CALIFORNIA COASTAL COMMISSION
NORTH COAST DISTRICT OFFICE
1385 EIGHTH STREET, SUITE 130
ARCATA, CA 95521
VOICE (707) 826-8950
FAX (707) 826-8960

Th12a

Filed	4/15/22
180th Day:	10/12/22
Staff:	T. Gedik-A
Staff Report:	08/25/22
Hearing Date:	9/8/22

STAFF REPORT: REGULAR CALENDAR

Application No.: **1-20-0711**

Applicant: **City of Arcata**

Project Location: Within and adjacent to the City of Arcata's Corporation Yard/ Sewage Treatment Plant Complex, 600 South G Street, and within and adjacent to Arcata Marsh and Wildlife Sanctuary, South I Street, Arcata, Humboldt County.

Project Description: Construct and maintain Phase I wastewater treatment facility improvements to meet water quality discharge requirements involving: (1) constructing new electrical and ultraviolet (UV) disinfection system buildings, (2) upgrading and reconstructing the headworks and primary clarifier structures, (3) installing new electrical infrastructure throughout the facility, (4) constructing a new outfall to relocate the final discharge to Brackish Marsh, (5) upgrading pump stations and various other improvements to the natural treatment systems, and (6) demolishing a wooden pedestrian bridge over Butcher Slough.

Staff Recommendation: Approval with conditions

SUMMARY OF STAFF RECOMMENDATION

The City of Arcata proposes to construct significant upgrades to the Arcata Wastewater Treatment Facility ("AWTF, Facility") located on the northeastern edge of Arcata Bay in

an area consisting of former tidelands that were diked and filled in the late 1800s. The Facility includes both the Arcata Marsh and Wildlife Sanctuary (AMWS, where the enhancement wetlands and proposed new outfall are located) and the Arcata Wastewater Treatment Plant (where the traditional wastewater treatment mechanical equipment, corporation yard, oxidation ponds, and treatment wetlands are located). Most of the mechanical equipment at the AWTF has exceeded its expected life, and major structures are also starting to approach the end of their useful life. Many project components have already been replaced at least once (under CDP 1-84-105 and other authorizations). Given the extent of upgrades proposed under this CDP application, including proposed extensive changes to the existing system (e.g., adding a new outfall, a new ultraviolet disinfection system, and new wastewater piping for flow reconfiguration), this project in conjunction with prior improvements to the structure will result in a new, redeveloped facility that must be reviewed for consistency with the Coastal Act.

The proposed Phase 1 Facility upgrades are necessary to comply with regulatory requirements established by the North Coast Regional Water Quality Control Board. The Enclosed Bays and Estuaries Policy prohibits the discharge of municipal wastewater and industrial process water to enclosed bays and estuaries unless the discharge “enhances the quality of the receiving water above that which would occur in the absence of the discharge.” Thus, the City’s Facility includes three enhancement wetlands (marshes) that provide water quality enhancement; wetland and wildlife habitat; and noncontact water recreation beneficial uses. The AMWS includes approximately five miles of walking and biking paths, including a portion of the California Coastal Trail.

The major Coastal Act issue associated with this project is vulnerability to coastal hazards. As a result of the AWTF’s location, there is a risk that a portion of the upgraded facility will be inundated with flood waters, which could compromise the facility’s functionality and threaten public and environmental health by potentially sweeping up materials and/or releasing biosolids or untreated wastewater. In particular, a series of mostly fortified barrier levees surround the oxidation ponds, treatment wetlands, and enhanced wetlands that make up the natural, land-based portion of the AWTF. The location and system of aging protective features means that the AWTF site and facility itself, including the upgrades subject to this CDP, are currently exposed to coastal hazards, particularly from flooding that may result from overtopping, damage, or breaching of protective levees during extreme tidal or storm events. The flood hazard vulnerabilities will be exacerbated by rising sea levels.

The project has been designed to avoid flooding impacts to the subject development over the proposed 30-year lifetime for all but rare or occasional flooding under the most extreme sea level rise scenarios. However, sea levels will continue to rise beyond the 30-year time period identified as the lifetime of the proposed new components. The City has been actively engaged in sea level rise adaptation planning both city-wide and for this facility in particular and is currently in the process of developing adaptation approaches to address short- and long-term vulnerabilities in this area. A variety of options have been explored, including elevating the low points of the existing levees to

a uniform height in the near-term, elevating and/or expanding levees to provide longer-term protection, using living shorelines or other “green” or “soft” protection measures, or relocating all or portions of the AWTF, though none of these options have been fully described, finalized, or reviewed for consistency with the Coastal Act.

While the currently proposed project components are designed to minimize risks associated with coastal hazards over their 30-year lifetime, the project raises important questions concerning whether it is appropriate to maintain the AWTF in an area that is increasingly vulnerable to flooding and other coastal hazards. The AWTF has already exceeded its expected lifetime, many components have already been replaced, and this project, if approved, will include additional substantial upgrades that will extend the life of the facility as a whole such that it constitutes a redeveloped facility. Consistent with prior Commission actions, as a redeveloped facility, the AWTF would not be entitled to shoreline armoring under section 30235 of the Coastal Act because it would not qualify as an “existing” structure in danger of erosion.

At the same time, there are unique and complex coastal resource issues associated with critical infrastructure projects, such as wastewater treatment facilities, along the coast. These types of facilities not only provide important public services to coastal communities, but they can require significant investments of public resources and planning efforts to upgrade and retrofit to current standards. The Commission has in the past approved a variety of short-term project components associated with critical infrastructure to ensure the provision of needed public services and protection of water quality and other coastal resources, sometimes authorizing shoreline protection in the short-term in order to allow an applicant time in which to develop a long-term adaptation approach that better protects coastal resources and minimizes risk from future coastal hazards.

To ensure that the proposed new components addressed by this project can continue to be safe beyond the 30-year lifetime, and that the facility as a whole can minimize risks and be protective of coastal resources over the short- and long-term horizon, the City will need to address longer-term adaptation strategies soon. Importantly, in this action the Commission would not be approving any shoreline protection; and, in approving the proposed improvements to the AWTF, the Commission would not be under any obligation to approve shoreline protection of the facility in this hazardous location in the future.

Staff recommends Special Condition 2 to authorize the proposed project on an *interim* basis of 30 years (until September 8, 2052) to allow for the continued operation and function of the AWTF, including to immediately ensure protection of water quality and public health, while simultaneously allowing time to plan for future wastewater treatment facility adaptation options, up to and including relocation of all or portions of the AWTF, to address changing hazard conditions as sea levels rise. This interim authorization is tied to the identified life of the proposed upgrades to the AWTF and the time period over which analyses suggest that coastal hazards can be avoided or appropriately minimized. In order to ensure that the proposed development can continue to minimize risks, Special Condition 2 specifies that prior to the expiration of the authorization

period, the Permittee or its successors shall submit to the Commission an application for a coastal development permit amendment to extend the length of time all or portions of the approved development is authorized, to modify the development as needed to ensure consistency with the Coastal Act, or to relocate or remove all or portions of the AWTF and restore the affected areas.

Critically, Special Condition 2 requires that the City's CDP application reflect the long-term adaptation approach identified in the approved adaptation plan required by recommended Special Condition 4. This condition would require the applicant to develop a Coastal Hazards Adaptation and Implementation Plan (CHAIP) that identifies a suite of strategies necessary for protecting, relocating, or otherwise adapting the development authorized by this CDP as necessary to maintain safety from flooding and other coastal hazards in order to minimize risk and assure stability and structural integrity and to ensure protection of coastal resources over the long-term (at least through 2100). Required components of the CHAIP include an analysis of current and future hazards related to sea level rise based on best available science; an alternatives analysis that evaluates a variety of adaptation options, including accommodation, protection, and retreat/relocation strategies, specifically prioritizing approaches that can limit the need for shoreline armoring; a description of any additional proposed development at the site, including but not limited to levee expansion and other phased upgrades that have been envisioned, and description of how such development would fit into the overall long-term adaptation approach, including with respect to the costs and benefits up those upgrades and any necessary protection measures in comparison to relocation; and a timetable for implementation of the strategies identified in the CHAIP. The CHAIP is also required to reflect the ongoing SLR adaptation planning efforts by the City of Arcata and broader Humboldt Bay region. Special Condition 4 specifies that the CHAIP should be finalized within five years of the date of approval of CDP 1-20-0711, or at the same time as any proposed additional development at the AWTF site. This timing will ensure that any additional facility upgrades or levee improvements will be done in a way that reflects both short-term needs and the long-term adaptation approach and will not prevent the implementation of alternative adaptation approaches in the future.

Importantly, recommended Special Condition 9 would require the City to assume the risks of development in an area vulnerable to flooding and other coastal hazards, and recommended Special Condition 10 would require the City to acknowledge and agree that the redeveloped AWTF is not entitled to shoreline protection under section 30235 of the Coastal Act and to waive any rights to shoreline protection that may exist under applicable law. These two conditions would ensure that the City bears the risks of continuing to invest in the AWTF in a vulnerable area when it is not entitled to shoreline protection and when the Commission may not authorize shoreline armoring to protect the AWTF in the future. Special Condition 10 would not preclude the Coastal Commission from approving shoreline protection in the future if allowed under the Coastal Act, particularly where such protection is designed as part of a broader approach (as developed through the CHAIP) that can be shown to appropriately protect coastal resources over time throughout the project area.

Finally, recommended Special Condition 3 would require the applicant to submit biennial coastal hazards monitoring reports that, among other things, document water elevation data over the yearly reporting period and a description of long-term changes over the 30-year authorization period. The purpose of the reports is to build a clear description of on-the-ground conditions at the project site during the project lifetime. This information can be used to inform the appropriate timeline for implementation of proposed adaptation options as identified in the CHAIP, ensuring that hazard minimization efforts will be taken proactively to address changing conditions, including in particular if hazard conditions change more quickly (or slowly) than currently anticipated.

Taken together, recommended Special Conditions 2, 3, 4, 9, and 10 will allow for the currently needed project while also building in time to allow for the development of a long-term adaptation approach that will ensure that the proposed development and the entire AWTF can continue to minimize hazards risks, assure stability and structural integrity, and protect coastal resources. Therefore, staff recommends that the proposed project, as conditioned, is consistent with sections 30253 and 30270 of the Coastal Act.

The motion to adopt the staff recommendation of approval with conditions is found on **page 8**.

Table of Contents

APPENDICES

EXHIBITS

I. MOTION AND RESOLUTION

Motion:

I move that the Commission **approve** Coastal Development Permit No. 1-20-0711 pursuant to the staff recommendation.

Staff Recommendation of Approval:

Staff recommends a **YES** vote. 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 the Commissioners present.

Resolution to Approve the Permit:

The Commission hereby approves a coastal development permit 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

1. **Notice of Receipt and Acknowledgment**. The permit is not valid and development shall not commence until a copy of the permit, signed by the applicant or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. **Expiration**. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

3. **Interpretation**. Any questions of intent of interpretation of any condition will be resolved by the Executive Director or the Commission.

4. **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.

5. **Terms and Conditions Run with the Land**. These terms and conditions shall be perpetual, and it is the intention of the Commission and the applicant to bind

all future owners and possessors of the subject property to the terms and conditions.

III. SPECIAL CONDITIONS

1. Approved Project. This permit is only for the development described below. Any future improvements or modifications to the wastewater treatment facility or other approved development will require a permit amendment or a new coastal development permit, unless the Executive Director determines that no amendment is legally required:

A. **ATF Development.** This CDP authorizes after-the-fact (ATF) development consisting of: (1) installing aerators in Oxidation Pond No. 1; (2) installing baffle wall in Oxidation Pond No. 2; (3) relocating control panels and transformers into boat storage building; (4) installing electrical conduit for Blue Frog aerators at the inlet of the treatment wetlands; (5) maintaining vegetation within enhancement wetlands; (6) maintenance grading and replanting vegetation at Treatment Wetland 4; and (7) constructing Treatment Wetlands 5 and 6 within the footprint of former Oxidation Pond No. 3 (as described in the Revised Project Description dated July 22, 2022 and included as Exhibit 4).

B. **New Development.** This CDP also authorizes the following improvements, as described in the Revised Project Description dated July 22, 2022 and included as Exhibit 4:

1. Improvements to Mechanical Systems and Corporation Yard: (1) rehabilitation of the headworks and primary clarifier, (2) demolishing and replacing the grit chamber and grit handling facilities; (3) upgrading digester; (4) installing a new UV disinfection system, including associated modifications to the chlorine contact basin; (5) digester/solids improvements; (6) replacing pump station 1 and pond pump station pump; (7) removing a gas-powered generator and replacing with a diesel-powered generator; (8) installing electrical controls, SCADA energy efficiency control system, and utility additions, (9) constructing a new electrical building, (10) constructing a new UV building, (11) modifying an existing generator building, (12) replacing stormwater pumps, (13) replacing the incoming 4-inch service pipe and installing a backflow preventer system, (14) demolishing the Mill shed, and (15) installing up to 73, 3-foot-diameter cast-in-drilled-hole piers and associated foundation work at (a) Headworks (27 drilled piers), (b) Primary Clarifier (8 drilled piers), (c) Electrical Building (34 drilled piers), and (d) UV electrical room (4 drilled piers).

2. Improvements to Natural Treatment Systems: (1) installing new electrical infrastructure around the oxidation ponds, including new electrical connections to support up to 24 new mixer aerators in Oxidation Pond 2; (2) demolishing and removing the existing wooden pedestrian bridge over

Butcher Slough; (3) sandblasting and recoating sewer pipes underneath Butcher Slough Bridge, and adding fencing at bridge footings; (4) placing approximately 3,000 lineal feet of electrical conduit along the underside of the Butcher Slough Bridge and continuing along exterior levees of Klopp Lake buried in two-foot-deep trenches to I Street/Hauser Marsh; (5) excavating and contouring an approximately 500 square-foot basin at the outlet of the Hauser Enhancement wetland for improved water quality and maintenance; (6) upgrading Pond Pump Station and Pump Station 1 and removing Pump Station 2; (7) placing approximately 1,500 lineal feet of interlocking sheet pile baffles within Allen and Gearhart Marshes; (8) constructing Outfall 003, and installing related discharge pipe and rock slope protection; (9) installing a pond outlet structure, including new weir gates and automated sensor controls; (10) replacing oxidation pond dock; (11) abandoning in place Pump Station Wet Well No. 2; (12) repairing manifold piping in Treatment Wetland 3; (13) installing seven new transfer outlet structures between enhancement wetlands; (14) adding above-ground sampling station with protective fencing or fiberglass structure at new pump station on I Street; (15) removing and relocating entrance sign and block interpretive wall on I Street; and (16) installing a new pump at Treatment Wetland 4.

C. **Repair and Maintenance.** This CDP also authorizes the following repair and maintenance activities: (1) repair and maintenance of the new UV disinfection system; (2) adjustments to flows, aeration, and retention/discharge of wastewater; (3) monitoring of wastewater constituents, including the placement of small monitoring equipment, as required by the State Water Board; (4) periodic removal of accumulated sediment in oxidation ponds to maintain original depth; and (5) periodic removal of aquatic and riparian vegetation and related regrading activities within enhancement and treatment wetlands (See Figure X-1 of Exhibit 4). An amendment to CDP 1-20-0711 from the Commission or an additional CDP from the Commission or from the applicable certified local government shall be required for any repair or maintenance identified as requiring a permit in PRC section 30610(d) and Title 14 CCR sections 13252(a)-(b).

2. Duration of Authorization. The Approved Project is authorized for 30 years from the date of approval (*i.e.*, through September 8, 2052, the expiration date of this CDP). By acceptance of this CDP, the Permittee acknowledges and agrees that the project authorized pursuant to this CDP is thus interim and temporary, and is permitted for the time frame identified in order to provide a reasonable period of time for the Permittee to evaluate future risk of coastal hazards as influenced by sea level rise and plan, develop, and implement any necessary responses to coastal hazards including adaptation or relocation alternatives, to ensure minimization of risk in the long term, or to address any coastal resource impacts associated with maintaining the subject development at this location (*e.g.*, impacts associated with any coastal hazards protection measures, including levee

maintenance or expansion to protect the existing AWTF from coastal hazards risks).

At least six months prior to the expiration of the authorization period, the Permittee or its successors shall submit to the Commission an application for a CDP amendment to either (a) extend the length of time all or portions of the approved development is authorized and modify its design as needed to ensure consistency with the Coastal Act, or (b) relocate or remove all or portions of the AWTF and restore the affected areas to pre-development conditions or better (for the embedded pier foundations, which will be infeasible to remove in their entirety, the application must include provisions for removal and backfilling of the embedded pier foundations at least three (3) feet below grade). If a complete application is filed before the end of the authorization period, the authorization period shall be automatically extended until the time the Commission acts on the application. The required amendment application shall conform to the Commission's permit filing regulations at the time and shall reflect the approach(es) identified in the Coastal Hazards Adaptation and Implementation Plan (see Special Condition 4), as well as any necessary updates to reflect the site conditions and regional sea level rise planning approaches at the time of the amendment.

3. Coastal Hazards Monitoring and Adaptation Reporting. The permittee shall submit biennial (every two years) monitoring and adaptation progress reports to the Executive Director by September 1 of every other year, starting in 2024 and continuing throughout the duration of the CDP as provided in Special Condition 2. The biennial reports shall document the following:

A. Water elevation data, including annual and mean monthly maximum elevations for each year over the biennial reporting period, and any long-term changes in these values and in mean sea level throughout the duration of the CDP;

B. A description of any temporary or ongoing flood, erosion, or other coastal hazards impacts to the site or facility during the reporting period, including a description of the conditions causing impacts (*e.g.*, King Tides, storms, overtopping and/or breaching of dikes, groundwater and/or drainage issues, or any combinations of the same);

C. A description of any actions taken to address temporary flooding or other damages/impacts caused by coastal hazards during the reporting period as well as a description of how such actions are consistent with the overall adaptation planning approach identified in Special Condition 4 (once completed); and

D. A description of any adaptation planning and implementation activities undertaken in line with the approach identified in the final Coastal Hazards Adaptation and Implementation Plan required by Special Condition 4 and any actions which are anticipated to be undertaken prior to the next reporting deadline.

4. Coastal Hazards Adaptation and Implementation Plan. The permittee shall submit for review and approval by the Coastal Commission Executive Director a Coastal Hazards Adaptation and Implementation Plan (CHAIP) by September 8, 2027 or at the same time as any future application for additional upgrades, including levee modifications or expansion, to the Arcata Wastewater Treatment Facility, whichever comes first (though the date may be extended for good cause if the City is making demonstrable progress). The CHAIP shall identify a suite of strategies necessary for protecting, relocating, or otherwise adapting the development authorized by CDP 1-20-0711 as necessary to maintain safety from flooding and other coastal hazards in order to minimize risk and assure stability and structural integrity and to ensure protection of coastal resources over the long-term (at least through 2100). The CHAIP shall reflect the ongoing long-term sea level rise adaptation planning efforts by the City of Arcata, any relevant long-term planning and regional coordination with Humboldt County and the City of Eureka, and outreach and coordination with other relevant agencies, tribes, and stakeholders including but not limited to the State and Regional Water Boards. The CHAIP shall include/address the following:

A. An analysis of current and future coastal hazards at the Arcata Wastewater Treatment Facility, including flood and erosion hazards caused by tidal inundation, extreme tides and storms, overtopping of dikes/levees, and elevated groundwater and/or reduced or inadequate drainage, which takes into account local sea level rise through at least 2100, considering medium-high risk aversion and extreme risk aversion scenarios, and based on the best available science at the time of plan preparation and any data gathered as part of the monitoring required by Special Condition 3.

B. An evaluation of alternatives to the current wastewater treatment system to address any coastal hazard vulnerabilities identified, including but not limited to alternatives involving accommodation strategies (*e.g.*, elevation of facility components), protection measures (dikes, levees, living shorelines, or other natural or engineered features), and retreat and relocation strategies (including retreat and relocation of all or portions of the development, or development of a new system for wastewater treatment including within the context of a regional approach). The evaluation shall describe the specific design elements and adaptation measures, including how different strategies may be used in combination and over time, to ensure the integrity and functionality of the wastewater system and protection of coastal resources. The information concerning these alternatives must be sufficiently detailed to enable the Coastal Commission to evaluate the feasibility of each alternative for addressing consistency with the Coastal Act, including whether the alternatives minimize risks of geologic and flood hazards and ensure protection of coastal resources. The evaluation shall include a feasibility analysis of the alternatives that assesses and considers all potential constraints, including geotechnical and engineering constraints, relevant Regional Water Quality Control Board (RWQCB) requirements (including but not limited to the State Bays and Estuaries Policy pursuant to Resolution 74-

43), project costs, and potential funding options. The identified adaptation strategies and overall long-term approach shall be the least-environmentally damaging feasible alternative, and a higher priority shall be given to strategies that avoid the use of hard armoring.

C. A description of any anticipated additional development at the facility and surrounding site, such as but not limited to levee repair or expansion or other facility upgrades necessary for meeting water quality protection requirements which have been previously envisioned (e.g., as part of Phase II) but which are not part of the current application. The description shall provide detail on the need for the development, including with respect to relevant RWQCB requirements, and an explanation as to how such development will fit into the overall, long-term adaptation approach. To the extent feasible, this description shall include a cost-benefit analysis that addresses the costs associated with continued facility upgrades, including any protection measures or other strategies necessary to address flooding at the site, in comparison to retreat and relocation alternatives.

D. A timetable for implementation of the CHAIP (and related proposed development as identified in part (C)) based on projections of SLR and anticipated impacts from coastal hazards. If adaptation strategies would be implemented in response to defined triggers, such as amounts of sea level rise and/or impacts to the AWTF, the timetable should identify the time horizons over which such triggers are anticipated to occur. The timetable shall take into consideration expected timeframes for any necessary land acquisition, planning, permitting, design, and construction.

5. Submittal and Implementation of Final Approved Plans.

A. NOT LESS THAN 30 DAYS PRIOR TO COMMENCEMENT OF DEVELOPMENT AUTHORIZED BY CDP 1-20-0711, the Permittee shall submit, for the review and approval of the Executive Director, a set of final construction plans that are consistent with all special conditions of this coastal development permit and that substantially conform with the 90% plans and associated specifications prepared by Carollo in association with GHD Inc. and dated October 2020 (Exhibit 5), except as further specified in Special Condition 15 below.

B. Geotechnical Recommendations. All recommendations contained in the Updated Draft Geotechnical Report revised July 22, 2021 and prepared by Crawford & Associates, Inc. shall be adhered to including recommendations for site preparation, structural fills, compaction standards, seismic design parameters, foundation design, pavement subgrade preparation, drainage, and all other recommendations. The permittee shall submit evidence that an appropriate licensed professional (Certified Engineering Geologist or Geotechnical Engineer) has reviewed and approved all final design and construction plans, including foundations, grading and drainage plans, and

certified that each of those final plans is consistent with all of the recommendations specified in the above referenced plan(s) and geotechnical reports.

C. The approved development shall substantially conform to the approved final construction plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

6. Final Construction Staging, Stockpiling and Debris Disposal Plan.

A. NOT LESS THAN TWO WEEKS PRIOR TO COMMENCEMENT OF DEVELOPMENT AUTHORIZED BY CDP 1-20-0711, the Permittee shall submit to the Executive Director for review and written approval a final plan for (1) equipment staging areas; (2) the temporary stockpiling of construction materials, and (3) the disposal of all construction debris, waste, and vegetative spoils expected to be generated by the authorized work.

1. The plan shall demonstrate that:

(a) All temporary stockpiles of construction debris, excess sediments, vegetative spoils, and any other debris and waste associated with the authorized work shall be located at least 50 feet from coastal waters and drainage courses and limited to areas where stockpiles can feasibly be contained with appropriate BMPs to prevent any discharge of pollutants to surrounding coastal waters and wetlands; and

(b) All construction debris, excess spoils, and any other debris and waste generated by the authorized work shall be disposed of at an authorized disposal site(s) capable of receiving such materials; and

2. The plan shall include, at a minimum, the following:

(a) A site plan showing all proposed locations for staging equipment and the temporary stockpiling of construction debris, soils and vegetative spoils, excess materials, and any other debris and waste associated with the authorized work in relation to coastal waters, drainage courses, storm drain inlets, and project features;

(b) Identification of all potential debris disposal sites that will be used; and

(c) A schedule for the ultimate removal of all stockpiles, construction debris, excess materials, and all debris and waste associated with the authorized work.

B. The Permittee shall undertake development in accordance with the approved final plan. Any proposed changes to the approved final plan shall be reported to the Executive Director. No changes to the approved final plan shall occur without a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

7. Construction Requirements to Protect Marine Resources and Water Quality

A. All mitigation measures proposed by the permittee shall be implemented, including: (a) all mitigation measures included in the final "Mitigation Monitoring and Reporting Program" adopted by the City for the project (Appendix B); (b) all conservation measures included in the "Biological Assessment for the City of Arcata Wastewater treatment Facility Upgrades Project" prepared by Stillwater Sciences and dated June 2021; (c) additional water quality control measures included in the supplemental application transmittals submitted by the City on April 14, 2022 (electronic file name "Response to Coastal Staff comments_4.14.2022") and September 17, 2021 (electronic file name "AWTF 3-4 Full Packet red.file"); and (d) in permits and/or consultations issued by CDFW, USFWS and NOAA-Fisheries (NMFS), including, but not limited to, the following proposed measures as modified herein:

1. Timing of Work: Isolation of the in-water work area and construction within slough channels and the bay shall only occur between June 15 and September 15 during low tides to avoid sensitive fish species, and to reduce the chance of stormwater runoff occurring during construction.

