



San Francisco Bay Regional Water Quality Control Board

CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION AND ORDER FOR THE

Dark Gulch Creek Crossing Stabilization Project San Mateo County

Sent via electronic mail: No hard copy to follow

Effective Date:	November 5, 2019
Place ID:	857175
Reg. Measure:	429591
Corps File No:	2018-00181S
Applicant:	San Mateo Resource Conservation District
	80 Stone Pine, Suite 100
	Half Moon Bay, CA 94019
	Phone: (650) 669-9077
	Attn: Sara Polgar (sara@sanmateorcd.org)
Water Board	Tahsa Sturgis and Setenay Frucht
Staff:	1515 Clay Street, Suite 1400
	Oakland, CA 94612
	Phone: (510) 622-2316
	(510) 622-2388
	Email: Tahsa.Sturgis@waterboards.ca.gov
	Setenay.Frucht@waterboards.ca.gov

JIM M_{c} grath, chair | Michael Montgomery, executive officer

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Certification and Order Coverage

This Clean Water Act (CWA) section 401 Water Quality Certification (Certification) and Order (Order) is issued to the San Mateo Resource Conservation District (Permittee).

Pursuant CWA section 404, the Permittee requested authorization to fill and discharge to waters of the U.S. from the U.S. Army Corps of Engineers (Corps), Regulatory Branch, under a Nationwide Permit (NWP). The Corps indicated the Project would be authorized under a CWA section 404 NWP 14 (*Linear Transportation Projects*) (Corps File No. 2018-00181S).

The Permittee applied to the San Francisco Bay Regional Water Quality Control Board (Water Board) requesting Certification verifying the Dark Gulch Creek Crossing Stabilization Project (Project) does not violate State water quality standards. The application for Certification was received on March 22, 2019 (Application). The following sections are derived from the Application and supplemental information received through September 2019.

1. Project

The Permittee, in partnership with the San Mateo County Parks Department (Parks Department), will stabilize a failing crossing along Old Haul Road at Dark Gulch Creek, a tributary to Pescadero Creek. The Project will remove the eroding crossing and unstable fill, replace the culvert, and reconstruct a smaller, stable crossing with drainage features to prevent chronic and future soil erosion. The Project will also implement road surface drainage improvements along a two-mile reach of the Old Haul Road.

1.1 Background

In 1998, Pescadero Creek was listed by the San Francisco Bay Regional Water Quality Control Board (Water Board) as impaired by excess sediment for fish habitat. On December 11, 2018, the State Water Board adopted a total maximum daily load (TMDL) for sediment for the Pescadero and Butano Creeks Watershed (Sediment TMDL). The Sediment TMDL includes implementation measures and performance standards for sediment discharges associated with roads. Pescadero Creek has also been designated by the National Marine Fisheries Service (NMFS) as critical habitat for Central California Coast steelhead (*Oncorhynchus mykiss*).

This Project aligns with the Sediment TMDL's goals and implementation plan and will improve Pescadero Creek's beneficial uses by reducing its sediment input from the failing crossing and by eliminating the risk of complete failure and a potentially significant volume of sediment entering Pescadero Creek. A similar project was permitted by the Water Board on September 13, 2018, for the Hardwood and Keystone Creeks Crossing Stabilization Project (CIWQS Place ID 847325). The Project is funded by a \$800,000 State Water Board grant under the CWA section 319(h) Nonpoint Source Grant Program and approximately \$1.6 million in matching funds from the Parks Department.

1.2 Site Description

At the Project site, Old Haul Road crosses Dark Gulch Creek (Creek) via an unstable log crib, intended to function similar to a box culvert, that contains unstable and potentially decaying fill material (Lat. 37.265628, Long. -122.260647). Old Haul Road was built along the south side of

Pescadero Creek as a railroad grade in the early to mid-1900s for timber operations and crosses multiple tributaries to Pescadero Creek. The crossings were built using primitive construction techniques without concern for water quality impacts or long-term stability. Erosion from the road surface and crossings have become significant sources of excess sediment to Pescadero Creek.

1.3 Construction Summary

Prior to the start of construction, the Permittee will implement erosion control measures, temporarily dewater the Creek to facilitate construction activities, and designate equipment staging and spoil areas. Equipment staging for the Project will be limited to three designated areas along Old Haul Road. All equipment will be staged away from and outside of sensitive habitat areas and waters of the State. Spoil areas adjacent to the crossing site but along the inboard side of Old Haul Road will be used to stockpile excavated material from the crossing. Core sampling analyses indicated that approximately 61 percent of the excavated material may be suitable for reuse as clean fill (i.e., non-deleterious material) to reconstruct the crossing.

The Project will replace the crossing with a new, stable crossing sized to convey flows associated with larger storm events. The new crossing will be relocated approximately 50 feet upstream from the existing crossing, and the road will be lowered by about 15 feet to reduce the new crossing's size. The new crossing will convey flows under the road via a 60- to 72-inch diameter high-density polyethylene (HDPE) pipe or a corrugated metal pipe (CMP), installed at the native channel grade (16 percent). The new culvert's size and type will be finalized prior to the start of construction. At the culvert's outlet, rock will be installed in the Creek bed to prevent scour. At the culvert inlet, a new headwall will be installed. To prevent potential culvert blockages from large woody debris accumulation upstream at the culvert's inlet and within the culvert, a metal pole will be installed in the creek to reorient large woody debris traveling downstream, allowing it to pass through the culvert lengthwise.

The Project's road drainage improvements will hydrologically disconnect Old Haul Road from the Creek, thus reducing sediment discharges to the Creek from the road. To improve road drainage along Old Haul Road, rolling dips and reverse grade dips will be constructed at strategic locations and existing ditch relief culverts will be rehabilitated and supplemented with new relief culverts. A sinkhole that developed at one of the ditch relief culvert locations will be stabilized by replacing the culvert and stabilizing the void area.

2. Impacts to Waters of the State

The Water Board has independently reviewed the Project record to analyze impacts to water quality and the environment and designated beneficial uses within the Project's watershed.

2.1 Fill and Discharge

The Project will permanently and temporarily impact approximately 0.65 acres of waters of the State (425 linear feet) of waters of the State. The Project's permanent impacts to 990 SF (165 linear feet) will occur from the installation of new riprap. The Project's temporary impacts to 1,560 SF (260 linear feet) will occur when the existing crossing is replaced.

The Project will also temporarily impact upland areas adjacent to the Creek from construction activities. These uplands areas consist of coast coniferous forest vegetation that affects the Creek's water quality and beneficial uses. However, rapid revegetation of these areas is expected because they will be restored to pre-construction elevations and contours, and treated with erosion control blankets, certified weed-free straw rolls, mulch and hydroseeding with local vegetation types.

2.2 Beneficial Uses

The San Francisco Bay Basin Water Quality Control Plan (Basin Plan) defines the beneficial uses of waters of the State. The Project will impact Dark Gulch Creek, which is a tributary to Pescadero Creek. The following beneficial uses are assigned to Pescadero Creek in the Basin Plan: cold freshwater habitat, fish migration, preservation of rare and endangered species, warm freshwater habitat, wildlife habitat, water contact recreation, and noncontact water recreation. By the Basin Plan's tributary rule, Dark Gulch Creek is assumed to have the same beneficial uses as Pescadero Creek. The Project is anticipated to provide an ecological uplift to Pescadero Creek and its beneficial uses by reducing sediment discharges.

3. Mitigation

The Project will remove eroding fill and reconstruct a stable crossing, with drainage features that have been designed to provide long-term function and greater hydraulic capacity. The Project will decrease sediment delivery to the watershed, which is anticipated to result in an ecological uplift. Therefore, the Project is consistent with the Sediment TMDL. Temporarily disturbed areas will be re-vegetated and monitored following the Project's completion to ensure they are restored to their pre-Project condition and are not permanently impacted (see Conditions 22 and 23). No further required at this time.

4. California EcoAtlas

Regional, state, and national studies have determined that tracking of mitigation and restoration projects must be improved to better assess the performance of these projects, following monitoring periods that last several years. To effectively carry out the State's Wetlands Conservation Policy of no net loss to wetlands, the State needs to closely track both losses and successes of mitigation and restoration projects affecting wetlands and other waters of the State. The Water Board must also track project performance in Bay Area creeks subject to routine repair and maintenance activities, such as recurring instabilities. Therefore, we adopted the digital interactive mapping tool called *EcoAtlas*.^[1] *EcoAtlas* is a web-based tool that integrates maps, project plans, site conditions, restoration efforts, and other elements on a project-by-project basis based on data inputs. Accordingly, we require the Permittee to upload their Project information to *EcoAtlas* with the *Project Tracker* tool at https://ptrack.ecoatlas.org (see Condition 14). The San Francisco Estuary Institute developed *EcoAtlas* and maintains detailed instructions for *Project Tracker* on its website at https://ptrack.ecoatlas.org/instructions.

^[1] Source: California Wetlands Monitoring Workgroup (CWMW). EcoAtlas. Accessed March 12, 2019. <u>https://www.ecoatlas.org</u>. CWMW includes SFEI, State Board, U.S. EPA-Region IX, and other agencies with similar goals to track effects of projects in wetlands and other aquatic habitats.

