

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

ORDER NO. 01-036

WASTE DISCHARGE REQUIREMENTS AND WATER QUALITY CERTIFICATION FOR:

**SANTA CLARA VALLEY WATER DISTRICT  
U. S. ARMY CORPS OF ENGINEERS  
CITY OF SAN JOSE**

**GUADALUPE RIVER PROJECT  
and  
GUADALUPE CREEK RESTORATION PROJECT**

**SAN JOSE, SANTA CLARA COUNTY**

The California Regional Water Quality Control Board, San Francisco Bay Region, hereinafter Board, finds that:

1. **Scope of Order:** This Order establishes requirements for two separate, independent, yet related projects: the Guadalupe River Project (hereinafter Downtown Project) to be constructed by the U.S. Army Corps of Engineers, and the Guadalupe Creek Restoration Project (hereinafter Restoration Project) to be constructed by the Santa Clara Valley Water District. The Restoration Project is an element of the environmental mitigation program for the Downtown Project. For the purposes of administrative efficiency and because of the relationship between the two projects, this Order consolidates requirements for both projects together.
2. **Application:** The Santa Clara Valley Water District (hereinafter District) and the U. S. Army Corps of Engineers (hereinafter Corps) have applied to construct uncompleted portions of the Downtown Project, a major flood control project along 2.6 miles of the Guadalupe River in downtown San Jose, Santa Clara County. (The District and the Corps are hereinafter jointly referred to as the Dischargers.) Integral to the Downtown Project is an extensive environmental impact mitigation program consisting of on-site and off-site habitat restoration and improvement features, including vegetation planting along 0.5 miles of the River within the project boundaries and 1.5 miles of the River downstream of the Downtown Project and restoration of 1.6 miles of Guadalupe Creek located 4 miles upstream of the Downtown Project. The Dischargers have applied for Water Quality Certification under Section 401 of the Clean Water Act and for issuance of Waste Discharge Requirements (WDRs) under Section 13260 of the California Water Code, as detailed in its Application/Report of Waste Discharge of January 25, 2001.
3. **Project Co-sponsor:** The City of San Jose is a co-sponsor of the Downtown Project and has committed to the funding and maintenance of certain portions of the Downtown Project, principally, the recreational trail elements. The responsibilities of the City under this Order

are limited, as specified in Provision 9 of this Order, to maintenance and operation of recreational trails in a manner that guarantees in perpetuity that trail operation and maintenance will not unreasonably adversely affect the habitat value of the riparian corridor created by the Downtown Project's Mitigation Plan.

4. **Purpose:** The Dischargers' projects are intended to reduce the frequency of flooding along the Guadalupe River in the vicinity of downtown San Jose in the 2.6 mile reach between Interstate Highway I-880 and Interstate Highway I-280 and to implement an environmental mitigation program to compensate for the projects' environmental impacts.
5. **Project Need:** Major floods have occurred along the Guadalupe River 14 times since World War II. In 1995, portions of River St. and St. John St. in downtown San Jose flooded to a depth of approximately 3 to 4 feet.

The principal causes of this flooding were: (1) development practices have allowed development within the natural flood plain of the river system, and (2) development has occurred in a manner that increased the amount of land covered with impervious surfaces, thereby reducing natural percolation into the ground, increasing the rate of stormwater runoff and increasing peak flood flows, exceeding the capacity of the channel. Development in the watershed is estimated to have increased peak flows by 30 to 50% over pre-development peak flows.

6. **Project Description:** The Downtown Project will significantly increase the capacity of the River to carry flood flows without causing flooding. Flow capacity in the lower reaches of the Downtown Project will be increased from about 8,000 cubic feet per second (cfs) to 17,000 cfs and in the upper reaches from about 6,500 cfs to 14,600 cfs. To accommodate such large increases in flow capacity, major modification of the river channel is needed.

The total estimated cost of the Downtown Project is \$226.8 million. The estimated cost of the Restoration Project is \$8.3 million.

### Definitions

- **Riparian Vegetation:** Vegetation that grows along or adjacent to the banks of a watercourse
- **Shaded Riverine Aquatic (SRA) Cover Vegetation:** That portion of riparian vegetation that overhangs or protrudes into a watercourse and provides cover habitat for fish and other aquatic life
- **Armoring:** concrete and rock work used to replace natural creek bottoms and creek bank vegetation so as to increase flow capacity and reduce bank and bed erosion

The major elements of the Downtown Project are:

- **Bypass:** Constructing a series of bypass box culverts along a 3,000 foot reach of the River (approximately 20% of the project length) to carry excess flood flows beyond the capacity of the natural channel, thereby preserving the natural channel's riparian vegetation and habitat value;
- **Armoring:** Replacing natural vegetation with channel armoring (e.g., concrete, rock gabions, stone terraces) along about 4,750 feet of channel banks and beds (approximately 35% of the project length) so as to increase hydraulic capacity of the channel and reduce bank and bed erosion;
- **Low Flow Channel:** Constructing a low flow channel in the armored sections of the project (approximately 4,750 feet, approximately 35% of the project length) to assure fish passage and facilitate fish spawning;
- **Training Walls:** Constructing approximately 2,500 feet of flood training walls perpendicular to the river. During the design storm event, these walls will direct upstream flood waters back into the river channel. These walls will be temporary because upstream flooding will be eliminated by the completion of upstream flood control projects;
- **Recreational Trails:** Constructing approximately 2.6 miles of recreational trails as part of an overall trail system to provide public access to the river corridor; and
- **Mitigation Program:** Planting of 21 acres of riparian vegetation and 10,792 linear feet of SRA cover vegetation at various locations within the Downtown Project reaches and in a downstream reach of the River. Additional mitigation includes design features in armored sections, such a special low flow channel design, to promote fish passage and facilitate fish spawning, and implementation of the Restoration Project to provide an additional 6 acres of riparian vegetation and 13,000 linear feet of SRA cover vegetation.

The major elements of the Restoration Project are:

- Planting of 13,000 linear feet of SRA cover vegetation to shade the creek, reduce water temperatures, provide wildlife habitat, stabilize banks;
  - Reforming of the channel to stabilize the channel, reduce erosion and downstream sediment deposition, and provide a lower planting surface closer to the water table to improve vegetative success;
  - Installing instream structures (such as root wads, logs, boulders) to provide instream cover for fish; and
  - Narrowing of the low-flow channel. This is intended to increase low flow depths and velocities, thereby facilitating fish passage and contributing to reducing temperatures to more suitable levels for fish.
7. **Project History:** The Downtown Project has been extensively refined over the past 15 years. These changes have been a result of changing regulatory requirements, legislative changes, endangered species listings, threats of citizen suits, and, most recently, a facilitated collaborative process seeking consensus amongst all parties. The net result is a project that steps away from past flood control project designs that destroyed riparian habitat without meaningful restoration, compensation or mitigation. The final project with its

comprehensive mitigation program reflects a significant step towards integrating water quality/watershed habitat needs with flood control needs.

**1990:** The Guadalupe River Project, as authorized by Congress in 1986, was primarily a single-purpose flood protection project that included an underground bypass conduit in the upstream portion of the project area, and a combination of channel widening and concrete and rockwork lining of stream bed and banks. The project would have fenced portions of the project area and restricted public access to the Guadalupe River. The project also included a limited wildlife mitigation plan to replace some of the riparian habitat lost as a result of implementation of the flood protection elements.

**1992:** In response to community and agency concerns about recreational access to the river and impacts of riparian habitat and fisheries, the project scope was modified. On February 14, 1992, the State Water Resources Control Board (SWRCB) issued a conditional water quality certification pursuant to Section 401 of the Clean Water Act. This certification required the submission of a Mitigation and Monitoring Plan to address riparian vegetation and fisheries impacts. In July 1992, as required by the certification, the resources agencies (California Department of Fish and Game (DFG), US Fish and Wildlife Service (FWS), US National Marine Fisheries Service (NMFS), and Regional Water Quality Control Board, San Francisco Bay Region) all approved the project mitigation plan.

Segments 1 and 2, affecting 0.8 miles of the River (about 30% of project length), were constructed between 1992 and 1996. Required mitigation for Segments 1 and 2 was initiated in 1994.

**1996:** In May 1996, construction ceased in response to threatened citizen suit alleging that the Corps and the District implemented the then authorized Project in violation of conditional water quality certification requirements relating to water temperature.

**1997:** In December 1997, the Corps and the District joined with the City of San Jose and the San Jose Redevelopment Agency to initiate a facilitated collaborative program to resolve the mitigation disputes. Thus was established the Guadalupe River Flood Control Project Collaborative comprised of representatives involved in the dispute resolution process: Corps, District, City of San Jose, San Jose Redevelopment Agency, state and federal regulators (FWS, NMFS, CDFG, SWRCB, Board), and the plaintiffs in the threatened suit represented by the Natural Heritage Institute. The main objective of the Collaborative was to reach agreement on an acceptable project modification and a mitigation program.

**1998-99:** In late 1998 through early 1999, two major changes to project conceptual design were developed that enabled conceptual agreement amongst the various parties: (1) expansion of the offsite mitigation program to significantly improve habitat conditions in Guadalupe Creek, and (2) construction of a bypass channel in the downtown area so as to preserve riparian vegetation.

**2001:** Final Environmental Impact Reports were adopted as described in Finding 8. Resources agencies approved the final Mitigation and Monitoring Program.

The evidence of the presence of steelhead trout (a threatened species), fall-run Chinook salmon (a California Species of Special Concern) and resident rainbow trout (a coldwater species) in the Guadalupe River Watershed has been a major influence in the design of the project.

8. **Environmental Documentation:** The California Environmental Quality Act (CEQA) requires all projects approved by State agencies to be in full compliance with CEQA, and requires a lead agency to prepare an appropriate environmental document for such projects. On March 6, 2001, the District adopted a Final Environmental Impact Report on the Downtown Project and on March 19, 2001, a Final Environmental Impact Report on the Restoration Project. The Regional Board considered these documents.

In compliance with the National Environmental Policy Act (NEPA), the Corps will adopt a Final Environmental Impact Report/Supplemental Environmental Impact Statement on the Downtown Project prior to initiation of construction. The Corps intends to adopt the Final EIR/Supplemental Environmental Impact Statement after the Board adopts this Order.

After consideration of all comments and review of the record, including the CEQA documents, the Regional Board finds that all potentially significant adverse impacts have been, or, with compliance with this Order, will be fully mitigated.

9. **Environmental Impacts:** The environmental documents in Finding 8 cited the following impacts of project implementation on water quality and beneficial uses of the waters of the State:

**Downtown Project**

- a. Disruption of bank soils and potential erosion of disturbed soils into the River
- b. Interruption of fish passage during construction
- c. Removal of 13.77 acres of riparian vegetation
- d. Removal of 8,315 linear feet of SRA cover vegetation
- e. Potential stranding of fish in bypass systems and potential fish migration barriers caused by insufficient water depth and velocity
- f. Loss of resting and refuge habitats for migrating fish
- g. Removal of 19,760 square feet of spawning gravels
- h. Increases in water temperature caused by loss of riparian vegetation and armoring of channel bed and banks
- i. Reduction in the habitat value of the riparian corridor by reducing the amount of riparian and SRA cover vegetation
- j. Reduction in habitat value caused by armoring of channel bottoms

**Restoration Project**

- a. Removal of 1.1 acres of riparian scrub and forest habitat
- b. Potential construction-related erosion impacts due to disturbance of channel banks

- c. Temporary loss of riverine wetlands during construction and gradual conversion to shaded riverine aquatic habitat
  - d. Temporary loss of 0.6 acres of waters of the state due to "dewatering" of the stream during construction
  - e. Short-term increases in temperature pending maturation of vegetative plantings
  - f. Temporary loss of fish habitat and interruption of fish passage during construction
  - g. Removal of 861 linear feet of SRA cover vegetation
  - h. Potential for methylation and transport of soils with elevated mercury concentrations
10. **Impact Mitigation:** The environmental documents in Finding 8 propose to mitigate the above impacts by:

#### **Downtown Project**

- a. Implementing an erosion control plan to minimize sediment discharges to the aquatic environment during and after the construction period.
- b. Implementing a fish trapping and conveyance program to move downstream migrating or upstream migrating fish around the construction zone.
- c. Restricting construction period to April to October to minimize impacts on fish.
- d. Planting 21.0 acres of riparian vegetative habitat to compensate for removal of 13.77 acres of riparian habitat. This will occur both on and off-site.
- e. Planting 18,026 linear feet of SRA cover vegetation to compensate for removal of 8,315 linear feet of SRA vegetation. This will occur both on and off-site.
- f. Constructing bypasses in a manner that prevents fish entrapment and constructing low flow channels in armored sections that provide for fish passage.
- g. Constructing instream structures to prevent gravel loss, create shallow pools for resting, and provide instream boulders, logs, root wads to allow for fish resting and refuge from predators.
- h. Replacing and maintaining 25,190 square feet of river-run gravels suitable for spawning.
- i. Restoring and establishing vegetative canopy to minimize water temperature increases.
- j. Monitoring temperature and implementing additional corrective measures to reduce temperatures through an adaptive management process as needed.

