

Detailed Project Description

To serve the Coastal Trail, the County proposes to remove the existing concrete arch bridge and metal pedestrian bridge as well as place a new aluminum pedestrian bridge crossing the Arroyo de en Medio. To protect the bridge, trail, roadway, utilities, and properties, the project would install shotcrete walls with tieback anchors as well as rock slope protection (RSP) along the bluff face and sections of the north and south banks of the Arroyo de en Medio. The project will also include relocation of existing utilities supported by the existing bridge.

The project will be constructed in two phases. The project elements including the pedestrian bridge, bluff stabilization, and utility improvements are shown in Figure 2. The general bridge plan is presented in Figure 3. The bluff stabilization plan and concept plan are illustrated in Figures 4 and 5. Details of the project are described below.

Description of Phase I Work

The Phase 1 work includes all the tasks necessary to stabilize the bluffs and prepare for the placement of the new pedestrian bridge. During this phase, the Coastal Trail will remain open to pedestrians and bicyclists. Prior to the contractor mobilizing on the site, public utilities including Pacific Gas and Electric (PG&E) and Granada Community Services District (GCSD) that possess infrastructure on the existing pedestrian bridge, will relocate their facilities. The demolition plan for the project is presented in Figure 6.

PG&E has both primary and secondary circuits in conduits crossing the pedestrian bridge. For the temporary relocation, PG&E will install utility poles on either side of the pedestrian bridge to facilitate the placement of overhead electrical cables. Once the project is complete, PG&E will deactivate the circuits and remove both the poles and conductors.

GCSD is currently working to re-route the 2-inch force main currently located on the pedestrian bridge. If this cannot be completed prior to the bridge's removal, GCSD may install a temporary bypass, which could include a hose or pipe routed across Arroyo de en Medio. The force main currently serves about 25 homes located along and near Mirada Road.

To allow access for construction equipment to the beach, the project will install a temporary access road from the Mirada Road cul-de-sac into the Arroyo de en Medio. The access road will require approximately 30 to 40 cubic yards of temporary fill consisting of variously graded rocks to create a pathway approximately 15 feet wide and 60 feet long for construction equipment. If the creek is flowing during the construction period, water will be diverted from the work area through an appropriately sized pipe, which will be buried in sand. The construction access plan is presented in Figure 7.

Once equipment can access the beach, the contractor will relocate the RSP that was placed in January 2016 as an emergency action to protect the eroding slope allowing access for the installation of the shotcrete walls. RSP would be temporarily relocated to an area on the beach approximately 15 feet from the bluff face to deflect wave action and prevent inundation of the work area if sand levels at the time of construction are low. If sand levels are high, preventing waves from striking the bluff, the RSP will be stockpiled on the beach.

To begin preparing for the construction of the shotcrete wall, the contractor will clear and grub the slope face to remove loose material and vegetation along the bluff north and south of the creek. Additionally, the contractor will remove concrete debris from the beach and creek. The contractor will dispose all debris in a facility capable of accepting the material. The walls would be about 170 feet and 110 feet in length along

the north and south sides of the pedestrian bridge respectively. During this phase, the contractor will work along the exposed bluff but not under the existing pedestrian or concrete bridge.

Once the bluff is cleared, the contractor will drill tie back anchors into the bluff at intervals of five feet on center to a depth of no more than 25 feet. The base of wall will be at an absolute elevation of eight feet based upon the North American Vertical Datum of 1988 (NAVD 88), which could require excavation into the existing sand depending upon its height at the time of construction. The top of the wall will be set slightly higher than the existing bluff elevation. The wall will be about 23 feet in height, which will vary as sand elevation changes at different times during the year.

The contractor will tie the anchors together with steel reinforcement and will spray the first layer of concrete. The final layer is the surfacing material, which will be sculpted and stained to match the coloring of the surrounding bluffs. However, this final layer will be installed once the entire wall including the phase 2 section is complete to facilitate a uniform appearance.

The contractor will integrate the existing 18-inch in diameter corrugated metal pipe which serves a drain inlet located within the Mirada Road cul-de-sac as well as the existing 6-inch storm drain on the north side of the bridge into the shotcrete wall. There are three locations where grout installation and/or shotcrete (sprayed on concrete) application will require a concrete containment plan. The three locations and containment plan details for each are described below.

