses in the project vicinity and recreational users on trails in the vicinity of the project. The project includes minor grading operations which would result in short-term diesel exhaust emissions from on-site construction equipment and would generate diesel particulate matter (PM) emissions from the use of off-road diesel equipment required for site grading. Because of the dispersive properties of diesel PM and the temporary closure of recreation activities in the vicinity of the restoration sites, toxic air contaminant emissions would not expose sensitive receptors to substantial pollutant concentrations and therefore would have a less than significant effect.

Potential fugitive dust generated during ground disturbance operations would be subject to PCAPCD Rule 228, Fugitive Dust. As a component of compliance with Rule 228, a Dust Control Plan would be prepared and submitted before construction begins (PCAPCD 2017a). Conformance with PCAPCD fugitive dust requirements would reduce dust emitted by the project to a less than significant level.

- e) No Impact. The project is a creek restoration and habitat enhancement project and would not generate objectionable odors.

3.3.3.1 Mitigation Measures for Air Quality

No potentially significant impacts have been identified, so no mitigation is required.

3.3.4 Biological Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.3.4.1 *Discussion of Impact on Biological Resources*

Setting

The project is located at approximately 5,900 feet in elevation in Martis Valley. Martis Creek and various small tributaries flow through the project area into Martis Creek Lake. The area along these streams consists of riverine and wet meadow habitat. Jeffrey pine and sage brush communities dominate the adjacent upland areas. The wet meadows support a wide variety of shrub and herbaceous wetland plant species including *Hordeum*, *Juncus*, *Carex*, *Salix*, *Scirpus*, *Agrostis*, and *Danthonia*. Scrub shrub wetlands are located along the stream channels which are predominately composed of Lemmon's willow (*Salix lemmonii*). The Jeffrey pine and sage brush communities are dominated by *Pinus jeffreyi* in the sparse overstory and to a lesser extent white fir (*Abies concolor*) and incense cedar (*Calocedrus decurrens*). The understory consists of shrubs and herbaceous species with Common sagebrush (*Artemisia tridentata*) being a large component also including manzanita, ceanothus, and bitterbrush.

Martis Creek and the surrounding area provides habitat for many wildlife species. CDFW annually stocks Martis Creek Lake with Lahontan cutthroat trout (LCT) fingerings (USACE 2016), and thus LCT could potentially inhabit the streams in Martis Valley. Other trout species, including brown, rainbow, and brook, may also be present. Water fowl such as mallard ducks

also frequent the meadow streams. The project site and adjacent areas provide excellent nesting and foraging habitat for many birds including the willow flycatcher, yellow warbler, white-headed woodpecker, red-breasted sapsucker, and various raptor species. Mule deer feed in the meadow and surrounding montane coniferous forests. Beavers are also active within the streams building dams and raising the surface water level.

Impact Discussion

The project is a watershed and wildlife restoration project expected to enhance impaired meadow habitats and vegetation, and to protect functioning habitats. These improved conditions would be beneficial to a variety of listed species. Adverse impacts to biological resources would be temporary and limited to the period of project construction. Construction activities that could disturb biological resources include, but are not limited to, personnel and equipment access to the restoration sites, staging of equipment, grading of streambanks, clearing vegetation, installation of bioengineered check dams and log jams, and general in-stream and wetland disturbance associated with the project.

The impact discussion below for each of the biological resource considerations in the environmental checklist provides reference to Mitigation Measures that would reduce any potentially significant impacts to biological resources to less than significant levels. However, there is the potential for the project's individually limited impacts to biological resources to become cumulatively considerable if construction of other projects in the project vicinity occurs at the same time as construction of the project. The only project in the vicinity with the probable potential to be constructed during the same season as the Martis Wildlife Area Restoration Project is construction of portions of the Martis Valley Regional Trail (MVRT). Because portions of the planned MVRT would directly overlap with portions of the proposed project, this could create cumulatively considerable impacts to biological resources that would not necessarily be mitigated by adherence to Mitigation Measures BIO.1-BIO.9. For example, poorly coordinated plans for site access and materials/equipment staging could increase adverse impacts to sensitive or special status species, to riparian areas and to protected wetlands. To ensure no cumulative considerable impacts to biological resources, Mitigation Measure BIO.10 would be implemented. Implementation of Mitigation Measure BIO.10 would reduce potentially cumulative impacts to a less than significant level.

- a) **Less Than Significant With Mitigation** – Several special-status species, including several federal and state listed plants and animals, as well as several plant species categorized by the California Native Plant Society (CNPS) as rare throughout their range have habitat within or near the project area. Table 2, below, shows special-status species occurrences within five miles of the project based on results of a query of the California Natural Diversity Database (CNDDDB) and the U.S. Fish and Wildlife Service (USFWS) Database (USFWS 2017) for the area covered by the U.S. Geological Survey (USGS), Truckee and Martis Peak topographic quadrangle. Figure 4 displays the associated map of special status species identified in this same search. Based on a field reconnaissance survey of the habitat on-site and on data from the above searches, the listed species with the potential to be affected by the project are as follows.

Animals

- Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*)
- Northern goshawk (*Accipiter gentilis*)
- Sierra Nevada mountain beaver (*Aplodontia rufa californica*)
- Sierra Nevada red fox (*Vulpes vulpes necator*)
- Sierra Nevada snowshoe hare (*Lepus americanus tahoensis*)
- Sierra Nevada yellow-legged frog (*Rana sierrae*)
- Willow flycatcher (*Empidonax traillii*)
- Yellow warbler (*Setophaga petechial*)

Plants

- Donner Pass buckwheat (*Eriogonum umbellatum* var. *torreyanum*)
- Galena Creek rockcress (*Arabis rigidissima* var. *demot*)
- Plumas Ivesia (*Ivesia sericoleuca*)
- Santa Lucia dwarf rush (*Juncus luciensis*)

A description of the listed species likely to be found within or near the project area, an analysis of on-site conditions, and an explanation of potential effects of the project to each individual species follows below. Mitigation Measures to reduce the potential for a substantial adverse effect are presented, as needed, following the description.

Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*)

LCT is listed as federally threatened. It inhabits lakes and streams and requires spawning habitat with cool water, pools close to cover and velocity breaks, vegetated stream banks, and relatively rocky substrates. The long term impacts of project activities are expected to improve and increase these conditions. Although LCT habitat exists within the project area, and may be temporarily disturbed during construction, implementation of Mitigation Measure BIO.4 would reduce the potential for substantial adverse impacts to LCT to a less than significant effect.

Northern goshawk (*Accipiter gentilis*)

Northern goshawk is a CDFW Species of Special Concern. Goshawks typically live in large tracts of coniferous forests and on forest edges. Habitat and potential nesting habitat exists nearby, but not within or adjacent to the project area (Squires and Reynolds 1997). Though project activities are not likely to cause a significant effect, implementation of Mitigation Measure BIO.1 would reduce any potential impacts to a less than significant level.

Sierra Nevada mountain beaver (*Aplodontia rufa californica*)

The mountain beaver is a CDFW Species of Special Concern. Typical habitat of the beaver in the Sierra Nevada is montane riparian. The beaver frequents open and intermediate-canopy coverage with a dense understory near water. Deep, friable soils are required for burrowing, along with a cool, moist microclimate. Habitat exists within the project area. With implementation of Mitigation Measure BIO.8 impacts would be reduced to a less than significant level.

Sierra Nevada red fox (*Vulpes vulpes necator*)

The Sierra Nevada red fox is a candidate for federal listing and is threatened in California. Habitat for this species is in rugged alpine areas and conifer forests of the Sierra Nevada and Cascade ranges most often above 7,000 feet. It prefers areas with little to no human activity. Habitat is poor and occurrences are very rare. Project activities are not likely to have a significant impact on this species.

Sierra Nevada snowshoe hare (*Lepus americanus tahoensis*)

The Sierra Nevada snowshoe hare is a CDFW Species of Special Concern. The hare is usually found in upper montane forests and favors habitats with a dense shrub layer. Project activities would raise the surface water level creating a larger area favorable to the growth of riparian shrubs. This increase in riparian habitat is likely to increase the dense shrub layer that is preferred. Project activities would have a temporary impact on habitat due to minor shrub removal. Mitigation Measure BIO.8 would be implemented to reduce impacts to a less than significant level.

Sierra Nevada yellow-legged frog (*Rana sierrae*)

The SNYLF is federally listed as endangered and threatened in California. This amphibian inhabits lakes, tarns, ponds, meadow streams, isolated pools, and sunny riverbanks in the Sierra Nevada Mountains. Waters that do not freeze to the bottom and which do not dry up are required. It prefers open shorelines that gently slope up to shallows of a few inches (CalHerps 2017). Based on multiple surveys conducted in the project area since 2009 that did not detect the presence of SNYLF, but that did detect presence of non-native trout that prey on SNYLF, the project may affect, but is not likely to adversely affect SNYLF (North Fork Associates 2009; Dudek 2016). As an additional precaution, mitigation measure BIO.5 would be implemented to seek USFWS concurrence that the project would not likely have an adverse effect on the species.

Willow flycatcher (*Empidonax traillii*)

This species is listed as Threatened in California. The willow flycatcher prefers dense riparian vegetation such as willows and cottonwoods along meadows and streams. Habitat is favorable in the project area and nesting has been observed along Martis Creek. To help ensure less-than-significant impacts, Mitigation Measure BIO.2 would be implemented.

Yellow warbler (*Setophaga petechial*)

The Yellow warbler is a CDFW Species of Special Concern. This species prefers riparian vegetation below elevations of 8,000 feet. Suitable nesting habitat occurs along portions of Martis Creek and tributaries and previous occurrences have been documented in the area. Mitigation Measure BIO.2 would be implemented to reduce potential effects to a less than significant level.

Donner Pass buckwheat (*Eriogonum umbellatum* var. *torreyanum*)

The Donner Pass buckwheat is ranked by the CNPS as moderately threatened in California, but is not federally or state listed. This buckwheat grows in open rocky areas with sage brush

associations. It prefers shallow granitic soils. Project activities would have no significant impact on this species.

Galena Creek rockcress (*Arabis rigidissima* var. *demot*)

The Galena rockcress is ranked by the CNPS as moderately threatened in California. Habitat for Galena Creek rockcress is on sandy to rocky soils or outcrops derived from granitic or volcanic materials, mostly on moderate to steep northerly aspects, often in drainages, near meadow edges, or in other moisture accumulating microsites. The plant generally grows in dry openings in association with fir, pine, and aspen, and tolerates moderate amount of disturbance. Project construction and access routes are not located on steep rocky slopes; therefore project activities are not likely to cause a significant negative effect.

Plumas ivesia (*Ivesia sericoleuca*)

The Plumas ivesia is ranked by the CNPS as moderately threatened in California. The Plumas Ivesia occurs in meadows, seeps and other vernal mesic areas. Habitat exists within the project area and known populations occur nearby. With the implementation of Mitigation Measure BIO.3 project activities would have a less than significant impact.

Santa Lucia dwarf rush (*Juncus luciensis*)

This rush is ranked by the CNPS as moderately threatened in California. This species occurs in meadows, seeps, and vernal pools. Project activities are likely to increase habitat. Project activities would have a less than significant impact.

In addition to the species specific Mitigation Measures described above, TRWC, in coordination with USACE and NCSD, and with guidance from CDFW and USFWS shall implement Mitigation Measure BIO.9, requiring the development of a Worker Environmental Awareness Program (WEAP) to educate all construction personnel who will have the potential to encounter sensitive resources, including special status species.

- b) Less than Significant With Mitigation – The project footprint is within the floodplain of Martis Creek and its various tributaries. A majority of the site contains riparian vegetation. Project activities would be minimal and would create an overall increase in riparian habitat and other sensitive communities which are predominately located in riparian areas. Riparian habitat would be increased or improved due to:
1. Increasing areas subject to overbank flow by removing levees
 2. Reducing streambank erosion by grading banks
 3. Increasing water surface elevations by installing log jams, bioengineered check dams, and willows
 4. Restoring stream conveyance and preventing erosion by replacing failed culverts with a full span bridge
 5. Improving floodplain function by restoring and protecting riparian plant communities.

By increasing the water surface elevation, project activities have the potential to prevent or reduce conifer encroachment and promote the spread of riparian vegetation. Temporary impacts to riparian vegetation are possible during project construction, at which time some riparian vegetation may be pruned or removed to provide access for equipment or personnel

to restoration sites. Equipment and personnel in the area during construction could also increase soil compaction and have a negative impact on riparian vegetation. Adherence to the requirements of the SWPPP and implementation of Mitigation Measures BIO.6, GS.1, and HWQ.1 would reduce impacts to riparian vegetation to a less than significant level.

- c) Less than Significant With Mitigation – There are wetlands within the project area that are within the jurisdiction of USACE under Section 404 of the Clean Water Act. The project area also contains waters of the State under section 401 in which discharges of fill and dredged materials are within the jurisdiction of Lahontan Regional Water Quality Control Board (LRWQCB). The minimal impact of fill and discharge from project activities such as in-stream check dams, bank grading, and the replacement of failed culverts with a bridge will result in the restoration of more resilient wetlands with a higher capacity to prevent erosion and sediment discharges. Before construction, a Nationwide 404 Permit would be obtained from USACE. Any project related impacts would be monitored under the Nationwide Permit for the culvert replacement, the 1602 Streambed Alteration Agreement from CDFW, the 401 Water Quality Certification, and the 402 NPDES permit for construction. Conformance with these permitting requirements, in addition to implementation of Mitigation Measure BIO.7 would reduce the impacts of project activities to a less than significant effect.
- d) Less than Significant with Mitigation – Construction activities have the potential to impact wildlife movement, but these impacts would be temporary and would have a long-term beneficial effect. The proposed restoration of the site would raise surface water levels and facilitate the increase in movement of fish and other aquatic species. Increased surface water levels would also reduce access to the main channel of Martis Creek from pedestrians and dogs. This would reduce disturbance and facilitate aquatic species movement. With the implementation of Mitigation Measure BIO.4, project activities would have a less than significant effect.
- e) No Impact – Project activities would not conflict with any local policies or ordinances protecting biological resources.
- f) No Impact – Project activities would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

3.3.4.2 Mitigation Measures for Biological Resources

Mitigation Measure BIO.1) To avoid disturbance of active raptor nests, living or dead trees greater than 10 inches in diameter at breast height (DBH) shall not be removed during typical breeding season (March 1 through August 31). If trees greater than 10 inches DBH must be removed during breeding season, a survey for active raptor nest sites shall be conducted by a qualified biologist prior to tree removal. The survey shall be conducted no more than 30 days prior to the proposed tree removal activities. Survey results shall be submitted to CDFW. If active raptor nests are found on or immediately adjacent to proposed project areas, a minimum 300-foot buffer shall be established from active construction areas. CDFW shall be consulted to

determine appropriate protective measures. No trees with nests shall be removed until the nest is determined to be inactive.

Mitigation Measure BIO.2) To determine areas of nesting habitat and of the presence or absence of willow flycatchers in the project area, a qualified biologist shall perform a field assessment according to CDFW protocol. CDFW shall be consulted and informed of any results that indicate the presence of active willow flycatcher nests within the project area. If active nests are found, construction work within 300 feet from the nesting area shall be prohibited during breeding season (May 1 to August 31) and/or until nests are inactive.

Mitigation Measure BIO.3) A preconstruction survey for *Ivesia sericoleuca* shall be performed by a qualified biologist no more than two weeks prior to the start of ground disturbance activities. If *Ivesia* is found within the project area, CDFW shall be consulted to determine appropriate procedures for protection and avoidance. Existing hydrology shall not be altered near existing occurrences to prevent drying or erosion. Populations shall be flagged and areas around populations demarcated as zones where personnel and construction equipment are prohibited. Existing populations shall be periodically monitored by a qualified biologist to determine if any negative impacts are occurring. If impacts are occurring measures shall be taken to protect the existing populations. Protection measures may include fencing, hydrology alterations, and signage.

Mitigation Measure BIO.4) Machinery, fencing and construction of check dams or of log jams shall not prevent the movement of LCT throughout their range through the project area. Check dams and log jams shall not be constructed to a height and width that would prevent upstream or downstream travel. In addition, the following Best Management Practices shall be adhered to:

- The adopted construction schedule shall avoid scheduling instream work during the spawning or migration seasons of resident or migratory fish, including LCT. A qualified fisheries biologist shall be consulted to determine those period when instream work should be avoided due to fish migration and spawning. Typically LCT spawn between April and July (USFWS 2013). Surveys for fish and other aquatic organisms shall be conducted prior to dewatering and subsequently removed from the area to be dewatered in accordance with a CDFW approved dewatering plan
- The Restoration Design Plans shall identify measures that delineate and provide specifications for any water crossings to minimize heavy equipment entry into or crossing water as is practicable

Mitigation Measure BIO.5) Informal consultation shall be sought with USFWS to request concurrence that the proposed project may affect, but is not likely to adversely affect SNYLF based on existing available information, including recent field surveys. If USFWS does not concur with the proposed “not likely to adversely affect” impact analysis, mitigation to avoid any adverse impacts to SNYLF shall be developed in accordance with USFWS and CDFW recommendations.

Mitigation Measure BIO.6) The Restoration Design Plans and/or SWPPP prepared for the project shall include the following Best Management Practices (BMPs).

- Direction to schedule any ground disturbing activities in the dry season
- Measures to avoid, as much as possible, riparian areas along access routes to the project sites
- Direction to remediate any ground disturbing activities that negatively impact riparian habitat with restoration plantings that must be completed within one growing season

Mitigation Measure BIO.7) Federal and state agencies including CDFW, USACE, and USFWS shall be notified of project activities within wetlands and streams at the project site. Any permits, grading plans, wetland delineations, or other federal and state permits shall be provided to applicable agencies. No in-stream or work within wetland areas shall proceed until applicable permits have been acquired.

Mitigation Measure BIO.8) New ground disturbance within areas of riparian vegetation that provide potential habitat for Sierra Nevada mountain beaver and Sierra Nevada snowshoe hare shall be avoided to the extent feasible. If disturbance to riparian vegetation cannot be avoided, a qualified biologist shall be retained to survey the proposed area of disturbance prior to construction. If evidence of occurrence of either of these species is found, a minimum 500 foot non-disturbance buffer shall be established around nest or burrow sites and CDFW shall be contacted to determine appropriate avoidance and/or impact minimization measures. Such measures could include monitoring, buffer zones or seasonal work restrictions.

Mitigation Measure BIO.9) A WEAP shall be developed and implemented for all personnel that could access the site prior to commencing any disturbance activities. The WEAP shall include a review of the special status species and other sensitive resources that exist in the project area, including the locations of sensitive biological resources and their legal status and protections, and measures to be implemented for avoidance. The WEAP shall emphasize the need to avoid entry into areas where biological resources have been identified based on predisturbance field surveys and to implement the buffer avoidance or other protection measures in accordance with CDFW and USFWS requirements and with the requirements of Mitigation Measures contained in this document. A record of all trained personnel shall be maintained.

Mitigation Measures BIO.10) NCS D is the lead agency and project proponent of the MVRT project. If construction of the MVRT is scheduled for the same time period as construction of the Martis Wildlife Area Restoration Project, the following actions shall be taken:

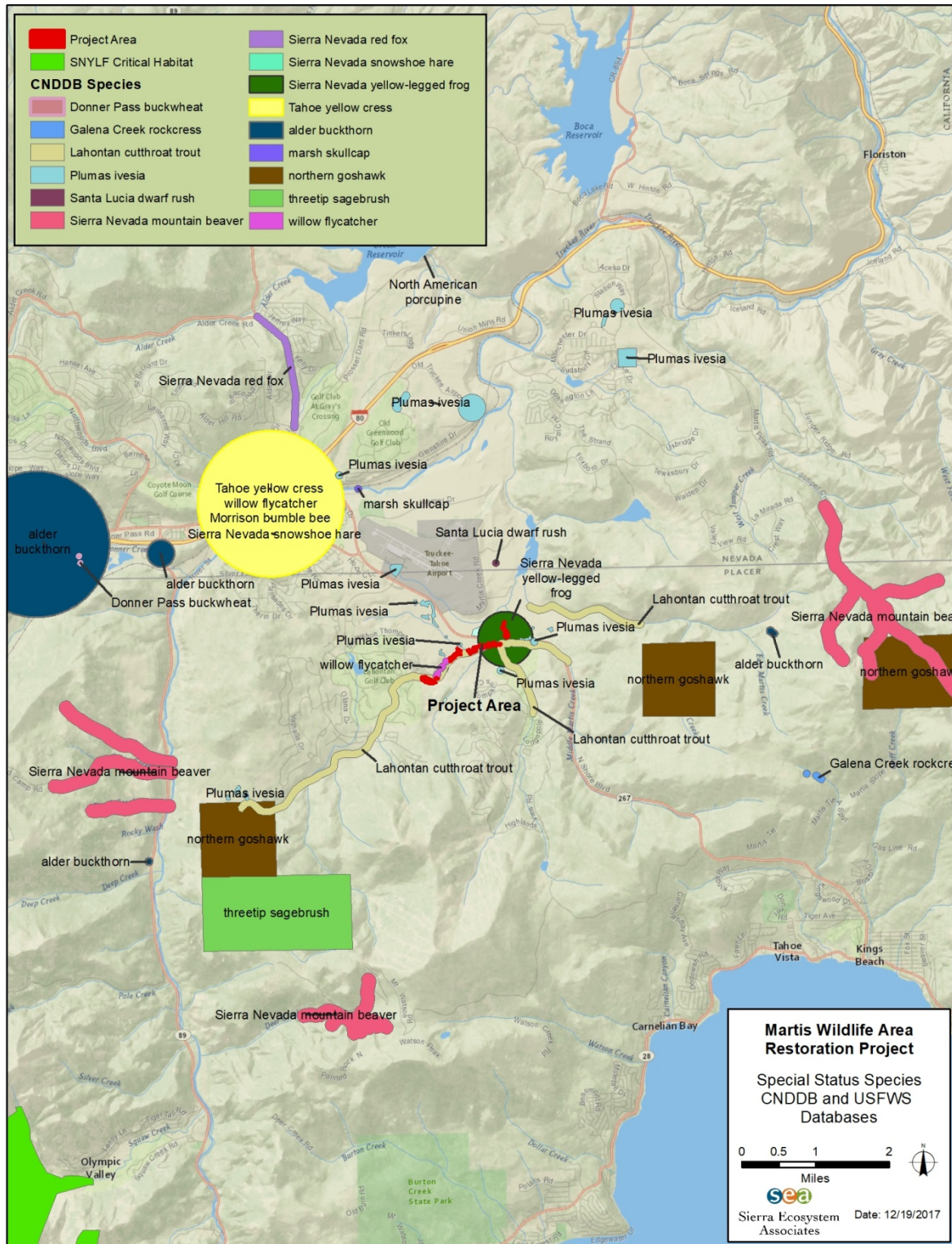
- TRWC and NCS D project managers will compare each project's construction schedule and project plans, including access routes, staging areas and construction sequencing, and identify any locations and times where construction equipment is scheduled to be staged or active in the same area. Based on this review TRWC shall modify, as necessary, the construction schedule or project plans to reduce potential adverse effects to biological resources associated with restoration site access and construction. Modifications may include the development of additional BMPs to avoid or minimize soil removal and vegetation disturbance; and to reduce the quantity of creek crossings within the period of project construction.

- The QSD who develops the SWPPP for the proposed project shall take into consideration the construction schedule, plans and, if available, the SWPPP for the MVRT, and include BMPs to minimize soil disturbance, erosion and sediment; taking into consideration the potential for additional disturbance in the area associated with construction of the MVRT.

Table 2: Special Status Species within a Five Mile Radius of the Project (CNDDDB and USFWS Databases)

Scientific Name	Common Name	Federal Listing	California Listing	CNPS Listing	CDFW Status
<i>Accipiter gentilis</i>	northern goshawk	None	None		SSC
<i>Aplodontia rufa californica</i>	Sierra Nevada mountain beaver	None	None		SSC
<i>Arabis rigidissima var. demota</i>	Galena Creek rockcress	None	None	1B.2	
<i>Artemisia tripartita ssp. tripartita</i>	threetip sagebrush	None	None	2B.3	
<i>Empidonax traillii</i>	willow flycatcher	None	Endangered		
<i>Eriogonum umbellatum var. torreyanum</i>	Donner Pass buckwheat	None	None	1B.2	
<i>Ivesia sericoleuca</i>	Plumas ivesia	None	None	1B.2	
<i>Juncus luciensis</i>	Santa Lucia dwarf rush	None	None	1B.2	
<i>Lepus americanus tahoensis</i>	Sierra Nevada snowshoe hare	None	None		SSC
<i>Oncorhynchus clarkii henshawi</i>	Lahontan cutthroat trout	Threatened	None		
<i>Rana sierrae</i>	Sierra Nevada yellow-legged frog	Endangered	Threatened		WL
<i>Rhamnus alnifolia</i>	alder buckthorn	None	None	2B.2	
<i>Rorippa subumbellata</i>	Tahoe yellow cress	None	Endangered	1B.1	
<i>Scutellaria galericulata</i>	marsh skullcap	None	None	2B.2	
<i>Setophaga petechia</i>	yellow warbler	None	None		SSC
<i>Vulpes vulpes necator</i>	Sierra Nevada red fox	Candidate	Threatened		
California Native Plant Society: 1B.1 Rare, Threatened or Endangered in California and Elsewhere, Seriously threatened in California 1B.2 Rare, Threatened or Endangered in California and Elsewhere, Moderately threatened in California 2B.2 Rare, Threatened, or Endangered in California, But More Common Elsewhere, Moderately threatened in California 2B.3 Rare, Threatened, or Endangered in California, But More Common Elsewhere, Not very threatened in California			California Department of Fish and Wildlife Status: SSC - Species of Special Concern WL - Watch List		

Figure 4: Special Status CNDDDB and USFS Species in the Project Vicinity



3.3.5 Cultural Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.3.5.1 Discussion of Impact on Cultural Resources

Setting

Martis Valley is known to support a large number of historic and archeological resources and, in particular, includes multiple known prehistoric-period cultural resources. The area is located within territory commonly attributed to the Washoe people. The area was also heavily affected by historic activities, including emigrant travel into California, logging and mining. Multiple recent environmental documents record the prehistoric, ethnographic and historic setting of the Martis Valley, and include descriptions and data from numerous cultural resource investigations, archeological studies and field surveys.

Cultural Resource Work in the Martis Valley

Since 2009 USACE archaeologists have been conducting a cultural resources inventory of the USACE Martis Creek Lake and Dam Project Area, within which the project area is located. In addition, recent cultural resource investigations and surveys of portions of the Martis Creek Lake and Dam Project were conducted as part of the CalPeco 625 and 650 Electrical Line Upgrade Project (CalPeco) (Ascent Environmental 2013), and for the MVRT (North Fork Associates 2012). Portions of the study areas surveyed for these two projects directly overlap with the three tributary restoration sites and so are relevant references for this analysis. The USACE Martis Creek Lake and Dam Master Plan Update and associated Environmental Assessment (EA) (USACE 2016 and USACE 2014) also summarize cultural resource information associated with the project area, including a summary of all the archaeological sites known to exist in the USACE Martis Creek Lake and Dam Project.

Cultural Resources in the Project Area

Based on primary reports and maps provided by USACE, and with reference to the cultural resource sections of the MVRT EIR, CalPeco EIR/EIS/EIS and Martis Creek Lake and Dam Master Plan Update EA, portions of seven prehistoric resource sites (some of which also contain

historical components) are within the project area or directly adjacent to the project area. As recorded in the MVRT EIR, the CalPeco EIR/EIS/EIS and in the primary reports by USACE, the integrity of these sites has been reduced by mining, logging harvesting, ranching, road building and other activities, though portions of most of the sites retain sufficient integrity and potential resource value to be potentially eligible for listing on the National Register of Historic Places (NRHP) and/or the California Register of Historic Resources (CRHR). Table 3 lists these sites, their description, age, notes and CRHR status. Data to populate this table is largely based on Table 4. *Archaeological Sites Known to Exist at Martis Creek Lake* in the USACE Martis Creek Lake and Dam Master Plan Update, with additional data provided by the cultural resource chapters in the CalPeco EIR/EIS/EIS, MVRT EIR, and from a draft background report prepared for the MVRT: Archeological Investigations for the Proposed Martis Valley Trail - Segments 1 and 3A (Waechter and Lindström 2014). All of the sites contain a variety of artifacts representing various prehistoric activities. Some sites also contain artifacts associated with historic activities, including some linear features that reflect the ranching/grazing, logging, and mining activities associated with modern settlement of the region.

Other than these seven sites identified in Table 3, and the prehistoric and historic artifacts contained within them, there are no identified historic, archeological or paleontological resources within the project area.

Table 3. Archeological Sites with Boundaries that Extend Within the Project Area or that are Directly Adjacent to the Project Area

Resource Designator	Description	Age	Notes	CRHR status
CA-PLA-5	Lithic scatter, probable occupation site	prehistoric	Partially disturbed site. Includes substantial cultural deposits with milling and thermal features	Prehistoric component recommended eligible; historic component recommended not eligible
CA-PLA-6	Lithic scatter	prehistoric	Habitation site; minor historic component	Prehistoric component recommended eligible; historic component recommended not eligible
CA-PLA-490	Lithic scatter, probable occupation site	prehistoric	Numerous BRMs/slicks, an arrow point, and a historic wood feature. Disturbed by former gravel quarry.	Recommended eligible
CA-PLA-491/H	Historic ranch and prehistoric lithic scatter; probable occupation site	mixed	Old Cavitt Ranch site.	Recommended eligible
Coyote 9	Lithic scatter and historic debris	mixed	Scattered, infrequent historic debris	Unknown
Coyote 17	Lithic scatter	prehistoric	Located on a high spot in the floodplain	Unknown
Sullo 1	Lithic scatter	prehistoric		Unknown

Impact Discussion

There are no long-term impacts to cultural resources associated with the project as project operation would not introduce any additional people, infrastructure or equipment to the area that would degrade a resource. Therefore, this analysis focuses on the direct and indirect impacts to

historic, archeologic and paleontological resources that may result from project construction; and also considers potential impacts to human remains. Construction activities that could disturb a resource include, but are not limited to, access to the restoration sites, staging of equipment, grading of streambanks, clearing vegetation, installation of new or replacement bridges and restoration and re-vegetation measures. Such activities can disturb or compact soils, crush or displace artifacts, and could alter prehistoric and historic features or deposits. Ground-disturbing activities are short-term or temporary, but damage, if any, to non-renewable historic, archeological and paleontological resources would be permanent.

- a) Less Than Significant With Mitigation – According to CEQA, lead agencies are required to identify historical resources that may be affected by any undertaking that triggers CEQA environmental review. The significance of such resources must be evaluated using the criteria for listing in the CRHR (Public Resources Code Section 5024.1). Generally, a resource is considered to be historically significant if it has integrity and meets the criteria for listing in the CRHR. Resources already listed or determined eligible for the NRHP are by definition eligible for the CRHR. Integrity is defined as the authenticity of a historical resource’s physical identity, evidenced by the survival of characteristics that existed during the resource’s period of significance. CRHR regulations specify that integrity is a quality that applies to historical resources in seven ways: location, design, setting, materials, workmanship, feeling, and association. In addition, for a resource to be eligible for the CRHR, it must satisfy each of the following three standards.
- a. A property must be significant at the local, state, or national level, under one or more of the following criteria.
 - i. It is associated with events or patterns of events that have made a significant contribution to the broad patterns of the history and cultural heritage of California and the United States.
 - ii. It is associated with the lives of persons important to the nation or California’s past.
 - iii. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
 - iv. It has yielded, or may be likely to yield, information important to the prehistory or history of the state or the nation.
 - b. A resource must retain enough of its historic character or appearance to be recognizable as a historic property, and to convey the reasons for its significance.
 - c. It must be 50 years old or older (except for rare cases of structures of exceptional significance).

As described in Table 3 above, of the seven archeological sites with boundaries that extend within or are directly adjacent to the project area, four are listed or are potentially eligible for listing on the CRHR. Most of the direct and indirect actions associated with the planned restoration would not overlap with these archeological sites, and therefore there would be no anticipated impact to this threshold. However, the restoration planned for some of the sites, such as along Reach 3 of Martis Creek, does overlap or is directly adjacent to these documented historical resources, such that project construction could result in a substantial adverse change to a historical resource. Potential impacts to historic resources, including to

any previously unidentified resources discovered as a result of earthmoving activities, would be reduced with implementation of Mitigation Measure CUL.1, CUL.2, and CUL.3. Implementation of these mitigation measures would prevent significant adverse effects to documented historic resources, reducing the potential impacts of the project to less than significant

- b) Less Than Significant With Mitigation – Public Resource Code (PRC) Section 21083.2 states that if a project could affect a resource that has not met with the definition of a historical resource set forth in PRC Section 21084, then the lead agency should determine whether a project would have a significant effect on “unique” archaeological resources. PRC 21082.2(g) states: “... a ‘unique archaeological resource’ means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
- a. Contains information needed to answer important scientific research questions and that there is demonstrable public interest in that information.
 - b. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
 - c. Is directly associated with a scientifically recognized important prehistoric or historic event or person.”

A resource that merely adds to the current body of knowledge without meeting one of the above criteria is considered a non-unique archeological or paleontological resource.

The project would not likely cause a significant impact to a *unique* archaeological resource. Of the three sites with an unknown CRHR listing eligibility (see Table 3, above), none of the sites, nor any artifacts within the sites, are likely to meet the definition of a unique archeological resource according to the above criteria. In addition, implementation of Mitigation Measures CUL.1, CUL.2, and CUL.3 would reduce any potential impacts to unique archeological resources, including to any previously unidentified resources discovered as a result of earthmoving activities, to a less than significant level.

- c) Less Than Significant With Mitigation – Paleontological resources are the fossilized evidence of past life found in the geologic record. No paleontological resources or unique geologic features are known to exist within the Martis Valley. However, subsurface paleontological resources or unique geologic features could be discovered during excavation conducted for the proposed project. Mitigation Measure CUL.4 would ensure that impacts to such resources discovered during ground disturbance activities would be less than significant.
- d) Less Than Significant With Mitigation – USACE field inventories of the USACE Martis Creek Lake and Dam Project Area have not identified any burial sites or ceremonial grounds. Therefore, no human remains are known to be buried within the project area. In the event that human remains are discovered, Mitigation Measure CUL.5 would reduce potentially significant impacts to a less than significant level.

3.3.5.2 Mitigation Measures for Cultural Resources

Mitigation Measure CUL.1) All impacts to existing historic resources, potentially historic resources, unique archeological resources, and/or resources identified by the Washoe Tribe to be of cultural significance will be avoided to the extent feasible by designating all archeological sites within the project area or immediately adjacent to the project area as exclusion zones and demarcating the boundaries of those zones with fencing, staking, flagging or other appropriate material. This demarcation shall be completed by a qualified archeologist as determined by USACE. Signage shall be placed on the markers identifying the exclusion zone and stating that construction vehicles, equipment, and personnel are not permitted in the exclusion zone. If complete avoidance of the zone is not feasible, appropriate construction methods for each potentially conflicting situation shall be developed in coordination with a qualified archeologist and appropriate representatives from TRWC and USACE. If the conflict involves a resource that is of potential significance to the Washoe Tribe, a tribal representative shall also be consulted. An example of a construction method that could be employed to reduce disturbance in an area demarcated as an archeological site would be utilization of a hand crew, as opposed to a machine, to grade a streambank. In other conflicting situations, such as where a vehicle must pass through an exclusion zone to access a site, a qualified archeologist shall examine the access route and determine whether vehicle passage through the zone would damage the resource such that its integrity, or other criteria contributing to its significance, would be compromised. In any situation of conflict where a qualified archeologist determines the project either directly or indirectly would cause a significant impact to a historic resource or unique archeological resource, the restoration activity planned for that location shall be modified to ensure a less than significant impact to the at-risk cultural resource.

Mitigation Measure CUL.2) Prior to construction, TRWC, in collaboration with USACE, shall prepare a Construction Monitoring and Unanticipated Discovery Plan that will present, in detail, procedures to be implemented during construction to avoid impacts to any potentially significant cultural resources, including any resources identified by the Washoe Tribe to be of cultural significance. The Construction Monitoring and Unanticipated Discovery Plan may include guidelines with respect to locations within the project area where an archeological and/or Native American monitor is required, the creation of buffer zones near areas of cultural sensitivity, and work stoppage guidelines. At a minimum, if a potential heritage or cultural resource is discovered, construction shall be halted within 50-feet of the site until a qualified archeologist can evaluate the find. If the archeologist can determine at the time that the find would not be eligible for the NRHP or CRHR and does not contain human remains, construction may proceed after the find is properly documented and/or collected. The Construction Monitoring and Unanticipated Discovery Plan will also discuss procedures for immediate work stoppage and treatment in the event of discovery of human remains during construction activities.

Mitigation Measure CUL.3) As part of the WEAP training (see Mitigation Measure BIO.9), all construction personnel shall be trained regarding the recognition of cultural and heritage resources. At a minimum WEAP topics regarding heritage and cultural resources to cover with personnel include:

- types of heritage and cultural resources expected in the project area;
- types of evidence that indicates heritage or cultural resources might be present (e.g., ceramic shards, trash scatters, lithic scatters);
- roles and responsibilities of the construction monitors;
- importance of avoiding areas flagged or otherwise identified as sensitive;

- what to do if a worker encounters a possible resource;
- what to do if a worker encounters bones or possible bones; and
- penalties for removing or intentionally disturbing heritage and cultural resources.

Mitigation Measure CUL.4) Should any evidence of paleontological resources (e.g. fossils) be encountered during grading or excavation either onsite or offsite as a result of project construction, work shall be suspended within 100 feet of the find and TRWC shall be immediately notified. At that time, TRWC shall coordinate any necessary investigation of the site with a qualified paleontologist as needed to assess the resource and provide management recommendations, such as avoiding the resource and/or excavating and recording data on the resource. The contractor shall implement any measures deemed necessary by TRWC for the protection of the paleontological resource.

Mitigation Measure CUL.5) If human remains are discovered, all work within 50 feet of the discovery site will halt immediately. TRWC shall notify the County Coroner, as stipulated in Section 7050.5 of the California Health and Safety Code. The Coroner will determine whether the remains are Native American and, if so, will contact the Native American Heritage Commission (NAHC) by telephone within 24 hours. The commission will follow the stipulations in Section 5097.98 of the PRC, including notification of those persons it believes to be most likely descended from the deceased Native American. If the commission is unable to identify a descendant, the descendant is unable to make a recommendation, or the landowner (USACE) rejects the recommendation, the NAHC will mediate any dispute between the parties. Because the project area is within federally managed lands, the provisions of the Native American Graves Protection and Repatriation Act (NAGPRA) also apply. For NAGPRA-associated discoveries, it may be necessary to provide 24-hour, onsite security.

3.3.6 Geology and Soils

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.3.6.1 *Discussion of Impact on Geology and Soils*

Setting

Martis Creek, in Placer County, is located in the Sierra Nevada Geomorphic Province of California. The Sierra Nevada is a large tilted fault block, nearly 400 miles long, which is bordered to the east by the Basin and Range province and to the west by the Great Valley province.

The parent material is comprised of quaternary alluvium and marine deposits (Q) with some quaternary volcanic flow rocks, Unit 1 – Cascade Volcanic Field, (Qv) to the south. The Mineral Land Classification of Placer County lists the area as primarily MRZ-3a (sg-15) which is described as glacial deposits. The Natural Resources Conservation Service Web Soil Survey lists the soil types as AQB (aquolls and borolls, 0-5% slope), MEB (Martis-Euer variant complex, 2-5% slopes), and PX (pits; borrow).

Unnamed faults exist within the vicinity of the project area but have no known seismic activity. The Foothill Fault Zone traverses the county and several active faults are located near the eastern border in Nevada. These are the North Tahoe, Incline Village and East Tahoe faults. The Placer County Local Hazard Mitigation Plan states that while no major earthquakes have been recorded in the county, the area will occasionally experience significantly damaging earthquakes due to nearby faults.

Impact Discussion

- a) No Impact – The project area is not within an area of concern as specified by the Alquist-Priolo Earthquake Fault Zoning Map. Project implementation will primarily involve the use of hand tools and light-duty construction equipment. Slopes within the project area do not exceed 5% and are primarily flat wet meadow areas. It is not anticipated that any construction activities will trigger strong seismic ground shaking, seismic related ground failure, or landslides. Therefore, no impact would occur with project implementation.
- b) Less Than Significant With Mitigation – The project area is primarily situated on flat wet meadow areas and restoration sites are situated in or near Martis Creek and its tributaries. Project implementation will utilize both hand tools and light-duty construction equipment. Currently established roads and trails will be utilized to reduce the impact to meadow areas, however, some meadow areas may be used by construction equipment to access restoration sites which could result in the loss of topsoil. This can be mitigated to a less than significant impact with Mitigation Measure GS.1.

Restoration will also include the regrading of streambanks, installation of a new bridge to replace a failing culvert, and head-cut restoration which have the potential to increase erosion of soils. This potentially significant impact would be reduced to a less than significant effect by conformance with existing applicable regulatory standards and associated permit requirements and by adherence to the general provisions guiding erosion control and earthwork Best Management Practices (BMPs) as stated in the restoration design plans. The restoration design plan general provisions include the requirement that all revegetation work must be overseen by a CPESC and must be documented on a daily basis. Erosion control and earthwork BMPs for the project can be found within the Restoration Design Plans attached as Appendix B. The specific regulatory standards and associated permit requirements the project must adhere to as a condition of construction includes the following:

1. To minimize the potential effects of construction runoff on receiving water quality, all municipal, industrial and commercial facilities that discharge wastewater or stormwater directly from a point source into a water of the United States must obtain a NPDES permit, a permit program established under Section 402 of the Clean Water Act. In order to obtain coverage under the NPDES General Permit for Construction Activities, a NOI is required to be filed with the Regional Water Quality Control Board (in this case the LRWQCB. In conjunction with submittal of a NOI to LRWQCB, a SWPPP is required to be prepared by a Qualified SWPPP Developer and retained on site during construction. The SWPPP has two major objectives: 1) to help identify the sources of sediment and

other pollutants that affect the quality of storm water discharges; and 2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in storm water and non-storm water discharges. The SWPPP must include BMPs for both construction and post-construction periods. Included BMPs must address source control, pollutant control, and treatment control.

2. Grading is subject to Placer County Code, Chapter 15, "Grading, Erosion and Sediment Control Ordinance." Requirements to minimize soil erosion and loss of topsoil include the following (Placer County Code 2017):
 - i. Grading plans shall be designed with long-term erosion and sediment control as a primary consideration. Erosion prevention and source control are to be emphasized over sediment controls and treatment.
 - ii. Grading operations shall provide erosion and sediment control measures. Temporary mulch, revegetation, or other stabilization methods shall be applied to areas where permanent revegetation or landscaping cannot be immediately implemented.
 - iii. Grading activity must be scheduled to ensure completion or winterization by October 15th of each year.
 - iv. Grading activity shall be conducted such that the smallest practicable area of erodible land is exposed at any one time during grading operations and the time of exposure is minimized. Land disturbance shall be limited to the minimum area necessary for construction.
 - v. Natural features, including vegetation, terrain, watercourses and similar resources shall be protected and preserved wherever possible. Units of grading shall be clearly defined and marked to prevent damage by construction equipment.
 - vi. Permanent vegetation and structures for erosion and sediment control shall be installed as soon as possible.
 - vii. Adequate provision shall be made for effective maintenance of temporary and permanent erosion and sediment control structures and vegetation. Sediment and other construction-related wastes shall be retained and properly managed on the site or properly disposed of off-site.
 - viii. No topsoil shall be removed from the site unless otherwise directed or approved by the community development resource agency. Topsoil overburden shall be stockpiled and redistributed where appropriate within the graded area after rough grading to provide a suitable base for seeding and planting.
 - ix. Runoff from the stockpiled area shall be controlled to prevent erosion and resultant sedimentation of receiving water.
 - x. Runoff shall not be discharged from the site in quantities or at velocities substantially above those which occurred before grading except into drainage facilities, whose design has been specifically approved by the community development resource agency.
 - xi. The permittee shall take reasonable precautions to ensure that vehicles do not track or spill earth materials into public streets and shall immediately remove such materials if this occurs.

- xii. All cut and fill slopes shall be adequately stabilized to prevent erosion and failure through temporary and permanent means.
 - xiii. Control measures shall be employed to prevent transport of dust off the project site or into any drainage course or water body.
- c) Less Than Significant Impact – Direct impacts related to the potential for landslides, liquefaction, and soil erosion are addressed in Items (a) and (b) above. Construction activities for the proposed project would be temporary and short-term, and are not likely to result in substantial soil erosion or require deep excavations. Construction activities are not anticipated to result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. Therefore, impacts would be less-than-significant.
- d) No Impact – No structures for human occupancy would be constructed as part of the proposed project. Because no new risks to life or property would be created, the project would have no effect related to expansive or unstable soils. Therefore, no impact would occur with project implementation.
- e) No Impact – Soils at the project site are adequate to support the proposed project and associated equipment. No alternative wastewater disposal systems are proposed as part of the project. Therefore, no impact would occur with project implementation.

3.3.6.2 Mitigation Measures for Geology and Soils

Mitigation Measure GS.1) In the event it is necessary to access restoration sites through wet meadows or other sensitive areas, meadow protection mats will be used. The purpose of the mats is to distribute the force of any construction equipment to reduce compaction, and also to prevent the loss of topsoil and protect vegetation.

3.3.7 Greenhouse Gas Emissions

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.3.7.1 *Discussion of Impact on Greenhouse Gas Emissions*

a, b) **Less Than Significant Impact** – As discussed in Section 3.3.3, *Air Quality*, emissions impacts associated with the project are limited to the period of project construction and consist of a) air quality impacts associated with emissions from construction equipment and b) air quality impacts associated with dust created during ground disturbance activities. As a stream and habitat restoration project, there are no GHG emissions associated with the long-term watershed and habitat improvements associated with the project. GHG emissions of primary concern from project construction include carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). Construction related activities resulting in exhaust emissions may come from fuel combustion for heavy-duty diesel and gasoline-powered equipment, portable auxiliary equipment, material delivery trucks, and worker commuter trips.

Based on the number, type and use of construction equipment, the construction of the project would not exceed PCAPCD adopted GHG thresholds of significance for the construction and operational phase of land use projects, nor would the project conflict with any other applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Further, through revegetation and enhancement of the floodplain and riparian areas, the project may result in additional plant sequestration of carbon dioxide and reduce potential GHG emissions. Overall, the project would not generate substantial greenhouse gas emissions which could be considered to have a significant impact on the environment. The impact of the project is less than significant.

3.3.7.2 *Mitigation Measures for Greenhouse Gas Emissions*

No potentially significant impacts have been identified, so no mitigation is required.

3.3.8 Hazards and Hazardous Materials

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.3.8.1 *Discussion of Impact on Hazards and Hazardous Materials*

Impact Discussion

a) **Less Than Significant Impact** – During excavation, grading, and construction activities for the project, it is anticipated that limited quantities of miscellaneous hazardous substances (such as petroleum-based products/fluids, solvents, and oils) would be employed in the project area and staging area. The proposed project would comply with all relevant federal, state, and local statutes and regulations related to transport, use, or disposal of hazardous materials. Therefore, impacts related to transport, use, or disposal of hazardous materials would be less than significant. Construction activities would incorporate BMPs (as required by federal and state regulations) and would minimize hazards resulting from routine transport, use, or disposal of hazardous materials.

- b) Less Than Significant With Mitigation – The operation and storage of construction equipment in the project area has the potential to affect water quality through the accidental or inadvertent release of oil, grease, or fuel into adjacent waterways. Mitigation Measure HAZ.1 identifies measures to avoid spills and reduce the potential for adverse impacts should a spill occur. Implementation of Mitigation Measure HAZ.1 would reduce risks associated with a release of hazardous materials during construction to a less than significant level.
- c) No Impact – The project area is not located within a ¼ mile of an existing or proposed school. No impact would occur with project implementation.
- d) No Impact – The project area is not included on a list of hazardous materials sites (Cortese List) compiled pursuant to Government Code Section 65962.5. In addition, while some areas of Placer County are likely to contain naturally occurring asbestos, the project area is not located in one of these zones. Therefore, no impact would occur with project implementation.
- e, f) No Impact – Portions of the project area are located within one mile of the Truckee Tahoe Airport, however, the project would not result in a safety hazard for people residing or working in the project area because it is not establishing a new land use that creates the potential for such hazards.
- g) Less Than Significant Impact – Temporary traffic controls during construction may be necessary to ensure safe ingress and egress of construction equipment from SR 267 to staging areas and restoration sites, and in particular to the Middle Martis Creek headcut site. However, these traffic controls would result in no long-term change in traffic circulation or vehicular access routes, and would not affect or impair implementation of any adopted emergency response plan or evacuation plan. Any work or traffic control that encroaches on SR 267 would require an encroachment permit issued by the California Department of Transportation. The encroachment permit would require that appropriate traffic control be provided to manage circulation in the vicinity of work within the roadway and would require that emergency responders be notified in advance of any lane closures.
- h) No Impact – The restoration project would not expose people or structures to risk of loss or injury associated with wildland fire because it is not establishing a new land use that creates the potential for any increase in wildfire hazard or increase in exposure to wildfire hazard. Therefore, there is no impact.

3.3.8.2 Mitigation Measures for Hazards and Hazardous Materials

Mitigation Measure HAZ.1) The following measures shall be made a part of the construction bid specifications and implemented prior to and during construction.

- All equipment will be inspected by the contractor for leaks immediately prior to the start of construction, and regularly inspected throughout project construction.
- Each vehicle will be equipped with a spill containment kit sufficient to mitigate spills associated with a ruptured hydraulic line or fuel tank.
- The SWPPP and/or project plans shall identify construction staging areas and designated areas where equipment refueling, lubrication, and maintenance may occur. Areas

designated for refueling, lubrication, and maintenance of equipment shall be at least 50 feet from any spring/seep/wetland/marsh areas and 100 feet from creeks and shall be approved by USACE.

- The SWPPP shall contain BMPs for spill prevention and include an emergency response program to address quick and safe cleanup of accidental spills. The emergency response program shall include reporting requirements and directions consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Emergency Planning and Community Right-to-Know Act (EPCRA) and California law. In addition, the contractor shall immediately notify USACE in the event of any spill or release of any chemical during construction.

3.3.9 Hydrology and Water Quality

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.3.9.1 Discussion of Impact on Hydrology and Water Quality

Setting

As described in the regional setting of the project description: The Martis Creek watershed covers an area of approximately 42.7 square miles and drains to the Truckee River in the Town of Truckee, California. As tributaries to the Truckee River, all creeks within the Martis Creek watershed are within the Truckee River Hydrologic Unit. The Martis Creek subwatershed is 15.7 square miles, extending from its headwaters on either side of Sawtooth Ridge among forested areas and ski runs of Northstar-at-Tahoe, through the Martis Camp residential development and

Lahontan Golf Club, to the Martis Valley floor. The Martis Creek subwatershed includes the unnamed tributary where the culvert replacement is planned as well as Lookout Mountain Tributary. Lookout Mountain Tributary drains an approximately 1.7-square-mile watershed, originating from snowmelt and springs in areas currently and recently developed for residential and resort uses. The hydrogeomorphic zone of the project area is within the valley flood and meadow, described in the Martis Watershed Assessment as: alluvial fan, moraine, montane meadow, and wetland. The Lookout Mountain Tributary site is on the edge of this zone and includes the forested terrain characteristics of mid-elevation uplands in the Martis Valley. Stream gradients in the upper watershed range from 6 to 13%; stream channels along the Martis Valley floor and montane meadows range from 1% to 4% (Balance Hydrologics Inc. 2012). The Martis Watershed Assessment concluded that disturbance and impaired channels were most prevalent in the Martis Valley Floor, noting specifically the conversion of Martis Creek from a highly-sinuuous system of multiple channels to an incised single-thread channel (Balance Hydrologics Inc. 2012).

Impact Discussion

- a) Less than Significant With Mitigation – Construction activities associated with the proposed project could potentially cause or result in temporary increases in erosion and/or siltation. Erosion of onsite soils can lead to increased levels of suspended sediments and turbidity in receiving waters of Martis Creek, and could potentially impact water quality and result in a violation of water quality standards. However, this potentially significant impact would be reduced to a less than significant effect by conformance with existing applicable regulatory standards and associated permit requirements and by adherence to the erosion control and earthwork BMPs in the restoration design plans. In addition, and as an extra precaution given that the project proposes activities that involve directly working in and adjacent to stream channels, Mitigation Measure HWQ.1 specifies BMPs that will be included in the SWPPP and Mitigation Measure HWQ.2 requires review of on-the-ground BMPs prior to forecasted rain events. Erosion control and earthwork BMPs for the project can be found within the Restoration Design Plans attached as Appendix B. The specific regulatory standards and associated permit requirements addressing this potential impact include the following.
- Section 402 of the Clean Water Act (CWA) establishes the NPDES permit program for the discharge of any pollutant into Waters of the United States. In order to obtain NPDES permit coverage TRWC must file an NOI with LRWQCB and submit an accompanying SWPPP. The SWPPP is required to be prepared and retained on site during construction, and must contain BMPs to reduce impacts from erosion and sedimentation.
 - Section 401 of the CWA requires a 401 water quality certification from the applicable Regional Water Quality Control Board (in this case LRWQCB) for any project that involves dredging, filling, or otherwise impacting, either temporarily or permanently, waters of the U.S. LRWQCB also regulates discharge of waste to waters of the State under the Porter-Cologne Water Quality Control Act. In accordance with Section 401 of the CWA and with the Waste Discharge Requirements (WDRs) of the Porter-Cologne Water Quality Control Act, the project applicant (TRWC) cannot initiate construction without LRWQCB approval of a project application describing how the

proposed project complies with State water quality standards and will not result in adverse impacts to waters of the State, including Waters of the U.S. Water quality standards and LRWQCB policies for protecting waters of the State are defined in the Water Quality Control Plan for the Lahontan Region (Basin Plan).

