CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION
DRAFT ORDER NO. R1-202X-XXXX
GENERAL WASTE DISCHARGE REQUIREMENTS
FOR
IRRIGATED LANDS IN THE
SCOTT RIVER AND SHASTA RIVER WATERSHEDS

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

Table of Contents

I. Findings 6
A. Background & Purpose 6
B. Public Participation 7
C. Scope of Order 9
D. Monitoring and Reporting 12
E. Third-Party Programs 14
F. Regulatory Framework 15
G. Cost Considerations 28
H. Enforcement for Noncompliance 29
I. General Findings 30
II. It Is Hereby Ordered 31
A. Coverage Requirements 31
B. Prohibitions 34
C. TMDL Requirements 35
D. Water Quality Benchmarks 35
E. General Requirements 37
F. Monitoring and Reporting 52
G. Outreach and Education 54
H. Provisions 54
III. Certification 57
Attachment A: Monitoring and Reporting Program 58
I. Summary 58
II. Required Monitoring 61
III. Conditional Monitoring 65
IV. Reporting Requirements 71
Attachment B: Supplemental Findings 79
I. Relevant Actions outside of Regional Board Authority 79
II. Scott River Temperature TMDL Findings 79

III. Scott River Sediment TMDL Findings 81
IV. Scott River Biostimulatory Conditions Listing Findings 82
V. Shasta River Temperature TMDL Findings 84
VI. Shasta River Dissolved Oxygen TMDL Findings 86
VII. Summary of Land Use Practices Driving Watershed Impairments 88
VIII. Temperature Water Quality Benchmarks — Technical, Scientific, and Legal Basis 91
IX. Biostimulatory Water Quality Benchmarks — Technical, Scientific, and Legal Basis 101
X. Riparian Zone Findings 109
XI. Core Regulatory Findings 113
XII. Cost Considerations 121
Attachment C: Coalition Requirements 131
I. General Provision 131
II. Minimum Qualifications 132
III. Request for Proposal Process and Establishing Approved Coalition 133
IV. Coalition Requirements 134
Attachment D: Stewardship Category Requirements 136
I. Eligibility: Operation-Level Determination 136
II. Application Process 136
III. Inapplicability of Individual Criteria 137
IV. Stewardship Category Criteria 137
V. Threat-to-Water-Quality Assessment 141
VI. Conditions and Obligations of Stewardship Category Operations 142
VII. Revocation of Stewardship Category Status 143
VIII. Group Stewardship Projects as Alternative Qualification Pathway 144
Attachment E: Tailwater Practice Menu for Compliance Pathway II 147
I. Operational Irrigation Improvements 147
II. Irrigation Scheduling Based on Soil Moisture 147
III. Pasture Management Practices to Reduce Runoff 147
IV. Irrigation Flow Path Corrections 148
V. Reduce Water Delivery Variability 148

VI. Coordination 148
VII. Avoid Irrigating High Risk Areas 148
Attachment F: CEQA Mitigation Measures 1
Attachment G: Templates 1
NOTICE OF INTENT (eNOI) 1
NOTICE OF TERMINATION 1
FARM EVALUATION 1
IV. DRINKING WATER WELL INFORMATION FORM 1
IV.a INSTRUCTIONS — DRINKING WATER SUPPLY WELL SAMPLING 4
V. NITRATE EXCEEDANCE NOTIFICATION TEMPLATE 7
VI. NITRATE FACT SHEET 9
Attachment H: Acronyms and Definitions 11
I. Acronyms 11
II. Definitions 13

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I. Findings

The California Regional Water Quality Control Board, North Coast Region, (hereinafter North Coast Water Board) finds:

A. Background & Purpose

1. The purpose of these General Waste Discharge Requirements (WDRs) for Irrigated Lands in the Scott River and Shasta River Watersheds, Order R1-202X-XXXX (hereinafter Order or General Order), is to provide a water quality regulatory structure to control discharges of waste, to prevent adverse impacts to water resources resulting from Irrigated Lands in the Scott River and Shasta River watersheds within the North Coast Regional Water Quality Control Board (North Coast Water Board or the Board) jurisdiction, and restore water quality.

2. The Scott River and Shasta River Watersheds are located in Siskiyou County, California, situated in the Klamath River Basin and drain into the mid-Klamath River which in turn flows into the Pacific Ocean.

3. The Scott River and Shasta River Watersheds contain approximately 86,000 acres of Irrigated Lands of which approximately 44,000 acres are mapped as Important Farmland (Prime, Unique, and Farmland of Statewide Importance).

4. Irrigated Lands within these watersheds result in discharges (or threatened discharges) of waste to surface and groundwater, as well as other controllable water quality factors that drive impairments in both watersheds, are implicated in the Scott River TMDL Action Plan and the Shasta River TMDL Action Plan as drivers of the impairments associated with these TMDLs. A thorough description of these drivers is included in Attachment B: Supplemental Findings.

5. The purpose of this Order is to provide effective mechanisms for preventing, minimizing, or eliminating discharges of waste from Irrigated Lands to surface and groundwater and to provide sufficient control of associated controllable water quality factors to support the protection of water quality within the Scott and Shasta Watersheds.

B. Public Participation

6. From February 27, 2025 through March 30, 2026, the North Coast Water Board convened a Technical Advisory Group (TAG) to advise on conceptual options and preliminary draft regulatory language. The TAG was comprised of 34 individuals representing agricultural producers, tribes, environmental interests, technical service providers, partnering agencies and community organizations. The TAG provided feedback on regulatory concepts in meetings that occurred approximately every 2 months. Meeting topics included farm evaluations, enrollee category requirements, streamside area requirements, Coalition requirements, permitting and Coalition fees, and the Monitoring and Reporting Program.

7. On January 31, 2025, the North Coast Water Board published a Notice of Preparation and an Initial Study to begin soliciting input related to environmental review for the California Environmental Quality Act (CEQA), in preparation for developing a draft Environmental Impact Report (EIR). A 30-day public comment period was held for the Notice of Preparation and Initial Study. On February 26, 2025, North Coast Water Board staff held a hybrid public CEQA scoping meeting. Input received during the public comment period and public scoping meetings has been considered in the development of the draft EIR and Order.

8. On May 7, 2025, the North Coast Water Board heard an informational update on the development of these WDRs, which included a staff presentation, time for oral public comments, and discussion among Board Members. The informational update was conducted virtually and in-person. On May 8, 2025, the North Coast Water Board held a field trip to agricultural operations in the subject watersheds, which was organized by the Siskiyou County Far, Bureau and attended by Board Members, staff, and members of the public.

9. On October 9, 2025, the North Coast Water Board held a field trip to Shackleford Creek, a major tributary to the Scott River, which was organized by the Quartz Valley Indian Reservation and attended by Board Members, staff, and members of the public. On October 10, 2025, the North Coast Water Board conducted a Workshop on a conceptual framework for these WDRs. The workshop was conducted virtually and in-person.

10. On January 6, 2026, North Coast Water Board staff presented concepts from the Draft Order to the Siskiyou County Board of Supervisors at a public meeting, receiving their feedback on foundational elements of the Draft Order.

11. On February 4, 2026 and February 5, 2026, North Coast Water Board staff held two public town halls in Fort Jones, California and Montague, California, respectively, to seek informal public feedback on core concepts of the Draft Order. The town halls were well attended with over 150 total attendees with in-person and virtually.

12. Between March and August of 2026, North Coast Water Board staff attended numerous farm tours, including a tour of the Shasta River Water Association's delivery area to discuss specific requirements of the Draft Order and received targeted and specific feedback from the regulated public.

13. On September 17, 2026, the North Coast Water Board published the Draft Order and Draft EIR and began a 45-day public comment period.

14. In October 2026, the North Coast Water Board conducted a public workshop, which included presentations of the Draft Order and Draft EIR, time for oral public comments, and discussion among Board Members. The public workshop was conducted virtually and in-person.

Assembly Bill 2108

15. Assembly Bill 2108 (Statutes of 2022, Chapter 347) requires State and Regional Boards to address issues of environmental justice and social equity as early as possible in permit and policy planning processes. AB 2108 specifies that Regional Boards engage in equitable, culturally relevant community outreach to meaningfully involve disadvantaged and tribal communities that may be disproportionately impacted by proposed discharges of waste and ensure that outreach and engagement shall continue throughout the review and permitting processes. (Wat. Code, § 189.7, subd. (a).)

16. AB 2108 further requires the Water Boards when, among other actions, adopting general waste discharge requirements to make findings on anticipated water quality impacts in disadvantaged or tribal communities as a result of a permitted activity or facility, any environmental justice concerns within the Water Boards' authority that are raised regarding those water quality impacts, and available measures within the Boards' authority to address those water quality impacts. (Wat. Code, § 13149.2.)

17. The North Coast Water Board publicly noticed the Order and provided opportunities for public comment. Public notice was provided to interested persons and public agencies in the North Coast Region. The North Coast Water Board conducted outreach in potentially affected disadvantaged communities. North Coast Water Board staff contacted the Native American Heritage Commission to obtain a list of all Native American Tribes within the North Coast Region. Staff sent consultation letters to all six Tribes on the list that could be affected by the Order.

18. The North Coast Water Board has satisfied the outreach requirements set forth in Water Code section 189.7 by conducting outreach in affected disadvantaged and tribal communities.

19. Pursuant to Water Code section 13149.2, the North Coast Water Board reviewed readily available information and information raised to the Board by interested persons concerning anticipated water quality impacts in disadvantaged or tribal

communities resulting from adoption of this Order. The Board also considered environmental justice concerns within the Board's authority and raised by interested persons regarding those impacts.

20. The North Coast Water Board anticipates that the discharges regulated by this Order will not result in disproportionate impacts that are within the scope of the Board's authority to tribal or disadvantaged communities.

21. Compliance with this Order and all mitigation measures identified in the accompanying EIR are expected to address impacts associated with the management practices in this Order. The mitigation and monitoring required by the Order are not expected to disproportionately impact disadvantaged or tribal communities and mitigation measures are expected to mitigate any impacts to disadvantaged or tribal communities.

Assembly Bill 52

22. Assembly Bill 52 (Statutes of 2014, Chapter 532), which went into effect on July 1, 2015, requires that lead agencies under CEQA consult with California Native American tribes that have requested in writing to be notified and that are traditionally and culturally affiliated with the geographic area of a proposed project, prior to the development of a CEQA document. Under the same bill, Public Resources Code section 21084.2 specifies that a project with an effect that may cause a substantial adverse change in the significance of a Tribal Cultural Resource is a project that may have a significant effect on the environment.

23. In December 2024, North Coast Water Board staff contacted all Tribes that had requested notification of this project under AB 52, as well as Tribes that had not requested AB 52 notification but could be affected by the Order to solicit consultation if desired.

24. Of the six AB 52 Tribes contacted by the North Coast Water Board, no tribes responded in writing to the notice. North Coast Water Board attempted to make appointments with tribal staff to discuss the Order within their tribal jurisdictions. North Coast Water Board staff met two tribes in person to discuss the project. One tribe indicated that the project is outside their tribal area and did not want to undergo formal consultation, but did request listening sessions occur within their tribal territory.

C. Scope of Order

25. This Order establishes general WDRs for Irrigated Lands and Associated Grazing Operations within the Scott and Shasta River watersheds. The primary activity that would require an owner or operator to enroll is the application of irrigation water to 25 acres or more of agricultural land.

26. “Irrigated Lands" means any operation within the Scott River or Shasta River watersheds that applies water to 25 acres or more of land for the purpose of producing crops, forage, pasture, or other agricultural commodities, including but not limited to:

    (a) Flood-irrigated, sprinkler-irrigated, or drip-irrigated cropland;

    (b) Irrigated pasture used for livestock grazing or hay/forage production;

    (c) Land receiving applied water for frost protection, dust suppression, leaching, or other agricultural management purposes;

    (d) Land on which water is applied and from which tailwater, irrigation return flows, subsurface drainage, or stormwater runoff that has contacted irrigated land discharges or has the potential to discharge to waters of the state.

    “Associated Grazing Lands" means non-irrigated lands used for livestock grazing that meet both of the following criteria:

    (a) The non-irrigated grazing land is located on an irrigated parcel under common ownership or operational control (including lease or management agreements) with an Irrigated Agricultural Operation enrolled under this Order;

    (b) The non-irrigated grazing land is functionally integrated with the enrolled Irrigated Agricultural Operation, as demonstrated by one or more of the following:

        (i) Livestock are routinely rotated between irrigated and non-irrigated portions of the operation on a seasonal or periodic basis;

        (ii) The non-irrigated grazing land is used to support livestock that are primarily maintained on irrigated pasture (e.g., dry-season holding areas, calving areas, or winter rangeland for livestock that graze irrigated pasture during the irrigation season);

        (iii) Feed, forage, or hay produced on the irrigated portions of the operation is used to supplement grazing on the non-irrigated land, or vice versa;

        (iv) The non-irrigated grazing land and the irrigated land are managed under a single, agricultural business entity, or unified operational structure.

27. This Order does not require enrollment of Standalone Dryland Grazing Operations — that is, livestock grazing operations conducted on non-irrigated agricultural parcels. The North Coast Water Board finds that the management measures, monitoring protocols, and compliance frameworks appropriate for irrigated agricultural discharges differ substantively from those appropriate for rangeland grazing, and that including standalone dryland grazing within an irrigated lands

order would create regulatory mismatches that could undermine effective implementation.

28. The exemption of Standalone Dryland Grazing Operations from enrollment does not relieve any discharger of obligations under the Action Plan for the Scott River Sediment and Temperature Total Maximum Daily Loads (Basin Plan Table 4-10) or the Action Plan for the Shasta River Dissolved Oxygen and Temperature Total Maximum Daily Loads (Basin Plan Table 4-14). Both TMDL Action Plans identify grazing activities as significant contributors to sediment loading, nutrient discharge, and riparian shade loss, and both authorize and direct the North Coast Water Board to take appropriate permitting and enforcement actions to address grazing-related discharges. The Executive Officer retains full authority under Water Code sections 13267, 13263, 13269, 13300, 13301, 13304, and 13350 to require enrollment in the Order, technical reports, management plans, monitoring, and corrective action from any Standalone Dryland Grazing Operation whose activities are determined to pose a threat to water quality.

29. Discharges from Irrigated Lands include those that can occur through the loss of riparian vegetation (a controllable factor) and through mechanisms such as ranch road, drainage structures, percolation, tile drain water, stormwater runoff flowing from irrigated lands, runoff resulting from excess flood irrigation (i.e. tailwater), thermal discharges, and runoff resulting from operational spills. These discharges can contain waste(s) that could affect the quality of waters of the state and impair beneficial uses.

30. This Order does not limit North Coast Water Board authority to inspect, and/or evaluate regulatory status, water quality impacts, or regulatory requirements of agricultural operations activities. If the North Coast Water Board determines that due to site-specific conditions an agricultural operation is not eligible for coverage under this General Order, or enrollment will not be protective of water quality, the North Coast Water Board may issue site-specific WDRs and/or other regulatory orders.

31. This Order applies to landowners and operators of Irrigated Lands and Associated Grazing Operations in addition to Standalone Dryland Grazing Operations, as identified by the Executive Officer, from which there could be discharges of waste or activities that could affect the quality of any surface water or groundwater or result in the impairment of beneficial uses.

32. The owners or operators that enroll parcels are considered Enrollees under this Order and are responsible for complying with the conditions of this Order. Either the owner or operator may enroll under this Order. The Enrollee is required to provide written notice to the non-Enrollee property owner or operator (if applicable) that the parcel has been enrolled under the Order.

33. The North Coast Water Board may hold both landowners and operators of Irrigated Lands and Associated Grazing Operations liable for noncompliance with this Order, regardless of whether the landowner or the operator is the party to enroll under this Order. Enforcement action by the Board for non-compliance related to an enrolled parcel may be taken against both the owner and operator.

34. This Order does not preclude the need for additional permits that may be required by the North Coast Water Board or other governmental agencies, nor does it supersede any requirements, ordinances, or regulations of any other regulatory agency. This Order does not authorize violations of any federal, state, or local law or regulation.

35. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code §§2050 to 2097) or the Federal Endangered Species Act (16 US Code §§1531 to 1544). If a "take" will result from any action authorized under this Order, the Enrollee shall obtain authorization for an incidental take prior to construction or operation of the project. The Enrollee shall be responsible for meeting all requirements of the applicable Endangered Species Act.

36. This Order does not supersede the North Coast Water Board Basin Plan and policies, including prohibitions (e.g., pesticides) and implementation plans (e.g., TMDLs), or the State Water Board's plans and policies.

37. Enrollees are required to comply with the lawful requirements of municipalities, counties, drainage districts, and other local agencies regarding discharges to storm drain systems or other infrastructure under their jurisdiction.

38. The North Coast Water Board acknowledges that it will take time to: (1) develop meaningful and effective Coalitions that facilitate compliance with this Order; (2) develop online reporting tools and templates, and (3) conduct outreach and education to help Enrollees and service providers become familiar with Order requirements. This Order considers this by delaying the enrollment deadline in the Order for 18 months after Board adoption.

D. Monitoring and Reporting

39. This Order requires implementation of a monitoring and reporting program (MRP) pursuant to Water Code section 13267 that is intended to determine the effects of waste discharges on water quality, to verify the adequacy and effectiveness of the Order's conditions, to evaluate Enrollee compliance with the terms and conditions of the Order, to initiate adaptive management as needed, and to support an assessment of the long-term effectiveness of the Order.

40. An Enrollee covered under this Order must comply with Attachment A: Monitoring and Reporting.

41. Attachment A is a Monitoring and Reporting Program issued pursuant to Water Code section 13267 and is included as part of this Order. Consistent with Water Code section 13267 the Monitoring and Reporting program associated with this Order is subject to future revisions by the Executive Officer or North Coast Water Board.

42. For Individual Enrollees, water quality monitoring under this Order assesses the individual's compliance with this Order's requirements (see Attachment A for complete MRP requirements).

43. For Enrollees in a Coalition (see Attachment A for complete MRP requirements), there are Representative Groundwater Monitoring requirements under this Order. The benefits of representative monitoring include the ability to determine whether practices, at the basin level, are protective of water quality. However, there are limitations to representative monitoring effectiveness in determining possible sources of water quality standard[1] exceedances, the effectiveness of management practices, and individual Irrigated Lands compliance with Order requirements. This Order considers these limitations by requiring that individuals implement on-farm management practices to limit the impacts from nitrate.

Monitoring for Riparian Conditions

44. Where Enrollees elect to develop a Grazing and Riparian Management Plan in lieu of meeting certain requirements for livestock grazing in Streamside Areas, this Order requires Enrollees to conduct photopoint monitoring.

Groundwater Monitoring for Nutrients

45. Potential sources of applied nitrogen on Irrigated Lands include organic and inorganic fertilizers, slow-release products, compost, compost teas, manure, extracts, nitrogen present in the soil, nitrate in irrigation water, and nitrate in recycled water. Nitrogen efficiency management practices are a mechanism to control the discharge of nitrogen to surface and groundwater.

46. Elevated levels of nitrates in drinking water can have significant negative health effects on sensitive individuals. The nitrate water quality objective for groundwater is the maximum contaminant level (MCL) of 10 mg/L (milligrams per liter) for nitrate plus nitrite as nitrogen (or 45 mg/L of nitrate as nitrate) established by the California Department of Public Health (Cal. Code Regs. tit. 22, § 64431). The MCL was set to

[1] USEPA defines water quality standards as consisting of three elements: designated beneficial uses for each waterbody, criteria to protect those uses, and consideration of antidegradation requirements.

protect the most at-risk groups – infants under six months old and pregnant women. Sources of nitrate in groundwater include leaching of excess fertilizer, confined animal feeding operations, septic systems, and wastewater discharge to land (e.g., domestic, commercial, and industrial). Pathways of nitrate to groundwater include unprotected well heads, improperly abandoned wells, and lack of backflow prevention on wells.

47. This Order requires monitoring of nitrate in groundwater through: (1) individual and regional groundwater trend monitoring to evaluate broad impacts of agricultural practices on groundwater; and (2) drinking water well sampling to notify well users of exceedances of the nitrate MCL.

Tailwater Monitoring for Temperature

48. Tailwater is a major source of thermal pollution in the Shasta River watershed and affects the Scott River watershed in certain locations. This Order includes Tailwater Monitoring for temperature and nitrogen or phosphorus at the Point of Compliance during the Irrigation Season.

49. This Order provides two pathways for Enrollees to comply with tailwater requirements. The first pathway (Pathway 1) requires the development and implementation of a certified plan designed to eliminate all tailwater discharges hydrologically connected to perennial and intermittent streams either individually or as a group. This pathway does not include long-term monitoring because discharges will be eliminated. The second pathway (Pathway 2) provides Enrollees with a time schedule to achieve Water Quality Benchmarks for tailwater discharges. Monitoring of these discharges will occur when tailwater discharges hydrologically connected to perennial and intermittent streams occur and results will be reported annually to the North Coast Water Board.

E. Third-Party Programs

50. The State Water Board sets the fee schedule for agricultural and Irrigated Lands Regulatory Programs throughout the state, as specified in California Code of Regulations, title 23, section 2200.6. The fee schedule is based on whether an Enrollee is a member of a Coalition (e.g., a grower coalition, monitoring coalition, or other third-party effort) to collect and remit fees to the State Water Board. For the purposes of this Order, the term “Coalition” refers to the group collecting fees on behalf of Enrollees to qualify for the State Board’s Agricultural Activity Tier for Group Enrollment fee. Some entities in the North Coast Region may provide professional services to Enrollees for Order compliance but may not elect to collect State Water Board fees from Enrollees (e.g., sustainability certification programs). For purposes of this Order, the term ‘Voluntary Program’ shall refer to these entities.

51. The North Coast Water Board encourages Enrollees to participate in a Coalition to facilitate and document compliance with this Order. On behalf of its members, a Coalition may conduct outreach and education, perform monitoring and reporting, promote and track management practice implementation, and undertake water quality improvement projects. The Water Board generally prefers regional-scale Coalitions addressing multiple Order requirements, which reduce Enrollee costs, improve effectiveness, and streamline Water Board oversight. Watershed- or basin-scale Coalitions, and Coalitions of limited scope, may also be appropriate as determined by the Executive Officer.

52. Coalitions are discussed in Attachment C: Coalition Requirements. The North Coast Water Board will provide more detailed expectation documents as part of the Coalition Request for Proposals (RFP). The intention of the RFP is to announce the application process and solicit proposals for Executive Officer consideration.

53. This Order requires Enrollees to provide the Coalition with contact information of the person(s) authorized to provide access to the enrolled property for inspections. This requirement provides a procedure to enable Board staff to contact authorized persons so that it may more efficiently monitor compliance with the provisions of this Order.

F. Regulatory Framework

54. Water Code section 13260(a) requires any person discharging or proposing to discharge waste that could affect the quality of the waters of the state, other than to a community sewer system, to file a Report of Waste Discharge (ROWD) to obtain coverage under waste discharge requirements or a waiver.

55. Water Code section 13263(i) authorizes the North Coast Water Board to prescribe general WDRs for categories of discharges that share common characteristics. Irrigated Lands in the Scott River and Shasta River Watersheds involve similar land-disturbing activities, use of nutrients and pesticides, agricultural and irrigation practices, livestock grazing, and agricultural road networks are appropriately regulated under general WDRs. The Board may prescribe requirements although no report of waste discharge is filed. (Wat.Code § 13263 subd. (d).)

56. Water Code sections 13267 authorizes the North Coast Water Board to require technical or monitoring reports and section 13268 authorizes the imposition of administrative civil liability (penalties) for failure to furnish or falsification of such reports. Water Code section 13350 authorizes penalties for discharges in violation of WDRs. The requirements of this Order bear a reasonable relationship to the need for the reports and the benefits to be obtained. Any calculation of administrative civil penalties will be consistent with applicable laws and regulations, including the State Water Board Water Quality Enforcement Policy and the Porter-Cologne Act.

57. Pursuant to Water Code section 13263(g), no discharge of waste into waters of the state creates a vested right to continue the discharge. Regulatory coverage under this Order does not create a vested right.

58. The Board may specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted. (Wat.Code § 13243.)

59. Title 27 Exemption. Discharges from Irrigated Lands eligible for coverage under this Order are exempt from Title 27 of the California Code of Regulations pursuant to section 20090, provided that discharges of wastewater to land continue to comply with applicable water quality control plans and are not required to be managed as hazardous waste, and that soil amendments continue to be nonhazardous decomposable wastes managed under applicable best practicable treatment or controls.

60. Nonpoint Source Implementation Program. This Order constitutes a Nonpoint Source Implementation Program for the discharges it regulates and is consistent with all five key elements of the State Water Board's Policy for the Implementation and Enforcement of the Nonpoint Source Pollution Control Program (May 20, 2004). The ultimate purpose is stated in this Order; management practices, iterative implementation, and verification are addressed through Farm Evaluations, the Tailwater Adaptive Management Program, and the Monitoring and Reporting Program; time schedules are provided; feedback mechanisms include surface and groundwater monitoring; and consequences for failure to achieve program purposes are set forth in Section H. See Attachment B for detailed Key Element analysis.

61. Human Right to Water. On February 16, 2016, and April 23, 2019, the State Water Board and the North Coast Water Board adopted resolutions (Resolution No. 2016-0010 and R1-2019 0024, respectively) identifying the human right to water as a top priority and core value of the Water Boards in association with Water Code section 106.3. The resolutions stated the Water Boards will work “to preserve, enhance, and restore the quality of California’s water resources and drinking water for the protection of the environment, public health, and all beneficial uses, and to ensure proper water resource allocation and efficient use, for the benefit of present and future generations.” This Order promotes that policy by requiring the Enrollees to meet water quality objectives, as applicable, designed to protect human health and ensure that water is safe for domestic uses.

62. Sources of Drinking Water Policy. Consistent with State Water Board Resolution 88-63 (Sources of Drinking Water Policy), the surface waters and groundwaters regulated by this Order are considered suitable or potentially suitable for municipal and domestic supply (MUN) beneficial use, subject to the Policy's exceptions. See Attachment B for detailed discussion.

63. Antidegradation Policy. This Order is consistent with State Water Board Resolution 68-16 (Antidegradation Policy). The Order requires implementation of management practices, adaptive management, and monitoring designed to ensure that pollution or nuisance will not occur and that the highest water quality consistent with the maximum benefit to the people of the state is maintained. Any limited degradation that may occur following implementation of applicable management practices is to the maximum benefit of the people of the state. See Attachment B for detailed antidegradation analysis.

64. East San Joaquin Precedential Order. This Order is consistent with the precedential requirements of State Water Board Order WQ 2018-0002 (East San Joaquin Precedential Order). The Order includes conditions related to Enrollee outreach and education, Farm Evaluations, Sediment and Erosion Control Practices, Irrigation and Nitrogen Management Practices appropriate to the low-input operations regulated, record keeping, Drinking Water Supply Well monitoring, and Representative Groundwater Monitoring. See Attachment B for detailed analysis of compliance with precedential requirements.

65. Based on results of a 2021 North Coast Water Board project to characterize ambient groundwater conditions (salts and nutrients) in the Scott and Shasta Valley groundwater basin, the March 2026 Five-Year Update to Resolution R1-2021-0006 (Groundwater Basin Evaluation and Prioritization Results Supporting Salt and Nutrient Management Planning for Recycled Water Policy), and the low-nitrogen-input nature of the crops predominantly grown in the Scott and Shasta watersheds, the North Coast Water Board determines that the geographic area regulated by this Order does not meet the definition of a "high vulnerability area" under the East San Joaquin Precedential Order. Accordingly, this Order does not require (i) certification of Irrigation and Nutrient Management Plans, (ii) establishment of Groundwater Protection Formulas, Values, or Targets, or (iii) associated adaptive management actions triggered by groundwater vulnerability status. Enrollees shall report Nitrogen Applied in accordance with Attachment A: Monitoring and Reporting Program; Nitrogen Removed reporting is not required. The North Coast Water Board will re-evaluate this determination based on Representative Groundwater Monitoring and Drinking Water Supply Well monitoring data and any new information regarding nitrogen inputs from regulated operations. See Attachment B for the factual basis for this determination.

66. This Order also implements the East San Joaquin Precedential Order's other precedential requirements, including the requirement to implement Sediment and Erosion Control Practices on operations with the potential to cause erosion and discharge sediment, and the option for a Coalition to serve as a third-party intermediary consistent with the discretion the East San Joaquin Precedential Order affords Regional Water Boards to design appropriately scaled frameworks.

67. Basin Plan and Beneficial Uses. The Water Quality Control Plan for the North Coast Region (Basin Plan) designates existing and potential beneficial uses of waters in the Scott and Shasta River watersheds, including cold freshwater habitat (COLD); spawning, reproduction, and/or early development (SPWN); migration of aquatic organisms (MIGR); rare, threatened, or endangered species (RARE); municipal and domestic supply (MUN); agricultural supply; and others. The Basin Plan establishes narrative and numeric Water Quality Objectives, including the narrative temperature objective, protective of those uses. The Receiving Water Limitations in Section II.C implement these applicable water quality objectives and require that discharges regulated under this Order not cause or substantially contribute to a continuing or recurring exceedance of applicable water quality objectives or unreasonably affect beneficial uses.

68. Total Maximum Daily Loads. This Order implements the load allocations and implementation actions of Basin Plan Table 4-10 (Scott River Sediment and Temperature TMDLs, US EPA approved September 2006) and Basin Plan Table 4-14 (Shasta River Temperature and Dissolved Oxygen TMDLs, US EPA approved 2006). The TMDL load allocations and implementation requirements applicable to Irrigated Lands regulated by this Order are identified in Section II.D. This Order also serves as an alternative water quality improvement program pursuant to the State Water Board Listing Policy for the Scott River 303(d) biostimulatory conditions listing (2012 Integrated Report, Category 5R), for which no TMDL has been adopted. See Attachment B for additional TMDL findings, regulatory history, and technical basis.

69. Regional Temperature Policy. This Order implements the North Coast Water Board's Policy for the Implementation of the Water Quality Objectives for Temperature (adopted March 2014) with respect to controllable thermal inputs from Irrigated Lands, including tailwater. See (Attachment B) for detailed discussion.

70. Shasta River Watershed Tailwater Temperature Water Quality Benchmarks Translation of the TMDL Tailwater Load Allocation and Temperature Water Quality Objective into Numeric Temperature Benchmarks.

    Mainstem Shasta River. The Basin Plan narrative temperature objective requires that the natural receiving water temperature not be altered in a manner that adversely affects beneficial uses. The Shasta River Temperature TMDL implements this objective by assigning a tailwater load allocation of "no net increase in receiving water temperature". The TMDL modeled what the Shasta River mainstem temperature would be when that allocation is met. The Master 1 Table 6.6 Maximum Modeled Temperature Values scenario represents maximum temperature conditions with restored shade and properly managed tailwater, without the 45 cfs flow increase. The flow increase is a water rights matter outside this Order's regulatory scope. This Order does not administer water rights.

Because the TMDL load allocation prohibits any net increase, tailwater cannot be warmer than the receiving water temperature that should exist when tailwater is properly managed. Master 1 Table 6.6 Maximum Modeled Temperature at each location is that receiving water temperature. The reach-specific benchmarks in Table 1 are therefore set at the Master 1 Table 6.6 Maximum Modeled Temperature for each reach:

a. The objective requires no adverse temperature alteration;

b. The TMDL allocates to tailwater a requirement of no net increase;

c. The TMDL modeled what the receiving water temperature would be when that allocation is met (Master 1);

d. The benchmark at each reach equals the Master 1 temperature at that reach;

e. Tailwater meeting the benchmark satisfies the TMDL load allocation.

The Master 1-based benchmarks implement the Shasta River TMDL tailwater temperature load allocation, but do not, by themselves, represent attainment of the full Basin Plan temperature objective in the receiving water. The full Water Quality Compliance Scenario includes an additional cold-water flow component; because this Order regulates the land-management and discharge-related temperature controls within its scope, including riparian shade and tailwater, and does not administer water rights, the Master 1 scenario provides the appropriate basis for the tailwater temperature benchmarks established by this Order.

Table I.1 Tailwater Temperature Water Quality Benchmarks Shasta River Mainstem – Reach Specific

Reach	RM	Description	Early (Apr 1–Jun 15)	Mid (Jun 16–Aug 31)	Late (Sep 1–Oct 1)
A	42–39	Below Dwinnell	66°F (18.9°C)	70°F (21.1°C)	60°F (15.6°C)
B	38–34	Above Parks Ck	65°F (18.3°C)	69°F (20.6°C)	59°F (15.0°C)
C	34-32	Below Parks Ck	61°F (16.1°C)	65°F (18.3°C)	55°F (12.8°C)
D	32-26	Big Springs Area	58°F (14.4°C)	62°F (16.7°C)	52°F (11.1°C)
E	26-24	Above Hwy A-12	61°F (16.1°C)	65°F (18.3°C)	55°F (12.8°C)
F	24-11	A-12 to Hwy 3	63°F (17.2°C)	67°F (19.4°C)	57°F (13.9°C)
G	10-8	Yreka-Ager Road	65°F (18.3°C)	69°F (20.6°C)	59°F (15.0°C)

Notes to Table I.1: Tailwaters hydrologically connected to Big Springs Creek and spring-fed tributaries within Reaches C and D (RM 34 to 26) are respectively subject to the Reach C and D benchmarks.

Perennial Tributaries. The Master 1 model produced reach-specific temperatures for the Shasta River mainstem but did not model compliance temperatures for individual perennial tributaries other than the modifications to Big Springs Creek (4°C reduction) and Parks Creek (2°C reduction) incorporated as model inputs. In the absence of tributary-specific modeled temperatures, tailwater discharged to

perennial tributaries of the Shasta River is subject to the watershed-wide seasonal benchmarks in Table 2 which translate the Basin Plan narrative objective through the thermal requirements of the beneficial uses present:

a. The objective requires no adverse temperature alteration to beneficial uses;

b. Perennial tributaries of the Shasta River support the same temperature-sensitive beneficial uses as the mainstem — COLD, SPWN, MIGR, and RARE — and provide critical functions including cold water refugia at tributary confluences, spawning and rearing habitat, and cold water contributions that moderate mainstem temperatures;

c. The thermal requirements of the salmonid life stages dependent on these tributaries are the same as those in the mainstem and vary by season;

d. The watershed-wide seasonal benchmarks (Early Season 61°F, Mid-Season 64°F, Late Season 56°F) are set at the temperatures above which the dominant salmonid life stage present during each period experiences adverse effects;

e. Tailwater meeting the seasonal benchmark does not alter the tributary temperature in a manner that adversely affects the beneficial uses present, and therefore satisfies the Basin Plan temperature objective as applied to tailwater discharge at the Point of Compliance.

Exception: Big Springs Creek and spring-fed tributaries within Reaches C and D (RM ~34 to ~26) are respectively subject to the Reach C and D benchmarks in Table 1 because the spring-fed thermal regime in these watercourses produces receiving water temperatures substantially below the watershed-wide benchmarks, and tailwater at the watershed-wide benchmark temperature would cause a net increase in receiving water temperature in violation of the TMDL allocation.

Table I.2 Tailwater Temperature Water Quality Benchmarks for Perennial and Intermittent tributaries to the mainstem Shasta River

Season	Period	Benchmark
Early Season	Apr 1 – Jun 15	61°F (16.1°C)
Mid-Season	Jun 16 – Aug 31	64°F (17.8°C)
Late Season	Sep 1 – Oct 1	56°F (13.3°C)

Notes to Table 2: Seasonal benchmarks (Early, Mid, Late) apply to tailwaters hydrologically connected to perennial streams. The Early Season benchmark applies to tailwaters hydrologically connected to intermittent streams during the Early Season.

Intermittent Tributaries. Many tributaries of the Shasta River are intermittent — they flow seasonally and cease flowing or go dry during the summer months. Intermittent tributaries may support COLD and SPWN beneficial uses during the portion of the year when they are flowing and temperatures are within the range suitable for salmonid use. As flows diminish and temperatures rise, fish emigrate

from these tributaries to the mainstem or to perennial refugia. Intermittent tributaries in the Shasta River watershed generally cease flowing or exceed temperatures suitable for cold water beneficial uses by mid-June.

Tailwater discharged to intermittent tributaries is subject to the watershed-wide seasonal benchmarks in Table 2 during the period when the tributary is flowing and supporting cold water beneficial uses. The benchmarks apply through April 1-June 15 of each year, after which the seasonal temperature benchmarks no longer apply to that tributary for the remainder of the Irrigation Season. The applicability date is fixed in this Order based on the observed hydrology of intermittent tributaries in the watershed rather than requiring annual on-the-ground determination of flow status. This approach recognizes that:

a. While the tributary is flowing and supporting cold water uses, tailwater must not alter the temperature in a manner that adversely affects those uses — the same logic underlying the perennial stream benchmarks;

b. Once the tributary has naturally ceased flowing or warmed beyond the range suitable for cold water uses, the beneficial use is no longer present and the temperature benchmark designed to protect that use no longer has a regulatory basis;

c. Fish emigrate from intermittent tributaries as conditions deteriorate, removing the sensitive receptor from the watercourse before the benchmark applicability period ends;

d. A fixed date provides regulatory certainty for Enrollees rather than requiring them to determine on an annual basis when the tributary has ceased supporting cold water uses;

The benchmarks — whether reach-specific (mainstem), watershed-wide (perennial tributaries), or seasonally limited (intermittent tributaries) — are the numeric expression of the TMDL load allocation and the Basin Plan temperature objective as applied to tailwater at the Point of Compliance. They are not interim measures. Continued exceedance after the compliance schedule may constitute a violation of this Order. See Attachment B: Supplemental Findings for the complete technical, scientific, and legal justification.

71. Scott River Watershed Tailwater Temperature Water Quality Benchmarks. Translation of the Basin Plan Narrative Temperature Objective into Numeric Temperature Benchmarks.

Scott River Mainstem and Perennial Tributaries. In the absence of a TMDL-derived tailwater allocation or modeled temperatures, the benchmarks are translated directly from the narrative objective through the beneficial uses it protects:

a. The objective requires no adverse temperature alteration to beneficial uses;

b. The beneficial uses present are defined by the thermal requirements of anadromous salmonids;

c. Those thermal requirements vary by life stage and therefore by season;

d. The benchmarks are set at the temperatures above which the dominant salmonid life stage present during each period of the Irrigation Season experiences adverse effects;

e. Tailwater meeting the seasonal benchmark does not alter the tributary temperature in a manner that adversely affects the beneficial uses present, and therefore satisfies the Basin Plan temperature objective as translated and applied to tailwater discharge at the Point of Compliance.

The Scott River benchmarks apply watershed-wide to tailwater discharges to perennial streams — both the mainstem and perennial tributaries — because no model basis exists for reach-specific or tributary-specific differentiation. Perennial tributaries of the Scott River, including the South Fork, East Fork, French Creek, Sugar Creek, and others, support the same temperature-sensitive beneficial uses as the mainstem and provide critical cold water refugia, spawning habitat, and juvenile rearing habitat. Monitoring data from 2017–2018 confirms that west-side perennial tributaries (South Fork, French Creek, Mill Creek) maintain temperatures at or below the proposed benchmarks where natural thermal controls are intact, validating the achievability of the benchmarks in portions of the watershed with adequate shade and flow.

Intermittent Tributaries. Many tributaries of the Scott River are intermittent — they flow seasonally and cease flowing or go dry during the summer months, particularly in dry water years. Intermittent tributaries may support COLD and SPWN beneficial uses during the portion of the year when they are flowing and temperatures are within the range suitable for salmonid use. As flows diminish and temperatures rise, fish emigrate from these tributaries to the mainstem or to perennial refugia. Based on observations by California Department of Fish and Wildlife staff, intermittent tributaries in the Scott River watershed generally cease flowing by mid-June.

Tailwater discharged to intermittent tributaries is subject to the watershed-wide seasonal benchmarks in Table 3 during the period when the tributary is flowing and supporting cold water beneficial uses. The benchmarks apply through April 1-June 15 each year, after which the seasonal temperature benchmarks no longer apply to that tributary for the remainder of the Irrigation Season. The applicability date is fixed in this Order based on the observed hydrology of intermittent tributaries in the watershed rather than requiring annual on-the-ground determination of flow status. This approach recognizes that:

a. While the tributary is flowing and supporting cold water uses, tailwater must not alter the temperature in a manner that adversely affects those uses;

b. Once the tributary has naturally ceased flowing or warmed beyond the range suitable for cold water uses, the beneficial use is no longer present and the temperature benchmark designed to protect that use no longer has a regulatory basis;

c. Fish emigrate from intermittent tributaries as conditions deteriorate, removing the sensitive receptor before the benchmark applicability period ends;

d. A fixed date provides regulatory certainty for Enrollees rather than requiring annual determination of when the tributary has ceased supporting cold water uses;

The benchmarks — whether applied to the mainstem, perennial tributaries, or intermittent tributaries — are the numeric expression of the Basin Plan temperature objective as applied to tailwater at the Point of Compliance. They are not interim measures. Continued exceedance after the compliance schedule may constitute a violation of this Order. See Attachment B for the complete technical, scientific, and legal justification.

Table I.3 Tailwater Temperature Water Quality Benchmarks for Perennial and Intermittent Streams in the Scott River Watershed

Season	Period	Benchmark
Early Season	Apr 1 – Jun 15	61°F (16.1°C)
Mid-Season	Jun 16 – Aug 31	64°F (17.8°C)
Late Season	Sep 1 – Oct 1	56°F (13.3°C)

Notes to Table 3: Seasonal benchmarks (Early, Mid, Late) apply to tailwaters hydrologically connected to perennial streams. The Early Season benchmark applies to tailwaters hydrologically connected to intermittent streams during the Early Season.

72. Shasta River Watershed Tailwater Biostimulatory Water Quality Benchmark. Translation of the TMDL Tailwater Load Allocation and Biostimulatory Water Quality Objective into a Numeric Water Quality Benchmark. The Shasta River Temperature and Dissolved Oxygen TMDL establishes a numeric load allocation of 0.85 mg/L Nitrogenous Biochemical Oxygen Demand (NBOD) for tailwater return flows. NBOD is the oxygen consumed during nitrification — the bacterial oxidation of reduced nitrogen compounds (organic nitrogen and ammonium) to nitrite and nitrate. NBOD from tailwater is a significant contributor to dissolved oxygen depression in the Shasta River during the critical summer low-flow period, when elevated water temperatures reduce dissolved oxygen saturation, reduced flows concentrate nutrient loads, and accelerated nitrification rates increase oxygen consumption.

    This Order translates the Shasta River TMDL NBOD allocation into a Total Kjeldahl Nitrogen (TKN) Water Quality Benchmark of 0.20 mg/L for tailwater discharges hydrologically connected to perennial, intermittent, and ephemeral streams. TKN is

the appropriate regulatory metric for implementing the NBOD allocation for the following reasons:

a. TKN measures the nitrogen pool that exerts NBOD. TKN is the sum of organic nitrogen and ammonium nitrogen — the two reduced nitrogen forms that are converted to nitrate through nitrification, consuming oxygen in the process. TKN captures 100 percent of the nitrogen that will contribute to NBOD in the receiving water. Oxidized forms of nitrogen (nitrate and nitrite), which do not exert NBOD, are excluded from the TKN measurement;

b. The conversion is stoichiometric. The oxygen demand of nitrification is determined by the balanced chemical equation for the oxidation of ammonium to nitrate ($NH_4^+ + 2O_2 \rightarrow NO_3^- + 2H^+ + H_2O$), which yields a stoichiometric oxygen demand of 4.57 mg O_2 per mg of nitrogen oxidized (Sawyer et al. 2003; Tchobanoglous et al. 2003)2. This is a fixed chemical relationship, not an empirical estimate. Applying this factor to the TMDL's NBOD allocation:

   TKN = NBOD / 4.57 = 0.85 / 4.57 = 0.186 mg/L

c. The benchmark is set at 0.20 mg/L, rounded up from 0.186 mg/L. This rounding provides a small practical margin that accounts for: (i) analytical variability inherent in the TKN laboratory method (EPA Method 351.2); (ii) the fact that not all TKN is fully nitrified within the travel time of the receiving water — some organic nitrogen may not be mineralized to ammonium before the water passes downstream of the impact zone, meaning the actual NBOD exerted is typically less than the theoretical maximum; and (iii) minor variability in the ratio of organic nitrogen to ammonium nitrogen across different agricultural source types;

d. NBOD cannot be directly measured as a practical regulatory metric. Direct measurement of NBOD requires a modified biochemical oxygen demand test with extended incubation periods (20–30 days) and nitrification inhibitor controls. This test is time-consuming, expensive, subject to significant analytical variability depending on sample microbial community and incubation conditions, and impractical for routine agricultural tailwater monitoring. TKN is analyzed by standard EPA Method 351.2, which is widely available at commercial laboratories, produces results within 1–3 days, and has well-established precision and accuracy specifications suitable for regulatory compliance monitoring;

[2] Tchobanoglous, G., F.L. Burton, and H.D. Stensel. 2003**.** *Wastewater Engineering: Treatment and Reuse.* 4th Edition (Metcalf & Eddy). McGraw-Hill, New York
Sawyer, C.N., P.L. McCarty, and G.F. Parkin. 2003**.** *Chemistry for Environmental Engineering and Science.* 5th Edition. McGraw-Hill, New York

e. TKN is conservative. The 4.57 stoichiometric conversion produces the theoretical maximum NBOD — the oxygen demand that would result if all TKN were fully mineralized to ammonium and completely nitrified to nitrate. In practice, the realized NBOD is typically less than this theoretical maximum. A tailwater discharge meeting the 0.20 mg/L TKN benchmark will therefore exert an actual NBOD at or below the 0.85 mg/L TMDL allocation, with the margin of conservatism increasing as the fraction of organic nitrogen that is not mineralized within the receiving water travel time increases;

f. Consistency with the dissolved oxygen impairment framework. The TKN benchmark operates in conjunction with the temperature benchmarks established in this Order to address the synergistic temperature-dissolved oxygen impairment identified in the Shasta River TMDL. Elevated tailwater temperatures reduce dissolved oxygen saturation while the nitrogen load in tailwater increases NBOD — both mechanisms depress dissolved oxygen simultaneously. Controlling both temperature and TKN in tailwater addresses the two primary controllable factors driving dissolved oxygen impairment from agricultural return flows.

The benchmark is the numeric expression of the TMDL load allocation and Basin Plan biostimulatory substances objective. It is not an interim measure. There is no additional biostimulatory standard after the compliance schedule. Continued exceedance after the compliance schedule may constitute a violation of this Order. See Attachment B for additional justification.

73. Scott River Watershed Tailwater Biostimulatory Water Quality Benchmark. Translation of the Biostimulatory Substances Water Quality Objective into a Numeric Water Quality Benchmark.

The Basin Plan narrative water quality objective for biostimulatory substances requires that waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses. The Scott River is listed as impaired for biostimulatory conditions under Section 303(d) of the Clean Water Act, from Young's Dam to Boulder Creek in the Scott River Canyon. No TMDL has been adopted for this impairment. This Order serves as an alternative water quality improvement program (Category 5R) for the Scott River biostimulatory listing.

This Order translates the Basin Plan biostimulatory substances narrative Water Quality Objective into a Total Phosphorus (TP) Water Quality Benchmark, as set forth in Table 4.

