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

W11a

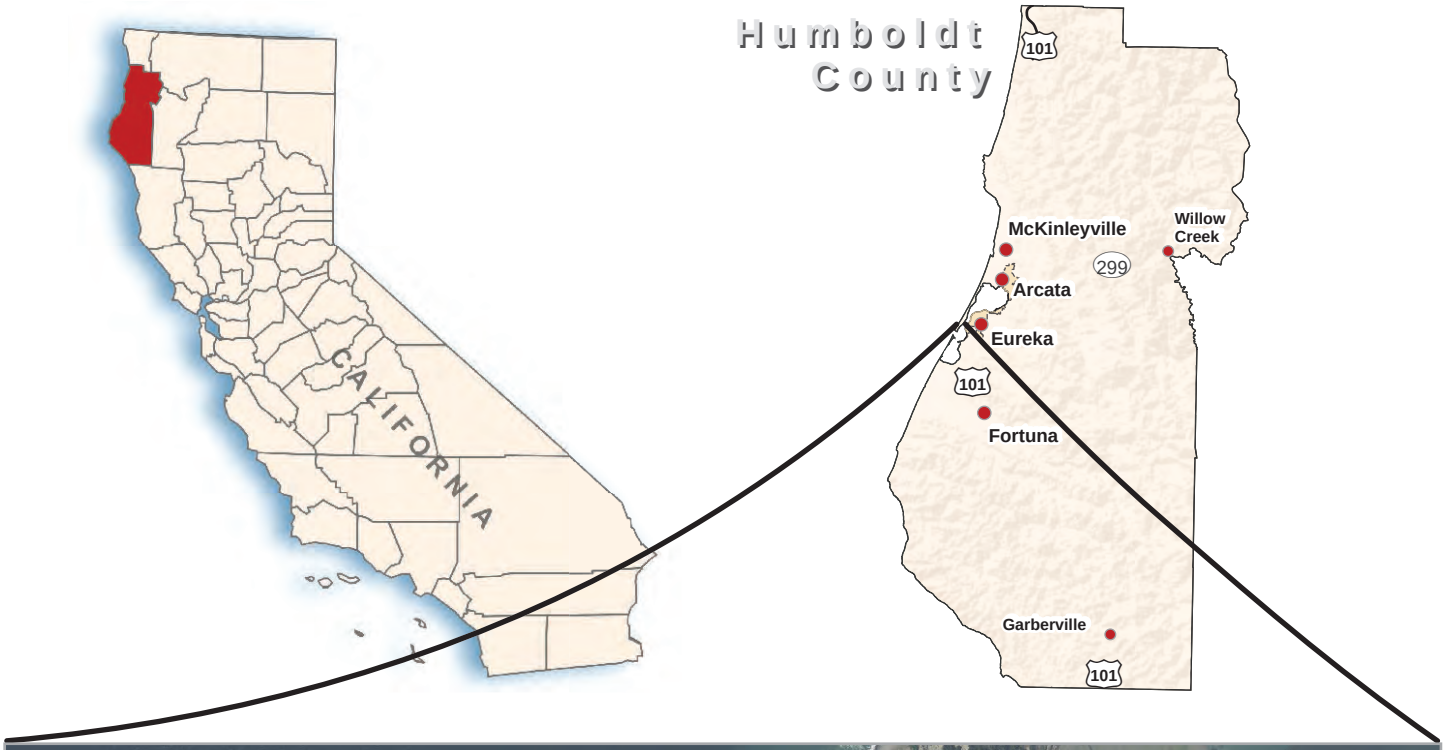
A-1-HUM-22-0063

(Nordic Aquafarms California, LLC)

December 13, 2023

EXHIBITS

Exhibit 1 – Location Map
Exhibit 2 – Site Plan Maps
Exhibit 3 – Project Description
Exhibit 4 – Appeal Filed by 350 Humboldt (Daniel Chandler)
Exhibit 5 – Appeal Filed by Scott Frazer
Exhibit 6 – Appeal Filed by Redwood Region Audubon Society
Exhibit 7 – Appeal Filed Salmonid Restoration Federation
Exhibit 8 – Appeal Filed by Alison Willy
Exhibit 9 – County Notice of Final Action & Adopted CDP Findings and Conditions



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Nordic Aquafarms California, LLC
Samoa Peninsul
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Samoa, Humboldt C

Project No. 11205607

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EXHIBIT NO. 1
LOCATION MAP
APPEAL NO. A-1-HUM-22-0063
(NORDIC AQUAFARMS)

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Samoa Peninsula Sust
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Samoa, Humboldt County,

Proposed Aquafarm

EXHIBIT NO. 2
PROJECT MAPS
APPEAL NO. A-1-HUM-22-0063
(NORDIC AQUAFARMS)

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Print date: 06 Jul 2021 - 10:21

Data source: Project design elements, April 1st, 2021; APE, Ju

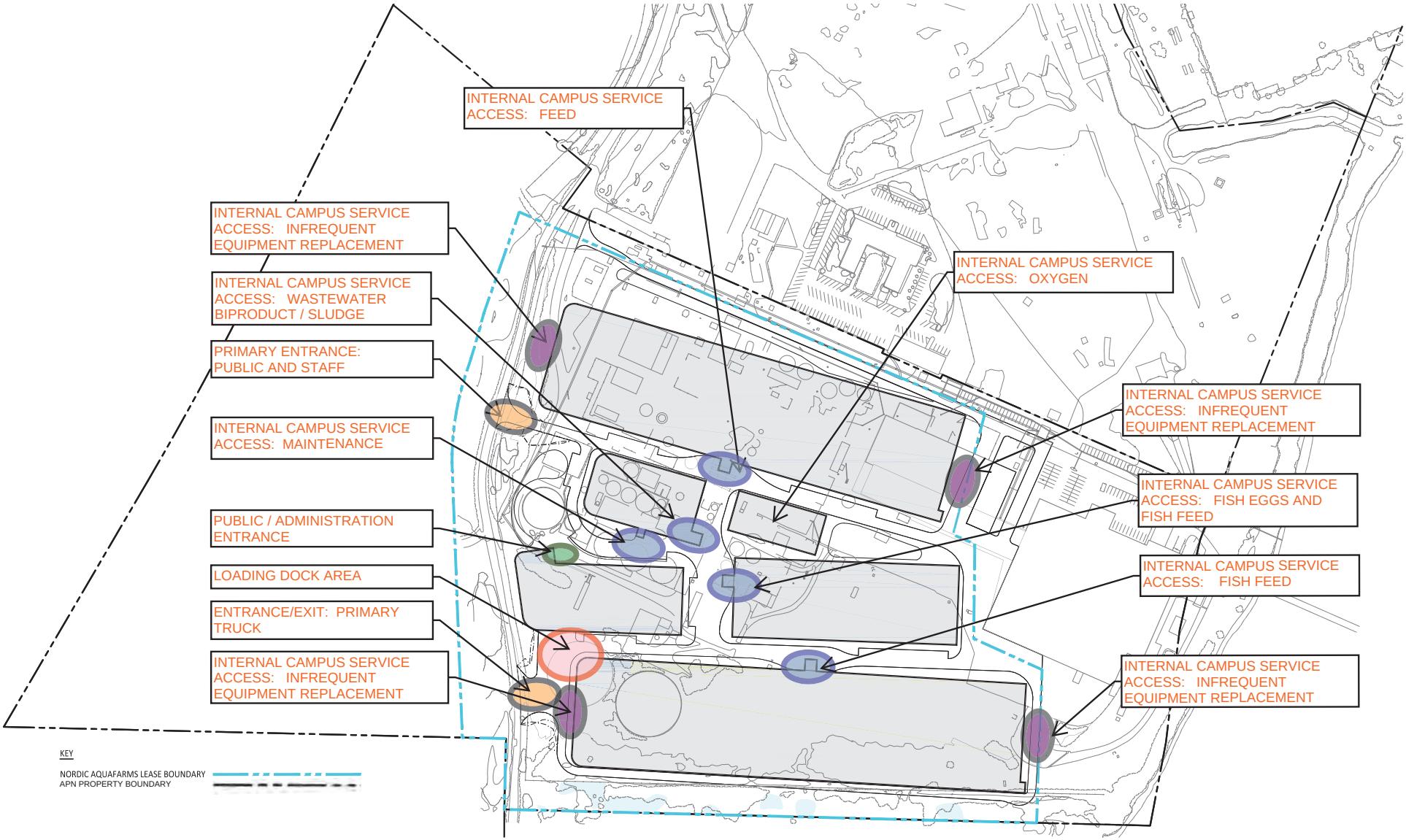

Figure 2-8: SITE LOGISTICS
Nordic Aqua Farms, Samoa, California
September 2021

NORDIC AQUAFARMS

SMRT PROJECT NO. 19120
0 50' 100' 200' 300'
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SMRT

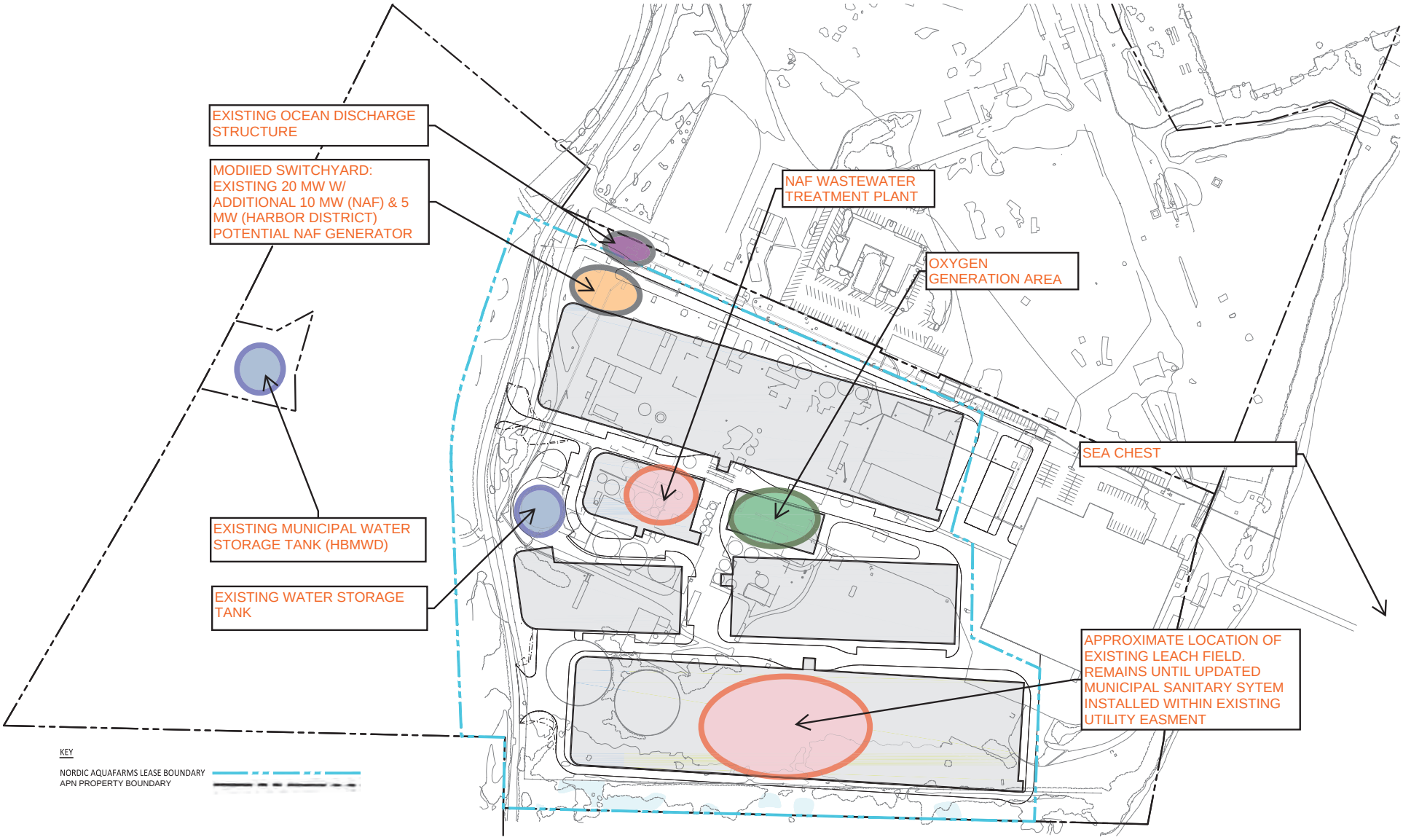

Figure 2-9: SITE INFRASTRUCTURE
Nordic Aqua Farms, Samoa, California
September 2021

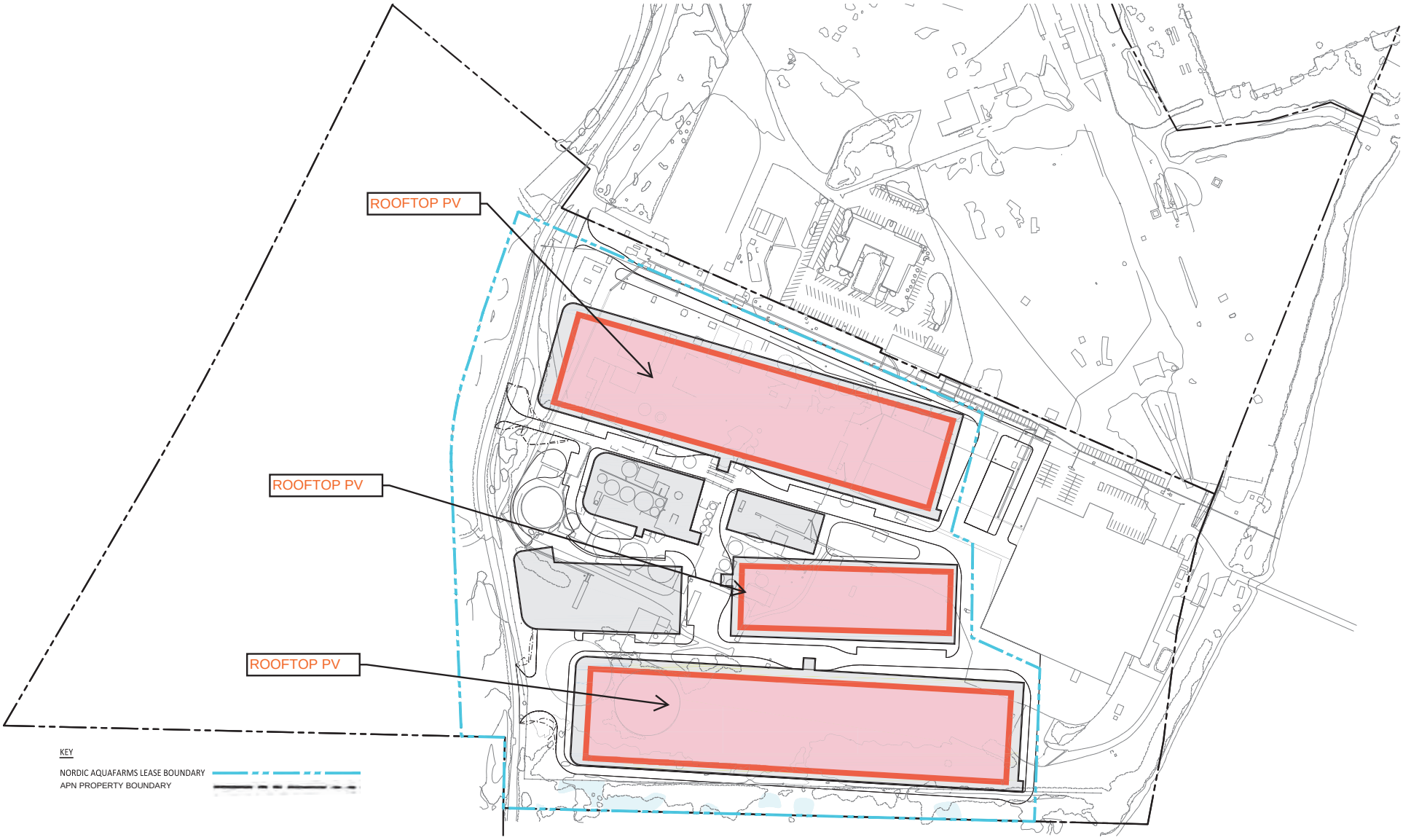

Figure 2-10: ROOFTOP PV LOCATIONS
Nordic Aqua Farms, Samoa, California
September 2021

NORDIC AQUAFARMS
SUSTAINABLE AQUACULTURE

SMRT PROJECT NO. 19120
0 50' 100' 200' 300'
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SMRT

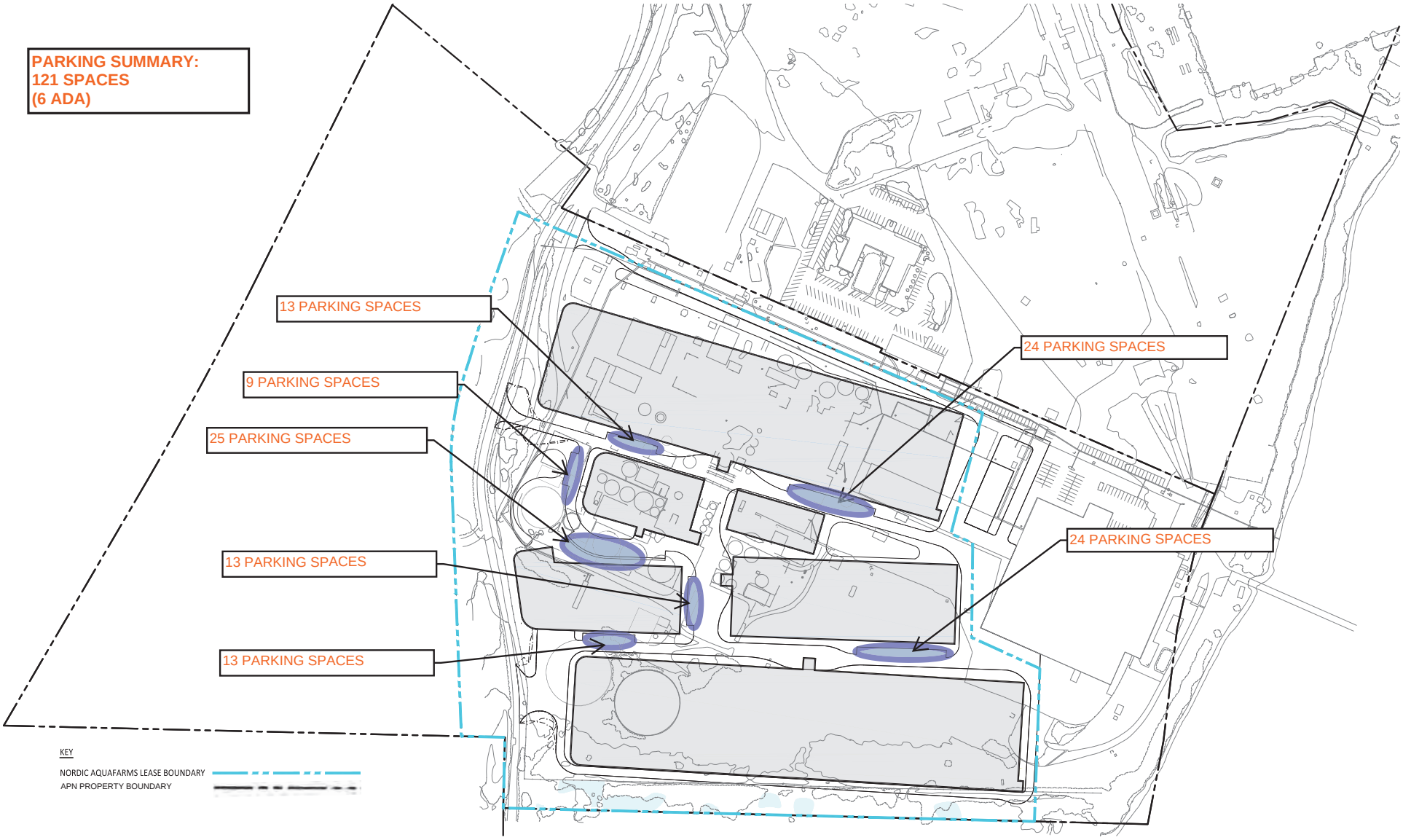

Figure 2-11: PARKING PLAN
Nordic Aqua Farms, Samoa, California
September 2021

NORDIC AQUAFARMS

SMRT PROJECT NO. 19120
0 50' 100' 200' 300'
N

SMRT

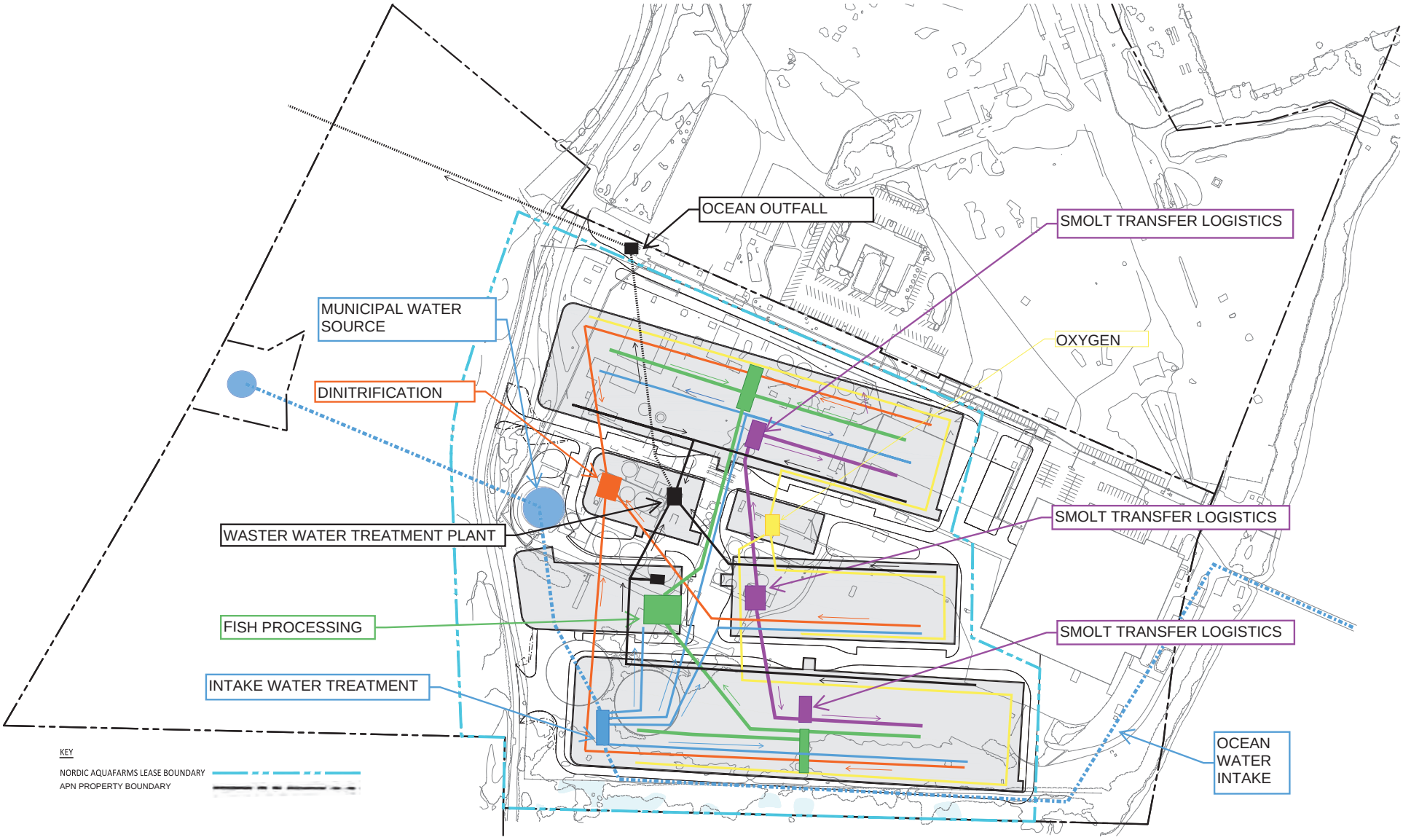

Figure 2-12: CONCEPT PIPING LAYOUT
Nordic Aqua Farms, Samoa, California
September 2021

NORDIC AQUAFARMS

SMRT PROJECT NO. 19120
0 50' 100' 200' 300'
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SMRT

2. Project Description

2.1 Introduction

This project description provides information and supporting figures for the Samoa Peninsula Land-based Aquaculture Project, hereafter referred to as the Project, proposed by Nordic Aquafarms California, LLC. (NAFC). The Project is proposed to be located on the Samoa Peninsula in the unincorporated community of Samoa in Humboldt County, California.

2.1.1 Project Definition

The Project includes four main elements – the primary terrestrial development, the discharge of treated effluent through the existing ocean outfall, the upgrade of two existing water intakes in Humboldt Bay and associated terrestrial water pipelines, and the compensatory off-site permitting-agency required restoration associated with the water intakes. This Project Description covers each of the four Project elements in detail as follows:

– The Terrestrial Development is described in Section 2.2;
– The Ocean Discharge is described in Section 2.3; and
– The Humboldt Bay Water Intakes are described in Section 2.4.
– Off-site Compensatory Restoration in Section 2.4.7

This organizational approach to the four Project elements is applied throughout this Environmental Impact Report (EIR). Throughout the EIR, these four Project elements are discussed separately to distinctly and fully analyze potential impacts related to each component of the full Project. Additionally, the Humboldt Bay Water Intakes element of the Project would be undertaken by the Humboldt Bay, Harbor, Recreation, and Conservation District (Harbor District), whereas the Terrestrial Development would be undertaken in full by NAFC. The treated effluent would be discharged through the existing Redwood Marine Terminal II (RMT II) Ocean Outfall which is owned by the Harbor District. NAFC would lease capacity in the RMT II Ocean Outfall and complete permitting of the Project's discharge. The Harbor District would remain responsible for ongoing maintenance and monitoring of the ocean outfall infrastructure.

As part of the Terrestrial Development, the Project proposes to redevelop the site of the decommissioned Freshwater Tissue Samoa Pulp Mill facility (pulp mill) in order to construct a land-based finfish recirculating aquaculture system (RAS) facility (aquaculture facility). The Project includes the construction of five buildings totaling approximately 766,530 square feet, and installation of a 4.8 megawatt photovoltaic solar panel array covering approximately 657,000 square feet of the facility roofs. The Project also includes modernizing two existing saltwater intakes and distribution infrastructure located in Humboldt Bay on property owned by the Humboldt Bay Development Association, Inc. (HBDA) and managed by the Harbor District At full operational capacity, the Project would discharge a maximum of 12.5 million gallons per day (MGD) via the existing RMT II ocean outfall pipe, which extends 1.55 miles offshore to a diffuser array. The construction and operation of the aquaculture facility, and the off-site compensatory restoration for the terrestrial development is to be undertaken and permitted by NAFC, working in collaboration with the Humboldt County Planning Department, the Humboldt Bay Harbor, Recreation and Conservation District (Harbor District), and applicable regulatory agencies. Modernization of the existing Humboldt Bay water intakes, associated piping installation, and associated compensatory offsite mitigation will be undertaken and permitted by the Harbor District and is analyzed in this EIR.

2.1.2 Project Site Definition

The Samoa Peninsula is bounded on the west by the Pacific Ocean and the east by Humboldt Bay. The Project Site is located adjacent to the eastern shore of the Samoa Peninsula, east of New Navy Base Road, and due west, across Humboldt Bay, from the City of Eureka. The Project Site is accessed from Vance Avenue via New Navy Base Road and LP Drive. The Project Site and surrounding vicinity are shown on Figure 2-1. The Area of Potential Effect (APE) applied to terrestrial developments is shown on Figure 2-2. Jurisdictional boundaries are shown on Figure 2-3.

The Project Site consists of portions of one parcel of which approximately 36 acres would be used for the land-based finfish aquaculture facility and associated infrastructure. The cumulative area, designated by the following Assessor Parcel Numbers (APN) 401-112-013, 401-112-021, 401-112-011, and 401-031-040, where Project construction activities are planned to occur shall herein be defined as the Project Site. The Project conceptual layout is shown on Figure 2-4 and the Humboldt Bay intakes and associated piping are shown on Figure 2-5.

2.1.3 Project Objectives

The general objective of the proposed Project is to provide sustainably raised seafood to consumers on the West Coast using environmentally and socially responsible business practices. Specific Project objectives include the following:

1. To establish a world-class land-based finfish RAS aquaculture facility on the Samoa Peninsula
2. To provide a fresh local food source, produced in the region where it is consumed, to mitigate the damaging environmental impacts associated with long-distance air shipment of seafood
3. To produce nutritious seafood for the West Coast market free of antibiotics and avoidance of GMOs
4. To construct and operate a fresh water-efficient aquaculture facility with a minimal environmental impact
5. To provide approximately 150 fulltime jobs, including engineers, biologists, administration staff, maintenance staff, fish processing, and other operations staff
6. To remediate existing environmental contamination at the Project Site associated with a former industrial site (brownfield) encountered during demolition and re-development of the site
7. Redevelop an existing underutilized industrial site absent residential neighbors to minimize environmental impacts as much as possible, remediating existing environmental contamination that may be present to meet the standards of food production and safety.
8. To support local industry and innovation by selling nutrient-rich aquaculture coproducts to local businesses for beneficial uses.

Project Benefits

Direct and indirect benefits of the Project are anticipated to include the following:

1. The project would generate approximately 150 fulltime jobs
2. Tax revenue for Humboldt County
3. Redevelopment and infrastructure improvements which have the potential to catalyze future coastal-dependent development on the Samoa Peninsula
4. Remediation of existing brownfield site with removal of above ground hazardous materials and decaying structures, improvements to soil quality, stormwater management, and landscaping.
5. Many indirect jobs as a result of the Project in construction and vendor partners
6. Workforce development initiatives related to a growing seafood industry
7. A diversification of the local seafood industry, integrating more resilience, more jobs, and more opportunities for local businesses
8. An opportunity to expand the seafood/food brand of Humboldt County

9. Coproducts that can leverage other local business models
10. Collaboration and research opportunities with local academic institutions and other interested entities

2.1.4 Project Background

The following sections provides an overview of the historical industrial uses of the Project Site.

Project Site History

Large-scale construction on the Project Site began in 1963 when Georgia Pacific LLC (GP) developed the site as a bleached Kraft pulp mill. The pulp mill began operation in 1965 and was operated by GP until 1972. To support the pulp mill operations, an ocean outfall pipe was installed to discharge mill water effluent offshore. A 60-KV electrical switchyard was also constructed adjacent to the ocean outfall intake to provide electricity to power pulp mill operations.

The pulp mill was sold by GP to Louisiana-Pacific Corporation (LP) in 1972. LP continued operation of the pulp mill into the 1990s. In 1994, the facility was converted from a standard Kraft pulp mill process to a chlorine-free pulp-making process. From the late 1990s through 2008 the pulp mill changed ownership multiple times before being sold to Evergreen Pulp Inc. (EPI) in 2005. After air quality concerns culminated in a lawsuit against EPI in 2006, the pulp mill was ultimately shut down by EPI in 2008. The pulp mill was acquired from EPI by Freshwater Tissue Company (FTC) in 2009. The mill was permanently closed by FTC in 2010 and FTC subsequently undertook decommissioning activities and selective demolition of the facility infrastructure until 2013.

In association with the decommissioning of the pulp mill, various asbestos material assessments were conducted by GHD (formerly Winzler & Kelly) under contract with FTC between 2010 and 2012. The asbestos assessments identified asbestos containing materials associated with many of the pulp mill structures. Asbestos material removal (abatement) at select structures was conducted by FTC subcontractors between 2011 and 2013. Between 2011 and 2013 many pulp mill structures were demolished, including the pulp mill Recovery Boiler, Bleach Plant, re-causticizing area, and liquor storage tanks. Additional asbestos assessment of the former pulp mill site has been completed by NAFC, and additional asbestos abatement would be necessary.

In August 2013, ownership of the former pulp mill site was transferred from FTC to the Humboldt Bay Development Association Inc and leased to the Harbor District. In November 2013 the USEPA began a series of studies to assess the existing risks presented by stored chemicals onsite and the degree of contamination of the soils and groundwater from historic pulp mill operations. Based on the USEPA assessments, an emergency remediation effort was commenced in 2014 by the USEPA and the United States Coast Guard at the former pulp mill. The $15 million site remediation involved the removal of spent pulping liquors and other hazardous chemicals that had been stored onsite (Times Standard 2018). Bulk waste liquors from the pulp mill were transported to Washington for reuse by other Kraft pulp mill operations.

The former pulp mill infrastructure has been partially demolished however many structures remain in situ, including the 12-story Reboiler Building, the machine building, the approximately 270-foot smokestack, and other smaller structures. Additionally, several remnant debris stockpiles resulting from the FTC infrastructure demolition operations remain at the former pulp mill site. Demolition debris piles were assessed by the Harbor District and found to not contain hazardous material contamination, including asbestos, heavy metals, or petroleum hydrocarbons. Since 2013, extensive debris removal has been undertaken by Harbor District and much of the demolition waste has been transported offsite to appropriate disposal facilities. Existing demolition debris stockpiles currently at the Project Site are scheduled to be removed by the Harbor District prior to the commencement of the proposed Project.