2. Erosion, Sediment, and Runoff Control:

   (a) Staging and stockpile areas shall be located at least 50 feet from coastal waters and drainage courses and all other wetlands and silt fencing shall be installed around all temporary staging and stockpile areas to prevent sediment- and pollutant-laden runoff from exiting the site(s).

   (b) During construction, silt fencing or similar runoff and sediment control BMPs shall be used to isolate work areas from surrounding channels and other sensitive areas and to capture any sediment-laden runoff that might flow from the site;

   (c) Following completion of construction or prior to the onset of precipitation capable of generating runoff, whichever comes first, all disturbed soil areas shall be treated with appropriate erosion control devices (e.g., seeding, straw mulch, wood mulch, matting, etc.);

3. Butcher Slough Crossing Bridge Demolition and Pipe Rehabilitation.

   (a) All demolition waste shall be contained and not allowed to enter water of the State and US including Humboldt Bay and Butcher

Slough. Contractor shall provide a means to capture any loose materials from entering these water bodies.

(b) All Abrasive blast or other materials used in coating surface preparation for the existing pipe crossing shall be contained and not allowed to enter water of the State and U.S. including Humboldt Bay and Butcher Slough. Contractor shall provide a means to capture any loose materials from entering these water bodies.

(c) All coating material used in the existing pipe crossing coating rehabilitation and maintenance crossing shall be contained and not allowed to enter water of the State and US including Humboldt Bay and Butcher Slough. Contractor shall provide a means to capture any loose materials from entering these water bodies. Coating overspray and any drippage or splatter shall be contained and surrounding vegetation shall be protected from coating material. Coating of the steel and other metal pipe materials shall be based on Section 09960, as listed in Appendix A Schedule of Surfaces to be Coated. Coating system for the pipe crossing and other metallic materials shall be EPX-M-3.

4. Water Quality and Fish Protection Measures:

(a) NOT LESS THAN 30 DAYS PRIOR TO COMMENCEMENT OF IN-WATER WORK AUTHORIZED BY COASTAL DEVELOPMENT PERMIT 1-20-0711, the permittee shall submit to the Executive Director for review and written approval a dewatering and discharge work plan meeting the requirements of North Coast Regional Water Quality Control Board and consistent with “Dewatering Operations” BMPs established in Caltrans Construction Site BMPs Manual BMP NS-2, detailing the location of dewatering and discharge activities, quantity of water, equipment, and discharge point.

(b) A pre-construction survey of the Outfall 003 work area shall be conducted by a qualified biologist to determine if estuarine fish species are present within the construction footprint. If fish are present a relocation plan shall be implemented.

(c) All fisheries work including the pre-construction surveys and translocation/removal of fish will be conducted by qualified biologists who meet with the approval of the USFWS, NMFS, and CDFW.

(d) All heavy equipment shall operate from the top of bank and not enter the intertidal zone.

(e) Drip pans shall be used for stationary equipment to capture any drips or leaks; and

(f) Coffer dams or barrier nets shall be installed prior to dewatering work areas in the bay or slough channels, and appropriate protocols for fish handling and relocation shall be followed in consultation with CDFW and NOAA-Fisheries.

B. The permittee shall also implement the following additional mitigation measures imposed by this CDP that are necessary to further protect coastal resources:

1. Additional Water Quality Protection Measures:

(a) Except in the Corporation Yard with appropriate BMPs in place where there is little risk of water quality impacts due to erosion or topsoil loss during rainfall events, earth-disturbing activities shall be limited to the dry season, April 15 through October 31. The Executive Director may grant an extension of the work windows through November 30th for good cause upon written request, provided evidence is submitted that continued dry weather is forecast by the National Weather Service during the requested extension period.

(b) Fueling and maintenance of construction equipment and vehicles shall be conducted off site if feasible. Any fueling and maintenance of mobile equipment conducted on site shall take place at a designated area located at least 50 feet from coastal waters, drainage courses, and storm drain inlets (unless these inlets are blocked to protect against fuel spills). The fueling and maintenance area shall be designed to fully contain any spills of fuel, oil, or other pollutants. Equipment that cannot be feasibly relocated to a designated fueling and maintenance area (such as cranes) may be fueled and maintained in other areas of the site, provided that procedures are implemented to fully contain any potential spills;

(c) Vegetable oil-based hydraulic fluids shall be used in heavy equipment used in, over, or adjacent to coastal waters, if feasible, for demolition and construction activities lasting one week or longer. Standard hydraulic fluids are based on petroleum products, and due to their high aquatic toxicity they pose a risk if leaked or spilled in or near sensitive aquatic habitats. Vegetable oil-based hydraulic fluids are formulated for rapid biodegradability and low aquatic toxicity, and do not bioaccumulate in aquatic organisms.

(d) Biodiesel fuel shall be used in heavy equipment used in, over, or adjacent to coastal waters, if feasible, for demolition and construction activities lasting one week or longer. Diesel fuel may leak or spill from heavy equipment and vehicles used in construction and demolition, and where these activities take place near coastal waters, diesel poses a risk of aquatic toxicity. Biodiesel is a non-petroleum alternative fuel that is less toxic than diesel fuel and can be used in

construction equipment and vehicles operating near sensitive aquatic habitats.

(e) Heavy equipment used in project construction shall be in good condition, shall be inspected for leakage of coolant and petroleum products, and shall be repaired offsite, if necessary, prior to entering the property. If equipment must be washed, washing shall occur offsite only.

(f) Tarps or other devices shall be used to capture debris, dust, oil, grease, rust, dirt, fine particles, and spills to protect the quality of coastal waters.

(g) Runoff control BMPs (such as a concrete washout facility, dewatering tank, or dedicated vehicle wash area) shall be implemented during construction to retain, infiltrate, or treat stormwater and non-stormwater runoff.

(h) Treated wood and treated wood debris shall be stored a minimum of 50 feet from coastal waters, drainage courses, and storm drain inlets. The treated wood and treated wood debris shall be stored on impervious pavement or an impervious tarp and covered during rain events.

(i) If treated wood is sanded or sawcut during demolition, installation, or maintenance, all sawdust and debris generated shall be contained and removed.

2. Minimizing Vegetation Removal & Soil Compaction:

(a) The damage or removal of non-invasive vegetation (including trees, native vegetation, and root structures) during construction shall be minimized to maintain transpiration, vegetative interception, pollutant uptake, shading of waterways, erosion control, and other water quality benefits;

(b) Soil compaction due to construction activities shall be minimized to retain the natural stormwater infiltration capacity of the soil; and

(c) All disturbed vegetated areas shall be revegetated with the same native species that were present prior to construction operations.

3. Erosion and Sediment Control Measures:

(a) No construction materials, debris, disturbed soils, waste, concrete washout residues, chemicals, fuels, drilling muds or additives thereto, or noncompliant dewatering effluent (i.e., effluent with turbidity, pH, or other water quality parameter that does not comply with the

requirements of the Regional Water Quality Control Board, or other state or federal agencies), or any other substance or material capable of degrading coastal waters, shall be stored, placed, or discharged where such releases may be able to enter or be washed by stormwater runoff into coastal waters, unless specifically and affirmatively authorized by CDP 1-20-0711, including by reference in these special conditions;

(b) Saturated soils shall be handled and transported in a manner that prevents excess discharge or spillage of soils or water to surrounding areas;

(c) Erosion-control seeding shall not include the use of the invasive species Italian ryegrass (*Lolium multiflorum* also known as *Festuca perennis*), a common component of erosion-control seed-mixes.

(d) To minimize wildlife entanglement and plastic debris pollution, the use of temporary erosion and sediment control products that contain plastic netting (such as fiber rolls, erosion control blankets, and mulch control netting) shall be prohibited. Heavy-duty silt fences reinforced by plastic or metal netting shall also be prohibited. Only products that contain natural-fiber netting, or that do not contain netting, shall be allowed. All temporary erosion and sediment control products shall be promptly removed when no longer required.

8. Final Storm Water Pollution Prevention Plan

A. NOT LESS THAN TWO WEEKS PRIOR TO COMMENCEMENT OF DEVELOPMENT AUTHORIZED BY CDP 1-20-0711, the permittee shall submit to the Executive Director for review and written approval a final Storm Water Pollution Prevention Plan (SWPPP). The final SWPPP shall include, at a minimum, provisions for all of the following:

1. Runoff from the project site shall not increase sedimentation in coastal waters or wetlands post-construction. During construction runoff from the project site shall not increase sedimentation in coastal waters beyond what's allowable under the final Water Quality Certification approved for the project by the North Coast Regional Water Quality Control Board;

2. Runoff from the project site shall not result in other pollutants entering coastal waters or wetlands during construction or post-construction;

3. Best Management Practices (BMPs) shall be used to prevent the entry of polluted stormwater runoff into coastal waters and wetlands during construction and post-construction, including use of relevant BMPs as detailed in the current California Storm Water Quality Best Management Handbooks (http://www.cabmphandbooks.com);

4. An on-site spill prevention and control response program, consisting of best management practices (BMPs) for the storage of clean-up materials, training, designation of responsible individuals, and reporting protocols to the appropriate public and emergency services agencies in the event of a spill, shall be implemented at the project to capture and clean-up any accidental releases of oil, grease, fuels, lubricants, or other hazardous materials from entering coastal waters or wetlands;

5. Equipment operators shall be trained in the procedures to be taken should an accidental spill occur. Absorbent materials designed for spill containment and cleanup shall be kept onsite during construction for use in the event of an accidental spill;

6. A schedule for installation and maintenance of appropriate construction source-control BMPs to prevent entry of stormwater runoff into the construction site and the entrainment of excavated materials into runoff leaving the construction site; and

7. The SWPPP shall be prepared and implemented consistent with the provisions of all other terms and conditions of Coastal Development Permit 1-20-0711.

B. The permittee shall undertake development in accordance with the approved final storm water pollution prevention plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

9. Assumption of Risk, Waiver of Liability, and Indemnity Agreement. By acceptance of this permit, the permittee acknowledges and agrees (i) that the site may be subject to hazards from storms, flooding, erosion, earth movement, fire, and other natural hazards, many of which will worsen with future sea level rise; (ii) 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; (iii) 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 (iv) 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.

10. Waiver of Rights to Future Shoreline Protective Device(s). By acceptance of this permit, the permittee acknowledges and agrees that the redeveloped AWTF is not entitled to shoreline protection under the Coastal Act, and the permittee hereby waives, on behalf of itself and all successors and assigns, any rights to construct a

shoreline protective device to protect the AWTF that may exist under the Coastal Act, certified Local Coastal Program, or other applicable laws.

11. Protection of Biological Resources. The permittee shall undertake development in compliance with the City's avoidance, minimization, and mitigation measures to protect sensitive biological resources in the final "Mitigation Monitoring and Reporting Program" adopted by the City for the project (Appendix B) including, but not limited to, the following:

A. BIOL-2: Aquatic Species at Outfall 003

B. BIOL-3 and BIOL-4: Northern Red-Legged Frog, and Northern Red-Legged Frog & Western Pond Turtle

C. BIOL-5: Conduct Nest Survey and Establish Buffers.

D. BIOL-6: Salt Marsh Plant Species

E. BIOL-7: Non-Salt Marsh Plant Species

The permittee shall submit the results of the proposed pre-construction surveys for rare plants, frogs, and birds to the Executive Director prior to commencement of construction within any given affected project area, including maps that identify the locations of any sensitive species habitat identified by the survey(s) [e.g., rare plants; sensitive nesting birds; northern red-legged frog adults, subadults, tadpoles, or egg masses], delineation of any required no-disturbance buffer zones, and a narrative description of avoidance and minimization measures.

12. Onsite Wetlands Mitigation and Monitoring.

A. As proposed by the City of Arcata in its August 2022 Document entitled "Wetland Mitigation and Monitoring Plan for Arcata Wastewater Treatment Facility Improvement Project" included as Exhibit 11, to mitigate for temporary and permanent project-related wetland impacts, the following proposed mitigation measures shall be implemented, as modified herein:

1. Reestablishing Wetlands After Temporary Impacts. Replanting of disturbed areas shall occur during the first rainy season following completion of any disturbances to wetland areas.

2. Mitigation work involving the removal of concrete from approximately 0.1 acre along the banks of Butcher Slough shall occur within two years of project-related impacts to wetlands.

3. Implementing Protective Measures During and After Mitigation Work.

(a) An excavator shall be used to remove existing concrete from approximately 0.1 acres along the left and right banks of Butcher

Slough. Concrete shall be disposed of at an off-site disposal recycling facility.

(b) Work shall occur when tidal elevations are below 4 feet NAVD88.

(c) A qualified biologist shall be on site during wetland mitigation activities to monitor activity and ensure all protective protocols are adhered to and appropriate BMPs are implemented

(d) Work shall avoid the wetted channel.

(e) Disturbed areas outside the intertidal zone shall be stabilized using erosion control BMPs.

(f) Disturbed areas outside of the intertidal zone shall be revegetated with native vegetation as proposed.

4. Mitigation Monitoring and Reporting.

(a) Within 45 days of completion of wetland mitigation work, a Global Positioning System (GPS) will be used to digitally capture the mitigation area and dimensions to produce an “as built” map.”

(b) The mitigation area will be monitored annually for five years to qualitatively assess channel conditions in the areas surrounding concrete removal. Evidence of channel instability, such as migrating headcuts, substantial changes in bedload characteristics, or bank erosion will be documented. If such conditions develop, remediation measures shall be implemented as determined appropriate by a qualified engineer and as approved by regulatory agencies and subject to CDP requirements.

(c) The monitoring shall document the following: (1) The number of surviving riparian plants that were planted; and (2) Any notable disturbance or impacts (anthropogenic or natural to the area).

(d) Revegetation shall achieve a standard for success of at least 80% survival of plantings. If the required number of surviving plants (as determined by 80% survival rate) is not achieved by the end of the five-year monitoring term, the permittee shall plant additional species and continue to monitor until the success standard is met.

(e) An annual monitoring report shall be prepared and submitted to the Executive Director by June 1 of each year. The final monitoring report will be submitted to the Executive Director at the end of the reporting period. The final report shall contain all the post-project data collected over the monitoring period including pre-project (or baseline) information to provide a comparison. A project evaluation

section shall evaluate whether the mitigation site conforms to the goals, objectives, and performance standards set forth in this monitoring plan.

(f) No plant species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant Council, or by the State of California shall be planted or allowed to naturalize or persist in the project area. No plant species listed as a "noxious weed" by the State of California or the U.S. Federal Government shall be utilized within the property.

B. The permittee shall undertake development in accordance with the approved mitigation and monitoring plan. Any proposed changes to the approved mitigation and monitoring plan shall be reported to the Executive Director. No changes to the approved mitigation and monitoring plan shall occur without a Commission approved amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

13. Protection of Archaeological and Cultural Resources. If an area of cultural deposits or human remains is discovered during the course of the project, all project activities shall cease and shall not recommence until a qualified cultural resource specialist, in consultation with the Tribal Historic Preservation Officers of the Wiyot Tribe, the Bear River Band of Rohnerville Rancheria, and the Blue Lake Rancheria, analyzes the significance of the find and prepares a supplementary archaeological plan for the review and approval of the Executive Director, and either: (a) the Executive Director approves the Supplementary Archaeological Plan and determines that the Supplementary Archaeological Plan's recommended changes to the proposed development or mitigation measures are *de minimis* in nature and scope, or (b) the Executive Director reviews the Supplementary Archaeological Plan, determines that the changes proposed therein are not *de minimis*, and the permittee has thereafter obtained an amendment to CDP 1-20-0711.

14. Noise Reduction Plan for Increased Use of Metal Bridge Over Butcher Slough.

A. AT LEAST 90 DAYS PRIOR TO REMOVAL OR DEMOLITION OF THE WOODEN BRIDGE, the permittee shall submit, for the review and approval of the Executive Director, a final plan to control the anticipated increase in noise associated with the increased use of the metal bridge over Butcher Slough that will result from the elimination of the wooden bridge from the public access trail system. The final plan shall demonstrate that the existing metal bridge deck will either be replaced with timber decking or otherwise will be modified or retrofitted with materials suitable to the manufacturer designed to dampen noise associated with the tread of users, including bicyclists and other users. The plan shall include, at a minimum, the following: (1) provisions for obtaining any necessary permit amendment to CDP 1-16-0122 for bridge improvements

prior to removal or demolition of the wooden bridge deck; and (2) a schedule for obtaining any necessary permits and for completing the metal bridge decking improvements/retrofit, which demonstrates that the bridge decking modifications shall be completed within 90 days from the date of removal of the wooden bridge.

B. The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

15. Revised Final Lighting Plans. WITHIN SIX MONTHS OF ISSUANCE OF CDP 1-20-0711, and prior to installation of any lighting facilities, the Permittee shall submit, for the review and approval of the Executive Director, a set of revised final lighting plans that are consistent with all special conditions of this coastal development permit and that substantially conform with the plans and associated specifications prepared by Carollo in association with GHD Inc. and dated April 2022 (Exhibit 5), except that the plans shall be revised as follows:

A. As proposed by the City of Arcata in its Revised Project Description dated July 22, 2022, the revised final lighting plans shall demonstrate compliance with the following proposed measures as modified herein:

1. All lighting fixtures shall comply with the International Dark Sky Association's (IDA) requirements for reducing waste of ambient light ("dark sky compliant"). This includes, but is not limited to, requirements for acceptable fixture types. Specification sheets shall be provided for all lighting fixtures demonstrating compliance with IDA standards.

2. Maximum color temperature of lighting fixtures shall contain a maximum color temperature of 2,700 degrees Kelvin, unless it can be demonstrated that such features would not meet required safety measures. In no case shall lighting exceed a correlated color temperature of 3,000 Kelvins (K).

3. All lighting fixtures shall be the minimum lumens required for safety and security. No non-security or non-safety lighting and no lighting for aesthetic purposes is allowed

4. Security lighting attached to the structures shall use a control device or automatic switch system or equivalent functions to minimize lighting.

5. All lighting fixtures shall be shielded and directed downward to minimize light shining on adjacent properties or natural areas. Shielded shall mean that the light rays are directed onto the site, and the light source (e.g., bulb, tube, etc.) is not visible beyond the property boundary of the site of the light source.

6. No permanently installed lighting shall blink, flash, or be of unusually high intensity or brightness.

7. Stand-alone light fixtures shall be limited to a maximum height of 20 feet.

8. No lighting shall produce an illumination level greater than one-foot candle beyond the property boundary of the site of the light source.

9. The Luminaire Schedule plan sheet shall include a note specifying that all lighting fixtures shall comply with IDA requirements for dark sky compliance as specified in subsection A(i) above.

B. The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

16. **Closure of Trails During Construction.** Temporary closures of public access trails during construction shall be limited to no more than 30 days at a time. Temporary closure of South I Street Parking lot shall not exceed five (5) months without an amendment to this CDP. Temporary closures shall be limited to the minimum needed to carry out construction-related activities while maximizing public access.

17. **Liability for Costs and Attorney's Fees**. By acceptance of this coastal development permit (CDP), the Permittee agrees to reimburse the California Coastal Commission in full for all Coastal Commission costs and attorneys' fees (including (1) those charged by the Office of the Attorney General, and (2) any court costs and attorneys' fees that the Coastal Commission may be required by a court to pay) that the Coastal Commission incurs in connection with the defense of any action brought by a party other than the Applicant/Permittee against the Coastal Commission, its officers, employees, agents, successors and assigns challenging the approval or issuance of this CDP. The Coastal Commission retains complete authority to conduct and direct the defense of any such action against the Coastal Commission.

IV. FINDINGS AND DECLARATIONS

A. Project Description

The City of Arcata[1] proposes to construct upgrades to the existing Arcata Wastewater Treatment Facility (AWTF[2]). As further described in **Finding IV.B** below, the proposed

[1] "The City of Arcata" is also referred to hereafter as "the City."

[2] The Arcata Wastewater Treatment Facility is also referred to hereafter as "the Facility," aka AWTF.

development involves redevelopment[3] of a wastewater treatment facility to maintain and update aging infrastructure and increase the quality of discharged effluent to comply with regulatory requirements established by California Regional Water Quality Control Board, North Coast Region[4]).

The Facility includes both the Arcata Marsh and Wildlife Sanctuary (AMWS, where the enhancement wetlands and proposed new outfall are located) and the Arcata Wastewater Treatment Plant[5] (where the traditional wastewater treatment mechanical equipment, corporation yard, oxidation ponds, and treatment wetlands are located); refer to **Exhibit 3** for an overview of the project site. The AWTF also includes approximately 75 miles of gravity and force main collection system piping, 12 sewer lift stations, and all associated valves and appurtenances, collectively referred to as the Publicly Owned Treatment Works (POTW).

The primary objectives of the project include reconfiguring flow to a single-pass system, installing a new ultraviolet (UV) disinfection system to replace the existing chlorine disinfection system, improving wet weather system functioning, improving secondary treatment capacity, and maximizing beneficial uses of treated wastewater through construction and usage of Outfall 003 at the previously created "Brackish Marsh[6]" enhanced wetland feature.

The City's ability to fully comply with current Regional Water Board requirements relies on implementation of a series of facility improvements and upgrades envisioned as a phased process, with Phase I being the subject of this CDP application, and Phase II to be pursued at some future date following completion and evaluation of the effectiveness of Phase I improvements to meet water quality standards.

Phase I includes several improvements to the mechanical systems, corporation yard, and natural systems as described further below. Phase I improvements would occur in four construction phases spanning two dry weather and two wet weather seasons over the course of 30-36 months. Proposed development would commence in the fall of 2022

---

[3] According to the City and its supporting technical documents, the majority of the mechanical equipment at the AWTF has exceeded its expected life and major structures are also starting to approach the end of their useful life. Many project components have also already been replaced at least once (CDP 1-84-105 authorized numerous major infrastructure upgrades and the extension of the wastewater pipe system into AMWS to deliver nutrient rich waters to the existing marsh complex). Given the extent of upgrades proposed as well as the proposed extensive changes to the existing system (e.g., adding a new outfall and UV disinfection system, and adding new wastewater piping for flow reconfiguration), this project involves such substantial upgrades to the facility, which in conjunction with prior improvements to the structure, will result in a new, redeveloped facility that must be reviewed for consistency with the Coastal Act.

[4] California Regional Water Quality Control Board, North Coast Region is also referred to hereafter as Regional Water Board, aka RWQCB.

[5] Referred to herein as the "Treatment Plant," aka WWTP.

[6] "Brackish Marsh" is also referred to in supporting documents as "Brackish Pond."

and is anticipated to be completed in 2025. A proposed schedule of project components by season and construction phase has been included as **Exhibit 8**.

The City is also seeking after-the-fact authorization for several maintenance activities and improvements conducted in recent years that were not exempt from CDP requirements and which were undertaken without CDP authorization. Additionally, the City is seeking authorization for future repair and maintenance operations as described below. All proposed project components are detailed in the permit file (**Appendix A**) and excerpts are included in **Exhibit 4**.

Improvements to Mechanical Systems and Corporation Yard

Several improvements are proposed within the existing paved and developed areas of the treatment plant and corporation yard. Proposed improvements to the mechanical system include: (1) rehabilitation of the headworks and primary clarifier, (2) demolishing and replacing the grit chamber and grit handling facilities; (3) upgrading digester; (4) installing a new UV disinfection system, including associated modifications to the chlorine contact basin; (5) digester/solids improvements; (6) replacing pump station 1 and pond pump station pump; (7) removing a gas-powered generator and replacing with a diesel-powered generator; (8) installing electrical controls, SCADA[7] energy efficiency control system, and utility additions, (9) constructing a new approximately 4,184-square-foot, 18-foot-tall electrical building, (10) constructing a new approximately 502-square-foot, 15-foot-tall UV building, (11) modifying an existing generator building, (12) replacing stormwater pumps, (13) replacing the incoming 4-inch service pipe and installing a backflow preventer system, and (14) demolishing the Mill shed (**Exhibit 3**). Examples of mechanical process equipment can be found in Appendix A of the City's May 2019 Predesign Report prepared by Carollo.[8]

Construction of the new electrical building, UV building, headworks, and primary clarifier will also require new foundation work involving the installation of a total of 73 cast-in-drilled-hole (CIDH) concrete piers, each 3 feet in diameter and extending to a depth ranging between 78-90 feet (**Exhibit 6**). All pipes and electrical duct banks (containing conduit) will be installed by trenching. Trenching at the AWTF will be approximately seven feet deep or less. Electrical conduit within the outer dike of Klopp Lake will be between two feet and six feet deep (bottom of trench would be near 6 feet NAVD 88). Additional details of certain project components are further described below.

Headworks and Primary Clarifier

The headworks facility provides initial screening and grit removal of raw sewage entering the facility. The Headworks building and Clarifier are located approximately 50 to 75 feet from Humboldt Bay and are nearly 4 feet higher in elevation than the bay.

---

[7] "SCADA" is a remote energy efficiency control system known as Supervisory Control and Data Acquisition (SCADA).

[8] Accessible from the City of Arcata website at the following link: http://www.cityofarcata.org/DocumentCenter/View/8613/Arcata-Final-Pre-design-Report-May-2019

Components of the headworks include two 2.5-million gallons per day (MGD) Archimedes screw pumps, two 5.0-MGD mechanically screened bar screens, and a grit removal system. Improvements to the headworks include rehabilitating and/or replacing structural and mechanical components due to age and condition and upsizing the capacity to handle design peak wet weather flow (PWWF) of 5.9 MGD. Foundation work will include adding 27, three-foot-diameter CIDH piles up to 90 feet deep, with the bottom of the slab elevation at 3.8 feet. Rehabilitating the headworks structure will also raise the hydraulic grade line at the start of the plant, allowing downstream facilities to flow by gravity and minimizing the need for additional pumping.

