CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. R2-2011-0020

WASTE DISCHARGE REQUIREMENTS AND WATER QUALITY CERTIFICATION FOR:

SONOMA COUNTY WATER AGENCY
STREAM MAINTENANCE PROGRAM
SONOMA COUNTY

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

1. The Sonoma County Water Agency (Applicant or SCWA) has applied to the Regional Water Board for authorization to implement its Stream Maintenance Program (SMP) for routine stream maintenance activities, including sediment management, vegetation management, bank stabilization, and a group of other maintenance activities in streams within its maintenance jurisdiction. It is anticipated that routine maintenance activities will not only provide flood protection and maintain channel conveyance capacity but will also enhance natural resources and recreational opportunities.

2. This Order applies to two watersheds within Sonoma County that drain to the San Pablo Bay Basin: the Petaluma River and Sonoma Creek watersheds, which are located within the jurisdiction of this Regional Water Board. Therefore all descriptions, findings and provisions in this Order apply only to stream maintenance activities within the Petaluma River and Sonoma Creek watersheds.

3. The Applicant developed a SMP Manual and appendices, dated September 2009, to guide implementation of the SMP. The SMP Manual describes flood control channel maintenance activities, impact avoidance measures, best management practices (BMPs), program mitigation, program oversight and management, program-area resources, and a characterization of channels to be maintained. In addition, the SMP Manual includes: Watershed Partnerships Program Memorandum of Agreement, Watershed Mitigation Project Descriptions, Vegetation Management Plan, and Outlines for Annual Reports.

4. The Applicant applied to the U.S. Army Corps of Engineers (Corps) for a ten-year individual permit to implement the SMP under Clean Water Act (CWA) Section 404 (33 U.S.C. § 1344). On February 27, 2009, the Applicant filed an application for Water Quality Certification and Waste Discharge Requirements (WDRs) with the Regional Water Board.

SMP Description, Impacts, and Mitigation

5. The SMP Manual covers three primary maintenance activities: sediment removal, vegetation management, and bank stabilization. These primary maintenance activities occur mainly in engineered channels, but may also occur in natural and modified channels and other facilities on an as-needed basis. In addition to the primary maintenance activities, the SMP Manual also addresses other maintenance activities such as maintaining roads for accessibility and drainage; removing debris and trash; removing Himalayan blackberry; removing sediment around reservoir inlet structures; repairing fences along the channels; and removing or

covering graffiti. The SMP Manual also covers the transport and disposal of removed sediment and vegetation.

6. Natural channels are those channels that have not been engineered nor modified. Natural channels are not SCWA-designated flood control channels. Maintenance work only occurs in natural channels if there is a specific problem blockage causing an imminent public safety threat.

7. Modified channels are channels that were natural channels but have been modified or degraded over time. Modified channels are not SCWA-designated flood control channels. Modified channels are those that have been graded, realigned, or significantly altered due to reach scale sediment, vegetation, or debris removal activities. Maintenance work only occurs in modified channels if there is a specific problem blockage causing an imminent public safety threat.

8. Engineered channels are those channels that were built and designed to convey a specific discharge. They are typically trapezoidal channels.

9. Pursuant to the SMP Manual, the Applicant conducts routine maintenance only in engineered channels, and activities in modified and natural channels are limited to clearing impediments to flow. Therefore routine maintenance activities (i.e., sediment and vegetation removal for targeted, localized, and other facilities projects) are only conducted in the engineered channels.

10. Sediment removal from channels maintained by the Applicant occurs when sediment accumulates and significantly reduces the capacity of the channel or prevents facilities or appurtenant structures from functioning as designed to control flood waters. The number of sediment removal projects undertaken annually and the quantity of sediment removed in a given year depends on past weather and hydrologic conditions, as well as the frequency and extent of past maintenance activities. 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. For larger equipment, this may require the construction of temporary access ramps.

11. Targeted sediment removal projects remove sediment from specific areas (< 500 linear channel feet) in engineered channels where sediment often accumulates. Conducting targeted sediment removal projects in channels that chronically accumulate sediment reduces the need to conduct reach scale (1,000-3,000 linear feet of the channel) sediment removal downstream of the target area. Areas identified as targeted sediment removal areas will be dredged on an on-going basis to reduce sedimentation further downstream and stabilize the channel. The SMP Manual discusses this approach in its Chapter 6 (Section 6.3.2 Reach Scale Sediment Removal – Targeted Sediment Removal Areas).

12. Localized sediment removal projects remove sediment from within and adjacent to culverts and crossings located in engineered channels. These projects typically involve removing sediment immediately upstream, downstream, or from within a culvert or crossing. Localized sediment removal projects typically impact 400 linear feet or less of the channel. The SMP Manual discusses this approach in its Chapter 6 (Section 6.3.3 Localized Sediment Removal).