Table I.4 Tailwater Biostimulatory Substances Water Quality Benchmarks for Perennial, Intermittent, and Ephemeral Streams in the Scott River Watershed

Seasonal period	Ambient P75	Benchmark (mg/L)	Derivation
Early (Apr 1 – Jun 15)	0.015	0.014	Ambient P75 lies within 0.001 mg/L of the Klamath River TMDL minor-tributary allocation of 0.014 mg/L; set at the reference value.
Mid (Jun 16 – Aug 31)	0.010	0.010	Ambient P75 equals the U.S. EPA Aggregate Nutrient Ecoregion II reference condition of 0.010 mg/L. Directly corroborated; no adjustment required.
Late (Sep 1 – Oct 1)	0.0077	0.008	Ambient P75 rounded to the nearest 0.001 mg/L. The observed period maximum of 0.010 mg/L lies more than one increment above; no adjustment applied.

TP is the appropriate regulatory metric for implementing the biostimulatory substances narrative Water Quality Objective for the following reasons. Phosphorus from irrigated agricultural lands — delivered to the Scott River through tailwater return flows, animal waste, and fertilizer runoff — is a primary driver of the biostimulatory impairment. Excess phosphorus promotes aquatic plant and algal growth that produces severe dissolved oxygen fluctuations and seasonal oxygen demand from decomposition, adversely affecting the COLD and SPWN beneficial uses. The Water Quality Benchmark translates the narrative objective into a measurable tailwater benchmark through the following logic:

a. The objective prohibits biostimulatory substances at concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses;

b. Phosphorus is the biostimulatory substance of regulatory concern. Paired total nitrogen and total phosphorus measurements establish that algal production in the Scott River is limited by phosphorus. Molar total nitrogen to total phosphorus ratios exceed the Redfield ratio of 16:1 in 93 percent of paired irrigation-season samples, with seasonal median ratios of 45:1 in the Early Season, 44:1 in the Mid Season, and 33:1 in the Late Season. The samples falling below the Redfield ratio are the highest total phosphorus

results in the record and reflect discrete phosphorus pulses rather than a change in nitrogen supply. Because nitrogen is present in the receiving water in excess of algal demand relative to available phosphorus, control of phosphorus — and not nitrogen — constrains the aquatic growths causing the impairment.

c. Total phosphorus is the appropriate metric because it measures both the dissolved and the particulate phosphorus delivered by tailwater, including phosphorus sorbed to suspended sediment, which becomes biologically available following deposition and subsequent desorption and mineralization within the channel. Tailwater from flood-irrigated fields carries a substantial particulate fraction, and measurement of the dissolved fraction alone would understate the phosphorus load delivered to the receiving water. Total phosphorus is also the metric used in the reference conditions and allocations against which the benchmark is corroborated, permitting direct comparison;

d. Karuk Tribal staff characterized ambient total phosphorus in the Scott River by seasonal period across eight water years, at a monitoring location downstream of all irrigated agriculture in the watershed, and corroborated the results against the U.S. EPA section 304(a) ecoregional reference condition for rivers and streams in Aggregate Nutrient Ecoregion II and against tributary load allocations assigned under the Klamath River TMDL. The benchmark for each seasonal period is the 75th percentile of ambient total phosphorus within that period, set at an independent reference value where the percentile falls within one reporting-limit increment of that value; and

e. The benchmark is set at the concentration that does not exceed the ambient condition of the receiving water in each seasonal period. The receiving water is impaired for biostimulatory conditions and has no demonstrated assimilative capacity for additional phosphorus. Tailwater discharged above the ambient condition of the receiving water adds phosphorus to a phosphorus-limited, impaired system and thereby contributes to the aquatic growths causing the impairment. A discharge at or below the Water Quality Benchmark therefore does not promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses, and satisfies the narrative objective. Where tailwater is discharged to an ephemeral stream, or to an intermittent stream that is not flowing at the time of discharge, phosphorus delivered to the channel is not thereby removed from the system. Dissolved phosphorus is conveyed downstream when the channel flows, and particulate phosphorus deposited in the channel bed is stored and mobilized to downstream perennial waters during subsequent flow events. The Water Quality Benchmark applies in those channels on that basis.

The TP benchmark applies to tailwater discharges to perennial, intermittent, and ephemeral streams in the Scott River watershed throughout the Irrigation Season

(April 1 – October 1), at the Point of Compliance, without dilution credit and without a mixing zone. Exceedance of the Water Quality Benchmark is determined in accordance with Section II.D.

The translation of the narrative Water Quality Objective into the benchmark values in Table 4 is described in Attachment B, Finding 58 and in a technical memorandum prepared by North Coast Water Board staff, which is incorporated by reference into this Order. The benchmark is the numeric expression of the Basin Plan biostimulatory substances objective. It is not an interim measure. There is no additional biostimulatory standard after the compliance schedule.

74. Lead Agency. For purposes of adoption of this Order, the North Coast Water Board is the lead agency pursuant to the CEQA (Pub. Resources Code section 21000 et seq.).

75. Environmental Review Process. On January 31, 2025, the North Coast Water Board published an Initial Study for a 30-day public comment period and submitted a Notice of Preparation of a Draft EIR to the State Clearinghouse (SCH Number 2025020048). On February 26, 2025, staff held in-person and virtual CEQA scoping meetings. On September 17, 2026 the Board released a Draft EIR for a 60-day comment period. Responses to comments on the Draft EIR are provided in Attachment B of the Final EIR.

76. Certified EIR and Mitigation. Prior to adoption of this Order, and after considering public comments, the North Coast Water Board certified a Final EIR identifying the potential environmental impacts of this Order and mitigation measures. This Order relies on the environmental impact analysis in the Final EIR to satisfy CEQA requirements. Where potentially significant environmental impacts may occur, this Order requires Enrollees to avoid impacts where feasible or implement mitigation measures identified in Attachment F: CEQA Mitigation Measures. The Order and MRP require tracking and reporting of mitigation implementation.

77. Statement of Overriding Considerations. The Final EIR identified potentially significant and unavoidable impacts to Agriculture Resources associated with the Riparian Zone tillage prohibition. Through Resolution No. R1-2026-00XX certifying the Final EIR, the North Coast Water Board adopted CEQA Findings of Fact and a Statement of Overriding Considerations addressing those impacts consistent with section 15091 of the CEQA Guidelines.

G. Cost Considerations

78. Water Code sections 13241 and 13263 require the North Coast Water Board to consider economic considerations, among other factors, in adopting waste discharge requirements. The North Coast Water Board has considered the costs of compliance with this Order, including administrative fees, planning and reporting costs, monitoring costs, and management practice implementation costs. See

Attachment B: Supplemental Findings for detailed cost analysis by activity and management practice category.

79. The North Coast Water Board finds that the anticipated benefits of this Order — including protection of listed anadromous salmonid populations, restoration of temperature and dissolved oxygen regimes necessary to support cold freshwater habitat, and reduction of sediment and nutrient loading to designated beneficial uses in the Scott and Shasta River watersheds — bear a reasonable relationship to the anticipated costs of compliance and burden of compliance with the Order.

H. Enforcement for Noncompliance

80. The State Water Board Water Quality Enforcement Policy (Enforcement Policy) describes progressive enforcement action for violations of WDRs when appropriate. However, the Enforcement Policy recommends formal enforcement as a first response to more significant violations. Progressive enforcement is an escalating series of actions that allows for the efficient and effective use of enforcement resources to: (1) assist cooperative Enrollees in achieving compliance; (2) compel compliance for repeat violations and recalcitrant violators; and (3) provide a disincentive for noncompliance. Progressive enforcement actions may begin with informal enforcement actions such as a verbal, written, or electronic communication between the North Coast Water Board and an Enrollee. The purpose of an informal enforcement action is to quickly bring the violation to the Enrollee's attention and to give the Enrollee an opportunity to return to compliance as soon as possible. The highest level of informal enforcement is a Notice of Violation.

81. It is the policy of the State Water Board that every violation results in the appropriate enforcement response consistent with the priority of the violation established in accordance with the Enforcement Policy. This Policy acknowledges that enforcement prioritization enhances the Water Boards' ability to leverage their scarce enforcement resources and to achieve the general deterrence needed to encourage the regulated community to anticipate, identify, and correct violations. To that end, the Water Boards shall rank violations, then prioritize cases for formal discretionary enforcement action to ensure the most efficient and effective use of available resources. The North Coast Water Board Enforcement Coordinator assists with prioritizing cases and implementing this Policy.

82. Any instance of noncompliance with this Order constitutes a violation of the Water Code. Such noncompliance is grounds for enforcement action, and/or termination of coverage for waste discharges under this Order, subjecting the Enrollee to enforcement under the Water Code for further discharges of waste to surface or groundwater.

I. General Findings

83. Pursuant to Water Code section 13263 subdivision (g), the discharge of waste into waters of the state is a privilege, not a right, and regulatory coverage under this Order does not create a vested right to continue the discharge of waste. Failure to prevent conditions that create or threaten to create pollution or nuisance will be sufficient reason to modify, revoke, or enforce this Order, as well as prohibit further discharge.

84. The fact that it would have been necessary to halt or reduce the discharge in order to maintain compliance with this Order shall not be a defense for violations of the Order by the Enrollee.

85. Water Code section 13260 subdivision (d) requires persons subject to waste discharge requirements to pay any annual fee established by the State Water Board.

86. The electronic Notice of Intent (eNOI) serves as a report of waste discharge (ROWD) for the purposes of this Order.

87. The Executive Officer may make non-substantive changes to this Order to correct typographical errors or to maintain consistency within this Order or between the Order and its Attachments, e.g., to conform changes made during this Order development process that were inadvertently not carried through this entire Order. If non-substantive changes are made, the North Coast Water Board will post the corrected Order.

88. The Findings of this Order and the administrative record of the North Coast Water Board relevant to the General Waste Discharge Requirements for Irrigated Lands in the Scott River and Shasta River Watersheds, were considered in establishing these waste discharge requirements.

89. The North Coast Water Board, in a public hearing held on **MONTH DAY, YEAR**, has heard and considered all comments pertaining to the discharge and proposed Order. After considering all comments pertaining to this General Order during the **DATE YEAR** public hearing, this Order was found consistent with the Findings of this Order.

II. It Is Hereby Ordered

IT IS HERBY ORDERED that pursuant to Water Code sections 13260, 13263, and 13267, the Enrollee, Landowner, and Operator, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted hereunder, shall comply with the following:

All prohibitions, specifications, provisions, and other requirements are described below unless otherwise noted.

A. Coverage Requirements

1. Any owner or operator of Irrigated Lands described in Finding 26 that meets the minimum irrigated acreage threshold in Section II.A.2 below, that is located in whole or in part within the Scott River or Shasta River watersheds shall enroll under this Order. All owners or operators shall enroll parcels in this Order no later than **#DATE** (18 months from Order adoption.)

2. Minimum Irrigated Acreage Threshold

    a) All Irrigated Lands of twenty-five (25) or more acres under common ownership or operational control within the Scott River or Shasta River watersheds shall enroll in this Order.

    b) Irrigated Lands of fewer than twenty-five (25) acres under common ownership or operational control within the Scott River or Shasta River watersheds are not required to enroll unless the Executive Officer determines, based on site-specific evidence, that the operation is causing or contributing to an exceedance of Water Quality Objectives and notifies the operator in writing that enrollment is required pursuant to Water Code section 13260; or

3. Operations Excluded from Enrollment

    a) Standalone Dryland Grazing Operations. Such operations are not required to enroll, but remain subject to the Executive Officer's authority under this Order and the Water Code;

    b) Operations covered under the General Waste Discharge Requirements for Dairies (or successor order) adopted by the North Coast Regional Water Quality Control Board. Where any portion of an agricultural property is regulated under the Dairy GWDR, the entire operation — including all associated irrigated and grazing lands — shall be regulated exclusively under the Dairy GWDR;

    c) Operations individually regulated under site-specific Waste Discharge Requirements issued by the North Coast Water Board;

d) Irrigated Lands determined by the Executive Officer to comply with requirements of the Stewardship Category described in Section XII of Attachment B.

4. An Enrollee may obtain coverage under this Order either individually or by enrolling in an approved Coalition. By joining a Coalition, the Enrollee agrees to be represented by the Coalition. Any Order requirements not fulfilled by the Coalition are the responsibility of the Enrollee. Consistent with the Water Board's Policy for Implementation and Enforcement of the NPS Policy, the ineffectiveness of a Coalition through which an Enrollee participates in nonpoint source control efforts cannot be used as a justification for lack of individual Enrollee compliance. Enrollees are ultimately responsible for Order compliance.

5. Stewardship Category (refer to Attachment D: Stewardship Category Requirement)

   Finding 18 of the 2018 Conditional Waivers for both the Scott River (Order No. R1-2018-0018) and the Shasta River (Order No. R1-2018-0019) established the North Coast Water Board intention that the future order replacing the waivers would be more consistent with agricultural permitting approaches implemented in other parts of the state, with multiple levels of permitting rigor commensurate with the level of discharge or threat of discharge. Finding 18 anticipated that properties already assessed by North Coast Water Board staff that have successfully implemented practices to minimize, control, and prevent discharges would be subject to a lower level of regulatory oversight, while properties that have not developed plans or taken actions to comply would face increased monitoring and reporting requirements.

   This Order fulfills that intent. Rather than a fixed tiered structure, this Order scales its requirements based on the types of discharges present and the beneficial uses at risk — Enrollees with tailwater discharges to perennial streams supporting cold water beneficial uses have monitoring, benchmark compliance, and adaptive management requirements, while Enrollees without tailwater discharge have correspondingly fewer requirements. The Stewardship Category represents the lowest level of permitting rigor within this scaled framework — recognizing that operations which have already eliminated tailwater discharges to perennial and intermittent streams, restored riparian zones, improved soil health, and reduced sediment delivery pose the least threat to water quality and do not require the same level of ongoing oversight.

   Owners and operators of Irrigated Lands whose properties have been assessed by North Coast Water Board staff and who can document that their operation has achieved a level of environmental performance that meets or exceeds the water quality protection outcomes this Order is designed to produce may be eligible for the Stewardship Category. Eligibility requires documentation of sustained performance across all applicable criteria, confirmation through a Threat-to-Water-Quality Assessment conducted by North Coast Water Board staff consistent with

the on-site assessments described in Finding 18, and ongoing compliance with abbreviated reporting and periodic reassessment requirements. Irrigated Lands that do not maintain the conditions supporting their Stewardship Category designation are subject to revocation and enrollment under the standard requirements of this Order. See Attachment B Section XII for the complete eligibility criteria, application process, threat assessment methodology, conditions, revocation provisions, and group stewardship project alternative.

The Stewardship Category applies at the operation level. Irrigated Lands qualify for the Stewardship Category only if the owner or operator demonstrates to the satisfaction of the North Coast Water Board or its delegated officer that Section IV, Stewardship Category criteria in Attachment D: Stewardship Category Requirements are satisfied across all Irrigated Lands subject to their ownership or operational control. An owner or operator may not obtain Stewardship Category status for select Irrigated Lands while leaving other Irrigated Lands of the same operation unenrolled.

6. Obtaining Coverage and Electronic Notice of Intent

   a) Owners or Operators meeting the Coverage Requirements above are required to submit an electronic Notice of Intent (eNOI) (see Attachment G: Templates) pursuant to Water Code section 13260 to enroll in this Order. Enrollment in this Order requires the submittal of the electronic Notice of Intent (eNOI) (see Attachment G) pursuant to Water Code section 13260. Submittal of all other technical reports pursuant to this Order is required pursuant to Water Code section 13267. Failure to submit technical reports or the attachments in accordance with the time frames established by this Order, applicable Monitoring and Reporting Program (MRP) documents, or failure to submit a complete technical report (i.e., of sufficient technical quality to be acceptable to the Executive Officer); may subject the Enrollee to enforcement action pursuant to Water Code sections 13261, 13268, or 13350. Enrollees and Coalitions must submit technical reports in the format specified by the Executive Officer.

   b) To obtain coverage under these General WDRs, Enrollees must submit an eNOI form with all required information including but not limited to: Assessor Parcel Numbers (APNs) covered by enrollment; Landowner(s); Operator(s); Contact information; and Coalition membership, if applicable.

   c) eNOIs shall be updated within 30 days of a change in property ownership, Enrollee contact information, email contact information, or change in the parcels farmed by an Enrollee.

   d) Property owners or operators shall complete an eNOI and enroll in the Order either individually or through an approved Coalition before **DATE** (18 months from Order adoption). If the North Coast Water Board determines that coverage under this Order is not appropriate for any property owner or operator, the

Executive Officer will inform the party in writing and may request that the party submit a Report of Waste Discharge (ROWD) to obtain an individual permit for the discharge of waste.

e) Coverage under this Order is not transferable to any person except after the completion of a new eNOI and submittal to the North Coast Water Board, and written approval by the North Coast Water Board's Executive Officer.

B. Prohibitions

1. Discharges of tailwaters to perennial and intermittent streams is prohibited unless in compliance with an authorized Compliance Pathway and time schedule in Section II.E this Order.

2. Discharges of waste from Irrigated Lands and Associated Grazing Lands regulated by this Order shall not cause or substantially contribute to a continuing or recurring exceedance of applicable water quality objectives, or to a continuing or recurring condition of pollution or nuisance.

3. Tillage is prohibited within Riparian Vegetation Areas. This prohibition is applied as an average width of 35 feet across the total linear stream frontage within or abutting parcels subject to this Order. Individual portions of the Riparian Vegetation Area may be less than or greater than 35 feet in width, provided that the average width across the total linear stream frontage is at least 35 feet.

4. Compliance with these Prohibitions shall be achieved through timely implementation of the requirements of this Order, including implementing Management Practices, following the applicable Compliance Pathway, and meeting the Water Quality Benchmarks where established .

5. During the authorized time schedule, an Enrollee that has elected a Compliance Pathway and is implementing it in accordance with that time schedule is in compliance with Prohibitions and the corresponding TMDL tailwater load allocation in Section II.C.7. Following expiration of the authorized time schedule, an Enrollee that has eliminated tailwater discharge under Pathway 1, or that is meeting the applicable Water Quality Benchmarks at the Point of Compliance under Pathway 2 in compliance with the Prohibitions and, where applicable, the corresponding TMDL tailwater load allocations for the tailwater discharge. The North Coast Water Board may require additional monitoring or information where available data are insufficient, unreliable, or not representative to demonstrate attainment of the applicable Water Quality Benchmark.

6. For pollutants, parameters, or conditions for which this Order does not establish an applicable Water Quality Benchmark, compliance with the Prohibitions and, where applicable, the corresponding TMDL tailwater load allocation shall be evaluated based on monitoring data, source determination, or other evidence that

demonstrates the Enrollee's discharge is a substantial contributor to a continuing or recurring exceedance.

C. TMDL Requirements

1. Wastes discharged from Irrigated Lands and Associated Grazing Lands covered by this Order must meet the following load allocations in the Scott River Sediment and Temperature TMDLs and the Shasta River Temperature and Dissolved Oxygen TMDLs:

   a) Shasta River tailwater NBOD: 0.85 mg/L NBOD for tailwater return flows.

   b) Shasta River tailwater temperature: no net increase in receiving-water temperature from irrigation tailwater return flows.

   c) Shasta River riparian temperature allocations: applicable effective-shade and solar-radiation load allocations, as implemented through the Riparian Zone and related requirements of this Order.

   d) Scott River temperature: applicable adjusted-potential-effective-shade load allocations, as implemented through the Riparian Zone and related requirements of this Order.

   e) Scott River sediment: applicable sediment load allocations and implementation requirements, as implemented through the erosion-control, road, stream-crossing, riparian, grazing, and related requirements of this Order.

D. Water Quality Benchmarks

1. Where a technically supported numeric interpretation can be established, Water Quality Benchmarks provide numeric translations of applicable narrative Water Quality Objectives and TMDL load allocations as applied to tailwater at the Point of Compliance. Attainment of a Water Quality Benchmark demonstrates compliance with Prohibition B.1 and B.2 and where applicable, the corresponding TMDL tailwater load allocation identified in this Order.; it does not by itself establish attainment of the applicable Water Quality Objective in the receiving water, which may depend on factors outside the scope of this Order.

2. Tailwater discharges hydrologically connected to perennial, intermittent, and ephemeral streams in the Shasta River watershed must attain the Total Kjeldahl Nitrogen (TKN) Water Quality Benchmark of **0.20 mg/L** and the applicable Water Quality Benchmarks for temperature in Tables 1-2 (repeated below) at the Point of Compliance in accordance with the authorized time schedule of this Order.

3. Tailwater discharges hydrologically connected to perennial and intermittent streams in the Scott River watershed must attain the applicable Water Quality Benchmarks

for temperature in Table 3 at the Point of Compliance in accordance with the authorized time schedule of this Order.

4. Tailwater discharges hydrologically connected to perennial, intermittent, and ephemeral streams in the Scott River watershed must attain the applicable Water Quality Benchmarks for Total Phosphorus (TP) in Table 4 in accordance with the authorized time schedule of this Order.

Table II.1: Tailwater Temperature Water Quality Benchmarks Shasta River Mainstem – Reach Specific

Reach	RM	Description	Early (Apr 1–Jun 15)	Mid (Jun 16–Aug 31)	Late (Sep 1–Oct 1)
A	42–39	Below Dwinnell	66°F (18.9°C)	70°F (21.1°C)	60°F (15.6°C)
B	38–34	Above Parks Ck	65°F (18.3°C)	69°F (20.6°C)	59°F (15.0°C)
C	34-32	Below Parks Ck	61°F (16.1°C)	65°F (18.3°C)	55°F (12.8°C)
D	32-26	Big Springs Area	58°F (14.4°C)	62°F (16.7°C)	52°F (11.1°C)
E	26-24	Above Hwy A-12	61°F (16.1°C)	65°F (18.3°C)	55°F (12.8°C)
F	24-11	A-12 to Hwy 3	63°F (17.2°C)	67°F (19.4°C)	57°F (13.9°C)
G	10-8	Yreka-Ager Road	65°F (18.3°C)	69°F (20.6°C)	59°F (15.0°C)

Notes to Table 1: Tailwaters hydrologically connected to Big Springs Creek and spring-fed tributaries within Reaches C and D (RM 34 to 26) are respectively subject to the Reach C and D benchmarks.

Table II.2: Tailwater Temperature Water Quality Benchmarks for Perennial and Intermittent Tributaries to the mainstem Shasta River

Season	Period	Benchmark
Early Season	Apr 1 – Jun 15	61°F (16.1°C)
Mid-Season	Jun 16 – Aug 31	64°F (17.8°C)
Late Season	Sep 1 – Oct 1	56°F (13.3°C)

Notes to Table 2: Seasonal benchmarks (Early, Mid, Late) apply to tailwaters hydrologically connected to perennial streams. The Early Season benchmark applies to tailwater hydrologically connected to intermittent streams during the Early Season.

Table II.3: Tailwater Temperature Water Quality Benchmarks for Perennial and Intermittent Streams in the Scott River Watershed

Season	Period	Benchmark
Early Season	Apr 1 – Jun 15	61°F (16.1°C)
Mid-Season	Jun 16 – Aug 31	64°F (17.8°C)
Late Season	Sep 1 – Oct 1	56°F (13.3°C)

Notes to Table 3: Seasonal benchmarks (Early, Mid, Late) apply to tailwaters hydrologically connected to perennial streams. The Early Season benchmark applies to tailwater hydrologically connected to intermittent streams during the Early Season.

Table II.4: Tailwater Temperature Biostimulatory Substances Water Quality Benchmarks for Perennial, Intermittent, and Ephemeral Streams in the Scott River Watershed

Seasonal period	Ambient P75 (mg/L)	Benchmark (mg/L)	Derivation
Early (Apr 1 – Jun 15)	0.014	0.014	Ambient P75. No adjustment required.
Mid (Jun 16 – Aug 31)	0.009	0.010	Ambient P75 within 0.001 mg/L of the EPA Aggregate Ecoregion II reference condition of 0.010 mg/L; set at the reference value.
Late (Sep 1 – Oct 1)	0.007	0.008	Ambient P75 within 0.001 mg/L of the observed period maximum of 0.008 mg/L; set at the observed maximum.

4. Following expiration of the applicable authorized time schedule, continued exceedance of a Water Quality Benchmark may be used, together with monitoring, source determination, management practice effectiveness information, and other relevant evidence, to determine whether the Enrollee's discharge is causing or substantially contributing to a continuing or recurring exceedance of applicable Water Quality Objectives, or to a continuing or recurring condition of pollution or nuisance or to an exceedance of TMDL load allocations.

E. General Requirements

Streamside Areas

1. For purpose of this Order, a Streamside Area is comprised of two contiguous components: a Riparian Vegetation Area and a Vegetated Buffer in which different requirements are applied. A Streamside Area is defined as the area between the waterside edge of vegetation at ground level extending from the waterbody for the horizontal distances listed below.

    a) Perennial Streams and the mainstem of the Scott and Shasta Rivers: 100 feet

    b) Intermittent Streams: 60 feet

    c) Ephemeral Streams: 35 feet

2. The Riparian Vegetation Area extends from the waterside edge of vegetation at ground level for an average width of 35 feet, with the balance of the Streamside Area consisting of a Vegetated Buffer. Tillage is prohibited within the Riparian Vegetation Area. The average width of the Riparian Vegetation Area shall be determined across the total linear stream frontage within each enrolled parcel. Where an Enrollee owns or operates multiple enrolled parcels that are contiguous along a stream frontage, the average width of the Riparian Vegetation Area may be calculated across those contiguous parcels.

3. Owner and operators shall implement the following management practices within the Riparian Vegetation Area:

    a) Allow the natural establishment and abundance of native riparian vegetation to minimize or prevent discharge of sediment, nutrients, excess temperature, and pesticides to surface water.

    b) Allow essential functions supporting beneficial uses such as sediment filtering, woody debris recruitment, streambank stabilization, nutrient cycling, pollutant filtering, and shading (e.g., to achieve site potential effective shade).

4. Within Streamside Areas, existing riparian vegetation may not be removed for activities appurtenant to the agricultural operation except for: (1) restoration and planting of vegetation which is native to California and naturally occurs in the local HUC-8 watershed; (2) work necessary for protection of public health or safety, including fire fuel management as required by California Fire Code section 304.1.2. and/or local ordinances; (3) restoration activities outside of jurisdictional waters of the United States or waters of the State, (4) removal of riparian vegetation as part of necessary maintenance of existing watercourse crossings and linear utilities, control of invasive species, and permitted surface water diversions, or (5) other restoration and/or maintenance projects subject to the prior approval of the Executive Officer.

5. Compliance with the Riparian Vegetation Area prohibition on tillage is required at the date of Order adoption except for Irrigated Lands with Riparian Vegetation Areas planted to a crop at the time of Order adoption in which case the compliance date is within three years of the date of Order adoption.

6. Vegetated Buffers shall be installed and maintained to minimize or prevent discharges of sediment, nutrients, and pesticides to surface waters. Vegetated Buffers are a permanent strip of dense perennial vegetation (including riparian vegetation and perennial crops) which is established for the purposes of slowing water runoff, enhancing water infiltration, trapping pollutants bound to sediment and minimizing the risk of any potential nutrients or pollutants from reaching surface waters. The following activities are not allowed within a Vegetated Buffer:

a) Construction and/or installation of new permanent structures appurtenant to agricultural operations. (e.g., agricultural roads, water storage, and buildings). Maintenance and/or reconstruction of existing permanent structures within the existing footprint is allowed.

b) Storage of chemicals, oil, or petroleum products.

c) Placement of construction materials, trash rubbish, refuse, plant waste, or other organic or earthen material or solid waste.

7. This Order allows All-Season Roads and Seasonal Roads existing at the time of Order adoption within the Vegetated Buffer to retain their original footprint provided the following management practices are implemented:

   a) Seasonal Roads within the Vegetated Buffer are to be considered part of the vegetated buffer between December 15-April 1 of each year. Owners and operators shall install ground cover on these Seasonal Roads to achieve a minimum of 90 percent ground cover between December 15-April 1 of each year and shall manage and maintain them to minimize, control, or prevent discharges of sediment, nutrients, and pesticides to surface waters.

   b) All-Season Roads shall be improved and maintained in a manner that minimizes or prevents the discharge of sediment to surface waters through implementation of road management practices as described in the section on Appurtenant Agricultural Roads.

8. Livestock grazing in Streamside Areas shall comply with all of the following requirements at Order enrollment unless implementing a Grazing and Riparian Management Plan:

   a) Riparian vegetation shall not show signs of excessive livestock browsing that impacts young shoot growth.

   b) Woody riparian vegetation shall not show signs of stress from livestock trampling or loafing, including but not limited to impaired canopy health, dead and dying limbs, trampling to bare mineral soil around the root mass, damage to surface roots.

   c) Livestock grazing shall not occur when non-woody vegetation stubble height is below 6 inches.

   d) Deposition of manure in the wetted area shall be confined to no more than 1 percent of total area to minimize the risk of nutrient and pathogen loading to surface waters.

   e) Livestock crossings shall be maintained to minimize cattle loafing and erosion.

f) Livestock trampling of banks shall not result in discharges of sediment to surface waters or bank failure.

g) Grazing shall not occur when salmonid redds are present in the stream channel to minimize impact of fine sediments from bank trampling on redds.

h) Grazing shall occur only between June and August when vegetation regrowth is at its most vigorous.

9. Grazing and Riparian Management Plan. In lieu of complying with livestock grazing requirements specified in paragraph 8, an Enrollee whose enrolled parcels includes livestock grazing within a Streamside Area may develop and implement a Grazing and Riparian Management Plan (GRMP) meeting the requirements listed. A GRMP shall be prepared or certified by a Qualified Professional and submitted to the Executive Officer within one (1) year of enrollment or one (1) year of the date livestock are first introduced to the Riparian Zone, whichever is later.

a) General Information. The GRMP shall identify the Enrollee's name and contact information, property address(es), assessor's parcel number(s), and the name and credentials of the Qualified Professional who prepared or certified the GRMP.

b) Maps. The GRMP shall include a map showing property boundaries and one or more maps depicting all streams, watercourses, springs, seeps, and wetland areas on or adjacent to the property, together with the locations of existing riparian vegetation, areas of bare soils or visible erosion, interior fencing, water troughs, off-stream watering facilities, and stream crossings.

c) Existing Conditions. The GRMP shall describe existing riparian area conditions along each watercourse, including vegetation type and health, canopy cover, presence of native and invasive species, bank stability, visible erosion, and coverage by woody debris. The GRMP shall describe livestock use of the Riparian Zone, including frequency, timing, duration, and observed impacts on riparian vegetation and streambanks.

d) Objectives and Performance Standards. The GRMP shall establish measurable objectives and performance standards for riparian management tied to water quality and ecological functions, including: (i) allowing the natural establishment and growth of native vegetation and shade sufficient to maintain cool stream temperatures; (ii) maintaining vegetation sufficient to prevent, minimize, and control surface erosion; (iii) protecting riparian functions including sediment filtering, woody debris recruitment, streambank stabilization, nutrient cycling, pollutant filtering, and shading; (iv) limiting grazing duration such that non-woody vegetation stubble height is not reduced below the standard in paragraph 8.c and browsing of woody species is avoided; and (v) preventing

livestock access to unstable areas and sediment discharge sites and prohibiting discharges of animal waste to surface waters, particularly at confined areas and stream crossings.

e) Management Practices. The GRMP shall describe practices in place or planned to meet the objectives and performance standards in subparagraph (d), including but not limited to livestock exclusion fencing, off-stream watering facilities, rotational grazing systems, grazing timing and duration controls, stream crossing designs (bridges, culverts, rocked crossings) that minimize animal waste and sediment delivery, revegetation and shade tree planting, and control of invasive species.

f) Monitoring and Photo Points. The GRMP shall establish permanent photo monitoring locations in each managed riparian reach. The Enrollee shall photograph each location annually at approximately the same date and vantage point and shall record the date, location, and observed conditions (vegetation, bank stability, livestock impacts, presence of waste, and stubble height).

g) Annual Reporting. The Enrollee shall submit an annual GRMP progress summary and photo record to the North Coast Water Board in accordance with Attachment A: MRP. The annual report shall document implementation and maintenance of management practices, progress toward performance standards, and any needed corrective actions with a schedule for completion.

h) Certification. The GRMP shall be certified by a Qualified Professional meeting the qualifications in paragraph 10 below. The certification shall include the following signed statement: “I, [Name], [Title/Credential(s)], [License/Certification Number], certify under penalty of perjury under the laws of the State of California that I have personally examined and am familiar with the property and conditions addressed in this Grazing and Riparian Management Plan, and that, based on my professional judgment, the management practices described herein, when properly implemented and maintained, will: (i) protect and maintain riparian functions, including but not limited to shade provision, bank stabilization, sediment filtration, nutrient cycling, large woody debris recruitment, and aquatic and wildlife habitat; (ii) achieve protection of water quality and beneficial uses equivalent to or exceeding that provided by paragraph 6 of this Order; (iii) be consistent with applicable water quality objectives, waste discharge requirements, and TMDLs; and (iv) include an adequate monitoring and adaptive management framework to verify effectiveness and allow for corrective actions if performance objectives are not met. I further certify that I meet the qualifications specified in paragraph 8 of this Order for Qualified Professionals authorized to certify a Grazing and Riparian Management Plan.” The certification shall include signature, printed name, credential(s) and license or certification number, and date.

10. Qualified Professional Qualifications for GRMP Certification. A Qualified Professional authorized to certify a Grazing and Riparian Management Plan under paragraph 9 shall meet one or more of the credential requirements in subparagraphs (a) through (c):

    a) Registered Professional Forester (RPF) currently registered in good standing with the California Board of Forestry and Fire Protection pursuant to the Professional Foresters Law (Public Resources Code sections 750 through 783). An RPF is particularly appropriate to certify a GRMP addressing forested or woodland riparian corridors, conifer or mixed-hardwood riparian systems, or woody vegetation management along waterways in the Scott and Shasta River watersheds.

    b) Certified Rangeland Manager (CRM) currently certified in good standing by the California Board of Forestry and Fire Protection pursuant to Public Resources Code sections 750 through 783. A CRM is particularly appropriate to certify a GRMP addressing livestock grazing management in and adjacent to riparian areas, consistent with the approach in the Tomales Bay Watershed Grazing Waiver (Order No. R2-2018-0030) and the Bridgeport Valley Grazing Waiver (Order No. R6T-2023-0006).

    c) Qualified Biologist, Ecologist, or Wetland Scientist holding, at a minimum, a bachelor's degree or higher in biology, ecology, fisheries biology, wildlife biology, botany, conservation biology, environmental science, or a closely related biological science from an accredited institution, and demonstrated competence in riparian ecology, aquatic habitat assessment, or wetland delineation. Preferred additional qualifications include certification by the Society for Ecological Restoration as a Certified Ecological Restoration Practitioner (CERP), certification by the Ecological Society of America as a Certified Ecologist, certification by the Society of Wetland Scientists as a Professional Wetland Scientist (PWS), and documented experience applying protocols such as the California Rapid Assessment Method (CRAM), the California Salmonid Stream Habitat Restoration Manual, or similar standardized riparian and stream assessment methodologies.

11. Ongoing GRMP Obligations. The Enrollee shall ensure that the Qualified Professional who certified the GRMP, or a successor meeting the qualifications in paragraph 10, conducts periodic site evaluations at a frequency specified in the approved GRMP, but not less than once every three (3) years, to assess GRMP implementation and effectiveness. Evaluation reports shall be submitted to the Executive Officer as part of the Annual Report specified in Attachment A: MRP and shall include updated photo documentation, monitoring data analysis, and any recommended adaptive management changes. If the Qualified Professional determines that the GRMP is not achieving protection of water quality and beneficial

uses equivalent to or exceeding that provided by paragraph 6, the Enrollee shall either (i) revise the GRMP, subject to re-certification and Executive Officer approval, or (ii) revert to compliance with paragraph 8 of this section.

Riparian Vegetation Area Restoration Alternative

12. In lieu of meeting the Riparian Vegetation Area minimum widths an Enrollee may mitigate the difference in area available for natural succession of riparian vegetation between riparian vegetation existing at the date of Order adoption and Riparian Vegetation Area widths. Mitigation must be accomplished through restoration and protection of native riparian vegetation at another location within the same sub-watershed (HUC-12) with similar or greater ecological value and function.

13. The proposed Restoration Area (length and width) shall be no less than 200 percent of the difference between existing Riparian Vegetation Area and the required Riparian Vegetation Area width requirements. The proposed Restoration Area shall be placed into a conservation easement with sufficient financial resources to fund 20 years of riparian vegetation maintenance and replacement of vegetation that does not survive.

14. Enrollees choosing this option shall implement restoration and protection within the Restoration Area(s) and have the Restoration Area(s) placed within a conservation easement within five years of the date of Order adoption.

15. Enrollees selecting a Riparian Vegetation Area Restoration Alternative must submit a proposal to the Executive Officer for review and approval by **#DATE** (6 months from enrollment deadline). The proposal must include all information necessary to indicate that the proposed Restoration Alternative will satisfy the above requirements. Restoration projects that discharge materials or pollutants into waters of the state must be authorized by the North Coast Water Board prior to implementation through an applicable permitting program (e.g., 401 Water Quality Certification).

Stream Crossings

1. New culverted stream crossing shall meet the following specifications upon construction. Culverted stream crossings existing at the date of Order adoption shall meet the following specifications within 10 years from the enrollment deadliner:

    a) Critical dips shall be installed at the approaches to culverted crossings that have a diversion potential.

    b) Culvert inlets with high plug potential shall have trash barriers or deflection structures installed.

2. New and replaced stream crossings shall meet the following specifications[3], after receiving separate approval from the North Coast Water Board[4]:

   a) Drainage structure is designed for the 100-year flood flow including woody debris and sediment[5].

   b) Do not have potential to divert the stream out of its channel and cause the stream to flow down the road rather than flow directly over the road fill and back into its natural channel.

   c) Culvert inlets have a low plug potential (trash barriers or deflectors are installed where needed).

   d) Culverts are installed at the base of the fill and in line and at grade with the natural channel.

   e) Bridges have stable, non-eroding abutments and do not significantly restrict 100-year flood flow.

   f) Stream crossing fills are stable.

   g) Approaching road surfaces and ditches are hydrologically disconnected from streams and stream crossing culverts to the maximum extent feasible using road shaping and road drainage structures.

   h) Class I (fish-bearing) stream crossings meet California Department of Fish and Wildlife and National Marine Fisheries Service fish passage criteria.

Appurtenant Agricultural Roads

1. Enrollees shall implement and maintain the following minimum management practices on all Hydrologically Connected Appurtenant Agricultural Roads. Existing road segments shall meet the following specifications within 10 years from the enrollment deadline. New road segments shall meet the following specifications at completion of construction:

[3] Enrollees shall refer to *Handbook for Forest, Ranch, and Rural Roads: A Guide for Planning, Designing, Constructing, Reconstructing, Upgrading, Maintaining and Closing Wildland Roads* for design specifications of the management practices required in this section. See RoadsEnglishBOOKapril2015b.pdf

[4] Applicable coverage for new and replaced stream crossings could include a 401 certification or coverage under the Rural Roads General Order (R1-2024-0002)

[5] Cafferata, P., T. Spittler, M. Wopat, G. Bundros, and S. Flanagan, 2004. Designing Watercourse Crossings for Passage of 100-Year Flood Flows, Wood, and Sediment. California Department of Forestry and Fire Protection: Sacramento, CA.

a) Ditches are drained frequently by functional ditch relief culverts and/or rolling dips.

b) Outflow from ditch relief culverts does not directly discharge to streams.

c) Ditches and road surfaces drainage do not discharge (through culverts and/or rolling dips) onto active or potential landslides and/or into gullies.

d) Fine sediment contributions from roads, cutbanks, and ditches are minimized by utilizing road surface shaping (outsloping, insloping, or crowning), rolling dips, ditch relief culverts, water bars, and other measures to disperse road surface runoff and reduce or eliminate sediment delivery to the surface waters.

2. Road segments shall be prioritized for implementation of minimum management practices based on visual observations of quantity of sediment being delivered to surface waters from each road segment.

Agricultural Infrastructure

1. All chemicals, including but not limited to fertilizers, pesticides, and petroleum products shall be stored in a manner that minimizes threats of discharge and eliminates discharges to surface water and groundwater, including sufficient secondary containment in the event of a catastrophic failure of primary containment methods. No chemicals shall be stored within the Riparian Zone.

2. All chemicals, including but not limited to fertilizers, pesticides, and petroleum products shall be stored in a manner that shelters them from rain to ensure secondary containment does not be inundated, overwhelmed, and to avoid mixing of pollutants with storm water.

3. Heavy equipment, both functional and non-functional, shall be stored away from riparian zones, wetlands, and surface waters. This includes all watercourse types regardless of time of year.

4. Ground surfaces on enrolled pacels shall be maintained in such a way that minimizes the mobilization of sediment to surface water via surface runoff.

Tailwater

1. The discharge of tailwater from Irrigated Lands that is hydrologically connected to perennial streams (from April 1 to October 1) and intermittent streams (From April 1 to June 15) which exceeds the Water Quality Benchmarks is prohibited.

2. Compliance with Water Quality Benchmarks is subject to the time schedule as described in the Tailwater Adaptive Management Program and Table II.5 below.

Tailwater Adaptive Management Program

1. This Order establishes an eight-year time schedule, beginning at the enrollment deadline, for Enrollees with tailwater discharges to achieve compliance with Water Quality Benchmarks. Each Enrollee complies through one of two pathways:

   Pathway 1 —Tailwater Discharge Elimination, which results in all tailwater discharge being eliminated from an Enrollee's parcel(s).

   Pathway 2 —Tailwater Discharge Treatment and Control, which results in tailwater that meets all Water Quality Benchmarks at the Point of Compliance.

   Each pathway is implemented in two stages. In **Stage 1**, the Enrollee proceeds by self-certification and iterative adaptive management. In **Stage 2**, the Enrollee implements a certified Plan. Requirements of the two pathways at each stage are summarized in Table II.5 below:

Table II.5: Compliance Pathway Summary

	Pathway 1: Discharge Elimination	**Pathway 2: Discharge Treatment and Control**
Objective	Eliminate tailwater discharge	Meet Water Quality Benchmarks at Point of Compliance
Pathway Description	Self-certified tailwater elimination or Certified Tailwater Elimination Plan to eliminate thermal load entirely; no tailwater monitoring	Iterative management practices, monitoring, and adaptive management to achieve seasonal Benchmarks and, on the Shasta mainstem, reach-specific Benchmarks
Stage 1 Requirements	Self-certified tailwater elimination by **#DATE** (2 years after enrollment deadline). If tailwater not eliminated, move to Stage 2	Iterative management practices to meet Water Quality Benchmarks. If Water Quality Benchmarks not attained by **#DATE** (2 years after enrollment deadline), move to Stage 2.
Stage 2 Requirements	Submit a Certified Tailwater Elimination Plan by **#DATE** (6 months after Stage 1 deadline) that will result in tailwater discharge elimination by **#DATE** (8 years after enrollment deadline).	Submit a Certified Tailwater Treatment and Control Plan by **#DATE** (6 months after Stage 1 deadline) that will result in Water Quality Benchmarks being met at the Point(s) of Compliance by **#DATE** (8 years after enrollment deadline).

Compliance Demonstration	Self-certified elimination by **#DATE** (2 years after enrollment deadline). or certification by Qualified Professional by **#DATE** (8 years after enrollment deadline).that tailwater discharge has been eliminated.	Tailwater monitoring per Attachment A: MRP demonstrates compliance with Water Quality Benchmarks by **#DATE** (8 years after enrollment deadline).

2. Each Enrollee with tailwater discharges shall report their selected pathway in their initial Farm Evaluation submission as specified in Section IV of Attachment A: MRP.

3. Enrollees without tailwater discharge at the time of enrollment shall document that operational status in their initial Farm Evaluation. If subsequent evidence indicates discharge is occurring, the Enrollee shall elect a pathway within 60 days of notification by the Executive Officer and update their Farm Evaluation to reflect a selected compliance pathway.

4. The Executive Officer may require any Enrollee to elect or modify a pathway where evidence indicates tailwater discharge may cause or contribute to a Water Quality Benchmark exceedance.

Pathway 1: Tailwater Discharge Elimination

5. An Enrollee selecting Pathway 1 shall eliminate all tailwater discharges hydrologically connected to perennial and intermittent streams no later than **#DATE** (eight years following the enrollment deadline). This is a final compliance date and applies regardless of the Stage under which the Enrollee is operating.

6. Pathway 1 may be implemented in two Stages. All Enrollees selecting Pathway 1 may begin in Stage 1, in which the Enrollee would self-certify that tailwater is eliminated by **#DATE** (2 years after enrollment deadline). An Enrollee that does not achieve and self-certify tailwater elimination shall proceed to Stage 2.

7. Stage 1 — Self-Certified Tailwater Discharge Elimination. In lieu of immediately developing a Certified Tailwater Discharge Elimination Plan, the Enrollee may elect to implement self-directed measures to eliminate tailwater discharge at the Point of Compliance by **#DATE** (2 years after enrollment deadline). The Enrollee shall:

   a) Report annual progress toward elimination in the Farm Evaluation; and

   b) Self-certify in the Farm Evaluation that all tailwater discharges from the enrolled parcels have been eliminated.

8. Stage 2 — Certified Tailwater Discharge Elimination Plan. An Enrollee that has not eliminated tailwater discharge by **#DATE** (2 years after enrollment deadline) shall develop and implement a Certified Tailwater Discharge Elimination Plan, prepared and certified by a Qualified Professional, that eliminates tailwater discharge at the Point of Compliance. The Plan shall be submitted no later than **#DATE** (6 months after Stage 1 deadline) and fully implemented, with tailwater discharge eliminated, no later than **#DATE** (6 years after enrollment deadline).

9. The Certified Tailwater Discharge Elimination Plan shall include:

   a) Field Map identifying irrigation infrastructure, tailwater generation points, discharge pathways, Points of Compliance, and all perennial, intermittent, and ephemeral streams.

   b) Site Analysis describing current irrigation practices, including but not limited to:

      (i) tailwater generation volumes by Irrigation Season period (Early: Apr 1–Jun 15; Mid: Jun 16–Aug 31; Late: Sep 1–Oct 1);

      (ii) existing tailwater controls; and

      (iii) tailwater temperature characterization. The characterization shall be based on available monitoring data or, where such data are unavailable, on estimates prepared using site-specific values, including atmospheric temperature, applied irrigation water volume, soil infiltration estimates derived from technical reports such as NRCS soil surveys, and crop evapotranspiration.

   c) Tailwater Discharge Elimination Design describing engineered practices or system modifications to prevent discharge, including but not limited to capture-and-reuse systems, conversion to zero-discharge irrigation, or infiltration-based systems.

   d) Quantitative Demonstration by the Qualified Professional that the designed practices and modifications prevent discharge under normal and peak-demand conditions.

   e) Verification Monitoring, consisting of:

      i) Annual reporting of implementation progress, which may include photographs, a narrative description, engineering documents, permits, or visual observation records; and

      ii) Upon implementation, a signed certification from the Enrollee that no tailwater discharge is occurring.

f) Implementation Schedule with intermediate milestones, achieving full implementation no later than **#DATE**.

g) Certification. The Certified Tailwater Discharge Elimination Plan must be prepared and certified in one of the following ways:

i) The Plan is developed and certified by a Qualified Professional; or

ii) The Plan is prepared and certified in an alternative manner to a Qualified Professional and approved by the Executive Officer. Such approval will be provided based on the Executive Officer's determination that the alternative method for preparing the Element meets the objectives and requirements of this Order.

11. Compliance Demonstration. An Enrollee demonstrates compliance under Pathway 1 by either (a) self-certification of tailwater elimination in the Farm Evaluation by **#DATE** (2 years after enrollment deadline); or (b) certification by a Qualified Professional, no later than **#DATE** (8 years after enrollment deadline), that the Certified Tailwater Elimination Plan has been fully implemented and no tailwater is being discharged. Certification under (b) shall be based on a site visit conducted by the Qualified Professional during an Irrigation Cycle.