- Placer County Code, Chapter 15, "Grading, Erosion and Sediment Control Ordinance" applies to any ground disturbing activity of 1 or more acres. Section 3.3.6, *Geology and Soils*, Item (b) describes the erosion and sediment control requirements included in a grading permit issued by the county. These measures include multiple on-site practices that reduce the potential for water quality to be impaired by the introduction of sediment.
- b) No Impact – The proposed project would not require the use of, or interfere with, groundwater supplies in the proposed project area. Consistent with its purpose, the project will increase water surface elevations and detain water in the floodplain of Martis Valley. This effect is intentional and will assist with improved floodplain habitat and potentially support groundwater recharge, infiltration, and shallow groundwater storage, all key ecological functions of floodplains and meadows. Groundwater stored in meadows may percolate to the deeper aquifer, and may support downstream and late-season baseflow in the watershed, helping to maintain resiliency and promote recovery following drought periods. There is no impact to this threshold.
- c) No Impact – The restoration project would not alter the existing drainage pattern of Martis Creek or of any of its tributaries. The tributaries would continue to drain into Martis Creek and Martis Creek would continue to drain to Martis Creek Lake. The design of the restoration project is intended to reduce creek erosion and sedimentation transport associated with Martis Creek and its tributaries by grading to treat channel incision and by the introduction of components (e.g. log jams, bioengineered check dams, installation of coir mats) designed to reduce water flow velocity, increase water surface elevations and stabilize creek banks. Because the project would not alter an existing drainage pattern of the site or area in a manner that would result in substantial erosion or siltation on or off site, there is no impact to this threshold.
- d) Less Than Significant Impact – The restoration project would not alter the existing drainage pattern of Martis Creek or of any of its tributaries. The tributaries would continue to drain into Martis Creek and Martis Creek would continue to drain to Martis Creek Lake. The actions and components of the restoration project (e.g. grading to treat channel incision and the introduction of log jams and bioengineered check dams) are designed to raise water surface elevations and reduce water flow velocity in Martis Creek and its tributaries. These components, and the restoration project as a whole, should increase water attenuation in the Martis Valley floodplain, ultimately increasing water storage capacity of the meadow and reducing the rate and velocity at which water flows from the headwaters of the watershed into Martis Creek Lake. This is beneficial from a flooding standpoint as the structural integrity of the Martis Creek Lake dam is compromised and thus the total water volume the lake can hold at any one time is limited. Restoration projects that detain water in the Maris Valley floodplain for longer periods of time reduce stress to the dam's infrastructure by reducing the volume and rate of water that enters the lake during runoff events. In addition,

as the majority of the restoration projects are upstream of SR 267, this attenuation may reduce the potential for Martis Creek to flood the Highway during high-runoff events. Because the project would not alter an existing drainage pattern of the site or area, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site, there is no adverse impact to this threshold.

- e,f) Less Than Significant Impact – As discussed in Items (c) and (d), above, the improved floodplain function expected as a result of the project would increase the water storage capacity of the floodplain and reduce the velocity and volume of runoff passing through the watershed at any one time. As a result the project would not create runoff conditions that tax the capacity of any existing or planned stormwater drainage systems. In addition, reducing the velocity of water passing through Martis Creek and its tributaries increases the opportunity for sediment and other pollutants to be deposited and trapped, resulting in an improvement in downstream water quality. As noted in the project description, TRWC estimated that the planned restoration for the five reaches along Martis Creek could result in the beneficial annual reduction of roughly 14 tons of sediment to the creek (Balance Hydrologics Inc. 2017). Any sources of pollution or degradation of water quality associated with the project would be limited to the period of construction. Potential impacts associated with the introduction of construction-related erosion material or contaminants into surface waters would be reduced to a less than significant level by conformance with existing federal, state and local water quality regulations as discussed under Item (a) above, and by implementation of Mitigation Measure HAZ.1 regarding avoiding spills and reducing adverse impacts associated with any spills that may occur.
- g) No Impact – No structures for human occupancy would be constructed as part of the proposed project and no existing housing would be affected by the proposed project. Therefore, no impact would occur with project implementation.
- h) No Impact – The project does not involve placement of structures that would impede or redirect flood flows. Rather, the project includes features that would detain additional flood volume along the creek corridor, reducing downstream peak flows and improving the floodplain function of Martis Creek watershed. Therefore, there is no impact to this threshold.
- i) No Impact – Currently Martis Creek Lake, the reservoir built for flood risk management and operated by USACE, is not operable at maximum capacity due to compromised integrity of the dam. If upgraded, the surface water elevation of Martis Creek Lake could be maintained at an elevation (gross pool) that would cover 768 acres of the Martis Valley Floor with temporary inundation of 1,145 acres during flood events. The lake is currently kept at a minimum pool with a surface area of 70 acres and containing approximately 800 acre-feet of water (USACE 2016). It is unlikely that the gross capacity of Martis Creek Lake will ever be realized considering the existing compromised integrity of the dam and in consideration of the long-term goals for management of the area (USACE 2016). If at some future point Martis Creek Lake dam is repaired such that its gross capacity could be realized, the proposed bridge, and other infrastructure within the gross pool of the lake could be temporarily flooded. Temporary inundation of the project area is not anticipated to

effect the overall integrity of the pedestrian bridge structure. There is no impact associated with this threshold.

- j) No Impact – Inundation by seiche or mudflow is not anticipated as a result of the project. There is no impact.

3.3.9.2 Mitigation Measures for Hydrology and Water Quality

Mitigation Measure HWQ.1) The Restoration Design Plans and/or SWPPP prepared for the project shall include the following BMPs.

- A construction schedule that identifies maximum flow limits during construction
- A description of acceptable soil moisture and creek flow conditions that must be met prior to ground disturbance activities.
- Measures to limit human, vehicle and livestock access to the site to allow for recovery of vegetation
- A delineation of areas of construction/access on stream banks and riparian areas and specifications for equipment access routes

Mitigation Measure HWQ.2) The project contractor will review on the ground project BMPs prior to a large forecasted storm event (1 inch in 24 hours rain event, or prolonged period of rain over a 48 hour period exceeding a total of 2.5 inches) that may exceed BMP capacity and would notify appropriate staff (e.g. contract administrator at TRWC) if additional BMPS are recommended to disconnect runoff from surface water features.

3.3.10 Land Use and Planning

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.3.10.1 *Discussion of Impact on Land Use and Planning*

Setting

Martis Creek and tributaries are located on parcels of land in Martis Valley, California in the USACE Martis Creek Lake and Dam Project. The project falls within areas designated as either Water Influence or Open Space in both the Placer County General Plan and the Martis Valley Community Plan. The project area is zoned by Placer County as either W-AO or O-AO. The 2016 USACE Master Plan Update classifies lands within the project area as either: low-density recreation, high-density recreation, wildlife management, or environmentally sensitive..

Impact Discussion

- a) No Impact – The proposed project would not result in the physical division of a community. The proposed project would not create a new barrier between various portions of the project area, and would not result in any permanent structures that would physically divide an established community. Therefore, no impact would occur with project implementation.
- b) No Impact – Restoration of Martis Creek and of the three tributary sites is an action that is consistent with all applicable land use plans, policies and regulations applicable to the project area, therefore no impact to this threshold would occur with project implementation.
- c) No Impact – The proposed project would not conflict with implementation of a habitat conservation or natural community conservation plan. Therefore, no impact to this threshold would occur with project implementation.

3.3.10.2 *Mitigation Measures for Land Use and Planning*

No potentially significant impacts have been identified, so no mitigation is required.

3.3.11 Mineral Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.3.11.1 *Discussion of Impact on Mineral Resources*

Setting

In compliance with the California Surface Mining and Reclamation Act (SMARA), the California Division of Mines and Geology has established a classification system to denote both the location and significance of key extractive resources. Under SMARA, the State Mining and Geology Board may designate certain mineral deposits as being regionally significant to satisfy future needs. The 1995 Mineral Land Classification Map of Placer County lists the Martis Valley area as primarily MRZ-3a (sg-15) which is described as glacial deposits. As described in the accompanying 1995 Mineral Land Classification report, construction aggregate was commercially produced from glacial outwash deposits in the Martis Valley area and an adequate supply of construction aggregate is a prime concern for the County.

Impact Discussion

a,b) No Impact – Despite the presence of construction aggregate in the Martis Valley, no mineral extraction operations currently occur in the project vicinity, and no portion of the Martis Creek Lake and Dam Project is designated by the USACE Martis Creek Lake Master Plan Update, Placer County General Plan or Martis Valley Community Plan as a mineral resource recovery site. In addition, fill removed from the restoration site, including fill that might be classified as construction aggregate, would remain within the project area. The receiving site for fill, identified in Figure 3, Project Area, is on the north side of SR 267. Fill deposited in the designated area would be laid to grade and re-seeded at the completion of the project. The project would result in no impact associated with the loss of availability of mineral resources.

3.3.11.2 *Mitigation Measures for Mineral Resources*

No potentially significant impacts have been identified, so no mitigation is required.

3.3.12 Noise

Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.3.12.1 *Discussion of Impact on Noise*

a-d) **Less Than Significant Impact** – Any noise impacts associated with the project would be intermittent and limited to the period of project construction. Use of construction equipment could result in a temporary increase in noise that temporarily and intermittently exceeds noise level limits specified in Article 9.36 of the Placer County Code. In addition, use of construction equipment could result in intermittent minor ground-borne vibration associated with grading activities and bridge construction. However the project is in an open space area with no nearby residential or commercial facilities. In addition, the majority of any construction work is expected to occur on days and hours specified by the Placer County Code (Chapter 9, Section 9.36.030, “Exemptions”) as exempt from noise standards. This is a less than significant impact.

e, f) **No Impact** – Portions of the project area are located within one mile of the Truckee Tahoe Airport, however, this will not result in exposure of people working in the project area to excessive noise levels. There is no impact.

3.3.12.2 *Mitigation Measures for Noise*

No potentially significant impacts have been identified, so no mitigation is required.

3.3.13 Population and Housing

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.3.13.1 Discussion of Impact on Population and Housing

a-c) No Impact – The project will not directly or indirectly induce population growth in the area nor will it displace housing or require construction of replacement housing. Therefore, there is no impact.

3.3.13.2 Mitigation Measures for Population and Housing

No potentially significant impacts have been identified, so no mitigation is required.

3.3.14 Public Services

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.3.14.1 *Discussion of Impact on Public Services*

a) **Less Than Significant Impact** – The project is a watershed and habitat restoration project. No new public services would be necessary to support the project, and the project would not increase the intensity of use of existing services. The project would result in the temporary closure of access to the TMT from the Martis Wildlife Area parking lot and would eliminate the volunteer foot trail that follows Martis Creek from the parking lot area to the creek’s intersection with the TMT (just before Pappé’s bridge). As the trail is an informal volunteer foot trail, and not a formally recognized recreation facility, and because the existing TMT has adequate capacity to service pedestrians and cyclists in the area, restoration of the foot trail would not require mitigation with any new recreation facilities.

3.3.14.2 *Mitigation Measures for Public Services*

No potentially significant impacts have been identified, so no mitigation is required.

3.3.15 Recreation

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.3.15.1 *Discussion of Impact on Recreation*

Setting

With the exception of a portion of the construction access route to the Lookout Mountain Tributary site, the project area is wholly within the USACE Martis Creek Lake and Dam Project and on lands designated in the 1977 USACE Martis Creek Lake and Dam Master Plan as either for wildlife management or low-density recreation. The TMT, which is maintained by NCSO, provides 14.6 miles of publicly accessible unpaved trails through the Northstar community and the USACE Martis Creek Lake and Dam Project. In addition to the TMT, an existing volunteer foot trail follows Martis Creek from the Martis Wildlife Area parking lot upstream to an intersection with the TMT around reach 1 of the creek. These existing trails are some of the most popular trails in the Truckee area. However, as identified in the 2012 Martis Creek Watershed Assessment (Balance Hydrologics Inc. 2012), the heavy use of the volunteer foot trail along Martis Creek has led to water quality impacts. Erosion of the trail and streambanks has led to sedimentation of the creek. In addition, the presence of humans and dogs in a sensitive wet meadow and stream ecosystem negatively impacts wildlife.

The limited recreational infrastructure within the project area includes three bridges: 1) the TMT pedestrian bridge crossing of Martis Creek just south of the reach 1 restoration site, known as “Pappe’s Bridge,” 2) the TMT pedestrian bridge crossing on the northern edge of the Lookout Mountain Tributary site, known as “Jake’s Bridge,” and 3) the pedestrian bridge crossing over Middle Martis Creek immediately downstream of the headcut restoration site. In addition, the site of the failed culverts on the unnamed tributary just west of Martis Creek allows users of the TMT to cross the tributary at that location. Additional infrastructure in the project area includes at least two wooden benches along Martis Creek as well as a picnic table on the west side of Martis Creek within the Lookout Mountain Tributary site, just upstream of Jake’s Bridge.

Impact Discussion

- a) Less Than Significant Impact – The restoration along Martis Creek involves grading that would affect the volunteer foot trail along the creek, and includes revegetation and erosion control measures focused on preserving the wetland and riparian attributes of the area. As such, elimination of the existing volunteer foot trail is an indirect effect of the restoration

project. Elimination of the volunteer foot trail would likely increase recreational use of the TMT, which is also accessible via the Martis Wildlife Area parking lot and is generally located on less sensitive soils than the existing foot trail. The existing gravel-track of the TMT would not experience substantial physical deterioration due to potentially minimal increases in pedestrian use. This is a less than significant impact.

- b) **Less Than Significant Impact with Mitigation** – The project includes replacement of existing failed culverts with a full span bridge and raising the height of Jake’s Bridge to ensure that the bridge would not be flooded by the raised water surface elevations resulting from project implementation at the Lookout Mountain Tributary site. In addition, if models indicate the location of the existing picnic table near the Lookout Mountain Tributary site would be subject to flooding as a result of the project, the picnic table would be relocated to a nearby location with less flood risk potential. Construction of the proposed full span bridge and of a remodeled Jake’s Bridge, would be subject to federal, state and local regulations for activities in waters of the State and U.S. In particular Section 404 of the CWA regulates the placement of dredged or fill material in waters of the U.S. and Section 10 of the Rivers and Harbors Act regulates all structures and work in over and under navigable waters. These regulations, combined with the proposed mitigation measures included in this document, and specifically in Section 3.3.4, *Biological Resources*, and Section 3.3.9 *Hydrology and Water Quality*, would reduce any adverse physical effects associated with raising the height of the bridge to a less than significant impact.

3.3.15.2 Mitigation Measures for Recreation

Implementation of Mitigation Measures BIO.1-BIO.8 and HWQ.1 shall be required.

3.3.16 Transportation/Traffic

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.3.16.1 *Discussion of Impact on Transportation/Traffic*

Setting

The project is a stream and habitat restoration project in an open space area of which only limited parts are accessible by USACE or NCSD maintenance vehicles. The only transportation/traffic impacts associated with the project would occur during the project construction period. Construction vehicles would access the majority of the restoration sites via ingress and egress routes from SR 267. The Lookout Mountain Tributary site would be accessed via Basque Drive, a residential street just west of the Northstar Golf Course.

State Route 267 is one of the main northern entrances into the Lake Tahoe Basin. It is a nearly 12 mile, two-lane, undivided mountain highway that connects I-80 at Truckee in Nevada County to SR 28 in Kings Beach in Placer County. The route is of local and regional significance because it provides access to residential, industrial, commercial and recreational land uses.

Caltrans District 3 has established concept Level of Service standards for a 20-year period of LOS D for route segments in rural areas and LOS E for route segments in urban areas. Presently, LOS conditions for SR 267 are at LOS D. This LOS rating is directly attributed to the hilly, mountainous terrain of this rural route, limited sight distance, few passing opportunities, many curves, and steep grades. SR 267 LOS conditions include some delays, occasional unstable traffic flows, and difficult or few passing opportunities.

Impact Discussion

a-c, e & f) Less Than Significant Impact – Construction of the proposed project is limited to one summer season and would not generate substantial increases in vehicle traffic, alter the mix of vehicle traffic on existing roadways or conflict with transportation plans in the region. The Restoration Design Plans include appropriate ingress and egress routes for construction vehicle and personnel access to the project sites that take into account traffic safety. Any work or traffic control that encroaches on SR 267 would require an encroachment permit issued by the California Department of Transportation. The encroachment permit would require that appropriate traffic control be provided to manage circulation in the vicinity of work within the roadway. Overall, the project would not adversely affect transportation and circulation in the area.

d) Less Than Significant Impact with Mitigation – Construction activities immediately adjacent to SR 267, such as staging of construction equipment associated with the Middle Martis headcut site, could increase traffic hazards due to associated shoulder or lane closures and resulting decreased roadway width. Decreased roadway width, if not managed appropriately, could increase hazards for vehicles, as well as bicyclists. Bicyclists are currently permitted along SR 267. Construction activities associated with transport of materials and fill from the restoration sites on the south side of SR 267 to the north side of SR 267 could create hazards associated with multiple trips by oversized construction vehicles. In addition, the movement of construction equipment, including oversized vehicles, between SR 267 and the restoration sites could create potential travel hazards at the points of ingress and egress to the project area. Mitigation Measure TRANS.1 would reduce potentially significant traffic hazards created during project construction to a less than significant impact by requiring development and implementation of a Traffic Control Plan to protect the safety of workers and the traveling public. In addition, implementation of Mitigation Measure TRANS.2, would ensure that any cumulative transportation impacts associated with construction of this project in combination with construction of the MVRT would be coordinated and managed to reduce potentially significant cumulative traffic impacts.

3.3.16.2 *Mitigation Measures for Transportation/Traffic*

TRANS.1) TRWC in coordination with NCSD will develop and implement a Traffic Control Plan to minimize disruptions to surface travel and protect the safety of workers and the traveling public. The Traffic Control Plan will include, but not be limited to, the following:

- coordination with local transportation agencies and emergency service providers for temporary lane and road closures and implementation of measures to maintain emergency vehicle access;
- identification of any time restrictions on construction activities that could affect roadways;
- traffic control measures (flagging methods, signage, reduced speeds in work zones, parking restrictions);
- provision for maintaining safe pedestrian and bicycle travel (e.g., signage to direct pedestrians and bicyclists to safe routes around construction areas); and

- public outreach advising the travelling public of construction activity and travel restrictions.

The Traffic Control Plan measures will be monitored by the applicant for effectiveness and adjustments will be made as needed to the implementation of the Traffic Control Plan to further minimize travel disruptions and maintain safety.

Mitigation Measure TRANS.2) If construction of the MVRT is scheduled for the same time period as construction of the Martis Wildlife Area Restoration Project, the following actions shall be taken:

- TRWC and NCS D project managers will compare each project's construction schedule and project plans, including access routes, staging areas and construction sequencing, and identify any locations and times where construction equipment is scheduled to be staged or active in the same area. Based on this review TRWC shall modify, as necessary, the construction schedule or project plans to maintain an adequate level of safety for ingress and egress to all staging areas.

3.3.17 Tribal Cultural Resources

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.3.17.1 Discussion of Impact on Tribal Cultural Resources

- a) Less Than Significant With Mitigation – The project area falls within the traditional territory of the northern Washoe, or Wélmelti’ (Lindström 2011). As described in Section 3.3.5, Cultural Resources, portions of seven prehistoric resource sites are within the project area or directly adjacent to the project area. Of these seven sites, four are listed or potentially eligible for listing on the California Register of Historic Resources. Based on review of the cultural resources sections of the MVRT and CalPeco environmental documents, there is at least one knoll near the project era used by historic-era Washoe. Implementation of Mitigation Measure CUL.1, CUL.2 and CUL.3 would reduce any impacts to the significance of tribal cultural resources to a less than significant effect.
- b) Less Than Significant With Mitigation – The TTRWC contacted the Tribal Historic Preservation Officer (THPO) of the Washoe Tribe, Darrel Cruz, in accordance with AB 52 requirements on November 19, 2017. The Washoe Tribe responded by expressing general support for the project, including indicating their interest in restoring the Martis Valley to conditions indicative of pre-European disturbance. The Washoe Tribe declined an invitation for a site visit. Implementation of Mitigation Measures CUL.1, CUL.2 and CUL.3 would reduce any impacts to the significance of tribal cultural resources to a less than significant effect.

3.3.17.2 Mitigation Measures for Tribal Cultural Resources

Implementation of Mitigation Measures CUL.1, CUL.2 and CUL.3 shall be required.

3.3.18 Utilities and Service Systems

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.3.18.1 Discussion of Impact on Utilities and Service Systems

a-e) No Impact – The proposed project would not require or result in the construction of new or expanded water or wastewater treatment facilities. As such, the proposed project would not exceed wastewater treatment requirements of LRWQCB. The proposed project would not require or result in the construction of new stormwater drainage facilities or necessitate the expansion of existing facilities. The proposed project would not require potable water, thus no new or expanded water supplies or entitlements would be required as a result of the proposed project. The proposed project would not require service by wastewater treatment facilities and would not affect wastewater treatment capacity.

f,g) No Impact – It is anticipated that the proposed project would generate excess materials during construction that would require disposal. Construction debris and excess material requiring disposal in a landfill would be hauled off-site to a suitable facility. Following completion of construction, the proposed project would not require landfill service and thus would not affect landfill capacity. The proposed project would comply with all relevant federal, state, and local statutes and regulations related to the generation and disposal of solid waste

3.3.18.2 Mitigation Measures for Utilities and Service Systems

No potentially significant impacts have been identified, so no mitigation is required.

3.3.19 Mandatory Findings

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.3.19.1 *Discussion of Impact on Mandatory Findings of Significance*

- a) **Less Than Significant With Mitigation** – This Public Review Draft Initial Study/Proposed Mitigated Negative Declaration found that the proposed project and associated activities will potentially impact the environment in the areas of aesthetics, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, recreation, transportation, and tribal resources. However, these potential impacts, most of which are temporary in nature (i.e. would only occur during construction) would be reduced to a less than significant level with implementation of the mitigation measures included in this document. Altogether the project is expected to improve the resilience and ecological function of the Martis Creek watershed, including its hydrology, habitats, and infrastructure.
- b) **Less Than Significant Impact with Mitigation** – As a wildlife and watershed restoration project, this project remediates and restores damage caused to the watershed by past actions, and therefore the proposed project’s impacts would not be cumulatively considerable when viewed in connection with the effects of projects. There are no long-term impacts associated with the project that would not be reduced to a less-than-significant impact with mitigation, and therefore, when viewed in connection with probable future projects, there is no anticipated cumulatively considerable impact. Any cumulative impacts associated with the project would be limited to the period of project construction, and to the combined impacts associated with the construction of other projects in the vicinity. As portions of the MVRT may be scheduled for construction at the same time as the construction period for the proposed project, and because portions of the planned MVRT would directly overlap with portions of the proposed project, this could create a cumulatively considerable impact. The potential of the two projects to create a cumulatively considerable impact during the construction period was considered for each environmental issue area. Potential cumulative impacts associated with simultaneous construction of these two projects would be reduced to

less than significant levels with implementation of Mitigation Measure BIO.10 and TRANS.2.

- c) No Impact – The project will not result in any substantial adverse effects to human beings, either directly or indirectly, because each potentially significant impact can be reduced to a less than significant level with the implementation of the mitigation measures provided in this document. No other substantial adverse effects to human beings are anticipated as a result of this project.

4.0 ACRONYMS AND ABBREVIATIONS

Assessment	Martis Watershed Assessment
BMPs	Best Management Practices
CalPeco	CalPeco 625 and 650 Electrical Line Upgrade Project
CDFW	California Department of Fish and Wildlife
CERCLA	Comprehensive Environmental Response, Compensations, and Liability Act
CH ₄	methane
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO ₂	carbon dioxide
CPESC	certified professional erosion and sediment control
CRHR	California Register of Historic Resources
CWA	Clean Water Act
DBH	diameter at breast height
EA	Environmental Assessment
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPCRA	Emergency Planning and Community Right-to-Know Act
IS	Initial Study
LCT	Lahontan cutthroat trout
LRWQCB	Lahontan Region Water Quality Control Board
Master Plan	Martis Creek Lake and Dam Master Plan Update
MCAB	Mountain Counties Air Basin
MND	Mitigated Negative Declaration
MVCP	Martis Valley Community Plan
MVRT	Martis Valley Regional Trail
N ₂ O	nitrous oxide
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NCSD	Northstar Community Services District
NEPA	National Environmental Policy Act
NPDES	National Pollution Discharge Elimination System
NRHC	National Register of Historic Places
NOX	nitrogen oxides
O-AO	Open Space combined with Airport Overflight
PCAPCD	Placer County Air Pollution Control District
PRC	Public Resources Code
PM	particulate matter
Policy	Review of Land Use Projects under CEQA Policy
QSD	Qualified SWPPP Developer
Reclamation	Bureau of Reclamation
RFPs	Requests for Proposals
ROG	reactive organic gases
SHPO	State Historic Preservation Officer
SMARA	California Surface Mining and Reclamation Act

SNYLF	Sierra Nevada Yellow-Legged Frog
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan
T-TSA	Truckee-Tahoe Sanitation Agency
THPO	Tribal Historic Preservation Officer
TMT	Tompkins Memorial Trail
TRWC	Truckee River Watershed Council
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
W-AO	Water Influence combined with Airport Overflight
WDRs	Waste Discharge Requirements
WEAP	Worker Environmental Awareness Program

5.0 LIST OF PREPARERS

The Public Review Draft IS/Proposed MND was prepared by Sierra Ecosystem Associates with input from TRC Solutions Inc. and from the Truckee River Watershed Council. The following individuals contributed to this Public Review Draft IS/ Proposed MND:

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Appendix A

Mitigation Monitoring and Reporting Program

#	Mitigation Measure and Description of Compliance	Responsible Party	Implementation Phase
1	<p>Mitigation Measure AES.1) The design of the full span bridge planned for the culvert replacement site shall adhere to the Community Design Goals and Policies set forth in the MVCP. In addition, the design of the bridge, including its colors and materials for its constructions shall be approved by TRWC, NCSD and USACE. MVCP Design Goals and Policies include the following requirements applicable to the proposed bridge.</p> <ul style="list-style-type: none"> - The bridge shall be planned and designed in a manner which employs design construction and maintenance techniques that: - Incorporate design and screening measures to minimize the visibility of structures and graded areas; - Maintain the character and visual quality of the area. - The bridge shall be designed to be compatible with the scale and character of the area. The bridge should be designed so that: <ul style="list-style-type: none"> - it does not silhouette against the sky above the ridge lines or hilltops; - vertical architectural features blend and do not detract from the natural background; - it fits the natural terrain, and, - building materials, colors, and textures that blend with the natural landscape are used to avoid high contrasts. - Materials and methods of construction shall be specific to the region, exhibiting continuity of history and culture and compatibility with the climate to encourage the development of local character and community identity. <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	TRWC, NCSD and USACE	Prior to construction
2	<p>Mitigation Measure AES.2) Stockpiling of materials onsite shall be minimized during construction. Construction staging areas and stockpile storage locations shall be located within existing disturbed areas and/or within the area of construction, and shall be located to screen views of staging areas from the Martis Wildlife Area parking lot and SR 267 to the extent feasible – including without creating potential impacts to any biological resources.</p> <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	Contractor	During construction

#	Mitigation Measure and Description of Compliance	Responsible Party	Implementation Phase
3	<p>Mitigation Measure BIO.1) To avoid disturbance of active raptor nests, living or dead trees greater than 10 inches in diameter (DBH) shall not be removed during typical breeding season (March 1 through August 31). If trees greater than 10 inches DBH must be removed during breeding season, a survey for active raptor nest sites shall be conducted by a qualified biologist prior to tree removal. The survey shall be conducted no more than 30 days prior to the proposed tree removal activities. Survey results shall be submitted to CDFW. If active raptor nests are found on or immediately adjacent to proposed project areas, a minimum 300-foot buffer shall be established from active construction areas. CDFW shall be consulted to determine appropriate protective measures. No trees with nests shall be removed until the nest is determined to be inactive.</p> <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	Contractor and TRWC	At least 30 days prior to tree removal activities
4	<p>Mitigation Measure BIO.2) To determine areas of nesting habitat and of the presence or absence of willow flycatchers in the project area, a qualified biologist shall perform a field assessment according to CDFW protocol. CDFW shall be consulted and informed of any results that indicate the presence of active willow flycatcher nests within the project area. If active nests are found, construction work within 300 feet from the nesting area shall be prohibited during breeding season (May 1 to August 31) and/or until nests are inactive.</p> <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	Contractor and TRWC	Prior to construction

#	Mitigation Measure and Description of Compliance	Responsible Party	Implementation Phase
5	<p>Mitigation Measure BIO.3) A preconstruction survey for <i>Ivesia sericoleuca</i> shall be performed by a qualified biologist no more than two weeks prior to the start of ground disturbance activities. If <i>Plumas Ivesia</i> is found within the project area, CDFW shall be consulted to determine appropriate procedures for protection and avoidance. Existing hydrology shall not be altered near existing occurrences to prevent drying or erosion. Populations shall be flagged and areas around populations demarcated as zones where personnel and construction equipment are prohibited. Existing populations shall be periodically monitored by a qualified biologist to determine if any negative impacts are occurring. If impacts are occurring measures shall be taken to protect the existing populations. Protection measures may include fencing, hydrology alterations, and signage.</p> <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	Contractor and TRWC	Prior to construction
6	<p>Mitigation Measure BIO.4) Machinery, fencing and construction of check dams or of log jams shall not prevent the movement of LCT throughout their range through the project area. Check dams and log jams shall not be constructed to a height and width that would prevent upstream or downstream travel. In addition, the following Best Management Practices shall be adhered to:</p> <ul style="list-style-type: none"> - The adopted construction schedule shall avoid scheduling instream work during the spawning or migration seasons of resident or migratory fish, including LCT. A qualified fisheries biologist shall be consulted to determine those period when instream work should be avoided due to fish migration and spawning. Typically LCT spawn between April and July.. - Surveys for fish and other aquatic organisms shall be conducted prior to dewatering and subsequently removed from the area to be dewatered in accordance with a CDFW approved dewatering plan - The Restoration Design Plans shall identify measures that delineate and provide specifications for any water crossings to minimize heavy equipment entry into or crossing water as is practicable <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	Contractor and TRWC	Prior to and during construction

#	Mitigation Measure and Description of Compliance	Responsible Party	Implementation Phase
7	<p>Mitigation Measure BIO.5) Informal consultation shall be sought with USFWS to request concurrence that the proposed project may affect, but is not likely to adversely affect SNYLF based on existing available information, including recent field surveys. If USFWS does not concur with the proposed “not likely to adversely affect” impact analysis, mitigation to avoid any adverse impacts to SNYLF shall be developed in accordance with USFWS and CDFW recommendations.</p> <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	TRWC	Prior to construction
8	<p>Mitigation Measure BIO.6) The Restoration Design Plans and/or SWPPP prepared for the project shall include the following BMPs.</p> <ul style="list-style-type: none"> - Direction to schedule any ground disturbing activities in the dry season - Measures to avoid, as much as possible, riparian areas along access routes to the project sites - Direction to remediate any ground disturbing activities that negatively impact riparian habitat with restoration plantings that must be completed within one growing season <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	TRWC and Contractor	Prior to construction
9	<p>Mitigation Measure BIO.7) Federal and state agencies including CDFW, USACE, and USFWS shall be notified of project activities within wetlands and streams at the project site. Any permits, grading plans, wetland delineations, or other federal and state permits shall be provided to applicable agencies. No in-stream or work within wetland areas shall proceed until applicable permits have been acquired.</p> <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	TRWC	Prior to construction

#	Mitigation Measure and Description of Compliance	Responsible Party	Implementation Phase
10	<p>Mitigation Measure BIO.8) New ground disturbance within areas of riparian vegetation that provide potential habitat for Sierra Nevada mountain beaver and Sierra Nevada snowshoe hare shall be avoided to the extent feasible. If disturbance to riparian vegetation cannot be avoided, a qualified biologist shall be retained to survey the proposed area of disturbance prior to construction. If evidence of occurrence of either of these species is found, a minimum 500 foot non-disturbance buffer shall be established around nest or burrow sites and CDFW shall be contacted to determine appropriate avoidance and/or impact minimization measures. Such measures could include monitoring, buffer zones or seasonal work restrictions.</p> <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	TRWC and Contractor	Prior to construction
11	<p>Mitigation Measure BIO.9) A Worker Environmental Awareness Program (WEAP) shall be developed and implemented for all personnel that could access the site prior to commencing any disturbance activities. The WEAP shall include a review of the special status species and other sensitive resources that exist in the project area, including the locations of sensitive biological resources and their legal status and protections, and measures to be implemented for avoidance. The WEAP shall emphasize the need to avoid entry into areas where biological resources have been identified based on predisturbance field surveys and to implement the buffer avoidance or other protection measures in accordance with CDFW and USFWS requirements and with the requirements of Mitigation Measures contained in this document.. A record of all trained personnel shall be maintained.</p> <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	TRWC, USACE and NCSD	Prior to and during construction

#	Mitigation Measure and Description of Compliance	Responsible Party	Implementation Phase
12	<p>Mitigation Measure BIO.10) NCSD is the lead agency and project proponent of the MVRT project. If construction of the MVRT is scheduled for the same time period as construction of the Martis Wildlife Area Restoration Project, the following actions shall be taken:</p> <ul style="list-style-type: none"> - TRWC and NCSD project managers will compare each project’s construction schedule and project plans, including access routes, staging areas and construction sequencing, and identify any locations and times where construction equipment is scheduled to be staged or active in the same area. Based on this review TRWC shall modify, as necessary, the construction schedule or project plans to reduce potential adverse effects to biological resources associated with restoration site access and construction. Modifications may include the development of additional BMPs to avoid or minimize soil removal and vegetation disturbance; and to reduce the quantity of creek crossings within the period of project construction. - The QSD who develops the SWPPP for the proposed project shall take into consideration the construction schedule, plans and, if available, the SWPPP for the MVRT, and include BMPs to minimize soil disturbance, erosion and sediment; taking into consideration the potential for additional disturbance in the area associated with construction of the MVRT. <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	TRWC and NCSD	Prior to construction

#	Mitigation Measure and Description of Compliance	Responsible Party	Implementation Phase
13	<p>Mitigation Measure CUL.1) All impacts to existing historic resources, potentially historic resources, unique archeological resources, and/or resources identified by the Washoe Tribe to be of cultural significance will be avoided to the extent feasible by designating all archeological sites within the project area or immediately adjacent to the project area as exclusion zones and demarcating the boundaries of those zones with fencing, staking, flagging or other appropriate material. This demarcation shall be completed by a qualified archeologist as determined by USACE. Signage shall be placed on the markers identifying the exclusion zone and stating that construction vehicles, equipment, and personnel are not permitted in the exclusion zone. If complete avoidance of the zone is not feasible, appropriate construction methods for each potentially conflicting situation shall be developed in coordination with a qualified archeologist and appropriate representatives from TRWC and USACE. If the conflict involves a resource that is of potential significance to the Washoe Tribe, a tribal representative shall also be consulted. An example of a construction method that could be employed to reduce disturbance in an area demarcated as an archeological site would be utilization of a hand crew, as opposed to a machine, to grade a streambank. In other conflicting situations, such as where a vehicle must pass through an exclusion zone to access a site, a qualified archeologist shall examine the access route and determine whether vehicle passage through the zone would damage the resource such that its integrity, or other criteria contributing to its significance, would be compromised. In any situation of conflict where a qualified archeologist determines the project either directly or indirectly would cause a significant impact to a historic resource or unique archeological resource, the restoration activity planned for that location shall be modified to ensure a less than significant impact to the at-risk cultural resource.</p> <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	USACE qualified archeologist and TRWC	Prior to and during construction

#	Mitigation Measure and Description of Compliance	Responsible Party	Implementation Phase
14	<p>Mitigation Measure CUL.2) Prior to construction, TRWC, in collaboration with USACE, shall prepare a Construction Monitoring and Unanticipated Discovery Plan that will present, in detail, procedures to be implemented during construction to avoid impacts to any potentially significant cultural resources, including any resources identified by the Washoe Tribe to be of cultural significance. The Construction Monitoring and Unanticipated Discovery Plan may include guidelines with respect to locations within the project area where an archeological and/or Native American monitor is required, the creation of buffer zones near areas of cultural sensitivity, and work stoppage guidelines. At a minimum, if a potential heritage or cultural resources is discovered, construction shall be halted within 50-feet of the site until a qualified archeologist can evaluate the find. If the archeologist can determine at the time that the find would not be eligible for the NRHP or CRHR and does not contain human remains, construction may proceed after the find is properly documented and/or collected. The Construction Monitoring and Unanticipated Discovery Plan will also discuss procedures for immediate work stoppage and treatment in the event of discovery of human remains during construction activities.</p> <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	USACE qualified archeologist and TRWC	Prior to and during construction
15	<p>Mitigation Measure CUL.3) As part of the Worker Environmental Awareness Program (WEAP) training (see Mitigation Measure BIO.9), all construction personnel shall be trained regarding the recognition of cultural and heritage resources.. At a minimum WEAP topics regarding heritage and cultural resources to cover with personnel include:</p> <ul style="list-style-type: none"> - types of heritage and cultural resources expected in the project area; - types of evidence that indicates heritage or cultural resources might be present (e.g., ceramic shards, trash scatters, lithic scatters); - roles and responsibilities of the construction monitors; - importance of avoiding areas flagged or otherwise identified as sensitive; - what to do if a worker encounters a possible resource; - what to do if a worker encounters bones or possible bones; and - penalties for removing or intentionally disturbing heritage and cultural resources. <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	USACE qualified archeologist, TRWC and contractor	Prior to and during construction

#	Mitigation Measure and Description of Compliance	Responsible Party	Implementation Phase
16	<p>Mitigation Measure CUL.4) Should any evidence of paleontological resources (e.g. fossils) be encountered during grading or excavation either onsite or offsite as a result of project construction, work shall be suspended within 100 feet of the find and TRWC shall be immediately notified. At that time, TRWC shall coordinate any necessary investigation of the site with a qualified paleontologist as needed to assess the resource and provide management recommendations, such as avoiding the resource and/or excavating and recording data on the resource. The contractor shall implement any measures deemed necessary by TRWC for the protection of the paleontological resource.</p> <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	Contractor	During construction
17	<p>Mitigation Measure CUL.5) If human remains are discovered, all work within 50 feet of the discovery site will halt immediately. TRWC shall notify the County Coroner, as stipulated in Section 7050.5 of the California Health and Safety Code. The Coroner will determine whether the remains are Native American and, if so, will contact the Native American Heritage Commission (NAHC) by telephone within 24 hours. The commission will follow the stipulations in Section 5097.98 of the PRC, including notification of those persons it believes to be most likely descended from the deceased Native American. If the commission is unable to identify a descendant, the descendant is unable to make a recommendation, or the landowner (USACE) rejects the recommendation, the NAHC will mediate any dispute between the parties. Because the project area is within federally managed lands, the provisions of the Native American Graves Protection and Repatriation Act (NAGPRA) also apply. For NAGPRA-associated discoveries, it may be necessary to provide 24-hour, onsite security.</p> <p><i>Compliance Verification</i></p> <p>Name: _____ Date: _____ Comments:</p>	Contractor and TRWC	During construction
18	<p>Mitigation Measure GS.1) In the event it is necessary to access restoration sites through wet meadows or other sensitive areas, meadow protection mats will be used. The purpose of the mats is to distribute the force of any construction equipment to reduce compaction, and also to prevent the loss of topsoil and protect vegetation.</p> <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	Contractor	During construction

#	Mitigation Measure and Description of Compliance	Responsible Party	Implementation Phase
19	<p>Mitigation Measure HAZ.1) The following measures shall be made a part of the construction bid specifications and implemented prior to and during construction.</p> <ul style="list-style-type: none"> - All equipment will be inspected by the contractor for leaks immediately prior to the start of construction, and regularly inspected throughout project construction. - Each vehicle will be equipped with a spill containment kit sufficient to mitigate spills associated with a ruptured hydraulic line or fuel tank. - The SWPPP and/or project plans shall identify construction staging areas and designated areas where equipment refueling, lubrication, and maintenance may occur. Areas designated for refueling, lubrication, and maintenance of equipment shall be at least 50 feet from any spring/seep/wetland/marsh areas and 100 feet from creeks and shall be approved by USACE. - The SWPPP shall contain BMPs for spill prevention and include an emergency response program to address quick and safe cleanup of accidental spills. The emergency response program shall include reporting requirements and directions consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Emergency Planning and Community Right-to-Know Act (EPCRA) and California law. In addition, the contractor shall immediately notify USACE in the event of any spill or release of any chemical during construction. <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	TRWC and Contractor	Prior to and during construction
20	<p>Mitigation Measure HWQ.1) The Restoration Design Plans and/or SWPPP prepared for the project shall include the following BMPs.</p> <ul style="list-style-type: none"> - A construction schedule that identifies maximum flow limits during construction - A description of acceptable soil moisture and creek flow conditions that must be met prior to ground disturbance activities. - Measures to limit human, vehicle and livestock access to the site to allow for recovery of vegetation - A delineation of areas of construction/access on stream banks and riparian areas and specifications for equipment access routes <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	Restoration Design Contractor, QSD, and TRWC	Prior to construction

#	Mitigation Measure and Description of Compliance	Responsible Party	Implementation Phase
21	<p>Mitigation Measure HWQ.2) The project contractor will review on the ground project BMPs prior to a large forecasted storm event (1 inch in 24 hours rain event, or prolonged period of rain over a 48 hour period exceeding a total of 2.5 inches) that may exceed BMP capacity and would notify appropriate staff (e.g. contract administrator at TRWC) if additional BMPS are recommended to disconnect runoff from surface water features.</p> <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	Contractor	Prior to and during construction
22	<p>TRANS.1) TRWC in coordination with NCSD will develop and implement a Traffic Control Plan to minimize disruptions to surface travel and protect the safety of workers and the traveling public. The Traffic Control Plan will include, but not be limited to, the following:</p> <ul style="list-style-type: none"> - coordination with local transportation agencies and emergency service providers for temporary lane and road closures and implementation of measures to maintain emergency vehicle access; - identification of any time restrictions on construction activities that could affect roadways; - traffic control measures (flagging methods, signage, reduced speeds in work zones, parking restrictions); - provision for maintaining safe pedestrian and bicycle travel (e.g., signage to direct pedestrians and bicyclists to safe routes around construction areas); and - public outreach advising the travelling public of construction activity and travel restrictions. <p>The Traffic Control Plan measures will be monitored by the applicant for effectiveness and adjustments will be made as needed to the implementation of the Traffic Control Plan to further minimize travel disruptions and maintain safety.</p> <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	TRWC, NCSD and Caltrans	Prior to construction

#	Mitigation Measure and Description of Compliance	Responsible Party	Implementation Phase
23	<p>Mitigation Measure TRANS.2) If construction of the MVRT is scheduled for the same time period as construction of the Martis Wildlife Area Restoration Project, the following actions shall be taken:</p> <ul style="list-style-type: none"> - TRWC and NCSD project managers will compare each project’s construction schedule and project plans, including access routes, staging areas and construction sequencing, and identify any locations and times where construction equipment is scheduled to be staged or active in the same area. Based on this review TRWC shall modify, as necessary, the construction schedule or project plans to maintain an adequate level of safety for ingress and egress to all staging areas. <p><i>Compliance Verification</i></p> <p>Name _____ Initials: _____ Date: _____ Comments:</p>	TRWC and NCSD	Prior to construction

LEGEND:

EXISTING MAJOR CONTOUR - 5 FT	
EXISTING MINOR CONTOUR - 1 FT	
EXISTING CHANNEL/FLOWPATH	
EXISTING FENCE	
EXISTING EDGE OF GRAVEL AREA	
EXISTING TRAIL	
EXISTING PROPERTY LINE	
PROPOSED MAJOR CONTOUR	
PROPOSED MINOR CONTOUR	
GRADE BREAK	
GRADING LIMIT	
PROPOSED FINISHED GRADE ELEVATION	5850.0 —x
PROPOSED SURFACE FLOW DIRECTION	
PROPOSED EMBANKMENT SLOPE (3:1 UNLESS NOTED OTHERWISE)	
TEMPORARY GRAVEL BAGS	
FILL EXISTING DITCH	
DEMOLISH AND REMOVE FEATURE	
SOD HARVEST AREA	

ABBREVIATIONS:

'	FEET
"	INCH
#	NUMBER
APPROX	APPROXIMATE
CBM	CHANNEL BED MATERIAL
CMP	CORRUGATED METAL PIPE
DIA, Ø	DIAMETER
E	EASTING
EG	EXISTING GRADE
ELEV	ELEVATION
EOP	EDGE OF PAVEMENT
EX	EXISTING
FG	FINISH GRADE
FT	FEET
H	HORIZONTAL
IN	INCH
LT	LEFT
LWM	LARGE WOODY MATERIAL
MAX	MAXIMUM
MIN	MINIMUM
N	NORTHING
NTS	NOT TO SCALE
OC	ON CENTER
PC	POLE CUTTING
PROP	PROPOSED
PSI	POUNDS PER SQUARE INCH
ROW	RIGHT OF WAY
STA	STATION
STR	STRUCTURE
TYP	TYPICAL
USACE	U.S. ARMY CORPS OF ENGINEERS
V	VERTICAL
W/I	WITHIN
WSE	WATER SURFACE ELEVATION
Z	ELEVATION

GENERAL NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE PROJECT SITE TO VERIFY SITE CONDITIONS AND FOR COMPLETELY UNDERSTANDING THE REQUIRED SCOPE OF WORK SHOWN ON THESE DRAWINGS AND CONTAINED IN THE PROJECT SPECIFICATIONS.
2. ALL PARTS OF THIS PROJECT - INCLUDING SOIL PREPARATION, EARTHWORK, AND PLANTING - ARE SUBJECT TO FIELD DESIGN BY THE ENGINEER'S REPRESENTATIVE. AT ANY TIME, THE CONTRACTOR'S OPERATIONS AND CONSTRUCTION MAY BE SUBJECT TO OBSERVATION BY THE FIELD REPRESENTATIVE. WHEN REQUESTING THE PRESENCE OF THE FIELD REPRESENTATIVE AT THE PROJECT SITE FOR DESIGN CLARIFICATION, STAGE ACCEPTANCE, OR OTHER APPROVALS, THE CONTRACTOR SHALL PROVIDE 48 HOURS ADVANCE NOTICE DIRECTLY TO THE FIELD REPRESENTATIVE.
3. UTILITY LOCATIONS DEPICTED HEREIN ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES BEFORE THE START OF ANY CONSTRUCTION OPERATIONS, INCLUDING AND NOT LIMITED TO EXCAVATION OR TRENCHING. THE CONTRACTOR SHALL CALL UNDERGROUND SERVICE ALERT (USA) AT 811/1-800-227-2600. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HOURS ADVANCE NOTICE FOR LOCATING UTILITIES.
4. THE CONTRACTOR SHALL INSTALL PRESERVATION FENCING, STAKE AND FLAG THE LIMITS OF GRADING, AND INSTALL EXCLUSION FENCING AS PRESCRIBED IN THE SPECIFICATIONS AT LOCATIONS SHOWN ON THE DRAWINGS BEFORE THE START OF ANY OTHER SITE WORK INCLUDING DEMOLITION, CLEARING AND GRUBBING, AND EARTHWORK. REFER TO THE SPECIFICATIONS FOR ADDITIONAL PRESERVATION REQUIREMENTS AND INFORMATION.
5. THE CONTRACTOR SHALL CONTACT THE FIELD REPRESENTATIVE IMMEDIATELY UPON FINDING ANY FIELD CONDITIONS THAT WOULD CONFLICT WITH THE INFORMATION INDICATED ON THESE DRAWINGS OR THE PROJECT SPECIFICATIONS. ALL FIELD ADJUSTMENTS MUST BE APPROVED BY THE FIELD REPRESENTATIVE BEFORE CONSTRUCTION OF SAID ADJUSTMENTS; FAILURE TO DO SO SHALL RESULT IN THE CONTRACTOR ASSUMING FULL RESPONSIBILITY FOR ANY REQUIRED REVISIONS OR FIELD MODIFICATIONS, AS DIRECTED BY THE FIELD REPRESENTATIVE, AT NO ADDITIONAL COST.
6. CONFORM TO EXISTING GRADES AND CONDITIONS WHENEVER POSSIBLE. ANY ADJACENT OR OFFSET AREAS DISTURBED BY THE CONTRACTOR'S OPERATION MUST BE RESTORED BY THE CONTRACTOR TO THE PRE-DISTURBANCE CONDITIONS TO THE SATISFACTION OF THE FIELD REPRESENTATIVE.
7. ALL LUBRICATION, REFUELING, OR MAINTENANCE OF CONSTRUCTION VEHICLES SHALL BE CONDUCTED WITHIN APPROVED CONSTRUCTION STAGING AREAS AND BE A MINIMUM OF 100 FEET AWAY FROM EXISTING CHANNELS
8. STAGING AREAS MUST BE CONTAINED TO CONFINE THE AREA AND PREVENT CONTAMINANTS FROM ENTERING NEARBY CHANNELS AND WATER BODIES.
9. ELEVATIONS ARE RELATIVE TO THE NAVD88 DATUM.
10. WHERE NO WORK LIMIT IS SHOWN, THE PRESERVATION FENCING SHALL BE THE WORK LIMIT.
11. PRESERVE TREES AND VEGETATION OUTSIDE OF THE LIMITS OF WORK. ANY TREES OR VEGETATION DISTURBED OUTSIDE OF THE LIMITS OF WORK SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

EARTHWORK NOTES:

1. EARTHWORK OPERATIONS SHALL BE EXECUTED ACCORDING TO THIS DOCUMENT AND THE RELEVANT PROJECT PERMITS.
2. THE CONTRACTOR SHALL CONSTRUCT FINISHED SURFACES TO ±0.3' OF THE ELEVATIONS INDICATED ON THE PLANS.
3. EXCAVATING, FILLING, AND GRADING WORK SHALL NOT BE PERFORMED DURING WEATHER CONDITIONS WHICH MIGHT DAMAGE OR BE DETRIMENTAL TO THE CONDITION OF EXISTING GROUND, IN-PROGRESS WORK, OR COMPLETED WORK. WHEN THE WORK IS INTERRUPTED BY RAIN OR SNOW; EXCAVATING, FILLING, AND GRADING WORK SHALL NOT RESUME UNTIL THE SITE AND SOIL CONDITION (MOISTURE CONTENT) ARE SUITABLE FOR COMPACTION.
4. SOIL MATERIAL THAT IS TOO WET FOR COMPACTION SHALL BE LEFT TO DRAIN, THEN TO BE AERATED AND DRIED BY DISKING AND HARROWING OR OTHER APPROVED METHODS UNTIL THE MOISTURE CONTENT OF THE MATERIAL IS UNIFORM AND WITHIN THE SPECIFIED LIMITS.
5. THE CONTRACTOR SHALL COMPLY WITH THE EROSION CONTROL MEASURES PRESENTED HEREIN AND THOSE OF THE PERTINENT REGULATORY REQUIREMENTS.
6. MATERIAL USED FOR FILL SHALL BE AN INERT, INORGANIC SOIL, FREE FROM DELETERIOUS SUBSTANCES, AND OF SUCH QUALITY THAT IT WILL COMPACT THOROUGHLY WITHOUT THE PRESENCE OF VOIDS WHEN ROLLED. INORGANIC SOIL IS DEFINED AS SOIL CONTAINING LESS THAN TWO PERCENT BY WEIGHT OF ORGANIC MATERIAL WHEN TESTED IN ACCORDANCE WITH ASTM D2974. EXCAVATED ON-SITE MATERIAL WILL BE CONSIDERED SUITABLE FOR FILL, IF IT IS FREE FROM ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES AND CONFORMS TO THE REQUIREMENTS SPECIFIED HEREIN.
7. EXCAVATED MATERIAL THAT IS SUITABLE FOR FILL SHALL BE CONDITIONED FOR REUSE AND PROPERLY STOCKPILED FOR LATER FILLING OPERATIONS. STOCKPILE TOPSOIL SEPARATELY AS DESCRIBED IN THE REVEGETATION NOTES. CONDITIONING SHALL CONSIST OF SPREADING MATERIAL IN LAYERS NOT TO EXCEED 8 INCHES THICK AND RAKING FREE OF DEBRIS AND RUBBLE. CONDITIONING MAY TAKE PLACE WITHIN THE GRADING LIMITS AND STAGING AREAS. EXCAVATED MATERIALS SHALL BE DEEMED SUITABLE IF MATERIALS CONFORM TO THE NOTES HEREIN AND ARE ACCEPTED BY THE FIELD REPRESENTATIVE. DELETERIOUS MATERIAL SHALL BE REMOVED FROM THE SITE AND DISPOSED OF.
8. MATERIAL EXCAVATED FROM THE PROJECT SITE SHALL BE DEEMED UNSUITABLE FOR REUSE IF IT IS: OF SUCH NATURE AS TO BE INCAPABLE OF BEING COMPACTED TO SPECIFIED DENSITY USING ORDINARY METHODS, TOO WET TO BE PROPERLY COMPACTED AND CIRCUMSTANCES PREVENT SUITABLE DRYING PRIOR TO INCORPORATION INTO THE WORK, FOUND TO CONTAIN DEBRIS WASTE, VEGETATION OR OTHER DELETERIOUS MATTER, OR OTHERWISE DEEMED UNSUITABLE BY THE FIELD REPRESENTATIVE.
9. THE CONTRACTOR SHALL TAKE ALL MEANS NECESSARY TO PREVENT THE INTRODUCTION AND SPREAD OF NON-NATIVE PLANTS.
10. THE CONTRACTOR SHALL PROVIDE ADEQUATE DUST CONTROL MEASURES DURING EARTHWORK OPERATIONS THAT ARE IN ACCORDANCE WITH LOCAL AND STATE REQUIREMENTS, ALONG WITH PERMIT CONDITIONS.
11. THE FIELD REPRESENTATIVE SHALL APPROVE FINISH GRADE ELEVATIONS.

