

(FINAL)
FEASIBILITY STUDY WORK PLAN
FOR
ENGINEERED EARTHEN-BOTTOM FLOOD CONTROL CHANNELS
LOCATED WITHIN THE
SAN GABRIEL RIVER WATERSHED

MAINTAINED AND OPERATED BY THE
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT

IN COMPLIANCE WITH THE
WASTE DISCHARGE REQUIREMENTS
FILE NUMBER 99-011-2010WDR

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- Attachment 1 Waste Discharge Requirements for Los Angeles County Flood Control District, Proposed Maintenance Clearing of Engineered Earth-Bottom Flood Control Channels, Los Angeles County (Order No. R4-2010-0021)
- Attachment 2 Best Management Practices (BMP) Manual for Soft-Bottom Channel Clearing

1. Introduction

The Los Angeles County Flood Control District (LACFCD) owns and maintains numerous engineered soft-bottom flood control channels within the County of Los Angeles (County). These channels convey storm flows from the canyons and nuisance flows from adjacent and surrounding areas. The LACFCD conducts annual maintenance on these facilities to protect life and property from potential flooding, fire hazards, control vector nuisance issues, and for the facilities to efficiently and effectively function as designed.

In order to maintain these facilities, LACFCD obtains environmental regulatory permits from the Los Angeles Regional Water Quality Control Board (Regional Board). The Regional Board has jurisdiction over water quality issues, under the Section 401 Water Quality Certification, on any activities performed at facilities located within the waters of the United States. Other regulatory agencies that have jurisdiction over these facilities include the California Department of Fish and Game (CDFG) and the U.S. Army Corps of Engineers (COE).

Maintenance activities at these facilities have been and continue to be performed according to valid regulatory permits with these agencies. Prior to expiration of these regulatory permits, LACFCD is responsible for obtaining new permits or permit renewals or extensions.

On February 4, 2010, the Regional Board adopted the Waste Discharge Requirements (WDR) for the maintenance of the aforementioned soft-bottomed flood control channels (project) as part of the permit renewal process. The adopted WDR includes additional permit conditions that were not part of the Section 401 Water Quality Certification that was previously issued for the project. As part of the WDR, a Feasibility Study is required to be conducted within six years for all the earth-bottomed channels in each watershed within the Los Angeles County. The Feasibility Study required for the Los Angeles River Watershed is currently under development. This Study Workplan addresses the second Feasibility Study required, which is for the San Gabriel River Watershed.

2. Feasibility Study Requirements

Conditions 44 through 51 of the WDR require that a Feasibility Study be conducted to determine whether the “channel clearing activities have avoided, minimized, or appropriately mitigated for effects on the beneficial uses of the affected reaches or to require changes to channel clearing activities to achieve the necessary avoidance, minimization or mitigation.”

For clarity and reference on the basis of this report, complete language of specific permit conditions of the WDR are provided throughout this report.

Condition 45, Feasibility Study and Stakeholders' Notification, states:

“As part of the on-going assessment of channel conditions and hydraulic capacity, LACFCD shall perform a study of the hydraulic capacity and existing conditions of all reaches covered by this WDR to determine where a potential may exist for native vegetation to remain within the soft-bottom portion of the channel or if additional hydraulic capacity is needed (Feasibility Study). In addition, any channels which may potentially provide restoration opportunities for riparian habitat/vegetation growth shall be identified based on these assessments and a consideration of restoration plans by other agencies. LACFCD shall implement the Feasibility Study process with a schedule of one or more watersheds per year to be analyzed, with completion of all watersheds/studies within six (6) years. LACFCD shall solicit stakeholder input during the Feasibility Study Work Plan development and prior to the finalization of the Technical Assessment Report and Recommendations.”

Condition 47, Feasibility Study Components, states:

“For each watershed, the Feasibility Study shall include (but not be limited to) the following components:

- a. Study Workplan
- b. Technical Assessment Report
- c. Recommendations”

This report will comply with the Study Workplan requirement of the Feasibility Study.