5. CEQA Compliance

The Permittee, as lead agency, evaluated the Project's potentially significant environmental impacts in accordance with the California Environmental Quality Act (CEQA) and determined the Project was categorically exempt pursuant to California Code of Regulations Title 14 (14 CCR), section 15333, *Small Habitat Restoration Projects* and section 15302, *Replacement or Reconstruction*. Accordingly, the Permittee filed a Notice of Exemption (NOE) for the Project with the County Clerk of San Mateo County on April 11, 2019 (State Clearinghouse No. 2019048284). The Water Board, as a responsible agency under CEQA, concurs that the categorical exemption is appropriate.

6. Conditions

I, Michael Montgomery, Executive Officer, do hereby issue this Order certifying that any discharge from the proposed Project will comply with the applicable provisions of sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act, and with other applicable requirements of State law. This discharge is also regulated under State Water Resources Control Board Order No. 2003-0017-DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality Certification," which requires compliance with all conditions of this Order, including the following:

6.1 Regulatory Compliance and Work Windows

- 1. <u>Design Conformance</u>. The Project work shall be constructed in conformance with the design plans attached to this Certification and Order (Att. A) and as described in the Application materials and herein. Any changes to these plans that may impact waters of the State must be accepted by the Executive Officer before they are implemented. To request Executive Officer acceptance, the Permittee shall submit the proposed revisions, clearly marked and described, to the Water Board staffer listed on the cover page of this Order. The Permittee shall not implement the proposed revisions until notified that they have been accepted by the Executive Officer;
- <u>Corps Permit Compliance</u>. The Permittee shall adhere to the conditions of the Project's CWA Section 404 NWP No. 14 (*Linear Transportation Projects*) (Corps File No. 2018-00181S), issued by the Corps;
- 3. <u>USFWS Permit Compliance</u>. The Permittee shall implement any best management practices required by U.S. Fish and Wildlife Service (USFWS) to avoid and minimize impacts to special-status species. If USFWS issues a Biological Opinion (BO), the Permittee adhere to the Terms and Conditions and the Reasonable and Prudent Measures therein;
- 4. <u>NMFS Permit Compliance</u>. The Permittee shall adhere to shall adhere to the Terms and Conditions and the Reasonable and Prudent Measures in the BO, issued by the National Marine Fisheries Service (NMFS);

- 5. <u>CDFW Compliance</u>. The Permittee shall adhere to all conditions imposed by CDFW in the Streambed Alteration Agreement (SAA) issued for the Project;
- 6. <u>Special Status Species</u>. This Certification does not allow for the take, or incidental take, of any special status species. The Permittee shall use the appropriate protocols, as approved by USFWS, and NMFS (see Conditions 3 and 4) to ensure that Project activities do not impact the Beneficial Use of the Preservation of Rare and Endangered Species;
- 7. <u>Work Window</u>. Construction in waters of the State is restricted to the work window specified in the USFWS BO and NMFS BO, or to the end of any extension granted by USFWS, NMFS, and the Water Board. If any construction activities in waters of the State will occur after October 15, the Permittee shall submit a winterization plan to the Executive Officer for review and acceptance prior to initiating those activities (see Condition 10);
- 8. <u>Work Extension</u>. If the Permittee needs more time to complete the authorized activity, the work period may be extended on a day-to-day basis by the Executive Officer. To request an extension, the Permittee shall contact Setenay Frucht at (510) 622-2388 or by email to <u>Setenay.Frucht@waterboards.ca.gov</u> and Tahsa Sturgis, Water Resource Control Engineer, at (510) 622-2316 or by email to <u>Tahsa.Sturgis@waterboards.ca.gov</u>. The Permittee shall also receive authorization from the NMFS, USFWS, and CDFW to extend the work period, as required by those agencies;
- 9. <u>No Precipitation Forecast</u>. Excavation for and placement of fill shall not begin unless a no precipitation forecast is obtained covering the entire construction phase for the Project sites to be worked on and the time necessary to implement erosion control measures (see Condition 7). This forecast shall be documented by the Permittee upon request by Water Board staff;
- 10. <u>Precipitation and Construction Planning</u>. Precipitation forecasts shall be considered when planning construction activities. The Permittee shall monitor the 72-hour forecast from the National Weather Service at http://www.nws.noaa.gov. When there is a forecast of more than 40% chance of rain, or at the onset of unanticipated precipitation, the Permittee shall remove all equipment from waters of the State, implement erosion and sediment control measures (e.g., jute, straw, coconut fiber erosion control fabric, coir logs, straw), and cease all Project activities. If any construction activities will occur after October 15, a Winterization Plan shall be submitted to the Executive Officer for review and acceptance and contain, but not be limited to, the following:
 - a) <u>Activities and Timeline Description</u>—for any proposed activity that will begin or end after October 1, the activity and its respective construction timeline, from start to finish, shall be described in detail.

b) <u>Erosion Control Measures</u>—all erosion control measures shall be described in detail, including, but not limited to, the type of erosion control measure and its material, implementation timeline, and best management practices to be used during and after implementation;

6.2 General Construction

- 11. **Discharge Prohibition.** No unauthorized construction-related materials or wastes shall be allowed to enter into or be placed where they may be washed by rainfall or runoff into waters of the State. When construction is completed, any excess material shall be removed from the work area and any areas adjacent to the work area where such material may be discharged to waters of the State;
- 12. <u>Equipment Maintenance Prohibition</u>. No fueling, cleaning, or maintenance of vehicles or equipment shall take place within waters of the State, or within any areas where an accidental discharge to waters of the State may occur; and construction materials and heavy equipment must be stored outside of waters of the State. When work within waters of the State is necessary, best management practices shall be implemented to prevent accidental discharges;
- 13. <u>Beneficial Use Impacts</u>. All work performed within waters of the State shall be completed in a manner that minimizes impacts to beneficial uses and habitat; measures shall be employed to minimize disturbances along waters of the State that will adversely impact the water quality of waters of the State. Disturbance or removal of vegetation shall not exceed the minimum necessary to complete Project implementation;

6.3 Pre-Construction Reporting and Other Requirements

- 14. <u>EcoAtlas Form</u>. The Permittee shall input Project information into *EcoAtlas* no later than 14 days from this Certification's issuance date, consistent with Section 4 herein. The Project information shall be added to the *Project Tracker* tool in *EcoAtlas* online at <u>https://ptrack.ecoatlas.org</u>. Instructions for adding information to *EcoAtlas* are available at <u>https://ptrack.ecoatlas.org/instructions</u>, or by contacting the Water Board staffer listed on the cover page of this Certification;
- 15. <u>Construction Stormwater Management General Permit</u>. The Permittee shall obtain coverage under the Statewide NPDES General Permit for Discharges of Stormwater Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ, as amended, and as may be subsequently reissued;
- 16. **Dewatering Plan.** The Permittee shall submit, acceptable to the Executive Officer, a dewatering plan, including the area to be dewatered, timing of dewatering, and method of dewatering to be implemented. The dewatering plan shall be submitted no later than 14 days prior to the start of any construction event that requires temporary dewatering of waters of the State. The dewatering plan shall include water quality monitoring and reporting sufficient to ensure all dewatering discharges and bypassed flows meet applicable receiving water limits and water quality objectives in the Basin

Plan. All temporary dewatering methods shall be designed to have the minimum necessary impacts to waters of the State to isolate the immediate work area. All dewatering methods shall be installed such that natural flow is maintained upstream and downstream of the work area. Any temporary dams or diversions shall be installed such that the diversion does not cause sedimentation, siltation, or erosion upstream or downstream of the work area. All dewatering methods shall be removed immediately upon completion of Project activities;

- 17. <u>Commencement of Construction</u>. The Permittee shall submit a Commencement of Construction Report acceptable to the Executive Officer. The Commencement of Construction Report shall be submitted no later than seven days prior to start of initial ground disturbance activities and notify the Water Board at least 48 hours prior to initiating in-water work and any stream diversions. Notification may be via telephone, email, delivered written notice, or other verifiable means. The Commencement of Construction shall be submitted in same timeframe specified herein for multiple construction seasons, if necessary;
- 18. <u>Photo-Documentation Points</u>. Prior to the start of construction, the Permittee shall establish a minimum of 6 photo-documentation points at the Project sites where Project related impacts to waters of the State occur. The points shall be used to track the Project's construction impacts, the creek's pre- and post-construction condition, revegetation success, and overall Project success. The Permittee shall prepare a site map with the photo-documentation points clearly marked. Prior to and following construction, the Permittee shall photographically document the creek's immediate pre- and post-construction condition, both upstream and downstream from the culvert's inlet and outlet. At least one photo-documentation point shall be established at the culvert inlet to observe sediment or debris accumulation during the monitoring period. At least one photo-documentation point shall be established at the culvert outlet to observe erosion potential downstream during the monitoring period. These post-construction photographs and map shall be submitted, along with the as-built and construction completion reports (See Conditions 19 and 20, respectively);