#### **Restoration Project**

- a. The Restoration Project is an environmental enhancement of existing habitat along Guadalupe Creek. It is intended to mitigate un-mitigated impacts of the Downtown Project and self-mitigate any adverse impacts from construction of the Restoration Project. It is expected to result in a net environmental benefit.
- b. Planting of 6.0 acres of riparian vegetation and 13,000 linear feet of SRA vegetative cover.
- c. Installing instream features such as rootwads to create microhabitats for fish.
- d. Regrading of banks so as to reduce erosion of the channel bed and banks; hence reducing or eliminating potential mercury.
- e. Shaping the low flow channel to increase depth and velocity during low flow periods.
- f. Implementing an erosion control plan.
- g. Installing fencing to prevent damage to vegetation during construction.

- h. Monitoring temperature to determine whether additional temperature corrective measures are needed.
  - i. Implementing a fish trapping and conveyance program to move downstream migrating and/or upstream migrating fish around the construction zone.
  - j. Restricting construction period in the channel to May to October to minimize impacts on fish.
  - k. Implementing a program to monitor post-project changes in observed methyl mercury concentrations and reduce any documented substantial increases in methyl mercury levels in the project area.
11. **Wetland Policy:** The Basin Plan Wetland Fill Policy establishes that there is to be no net loss of wetland acreage and no net loss of wetland value when a project and any proposed mitigation are evaluated together, and that mitigation for wetland fill projects is to be located in the same area of the Region, wherever possible, as the project. The Policy further establishes that wetland disturbances should be avoided whenever possible, and if not possible, should be minimized, and only after avoidance and minimization of impacts should mitigation for lost wetlands be considered.
12. **Wetlands Impacts:** The Dischargers have submitted documentation to show that no jurisdictional wetlands exist in the Guadalupe River portions of the Downtown Project. Therefore, no mitigation for wetland impacts is relevant for this project.

The Dischargers have submitted documents indicating that the Restoration Project will result in both construction-stage temporal impacts and the expected conversion of approximately 0.94 acres of riparian wetlands to shaded riverine aquatic habitat. These impacts have been considered as a part of the overall Restoration Project. The restoration of approximately 6 acres of riparian vegetation along 1.6 miles of Guadalupe Creek will result in a net long-term increase in wetland area, functions and values, including riparian functions and values. Because of the nature, quality and extent of the improvements to habitat to be created by the Restoration Project, the overall restoration project is considered to appropriately self-mitigate the riverine wetland impacts as a part of project design and the expected increase in area, functions, and values.

The Dischargers have submitted documentation to show that appropriate effort was made to avoid and then to minimize wetland disturbance, as required by the Basin Plan. The Board concurs with this conclusion of the Dischargers.

13. **Other Impacts:** In its discussion of the cumulative impacts of the Downtown Project in combination with other projects, such as the flood control projects planned for the River upstream and downstream of the Downtown Project, the District's Environmental Impact Report concluded that the cumulative impacts of riparian habitat removal would be fully mitigation by various measures, including riparian vegetation plantings.

The Board concurs that such mitigation of cumulative impacts may be possible by proper project and mitigation program design. However, construction of the Downtown Project may influence the design of the flood control projects in the upstream and downstream

reaches of the River, which may contribute to impacts, at least temporary in nature, to riparian habitats in those areas. By increasing the peak flood flows delivered to downstream reaches of the River, the Downtown Project may necessitate modifications of the downstream channel to increase its capacity to handle the higher flows. Such modifications may require adverse riparian habitat modifications or periodic elimination of in-channel habitats in order to assure sufficient channel capacity. Similarly, by reducing flow constraints on peak flows from upstream reaches of the Downtown Project, the Downtown Project may serve to encourage flood control solutions that increase upstream channel capacity at the expense of natural channel dynamics and habitat function.

Project planning for upstream and downstream flood control projects should seek to minimize impacts and provide appropriate mitigation such that no significant riparian habitat net loss occurs. However, riparian habitat disruption and localized habitat impacts are likely pending full establishment and maturation of mitigation efforts.

In the long-term, protection of beneficial uses of the Guadalupe River Watershed will require further control of peak flood flows and their impacts, so as to enable preservation and restoration of a significant portion of natural channel vegetation and functions. In the near term, expanded integration of land use, flood control, and habitat planning is needed to prevent increases in peak flood flows. As part of the project planning for upstream and downstream projects, additional studies are needed to determine the potential for implementing long-term reductions or other control of peak flood flows.

14. **Previous Certification Conditions:** As discussed in the Project History in Finding 7 above, the State Water Resources Control Board issued a Conditional Certification for the original Guadalupe River Flood Control Project on February 14, 1992. The Conditions (see Attachment 3) included the following:
  - a. A requirement that a final mitigation and monitoring plan be approved by the Regional Board, the DFG, the FWS, and NMFS, prior to the initiation of construction;
  - b. A requirement that the plan include: (1) a summary of impacts to wetland, riparian and fish habitat, (2) a compensatory riparian mitigation plan, (3) a vegetation protection plan, (4) an erosion control plan, and (5) a fishery mitigation plan; and
  - c. One element of the compensatory riparian mitigation plan was to include "specifications of how compensatory mitigation sites will be guaranteed protection in perpetuity from potential recreational and other urban impacts."
15. **Compliance With Previous Certification Conditions:** The Dischargers have submitted a Final Mitigation and Monitoring Plan (MMP) for the Downtown Project, contained in Appendix 3, of Volume 2 of the General Re-Evaluation and Environmental Report, dated February 2001 and a Final Mitigation and Monitoring Plan (MMP) for the Restoration Project, dated March 2001. Approvals of the MMP have been received from the following: DFG (by letter dated March 8, 2001), FWS (by letter dated March 5, 2001), and NMFS (by letter dated March 8, 2001).
16. **Regional Board Approval Of Mitigation And Monitoring Plan:** The Regional Board finds that the MMP described in Finding 15 complies with the conditions of the 1992

Certification. This Order requires implementation of the MMP and achievement of the Measurable Objectives of the MMP.

17. **Mitigation Quantities:** The MMP commits to compensating for project impacts by planting of riparian and SRA cover vegetation to the extent shown in the following table. The plan also commits to restock spawning gravels so as to maintain 25,190 square feet of such gravels distributed in various reaches of the River in the event that high flows dislodge the gravels.

Table 1 : Mitigation Quantities

|                     | Riparian Vegetation   |                                | SRA Cover Vegetation          |                                     |
|---------------------|-----------------------|--------------------------------|-------------------------------|-------------------------------------|
|                     | Affected Area (acres) | Planted/ to be planted (acres) | Affected Length (linear feet) | Planted/to be planted (linear feet) |
| Downtown Project    | 13.77 ac.             | 21 ac.                         | 8,315 lf                      | 10,792 lf                           |
| Restoration Project | 1.1 ac.               | 6.0 ac.                        | 861 lf                        | 13,000 lf                           |
| Total               | 14.12 ac.             | 23.4 ac.                       | 9,176 lf                      | 23,792lf                            |

FWS, NMFS, and DFG have all agreed that the above mitigation quantities constitute an appropriate level of mitigation for the Downtown Project.

18. **Mitigation Objectives:** The mitigation objectives of the MMP are to implement mitigation that will:
- Replace the amount, quality and value of riparian vegetation removed by project construction;
  - Replace the amount, quality and value of SRA cover vegetation that is removed by project construction;
  - Design the projects so that they will not cause elevated water temperatures that harm anadromous fish species and other beneficial uses during the projects' construction and over the entire life of the projects, including during the transition period before replacement vegetation matures;
  - Design the projects to allow successful migration of anadromous fish through project areas, including the armored channel bottom sections of the projects;
  - Replace the amount, quality and value of spawning gravels removed by the projects; and
  - Replace the same quantity and quality of anadromous fish habitat, including spawning and rearing habitat, as was present before project construction by implementing the above five mitigation objectives.
19. **Monitoring Objectives:** The monitoring objectives of the MMP are:
- Provide ongoing monitoring of all mitigation measures throughout the life of the projects to assure that the actual benefits of mitigation measures comply with mitigation requirements;

- b. Provide a mechanism for implementing corrective actions in the event that mitigation measures do not meet the measurable objectives established for the project; and
- c. Provide annual reporting of monitoring results.
20. **Adaptive Management:** The MMP provides for an Adaptive Management Team (AMT). This Team, composed of representatives of the District, Corps, City of San Jose, Regional Board, FWS, NMFS, DFG, Guadalupe-Coyote Resource Conservation District, Pacific Coast Federation of Fisherman's Associations, and Trout Unlimited, will provide ongoing oversight of the MMP implementation. The purpose of the AMT is to assure that mitigation measures successfully reestablish ecological functions and habitat values. The AMT will review monitoring results to determine whether the Measurable Objectives established by the MMP have been achieved. If a measurable objective is not achieved, the AMT will determine whether the measurable objective is likely to be met. If the AMT decides that the measurable objective is not likely to be met, then the AMT will determine whether the indicator is appropriate, and, if the indicator was determined to be inappropriate, identify another indicator and measurable objective. If the AMT determines that the indicator is the correct one to be using, the AMT will identify a remedial action to be implemented to ensure mitigation success. Monitoring will then continue until the measurable objective is met.

The Board will consider the recommendations of the Dischargers and the AMT in regard to monitoring program modifications or corrective action implementation and, if appropriate, will modify the monitoring program of this Order or establish a compliance schedule for corrective action measure implementation.

21. **Indicators of Mitigation Measure Success:** Indicators of mitigation measure success have been identified in the MMP and are summarized in Table 2 below:

Table 2: Indicators of Mitigation Measure Success

| Potential Effect               | Indicators of Mitigation Measure Success   |
|--------------------------------|--|
| Loss of riparian vegetation    | Survival of planted trees and shrubs; health and vigor of plantings; evidence of natural recruitment of valuable trees and shrubs; percent of area covered by plant canopy; absence of non-native species; tree height; and tree basal area  |
| Loss of SRA cover vegetation   | Survival of planted trees and shrubs; health and vigor of plantings; evidence of natural recruitment of valuable trees and shrubs; absence of non-native species; percent of stream area in shade; percent of stream bank in shade; bank stability; instream cover; and channel bottom stability |
| Increases in water temperature | Short-term thermal suitability index, and long-term monthly thermal suitability index  |
| Loss of spawning habitat       | Spawning gravel abundance and quality  |
| Loss of natural river channel  | Occurrence and length of rearing habitat; and water depth and velocity for assuring fish passage   |
| Reduced habitat values         | Presence of adult spawning and migration; presence of juvenile rearing; and presence of juvenile migration to Bay  |

The Measurable Objectives for the above indicators are described in detail in the MMP and are summarized in Attachment 4 to this Order.