The primary treatment facilities consist of two primary clarifiers (PC), with a total treatment capacity of 5.0 MGD. Flow from the headworks is split between the primary clarifiers after grit removal. The two primary clarifiers are currently rated at 4.0 MGD and 1.0 MGD each. Currently Clarifier No. 1 is used intermittently for peak wet weather flows and Clarifier No. 2 is used continuously. Influent flows above 5.0 MGD are diverted around primary treatment directly to the oxidation ponds. Proposed improvements include foundation work (installing eight, three-foot-diameter CIDH piles with the bottom of the slab elevation at 3.4 feet) and installing a new clarifier mechanism on PC No. 2. Effluent flows from the headworks will be sent to PC No. 1 while PC No. 2 is out of service. As part of this improvement the primary sludge and scum pumps would also be replaced.

Ultraviolet (UV) Disinfection

A major element of the proposed upgrades will be replacing the existing chlorine disinfection system with a UV disinfection system capable of treating wet weather flows of up to 9.8 MGD. The City will attenuate flow in excess of 9.8 MGD within Oxidation Pond 1. The UV disinfection system would eliminate, or greatly reduce, the formation of disinfection by-products in the effluent and potential to violate disinfection byproduct and total residual chlorine effluent limitations attributable to chlorine. However, the City plans to maintain the chlorine disinfection system, for a limited time, to provide an emergency backup disinfection system to meet disinfection requirements for flow in excess of 9.8 MGD. Flow in excess of 9.8 MGD will be disinfected with chlorine prior to discharge to Humboldt Bay at Outfall 001.

Improvements to Natural Treatment Systems

Excerpts of the revised project description (**Exhibit 4**) include a detailed list of proposed improvements in or near the oxidation ponds, treatment wetlands, and enhancement wetlands that comprise the natural treatment systems. As further described below, proposed development in and near the natural systems includes the following:

> (1) installing new electrical infrastructure within the corporation yard and around the oxidation ponds, including new electrical connections to support up to 24 new mixer aerators in Oxidation Pond 2; (2) demolishing and removing a wooden pedestrian bridge; (3) sandblasting and recoating sewer pipes underneath Butcher Slough Bridge, and adding fencing at bridge footings; (4) placing approximately 3,000 lineal feet of electrical conduit along the underside of the Butcher Slough Bridge and

continuing along exterior levees of Klopp Lake buried in two-foot-deep trenches to I Street/Hauser Marsh; (5) excavating and contouring an approximately 500 square-foot basin at the outlet of the Hauser Enhancement wetland for improved water quality and maintenance; (6) upgrading Pond Pump Station and Pump Station 1 and removing Pump Station 2; (7) placing approximately 1,500 lineal feet of interlocking sheet pile baffles within Allen and Gearhart Marshes; (8) constructing Outfall 003, and installing related discharge pipe and rock slope protection; (9) installing a pond outlet structure, including new weir gates and automated sensor controls; (10) replacing oxidation pond dock; (11) abandoning in place Pump Station Wet Well No. 2; (12) repairing manifold piping in Treatment Wetland 3; (13) installing seven new transfer outlet structures between enhancement wetlands; (14) adding above-ground sampling station with protective fencing or fiberglass structure at new pump station on I Street; (15) removing and relocating entrance sign and block interpretive wall on I Street; and (16) installing a new pump at Treatment Wetland 4.

Outfall 003 and Flow Re-Configuration

The upgraded system will shift secondary treatment from a split-flow/dual pass system to a single pass system. Commingled effluent from the treatment wetlands will flow through the UV disinfection system prior to discharging into enhancement wetlands at the AMWS via Outfall 002. Wastewater discharged at Outfall 002 will flow through the Allen, Gearheart, and Hauser marshes in succession. The City will manage flows through Allen, Gearheart, and Hauser Marshes to preserve enhanced treatment and beneficial uses of the enhancement marshes, which will enable the Regional Water Board to continue to recognize an exception to the Enclosed Bays and Estuaries Policy for the Facility. Flow rates determined to negatively impact the enhancement marshes and flow in excess of 5.9 MGD will be diverted around the enhancement marshes. Diverted flow will co-mingle with Hauser Marsh effluent during UV disinfection and prior to discharge to the 17-acre Brackish Marsh feature at Outfall 003.

As detailed further in **Finding IV.I** (“Fill of Wetlands and Coastal Waters”) below, the installation of Outfall 003 in this location was originally envisioned as a key component “for mixing bay water with treated wastewater to create the brackish marsh habitat” under approval of the McDaniel Slough Enhancement Project[9]. The interior brackish marsh feature ultimately discharges into a slough within the north end of the Arcata Bay portion of Humboldt Bay. Installation of the new Outfall 003 will allow the discharge from the Facility to enter Humboldt Bay in a diffuse manner due to the tidal mixing within the brackish marsh and subsequent flow through tidal marshes.

ATF developments

The City is requesting that the Commission authorize after-the-fact (ATF) all of the following development previously completed without the benefit of CDP authorization: (1) installing aerators in Oxidation Pond No. 1; (2) installing baffle wall in Oxidation

[9] CDP 1-06-036 and State Clearinghouse No. 2003022091

Pond No. 2; (3) relocating control panels and transformers into boat storage building; (4) installing electrical conduit for Blue Frog aerators at the inlet of the treatment wetlands; (5) maintaining vegetation within enhancement wetlands; (6) maintenance grading and replanting vegetation at Treatment Wetland 4; and (7) constructing Treatment Wetlands 5 and 6 within the footprint of former Oxidation Pond No. 3.

Address Deferred Maintenance and Maximize Existing Natural System

Maintenance vegetation removal has been performed on an as-needed basis on both Enhancement and Treatment Wetlands by removing strips of old vegetation and regrading to promote new vegetation growth in open strips. As standard city protocol, vegetation maintenance is completed outside of the avian nesting season to the extent practicable, and if infeasible, prior to vegetation removal, the area is surveyed by a qualified biologist to ensure maintenance activities do not impact sensitive nesting birds and as required by state and federal regulations.

Using similar methodology as regrading and promoting revegetation of Treatment Wetlands 1-4 (above), Treatment Wetlands 5 and 6 were constructed within the former Oxidation Pond 3 footprint. Construction began in 2010, and the Treatment Wetlands were fully operational in 2013.

Even though the "proposed" ATF project has already occurred, for the Commission's CDP review purposes, ATF development must be treated as if it is all newly proposed at this time, given that such development was not properly evaluated, permitted, and conditioned (as applicable) in consideration of impacts to coastal resources and applicable Coastal Act requirements.

Ongoing and Future Repairs and Maintenance

The City is also requesting authorization for ongoing maintenance of the following existing development: (1) maintenance of the new UV disinfection system (including replacement of components such as aged lamps, monitoring water quality and system performance, and inspection and maintenance of seals, solution, and cleaning of reactor surfaces); (2) adjustments to flows, aeration, and retention/discharge of wastewater; (3) monitoring of wastewater constituents, including the placement of small monitoring equipment, as required by the State Water Board; (4) removing accumulation of sediment in oxidation ponds to maintain original depth; and (5) regular maintenance and removal of aquatic and riparian vegetation and regrading from within enhancement and treatment wetlands (See Figure X-1 of **Exhibit 4**). Vegetation and sludge removed from oxidation ponds and treatment wetlands is managed through the City's "503 Biosolids Program[10]" with regulatory oversight by the EPA and Regional Water Board.

[10] The U.S. Environmental Protection Agency's (EPA's) Part 503 rule provides comprehensive requirements for the management of biosolids generated during the process of treating municipal wastewater. Vegetation and sludge materials require testing for 503 constituents, meeting pathogen

B. Background

Overview of Past and Current Treatment Process and Operations

The City owns and operates the AWTF, which treats wastewater collected from within the City (including Cal Poly Humboldt) and from the unincorporated community of Glendale (located approximately four miles northeast of Arcata), ultimately serving a total population of approximately 19,260.[11] The system relies on gravity flow except for lift stations on Samoa Boulevard, Bayside Road and several pumps along Old Arcata Road.

Construction of the original WWTP and its associated discharge into Humboldt Bay began in 1949 and the plant was upgraded to primary treatment in the 1950s. Construction of the AWTF oxidation ponds and its surrounding levees within the tidelands of Humboldt Bay (approximately 70 acres) was authorized on May 17, 1956 by the USACE San Francisco District. Chlorine disinfection of the oxidation pond effluent was added later. In 1984, the Commission authorized major upgrades to the facility (CDP 1-84-105). The major upgrades authorized by the 1984 permit included: (1) installation of a new stormwater bypass pipeline, (2) new headworks, (3) roof over sludge drying beds, (4) abandon old chlorination/dichlorination facility and construct new in another location (including new building and new chlorine contact basin), (5) construct new footbridge over Butcher Slough, (6) direct treated effluent for enhancement purposes into created wetlands, (7) modify existing digesters, (8) install new yard piping, (9) install new generator building, (10) construct new effluent pump station, (11) install new stormwater pump station at 1st and G streets, (12) add new sludge drying beds, (13) add new "septage receiving station," and (14) add treatment wetlands within oxidation pond feature.

The current facility provides primary (separation of sediment and solids), and secondary (aeration and biofiltration) treatment followed by disinfection, using a combination of mechanical and natural treatment systems. As detailed further below, existing primary treatment facilities include influent pumping, mechanical bar screens, and grit removal at the plant's headworks,[12] and two primary clarifiers. Solids removed in the primary clarifier are treated in anaerobic digesters and solids drying beds.

Secondary treatment is accomplished through natural land-based systems (oxidation ponds, treatment wetlands, and enhancement wetlands), all of which have different

---

and vector reduction requirements, and annual reporting on the material. After testing, pathogen reduction, and vector reduction, the City's sludge is considered Class A biosolids, at which point the City then land-applies the material to forest lands and other upland areas.

[11] Population is based upon April 1, 2020 Census data for City of Arcata (18,857) and extrapolated from the July 15, 2015 Local Area Formation Commission Municipal Service Review for the Fieldbrook Glendale Community Services District based on households (641), residents (1,460) and wastewater connections (177).

[12] "Headworks" refers to the facilities where the wastewater enters the treatment plant, and typically consists of bar racks or bar screens, shredders or grinders, a wet well, and pumps.

treatment capacities during dry- and wet-weather flows. Two oxidation ponds, approximately 22.4 acres and 17.3 acres in size, operate in series, followed by six treatment wetlands (totaling 9.7 acres) that operate in parallel. Enhancement to the secondary treated water is provided by three enhancement wetlands (Allen, Gearhart, and Hauser Marshes) with a total surface area of approximately 33 acres located in the Arcata Marsh and Wildlife Sanctuary.

After secondary treatment from the oxidation ponds and treatment wetlands, the effluent is disinfected in a chlorine contact basin (CCB) for chlorine disinfection and dechlorination to provide chemical treatment of biochemical oxygen demand (BOD) and seasonal hydrogen sulfide. The facility includes two outfalls that transport treated wastewater through a "split flow," or two-pass system: effluent flow is split after disinfection and dechlorination, flowing by gravity either to Humboldt Bay (at Butcher Slough) through Outfall 001, or to the AMWS via Outfall 002 for enhanced treatment before returning to the CCB for additional disinfection. The split flow design is due in part to seasonal limitations (including sunlight and temperature) in the capacity of the natural systems to treat wastewater.[13] Thus, not all effluent receives the benefit of enhanced treatment through the AMWS before discharge to Humboldt Bay and some effluent may ultimately be chlorinated multiple times, increasing the opportunity to form disinfection byproducts above water quality objectives.

As discussed previously in **Finding IV.A**, the current split pass flow system is proposed to be reconfigured to a single pass flow system to eliminate recirculation of effluent and meet water quality permitting objectives.

Waiver of Bays and Estuaries Policy Allowing Discharges to Humboldt Bay

On May 16, 1974, the State Water Resources Control Board adopted Resolution No. 74-43, known as the Water Quality Control Policy for the Enclosed Bays and Estuaries of California. The Enclosed Bays and Estuaries Policy prohibits the discharge of municipal wastewater and industrial process water to enclosed bays and estuaries unless the discharge "enhances the quality of the receiving water above that which would occur in the absence of the discharge." Thus, in order to continue discharging to Humboldt Bay following adoption of the Enclosed Bays and Estuaries Policy, the City needed to upgrade the Facility to discharge in a way that would enhance Humboldt Bay.

[13] The 2017 Facility Plan prepared by Carollo states in part: "Oxidation ponds, which utilize algae to provide oxygen, generally have a lower capacity to remove organics and nitrogen in the colder winter months when the amount of sunlight is limited. Plant data confirmed that the natural system generally performed well during lower flow and warmer conditions. However, the treatment wetlands effluent regularly exceeded the permit solids level going into the AMWS enhancement wetlands, and subsequently into the chlorine contact basin prior to discharge. Plant data also showed that in higher flow, wet weather conditions, the system capacity, and permit requirements were exceeded regularly. When excess flow needs to be stored in the oxidation ponds, secondary treatment capacity within the ponds may also be diminished. In order to reduce the loading on the system and reliably meet the current permit requirements now and in the future, additional secondary treatment capacity will be required."

The City's final adopted Initial Study/ Mitigated Negative Declaration[14] summarizes the history of the Facility's improvements to meet the requirements of the Enclosed Bays and Estuaries Policy in part as follows:

> The City worked with local engineers and Humboldt State University professors to find an exemption for this policy. In 1977, the City proposed a wetland/marsh treatment process to enhance effluent and allow the AWTF to continue discharge into Humboldt Bay. In 1981, the State Water Board funded Arcata's pilot marsh program, designed to demonstrate the effectiveness of wetland treatment in meeting water quality standards. In 1983, the Regional Water Quality Control Board issued Order No. 83-9, granting the AWTF a waiver to the Bays and Estuaries Policy, permitting continued discharge into Humboldt Bay. The full-scale modifications were constructed in 1984 to 1987 and included minor modifications to the oxidation ponds. Construction of wetland treatment marshes provided secondary treatment for post oxidation pond waters. Three enhancement wetlands were constructed outside of the AWTF in the Arcata Marsh and Wildlife Sanctuary (AMWS) to provide passive enhanced treatment. The enhancement wetlands provide water quality enhancement; wetland, wildlife and cold freshwater habitat; and noncontact water recreation beneficial uses. Up to 2 MGD is pumped back to the AWTF following enhanced treatment in the AMWS before it is combined [*with*] treatment wetland effluent and disinfected again prior to discharge. At flows above 5 MGD, raw sewage is pumped from the First Street lift station directly to the oxidation ponds for primary treatment, by-passing the headworks. First Street lift station predominantly operates during periods of high inflow and infiltration (I/I), which the city is actively working to reduce…

The City's proposed improvements would continue to manage flows through Allen, Gearheart, and Hauser Marshes to preserve enhanced treatment and beneficial uses of the enhancement marshes to allow the Regional Water Board to continue to recognize an exception to the Enclosed Bays and Estuaries Policy for the Facility.

Water Quality Discharge Requirements

As indicated above, the primary purpose of the proposed project is to maintain and update aging infrastructure and increase the quality of discharged effluent to comply with regulatory requirements. However, not all of the requirements of the City's NPDES permit can be achieved at this time. Concerns have been raised that once chemical disinfection is eliminated, the process capacity of the natural system will be inadequate to fully meet secondary treatment standards for Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS). To address these concerns, in June 2017 the City prepared a final Facility Plan that outlines a phased approach with additional treatment upgrades beyond those identified in the 2012 NPDES permit. The City's plan includes separating facility work into two phases, with the first phase (to be permitted under this

[14] The final adopted IS/MND can be viewed on the City's website at: https://www.cityofarcata.org/DocumentCenter/View/10282/Arcata-Wastewater-Treatment-Facility-Final-Mitigated-Negative-Declaration-and-Initial-Study-121020

CDP) focused on addressing shortfalls in primary treatment, deferred maintenance, and increasing hydraulic treatment time in the system. Phase I developments cost approximately $31.4 million dollars.[15]

Phase II (to be evaluated in the future under a separate CDP application), would build on the performance of Phase I improvements and construct all the additional facilities needed for a parallel secondary (traditional) treatment facility, at an anticipated additional cost of approximately $33 million. Completing Phase II will allow the City to comply with final effluent limitations for ammonia at Outfall 001 and Outfall 003 as well as more stringent BOD and TSS limitations at Outfall 002. As discussed further in **Finding IV.H** ("Coastal Hazards"), Phase II developments would likely include more traditional wastewater treatment facility components, raising significant questions regarding the long-term siting of critical infrastructure in vulnerable areas requiring additional analysis.

Past Permits Obtained

Several prior permit actions in the project area are associated with the wastewater treatment facility. In 1979, the Commission authorized mechanical improvements to the facility,[16] and construction of three marshes that are now enhancement wetlands.[17] The Commission authorized mechanical plant upgrades and discharge of treated water into the marsh system in 1984.[18] Authorized improvements to the natural treatment systems over the years include adding effluent pumping capacity and baffle curtains in Oxidation Pond 2 in 1997,[19] five years of ongoing repair and maintenance of specified portions of the Oxidation Pond levee,[20] and creation of the Brackish Marsh Pond for future expansion of the wastewater treatment enhancement wetlands.[21] Several authorizations

---

[15] Cost projections are from City of Arcata Wastewater Cost of Service Study 2020 prepared by Bartle Wells Associates (accessible online at http://arcataca.iqm2.com/Citizens/FileOpen.aspx?Type=4&ID=3955&highlightTerms=wwtp) and adapted from Carollo Engineers Final Predesign Report May 2019 Phased Cost Study (accessible online at http://arcataca.iqm2.com/Citizens/Detail_LegiFile.aspx?Frame=&MeetingID=2750&MediaPosition=8944.477&ID=2067&CssClass=)

[16] CDP 79-P-20 authorized installation of transfer and discharge pumps and modification of the discharge point to provide longer detention time and more chlorination capacity.

[17] CDP 79-P-64 authorized development of the recreational Klopp Lake and construction of three marshes that are now the enhancement wetlands.

[18] CDP 1-84-105 authorized replacing the headworks facility, adding a roof to sludge drying beds, adding a stormwater bypass system, relocating the chlorination/dichlorination facility, adding a footbridge over Butcher Slough, and discharging treated wastewater effluent into the three-marsh system at AMWS.

[19] CDP Waiver 1-97-053-W.

[20] CDP 1-03-021 as amended authorized repair of eroded dikes in certain specified areas near Klopp Lake and a portion of the Oxidation Pond dike.

[21] CDP 1-06-031 as amended authorized restoring and enhancing wetland function to 240 acres of reclaimed former tidal salt/brackish marsh to a combination of 205 acres of intertidal saltmarsh

have also been processed for development of new buildings and improvements within and adjacent to the wastewater treatment plant.[22] A list of past permit actions related to the AWTF has been included as **Appendix C**.

Maintenance Needs

Although ongoing preventative maintenance has kept much of the original treatment plant in operation, replacement of equipment or structures since original construction has not kept pace with aging infrastructure. The last major upgrade of facility infrastructure authorized in 1984 included a new headworks facility, a chlorine contact basin and chemical storage building, effluent pump stations and a new generator building. Facility improvements have also included limited upgrades to the natural treatment system, including upgrades to the digesters, installation of pond aerators, and addition of a standby generator. As a result, most infrastructure is at or soon approaching the end of its original useful life, and repairs and replacements of aging infrastructure are needed. Furthermore, deferred maintenance of the natural treatment systems has resulted in accumulation of settled material and vegetation growth resulting in compromised flow and capacity and reduced effectiveness of the natural system processes. Thus, several improvements are needed to restore functionality of the natural treatment processes.

Unpermitted Maintenance Activities

During the application process for the subject coastal development permit, it was discovered that several developments have been undertaken at the AWTF over the years, allegedly without the benefit of required CDP authorizations. The most recent developments include installing new aerators in Oxidation Pond 1 and a replacement baffle wall in Oxidation Pond 2. The City completed the improvements as compliance projects undertaken through Regional Water Board Administrative Civil Liability Order No. R1-2020-0014 to offset fines imposed by the Regional Water Board for violations of effluent limitations reported by the City. Other previously undertaken developments include the following:

> (1) Control panels and transformers were relocated to within the corporation yard boat storage building; (2) electrical conduit for Blue Frog aerators was installed at the influent end of the treatment wetlands; (3) routine maintenance of vegetation has occurred in the enhancement wetlands; (4) Treatment Wetland 4 was recently rehabilitated by removing old vegetation and reshaping internal berms to increase

wetlands and 35 acres of impounded freshwater and brackish wetlands within the reclaimed lower reaches of the McDaniel Slough, including creation of an approximately 17-acre brackish marsh for mixing bay water with treated wastewater to create the brackish marsh habitat.

[22] See for example CDP Waivers 1-95-033-W (pole building to house sewer pipes), 1-96-052-W (addition to control building), 1-00-011-W (replace existing pedestrian bridge over Butcher Slough), 1-18-0882-W (grading and resurfacing of existing surface roads); and CDP 1-00-012 (construction of bus barn and storage area, and installation of oil-water separator).

flow patterns; and (5) Treatment Wetlands 5 & 6 were constructed within the footprint of former Oxidation Pond No. 3.

Because the additions of electrical components to buildings and to the influent end of treatment wetlands resulted in additions to or enlargement or expansion of the objects of each maintenance activity, the repair and maintenance exemption of Coastal Act section 30610(d) does not apply to these activities. In addition, conversion of Oxidation Pond No. 3 into two new treatment wetlands is not repair or maintenance and instead constitutes an augmentation or improvement to the facility.

C. Environmental Setting

The project site is situated at the northeast edge of Humboldt Bay primarily on filled former tidelands at elevations of approximately 10-14 (NAVD 88) feet above sea level. In the late 1800s, much of the project area was used for various industrial activities (e.g., wharf, railroad, timber transport) and later diked for agricultural purposes (i.e., farming and pasture) and nearby lumber mill operations. The City's sanitary landfill operated on adjacent land at the foot of F Street until the 1960s and was closed and capped in 1973. In 1979, a major marsh enhancement project was undertaken to convert the former landfill dumpsite and surrounding former industrial and agricultural lands into three marsh ponds and a recreational brackish lake for wildlife habitat[23].

Current surrounding land uses include Humboldt Bay to the south, and adjacent salt marsh habitat between the bay and project improvements. Samoa Boulevard, which loosely demarcates the historic perimeter of Humboldt Bay, borders the project area to the north and U.S. Highway 101 is located east of the project site. The urban core of the city is situated north of Samoa Boulevard. South G Street is situated to the northeast, west of Highway 101, and includes a mix of industrial, commercial, residential, and agricultural designated land uses. West of the project site is primarily bay land and agricultural land extending approximately four miles to its terminus at the Pacific Ocean. (**Exhibits 1-2**).

The proposed project would occur on approximately 130 acres of primarily City-owned lands[24] that include portions of the approximately 300-acre Arcata Marsh and Wildlife Sanctuary[25] (**Exhibit 2**). The AMWS also includes approximately five miles of walking and biking paths and an interpretive center. In addition to enhancement wetlands associated with the wastewater treatment facility, the AMWS includes freshwater, saltwater, and brackish marshes; tidal sloughs; grassy uplands, and mudflats. The

---

[23] Coastal development permit 79-P-64 approved August 8, 1979

[24] Portions of the project area occur on sovereign tide and submerged lands held by the State Lands Commission and subject to the Public Trust Doctrine.

[25] The project area includes APNs 503-211-005, 503-232-013, 503-241-010, 503-241-011, 503-241-012, 503-241-013, 503-241-016, 503-251-002, 503-251-003, 503-251-009, 503-251-012, 506-011-08, and one unnumbered parcel.

AMWS and Bay Trail are within and adjacent to project improvements. The City's Corporation Yard is co-located and adjacent to the wastewater treatment facility.

Arcata's corporation yard, located at 600 South G Street, houses the City's wastewater treatment plant, garage, and the street and utilities maintenance materials and equipment. As described in detail above, the AWTF includes the wastewater treatment plant, corporation yard, and a series of oxidation ponds, treatment wetlands, and enhancement marshes that are used to treat wastewater before discharging the effluent into Humboldt Bay.

Humboldt Bay in the vicinity of Arcata is known as Arcata Bay. The water surface of Arcata Bay almost doubles between high and low tides, with the Bay's extensive mudflats exposed at low tides. Approximately 174 acres of Humboldt Bay are leased by the City (who holds a tidelands grant) to private companies for aquaculture uses (oyster farming).

D. Other Agency Approvals

The project requires review by a number of other agencies. The City has already obtained review and/or approvals from the National Marine Fisheries Service (NMFS),[26] U.S. Fish and Wildlife Service[27], U.S. Army Corps of Engineers (USACE)[28], and North Coast Regional Water Quality Control Board (401 certification and NPDES permit).[29] No approval is required from the California Department of Fish and Wildlife (CDFW), according to correspondence received via electronic mail from CDFW staff in early 2022.

[26] On July 27, 2021, NMFS responded to a July 1, 2021 request from USACE for concurrence and concurred with USACE's determination that the project was not likely to adversely affect Southern Oregon/Northern California Coast Coho salmon, California Coastal Chinook salmon, and Northern California Steelhead, and designated critical habitat for these species (File reference number WCRO-2021-01750).

[27] On November 3, 2021, U.S. Fish and Wildlife Service responded to a July 26, 2021 request from USACE for its biological opinion and issued a "No Jeopardy" opinion and Incidental Take Statement for the tidewater goby (File reference numbers 8-14-2005-2746, 81331-2008-F-0004-R001, and AFWO-22B0001-22F0003; SPN-2020-00425; and Consultation Number AFWO-22B0001-22F0003).