Condition 48, Study Workplans, states:

“The plan will include: a detailed plan for a hydraulic analysis of each earth-bottom segment in relation to the conveyance capacity of the upstream and downstream channels, in addition to the Water Quality Monitoring. The hydraulic analysis shall include, but not limited to, the height and density of vegetation in the earthen channel bottom and its effect on the conveyance capacity of flood flow in the channel and shall include discussion of changes in expected stream flow in response to requirements of the Los Angeles County Municipal Separate Storm Sewer (MS4) NPDES Permit, Standard Urban Stormwater Mitigation Plans (SUSMPs), Total Maximum Daily loads (TMDLs) and other pertinent local plans including, but not limited to the Integrated/Regional Water Management Plan (IRWMP) (including implementation of, and plans for, increased stormwater infiltration), the City of Los Angeles' Integrated Resources Plan, the relevant watershed master plan and the LACFCD's Drought Management Plan. Several reasonable Manning's n should be used in the hydraulic analysis to evaluate the representative height of the channel for flood control and natural habitat purposes and should be in accordance with “Guide for Selecting Manning's

Roughness coefficients for Natural Channels and Flood Plains,” United States Geological Survey Water-Supply Paper 2339 or other appropriate guidance.

The assessment of biological functions and values of these reaches should be made such that comparisons of habitat type, maturity and extent of native or invasive plants can be made between reaches.”

3. Approach

For the purpose of this report, a Study Workplan for engineered earth-bottom channels within the San Gabriel River Watershed is proposed. This Study Work plan will outline the methodology, steps, and procedures of how the hydraulic study, biological studies, water quality monitoring, and stakeholders’ notification will be performed and coordinated..

In addition, the Workplan includes discussion and an outline on how the second and third components of the Feasibility Study (i.e., Technical Assessment Report and Recommendations) will be accomplished, prepared, and submitted.

The following are the specific WDR permit conditions related to the last two components of the Feasibility Study:

Condition 50, Technical Assessment Report – Hydraulic and Water Quality Assessment, states:

“Within 7 months of Workplan approval, a Technical Assessment Report shall be submitted and will include a reach-by-reach list of all the reaches included in the subject watershed with a hydraulic analysis of each reach.

This report will also include an assessment of the biological functions and values for each reach and an assessment of water quality, as required. For each reach, the report shall address capacity requirements for flood control; design criteria and anticipated limitations; and an analysis either of potential areas where vegetation may remain and areas with the potential for restoration of native vegetation or where justification exists to clear additional vegetated areas. For those areas where vegetation may remain, the technical assessment report should specify the amount(s) and type(s) of native vegetation that could remain in the channel.”

Condition 51, Recommendation, states:

“Within 7 months of Workplan approval, recommendations shall be submitted to the Regional Board Executive Officer and shall include options for reaches where vegetation may be allowed to remain or where native vegetation could be re-established. Recommendations shall also include suggested schedules of vegetation removal frequency in order to ensure the maximum habitat

preservation, consistent with necessary flood control, is achieved. For recommendations approved by the Executive officer, LACFCD shall make the necessary changes to the Maintenance Plan, including proposals for additional BMP's as may be appropriate, and shall submit such changes to the Executive officer 21 days prior to any clearing activities."

4. Work Plans

As previously noted earlier, Condition 48 of the WDR requires LACFCD to submit a Study Workplan for review and approval to the Regional Board's Executive Officer. After its approval, LACFCD will submit the required Technical Assessment Report and the Recommendations.

The following sections outline the different methodology and coordination that is necessary to develop the studies, report, and recommendations that are needed to complete the Feasibility Study.

4.1 *Hydraulic Analysis*

4.1.1 Location

The project is located in the San Gabriel River Watershed. There are seven soft-bottom reaches that are currently permitted for maintenance in the Regional Board's WDR within the San Gabriel River Watershed. These seven channel reaches vary in length from 30 feet (ft) to as long as 31,900 ft (see Table 1 for a complete listing and details of all seven channel reaches). Two additional soft-bottom channel reaches, also located within the San Gabriel River Watershed, have not been authorized under this WDR. These two reaches are therefore will not be covered in this Feasibility Studies.

4.1.2 Objective

- a. Prepare HEC-RAS hydraulic models using the Corps of Engineers Hydrologic Engineering Center River Analysis System computer program for the seven soft-bottom channel reaches defined in the Regional Board's Waste Discharge Requirement Permit for San Gabriel River Watershed. These hydraulic models will be used to determine whether or not the channel reaches currently have adequate flood control capacity.
- b. For reaches identified as currently having adequate flood control capacity, the models will then be used to evaluate what amount of vegetation can be allowed to grow without compromising capacity, in conjunction with recommendations from BonTerra Consulting, the LACFCD biological consultant.