The proposed location of the Humboldt Bay water intakes at RMT II dock and Red Tank dock are on Harbor District-managed land, have had various uses in the past, and are currently not in operation. The associated saltwater and industrial fire water piping are located on District-owned property, which has had various industrial uses, and is currently generally vacant, previously developed area.

Site Selection

The 2018 site selection process assessed the West Coast from the Monterey area to the Canadian border through systematic data gathering related to a set of location criteria. The high-level selection criteria are summarized below in Image 2-1.

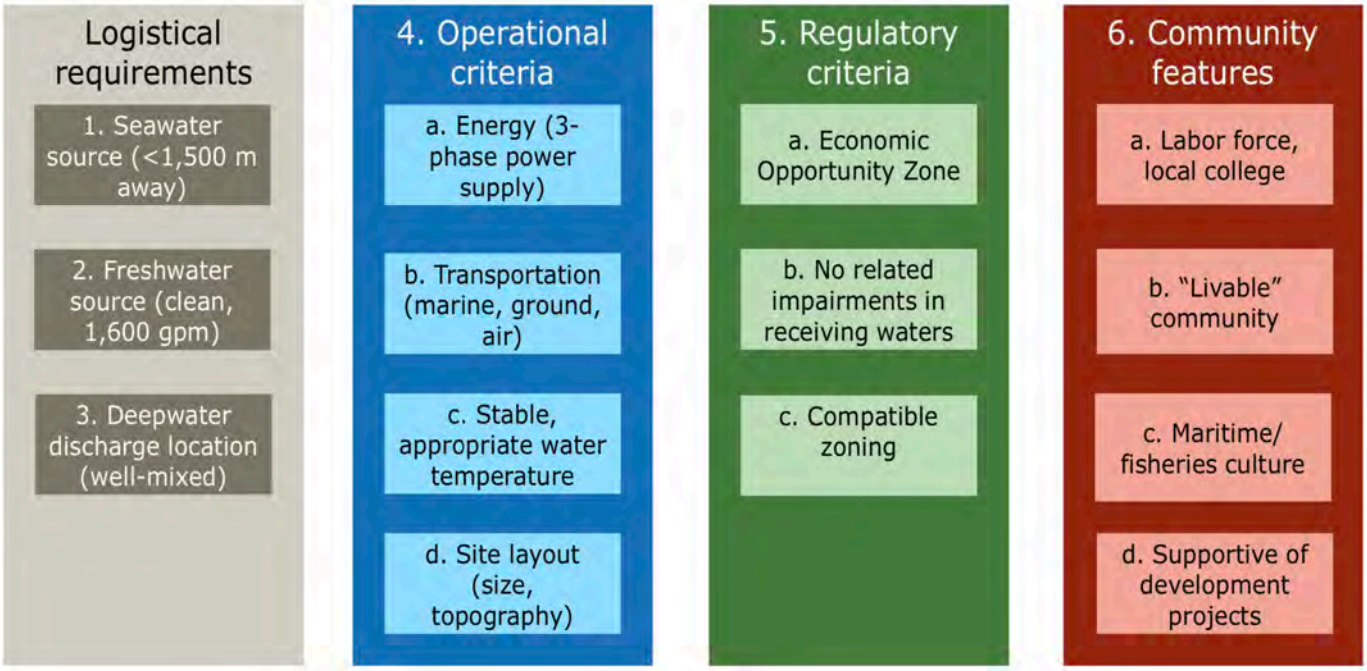


Image 2-1 Site Selection Criteria

A number of locations along the coastline were narrowed down to three candidate locations. Further detailed assessments concluded that the Samoa Peninsula site provided the best conditions for development of the Project. Key strengths of the chosen Samoa Peninsula site include:

1. Existing outfall pipe and other necessary infrastructure already in place
2. Industrial freshwater supply line in place, formerly supplying 30 million gallons per day (MGD) to the pulp mill
3. Two existing sea chest intake structures on Harbor District docks providing access to cold and clean saltwater
4. 20 MW electrical substation on the site
5. A flat site with good constructability
6. Road access that formerly served 500+ wood chip trucks per day to supply the former pulp mills
7. Forward-looking political climate to support economic growth in the region
8. A vibrant community for aquaculture facility staff to live

The final decision to move forward was based on negotiations with the Harbor District and a resulting lease-option agreement for the preferred Project Site property (aquaculture facility).

The Project has a wealth of economic and social benefits for the community. The environmental profile of the Project greatly reduces potential impacts compared to other methods of aquaculture production. The Project's goal is to displace imports of fresh fish currently shipped from overseas by air freight and will not compete with the regional fisheries.

2.1.5 Project Setting

The proposed site for the RAS aquaculture facility (APN 401-112-021) is owned by the HBDA, leased by the Harbor District, and shown in Figure 2-3. The HBDA is a non-profit that was formed by the Harbor District to receive New Market Tax Credit Financing. Harbor District staff provides administrative support to the HBDA. The parcel comprising the Project Site would be leased by NAFC under lease agreements with the Harbor District.

The NAFC lease area is irregular in shape, does not have frontage on New Navy Base Road, and is bisected by Vance Avenue. Centered along Vance Ave there is a 50-foot-wide non-exclusive easement for ingress, egress and public utility purposes and a 5-foot wide easement for utility purposes lying adjacent to and parallel with the non-exclusive easement (Figure 2-6 and Figure 2-7). The combined sixty-foot easement extends approximately 15 feet beyond the edge of the paved surface on both sides of Vance. All facility buildings would be located to the east of the Vance Avenue easement. The building closest to Vance Avenue would be the processing / administrative building located approximately 23 feet east of the edge of the road and 8-feet east of the edge of the easements.

The Humboldt Bay intakes are located on APNs 401-112-014 and 401-031-040, which are owned by the Harbor District.

Project Regulatory Setting

The Project Site is located in the California Coastal Zone (CZ). Permitting jurisdiction for most land based activities is with County of Humboldt. The Humboldt County jurisdiction aligns with the eastern Project Site parcel boundaries that border Humboldt Bay. See Figure 2-3 for a depiction of the Project Site parcel boundaries and jurisdictional limits of the Coastal Commission and the County of Humboldt. All activities within the bay and Pacific Ocean and in the tidelands around the bay are under the permitting jurisdiction of the Coastal Commission.

The California Coastal Commission (CCC) issued a jurisdictional boundary determination for the pulp mill parcel (APN 401-112-021) on July 10, 2015, confirming that these parcels are within Humboldt County jurisdiction and within the CCC geographic appeal jurisdiction. The Project Site is also subject to the Humboldt Bay Area Plan (HBAP), a component of the Humboldt County Local Coastal Program

The Project Site for the terrestrial development (APN 401-112-021) is designated for Industrial by the Humboldt Bay Area Plan. The area east of Vance Avenue is designated Coastal Dependent Industrial (MC), and the area west of Vance Avenue Industrial General (MG). Aquaculture and other industrial activities are allowable uses under both the MC and MG land use designations applicable to the Project Site.

The Humboldt County zoning designation for the parcel comprising the Project Site (APN 401-112-021) is Industrial/Coastal Dependent (MC) and includes an Archaeological Resource Area Outside Shelter Cove combining zone overlay (A). The combining zone (A) designates the Project Site as an area potentially containing archaeological resources and provides for “reasonable mitigation measures where development would have an adverse impact upon archaeological and paleontological resources” (HCC 313-16.1). The Project Site location and legal designations are summarized below in Table 2-1.

The water intake structures in Humboldt Bay and associated piping include APNs 401-112-011, 401-012-024, and 401-031-040, operated by the Harbor District via HBDA (except APN 401-031-040 that is owned by the Harbor District) are on parcels within the Humboldt County’s jurisdiction and within the State’s primary permitting jurisdiction. Thus, the Harbor District’s Coastal Development Permit application is consolidated to the CCC for the intakes and associated piping.

Table 2-1 Project Location Summary

APN	Parcel Size /Utilized Portion (Acres)	Owner	Current Use	Proposed Project Use	NAFC Use Means	Zoning	Current General Plan Designation
401-112-021	76.7/36	HBDA	Former Pulp Mill (Partially Demolished) and Existing Structures in Current Use	Aquaculture Facility (Pulp Mill Site Only)	Lease	MC/A	MC, MG
401-112-011	16.39 / N/A	HBDA	Redwood Marine Terminal II dock	Sea water intake	Use Easement	MC/A	MC
401-012-024	36.25 / N/A	HBDA	Vacant industrial parcel	Water pipeline trenching	Use Easement	MC/A	MC
401-031-040	67.27 / N/A	Harbor District	Redwood Marine Terminal I	Water pipeline trenching and Sea water intake	Use Easement	MC/A	MC

Notes: APN = Assessor's Parcel Number
HBDA = Humboldt Bay Development Association, Inc.
MC = Industrial, Coastal Dependent (MC) General Plan Designation
MC/A = Industrial/Coastal Dependent with Archaeological Overlay Zoning Designation
NAFC = Nordic Aquafarms California, LLC.

The shoreline of Humboldt Bay, beyond the Project Site eastern parcel boundaries, is under the jurisdiction of the Harbor District and subject to the water use designations and policies outlined in the Humboldt Bay Management Plan (Harbor District 2007). As defined by Section 2.2 of the Humboldt Bay Management Plan, the bay waters east of the Project Site (outside of the Project Site boundary) are classified under the Harbor use designation. The Harbor use designation classifies "harbor-related waters adjacent to upland areas (under the land use jurisdiction of the County of Humboldt and the City of Eureka) that are reserved or designated for coastal-dependent or water-dependent uses" (Harbor District 2007).

Required Permits and Approvals

Environmental permits, agency approvals, and associated documentation would be and/or have been filed with the appropriate regulatory agencies in association with the Project. Table 2-2 summarizes the anticipated permits, consultations, and approvals from federal, state, and local agencies and the applicant.

Table 2-2 Anticipated Regulatory Permits and Approvals

Project Component(s)	Agency	Permit or Approval	Regulated Activity / Applicant
Terrestrial Development Ocean Discharge Water Intakes	Humboldt County	California Environmental Quality Act (CEQA) Environmental Impact Report (EIR)	State environmental protection requirement / Nordic & Humboldt Bay Harbor, Recreation, and Conservation District
Terrestrial Development	Humboldt County	Coastal Development Permit (CDP)	Development within County jurisdiction of the project site / Nordic
Terrestrial Development	Humboldt County	Demolition Permit, Building Permit	Demolition, Construction, installation, or alteration of structures / Nordic
Terrestrial Development Water Intake Trenching	Humboldt County	Grading Permit	> 50 cubic yards per parcel, among other thresholds / Nordic & Humboldt Bay Harbor, Recreation, and Conservation District
Terrestrial Development	Humboldt County	Loading Space Exception Petition	Facilities with less than one loading space for each 20,000 ft^2 of floor area / Nordic
Ocean Discharge	California Coastal Commission	Coastal Development Permit	Compliance of discharged effluent with the Coastal Act / Nordic
Terrestrial Development	Humboldt County	Encroachment Permit	Signage and improvements to New Navy Base Road / Nordic
Terrestrial Development Water Intake Trenching	North Coast Regional Water Quality Control Board (NCRWQCB)	National Pollutant Discharge Elimination System (NPDES) Waste Discharge Permit Stormwater Pollution Prevention Program (SWPPP)	Construction >1 acre of ground disturbance / Nordic & Humboldt Bay Harbor, Recreation, and Conservation District
Ocean Discharge Water Intake	NCRWQCB	National Pollutant Discharge Elimination System (NPDES) Waste Discharge Permit, including compliance with Water Code Section 13142.5(b) for water intake from Humboldt Bay	Water quality of effluent discharged to the Pacific Ocean and intake of water from Humboldt Bay / Nordic
Terrestrial Development	NCRWQCB	Interim Measures Work Plan and Soil/Groundwater Management	Handling, testing, disposal and/or reuse of site materials. Including soil and groundwater / Nordic
Terrestrial Development	North Coast Unified Air Quality Management District (NCUAQMD)	National Emissions Standard for Hazardous Air Pollutants (NESHAP) notification	Facility demolition and/or asbestos abatement; backup generator emissions / Nordic
Terrestrial Development	North Coast Unified Air Quality Management District (NCUAQMD)	Stationary Source Air Quality Permit	Operation of stationary internal combustion engine / Nordic
Terrestrial Development	California Department of Fish and Wildlife	Aquaculture Registration	Aquaculture / Nordic

Project Component(s)	Agency	Permit or Approval	Regulated Activity / Applicant
Terrestrial Development	California Department of Fish and Wildlife	Egg Importation	Importation of eggs into California from other states or countries / Nordic
Water Intake	California Department of Fish and Wildlife	Incidental Take Permit for CESA Compliance[1]	Coverage for state-listed species / Humboldt Bay Harbor, Recreation, and Conservation District
Water Intake	US Army Corps of Engineers/Regional Water Quality Control Board	Rivers and Harbors Act Section 10 / 401 Certification	Placement of structures in a navigable waterway / Humboldt Bay Harbor, Recreation, and Conservation District
Water Intake	National Marine Fisheries Service and/or U.S. Fish and Wildlife Service	If required, ESA Section 7 Consultation	Coverage for federally listed (formal consultation is not expected) / Humboldt Bay Harbor, Recreation, and Conservation District
Water Intake	California Coastal Commission	Coastal Development Permit	Compliance of water intakes and associated piping with the Coastal Act / Humboldt Bay Harbor, Recreation, and Conservation District
Water Intake	Humboldt Bay Harbor, Recreation, and Conservation District	Harbor District Permit	Construction, maintenance, and operation of intakes / Humboldt Bay Harbor, Recreation, and Conservation District

[1]Notes:

EIR = Environmental Impact Report
> = Symbol signifying “greater than”
CESA = California Endangered Species Act
ESA = Endangered Species Act

Project Site Vicinity

A wood biomass electrical generation facility (biomass facility), most recently operated by DG Fairhaven Power Company (Fairhaven Power), is located approximately 0.21 miles southwest of the Project Site. When operational, the 17.25 MW of electrical power generated by the Fairhaven Power facility is supplied to Pacific Gas and Electric Company (PG&E), the local electrical utility (RCEA 2016). Biomass inputs to the Fairhaven Power facility come in the form of wood waste from local sawmills and timber harvest companies. Wood waste inputs consist of woodchips, wood shavings, bark, and sawdust. Wood waste stockpiles are located immediately north of the biomass facility.

A one million-gallon (1-MG) water storage tank, owned and operated by the Humboldt Bay Municipal Water District (HBMWD), is located southwest of the Project Site, approximately 600 feet west of the Project Site between Vance Avenue and New Navy Base Road. The 1-MG water tank contains industrial freshwater from the Mad River, supplied to the tank by HBMWD water lines which are approximately 42 inches in diameter. The 1-MG water tank provides industrial process water to local industrial end-users, including the former pulp mill, Fairhaven Power biomass facility and the Harbor District RMT II. The 1-MG water tank also provides water for local fire suppression use. The 1-MG water tank is accessed via a paved private road, connecting New Navy Base Road to Vance Avenue.

The former Louisiana Pacific Corporation Samoa Solid Waste Disposal Site (SWDS) is located to the west of Vance Ave on the same parcel but outside the NAFC lease area. The SWDS is comprised of four known closed and capped Waste Management Units (WMUs) and an additional area within the SWDS facility boundaries which may contain other closed WMUs. The Harbor District is the current operator of the closed SWDS. The SWDS was owned and operated by LP during all waste disposal and closure activities. The SWDS is an unlined Class III landfill, as defined in

California Code of Regulations, title 27. The wastes contained in the landfill are approximately 98 percent wood ash with less than one percent each of slaker grits (unreacted lime nodules from the pulping process), pulp rejects, wood chips, and construction debris. All wastes came from LP activities. The SWDS had been operating since 1970 and ceased accepting waste in May 1997.

A woodchip distribution facility and associated dock, owned and operated by California Redwood Company (CRC), are located south of the Project Site. The CRC wood chip stockpiles, chip conveyor and associated chip transport barge-loading dock are accessed via Bay Street and located approximately 0.15 miles south of the Project Site. A PG&E electrical switchyard, accessed via Vance Avenue, is located adjacent (northwest) to the CRC woodchip facility, between the CRC stockpiles and the Fairhaven Power biomass facility.

The Green Diamond Resource Company operates a log deck on APN 401-031-061. RMT I is an underutilized and largely vacant parcel, zoned Coastal Dependent Industrial. RMT I is bordered on the west by APN 401-031-055, privately owned by Samoa Pacific Group LLC (Danco) and also zoned Coastal Dependent Industrial.

Samoa Dunes State Recreation Area is located approximately 2.3 miles south of the Project Site at the southerly end of the North Spit. The Samoa Dunes State Recreation Area is administered by the United States Department of the Interior, Bureau of Land Management (BLM) and provides limited public facilities supporting coastal recreation, including off-highway vehicle (OHV) usage. The Project is bordered to the east by Humboldt Bay, and the two saltwater intakes are located in the waters of Humboldt Bay.

The current uses of adjacent parcels around the Project Site are summarized in Table 2-3.

Table 2-3 Project Vicinity Summary

Direction	APN	Current Use	Zoning	Current HBAP Designation
North	401-031-061 and 401-112-013	GDRC Log Deck, Paved Staging Areas	MC/A	MC
North	401-031-040	HBDA District, Redwood Marine Terminal I	MC/A	MC
North	401-031-055	Samoa Pacific Group LLC	MC/A	MC
North and East	401-112-024	HBDA Vacant Industrial Property	MC/A	MC
East	401-112-011	HBDA, Redwood Marine Terminal II and Dock, Humboldt Bay (Open Water)	MC/A	MC
South	401-122-004	Unpaved Vacant Staging Area, CRC Woodchip Facility and Dock	MC/A	MC
West	N/A	New Navy Base Road (Humboldt County), Samoa Dunes State Recreation Area (BLM)	NR/W/B	NR

Notes: APN = Assessor's Parcel Number
CRC = California Redwood Company
GDRC = Green Diamond Resource Company
Harbor District = Humboldt Bay Harbor, Recreation and Conservation District
MC = Industrial, Coastal Dependent (MC) General Plan Designation
MC/A = Industrial/Coastal Dependent with Archaeological Overlay Zoning Designation
NR = Natural Resources Zoning Designation
W = Coastal Wetlands Overlay Zoning Designation
B = Beach and Dune Areas Zoning Designation

2.1.6 Overall Project Timeline

Special studies and initial permit submission were submitted to the agencies in September and October 2020 (See Table 2-2 for a summary of required permits and approvals). The finalization of this document will complete permit submittals. The permitting phase for the terrestrial development and ocean discharge is expected to generally be complete in 2022. The Harbor District is concurrently pursuing permits required for the two Humboldt Bay water intakes, as summarized above in Table 2-2. The water intakes require a Coastal Development Permit from the California Coastal Commission, a Clean Water Act Section 401 Water Quality Certification from the North Coast Regional Water Quality Control Board (NCRWQCB), and a Clean Water Act Section 10 permit from the U.S. Army Corps of Engineers (USACE). A California Endangered Species Act (CESA) Incidental Take Permit (ITP) administered by the California department of Fish and Wildlife (CDFW) and/or formal or informal consultation with the National Marine Fisheries Service (NMFS)/National Oceanic and Atmospheric Association (NOAA) Fisheries and/or the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the federal Endangered Species Act (ESA) would also occur for the potential take of Longfin Smelt (*Spirinchus thaleichthys)* as a result of water intakes operations. Project civil engineering and design are currently underway and anticipated to be completed in due course after permits are obtained. Project construction for the terrestrial development would follow once the required agency approvals and permits are secured by NAFC. It is expected that demolition and construction would commence following final permit approvals, in 2022 or 2023. The Harbor District would commence construction required for the Humboldt Bay water intakes in 2022. Ocean discharge would not commence until after the completion of Phase 1 construction, between 2024 and 2026.

2.2 Terrestrial Development

2.2.1 Existing Conditions

The terrestrial portion of the Project Site is situated in a developed industrial area of the Samoa Peninsula where timber processing and pulp mill and timber-related industrial operations have historically occurred for more than 50 years. The Project Site generally consists of remnant pulp mill infrastructure and concrete foundations associated with previously demolished pulp mill structures (APN 401-112-021). The eastern portion of the pulp mill parcel (APN 401-112-021) supports ongoing coastal-dependent industry within RMT II, further described below, that would not be disturbed by the Project.

The terrestrial portion of the Project Site maintains a generally consistent elevation across the site, ranging from roughly 15 to 20 feet above mean sea level (MSL), then slightly increasing in elevation along the western portion of the site, ranging from approximately 20 to 25 feet above MSL. The topography of the western Project Site boundary, located west of Vance Avenue, gradually transitions into dune swales and the former Samoa Landfill (now capped) west of Vance Avenue. Vance Avenue is separated from New Navy Base Road by 300 to 700 feet of sand dunes sporadically intersected by unpaved access roads.

The pulp mill parcel (APN 401-112-021) includes existing infrastructure some of which would remain to support ongoing commercial operations RMT II while the majority would be demolished for the proposed Project. Additionally, specific existing pulp mill structures are proposed to be overhauled and utilized by the Project. Image 2-2 provides an overview of existing structures and their placement on the pulp mill.

Image 2-2 ***Project Existing Site Conditions for the Terrestrial Development and Location of the Water Intake (Sea Chest) on the RMT II Dock***

The following pulp mill industrial components are planned for reuse in association with the Project (general location onsite noted in parentheses):

1. 60-kilovolt (KV), 20 Megawatt (MW) electrical switchyard and transformer (northwest portion of pulp mill site)
    a. The 60-KV switchyard is in a fenced area at the northwest corner of the former pulp mill site and connected to transmission lines that feed various structures within the Project Site. Modernization and upgrade of the substation will take place, if necessary, when NAFC is taking over the existing meter. The total capacity of the switchyard will be expanded to accommodate NAFC's peak capacity in future operations. The switchyard and transformer are currently owned by the Harbor District and will be transferred to NAFC ownership.
2. Ocean outfall piping (northwest portion of pulp mill site)
    a. The outfall pipe collection point is located within a below-grade concrete vault, west of the pump house at the northwest corner of the pulp mill facility. The outfall was formerly used to discharge an average of 22.5 million gallons per day of treated industrial wastewater from the Evergreen Pulp Mill into the Pacific Ocean. The pulp mill facility is no longer in operation and the outfall is being used to discharge less than 200,000 gallons per day of industrial process water from DG Fairhaven Power Plant and wastewater from the Samoa wastewater treatment facility. The 36-inch internal diameter outfall pipe extends underground in a westerly direction from the intake for 1.55 miles (8,200 feet). The outfall pipe ends with an 852-foot, 36 Inch, multiport diffuser. The diffuser consists of 144 individual ports, paired along its length, discharging at a 45-degree vertical orientation, aligned perpendicular to the shoreline. The diffuser orifices have a spacing of 12 feet on center with openings 2.4 inches in diameter. Eight pairs of diffusers are currently open and flowing, however there are an additional 69 diffuser pairs offshore of the eight open diffusers that are currently sealed with toggle bolt blind assemblies. The plates bolted onto the ports were cleared using water jetting and inspected by MM Diving in October 2019 (MM Diving 2019). The diffuser assembly rests on the seafloor approximately

82 feet below the surface. A study completed in 2016, commissioned by Harbor District, concluded that hydraulic assessment indicates the outfall can discharge up to 40 MGD based on 144 2.4-inch diffuser ports. See Section 2.3 – Ocean Discharge for additional information about the effluent discharge component of the Project.

3. Humboldt Bay water intakes (east and northeast of the pulp mill site)
    a. Water intakes would supply saltwater through piping affixed to the existing docks located one-half mile apart, Redwood Marine Terminal II (RMT II) and Red Tank Dock (Figure 2-5). Upgrades to the intake structures would include modernizing the screening system, upgrading water pipe runs on docks, improving the sea chest intake infrastructure, and installation of piping along the shoreline as part of the multi-year Harbor District aquaculture business park plan.

The following pulp mill structures are within the Project redevelopment area and are planned for demolition (general location on pulp mill site noted in parentheses):

1. Reboiler (boiler) buildings (northwest)
2. Five tile lined tanks (north-center)
3. Concrete smokestack (northwest-center)
4. Miscellaneous concrete foundations, pedestals, and concrete structures (throughout site)
5. Leach field (south-center) to be used temporarily and subsequently decommissioned
6. A clarifier system with two tank pools and multi-stage sand filter rack (southwest)
7. Machine building, attached warehouse, and office (northeast)
8. Elevated water tank (northeast)
9. Demolition debris piles (throughout site) to be removed by Harbor District

There are currently seven tenants leasing areas within the proposed Site under an Interim Non-Coastal Dependent Industrial lease with the Harbor District. Occupants would be relocated with the assistance of Harbor District and NAFC in compliance with the California Relocation Assistance and Real Property Acquisition Guidelines. Current tenants are permitted to remain on the property until demolition activities commence.

Remnant timber and wood product processing infrastructure, including a woodchip conveyor and silo, are located on two parcels (APNs 401-112-030 and 401-112-029) to the north. The existing wood product processing infrastructure is not planned to be impacted by the proposed Project. A two-story administrative building is located outside the proposed project area on APN 401-112-030, north of the former pulp mill. The administrative building is privately owned by and is currently leased to a commercial tenant. The administrative building is not planned to be impacted by the proposed Project.

Existing Project Site Contamination

Investigations of soil, soil gas and groundwater associated with the proposed aquaculture facility footprint have previously been initiated by various consultants on behalf of various entities. Periodic monitoring of groundwater has also occurred at the site. USEPA removal actions from 2013 to 2016 included removal of on-site liquid wastes (~4,000,000 gallons of caustic and acidic liquids and ~10,000 tons of contaminated caustic and acidic sludges) (Ramboll 2019).” Soil and groundwater investigations and associated remediation activities were completed at Project Site by the USEPA under the general oversight of the NCRWQCB. In 2014, the NCRWQCB issued a “No Further Action” for a portion of the Project Site (former leach field, Area of Interest No.6, NCRWQCB 2014).

Further soil investigations were conducted by the USEPA in July 2019, focusing on dioxins/furans and metals. NAFC contracted additional testing of the samples for polychlorinated biphenyls (PCBs) and organochlorine pesticides (OCPs). No OCPs were detected and PCBs were detected only in a single sample. The soil sampling data reported that “all soil sample concentrations were below SLs (screening levels), or in the case of arsenic and chromium, below naturally occurring concentrations” (Ramboll 2019). Results for polychlorinated biphenyls (PCBs) and dioxins/furans in

soil were below the applicable Department of Toxic Substances Control (DTSC) screening levels for commercial/industrial soil.

GHD has performed asbestos, lead and universal waste (UW) characterizations of the remaining pulp mill structures. Reporting for asbestos, lead and UW at the existing pulp mill structures was completed in May 2020. The report will be used in design of a demolition plan and specifications for the existing mill structures slated for removal.

2.2.2 Project Design

Design Principles

The finfish aquaculture facility is planned to be constructed in two phases following a demolition phase and would have an annual production capacity of approximately 25,000-27,000 metric tons of head on gutted fish (HOG) once complete. The aquaculture facility would utilize water and energy efficient processes to sustainably produce fresh HOG fish and fillets for delivery to west coast regional markets. The proposed species to be produced at the facility is Atlantic Salmon, subject to approval from the California Department of Fish and Wildlife (CDFW). The proposed aquaculture facility is based on the same core designs that have been developed by NAF Groups own RAS engineering company NAF Tech. This design is similar to the proposed Belfast, Maine facility, which has obtained all permits to begin construction. NAF Groups Fredrikstad Seafoods in Norway is currently producing and selling Atlantic Salmon. NAF Groups Danish facilities produce and sell Yellowtail Kingfish. The proposed aquaculture facility would be NAF Groups fifth facility and would include a complete process, from egg to harvestable fish in a single indoor location, and would contain the following design elements:

1. A hatchery operation where eggs are hatched, and fish fry grow to juvenile size
2. Grow-out systems with integrated denitrification where fish are grown to market size
3. A fish processing facility from which fish is processed and fresh product and coproducts are shipped out 4 or 5 days a week
4. Dual fuel backup systems that would enable critical functions to continue to operate in the event of a power outage
5. Oxygen generation plant and liquid oxygen storage
6. Water intake treatment that ensures consistently clean water for the fish
7. A Best Available Technology wastewater treatment plant to treat the discharge water, including a Moving Bed Biofilm Reactor (MBBR), an ultrafiltration membrane bioreactor (MBR), and UV-C disinfection.
8. Administrative building and operations/maintenance facilities

RAS technology enables producers to establish a controlled production environment indoors. It allows for local production close to consumers, thus directly addressing the seafood trade deficit in the United States (US) and reducing pollutants including carbon dioxide otherwise generated by airfreight shipment of fresh seafood into the US. All production occurs indoors, thus minimizing noise, odor, and other potential nuisances to neighboring areas. In the proposed RAS facility, the risk of disease exposure and potential spreading of disease among fish populations is minimized with robust biosecurity and water treatment measures. Discharge of nutrients from the proposed RAS facility is controlled by removing more than 99% of total suspended solids, 99% of Biochemical Oxygen Demand (BOD), 99% of Phosphorus, and over 90% of nitrogen before the wastewater is discharged.

Utilizing RAS design principles, the proposed aquaculture facility would offer some distinct benefits, including:

1. The proposed land-based facility includes multiple redundant physical barriers that prevent fish escapes, discussed further under Section 2.2.4 under Fish Welfare and Biosecurity and shown in Image 2-12 – Screen Points for Water Exiting the Farm. The buildings containing fish are also more than 300 feet away from the water and they are built to withstand damage from potential earthquakes or tsunami. Fish release pathways are discussed further under Section 2.2.4 under Fish Welfare and Biosecurity and shown in Image 2-13 -- Fish Release Pathway to the Natural Environment.

2. Extensive ultrafiltration and disinfection of all intake and discharge water prevents pathogens or parasites from entering, establishing in, or exiting the facility. Ultrafiltration and disinfection are discussed further under Section 2.2.4 under Fish Welfare and Biosecurity and shown in Image 2-9 – Conceptual Design of RAS Unit, Image 2-11a – MBR Filtration Module at the WWTP, and Image 2-11b – MBR Filtration Schematic.
3. Water in the proposed RAS facility is recycled and continuously treated in enclosed tanks, thus greatly reducing the facility's freshwater consumption. Nordic employs the highest level of denitrification in the aquaculture industry. The proposed NAFC facility RAS systems would exchange approximately 200 liters (L) of water per kg of feed.
4. Heat generated by biological processes will be re-used to heat the proposed facility and for other appropriate processes such as the vaporization of liquid oxygen.
5. There is complete traceability within RAS facilities, as all production occurs in a single location and is subject to NAFC monitoring, California, and federal regulations.

Key Terrestrial Components

The Project includes two key terrestrial components which shall be described individually in the following subsections. The principal Project components are summarized in Table 2-4.

Table 2-4 Project Components

Key Project Component	Description	Location
Pulp Mill Demolition	Building demolition and infrastructure removal	APN 401-112-021
Aquaculture Facility Construction	Building construction and site improvements	APN 401-112-021

Notes APN = Assessor's Parcel Number
See Image 2-2 for the Project conceptual site layout
See Image 2-3 for the Project building layout and phasing

Terrestrial Project Phasing

The proposed Project terrestrial development components summarized in Table 2-4 (above) are generally planned to be completed during three phases (Phase 0, Phase 1 and Phase 2), with each phase containing one or more construction components (sub-phases). The general phases of construction are summarized in Table 2-5 and Image 2-3 below. See Figure 2-4 for the Project conceptual site layout.

