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F8b

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STAFF REPORT: REGULAR CALENDAR

Application No.: 1-09-050

Applicant: Humboldt County

Agent: Hank Seemann, Environmental Services Deputy
Director, Humboldt County Public Works Department

Location: East (right) bank of the Mad River, near the intersection
of Verwer Court and School Road, McKinleyville,
Humboldt County.

Project Description: Follow-up application to Emergency Permit No. 1-08-
035-G for the construction of a 1,300-foot-long bluff
stabilization structure along the Mad River.

Staff Recommendation: Approval with Conditions

SUMMARY OF STAFF RECOMMENDATION

On August 22, 2008, the Commission's Executive Director issued Humboldt County an emergency permit with conditions (1-08-035-G) for the construction of a 1,300-foot-long stabilization structure (rock slope protection and bioengineered riparian vegetation) to protect existing development landward of the east bank of the Mad River upstream and downstream of the intersection of Verwer Court and School Road in McKinleyville. The stabilization was needed to protect existing residences, roads, and sewer and water lines in the project vicinity from bluff erosion. The County constructed the structure under the emergency permit authorization and subsequently applied for a follow-up coastal development permit in December 2009. The Commission staff did not deem the application "filed" until December 2019.

The County has complied with the conditions of the emergency permit, which are shown in Exhibit 4. These conditions included requirements to remove unpermitted riprap, avoid construction during the rainy season, implement Best Management Practices (BMPs) to protect water quality, revegetation of exposed soils with native plant species, minimize and monitor effects on salmonids, waive the Commission's liability for any damages, and submit a follow-up regular CDP application.

The Commission staff recommends the Commission find the project, as conditioned:

- (1) is necessary to protect existing residences, roads, and sewer and water lines in the project vicinity from bluff erosion, and will provide in-kind mitigation for impacts on local shoreline sand supply and is therefore allowable under, and is consistent with, Coastal Act section 30235, which requires approval of shoreline protective devices if these conditions are met;
- (2) represents the least environmentally damaging feasible alternative, and is consistent with the alternatives test of the wetland policy [section 30233(a)];
- (3) includes best mitigation measures feasible and is consistent with the stream alteration policy (section 30236) and the mitigation test of the wetland policy [section 30233(a)];
- (4) will not cause erosion or instability and is consistent with the geologic hazards policy [section 30253(a) and (b)];
- (5) benefits riparian habitat and salmonid and other fish habitat, is the least environmentally damaging feasible alternative, and is consistent with the alternatives test of the wetland policy [section 30233(a)];
- (6) benefits water quality and public access and recreation, and is consistent with sections 30230, 30231, and 30210; and
- (7) is consistent with the archaeology policy (section 30244) and the view protection policies (section 30251).

Staff recommends Special Conditions 1 through 5 to assure that the project will continue to remain consistent with these policies. **Special Condition 1** requires periodic and post-flood monitoring and reporting. **Special Condition 2** requires continued maintenance of the structure. **Special Condition 3** would trigger a re-evaluation of the structure in the event the structure is no longer needed to protect existing development. **Special Condition 4** requires an assumption of risk and a waiver of liability. **Special Condition 5** requires Tribal Consultation prior to any future construction at the site.

Staff believes that the project, as conditioned, includes all feasible mitigation measures necessary to find the project consistent with the Chapter 3 policies of the Coastal Act. The motion to adopt the staff recommendation of approval with special conditions is on [page 4](#).

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EXHIBITS

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[Exhibit 4 – Emergency Permit Conditions](#)

[Exhibit 5 – Photos of Site and Armoring Structure](#)

[Exhibit 6 - Thalweg positions, 1941-2007 \(Stillwater Sciences, Figure 7\)](#)

[Exhibit 7 – Channel planforms before and after 1955, 1964, and 1996 floods \(ibid, Fig. 8\)](#)

[Exhibit 8 – Salt Marsh Monitoring Report](#)

[Exhibit 9 – Post-Construction Report \(February 13, 2009\)](#)

[Exhibit 10 – Final Monitoring Report \(November 25, 2009\)](#)

[Exhibit 11 - Design Technical Memorandum, \(September 3, 2020\)](#)

[Exhibit 12 - Design Technical Memorandum, \(October 12, 2020\)](#)

I. Motion and Resolution

The staff recommends that the Commission adopt the following resolution:

Motion:

I move that the Commission approve coastal development permit 1-09-050 pursuant to the staff recommendation.

Staff recommends a **YES** vote on the foregoing motion. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of Commissioners present.

Resolution:

The Commission hereby **approves** Coastal Development Permit Application No. 1-09-050 for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because either (1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or (2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

II. Standard Conditions

This permit is granted subject to the following standard conditions:

- 1. Notice of Receipt and Acknowledgment.** The permit is not valid until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
- 2. Interpretation.** Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.
- 3. Assignment.** The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.
- 4. Terms and Conditions Run with the Land.** These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

III. Special Conditions

This permit is granted subject to the following special conditions:

1. Monitoring and Reporting Requirements.

- A. Monitoring Plan: Within 90 days after approval of this coastal development permit, the permittee shall submit a monitoring plan for the review and approval of the Executive Director that will include, at a minimum, the following elements:
- i. Identification of the qualifications of the person(s) who will be undertaking the monitoring, such as geologist, civil or geotechnical engineer or other;
 - ii. Monitoring locations for the riverbank and blufftop, either through line surveys or transects, such that measurements shall be taken every 100 feet for the length of the armoring and 200 feet both up and down stream of the armoring;
 - iii. Types of equipment that will be used to access and monitor the key aspects of the armoring, and locations of the riverbank and blufftop, for example, traditional survey equipment, drone-mounted cameras, RTK, or LiDAR, boat-mounted cameras, RTK, LiDAR, and such.
 - iv. Methods to ensure that riverbank and blufftop measurements will be replicated between monitoring events so that riverbank and blufftop positions can be compared and changes in position can be quantified to develop trends, such as establishment of fixed survey monument locations; and
 - v. Monitoring shall be undertaken every ten (10) years, and after any significant seismic event or major flood on the Mad River [seismic event of Richter Scale magnitude > 7.0 in the region, and/or flood event with a discharge rate of 27,900 cubic ft./second (cfs) measured at the Lower Mad River USGS Station (Stn # 11481000) (i.e., a two-year recurrence interval)].
- B. Reporting: By May 1 of every tenth year for the life of the structure, and within three months of any significant seismic or flooding event (as defined above), the permittee shall submit a monitoring report to the Executive Director. Inspection of the condition of the structure shall be performed by a licensed geologist, or civil or geotechnical engineer. Monitoring reports shall assess the condition and performance of the approved armoring structure and shall contain the following:
- i. An evaluation of the condition and performance of the approved armoring structure, including an assessment of whether any weathering or damage has occurred that could adversely impact future performance of the structure;

- ii. All measurements taken in conformance with the approved monitoring plan;
 - iii. An analysis of erosion trends, amount of retreat and rate of retreat of the riverbank and blufftop edge based upon the measurements and in conformance with the approved monitoring plan;
 - iv. A description of any migration or movement of rock that has occurred on the site, with photographs if possible; and
 - v. Recommendations for repair, maintenance, modifications or other work to the armoring structure.
- C. If a monitoring report contains recommendations for repair, maintenance or other work, the permittee shall contact the Coastal Commission's North Coast District Office to determine whether such work requires a coastal development permit or amendment.