22. **Basin Plan:** The Board, on June 21, 1995, adopted, in accordance with Section 13244 et. seq. of the California Water Code, a revised Water Quality Control Plan, San Francisco Bay Basin (Basin Plan). The SWRCB and the Office of Administrative Law approved this updated and consolidated revised Basin Plan on July 20, 1995, and November 13, 1995, respectively. A summary of regulatory provisions is contained in 23 CCR 3912. The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface waters and groundwaters. This Order is in compliance with the Basin Plan.
23. **Beneficial Uses:** The potential and existing beneficial uses of the Guadalupe River and the Guadalupe Creek, as a tributary of the Guadalupe River, as set forth in the Basin Plan include:
  - a. Warm Fresh Water Habitat
  - b. Fish Migration
  - c. Fish Spawning
  - d. Wildlife Habitat
  - e. Water Contact Recreation
  - f. Non-Contact Water Recreation
24. Pursuant to Title 23, California Code of Regulations Section 3857 and 3859, the Board is issuing WDRs and Water Quality Certification for the Project.
25. The Regional Board has notified the Dischargers, and interested parties of its intent to issue WDRs and Water Quality Certification for the Projects.
26. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

**IT IS HEREBY ORDERED** that the Dischargers in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

**A. Discharge Prohibitions**

1. The direct discharge of wastes (including soil, sediment and other excavated material) from active construction sites to surface waters or surface water drainage courses is prohibited.
2. Soil, sediment and other excavated material shall remain within designated disposal areas at all times. The designated disposal areas are: (a) an off-site temporary or permanent location approved in advance by the Executive Officer, (b) onsite locations utilizing BMPs acceptable to the Executive Officer, or (c) a permitted landfill.

3. The construction activities subject to these requirements shall not cause a nuisance as defined in Section 13050(m) of the California Water Code.
4. The discharge of decant water from any on-site temporary excavated material stockpile or storage areas to surface waters is prohibited except where in conformance with the BMPs incorporated by reference into the Plans and Specifications for the Projects, or BMP modifications, acceptable to and approved by the Executive Officer.
5. Groundwater shall not be degraded as a result of the Project.

**B. Effluent Limitations**

Wastewater (decant water and/or runoff water) discharged at any excavated material stockpile or storage site(s) to storm drains or waters of the State shall not exceed the following limits of quality at any time:

1. pH: 6.5 – 8.5
2. Settleable matter: 1.0 ml/l/hr
3. Dissolved sulfide: 0.1 mg/l

**C. Receiving Water Limitations**

1. The Project's activities shall not cause:
  - a. Floating, suspended or deposited macroscopic particulate matter or foam in waters of the State at any place more than 100 feet from the point of discharge of diverted flow.
  - b. Alteration of apparent color beyond present natural background levels in waters of the State at any place more than 100 feet from the point of discharge of diverted flow.
  - c. Visible floating, suspended, or deposited oil or other products of petroleum origin in waters of the State at any place more than 100 feet from the point of discharge of diverted flow.
  - d. Neither the diverted flow nor the post-construction reintroduction of flow into the water course shall cause waters of the State to exceed the following quality limits at any place more than 100 feet from the point of discharge of diverted flow or reintroduced flow:
    - i) Dissolved Oxygen: 5.0 mg/l minimum. When natural factors cause lesser concentrations, then this discharge shall not cause further reduction in the concentration of dissolved oxygen.
    - ii) pH: A variation of natural ambient pH by more than 0.5 pH units.
    - iii) Toxic or other deleterious substances: The discharge shall not cause an increase in concentrations or quantities which may cause deleterious effects on aquatic biota, wildlife or waterfowl, or which render any of these unfit for human consumption

either at levels created in the receiving waters or as a result of biological concentrations.

2. Turbidity of the waters of the State, as measured in NTUs, at any point beyond 100 feet downstream of the point of discharge of diverted flow or other project activity on non-tidal streams shall not increase above background levels by more than the following:

| <u>Receiving Waters Background</u> | <u>Incremental Increase</u> |
|------------------------------------|-----------------------------|
| < 50 units                         | 5 NTUs                      |
| ≥ 50 units                         | 10% of background, maximum  |

#### **D. Provisions**

1. The Dischargers shall comply with all the Provisions of this Order immediately upon adoption of this Order except where provisions of this Order specify alternative compliance dates. Additionally, the responsibilities of the co-sponsor under this Order are limited to those stated in Provision 9 below.
2. **Implementation of Mitigation and Monitoring Plan:** The Dischargers shall implement the MMP for the Downtown and Restoration Projects, referred to in Finding 15 above. This includes implementation of the Compensatory Riparian Mitigation Plan, the Vegetative Protection Plan, the Erosion Control Plan, the Stormwater Pollution Prevention Plan, the Soils Management Plan, the Fisheries Mitigation Plan, and all other elements of the MMP.
3. **Achievement of Measurable Objectives:** One year following the achievement dates of the Measurable Objectives of the MMP referred to in Finding 15 above and contained in summary form in Attachments 4 and 5 to this Order, the Dischargers shall submit a technical report, acceptable to the Executive Officer, documenting achievement of the Measurable Objectives or documenting that acceptable progress has been made towards achievement of the Measurable Objectives. The achievement dates are set forth in the descriptions of the Measurable Objectives contained in the MMP. The additional year provided by this Order to document compliance is intended to provide sufficient time for the Adaptive Management process to assess attainment of the Measurable Objectives and appropriateness of Measurable Objective indicators, propose changes to the Measurable Objectives, or develop remedial actions.
4. **Monitoring Program:** The Dischargers shall comply with the terms of any Self-Monitoring Program issued by the Executive Officer or approved by this Order.
5. **Mitigation Success Status Report:** By June 30 of each year, the Dischargers shall submit a technical report, acceptable to the Executive Officer, containing the results of an assessment of monitoring results, and recommendations for monitoring program modification or corrective measure implementation, if appropriate. It is anticipated, as described in the MMP, that the assessments and corrective measure proposal will be the product of the AMT described in Finding 20.

**6. Mitigation Plan Implementation and Downtown Project Construction Sequencing:**

- a. The Dischargers shall sequence construction such that mitigation plantings have been completed before major disruption occurs within the river channels.
- b. Prior to completion of the Restoration Project, the Corps will only issue partial Notices To Proceed for Contracts 3A and 3B. These partial Notices To Proceed would only allow activities to occur outside of the river channel and floodway (i.e., includes work only on level ground both outside of floodway contours and above the 1% post-project design elevation). This limitation will eliminate the potential for any impact within the floodway due to loss or disturbance of woody or herbaceous vegetation, or any temporary impact caused by ground disturbance or other activity that may cause discharge of sediment into the River. Work within the floodway, including but not limited to ramp/road construction, excavation, armoring, armor replacement, hardscaping, inlet/outlet construction, low-flow channel installation, or any other hard structure or disturbance within the floodway will not be permitted under the partial Notices to Proceed. Permissible activities under the partial Notices to Proceed will be limited to the preparation of submittals, accumulation of materials, and construction of portions of the bypass in Contract 3A (if these portions are constructed in a manner that does not require any disturbance within the floodway, and has no potential for sediment discharge into the River). The full Notice To Proceed for either Contract 3A or Contract 3B will not be issued until the Restoration Project is substantially complete (i.e., all earthwork is completed, and all instream structures, mitigation plantings, and irrigation systems are 100% installed). The SRA-infill planting mitigation-sites in Contract 3A will be completed not later than the planting season immediately following completion of flood protection work in Contract 3A.

If an environmental catastrophe (flood, fire, earthquake) causes damage to the Restoration Project after it has been deemed substantially complete, as defined above, the Corps may issue a full Notice To Proceed and proceed with flood control work. The District shall be responsible for repair of the Restoration Project within one calendar year of any such event.

- c. The Dischargers shall submit a technical letter report within 30 days of completion of the Restoration Project documenting compliance with Provision 6.a above.
- d. The Dischargers shall submit a technical letter report within 30 days of completion of flood protection work in Segment 3A establishing the date by which SRA vegetation will be planted.
- e. The Dischargers shall submit a technical letter report by the end of the planting season following completion of flood protection work in Segment 3A documenting completion of the planting of SRA vegetation in Segment 3A.

**7. Special Study:**

- a. In order to maximize the potential for protection of beneficial uses of Waters of the State within the Guadalupe River Watershed, additional studies are needed to determine the long-term feasibility and potential impacts achievable by reduction of or other control of peak flood flows within the watershed. Needed studies include: (1) evaluation of the peak flood flow reductions or controls needed in order, in the long term, to restore habitat function and value by retention of existing riparian habitat and/or replacement of existing concrete/rockwork with suitable riparian and shaded riverine aquatic vegetation, (2) evaluation of the potential impacts on peak flood flows of collaborative efforts with stakeholders to integrate land use, flood control, and watershed planning so as to prevent or control increases in peak flood flows resulting from new development, (3) evaluation of potential impacts on peak flood of retrofitting existing development with onsite storage/infiltration facilities for peak flows, and (4) evaluation of the potential for combinations of flood plain expansion, reservoir storage, reservoir operations and existing and new development onsite storage/infiltration requirements to reduce or control peak flood flows and preserve/restore riparian habitat.
- b. By March 31, 2002, the District shall submit a report acceptable to the Executive Officer summarizing the following information:
  - (1) An evaluation of alternative methods of reducing or otherwise controlling peak flows in the Guadalupe River Watershed. The evaluation may be based on existing information supplemented by additional studies as needed. Peak reduction methods addressed in the report shall include onsite storage/infiltration facilities; reservoir storage, and reservoir operation modifications. The report shall address the technical, economic, and institutional feasibility, and the potential environmental impacts, of alternative peak-reduction and control measures.
  - (2) An overview of land-use planning practices and guidelines currently in effect in the Guadalupe River Watershed and recommendations for modifications to those practices and guidelines consistent with the goals of riparian habitat preservation and restoration.

The report may be based on information available from studies previously conducted by the District and from studies being conducted under the Santa Clara Basin Watershed Management Initiative, the Santa Clara Valley Urban Runoff Pollution Prevention Program, the Fisheries Aquatic Habitat Collaborative Effort and other ongoing programs.
- c. If the Executive Officer finds the study submitted pursuant to 7.b. above is acceptable in addressing the issues discussed in 7.a. above, then no further studies will be required pursuant to this Order. If this study is not found acceptable, the Executive Officer shall request further studies to fully address these issues.

8. **Maintenance of Mitigation Sites:** The Dischargers shall guarantee the maintenance of the Mitigation Sites in perpetuity by the granting of a Conservation Easement to a third party or by other methods providing an equivalent level of environmental protection.

By December 1, 2002, the Dischargers shall submit a technical report, acceptable to the Executive Officer, documenting compliance with this Provision or providing a compliance time schedule.

9. **Responsibilities of Co-sponsor:** The responsibilities of the Project Co-sponsor identified in Finding 3 of this Order is limited to maintenance and operation of recreational trails in a manner that guarantees in perpetuity that trail operation and maintenance will not unreasonably adversely affect the habitat value of the riparian corridor created by the Downtown Project's Mitigation Plan.
10. **Certification:** This Order supercedes the SWRCB Conditional Certification Under Clean Water Act Section 401: US Army Corps of Engineers Guadalupe River Flood Control Project, dated February 14, 1992. Adoption of this Order constitutes certification of the project under Section 401 of the Clean Water Act.
11. All plans and reports pursuant to these Provisions shall be prepared under the supervision of a suitable professional registered in the State of California.
12. The discharge of any hazardous, designated or non-hazardous waste as defined in Title 27, Division 2, Subdivision 1, Chapter 2 of the California Code of Regulations (CCR) shall be conducted in accordance with applicable state and federal regulations.
13. The Dischargers shall remove and relocate any wastes that are discharged at any sites in violation of this Order.
14. The Dischargers shall file with the Board a report of any material change or proposed change in the character or location of project elements.
15. The Dischargers shall maintain a copy of this Order at the projects sites during construction so as to be available at all times to site operating personnel.
16. This Order does not authorize commission of any act causing injury to the property of another or of the public; do not convey any property rights; do not remove liability under federal, state or local laws, regulations or rules of other programs and agencies nor does this Order authorize the discharge of wastes without appropriate permits from other agencies or organizations.
17. The Dischargers shall obtain all the necessary approvals and/or permits for the projects from applicable government agencies and shall submit them to the Board prior to the start of the construction.

