DIVERSION / DEWATERING PLAN

El Camino Real Bridge Replacement Project
Over Santa Margarita Creek
San Luis Obispo County, CA
Federal Project No. BRLS-5949(131)

Prepared for:
San Luis Obispo County Department of Public Works Transportation
976 Osos Street
San Luis Obispo, CA 93408

By:
Quincy Engineering, Inc.
11017 Cobblerock Drive, Suite 100
Rancho Cordova, California 95670

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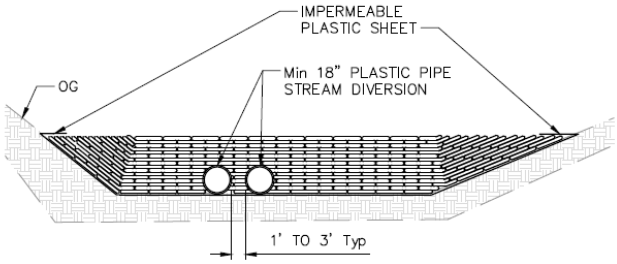
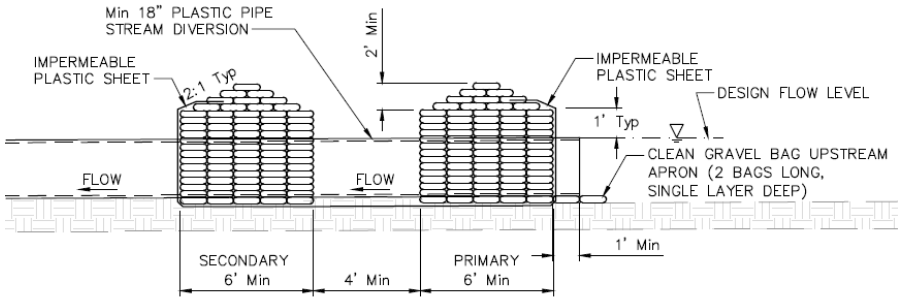
Water Diversion. The Santa Margarita Creek has perennial flow and is expected to be flowing within the project area year-round. A water diversion system will be required to divert the summer flow through the work area for the duration of construction. To avoid impacts to fish and other aquatic wildlife, construction within the creek is planned to occur during the non-rainy season (between June 15 and October 15), when surface water within the Santa Margarita Creek is at its seasonal minimum. The project is expected to be a one season project so the creek diversion will be removed prior to winter months.

Temporary berms will be constructed both upstream and downstream of the bridge. The berms will be constructed using clean gravel bags with clean crushed rock and will be used to divert summer flows away from the work area and downstream. The berms will have an impervious membrane made up of visqueen polyethylene film to keep water from seeping into the work area and downstream away from the project site. The berms will be stacked bags and are expected to be at least 4 feet tall. The berms will be a minimum of 6'wide.