[28] On December 1, 2021, USACE issued a verification letter stating that the project qualifies for authorization under Department of the Army Nationwide Permit 7 for Outfall Structures and Associated Intake Structures.

[29] On October 27, 2021 the Regional Water Board issued Federal Clean Water Act, section 401 Water Quality Certification for the proposed project (File reference number ECM PIN CW-874381; WDID 1B21127WNHU).

Regional Water Board Permit

The AWTF operates under Waste Discharge Requirements (WDRs[30]), which also serve as the National Pollutant Discharge Elimination System (NPDES) permit.[31] The NPDES permit sets forth specific discharge requirements to ensure protection of public health, environmental health, and water quality. The facility operates under an NPDES permit issued in 2012 and updated in 2014 and 2019, which includes requirements for disinfection, treatment processes, and outfalls.

The City's treatment system has been unable to meet its current and prior NPDES permit requirements,[32] including effluent limit requirements established under its 2008 permit, thus prompting the need for treatment system upgrades. Due to past compliance problems, the 2012 NPDES permit required changes be made to improve wastewater treatment, protect beneficial uses, increase energy efficiency, and reduce chemical usage, thereby reducing the potential for permit violations. To address compliance issues with the disinfection process, the City proposed as part of its 2012 NPDES permit to construct a new ultraviolet light (UV) disinfection system that would replace the existing chlorine disinfection system. Additionally, the 2012 NPDES permit established a prohibition under most circumstances[33] against discharging at Outfall 001, which empties directly into Humboldt Bay at Butcher Slough. To address compliance issues with direct discharge to Humboldt Bay, the City proposes to instead discharge UV-disinfected enhancement wetlands effluent through Outfall 003, which will be constructed in the brackish marsh previously created at the north end of the Arcata Bay section of Humboldt Bay.

The 2012 NPDES permit required the installation of a UV disinfection system and that the outfall be moved by December 1, 2016. This work was not completed as required in the permit term. The 2019 permit introduced new lower limits for effluent ammonia, and revised requirements for the new UV disinfection system proposed as part of this permit. The NPDES permit is renewed every five years, and at each renewal, the permit may incorporate new treatment objectives and discharge standards. The Regional Board has adopted a Time Schedule Order (TSO) R1-2019-0011 with established deadlines requiring the City, by several dates certain, to either upgrade or replace the existing system to achieve compliance with all limits set forth in the permit. The City has included the most current TSO compliance schedule in Table K-1 of its July 2022 Updated Project Description (pages 10-12 of **Exhibit 4**). The schedule includes among other timelines the following requirements for Phase I by December 1, 2025: (1) attain

---

[30] Order No. R1-2019-0006 (adopted October 17, 2019).

[31] The most recent NPDES Permit, NPDES No. CA0022713, became effective December 1, 2019.

[32] The City's operations were previously regulated under WDR Order No. R1-2012-0031, which was adopted and issued in 2012 and later updated in 2014. Prior to that, under the 2008 NPDES Permit Arcata had effluent limit violations for Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS), Coliform Bacteria, Copper, Cyanide, and Sanitary Sewer Overflows (SSOs).

[33] Discharge Prohibition III.I. of the 2012 NPDES Permit states, "The Discharge of treated effluent at Discharge Point 001 is prohibited, other than that portion of the flow exceeding peak flows of 5.9 mgd."

operational level for Phase I; (2) begin discharge through Outfall 003 to the Brackish Marsh; and (3) achieve compliance with Regional Water Board waste discharge requirements for UV disinfection including Discharge Prohibition III.I.

California State Lands Commission (CSLC)

The CSLC has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The CSLC also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions. The proposed project is located in part on tide and submerged lands legislatively granted to the City of Arcata, pursuant to Chapter 1238, Statutes of 1989, as amended. As a trustee of these sovereign tide and submerged lands, the City holds these lands in trust for the people of the state for purposes of commerce, navigation, fisheries, and other Public Trust purposes such as preservation of lands in their natural state for scientific study, open space, wildlife habitat, and recreation or visitor-oriented uses. Because the wastewater treatment facility is situated on a portion of these lands and the wastewater treatment facility use is not consistent with the Public Trust for commerce, navigation, and fisheries uses, the City applied to the CSLC requesting these use restrictions be lifted to allow for the continued use and improvements of the treatment facility. Subsequently, on June 28, 2019, pursuant to Chapter 1040, Statutes of 1976 the CSLC authorized temporarily lifting the use restrictions of the Public Trust for so long as the land is being used primarily as the City's treatment facility for its wastewater.[34]

For those portions of the project area on lands granted to the City that extend beyond the footprint of lifted use restrictions, the City contacted CSLC staff, and in an email dated October 18, 2021, CSLC staff indicated that uses including the new outfall, subsurface electrical trenching, and maintenance on the enhanced wetlands do not appear to be inconsistent with the Public Trust, and no separate approval is required by the CSLC.

E. Standard of Review

The proposed project is located within the incorporated boundaries of the City of Arcata within the City's corporation yard and wastewater treatment facility complex built on reclaimed saltmarsh lands adjoining Arcata Bay. Additionally, proposed staging areas along the northern part of I Street and along South G Street are located in upland areas outside the Commission's retained jurisdiction. Thus, project components are located within the retained coastal development permit (CDP) jurisdiction of the Commission and the CDP jurisdiction delegated to the City of Arcata by the Commission through the City's certified local coastal program (LCP).

Section 30601.3 of the Coastal Act authorizes the Commission to process a consolidated CDP application when requested by the local government and the

[34] Recorded August 22, 2019, Humboldt County Official Records, Document I.D. 2019-014632.

applicant and approved by the Executive Director for projects that would otherwise require CDPs from both the Commission and a local government with a certified LCP. In this case, the City of Arcata, as applicant and local government with CDP jurisdiction, has requested a consolidated permit process in a letter to the Commission dated July 16, 2021. On August 20, 2021, the Executive Director agreed to the consolidated permit processing request.

The policies of Chapter 3 of the Coastal Act provide the legal standard of review for a consolidated CDP application submitted pursuant to section 30601.3. The certified LCP may be used as guidance.

F. Marine Resources/ Water Quality

Applicable Coastal Act Provisions:

> **Section 30230**. 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**. The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.
>
> **Section 30232**. Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containments and cleanup facilities and procedures shall be provided for accidental spills that do occur.

Regulated Effluent Limitations to Protect Water Quality

As discussed previously, the City is proposing to upgrade aging infrastructure and increase the quality of discharged effluent to comply with water quality regulatory requirements established by the State and Regional Water Boards. The Regional Water Board's NPDES permit and TSO establish minimum requirements for addressing the

facility's flow configuration and discharge point, disinfection process, wet weather flow limitations,[35] secondary treatment capacity,[36] nutrient levels,[37] and bacterial levels.[38]

Phase I development, which is the subject of this CDP application, will focus on rehabilitation of the current natural treatment systems and reconfiguring the flow to a single path. Currently treated wastewater is chlorinated, routed through the enhancement marshes then sent back to the treatment plant for re-chlorination and de-chlorination and discharged to Outfall 001 at Butcher Slough in the Arcata Bay portion of Humboldt Bay. The proposed alterations provide a single path from: (a) the initial treatment at the headworks; then (b) through ponds, treatment wetlands, and to UV disinfection; and then (c) to the enhancement marshes, for ultimate discharge at Outfall 003, which will be constructed as part of this project. Rehabilitation will also be done to the natural treatment system facilities (i.e. oxidation ponds and the treatment and enhancement wetlands) and to aging infrastructure within the footprint of central treatment plant.

Between 2012 and 2019, up to forty percent of cited violations were associated with the chlorine disinfection process.[39] To address these water quality issues, proposed improvements include a 9.8-MGD effluent UV disinfection facility, and new UV and enhancement wetlands effluent flow meters. Flows in excess of 9.8 million gallons per day will still need to be treated by other disinfection methods, which may include continued chlorine use, but any use of chlorine past Phase I of the proposed improvements will use chlorine in a solid, not gaseous form, which significantly reduces its potential toxicity. The City has indicated a low likelihood of needing to use other disinfection methods in addition to UV, as the highest daily flow recorded from 2013-2017 was 9.1 MGD, and the average annual flow is only 1.7 million gallons per day (Carollo, 2019; Appendix A). The improved system will significantly reduce the need for toxic substances in the treatment of Arcata's wastewater. Reduced need for chlorine and sulfur dioxide (used in the chlorine disinfection process) will ensure reduced potential of chlorine cylinder spills in the event of a catastrophic event and will reduce hazards to employees on an ongoing basis.

The proposed facility upgrades and new single flow configuration for treated wastewater effluent will provide overall improvements to effluent quality discharged to Humboldt Bay, because all effluent up to 5.9 MGD may receive enhanced treatment through the

---

[35] The NPDES permit prohibits discharge of flows greater than 5.9 MGD to new Outfall 003. Therefore, flows above 5.9 MGD must be either stored in the oxidation ponds and treatment wetlands or discharged on an emergency basis to existing Outfall 001.

[36] Ongoing permit violations of plant effluent limits for BOD and TSS indicate a need for additional secondary treatment capacity beyond that of the existing natural system.

[37] E.g., ammonia and nitrogen discharges

[38] E.g., fecal coliform

[39] Cited effluent limit violations were namely for disinfection by-products (dichlorobromomethane, carbon tetrachloride and cyanide) and total residual chlorine.

AMWS. In addition, chlorination will no longer be the primary form of disinfection, so formation of disinfection byproducts will be greatly diminished. Treated effluent discharged at Discharge Point 003 will enter Humboldt Bay in a diffuse manner due to the tidal mixing within the brackish marsh and subsequent flow through tidal marshes. As a result, the upgraded facility will maintain and protect water quality and marine resources by providing for higher quality effluent entering Humboldt Bay consistent with Coastal Act sections 30230 and 30231.

Measures to Protect Water Quality from Construction-related Impacts

Portions of the proposed project involve conducting work within and adjacent to coastal waters. The development could result in adverse impacts to water quality from both construction-related activities and stormwater runoff from the project site once it is completed. Most of the project area is generally flat with dispersed runoff into vegetated areas, with exception to areas within the WWTP where stormwater is collected and pumped to the oxidation pond, then subject to additional treatment as it circulates through the enhancement wetlands.

The City has provided a partial list of demolition materials and detailed demolition plan sheets. Construction debris will include the demolished bridge materials, pressure treated wood to be removed from the emergency pump house, and debris from demolition of certain buildings and infrastructure to be replaced, such as but not limited to the mill shed, upper headworks, primary clarifier, pond pump station, chlorine contact basin appurtenances (e.g., grating stairs, pipes, cables, hoist), replaced electrical equipment, etc. The City has indicated that pressure treated wood will be disposed of at an appropriate hazardous material disposal facility located using the current Department of Toxic Substances Control Guidance[40], such as Humboldt Waste Management Authority's Hazardous Waste Facility which currently accepts pressure treated wood. The City has also indicated that the contractor would be responsible for proper disposal of all materials. To ensure that waste and debris generated by the development will be properly handled and disposed of in a manner that protects water quality and aquatic resources, **Special Condition 6** (Final Construction Staging, Stockpiling, and Debris Disposal Plan) requires submittal of a final debris disposal plan for the Executive Director's review and approval prior to commencement of construction. Additionally, the Commission attaches **Special Condition 7B(1)** (Additional Water Quality Protection Measures), which includes requirements for safe containment, temporary storage, and removal of pressure treated wood.

To minimize the generation of suspended sediment during installation of Outfall 003 and removal of wetland fill associated with mitigation work, the City proposes to limit in-water work to low tide periods between June 15 and September 15. As further detailed below, prior to commencing construction at Outfall 003, the City will close the tide gate at low tide then dewater the area and install coffer dams around the work area. After

[40] The updated Department of Toxic Substances Control Guidance can be accessed online at https://dtsc.ca.gov/toxics-in-products/treated-woodwaste/

construction, water will be allowed to settle 12-24 hours before removing the coffer dam. **Special Condition 7A(1)** (Timing of Work) has been added to incorporate the in-water timing limitations proposed by the applicant.

Work over waterways also includes the proposed maintenance of an existing wastewater pipeline and removal of a wooden pedestrian bridge with a prefabricated concrete sectional deck, located over Butcher Slough near the treatment facility. A new bridge was constructed immediately adjacent to the existing bridge in 2017 as part of construction of the Humboldt Bay Trail North Project.[41] The City proposes to remove the bridge deck to facilitate maintenance on the existing wastewater treatment pipes below the wooden bridge and to accommodate the proposed new electrical and telemetry conduits required for the upgrading of the Hauser pump station. The existing pipes will be sandblasted and recoated, and the conduit will be replaced. No heavy equipment will be required to enter the slough channel for this work. The concrete bridge deck sections will be removed one at a time by a crane operated from the top of bank, and the demolition debris will be recycled. To ensure the protection of marine resources and water quality, the City has provided specifications that the contractor must adhere to, including, among other things, enclosing the underside of the entire structure within a suspended barrier to contain any demolition and maintenance debris from entering the slough. **Special Condition 7A(3)** (Butcher Slough Crossing Bridge Demolition and Pipe Rehabilitation) includes the applicant's proposed debris containment measures and specifications for sandblasting and recoating exposed pipes during bridge demolition and pipeline maintenance activities.

Proposed landside construction activities include installing electrical trenching and wastewater piping, and new pump stations. Additionally, construction of the new electrical building, UV electrical building, headworks, and primary clarifier will also require new foundation work involving the installation of a total of 73 cast-in-drilled-hole (CIDH) concrete piers, each 3 feet in diameter and extending to a depth ranging between 78-90 feet. Landside construction activities could result in sediments, debris, and other pollutants entering Humboldt Bay and impacting water quality. To avoid such impacts, the City proposes a number of erosion and sediment control and pollution prevention measures. Among other erosion, runoff, and sediment control Best Management Practices (BMP)s, the City proposes to (a) limit most ground-disturbing activities to periods of dry weather only,[42] (b) contain onsite stockpiles of soil and construction debris at all times; (c) install suitable sediment control BMPs such as silt

[41] See https://cityofarcata.org/318/Humboldt-Bay-Trail-North. The Commission approved the portion of the project in the coastal zone on October 5, 2016 under CDP 1-16-0122.

[42] The City has indicated that: "Some completely new facilities including the electrical building, generator pad and associated trenching are major items work which may be constructed in the wet season, weather permitting. The new electrical building construction is limited to work within the WWTP site and BMPs would be possible to permit these time sensitive construction activities to occur in anticipation of other major works requiring the new electrical service to be available for dry weather operations."

fencing or fiber rolls downgradient of disturbed areas; and (d) stabilize exposed soils with mulch or other erosion control measures.

In addition to dewatering needed for in-water construction of Outfall 003, installation of piers and utility trenching will also require dewatering groundwater from excavation areas. The City has indicated that the project contractor will be responsible for providing a Stormwater Pollution Prevention Plan (SWPPP) that will include provisions for dewatering construction areas. The City also proposes the use of "Dewatering Operations BMPs" established under BMP NS-2 of the Caltrans Construction Site BMPs Manual.[43] **Special Condition 7A(4)(a)** has been added to require submittal of a dewatering and discharge work plan meeting the requirements of the Regional Water Board and consistent with BMP NS-2 for the Executive Director's review and approval at least 30 days prior to commencement of in-water construction.

The Construction SWPPP also would identify and specify the use of erosion sediment control BMPs for control of pollutants in stormwater runoff during construction-related activities, and would be designed to address erosion control, sediment control, off-site tracking control, wind erosion control, non-stormwater management control, and waste management and materials pollution control. A sampling and monitoring program would be included in the Construction SWPPP that meets the requirements of the Regional Water Board to ensure the BMPs are effective. A Qualified SWPPP Practitioner would oversee implementation of the Plan, including visual inspections, sampling and analysis, and ensuring overall compliance.

The City's proposed best management practices have been incorporated into the requirements of **Special Condition 7A** (Construction Requirements to Protect Marine Resources and Water Quality) to ensure they are implemented as proposed to protect and maintain water quality. To ensure that adverse water quality impacts associated with hazardous material spills are minimized, the City proposes to only use equipment that relies on vegetable based hydraulic oil for portions of the project involving construction over or in coastal waters and wetlands. Vegetable based hydraulic oil has lower aquatic toxicity and breaks down more rapidly in the environment than petroleum products, reducing the potential water quality impacts of spills. The City will also require the contractor submit a Spill Prevention Plan that meets specifications established in the City's adopted Stormwater BMPs Handbook[44]. Spill prevention measures that are established in the City's Stormwater BMPs Handbook include (a) maintaining equipment free of oil and fuel leaks at all times; (b) keeping hazardous materials management equipment including absorbent pads available and immediately on-hand at the project site; and (c) rapidly containing and cleaning up any accidental spills that occur. **Special Condition 8A(4)** requires submittal of the final spill prevention plan for the Executive

[43] https://dot.ca.gov/-/media/dot-media/programs/construction/documents/environmental-compliance/csbmp-may-2017-final.pdf

[44] The City's Adopted Stormwater BMPs Handbook contains spill prevention standards that include among others, SC-11, SC-20, SC-21, SC-22, WM-1, and WM-4 and can be accessed online at https://www.cityofarcata.org/DocumentCenter/View/1055/Arcata-BMP-Manual-PDF?bidId=

Director's review and approval prior to commencement of construction. Therefore, the Commission finds that as conditioned, the proposed development will provide protection against the spilling of gas, petroleum products, and hazardous substances and provide effective containment and cleanup for accidental spills consistent with section 30232 of the Coastal Act

The City has indicated that post-project stormwater runoff is not expected to be significantly different than pre-project stormwater runoff. Stormwater runoff within the footprint of the corporation yard, treatment wetlands, and oxidation ponds currently drains to the WWTP and stormwater runoff within the larger AMWS drains either to enhancement wetlands or directly to Humboldt Bay. No additional sources of pollution will be introduced through proposed developments, and all runoff will drain to the WWTP and therefore will be treated to NPDES standards. The City has provided stormwater management system design calculations demonstrating that the stormwater drainage system has been adequately sized for flow-based BMPs using the 85th percentile 24-hour design storm for flow-based BMPs. The proposed stormwater drainage system is also designed for the maximum credible storm event under a FEMA 1% return interval based upon the City's adopted FEMA flood zone ordinance (Ordinance No. 1491).[45] Stormwater drainage pumps are designed for lead/lag operation, without redundancy at the pump station during the design storm event.

With the incorporation of Special Conditions 7 through 9, the Commission finds that the development will protect marine resources and prevent degradation of the biological productivity and quality of coastal waters consistent with the requirements of Coastal Act sections 30230, 30231, and 30232.

Measures to Protect Marine Resources from Construction-related Impacts

The project site is adjacent to both Arcata Bay, an enclosed, tidally influenced inlet of the sea, and the lower reaches of Butcher Slough, a tidally influenced coastal waterway. The marine environment of Humboldt Bay supports numerous fish species, including a number of special-status fish species such as green sturgeon (*Acipenser medirostris*), coho Salmon (*Oncorhynchus kisutch*), steelhead (*Oncorhynchus mykiss irideus*), and Chinook Salmon (*Oncorhynchus tshawytscha*); and various pacific coast groundfish. Portions of the project area also provide critical habitat for tidewater goby (*Eucyclogobius newberryi*), including within Brackish Marsh, near the tide gate outlet.

As indicated above, a total of 73 CIDH concrete piles will be installed in upland areas upslope of Butcher Slough within the footprint of the wastewater treatment plant to provide foundational support for critical infrastructure. The possibility of using driven piles instead of CIDH piers was previously evaluated in preliminary geotechnical reports, but the drilled piers were selected based on constructability and lower

[45] The City's flood plain ordinance is not part of the certified LCP and is used only as guidance herein.

environmental impact through avoidance of hydroacoustic impacts.[46] The proposed avoidance of pile driving and the limits on installation of drilled piers to only within upland areas, along with implementation of water quality BMPs described above, ensures the protection of fish species and other marine resources.

i. Essential Fish Habitat (EFH)

Proposed work associated with construction of Outfall 003 at Brackish Marsh includes dewatering an area between a water-filled coffer dam and the shoreline that will be temporarily isolated from the rest of the marsh. The footprint of the construction activity within Brackish Marsh is depicted on page two of **Exhibit 10** and page four of **Exhibit 12**. The City will require the contractor to submit a specific dewatering plan for the City's review and approval prior to construction. The City also proposes the use of "Dewatering Operations BMPs" established under BMP NS-2 of the Caltrans Construction Site BMPs Manual.[47] **Special Condition 7A(4)(a)** has been added to require submittal of a dewatering and discharge work plan meeting the requirements of the Regional Water Board and consistent with BMP NS-2 for the Executive Director's review and approval prior to commencement of in-water construction.

The City has also included Mitigation Measure BIOL-2 to ensure protection of salmonids and other aquatic species during in-water construction work associated with construction of Outfall 003. As part of Mitigation Measure BIOL-2, prior to commencing construction at Outfall 003, a qualified biologist who possesses the appropriate fish handling permits (i.e. Scientific Collection Permit, NOAA 4(d) Rule Permit) will be responsible for fish relocation. Fish exclusion fences (meeting "fry-size" criteria of CDFW and FWS) will be installed in water surrounding the construction area. The City has provided additional construction-phase BMPs in a submittal dated September 17, 2021. According to this information, the City will then close the tide gate at low tide, then dewater the area and install coffer dams around the work area. A long reach excavator (or similar upland-based equipment) will be staged on the upland above the outfall installation area. The equipment operator will place the empty coffer dam and then allow the area outside of the coffer dam to refill with water to create the excluded area. No equipment will operate within the Brackish Marsh. The area within the fish exclusion fences will be seined and fish will be relocated to an appropriate adjacent habitat. After construction, water will be allowed to settle 12-24 hours before removing the coffer dam.

To prevent sedimentation and/or turbidity from entering coastal waters, the City's mitigation measure BIOL-2 additionally proposes implementation of standard BMPs consistent with the City of Arcata's Stormwater Best Management Practices Manual, the City's stormwater ordinance, and the SWRCB's construction general permit, Standard best management practices. The aforementioned in-water avoidance and minimization

[46] Pile-driving on land can cause hydroacoustic impacts in waters at a significant, and not easily predicted distance from the pile-driving location. Therefore, no pile-driving of any kind is proposed by City of Arcata or approved by CDP 1-20-0711.

[47] https://dot.ca.gov/-/media/dot-media/programs/construction/documents/environmental-compliance/csbmp-may-2017-final.pdf

measures and BMPs have been incorporated into **Special Conditions 7A(2)** (Erosion, Sediment, and Runoff Control) and **7A(4)** (Water Quality and Fish Protection Measures) to ensure they are implemented as proposed to minimize impacts and protect and maintain fish species. To further ensure fish and other aquatic species are protected from potential impacts of construction of Outfall 003 as proposed, **Special Condition 11A** (Protection of Biological Resources) incorporates the City's proposed mitigation measure BIOL-2 in full, as presented in **Appendix B**.

The City also proposes to limit in-water work to June 15 through September 15, when anadromous fish are least likely to be present in the area (i.e., before the majority of the upstream adult spawning migrations and after the downstream migration of smolts has occurred). In-stream work will be done during the dry season at low tide with a fish biologist on-site during in-stream operations to monitor for the presence of anadromous fish and other wildlife species. As indicated above, **Special Condition 7A(1)** has been added to incorporate the in-water timing limitations proposed by the applicant.

Stillwater Sciences prepared a Biological Assessment for the City dated June 23, 2021 and submitted for USACE review and consultation pursuant to section 404 of the Clean Water Act. On July 27, 2021, NMFS responded to a July 1, 2021 request from USACE for concurrence and concurred that the proposed project may affect, but would not be likely to adversely affect federally-listed fish species or their individual designated critical habitat. The Brackish Marsh also contains habitat that contributes to the feeding and growth of juvenile groundfish. NMFS' determination additionally found that proposed activities would adversely affect essential fish habitat for Pacific Coast Groundfish and Coastal Pelagic Species managed under the Pacific Coast Salmon Fishery Management Plan due to the following: (1) temporary and minor increases in turbidity; (2) disturbances to benthic habitat and substrates during removal of concrete rubble (associated with wetland fill mitigation); and (3) changes to the water quality and salinities in the action area.

Although the project may result in temporary and minor increases in turbidity, the project has been designed to maintain and protect marine resources through the implementation of erosion, sediment, and runoff control measures and development and implementation of a SWPPP. Special Conditions 8A and 9 require the applicant to adhere to all proposed measures, such as but not limited to employing the use of erosion control and containment measures to prevent runoff, pollutants, or an increase in sedimentation from entering coastal waters. Furthermore, the Commission attaches **Special Condition 7B** to, among other things, limit earth-disturbing work to the dry season (April 15 through October 31, or as may be extended by the Executive Director to November 30 for good cause), with limited exceptions.

Potential disturbances to benthic habitat and substrates during concrete removal would be temporary and the removal of concrete fill would ultimately result in an increase in available benthic habitat and substrates upon removal of fill from the banks of Butcher Slough. The applicant's proposed measures have been included as **Special Condition 12** and include among other things, limiting work to when tidal elevations are below four feet NAVD88, and avoiding work in the wetted channel. Thus, the proposed removal of

concrete as conditioned will further reduce the risk of impacting benthic marine resources while mitigating for fill of wetlands as discussed further in Finding IV.I below.