18. The Board may reconsider the terms of this Order based on the results of monitoring plan or evidence of adverse water quality impacts related to the projects.
19. The following standard conditions apply to this Order:
  - a. Every certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Section 13330 of the California Water Code and Section 3867 of 23 CCR.
  - b. Certification is not intended and shall not be construed to apply to any activity involving a hydroelectric facility and requiring a 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.
  - c. Certification is conditioned upon total payment of any fee required under 23 CCR and owed by the Dischargers.
20. The Dischargers shall permit the Board or its authorized representative, upon presentation of credentials:
  - a. Entry on to the premises on which any project and mitigation element construction is planned or underway, or in which records are kept.
  - b. Access to copy any records required to be kept under the terms and conditions of this Order.
  - c. Access to inspect any monitoring equipment or monitoring method required by this Order.

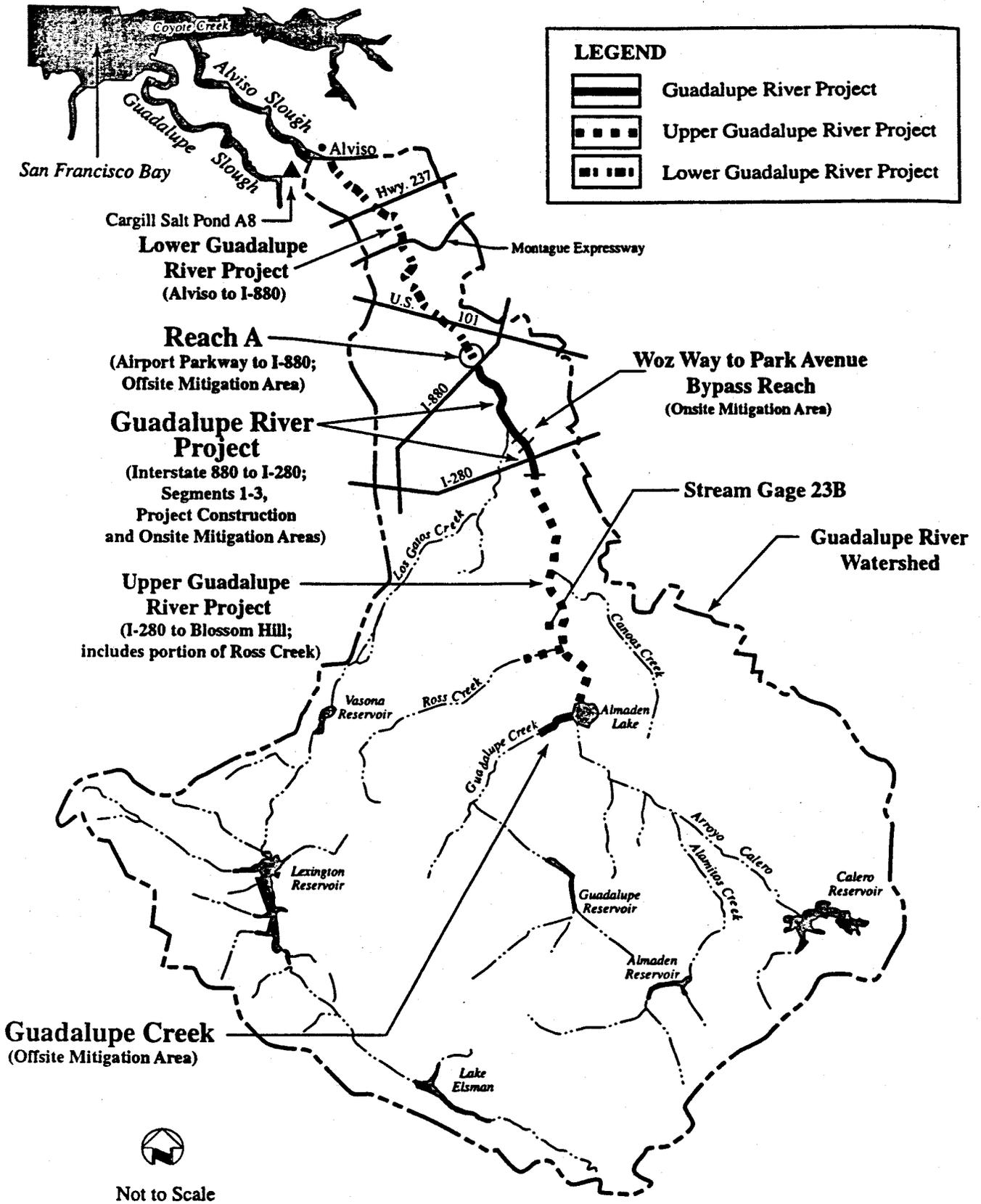
I, Loretta K. Barsamian, Executive Officer, do hereby certify that the foregoing is a full, complete and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on March 21, 2001.



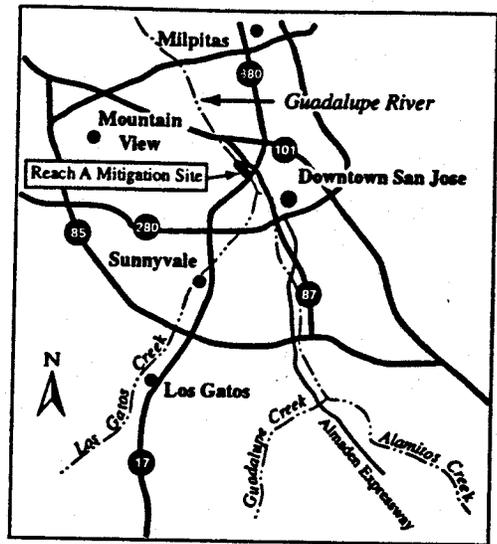
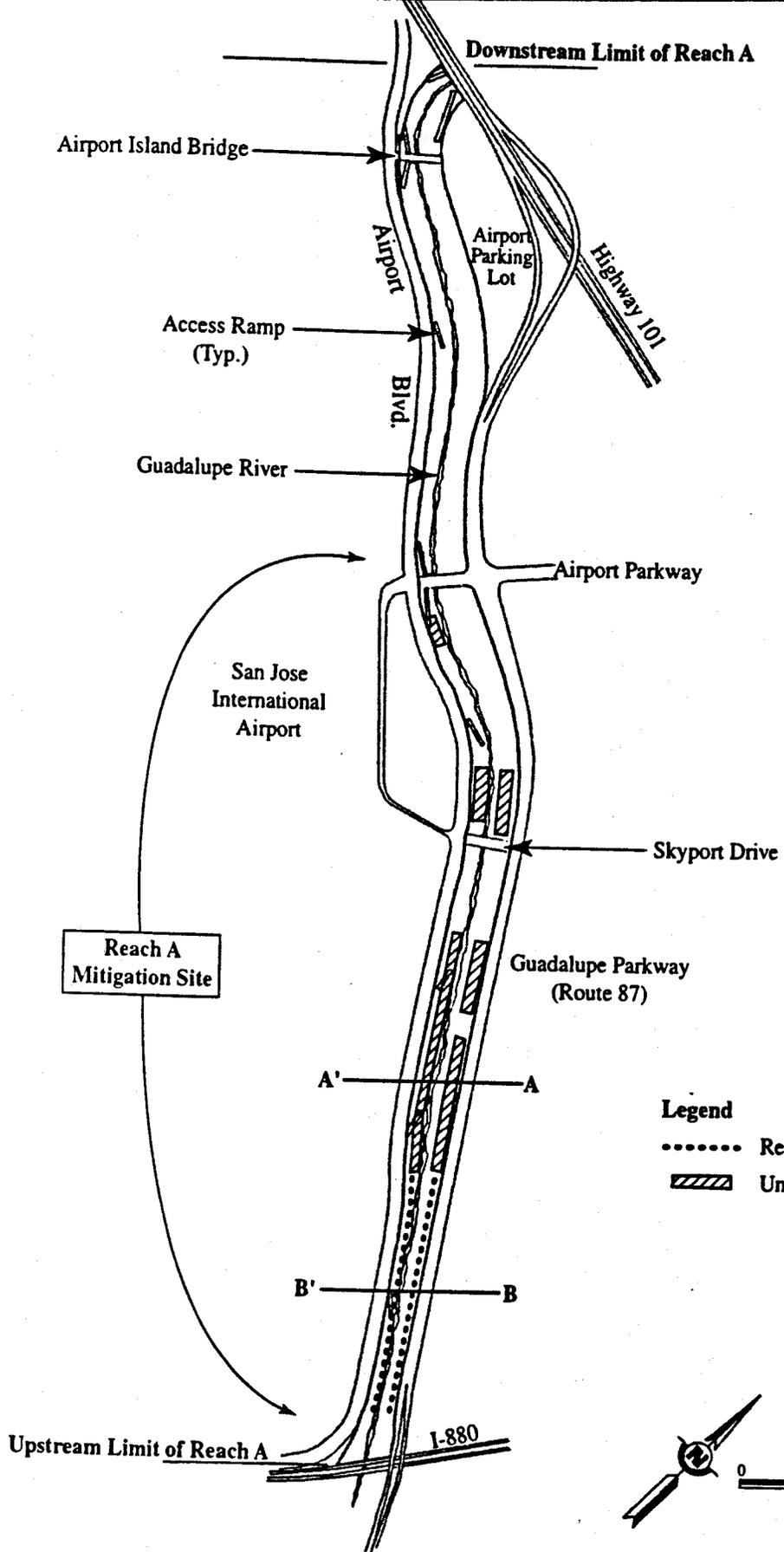
Loretta K. Barsamian  
Executive Officer

Attachments:

- (1) Location Map of Guadalupe River Project with respect to the Guadalupe River Watershed
- (2) Location Map of Mitigation Sites:
  - a) Downstream Mitigation Area (Reach A)
  - b) Guadalupe Creek Restoration Project
- (3) 1992 Conditions of Certification Under Clean Water Act Section 401 for U.S. Army Corps of Engineers, Guadalupe River Flood Control Project, San Jose, California
- (4) Indicators and Measurable Objectives (Table 4-1 of MMP)
- (5) Schedule of Monitoring Activities and Achievement Dates for Measurable Objectives (Table 4-18 of MMP)
- (6) Self-Monitoring Program

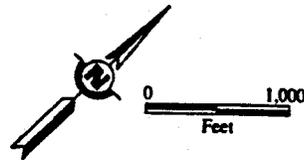


Attachment 1: **Guadalupe River Watershed Including Project Construction and Mitigation Areas**