PREPARED FOR:

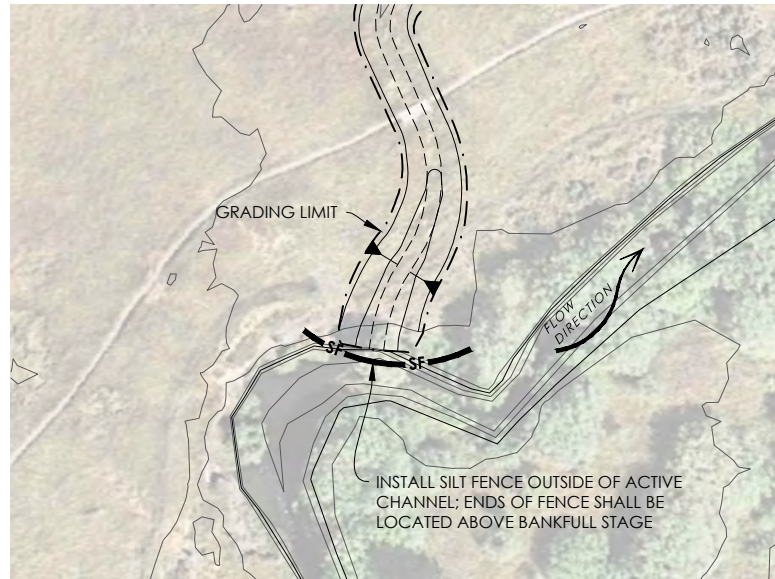
Balance Hydrologics, Inc.
 P.O. Box 1077
 12020 Donner Pass Road
 Truckee, CA 96161
 Tel: (530) 580-9776
 www.balancehydro.com

DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
B HASTINGS	6-10-16	BKH	CONCEPTUAL PLANS
P KULCHAWIK	3-8-17	BKH	95% PROGRESS DRAFT
E BALLMAN	4-7-17	BKH	DRAFT 95% DESIGN
IN CHARGE			
D SHAW			
DATE	4-7-17		

GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS
 MAINSTEM MARTIS CREEK RESTORATION
 PLACER COUNTY, CALIFORNIA
 TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER 215063
SCALE -
SHEET 2.0

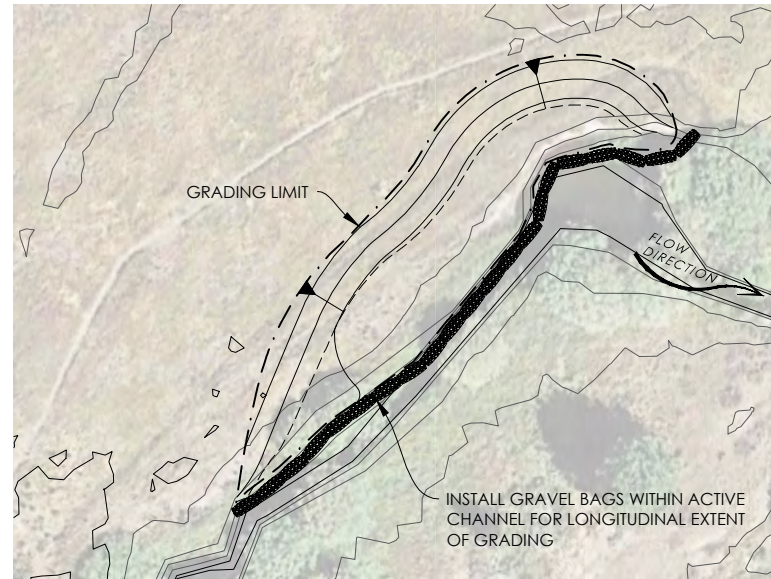
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TREATMENT TYPE 1: SILT FENCE
1" = 20'

SILT FENCE NOTES:

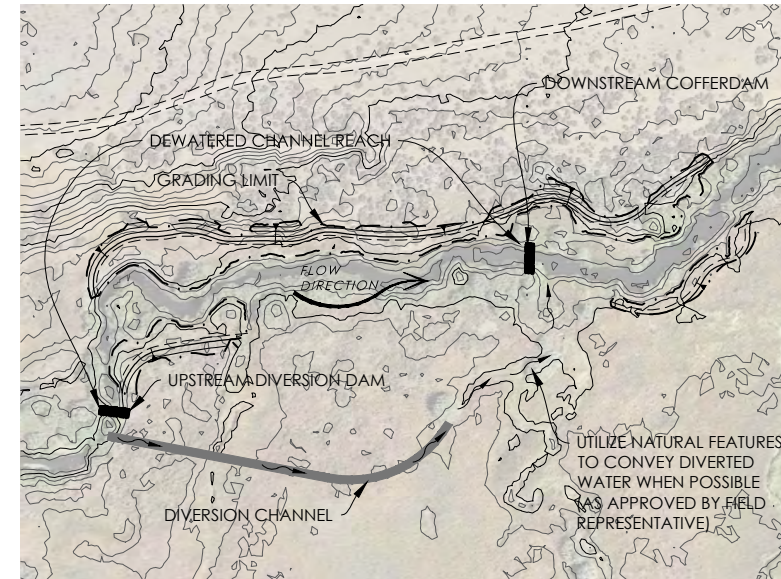
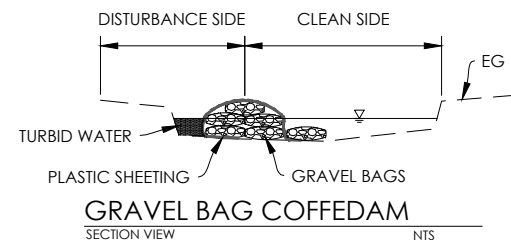
1. GENERAL
 - 1.1. INSTALL SILT FENCE IN LOCATIONS IDENTIFIED BY THE FIELD REPRESENTATIVE.
 - 1.2. INSTALL A SUFFICIENT AMOUNT OF SILT FENCING TO PREVENT SEDIMENT GENERATED BY CONSTRUCTION ACTIVITIES FROM ENTERING THE CHANNEL.
 - 1.3. SILT FENCES SHALL EITHER BE PREFABRICATED OR CONSTRUCTED WITH SILT FENCE FABRIC, POSTS, AND FASTENERS.
2. MATERIALS
 - 2.1. SILT FENCE FABRIC
 - 2.1.1. SILT FENCE FABRIC SHALL BE IMPERMEABLE POLYMER MATERIAL.
 - 2.1.2. SILT FENCE FABRIC MAY BE VIRGIN, RECYCLED, OR A COMBINATION OF VIRGIN AND RECYCLED POLYMER MATERIALS. NO VIRGIN OR RECYCLED POLYMER MATERIALS SHALL CONTAIN BIODEGRADABLE FILLER MATERIALS THAT CAN DEGRADE THE PHYSICAL OR CHEMICAL CHARACTERISTICS OF THE FINISHED FABRIC.
 - 2.2. POSTS SHALL BE ONE OF THE FOLLOWING:
 - 2.2.1. UNTREATED FIR OR PINE, A MINIMUM OF 2" X 2" IN SIZE, AND 4'-0" IN LENGTH. ONE END OF THE POST SHALL BE POINTED.
 - 2.2.2. STEEL AND HAVE A "U," "T," "L," OR OTHER CROSS SECTIONAL SHAPE THAT CAN RESIST FAILURE FROM LATERAL LOADS. THE STEEL POSTS SHALL HAVE A MINIMUM MASS PER LENGTH OF 0.8 LB/FT AND A MINIMUM LENGTH OF 4'-0". ONE END OF THE STEEL POSTS SHALL BE POINTED AND THE OTHER END SHALL BE CAPPED WITH AN ORANGE OR RED PLASTIC SAFETY CAP WHICH FITS SNUGLY TO THE STEEL POST.
 - 2.3. FASTENERS
 - 2.3.1. WHEN PREFABRICATED SILT FENCE IS USED, POSTS SHALL BE INSERTED INTO SEWN POCKETS.
 - 2.3.2. SILT FENCE FABRIC SHALL BE ATTACHED TO WOODEN POSTS WITH NAILS OR STAPLES AS SHOWN ON THE PLANS OR AS RECOMMENDED BY THE MANUFACTURER OR SUPPLIER. THE WIRE OR LOCKING PLASTIC FASTENERS SHALL BE USED TO FASTEN THE SILT FENCE FABRIC TO STEEL POSTS. MAXIMUM SPACING OF FASTENERS SHALL BE 8" ALONG THE LENGTH OF THE STEEL POST.
3. EXECUTION
 - 3.1. SILT FENCE SHALL BE INSTALLED PARALLEL WITH THE SLOPE CONTOUR IN REACHES NOT TO EXCEED 500'. A REACH IS CONSIDERED A CONTINUOUS RUN OF TEMPORARY SILT FENCE FROM END TO END OR FROM AN END TO AN OPENING, INCLUDING JOINED PANELS. EACH REACH SHALL BE CONSTRUCTED SO THAT THE ELEVATION AT THE BASE OF THE FENCE DOES NOT DEVIATE FROM THE CONTOUR MORE THAN 1/3 OF THE FENCE HEIGHT.
 - 3.2. THE SILT FENCE FABRIC SHALL BE INSTALLED ON THE SIDE OF THE POSTS FACING THE SLOPE. THE SILT FENCE FABRIC SHALL BE ANCHORED IN A TRENCH WITH A MINIMUM DEPTH OF 6 INCHES. THE TRENCH SHALL BE BACKFILLED AND MECHANICALLY OR HAND TAMPED TO SECURE THE SILT FENCE FABRIC IN THE BOTTOM OF THE TRENCH.
 - 3.3. THE MAXIMUM POST SPACING MAY BE INCREASED TO 10' IF THE FENCE IS REINFORCED BY A WIRE OR PLASTIC MATERIAL BY PREFABRICATION OR BY FIELD INSTALLATION. THE FIELD ASSEMBLED REINFORCED SILT FENCE SHALL BE ABLE TO RETAIN SATURATED SEDIMENT WITHOUT COLLAPSING.
 - 3.4. SILT FENCE SHALL BE JOINED BY TYING THE TOPS OF THE POSTS TOGETHER BY MINIMUM OF 2 WRAPS OF THE WIRE OF A MINIMUM 1/4" DIAMETER. THE SILT FENCE FABRIC SHALL BE ATTACHED TO THE POSTS AT THE JOINT AS SPECIFIED IN THESE NOTES.
 - 3.5. MAINTENANCE: SILT FENCE SHALL BE MAINTAINED TO PROVIDE A SEDIMENT HOLDING CAPACITY OF APPROXIMATELY 1/3 THE HEIGHT OF THE SILT FENCE FABRIC ABOVE GROUND. WHEN SEDIMENT EXCEEDS THIS HEIGHT, SEDIMENT SHALL BE REMOVED. THE REMOVED SEDIMENT SHALL BE DEPOSITED WITHIN THE PROJECT LIMITS SO THAT THE SEDIMENT IS NOT SUBJECT TO EROSION BY WIND OR BY WATER.
 - 3.6. SILT FENCE SHALL BE REPAIRED OR REPLACED THE SAME DAY THE DAMAGE OCCURS. DAMAGE TO THE TEMPORARY SILT FENCE RESULTING FROM THE CONTRACTOR'S VEHICLES, EQUIPMENT, OR OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
 - 3.7. WHEN ALL WORK HAS BEEN COMPLETED, SILT FENCE SHALL BE REMOVED AND DISPOSED OF IN CONFORMANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS AND AT THE CONTRACTOR'S EXPENSE. TRIMMING THE SILT FENCE FABRIC AND LEAVING IT IN PLACE WILL NOT BE ALLOWED.



TREATMENT TYPE 2: GRAVEL BAG COFFERDAM
1" = 20'

GRAVEL BAG COFFERDAM NOTES:

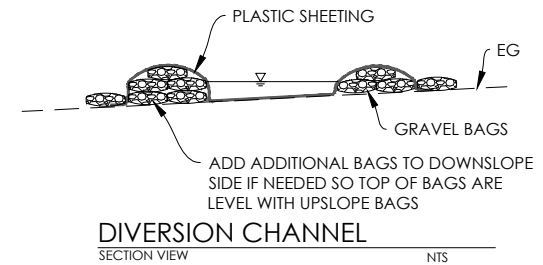
1. GENERAL
 - 1.1. INSTALL GRAVEL BAG COFFERDAMS IN LOCATIONS DETERMINED IN THE FIELD BY THE PROJECT GEOMORPHOLOGIST.
 - 1.2. THE LAYOUT OF THE GRAVEL BAG COFFERDAM SHALL BE SUFFICIENT TO PREVENT SEDIMENT GENERATED BY CONSTRUCTION ACTIVITIES FROM ENTERING THE CHANNEL.
2. MATERIALS
 - 2.1. GRAVEL BAGS:
 - 2.1.1. BAG MATERIAL: BAGS SHALL BE EITHER POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MINIMUM UNIT WEIGHT 135 G/M2 (FOUR OUNCES PER SQUARE YARD), MULLEN BURST STRENGTH EXCEEDING 2,070 KPA (300 PSJ) IN CONFORMANCE WITH THE REQUIREMENTS IN ASTM DESIGNATION D3786, AND ULTRAVIOLET STABILITY EXCEEDING 70% IN CONFORMANCE WITH THE REQUIREMENTS IN ASTM DESIGNATION D4355.
 - 2.1.2. BAG SIZE: EACH GRAVEL-FILLED BAG SHALL HAVE A LENGTH OF 450 MM (18 IN), WIDTH OF 300 MM (12 IN), THICKNESS OF 75 MM (3 IN), AND MASS BETWEEN 13 KG AND 22 KG (28 AND 48 LB). BAG DIMENSIONS ARE NOMINAL, AND MAY VARY BASED ON LOCALLY AVAILABLE MATERIALS. ALTERNATIVE BAG SIZES SHALL BE SUBMITTED TO THE FIELD REPRESENTATIVE FOR APPROVAL PRIOR TO DEPLOYMENT.
 - 2.1.3. FILL MATERIAL: FILL MATERIAL SHALL BE BETWEEN 10 MM AND 20 MM (0.4 AND 0.8 INCH) IN DIAMETER, AND SHALL BE CLEAN AND FREE FROM CLAY BALLS, ORGANIC MATTER, WEEDS, AND OTHER DELETERIOUS MATERIALS. THE OPENING OF GRAVEL-FILLED BAGS SHALL BE SECURED SUCH THAT GRAVEL DOES NOT ESCAPE. GRAVEL-FILLED BAGS SHALL BE BETWEEN 13 KG AND 22KG (28 AND 48 LB) IN MASS. FILL MATERIAL IS SUBJECT TO APPROVAL BY THE FIELD REPRESENTATIVE.
 - 2.2. PLASTIC SHEETING
 - 2.2.1. PLASTIC SHEETING SHALL IMPERMEABLE MATERIAL SUITABLE FOR USE AS PROTECTIVE LINER AND SHALL BE COMMERCIAL QUALITY POLYETHYLENE WITH A MINIMUM THICKNESS OF 0.25 MM OR MIRAFI 700X OR EQUAL APPROVED BY THE FIELD REPRESENTATIVE.
 - 2.2.2. ALL PLASTIC SHEETING SHALL BE FREE OF CRACKS, CLEAVAGES, OR OTHER DEFECTS ADVERSELY AFFECTING THE PROTECTIVE CHARACTERISTIC OF THE MATERIAL.
3. EXECUTION
 - 3.1. GRAVEL BAG COFFERDAMS SHALL BE INSTALLED PARALLEL WITH THE PRIMARY FLOW DIRECTION, AND SHALL BOTH ENDS SHALL EXTEND ONTO THE BANKS (ABOVE THE WATER SURFACE ELEVATION).
 - 3.2. THE TOP ROW OF GRAVEL BAGS SHALL BE HIGH ENOUGH TO CONTAIN AN INCREASE IN FLOW CAUSED BY A THUNDERSTORM. THE TOP ELEVATION SHALL BE LEVEL ACROSS THE TOP OF THE COFFERDAM, AND APPROXIMATELY EQUAL TO BANKFULL STAGE, AS DETERMINED BY THE FIELD REPRESENTATIVE.
 - 3.3. THE GRAVEL BAGS SHALL BE ENCASED BY THE PLASTIC SHEETING BY FIRST LAYING THE SHEETING ON THE CHANNEL BED, THEN INSTALLING THE FIRST ROW OF GRAVEL BAGS ON TOP OF THE SHEETING FOR ANCHORING. INSTALL SUBSEQUENT ROWS TO ACHIEVE THE REQUIRED HEIGHT. WRAP THE SHEETING OVER THE TOP OF THE LAST ROW OF GRAVEL BAGS TO PROVIDE AN IMPERMEABLE SEAL FOR THE PORTION OF THE BANK TO BE DISTURBED.
 - 3.4. PLACE ALL GRAVEL BAGS CAREFULLY TO ENSURE FIRM CONTACT AMONG ALL BAGS AND THE CHANNEL BED.
 - 3.5. MAINTENANCE: SILT FENCE SHALL BE MAINTAINED AS NEEDED AT THE CONTRACTOR'S EXPENSE.
 - 3.6. WHEN ALL WORK HAS BEEN COMPLETED, THE COFFERDAM SHALL BE REMOVED AND DISPOSED OF IN CONFORMANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS AND AT THE CONTRACTOR'S EXPENSE. DISPOSING OF GRAVELS IN THE CHANNEL IS NOT PERMITTED.



TREATMENT TYPE 3: STREAM DIVERSION
1" = 60'

STREAM DIVERSION NOTES:

1. GENERAL
 - 1.1. INSTALL STREAM DIVERSIONS IN LOCATIONS AGREED UPON IN THE FIELD BY THE PROJECT GEOMORPHOLOGIST AND CONTRACTOR.
2. MATERIALS
 - 2.1. GRAVEL BAGS AND PLASTIC SHEETING SHALL BE AS DESCRIBED IN THE GRAVEL BAG COFFERDAM NOTES, THIS SHEET.
3. EXECUTION
 - 3.1. DEPENDING ON THE SIZE OF THE GRADING AREA AND FIELD CONDITIONS, STREAM DIVERSIONS MAY NEED TO BE COMPLETED IN PHASES.
 - 3.2. CONSTRUCT THE UPSTREAM DIVERSION DAM AND DOWNSTREAM COFFERDAM AS DESCRIBED IN THE GRAVEL BAG COFFERDAM NOTES, THIS SHEET. TOP ELEVATIONS MAY NEED TO BE GREATER THAN BANKFULL DEPTH TO PROVIDE POSITIVE DRAINAGE.
 - 3.3. THE CONTRACTOR AND FIELD REPRESENTATIVE SHALL AGREE ON AN ALIGNMENT FOR THE DIVERSION CHANNEL PRIOR TO CONSTRUCTION.
 - 3.4. INSTALL THE DIVERSION CHANNEL AS SHOWN ON THIS SHEET. OVERLAP ALL PLASTIC SHEETING IN THE DOWNSTREAM DIRECTION.
 - 3.5. REMOVE THE STREAM DIVERSION UPON COMPLETION OF THE GRADING AREA.



Restoration Area	Recommended Treatment type	Restoration Area	Recommended Treatment Type
1-L1	1	3-R4	1
1-L2	1	3-L5	1
1-L3	2	3-L6	2
1-R1	2	3-R5	2
1-R2	1	3-R6	1
1-R3	2	4-L1	2/3
1-R4	1	4-R1	1
1-R5	2	4-R2	1
3-L1	1	4-L2	2
3-L2	1/2	5-R1	2
3-L3	2	5-L1	2/3
3-R1	1	5-R2	2
3-R2	1	5-R3	3
3-R3	1	6-R1	2
3-L4	1	6-L1	1

DEWATERING AND DIVERSION GENERAL NOTES:

1. THE TREATMENT TYPES IN THE TABLE ARE RECOMMENDATIONS ONLY AND THE CONTRACTOR SHALL SELECT THE MOST APPROPRIATE TREATMENT FOR EACH RESTORATION AREA BASED ON FIELD CONDITIONS.
2. DEWATERING OR DIVERSION TREATMENTS NOT PRESENTED HEREIN MUST BE APPROVED BY THE FIELD REPRESENTATIVE.
3. ALL TURBID WATER CONTAINED BY COFFERDAM OR SILT FENCE AREAS SHALL BE PUMPED AND SPRAYED IN OVERBANK AREAS. WATER CONTAINED BY COFFERDAMS MUST BE COMPLETELY CLEAR PRIOR TO REMOVING COFFERDAMS.

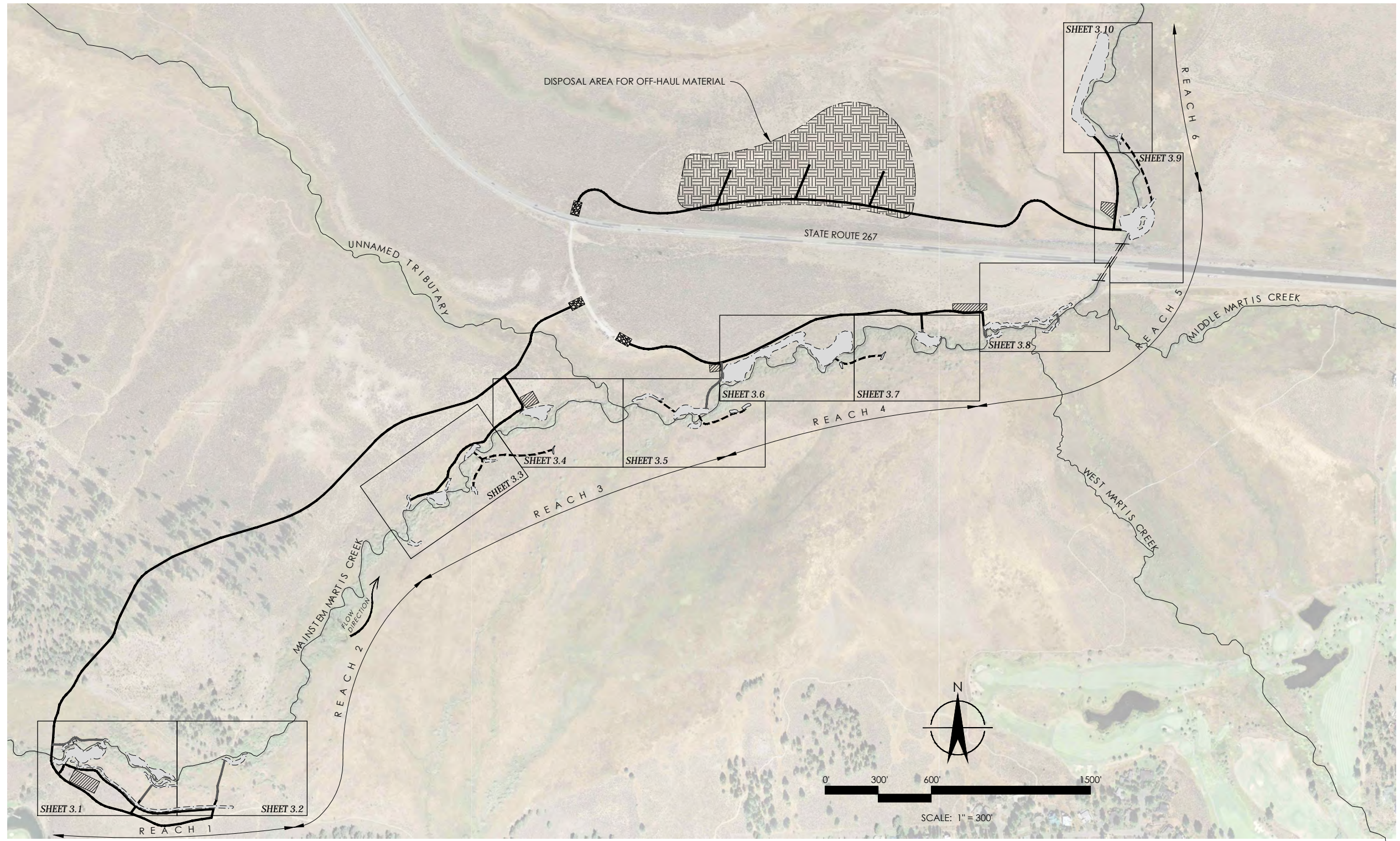
PREPARED FOR:
Balance Hydrologics, Inc.
Truckee River Watershed Council
P.O. Box 1077
12020 Donner Pass Road
Truckee, CA 96161
Tel: (530) 562-9776
www.balancehydro.com

DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
B HASTINGS	6-10-16	BKH	CONCEPTUAL PLANS
P KULICHAWIK	3-8-17	BKH	95% PROGRESS DRAFT
E BALLMAN	4-7-17	BKH	DRAFT 95% DESIGN
IN CHARGE			
D SHAW			
DATE			
	4-7-17		

DEWATERING, DIVERSION, AND SEDIMENT CONTROL PLAN
MAINSTEM MARTIS CREEK RESTORATION
PLACER COUNTY, CALIFORNIA
TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER 215063
SCALE AS SHOWN
SHEET

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LEGEND:

CONSTRUCTION ACCESS ROUTE	
CONSTRUCTION ACCESS ROUTE - INSTALL MEADOW PROTECTION MATS	
CONSTRUCTION ACCESS ROUTE - LIGHT EQUIPMENT AND FOOT TRAVEL ONLY	
STAGING AND STOCKPILE AREA	
GRADING LIMIT	
TEMPORARY CONSTRUCTION ENTRANCE	

- NOTES:**
- CONTRACTOR SHALL COORDINATE STAGING AGREEMENTS WITH USACE PRIOR TO MOBILIZATION.
 - LIGHT EQUIPMENT SHALL MEAN RUBBERIZED TRACK EQUIPMENT APPLYING NO MORE THAN 5 PSI GROUND PRESSURE.
 - ENCLOSE ALL STAGING AND STOCKPILE AREAS WITH TEMPORARY SILT FENCE OR FIBER ROLLS TO CONTAIN SEDIMENT PER PLACER COUNTY STANDARD DETAILS.
 - IF A PRECIPITATION EVENT OCCURS OR IS FORECASTED FOR NON-WORK HOURS, COVER STOCKPILED MATERIAL WITH IMPERMEABLE PLASTIC SHEETING AND ANCHOR SHEETING WITH GRAVEL BAGS.
 - TEMPORARY CONSTRUCTION ENTRANCES SHALL BE INSTALLED AND MAINTAINED PER PLACER COUNTY STANDARD DETAILS.

- MEADOW PROTECTION MATS NOTES:**
- PRODUCTS
 - MEADOW PROTECTION MATS SHALL BE DURA-BASE®, GEOTERRA®, OR AN EQUIVALENT MEADOW PROTECTION MAT PRODUCT (APPROVED BY THE FIELD REPRESENTATIVE) CAPABLE OF MINIMIZING SOIL COMPACTION AND VEGETATION MORTALITY DURING CONSTRUCTION.
 - MEADOW PROTECTION MATS SHALL BE CONNECTED TO ONE ANOTHER WITH HARDWARE RECOMMENDED BY THE MANUFACTURER.
 - EXECUTION
 - INSTALL MEADOW PROTECTION MATS IN THE LOCATIONS SHOWN ON THIS SHEET. DEPENDING ON FIELD CONDITIONS, INSTALL ADDITIONAL MATS PER THE DIRECTION OF THE FIELD REPRESENTATIVE.
 - MEADOW PROTECTION MATS SHALL BE MINIMALLY ANCHORED TO THE GROUND ON AN AS-NEEDED BASIS TO PREVENT SHIFTING CAUSED BY VEHICLE TRAFFIC. ANCHORING MATERIALS SHALL BE HARDWARE RECOMMENDED BY THE MANUFACTURER.
 - MAINTAIN MEADOW PROTECTION MATS THROUGHOUT CONSTRUCTION IF SHIFTING OCCURS OR IF THERE IS DAMAGE TO MEADOW VEGETATION OR SOILS.
 - REMOVE THE MATS UPON COMPLETION OF THE PROJECT.

Y:\PROJECTS\215063 MAINSTEM MARTIS RESTORATION\215063 CAD\215063 SHEETS\PRC\215063-0300-OVERVIEW.DWG

DRAFT 95% DESIGN - NOT FOR CONSTRUCTION

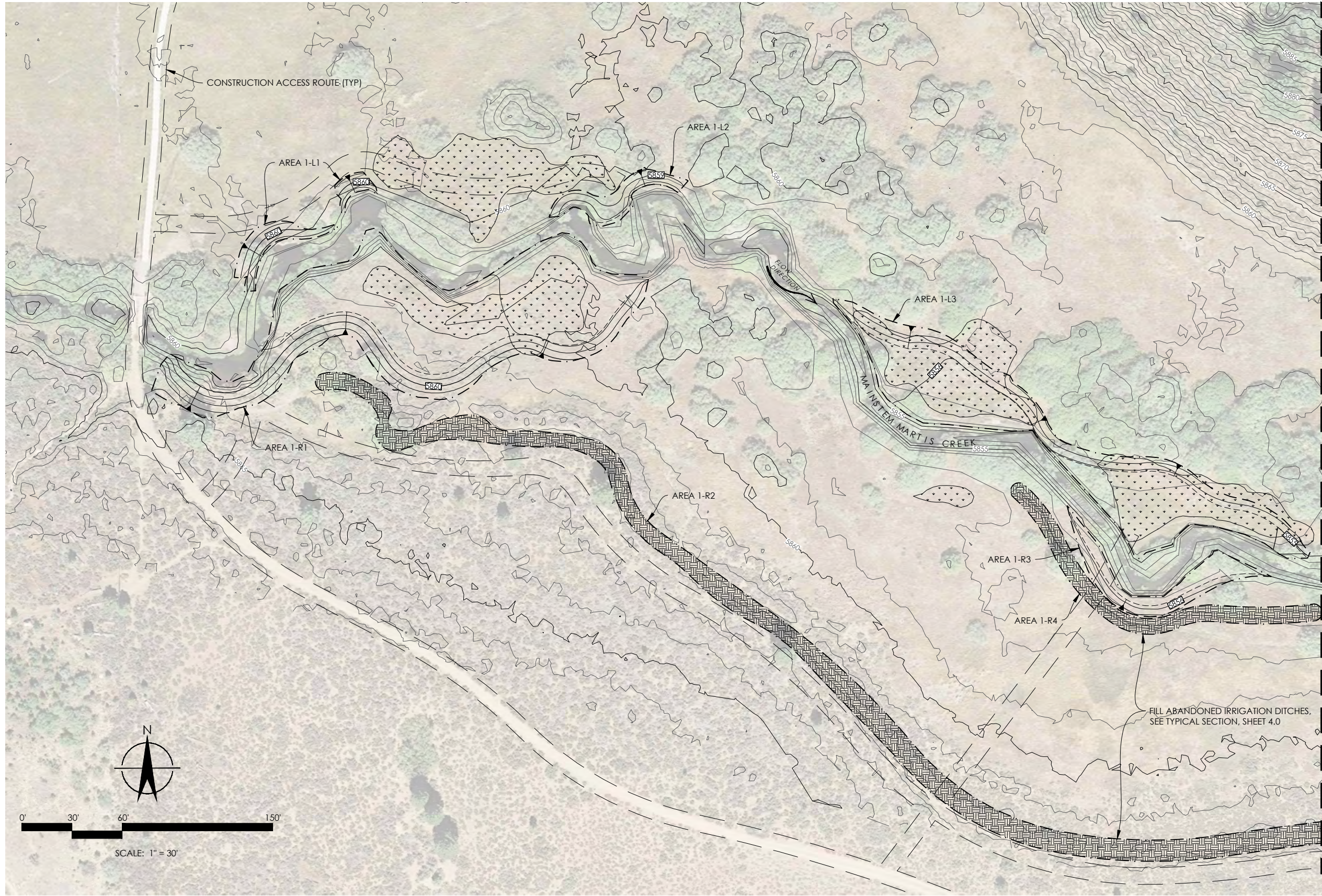
PREPARED FOR:

Balance Hydrologics, Inc.
 P.O. Box 1077
 Truckee, CA 96161
 Tel: (530) 584-9776
 www.balancehydro.com

DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
B HASTINGS	6-10-16	BKH	CONCEPTUAL PLANS
P KULCHAWIK	3-8-17	BKH	95% PROGRESS DRAFT
E BALLMAN	4-7-17	BKH	DRAFT 95% DESIGN
IN CHARGE			
D SHAW			
DATE	4-7-17		

KEY MAP AND ACCESS/STAGING PLAN
 MAINSTEM MARTIS CREEK RESTORATION
 PLACER COUNTY, CALIFORNIA
 TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER	215063
SCALE	1" = 300'
SHEET	3.0



SEE SHEET 3.2

NOTES:
 1. ALL SLOPES ARE SHOWN AS 4:1 UNLESS NOTED OTHERWISE. WARP SLOPES BETWEEN 3:1 AND 6:1 TO CREATE VARIED TOPOGRAPHY.

DRAFT 95% DESIGN - NOT FOR CONSTRUCTION

DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
B HASTINGS	6-10-16	BKH	CONCEPTUAL PLANS
P KULCHAWIK	3-8-17	BKH	95% PROGRESS DRAFT
E BALLMAN	4-7-17	BKH	DRAFT 95% DESIGN
IN CHARGE			
D SHAW			
DATE	4-7-17		

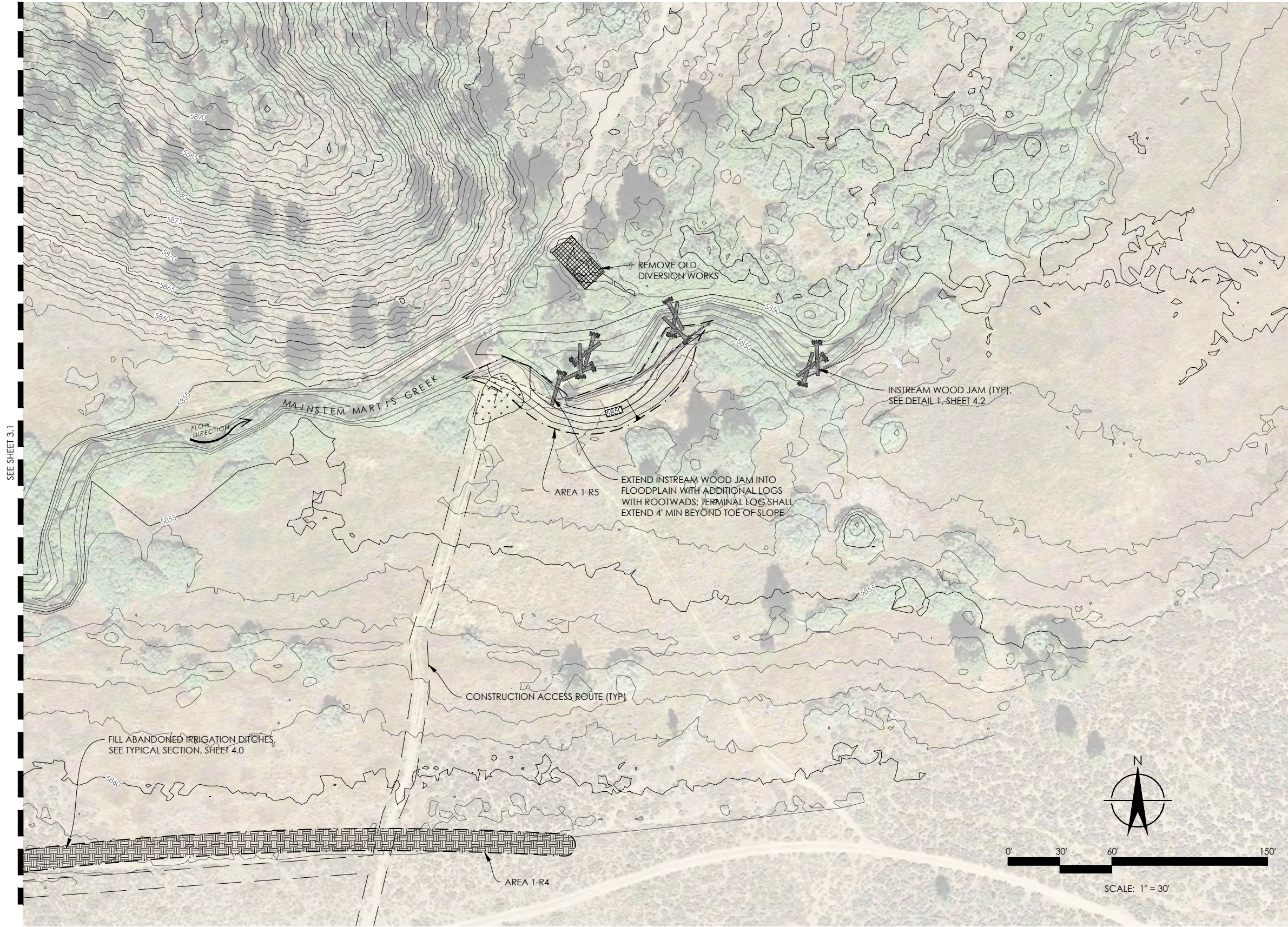
UPPER REACH 1
MAINSTEM MARTIS CREEK RESTORATION
 PLACER COUNTY, CALIFORNIA
 TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
 215063
 SCALE
 1" = 30'
 SHEET

3.1

Y:\PROJECTS\215063 MAINSTEM MARTIS RESTORATION\215063 CAD\215063 SHEETS\PRX\215063-0301-PLAN01.DWG

Y:\PROJECTS\215063 MAINSTEM MARTIS RESTORATION\215063 CAD\215063 SHEETS\PRX\215063-0302-PLAN02.DWG



NOTES:
 1. ALL SLOPES ARE 4:1 UNLESS NOTED OTHERWISE. WARP SLOPES BETWEEN 3:1 AND 6:1 TO CREATE VARIED TOPOGRAPHY.

DRAFT 95% DESIGN - NOT FOR CONSTRUCTION

DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
B HASTINGS	6-10-16	BKH	CONCEPTUAL PLANS
P KULCHAWIK	3-8-17	BKH	95% PROGRESS DRAFT
E BALLMAN	4-7-17	BKH	DRAFT 95% DESIGN
IN CHARGE			
D SHAW			
DATE	4-7-17		

LOWER REACH 1
MAINSTEM MARTIS CREEK RESTORATION
 PLACER COUNTY, CALIFORNIA
 TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
 215063
 SCALE
 1" = 30'
 SHEET

3.2



NOTES:
 1. ALL SLOPES ARE 4:1 UNLESS NOTED OTHERWISE. WARP SLOPES BETWEEN 3:1 AND 6:1 TO CREATE VARIED TOPOGRAPHY.

DRAFT 95% DESIGN - NOT FOR CONSTRUCTION

Y:\PROJECTS\215063 MAINSTEM MARTIS RESTORATION\215063 CAD\215063 SHEETS\PRC\215063-0303-PLAN03.DWG

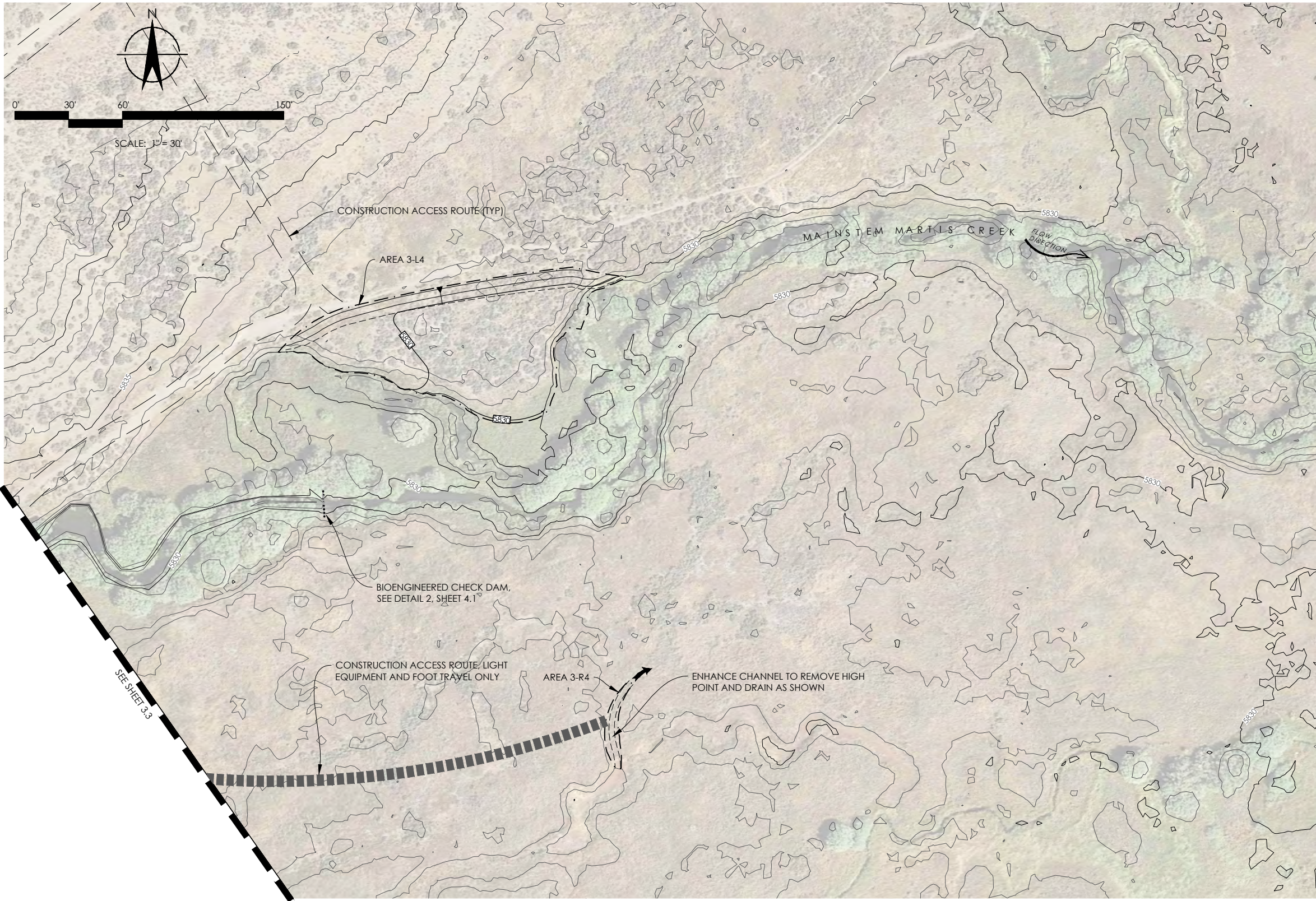
PREPARED FOR:
Truckee River Watershed Council
 P.O. Box 1077
 Truckee, CA 96161
 Tel: (530) 584-9776
 www.balancehydro.com

DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
B HASTINGS	6-10-16	BKH	CONCEPTUAL PLANS
P KULCHAWIK	3-8-17	BKH	95% PROGRESS DRAFT
E BALLMAN	4-7-17	BKH	DRAFT 95% DESIGN
IN CHARGE			
D SHAW			
DATE	4-7-17		

SEE SHEET 3.4

UPPER REACH 3
MAINSTEM MARTIS CREEK RESTORATION
 PLACER COUNTY, CALIFORNIA
 TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER 215063
SCALE 1" = 30'
SHEET 3.3



NOTES:
 1. ALL SLOPES ARE 4:1 UNLESS NOTED OTHERWISE. WARP SLOPES BETWEEN 3:1 AND 6:1 TO CREATE VARIED TOPOGRAPHY.

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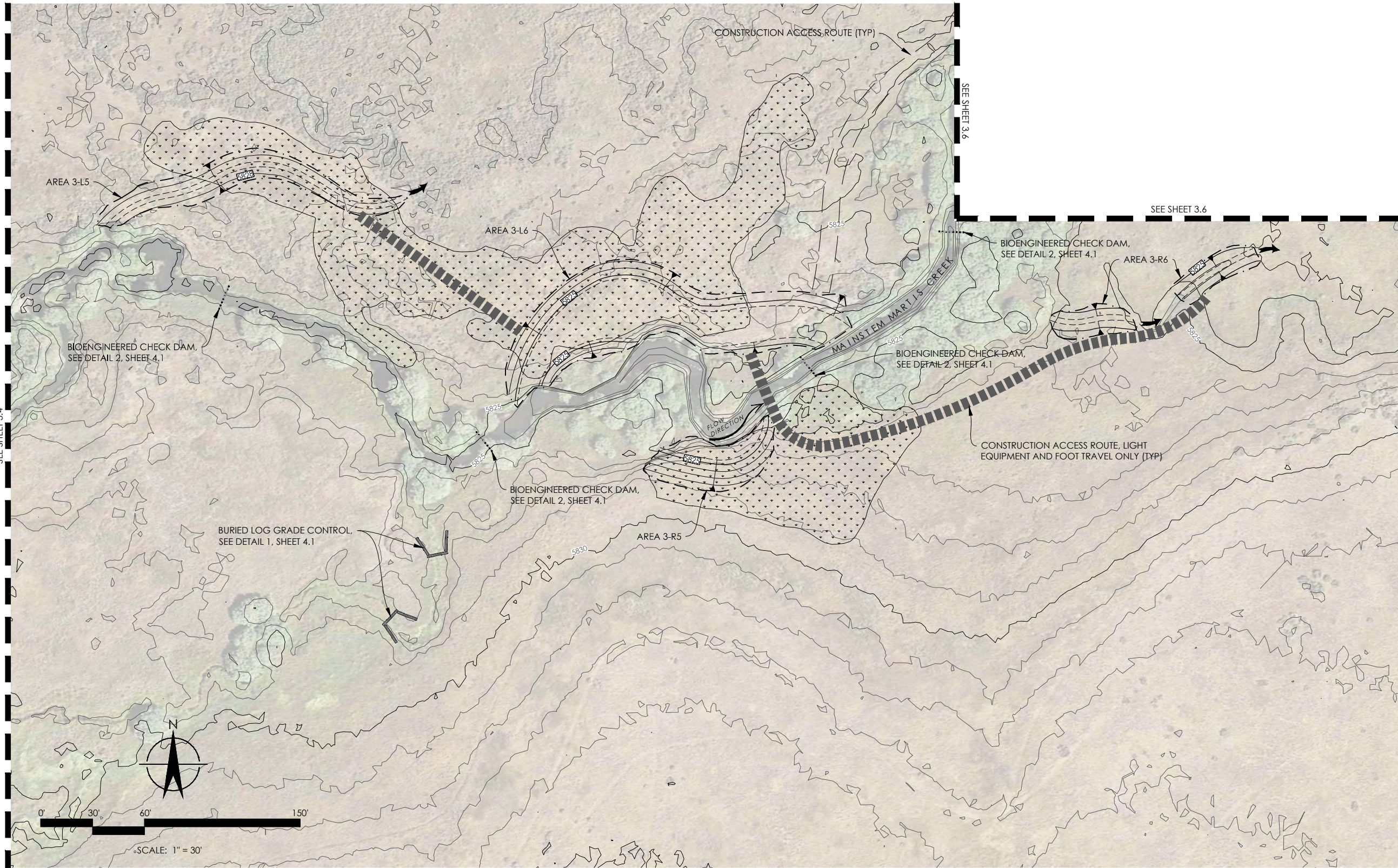
DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
B HASTINGS	6-10-16	BKH	CONCEPTUAL PLANS
P KULCHAWIK	3-8-17	BKH	95% PROGRESS DRAFT
E BALLMAN	4-7-17	BKH	DRAFT 95% DESIGN
IN CHARGE			
D SHAW			
DATE	4-7-17		

MIDDLE REACH 3

MAINSTEM MARTIS CREEK RESTORATION
 PLACER COUNTY, CALIFORNIA
 TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER 215063
SCALE 1" = 30'
SHEET 3.4

Y:\PROJECTS\215063 MAINSTEM MARTIS RESTORATION\215063 CAD\215063 SHEETS\PRX\215063-0304-PLAN04.DWG



NOTES:
 1. ALL SLOPES ARE 4:1 UNLESS NOTED OTHERWISE. WARP SLOPES BETWEEN 3:1 AND 6:1 TO CREATE VARIED TOPOGRAPHY.

DRAFT 95% DESIGN - NOT FOR CONSTRUCTION



DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
B HASTINGS	6-10-16	BKH	CONCEPTUAL PLANS
P KULCHAWIK	3-8-17	BKH	95% PROGRESS DRAFT
E BALLMAN	4-7-17	BKH	DRAFT 95% DESIGN
IN CHARGE			
D SHAW			
DATE	4-7-17		

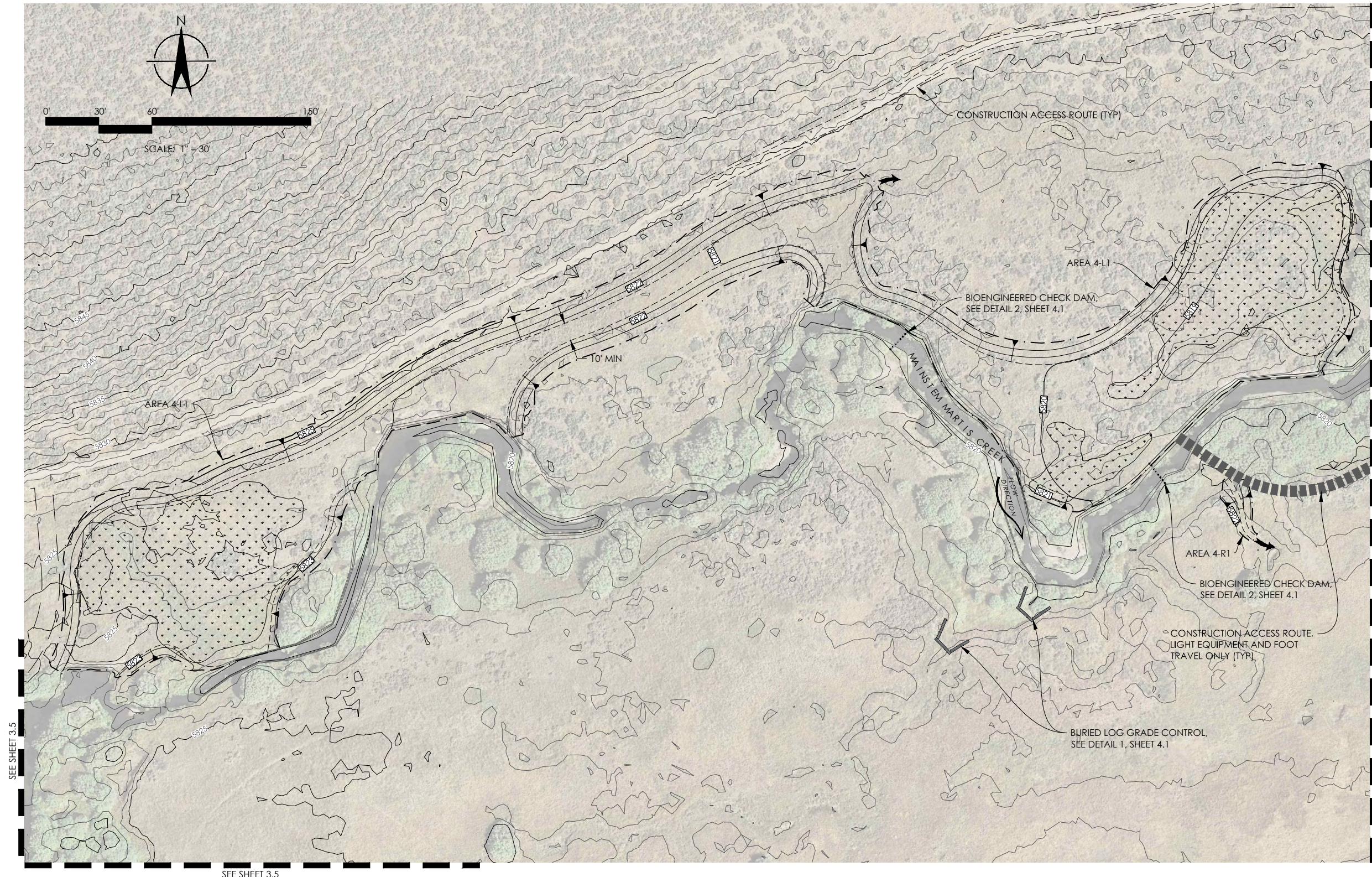
LOWER REACH 3
MAINSTEM MARTIS CREEK RESTORATION
 PLACER COUNTY, CALIFORNIA
 TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
215063
 SCALE
1" = 30'
 SHEET

3.5

Y:\PROJECTS\215063 MAINSTEM MARTIS RESTORATION\215063 CAD\215063 SHEETS\PRX\215063-0305-PLAN05.DWG

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NOTES:
 1. ALL SLOPES ARE 4:1 UNLESS NOTED OTHERWISE. WARP SLOPES BETWEEN 3:1 AND 6:1 TO CREATE VARIED TOPOGRAPHY.

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Balance Hydrologics, Inc.
 12020 Donner Pass Road
 Truckee, CA 96161
 tel (530) 584-9776
 www.balancehydro.com




DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
B HASTINGS	6-10-16	BKH	CONCEPTUAL PLANS
P KULCHAWIK	3-8-17	BKH	95% PROGRESS DRAFT
E BALLMAN	4-7-17	BKH	DRAFT 95% DESIGN
IN CHARGE			
D SHAW			
DATE	4-7-17		

UPPER REACH 4

MAINSTEM MARTIS CREEK RESTORATION
 PLACER COUNTY, CALIFORNIA
 TRUCKEE RIVER WATERSHED COUNCIL

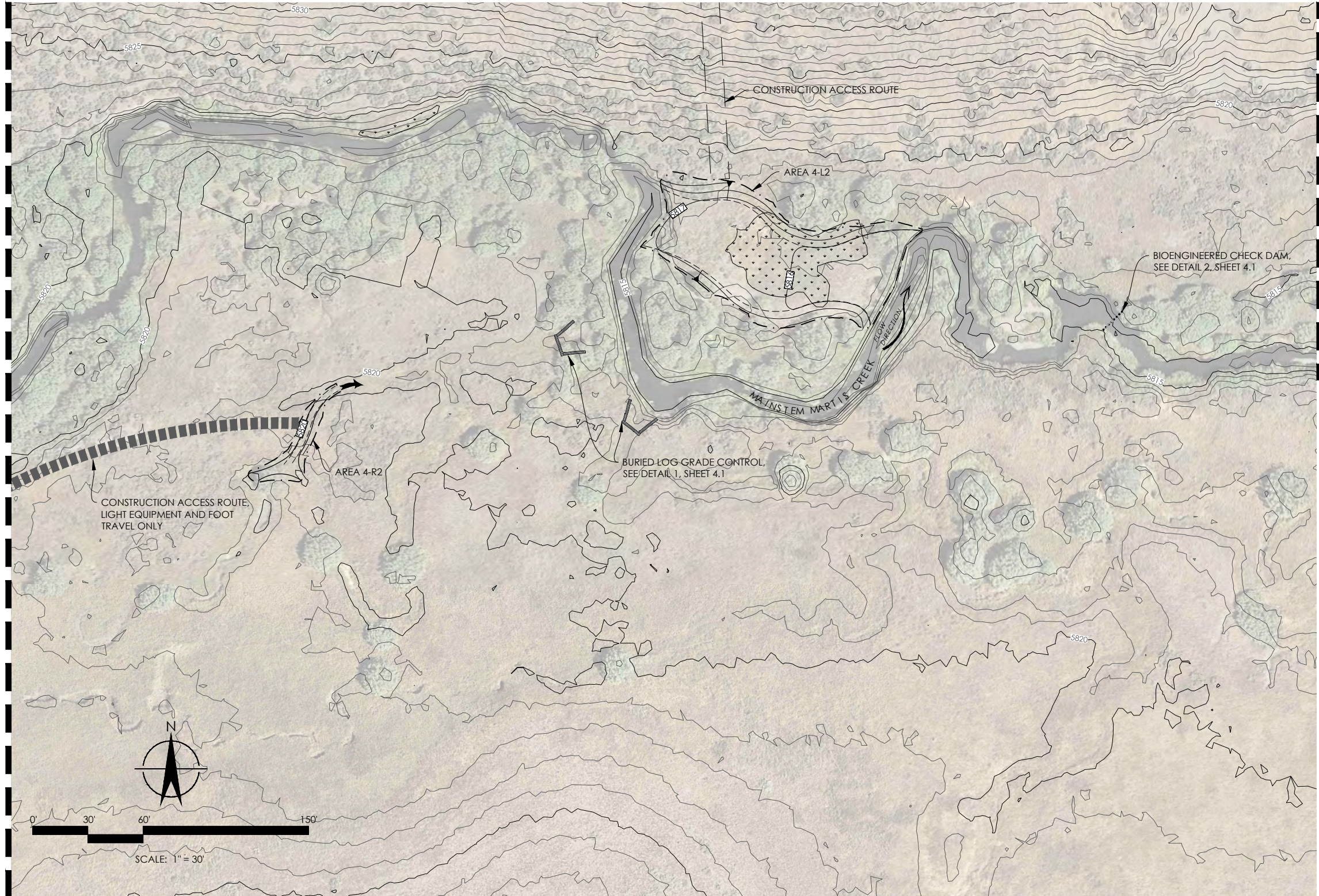
PROJECT NUMBER
215063

SCALE
1" = 30'

SHEET

3.6

Y:\PROJECTS\215063 MAINSTEM MARTIS RESTORATION\215063 CAD\215063 SHEETS\PRX\215063-0307-PLAN07.DWG



SEE SHEET 3.6

SEE SHEET 3.8

NOTES:
 1. ALL SLOPES ARE 4:1 UNLESS NOTED OTHERWISE. WARP SLOPES BETWEEN 3:1 AND 6:1 TO CREATE VARIED TOPOGRAPHY.