6.4 Active Construction and Post-Construction Reporting Requirements

- 19. <u>As-Built Report</u>. The Permittee shall prepare an as-built report acceptable to the Executive Officer. The as-built report shall be submitted to the Water Board no later than 60 days after completing Project construction activities, including revegetation, in any work season. The report shall include a description of the areas of actual disturbance during Project construction and the photographs and map specified in Condition 18. The report shall clearly identify and illustrate the Project site, the locations of permanent and temporary impacts, and the quantities of the planted species at each planting location. The as-built report shall include the 100 percent construction plans marked with the contractor's field notes that clearly depict any deviations made during construction from the designs reviewed by the Water Board;
- 20. <u>Project Construction Completion Report</u>. The Permittee shall submit a Notice of Project Construction Completion (Completion Notice) acceptable to the Executive

Officer to notify the Water Board that the Project has been completed. The Completion Notice shall be submitted to the Water Board no later than 60 days after completing Project construction activities. The Completion Notice shall include the as-built report (see Condition 19), the post-construction photographs (see Condition 19), the date of the first Project-related disturbance of waters of the State occurred, CIWQS Place ID 857175, and the date construction was completed. The Completion Notice shall be sent via email to <u>RB2-401Reports@waterboards.ca.gov</u>, and by mail to the attention of 401 Certifications Reports (see address on the letterhead);

21. <u>Annual Project Status</u>. The Permittee shall submit an Annual Project Status Report acceptable to the Executive Officer. The Annual Project Status report shall be submitted each year by January 31 until the Project is completed, commencing the calendar year after this Certification's issuance. The report shall reference CIWQS Place ID 857175 and state whether Project construction activities have been initiated or delayed. The Annual Project Status Report shall continue until a Notice of Project Construction Completion is received (see Condition 20);

6.5 Mitigation and Monitoring Requirements

- 22. Monitoring Period. The Permittee shall monitor the temporarily impacted areas for a minimum a 3-year period to demonstrate the Project's impacts have been sufficiently mitigated and to determine if any adverse direct or indirect impacts to beneficial uses occur following Project completion. The annual monitoring shall assess the upstream and downstream conditions at the Project sites as well as the overall Project success. If any signs of instability are observed at the sites, including upstream and downstream of the culvert, the Permittee shall document these observations in the annual reports and make recommendations for remedial actions, as necessary. If the monitoring indicates the temporarily impacted areas may not or shall not be restored to their pre-Project condition or better, the Permittee shall document these observations in the annual reports and make remedial action recommendations, as necessary. If any adverse impacts to waters of the State are observed during the monitoring period, including, but not limited to, inadequate restoration of the temporarily impacted areas, additional mitigation may be required by the Executive Officer, including, but not limited to, extension of the monitoring period (See Condition 20);
- 23. <u>Annual Monitoring Reports</u>. The Permittee shall submit annual monitoring reports, acceptable to the Executive Officer, by January 31 following each monitoring year. The first monitoring year commences in the calendar year after completing the Project. At the time of this Certification and Order, the Project completion is anticipated in 2020. Therefore, the first annual monitoring report shall be due on January 31, 2022, unless the Project is completed at a different time. Annual reports shall include, but not be limited to, the following:
 - a) <u>*Photographs*</u>—photographs taken during the monitoring year from the photodocumentation points specified in Condition 18. The photographs shall include

captions with the creek's direction of flow (with respect to the photograph's point of view), photo-documentation point location, and date photographed.

- b) <u>Environmental Drivers</u>—each monitoring report shall describe the precipitation events that occurred at the site during the monitoring year. The effects of the Project and environmental drivers (e.g., precipitation events, drought events) on site conditions shall be described in reference to the monitoring year's precipitation events.
- c) <u>Cumulative Monitoring</u>—each annual report shall summarize all data from previous monitoring reports in addition to the current year's monitoring data, including the need for, and implementation of, any remedial actions. Monitoring data may include all relevant qualitative and quantitative data necessary to determine whether the site is stability and temporarily impacted areas are revegetating as anticipated. The final monitoring report shall document the overall effect of the Project and whether the temporarily impacted areas were restored to their pre-Project condition.

The overall Project and mitigation success shall be determined by, and acceptable to, the Executive Officer. If monitoring indicates that beneficial uses have been, or have the potential to be, adversely affected, the Permittee shall, in consultation with the appropriate agencies, identify remedial measures to be undertaken, including compensatory mitigation and extension of the monitoring and reporting period until the final success criteria are met. If a Corrective Action Plan is required and approved by the Executive Officer, the Permittee shall implement all remedial measures identified therein. Annual monitoring reports shall reference CIWQS Place ID 857175 and shall be submitted via email to <u>RB2-401Reports@waterboards.ca.gov</u>, and by mail to the attention of 401 Certifications Reports (see the address on the letterhead);

6.6 Administrative and General Compliance

- 24. <u>Site Access</u>. The Permittee shall grant Water Board staff or an authorized representative, upon presentation of credentials and other documents as may be required by law, permission to: (1) enter upon the Project site or compensatory mitigation site(s) where a regulated facility or activity is located or conducted, or where records are kept; (2) have access to and copy any records that are kept and are relevant to the Project or the requirements of this Order; (3) inspect any facilities, equipment, practices, or operations regulated or required under this Order; and (4) sample or monitor for the purposes of assuring Order compliance;
- 25. <u>Certification and Order at Site</u>. A copy of this Order shall be provided to any consultants, contractors, and subcontractors working on the Project. Copies of this Order shall remain at the Project site for the duration of this Order. The Permittee shall be responsible for work conducted by its consultants, contractors, and any subcontractors;

- 26. <u>Ownership Change Notification</u>. The Permittee shall provide a signed and dated notification to the Water Board of any change in ownership or interest in ownership of any Project area at least 10 days prior to the transfer of ownership. The purchaser shall also submit a written request to the Water Board to be named as the permittee in an amended order. Until this Order has been modified to name the purchaser as the permittee, the Permittee shall continue to be responsible for all requirements set forth in this Order;
- 27. <u>Water Quality Violations Notification</u>. The Permittee shall notify the Water Board of any violations of water quality standards, along with the cause of such violations, as soon as practicable (ideally within 24 hours). Notification may be via telephone, email, delivered written notice, or other verifiable means;
- 28. <u>Discharge Change Notification</u>. In accordance with Water Code section 13260, the Permittee shall file with the Water Board a report of any material change or proposed change in the ownership, character, location, or quantity of this waste discharge. Any proposed material change in operation shall be reported to the Executive Officer at least 30 days in advance of the proposed implementation of any change. Changes to discharges include, but are not be limited to, significant new soil disturbances, proposed expansions of development, or any change in drainage characteristics at the Project site. For the purpose of this Order, this includes any proposed change in the boundaries of the area of wetland/waters of the State to be impacted;
- 29. <u>Submittal of Reports</u>. Where this Certification requires submittal of reports, including plans, reports, or related information, the submitted reports shall be acceptable to the Executive Officer;
- Individual Waste Discharge Requirements. Should new information come to our attention that indicates a water quality problem with this Project, the Water Board may issue Waste Discharge Requirements pursuant to Water Code sections 13263 and/or 13377 and 23 CCR section 3857;
- 31. <u>Expiration</u>. This Order shall continue to have full force and effect regardless of the expiration or revocation of any federal license or permit issued for the Project;

6.7 Standard Conditions

- 32. <u>Certification and Order Modification</u>. This Order is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Water Code sections 13320 and 13330 and 23 CCR section 3867;
- 33. <u>Hvdroelectric Facilities</u>. This Order does not apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license, unless the pertinent certification application was filed pursuant to 23 CCR subsection 3855(b) and that application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought;

34. <u>Application Fee</u>. This Certification and Order is conditioned upon full payment of the required fee, including annual fees, as set forth in 23 CCR section 3833. The required \$437 Application fee, calculated using the 2018/2019 Water Quality Certification Dredge and Fill Application Fee Calculator, Category D – *Ecological Restoration and Enhancement Projects*, was received by the Water Board on March 20, 2019;

6.8 Annual Fees

35. <u>Annual Fee</u>. In accordance with 23 CCR section 2200, the Permittee shall pay an annual fee to the Water Board each fiscal year (July 1 – June 30) until Project construction activities are completed and an acceptable Notice of Project Construction Completion is received by the Water Board. If monitoring is required, the Permittee shall pay an annual fee to the Water Board until monitoring activities are completed and an acceptable Notice of Mitigation Monitoring Completion is received by the Water Board (Note: the Annual Post Discharge Monitoring Fee may be changed by the State Water Board; at the time of Certification it was \$260 per year for Category D projects).

This Order applies to the Project as proposed in the application materials and designs referenced above in the conditions of Certification. Be advised that failure to implement the Project in conformance with this Order is a violation of this Certification. Any violation of Certification conditions is a violation of State law and subject to administrative civil liability pursuant to Water Code sections 13350, 13385, or 13399.2. Failure to meet any condition of this Certification may subject the Permittee to civil liability imposed by the Water Board to a maximum of \$25,000 per day of violation and/or \$25 for each gallon of waste discharged in violation of this action above 1000 gallons. Any requirement for a report made as a condition to this Certification (e.g., conditions 19-21 and 26-28) is a formal requirement pursuant to Water Code sections 13267 and 13383, and failure or refusal to provide, or falsification of such required report, is subject to civil liability as described in Water Code section 13268 and criminal liability under 13387. The burden, including costs, of these reports bears a reasonable relationship to the need for the report and the benefits to be obtained. Should new information come to our attention that indicates a water quality problem with this Project, the Water Board may issue Waste Discharge Requirements.