- 2. Maintenance Activities and Future Alterations.** The permittee shall maintain the armoring structure for the life of the structure. The authorized structure may be maintained in its authorized as-built state, subject to the following:
- A. Routine Maintenance Required. The permittee shall remove or redeposit any debris, rock, or material that becomes dislodged as soon as possible after such displacement occurs. The permittee shall contact the Coastal Commission's North Coast District Office immediately to determine whether such activities require a coastal development permit.
 - B. Definition. "Maintenance" as it is understood in this special condition means development that would otherwise require a CDP whose purpose is to maintain in the approved state the armoring structure authorized under this permit. Proposed activities that add to, enlarge, extend, heighten, or otherwise expand the authorized structure in any way shall not be considered maintenance and shall require an amendment to this permit or a new CDP depending on the nature and extent of the proposed activities.
 - C. Other Agency Approvals. The permittee acknowledges that these maintenance stipulations do not obviate the need to obtain permits from other agencies for any future maintenance and/or repair episodes.
 - D. Maintenance Notification. At least 30 days prior to commencing any maintenance event, the permittee shall notify in writing the planning staff of the North Coast District Office. The notification shall include: (i) a detailed description of the maintenance event proposed; (ii) any plans, engineering and/or geology reports describing the event; (iii) a construction plan that complies with all aspects of the approved construction plan; (iv) any other required agency authorizations; and (v) any other supporting documentation describing the maintenance event. The maintenance event shall not commence until the permittee has been informed by planning staff of the North Coast District Office that the maintenance event complies with this CDP. If the permittee has not been given an oral response or sent a written

- response within 30 days of the notification being received in the North Coast District Office, the maintenance event shall be authorized as if planning staff affirmatively indicated that the event complies with this CDP. The notification shall clearly indicate that the maintenance event is proposed pursuant to this CDP and that the lack of a response to the notification within 30 days constitutes approval of it as specified in the permit. In the event of an emergency requiring immediate maintenance, the notification of such emergency episode shall be made as soon as possible and shall (in addition to the foregoing information) clearly describe the nature of the emergency. The permittee shall take all legally required follow up activities, and in no event take steps beyond the minimum required to abate the immediate emergency episode, and in compliance with all Coastal Act policies insofar as possible given the situation. The permittee shall document all steps taken in a written report including photos, to be submitted within 3 days of the action undertaken pursuant to this section.
- E. Maintenance Coordination. Maintenance events shall be coordinated to the degree feasible with other maintenance events proposed in the immediate vicinity with the goal being to limit coastal resource impacts, including the length of time that construction occurs in and around the beach and bluff area and beach access points. As such, the permittee shall make reasonable efforts to coordinate the permittee's maintenance events with other adjacent events, including adjusting maintenance event scheduling as directed by planning staff of the North Coast District Office.
- F. Noncompliance Provision. If the permittee is not in compliance with the terms and conditions of any Coastal Commission CDP or other coastal authorizations that apply to the subject armoring structure at the time that a maintenance event is proposed, then the maintenance event that might otherwise be allowed by the terms of this future maintenance condition shall not be allowed by this condition until the Executive Director provides a written determination that the permittee is in full compliance with all terms and conditions.
- G. Emergency. In addition to the emergency provisions set forth in subsection (D) above, nothing in this condition shall affect the emergency authority provided by Coastal Act section 30611, Coastal Act section 30624, and Subchapter 4 of Chapter 5 of Title 14, Division 5.5, of the California Code of Regulations (Permits for Approval of Emergency Work).
- 3. Removal or Modification if No Longer Needed.** In the event the armoring structure is no longer needed to protect the existing structures (i.e., the three houses on Verwer Court and Ocean Drive, the two roads (Verwer Court and School Road), and water and sewer lines in the road rights-of-way), the permittee shall apply for a CDP with an analysis of the feasibility of removing the hard components of the structure (e.g., rock), and of the environmental tradeoffs associated with removing, retaining, or modifying the structure. Such application shall include an alternatives analysis, including professional opinions from a

qualified biologist and engineer, that examines how to best protect the riparian and salmonid habitats. If the Commission approves such a CDP, the permittee shall implement any removal or structural modifications authorized and required.

- 4. Assumption of Risk, Waiver of Liability, and Indemnity Agreement.** By acceptance of this permit, the permittee acknowledges and agrees (A) that the site may be subject to hazards from waves, storms, flooding, landslide, bluff retreat, erosion, and earth movement, and other natural hazards, many of which will worsen with future sea level rise; (B) to assume the risks to the permittee and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (C) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (D) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.
- 5. Tribal Consultation for Inadvertent Archeological Discovery.** PRIOR TO ANY FUTURE CONSTRUCTION, including repair, modification, or excavation at the site performed pursuant to Special Condition 2, the permittee shall consult with representatives of the Wiyot Tribe, Blue Lake Rancheria, and the Bear River Band of the Rohnerville Rancheria. Construction shall not commence without an Inadvertent Archeological Discovery Protocol (the Protocol) that includes notification of the Blue Lake, Bear River, and Wiyot Tribal Historic Preservation Officers, as well as the planning staff of the North Coast District Office, if any Native American artifacts or remains are found. In the event any emergency repairs are needed to protect public safety but before such notification could occur, the County shall immediately notify these Tribes as soon as practicable following commencement of the emergency work. The protocol shall include provisions that if any Native American artifacts or remains are found, all construction shall cease and shall not recommence until the permittee submits any proposed archaeological resource mitigation measures for the review and approval of the Commission's Executive Director, and either: (A) the Executive Director approves the mitigation measures and determines that any required changes to the development authorized by CDP 1-09-050 are de minimis in nature and scope, or (B) the Executive Director determines that any required changes to the development authorized by CDP 1-09-050 are not de minimis, and the permittee has thereafter obtained an amendment to CDP 1-09-050.

IV. Findings and Declarations

The Commission hereby finds and declares as follows:

A. Background and Project Description

On August 22, 2008, the Commission's Executive Director issued an emergency permit with conditions (1-08-035-G) to the Humboldt County Department of Public Works (County) for the construction of a 1,300-foot-long stabilization structure (a combined rock slope protection structure incorporating bioengineered riparian vegetation) to protect existing development landward of the east bank of the Mad River upstream and downstream of the intersection of Verwer Court and School Road in McKinleyville (APNs 508-021-007, 508-151-016, -017, -030, -004, -003, and the County of Humboldt's School Road right-of-way) (Exhibits 1-3).