- c. For reaches not having adequate flood control capacity, the models will then be used to evaluate the removal of vegetation necessary to restore capacity, in conjunction with recommendations from BonTerra Consulting.

4.1.3 Office and Field Investigations

- a. As-built and other plans, including those for channels, structures, bridges, and utilities, along with topographic mapping, and field surveys within the study area, shall be collected and reviewed to determine existing channel configuration and conditions.
- b. For locations where as-built and other plan data are not available, LACFCD shall research, collect, organize, and review all readily available spatial data.
- c. Field investigations shall be conducted for all seven soft-bottom reaches of the San Gabriel River Watershed to verify channel geometry, stability, and roughness values. The field investigations shall occur between mid-July and mid-September when channel reaches are expected to contain the maximum amount of vegetation re-growth, prior to vegetation removal during fall maintenance activities. The existing vegetation shall be observed taking note of type, density, and size. All the reaches shall be photographed for documentation purposes.
- d. LACFCD shall research, collect, organize, and review all readily available hydrologic studies as well as other documentation pertaining to the seven soft-bottom reaches of the San Gabriel River Watershed.

4.1.4 Hydraulic Analysis Modeling

- a. LACFCD shall prepare one-dimensional steady-flow hydraulic models for all the project reaches using HEC-RAS.
- b. The cross section locations and intervals will be coordinated to ensure consistency and to make certain the channel and project areas are completely and adequately represented in the models.
- c. Hydraulic roughness coefficients for all project reaches shall be determined using field notes, aerial photographs, and several hydraulic references. The hydraulic roughness coefficients shall be representative of current observed field conditions and correlated with BonTerra's vegetation transect surveys.
- d. Among some of the hydraulic references that shall be used to determine the hydraulic roughness coefficients include "*Open-Channel Hydraulics*," The Blackburn Press, 2009 and George J. Arcement, Jr. and Verne R. Schneider and "*Guide for Selecting Manning's Roughness Coefficients for Natural*

Channels and Flood Plains," United States Geological Survey Water-supply Paper 2339.

- e. The general modeling guidelines for bridges shall be followed closely. For vertical piers, 2 feet of debris accumulation on each side of each pier shall be used and loss coefficients and other data shall be adjusted accordingly. For piers with sloping extensions, 2 feet of debris accumulation for a distance up to 6 feet below the water surface shall be assumed.
- f. LACFCD shall perform the steady flow computations using HEC-RAS for the design flow rates for each project reach.
- g. The limits for data collection upstream and downstream of the study reach shall be at a distance such that any user-defined boundary condition won't affect the results within the study reach.
- h. LACFCD shall run the hydraulic analyses under a mixed flow regime. Manning's equation shall be used to compute normal depth as the starting water surface boundary condition. A sensitivity analysis shall be performed by selecting other starting water surface boundary conditions to ensure that the limits for data collection upstream and downstream of the study reach are sufficient.
- i. LACFCD shall include discussion of changes in expected stream flow in response to requirements of the Los Angeles County Municipal Separate Storm Sewer (MS4) NPDES Permit, Standard Urban Stormwater Mitigation Plans (SUSMPs), Total Maximum Daily Loads (TMDLs) and other pertinent local plans including, but not limited to the Integrated Regional Water Management Plan (IRWMP) (including implementation of, and plans for, increased stormwater infiltration), the City of Los Angeles' Integrated Resources Plan, the relevant watershed master plan and the LACFCD's Drought Management Plan.
- j. LACFCD shall perform separate hydraulic analyses of the project reaches having adequate flood control capacity using several reasonable hydraulic roughness coefficients in potential areas where vegetation may remain and areas with the potential for restoration of native vegetation. Identification and location of these potential areas shall be discussed. Vegetation type, density, and height are factors necessary to determine appropriate hydraulic roughness coefficients.
- k. Conversely, LACFCD shall perform separate hydraulic analyses of the project reaches not having adequate flood control capacity using several reasonable hydraulic roughness coefficients in potential areas where vegetation may need to be removed. Identification and location of these potential areas shall be discussed with BonTerra Consultants. Vegetation type, density, and height

are factors necessary to determine appropriate hydraulic roughness coefficients.