If you have any questions concerning this Order, please contact Tahsa Sturgis or Setenay Frucht of my staff at (510) 622-2316 or <u>Tahsa.Sturgis@waterboards.ca.gov</u>, and (510) 622-2388 or <u>Setenay.Frucht@waterboards.ca.gov</u>. All future correspondence regarding this Project should reference the CIWQS Place ID No. indicated at the top of this letter.

Sincerely,

for Michael Montgomery Executive Officer

Attachment A: Project Maps and Engineering Design Plans

 cc: SWRCB, DWQ, <u>stateboard401@waterboards.ca.gov</u> Water Board: Victor Aelion, <u>victor.aelion@waterboards.ca.gov</u> Leslie Ferguson, <u>leslie.ferguson@waterboarda.ca.gov</u> Liz Heller, <u>elizabeth.heller@waterboards.ca.gov</u>
 U.S. EPA, Region IX, Jennifer Siu, <u>siu.jennifer@epa.gov</u>
 Corps, SF Regulatory Branch: Katerina Galacatos, <u>katerina.galacatos@usace.army.mil</u> Greg Brown, <u>gregory.g.brown@usace.army.mil</u>
 San Mateo RCD, Kellyx Nelson, kellyx@sanmateorcd.org

Attachment A:

Project Maps and Engineering Design Plans

Dark Gulch Creek Crossing Stabilization Project

San Mateo County

October 2019





DARK GULCH CROSSING STABILIZATION PROJECT

PESCADERO CREEK COUNTY PARK SAN MATEO COUNTY, CA APN 084-13-011 and 084-13-012

REGIONAL MAP N.T.S. (BING)



ABBREVIATIONS

AB	AGGREGATE BASE ROCK
ALD	ALDER
CMP	CORRUGATED METAL PIPE
CTR	CENTER
CONC	CONCRETE
DRC	DITCH RELIEF CULVERT
EL	ELEVATION
EST	ESTIMATE
FIR	FIR
FL	FLOW LINE
FT	FOOT
G OR GND	GROUND
IN	INCH
INV	INVERT
LWD	LARGE WOODY DEBRIS
MAD	MADRONE
NTS	NOT TO SCALE
OAK	OAK
RD	ROLLING DIP
RED	ROCK ENERGY DISSIPATOR
RWD	REDWOOD
RSP	ROCK SLOPE PROTECTION
TOC	TOP OF CUT
IUE	IUE UF SLUPE
SIA	
3PN	SPIKE

C7 SHEET INDEX

HEET	TITLE
C1	TITLE SHEET AND PROJECT DESCRIPTION
C2	ACCESS MAP
C3	OVERVIEW AND STOCKPILE PLAN
C4	EXISTING CONDITIONS
C5	EXCAVATION PLAN
C6	SPOIL PLAN
C7	SPOIL AREA SECTIONS
C8	FINAL GRADING PLAN
C9	SECTIONS 1
C10	SECTIONS 2
C11	EROSION CONTROL AND PLANTING PLAN
C12	NOTES A
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C14	NOTES C
C15	TYPICAL SPECIFICATIONS
C16	TYPICAL SPECIFICATIONS
C17	TYPICAL SPECIFICATIONS

PROJECT DESCRIPTION/SCOPE

DARK GULCH CROSSING UPGRADE

DOWNSTREAM SIDES OF THE CROSSING WERE PARTIALLY SUPPORTED WITH LARGE (24 INCH TO 48 INCH) DIAMETER REDWOOD CRIB LOGS STACKED 15 TO 25 FEET HIGH LIKE A LOG CABIN. THE TIE BACK LOGS TO THE CRIB WALL EXTEND OVER 20 FEET INTO THE FILL EMBANKMENT. A WOOD BOX CULVERT LIKELY BUILT AT THE BOTTOM OF THE FILL CONVEYED STREAM FLOW THROUGH THE CROSSING, THOUGH EVIDENCE OF THIS STRUCTURE IS NO LONGER VISIBLE. THE CROSSING IS ACTIVELY FAILING RESULTING IN FAILURES ON BOTH SIDES OF THE FILL EMBANKMENT AND THE FORMATION OF CONE SHAPED "SINKHOLES" ON THE GROUND SURFACE.

STOCKPILED FOR FUTURE PARK USE. EXCESS SPOILS WILL BE STOCKPILED ON LARGE LANDING WEST OF THE CROSSING.

GRADING VOLUMES (APPROX.)		
CUT	37,360	CY (EST
ENGINEERED FILL	22,725	CY
ONSITE SPREAD	14,635	CY
IMPORT ROCK	200	CY
GRADED AREA		
DARK GULCH CROSSING	<1.9	ACRES
FILL STOCKPILE AREA	1.2	ACRES (

VICINITY MAP



CONTACTS

LAND OWNER

SAN MATEO COUNTY PARKS DEPARTMENT 455 COUNTY CENTER, 4TH FLOOR REDWOOD CITY, CA 94063-1646 650 599-1375 CONTACT: RAMONA ARECHIGA

CLIENT

SAN MATEO COUNTY RESOURCE CONSERVATION DIST 625 MIRAMONTES STREET SUITE 103 HALF MOON BAY, CA 94019 650 712 7765 CONTACT: SARA POLGAR

ENGINEERING GEOLOGIST

TIMOTHY C BEST, CEG 1002 COLUMBIA STREET SANTA CRUZ, CA 95060 831 425-5832 (831) 425-5832 (831) 332 7791 - CELL CONTACT: TIM BEST

GEOTECHNICAL ENGINEER

HARO, KASUNICH AND ASSOCIATES 116 EAST LAKE AVE WATSONVILLE, CA 95076 (831) 722-4175 (831) 247-5466 CELL **CONTACT: JOHN KÁSUNICH**



















GENERAL NOTES

TREES LESS THAN 32 INCHES DBH WITHIN THE SPOIL RETENTION AREA AND STAGING AREA SHALL BE CUT AND REMOVED. CUT LOGS AND CHIPPED BRANCHES MAY BE STOCKPILED ONSITE IN AN APPROVED LOCATION.

SPOILS SHALL BE PLACED PER STANDARD NOTES.





















1) GENERAL NOTES

a) <u>DEFINITIONS</u>

-) The "RCD" shall be San Mateo County Resource Conservation District.
-) The "PARKS" shall be San Mateo County Parks
- ii) The ENGINEERING GEOLOGIST (CEG) shall be Timothy C. Best.
- iv) The "GEOTECHNICAL ENGINEER" shall be Haro, Kasunich and Associates, Inc.
- v) The "CONTRACTOR" shall be or an independent CONTRACTOR selected by the RCD and/or PARKS to perform the work described herein.
- vi) On these plans "ENGINEER" refers to "ENGINEERING GEOLOGIST". The first point of contact for questions regarding these plans shall be the ENGINEER (Timothy C. Best).

b) <u>GENERAL</u>

- i) The CONTRACTOR shall be responsible for completion of all items shown on the plans and specifications and shall be responsible for any deviation from these plans and associated risk and expense.
- ii) All materials and workmanship shall conform to the project documents and applicable permit requirements.
- iii) The CONTRACTOR shall be responsible for coordinating the project documents with conditions found at the site and shall verify existing grades, elevations and conditions prior to commencing work. Any discrepancies shall be reported to the CEG and shall be resolved before proceeding with the work. Any deviation, substitution or alteration to the bridge layout shall be subject to review by the CEG.
- v) The CONTRACTOR shall assume all responsibility for location and avoidance or repair of all utilities, including, but not limited to water lines. CONTRACTOR shall verify location of all utilities whether shown on the drawings or not. If the CONTRACTOR fails to adequately protect the utilities, any resulting damage shall be repaired at CONTRACTOR'S cost.
- v) The CONTRACTOR shall provide the CEG, GEOTECHNICAL ENGINEER, RCD, and PARKS with the name and telephone number of the responsible person to contact, with regard to this project, 24 hours a day.
- vi) The CONTRACTOR shall be responsible for following any requirements of the permitting agencies including California Department of Fish and Wildlife 1600 agreement requirements.
- vii) All work and materials shall conform to project documents, applicable requirements of 2016 edition of the California Building Standards Code, and applicable San Mateo County ordnances, codes, and requirements.
- viii) All work shall be in conformance with applicable Occupation Safety and Health Administration (OSHA) standards as set for by the Federal Department of Labor and/or the State of California
- ix) Any discrepancies between the permits and plans shall be brought to the attention of the CEG prior to construction to enable the CEG to address the need for plan modifications.
- x) The CONTRACTOR shall keep himself fully informed of all applicable codes, laws, ordinances and regulations of any jurisdiction or authority, and shall adhere strictly thereto. Compliance with all laws, ordinances and regulations of Federal, State, County and Local agencies shall take precedence over all other Contract documents.
- xi) The Contractor, and any subcontractor, is required to notify U.S.A. forty-eight hours in advance of performing excavation work, by calling the toll free number (800) 642-2444.
- xii) The engineering geologic report prepared by Timothy C. Best and geotechnical report prepared by Haro, Kasunich and Associates shall be considered part of the plans.