The project was necessitated after winter storms of 2005-2006 resulted in severe erosion at the site. The Commission's Executive Director determined the emergency stabilization structure was needed to protect existing (pre-Coastal Act) residences, roads, and sewer and water lines in the project vicinity from bluff erosion and issued an emergency permit on August 22, 2008 (Exhibit 4). The County began construction on September 2, 2008; construction was completed on October 24, 2008. The County applied to the Commission for the subject follow-up coastal development permit (CDP) in December 2009. Due to a delay in submittal of information requested by Commission staff as a result of County staff resource issues and other pressing priorities, the Commission staff did not deem the follow-up application "filed" until December 2019.

The County has complied with the conditions of the emergency permit, including requirements to remove existing, unpermitted riprap, avoid construction during the rainy season, implement Best Management Practices (BMPs) to protect water quality, revegetate exposed soils with native plant species, minimize and monitor effects on salmonids, waive the Commission's liability for any damages, and submit a follow-up regular CDP application.

The current application requests authorization of the emergency project as constructed, in its existing configuration. The proposed project (Exhibits 2-3) consists of the development of a continuous toe trench along 1,300 feet of riverbank, on which 4-ton to 6-ton rocks have been placed with an alternating series of groins and willow mattress sections (i.e., composite layers of rock and soil, integrated with 4-inch- to 6-inch-thick bundles of willow branches (secured with stakes). The project's bioengineering features include a bench to assure the willows would be above elevations reached by tidal influence, and perpendicular groins that are sited and designed to provide habitat features for salmonid and other fish. The groins are anchored with rebar and cables, extend less than 20 feet from the anchored bank, and are sited at 60-foot intervals. The total volume of material used for the structure is 10,500 cubic yards. Most of the material (the heavier rock) is below mean high water. The uppermost elevation is approximately +14 ft. (NAVD 88). Rock sizes are tapered down to 1-ton rocks at the higher elevations. The project footprint is approximately 0.6-acre.

The County's monitoring and reporting plan addressed the following:

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1. structural integrity monitoring periodically, and after all high river flows (i.e., flows > 30,000 cubic ft./second (cfs) measured at the Mad River flow gauge near Arcata [USGS Station 11348100]);
2. vegetation establishment monitoring, including criteria for percent coverage and evidence of healthy new growth;
3. salinity monitoring to assure planted willows are not affected by tidal influence; and
4. success of the bioengineered features (boulders, woody debris, groin structures, and riparian vegetation) in improving fish habitat, particularly for steelhead trout.

The monitoring results (Exhibits 8-10) documented that after one year the project had retained its structural integrity, willow growth goals were all met or exceeded, salinity was not affecting riparian habitat, and that fish species, including salmonids, were taking advantage of the refuge areas and food sources provided by the fish habitat components of the project. In fact, the County determined, as noted in its final monitoring report dated November 25, 2009 (Exhibit 10), that additional monitoring would not be needed, because “the project maintained its structural integrity, met the success criteria for vegetation establishment, and met the performance criteria for fish habitat.” Photographs of the site and the armoring structure, including before and after photos, are included in Exhibit 5.

B. Environmental Setting

The project site is located along the right (eastern) bank of the lower Mad River, approximately 2.5 miles upriver from the existing river mouth at the Pacific Ocean. The river’s estuarine reach, which includes the subject site, abuts coastal sand dunes to the west and an actively eroding uplifted marine terrace landform to the east. Single-family residences (many constructed in the 1950s and 1960s) are developed along much of the blufftop land east of this stretch of the river, which is within a designated urban area served by municipal water, sewer, and other services. Farmland also lines the lower Mad River, especially south of School Road.

The Mad River supports habitat for several sensitive species of fish, including, but not limited to, federally and state threatened Coho Salmon (*Oncorhynchus kisutch*), federally threatened California Coastal Chinook Salmon (*O. tshawytscha*), and federally threatened Northern California Steelhead (*O. mykiss*). The Mad River estuary also supports salt marsh and brackish marsh habitat areas, including a small patch of marsh near the south end of the project site dominated by coastal hairgrass (*Deschampsia cespitosa*), cinquefoil (*Potentilla anserina*) and the invasive plant dense-flowered cord grass (*Spartina densiflora*).

Public access to and along the Mad River exists in the vicinity of the project site. Mad River Beach County Park is directly across the river from the project area and includes beach access, dune trails, and a boating access launch ramp on the river. The boat launch is slightly upstream and across river from the subject site. In addition, an existing informal public access trail extends from the end of School Road down to the river at the

south (upstream) end of the proposed armoring structure. The McKinleyville Community Services District has plans to improve this public access point by adding ADA-compliant trails, benches, and signage. These improvements proposed under CDP Application No. 1-19-0462, which has not yet been filed as complete, will likely be scheduled for the Commission's consideration in the coming months/early next year.

C. Standard of Review

The project site is located entirely in the Commission's retained permit jurisdiction. The County of Humboldt has a certified Local Coastal Program (LCP), but the site is within an area shown on State Lands Commission maps over which the State retains a public trust interest. Therefore, as required by Public Resources Code section 30519(b) and Commission regulation 14 CCR section 13166(c), the standard of review that the Commission must apply to the project is the Chapter 3 policies of the Coastal Act.

D. Other Agency Approvals

U.S. Army Corps of Engineers (Corps)

The Corps of Engineers determined on August 14, 2008, that the project qualified for a Nationwide permit (NWP 37 - Emergency Watershed Protection and Rehabilitation).

North Coast Regional Water Quality Control Board (Regional Board)

The North Coast RWQCB issued a Water Quality Certification for the project on August 19, 2008 (No. 1B08119WNHU).

California Department of Fish and Wildlife (CDFW)

The California Dept. of Fish and Wildlife (then called Dept. of Fish and Game) granted a Streambed Alteration Agreement for the project on August 26, 2008 (No. R1-08-0402).

State Lands Commission

The State Lands Commission approved a General Lease for the project on October 27, 2011 (Public Agency Use, File Ref. PRC 8954.9/W 36432).

National Marine Fisheries Service (NMFS) and Other Resource Agencies

The County informally consulted with NMFS, the U.S. Fish & Wildlife Service (USFWS), and the Natural Resource Conservation Service (NRCS), all of which indicated the project was not likely to affect any threatened or endangered species, such as the endangered tidewater goby. The NRCS provided funding for the project.

Tribal Coordination

The Commission staff coordinated with representatives of the Wiyot Tribe, the Bear River Band of the Rohnerville Rancheria, the Yurok Tribe, the Blue Lake Rancheria, the Big Lagoon Rancheria, the Hoopa Valley Tribe, the Karuk Tribe, and the Cher-Ae Heights Community of the Trinidad Rancheria. The results of this coordination are discussed in Section F below. Any further Tribal comments received after publication of this staff report will be brought to the Commission's attention before or during the Commission's hearing.

E. Stream Alteration/Bluff Protection

Coastal Act section 30235 states:

Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fish kills should be phased out or upgraded where feasible.