13. The SMP Manual, Appendix B, contains Sediment Sampling and Analysis Guidelines. These guidelines set forth requirements for sampling, analysis, and characterization and disposal of sediment removed as part of SMP activities. Sediment disposal options are based on the chemical quality of the sediment removed.

14. The Applicant removes sediment and vegetation from non-channel areas such as reservoirs, sediment basins, and in-channel engineered concrete structures (not including culverts and/or crossings). The SMP Manual discusses these infrastructure projects in its Chapter 6 (Section 6.3.5 Sediment Management at Other Facilities).

15. Vegetation management refers to maintaining, trimming, mowing, and removal of vegetation that constricts flows within the flood control channels and other constructed facilities. Vegetation management techniques include removal using small hand tools and hand-held equipment, mechanical removal using heavy equipment such as a flail mower attached to an excavator, and spot chemical control on tree stumps and along access roads. Vegetation management activities are conducted to maintain flow conveyance capacity, establish a canopy of native riparian trees and native understory plants, and control invasive vegetation. Vegetation management and removal activities are relatively consistent from year to year, though locations change depending on recent growth and blockages. Vegetation management also includes planting of new trees and shrubs in engineered channels and application of approved herbicides. The Applicant's vegetation management activities are covered by this Order, as these activities may have impacts to waters of the State. The Applicant will follow the Vegetation Management Plan, included as Appendix E in the SMP Manual.

16. Bank stabilization involves repairing stream or reservoir banks when a weakened, unstable, or failing bank causes or threatens to cause damage to an adjacent property; excessive erosion; riparian habitat or other natural resource values impacts; increases in flood hazard; a public safety concern; or problems with roads, transportation, or access. These activities occur in engineered channels and other facilities, including culvert outlets. Bank stabilization techniques defined in the SMP Manual utilize bioengineering techniques to the maximum extent possible while discouraging the practice of bank hardening.

17. The following activities are not included in the SMP Manual and therefore not covered in this Order: capital improvement projects, projects that would alter the designed flood conveyance capacity of a channel, and 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. 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 Section 21060.3).

18. Ground disturbing maintenance activities that occur in the channel below top-of-bank (including sediment removal, bank stabilization, and some vegetation management) will take place during the low-flow or dry season (herein defined as June 15-October 31), unless an exception is granted. Exceptions may be made on a project-by-project basis with advance approval of federal and State regulatory agencies as appropriate.

19. Non-ground disturbing work may be conducted in the channel zone, but outside the low-flow channel, at anytime. This includes 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 (along either side of access roads, including the upper

portion of stream banks where access is from the service road). These maintenance activities may be done at any time, provided there is no discharge of waste that may adversely impact water quality. Planting of riparian vegetation may be done at any time. Debris removal *immediately* necessary to prevent flooding may also be done at any time.

20. The SMP Manual includes an inventory and assessment of each stream reach in the SMP area that describes water quality, geomorphology, and habitat. Assessments will be updated periodically to reflect changes and progress in achieving the goals of the SMP. Understanding stream resources, their locations, and interactions is fundamental to the SMP's approach to avoid, minimize, and mitigate environmental impacts of routine maintenance activities. With input from the Regional Water Board and other regulatory agencies, the Applicant developed these channel characterizations to provide enough detail and photo documentation to support the review and approval of annual maintenance projects.

21. The SMP Manual includes planning guidelines or principles to determine how, where, and when routine maintenance activities should occur. These principles will be used in the development of each year's maintenance workplan. These principles consider the natural function of the system, provide an understanding of local physical constraints, identify sensitive habitats, consider 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.

22. 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 a suite of fish and wildlife species. Strategic sediment reduction activities, such as stabilization of slide-prone areas and improved land use practices in upper watersheds and along reaches currently delivering sediment, will reduce the amount of sediment delivered to maintained channels. These benefits will be realized through the reduction of maintenance over time, the reduction in the need to conduct reach-scale sediment removal in creeks, the removal of migratory barriers or impediments, and the creation of more natural stream channels and stream corridors. When considered collectively, the beneficial effects achieved through implementation of the SMP will help build a healthier and more naturally functional stream network and watershed.

23. Impacts on beneficial uses from SMP activities that cannot be entirely avoided through pre-maintenance planning will be mitigated through implementation of the mitigation measures and best management practices described within the SMP Manual.