c) EXAMINATION OF JOB SITE, PLANS AND SPECIFICATIONS

- i) The documents indicate general and typical details of construction.
- ii) The CONTRACTOR shall examine carefully the site of work and the Plans and Specifications. The submission of a bid shall be conclusive evidence that the CONTRACTOR has investigated and is satisfied as to the conditions to be encountered, as to the character, quality, and scope of work to be performed, the quantities of materials to be furnished and as to the requirements of this Investigation and the Plans and Specifications.
- iii) The CONTRACTOR shall recognize that the plans used for the drawings of the work may differ from the actual physical site. Dimensions are approximate. Before proceeding with the work, it shall be the Contractor's responsibility to check the site in relation to the drawings and specifications. Report any discrepancies to the Owner and the engineering geologist.
- iv) The CONTRACTOR must attend a pre-bid meeting with the CEG prior to submitting a proposal to complete the proposed work. The CONTRACTOR may be required to attend a pre-construction meeting with the CEG prior to the commencement of construction. The purposes of these meetings are so the CONTRACTOR may ask questions concerning the work and to make sure the CONTRACTOR understands the scope of work, permit conditions and environmental constraints.
- At all times during project construction activities, copies of the approved final plans, copies of permits, and a copy of this report shall be maintained at the construction job site (where such copies shall be available for public review) and all persons involved with the construction shall be briefed on the content and meaning of each prior to commencement of construction

2) MOBILIZATION, STAGING AND ACCESS

a) MOBILIZATION

i) Perform mobilization and demobilization activities in accordance with the Plans, and as specified.

b) <u>ACCESS</u>

- i) Impacts to the access route must be minimized and disturbance along the access route must be restored to pre-construction conditions upon project completion to the satisfaction of the CEG.
- ii) The CONTRACTOR shall carefully preserve the surrounding property by confining operations within the limits of work. Construction work or equipment operations shall not be conducted outside the designated work area boundary without approval of the CEG.

c) STAGING

- Construction staging areas will be restricted to existing roads or other areas as shown on Plans and where permitted by Parks representative. Alternative staging areas may be allowed pending review by the CEG prior to commencement of work. Grading will not be permitted to create enlarged staging areas. All disturbed and damaged areas must be repaired by CONTRACTOR to the satisfaction of the CEG.
- ii) No area within the contract limits is available for the exclusive use of CONTRACTOR. Use of CONTRACTOR'S work areas and any mobilization areas shall be at CONTRACTOR'S own risk.

d) FENCING (CONSTRUCTION AND TREE PROTECTION)

- i) CONTRACTOR shall install and maintain temporary fencing as required for safety during construction so as to discourage public access into construction areas. Before start of work, CONTRACTOR shall install
- ii) CONSTRUCTION FENCING
 - (1) CONTRACTOR shall install temporary construction barrier fencing, silt fencing, and combined silt/construction barrier fencing as shown on plans and to the satisfaction of the CEG. This fence shall be installed prior to the start of clearing and grubbing operations, and
- iii) TREE PROTECTION FENCING
 - (1) CONTRACTOR shall install tree protection fencing as shown on plans and as approved by the CEG.
- iv) Upon completion of project, CONTRACTOR shall remove temporary fences and they shall become the property of CONTRACTOR and shall be disposed of by the CONTRACTOR

e) CONSTRUCTION AREA SIGNS

- i) Construction area signs shall be furnished, installed, maintained, and removed by the CONTRACTOR when no longer required. The locations of the required signs TBD.
- ii) Construction signs shall have a minimum dimension of 2 ft x 2 ft (min) and consist of plywood bolted to two signposts, furnished and installed by CONTRACTOR on all trails leading to the work area. Project signs shall be installed plumb and level. Letter and numbers shall be black on a white background. The sign information shall be as shown below:

KEEP OUT - DO NOT ENTER CONSTRUCTION AREA San Mateo County Parks Expected Completion Date:

iii) All construction area signs shall be installed prior to start of construction and maintained in place for the duration of the project by CONTRACTOR. Signs shall be repaired or replaced at no cost to the MCOSD, if damaged or stolen. CONTRACTOR shall remove the signs and posts at the completion of the project and with prior approval of CEG

f) UNDERGROUND UTILITIES

i) CONTRACTOR shall assume all responsibility for location and avoidance or repair of all utilities, including, but not limited to water lines. CONTRACTOR shall verify location of all utilities whether shown on the drawings or not. If the CONTRACTOR fails to adequately protect the utilities, any resulting damage shall be repaired at contractor's cost.

g) <u>HOUSEKEEPING</u>

i) The construction site shall maintain good construction site housekeeping controls and procedures (e.g., clean up all leaks, drips, and other spills immediately; keep materials covered and out of the rain (including covering exposed piles of soil and wastes); dispose of all wastes properly, place trash receptacles on site for that purpose, cover open trash receptacles during wet weather, remove all construction debris from the site. The CONTRACTOR is responsible to maintain all vehicles and equipment and to inspect them frequently for leaks.

h) HAZARDOUS MATERIALS CONTROL AND SPILL PREVENTION PLAN

- i) CONTRACTOR shall be responsible for hazardous materials control and spill prevention
- ii) CONTRACTOR shall provide staging and storage areas for equipment, as required to contain contaminants away from watercourses. Provide a contained, locked storage facility for fuels, lubricants, construction chemicals and other hazardous materials and supplies stored at site. Provide a lined pit for concrete washdown, located where spills or overflow cannot enter nearby watercourses or storm drains. The pit shall be located a minimum of 75 feet from any flowing watercourse.
- iii) CONTRACTOR shall clean and maintain equipment to prevent any leakage of fuel and lubricants. Establish a designated equipment refueling area. All fueling and maintenance of vehicles and other equipment and staging area shall occur at least 75 feet from any riparian habitat or water body.
- iv) Isolate work areas during in-water construction activities by using oil containment booms. Maintain a supply of oil booms, sorbent pads and other supplies to contain and clean spills.
- v) Clean up any spills on a dirt area by digging up and properly disposing of contaminated soil at an appropriate facility

) <u>DEMOBILIZATION</u>

 Upon completion of construction of the crossings the access route and staging areas shall be restored to their original condition to approval of the CEG and PARKS.



3) CLEARING AND GRUBBING

- a) Vegetation shall be cleared and grubbed only within the grading area to the satisfaction of CEG. Care shall be made to avoid damage to trees outside the work area.
- b) Clearing and grubbing shall include the removal of all vegetation and trees (less than 6 inches DBH) and objectionable material as needed in order to perform the work. Trees greater than 6 inches DBH within the excavation area shall be removed only if indicated on the plans or with the written authorization of the CEG.
- c) Where trees are approved by the PARKS representative for removal, trees shall be felled in such a manner as to avoid damage to trees left standing, to the existing structures and installations, as well as with due regard for the safety of employees and others. Stumps shall be removed to minimum depth of 4 feet, or to a point where remaining roots are less than 1.5 inches in diameter, whichever depth is greater. Trees located beyond the limits for clearing and grubbing that are not marked for removal, shall be protected from damage, as indicated on the PLANS and as specified.
- d) Except as specified or otherwise indicated on the Plans, all logs, brush, strippings, slash, and other organic debris which are the products of the clearing and grubbing operations shall be disposed of on site at locations to be approved by the CEG.

4) EARTH WORK GRADING

a) <u>GENERAL</u>

- i) The proposed project will require significant grading. The GEOTECHNICAL ENGINEER shall be notified at least four (4) working days prior to any grading or foundation excavating so the work in the field can be coordinated with the grading contractor and arrangements for testing and observation can be made. The recommendations and specifications outlined here are based on the assumption that the GEOTECHNICAL ENGINEER will perform the required testing and observation during grading and construction. It is the owner's responsibility to make the necessary arrangements for these required services.
- ii) The CONTRACTOR will be responsible for the accuracy of all layout work and, if necessary, will retain the services of a licensed surveyor or civil engineer to set elevations, lines and grades for all construction. CONTRACTOR shall be responsible for grade staking, and conformance of finish grades to those shown on the plans.
- iii) Equipment operators and workers are to be skilled in grading operations and are to be supervised by a competent superintendent who is familiar with the nature of the work, these provisions, and all permit conditions.
- iv) In the event that any unusual conditions not covered by the plans and specifications are encountered during grading operation, the CEG shall be immediately contacted for directions. It shall be the CONTRACTOR's responsibility to immediately notify the CEG upon discovery of any field conflicts.
- v) Compaction during inclement weather or wet conditions may hamper compaction efforts and over-excavation may be necessary.
- vi) Where referenced in this report, Percent Relative Compaction and Optimum moisture Content shall be based on ASTM Test Designation D1557.
- vii) After the earthwork operations have been completed and the GEOTECHNICAL ENGINEER has finished his observation of the work, no further earthwork operations shall be performed except with the approval of and under the observation of the GEOTECHNICAL ENGINEER.
- viii) Following grading, exposed bare slopes and soil should be planted or covered as soon as possible with erosion resistant vegetation or erosion control fabric installed in accordance with the manufactures specifications.