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PREPARED FOR:
Truckee River Watershed Council
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 Truckee, CA 96161
 Tel: (530) 584-9776
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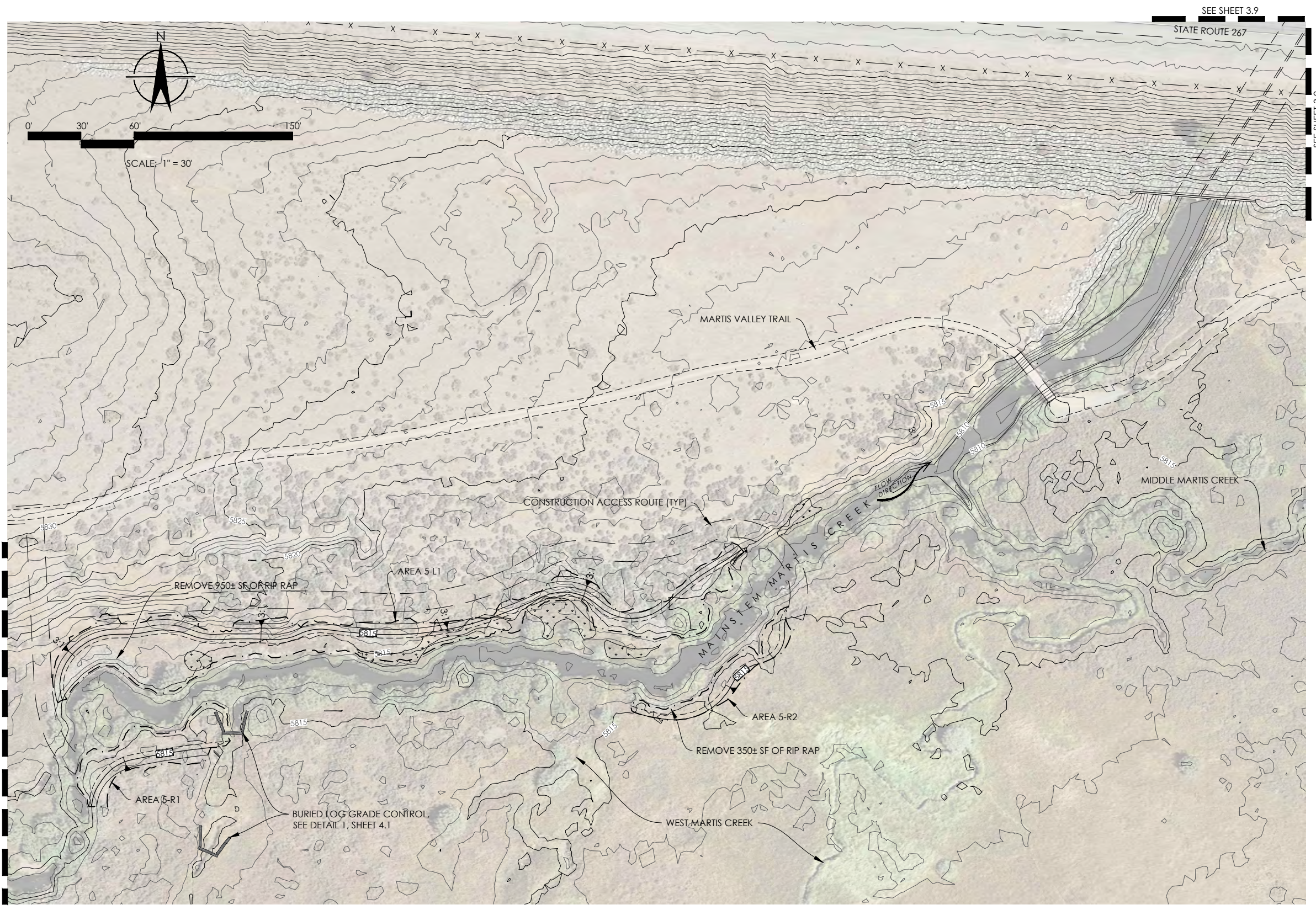
Balance Hydrologics, Inc.

DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
B HASTINGS	6-10-16	BKH	CONCEPTUAL PLANS
P KULCHAWIK	3-8-17	BKH	95% PROGRESS DRAFT
E BALLMAN	4-7-17	BKH	DRAFT 95% DESIGN
IN CHARGE			
D SHAW			
DATE	4-7-17		

LOWER REACH 4
MAINSTEM MARTIS CREEK RESTORATION
 PLACER COUNTY, CALIFORNIA
 TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
215063
 SCALE
1" = 30'
 SHEET

3.7



NOTES:
 1. ALL SLOPES ARE 4:1 UNLESS NOTED OTHERWISE. WARP SLOPES BETWEEN 3:1 AND 6:1 TO CREATE VARIED TOPOGRAPHY.

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PREPARED FOR:
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 P.O. Box 1077
 Truckee, CA 96161
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E BALLMAN	4-7-17	BKH	DRAFT 95% DESIGN
IN CHARGE			
D SHAW			
DATE	4-7-17		

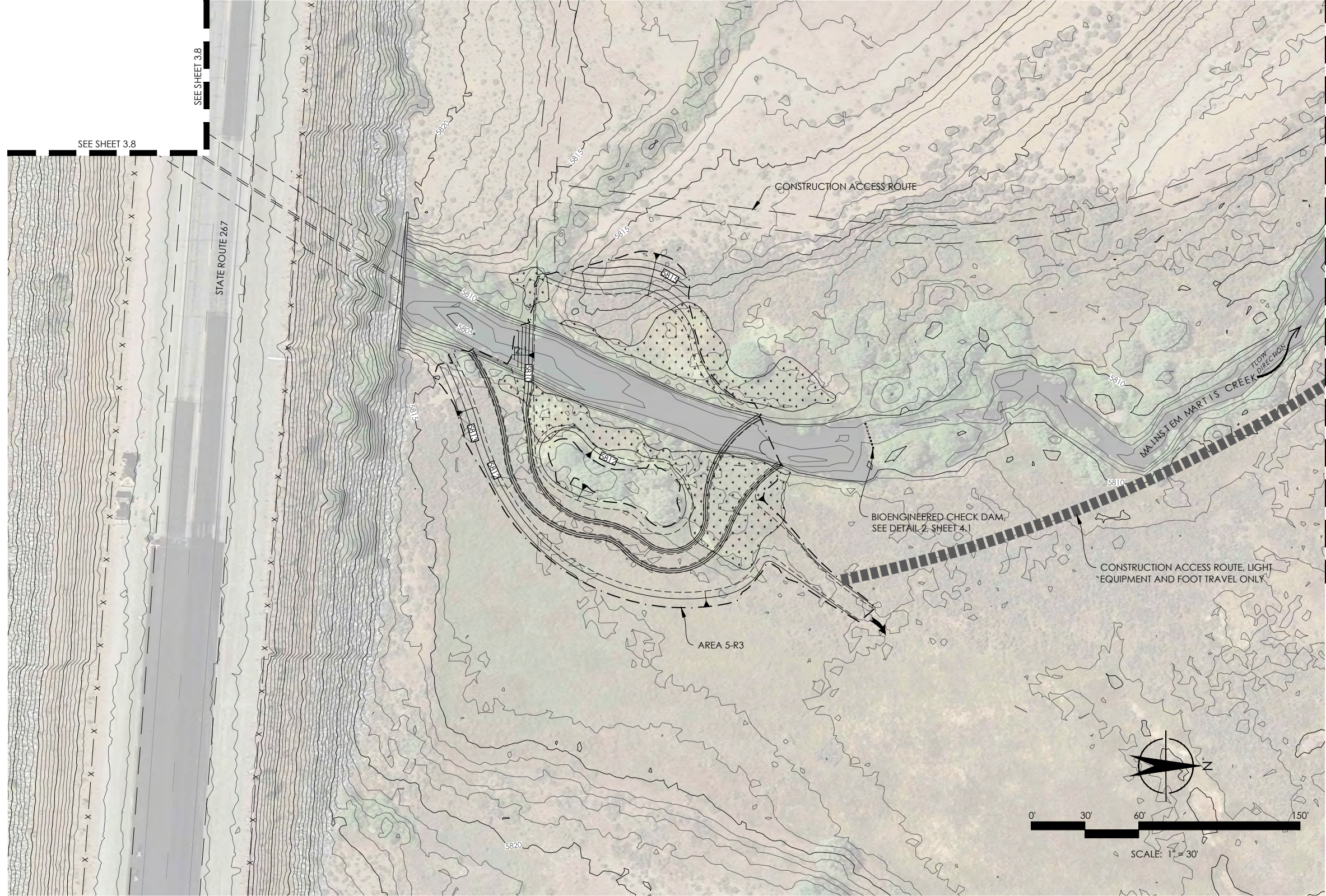
UPPER REACH 5
 MAINSTEM MARTIS CREEK RESTORATION
 PLACER COUNTY, CALIFORNIA
 TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
215063
 SCALE
1" = 30'
 SHEET

3.8

Y:\PROJECTS\215063 MAINSTEM MARTIS RESTORATION\215063 CAD\215063 SHEETS\PRC\215063-0309-PLAN08.DWG

Y:\PROJECTS\215063 MAINSTEM MARTIS RESTORATION\215063 CAD\215063 SHEETS\PRC\215063-0309-PLAN09.DWG



NOTES:
 1. ALL SLOPES ARE 4:1 UNLESS NOTED OTHERWISE. CONSTRUCTION ACCESS ROUTE, LIGHT EQUIPMENT AND FOOT TRAVEL ONLY (TYP)

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PREPARED FOR:
Truckee River Watershed Council
 P.O. Box 1077
 Truckee, CA 96161
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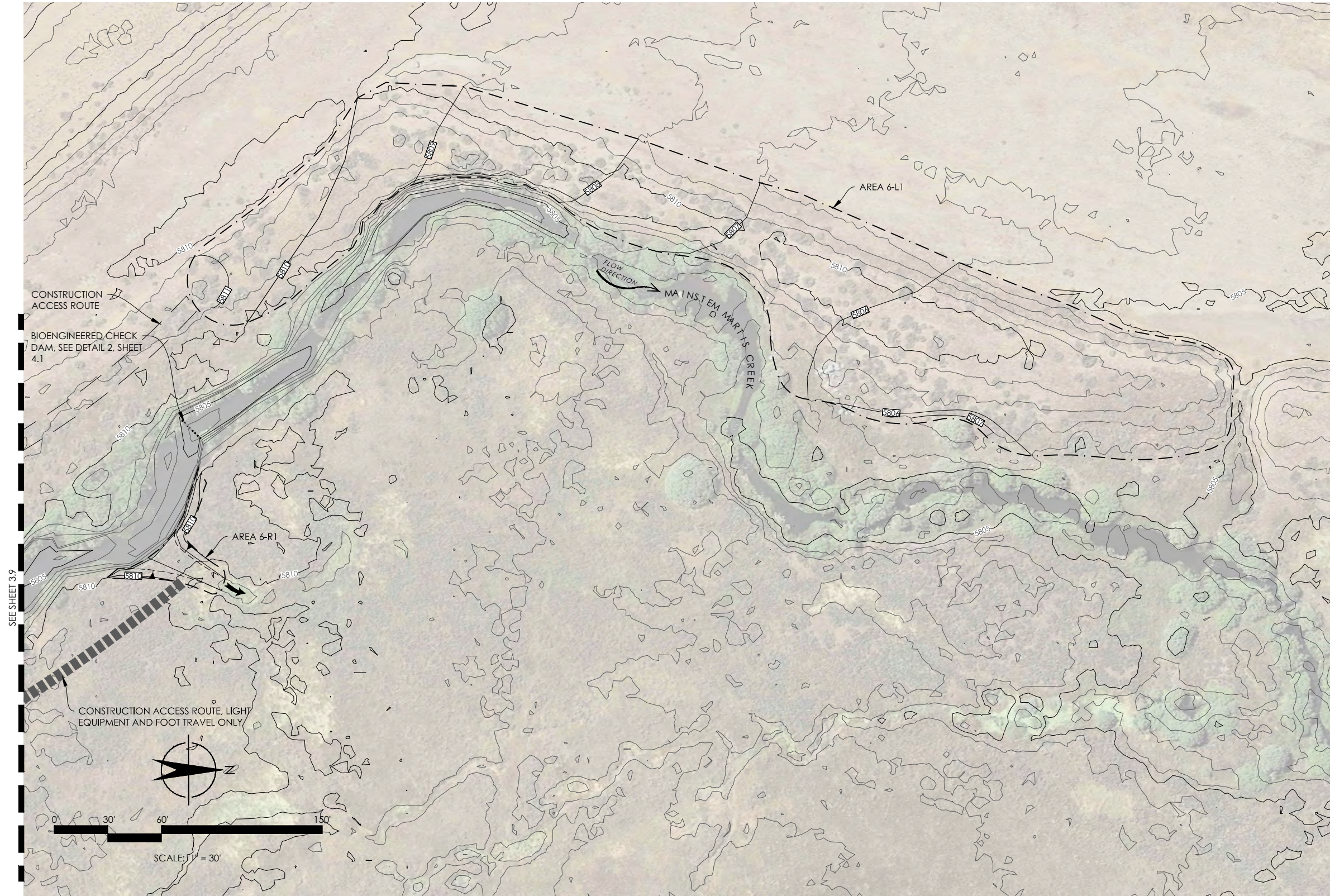
DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
B HASTINGS	6-10-16	BKH	CONCEPTUAL PLANS
P KULCHAWIK	3-8-17	BKH	95% PROGRESS DRAFT
E BALLMAN	4-7-17	BKH	DRAFT 95% DESIGN
IN CHARGE			
D SHAW			
DATE	4-7-17		

LOWER REACH 5 / UPPER REACH 6
 MAINSTEM MARTIS CREEK RESTORATION
 PLACER COUNTY, CALIFORNIA
 TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
215063

SCALE
1" = 30'

SHEET
3.9



CONSTRUCTION ACCESS ROUTE
BIOENGINEERED CHECK DAM, SEE DETAIL 2, SHEET 4.1

AREA 6-R1

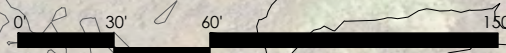
AREA 6-L1

FLOW DIRECTION

MAINSTEM MARTIS CREEK

SEE SHEET 3-9

CONSTRUCTION ACCESS ROUTE, LIGHT EQUIPMENT AND FOOT TRAVEL ONLY



SCALE: 1" = 30'

NOTES:
1. ALL SLOPES ARE 4:1 UNLESS NOTED OTHERWISE. WARP SLOPES BETWEEN 3:1 AND 6:1 TO CREATE VARIED TOPOGRAPHY.

DRAFT 95% DESIGN - NOT FOR CONSTRUCTION

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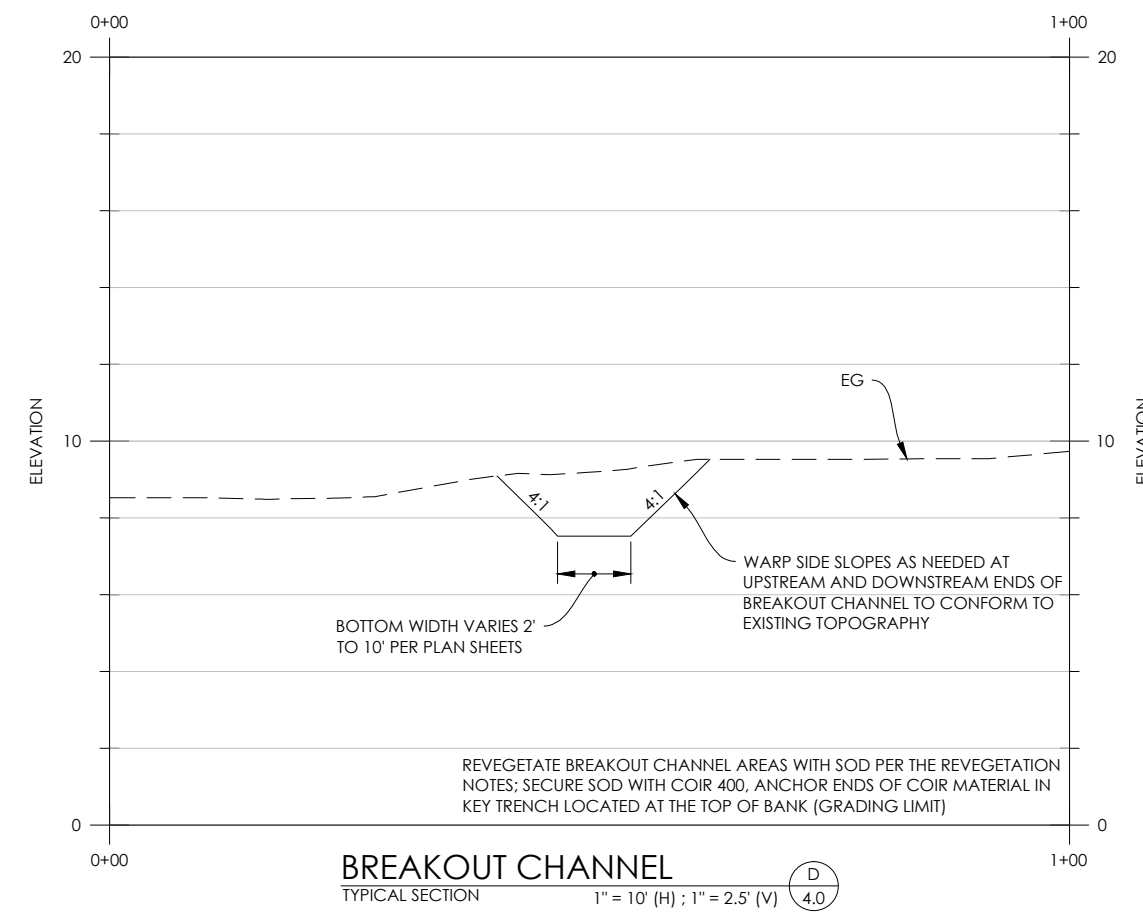
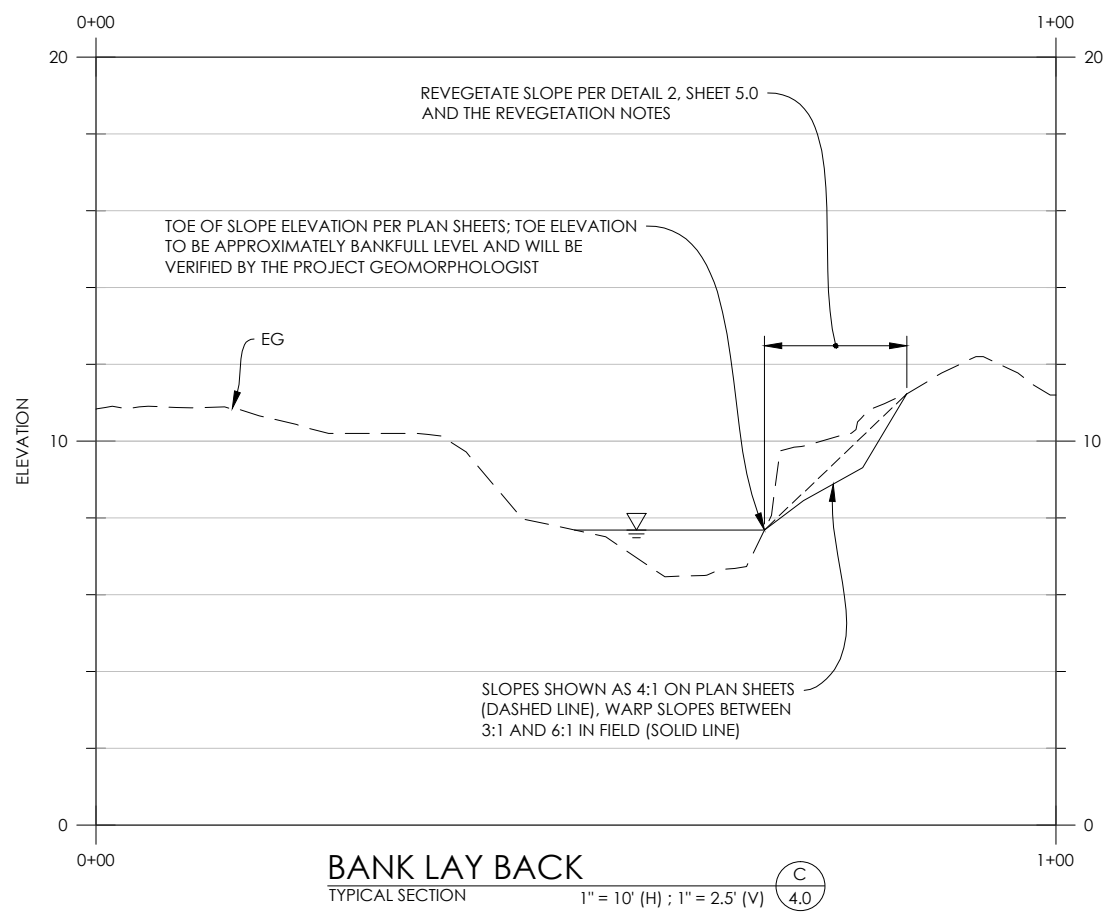
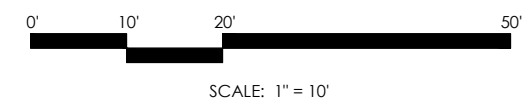
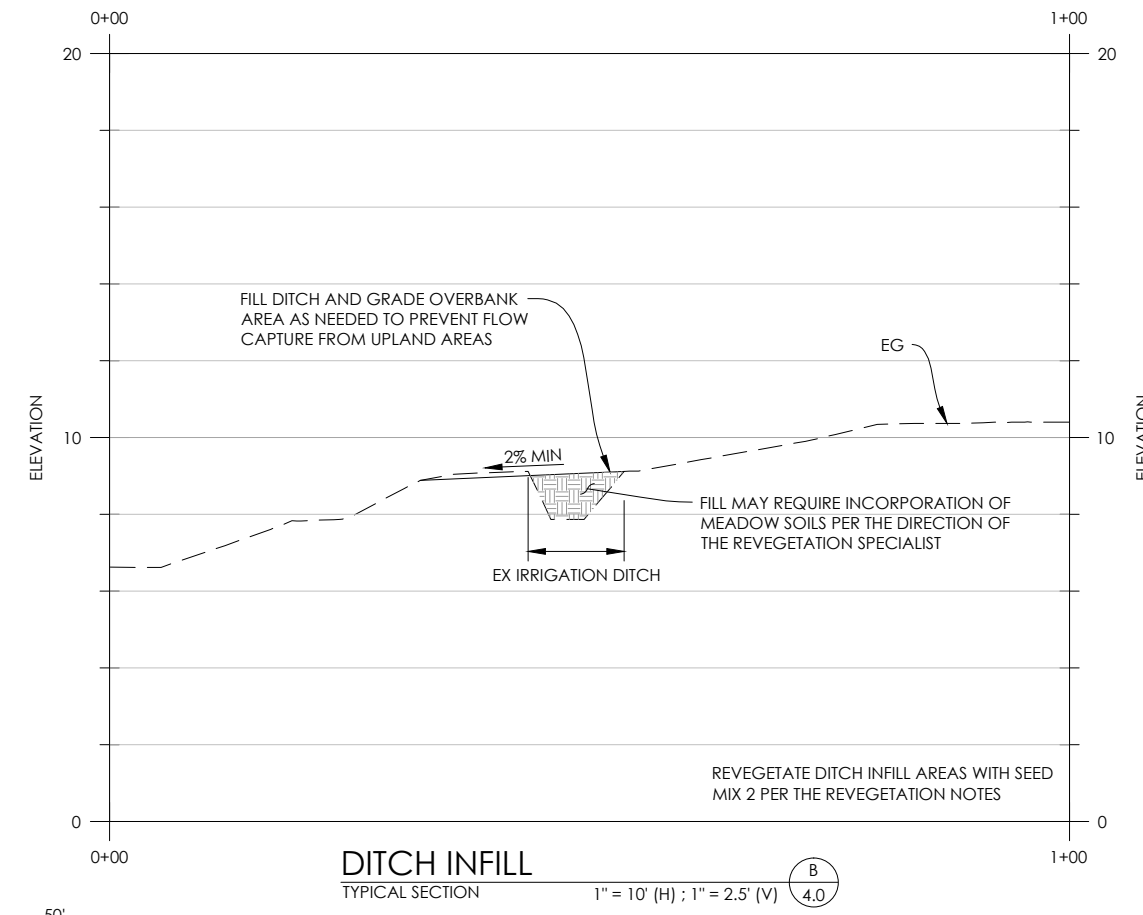
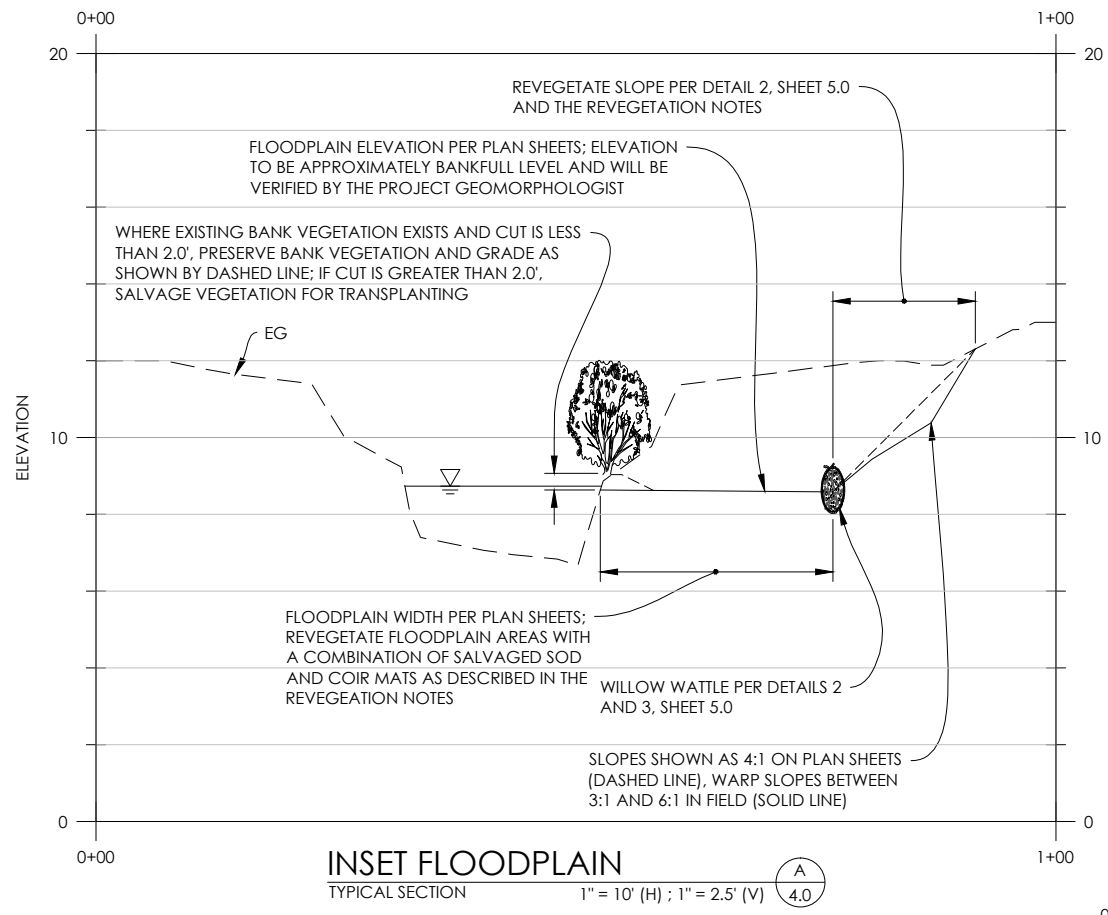
DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
B HASTINGS	6-10-16	BKH	CONCEPTUAL PLANS
P KULCHAWIK	3-8-17	BKH	95% PROGRESS DRAFT
E BALLMAN	4-7-17	BKH	DRAFT 95% DESIGN
IN CHARGE			
D SHAW			
DATE	4-7-17		

LOWER REACH 6
MAINSTEM MARTIS CREEK RESTORATION
PLACER COUNTY, CALIFORNIA
TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
215063
SCALE
1" = 30'
SHEET

3.10

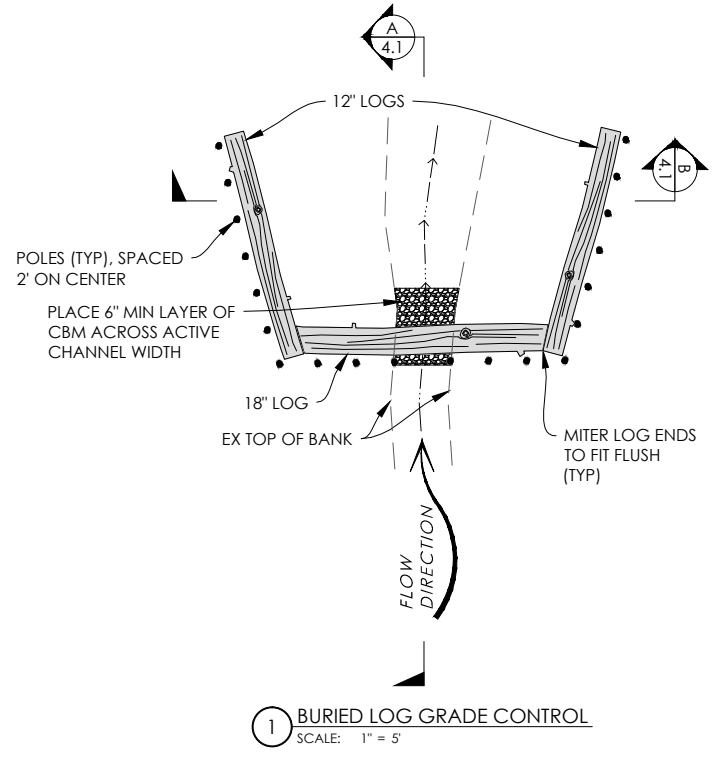
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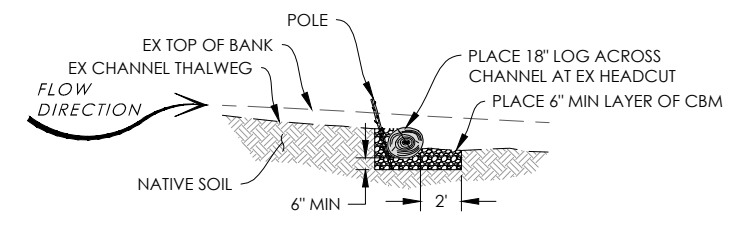
DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
B HASTINGS	6-10-16	BKH	CONCEPTUAL PLANS
P KULCHAWIK	3-8-17	BKH	95% PROGRESS DRAFT
E BALLMAN	4-7-17	BKH	DRAFT 95% DESIGN
IN CHARGE			
D SHAW			
DATE	4-7-17		

TYPICAL SECTION VIEWS
 MAINSTEM MARTIS CREEK RESTORATION
 PLACER COUNTY, CALIFORNIA
 TRUCKEE RIVER WATERSHED COUNCIL

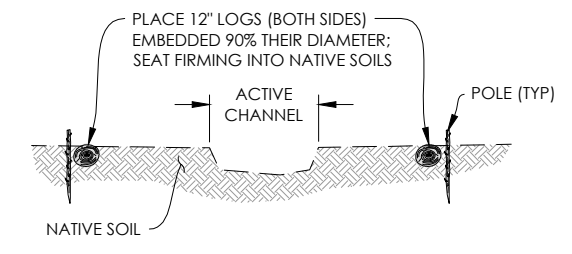
PROJECT NUMBER
215063
 SCALE
AS SHOWN
 SHEET



1 BURIED LOG GRADE CONTROL
SCALE: 1" = 5'



BURIED LOG GRADE CONTROL
PROFILE VIEW
SCALE: 1" = 5'



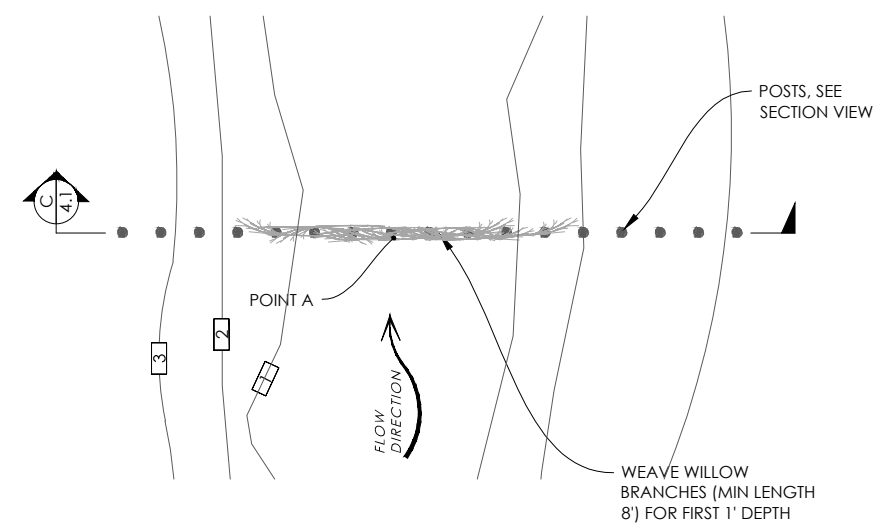
BURIED LOG GRADE CONTROL
SECTION VIEW
SCALE: 1" = 5'

BURIED LOG GRADE CONTROL NOTES:

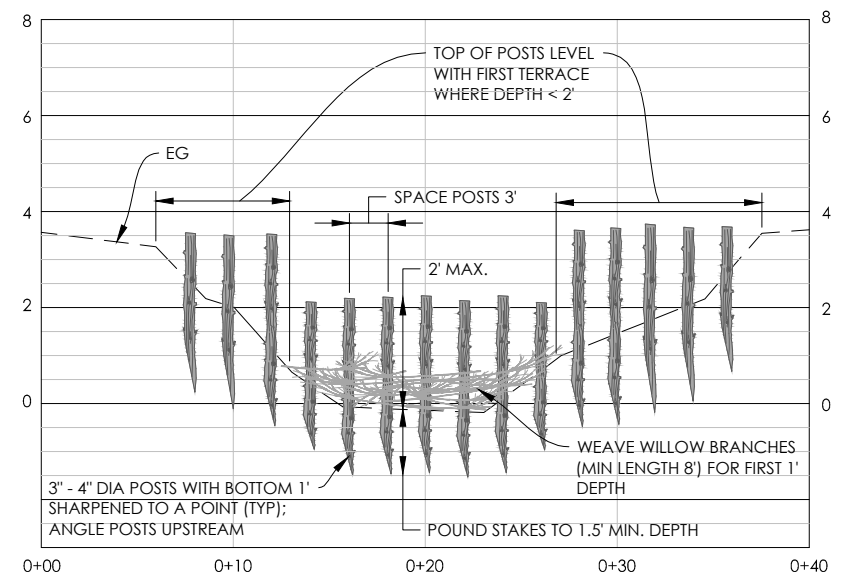
1. GENERAL
 - 1.1. CONSTRUCT BURIED LOG GRADE CONTROLS AT THE LOCATIONS INDICATED ON THE PLANS AND AS DIRECTED BY THE FIELD REPRESENTATIVE.
 - 1.2. IF A CONFLICT EXISTS BETWEEN THE INFORMATION ON THE PLANS AND SITE CONDITIONS, NOTIFY THE FIELD REPRESENTATIVE IMMEDIATELY.
 - 1.3. PURPOSE: BURIED LOG GRADE CONTROLS ARE INTENDED TO STABILIZE THE BED AND BANKS OF SIDE CHANNELS AS THEY CROSS STEEP TERRAIN JUST BEFORE RE-ENTERING MAINSTEM MARTIS CREEK. DOING SO IS INTENDED TO PREVENT HEADCUTS FROM MIGRATING UPSTREAM THROUGH SIDE CHANNELS.
2. MATERIALS
 - 2.1. LOGS
 - 2.1.1. THERE ARE NO LIMITATIONS TO THE SPECIES OF LOGS OBTAINED, OTHER THAN THEY MUST COME FROM WITHIN A 25-MILE RADIUS OF THE PROJECT SITE, AND BE SOURCED FROM AN AREA HAVING SIMILAR CLIMATE, ELEVATION, AND VEGETATION COMMUNITIES AS THE PROJECT SITE.
 - 2.1.2. LOGS SHALL BE SOUND, FREE FROM ROT OR INFESTATION BY INSECTS, AND FREE OF ADHERED DIRT, LITTER, OR OTHER MATERIAL.
 - 2.1.3. LOGS SHALL HAVE NO WEAKNESSES SUCH AS CRACKS AND SPLITS THROUGH MORE THAN 25 PERCENT OF THE LOG DIAMETER.
 - 2.1.4. LOGS SHALL BE GENERALLY STRAIGHT AND SHALL BE TRIMMED SO THAT BRANCHES PROTRUDE NO MORE THAN 6 INCHES FROM THE TRUNK.
 - 2.1.5. LOGS FOR THE BURIED LOG GRADE CONTROLS ARE CLASSIFIED IN TERMS OF THE FOLLOWING SIZE CLASSES:

LOG SIZE	LENGTH	DIAMETER
12" LOGS	12 FEET	15 TO 18 INCHES
18" LOGS	12 FEET	10 TO 15 INCHES
 - 2.1.6. CUTS SHALL BE SMOOTH, WITHOUT BREAKS OR JAGGED EDGES.
 - 2.2. CHANNEL BED MATERIAL (CBM):
 - 2.2.1. CBM SHALL BE CLEAN SUBANGULAR TO SUBROUNDED ROCK GENERALLY CONSISTING OF COBBLES, GRAVELS, AND SAND. THE CBM SHALL BE WELL-MIXED PRIOR TO PLACEMENT.
 - 2.2.2. CBM SHALL BE CLEANED PRIOR TO DELIVERY TO THE PROJECT SITE AND WILL BE REJECTED BY THE FIELD REPRESENTATIVE IF THE MIXTURE IS FOUND TO HAVE EXCESSIVE FINES.
 - 2.2.3. CBM SHALL HAVE THE FOLLOWING GRADATION:

SIEVE OPENING	% PASSING, BY WEIGHT
1"	100
3/4"	84
1/2"	50
NO. 4	16
NO. 10	5
3. EXECUTION
 - 3.1. LOCATE AND FLAG THE APPROXIMATE LOCATIONS OF BURIED LOG GRADE CONTROLS AS SHOWN ON THE DRAWINGS IN THE FIELD.
 - 3.2. THE FIELD REPRESENTATIVE SHALL APPROVE THE FLAGGED LOCATIONS FOR THE BURIED LOG GRADE CONTROLS PRIOR TO INSTALLATION.
 - 3.3. THE FIELD REPRESENTATIVE AND CONTRACTOR SHALL AGREE ON AN ELEVATION FOR EACH BURIED LOG GRADE CONTROL PRIOR TO PLACEMENT. THE ELEVATION WILL BE BASED ON FIELD CONDITIONS AND INFORMATION PROVIDED ON THE DRAWINGS.
 - 3.4. EXCAVATE TRENCHES FOR THE LOGS AND CBM, CAREFULLY HARVESTING AND STORING THE SOD (IF SUITABLE FOR REUSE) WITHIN THE TRENCH FOOTPRINT. MINIMIZE THE SIZE OF THE TRENCH, MAKING IT NO LARGER OR DEEPER THAN NEEDED TO INSTALL EACH LOG.
 - 3.5. PLACE A 6-INCH (MINIMUM) LAYER OF CBM IN THE LOCATIONS SHOWN ON THE DRAWINGS.
 - 3.6. PLACE LOGS AS SHOWN, SEATING THEM FIRMLY IN THE CBM OR NATIVE SOILS. CAREFULLY PLACE LOGS AND MITER CUT THE 18-INCH DIAMETER LOG TO PROVIDE INTIMATE CONTACT AMONG ALL LOGS.
 - 3.7. BACKFILL REMAINING PORTION OF THE TRENCH WITH EITHER CBM OR MATERIAL REMOVED DURING EXCAVATION, AS SHOWN ON THE DRAWINGS. COMPACT BACKFILL MATERIAL WITH AN EXCAVATOR BUCKET OR WITH TRACK EQUIPMENT.
 - 3.8. INSTALL CUTTINGS AS SHOWN AND WATER IMMEDIATELY AFTER INSTALLATION.



2 BIOENGINEERED CHECK DAM
SCALE: 1" = 5'



BIOENGINEERED CHECK DAM
SECTION VIEW
SCALE: 1" = 5' (H); 1" = 2' (V)

BIOENGINEERED CHECK DAM NOTES:

1. GENERAL
 - 1.1. CONSTRUCT BIOENGINEERED CHECK DAMS AT THE LOCATIONS INDICATED ON THE DRAWINGS AND AS DIRECTED BY THE FIELD REPRESENTATIVE.
 - 1.2. IF A CONFLICT EXISTS BETWEEN THE INFORMATION ON THE DRAWINGS AND SITE CONDITIONS, NOTIFY THE FIELD REPRESENTATIVE IMMEDIATELY.
 - 1.3. PURPOSE: THE BIOENGINEERED CHECK DAMS ARE INTENDED TO PROMOTE LONG-TERM AGGRADATION OF THE CHANNEL BED, THEREBY INCREASING CONNECTIVITY BETWEEN MAINSTEM MARTIS CREEK AND ITS FLOODPLAIN. THE BIOENGINEERED CHECK DAMS ARE ALSO USED TO RAISE WATER SURFACE ELEVATIONS IN ORDER TO ACTIVATE SIDE CHANNELS MORE FREQUENTLY.
2. MATERIALS
 - 2.1. POSTS
 - 2.1.1. POSTS PROPOSED FOR THE CONSTRUCTION OF BIOENGINEERED CHECK DAMS SHALL HAVE A DIAMETER OF 1 TO 2 INCHES, LENGTHS OF 2.5 TO 4.0 FEET. ONE END OF EACH POST SHALL BE SHARPENED TO A POINT.
 - 2.1.2. POSTS MAY EITHER BE HARVESTED OR PRE-FABRICATED.
 - 2.1.2.1. HARVESTED POSTS SHALL BE CUT FROM LIVE, DORMANT BRANCHES OF WILLOW OR ALDER AND SHALL BE TAKEN FROM SUITABLE PLANTS WITHIN THE PROJECT AREA. EXCLUSIVELY CUTTING POLES FROM ONE PLANT IS NOT ALLOWED (EXPECT WHERE VEGETATION REMOVAL IS INDICATED ON THE PLANS). HARVESTED POSTS SHALL BE STORED FOR 48 HOURS MAXIMUM, AND THE CUT ENDS KEPT IN WATER DURING STORAGE.
 - 2.1.2.2. PRE-FABRICATED POSTS SHALL BE UNTREATED PINE, FIR, OR CEDAR, UNLESS OTHERWISE APPROVED BY THE FIELD REPRESENTATIVE. POSTS SHALL NOT HAVE WEAKNESSES SUCH AS CRACKS AND SPLITS THROUGH MORE THAN 25 PERCENT OF THE POST DIAMETER.
 - 2.1.3. ONE END OF POSTS SHALL BE A CLEAN SQUARE CUT. THE OPPOSITE END SHALL BE SHARPENED TO A POINT.
 - 2.2. DEBRIS
 - 2.2.1. DEBRIS SHALL CONSIST OF WILLOW OR ALDER BRANCHES WITH A STEM DIAMETER 2 INCHES OR LESS.
 - 2.2.2. DEBRIS SHALL BE 2' MINIMUM LENGTH. THERE IS NO MAXIMUM LENGTH FOR DEBRIS.
 - 2.2.3. ALL LEAVES AND MINOR BRANCHES SHALL BE KEPT IN TACT TO THE EXTENT PRACTICABLE.
 - 2.2.4. THE SAME STORAGE REQUIREMENTS AS FOR HARVESTED POSTS APPLIES FOR DEBRIS.
3. EXECUTION
 - 3.1. PRIOR TO INSTALLATION, THE FIELD REPRESENTATIVE SHALL FIELD IDENTIFY THE LOCATIONS OF THE ENDPPOINTS FOR EACH STRUCTURE WHICH, IN TURN, WILL DICTATE THE FINAL ELEVATIONS AND LENGTH OF THE BIOENGINEERED CHECK DAM.
 - 3.2. BIOENGINEERED CHECK DAMS SHALL BE CONSTRUCTED TO THE DIMENSIONS INDICATED ON THE DRAWINGS AND AT THE LOCATIONS ESTABLISHED BY THE FIELD REPRESENTATIVE.
 - 3.3. POSTS SHALL BE DRIVEN IN TO THE GROUND ANGLED IN THE UPSTREAM DIRECTION AND SHALL PENETRATE THE GROUND A MINIMUM DEPTH OF 1.5 FEET.
 - 3.4. ONCE ALL POSTS HAVE BEEN INSTALLED, PACK DEBRIS BETWEEN THE UPSTREAM AND DOWNSTREAM ROWS OF POSTS TO THE ELEVATIONS AND LOCATIONS SHOWN ON THE DRAWINGS. NO POINT ALONG THE TOP OF THE PACKED DEBRIS SHALL BE HIGHER THAN THE UNTREATED ADJACENT GROUND.

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Truckee River Watershed Council

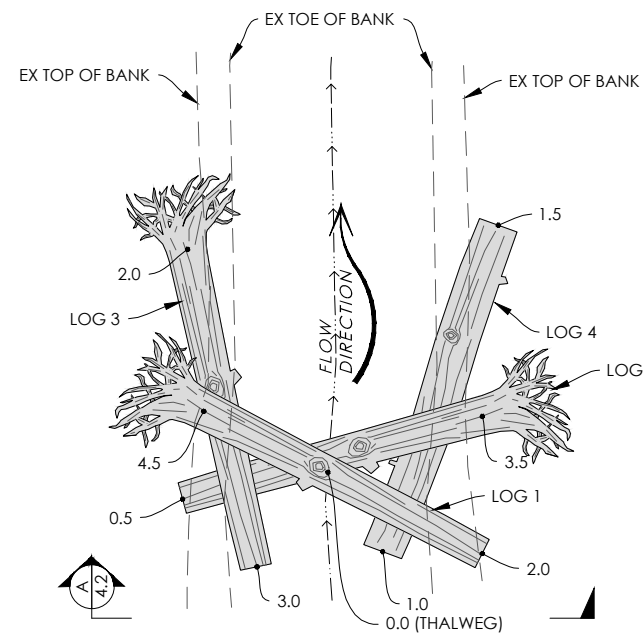
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DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
B HASTINGS	6-10-16	BKH	CONCEPTUAL PLANS
P KULICHAWIK	3-8-17	BKH	95% PROGRESS DRAFT
E BALLMAN	4-7-17	BKH	DRAFT 95% DESIGN
IN CHARGE			
D SHAW			
DATE	4-7-17		

LOG GRADE CONTROL AND BEAVER DAM ANALOG DETAILS
MAINSTEM MARTIS CREEK RESTORATION
PLACER COUNTY, CALIFORNIA
TRUCKEE RIVER WATERSHED COUNCIL

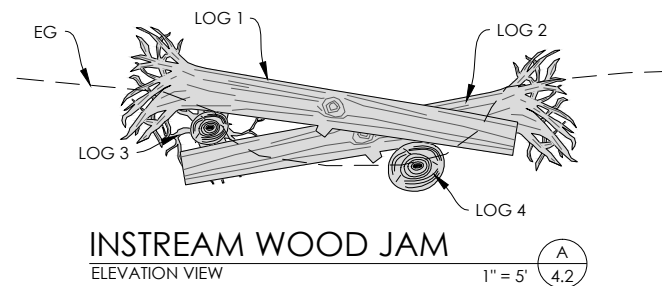
PROJECT NUMBER
215063
SCALE
AS SHOWN
SHEET

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1 INSTREAM WOOD JAM
SCALE: 1" = 5'

LEGEND:
1.5 ELEVATION OF LOG ENDS (TOP OF LOG, IN FEET)



INSTREAM WOOD JAM
ELEVATION VIEW
1" = 5'

INSTREAM WOOD JAM NOTES:

1. GENERAL
 - 1.1. CONSTRUCT INSTREAM WOOD JAMS AT THE LOCATIONS INDICATED ON THE DRAWINGS AND AS DIRECTED BY THE FIELD REPRESENTATIVE.
 - 1.2. IF A CONFLICT EXISTS BETWEEN THE INFORMATION ON THE DRAWINGS AND SITE CONDITIONS, NOTIFY THE FIELD REPRESENTATIVE IMMEDIATELY.
 - 1.3. PURPOSE: THE INSTREAM WOOD JAMS ARE INTENDED TO PROMOTE LONG-TERM AGGRADATION OF THE CHANNEL BED, THEREBY INCREASING CONNECTIVITY BETWEEN MAINSTEM MARTIS CREEK AND ITS FLOODPLAIN. INSTREAM WOOD JAMS ARE ALSO USED TO RAISE WATER SURFACE ELEVATIONS IN ORDER TO ACTIVATE SIDE CHANNELS MORE FREQUENTLY.
2. MATERIALS
 - 2.1. LOGS
 - 2.1.1. THERE ARE NO LIMITATIONS TO THE SPECIES OF LOGS OBTAINED, OTHER THAN THEY MUST COME FROM WITHIN A 25-MILE RADIUS OF THE PROJECT SITE, AND BE SOURCED FROM AN AREA HAVING SIMILAR CLIMATE, ELEVATION, AND VEGETATION COMMUNITIES AS THE PROJECT SITE.
 - 2.1.2. LOGS SHALL BE SOUND, FREE FROM ROT OR INFESTATION BY INSECTS, AND FREE OF ADHERED DIRT, LITTER, OR OTHER MATERIAL.
 - 2.1.3. LOGS SHALL HAVE NO WEAKNESSES SUCH AS CRACKS AND SPLITS THROUGH MORE THAN 25 PERCENT OF THE LOG DIAMETER.
 - 2.1.4. LOGS SHALL BE GENERALLY STRAIGHT AND SHALL BE TRIMMED SO THAT BRANCHES PROTRUDE NO MORE THAN 6 INCHES FROM THE TRUNK.
 - 2.1.5. LOGS FOR THE INSTREAM LOG JAMS ARE CLASSIFIED IN TERMS OF THE FOLLOWING SIZE CLASSES:
 - 2.1.5.1. LOGS WITH ROOTWADS SHALL BE 18 FEET LONG (MEASURED FROM THE CUT END TO THE ROOTWAD BOLE), 15 TO 18 INCHES IN DIAMETER (MEASURED AT THE CUT END), AND HAVE THEIR ROOTWADS ATTACHED. ROOTWAD FANS SHALL BE TRIMMED SO THEY ARE NO LARGER THAN 6 FEET IN DIAMETER. ROOTWADS SHALL BE THOROUGHLY WASHED BEFORE DELIVERY TO THE PROJECT SITE.
 - 2.1.5.2. CUT LOGS SHALL BE 18 FEET LONG AND 20 TO 24 INCHES IN DIAMETER.
 - 2.1.6. CUTS SHALL BE SMOOTH, WITHOUT BREAKS OR JAGGED EDGES.
3. EXECUTION
 - 3.1. THE FIELD REPRESENTATIVE AND CONTRACTOR SHALL AGREE ON A CONFIGURATION AND ELEVATIONS FOR EACH INSTREAM WOOD JAM PRIOR TO PLACEMENT. THE ELEVATION WILL BE BASED ON FIELD CONDITIONS AND INFORMATION PROVIDED ON THE DRAWINGS.
 - 3.2. LOGS 1, 2, AND 3 SHALL BE LOGS WITH ROOTWADS. LOG 4 SHALL BE A CUT LOG.
 - 3.3. ARRANGE LOGS APPROXIMATELY AS SHOWN IN THE DRAWINGS, PER THE DIRECTION OF THE FIELD REPRESENTATIVE, AND BY THE FOLLOWING GUIDELINES:
 - 3.3.1. PIN EACH LOG USING AT LEAST ONE OTHER LOG.
 - 3.3.2. EMBED AT LEAST 30% OF THE LENGTH OF EACH LOG IN EITHER THE CHANNEL BED OR BANKS.
 - 3.3.3. FIRMLY SEAT EACH LOG IN THE NATIVE SOILS USING THE BACK ON AN EXCAVATOR BUCKET.
 - 3.3.4. MAXIMIZE CONTACT AMONG ALL LOGS.
 - 3.4. ONCE ALL LOGS ARE INSTALLED TO THE SATISFACTION OF THE FIELD REPRESENTATIVE, BACKFILL ANY REMAINING TRENCH AREAS TO RESEMBLE THE PRE-DISTURBANCE TOPOGRAPHY OF THE CHANNEL BED AND BANKS. IT IS LIKELY THAT PORTIONS OF SOME LOGS WILL PROTRUDE ABOVE THE BANKS.