24. The Applicant will implement onsite and offsite mitigation to mitigate for permanent and temporary impacts from stream maintenance activities covered under this Order. The mitigation approach is broken down into three tiers. Tier 1 includes onsite in-kind mitigation that will mitigate for the loss of stream functions and riparian habitat from sediment removal and bank stabilization projects as described in the SMP Manual. Onsite in-kind mitigation may include planting of riparian trees, understory shrubs, or aquatic plants; removal of exotic and invasive species and corresponding riparian planting; construction of low-flow channels and other geomorphic features to enhance instream habitat and hydrologic function; and removal of migration barriers. Additionally, if onsite in-kind mitigation is not possible, then offsite in-kind (Tier 2) mitigation will be implemented at a location within the SMP area that would benefit from this type of mitigation. Temporal impacts will be mitigated by restoring or enhancing habitat and stabilizing eroded areas within the same watershed. This Tier 3 mitigation includes funding local watershed restoration projects within the impacted watershed

that would increase riparian habitat and reduce the overall need to remove sediment in certain flood control channels. The Applicant will set aside 10% of a project's costs for sediment removal and bank stabilization maintenance activities to fund specific watershed restoration projects.

25. This Order requires submittal of Annual Notification Reports (ANRs) acceptable to the Executive Officer by April 30 of each year. The ANRs will 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, as outlined in the SMP Manual and the SMP's Final Environmental Impact Report.

26. This Order requires submittal of Sediment Sampling Reports (SSRs) acceptable to the Executive Officer by May 15 of each year. The SSRs will describe the sediment disposal locations, site specific disposal criteria, and the test results from sampling soils from proposed sediment removal projects.

27. This Order requires submittal of Annual Post-maintenance Reports (APRs) acceptable to the Executive Officer by January 31 of the following year. The APRs will describe channel maintenance activities conducted, descriptions of mitigation implemented, and monitoring results. The APRs will include any lessons learned and recommendations to update BMPs identified in the SMP Manual, if needed.

28. This Order requires that, after each maintenance season, the Applicant 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 Applicant shall implement all stream maintenance techniques and BMPs deemed necessary by the Executive Officer in connection with such review.

29. The Applicant is developing a Low Impact Development (LID) manual and will incorporate LID principles and techniques into its SMP activities to the maximum extent practicable. Applicable LID activities may include installing/retrofitting stormwater/flood control basins and implementing stormwater treatment BMPs.

30. The Applicant is updating its Flood Control Design Criteria consistent with the SMP principles.

31. A discharge of wastewater (also called effluent) into the 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.

32. This Order is effective only if the Applicant pays all fees required under Title 23, California Code of Regulations (23 CCR).

33. California Wetlands Portal: The Regional Water Board tracks routine riparian repair and creek maintenance projects in an effort to detect potential systemic instabilities and document project performance in the creeks of the Bay Region. As such, the Applicant is required to submit a Riparian Repair and Maintenance (short) form describing Project size, type, and performance measures. An electronic copy of the short form and instructions can be downloaded at: http://www.waterboards.ca.gov/sanfranciscobay/certs.shtml. Project information will be made available at the web link: http://www.californiawetlands.net/tracker/.

Regulatory Framework

34. The Water Quality Control Plan for the San Francisco Bay Basin (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.

35. The Basin Plan lists the following existing and potential beneficial uses for surfaces waters within the Petaluma River and Sonoma Creek watersheds:

    a. Navigation (NAV)
    b. Water Contact Recreation (REC-1)
    c. Non-contact Water Recreation (REC-2)
    d. Warm Freshwater Habitat (WARM)
    e. Cold Freshwater Habitat (COLD)
    f. Wildlife Habitat (WILD)
    g. Estuarine Habitat (EST)
    h. Rare, Threatened, or Endangered Species (RARE)
    i. Fish Migration (MIGR)
    j. Fish Spawning (SPWN)

    The Applicant conducts maintenance activities on the Petaluma River and eleven creeks within the Petaluma River watershed: Lichau, Corona, Capri, Washington, McDowell, Adobe, Jessie Lane, East Washington, Lynch, Ellis, and Thompson creeks. Within the Sonoma Creek watershed, the Applicant conducts maintenance on Fryer, Rodgers, Lawndale, and Verano creeks, and the Nathanson Bypass. Sediment management, vegetation management, and bank stabilization activities covered by this Order may temporarily impact the beneficial uses identified above.

36. The Petaluma Valley, Napa-Sonoma Valley, Wilson Grove Formation, Highlands, Kenwood Valley, and Napa-Sonoma Volcanic Highlands groundwater basins are located in the Petaluma River and Sonoma Creek watershed areas and support the beneficial uses listed below:

    a. Agricultural Supply (AGR)
    b. Industrial Service Supply (IND)
    c. Industrial Process Supply (PROC)
    d. Municipal and Domestic Supply (MUN)

37. The Petaluma River and San Antonio Creek are identified as impaired on the CWA Section 303(d) list. These water bodies are listed as impaired by diazinon, nutrients, pathogens, sedimentation/siltation, and trash. The tidal portion of the Petaluma River is listed for nickel.