Section 30236 states:

Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (1) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.

Section 30253 states in applicable part:

New development shall do all of the following:

- A. Minimize risks to life property in areas of high geologic, flood, and fire hazard.
- B. Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs...

The project will substantially alter a river (the Mad River) by keeping it from eroding the bluff and migrating eastward. While the bioengineered stabilization structure has been designed to incorporate willows and other beneficial fish features, its primary purpose is bluff protection rather than any of the uses allowable under section 30236. However, reading the above-cited policies together, the project may be permitted under section 30235, even if it is inconsistent with section 30236, if it can be found: (1) to be necessary to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion; and (2) if it is designed to eliminate or mitigate adverse effects on shoreline sand supply.

With respect to the first of these tests, the County submitted two reports with its original emergency CDP application documenting the project's need to protect existing

structures (Mad River Streambank Stabilization Project, Geomorphic/Evaluation, Stillwater Sciences, July 8, 2008; and LACO Associates, Mad River Bluffs, Geologic Investigation and Assessment, April 11, 2008). The existing structures threatened by erosion include three residences (1644 Verwer Ct., 1650 Ocean Dr., and 1658 Ocean Dr.), two roads (School Rd. and Verwer Ct.) and water and sewer lines in the road rights-of-way. The LACO Associates report established that the bluff had “retreated to within 15 ft. of an occupied residence and is in close proximity to several other residences as well as public infrastructure.” Based on analysis of peak annual discharges, this report predicted:

... there is, in our opinion, a greater than 50% probability that a peak discharge event will occur during the next winter season with a reasonable likelihood of causing at least 10 ft. of bluff erosion, a 10 to 33 percent probability that a peak discharge event will occur that could cause up to 50 ft. of bluff erosion, and a 5 percent probability that a peak discharge event will occur that could cause up to 90 ft. of bluff erosion.

The report concluded:

In our opinion, based on the information discussed herein, there is substantial evidence that potentially significant bluff erosion may occur in the next 12 months to threaten property, essential services, life, and health at the Mad River bluff near the end of School Road.

The Stillwater report described the bluff erosion in a geomorphic context and explained how the fluvial properties over the past 70 years have led to northward migration of the Mad River mouth, with related eastward migration of the thalweg of the river along the south to north segment of the lowest portion of the river. This report states:

Between 1958 and 1970, the thalweg began to progress eastward in connection with channel meander and point bar development associated with the northward migration of the mouth and river. This progressive migration of the thalweg caused it to impinge against the bluff in the vicinity of School Road starting in about 1970, a progression that began almost a quarter-century ago and is continuing to the present day.

Exhibit 6 (Figure 7 of the Stillwater report) depicts this recent historic thalweg migration towards the east riverbank. Exhibit 7 (Figure 8 of the Stillwater Report) depicts changes in the river planform associated with heavy flood events.

Based on the evidence submitted by the County, the Commission finds that the constructed bluff protection was necessary, and remains necessary, to protect existing residential structures and infrastructure (roads, water, and sewer lines) that were constructed prior to passage of the Coastal Act, from damage by bluff retreat.

Although the Executive Director authorized the project on an emergency basis, as discussed above, in order to authorize the development to remain, the Commission must ensure that the permitted emergency structure is the minimum necessary to

protect existing development. To that end, the Commission must consider the extent to which the protection structure extends upstream, away from the threatened development. This upstream segment (i.e., the southernmost extent of the structure), fronts vacant land south of School Road. While a stormwater conveyance pipe is sited in this area, this pipe would not appear to need additional protection, as it is armored at the point it reaches the river. In addition, the bluff protection extends even beyond this pipe outlet. It is normally not the Commission's interpretation that shoreline and other armoring projects are authorized under the Coastal Act to protect vacant land.

To verify that the as-built design represents the minimum needed to protect existing development, the County has provided two supplemental analyses of this question (Exhibits 11-12). The first supplemental analysis (Exhibit 11) describes the design basis for the upstream portion of the Mad River Streambank Protection Project and documents post-construction and current conditions. The approximately 1,300-foot-long bioengineered streambank stabilization project can be subdivided into three segments:

1. Segment 1 – The steep bluff north of School Road (approximately 675 feet), directly adjacent to residences. Segment 1 comprises rock groins and vegetated bays 1 through 9 on Figure 7 of Attachment C (stations 10+80 through 17+55; see Exhibit 3 page 4). This segment protects the bluff immediately adjacent to residences and public infrastructure.
2. Segment 2 – The steep bluff south of School Road and north of the outfall structure (approximately 365 feet), adjacent to undeveloped land and agricultural pasture. Segment 2 comprises rock groins 10 through 15 and vegetated bays 10 through 14 on Figure 7 of Attachment C (stations 17+55 through 21+20, Exhibit 3 page 4).
3. Segment 3 – The low-profile bank south of the outfall structure (approximately 210 feet), adjacent to undeveloped land and agricultural pasture. Segment 3 comprises bay 15 on Figure 7 of Attachment C (stations 21+85 through 23+95, Exhibit 3 page 4).

As noted in the County's report, Segments 2 and 3 are needed to protect Segment 1 from erosion and harm from flanking:

The purpose of Segment 1 was to stabilize the bank immediately adjacent to residences and public infrastructure. The purpose of Segments 2 and 3 was to prevent erosive forces from flanking the upstream end of Segment 1 and threatening the integrity of the Segment 1 stabilization structure and the stability of the bluff behind the structure.

Flanking can be defined as "erosion around the landward end of a stream stabilization countermeasure" (Federal Highway Administration, 2001). Flanking is a common failure mechanism for protective shoreline structures, which are vulnerable to edge scour where there is an interface between protected and unprotected surfaces. Potential treatments to prevent edge scour and flanking

include: placing deflectors (typically with rock or fill) within the channel to deflect flow away from the bank; keying the structure into the bank; constructing a more extensive “tieback” into the bank; and extending the longitudinal extent of the structure along the bank.

Based on the evidence of bank erosion south of School Road and the orientation of the upstream thalweg, the risk of continued erosion leading to scour behind the Segment 1 stabilization structure was determined to be high. Continued erosion along Segment 2 and Segment 3 would have reduced the effectiveness and lifespan of the Segment 1 structure and threatened School Road and the residential area along a new southern face. A longitudinal extension of the bioengineered structures upstream was determined to have the least ground disturbance and least environmental impacts compared to a deflector, tieback structure, or key-in into the bank. The structures along Segments 2 and 3 were designed for the purpose of preventing flanking of Segment 1, not to protect the undeveloped land immediately adjacent to Segments 2 and 3.