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B HASTINGS	6-10-16	BKH	CONCEPTUAL PLANS
P KULCHAWIK	3-8-17	BKH	95% PROGRESS DRAFT
E BALLMAN	4-7-17	BKH	DRAFT 95% DESIGN
IN CHARGE			
D SHAW			
DATE	4-7-17		

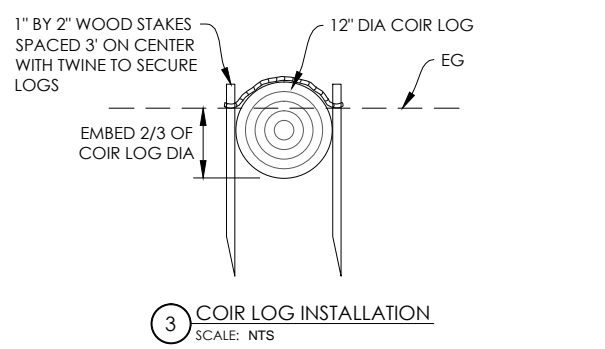
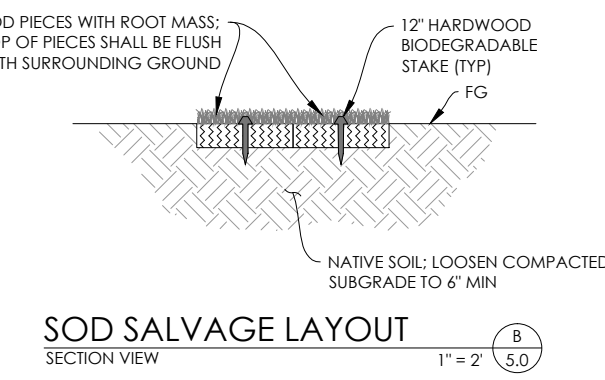
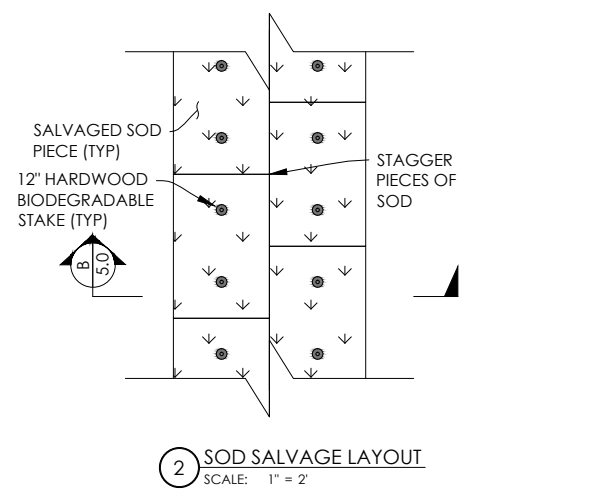
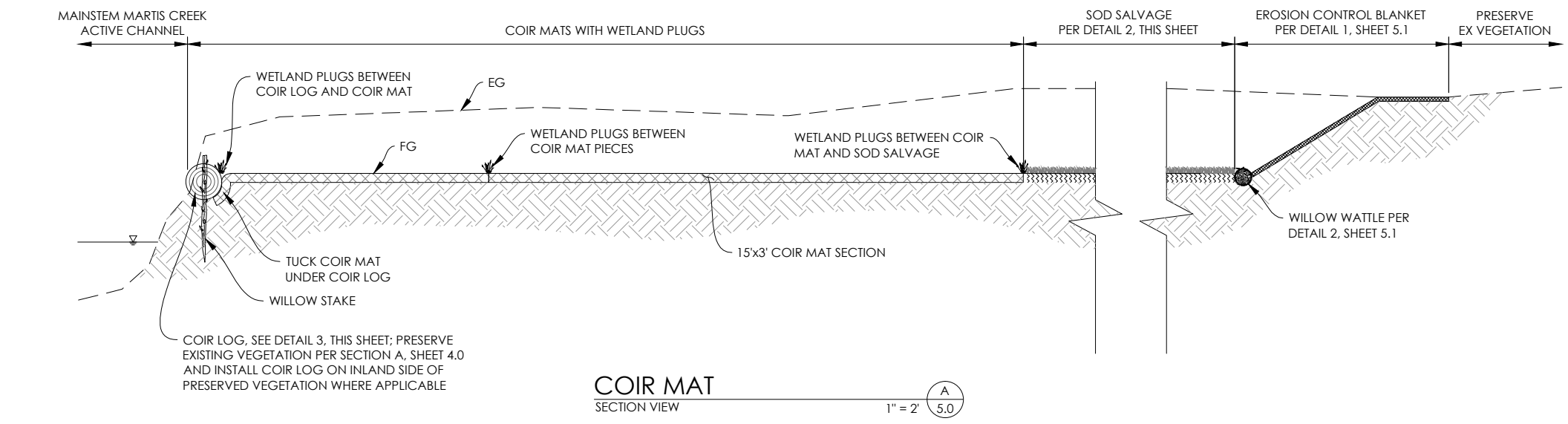
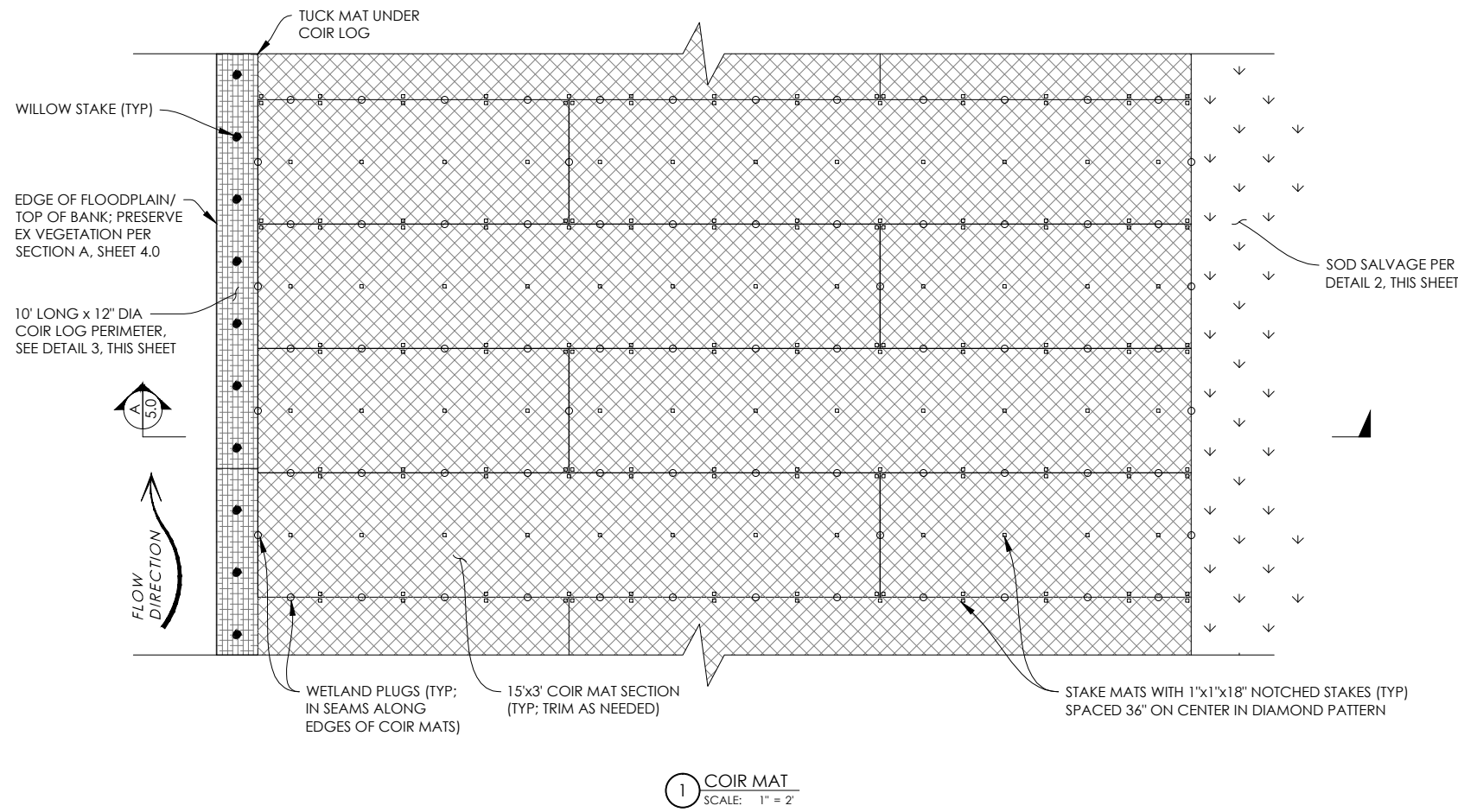
INSTREAM WOOD JAM
DETAIL
 MAINSTEM MARTIS CREEK RESTORATION
 PLACER COUNTY, CALIFORNIA
 TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER
 215063
 SCALE
 AS SHOWN
 SHEET

4.2

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DRAFT 95% DESIGN - NOT FOR CONSTRUCTION



GENERAL NOTES:
1. REFER TO SHEETS 5.2 AND 5.3 FOR ADDITIONAL NOTES
2. DETAILS SHOWN ON THIS SHEET WERE ADAPTED FROM DRAWINGS DEVELOPED BY NORTHWEST HYDRAULIC CONSULTANTS

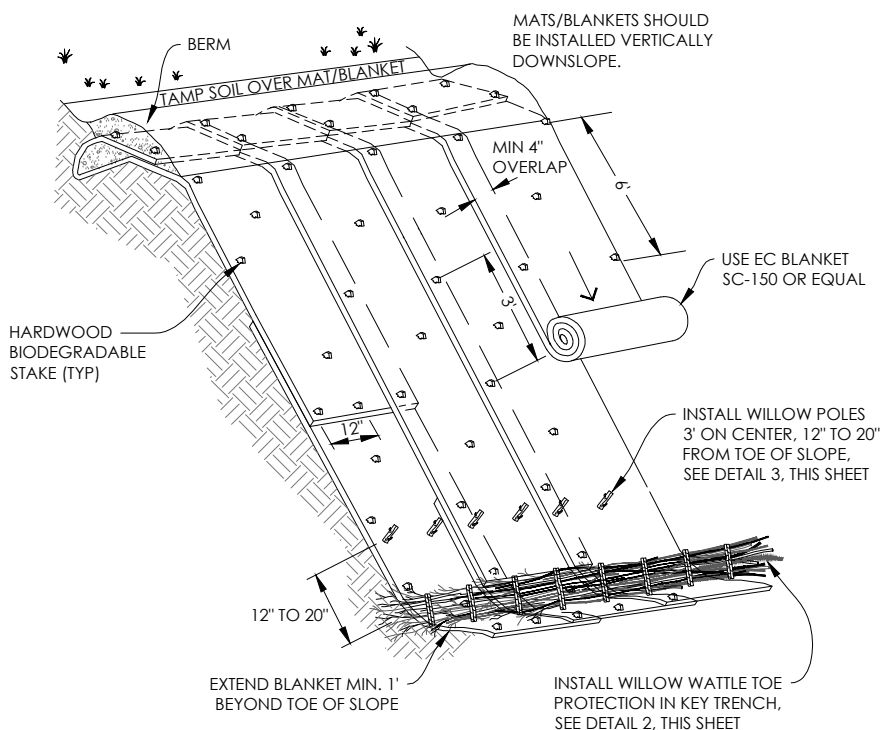
PREPARED FOR:
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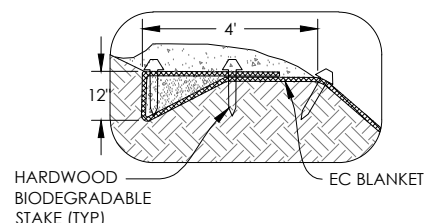
FLOODPLAIN REVEGETATION DETAILS
MAINSTEM MARTIS CREEK RESTORATION
PLACER COUNTY, CALIFORNIA
TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER	215063
SCALE	-
SHEET	5.0

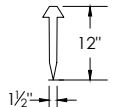
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1 EROSION CONTROL BLANKET - WILLOW WATTLE TOE PROTECTION
SCALE: NTS

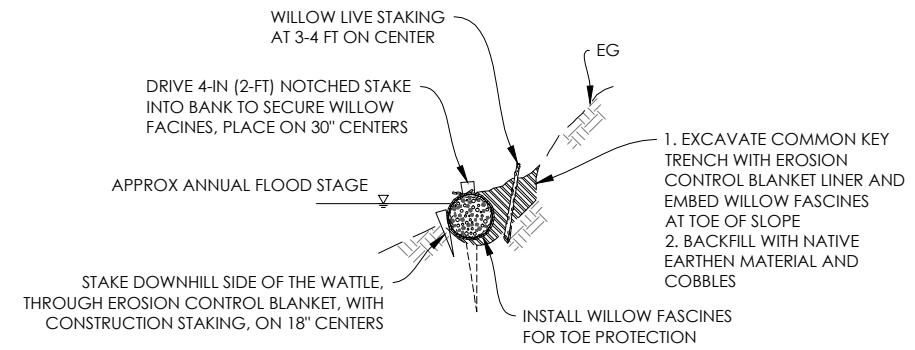


BERM - SECTION VIEW

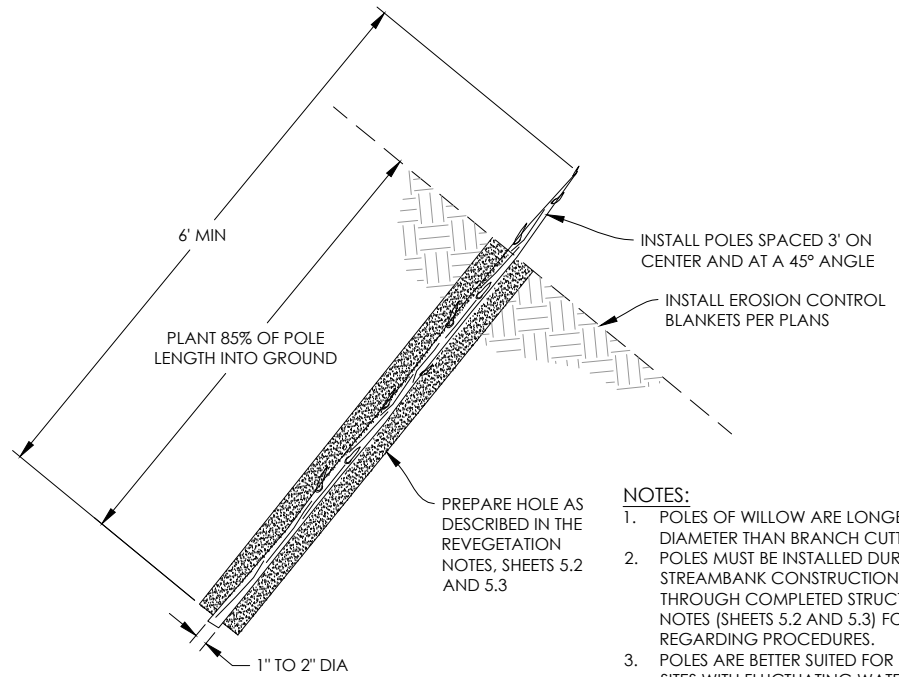
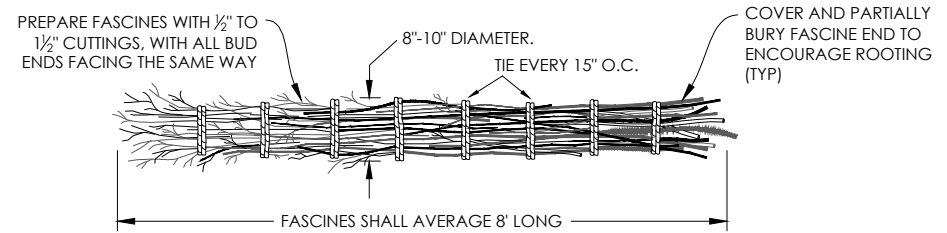


HARDWOOD BIODEGRADABLE STAKES

- NOTES:**
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
 2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
 3. LAY BLANKETS LOOSELY AND STAKE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.
 4. APPLY WOOD CHIP MULCH TO ACHIEVE 85% COVER.



2 WILLOW WATTLE
SCALE: NTS



3 WILLOW POLE INSTALLATION
SCALE: NTS

- NOTES:**
1. POLES OF WILLOW ARE LONGER AND HAVE A LARGER DIAMETER THAN BRANCH CUTTINGS OR LIVE STAKES. POLES MUST BE INSTALLED DURING BIOTECHNICAL STREAMBANK CONSTRUCTION. THEY SHALL NOT BE INSTALLED THROUGH COMPLETED STRUCTURES. SEE REVEGETATION NOTES (SHEETS 5.2 AND 5.3) FOR MORE INFORMATION REGARDING PROCEDURES.
 2. POLES ARE BETTER SUITED FOR HIGHLY ERODIBLE AREAS AND SITES WITH FLUCTUATING WATER LEVELS.
 3. POLES SHOULD EXTEND THROUGH THE EROSION CONTROL BLANKET INTO MOIST SOIL. AT LEAST 85% OF THE POLE SHOULD BE BELOW THE GROUND.

- GENERAL NOTES:**
1. REFER TO SHEETS 5.2 AND 5.3 FOR ADDITIONAL NOTES
 2. DETAILS SHOWN ON THIS SHEET WERE ADAPTED FROM DRAWINGS DEVELOPED BY NORTHWEST HYDRAULIC CONSULTANTS

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SLOPE REVEGETATION DETAILS
MAINSTEM MARTIS CREEK RESTORATION
PLACER COUNTY, CALIFORNIA
TRUCKEE RIVER WATERSHED COUNCIL

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SCALE
-
SHEET

2.8.4 FOR WATTLES AND WEAVINGS, BRANCH LENGTH MAY VARY BUT SHOULD AVERAGE 8 FT. IN LENGTH. BUTT END DIAMETER OF BRANCHES SHALL NOT BE MORE THAN ¾-INCH IN DIAMETER. DO NOT REMOVE LEAVES OR BRANCHES. PLACE BUTT ENDS ALTERNATELY IN EACH WATTLE SO THAT APPROXIMATELY ONE-HALF OF THE BUTT ENDS ARE AT END OF THE WATTLE. TIE BUNDLES ON NOT MORE THAN 15-INCH CENTERS WITH TWO WRAPS OF JUTE OR SISAL BIODEGRADABLE BINDING TWINE USING A NON-SLIPPING KNOT. WHEN COMPRESSED FIRMLY AND TIED EACH WATTLE SHALL MEASURE APPROXIMATELY 8 INCHES IN DIAMETER (+/- 2 INCHES).

3. EXECUTION

3.1. GENERAL

- 3.1.1. ALL REVEGETATION AND RESTORATION WORK SHALL CONSIST OF THE FOLLOWING COMPONENTS: TOPSOIL SALVAGE AND PLACEMENT AS FILL; SALVAGED SOD AND ORGANIC MATTER AND PLACEMENT; COIR MAT INSTALLATION AND WETLAND PLUG PLANTINGS; WILLOW SALVAGE AND PLANTINGS; WILLOW WATTLE AND POLE PLANTINGS; SEEDING; MULCHING; AND EROSION CONTROL BLANKET INSTALLATION. IT SHALL INCLUDE A TWO-YEAR MAINTENANCE AND WARRANTY PERIOD.
- 3.1.2. ALL OFF HAUL UPLAND FILL AND DITCH FILL SHALL BE BROADCAST SEEDED WITH SEED MIX 1 AND SEED MIX 2, RESPECTIVELY AND COVERED WITH 85% COVER BY MULCH DERIVED FROM WOOD CHIPS, CLEAN PINE NEEDLES, OR A COMBINATION THEREOF. UPLAND FILL MAY REQUIRE INCORPORATION OF SALVAGED SOILS, AS DIRECTED.
- 3.1.3. PRIOR TO SEEDING ENSURE COMPACTION IS NOT GREATER THAN 85%. SOIL MATERIAL USED FOR SOD AND MAT INSTALLATION SHALL BE COMPACTED TO A MINIMUM OF 80% AND A MAXIMUM OF 85% AT +/- 2% OF OPTIMUM MOISTURE CONTENT AS MEASURED USING THE STANDARD METHOD (ASTM D 698).
- 3.1.5. A C-27 LICENSED IN THE STATE OF CALIFORNIA AND SHALL PERFORM ALL VEGETATION WORK AS SPECIFIED HEREIN, IN ACCORDANCE WITH THE PROVISIONS OF THESE SPECIAL PROVISIONS AND THE PLANS.
- 3.1.6. FOR EACH INSET FLOODPLAIN INSTALL APPROXIMATELY 50% SALVAGED SOD AND 50% COIR MAT TO ACHIEVE 100% COVER. FIELD ADJUST AS DIRECTED FOR EACH SITE.
- 3.1.7. PRESERVE EXISTING VEGETATION TO THE EXTENT PRACTICABLE.
- 3.2. TOPSOIL, ORGANIC MATTER, AND SOD SALVAGE AND PLACEMENT
 - 3.2.1. ESTABLISH LIMITS OF SALVAGE AND REPLACEMENT, AS APPROVED BY THE CPESC.
 - 3.2.2. SOD SALVAGE AND REPLACEMENT SHALL TAKE PLACE FOR THE INSET FLOODPLAIN AND THE BREAKOUT CHANNELS.
 - 3.2.3. SALVAGE ALL SOD AND ORGANIC MATTER TO A DEPTH OF AT MINIMUM EIGHT (8) INCHES, AS MEASURED FROM THE ROOT CROWN. REDUCE HANDLING AND STORAGE TIME SO THAT EXCAVATION AND REAPPLICATION IS CONCURRENT.
 - 3.2.4. SOD SHALL BE LIFTED FROM THE SUB-GRADE USING MACHINERY EQUIPPED WITH A FRONT-END BUCKET OR OTHERWISE APPROVED APPARATUS. WORK SHALL PROGRESS IN SUCH A MANNER AS TO MINIMIZE THE DISTURBANCE OF THE SOIL BOUND BY THE ROOT MASS AND THE CONTIGUOUS INTEGRITY OF THE SOD SECTION. MATERIAL THAT CANNOT BE MOVED IN A CONTIGUOUS MANNER SHALL SALVAGED AND RE-APPLIED AS ORGANIC MATTER. IF STORED, SOD SHALL BE PLACED WITH ROOTS DOWN AND EDGES SNUGLY ADJOINING ADJACENT SECTIONS IN A SHADED FACILITY FOR A MAXIMUM TIME OF ONE MONTH. STORED SOD SHALL NOT BE STACKED. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATE MOISTURE TO THE SOD DURING THE INTERIM STORAGE PERIOD AND IS RESPONSIBLE FOR MAINTAINING HEALTHY MATERIAL UNTIL IT IS RE-PLANTED.
 - 3.2.5. OVER-EXCAVATE AREAS FOR INSTALLATION AS NEEDED SO THAT ALL MATERIAL, INCLUDING CROWNS OF SOD, ARE AT FINISH GRADE. SPREAD ORGANIC MATTER ON PRE-WETTED SURFACES AS DIRECTED AND RAKE SMOOTH. PLANT INTO MOIST SOIL SUCH THAT EDGES SNUGLY ADJOINING ADJACENT SECTIONS. CHINK WITH NATIVE TOPSOIL SO THAT THE EDGES OF THE SOD ARE WELL COVERED. FINAL ELEVATION OF SOD CROWNS SHALL MATCH THE PLAN ELEVATION. THOROUGHLY WATER SOD. SOD SHALL BE MAINTAINED IN A MOIST, HEALTHY CONDITION AS DIRECTED BY THE CPESC UNTIL ESTABLISHED ACCORDING TO THE TWO-YEAR WARRANTY PERIOD.
 - 3.2.6. WHERE SALVAGED SOD AND PLACEMENT IS LIMITED, PRIORITIZE PLANTING AND LOCATE IN THE INSET FLOODPLAIN ADJACENT AND AT THE TOE OF THE NEWLY GRADED SLOPES. APPLY SEED MIX 2 WHERE COVER BY PLACED SOD IS LESS THAN 100%.
 - 3.2.7. WHEN GRADING NEW SLOPES, SEPARATE TOPSOIL FROM SUBSOIL AS MUCH AS PRACTICABLE. PLACE AS FILL IN THE OLD IRRIGATION DITCHES IN THE ORDER IN WHICH IT WAS REMOVED, SO THAT THE TOPSOIL IS PLACED ON TOP OF THE SALVAGED SUBSOIL.
 - 3.2.8. FOR UPLAND SITES, DECOMPACT EXISTING SOILS AS DIRECTED BY THE CPESC AND INCORPORATE SALVAGED MATERIAL WITH RIPPERS OR OTHER APPROVED TOOLS. DO NOT TILL.
- 3.3. COIR MAT AND COIR LOG PLACEMENT, WILLOW STAKE AND WETLAND PLUG PLANTING
 - 3.3.1. FOR THE COIR MAT, OVER EXCAVATE AS NEEDED SO THAT FINISH SURFACE OF THE MAT MATCHES FINISHED GRADE ELEVATION. TUCK COIR MAT UNDER COIR LOGS.
 - 3.3.2. INSTALL PERPENDICULAR TO THE FLOW LINE OF THE CREEK. FIELD FIT TO THE SITE AS DIRECTED BY THE CPESC. PRIOR TO INSTALLING THE MAT, LOOSEN COMPACTED SURFACES TO A DEPTH OF DEPTH OF SIX (6) INCHES AND APPLY SALVAGED TOPSOIL TO A DEPTH OF ONE (1) INCH AND INCORPORATE. COIR MAT SHALL CONSIST OF THREE (3) FT. X FIFTEEN (15) FT. SECTIONS. INSTALL AS SHOWN IN DETAIL 1, SHEET 5.0. PLANT NEBRASKA SEDGE (*CAREX NEBRASCENSIS*) AND BALTIC RUSH (*JUNCUS BALTICUS*) PLUGS ON TWO- (2) FOOT CENTERS ALONG ALL SEAMS OF THE MAT, INCLUDING ALONG SALVAGED SOD. STAKE THE EDGES OF THE MAT WITH 1" X 1" X 18" NOTCHED STAKES 36" O.C. AS SHOWN IN DETAIL 1, SHEET 5.0.
 - 3.3.3. WETLAND PLUGS SHALL BE DEEPTS OR APPROVED EQUAL. PLANT WITH A WEDGE-SHAPED PLANTING BAR. USING THE PLANTING BAR PUNCH A HOLE IN SOIL CORRESPONDING TO THE DIAMETER AND LENGTH OF THE CONTAINER. REMOVE PLUG INTACT, PLACE IN THE HOLE SO CROWN IS AT OR SLIGHTLY BELOW GRADE. THOROUGHLY WATER, PRESS AND TAMP MOIST SOIL AROUND THE PLANT.
 - 3.3.4. INSTALL COIR LOGS IN A KEY TRENCH AROUND THE PERIMETER OF THE ENTIRE LENGTH OF THE COIR MAT ALONG THE CHANNEL THE INSET FLOODPLAIN, AS DIRECTED BY THE CPESC. ANCHOR WITH 1" X 2" X 24" STAKES 24" O.C AS SHOW IN DETAIL 3, SHEET 5.0. PLANT 36" LENGTH WILLOW STAKES INTO THE PRE-DRILLED HOLES (15" O.C.) OF THE COIR LOGS SO THAT 24" OF THE STAKE IS IN THE SOIL. BACKFILL THE HOLES WITH NATIVE SOILS, TAMP TO COMPACT, AND WATER.

3.4. WILLOW SALVAGE AND REPLANTING

- 3.4.1. GENTLY REMOVE PLANTS BY EXCAVATING AROUND THE ROOT ZONE WITH A BACKHOE BUCKET, OR OTHER EQUIPMENT APPROVED BY THE FIELD REPRESENTATIVE AND REVEGETATION SPECIALIST. AS MUCH OF THE ROOT BALL AS FEASIBLE SHALL BE REMOVED INTACT. PRUNE DAMAGED ROOTS. BURLAP MAY BE USED TO WRAP AND PROTECT THE ROOT ZONE DURING TRANSPORT. STORE IN PRE-EXCAVATED, PRE-WATERED TRENCHES AND MAINTAIN WELL WATERED AND HEALTHY UNTIL MOVE TO THE PERMANENT PLANTING SITES.
- 3.4.2. PRECISE LOCATIONS FOR RE-PLANTING WILL BE DETERMINED BY THE CPESC BUT IN GENERAL WILL BE LOCATED CLOSE TO THE CHANNEL AND INSET FLOODPLAIN. PLANTING HOLES MAY NOT BE PREPARED MORE THAN EIGHT (8) HOURS PRIOR TO PLANT REMOVAL FROM STORAGE SITE. HOLES SHALL BE EXCAVATED TWELVE (12) INCHES BELOW THE ROOT ZONE AND TWELVE (12) INCHES WIDER ON BOTH SIDES OF THE ROOT MASS. LOOSEN SOILS IN THE BOTTOM AND ALONG THE SIDES OF THE HOLE AND PLACE THE PLANT IN THE HOLE, BACKFILL WITH THE EXCAVATED MOIST SOIL SO THAT THE ROOT BALL IS TWO TO FOUR (2 - 4) INCHES BELOW EXISTING GRADE. TAMP SOIL AND THOROUGHLY WATER IMMEDIATELY FOLLOWING PLANTING.
- 3.5. EROSION CONTROL BLANKETS WITH SEED AND MULCH
 - 3.5.1. APPLY SEED MIX 2 AND INCORPORATE TO A DEPTH OF ¼" TO ½" INCHES.
 - 3.5.2. APPLY WOOD CHIP MULCH TO ACHIEVE 85% COVER FOR SLOPES. DO NOT USE WOOD CHIPS FOR BREAKOUT CHANNELS.
 - 3.5.3. FOR SLOPES, INSTALL BLANKETS FORM THE TOP OF SLOPE TO THE SLOPE TOE. EXCAVATE A SIX (6) INCH X SIX (6) INCH TRENCH AT THE TOE OR TOP OF ALL SLOPES. OVERLAP BLANKETS SIX (6) INCHES AND STAKE WITH TWELVE (12) INCH HARD WOOD STAKES, ON AN AVERAGE OF TWO (2) STAKES PER SQUARE YARD IN A DIAMOND PATTERN. ANCHOR BLANKETS IN TRENCHES WITH THE HARD WOOD STAKES ON TWO (2)-FT CENTERS, BACKFILL THE TRENCH AND COMPACT LOOSE SOIL. LAY THE BLANKET IN THE WILLOW WATTLE KEY TRENCH. CAREFULLY KEY IN BLANKETS UNDER ALL STRUCTURES AND AT ALL ENDS OF THE BLANKETS.
 - 3.5.4. FOR BREAKOUT CHANNELS, INSTALL BLANKET OVER SALVAGED AND RE-PLANTED SOD. START AT THE CHANNEL (CREEK) END OF THE CHANNEL, WORKING TOWARDS THE MEADOW. OVERLAP THE BLANKETS IN A SHINGLE PATTERN, DRAPED SNUGGLY OVER THE SOD FROM TOP OF SLOPE TO THE OPPOSITE TOP OF SLOPE, AND ANCHORED IN A KEY TRENCH. ANCHOR WITH STAKES AS DESCRIBED ABOVE.
- 3.6. WILLOW WATTLE FABRICATION, WATTLE AND POLE INSTALLATION
 - 3.6.1. OBTAIN ALL MATERIAL FROM WITHIN PROJECT FOOTPRINT AS DIRECTED BY THE CPESC. CUT FROM HEALTHY, LIVE, AND DORMANT BRANCHES OF WILLOW (*SALIX* spp). DO NOT CUT LIVE MATERIAL MORE THAN SEVEN (7) DAYS PRIOR TO INSTALLATION UNLESS OBTAINED PRIOR TO BUD BREAK; (LATE FEBRUARY - EARLY APRIL, OR MID-SEPTEMBER). ALL DORMANT MATERIAL MUST BE STORED IN A COOL MOIST LOCATION, WRAPPED IN WET FABRIC OR STORED IN WATER FILLED BUCKETS OR OTHER MANNER APPROVED BY THE CPESC. BRANCH LENGTHS MAY VARY BUT SHOULD AVERAGE 6 (SIX) TO TEN (10) FT. IN LENGTH AND AVERAGE 8 (EIGHT) FT. BUTT END DIAMETER OF BRANCHES FOR WATTLES SHALL NOT BE MORE THAN ¾ INCH IN DIAMETER. DO NOT REMOVE LEAVES OR BRANCHES FOR WATTLES. PLACE BUTT ENDS ALTERNATELY IN EACH WATTLE SO THAT APPROXIMATELY ONE-HALF OF THE BUTT ENDS ARE AT EACH END OF THE WATTLE. TIE BUNDLES ON NOT MORE THAN 15-INCH CENTERS WITH TWO WRAPS OF JUTE OR SISAL BIODEGRADABLE BINDING TWINE USING A NON-SLIPPING KNOT. WHEN COMPRESSED FIRMLY AND TIED EACH WATTLE SHALL MEASURE APPROXIMATELY EIGHT (8) INCHES IN DIAMETER. ASSUME FIFTEEN (15) TO TWENTY (20) BRANCHES PER WATTLE.
 - 3.6.2. INSTALL WILLOW WATTLES AT THE TOE OF ALL NEWLY GRADED SLOPE IN A KEY TRENCH LINED WITH THE EROSION CONTROL BLANKET. INSTALL ONE ROW OF WILLOW POLES ON THE SLOPE 12-20 INCHES ABOVE THE WATTLES.
 - 3.6.3. PLACE WILLOW WATTLES IN THE EROSION CONTROL BLANKET TOE-OF-SLOPE KEY TRENCH, ROUGHLY 85% OF THE DIAMETER OF THE WATTLE. PLACE WATTLES WITH ENDS OVERLAPPING AT MINIMUM 12 INCHES. STAKE WATTLE FIRMLY IN PLACE THROUGH THE MIDDLE OF THE WATTLE ON NOT LESS THAN 30-INCH CENTERS. ADDITIONALLY, STAKE ON THE DOWNHILL SIDE OF THE WATTLE, THROUGH THE EROSION CONTROL BLANKET, WITH CONSTRUCTION STAKING, NOT MORE THAN 18-INCH CENTERS. PACK EXCAVATED SOIL AROUND THE WATTLE SO THAT ONLY APPROXIMATELY 15 PERCENT (15%) OF THE WILLOW MATERIAL IS EXPOSED. REMOVE WOOD STAKE MATERIAL PROTRUDING IN EXCESS OF 2 INCHES ABOVE THE WATTLE. WATER THE WATTLES THOROUGHLY SO THAT SOIL IS WASHED INTO THE BUNDLE.

- 3.6.4. INSTALL WILLOW POLES ON AVERAGE THREE (3) FT. CENTERS 12"-20" UP FROM SLOPE TOE INTO THE COIR EROSION CONTROL BLANKETS AS DIRECTED BY THE CPESC. INSTALL ON A 45° ANGLE SO THAT THE POLES ARE IN PLANTED INTO PERMANENTLY MOIST SOILS. PRE-PREPARE THE PLANTING HOLE FOR POLES USING RE-BAR, A 'STINGER' OR OTHER SUITABLE TOOL TO THE DEPTH OF THE POLE SO AS TO NOT DAMAGE THE BARK OF THE POLE DURING INSTALLATION. INSTALL THROUGH EROSION CONTROL BLANKETS WITHOUT TEARING THE FABRIC. PLANT SO THAT TWO TO THREE NODES ARE ABOVE GRADE AND MORE THAN 85% OF THE POLE IS IN THE GROUND. TIGHTLY PACK ALL LOOSE SOILS AROUND THE POLES SO THAT CANNOT BE REMOVED BY HAND
- 3.7. SEEDING WITH/WITHOUT SOIL INOCULANT AND MULCH APPLICATION
 - 3.7.1. HAND BROADCAST SEED MIX 1 WITH INOCULANT AT 60 LBS./ACRE AND INCORPORATE TO A DEPTH OF ¼" - ½" FOR UPLAND SITES. USE CHAIN LINKED FENCE OR OTHER APPROVED EQUIPMENT TO COVER SEED. APPLY WOOD CHIP MULCH TO UPLAND SITES ONE LAYER DEEP TO ACHIEVE 85% COVER.
 - 3.7.2. HAND BROADCAST SEED MIX 2 AND INCORPORATE TO A DEPTH OF ¼" - ½" FOR ALL OTHER DISTURBED SITES AND OVER SALVAGED WETLAND SOD.
- 3.8. WARRANTY
 - 3.8.1. FOR TWO FULL YEARS FOLLOWING COMPLETION OF THE WORK, WARRANTY NO EVIDENCE OF EROSION SUCH AS RILLS OR SHEET FLOW.
 - 3.8.2. WARRANTY 80% SURVIVAL OF WILLOW STAKES AND POLES, AND ONE WILLOW SPROUT PER LINEAL FOOT OF WILLOW WATTLE. WARRANTY 100% SURVIVAL OF WETLAND PLUGS.

EROSION CONTROL AND REVEGETATION PRODUCTS, SUPPLIERS, AND CONTACTS:

Product	Suppliers	Contact Information
Seed	Comstock Seed	(775) 746-3681, http://www.comstockseed.com/
	Pacific Coast Seed	(926) 373-4417
	S & S Seeds	(805) 684-0436
Soil Inoculants	Plant Health LLC	(541) 740-3691
	Pacific Coast Seed	http://www.pcseed.com/docs/nonseedproducts.pdf
Coir Erosion Control Blankets 40/400	Rolanka	http://www.rolanka.com/GN/mat40.html
	Nedia Enterprises	http://www.nedia.com/Nedia_Products.html
Coir Medium Density Log 12" diameter	Ro-Lanka	http://www.rolanka.com/GN/scWat1.html
	Nedia Enterprises	http://www.nedia.com/Nedia_Products.html
BioD-Pillow, Koir-Pad	Ro-Lanka	http://www.rolanka.com/GN/WR-pillow.html
	Nedia Enterprises	http://www.nedia.com/Nedia_Products.html
Biodegradable stakes	Tensor/North American Green	http://www.tensamagreen.com/Installation/Installation-products
	Nevada Division of Forestry	775-849-0213; http://forestry.nv.gov/naf-state-forest-nurseries/washoe-state-tree-nursery/
Wetland Plugs	Cornflower Farms	http://www.cornflowerfarms.com
	Plants of the Wild	http://www.plantsofthewild.com/

PREPARED FOR:

Balance Hydrologics, Inc.
 P.O. Box 1077
 12020 Donner Pass Road
 Truckee, CA 96161
 Tel: (530) 562-9776
 www.balancehydro.com

DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
B HASTINGS	6-10-16	BKH	CONCEPTUAL PLANS
P KULICHAWIK	3-8-17	BKH	95% PROGRESS DRAFT
E BALLMAN	4-7-17	BKH	DRAFT 95% DESIGN
IN CHARGE			
D SHAW			
DATE	4-7-17		

REVEGETATION NOTES 2

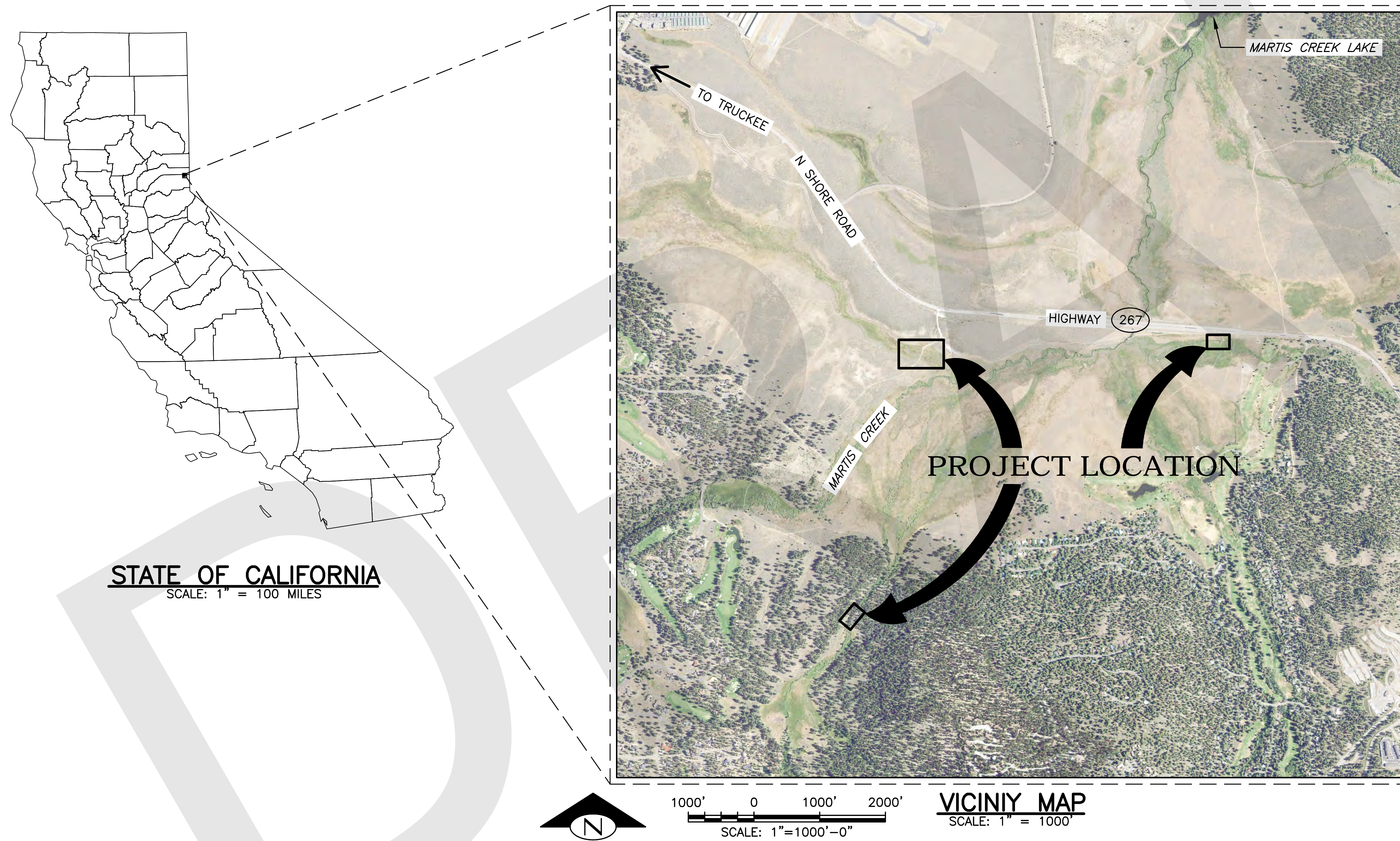
MAINSTEM MARTIS CREEK RESTORATION
 PLACER COUNTY, CALIFORNIA
 TRUCKEE RIVER WATERSHED COUNCIL

PROJECT NUMBER	215063
SCALE	-
SHEET	5.3

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MARTIS WILDLIFE AREA RESTORATION PROJECT

TRUCKEE RIVER WATERSHED COUNCIL



DRAWING LIST	
SHEET NUMBER	SHEET TITLE
1	COVER SHEET
2	GENERAL NOTES
3	LEGEND
4	EXISTING CONDITIONS SITE PLAN
5	OVERALL SITE PLAN, ACCESS, STAGING & TESC
6	UNNAMED TRIBUTARY CULVERT REPLACEMENT SITE PLAN
7	MIDDLE MARTIS HEADCUT SITE PLAN
8	LOOKOUT MOUNTAIN TRIBUTARY SITE PLAN
9	UNNAMED TRIBUTARY CULVERT PROFILE OPTIONS
10	UNNAMED TRIBUTARY CULVERT CROSS-SECTIONS AND ROAD PRISM
11	MIDDLE MARTIS HEADCUT PROFILE
12	MIDDLE MARTIS HEADCUT CROSS-SECTIONS
13	LOOKOUT MOUNTAIN TRIBUTARY PROFILE & CROSS-SECTIONS
14	DETAILS 1 - MIDDLE MARTIS - BIOENGINEERED CHECK DAM, TYPE 2
15	DETAILS 2 - LOOKOUT MT INCISION TREATMENT DETAIL
16	DETAILS 3 - UNNAMED TRIBUTARY CULVERT REPLACEMENT BRIDGE DETAILS
17	TESC, STREAM BYPASS & FISH EXCLUSION DETAILS

CONTACT INFORMATION

NATURAL SYSTEMS DESIGN, INC

1900 N NORTHLAKE WAY, SUITE 211
SEATTLE, WA 98103
(206) 834-0175

TRUCKEE RIVER WATERSHED COUNCIL

P.O. BOX 8568
TRUCKEE, CA 96162
(530) 550-8760

0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.



NAME OR INITIALS AND DATE	GEOGRAPHIC INFORMATION
DESIGNED M. NELSON	LATITUDE N39° 18' 5.46"
CHECKED M. ERICSSON	LONGITUDE W120° 7' 53.32"
DRAWN G. MATSUMOTO	TN/SC/RG T17N/S19/R17E
CHECKED T. ABBE	DATE -

MARTIS WILDLIFE AREA RESTORATION PROJECT

COVER SHEET

1

SHEET 1 OF 17

GENERAL NOTES

1. THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF TRUCKEE RIVER WATERSHED COUNCIL, HEREFTER REFERRED TO AS "OWNER" AND "CONTRACTOR" AND THEIR AUTHORIZED AGENTS.
2. NATURAL SYSTEMS DESIGN HEREAFTER REFERRED TO AS "ENGINEER" IS RESPONSIBLE FOR THE PREPARATION OF THESE ORIGINAL PLANS AND ASSOCIATED SPECIFICATIONS; AND WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGE, OR USE, OF THESE PLANS WHICH INCLUDES ALTERATION, DELETION, OR EDITING OF THIS DOCUMENT WITHOUT EXPLICIT WRITTEN PERMISSION FROM THE ENGINEER. ANY OTHER UNAUTHORIZED USE OF THIS DOCUMENT IS PROHIBITED.
3. MINOR MODIFICATIONS ARE EXPECTED TO SUIT JOB SITE DIMENSIONS OR CONDITIONS. SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK. THE OWNER, ENGINEER AND APPROPRIATE REGULATORY AGENCIES SHALL BE NOTIFIED OF ANY OWNER-AUTHORIZED CHANGE RESULTING IN MORE THAN A 10% DESIGN CHANGE OF PROPOSED FOOTPRINT OR THAT SIGNIFICANTLY AFFECTS THE INTENDED BENEFIT OR FUNCTION OF A PROJECT ELEMENT.
4. THE LOCATION OF ALL FEATURES SHOWN IS APPROXIMATE.
5. THE CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; AND FURTHER AGREES THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS IN ACCORDANCE WITH THE PROVISIONS OUTLINED BY THE PROJECT CONTRACT AND SPECIFICATIONS.
6. ALL IMPROVEMENTS SHALL BE ACCOMPLISHED UNDER THE APPROVAL, INSPECTION, AND TO THE SATISFACTION OF THE OWNER. IMPROVEMENT CONSTRUCTION SHALL COMPLY WITH THESE PLANS AND THE CALIFORNIA STATE DEPARTMENT OF TRANSPORTATION (CALTRANS) STANDARD PLANS FOR CONSTRUCTION OF ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION, CURRENT EDITION UNLESS NOTED OTHERWISE. ALL REFERENCES TO THE "STANDARD SPECIFICATIONS" SHALL MEAN THE CALIFORNIA STATE DEPARTMENT OF TRANSPORTATION (CALTRANS) STANDARD SPECIFICATIONS FOR CONSTRUCTION OF LOCAL STREETS AND ROADS, CURRENT EDITION. CONSTRUCTION NOT SPECIFIED ON THESE PLANS SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS. THE CONTRACTOR IS OBLIGATED TO BE FAMILIAR WITH APPLICABLE SECTIONS OF THE STANDARD SPECIFICATIONS NOT DISCUSSED IN THE GENERAL NOTES. THE CONTRACT SPECIAL PROVISIONS SHALL SUPERSEDE THOSE OF THE STANDARD SPECIFICATIONS WHERE DISCREPANCIES OCCUR.
7. IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND SUBCONTRACTOR(S) TO EXAMINE THE PROJECT SITE PRIOR TO THE OPENING OF BID PROPOSALS. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED, SUCH AS THE NATURE AND LOCATION OF THE WORK; AND THE GENERAL AND LOCAL CONDITIONS, PARTICULARLY THOSE AFFECTING THE AVAILABILITY OF TRANSPORTATION, THE DISPOSAL, HANDLING, AND STORAGE OF MATERIALS, AVAILABILITY OF LABOR, WATER, ELECTRICITY, ROADS, THE UNCERTAINTIES OF WEATHER, THE CONDITIONS OF THE GROUND, SURFACE AND SUBSURFACE MATERIALS, GROUNDWATER, THE EQUIPMENT AND FACILITIES NEEDED FOR AND DURING THE PERFORMANCE OF THE WORK, AND THE COSTS THEREOF. ANY FAILURE BY THE CONTRACTOR AND SUBCONTRACTOR(S) TO ACQUAINT THEMSELVES WITH ALL THE AVAILABLE INFORMATION WILL NOT RELIEVE THE CONTRACTOR AND SUBCONTRACTOR(S) FROM RESPONSIBILITY FOR PROPERLY ESTIMATING THE DIFFICULTY AND COST OF SUCCESSFULLY PERFORMING THE WORK.
8. THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE CONTRACT DOCUMENTS AND FOR ALL SUBMITTALS REQUIRED TO THE OWNER FOR REVIEW AND ACCEPTANCE.

PERMIT NOTES

1. EVERY REASONABLE EFFORT SHALL BE MADE TO CONDUCT THE ACTIVITIES SHOWN IN THESE PLANS, IN A MANNER THAT MINIMIZES THE ADVERSE IMPACT ON WATER QUALITY, FISH AND WILDLIFE, AND THE NATURAL ENVIRONMENT.
2. ALL WORK WILL BE IN COMPLIANCE WITH PERMIT CONDITIONS ISSUED BY PERTINENT REGULATORY AGENCIES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAVE COPIES OF ALL PERMITS ON THE JOB SITE, UNDERSTAND AND COMPLY WITH ALL PERMIT CONDITIONS.
3. ALL WORK THAT DISTURBS THE SUBSTRATE, BANK, OR SHORE OF A WATERS OF THE STATE THAT CONTAINS FISH LIFE SHALL BE CONDUCTED ONLY DURING THE WORK PERIOD FOR THAT WATERBODY AS ALLOWED BY RELEVANT HYDRAULIC WORK PERMITS. THOSE PORTIONS OF THE PROJECT WORK THAT OCCUR OUTSIDE OR ABOVE THE ORDINARY HIGH WATER MARK (ABOVE THE USACE JURISDICTIONAL LINE) ARE NOT SUBJECT TO THE WORK PERIODS DESCRIBED ABOVE UNLESS SPECIFIED IN THE RELEVANT PERMITS.
4. ALL ACTIVITIES THAT INVOLVE WORK ADJACENT TO, OR WITHIN THE WETTED CHANNEL SHALL, AT ALL TIMES, REMAIN CONSISTENT WITH ALL APPLICABLE WATER QUALITY STANDARDS; EFFLUENT LIMITATION; AND STANDARDS OF PERFORMANCE, PROHIBITIONS, PRETREATMENT STANDARDS, AND MANAGEMENT PRACTICES ESTABLISHED PURSUANT TO THE CLEAN WATER ACT OR PURSUANT TO APPLICABLE STATE AND LOCAL LAW.
5. IF AT ANY TIME, AS A RESULT OF PROJECT ACTIVITIES, FISH ARE OBSERVED IN DISTRESS, A FISH KILL OCCURS, OR WATER QUALITY PROBLEMS DEVELOP (INCLUDING EQUIPMENT LEAKS OR SPILLS), OPERATIONS SHALL CEASE AND THE OWNER SHALL BE NOTIFIED IMMEDIATELY.

6. IF, DURING CONSTRUCTION, ARCHAEOLOGICAL REMAINS ARE ENCOUNTERED, CONSTRUCTION IN THE VICINITY SHALL BE HALTED, AND THE STATE OFFICE OF HISTORIC PRESERVATION AND THE OWNER SHALL BE NOTIFIED IMMEDIATELY.

SURVEY NOTES

1. UNLESS NOTED OTHERWISE ON THE PLANS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING SURVEY MONUMENTS AND OTHER SURVEY MARKERS DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL MAINTAIN A SET OF PLANS ON THE JOB SHOWING "AS-CONSTRUCTED" CHANGES MADE TO DATE. UPON COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL SUPPLY TO OWNER A SET OF PLANS, MARKED UP TO THE SATISFACTION OF THE OWNER, REFLECTING THE AS-CONSTRUCTED MODIFICATIONS.
3. ELEVATIONS SHOWN ON THE PLANS FOR PIPE INVERTS, TOPS OF BANKS, THALWEG, GRADE CONTROLS, ETC., ARE BASED UPON THE TOPOGRAPHIC INFORMATION SHOWN ON THE PLANS. THE CONTRACTOR SHALL VERIFY ALL NECESSARY SURFACE ELEVATIONS IN THE FIELD AND NOTIFY THE OWNER OF ANY DISCREPANCIES, WHICH MIGHT AFFECT PROPER OPERATION OF THE NEW FACILITIES BEFORE BREAKING GROUND AND PRIOR TO FACILITY INSTALLATION. THE OWNER SHALL BE CONTACTED IN THE EVENT ELEVATIONS ARE INCORRECT SO THAT THE PROPER ADJUSTMENTS CAN BE MADE BY ENGINEER PRIOR TO THE INSTALLATION OF THE FACILITIES, AS SET FORTH IN THE SPECIAL PROVISIONS.
4. LIDAR FOR THIS PROJECT WAS PROVIDED BY THE USFS, 2014 USFS TAHOE NATIONAL FOREST LIDAR. THE LIDAR WAS COLLECTED BY THE NATIONAL CENTER FOR AIRBORNE LASER MAPPING (NCALM) IN 2013 AND 2014. THE ORIGINAL COLLECTION METHOD USED THE FOLLOWING COORDINATE SYSTEM:
 HORIZONTAL: NAD 83 (2011) UTM ZONE 10 N (METERS)
 VERTICAL: NAVD 88 (GEOID 12A) (METERS)
 THE DATA PRESENTED IN THIS PLAN SET HAS BEEN PROJECTED TO:
 HORIZONTAL: NAD 83 (EPOCH 2010.0) STATE PLANE CALIFORNIA II, US SURVEY- FEET
 VERTICAL: NAVD 88 (GEOID 12A), US-SURVEY FEET
5. THE ACCURACY OF ANY LIDAR OR GROUND SURVEY DATA IS NOT GUARANTEED. ALL LOCATIONS AND ELEVATIONS SHOWN ON PLANS SHALL BE CONFIRMED BY THE CONTRACTOR.