38. Sonoma Creek and Calabazas Creek are identified as impaired on the CWA Section 303(d) list. These water bodies are listed as impaired by nutrients, pathogens, sediment, sedimentation/siltation, and diazinon.

39. The Petaluma River and Sonoma Creek drain into San Pablo Bay. San Pablo Bay is identified as impaired on the CWA Section 303(d) list and is listed as impaired by chlordane, DDT,

dieldrin, dioxin compounds, invasive species, furan compounds, mercury, PCBs, and selenium.

40. 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 Applicant) to prepare an appropriate environmental document for such projects. The Applicant prepared and certified the Stream Maintenance Program Final Environmental Impact Report (FEIR) on June 23, 2009, State Clearinghouse No. 2005 082131. The FEIR found significant impacts that are under the purview and jurisdiction of the Regional Water Board: 1) aquatic species including habitat for special status species; 2) water quality; and 3) hazardous materials. The FEIR also found that the mitigation measures would mitigate all of these impacts to less than significant levels. The mitigation measures specified in the FEIR include a combination of compensatory mitigation and watershed-level project funding to mitigate for any temporary disturbance or loss of aquatic habitat and specific BMPs (see Chapter 7 of the SMP Manual) to mitigate for the remaining maintenance activity-related impacts.

41. The Regional Water Board, as a responsible agency under CEQA, has considered the FEIR, and finds that the significant environmental impacts of the proposed activities, which are within the Regional Water Board's purview and jurisdiction, have been identified and mitigated to less than significant levels. Specifically, significant impacts to aquatic species, water quality, and hazardous materials will be mitigated through implementation of the mitigation measures set forth in the FEIR and the mitigation identified in Finding 24 noted above and required by this Order.

42. Pursuant to 23 CCR § 3857 and 3859, the Regional Water Board is issuing WDRs and Water Quality Certification for the activities proposed in the SMP and the SMP Manual.

43. The Regional Water Board has notified the Applicant and interested parties of its intent to issue WDRs and Water Quality Certification for the activities proposed in the SMP and the SMP Manual.

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

IT IS HEREBY ORDERED that, the Regional Water Board certifies that the Stream Maintenance Program described herein shall comply with sections 301, 302, 303, 306, 307, and 401 of the Clean Water Act, and with applicable provisions of State law, provided that the Applicant complies with the following terms and conditions:

A. Discharge Prohibitions

1. The direct or indirect discharge of wastes, as defined in Section 13050(d) of the California Water Code (CWC), within or outside of the active project site, to surface waters or surface water drainage courses is prohibited, except as authorized in this Order.

2. The discharge 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 CWC § 13050 (l) and (m), respectively.

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 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. At no point within the containment area shall the elevation of sediment exceed that of the containment levees.

3. In accordance with CWC §13260, the Applicant 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 after a hearing under CWC §13263.

4. The Applicant shall immediately, and in no case no more than 24 hours, notify the Regional Board staff by telephone or email whenever an adverse condition occurs as a result of this discharge. An adverse condition includes, but is not limited to, a violation or threatened 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 necessary to remedy the condition, and specify a timetable, subject to approval by the Executive Officer, for the remedial actions.

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 that otherwise adversely affect beneficial uses;

   c. Waters shall not contain biostimulatory substances in concentration 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. There shall be no alteration of temperature beyond present natural background levels;

   f. Dissolved oxygen, with the following beneficial use designations, shall not be reduced below the following minimums in the receiving water from the point of discharge:

      - WARM 5.0 mg/l minimum
      - COLD 7.0 mg/l minimum

      Dissolved oxygen levels in spawning areas should ideally approach saturation levels. Free movement of water is essential to maintain well-oxygenated conditions around eggs deposited in sediments. Water temperature, size distribution and organic content of sediments, water depth, and current velocity are also important determinants of spawning area adequacy; and

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. Dissolved Sulfide: All water shall be free from dissolved sulfide concentrations above natural background levels. Concentrations of only a few hundredths of a milligram per liter can cause a noticeable odor or be toxic to aquatic life. Violation of the sulfide objective will reflect violation of dissolved oxygen objectives as sulfides cannot exist to a significant degree in an oxygenated environment.

   c. pH: A variation of natural ambient pH by more than 0.5 pH units.

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. Un-ionized Ammonia:	0.025 mg/L as N, annual median; and 0.16 mg/L as N, maximum.
f. Salinity:	The project shall not increase total dissolved solids or salinity to adversely affect beneficial uses.
g. 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 natural turbidity is greater than 50 NTU.