Table 2-5 Project Construction Phasing

Phase Number	Phase Summary	Phase Construction Components
Phase 0	Brownfield Redevelopment	– Segregation, testing, and removal of contaminated materials encountered during demolition – Structure demolition and infrastructure removal, including asbestos and lead abatement – Waste stream characterization, transportation and disposal
Phase 1	Aquaculture Facility First Stage	– Intake and outfall connections – Ground densification – Construction of the following: • Hatchery building • Phase 1 grow-out modules • Fish processing and administration building • Central utility plant • Intake water treatment • Wastewater treatment building • Backup systems plant

Phase Number	Phase Summary	Phase Construction Components
		• Oxygen generation plant • Utility and infrastructure installation • Excavation and soil management as necessary to facilitate ground densification and construction • Other site civil work including stormwater management, LID and landscaping – Onsite and offsite agency-required biological mitigation
Phase 2	Aquaculture Facility Second Stage	– Additional ground densification – Phase 2 grow-out module construction – Removal of the existing leachfield – Excavation and soil management as necessary to facilitate ground densification and construction – Expansion of internal utilities

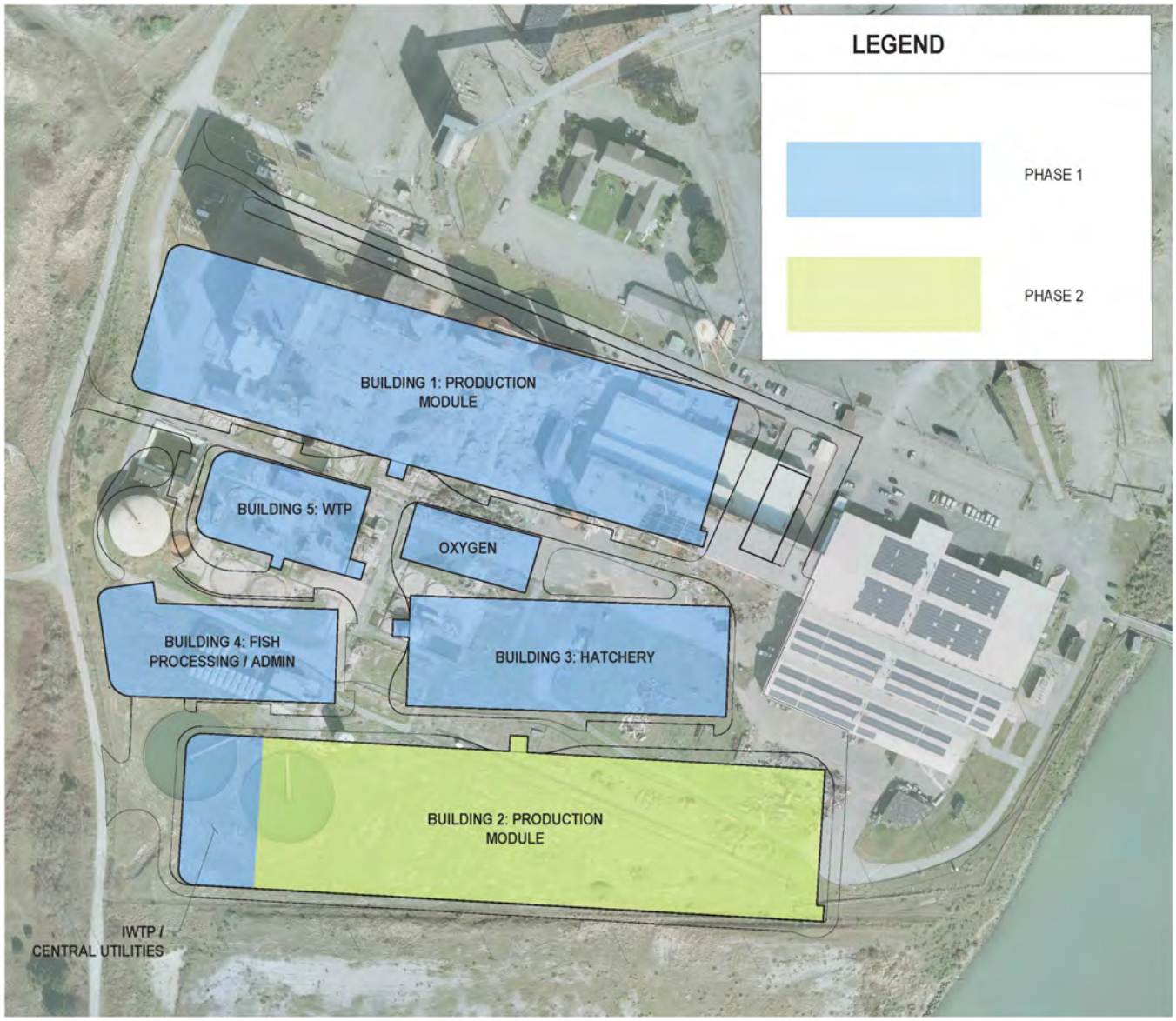


Image 2-3 Building Project Phasing

Project Phasing Logistics

Demolition of existing pulp mill structures and infrastructure removal work (Phase 0) would be conducted prior to the commencement of the initial stage of aquaculture facility construction (Phase 1). Once permits are received, a demolition plan would be developed and implemented to clear the construction footprint. A similar plan would be developed for the remaining buildings and infrastructure in preparation of Phase 2 construction.

A preliminary geotechnical investigation and environmental analysis have been conducted to determine the suitability of the existing soils both in terms of structural capacity and environmental characterization. Soils that are identified to be contaminated and/or not structurally sound would be excavated and replaced with appropriate fill material or improved through ground densification. Excavated material would be either repurposed, reused onsite, or appropriately transported and disposed of at an appropriate offsite facility.

Biological and botanical surveys of the Site have been conducted and may result in the scheduling of some site activities to accommodate life cycle and nesting considerations for species identified at the Project Site.

Project Site Assessment and Special Studies

NAFC is aware of the unique environmental and geologic considerations involved in development on the Samoa peninsula. These include unique geology, seismic / tsunami risk, wildlife, vegetation, cultural resources, pre-existing contamination, and hazardous materials. NAFC is committed to designing and developing the proposed aquaculture facility with minimal environmental impacts while remediating the legacy contamination at the Site as necessary for building demolitions, building foundations and stormwater treatment/detention. Currently NAFC expects the design to include deep foundations utilizing ground densification to mitigate the seismic / tsunami risk. The following special studies and technical investigations shown in Table 2-6 have been conducted during the Project design and permitting phase to evaluate the existing environmental conditions at the Project Site, inform design development, provide a technical basis for impact assessment under CEQA, and assess the potential for environmental impacts resultant from the Project.

Table 2-6 Project Site Special Studies Summary Completed for the Terrestrial Development

Name of Study	Topic of Study	Study Author
Botanical, Wetland, and Sensitive Natural Communities Tech Memo	Botanical Resources, Wetlands, ESHA, and Vegetation Mapping	GHD
Hazardous Materials Assessment	Asbestos, Lead, and UW Assessment	GHD
Terrestrial Biological Resources Report	Biological Resources	GHD
Probabilistic Site-Specific Tsunami Hazard Analysis	Tsunami Hazards	Martin & Chock Inc.
Preliminary Geotechnical Investigation Report	Geological Conditions	SHN
Topographic and Boundary Surveys	Parcel Size and Topography	SHN
Landfill Gas Investigation	Potential Soil Gas Migration from Adjacent Samoa Ash Landfill	SHN
Archaeological and Historical Resource Investigation	Archeological, Historical and Cultural Resources	Roscoe & Associates
Technical Assessment of Freshwater Infrastructure	Water Quality and Design Development	Harbor District and HBMWD
Preliminary Stormwater Assessment	Development Design	GHD
Plan for Structure Demolition	Site Development	SHN

Name of Study	Topic of Study	Study Author
Interim Measures Work Plan	Soil and Groundwater Management During Construction	SHN
Construction Noise, Vibration, and Hydroacoustic Assessment	Noise and Vibration	Illingworth & Rodkin
Supplemental Soils and Anthropogenic Disturbance Investigation of Potential ESHA Memo	Anthropogenic Disturbance	GHD
Restoration and Monitoring Plan	On and Off-Site Mitigation	GHD
Bat Investigations	Bats	Wildlife Research Associates

Notes: HBMWD = Humboldt Bay Municipal Water District

Brownfield Redevelopment and Material Handling

As noted in Section 2.1.4, in 2019 the USEPA conducted a phase II environmental assessment on the site, focusing on shallow soil contamination. The study tested soil samples located in several areas of interest (AOIs) on site, mostly focusing on the former bleach plant (AOI-2), black liquor process and recovery area (AOI-1), and the re-causticizing area (AOI-3). Image 2-4 presents a map showing all the sample locations from this study. Samples were collected at depths ranging from 0-10 feet below surface, and analyzed for metals, and dioxins/furans; NAFC also contracted additional analysis of the samples for PCB's and OCP's. The results of the sample analysis showed that all measurements came back either non-detect (ND), or below Department of Toxic Substances Control (DTSC) screening levels for industrial sites or regional background levels.

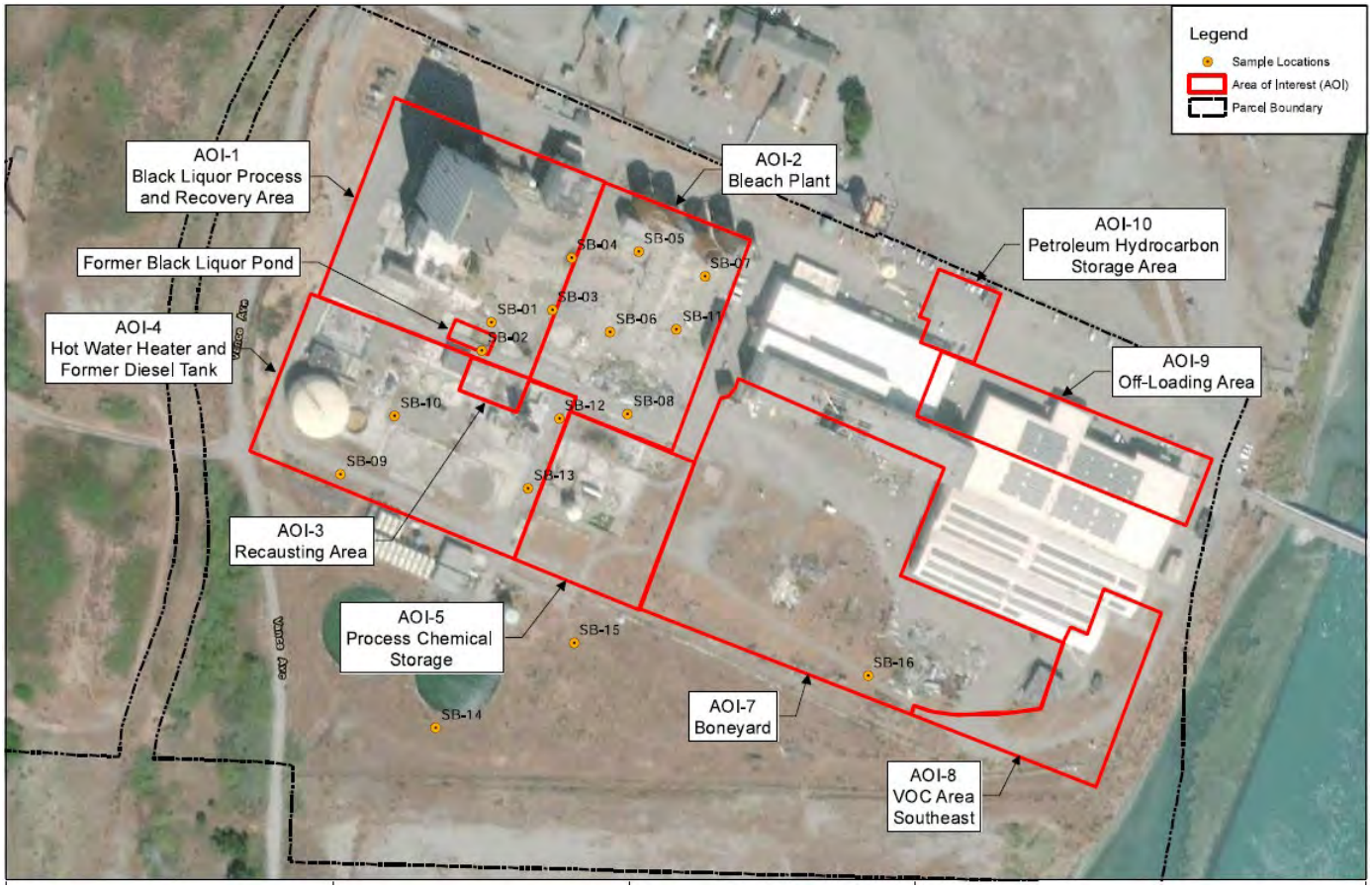


Image 2-4 Sample Location Map from 2019 USEPA Study

Based on the results of the 2019 USEPA study, and past clean-up efforts on the project site, NAFC found that there was low risk of significant contamination existing on the site. Despite that, NAFC remains committed to responsible environmental practices should contaminant-impacted soils, water, or debris be encountered during demolition, excavation, and construction. Excavated soils from the site would be handled appropriately and sampled for likely contaminants (SHN 2021). Soils found to contain any significant contamination would be segregated and disposed of at an appropriate waste facility, while “clean” soils would be repurposed on site. The Interim Measures Work Plan (SHN 2021) addresses material handling from demolition and construction activities in Appendix G. Proper erosion and stormwater control measures would be implemented during construction to prevent migration or leeching of any contaminated material. Much of the site would be “capped” with either structures or impervious surfaces, or landscaped and equipped with proper stormwater control measures, which would minimize any risk of contamination migration post-construction. Details of the stormwater analysis and management plan are included in Appendix H.

During demolition, asbestos and lead abatement would be conducted as necessary throughout the pulp mill site to remove existing hazardous materials from existing Project Site structures prior to building demolition. Appropriate notifications would be made to the North Coast Unified Air Quality Management District (NCUAQMD) in accordance with the National Emissions Standards for Hazardous Air Pollutants (NESHAP) requirements prior to the commencement of asbestos abatement and/or demolition work at the Projects Site. A licensed abatement contractor would be engaged by NAFC, or the General Contractor, to conduct abatement work in accordance with appropriate health and safety regulations.

Building and structure demolition would commence once hazardous material abatement work is complete, as applicable to each structure. A licensed demolition contractor would be contracted by NAFC to conduct building demolition. Appropriate dust mitigation and Best Management Practices (BMPs) would be established during demolition work, in accordance with applicable regulations and mitigation measures.

During site excavation work, monitoring of soils as outlined in the Interim Measures Work Plan will be conducted (SHN 2021). Screening of soils using hand-held field meters and the collection of samples for laboratory analysis will be implemented as part of this program to guide material handling. Soil and demolition waste streams would be appropriately segregated and characterized for determination of final disposition. Waste generated during redevelopment would be transported by a licensed waste hauler to an appropriate transportation, storage, and disposal (TSD) facility based on the waste characterization data. Concrete and asphalt generated during building demolition and site redevelopment would be characterized and recycled onsite or disposed of, as appropriate. Metal debris generated during demolition would be hauled off-site and recycled (SHN 2021). The Interim Measures Work Plan (SHN 2021) addresses material handling from demolition and construction activities in Appendix G.

Aquaculture Facility Description

The proposed development would be based on a RAS modular production design, with local civil and infrastructure adaption. The facility design would be based on the engineering already performed for Nordic Aquafarms proposed Project to be constructed in Belfast, Maine and adapted to site specific conditions at the Samoa Peninsula Project. The layout of the aquaculture facility site is in the conceptual phase of planning and design. A potential aquaculture facility layout is shown in Figure 2-4. Note the final layout may differ slightly as environmental studies and civil design moves forward.

The largest buildings at the proposed aquaculture facility contain the grow-out modules. Construction of the grow-out modules would occur over two construction phases. Maximum building height within the facility is expected to be approximately 60 feet. The footprint of the Phase 1 and Phase 2 production modules are about 265,028 square feet, and the Phase 2 building footprint is about 286,888 square feet including the central utility functions that will be built in Phase 1. Egg raising in the hatchery would begin as early as feasible during Phase 1, followed thereafter by the completion of remaining Phase 1 construction. The hatchery facility, located in the center of the site, would raise the fish from egg to post smolt stage, after which they would be transported to the grow-out modules via underground pipes to be raised to market size. The wastewater treatment plant (WWTP) would subject all production wastewater to a stringent treatment process, including ultrafiltration, biological treatment, and UV disinfection. The Intake water treatment plant (ITWP) will be housed on the western end of what will become the Phase 2 production modules. The

IWTP will subject all industrial freshwater and saltwater to ultrafiltration, Ozone and UV disinfection. The remaining buildings house the fish processing area, administrative functions, backup power generation, and utility infrastructure needed to support operation, and are detailed later in the document. The respective building footprints (square feet) and heights (feet) are described below and total 766,530 square feet:

– Building 1 (Grow-out Module 1): 265,028 square feet; 55-feet-tall; 1 story
– Building 2 (Grow-out Module 2): 286, 888 square feet; 55-feet-tall; 1 story
– Building 3 (Hatchery): 105,085 square feet; 55-feet-tall; 1 story
– Building 4 (Fish Processing and Administration): 66,878 square feet; 60-feet-tall; 3 stories
– Building 5 (Wastewater Treatment and Backup Power): 42,651 square feet; 40-feet-tall with 40-foot backup generator exhaust stack; 2 stories.

Solar Infrastructure Description

An approximately 4.8 MW solar array is proposed to be installed on the facility roofs unless a larger or more beneficial carbon neutral energy project becomes available to participate in such as the 4.6 gigawatt offshore wind project proposed approximately 21 miles offshore of Humboldt Bay. The electricity produced by those turbines is proposed to be landed at King Salmon. Electrical power generated by the solar array would be utilized by the aquaculture facility to help support operations. There are currently no plans to utilize batteries to store solar power as all power can be directly and immediately utilized on site.

The proposed solar array would consist of multiple rows of photovoltaic panels arranged to maximize solar insolation on approximately 657,000 square feet of facility roofs. The solar panels would be wired in series and connected to step-up transformers.

Aesthetics

Improvements would be made to the Project Site as a consequence of this Project. Improvements to the Project Site include:

1. Removal of the remnant 270 foot smokestack currently dominating the skyline of the Samoa Peninsula
2. Removal of existing 12 story reboiler building
3. Removal of deteriorated infrastructure, demolition waste, asbestos, lead and other hazardous materials
4. Formal landscaping associated with the functional stormwater management system

The new structures would consider appropriate aesthetic integration in the area:

1. Clearing up and landscaping of the grounds to support a high-quality food operation
2. Choice of façade colors and patterns that minimize visual impact and blend into the surrounding environment
3. The exterior of the aquaculture facility would have downward cast lighting and sensor-controlled lighting systems designed to produce minimal light pollution

No trees would be removed to accommodate new buildings, landscaping, or parking lot improvements.

Landscape Design

The overall landscape concept is to ground the project within the context of the Manila/Samoa spit dunes. The landscape plan is based on locally appropriate native species that are established in different habitat areas of the Manila dunes, including species from the dune mat, coastal brambles, and forested shore pine vegetative alliances. Extant dune mat and coastal brambles on site would be enhanced through removal of invasive species and augmented with additional plantings to fill those void spaces. Stormwater management basins would include plantings that mimic seasonal wetlands and plant communities also found in dune environments. Plant species in the landscape palette include shore pine (*Pinus contorta* ssp. *contorta*), red alder (Aln*us rubra*), wax myrtle (*Morella californica*),

seaside buckwheat (*Eriogonum latifolium*), California blackberry (*Rubus ursinus*), twinberry (*Lonicera involucrata*), Western swordfern (*Polystichum munitum*), and Pacific reedgrass (*Calamagrostis nutkaensis*) among others.

Fencing

Security fencing, likely chain-link, is proposed to enclose the inner campus. The inner campus consists of the areas located between the Project buildings. No new perimeter fencing is proposed.

2.2.3 Project Construction

The proposed Project's terrestrial component would be constructed as a multi-phased development project. Project construction would involve up to three phases as summarized above and would generally be completed as described in the following subsections.

Construction Timeline

A formal construction timeline has not been developed, as the Project design is in the conceptual phase and regulatory approvals are in progress. Generally, the anticipated construction period is 22 to 25 months for each phase following 8-14 months of demolition work. Construction dates would depend on receipt of agency approvals and successful completion of the environmental permitting process.

Following receipt of permits, preparatory clearing and site work defined as Phase 0 could begin as early as September 2022. The Phase 1 construction could begin as early as 2024. Construction efforts would be ordered according to the facilities of most immediate need.

Construction work associated with Phase 1 is anticipated to begin in 2024 and extend through 2026. Phase 1 would include construction of the Phase 1 hatchery and production modules and the central utility structures, including connection to the necessary intake and discharge infrastructure needed to bring water to the facility. The construction of the Phase 1 production modules would follow, and finish with the construction of the fish processing and administrative building. Access roadways would be built and expanded during each phase of construction, as construction proceeds along the site. As the construction footprint expands, a corresponding expansion of the stormwater systems would be implemented to account for the increase in impervious surfaces.

Once Phase 1 construction and equipment installation is complete, commissioning and startup of the facility would begin. As the commissioning process is underway, the aquaculture facility site would undergo permanent stabilization measures including seeding/planting of disturbed areas and slopes, establishment of the permanent stormwater system and native landscaping. Once the Phase 1 facilities are commissioned and operational and the leach field can be decommissioned, Phase 2 construction could commence.

Construction work associated with Phase 2 is expected to begin two years after Phase 1 is started (tentatively in 2026 and extend through 2028). Prior to the beginning of Phase 2 construction additional clearing and site improvement within the proposed footprint would occur. An overall construction perimeter would be established to prevent impacts from development on the surrounding areas, and localized erosion and sediment control measures would be implemented as construction proceeds across the Project Site. The Phase 2 grow-out building footprint would be prepared for foundation and envelope construction. Access roads and supporting infrastructure would be expanded to facilitate the construction effort. The stormwater system developed for the Phase 1 facility would also be extended to encompass the Phase 2 area, with proper infiltration and sediment collection basins established. Once Phase 2 building construction is completed the site would undergo permanent stabilization measures similar to those implemented in Phase 1, and the permanent stormwater system would be completed. Prior to construction, an Operation and Construction Transportation Plan would be developed and submitted to the County for review as a condition of approval for the Coastal Development Permit. The Operation and Construction Transportation Plan may utilize various mechanisms to achieve a reduction of vehicles commuting to the site than the number of employees, including but not limited to:

1. Encourage ride-sharing and carpooling vanpooling to reduce Vehicle Miles Traveled (VMT). The operator of the facility should design and implement carpooling and ridesharing incentive program for employees. Would establish a rideshare coordinator to facilitate ridesharing or van pooling of employees.

2. Encourage employees to remain on-site during meal breaks by providing a break room with kitchen, catering options, or cafeteria.

3. Work with the local transit authority to extend bus service to the site. The current bus transit stop is approximately 2-miles away.

4. Install shower facilities and places for employees to dress for those who commute via bicycle. Installation of a transit stop in proximity to the project can be used to satisfy this requirement.

This Plan shall also implement measures to reduce congestion related to construction related vehicle trips, including, but not limited to off-hauling and materials delivery to not occur concurrently with peak travel periods. An annual report detailing the measures implemented as part of the Operation and Construction Transportation Plan shall be submitted to the Planning and Building Department by January 1 of each year.

Staging Areas

Construction staging would occur at the former pulp mill (APN 401-112-021) and potentially other “developed” adjacent properties. The staging areas would be used for contractor parking and supply and equipment storage. Staging areas would be located strategically to provide the most efficient access for construction operations and would be setback an appropriate distance from Humboldt Bay, wetlands and/or other sensitive areas. Storm drains located within or near Project staging areas would be protected using appropriate BMPs.

To access the Project Site, access points to the staging areas would be demarcated for construction vehicles to move directly from New Navy Base Road to Vance Avenue and then to the staging areas.

Grading and Excavation

A level building pad would be created for each new building with reused excavated soil. To the extent possible, excavated soil would be reused onsite, which would reduce the need for off hauling. Excavated materials would be screened for contaminants and hazardous materials throughout construction activities. Any contaminated materials encountered would be segregated and disposed of at an appropriate off-site facility. Existing concrete would either be pulverized and reused on site for ground densification and as base material or exported as appropriate.

Construction at the Project Site would require removal of the existing structures, concrete foundations, and the smokestack to prepare the ground surface for construction. Demolition debris, such as concrete and brick would be recycled to the greatest extent feasible. Concrete and brick that could be repurposed would be crushed and used for ground densification and structural fill where appropriate. Demolition of concrete and brick would include screening for contaminants and hazardous materials. Impacted materials would not be reused and would be disposed of at an appropriate offsite facility. Material sorting, crushing, and reuse would be conducted in a manor to mitigate dust generation, stormwater runoff, and any other potentially deleterious byproducts. Site grading would be limited to that necessary for facility and infrastructure construction, along with appropriate stormwater and erosion control measures.

Utility trenches would be excavated to bring services to new buildings within the aquaculture facility.

Dewatering is not expected but may be required during excavation. If required, the appropriate plans would be developed and submitted for regulatory approval by the County. The designs for foundations, process piping, and utilities are limited to a 12-foot maximum depth below surface to limit any work below the water table or the need for trench dewatering.

It is anticipated that sheet piling would be utilized where sufficient area is not available to slope excavations and in areas of deep excavation to stabilize the excavation and limit any dewatering that may be required. Sheet piling when needed would be installed with a vibratory hammer, to an approximate maximum depth of 30 feet below ground surface and would be removed once work in the excavation is complete.

Foundations

Because the Project is located on the Samoa Peninsula, which consists largely of sand and sandy soils, the construction of the building foundations involves soil densification (i.e., compaction) techniques in order to adequately support the slab foundations. There are a variety of soil densification techniques available, of which the following three are considered suitable for the Project: Rammed Aggregate Piles (RAP), Vibro Displacement Columns (VDC), and Vibro Compaction. Rapid Impact Compaction, a commonly used technique, is not considered viable for this project and would not be used. The foundations would also utilize shear keys to resist lateral movement in a seismic and or tsunami event. Existing concrete would be crushed and reused for soil densification.

Construction Stormwater Management

Management of onsite stormwater would be addressed during construction of the facility. Construction activities would be covered by obtaining coverage under the Construction General Permit Order 2009-0009-DWQ. A Stormwater Pollution Prevention Plan (SWPPP) would be developed and implemented for the duration of construction activities at the site to manage and reduce the potential for pollution from concentrated stormwater runoff from the site.

Since construction is to be phased, short term stormwater BMPs would be installed and/or modified during each phase of construction to ensure compliance with stormwater discharge requirements. Stormwater affected by construction related activities would be treated by implementing soil stabilization, sediment control, temporary tracking control, wind erosion control, non-stormwater management, waste management, and materials pollution control BMPs, as necessary, throughout the Project implementation.

As construction of the site facilities progresses temporary stormwater BMPs, such as temporary sediment basins, would either be decommissioned due to the area being developed, or finalized and incorporated as part of the permanent stormwater infrastructure.

2.2.4 Project Operations

The summary of project operations for the terrestrial component is preliminary and subject to results from forthcoming technical investigations and final design development internal to each production building and ancillary infrastructure. An overview of current site logistics designs is provided on Figure 2-6 and Figure 2-8 through Figure 2-12.

Water and Utility Infrastructure

The facility would use domestic water (potable), industrial water (non-potable) and sea water at the Project Site. Both freshwater and saltwater water sources are addressed in the following subsections.

Domestic Water (potable)

Domestic water (potable) is to be delivered by the HBMWD through existing infrastructure to the Samoa Peninsula. The HBMWD has significant excess capacity of domestic potable chlorinated water sourced from the Mad River (HBMWD 2021).

The existing onsite domestic water service would be connected to the new buildings for potable use in showers, kitchens, restrooms, and for use in the fish processing area. Water service to the buildings would connect to an existing supply line to the Project Site. Permitting associated with freshwater use far exceeding the needs of NAFC has been completed by HBMWD.

Industrial Water (non-potable)

Industrial water (non-potable) is to be delivered by the HBMWD through existing infrastructure to the Samoa Peninsula. The HBMWD has significant excess capacity of industrial untreated fresh water from the Mad River (HBMWD 2021).

Industrial freshwater is provided to the Project Site by the existing HBMWD 1-MG water storage tank, located west of the site, which previously supplied water to the pulp mill. The existing onsite water service would be connected to the

Facilities Freshwater Intake Water Treatment System for complete treatment before being stored in the onsite 2-MG water tank for use in the fish rearing facilities, fire sprinklers, and irrigation. Water service to the buildings would connect to an existing underground water line running from the 1-MG tank to the Project Site. Permitting associated with freshwater use far exceeding the needs of NAFC has been completed by HBMWD. A connection to the new fire suppression line that will run parallel to the bay shore from south of RMTII to just north of the Red Tank Dock will be established. This line will be placed in the same trench as the new saltwater supply lines described below and in figure 2-14, and figure 2-15.

To treat the industrial freshwater, NAFC water treatment system would include tertiary filtration, concluding with ultra-filtration, ozone treatment, and ultraviolet disinfection. Intake water would be monitored pre, mid, and post treatment on a continuous basis with sensors. Manual testing would be conducted to ensure complete treatment is achieved and that only high-quality water that meets all NAFC criteria is introduced to the facility rearing systems.

Saltwater

The capacity of the Harbor District sea chests on the RMT II and Red Tank Docks is being expanded and would provide saltwater supply to the site. The Project would connect with the sea chest piping along the eastern edge of the NAFC lease area. See Figure 2-14, Figure 2-15, and Section 2.4 for additional information about the Humboldt Bay Water Intakes.

The sea chest pumps would supply saltwater through piping affixed to the existing docks. The piping infrastructure would extend onshore underground from the RMT I manifold to the NAFC manifold. The terrestrial water piping infrastructure would be located within APN 401-112-021 and APN 401-112-024, thus is entirely within the Humboldt County permit jurisdiction and CCC appeal jurisdiction.

Final design of the intake water treatment infrastructure within the aquaculture facility is subject to analysis of final source water data currently being collected. There would be separate treatment trains for industrial freshwater and saltwater. The baseline solution for intake water treatment that NAFC will operate includes:

1. First stage filtration
2. Ozone treatment
3. Ultra-filtration
4. Ultraviolet (UV-C) dosing

Intake water would be monitored pre, mid, and post treatment on a continuous basis with sensors. Additionally, manual testing will be conducted to ensure complete treatment is achieved and that only high-quality water that meets all NAFC criteria is introduced to the facility rearing systems.

NAFC would be prepared to maintain water quality and fish health within the facility in the event of sudden changes in Humboldt Bay water quality due to accidental spills, unforeseen circumstance, or natural disaster. NAFC has onsite storage to provide buffer in an emergency and the ability to alter water usage and sources as an immediate measure. An on-site 2 million gallon tank would serve as the primary freshwater storage. Additionally, the 1 million gallon tank owned by the HBMWD due west of the Terrestrial Development would provide additional freshwater storage. Several additional tanks inside the growout and smolt buildings would also support water storage.

In emergency situations feeding can be reduced to limit the need to exchange water from the RAS units to minimize water demand for short periods of time. There is also the ability to effectively stop the use of marine water and transition to exclusive freshwater use in an emergency for short periods of time. The anadromous nature of salmonid biology allows them to flourish in either salt or freshwater. Young salmonids are obligated to live in freshwater. Post smolt salmonids can be raised in fresh, brackish, or full-strength seawater. There are many examples of fish being grown under all these varying saline conditions both commercially and in research institutes. Nordic Aquafarms prefers to utilize marine water to grow fish but transitioning to freshwater for a short period of time would not have any negative impact on the effectiveness of fish health systems or wastewater treatment systems. The former mill utilized large volumes of freshwater and the infrastructure to deliver the water is still in place. For emergency operations, the industrial water supply line at the Project Site and the HBMWD are capable of providing more water than the facility

would need to maintain fish health in emergency situations. The facility would have sufficient onsite water storage to operate for several days and could continue to operate for several weeks but would likely be unable to process fish.

Water Treatment

Water treatment by NAFC of intake water and discharge water would take place in onsite buildings. All infrastructure would be placed indoors. There would be an advanced best available technology wastewater treatment plant with high levels of nutrient removal and biosecurity measures to protect receiving waters. Nordic Aquafarms has never had disease outbreaks in its existing facilities. This is accredited to the strict water treatment regimens and high biosecurity measures. Nordic always takes into account that issues could arise. In such scenarios, independent well developed Best Management Practices (BMP), Standard Operating Procedures (SOPs), and strong biosecurity on the outfall are designed to contain and prevent disease spread to receiving waters. The wastewater treatment plant is still in the design phase, but current design includes the following proven technologies:

1. Nitrogen reduction system (anoxic / bioreactor system)
2. Phosphorous removal
3. 0.04-micron Ultrafiltration Membrane Bioreactor systems (MBR)
4. 300 millijoule (mJ) end of lamp life (ELL) UV dose before water is discharged
5. Filtrate collection, dewatering, and storage system with water from filtrate dewatering returned to the WWT system for complete treatment

The total RAS and wastewater design delivers the following performance:

1. 99 percent reduction of total suspended solids, BOD, and phosphorous
2. 90± percent reduction of nitrogen discharge

Dewatered filtrate/sludge (feces and feed) rich in nutrients would be an output of the wastewater treatment process. The filtrate would be recycled for other uses such as fertilizer, biogas, etc. The filtrate is stored in sealed tanks for regular out-shipment and would not result in odor issues. The other output is filtered and treated water that would be discharged through the existing outfall pipe that extends 1.55 miles (8,200 feet) offshore from the Samoa Peninsula into the Pacific Ocean.

The discharge water treatment building would be connected to the existing outfall pipe owned by the Harbor District adjacent to the Project Site. An underground connecting pipe would be installed by NAFC connecting to the existing outfall pipe.

The aquaculture facility wastewater would be treated onsite prior to discharge offsite. The proposed wastewater treatment process generally illustrated in Image 2-5 and a proposed wastewater treatment flow diagram is provided in Image 2-6 (Note: a final piping and instrumentation diagram would be available once facility design is complete).