The report also states that removal of Segments 2 and 3 would be environmentally damaging; the report states:

If the stabilization structures constructed within Segment 2 and Segment 3 were to be removed, an access road network and staging areas would need to be developed within the riparian vegetation that was established as part of the Project. Ground disturbance associated with heavy equipment access, staging, and material stockpiling would be significant. Water quality within the Mad River would likely receive temporary impacts due to sediment discharge. The right bank would be de-stabilized and exposed to continued erosion. As discussed in Section 3, the stabilization structure in Segment 1 would be at risk for flanking and the bluff area adjacent to Segment 1 would be vulnerable to erosion from the south. The damaged riparian areas could be re-established; however, there would be at least one to two years of temporal loss. Removal of Segments 2 and 3 would be highly controversial. Many people would object that the costs and impacts of such a demolition project do not outweigh the benefits; create significant safety and property damage risks; and represent a poor use of public funds. The costs of removal would be borne upon the County rather than the original funders of the Project. Funding such a project would be controversial because the County is facing a major financial crisis due to the Covid-19 pandemic. If the structures along Segments 2 and 3 are removed and erosion begins to threaten the Segment 1 structure, then stakeholders would likely mobilize to advocate for a new stabilization project.

The report concludes:

The purpose of the upstream portion of the Mad River Streambank Protection Project was to prevent flanking of the downstream structure that provided direct protection for residential development and public infrastructure. The risk of continued erosion along the right bank and flanking of the structure and/or

threats to the residences and infrastructure was high to due geomorphic conditions. The upstream longitudinal extent was designed to impose the minimum amount of influence on the fluvial setting and ongoing natural processes while maximizing design life and return on community investment.

To further elaborate on potential alternatives, in particular for the area south (upstream) of School Rd., the County produced a second memorandum dated October 12, 2020 (Exhibit 12). In this second memorandum, the County describes in greater detail the options that were available prior to construction of the structure and the likely environmental impacts of each alternative. In this report the County divides the project area into four segments (see Figure 2 in Exhibit 12) including the three segments described previously and a fourth segment consisting of the low-profile bank south (upstream) of the as-built project adjacent to the gravel bar and riparian vegetation.

The report focuses on the need to design the structure of sufficient upstream length to avoid flanking (and therefore the removal of the downstream segments was not further analyzed). The report discusses various design options to protect against upstream flanking, including:

1. In-stream Deflectors. This option involves the placement of rock or wood within the active channel to re-direct the high-energy flows away from the end transition.
2. Tieback Structure. This option involves constructing an extension of the project into the bank to “key in” the structure to stable ground. The Bureau of Reclamation’s (BOR’s) Bank Stabilization Design Guidelines (2015) recommends that the length of the tieback structure should be sufficient to protect the structure from upstream lateral movement within the range of expected meander migration. Typically, a trench is constructed into the bank and filled with revetment. Tieback trenches should be angled approximately 30 degrees from the primary flow direction.
3. Longitudinal Extension. This option involves extending the stabilization measure along the bank. BOR (2015) recommends extending the upstream end to areas of non-eroding velocities and relatively stable banks.

The County rejected in-stream deflectors as more environmentally damaging and likely ineffective and infeasible, because (from Exhibit 12 page 6):

An in-stream structure would have had to be large and likely reinforced with anchoring such as cables or sheet piles. The effectiveness of this approach is questionable given the setting, and further hydraulic modeling and engineering design would have been needed. The prospect of placing over-sized rock and/or steel components within the active channel was considered highly undesirable due to environmental and aesthetic impacts. For these reasons this option was abandoned.

Concerning the second option, (i.e., a tieback structure, which would reduce the need for armoring as far south as the selected and implemented project), the County found this option would entail fairly significant landform alteration associated with constructing a trench, installing a sheet-pile wall, and potentially raising cultural resource concerns. The County states (Exhibit 12 pages 6-7):

Option 2 was evaluated at a conceptual level only. Option 2 was considered potentially feasible, although further geotechnical and engineering design would have been required along with professional judgment to predict the future trajectory of the meander bend formation. Construction of the key trench would have involved substantial disturbance of the fluvial terrace deposits. The trench would need to extend down to an elevation corresponding to the toe of the nearby bank, in anticipation of bank erosion reaching that elevation. The trench would need to be wide enough to place a stable mound of rock. The trench would require shoring during construction, likely by driving sheetpiles. While the right bank is relatively low along Segments 3 and 4, the grade of the terrace deposits rises gradually eastward. A conceptual layout is shown on Figure 6 [Exhibit 12, p. 18]. As a rough estimate, the depth of excavation would range from approximately 10 feet at the streambank to a maximum depth of 20 feet (average of 15 feet). The trench would extend approximately 50 feet into the bank and have an average width of approximately 25 feet. The total volume of the key trench would be approximately 700 cubic yards (50 feet x 15 feet x 25 feet). The trench would be filled with a range of boulder sizes and then back-filled. Note that the volume estimate for Option 2 was not based on an engineered design.

Although the project site was not identified as a known Native American village site, the site was considered culturally sensitive due to the extensive utilization of the area by Native Americans for the abundant fishing, hunting, and gathering opportunities. Therefore, the potential for impacting a culturally sensitive site by implementing Option 2 was considered relatively high.

Regarding Option 3 (i.e., the proposed and constructed alternative), the County found this proposed alternative to be less environmentally damaging than the other options and the most logical place to end the structure at its upstream terminus, stating (Exhibit 12 page 7):

Option 3 was considered technically feasible and was the selected alternative. The design for this option did not attempt to abate all erosion along the right bank, but only the minimum amount needed to protect the integrity of the southern end of the Segment 2 bank stabilization measures. Stabilization measures were designed for Segment 3, while Segment 4 was left unprotected. The southern end of Segment 3 corresponded to the northern end of a gravel bar along the right bank. The northern end of the gravel bar was a logical end point because the bar appears to limit the velocities and scour potential of the Mad River flows along the bank of Segment 4. The improvements in Segment 3 correspond to Bay 15 and Stations 21+85 through 23+95 in the as-built drawings (Attachment B). The size of the improvements for Segment 3 was smaller than Segments 1 and 2. The improvements were composed

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of rock boulders placed along the toe of the bank incorporated with smaller rock, soil, and willow sprigs. The surface tapered into the streambank. The height of the improvements averaged approximately 10 feet. The average width was 7 feet. The total volume of fill material for Segment 3 was approximately 550 cubic yards (210 feet x 10 feet x 7 feet). Option 3 appears to have required less soil disturbance and less fill material than Option 2.

In this second memorandum, the County reiterates its concerns about the effects of removing some or all the southern segments of the structure south of School Rd. discussed in the first memorandum and quoted previously.

The County concludes (Exhibit 12 page 12):

The purpose of the upstream portion of the Mad River Streambank Protection Project was to prevent flanking of the downstream structure that provided direct protection for residential development and public infrastructure. The upstream longitudinal extent was designed to impose the minimum amount of influence on the fluvial setting and ongoing natural processes while maximizing design life and return on community investment.