4.1.5 Hydraulic Analysis Report

LACFCD shall prepare a Hydraulic Analysis Report that documents and summarizes all of the data collected and processed. The Hydraulic Analysis Report shall include a written narrative that describes the hydraulic characteristics of the project study areas. The report shall also contain sufficient detail in terms of tables, equations, graphic displays, and example computations to allow an independent assessment of the soundness of the report results and conclusions.

4.2 *Biological Technical Assessment*

The biological studies described in this Study Workplan will be conducted at each of the seven channel reaches.

4.2.1 Literature Review

A literature review will be conducted to review and update existing information gathered through the soft-bottom channel maintenance program about species that have been afforded special status by state, federal, and local resource agencies and organizations and have a potential to occur within the San Gabriel River Watershed.

Sources to be reviewed include:

- a. Special status species lists from CDFG, U.S. Fish and Wildlife Service (USFWS), and California Native Plant Society (CNPS);
- b. Database searches of the California Natural Diversity Database (CNDDDB) and the Electronic Inventory of the CNPS;
- c. Most recent Federal Register listing package and critical habitat determination for each federally listed Endangered or Threatened species potentially occurring within the project sites;
- d. CDFG Annual Report on the status of California's listed Threatened and Endangered plants and wildlife; and
- e. Other biological studies conducted in the San Gabriel River Watershed that may be relevant to this feasibility study.

4.2.2 Field Surveys

Field surveys will be conducted by a qualified botanist and wildlife biologist to identify the plant and wildlife species present at each channel reach maintained by LACFCD in the San Gabriel River Watershed. The vegetation types and wildlife habitats will be described, mapped, and quantified for this task.

These surveys are expected to be conducted during the summer season when the majority of plant species present at the channel reaches will be identifiable. Note that the surveys for special status plant species (Section 4.2.4) will be conducted during the spring season. Because most migratory birds move through the region in spring, only the breeding birds should be present during this summer survey. A vegetation map will be produced and included with the final technical assessment report. Photographs of existing conditions will also be obtained.

These surveys will be conducted prior to initiation of the annual LACFCD fall season maintenance activities.

4.2.3 Vegetation Transect Data Collection

Two sets of vegetation transect data will be collected for each of the seven channel reaches maintained by the LACFCD in the San Gabriel River Watershed. The primary purpose of these surveys is to determine the relative amounts of non-native vegetation vs. native vegetation in the channel reaches before and after annual clearing activities.

The first set of transects will be performed during the summer season prior to initiation of the annual fall maintenance activities conducted by the LACFCD.

The second transect set will be conducted as soon as possible after completion of fall maintenance activities. Transect number and location will be correlated with the hydraulic roughness coefficients developed by the LACFCD's hydraulic analysis.

Performance of the first set of transects is scheduled to be completed in August, following LACFCD's field surveys that are expected to occur between mid-July and mid-August.

Note that these surveys and transects are scheduled to occur during the time period when the channel reaches are expected to contain the maximum amount of vegetation re-growth prior to its removal during fall maintenance activities.

To the extent that is practical, the total number of reach "segments" identified with individual hydraulic roughness coefficients will determine the total number of vegetation transects to be conducted for this task. Each transect will be conducted to measure vegetation cover and species diversity using the point-intercept method. Except for sites with high diversity of plant species, the results of the line-intercept method do not differ significantly from the point-intercept method. Since the point-intercept method is less time consuming, and flood control channels in general support relatively low diversity, the line-intercept method will be used for these channel reaches.

Global Positioning System data points will be collected for each of the transect locations. Transects will be conducted perpendicular to the stream ("bank to bank") and will be of varying width. Transect locations will include "maintained areas" of the channel reach in order to provide comparison between pre-clearing maintenance activities and post-clearing activities.

4.2.4 Focused Surveys for Special Status Plant Species

Focused Surveys for Special Status Plant Species will be conducted for each of the seven channel reaches in the San Gabriel River Watershed. These surveys will be conducted during the blooming periods for each of the plants, which vary depending on rainfall and temperature. Therefore, reference populations will be monitored to determine the appropriate survey time (generally between March and July).

Since blooming periods for special status plant species typically overlap, surveys of the seven channel reaches in early spring and again in late spring can be conducted to cover most of the desired species. A total of six surveys are required to cover all seven channel reaches. It has been determined that the appropriate survey window for these seven soft-bottom channel reaches is April and June.