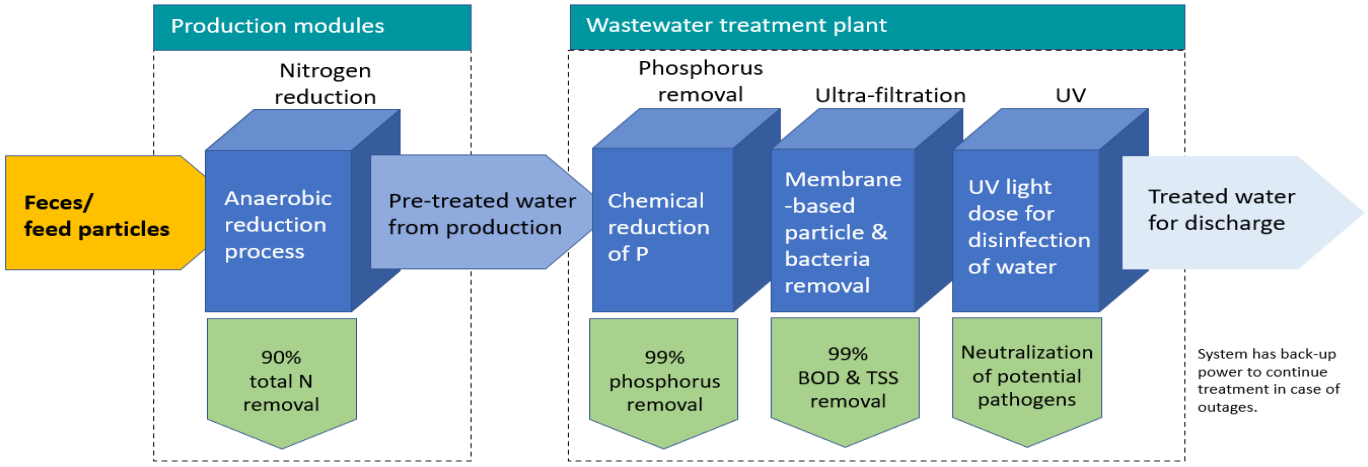
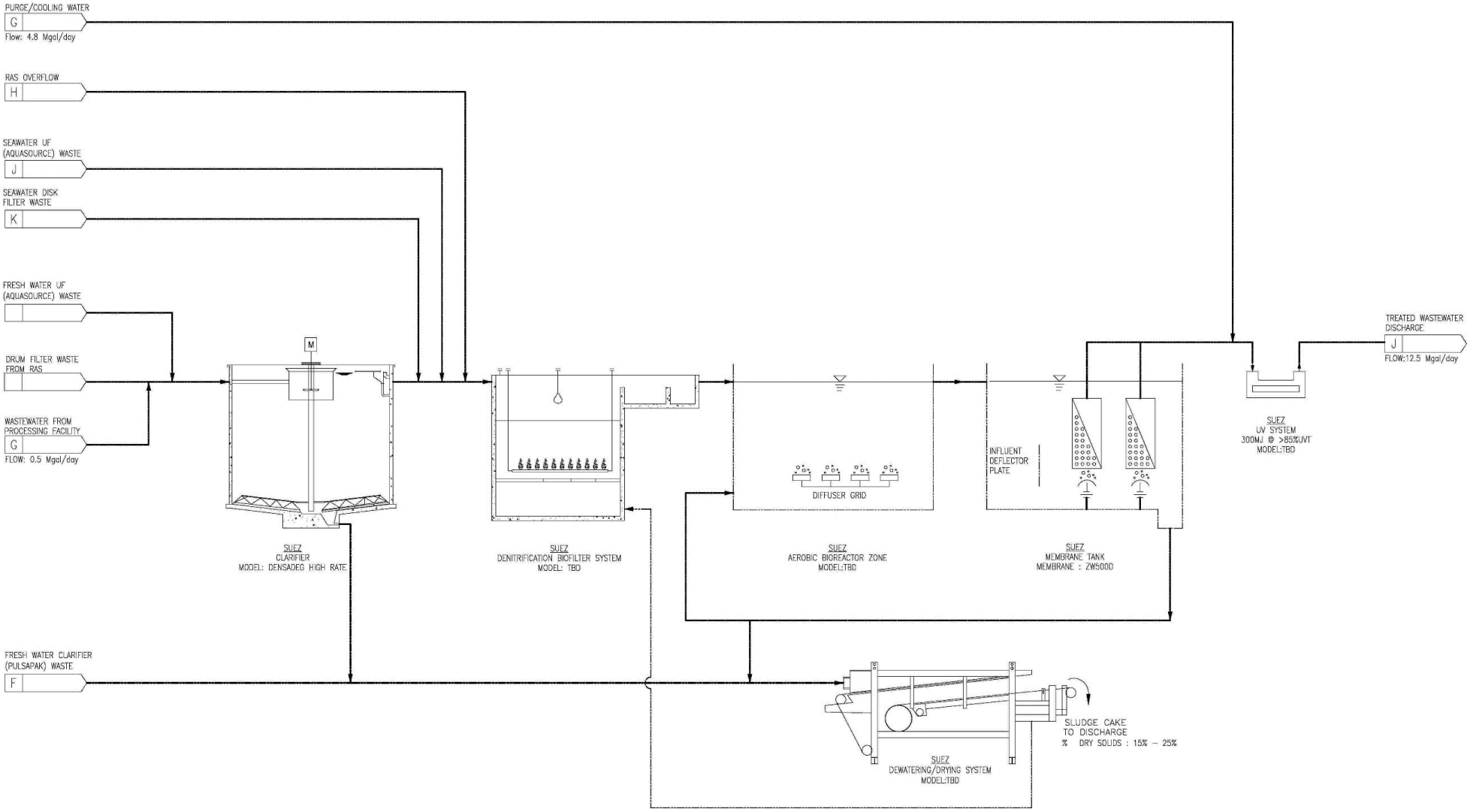


Image 2-5 Wastewater Treatment Infrastructure


PURGE/COOLING WATER
G
Flow: 4.8 Mgal/day
RAS OVERFLOW
H
SEAWATER UF
(AQUASOURCE) WASTE
J
SEAWATER DISK
FILTER WASTE
K
FRESH WATER UF
(AQUASOURCE) WASTE
DRUM FILTER WASTE
FROM RAS
WASTEWATER FROM
PROCESSING FACILITY
G
FLOW: 0.5 Mgal/day
M
SUEZ
CLARIFIER
MODEL: DENSADEG HIGH RATE
SUEZ
DENITRIFICATION BIOFILTER SYSTEM
MODEL: TBD
DIFFUSER GRID
SUEZ
AEROBIC BIOREACTOR ZONE
MODEL:TBD
INFLUENT
DEFLECTOR
PLATE
SUEZ
MEMBRANE TANK
MEMBRANE : ZW500D
SUEZ
UV SYSTEM
300MJ @ >85%UVT
MODEL:TBD
TREATED WASTEWATER
DISCHARGE
J
FLOW:12.5 Mgal/day
FRESH WATER CLARIFIER
(PULSAPAK) WASTE
F
SUEZ
DEWATERING/DRYING SYSTEM
MODEL:TBD
SLUDGE CAKE
TO DISCHARGE
% DRY SOLIDS : 15% – 25%

Aquaculture Facility Operation

As shown in Figure 2-4, the proposed facility would be comprised of multiple buildings to house and support aquaculture operations. The following sections provide a description of each building and the associated facility functionality. It should be noted that the presented layout is preliminary, and subject to minor modifications as design for the Project progresses.

Buildings 1 & 2: Phase 1 and Phase 2 Grow-out Modules

The Phase 1 production modules are proposed to be located along the northern edge of the aquaculture facility, which would contain the initial grow-out modules within Building 1 (see Image 2-3). The construction of the Phase 1 buildings and ancillary infrastructure is scheduled to be completed during Phase 1, with the remaining grow-out modules to be constructed during Phase 2. The westerly portion of Building 2 would contain the intake water treatment facility and thus would also be constructed in Phase 1. The westerly portion of Building 2 also houses the heating and cooling equipment needed to maintain proper water temperature during operation. This, along with the fresh and saltwater intake treatment systems, will be constructed in Phase 1 (see Figure 2-4).

Use of water to water-heat exchangers and heat pumps will be maximized to reduce energy demands. The production module buildings would be the largest structures onsite. The buildings would contain a series of tanks that would house the fish as they grow from juvenile to market size. Fish are transported from the Hatchery building to the grow-out buildings through dedicated underground swim-pipes. Water is recirculated, filtered, and treated twice per hour by the RAS systems. For every kilogram of feed used, 200 L of water is removed and replaced with new intake water. Removed water is piped to the wastewater treatment facility (Building 5) for additional filtration and treatment (Image 2-6) prior to being discharged into the existing outfall pipe. Utility density in this facility would be very high, necessitating careful foundation design to accommodate the many tie-in points for process and utility lines. Utilities include electrical systems, process water piping, oxygen systems, potable water systems, feeding systems, heating/cooling water piping, and fish transport piping.

Building 3: Hatchery

Located in the eastern side central corridor of the site is the Hatchery building, which houses the hatchery and rearing tanks needed to grow the fish from eggs to juvenile stages (see Image 2-3). The tanks within this facility would operate similarly to those within the grow-out modules; each tank cluster would be tied to a particular stage of growth and comprised of its own recirculating treatment system. Utility density in this facility would be very high, necessitating careful foundation design to accommodate the many tie-in points for process and utility lines. Fish are transported from the Hatchery building to the grow-out buildings through dedicated underground swim-pipes.

Building 4: Fish Processing and Administration

Fish are transported via underground piping from the grow-out modules to Building 4 for final processing into consumer ready head on gutted and fillets (see Image 2-3). Packaging and shipping would also occur within this building. On the upper floor of the processing facility would be administrative offices that would contain staff that oversee every aspect of the facility operation and management. All process water and floor drains in the processing area will be pretreated to remove large solids and lipids prior to being comingled with the other onsite system process water for complete treatment in the facilities WWTP.

Building 5: Wastewater Treatment and Backup Power

Building 5 would house the wastewater treatment plant for the comingled saltwater and freshwater discharge waste streams from the grow-out modules, hatchery, and fish processing facilities (see Image 2-3). The discharge solids would be removed through filtration and the solid filtrate would be stored in air-tight containers located either below or above grade. The filtered wastewater would then undergo multiple treatment processes, included biological treatment, ultrafiltration, and UV disinfection prior to discharge through the outfall pipe into the Pacific Ocean.

Oxygen Generation

The central area of the facility would house the oxygen generation systems and store liquid oxygen (see Image 2-3). Liquid oxygen will serve as the emergency oxygen source for all systems.

Facility Operation

The facility is estimated to employ approximately 100 employees for Phase 1, and 150 for full Phase 2 buildout. The facility would operate 24/7. The employees would primarily work in two shifts, one early morning and one late afternoon. It is estimated that the morning shift would consist of about 60 employees in Phase 1, increasing to approximately 90 in Phase 2, and the evening shift would have about 35 employees in Phase 1, increasing to approximately 55 in Phase 2. There will be a small overnight night shift estimated consist of 5 employees. Aside from shift arrival and departure, on-site traffic would be mainly limited to personnel movement, deliveries, and outgoing shipments of products and coproducts. Fish movement within the site would be handled by subgrade piping and thus would not add to surface traffic.

Facility Parking

Parking at the facility would be located throughout the central campus corridor between Building 1 and Building 2 providing access to all facility buildings. The facility would include a three-truck loading dock, seven-truck unloading/loading areas,115 standard light vehicle parking spots, and six ADA accessible light vehicle parking spots. At full production there would be a maximum of 100 employees at the facility at any given time. That would include approximately 20 employees in the approximate 6,400 square foot office / management area of Building 4 and approximately 80 employees spread throughout the rest of the facility.

Facility Truck Traffic

Facility operations would include regular deliveries to and shipments from the facility. Shipments would include finished product to market and byproduct streams to secondary use processing sites. While the final distribution strategy for the facility is still in development, initial estimates have been made based on knowledge of existing West Coast markets in relative proximity to the project site. At full production it is currently estimated that there would be 40 outgoing product delivery trucks per week with approximately 30% going to the Seattle area, approximately 30% going to the Los Angeles area, and approximately 40% going to the San Francisco Bay Area. It is expected at full production there would be 32 outgoing trucks weekly carrying waste streams to various secondary use processing sites within 150 miles of the facility. Deliveries to the facility include fish feed, shipping materials, and process chemicals. Deliveries of fish feed would consist of 20 trucks per week. The final feed vendor would be selected later. Deliveries of shipping materials and process chemicals would consist of three trucks per week likely originating in the Redding or San Francisco Bay area. As project design progresses NAFC would refine its sourcing and distribution strategies to align with market demand and optimize logistics. Prior to construction, NFAC would submit an Operation and Construction Transportation Plan to the County for review.

Supporting Systems and Facilities

The systems and facilities described in the following subsections would support the operation of the aquaculture facility.

Power Backup Systems

If grid electrical power supply is shut down to the aquaculture facility, an onsite emergency backup power system would activate to maintain all critical functions for the fish and wastewater treatment systems. NAFC anticipates that several dual fuel (natural gas and diesel) generators with a combined capacity of approximately 20 MW would be needed to supply emergency power to the fully developed facility. The natural gas would be supplied by the existing 4” main on site. Diesel fuel will be used to provide backup power if both natural gas and electricity temporarily fail. Low Sulphur diesel fuel would be supplied by two new 25,000 gallon double walled fiberglass underground storage tanks (UST). Typical double walled fiberglass USTs of this size are approximately 10 feet 6 inches outside diameter,

approximately 40 feet in length. They are mounted to a concrete ballast pad or anchor designed to ensure that the tank remains seated regardless of the level of fuel in the tank and regardless the height of the groundwater outside the tank. Sea level rise and associated groundwater increases will be considered in the design of the concrete ballast. The USTs would be located under a paved area east of Building 5. The USTs would include associated piping that would provide primary and secondary containment and would be equipped with continuous vacuum, pressure, or hydrostatic (VPH) monitoring. The design and installation of the USTs would ensure that in the event of a tsunami there would be no release of fuel from the tanks. Tsunami mitigation would include anchoring and armoring the tanks, securing all ports with watertight locking hatches, and locating vents above the modeled inundation levels. Generator testing and maintenance activities would be done using primarily natural gas. Emergency operation of the generators would use natural gas, except in the event that the supply of natural gas is interrupted in which case the generators would run on diesel fuel. In this way, diesel provides a "backup to the backup." The backup generation system would be designed to rapidly respond to interruptions in the power supply to the facility and maintain critical equipment and infrastructure. The backup power generation system can run as long as necessary in the event of a prolonged power outage, but would be permitted to be used a maximum 500 hours in a given year as its intended purpose is for emergency generation. Normal operations of approximately 10 run hours per year would be typical usage to confirm functionality and maintain lubrication outside of emergency use. Additional onsite power would be generated by the proposed 4.8 MW rooftop solar installation.

Oxygen Systems

Onsite oxygen generation systems would be used, with additional liquid oxygen storage tanks. There would be a curb around the oxygen storage area to contain any minor spills. Spills are not anticipated, and any liquid oxygen released would quickly and harmlessly evaporate into the atmosphere. Signage will notify all employees and visitors that no smoking is allowed near the Oxygen facility. Stand-off bollards will prevent any vehicles from encroaching on the Oxygen area. Appropriate fire suppression will be installed where needed for staffed areas. The oxygen system would be dimensioned and planned in more detail in the permitting phase.

Central Utilities & IWTP

This facility would include required heating and cooling systems, as well as the central facility switchgear. Water-to water chilling systems will be maximized to reduce electricity use. Also located in this area is the Intake Water Treatment Plant (IWTP), which will contain the intake water treatment equipment and infrastructure for industrial freshwater and saltwater.

Storage/Workshop Area

A space would be reserved for various materials and equipment storage uses. This multifunctional space would additionally provide workshop space for use by operations and maintenance staff of the aquaculture facility.

Refrigerants

NAFC would seek to find the most responsible use of refrigerants in its facility to include water to water chilling and to examine the use of recycled refrigerants. NAFC will be fully compliant with all USEPA regulations to include the American Innovation and Manufacturing (AIM) Act and the USEPA's effort in three key areas around hydrofluorocarbons (HFCs):

1. Phasing down production and consumption
2. Maximizing reclamation and minimizing releases from equipment
3. Facilitating the transition to next-generation technologies through sector-based restrictions.

The following is publicly available information provided by the USEPA on their webpage:

> *The AIM Act was enacted by Congress on December 27, 2020. The AIM Act directs EPA to phase down production and consumption of HFCs by 85% below baseline levels by 2036 through an allowance allocation and trading program. EPA has established U.S. production and consumption baselines using a formula provided by*

the AIM Act that considers past HFC, hydrochlorofluorocarbon (HCFC), and chlorofluorocarbon (CFC) amounts. By October 1 of each year, EPA must issue production and consumption allowances for the following calendar year, relative to those baselines.

Work Force Requirements

NAFC would directly employ approximately 150 full time equivalent (FTE) positions once the facility is in full operation. NAFC anticipates that less than ten of these positions would be filled with employees relocating from outside of Humboldt County due to the highly specialized experience required and the scarcity of these resources in the market. The other 140 positions are anticipated to be filled with local resources. Many of these resources are available in the community today, and others will be qualified by participating in the Aquaculture programs at College of the Redwoods and/or Humboldt State University. NAFC is working with Humboldt State University, College of the Redwoods and Humboldt County Office of Education to support the engagement, education and training of local students and residents to help address future workforce needs. Table 2-7 shows the different positions planned at the facility, including level of experience / education necessary for the different positions.

Table 2-7 NAFC Employment Overview

Position	Education / Experience	Number of positions
Management		
President	Positions range from 5-10 years' experience and up. Educational levels are anticipated to be bachelor's and/or master's degrees.	7-9 FTEs. Because some of these positions are highly specialized, Nordic anticipates that 3-5 of these positions may be recruited from outside of Humboldt initially.
Hatchery		
Production		
Processing		
RAS / WTTP Technology		
Finance		
Quality Control		
Human Resources		
Administrative Support Staff		
Community Outreach	Positions range from 3-5 years of experience to 10+ years' experience. Educational levels range from associate to master's degrees.	10-11 FTEs. Nordic anticipates that these positions will be filled by local resources.
Office Manager		
Controlling / Accounting		
Buyer		
HR / Adm / Payroll		
IT Manager and Operators		
Facility / Maintenance		
Facility Director	Positions range from entry level to 10+ years of experience. Educational levels range from High School level to master's degrees	11-12 FTEs. Nordic anticipates that these positions will be filled with local resources.
WWTP Manager / Operators		
Maintenance Supervisor / Operators		
Security Guards		
Hatchery		
Hatchery Manager	Positions range from entry level to 10+ years' experience. Educational levels range from vocational school, aquaculture certificate to bachelor's and master's degrees.	17-18 FTEs. 1-2 positions may be filled by persons from outside of Humboldt, but the rest is anticipated to be filled with local people with background from HSU and/or CR
Hatchery Assistant Manager		
Aquaculture Supervisors		
Aquaculture Technicians		
Grow Out Facilities (Phase 1 & 2)		
Production Managers	Positions range from entry level to 10+ years' experience. Educational levels range from vocational school, aquaculture certificate to bachelor's and master's degrees.	56-58 FTEs. Most of these positions may be filled with local resources. The facility will be built in 2 phases which allows us to train most of the resources in-house.
Assistant Production Managers		
Aquaculture Supervisors		
Aquaculture Technicians		
Logistics & Feed Technicians		

Processing		
Processing Supervisors	Positions range from entry level to 10+ years' experience. Educational levels range from vocational school, aquaculture certificate to bachelor's degrees.	35-38 FTEs. Nordic anticipates that these positions will be filled with local resources.
Processing Operators		
Quality Control		
Transportation Supervisors / Coordinators		
Quality / Lab		
Operational Quality Coordinator	Positions range from 3-5 years of experience to 10+ years' experience. Educational levels range from bachelor's to PhD degrees.	8-9 FTEs. 1-2 positions may be filled by persons from outside of Humboldt, but the rest is anticipated to be filled with local people with background from HSU and/or CR
Operational Quality Laboratory Manager		
Operational Quality Technicians		
Environmental Controller		
Fish Health & Welfare Manager		
Total		**145-155 FTEs**

Notes: Nordic plans to employ 150 FTEs once the facility is in full operation. The exact number of positions per department will be finalized during operational planning, but Nordic expects the total number to be +/- 150 FTEs.

Utility Improvements and Services

Sanitary Sewer

Sanitary sewer service is not currently provided to the Project Site. An existing leach field is located at the southern portion of the Project Site as shown on Figure 2-4. The existing leach field is currently utilized by the RMT II and ancillary facilities occupying the Project Site. The leach field was designed and approved to handle a flow of 14,700 gpd of domestic wastewater generated by the employees of the pulp mill while in operation. The leach field was designed and constructed as two separate, but adjacent units. Each of the two leach field units has a distribution box and 17 4-Inch diameter, 90-foot long, perforated pipe leach lines, spaced at 10 feet on center. In 2014 the Harbor District proposed and received approval to separate the two units with one designated to receive domestic wastewater and the other receiving process wash water from RMT II operations. The capacity of the leach field utilized for domestic wastewater has a total capacity of 7,350 gpd. Current usage of the domestic wastewater leach field from RMT II and ancillary facilities operations is estimated to be between 363 gpd to 570 gpd based on current water usage from HBMWD and employee / fixture counts. Domestic wastewater production from NAFC during Phase 1 operations on the Project Site has been estimated to be less than 900 gpd, leaving a minimum excess capacity in the domestic wastewater leach field of 5,880 gpd.

The existing leach field would be used by the Project temporarily during construction and operation of Phase 1 for domestic sanitary needs of the 100 employees. The use of the leach field would be discontinued once Project Site structures are connected to the Peninsula Community Services District (PCSD) sewer line that will be constructed west of the Project Site in the Vance Ave utility corridor. Construction on Phase 2 production modules cannot begin until leach field use is discontinued, as the second production module building is proposed to be located over the existing leach field.

Electrical, Natural Gas, and Telecommunications Services

Electrical service is currently provided to the Project Site by Pacific Gas & Electric Company transmission lines (PG&E). PG&E currently has a 4-inch steel natural gas service line located adjacent to the electrical substation at the Site. The gas line is not currently being utilized. Telecommunications service is currently available to the Project from AT&T or Sudden Link. Modernization and upgrade of the existing substation is planned to include expanding the total capacity of the switchyard to 35 MW to be utilized by NAFC and Harbor District RMT II operations. Connections to the new buildings would be made from the existing electrical switchyard located at the northwest portion of the former pulp mill site. Electrical utilities would be extended to the new building within multiple trenches or above-ground transmission lines. Electrical connections would extend from the existing switchyard to new transformer(s) to be installed in the switchyard adjacent to the new structures.

The two primary electricity providers in the area are Redwood Coast Energy Authority (RCEA) and PG&E. The electricity provided by PG&E or RCEA is subject to California's Renewables Portfolio Standard, which mandates that a portion of the power comes from renewable sources. The California Renewables Portfolio Standard is a state mandate that all power providers are required to meet or exceed. Furthermore, the Project will directly support goals established in RCEA's *Repower Humboldt Action Plan for Energy* (RCEA 2019) by using efficient technologies, all electric equipment (except for emergency power associated with short-term power interruption) and installation of a utility scale onsite solar energy generation system. NAFC is committed to the same goals as RCEA and would follow their lead when it comes to use of non-carbon and renewable energy-based sources of electricity.

Access Roads

The Project Site is accessed from Vance Avenue via New Navy Base Road and LP Drive. Repair, resurfacing, and striping upgrades of Vance Avenue and LP Drive to support site access, construction, and operation is expected and will be funded by NAFC. Significant expansion of the paved surface of Vance Ave is not expected through the repair and resurfacing process.

Handling of Waste Streams

NAFC operations are based on a responsible recycling philosophy, with the goal that all byproduct resources be recycled for secondary uses. The NAFC approach to handling of byproduct streams at aquaculture facilities is to assess potential off-take options in the region and based on that enter into agreements for off-take or to develop NAFC refinement solutions. For this facility, the following waste streams would be generated:

Processing coproducts (heads, racks, viscera, etc.) are sorted automatically in the processing steps and stored in chilled sealed containers. These are protein resources that have an economic value in pet food, biotech, supplements industry, and more. It can also be used in biogas production. It is estimated that the facility would produce between 8,000 to 12,000 metric tons of processing coproducts annually when fully operational. Processing coproducts would be maintained as food grade products and shipped on an ongoing basis from the facility by truck.

Filtrate can be dewatered to different dry matter levels depending on final use. The most likely uses in this case would be fertilizer/soil enhancement, biogas, or composting. This is also an attractive input into microalgae production. Filtrate would be shipped offsite by truck with the facility producing approximately 2 trucks per day in Phase 1 and increasing to approximately 4 trucks daily at full production. The total number of trucks is dependent on final dry matter content of the dewater filtrate.

Fish Mortalities for NAFC facilities are very low, however fish do die and are culled for a variety of reasons. In NAFC facilities dead fish are ground and stored in storage tanks with a weak acidic solution to maintain a pH of 4 to stabilize the material. This prevents odors from developing. The final product would have a variety of secondary use opportunities including biogas, compost, and fertilizer.

Domestic Wastewater from the proposed facility is estimated to produce approximately 1,470 gpd at full buildout, and less than 900 gpd for Phase 1. The site currently features an active leach-field with sufficient capacity to accommodate Phase 1 operations. Before Phase 2 construction begins the facility would be connected to the PCSD sewer line that would be constructed west of the Project Site. It is important to note that the facility's domestic wastewater would not include any captured water from the facility systems floor drains, which would be piped to the onsite wastewater treatment facility.

Intake and Discharge Water

Both intake water and discharge are subjected to strong biosecurity measures to prevent intake or discharge of pathogens or parasites. A detailed description of the proposed water treatment systems is provided in 2.2.4 Water Treatment. Both industrial freshwater and saltwater intakes to the facility would be subjected to 0.02-micron ultrafiltration and UV disinfection prior to being introduced to the production facilities. Within each RAS core a portion of the treated water would be continuously treated by filtering solids, ozone dosing, and UV disinfection. Wastewater from the production tanks would be directly piped to the wastewater treatment plant for final treatment prior to

discharge, where it would be subjected to 0.04-micron ultrafiltration and a 300 mJ/cm2 ELL UV dose before discharge (See Image 2-6).

Personnel and Visitor Policies

Staff at rearing facilities would consist of designated personnel only. Access to these facilities would be restricted and efforts would be made to limit the movement of personnel between facilities on any given day. A formal personnel movement plan would be developed and implemented. This movement plan would be posted in all units for quick reference. All personnel would move through keycard access biosecurity gates where proper sanitation and hand washing would be performed upon both entrance to and exit from the units. Touch free hand washing stations would be used, and facility specific attire and footwear will be donned and doffed. Operational duties in the hatchery facility and personnel performing them would generally be separate from those in the growout facilities (modules).

Non-staff visitation to rearing facilities would be limited with a focus on ensuring visitors have not visited other animal facilities, aquarium, aquaculture facilities, or other fishery related location within 48 hours. Public visitation interests would be served by a visitor's area at the front of the property, reducing the demand for non-personnel access. Access of visitor's area staff to production facilities would be limited.

Stormwater Management

Construction and post-construction stormwater system for the NAFC facility would be managed in compliance with the California State Water Resources Control Boards' (SWRCB) Construction General Permit (CGP) and Industrial General Permit (IGP).

The preliminary stormwater design for the site has been developed using a Low Impact Development (LID) approach to mimic the site's predevelopment hydrology by using techniques that infiltrate, filter, store, evaporate, and detain runoff close to the source of rainfall with non-structural controls and conservation design measures.

The NAFC preliminary stormwater treatment system, depicted on Figure 2-4, utilizes landform grading that matches the existing topography, and incorporates vegetated bioretention/infiltration ponds, LID facilities, and subsurface infiltration piping to capture and infiltrate the stormwater runoff anticipated from up to the 100-year storm event. The preliminary stormwater treatment system has also been designed to treat the anticipated stormwater runoff associated with the 85th percentile storm event. The stormwater infiltration areas have been located in areas that are not anticipated to be negatively affected by regions of historical contamination at the site.

Stormwater runoff from the site currently is designed to discharge into the existing stormwater pipe network, which ultimately discharges to Humboldt Bay and the ocean outfall. The current stormwater system is in various states of disrepair and its current level of functionality has not been determined. Given the current state of disrepair and deterioration of the former pulp mill it is fair to expect the current storm water system is no longer performing as designed. The NAFC stormwater treatment facilities have been designed to infiltrate the runoff anticipated from the 100-year storm event, therefore no offsite stormwater discharge is anticipated for the facility under normal operating conditions. The majority of the existing stormwater infrastructure would be demolished as part of construction of the NAFC facility. Portions of the existing stormwater network, however, would remain in place and would be connected to the new stormwater treatment system to provide overflow discharge to the ocean outfall pipe for major storm or flood events.

The sizes and locations of the stormwater treatment areas identified in Figure 2-4 are preliminary and would be adjusted as the overall design for the site finalizes.

During operations NAFC would implement industrial stormwater BMPs such as good housekeeping, preventative maintenance, spill and leak prevention and response, material handling and waste management, erosion and sediment controls, employee training, quality assurance, sampling, and record keeping in accordance with the IGP guidelines. NAFC would also maintain and modify site wide operations BMPs, provide employee training, and complete annual reports for the facility in compliance with the IGP operations requirements.

Odor and Noise

The NAFC facility would not have detectable odor outside the facility. The potential sources of odor and management strategies are listed below:

- Filtrate would be stored in sealed containers before out shipment.
- Fish processing coproducts would be maintained as food grade products and stored in chilled containers for shipment.
- Ensilage (ground up fish) is held in storage tanks with a weak acidic solution to maintain a pH of 4 to stabilize the material and prevent odor. Ensilage tanks will be placed indoors.
- Fish feed would be a minor odor source. Feed is stored in indoor rodent proof silos and would not be a source of outdoor odor.

The NAFC facility would incorporate designs and best practices to store and maintain the value of byproduct resources. These practices also prevent odor.

The most notable sources of noise on site would be the ventilation units and backup generators when they are in use. The building ventilation intakes and discharge points would be located along the interior of the facility and the building rooftops, respectively, and are not expected to generate significant noise. The backup generators would be housed in an enclosed structure located in the facility interior with vibration-dampening measures in place, and therefore any noise generated would be limited to the close proximity of that structure.

Air Emissions

Nordic's facilities are fully electrified. The source of air emissions would be the facility generator backup systems, with anticipated limited operational use. Air emissions generated by use of electrical backup generators would be offset by NAFC efficiency and renewable energy investments, including the rooftop solar array. Authorization would be obtained from the NCUAQMD to install and operate dual fuel generators for backup power capable of running off diesel or natural gas. The authorization from the NCUAQMD would require operation of the generators to be consistent with applicable state and federal air quality policies and regulations.

Fish Welfare and Biosecurity

Farm Production Units

Hatchery Building

The Hatchery building is operated by dedicated husbandry staff using essential equipment to manage all the life stages of salmon from egg to post-smoltification. It contains closed compartments for the hatchery unit, fry unit-1 (FF1), fry unit-2 (FF2), parr unit, smolt unit, and the fish logistics station.

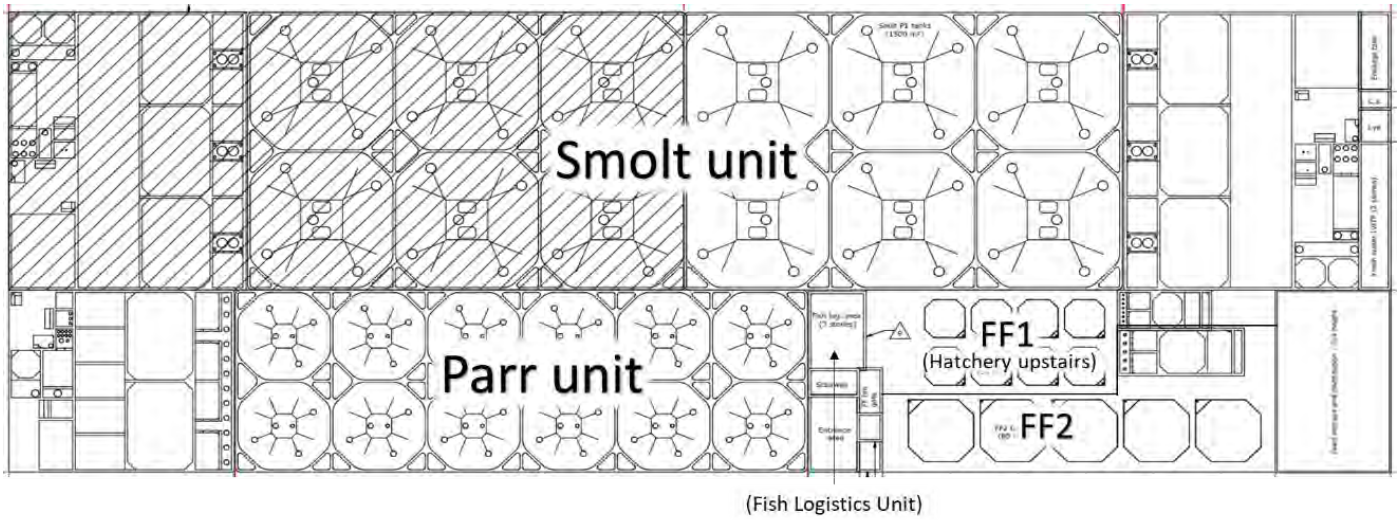


Image 2-7 Layout of Tanks and RAS Systems in NAFC Hatchery Building

Hatchery Phase

The hatchery unit is located on the second floor above the fry culture area. Every eight weeks, a new cohort of eggs are brought into the incubation room, hatched, and housed until they are ready to initiate feeding. Eggs will be sourced from hatcheries that meet the requirements of CDFW (See Egg Importation section below). The incubation room consists of two independent, self-contained water treatment systems (RAS). Eggs commence hatching after approximately 20 days and yolk sac fry remain in the incubation room for an additional 40 days (approx.) before they are transferred to the fry culture unit.