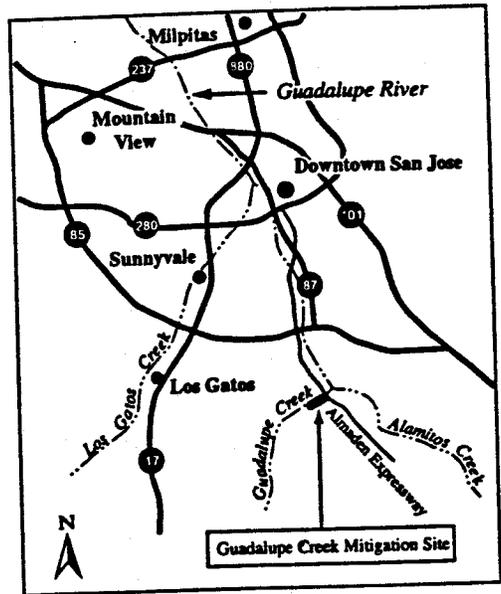
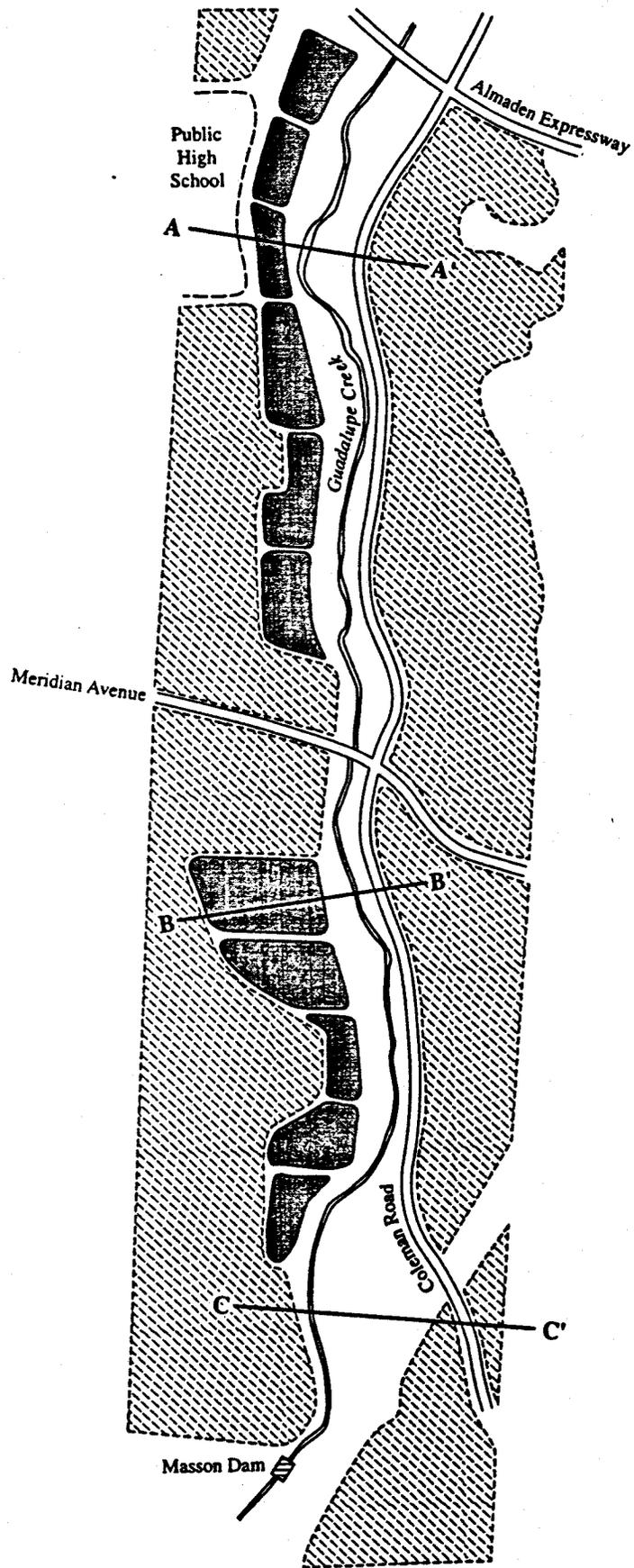
**Legend**

- ..... Restricted Planting Area
- ▨ Unrestricted Planting Areas



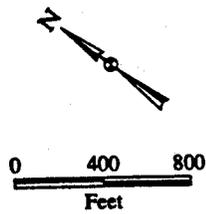
Revised

Attachment 2a: **Reach A Mitigation Site**  
Planting area locations are approximate.



**Legend**

-  Percolation Ponds
-  Residential



Attachment 2b: **Guadalupe Creek Mitigation Site**

**Attachment 3:**  
**1992 Conditions of Certification, Guadalupe River Flood Control Project**

**CALIFORNIA STATE WATER RESOURCES CONTROL BOARD**

**CONDITIONS OF CERTIFICATION UNDER CLEAN WATER ACT SECTION 401  
FOR**

**U.S. ARMY CORPS OF ENGINEERS (CORPS)  
GUADALUPE RIVER FLOOD CONTROL PROJECT,  
SAN JOSE, CALIFORNIA**

1. Ownership of the mitigation sites shall not be transferred to another public entity until the California Department of Fish and Game (CDFG) and U.S. Fish and Wildlife Service (USFWS) concur that the sites have met the goals of the Compensatory Mitigation Program.
  
2. Prior to the initiation of construction and after final design plans for the project have been drawn, a Final Mitigation and Monitoring Plan (Final Plan) shall be approved by the California Regional Water Quality Control Board, San Francisco Bay Region, CDFG, USFWS, and the U.S. National Marine Fisheries Service (USNMFS). Prior to construction, a copy of the Final Plan and documentation of approval by the above agencies shall be transmitted to the State Water Resources Control Board (State Water Board). The Final Plan shall contain the following elements, shall be fully implemented, and shall include provisions for reporting and inspections to assure implementation as specified:

a. Summary of Impacts to Wetland, Riparian, and Fish Habitat

The Summary of Impacts element will present an overview of all wetland, riparian, and fish habitat impacts of the project as finally designed, and will include narrative and maps to collate and update the information presented in previous environmental documents. For each reach of the river in which construction takes place, the Summary of Impacts element will describe existing wetland, riparian, and fish habitat; how much of the habitat will be removed by construction; how much will remain; and how much will be created.

b. Compensatory Riparian Mitigation Plan

The Compensatory Riparian Mitigation Plan will include:

- i. A detailed description and plans of compensatory mitigation sites;
- ii. A detailed planting plan;
- iii. Criteria to determine whether the compensatory mitigation has been fully successful in offsetting lost wetland and riparian functions and values;
- iv. A monitoring plan and provisions for reporting to concerned agencies;
- v. Contingency measures to be implemented should monitoring indicate that the mitigation is not fully successful as determined by the criteria established pursuant to Condition No. 2.b.iii above;
- vi. Documentation that sufficient reclaimed or other irrigation water for the establishment and maintenance of vegetation has been secured, while ensuring the adequacy of the instream flows required by Condition No. 2.e.ii below;
- vii. Specifications of how compensatory mitigation sites will be guaranteed protection in perpetuity from potential recreational and other urban impacts. The program will include provision for periodic inspections of the mitigation sites by concerned agencies.

c. Vegetation Protection Plan

The Vegetation Protection Plan will provide a detailed description of how impacts to existing vegetation will be minimized during construction, including a map of vegetation to be retained.

d. Erosion Control Plan

The Erosion Control Plan will detail how erosion and sediment delivery to the Guadalupe River will be minimized during construction, including prevention of wet weather runoff and interim soil stabilization until vegetative cover is established.

e. Fishery Mitigation Plan

The Fishery Mitigation Plan will detail:

- i. Design of a low flow channel, where the streambed will be armored, to include fish resting areas;
- ii. Design and operation standards for the secondary channel to avoid impacts to anadromous fish, including measures to ensure that adequate depth and velocity of water in the main channel are maintained;
- iii. Measures to ensure maintenance in perpetuity of spawning gravel for anadromous fish in the project reach, unless USFWS, USNMF, and CDFG recommend, and the State Water Board approves, cessation of the gravel maintenance program;
- iv. Measures to prevent gravel loss and fish barriers resulting from removal of the U.S. Geologic Survey gaging weir upstream of the St. John Street bridge;
- v. Measures to fully mitigate any project-related thermal impacts to the armored and unarmored sections of the channel, including a detailed planting and plant maintenance plan to reestablish the vegetative canopy.

## Attachment 4: Indicators and Measurable Objectives

TABLE 4-1. Indicators, Measurable Objectives, and Remedial Actions to Assure Mitigation Success for the Guadalupe River Project

| Potential Effect  | Mitigation Measures  | Indicators and Measurable Objectives <sup>a</sup>  | Examples of Potential Remedial Actions  |
|---|--|--|---|
| Loss of 13.77 acres of riparian vegetation              | Plant 21.0 acres of riparian vegetation  | <p><u>Survival</u>: 100 trees and 70 shrubs per acre; survival counts may be replaced by cover measurements if counts are impractical because of natural regeneration</p> <p><u>Health and vigor</u>: average rating for foliage, wood and root crown for each plant in sample must exceed "fair" (score &gt; 2)</p> <p><u>Natural recruitment</u>: evidence of natural recruitment of native riparian tree and shrub species</p> <p><u>Cover</u>: approximately 75 percent cover for native trees and 45 percent cover for native shrubs; variable percentages but total cover no less than 85 percent</p> <p><u>Nonnative species</u>: cover by giant reed should be &lt;5 percent; cover by other nonnative woody species should be &lt;15 percent</p> <p><u>Tree height</u>: 30-60 feet depending on the species</p> <p><u>Tree basal area</u>: typical for a riparian forest at the site and increasing over time</p> | <p>Replant appropriate species at the mitigation site or alternative location</p> <p>Revise irrigation regime, treat diseases, amend soil, or deter pest damage</p> <p>Develop and implement actions to facilitate natural recruitment</p> <p>Initiate an irrigation regime, add soil amendments, plant additional appropriate species</p> <p>Physically and chemically remove noxious woody nonnative species and introduced species</p> <p>Initiate an irrigation regime, add soil amendments, plant additional appropriate species</p> <p>Initiate an irrigation regime, add soil amendments, plant additional appropriate species</p> <p>Replant appropriate species at the mitigation site or alternative location</p> <p>Revise irrigation regime, treat diseases, amend soil, or deter pest damage</p> <p>Develop and implement actions to facilitate natural recruitment</p> <p>Physically and chemically remove noxious woody nonnative species and introduced species</p> |
| Loss of 8,315 lf of shaded riverine aquatic (SRA) cover | Plant 22,836 lf with riparian vegetation; Onsite Contracts 1-3 = 2,534 lf; Woz Way to Park Ave. Bypass Reach = 410 lf; Reach A = 7,848 lf; and lower Guadalupe Creek = 12,044 lf | <p><u>Survival</u>: 17 trees and 10 shrubs per 100 lf; survival counts may be replaced by cover measurements if counts are impractical because of natural regeneration</p> <p><u>Health and vigor</u>: average rating for foliage, wood and root crown for each plant in sample must exceed "fair" (score &gt; 2)</p> <p><u>Natural recruitment</u>: evidence of natural recruitment of native riparian tree and shrub species</p> <p><u>Nonnative species</u>: cover by giant reed should be &lt;5 percent; cover by other nonnative woody species should be &lt;15 percent</p>   | <p>Replant appropriate species at the mitigation site or alternative location</p> <p>Revise irrigation regime, treat diseases, amend soil, or deter pest damage</p> <p>Develop and implement actions to facilitate natural recruitment</p> <p>Physically and chemically remove noxious woody nonnative species and introduced species</p>   |

TABLE 4-1. Indicators, Measurable Objectives, and Remedial Actions to Assure Mitigation Success for the Guadalupe River Project

| Potential Effect  | Mitigation Measures  | Indicators and Measurable Objectives <sup>a</sup>   | Examples of Potential Remedial Actions   |
|---|--|---|--|
| Increase in water temperature   | Plant riparian vegetation, construct low-flow channel                                      | <p><u>Shaded stream surface</u>: 45 percent of total stream surface area shaded at normal summer flow, at least 85 percent of bank with some shade</p> <p><u>Bank stability</u>: stable ground cover along 75 percent of the affected stream length</p> <p><u>Instream cover</u>: 10 percent of total stream area at depths greater than 15 cm at normal summer flow</p> <p><u>Channel Bed Stability</u>: Maintain channel bed elevation within <math>\pm 0.5</math> feet of previous survey</p> <p><u>Monthly thermal suitability</u>: monthly thermal suitability units for steelhead and chinook salmon equal to or greater than preproject levels</p> | <p>Initiate an irrigation regime, add soil amendments, plant additional appropriate species</p> <p>Plant additional riparian vegetation, or implement biotechnical bank stabilization</p> <p>Place boulders, woody material, or other structures in the channel</p> <p>Stabilize channel with permanent structural changes</p> <p>Plant additional riparian vegetation, modify channel to increase water depth, augment flow with cool water</p> |
| 24,850 square feet of anadromous fish spawning habitat                          | Replace and maintain spawning habitat  | <p><u>Short-term thermal suitability</u>: monthly median hourly water temperature must provide a suitability index for steelhead and chinook salmon life stages greater than 0.5 in at least 50 percent of the Project area</p> <p><u>Spawning gravel abundance</u>: spawning gravel abundance greater than or equal to preproject levels</p>   | <p>Plant additional riparian vegetation, increase water depth, provide temporary shade, augment flow with cool water</p> <p>Add gravel to spawning areas, place boulders and weirs to retain gravel, place gravel upstream to supply the project area</p>  |
| 4,433 feet of armored river channel, affecting fish passage and rearing habitat | Construct low-flow channel, invert stabilization features, and bank stabilization features | <p><u>Spawning gravel quality</u>: spawning gravel quality greater than or equal to preproject levels</p> <p><u>Depth and velocity</u>: water depth &gt;1 foot at flows &gt;4 cfs; velocity &lt;5 feet per second when flow is within the capacity of the low flow channel</p> <p><u>Vertical barriers</u>: Vertical barriers must allow upstream migration of anadromous fish</p> <p><u>Rearing habitat diversity</u>: occurrence and length of rearing habitat within 10 percent of preproject values</p>   | <p>Add gravel to spawning areas, reduce input of fine sediment, remove fine sediment</p> <p>Remove the cause of high velocity or shallow depth, such as sediment or debris removal; alter channel geometry</p> <p>Remove barriers, construct fish passage facilities</p> <p>Place boulders or other structures in the channel</p>  |
| Effects on habitat conditions may reduce anadromous fish abundance              | Replace and maintain habitat values for anadromous fish                                    | <p><u>Adult Migration and Spawning</u>: anadromous fish migration and spawning consistent with preproject levels and environmental conditions not affected by the Guadalupe River Project</p>   | <p>Add gravel to spawning areas, remove migration barriers</p>   |

