CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. R2-2016-0xxx

WASTE DISCHARGE REQUIREMENTS AND WATER QUALITY CERTIFICATION FOR:

CITY OF LIVERMORESTREAM MAINTENANCE PROGRAM (SMP)
ALAMEDA COUNTY

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

1. The City of Livermore (City or Discharger) has applied to the U.S. Army Corps of Engineers (Corps) for a regional general permit to implement its Stream Maintenance Program (SMP) under federal Clean Water Act (CWA) section 404 (33 U.S.C. §1344).

2. On July 2, 2012, the City filed an application for federal Clean Water Act section 401 Water Quality Certification and Waste Discharge Requirements (WDRs) with the Regional Water Board for authorization to implement its SMP (33 U.S.C. § 1341).

3. This Order applies to the City's stream maintenance activities conducted pursuant to the SMP within the SMP Area. The SMP Area covers approximately 42.8 miles of streams located within City limits or on City-owned land near Doolan Canyon, the area between Portola Avenue and Interstate 580, and Sycamore Grove Park (See Figures 1-1, 1-2, and 3-3 in the SMP Manual). The SMP Area streams are owned by the City, the Alameda County Flood Control and Water Conservation District Zone 7 (Zone 7), Livermore Area Recreation and Parks District (LARPD), and by private landowners (see Appendix A, Ownership Maps, to Attachment A, the *Livermore Stream Maintenance Program Manual*). The City owns or maintains approximately 24.1 miles, or56.6%, of SMP Area streams. Zone 7 owns approximately 10 miles (23.4%), and LARPD owns approximately 7.1 miles (16.6%). In addition, Zone 7 owns portions of approximately 0.8 miles (1.8%) of stream cross-sections based on parcel boundaries, and has drainage easements on approximately 0.8 mile (1.8%) of stream channels.

4. The primary creeks and channels included in the SMP Area are Arroyo Las Positas, Altamont Creek, Arroyo Seco, Arroyo Mocho, and Arroyo del Valle. Secondary tributary creeks and channels include the Realigned Arroyo Las Positas, Cottonwood Creek, Collier Creek, and Kellogg Creek, as well as other unnamed tributaries and concrete channels. Table 1-1 in Appendix B to Attachment A lists all of the creek and channel reaches, individual reach lengths, and figure sheet references to Appendix A to Attachment A, where associated vegetation mapping is depicted. In total, about 42.8 miles of stream are included in the SMP Area.

5. The purpose of the SMP is to establish an efficient stream maintenance program that provides flood control in the SMP Area, while protecting or enhancing natural resources through avoidance, minimization, and mitigation measures. The specific objectives of the SMP include: (1) providing adequate flood protection and conveyance capacity for creeks and

channels within the SMP Area; (2) using a systemic and scientific understanding of the watershed and individual stream reaches to develop informed maintenance approaches that avoid and minimize environmental impacts; (3) improving communication, coordination, and permitting efficiency between regulatory agencies and the City through an open and collaborative notification and reporting process; (4) developing an adaptable and sustainable program that can respond to changing environmental, maintenance, and regulatory conditions; (5) providing an administratively stable program that provides transparency in oversight and implementation of program activities; (6) obtaining long-term coverage of program activities under permits issued pursuant to Federal and State law; and (7) ensuring that stream maintenance activities comply with the Federal and State Endangered Species Acts, the Clean Water Act; the Porter-Cologne Water Quality Control Act; the California Environmental Quality Act (CEQA); and the National Environmental Protection Act (NEPA).

6. The City has developed an SMP Manual to guide implementation of the SMP. The SMP Manual describes the types of maintenance work activities to be conducted in streams and channels located within the SMP Area. The SMP Manual also describes the regulatory framework for the SMP, the environmental setting of the SMP Area, annual pre-maintenance planning and impact avoidance measures, estimates of maintenance activity impacts, impact reduction and minimization measures, mitigation activities, and program management actions.

7. The SMP Manual and associated attachments are considered a "living document" that may be revised or updated to incorporate maintenance techniques and methods that are more protective of the environment or to improve the SMP. Proposed minor changes shall be submitted in the annual work plan notification packet or the Annual Post-maintenance Report (APR) for review and approval by the Executive Officer. Substantive changes to the SMP Manual or the associated attachments must comply with all terms and conditions of this Order and be approved in writing by the Regional Water Board's Executive Officer.

SMP Description, Impacts, and Mitigation

8. The SMP Manual covers three primary maintenance activities: sediment management, vegetation management, and bank stabilization. Other program activities covered by the SMP include bridge maintenance, culvert repair and replacement, trash and debris removal, and access and trail maintenance.

9. The City conducts routine stream maintenance activities that vary based on annual rainfall, stream flow, and growth of vegetation. Activities are conducted on the streams described in Findings 3 and 4.

10. The City has a longstanding Recreational Use License Agreement with Zone 7 to maintain stream channels where the City also maintains an access easement for recreational trails that follow the channel. This agreement allows the City to use Zone 7 facilities to construct, improve, maintain, and operate facilities for parks and recreation purposes.

11. Privately owned reaches are not regularly maintained by the City, but the City will implement maintenance actions to clear debris or excess vegetation at the request of the landowner and if the City determines that the site requires maintenance. LARPD may manage reaches it owns or reaches owned by the City according to established management agreements between the City and LARPD. The City may also conduct maintenance work on private property, if it is determined that the erosion, scour, or other maintenance needs are negatively affecting the

flow conveyance and bank stability of the overall creek system. Under this Order, the City is responsible for ensuring that such work, including that completed by LARPD, complies with the Order.

12. The SMP Manual covers maintenance activities in natural creeks and engineered or modified channels within the SMP Area.

13. Natural creeks are non-engineered and non-modified creek systems. Natural creeks may require maintenance activities to maintain flow conveyance and reduce the flooding hazard. Maintenance work in natural creeks typically involves clearing debris or vegetation that is causing a flow obstruction.

14. Engineered channels are channels that were designed and built to convey a design discharge. In the SMP Area, engineered channels have typically been built with a trapezoidal cross-sectional shape. Most of the engineered channels have earthen banks and beds; however, some channels have hardened banks and beds. Bed and bank hardening typically occurs at or near road and culvert crossings to protect these structures. Structures such as access roads, drop inlet culverts, outfalls, flap gates, and road crossing culverts constructed in association with the engineered channels can also require routine maintenance.

15. Modified channels are natural creek channels with existing earthen beds and banks that have been modified either through vegetation removal, in-channel grading, or channel widening or straightening to improve flow conveyance. Though modified, these channels are not engineered or constructed according to specific design criteria to convey a discharge of a particular magnitude.

16. The City removes sediment from all types of channels to maintain storm flow conveyance from adjacent streets into the creek and channel system. The number of sediment removal projects undertaken annually and the quantity of sediment removed in a given year depends on weather, hydrologic conditions, and the frequency and extent of past maintenance activities. The City anticipates that, on average, the SMP will involve removing between 1,000 and 2,000 cubic yards of sediment per year; not including the Holmes Street bridge site, which averages close to 20,000 cubic yards of gravel per year. Sediment removal under the SMP does not include increasing a channel's flow conveyance capacity beyond the as-built design (where the as-built design is available) or the general design condition (where the general design condition is known). In unmodified channels, sediment removal activities will not enlarge the channel capacity beyond the general "natural" cross-sectional area of the channel. For the most part, sediment removal will be localized at individual crossings, culverts, outlets, other in-channel facilities, or other individual reaches where sediment accumulation is determined to be a concern. In some instances, such as the stretch of Arroyo Las Positas above its confluence with Altamont Creek, the SMP also includes reestablishment of channel capacity through sediment and vegetation removal focused on maintaining an open low flow stream within the wider channel flood zone. Every creek reach will be evaluated for opportunities to provide for habitat restoration benefits. For most sediment removal projects, excavators are used from the top-of-bank. For projects where the use of excavators from the top-of-bank is not possible, or would cause major vegetation impacts, sediment removal equipment may be used within the channel if the channel is dry or dewatered. For larger equipment, this may require the construction of temporary access ramps.

17. Vegetation management activities include vegetation removal and trimming to maintain flow conveyance capacity, control invasive species, and reduce fuels to prevent wildfires, and replanting to establish a canopy of native riparian trees and native understory plants. Vegetation removal for fire prevention purposes requires the approval of the Water Board's Executive Officer. Since riparian trees tend to be more fire-resistant than trees in upland areas, approved vegetation removal for fuel load reduction is likely to be limited to thinning of dry grasses and shrubs. All vegetation removal must be performed in a manner that prevents erosion and habitat loss; this Order does not authorize vegetation clear-cutting or wholesale removal of vegetation. Vegetation management activities may be performed year round and are expected to be relatively consistent from year to year, though locations may change depending on recent growth and blockages. Vegetation management techniques include hand removal using small tools and hand-held equipment, mechanical removal using heavy equipment such as a flail mower attached to an excavator, spot chemical control on tree stumps and along access roads, herbicide application using backpack applicators or truck-mounted applicators, hand-held flaming equipment, and grazing animals. Vegetation management also includes the planting of new trees and shrubs in creeks and channels in accordance with the SMP's restoration and mitigation program (See Section 8.3.1.1 of the SMP Manual). Vegetation management should not result in unacceptable increases in creek water temperature or a locally significant reduction in the cover available from predation for species that use the riparian corridor.

18. Bank stabilization includes the repair and stabilization of eroded or eroding stream banks. Bank stabilization activities occur in creeks and channels, including culvert outlets in streams. Bank stabilization techniques described in the SMP Manual (See Sections 4.5 and 5.5) maximize the use of bioengineering techniques and limit the use of bank hardening. The number of bank stabilization projects to be conducted under the SMP will vary annually depending on factors like the intensity, duration, and number of storms during the previous rainy season and the associated number of bank failures.

19. Bridge maintenance authorized under this Order is limited to minor repairs to existing bridges (e.g., concrete patching or localized reinforcement), treatment of scour erosion around bridge structures, painting, graffiti removal, and cleaning. Such maintenance will require foot and vehicle access into the creek or channel bottom.

20. Culvert repair and replacement activities include: replacement or repair of existing storm drain outfalls and culverts, and in-kind repair and replacement of road crossing culverts. Repair or replacement of an existing culvert must occur within the same footprint as the original culvert, although the original culvert may be replaced with a larger culvert if the original was undersized for the range of flows that occur in the channel. Where feasible, arched culverts, or culverts with buried bottoms that allow natural substrate to be present along the length of the culvert, will be incorporated into the replacement design.

21. Trash and debris removal under this Order targets any non-sedimentary materials deposited in creeks and channels as a result of floodwaters or through human activity, including downed trees, branches, tires, shopping carts, trash, and furniture. Debris removal may also include the cleanup, relocation, or removal of homeless encampments. Although debris removal as a stand-alone activity is expected to be infrequent, the City may remove debris to provide access

for minor maintenance activities at stream gages, outfalls, culverts, flap gates, and grade control structures.

22. SMP access road and trail maintenance may include grading and/or resurfacing road repairs and vegetation removal. Access road and trail maintenance work may involve hand tools, mechanized equipment, or chemical application (for vegetation treatments).

23. The discharge of wastewater (also called effluent) into a channel, stream, or groundwater resulting from the handling and placement of removed sediment at a temporary stockpile site (if used) is not authorized by this Order.

24. The following activities are not covered in this Order:

    a. Maintenance activities on streams outside of those documented herein within the SMP Area;

    b. New culvert and storm drain outfall projects, and projects that would increase the discharge from existing storm drain outfalls;

    c. Capital improvement projects (CIPs) intended to increase capacity beyond the original flood conveyance design or to replace bridges. Routine stream maintenance does not include projects that would alter the designed flood conveyance capacity of a creek or channel. Large construction projects and CIPs that cost over $100,000 are not considered routine stream maintenance and are not included in the SMP;

    d. Emergency activities and procedures. A situation is considered an "emergency" if it is a sudden, unexpected occurrence involving a clear and imminent danger that demands immediate action to prevent or mitigate loss of or damage to life, health, property, or essential public services (Public Resource Code, Section 21060.3);

    e. The Springtown Golf Course Water Diversion. The Springtown Golf Course's primary irrigation water supply has historically been raw water from the adjacent Altamont Creek. In order to divert water from the creek, a seasonal barricade has been operated between April 15 and October 15 under regulatory agency approvals;

    f. Maintenance work conducted on private property either by the private property owners or other agencies; or

    g. Maintenance work performed by other agencies.