The Commission agrees with the County that the first option (in-stream deflectors) would clearly be more environmentally damaging, as it would involve a greater degree of stream alteration and indeed would likely not be effective. With respect to the tie-back option and ending Segment 3 of the armoring further north (downstream), the Commission agrees that such alternative would result in a greater degree of both construction impacts and landform alteration and would raise potential cultural resource concerns as well. As noted in Section I of this report below, the Wiyot Tribe and the Blue Lake Rancheria consider this area “highly sensitive” with respect to cultural resources. The Commission finds that grading for a trench and installation of sheet pile walls associated with a tieback alternative would raise concerns over both the Coastal Act’s visual effects (section 30251) and cultural resources (section 30244) policies and would therefore not be less environmentally damaging when compared to the gradually tapered (to the south) alternative proposed and implemented by the County. Moreover, a tie-back structure built into the river bluff to prevent flanking of the revetment could itself be threatened by flanking within the foreseeable future as the bank continues to erode, necessitating future extensions of the structure. This future work would result in additional landform alteration and potential additional impacts to visual and cultural resources. The Commission therefore concludes that the proposed alternative is necessary to protect existing structures, is the minimum design needed to protect threatened existing structures and is the least environmentally damaging feasible alternative.

With respect to whether the project has been designed to eliminate or mitigate adverse impacts on local shoreline sand supply, the Commission notes that the Eel River and the Mad River combined “contribute approximately 2.3 million cu. yds of sand per year to the local littoral cell off the coast. Of this amount, approximately 486,000 cu. yds. is coarse enough to remain on the ocean beaches (Eureka Littoral Cell, California, Coastal

Regional Sediment Management Plan, August 2017). A portion of the sediment contributed by the rivers to the littoral cell comes from bluff sediments released by riverbank erosion. The project will alter sand supply by preventing on-going bank erosion, and while individual projects might cause only small changes in sediment supply, the cumulative reductions in sand supplies resulting from shoreline protective devices and other development are significant. Along this section of the Mad River, much of the local sediment supply provides benefits as substrate for habitat or as local haul-out areas for use by marine mammals or recreational boaters. As such, the habitat enhancements and small sheltered embayments that are part of this project provide in-kind mitigation for the sediment losses that will result from armoring the riverbank.

With respect to the requirement of section 30253 that the project minimize risks and avoid contributing to erosion or other geologic hazards, the Commission notes that in designing the project, the County studied the existing hazards at the site, including those related to the need for the project as discussed in the previous section of this report, as well as the need for the project to avoid contributing to downstream erosion. After the project was completed over 10 years ago, the County began monitoring the project's integrity, effectiveness, and downstream effects. However, the County discontinued monitoring after one year. The County's monitoring reports included the Mad River Streambank Protection Monitoring Plans dated August 28, 2008, revised, January 20, 2009, and with a subsequent annual report dated November 25, 2009 (Exhibits 8-10). In the period monitored, the County's reports appear to confirm the County's initial predictions made in its geomorphic analysis cited above that the project would not result in significant effects on downstream sand bars and other geomorphologic features. These monitoring reports have confirmed, based on the period monitored, this prediction and showed that the project did not, in the short term, cause or exacerbate downstream erosion and sedimentation. Because the subject CDP serves to authorize the structure on a long-term basis, in order for the Commission to find the project consistent with the Coastal Act's hazards policy, the County will need to continue to monitor and maintain the stabilization project for the life of the project, particularly after major flooding events, which have the potential to damage the structure and/or downstream river morphology. To ensure that future monitoring events will provide comparable information on shoreline trends, a monitoring plan will be required. Accordingly, **Special Conditions 1-2** require maintaining, monitoring, and reporting the structure as long as it is in place. If the structure is no longer necessary to protect existing development, **Special Condition 3** would require an assessment of the feasibility of removing or modifying it, and/or whether it would be more environmentally harmful to remove or modify it than it would to retain it. In addition, **Special Condition 4** requires the County to assume the risks of extraordinary erosion, flooding, and geologic hazards and waive any claim of liability on the part of the Commission. The condition also requires the applicant to indemnify the Commission in the event that third parties bring an action against the Commission as a result of the failure of the development to withstand hazards.

As conditioned, the Commission finds the project is consistent with section 30253, which requires that risks to life and property be minimized, that stability and structural integrity are assured, and that the proposed project neither creates nor contributes

significantly to erosion, geologic instability, or destruction of the site or surrounding area.

Based on the above discussions, the Commission concludes that, as conditioned, the project is necessary to protect existing structures, would not adversely affect downstream sand supply, includes best mitigation measure feasible, and minimizes geologic hazards. The Commission further concludes that because it is the least environmentally damaging alternative, and that no other method for protecting existing structures in the floodplain is feasible, the project is consistent with sections 30235 and 30253.

C. Development Within Coastal Rivers and Streams

Section 30233 of the Coastal Act provides, in applicable part, as follows:

- a. The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:
 - (1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.
 - (2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.
 - (3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.
 - (4) Incidental public service purposes, including, but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.
 - (5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.
 - (6) Restoration purposes.
 - (7) Nature study, aquaculture, or similar resource dependent activities.
- b. Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for these purposes to appropriate beaches or into suitable longshore current systems.
- c. In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary...

Section 30233 requires that a project be one of the above seven enumerated uses, be the least environmentally damaging feasible alternative, and provide maximum feasible mitigation. As discussed above in Finding E with respect to allowable uses under section 30236, even if a shoreline armoring project is inconsistent with one or more Chapter 3 policies, it is nevertheless required to be approved if it meets the criteria in section 30235. Thus, although the project is not an allowable use under section 30233, the Commission finds that the project is necessary to protect existing structures and can be approved under section 30235, but it must still meet the remaining tests (i.e., the alternatives and mitigation tests) of section 30233(a).

Alternatives

The County specifically designed the project to incorporate not only needed bluff protection features, but also, as noted earlier, riparian habitat and fish refugia features to improve salmonid and other fish migration, and water quality. The County proposed the specific rock size, groin configuration, elevations, and habitat features, after carefully taking into consideration the river's historic flood flows, changes to sand bars along the river mouth, recently historic river mouth migration, statistically predictable flood events, other geomorphic parameters such as land use patterns, upstream sand and gravel mining, potential seismic events, and potential future climate-change-related issues, such as the potential for southern migration of the river mouth. The County's Final Report (Exhibit 9, pp. 3-5), spells out the reasons and factors involved in the project's design (i.e., the need to enhance stability, minimize downstream erosion, improve water quality, and enhance habitat). This report also noted that several design refinements made during the project's design, to facilitate construction, to assure riparian vegetation would be elevated above areas of tidal influence, and to minimize previously unanticipated effects on a small salt marsh at the northern (upstream) reach of the site.