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 will revise and modify this Order in accordance with such more stringent standards.

D. Provisions

Management of Removed Sediment

1. The Applicant shall implement the Sediment Sampling and Analysis Guidelines in the SMP Manual.

2. The Applicant may temporarily stockpile excavated sediment prior to disposal or reuse, provided that appropriate State and federal regulations are met and BMPs are implemented to protect water quality and beneficial uses. The excavated sediment may be stockpiled onsite so that it can be loaded into trucks for offsite disposal within three working days. The excavated sediment may also be temporarily stockpiled at an offsite location so that runoff, sediment, or decant water from the excavated materials shall not contact waters of the State.

3. Sediment removed as part of maintenance activities must be properly characterized through laboratory analytical testing, as described in the Sediment Sampling and Analysis Guidelines, Appendix B of the SMP Manual, and be hauled offsite to suitable upland disposal sites, to the Sonoma County Central Landfill, or another approved location. Proposed disposal locations shall be submitted by Applicant annually in the SSRs and approved by the Executive Officer.

4. The Applicant must have equipment and supplies onsite (or readily available nearby) that could be quickly deployed to provide additional filtration if turbidity is observed.

5. All staging shall occur on adjacent access roads or previously disturbed areas. Soil and riprap shall be staged in areas that have been previously disturbed (e.g., service road, turn-outs). If repair activities affect the active channel, the work area shall be isolated from flowing stream segments using silt fences, wattles, or cofferdams, and restored to pre-project conditions after maintenance is complete.

6. The discharge of any hazardous, designated or non-hazardous waste as defined in Title 27, CCR, Division 2, Subdivision 1, Chapter 2 shall be conducted in accordance with applicable State and federal regulations.

7. The Applicant shall cleanup, remove and relocate any wastes that are discharged in violation of this Order.

8. The Applicant shall ultimately dispose of dewatered material at a permitted landfill, approved upland sediment disposal site, or at an approved reuse site in accordance with applicable State and federal regulations, including applicable provisions of this Order.

9. The Applicant 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.

Sediment and Vegetation Removal

10. Targeted and localized sediment removal in engineered channels shall occur in limited areas that do not exceed 500 linear feet of channel length. Targeted and localized vegetation removal areas shall not exceed 100 feet of channel length.

11. For all proposed sediment and vegetation removal and snagging and clearing projects implemented after May 2015, the Applicant shall justify the need for such actions based on the analysis of channel capacity, hydraulic constrictions and roughness. The analysis shall include, but not be limited to, an evaluation of whether in-stream vegetation or sediment is contributing to the problem, and the short and long-term benefits of the proposed removal actions. The analysis shall include reach management strategies using a primary objective to sustain and restore a selected desirable value for vegetative roughness in order to balance the functions of the vegetation for erosion control, shade, temperature control, other water quality parameters, and habitat and flood risk reduction. Selection of roughness values for different reaches shall be approved through the interagency team described in Provision D.12.

12. Sediment removal activities that involve "geomorphic shaping activities" will require project specific notification to the Regional Water Board. The Applicant is required to submit a grading plan along with any detailed project information. The Regional Water Board will consult with an interagency team that includes staff of the California Department of Fish and Game (CDFG) and the National Marine Fisheries Service (NMFS) before grading plan approval[1].

Vegetation Management

13. 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.

[1] National Marine Fisheries Service (2009) "Biological Opinion: Sonoma County Water Agency 10-year Individual Permit (Corps File No. 2009-00136N)" (Page 7).

14. Vegetation management activities that could result in the destabilization of stream banks or increase sediment input into waters of the State are prohibited.

15. Vegetation management and replanting shall be conducted using a strategy which maximizes the functions of the vegetation to shade the active channel, stabilize active channel banks, and provide in stream habitat[2].

16. The Applicant shall follow the vegetation removal and management guidelines described in the Vegetation Management Plan, Appendix E of the SMP Manual, except as required under Provision D.14.

17. Vegetation management activities shall not adversely impact the riparian zone, shade, canopy coverage, or habitat. Overall impacts of vegetation management activities shall improve beneficial uses.

Bank Stabilization

18. The Applicant shall use the bank stabilization methods described in the SMP Manual. Any changes to the bank repair methods shall be proposed in the ANRs, or equivalent document, and approved in writing by the Executive Officer before implementation.

19. The use of soil bioengineering systems as presented in the Natural Resource Conservation Service (NRCS) and Corps manuals shall be used as the first and primary strategy for stream bank stabilization projects. Rock and riprap installation shall be limited to only those areas experiencing shear stresses that exceed the performance of vegetation based soil bioengineering systems as designated in NRCS and Corps shear stress tables[3].