EROSION, SEDIMENT CONTROL AND WATER MANAGEMENT NOTES

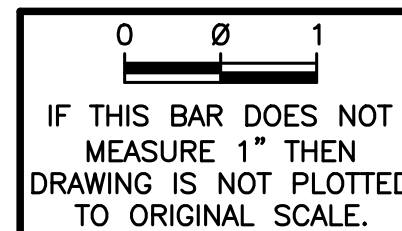
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING ALL TEMPORARY EROSION CONTROL MEASURES. THE EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND PERFORMANCE OF THE TEMPORARY EROSION CONTROL MEASURES THROUGHOUT THE DURATION OF THE PROJECT.
2. A SEDIMENT AND EROSION CONTROL PLAN WILL BE DEVELOPED BY THE CONTRACTOR AND SUBMITTED FOR APPROVAL BY THE OWNER AND/OR ENGINEER BEFORE ANY CONSTRUCTION MAY BEGIN. THE SEDIMENT AND EROSION CONTROL PLAN WILL IDENTIFY BEST MANAGEMENT PRACTICES TO ENSURE THAT THE TRANSPORT OF SEDIMENT TO SURFACE WATERS, DRAINAGE SYSTEMS AND ADJACENT PROPERTIES IS MINIMIZED. THIS PLAN MUST CONCUR WITH THE SWPPP AS PREPARED FOR XXX PROJECT THAT WILL BE CONSTRUCTED CONCURRENTLY WITH THIS PROJECT.
3. ACTIVITIES SHALL BE DESIGNED AND CONSTRUCTED TO AVOID AND MINIMIZE ADVERSE IMPACTS TO WATERS OF THE UNITED STATES TO THE MAXIMUM EXTENT PRACTICAL THROUGH THE USE OF PRACTICAL ALTERNATIVES. ALTERNATIVES THAT SHALL BE CONSIDERED INCLUDE THOSE THAT MINIMIZE THE NUMBER AND EXTENT OF IN-WATER WORK AND EQUIPMENT CROSSINGS OF WETTED CHANNELS.
4. AT NO TIME SHALL SEDIMENT-LADEN WATER BE DISCHARGED OR PUMPED DIRECTLY INTO THE SUBJECT RIVER, STREAM, OR WETLAND. WATER SHALL BE DISCHARGED IN ACCORDANCE WITH REQUIREMENTS SET FORTH IN THE PROJECT PERMITS AND / OR SPECIFICATIONS.
5. IF HIGH WATER LEVEL CONDITIONS THAT CAUSE SILTATION OR EROSION ARE ENCOUNTERED DURING CONSTRUCTION, WORK SHALL STOP UNTIL THE WATER LEVEL SUBSIDES.
6. PERMIT CONDITIONS CONTAIN SPECIFIC REQUIREMENTS FOR THE CONTROL OF EROSION AND TURBIDITY FROM PROJECT OPERATIONS. TURBIDITY WILL BE MONITORED ON A FREQUENT BASIS BY THE PROJECT MANAGEMENT AND INSPECTION STAFF ON-SITE. TURBIDITY AMOUNTS IN EXCESS OF THE PERMITTED CONCENTRATIONS AND/OR DURATIONS WILL CAUSE WORK TO BE STOPPED UNTIL IMPROVED PRACTICES ARE IN EFFECT AND THE PROBLEMS CONTROLLED. THE CONTRACTOR IS COMPLETELY RESPONSIBLE FOR ANY PROJECT DELAYS THAT OCCUR BY NATURE OF THIS FAILURE TO ADEQUATELY CONTAIN SEDIMENT ON-SITE.
7. CONTRACTOR SHALL LIMIT MACHINERY MOVEMENT TO CONSTRUCTION AREAS DEFINED ON SITE PLAN OR IDENTIFIED AS ACCEPTABLE BY THE ENGINEER OR OWNER.
8. ALL EXTERNAL GREASE AND OIL SHALL BE PRESSURE-WASHED OFF THE EQUIPMENT PRIOR TO TRANSPORT TO THE SITE.
9. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT NO PETROLEUM PRODUCTS, HYDRAULIC FLUID, SEDIMENTS, SEDIMENT-LADEN WATER, CHEMICALS, OR ANY OTHER TOXIC OR DELETERIOUS MATERIALS ARE ALLOWED TO ENTER OR LEACH INTO THE SUBJECT RIVER, STREAM, OR WETLAND.

10. THE CONTRACTOR SHALL HAVE AN EMERGENCY SPILL KIT ONSITE AT ALL TIMES.
11. NO TREES OR WETLAND VEGETATION SHALL BE REMOVED UNLESS THEY ARE SHOWN AND NOTED TO BE REMOVED ON THE PLANS OR AS DIRECTLY SPECIFIED ON-SITE BY THE PROJECT MANAGEMENT STAFF. ALL TREES CONFLICTING WITH GRADING SHALL BE REMOVED. NO GRADING SHALL TAKE PLACE WITHIN THE DRIP LINE OF TREES NOT TO BE REMOVED UNLESS OTHERWISE APPROVED.
12. FOLLOWING CONSTRUCTION, SITE RESTORATION WILL INCLUDE ESTABLISHING LONG-TERM EROSION PROTECTION MEASURES. THESE MEASURES WILL INCLUDE PLANTINGS, EROSION CONTROL FABRIC, SEED, AND MULCH. EQUIPMENT AND EXCESS SUPPLIES WILL BE REMOVED AND THE WORK AREA WILL BE CLEANED. MAINTENANCE ACTIVITIES FOR THE NEWLY CONSTRUCTED RESTORATION PROJECTS ARE ANTICIPATED TO OCCUR PERIODICALLY.

CONSTRUCTION NOTES

1. CONTRACT DOCUMENTS REFER TO THESE PLANS.
2. CONTRACTOR SHALL FURNISH ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY TO COMPLETE ALL WORK AS INDICATED IN THE CONTRACT DOCUMENTS.
3. CONSTRUCTION HOURS SHALL BE WEEKDAYS BETWEEN 7:00 A.M. AND 6:30 P.M. UNLESS PRIOR APPROVAL IS RECEIVED FROM THE OWNER.
4. SOILS AT THE SITE CONTAIN SOFT SILT, CLAY AND HIGH GROUNDWATER AND MAY REQUIRE EROSION PROTECTION MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING NEED FOR, DESIGNING, PROCURING, INSTALLING, USING AND REMOVING ANY EQUIPMENT MATS NEEDED TO ALLOW FOR EQUIPMENT OPERATION SUFFICIENT TO CONSTRUCT THE PROJECT.
5. ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE OWNER PRIOR TO PROCEEDING WITH THE WORK.
6. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OTHERWISE BY THE OWNER OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.
7. ALL WORK PERFORMED AND MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
8. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING THE BEST SKILLS AND ATTENTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THIS CONTRACT.
9. THE CONTRACTOR SHALL MAKE ALL NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, ROADWAY, DRAINAGE WAYS, PRIVATE BRIDGE, CULVERTS, AND VEGETATION UNTIL SUCH ITEMS ARE TO BE DISTURBED OR REMOVED AS INDICATED ON THE CONTRACT DOCUMENTS.
10. THE CONTRACTOR SHALL KEEP THE JOB SITE CLEAN AND HAZARD FREE. CONTRACTOR SHALL DISPOSE OF ALL DIRT, DEBRIS, AND RUBBISH FOR THE DURATION OF THE WORK. UPON COMPLETION OF WORK, CONTRACTOR SHALL REMOVE ALL MATERIAL AND EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY.
11. NOTES AND DETAILS ON THE PLANS SHALL TAKE PRECEDENCE OVER GENERAL NOTES HEREIN.
12. DIMENSIONS CALLOUTS SHALL TAKE PRECEDENCE OVER SCALES SHOWN ON THE PLANS.
13. THE PLANS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF ALL CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURES, WORKS, AND THE PUBLIC DURING CONSTRUCTION.
14. MATERIAL SHALL NOT BE STORED OUTSIDE OF IDENTIFIED STAGING AREAS. THE CONTRACTOR SHALL USE ONLY DESIGNATED SPECIFIC SITES FOR STORAGE OF EQUIPMENT AND MATERIALS AS SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SECURITY OF ALL EQUIPMENT AND MATERIALS.

N:\PROJECTS\SIERRA_ECO SYSTEM ASSOCIATES\MARTIS\DESIGN\CAD DWGS - CURRENT NOTES.DWG - Kenna - 11/17/2017 4:54:52 PM



NAME OR INITIALS AND DATE		GEOGRAPHIC INFORMATION	
DESIGNED	M. NELSON	LATITUDE	N39° 18' 5.46"
CHECKED	M. ERICSSON	LONGITUDE	W120° 7' 53.32"
DRAWN	G. MATSUMOTO	TN/SC/RG	T17N/S19/R17E
CHECKED	T. ABBE	DATE	-

MARTIS WILDLIFE AREA RESTORATION PROJECT

GENERAL NOTES

2
SHEET 2 OF 17

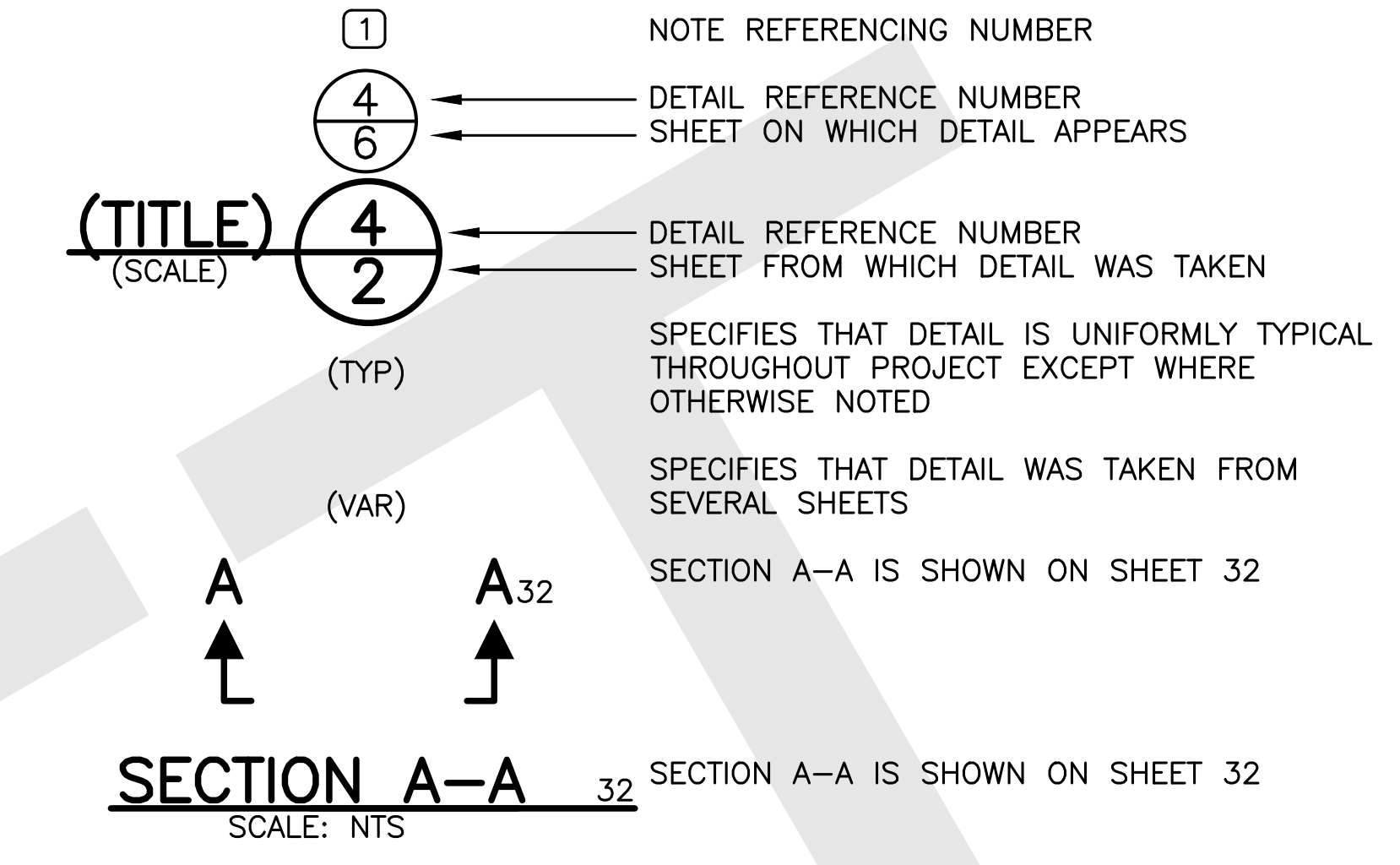
Nov 17, 2017 60% DRAWINGS

GENERAL LEGEND

- PROPERTY LINE
- EXISTING ROAD
- ACCESS ROAD
- CLEARING LIMIT
- GRADING LIMIT
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING FLOW
- EXISTING OHWM
- PROPOSED OHWM
- 2-YEAR FLOOD BOUNDARY
- 100-YEAR FLOOD BOUNDARY
- APPROXIMATE FLOODPLAIN AREA
- EXISTING WATER
- PROPOSED WATER
- EXISTING TRAIL
- DEMOLITION/REMOVAL AREA
- PROPOSED STAGING AREA
- EXISTING FENCE
- STREAM BYPASS
- SAND BAG COFFERDAM
- TOMPKINS MEMORIAL TRAIL

- BUNDLE MATERIAL
- LARGE WOOD PIECE
- EXISTING ROADWAY PRISM MATERIAL
- ROADWAY FILL
- STRUCTURAL GRAVEL BASE
- STEEL
- EXISTING GROUND
- PROPOSED GROUND
- BOULDER CLUSTER
- EXISTING CONIFEROUS TREE
- EXISTING DECIDUOUS TREE
- CONTROL POINT LOCATION
- PHOTO POINT LOCATION

DETAIL AND SECTION REFERENCING



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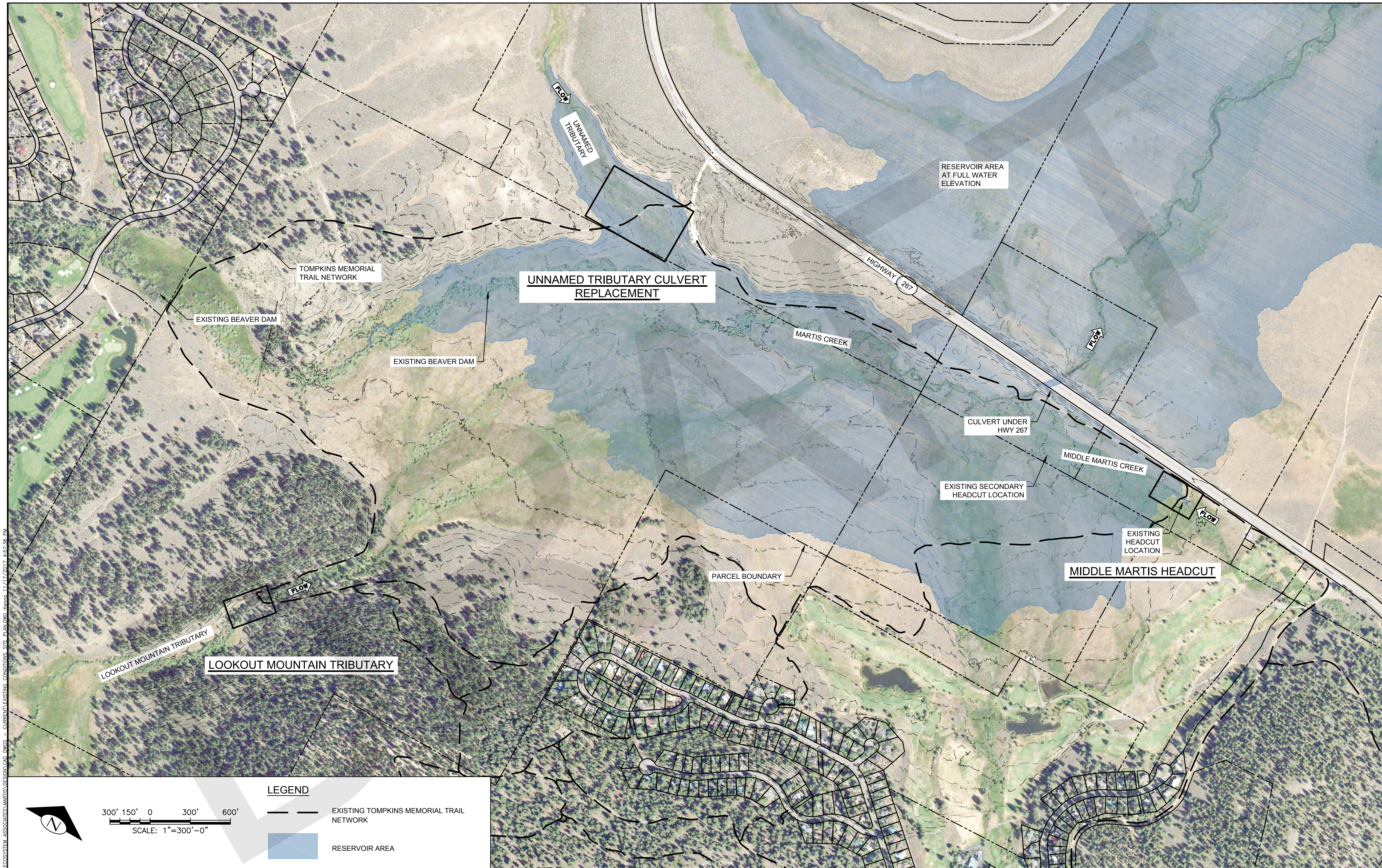


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CHECKED M. ERICSSON	LONGITUDE W120° 7' 53.32"
DRAWN G. MATSUMOTO	TN/SC/RG T17N/S19/R17E
CHECKED T. ABBE	DATE -

MARTIS WILDLIFE AREA RESTORATION PROJECT

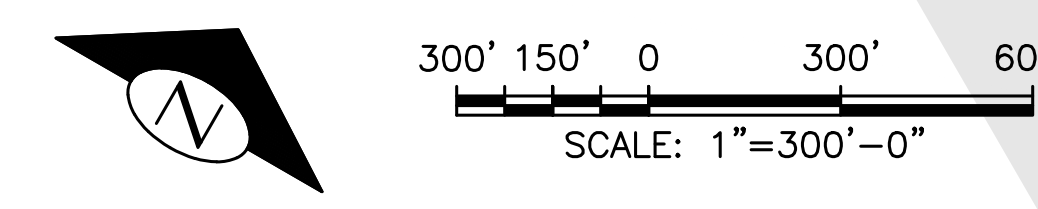
LEGEND

Nov 17, 2017 60% DRAWINGS



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Nov 17, 2017 60% DRAWINGS



LEGEND	
	EXISTING TOMPKINS MEMORIAL TRAIL NETWORK
	RESERVOIR AREA

TRUCKEE RIVER WATERSHED COUNCIL

NAME OR INITIALS AND DATE	GEOGRAPHIC INFORMATION
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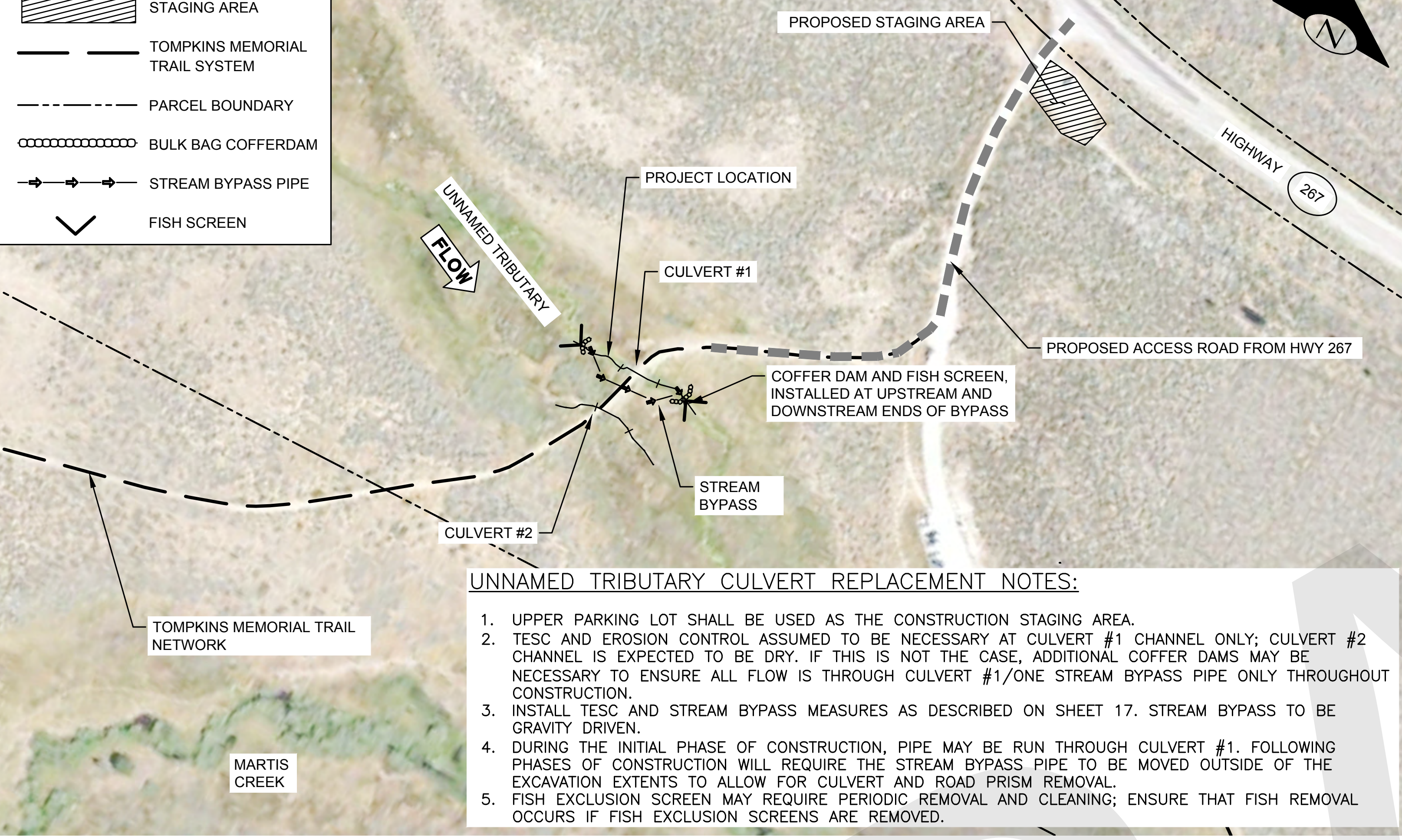
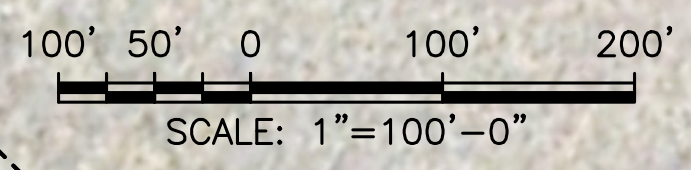
MARTIS WILDLIFE AREA RESTORATION PROJECT

EXISTING CONDITIONS SITE PLAN

4
SHEET 4 OF 17

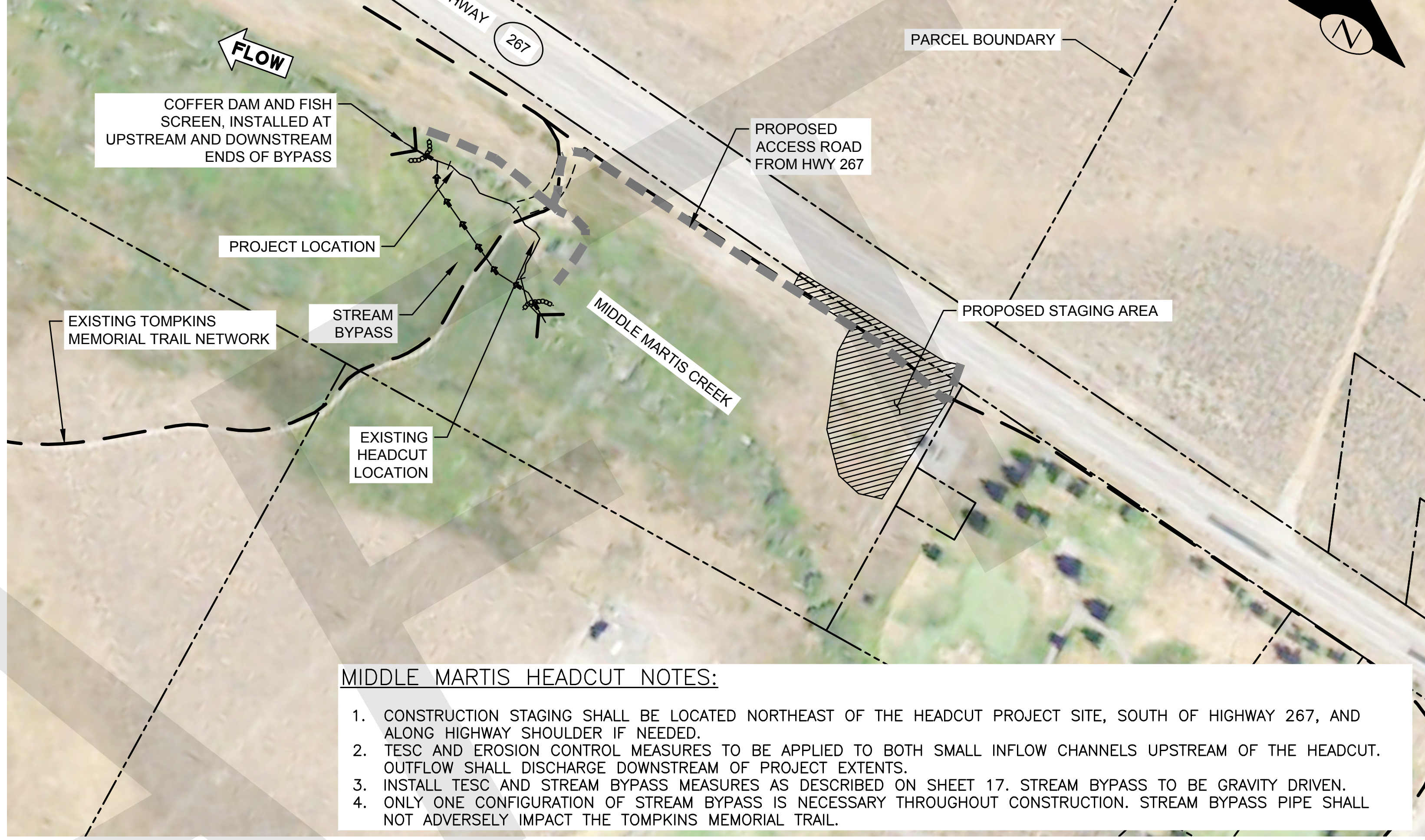
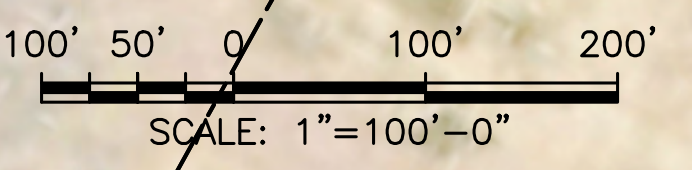
- LEGEND**
- ACCESS ROAD
 - ▨ STAGING AREA
 - TOMPKINS MEMORIAL TRAIL SYSTEM
 - - - - - PARCEL BOUNDARY
 - ○ ○ ○ ○ BULK BAG COFFERDAM
 - → → → → STREAM BYPASS PIPE
 - ∨ FISH SCREEN

UNNAMED TRIBUTARY CULVERT REPLACEMENT

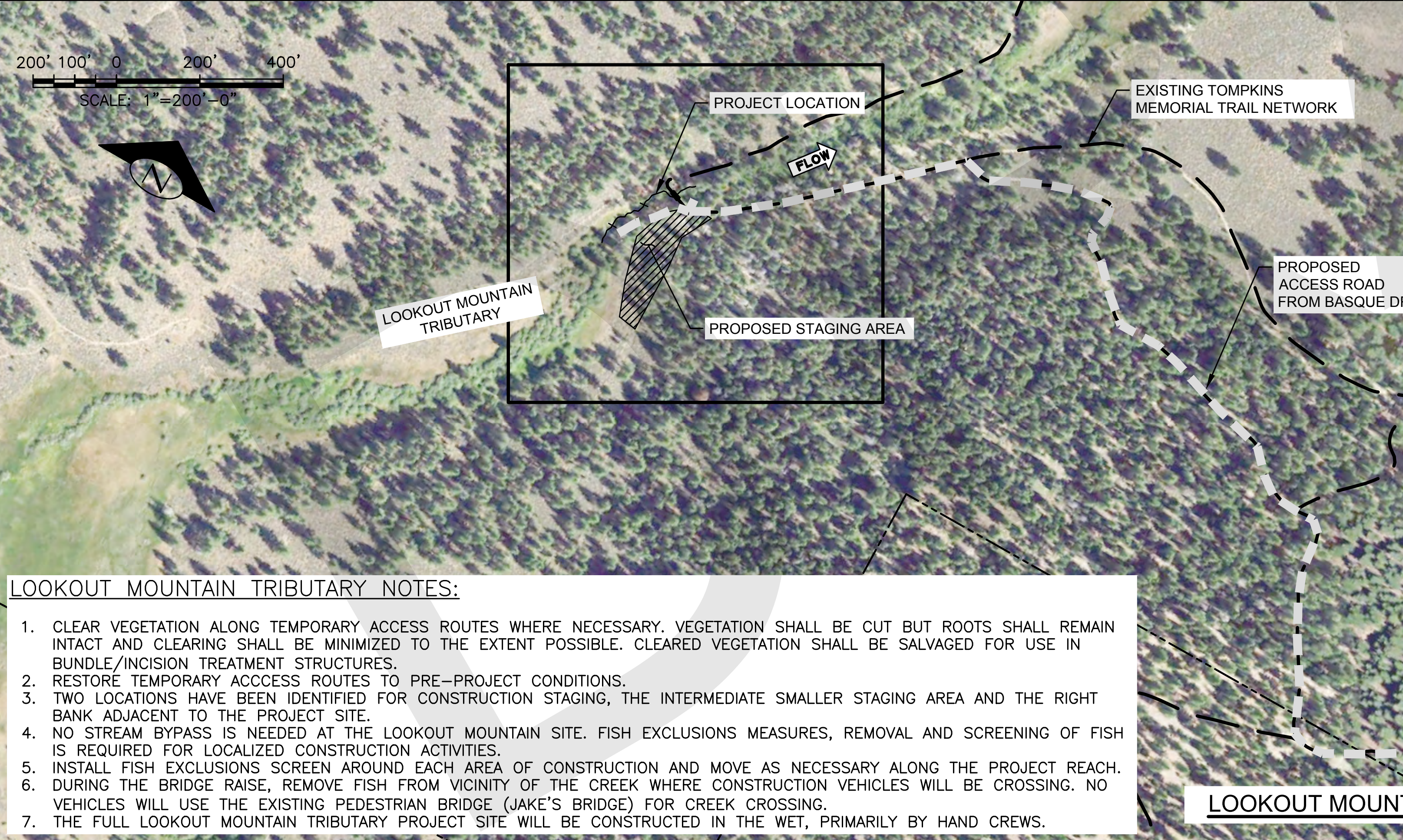
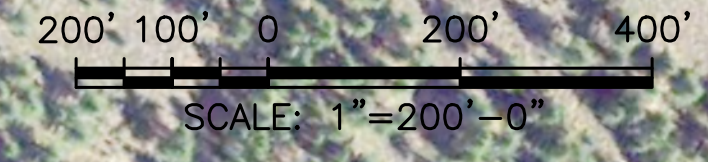


- UNNAMED TRIBUTARY CULVERT REPLACEMENT NOTES:**
- UPPER PARKING LOT SHALL BE USED AS THE CONSTRUCTION STAGING AREA.
 - TESC AND EROSION CONTROL ASSUMED TO BE NECESSARY AT CULVERT #1 CHANNEL ONLY; CULVERT #2 CHANNEL IS EXPECTED TO BE DRY. IF THIS IS NOT THE CASE, ADDITIONAL COFFER DAMS MAY BE NECESSARY TO ENSURE ALL FLOW IS THROUGH CULVERT #1/ONE STREAM BYPASS PIPE ONLY THROUGHOUT CONSTRUCTION.
 - INSTALL TESC AND STREAM BYPASS MEASURES AS DESCRIBED ON SHEET 17. STREAM BYPASS TO BE GRAVITY DRIVEN.
 - DURING THE INITIAL PHASE OF CONSTRUCTION, PIPE MAY BE RUN THROUGH CULVERT #1. FOLLOWING PHASES OF CONSTRUCTION WILL REQUIRE THE STREAM BYPASS PIPE TO BE MOVED OUTSIDE OF THE EXCAVATION EXTENTS TO ALLOW FOR CULVERT AND ROAD PRISM REMOVAL.
 - FISH EXCLUSION SCREEN MAY REQUIRE PERIODIC REMOVAL AND CLEANING; ENSURE THAT FISH REMOVAL OCCURS IF FISH EXCLUSION SCREENS ARE REMOVED.

MIDDLE MARTIS HEADCUT

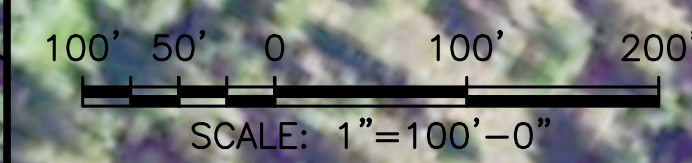


- MIDDLE MARTIS HEADCUT NOTES:**
- CONSTRUCTION STAGING SHALL BE LOCATED NORTHEAST OF THE HEADCUT PROJECT SITE, SOUTH OF HIGHWAY 267, AND ALONG HIGHWAY SHOULDER IF NEEDED.
 - TESC AND EROSION CONTROL MEASURES TO BE APPLIED TO BOTH SMALL INFLOW CHANNELS UPSTREAM OF THE HEADCUT. OUTFLOW SHALL DISCHARGE DOWNSTREAM OF PROJECT EXTENTS.
 - INSTALL TESC AND STREAM BYPASS MEASURES AS DESCRIBED ON SHEET 17. STREAM BYPASS TO BE GRAVITY DRIVEN.
 - ONLY ONE CONFIGURATION OF STREAM BYPASS IS NECESSARY THROUGHOUT CONSTRUCTION. STREAM BYPASS PIPE SHALL NOT ADVERSELY IMPACT THE TOMPKINS MEMORIAL TRAIL.



- LOOKOUT MOUNTAIN TRIBUTARY NOTES:**
- CLEAR VEGETATION ALONG TEMPORARY ACCESS ROUTES WHERE NECESSARY. VEGETATION SHALL BE CUT BUT ROOTS SHALL REMAIN INTACT AND CLEARING SHALL BE MINIMIZED TO THE EXTENT POSSIBLE. CLEARED VEGETATION SHALL BE SALVAGED FOR USE IN BUNDLE/INCISION TREATMENT STRUCTURES.
 - RESTORE TEMPORARY ACCESS ROUTES TO PRE-PROJECT CONDITIONS.
 - TWO LOCATIONS HAVE BEEN IDENTIFIED FOR CONSTRUCTION STAGING, THE INTERMEDIATE SMALLER STAGING AREA AND THE RIGHT BANK ADJACENT TO THE PROJECT SITE.
 - NO STREAM BYPASS IS NEEDED AT THE LOOKOUT MOUNTAIN SITE. FISH EXCLUSIONS MEASURES, REMOVAL AND SCREENING OF FISH IS REQUIRED FOR LOCALIZED CONSTRUCTION ACTIVITIES.
 - INSTALL FISH EXCLUSIONS SCREEN AROUND EACH AREA OF CONSTRUCTION AND MOVE AS NECESSARY ALONG THE PROJECT REACH.
 - DURING THE BRIDGE RAISE, REMOVE FISH FROM VICINITY OF THE CREEK WHERE CONSTRUCTION VEHICLES WILL BE CROSSING. NO VEHICLES WILL USE THE EXISTING PEDESTRIAN BRIDGE (JAKE'S BRIDGE) FOR CREEK CROSSING.
 - THE FULL LOOKOUT MOUNTAIN TRIBUTARY PROJECT SITE WILL BE CONSTRUCTED IN THE WET, PRIMARILY BY HAND CREWS.

LOOKOUT MOUNTAIN TRIBUTARY



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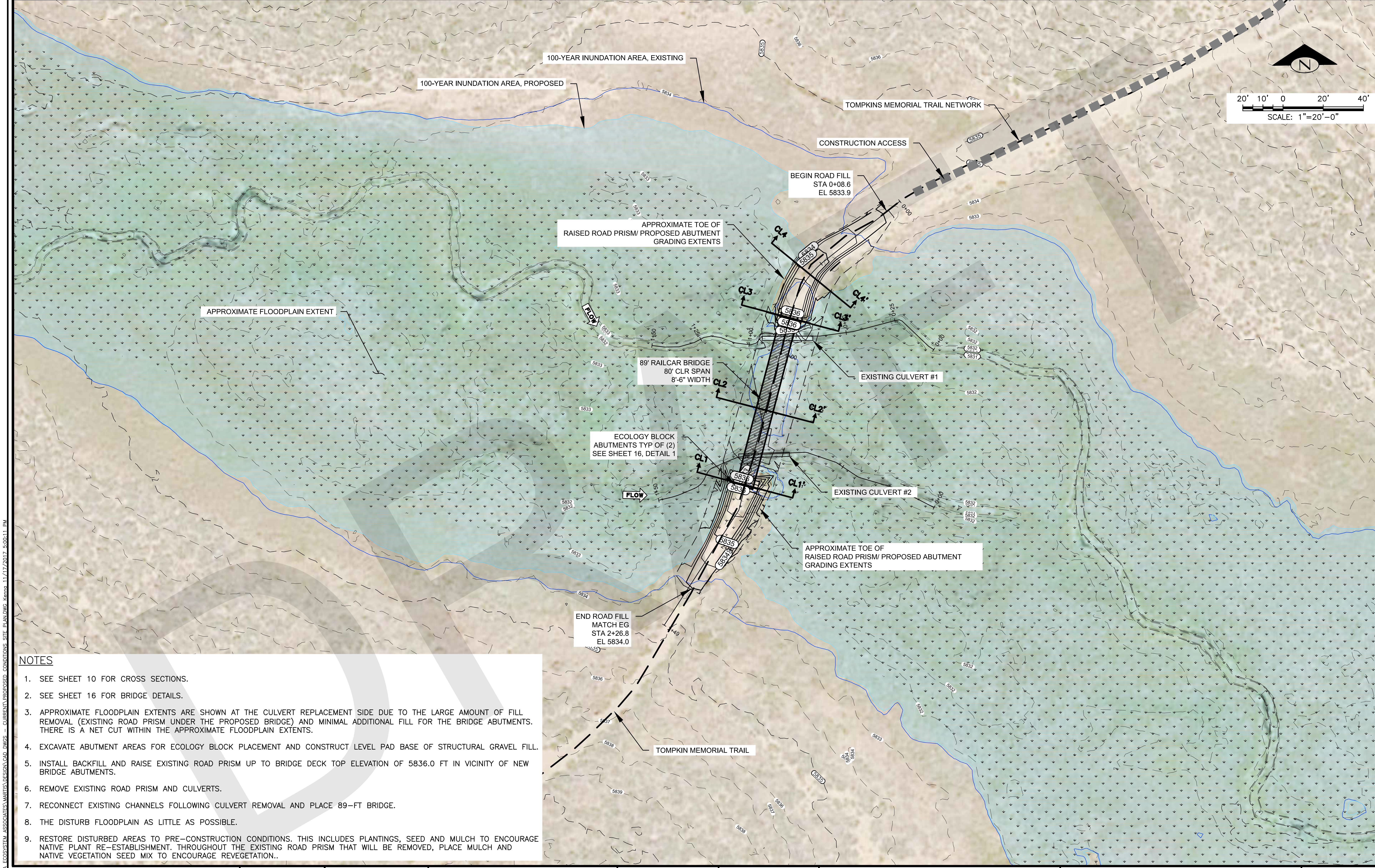
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CHECKED T. ABBE	DATE

MARTIS WILDLIFE AREA RESTORATION PROJECT

OVERALL SITE PLAN, ACCESS, STAGING & TESC

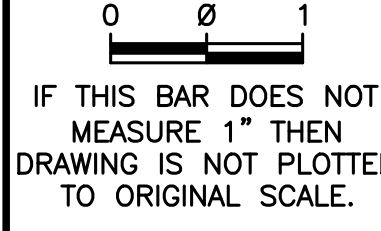


NOTES

1. SEE SHEET 10 FOR CROSS SECTIONS.
2. SEE SHEET 16 FOR BRIDGE DETAILS.
3. APPROXIMATE FLOODPLAIN EXTENTS ARE SHOWN AT THE CULVERT REPLACEMENT SIDE DUE TO THE LARGE AMOUNT OF FILL REMOVAL (EXISTING ROAD PRISM UNDER THE PROPOSED BRIDGE) AND MINIMAL ADDITIONAL FILL FOR THE BRIDGE ABUTMENTS. THERE IS A NET CUT WITHIN THE APPROXIMATE FLOODPLAIN EXTENTS.
4. EXCAVATE ABUTMENT AREAS FOR ECOLOGY BLOCK PLACEMENT AND CONSTRUCT LEVEL PAD BASE OF STRUCTURAL GRAVEL FILL.
5. INSTALL BACKFILL AND RAISE EXISTING ROAD PRISM UP TO BRIDGE DECK TOP ELEVATION OF 5836.0 FT IN VICINITY OF NEW BRIDGE ABUTMENTS.
6. REMOVE EXISTING ROAD PRISM AND CULVERTS.
7. RECONNECT EXISTING CHANNELS FOLLOWING CULVERT REMOVAL AND PLACE 89-FT BRIDGE.
8. THE DISTURB FLOODPLAIN AS LITTLE AS POSSIBLE.
9. RESTORE DISTURBED AREAS TO PRE-CONSTRUCTION CONDITIONS. THIS INCLUDES PLANTINGS, SEED AND MULCH TO ENCOURAGE NATIVE PLANT RE-ESTABLISHMENT. THROUGHOUT THE EXISTING ROAD PRISM THAT WILL BE REMOVED, PLACE MULCH AND NATIVE VEGETATION SEED MIX TO ENCOURAGE REVEGETATION..

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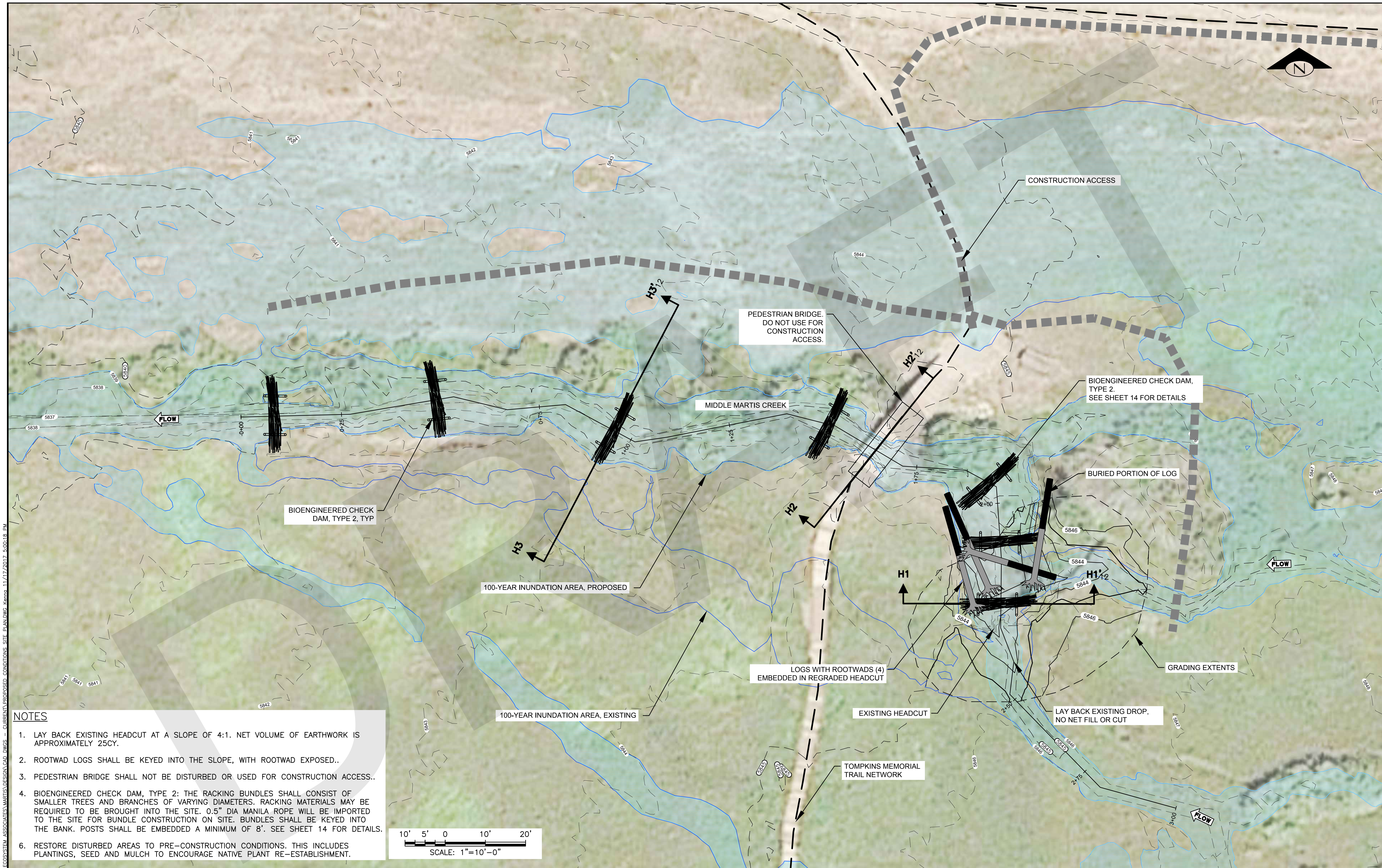


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CHECKED	J. ABBE	DATE	-

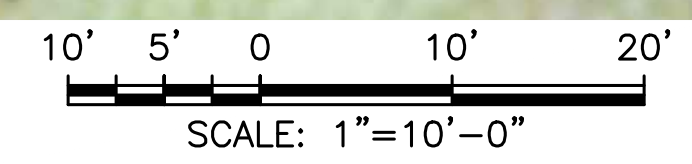
MARTIS WILDLIFE AREA RESTORATION PROJECT

UNNAMED TRIBUTARY CULVERT REPLACEMENT SITE PLAN

6
SHEET 6 OF 17



- NOTES**
- LAY BACK EXISTING HEADCUT AT A SLOPE OF 4:1. NET VOLUME OF EARTHWORK IS APPROXIMATELY 25CY.
 - ROOTWAD LOGS SHALL BE KEYED INTO THE SLOPE, WITH ROOTWAD EXPOSED..
 - PEDESTRIAN BRIDGE SHALL NOT BE DISTURBED OR USED FOR CONSTRUCTION ACCESS..
 - BIOENGINEERED CHECK DAM, TYPE 2: THE RACKING BUNDLES SHALL CONSIST OF SMALLER TREES AND BRANCHES OF VARYING DIAMETERS. RACKING MATERIALS MAY BE REQUIRED TO BE BROUGHT INTO THE SITE. 0.5" DIA MANILA ROPE WILL BE IMPORTED TO THE SITE FOR BUNDLE CONSTRUCTION ON SITE. BUNDLES SHALL BE KEYED INTO THE BANK. POSTS SHALL BE EMBEDDED A MINIMUM OF 8'. SEE SHEET 14 FOR DETAILS.
 - RESTORE DISTURBED AREAS TO PRE-CONSTRUCTION CONDITIONS. THIS INCLUDES PLANTINGS, SEED AND MULCH TO ENCOURAGE NATIVE PLANT RE-ESTABLISHMENT.



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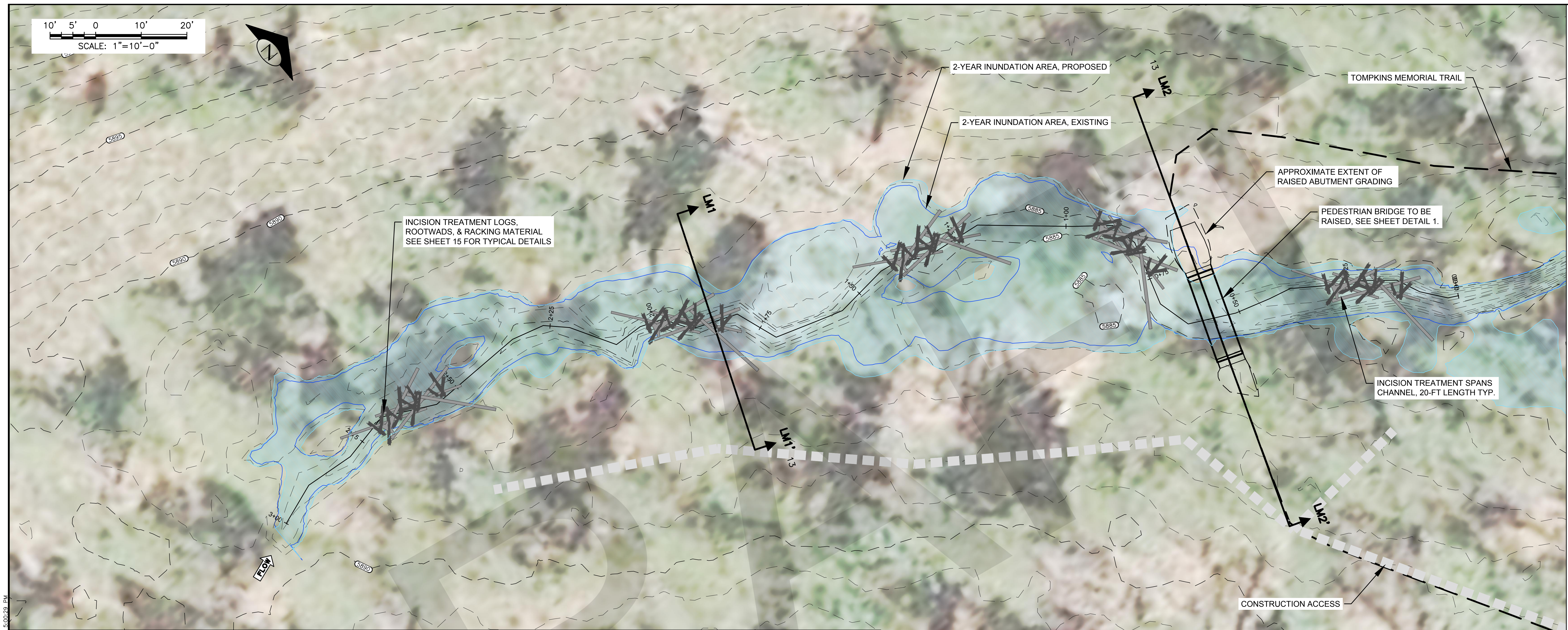
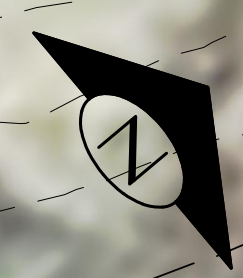
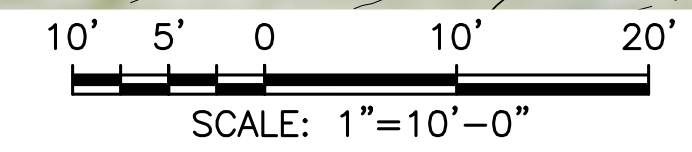


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CHECKED	T. ABBE	DATE	

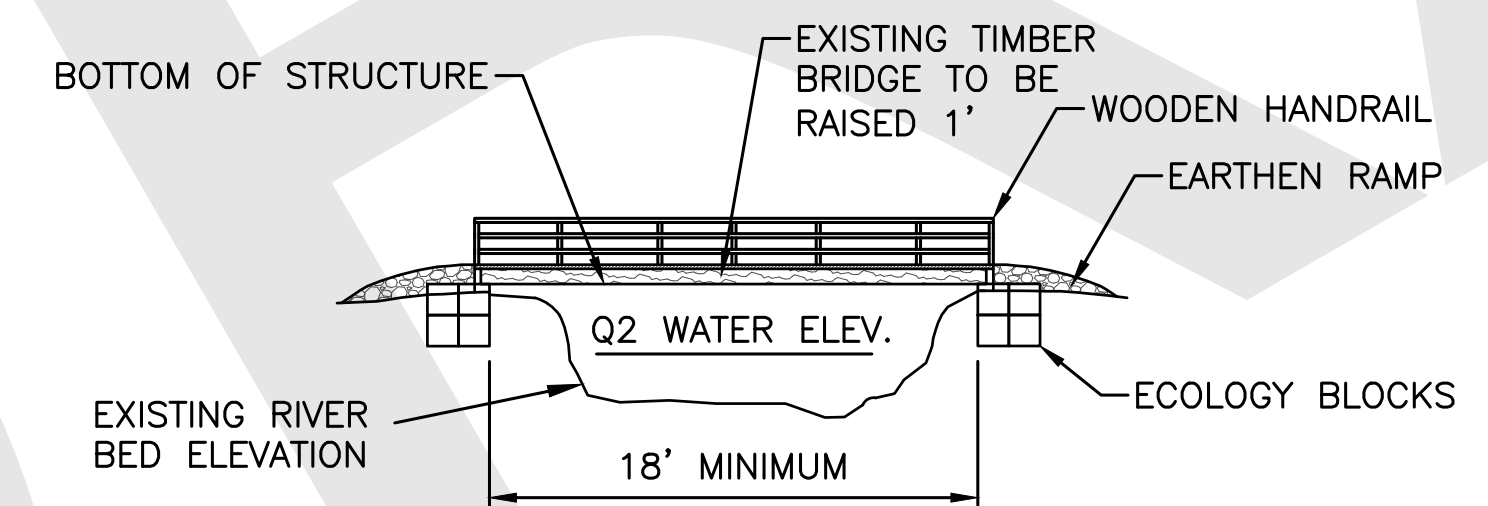
MARTIS WILDLIFE AREA RESTORATION PROJECT

MIDDLE MARTIS HEADCUT SITE PLAN

7
SHEET 7 OF 17



TYPICAL DOWNED WOOD AVAILABLE FOR INCISION TREATMENT

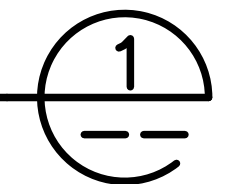


NOTES

1. RAISE EXISTING TIMBER BRIDGE BY 1 FOOT.
2. END OF BRIDGE SHALL BEAR ON HIGH BANKS WITH SUFFICIENT BEARING CAPACITY TO PREVENT SLOUGHING OR COLLAPSE OF SIDE CHANNEL BANKS.
3. ECOLOGY BLOCKS SHALL BE USED TO SUPPORT ENDS OF BRIDGE.
4. ADD WOODEN HANDRAIL TO BRIDGE.

LOOKOUT MT BRIDGE RAISE

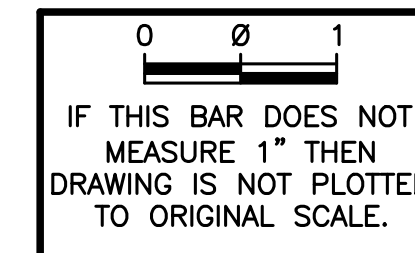
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NOTES

1. COLLECT DOWNED WOOD PER SPECIFICATIONS TO USE AS INCISION TREATMENT LOGS.
2. CUT DOWN IDENTIFIED STANDING FLAGGED TREES FOR INCISION TREATMENT SECTIONS.
3. JAKE'S BRIDGE/THE TOMPKINS MEMORIAL TRAIL CROSSING PEDESTRIAN BRIDGE IS TO BE RAISED BY 1 FOOT. INSTALL ECOLOGY BLOCKS AND REGRADE FOR CROSSING.
4. EACH INCISION TREATMENT SECTION SHALL BE INSTALLED WITH HAND CREWS UTILIZING LOCAL LOGS AND TREES. KEY IN LOGS WHERE POSSIBLE.
5. THE RACKING BUNDLES SHALL CONSIST OF SMALLER TREES AND BRANCHES OF VARYING DIAMETERS AND SHALL BE DISPERSED THROUGHOUT THE LARGER LOGS AT EACH INCISION TREATMENT LOCATION. RACKING MATERIALS MAY BE REQUIRED TO BE BROUGHT INTO THE SITE. 0.5" DIA MANILA ROPE WILL BE IMPORTED TO THE SITE FOR BUNDLE CONSTRUCTION ON SITE. BUNDLES SHALL BE KEYED INTO THE BANK. POSTS SHALL BE EMBEDDED A MINIMUM OF 8". SEE SHEET 15 FOR DETAILS.
6. RESTORE DISTURBED AREAS TO PRE-CONSTRUCTION CONDITIONS. THIS INCLUDES PLANTINGS, SEED AND MULCH TO ENCOURAGE NATIVE PLANT RE-ESTABLISHMENT.