The focused surveys will be conducted using meandering transects throughout potential habitat of each channel reach. Field notes will be taken during the surveys. If any special status plant species are found, the location of each population will be mapped and voucher specimens will be collected and deposited in an appropriate herbarium to ensure the accuracy of the identification.

Any special status species observed will be reported to the California Natural Diversity Data Base (CNDDB).

4.2.5 Focused Surveys for Threatened and Endangered Wildlife Species

Focused surveys for Threatened and Endangered wildlife species are conducted bi-annually for the soft-bottom channel maintenance program. These surveys were initiated in 2002 and 2003 at channel reaches selected by the U.S. Fish and Wildlife Service for their potential to support Threatened and Endangered wildlife species. These surveys have been performed in 2005, 2007, 2009, 2011, and are scheduled for 2013.

These surveys are conducted at those channel reaches where potential habitat for Threatened and Endangered wildlife species has been identified. Of the seven channel reaches included in the feasibility study for the San Gabriel River Watershed, focused surveys are conducted for the southwestern willow flycatcher (*Empidonax traillii extimus*) and least Bell's vireo (*Vireo bellii pusillus*) at channel reaches #39 (Beatty Channel Outlet), #40b (San Gabriel River: Valley Blvd to Thienes Ave extended); and #43 (San Gabriel River – Upper: Whittier Narrows Dam to Beverly Blvd). Surveys for the Santa Ana sucker (*Catostomous santaanae*) are conducted at Reach #39. The results of current and previous surveys results at these channel reaches will be included in the biological technical assessment report.

4.2.6 Migratory Bird Survey

Two migratory bird surveys will be performed at one of the seven channel reaches in the San Gabriel River Watershed during the fall migration period in Southern California (August to November). The channel reach to be surveyed will be selected based on

existing conditions that exhibit a range of clearing activities. The surveys will be conducted before and after clearing activities to evaluate potential differences in bird use of pre- and post-clearing habitats. The results of these surveys will be included in the biological technical report.

4.2.7 California Rapid Assessment Method Surveys

The ecological condition of each of the seven channel reaches in the San Gabriel River Watershed will be evaluated using the California Rapid Assessment Method (CRAM). The CRAM results will allow for comparison among the seven channel reaches in the San Gabriel River Watershed as well as other channel reaches maintained by the LACFCD. This analysis will also facilitate future monitoring activities to evaluate changes in the condition of these channel reaches over time.

Upon completion of the field work for this assessment, BonTerra Consulting will input the collected data into the state-wide CRAM database as required by the CRAM technique. All data collection and data management will be performed in strict accordance with the protocols described in the CRAM User's Manual. The final score generated by the assessment will be incorporated into the biological technical assessment report for the feasibility study.

4.2.8 Biological Technical Assessment Report

After collection of all post-clearing vegetation transects data, a biological technical assessment report will be prepared that documents plant and wildlife species observed at each of the seven channel reaches in the San Gabriel Watershed.

The Biological Technical Report will include:

- a. Methodology used to conduct the biological surveys and vegetation transects;
- b. Description of the existing vegetation types and associated wildlife resources, including maps of existing vegetation types for each of the seven channel reaches;
- c. Results of focused surveys for special status plant and wildlife species in the channel reaches;
- d. Comparison of biological functions and values between each of the seven channel reaches;
- e. Comparison of vegetation transects with WDR's hydraulic roughness coefficients;
- f. Value rankings based on biological function and value for each of the seven channel reaches; and

- g. Amount(s) and type(s) of native vegetation that could remain in each channel reach.

4.2.9 Recommendations

The value rankings developed for each of the seven channel reaches in the biological technical assessment will be correlated with the hydraulic analysis to develop recommendations regarding where and what vegetation should be removed and/or can be allowed to remain. The value rankings will also include suggested schedules of vegetation removal frequency in order to ensure maximum habitat preservation is achieved, consistent with the necessary level of flood control.

If the hydraulic analysis determines that any of the seven channel reaches can support more substantial vegetation, then value rankings in the biological technical assessment can be used to identify appropriate areas for re-establishment of additional native vegetation.

4.3 Water Quality Monitoring and Best Management Plan (BMP)

The Feasibility Study requires Water Quality (WQ) Monitoring and Best Management Plan activities to be analyzed.