25. Ground-disturbing maintenance activities that occur in the channel below top-of-bank (including sediment removal, bank stabilization, and some vegetation management) shall take place during the low-flow or dry season (herein defined as June 15 through either October 15, or the first significant rainfall[1] after October 1, whichever occurs first) (), unless an exception is granted by the Regional Water Board's Executive Officer. In particularly dry years, when channels remain dry before June 15 or after October 15, the City may request approval to conduct ground-disturbing maintenance activities prior to June 15 or later than October 15. Such exceptions may be made on a project-by-project basis with advance approval by the Executive Officer and federal and State regulatory agencies, as appropriate.

[1] Significant rainfall is defined as 0.5 inch of rain in a 24-hour period.

26. Non-ground-disturbing work may be conducted in the channel zone, but outside the low-flow channel, at any time, provided there is no discharge of waste that may adversely impact water quality. Examples of non-ground-disturbing work include pruning and removing select non-native invasive plant species, maintaining channel access roads for drainage and accessibility, conducting minor repairs of culverts, and repairing fences, provided access to the fence is from a service road and not the stream channel, and the fence is located out of the channel bed and banks. Planting of riparian vegetation and debris removal immediately necessary to prevent flooding may also be done at any time.

27. The Maintenance Principles, Framing Considerations, Maintenance Goals, and Maintenance Triggers described in Chapter 4 of the SMP Manual provide overarching guidance for maintenance activities and set forth a decision-making framework for determining whether maintenance is needed and, if it is, what the desired intensity, extent, and outcome of the activity should be. The Maintenance Principles require the City to consider the natural function of the system, including physical constraints, sensitive habitats, and watershed processes, determine when action is needed, identify maintenance activities needed, and strive to recognize and implement solutions to minimize the on-going need for maintenance activities.

28. The SMP Manual includes the following Maintenance Principles: no unnecessary intervention; understand the system and its processes; consider adjacent land uses; apply system understanding to maintenance activities; manage for incremental ecological improvement (Lift); and integrate maintenance activities toward sustainability.

29. The SMP has been crafted to minimize detrimental impacts to beneficial uses. The SMP Manual proposes activities that, when compared with past practices, should result in long-term beneficial effects on riparian and aquatic habitat for the plant and wildlife species that are identified in Section 6.3 of the SMP Manual.

30. Impacts on beneficial uses from SMP activities that cannot be entirely avoided through pre-maintenance planning and the implementation of the BMPs described within Chapter 7 of the SMP Manual will be mitigated through implementation of the mitigation measures described in Chapter 8 of the SMP Manual.

31. The SMP will implement a three-tiered mitigation system, in which mitigation opportunities are sought first on-site at the project location (Tier 1), and second in other SMP Area reaches (Tier 2). Tier 3 mitigation will occur regardless of the location of Tier 1 and 2 mitigation and is intended to address temporal losses of habitat. The three-tier mitigation approach ensures that mitigation is first directed to compensate for the impacts occurring at the specific project reach, then expanded to consider reaches within the SMP Area and the watershed as a whole, if opportunities within the project reach prove insufficient to compensate for impacts. The mitigation requirements are potentially more stringent under this Order than those referenced under the attached SMP Manual.

    Both Tier 1 and Tier 2 mitigation involve “in-kind” mitigation, that is, mitigation that replaces or compensates for the loss of stream functions and riparian habitat from maintenance activities covered by the SMP. In-kind mitigation may include planting of riparian trees, understory shrubs, and aquatic plants; removal of exotic and invasive species and corresponding riparian planting; construction of low-flow channels, construction of

geomorphically appropriate floodplains, and other geomorphic features to enhance instream habitat and hydrologic function; and removal of migration barriers. Tier 2 mitigation is similar to Tier 1 mitigation in seeking in-kind mitigation in creeks and channels that have undergone maintenance in the SMP Area. However, Tier 2 mitigation is applied at other SMP Area creeks and channels when there is no opportunity for enhancement or restoration in a maintenance reach. City-owned lands within the SMP Area where Tier 1 and Tier 2 mitigation projects take place will be protected in perpetuity with a deed restriction over the mitigation parcel.

Tier 3 mitigation is off-site mitigation that provides compensation for temporal losses of habitat in the form of enhancement of Beneficial Uses. Off-site mitigation projects may involve some of the same activities as onsite mitigation, including native riparian plant revegetation, large woody debris installation, invasive plant removal, bioengineering/erosion control, and watershed-based sediment or other contaminant reduction actions, but the projects will not be conducted in SMP maintenance reaches. Tier 3 mitigation will be funded by an amount equal to or greater than 10 percent of the annual SMP activity budget. Tier 3 mitigation is not always solely a City effort, but may be a collaborative effort with partnering agencies, including local non-profit agencies, municipalities, restoration organizations, creek groups, schools, and Resource Conservation Districts (RCDs).

32. SMP mitigation activities accomplish the goal of the California Wetlands Conservation Policy ("No Net Loss Policy;" Executive Order W-59-93) to "ensure no overall net loss and achieve a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California in a manner that fosters creativity, stewardship, and respect for private property." Implementation of the SMP is anticipated to preserve existing and potential beneficial uses of waters of the State and may, over time, restore or enhance beneficial uses for some stream reaches.

33. This Order requires submittal of an annual work plan notification packet, acceptable to the Executive Officer, by April 15 of each year. The packet shall contain a complete proposed project list planned for creeks and channels, describe the channel maintenance activities to be conducted during the upcoming maintenance season and outline proposed mitigation and monitoring projects that would compensate for any unavoidable adverse impacts, as outlined in the Section 9.4 of the SMP Manual and the *Initial Study and Mitigated Negative Declaration for the Livermore Stream Maintenance Program* (MND) (State Clearinghouse No. 2015042027). The notification packet shall contain the work plan, project descriptions, and supporting materials described. The notification packet shall also describe any maintenance work to be conducted for other agencies or private landowners. SMP maintenance work may be implemented after receiving the approval of the Water Board's Executive Officer, or 60 days after the Water Board receives the annual notification packet, whichever comes first. The Water Board's Executive Officer may remove projects from the annual proposed projects list if the Executive Officer determines that those projects are not covered by the authorization provided by this Order.

34. For sediment removal projects on the annual work plan notification packet, this Order requires submittal of a Sediment Sampling Plan (SSP) acceptable to the Executive Officer by May 15 of each year. The SSP shall describe the sediment disposal locations, site-specific disposal criteria, and the test protocols for sampling soils from proposed sediment removal projects.

Section 4.6.2 of the SMP Manual includes the sediment sampling, analysis, and reporting protocols.

35. This Order requires submittal of an Annual Post-maintenance Report (APR) acceptable to the Executive Officer by January 31 of the year following the year in which maintenance was completed (See Section 9.8 of the SMP Manual). The APR will describe channel maintenance activities conducted, including the maintenance work conducted for private landowners or other parties, descriptions of mitigation implemented, and monitoring results for all active mitigation sites. The APR will include any lessons learned and recommendations to update BMPs identified in the SMP Manual, if needed.

36. This Order requires that, after each maintenance season, the City and Regional Water Board staff meet to discuss the performance of the SMP, review lessons learned from the prior construction season, and determine the need to improve stream maintenance techniques and BMPs. The City shall implement all stream maintenance techniques and BMPs deemed necessary by the Executive Officer in connection with such review.

37. This Order is effective only if the City pays all fees required under Title 23 of the California Code of Regulations (Cal. Code Regs., tit. 23, § 2200 et seq.).

38. Regional, state, and national studies have determined that tracking of mitigation/restoration projects must be improved to assess the performance of these projects. In addition, to effectively carry out the "No Net Loss Policy," the State needs to track both wetland losses and mitigation/restoration project success closely. Therefore, the City shall submit the California Wetlands Form to provide project information related to impacts and mitigation/restoration measures (see Provision D.63). An electronic copy of the form and instructions can be downloaded at: http://www.waterboards.ca.gov/sanfranciscobay/certs.shtml. Project information concerning impacts and mitigation/restoration will be made available at the web link: http://www.ecoatlas.org/regions/ecoregion/bay-delta/projects. On the basis of the information provided in the California Wetlands Forms submitted for compliance with this Order, the Water Board's Executive Officer may determine that the Riparian Repair and Maintenance (short) Form may be used in place of the full California Wetlands Form if the Discharger can demonstrate that the Riparian Repair and Maintenance Form provides sufficient information to satisfy the requirements of this Order.

Regulatory Framework

39. The Basin Plan is the Regional Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes implementation plans to achieve water quality objectives. The Basin Plan was duly adopted by the Regional Water Board and approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law, and U.S. EPA, where required.

40. The Basin Plan lists the following existing and potential beneficial uses for ground water within the City's SMP Program area (the Livermore Valley Groundwater Basin):

    a. Municipal and Domestic Water Supply (MUN)

    b. Industrial Process Supply (PROC)

c. Industrial Water Supply (IND)

d. Agricultural Water Supply (AGR)

41. The Basin Plan lists the following existing and potential beneficial uses for surfaces waters within the City's SMP Program area:

    a. Groundwater Recharge (GWR)

    b. Municipal and Domestic Supply (MUN)

    c. Preservation of Rare and Endangered Species (RARE)

    d. Water Contact Recreation (REC1)

    e. Non-contact Water Recreation (REC2)

    f. Warm Freshwater Habitat (WARM)

    g. Cold Freshwater Habitat (COLD)

    h. Wildlife Habitat (WILD)

    i. Fish Migration (MIGR)

    j. Fish Spawning (SPWN)

42. SMP activities could temporarily impact beneficial uses of waters of the State for:

    a. Cold Freshwater Habitat (COLD)

    b. Fish Migration (MIGR)

    c. Preservation of Rare and Endangered Species (RARE)

    d. Water Contact Recreation (REC1)

    e. Non-contract Water Recreation (REC2)

    f. Fish Spawning (SPWN)

    g. Warm Freshwater Habitat (WARM)

    h. Wildlife Habitat (WILD)

43. The Arroyo Las Positas is identified as impaired by nutrient/eutrophication and biological indicators on the CWA section 303(d) list.

44. Arroyo Mocho is identified as impaired by temperature on the CWA section 303(d) list.

45. Arroyo Del Valle, Arroyo Las Positas, and Arroyo Mocho are identified as impaired by diazinon and other pesticides resulting from stormwater runoff on the CWA section 303(d) list. In 2007, a Total Maximum Daily Load (TMDL) was approved to address toxicity from pesticides, including diazinon, in these creeks, among other impaired creeks in the Bay Area.

    a. The TMDLs for pesticide-related toxicity is expressed in terms of acute toxic units (TUa) and chronic toxic units (TUc). The targets are as follows: pesticide-related acute and chronic toxicity in urban creek water and sediment, as determined through standard toxicity tests, shall not exceed 1.0 TUa or 1.0 TUc, where TUa = 100/NOAEC and TUc – 100/NOEC. "NOAEC" refers to the "no observed adverse effect concentration," which is

the highest tested concentration of a sample that causes no observable effect (i.e., mortality) to exposed organisms during an acute toxicity test. For purposes of this strategy, "NOEC" refers to the "no observable effect concentration," which is the highest tested concentration of a sample that causes no observable effect to exposed organism during a chronic toxicity test. NOAEC and NOEC are both expressed as the percentage of a sample in a test container (e.g., an undiluted sample has a concentration of 100%).

b. The TMDLs for a diazinon concentration in urban creeks shall not exceed 100 ng/l as a one-hour average. The target addresses both acute and chronic diazinon-related toxicity.