Fry Culture Phase

The fry culture unit consists of two independent, closed compartments each with a self-contained RAS system (FF1 and FF2). FF1 consists of eight rearing tanks and receives fry directly from the incubation room through transfer pipes (by gravity). In FF1, the fry establish first feeding and remain there until they reach approximately 0.5-1.0 grams (g) at which time they are transferred to the second compartment (FF2). FF2 consists of five rearing tanks where fish are raised until they reach approximately 5-10 g. The cohort is then transferred to the parr culture unit though the Central Fish Logistics Unit (Hatchery building).

Parr Culture Phase

The parr unit consists of two, independent self-contained RAS systems each with 6 rearing tanks where fish are raised until they reach approximately 40-50 g. The fish are then transferred through the Central Fish Logistics Unit into the smolt culture unit.

Smolt Culture Phase

The smolt unit consists of two independent, self-contained RAS systems each with 6 x 1,500 m^3 tanks where fish are raised until they reach approximately 500-600 g. The fish are then transferred to the Growout Buildings through underground piping.

Growout Buildings

One growout building will be built in each of the two phases of the project. Growout buildings will be operated by dedicated staff and equipment. Both growout buildings will consist of 13 independent, self-contained RAS systems each with 2 x 3000 m^3 tanks. Fish will be housed in growout buildings for approximately one year until they reach harvest size.

Egg Sources

Performance Criteria

There currently exists no viable source of Atlantic salmon eggs in California that can supply domesticated, all-female ova in quantities required by NAFC. Because of this, NAFC will import eggs from qualified sources located outside the State based on the following criteria:

- Source hatcheries must be full cycle, closed facilities meaning broodstock and their reproductive materials (eggs, ovarian fluids, milt) are never exposed to the natural environment.
- Source hatcheries must have a comprehensive fish health screening and surveillance program maintained by a competent veterinarian authority and accredited diagnostic laboratory within their respective State/Country. Each source hatchery must show a minimum of two years health history to be free of significant pathogens of concern for Atlantic salmon. Number of samples, sampling regime, and diagnostic methods must be consistent with procedures required by AFS Blue Book and World Organization for Animal Health (OIE) guidelines for testing.
- Egg supply must be available year-round and in quantities required by NAFC.
- Eggs must be mono-sexed, all-females.
- Eggs must be derived from a multi-generational, selective breeding program focused on performance in RAS.

Egg Importation

Every breeding facility to supply eggs to NAFC needs to undergo detailed risk assessment and gain approval from CDFW and the California Aquaculture Disease Committee. Standards that control the importation of salmon eggs are established by US Fish and Wildlife Agency under regulation 50 CFR section 16.13, and California Division of Fish and Wildlife under regulation CR Title 14 Section 245. Prior to transfer of eggs to NAF's hatchery, all contributing broodstock are certified free of diseases or pathogens of concern by an approved fish health inspector and in accordance with the most recent edition of "Procedures for Detection and Identification of Certain Fish Pathogens" published by the Fish Health Section of the American Fisheries Society, or the OIE Manual of Diagnostic Tests for Aquatic Animals. Only after review, approval, and specific guidance by CDFW, and with fulfillment of USFW Title 50 requirements, will a transfer permit be given to NAFC to import eggs to California.

Imported eggs will be disinfected twice at the source hatchery. First at the time of water hardening, and again within 24 hours of shipping. Disinfection is accomplished by immersion for 15 minutes in a 75ppm solution of PVP Iodine. Following disinfection, the eggs are rinsed and maintained in water free of fish pathogens including any ice that may be used for shipping. A third disinfection will be done at the NAFC facility upon entering the Egg Receiving Room of the quarantine unit (Image 2-8). Eggs are finally transferred to the second-floor hatchery by an unmanned cargo lift. All inner and outer packaging will be sanitized during unpacking and disposed of properly.

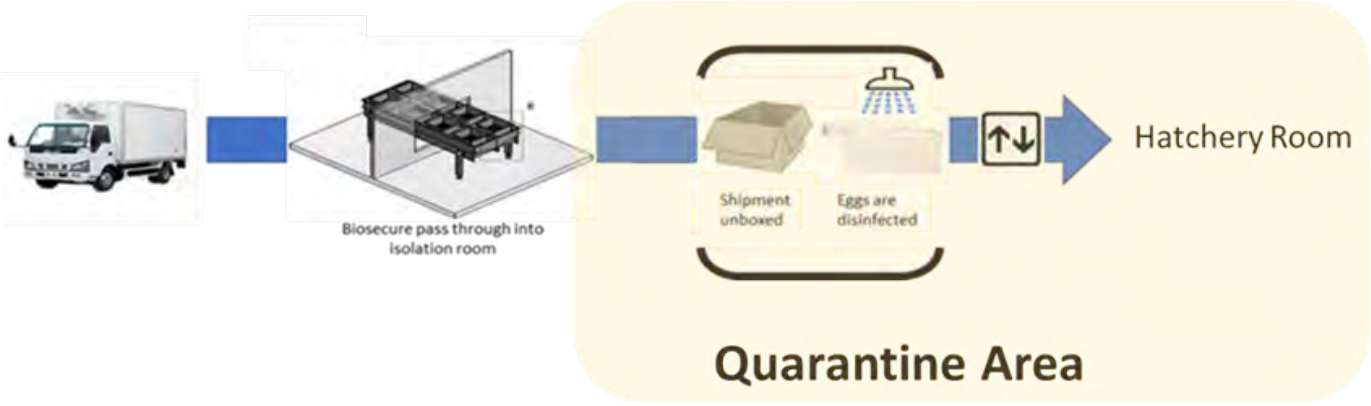


Image 2-8 Schematic Representing the Egg Shipment Receiving Process at NAFC

Quarantine

Upon arrival to NAFC, imported eggs are transferred directly to an approved quarantine area within the Hatchery Building. The quarantine area consists of three autonomous biosecurity zones: (1) Egg receiving room, (2) Hatchery room, and (3) Fry culture unit 1. Eggs remain in quarantine until the cohort of fry can be sampled for a fish health inspection by a licensed veterinarian and a State approved diagnostics laboratory. Any cohort of fry must be declared free from evidence of all diseases of regulatory concern and approved by CDFW before being transferred out of the quarantine area into the next compartment of the farm.

The quality of eggs is checked daily along with fry behavior and appearance. Any abnormal deviations will be investigated promptly. Daily mortalities are recorded. If the defined mortality threshold is reached, an investigation follows, and any occurrence of disease is contained within the quarantine and a response protocol is established and implemented with the appropriate regulatory agencies. The defined mortality threshold is established by CDFW; any cohort of fry must be declared free from evidence of all diseases of regulatory concern before being transferred out of the quarantine area into the next compartment of the farm.

Farm Biosecurity

All production buildings at NAFC are completely enclosed and highly compartmentalized. This design allows for control over movements of people and fish around the farm and a high standard in biosecurity, like what is done in biotechnology manufacturing. The biosecurity plan for the farm buildings is in place to prevent the introduction or spread of disease agents into, within, or out of the facility. It is continuously updated and improved through collaboration with experienced fish health professionals. Third party audits for biosecurity will occur twice per year. All production personnel undergo farm biosecurity orientation at the start of their employment at NAFC. Likewise, personnel will be subject to training refreshers on a routine basis including when any new information is implemented.

The fish rearing facilities will be secured with three physical barriers to prevent entry by unauthorized persons: 1) staffed entrance guard shack, 2) fence enclosure around the campus, and 3) keyed entry doors. Entrance to production buildings will be restricted to designated personnel. Staff will adhere to bio-security procedures for the site. Personnel will limit movements between compartments as reasonably as possible. When such movement is necessary, those personnel will adhere to all bio-security procedures. All visitors to the NAFC farming facility must be authorized in advance by the Head of Production, and any visitor will be required to sign a logbook and confirm they have not visited other aquaculture farms or aquariums within the previous 48 hours. Visitors are not permitted to carry personal items (i.e. briefcases, purses, backpacks) onto the site without permission from farm personnel.

Production buildings, and the compartments within, are only accessible through biosecurity gates. Staff and visitor entrance into the production buildings requires a change of footwear, gowning with facility specific PPE, and washing of hands. At each biosecurity gate, the staff/visitor will use touch free hand sanitizers and footbaths containing disinfectant solution upon entering the compartment. All personnel will adhere to the facility hygiene and disinfection procedures.

Fish Welfare

All decisions for NAFC operations are made with the health and welfare of the fish in mind. NAFC will afford its fish the highest standard of care and provide them the appropriate environmental conditions needed to thrive, grow, and stay healthy. NAFC's responsibility goes beyond providing for these essential needs. NAFC treats its fish with the respect they deserve as sentient animals, and it is the responsibility of every employee to be mindful of fish welfare and report any acts of livestock mistreatment to management.

Welfare indicators are used to assess the overall welfare status of the fish. Many of the welfare indicators used by NAFC are based on deviations in behavior and appearance of the fish. New employees receive training in fish welfare and are taught how to observe the swimming behavior, social interaction, and feeding behavior that salmon exhibit daily. Observational skills are critical for the early detection of small deviations from 'normal state', and any changes in behavior and physical condition of fish will be reported to site management. Early detection is key to good health management.

Farm Health Management and Veterinary Care

Fish health is directed by the NAFC Health Management Team that consists of the farm veterinarian, representatives from smolt production, growout production, the farm health laboratory manager, and external subject matter experts (i.e., aquatic pathologists, diagnostic laboratory). Fish health team meetings are coordinated by the fish health team leader monthly, and external partners are brought into these meetings as needed. Fish health topics are also discussed during weekly production staff meetings.

After quarantine release, fish health is monitored using targeted investigations of moribund fish, fish mortalities, as well as periodic sampling of 'healthy' fish to detect subclinical symptoms of infectious and noninfectious disease. The goal of the farm health program is to enable early detection of disease, build health history for each cohort, monitor pathogen landscape within each production system, and provide the foundation for biosecurity decisions. Fish that are selected for health investigation are transferred to the onsite fish health laboratory. The laboratory health team first performs a gross examination of external characteristics, and then proceeds with necropsy, wet-mount microscopy, and bacteriology. Tissue samples are collected and prepared for external diagnostics as needed. Any recognized external deviations and abnormal behaviors will be recorded on the laboratory submission form and integrated into the fish health final report.

NAFC will favor the use of preventative health tools over prescription medicines, and vaccination is one such way to protect fish against severe disease outbreak from endemic pathogens. At NAFC fish will be vaccinated for key pathogens of concern. Vaccines are biologic substances that provide fish with immunity against specific diseases. Vaccination can also protect the farm against pathogen amplification by reducing the shed of pathogens and raising the threshold of pathogen load required for infection.

NAFC takes a responsible approach to the care of its fish using professional veterinary health management. In rare cases when medicines are required through proper diagnosis of an infection and proof of efficacy against the causative agent, they are added to the feed per veterinarian prescription according to FDA Veterinarian Feed Directive Guidance #213. Only drugs approved for use in aquaculture may be used in accordance with dose standards (see FDA CVM "Green Book" for approved drug products). Medicated feed is manufactured at approved, licensed mills in accordance with FDA 12 CFR Part 512-515. All medicated feed that is not eaten by the fish is recaptured and properly disposed. No medicated feed passes on to the natural environment. FDA approved withdrawal periods between the time of treatment and harvest ensure that the medicine is no longer present in the fish when they are consumed. The requirement of a veterinary prescription ensures that the usage is documented, justified and based on a proper diagnosis thus helping to reduce the unnecessary use of antibiotics.

A comprehensive list of all potential chemicals used for cleaning and disinfecting the Facility, and aquaculture drugs, including vaccines and antibiotics, uses, and annual allowed dosages, that may be used at the Facility are fully disclosed in Section 3.9 – Hydrology and Water Quality.

Feed Standards

The feed given to the fish is subject to strict regulation to ensure that it is not dangerous to the animal and that it does not cause unacceptable damage to the environment. Standards for ingredients used in fish feeds for consumption aquaculture are governed by the FDA under the Federal Food, Drug, and Cosmetic Act. The standards are published in the Code of Federal Regulations (21 CFR Part 500-589) and administered by the FDA's Center for Veterinary Medicine. This includes feeds that are made in the US or imported. In Canada, animal feed and ingredient standards are described in the Feeds Act and the Feeds Regulations (Sections IV and V) and administered through the Canada Feed Inspection Agency. Both in the US and Canada, all the ingredients used in the manufacturing of fish feeds are approved by *The Official Publication* of the Association of American Feed Control Officials (AAFCO), which is accepted by both the FDA and CFIA. NAF sources feed from manufacturers who hold quality assurance certifications such as ISO 9001, GMP (Good Manufacturing Practices), BAP (Best Aquaculture Practices) and HACCP to ensure they meet all current legal requirements of the FDA. In addition to these feed regulations, NAFC will have its own value chain quality program that routinely checks feed and finished product for nutritional specifications, and undesirable substances (PCBs, heavy metals, and pesticides).

While NAFC has not made a final decision on a feed supplier for the Samoa facility, it has established criteria which will guide the selection of the feed profile. Due to the size of the production volume, NAFC is in a position to customize its own feed formula with the feed supplier.

This guidance criteria include:

1. NAFC will use only natural carotenoid pigments that includes astaxanthin. Pigment is a vital micro-nutrient for the health of salmon and gives the orange-pink color to the fish's flesh. This pure ingredient is made through a natural fermentation process of microorganisms and has no additives, is non-GMO, and contains no preservatives.
2. NAFC will aim to avoid the use of GMO ingredients in its feed.
3. NAFC will aim to integrate the use of ingredients that are viable alternatives to harvest fisheries to the extent that it is practical such as:
    a. Vegetable proteins and oils.
    b. Insect meal
    c. Single cell proteins and oils (e.g., bacteria, yeast or microalgae-based products).
4. NAFC will utilize byproduct trimmings from consumption fisheries. Today this can be as much as 20% of the fish meal utilized in the feed formulation.
5. NAFC will be committed to supplying a product that delivers essential omega-3 health benefits. The origin of two essential long-chain omega-3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) has traditionally relied on fish oil inclusion to feed. However, this is no longer an obstacle thanks to access to new alternative oils that can be used to tailor the total omega-3s and the ratios of EPA and DHA without reliance on fish oil (Algae-oils is an example of this).
6. NAFC will require that its suppliers have a monitoring program for environmental contaminants in the feed they produce and follow-up with in-house quality assurance program for feed quality.
7. NAFC will require that our feed supplier have a program of traceability for determining the origin of ingredients used in the feed. This is especially true with responsible sourcing of fish meal, fish oil, and soy ingredients.

In the aquaculture industry, various certification bodies foster and promote responsible practices throughout the value chain, from ingredient sources to farm operations. To maintain certification, members must demonstrate adherence to environmental, food safety, and social standards. Different certification bodies focus on different segments of the value chain, and some have standards which apply to multiple segments. Regarding marine ingredients, certification bodies and initiatives like the Marine Stewardship Council (MSC), International Fishmeal and Fish Oil Responsible Supply (IFFO RS), and Fisheries Improvement Projects (FIP) set standards for responsible harvesting, processing, and sourcing of marine derived raw materials. These certification systems allow feed suppliers to identify and source materials like fish meal and fish oil from responsible suppliers and maintain partnerships with companies that meet the requirements of their sustainability profile. NAFC will require its feed suppliers to participate in and be compliant with more than one of these programs.

For aquaculture farms, there are several sustainability indexes that are used to measure resource utilization or environmental impact. The Fish-In-Fish-Out ratio (FIFO) has been widely adopted to measure the ecological efficiency of feed. At the farm level, FIFO compares the tonnage of fish consumed via feed with the tonnage of fish produced. NAFC will initially set target limits for FIFO that are among the best in the industry and in line with standards for third party certification standards such as ASC, BAP, or Global GAP. These certification standards are regularly adjusted to match advances in feed and ingredient technologies.

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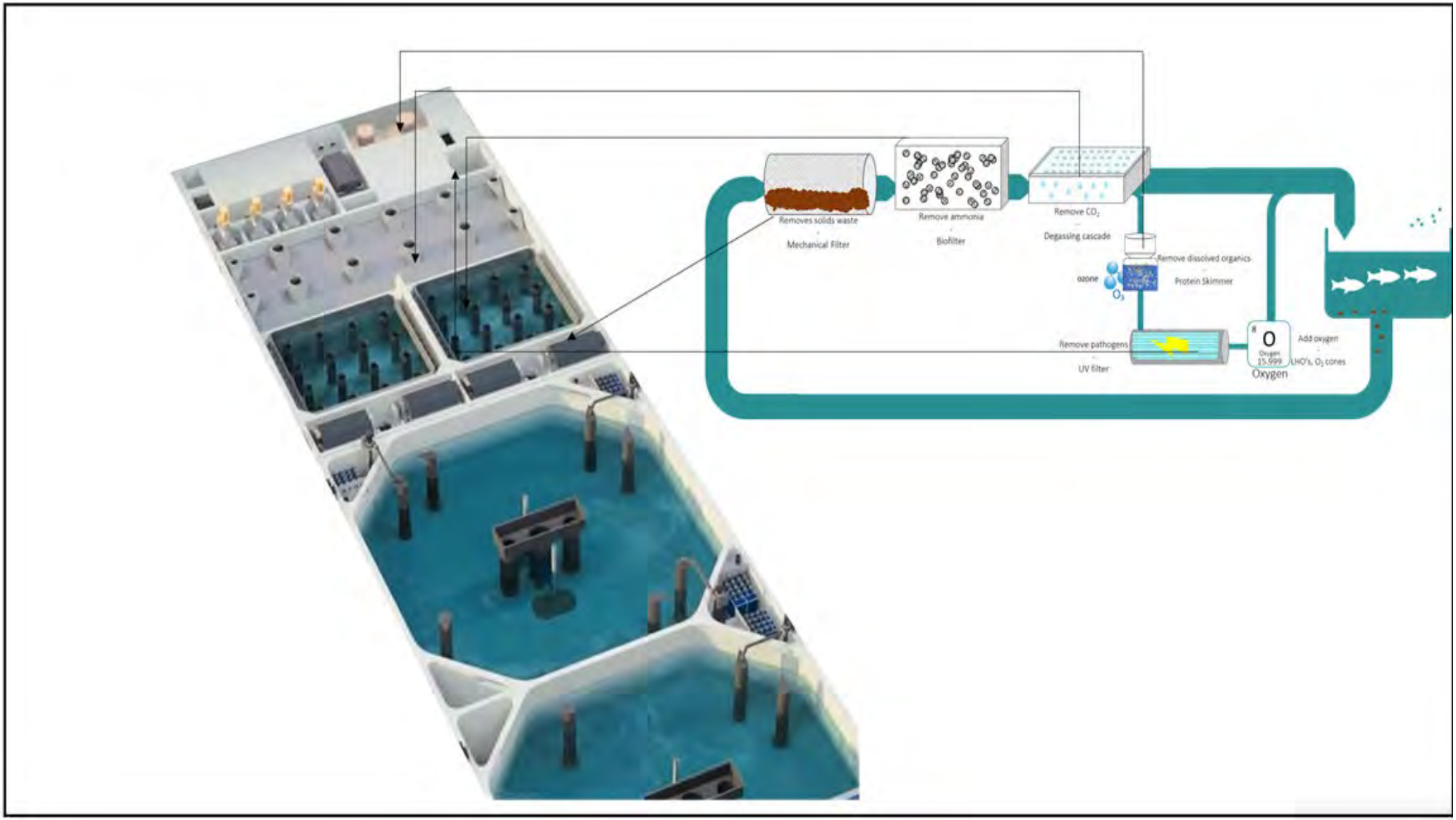
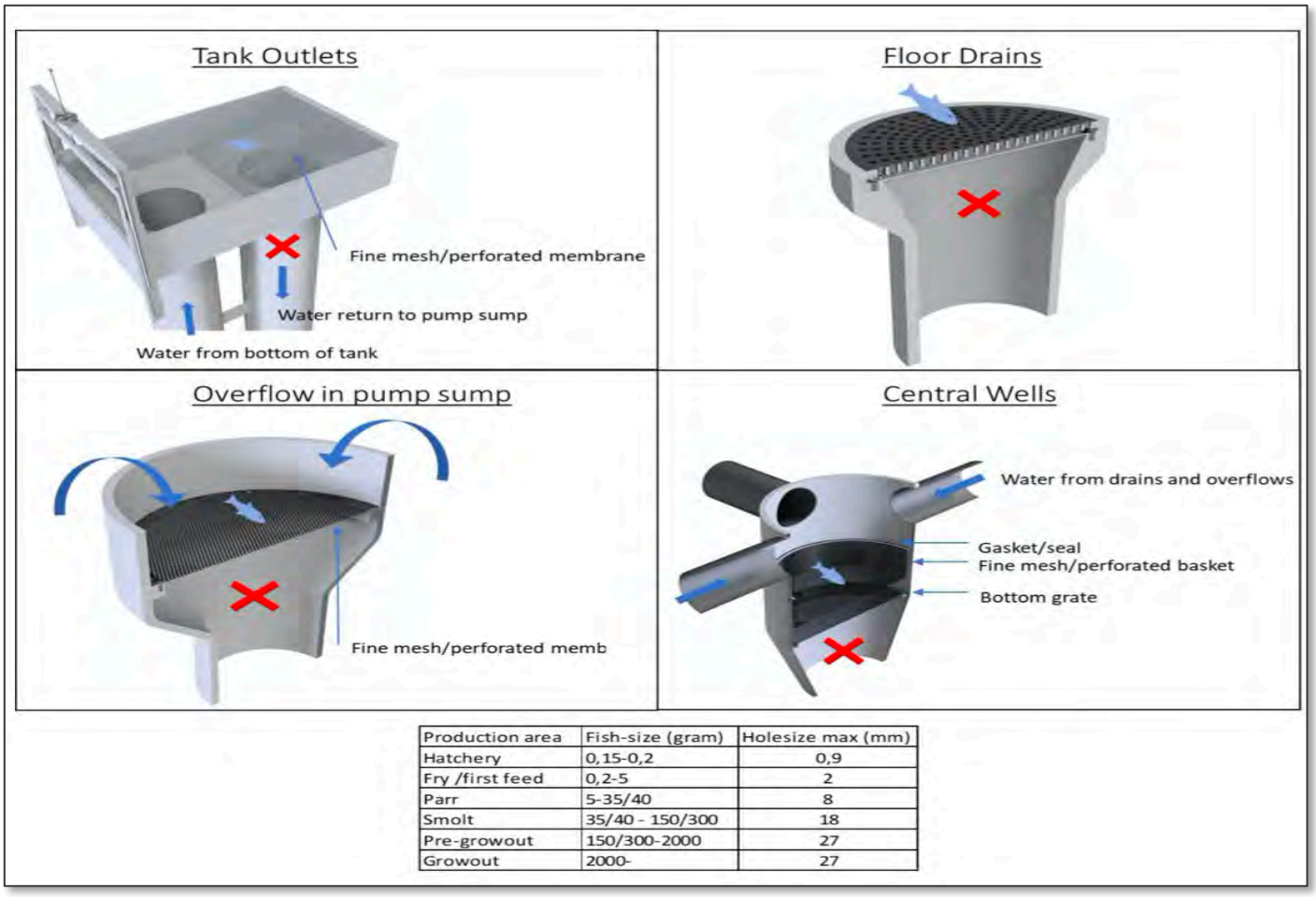


Image 2-9 Conceptual Design of RAS Unit



Production area	Fish-size (gram)	Holesize max (mm)
Hatchery	0,15-0,2	0,9
Fry /first feed	0,2-5	2
Parr	5-35/40	8
Smolt	35/40 - 150/300	18
Pre-growout	150/300-2000	27
Growout	2000-	27

Image 2-10 Screen Overflow and Drain Designs with Hole Sizing (embedded table)

Escape Prevention, Containment Management, and Contingency Plan

In Closed Containment Systems (CCS) such as NAFC's recirculating aquaculture system, the risks of fish escape are minimized inherently by design. NAFC has gone beyond most standards that require risk-based engineering, design, dimensioning, and construction to virtually arrive at an escape-proof facility and farm site. All fish on the farm are raised in RAS units. Water exits the tank and travels through a series of processing steps that include screened barriers that are too fine for fish to pass (e.g., drum filter, biofilter, degassing chamber) before returning to the tank (Image 2-9). There are no bypasses or alternative routes around this equipment. It is expected that nearly 99% of the water is recirculated back to the tank with a very small amount of water exiting the RAS unit through a screened overflow pipe – limiting further any escapement from the facility via effluent water. From the overflow pipe, effluent water directly flows to a central well which is also appropriately screened before finally exiting the building *enroute* to the waste-water treatment plant (WWTP) through underground piping

As part of the CEQA and permitting process, California-registered Geotechnical Engineers conducted studies to assess the impacts of foreseeable seismic events (e.g., earthquake, tsunami). These studies included a Preliminary Geotechnical Investigation Report and a Probabilistic Site-Specific Tsunami Hazard Analysis (SHN 2021; Martin & Chock 2020). Results from these studies have become the criteria requirement for super structure design of NAFC's buildings to survive seismic and tsunami activity and further protect against fish escapement through such an event.

The entire facility will be designed to meet all applicable tsunami design standards including the effects of sea level rise and potential land subsidence in a seismic event. In excess of the standard design requirements, the Tsunami Vertical Evacuation Refuge Structure (TVERS) area and fish containment infrastructure will utilize the Maximum Considered Tsunami (MCT) with a 2% probability of being exceeded in a 50-year period, the equivalent to a return

period of approximately 2,500 years (Martin & Chock 2020) to ensure the safety of staff and ensure fish containment. Additionally, pipes that carry water and fish are placed underground and connect to above ground structures using flexible connections to absorb any seismic undulations. All filtration and plumbing components and barriers will be constructed with saltwater grade stainless steel or other corrosion resistant materials. All of these are subject to regular inspections and replacement programs.

All piping for water effluent and fish movements between buildings is located underground throughout the site (see Figure 2-12 – Concept Piping Layout). The Image below illustrates the network of piping where fish are moved from Hatchery to the Growout Buildings (purple lines), and from Growout buildings to the processing building (green lines). All fish logistic pipes terminate at their destination, and there are no connections leading offsite to the ocean or bay. All effluent water piping (solid black lines) leaves each building from the central (screened) well and terminates at the WWTP located on the farm site.

At the WWTP, effluent water goes through a series of treatment processes prior to discharging offsite through the ocean outfall pipe (black dotted line in above Image). Figure -12 and Image 2-11a below describes the treatment steps that include sludge separation, phosphorus removal, denitrification, fine particle ultrafiltration (0.04 micron) and UV disinfection. Each step represents a screened barrier, but also creates treatment chambers with environmental conditions that make it highly unlikely for fish to survive. The MBR filtration unit consists of modules of membrane fiber cassettes each containing thousands of hollow fiber membranes of 0.04 micron pore diameter that form a physical barrier to solids, bacteria and viruses (Image 2-11a and 2-11b). Effluent water must flow through these microscopic pores in the hollow fiber membranes to pass out of the MBR unit. There are no bypasses around this component of the WWTP creating a zero probability of fish (adult, fry, eggs) from passing this escapement barrier under typical operating conditions. Even in the event that one or more fibers ruptured or failed, the minute diameter of the fibers themselves would prevent passage of fish beyond the MBR outlet, thus acting as another physical barrier to escape (Suez 2021).

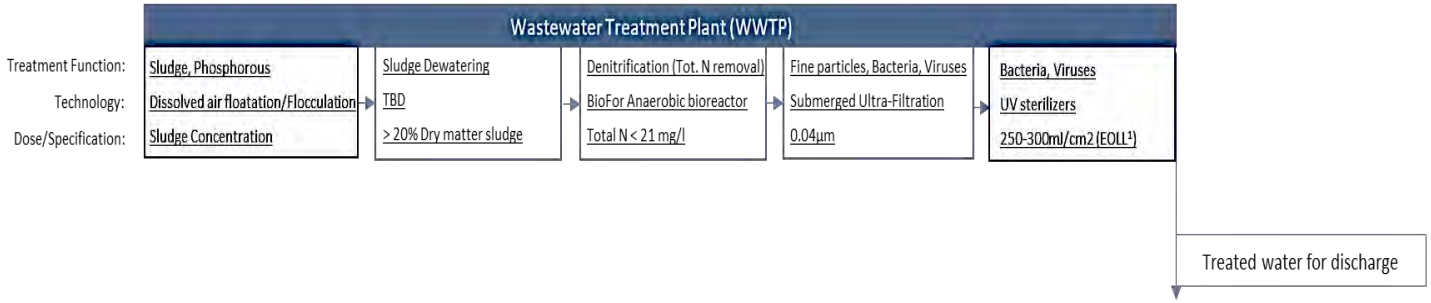


Image 2-11 Filtration and Treatment Steps at the WWTP

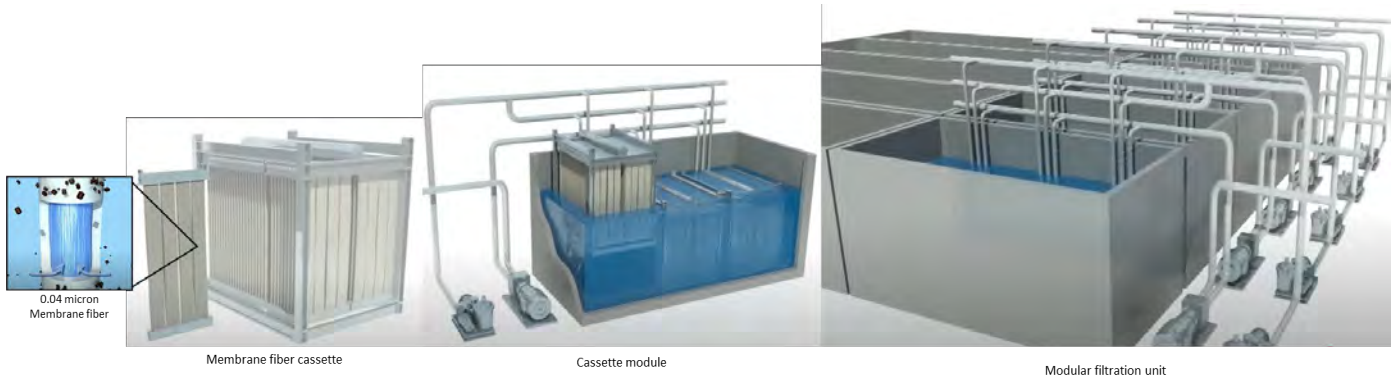


Image 2-11a MBR Filtration Module at the WWTP

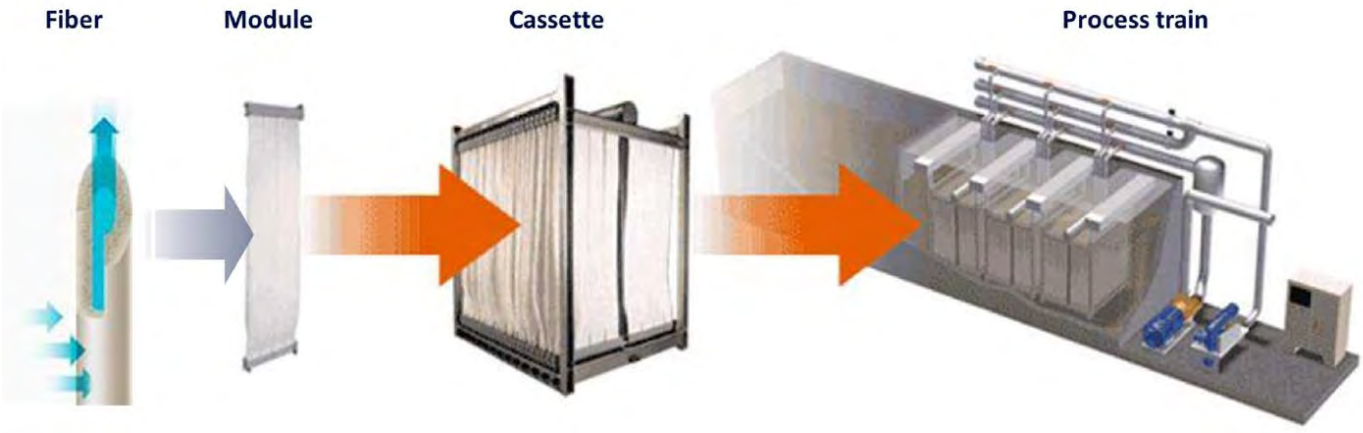


Image 2-11b MBR Filtration Schematic

The screened barriers summarized in the Image 2-12 below, along with drum filters, biofilter, and MBR screens act in succession on water exiting the farm to provide redundancy in the event of barrier defect. Closed buildings with secure entry, fenced farm border, and single guard gate for entry and exit from the farm along with personnel training, and contractual policy mitigates for an assisted route of escapement. Built in redundancy of critical processes and backup generators mitigate the risk of escape due to any equipment failure or malfunction. Inspection for defects in screened barriers and equipment will be part of NAF's regular facility maintenance program.

1. All rearing tanks fitted with screens to prevent passage of eggs, fry, parr, smolt, and adult fish in respective units.
2. Each unit within buildings are fitted with floor drains containing screens to prevent passage of eggs, fry, parr, smolt, and adult fish in respective units.
3. Water exiting each RAS system is screened to 60µm and sent to central well.
4. All water exits each building through a central well with screen sized to prevent passage of eggs, fry, parr, smolt, and adult fish from respective units and sent to WWTP.
5. Water is finally screened to 0.04 micron using submerged membrane ultrafiltration.