12. Monitoring. Enrollees under Pathway 1 are not subject to Pathway 2 Tailwater Monitoring. However, the Executive Officer may require monitoring where evidence indicates that elimination has not been achieved or that tailwater discharge is occurring; and if discharge is observed, the Executive Officer may require Plan updates or other corrective action.

Pathway 2: Tailwater Discharge Treatment and Control

13. An Enrollee selecting Pathway 2 shall implement Management Practices such that tailwater meet all Water Quality Benchmarks as specified in Section II.E, Water Quality Benchmarks at the Point(s) of Compliance no later than **#DATE** (eight years following the enrollment deadline). This is a final compliance date and applies regardless of the Stage under which the Enrollee is operating.

14. An Enrollee selecting Pathway 2 must confirm that tailwater discharges are meeting all Water Quality Benchmarks through Tailwater Monitoring as described in Section III.B of Attachment A: Monitoring and Reporting Program. Water Quality Benchmarks are met when there are no exceedances in any one Irrigation Season (April 1-October 1). A Water Quality Benchmark has been exceeded when the following conditions occur:

a) For temperature: a Water Quality Benchmark has been exceeded if 20 percent of temperature measurements made in a single Irrigation Cycle at the same Point of Compliance exceed the relevant Water Quality Benchmark in Tables II.1-II.3.

b) For biostimulatory substances (Total Kjeldahl Nitrogen (TKN) in the Shasta River Watershed and Total Phosphorus (TP) in the Scott River Watershed): a Water Quality Benchmark has been exceeded when any sample exceeds the applicable Water Quality Benchmark (0.20 mg/L for TKN and see Table II.4 for TP) at a Point of Compliance when tailwater discharge is present.

15. Pathway 2 may be implemented in two Stages. All Enrollees selecting Pathway 2 may begin in Stage 1, in which the Enrollee would iteratively implement their practices to attain Water Quality Benchmarks by **#DATE** (2 years after enrollment deadline). An Enrollee that has not attained all applicable Water Quality Benchmarks at the Point of Compliance by **#DATE** (2 years after enrollment deadline) shall proceed to Stage 2.

16. Stage 1 — Iterative Management Practices. In lieu of immediately developing a Certified Tailwater Discharge Treatment and Control Plan, the Enrollee may elect to implement self-directed measures to attain all applicable Water Quality Benchmarks at the Point of Compliance no later than **#DATE** (2 years after enrollment deadline) through iterative implementation, monitoring, and adaptive management. If selected, the Enrollee shall:

    a) Implement Management Practices from Attachment E: Tailwater Practice Menu, or alternatives approved by the Executive Officer. For temperature, practices may include irrigation efficiency improvements, tailwater recovery and reuse, thermal attenuation systems, conveyance shading, irrigation timing adjustments, discharge timing management, or cold water blending. For NBOD, practices may include tailwater recovery and reuse, infiltration ponds, cattle exclusion from tailwater ditches and ponds, or manure scraping in areas of livestock concentration. See Supplemental Finding 56 of Attachment B for practice descriptions; and

    b) Conduct Tailwater Monitoring in accordance with Section IV of Attachment A: MRP at the Point of Compliance.

17. Stage 2 — Certified Tailwater Discharge Treatment and Control Plan. An Enrollee that has not attained all applicable Water Quality Benchmarks at the Point of Compliance by **#DATE** (2 years after enrollment deadline) shall develop and implement a Certified Tailwater Discharge Treatment and Control Plan, prepared and certified by a Qualified Professional, that results in tailwater meeting all applicable Water Quality Benchmarks at the Point of Compliance. The Plan shall be submitted no later than **#DATE** (6 months after Stage 1 deadline) and fully implemented no later than **#DATE** (8 years after enrollment deadline). The Enrollee shall continue Tailwater Monitoring as directed in Attachment A: MRP.

18. The Certified Tailwater Discharge Treatment and Control Plan includes engineered or otherwise certified Management Practices designed to comply with Water Quality

Benchmarks in a manner that accounts for the characteristics and conditions of the individual Enrollee's Field(s) or Operation(s), and provides a quantitative demonstration that the practices implemented will result in compliance with applicable Water Quality Benchmarks at the point of compliance within the eight year time schedule provided in the Order.

19. The Certified Tailwater Discharge Treatment and Control Plan must be developed and certified by a Qualified Professional. At a minimum, the Certified Tailwater Discharge Treatment and Control Plan shall include the following:
    a) Field Map. A map of the Enrollee's Field(s) or parcel(s) identifying irrigation infrastructure, tailwater generation points, discharge pathways, Points of Compliance, and all perennial, intermittent, and ephemeral streams. The Certified Tailwater Discharge Treatment and Control Plan may cover individual or multiple Fields or parcels, as applicable.
    b) Site Analysis. A description of the current irrigation practices, tailwater generation and management, including tailwater generation volumes by Irrigation Season period (Early: Apr 1–Jun 15; Mid: Jun 16–Aug 31; Late: Sep 1–Oct 1), existing controls, and tailwater temperature, TKN (Shasta River Watershed) and TP (Scott River Watershed) characterization based on Stage 1 monitoring data.
    c) Exceedance Analysis. An analysis evaluating the Stage 1 monitoring record, if applicable, identifying the magnitude, timing, and seasonal pattern of each Water Quality Benchmark exceedance, and identifying why the Management Practices implemented during Stage 1 did not attain the applicable Benchmarks.
    c) Management Practices. A description of the specific engineered or certified Management Practices to be implemented beyond the baseline Management Practices described in the Site Analysis to comply with this Order. Management Practices may include but are not limited to: engineered capture-and-reuse facilities; engineered cooling systems (e.g., capture ponds with delayed release during cooler ambient conditions); engineered treatment systems; conversion of Field(s) or Operation(s) to zero-discharge irrigation configurations; or a combination of the above. Management Practices may be implemented at the individual Enrollee scale or collectively, for example, a shared capture-and-reuse facility serving multiple Enrollees whose Field(s) or parcel(s) drain to the same point of compliance. A non-exhaustive list of Management Practices known to be effective at managing tailwater and related discharges is included in Attachment E.
    d) Quantitative Demonstration. The Qualified Professional shall demonstrate, in a manner supported by field-collected data, that the Management Practices will achieve Water Quality Benchmarks at the Point of Compliance

under peak conditions. For temperature, the analysis shall evaluate whether the Management Practices will achieve the applicable temperature Water Quality Benchmark under conditions representative of peak thermal conditions. When necessary to make this demonstration, a thermal analysis shall account for relevant sources of heat gain which may include source water temperature, field heat gain, conveyance heat gain, and treatment system performance. A detailed accounting of individual sources of heat gain is not required where field-collected data or other technically defensible information directly demonstrates achievement of the applicable temperature Water Quality Benchmark at the Point of Compliance. Data shall not rely solely on literature reviews or modeling.

e) Effectiveness Monitoring. An effectiveness monitoring plan to ensure the proper maintenance and continued performance of all existing and future Management Practices implemented under the Certified Tailwater Discharge Treatment and Control Plan.

f) Schedule of Implementation. A schedule of Management Practice implementation in no less than two year increments with defined intermediate milestones not to exceed **#DATE**.

20. The Certified Tailwater Discharge Treatment and Control Plan must be prepared and certified in one of the following ways:
    a) The Tailwater Management Element is developed and certified by a Qualified Professional; or
    b) The Tailwater Management Element is prepared and certified in an alternative manner to a Qualified Professional and approved by the Executive Officer. Such approval will be provided based on the Executive Officer's determination that the alternative method for preparing the Element meets the objectives and requirements of this Order.
21. The Executive Officer may require updates to the Certified Tailwater Discharge Treatment and Control Plan. Any required update shall be certified by a Qualified Professional and shall describe all additional Management Practices implemented to comply with Water Quality Benchmarks.
22. Continued exceedance of a Water Quality Benchmark after **#DATE** may constitute a violation of Section II.D of this Order.

F. Monitoring and Reporting

1. Enrollees shall comply with all monitoring requirements specified in Attachment A: Monitoring and Reporting Program (MRP). Monitoring may be conducted at the Individual or Coalition level as applicable and as specified in the MRP. All monitoring shall be conducted in accordance with the methods, frequencies, and locations specified in the MRP. Required monitoring includes:

b) Representative Groundwater Monitoring — Annual monitoring of representative groundwater wells to characterize current groundwater quality conditions relevant to irrigated agriculture within the Scott River and Shasta River Valleys. Coalitions and Enrollees may leverage existing groundwater trend monitoring programs as part of their compliance under the Order.

b) Drinking Water Supply Well Monitoring — Annual monitoring of Drinking Water Supply wells on enrolled parcels for three years with notification of affected drinking water users if nitrate concentrations exceed the Maximum Contaminant Level (MCL) of 10 milligrams per liter (mg/L) nitrate+nitrite as N. Monitoring may be reduced to once every five years in accordance with Section II of Attachment A: MRP.

2. Enrollees electing certain compliance pathways must comply with the following conditional monitoring as specified in Attachment A: MRP:

   a) Riparian Photo-Point Monitoring — required of Enrollees who elect to submit a Riparian Grazing Management Plan instead of meeting the Streamside Area livestock grazing requirements in Section II.E, Streamside Areas.

   b) Tailwater Monitoring — required of Enrollees with tailwater discharges who elect Pathway 2 (Treat and Control) under Section II.E, Tailwater. Consists of continuous monitoring of temperature and nutrient grab sampling at the Point of Compliance during the Irrigation Season.

3. Enrollees shall comply with all reporting requirements specified in Attachment A: MRP. Enrollees participating in an approved Coalition may satisfy reporting obligations through the Coalition, which shall submit required reports on behalf of its members. Required reporting includes:

   a) Annual Farm Evaluation — inventories the management practices currently implemented on the Agricultural Operation, documents compliance with this Order, and identifies changes in operations or management from prior years.

   b) Annual Monitoring Report — presents monitoring data collected pursuant to this Order during the prior calendar year, including associated analyses and any Source Determination Reports required under the MRP.

4. The North Coast Water Board may request certain Enrollee information that Coalitions are required to maintain including, but not limited to: (1) Enrollee contact information; (2) Enrollee reports (e.g., Farm Evaluation information), (3) outreach and education attendance lists, and (4) water quality monitoring locations. Upon a request for information from the North Coast Water Board, the Coalition will respond within 2 business days with an date of production of the information. This date of production must be reasonable given the scale and scope of the request.

G. Outreach and Education

1. Enrollees shall participate in outreach and education[6] annually that focuses on: (1) actions necessary to attain compliance with water quality standards; and (2) practices to prevent or minimize the discharge of sediment, pesticides, and nutrients to receiving waters.

2. Enrollees shall document annual outreach and education in the Annual Farm Evaluation as specified in Attachment A: Monitoring and Reporting Program.

H. Provisions

1. Enrollees shall comply with all conditions of this Order. Noncompliance is a violation of the Porter-Cologne Water Quality Control Act (Water Code, § 13000 et seq.) and grounds for: (1) an enforcement action; (2) termination, revocation and reissuance, or modification of these waste discharge requirements; or a combination thereof. Coalition(s) shall also comply with all relevant conditions of this Order on behalf of the Enrollees enrolled through their program(s).

2. Enrollees shall report any noncompliance that may endanger human health or the environment. Information shall be provided orally to the North Coast Water Board office and the Office of Emergency Services within twenty-four (24) hours of when the Enrollee becomes aware of the incident. If noncompliance occurs outside of business hours, the Enrollee shall leave a message on the North Coast Water Board's office voicemail. A written report shall also be provided within five (5) business days of the time that the Enrollee becomes aware of the incident. The written report shall contain a description of the noncompliance and its cause, the period of noncompliance, the anticipated time to achieve full compliance, and the steps taken or planned, to reduce, eliminate, and prevent recurrence of the noncompliance.

3. Enrollees or a Coalition may request an extension of a deadline in this Order by submitting a Request for Extension to the Executive Officer 60 days prior to the deadline. The request shall include an explanation of the anticipated inability to meet the deadline and a proposed time schedule to come into compliance with this Order.

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[6] Outreach and education sources include formal classroom training, individual meetings with a qualified trainer, printed materials, and/or internet-based training with an approved Coalition, University of California Cooperative Extension (UCCE), Natural Resources Conservation Service (NRCS), Resource Conservation Districts (RCDs), Regional or State Water Boards, Department of Pesticide Regulation, California Department of Fish and Wildlife, California Department of Food and Agriculture, or other comparable organizations.

4. Enrollees, regardless of enrollment pathway, and any non-Enrollee owner or operator, bears ultimate responsibility for complying with this Order. The North Coast Water Board reserves the right to take any enforcement action authorized by law. Accordingly, failure to comply with any provisions of this Order may subject Enrollees to enforcement action. Such actions include, but are not limited to, the assessment of administrative civil liability pursuant to Water Code sections 13323, 13268, and 13350, a Time Schedule Order issued pursuant to Water Code section 13300 or 13308, issuance of a Cease-and-Desist Order pursuant to Water Code section 13301, Cleanup and Abatement Order pursuant to Water Code section 13304 or referral to the California Attorney General for recovery of judicial civil liability or injunctive relief. Enrollees shall take all reasonable steps to minimize or prevent any discharge in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment.

5. For Coalition(s), failure to comply with the applicable terms and conditions of this Order or the Third-Party Program requirements in Attachment C may result in revocation of approval to act as a Coalition or any other remedy provided by law. Affected Enrollees would be required to join an approved Coalition, meet requirements for Enrollees not represented by a Coalition, or obtain coverage under other applicable general or individual WDRs.

6. Pursuant to Water Code section 13267, the North Coast Water Board staff or its authorized representatives may investigate the property of persons subject to this Order to ascertain whether the purposes of the Porter-Cologne Act are being met and whether the Enrollee is complying with the conditions of this Order. This inspection shall be made with the consent of the landowner, or if consent is withheld, with a duly issued warrant pursuant to the procedure set forth in Title 13 Code of Civil Procedure Part 3 (commencing with section 1822.50). However, in the event of an emergency affecting the public health or safety, an inspection may be performed without consent or the issuance of a warrant.

7. Enrollees and Coalitions, as appropriate, shall retain copies of all reports required by this Order and the associated MRP. Records shall be maintained for a minimum of ten (10) years from the date of the sample, measurement, report, or application. Records may be maintained electronically, and the Coalition must store backup files in a secure, offsite location managed by an independent third-party entity. This period may be extended during the course of any unresolved litigation or when requested by the North Coast Water Board's Executive Officer.

8. Enrollees and Coalition(s), as appropriate, shall submit reports and information required for North Coast Water Board Executive Officer approval under this Order in an electronic format[7] via email to northcoast@waterboards.ca.gov.

9. If the Coalition and/or an Enrollee asserts that all or a portion of a report submitted pursuant to this Order is subject to an exemption from public disclosure (e.g., due to proprietary or trade secret information), the Coalition and/or Enrollee must provide an explanation of how those portions of the reports are exempt from public disclosure. The Coalition and/or Enrollee must clearly indicate on the cover of the report (typically an electronic submittal) that all or a portion of the report is exempt from public disclosure, submit a complete report with those portions that are asserted to be exempt in redacted form, submit separately (in a separate electronic file) unredacted pages (to be maintained separately by staff). North Coast Water Board staff will determine whether any such report or portion of a report qualifies for an exemption from public disclosure. If staff disagrees with the asserted exemption from public disclosure, staff will notify the Enrollee prior to making such report or portions of such report available for public inspection.

10. All documents and reports requested herein shall be signed and dated by a duly authorized representative and shall contain a statement by the Enrollee, or as appropriate by an authorized representative of the Enrollee (e.g., Third-Party representative), certifying under penalty of perjury under the laws of the State of California, that the report is true, complete, and accurate. The document and/or report shall be submitted under the title: “General Waste Discharge Requirements for Irrigated Lands in the Scott River and Shasta River Watersheds.”

11. This Order does not authorize violation of any federal, state, or local laws or regulations.

12. This Order may be modified, revoked and reissued, or terminated as appropriate. The filing of a request by an Enrollee for an Order modification, rescission, or reissuance, or a Enrollee’s notification of planned changes or anticipated noncompliance, does not stay any Order condition.

13. Any person aggrieved by this North Coast Water Board action may petition the State Water Board for review in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 et seq. The State Water Board must receive the petition by 5:00 p.m. on the 30th day after the date of this Order; if the 30th day falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of

[7] Guidance for electronic submittal (https://www.waterboards.ca.gov/northcoast/publications_and_forms/available_documents/pdf/2014/ECM_Letter-Guidelines.pdf).

the statutes and regulations applicable to filing petitions are available on the State Water Board's website and can be provided upon request.

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100
Or by email at waterqualitypetitions@waterboards.ca.gov

Instructions to file a petition:
(http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml)

III. Certification

I, Valerie M. Quinto, Executive Officer do, hereby, certify that the foregoing is a full, true, and correct copy of an Order adopted by the California North Coast Regional Water Quality Control Board, on **MONTH DAY, YEAR.**

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Valerie M. Quinto
Executive Officer

Attachments:

A. Monitoring and Reporting Program
B. Supplemental Findings
C. Coalition Requirements
D. Stewardship Category Requirements
E. Tailwater Practice Menu for Compliance Pathway II
F. CEQA Mitigation Measures
G. Templates
H. Acronyms and Definitions

Attachment A: Monitoring and Reporting Program

I. Summary

The Monitoring and Reporting Program (MRP) consists of monitoring and reporting required of all Enrollees, and conditional monitoring requirements that are conducted based on an Enrollee's chosen compliance pathway for Riparian Grazing and Tailwater (Section II.E).

Required monitoring (Table A.1) consists of Representative Groundwater Monitoring to characterize and analyze trends in water quality related to impacts from irrigated agriculture; and Drinking Water Supply Well Monitoring to assess on-farm drinking water and notify well users when nitrate concentrations exceed 10 mg/L.

Conditional monitoring (Table A.2) applies when an Enrollee selects a compliance pathway that requires monitoring. Riparian Photo-Point Monitoring is required when an Enrollee selects the option to develop and implement a Grazing and Riparian Management Plan in lieu of meeting livestock grazing requirements in the Streamside Area as specified in Section II.E of the Order. Tailwater Monitoring is required when an Enrollee selects Tailwater Pathway 2: Treatment and Control as specified in Section II.E of the Order.

Required reporting (Table A.3) consists of an annual Farm Evaluation that documents an Enrollee's compliance with the Order's requirements, and an Annual Monitoring Report, which includes all monitoring data collected over the past year, except for Drinking Water Supply Well Monitoring results, which must be uploaded separately to the State Water Board's GeoTracker database[8].

A Coalition may conduct monitoring and reporting on behalf of their Enrollee members in accordance with the terms set forth in this MRP.

[8] GeoTracker is located at https://geotracker.waterboards.ca.gov/.

Table A.1: Summary of Required Monitoring

Monitoring Requirement	Location	Parameters	Frequency
Representative Groundwater Monitoring (Section III.A)	Representative wells in accordance with Section III of this MRP	Nitrate, Total Dissolved Solids, and field parameters	Annually
Drinking Water Supply Well Monitoring (Section III.B)	Each Drinking Water Well on an enrolled parcel	Nitrate	Annually for three years; then every five years if below 5 mg/L for three consecutive samples

Table A.2: Summary of Conditional Monitoring

Monitoring Requirement	Condition	Parameters	Frequency
Riparian Photo-Point Monitoring (Section IV.A)	When an Enrollee implements a Grazing and Riparian Management Plan in accordance with Order Section II.E, Streamside Areas	Photo-points	Pre- and Post-grazing event
Tailwater Monitoring (Section IV.B)	Enrollees who elect to implement Pathway 2 in accordance with Order Section II.E, Tailwater, for tailwater discharges to perennial streams (from April 1 to October 1) and intermittent streams (From April 1 to June 15).	Temperature, Total Kjeldahl Nitrogen (TKN) for Shasta River Watershed, or Total Phosphorus (TP) for Scott River Watershed	Continuous temperature logging during Irrigation Season, and grab sample each Irrigation Cycle for TKN or TP

Table A.3: Summary of Reporting Requirements

Reporting Requirement	Elements of Report	Submit to: (for Enrollees in a Coalition)	Submit to: (for Enrollees not in a Coalition)	Submittal Deadline and Frequency
Farm Evaluation (Section V)	Management practice implementation, Order compliance reporting, education event attendance, and CEQA Mitigation Monitoring, if applicable.	Coalition submits Enrollee data to the North Coast Water Board in accordance with Section V.	State Water Board GeoTracker database	By **#DATE** (1 year after enrollment deadline) and by March 1st annually thereafter.
Annual Monitoring Report (Section V)	Annual water quality monitoring results from Representative Groundwater Monitoring, and Tailwater Monitoring, where applicable	Coalition submits Representative Groundwater Monitoring and applicable Conditional Monitoring requirements on behalf of Enrollees to North Coast Water Board	State Water Board GeoTracker database for Groundwater Monitoring and CEDEN for Tailwater Monitoring, where applicable	By **#DATE** (1 year after enrollment deadline) and by March 1st annually thereafter.
Drinking Water Supply Well Monitoring Results (Section III.B)	Electronic Deliverable Format (EDF) data with APN and well coordinates	State Water Board GeoTracker database (by testing laboratory)	State Water Board GeoTracker database (by testing laboratory)	By **#DATE** (1 year after enrollment deadline) and by March 1st annually thereafter.

II. Required Monitoring

This Section describes required monitoring applicable to all Enrollees. Groundwater monitoring consists of (1) Representative Groundwater Trend Monitoring to characterize current groundwater quality conditions and evaluate long-term trends related to irrigated agriculture; and (2) Drinking Water Supply Well Monitoring to assess on-farm drinking water and notify well users when nitrate concentrations exceed the Maximum Contaminant Level (MCL).

A Coalition may conduct Representative Groundwater Trend Monitoring on behalf of its enrolled Members in accordance with the terms set forth in this MRP. Drinking Water Supply Well Monitoring shall be conducted by the Enrollee on each enrolled parcel.

This Section establishes the groundwater monitoring requirements applicable to all Enrollees. Groundwater monitoring consists of (1) Representative Groundwater Trend Monitoring to characterize current groundwater quality conditions and evaluate long-term trends related to irrigated agriculture; and (2) Drinking Water Supply Well Monitoring to assess on-farm drinking water and notify well users when nitrate concentrations exceed the Maximum Contaminant Level (MCL).

A Coalition may conduct Representative Groundwater Trend Monitoring on behalf of its enrolled Members in accordance with the terms set forth in this MRP. Drinking Water Supply Well Monitoring shall be conducted by the Enrollee on each enrolled parcel.

A. Representative Groundwater Monitoring

1. Overview: The objectives of Representative Groundwater Monitoring are to (a) determine current water quality conditions of groundwater relevant to irrigated agriculture in the Scott River and Shasta River watersheds; (b) develop long-term groundwater quality information that can be used to evaluate the basin-scale effects of irrigated agriculture and its practices on groundwater quality. For Enrollees in a Coalition, a groundwater monitoring network shall be sufficient to assess regional agricultural impacts to groundwater at a basin scale. For Individual Enrollees, a groundwater monitoring network shall be sufficient to assess agricultural impacts to groundwater across all their enrolled parcels.

2. Workplan: By a date established by the Executive Officer, the Coalition (on behalf of its enrolled Members) or the Individual Enrollee, shall submit a Representative Groundwater Monitoring Workplan (Workplan) to the North Coast Water Board Executive Officer for review and approval. The Coalition or Individual Enrollee shall implement the approved Workplan and report results in accordance with Section IV.

3. Workplan Contents: The Workplan shall include all elements necessary to meet the monitoring, reporting, and quality assurance requirements of this Section. At a minimum, the Workplan shall include:

    a) A description of the intent, goals, objectives, and rationale for the proposed

representative groundwater monitoring network.

b) Proposed monitoring wells of sufficient number, location, and screening depth to provide coverage in the Order's geographic area such that current water quality conditions of groundwater and composite regional effects of irrigated agriculture can be assessed in accordance with the trend monitoring objectives. The Coalition or Individual Enrollee may propose wells monitored under existing monitoring programs (e.g., Sustainable Groundwater Management Act networks or Drinking Water Supply Wells) where these wells meet the goals and requirements of Representative Groundwater Monitoring and collected data align with the parameters and frequency in Table A.3 below.

c) Criteria for identifying Groundwater Monitoring wells in areas that may be at higher risk of nitrate impacts to groundwater quality from irrigated agriculture. At a minimum, the Coalition or Individual Enrollee shall consider: (a) irrigated agricultural land-use density; (b) soil type and saturated hydraulic conductivity; (c) existing water quality data; (d) depth to groundwater, with consideration given to selecting wells that best represent the groundwater zones most likely to be affected by irrigated agriculture; and (g) absence of nearby domestic or commercial wastewater disposal and/or biosolids application to avoid effects of other nitrate sources,

d) A map and GPS coordinates of all proposed monitoring wells. The map(s) may be an aerial photograph, topographic map, LiDAR-derived shaded relief map, Google Earth image, or equivalent that depicts features at 1-inch = 50 feet or larger scale and clearly delineates all monitoring points required in this MRP. The map(s) may also be transmitted digitally as geographic information system (GIS) files such as shapefiles or GeoTIFFs.

e) Well details for each proposed monitoring well: (a) GPS coordinates; (b) physical address of the property on which the well is situated (if available); (c) California state well number (if known); (d) total well depth; (e) top and bottom depths of well casing perforations; (f) copy of the water well driller's log (if available); (g) depth of standing water (static water level), if available; and (h) well seal information (type of material, length of seal).

f) Sampling methods, frequency, and analytical procedures consistent with this Section.

g) Methodology to evaluate trends in groundwater monitoring data.

h) A Quality Assurance Project Plan (QAPP) that outlines procedures used to ensure the data collected and analyzed meet the requirements of this MRP. The QAPP shall be consistent with guidance provided by the State Water Resources Control Board (State Water Board) regarding Quality Assurance/Quality Control and shall, at a minimum, describe: project

management and personnel responsibilities; data quality objectives (precision, accuracy, completeness, representativeness, comparability); sampling design and methods; sample handling, custody, and transport; field and laboratory analytical methods; field and laboratory quality control samples; laboratory accreditation; data review, validation, and reporting; corrective action procedures; and records retention.

i) Complete well details may not always be available for Groundwater Trend Monitoring wells. In such cases, well details shall be provided to the maximum extent practicable to allow the Executive Officer to determine that the well's characteristics are such that monitoring results from the well are appropriate for use in meeting the objectives of Representative Groundwater Monitoring. Wells used for Groundwater Monitoring that do not have complete well details shall be flagged so that they can be distinguished within the well network. Inclusion of any well in the well network is subject to Executive Officer approval.

4. Sampling and Parameters: All wells in the representative monitoring network shall be sampled annually, at a minimum, at the same time of year, and analyzed at least for the parameters identified in Table A.4 below.

Table A.4: Representative Groundwater Monitoring Parameters and Minimum Frequency

Groundwater Monitoring Parameter	Units	Analysis Type	Frequency
pH	pH units	Field	Annually
Specific Conductivity (at 25°C)	µmhos/cm	Field	Annually
Temperature	°C	Field	Annually
Nitrate as Nitrogen	mg/L	Laboratory	Annually
Total Dissolved Solids (TDS)	mg/L	Laboratory	Annually

5. Sample Collection and Analysis: Groundwater samples shall be collected using proper sampling methods, field equipment calibration, chain-of-custody, and quality assurance/quality control protocols. Laboratory analyses shall be conducted by an

Environmental Laboratory Accreditation Program (ELAP)-certified laboratory according to U.S. EPA-approved methods. Unless otherwise noted, all monitoring, sample preservation, and analyses shall be performed in accordance with the latest edition of Test Methods for Evaluating Solid Waste, SW-846, USEPA, and analyzed as specified herein by the appropriate analytical methods and reporting limits. Certified laboratories can be found on the State Water Board's ELAP website (https://www.waterboards.ca.gov/drinking_water/certlic/labs/index.html).

6. Data Submittal: All Representative Groundwater Monitoring data shall be submitted annually in the Annual Monitoring Report in accordance with Section X.X of this MRP.

B. Drinking Water Supply Well Monitoring

1. Overview: The purpose of Drinking Water Supply Well Monitoring is to: (a) identify drinking water wells with nitrate concentrations that exceed the Maximum Contaminant Level (MCL) of 10 milligrams per liter (mg/L) of nitrate+nitrite as N; and (b) notify drinking water well users of the potential for human health impacts.

2. Required Wells: Enrollees shall sample all private Drinking Water Supply Wells located on their enrolled parcels for nitrate. Enrollees may use a monitored Drinking Water Supply Well to satisfy Representative Groundwater Monitoring requirements in Section II.A provided that the well location and screen interval are representative of current groundwater quality conditions and suitable for evaluating regional impacts from irrigated agriculture in accordance with Section II.A.

3. Initial Sampling: Enrollees shall conduct annual Drinking Water Supply Well sampling for nitrate for three consecutive years. In lieu of one or more of these initial three annual sampling events, Enrollees may submit existing sampling results from one or more of the five prior years, provided: (a) nitrate sampling of the well was completed prior to enrollment in the Order; and (b) sampling and testing for nitrate were completed using USEPA-approved methods and by an ELAP-certified laboratory.

4. Sampling Frequency: If the nitrate concentration is at or above 5 mg/L of nitrate+nitrite as N in any of the first three annual samples, the Enrollee shall continue conducting annual Drinking Water Supply Well sampling. If the nitrate concentration is below 5 mg/L of nitrate+nitrite as N in three consecutive annual samples, the Enrollee may conduct sampling once every five years. Sampling once every five years may continue unless the nitrate concentration is at or above 5 mg/L, in which case the Enrollee must resume annual sampling until the nitrate concentration is below 5 mg/L for three consecutive years. The Executive Officer may, at any time, require an alternative sampling schedule based on trend data for the well.

5. Sampling Location: Samples shall be collected at or near the well head before the pressure tank and prior to any well head treatment. In cases where this is not

possible, the sample shall be collected from a sampling point as close to the pressure tank as possible, or from a cold-water spigot located before any filters or water treatment systems.

6. Laboratory Analysis: Drinking Water Supply Well sample analysis shall be conducted by an ELAP-certified laboratory according to USEPA-approved methods. Unless otherwise noted, all monitoring, sample preservation, and analyses shall be performed in accordance with the latest edition of Test Methods for Evaluating Solid Waste, SW-846, USEPA. Certified laboratories can be found on the State Water Board's ELAP website.

7. Data Submittal: All Drinking Water Supply Well monitoring data, including any existing data, shall be submitted electronically to the State Water Board's GeoTracker database by the testing laboratory in Electronic Deliverable Format (EDF). Data submitted shall include the APN where the Drinking Water Supply Well is located and the coordinates (latitude and longitude) of the well.

8. Exceedances: If water in any well that is used for drinking water exceeds 10 mg/L of nitrate+nitrite as N, the Enrollee shall provide written notice to the drinking water well users within 10 days of learning of the exceedance and send a copy of the notice to the North Coast Water Board. The copy of the notice shall also include a report of the number of people the Drinking Water Supply Well supplies. If the Enrollee is not the owner of the parcel enrolled in the Order, the Enrollee may provide notice instead to the owner within 24 hours of learning of the exceedance, and the owner shall provide notice to the drinking water well users within nine days and send a copy of the notice to the North Coast Water Board.

9. Form of Notice: At a minimum, the Enrollee or non-Enrollee owner shall notify drinking water well users of the exceedance by providing them a copy of a Drinking Water Notification Template approved by the Executive Officer, in a language accessible to the well users. The template shall be signed by the Enrollee or non-Enrollee owner certifying that notice has been provided to the users. A copy of the signed template shall be sent to the North Coast Water Board and retained by the Enrollee or non-Enrollee owner. Template is available in Attachment G: Templates.

10. Ceasing Sampling: Sampling may cease if a drinking water well is taken out of service or no longer provides drinking water because sufficient replacement water is being supplied. Enrollees shall keep any records (e.g., photos, bottled water receipts) establishing that the well is not used for drinking water.

III. Conditional Monitoring

This Section establishes monitoring requirements that apply conditionally to Enrollees based on the compliance pathways they have selected pursuant to the Order. Conditional monitoring consists of (1) Riparian Photo-Point Monitoring, applicable to Enrollees electing to develop and implement a Riparian Grazing Plan; and (2) Tailwater Monitoring, applicable to an Enrollee or group of Enrollees who elect Pathway 2 (Treatment and Control) as the compliance pathway for tailwater discharges under

Section II.E of the Order. The conditions that trigger each form of conditional monitoring are described in Section II.E of the Order.

A. Riparian Photo-Point Monitoring

1. Applicability: Enrollees electing to develop and implement a Grazing and Riparian Management Plan (GRMP) in lieu of meeting livestock grazing requirements in Streamside Areas (Section II.E of the Order) shall conduct Riparian Photo-Point Monitoring at applicable riparian pastures on enrolled parcels in accordance with this Section.

2. Objective: The objective of Riparian Photo-Point Monitoring is to provide a qualitative indication that implemented grazing and riparian management practices are commensurate with the livestock grazing requirements in the Streamside Area (Order Section II.E, Streamside Area) and are effective at maintaining or improving riparian vegetative cover, shade, and channel condition consistent with the Total Maximum Daily Loads (TMDLs) and temperature Water Quality Objective.

3. Site Selection: The Enrollee, in their GRMP, shall propose a representative sample of riparian grazing locations for photo-point monitoring. Photo-points shall be located so they are representative of the range in stream gradient, riparian community type, grazing intensity, and management practice implementation across the applicable enrolled parcels.

4. Photo-Point Establishment and Protocols: Guidance regarding establishment and protocols for photo-point monitoring are provided by the NRCS Quick Guide to Photo Monitoring. At a minimum, each photo-point shall include: (a) a permanent or repeatably locatable photo station with GPS coordinates; (b) a compass bearing and field of view recorded for each photograph; (c) a visible reference object or scale within the frame; and (d) accompanying field notes documenting date, observer, weather, observed riparian condition (vegetation cover, height, composition, and use indicators), and any observed grazing impacts. All photo-points shall be depicted on the Enrollee's Farm Evaluation map as required by Section IV.

5. Pre- and Post-Grazing Event Monitoring: For each grazing event in a monitored riparian pasture, photo-points shall be captured both immediately prior to the grazing event and immediately following the conclusion of the grazing event to document the change in riparian condition attributable to the grazing event.

6. Reporting: Photo-Point Monitoring records shall be reported as photo-point images and narrative analysis. Photographs, GPS coordinates, compass bearings, and accompanying field notes shall be maintained at the Enrollee's farming headquarters or primary place of business and shall be provided to North Coast Water Board staff on request. Where photo-point documentation indicates declining riparian condition, persistent grazing-related impacts, or failure of implemented practices to maintain or improve riparian function, the Enrollee shall implement

additional or modified management practices and report these in their Farm Evaluation.

B. Tailwater Monitoring

1. Applicability: The tailwater monitoring requirements in this Section apply to Enrollees that elect Pathway 2 (Treatment and Control) as the compliance pathway for tailwater discharges under Section II.E of the Order. Enrollees that elect Pathway 1 (Eliminate Tailwater Discharge) are not required to comply with the monitoring requirements of this Section, provided the Enrollee is implementing a self-certified or Certified Tailwater Elimination Plan under Section II.E of the Order and meeting the time schedule as specified in Section II.E of the Order. The Executive Officer may require an Enrollee under Pathway 1 to conduct tailwater monitoring consistent with this Section where evidence indicates that the Enrollee is failing to implement their Tailwater Elimination Plan, including but not limited to: failure to meet intermediate compliance milestones in the time schedule; failure to implement or maintain the practices identified in the Plan; or or failing to meet their certification that tailwater has been eliminated.

2. Monitoring Locations: Tailwater that is hydrologically connected to perennial streams (from April 1 to October 1) and intermittent streams (From April 1 to June 15) must be monitored at the Point of Compliance. Enrollees that select Pathway 2 have two options to fulfill Tailwater Monitoring requirements, and must choose one of the following:

    a. Edge-of-Field (Individual) Monitoring: Enrollees shall monitor hydrologically-connected tailwater discharges at the lowest elevation where tailwater discharges from their irrigated parcel(s).

    b. Group Monitoring Network: A group of Enrollees or the Coalition may propose a tailwater monitoring Point of Compliance or tailwater monitoring network consisting of multiple monitoring points on behalf of one or multiple discharging Enrollees. These Points of Compliance must be located on concentrated tailwater flow paths at the outlets of hydrologically-connected tailwater drainage areas. A single Point of Compliance may represent tailwater discharges from a single Enrollee or from multiple Enrollees whose Fields or Operations drain to the same Point of Compliance. If elected, By **#DATE** (6 months after enrollment deadline), the group of Enrollees, or the Coalition shall propose Point(s) of Compliance to the Executive Officer for approval. At a minimum, proposals shall include:

        i. A map identifying the proposed Point(s) of Compliance, contributing enrolled Fields or Operations, and drainage area boundaries;

        ii) GPS coordinates of the Point(s) of Compliance;

        iii) Access, installation, and maintenance arrangements for the Point(s) of Compliance; and

iv) The name and contact information of the single Enrollee, a group of Enrollees, or by the Coalition for data collection, reporting, and source determination.

The Executive Officer may approve, approve with conditions, require modifications to the proposed Point(s) of Compliance, or determine new Point(s) of Compliance. Point(s) of Compliance shall be installed and operational by the start of the next irrigation season following approval or direction from the Executive Officer.

4. Monitoring Parameters and Frequency. The Enrollee, group of Enrollees or Coalition shall collect the parameters as identified in Table A.5 at each approved Point of Compliance when tailwater is present during the Irrigation Season (April 1-October 1):

a) Temperature: The Enrollee, group of Enrollees, or Coalition shall install and maintain continuous monitoring equipment at each Point of Compliance capable of recording temperature at a maximum 15-minute interval whenever active tailwater discharge is occurring. Equipment shall be calibrated in accordance with manufacturer specifications and a Quality Assurance Project Plan (QAPP) consistent with State Water Board Quality Assurance/Quality Control guidance.

b) Total Kjeldahl Nitrogen (TKN): In Shasta River Watershed. the Enrollee, group of Enrollees, or Coalition shall sample for TKN no less than once every Irrigation Cycle between April 1-October 1. Data collection methods, and quality assurance procedures shall be consistent with State Water Board SWAMP requirements.

c) Total Phosphorus (TP): In Scott River Watershed. the Enrollee, group of Enrollees, or Coalition shall sample for TP no less than once every Irrigation Cycle between April 1-October 1. Data collection methods, and quality assurance procedures shall be consistent with State Water Board SWAMP requirements.

Table A.5: Tailwater Monitoring Parameters and Frequency

Parameter(s)	Collection method	Analysis method	Monitoring Frequency
Temperature	Continuous monitoring (data logger)	Manufacturer-calibrated instrument; NIST-traceable reference	Continuous at intervals ≤ 15 minutes when active discharge is occurring, during the Irrigation Season (April 1 – October 1)

Parameter(s)	Collection method	Analysis method	Monitoring Frequency
Total Kjeldahl Nitrogen (TKN)	Grab Sample	EPA Method 351.2 or similar with a laboratory reporting limit at or below 0.1 mg/L	At least one sample every Irrigation Cycle between April 1-October 1
Total Phosphorus (TP)	Grab Sample	EPA Method 365.1 or similar with a laboratory reporting limit at or below 0.003 mg/L	At least one sample every Irrigation Cycle between April 1-October 1

5. Tailwater not present: If no tailwater is present at a Point of Compliance during a scheduled sampling event, the Enrollee or responsible party shall document the absence of flow in lieu of a sample. Documentation of no flow shall include the date of the scheduled sampling event, the field observations supporting the determination, the identity of the observer, and a certification by the Enrollee or designated representative of the group of Enrollees or Coalition.

6. Source Determination and Tailwater Adaptive Management Program. At the close of each irrigation season, the Enrollee or responsible party for each monitoring point shall:

    a) Compile the temperature, TKN, and TP data collected during the irrigation season;

    b) Identify each occurrence of a Water Quality Benchmark exceedance at the Point of Compliance as described in Order Section II.E, Tailwater Adaptive Management Program;

    c) Identify each enrolled parcel contributing to the drainage area that was irrigating and discharging tailwater during exceedance events; and

    d) Complete a Source Determination Report, to the extent supported by the monitoring data and irrigation records, identifying the enrolled parcel(s) whose tailwater discharges caused or contributed to each Water Quality Benchmark exceedance. Enrollee(s) of identified parcel(s) must comply with the Tailwater Adaptive Management Program as described in Section II.E of the Order.

    The Source Determination Report shall be submitted as part of the Annual Monitoring Report described in Section IV.B of this MRP.

7. Reporting: The Enrollee, Group of Enrollees, or Coalition shall submit Tailwater Monitoring data annually in the Annual Monitoring Report as described in Section V.C of this MRP. Continuous data shall be submitted in full resolution as electronic comma-separated value (CSV) text files, along with tabular descriptive statistics. Grab sample results shall be submitted as tabular results with laboratory analytical reports and shall be organized by sampling date, location, constituent, method detection limit, reporting limit, and analytical result.

8. Quality Assurance and Equipment Calibration: All Tailwater Monitoring shall be conducted in accordance with a Quality Assurance Project Plan (QAPP) consistent with State Water Board Quality Assurance/Quality Control guidance. Temperature loggers shall be calibrated against a NIST-traceable reference before deployment and upon retrieval, or every 6 months, whichever is more frequent. Handheld thermometers shall be calibrated annually against a NIST-traceable reference. Calibration records shall be maintained and submitted with the Annual Monitoring Report. The QAPP shall be submitted with the monitoring location proposals and shall address tailwater monitoring procedures, equipment, calibration, and data management in addition to groundwater procedures.

9. Supplemental Receiving Water Monitoring. The Executive Officer may request information pursuant to Section 13267 of any Enrollee who has selected Pathway 2 (Treatment and Control), including but not limited to: conducting receiving water temperature monitoring upstream and downstream of the Point of Compliance where: (a) the Enrollee's parcel(s) discharge to a reach identified in the TMDL Action Plans as having high habitat value; (b) the operation discharges within 500 feet upstream of a documented thermal refugium; (c) multiple Enrollees discharge to the same reach (tailwater neighborhood); or (d) a significant exceedance has occurred and receiving water impact data is needed. Where required, the Enrollee shall deploy continuous temperature loggers (±0.2°C; ≤ 30 min interval) approximately 100 feet upstream and 100 feet downstream of the Point of Compliance for the duration of the applicable seasonal period.

IV. Reporting Requirements

This Section establishes the annual reporting requirements applicable to all Enrollees. Required reporting consists of (1) an annual Farm Evaluation; and (2) an Annual Monitoring Report, which presents annual water quality monitoring results collected pursuant to Sections II, III, and IV of this MRP.

This Section does not include single submissions or other information that may be required of Enrollees and/or the Coalition such as Workplans, Tailwater Elimination Plans, or Grazing and Riparian Management Plans. Workplan requirements are provided in Section II of this MRP. Tailwater Elimination Plan and Grazing and Riparian Management Plan requirements are located in Section II.E of the Order.

All documents shall be submitted electronically in searchable Portable Document Format (PDF). Maps shall be submitted both within the main PDF documents and as accompanying ArcGIS shapefiles or Google Earth KMZ files. All continuous monitoring data shall be submitted in full resolution as electronic comma-separated value (CSV) text files. Surface water monitoring data, including Tailwater Monitoring data, shall be submitted to the California Environmental Data Exchange Network (CEDEN). Groundwater monitoring data and Drinking Water Supply Well monitoring data shall be submitted to the State Water Board's GeoTracker database in Electronic Deliverable Format (EDF). Drinking Water Supply Well monitoring data shall be uploaded directly to GeoTracker by the testing laboratory or the enrollee in accordance with Section II.B and does not need to be included in the Annual Monitoring Report.

A. Farm Evaluation

1. Purpose: All Enrollees shall complete an annual Farm Evaluation to inventory the management practices currently implemented on their enrolled parcels; to document compliance with the Order; to identify any additional practices needed to prevent discharges that could cause or contribute to exceedances of water quality objectives or violate TMDL load allocations; and to document Adaptive Management actions taken or proposed.

2. Schedule: Individual Enrollees shall submit their Farm Evaluation to the North Coast Water Board by **March 1** of each year. A Coalition may aggregate Farm Evaluation data on behalf of its enrolled members and submit one Annual Compliance Report by **March 1** of each year.

3. Frequency and Scope: Enrollees shall complete a Farm Evaluation each year for all enrolled parcels. Where this MRP requires reporting by Field, Enrollees may aggregate data for multiple Fields provided that the reported area has (1) the same fertilizer inputs, (2) the same irrigation management, and (3) the same management practices. Fields aggregated in this way shall be referred to as a Management Unit and shall be defined, labeled, and consistent across all reporting. No Management Unit shall exceed 640 irrigated acres.