**TABLE 4-1. Indicators, Measurable Objectives, and Remedial Actions to Assure Mitigation Success for the Guadalupe River Project**

| Potential Effect   | Mitigation Measures  | Indicators and Measurable Objectives <sup>a</sup>  | Examples of Potential Remedial Actions  |
|--|--|--|---|
|  |  | <p><u>Juvenile rearing:</u> steelhead rearing distribution and abundance consistent with preproject levels and environmental conditions not affected by the Guadalupe River Project</p> <p><u>Juvenile migration:</u> anadromous fish outmigration timing and abundance consistent with preproject levels and environmental conditions not affected by the Guadalupe River Project</p> | <p>Plant additional riparian vegetation; place boulders, woody material, or other structures in the channel</p> <p>Plant additional riparian vegetation; place boulders, woody material, or other structures in the channel</p> |
| <p>Potential for cumulative changes in the locations and rates of methyl mercury formation</p> | <p>SCVWD will participate with the RWQCB for the San Francisco Bay Region in assessing mercury transport in the Guadalupe River and the potential for methylation associated with proposed wetland and riparian mitigation</p> | <p>Indicators for the assessment of mercury transport and the potential for methylation of mercury will include total suspended solids, total and bioavailable mercury, and methyl mercury concentrations in riverbed and suspended sediments. Specific measurable objectives will be developed by the RWQCB in coordination with SCVWD.</p>   | <p>SCVWD will continue to participate with the RWQCB in assessing mercury transport in the Guadalupe River and the potential for methylation associated with proposed wetland and riparian mitigation.</p>                      |

<sup>a</sup>

<sup>b</sup>

See text and Table 4-15 for time requirements relative to meeting the measurable objectives.

Total SRA mitigation for the Guadalupe River Project with Bypass System Alternative is based on the HEP and equals 18,026 lf. Guadalupe Creek, between Masson Dam and Almaden Expressway, will be planted with SRA cover vegetation for an estimated 12,044 lf. A total of 7,217 lf of SRA cover vegetation mitigation on Guadalupe Creek will be used as mitigation for the Guadalupe River Project with Bypass System Alternative. Phase 2 plantings on Guadalupe Creek will need to provide an estimated 5,971 lf of SRA cover vegetation mitigation to be applied to the Guadalupe River Project with Bypass System Alternative. Excess SRA cover vegetation mitigation credits on Guadalupe Creek would be used by SCVWD to mitigate for other projects.

### Attachment 5: Schedule of Monitoring Activities and Achievement Dates for Measurable Objectives

TABLE 4-18. Schedule of Monitoring Activities for Preproject and the 10 Years Following Implementation of Mitigation Actions, Guadalupe River Project  
*Numbers shown for the "Month of Monitoring" columns indicate repetition of monitoring activity during the shaded period. A "?" indicates that monitoring may be required depending on the findings of other monitoring activities. An "M" under "Year of Monitoring" columns indicates that the measurable objective must be met or that the measured value for the indicator must be progressing toward the measurable objective*

| Indicator                               | Month of Monitoring |   |   |   |   |   |   |   |   |   |   |   | Year of Monitoring |   |   |   |   |   |   |   |   |   |    |
|---|---------------------|---|---|---|---|---|---|---|---|---|---|---|--------------------|---|---|---|---|---|---|---|---|---|----|
|   | J                   | F | M | A | M | J | J | A | S | O | N | D | P <sup>a</sup>     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| <b>Riparian Vegetation</b>              |                     |   |   |   |   |   |   |   |   |   |   |   |                    |   |   |   |   |   |   |   |   |   |    |
| Survival                                |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   | M | M | M |   |   |   |   |   |    |
| Health and vigor                        |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   | M | M | M | M |   |   |   |   |    |
| Natural recruitment                     |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   |   |   |   | M |   |   |   |   |    |
| Cover                                   |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   |   |   |   |   |   |   |   |   | M  |
| Nonnative species                       |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   | M | M | M | M |   |   |   |   | M  |
| Tree height                             |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   |   |   |   |   |   |   |   |   | M  |
| Tree basal area                         |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   |   |   |   |   |   |   |   |   | M  |
| <b>SRA Cover</b>                        |                     |   |   |   |   |   |   |   |   |   |   |   |                    |   |   |   |   |   |   |   |   |   |    |
| Survival                                |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   | M | M | M |   |   |   |   |   |    |
| Health and vigor                        |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   | M | M | M | M |   |   |   |   |    |
| Natural recruitment                     |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   |   |   |   | M |   |   |   |   |    |
| Nonnative species                       |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   | M | M | M | M |   |   |   |   | M  |
| Shaded stream surface                   |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   |   |   |   |   |   | M |   |   | M  |
| Bank stability                          |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   | M | M | M | M |   |   |   |   | M  |
| Instream cover                          |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   |   |   | M |   |   | M |   |   | M  |
| Channel bed stability                   |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   | M | M | M | M |   |   |   |   | M  |
| <b>Water Temperature<sup>b</sup></b>    |                     |   |   |   |   |   |   |   |   |   |   |   |                    |   |   |   |   |   |   |   |   |   |    |
| Measured water temperature <sup>c</sup> |                     |   |   |   |   |   |   |   |   |   |   |   |                    |   |   |   |   |   |   |   |   |   |    |
| Heat transfer                           |                     |   | 1 |   |   |   |   | 1 |   |   |   |   |                    |   |   |   |   |   |   |   |   |   |    |
| Stream channel geometry                 |                     |   |   |   |   |   |   |   |   |   |   |   |                    |   |   |   |   |   |   |   |   |   |    |
| Simulated water temperature             | 1                   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1                  | 1 |   |   |   |   |   |   |   |   | M  |
| Monthly thermal suitability             |                     |   |   |   |   |   |   |   |   |   |   |   |                    |   |   |   |   |   |   |   |   |   | M  |
| Short-term thermal suitability          | M                   | M | M | M | M | M | M | M | M | M | M | M | M                  | M | M | M | M | M | M | M | M | M | M  |



- a Preproject monitoring.
- b Measured water temperature is used for model calibration and confirmation. Heat transfer and stream channel geometry are conditions used in simulation of the water temperature. Simulated water temperature is used to calculate the monthly thermal suitability and short-term suitability indicators.
- c Hourly water temperature will be recorded continuously, although measurement may be discontinued at some locations during high flow conditions to minimize loss of equipment and already-recorded temperature data.
- d Preproject surveys will be conducted only in Guadalupe Creek and Reach A mitigation areas.
- e Surveys in June will depend on occurrence in May.
- f Specific measurable objectives will be identified for these indicators by SCVWD in coordination with the RWQCB.
- g Monitoring is shown as quarterly; actual monitoring frequency will be in accordance with RWQCB requirements.
- h Measurable objective must be met monthly.
- i Measurable objective must be met annually.

Attachment 6 to Order No. 01-036

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION**

**SELF-MONITORING PROGRAM  
FOR  
ORDER NO. 01-036**

**SANTA CLARA VALLEY WATER DISTRICT  
U. S. ARMY CORPS OF ENGINEERS**

**GUADALUPE RIVER PROJECT  
and  
GUADALUPE CREEK RESTORATION PROJECT**

**SAN JOSE, SANTA CLARA COUNTY**

I. General

A. Basis:

Reporting responsibilities of the Dischargers and as "waste dischargers" are specified in Sections 13225(a), 13267(b), 13268, 13883, 13387(b) of the California Water Code and this Regional Board's Resolution No. 73-16.

B. Purpose:

The principal purposes of a monitoring program by a discharger, also referred to as a Self-Monitoring Program (SMP), are to document compliance with effluent requirements and prohibitions established by this Board; facilitate self-policing by the discharger in the prevention and abatement of pollution arising from improper effluent; to develop or assist in the development of effluent or other limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards; and to prepare water and wastewater quality inventories.

C. Sampling and Methods

Sample collection, storage and analysis shall be performed according to 40 CFR, Section 136, or other methods approved by the Executive Officer.

Water analyses conducted on samples collected for laboratory analysis shall be performed by a laboratory approved by the Department of Health Services (DHS) or a laboratory approved by the Executive Officer.

All monitoring instruments and equipment, including instruments and equipment used in field sampling and analysis, shall be properly calibrated and maintained to ensure accuracy of measurements.

Routine sampling shall follow Quality Assurance/ Quality Control procedures including the use of field, equipment and laboratory blanks and laboratory surrogate samples.

All Quality Assurance/Quality Control measures and results shall be reported along with the data.

## **II. DEFINITION OF TERMS**

Grab Sample is defined as an individual sample collected in a short period of time not exceeding 15 minutes. They are to be used primarily in determining compliance with receiving water limits. Grab samples only represent the condition that exists at the time the water and effluent are collected.

100 feet from the point of discharge is defined as 100 feet downstream of the point at which water diverted around an area of construction is discharged into a water of the State or 100 feet downstream of the point at which water is reintroduced into the stream following construction completion.

Duly Authorized Representative is one whose:

- a. authorization is made in writing by a principal executive officer, or
- b. authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity (e.g., field supervisor, project manager, chief engineer).

## **III. SPECIFICATIONS FOR SAMPLING AND ANALYSES**

This monitoring plan includes the following components: (1) Monitoring associated with discharges from diversion and dewatering operations, (2) Monitoring associated with evaluating Mitigation Plan Success, (3) Monitoring associated with mercury releases.

### **o Monitoring Associated With Discharges from Diversion and Dewatering Operations**

The Dischargers are required to perform sampling and analyses as found in accordance with the following conditions and requirements:

#### **A. Receiving Waters**

1. Diverted water discharge sampling shall be conducted on the first two days of the commencement of diversion, one week later, and monthly thereafter. Frequency

shall be increased to daily if visual observations indicate that the discharge is resulting in obviously increased turbidity.