- On the slope: Shotcrete will be applied by an American Concrete Institute (ACI) Certified Nozzleman. ACI training instructs specific procedures to mitigate against shotcrete sloughing during installation. As an added precaution, a tarp containment system will be placed under the shotcrete area to capture any shotcrete rebound or unintentional sloughing. The contents of the tarp catchment system will be removed and disposed of at an appropriate disposal facility offsite.
- At the concrete truck: After the concrete truck has been emptied, the contractor will either clean out the truck within itself (if supplier provides self-cleaning trucks) or within a concrete washout. If a concrete washout is used, all captured material will be removed and disposed of offsite.
- At the grout pump: The contractor will underly the grout pump with a vinyl catchment system. Any grout material that is captured in the system will be removed and disposed of offsite.

The anticipated duration of all construction activities for Phase I will be approximately 45 working days: three days for the access road; two days to relocate RSP; five days for clearing and grubbing and 35 days for the soil nails. Work would only occur on non-holiday weekdays between the hours of 7 am – 5 pm, during times when the work area is dry (low tide). Construction equipment and materials storage are proposed to be stored along the Mirada Road cul de sac south of the current pedestrian bridge (see Figure 7).

Description of Phase 2 Work

Phase 2 will include the permanent relocation of existing utilities, removal of the concrete bridge, removal of the existing pedestrian bridge, placement of the final shotcrete walls, installation of RSP, installation of the pedestrian bridge, and placement of final finishes including trail approaches.

The existing bridge will be lifted off of the existing abutments with a 400-ton seven axle crane (Liebher LTM 1400-7.1 or similar) staged immediately south of the southern abutment in parking area of 2 Mirada Road (pending property owners approval), resulting in an estimated pick radius of 110 feet. Once the bridge

is lifted off the abutments, it will be lowered onto a flatbed trailer parked on Mirada Road and removed from the project site.

The removal of the existing concrete arch bridge would include use of a track-mounted excavator with a breaker arm in addition to jack hammers. Track mounted equipment would be used to break-up the concrete bridge. A tarp containment system will be installed within the creek channel to capture any debris from the bridge demolition. Monitors will be present to ensure no debris leaves the project area and is left on the beach or within the channel at the end of each day. Debris will be loaded into dump trucks using a long reach excavator from the top of the bluff or using loaders that bring the debris to Mirada Road. Upon completion of the bridge demolition the tarp containment system will be removed and disposed of.

Once the concrete bridge is removed, the contractor would clear and grub the slope to prepare for the installation of the shotcrete concrete wall as described in Phase 1. Upon completion of the first layer of concrete the contractor will install the final textured and colored layer along the entire wall face.

Once the shotcrete walls have sufficiently cured, the contractor will reset the RSP at the base of the walls, which will include a backing layer of small rock (#2 or #3), an engineering fabric, and finally the armor rock (1/4 to 1/2 ton) facing the ocean. The base of the RSP will be set to an elevation of 2 feet and rise to about an elevation of 10 feet. Depending upon the depth of sand at the time of construction, the project may need to excavate, which could require about four feet of excavation. If excavation is required, upon completion of setting the RSP, the sand would be spread on the RSP.

The GCSD will trench and place a sanitary sewer pipeline north and south of the bridge re-routing the existing pipeline from the east side of the concrete bridge to approximately the centerline of the new pedestrian bridge. This will require routing the pipeline below and beyond the existing bridge abutments. Alternatively, GCSD will not install the sewer pipeline under the new bridge but install infrastructure to re-route flows to their existing pump station in the Miramar neighborhood. Additionally, PG&E will complete limited trenching north and south of the bridge to connect the existing two 4-inch conduits to the new casings placed on the bridge.

In order to reuse the existing bridge abutments for the new pedestrian bridge, the contractor will clean and inspect the concrete and mounting hardware to confirm the as-built condition. The project will modify the abutments, which will include revising the bridge bearing material and installing a shear key on the southern abutment to improve seismic stability. The new prefabricated aluminum bridge will be installed using the same sized crane that was used for the removal of the existing bridge. The bridge will be picked up and positioned in place onto the modified bridge abutments and connected in place by either welding or fasteners.

Once the bridge is in place, the GCSD will suspend an 8-inch in diameter ductile iron sewer pipeline on anchors mounted under the new pedestrian bridge and connect to the pipeline buried below the abutments. This will not be done if GCSD re-routes sanitary sewer flows as previously described. PG&E will place two, 4-inch in diameter steel conduits on the bridge and route conductors through the conduits.