46. The California Environmental Quality Act (CEQA) requires all discretionary projects approved by public agencies to be in full compliance with CEQA and requires a lead agency (in this case, the City) to prepare an appropriate environmental document for such projects. The City prepared and certified the *Initial Study and Mitigated Negative Declaration for the Livermore Stream Maintenance Program* (MND) on September 23, 2015 (State Clearinghouse No. 2015042027). The MND found significant impacts that are under the purview and jurisdiction of the Regional Water Board: 1) impacts to aquatic species including habitat for special status species; and 2) impacts to riparian habitat, wetlands, and valley sink scrub habitat in the Springtown Alkali Sink. The MND also found that the mitigation measures would mitigate all of these impacts to less than significant levels. The mitigation measures specified in the MND include compensatory mitigation to mitigate for any temporary disturbance or permanent impacts to aquatic habitats and specific BMPs to avoid and minimize maintenance activity-related impacts.

47. The Regional Water Board, as a responsible agency under CEQA, has independently considered the MND and finds that the significant environmental impacts of the proposed activities to aquatic species and riparian habitat, have been identified and mitigated to less than significant levels by the combination of the BMPs and mitigation measures in the SMP Manual and the mitigation requirements adopted in this Order (See Cal. Code Regs., tit. 14, § 15096, subd. (g).). In adopting this Order, the Regional Water Board has further diminished the water quality impacts identified in the MND by modifying the mitigation requirements of the SMP Manual and MND. Where the requirements of this Order are more stringent than the requirements of the SMP Manual or MND, the City must comply with the requirements of this Order. Overall, the Regional Water Board finds that the SMP, when implemented in conformance with this Order, will enhance and protect natural resources and the environment.

48. The State of California recognizes that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes (Wat. Code § 106.3; State Water Board Reso. 2016-10.). This order promotes that policy by requiring discharges to meet discharge levels designed to protect human health and ensure that water is safe for domestic use.

49. The Regional Water Board provided public notice of the application pursuant to title 23, California Code of Regulations section 3858 on May 20, 2016, and posted information describing the project on the Regional Water Board's website. The Regional Water Board has notified the City and interested parties of its intent to issue WDRs and Water Quality Certification for the activities proposed in the SMP.

50. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to this Order.

51. The Clean Water Act (CWA) (33 U.S.C. §§ 1251-1387) was enacted "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." (33 U.S.C. § 1251(a).) Section 401 of the CWA (33 U.S.C. §1341) requires every applicant for a federal license or permit that may result in a discharge into navigable waters to provide the licensing or permitting federal agency with certification that the project will be in compliance with specified provisions of the CWA, including water quality standards and implementation plans promulgated pursuant to CWA section 303 (33 U.S.C. § 1313). CWA section 401 directs the agency responsible for certification to prescribe effluent limitations and other limitations necessary to ensure compliance with requirements of state law. CWA section 401 further provides that state certification conditions shall become conditions of any federal license or permit for the project. This discharge is also regulated under Water Code section 13263 and title 23 of the California Code of Regulations.

IT IS HEREBY ORDERED that the City shall comply with CWA sections 301, 302, 303, 306, 307, and 401, and with applicable provisions of State law. The City, its agents, successors, and assigns shall comply with the following terms and conditions in carrying out the Stream Maintenance Program:

A. Discharge Prohibitions

1. The direct or indirect discharge of wastes, as defined in Water Code section 13050(d), within or outside of an active project site, to surface waters or surface water drainage courses is prohibited, except as authorized in this Order.
2. The City shall not cause degradation of any water supply.
3. Excavated sediment shall remain within designated disposal areas at all times. The designated disposal areas are: a) any offsite, authorized temporary or permanent location maintained in compliance with federal and State regulations, b) any onsite, authorized temporary or permanent location, provided material shall be isolated and contained to prevent impacts to waters of the State and their beneficial uses, or c) a permitted landfill.
4. The discharge of sediment and runoff or decant water from excavated materials disposed of at any temporary or permanent disposal site to waters of the State is prohibited.
5. Maintenance activities subject to these requirements shall not cause a condition of pollution or nuisance as defined in Water Code section 13050.
6. Groundwater beneficial uses shall not be degraded as a result of the SMP.
7. No debris, soil, silt, sand, cement, concrete, or washings thereof, or other construction related materials or wastes, oil or petroleum products or other organic or earthen material shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the State. When operations are completed, any excess material shall be removed from the work area and any areas adjacent to the work area where such material may be washed into waters of the State.

B. Discharge Specifications

1. Appropriate soil erosion control measures as specified in Chapter 7 of the SMP Manual, including BMPs in Tables 7-1 and 7-2, shall be undertaken and maintained to prevent discharge of sediment to surface waters or surface water drainage courses.
2. Excavated material shall be fully contained to prevent any wind transport, surface runoff, or erosion into waters of the State, per the BMPs for temporary storage
3. In accordance with Water Code section 13260, the City shall file with the Regional Water Board a report of any material change in the character, location, or quantity of this waste discharge that is beyond the scope of this Order. Any proposed material change in the discharge requires approval by the Regional Water Board.
4. The City shall notify the Regional Water Board promptly by telephone or email, and in no case more than 24 hours after, if an adverse condition occurs as a result of a discharge. An adverse condition includes, but is not limited to, a violation of the conditions of this Order, spill of petroleum products or toxic chemicals, or damage to control facilities that could affect compliance. A written notification of the adverse condition shall be submitted to the

Regional Water Board within five days of occurrence. The written notification shall identify the adverse condition, describe the actions taken or planned to remedy the condition, and specify a timetable, subject to approval by the Executive Officer, for the remedial actions that follow any initial response to the adverse condition.

C. Receiving Water Limitations

1. SMP activities shall not cause the following conditions to exist in waters of the State at any place:
   a. Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.
   b. Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or otherwise adversely affect beneficial uses.
   c. Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth cause nuisance or adversely affect beneficial uses.
   d. Waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.
   e. The natural receiving water temperature of inland surface waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses. The temperature of any cold or warm freshwater habitat shall not be increased by more than 5°F (2.8°C) above natural receiving water temperature.
2. SMP activities shall not cause the following limits to be exceeded in waters of the State at any point:

a. Dissolved Oxygen:	5.0 (WARM) or 7.0 (COLD) mg/l minimum. When natural factors cause lesser concentrations, then this discharge shall not cause further reduction in the concentration of dissolved oxygen.
b. pH:	A variation of natural ambient pH by more than 0.5 pH units.
c. Turbidity	Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases from normal background light penetration or turbidity relatable to waste discharge shall not be greater than 10 percent in areas where ambient turbidity is greater than 50 NTU. Where ambient turbidity is less than 50 NTU, activities authorized by this Order shall not increase turbidity by more than 5 NTU.
d. Toxicity	All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms.
e. Salinity	The project shall not increase total dissolved solids or salinity to a degree that the increase adversely affects beneficial uses or water quality.

f. Chlorine — The Project shall not discharge water to waters of the State with residual chlorine levels (free chlorine plus chloramines) that exceed the instantaneous limit of 0 mg/L in Table 4-2 of the Basin Plan. Chlorine residual levels that are non-detect at a reporting limit of 0.08 mg/L will be considered to be incompliance with the instantaneous limit in Table 4-2 in the Basin Plan.

3. SMP activities shall not cause a violation of any particular water quality standard for receiving waters adopted by the Regional Water Board or the State Water Board as required by the CWA and regulations adopted there under. If more stringent applicable water quality standards are promulgated or approved pursuant to CWA section 303, or amendments thereto, the Regional Water Board may revise and modify this Order in accordance with such more stringent standards.

D. Provisions

Vegetation Management

1. The City shall follow the vegetation management approach described in Chapters 4.4 and 5.5 of the SMP Manual and this Order.
2. For large woody debris activities, the City shall follow the guidelines described in Chapter 5.3 of the SMP.
3. All vegetation management activities that could result in the runoff of pesticides, which are not registered for aquatic use, into waters of the State are prohibited.
4. Vegetation management activities that could result in the destabilization of channel banks or increase sediment input into waters of the State that is not consistent with the SMP Manual are prohibited.
5. Vegetation management and replanting shall be conducted using a strategy that maximizes the functions of the vegetation to shade the active channel, stabilizes active channel banks, and provides instream habitat, including cover from predation.
6. Vegetation management activities shall not adversely impact the riparian zone, shade, canopy coverage, or habitat. Overall vegetation management activities consistent with the SMP Manual, including implementation of BMPs and compensatory mitigation, as described in the SMP Manual, shall enhance beneficial uses. Vegetation management for fire fuel reduction or to protect infrastructure shall not adversely impact riparian shade, canopy coverage, cover from predation, or other riparian habitat values. Vegetation management shall not result in unacceptable increases in creek water temperature or a locally significant reduction in the cover available from predation for species that use the riparian corridor.

Pesticides and Herbicides

7. The City shall obtain coverage under the statewide General National Pollutant Discharge Elimination System Permit for the Discharge of Aquatic Pesticides for Aquatic Weed Control in Waters of the United States General Permit No. CAG990005 (State Water Board Order 2013-0002-DWQ).

8. The City shall comply with the Integrated Pest Management (IPM) Policy or Ordinance pursuant to section C.9 of this Regional Water Board's Municipal Regional Stormwater NPDES Permit (Order No. R2-2015-0049).

Sediment Removal

9. The City shall follow the sediment removal guidelines described in Chapters 4.3 and 5.3 of the SMP Manual and this Order.
10. Sediment removal will be localized at individual crossings, culverts, outlets, other in-channel facilities, or other individual reaches where sediment accumulation is determined to be a concern. In unmodified channels, sediment removal activities will not enlarge the channel capacity beyond the general "natural" cross-sectional area of the channel.
11. In engineered or modified channel reaches, only sediment removal within the as-built design or general design limits shall be allowed. In unmodified channels, sediment removal activities will not enlarge the channel capacity beyond the general "natural" cross-sectional area of the channel.
12. In-stream features like bars and other depositional features shall be preserved in their location unless these features must be removed to provide conveyance capacity. The annual work plan notification packet shall explain why removal of these features cannot be avoided and propose mitigation. During removal of bars or other depositional features, the City shall minimize impacts and preserve habitat functions to the extent practicable to protect beneficial uses.
13. After sediment removal, the City shall grade the channel so that the transition between the existing channel both upstream and downstream is smooth and continuous between the maintained and non-maintained areas and does not present a "wall" of sediment or other blockage that could erode or cause erosion once flows are restored.
14. After sediment removal, the City shall compact the soil to match pre-excavation conditions so that disturbed soils are not transported downstream.
15. Excavated materials, maintenance materials, and equipment shall not cover aquatic or riparian vegetation.
16. The City may temporarily stockpile excavated sediment prior to disposal or reuse, provided it implements appropriate BMPs to prevent sediment from entering the creeks. Onsite sediment stockpiles must be trucked away for offsite disposal within seven calendar days of the completion of the active work. During these seven days, onsite stockpiled materials shall be fully contained to prevent any wind or water transport. The excavated sediment may also be temporarily stockpiled at an offsite location. Offsite stockpiles shall be covered and surrounded with perimeter sediment control BMPs to ensure that excavated materials remain stable. Runoff, sediment, or decant water from excavated materials shall not contact waters of the State.
17. To prevent sediment-laden water from being released back into waters of the State during transport of spoils to disposal or reuse locations, truck beds shall be lined

with an impervious material (e.g., plastic), or the tailgate shall be blocked with wattles or other appropriate filtration material.