5. Template: Enrollees may use the Farm Evaluation Template in Attachment G:

Templates, or an alternative template which meets all of the requirements below. At a minimum, the Farm Evaluation shall include the following:

a) Owner/Operator Identification: The name, business address, mailing address, email address, and phone number of the owner and operator (if different from the owner).

b) Operation Identification: Location(s) of all enrolled Irrigated Lands parcel(s), including:

i) Crop type (e.g., livestock, alfalfa, grain hay or forage hay, mixed crops).

ii) The physical address of each enrolled parcel.

iii) The Assessor Parcel Number (APN) of each enrolled parcel.

iv) The Township and Range of each enrolled APN.

v) The self-appointed Field ID of each enrolled APN, if applicable.

vi) Total acreage under cultivation and total acreage under grazing for each APN.

c) Well Identification: The number and location of (1) irrigation wells, (2) Drinking Water Supply Wells, and (3) abandoned or inactive wells located within each enrolled APN. Each well shall be given a unique Well ID.

d) Farm Map: A Farm Map shall include all enrolled parcels and may be an aerial photograph, topographic map, LiDAR-derived shaded relief map, Google Earth image, or equivalent that depicts features at 1-inch = 50 feet or larger scale and a 10-foot contour interval. Coalitions may submit Coalition-wide Farm Maps at no greater than a 100-foot contour interval, with detail maps provided at the Section level at no greater than a 10-foot contour interval where the features listed below are present. The map shall include a north arrow, scale bar, legend for any symbology, and the following labeled features:

i) All waterbodies present within the enrolled area, including all designated wetlands.

ii) Livestock and Riparian Grazing Plan photo-points (if applicable).

iii) All tailwater discharge points to surface waters or designated wetlands and Points of Compliance, if applicable

iv) All stream crossings used by livestock or vehicles.

v) A delineation of parcels used for grazing and crop cultivation.

vi) A delineation of parcels where nutrients are applied, including manure.

vii) Identified parcels that contain Drinking Water Supply Wells.

viii) Any chemical storage areas, including petroleum product tanks, fertilizer, and herbicide stockpiles.

ix) Farm buildings, including livestock loading areas, areas where livestock are held temporarily in confinement, and hay barns.

x) The on-farm road network within the enrolled area.

xi) Implemented Management Practices designed to protect water quality.

xii) Proposed future BMPs designed to protect water quality.

xiii) Field ID(s) and land use for each Field (e.g., crop type, fallow, grazing).

e) Management Practices: A tabular inventory of all BMPs implemented on the enrolled parcels by Field ID.

f) Streamside Areas: Enrollees shall report whether minimum Streamside Area widths established by the Order are being met in each applicable Field and, where minimum widths are not being achieved, identify the specific Fields and conditions.

g) Irrigation and Nutrient Management: Enrollees shall report the following for each Field or Management Unit:

i) Primary and secondary irrigation methods (e.g., flood, wheel line, Mid-Elevation Spray Application [MESA], Low Elevation Spray Application [LESA], Low Energy Precision Application [LEPA], Precision Mobile Drip Irrigation [PMDI], or Other with narrative description).

ii) Irrigation management practices implemented to minimize or prevent surface run-off or groundwater leaching.

iii) Range of calendar dates of irrigation application.

iv) Nutrient application details: type of fertilizer or manure applied, date applied, and application rate (tons/acre or lbs/acre as applicable).

v) Nitrogen applied (lbs/acre) for each Field receiving an external source of nitrogen, reported as: (1) Nitrogen applied via fertilizers (lbs/acre); (2) Nitrogen applied via organics and compost (lbs/acre); (3) Nitrogen applied via water (lbs/acre); and (4) Total Nitrogen applied (lbs/acre) [sum of nitrogen from fertilizer, organics/compost, and applied water].

vi) Irrigation efficiency determination for each Field or Management Unit

consistent with the following categories: DEFICIT IRRIGATED (where applied irrigation is less than 95% of the determined agronomic rate); FULLY IRRIGATED (where applied irrigation is within ±5% of the determined agronomic rate); or OVER IRRIGATED (where applied irrigation is greater than 105% of the determined agronomic rate).

h) Riparian Grazing Management: For each Field or Management Unit where livestock are present during the reporting period, Enrollees shall report: compliance pathway selected with respect to Streamside Area management (e.g., livestock grazing requirements met or Grazing and Riparian Grazing Plan implemented) in accordance with Section II.E of the Order.

i) Tailwater Management: For each Field or Management Unit, Enrollees shall report either “no tailwater discharged” or the selected compliance pathway (i.e., Pathway 1 or Pathway 2) in accordance with Order Section II.E, Tailwater.

j) Adaptive Management Reporting: Reporting of Water Quality Benchmarks exceeded and proposed Adaptive Management to be implemented to correct exceedances in accordance with Section II.E, Tailwater Adaptive Management Program.

k) Education Event Attendance: Education event attendance records shall include: Date of annual event attended; Type of event (e.g., in-person meeting, online video, printed materials); and Brief description of topics covered.

h) CEQA Mitigation Monitoring: A report on the CEQA mitigation measures in Attachment F employed to comply with provisions of the Order, including the measure implemented, identified potential impact the measure addressed, parcel(s) where of the mitigation measure was employed, and any steps taken to monitor the ongoing success of the measure.

k) Certification of Maintenance: The Enrollee shall certify on the Farm Evaluation that all management practices are designed, installed, maintained, and promptly repaired in accordance with the Order, and that all information reported is true and correct to the best of the Enrollee's knowledge.

Coalition Reporting of Enrollee Farm Evaluations

6. A Coalition may submit one Annual Compliance Report on behalf of its enrolled Members. The Annual Compliance Report shall include a Participant List and aggregated Farm Evaluation data from the most recently submitted Farm Evaluations of enrolled Members, reported by Anonymous Enrollee ID.

7. Participant List: The Coalition shall submit in the Annual Compliance Report, a

Participant List which shall include:

a) All enrolled Members of the Coalition (Owner/Operator name);

b) Address, and APN of each enrolled parcel;

c) Parcel acres and farmed acres of each enrolled parcel;

d) New members enrolled during the reporting period; and

e) Enrollees no longer Members of the Coalition with a reason for non-participation (e.g., no longer farming or sold farm, plan to enroll as an Individual Enrollee, or failure to submit reports).

8. Farm Evaluation Data: The following data from the prior year's Farm Evaluations shall be reported to the North Coast Water Board for each Field in an Excel Workbook format and be accompanied by a quality assessment of the collected information (e.g., missing data, potentially incorrect/inaccurate reporting), and a description of corrective actions to be taken regarding any deficiencies in the quality of data submitted, if such deficiencies were identified:

a) Anonymous Enrollee ID and Field number.

b) Anonymous APN Number

c) Township and Range for each Field ID

d) Crop type (i.e. grain, alfalfa, berry, irrigated pasture)

d) Implemented Management Practices

e) Streamside Area width compliance

f) Riparian Vegetation Area compliance option selected

g) Tailwater compliance option selected

f) Irrigation and Nutrient Management reporting including:

i) Irrigation method.

ii) Irrigation practices.

iii) Nitrogen management practices and Nitrogen Applied through the following:

1. Nitrogen applied via fertilizers (lbs./acre).

2. Nitrogen applied via organics and compost (lbs./acre).

3. Nitrogen applied via water (lbs./acre).

4. Total Nitrogen applied (lbs./acre) [sum of nitrogen from fertilizer, organics/compost, and all applied water].

g) Number of irrigation wells (both active and inactive).

h) Number of drinking water wells on the parcel.

i) Tailwater Compliance Pathway and Stage implemented, if applicable

j) Education Event attendance date

k) CEQA Mitigation Measure implemented on the Field, if applicable.

B. Annual Monitoring Report

1. The Annual Water Quality Monitoring results submittal shall include all Representative Groundwater Monitoring, and Tailwater Monitoring (where applicable) from the past crop year. Individual Enrollees shall upload all data into GeoTracker or CEDEN, as appropriate. The Coalition may submit data on behalf of its enrolled Members to the North Coast Water Board.

2. Individual Enrollees shall submit their Annual Monitoring Report to the North Coast Water Board by March 1 of each year. A Coalition may submit one Annual Monitoring Report on behalf of its enrolled Members by March 1 of each year. If March 1 falls on a Saturday, the Annual Monitoring Report shall be due the preceding Friday. If March 1 falls on a Sunday, the Annual Monitoring Report shall be due the following Monday. The Annual Monitoring Report shall cover the calendar year preceding the March 1 submittal deadline.

3. Map of Monitoring Locations: A map of all monitoring locations shall be included, showing:

   a) A map of all Representative Groundwater Monitoring wells

   b) All other approved locations where monitoring data required by Sections II and III of this MRP were collected during the reporting period.

19. All analytical data required of Individual Enrollees shall be uploaded to GeoTracker in an Electronic Deliverable Format (EDF). Additionally, monitoring data, monitoring reports, and correspondence shall be in searchable Portable Document Format (PDF) and shall be uploaded annually to GeoTracker. Data required of Coalitions on behalf of their enrolled Members shall be submitted to the North Coast Water Board in accordance with the requirements set forth in the following sections.

Groundwater Monitoring Data Submittal

20. The Enrollee or Coalition shall submit results using a template on the North Coast Water Board website or an alternate template approved by the Executive Officer. Data shall be submitted in an electronic format and include the following for the required reporting period:

    a) Excel workbook containing analytical data for each Representative Groundwater monitoring well (identified by Well ID and GPS coordinates), including all parameters identified in Table A.4.

    b) Electronic copies of all field sheets.

    c) Electronic copies of all applicable laboratory analytical reports.

    e) For chemistry data, analytical reports shall include, at a minimum, the following:

        i) A lab narrative describing quality control failures.

        ii) Analytical problems and anomalous occurrence.

        iii) Chain of custody and sample receipt documentation.

        iv) All sample results for contract and subcontract laboratories with units. Reporting Limits and Method Detection Limits.

        v) Sample preparation, extraction, and analysis dates.

        vi) Results for all quality control samples including all field and laboratory blanks, lab control spikes, matrix spikes, field and laboratory duplicates, and surrogate recoveries.

21. If any data is missing from the annual report, the submittal shall include a description of what data is missing and when it will be submitted to the North Coast Water Board.

22. Drinking Water Supply Well monitoring results shall be uploaded directly to the State Water Board's GeoTracker database by the testing laboratory in accordance with Section II.B and do not need to be included in the Annual Monitoring Report. A summary of exceedances (if any) and confirmation that any required notifications have been provided shall be included in the Farm Evaluation (Attachment A Section V)

Tailwater Monitoring Data Submittal

2) Where the Enrollee has elected Pathway 2 under Order Section II.E, Tailwater, Tailwater Monitoring results from the reporting period shall be included,

consisting of continuous monitoring data for temperature and grab sample data for TKN (Shasta River Watershed) and TP (Scott River Watershed) at each approved Point of Compliance

a) Continuous Monitoring: Full-resolution electronic data submitted as CSV text files for continuous temperature from each Point of Compliance at 15-minute intervals for each Irrigation Cycle while tailwater is being discharged. Data shall be organized by seasonal period (Early, Mid, Late) and shall identify each occurrence of a Water Quality Benchmark exceedance

b) Grab Sample Monitoring — tabular results and laboratory analytical reports for TKN (for the Shasta River Watershed) or TP (for the Scott River watershed) submitted with method detection limit, reporting limit, and QA/QC results; and

c) Narrative discussion of exceedance(s) of Water Quality Benchmarks and Source Determination Report, if applicable.

Attachment B: Supplemental Findings

The North Coast Water Board additionally finds that:

1. For the purposes of adoption of this Order, the North Coast Water Board is the lead agency pursuant to the California Environmental Quality Act (CEQA) (Public Resources Code, section 21000 et seq.). Recognizing that 20 years has passed since the analysis of environmental impacts in the Scott TMDL and Shasta TMDL, and a host of smaller considerations, the North Coast Water Board has prepared and circulated an Environmental Impact Report (EIR) that analyzes the potential environmental impacts of this Order (SCH number 2025020048). The North Coast Water Board certified the EIR pursuant to CEQA on [TO COME: adoption date] when it adopted Resolution No. [TO COME].

I. Relevant Actions outside of Regional Board Authority

2. On March 12, 2020, National Oceanographic and Atmospheric Administration National Marine Fisheries Service (NOAA NMFS) staff contacted North Coast Water Board staff out of concern for low flows in the Scott River based on below average winter snowpack conditions. North Coast Water Board staff began coordinating with other State and Federal agencies in response to these drought concerns in both the Shasta and Scott watersheds, recognizing the impact of low flows on beneficial uses within these watersheds. As of the date of this Order, this collaboration continues with bi-weekly coordination calls among a diverse set of interested parties.

3. On April 21, 2021, Governor Newsom declared a drought state of emergency in Siskiyou County under the provisions of the California Emergency Services Act and ordered state agencies to take immediate actions to increase drought resilience across the state. On May 10, 2021, Governor Newsom extended the drought proclamation to include counties within the Klamath River, Sacramento-San Joaquin Delta, and the Tulare Lake watersheds. This proclamation directed the State Water Resources Control Board (State Water Board) and California Department of Fish and Wildlife to evaluate minimum instream flows and other actions to protect salmon, steelhead, and other native fishes in critical systems in the State.

4. On September 26, 2026, Governor Newsom signed into law Assembly Bill No. 263, which extended the 2021 emergency flow regulations through January 1, 2031 or until permanent rules establishing and implementing long-term instream flow requirements are adopted for the Scott and Shasta Watersheds, whichever occurs first.

II. Scott River Temperature TMDL Findings

5. Multiple factors contribute to the temperature impairments for the Scott River, including the following five anthropogenically alterable factors described within the Scott River Temperature TMDL:

a. stream shade,

b. stream flow via changes in groundwater accretions,

c. stream flow via surface diversion,

d. channel geometry, and

e. microclimate.

6. Anthropogenic impacts to stream shade include legacy hydrologic modification from flood control projects, placer dredge mining, livestock grazing, tillage practices within the riparian zone, and groundwater depletion via pumping for irrigation, which can locally depress groundwater levels past the root zone and deprive vegetation of adequate water.

7. Anthropogenic impacts to stream flow are driven by both surface diversion and groundwater pumping. Surface diversions are especially impactful in smaller tributaries, including French Creek, Kidder Creek, Shackleford Creek, Mill Creek (tributary to Shackleford), the East Fork Scott River, where the total diversion volume is a high proportion of unimpaired stream flow. Excessive groundwater pumping for irrigation can reduce groundwater accretions instream, reducing cold water input and, in some cases, accelerating the disconnection of reaches of the Scott River under certain water year types.

8. Both surface diversion and groundwater pumping result in increased temperatures by reducing thermal mass of water in the Scott River and its tributaries, increasing travel time from cold-water source areas to the mouth of the Scott River, which increases the amount of time water is exposed to solar radiation and atmospheric heating as it moves through the watershed.

9. Anthropogenic changes to channel geometry include legacy hydrologic modifications from flood control projects and ongoing management actions including but not limited to tillage practices within the riparian zone, non-process-based bank stabilization projects, and unmanaged livestock access. Historic straightening of stream courses has had a significant impact on channel geometry, decreasing the overall length of a given stream course, increasing its slope, and driving incision. These incised reaches result in rapid dewatering of shallow groundwater in the late spring and early summer, depleting groundwater resources that would support instream accretions of cold water and riparian vegetation health.

10. Anthropogenic changes to microclimate[9] are generally driven by management induced changes to riparian vegetation, where air masses previously separated by

[9] Microclimate refers to the localized air temperature, humidity, wind conditions, etc that are influenced by the presence or absence of waterbodies, vegetation, land aspect, slope, and other physical features.

dense riparian vegetation are no longer meaningfully separated following the removal of riparian vegetation. This results in elevated air temperatures, changes in relative humidity, and elevated instream temperatures.

III. Scott River Sediment TMDL Findings

11. Multiple factors contribute to the sediment impairments for the Scott River, including the following anthropogenic sources described within the Scott River Sediment TMDL[10]:

12. Anthropogenic activities — including road construction and maintenance, timber harvest, livestock grazing, and land clearing — have increased both the frequency and magnitude of sediment delivery to the Scott River and its tributaries. Large discrete streamside features, including eroding cut banks, terrace scarps, and legacy mine tailings, contribute chronic sediment loads directly to watercourses. Small discrete streamside features — fill failures at stream crossings, eroding skid trail approaches, and destabilized banks from unmanaged livestock access — deliver fine sediment that degrades spawning habitat, fills pools, and reduces intergravel dissolved oxygen critical for egg incubation and alevin survival. These anthropogenic sediment sources are additive to natural background erosion and represent the controllable load reduction targets established by the Scott River Sediment TMDL.

    a. landslides,

    b. large discrete streamside features,

    c. small discrete streamside features,

    d. road related sources, and

    e. unique landslide features.

    Surveys by North Coast Water Board staff found that common factors related to these sources include activities that create disturbances in unstable areas and management of runoff from roads, skid trails, and other anthropogenic features in the uplands. The identified sources were often exacerbated by the interaction of multiple human activities. These anthropogenic activities result in additional discharges of fine sediment in to surface waterbodies, carried downstream and deposit in gravels used by salmonids for spawning, reducing usable spawning

[10] This summary is based on Chapter 3 of the Staff Report for the Action Plan for the Scott River Watershed Sediment and Temperature Total Maximum Daily Loads, available at https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/scott_river/092005/sr/05ch.3.sediment.pdf

habitat. Deposited sediments also reduce channel complexity and fill in deep pools that provide cold water refugia for rearing salmonids.

13. The Action Plan for the Scott River Sediment and Temperature Total Maximum Daily Loads (TMDL Action Plan) directs parties responsible for roads and sediment waste discharge sites[11] to take actions necessary to prevent, minimize, and control road-caused sediment waste discharges.

14. The TMDL Action Plan requires parties responsible for roads, on an as-needed site-specific basis, to develop and submit an Erosion Control Plan and a Monitoring Plan upon request of the North Coast Water Board's Executive Officer. The TMDL Action Plan requires dischargers to address sediment waste discharge sites identified in their Erosion Control Plan, or by other means developed in coordination with North Coast Water Board staff, and monitor sites that could negatively affect the quality of waters of the State, through appropriate permitting or enforcement actions.

IV. Scott River Biostimulatory Conditions Listing Findings

15. "Biostimulatory Conditions" describe the effects of multiple factors that result in the proliferation of nuisance algae and shifts in river metabolism towards high levels of general primary productivity. Factors such as riparian cover, flow, stream channel configuration, and water temperature affect how nutrients are processed within the stream and play a large role in determining whether or not biostimulatory conditions will occur. Factors specific to the Scott River watershed that influence biostimulatory conditions include anthropogenic changes in:

    a. channel morphology that decrease geomorphic complexity;

    b. riparian cover that allow for increases in solar radiation;

    c. flow that reduce stream depth, stream velocity, thermal mass, and increases in travel time across the watershed;

    d. nutrient inputs that drive primary productivity, including organic and inorganic species of nitrogen, phosphorous, and dissolved organic carbon; and

    e. seasonal flushing flows that can scour carry-over algae from the previous growing season to "reset" the system.

16. The Scott River is listed as impaired for biostimulatory conditions pursuant to Section 303(d) of the Clean Water Act (2012 Integrated Report). No TMDL has been adopted for this impairment. This Order serves as an alternative water quality improvement program (Category 5R under the State Water Board's Listing Policy)

[11] Sediment waste discharge sites include areas where anthropogenic activities have resulted in discharges of sediment that make their way to waterbodies. Examples include but are not limited to perched culverts, eroding inboard ditches, streamside features including cutbanks initiated or exacerbated by anthropogenic activities, etc.

by requiring management measures that address the primary anthropogenic sources of biostimulatory substances, including nutrient loading from tailwater return flows, animal waste discharge, and degraded riparian function. Factors driving the biostimulatory impairment include anthropogenic changes in channel morphology, riparian cover, flow regime, nutrient inputs, and reduced seasonal flushing flows.

17. In 2012 the Integrated Report identified that, based on a weight of the existing evidence[12], the Middle Mainstem Scott River was impaired for Biostimulatory Conditions from Young's Dam to Boulder Creek in the Scott River Canyon.

18. Water quality monitoring work is underway to confirm this listing. Current preliminary results indicate that this listing is accurate based on nutrient sampling, dissolved oxygen and temperature monitoring, riparian conditions assessments, and observations of algal growth in-stream across multiple water year types.

19. Based on the data collected to date[13], anthropogenic activities that drive this impairment include:

    a. decreased channel complexity in the impaired reach due to legacy management decisions;

    b. ongoing groundwater pumping that both reduces flow and impacts riparian health;

    c. impacts from unrestricted livestock access to tributaries and parts of the Scott mainstem, including inputs of animal waste, increases in bank erosion from bank trampling, decreases in channel complexity from bank trampling, decreases in riparian shade from livestock over grazing;

    d. inputs of irrigation tailwater; and

    e. multi-year drought events driven by anthropogenic climate change that can affect the ability for snowmelt and precipitation-driven flushing flows to exacerbate nuisance algal conditions.

    Other factors may also be affecting biostimulatory conditions in the Scott River, but the factors listed above appear to be most clearly supported by the existing lines of evidence.

20. Climate change models predict decreased snowpack and less frequent storms with higher precipitation intensity, making drought cycles more severe in California. During prolonged drought years with decreased snowpack, flushing flows decrease

[12] Details of the listing can be viewed here: waterboards.ca.gov/water_issues/programs/tmdl/2020_2022state_ir_reports_revised_final/apx-b/00538.shtml#79258

[13] TOCOME: reference to the technical memo summarizing the preliminary findings to the biostim study.

in magnitude and frequency. During the multi-year drought between October 1, 2019 and September 30, 2022, peak annual flows were measured at 1,690, 1,590, and 911 cubic feet per second (CFS) at the Fort Jones United States Geological Survey flow station, respectively, compared to the average peak annual flows of approximately 7,700 cfs. North Coast Water Board staff observed increasing levels of algae proliferation across each successive year. Peak annual flow in the subsequent water year spanning October 1, 2022 to September 30, 2023 was measured at 3,670 CFS and North Coast Water Board staff observed less algal proliferation.

21. Harmful algal blooms were observed in the Scott River watershed in 2020, 2021, and 2022, with signage posted at Indian Scotty Campground and Jones Beach warning of exposure to cyanotoxin, which could be harmful to human and pet health.

22. The location of the impairment, as well as the discharges and controllable factors that drive the impairment, overlap with land use practices covered by the previous Scott Waiver. There is high certainty that improvements in riparian health, minimizing, controlling, and preventing discharges of tailwater, sediment, and animal waste will improve the TMDL impairment and the biostimulatory conditions impairment. Therefore, it is appropriate for this Order to include conditions to control and minimize discharges and other factors that could contribute to biostimulatory conditions and other impairments.

V. Shasta River Temperature TMDL Findings

23. Multiple factors contribute to the temperature impairments for the Shasta River, including the following five anthropogenically alterable factors described within the Shasta River Temperature TMDL:

    a. stream shade,

    b. tailwater return flows,

    c. flow and surface water diversions,

    d. groundwater accretion/spring inflow, and

    e. Lake Shastina and minor channel impoundments.

24. Anthropogenically-driven impacts to stream shade have generally resulted from unmanaged livestock access to the riparian corridor in these watersheds. The combination of loafing and hoof-action impacts on riparian species roots and livestock consumption of young riparian species has denuded riparian vegetation across the watershed, reducing shade to below site-specific potential effective shade across much of the watershed.

25. Tailwater is the excess water applied to a field that runs off into down-gradient water bodies, and results when excess irrigation water is spread shallowly across a field to facilitate flood irrigation. To ensure sufficient water reaches all parts of the field being irrigated, flood irrigation requires significantly more water to be applied to the field than what is needed to support the transpiration needs of the crop being irrigated. As irrigation water is flooded in a thin sheet across the field, it is exposed to direct solar radiation and can more quickly heat up and equilibrate with atmospheric temperatures. As tailwater is discharged from fields to waterbodies, it can have a significant warming effect on instream temperatures.

26. Surface diversions decrease the volume of water in stream and, thereby, decrease a stream's capacity to assimilate heat. Surface diversions also increase travel time from cold water source areas to downstream habitats, which increases the amount of time water is exposed to solar radiation and atmospheric heating as it moves through the watershed and, ultimately, decreases the extent of cold-water habitat. During the irrigation season, flows in the Shasta River can decrease by over 90% due to surface diversion and groundwater pumping when atmospheric temperatures are highest and days are longest. Average daily surface water demand can range between 248 and 364 cfs during irrigation season[14].

27. Instream groundwater accretion and flow from large, cold-water springs supplies the majority of flow in the Shasta River and the Little Shasta River. Water discharges at high volumes from the Big Springs Complex, a contact zone between a historic lava flow that erupted from Mt. Shasta and the existing soils that covered the valley floor before this eruption. Water also emerges from multiple cold-water springs surrounding Table Rock in the Little Shasta watershed which is currently nearly fully diverted for flood irrigation and stock watering and does not contribute to summertime baseflow. Water conveyed subsurface emerges at these spring complexes at a consistent temperature between 10 ^{o}C and 14 ^{o}C and flow from the Big Springs Complex provides over 70% of the summertime base flow of the Shasta River. The low temperature of this water, combined with the large proportion of the overall summertime baseflow that it provides, supports ideal conditions for Endangered Species Act (ESA) listed Southern Oregon Northern California Coastal (SONCC) Coho Salmon to rear over summer. This water resource also provides a climate resilient foothold for this species as snowpack diminishes in other parts of their native range. Anthropogenic drivers that reduce the flow of cold-water springs include groundwater pumping from areas within the geologic formation that feeds the springs and diversion of spring-fed cold water tributaries.

28. Impoundments across the Shasta River watershed affect instream temperatures by increasing travel time of water through the system, allowing the effects of solar radiation and atmospheric temperatures to be amplified including increased

[14] Data provided by State Water Resources Control Board staff based on their collation of reported water use from the state eWRIMS database and watermaster reporting.

temperatures via direct heating and decreased volume via evaportation. Several impoundments have been removed since the adoption of the Shasta River Temperature TMDL, but many remain including Big Springs Lake, Little Springs Lake, Lake Shastina, a flashboard dam located upstream of Highway A-12, the Kettle Springs impoundment, and the Bridgefield Springs impoundment. Multiple cold-water springs within the Little Shasa River watershed are also impounded for diversion and reduce the stable cold water that used to flow through the Little Shasta, which provided additional habitat for juvenile Salmonids.

VI. Shasta River Dissolved Oxygen TMDL Findings

29. Multiple factors contribute to the dissolved oxygen impairments for the Shasta River, including the following five anthropogenic factors described within the Shasta River Temperature TMDL[15]:

    a. Tailwater return flows,

    b. City of Yreka nonpoint and wastewater infiltration sources[16],

    c. Lake Shastina and minor impoundments,

    d. Decreased riparian shade, and

    e. Decreased flow due to surface diversions and groundwater pumping.

30. The spring source water of the Shasta River that emanates from fractured basalt has relatively high concentrations of total phosphorus and total nitrogen, resulting in overall high level of background biostimulation before any waste discharges occur. With high natural background levels of total phosphorous levels, biostimulation in the Shasta River is not limited by this basic nutrient, unlike most freshwater systems. The high natural background concentrations of phosphorous leave less assimilative capacity in the river for discharges of nutrients relative to other watersheds. As a result, any additional discharges of nutrients from anthropogenic sources result in extensive growth of benthic algae and aquatic vegetation.

31. Tailwater discharged to the Shasta River has been sampled in past North Coast Water Board efforts[17] and results showed average tailwater nutrient concentrations

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[15] This summary is based on Chapter 4 of the This summary is based on Chapter 3 of the Staff Report for the Action plan for the Shast River Temperature and Dissolved Oxygen Total Maximum Daily Loads, available at https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/shasta_river/060707/04shastarivertmdl.pdf

[16] Municipal discharges are covered by other North Coast Water Board and State Water Board permits.

[17] See Chapter 3 of the Shasta River TMDL Staff Report: https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/shasta_river/060707/04shastarivertmdl.pdf

above the average instream nutrient concentrations of the Shasta River mainstem downstream of Dwinnell Dam, indicating tailwater discharges are, categorically, a driver of the dissolved oxygen impairment through introduction of excess nutrients into the Shasta River and its tributaries.

32. Lake Shastina regularly stratifies and becomes anoxic in the hypolimnion (the lower level of the lake), a phenomenon caused by the damming of the Shasta River and impoundment of water behind Dwinnell Dam. Dissolved oxygen concentrations in the Shasta River have been observed to be lower downstream of Lake Shastina than upstream, due to the fact that the outflow of Dwinnell Dam is discharged from the bottom of Lake Shastina where dissolved oxygen levels are lowest in the summer months. Evidence from the TMDL analysis also suggests that Lake Shastina may influence the levels of dissolved oxygen in spring water emanating from Hidden Valley Spring, which when sampled in 2003 had the lowest dissolved oxygen levels of any other sampled springs. Considering the known leaky nature of Lake Shastina and the seasonal fluctuations of Hidden Valley Spring and correlation to the level of Lake Shastina, it's likely that seepage of anoxic water from Lake Shastina is emerging from Hidden Valley Spring and causing the observed low oxygen levels.

33. Lake Shastina also serves as a phosphorous sink and nitrogen source for the Shasta River. The observed presence of blue green algae that are able to fix atmospheric nitrogen, which then enters into the water column as the algae decomposes, adds nitrogen to the Shasta River[18].

34. Dwinnell Dam also reduces scour from peak flows during the winter rains and spring snow melt, allowing fines to accumulate and increase sediment oxygen demand, reducing dissolved oxygen concentrations. These fine sediments also encourage the growth of rooted aquatic macrophytes, increasing the respiratory oxygen demand in the river.

35. Minor Impoundments have historically been used along the Shasta River and its tributaries to raise the level of the river during irrigation season to facilitate diversion of water. Many of these have been removed and replaced with screened on-stream diversions driven by pumps, but several irrigation impoundments remain in use. These impoundments increase the residence time of water in the system promoting changes in water quality including the settling of particulate matter. The depth of water in these impoundments tends to be shallow, allowing light to penetrate to the bottom of the water body, thus increasing water temperature and providing energy for photosynthesis across the entire watercolumn. The accumulation of fine sediment, particulate matter, low velocity, and light penetration throughout the water column all provide conditions that support extensive growth of rooted aquatic

[18] Vignola, E. and M. Deas. 2005. Lake Shastina Limnology. Watercourse Engineering, Inc.

macrophytes and algal growth, increasing the respiratory oxygen demand and sediment oxygen demand, behind these impoundments.

36. Lack of riparian shade contributes to aquatic plant growth by allowing more light to penetrate the water column. Riparian shade effectively blocks light, minimizing the primary energetic source for in-stream photosynthesis and thus minimizing respiratory oxygen demand. Direct solar radiation entering the water column that would otherwise be blocked by riparian shade also increases instream temperatures.

37. Flow can affect dissolved oxygen in multiple ways, including reaeration through changes in velocities and turbulence, water column depth, temperature, and surface films. Higher flows increase velocity, turbulence, and water depth while breaking up surface films that may block the exchange of atmospheric gases with the water column. Higher flows also increase water column depth, increasing the proportion of the water column that is outside the photosynthetically active range. At higher flows, less light is available to aquatic plants, resulting in less fluctuations in dissolved oxygen from photosynthetic respiration. Finally, higher flows can affect dissolved oxygen through changes to water temperature by increasing the thermal mass of the water column. This is particularly notable if the increase in flow is from a cold-water source, as is the case in the Shasta River, with significant portions of unimpaired flow coming from high volume cold-water springs.

VII. Summary of Land Use Practices Driving Watershed Impairments

38. Based on the above findings, the following land use practices that affect riparian shade continue to drive impairments in the Scott and/or Shasta Watersheds:

    a. Riparian grazing conducted for long duration and/or intensity, or in areas where riparian conditions have been degraded and are not showing signs of recovery;

    b. Agricultural practices within the riparian corridor that do not allow for the natural establishment and abundance of native riparian restoration, including but not limited to tillage, road construction and maintenance, poorly designed and maintained road and livestock crossings, physical removal or clearing of woody riparian species, and channel realignment;

    c. Groundwater pumping that results in aquifer drawdown below the root zone of woody riparian species at such a rate, frequency or duration that results in the death of riparian vegetation; and

    d. Practices that result in ongoing stream bed degradation and incision.

39. Based on the above findings, the following land use practices that affect instream flow continue to drive impairments in the Scott and/or Shasta Watersheds:

    a. Surface diversion, especially in tributaries in the Scott where the amount of water diverted is a large proportion of total unimpaired flow;

b. Groundwater pumping from hydrogeologic formations known to supply important cold water spring sources;

c. Groundwater pumping resulting in aquifer drawdown that dewaters areas of cold water accretions, decreases instream flow volumes, or decrease flow velocity and increase surface water travel time through the watershed;

d. Diversion of cold water spring sources that feed areas of known cold water refugia or contribute to instream flow and decrease surface water travel time through the watershed; and

e. In the Shasta, a total of 45 cfs of additional cold water from the Big Springs complex or other cold water sources has yet to be dedicated in stream and protected to the mouth of the Shasta River.

40. Based on the above findings, the following land use practices that affect tailwater and nutrient inputs continue to drive impairments in the Scott and/or Shasta Watersheds.

a. Irrigating more than the evapotranspiration losses and needs of the crop receiving irrigation water.

b. Lack of installation and Insufficient maintenance of berms intended to capture and re-direct irrigation tailwater.

c. Use of flood irrigation in areas with a relatively shallow soil bed above hardpan soils with low permeability. This leads to rapid saturation of the soil bed and more of the applied water running off as shallow surface runoff rather than percolating deeper into the subsurface.

d. Flood irrigating a large volume of water across a field in a short period of time such that much of the applied water results in surface runoff before being able to percolate into the root zone.

e. Concentrating livestock in areas within the riparian corridor of a waterbody, adjacent to a water body, or in an area where precipitation as rain would produce surface runoff into a waterbody without appropriate retention and/or treatment.

f. Riparian grazing for long duration, where livestock are allowed to deposit animal waste directly to surface water, within the wetted area of the stream, or in areas of concentrated surface water that discharges into a waterbody.

g. Constructing or maintaining a livestock loafing or feeding area through which a waterbody flows.

41. Based on the above findings, the following land use practices that affect channel geometry continue to drive impairments in the Scott and/or Shasta Watersheds:

a. Deep incision and ongoing channel degradation continues in multiple areas unmitigated, including the Middle Mainstem Scott, Moffett Creek, French Creek, Parks Creek, the Little Shasta River, and other tributaries.

b. Maintenance of historic water course relocation, straightening, and berm construction for agricultural development or flood control.

c. Placement of large, hardened materials (i.e., “rip-rap”) in an attempt to arrest natural bank erosion. These materials are generally ineffective over the long term for erosion control.

d. Historic conversion of natural waterways into field drainage ditches to facilitate agricultural development maintained through periodic dredging.

e. Placement of bridges within flood plains, resulting in concentration of flow which drives significant erosion and/or incision during periods of high flow.

42. Based upon the above findings, Lake Shastina and Dwinnell Dam continue to have an impact on impairments in the Shasta Watershed. These include increasing the residence time of water diverted into the reservoir from the Shasta River and Parks Creek via impoundment, which increases temperature, decreases dissolved oxygen, and has been known to result in the production of unionized ammonia which is known to be toxic to salmonids. Additionally, Dwinnell Dam halts the natural flow of sediment through the Shasta River, impacting the erosion, mobilization, and deposition of sediments downstream of Dwinnell Dam.

43. Montague Water Conservation District has, however, made progress to develop operational controls that minimize these impacts, including:

a. Delivering cold groundwater pumped from the Flying L pumps to mix with discharges from Dwinnell Dam when the temperature of that discharge reaches 16 ^{o}C.

b. Implementing seasonal pulse flows when water quality conditions within lake Shastina are appropriate, timed with early spring storm events and/or snowmelt pulses, to mobilize accumulated fine sediments throughout the Shasta River. Water quality data collected from these events showed turbidity pulses, indicating these pulse flows were effective in mobilizing sediments while temperature, pH, and dissolved oxygen levels were within water quality objectives.

c. Water quality monitoring of the water discharged from Dwinnell for temperature, dissolved oxygen, and pH to actively manage when releases from Dwinnell are appropriate or when flow should come solely from the Flying L pumps and cold water seeps that emerge from the base of Dwinnell Dam. When pH rises above 9, monitoring for unionized ammonia also occurs.

d. Exchanging water that is contractually obligated to be released according to water rights that can no longer be diverted due to the construction of Dwinnell Dam (Prior Rights Agreements) with cold spring water that the holders of the Prior Rights Agreements would otherwise divert such that spring water can remain instream and lower quality water can be used for diversion.

e. Construction of a cold water habitat refuge at the outlet of the Flying L pump pipeline to expand salmonid habitat in the upper Shasta River.

VIII. Temperature Water Quality Benchmarks — Technical, Scientific, and Legal Basis

44. Basin Plan Narrative Temperature Objective. The Basin Plan establishes a narrative water quality objective for temperature providing that the natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated that such alteration does not adversely affect beneficial uses. Secondly, the Basin Plan establishes at no time or place shall the temperature of any COLD water be increased by more than 5°F above natural receiving water temperature. At no time or place shall the temperature of WARM intrastate waters be increased more than 5°F above natural receiving water temperature. The Scott River and Shasta River and their tributaries are designated for beneficial uses including Cold Freshwater Habitat (COLD), Spawning, Reproduction, and/or Early Development (SPWN), Migration of Aquatic Organisms (MIGR), and Rare, Threatened, or Endangered Species (RARE). These uses are dependent upon maintenance of cold water temperatures supporting all life stages of anadromous salmonids — coho salmon (Oncorhynchus kisutch), Chinook salmon (Oncorhynchus tshawytscha), and steelhead trout (Oncorhynchus mykiss) — listed as threatened or endangered under state and/or federal endangered species acts. The narrative objective is the foundational standard from which the TMDL load allocations and this Order's Water Quality Benchmarks are derived.

45. Scott River Temperature TMDL — Tailwater as Controllable Source. The Scott River Temperature TMDL (Basin Plan Table 4-10) is expressed as reduction in solar radiation load necessary to achieve the narrative temperature objective. While primarily shade-based, the TMDL identifies tailwater return flows as a distinct, controllable source of thermal loading. Table 4-10 requires management measures for irrigated lands including prevention and control of tailwater. The rescinded 2018 Scott Waiver (Order No. R1-2018-0018, Condition 5(k)) required management practices to “minimize, control, and prevent irrigation water or tailwater from reaching surface waters.” Tailwater discharged during the critical summer period is characteristically warmer than ambient receiving water because irrigation water is diverted, applied to fields where it absorbs solar energy, and returned at elevated temperatures. This thermal loading is additive to the shade-based load allocations.

46. Shasta River Temperature and Dissolved Oxygen TMDLs — Tailwater as Separate Source Category. The Shasta River TMDL (Basin Plan Table 4-14) identifies

tailwater return flows as a separate source category with its own responsible parties and implementation actions. Table 4-14 directs irrigators to “employ land stewardship and irrigation management practices and activities that minimize, control, and preferably prevent discharges of fine sediment, nutrients and other oxygen consuming materials, and elevated water temperatures from affecting waters of the Shasta River and its tributaries.” The rescinded 2018 Shasta Waiver (Order No. R1-2018-0019) identified “unmitigated tailwater return flows to main stem and tributary reaches, or into springs and their associated wetlands such that elevated surface water temperatures result” as a priority risk factor. The Shasta TMDL Water Quality Compliance Model establishes an instream flow target that requires an additional 45 cfs of dedicated cold water, in addition to baseline flows at the time of analysis, from May 15 through October 15. The interlinked temperature-dissolved oxygen framework — where warm tailwater simultaneously raises temperature and reduces dissolved oxygen carrying capacity while accelerating biochemical oxygen demand — provides direct authority for a tailwater temperature benchmark.

47. Regional Temperature Policy. The North Coast Water Board's Policy for the Implementation of the Water Quality Objectives for Temperature (adopted March 2014) establishes that solar radiation is the dominant driver of elevated stream temperatures and identifies additional controllable factors including warm water discharges such as tailwater. The Policy directs the Board to apply mandatory controls on controllable thermal inputs through all regulatory instruments. Where TMDLs are adopted, the TMDL allocations are the primary mechanism; the Temperature Policy supplements and reinforces them. The Policy independently supports tailwater temperature benchmarks as a translation of the Basin Plan narrative temperature water quality objective — even absent the TMDLs, the Policy's directive to control controllable thermal inputs would require addressing tailwater temperature from irrigated agriculture.

48. How Tailwater Causes Temperature Impairment. Tailwater from irrigated agriculture contributes to temperature impairment through five mechanisms: (a) Direct thermal loading — diverted water applied to fields absorbs solar energy and returns to the stream at elevated temperatures, most pronounced during the critical June–September period when air temperatures are highest and streamflows lowest; (b) Volume-temperature interaction — thermal impact is a function of both temperature and volume, and during extreme low-flow conditions even modest tailwater volumes significantly alter receiving water temperatures; (c) Spatial concentration (tailwater neighborhoods) — tailwater discharges concentrate along valley-floor reaches where flood irrigation is prevalent, and multiple discharges along the same reach create cumulative thermal loading exceeding what any individual discharge would cause in isolation; (d) Temperature-dissolved oxygen synergy (Shasta River) — warm tailwater reduces dissolved oxygen saturation while accelerating metabolic oxygen demand from organic materials, a pathway specifically addressed by the

Shasta TMDL; and (e) Thermal refugia disruption — tailwater near cold water refugia (spring inflows, tributary confluences, deep pools) diminishes the temperature differential that defines the refugium, reducing essential salmonid survival habitat.

49. Seasonal Temperature Benchmark Technical Basis. The Water Quality Benchmarks for temperature are calibrated to the thermal requirements of the most sensitive beneficial uses during each phase of the Irrigation Season. They are based on best professional judgement derived from: (a) U.S. EPA Region 10 Temperature Guidance for Pacific Northwest Anadromous Salmonids (EPA 910-B-03-002, 2003); (b) California Department of Fish and Wildlife Recovery Strategy for California Coho Salmon (CDFG 2004); (c) the Scott River and Shasta River TMDL compliance models; and (d) peer-reviewed literature, including Sullivan et al. (2000), Welsh et al. (2001), and Richter and Kolmes (2005). The resulting seasonal watershed-side benchmarks are: Early Season (April 1 – June 15), 61°F (16.0°C), protecting smolt outmigration and juvenile rearing; Mid-Season (June 16 – August 31), 64°F (17.8°C), protecting oversummer juvenile rearing and adult Chinook holding; and Late Season (September 1 – October 1), 56°F (13.3°C), protecting adult spawning migration and early spawning.

50. Irrigation Season and Biological Calendar Intersection. The Irrigation Season (April 1 – October 1) encompasses three phases corresponding to distinct combinations of irrigation activity and salmonid life history. During the Early phase (April 1 – June 15), irrigation is commencing with moderate tailwater generation while smolt outmigration and juvenile rearing are occurring, presenting moderate thermal risk. During the Mid phase (June 16 – August 31), irrigation is at peak demand with maximum tailwater volumes and temperatures coinciding with oversummer juvenile rearing and adult Chinook migration, presenting very high thermal risk. During the Late phase (September 1 – October 1), irrigation demand is declining with final discharges occurring during spawning migration and early spawning, presenting critical thermal risk. The Late Season warrants the most stringent Irrigation Season benchmark (56°F) because it represents the highest-consequence intersection between active irrigation and salmonid reproduction.

51. Dual Compliance Pathway Justification. The dual pathway structure provides meaningful Enrollee choice while ensuring equivalent water quality outcomes: (a) Pathway 1 eliminates the thermal load entirely, the most direct path to temperature protection; (b) Pathway 2 provides a structured, iterative path with monitoring, benchmarks, and escalating adaptive management; (c) the eight-year schedule is consistent with TMDL implementation timelines and the five-year waiver cycles used under Orders R1-2018-0018 and R1-2018-0019; (d) the structure was expressly anticipated by the 2018 Waivers, which stated the future order may “differ from this Order by incorporating a tiered structure, employing multiple levels of permitting rigor commensurate with the level of discharge or threat of discharge”

(Finding 18, both Orders); and (e) Water Quality Benchmarks translate Water Quality Objectives into measurable standards, consistent with the NPS Policy requirement that management measures be verified through monitoring.

52. Point of Compliance Justification. The Point of Compliance is the location at which tailwater discharge compliance with Water Quality Benchmarks is determined. The Point of Compliance is located at the lowest elevation where tailwater discharges from irrigated parcel(s) to perennial streams (from April 1 to October 1) and intermittent streams (From April 1 to June 15). must be monitored at the Point of Compliance. These Points of Compliance must be located on concentrated tailwater flow paths at the outlets of hydrologically-connected tailwater drainage areas.The Point of Compliance at the point of tailwater entry to the receiving waters with COLD Beneficial Uses ensures benchmarks are applied where most relevant to beneficial use protection.

53. Water Quality Benchmarks as Implementation Tools. Water Quality Benchmarks in this Order are not new water quality objectives. The temperature benchmarks are the translation of the existing narrative and numeric objectives — as interpreted through the applicable temperature TMDL load allocations, the Temperature Policy, and peer-reviewed science and literature — into measurable, discharge-specific numeric compliance values. This translation is consistent with the NPS Policy's requirement that management measures be verified through monitoring and with the ESJ Order's precedential requirements for iterative management practice implementation with feedback mechanisms.

54. Tailwater Neighborhoods. In both the Scott and Shasta valleys, tailwater discharges concentrate along specific reaches where flood irrigation is prevalent and the river corridor traverses the valley floor. These clusters — “tailwater neighborhoods” — create cumulative thermal, nutrient, and sediment loading along discrete stream segments. Multiple discharges each incrementally raise temperature, reduce dissolved oxygen, and increase turbidity and biostimulatory substances, with compound effects exceeding any individual discharge's impact. The Monitoring and Reporting Program accounts for tailwater neighborhoods through downstream monitoring stations and Source Determination Reports evaluating cumulative contributions. The Executive Officer may designate collective Points of Compliance at shared drainage outlets to address neighborhood-scale effects.

55. Temperature Management Practices for Tailwater. Enrollees under Pathway 2 and Enrollees developing Certified Tailwater Discharge Treatment and Control Plans under Tier 2 Adaptive Management may implement the following categories of management practices to reduce tailwater temperature:

    a. irrigation efficiency improvement (conversion to more efficient methods such as flood to sprinkler/LESA/drip, scheduling optimization per National

Resources Conservation Service (NRCS) Conservation Practice Standard (CPS) 449, deficit irrigation during peak temperature periods);

b. tailwater volume reduction (recovery and reuse with capture ponds and pump-back, shortened run lengths, surge irrigation);

c. thermal attenuation (constructed wetlands or vegetated treatment channels, cooling ponds with delayed release);

d. conveyance management (shading ditches and channels, piping open conveyances, shortening conveyance distances);

e. irrigation timing (shifting to nighttime or early morning irrigation to reduce solar heating); discharge timing (releasing tailwater during early morning when receiving water temperatures are lowest); and

f. cold water blending (blending warm tailwater with cold groundwater, spring water, or stored cold water before discharge).

These practices are included in the approved management practice menu in Attachment E and may be implemented individually or in combination. Alternative practices achieving equivalent or superior thermal performance may be proposed to and approved by the Executive Officer.