Image 2-13 Screened Points for Water Exiting the Farm

The risk of fish escaping from Nordic Aquafarms can be examined through a 'pathway to release' model shown below in Image 2-13. The purpose of the model is to identify the various pathways that can be taken for release into the natural environment, and then illustrate the sequential barriers that are put in place to disrupt movement across the pathway.

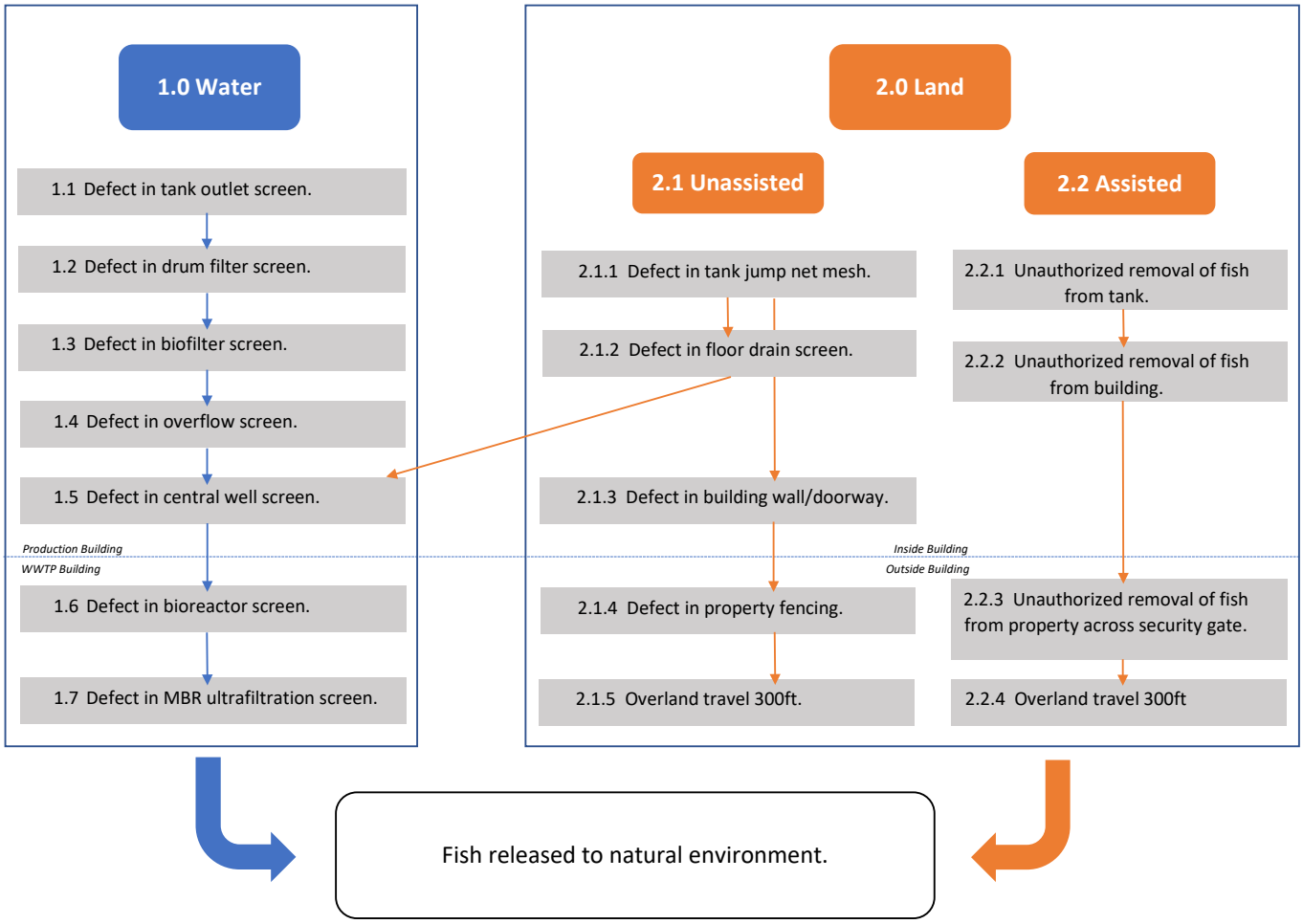


Image 2-13 Fish Release Pathway to the Natural Environment

Image 2-13 illustrates four pathways for escapement: (1) through water, (2) land and water, (3) over land, and (4) assisted removal over land. Each route has seven, five, four, and four barriers, respectively. Using the pathway model, the risk of escapement could be characterized as:

(1) $E_W = W_{1.1} * W_{1.2} * W_{1.3} * W_{1.4} * W_{1.5} * W_{1.6} * W_{1.7}$
(2) $E_{LW} = L_{2.1.1} * L_{2.1.2} * W_{1.5} * W_{1.6} * W_{1.7}$
(3) $E_L = L_{2.1.1} * L_{2.1.3} * L_{2.1.4} * L_{2.1.5}$
(4) $E_{LA} = L_{2.2.1} * L_{2.2.2} * L_{2.2.3} * L_{2.2.4}$

Where:

E_X = Escapement Risk (0 = no risk to 1 = all risk)
W_X = Probability of passing water route barrier (0 to 1)
L_X = Probability of passing land route barrier (0 to 1).

While probabilities are not readily available for most of the above parameters, by plugging in estimated scenarios, the multiplicative factor would likely interact to produce an extremely small measure of concern. This formula, given the sequential nature of most of the mitigation factors, illustrates that the risk is reduced by many orders of magnitude across the escapement pathway. A zero probability at any barrier would negate the entire escape pathway (i.e., MBR filtration unit).

Inspection of escapement barriers will be performed daily. In succession, floors, drains, sumps, wells, and ultimately the WWTP will be inspected for fish to determine if any undetected breaks in physical barriers have occurred. If fish are detected in any of the downstream inspection points, then immediate attention will be given to determining the number of fish present at the inspection point and identifying the barrier defect. Downstream barriers will be inspected to ensure no further passage of fish has occurred.

If it is verified that escapement of fish has occurred through a land or water route, then management will respond according to the Escape Response and Reporting Plan. Actions contained in this plan are as follows:

1. Determine and correct for the cause of escapement. For suspected overland escapement, staff would be interviewed (including security guards), visitor logs and surveillance videos would be checked, and perimeter fences would be inspected. For suspected water route escapement, all physical barriers on the farm would be inspected.
2. Determine the number of escaped fish and potential location of release. Initiate protocol for contacting authorities within 24 hours.
3. In consultation with CDFW, determine if recapture is feasible. If recapture is authorized by CDFW, then recapture method will be situationally determined according to release point and readily available local resources.
4. Recapture effort will continue until it is determined that further recovery efforts are no longer practical due to dispersal of the fish or if a significant reduction in recapture rate is realized.
5. A fish escapement and recovery response report will be submitted to CDFW within 5 working days of the termination of fish recovery efforts. This will include the fish health history of the suspected cohort.

2.3 Ocean Discharge

Total water volume discharged at full operational capacity is estimated at a maximum of 12.5 Million gallons per day via the existing RMT II ocean outfall pipe, which extends 1.55 miles offshore to a diffuser array. The diffuser has 144 ports, each of 2.4-inch diameter. Ports are paired on either side of the pipe at a spacing of 12 ft (3.67 m) between ports. The ports discharge at a 45-degree vertical angle relative to the seabed. Currently, the RMT II diffuser is used by DG Fairhaven Power Company for intermittent batch discharges (200-400 gallons per minute (GPM)) and for treated wastewater effluent disposal from Samoa, with eight diffuser pairs maintained open (16 open ports) to allow discharge from the permitted facilities.

NAFC would open 48 additional ports on the existing ocean outfall pipe to maximize diffusion. Additional ports will be opened in conjunction with changes in discharge volume to maintain optimum port discharge velocity. The first of the 48 additional ports would be opened when the hatchery is brought online, additional ports opened for the Phase 1 growout building, and the remainder when Phase 2 is completed. The Harbor District would remain responsible for ongoing maintenance and monitoring of the ocean outfall infrastructure. Aside from opening the additional ports, no other alteration to the ocean outfall pipe is proposed.

2.3.1 Summary of NPDES Requirements

The discharge would be regulated under a National Pollution Discharge Elimination System (NPDES) order No. R1-2021-0026 administered by the NCRWCB, which would require ongoing operational monitoring and reporting to ensure compliance. Under the draft NPDES order, continuous sampling of effluent flow and temperature would occur prior to the treated effluent entering the ocean outfall pipe. Parameters to be sampled at the point of entry into the ocean outfall pipe at least weekly would include: biochemical oxygen demand (BOD), oil and grease, pH, total suspended solids (TSS), settleable solids, and turbidity. Parameters to be sampled monthly at the point of entry into the ocean outfall pipe include: total ammonia nitrogen, unionized ammonia as N, total organic nitrogen as N, and total nitrate nitrogen as N. Chronic toxicity will also be monitored, though the specific parameters and frequency are yet to be finalized by the NCRWCB. Ocean Plan Table 1 Pollutants would be sampled one year after commencing discharge. A biological survey would be required once per five-year permit term, with prior review and approval of the

biological survey work plan by the NCRWQCB. The final NPDES order with final monitoring requirements would be issued following completion of the CEQA process.

The discharge water would be comprised of a maximum 10 MGD saltwater sourced from Humboldt Bay, and 2.5 MGD freshwater sourced from HBMWD Mad River. Freshwater would be ~2MGD of industrial water and ~0.5 MGD domestic water supplied by the HBMWD. Table 2-8 summarizes special studies prepared related to the ocean discharge. Table 2-9 provides a summary of the constituents and maximum daily loading rates for the outfall discharge effluent. Additional discussion and detail regarding required monitoring and effluent limitations under the NPDES order are discussed in Section 3.9-3 – Hydrology and Water Quality.

Ocean Plan Table 3 Pollutants would be sampled one year after commencing discharge. A biological survey would be required once per five-year permit term, with prior review and approval of the biological survey work plan by the NCRWQCB. The biological survey would occur in the Pacific Ocean and would include an evaluation of objectionable aquatic growths, floating particulates or grease and oil, aesthetically undesirable discoloration of the ocean surface, color of fish or shellfish, and any evidence of degradation of indigenous biota attributable to the rate of deposition of inert solids, settleable material, nutrient materials, increased concentrations of organic materials, or increased concentrations of Ocean Plan Table 1 substances. Under the NPDES order, the Project would operate the ultraviolet (UV) disinfection system to ensure the UV design dose is met and pathogens (e.g., fish diseases) are not discharged to receiving waters. Ultraviolet (UV) transmittance of the effluent from the UV disinfection system would be monitored continuously.

According to the draft NPDES order, the chronic toxicity in-stream waste concentration (IWC) for the Project is 0.87 percent effluent, and the Project shall conduct annual chronic toxicity tests on effluent samples at the discharge IWC in accordance with species and test methods in Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms (EPA/600/R-95/136, 1995 as cited in the draft NPDES order). Under the required methods, chronic toxicity testing would include sampling from smelt, purple sea urchin, and giant kelp.

Table 2-8 Ocean Discharge Project Site Special Studies Summary

Name of Study	Topic of Study	Study Author
Marine Resources Biological Evaluation	Marine Biological Resources	GHD and H.T. Harvey and Associates
Numeric Modeling Report (Dilution Study)	Water Quality and Dilution Analysis	GHD

Table 2-9 Project Daily Maximum Effluent Summary

Effluent	Discharge	Conversion to lbs/day
Total Water volume	12.5 MGD	-
Total Suspended Solids (TSS)	185 KGD	408
Biochemical Oxygen Demand (BOD)	162 KGD	357
Total Nitrogen (TN)	673 KGD	1,484
Ammonium Nitrogen (NH4)	0.07 KGD	0.15
Phosphorus (P)	5.8 KGD	13

Notes:
MGD = Millions of Gallons per Day
KGD = Kilograms per day
Lbs/day = Pounds per day

2.3.2 Additional Monitoring to be Completed by the Applicant

In addition to water quality and biological monitoring required under the NPDES order, NAFC would complete monitoring of coastal oceanography and water quality of receiving waters in the Pacific Ocean.

This additional monitoring program would be carried out over three to five years to understand interannual variability (e.g., cool vs warm years). The monitoring program would be conducted during the summer/fall period of upwelling "relaxation," when conditions are least energetic, and dilution of the discharge would thus be lowest and would include baseline, pre-discharge monitoring. Two annual surveys would occur during the summer/fall period, ideally in August or September, separated by at least two weeks. Baseline monitoring would commence one to two years prior to the discharge from the facility. Post-discharge receiving water monitoring would commence following completion of Phase 2 operations (full facility discharge) following the same methodology as the baseline monitoring. The post-discharge monitoring would continue for two to three years to provide "before-after-control-impact" or "before-after-gradient" design for the biological monitoring program.

Coastal oceanographic data would be gathered with an acoustic doppler current profiler (ACDP) to measure current velocities (deployment and retrieval during the first and second surveys of each year, respectively), and the use of a conductivity, temperature, and depth (CTD) profiler to characterize spatial patterns of temperature and salinity of the ambient waters and any effects in proximity to the discharge. CTD profiles would be collected at approximately 100 to 300 feet (near diffuser) to approximately 500 to 1,000 feet (distant from diffuser), and reference profiles would be collected greater than one mile from the diffuser. The deployment of the ADCP would be within 0.5 mile of the diffuser at a similar depth.

Water quality monitoring of nutrients (NH_x, NO_x, TN), suspended solids and turbidity, and chlorophyll would be conducted during each survey to confirm the predicted area of effect. Near surface (~1-3 ft below surface and near-seabed (approximately 5 feet above bottom) grab samples would be collected at half of the profiling stations (proportionally by near the diffuser, far from the diffuser, and reference profiles) and analyzed by an appropriately accredited laboratory.

In addition to the biological sampling required under the NPDES permit, supplemental biological sampling would be conducted to determine if effluent discharge is having a significant effect on biota in the Ocean Discharge Study Area, defined as the proximal marine waters as modelled in Appendix E. Supplemental biological sampling would occur concurrently with water quality monitoring. The study approach would utilize visual methods, either a remotely operated vehicle (ROV) and/or a drop camera with laser lights for scale. Transects and point surveys would be conducted at a height of two to five feet above the bottom. Surveys would be conducted outside of the zone of influence estimated in Appendix E for this time period (e.g., reference sites), and within the zone of influence, and along the discharge pipe, at approximately the 82 feet (25 meter) isobath.

Annual reporting would be completed following each post-discharge monitoring event by a qualified consultant and shared with Project stakeholders, outside the NPDES order reporting requirements.

2.4 Humboldt Bay Water Intakes

2.4.1 Description

The Harbor District proposes to modernize the operation of two Humboldt Bay water intake structures formerly operated to supply saltwater for various upland uses. The Project would include retrofit of the sea chests, upgrading water pipe runs on docks, reinforcing dock pipe mounting, modernizing electrical power systems, improving the sea chest intake infrastructure, and installation of piping (both for water intakes and fire suppression) along the shoreline as part of the multi-year plan to improve access to key water resources for current and future tenants of the Harbor District aquaculture business park.

These modifications would increase water withdraw capacity and add features that reduce environmental impacts of aquatic species entrainment and impingement with installation of new 1.0 mm wedge wire intake screens. Updates to

create upland connections would support growth of the Harbor District aquaculture business park as well as other allowable uses by potential future Harbor District tenants, including NAFC. Additionally, installation of a new, extended fire suppression water line would aid fire control. An existing freshwater fire suppression line is currently provided to the site from the HBMWD.

Water intakes would supply saltwater through piping affixed to the existing docks located one-half mile apart, Redwood RMT II and Red Tank Dock (Figure 2-5). The piping infrastructure would extend onshore underground from Red Tank to RMTII and southeast to the NAFC lease area. The aquaculture facility would tie into the sea chest piping south of the RMT II building. Supporting studies used to design the water intakes are summarized in Table 2-10.

Table 2-10 Water Intake Project Site Special Studies Summary

Name of Study	Topic of Study	Study Author
Conceptual Designs for Intake Screens on the RMT II and Red Tank Docks	Water Intake Design	SHN (8/6/2021)
Empirical Transport Modeling of Potential Effects of Icthyoplankton Due to Entrainment at the Proposed Samoa Peninsula Water Intakes and Addendums	Potential Water Intake Entrainment	Tenera Environmental (5/13/2021) (7/14/2021) (12/13/2021)

2.4.2 Existing Conditions

The Project includes two dock facilities, owned by HBDA, located on two separate parcels (APN 401-112-011 and APN 401-031-040) from the landward RMT II facility (APN 401-112-021). The RMT II dock is approximately 16-foot wide wooden dock situated immediately east of the RMT II facility and extends approximately 600 feet into Humboldt Bay. The RMT II dock is currently utilized for commercial aquaculture and operated by an RMT II tenant (Taylor Seafoods). The dock includes a sea chest water intake (sea chest), consisting of a screened marine intake and pumping infrastructure, which provides bay water to the RMT II facility via dock-mounted piping. The Red Tank dock is a 12-foot wide wooden dock located approximately 2,900 feet to the north of the RMT II Dock and extends approximately 150 feet into Humboldt Bay. The dock includes a sea chest water intake, consisting of a screened marine intake and pumping infrastructure.

The RMT II dock and Red Tank dock intake structures are currently designed with openings on the face of the structures with vertical guide channels to hold flat screens over the intake openings, as seen in Image 2-14 through Image 2-18. Based on the required intake flow rates, flat screens would not be of sufficient surface area to provide the required intake flow rates while meeting guidelines to reduce entrainment and impingement of aquatic species.

The saltwater intakes would modernize existing water intake structures. Existing flat intake screens would be replaced with modern intake screens which are designed to reduce entrainment and impingement of aquatic species. Water delivery to upland locations would be through new bay water pipe, utilizing the same trench as the industrial freshwater fire suppression water line.

A saltwater line would provide water from the RMT II Dock and Red Tank dock water intakes to manifolds at RMT I, RMT II and Nordic Aquafarms. NAFC and other aquaculture users would connect to the manifolds to receive saltwater. The saltwater line and industrial freshwater fire suppression water line would be trenched except at one point where they would cross a stormwater feature and where the water lines would daylight and be attached to a crossing structure as appropriate. The industrial freshwater fire suppression water line would terminate near the RMT I manifold, RMT II manifold, and at Red Tank dock.

The existing RMT II dock intake structure is constructed of wood that has some deterioration. The wooden structure would likely need repairs to seal cracks that would allow flow into the intake structure other than through the intake screen.

The piping associated with the bay intakes and fire suppression system will be excavated just west of the Humboldt Bay shoreline. Trenches will be sufficient to maintain pipes at least 3 feet below the ground surface, and above the water table, being installed by the Harbor District. Soil excavated for the saltwater intakes and fire suppression pipelines will adhere to material management guidelines as outlined in the Interim Measures Work Plan (SHN 2021). Field monitoring and the collection of samples from excavated soils for laboratory analysis will occur to ensure compliance with environmental regulations for material reuse or offsite disposal.

Image 2-14 RMT II-Existing Water Intake Pumps

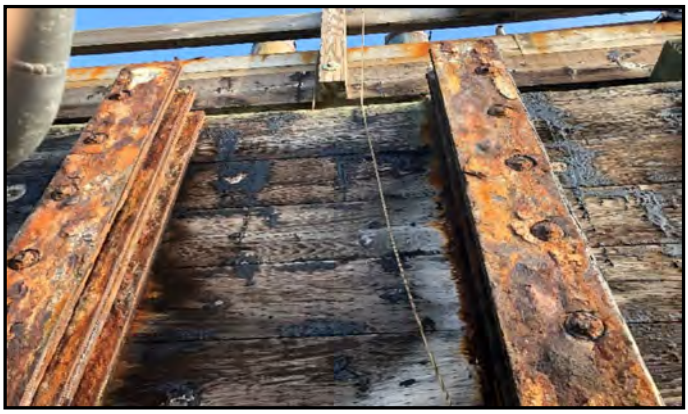


Image 2-15 RMT II-Existing Wooden Sea Chest

Image 2-16 RMTII-Existing Water Intake Screen

Image 2-17 Red Tank-Existing Concrete Sea Chest

Image 2-18 Red Tank-Existing Concrete Sea Chest and Screens

2.4.3 Trench Details

The fire suppression water line would have a maximum outside diameter of 12 inches. The saltwater line would range from 18 to 36 inches in maximum outside diameter. Image 2-19 shows the outside pipe diameters and volume of water that would travel through different sections of the bay water line. Image 2-20 and Image 2-21 show the conceptual design for approximately 4,000 linear foot trench segments (i.e., areas where there are two pipes or one pipe in the trench). The maximum width of ground disturbance would be 19 feet in sections where both pipes occur and 17 feet where only one pipe occurs.

There is an existing walkway across the stormwater feature that the pipes must cross. The two pipes would be attached to this walkway or to a replacement structure of the same size or smaller to minimize and avoid ground disturbance in the stormwater feature.

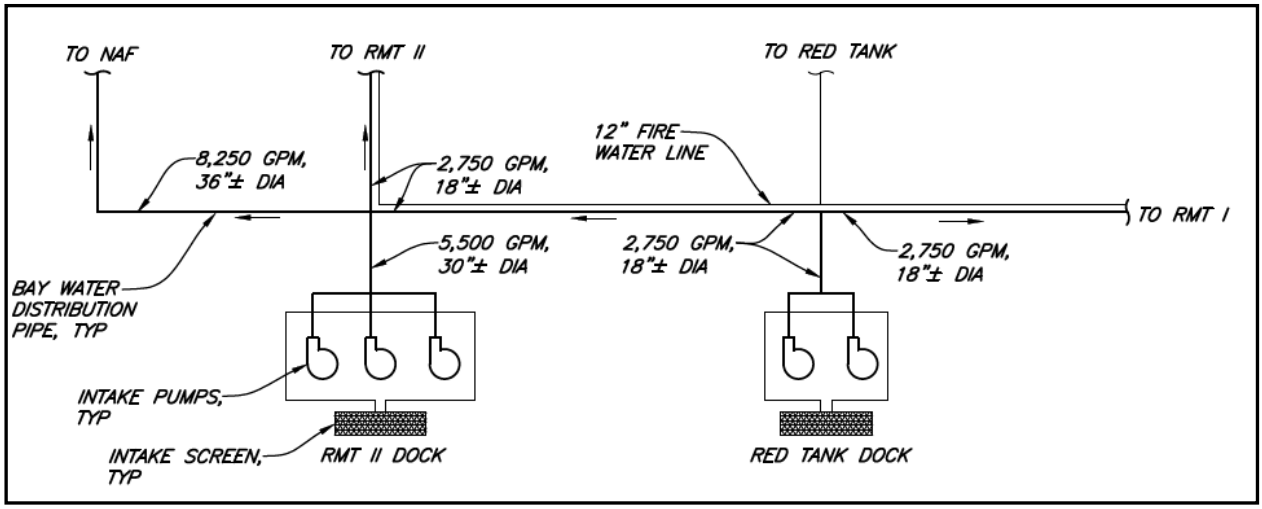


Image 2-19 Pipe Diameter and Volume of Water that Would Travel Through Different Sections of the Bay Water Line

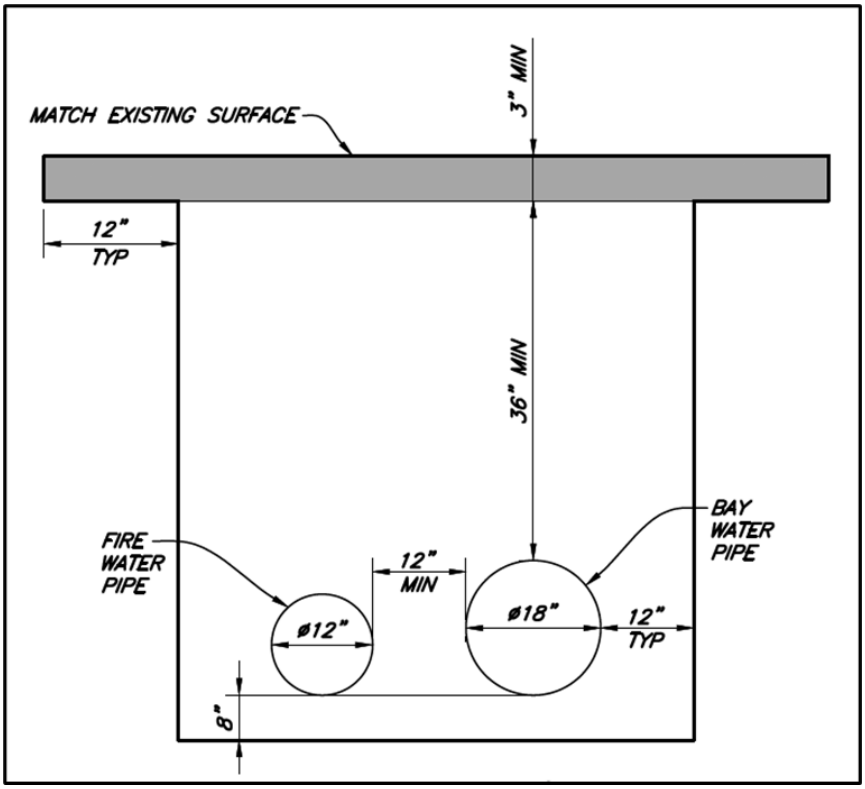


Image 2-20 Conceptual Trench Details in Areas Where the Bay Water Line and Fire Suppression Line Would Occur

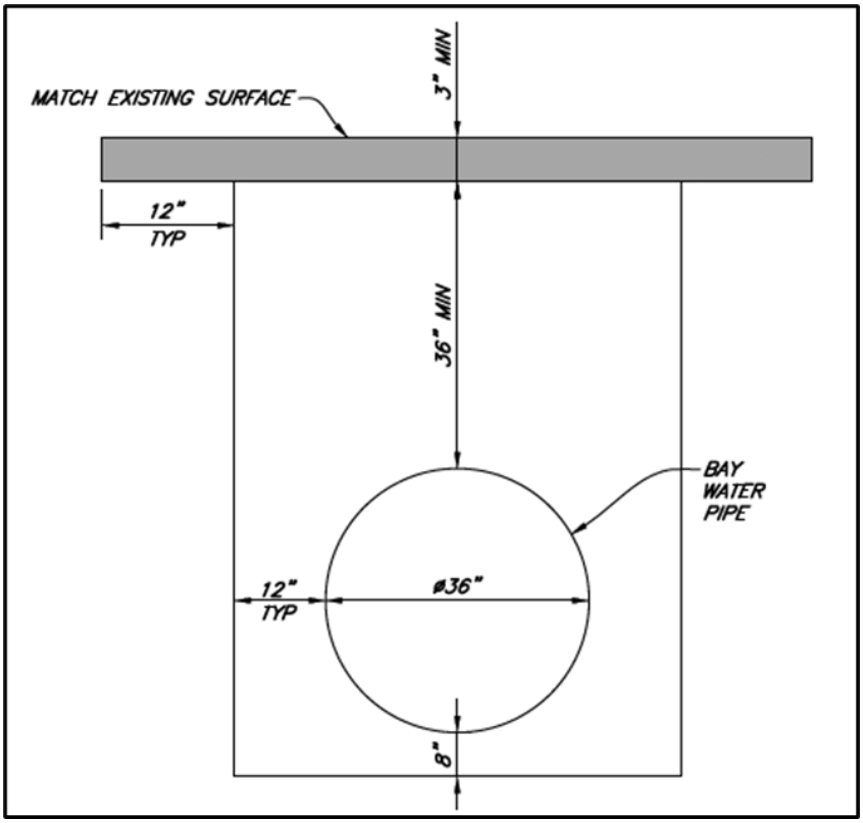


Image 2-21 Conceptual Trench Detail in the Area Where Only the 36" Bay Water Line Would Occur

2.4.4 Intake Design Conditions

Site-specific design conditions include minimum and maximum water depths and the elevation of the pier where the pumps and mounting equipment would be located. Elevations reported below in Table 2-10 for the RMT II dock intake structure are from the original design drawing (Georgia- Pacific Corporation 1966 cited in SHN 2020b). Elevations reported below in Table 2-11 for the Red Tank dock intake structure are from manual measurements collected April 1, 2020, at 8:15 a.m. as tied to the tidal water surface elevation reported from the NOAA North Spit tide station (9418767). Original design elevations for the RMT II dock were given in reference to the National Geodetic Vertical Datum of 1929 (NGVD29). Current design elevations are typically in reference to the North American Vertical Datum of 1988 (NAVD88). NGVD29 is 1.013 meters (3.32 feet) lower than NAVD88 at RMT II (NOAA2019); that is, NAVD88 = NGVD29 – 3.32 feet. Table 2-11 includes tide elevations and existing intake structure elevations.

Table 2-11 Tidal Data[1] and Intake Structure Elevations

Description	Abbreviation	RMT II Dock Elevation (feet, NAVD88)[2]	Red Tank Dock Elevation (feet, NAVD88)
Existing Pump Base Elevation	N/A[3]	13.68	11.20 +/-
Existing Pump Discharge Pipe Center Line Elevation	N/A	9.93	N/A
Highest Astronomical Tide, December 31, 1986	HAT	8.52	8.52
Mean Higher High Water	MHHW	6.51	6.51
Mean High Water	MHW	5.80	5.80
Mean Sea Level	MSL	3.36	3.36
Mean Low Water	MLW	0.91	0.91
North American Vertical Datum of 1988	NAVD88	0.00	0.00
Mean Lower Low Water	MLLW	-0.34	-0.34
Lowest Astronomical Tide, May 25, 1990	LAT	-2.73	-2.73
National Geodetic Vertical Datum of 1929	NGVD29	-3.32(4)	-3.32
Existing Intake Structure Invert Elevation	N/A	-8.82	-4.38 +/-
Bay Bottom Adjacent to Intake Structure	N/A	-14.82	-5.90 +/-

1. National Oceanic and Atmospheric Administration (NOAA) Station 9418767 North Spit, CA
2. NAVD88: North American Vertical Datum of 1988
3. N/A: not applicable
4. NGVD29 is 1.013 meters (3.32 feet) lower than NAVD88 according to the NOAA VERTCON orthometric height conversion tool (https://www.ngs.noaa.gov/cgi-bin/VERTCON/vert_con.prl) for 40.804624 North Latitude, 124.193127 West Longitude.

The direction of tidal flow in the bay channel varies 180-degrees, four times per day. The proposed orientation of the new screen is parallel to the direction of tidal flow. General intake screen design criteria are outlined in the National Marine Fisheries Service (NMFS) document, *Fish Screening Criteria for Anadromous Salmonids* (NMFS 1997). Through consultation with the California Department of Fish and Wildlife, SHN determined that intake screens must meet the design criteria assuming the presence of anadromous salmonid fry and juvenile longfin smelt. This resulted in an intake screen design of 1.00 mm slot size, rather than the Ocean Plan requirements of 1.75mm.

The two sea chests would be modernized to meet applicable design criteria for fish screens from NMFS (1997), summarized below.

A. Flow Rate

Maximum Intake Flow Rate:

- RMT II Dock intake Screen: 5,500 gallons per minute (GPM)
- Red Tank Dock Intake Screen: 2,750 GPM

B. Structure Placement

- The screened intake shall be designed to withdraw water from the most appropriate elevation, considering juvenile fish attraction, appropriate water temperature control downstream, or a combination thereof. The design must accommodate the expected range of water surface elevations.
- Water velocity from any direction toward the screen shall not exceed the allowable approach velocity. Where possible, intakes would be located where sufficient sweeping velocity exists. This minimizes sediment accumulation in and around the screen, facilitates debris removal, and encourages fish movement away from the screen face.

C. Maximum Approach Velocity

- Self-cleaning screens: 0.2 feet per second (fps)
- Non self-cleaning screens: 0.05 fps
- The screen design must provide for uniform flow distribution over the surface of the screen, thereby minimizing approach velocity.

D. Screen Orientation

- For screen lengths greater than six feet, screen-to-flow angle must be less than 45 degrees.

E. Screen Face Material

- Perforated plate: screen openings shall not exceed 3/32 inches (2.38 mm), measured in diameter.
- Profile bar: screen openings shall not exceed 0.0689 inches (1.00 mm) in width.
- Woven wire: screen openings shall not exceed 3/32 inches (2.38 mm), measured diagonally. (e.g.: 6-14 mesh).
- Screen material shall provide a minimum of 27% open area.
- The screen material shall be corrosion resistant and sufficiently durable to maintain a smooth and uniform surface with long term use.

F. Civil Works and Structural Features

- The face of all screen surfaces shall be placed flush with any adjacent screen bay, pier noses, and walls, allowing fish unimpeded movement parallel to the screen face.
- Structural features shall be provided to protect the integrity of the fish screens from large debris. Trash racks, log booms, sediment sluices, or other measures may be needed. A reliable on-going preventive maintenance and repair program is necessary to ensure facilities are kept free of debris and the screen mesh, seals, drive units, and other components are functioning correctly.