18. Sediment removed during maintenance activities shall be properly characterized through laboratory analytical testing, as described in Section 4.6 of the SMP Manual, and be hauled offsite to suitable upland disposal sites, a permitted landfill, or at a reuse site in accordance with applicable State and federal regulations including applicable provisions of this Order. Proposed disposal and reuse locations shall be submitted by the City in the annual notification packet and approved by the Executive Officer. The Executive Officer will approve the sediment disposal and reuse proposal and provide a notice to proceed, or indicate needed modifications, within 30 days of receipt.
19. For sediment removal projects in each year's annual work plan notification packet, the City shall submit a Sediment Sampling Plan (SSP) acceptable to the Executive Officer by May 15 of each year in which sediment removal projects are proposed. The SSP shall describe the sediment disposal locations, site-specific disposal criteria, and the test protocols for sampling soils from proposed sediment removal projects. Sediment sampling, analysis, and reporting protocols shall be consistent with Section 4.6.2 of the SMP Manual.
20. The discharge of any hazardous, designated, or non-hazardous waste, as defined in CCR title 27, shall be conducted in accordance with applicable State and federal regulations.
21. The City shall clean up, remove, and relocate any wastes that are discharged in violation of this Order.
22. The City shall demonstrate compliance with all permitting and CEQA review requirements for offsite sediment disposal sites proposed for the SMP and for any alternative offsite sediment disposal sites. If requested by the Executive Officer, a delineation of existing jurisdictional waters of the State and United States at any temporary or permanent sediment disposal site, verified according to Corps' delineation standards, shall be conducted prior to the preparation for disposal and submitted for the Executive Officer's acceptance prior to the disposal of sediment.

Bank Stabilization

23. The City shall follow the bank stabilization guidelines and methods described in Chapters 4.5 and 5.5 of the SMP Manual.
24. The use of hardscape materials shall be restricted to areas where bioengineering systems are demonstrated to be infeasible.
25. Where bank stabilization activities may result in modifications to channel cross-sections and/or profiles, the banks shall be re-contoured to match the adjacent bank slope.

Other Maintenance Activities

26. The City shall follow the guidelines for other maintenance activities (bridge maintenance, culvert repair, habitat restoration and landscape maintenance, trash and debris removal, and access road and trail maintenance) described in Chapter 5.6 of the SMP Manual.

27. Minor maintenance activities shall not result in direct or cumulative impacts to water quality or beneficial uses of waters of the State.

28. SMP culvert repair and replacement activities shall occur within the same footprint as the original culvert. Existing culverts may be replaced with a larger size culvert if the existing culvert was undersized for the range of flows that occur in the channel. Where feasible, arched culverts, or culverts with buried bottoms that allow natural substrate to be present along the length of the culvert, shall be incorporated into culvert replacement designs.

Project Limits

29. The City shall comply with the specified project limits for each work activity as described in Chapter 5 of the SMP Manual, except where those limits are relaxed pursuant to Provision D.34. Types of limits may include volume of sediment removed, areal extent of impacts, or linear feet of impacts. Limits for vegetation management may include the percent of vegetative canopy that can be removed.

30. Removal of accumulated sediment from culverts, storm drain outlets, and areas immediately upstream and downstream of the culverts or bridge crossings shall not extend more than 200 linear feet and not remove more than 1,000 cubic yards of sediment removal per crossing. However, as much as 20,000 cubic yards of gravel may be removed from the Holmes Street crossing of Arroyo Mocho in a single year.

31. Individual bank stabilization projects shall not exceed 300 consecutive linear feet of bank and repairs shall not extend more than 10 linear feet beyond the failed or failing bank.

32. Individual projects to thin or remove vegetation shall not reduce canopy cover by more than 50 percent within the project reach.

33. The City may request the Executive Officer to waive the Per-Project Limits for sediment removal, bank stabilization, or vegetation management. Any request for a waiver of Per-Project Limits shall be submitted with the annual work plan notification packet and include the following:

    a) A narrative description of the waterbody. This should include known information about the volume and duration of flood flow events; the approximate length, width, and depth of the waterbody and characteristics observed associated with the transition from the upper boundary of the active channel to any adjacent floodplain (e.g., bed and bank, wrack line, sediment deposits, or scour marks); a description of the adjacent vegetation community and a statement regarding the wetland status of the adjacent areas (i.e.,

wetland or non-wetland) surrounding land use; water quality; issues related to cumulative impacts in the watershed; and any other relevant information;

b) An analysis of the potential impacts of the proposed SMP maintenance activity on the waterbody;

c) An analysis of the potential for special-status plants or animals to be impacted by the proposed SMP maintenance activity;

d) Measures the City will take to avoid and minimize impacts to waters of the State, including alternative implementation and construction methods; and

e) A compensatory mitigation plan describing how the Discharger proposes to mitigate for unavoidable impacts resulting from the proposed activity.

34. Ground disturbing maintenance activities that occur in the channel below top-of-bank (including sediment removal, bank stabilization, and some vegetation management) shall take place during the low-flow or dry season (herein defined as April 15 to either October 15 or the first significant rainfall[2] after October 1, whichever occurs first) unless an exception is granted by the Regional Water Board's Executive Officer. In particularly dry years, when channels remain dry earlier than April 15 or later than October 15, the City may request approval to conduct ground-disturbance maintenance activities prior to April 15 or later than October 15. Exceptions may be made on a project-by-project basis with advance approval by the Executive Officer and federal and State regulatory agencies as appropriate.

Best Management Practices

35. The City shall implement the Best Management Practices (BMPs) in Chapter 7 of the SMP Manual, including Tables 7-1 and 7-2, to prevent pollutants from draining, washing, or otherwise discharging into waters of the State during SMP maintenance activities. The BMPs may be revised, as necessary, with the written approval of the Executive Officer, provided that any revisions meet the overall criteria described in this Order and the revised SMP is as protective or more protective of water quality and beneficial uses of waters of the State.

36. The City shall visually inspect each active maintenance site, during business hours, within two business days (48 hours) prior to each qualifying rain event producing precipitation of ½ inch or more over a 24-hour period. The visual observations shall include:

a) All stormwater drainage areas to identify any spills, leaks, or uncontrolled pollutant sources. If needed, the Discharger shall implement appropriate corrective actions.

[2] Significant rainfall is defined as 0.5 inch of rain in a 24-hour period.

b) All BMPs to identify whether they have been properly implemented in accordance with the SMP Manual and this Order. If needed, the City shall implement appropriate corrective actions.

c) Any stormwater storage and containment areas to detect leaks and ensure maintenance of adequate freeboard.

37. The City shall visually inspect each maintenance site at least once daily during extended storm events to confirm that BMPs are effective and maintained as necessary.

38. The City shall visually inspect each maintenance site within two business days (48 hours) after each qualifying rain event to determine whether the BMPs were effective and identify the need to modify or include additional BMPs to be protective.

39. The City shall visually inspect the discharge of stored or contained stormwater that is derived from and discharged subsequent to a qualifying rain event producing precipitation of ½ inch or more over a 24-hour period at the time of discharge, within each maintenance site. Stored or contained stormwater that will likely discharge after operating hours due to anticipated precipitation shall be observed prior to discharge.

40. The City shall record the time, date, and rain gauge reading of all qualifying rain events.

41. The City shall maintain records of all visual observations of qualifying rain events, personnel performing the observations, observation dates, weather conditions, locations observed, and corrective actions taken in response to the observations.

42. The City is not required to conduct visual observations (inspections) during dangerous weather conditions such as flooding and electrical storms or outside of scheduled site business hours.

43. The City shall divert any flow around active maintenance areas consistent with Chapter 5.3 and Table 7-1 of the SMP Manual.

44. The City shall halt work activities and notify Regional Water Board and California Department of Fish and Wildlife (CDFW) staff if fish, amphibians, or other aquatic organisms are exhibiting stress or death within 1,000 feet of maintenance activities or discharges. The City shall immediately assign a qualified biologist to investigate the cause of the problem and to determine if the cause is related to SMP activities. If so, the Discharger shall prepare and implement an acceptable corrective action plan.

45. The City shall have equipment and supplies onsite (or readily available nearby) for rapid deployment in the event the City has caused or potentially may cause a violation of receiving water limitations specified in this Order.

46. All staging shall occur on adjacent access roads or previously-disturbed areas unless demonstrated to be infeasible. If the City is unable to use adjacent access roads or previously-disturbed areas for staging, the City shall choose an area for staging that will result in the least environmental impact. The City shall implement

BMPs (See Chapter 7 of the SMP Manual) to ensure impacts to waters of the State and adjacent riparian areas are avoided and minimized and the site returned to pre-project conditions. If repair activities affect the active channel, the work area shall be isolated from flowing channel segments and restored to pre-project conditions after maintenance activities are complete.

Compensatory Mitigation

47. The City shall implement the Mitigation Monitoring and Reporting Program included in Chapters 8 and 9 of the SMP Manual.

48. The City shall mitigate for both permanent and temporary impacts from its stream maintenance. The City shall prioritize in-kind onsite mitigation (Tier 1 mitigation), and shall only implement offsite mitigation, in-kind or otherwise, (Tier 2 mitigation), if there is no opportunity to mitigate onsite.

49. The City shall mitigate for the temporal loss of beneficial uses or temporal impacts to aquatic habitat quality by funding offsite projects within the watershed (Tier 3 mitigation) that would address broader impacts than those caused by stream maintenance, such as excessive erosion, to reduce the overall need to conduct stream maintenance activities. The City shall set aside 10 percent of the cost for each project authorized by this Order to fund Tier 3 watershed restoration projects.

50. Tier 3 watershed mitigation projects may include such activities as headwater-area erosion control, revegetation of riparian corridors, invasive plant removal, or other stream restoration practices. Watershed-based mitigation shall provide restorative and mitigating watershed solutions by partnering with local non-profit agencies, municipalities, restoration organizations, creek groups, schools, and resource conservation districts. Post-construction stormwater treatment/LID projects that are not required by the State Water Board's Phase II Municipal Stormwater Permit and provide improvements to water quality may be considered as Tier 3 mitigation projects.

51. The City shall, to the maximum extent practicable, implement compensatory mitigation projects in advance of, or concurrent with, the activity causing the permitted impacts. This is particularly true when offsite mitigation is pursued. Due to the nature of onsite mitigation, it is recognized that onsite mitigation activities will likely occur during or following the maintenance activities.

52. The City shall submit proposed mitigation projects to the Regional Water Board's Executive Officer for approval as part of the annual work plan notification packet. The Executive Officer will approve the mitigation proposals and provide a notice to proceed, or indicate needed modifications to the annual work plan notification packet, within 30 days of receipt. In the event that a proposed mitigation project is denied, or a project is withdrawn for any reason, an alternative mitigation proposal that provides comparable levels of mitigation shall be submitted to the Executive Officer for concurrence no later than 30 days following denial or rescission. The Executive Officer will approve the alternative mitigation proposal and provide a notice to proceed, or indicate needed modifications to the annual work plan notification packet, within 30 days of receipt. The City shall implement those

mitigation proposals that the Executive Officer has approved. If the City becomes aware that an approved mitigation proposal is no longer viable, an alternative mitigation proposal shall be submitted to the Executive Officer for written approval within 90 days. The City shall implement the alternative mitigation proposal that the Executive Officer has approved.

53. The City shall mitigate for impacts to water quality and beneficial uses from its vegetation management activities, including any impacts to bank stability or riparian canopy cover. Mitigation shall include revegetation with native vegetation, and other methods, as described in Chapter 8.3 of the SMP Manual.

54. This Order includes mitigation ratios associated with each maintenance activity (e.g., sediment removal, vegetation management, bank stabilization, tree removal) and each mitigation activity (See Table 1). Where this Order requires more mitigation than that required in the SMP Manual, the requirements of this Order shall take precedence. If the Executive Officer determines that the City has not proposed adequate mitigation for the potential impact to waters of the State, additional or alternative mitigation shall be required.

55. If any of the mitigation sites have not developed in accordance with the performance criteria as described in Table 8.3 of the SMP Manual by year five (5) after completion of mitigation construction for wetland, riparian shrub, and riparian willow plantings, or by year 10 for riparian tree plantings, the City shall prepare and implement a revised mitigation plan, acceptable to the Executive Officer, addressing corrective action, outlining additional monitoring, or proposing new mitigation. Revised mitigation plans shall be implemented within 12 months of receiving approval from the Regional Water Board's Executive Officer.

56. If the City is not able to manage a mitigation site, either in part or in full, consistent with the approved long term management plan for the property, then the City shall notify the Regional Water Board within 30 days. The City shall prepare and implement a revised mitigation plan for an alternate mitigation site, acceptable to the Executive Officer, proposing new mitigation. Revised mitigation plans shall be implemented within 12 months of receiving approval from the Regional Water Board's Executive Officer.