56. Shasta River Reach-Specific Temperature Benchmarks — Master 1 Derivation.

a. Source and Rationale. The reach-specific tailwater temperature benchmarks for the Shasta River mainstem are derived from the Master 1 maximum modeled temperature values presented in Table 6.6 of Chapter 6 of the Shasta River Temperature TMDL. Table 6.6 presents the maximum temperature predicted by the RMS19. model at twelve locations along the Shasta River mainstem — from Dwinnell Dam (RM 42.60) to the Mouth (RM 0.66) — during the August 2002 critical condition simulation period under the Master 1 scenario. The Master 1 maximum represents the single highest instantaneous temperature predicted at each location during the simulation — the peak thermal condition the receiving water reaches on the hottest day at each location under conditions of restored shade and controlled tailwater. The Master 1 scenario incorporates: (1) riparian shade to site potential conditions, (2) tailwater causing no receiving water heating, (3) temperatures of Big Springs Creek reduced by 4°C from baseline conditions, and (4) temperatures of Parks Creek reduced by 2°C from baseline conditions. The Master 1 scenario did not include a 45 cfs flow increase from Big Springs Creek which was incorporated in the TMDL model's water quality compliance scenario. Approximately 70 percent of compliance scenario temperature

[19] The Tennessee Valley Authority's River Modeling System (RMS) was the model used to develop the Shasta River temperature TMDL.

reductions are attributed to Master 1; approximately 30 percent to the flow increase. The twelve Table 6.6 model output locations and their Master 1 maximum modeled temperatures are:

Location	River Mile	Master 1 Maximum (°C)	Master 1 Maximum (°F)	Reduction from Baseline (°C)
Dwinnell Dam	42.6	21.27	70.3	0
Louie Road	33.93	19.48	67.1	-1.61
GID	30.59	15.28	59.5	-3.4
Highway A-12	24.11	18.87	65.9	-3.18
Freeman Lane	19.23	19.41	66.9	-3.01
Montague-Grenada Rd	15.52	19.16	66.5	-3.69
Highway 3	13.16	19.14	66.5	-4.14
Yreka Ager Road	10.91	19.41	66.9	-4.07
Anderson Grade Road	8.03	21.03	69.9	-3.1
Highway 263	7.3	21.24	70.2	-2.95
"Salmon Heaven"	5.6	22	71.6	-2.68
Mouth	0.66	22.67	72.8	-2.79

b. Rationale for Using Maximum Modeled Temperatures. The North Coast Water Board finds that the Master 1 maximum modeled temperatures — rather than a multi-day average such as a 5-day average maximum — are the appropriate basis for the reach-specific tailwater benchmarks for the following reasons:

c. Consistency with the benchmark measurement metric. The Water Quality Benchmarks in this Order are measured as instantaneous maximum temperatures at the Point of Compliance. Using maximum modeled temperatures as the derivation basis provides direct metric consistency — both the benchmark and the compliance measurement reflect peak thermal conditions. If benchmarks were derived from a multi-day average, an operator could comply with the instantaneous benchmark while the averaged thermal condition at the compliance point exceeds the modeled average — a metric mismatch that would undermine the protective intent of the benchmarks;

d. The "no net increase" allocation operates on instantaneous conditions. The TMDL load allocation — "no net increase in receiving water temperature" from tailwater return flows [1] — is not qualified by an averaging period. It applies to the receiving water temperature at the time and place of discharge. The maximum modeled temperature represents the highest receiving water temperature that should exist under Master 1 conditions at each location. Setting the benchmark at that maximum ensures that tailwater does not

cause a net increase even during peak thermal conditions on the hottest day of the critical period;

e. Protection during worst-case conditions. Salmonid thermal stress is driven by peak temperatures, not averages. Acute thermal impacts — behavioral avoidance, physiological stress, reduced feeding, disease susceptibility, and mortality — are triggered when temperatures exceed biological thresholds on individual days, regardless of whether the multi-day average is lower. A benchmark based on the maximum ensures protection during the specific hours and days when thermal risk is greatest;

f. Spatial resolution. Table 6.6 provides maximum modeled temperatures at twelve locations along the Shasta River mainstem, compared to three locations in the TMDL's compliance point summary. This spatial resolution allows each reach boundary to be anchored to an actual model output location rather than interpolated between distant points. Twelve data points capture the longitudinal thermal variability driven by spring inputs, tributary influences, shade potential differences, and channel morphology changes — most importantly the dramatic cooling at the GID location (RM 30.59) to 15.28°C (59.5°F), which directly reflects the Big Springs Creek cold water influence.

g. Conservative but achievable benchmarks. The maximum modeled temperature represents the upper bound of the Master 1 thermal regime at each location. On most days during the Irrigation Season, actual receiving water temperatures under Master 1 conditions would be lower than the maximum. Setting the benchmark at the maximum therefore provides an achievable target — owner or operators managing tailwater to match the peak Master 1 temperature will, on most days, discharge tailwater that is at or below the actual receiving water temperature. This provides a practical margin of compliance while still ensuring that tailwater does not cause a net increase during peak conditions;

h. Alignment with critical condition modeling. The Master 1 scenario was modeled under the August 2002 critical condition simulation period — a period during which daily maximum air temperatures consistently exceeded the 16-year average and Shasta River flows ranked 19th lowest of 67 years of record. The maximum modeled temperature from a critical-condition simulation represents the most thermally challenging condition the receiving water is expected to face under Master 1. Benchmarks based on this value are calibrated to worst-case conditions, providing inherent conservatism during more typical years.

i. Longitudinal Thermal Structure Revealed by Table 6.6 The twelve-point spatial resolution of Table 6.6 reveals critical features of the Shasta River's

thermal structure under Master 1 conditions that inform the reach-specific benchmarks:

i. Dwinnell Dam influence (RM 42.60). Master 1 maximum at the dam is 21.27°C (70.3°F) — identical to baseline. The dam is not modified under Master 1, and no temperature reduction occurs at this location. Temperatures cool progressively downstream from the dam as shade improvements take effect;

ii. Big Springs Creek cooling (RM 30.59 — GID). The GID location shows the most dramatic feature in the longitudinal profile: Master 1 drops to 15.28°C (59.5°F) — a reduction of 3.40°C from baseline and the coldest point on the entire mainstem. This is the direct thermal signature of Big Springs Creek, which delivers spring water at approximately 11–12°C year-round. The GID model output captures the spring-fed thermal regime that is the single most important cold water asset in the Shasta River watershed;

iii. Post-springs warming (RM 24.11 to RM 10.91). Downstream of GID, Master 1 temperatures rise from 18.87°C at A-12 to 19.41°C at Yreka Ager Road — a gradual 0.54°C warming over approximately 13 river miles as the spring-cooled water absorbs solar energy. The relatively flat thermal profile through this segment reflects the significant shade improvements under Master 1 (transmittance targets as low as 10% near Montague-Grenada Road);

iv. Lower river heating (RM 10.91 to RM 0.66). Master 1 temperatures rise sharply from 19.41°C at Yreka Ager Road to 22.67°C at the Mouth — a 3.26°C increase over approximately 10 river miles. This acceleration reflects reduced shade effectiveness in wider channel segments, cumulative solar heating, and the absence of significant cold water inputs in the lower valley and canyon. Master 1 temperatures in this segment exceed 21°C (70°F), demonstrating that shade and tailwater management alone are insufficient to achieve compliance in the lower Shasta River without the flow increase.

j. Tailwater Load Allocation. The TMDL tailwater load allocation is “no net increase in receiving water temperature” from tailwater return flows. Benchmarks are set at the Master 1 modeled receiving water temperature for each reach to implement this allocation.

k. Model Output Locations. RMS model output locations used to derive intermediate reach temperatures include: Mouth (RM 0), Hwy 263 (RM ~7.3), Anderson Grade Road (RM ~5), Yreka-Ager Road (RM ~10), Montague-Grenada Road (RM 15.5), Freeman Road (RM ~20), A-12 (RM 24.1),

GID/Hueseman diversion (RM ~28), Big Springs Creek (RM ~27), and East Louie Road (RM ~35).

l. Shade Context. The TMDL assigns current and potential riparian reach-average percent solar radiation transmittance targets: Dwinnell Dam to Riverside Road (RM 40.6–39.9): 59% current, 30% potential; Riverside Road to upstream of A-12 (RM 39.9–28.3): 76% current, 50% potential; upstream of A-12 to near DeSoza Lane (RM 28.3–22.0): 95% current, 85% potential; near DeSoza Lane to upstream of Montague-Grenada (RM 22.0–16.1): 89% current, 30% potential; near Montague-Grenada Road (RM 16.1–14.6): 90% current, 10% potential; downstream of Montague-Grenada to Hwy 263 (RM 14.6–7.3): 78% current, 30% potential; and Hwy 263 to mouth (RM 7.3–0): 70–100% current, 30–50% potential.

m. Benchmark Derivation by Reach. The reach-specific Mid-Season benchmarks implement the TMDL's tailwater load allocation — "no net increase in receiving water temperature. The TMDL model assumed that tailwater was at the local river temperature and therefore caused no heating. Under that assumption, the model produced the Master 1 receiving water temperatures. Because the allocation requires that tailwater cause no net increase in temperature, tailwater at the Point of Compliance cannot exceed the Master 1 temperature at that location — if it did, it would warm the receiving water above the modeled condition, violating the allocation.

The benchmarks therefore equal the Master 1 modeled temperature for each reach. This is not an interpretation by analogy — it is the direct, logical consequence of the allocation itself. The TMDL requires that tailwater cannot warm the river; the model shows what the river temperature is when tailwater does not warm it; that temperature is therefore the maximum temperature of a tailwater discharge.

The benchmarks implement the TMDL tailwater load allocation. They do not, by themselves, achieve the full Basin Plan temperature objective. The full Water Quality Compliance Scenario identified in the TMDL as achieving the Basin Plan narrative temperature objective includes not only shade restoration and tailwater management (Master 1) but also the dedicated cold water instream flow increase. Master 1 addresses approximately 70 percent of the modeled temperature reductions; the flow increase addresses approximately 30 percent. Achievement of the Basin Plan objective requires implementation of all TMDL components — shade, tailwater, and flow. This Order regulates shade and tailwater — the controllable land management factors within its scope. The flow component is addressed through the TMDL Action Plan's water use and flow implementation actions (Basin Plan Table 4-14) and through water rights administration under the State Water Board's jurisdiction. This Order does not administer water rights and does not assign responsibility for the flow allocation to agricultural dischargers.

The Mid-Season benchmarks are set at the mid-point of the Master 1 maximum modeled temperature range within each reach as read from the Table 6.6

longitudinal thermal profile. Reaches are defined by grouping segments of the thermal profile with similar slope of temperature change into functional thermal blocks. The simplified 7-reach structure consolidates the 12 Table 6.6 model output locations into operationally manageable compliance segments:

Reach A (RM 42–39, Below Dwinnell): Master 1 maximum temperatures plateau at approximately 70°F through this reach. The dam outfall temperature persists without significant cold water inputs. Mid-Season benchmark: 70°F.

Reach B (RM 38–34, Above Parks Creek): Master 1 maximum temperatures cool from approximately 70°F to 68°F, likely due to groundwater accretion. Mid-point: 69°F. Mid-Season benchmark: 69°F.

Reach C (RM 34–32, Below Parks Creek): Master 1 maximum temperatures decline from approximately 68°F to 64°F as the profile enters the Big Springs influence zone. Parks Creek inflow contributes cooling. Mid-point: 65°F. Mid-Season benchmark: 65°F.

Reach D (RM 32–26, Big Springs Area): This reach spans the entire Big Springs Creek thermal influence — the steep plunge to approximately 60°F at the GID model output location (RM 30.59, Master 1 = 15.28°C / 59.5°F [1]), the thermal trough, and the initial rebound. Master 1 temperatures range from approximately 64°F to 60°F and back to 64°F. Mid-point: 62°F. Mid-Season benchmark: 62°F. This is the most stringent benchmark on the mainstem, directly reflecting the dominant cold water input in the Shasta River system.

Reach E (RM 26–24, Above Highway A-12): Master 1 maximum temperatures rise from approximately 64°F to 66°F as the spring-cooled water continues warming downstream. The Highway A-12 compliance point (RM 24.11) records 18.87°C (65.9°F). Mid-point: 65°F. Mid-Season benchmark: 65°F.

Reach F (RM 24–11, A-12 to Highway 3): Master 1 maximum temperatures are relatively stable through this long mid-valley reach, ranging from approximately 66°F to 67°F. The Montague-Grenada Road compliance point (RM 15.52) records 19.16°C (66.5°F). The flat profile reflects significant shade improvement targets under Master 1. Mid-point: 67°F. Mid-Season benchmark: 67°F.

Reach G (RM 10–8, Yreka-Ager Road): Master 1 maximum temperatures rise from approximately 67°F to 70°F as the river transitions from the valley floor toward the canyon. The Yreka Ager Road model output location (RM 10.91) records 19.41°C (66.9°F) and the Anderson Grade Road location (RM 8.03) records 21.03°C (69.9°F). Mid-point: 69°F. Mid-Season benchmark: 69°F. No significant irrigated agriculture exists below Anderson Grade Road; reach-specific benchmarks are not established for the canyon reach below RM 8.

Early Season benchmarks (April 1 – June 15) are set 4°F below the Mid-Season benchmark for each reach to protect smolt outmigration and core juvenile rearing during the spring warming period.

Late Season benchmarks (September 1 – October 1) are set 10°F below the Mid-Season benchmark for each reach to protect adult spawning migration and early spawning.

Flow Component Acknowledgment. The remaining approximately 30 percent of temperature reductions require the dedicated cold water instream flow increase addressed through Basin Plan Table 4-14 and State Water Board water rights administration. The North Coast Water Board acknowledges that alternative flow regimes may achieve equivalent temperature improvements, including but not limited to the Parks Creek, Hole in the Ground Creek, and Little Shasta River spring watersheds.

Critical Condition Basis. Master 1 temperatures are modeled under critical conditions — the August 2002 simulation period, during which daily maximum air temperatures consistently exceeded the 16-year average and flows were among the lowest of the 67-year period of record. The benchmarks are, therefore, calibrated to worst-case thermal conditions in the period of record, providing additional thermal buffer during more typical years.

Margin of Safety. The TMDL incorporates conservative assumptions providing a margin of safety: (a) the water quality compliance scenario incorporated temperature reductions from Big Springs Creek and Parks Creek but did not incorporate reductions from Yreka Creek and other small tributaries; (b) topographic shade was not considered in the temperature model and is likely a significant factor in the Shasta canyon; (c) potential stream temperature improvements from reduced sedimentation (increased pool frequency and depth) were not quantified; and (d) the effects of maturing streamside riparian vegetation on microclimate were not accounted for. Each of these unquantified factors tends toward lower actual stream temperatures than modeled, providing additional in-stream thermal capacity.

57. Perennial and Intermittent Stream Applicability for Seasonal Temperature Benchmarks. The seasonal temperature benchmarks apply to tailwater discharges hydrologically connected to perennial (all irrigation season) and intermittent (early irrigation season only) — streams that support Cold Freshwater Habitat (COLD) and/or Spawning, Reproduction, and/or Early Development (SPWN) beneficial uses. This limitation is appropriate because: (a) the Basin Plan narrative temperature objective protects beneficial uses, and COLD and SPWN uses are associated with streams that provide aquatic habitat; and (b) ephemeral streams typically do not contain natural flows during irrigation season and therefore are not expected to support COLD or SPWN uses during irrigation season.

IX. Biostimulatory Water Quality Benchmarks — Technical, Scientific, and Legal Basis

58. Water Quality Benchmark (Shasta River Tailwater Dissolved Oxygen TMDL). The Shasta River Dissolved Oxygen TMDL establishes a numeric load allocation of 0.85 mg/L Nitrogenous Biochemical Oxygen Demand (NBOD) for tailwater return flows. NBOD is the oxygen consumed during nitrification — the bacterial oxidation of

reduced nitrogen compounds (organic nitrogen and ammonium) to nitrite and nitrate. NBOD from tailwater is a significant contributor to dissolved oxygen depression in the Shasta River during the critical summer low-flow period, when elevated water temperatures reduce dissolved oxygen saturation, reduced flows concentrate nutrient loads, and accelerated nitrification rates increase oxygen consumption.

This Order translates the Shasta River TMDL NBOD allocation into a Total Kjeldahl Nitrogen (TKN) Water Quality Benchmark of 0.20 mg/L for tailwater discharges hydrologically connected to perennial, intermittent, and perennial streams. TKN is the appropriate regulatory metric for implementing the NBOD allocation for the following reasons:

a. TKN measures the nitrogen pool that exerts NBOD. TKN is the sum of organic nitrogen and ammonium nitrogen — the two reduced nitrogen forms that are converted to nitrate through nitrification, consuming oxygen in the process. TKN captures 100 percent of the nitrogen that will contribute to NBOD in the receiving water. Oxidized forms of nitrogen (nitrate and nitrite), which do not exert NBOD, are excluded from the TKN measurement;

b. The conversion is stoichiometric. The oxygen demand of nitrification is determined by the balanced chemical equation for the oxidation of ammonium to nitrate ($NH_4^+ + 2O_2 \rightarrow NO_3^- + 2H^+ + H_2O$), which yields a stoichiometric oxygen demand of 4.57 mg O_2 per mg of nitrogen oxidized (Sawyer et al. 2003; Tchobanoglous et al. 2003)[20]. This is a fixed chemical relationship, not an empirical estimate. Applying this factor to the TMDL's NBOD allocation:

   TKN = NBOD / 4.57 = 0.85 / 4.57 = 0.186 mg/L

   The benchmark is set at 0.20 mg/L, rounded up from 0.186 mg/L. This rounding provides a small practical margin that accounts for: (i) analytical variability inherent in the TKN laboratory method (EPA Method 351.2); (ii) the fact that not all TKN is fully nitrified within the travel time of the receiving water — some organic nitrogen may not be mineralized to ammonium before the water passes downstream of the impact zone, meaning the actual NBOD exerted is typically less than the theoretical maximum; and (iii) minor variability in the ratio of organic nitrogen to ammonium nitrogen across different agricultural source types;

c. NBOD cannot be directly measured as a practical regulatory metric. Direct measurement of NBOD requires a modified biochemical oxygen demand test with extended incubation periods (20–30 days) and nitrification inhibitor

[20] Tchobanoglous, G., F.L. Burton, and H.D. Stensel. 2003**.** *Wastewater Engineering: Treatment and Reuse.* 4th Edition (Metcalf & Eddy). McGraw-Hill, New York
Sawyer, C.N., P.L. McCarty, and G.F. Parkin. 2003**.** *Chemistry for Environmental Engineering and Science.* 5th Edition. McGraw-Hill, New York

controls. This test is time-consuming, expensive, subject to significant analytical variability depending on sample microbial community and incubation conditions, and impractical for routine agricultural tailwater monitoring. TKN is analyzed by standard EPA Method 351.2, which is widely available at commercial laboratories, produces results within 1–3 days, and has well-established precision and accuracy specifications suitable for regulatory compliance monitoring;

d. TKN is conservative. The 4.57 stoichiometric conversion produces the theoretical maximum NBOD — the oxygen demand that would result if all TKN were fully mineralized to ammonium and completely nitrified to nitrate. In practice, the realized NBOD is typically less than this theoretical maximum. A tailwater discharge meeting the 0.20 mg/L TKN benchmark will therefore exert an actual NBOD at or below the 0.85 mg/L TMDL allocation, with the margin of conservatism increasing as the fraction of organic nitrogen that is not mineralized within the receiving water travel time increases;

e. Consistency with the dissolved oxygen impairment framework. The TKN benchmark operates in conjunction with the Shasta River Temperature Water Quality Benchmarks established in this Order to address the synergistic temperature-dissolved oxygen impairment identified in the Shasta River TMDL. Elevated tailwater temperatures reduce dissolved oxygen saturation while the nitrogen load in tailwater increases NBOD — both mechanisms depress dissolved oxygen simultaneously. Controlling both temperature and TKN in tailwater addresses the two primary controllable factors driving dissolved oxygen impairment from agricultural return flows.

59. Water Quality Benchmark (Scott River Tailwater Biostimulatory Substances). This Order translates the Basin Plan narrative Water Quality Objective for biostimulatory substances into a Total Phosphorus (TP) Water Quality Benchmark, applicable to tailwater discharges hydrologically connected to perennial, intermittent, and perennial streams in the Scott River watershed during the Irrigation Season (April 1 – October 1), as listed in the table below.

Seasonal period	Ambient P75 (mg/L)	Benchmark (mg/L)	Derivation
Early (Apr 1 – Jun 15)	0.015	0.014	Ambient P75 within 0.001 mg/L of the Klamath River TMDL minor-tributary allocation of 0.014 mg/L; set at the reference value.
Mid (Jun 16 – Aug 31)	0.009	0.010	Ambient P75 within 0.001 mg/L of the Klamath River TMDL minor-tributary allocation of 0.014 mg/L; set at the reference value.

Seasonal period	Ambient P75 (mg/L)	Benchmark (mg/L)	Derivation
Late (Sep 1 – Oct 1)	0.007	0.008	Ambient P75 rounded to the nearest 0.001 mg/L. The observed period maximum of 0.010 mg/L lies more than one increment above; no adjustment applied.

TP is the appropriate regulatory metric for implementing the biostimulatory substances Water Quality Objective in the Scott River watershed, and the benchmark values above are supported, for the following reasons.

a. Impairment and source. The Scott River is listed as impaired for biostimulatory conditions under Section 303(d) of the Clean Water Act (2012 Integrated Report), from Young's Dam to Boulder Creek in the Scott River Canyon. No TMDL has been adopted for this impairment. Nutrient loading from irrigated agricultural operations — including phosphorus delivered in tailwater return flows, animal waste, and fertilizer runoff — is identified as a primary anthropogenic driver of the biostimulatory impairment. Excess phosphorus promotes aquatic plant and algal growth that produces severe diel dissolved oxygen fluctuations and seasonal decomposition pulses that exert substantial carbonaceous biochemical oxygen demand on the receiving water, adversely affecting the COLD and SPWN beneficial uses. Biostimulatory conditions in the Scott River are the product of several interacting factors, including channel morphology, riparian cover, flow regime, water temperature, seasonal flushing flows, and nutrient supply. Of the factors within the scope of a discharge benchmark, nutrient supply is the factor a numeric tailwater benchmark can address. This Order addresses the remaining factors through separate management measures.

b. Legal authority. In the absence of a TMDL-derived numeric allocation, the biostimulatory substances Water Quality Benchmark for the Scott River watershed is established under the authority of the Basin Plan's narrative water quality objective for biostimulatory substances, which provides that: *Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.*

   The benchmark is also supported by the narrative dissolved oxygen objective, which requires that dissolved oxygen concentrations not be depressed below levels necessary to support COLD and SPWN beneficial uses. This Order serves as an alternative water quality improvement program (Category 5R under the State Water Board's Listing Policy) for the Scott River biostimulatory impairment. A narrative objective of this kind requires a quantified endpoint before it can be applied to a discharge, assessed for

attainment, or used to evaluate management practice performance. The Water Quality Benchmark supplies that quantified endpoint for tailwater discharges.

c. Phosphorus is the biostimulatory substance of regulatory concern. Paired total nitrogen and total phosphorus measurements in the Scott River establish that algal production in the receiving water is limited by phosphorus. Molar total nitrogen to total phosphorus ratios exceed the Redfield ratio of 16:1 in 93 percent of paired irrigation-season samples, with seasonal median ratios of 45:1 in the early period, 44:1 in the mid period, and 33:1 in the late period. The samples falling below the Redfield ratio are the highest total phosphorus results in the record and reflect discrete phosphorus pulses rather than a change in nitrogen supply. Nitrogen is present in the receiving water at concentrations well in excess of algal demand relative to available phosphorus. A numeric benchmark on nitrogen would therefore not constrain algal production, because nitrogen is not the nutrient limiting growth. A benchmark on phosphorus does constrain production, and phosphorus is accordingly the biostimulatory substance of regulatory concern for purposes of this translation.

d. This determination is consistent with the observation in the Klamath River TMDL staff report that, while short-term nutrient ratios may indicate nitrogen limitation in portions of the mainstem, long-term control of eutrophication in the basin requires reduction of phosphorus loading.

e. Total phosphorus is the appropriate metric. Total phosphorus is selected over dissolved orthophosphate or soluble reactive phosphorus for three reasons:

    i. Total phosphorus captures both dissolved and particulate fractions. Phosphorus sorbed to suspended sediment is not immediately bioavailable but becomes available following deposition and subsequent desorption and mineralization within the channel. Tailwater from flood-irrigated fields carries a substantial particulate fraction, and measurement of the dissolved fraction alone would understate the phosphorus load delivered to the receiving water.

    ii. Total phosphorus is the metric used in the reference conditions and allocations against which the benchmark is corroborated, including the U.S. EPA section 304(a) ecoregional reference conditions and the Klamath River TMDL tributary allocations, permitting direct comparison.

    iii. Total phosphorus is routinely and reliably measured by approved methods at the concentrations relevant here, and is not subject to the sample handling and holding time sensitivities that affect dissolved fractions.

f. The Water Quality Benchmark is derived from ambient total phosphorus monitoring of the Scott River collected under the Klamath Basin Monitoring

Program, Klamath Hydroelectric Settlement Monitoring, at station SC00000_KHSA, Scott River near mouth, Siskiyou County. The station is located downstream of all irrigated agriculture in the watershed and therefore integrates the cumulative contribution of every tailwater return flow in the Scott Valley, together with all other sources reaching the mainstem. The record comprises 95 total phosphorus results collected from May 2009 through December 2016, of which 58 fall within the Irrigation Season and are paired with total nitrogen results. Samples were collected as midchannel grabs at approximately monthly intervals. Total phosphorus was analyzed by Standard Methods 4500-P F with a method detection limit of 0.002 mg/L, and total nitrogen by Standard Methods 4500-N C with a method detection limit of 0.05 mg/L. No irrigation-season result is censored, and no substitution or survival-analysis treatment of non-detects is required.

g. The record spans water years 2009 through 2016 and includes all five water year types — one very wet, one wet, two normal, three dry, and one very dry (critical) — as classified against the record for USGS station 11519500 (Scott River near Fort Jones). Mean daily discharge across those water years ranges from 170 cubic feet per second in water year 2014 to 753 cubic feet per second in water year 2011. The record therefore captures the full range of hydrologic conditions the watershed experiences rather than a single regime.

h. Total phosphorus monitoring conducted from 2021 through 2024 was analyzed by a method achieving a reporting limit of 0.02 mg/L. Because every benchmark value lies at or below that reporting limit, that record cannot resolve ambient total phosphorus within the concentration range the benchmark occupies and is not used in the derivation. The complete dataset, derivation, and supporting analysis are documented in a technical memorandum prepared by North Coast Water Board staff, which is incorporated by reference into this Order.

i. Seasonal periods. Ambient total phosphorus in the Scott River varies systematically through the Irrigation Season, declining as spring runoff recedes, while algal biomass accrues as flow falls and water temperature rises. Mean daily discharge across the record is 822 cubic feet per second in the early period, 152 in the mid period, and 19 in the late period. A single season-wide benchmark would be set too low for the early period and too high for the late period, in the reverse of the pattern of biostimulatory risk, because peak periphyton accrual, minimum flow, and maximum water temperature all occur in the mid and late periods. The benchmark is therefore established separately for three seasonal periods of the Irrigation Season: Early (April 1 – June 15), Mid (June 16 – August 31), and Late (September 1 – October 1). Each measurement is compared to the benchmark applicable to the seasonal period in which the measurement was collected.

j. Derivation method. The benchmark for each seasonal period is derived from the ambient record described in subparagraph (e) as follows:

i. The benchmark is the 75th percentile of ambient total phosphorus measurements within the seasonal period, rounded to the nearest 0.001 mg/L.

ii. Where that value falls within one reporting-limit increment (0.001 mg/L) of an independent reference value, the benchmark is set at the independent reference value rather than the percentile alone, so that the benchmark is supported by more than one line of evidence. The independent reference values are the U.S. EPA Aggregate Nutrient Ecoregion II reference condition of 0.010 mg/L, the Klamath River TMDL year-round total phosphorus load allocation for the minor California tributaries to the Klamath River of 0.014 mg/L, and the maximum ambient value observed within the seasonal period.

iii. No benchmark is set below the practical quantitation level established under subparagraph (k).

k. The 75th percentile is selected because a benchmark set at the ambient upper quartile, is internally consistent: ambient receiving water quality passes the test with margin, while a tailwater discharge materially above ambient does not.

l. Corroboration and alternatives considered. The derived values are corroborated against independent reference conditions and allocations:

i. U.S. EPA section 304(a) ecoregional reference condition. The reference condition for total phosphorus in rivers and streams of Aggregate Nutrient Ecoregion II (Western Forested Mountains) is 0.010 mg/L. The mid-period ambient 75th percentile equals that value exactly, and it is adopted as the mid-period benchmark.

ii. Klamath River TMDL tributary allocations. Table 5.16 of the Klamath River TMDL staff report assigns the minor California tributaries to the Klamath River a year-round total phosphorus load allocation of 0.014 mg/L, representing conditions in less-disturbed tributaries of the same ecoregion. The early-period ambient 75th percentile lies within one reporting-limit increment of that value, and the benchmark is set at it. The Scott River watershed allocation of 0.028 mg/L (dry season) and 0.019 mg/L (wet season) provides an upper bound, and all benchmark values fall below it.

iii. Level III Ecoregion 78 reference condition not adopted. The U.S. EPA reference condition for total phosphorus in Level III Ecoregion 78 (Klamath Mountains) is 0.0325 mg/L. That value is not used. It is a 25th percentile of all streams in the subecoregion, employed as a surrogate where no a priori reference population was identified, drawn from a population ranging from 0.00563 to 0.455 mg/L (n = 68). It is more than three times the Aggregate Ecoregion II value and among the highest of the sixteen Level III subecoregions within Ecoregion II. Ecoregion 78

spans the lower Klamath and Trinity mountains and the coastal Klamath foothills, and the Scott Valley floor is not representative of that population. U.S. EPA identifies these values as starting points and directs refinement at smaller geographic scales using local data, which the ambient record permits.

m. Relationship to the Klamath River TMDL. The Klamath River TMDLs assign the Scott River watershed nutrient load allocations addressing dissolved oxygen conditions in the mainstem Klamath River. Those allocations are considered in these findings for corroboration and as an upper bound. They are not the basis for the Water Quality Benchmark and are not a term or condition of this Order. As documented in Chapter 5 of the TMDL staff report, the tributary nutrient allocations were set to ensure attainment of the site-specific dissolved oxygen objective in the mainstem Klamath River in California, and were not derived to address the Scott River's own listing for biostimulatory conditions. Those allocations further apply watershed-wide to all nonpoint sources and incorporate the contribution of natural background, such that a single source category's benchmark set at the full watershed allocation would implicitly assign the entire allocation, natural background included, to that source category.

n. Consistency with the narrative objective and with the Antidegradation Policy. The Water Quality Benchmark is set at concentrations that maintain tailwater at or below the ambient condition of the receiving water in each seasonal period. The receiving water is listed as impaired for biostimulatory conditions and has no demonstrated assimilative capacity for additional phosphorus. Tailwater discharged above the ambient condition of the receiving water would add phosphorus to a phosphorus-limited, impaired system, and would thereby contribute to the aquatic growths causing the impairment. A discharge at or below the Water Quality Benchmark does not promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses, and therefore satisfies the narrative objective.

o. Where tailwater is discharged to an ephemeral stream, or to an intermittent stream that is not flowing at the time of discharge, phosphorus delivered to the channel is not thereby removed from the system. Dissolved phosphorus is conveyed downstream when the channel flows, and particulate phosphorus deposited in the channel bed is stored and mobilized to downstream perennial waters during subsequent flow events. Tailwater discharged to ephemeral and intermittent channels is therefore a contributor of phosphorus to the perennial receiving waters of the Scott River watershed, and the Water Quality Benchmark applies in those channels on that basis.

p. The benchmark is also consistent with State Water Board Resolution No. 68-16 and title 40, Code of Federal Regulations, section 131.12, because it does not authorize a lowering of existing receiving water quality.

q. Analytical requirements. Samples shall be analyzed for total phosphorus as unfiltered, digested total phosphorus by a method achieving a laboratory

reporting limit at or below 0.003 mg/L. Standard Methods 4500-P F and U.S. EPA Method 365.1 Revision 2.0 meet this requirement, and the ambient record demonstrates that a method detection limit of 0.002 mg/L is achievable in this watershed. Standard Methods 4500-P B and E as conventionally performed does not meet this requirement, because its reporting limit exceeds every benchmark value. A reporting limit above 0.003 mg/L would render the late-period benchmark unmeasurable.

r. Limitations and reassessment. The following limitations of the analysis are identified for the record:

   i. Derivation from receiving water rather than tailwater. The benchmark is derived from ambient receiving water monitoring and applied to tailwater discharges. No tailwater characterization data are available. The derivation assumes tailwater is held to receiving water quality, which is a conservative assumption and is identified as such.

   ii. The ambient record integrates all sources, not agriculture alone. The measured condition at the monitoring station includes natural background, forestry, roads, grazing, and other contributions in addition to irrigated agriculture.

   iii. The station lies downstream of the listed reach. The record characterizes the integrated watershed signal at the outlet rather than conditions within the reach listed as impaired.

   iv. Sample size by seasonal period. The derivation is applied to seasonal subsets rather than the pooled record, so each benchmark rests on a portion of the dataset. The late period contributes the fewest measurements, although it is also the least variable period in the record.

   v. Nutrient limitation is prevailing but not universal. Four of 58 paired irrigation-season samples fall below the Redfield ratio of 16:1.

   vi. Limits on the period of record. The record does not extend into the 2019–2022 drought sequence during which harmful algal blooms were observed in the watershed, and therefore does not reflect conditions associated with that period.

The Water Quality Benchmark may be reassessed upon accumulation of additional ambient and tailwater monitoring data, and in any event at Order renewal. Reassessment consists of recompiling the ambient record, reapplying the derivation method in subparagraph (g), and comparing the result to the values in the table above.

X. Riparian Zone Findings

60. The term Streamside Area, as used in this Order, describes the area adjacent to surface water bodies where specific management practices shall be implemented to allow for the natural establishment and abundance of native riparian vegetation with

the aim of achieving conditions that support beneficial uses, including but not limited to filtration of fine sediments, large woody debris recruitment, flood attenuation, instream and terrestrial habitat development, and site specific adjusted potential effective shade, as described in the Scott and Shasta River TMDLs.

61. The term riparian buffer is a technical term utilized by various entities to describe the area in which riparian function occurs, including but not limited to filtration of fine sediments, large woody debris recruitment, flood attenuation, instream and terrestrial habitat development, and shade.

62. Riparian vegetation provides critical functions for water quality and supports habitat complexity for listed species. These functions include, but are not limited to:

    a. Filtration of fine sediment carried by overland flow;

    b. Capturing and processing nutrients and organic materials within the flood plain;

    c. Shading surface water from direct solar radiation;

    d. Recruiting large woody debris which develops instream habitat roughness and complexity; and

    e. Stabilizing stream banks thus reducing stream bank erosion.

63. A literature review conducted by United States Fish and Wildlife Service (USFWS Literature Review) assessed scientific reports analyzing the effectiveness of different riparian buffer widths and found the following[21]:

    a. The width of a riparian buffer appears to be the most critical variable affecting the capacity of a riparian zone to improve water quality and support stream health.

    b. Several studies indicated a 30-foot vegetated buffer reduced total suspended solid concentrations in surface runoff by 65 to 91 percent, while buffers wider than 30 feet performed slightly better.

    c. Multiple studies indicated that 30 to60-foot buffers reduced total phosphorous concentrations in surface runoff by 50 and 94 percent.

    d. Based on a review of 24 studies, forested buffers of at least 65 feet kept stream temperatures within 2 degrees Celsius of those observed in completely forested stream due to shading. Streams with buffers approximately 100 feet wide showed no increase in temperature.

[21] USFWS, 2020. Considerations for Riparian Fencing, Planting, and Grazing Management in the Upper Klamath Basin of Oregon.

e. Buffers at least 30 feet wide were likely to improve and protect water quality and increase stream bank stability, but buffers 60 feet and wider were necessary for flood attenuation and provide suitable habitat for terrestrial species.

64. The USFWS Literature Review also reviewed literature that assessed the impacts of riparian grazing, finding that grazing managed in a way that was not consistent with restoration objectives results in the following outcomes:

    a. decreased plant density and diversity,

    b. decreased bank cover,

    c. increased soil disturbance and compaction,

    d. increased direct urine and manure inputs,

    e. increased disturbance and compaction of streambed and banks,

    f. decreased capacity to intercept and retain nutrients and sediment due to decreased riparian and floodplain complexity,

    g. decreased bank stability via a decrease in root strength and abundance,

    h. decreased stream shading via a reduction in vegetation, and

    i. channel widening via increased soil disturbance and reduction in vegetation.

65. The USFWS Literature Review additionally found evidence that livestock exclusion is effective in restoring riparian corridors and provides the most straightforward grazing management option and should be considered if more intensive grazing management, including short-duration, high intensity grazing where livestock are moved aggressively through riparian pastures, is not desired by landowners. However, the USFWS Literature Review also noted that riparian restoration and riparian livestock grazing are not mutually exclusive and carefully managed riparian grazing may have minimal or beneficial effects on riparian corridor function, physical habitat, and stream health, including increasing the capacity for riparian areas to sequester nutrients and controlling the establishment and proliferation of invasive riparian species.

66. The USFWS Literature Review noted that in mixed upland and riparian pastures, utilization of riparian vegetation tends to be disproportionately higher than that of upland vegetation. Some methods to reduce overutilization of riparian vegetation in mixed pastures include salt placement, off-stream watering, herding, and culling of loitering animals. However, the least labor-intensive method appears to be the establishment of riparian pastures via riparian fencing.

67. Regarding the timing and intensity of riparian grazing, the USFWS Literature Review found that riparian areas that have been subject to grazing should be rested

until they reach mid to late seral vegetation[22]. Resting should also occur if the riparian vegetation appears to have a declining trend in riparian species and age class diversity or if the area appears to have lost significant riparian function[23]. Once riparian areas have recovered sufficiently, seasonality is a key factor in determining the timing of grazing. According to the USFWS Literature Review, allowing grazed riparian vegetation to recover during the growing season is essential to restore and maintain riparian function. Early season riparian grazing provides vegetation the opportunity to regrow prior to fall dormancy period. Allowing abundant regrowth in the late summer allows riparian areas to be more effective in trapping sediments mobilized by higher flows in the fall and winter periods, where most precipitation in the Scott and Shasta watersheds occurs and spring when snowmelt dominates flows in the Scott. Per the USFWS Literature Review, late season grazing tends to result in preferential browsing of woody vegetation as grasses and sedges lose palatability. Browse impacting woody species can exacerbate bank erosion, making it inconsistent with restoration-focused riparian management. The USFWS Literature Review recommends retaining riparian stubble heights of greater than 5 inches in the fall to facilitate deposition of sediment and particular nutrient loads and to protect banks from erosion and failure during winter and spring high flows.

68. Another key factor to consider regarding riparian restoration timing is the presence of salmonid redds, especially in areas where spawning has been historically observed. Hoof action in the stream bed can disrupt and limit the viability of Redds, therefore riparian grazing occurring during the spawning incubation period for salmonids can be especially disruptive to aquatic species.

69. Grazing intensity is also explored by the USFWS Literature Review, finding intensity is generally divided into three categories in the literature:

    a. Light intensity (20-30% biomass utilization),

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[22] In riparian areas within the great basin, seral stages differ from those of upland forests and silvicultural stands. Early seral stages in riparian areas are composed of fast-growing grasses and forbs, while mid and late seral stages may include communities of rush and sedge or woody vegetation including riparian forests where soil conditions allow. More information can be found in *Clary WP, Webster BF, Managing grazing of riparian areas in the Intermountain Region. USDA Forest Service General Technical Report INT-263* and *Winward AH. 2000. Monitoring the vegetation resources in riparian areas. Gen. Tech. Rep. RMRSGTR-47. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station*

[23] Functional Conditions Assessment surveys are described in Technical Reference 1737-15 published jointly by the United States Forest Service, Unite States Department of Agriculture, and the Bureau of Land Management, available at https://www.blm.gov/sites/default/files/documents/files/TR_1737-15.pdf

b. Moderate intensity (40-50% biomass utilization),

c. High intensity (greater than 50% biomass utilization).

The USFWS Literature Review found that the literature advises against high intensity grazing if riparian health, stream health, and continued forage production are specific management objectives, as they are in the Scott and Shasta watersheds. Moderate to light intensity grazing can maintain leaf area for continued photosynthesis, increasing the likelihood of survival, recovery, and vitality of riparian species. Monitoring of biomass utilization within riparian pastures ensures vegetation is not repeatedly browsed and can be a useful tool for adjusting grazing intensity, adaptively. Repeat browsing can result in a reduced capacity for vegetative recovery and growth. Adjusting intensity can be an effective way of mitigating the negative impacts of riparian grazing.

70. The USFWS Literature Review found periodic pasture resting via rotation (known as rest-rotation)[24] of cattle across three delineated riparian pastures was a commonly recommended practice. In this approach, one pasture is rested for the entire grazing season while the other two are grazed in an appropriate timing and intensity to allow for riparian health and function to be maintained or, if needed, enhanced. This approach has been observed to facilitate the establishment of the full annual suite of vegetation life history stages over subsequent years and allows for rest during an entire growing season for each pasture once every three years.

71. Other localized factors, including but not limited to pasture and bank slope, waterways conveying irrigation tailwater, local geomorphic conditions, and seasonal flow patterns can also be important variables to consider when planning appropriate site-specific riparian grazing and riparian buffer width.

XI. Core Regulatory Findings

A. Policy for Implementation and Enforcement of Nonpoint Source Pollution Control Program

72. In 2004, the State Water Board adopted the Policy for Implementation and Enforcement of Nonpoint Source Pollution Control Program (Nonpoint Source Policy). The Nonpoint Source Policy requires nonpoint source discharges of waste to be regulated by waste discharge requirements, waivers of waste discharge requirements, or Basin Plan prohibitions to ensure compliance with North Coast Water Board water quality control plans.

73. The Nonpoint Source Policy states that implementation programs for nonpoint source pollution control must include five key elements:

[24] Article describing rest-rotation is available for download at https://repository.arizona.edu/handle/10150/640424

a. Key Element 1: A nonpoint source control implementation program's ultimate purpose shall be explicitly stated. Implementation programs must, at a minimum, address nonpoint source pollution in a manner that achieves and maintains water quality objectives and beneficial uses, including any applicable antidegradation requirements.

b. Key Element 2: A nonpoint source control implementation program shall include a description of management practices and other program elements that are expected to be implemented to ensure attainment of the implementation program's stated purpose(s), the process to be used to select or develop management practices, and the process to be used to ensure and verify proper management practice implementation. The Regional Water Quality Control Board must be able to determine that there is a high likelihood that the program will attain water quality requirements. This will include consideration of the management practices to be used and the process for ensuring their proper implementation.

c. Key Element 3: Where the Regional Water Quality Control Board determines it is necessary to allow time to achieve water quality requirements the nonpoint source control implementation program shall include a specific time schedule and corresponding quantifiable milestones designed to measure progress toward reaching the specified requirements.

d. Key Element 4: A nonpoint source control implementation program shall include sufficient feedback mechanisms so that the Regional Water Quality Control Board, dischargers, and the public can determine whether the program is achieving its stated purpose(s) or whether additional or different management practices or other actions are required.

e. Key Element 5: Each Regional Water Quality Control Board shall make clear, in advance, the potential consequences for failure to achieve a nonpoint source control implementation program's stated purpose.

74. As stated in the Order, the purpose of the Order is to address discharges of waste to waters of the state from certain activities in the Scott and Shasta Watersheds to ensure conformance with California's water quality laws and specific impairments in each water shed that are driven by these activities. The Order implements the Key Elements of the Nonpoint Source Policy, where applicable, by requiring:

a. control and treatment of sediment and nutrient sources, riparian protection measures to affect site specific effective shade, irrigation efficiency measures to affect that volume of groundwater accreted in stream or produced by known spring sources, and tailwater discharge control measures across the Scott and Shasta Watersheds by ensuring implementation of effective management measures and a monitoring program that provides critical information to both dischargers and to the North Coast Water Board;

b. a Monitoring and Reporting Program that is intended to provide the North Coast Water Board, communities of interest, and dischargers information on the varied activities covered under the Order and establishes feedback mechanisms—such as BMP implementation monitoring, effectiveness monitoring, in-channel monitoring, and reporting—to ensure that protective measures are implemented and successful;

c. a time schedule with quantifiable milestones to achieve compliance with water quality goals of the Order, including but not limited to Receiving Water Limitations and TMDL Requirements; and

d. Order and Monitoring and Reporting conditions using clear language that outline the enforceability of the requirements and the regulatory and enforcement capability of the North Coast Water Board.

B. Statement of Policy with Respect to Maintaining High Quality of Waters in California

75. In 1968, the State Water Board adopted[25] the Statement of Policy with Respect to Maintaining High Quality of Waters in California, Resolution No. 68-16 (Antidegradation Policy)[26]. The Antidegradation Policy requires whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality must be maintained, unless it can be demonstrated to the North Coast Water Board that the change is consistent with maximum benefit to the people of the state, will not unreasonably affect present and anticipated beneficial uses of such water, and will not result in water quality less than that prescribed in the policies. The Antidegradation Policy further requires that discharges comply with waste discharge requirements that will result in the best practicable treatment or control of the discharge necessary to assure that pollution or nuisance will not occur and that the highest water quality, consistent with the maximum benefit to the people of the state, will be maintained.

    High quality waters are those surface waters or areas of groundwater that have a baseline water quality better than required by water quality control plans and

[25] Section 131.12 of the U.S. EPA's Water Quality Standards regulations includes the "federal antidegradation policy" which emphasizes protection of instream beneficial uses, especially protection of aquatic organisms, and required each state's water quality standards to include a policy consistent with the federal antidegradation policy. The State Antidegradation Policy is deemed to incorporate the Federal Antidegradation Policy where the federal policy applies under federal law. (State Water Board Order WQ 86-17.)

[26] The Antidegradation Policy: https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/1968/rs68_016.pdf.

policies. This determination is made on a waterbody-by-waterbody and constituent-by-constituent basis[27].

The Order is consistent with the Antidegradation Policy because implementing the conditions of the Order will result in a net benefit to water quality. The Order contains conditions that require agricultural dischargers to implement management practices for new and existing activities, provide riparian and shade protections and enhancements, address controllable sediment and nutrient discharge sources, and implement management practices that support increased cold water spring flow and instream cold water accretions. Effective implementation of management practices and on-the-ground prescriptions coupled with monitoring of their effectiveness will result in the best practicable treatment or control of the discharge, assure that pollution or nuisance will not occur, and that the highest water quality, consistent with maximum benefit to the people of the state, is maintained.

This Order requires that discharges of waste from irrigated lands shall not cause surface water or groundwater to be degraded, exceed water quality objectives, unreasonably affect beneficial uses of water, or cause a condition of pollution or nuisance. Monitoring and Reporting is required for plans required by this order to assess the effectiveness of the management practices applied by those plans. Additional watershed-scale monitoring will be conducted by the North Coast Board and partners within the watershed to evaluate whether the physical, chemical, and

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[27] In the context of diffuse discharges regulated by a general order, the State Water Board provided the following guidance on determinations of whether a discharge impacts high quality waters:

"When assessing baseline water quality for a general order, we find a general review and analysis of readily available data is sufficient…Regional Water Boards should not delay the implementation of a regulatory program in order to conduct a comprehensive baseline assessment and analysis—especially where, as here, the general order imposes essentially the same iterative approach for management practices and other requirements regardless of whether or not the receiving water is high quality."

In the Matter of Review of Waste Discharge Requirements General Order No. R5- 2012-0116 for Growers Within the Eastern San Joaquin River Watershed that are Members of the Third-Party Group, SWRCB Order No 2018-0002 (2018): https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2018/wqo2018_0002_with_data_fig1_2_appendix_a.pdf.

biological conditions of a waterbody are supporting beneficial uses and land use activities are sufficiently protective of water quality and if conditions within the watershed are improving, remaining stable, or degrading. Robust and sustained water quality monitoring programs can also provide insights into watershed impairments and whether a waterbody is suitable for listing or delisting under Section 303(d) of the Clean Water Act. The effectiveness of management measures will be evaluated through required monitoring and reporting. Management measures and monitoring may be modified as data are assessed and reported and whenever site evaluations show that measures need to be improved to meet water quality standards.

76. Maximum Benefit to the People of the State — Economic Significance. The North Coast Water Board finds that any limited degradation that may occur in the Scott and Shasta Watersheds even following implementation of all applicable management practices designed to control discharges is to the maximum benefit of the people of the State. The Board has considered the social and economic significance of agriculture in the Scott and Shasta and the important role that Irrigated Lands provide in economic value and support to local communities. The agricultural industry is an important economic sector in Siskiyou County which, in addition to gross farm income, provides local employment opportunities, and added economic value through supporting industries. Coupled with the environmental and water quality benefits that will result from implementation of the conditions in this Order, maintaining agriculture in Siskiyou County is consistent with the maximum benefit of the people of the state to prevent a loss of jobs and adverse impacts to local communities. Even where there is limited degradation of high-quality groundwater, this Order sets protection of water quality objectives as the floor to any degradation, ensuring that drinking water beneficial uses are protected.

C. East San Joaquin Precedential Order

77. The State Water Board Irrigated Lands Regulatory Program sets forth precedential requirements for all Regional Irrigated Lands in DWQ 2018-0002 In the Matter of Review of Waste Discharge Requirements General Order No. R5-2012-0116 for Growers Within the Eastern San Joaquin River Watershed (ESJ Order).

78. Irrigated Lands in the Scott River and Shasta River Watersheds are irrigated agricultural lands and therefore, Enrollees regulated under this Order are part of the State and Regional Water Board Irrigated Lands Regulatory Program and subject to the ESJ Order requirements that the State Water Board designated as precedential. This Order is consistent with the precedential ESJ Order requirements by including conditions related to grower outreach events, farm evaluations, sediment and erosion controls, irrigation and nitrogen management, record keeping, and groundwater quality monitoring for Enrollees and approved Coalitions. Additionally, this Order requires monitoring and reporting to verify and provide feedback on the degree and effectiveness of implementation of these precedential requirements.