Upon completion of the work, any fill used for the access road will be removed and the slope re-graded to its original contours. The disturbed areas on the bank and shoulder will be stabilized with erosion control materials and seeded and/or planted with a native plant mix appropriate for the area. Due to disturbance to the trail approaches to the bridge, the project will remove and replace the asphalt concrete pavement. Finally, the project will install a cable rail fence that is approximately 36 inches in height on the northwest and southwest approaches to the bridge for public safety and to prevent pedestrians from accessing the slope.

The anticipated duration of all construction activities during Phase 2 is 40 working days: this includes two days for the pedestrian bridge removal; five days to remove the concrete bridge; four days for the sanitary sewer installation; two days for the electrical conduits installation; 15 days for the shotcrete walls; five days for RSP; three days for the new bridge installation; two days to place pavement and fencing; and two days to install the electrical conductors. Work will only occur on non-holiday weekdays between the hours of 7am – 5pm. Construction equipment and materials storage is proposed along the Mirada Road cul de sac south of the current pedestrian bridge.

Impacts & Mitigation Measures

Impact BIO-1: The proposed project could result in potentially significant impacts to special-status species during construction activities. Implementation of mitigation measures BIO-1A through BIO-1E would reduce impacts to special-status species during construction to a less-than-significant level.

Mitigation Measures

BIO-1A Prior to construction activities, the project proponent shall retain a qualified biologist to conduct an Employee Education Program for the construction crew. The biologist shall meet with the construction crew at the project site at the onset of construction to educate the construction crew on the following: 1) the appropriate access route(s) in and out of the construction area and a review of the project boundaries; 2) all special-status species that may be present, their habitat, and proper identification; 3) the specific mitigation measures that will be incorporated into the construction effort; 4) the general provisions and protections afforded by the regulatory agencies; and 5) the proper procedures if a special-status species is encountered within the project site.

BIO-1B If possible, construction shall be scheduled between September 16 and January 31 to avoid the nesting season for raptors and other migratory birds. If this is not possible, pre-construction surveys for nesting raptors and other migratory birds shall be conducted by a qualified biologist or ornithologist to identify active nests that may be disturbed during project implementation onsite and within 250 feet of the site. The survey area of 250 feet is a typical distance that could be reduced or expanded at the discretion of the qualified biologist/ornithologist. Between February 1 and September 15, pre-construction surveys shall be conducted for raptors and nesting birds within 14 days prior to the initiation of ground disturbing activities. Pre-construction surveys will be conducted by a qualified biologist/ornithologist for nesting birds and raptors within the onsite trees as well as all trees within 250 feet of the site.

If an active nest is found in or close enough to the construction area to be disturbed by these activities, the biologist/ornithologist, shall designate a construction-free buffer zone around the nest. Buffer distances will be determined by the qualified biologist/ornithologist. The construction-free buffer zone shall be maintained until after the breeding season has ended and/or a qualified biologist/ornithologist has determined that the young birds have fledged.

BIO-1C To reduce potential impacts to special-status plant species with the potential to occur on site prior to the start of construction, a qualified botanist shall conduct surveys for sensitive plant species during the appropriate blooming season for each species. Surveys shall be conducted in accordance with *CDFW's Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities*. If any

special-status plant species are identified within the area of potential impact, they shall be avoided when possible or transplanted to appropriate areas in or adjacent to the project site prior to the initiation of construction activities and monitored annually for three years. If the transplanted species fail to survive during this monitoring period, they shall be replaced at a ratio of 1:1 and the three-year monitoring period shall re-commence. If the plants cannot be transplanted to another portion of the property, an alternate location near the project site may be utilized with permission of the landowner.

Impact BIO-2: The proposed project may result in impacts to sensitive riparian habitat through habitat modification. Impacts to sensitive habitat would be considered a potentially significant impact. This impact can be reduced to a less-than-significant level through implementation of mitigation measures BIO-2A through BIO-2F identified below.

Mitigation Measures

BIO-2A The project contractor shall implement applicable Best Management Practices (BMPs) and conservation measures detailed in the County of San Mateo Watershed Protection Program's Maintenance Standards and the San Mateo Countywide Pollution Prevention Program Construction BMPs during construction.