As indicated previously, from its inception as part of the approved McDaniel Slough Restoration Project, creation of the approximately 17-acre Brackish Marsh was designed for mixing bay water with treated wastewater to create the brackish marsh habitat. Up to seven cubic feet per second (CFS), or 4.52 MGD, of treated wastewater was planned to be gravity fed to Brackish Marsh. Flow volumes were planned to be managed to mimic natural seasonal fluctuations in other Humboldt Bay tributaries. Thus, by design, salinities are expected to be reduced after the contributions of freshwater into the Brackish Marsh are enabled by construction of Outfall 003. Although a larger volume of treated wastewater effluent is now proposed to cycle through the Brackish Marsh (5.9 MGD) than originally designed, the tide gate at Outlet 003 is adjustable in order to mute the tidal cycle and to provide flexibility to adjust salinity to desired ranges. In its July 27, 2021 concurrence letter, NMFS acknowledges that "the reduction in salinity may change the current species and life history utilization of the action area by several managed species, but would not cause permanent adverse effects into the future as the species compositions shift."

The June 2021 Stillwater Sciences Biological Assessment additionally describes potential effects on groundfish as follows:

> EFH for groundfish in the Action Area includes nearshore and tidal submerged environments within state territorial waters that are necessary for their spawning, feeding, or growth to maturity. The Brackish Marsh is 13 acres and Humboldt Bay is approximately 15,360 acres. The Brackish Marsh contains [*approximately*] 0.08 percent of EFH in Humboldt Bay. The discharge of freshwater effluent would result in the dilution of the existing salinity conditions in the Brackish Marsh. However, it is expected that stratification could occur with the brackish water on the bottom and freshwater on top.

Thus, although salinity levels may result in changes to species composition in the localized area immediately surrounding the Brackish Marsh, habitat conditions overall in Humboldt Bay are anticipated to remain unaffected by the proposed project.

ii. Tidewater Goby

During the environmental review of the McDaniel Slough restoration project, the construction of Brackish Marsh was determined to provide habitat conditions suitable for tidewater goby by providing a freshwater input. As part of the McDaniel Slough project, Brackish Marsh was excavated to appropriate elevations for mixing bay water with treated wastewater to create the brackish wetland habitat. Desired salinity ranges of 5-10 ppt within Brackish Marsh was identified as suitable for tidewater gobies. Subsequently, gobies have been detected during surveys of Brackish Marsh conducted between 2014-2017, including positive detections in 2015 (21 fish) and 2016 (10 fish); no detections were observed during surveys conducted in 2014 and 2017.

As discussed in **Finding IV.I** ("Fill of Wetlands and Coastal Waters"), installation of the new outfall and treatment facility infrastructure will also result in impacts to 0.05 acre of palustrine and emergent wetlands, which the City proposes to mitigate by removing fill and restoring 0.1 acre of estuarine wetland within Butcher Slough. The proposed construction of Outfall 003 would remove approximately 0.01 acres (436 ft^2) of potentially suitable substrate for tidewater gobies due to lining the Outfall 003 discharge area with riprap to prevent erosion and dissipate water velocity.

On November 3, 2021, U.S. Fish and Wildlife Service responded to a July 26, 2021 request from USACE for its biological opinion and issued a "No Jeopardy" opinion and Incidental Take Statement for the tidewater goby. The USFWS determined in part that: (1) loss of 0.01 acre (436 square feet) of substrate habitat within the Brackish Marsh would be an insignificant portion of the 12,156 acres range-wide; (2) impacts to gobies would be minimized through the proposed project's minimization measures; (3) based on maximum observed densities from local surveys, the risk of mortality to gobies is likely to be small (2 adult gobies, 400 eggs/larvae) and is not likely to have adverse population-level impacts; and (4) the project impacts would be mostly temporary, and permanent impacts would result in improved habitat quality due to the introduction of freshwater into the Brackish Marsh.

Thus, although the construction of Outfall 003 will result in temporary and permanent impacts to goby habitat, the project is anticipated to result in an overall improvement to habitat in the surrounding area by establishing the brackish marsh conditions originally envisioned under the McDaniel Slough restoration project.

As indicated previously, the City proposes to mitigate for impacts associated with the filling of 0.05 acre of wetlands from project activities by removing 0.1 acre of concrete fill from the banks of Butcher Slough within the project vicinity. **Special Condition 12** (Onsite Wetlands Mitigation and Monitoring) requires that the proposed mitigation be carried out. The portion of Finding IV.I discussing the fill impacts of the development and its mitigation are incorporated herein and the Commission finds that in addition to ensuring that the approved wetland fill will provide feasible mitigation measures to compensate for the displacement of estuarine and palustrine wetland habitat consistent with section 30233, Special Condition 12 is necessary to ensure that the project will protect these marine resources consistent with section 30230.

For all the reasons discussed above, the Commission finds that the development as conditioned, will maintain marine resources and the biological productivity and quality of coastal waters as mandated by Coastal Act sections 30230 and 30231.

G. Publicly Owned Wastewater Treatment Works

Section 30254 of the Coastal Act states, in applicable part:

> New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or uses permitted consistent with the provisions of this division… Where existing or planned public works facilities

> can accommodate only a limited amount of new development, services to coastal dependent land use, essential public services and basic industries vital to the economic health of the region, state, or nation, public recreation, commercial recreation, and visitor-serving land uses shall not be precluded by other development.

Section 30254.5 of the Coastal Act states:

> Notwithstanding any other provision of law, the commission may not impose any term or condition on the development of any sewage treatment plant which is applicable to any future development that the commission finds can be accommodated by that plant consistent with this division. Nothing in this section modifies the provisions and requirements of Sections 30254 and 30412.

Section 30412 of the Coastal Act cited above states, in applicable part (emphasis added):

> …
>
> (b) The State Water Resources Control Board and the California regional water quality control boards are the state agencies with primary responsibility for the coordination and control of water quality. The State Water Resources Control Board has primary responsibility for the administration of water rights pursuant to applicable law. The commission shall assure that proposed development and local coastal programs shall not frustrate this section. The commission shall not, except as provided in subdivision (c), modify, adopt conditions, or take any action in conflict with any determination by the State Water Resources Control Board or any California regional water quality control board in matters relating to water quality or the administration of water rights.
>
> Except as provided in this section, nothing herein shall be interpreted in any way either as prohibiting or limiting the commission, local government, or port governing body from exercising the regulatory controls over development pursuant to this division in a manner necessary to carry out this division.
>
> (c) Any development within the coastal zone or outside the coastal zone which provides service to any area within the coastal zone that constitutes a treatment work shall be reviewed by the commission and any permit it issues, if any, shall be determinative only with respect to the following aspects of the development:
>
> (1) The siting and visual appearance of treatment works within the coastal zone.
>
> (2) The geographic limits of service areas within the coastal zone which are to be served by particular treatment works and the timing of the use of capacity of treatment works for those service areas to allow for phasing of development and use of facilities consistent with this division.

(3) Development projections which determine the sizing of treatment works for providing service within the coastal zone.

The commission shall make these determinations in accordance with the policies of this division and shall make its final determination on a permit application for a treatment work prior to the final approval by the State Water Resources Control Board for the funding of such treatment works. Except as specifically provided in this subdivision, the decisions of the State Water Resources Control Board relative to the construction of treatment works shall be final and binding upon the commission.

(d) The commission shall provide or require reservations of sites for the construction of treatment works and points of discharge within the coastal zone adequate for the protection of coastal resources consistent with the provisions of this division…

Section 30254 requires that new or expanded public works facilities be designed and limited to accommodate needs generated by levels of development permitted consistent with the Coastal Act. The purpose of the proposed project is to improve wastewater treatment and modify how treated wastewater is discharged in order to meet current NDPES permit requirements. The proposed project will not alter the geographic limits of the City's service area or increase service capacity. The City provides wastewater collection and treatment services to all users within both the City limits (including Cal Poly Humboldt) and Urban Service Boundary and extending beyond the urban limit line established by the certified City of Arcata LCP and outside city limits to the unincorporated community of Glendale. Lands covered by the urban service area encompass areas both within and outside the coastal zone.

The Urban Services Boundary section, along with the Locating and Planning New Development, and Public Works appendices of the City's certified land use plan (LUP) set forth policies and standards for timely and appropriate extension, provision, and planned capacities of community services and utilities, including domestic water supply and wastewater treatment infrastructure. The emphasis of these provisions is to establish guidance for the City's development regulatory program to safeguard coastal resources from inappropriate patterns or intensities of growth facilitated or induced by unplanned for and/or uncoordinated expansion of public works facilities, consistent with sections 30254, 30254.5, and 30412. These LUP sections also contain policies limiting such public works to capacities needed to serve anticipated planned-for growth such that growth inducement does not result from prematurely "over-building" the facilities.

The City's IS/MND (adopted in December 2020) evaluated both Phase I and Phase II project components. As indicated above, Phase I developments include replacing aging infrastructure needed to maintain existing service capacity while improving and upgrading certain components (e.g., adding UV disinfection and Outfall 003) that are needed now to resolve some, but not all water quality effluent violations to meet regulatory requirements. Section 3.14 of the adopted IS/MND states in part the following:

> The City of Arcata currently has a population of 18,675[*48*]. The City of Arcata's General Plan: 2020 was created in 2008 and outlined a 10% community growth factor. However, the City's Community Director stated that community growth is anticipated to be 20 percent from now until planned buildout (2050). The 20% growth factor was utilized in planning for this project.

The City's Phase II goals for facility improvements include additions that build on the performance of Phase I improvements and result in construction of all the additional facilities needed for a parallel secondary (traditional) treatment facility, at an anticipated cost of at least $33 million,[49] plus levee augmentation cost estimates of $5.5 million.[50]

As discussed further in **Finding IV.H** ("Coastal Hazards"), any future developments proposed as part of Phase II may raise significant questions regarding the long-term siting of critical infrastructure in vulnerable areas requiring additional analysis of feasible alternatives. The City's projections of accommodating 20 percent growth through 2050 upon completion of all proposed facility improvements also raise significant questions regarding potential growth inducing effects of future potential facility improvements envisioned under Phase II, and the need to serve certain priority uses as set forth in Coastal Act section 30254. Thus, the City is not proposing Phase II developments as part of the subject project.

Phase I improvements are not designed to increase capacity for receiving wastewater to accommodate long-term, future growth projections. Instead, and as indicated in section 4.14.1 of the City's adopted IS/MND, treatment Facility rehabilitation and improvements are designed to maintain the existing 2.3 MGD dry weather flow treatment capacity to serve the existing population in the City of Arcata. The City's adopted IS/MND additionally states in section 4.21.2: "Because the proposed improvements are being completed to comply with NCRWQCB requirements for wastewater treatment and discharge and would not increase the capacity of the AWTF, there would be no additional growth inducement over what was analyzed in the City's General Plan and related PEIR (City of Arcata, 2000)."

---

[48] Recently released Census data dated April 1, 2020 show the population of the City of Arcata at 18,857.

[49] Cost projections are from City of Arcata Wastewater Cost of Service Study 2020 prepared by Bartle Wells Associates (accessible online at http://arcataca.iqm2.com/Citizens/FileOpen.aspx?Type=4&ID=3955&highlightTerms=wwtp) and adapted from Carollo Engineers Final Predesign Report May 2019 Phased Cost Study (accessible online at http://arcataca.iqm2.com/Citizens/Detail_LegiFile.aspx?Frame=&MeetingID=2750&MediaPosition=8944.477&ID=2067&CssClass=)

[50] 2020 Cost estimates from BRIC Arcata Wastewater Treatment Facility Levee Expansion Project Cost Analysis Justification Report, Revised January 8, 2021.

The City indicates capacity is being designed to accommodate growth envisioned by the 2020 General Plan Update, which has not been certified by the Commission.[51] However, according to the 1989 certified LCP, the wastewater treatment facility was designed for a population of 20,000, which is not unlike the growth projections contemplated under the City's locally adopted 2020 General Plan.[52] In 2012, the City's population was approximately 17,200. According to U.S. Census Bureau data, as of April 1, 2020 the City's population was 18,857.[53]

As described in the City of Arcata certified land use plan Appendices J (Locating and Planning New Development) and L (Public Works), and in Table 1.1 of the Final Predesign Report prepared by Carollo (May 2019), the AWTF has a design and permitted average dry and wet weather flow that can accommodate existing and projected demand in the service area. The facility's design average dry weather flow (ADWF) is 2.3 MGD, while actual ADWF is currently approximately 1.1 MGD. The design average and current peak wet weather flow (AWWF) is 5.9 MGD, with a 16.5 MGD peak hour wet weather flow.

Thus, although the proposed project will increase flows through the enhancement wetlands, it will not result in an increased treatment capacity of the overall system (i.e., design flows remain the same). Following construction, the project would not directly or indirectly induce population growth and would not increase the amount of wastewater generated. The addition of the Brackish Marsh Outfall 003 that will receive the treated wastewater will provide additional beneficial use of treated wastewater and not result in the need for increased wastewater treatment capacity. Because there would be no increase in wastewater discharges, the Project would not impair the ability of the AWTF to continue serving existing commitments, even during construction activities.

Special Condition 1 reflects the existing requirements of the Coastal Act that changes to improvements and design of the wastewater treatment facility would require coastal development permit (CDP) authorization by the Commission. During the review of any such CDP application, the Commission would have the opportunity to ensure that any future changes would continue to match treatment facility capacity with the wastewater treatment needs generated by certified LCP development densities consistent with section 30254 of the Coastal Act. Therefore, the Commission finds that the proposed project is consistent with section 30254 of the Coastal Act.

---

[51] The City adopted an updated Coastal Land Use Plan (LUP) on October 4, 2000, and subsequently adopted an updated zoning ordinance. The update of the LCP (LCPA No. ARC-MAJ-1-09) was transmitted April 17, 2009. Prior to Commission action, the City withdrew the IP (including the zoning ordinance) portion of the update. The Commission approved the LUP portion of the update with suggested modifications on September 8, 2011. The City declined to accept the modifications.

[52] The GPU 2020 assumptions included "modest growth from 16,400 in 1997, to a 2020 population of about 20,000."

[53] U.S. Census Bureau population data for the City of Arcata is accessible online at: https://www.census.gov/quickfacts/fact/table/arcatacitycalifornia,US/POP010220#POP010220

Section 30254.5 places limitations on the Commission's ability to impose permit terms or conditions on the development of any sewage treatment plant which would prejudice or otherwise obviate the plant's ability to provide sewage treatment to any Coastal Act-consistent future development that the Commission determines could be accommodated by the plant. Section 30412 further restrains the Commission's actions with regard to water quality issues, especially the development of publicly-owned wastewater treatment works, prohibiting the Commission from taking actions that would be in conflict with the State or Regional Board's determinations and limiting the Commission's determinations on the development of such treatment works within the coastal zone to issues regarding: (1) the siting and visual appearance of the treatment works; (2) the geographic limits of service areas within the coastal zone which are to be served by particular treatment works and the timing of the use of capacity of treatment works for those service areas to allow for phasing of development and use of facilities consistent with the Coastal Act; and (3) development projections which determine the sizing of treatment works for providing service within the coastal zone.

The State and Regional Boards have direct and/or delegated authority to regulate the chemical and thermal characteristics of surface and groundwater resources, specifically in controlling the presence and concentrations of chemical constituents within the aqueous environment, in the interest of protecting human health, biological resources, and other "beneficial uses" of the waters of the state and the nation.

The Commission acknowledges the distinctions in these responsibilities and limits its actions accordingly to preclude conflicts in instances where a water board has made determinations on a development project that is also subject to the Commission's authority, particularly with regard to the setting of quantitative limitations on point and non-point source pollutants through the issuance of NPDES Permits, waste discharge requirements, cease and desist directives, and cleanup and abatement orders. City staff, Water Boards staff, and Commission staff have been communicating closely to coordinate the process and progress towards addressing regulatory requirements.

The City's wastewater treatment and effluent discharge system is currently unable to meet the effluent requirements and terms of its NPDES permit, and the Regional Water Board has adopted a time schedule order requiring the City to undertake several specified actions to achieve compliance with effluent limits set forth in the NPDES permit. The Commission's action to approve this CDP will authorize development involving improvements necessary to meet NPDES permit discharge requirements and comply with the Regional Water Board's time schedule order. These improvements are facilitated by grant funding from the State Board and Community Development Block Grant funds under Title I of the Housing and Community Development Act of 1974.[54]

The Commission's consideration of the proposed development is: (1) undertaken pursuant solely to the authority duly granted to the Commission by the Coastal Act; (2)

[54] The City received Community Development Block Grant funding of $2,790,697 for the purchase and installation of UV disinfection equipment.

is limited to ensuring the approved development's conformance with the policies of the Coastal Act in a manner consistent with the limitations contained in sections 30254.5 and 30412; and (3) in no way represents actions which modify, supplant, condition, or otherwise conflict with a determination of either the state or any regional water quality control board in matters relating to water quality or the administration of water rights.

H. Coastal Hazards

Section 30253 of the Coastal Act states in relevant part:

> New development shall do all of the following:
>
> (a) Minimize risks to life and 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.

Coastal Act section 30270 requires that the Commission take the effect of sea level rise into account, stating:

> **Section 30270.** The commission shall take into account the effects of sea level rise in coastal resources planning and management policies and activities in order to identify, assess, and, to the extent feasible, avoid and mitigate the adverse effects of sea level rise.

As indicated in **Finding IV.A** above, the proposed development involves redevelopment of a wastewater treatment plant on the low-lying bay shoreline in an area vulnerable to tidal and storm flooding, wave runup, erosion, tsunami inundation, and liquefaction induced settlement and lateral spreading.

Flooding and Sea Level Rise

As indicated above, the Facility is located on the northeastern edge of Arcata Bay in an area consisting of former tidelands that were diked and filled in the late 1800s. Like much of the Humboldt Bay Area, the shoreline largely consists of a system of aging artificial structures that protect low-lying lands from inundation. In particular, a series of mostly fortified barrier levees surround the oxidation ponds, treatment wetlands, and enhanced wetlands that make up the natural, land-based portion of the AWTF and which run along the Arcata Marsh and extend into Arcata Bay. The core mechanical portion of the AWTF is located to the north and east of these ponds and is also protected by artificial structures. The location and system of aging protective features means that the AWTF site and facility itself, including the upgrades subject to this CDP, are currently exposed to coastal hazards, particularly from flooding that may result from overtopping, damage, or breaching of protective levees during extreme tidal or storm

events. Current and future risks of flooding of the facilities are illustrated in aerial and land-based photographs from recent King Tides events.[55]

Flooding

As a result of the AWTF's location, there is a risk that a portion of the upgraded facility will be inundated with flood waters during times of flood, which could compromise the facility's functionality and threaten public and environmental health by potentially sweeping up materials and/or releasing biosolids or untreated wastewater. The relatively high hazard associated with the site location is reflected in the flood maps prepared by the Federal Emergency Management Agency (FEMA), which show the site lies in Zone AE[56] which is a Special Flood Hazard Areas Subject to Inundation by the 1% Annual Chance Flood. The American Society of Civil Engineers (ASCE) requires that essential facilities be designed to meet Class III or higher flood design standards. In the project area, essential facilities are defined as those that provide for the conveyance of wastewater, including the headworks, chlorine contact basin, chlorine building, generator building, effluent pump station, wetlands pump station, UV disinfection facilities, and new electrical building. Additionally, The City's current floodplain ordinance (Ordinance No. 1491)[57] requires a minimum construction elevation of one foot above the base flood elevation (BFE) in the updated AE zone, within which all of the plant improvements will occur. The City is choosing to design to ASCE Class IV flood design standards to provide additional protection. Thus, as currently proposed, the project has been designed and sited to be at least two feet above the FEMA base flood elevation of ten feet (NAVD88). Electric connections will be protected to a minimum of 14 feet (NAVD88) and all new electrical components will be placed in PVC conduit runs within concrete duct banks throughout the project area. If flooding occurs within the protective earthen levee around the AWTF, the City proposes to pump and treat floodwaters using the new stormwater pumping system tied into the AWTF oxidation ponds. The new stormwater pumping system is sized for the 100-year event.

By elevating essential facilities above the minimum FEMA flood standards and incorporating flood response measures (such as the ability to pump and treat floodwaters during anticipated infrequent extreme flood events), the project design avoids impacts to development from flood hazard events under present-day conditions during its proposed 30-year development life.

Storm Events

The City has described the facility's ability to withstand major storm events based upon past storm events in part as follows:

---

[55] For example, see https://www.flickr.com/photos/calpolyhumboldtgalleries/sets/72157713059548562/ courtesy of Cal Poly Humboldt. as well as https://www.coastal.ca.gov/kingtides/ and https://www.cityofarcata.org/924/Sea-Level-Rise-King-Tides

[56] Zone AE: No base flood elevations determined.

[57] The City's flood plain ordinance is not part of the certified LCP and is used only as guidance herein.

> Robert Gearheart, PhD., Director of the Arcata Marsh Research Institute, analyzed sea level rise and severe weather events' potential impacts to land-based systems and found the natural systems can withstand significant, even full, temporary inundation and still provide ongoing treatment capacity. Inundation would result in the natural systems becoming brackish, which 1) would be diluted with existing and incoming wastewater and 2) would be released in a diluted quantity as wastewater is processed. In this manner, bay waters incorporated into the treatment system through inundation or short term exposure from wave over-topping or storm surge would discharge from the treatment system over the course of several weeks. Temporary inundation would not affect the plant communities found in the treatment system, as all of the dominant macrophytic species and many of the nano-planktonic algae are found in brackish marsh environments. In fact, long-term exposure of the dominant macrophytes to brackish water less than 10 ppt (1%) has been shown to support healthy wetlands.
>
> This analysis is supported by monitoring data from 2006 when a large storm event caused wave overtopping in the natural system. There were no significant changes in routine water quality monitoring data, and no water quality-based effluent violations occurred because of the overtopping event.

The City has concluded that saltwater intrusion from storm surges is not anticipated to significantly impact water quality during the design life of proposed improvements (2025 to 2055). Other risks from severe weather events include the potential to overwhelm inflow and infiltration (I/I) volumes to the stormwater collection system. The City has prepared a Disaster Preparedness and Assessment Plan dated June 1, 2022 that acknowledges "Historically, surcharge within the collection system has the greatest vulnerability to severe storms…. The POTW is designed to handle wet weather events typical for the area but in extreme cases, surcharging and sanitary sewer overflow do occur. Surcharging and overflow threaten public and environmental health through the release of raw or partially treated sewage and may cause property damage to public and private property." The Local Area Formation Committee (LAFCO) November 2020 Municipal Services Review for the City of Arcata similarly recognized the limitations of the City's capacity for accommodating peak flows in part as follows:

> While the facility can currently accommodate average dry weather flow, it struggles with average wet weather flow due to I/I and rainfall in the treatment ponds. In 2019 the measured Dry Weather Influent flow was 1.108 MGD and the Wet Weather Influent Flow was 1.955 MGD[58]. However, during wet weather months (December to April), flows reached a maximum of 9.9008 MGD which greatly exceeds plant capacity.[59]

---

[58] City of Arcata, Environmental Compliance, Personal Communication – Email. October 21, 2020 (in LAFCO adopted Municipal Services Review, November 18, 2020).

[59] City of Arcata, 2019 Annual Wastewater Treatment Report, Arcata Wastewater Treatment Facility. February 2020 (in LAFCO adopted Municipal Services Review, November 18, 2020).

The City completed a major I/I reduction project in 2019 to address some of this risk. The proposed project has been designed to handle peak wet weather design flow of 5.9 MGD through the enhancement wetlands, and with routing of overflows in extreme events can handle additional effluent volume. UV disinfected effluent in excess of 5.9 MGD will discharge to Humboldt Bay at Outlet 001. The City will attenuate flow in excess of 9.8 MGD within Oxidation Pond 1. Flow in excess of 9.8 MGD will be disinfected with chlorine prior to discharge to Humboldt Bay at Outfall 001. Thus, the facility has shown it has the capacity to accommodate high wet weather flows from extreme storm events in addition to a large volume rainfall catchment.

Sea Level Rise

The flood hazard vulnerabilities described above will be exacerbated by rising sea levels. In the past century, global sea levels have increased by 7 to 8 inches (17 to 21 cm), and SLR has been accelerating in recent decades, with the global rate of SLR tripling since 1971 (IPCC, 2021). There is strong scientific consensus that SLR will continue over the coming millennia regardless of future human actions, but the exact rate and amount will depend on the amount of future greenhouse gas emissions as well as the exact contribution from sources such as the Antarctic and Greenland ice sheets, which are areas of continuing research. While planning coastal development under this uncertainty presents challenges, it is widely documented that underestimating SLR could result in costly damages and adverse outcomes to coastal resources. Planning and development decisions on the California coast must, therefore, be appropriately precautionary and made with the full understanding that SLR will change coastal landscapes and hazard conditions. Not only will siting and design decisions regarding proposed coastal development influence the future safety of the development and overall resiliency of the California coast, but it will impact the future of coastal resources protected under the Coastal Act.

Currently, the best available science on SLR projections in California is provided in the State of California Sea-Level Rise Guidance (OPC 2018) and is reflected in the Coastal Commission Sea Level Rise Policy Guidance (CCC 2018). These documents present probabilistic SLR projections as well as an extreme “H++” scenario for twelve locations (tide gauges) along the California coast and provide recommendations for which projections to use in various planning contexts based on level of risk aversion and project type. In particular, the guidance recommends taking a precautionary approach to sea level rise planning by avoiding relying on the lower projections in planning and decision-making processes, and instead evaluating the medium-high and extreme (H++) scenarios for longer lasting projects with less adaptive capacity and medium to high consequences should sea level rise be underestimated. The Commission’s recently adopted Critical Infrastructure Guidance integrates this statewide guidance by recommending that analyses use the extreme risk aversion scenario (H++) for critical infrastructure-related projects like the AWTF. This precautionary approach is important, because of the planning challenges and consequences associated with underestimating sea level rise for these assets, including the potential for significant environmental impacts resulting from damage to structures and the release of hazardous materials, as

well as risks to human health and safety associated with the loss of critical public services.