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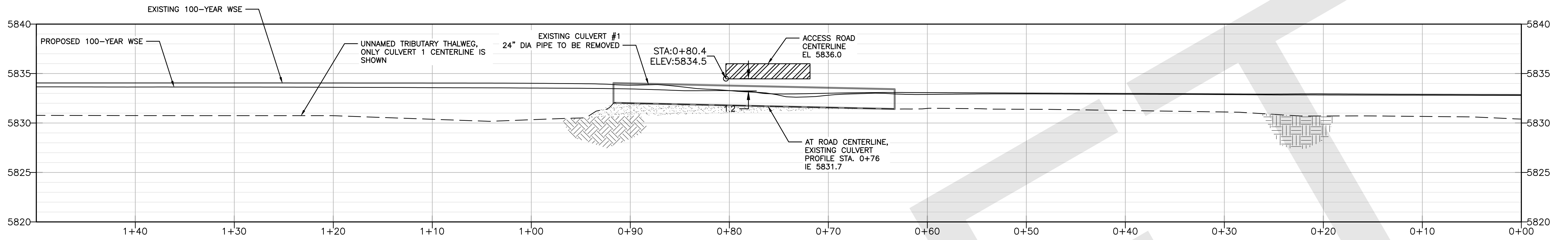


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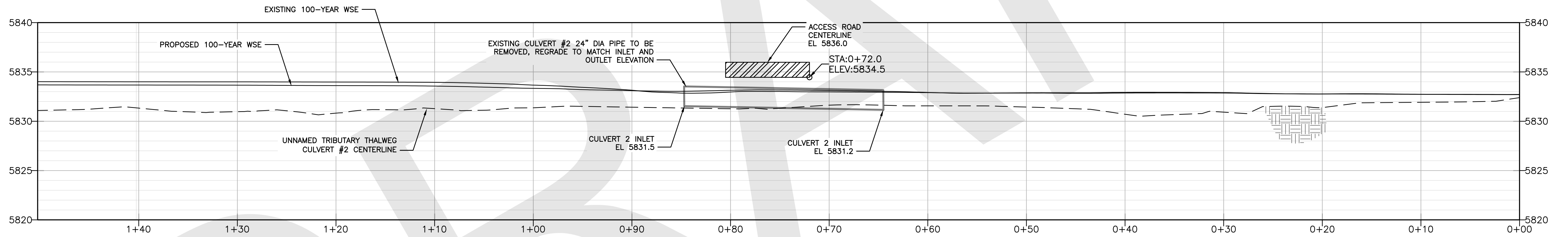
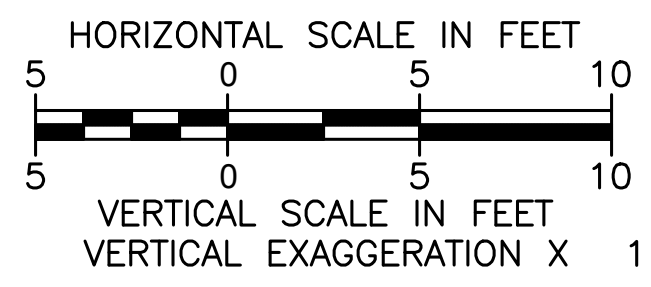
MARTIS WILDLIFE AREA RESTORATION PROJECT

LOOKOUT MOUNTAIN TRIBUTARY SITE PLAN

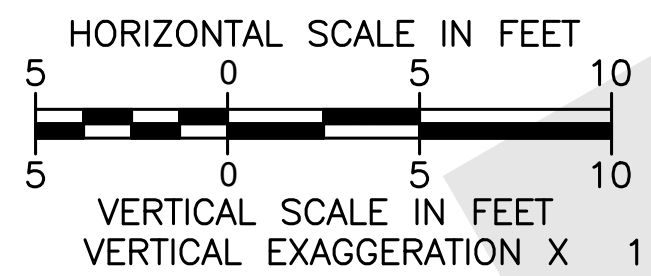
Nov 17, 2017 60% DRAWINGS



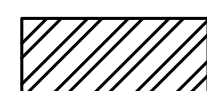
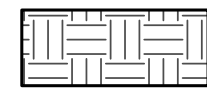
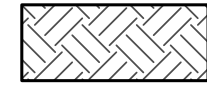

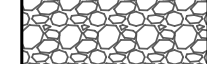
UNNAMED TRIBUTARY - CULVERT #1 PROFILE 6



UNNAMED TRIBUTARY - CULVERT #2 PROFILE 6



LEGEND

-  STEEL
-  EXISTING GROUND
-  PROPOSED GROUND
-  EXISTING ROADWAY PRISM MATERIAL
-  ROADWAY FILL

0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.



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CHECKED	M. ERICSSON
DRAWN	G. MATSUMOTO
CHECKED	T. ABBE

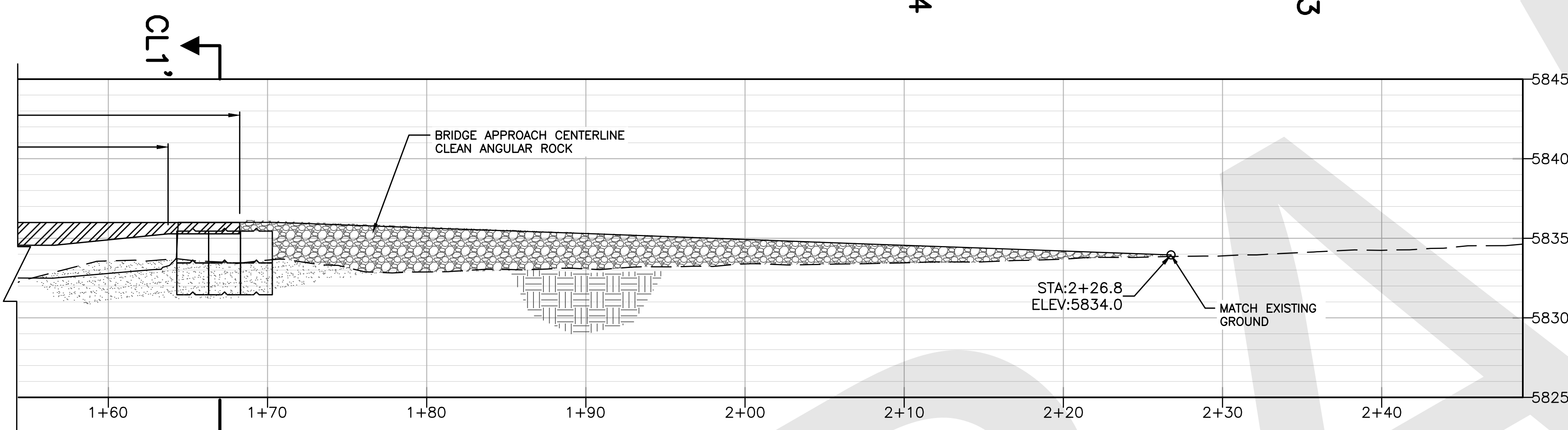
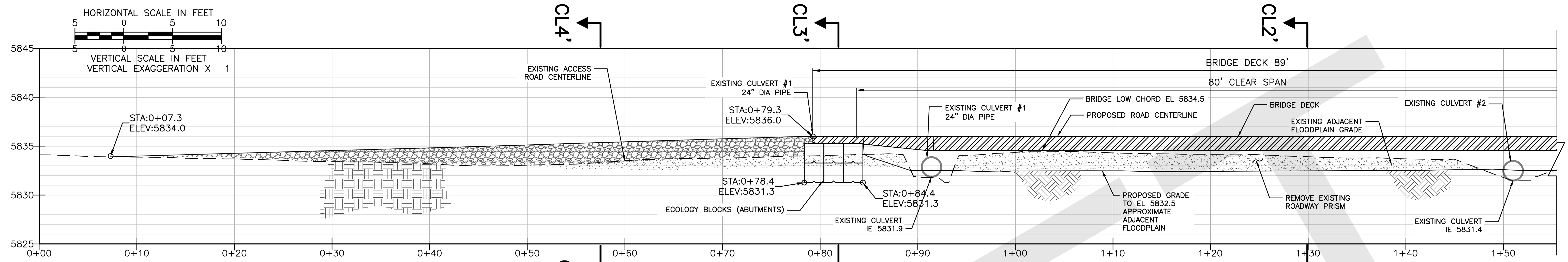
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MARTIS WILDLIFE AREA RESTORATION PROJECT

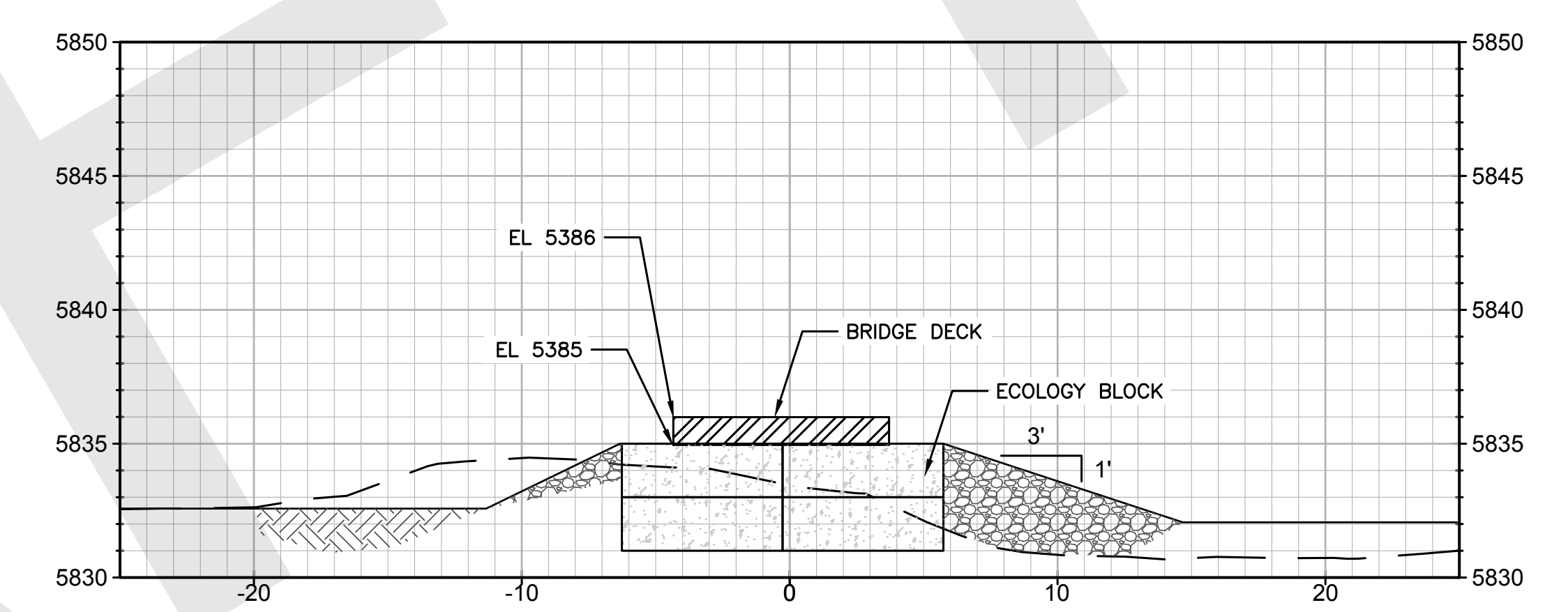
UNNAMED TRIBUTARY CULVERT PROFILE OPTIONS

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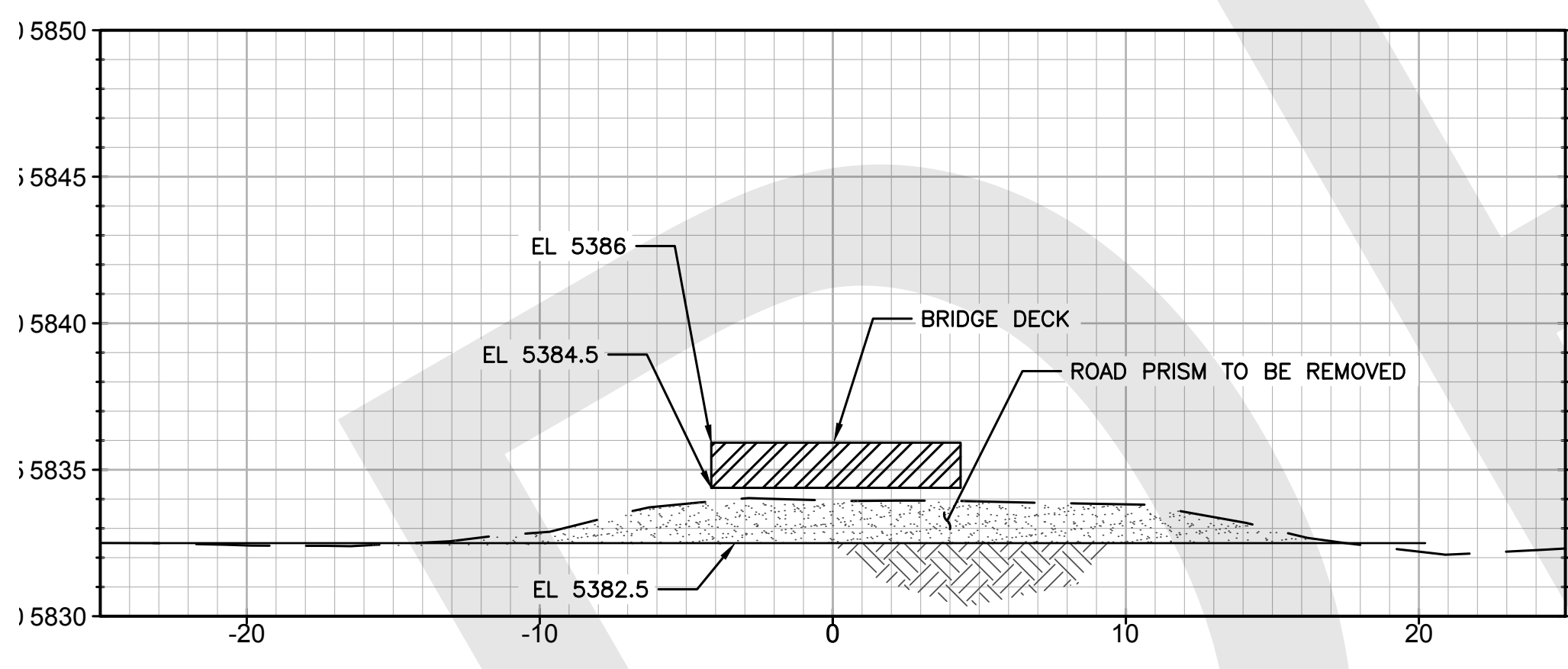
Nov 17, 2017 60% DRAWINGS



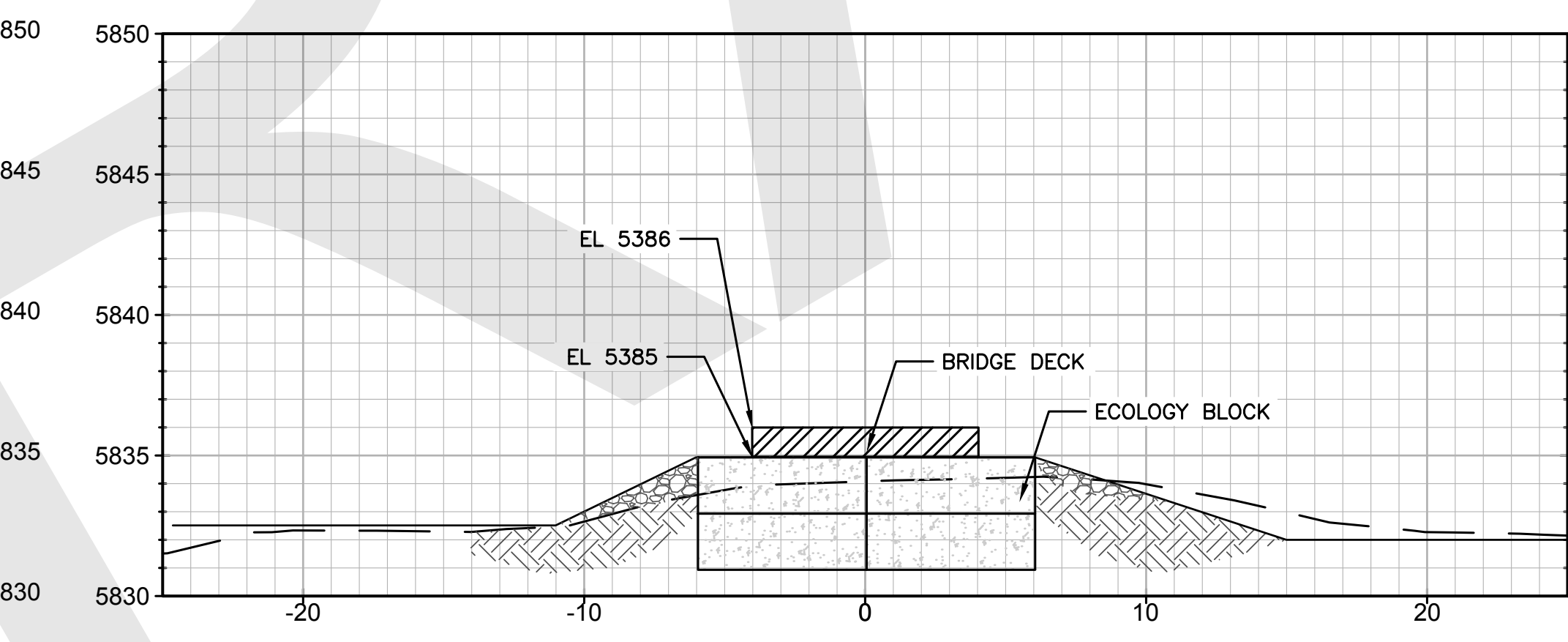
ROAD PRISM PROFILE



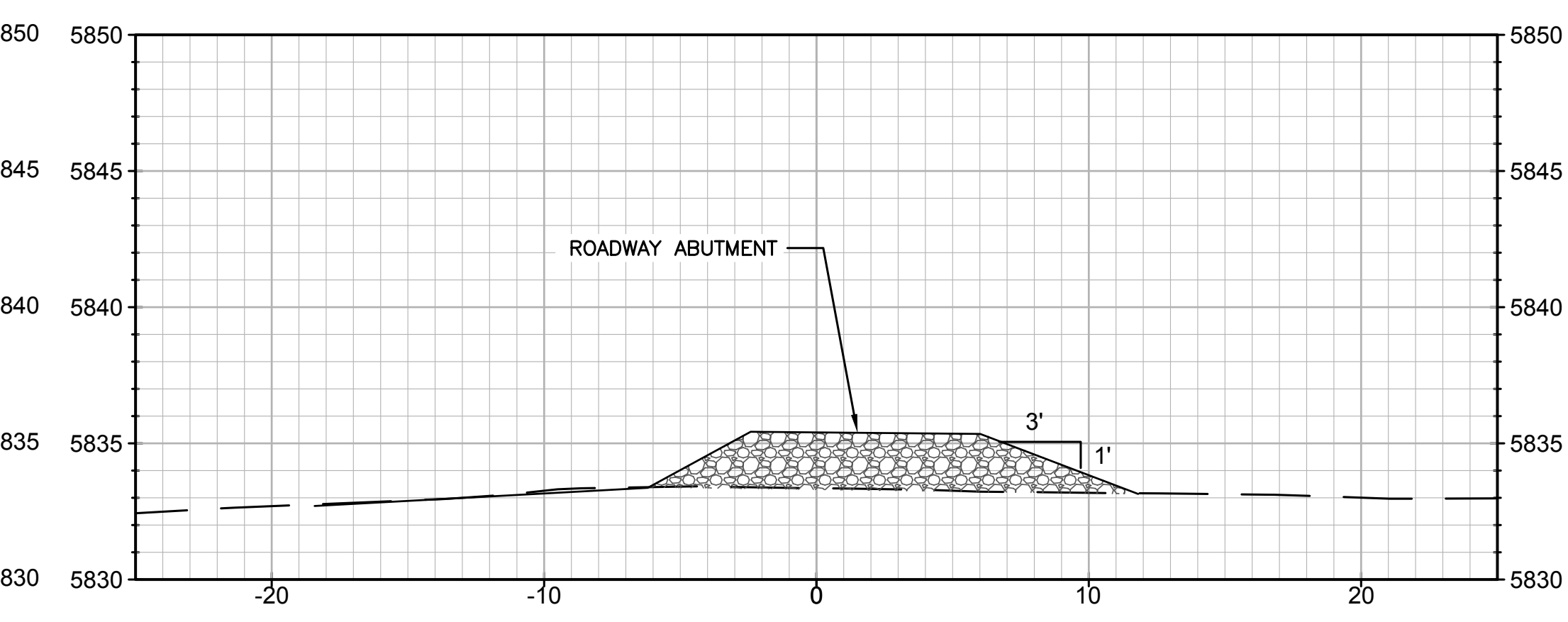
SECTION CL1 - CL1'



SECTION CL2 - CL2'



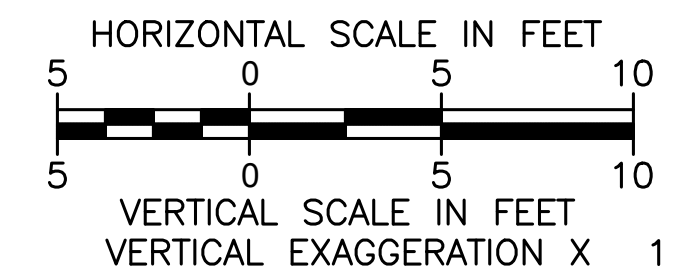
SECTION CL3 - CL3'



SECTION CL4 - CL4'

LEGEND

- STEEL
- EXISTING GROUND
- PROPOSED GROUND
- EXISTING ROADWAY PRISM MATERIAL
- ROADWAY FILL



IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.

TRUCKEE RIVER WATERSHED COUNCIL

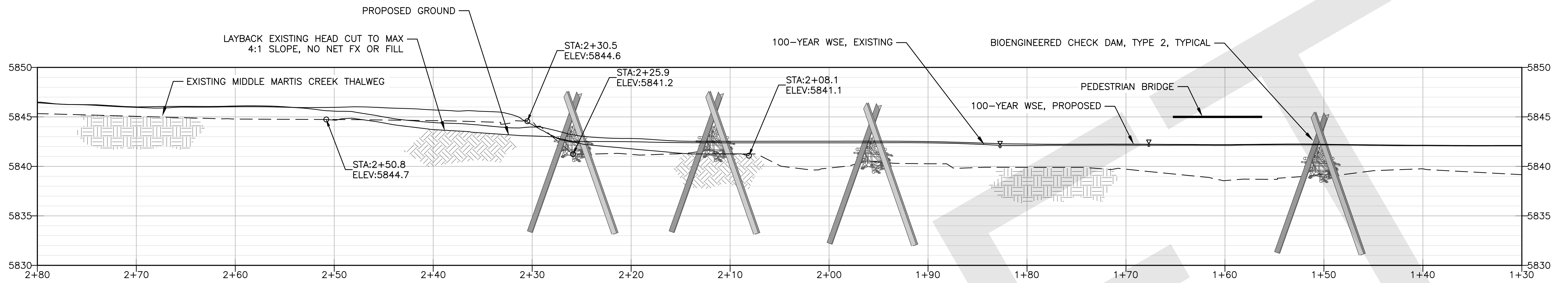
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CHECKED	T. ABBE	DATE	-

MARTIS WILDLIFE AREA RESTORATION PROJECT

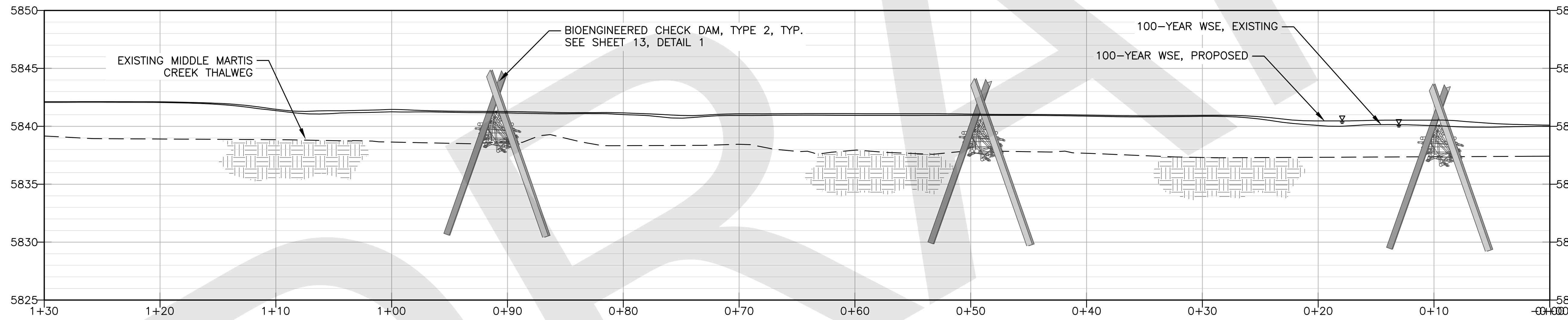
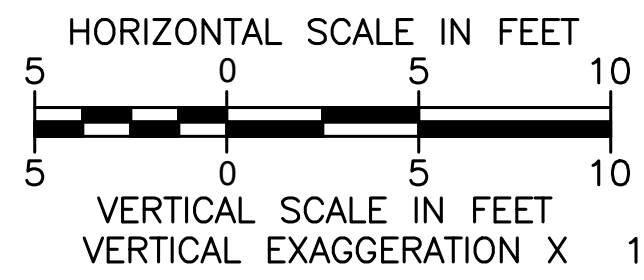
UNNAMED TRIBUTARY CULVERT CROSS-SECTIONS AND ROAD PRISM

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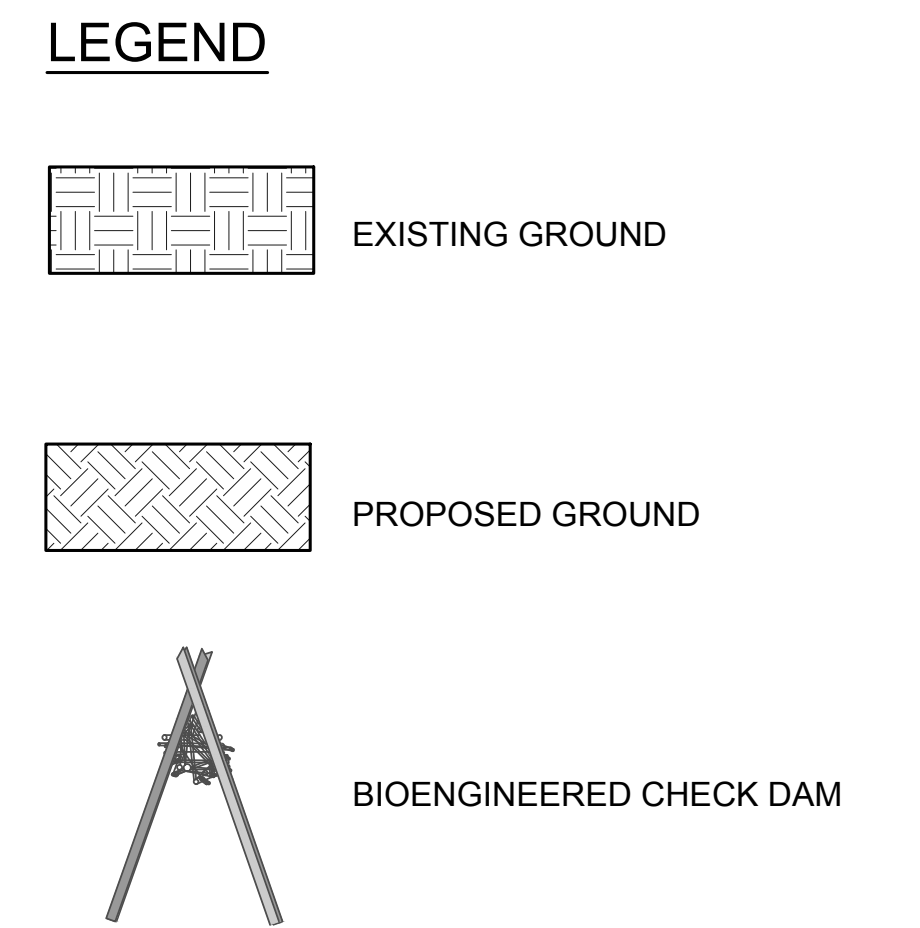
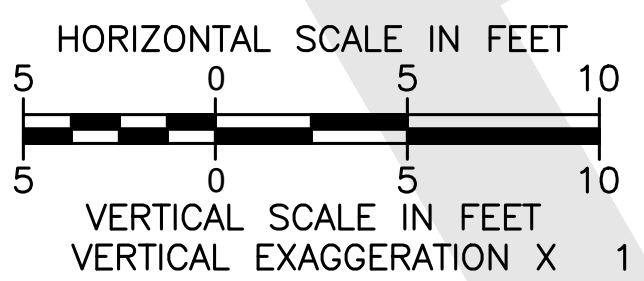
Nov 17, 2017 60% DRAWINGS



HEADCUT PROFILE 7



HEADCUT PROFILE 7



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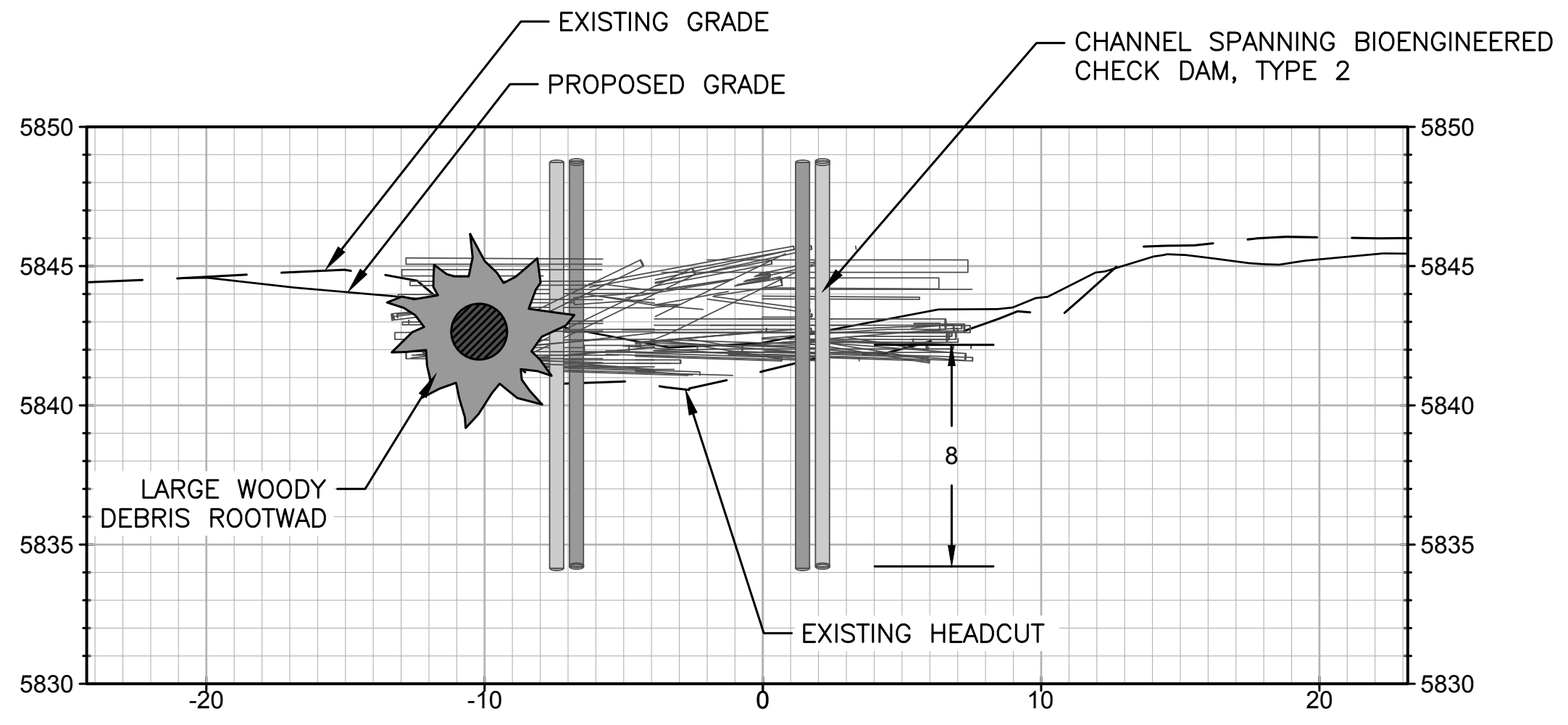
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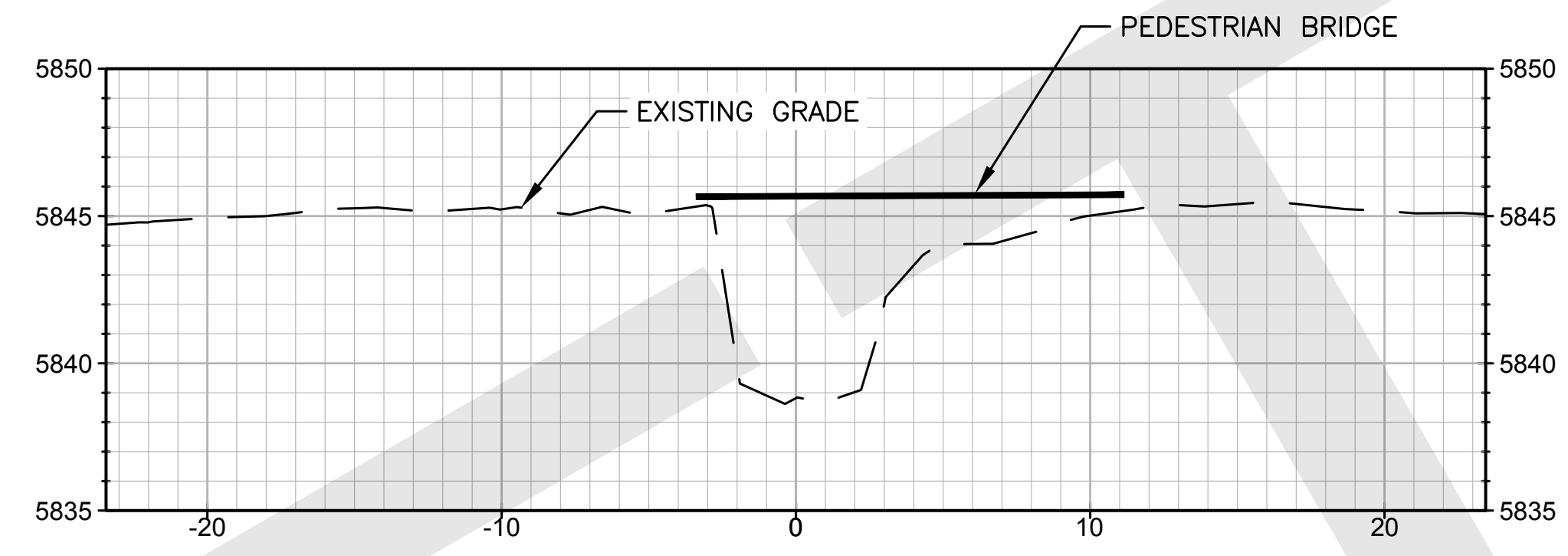
MIDDLE MARTIS HEADCUT PROFILE

11
 SHEET 11 OF 17

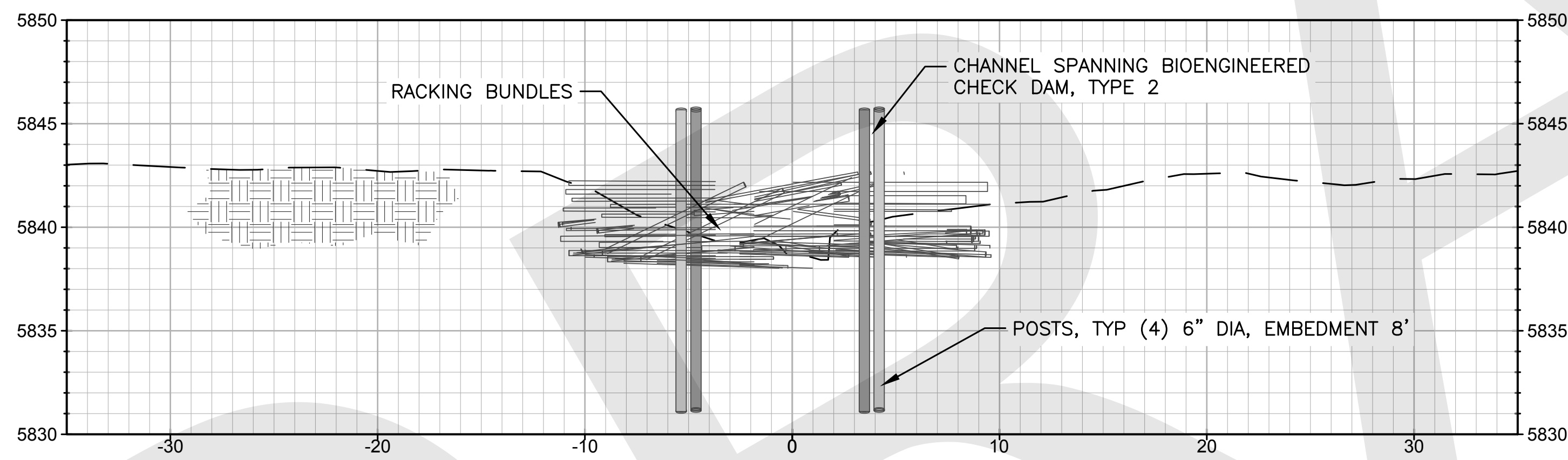
Nov 17, 2017 60% DRAWINGS



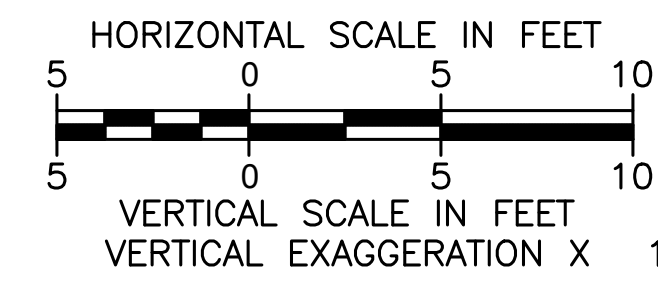
HEADCUT CROSS-SECTION H1-H1'



HEADCUT CROSS-SECTION H2-H2'



HEADCUT CROSS-SECTION H3-H3'



0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.



NAME OR INITIALS AND DATE		GEOGRAPHIC INFORMATION	
DESIGNED	M. NELSON	LATITUDE	N39° 18' 5.46"
CHECKED	M. ERICSSON	LONGITUDE	W120° 7' 53.32"
DRAWN	G. MATSUMOTO	TN/SC/RG	T17N/S19/R17E
CHECKED	T. ABBE	DATE	-

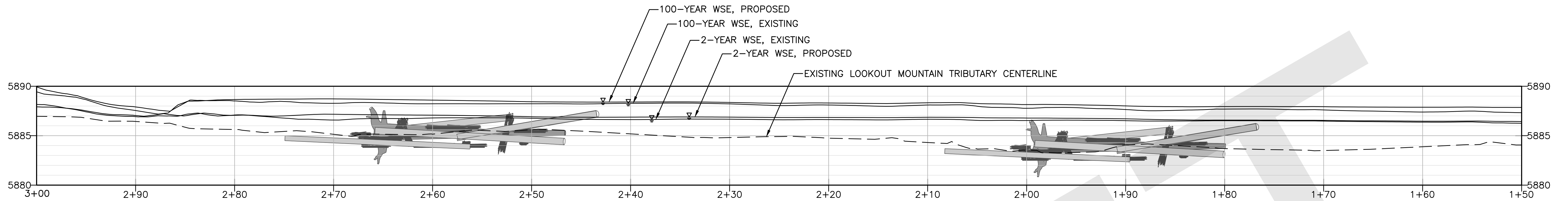
MARTIS WILDLIFE AREA RESTORATION PROJECT

MIDDLE MARTIS HEADCUT CROSS-SECTIONS

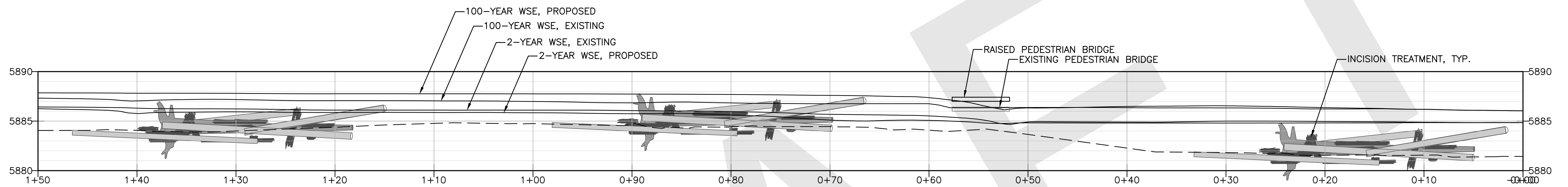
12
SHEET 12 OF 17

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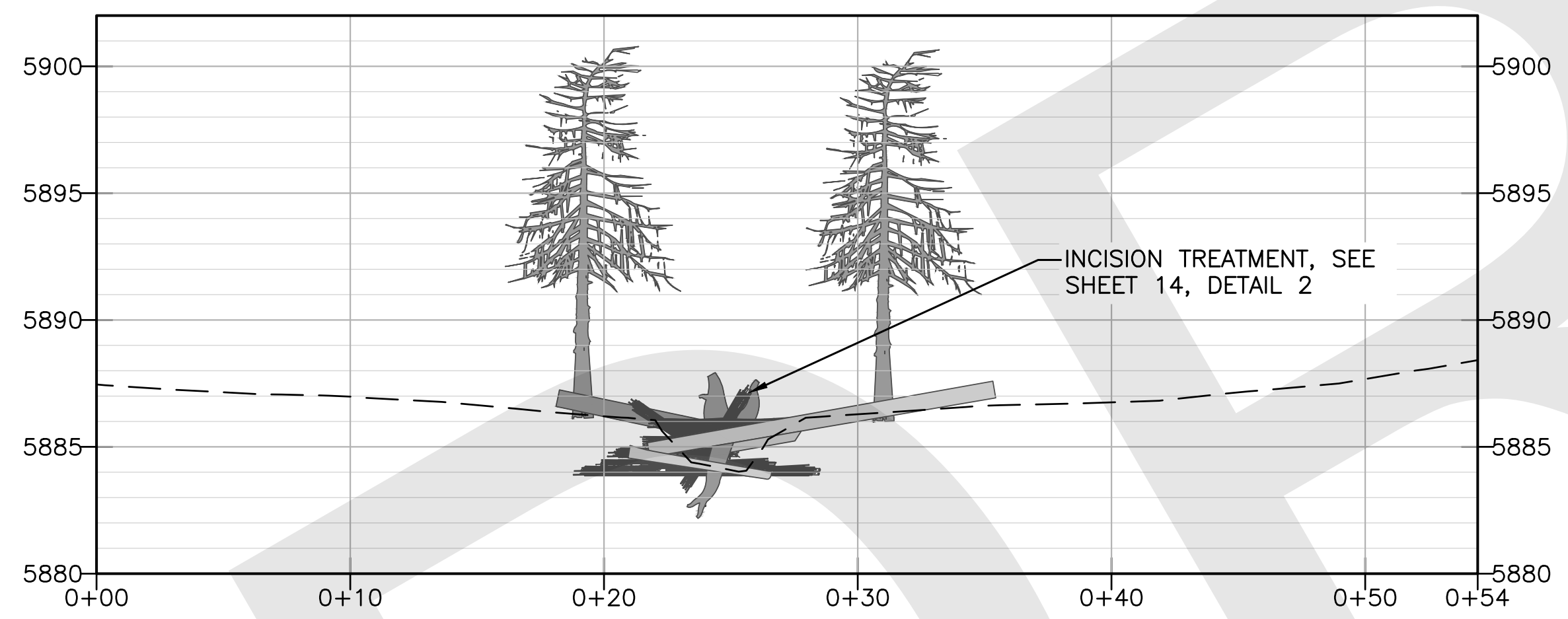
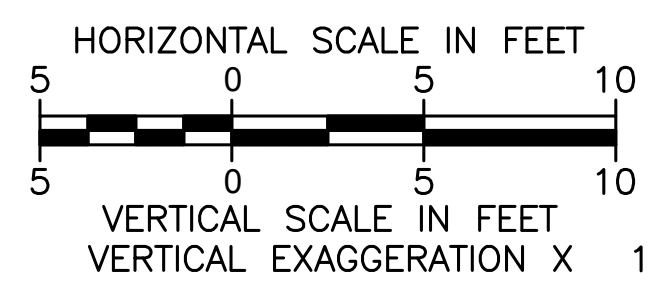
Nov 17, 2017 60% DRAWINGS



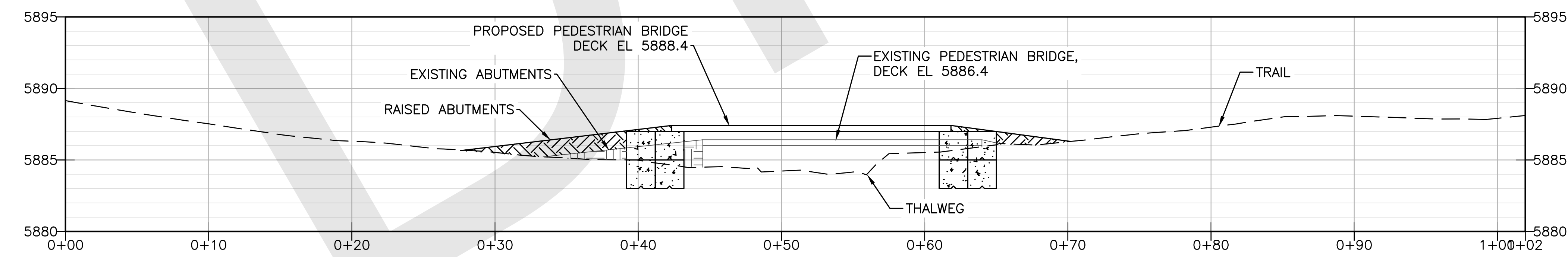
LOOKOUT MOUNTAIN PROFILE 8



LOOKOUT MOUNTAIN PROFILE 8



LOOKOUT MOUNTAIN CROSS-SECTION LM1-LM1' 8



LOOKOUT MOUNTAIN CROSS-SECTION LM2-LM2' 8

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.