2. Reintroduced flow discharge sampling shall be conducted daily for two days upon commencement of discharge.
3. Prior to start of diversion or reintroduction of flow, background water samples shall be collected from 100 feet from the point of discharge. Samples must be representative of typical undisturbed conditions. In addition, the Dischargers may collect background samples on a daily basis a minimum of 500 feet upstream of the active site. Background data generated by analyses of samples collected daily will be valid for discharges occurring in the same day.
4. Receiving water samples shall be collected, at least two samples within every 24-hour period, evenly spaced during the work hours each day. The location of each sampling site shall be 100 feet from the point of discharge. These samples shall be immediately analyzed on site for the following constituents:

| Constituents     | Type of sample | Units          |
|------------------|----------------|----------------|
| Turbidity        | Grab           | NTUs           |
| PH               | Grab           | Not Applicable |
| Dissolved Oxygen | Grab           | mg/l           |

5. Samples shall be taken at least one foot below the surface of the water body when possible.
6. Duplicate samples shall be collected a minimum of once per month, with one set of samples analyzed on site and one set of samples sent to a laboratory for analysis of the same constituents analyzed for on site.
7. If analytical results for constituents analyzed on-site show that any grab sample exceeds any receiving water limit, confirmation samples shall be taken within two hours and every subsequent two hours, and analyzed for all constituents for which on-site analysis is required. Sampling at this higher frequency shall continue until the exceedance has been corrected.
8. If any receiving water limit for a constituent or constituents is exceeded, then the Dischargers shall follow the following process to address the exceedance:
  - a. Identify source of exceedance;
  - b. Correct source of exceedance;

- c. Resample to determine whether exceedance has been corrected.
9. If any receiving water limit for a constituent or constituents is exceeded for a 12 hour period, then the Dischargers shall immediately notify the Board by telephone and telefax of the exceedance and of how they are correcting or will correct the exceedance.
10. If any receiving water limit for a constituent or constituents is exceeded for a 24-hour period, then a violation shall have occurred. The discharge that is causing the violation shall be terminated until corrective action is taken and sampling demonstrates that the exceedance has been corrected or when the Dischargers have provided the Board with a corrective action plan, acceptable to the Executive Officer, that provides alternative methods of compliance.
11. For other violations, the Dischargers shall notify the Board immediately whenever violations are detected and discharge shall not resume until the Dischargers have provided the Board with a corrective action plan, acceptable to the Executive Officer, that provides alternative methods of compliance.
12. It is expected that the placement of fill material for coffer dams may result in the unavoidable exceedance of instantaneous maximum limits. Therefore, as long as BMPs have been implemented to minimize sediment discharge, corrective action shall not be required for exceedances that occur within eight hours of the initial placement and removal of fill material for coffer dams.

#### B. Standard Observations

The following observations shall be recorded on every day of operation:

1. Receiving Water:
  - a. Floating and suspended materials of waste origin (to include oil, grease, algae, and other macroscopic particulate matter): presence or absence, source and size of affected area.
  - b. Discoloration and turbidity: description of color, source and size of affected area.
  - c. Odor: presence or absence, characterization, source, distance of travel and wind direction.
  - d. Hydrographic condition including: time and height of corrected low and high tides; and depth of water columns and sampling depths.

- e. Weather condition including: air temperatures, wind direction and velocity and precipitation.
2. Decant Water: Evidence of decant water discharge from excavated material stockpile and storage area to any drainage.
3. Progress and location of diversion or reintroduction of flow, noted on a map of the site.

### C. Records to be Maintained

1. Written reports, strip charts, calibration and maintenance records, and other records shall be maintained by the Dischargers and accessible at all times. Records shall be kept for a minimum of three years. Records shall include notes and observations for each sample as follows:
  - a. Identity of each sampling and observation station by number
  - b. Date and time of sampling
  - c. Date and time analyses are started and completed and the name of person conducting analyses
  - d. Complete procedure used, including method of preserving or analyzing sample and identity and volumes or reagents used. A reference to a specific section of Standard Methods is satisfactory.
  - e. Calculations of results.
  - f. Results of analyses and/or observations, including a comparison of the laboratory and field results for duplicate samples.
2. Records shall include a map or maps of the site showing the location of sediment sampling locations, coffer dams, discharge pipes, access ramps, etc.
3. If any receiving water limit for a constituent or constituents is exceeded, or a violation of the permit occurs, then the Dischargers shall maintain a tabulation during the period the exceedance occurs showing the following flow data for effluent stations and for the reach to be desilted:
  - a. Total flow or volume on a daily basis.
  - b. Maximum and minimum flows for each month, if applicable.

#### D. Effluent Monitoring

Grab samples for turbidity and pH shall be collected daily from decant water and runoff from stockpiles and storage areas where there is a discharge to surface waters.

##### o **Monitoring Associated With Evaluating Mitigation Plan Success**

The type, location, frequency, and time of initiation of monitoring shall be as described in the Dischargers' Mitigation and Monitoring Plan (MMP), as summarized in Table 4-2 of the MMP and attached to this SMP as Attachment 1, and in Table 4-18 of the MMP and attached to this SMP as Attachment 2.

##### o **Monitoring Associated With Mercury Releases**

With respect to mercury monitoring elements of the SMP, the Dischargers shall comply with the following:

1. Stations for Chemical Sampling: Establish eight stations within the Guadalupe Creek Restoration Project reaches, four stations upstream of the Restoration Project, and two stations in the Guadalupe River between Trimble Road and Montague Expressway. At least one station shall be immediately behind Masson Dam. The specific sites shall be selected in pools, vegetated areas or zones of sediment deposition where conditions favorable to methylation are likely. The Dischargers shall submit a map showing sampling locations with each monitoring report.
2. Parameters: Parameters to be monitored shall include: total (unfiltered) mercury in water, sediment and porewater; dissolved (filtered) mercury in porewater; total (unfiltered) methylmercury in water, sediment, and porewater, dissolved (filtered) methylmercury in water and porewater; flow and Total Suspended Solids.
3. Frequency: Quarterly for chemical parameters, continuously for flow, and continuously for Total Suspended Solids.
4. The Dischargers shall establish a continuous monitoring program for flow and Total Suspended Solids, and develop calibration data to calculate total mercury loads based on continuous flow and suspended solids data.

#### **IV. REPORTS TO BE FILED WITH THE REGIONAL BOARD**

##### A. Report of Permit Violations

In the event that this permit is violated, the Dischargers shall notify the Board by telephone immediately and shall notify the Board in writing within seven calendar days. A written report shall include time and date of incident, duration and estimated volume of discharge or bypass. The report shall include a detailed discussion of the reasons for the non-compliance and what steps were or will be taken to correct the failure and prevent it from occurring again.

## B. Self-Monitoring Reports

1. During construction operations, written reports shall be filed regularly for each calendar month that water diversions, reintroduction of flow, or discharges of decant water from excavated material stockpiles and storage areas occur, and filed no later than the fifteenth of each month. The reports shall include the following:
  - a. A transmittal letter that includes identification of changes to the project design and any unplanned releases or failures that have occurred since the last reporting period.
  - b. A monitoring report which details: the magnitude of the releases or failures; any discharge limit exceedances; dates of all exceedances; cause of the failures, releases or other violations; any corrective actions taken or planned; and the schedule for completion of corrective action.
  - c. Reports and the letter transmitting reports shall be signed by a principal executive officer(s) of one or both of the Dischargers or by duly authorized representatives of those persons.
2. **Mitigation Monitoring Program:** By March 31 of each year, the Dischargers shall submit a technical report, acceptable to the Executive Officer, containing an analysis of results of mitigation monitoring program for the previous year.
3. **Mitigation Success Status Report:** By June 30 of each year, the Dischargers shall submit a technical report, acceptable to the Executive Officer, containing the results of an assessment of mitigation program monitoring results, and recommendations for monitoring program modification or corrective measure implementation, if appropriate. It is anticipated, as described in the Dischargers' MMPs, that the assessments and corrective measure proposal will be the product of the Adaptive Management Team.
4. **Mercury Monitoring:** By June 30 of each year, the Dischargers shall submit a technical report, acceptable to the Executive Officer, containing the results of the previous year's sampling and monitoring for mercury.

I, Loretta K. Barsamian, Executive Officer, do hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedures set forth in this Board's Resolution No. 73-16, in order to obtain data and document compliance with waste discharge requirements established in this Board's Order No. 01-036.
2. Was adopted by the Board on March 21, 2001.

3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the Dischargers, and revisions will be ordered by the Executive Officer or Board.

  
Loretta K. Barsamian  
Executive Officer

Attachments:

1. Table 4-2 of Mitigation and Monitoring Plan: "Monitoring of Indicators for Ecological Functions and Habitat Values Required to Assess Mitigation Success for the Guadalupe River Project"
2. Table 4-18 of Mitigation and Monitoring Plan: "Schedule of Monitoring Activities and Achievement Dates for Measurable Objectives"

### Attachment 1 to Self-Monitoring Plan:

**TABLE 4.2.** Monitoring of Indicators for Ecological Functions and Habitat Values Required to Assess Mitigation Success for the Guadalupe River Project  
*Although specific periods are indicated for "Duration of Monitoring," the need for monitoring of each indicator will be reassessed by the AMT throughout the life of the Project.*

| Indicator                  | Monitoring Plan   |   |   |  |                        |
|----------------------------|---|---|---|--|------------------------|
|                            | Monitoring Activity   | Location of Monitoring                                  | Begin Monitoring                          | Frequency of Monitoring  | Duration of Monitoring |
| <b>Riparian Vegetation</b> |   |   |   |  |                        |
| Survival                   | Counts of planted trees and shrubs with minimum health and vigor rating of fair           | Permanent plots in Project area                         | August/September following planting       | Annual   | 3 years from planting  |
| Health and vigor           | Visual assessment of foliage, wood, and root crown  | Permanent plots in Project area and reference sites     | August/September following planting       | Annual   | 5 years from planting  |
| Natural recruitment        | Visual counts of naturally recruited native woody species                                 | Permanent plots in Project area and reference sites     | August/September in year 5 after planting | Once   | 5 years from planting  |
| Cover                      | Percentage cover along a line intercept transect, aerial photographs                      | Permanent transects in Project area and reference sites | August/September in year 4 after planting | Annual for years 4 and 5, then every 6 <sup>th</sup> year                | 40 years from planting |
| Nonnative species          | Percentage cover by nonnative species along a line intercept transect, aerial photographs | Project area  | August/September following planting       | Annual for first 5 years after planting, then every 6 <sup>th</sup> year | 40 years from planting |
| Tree height                | Stadia rod measurement of young trees, then measurement by clinometer                     | Permanent plots in Project area and reference sites     | 5 years after planting                    | Every 5 <sup>th</sup> year   | 40 years from planting |
| Tree basal area            | Tree diameter measured at breast height   | Permanent plots in Project area and reference sites     | 5 years after planting                    | Every 5 <sup>th</sup> year   | 40 years from planting |

**TABLE 4-2. Monitoring of Indicators for Ecological Functions and Habitat Values Required to Assess Mitigation Success for the Guadalupe River Project**  
*Although specific periods are indicated for "Duration of Monitoring," the need for monitoring of each indicator will be reassessed by the AMT throughout the life of the Project.*

| <b>Monitoring Plan</b>                     |   |  |  |  |                               |
|--|---|--|--|--|-------------------------------|
| <b>Indicator</b>                           | <b>Monitoring Activity</b>  | <b>Location of Monitoring</b>  | <b>Begin Monitoring</b>  | <b>Frequency of Monitoring</b>   | <b>Duration of Monitoring</b> |
| <b>Shaded Riverine Aquatic (SRA) Cover</b> |   |  |  |  |                               |
| Survival                                   | Counts of planted trees and shrubs  | Project area, Guadalupe Creek, Reach A   | August/September following planting                                  | Annual   | 3 years from planting         |
| Health and vigor                           | Visual assessment of foliage, wood, and root crown  | Permanent plots in Project area, Guadalupe Creek, Reach A, and reference sites | August/September following planting                                  | Annual   | 5 years from planting         |
| Natural recruitment                        | Visual counts of naturally recruited native woody species                                 | Permanent plots in Project area, Guadalupe Creek, Reach A, and reference sites | August/September in year 5 after planting                            | Once   | 5 years from planting         |
| Nonnative species                          | Percentage cover by nonnative species along a line intercept transect, aerial photographs | Project area, Guadalupe Creek, and Reach A                                     | August/September following planting                                  | Annual for first 5 years after planting, then every 6 <sup>th</sup> year | 40 years from planting        |
| Shaded stream surface                      | Evaluation of aerial photographs; field verified  | Adjacent to permanent plots in Project area, Guadalupe Creek, Reach A          | August/September following planting                                  | Every 3 <sup>rd</sup> year   | 40 years from planting        |
| Bank stability                             | Field surveys; evaluation of aerial photographs   | Project area, Guadalupe Creek, Reach A   | Between April-October following planting                             | Annual for four years, then every 3 <sup>rd</sup> year                   | 10 years from construction    |
| Instream cover                             | Measured within 10-foot wide transect bands perpendicular to the stream channel           | Project area, Guadalupe Creek, Reach A   | Between April-October immediately after construction                 | Every 3 <sup>rd</sup> year   | 10 years from construction    |
| Channel bed stability                      | Measure channel depth at permanent cross sections   | Project area   | Between April-July for preproject and immediately after construction | Annual   | 10 years from construction    |
| <b>Water Temperature</b>                   |   |  |  |  |                               |