This does not mean that every project must be designed to be safe from the H++ scenario, and both the Commission's Critical Infrastructure Guidance and other statewide recommendations highlight the importance of phased adaptation to address current and near-term vulnerabilities while identifying a long-term approach that includes planning for extreme sea level rise scenarios if they come to pass.[60] This type of phased approach is particularly important for vulnerable critical infrastructure, as these assets need to continue to provide public services and ensure environmental protection at the same time as long-term adaptation options are being developed and implemented. The Commission has on several occasions approved a variety of upgrades, improvements, and protective features for wastewater and transportation infrastructure while requiring long-term sea level rise adaptation planning to ensure that these critical assets remain functional now and into the future.[61]

The proposed project is intended to maintain the functionality of the AWTF and mainly includes necessary improvements and replacements of existing structures, along with certain upgrades needed to ensure the treatment plant continues to meet NPDES discharge standards. The project is designed to have an approximately 30-year lifetime (through 2055) and as described above is envisioned by the applicant as the first phase of a broader improvement project that also includes longer-term sea level rise adaptation planning. The 2018 OPC State SLR Guidance projects up to 2.7-3.7 feet of sea level rise for this area over the proposed project lifetime through approximately 2055, though rising sea levels of up to 7.6-10.9 feet could occur by the end of the century (medium-high risk aversion and H++ scenarios at the North Spit tide gauge).

The applicant submitted a hazards analysis that identified the anticipated water levels at the site associated with sea level rise and various extreme tide and storm scenarios and related these scenarios to the possibility for overtopping and flooding impacts to the AWTF site and facility components. Currently, the levees surrounding the natural treatment ponds range in elevation from approximately 11.0 feet to 13.0 feet NAVD88, with some localized spots that are lower than 11.0 feet but which are adjacent to/immediately in front of areas that are at 11.0 feet or higher. Thus, limited overtopping of these levees could occur when water levels exceed this elevation. Under the medium-high SLR scenario, this water level (11.0 feet NAVD88) could be exceeded as early as 2030 with a 25-year storm, or with annual high tides around the end of the

[60] Note that recent scientific studies, primarily including the 2022 NOAA Technical Report on Sea Level Rise Science, suggest that extreme SLR is very unlikely to occur in the next several decades though remains a possibility towards the end of the century and beyond.

[61] See for example CDPs 1-18-1078(Caltrans Eureka-Arcata Highway 101 Corridor Improvement Project), 3-19-0020 (San Simeon Community Services District), and 3-16-0233 (South San Luis Obispo County Sanitation District).

project life in 2055. Under the worst-case, H++ scenario, the level would be exceeded by projected mean monthly maximum water levels (MMMW) in 2050.

The applicant's analysis suggests that the natural systems can "withstand significant, even full, temporary inundation and still provide ongoing treatment capacity." This is because the plant communities found in the treatment systems include species that are often found in brackish environments and thus would not be negatively impacted by temporary flooding associated with occasional overtopping events. Thus, the natural system is resilient to such periodic and infrequent events that may occur over the 30-year project lifetime.

The proposed project components that include mechanical systems are similarly protected by levees but would not tolerate flooding and inundation. In addition to being located behind protective levees, the mechanical systems are, in general, further protected from flooding impacts with raised elevation foundations, and electrical components are further raised in most cases to 14 feet NAVD88 or higher. Some existing mechanical systems, including the existing lower grit pump area and existing generator building would remain susceptible to flooding impacts towards the end of the project lifetime due to lower elevations, but the applicant notes that these rare flood occurrences could be addressed by standard flood event management practice including use of sandbags (which are available on site) and storm flood pumping.

Sea level rise will also result in changing groundwater dynamics that could lead to additional flooding impacts. In general, as sea levels rise, a higher marine water level will push groundwater tables upwards (becoming shallower) and inland. Depending on a variety of factors including local geology and soil permeability, the groundwater table could rise above the ground surface, resulting in emergent groundwater flooding. Even where groundwater does not become emergent, a shallower groundwater table as a result of sea level rise could begin to impact buried infrastructure. A shallower groundwater table could also limit the ability of lands to absorb stormwater and reduce the effectiveness of stormwater management strategies, also leading to flooding impacts. Changes in groundwater dynamics as a result of sea level rise is an area of ongoing study, but recent statewide groundwater modeling suggests that low-lying areas such as those surrounding Humboldt Bay may be particularly susceptible to these changes. Initial analyses from the applicant suggest that rising groundwater in this area will not impact the proposed development over the 30-year project lifetime, in part due to the higher ground and foundation elevations associated with the mechanical components. Further, the applicant has indicated that the presence of the oxidation ponds, wetlands, and wastewater collection and distribution system water surface elevations and gradients will reduce the effects of future groundwater rise above those currently experienced in the system (essentially because rising groundwater would move towards these features rather than emerging in currently dry land areas). The applicant notes that longer-term sea level rise adaptation planning can address groundwater changes and will benefit from additional study and monitoring.

Taken together, the project has been designed to avoid flooding impacts to the subject development over the proposed 30-year lifetime for all but rare or occasional flooding

under the most extreme sea level rise scenarios. In particular, temporary flooding associated with extreme tides or storm events may result in short-term overtopping of the existing protective levees under the medium-high SLR scenario in 2050-2055, though this scenario has only an estimated 0.5% chance of being met or exceeded. Flooding may be slightly more routine if the H++ scenario were to occur, but more recent scientific studies[62] suggest that extreme SLR is very unlikely to occur over this short-term time period (though remains a possibility towards the end of the century and beyond). The applicant states that these limited flood events could be managed with routine flood management practices including stormwater pumping and deployment of onsite, temporary sandbags, thus further minimizing the risks associated with flooding.

However, sea levels will continue to rise beyond the 30-year time period identified as the lifetime of the proposed new components. By 2100, projected sea level rise is upwards of 7.6-10.9 feet for the medium-high and H++ scenarios, which would easily overtop the existing protective levees, putting the new project components, the entire facility, and the broader site area at significant and increasing risk of hazards associated with flooding. The City has been actively engaged in sea level rise adaptation planning both city-wide and for this facility in particular, and is currently in the process of developing adaptation approaches to address short- and long-term vulnerabilities in this area. A variety of options have been explored, including elevating the low points of the existing levees to a uniform height in the near-term, elevating and/or expanding levees to provide longer-term protection, using living shorelines or other “green” or “soft” protection measures, or relocating all or portions of the AWTF, though none of these options have been fully described, finalized, or reviewed for consistency with the Coastal Act.

While the currently proposed project components are designed to minimize risks associated with coastal hazards over their 30-year lifetime, the project raises important questions concerning whether it is appropriate to maintain the AWTF in an area that is increasingly vulnerable to flooding and other coastal hazards. As described previously, the AWTF has already exceeded its expected lifetime, many components have already been replaced, and this project, if approved, will include additional substantial upgrades that will extend the life of the facility as a whole such that it constitutes a redeveloped facility. Consistent with prior Commission actions, as a redeveloped facility, the AWTF would not be entitled to shoreline armoring under section 30235 of the Coastal Act because it would not qualify as an “existing” structure in danger of erosion.[63] In addition, as shoreline protective devices are almost always inconsistent with section 30253 of the Act, in conjunction with other Coastal Act public access and resource protection

---

[62] NOAA 2022 Sea Level Rise Technical Report: Global and Regional Sea Level Rise Scenarios for the United States: Updated Mean Projections and Extreme Water Level Probabilities Along U.S. Coastlines. https://oceanservice.noaa.gov/hazards/sealevelrise/sealevelrise-tech-report.html

[63] As explained in the Commission’s Sea Level Rise Guidance (updated in November 2018) and numerous prior Commission actions, an “existing” structure entitled to shoreline armoring under section 30235 of the Coastal Act is one that was in existence on January 1, 1977, the effective date of the Coastal Act.

policies, because of their significant impacts on natural shorelines, beaches, and public use and enjoyment of the coast, they are rarely approvable unless required under section 30235.

At the same time, the Commission recognizes the unique and complex coastal resource issues associated with critical infrastructure projects, such as wastewater treatment facilities, along the coast. These types of facilities not only provide important public services to coastal communities, but they can require significant investments of public resources and planning efforts to upgrade and retrofit to current standards. The Commission has in the past approved a variety of short-term project components associated with critical infrastructure to ensure the provision of needed public services and protection of water quality and other coastal resources, sometimes authorizing shoreline protection in the short-term in order to allow an applicant time in which to develop a long-term adaptation approach that better protects coastal resources and minimizes risk from future coastal hazards. This approach is described in greater detail in the Commission-adopted Critical Infrastructure Guidance and recognizes that the complexities associated with adapting critical infrastructure – the need to provide public services now and throughout the future, the costs and timelines associated with developing and implementing strategies, the risks to public health and the environment if damage were to occur – make phased adaptation approaches, sometimes including shoreline protection as a temporary strategy, for these assets a necessary approach that can be allowed under the Coastal Act.

To ensure that the proposed new components addressed by this project can continue to be safe beyond the 30-year lifetime, and that the facility as a whole can minimize risks and be protective of coastal resources over the short- and long-term horizon, the City will need to address longer-term adaptation strategies soon. While the Commission could potentially authorize some form of continued reliance on protective levees or similar forms of shoreline protection, because the AWTF has been redeveloped and has no right to additional or augmented armoring under section 30235 of the Coastal Act, the City must develop and analyze a full suite of adaptation strategies, prioritizing alternatives to hard shoreline armoring, up to and including the possibility of relocating all or portions of the AWTF inland to less hazardous locations. Importantly, in this action the Commission is not approving any shoreline protection; and, in approving the proposed improvements to the AWTF, the Commission is not under any obligation to approve shoreline protection of the facility in this hazardous location in the future. To the contrary, the City bears the risks of any further investments in the AWTF, with the understanding that the facility is not legally entitled to shoreline protection under the Coastal Act and such protection may not be authorized by the Commission in the future.

Given the complexities involved in developing, assessing and implementing any such adaptation strategies for critical infrastructure such as the AWTF, the relatively short project life for the specific facility improvements currently before the Commission, and the need for those upgrades to ensure water quality improvements as required by the Regional Water Board, it is possible for the Commission to approve the proposed upgrades to the AWTF in the short-term while the City develops a more comprehensive

plan for the AWTF as a whole, if certain conditions are imposed to ensure consistency with Coastal Act hazards policies.

First, **Special Condition 2** authorizes the proposed project on an *interim* basis of 30 years (until September 8, 2052) to allow for the continued operation and function of the AWTF, including to immediately ensure protection of water quality and public health, while simultaneously allowing time to plan for future wastewater treatment facility adaptation options, up to and including relocation of all or portions of the AWTF, to address changing hazard conditions as sea levels rise. This interim authorization is tied to the identified life of the proposed upgrades to the AWTF and the time period over which analyses suggest that coastal hazards can be avoided or appropriately minimized. However, sea levels will continue rising beyond the 30-year project lifetime, putting the proposed development and the entire facility at risk if these assets are left in place without additional adaptation. In order to ensure that the proposed development can continue to minimize risks, Special Condition 2 specifies that prior to the expiration of the authorization period, the Permittee or its successors shall submit to the Commission an application for a coastal development permit amendment to extend the length of time all or portions of the approved development is authorized, to modify the development as needed to ensure consistency with the Coastal Act, or to relocate or remove all or portions of the AWTF and restore the affected areas.

Critically, **Special Condition 2** requires that the City's CDP application reflect the long-term adaptation approach identified in the approved adaptation plan required by **Special Condition 4.** This condition requires the applicant to develop a Coastal Hazards Adaptation and Implementation Plan (CHAIP) that identifies a suite of strategies necessary for protecting, relocating, or otherwise adapting the development authorized by this CDP as necessary to maintain safety from flooding and other coastal hazards in order to minimize risk and assure stability and structural integrity and to ensure protection of coastal resources over the long-term (at least through 2100). Required components of the CHAIP include an analysis of current and future hazards related to sea level rise based on best available science; an alternatives analysis that evaluates a variety of adaptation options, including accommodation, protection, and retreat/relocation strategies, specifically prioritizing approaches that can limit the need for shoreline armoring; a description of any additional proposed development at the site, including but not limited to levee expansion and other phased upgrades that have been envisioned, and description of how such development would fit into the overall long-term adaptation approach, including with respect to the costs and benefits up those upgrades and any necessary protection measures in comparison to relocation; and a timetable for implementation of the strategies identified in the CHAIP. The CHAIP is also required to reflect the ongoing SLR adaptation planning efforts by the City of Arcata and broader Humboldt Bay region. Special Condition 4 specifies that the CHAIP should be finalized within five years of the date of approval of CDP 1-20-0711, or at the same time as any proposed additional development at the AWTF site. This timing will ensure that any additional facility upgrades or levee improvements will be done in a way that reflects both short-term needs and the long-term adaptation approach and will not prevent the implementation of alternative adaptation approaches in the future.

Importantly, **Special Condition 9** requires the City to assume the risks of development in an area vulnerable to flooding and other coastal hazards, and **Special Condition 10** requires the City to acknowledge and agree that the redeveloped AWTF is not entitled to shoreline protection under section 30235 of the Coastal Act and to waive any rights to shoreline protection that may exist under applicable law. These two conditions ensure that the City bears the risks of continuing to invest in the AWTF in a vulnerable area when it is not entitled to shoreline protection and when the Commission may not authorize shoreline armoring to protect the AWTF in the future. **Special Condition 10** would not preclude the Coastal Commission from approving shoreline protection in the future if allowed under the Coastal Act, particularly where such protection is designed as part of a broader approach (as developed through the CHAIP) that can be shown to appropriately protect coastal resources over time throughout the project area.

Special Condition 3 requires the applicant to submit biennial coastal hazards monitoring reports. The reports shall include documentation of water elevation data over the yearly reporting period and a description of long-term changes over the 30-year authorization period; a description of any hazards impacts at the site; and a description of any actions taken to address temporary flooding, and actions that are anticipated to be taken over the next reporting period. Once the CHAIP is completed, the applicant will also be required to provide a description of any planning activities or actions taken to implement the CHAIP, as well as how any flood management actions taken during the reporting period fit into the overall adaptation approach. The purpose of the reports is to build a clear description of on-the-ground conditions at the project site during the project lifetime. This information can be used to inform the appropriate timeline for implementation of proposed adaptation options as identified in the CHAIP, ensuring that hazard minimization efforts will be taken proactively to address changing conditions, including in particular if hazard conditions change more quickly (or slowly) than currently anticipated.

Lastly, the Commission imposes a specific requirement under **Special Condition 2** related to removal of embedded pier foundations. As discussed in these Findings, the proposed larger structures (headworks structure addition, new primary clarifier, new electrical building, and UV electrical room) will be built on deep (80-90 feet) cast-in-drilled-hole (CIDH) pier foundations embedded below the strata susceptible to liquefaction. These piers will be infeasible to remove in their entirety if not authorized beyond the 30-year project life. However, there is risk of the piers becoming exposed if the Commission ultimately requires removal or relocation of the proposed improvements and the site is required to be restored to wetlands. Special Condition 2 therefore requires that through the CDP amendment application required to be submitted by March of 2052, any application to relocate or remove all or portions of the AWTF and restore the affected areas to pre-development conditions or better must include provisions for removal and backfilling of the piers at least 3 feet below grade.

Taken together, Special Conditions 2, 3, 4, 9, and 10 will allow for the currently needed project while also building in time to allow for the development of a long-term adaptation approach that will ensure that the proposed development and the entire AWTF can continue to minimize hazards risks, assure stability and structural integrity, and protect

coastal resources. Therefore, the Commission finds that the proposed project, as conditioned, is consistent with sections 30253 and 30270 of the Coastal Act.

Seismic Hazards

The proposed project entails development of critical infrastructure in an area subject to high geologic and flood hazards including strong earthquake shaking, liquefaction, differential settlement, tsunami inundation, and flooding. Hazards specific to the project area include the following:

> **Seismic and Faulting Hazards**: The project area is not located within an Alquist-Priolo Earthquake Fault Zone, and the nearest active faults displaying recent (Holocene) movement are a part of the Mad River fault zone located approximately one mile to the northeast. However, northwestern California is one of the most seismically active regions in the continental United States. The Gorda plate is being actively subducted beneath the North American plate north of Cape Mendocino, along the southern part of what is commonly referred to as the Cascadia Subduction Zone (CSZ). There are several active faults in the area capable of generating large-magnitude earthquakes, including megathrust earthquakes of magnitudes (M_W) as great as 9.2 along the CSZ. Potential impacts associated with these hazards include displacement of the ground surface along a fault during an earthquake (surface fault rupture), strong ground shaking, liquefaction, lateral spreading, and landslides.
>
> **Tsunami Hazards**: The subject area is located within the mapped tsunami hazard area[64] and is potentially at risk of tsunami inundation from waves generated from a variety of local and distant sources. Based on available inundation modeling, the diked area would not be inundated by extreme events, such as a tsunami generated during a CSZ earthquake.[65] In the Humboldt Bay area, the time window between tsunami generation and local inundation could be on the order of a few minutes due to proximity to the CSZ, a local source for tsunami waves. In the case of a locally generated tsunami (originating from the CSZ source), the first, and potentially only warning residents and visitors in the area would receive would be a natural warning (strong, long-lasting shaking from an earthquake, which could last several minutes) occurring 10 to 15 minutes before inundation by the tsunami. As a result, there would be very little time for evacuation between the time the shaking stops and the associated tsunami waves inundate the area.

The City prepared an analysis of geological conditions and hazards as part of its adopted IS/MND. The City's analysis relied on information from a combination of reports including: a February 24, 2017 technical memorandum prepared for Carollo Engineers

---

[64] Based on current maps published by the California Geological Survey: https://www.conservation.ca.gov/cgs/tsunami/maps/humboldt.

[65] A CSZ event (magnitude 8.0 or greater) has an approximately ~270-year to 500-year average return period. Evidence suggests the last major CSZ quake occurred in January 1700 (~magnitude 9.0).

by LACO Associates[66]; March 15, 2019 "Geotechnical Exploration and Geologic Hazards Report" prepared by LACO Associates; and soils data provided in the August 2020 preliminary wetland delineation report prepared by Stillwater Sciences (Appendix A). Additional analyses were prepared later and include a Draft Geotechnical Report for City of Arcata Phase 1 Improvements, prepared by Crawford & Associates and revised July 22, 2021. The July 2021 Draft Crawford report was prepared for Carollo Engineers, Inc. and was based upon preliminary (90%) design plans dated April through October 2020 (prepared by Carollo Engineers in association with GHD). Commission staff, including the staff geologist and engineer, have reviewed the various geotechnical and engineering analyses and plans and have provided feedback to City staff throughout the application process. The City has also prepared supplemental responses, in coordination with its consultants, to targeted questions raised by Commission staff during the permit review process.[67]

Ground Shaking, Surface Fault Rupture, Liquefaction, and Differential Settlement

As detailed in the March 2019 LACO Associates report and based upon published geologic and soils maps (CDMG, 1983 and McLaughlin et. Al, 2000 in LACO 2019) the AWTF is situated on filled former tidelands underlain by a layer of alluvial fan and marine deposits that include clays, silts, and fine sands. Discontinuous pockets of coarse sands are interspersed through the area. The character of the surface substrates and the relatively shallow depths to groundwater[68] indicate the potential for liquefaction and differential settlement. Groundwater elevations depend on surface elevations and fluctuate seasonally.

At the project site, the primary and secondary effects of strong ground shaking could damage, distort, or break foundations, pipelines, pumps, tanks, and other structures. Damage to structures within the AWTF could result in release of untreated or partially treated wastewater or biosolids that could significantly impact the biological productivity and quality of wetlands and coastal waters of Butcher Slough, the restored habitat around McDaniel Slough, and the broader Humboldt Bay. The resulting loss of functionality of the wastewater treatment system would also be devastating to the City of Arcata.

According to the hazard analysis prepared as part of the March 15, 2019 LACO Associates report and July 2021 Draft Crawford report for the project, the project area is at low risk of surface fault rupture due to the absence of previously identified active

---

[66] February 24, 2017. "Engineering Geologic and Hydrogeologic Exploration, Arcata Waste Water Treatment Plant, Arcata, Humboldt County, California." Prepared by LACO Associates, Eureka CA.

[67] Refer to supplemental materials transmitted by the City via electronic mail on July 23, 2021 (geologic hazards, in part); August 12, 2021 (tsunami hazards); January 26, 2022 (geologic hazards, in part); and April 14, 2022 (geologic hazards, in part).

[68] According to the 2019 LACO report, free groundwater was encountered between 2 to 8 feet below ground surface during geotechnical borings conducted April 24 through 26, and May 7 through 10, 2018. Additional details on groundwater depths encountered during investigations is included in the July 2021 Crawford report.

faults crossing the project area, and the lack of geomorphic evidence indicating the possible presence of previously unmapped faults. However, a large earthquake on one of the active faults in the region outside of the project area has the potential to cause high intensity ground-shaking at the project site during the lifespan of the proposed development. Strong ground-shaking can also result in liquefaction, defined as the sudden loss of strength and fluid behavior of unconsolidated materials. The damaging effects of strong ground shaking and liquefaction can in turn cause large displacements of the ground surface, including heaving, cracking and buckling, and differential settlement.

The larger proposed structures (headworks structure addition, new primary clarifier, new electrical building, and UV electrical room) would be built on deep (80-90 feet) cast-in-drilled-hole (CIDH) pier foundations embedded below the strata susceptible to liquefaction.[69] The July 2021 Crawford report indicates the piers would be adequate to mitigate liquefaction hazards associated with a design-basis earthquake (~2,475-year event).

The 2019 California Building Code (CBC) requires risk category III and IV structures (critical infrastructure and essential facilities) to adhere to certain design criteria to minimize risk of settlement and other geologic hazards. As indicated above, essential facilities in the project area include the headworks, chlorine contact basin, chlorine building, generator building, effluent pump station, wetlands pump station, UV disinfection facilities, and new electrical building. Existing essential facilities were built as part of the 1984 AWTP Modifications project.[70] New and rehabilitated essential facilities have been designed to the maximum credible earthquake of 7.5M established under the 2019 CBC. Phase I design incorporates materials capable of accommodating ground movement between structures to minimize risk of untreated or partially treated wastewater discharge. Ductile iron pipe with push-on restrained joints and continuous piping such as welded steel and fused HDPE are specified to accommodate significant ground deformation without rupture.

However, the smaller, more "minor" structures (e.g., wetland outfalls, Hauser wetland pump station structure, oxidation pond transfer structure) would have shallow foundations, and the July 2021 Draft Crawford report clearly indicates that these structures would be at risk of damage from differential settlement. This is also true of the new electrical conduits and the "force main pipeline" that are part of the project. New structures will be supported on three-foot-diameter drilled piers to address liquefaction and seismic design requirements. Driven piles were also considered in the earlier LACO report, but the drilled piers were selected based on constructability and lower environmental impact. The July 2021 Draft Crawford report recommends the use of "flexible connections and repair strategies" to mitigate the risk to these structures; the

[69] A total of 73 CIDH piers, each 3 feet in diameter and 78-90 feet deep, would be installed in the following distributions: Electrical building, 34; UV electrical room; 4, primary clarifier, 8; headworks, 27 drilled piers (see **Exhibit 6** for a graphic depiction of drilled pier placement)

[70] CDP 1-84-105

Carollo Engineers design memo[71] also states, generally, that flexible connections would be used to reduce the potential for damage.

The July 2021 Draft Crawford report includes several other recommendations for project design and construction, including among other things: (a) the final report should reexamine calculations used to account for group effects in the lateral spreading analysis for CIDH deep foundations; (b) specifications for selecting pile lengths to support loading of the headworks building and other structures; (c) specifications for over-excavation to reduce settlement; (d) dewatering groundwater from excavation areas; and (e) that a foundation contractor should prepare a Pile Installation Plan.

The Commission staff geologist and engineer recommend adherence to the recommendations presented in the July 2021 Draft Crawford report for seismic standards, consistent with the California Building Code, demonstrating that the development is designed to minimize risks from seismic hazards. To confirm that the final plans prepared for the project incorporate all applicable site-specific recommendations of the July 2021 Draft Crawford geotechnical report and to ensure that the project will be built to withstand seismic ground shaking and other seismic hazards, the Commission attaches **Special Condition 5**. This condition requires that not less than 30 days prior to commencement of construction, the applicant shall submit final site and construction plans that substantially conform with the 90% plans submitted with the application but which (among other requirements) include evidence that a licensed professional has reviewed and approved all final design, construction, and drainage plans and has certified that each of those plans is consistent with all applicable recommendations specified in the geotechnical report.

Because the proposed project will comply with California Building Code and local building codes which have been designed to allow structures to withstand strong seismic ground shaking, and because the project will comply with the site-specific recommendations of the project's geotechnical report, the development is designed to assure stability and structural integrity consistent with the requirements of section 30253(b).

Tsunamis

As previously noted, the subject site is entirely within a tsunami hazard area that may be subject to tsunami inundation. The 2019 California Building Code requires risk category III and IV structures (critical infrastructure and essential facilities) to meet certain performance standards with respect to the 2,475-year tsunami event. The structural design parameters established by ASCE 7-16 reflect conditions similar to published mapping and are incorporated by reference into 2019 California Building Code standard minimum design loads for buildings and other structures. The Carollo Engineers Design Memo dated August 6, 2021 describes reliance on the ASCE 7-16 standard for designing proposed site upgrades and states in part, "The analysis results

[71] The Carollo Engineers memo dated August 6, 2021 and titled "Structural Design Criteria: Seismic and Tsunami Design" was received via email on August 12, 2021.

were minimal flooding at the treatment plant. New process facilities deemed critical, such as the electrical building, were located to minimize the risk of flooding damage."