NAME OR INITIALS AND DATE	
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CHECKED	M. ERICSSON
DRAWN	G. MATSUMOTO
CHECKED	T. ABBE

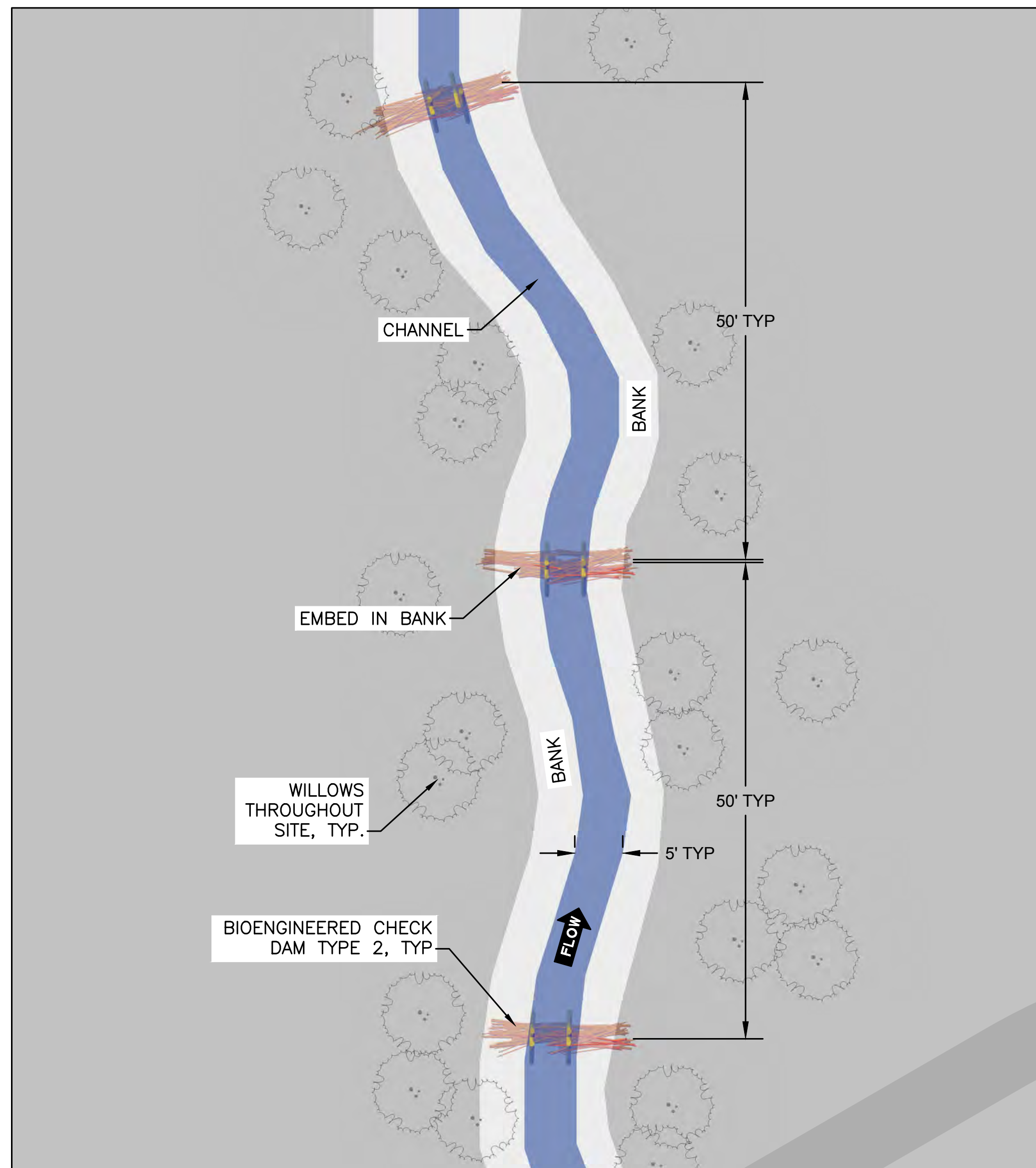
GEOGRAPHIC INFORMATION	
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LONGITUDE	W120° 7' 53.32"
TN/SC/RG	T17N/S19/R17E
DATE	

MARTIS WILDLIFE AREA RESTORATION PROJECT

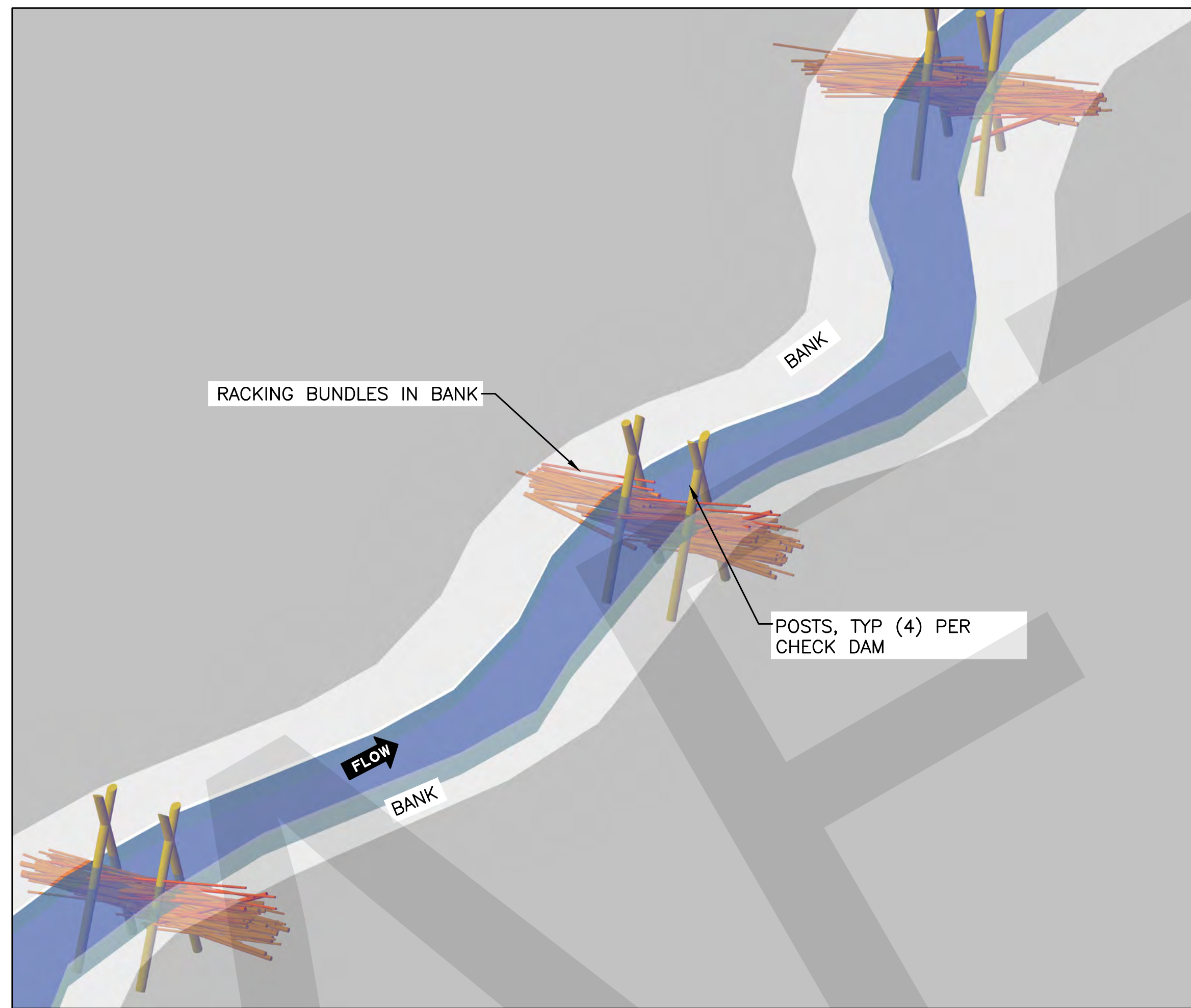
LOOKOUT MOUNTAIN TRIBUTARY PROFILE & CROSS-SECTIONS

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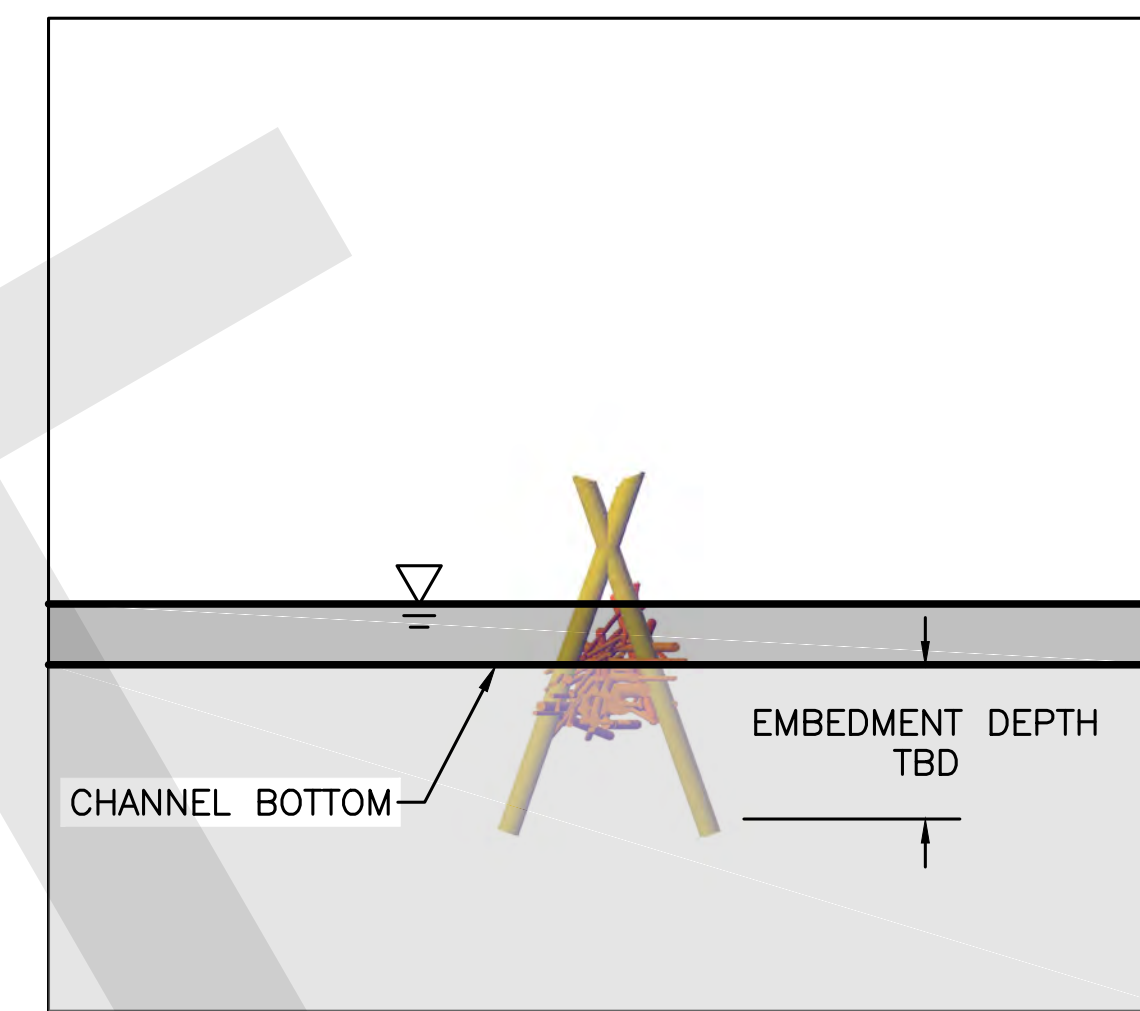
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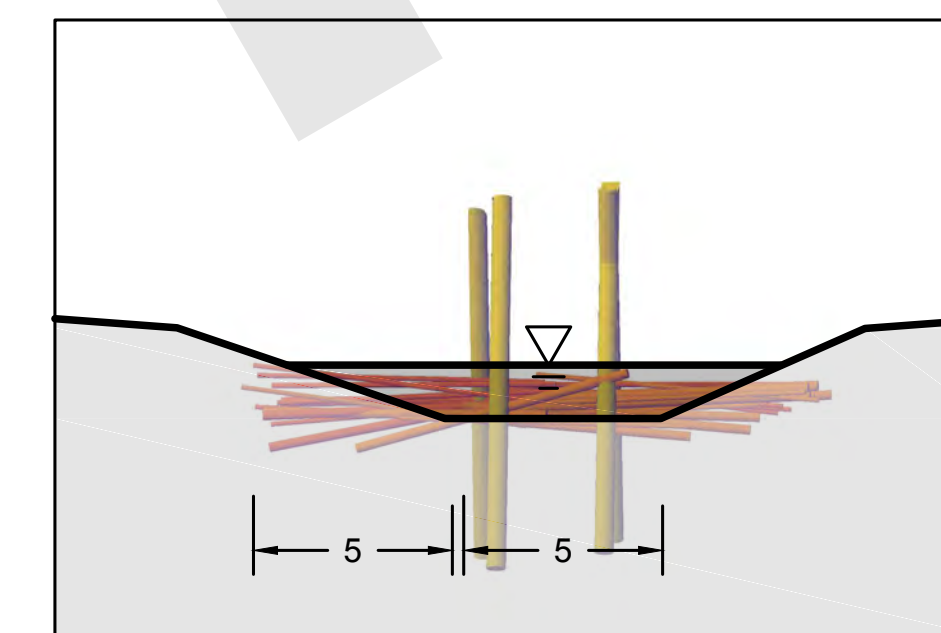
PLAN
SCALE: 1" = 10'



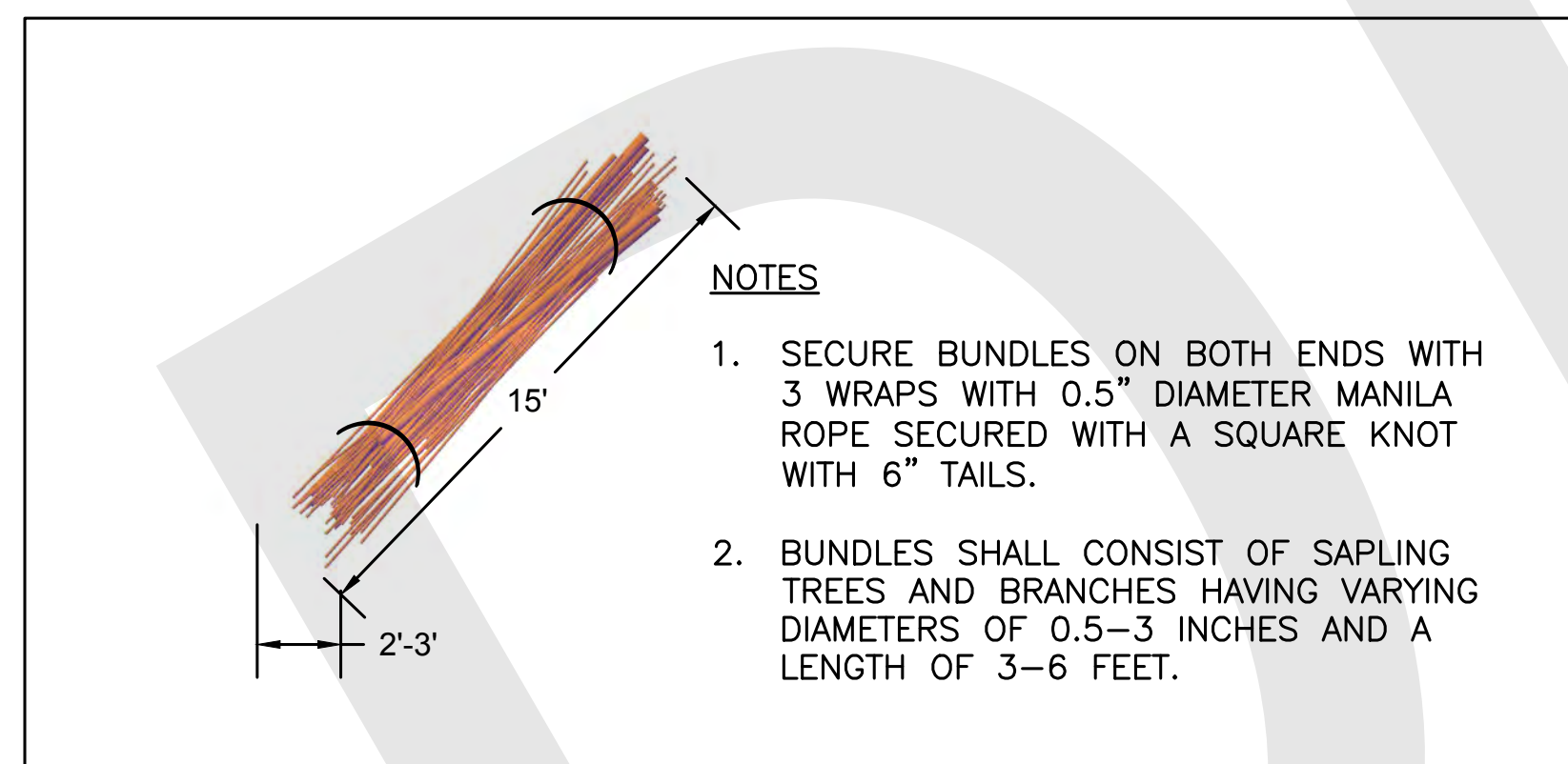
PERSPECTIVE
1" = 5'



CROSS-SECTION
SCALE: 1" = 5'



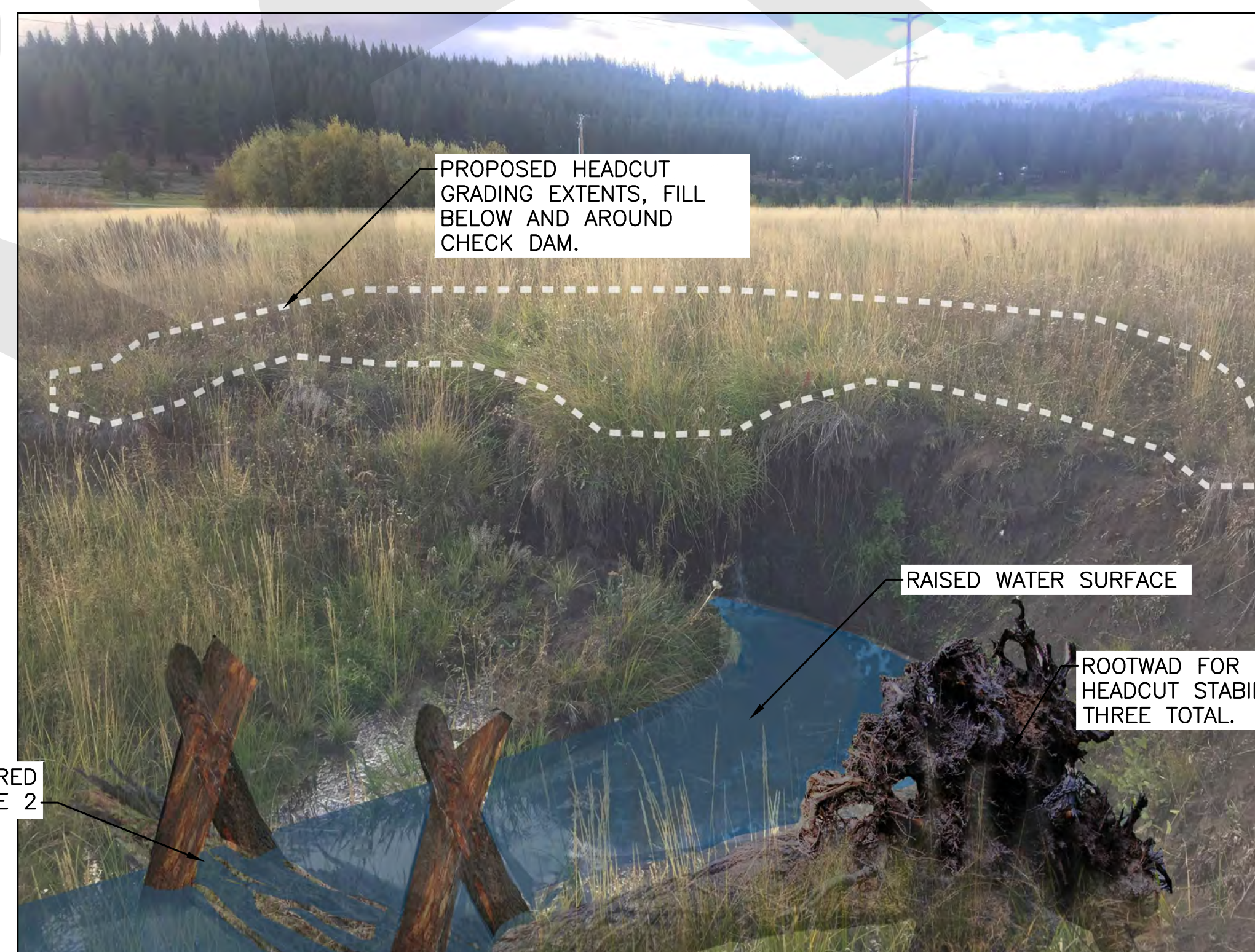
PROFILE
SCALE: 1" = 5'



RACKING BUNDLE DETAIL
SCALE: 1" = 5'

NOTES

1. SECURE BUNDLES ON BOTH ENDS WITH 3 WRAPS WITH 0.5" DIAMETER MANILA ROPE SECURED WITH A SQUARE KNOT WITH 6" TAILS.
2. BUNDLES SHALL CONSIST OF SAPLING TREES AND BRANCHES HAVING VARYING DIAMETERS OF 0.5-3 INCHES AND A LENGTH OF 3-6 FEET.



BIOENGINEERED CHECK DAM, TYPE 2

NOTES

1. POSTS SHALL HAVE ROUGHENED TOPS AND BE EMBEDDED XX FEET INTO THE FLOODPLAIN.
2. BUNDLES SHALL BE BURIED IN THE BANK TO PREVENT SIDE EROSION.

MIDDLE MARTIS BIOENGINEERED CHECK DAM, TYPE 2 DETAIL

AS NOTED

1
13

0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.

foriver
TRUCKEE RIVER WATERSHED COUNCIL

Natural Systems Design

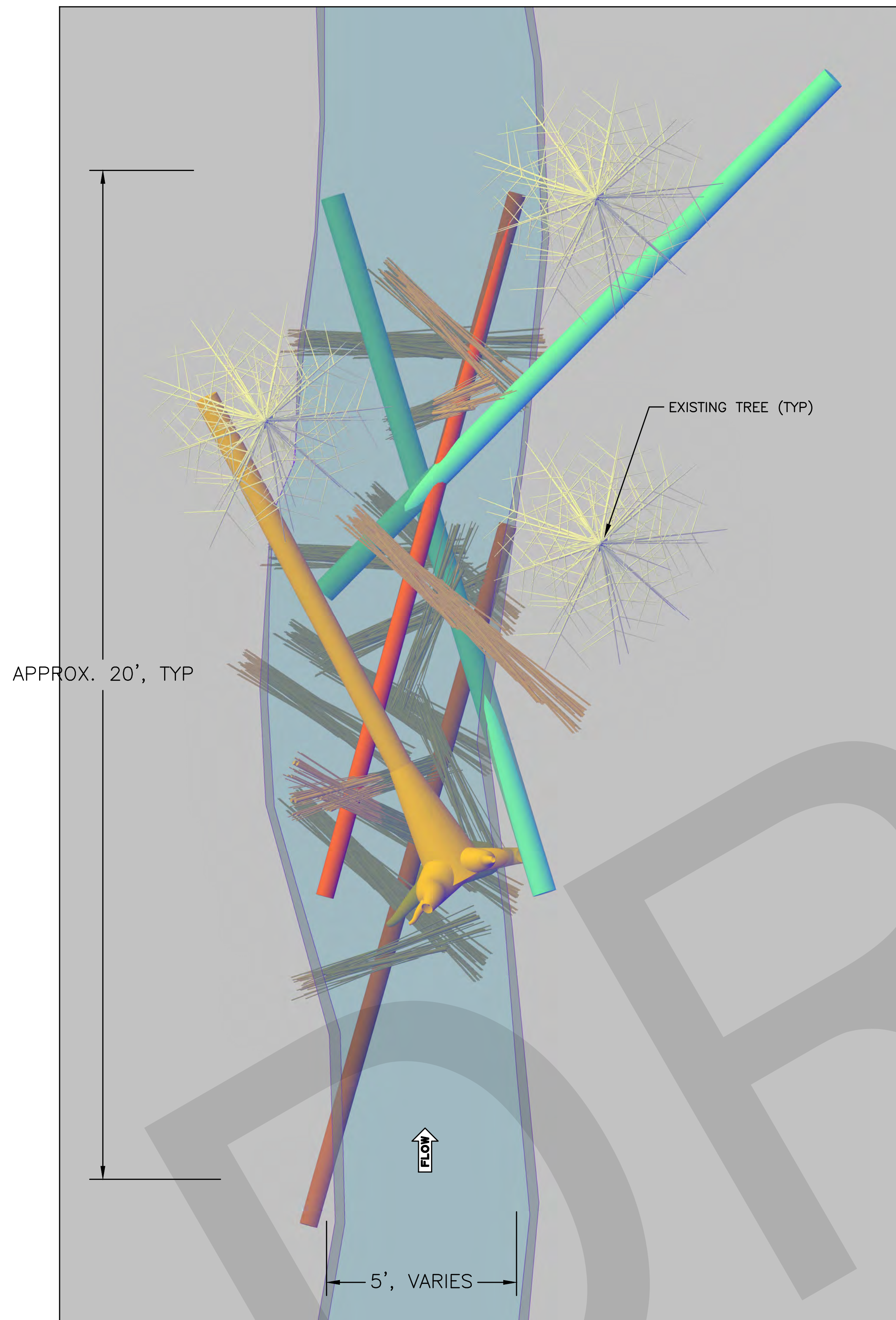
NAME OR INITIALS AND DATE	GEOGRAPHIC INFORMATION
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CHECKED M. ERICSSON	LONGITUDE W120° 7' 53.32"
DRAWN G. MATSUMOTO	TN/SC/RG T17N/S19/R17E
CHECKED T. ABBE	DATE

MARTIS WILDLIFE AREA RESTORATION PROJECT

DETAILS 1 – MIDDLE MARTIS – BIOENGINEERED CHECK DAM, TYPE 2

14
SHEET 14 OF 17

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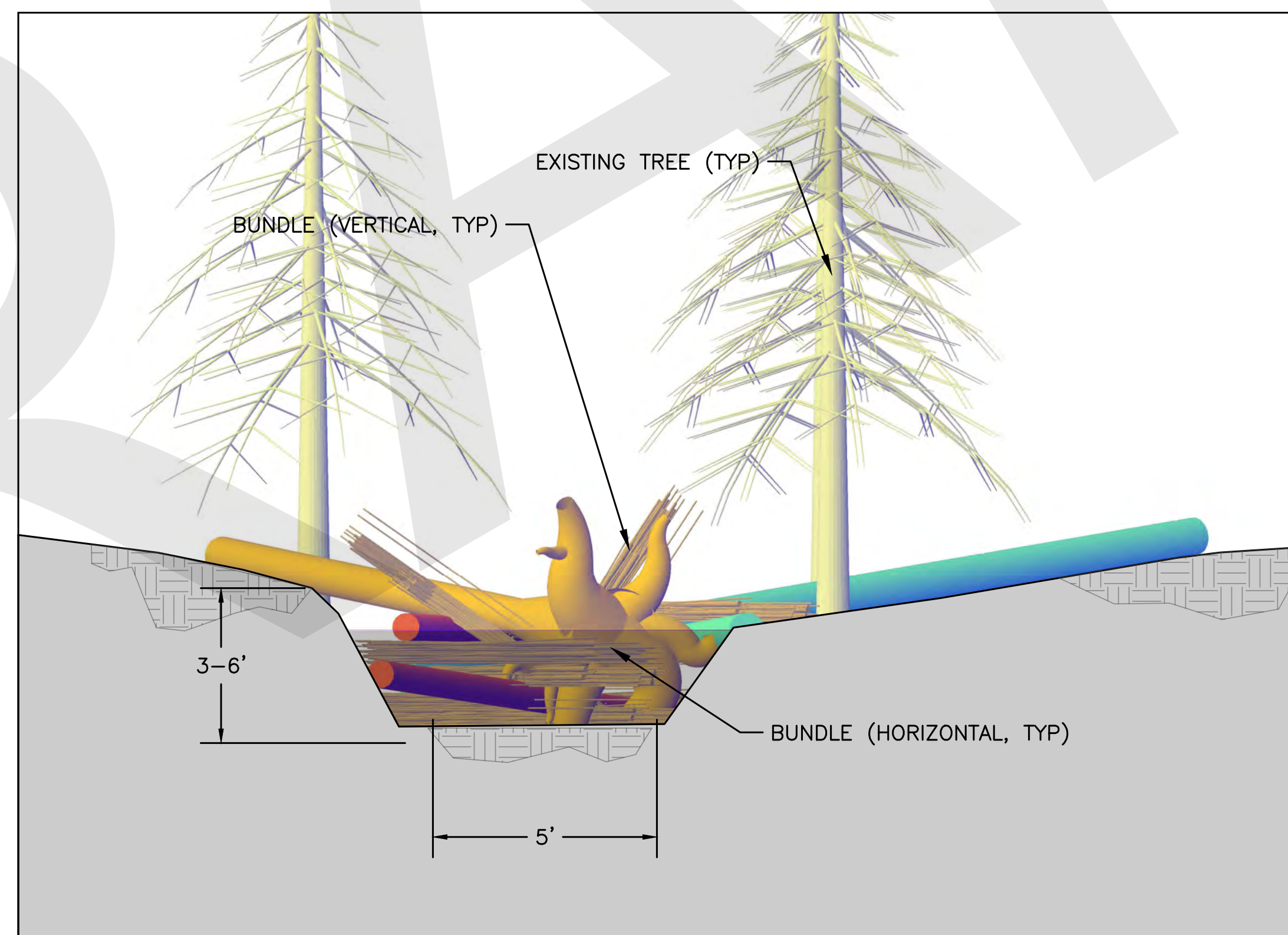


INCISION TREATMENT PLAN
SCALE: 1" = 2'



TYPICAL INCISION TREATMENT

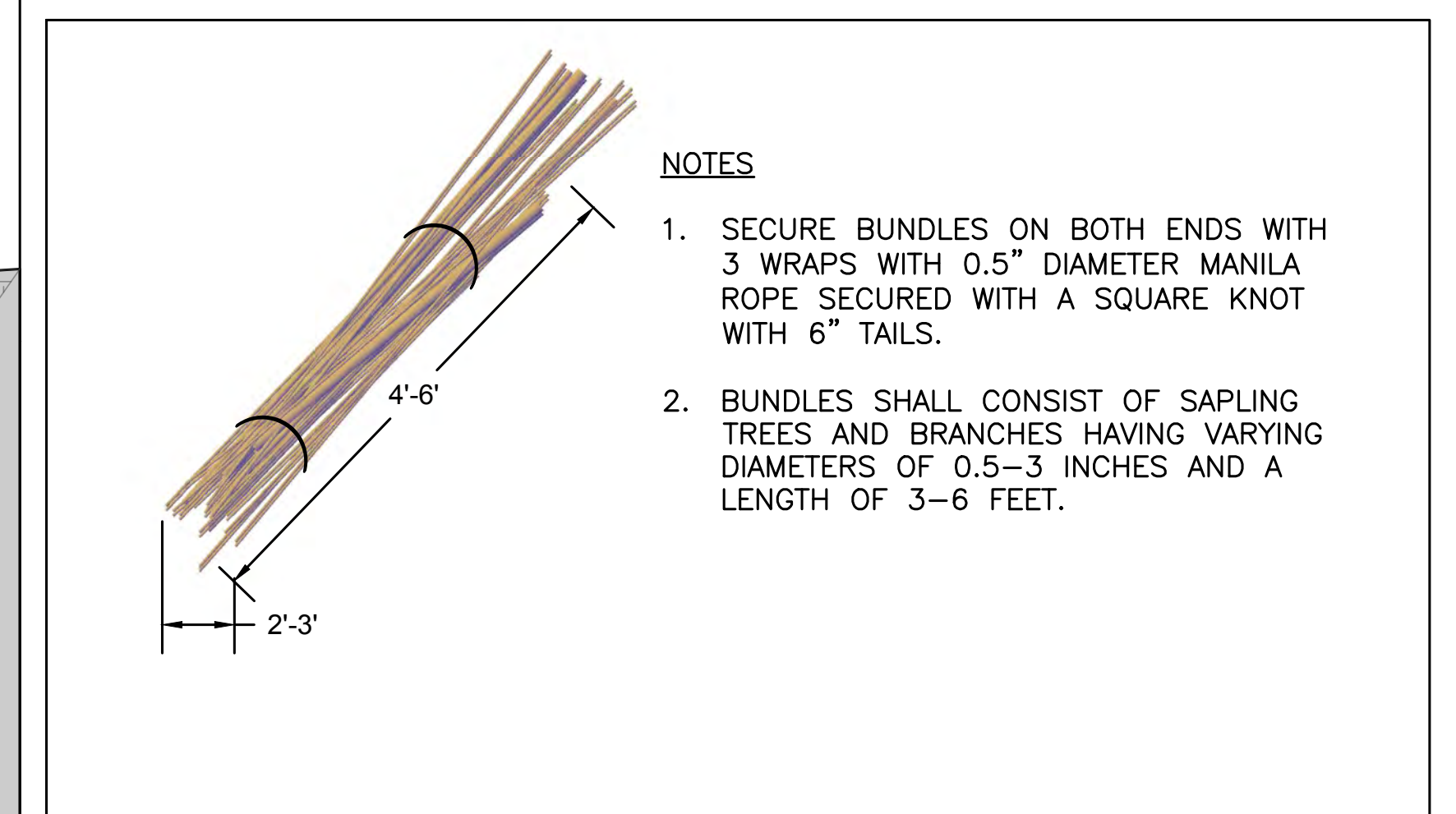
LOOKOUT MT SITE



INCISION TREATMENT SECTION
SCALE: 1" = 2'

NOTES

1. USE LOGS WITH ROOTWADS WHERE AVAILABLE.
2. LARGER DIAMETER LOGS ARE PREFERRED. SMALLER DIAMETER INDIVIDUAL LOGS MAY BE USED PROVIDED THAT THE LOGS ARE SUFFICIENTLY LONG.
3. LOGS SHALL BE STRUCTURALLY SOUND AND SHALL RESIST PENETRATION FROM A SHARP KNIFE BEYOND 0.25 INCHES.



NOTES

1. SECURE BUNDLES ON BOTH ENDS WITH 3 WRAPS WITH 0.5" DIAMETER MANILA ROPE SECURED WITH A SQUARE KNOT WITH 6" TAILS.
2. BUNDLES SHALL CONSIST OF SAPLING TREES AND BRANCHES HAVING VARYING DIAMETERS OF 0.5-3 INCHES AND A LENGTH OF 3-6 FEET.

RACKING BUNDLE DETAIL
SCALE: 1" = 10'

LOOKOUT MOUNTAIN INCISION TREATMENT DETAIL
AS NOTED

1
14

0 1
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CHECKED T. ABBE	DATE -




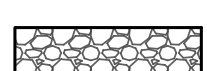

MARTIS WILDLIFE AREA RESTORATION PROJECT

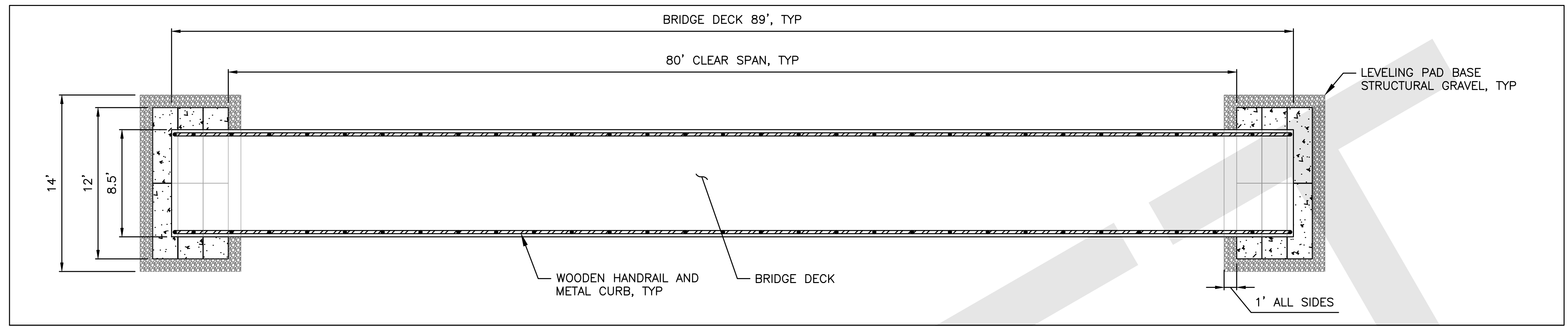
DETAILS 2 - LOOKOUT MT INCISION TREATMENT DETAIL

15
SHEET 15 OF 17

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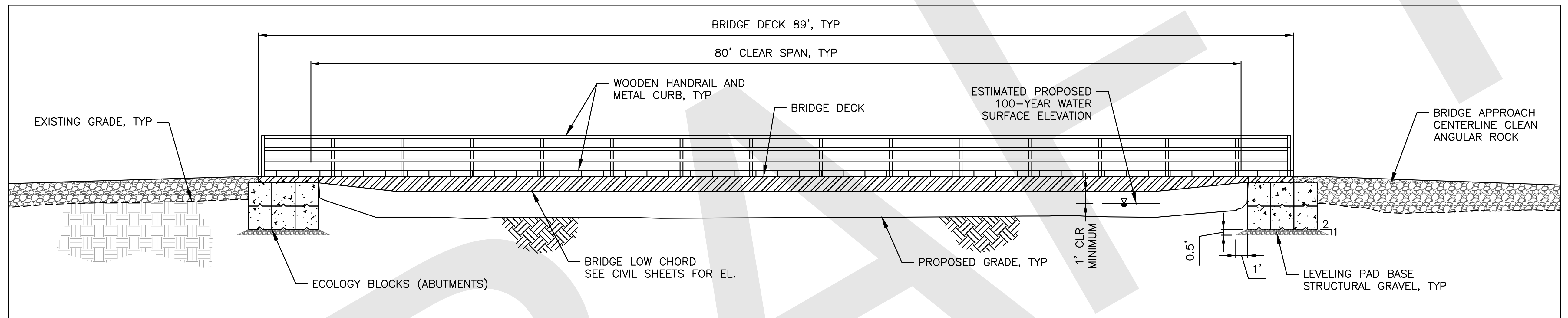
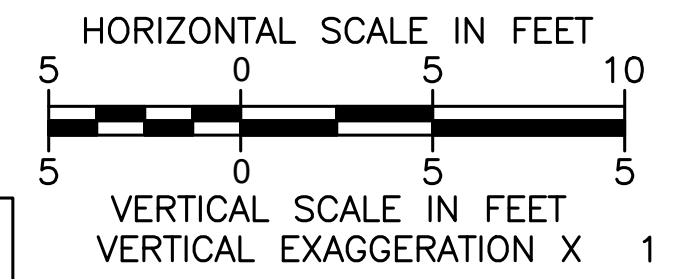
LEGEND

-  STEEL
-  PROPOSED GROUND
-  EXISTING GROUND
-  BRIDGE APPROACH AGGREGATE/ROADWAY FILL
-  STRUCTURAL GRAVEL BASE



BRIDGE PLAN

6

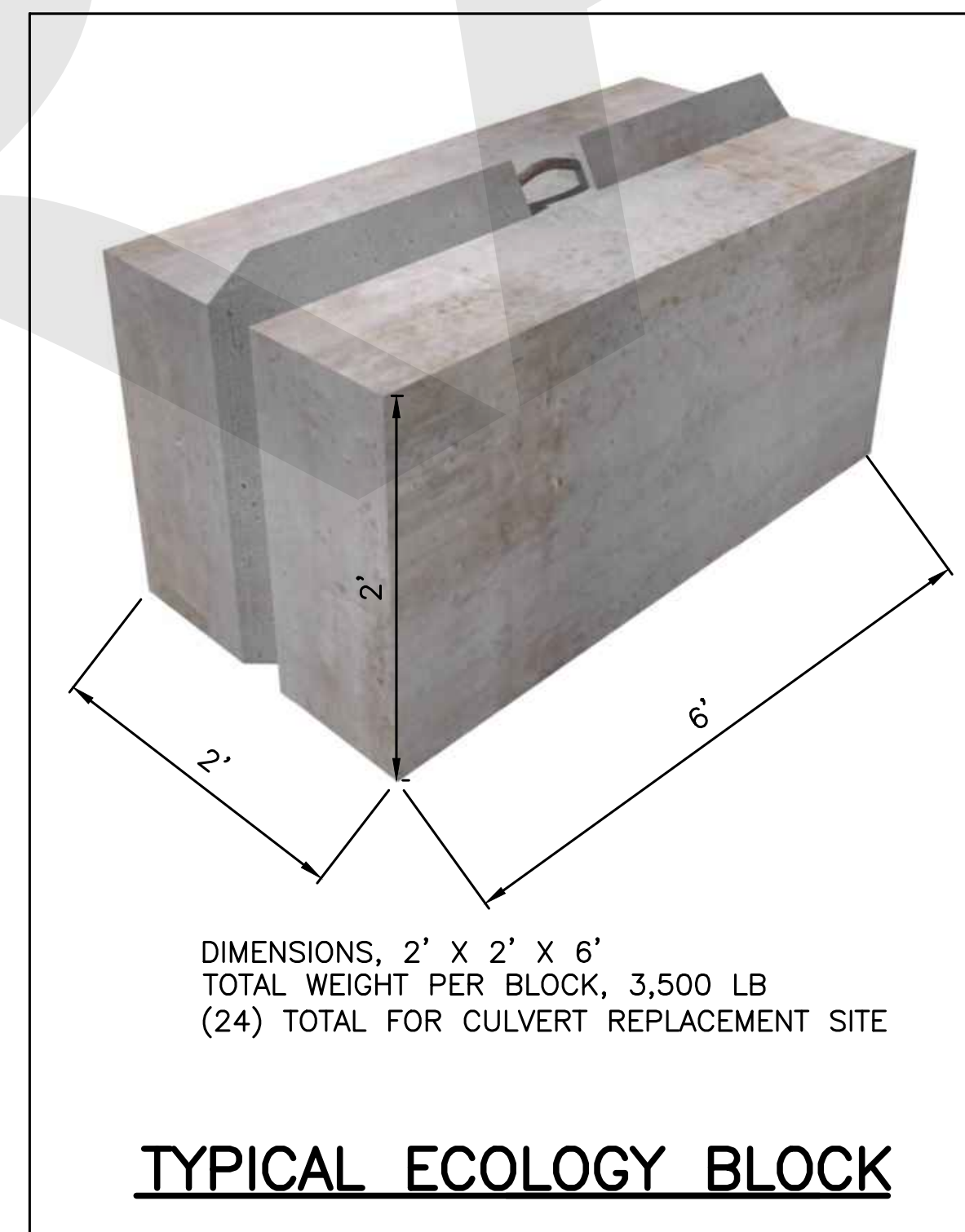


BRIDGE CROSS SECTION

6

UNNAMED TRIBUTARY BRIDGE CROSSING NOTES:

1. FILL FOR APPROACH RAMP TO THE TEMPORARY BRIDGE SHALL BE CLEAN ANGULAR ROCK WITH A GRADATION OF 1" TO 3".
2. THE LOW CHORD OF THE BRIDGE SHALL BE A MINIMUM OF 1' ABOVE THE PROPOSED 100-YEAR WATER SURFACE ELEVATION.
3. REMOVE EXISTING ROAD PRISM PRIOR TO BRIDGE INSTALLATION.
4. INSTALL AND COMPACT LEVEL PAD BASE STRUCTURAL GRAVEL.
5. INSTALL METAL CURB/GUARD RAIL ON TOP OF BRIDGE.
6. ADDITIONAL WOODEN HANDRAIL DETAILS TO BE INCLUDED IN NEXT SUBMITTAL.



TYPICAL ECOLOGY BLOCK



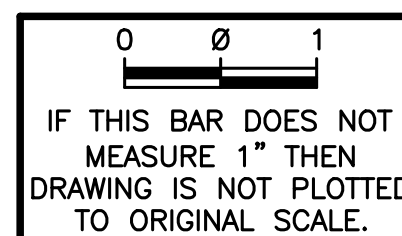
NOTE: HANDRAIL NOT SHOWN

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BRIDGE CROSSING EXAMPLE

UNNAMED TRIBUTARY BRIDGE CROSSING DETAILS

6



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CHECKED	T. ABBE	DATE	-

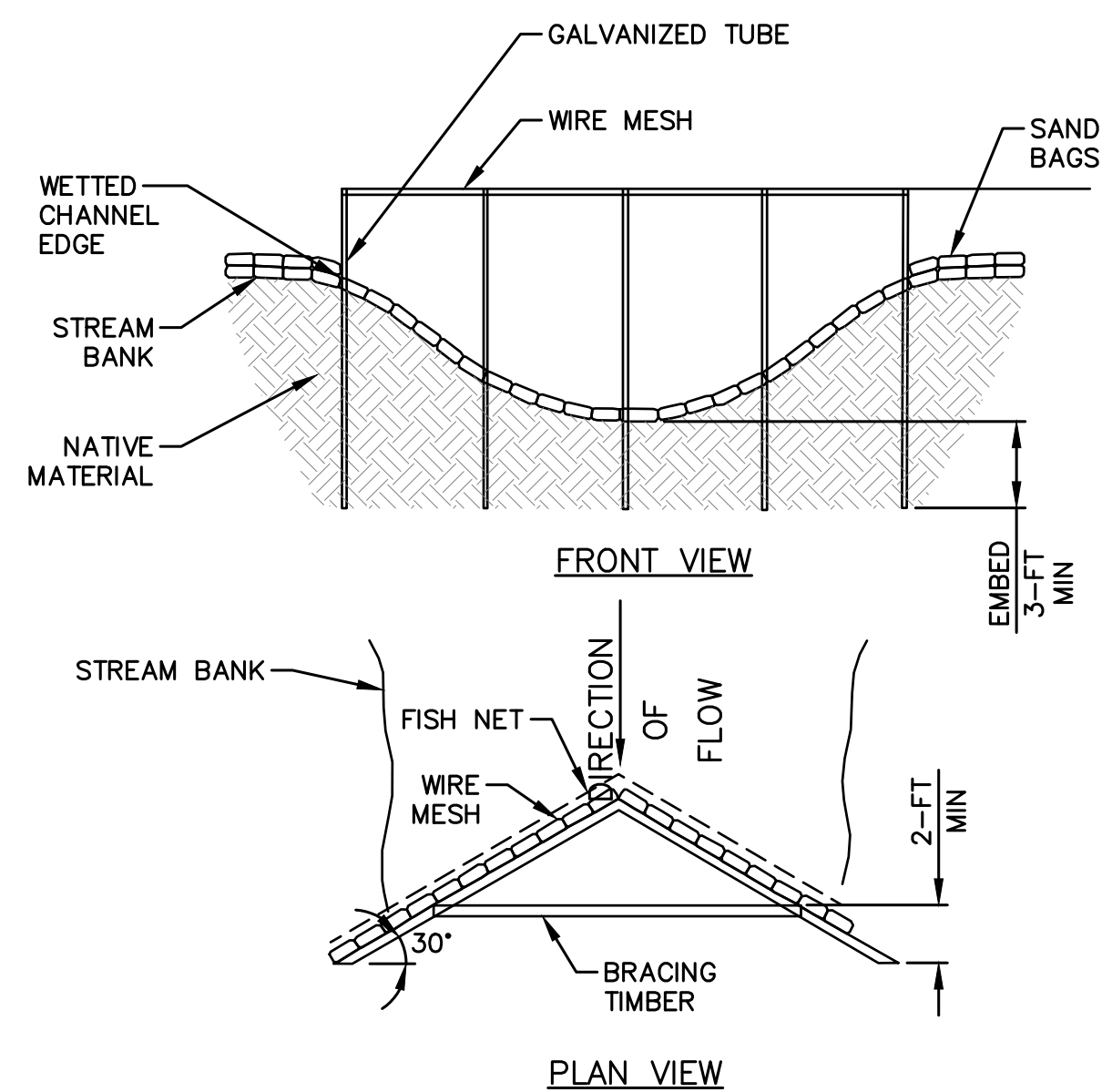
MARTIS WILDLIFE AREA RESTORATION PROJECT

DETAILS 3 – UNNAMED TRIBUTARY CULVERT REPLACEMENT BRIDGE DETAILS

16
SHEET 16 OF 17

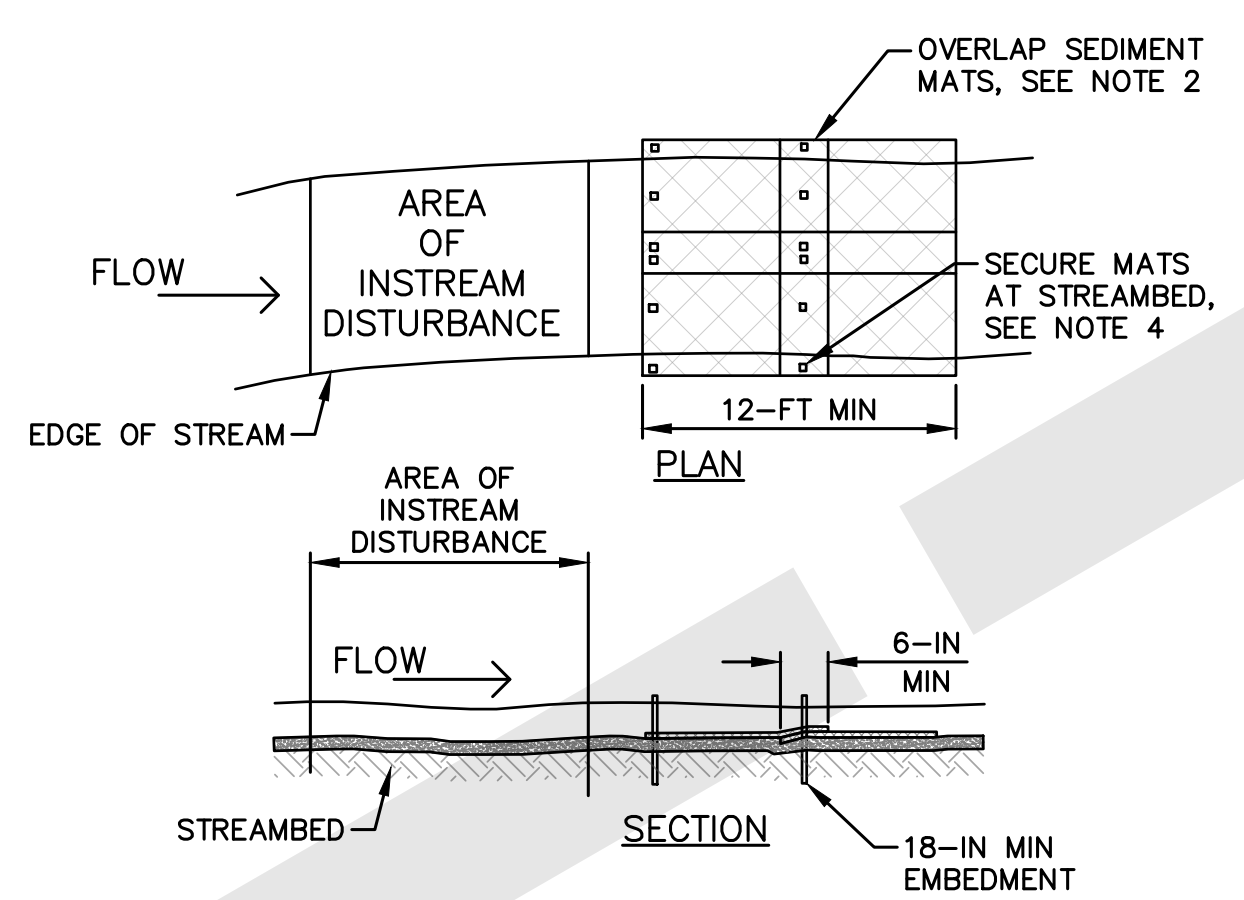
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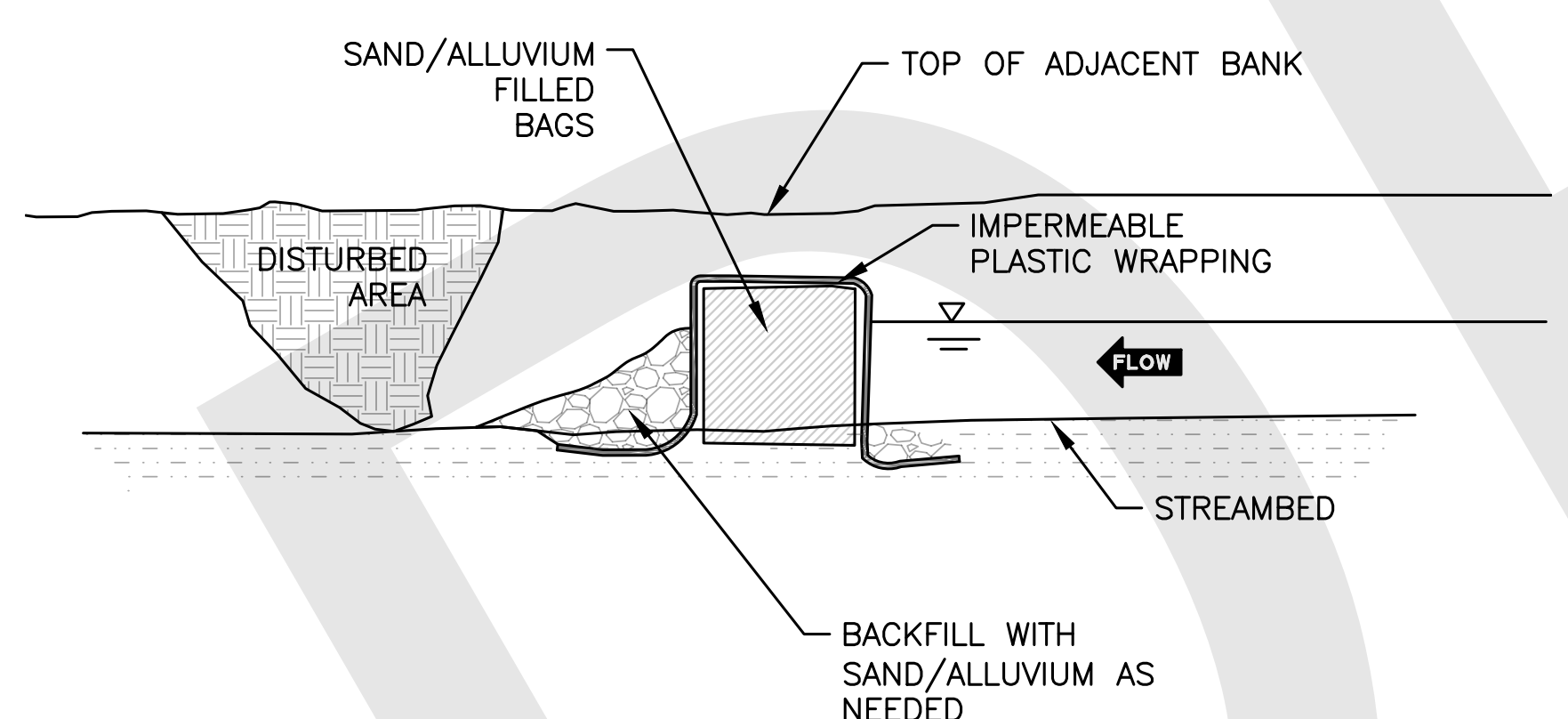
- CONSTRUCTION SEQUENCE:**
1. INSTALL GALVANIZED TUBES.
 2. SECURE WIRE MESH TO GALVANIZED TUBES WITH WIRE FASTENER.
 3. SECURE NYLON FISH NET TO STREAM BOTTOM WITH SAND BAGS. BLOCK NET OPENING SIZE SHALL BE DETERMINED BY EXPECTED FISH SPECIES.
 4. SECURE BLOCK NET TO STREAM BOTTOM WITH SAND BAGS.
 5. EXTEND SAND BAGS INTO STREAM BANKS.
 6. ADD BRACING TIMBER AS NEEDED TO SUPPORT THE SCREEN
 7. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF DEBRIS FROM THE UPSTREAM SIDE OF THE FENCE IS NECESSARY OTHERWISE THE SCREEN WILL BECOME CLOGGED AND WATER MAY TOPPLE OR BREACH THE SCREEN.

FISH SCREEN DETAIL 1/5
SCALE: ViewportScale

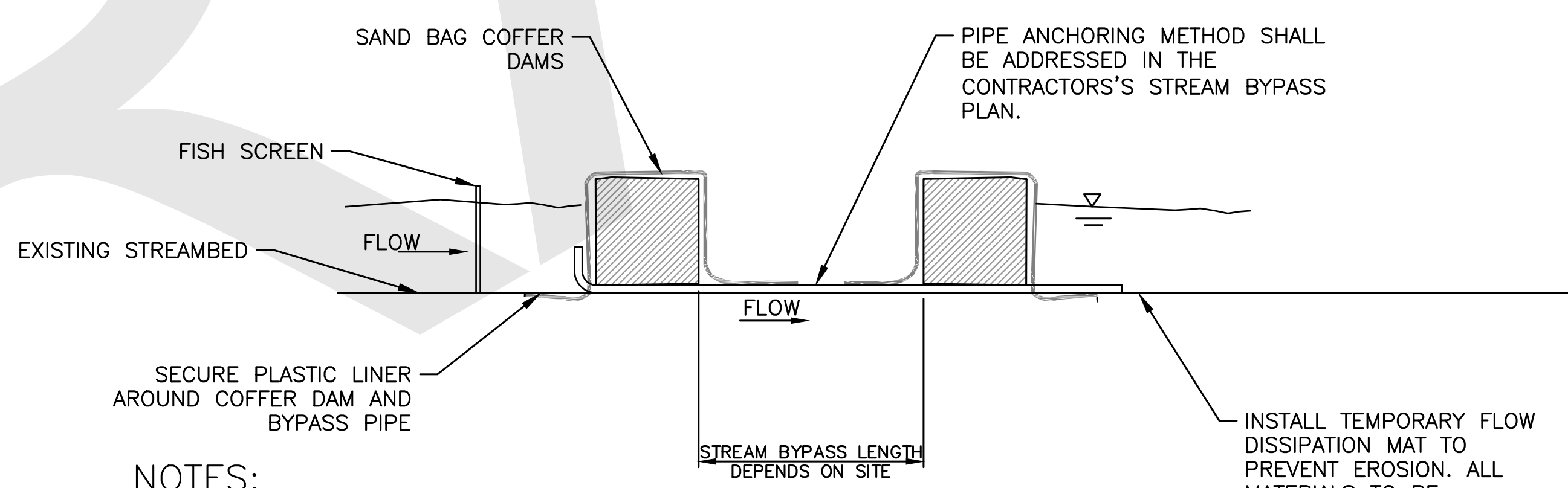


- NOTES:**
1. INSTALL MATS FLAT ON THE STREAM BOTTOM AT DOWNSTREAM EDGE OF DISTURBED AREA IMMEDIATELY PRIOR TO INSTREAM DISTURBANCE AND REMOVE IMMEDIATELY AFTER INSTREAM ACTIVITIES ARE COMPLETED.
 2. OVERLAP THE TRAILING EDGE OF UPSTREAM MATS OVER THE LEADING EDGE OF DOWNSTREAM MATS BY AT LEAST 6-IN. OVERLAP SIDES A MINIMUM OF 6-IN.
 3. HOLD THE LEADING EDGE OF THE MATS TIGHTLY TO STREAMBED CONTOURS WITH ROCKS OR OTHER WEIGHTS.
 4. SECURE UPSTREAM CORNERS AND CENTERS OF MATS IN THE STREAMBED.
 5. IF STREAM VELOCITY IS HIGH, ENGINEER MAY REQUIRE ADDITIONAL LENGTH OF SEDIMENT MAT.
 6. WHEN CONSTRUCTION IS COMPLETE, SEDIMENT MAT SHALL BE FOLDED OR ROLLED UP CAREFULLY TO PREVENT RELEASE OF SEDIMENT INTO THE CREEK AND REMOVED AND DISPOSED OF OFF SITE. LIFT FROM THE DOWNSTREAM END AND WORK IN AN UPSTREAM DIRECTION.

FLOW DISSIPATOR/SEDIMENT MAT DETAIL 2/5
SCALE: ViewportScale



SANDBAG COFFER DAM 3/5
SCALE: ViewportScale



- NOTES:**
1. BYPASS PUMP SHALL BE SIZED BASED ON EXPECTED SEASONAL DISCHARGE.
 2. IN EVENT OF HIGH FLOWS, CONTRACTOR SHALL FOLLOW EMERGENCY ACTIONS AS DESCRIBED IN PERMIT DOCUMENTS.
 3. BYPASS COMPONENTS LOCATED DOWNSTREAM OF THE EXISTING BRIDGE MAY BE INSTALLED BY HAND. CONTRACTOR MAY SUBSTITUTE SAND BAGS WITH OTHER APPROVED EROSION PROTECTION METHOD THAT IS MORE SUITABLE FOR HAND INSTALLATION.

- TEMPORARY STREAM BYPASS CONSTRUCTION SEQUENCE NOTES:**
1. INSTALL FISH SCREENS AT BOTH ENDS OF PROJECT EXTENTS. BYPASS COMPONENTS MAY BE INSTALLED BY HAND.
 2. HERD AND REMOVE ALL FISH BETWEEN THE FISH SCREENS IN ACCORDANCE WITH PERMITTING DOCUMENTS.
 3. INSTALL TEMPORARY FLOW DISSIPATION MAT AT DOWNSTREAM END OF BYPASS TO PREVENT EROSION AT BYPASS OUTFALL. ALL MAT COMPONENTS SHALL BE REMOVED WHEN CONSTRUCTION IS COMPLETE.
 4. INSTALL TEMPORARY BYPASS PIPE AND DIVERT FLOW INTO PIPE FOR PROJECT DURATION. ADJUST LOCATION OF BYPASS PIPE AS NEEDED TO PERFORM WORK.
 5. INSTALL SAND BAG COFFER DAM AROUND BYPASS PIPE AND SEAL.
 6. WHEN THE PROJECT SITE IS DEWATERED, DOWNSTREAM FISH SCREEN MAY BE REMOVED.
 7. AT PROJECT COMPLETION, REMOVE ALL STREAM BYPASS MATERIALS.

TEMPORARY STREAM BYPASS DETAIL 4/5
AS NOTED

0 1
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CHECKED T. ABBE	DATE -

MARTIS WILDLIFE AREA RESTORATION PROJECT

TESC, STREAM BYPASS & FISH EXCLUSION DETAILS

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