SECTION A-A
NO SCALE



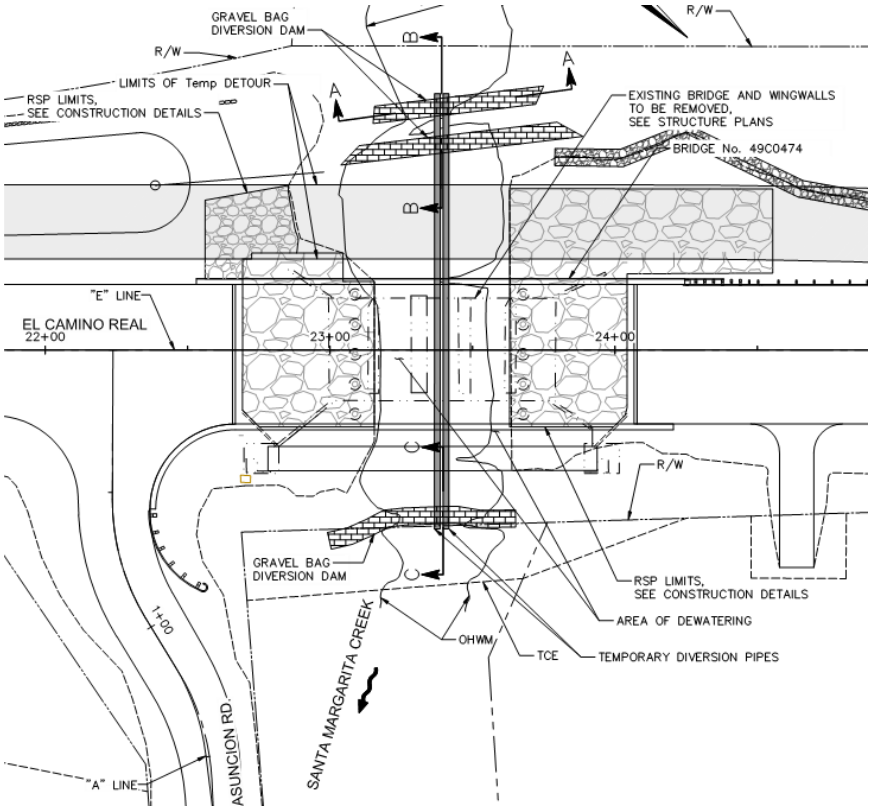
SECTION B-B
NO SCALE

Temporary culverts, consisting of approximately two 18-inch pipes, will be used to divert summer flows away from the work area and downstream. The pipes will be approximately 150' long and will be installed through the upstream and downstream berms running parallel to the direction of flow.

Based upon historical summer flow records, Santa Margarita Creek flows are expected to be approximately 15 cfs. This information was extracted from the maximum mean daily flows during the period of interest based on gage data. The gaging data was adjusted for this location and for the drainage area as the two gages used are not on Santa Margarita Creek. The table below summarizes the data that was used and the floes that are expected.

Gaging Station	No. of Years of Data	Years of Record	Summer flow likely to occur at project site during period of interest for one construction season
11147070	32	1962-1993	12
11147000	28	1950-1977	14

Flow is expected to be conveyed through the planned pipe culverts. Two 18-inch pipe culverts flowing full should convey approximately 32 cfs at this location. It is expected that the pipes would flow at 50% capacity to meet the anticipated summers flows. Construction of the water diversion system is not expected to require any grading within the creek. The imported gravel bags will be removed offsite when they are no longer needed. The berms will completely block the normal flow of the creek, keeping water out of the work area, allowing only the flow that enters the diversion pipes to pass under the bridge. All diversion/dewatering activities will adhere to Caltrans Standard Specifications.



The responsible Contractor will be required to submit plans for exact locations of the berms and pipes and the diversion plans to the County and any other regulator permitting agencies for approval at least 30 days prior to construction activities.

After the berms are constructed, sump pumps will be used to dewater the site, if necessary. If aquatic life become trapped within the dewatering area, a qualified biologist will be responsible for relocating fish or wildlife to a suitable habitat outside the construction zone, in conformance with state and local regulatory permitting guidelines. The pumped water will be returned to the Santa Margarita Creek, downstream of the project. A wire mesh screen with no larger than 0.2 inch holes will be placed over the pump intake and the pump will be placed in a screened basket to reduce the velocity of the water flowing into the pump and minimize turbidity of the water. This system will also minimize inadvertent aquatic interactions. If the pumped water has visible turbidity as compared to the undisturbed river, a portable storage tank will be used as a settling tank to ensure proper sediment filtration before pumping water back into the Santa Margarita Creek to prevent adverse impacts to aquatic resources. A geo-textile bag filter may be used at the discharge point of the sump pump to prevent erosion/scour and to ensure proper sediment filtration. A qualified biologist will monitor the pump intake and outfall during dewatering to protect water quality and verify the system is free of debris. The qualified biologist will also remove fish and wildlife prior to starting pump and again if animals become trapped (stranded).