b) EXCAVATION / CUTS

- i) In areas to be graded or designated to receive engineered fill, all loose soil, old logs and other unsuitable material must be subexcavated to its full depth. Existing depressions or voids created during site clearing should be backfilled with engineered fill.
- Cleared and subexcavated areas should then be stripped of organic-laden topsoil. Strippings shall be stockpiled in a suitable location on site as approved by the CEG.
- iii) CUTS
- (1) Rock
 - (a) Cut slopes in rock may be inclined at 0.75:1 (H:V) slope for heights up to 20 feet.
 - (b) Cuts shall be approved by the GEOTECHNICAL ENGINEER prior to any grading
- (2) Firm native colluvial soils
 - (a) Natural slopes exposing firm native soil may be temporarily cut no steeper than 0.75:1 for heights of up to 40 feet.
 - (b) The CONTRACTOR shall inform GEOTECHNICAL ENGINEER prior to any grading resulting in any cuts greater that 4 feet and inclined steeper than 1:1
- (3) Fill and loose colluvial soils
- (a) Temporary cuts into fill material and loose soils shall be no steeper than 1:1
- (4) Steeper inclinations of cuts may be acceptable based on site review by CEG and/or GEOTECHNICAL ENGINEER.
- (5) The CONTRACTOR should be aware that slope height, inclination, or excavation depths (including utility trench excavations) should in no case exceed those specified in local, state or federal safety regulations, i.e. OSHA Health and Safety Standards for Excavations, 29 CFR Part 1926 Subpart P, or successor regulations.

c) <u>SEPARATE EXCAVATED SOILS</u>

- i) Separate clean excavated soils from deleterious soils and stumps and vegetation.
- ii) Deleterious soils including topsoil, fat clay soils, organic rich soils, decayed woody debris rich soils, and other material, as identified by the CEG, shall be placed in an approved stable location as shown on plans and as directed by the CEG or PARKS representative.

d) ENGINEER FILL

- i) Exposed base should be scarified at least 6 inches; moisture conditioned and compacted to 80 percent relative compaction. Engineered fill should be placed in thin lifts not exceeding 8 inches in loose thickness; moisture conditioned, and compacted to a minimum of 90 percent relative compaction, up to desired grade.
- ii) During placement and compaction of fill, the moisture content of the materials being placed shall be adjusted and maintained as necessary
- iii) Compacted fill shall be inspected and tested by project GEOTECHNICAL ENGINEER or designee.
- iv) Native, none-organic material may be used in engineered fill. Imported material should consist of a predominantly granular soil conforming to the quality and gradation requirements as follows: The soil should be relatively free of organic material and contain no rocks or clods greater than 6 inches in diameter, with no

more than 15 percent larger than 4 inches. The material should be predominately granu not more than 20 percent passing the #200 sieve.

- If grading is performed in a wet condition, compaction may be difficult, pumping bringing soils shall not be used until reconditioned to conform to specifications outlined here and
- vi) ENGINEERED FILL SLOPES
 - Engineered fill slopes shall be inclined no steeper than 1.5:1 (horizontal to vertical CEG or GEOTECHNICAL ENGINEER.
 - (2) Where shown on plans at the transitions to existing slopes that are steeper gradier
 - (3) Fill embankments situated on slopes between 20% or steeper in gradient should b material.
 - (4) All keys and benches shall be drained as shown on plans and directed by CEG or

e) DELETERIOUS SPOILS/FILL

- i) Spoils not used for engineered fill shall be placed onsite in approved location as shown of
- ii) Areas to receive spoils shall be cleared of vegetation and ripped to a depth of 6 inches.
- iii) Spoils shall be placed a maximum of 5 feet deep with an embankment face inclined no s
- The CONTRACTOR shall be responsible for matching existing surrounding conditions w changes in grades or cross slopes, low spots or hazardous conditions.
- v) Apply erosion control per notes

5) CULVERT PLACEMENT

- a) <u>SIZES, LENGTHS AND ALIGNMENTS</u>
 - i) Culverts type TBD.
 - ii) Culvert size, length and alignment are depicted on plans

b) CULVERT BED

- i) The width of trenches shall permit satisfactory joining and thorough tamping of the backf
- The culvert bed shall be clean and free of large woody debris and large rocks. Unsuitabl and compacted to obtain uniform bed.
- iii) Where rock, hardpan, or other unyielding material is encountered, it shall be removed bel least 2 feet plus the culvert diameter. This material shall be replaced with selected compared to the culvert diameter. This material shall be replaced with selected compared to the culvert diameter. This material shall be replaced with selected compared to the culvert diameter. This material shall be replaced with selected compared to the culvert diameter. This material shall be replaced with selected compared to the culvert diameter. This material shall be replaced with selected compared to the culvert diameter. This material shall be replaced with selected compared to the culvert diameter.
- iv) Culvert trenches must be properly shored and braced during construction or laid back at a final project plans and specifications should direct the attention of the CONTRACTOR to excavations and trenches.

c) LAYING PIPE

- i) Culvert shall be laid in center of trench on uniform grade line. The entire length of pipe sl
- ii) Culverts distorted more than 10% of normal dimension, ruptured, or broken shall be repl
- iii) Culvert shall be joined and anchored per manufacturer's guidelines.
- iv) CONTRACTOR shall secure culvert to avoid separating or migrating downhill during con

d) <u>BACKFILL</u>

- Trenches shall be backfilled with granular-type material and uniformly compacted by mer will be based on the maximum dry density obtained from a laboratory compaction curve in the state of the state o
- e) <u>CULVERT HEAD AND WING WALL</u>
 - i) TBD.

f) ROCK SLOPE PROTECTION (RSP) AND ROCK ENERGY DISSIPATOR

-) ROCK SLOPE PROTECTION (RSP)
 - (1) Rock armor fill embankment to top of culvert as shown on plans
 - (2) Rock shall consist of approved well-graded, sound, durable, angular rock conformi plans.
- (3) Rock shall be keyed minimum 1.5 times diameter into bed and banks unless other
- (4) Rock shall be carefully placed to optimize strength (Caltrans Method A) and form a and chink where voids between rocks are greater than 3 inches

				~	
lar with a plasticity index le	ess than 18, a liquid limit less than 35, an	d		SOLOG	990
water to the surface may as approved by the	occur. If such conditions are encountered		6	BEST, CEG	Santa Cruz, CA 95(31) 425 5830 (fax)
) and not greater than 40 f	eet in height without approval of the proje	ect		DTHY C.	umbia Street, 425 5832 (8
nts, fill slopes may be blen be <u>drained, keyed and beno</u>	ded with natural grades. <u>ched</u> into sandstone bedrock or firm nativ	'e		TIM	1002 Coli (831)
GEOTECHNICAL ENGIN	EER.				
on plans and as approved	by the CEG.				
teeper than 3:1 (35%) unle ith smooth transition in gra	ess otherwise directed or specified. Iding, and shall avoid any abrupt apparer	nt			
				GULCH CROSSING	PARK I COUNTY, CA
ill material. e material shall be replace	d with selected granular drainage materia	al	ROJECT:	DARK (IEMORIAL AN MATEC
elow the culvert grade for a	depth of at least 1 foot and a width of at		<u> </u>		≥ 0
an appropriate angle to pr all CAL OSHA and local s	event sloughing and caving at sidewalls. afety requirements and codes dealing wi	The th			
hall be in contact with the o aced.	culvert bedding.			£	
istruction.				DTFS	
chanical means to not less run in accordance with AS	than 90 percent. The relative compactio TM Test Designation D1557.	n			:
			REVISIONS:	No. Date Description	
ing to Caltrans specificatio	ns. Rock shall be sized as specified on			5	
wise directed by CEG a dense, well-graded mass	of stone with a minimum of voids. Backf	ill	TE: 12/16/2018	DJECT: CRCD-DARK GULCH-77 MMN RY-TR	ECKED: TB
	PRELIMINARY DRAF	T	IAD	SMI SMI	ŝĒ
	65% SUBMITTAL NOT FOR CONSTRUCTION		SHE		R B

- ii) ROCK ENERGY DISSIPATOR (RED)
 - (1) Discharge culverts onto Rock Energy Dissipator as shown on plans and as directed by CEG. Dimension and quantity of road is shown on plans
 - (2) Rock shall consist of approved ½ to 1 ton rock sound, durable, angular rock conforming to Caltrans specifications.
 - (3) Rock shall be keyed into channel bed and banks a minimum of 1.5 times maximum rock diameter; subexcavate channel bed and banks in areas to receive rock
 - (4) Rock shall be carefully placed to optimize strength (Caltrans Method A) and form a dense, well-graded mass of stone with a minimum of voids. Backfill and chink where voids between rocks are greater than 6 inches
 - (5) Where specified or directed place rock over stabilization fabric (Mirifi 180N or approved equal) and backing soils (Caltrans Backing No. 3, 0.75 feet thick)
 - (6) Compact loose soils adjacent to rock riprap

g) TEMPORARY DEWATERING and FLOW BYPASS

- i) If water is flowing during time of construction then Flow Bypass and Dewatering of the site will be required to divert flow around the work area to make the worksite as water-free as possible for the duration of the in-channel work. The Flow Bypass and Dewatering shall result in conditions that allow the required compaction to be achieved and shall prevent sediment laden water that exceeds the effluent limits from entering drainage ways. The full width of the channel from tops of bank shall be dewatered.
- ii) Create a temporary coffer dam just upstream of the excavation area to back up the water and direct it into a 4-6" diameter black plastic pipe. CONTRACTOR shall use gravel bags and plastic sheeting to prevent water leakage at cofferdams and elsewhere as necessary. Gravity feed the water via the pipe around the work area and release back to the channel in a controlled manner (to avoid any erosion). A downstream coffer dam is not required
- iii) Install temporary silt fencing to prevent any sediment from going downstream from the release site.
- iv) It is anticipated that a gravity feed bypass will be feasible and pumping is not anticipated. Nonetheless, the CONTRACTOR will keep on site at all times a pump and flexible pipe to reroute water as necessary. Any pumps used on-site shall be placed on absorbent pads. Spill containment materials and operators trained in spill control procedures will remain on-site.
- v) Normal flows will be restored to the affected stream immediately upon completion of work at project location.