Monitoring and Reporting

57. The annual work plan notification package shall be submitted by April 15 of each year for the work proposed for completion that year. The annual work plan notification package shall describe the channel maintenance activities to be conducted during the upcoming maintenance season and the proposed mitigation and monitoring projects that would compensate for any unavoidable adverse impacts. The notification packet shall contain the work plan, project descriptions, and supporting materials described in Section 9.4 of the SMP Manual. The notification packet shall include details of the annual mitigation plan as described in Section 9.5 of the SMP Manual. The notification packet shall also describe any maintenance work to be conducted for other agencies or private landowners. SMP maintenance work may be implemented, within the work windows specified in this Order, after receiving the approval of the Water Board's Executive Officer, or 60

days after the Water Board receives the annual notification packet, whichever comes first. The Water Board's Executive Officer may remove projects from the annual proposed projects list if the Executive Officer determines that those projects are not covered by the authorization provided by this Order.

58. Project-specific notification for each maintenance project shall include photo documentation of existing conditions, a description of the project, an assessment of the need for the proposed maintenance activities, and measures taken to avoid and minimize impacts to beneficial uses. The City shall also provide post-maintenance photo documentation. The City shall establish a minimum of 4 photo-documentation points at each project site and mitigation site. These photo-documentation sites shall be selected to document channel and bank conditions immediately upstream and downstream of each project or mitigation site, as well as the project or mitigation reach. The City shall determine if any of the proposed projects could impact any channels identified as functioning as potential habitat for threatened or endangered species (i.e., migration, spawning, breading, rearing, foraging, or refugia) and describe the BMPs, including the retention of instream habitat features that will be implemented.

59. The City shall monitor all active project sites according to the Monitoring and Reporting Program described in Chapter 9 of the SMP Manual. An Annual Post-maintenance Report (APR) shall be submitted to the Regional Water Board's Executive Officer by January 31 following each year of maintenance authorized by this Order (See Section 9.8 of the SMP Manual), and in each year in which monitoring is required for mitigation projects that have not yet attained final performance criteria, for review and approval. The APR shall describe channel maintenance activities conducted, including the maintenance work conducted for private landowners or other parties, descriptions of mitigation implemented, and monitoring results for all active mitigation sites, including photographs from photo-documentation points from active work sites and mitigation sites that have not attained final success criteria. The APR will include any lessons learned and recommendations to update BMPs identified in the SMP Manual, if needed.

60. The City shall monitor all active mitigation project sites in accordance with Chapter 9 of the SMP Manual. Mitigation sites shall be monitored and maintained until successful attainment of their final success criteria.

61. Annual maintenance plans and annual reports shall be developed by an interdisciplinary team with expertise in fisheries biology, hydrology, and fluvial geomorphology. The team's expertise shall be documented in the annual work plan notification package.

62. California Wetlands Portal: The City shall complete the standard California Wetlands form for all maintenance project and mitigation sites. The City shall electronically submit the completed standard form and map(s) showing the locations and boundaries of all SMP projects to habitatdata@waterboards.ca.gov. On the basis of the information provided in the California Wetlands Forms submitted for compliance with this Order, the Water Board's Executive Officer may determine that the Riparian Repair and Maintenance (short) Form may be used in place of the

full California Wetlands Form, if the Discharger can demonstrate that the Riparian Repair and Maintenance Form provides sufficient information to satisfy the requirements of this Order.

63. The following activities are exempt from annual notification requirements and may occur any time at the discretion of the City and consistent with the SMP Manual: maintenance of existing access roads located along the top-of-bank where there will be no impact on waters of the State; maintenance of V-ditches along existing service roads where all work is above the level of top-of-bank of the adjacent stream, and there will be no impact to waters of the State; and removal of debris (e.g., trash, shopping carts) accumulations using hand labor and not involving the removal of vegetation or large woody debris.

64. After each maintenance season, the City and Regional Water Board staff shall meet to discuss the performance of the SMP, review lessons learned from the completed construction season, determine the need to implement improved stream maintenance techniques and BMPs, and assess the long-term maintenance approach for chronic maintenance sites. The City shall implement all stream maintenance techniques and BMPs deemed necessary by the Executive Officer in connection with such review.

65. After five years of SMP implementation, staff of the City and Regional Water Board, along with other regulatory agencies, shall review the SMP to evaluate its overall effectiveness, and the Regional Water Board shall consider issuing a Water Quality Certification and WDRs for an additional five years to allow continuation of SMP implementation. The review shall include an assessment of maintenance activities conducted to date, BMPs, adequacy of the SMP mitigation program, data management, adaptive updates and revisions of the SMP Manual, and overall program coordination and communication between the City and the regulatory agencies. The SMP Manual, the Water Quality Certification, and the WDRs may be revised or updated based on this review.

Quantitative Assessments

66. The City shall adhere to the maintenance principles and maintenance goals described in Chapter 4 (Pre-Maintenance Planning Approach and Impact Avoidance) of the SMP Manual to determine the need for maintenance. The City shall consider the natural function of the system, watershed processes, sensitive habitats, and local physical constraints in assessing how, where, and when routine maintenance activities should occur. The City shall identify and implement solutions to minimize the on-going need for maintenance activities.

67. The City shall compile the inventories listed below. The purpose of the inventories is to guide assessments and determine specific causes of maintenance problems and to develop priority maintenance prevention projects. Each inventory and its associated support documentation shall be submitted to the Regional Water Board for review and approval by the Executive Officer.

a) An inventory of engineered, modified, and natural channels shall be submitted with the 2017 annual work plan notification packet, along with a list of all channels that are subject to routine maintenance activities.
b) Inventories for the following types of projects shall be submitted with the annual work plan notification packet when these types of projects are included in the annual work plan notification packet.
   i. An inventory of targeted sediment and vegetation removal areas.
   ii. An inventory of localized sediment and vegetation removal areas where activities occur on an ongoing basis. Localized projects that are newly discovered and not listed in the inventory shall be included in the annual work plan notification packet for that year.
c) The following inventories shall be submitted with the 2017 annual work plan notification packet:
   i. An inventory of the stream reaches with hydraulic constrictions (e.g., under-sized culverts, bridge abutments, railroad trestles, utility crossings, and other natural or human caused obstructions) potentially causing backwater conditions, increased water surface elevations, bank instabilities, or fish passage barriers.
   ii. An inventory of stream reaches that are a priority for maintenance based on chronic problems, such as sediment accumulation, flooding, or excessive erosion. The inventory should include an assessment of the causes of the chronic problems and a corrective action plan.
   iii. An inventory of those reaches that potentially function as migration, breeding, foraging, or cover from predation for special status species.

68. The City shall develop a work plan and an implementation schedule for developing channel capacity objectives and estimates of flood stage-discharge relationships so that quantifiable information will inform when maintenance is needed for flood protection. Channel dimension objectives that facilitate stream equilibrium conditions, address excessive erosion and deposition problems, and promote sustainable habitat conditions, shall be developed and used to guide channel grading and enhancements activities. The work plan and its associated supporting documentation shall be submitted to the Regional Water Board by May 2017 for review and approval by the Executive Officer.

a) The City shall develop roughness objectives for all major channels contained in the SMP Manual and determine the tolerance for loss of freeboard in engineered and modified flood control channels.
b) The City shall provide preliminary estimates of stage–discharge relationships for channel reaches most likely to be subject to maintenance (including those areas and channels identified in the inventories for targeted and localized sediment and vegetation removal projects). These estimates should be based on actual field measurements. For those channels lacking sufficient high flow data, the Discharger shall implement a program for developing stage-discharge relationships for larger magnitude flows.
c) The City shall develop estimates of channel dimensions for best establishing quasi-equilibrium conditions to avoid future excessive erosion of or deposition within an active channel. These dimensions can be established using a combination of information from regional stream restoration curves, reference reach data, computation of effective discharges, shear stresses and other assessments. These estimations of active channel dimensions should guide the management approaches contained in the

maintenance plans and be used in implementing the maintenance activities in order to achieve more sustainable channel shapes and floodplains.[3]

Fees

69. This Order combines WDRs and Water Quality Certification provisions. The annual fee shall reflect this, and consist of the following:

    The fee amount for the WDRs portion shall be in accordance with the current fee schedule, per California Code of Regulations, title 23, section 2200, subdivision (a), based on the quantity of waters of the State impacted by discharges authorized by this Order. [City to submit an estimate of total impacts for the first 5-year program] An annual discharge fee shall also be paid to the Water Board in each year in which impacts to waters of the State that are authorized by this Order are implemented (Note: The Annual Active Discharge Fee may be changed by the State Board; at the time that this Order was issued, it was $600 per year). After the five-year term of this Order, an Annual Post Discharge Monitoring Fee shall be paid to the Water Board until the monitoring reports required pursuant to Provision 60 have all been submitted to the Water Board (Note: The Annual Post Discharge Monitoring Fee may be changed by the State Board; at the time of Certification it was $300 per year). After the initial year, the Annual Active Discharge portion of the fee shall be billed annually to the City. After the five-year term of this Order, the Annual Post-Discharge Monitoring Fee shall be billed annually to the City until all mitigation sites and mitigation projects required as mitigation for impacts to waters of the State have met their success criteria and the attainment of success criteria has been documented in a final monitoring report. Fee payments shall indicate the Order number, WDID number, and the applicable season.

Records Provisions

70. The City shall maintain a data management system to monitor stream maintenance activities, natural resources in the SMP maintenance jurisdiction, permitting requirements, and mitigation efforts, consistent with Chapter 9 of the SMP Manual and this Order.

71. The Executive Officer may request that data be provided to the Regional Water Board at times outside of the reporting requirements specified in this Order. Adequate time will be provided for the data request.

72. The City shall retain records of all monitoring information, including all calibration and maintenance records, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least five years from the date of the sample, measurement, report or application. This period may be extended by request of the Executive Officer at any time, but not retroactively for greater than five years.

[3] San Francisco Bay Regional Water Quality Control Board (2009), "Rapid Permit Checklist for Streams and Floodplains, A User's Guide," Technical Assistance Document

73. The City shall submit electronic versions of any submitted reports or documents.

General Provisions

74. The following activities are not included in the SMP Manual and, therefore, are not covered in this Order: maintenance activities on streams outside of those documented herein within the SMP Area for which no maintenance agreement exists; new culvert projects; capital improvement projects (CIPs) intended to increase capacity beyond the original flood conveyance design or to replace bridges; emergency activities and procedures; the Springtown Golf Course Water Diversion; maintenance work conducted on private property either by owners or other agencies; or maintenance work performed by other agencies. A situation is considered an "emergency" if it is a sudden, unexpected occurrence involving a clear and imminent danger that demands immediate action to prevent or mitigate loss of or damage to life, health, property, or essential public services. Emergency includes such occurrences as fire, flood, earthquake or other soil or geologic movements, as well as such occurrences as riot, accident or sabotage (California Public Resources Code § 21060.3);

75. All work performed within waters of the State shall be completed in a manner that minimizes impacts to beneficial uses and habitat; measures shall be employed to minimize disturbances that will adversely impact the water quality of waters of the State. Disturbance or removal of vegetation shall not exceed the minimum necessary to complete project implementation;

76. The SMP Manual is considered a "living document" that allows for minor updates and revisions in order to incorporate maintenance techniques and methods that are more protective of the environment or to improve the SMP. Any proposed minor changes shall be submitted to the Regional Water Board's Executive Officer via the annual work plan notification package for review and approval. Any substantive changes to the SMP Manual or any associated attachments must comply with all terms and conditions of this Order and shall not be implemented until they have been approved in writing by the Executive Officer.

77. All City or City-contracted personnel who shall engage in maintenance activities shall be educated on the terms of this Order and the specific plans for the subject project site(s).

78. All City or City-contracted personnel shall be trained in fluid (e.g., chemicals, fuels, or oil) spill cleanup procedures.