Other Maintenance Activities

20. Other stream maintenance activities shall not result in direct or cumulative significant impacts to water quality or beneficial uses of waters of the State.

21. Maintenance activities that may result in modifications to stream cross-sections and or profiles shall be implemented to achieve sustainable and appropriate channel geometries.

Quantitative Assessments

22. The Applicant shall develop a workplan 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 workplan

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[2] San Francisco Bay Regional Water Quality Control Board (2009) "Maintenance, Management, and Monitoring Protocols for Stream Projects that Must Take Flood Risk into Consideration," Technical Memorandum and Rapid Assess (See the case studies for Wildcat Creek and the San Lorenzo River).

[3] Fischenich, J.C. (2001) Stability Thresholds for Stream Restoration Materials, EMRRP Technical Notes Collection (ERDC TN-EMRRP-SR-29), U.S. Army Engineer Research and Development Center, U.S. Army Corps of Engineers, Vicksburg, MS.

San Francisco Bay Regional Water Quality Control Board (2009) "Rapid Permit Assessment Checklist," located at the Regional Water Board website: Protecting Streams and Wetlands. Reference Tab M – Table TS141-4

Bentrup, Gary, J. Chris Hoag (1998) The Practical Streambank Bioengineering Guide, User's Guide for Natural Streambank Stabilization Techniques in the Arid and Semi-Arid Great basin and Intermountain West, USDA NRCS, Was. D.C

and its associated supporting documentation shall be submitted to the Regional Water Board by May 2013 for approval by the Executive Officer.

a) The Applicant shall develop roughness objectives for all major channels contained in the SMP Manual and determine the tolerance for loss of freeboard in engineered flood control channels.

b) The Applicant shall provide preliminary estimates of stage–discharge relationships for channel reaches most likely 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 Applicant shall implement a program for developing stage-discharge relationships for larger magnitude flows.

c) The Applicant 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[4].

Best Management Practices

23. The Applicant shall implement the BMPs contained within the SMP Manual and the FEIR (or alternative BMPs of comparable effectiveness) to prevent pollutants from draining, being washed, or otherwise discharged into waters of the State during SMP activities.

24. The Applicant shall follow the procedures and protocols in the Fishnet 4C Manual when removing large woody debris for maintenance purposes[5]. Large woody debris shall not be removed or be managed in a channel if it potentially functions as habitat for salmonids and or other threatened and endangered species. If the large woody debris poses a credible risk of blocking a culvert, bridge, or otherwise obstructing flow or causing structural damage it may be relocated, repositioned, and or cabled to a stream bank in a manner to protect existing habitat. For channels designated by the SMP Manual to not have potential salmonid or other threatened and endangered species habitat, large woody debris can be immediately removed or relocated to a more suitable location if the large woody debris is posing a significant and imminent threat of structural damage

25. The Applicant shall divert any flow at the site around the active maintenance site in a non-erosive manner.

26. The Applicant shall halt work activities if fish, amphibians or other aquatic organism are exhibiting stress or dead within 1,000 feet of work activity or discharge. The Applicant shall immediately assign a qualified biologist to investigate the cause of the problem, to define an

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

[5] Fishnet 4C, MFG, Inc., Prunuske Chatham, Inc., Pacific Watershed Associates (2004) Guidelines For Protecting Aquatic Habitat and Salmon Fisheries for County Road Maintenance, prepared for Fishnet 4C Counties, California Department of Fish and Game, National Marine Fisheries Service, California Resources Agency

acceptable corrective action plan, and to determine if the cause is related to SMP activities. The Applicant shall immediately report all incidents involving dead or stressed aquatic organisms, as well as prescribed action plans to Regional Water Board and CDFG staff.

Compensatory Mitigation

27. The Applicant shall implement the Mitigation Monitoring and Reporting Program included in the SMP Manual and the FEIR.

28. The Applicant shall mitigate for both permanent and temporary impacts from its stream maintenance activities by implementing in-kind onsite mitigation (Tier 1 mitigation), and shall only implement in-kind offsite mitigation if there is no opportunity to mitigate onsite (Tier 2 mitigation).

29. The Applicant shall mitigate for the temporal loss of beneficial uses by funding offsite watershed-level projects (Tier 3 mitigation) that would address watershed-level issues such as erosion to reduce the overall need to conduct stream maintenance activities.

30. 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. This additional mitigation option shall be given consideration by the Executive Officer after the Applicant's LID manual is complete.

31. The Applicant shall implement Tier 3 mitigation to compensate for the impacts to engineered channels from targeted and localized sediment and vegetation removal projects.