79. Specifically, this Order implements ESJ Order requirements through: (1) irrigation and nutrient management practices; (2) Drinking Water Supply Well Monitoring; (3) Representative Groundwater Monitoring; and (4) Outreach and Education.

80. Sediment and Erosion Control — Precedential Requirement. The East San Joaquin Precedential Order states that “the requirement for implementation of sediment and erosion control practices by Irrigated Lands with the potential to cause erosion and discharge sediment that may degrade surface waters shall be precedential for irrigated lands regulatory programs statewide; however, the regional water boards shall continue to have discretion as to how these practices are documented and reported.” This Order is consistent with this precedential requirement by requiring all Enrollees to implement sediment and erosion control management practices on Farm Areas and applicable agricultural infrastructure, documented in the Farm Evaluation and reported annually.

81. Third-Party Coalition Framework. Consistent with the East San Joaquin Precedential Order's continued support for third-party (Coalition) approaches, this Order authorizes a Coalition to serve as the third-party intermediary between the North Coast Water Board and the Enrollees, performing the core functions the East San Joaquin Precedential Order recognizes as appropriate to that role — including fee collection and remittance, grower outreach, data management, and submittal of surface water quality data to CEDEN and groundwater quality data to GeoTracker. Consistent with the precedential direction that growers retain the option not to participate in a third party, this Order allows growers to enroll individually. This Order also preserves the data-transparency commitments the East San Joaquin Precedential Order made precedential. The Order tailors the scale of the Coalition's required qualifications to a program spanning approximately 650 participants, consistent with the East San Joaquin Precedential Order's recognition that those aspects only precedential for full third-party programs serving large regional coalitions do not apply to programs structured around a more limited set of third-party functions.

High and Low Groundwater Vulnerability Areas

82. Groundwater Basin Prioritization Context. The North Coast Water Board adopted the Groundwater Basin Evaluation and Prioritization Resolution No. R1-2021-0006, which identifies priority groundwater basins having a relatively high threat from salts and nutrients that would benefit from salt and nutrient management planning. The Scott River Valley Groundwater Basin is categorized as a Priority 2 basin, and the Shasta Valley Groundwater Basin is categorized as a Priority 3 basin. Priority 1 through Priority 3 designations reflect the potential threat from multiple salt and nutrient sources combined — including on-site wastewater treatment systems, recycled water, dairies, and irrigated agriculture — rather than demonstrated agricultural nitrogen contamination alone. The 2021 Staff Report supporting the Resolution acknowledged that “insufficient groundwater data is available to

determine where known groundwater quality impacts exist for which irrigated agricultural operations are a potential contributor."

83. 2026 Five-Year Update Findings. In March 2026, the North Coast Water Board completed the Five-Year Update to Resolution R1-2021-0006. The Five-Year Update concluded that no changes in conditions warrant reprioritization of any North Coast groundwater basin. Nitrate concentrations across all North Coast basins with monitoring data remained well below the Maximum Contaminant Level (MCL) of 10 mg/L nitrate+nitrite as N. A weak increasing nitrate trend observed in Shasta Valley (Spearman's ρ=0.15) was attributed to changes in the monitoring network rather than to emerging contamination from irrigated agriculture. Groundwater storage in Scott Valley and Shasta Valley basins remained stable through Water Year 2025.

84. Direct Groundwater Sampling Evidence. The 2021 Surface Water Ambient Monitoring Program (SWAMP) sampling documented in the Scott and Shasta Valley Groundwater Quality Characterization: 2021 SWAMP Monitoring Summary further supports the finding that irrigated agricultural operations regulated by this Order are not causing or contributing to widespread groundwater nitrate impacts. In Scott Valley (28 wells sampled), nitrate-nitrogen concentrations ranged from non-detect to 6.5 mg/L; most sampled wells were below 3 mg/L; and the maximum sampled concentration is 35% below the MCL. In Shasta Valley (16 wells sampled), nitrate-nitrogen concentrations ranged from 0.32 to 3.9 mg/L; the maximum sampled concentration is less than 40% of the MCL.

85. Vulnerability Framework. The East San Joaquin Precedential Order allows for risk-based designations, such as high and low vulnerability groundwater areas, to inform differentiation and prioritization of requirements. The East San Joaquin Precedential Order defines high vulnerability areas as "those areas where the Executive Officer determines that irrigated agriculture may be causing or contributing to exceedances of water quality objectives or a trend of degradation of groundwater that may threaten applicable basin plan beneficial uses." The East San Joaquin Precedential Order recognizes that implementation approaches may need to be adapted to specific conditions and grants regional water boards "considerable discretion to design reasonable frameworks for differentiation and prioritization," as well as discretion in defining geographic areas and determining appropriate methodologies.

86. Vulnerability Area Determination. Based on the evidence described above, the North Coast Water Board determines that there are no geographic areas regulated by this Order that the North Coast Water Board is currently designated as a high vulnerability area for the purposes of the East San Joaquin Precedential Order's requirements. Ambient nitrate concentrations in Scott Valley and Shasta Valley groundwater remain well below the MCL, with maximum sampled concentrations at approximately 65% of the MCL in Scott Valley and less than 40% of the MCL in Shasta Valley. No trend of groundwater degradation attributable to irrigated agriculture regulated by this Order has been established. The Priority 2 designation

for Scott River Valley and the Priority 3 designation for Shasta Valley under Resolution No. R1-2021-0006 reflect potential threats from multiple sources combined and do not establish agricultural nitrogen impacts as a demonstrated cause of groundwater contamination. The March 2026 Five-Year Update confirmed that no reprioritization is warranted. The determination that there are no high vulnerability groundwater areas means that this Order does not require certification of Irrigation and Nutrient Management Plans or the establishment of Groundwater Protection Formulas at this time. Based on data collected under this Order, the North Coast Water Board may revisit its determination that no areas covered by this Order should be designated as high vulnerability. Such data may include Representative Groundwater Monitoring, Drinking Water Well sampling, and Enrollee nitrogen application practices reported through the annual Farm Evaluation.

87. Alternative Nitrogen Reporting Framework. The East San Joaquin Precedential Order provides that alternative approaches to Nitrogen Applied and Removed reporting may be applied where growers (1) operate in areas with evidence of no or very limited nitrogen impacts, (2) have minimal nitrogen inputs, and (3) have difficulty measuring yield. Evidence of no or very limited nitrogen impacts is provided by the 2021 SWAMP characterization and the 2026 Five-Year Update. Minimal nitrogen inputs are characteristic of the predominantly irrigated pasture, grain, alfalfa, and grass hay operations regulated by this Order: alfalfa is a nitrogen-fixing legume requiring no supplemental nitrogen under normal conditions; non-fertilized irrigated pasture receives no external nitrogen inputs and is already exempt from INMP requirements in the Central Valley Region; and the 2022 NECWA/UC Davis survey of the analogous Pit River subwatershed (74% response rate) found that 67% of irrigated pasture growers and 64% of alfalfa growers apply zero nitrogen, with grass hay application rates reported well below agronomic potential. The Second Agricultural Expert Panel Draft Final Report (June 2026)[28] identified alfalfa and non-fertilized pasture as candidates for significantly reduced ILRP reporting and specifically noted that alternative approaches “make most

[28] The State Water Board convened the Second Statewide Agricultural Expert Panel in 2025 and charged it with nine nitrogen-related questions revisiting the approaches adopted in the Eastern San Joaquin Order (WQ 2018-0002) and Order WQ 2023-0081. The Panel's draft report, released March 30, 2026, found that available data support numeric crop-specific nitrogen targets or limits in some regions while others need more time to assess groundwater risk, and recommended region-specific flexibility and standardized reporting protocols; the Panel approved its final report at its June 5, 2026 plenary and presented it to the State Water Board on June 16, 2026. The State Water Board and the nine regional water boards will use the report to guide potential future updates to the Irrigated Lands Regulatory Program; the precedential requirements of the Eastern San Joaquin Order remain in effect unless and until the State Water Board acts on those recommendations.

sense" for intermountain permanent crops with low-nitrogen rotations in the North Coast and Lahontan Water Boards. Difficulty measuring yield is inherent in grazed irrigated pasture and in operations combining grazing, hay production, and intermittent cropping across the same acreage — challenges explicitly acknowledged in Footnote 33 of Order WQ 2023-0081.

88. Implementation Consequence. Accordingly, this Order does not require: (i) certification of Irrigation and Nutrient Management Plans; (ii) establishment of Groundwater Protection Formulas, Values, or Targets; or (iii) adaptive management actions triggered by groundwater vulnerability status. Enrollees shall report Nitrogen Applied in accordance with Attachment A: Monitoring and Reporting Program, and are not required to report Nitrogen Removed. The North Coast Water Board will re-evaluate this determination based on Representative Groundwater Monitoring data, Drinking Water Supply Well monitoring data, and any new information regarding nitrogen inputs from operations regulated by this Order.

XII. Cost Considerations

89. Authority and Approach. Water Code section 13241 requires the North Coast Water Board to consider certain factors, including economic considerations, in adopting water quality objectives. Water Code section 13263 requires the North Coast Water Board to take into consideration the provisions of Water Code section 13241 in adopting waste discharge requirements. The following findings discuss the anticipated cost of compliance with this Order. Several assumptions were required for these analyses, and there are inherent limitations and uncertainties discussed below.

90. Prior Cost Consideration in Related Actions. The North Coast Water Board previously considered costs and economics associated with related regulatory actions in the Scott and Shasta River watersheds, including the 2018 Scott and Shasta Conditional Waivers (Orders R1-2018-0018 and R1-2018-0019), the short-term renewals in 2023 and 2025, and the Basin Plan Amendments adopting the Scott River Sediment and Temperature TMDLs (2005) and the Shasta River Temperature and Dissolved Oxygen TMDLs (2006). The cost analyses supporting those actions inform the analysis of this Order.

91. Categories of Costs Considered. The North Coast Water Board has considered costs in the following categories: (a) administrative and permitting fees, including State Water Board fees and Coalition membership fees where applicable; (b) planning and reporting costs, including Farm Evaluations, Certified Tailwater Elimination Plans, Certified Tailwater Discharge Treatment and Control Plans, Grazing and Riparian Management Plans , and annual reports; (c) monitoring costs, including continuous logger deployment and maintenance, grab sample collection, laboratory analysis, and QA/QC; (d) management practice implementation costs, including riparian fencing, off-channel stock water systems, tailwater capture and

reuse, thermal attenuation infrastructure, and irrigation efficiency improvements; and (e) foregone opportunity costs associated with land taken out of production or with reduced irrigation intensity in critical seasonal periods.

92. Cost-Benefit Reasoning. The North Coast Water Board finds that the anticipated benefits of this Order — including protection of listed anadromous salmonid populations under state and federal endangered species acts, restoration of temperature and dissolved oxygen regimes necessary to support cold freshwater habitat, reduction of sediment and nutrient loading to designated beneficial uses, protection of drinking water beneficial uses, and progress toward attainment of the Scott River and Shasta River TMDLs — bear a reasonable relationship to the anticipated costs of compliance. Continued failure to attain applicable water quality objectives would carry substantial ongoing costs to the affected communities, including loss of commercial and sport fishing values, degradation of tribal cultural resources, and increased vulnerability of drinking water supplies. The costs of this Order are moderated by the mechanisms described in the preceding finding, by the phased eight-year compliance schedule, and by the availability of state, federal, and non-governmental funding sources that support voluntary and required management practices in the Scott and Shasta watersheds.

Cost of Compliance with the Order

93. Cost of Compliance Overview. The cost of compliance with the Order for Enrollees in the North Coast Region under existing conditions includes the costs associated with any management practices they may need to implement pursuant to Order requirements, State Water Board fees, and monitoring and reporting costs. These costs are described further below.

State Water Board Fees

94. State Water Board Fee Schedule. The State Water Board sets the fee schedule for agricultural and Irrigated Lands Regulatory Programs throughout the state, as specified in California Code of Regulations, title 23, section 2200.6. Enrollees must pay the State Water Board fees on an annual basis for all enrolled irrigated parcels. Although the State Water Board fees may change from year to year, the fee categories/schedule for the 2025-2026 fiscal year[29] are as follows:

    a. If an Enrollee is a member of a group that has been approved by the North Coast Water Board or the Executive Officer to manage fee collection and payment (i.e., Coalition), the annual fee shall be $1.50 per acre.

[29] FY 2025-26 Water Quality Fee Schedule: https://www.waterboards.ca.gov/resources/fees/stakeholder/docs/2025/fy2526-wq-feeschedule.pdf

b. If an Enrollee is not a member of an approved Coalition, the annual fee shall be a base fee plus an acreage-based fee, as set in the State Water Board fee schedule.

95. Coalition Enrollment. In Regions that have implemented Irrigated Lands Orders with Third-Party Programs or Grower Coalitions, the majority of Enrollees have elected to enroll through those entities. Coalitions manage fee collection, outreach, education, monitoring, and reporting on behalf of their members, which typically reduces the per-Enrollee compliance cost relative to individual enrollment.

Compliance with Water Quality Protection Requirements

96. Management Practice Implementation. All Enrollees must comply with requirements to implement and adapt management practices, including sediment and erosion control minimum management practices, tailwater controls, and Riparian Zone setbacks. This Order provides Enrollees with a compliance schedule to complete implementation of required management practices.

97. Additional Management Practices. Enrollees may be required to implement improved or additional management practices as necessary and to report on the water quality-related outcomes of their management practice implementation. Enrollees must ultimately implement management practices that result in compliance with the Order.

98. Existing Practice Implementation. Management practices associated with irrigation, nutrient and pesticide use, and sediment and erosion control are already being implemented by many Enrollees. This may be due to requirements imposed by other regulatory agencies, through longstanding voluntary conservation programs, or as a result of individual land management ethics.

99. Direct Net Cost Benefits. Implementation of management practices may also have direct net cost benefits to an agricultural operation (e.g., irrigation and nutrient management can result in less fertilizer costs and reduced water use).

100. NRCS Standard Management Practices. The Natural Resources Conservation Service (NRCS) has developed standard agricultural management practices to address irrigation and nutrient management, pesticide management, and sediment and erosion control, some of which are described below. Estimated costs of implementation, as reported by the U.S. Department of Agriculture NRCS and adjusted by North Coast Water Board staff for anticipated scenarios, are summarized in Table 1.

a) Conservation Cover (NRCS 327) — involves establishing and maintaining a permanent vegetated cover on lands that are either not currently in use or lands currently in production that would be taken out of production. Costs range approximately $200 to $300 per acre.

b) Contour Buffer Strips (NRCS 332) — involves establishing narrow strips of permanent, herbaceous vegetated cover around hill slopes, alternated down the slope with wider cropped strips farmed on the contour. Costs range approximately $300 to $400 per acre.

c) Cover Crop (NRCS 340) — involves planting grasses, legumes, and/or forbs for seasonal vegetated cover. May be implemented to reduce erosion, maintain or increase soil health and organic matter, or capture nutrients. Costs range approximately $100 to $300 per acre.

d) Filter Strip (NRCS 393) — involves establishing a strip or area of herbaceous vegetation that removes contaminants from overland flow. Costs range approximately $200 to $300 per acre.

e) Integrated Pest Management (NRCS 595) — involves implementing a site-specific combination of pest prevention, avoidance, monitoring, and suppression strategies. Costs range approximately $50 to $100 per acre.

f) Center Pivot Irrigation (NRCS 442) — involves implementation of a low-pressure center pivot irrigation system that provides for high efficiency (>85%) application (e.g., as drops, tiny streams, or miniature spray through emitters or applicators). The irrigation system has a coefficient of uniformity above 85% and irrigation water is efficiently applied to maintain adequate soil water for the desired level of plant growth. Field runoff is eliminated. Costs range between $130,000 to $160,000 for a typical system irrigating a 160-acre field.

g) Nutrient Management (NRCS 590) — involves managing the amount, source, placement, and timing of plant nutrients and soil amendments. Costs range approximately $10 to $320 per acre.

h) Riparian Vegetation Buffer (NRCS 391) — involves establishment of an area of predominantly trees and/or shrubs adjacent to and up-gradient from waterbodies. Costs vary based on planting method; foregone income considered where land is taken out of production. Costs range approximately $3,000 to $5,500 per acre.

i) Tailwater Control Basin (NRCS 447) - involves constructing a basin with an engineered outlet, formed by excavating a dugout, constructing an embankment, or a combination of both. The purpose of the tailwater control basin is to capture and detain/retain tailwater for a sufficient length of time to allow it to cool and/or infiltrate to groundwater. Costs are estimated between $50,000 to $60,000 per basin.

j) Tailwater Recovery System — involves ditches, retention ponds, water pumps, piping, and generators to capture tailwater at the foot of a sloped field and pump it back to the head of the field for re-use. Costs vary widely from $350 to $1,000 per irrigated acre.

k) Tailwater Treatment Wetlands (NRCS 656) — involves constructing wetlands to treat nutrient-rich tailwater before it enters surface waters. Costs range approximately $400 to $3,000 per irrigated acre.

101. These potential costs were considered when the water quality protection requirements were developed for the Order.

Table B.1: Estimated Costs of Management Practices/Scenarios for Water Quality Protection

Management Practice	Scenario Size	Unit Cost	Total Cost (low)	Total Cost (High)
Conservation Cover (327)	50 acres	$200-$300/acre	$10,000	$15,000
Contour Buffer Strip (332)	1 acre	$300-$400/acre	$300	$400
Cover Crop (340)	40 acres	$100-$300/acre	$4,000	$12,000
Filter Strip (393)	1 acre	$200-$300/acre	$200	$300
Integrated Pest Management (IPM) program (595)	40 acres	$50-$100/acre	$2000	$4,000
Center Pivot with Low Pressure Drop Sprinklers (442)	1,300 linear feet	$100-$120/linear foot	$130,000	$156,000
Nutrient Management (590)	40 acres	$10-$320/acre	$400	$12,800
Riparian Vegetation Buffer (391)	1.5 acres	$3,000-$5,000/acre	$4,500	$7,500
Tailwater Retention/Detention Basin (447)	25,000 cu. yd. basin	$2.0-$2.5/cu. yd.	$50,500	$62,000
Tailwater Recovery and Reuse System (447,607,553)	25 irrigated acres	$300-$400/acre	$75,000	$100,000

Tailwater Treatment Wetlands (656)	1 acre	$15,000-$20,000/acre	$15,000	$20,000

Compliance with Agricultural Road Storm-Proofing Requirements

102. Storm-Proofing Compliance. Enrollees with Appurtenant Agricultural Roads must comply with requirements to implement road storm-proofing management practices. Existing Irrigated Lands are provided with a compliance schedule five (5) years from the date of the Order) to complete implementation.

103. Storm-Proofing Maintenance. All storm-proofing management practices on Appurtenant Agricultural Road networks shall be properly designed, installed, maintained, and promptly repaired. Maintenance shall include periodic inspection following qualifying storm events.

104. Existing Road Practices. Management practices associated with road storm-proofing are already being implemented by many Enrollees, due to requirements imposed by other regulatory agencies (e.g., County grading and drainage requirements), voluntary conservation programs, or land management ethics.

105. Road Practice Cost Benefits. Implementation of road storm-proofing management practices may also have direct net cost benefits to an agricultural operation (e.g., reduced road maintenance costs).

106. NRCS Road Practice Standards. The NRCS has developed standard management practices for agricultural road sediment, erosion, and drainage control, some of which are described below. Estimated costs are summarized in Table 2.

a) Rolling Dips — shallow, rounded dip in the road where road grade reverses for a short distance and surface runoff is directed to the outside or inside of the road. Primarily used on gravel-surfaced, out-sloped roads. Costs approximately $10 to $20 per linear foot.

b) Critical Dips — a dip in the roadbed at a culverted stream crossing, preferably at the down-road hinge line of the fill, that prevents stream diversion. Costs approximately $10 to $20 per linear foot.

c) Out-Sloping — converting an in-sloped road to an out-sloped road, or excavating the fill along the outside of the road and grading it against the cut-bank. Costs approximately $3 to $30 per linear foot.

107. These potential costs were considered when the Appurtenant Agricultural Road storm-proofing requirements were developed for the Order.

Table B.2: Estimated Costs of Management Practices/Scenarios for Road Storm-Proofing

Management Practice	Scenario Size	Unit Cost	Total Cost (Low)	Total Cost (High)
Rolling Dip	1,000 feet	$10–$20/ft	$10,000	$20,000
Critical Dip	1,000 feet	$10–$20/ft	$10,000	$20,000
Road Out-Sloping	5,000 feet	$3–$30/ft	$15,000	$150,000
Ditch Relief Culvert	20 feet	$75–$200/ft	$1,500	$4,000
Debris Deflector	Each	$300–$1,200	$300	$1,200
Stream Crossing Rock Armor	100 tons	$200–$400/ton	$20,000	$40,000

Monitoring and Reporting

108. All Enrollees are required to conduct monitoring and reporting either individually or as part of a Coalition effort. All Enrollees are required to report management practice implementation annually in their Farm Evaluation. Refer to Attachment A: Monitoring and Reporting Program for monitoring and reporting requirements and Tables B.3-B.4 for estimated costs.

Table B.3: Estimated Cost of Required Monitoring

Required Monitoring	Unit Size	Cost per Sampling Event (Analytical + Materials and Labor) per unit
Representative Groundwater Monitoring	Per well	$300
Drinking Water Well Sampling	Per well	$150

Table B.3 estimates the cost of Required Monitoring (Representative Groundwater Monitoring and Drinking Water Supply Well Sampling) on a per well basis. Each Enrollee must sample all Drinking Water Supply wells that are on an enrolled parcel for nitrate annually for three years, after which, frequency may be reduced to once every five years. Individual Enrollees must propose Representative Groundwater wells for monitoring. For Enrollees in a Coalition, the Coalition may submit a Representative Groundwater Monitoring network in accordance with Section II.A of Attachment A: Monitoring and Reporting Program. Once approved by the Executive Officer, the

Coalition may monitor Representative Groundwater wells in this network on behalf of its Enrollee members. Assuming 55,000 acres may ultimately be enrolled through a Coalition, and assuming 10 representative wells across both groundwater basins, the estimated cost per acre for Representative Groundwater Monitoring for Enrollees in a Coalition is **$0.05/irrigated acre.**

Table B.4: Estimated Cost of Conditional Monitoring

Required Monitoring	**Unit Size**	**Cost per Sampling Event* (Analytical + Materials and Labor) per unit**
Riparian Photo-Point Monitoring	Per Grazing Event	$200
Tailwater Monitoring (continuous temperature monitoring)	Point of Compliance	$1,000 *cost estimate for temperature monitoring is calculated over the Irrigation Season rather than for a single irrigation set.
Tailwater Monitoring (TKN or TP grab samples)	Point of Compliance	$250

Table IB.4 estimates the unit cost of Conditional Monitoring. Conditional Monitoring consists of (1) Riparian Photo-Point Monitoring, applicable to Enrollees electing to develop and implement a Riparian Grazing Plan; and (2) Tailwater Monitoring, applicable to an Enrollee or group of Enrollees who elect Pathway 2 (Tailwater Discharge Treatment and Control) as the compliance pathway for tailwater discharges under Section II.E of the Order. The conditions that trigger each form of conditional monitoring are described in Section II.E of the Order. Refer to Section III of Attachment A: Monitoring and Reporting Program for detail on frequency of monitoring.

Technical Reports and Planning Documents

109) As part of Order compliance, Individual Enrollees and Coalitions on behalf of their enrolled members are required to submit an Annual Compliance Report which includes annual management practice reporting and annual water quality monitoring results. For Enrollees with parcels in the Tailwater Adaptive Management Program, the Order requires additional planning documents such as Certified Tailwater Treatment and Control Plans and Certified Tailwater Elimination Plans. Enrollees may also elect to develop and implement Grazing and Riparian Management Plans in lieu of meeting certain livestock grazing requirements in Streamside Areas. Cost estimates of Technical Reports and Planning Documents are provided below:

a) Representative Groundwater Monitoring Workplan (Individual): Individual Enrollees shall submit a Water Quality Monitoring Workplan (Workplan) to the Executive Officer describing how they will implement the water quality monitoring and reporting requirements of this Order as detailed in Attachment A. Estimated cost (one-time): $1,000–$2,000.

b) Representative Groundwater Monitoring Workplan (Coalition): The Coalition shall submit a Workplan to the Executive Officer for approval that proposes a groundwater trend monitoring network, and describes how the Coalition will meet all group monitoring requirements on behalf of Enrollees. Estimated cost (one-time): $25,000–$50,000.

c) Annual Farm Evaluation: inventories the management practices currently implemented on all enrolled parcels, documents compliance with this Order, and identifies changes in operations or management from prior years. Estimated annual cost is $250 for Individual Enrollees and $20,000 for the Coalition on behalf of its enrolled members.

b) Annual Monitoring Report: presents monitoring data collected pursuant to this Order during the prior calendar year, including associated analyses and any Source Determination Reports required under Attachment A: MRP. Estimated annual cost is $1,000 for Individual Enrollees and $20,000 for the Coalition on behalf of its enrolled members.

c) Grazing and Riparian Management Plan: Enrollees electing to developing a GRMP in lieu of meeting certain livestock grazing requirements in Streamside Areas shall develop and implement a Grazing and Riparian Management Plan certified by a Qualified Professional. Estimated cost (per GRMP): $3,000–$8,000.

d) Certified Tailwater Elimination Plan or Certified Tailwater Discharge Treatment and Control Plan (Pathway 1 or Tier 2 Pathway 2 Enrollees): Enrollees with tailwater discharges electing Pathway 1 or triggering Tier 2 adaptive

management shall develop the applicable Plan certified by a Qualified Professional. Estimated cost (per Plan): $5,000–$15,000.

Attachment C: Coalition Requirements

Attachment C outlines the approval process and requirements for Grower Coalitions under this Order. **Grower Coalitions (Coalitions)** are programs or entities approved by the North Coast Water Board's Executive Officer to assist Enrollees in compliance with this Order. Specifically, Coalitions collect and submit State Water Board fees on behalf of Enrollees, manage communication between Enrollees and the North Coast Water Board, conduct monitoring and reporting in accordance with Attachment A: MRP, and provide education and outreach resources to Enrollees.

I. General Provision

1. A Coalition that is approved to represent Enrollees under this Order shall fulfill the following responsibilities:

    a. Collect fees from Enrollees and submit payment to the State Water Resources Control Board,

    b. Manage communications between enrolled Enrollees, the North Coast Water Board, and State Water Board,

    c. Provide outreach and education resources for enrolled Enrollees; and

    d. Fulfill monitoring and reporting requirements as specified in Attachment A: Monitoring and Reporting Program on behalf of its Enrollees, including but not limited to submitting monitoring workplans and necessary technical material, conducting representative groundwater monitoring, notifying Enrollees of Adaptive Management thresholds triggered, and connecting its Enrollees to resources that can assist the preparation and implementation of Grazing and Riparian Management Plans and Certified Tailwater Plans.(required in Section II.E of this Order).

2. The Coalition may work with multiple entities or programs to meet one or more of the above requirements provided the Coalition has binding agreements (e.g., through contractual obligations, Memorandums of Agreement) that clearly define roles and responsibilities within each entity in order to meet all Coalition requirements.

3. The North Coast Water Board may revoke the status of an approved Coalition and require its enrolled Enrollees to enroll individually or enroll in an alternative Coalition if the Coalition fails to meet the requirements of this Order after initial approval.

4. Prospective Coalition entities shall follow the procedures outlined below in Section B and C to become an approved Coalition applicant for this Order. New Coalition(s)

shall obtain written approval from the North Coast Water Board's Executive Officer prior to assisting Enrollees with compliance with this Order.

II. Minimum Qualifications

Coalition(s) wishing to act as a representative on behalf of Enrollees shall meet the minimum qualifications below:

1. Effectiveness of scale and scope – The Coalition's program must be of sufficient scale and scope relative to its intended purpose to maximize Enrollee participation, Order implementation effectiveness, and Order compliance. Although programs that are scaled to all Enrollees are preferred, watershed-scale or subwatershed-scale programs will be considered as needed.

2. Administrative Capacity – The Coalition must have a well-defined and robust governance and administrative structure with clearly defined roles and responsibilities. The Coalition must have necessary administrative capabilities to manage Enrollee data, collect fees, conduct Enrollee outreach, and assist Enrollees with self-reporting requirements. The Coalition must demonstrate sufficient technical, managerial, and financial capacity to successfully achieve its goals and objectives.

3. Membership and fee accounting – The Coalition must track and provide ongoing accounting of its Enrollee membership and fees to document Enrollee compliance. The Coalition must have clearly stated membership eligibility requirements and report out on them as needed to document compliance.

4. Physical presence – The Coalition should have a physical presence in the Scott or Shasta watersheds, including staff and a headquarters that can assist its Enrollees on a continual and as-needed basis. If the Coalition administrator does not have or plan to have a physical presence in the region, they must demonstrate they can effectively establish, maintain, and engage with core membership without a headquarters in the Scott or Shasta Watersheds.

5. Transparency and accountability – The Coalition must have meaningful and clearly stated goals, objectives, and associated performance metrics relevant to the Order requirements that are the focus of the program. The Coalition must provide regular assessments of its performance relative to its stated goals and objective based on meaningful performance metrics. This includes reporting of water quality data and farm-level data as needed to document compliance with this Order.

6. Data management and Record Keeping – The Coalition must upload data as required by this Order to the Water Boards' various data management systems (e.g., CEDEN, GeoTracker, etc.). The Coalition must have the capacity to manage and retain data for ten years and comply with record-keeping requirements in Section II.G (Provisions) of the Order.

7. Outreach and Education – The Coalition must include continuing education opportunities as appropriate either directly through the Third-Party Program or through coordination with other technical service providers or local entities to ensure its Enrollees obtain technical skills and assistance necessary to achieve compliance with the limits and requirements established in this Order. The Coalition must conduct membership outreach and education to inform Enrollees about the monitoring results relative to meeting objectives and goals of this Order.

8. Development of Required Technical Material – The Coalition must have capability to develop and implement, or contract detailed technical documents as specified in Attachment A of the Order including but not limited to: Water Quality Monitoring Workplan(s), a Quality Assurance Project Plan (QAPP), and annual water quality and management practices reporting.

9. Conducting Water Quality Monitoring – The Coalition must have the capability to develop or contract group surface water and groundwater quality monitoring programs in accordance with the requirements in Attachment A: Monitoring and Reporting Program.

III. Request for Proposal Process and Establishing Approved Coalition

1. Within three months after adoption of the Order, the North Coast Water Board will release a Request for Proposals (RFP). Coalition applicants shall apply within the stated deadline of the RFP to be considered.

2. Coalition proposals will be evaluated on a case-by-case basis relative to their ability to document compliance with this Order as part of a Request for Proposals process.

3. The North Coast Water Board's review of Coalition program proposals will consider the Minimum Qualifications outlined above relative to overall Coalition program effectiveness, with an emphasis on approving Coalitions that can effectively assist their Enrollees in complying with the requirements of this Order.

4. Included in the RFP submittal, the Coalition applicant shall submit documentation of its organizational or management structure. The documentation shall identify persons and/or entities responsible for ensuring that Coalition program requirements are fulfilled. This documentation shall be made readily available to Enrollees.

5. In evaluating whether to approve a new Coalition, the Executive Officer will consider the following factors:

    a. The ability of the applicant to carry out the identified Coalition responsibilities.

    b. Whether the applicant is a legally-defined applicant (i.e., non-profit corporation; local or state government; Joint Powers Authority; consulting firm) or has a binding agreement among multiple entities that clearly describes the mechanisms in place to ensure accountability to its Enrollees.

c. If the applicant plans to use subsidiary group(s) or partnering entities to assist with Coalition program requirements, whether the applicant has binding agreements with those entities to ensure any Coalition program responsibilities carried out by the entities, including the collection of fees, are done transparently and with accountability.

d. Whether the applicant has a governance structure that includes a governing board of directors composed in whole or in part of Enrollees, or otherwise provides Enrollees with a mechanism to direct or influence the governance of the proposed Coalition through appropriate by-laws.

e. Whether the applicant has membership eligibility requirements and follow-up consequences that are triggered, including revocation of membership eligibility, to address the following scenarios where Enrollees are no longer in good standing: (1) Non-payment of fees; (2) Non-submittal of information; (3) Non-participation in education/outreach or site visits; or (4) Failure to implement / adapt management practices.

6. If the Executive Officer determines that the applicant has the capacity to satisfactorily carry out the stated responsibilities, the North Coast Water Board's Executive Officer will issue a Notice of Applicability to the Coalition for its enrolled members and, if appropriate, a Monitoring and Reporting Program specific to the new Coalition and its Enrollees. The new Coalition shall comply with the relevant terms and conditions of this Order and any applicable Monitoring and Reporting Program upon receipt of the letter of approval.

IV. Coalition Requirements

1. Approved Coalitions shall comply with all requirements of Coalitions as outlined in the Order and Attachment B: Monitoring and Reporting Program.

2. Approved Coalitions shall be prepared to accept enrollments by **#DATE** (1 year after Order adoption).

3. By **#DATE** (1 year after enrollment deadline), and annually thereafter, the Coalition shall submit to the North Coast Water Board a list of all its Enrollee members. The list shall specifically identify any new Enrollees, or any Enrollees terminated since the last reporting period. As part of the membership list submittal, the Coalition shall identify Enrollees who have failed to fulfil the requirements of this Order as specified in Attachment B: Section V.A

5. The North Coast Water Board may request certain Enrollee information that Coalitions are required to maintain including, but not limited to: (1) Enrollee contact information; (2) Enrollee reports (e.g., Farm Evaluation information), (3) outreach and education attendance lists, and (4) water quality monitoring locations. Upon a request for information from the North Coast Water Board, the Coalition shall

respond within 2 business days with an date of production of the information. This date of production must be reasonable given the scale and scope of the request.

Attachment D: Stewardship Category Requirements

I. Eligibility: Operation-Level Determination

1. The Stewardship Category applies at the operation level. An Irrigated Lands parcel qualifies for the Stewardship Category only if the owner or operator demonstrates that all applicable criteria in the Stewardship Category Criteria described in Section D are satisfied across all Irrigated Lands and Associated Grazing Lands under their ownership or operational control.

II. Application Process

1. An owner or operator seeking a Stewardship Category determination shall submit a Stewardship Category Application to the Executive Officer within the established enrollment period specified in Section II.A of this Order. An operator who initially enrolls in this Order may subsequently apply for the Stewardship Category upon achieving the criteria specified in Section D.
2. The Stewardship Category Application shall include:
    a) All information required in the Notice of Intent under Section II.A of this Order;
    b) A Stewardship Documentation Report addressing each applicable criterion in described in Section D, with supporting evidence as specified therein;
    c) A site map at a scale sufficient to identify all Irrigated Lands, Associated Grazing Lands, perennial, intermittent, and ephemeral watercourses as described in the United States Geological Survey's National Hydrography Dataset, Streamside Areas, jurisdictional wetlands, instream restoration project sites, Appurtenant Agricultural Roads, and the spatial relationship between the Irrigated Lands and receiving waters;
    d) A self-certification statement signed by the owner or operator attesting that the information provided is true and correct and that the Irrigated Lands are currently in compliance with all applicable management measures and prohibitions of this Order.
3. The Executive Officer shall review the Stewardship Category Application and conduct a Threat-to-Water-Quality Assessment as described in Section V of this Attachment
4. The Executive Officer shall issue a written determination within 180 days of receipt of a complete Stewardship Category Application:
    a) Determining that the operation qualifies for the Stewardship Category, with or without conditions; or

b) Denying the acceptance into the Stewardship Category, with a written explanation of the criteria not satisfied and any additional stewardship actions the operator could take to qualify for the Stewardship Category.

5. An owner or operator of Irrigated Lands whose Stewardship Category Application is denied may:

   a) Enroll under this Order within 60 days of the denial; or

   b) Reapply after implementing corrective actions identified in the denial.

III. Inapplicability of Individual Criteria

1. Where an individual criterion described in Section D of is not applicable to an Irrigated Lands parcel due to site conditions (e.g., the parcel has no Appurtenant Agricultural Roads, no jurisdictional wetlands, or no riparian frontage on perennial, intermittent, or ephemeral watercourses), the operator shall document the basis for inapplicability in the Stewardship Documentation Report. The Executive Officer shall confirm inapplicability during the Threat-to-Water-Quality Assessment. A criterion confirmed as inapplicable shall be deemed satisfied.

IV. Stewardship Category Criteria

1. Irrigated Lands qualify for the Stewardship Category upon demonstrating satisfaction of each of the following criteria that is applicable to the operation:

   a) Compliance with Order Requirements

   The owner or operator of the Irrigated Lands demonstrates current and sustained compliance with all requirements and prohibitions of this Order, and:

   i) No unpermitted discharge of waste to waters of the state attributable to the Irrigated Lands within the preceding five (5) years;

   ii) No outstanding enforcement action, cleanup and abatement order, or notice of violation issued by the North Coast Water Board or State Water Board against the owner or operator attributed to the Irrigated Lands;

   iii) No unresolved Executive Officer directive to submit a management plan, technical report, or monitoring data.

   b) Irrigation Efficiency

   Irrigated Lands have no discharge of tailwaters to perennial and intermittent streams and have achieved Maximized Irrigation Efficiency for the irrigation method(s) in use as of the effective date of this Order, as demonstrated by one or more of the following:

i) A current, NRCS-approved Irrigation Water Management Plan (IWMP) (Conservation Practice Standard 449) reviewed or updated within the preceding five (5) years, with documentation of implementation;

ii) A distribution uniformity evaluation conducted by a certified irrigation technician, Agricultural Engineer, Certified Crop Adviser, NRCS field office, or University of California Cooperative Extension within the preceding five years, demonstrating the following benchmarks are met:

iii) Documentation of conversion from a less efficient to a more efficient irrigation method completed within the preceding ten (10) years;

iv) Documentation that a tailwater recovery and reuse system is installed and operational on all fields where tailwater is generated by surface/flood irrigation;

v) Other equivalent documentation acceptable to the Executive Officer that irrigation efficiency has improved and water use has be reduced in the preceding ten (10) years.

Irrigation Method	**Applicable NRCS Practice Standard**	**Efficiency Benchmark**
Surface / Flood	CPS 388, CPS 449	Distribution uniformity ≥ 70%
Sprinkler *(including LESA, linear move, center pivot)*	CPS 442, CPS 449	Distribution uniformity ≥ 80% (LESA) / ≥ 75% (standard sprinkler); application rate does not exceed soil infiltration rate
Drip / Micro-irrigation	CPS 441, CPS 449	Distribution uniformity ≥ 85%; application rate does not exceed soil infiltration rate

c) Riparian Restoration, Wetland Improvement, and Instream Restoration

The landowner or operator has implemented restoration and enhancement projects addressing riparian, wetland, and instream conditions on parcels that would otherwise be subject to enrollment, as follows:

i) Riparian Planting and Protection

1. The owner or operator has planted or otherwise established native riparian vegetation along at least 70 percent of the operation's total frontage on perennial watercourses, measured as linear stream feet. For purposes of this criterion:

2. "Frontage" means the total length of perennial watercourse banks within the Irrigated Lands parcel;

3. Planted areas must include species appropriate to the site's ecological potential and capable of providing effective stream shade at maturity;

4. Existing mature native riparian vegetation that has been preserved and protected from livestock damage and agricultural encroachment may be counted toward the 70 percent threshold;

5. The owner or operator shall provide any planting records, project maps, photo-point documentation, and current condition assessments.

ii) Wetland Improvement

The Irrigated Lands have wetland improvement, restoration, or enhancement projects addressing at least 70 percent of jurisdictional wetlands (as delineated under Clean Water Act Section 404 or applicable state wetland definitions) on parcels that would otherwise be subject to enrollment. Projects may include hydrologic restoration, invasive species removal, native planting, livestock exclusion, and water quality treatment functions. The owner or operator shall provide any project descriptions, permit documentation, and current condition assessments.

iii) Instream Restoration

The Irrigated lands have habitat restoration projects on at least 70 percent of perennial stream frontage on parcels that would otherwise be subject to enrollment. Projects may include bank stabilization using bioengineering techniques, large woody debris placement, beaver dam analogues, spawning gravel augmentation, fish passage barrier removal, or floodplain reconnection. The operator shall provide project descriptions, permit documentation, and current condition assessments.

iv) Permitting Verification

All restoration projects implemented within jurisdictional waters must have been properly authorized by all applicable permitting agencies, including but not limited to:

1. U.S. Army Corps of Engineers (Clean Water Act Section 404);

2. North Coast Regional Water Quality Control Board (Clean Water Act Section 401);

3. California Department of Fish and Wildlife (Fish and Game Code Section 1602);

4. National Marine Fisheries Service and/or U.S. Fish and Wildlife Service (Endangered Species Act, if applicable).

Projects implemented without required permits shall not be credited toward the 70 percent thresholds.

d) Soil Health

For Irrigated Lands with no riparian frontage or wetlands, the owner or operator has implemented soil health improvement practices across at least 70 percent of irrigated acres, as demonstrated by one or more of the following:

1. Implementation of practices consistent with the NRCS Soil Health Management System, including but not limited to cover cropping (CPS 340), nutrient management (CPS 590), residue and tillage management (CPS 329/345), and prescribed grazing (CPS 528), documented by an NRCS conservation plan or comparable technical documentation;

2. Implementation of a California Department of Food and Agriculture (CDFA) Healthy Soils Program (Incentives Program or Demonstration Project) or equivalent on the enrollable parcels, with documentation of project completion and compliance with grant terms where applicable;

3. Third-party verification of increasing soil organic carbon attributable to the operator's farming practices, based on soil sampling and laboratory analysis conducted by a qualified soil scientist, NRCS field office, University of California Cooperative Extension, or accredited soil testing laboratory. Samples may be collected by the owner or operator. Verification shall include baseline and current soil organic carbon measurements from representative sample locations across at least 70 percent of irrigated acres, with a minimum of two (2) sampling events separated by at least three (3) years;

4. Other equivalent documentation acceptable to the Executive Officer demonstrating measurable improvements in soil health parameters (e.g. soil organic carbon, soil structure, soil water-holding capacity) and/or reductions in sediment discharge.

e) Road Hydrologic Disconnection

The Irrigated Lands have achieved Hydrologic Disconnection of all Appurtenant Agricultural Roads on parcels that would otherwise be subject to enrollment. The operator shall provide:

1. An inventory and map of all Appurtenant Agricultural Roads on enrollable parcels;
2. Documentation of disconnection measures implemented (e.g., rolling dips, outsloping, cross-drains, road decommissioning);
3. Photo documentation of completed work;
4. A maintenance plan describing how disconnection features will be maintained over time.

Where the Irrigated Lands parcel has no Appurtenant Agricultural Roads on enrollable parcels, the owner or operator shall document this fact and this criterion shall be deemed satisfied.

V. Threat-to-Water-Quality Assessment

1. Upon receipt of a complete Stewardship Category Application, North Coast Water Board staff will conduct a Threat-to-Water-Quality Assessment of the applicant's Irrigated Lands including a site visit to observe on the ground conditions. The assessment shall evaluate, at minimum:
   a) The current condition of the operation's discharges (or absence thereof) to receiving waters;
   b) The adequacy and condition of implemented restoration projects, irrigation infrastructure, soil health practices, and road treatments;
   c) The current condition of riparian vegetation, streambanks, and instream habitat on and adjacent to the operation;
   d) Consistency of observed conditions with the documentation submitted in the Stewardship Category Application;
   e) Any monitoring data, complaint records, or inspection reports relevant to the operation;
2. The assessment will include a site visit by North Coast Water Board staff, conducted with the consent of the landowner or pursuant to Water Code section 13267.
3. Based on the assessment, staff shall assign a threat level:

Threat Level	Description	Exemption Eligibility
Level A — Low Threat	Sustained compliance; all applicable criteria met; no evidence of ongoing or threatened discharge; measures related to Stewardship Category criteria functional and well-maintained	Eligible for Stewardship Exemption
Level B — Moderate Threat	Most criteria met but one or more partially met, or site assessment reveals conditions requiring monitoring or minor additional actions	Conditionally eligible — Stewardship Category determination may be granted with conditions (e.g., additional monitoring, completion of actions within a defined timeframe)
Level C — High Threat	One or more criteria not met, or active discharges, degraded conditions, or significant deficiencies observed	Not eligible — operator must enroll

4. The Executive Officer's written determination shall include the threat level and factual basis.

VI. Conditions and Obligations of Stewardship Category Operations

1. Irrigated Lands determined to meet requirements of the Stewardship Category remain subject to the following:

    a) Continued fulfillment of criteria. The owner or operator shall maintain the functional condition of all management measures, restoration projects, irrigation systems, soil health practices, and road treatments that formed the basis for inclusion in the Stewardship Category. Should the owner or operator choose to implement changes to the measures that formed the basis for inclusion in the Stewardship Category (e.g. upgrading to a more efficient irrigation system), the operator shall notify the North Coast Water Board in writing.

b) Abbreviated annual reporting. The owner or operator shall submit a Stewardship Status Report to the North Coast Water Board by [February 1 / March 1] of each year, including:

i) A brief narrative confirming continued implementation of Stewardship Category Criteria ;

ii) Photo-point documentation of riparian, wetland, and instream restoration project sites (minimum one photo per project site per year, from established photo points);

iii) Notification of any material changes to the operation (changes in acreage, ownership, irrigation method, livestock management, or project condition);

iv) Notification of any discharge events or operational failures.

c) Periodic reassessment. The Executive Officer may conduct a follow-up Threat-to-Water-Quality Assessment at any time and may conduct a reassessment once every ten (10) years. If the reassessment determines that the operation no longer meets Stewardship Category criteria or that the threat level has increased to Category C, the Executive Officer may revoke Stewardship Category status pursuant to the Revocation Process described in Section G All discharge prohibitions of this Order apply to Stewardship Category Irrigated Lands.

d) Enforcement authority. The Executive Officer retains full enforcement authority under the Water Code with respect to Stewardship Category Irrigated Lands. Exclusion from enrollment does not constitute an exemption from the Porter-Cologne Water Quality Control Act or this Order's prohibitions.

VII. Revocation of Stewardship Category Status

1. The Executive Officer may revoke Stewardship Category status upon a finding that:

a) The Irrigated Lands no longer satisfies one or more of the criteria in Section D;

b) The owner or operator has failed to maintain implemented measures in functional condition;

c) The Irrigated Lands have caused or substantially contributed to a continuing or recurring exceedance of applicable water quality objectives, or to a continuing or recurring condition of pollution or nuisance.

d) The owner or operator has failed to submit required Stewardship Status Reports;

e) The owner or operator provided materially false or misleading information in the Stewardship Category Application;

f) A reassessment under Section E results in reclassification to Level C.

2. The Executive Officer shall provide 30 days written notice of the intent to revoke, including the factual basis. The operator may submit a written response within the 30-day notice period.

3. Upon revocation, the owner or operator shall enroll the Irrigated Lands under this Order within 60 days of the effective date of revocation and shall comply with all Order requirements.

4. An operator whose Stewardship Category status is revoked may request reconsideration the North Coast Water Board at a noticed public meeting. Requesting reconsideration does not relieve the 30-day limit file a petition with the State Water Board to challenge an action of the North Coast Water Board.

VIII. Group Stewardship Projects as Alternative Qualification Pathway

1. Eligibility. As an alternative to individually satisfying the criteria of Section D.5(c) (Riparian, Wetland, and Instream Restoration) a group of three (3) or more owner or operators of Irrigated Lands within the same watershed (Scott River or Shasta River) may propose a Group Stewardship Project that collectively achieves equivalent or superior water quality outcomes. Each participating operator must individually satisfy Sections D.5(a) (Compliance), D.5(b) (Irrigation Efficiency), and D.5(d) (Soil Health),and Section D.5(e) (Road Hydrologic Disconnection). The Group Stewardship Project substitutes for the individual requirements of Sections D.5(c).