79. All provisions in this Order apply to all stream channels and activities identified in the SMP Manual.

80. The City shall comply with all the Prohibitions, Discharge Specifications, Receiving Water Limitations, and Provisions of this Order immediately upon adoption of the Order or as provided in the Order.

81. The City shall comply with all necessary approvals or permits for the SMP and its mitigation projects from applicable government agencies, including, but not limited to, the Regional Water Board, California Department of Fish and Wildlife (CDFW),

the U.S. Army Corps of Engineers (Corps), U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and local agencies. The City shall submit copies of such approvals or permits to the Executive Officer prior to SMP implementation.

82. This Order does not allow for the take, or incidental take, of any special status species. The City shall use the appropriate protocols, as approved by CDFW and USFWS, to ensure that project activities do not impact the beneficial use of the Preservation of Rare and Endangered Species.

83. The City shall implement the SMP in accordance with the methods described in the SMP Manual and the requirements of this Order, and shall comply with all applicable water quality standards. Where the requirements or restrictions of this Order differ from the requirements of the SMP Manual, the requirements or restrictions of this Order take precedence.

84. SMP activities occurring within the channel below the top of bank shall only occur from June 15 to either October 15 or the first significant rainfall after October 1, whichever occurs first (significant rainfall is defined as 0.5 inch of rain in a 24-hour period). No new instream sediment removal or bank stabilization work shall start after October 1 of any year, but work already underway shall have until October 15 to be completed. In particularly dry years, when channels remain dry earlier than June 15 or later than October 15, the City may request approval to conduct ground-disturbance maintenance activities prior to June 15 or later than October 15. Exceptions may be made on a project-by-project basis with advance approval by the Executive Officer and federal and State regulatory agencies as appropriate. Disturbed soil related to SMP activities shall be stabilized and winterized. Required planting shall be performed no later than the fall/winter planting season in the year following project installation.

85. If, at any time, an unauthorized discharge to surface water (including wetlands, rivers or streams) occurs, or any water quality problem arises, the associated SMP activities shall cease immediately until corrective actions have been implemented, including ensuring that adequate BMPs are implemented to eliminate the discharge and clean up and remediate any recoverable pollutants. The Regional Water Board shall be notified promptly and in no case more than 24 hours after the unauthorized discharge or water quality problem arises.

86. This Water Quality Certification and issuance of WDRs is subject to modification or revocation upon administrative or judicial review, including review and/or reconsideration pursuant to Water Code sections 13320 and 13330 and California Code of Regulations, title 23, section 3867.

87. This Water Quality Certification and issuance of WDRs is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to California Code of Regulations, title 23, section 3855, subdivision (b)

and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

88. The Regional Water Board may add to or modify the conditions of this Order, as appropriate, to implement any new or revised water quality standards and implementation plans, such as new or revised total maximum daily load (TMDL) requirements adopted or approved pursuant to the Porter-Cologne Water Quality Control Act or CWA section 303.

89. The City shall maintain a copy of this Order and all relevant plans and BMPs at SMP work sites, so as to be available at all times to site operating personnel.

90. The City shall correct any and all problems that arise from an SMP activity, including a failure to meet the conditions of this Order that results in an unauthorized release of pollutants, including sediment.

91. The City shall permit the Regional Water Board staff or its authorized representative, upon presentation of credentials:

    a. Entry on to the premises on which maintenance activities are planned or underway, wastes are located, 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 treatment equipment, monitoring equipment or monitoring method required by this Order.
    d. Access to sample any discharge or surface water covered by this Order.

92. In the event of any violation or threatened violation of the conditions of this Order, the violation or threatened violation shall be subject to any remedies, penalties, process or sanctions as provided for under applicable State or federal law. For the purposes of CWA section 401(d), the applicability of any State law authorizing remedies, penalties, process or sanctions constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this Order. In response to a suspected violation of any condition of this Order, the Regional Water Board may require the holder of any federal permit or license subject to this Order to furnish, under penalty of perjury, any technical or monitoring reports the Regional Water Board deems appropriate, provided that the burden, including costs, of the reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In response to any violation of the conditions of this Order, the Regional Water Board may add to or modify the conditions of this Order as appropriate to ensure compliance.

93. This Order is not transferable.

94. The authorization of this Order for SMP activities expires on July 13, 2021. Mitigation and monitoring requirements that extend beyond the term of this Order are not subject to the expiration date outlined above, and remain in full effect and are enforceable.

I, Bruce H. Wolfe, 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 July 13, 2016.

_____
Bruce H. Wolfe
Executive Officer

Attachment A: Stream Maintenance Program Manual. February 2014
Attachment B: Monitoring and Reporting Program

Table 1: Summary of Mitigation Components and Ratios by Impact and Mitigation Type

Maintenance Activity	Mitigation Type	Tier 1	Tier 2
Sediment Removal	Riparian Restoration and Planting	1.1:1 to 2:1 (LF or acre basis)	2:1 to 2.5:1 (LF or acre basis)
	Individual Tree and Shrub Plantings for Replacement of Trees ≥ 4" DBH	3:1 for natives 1.5:1 for analog non-natives	5:1 for natives 2:1 for analog non-natives
Vegetation Management	Invasive Plant Management	2:1 to 3:1 (on LF or acre basis)	3:1 to 4:1 (on LF or acre basis)
	Riparian Restoration and Planting	1.1:1 to 1.5:1	1.5:1 to 2:1
	Individual Tree and Shrub Plantings of for Replacement of Trees ≥ 4" DBH	3:1 for natives 1.5:1 for analog non-natives	5:1 for natives 2:1 for analog non-natives
Soft Bank Stabilization (Biotechnical with no rock buried rock, or vegetated rock)	Invasive Plant Management	2:1 to 3:1 (on LF or acre basis)	3:1 to 4:1 (on LF or acre basis)
	Riparian Restoration and Planting	1.1:1 to 1.5:1	1.5:1 to 2:1
	Individual Tree and Shrub Plantings of for Replacement of Trees ≥ 4" DBH	3:1 for natives 1.5:1 for analog non-natives	5:1 for natives 2:1 for analog non-natives
Hybrid Bank Stabilization (Biotechnical with unvegetated rock	Invasive Plant Management	2:1 to 3:1 (on LF or acre basis)	3:1 to 4:1 (on LF or acre basis)
	Riparian Restoration and Planting	1.3:1 to 1.5:1	1.5:1 to 2:1
	Individual Tree and Shrub Plantings of for Replacement of Trees ≥ 4" DBH	3:1 for natives 1.5: for analog non-natives	5:1 for natives 2: for analog non-natives
Hard Bank Stabilization (unvegetated rock or conre	Invasive Plant Management	3:1 to 4:1 (on LF or acre basis)	5:1 to 7:1 (on LF or acre basis)
	Riparian Restoration and Planting	2:1 to 3:1	4:1 to 5:1
	Individual Tree and Shrub Plantings of for Replacement of Trees ≥ 4" DBH	3:1 for natives 1.5:1 for analog non-natives	5:1 for natives 2:1 for analog non-natives
Other Maintenance Activities	Invasive Plant Management	1:1 to 1.5:1 (on LF or acre basis)	1:5 to 2:1 (on LF or acre basis)

	Riparian Restoration and Planting	1.3:1 to 1.5:1	1.5:1 to 2:1
	Individual Tree and Shrub Plantings of for Replacement of Trees ≥ 4" DBH	3:1 for natives 1.5: for analog non-natives	5:1 for natives 2: for analog non-natives

Attachment B
Monitoring and Reporting Program

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

MONITORING AND REPORTING PROGRAM FOR CITY OF LIVERMORE STREAM MAINTENANCE PROGRAM ALAMEDA COUNTY ORDER NO. R2-2016-00[??]

A. GENERAL

1. This Monitoring and Reporting Program (MRP) is issued in accordance with Provision [??] of Regional Water Board Order No. R2-2016-0020[??] (Order) and pursuant to California Water Code (CWC) sections 13263 and 13267(b).
2. The MRP is necessary to: 1) document compliance with waste discharge requirements and prohibitions established by the Regional Water Board, 2) facilitate self-policing by the City of Livermore (the Applicant) in the prevention and abatement of pollution arising from waste discharge, 3) evaluate the effectiveness of the Stream Maintenance Program (SMP), including assessment of best management practices (BMPs) and mitigation measures, and 4) assist the Applicant in complying with State requirements and policies. The evidence supporting this MRP is in the public file for this matter.
3. The MRP includes monitoring requirements for maintenance and restoration activities including the following monitoring elements: receiving water monitoring for the types of pollutants and conditions listed under the Standard Observations section; surface water monitoring during active water diversions; sediment monitoring from sediment removal projects; erosion and sediment control monitoring for bank stabilization projects; monitoring of revegetation projects and biotechnical bank stabilization projects to determine if plant establishment success criteria have been met; and monitoring BMPs to assess their effectiveness.
4. For monitoring, the Applicant shall follow requirements contained in this MRP and any additional requirements listed in the SMP Manual's Sediment Sampling and Analysis Guidelines section.

B. SAMPLING AND ANALYTICAL METHODS

1. Sample collection, storage, and analyses shall be performed according to the most recent version of U.S. EPA Standard Methods for the Analysis of Water and Wastewater.
2. Water and sediment analyses that cannot be performed in the field shall be performed by a laboratory certified for these analyses by the State of California.
3. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

C. DEFINITION OF TERMS

1. A **grab sample** is a discrete sample collected at any time.
2. **Receiving waters** refers to any water body that actually or potentially receives surface or groundwater, which passes over, through, or under dredged sediment during placement, dewatering, settling/consolidation, and excavation/removal activities.

3. **Receiving Waters Standard Observations** refer to:

   a. Evidence of floating and suspended materials as recorded by visual observations.
   b. Discoloration and turbidity: description of color, source, and size of affected area.
   c. Evidence of odors, presence or absence, characterization, source, and distance of travel from source.

4. **Site Standard Observations** refer to visual inspection of:

   a. For sediment removal projects, the overall condition of the sediment containment structure(s) and area and any BMPs to contain the excavated sediment.
   b. The location of placed material, distance to waters of the State, and whether any discharge of dredged sediments outside of the containment structures has occurred.
   c. The condition of the excavated material transport equipment along the entire length of the transport path from the sediment removal area to the point of discharge into the containment area.
   d. For bank stabilization projects, the overall condition of the bank stabilization structure (e.g., rock riprap, crib wall, wrapped soil lifts) and the areas of the bed and bank of the channel adjacent to the bank stabilization structure. Overall condition includes, but is not limited to, the presence or absence of vegetation, the stability of the structure, or the presence of slumping, rills, or other evidence of erosion on the channel bank.
   e. For vegetation projects, the overall condition of the site, including, but not limited to, evidence of herbivory, evidence of drought stress on vegetation, evidence of illness or pest infestation, and evidence of fire or vandalism.

D. MONITORING REQUIREMENTS

1. **Observations and Monitoring Schedule -** The schedule of observations and monitoring is provided in Table 1, below:

Table 1 - Observations and Monitoring Schedule for Sediment Removal or Disposal Projects, Bank Stabilization Projects, or Vegetation Management Projects

Observation/Monitoring Frequency	Type	Location	Reporting Frequency
Twice daily (once in AM and once in PM) during operations	Receiving water standard observations	Receiving water within the project area	Annually

Observation/Monitoring Frequency	Type	Location	Reporting Frequency
	Site standard observations	Along project area	Annually

[1] See Table 4 Standard Analyses for Receiving Water Monitoring

2. **Standard Observations -** The following Standard Observations of the receiving water shall be recorded on every day of operation on the field reporting form:
   a. Floating and suspended materials (including solids, liquids, foams, and scum) 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.