32. The Applicant shall submit proposed mitigation sites to the Regional Water Board Executive Officer for approval as part of the ANRs. In the event that a proposed mitigation activity is denied, or a site is rescinded 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 90 days following denial or rescission. The Applicant shall implement those alternative mitigation proposals that the Executive Officer has approved.

33. The Applicant shall mitigate for impacts to water quality and beneficial uses from its vegetation management activities. Mitigation shall include revegetation with native vegetation, and other methods, as described in the Vegetation Management Plan, Appendix E of the SMP Manual.

Monitoring and Reporting

34. The Applicant shall monitor all active project sites according to the Monitoring and Reporting Program attached to this Order. All self-monitoring reports shall be submitted annually to the Regional Water Board.

35. The Applicant shall submit the ANRs that include information on the projects that will be conducted in the upcoming year. In addition, in the ANRs, the Applicant shall determine if any of the proposed projects would impact any channels identified as functioning as

potential habitat for threatened or endangered species, or providing habitat for different life cycles for salmonids (i.e., migration, spawning, rearing, or refugia).

36. The Applicant shall submit annual reports according to the requirements contained in the Annual Reporting Outlines, Appendix F of the SMP Manual.

37. All annual maintenance plans and the ANRs 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 ANRs.

38. The ANRs shall be submitted by April 30 of each year. The Executive Officer will approve the ANRs for that year's projects and provide a notice to proceed, or indicate needed modifications to the ANRs, within 45 days of receiving it.

39. The SSRs shall be submitted by May 15 of each year.

40. The APRs shall be submitted by January 31 of the following year. The Applicant is required to use the Riparian Repair and Maintenance (short) form to provide individual project information reported in the APRs. The completed short form and map showing the project boundaries shall be submitted electronically to habitatdata@waterboards.ca.gov.

41. The Applicant shall submit the inventories noted 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 and approved by the Executive Officer.

    a) An inventory of engineered channels shall be submitted with the 2012 ANRs.

       A list of all areas and channels identified as engineered channels and all channels that are subject to routine maintenance activities. Include the specific location of the areas and channels identified.

    b) Inventories for the following types of projects shall be submitted with the ANRs when these types of projects are included in the ANRs.

       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 on-going basis. Localized projects that are newly discovered and not listed in the inventory shall be included in the ANRs for that year.

    c) The following inventories shall be submitted with the 2013 ANRs:

       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, spawning, or high flow refugia habitat for salmonids.

iv. An inventory of stream reaches that flow through alluvial fan landscapes.

42. The following activities are exempt from annual notification requirements and may occur any time at the discretion of the Applicant 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.

43. Maintenance activities on engineered channels that are identified as localized, targeted, or other facilities maintenance activities shall be reviewed during the ANRs process and will not require project specific notification to the Regional Water Board. All other activities in engineered channels require project specific notification.

44. Maintenance activities on any channels identified as modified or natural in the SMP Manual shall require project specific notification to the Regional Water Board. See Provision D.45. for information about project specific notification requirements.

45. Project specific notification on all channels shall include photo documentation of existing conditions, a description of the project, and an assessment of the need for the proposed maintenance activities. The Applicant shall also provide post-maintenance photo documentation. The Applicant shall determine if any of the proposed projects could impact any channels identified as functioning as potential habitat for threatened or endangered species, or providing habitat for different life cycles for salmonids (i.e., migration, spawning, rearing, or refugia).

46. For maintenance work in engineered channels, Regional Water Board staff will review and comment on the project specific notification information within 45 days of receiving the notification. If Regional Water Board staff has not contacted the Applicant within this 45-day time period, then the Applicant can proceed with the maintenance work as documented in the project specific notification.

47. For maintenance work in modified or natural channels, the project specific notification information will be reviewed by Regional Water Board staff and will require approval of the Executive Officer before work is initiated.

48. Before June 15 of each year, the Applicant shall organize a meeting and field tour with the agencies listed in Provision D.60., to discuss the projects scheduled for the upcoming maintenance season.

49. After each maintenance season, the Applicant and Regional Water Board staff shall meet to discuss the performance of the SMP, review lessons learned from the completed construction season, and determine the need to implement improved stream maintenance techniques and BMPs. The Applicant shall implement all stream maintenance techniques and BMPs deemed necessary by the Executive Officer in connection with such review.

50. After five years of SMP implementation, the Applicant 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 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 Applicant and the regulatory agencies. The SMP Manual, the Water Quality Certification, and the WDRs may be revised or updated based on this review.