G. Operations and Maintenance

- Fish Screens shall be automatically cleaned as frequently as necessary to prevent accumulation of debris. The cleaning system and protocol must be effective, reliable, and satisfactory to NMFS. Proven cleaning technologies are preferred.
- The head differential to trigger screen cleaning for intermittent type systems shall be a maximum of 0.1 feet (0.03 m), unless otherwise agreed to by NMFS.
- The completed screen and bypass facility shall be made available for inspection by NMFS, to verify compliance with design and operational criteria. The intake screens will be removable from the wetted environment to support regular inspection for serviceability and maintenance. Thus, the need for in-water inspection and divers would be reduced.
- Screen and bypass facilities shall be evaluated for biological effectiveness and to verify that hydraulic design objectives are achieved.

The baseline solution for intake water treatment included in NAFC operations would include:

– First stage filtration
– Ozone treatment
– Ultrafiltration
– Ultraviolet (UV-C) dosing.

Proposed Intake Screen Design

The RMT II dock and Red Tank dock intake structures are currently designed with openings on the face of the structures with vertical guide channels to hold flat screens over the intake openings. Based on the required intake flow rates, flat screens would not be of sufficient surface area to meet design criteria required to reduce entrainment and impingement of aquatic species. Therefore, the Harbor District is proposing to install tee-style intake screens over the intake openings. The tee screens would be mounted to flat plates that can be slid down into place over the intake openings, providing significantly greater screen surface area. The proposed intake screens also include an automated air burst self-cleaning system, which would keep the screens clean and maintain the screen surface area (Figure 2-13 through Figure 2-16).

Hendrick Screen Company, specialized in intake screen design, provided SHN with a preliminary design for an intake screen that meets the design criteria described above. A similar intake screen design is proposed for both locations with the exception that the RMT II Dock screen would be 36-inch diameter with a maximum intake flow rate of 5,500 GPM, and the Red Tank Dock screen would be 24-inch diameter with a maximum intake flow rate of 2,750 GPM.

The proposed screen includes the following features:

– 316 stainless steel profile bar screen material; 0.0689-inch spacing between bars
– 0.2-feet per second (fps) maximum approach velocity at maximum intake flow rate
– Compressed air automatic self-cleaning system
– Flow modifier to evenly distribute intake flow rates and velocities over the entire screen face

The screen manufacturer indicates head loss through the screen would be approximately 0.17 pounds per square inch (psi); 0.44 feet. Therefore, the water level inside the intake structure would be a minimum of 0.44 feet lower than the tidal water level outside the structure. As material builds up on the screen, head loss would increase, and the water level inside the intake structure would decrease accordingly, until the air burst cleaning system clears the screen of obstructions. The setpoint for when the air burst cleaning system actuates would be manually adjusted to clean the screen when the head difference inside and outside the intake structure is a maximum of 0.1 feet per the design criteria listed above.

Proposed RMT II and Red Tanks Docks Intake Structure Conceptual Design

Conceptual design information for the Red Tank dock and RMT II dock water intakes were developed by SHN (2021b), as summarized below.

Red Tank Dock

Red Tank dock is located approximately 0.5 miles north of the RMT II dock. Up to two pipes (water supply and fire suppression) may be used to pump bay water from Red Tank dock to land to support various uses. The direction of tidal flow in the bay channel varies 180-degrees, four times per day. The proposed orientation of the new screen is parallel to the direction of tidal flow. The new intake screen would be placed approximately 1 foot off of the existing bay bottom, which would put the top of the screen near the lowest astronomical tide elevation. The manufacturer recommends a minimum of 12 inches clear water be maintained above and below the top and bottom of the screen. The tidal water level would need to be monitored to ensure the intake pumps do not operate if the water level drops below 12 inches above the top of the screen. Leaving 1 foot between the bottom of the intake screen and the bay bottom would reduce the potential for pumps to draw sediment into the interior of the intake structure.

The Red Tank dock intake structure is currently configured to house up to two intake pumps mounted above the intake structure on a concrete pad. The proposed design includes up to two new vertical turbine pumps, providing up to a maximum of 2,750 GPM. The pumps would operate on variable speed drives in order to provide a variable flow rate depending on demand and pipe pressure. The new compressor would be installed on the dock, adjacent to the new pumps. The compressor would be located as close as possible to the intake screen to minimize head loss through the compressed air piping.

The new intake screen would be bolted to a large, square steel plate that would slide into the vertical guide channels, creating a seal to cover the 4-foot-tall by 2-foot-wide structure opening, restricting the opening to the inner diameter of the intake screen flange. This would allow the new tee screen to be lowered and raised using a crane or hoist located above on the pier. Red Tank dock intake structure currently includes two openings: one opening is proposed to be used for the new screen, and the second opening would be sealed off using a blank steel plate.

The Red Tank dock intake screen is located on the open channel side of the dock, exposed to possible damage from large logs and debris that may flow by the structure in the channel of the bay. It may be necessary to place piles or other protective measures around the perimeter of the intake screen to prevent impacts and damage from logs and debris floating by, or from vessels unaware of the location of the screen.

RMT II Dock

The proposed RMT II water intake design would construct the intake screen approximately 3 feet above the invert elevation of the existing intake structure (Table 2-10). The bottom elevation of the bay outside of the intake structure is approximately 6 feet below the bottom of the intake structure and may vary over time as sediment moves; however, there is sufficient depth between the invert of the existing structure and the mean lower low water (MLLW) elevation to provide 3 feet of clearance between the bottom of the new screen and the invert of the existing intake structure. This would provide room for sediment accumulation and prevent the new screen from drawing sediment from the bottom of the bay while maintaining complete submergence during all tides. The manufacturer recommends a minimum of 18 inches clear water be maintained above and below the top and bottom of the screen.

The proposed intake elevation would also be below the lowest astronomical tide level, which is the lowest expected water level at this location. The proposed RMT II dock intake structure design would include up to four vertical turbine pumps, with a maximum combined flow rate of 5,500 GPM. The existing wood and concrete pump pad would likely need to be replaced to accommodate additional vertical turbine pumps. The pumps would operate on variable speed drives in order to provide a variable flow rate depending on demand and pipe pressure. The four intake pumps would include redundant/backup pumps and duty pumps. The new compressor would be installed on the dock, adjacent to the new pumps. The compressor should be located as close as possible to the intake screen to minimize head loss through the compressed air piping. A new pump house would be constructed to house all of the new equipment and protect it from the harsh marine environment.

New discharge piping would be required. SHN recommends that stainless steel and PVC piping be used for this application due to the severe marine environment. The new intake screen would be bolted to a large, square steel plate that will slide into the vertical guide channels, creating a seal to cover the 8-foot-tall by 3-foot-2-inch-wide structure opening, restricting the opening to the inner diameter of the intake screen flange. This would allow the new tee screen to be lowered and raised using a crane or hoist located above on the pier.

The RMT II dock intake screen is located between the pier and the shore of the bay such that large logs and debris that may damage the screen are unlikely to occur at this location. However, if it is determined that large debris is of concern, protective measures, excluding piles, may be placed around the outside of the screen to prevent damage.

2.4.5 Project Construction

The intakes would be upgraded, new pumps installed, and pipeline installed prior to becoming operational for Phase 1. The intake structures would require manual sediment removal from within the structures. Sediment would be removed via heavy equipment or a diver. Construction would be staged from the dock or a barge or similar watercraft.

Pipes would be installed as shown in Images 2-19 through 2-22 and will be installed with a backhoe or equal and the piping would be placed in bedding material and then backfilled and compacted.

Construction Timeline

It is anticipated that the bay intakes would be constructed in the summer/fall of 2022. Construction, including trenching, is anticipated to take 3-4 months.

Staging Areas

Staging for intake installation would occur in previously disturbed areas and on docks. Staging for piping installation would occur on previously disturbed areas (i.e., gravel or paved areas).

2.4.6 Project Operations

The Red Tank dock pumps would be 75-100 hp, and RMT II dock pumps would be 100-125 hp. The pumps would operate continuously except during maintenance and cleaning activities. Power for the pumps and compressors would be supplied from the NAFC facility to ensure operation during periods of grid power outage.

In the wetted environment, the screens would be cleaned with an air burst or brush system. A winch would be used to lift the screens out of the water and onto the respective docks for periodic inspection, maintenance, and repair. Once on the dock, any additional required cleaning of the screens would be completed with a pressure washer and/or brushes.

2.4.7 Off-Site Compensatory Restoration

The Harbor District plans to complete compensatory off-site habitat restoration activities which is anticipated to be required by permitting agencies to (1) offset a small reduction in the Humboldt Bay's biological productivity as a result of entrainment of non-special status larval species, and (2) compensate for the potential take of longfin smelt (LFS) larvae during the operation of the two sea chests. The habitat restoration is expected be a condition of approval required under the Harbor District permits. Compensatory off-site habitat restoration would include pile removal, and Spartina removal. Spartina removal is not a requirement of the Terrestrial Development Project, but has been fully analyzed in the EIR as it is part of the Harbor District's Coastal Development Permit. Compensatory off-site habitat restoration would be implemented in associated with the phased withdrawal of water through the two water intakes as follows:

- **Phase I.** For cumulative water withdrawal by the intakes between 0-694 gallons per minute (gpm), no compensatory habitat restoration would be required. Effects of this small amount of water withdrawal are considered de minimis and habitat restoration to offset impacts to bio-productivity are not necessary.
- **Phase II.** For cumulative water withdrawal by the intakes between 695-1,250 gpm, the Harbor District would compensate for project-related impacts to biological productivity by restoring up to one acre of tidal wetlands in Humboldt Bay through the eradication of the invasive non-native plant species *Spartina densiflora* (Spartina) or remove an equivalent number of piles.
- **Phase III.** For cumulative water withdrawal by the intakes between 1,251 to 8,250 gpm, pile removal at the Kramer Dock would be conducted. Up to 1,004 piles would be removed under Phase III. The Harbor District would consult with other regulatory agencies to further develop details of the habitat restoration prior issuance of permits required for pile removal. Removal of the creosote treated piles would have water quality benefits and increase the quality and quantity of mudflat and eelgrass habitats in Humboldt Bay.

Spartina Removal

Spartina removal would be conducted under existing permits issued to the Harbor District (Harbor District Permit 14-05 and Coastal Development Permit 1-14-0249). It is expected that the NCRWQCB would issue a waiver for the

habitat restoration work. Mechanical (not chemical) methods would be used as described in the certified Final Programmatic Environmental Impact Report for the Humboldt Bay Regional Spartina Eradication Plan (SCH# 2011012015). Mechanical methods include top mowing, grinding, tilling, excavating, disking, crushing, flaming, and covering Spartina plants. Spartina removal would increase native species diversity and improve the habitat quality of salt marsh habitats. It is anticipated that up to one acre of Spartina will be removed.

Pile Removal

Pile removal would occur at the Kramer Dock property, located in Fields Landing and owned by the Harbor District. Under existing conditions, creosote piles are abundant along the shoreline (Image 2-22).

Image 2-22 Existing Piles at the Kramer Dock, Fields Landing During Low Tide on September 28, 2021

Pile removal would be conducted from shore and/or from a barge. An excavator with a vibratory hammer and timber clamp would be used to remove the piles. Piles that break off above the bottom would be reattached to the vibratory hammer and removed. In the event that a pile cannot be fully extracted, it would be cut off below the mudline using a saw.

– Removal with barge: An excavator with the equipment referenced above would operate from a barge. The barge would be approximately 80 feet by 100 feet with an estimated four foot draft and would be moved with assistance of a small support boat. After being placed on the barge, the piles would be transferred to land, and then transported to an appropriate disposal facility.

– Removal from shore: An excavator with the equipment referenced above would operate from the shore immediately adjacent to the Humboldt Bay. The piles would be transferred to a truck and transported to an appropriate disposal facility.

There are a total of approximately 1,324 creosote piles over 2.3 acres at the Kramer Dock. A minimum of 1,004 piles shall be removed for the compensatory off-site restoration, of which four (4) piles are required to be removed for LFS mitigation. Staging would occur south of South Bay Depot Drive in Fields Landing, in upland areas only. Wetlands previously mapped by Stantec (Stantec 2018) would not be temporarily or permanently impacted by the pile removal effort.

2.5 References

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From:	Daniel Chandler
To:	NorthCoast@Coastal
Cc:	Kraemer, Melissa@Coastal
Subject:	Appeal of Coastal Commission Application File No. 1-HUM-20-1004
Date:	Tuesday, October 25, 2022 1:46:03 PM
Attachments:	CDP-AppealForm-nc.pdf 350 Humboldt Appeal to Coastal Commission.pdf INTERESTED PARTIES.docx

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Dear North Coast,

Please find attached a) the official appeal form completed [https://documents.coastal.ca.gov/assets/cdp/CDP-AppealForm-nc.pdf] b) the list of other interested parties c) and a detailed description of the grounds for this appeal.
Please let me know if this appeal application is missing any required information. So far as I can tell it is not, but the official appeal form was not always clear to me.

Dan Chandler

Daniel Chandler, Ph.D.
350 Humboldt Steering Committee
dwchandl@gmail.com
Phone: [redacted]
Mobile: [redacted]

EXHIBIT NO. 4
APPEAL FILED BY 350 HUMBOLDT
APPEAL NO. A-1-HUM-22-0063
(NORDIC AQUAFARMS)

CALIFORNIA COASTAL COMMISSION
NOR H COAS D S R C OFF CE
1385 E GH H S REE SU E 130
ARCA A CA 95521
(707) 826-8950
NOR HCOAS @COAS AL CA GOV

APPEAL FORM

Appeal of Local Government Coastal Development Permit

Filing Information (STAFF ONLY)

District Office: North Coast

Appeal Number: A-1-HUM-22-0063

Date Filed: 10-25-2022

Appellant Name(s): Daniel Chandler, 350 Humboldt

APPELLANTS

IMPORTANT. Before you complete and submit this appeal form to appeal a coastal development permit (CDP) decision of a local government with a certified local coastal program (LCP) to the California Coastal Commission, please review the appeal information sheet. The appeal information sheet describes who is eligible to appeal what types of local government CDP decisions, the proper grounds for appeal, and the procedures for submitting such appeals to the Commission. Appellants are responsible for submitting appeals that conform to the Commission law, including regulations. Appeals that do not conform may not be accepted. If you have any questions about any aspect of the appeal process, please contact staff in the Commission district office with jurisdiction over the area in question (see the Commission's contact page at https://coastal.ca.gov/contact/#/).

Note regarding emailed appeals. Please note that emailed appeals are accepted ONLY at the general email address for the Coastal Commission district office with jurisdiction over the local government in question. For the North Coast district office, the email address is NorthCoast@coastal.ca.gov. An appeal emailed to some other email address, including a different district's general email address or a staff email address, will be rejected. It is the appellant's responsibility to use the correct email address, and appellants are encouraged to contact Commission staff with any questions. For more information, see the Commission's contact page at https://coastal.ca.gov/contact/#/).

1. Appellant information[1]

Name: Daniel Chandler for 350 Humboldt

Mailing address: [redacted]

Phone number: [redacted]

Email address: dwchandl@gmail.com

How did you participate in the local CDP application and decision-making process?

☐ Did not participate ☑ Submitted comment ☑ Testified at hearing ☑ Other

Describe: Met with Nordic representatives, Humboldt County representatives, and the o organizations that appealed the Planning Commission decision to see if an agreement could be reached without going to the Board

If you did *not* participate in the local CDP application and decision-making process, please identify why you should be allowed to appeal anyway (e.g., if you did not participate because you were not properly noticed).

Describe:

Please identify how you exhausted all LCP CDP appeal processes or otherwise identify why you should be allowed to appeal (e.g., if the local government did not follow proper CDP notice and hearing procedures, or it charges a fee for local appellate CDP processes).

Describe: We exhausted all appeals processes, including a Board hearing for which we paid $1,674

[1] If there are multiple appellants, each appellant must provide their own contact and participation information. Please attach additional sheets as necessary.

2. Local CDP decision being appealed[2]

Local government name: Humboldt County

Local government approval body: Humboldt County Board of Supervisors

Local government CDP application number: File No. 1-HUM-20-1004

Local government CDP decision: ☑ CDP approval ☐ CDP denial[3]

Date of local government CDP decision: 9/28/2022

Please identify the location and description of the development that was approved or denied by the local government.

Describe: PLN-2020-16698 Nordic Aquafarms California, LLC, Attn: David Noyes

Location: APN 401-112-021; 364 Vance Ave, Samoa, CA

A Coastal Development Permit and Special Permit for demolition and remed

[2] Attach additional sheets as necessary to fully describe the local government CDP decision, including a description of the development that was the subject of the CDP application and decision.

[3] Very few local CDP denials are appealable, and those that are also require submittal of an appeal fee. Please see the appeal information sheet for more information.

3. Applicant information

Applicant name(s): Nordic Aquafarms Inc

Applicant Address: 511 Congress St. Suite 500
Portland, Maine 04101

4. Grounds for this appeal[4]

For appeals of a CDP approval, grounds for appeal are limited to allegations that the approved development does not conform to the LCP or to Coastal Act public access provisions. For appeals of a CDP denial, grounds for appeal are limited to allegations that the development conforms to the LCP and to Coastal Act public access provisions. Please clearly identify the ways in which the development meets or doesn't meet, as applicable, the LCP and Coastal Act provisions, with citations to specific provisions as much as possible. Appellants are encouraged to be concise, and to arrange their appeals by topic area and by individual policies.

Describe: Please see attachment where this is desribed in detail.

[4] Attach additional sheets as necessary to fully describe the grounds for appeal.

5. Identification of interested persons

On a separate page, please provide the names and contact information (i.e., mailing and email addresses) of all persons whom you know to be interested in the local CDP decision and/or the approved or denied development (e.g., other persons who participated in the local CDP application and decision making process, etc.), and check this box to acknowledge that you have done so.

☑ Interested persons identified and provided on a separate attached sheet

6. Appellant certification[5]

I attest that to the best of my knowledge, all information and facts in this appeal are correct and complete.

Print name DANIEL CHANDLER

Signature

Date of Signature 10/25/2022

7. Representative authorization[6]

While not required, you may identify others to represent you in the appeal process. If you do, they must have the power to bind you in all matters concerning the appeal. To do so, please complete the representative authorization form below and check this box to acknowledge that you have done so.

☐ I have authorized a representative, and I have provided authorization for them on the representative authorization form attached.

[5] If there are multiple appellants, each appellant must provide their own certification. Please attach additional sheets as necessary.

[6] If there are multiple appellants, each appellant must provide their own representative authorization form to identify others who represent them. Please attach additional sheets as necessary.

10/25/22

California Coastal Commission
North Coast District Office 1385 8th Street,
Suite 130 Arcata,
California 95521-5967
Per email: Melissa.Kraemer@coastal.ca.gov

Melissa Kraemer, North Coast District Manager

Dear Ms. Kraemer:

350 Humboldt is hereby filing an appeal to the California Coastal Commission regarding the Nordic Aquafarm project, described formally as:

Coastal Commission Application File No. 1-HUM-20-1004

> Local Permit #: Applicant(s): Description:
>
> PLN-2020-16698
> Nordic Aquafarms California, LLC, Attn: David Noyes
>
> A Coastal Development Permit and Special Permit for demolition and remediation of the Samoa Pulp Mill facility and construction of a land-based finfish recirculating aquaculture system (RAS) including development (through three phases, including the demolition and remediation phase) of five buildings totaling 766,530 square feet, installation of a 4.8 megawatt solar array mounted on building rooftops, and ancillary support features including paved parking, fire access roads, security fencing, storm water management features, and use of approximately 2.5 million gallons per day of freshwater and industrial water provided by the Humboldt Bay Municipal Water District.
>
> Location: APN 401-112-021; 364 Vance Ave, Samoa, CA

We originally intended to file this appeal after the approval of the project by the Humboldt County Planning Commission. We found that the Coastal Commission does indeed have authority over climate change, and therefore greenhouse gases, in the areas in which it is decisive:

> Human activity is contributing to global climate change, which will have increasingly significant impacts on California and its coastal environments and communities. The Coastal Act mandates the California Coastal Commission to “protect, conserve, restore, and enhance” the state’s coastal resources. As a result, the Commission must consider climate change,

> including global warming and potential sea level rise, through its planning, regulatory, and educational activities, and work to reduce greenhouse gas emissions and the detrimental impacts of global warming on our coast.[1]

And we readily found a case from February 2022 in which inadequate preparations for sea level rise (a consequence of climate change) and inadequate provisions for greenhouse gas offsets led to rejection of a desalinization plant by the Coastal Commission.[2]

However, when we read the appeal information sheet the Coastal Commission makes available, we found that while we met the formal grounds for being an appellant, and the project is appealable, the appeal grounds were very limited. Specifically "For appeals of a CDP approval, grounds for appeal are limited to allegations that the approved development does not conform to the LCP and/or to Coastal Act public access provisions."

After carefully reading the Local Coastal Plan for the Humboldt Bay area. We realized it did not contain a word about climate change, greenhouse gases, or sea level rise. So 350 Humboldt, along with the Humboldt Fishermen's Marketing Association, Inc., and the Redwood Region Audubon Society appealed to the Board of Supervisors. That appeal was denied, although two potentially important conditions were added.

While the Local Coastal Program does not specifically address climate change, greenhouse gases, or sea level rise, the county *has* received funding for a variety of studies of sea level rise. In 2022 the final report was submitted regarding *Natural Shoreline Infrastructure in Humboldt Bay for Intertidal Coastal Marsh Restoration and Transportation Corridor Protection.* Earlier it received funding for a study of *Sea Level Rise Adaptation Plan for Humboldt Bay/Eureka Slough Area (2018-2021).* Earlier reports focused on specific areas and considered vulnerabilities and adaptation plans as well as citing worldwide sea level rise projections due to climate change (and subsidence).[3] As early as 2014 we had a report entitled *Adaptation to Climate Change: District 1 Climate Change, Vulnerability Assessment and Pilot Studies. Final Report*.[4] On a webpage called Local Coastal Plan Update we hear that Humboldt County has received grant funding from the Ocean Protection Council and the California Coastal Commission to update the Humboldt Bay Area Plan for sea level rise.[5]

So we have a situation in which the County and multiple funding organizations have been studying and planning for sea level rise for at least eight years – yet the Local Coastal Program upon which we would have to base an appeal, has not been updated to set standards for greenhouse gases or sea level rise, or even to mention them. No doubt the local Planning Department is stretched far beyond available resources. However, we conclude that as members of the California public we have been deprived by the lack of an up to date LCP of an opportunity to appeal to the Coastal Commission issues (greenhouse gas emissions/effects on a project of sea level rise) that by law the Coastal Commission is intended to consider in protecting our coast.

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[1] https://www.coastal.ca.gov/climate/whyinvolved.html
[2] A-5-HNB-10-225/9-21-0488 (Poseidon Water)
[3]http://humboldtbay.org/sites/humboldtbay2.org/files/Humboldt%20Bay%20Shoreline%20Inventory%2C%20Mapping%20and%20SLR%20Vulnerability%20Assessment-A.Laird%20%281%29%20-%20Compressed.pdf
[4] https://humboldtgov.org/DocumentCenter/View/70095/Caltrans-District-1-Climate-Change-Vulnerability-Assessment---Main-Document
[5] https://humboldtgov.org/1678/Local-Coastal-Plan-Update

We see two possible courses of action the Coastal Commission could take (and recognize that there may be others):

1. The Coastal Commission could follow the clear mandate that it is authorized and expected to deal with climate change, which, of course, means attempting not just to adapt to it but – as shown by the Poseidon Water case – mitigate it by reducing or eliminating or offsetting greenhouse gas emissions. It is perhaps unnecessary to add that greenhouse gas emissions are a global cause of sea level rise and other significant environmental damage. Consequently, the Coastal Commission could accept our appeal which is based on the Nordic project's currently unrecognized and unmitigated release of upwards of 2 million metric tons of CO2e over the lifetime of the project.
2. Or, the Coastal Commission could delay hearing the Nordic case until the County remedies the clear deficiencies in the Local Coastal Program planning.

Stepping back, estimates of the social cost of a metric ton of carbon in 2030 run from $170 in Canada, to $185 in a new analysis from UC Berkeley, to $233 in Norway.[6] In this project, the costs are very directly borne by the Global South, as forage fish needed to feed people are instead transferred as fish feed to well-off Californians.

In a July 22 letter to Air Resources Board Chair Liane Randolph, Governor Newsom stated, "California is in the midst of a climate crisis. Drought, wildfire, and extreme heat have become everyday realities. We are compelled to do more."[7] In September the Governor also signed Senate Concurrent Resolution 53 (McGuire) into law which declared "that a climate emergency threatens the state, the nation, the planet, the natural world, and all of humanity."

Unfortunately, in its handling so far, this project justifies the statement by United Nations Secretary General that "We are sleepwalking toward climate catastrophe."[8]

Sincerely,

Daniel Chandler, Ph.D.
350 Humboldt Steering Committee
P.O. Box 231, Bayside, CA 95524
350Humboldt@gmail.com
707-601-6127

Cc: Governor Gavin Newsom, Senator Mike McGuire

[6] https://climateinstitute.ca/canadas-carbon-pricing-update/ ; https://www.rff.org/news/press-releases/social-cost-of-carbon-more-than-triple-the-current-federal-estimate-new-study-finds/; https://www.oecd-ilibrary.org/sites/59e71c13-en/index.html?itemId=/content/publication/59e71c13-en

[7] https://www.gov.ca.gov/wp-content/uploads/2022/07/07.22.2022-Governors-Letter-to-CARB.pdf?emrc=1054d6

[8] https://news.un.org/en/story/2022/03/1114322

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APPENDIX I: SCIENTIFIC STUDIES SHOWING THAT GROWING 25000 METRIC TONS OF ATLANTIC SALMON A YEAR WILL BE RESPONSIBLE FOR AT LEAST 55,00 TO 150,000 METRIC TONS OF GREENHOUSE GASES 10

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GREENHOUSE GASES FROM FISH FEED

Fish food for aquaculture is viewed by fish biologists as a major source of greenhouse gas emissions. Based on data from many different scientific studies that estimate the CO2 equivalent emitted by fish food for Atlantic Salmon, the average emissions at the Nordic aquafarm are likely to be 55,000 to 150,000 metric tons per year, at least two times the amount needed to meet a threshold of environmental significance under CEQA. We have included the findings of these studies as Appendix I. What we did not know when we summarized these scientific studies in our comments on the DEIR is how much the salmon farming industry as whole has adopted the scientific methods used in these studies. And this makes sense: the aquaculture industry compares itself favorably to other sources of protein like cattle and pigs. But these comparisons all use the life cycle assessment method that scientists apply to salmon farming.[1] (Similarly, the bivalve aquaculture we have in Humboldt Bay has a minimal footprint as the oysters get their nutrients from the water.) As an article on the website of feed manufacturer Cargill says, "Feed makes up the vast majority of fish farmers' carbon emissions, so companies like Cargill are under increasing pressure from customers, lenders and buyers at retail and foodservice to reduce their footprint."[2]

a. The major organization responsible for certifying quality in the land-based growth of Atlantic Salmon, the Aquaculture Stewardship Council (ASC), includes greenhouse gases as part of their certification and requires each aquafarm to do a greenhouse gas inventory each year. The inventory must document the greenhouse gases attributable to the fish food consumed. It also requires fish feed manufacturers to state on their product the greenhouse gases released in their manufacture. Here is the ASC statement to this effect as it applies to aquafarms such as the facility Nordic seeks to permit:[3]

   "GHG accounting for feed –

   [R]equires the calculation of the GHG emissions for the feed used during the prior production cycle at the grow-out site undergoing certification. This calculation requires farms to multiply the GHG emissions per unit of feed, provided to them by the feed manufacturer, by the amount of feed used on the farm during the production cycle. The feed manufacturer is responsible for calculating GHG emissions per unit feed....

   The scope of the study [by feed manufacturers ASC certifies] to determine GHG emissions should include the growing, harvesting, processing and transportation of raw materials (vegetable and marine raw materials) to the feed mill and processing at feed mill. Vitamins and trace elements can be excluded from the analysis. The method of allocation of GHG emissions linked to by-products must be specified. The study to determine GHG emissions can follow one of the following methodological approaches:

   1. A cradle-to-gate assessment, taking into account upstream inputs and the feed manufacturing process, according to the GHG Product Standard
   2. A Life Cycle Analysis following the ISO 14040 and 14044 requirements for life cycle assessments."

   These are the same methods used by the scientists cited in Appendix I.

b. One of the three biggest fish feed manufacturers, Cargill, notes that fish farming contributes 250 million metric tons of CO2e per year, and salmon contributes 10 million metric tons of CO2e per year. Cargill says: "Feed contributes significantly to the carbon footprint of seafood farming, and

[1] https://www.asf.ca/news-and-magazine/salmon-news/assessing-the-carbon-footprint-of-aquaculture

[2] https://www.intrafish.com/feed/i-want-to-see-results-cargill-aqua-nutrition-president-ramps-up-efforts-to-improve-feed-sustainability/2-1-1212928

[3] https://www.asc-aqua.org/wp-content/uploads/2019/12/ASC-Salmon-Standard_v1.3_Final.pdf

feed producers hold the key to achieving large emissions reductions throughout the value chain. Using that key to its full effect depends on seafood farmers and retailers sharing the same drive for sustainability."[4] Nordic, in its public relations materials, claims sustainability as a value but stated that the project would only be responsible for 10,000 metric tons of CO2e over 30 years, none from fish feed.

c. *To summarize: ASC, the certification agency for aquafarms like Nordic, requires food manufacturers to calculate GHG emissions using the methods that fish biologists use; and ASC requires the aquafarms themselves to count these feed emissions in the GHG emissions inventory they are required to report to ASC. So all three components of the industry are on the same page with how to calculate greenhouse gases from fish food. Nordic will be reporting every year to the ASC the greenhouse gases attributable to their fish feed and thus to their fish.*

d. Planning Commission members received incorrect information on this issue. Staff member Cade MacNamara said the following: "Nordic aspires to be certified through ASC. The ASC requires that feed mills report greenhouse gases. This is not a requirement for feed purchasers." This is a false statement and misled the Planning Commission. Below are quotations from the standard. (The entire standard is included as Appendix II to this document.) The quotations clearly indicate the farm itself must calculate and report as their own the greenhouse gases from the fish feed:

Criterion 4.6 Energy consumption and greenhouse gas emissions on farms[84]

INDICATOR	REQUIREMENT
4.6.1 Presence of an energy use assessment verifying the energy consumption on the farm and representing the whole life cycle at sea, as outlined in Appendix V-1	Yes, measured in kilojoule/t fish produced/production cycle
4.6.2 Records of greenhouse gas (GHG[85]) emissions[86] on farm and evidence of an annual GHG assessment, as outlined in Appendix V-1	Yes
4.6.3 Documentation of GHG emissions of the feed[87] used during the previous production cycle, as outlined in Appendix V, subsection 2	Yes

Notice that the title is greenhouse gas emissions "on farms". What does this entail? "Feed manufacturer is responsible for calculating GHG emissions per unit feed. Farm site then shall use that information to calculate GHG emissions for the volume of feed they used in the prior production cycle."

Aside from the fact that aquacultural scientists and aquaculture certification agencies use a method that links the greenhouse gases to the fish grown from minuscule eggs to fish weighing several kilograms, the ASC approach makes sense because the farm can determine the emissions attributable to their fish by their choice of fish feed.

e. We used the "sustainability reports" that fish food manufacturers Skretting[6] and Cargill[7] produce annually to calculate what the Nordic aquafarm greenhouse gas emissions would be. On their website, Skretting lists the values for the tons of CO2e per ton of feed in their four Canadian and four Norwegian factories: they range from 2.05 at a minimum to 5.28 for the maximum (t CO2e/t feed).[8] Cargill, instead of providing figures for different factories, provides an average for salmon fish food of 2.67t CO2e/t of feed.[9] We can calculate the greenhouse gas emissions if we know how much fish food will be used. The Staff Report to the Planning Commission says: "At full scale operations, NAFC expects to use approximately 36,300 metric tons of feed per year." To get the range of fish feed greenhouse gases attributable to Nordic at full build-out using Skretting's data, we multiply respectively the 2.05 and the 5.28 of CO2e t/t of fish food by the 36,300 tons of fish food. For the

low figure it is 74,415 and for the high figure it is 191,664. For Cargill's factory average it is 2.67 times 36,300 or 96,921 metric tons of greenhouse gases per year.

f. These are huge figures. For illustration, the EPA emissions calculator says 191,000 metric tons of CO2 is equal to burning 443,810 barrels of oil per year.[10]
g. The applicant must show how they will offset these emissions.

REFRIGERANTS

a. Emissions from commonly used refrigerants warm the atmosphere from a few hundred times more than CO2 itself to thousands of times more.
b. Nordic plans to use 25% of their electric power (which in total is equal to all that used by Eureka and Fortuna combined) for refrigeration.[11] They will use refrigerants to make the ice that they pack the fish in for shipping, and they will use refrigerants in "chillers" that will keep the water cool enough for the fish. The DEIR also says: "Use of water to water-heat exchangers and heat pumps will be maximized to reduce energy demands." Heat pumps also use refrigerants.
c. In negotiations with Marianne Naess of Nordic, we were told many times that they cannot specify the actual refrigerants and the global warming potential of each because their design team hasn't designed the system. In short, instead of describing the potential greenhouse gas emissions from refrigerants they say they don't know what they are. The FEIR, however, says they are not required to specify the greenhouse gas emissions because they will follow the law. Is there any other source of greenhouse gas emissions that this would be an acceptable answer for? They follow the law in transporting the fish to market in legal trucks, but that doesn't mean they don't have to count the truck emissions. In fact, the relevant CEQA standard is "Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?" The answer is we don't know because the data are not available.
d. In emails to Marianne Naess we asked that Nordic commit to using natural refrigerants. These are refrigerants that have a minimal effect on the climate. There is refrigeration equipment that uses natural refrigerants for chillers, heat pumps and virtually every other heating or cooling use. Nordic refused to commit to this. We believe it should be a condition of any permit.
e. We asked for information that would allow us to judge how much refrigerants with a high global warming potential they will use.