The City has highlighted the release of new information suggesting that the risk of tsunami inundation at the facility may be less than initially anticipated. The ASCE Tsunami Hazard Tool 7-22 uses higher resolution data than the preceding ASCE 7-16 model. According to the City's June 2022 Disaster Preparedness Plan, "the benefit is that the higher resolution does not mute the role of dunes along the western edges of Humboldt Bay. This design tool shows the AWTF site outside of the tsunami design zone based on a low likelihood high impact level of hazard." While the higher resolution modeling improves understanding of tsunami risk at the site, there is still significant uncertainty in the results, particularly around the potential performance of the existing levee system. Additionally, sea level rise is expected to worsen tsunami risk in the future, underscoring the need for future adaptation.

As part of designing the facility consistent with the current ASCE 7-16 standards, the City has demonstrated its ability to minimize risk of tsunami inundation at the facility by siting or elevating essential facilities and other infrastructure above anticipated hazards. The City also minimizes risks from tsunami hazard risks by maintaining a tsunami evacuation plan and a coastal tsunami early warning system that includes the use of tsunami sirens and other measures to warn residents and visitors of an impending tsunami. The City also provides residents with the option to get notified of City and County alerts via their website, using the CodeRED Emergency Alerts system (https://www.cityofarcata.org/241/Emergency-Preparedness). In addition, tsunami warning signage is posted at the boundary of the tsunami zone and safe area on I Street approximately 50 feet south of Samoa Boulevard, which informs people that they are either entering or leaving the tsunami zone. For all of these reasons, the Commission finds the proposed development minimizes tsunami hazard risk.

Given that the applicant has chosen to implement the project despite flooding and geologic risks, the applicant must assume the risks. The Commission therefore attaches **Special Condition 9**. This condition requires the City to assume the risks of flooding and geologic hazards to the property and waive any claim of liability on the part of the Commission. Special Condition 12 also notifies the applicant that the Commission is not liable for damage as a result of approving the permit for development and 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 the hazards. Additionally, the Commission imposes **Special Condition 17** requiring reimbursement of specified costs and attorneys' fees the Commission incurs in connection with the defense of any action brought by a party other than the Applicant/Permittee challenging the approval or issuance of this permit.[72]

[72] Coastal Act Section 30620(c)(1) authorizes the Commission to require applicants to reimburse the Commission for expenses incurred in processing CDP applications. See also 14 C.C.R. § 13055(g).

Therefore, the Commission finds that the proposed project, as conditioned, will minimize risk to life and property from hazards and assure stability and structural integrity consistent with section 30253 of the Coastal Act.

I. Fill of Wetlands and Coastal Waters

Section 30233 of the Coastal Act states, in applicable part:

> (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 basin, vessel berthing and mooring areas, ad 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 shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation…
>
> (c) In addition to the other provision of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary…

Coastal Act section 30108.2 defines "fill" as "*earth or any other substance or material, including pilings placed for the purposes of erecting structures thereon, placed in a submerged area*."

Wetlands within the project area were delineated during site visits conducted October 2–3, 8, and 17, 2019; March 12, 2020; and May 29, 2020, with results presented in a report prepared by Stillwater Sciences and dated August 2020.[73] In general, wetlands in the project area include salt, brackish, and freshwater wetlands associated with Humboldt Bay, Butcher Slough, and the enhancement marshes. As indicated in **Finding IV.B** above, construction of the oxidation ponds and surrounding levees occurred prior to enactment of the Coastal Act, on historic tidal flats consisting of 20 - 30 feet of bay mud deposits within Humboldt Bay. The USACE San Francisco District authorized the levee construction to create the sewage oxidation pond, on May 17, 1956. Although the oxidation pond has been modified over time by the creation within its original footprint of an additional oxidation pond and treatment wetlands, it has remained in continuous use as a wastewater treatment feature. Thus, the oxidation ponds and treatment wetlands in the Facility do not constitute wetlands under the Coastal Act.

The wetland delineation identified nearly 0.08 acre of permanent impacts to wetlands (combined Waters of the State and Waters of the US) resulting from proposed developments. Following completion of 100% design plans, the City provided updated mapping and impact calculations, which are included in **Exhibits 10** and **11**. Refinements to the project design have further reduced permanent impacts to 0.05 acre, which includes approximately 0.04 acre (1,742 square feet) of estuarine wetland to be impacted by construction of the new Outfall 003 within the constructed brackish marsh. Proposed developments will also result in approximately 0.01 acre (436 square feet) of impacts to palustrine (freshwater) wetlands associated with installing new aeration baffles in enhancement wetlands (Allen and Gearhart Marshes) and selective vegetation management in Hauser Marsh, to improve nutrient distribution, aeration, and water circulation. The installation of electrical trenching and burying of new wastewater pipes (for the flow reconfiguration of disinfected enhancement wetlands effluent) will also temporarily impact approximately 0.42 acre of wetlands, including 0.09 acre estuarine and 0.33 acre palustrine emergent and riparian vegetation.

Construction of Outfall 003 within the Brackish Marsh feature was originally planned for in the design and permitting of the 240-acre wetland restoration project approved by the Commission on June 15, 2007 referred to as the McDaniel Slough Enhancement Project. The Commission's approval of CDP 1-06-036 authorized the restoration and enhancement of 240 acres of salt marsh, brackish marsh, and freshwater wetlands within the lower reaches of the McDaniel Slough, including creation of the approximately 17-acre brackish marsh designed for the mixing of bay water with treated wastewater to create the brackish marsh habitat. The Brackish Marsh was excavated to appropriate elevations for mixing bay water with treated wastewater to create the brackish wetland habitat. Flow volumes were planned to be managed to mimic natural seasonal fluctuations in other Humboldt Bay tributaries. Most of the restoration project was

[73] "Preliminary Delineation of Waters and Wetlands for the City of Arcata Wastewater Treatment Plant Improvement Project, California." August 2020 Final Report prepared by Stillwater Sciences, Arcata.

completed in 2013. However, the final design and proposal for the outfall development was deferred to the current CDP application.

The current salinity in the Brackish Marsh is the same as that in Arcata Bay because of tidal exchange and lack of freshwater inflow. The intended effect of installing Outfall 003 has been to transfer the treated wastewater effluent from the AWTF to provide the necessary freshwater input. The Outfall 003 will consist of two new pipes (30-inch and 10-inch diameters) that are designed to discharge up to 5.9 million gallons per day (MGD) of treated effluent during peak high winter flows to the Brackish Marsh. The average discharge is expected to be approximately 1.2 MGD with lesser amounts in the summer and greater volume during winter periods. The discharge will be mixed with the tidal water from Humboldt Bay that floods and ebbs through the existing tide gate. The Brackish Marsh outlet is adjustable to be able to mute the tidal cycle and to provide flexibility to adjust salinity to desired ranges.[74]

Before constructing the new outfall pipes, the City will install coffer dams to isolate the work site and then excavate 273 cubic feet of soil and the existing concrete vault. The new pipes will be placed in the excavated area and 263 cubic yards of riprap will be placed around the new outfall pipes to secure the structure before revegetating the area. The City proposes to conduct all aquatic-related work during low tides between July and September and employ spill and sediment prevention planning measures.

The Coastal Act recognizes the importance and scarcity of wetlands. Filling, diking, or dredging in wetlands is permissible under section 30233(a) only if: (1) the use is for one of the seven allowable uses listed under section 30233(a)(1)-(7), (2) there is no feasible less environmentally damaging alternative, and (3) feasible mitigation measures have been provided to minimize adverse environmental effects. A project must meet all three tests to be authorized pursuant to section 30233(a). In addition, under section 30233(c), the development must maintain or enhance the functional capacity of the wetlands.

Allowable Use

Coastal Act section 30233(a) limits the fill of coastal waters to specific, enumerated uses. The proposed fill is allowable under Coastal Act section 30233(a)(4) of the Coastal Act as an “incidental public service purpose.” First, the proposed dredging and filling (associated with Outfall 003, aeration baffles, and sediment/vegetation management in treatment and enhancement wetlands) is being undertaken by a public agency to serve the public, and therefore has a public service purpose. The proposed fill is also incidental to the primary service provided overall by the existing wastewater treatment system. The proposed fill in wetlands only modifies the location and method of treated wastewater discharge of the existing wastewater treatment system and does not increase service capacity or expand service to areas not already served by the existing system. Furthermore, the project constitutes burying pipe (including burying

[74] The Biological Opinion issued by US Fish and Wildlife Service November 3, 2021 (File No. SPN-2020-00425, Consultation No. AFWO-22B0001-22F0003) states that desired salinity ranges of 5–10 ppt within Brackish Marsh will be suitable for gobies (Irwin & Soltz 1984).

new pipe and Outfall 003 for reconfiguring wastewater flow), which is an activity specifically listed in section 30233(a)(4) as an incidental public service purpose for which filling and dredging in wetlands is allowed.

Alternatives Analysis

Coastal Act section 30233(a) also requires that projects involving filling of coastal waters be the least environmentally damaging feasible alternative. Coastal Act section 30108 defines "feasible" as "…capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social and technological factors."

The Carollo 2017 Facility Plan[75] (Chapter 6) details four primary alternative treatment systems considered by the City, including options that would either solely rehabilitate the existing natural system ("Alternative 1"), rehabilitate the existing and add new mechanical systems ("Alternatives 2 and 3"), or rehabilitate the existing and add natural system enhancements, with phasing considerations for potential future parallel treatment mechanical system options ("Alternative 4"). The goal of each of the City's evaluated project alternatives is to provide a facility that maximizes use of the existing natural system while meeting treatment and permit compliance objectives.

Alternatives to the aeration baffles, sediment/vegetation maintenance, and outfall-associated fill to improve water quality include mechanical-based secondary improvements (e.g., adding side-stream and/or parallel treatments such as oxidation ditches and/or additional secondary clarifiers). Such improvements would raise significant issues regarding potential growth-inducing effects and investing in the siting of traditional treatment system infrastructure at a site subject to significant geologic and flood hazards. As detailed in Finding IV.H, additional analysis is needed before further considering the potential of such alternative systems.

The proposed construction of Outfall 003 was included under all of the City's alternatives, in part because the siting, design, and construction of Outfall 003 was previously envisioned as part of the McDaniel Slough wetland restoration project that created the Brackish Marsh feature itself. Until Outfall 003 is constructed, the final step towards restoring brackish marsh functionality within the constructed feature will not be fully achieved, because the salinity of the tidally influenced feature was designed to rely on receipt of freshwater from treated wastewater effluent, thereby diluting salinity to achieve brackish conditions.

Of all the alternatives considered, the proposed project was the only alternative that met the 2019 NPDES permit objectives year-round while maintaining the constructed wetlands system, and therefore "beneficial uses" required for any discharges that ultimately enter Humboldt Bay. As described further in **Finding IV.B** above

[75] July 2017. City of Arcata Wastewater Treatment Facility Improvements Project Facility Plan. Prepared by LACO/ Carollo Engineers and revised July 27, 2017. Accessible online at: http://www.cityofarcata.org/DocumentCenter/View/6272

("Background: Waiver of Bays and Estuaries Policy Allowing Discharges to Humboldt Bay") the Enclosed Bays and Estuaries Policy requires enhancement of all effluent prior to discharge. Enhancement of flows up to the 5.9 MGD peak wet weather capacity is a NPDES permit requirement in accordance with the Enclosed Bays and Estuaries Policy. Thus, the current system of bypassing enhancement for a portion of the City's discharged effluent is no longer acceptable based on current Water Board permit requirements.

The scope of development evaluated as Alternative 4 has been further narrowed under the proposed project to only include those components detailed in **Finding IV.A** ("Project Description") above and enumerated in Special Condition 1. Refinements to the project design have resulted in eliminating 1,219 square feet (0.028 acre) of permanent wetland impacts since the originally submitted CDP application. The siting of Outfall #003 has also been designed to minimize the length of piping (and associated ground disturbance) needed to reconfigure flows and connect to the existing treated wastewater mainlines, while also maximizing the distance between the outfall and tide gate, thereby maximizing tidal mixing with freshwater and the creation of brackish habitat. Thus, the proposed project has been designed to be the least environmentally damaging, feasible alternative.

Feasible Mitigation Measures

The third test set forth by section 30233 is whether feasible mitigation measures have been provided to minimize significant adverse environmental impacts. The development involves work in and adjacent to Humboldt Bay that could result in direct and indirect impacts to coastal resources in Humboldt Bay. Depending on the manner in which the proposed development is conducted, the significant adverse environmental effects of the development may include: a loss of palustrine and estuarine wetland habitat; impacts to rare salt marsh plants; impacts to northern red-legged frogs, impacts to fish and other aquatic species, and impacts to water quality and the marine environment. The potential impacts and their mitigation are discussed below.

Measures to Avoid Significant Degradation of Wetlands

As discussed, while impacts have been designed to be as minimal as possible, the proposed project still will result in permanent impacts to approximately 0.05 acre (2,178 square feet) of coastal wetlands. Developments such as installing electrical trenching and burying new wastewater pipes (for reconfiguring the flow of disinfected enhancement wetlands effluent to a single path) would also temporarily disturb vegetation within approximately 0.42 acre (18,295 square feet) of wetlands, including approximately 0.09 acre (3,920 square feet) estuarine and 0.33 acre (14,375 square feet) palustrine emergent and riparian vegetation.

Temporary wetland impacts will be restored to pre-project conditions immediately following project implementation through replacement of disturbed soil and replanting disturbed vegetation following trenching work. Disturbed areas will be stabilized using erosion control BMPs and revegetated with native vegetation. Additionally, the City proposes to replant disturbed areas and monitor for successful plant reestablishment. If

temporarily impacted wetlands do not have a similar vegetative density and cover to the surrounding wetlands, the City will prepare and implement a revised restoration program to mitigate for wetland impacts in kind and in place.

To mitigate for the 0.05 acre of permanent wetland impacts, the City proposes on-site mitigation through the removal of wetland fill and restoration of 0.1 acre of estuarine wetland within Butcher Slough. The City has prepared a Wetland Mitigation and Monitoring Plan for Arcata Wastewater Treatment Facility Improvement Project, dated September 2021 (**Exhibit 11**). Restoration efforts will include clearing non-native vegetation to provide heavy equipment access to the top of bank and using an excavator to remove existing concrete from the left and right banks of the slough that are subject to tidal inundation. The concrete will be loaded into trucks for hauling to an off-site disposal recycling facility. All work will be conducted by an excavator from the top of levee/access road during a tidal window when the areas are exposed. In general, concrete rubble is located above 4.0 feet (NAVD88) and work will occur when tidal elevations are below 4 feet. The mean tide for Arcata Wharf is below 4 feet for 11 months of the year. Work in the wetted channel will be avoided. Any disturbed areas outside of the intertidal zone will be stabilized using erosion control BMPs and revegetated with native vegetation. Revegetation will occur during the winter months to increase survival rate. During mitigation work, a qualified biologist will be on-site to monitor activity and ensure all protective protocols are adhered to and appropriate BMPs are implemented. Mitigation work will occur within two years of wetland impacts. Including mobilization and demobilization, work is anticipated to last approximately 2 weeks.

To ensure that mitigation is carried out as proposed, the Commission attaches **Special Condition 12A** (Onsite Wetlands Mitigation and Monitoring) requiring the City to reestablish the temporarily impacted areas immediately following wetland disturbances as proposed, implement on-site mitigation to restore Butcher Slough habitat within two years of impacts, and monitor the reestablished onsite wetlands to ensure successful revegetation.

The Commission finds that the proposed development as conditioned provides feasible mitigation measures to minimize the project's bay fill impacts consistent with Coastal Act section 30233.

Measures to Avoid Significant Degradation of Rare Marsh Plants

Humboldt Bay owl's-clover (*Castilleja ambigua* var. *humboldtiensis*), sea-watch (*Angelica lucida*), Point Reyes bird's-beak (*Chloropyron maritimum* ssp. *palustre*), western sand-spurrey (*Spergularia canadensis* var. *occidentalis*), and Lyngbye's Sedge (*Carex lyngbyei*) are sensitive plant species found in brackish marsh habitat, which is located within and adjacent to the project area. Specifically, suitable habitat includes the outer levees surrounding AWTF and Brackish Marsh. Brackish Marsh is the only suitable habitat within the overall project area that will be impacted by construction activities, and specifically in association with installation of Outfall 003.

The October 2020 Final Adopted Initial Study and Mitigated Negative Declaration[76] (IS/MND) prepared for the project includes avoidance, minimization, and protection measures BIOL-6 and BIOL-7 for rare plants, stating that all efforts will be made to avoid special-status plants during construction within suitable habitat. The City plans to conduct seasonally appropriate pre-construction surveys to identify any potential impacts to special-status plant species within the planned area of disturbance and will flag plant individuals and patches for avoidance. Measure BIOL-6 specifies that if avoidance to annual salt marsh species is infeasible, construction will occur after seeds have set and been collected from the affected individuals. Measure BIOL-6 further proposes planting collected seed in nearby suitable habitat the following year during the phenologically appropriate time. As further proposed by Measure BIOL-7, sensitive perennial species within the project footprint that cannot be avoided will be conserved through transplanting if feasible in appropriate habitat near areas where impacts will occur. Measures BIOL-6 and BIOL-7 have been adapted and incorporated into the CDP as **Special Condition 11** (Protection of Biological Resources).

The Commission finds that the project as conditioned in the manner discussed above will protect and maintain sensitive salt marsh species consistent with section 30233 of the Coastal Act.

Measures to Avoid Significant Impacts to Reptile and Amphibian Species

Depending on the manner in which the proposed project is undertaken, as discussed above, the development within the wetland habitats at the project site could have significant adverse impacts on special status reptile and amphibian species known to occur within the area.

Western pond turtles occur in both permanent and intermittent waters, including marshes, streams, rivers, ponds, and lakes, but not typically salt or brackish waters. Although the potential for occurrence within or adjacent to wetted areas in the project area is low, the potential for impact to western pond turtles exists if they are present during construction activities.

Northern red-legged frogs are found in permanent ponds, marshes, and streams. The City's IS/MND identifies potential habitat within and adjacent to wetland and riparian areas and including freshwater and brackish marsh areas in and near the treatment and enhancement wetlands, oxidation ponds, and wetland ditches where trenching will occur. Because suitable habitat is present, there is a potential for impact to northern red-legged frogs if they are present during construction activities. Impacts to northern red-legged frogs could potentially occur to egg masses or tadpoles within wetted areas, or to adults out of water, on land during and after the breeding season (i.e., December through April). To ensure that impacts to breeding frogs, egg masses or tadpoles are avoided, the City has proposed Mitigation Measure BIOL-3 which limits all construction

[76] The final adopted IS/MND can be viewed on the City's website at: https://www.cityofarcata.org/DocumentCenter/View/10282/Arcata-Wastewater-Treatment-Facility-Final-Mitigated-Negative-Declaration-and-Initial-Study-121020

in waterways and wetlands with standing water to outside of the northern red-legged frog breeding season (November through April).

The City has also proposed Mitigation Measure BIOL-4 to reduce potential impacts outside the breeding season to less than significant. Pursuant to Measure BIOL-4, if any northern red-legged frogs or western pond turtles are encountered during construction activities, activities in the vicinity shall cease until appropriate avoidance measures have been implemented or it has been determined by a qualified biologist that the species will not be harmed. Measure BIOL-4 includes provisions for relocating these species to an appropriate habitat adjacent to the work area outside the construction zone, in coordination with CDFW. These measures are required to be implemented by **Special Condition 10.**

The Commission finds that the project as proposed and conditioned as described above provides feasible mitigation measures to minimize the project's impacts to sensitive reptiles and amphibians using the wetland habitat, consistent with section 30233 of the Coastal Act.

Avoiding Significant Impacts to Fish, Other Aquatic Species, and Water Quality

Depending on the manner in which the proposed project is undertaken, as discussed above, the project could have significant impacts on water quality. The potential impacts to aquatic species and water quality are discussed in **Finding IV.F** ("Marine Resources/Water Quality") above. As detailed in **Finding IV.I**, feasible mitigation measures have been proposed by the City and required as special conditions of this permit to ensure that the proposed placement of wetland fill in coastal waters will avoid or minimize adverse environmental effects on sensitive salmonids and other fish species, and water quality.

The findings discussing these feasible mitigation measures are incorporated herein and the Commission finds that in addition to ensuring that marine resources will be protected consistent with section 30230, Special Conditions 3 through 10 are necessary to ensure the that the approved wetland fill provides feasible mitigation measures to avoid or minimize adverse effects on salmonids, gobies, and water quality consistent with section 30233.

As proposed and conditioned, impacts to water quality would be appropriately avoided, minimized or mitigated to ensure the quality and productivity of coastal wetlands and waters are protected.

Biological Productivity and Functional Capacity

Another general limitation set by section 30233(c) of the Coastal Act is that any proposed dredging or filling in coastal wetlands or estuaries must maintain or enhance the functional capacity of the wetland or estuary.

The mitigation measures incorporated into the project and required by the special conditions discussed above will ensure that the project will not have significant adverse impacts on coastal waters or wetlands in and around the project vicinity. As discussed

above, the City seeks to relocate discharge from entering the bay at the existing outfall ("Outfall 001") at Butcher Slough to the "Brackish" Marsh Outfall 003 to maximize the volume of effluent receiving enhanced treatment and maximize the beneficial use of treated wastewater for habitat purposes. It is important to note that the "Brackish" Marsh was constructed from the City's previous McDaniel Slough Restoration project and will not contain brackish waters until Outfall 003 is installed to decrease the salinity of the waters, which are tidally influenced. Thus, construction and implementation of discharge to the new outfall will not only improve the quality of treated effluent entering the bay but will also further the City's long-term restoration goals of enhancing capacity of the created marsh to function as brackish marsh habitat.

Therefore, the Commission finds that the project, as conditioned, will maintain the functional capacity of the Humboldt Bay estuary consistent with the requirements of Coastal Act section 30233.

Conclusion

For all of the reasons set forth above, the Commission finds that the project, as proposed and conditioned, is an allowable use, that there is no feasible less environmentally damaging alternative, that feasible mitigation will be provided to minimize all significant adverse impacts associated with the dredging and filling of coastal wetlands, that wetland habitat values will be maintained or enhanced, and that coastal water quality will be protected. Therefore, the Commission finds that the proposed development, as conditioned, is consistent with section 30233 of the Coastal Act.

J. Environmentally Sensitive Habitat Areas (ESHAs)

Coastal Act section 30107.5 states:

> "Environmentally sensitive area" means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activity and developments.

Coastal Act section 30240 states:

> (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.
>
> (b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

The Arcata Marsh and Wildlife Sanctuary is a popular destination point for locals and visitors to the area for bird watching, hiking, dog-walking, and other recreational uses,

and the California Coastal Trail (CCT; Humboldt Bay Trail) traverses the eastern and northern ends of the area. The proposed improvements to the wastewater treatment facility would largely occur within the footprint of the existing wastewater treatment plant and corporation yard where there is no existing public access.

Within the AMWS, new utilities will be installed in trenches either within or adjacent to existing recreational trails and roads. The installation of utilities and other facility infrastructure is intended to improve water quality in Humboldt Bay by redirecting discharge of treated effluent from Humboldt Bay (Outfall 001) into enhancement wetlands and the Brackish Marsh feature (Outfall 003). This in turn will further enhance wetlands within the AMWS recreational area and establish the brackish marsh habitat envisioned by the McDaniel Slough restoration project described previously. Although construction work is anticipated to affect the public's ability to access portions of the AMWS, disruptions would be temporary and access to other portions of the wildlife sanctuary will remain accessible throughout construction, as discussed further in **Finding IV.L** below. As proposed, all disturbed areas will be restored to pre-project conditions immediately upon completion of construction. Thus, the project as designed will not significantly degrade adjacent parks and recreation areas and will be compatible with the continuance of the park and recreation area.

The AMWS also provides significant feeding and resting areas for thousands of birds travelling between California, Mexico, and Central and South America along the Pacific Flyway migratory corridor. Trees and other vegetation in the general vicinity of the project site are known to provide nesting and roosting habitat for sensitive species of resident and migratory birds. Such environmentally sensitive nesting and roosting habitat areas could be significantly degraded by construction noise, vegetation removal, and other disturbance if appropriate measures are not undertaken. For example, a black crowned night heron rookery is located adjacent to the log pond north of the corporation yard, and birds if disturbed during breeding may temporarily leave the roosting area for a more remote location. Brushy grasslands, marshes, and riparian habitats within and adjacent to the project area are also known to provide foraging habitat for white-tailed kites, northern harrier, and other species of raptors. Kites in particular are quite common within and around the project area and are known to nest in the AMWS complex, though optimal nesting trees are lacking within the project area.

As described in **Finding IV.I**, the project involves temporary impacts to approximately 0.42 acre of wetland vegetation associated with construction, including temporary impacts to: roadside vegetation (where utility infrastructure will be installed), vegetation removal around the outlet of Hauser Marsh (involving recontouring and deepening within a submerged portion of the marsh), and removal of willows and other vegetation from construction buffer areas surrounding the sites of new distribution boxes within Allen Marsh and development around Outfall 003.