2. Proposal submission. The group shall submit a Group Stewardship Project Proposal to the Executive Officer including:

a) Identification of all participating operators, including names, contact information, parcel locations, and acreage;

b) A description of the proposed project, including goals, location, design, and expected water quality benefits;

c) Demonstration that the project addresses at least two (2) miles of continuous or cumulative perennial stream frontage within the watershed;

d) A description of how the project addresses, in an integrated manner, the functional equivalents of the individual criteria in Section D.5(c), including:

i. Riparian planting and protection;

ii. Wetland improvement or restoration;

iii. Instream habitat restoration (which may include floodplain reconnection, levee setback or removal, large wood placement, beaver dam analogues, fish passage improvements, or comparable actions);

iv. Hydrologic disconnection of appurtenant agricultural roads

e) An implementation schedule with milestones, including a projected completion date not to exceed ten (10) years from proposal approval;

f) A monitoring and reporting plan describing how the group will document implementation progress, measure environmental outcomes, and report to the North Coast Water Board;

g) A funding plan identifying committed or anticipated funding sources;

h) A governance structure describing how participating operators will coordinate, make decisions, and allocate responsibilities;

i) Identification of all permits required and status of applications;

j) A contingency plan describing response to participant withdrawal, funding loss, or significant delays.

2. Review and approval. The Executive Officer shall review the proposal and may:

a) Approve, granting participating operators conditional Stewardship Category status effective upon approval and contingent upon timely implementation;

b) Approve with modifications, requiring changes to scope, schedule, monitoring, or governance;

c) Deny, with written explanation. The group may revise and resubmit.

3. Reporting. The group shall submit semi-annual progress reports during implementation and annual status reports thereafter, documenting milestones achieved, permits obtained, monitoring results, and any changes.

4. Participant withdrawal.

a) A withdrawing owner or operator shall enroll their Irrigated Lands in this Order within 60 days;

b) Remaining participants' exemptions are not affected provided the project maintains the two-mile riparian frontage threshold and minimum three participants, and a revised plan is submitted within 120 days;

c) If withdrawal causes the project to fall below thresholds, the Executive Officer shall reassess viability and may revoke Stewardship Category status pursuant to Section G.

5. Project failure. If the project fails to meet its schedule or milestones, the Executive Officer may require a revised plan to be submitted within 120 days, impose additional monitoring, or revoke conditional Stewardship Category status.

Attachment E: Tailwater Practice Menu for Compliance Pathway II

The following practices may be implemented as part of Compliance Pathway II to minimize and control the discharges of tailwater into Waters of the State.

I. Operational Irrigation Improvements

1. Shorten Set Times – reduce applied irrigation volume by ending each irrigation set earlier in the run
2. Tighten rotation timing – move water more frequently across pasture units to avoid prolonged saturation and runoff.
3. Improve Headgate Management – maintain or improve headgates to provide more precise opening/closing of diversion gates to reduce excess flow.
4. Shut off diversions when not needed – ensure diversion structures are closed immediately after the intended irrigation set has ended.
5. Match Irrigation to soil infiltration – Irrigate only as long as soils can infiltration applied water. Stop irrigation before runoff initiates.
6. Conduct irrigation when air temperatures and solar radiation is reduced, including in the evening or at night.

II. Irrigation Scheduling Based on Soil Moisture

1. Test soil condition - prior to irrigation, use simple field checks including probing, test hole digging, feeling for soil moisture, to determine if soil is ready for irrigation or remains moist from the last irrigation set.
2. Time irrigation based on soil condition - delay irrigation when soil remains moist from previous irrigation set or from overnight atmospheric conditions.
3. Adjust rotations based on weather - increase rest periods on cooler or days with lower evapotranspiration.

III. Pasture Management Practices to Reduce Runoff

1. Adjust grazing timing based on soil condition - reduce stocking or rest fields with compacted soils to improve water intake.
2. Maintain vegetated cover – minimizing bare mineral soil allows pasture grasses to filter sheet flow, slow runoff, and increase infiltration.
3. Be aware of topography - Apply irrigation to avoid topography that channelizes flow. Apply irrigation water to upper terraces first and allow slopes to sub-irrigate from the terraces above.

IV. Irrigation Flow Path Corrections

1. Break developing rills as observed – use hand digging techniques or light equipment to drag small soil ridges to guide and spread irrigation water.
2. Shape low spots or swales – use light equipment to ensure areas do not concentrate flow and instead spread flow evenly across the pasture.
3. Clear field debris – field debris can divert water into concentrated channels. Ensure irrigation water flows evenly and slowly across the surface and debris does not result in concentrated flow.
4. Cross-ditching to reduce sheet flow – increase the number of cross ditches in a field to minimize the length of sheet flow across a field, minimizing its exposure to solar radiation.

V. Reduce Water Delivery Variability

1. Inspect ditches – patch small leaks and remove obstructions.
2. Inspect field conveyance structures – ensure when water is pushed from the ditch to the field, the desired amount is directed into the field, and the field is not receiving more irrigation water than it can infiltrate.

VI. Coordination

1. Coordinate with neighbors, including coordinating start and stop times to match your infiltration capacity or skipping a set when a neighbor's tailwater runs on and overwhelms a field, to reduce tailwater discharges off of a property.

VII. Avoid Irrigating High Risk Areas

1. Avoiding irrigating on narrow, steep, or fringe fields near the Riparian Zone with highly compacted soils.2. Manage areas near the riparian zone as dryland pasture instead of irrigated pasture to reduce tailwater discharge risk.

Attachment F: CEQA Mitigation Measures

The following Mitigation Monitoring and Reporting Program (MMRP) summary table includes the mitigation measures identified in the California Regional Water Quality Control Board, North Coast Region (North Coast Water Board) draft environmental impact report (EIR) for the proposed Order project in accordance with the California Environmental Quality Act (CEQA). For each mitigation measure, this table identifies monitoring and reporting actions that must be carried out and the monitoring schedule.

Enrollees are responsible for complying with all mitigation measures in the final EIR and this MMRP summary table. Enrollees must determine whether their proposed activities (e.g., management practices) are subject to individual mitigation measures and, if applicable, take the necessary actions to ensure the mitigation measures are fully implemented. In some cases, this may involve hiring a professional (e.g., biologist, archaeologist) and becoming familiar with applicable laws and regulations.

Enrollees who enroll individually in the Order must report their compliance with mitigation measures in the Farm Evaluation, which is submitted as part of their overall compliance reporting for the Order. The Coalition shall submit this information to the North Coast Water Board on behalf of its enrolled Enrollees. As the CEQA Lead Agency, the North Coast Water Board is ultimately responsible for ensuring compliance with the mitigation measures identified in the Final EIR. The North Coast Water Board will accomplish this through review of reported Farm Evaluation information to confirm that reported actions fully meet the requirements of the applicable mitigation measures. The North Coast Water Board will also confirm mitigation measure compliance during periodic inspections of individual operations.

The MMRP will be made available to Enrollees, and they may use the checklist to help document their compliance with applicable mitigation measures. The North Coast Water Board may also use the MMRP checklist to confirm and document compliance

Mitigation, Monitoring and Reporting Program (MMRP) Summary Table

Mitigation Category	Mitigation Measure	Monitoring and Reporting Action and Schedule (Responsible Party in Parenthesis)
Biological Resources: BIO-1	Where construction in areas that may contain sensitive biological resources cannot be avoided using alternative management practices, conduct an assessment of habitat conditions and the potential for presence of sensitive vegetation communities or special- status plant and animal species prior to construction. This may include the hiring of a qualified biologist to identify riparian and other sensitive vegetation communities and/or habitat for special-status plant and animal species. When conducting maintenance or repair on facilities that may provide habitat for species, ensure that such activities will not disturb any special-status species that may be present. If conducting maintenance or repair activities during the nesting season (generally February 1 to August 31), inspect the facilities to ensure that nesting birds are not present within or adjacent to areas where such activities will occur. If nests or young are identified in such areas, conduct the activities outside of the nesting season. Where adverse effects on sensitive biological resources cannot be avoided, undertake additional CEQA review and develop a restoration or compensation plan in consultation with the California Department of Fish and Wildlife to mitigate the loss of the resources	Confirm that the least impactful effective management practice is selected to avoid impacts to biological resources. Schedule: During design of management practice(s). (Enrollee) Where areas potentially containing sensitive biological resources cannot be avoided, confirm performance of habitat and species assessment. Schedule: Prior to construction / installation of management practice(s), if applicable.(Enrollee) Confirm that maintenance or repair activities will not disturb any special-status species. Prior to undertaking proposed activity. (Enrollee) For activities proposed during nesting season, confirm performance of survey for nesting birds and avoidance of nests / young. Schedule: Prior to undertaking proposed activity, if applicable. (Enrollee) In the event avoidance of sensitive biological resources is not feasible, confirm additional CEQA review and appropriate consultation with CDFW. Schedule: Prior to undertaking any construction / installation or other activities that could adversely affect sensitive biological resources (Enrollee and NCRWQCB)

Mitigation Category	Mitigation Measure	Monitoring and Reporting Action and Schedule (Responsible Party in Parenthesis)
Biological Resources: BIO-2	Mitigation Measure BIO-2: Implement Construction Best Management Practices for Erosion Control. Where construction of Management Practices would not be subject to a local ordinance, owners and operators of Irrigated Lands must implement the following measures during construction of Management Practices, or must implement alternative measures that are demonstrated to be equally or more effective: 1) Implement practices to prevent erosion of exposed soil and stockpiles, including watering for dust control, establishing perimeter silt fences, and/or placing fiber rolls. 2) Minimize soil disturbance areas. 3) Implement practices to maintain water quality, including silt fences, stabilized construction entrances, and storm drain inlet protection. 4) Where feasible, limit construction to dry periods. 5) Revegetate disturbed areas. The performance standard for these erosion control measures is to use the best practicable treatment and control (BPTC).	Determine whether construction of the Management Practice is subject to a local grading ordinance requiring erosion control. Schedule: During design of Management Practice(s). (Enrollee) Where no local ordinance applies, confirm that erosion and sediment control measures, soil disturbance minimization, and water quality protection measures are incorporated into the design, or that alternative measures demonstrated to be equally or more effective have been identified. Schedule: Prior to construction / installation of Management Practice(s). (Enrollee) Confirm that the specified measures, or approved alternative measures, are installed and maintained and that construction is limited to dry periods where feasible. Schedule: During construction / installation of Management Practice(s). (Enrollee) Confirm revegetation of disturbed areas. Schedule: Upon completion of construction / installation of Management Practice(s), and until disturbed areas are stabilized. (Enrollee) Confirm that measures implemented meet the best practicable treatment and control (BPTC) performance standard. Schedule: During and upon completion of construction / installation. (Enrollee and NCRWQCB)

Mitigation Category	Mitigation Measure	Monitoring and Reporting Action and Schedule (Responsible Party in Parenthesis)
Cultural Resources: CUL-1	Cultural Resources Inventory, Evaluation of Resources for Significance, and Implementation of Avoidance and/or Minimization Measures. For proposed actions or management practices that involve modifications to previously undisturbed soils (i.e., below the levels of current agricultural practices, or in areas that have not previously been cultivated or developed) or a structure that may qualify as a historical resource, the following steps must be taken to avoid and/or reduce potential impacts on significant cultural resources: The enrollee or third-party must retain an archaeologist who meets the U.S. Secretary of Interior's professional standards as an archaeologist to conduct a records search at the regional Information Center of the California Historical Resources Information System (CHRIS). The record search must determine if cultural resources have previously been identified in the proposed disturbance area and whether the proposed disturbance area has previously been subject to archaeological pedestrian survey. The professional archaeologist must contact the NAHC to request a search of the Sacred Lands files and a list of tribes with a traditional and cultural affiliation with the proposed disturbance area. The archaeologist must contact the tribes identified by the NAHC to request information about sites and resources that may not have been identified during the record search process, including TCRs, and whether the tribes have any concerns about the proposed action.	Confirm that the measure is included in contract documents, if any. Schedule: During preparation of contract and specifications (Enrollee) Confirm that construction workers are fully aware of all requirements pertaining to cultural resources and receive basic training on how to identify potential cultural resources. Schedule: Prior to construction / installation of applicable management practices. (Enrollee) For applicable activities, confirm retention of a qualified archaeologist to conduct a records search, contact tribes, and conduct pedestrian survey, as necessary. Schedule: Prior to construction / installation of applicable management practices.(Enrollee) Confirm any identified archaeological sites, and historic buildings and structures, are recorded on proper forms. Schedule: Prior to construction / installation of applicable management practices. (Enrollee) If historical resource(s) are identified within the proposed disturbance area, confirm avoidance of those resource(s) to the extent feasible. Schedule: Prior to construction / installation of applicable management practices. (Enrollee) If historical resource(s) cannot be avoided, confirm preparation of a data recovery plan and submittal to NCRWQCB. Schedule: Prior to construction / installation of applicable management practices. (Enrollee)

Mitigation Category	Mitigation Measure	Monitoring and Reporting Action and Schedule (Responsible Party in Parenthesis)
Cultural Resources: CUL-1 continued	If a pedestrian survey has not previously been conducted on the property, a survey must be conducted by a qualified archaeologist. All identified archaeological sites and historic buildings and structures must be recorded on California Department of Parks and Recreation 523 Site Record forms. A Historic Resources Identification Report must be prepared to document the findings of the study; the report must be submitted to the NCRWQCB and the CHRIS Information Center. If the property has been subject to previous study, additional survey is not required if no cultural resources, including TCRs, were identified during the study and the age and adequacy of the report are considered sufficient by the consulting archaeologist for the purposes of the present project. The report from the previous survey can then be used to satisfy the CEQA requirements for historical resources. If the property has been subject to previous survey and a cultural resource has been identified within the proposed disturbance area, a qualified archaeologist must conduct a pedestrian survey to assess the current condition of the resource relative to the proposed action.	See CUL-1.

Mitigation Category	Mitigation Measure	Monitoring and Reporting Action and Schedule (Responsible Party in Parenthesis)
Cultural Resources: CUL-2	If cultural resources are identified either by the record search or pedestrian survey, the qualified archaeologist must evaluate the significance of archaeological resources, per the State Water Board guidelines1. Note that buildings that would be impacted by the proposed action would require evaluation for California Register of Historical Resources (CRHR) eligibility by a qualified architectural historian. If the cultural resource(s) are determined to be historical resource(s) (i.e., listed or eligible for listing in the CRHR), the enrollee or third-party, in coordination with the qualified archaeologist, must avoid impacting the resource(s) to the extent feasible. This would include relocating or redesigning proposed management practice(s) such as to avoid the resource or leaving structures in place in setback areas or otherwise preserving structure(s) that are listed or eligible for listing. If the historical resource(s) cannot be completely avoided, the qualified archaeologist must develop and implement a data recovery plan, which makes provisions for adequately recovering the scientifically consequential information from and about the historical resource(s) that may be impacted by the proposed activity.	Confirm that submitted data recovery plan adequately provides for recovery of scientifically important information about historical resource(s) to be impacted, and that consulting tribes are provided opportunity to review. Schedule: Prior to commencement of any excavation activities.(NCRWQCB) If approved, confirm that data recovery plan is properly and fully implemented. Schedule: During and potentially after construction / installation, if applicable. (Enrollee) In the event that cultural resources are encountered, ensure that work stops immediately. Schedule: During construction / installation, if necessary. (Enrollee) Ensure all accidentally discovered cultural resources are evaluated for inclusion in the CRHR and that avoidance measures or appropriate mitigation measures are implemented for historical resources. Schedule: During construction / installation, if necessary. (Enrollee)

Mitigation Category	Mitigation Measure	Monitoring and Reporting Action and Schedule (Responsible Party in Parenthesis)
Cultural Resources: CUL-2 cont'd.	The data recovery plan must be prepared and submitted to NCRWQCB for approval, and the data recovery plan must be approved by NCRWQCB prior to any excavation taking place that may impact the resource(s). NCRWQCB must ensure that data recovery plans for Native American archaeological sites have the opportunity to be reviewed by consulting tribes. Archaeological sites known to contain human remains must be treated in accordance with the provisions of section 7050.5 of the Health and Safety Code (see Mitigation Measure CUL-3). For any artifacts removed during project excavation or testing, the professional archaeologist must provide for the curation of such artifact(s). For structure(s) evaluated as a historical resource(s) that cannot be avoided, reconstruction of the structure(s) at an offsite location, consistent with the Secretary of the Interior's Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings, may be an appropriate minimization measure that may be implemented in addition to, or as part of, the data recovery plan. Provisions must be made by the enrollee or third- party for the accidental discovery of historical or unique archaeological resources during construction of applicable management practices, pursuant to CEQA Guidelines 15064.5(f). If cultural resources2 are uncovered during construction, work must immediately cease within 50 feet of the finds and the materials must be evaluated by a qualified archaeologist. If the finds are determined to be a historical or unique archaeological resource, avoidance measures or appropriate mitigation (e.g., data recovery, documentation, and curation) must be implemented.	See CUL-2.

Mitigation Category	Mitigation Measure	Monitoring and Reporting Action and Schedule (Responsible Party in Parenthesis)
Cultural Resources: CUL-3	Comply with State Laws Pertaining to the Discovery of Human Remains. If human remains are discovered during construction, the requirements of Health and Safety Code section 7050.5 must be followed. Potentially damaging excavation must halt on the construction site within a minimum radius of 100 feet of the remains, and the county coroner must be notified. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code section 7050.5[b]). If the coroner determines that the remains are those of a Native American, the NAHC must be contacted by phone within 24 hours of making that determination (California Health and Safety Code section 7050[c]). Pursuant to the provisions of PRC section 5097.98, the NAHC must identify a most likely descendent (MLD). The MLD designated by NAHC must have at least 48 hours to inspect the site and propose treatment and disposition of the remains and any associated grave goods. The enrollee must work with the MLD to ensure that the remains are removed to a protected location and treated with dignity and respect. Ground disturbing activities must not resume until these requirements are met.	Confirm that measure is incorporated in contract documents, if any. Schedule: During preparation of contract and specifications.(Enrollee) Confirm that construction workers are fully aware of all requirements pertaining to human remains. Schedule: Prior to construction / installation of management practices or other activities involving ground disturbance. (Enrollee) In the event that human remains are encountered, confirm that work is stopped immediately and California Health and Safety Code requirements are followed and the county coroner is contacted. Schedule: During construction / installation, if applicable. (Enrollee) Confirm that any discoveries of human remains are evaluated and addressed properly as outlined in the measure. Schedule: During construction / installation, if applicable (Enrollee)
Tribal Resources: TRI-1	See Cultural Resources (CUL-1 through CUL-3) above.	

Attachment G: Templates

Order No. R1-2027-XXXX

General Waste Discharge Requirements for Irrigated Lands in the Scott River and Shasta River Watersheds

Attachment X: Forms and Templates

Contents

I. Notice of Intent (eNOI)
II. Notice of Termination
III. Farm Evaluation
IV. Drinking Water Supply Well Forms

North Coast Regional Water Quality Control Board

Scott and Shasta Irrigated Lands Order

NOTICE OF INTENT (eNOI)

To obtain regulatory coverage under Order No. R1-2027-XXXX for discharges from Irrigated Lands and Associated Grazing Lands within the Scott River and Shasta River watersheds.

This eNOI serves as the Report of Waste Discharge (ROWD) for purposes of this Order, submitted pursuant to Water Code section 13260.

You must complete the entire form. Instructions begin on page 5.

A. Submittal Type — *check one*

☐ **New enrollment**

☐ **Amendment to an existing enrollment** — required within 30 days of a change in property ownership, Enrollee contact information, email address, or the parcels farmed. Existing Enrollment ID: _____

☐ **Transfer of coverage** — coverage is not transferable except by completion of a new eNOI and written approval of the Executive Officer. Predecessor's Enrollment ID: _____

B. Enrollment Type — check one

☐ I am enrolling **individually**. I acknowledge that I must fulfill all requirements of Attachment A: Monitoring and Reporting Program.

☐ I am enrolling **through an approved Coalition**. I acknowledge that the Coalition may fulfill some Monitoring and Reporting requirements, but that I remain ultimately responsible for compliance with all requirements of the Order. Coalition name: _____

C. Basis for Enrollment — check all that apply

☐ Irrigated Agricultural Operation applying water to **25 or more acres** under common ownership or operational control

☐ Operation includes **Associated Grazing Lands** on irrigated parcels

☐ Previously subject to Order No. R1-2018-0018 (Scott) or R1-2018-0019 (Shasta)

☐ **Fewer than 25 irrigated acres**, enrolling because the Executive Officer has determined in writing that enrollment is required pursuant to Water Code section 13267. Date of notice: _____

☐ **Fewer than 25 irrigated acres**, previously required under a rescinded conditional waiver to develop, submit, or implement a Ranch Management Plan, Tailwater Management Plan, Grazing and Riparian Management Plan, or Erosion Control Plan

1. Landowner Information

1a. First Name	1b. Last Name
1c. Phone Number	1d. Email
1e. Business Mailing Address	

1f. Is the landowner also the operator? ☐ Yes ☐ No *(If Yes, skip Section 2.)*

2. Operator Information — complete if different from the landowner

2a. First Name	2b. Last Name
2c. Phone Number	2d. Email
2e. Business Mailing Address	

Both the landowner and the operator are liable for noncompliance regardless of which party enrolls, so both must be identified even though only one is the Enrollee.

3. Operation Information

Operation Name (DBA), if applicable: _____

Operation type *(e.g., cattle ranch, alfalfa farm, grain farm, mixed crop operation)*:

_____

4. Parcel Information

List every parcel for which coverage is sought. Where Associated Grazing Lands exist, enrollment must encompass **all** irrigated parcels that are part of the operation — partial enrollment of an operation is not permitted. Attach additional sheets as necessary.

Assessor's Parcel Number (APN)	**Watershed (Scott / Shasta)**	**Township, Range, Section**	**Total Parcel Acres**	**Irrigated Acres**	**Non-Irrigated Grazed Acres**	**Field ID *(self-appointed, optional)***

Assessor's Parcel Number (APN)	**Watershed (Scott / Shasta)**	**Township, Range, Section**	**Total Parcel Acres**	**Irrigated Acres**	**Non-Irrigated Grazed Acres**	**Field ID *(self-appointed, optional)***
Totals	---	---				---

5. Acreage Threshold Determination

Total **irrigated** acres across all parcels under common ownership or operational control: _____ acres

The 25-acre threshold is measured across all parcels in the operation.

6. Tailwater Discharge Information

Does the operation discharge Tailwater to surface waters or hydrologically connected channels? ☐ Yes ☐ No ☐ Unknown

If Yes, estimate for the largest single discharge point:

Peak discharge rate (gpm)	**Typical continuous duration (hours)**	**Number of discharge points**	**Receiving watercourse name(s)**	**Receiving watercourse class *(perennial / intermittent / ephemeral)***

7. Site Access Contact

Name	Phone	Email	Access instructions (gates, locks, notice preferences)

8. Map of Operation

Attach a map showing all enrolled parcels with parcel boundaries. The map may be an aerial photograph, topographic map, LiDAR-derived shaded relief map, Google Earth image, or equivalent depicting features at **1 inch = 50 feet or larger scale**, and shall include a north arrow, scale bar, and legend.

9. Owner Notification and Certification

Complete this section if the party enrolling is not the landowner.

I certify that the owner of the parcel(s) being enrolled has been notified in writing that the parcel(s) have been enrolled under Order No. R1-2027-XXXX, and that I have been designated as the Enrollee.

Printed Name: _____

Signature: _____ Title: _____ Date: _____

10. Certification

> *"I certify under penalty of perjury under the laws of the State of California that this document and all attachments were prepared under my direction and supervision, and that the information submitted is, to the best of my knowledge and belief, true, complete, and accurate. I am aware that there are significant penalties for submitting false information. I further certify that the provisions of Order No. R1-2027-XXXX, including the implementation of Attachment A: Monitoring and Reporting Program, will be complied with."*

Enrollee Printed Name: _____

Signature: _____ Title: _____ Date: _____

Submittal

1. Deadline. Submit no later than **#DATE** (18 months after Order adoption). New, expanding, or previously inactive operations must submit prior to commencing operations.

2. Fees. The State Water Board sets the fee schedule at California Code of Regulations, title 23, section 2200.6. Fees differ depending on Coalition membership. Current fee information:
https://www.waterboards.ca.gov/water_issues/programs/agriculture/

3. Where to submit. Submit electronically to:

North Coast Regional Water Quality Control Board
ATTN: Scott and Shasta Irrigated Lands Order
5550 Skylane Boulevard, Suite A, Santa Rosa, CA 954__
Email: NorthCoast@Waterboards.ca.gov
Enrollees enrolling through a Coalition should submit to the Coalition.

4. Submittal title. Submit under the title **"General Waste Discharge Requirements for Irrigated Lands in the Scott River and Shasta River Watersheds."**

5. Records. Retain a signed copy at your primary place of business for a minimum of **ten years**.

North Coast Regional Water Quality Control Board

SCOTT AND SHASTA IRRIGATED LANDS ORDER

NOTICE OF TERMINATION

Request to terminate coverage under Order No. R1-2027-XXXX.

Submission of this form constitutes official notification to the North Coast Regional Water Quality Control Board (North Coast Water Board) that the Enrollee identified below, and all associated Assessor's Parcel Numbers, has elected to terminate coverage under the Order.

To terminate enrollment, this form must be completed, signed by the Enrollee identified on the operation's eNOI, and received by the North Coast Water Board. **By submitting this form, ALL parcels associated with the Enrollee will be terminated.** To terminate coverage for some parcels but not others, submit an amended eNOI instead.

> ***Do not use this form to leave a Coalition.*** *An Enrollee who leaves a Coalition but continues farming remains subject to the Order and must submit an amended eNOI electing individual enrollment.*

1. Enrollee Information

Complete this section if currently enrolled through a Coalition:

Enrollee (Owner/Operator) name	
Coalition name	
Member ID (if assigned)	
Phone	Email
Business mailing address	

Complete this section if currently enrolled individually:

Enrollee (Owner/Operator) name	
Enrollment ID	
Phone	Email
Business mailing address	

2. Parcels Covered by This Termination

Assessor's Parcel Number (APN)	Watershed (Scott / Shasta)	Irrigated Acres	Non-Irrigated Grazed Acres

3. Reason for Termination — check all that apply

A. ☐ Cessation of irrigated agricultural operations

Effective date: ___ / ___ / _____

The operation has ceased applying irrigation water for the purpose of producing crops, forage, pasture, or other agricultural commodities.

B. ☐ Conversion to Standalone Dryland Grazing

Effective date: ___ / ___ / _____

Irrigation has ceased on all enrolled parcels and remaining use is livestock grazing on non-irrigated land only. Standalone Dryland Grazing Operations are not required to enroll but remain subject to the Executive Officer's authority under the Order.

C. ☐ Operation now regulated under the General Waste Discharge Requirements for Dairies

Effective date: ___ / ___ / _____ Dairy GWDR enrollment identifier: _____

Where any portion of the property is regulated under the Dairy GWDR, the entire operation — including all associated irrigated and grazing lands — is regulated exclusively under that order.

D. ☐ Operation now regulated under individual site-specific Waste Discharge Requirements

Effective date: ___ / ___ / _____ Order number: _____

E. ☐ Executive Officer has determined the operation qualifies for the Stewardship Category

Date of determination: ___ / ___ / _____

F. ☐ Total irrigated acreage has fallen below 25 acres

Effective date: ___ / ___ / _____ Current total irrigated acres: _____

Both of the following must be answered. If either is Yes, enrollment continues and coverage may not be terminated on this ground.

Has the Executive Officer notified you in writing that enrollment is required pursuant to Water Code section 13267? ☐ Yes ☐ No

Was this operation previously required, under a conditional waiver rescinded by this Order, to develop, submit, or implement a Ranch Management Plan, Tailwater Management Plan, Grazing and Riparian Management Plan, or Erosion Control Plan? ☐ Yes ☐ No

G. ☐ Transfer of ownership

Effective date: ___ / ___ / _____

New owner name and contact: _____

Have you notified the new owner of the requirement to submit an eNOI? ☐ Yes ☐ No

Coverage under this Order is not transferable except after completion of a new eNOI by the successor and written approval of the Executive Officer. Coverage continues until that approval is issued.

H. ☐ Change in operator

Effective date: ___ / ___ / _____

New operator name and contact: _____

Have you notified the new operator of the requirement to submit an eNOI? ☐ Yes ☐ No

I. ☐ Other — describe: _____

4. Certification

"I certify under penalty of perjury under the laws of the State of California that this document and all attachments were prepared under my direction and supervision, and that the information submitted is, to the best of my knowledge and belief, true, complete, and accurate. I am aware that there are significant penalties for submitting false information."

Enrollee Printed Name: _____

Signature: _____ Title: _____ Date: _____

Submittal

Submit this completed form electronically to:

North Coast Regional Water Quality Control Board
ATTN: Scott and Shasta Irrigated Lands Order
5550 Skylane Boulevard, Suite A, Santa Rosa, CA 954__
Email: NorthCoast@Waterboards.ca.gov

Enrollees enrolled through a Coalition should also provide a copy to the Coalition, which must report departed members and the reason for non-participation in its Annual Compliance Report.

Submit under the title **"General Waste Discharge Requirements for Irrigated Lands in the Scott River and Shasta River Watersheds."**

Retain a signed copy at your primary place of business.

Coverage remains in effect until the North Coast Water Board confirms termination in writing.

North Coast Regional Water Quality Control Board

SCOTT AND SHASTA IRRIGATED LANDS ORDER

FARM EVALUATION

Order No. R1-2027-XXXX

Annual inventory of management practices, compliance status, irrigation and nutrient management, and Adaptive Management, required under Attachment A: Monitoring and Reporting Program, Section V.A.

You must complete the entire form. Submit by **March 1** annually. Retain a signed copy at your primary place of business for ten years.

Reporting year (calendar year covered): _____

Enrollment type — *check one:*

☐ Enrolled **individually**. Enrollment ID: _____

☐ Enrolled through an approved **Coalition**.

Coalition name: _____ Member ID: _____

PART 1 — WHOLE-OPERATION SECTIONS

1. Owner / Operator Identification

Landowner

1a. Name	1b. Phone
1c. Email	1d. Business address
1e. Mailing address (if different)	

Operator — *complete if different from the landowner*

2a. Name	2b. Phone
2c. Email	2d. Business address
2e. Mailing address (if different)	

Operation Name (DBA), if applicable: _____

Operation type *(e.g., cattle ranch, alfalfa farm, grain farm, mixed crop operation)*: _____

2. Operation Identification

List every enrolled parcel. Attach additional sheets as necessary.

Physical address	APN	Township and Range	Field ID	Watershed (Scott / Shasta)	Total parcel acres	Irrigated Acres	Dryland grazing acres
Totals							

Have any parcels been added or removed since the last Farm Evaluation? ☐ Yes ☐ No

If Yes, an amended eNOI was required within 30 days of the change. Date amended eNOI submitted: _____

3. Management Unit Definition

Where this form requires reporting by Field, you may aggregate multiple Fields into a **Management Unit** only where all aggregated Fields share **(1)** the same fertilizer inputs, **(2)** the same irrigation management, and **(3)** the same management practices. Management Unit IDs must be defined, labelled, and kept consistent across all reporting years.

☐ No Fields are aggregated. Part 2 is completed per Field. *(Skip to Section 4.)*

Management Unit ID	**Field IDs aggregated**	**APN(s)**	**Total acres**	**Same fertilizer inputs?**	**Same irrigation management?**	**Same management practices?**

4. Well Identification

List all wells on each enrolled APN. Assign each a unique Well ID and use it consistently on the Drinking Water Well Information Form.

APN	**Well ID**	**Well type** ***(irrigation / Drinking Water Supply / abandoned or inactive)***	**Status** ***(active / out of service / replacement water supplied)***	**Monitored under the MRP?**	**Latitude**	**Longitude**

Total irrigation wells (active and inactive): _____ Total Drinking Water Supply Wells: _____

Where sampling has ceased because a well is out of service or replacement water is supplied, retain records establishing that the well is not used for drinking water.

5. Farm Map

Attach an updated Farm Map with this Farm Evaluation.

Map specification — check each:

- ☐ Aerial photograph, topographic map, LiDAR-derived shaded relief map, Google Earth image, or equivalent
- ☐ Scale of **1 inch = 50 feet or larger**
- ☐ **10-foot contour interval** *(Coalitions may submit Coalition-wide maps at no greater than 100-foot contour interval, with Section-level detail maps at no greater than 10-foot where the features below are present)*
- ☐ North arrow ☐ Scale bar ☐ Legend for all symbology

Labelled features — check each:

- ☐ i. All waterbodies within the enrolled area, including all designated wetlands
- ☐ ii. Riparian Grazing Plan photo-points (if applicable)
- ☐ iii. All Tailwater discharge points to surface waters or designated wetlands
- ☐ iv. All stream crossings used by livestock or vehicles
- ☐ v. Delineation of parcels used for grazing and for crop cultivation
- ☐ vi. Delineation of parcels where nutrients are applied, including manure
- ☐ vii. Parcels containing Drinking Water Supply Wells
- ☐ viii. Chemical storage areas, including petroleum product tanks, fertilizer, and herbicide stockpiles
- ☐ ix. Farm buildings, including livestock loading areas, temporary confinement areas, and hay barns
- ☐ x. The on-farm road network within the enrolled area
- ☐ xi. Implemented Management Practices designed to protect water quality
- ☐ xii. **Proposed future** Management Practices designed to protect water quality
- ☐ xiii. Field ID(s) and land use for each Field *(e.g., crop type, fallow, grazing)*

6. Compliance Education Event Attendance

Enrollees shall participate in outreach and education annually addressing actions necessary to attain water quality standards and practices to prevent or minimize discharge of sediment, pesticides, and nutrients.

Date of event	**Type *(in-person / online video / printed materials / other)***	**Sponsoring organization or provider**	**Brief description of topics covered**

7. Operation-Level Compliance Milestones

Dated obligations that apply across the operation rather than per Field.

Obligation	**Deadline**	**Status**	**Target completion date**
Riparian Vegetation Area tillage prohibition — operations not in compliance at adoption	Within 5 years of Order adoption	☐ In compliance ☐ In progress ☐ Not started	
Existing culverted stream crossings meet specifications	Within 10 years of adoption	☐ In compliance ☐ In progress ☐ Not started	
Existing Hydrologically Connected Appurtenant Agricultural Road segments meet specifications	Within 10 years of adoption	☐ In compliance ☐ In progress ☐ Not started	
Tailwater final compliance	Within 8 years of enrollment deadline	☐ In compliance ☐ In progress ☐ N/A — no Tailwater	

PART 2 — COMPLETED PER FIELD OR MANAGEMENT UNIT

Attach one copy of Part 2 for each Field or Management Unit.

Field ID or Management Unit ID: _____ APN(s) included: _____

Land use this reporting year *(crop type, fallow, grazing)*: _____ Acres: _____

8. Management Practice Inventory

Report the implementation status of each requirement. Use the Notes column for field-specific detail.

How to complete this section. *Sections 8A through 8E are* ***requirements of the Order****, not optional practices. Mark* ***Implemented*** *where the requirement is met,* ***N/A*** *where site conditions make it inapplicable, or* ***Not yet in compliance*** *with a target date where a compliance schedule applies. Section 8F is a menu of practices from which Pathway 2 Enrollees select.*

8A. Riparian Zone

Requirement	Implemented	N/A	Not yet in compliance — target date	Notes
Natural establishment and abundance of native riparian vegetation allowed within the Riparian Vegetation Area	☐	☐		
Essential riparian functions supported (sediment filtering, woody debris recruitment, bank stabilization, nutrient cycling, pollutant filtering, shading)	☐	☐		
No tillage within the Riparian Vegetation Area	☐	☐		
No removal of existing riparian vegetation except as permitted by Section II.E	☐	☐		
Vegetated Buffers installed and maintained	☐	☐		
No new permanent structures within the Vegetated Buffer	☐	☐		
No storage of chemicals, oil, or petroleum products within the Vegetated Buffer	☐	☐		

Requirement	Implemented	N/A	Not yet in compliance — target date	Notes
No placement of construction materials, trash, refuse, plant waste, or solid waste within the Vegetated Buffer	☐	☐		
Seasonal Roads in the Vegetated Buffer maintained at minimum 90% ground cover, December 15 – April 1	☐	☐		
All-Season Roads in the Vegetated Buffer improved and maintained to minimize sediment discharge	☐	☐		

If any riparian vegetation was removed under an exception, identify the exception and, for exception (5), the date of Executive Officer approval: _____

8B. Riparian Grazing

Are livestock present in the Riparian Vegetation Area on this Field or Management Unit? ☐ Yes ☐ No *(if No, skip to 8C)*

Compliance option — *check one:*

☐ **Standard conditions** — all eight requirements below are met

☐ **Grazing and Riparian Management Plan** implemented in lieu of the Streamside Area requirements for livestock grazing. Date submitted to the Executive Officer: _____ Qualified Professional: _____ Credential *(RPF / CRM / Qualified Biologist)*: _____ Most recent triennial site evaluation: _____

Standard condition	Met	N/A	Notes
a. Riparian vegetation shows no signs of excessive livestock browsing affecting young shoot growth	☐	☐	
b. Woody riparian vegetation shows no signs of stress from trampling or loafing	☐	☐	

Standard condition	Met	N/A	Notes
c. No grazing when non-woody vegetation stubble height is below 6 inches	☐	☐	
d. Manure deposition in the wetted area no more than 1 percent of total area	☐	☐	
e. Livestock crossings maintained to minimize loafing and erosion	☐	☐	
f. No livestock trampling of banks resulting in sediment discharge or bank failure	☐	☐	
g. No grazing when salmonid redds are present in the stream channel	☐	☐	
h. Grazing occurs between June and August	☐	☐	

8C. Stream Crossings

Are there stream crossings on this Field or Management Unit? ☐ Yes ☐ No *(if No, skip to 8D)*

Existing culverted crossings *(10-year compliance schedule)*

Requirement	Implemented	N/A	Target date	Notes
Critical dips installed at approaches to culverted crossings with diversion potential	☐	☐		

Requirement	Implemented	N/A	Target date	Notes
Trash barriers or deflection structures installed at culvert inlets with high plug potential	☐	☐		

New or replaced crossings *(complete only if any were constructed or replaced this reporting year)*

Date of North Coast Water Board approval: _____

Specification	Met	N/A	Notes
a. Drainage structure designed for 100-year flood flow including woody debris and sediment	☐	☐	
b. No potential to divert the stream out of its channel	☐	☐	
c. Culvert inlets have low plug potential	☐	☐	
d. Culverts installed at the base of fill, in line and at grade with the natural channel	☐	☐	
e. Bridges have stable, non-eroding abutments and do not significantly restrict 100-year flood flow	☐	☐	
f. Stream crossing fills are stable	☐	☐	

Specification	Met	N/A	Notes
g. Approaching road surfaces and ditches hydrologically disconnected to the maximum extent feasible	☐	☐	
h. Class I (fish-bearing) crossings meet CDFW and NMFS fish passage criteria	☐	☐	

8D. Appurtenant Agricultural Roads

Are there Hydrologically Connected Appurtenant Agricultural Roads on this Field or Management Unit? ☐ Yes ☐ No *(if No, skip to 8E)*

Requirement	Implemented	N/A	Target date	Notes
a. Ditches drained frequently by functional ditch relief culverts and/or rolling dips	☐	☐		
b. Outflow from ditch relief culverts does not directly discharge to streams	☐	☐		
c. Ditch and road surface drainage does not discharge onto active or potential landslides or into gullies	☐	☐		

Requirement	Implemented	N/A	Target date	Notes
d. Fine sediment contributions minimized by road surface shaping, rolling dips, ditch relief culverts, water bars, or other measures	☐	☐		

Road segments have been prioritized for treatment based on visual observation of sediment delivered to surface waters: ☐ Yes ☐ No

Highest-priority segment(s) this reporting year: _____

8E. Agricultural Infrastructure

Requirement	Implemented	N/A	Notes
All chemicals stored with sufficient secondary containment	☐	☐	
No chemicals stored within the Riparian Zone	☐	☐	
Stored chemicals sheltered from rain so secondary containment is not inundated or overwhelmed	☐	☐	
Heavy equipment, functional and non-functional, stored away from riparian zones, wetlands, and surface waters	☐	☐	

Requirement	Implemented	N/A	Notes
Ground surfaces maintained to minimize mobilization of sediment to surface water via surface runoff	☐	☐	

8F. Tailwater Practices — Pathway 2 only

Complete only if Pathway 2 was elected (see Section 12). Select practices implemented from the approved menu in Attachment E, or alternatives approved by the Executive Officer.

Practice	Implemented	Planned — target date	Notes
Irrigation efficiency improvements	☐		
Tailwater recovery and reuse	☐		
Thermal attenuation systems	☐		
Conveyance shading	☐		
Irrigation timing adjustments	☐		
Discharge timing management	☐		
Cold water blending	☐		
Alternative practice approved by the Executive Officer — describe:	☐		

9. Streamside Area Width Compliance

Report for each watercourse on or abutting this Field or Management Unit.

Required Streamside Area widths: perennial streams and the Scott and Shasta River mainstems — **100 feet**; intermittent streams — **60 feet**; ephemeral streams — **35 feet**.

The Riparian Vegetation Area is the first **35 feet** from the waterside edge of vegetation; the balance is Vegetated Buffer.

Watercourse name	**Class *(perennial / intermittent / ephemeral)***	**Linear frontage (ft)**	**Required Riparian Zone width**	**Current Riparian Vegetation Area width (avg.)**	**Current Vegetated Buffer width (avg.)**	**Minimum met?**	**If not met, state estimated date of compliance**
						☐ Yes ☐ No	

10. Irrigation and Nutrient Management

a. Irrigation method

Primary: ☐ Flood ☐ Wheel line ☐ MESA ☐ LESA ☐ LEPA ☐ PMDI ☐ Other: _____

Secondary (if any): ☐ Flood ☐ Wheel line ☐ MESA ☐ LESA ☐ LEPA ☐ PMDI ☐ Other: _____

b. Irrigation management practices implemented to minimize or prevent surface run-off or groundwater leaching:

_____

c. Range of calendar dates of irrigation application: from _____ to _____

d. Nitrogen applied — *complete for each Field or Management Unit receiving an external source of nitrogen*

Source	**Nitrogen applied (lbs/acre)**
1. Nitrogen applied via fertilizers	
2. Nitrogen applied via organics and compost	
3. Nitrogen applied via water	
4. Total nitrogen applied *(sum of 1–3)*	

☐ This Field or Management Unit received no external source of nitrogen.

This Order does not require certification of an Irrigation and Nutrient Management Plan, and does not require reporting of nitrogen removed or a crop removal coefficient.

f. Irrigation efficiency determination — *check one:*

☐ **Deficit irrigated** — applied irrigation is less than 95% of the determined agronomic rate

☐ **Fully irrigated** — applied irrigation is within ±5% of the determined agronomic rate

☐ **Over irrigated** — applied irrigation is greater than 105% of the determined agronomic rate

Applied irrigation (inches or acre-feet): _____ Agronomic rate used (same unit): _____ Applied as a percentage of agronomic rate: _____%

Basis for the agronomic rate determination: _____

12. Tailwater Management

a. Discharge status

☐ **No Tailwater discharged** from this Field or Management Unit.

If discharge is later found to be occurring, a pathway must be elected within 60 days of notification by the Executive Officer and this Farm Evaluation updated. Date of any such notification: _____

☐ Tailwater is discharged. Complete b through e.

b. Discharge points

Discharge point ID	**Receiving watercourse**	**Class *(perennial / intermittent / ephemeral)***	**Hydrologically connected?**	**Point of Compliance location (Coordinates)**
			☐ Yes ☐ No	

c. Compliance pathway elected— *check one:*

☐ **Pathway 1 — Discharge Elimination.** Date elected: _____

Sub-option, elected within 180 days of enrollment — *check one:*

☐ **Stage 1 — Self-certification of Tailwater elimination** by #DATE

☐ **Stage 2 — Certified Tailwater Elimination Plan**, submitted by #DATE, implemented by #DATE. Date submitted: _____ Qualified Professional: _____

Pathway 1 — Annual progress and self-certification

Complete only if Option 1 was elected.

Progress toward elimination this reporting year:

_____

☐ **Pathway 2 — Treatment and Control.** Date elected: _____

Monitoring option — *check one:* ☐ Edge-of-Field (individual) ☐ Group Monitoring Network

☐ **Stage 1 — Self-certification of Tailwater Discharge Treatment and Control** by #DATE

☐ **Stage 2 — Certified Tailwater Treatment and Control Plan**, submitted by #DATE, implemented by #DATE. Date submitted: _____ Qualified Professional: _____

Pathway 2: Annual progress and self-certification

Progress (e.g., management practices implemented) toward meeting Water Quality Benchmarks this reporting year: _____

☐ **Self-certification of elimination.** I certify that all Tailwater discharges from the enrolled parcels covered by this Field or Management Unit have been eliminated as of _____.

If Tailwater discharges have not been eliminated by #DATE, a Certified Tailwater Elimination Plan must be developed and implemented.

PART 3 — WHOLE-OPERATION, COMPLETED AFTER PART 2

13. Adaptive Management Reporting

☐ No Field or Management Unit is currently in the Adaptive Management Program, and no drinking water exceedance occurred. *(Skip to Section 14.)*

a. Tailwater Water Quality Benchmark exceedances

Exceedances are tracked **by seasonal period**. A Mid-Season exceedance triggering Tier 1 followed by a Late Season exceedance advances the Field to Tier 2 for both periods.

Field / Management Unit	**Constituent**	**Seasonal period *(Early / Mid / Late)***	**Stage**	**Year Adaptive Management activated**	**Practices implemented or planned**	**Certified Tailwater Discharge Treatment and Control Plan required?**
						☐ Yes ☐ No

A Field that exits the Adaptive Management schedule shall maintain Tier 1 practices in all subsequent seasons.

b. Riparian condition non-attainment

A single occurrence of non-attainment of standard riparian conditions documented by photo-point monitoring triggers Adaptive Management.

Field / Management Unit	**Date observed**	**Condition observed *(declining riparian condition / persistent grazing impacts / practice failure)***	**Additional or modified practices implemented**	**Date implemented**

Field / Management Unit	**Date observed**	**Condition observed *(declining riparian condition / persistent grazing impacts / practice failure)***	**Additional or modified practices implemented**	**Date implemented**

c. Drinking Water Supply Well exceedances

☐ No Drinking Water Supply Well exceeded 10 mg/L nitrate + nitrite as N during the reporting period.

Well ID	**APN**	**Date of result**	**Result (mg/L)**	**Users notified within required time?**	**Date notice provided**	**Copy sent to North Coast Water Board?**
				☐ Yes ☐ No		☐ Yes ☐ No

14. CEQA Mitigation Monitoring

Report implementation of all applicable CEQA mitigation measures from Attachment F for the reporting year.

Mitigation measure number *(Attachment F)*	**Potential impact addressed**	**APN(s) / Field ID(s) where employed**	**Steps taken to implement**	**Steps taken to monitor ongoing success**

15. Certification

Certification of Maintenance

I certify that all management practices identified in this Farm Evaluation are designed, installed, maintained, and promptly repaired in accordance with Order No. R1-2027-XXXX.