3. **Active Water Diversion Monitoring -** For all activities involving an active diversion of a stream:
   a. The Applicant shall establish surface water monitoring stations, one representative of typical undisturbed conditions directly upstream of the active work area and the point of diversion, and one representative of surface water affected by the diversion that is directly downstream of the water diversion outlet.
   b. Baseline measurements shall be taken before installation of diversion structures at the established surface water monitoring stations identified above in 3.a.
   c. If for whatever reason work within that reach is interrupted for over one day, new baseline measurements shall be taken.
   d. Water diversion activity monitoring shall be in accordance with Table 2 below:

Table 2
Water Diversion Sampling and Analysis

Parameter	**Units**	**Sample Type**	**Minimum Analysis Frequency**
Dissolved Oxygen	mg/L	Grab	Once Daily at each monitoring station

pH	pH units	Grab	Once Daily at each monitoring station
Temperature	°F	Grab	Once Daily at each monitoring station
Turbidity	NTU	Grab	Once Daily at each monitoring station

e. The daily sampling set shall be taken during work hours, but not within the first hour after maintenance activities have started each day.

f. Samples shall be taken with accurately calibrated field measurement instrument(s) and the results shall be saved and logged.

g. A Quality Assurance/Quality Control (QA/QC) plan equivalent to requirements of the Surface Water Ambient Monitoring Program shall be followed.

h. The Applicant shall observe surface water conditions upstream and downstream of the active project area to visually detect impacts of the water diversion.

i. Observations shall be conducted during sampling events at sampling locations for presence of bottom deposits, color, film or coating (from oil, grease, wax, etc.), floating material (including solids, liquids, foams, and scum), and odor. See the Standard Observations section for the complete list of observations that will be tracked. If any visual events occur, additional samples as detailed in Table 2 shall be taken, with results being saved, logged, and reported.

j. The Applicant shall have equipment and supplies onsite (or readily available nearby) that could be quickly deployed to provide additional filtration if turbidity is observed. These supplies may include: bladders for settling, filter bags and pumps, silt filter dams, or a silt barrier as appropriate depending on site conditions.

k. Surface water observations detecting exceedances of Discharge Specifications and Receiving Water Limitations are subject to "Reporting" requirements in Section F of this document.

l. During the installation and removal of diversion structures, the Applicant shall monitor surface monitoring stations as described in 3.a. above, and in accordance with Table 3 below:

Table 3
Diversion Structure Monitoring

Parameter	**Units**	**Sample Type**	**Minimum Analysis Frequency**
Turbidity	NTU	Grab	Twice Daily

4. **Sediment Monitoring**

a. Sampling Frequency and Locations

i. For all sediment removal projects and bank stabilization projects that involve the removal and disposal of sediment, one sample will be collected and analyzed for every 500 cubic yards of sediment removed.

ii. For long channel reaches that are not particularly wide or deep with sediment, the Applicant will take sediment samples for every 1000 feet of project length rather than per 500 cubic yards of sediment removal. The Applicant shall use whichever approach results in more samples in order to better characterize the variability along the entire length of the project site.

iii. For project sites that require more than one sample, sampling locations will be selected to represent overall reach conditions. Sampling sites will also specifically target conditions downstream of culvert crossings, culvert outfalls, and key stream confluences.

iv. In all cases, sampling locations shall be within the project area where there is the highest potential for detecting the maximum number of contaminants at the highest concentrations, and the sampling locations shall be the most representative of site conditions.

b. Sediment Sampling Methodology

This guidance applies to discrete (single) samples and composite samples.

i. All samples shall be collected in accordance with U.S. EPA Guidelines and sampling methodologies.

ii. The methods of analyses and detection limits must be appropriate for the expected concentrations, as well as appropriate water quality standards and screening levels for ecological toxicity. Specific methods of analyses must be identified. If methods other than U.S. EPA-approved methods or Standard Methods are used, the exact methodology must be submitted for review and approved by the Executive Officer.

iii. Sediment sampling methodology is described in the Sediment Sampling and Analysis Guidelines, Appendix B of the SMP Manual.

iv. For each sediment removal project, the Applicant shall characterize the sediment and summarize all sediment sampling analyses, prior to proposed sediment removal activities.

v. Every sediment sample location shall be sampled for the full list of parameters/analytes listed in Table 4. Sampling parameters/analytes listed in Table 4 may be modified after a history of sampling is obtained. This may result in not requiring monitoring for some of these contaminants under certain situations or at certain locations, or adding

more parameters/analytes if deemed necessary by the Executive Officer.

5. **Post-Project Monitoring**

a. Bank Stabilization Erosion and Sediment Control Monitoring

i. For the first year following completion of a bank stabilization project, the Applicant shall inspect surface waters daily following larger storm events to determine if the project and the installed BMPs are adequately functioning to stabilize soil and prevent excessive erosion.

ii. Photos shall be taken to document all site inspections.

iii. After the first year of monitoring, the project site shall be monitored once a year for a period of five years thereafter.

iv. The Applicant shall observe surface water upstream and downstream of the bank stabilization site for bottom deposits, color, turbidity, and floating material.

v. If erosion or degradation is apparent or the appearance of a surface water is degraded, the Regional Water Board shall be immediately notified and corrective actions shall be taken to resolve the problem.

b. Revegetation Monitoring, including Bank Revegetation

i. The Applicant shall monitor all revegetated sites annually for five years after planting for grasses, forbs, shrubs, and willows, and for 10 years for riparian trees, to determine if supplemental watering, weed control, rodent control, protection from vandalism or herbivory, or other actions are required to encourage plant establishment.

ii. The Applicant shall implement all vegetation management requirements until the success criteria specified in Chapter 9 of the SMP Manual, are attained. Shrubs and trees cannot be used to meet final success criteria until they have survived for at least two years after supplemental watering has been discontinued.

c. Geomorphic Shaping Activities

The Applicant shall monitor all projects that require "geomorphic shaping activities" to determine the sustainability of the grading. These projects sites shall be monitored for a minimum of five years and all monitoring results shall be submitted to the Regional Water Board.

d. Maintenance Activities in Alluvial Fans

The Applicant shall monitor all maintenance projects located in or influenced by alluvial fan environments to determine if adaptive management of these areas will inform future management plans. These

projects sites shall be monitored for a minimum of five years and all monitoring results shall be submitted to the Regional Water Board.

6. **Best Management Practices Monitoring**

   a. The Applicant shall inspect temporary and permanent structural BMPs at active sites on an ongoing basis and at least once each morning and once each afternoon that an activity is being implemented to determine if maintenance, repair, or replacement of BMPs is necessary.

   b. The Applicant shall maintain, repair, or replace BMPs as appropriate to prevent sediment discharge and reduce erosion.

   c. The Applicant shall document BMP installations and inspections and enter all data in the BMP inspection log.

   d. The Applicant shall document BMP effectiveness, maintenance and repair, and corrective actions taken, and enter all data in the BMP inspection log.

   e. The BMPs inspection log shall be kept onsite while the site is active, and shall be available to Regional Water Board staff upon request.

   f. At a minimum, BMPs at active project sites shall be inspected and maintained within 2 business days (48 hours) prior to each qualifying rain and within two business days (48 hours) after each qualifying rain event. For this requirement, a qualifying rain event is one producing precipitation of ½ inch or more of discharge.

E. QUALITY ASSURANCE AND QUALITY CONTROL

A QA/QC plan is an important component of a monitoring program involving extensive field sampling and laboratory analyses. The two objectives of the QA/QC plan are: 1) to provide a means of ongoing control and evaluation of the sampling and analysis procedures; and 2) to quantify data precision and accuracy for use in data interpretation. The QA/QC plan will be followed in all phases of the monitoring program including sampling, and data validation and reporting. QA/QC requirements are noted below.

a. The Applicant shall use a sampling contractor or internal staff to perform field measurements with appropriate field instruments and sampling equipment; the persons performing field measurements will be responsible for managing all field sampling and analysis.

b. Equipment used for field sampling shall be tested and calibrated before leaving the office and calibration shall be verified upon arrival at the project site to ensure that the instruments are in proper working condition.

F. REPORTING

1. **General Reporting Requirements**

a. The Applicant shall comply with reporting dates and requirements within the SMP Manual and the Order.

b. All results of monitoring performed in compliance with this Order shall be made available to Regional Water Board staff upon request.

c. The Applicant shall submit a transmittal letter with all required monitoring reports to demonstrate compliance with the Order. Transmittal letters shall include, but not be limited to, the Order Number and the CIWQS Place ID number for the SMP, and a statement confirming that the attached sampling and analysis were performed consistent with the Order's requirements.

2. **Records to Be Maintained**

Written reports shall be maintained by the Applicant or its laboratory, and shall be retained for a minimum of five years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Water Board. Such records shall show the following for each sample:

a. Identity of sample and sample station number.

b. Date and time of sampling and the name of the person performing the sampling.

c. Date and time that analyses are started and completed, and name of the personnel performing the analyses.

d. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used.

e. Calculation and evaluation of results.

f. Results of analyses, reporting limits for each analytical batch, and detection limits for each analysis.

3. **Reports to Be Filed With the Regional Water Board**

Written monitoring reports shall be filed with the Regional Water Board annually. The reporting requirements are noted below.

a. A letter transmitting the essential points in each report should accompany the annual report. Such a letter shall include:

i. A discussion of any violations of the requirements of the Order found during the last report period, and actions taken or planned for correcting the violations. If the Applicant had previously submitted a detailed time schedule for correcting requirement violations, a reference to the correspondence transmitting such schedule will be satisfactory.

ii. If no violations have occurred in the last report period this shall be stated in the letter of transmittal.

iii. Monitoring reports and the letter transmitting the monitoring reports shall be signed by the duly authorized representative of the Applicant that is responsible for implementing projects authorized by the Order.

iv. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.

b. The Annual Report shall contain the following:

i. A summary of all maintenance activities implemented under the SMP authorized by the Order.

ii. Tabular summaries of the monitoring data obtained during the previous year.

iii. A summary and certification of completion of all Standard Observations for each project site.

iv. A description of the compliance record and any corrective actions taken or planned that may be needed to bring the Applicant into full compliance with Order No. R2-2016-00[??].

v. The Applicant shall submit an annual report to the Regional Water Board by January 31 of each year, covering the previous calendar year activities.

vi. Annual reports shall include the observations described in Sections C.4, C.5, D.5, and D.6, above.

vii. For Each Sediment Removal Project:

1. Characterization of the sediment

2. A summary of all sediment sampling analyses.

viii. For Each Sediment Disposal Event

1. The quantity and locations of excavated material placed at the site and the source of the excavated material.

2. An estimate of the total volume of dried excavated material that was reused or disposed of offsite during the past year along with a description of the reuse or disposal location(s) where this material was sent.

3. A map or aerial photograph showing the sediment disposal location.

c. Laboratory statements of results of analyses specified in the MRP must be included in each sediment removal and sediment disposal report. The laboratory reporting requirements are as follows.

i. The director of the laboratory whose name appears on the laboratory certification shall supervise all analytical work in his/her laboratory

and shall sign all reports of such work submitted to the Regional Water Board.

ii. Laboratory QA/QC information must be included in the monitoring report.

iii. The laboratory QA/QC information should include: the method; equipment and analytical detection limits; the reporting limits for each analytical batch, the recovery rates of method spikes and matrix spikes; an explanation for any recovery rate that is less than the recovery acceptance limits specified in the U.S. EPA method procedures or the laboratory's acceptance limits (if they are more stringent than those in the U.S. EPA method procedures); the results of equipment and method blanks; the results of spiked and surrogate samples; the frequency of quality control analysis; and the name and qualifications of the person(s) performing the analyses.

4. **Contingency Reporting**

A report to the Executive Officer and Regional Water Board case manager shall be made by telephone of any accidental discharge of whatever origin immediately after it is discovered. A written report shall be filed with the Regional Water Board within five days thereafter. This report shall contain the following information:

i. A map showing the location(s) of discharge(s);

ii. Approximate quantity of discharged material;

iii. Nature of effects, i.e., all pertinent observations and analyses; and

iv. Corrective measures underway or proposed.