6) DRAINAGE

a) <u>SITE DRAINAGE</u>

- i) Proper drainage is key to this project. Surface drainage provisions are to be installed as depicted on plans and as directed by CEG.
- Control of runoff from the slopes above; control of infiltration and ponding adjacent to the edge of the road; and control of subsurface seepage is critical. Discharge collected water in a way so as not to cause erosion.
- iii) Runoff and discharge must not be allowed to spill over graded slopes. Water should be directed to drain inlets connected to a drainage system that discharges at least 5 feet horizontally beyond the base of the slope, or a storm drain system. Energy dissipaters should be installed at the discharge point beyond the base of the slopes. Do not dissipate near top of a break in slope.
- iv) Never connect subdrains and storm drain lines. Never surcharge one into the other. Both systems should drain independently through discharge.
- v) Trenches should be capped with about 1¹/₂ feet of relatively impermeable soil.

b) ROAD DRAINAGE

- i) Rolling dips, knicks, waterbars and ditch relief culverts shall be as specified on plans.
- ii) Rolling dips may be constructed using approved onsite or imported engineered fill
- iii) Road prism shall be reshaped as necessary to drain to dips and culverts.

7) ROAD AGGREGATE

- a) Portions of road to be rocked are specified on plans
-) The subgrade for the road shall be scarified to a depth of 6 inches, moisture conditioned and compacted to a minimum of 90 percent relative compaction. The subgrade shall be compacted to a minimum of 12 inches beyond (laterally) the edge of the base rocked surface.
- Aggregate baserock shall consist of approved Class II Aggregate Base conforming to the latest Caltrans standards. CONTRACTOR shall submit sample of Aggregate Base prior to purchase and placement.
- d) New aggregate baserock should be compacted to a minimum 4" thickness and to 95 percent relative compaction.

8) EROSION CONTROL and WATER POLLUTION PREVENTION

a) <u>TEMPORARY EROSION CONTROL</u>

- i) During project construction, the CONTRACTOR shall be responsible for implementing appropriate and necessary erosion control measures to minimize storm water runoff from the construction site, pursuant to applicable regulations and permits. The following strategies to ensure that storm water pollution is prevented shall be employed:
 - (1) Minimize erosion and sedimentation during construction.
 - (2) Disturbance of the site should be kept to a minimum to prevent erosion. Unnecessary grading and disturbing of soil shall be avoided.
 - (3) Earthmoving equipment shall be inspected prior to leaving the site and, if necessary, cleaned to prevent sediment transport off-site.
- All temporary erosion and sediment controls shall be in place prior to the commencement of construction as well as at the end of each work day if 30% or greater chance of rainfall exceeding ½ inch in a 24 hour period. The CONTRACTOR shall monitor weather forecasts and take appropriate precautions in advance of storm events.
- (1) At a minimum, silt fences, or equivalent apparatus, shall be installed at the perimeter of the construction site to prevent construction related runoff and/or sediment from entering into the watercourses.

- iii) The CONTRACTOR shall have tools, equipment, and materials to install the erosion cor that operation.
- iv) Temporary Erosion control measures must be maintained during construction. Refer to County Erosion Control Ordinances.

b) PERMANENT EROSION CONTROL

- Newly exposed soils outside of the road running surface greater than 50 square feet (sf) treated in order to reduce the potential for short-term sheet and rill erosion.
 - (1) Seed: Native grass seed mix (to be approved by PARKS). Spread seed mix after a site. Finished grading shall leave tractor cleat marks, preferably perpendicular to sl seed into soil and cover with 1 to 2 inches of straw. Seed may not be applied until leave tractor.
 - (2) Mulch: Native vegetation cleared at work sites shall be stockpiled and re-applied or shall be lopped or tractor crushed to promote good contact with the soil surface. S surfaces
 - (3) Straw: Use only certified weed-free straw; often it is rice straw. Documentation of p that it is one and one half to two inches thick, and coverage exceeds 90% of groun
 - (4) Erosion Control Blanket: Exposed slopes greater than 2H:1V with the exposed slop with approved erosion control blanket (Tensar Rollmax C125BN or equivalent) in a by the CEG or designee. This specification does not apply to exposed slopes that a
 - (5) Straw Roll: Where the exposed slope exceeds 20 lf in downslope direction, install Wattles by California Straw Works or equivalent.

c) EROSION CONTROL TIMING

- i) All erosion control measures shall be implemented by October 15 or prior to inclement we
- ii) The site shall be inspected no more than 14 days after the first rain. If the inspection reve taken or erosion has taken place, the slopes shall be re-seeded and/or repaired. The per individual for inspection and modification of the erosion control devices, as necessary due
- iii) Temporary erosion control measures shall be installed & maintained continuously during

d) EROSION CONTROL MAINTENANCE

 After construction inspect and clean the drainage systems as needed and at least once a winter season and remove any debris that is blocking operation of the drainage system. L remove. Check energy dissipaters for evidence of blockage at the adjacent storm drain p vicinity of the energy dissipaters for evidence of erosion and repair as needed.

9) PLAN REVIEW, CONSTRUCTION OBSERVATION AND TESTING

a) REVIEW, OBSERVATION AND TESTING

- The project CEG and GEOTECHNICAL ENGINEER shall be provided an opportunity to construction meeting to evaluate if recommendations have been properly interpreted.
- ii) The CONTRACTOR shall notify the CEG and GEOTECHNICAL ENGINEER a minimum working days prior to any inspections.
- iii) In addition, the CONTRACTOR shall notify the GEOTECHNICAL ENGINEER at least for so the work in the field can be coordinated with the grading contractor and arrangements this report are based on the assumption that the GEOTECHNICAL ENGINEER will perfor construction. It is the owner's responsibility to make the necessary arrangements for these the second sec
- Regulatory Agencies may require a final grading compliance letter. We can only offer this any grading and excavation operations from the start of construction. We cannot prepare beginning of the grading operation. The CONTRACTOR must be made aware of this and

b) CONSTRUCTION OBSERVATION SCHEDULE

- i) Required observations by the CEG and GEOTECHNICAL ENGINEER include but not lim
 - (1) Limits of grading, excavation and spoil placement
 - (2) Keyways and drains for embankment construction
 - (3) Completed culvert trenches prior to placement of culvert of bedding materials
 - (4) Fill placement and compaction observations
 - (5) Gabion headwall placement
 - (6) Rock slope protection and Rock energy dissipater shape and position
 - (7) Road drainage provisions
 - (8) BMP's including Erosion Control, Diversion, and Dewatering
 - (9) Location of Spoil sites
 - (10) Final

trol measures depicted on the plans, at the job site before beginning construction timeframe constraints and requirements in the San Mateo	MOTHY C. BEST, CEG RING GEOLOGY AND HYDROLOGY Countie Street, Santa Curz, CA 86060 31) 425 5822 (81) 425 9530 (181)
and with less than 80% ground coverage of natural vegetation shall be	T ENGINEE
all grading has been completed, before spreading straw or mulch on the lope. Seed mix should be spread at a rate of 40 lbs/acre. Lightly rake late September or October to promote successful germination.	
In the disturbed ground surface as directed by the CEG. Spread slash slash, straw and seed may also be combined on finished ground	
ourchase must be provided prior to spreading on site. Spread straw so ad surface, or better.	
pe distance exceeding 20 If in a downslope direction shall be covered accordance with the manufacturer's recommendations and as directed are shorter than 20 If in a downslope direction	
straw roll(s) at 15' O.C. per standard specifications. Use BIO-12 Straw	OSSING ROJECT
eather, whichever comes first. eals that the slopes need to be repaired because the seed has not mitee is responsible to retain a civil engineer or an authorized ring the rainy season construction	PROJECT: DARK GULCH CR STABILIZATION P MEMORIAL PARK SAN MATEO COUNTY, CA
a year prior to the rainy season. Perform period inspections during the Look for debris or soil that is blocking runoff flow or plugging inlets and sipe outlet and unplug as needed. Check the ground surface in the	
review project plans with the CONTRACTOR during the pre- n of 7 days prior to commencement of work and a minimum of 4 our (4) working days prior to any grading or foundation excavating s for testing and observation can be made. The recommendations of orm the required testing and observation during grading and	TTLE: NOTES C
ese required services. In the service of	.VISIONS: Date Description
	18 RE (GULCH-775 No.
PRELIMINARY DRAFT 65% SUBMITTAL NOT FOR CONSTRUCTION	DATE: 12/16/20 PROJECT: SMCRCD-DARK DRAWN BY: TB CHECKED: TB



NOTES

CULVERT ORIENTATION

· Culvert should be installed as shown on plan and as directed by ENGINEER

KEYWAY AND BENCH

- Key and bench fill as shown on plans. Typ 8' wide bench (min). Slope 2% into hillside.
- Toe drain: Every 2 benches add 12" wide gravel strip drain with 4" dia. Perf. Pipe (holes do permeable material wrapped in Mirifi 140N filter fabric or Approved equal. Connect perf pipe discharge downslope 10 ft from fill embankment. ENGINEER to verify.