Prior to construction activities, a qualified biologist will provide an environmental training session for all project personnel. Information on avoidance and minimization measures for sensitive environmental resources and the other pertinent permit terms and conditions of approval will be reviewed during the training.

Weather reports looking to identify peak flow storm events will be monitored daily by a designated onsite qualified person responsible. This designated person will also inspect all berms daily to identify possible leaks and identify containment breaches. Additional supplies including sump pumps, gravel bags, visqueen, and hoses will be staged onsite to be used in the event of an exclusionary device breach. If a full breach of one of the berms does take place, the County and other applicable regulatory agencies will be notified by the Contractor's responsible person so water quality and aquatic impacts can be evaluated. The dewatering plan submittal by the contractor will contain a contingency plan for such an event.

Monitoring of the Santa Margarita Creek's visible water characteristics and water quality monitoring at the project location will take place in advance of any construction related activities for the project to establish a baseline including turbidity, water temperature, dissolved oxygen, and pH. Daily monitoring by a qualified member of the Contractors team during construction will monitor and log visible water characteristics including soil erosion, sedimentation, and turbidity. Periodic monitoring of water quality including temperature, dissolved oxygen, and pH will be captured at a frequency determined by the County and appropriate regulatory agencies. Monitoring should include provisions that representative samples of receiving waters upstream and immediately downstream of in-water work, dewatering, and/or diversion will be collected and analyzed for turbidity daily while in-water work, dewatering, and/or diversion continues. Turbidity sample results from receiving waters will be compared to the following receiving water quality goals: where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTUs), increases shall not exceed 20 percent; where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs; where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent. Discharge water will not be greater than four degrees Fahrenheit from the receiving water temperature. Water discharges will not reduce the dissolved oxygen level to below 5.0 milligrams per liter (mg/L) and median values should not fall below

85 percent saturation of the baseline measurement and pH will be maintained between 7.0 - 8.5. If water temperature, dissolved oxygen levels, or pH fall outside these ranges, the Contractor's qualified responsible person will immediately notify the County and the project biologist to develop a remediation procedure to improve the water quality and take immediate corrective action. In addition, the appropriate regulatory agency will also be notified of baseline changes that fall outside of the pre-project thresholds. At the project conclusion, the Contractor will provide the County and any appropriate regulatory agencies with the daily and periodic monitoring logs and sampling photos.

After construction is complete, the contractor will remove the temporary berms and culverts and restore any disturbed areas within the creek to pre-construction conditions. The berms and pipes will be removed by the contractor in a manner that will provide the least amount of disturbance possible while minimize turbidity in the river.

Construction Staging and Access.

Materials and equipment that will be used during bridge construction will be staged at a designated staging area located on south side of the creek.

The berms are expected to be approximately 6 ft wide (at the top) and 65 ft long. Approximately 220 cubic yards (CY) of fill bags will be required to construct all the temporary berms. The temporary fill will consist of gravel bags containing clean crushed rock within the low flow channel and will form the temporary berms upstream and downstream of the construction area.

A temporary construction easement (TCE) will be required for the construction of the berms. The TCE required for the temporary stream diversion affects four parcels (Assessor's Parcel Number [APN] 059-531-007, 059-531-002, 059-491-001 and 059-491-005).

Construction Equipment. The table below summarizes the types of construction equipment that are anticipated to be used during construction that may be driven on the berm/access roads.

Table 2.3: Anticipated Construction Equipment

Equipment	Construction Purpose
Backhoe	soil manipulation and drainage work
Bobcat	fill distribution
Bulldozer / Loader	earthwork construction and clearing and grubbing
Crane	bridge construction
Dump Truck	fill material delivery
Drill Rig	CIDH pile installation
Excavator	soil manipulation
Forklift	material transportation
Front-End Loader	dirt or gravel manipulation
Haul Truck	earthwork construction and clearing and grubbing
Truck with Seed Sprayer	BMP installation
Water Truck	earthwork construction and dust control

- CIDH = cast in drilled hole