**TABLE 4-2. Monitoring of Indicators for Ecological Functions and Habitat Values Required to Assess Mitigation Success for the Guadalupe River Project**  
*Although specific periods are indicated for "Duration of Monitoring," the need for monitoring of each indicator will be reassessed by the AMT throughout the life of the Project.*

| <b>Monitoring Plan</b>      |   |  |  |  |  |                            |
|-----------------------------|---|--|--|--|--|----------------------------|
| <b>Indicator</b>            | <b>Monitoring Activity</b>              | <b>Location of Monitoring</b>          | <b>Begin Monitoring</b>                | <b>Frequency of Monitoring</b>   | <b>Duration of Monitoring</b>  |                            |
| Monthly thermal suitability | Hourly water temperature simulation     | Project area, Guadalupe Creek, Reach A | Preproject                             | Annual   | 40 years from construction   |                            |
|                             | Hourly water temperature                | Project area, Guadalupe Creek, Reach A | Preproject                             | Hourly   | 40 years from construction   |                            |
|                             | Measure heat transfer                   | Project area, Guadalupe Creek, Reach A | Preproject                             | Pre- and postproject, then every 5th year for March, June, and September               | 40 years from construction   |                            |
|                             | Measure stream channel geometry         | Project area, Guadalupe Creek, Reach A | Preproject                             | Pre- and postproject, then every 5th year for normal winter and summer flow conditions | 40 years from construction   |                            |
|                             | Short-term thermal suitability          | Hourly water temperature simulation    | Project area, Guadalupe Creek, Reach A | Preproject   | Monthly  | 10 years from construction |
|                             |   | Hourly water temperature               | Project area, Guadalupe Creek, Reach A | Preproject   | Hourly   | 40 years from construction |
|                             |   | Measure heat transfer                  | Project area, Guadalupe Creek, Reach A | Preproject   | Pre- and postproject, then every 5th year for March, June, and September               | 40 years from construction |
|                             |   | Measure stream channel geometry        | Project area, Guadalupe Creek, Reach A | Preproject   | Pre- and postproject, then every 5th year for normal winter and summer flow conditions | 40 years from construction |
|                             |   | Measure gravel patches                 | Project area, Guadalupe Creek, Reach A | Between March - October  | Annual for 5 years, then every 5th year  | 10 years from construction |
|                             | <b>Anadromous Fish Spawning Habitat</b> |  |  |  |  |                            |
| Spawning gravel abundance   | Measure gravel patches                  | Project area, Guadalupe Creek, Reach A | Between March - October                | Annual for 5 years, then every 5th year  | 10 years from construction   |                            |

**TABLE 4-2. Monitoring of Indicators for Ecological Functions and Habitat Values Required to Assess Mitigation Success for the Guadalupe River Project**  
*Although specific periods are indicated for "Duration of Monitoring," the need for monitoring of each indicator will be reassessed by the AMT throughout the life of the Project.*

| <b>Monitoring Plan</b>                             |   |  |   |   |                                    |
|--|---|--|---|---|------------------------------------|
| <b>Indicator</b>                                   | <b>Monitoring Activity</b>  | <b>Location of Monitoring</b>          | <b>Begin Monitoring</b>                 | <b>Frequency of Monitoring</b>  | <b>Duration of Monitoring</b>      |
| Spawning gravel quality                            | Visual assessment of particle size and fine sediment occurrence           | Project area, Guadalupe Creek, Reach A | Between March - October                 | Annual for 5 years, then every 5th year                                 | 10 years from construction         |
| <b>Anadromous Fish Passage and Rearing Habitat</b> |   |  |   |   |                                    |
| Depth and velocity                                 | Visual assessment of critical stream reaches                              | Project area, Guadalupe Creek, Reach A | October, immediately after construction | Every 2 weeks and within 3 days of major storm events through March     | Throughout the life of the Project |
|  | Measure depth and velocity  | Project area, Guadalupe Creek, Reach A | October                                 | Annual: October and when needed   | 10 years from construction         |
| Vertical barrier                                   | Visual assessment of critical stream reaches.                             | Project area, Guadalupe Creek, Reach A | October, immediately after construction | Every 2 weeks and within 3 days of major storm events through March     | Throughout the life of the project |
|  | Measure barrier: height, length, and staging pool depth.                  | Project area, Guadalupe Creek, Reach A | October                                 | Annual: October and when needed   | 10 years from construction         |
| Rearing habitat diversity                          | Enumerate and measure length of riffles, pools, runs, and backwater areas | Project area, Guadalupe Creek, Reach A | Between May - September for preproject  | Annual during first 5 years following construction, then every 5th year | 10 years from construction         |
| <b>Anadromous Fish Occurrence</b>                  |   |  |   |   |                                    |
| Adult migration and spawning                       | Visual observation of adult fish and spawning activity                    | Project area, Guadalupe Creek, Reach A | October for preproject                  | Four times each year: October, November, February, and March            | 10 years from construction         |
| Juvenile rearing                                   | Method developed cooperatively by NIMFS, SCVWD, the Corps, and CDFG       | Project area, Guadalupe Creek, Reach A | September/ October for preproject       | Three times each year: September/ October, March/ April, and June/ July | 10 years from construction         |
| Juvenile migration                                 | Method developed cooperatively by NIMFS, SCVWD, the Corps, and CDFG       | Downstream from Interstate 101         | March for preproject                    | Continuous from March to May, may be extended into June                 | 10 years from construction         |

**TABLE 4.2. Monitoring of Indicators for Ecological Functions and Habitat Values Required to Assess Mitigation Success for the Guadalupe River Project**  
*Although specific periods are indicated for "Duration of Monitoring," the need for monitoring of each indicator will be reassessed by the AMT throughout the life of the Project.*

| Monitoring Plan  |   |  |                  |                                       |                        |
|--|---|--|------------------|---------------------------------------|------------------------|
| Indicator  | Monitoring Activity   | Location of Monitoring   | Begin Monitoring | Frequency of Monitoring               | Duration of Monitoring |
| <b>Mercury Transport and Potential for Methylation</b>   |   |  |                  |                                       |                        |
| Segments 1, 2, and 3 and Reach A: methyl mercury concentrations in riverbed and suspended sediments  | Specific monitoring activities will be developed by the RWQCB in coordination with the Corps and SCVWD. | In freshwater, wetland, and riparian environments in Segments 1, 2, and 3 and Reach A at sites approved by the RWQCB       | 2001             | In accordance with RWQCB requirements | 5 Years                |
| Guadalupe River Watershed: Total suspended solids, total and bioavailable mercury, and methyl mercury concentrations in riverbed and suspended sediments | Specific monitoring activities will be developed by the RWQCB in coordination with SCVWD.               | In freshwater, seasonal wetland, and riparian environments in the Guadalupe River Watershed at sites approved by the RWQCB | 2001             | In accordance with RWQCB requirements | One year               |

## Attachment 2 to Self-Monitoring Plan: Schedule of Monitoring Activities and Achievement Dates for Measurable Objectives

**TABLE 4-18.** Schedule of Monitoring Activities for Preproject and the 10 Years Following Implementation of Mitigation Actions, Guadalupe River Project  
*Numbers shown for the "Month of Monitoring" columns indicate repetition of monitoring activity during the shaded period. A "?" indicates that monitoring may be required depending on the findings of other monitoring activities. An "M" under "Year of Monitoring" columns indicates that the measurable objective must be met or that the measured value for the indicator must be progressing toward the measurable objective*

| Indicator                               | Month of Monitoring |   |   |   |   |   |   |   |   |   |   |   | Year of Monitoring |   |   |   |   |   |   |   |   |   |    |
|---|---------------------|---|---|---|---|---|---|---|---|---|---|---|--------------------|---|---|---|---|---|---|---|---|---|----|
|   | J                   | F | M | A | M | J | J | A | S | O | N | D | P <sup>a</sup>     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| <b>Riparian Vegetation</b>              |                     |   |   |   |   |   |   |   |   |   |   |   |                    |   |   |   |   |   |   |   |   |   |    |
| Survival                                |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    | M | M | M |   |   |   |   |   |   |    |
| Health and vigor                        |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    | M | M | M | M | M |   |   |   |   |    |
| Natural recruitment                     |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   |   |   |   | M |   |   |   |   |    |
| Cover                                   |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   |   |   |   |   |   |   |   |   | M  |
| Nonnative species                       |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    | M | M | M | M | M |   |   |   |   | M  |
| Tree height                             |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   |   |   |   |   |   |   |   |   | M  |
| Tree basal area                         |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   |   |   |   |   |   |   |   |   | M  |
| <b>SRA Cover</b>                        |                     |   |   |   |   |   |   |   |   |   |   |   |                    |   |   |   |   |   |   |   |   |   |    |
| Survival                                |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    | M | M | M |   |   |   |   |   |   |    |
| Health and vigor                        |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    | M | M | M | M | M |   |   |   |   |    |
| Natural recruitment                     |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   |   |   |   | M |   |   |   |   |    |
| Nonnative species                       |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    | M | M | M | M | M |   |   |   |   | M  |
| Shaded stream surface                   |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   |   |   |   |   |   | M |   |   | M  |
| Bank stability                          |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    | M | M | M | M | M |   |   |   |   | M  |
| Instream cover                          |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    |   |   |   | M | M |   |   |   |   | M  |
| Channel bed stability                   |                     |   |   |   |   |   |   | 1 |   |   |   |   |                    | M | M | M | M | M | M | M | M | M | M  |
| <b>Water Temperature <sup>b</sup></b>   |                     |   |   |   |   |   |   |   |   |   |   |   |                    |   |   |   |   |   |   |   |   |   |    |
| Measured water temperature <sup>c</sup> |                     |   |   |   |   |   |   |   |   |   |   |   |                    |   |   |   |   |   |   |   |   |   |    |
| Heat transfer                           |                     |   |   |   |   |   |   |   |   |   |   |   |                    | 1 |   |   |   |   |   |   |   |   |    |
| Stream channel geometry                 |                     |   |   |   |   |   |   |   |   |   |   |   |                    |   |   |   |   |   |   |   |   |   |    |
| Simulated water temperature             |                     |   |   |   |   |   |   |   |   |   |   |   |                    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  |
| Monthly thermal suitability             |                     |   |   |   |   |   |   |   |   |   |   |   |                    | 1 |   |   |   |   |   |   |   |   | M  |
| Short-term thermal suitability          |                     |   |   |   |   |   |   |   |   |   |   |   |                    | M | M | M | M | M | M | M | M | M | M  |



- a Preproject monitoring.
- b Measured water temperature is used for model calibration and confirmation. Heat transfer and stream channel geometry are conditions used in simulation of the water temperature. Simulated water temperature is used to calculate the monthly thermal suitability and short-term suitability indicators.
- c Hourly water temperature will be recorded continuously, although measurement may be discontinued at some locations during high flow conditions to minimize loss of equipment and already-recorded temperature data.
- d Preproject surveys will be conducted only in Guadalupe Creek and Reach A mitigation areas.
- e Surveys in June will depend on occurrence in May.
- f Specific measurable objectives will be identified for these indicators by SCWWD in coordination with the RWQCB.
- g Monitoring is shown as quarterly; actual monitoring frequency will be in accordance with RWQCB requirements.
- h Measurable objective must be met monthly.
- i Measurable objective must be met annually.