The post-construction monitoring reports support the conclusion that the County designed the structure in the least environmentally damaging feasible manner. Neither the County nor other CEQA reviewing agencies (the RWQCB, CDFW, or SLC) performed a typical CEQA-type alternatives analysis. Rather, the lead CEQA agency, the County, deemed the project exempt from CEQA both as an emergency project and as a less-than-5-acre habitat restoration project having no significant adverse environmental impact. In support of this permit application, the County has provided additional analysis regarding potential alternatives to remedy this information gap. This analysis benefits from the monitoring reports performed after the project's first year of operation, which showed substantial evidence that its design features were effective in maintaining habitat goals (fish enhancement, improved water quality, riparian and salt marsh vegetation success), with success criteria defined in the reports having been reached and/or exceeded. The Commission finds that a "no project" alternative would not meet the project objectives of protecting existing structures and would not provide the habitat benefits included in the riparian and salmonid spawning and refuge features. The Commission therefore finds the no project alternative would not be a feasible less environmentally damaging alternative.

Furthermore, as discussed above, the County has provided evidence to support the as-built design extending upstream south of School Road. As explained in Exhibit 12 and above, the southern (upstream) portion of the structure is needed to protect the northern (downstream) portion of the structure as well as the existing homes, roads, and utility lines the stabilization structure protects. There were no alternatives that would have reduced the need for armoring to the upstream extent and been less environmentally damaging. The proposed structure as built was “designed to impose the minimum amount of influence on the fluvial setting and ongoing natural processes while maximizing design life and return on community investment” (Exhibit 12, p. 12). The Commission agrees with the County and concludes that, as conditioned, the project is the least environmentally damaging feasible alternative and consistent with the alternatives test of section 30233(a).

Mitigation

The project involves placement of armor rock base in an area comprising approximately 0.5-acre of fill in the Mad River as well as additional rock in an area of salt marsh vegetation at the northern end of the project (Exhibit 8). The County has provided mitigation for the affected wetlands through the design and inclusion of riparian willow plantings and salt marsh re-plantings. The County’s monitoring reports (and recent site visits) have confirmed that the plantings have all met and/or exceeded their success criteria. The final monitoring report on the willow plantings (Exhibit 8) indicates that willow establishment was in the 90-95% success range for area covered and that the willow roots “have obviously tapped into the Mad River and no longer require irrigation...” The report concludes:

The willow material has now been in the ground for one year. All targeted success criteria have been met and surpassed. Vandalism and water supply problems resulting in irrigation system shut-off for almost two months did not adversely affect willow health. Barring unseasonably hot conditions in the summer of 2010, the irrigation system most likely can be turned off permanently this year.

Similar conclusions are reflected in the County’s November 25, 2009, monitoring report (Exhibit 10), which states: “The planted vegetation has met its success criteria and become established with robust woody tissue to the point where irrigation is no longer necessary.”

Concerning the salt marsh, the County’s modified the design to reduce the impact on the marsh area (from 640 sq. ft. to 240 sq. ft.), and salvaged and replanted the vegetation. The salt marsh monitoring report describes the salt marsh vegetation as follows (Exhibit 8, pg. 2):

Vegetation: The plant species found there are indicative of those which occur in high salt marsh habitat. Species located highest on the bank growing in a narrow three-foot-wide strip included patches of coastal hairgrass (Deschampsia cespitosa), cinquefoil (Potentilla anserina) and the invasive plant Chilean Cord Grass (Spartina densiflora). Growing closer to the water’s edge was a contiguous

five-foot-wide patch of American three-square (Scirpus americanus) which is going into winter dormancy.

To minimize and mitigate effects on the salt marsh, the County adjusted the alignment of the rock away from the vegetation that was primarily located near the water's edge, and salvaged and replanted the rhizomes after placement of the rock was completed. The monitoring report concluded that the to-be-salvaged salt marsh plants were successfully transplanted. The Commission finds that based on the information in the monitoring reports the County has successfully mitigated the project's wetland impacts and that the project is therefore consistent with the mitigation test of section 30233(a).

D. Water Quality

Section 30230 of the Coastal Act states:

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30231 of the Coastal Act states:

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of wastewater discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with the surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

The project was designed with bioengineering features to improve water quality, riparian and salmonid habitat, and minimize erosion and sedimentation in accordance with the County's emergency permit issued by the Executive Director, and in compliance with conditions imposed by the North Coast Regional Water Quality Control Board, as well as "Technical Assistance" comments from the National Marine Fisheries Service. Construction included implementation of Best Management Practices (BMPs) to protect and improve water quality and minimize spills of hazardous materials. The water quality measures include (but are not limited to):

- Revegetate using native species;
- Install and maintain erosion controls (contoured grading and stabilization features) installed on the temporary access road used to transport rocks to the site, and restore and revegetate the area upon completion of construction;

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- Install water bars, silt fencing, mulching, straw wattles and/or erosion blankets;
- Inspect BMP effectiveness daily, conduct a “rain-event inspection” after any Weather Service forecast of >0.5 in. rain, and if construction is necessary during light rain events, conduct hourly inspections;
- Monitor for turbidity construction barriers protecting the river channel for potential breaches during rain events and take remedial actions if breaches are detected;
- Prohibit refueling within the wet channel; maintain spill response and clean-up kits for accidental spills; inspect vehicles daily for leaks;
- Submit annual monitoring reports to the RWQCB as specified in the August 2008 Monitoring and Reporting Plan, and report any accidental spills to the RWQCB;
- Avoid using heavy equipment in lower project elevations during high tides; and
- Salinity monitoring to assure protection of the riparian habitat.

The County implemented the BMPs and prepared a number of monitoring reports, including RWQCB-required monitoring, riparian habitat, salmonid, salt marsh, salinity, fish enhancement, irrigation system, bank protection, and bluff structure stability monitoring, during and for three years following commencement of construction. The monitoring reports establish that the project was properly implemented, that success criteria defined in the reports were either met or exceeded, that unanticipated problems (i.e., upper bluff collapse, vandalism of irrigation components, illegal dumping, arrival of invasive plants) were quickly remedied, and that adjacent salt marsh habitat at the southern (upstream-most) segment of the project was protected and restored. In addition, the monitoring establishes that the bioengineered features were successful, which improves fish (salmonid) migration and downstream water quality.

To ensure that the project will continue to adequately protect water quality, the Commission attaches **Special Condition 1**. This condition requires the County to monitor the integrity of the bluff structure and the quality of the riparian habitat after future major storm events, and restore and repair any damaged elements, with reports to the Executive Director of any damage and remedial action taken.

As conditioned, and based on the monitoring reports submitted to date, the Commission finds that the project has maintained, and will continue to maintain, the biological productivity and quality of coastal waters, and therefore be consistent with sections 30230 and 30231.

E. Public Access and Recreation

Section 30210 of the Coastal Act requires that maximum public access shall be provided consistent with public safety needs and the need to protect natural resource areas from overuse. Section 30212 requires that access from the nearest public roadway to the shoreline be provided in new development projects, except where it is inconsistent with public safety, military security, or protection of fragile coastal resources, or where adequate access exists nearby. Section 30211 requires that

development not interfere with the public's right of access to the sea where acquired through use or legislative authorization. Section 30214 provides that the public access policies of the Coastal Act shall be implemented in a manner that takes into account the capacity of the site and the fragility of natural resources in the area. In applying these sections, the Commission considers whether public access is necessary to avoid or offset a project's adverse impact on existing or potential access.