5. **Violation Reporting**

a. Upon discovery of a violation of any Water Quality Standard or Water Quality Objective in the Basin Plan, the Applicant shall identify the source of the exceedance, implement corrective action, and resample or make additional observations to determine whether or not the exceedance was corrected.

b. A report to the Executive Officer and the Regional Water Board case manager shall be made by telephone of any accidental discharge of whatever origin immediately after it is discovered. A written report shall be filed with the Regional Water Board within five days thereafter.

c. The Applicant shall stop all work at the site for violations lasting longer than two hours. The Applicant shall update Regional Water Board staff of site conditions and obtain verbal permission to resume work.

d. The Applicant shall notify Regional Water Board staff in writing within five calendar days of all violations. Written reports shall include time and date of incident, duration, estimate of discharge or bypass volume, and documentation of sampling results/observations determining compliance

status. The report shall also include detailed discussion of reasons for noncompliance, and specific steps that were or will be taken to correct the failure and prevent it from reoccurring.

G. MODIFICATION

Any part of this Monitoring and Reporting Program may be revised with the written approval of the Executive Officer.

I, Bruce H. Wolfe, Executive Officer, hereby certify that the foregoing Monitoring and Reporting and Program:

1. Has been developed in accordance with the procedure set forth in this Regional Water Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Order No. R2-2016-00??;
2. Was adopted by the Regional Water Board on July 13, 2016; and
3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the Applicant, and revisions will be ordered by the Executive Officer or the Regional Water Board.

_____

Bruce H. Wolfe
Executive Officer

Attachment: Table 4 - Discrete Sediment Sampling and Analysis

Table 4
Discrete Sediment Sampling and Analysis

EPA Test Method[1]	**Analyte**	**Reporting Limit for Soil**[2] (mg/kg)	**Analyte (cont.)**	**Reporting Limit for Soil** (mg/kg)
9045	pH	pH Units		
6010/ CAM 17	Metals			
	Antimony (total)	1.1	Lead (total)	1.1
	Antimony (soluble)	1.0 mg/l	Lead (soluble)	0.50 mg/l
	Arsenic (total)	0.086	Mercury (total)	0.10
	Arsenic (soluble)	0.10 mg/l	Mercury (soluble)	0.10 mg/l
	Barium (total)	0.13	Molybdenum (total)	0.36
	Barium (soluble)	1.0 mg/l	Molybdenum (soluble)	0.10 mg/l
	Beryllium (total)	0.11	Nickel (total)	1.1
	Beryllium (soluble)	0.050 mg/l	Nickel (soluble)	0.10 mg/l
	Cadmium (total)	0.12	Selenium (total)	0.074
	Cadmium (soluble)	0.10 mg/l	Selenium (soluble)	0.10 mg/l
	Chromium (total)	0.66	Silver (total)	0.33
	Chromium (soluble)	0.10 mg/l	Silver (soluble)	0.10 mg/l
	Cobalt (total)	0.30	Thallium (total)	1.1
	Cobalt (soluble)	1.0 mg/l	Thallium (soluble)	0.10 mg/l
	Copper (total)	0.26	Vanadium (total)	0.55
	Copper (soluble)	0.10 mg/l	Vanadium (soluble)	0.10 mg/l
	Fluoride (total)	1.0	Zinc (total)	2.4
			Zinc (soluble)	0.50 mg/l
8081	Organochlorine Pesticides			
	Aldrin	0.0050	Endosulfan I	0.0050
	α-HCH (hexachlorocyclohexane)	0.0050	Endosulfan II	0.0050
	β-HCH	0.0050	Endosulfan sulfate	0.0050
	γ-HCH (Lindane)	0.0050	Endrin	0.0050
	δ-HCH	0.0050	Endrin aldehyde	0.0050
	Chlordane (tech)	0.20	Heptachlor	0.0050
	4,4'-DDD	0.0050	Heptachlor epoxide	0.0050
	4,4'-DDE	0.0050	Kepone	1.0
	4,4'-DDT	0.0050	Methoxychlor	0.0050
	Dieldrin	0.0050	Mirex	0.10

[1] The most recent version of U.S. EPA's Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," also known as SW-846, shall be used.
[2] All laboratory analytical reports shall include the detection and reporting limits, any flags, and a QA/QC report. Electronic (PDF) submittals are preferred.

EPA Test Method[1]	Analyte	Reporting Limit for Soil[2] (mg/kg)	Analyte (cont.)	Reporting Limit for Soil (mg/kg)
			Toxaphene	0.20
8141	Organophosphorus Pesticides			
	Azinphos-ethyl	0.10	Famphur	0.10
	Azinphos-methyl	0.10	Fenthion	0.025
	Bolstar (Sulprofos)	0.050	Malathion	0.025
	Chlorpyrifos	0.025	Mevinphos	0.050
	Coumaphos	0.10	Parathion, ethyl	0.025
	Demeton-O	0.050	Parathion, methyl	0.025
	Demeton-S	0.050	Phorate	0.025
	Diazinon	0.025	Ronnel	0.050
	Dichlorvos (DDVP)	0.050	Simazine	0.050
	Dimethoate	0.10	Stirophos	0.025
	Disulfoton	0.025	Thionazin	0.050
	EPN	0.050	Tokuthion	0.050
	Ethion	0.025	Trichloronate	0.0050
	Ethoprop	0.050		
8082	Polychlorinated biphenyls (PCBs)			
	Aroclor 1016	0.20	Aroclor 1242	0.20
	Aroclor 1221	0.20	Aroclor 1248	0.20
	Aroclor 1232	0.20	Aroclor 1254	0.20
			Aroclor 1260	0.20
8260	Volatile Organic Compounds (VOCs)			
	Acetone	0.020	1,1-Dichloropropene	0.0050
	Benzene	0.0050	cis-1,3-Dichloropropene	0.0050
	Bromobenzene	0.0050	trans-1,3-Dichloropropene	0.0050
	Bromochloromethane	0.0050	Ethylbenzene	0.0050
	Bromodichloromethane	0.0050	Hexachlorobutadiene	0.0050
	Bromoform	0.0050	Isopropylbenzene	0.0050
	Bromomethane	0.0050	p-Isopropyltoluene	0.0050
	n-Butylbenzene	0.0050	Methyl ethyl ketone	0.015
	sec-Butylbenzene	0.0050	Methyl isobutyl ketone	0.010
	tert-Bertylbenzene	0.0050	Methyl tert-butyl ether (MTBE)	0.0050
	Carbon tetrachloride	0.0050	Methylene chloride	0.0050
	Chlorobenzene	0.0050	Naphthalene	0.0050
	Chloroethane	0.0050	n-Propylbenzene	0.0050
	Chloroform	0.0050	Styrene	0.0050
	Chloromethane	0.0050	1,1,1,2-Tetrachloroethane	0.0050
	2-Chlorotoluene	0.0050	1,1,2,2-	0.0050

EPA Test Method[1]	**Analyte**	**Reporting Limit for Soil**[2] (mg/kg)	**Analyte (cont.)**	**Reporting Limit for Soil** (mg/kg)
			Tetrachloroethane	
	4-Chlorotoluene	0.0050	Tetrachloroethene	0.0050
	Dibromochloromethane	0.0050	Toluene	0.0050
	1,2-Dibromo-3-chloropropane	0.0050	1,2,3-Trichlorobenzene	0.0050
	1,2-Dibromoethane	0.0050	1,2,4-Trichlorobenzene	0.0050
	Dibromomethane	0.0050	1,1,1-Trichloroethane	0.0050
	1,2-Dichlorobenzene	0.0050	1,1,2-Trichloroethane	0.0050
	1,3-Dichlorobenzene	0.0050	Trichloroethene	0.0050
	1,4-Dichlorobenzene	0.0050	Trichlorofluoromethane	0.0050
	Dichlorodifluoromethane	0.0050	Trichlorotrifluoroethane	0.0050
	1,1-Dichloroethane	0.0050	1,2,3-Trichloropropane	0.0050
	1,2-Dichloroethane	0.0050	1,2,4-Trimethylbenzene	0.0050
	1,1-Dichloroethene	0.0050	1,3,5-Trimethylbenzene	0.0050
	cis-1,2-Dichloroethene	0.0050	Vinyl chloride	0.0050
	trans-1,2-Dichloroethene	0.0050	m,p-Xylene	0.0050
	1,2-Dichloropropane	0.0050	o-Xylene	0.0050
	1,3-Dichloropropane	0.0050	Xylenes (total)	0.0050
8270	Poly Aromatic Hydrocarbons (PAHs)			
	Acenaphthene	0.062	Dimethyl phthalate	0.33
	Acenaphthylene	0.062	4,6-Dinitro-2-methylphenol	1.6
	Anthracene	0.062	2,4-Dinitrophenol	1.6
	Benzidine	1.6	2,4-Dinitrotoluene	0.33
	Benzoic acid	1.6	2,6-Dinitrotoluene	0.33
	Benz(a)anthracene	0.33	1,2-Diphenylhydrazine	0.33
	Benzo(b)fluoranthene	0.062	Fluoranthene	0.062
	Benzo(k)fluoranthene	0.062	Fluorene	0.062
	Benzo(g,h,i)perylene	0.062	Hexachlorobenzene	0.33
	Benzo(a)pyrene	0.062	Hexachlorobutadiene	0.33
	Benzyl alcohol	0.66	Hexachlorocyclopentadiene	1.6
	Bis(2-chloroethoxy) methane	0.33	Hexachloroethane	0.33
	Bis(2-chloroethyl) ether	0.33	Indeno(1,2,3-cd)pyrene	0.062
	Bis(2-chloroisopropyl) ether	0.33	Isophorone	0.33
	Bis(2-ethylhexyl) phthalate	0.33	2-Methylnaphthalene	0.062

EPA Test Method[1]	**Analyte**	**Reporting Limit for Soil**[2] (mg/kg)	**Analyte (cont.)**	**Reporting Limit for Soil** (mg/kg)
	4-Bromophenyl phenyl ether	0.33	2-Methylphenol (o-cresol)	0.33
	Butyl benzyl phthalate	0.33	3 & 4 –Methylphenol (m,p-cresol)	0.33
	4-Chloroaniline	0.66	*N*-Nitrosodi-*n*-propylamine	0.33
	4-Chloro-3-methylphenol	0.33	*N*-Nitrosodimethylamine	0.66
	2-Chloronaphthalene	0.33	*N*-Nitrosodiphenylamine	0.33
	2-Chlorophenol	0.33	Naphthalene	0.062
	4-Chlorophenyl phenyl ether	0.33	2-Nitroaniline	1.6
	Chrysene	0.010	3-Nitroaniline	1.6
	Dibenz(a,h)anthracene	0.062	4-Nitroaniline	1.6
	Dibenzofuran	0.33	2-Nitrophenol	1.6
	Di-n-butyl phthalate	2.0	4-Nitrophenol	1.6
	Di-n-octyl phthalate	0.33	Nitrobenzene	0.33
	1,2-Dichlorobenzene	0.33	Pentachlorophenol	1.6
	1,3-Dichlorobenzene	0.33	Phenanthrene	0.062
	1,4-Dichlorobenzene	0.33	Phenol	0.33
	3,3'-Dichlorobenzidine	0.66	Pyrene	0.062
	2,4-Dichlorophenol	0.33	1,2,4-Trichlorobenzene	0.33
	Diethyl phthalate	0.33	2,4,5-Trichlorophenol	0.33
	2,4-Dimethylphenol	0.33	2,4,6-Trichlorophenol	0.33
8015[3]	Total Extractable Petroleum Hydrocarbons (TPHs)			
	TPH as Diesel	1.0		
	Motor Oil	2.0		
	Gasoline (1,4-Bromoflurobenzene)	1.0		
8290[4]	Dioxin	1.0 pg/g		
	Asbestos	1% (PLM EPA Qualitative Method) 0.005 to 0.001 (TEM by EPA Quantitative Method)		
GCMSSIM	Nonylphenol	0.2		

[3] The full list of TPHs shall be reported with all peaks (rather than a limited list of specific compounds).
[4] For dioxin/furans all congeners and their TEQs shall be reported.

The Applicant shall maintain records of field sampling in a log containing at least the following information:

- Date and time
- Site location
- Sample collector
- Sampling methods
- Sampling location
- Sampling depth
- Number of sampling containers
- Specific site conditions
- Analysis requested
- Other information describing the sampling event

Field sampling logs shall be made available to Regional Water Board staff upon request.