Certification of Farm Evaluation

> *"I certify under penalty of perjury under the laws of the State of California that this document and all attachments were prepared under my direction and supervision, and that the information submitted is, to the best of my knowledge and belief, true, complete, and accurate. I am aware that there are significant penalties for submitting false information. I further certify that the provisions of Order No. R1-2027-XXXX, including the implementation of Attachment A: Monitoring and Reporting Program, will be complied with."*

Enrollee Printed Name: _____

Signature: _____ Title: _____ Date: _____

Submittal

1. Deadline. Submit by **March 1** of each year. First Farm Evaluation due: **#DATE**

2. Where to submit.

☐ **Individual Enrollees** — submit to the North Coast Water Board.

☐ **Coalition Members** — submit Farm Evaluation data to your Coalition, which reports to the North Coast Water Board in its Annual Compliance Report.

North Coast Regional Water Quality Control Board
ATTN: Scott and Shasta Irrigated Lands Order
5550 Skylane Boulevard, Suite A, Santa Rosa, CA 954__
Email: NorthCoast@Waterboards.ca.gov

3. Format. Searchable PDF. Maps submitted both within the PDF and as ArcGIS shapefiles or Google Earth KMZ files.

4. Submittal title. "General Waste Discharge Requirements for Irrigated Lands in the Scott River and Shasta River Watersheds."

5. Records. Retain a signed copy at your primary place of business for **ten years**. Provide a copy to North Coast Water Board staff on request.

North Coast Regional Water Quality Control Board

SCOTT AND SHASTA IRRIGATED LANDS ORDER

DRINKING WATER SUPPLY WELL FORMS

Contents:

IV. Drinking Water Well Information Form
IV.a Instructions
V. Nitrate Exceedance Notification Template
VI. Nitrate Fact Sheet

IV. DRINKING WATER WELL INFORMATION FORM

Complete this form for **every private Drinking Water Supply Well located on an enrolled parcel** and submit it with your samples to the Environmental Laboratory Accreditation Program (ELAP)-certified laboratory performing the analysis.

> ***Why this form travels with your samples.*** *The testing laboratory — not the Enrollee — is responsible for submitting results to the State Water Board's GeoTracker database in Electronic Deliverable Format (EDF). The laboratory cannot do so without the Assessor's Parcel Number and the well coordinates. This form supplies them.*

1. Enrollee Information

Personal information is not published. Only the APN and well sample data are viewable through GeoTracker.

1a. Enrollee Name	
1b. Enrollee Email	
1c. Enrollee Phone	
1d. Enrollment ID or Coalition Member ID	
1e. Business Mailing Address	
1f. Property Address (if different)	

1g. Is the Enrollee also the landowner? ☐ Yes *(skip Section 2)* ☐ No

> *If No, note that the notification pathway changes on an exceedance — see Section 5 and Form V.*

2. Landowner Information — complete if the Enrollee is not the landowner

2a. Landowner Name	2b. Landowner Phone
2c. Landowner Email	2d. Landowner Mailing Address

3. Drinking Water Supply Well Information*

List **all** private Drinking Water Supply Wells on enrolled parcels. Assign each a unique Well ID consistent with the Well ID used in your Farm Evaluation.

Prev. sampled (X)	**Well ID (≤10 characters)**	**APN**	**County**	**Latitude\ (decimal degrees)**	**Longitude\ (decimal degrees)**	**Number of people served**

"Number of people served" is required on the copy of any exceedance notice sent to the North Coast Water Board. Recording it at sampling avoids reconstructing it under a 10-day clock.

4. Sampling Event Details

Well ID	**Date sampled**	**Sample point used *(see below)***	**Laboratory name**	**ELAP certificate no.**	**Analytical method**	**Result (mg/L nitrate + nitrite as N)**

Sample point used — check the first that applies:

☐ At or near the well head, before the pressure tank and prior to any well head treatment *(required where possible)*

☐ As close to the pressure tank as possible

☐ Cold-water spigot located before any filters or water treatment systems

5. Certification

"I certify under penalty of perjury under the laws of the State of California that this document and all attachments were prepared under my direction and supervision, and that the information submitted is, to the best of my knowledge and belief, true,

complete, and accurate. I am aware that there are significant penalties for submitting false information."

Printed Name: _____

Signature: _____ Title: _____ Date: _____

Retain a copy at your primary place of business for **ten years**.

IV.a INSTRUCTIONS — DRINKING WATER SUPPLY WELL SAMPLING

Fields marked * are the minimum data required for GeoTracker entry. GeoTracker information and electronic submittal instructions: https://www.waterboards.ca.gov/ust/electronic_submittal/

Who must sample

All Enrollees must sample **every private Drinking Water Supply Well located on their enrolled parcels**. There is no exemption for a well serving only the Enrollee's own household.

A Drinking Water Supply Well is any groundwater well connected to a residence, workshop, or place of business.

A monitored Drinking Water Supply Well may also satisfy Representative Groundwater Monitoring requirements, provided the well location and screen interval are representative of current groundwater quality conditions and suitable for evaluating regional impacts from irrigated agriculture.

Section 1 — Enrollee Information

1a–1c. Name, valid email, and working phone for the person enrolled in the Order.

1d. Your Enrollment ID, or your Coalition name and Member ID if enrolled through a Coalition.

1e–1f. Mailing address of the enrolled member, and the enrolled parcel address if different.

1g. If the Enrollee is not the landowner, complete Section 2. This matters on an exceedance: the Enrollee may instead notify the **owner within 24 hours**, and the owner then notifies well users within **nine days**.

Section 2 — Landowner Information

Provide the name, phone, email, and mailing address of the landowner of the enrolled parcel(s).

Section 3 — Well Information

Well ID. Give each well a specific name that clearly identifies it for future sampling events. Do not exceed 10 characters. If water is collected after a treatment system, begin the Well ID with TRT- (for example, TRT-SEwell). Use the same Well ID on your Farm Evaluation.

Previously sampled column. Mark an X to the left of the Well ID if the well has been sampled within the last five years. This helps the laboratory identify wells with existing data, including data being substituted for an initial sampling year.

Latitude and longitude. Must be provided in decimal degrees.

- *On a computer:* open Google Maps, search the address, right-click the pin, and select "What's here?" A box appears at the bottom of the screen showing the coordinates — for example, latitude 41.593, longitude −122.897.

On a phone: press and hold on the map at the well location to drop a pin, then scroll down in the box that appears to find the coordinates.

APN. The Assessor's Parcel Number is the unique number assigned to each tract of land by the County Tax Assessor. Provide the APN of the enrolled parcel containing the well.

County. For operations in the Scott River and Shasta River watersheds this will ordinarily be Siskiyou County.

Number of people served. The count of people who drink or cook with water from this well. Required on the copy of any exceedance notice sent to the North Coast Water Board.

Section 4 — Sampling Event Details

Analysis must be performed by an **ELAP-certified laboratory** using **USEPA-approved methods**. Sample preservation and analysis follow the latest edition of *Test Methods for Evaluating Solid Waste, SW-846*, USEPA. Certified laboratories are listed on the State Water Board's ELAP website.

Report results as **milligrams per liter (mg/L) of nitrate + nitrite as N**. This is the unit the MCL is expressed in. Do not report as nitrate as nitrate (45 mg/L basis) without converting.

Sample point. Collect at or near the well head, before the pressure tank and prior to any well head treatment. Only if that is not possible, collect as close to the pressure tank as possible, or from a cold-water spigot located before any filters or treatment systems.

Section 5 — Sampling Schedule

Two different nitrate concentrations govern two different things. **5 mg/L determines how often you sample. 10 mg/L determines whether you must notify.**

Situation	**What you do**
Newly enrolled	Sample annually for three consecutive years
Have pre-enrollment data from the prior five years, ELAP lab, USEPA method	May substitute for one or more of the three initial years
Any of the first three results **≥ 5 mg/L**	Continue annual sampling
Three consecutive annual results **< 5 mg/L**	May reduce to once every five years
A result **≥ 5 mg/L** while on the five-year schedule	Resume annual sampling until three consecutive results are below 5 mg/L
Any result **> 10 mg/L**	Notification required — see Form V

Situation	What you do
Well out of service, or replacement water supplied	Sampling may cease; retain records establishing the well is not used for drinking water

The Executive Officer may require an alternative sampling schedule at any time based on trend data for the well.

Data submittal

The **testing laboratory** submits all Drinking Water Supply Well monitoring data — including any existing data being substituted — electronically to GeoTracker in Electronic Deliverable Format (EDF), with the APN and the well coordinates.

Drinking Water Supply Well results are **not** included in the Annual Monitoring Report. A summary of any exceedances, and confirmation that required notifications were provided, is reported in the Farm Evaluation under Adaptive Management Reporting.

V. NITRATE EXCEEDANCE NOTIFICATION TEMPLATE

Use this template when a Drinking Water Supply Well result exceeds 10 mg/L of nitrate + nitrite as N.

Who notifies whom, and by when

If	Then
The Enrollee **is** the landowner	The Enrollee provides written notice to the drinking water well users **within 10 days** of learning of the exceedance, and sends a copy to the North Coast Water Board
The Enrollee is **not** the landowner	The Enrollee may instead notify the **owner within 24 hours** of learning of the exceedance. The owner then notifies the well users **within nine days** and sends a copy to the North Coast Water Board

The notice must be provided **in a language accessible to the well users**. The template must be signed by the Enrollee or non-Enrollee owner certifying that notice has been provided. A copy of the signed template must be sent to the North Coast Water Board and retained.

> *⚠ NITRATE EXCEEDANCE — DO NOT DRINK YOUR WATER ### Use only bottled water until further notice.* ***Failure to follow this advisory could result in serious illness. Test result: _____ mg/L nitrate + nitrite as nitrogen*** *Date sampled:* ***_____*** *Nitrate in this well was found to exceed the drinking water standard of* ***10 mg/L*** *established to protect human health. -* ***Pregnant women*** *are at increased risk and should not drink water with high levels of nitrate. Drinking water high in nitrate may also cause serious complications in pregnancy. -* ***Do not give this water to infants.*** *Infant formula and other edible products must be prepared with bottled water or other water low in nitrate. Infants are at increased risk of becoming seriously ill, and high nitrate levels can be fatal to infants. -* ***Do not boil the water.*** *Boiling does not remove nitrate and will increase its concentration.*

Notification record

Well ID	APN
County	Watershed (Scott / Shasta)
Number of people the well supplies	
Name of Landowner / Operator providing notice	
Enrollment ID, or Coalition and Member ID	
Date the exceedance was learned of	Date notice provided to users

☐ No one drinks or cooks with water from this well.

☐ Notice has been provided to all users of this well.

☐ Notice has been provided to the landowner *(complete only if the Enrollee is not the landowner; owner must then notify users within nine days)*.

☐ Replacement water has been provided to the users.

☐ The notice was provided in a language accessible to the users. Language used: _____

Certification

"I certify under penalty of perjury under the laws of the State of California that this document and all attachments were prepared under my direction and supervision, and that the information submitted is, to the best of my knowledge and belief, true, complete, and accurate. I am aware that there are significant penalties for submitting false information. I further certify that notice of this exceedance has been provided to the users of the drinking water well identified above."

Printed Name: _____

Signature: _____ Title: _____ Date: _____

Submit a signed copy of this notification to:

North Coast Regional Water Quality Control Board

ATTN: Scott and Shasta Irrigated Lands Order — Drinking Water Well Notification

5550 Skylane Boulevard, Suite A, Santa Rosa, CA 954__

Email: NorthCoast@Waterboards.ca.gov

Submit under the title **"General Waste Discharge Requirements for Irrigated Lands in the Scott River and Shasta River Watersheds."**

Retain a copy at your primary place of business for **ten years**.

VI. NITRATE FACT SHEET

Provided as an aid to well users receiving a nitrate exceedance notification.

What is nitrate?

Nitrate occurs naturally in surface water and groundwater at levels that do not cause health problems. Levels above the drinking water standard are dangerous, particularly for infants and pregnant women.

In the Scott River and Shasta River watersheds, sources of nitrate in groundwater include leaching of excess fertilizer, confined animal feeding operations, septic systems, and wastewater discharged to land. Nitrate reaches groundwater through unprotected well heads, improperly abandoned wells, and wells lacking backflow prevention.

What is the drinking water standard?

10 mg/L of nitrate plus nitrite as nitrogen — equivalently, 45 mg/L of nitrate as nitrate. This is the Maximum Contaminant Level established at California Code of Regulations, title 22, section 64431. It was set to protect the most at-risk groups: infants under six months old, and pregnant women.

What are the health concerns?

High nitrate levels interfere with the ability of red blood cells to carry oxygen to the body's tissues, producing a condition called **methemoglobinemia**. This is of greatest concern in infants, where it is often called "blue baby syndrome." Symptoms include shortness of breath and a blue tint to the skin, and can develop rapidly, with health deteriorating over a period of days. **If symptoms occur, seek medical attention immediately.**

High nitrate levels may also reduce the oxygen-carrying capacity of blood in pregnant women and increase the risk of complications in pregnancy.

How can I reduce my exposure?

Use bottled water until an appropriate treatment system is in place.

Do not boil the water. Boiling concentrates nitrate rather than removing it.

Do not use this water to make infant formula.

Common household filters such as pitcher-style carbon filters **do not remove nitrate**. Other systems can. Consult the State Water Board's list of registered residential water treatment devices for nitrate.

Is it safe to bathe in?

Yes. Babies and children can be bathed, and showers taken, in water with high nitrate levels. Nitrate is a concern only for ingestion — eating and drinking. It is not absorbed through skin. Many people who install nitrate treatment install it only at the kitchen sink, because that is the tap used for cooking and drinking water.

Can I wash fruits and vegetables with it?

Generally yes. The amount of water involved is small, and if produce is wiped or blotted dry after washing there should be no health risk. The water should not be used for cooking.

Where can I get more information?

State Water Resources Control Board, Division of Drinking Water

Groundwater Information Sheet on Nitrate:
www.waterboards.ca.gov/gama/docs/coc_nitrate.pdf

North Coast Regional Water Quality Control Board: NorthCoast@Waterboards.ca.gov

Attachment H: Acronyms and Definitions

I. Acronyms

Acronym/Abbreviation	Term
Antidegradation Policy	State Water Board Resolution 68-16, the Statement of Policy with Respect to Maintaining High Quality Waters in California
Basin Plan	Water Quality Control Plan for the North Coast Basin
BMP	Best Management Practice
CDPR	California Department of Pesticide Regulation
CEDEN	California Environmental Data Exchange Network
CEQA	California Environmental Quality Act
COLD	Cold Freshwater Habitat Beneficial Use
CPS	Conservation Practice Standard (NRCS)
EIR	Environmental Impact Report
ESA	Endangered Species Act
ESJ Order	Eastern San Joaquin Order (State Board Order WQ 2018-0002).
ELAP	Environmental Laboratory Accreditation Program
Enforcement Policy	State Water Board Water Quality Enforcement Policy
eNOI	Electronic Notice of Intent
GPS	Global Positioning System
GRMP	Grazing and Riparian Management Plan
GWDR	General Waste Discharge Requirements
HUC	Hydrologic Unit Code
ILRP	Irrigated Lands Regulatory Program
INMP	Irrigation and Nitrogen Management Plan
LESA	Low Elevation Spray Application
MCL	Maximum Contaminant Level
mg/L	Milligrams per Liter
MIGR	Migration of Aquatic Organisms (beneficial use designation)
MRP	Monitoring and Reporting Program
NIST	National Institute of Standards and Technology
NMFS	National Marine Fisheries Service
North Coast Water Board	North Coast Regional Water Quality Control Board
NPS	nonpoint source
NPS Policy	State Water Board Policy for the Implementation and Enforcement of the Nonpoint Source Pollution Control Program
NRCS	Natural Resources Conservation Service
POC	Point of Compliance
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
QA/QC	Quality Assurance / Quality Control

Acronym/Abbreviation	Term
QAPP	Quality Assurance Project Plan
RARE	Rare, Threatened, or Endangered Species (beneficial use designation)
RFP	Request for Proposal
RMS	River Modeling System (Shasta River temperature model)
ROWD	Report of Waste Discharge
SONCC	Southern Oregon / Northern California Coast
SPWN	Spawning, Reproduction, and/or Early Development (beneficial use designation)
State Water Board	State Water Resources Control Board
SWAMP	Surface Water Ambient Monitoring Program
Temperature Policy	Implementation of the Water Quality Objectives for Temperature
TKN	Total Kjeldahl Nitrogen
TP	Total Phosphorus
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency
Water Code	California Water Code
WDRs	Waste Discharge Requirements

II. Definitions

The following definitions apply to Order No. R1-2027-00XX and its associated attachments, including the MRP. The terms are arranged in alphabetical order. All other terms not explicitly defined here for the purposes of this Order and the MRP have the same definitions as defined by Water Code Division 7 or are explained within the Order or MRP documents.

Abandoned Well. A well is considered “abandoned” when it has been destroyed in accordance with local and state well standards. An abandoned well is not synonymous with an “inactive well” (see also Inactive Well).

Adaptive Management. The iterative process of modifying existing management practices or incorporating new scientific and programmatic information into the implementation of management practices to ensure the goals of the Order are achieved.

Antidegradation. The State Water Board established a policy to maintain high quality waters of the State - Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality Waters in California." Resolution No. 68-16 requires existing high-quality water to be maintained until it has been demonstrated that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of water, and will not result in water quality less than that prescribed in the policies. When authorizing the discharge of waste into waters of the state, Regional Water Boards are required to comply with Resolution No. 68-16. Orders issued by the North Coast Water Board must result in the best practicable treatment or control of the discharge necessary to assure pollution or nuisance will not occur and maintain the highest water quality consistent with maximum benefit to the people of the state. Resolution No. 68-16 has been approved by the USEPA to be consistent with the federal antidegradation policy (40 CFR 131.12).

Appurtenant Agricultural Roads. Unpaved or minimally improved vehicle pathways on enrollable parcels used in connection with the Irrigated Agricultural Operation, including but not limited to ranch roads, field access roads, equipment paths, livestock travel lanes, and irrigation infrastructure access routes. Does not include public roads maintained by a federal, state, or local government agency, or private roads subject to a separate regulatory instrument addressing sediment discharge.

Associated Grazing Lands. Non-irrigated lands used for livestock grazing that meet both of the following criteria:

(a) The non-irrigated grazing land is located on an irrigated parcel under common ownership or operational control (including lease or management agreements) with an Irrigated Agricultural Operation enrolled under this Order;

(b) The non-irrigated grazing land is functionally integrated with the enrolled Irrigated Agricultural Operation, as demonstrated by one or more of the following:

> (i) Livestock are routinely rotated between irrigated and non-irrigated portions of the operation on a seasonal or periodic basis;

(ii) The non-irrigated grazing land is used to support livestock that are primarily maintained on irrigated pasture (e.g., dry-season holding areas, calving areas, or winter rangeland for livestock that graze irrigated pasture during the irrigation season);

(iii) Feed, forage, or hay produced on the irrigated portions of the operation is used to supplement grazing on the non-irrigated land, or vice versa;

(iv) The non-irrigated grazing land and the irrigated land are managed under a single, agricultural business entity, or unified operational structure.

Authorized Representative. An individual, agency, or entity who acts on behalf of another individual, agency, or entity (such as an approved Third-Party program staff, Enrollee, or consultant retained by an approved Third-Party program acting on behalf of an individual grower or the North Coast Water Board).

Basin Plan. The Basin Plan is the North Coast Region's Water Quality Control Plan. The Basin Plan describes how the quality of the surface and groundwater in the North Coast Region should be managed to provide the highest water quality reasonably possible. The Basin Plan includes beneficial uses, Water Quality Objectives, and a program of implementation.

Beneficial Uses. The Basin Plan establishes the beneficial uses to be protected in the North Coast Region. Beneficial uses for surface water and groundwater have been identified in waterbodies within the Region: Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Service Supply (IND), Industrial Process Supply (PRO), Groundwater Recharge (GWR), Freshwater Replenishment (FRSH), Navigation (NAV), Hydropower Generation (POW), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Cold Freshwater Habitat (COLD), Warm Freshwater Habitat (WARM), Wildlife Habitat (WILD), Preservation of Areas of Special Biological Significance (ASBS), Preservation of Areas of Special Rare, Threatened, or Endangered Species (RARE), Marine Habitat (MAR), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Shellfish Harvesting (SHELL), Estuarine Habitat (EST), Aquaculture (AQUA), Native American Culture (CUL), Flood Peak Attenuation/Flood Water Storage (FLD), Wetland Habitat (WET), Water Quality Enhancement (WQE), Subsistence Fishing (FISH), Inland Saline Water Habitat (SAL).

Certified Tailwater Elimination Plan (CTEP). A plan developed and certified by a Qualified Professional under Pathway 1 that describes engineered practices or system modifications to prevent tailwater discharge from the Enrollee's Field(s) or Operation(s). The plan must include a field map, site analysis, elimination design, quantitative demonstration, verification monitoring provisions, and implementation schedule.

Certified Tailwater Discharge Treatment and Control Plan (CTMP). A plan developed and certified by a Qualified Professional that describes engineered or certified management practices to achieve Water Quality Benchmarks at the Point of Compliance. The plan must include a field map, site analysis, management practice

descriptions, quantitative demonstration supported by field-collected data, effectiveness monitoring, and implementation schedule.

Coalition. An organization or entity that is approved to represent Enrollees under this Order and is obligated to fulfill the following responsibilities: (1) collect fees from Enrollees and submit payments to the State Water Resources Control Board; (2) manage communications between Enrollees and the North Coast Water Board; (3) provide outreach and education resources for Enrollees; and (4) fulfill monitoring and reporting requirements including but not limited to submitting monitoring workplans and necessary technical material, conducting regional surface water and groundwater monitoring, and connecting Enrollees to resources that can assist the preparation and implementation of Water Quality Management Plans.

Compliance Pathway. One of two regulatory approaches through which Enrollees with tailwater discharges achieve compliance with Water Quality Benchmarks: Pathway 1 (Certified Tailwater Elimination Plan) or Pathway 2 (Treat and Control). Enrollees elect a pathway within 180 days of enrollment.

Concentration. The relative amount of a substance mixed with another substance. An example is 5 mg/L of nitrogen in water or 5 ppm (parts per million).

California Rapid Assessment Method (CRAM) is a cost effective and technically defensible method for assessing wetlands across California. More information can be found at https://www.cramwetlands.org.

Discharge. A release of a waste to waters of the state, either directly to surface waters or through percolation to groundwater. Wastes from irrigated agriculture include but are not limited to earthen materials (soil, silt, sand, clay, and rock), inorganic materials (metals, plastics, salts, boron, selenium, potassium, nitrogen, phosphorus, etc.) and organic materials such as pesticides. Discharges from agricultural operations regulated by this Order include discharges to surface water and groundwater, through mechanisms such as stormwater runoff flowing from irrigated lands, stormwater runoff conveyed in Agricultural Drainage Structures, and runoff resulting from frost control or operational spills. These discharges can contain wastes that could affect the quality of waters of the state and impair beneficial uses.

Discharge Category. The classification (Category 1, 2, or 3) assigned to an enrolled operation for purposes of determining tailwater temperature monitoring methodology and frequency during the Irrigation Season, based on estimated discharge volume and duration. Category 1: High Volume/Chronic (> 50 gpm, > 72 hrs). Category 2: Moderate Volume/Intermittent (10–50 gpm, 24–72 hrs). Category 3: Low Volume/Incidental (< 10 gpm, < 24 hrs). Assigned by the Executive Officer.

Discharge Point. A discharge point is defined as a location where surface water discharges, which are in hydrologic connection to off-farm surface waters, leave the Enrollee's property. A discharge point is any Hydrologically Connected discharge that is not an Agricultural Drainage Structure as defined above.

Disturbance. When natural conditions have been modified in a way that may result in waste discharge to waters of the state from the site. Disturbed areas are where natural

plant growth has been removed, whether by physical, animal, or chemical means, or natural grade has been modified for any purpose. Disturbance includes all activities whatsoever associated with developing or modifying land for agricultural related activities or access. Disturbance activities include, but are not limited to, construction of roads, buildings, water storage areas; excavation, grading, and site clearing. Disturbance includes crop areas, storage areas where soil or chemicals (e.g., pesticides, fertilizers, compost, or biosolids) are located.

Drinking Water Supply Well. Any groundwater well that is connected to a residence, workshop, or place of business that may be used for human consumption, cooking, or sanitary purposes that is located within the enrolled Assessor Parcel Number (APN). This includes all domestic wells located within the enrolled APN, not limited to the leased property or within the ranch boundary. This definition includes “dual-use” wells that are used for both irrigation and domestic purposes. The State Water Resources Control Board (State Water Board), Groundwater Ambient Monitoring and Assessment (GAMA) Program defines an individual well serving a single residential connection as a “private domestic well.” For the purposes of this Order, a “private domestic well” is a Drinking Water Supply Well if it is located on the enrolled parcel and there are drinking water users of that well.

Early Season. The first phase of the Irrigation Season, April 1 through June 15, during which the applicable Water Quality Benchmark for tailwater temperature is 61°F (16.0°C) watershed-wide. Corresponds to the smolt outmigration and juvenile rearing period for anadromous salmonids.

Enrollee. A Landowner or Operator enrolled in the Agricultural operation Order. See also Landowner, Operator.

Ephemeral Stream. A Class III watercourse. A body of flowing water that contains water for only part of the year, but more than just after rainstorms and as snowmelt as shown in the NHD shapefile. In the absence of diversion, water is flowing less than three months during a typical year and the stream does not support riparian vegetation or aquatic life. Ephemeral watercourses typically have water flowing for a short duration after precipitation events or snowmelt and show evidence of being capable of sediment transport.

Erosion. The gradual destruction of land surface by wind or water, intensified by land-clearing practices related to farming, residential or industrial development, road building, or logging.

Exceedance. A reading using a field instrument or a detection by a California State-certified analytical laboratory where the detected result is above an applicable water quality standard for the parameter or constituent.

Farm Area. The planted area and appurtenant structures, Roads, maintenance areas, mixing and loading sites, areas of livestock confinement, and appurtenant storage yards on a agricultural operations.

Farm Evaluation. A self-assessment document prepared by the Enrollee describing the operation's irrigation practices, tailwater generation, management measures, and

compliance status. Submitted as part of enrollment and updated as required by the Order.

Field. A discrete, contiguous area of irrigated agricultural land managed as a single unit for irrigation purposes, bounded by identifiable features such as ditches, roads, fence lines, property boundaries, or changes in crop type or irrigation method.

Groundwater. The supply of water found beneath the Earth's surface, usually in aquifers which can supply wells and springs.

Waterside edge of vegetation. That line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

High Vulnerability Groundwater Basin. Defined in the ESJ Order as areas "where known groundwater quality impacts exist for which irrigated agricultural operations are a potential contributor or where conditions make groundwater more vulnerable to impacts from irrigated agricultural activities." For the purposes of this Order, 'high vulnerability areas' are defined as the priority groundwater basins having a relatively high threat from salts and nutrients and would benefit from salt and nutrient management planning as defined in Groundwater Basin Evaluation and Prioritization Resolution No. R1-2021-0006.

HUC-8, HUC-10, and HUC-12 Watersheds. Derived from Watershed Boundary Dataset maps developed by the U.S. Department of Agriculture, Natural Resources Conservation Service to define and compare true watersheds and hydrologic units and their applications for watershed assessment. The Watershed Boundary Dataset maps the full areal extent of surface water drainage for the United States, using a hierarchal system of nesting hydrologic units at various scales, each with an assigned hydrologic unit code (HUC). HUC-8 maps the subbasin level, analogous to medium-sized river basins. HUC-12 is a more local sub-watershed level that captures tributary systems.

Hydrologic Disconnection. The physical modification of an Appurtenant Agricultural Road such that stormwater runoff from the road surface and associated cut-and-fill slopes is dispersed onto adjacent vegetated hillslopes or into engineered infiltration features before reaching any watercourse, ditch, or conveyance draining to a water of the state. A road is considered hydrologically disconnected when no continuous surface flow path exists between the road drainage and a Class I or Class II watercourse during a 2-year recurrence interval storm event.

Hydrologically Connected. Farm areas with a continuous surface flow path to a natural stream channel during a storm runoff event (also referred to as hydrologic connectivity). Connectivity usually occurs through Agricultural Drainage Structures , drainage inlets, road ditches, gullies, and channels. A natural stream is a Water of the State (Reference the State Policy for Water Quality Control: State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State here:

https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/2021/procedures.pdf)

Hydrologically Connected Undesignated Channel. Channels not part of the NHD dataset that are Hydrologically Connected to off-farm surface waters. Includes above-ground Agricultural Drainage Structures.

Inactive Well. A well is considered "inactive" when it has been taken out of service but has not been destroyed (see Abandoned Well definition). An inactive well must not allow impairment of water quality within the well and/or groundwater encountered by the well.

Intermittent Stream. A Class II watercourse. A body of flowing water that contains water only during or after a local rainstorm or heavy snowmelt as shown in the NHD shapefile. In the absence of diversions, water is flowing for three to nine months during a typical year, provides aquatic habitat for non-fish aquatic species, fish always or seasonally present within 1,000 feet downstream, and/or water is flowing less than three months during a typical year and the stream supports riparian vegetation.

Individual Enrollee. An Enrollee in this Order that elects to not enroll through or participate in a Coalition.

Invasive Species. Organisms (plants, animals, or microbes) that are not native to an environment and that, once introduced establish, quickly reproduce and spread, and cause harm to the environment, economy, or human health. U.S. Department of Agriculture, Natural Resource Conservation Service website: EnviroAtlas Hydrologic Unit Codes Fact Sheet[iii]. For guidance on identifying species of concern, see the Cal-IPC website: Plants A to Z[iv].

Irrigation. Applying water to land areas to supply the water and nutrient needs of plants.

Irrigation Cycle. The operational execution of a scheduled water application event, encompassing the systematic activation, operation, and deactivation of an irrigation system across all designated zones, fields, or management units within a defined timeframe to meet specific soil moisture or crop demand requirements.

Irrigated Lands. Irrigated Lands means any operation within the Scott River or Shasta River watersheds that applies water to 25 acres or more of land for the purpose of producing crops, forage, pasture, or other agricultural commodities, including but not limited to:

(a) Flood-irrigated, sprinkler-irrigated, or drip-irrigated cropland;

(b) Irrigated pasture used for livestock grazing or hay/forage production;

(c) Land receiving applied water for frost protection, dust suppression, leaching, or other agricultural management purposes;

(d) Land on which water is applied and from which tailwater, irrigation return flows, subsurface drainage, or stormwater runoff that has contacted irrigated land discharges or has the potential to discharge to waters of the state.

Irrigation Management Practices. Management practices designed to improve irrigation efficiency and reduce the amount of irrigation return flow, and associated degradation or pollution of surface and groundwater caused by discharges of waste associated with irrigated lands.

Irrigation Season. April 1 through October 1 of each year. The period during which seasonal tailwater temperature benchmarks apply to discharges to perennial streams. Divided into Early Season (Apr 1–Jun 15), Mid-Season (Jun 16–Aug 31), and Late Season (Sep 1–Oct 1).

Landowner. An individual or entity who has legal ownership of a parcel(s) of land. See also Enrollee, Operator.

Late Season. September 1 through October 1. Final phase of the Irrigation Season. Temperature benchmark: 56°F (13.3°C) watershed-wide; 55°F in Shasta Reaches 3 and 4. Critical overlap between active irrigation and fall spawning migration. Last period during which seasonal temperature benchmarks apply.

Leaching. In agriculture, leaching is the loss of water-soluble plant nutrients from the soil, due to the percolation of rain and irrigation water. Leaching may also refer to the salinity control practice of applying a small amount of excess irrigation to drain down salts from the root soil profile to avoid salts from building up in the soil. In the natural environment leaching contributes to groundwater contamination. As water from rain, flooding, or other sources seeps into the ground, it can dissolve chemicals and carry them into the underground water supply.

Load. The mass of a substance discharged over a given amount of time, for example 10 mg/day or 5 kg/day.

Management Practices. Practices or combination of practices including, but not limited to, structural and non-structural (operational) controls that may be applied before, during and after waste producing activities to eliminate or reduce the generation of nonpoint source discharges and the introduction of pollutants into receiving waters.

Master 1 Scenario. The modeled thermal regime of the Shasta River mainstem representing baseline conditions with: (1) riparian shade increased to site potential conditions, (2) tailwater return flows modified so they do not cause heating of receiving water, (3) Big Springs Creek temperature reduced 4°C, and (4) Parks Creek temperature reduced 2°C — without the 45 cfs dedicated cold water instream flow increase. Master 1 5-day average daily maximum temperatures at the three TMDL compliance points are 18.1°C (64.6°F) at RM 24.1, 18.4°C (65.1°F) at RM 15.5, and 20.8°C (69.4°F) at RM 5.6. Approximately 70% of the temperature reductions in the full water quality compliance scenario are attributed to Master 1; approximately 30% are attributed to the flow increase. Master 1 temperatures are the direct basis for the reach-specific tailwater temperature Water Quality Benchmarks in Table A.8 of Attachment A: MRP.

Maximized Irrigation Efficiency. The condition in which an owner or operator achieves the highest practicable ratio of water beneficially used by the crop to total water applied, evaluated through two complementary factors: (1) Distribution Uniformity (DU) meeting

method-specific benchmarks (Surface/Flood ≥ 70%; Sprinkler/LESA ≥ 80%/75%; Drip/Micro ≥ 85%); and (2) Water Application Management demonstrating that water is applied at or near the agronomic rate matching crop evapotranspiration demand. For surface/flood irrigation, a tailwater capture and reuse system must be installed and operational in combination with DU to qualify.

Method Detection Limit. The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero in accordance with USEPA Definition and Procedure for the Determination of the Method Detection Limit, Revision 2. The laboratory establishes the MDL values based on the analytical test method and the types of calibrated laboratory equipment that are used.

Mid-Season. The middle phase of the Irrigation Season, June 16 through August 31, during which the applicable Water Quality Benchmark for tailwater temperature is 64°F (17.8°C) watershed-wide. Corresponds to peak irrigation demand, lowest streamflows, highest ambient temperatures, and the juvenile oversummer rearing and adult Chinook holding period.

Monitoring. Observing and checking a feature or factor over time to determine compliance with this Order or other regulatory requirements. Monitoring in this Order includes but is not limited to surface water or groundwater sampling and analysis to evaluate water quality in connection with agricultural activities, and inspecting operations, management practice implementation and effectiveness, maintenance of on-site records, and management practice reporting.

Nitrogen Applied. Total nitrogen applied includes nitrogen in any product, form, or concentration including, but not limited to, organic and inorganic fertilizers, slow-release products, compost, compost teas, manure, extracts, nitrogen present in the soil, and nitrate in irrigation water; it is reported in units of pounds of nitrogen per crop, per acre for each agricultural operations or nitrate loading risk unit.

Nitrogen Removed. Nitrogen Removed includes all nitrogen taken from the agricultural operation in harvested or other materials. Other materials may include wheat straw, orchard prunings, almond hulls, etc. In the case of perennial crops, Nitrogen Removed also includes the nitrogen annually sequestered in the permanent wood.

Nonpoint Source (NPS) Pollution. The Basin Plan states that nonpoint sources of water pollution are generally defined as sources which are diffuse (spread out over a large area). Nonpoint sources of pollution are not subject to NPDES permitting. The wastes are generally carried off the land by runoff. Common nonpoint sources of pollution are activities associated with agriculture, timber harvest, certain mining, dams, and saltwater intrusion.

Nitrogen Management Practices. Management practices designed to reduce the nitrogen loss from agricultural lands, which occur through edge-of-field runoff or leaching from the root zone.

Offsite Sources. Discharges that originate from an area not located on the Enrollee's enrolled parcel and flow onto the Farm Area.

Operator. Person responsible for or otherwise directing farming operations in decisions that may result in a discharge of waste to surface water or groundwater, including, but not limited to, a farm/ranch manager, lessee, or sub- lessee. The operator is responsible for ensuring compliance with this Order and for any discharge of waste occurring on or from the operation. See also Enrollee, Landowner.

Operation. A distinct farming business, generally characterized by the form of business organization, such as a sole proprietorship, partnership, corporation, and/or cooperative. A farming operation may be associated with one-to-many individual farms/ranches.

Perennial Stream. A Class I watercourse. In the absence of surface flow modifications by human activities, a watercourse that maintains continuous surface flow year-round under normal hydrologic conditions and is designated for Cold Freshwater Habitat (COLD) and/or Spawning, Reproduction, and/or Early Development (SPWN) beneficial uses. For purposes of this Order, the seasonal tailwater temperature benchmarks in Tables A.7, A.8, and A.9 of Attachment A: MRP apply to tailwater discharged to perennial streams during the Irrigation Season.

Pesticide. Any substance intended to control, destroy, repel, or otherwise mitigate a pest. The term pesticide is inclusive of all pest and disease management products, including insecticides, herbicides, fungicides, nematicides, rodenticides, algicides, etc.

Point of Compliance (POC). The location at which tailwater discharge compliance with Water Quality Benchmarks is determined. The Point of Compliance is located at the lowest elevation where tailwater discharges from irrigated parcel(s) to perennial streams (from April 1 to October 1) and intermittent streams (From April 1 to June 15). must be monitored at the Point of Compliance. These Points of Compliance must be located on concentrated tailwater flow paths at the outlets of hydrologically-connected tailwater drainage areas.

Pollutant. The man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water, including dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

Pollution. Any alteration of the quality of the waters of the state by waste to a degree which unreasonably affects either of the following: (1) the waters for beneficial uses, (2) facilities which serve these beneficial uses. Pollution may include contamination.

Quality Assurance Project Plan. A Quality Assurance Project Plan (QAPP) integrates all technical and quality aspects of a project, including planning, implementation, and assessment.

Qualified Professional. An individual licensed in California under the Professional Engineer Act (e.g., Professional Engineer), Geologist and Geophysicist Act (e.g., Professional Geologist, Certified Engineering Geologist, or Certified Hydrogeologist), and Land Surveyors' Act (e.g., Professional Land Surveyor); a California Registered Professional Forester (RPF); or a Qualified Storm Water Pollution Prevention Plan

(SWPPP) Developer (QSD), a certified soil scientist registered through the American Society of Agronomy; Certified Professional in Erosion and Sediment Control (CPSEC)™/Certified Professional in Storm Water Quality (CPSWQ)™ registered through EnviroCert International, Inc.; a Certified Crop Adviser (CCA) certified through the American Society of Agronomy International Certified Crop Adviser Program, where acting within the scope of a certification applicable to tailwater control or irrigation water management planning; a or professional in erosion and sediment control registered through the National Institute for Certification in Engineering Technologies (NICET). A Qualified Professional must only perform work they are qualified to complete, consistent with applicable licensing and registration restrictions, and must certify any work completed. See Business and Professions Code sections 6700-6799, 7800-7887, and 8700-8805, respectively.

Quality of the Water. The “chemical, physical, biological, bacteriological, radiological, and other properties and characteristics of water which affect its use” as defined in the California Water Code Sec. 13050(g).

Reach-Specific Temperature Benchmark. A Water Quality Benchmark for tailwater temperature that applies to a specific geographic reach of the Shasta River mainstem, as established in Table 2 – Section II. Seven reaches are defined from Dwinnell Dam (RM 41) to the Klamath River confluence (RM 0). Reach-specific benchmarks are derived directly from the Master 1 Table 6.6 Maximum Temperature Values in the Shasta River Temperature TMDL (Chapter 6) and implement the TMDL tailwater load allocation of “no net increase in receiving water temperature.” Where both a reach-specific benchmark and a watershed-wide benchmark apply, the more stringent controls.

Receiving Waters. Surface waters or groundwater that receive or have the potential to receive discharges of waste from irrigated lands.

Riparian Vegetation Area. Riparian Vegetation Area is the area that includes riparian vegetation (including dead, dying, or decaying vegetation along a watercourse that is distinguished from other vegetation by its dependence on the combination of soil moisture and other environmental factors provided by a permanent or intermittent stream) and riparian vegetation canopy, which is the more-or-less continuous cover of branches and foliage formed collectively by the crowns of adjacent trees and other woody species adjacent to a watercourse.

Riparian Zone. The Riparian Zone is comprised of two contiguous components: a Riparian Vegetation Area and a Vegetated Buffer in which different requirements are applied. A Riparian Zone is defined as the area between the Waterside edge of vegetation and where the field side edge of the Vegetated Buffer meets the Farm Area. The Riparian Vegetation Area extends from the Waterside edge of vegetation to the Vegetated Buffer in Perennial and Ephemeral/Intermittent Streams. The Vegetated Buffer is measured from the Riparian Vegetation Area to the Farm Area along Perennial and Ephemeral/Intermittent Streams, and from the Waterside edge of vegetation in Hydrologically Connected Undesignated Channels, Wetlands, and Hydrologically Connected Lakes, Ponds, or On-Stream Reservoirs. See also Riparian Vegetation Area and Vegetated Buffer.

Sediment and Erosion Control Practices. Practices used to prevent and reduce the amount of soil and sediment entering surface water in order to protect or improve water quality.

Site-Specific Potential Effective Shade. The shade equivalent to that provided by topography and potential vegetation conditions at a site. Shade controls that are effective at correcting temperature impairments also operate to prevent impairments and provide other water quality protections such as bank stability and filtering sediment and other waste discharges.

Source Determination Report. A report prepared as part of the Monitoring and Reporting Program that evaluates monitoring data from downstream tailwater monitoring stations to identify which Enrollee(s) and Field(s) are contributing to observed Water Quality Benchmark exceedances.

Source of Drinking Water. Any water designated as municipal or domestic supply (MUN) beneficial use in a North Coast Water Board Basin Plan and/or as defined in State Water Board Resolution No. 88-63.

Standalone Dryland Grazing Operation. A livestock grazing operation on non-irrigated rangeland or pasture that is not under common ownership or operational control with an enrolled Irrigated Agricultural Operation, or that does not meet the functional integration or hydrologic nexus criteria for Associated Grazing Lands. Not required to enroll under this Order but remains subject to Executive Officer authority under the Water Code and applicable TMDL implementation requirements.

Stewardship Category. An exemption from enrollment available to Irrigated Lands that demonstrate sustained compliance and achievement of specified environmental performance criteria, including maximized irrigation efficiency, riparian/wetland/instream restoration, soil health improvement, and road hydrologic disconnection. Subject to application, Threat-to-Water-Quality Assessment, annual reporting, periodic reassessment, and revocation provisions.

Stormwater. Stormwater runoff, snow melt runoff, and surface runoff and drainage, as defined in 40 CFR 122.26(b)(13).

Stormwater Runoff. Precipitation water in excess of what can infiltrate the soil surface and be stored in small surface depressions.

Surface Runoff. Precipitation, snow melt, or irrigation water in excess of what can infiltrate the soil surface and be stored in small surface depressions, a major transporter of nonpoint source wastes in rivers, streams, and lakes.

Tailwater. Irrigation water applied to agricultural land that subsequently runs off the land surface, through any conveyance, including subsurface drainage systems., or via any other conveyance. into a water of the state. Includes irrigation return flows and precipitation runoff that has commingled with or contacted land to which irrigation water has been applied within the preceding 72 hours.

Tailwater Neighborhood. A cluster of tailwater discharges concentrated along a specific reach of the Scott or Shasta River where flood irrigation is prevalent and the

river corridor traverses the valley floor. Multiple discharges along the same reach create cumulative thermal, nutrient, and sediment loading with compound effects exceeding any individual discharge.

Tillage. The mechanical manipulation, digging, or turning of soil to prepare a seedbed, manage crop residue, and control weeds.

Total Maximum Daily Load (TMDL). The calculation of the maximum amount of a particular material that a waterbody can assimilate on a regular basis and still support beneficial uses designated for that waterbody.

Trend. A general direction in which something is developing or changing. See also Water Quality Trend.

Unstable Area. Areas showing evidence of mass downslope movement such as debris flow, landslides, rockfall, and hummock hill slopes with undrained depressions upslope. Examples are landforms exhibiting slip surfaces roughly parallel to the hillside; landslide scars and curving debris ridges; fences, trees, and telephone poles that appear tilted; and tree trunks that bend uniformly as they enter the ground. Active sand dunes are unstable landforms.

Vegetated Buffer. A permanent strip of dense perennial vegetation (including riparian vegetation and perennial crops) where limited agriculture may occur and which is established parallel to the contours of and perpendicular to the dominant slope of the land applications area for the purposes of slowing water runoff, enhancing water infiltration, trapping pollutants bound to sediment and minimizing the risk of any potential nutrients or pollutants from reaching surface waters.

Waste. “Includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal” as defined in the California Water Code Sec. 13050(d). “Waste” includes irrigation return flows and drainage water from Scott containing materials not present prior to use. Waste from irrigated agriculture includes earthen materials (such as soil, silt, sand, clay, rock), inorganic materials (such as metals, salts, boron, selenium, potassium, nitrogen, phosphorus), and organic materials such as pesticides.

Water Quality Benchmarks (WQB). Parameter-specific numeric values listed in Section II.E of the Order which are translations of narrative Water Quality Objectives and TMDL load allocations

Water Quality Control. The “regulation of any activity or factor which may affect the quality of the waters of the State and includes the prevention and correction of water pollution and nuisance” as defined in the California Water Code Sec. 13050(i). 133. Water Quality Criteria. Levels of water quality required under Sec. 303(c) of the Clean Water Act that are expected to render a body of water suitable for its designated uses. Criteria are based on specific levels of pollutants that would make the water harmful if used for drinking, swimming, farming, fish production, or industrial processes. The California Toxics Rule adopted by USEPA in April 2000, sets numeric Water Quality

Criteria for non-ocean waters of California for federal priority pollutants. See also Water Quality Objectives.

Water Quality Objectives. "Limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specified area," as defined in Sec. 13050(h) of the California Water Code. Water Quality Objectives may be either numerical or narrative and serve as Water Quality Criteria for purposes of section 303 of the Clean Water Act. 135. Water Quality Standard. Provisions of State or Federal law that consist of the beneficial designated uses or uses of a waterbody, the numeric and narrative water quality criteria that are necessary to protect the use or uses of that particular waterbody, and an antidegradation statement. Water quality standards includes Water Quality Objectives in the North Coast Water Board's Basin Plan, water quality criteria in the California Toxics Rule and National Toxics Rule adopted by USEPA, and/or water quality objectives in other applicable State Water Board plans and policies. For groundwater with the beneficial use of municipal or domestic water supply, the applicable drinking water standards are those established by the USEPA or California DDW, whichever is more stringent. Under Sec. 303 of the Clean Water Act, each State is required to adopt water quality standards.

Waters of the State. "Any surface water or groundwater, including saline waters, within the boundaries of the State" as defined in the California Water Code Sec. 13050(e). "Waters of the state" includes all "waters of the U.S." Any significant accumulation of water above the ground surface, such as lakes, ponds, rivers, streams, creeks, springs, wetlands, and canals.

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[1] Guidelines for Applicants and their Consultants on Preparing Historic Property Identification Reports for the Clean and Drinking Water State Revolving Fund Programs. While these guidelines were developed for other State Water Board programs, they provide protocols that can be applied to other programs where cultural resources must be addressed.

[2] Native American archaeological materials or indicators may include, but are not limited to, arrowheads and chipped stone tools; bedrock outcrops and boulders with mortar cups; ground stone implements (grinding slabs, mortars, and pestles) and locally darkened midden soils containing some of the previously listed items plus fragments of bone, fire affected stones, shellfish, or other dietary refuse. Historic era archaeological materials may include, but not be limited to: adobe or fired brick; metal objects such as nails, hinges, machine parts, etc.; household wares such as pottery or glass artifacts or shards; tin cans; milled lumber, etc.