51. The Applicant shall submit no later than May 1, 2015, the following information:

    a) Definitions (compatible with resource agency definitions) of active channel, low flow channel, floodplain, terrace, and top of bank. These definitions are intended to clarify where and how maintenance activities will occur.

    b) Identification of priority watershed projects aimed at increasing stormwater infiltration and, thus, reducing sediment or runoff discharges, which can reduce chronic sediment or vegetation removal projects, and can improve water quality.

    c) Salmonid and freshwater shrimp management plans for those reaches potentially functioning as migration, spawning, or high flow refugia habitat for salmonids or freshwater shrimp. The management plans are intended to guide maintenance activities in these reaches and be consistent with the United States Fish and Wildlife Service (USFWS) and NMFS biological opinions. These management plans would need to be prepared to be consistent with current SMP permit requirements detailed in CDFG's Master Streambed Alteration Agreement and the USFWS and NMFS biological opinions.

    d) Revised SMP Manual Appendix E Vegetation Management Plan to include the management options described in the Regional Water Board's 2009 Technical Memorandum: "Maintenance, Management, and Monitoring Protocols for Stream Projects That Must Take Flood Risk into Consideration." The revision should consider options such as maximizing the functional values of vegetation by maintaining and planting vegetation by the active channel. Also, the revision should consider adding a section addressing options to include some environmental quality features to concrete or grouted flood control channels, such as modification of channel and floodplain dimensions or incorporation of some vegetation[6]. Some sections of the Santa Rosa Creek Prince Greenway can serve as a model for this.

    e) A list of high priority stream maintenance-related capital improvement projects that address chronic maintenance problems.

Fees

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

[6] San Francisco Bay Regional Water Quality Control Board (2009) "Maintenance, Management, and Monitoring Protocols for Stream Projects that Must Take Flood Risk into Consideration," Technical Memorandum

The fee amount for the WDRs portion shall be in accordance with the current fee schedule, per 23 CCR, Division 3, Chapter 9, Article 1, section 2200(a)(1), based on the discharge's Threat to Water Quality and Complexity rating of the Discharge to Land or Surface Waters, plus applicable surcharge(s). The Threat and Complexity rating shall be rated as 3B, and shall remain at this level throughout the period of this Order. After the initial year, this portion of the fee shall be billed annually to the Applicant and shall be paid separately from the Water Quality Certification portion. The fee payment shall indicate the Order number, WDID number, and the applicable season.

Records Provisions

53. The Applicant shall maintain a data management system to monitor stream maintenance activities, natural resources in the SMP area, permitting requirements, and mitigation efforts.

54. 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.

55. The Applicant 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.

56. The Applicant shall submit electronic versions of any submitted reports or documents.

General Provisions

57. All provisions in this order apply to all channels and activities identified in the SMP Manual.

58. The following activities are not included in the SMP Manual and, therefore, are not covered in this Order: capital improvement projects; discharge of decant water from dredged sediments back to receiving waters; projects that would alter the designed flood conveyance capacity of a channel; and 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. 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 Section 21060.3).

59. The Applicant 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.

60. The Applicant 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, CDFG, the Corps, USFWS, NMFS, and local agencies. The Applicant shall submit copies of such approvals or permits to the Executive Officer prior to SMP implementation.

61. The Applicant shall implement the SMP in accordance with the conditions described in the SMP Manual and the findings herein, and shall comply with all applicable water quality standards.

62. SMP activities occurring within the channel below the ordinary high water mark shall only occur from June 15 to October 31 or the first significant rainfall after October 15, 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 15 of any year, but work already underway shall have until October 31 to be completed. 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.

63. 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.

64. All mitigation activities shall be completed as described in the Mitigation Monitoring and Reporting Program and the SMP Manual.

65. This Water Quality Certification and issuance of WDRs is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to CWC Section 13330 and 23 CCR Section 3867.

66. This Water Quality Certification 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 23 CCR, 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.

67. The Regional Water Board may add to or modify conditions of this Order, as appropriate, to implement any new or revised total maximum daily load requirements.

68. 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 adopted or approved pursuant to the Porter-Cologne Water Quality Control Act or CWA Section 303.

69. The Applicant 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.

70. The Applicant 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.

71. The Applicant 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.

72. 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.

73. The Applicant shall implement all mitigation measures identified in the FEIR relating to aquatic species, water quality, and hazardous materials. In addition, the Applicant shall comply with the Monitoring and Reporting Program attached to this Order, and the SMP Manual and its maintenance-related appendices including the Sediment Sampling and Analysis Guidelines and the Vegetation Management Plan.

74. This Order is not transferable.

75. The authorization of this Order for SMP activities expires on April 13, 2016. 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 April 13, 2011.

Digitally signed by Bruce Wolfe
Date: 2011.04.15 10:32:21 -07'00'

Bruce H. Wolfe
Executive Officer

Attachment A: Monitoring and Reporting Program
Attachment B: Stream Maintenance Program Manual
Attachment C: Appendices to SMP Manual