Condition 43, Best Management Practices, states:

“All appropriate Best Management Practices (BMPs) shall be implemented in order to avoid impacts to water quality that would result in exceedances of water quality standards. The Project shall not result in indirect impacts to water quality or beneficial uses of downstream water bodies. The Project shall not result in changes in the quality of storm water downstream water bodies during maintenance or during operation subsequent to the maintenance activities. The Project shall not result in changes in the quality of storm water discharge during periods between maintenance activities, or upon its completion.”

Condition 49, Water Quality Monitoring, states:

“The objectives of the water quality monitoring are to assess BMP effectiveness and to ensure that water quality is not impacted as a result of the proposed maintenance activities, or surface water diversion. BMPs are to be implemented in association with maintenance activities to avoid impacts to water quality which would result in exceedances of water quality standards.

As part of the Feasibility Study, water quality assessments within each reach will be required on a one-time basis before, during, and after maintenance clearing activities. Each project reach will require three (3) sampling stations: upstream of the project; within the project; and downstream of the project reach.

The testing parameters required will be the same as for Surface Water Diversion.

- pH
- temperature
- dissolved oxygen
- turbidity
- total suspended solids (TSS)

Downstream TSS shall be maintained at ambient levels. Where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), downstream increases shall not exceed 20%. Where natural turbidity is greater than 50 NTU, downstream increases shall not exceed 10%.

Analyses must be performed using approved US Environmental Protection Agency methods, where applicable.

These constituents shall be measured at least once prior to the maintenance activity and then monitored for on a daily basis during the first week of maintenance activities, and then on a weekly basis, thereafter, until the work is complete. When reaches are within the watershed designated for a Feasibility Study in a particular year, water quality monitoring should be conducted for those reaches as part of the Feasibility Study and reported with the Technical Assessment Report.

Any exceedances of water quality standards may result in corrective and/or enforcement actions, including increased monitoring and sample collection.”

The LACFCD will address the planning and implementation of the Water Quality Monitoring aspect of the Feasibility Study as well as handle and address issues relating to the Best Management Plan (BMP).

The following is a step-by-step process by which LACFCD will implement the Water Quality Monitoring. Attached are copies of the revised Field Data sheet to be used for recording WQ measurements and taking water samples. Also attached is the Chain of Custody form that will be used to submit water samples to the Contract Environmental Lab.

4.3.1 Baseline/Pre-Project Monitoring

1. Pre-Project Monitoring to establish natural channel conditions
 - a. Shall be conducted within a week prior to start of work
 - b. Field Reconnaissance Cleanout operations/approach/methods
 - c. Scope of project; Location and type of BMPs
 - d. Estimated duration
 - e. Water quality (WQ) monitoring parameters

2. Define upstream (U), within project (W) and downstream (D) sampling points
3. Initiate measurements and record WQ data at U/W/D sampling points
 - a. Field measurements
 - pH
 - Temperature (T)
 - Turbidity
 - b. Lab samples
 - Dissolved O₂; Standard Method (SM) 4500-OG
 - Total Suspended Solids; SM 2540/EPA 160.2
 - Deliver samples to lab
 - c. Lab results
 - Normal turn-around time = 7 days

4.3.2 During Project Monitoring

1. For the first week, water sampling will be taken once a day
2. Appropriate BMPs shall be installed downstream prior to water sampling and start of work
3. For subsequent weeks, water sampling will be taken once a week
4. Check in with Crew Leader, Foreman, etc.
 - a. Discuss changes in scope/duration
 - b. Discuss WQ measurements
 - c. Maintenance of BMPs
5. WQ monitoring/sampling at U/W/D sampling points
 - a. Field measurements
 - b. Lab samples
 - c. Outside influences on WQ
6. E-mail/Phone call notification to Project Manager if Turbidity measurements exceed WDR limits
7. Field crews to implement appropriate modifications to BMPs, which may include stopping work, increasing BMPs, and/or perform additional monitoring and sampling, as necessary

4.3.3 Post Project Monitoring

1. Shall be conducted within seven days of maintenance clearing completion, in natural channel conditions
2. Take post-project WQ monitoring/sampling at U/W/D sampling points
 - a. Field measurements
 - b. Lab samples
 - c. Outside influences on WQ
3. Finalize field data sheets
4. Prepare figures of U/W/D sampling points
5. Receive lab reports
6. Final WQ report to include field data sheets, figures, and lab reports