CULVERT BED

- The width of trenches shall permit satisfactory joining and thorough tamping of the backfill
- The culvert bed shall be clean and free of large woody debris and large rocks. Unsuitable n
 selected granular drainage material and compacted to obtain uniform bed.
- Where rock, hardpan, or other unyielding material is encountered, it shall be removed below least 1 foot and a width of at least 2 feet plus the culvert diameter. This material shall be rep
- Culvert trenches must be properly shored and braced during construction or laid back at an sloughing and caving at sidewalls. The final project plans and specifications should direct th to all CAL OSHA and local safety requirements and codes dealing with excavations and tre

LAYING PIPE

- Culvert shall be laid in center of trench on uniform grade line. The entire length of pipe shal bedding.
- Culverts distorted more than 10% of normal dimension, ruptured, or broken shall be replace
- Culvert shall be joined and anchored per manufacturer's guidelines.
- · CONTRACTOR shall secure culvert to avoid separating or migrating downhill during constr

BACKFILL

- Select mineral soil shall be used for culvert backfill. The backfill shall have no rocks greate placed closer than 1 foot to the culvert.
- Trenches shall be backfilled with granular-type material and uniformly compacted by mecha percent. The relative compaction will be based on the maximum dry density obtained from a in accordance with ASTM Test Designation D1557. During placement and compaction of fill materials being placed shall be maintained.
- Fill shall be brought up to grade at a 1.5:1 slope unless otherwise specified.

ROCK SLOPE PROTECTION (RSP)

- Rock armor fill embankment to top of culvert as shown on plans
- Rock shall consist of approved well-graded, sound, durable, angular rock conforming to Ca and quantity of road is shown on plans.
- Rock shall be keyed minimum 1.5 times diameter into bed and banks unless otherwise dire.
 Rock shall be carefully placed to optimize strength (Caltrans Method A) and form a dense, with minimum of voids. Backfill and chink where voids between rocks are greater than 3 inches

ROCK ENERGY DISSIPATOR (RED)

- Discharge culverts onto Rock Energy Dissipator as shown on plans and as directed by EN road is shown on plans.
- Where specified or directed place rock over stabilization fabric (Mirifi 180N or approved eq Backing No. 3, 0.75 feet thick).
- Rock shall be keyed into channel bed and banks a minimum of 1.5 times maximum rock diand banks in areas to receive rock.
- · Place rock a minimum of two layers thick.
- Rock shall be carefully placed to optimize strength (Caltrans Method A) and form a dense, minimum of voids. Backfill and chink where voids between rocks are greater than 6 inches
- Compact loose soils adjacent to rock riprap.

		TIMOTHY C. BEST, CEG	ENGINEERING GEOLOGY AND HYUKOLOGY 1002 Coumbia Street, Santa Cu.z, CA 6060 (831) 425 5822 (831) 425 5830 (83)
own). Use Class III, Type A e to solid 4' diam tightline and			
material. naterial shall be replaced with			
w the culvert grade for a depth of at placed with selected compacted fill. n appropriate angle to prevent he attention of the CONTRACTOR enches.		ROSSING PROJECT	
ed.		CH CI	Z, CA
ruction.	ECT:	RK GULC	IRIAL PARK
r than 3 inches in any dimensions	PROJI	DAF	MEMC
anical means to not less than 90 a laboratory compaction curve run II, the moisture content of the altrans specifications. Dimension acted by engineer well-graded mass of stone with a GINEER. Dimension and quantity of			I YPICAL SPECIFICATIONS
ual) and backing soils (Caltrans			
ameter; subexcavate channel bed well-graded mass of stone with a	REVISIONS:	No. Date Description	
PRELIMINARY DRAFT 65% SUBMITTAL NOT FOR CONSTRUCTION	S DATE: 12/16/2018	PROJECT: SWCRCD-DARK GULCH-775	DRAWN BY: TB CHECKED: TB





NOTES:

- Use non-woven geotextile fabric for silt fence.
- The toe of the fence shall be trenched in with a spade or mechanical trencher, so that the downslope face of the trench is flat
 and perpendicular to the line of flow. Where the fence cannot be trenched in (e.g. pavement) weight fabric with washed gravel
 on uphill side to prevent flow under fence.
- The trench shall be a minimum of 6 inches deep and 6 inched wide with trench backfilled with compacted mineral soil after installation.
- Silt fence and safety fence shall be securely fastened to posts.
- Inspection shall be made weekly and repair or replacement shall be made promptly as needed.
- Fence shall be removed at conclusion of construction.



NOTES:

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- All sensitive area shall be protected per plan
- Tree protection shall consist of high visibility fencing or approved flagging located outside the drip line of any tree
- Where approved by the engineering geologist, high visibility flagging hung on outer branches of vegetation may be used instead of fencing
- Tree protection must remain in place during all phases of construction; any change of the protective fencing must be approved.



NOTE:

- Туре
- Straw rolls shall be manufactured from rice straw and wra
- · Use BIO-8 Straw Wattles by California Straw Works or ec

Location

- Install at base of disturbed areas and at outlets of new or grades/rolling dips unless otherwise specified.
- Rolls to extend across entire width of disturbed area unleadirected.

Placement

- · Rolls to be placed on slope contour. Adjacent rolls to over
- Trench wattle 3 to 5 inches below grade. Place wattle snu should be seen under the wattle.
- · Pack soil from trenching against the wattle on the uphill si



Road



NOTES

- Slope ditch to drain 3% minimum.
- Armor ditch where specified.
- Drain ditch to ditch relief culvert inlet as specified.

.C. unless ed	Ø	TIMOTHY C. BEST, CEG ENGINEERING GEOLOGY AND HYDROLOGY	1002 Columbia Street, Santa Cruz, CA 65060 (831) 425 5632 (831) 425 5630 (fax)
1 inch x 2 inch x 24 inch wood stake @ 48 inches O.C. max			
apped in burlap. quivalent.	ECT:	RK GULCH CROSSING ABILIZATION PROJECT	ORIAL PARK MATEO COUNTY, CA
ess otherwise specified or erlap; turn ends of rolls up. ugly in the trench. No daylight	PRO	DA	MEM
		TVPICAI SPF(
1	REVISIONS:	No. Date Description	
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65% SUBMITTAL NOT FOR CONSTRUCTION	SHEE	т NUMBE	R 6



ROAD	TROUGH	GH A: REVERSE GRADE m Distance from trough axis to downroad crest (ft) Grade		B: UP ROAD HE DOWN ROAD T	EAD 'AIL
(%)	Minimum depth			Distance from up-road start of rolling dip to trough axis (ft)	Grade (%)
<5%		20	3%	20	8%
5% - 10%	Ginahaa	20	3%	30	10%
10% - 15%	oinches	20	3%	50	19%
15% - 20%		15	4%	75	23%

NOTES

- A reverse-grade dip (or rolling dip) is a broad, long, permanent dip constructed into native soils. It is intended to drain the trail/road while not significantly impeding traffic.
- On existing trails/roads the dip is cut into the existing tread with the downroad dip built up on compacted fill.
- The dip shall be a minimum of 6 inches deep and incorporate a 2 foot long flat reach at the base of the trough (unless otherwise directed).
- The dip axis should be outsloped 3% greater than trail grade to maximum 15%. Dip axis may be skewed down road at 30 degree this will make installation of dips on steeper grades easier.
- Dip outlets should be located to drain into areas with adequate sediment filter quality and non-erodible material such as rock, slash, brush, etc. Where specified, the bottom of the outfall of the dip will be surface-rocked.
- Where natural slopes exceed 50%, fill shall not be pushed over the dip outlet. A backhoe or excavator may be required to pull back fill at outlet of existing dips.
- Dips shall be placed as specified in the plans. If not specified, then dips shall be placed at maximum 100 foot spacings.

	TIMOTHY C. BEST, CEG	ENGINEERING GEOLOGY AND HYDROLOGY	1022 Columbia Street, Sama Cruz, CA 95060 (831) 425 5532 (831) 425 5530 (fax)
DIECT:	ARK GULCH CROSSING		MORIAL PARK V MATEO COUNTY, CA
PRO		TYPICAL SPECIFICATIONS ³¹	MEM
REVISIONS:	No. Date Description		
S DATE: 12/16/2018	PROJECT: SMCRCD-DARK GULCH-775	DRAWN BY: TB	CHECKED: TB

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