BIO-2B To protect water quality during construction, include the following measures on the construction specifications, with construction oversight by a qualified biological monitor:

- Stationary equipment such as motors, generators, and welders located within 100 feet of the stream shall be stored overnight at staging areas and will be positioned over drip pans.
- Any hazardous or toxic materials deleterious to aquatic life that could be washed into a basin shall be contained in watertight containers or removed from the project site.
- All construction debris and associated materials stored in staging areas shall be removed from the work site upon completion of the project.
- Whenever possible, refueling of equipment shall take place within turnouts or staging areas at least 50 feet from the top of bank or other wetland.
- All refueling shall be conducted over plastic bags filled with sawdust or other highly absorbent material. Clean-up materials for spills will be kept on hand at all times. Any accidental spills of fuel or other contaminants will be cleaned up immediately.

BIO-2C The project contractor shall install protective fencing prior to and during construction to keep construction equipment and personnel from impacting riparian vegetation outside of work limits. A qualified biological monitor with the education and experience necessary to delineate riparian vegetation shall supervise the installation of protective fencing. This measure shall be included in the project's plans and specifications.

BIO-2D For project activities that impact the riparian corridor (bed and bank features) of Arroyo de en Medio the project proponent shall consult with CDFW and, if required, shall acquire any necessary permits for project activities. The project proponent shall comply with all the conditions of permits issued for the project. Conditions may include, but are not limited to; development of revegetation and restoration plans and procedures, environmental awareness training, pre-construction wildlife surveys, and/or biological monitoring.

BIO-2E The project proponent shall obtain a Coastal Development Permit as required for project activities. The project proponent shall comply with all conditions of permit issued for the project. Conditions may include, but are not limited to, development of revegetation and restoration plans and procedures, environmental awareness training, pre-construction wildlife surveys, and/or biological monitoring.

BIO-2F All disturbed areas shall be revegetated with an appropriate native seed mix.

Impact BIO-3: The proposed project may result in impacts to wetlands and other waters potentially under the jurisdiction of the USACE, CCC, and/or RWQCB. Impacts to wetlands and other waters would be a potentially significant impact. This impact can be reduced to a less-than-significant level through implementation of mitigation measures BIO-2A through BIO-2C, identified above, and BIO-3A through BIO-3D below.

Mitigation Measures

BIO-3A Impacts to areas of wetland and other water shall be avoided to the greatest extent possible. If impacts to areas of wetlands and other water is unavoidable, the area impacted shall be confined to the smallest area possible.

BIO-3B For project activities that impact wetlands or other waters requiring permits from USACE and the RWQCB, the project proponent shall obtain permits and comply with all permit requirements.

BIO-3C If water is present in the creek during construction activities, the water shall be diverted around the work area to isolate it to prevent pollutant from entering and protect water quality. To isolate the work area, water-tight coffer dams shall be constructed upstream and downstream of the work area and water diverted through a suitably sized pipe, from upstream of the upstream coffer dam and discharged downstream of the downstream coffer dam. Cofferdams shall be constructed of a non-erodible material which does not contain soil or fine sediment. Cofferdams and the stream diversion system shall remain in place and functional throughout the construction period. If the coffer dams or stream diversion fail, they shall be repaired immediately. Flow diversions shall be done in a manner that prevents pollution and/or siltation and that provides flows to downstream reaches. Flows to downstream reaches shall mimic natural flow patterns. Said flows shall be of sufficient quality and quantity and appropriate temperature to support fish and other aquatic life both above and below the diversion structure. The water diversion shall be constructed with the least amount of disruption to the channel.

BIO-3D All contaminated (including muddy) water from construction activities shall be pumped into a holding facility or into a settling pond located in flat stable areas outside of the stream channel.

Impact CR-1: Should the project require excavation near or on the top surface of the adjacent coastal terrace (i.e., the dark native strata at the top of the beach cliff), it is possible that prehistoric or historic archaeological resources could be encountered. This impact will be reduced to a less-than-significant level with implementation of the following mitigation.

Mitigation Measures

CR-1 If the project requires excavation near or on the top surface of the adjacent coastal terrace (i.e., the dark native strata at the top of the beach cliff), the County shall retain a qualified archaeologist to monitor excavation activities, identify any resources encountered, and develop and implement appropriate recommendations.

Impact CR-2: Human remains could be encountered during excavation activities. This impact will be reduced to a less-than-significant level with implementation of the following mitigation.

Mitigation Measures

CR-2 In the event that human remains are discovered during construction, the contractor shall cease all excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains. The San Mateo County Coroner shall be notified and shall make a determination as to whether the remains are Native American. If the Coroner determines that the remains are not subject to his authority, Coroner shall notify the Native American Heritage Commission to identify descendants of the deceased Native American.