The project will not interfere with existing informal public access to and along the Mad River, reached via School Road, which extends along the bluff protective structure and leads down to the river at the south (upstream) end of the structure. There is no beach area within the project site. The proposed project also will not interfere with boating access or navigation, as there is ample channel width along this stretch of river for small boat passage, even with the large woody components engineered into the armoring structure for fish habitat benefit. In addition, through the removal of unpermitted fill at the site, removal of invasive species, and successful planting of riparian vegetation, the project benefits the scenic recreational quality of the site and area, as viewed from Mad River Beach County Park on the west side of the River, School Road and related informal public access from the road to the river. The Commission therefore finds that the project is consistent with the public access policies of the Coastal Act.

F. Protection of Archaeological Resources

Coastal Act section 30244 states as follows:

Where development would adversely impact archeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

The project area lies within the traditional territory of the Wiyot Tribe. In addition to the Wiyot Tribe, the Commission staff also referred the project to the tribal contacts recommended for consultation by the Native American Heritage Commission (NAHC) and other tribal representatives with known interest in the project area region, including the Bear River Band of the Rohnerville Rancheria, the Yurok Tribe, the Blue Lake Rancheria, the Big Lagoon Rancheria, the Hoopa Valley Tribe, the Karuk Tribe, and the Cher-Ae Heights Community of the Trinidad Rancheria.

The Blue Lake Rancheria replied to the Commission's referral:

Importantly, Loud (1918) mapped a major Wiyot village sited on a large sand dune in the vicinity, which may have been destroyed by erosion and shifting of the Mad River channel in modern history. Nevertheless, the area at the end of School Road at Verwer Court remains highly sensitive. Any work that may be planned in the future for this area needs to have in place an Inadvertent Archaeological Discovery Protocol that includes notification of the Blue Lake, Bear River and Wiyot THPOs if any Native American artifacts or remains are found.

The Wiyot Tribe indicated its agreement with this recommendation.

To ensure protection of archaeological resources with any future repair and maintenance work, particularly after major flood events, the Commission attaches **Special Condition 5**. This condition requires (1) consultation with the Blue Lake, Bear River, and Wiyot Tribes prior to any further construction and/or excavation of the bluff protection structure and (2) the establishment of an inadvertent archaeological discovery protocol that includes notification of the tribes if any Native American artifacts or remains are found and the review of proposed mitigation measures by the Executive Director who determines whether the changes to the development authorized by this permit to incorporate the mitigation measures are de minimis in nature and scope or whether a permit amendment is required.

The Commission finds that the proposed project, as conditioned, is consistent with section 30244, as the development includes reasonable mitigation measures to address adverse impacts to archaeological resources.

G. Visual Resources

Section 30251 of the Coastal Act states:

The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

The project resulted in short term adverse effects on visual quality, but in the longer term, as mentioned above in the Public Access section of this report, once the willows matured and screened the vast majority of the rock armoring, the project enhanced the visual quality of the site and surrounding area. This visual improvement can be seen in the “before,” “shortly after,” and “relatively current” photo-documentation ([Exhibit 5](#)) The Commission finds that through the removal of visual blight (unpermitted fill at the site), removal of invasive species while the willows were maturing and the irrigation system was temporarily in place, and successful planting and establishment of riparian vegetation, the project improves and enhances the scenic recreational quality of the site and area as viewed from Mad River County Park, School Road, and the related informal public access areas and pathways from School Road to and along the river. The Commission, therefore, finds the project consistent with section 30251.

H. Public Trust Lands

The State Lands Commission approved a General Lease for the project on October 27, 2011 (Public Agency Use, File Ref. PRC 8954.9/W 36432). Because the State has a fee ownership interest in the property, the site is subject to a public trust easement. As

such, new development must be consistent with trust uses. The SLC determined the project was consistent with the public trust as bank protection. The Commission finds in addition that the habitat restoration component of the project is also consistent with public trust uses.

I. California Environmental Quality Act (CEQA)

The County of Humboldt, as the lead agency, determined the project to be categorically exempt from CEQA. Section 13096 of the Commission's administrative regulations requires Commission approval of CDP applications to be supported by a finding showing the application, as modified by any conditions of approval, is consistent with any applicable requirement of the CEQA. Section 21080.5(d)(2)(A) of CEQA prohibits approval of a proposed development if there are any feasible alternatives or feasible mitigation measures available, which would substantially lessen any significant adverse effect the proposed development may have on the environment. The Commission's regulatory program for reviewing and granting CDPs has been certified by the Resources Secretary to be the functional equivalent of CEQA. (14 CCR § 15251(c).)

The Commission incorporates its findings on Coastal Act consistency as if set forth in full herein. No public comments regarding potential significant adverse environmental effects of the project were received by the Commission prior to preparation of the staff report. As discussed above, the project has been conditioned to be consistent with the policies of the Coastal Act. As specifically discussed in these above findings, mitigation measures that will minimize or avoid all significant adverse environmental impacts have been required. As conditioned, there are no other feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impacts which the activity may have on the environment. Therefore, the Commission finds that the proposed development, as conditioned to mitigate the identified impacts, can be found to be consistent with the requirements of the Coastal Act to conform to CEQA.

APPENDIX A
SUBSTANTIVE FILE DOCUMENTS

1. Emergency CDP Application 1-08-035-G (Humboldt Co., Dept. of Public Works).
2. CDP Application 1-09-050 (Humboldt Co., Dept. of Public Works).
3. Mad River Streambank Stabilization Project, Geomorphic /Evaluation, Stillwater Sciences, July 8, 2008.
4. Laco Associates, Mad River Bluffs, Geologic Investigation and Assessment, April 11, 2008.
5. Mad River Streambank Protection Monitoring Plans, August 28, 2008, revised, January 20, 2009, and subsequent annual report, November 25, 2009.
6. CDP 1-00-014 (Caltrans), Mad River mouth shoreline stabilization project.
7. Mad River Floodplain Public Enhancement Project, planned by the McKinleyville Community Services District.
8. CDP 1-01-030 (Humboldt Co., Dept. of Public Works), replacement of stormwater conveyance, south of School Rd., McKinleyville.
9. Technical Memorandum, Mad River Streambank Protection Project (CDP No. 1-09-050), September 3, 2020, John Wellik, Registered Professional Geologist, Senior Environmental Analyst Hank Seemann, Deputy-Director (Environmental Services).
10. Technical Memorandum, Mad River Streambank Protection Project (CDP No. 1-09-050), October 12, 2020, John Wellik, Registered Professional Geologist, Senior Environmental Analyst Hank Seemann, Deputy-Director (Environmental Services).
11. Mad River Water Assessment, Stillwell Sciences, Prepared for Redwood Community Action Agency, June 2010.
12. Eureka Littoral Cell, California, Coastal Regional Sediment Management Plan, August 2017.