To minimize potential adverse impacts, the City proposes to remove vegetation outside of the avian nesting season (generally March through August) to the extent practicable. If vegetation removal must occur during the avian nesting season, implementation of

Mitigation Measure Biol-5 will ensure impacts are reduced to less than significant. Mitigation Measure BIOL-5 specifies the following:

> If vegetation removal or disturbance cannot be confined to periods outside of the nesting season (generally March-August), a qualified biologist shall conduct pre-construction surveys, within the vicinity of the Proposed Project (construction buffer area) to check for nesting activity of native birds.
>
> The construction buffer area is 50 feet beyond disturbance areas for native birds and 500 feet for raptors and special-status bird species. The biologist shall conduct a minimum one day preconstruction survey within the 7-day period prior to vegetation removal and ground-disturbing activities. If ground disturbance and vegetation removal work lapses for seven days or longer during the breeding season, a qualified biologist shall conduct a supplemental avian preconstruction survey before project work is reinitiated. If active nests are detected within the construction footprint or within the construction buffer established by the Project biologist, the biologist shall flag a buffer around each nest. Construction activities shall avoid nest sites until the biologist determines that the young have fledged, or nesting activity has ceased. If nests are documented outside of the construction (disturbance) footprint, but within the construction buffer, nest buffers would be implemented as needed. In general, the buffer size for common species would be determined on a case-by-case basis in consultation with the CDFW. Buffer sizes would take into account factors such as (1) noise and human disturbance levels at the construction site at the time of the survey and the noise and disturbance expected during the construction activity; (2) distance and amount of vegetation or other screening between the construction site and the nest; and (3) sensitivity of individual nesting species and behaviors of the nesting birds.
>
> If active nests are detected during the pre-construction surveys, the qualified biologist shall monitor all nests at least once per week to determine whether birds are being disturbed. Activities that might, in the opinion of the qualified biologist, disturb nesting activities (e.g., excessive noise), shall be prohibited within the buffer zone until such a determination is made. If signs of disturbance or distress are observed, the qualified biologist shall immediately implement adaptive measures to reduce disturbance. These measures may include, but are not limited to, increasing buffer size, halting disruptive construction activities in the vicinity of the nest until fledging is confirmed, placement of visual screens or sound dampening structures between the nest and construction activity, reducing speed limits, replacing and updating noisy equipment, queuing trucks to distribute idling noise, locating vehicle access points and loading and shipping facilities away from noise sensitive receptors, reducing the number of noisy construction activities occurring simultaneously, and/or reorienting and/or relocating construction equipment to minimize noise at noise-sensitive receptors.

The City additionally has proposed as part of Mitigation Measure BIOL-5 that avian survey documentation be written as evidence of compliance with the proposed mitigation measure. **Special Condition 11C** requires the applicant to implement the

proposed measures to avoid impacts to sensitive nesting birds. Special Condition 10 also specifies that if any active nest of sensitive bird species is identified during preconstruction surveys, the biologist, in consultation with CDFW, must determine the extent of a construction-free buffer zone to be established around the nest, and construction in the buffer zone shall be delayed until after the young have fledged, as determined by additional surveys conducted by a qualified biologist.

With the inclusion of **Special Condition 11**, the Commission finds that the development will not significantly degrade environmentally sensitive bird nesting and roosting habitat or adjacent parks and recreation areas and will be compatible with the continuance of the habitat and parks and recreation areas consistent with section 30240(b).

K. Archaeological Resources/ Tribal Consultation

Coastal Act section 30244 states:

> 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. At the time that Euro-Americans first made contact in this region, the Wiyot lived almost exclusively in villages along the protected shores of Humboldt Bay and near the mouths of the Eel and Mad Rivers. Three federally recognized Tribes in the region – the Wiyot Tribe, the Blue Lake Rancheria, and the Bear River Band of the Rohnerville Rancheria – include citizens of Wiyot ancestry that are culturally affiliated with the greater Humboldt Bay region Wiyot ethnographic area as mapped by the Tribes.

In the late 1800s, much of the Project area was used for various industrial activities (e.g., wharf, railroad, timber transport) and later diked for agricultural purposes (i.e., farming and pasture) and nearby lumber mill operations. Most of the AWTF was built on former tidelands and submerged lands.

DZC Archaeology & Cultural Resources Consulting, LLC (DZC) conducted a cultural resources investigation within the 123 acres comprising the project's Area of Potential Effect within the AWTF and within the surrounding 0.5-mile radius of the Environmental Study Limits.[77] The investigation of the APE and ESL included historical research, a records search, a field survey of the project area, and correspondence sent on October 10, 2019 to the Tribal Historical Preservation Officers (THPOs) of the Wiyot Tribe, the Bear River Band of Rohnerville Rancheria, and the Blue Lake Rancheria.

In advance of the field survey, DZC completed a records search and historical research for the APE and ESL on July 18, 2019, at the Northwest Information Center of the

[77] The investigation included portions of APNs 503-241-010, 503-232-013, 503-251-012, 503-211-026, 503-241-016, 503-251-009, 503-241-011, 503-241-013, 503-211-005, 503-241-012, and one unnumbered parcel

California Historic Resources Information System (NWIC). The results of the historical research identified 16 previously conducted archaeological surveys of interest, including ten surveys within the APE, and six outside the APE but either partially or completely within the ESL. Five previously recorded resources were identified within the ESL and one within the APE. The geoarchaeological research indicated a low potential for buried and surface prehistoric resources, and a moderate potential for buried and surficial historical resources within the APE. The alignment of a former railroad (California Historic Landmark #842) is mapped within the APE, however none of the remaining physical remnants of the resource occur within the APE, and none of the project activities would result in sub-surface disturbances in the vicinity of the mapped alignment. City staff have also indicated that based on conversations with THPO Janet Eidsness, since the Treatment Facility footprint was primarily underwater based on the 1870s Coast Survey Map, the likelihood of discovery of archeological resources in areas of ground-disturbing activity are extremely low.

The field survey, conducted on October 9, 2019 and November 5, 2019 and included intensively surveyed transects of 15 meters or less within 75 acres of the 123-acre area. Approximately 48 acres were un-surveyable ponds, wetlands, and marshes. However, the field survey found the project would have no impacts to historic or cultural resources.

On July 9, 2020 City of Arcata staff notified the Tribal Historical Preservation Officers (THPOs) of the Wiyot Tribe, the Bear River Band of Rohnerville Rancheria, and the Blue Lake Rancheria of the proposed project. Representatives of each notified tribe responded via electronic mail (email) on July 16, 2020 recommending standard Inadvertent Archaeological Discovery Protocol requirements be included as a condition of any permit. Additionally, as part of the Commission's review process, on July 18, 2022, Commission staff reached out to cultural and environmental representatives from the Wiyot Tribe, the Bear River Band of Rohnerville Rancheria, the Blue Lake Rancheria, and the Cher-Ae Heights Indian Community of Trinidad Rancheria. Responses received July 28, 2022 from representatives of the Wiyot Tribe and Blue Lake Rancheria reaffirmed previous recommendations to include as a permit requirement inadvertent discovery protocol, and emphasized that the three Wiyot area THPOs should be informed promptly should any cultural or archaeological resource issues arise during project-related ground disturbing activities.

In response to the request of the THPOs, to ensure protection of any cultural resources that may be discovered at the site during the proposed project, the Commission is including **Special Condition 13**. This special condition requires that if an area of cultural deposits is discovered during the course of the project, all project activities must cease and a qualified cultural resource specialist, in conjunction with the Wiyot Tribe, the Bear River Band of Rohnerville Rancheria, and the Blue Lake Rancheria THPOs, must analyze the significance of the find. To recommence project activities following discovery of cultural deposits, the permittee is required to submit a supplementary archaeological plan for the review and approval of the Executive Director, who will determine whether the changes are *de minimis* in nature and scope, or whether an amendment to this permit is required.

The Commission finds that with these measures in place the project as conditioned provides reasonable mitigation measures to protect archaeological resources consistent with section 30244 of the Coastal Act.

L. Public Access and Recreation

Applicable Coastal Act Provisions

Section 30210. In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

Section 30211. Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.

Section 30212(a) states, in part:

Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where: (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) adequate access exists nearby, or, (3) agriculture would be adversely affected.

Section 30213 requires in part the following:

Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred. …

Section 30214 requires in part (Emphasis added):

(a) The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following:

(1) Topographic and geologic site characteristics.

(2) The capacity of the site to sustain use and at what level of intensity.

(3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses.

(4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter.

(b) It is the intent of the Legislature that the public access policies of this article be carried out in a reasonable manner that considers the equities and that balances the rights of the individual property owner with the public's constitutional right of access pursuant to Section 4 of Article X of the California Constitution. Nothing in this section or any amendment thereto shall be construed as a limitation on the rights guaranteed to the public under Section 4 of Article X of the California Constitution.

Section 30220. Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

Section 30223. Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.

In applying the sections listed above related to public access and recreation, the Commission is also limited by the need to show that any denial of a permit application based on these sections or any decision to impose conditions requiring public access on the granting of a permit is necessary to avoid or offset a project's adverse impact on existing or potential access.

The enhancement wetlands, along with the proposed site of Outfall 003 and the staging area along the southern terminus of I Street, all occur within the 307-acre Arcata Marsh and Wildlife Sanctuary, which, as previously mentioned, provides significant feeding and resting areas for thousands of birds travelling between California, Mexico, and Central and South America along the Pacific Flyway migratory corridor. As indicated in **Finding IV.J** above, the AMWS is a popular destination point for locals and visitors to the area for bird watching, hiking, dog-walking, and other recreational uses, and the Humboldt Bay Trail traverses the eastern and northern ends of the area. Parking areas along and at the terminus of I Street and along South G Street and South H Street provide free all-day parking access for recreationists using the approximately five miles of walking and biking paths that front the bay and marshes within the AMWS. In addition, recreational boaters use the boat launching facilities that are located at the foot of I Street.

The proposed project involves redevelopment of a public works facility, with the primary treatment mechanical components and associated corporation yard located at the wastewater treatment plant, which is inaccessible to the general public. While existing public trails are located immediately adjacent to the corporation yard and around portions of the oxidation ponds, many of the proposed improvements associated with Phase I will occur in areas where there is no existing public access. Thus, much of the proposed development will have no adverse effects on public access.

The project proposal also includes the demolition and removal of the existing wooden pedestrian bridge with a prefabricated concrete sectional deck over Butcher Slough that is associated with the public trail network within the Arcata Marsh and Wildlife

Sanctuary. The wooden pedestrian bridge was originally constructed in 1984 as part of major upgrades to the wastewater treatment facility (CDP 1-84-105). In 2000, the Commission authorized replacement of the aged and rotting wooden bridge with a new equivalent wooden bridge that would maintain continued coastal access uses in the public park facility (CDP Waiver 1-00-011-W). In 2016, approval of the Humboldt Bay Trail Project (a segment of the California Coastal Trail approved under CDP 1-16-0122) included authorization to construct a new 80-foot-long Class 1 multi-use trail bridge consisting of pre-manufactured fiberglass with timber decking adjacent to the wooden pedestrian bridge. The Commission authorized the new "redundant" multi-use ADA-accessible bridge for nature-study trail use immediately adjacent to the existing wooden bridge in part because 1) retrofitting the existing pedestrian bridge to meet Class 1 width requirements and raising the bridge to address sea level rise could compromise the existing load-bearing sewer pipe under the bridge; 2) the sewer pipe may require future replacement which would necessitate replacement of the entire bridge; 3) retrofitting the existing bridge would prohibit access during construction which would temporarily but severely affect trail connectivity at the Arcata Marsh; and 4) the existing abutments would need to be widened to accommodate the additional loads of the Class 1 trail, making retrofitting the existing bridge as disruptive as constructing a new bridge. The newer bridge was constructed at 13.5 feet NAVD88, whereas the original wooden pedestrian bridge deck elevation is at approximately 9.37 feet NAVD88.

The primary purpose of removing the older wooden bridge deck proposed under this CDP application is to allow full visual inspections and any future repair or maintenance (including sandblasting and recoating as proposed herein) of the 30-inch ductile iron sewer pipe (30-inch UVE), which is situated underneath the older wooden bridge. The 30-inch UVE transports by gravity flow disinfected effluent from the wastewater treatment plant across Butcher Slough at the footbridge and will convey up to 5.9 MGD of UV-treated effluent to the Enhancement Wetlands as part of the proposed project. The City has also indicated that the older wooden bridge crossing is redundant following construction of the adjacent bridge in 2017 as part of the Bay Trail project.

Although the wooden bridge is no longer needed to maintain coastal trail access across Butcher Slough, the bridge is actively used by pedestrians, bicyclists, and other coastal trail users. Anecdotal evidence suggests the wooden bridge is preferred over the newer bridge by many because of its quieter tread and reduced noise during use (especially by wheeled means of transport such as bicycles). The newer bridge installed in 2017 included aluminum decking rather than timber decking as permitted. When bicyclists, skateboarders and other trail users cross the newer bridge, its metal decking amplifies sound significantly compared to use of the wooden bridge with its concrete deck. After its installation in 2017, the Commission received (and has continued to receive) complaints from some members of the public that the amplified noise associated with the use of the metal-decking bridge is incompatible with the peaceful setting of the marsh and wildlife sanctuary. Removal of the wooden bridge from the public access trail system will result in increased use of newer bridge with metal decking, which in turn will result in increased noise levels in the area associated with the tread of users (especially bicyclists, skateboarders, and other users with wheeled means of transport). As previously mentioned, the AMWS provides significant feeding and resting areas for

thousands of birds travelling along the Pacific Flyway migratory corridor, and public trail users enjoying passive recreational activities such as birdwatching from the Butcher Slough bridge and the nearby Klopp Lake loop trail will be subjected to the increased noise levels. Therefore, the Commission finds that removal of the wooden bridge will adversely impact public access unless certain changes or improvements to the newer bridge with metal decking are implemented.

Special Condition 14 is therefore included to require submittal of a final plan for the Executive Director's review and approval at least 90 days prior to removal or demolition of the wooden bridge and concrete deck to control the anticipated increase in noise associated with the increased use of the newer bridge with metal decking over Butcher Slough that will result from the elimination of the wooden bridge from the public access trail system. The final plan shall demonstrate that the existing metal bridge deck will either be replaced with timber decking or otherwise will be modified or retrofitted with materials suitable to the manufacturer designed to dampen noise associated with the tread of users, including bicyclists and other users. The plan shall include a schedule for obtaining any necessary permits and for completing the metal bridge decking improvements/retrofit, which demonstrates that the bridge decking modifications shall be completed within 90 days from the date of removal of the wooden bridge.

The Phase I project is anticipated to be constructed in four subphases over the course of approximately 30 to 36 months. The City has indicated that the AMWS will remain open to the public during construction. Although there will be temporary access closures during construction, the majority of the trail system will remain open throughout project construction. The City has provided an annotated construction schedule and public access plan depicting temporary impacts on public access at various stages of construction (**Exhibit 13**). The City indicates that in general, all closures will be on weekdays and limited to working hours with public access available in the evenings and weekends. No open trenches or other site hazards will be permitted when the site is not actively in use.

Temporary trail closures of up to 30 days are anticipated during trenching associated with electrical and wastewater pipe utility installation (Oxidation Pond Loop Trail trenching in subphase 1.2 and trenching around enhancement wetland trails in subphase 1.3). Other equipment upgrades, including pump station and electrical improvements around the enhancement wetlands, are also anticipated to result in trail closures of up to 30 days during subphase 1.3. During temporary closures of specific areas of the AMWS, the remaining areas will remain open and the majority of trail segments will not be impacted. The most significant closures occurring during subphase 3 involve the temporary closure of the South I Street parking lot for a period of up to five months while contractors use the parking lot for staging. However, alternative access to parking will be provided at the Arcata Marsh Interpretive Center, located on South G Street, which will remain open throughout construction activities. To ensure that temporary access closures are limited to the minimum need to carry out construction activities while maximizing public access, **Special Condition 16** limits the authorization of trail closures to no more than 30 days and temporary closure of the South I Street parking lot to no more than five months without an amendment to this permit.

Finally, the City is committed to ensuring trail closures will be adequately posted with signage by the chosen contractor, and City staff will coordinate with local news outlets to notify the public of upcoming trail closures in advance of all construction work.

Therefore, as (1) project construction that would affect public access use will be of relatively short duration, (2) public access will remain available in the project area throughout construction with only limited closures of specific areas for short periods of time, (3) parking would be reduced and relocated during construction but not eliminated, and (4) the City in coordination with contractors will actively notify the public in advance of temporary closures and alternative public access options, the Commission finds the proposed development does not have any significant adverse effect on public access, and that the project as proposed is consistent with the coastal access policies of the Coastal Act.

M. Visual Resources

Coastal Act **section 30251** states in applicable part:

> 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 of visually degraded areas.

Section 30251 of the Coastal Act states that the scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance, and requires in applicable part that permitted development be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, and to be visually compatible with the character of surrounding areas. Furthermore, in designated highly scenic coastal areas, permitted development must be subordinate to the character of its setting.

The wastewater treatment facility is located along the shoreline of northern Arcata Bay and adjacent to the CCT. The area setting is that of a public facility complex situated on an embayment surrounded by a coastal plain of low topographic relief. Surrounding land uses to the east and west are primarily open space / wildlife refuge and agricultural grazing. To the north of the corporation yard lies the City's South G Street industrial-commercial district.

The end of "I" Street and the existing parking lot and shoreline area at the project site afford sweeping views of Humboldt Bay to the south and west. The wastewater treatment plant is visible from several public recreational areas and roads, including the Arcata Marsh and Wildlife Sanctuary, the McDaniel Slough Restoration Site, South G Street, oxidation pond perimeters and the CCT, which borders the City's corporation yard along its northern side.

The proposed development includes, among other things, constructing a new UV building and a new electrical building and replacing components of existing infrastructure within the existing footprint of the wastewater treatment plant. Portions of the existing wastewater treatment facility and proposed new developments will continue to be visible from various public vantage points in a manner similar to current conditions. The new UV electrical building will be nearly 15 feet tall and will be sited approximately 30 feet south of the existing chlorine contact basin (to be partially demolished)/ new UV disinfection station, and approximately 160 feet east of the channel of Butcher Slough. The approximately 502-square-foot building will be constructed using concrete blocks (concrete masonry unit or CMU), similar to the existing chlorine building located north of the CCB. The new electrical building will be sited along the northeastern edge of the WWTP (adjacent to South G Street). The approximately 18-foot-tall building will be approximately 4,184 square feet and will also be constructed of CMU. All new utility lines from the treatment plant will be installed underground. New chain-link fencing will be installed across both abutments of the newer bridge to prevent unsafe access across the sewer pipes located underneath and adjacent to the new bridge. Because the proposed developments will not block existing public views and will be similar in scale and design to other public works components presently visible at the wastewater treatment facility, the proposed development will be compatible with the existing character of the surrounding area.

The City has indicated in section 3.5.3F of their revised project description dated July 22, 2022 that the project will use “the City standard for lighting per Land Use Code section 9.30.070…” The project description includes the following lighting standards proposed as part of the project:

- All lighting fixtures shall comply with the International Dark Sky Association’s (IDA) requirements for reducing waste of ambient light (“dark sky compliant”). This includes, but is not limited to, requirements for acceptable fixture types and maximum color temperature.
- All lighting fixtures shall be the minimum lumens required for safety and security.
- All lighting fixtures shall be shielded and directed downward to minimize light shining on adjacent properties or natural areas. Shielded shall mean that the light rays are directed onto the site, and the light source (e.g., bulb, tube, etc.) is not visible beyond the property boundary of the site of the light source.
- No permanently installed lighting shall blink, flash, or be of unusually high intensity or brightness.
- Stand-alone light fixtures shall be limited to a maximum of 20 feet vertical.
- No lighting shall produce an illumination level greater than one-foot candle beyond the property boundary of the site of the light source.

The City has recently submitted updated lighting and electrical plans dated April 2022 (received August 1, 2022). Drawing No. 05E03, Sheet 299 of the April 2022 plans (“Luminaire Schedule”) lists exterior lighting for the new electrical building and UV

electrical building. According to this schedule, Holophane brand wall-mounted exterior lighting is proposed for exterior buildings (style W4GLED 30C 40k), which according to specifications available online[78], consists of dual voltage (120/277 volt) light emitting diode (LED) lights with color temperature of 4,000 kelvin (K), and lighting output of 8,375 lumens. Other exterior lighting included in the Luminaire Schedule includes pole-mounted 3,000 K LED lighting (lumens unspecified), and ceiling-mounted/suspended linear 4,000 K LED.

The project plans do not appear to include any details demonstrating that proposed lighting would be IDA-compliant, such as but not limited to meeting the standards for fixtures and limitations on height, brightness, shielding, illumination, and the minimum lumens required for safety and security. Additionally, some of the proposed lighting directly conflicts with IDA standards. For example, IDA recommends[79] a correlated color temperature (CCT) of 3,000 Kelvin or below, a range that contains less blue light. Furthermore, research indicates that the amount of blue light in LED lighting can disrupt natural circadian rhythms in humans and wildlife, lead to disruption in sleep and wildlife behaviors and adversely impact migrating birds, particularly shorebirds, and bats. Lighting with lower color temperatures has less blue in its spectrum. The Commission's ecologist has recommended lighting near sensitive areas to have a color temperature of no more than 3,000K, with 2,700K preferred whenever feasible. In order to prevent light pollution impacts, **Special Condition 15** requires the submittal of revised final lighting plans and specification sheets depicting lighting fixtures that prevent light trespass, sky glow and glare through the use of light shields, directing lighting downward, and the use of lights that contain a maximum color temperature of 2,700K, with limited exceptions. Furthermore, to ensure lighting is the minimum needed for safety and security, Special Condition 15 requires the use of a control system to minimize lighting and disallows the use of lighting for aesthetic purposes or any lighting not needed for security or safety.

Thus, the Commission attaches **Special Conditions 5 and 15** requiring submittal of final building plans and elevations prior to commencement of construction, which will allow the Executive Director to verify that the final building dimensions, materials, height, and exterior lighting fixtures are compatible with the character of the surrounding area and protect visual resources consistent with section 30251.

Therefore, the Commission finds that as conditioned the project is consistent with section 30251 of the Coastal Act as the proposed project will: (a) include adequate measures to insure that the scenic and visual qualities of coastal areas are considered and protected; (b) insure that permitted development is sited and designed to protect views to and along the ocean and scenic coastal areas; (c) minimize the alteration of

[78] Lighting specifications for Holophane brand lighting model W4GLED 30C 40k can be accessed online at: https://images.salsify.com/image/upload/s--vcRg65Ad--/761b168f3a9ffcb663d36a5984252839a2cde9f9.pdf

[79] International Dark-Sky Association guidelines can be accessed online at https://www.darksky.org/wp-content/uploads/bsk-pdf-manager/2020/10/IDA_LED_handout_rev201016.pdf

natural land forms; (d) be visually compatible with the character of surrounding areas; and (e) be subordinate to the character of its setting.

In summary, the proposed development as conditioned is consistent with section 30251, as the development will protect views to and along the coast, will minimize the alteration of natural landforms, and will not be incompatible with the character of the surrounding area.

N. Alleged Violation

Violations of the Coastal Act exist on the subject property including, but not necessarily limited to, the following developments: (1) installation of aerators in Oxidation Pond No. 1; (2) installation of baffle wall in Oxidation Pond No. 2; (3) relocation of control panels and transformers into boat storage building; (4) installation of electrical conduit for Blue Frog aerators at the inlet of the treatment wetlands; (5) vegetation maintenance within enhancement wetlands; (6) maintenance grading and revegetation of Treatment Wetland 4; and (7) construction of Treatment Wetlands 5 and 6 within the footprint of former Oxidation Pond No. 3.

The applicant is applying to permit the described unpermitted development. This development has been determined to have no adverse impacts to coastal resources and likely provides a benefit to the treatment of wastewater at the AWTF. Approval of this application, issuance of the permit, and the applicant's subsequent performance of the work authorized by the permit in compliance with all of the terms and conditions of the permit will result in resolution of the violations specifically described herein.

Although development has taken place prior to submission of this permit application, consideration of this application by the Commission has been based solely upon the development's conformance with the Coastal Act.

Commission review and action on this permit does not constitute a waiver of any legal action with regard to the alleged violation(s) (or any other violations), nor does it constitute an implied statement of the Commission's position regarding the legality of development undertaken on the subject site without a coastal permit, or of any other development, other than the development approved herein. In fact, approval of this permit is possible only because of the conditions included herein, and the applicant's presumed subsequent compliance with said conditions, and failure to comply with these conditions in conjunction with the exercise of this permit would also constitute a violation of this permit and of the Coastal Act. Accordingly, the applicant remains subject to enforcement action just as it was prior to this permit approval for engaging in unpermitted development or permit violations described herein and for any violations of this permit, unless and until the conditions of approval included in this permit are satisfied.

Failure to comply with the terms and conditions of this permit may result in the institution of enforcement action under the provisions of Chapter 9 of the Coastal Act. Only as conditioned is the proposed development consistent with the Coastal Act.

O. California Environmental Quality Act (CEQA)

The City of Arcata served as the lead agency for the project for California Environmental Quality Act (CEQA) purposes. The City adopted a Mitigated Negative Declaration under CEQA (SCH# 2020100483) and a Finding of No Significant Impact (FONSI) under NEPA for the project on October 26, 2020.

Section 13096 of the Commission's administrative regulations requires Commission approval of coastal development permit applications to be supported by a finding showing the application, as modified by any conditions of approval, to be consistent with any applicable requirements of CEQA. Section 21080.5(d)(2)(A) of CEQA prohibits approval of a proposed development if there are feasible alternatives or feasible mitigation measures available that would substantially lessen any significant impacts that the activity may have on the environment. The Coastal Commission's regulatory program for reviewing and granting CDPs has been certified by the Secretary of the Natural Resources Agency as being the functional equivalent of environmental review under CEQA (Section 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 Chapter 3 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, is the least environmentally damaging feasible alternative, has no remaining significant environmental effects, either individual or cumulative, and complies with the applicable requirements of the Coastal Act to conform to CEQA.