7. Prepare Summary of WQ Reports for each Reach in Tabular Format to be included as part of the Technical Assessment and Recommendations Report
8. Submit final data within 30 days from the final sampling date for submittal to the Regional Water Quality Control Board (RWQCB)

4.3.4 Best Management Plan

1. Determine which BMPs to implement to avoid impacts to WQ or that would result in exceedances of WQ standards.
2. No indirect impacts to WQ or beneficial uses.
3. No downstream impacts to WQ during maintenance or operation
4. No WQ impacts during periods between maintenance activities or upon completion of maintenance activities.

4.3.5 Water Quality Data Analysis Submittal

Provide a complete summary of water quality testing results, in tabular format, for each reach that had water quality monitoring performed. Tables will provide data collected from before, during, and after the cleanout for the three (3) sampling stations located upstream of the project, within the project, and downstream of the project. Comments will also be provided including, but not necessarily limited to, observed site conditions, BMPs installed on site, recommended modifications to BMPs, communications with field staff, and explanations for changes to previous conditions and measurements.

4.4 Stakeholder Solicitation

The WDR requires the LACFCD to solicit stakeholder input and to make information on maintenance activities for soft-bottom channel reaches readily available to the public. The list of stakeholders will include affected and interested parties, municipalities, environmental groups, and organizations.

4.4.1 Objective

The objective is to solicit stakeholder input, during the development of the Feasibility Study Work Plan (Work Plan) and prior to the finalization of the Technical Assessment Report and Recommendations. In addition, prior to any maintenance activities within the affected reaches of the San Gabriel River Watershed, watershed maps that specify areas of maintenance and approximate schedule shall be published on the LACFCD internet website. Stakeholders and other affected/interested parties shall be notified of these activities. After submission to the Regional Board Executive Officer, LACFCD shall post the Annual Project and Mitigation Monitoring Reports on the LACFCD internet website.

4.4.2 Stakeholder Identification

LACFCD shall compile a broad list of watershed stakeholders consisting of affected and interested parties, municipalities, environmental groups, and other organizations. WMD shall then eliminate stakeholders from this general list that are not affected by the maintenance activities covered by the WDR.

4.4.3 Preparation for Soliciting Stakeholder Input

LACFCD shall prepare a formal letter for the mayors of affected cities and an e-mail for all other stakeholders notifying them of the significance of the WDR and requesting that they review and comment on the Work Plan. This notification will state the deadline for comments to be received and will also allude to the Technical Assessment Report and Recommendations that will be available for their review and comment in the near future.

4.4.4 Soliciting Stakeholder Input

Upon finalizing the Feasibility Study Work Plan, LACFCD shall notify the stakeholders of the availability of the Work Plan for their review and comment. Upon receiving the comments, LACFCD shall compile the comments for their consideration in the Work Plan.

LACFCD shall organize and incorporate the comments into the Work Plan, as appropriate.

4.4.5 Technical Assessment Report and Recommendations

Upon finalizing the Technical Assessment Report and Recommendations, LACFCD shall notify the stakeholders of the availability of the report and recommendations for their review and comment. LACFCD shall organize and incorporate the comments, as appropriate, into the final Technical Assessment Report and Recommendations.

4.4.7 Information Access on LACFCD Internet Website

Prior to any maintenance activities within the affected reaches of the San Gabriel River Watershed, watershed maps shall be published on the LACFCD internet website. Stakeholders and other affected/interested parties shall be notified of the scheduled maintenance activities. The information posted for scheduled maintenance activities shall include, but not be limited to, the proposed schedule; description of the channel reach existing conditions; area of proposed impact; and description of any existing aquatic resources. The Annual Project and Mitigation Monitoring Reports shall also be posted on the LACFCD internet website.

4.4.8 LACFCD Internet Website for Soft-Bottom Channel Maintenance

The LACFCD internet website will house the watershed maps, scheduled maintenance activities, Annual Project Report, and Mitigation Monitoring Report. LACFCD shall also notify the stakeholders of this website for their reference and use. LACFCD update the watershed maps and the Annual Project and Mitigation Monitoring Reports approximately once a year and the scheduled maintenance activities approximately once a week, during appropriate times of the year.