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[6] https://www.cargill.com/doc/1432196768685/cargill-aqua-nutrition-sustainability-report-2020.pdf; https://www.skretting.com/en/sustainability/sustainability-reporting/sustainability-report-2020/

[7] https://www.skretting.com/en/sustainability/sustainability-reporting/sustainability-report-2020/climate--circularity/the-carbon-footprint-of-feed/

[8] https://www.skretting.com/en/sustainability/sustainability-reporting/sustainability-report-2020/climate--circularity/the-carbon-footprint-of-feed/

[9] https://www.cargill.com/doc/1432196768685/cargill-aqua-nutrition-sustainability-report-2020.pdf

[10] https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#results

[11] See the graph on page 3.5-4 of the DEIR

(The California regulation going into effect in 2025 will allow them to use HFC refrigerants for chillers with up to 2,200 times more global warming potential than CO2; right now there are no limits). Namely, what do they use in their Norwegian factory? This is actually easy to provide and highly relevant because they plan to use a number of modular tanks that are similar to the much smaller Norwegian factory. However, Nordic refused to provide this information. It should not be proprietary information. We contacted the DeepChill company in Canada that works with RAS facilities. They said they use R 404A, which warms 3,922 times as much as CO2; they also use a lower GWP substitute for R404A called R448A which warms 1,386 times as much as CO2; and they use R770 which is ammonia, a natural refrigerant with zero warming effects.

f. Refrigeration is a technology that can go drastically wrong with huge emissions consequences. The following quotation is from the shareholder statement of Atlantic Sapphire's RAS facility in Florida: "The increase [in costs] is mainly explained by the $11 million in temporary chiller and generator rental costs in the U.S. following the breakdown of the chiller plant…in Q1 2021." So chillers have not yet been proven to work in a facility less than half the size of what Nordic proposes.
g. In summary, information about the project does not meet any reasonable standard *to identify and describe the potentially significant impacts of refrigerants on greenhouse gas emissions. At the same time,* Nordic has refused to adopt the easily available mitigation measure of using very low global warming potential refrigerants, which are readily available.

SOURCES OF GREENHOUSE GASES FROM RENEWABLE ELECTRIC POWER

a. Nordic has committed to either buy its electricity from RCEA or buying renewable or low carbon electricity from another provider, presumably a solar provider outside the county. As a result the final EIR incorrectly states: "A more appropriate carbon intensity factor would be zero pounds of carbon dioxide equivalent per megawatt hour (0 lbs. CO_2e/MWh)."
b. We are very appreciative that Nordic has decided to go with renewable energy. However it will *not* be zero emissions from power, not even close.
    i. The major source of emissions from power that is unrecognized by Nordic is due to the intermittency of renewable power. Even if one buys 195 gigawatt hours of solar every year, that doesn't mean that 24/7 the Nordic facility will be powered by solar.[12] "24/7 Carbon-free Energy (CFE) means that every kilowatt-hour of electricity consumption is met with carbon-free electricity sources, every hour of every day, everywhere."[13] The United Nations has a 24/7 Energy Compact that lays out the principles of such energy systems. Microsoft and Google are two of the firms that have signed on. Below is an extensive quotation from a white paper [4] from the Peninsula Clean Energy CCA (the Silicon Valley equivalent of RCEA). Peninsula

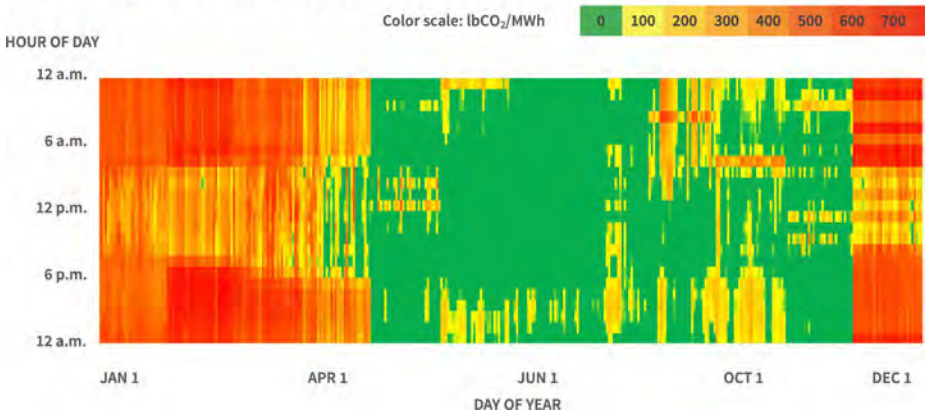
[12] A very understandable explanation of this issue has been written by David Roberts at: https://www.canarymedia.com/articles/clean-energy/google-and-others-have-committed-to-24-7-carbon-free-energy-what-does-that-mean Nordic will have a constant demand, but the supply of renewable energy, including from storage, will vary across the 24 hours.
[13] UN 24/7 Carbon Free Energy Compact. https://www.un.org/en/energy-compacts/page/compact-247-carbon-free-energy
[14] https://www.peninsulacleanenergy.com/wp-content/uploads/2021/11/Whitepaper-OUR-PATH-TO-247-RENEWABLE-ENERGY-BY-2025.pdf We have removed the footnotes for clarity. See the original for those.

Clean Energy intends to deliver 24/7 renewable power by 2025. The white paper explains and shows graphically why annual purchases of renewable energy such as Nordic proposes do not reflect actual reductions in carbon emissions, especially for facilities running 24/7 all year around. The quotation is shown in blue type.

> [In 2018] Google described its vision of a 24/7 carbon-free goal for their data centers and campuses, and in 2020 set a goal to achieve this by 2030. Cities such as Los Angeles, Sacramento, and Des Moines have now set similar goals, and researchers at RMI (formerly Rocky Mountain Institute) and Princeton have begun studying the trend. Earlier this year, the United Nations started building a global coalition for 24/7 carbon free energy….
>
> To better understand what it means for Peninsula Clean Energy to deliver renewable energy to our customers, it is first necessary to explain generally how the electric grid works. In physical terms, the electric grid is a system of wires that transmits and distributes electricity throughout the state, connecting our customers with the renewable energy generators under contract with us. As an analogy, it can be helpful to think of the electricity grid as a river. Just as streams and tributaries add their water flow to larger rivers, power plants throughout California add their energy to the electricity grid. Just as downstream customers can draw water from the river to use in their homes and businesses, our customers consume energy from the grid. The key point of this analogy is that just as it is impossible to track the source of a single molecule of water drawn from a river, it is similarly impossible to track exactly where each electron you consume comes from.
>
> The electricity that we deliver to customers is therefore tracked based on contractual terms, rather than physical terms. We know how much metered energy our contracted generators deliver to the grid, and we make sure that it is the same amount of metered energy that our customers use. While in contractual terms we currently deliver a specific mix of renewable and carbon-free electricity to our consumers, the physics of the power grid means that everyone consumes a mix of electrons from both the carbon-free and fossil-based resources that deliver energy to the grid.
>
> In addition, the timescale that we use to track our contractual renewable energy deliveries matters.
>
> California's current regulatory standards for procuring and reporting clean electricity, such as the Renewables Portfolio Standard and Power Source Disclosure program, are tracked on an annual basis. We count how many megawatt-hours (MWh) of electricity our contracted generators produce in a year and match that to the number of MWh that our customers consume in a year. This annual accounting framework is how we are required to report our procurement to the state and report in our Power Content Label sent to our customers.
>
> However, this annual accounting standard ignores whether our contracted generators produce electricity at the same time our customers use it. At certain hours, our contracts generate less clean energy than our customers are using. During those times, we must rely on generic grid electricity (most of which in California comes from methane gas power plants) to make up the difference. In other hours, our contracts

generate more clean energy than our customers use. Under the current standards, we can "credit" this excess clean generation to the hours when we rely on fossil-based grid energy and net out our grid energy use on an annual basis. While the excess renewable generation we contribute to the grid in some hours generally displays fossil generation, we continue to send a demand signal for fossil-based energy in those hours when our clean energy contracts do not match the timing of our customers' energy demand (see figure 1).

FIGURE 1. Hour-by-hour emissions intensity for 2020



This is why a 24/7 renewable energy approach, which matches renewable energy supply with demand on an hour-by-hour basis, is so important for the success of our state and global decarbonization goals. It enables us to help eliminate the demand signal for fossil-based electricity from the grid that our customers' electricity consumption presently provides at the times when our contracted renewable generation does not match our load.

As of 2020, based on the annual accounting standard, Peninsula Clean Energy delivered 52% renewable energy and 47% large hydro to our customers. Our delivered electricity had a GHG emissions intensity of 12 lbCO2e/MWh, compared to the California utility average of 466 lbCO2e/MWh.

Also as of 2020, 47% of our hourly load was matched by contracted renewable energy generated in the same hour. Using an hourly, time-coincident accounting method, we estimate that the GHG emission intensity of our delivered electricity was closer to 187 lbCO2/MWh than 12 lbCO2e/MWh.

Based on contracts signed to date, we are currently on track to be 64% renewable on a time-coincident basis in 2025, and we are actively working to plan and procure the remaining 36% by that year. [End Quote]

So rather than zero the actual amount of CO2e released by the Nordic facility from energy usage will be far higher. [5] Peninsula's actual hourly carbon intensity is 15 times the amount

[15] A competitor in Norway, Sustainable Evolution, is backed by Cargill and a giant Korean food corporation to the tune of over $300 million. It has just signed an agreement with a state run Norwegian power company for 100%

shown with annual accounting. Based on Peninsula's information, buying renewable energy with annual accounting results in about half of the hourly use actually coming from natural gas (because 47% of their hourly load was matched by contracted renewable energy generated in the same hour). Since according to the EPA fossil "natural" gas in power plants emits 898 pounds CO2 per megawatt-hour[16] and there are 1000 megawatt-hours in a gigawatt hour, Nordic's actual emissions (absent mitigation) will be approximately 97.5 x 1000 x 898 or 87,555,000 pounds of CO2 which is equivalent to 39,714 metric tons of CO2 annually.[17]

ii. The discrepancy between annual and 24/7 emissions accounting will decline in Humboldt over time; for example, when (and if) offshore wind produces renewable energy at night and during the winter. While RCEA has no specific plans to adopt 24/7 accounting the way Peninsula is, the RCEA Board has passed an authorization that would allow a specific contract with Nordic or other large user of electricity to purchase only renewable power to the extent possible.[18] As shown above, there is a limit to how much such a contract (like Peninsula has with Google) reduces emissions at this time. Again, Nordic must provide a plan for how it will offset these emissions.

TRANSPORTATION GREENHOUSE GASES

a. The Coastal Commission has the authority to regulate greenhouse gases due to transportation. [Energy consumption and vehicle miles traveled are addressed in section 30253: "New development shall: …(4) Minimize energy consumption and vehicle miles traveled."]
b. Greenhouse gases attributable to transportation in the Nordic Project were estimated by the EIR. It projects 2,268,907 vehicle miles traveled (VMT) in 2029, most of which is driving loaded trucks (1,693,068). The EIR estimates these trips will emit 2,371 metric tons of CO2e. The modeling tool is obviously the wrong one since the analysts had to fudge the data inputs, using multiple short trips instead of the actual long trips. In fact, data-based estimates about trip length were not used in the EIR: "Annual VMT data was provided for short-hauling and long-hauling trips for GHG emissions analysis; detailed hauling data, such as specific destinations or trip routes was not provided. Specific trip lengths (such as minimum, maximum, average, or distribution) for short- hauling and long-hauling were not known."[19] In short, the EIR does not contain an independent or accurate estimate of VMT.

   We redid the 2029 greenhouse gas emissions based on the Nordic-provided but unverified VMT using a formula from a manual for green trucking.[20] (We did not change the estimate for passenger vehicles going to and from work.) We first had to know roughly the tonnage of each truck load.

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renewable power. This is "actual" renewable since it is hydropower and runs night and day. https://www.intrafish.com/salmon/land-based-salmon-farmer-salmon-evolution-signs-deal-for-100-percent-renewable-energy/2-1-1133585

[16] EPA's Emissions and Generation Resource Integrated Database (eGRID), released in 2018 with 2016 data, shows that at the national level, natural gas units have an average emission rate of 898 pounds CO2 per megawatt-hour (MWh), while coal units have an emissions rate of 2,180 pounds CO2 per MWh https://www.epa.gov/sites/default/files/2020-12/documents/power_plants_2017_industrial_profile_updated_2020.pdf

[17] Calculations from EPA Calculator: https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#results

[18] Personal communication.

[19] FEIR 2-19

[20] This calculator was developed by scientists at the Environmental Defense Fund for both sea and truck transport: https://storage.googleapis.com/scsc/Green%20Freight/EDF-Green-Freight-Handbook.pdf

The DEIR does include this for the fish food: 19 metric tons per truckload. Fish on ice, being more dense, might weigh more, so we used 20 metric tons as the tonnage. With 20 tons, the CO2 emitted is 161.8 grams of CO2/ton-mile.[21] To get the ton miles we multiply 20 by the 1,693,068 truck VMT in a year or 33,861,360 ton miles. Multiplying the emissions factor by the ton miles,[22] we get 5,479 metric tons emitted by the trucks per year; then we add the 152.7 metric tons for passenger vehicles, yielding a total of 5,631 metric tons of CO2 per year from vehicle traffic. This is 2.4 times the FEIR estimate from their inappropriate modeling software and certainly justifies using electric or hydrogen trucks as a mitigation measure.

[21] Ibid.
[22] There are 1,000,000 grams in a metric ton. We divided the ton miles by one million and multiplied by the emissions factor of 161.8.
[23] https://nepis.epa.gov/Exe/ZyPDF.cgi/P1013TIJ.PDF?Dockey=P1013TIJ.PDF

APPENDIX I: SCIENTIFIC STUDIES SHOWING THAT GROWING 25000 METRIC TONS OF ATLANTIC SALMON A YEAR WILL BE RESPONSIBLE FOR AT LEAST 55,00 TO 150,000 METRIC TONS OF GREENHOUSE GASES

Scientists consistently state that lifecycle analysis (LCA) *is* required for understanding the effects of aquaculture.[24] The life cycle assessment of aquaculture is the method used by the IPCC[25] and all scientific studies of greenhouse gasses and aquaculture. It makes possible the comparison of aquaculture using different methods (a pen in the ocean vs. a land-based system, for example) and the comparison of emissions from different species of fish; it also allows comparison of aquaculture to raising cattle or chickens or catching wild fish. An explanation of why and how this method is used is available in *Nature: Scientific Reports* in 2020.[26]

It is impossible to analyze the cumulative effects of the project on climate change over the 30 years or more the facility operates, as required by CEQA, without including energy the CO2e emissions attributable to the fish food to be used in large quantities over the life of the project.

In a 2009 article on global aquaculture, production of fish food drove 93% of energy use and 95% of greenhouse gas emissions.[27] Because the use of wild fish products in feed has declined considerably and because open pen aquaculture uses less electricity, the balance between food production and electricity has changed. But they are still the two major sources of greenhouse gas emissions associated with aquaculture.

For understanding the Nordic facility, we need studies that focus on land-based closed containment recirculating aquaculture systems (LBCC-RAS), which is how the proposed Nordic facility is classified.[28] A few of these kind of studied are reported below:

- A 2016 study compared a hypothetical RAS facility in the United States with an open pen design in Norway.[29] Exclusive of transportation costs, the LBCC-RAS-produced salmon has a carbon footprint that is double that of the open pen-produced salmon, 7.01 versus 3.39 kg

[24] Cao, Ling, James S. Diana, and Gregory A. Keoleian. "Role of life cycle assessment in sustainable aquaculture." *Reviews in Aquaculture* 5, no. 2 (2013): 61-71. ["Life cycle assessment (LCA) has become the leading tool for identifying key environmental impacts of seafood production systems."; Bartley, Devin M., Cecile Brugere, Doris Soto, Pierre Gerber, and Brian Harvey. *Comparative assessment of the environmental costs of aquaculture and other food production sectors: Methods for meaningful comparisons: FAO/WFT Experts workshop 24-28 Apr 2006 Vancouver, Canada*. FAO, Roma (Italia)., 2007. [See the chart from this paper with pros and cons of different methods. It is attached.]

[25] IPCC 2013 100a in IPCC, 2013: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 1535 pp, doi:10.1017/CBO9781107415324.

[26] MacLeod, Michael J., Mohammad R. Hasan, David HF Robb, and Mohammad Mamun-Ur-Rashid. "Quantifying greenhouse gas emissions from global aquaculture." Scientific reports 10, no. 1 (2020): 1-8.

[27] Pelletier, Nathan, Peter Tyedmers, Ulf Sonesson, Astrid Scholz, Friederike Ziegler, Anna Flysjo, Sarah Kruse, Beatriz Cancino, and Howard Silverman. "Not all salmon are created equal: life cycle assessment (LCA) of global salmon farming systems." (2009): 8730-8736.

[28] DEIR 2-1

[29] Liu, Yajie, Trond W. Rosten, Kristian Henriksen, Erik Skontorp Hognes, Steve Summerfelt, and Brian Vinci. "Comparative economic performance and carbon footprint of two farming models for producing Atlantic salmon (Salmo salar): Land-based closed containment system in freshwater and open net pen in seawater." Aquacultural Engineering 71 (2016): 1-12.

CO_2e/kg salmon live-weight, respectively.[30] The 7.41 kg CO_2e/kg salmon, when translated to the 25,000 - 27,000 metric tons of salmon production annually planned by Nordic, would equate to 185,250 - 200,070 MT CO2e/yr. If we assume, as the authors of this study did, that alternatively 90% renewable energy is available, then the kg CO_2e/kg salmon went to 4.1, which for Nordic translates to 102,500 - 110,700 MT CO2e/yr.

- A second LCA study, of a land-based RAS, was done in China by Norwegian, Swedish and Chinese researchers in 2019.[3] It is also far smaller than the Nordic facility since only 29,000 fish at 5kg each were produced in a year: 145 metric tons rather than 25,000. However, it is an operating version of a land based Atlantic Salmon RAS. We are hampered in assessing the proposed Nordic facility in that no facility of its type and size exists anywhere in the world. The energy source in China was 65% coal and 35% renewables, so it was more carbon intensive than the Nordic facility is likely to be unless Nordic contracts directly for biomass power. Electricity use and fish feed dominated eight of the environmental effects assessed by the study, including greenhouse gasses. For greenhouse gasses, electricity was the cause of 45% and fish food 30% of emissions. The total CO2e emissions were 16.747 kg per kg of salmon, or CO2e of 418,675 – 452,169 MT CO2e/yr for Nordic's proposed project.

- For comparison with LBCC-RAS, we present results from a life-cycle analysis for a Canadian open pen Atlantic Salmon facility. Using IPCC methodology, one kg of salmon contributed to 2.26 kg CO_2e of GWP. Agricultural feed components include by-product poultry meal, wheat, corn gluten meal, canola seed and meal, canola oil, and soy meal, while marine-based ingredients include fish meal, by-product fish meal and oil, fish oil, and menhaden oil. Agricultural products lead impacts in GWP, acidification, eutrophication, and ecotoxicity, while impacts are more evenly distributed in ozone depletion and smog. Using the 25,000 – 27,000 metric ton annual production of the Nordic facility at buildout, this would be 56,500 to 61,020 MT CO2e emitted indirectly annually. It is attributable primarily to the feed because open pen facilities are much less electricity intensive — and so constitutes a minimum estimate.[32]

- In 2019,[33] a meta-analysis of LCA studies on salmonids (a much broader category than Atlantic Salmon) was performed with important conclusions both about LCA results and limitations of the method. Twenty four studies were found, nine dealing with Atlantic Salmon. The 24 studies were grouped into Open or Closed and Land vs Sea-based, forming

[30] An earlier LCA study found a huge discrepancy in CO2e produced per ton of fish between open pen (2,073) and a closed circulation land based facility like the proposed Nordic design (28, 200). Ayer, Nathan W., and Peter H. Tyedmers. "Assessing alternative aquaculture technologies: life cycle assessment of salmonid culture systems in Canada." Journal of Cleaner production 17, no. 3 (2009): 362-373.

[31] Song, Xingqiang, Ying Liu, Johan Berg Pettersen, Miguel Brandão, Xiaona Ma, Stian Røberg, and Björn Frostell. "Life cycle assessment of recirculating aquaculture systems: A case of Atlantic salmon farming in China." Journal of Industrial Ecology 23, no. 5 (2019): 1077-1086.

"Results showed that 1 tonne live-weight salmon production required 7,509 kWh farm· level electricity and generated 16.7 tonnes of CO_2 equivalent (eq), 106 kg of SO_2 eq, 2.4 kg of P eq, and 108 kg of N eq (cradle-to-farm gate). In particular, farm-level electricity use and feed product were identified as primary contributors to eight of nine impact categories assessed (54-95% in total)…."

[32] Sherry, Jesse, and Jennifer Koester. "Life Cycle Assessment of Aquaculture Stewardship Council Certified Atlantic Salmon (Salmo salar)." Sustainability 12, no. 15 (2020): 6079.

[33] Philis, Gaspard, Friederike Ziegler, Lars Christian Gansel, Mona Dverdal Jansen, Erik Olav Gracey, and Anne Stene. "Comparing life cycle assessment (LCA) of salmonid aquaculture production systems: status and perspectives." Sustainability 11, no. 9 (2019): 2517.

four groups. Differences by production grouping are more important than differences by the fish type. The GHG impacts of land based recirculating systems are higher than other models. The three studies we presented above are in line with the averages shown in Figure 1 in the Appendix, with the LBCC-RAS studies showing in yellow. For 25,000 metric tons of fish from Nordic the metric tons of CO2eq would be 150,000 if we use the average.

The EIR does not discuss the greenhouse gas impacts of the food and give us a range based on what percentages of different types of ingredients might be used. It commits fairly strongly to environmental safety, but ignores the carbon footprint of the food. If the standard for an EIR is a "reasonable" expectation of impact, then this EIR is clearly insufficient since it fails to describe one of the two largest contributors to greenhouse gasses from the facility.

ASC certification requires reporting of greenhouse gases, but does not in itself limit them. A 2020 study open pen study examined, using life cycle assessments, the "the environmental impacts of salmon raised to Aquaculture Stewardship Council (ASC) certification standards in order to determine if ASC certification achieves the intended reductions in [environmental] impact." It found:

> We find that environmental impacts, such as global warming potential, do not decrease with certification. We also find that salmon feed, in contrast to the on-site aquaculture practices, dominates the environmental impacts of salmon aquaculture and contributes to over 80% of impacts in ozone depletion, global warming potential, acidification, and ecotoxicity.[34]

There have been recent studies on the GHG impact of fish food that actually test the commercially available feed products. A 2021 study in the Nature journal Scientific Reports says: "Importantly, we have used recent commercial feed formulations for the main species groups and geographic regions, thereby providing a more up to date and detailed analysis than is generally provided in academic literature."[35] To assess the impact of the commercial feed they used a standard model from the Food and Agriculture Organization of the United Nations (FAO).[36] The article is designed to compare aquaculture to other livestock.

> Production of crop feed materials (the green segments of Fig. 2) accounted for 39% of total aquaculture emissions. When the emissions arising from fishmeal production, feed blending and transport are added, feed production accounts for 57% of emissions…. For most of the finfish, the EI [Emissions intensity] lies between 4 and 6 kgCO2e/kg CW (carcass weight, i.e. per kg of edible flesh) at the farm gate….[T]he carnivorous salmonids have more emissions associated with fishmeal and higher crop land use change (LUC) emissions (arising from soybean production), reflecting their higher protein rations.[37]

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[34] Sherry, Jesse, and Jennifer Koester. "Life Cycle Assessment of Aquaculture Stewardship Council Certified Atlantic Salmon (Salmo salar)." Sustainability 12, no. 15 (2020): 6079. Our italics.

[35] MacLeod, Michael J., Mohammad R. Hasan, David HF Robb, and Mohammad Mamun-Ur-Rashid. "Quantifying greenhouse gas emissions from global aquaculture." Scientific reports 10, no. 1 (2020): 1-8.

[36] FAO.GlobalLivestockEnvironmentalAssessmentModel(GLEAM)109(FAO,Rome,2017)www fao.org/gleam/en/.

[37] MacLeod, op cit.

With the production amount from Nordic and the energy intensity found in the above study, the range in GHG emissions annually would be between 100,000 and 162,000 MT CO2e.

APPENDIX II. AQUACULTURE STEWARDSHIP COUNCIL STANDARDS FOR ATLANTIC SALMON GREENHOUSE GAS REPORTING

Aquaculture Stewardship Council Standards for Farms and Fish Feed Manufacturers

The standards are found at: https://www.asc-aqua.org/wp-content/uploads/2019/12/ASC-Salmon-Standard_v1.3_Final.pdf

Criterion 4.6 Energy consumption and greenhouse gas emissions on farms[84]

INDICATOR	REQUIREMENT
4.6.1 Presence of an energy use assessment verifying the energy consumption on the farm and representing the whole life cycle at sea, as outlined in Appendix V-1	Yes, measured in kilojoule/t fish produced/production cycle
4.6.2 Records of greenhouse gas (GHG[85]) emissions[86] on farm and evidence of an annual GHG assessment, as outlined in Appendix V-1	Yes
4.6.3 Documentation of GHG emissions of the feed[87] used during the previous production cycle, as outlined in Appendix V, subsection 2	Yes

Rationale - Climate change represents perhaps the biggest environmental challenge facing current and future generations. Because of this, energy consumption used in food production has become a source of major public concern. The ASC Salmon Standard recognizes the importance of efficient and sustainable energy use. Therefore, these indicators will require that energy consumption in the production of fish should be monitored on a continual basis and that growers should develop means to improve efficiency and reduce consumption of energy sources, particularly those that are limited or carbon-based. The data collected in this process will help the ASC Salmon Standard set a meaningful numerical requirement for energy use in the future. Energy assessments are a new area for producers. Requiring that farms do these assessments will likely raise awareness of the issues related to energy and build support for adding a requirement in the future related to the maximum energy of GHG emissions allowed.

[84] See Appendix VI for transparency requirements for 4.6.1, 4.6.2 and 4.6.3.
[85] For the purposes of this standard, GHGs are defined as the six gases listed in the Kyoto Protocol: carbon dioxide (CO2);
methane (CH4); nitrous oxide (N2O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride (SF6).
[86] GHG emissions must be recorded using recognised methods, standards and records as outlined in

Appendix V.

[87] GHG emissions from feed can be given based on the average raw material composition used to produce the salmon (by weight) and not as documentation linked to each single product used during the production cycle. Feed manufacturer is responsible for calculating GHG emissions per unit feed. Farm site then shall use that information to calculate GHG emissions for the volume of feed they used in the prior production cycle

Appendix V-1. Energy use assessment and GHG accounting for farms

The ASC encourages companies to integrate energy use assessments and GHG accounting into their policies and procedures across the board in the company. However, this requirement only requires that operational energy use and GHG assessments have been done for the farm sites that are applying for certification.

Assessments shall follow either the GHG Protocol Corporate Standard or ISO 14064-1 (references below). These are the commonly accepted international requirements, and they are largely consistent with one another. Both are also high level enough not to be prescriptive and they allow companies some flexibility in determining the best approach for calculating emissions for their operations.

If a company wants to go beyond the requirement of the ASC Salmon Standard and conduct this assessment for their entire company, then the full protocols are applicable. If the assessment is being done only on sites that are being certified, the farms shall follow the GHG Protocol Corporate Standard and/or ISO 14064-1 requirements pertaining to:

- Accounting principles of relevance, completeness, transparency, consistency and accuracy
- Setting operational boundaries
- Tracking emissions over time
- Report ng GHG em ss ons

Regarding the operational boundaries, farm sites shall include in the assessment:

• Scope 1 emissions, which are emissions that come directly from a source that is either owned or controlled by the farm/facility.
o For example, if the farm has a diesel generator, this will generate Scope 1 emissions. So will a farm-owned/-operated truck.
• Scope 2 emissions, which are emissions resulting from the generation of purchased electricity, heating, or cooling.

Quantification of emissions is done by multiplying activity data (e.g. quantity of fuel or kwh consumed) by an emission factor (e.g. CO2/kwh). For non-CO2 gases, you then need to multiply by a Global Warming Potential (GWP) to convert non-CO2 gases into the CO2-equivalent. Neither the GHG Protocol nor the ISO require specific approaches to quantifying emissions, so the ASC Salmon Standard provides the following additional information on the quantification of emissions:

- Farms shall clearly document the emission factors they use and the source of the emission factors. Recommended sources include the Intergovernmental Panel on Climate Change (IPCC) or factors provided by national government agencies such as the United States

Environmental Protection Agency (USEPA). Companies shall survey available emission factors and select the one that is most accurate for their situation, and transparently report their selection.

Appendix V-2. GHG accounting for feed

The requirement requires the calculation of the GHG emissions for the feed used during the prior production cycle at the grow-out site undergoing certification. This calculation requires farms to multiply the GHG emissions per unit of feed, provided to them by the feed manufacturer, by the amount of feed used on the farm during the production cycle.

The feed manufacturer is responsible for calculating GHG emissions per unit feed. GHG emissions from feed can be calculated based on the average raw material composition used to produce the salmon (by weight) and not as documentation linked to each single product used during the production cycle.

The scope of the study to determine GHG emissions should include the growing, harvesting, processing and transportation of raw materials (vegetable and marine raw materials) to the feed mill and processing at feed mill. Vitamins and trace elements can be excluded from the analysis. The method of allocation of GHG emissions linked to by-products must be specified.

The study to determine GHG emissions can follow one of the following methodological approaches:

1. A cradle-to-gate assessment, taking into account upstream inputs and the feed manufacturing process, according to the GHG Product Standard
2. A Life Cycle Analysis following the ISO 14040 and 14044 requirements for life cycle assessments

Should the feed manufacturer choose to do a cradle-to-gate assessment:

1. It shall incorporate the first three phases from the methodology, covering materials acquisition and processing, production, and product distribution and storage (everything upstream and the feed manufacturing process itself).

Should the manufacturer follow the ISO 14040 and 14044 requirements for Life Cycle Assessment:

1. Feed manufacturers may follow either an ISO-compliant life cycle assessment methodology or the GHG Protocol product standard.

Regardless of which methodology is chosen, feed manufacturers shall include in the assessment

- Scope 1 emissions, which are emissions that come directly from a source that is either owned or controlled by the farm/facility.
- Scope 2 emissions, which are emissions resulting from the generation of purchased electricity, heating or cooling.
- Scope 3 emissions, which are emissions resulting from upstream inputs and other indirect emissions, such as the extraction and production of purchased materials, following the Scope 3 standard.

Quantification of emissions is done by multiplying activity data (e.g. quantity of fuel or kwh consumed) by an emission factor (e.g. CO2/kwh). For non-CO2 gases, you then need to multiply by a Global Warming Potential (GWP) to convert non-CO2 gases into CO2-equivalent. The ASC Salmon Standard provides the following additional information on the quantification of emissions:

- Farms shall clearly document the emission factors they use and the source of the emission factors. Recommended sources include the IPCC or factors provided by national government agencies, such as the USEPA. Companies shall survey available emission factors and select the one that is most accurate for their situation, and transparently report their selection.
- Farms shall clearly document the GWPs that they use and the source of those GWPs. Recommended sources include the IPCC 2nd Assessment Report, on which the Kyoto Protocol and related policies are based, or more recent Assessment Reports.

References:
- GHG Product Standard: http://www.ghgprotocol.org/product-standard
- ISO 14044 available for download (with fee) at:
http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=38498
- Some information on ISO 14064-1 is at: http://www.iso.org/iso/pressrelease.htm?refid=Ref994
- IPCC 2nd Assessment Report: http://www.
- All IPCC Assessment Reports:
http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml#1

From:	Scott Frazer
To:	NorthCoast@Coastal
Cc:	Scott Frazer
Subject:	Nordic RAS/Humboldt Co. CDP approval APPEAL
Date:	Thursday, October 27, 2022 4:31:07 PM
Attachments:	CACoastComm_AppealForm-nc-1-HUM-20-1004_10272022.docx

To Whom It May Concern:

Please find my appeal of the Nordic Aquafarms, LLC project approval by Humboldt Co. Board of Supervisors.

Scott

EXHIBIT NO. 5
APPEAL FILED BY SCOTT FRAZER
APPEAL NO. A-1-HUM-22-0063
(NORDIC AQUAFARMS)

CALIFORNIA COASTAL COMMISSION
NORTH COAST DISTRICT OFFICE
1385 EIGHTH STREET, SUITE 130
ARCATA, CA 95521
(707) 826-8950
NORTHCOAST@COASTAL.CA.GOV

APPEAL FORM

Appeal of Local Government Coastal Development Permit

Filing Information (STAFF ONLY)

District Office: North Coast

Appeal Number: _____

Date Filed: _____

Appellant Name(s): _____

APPELLANTS

IMPORTANT. Before you complete and submit this appeal form to appeal a coastal development permit (CDP) decision of a local government with a certified local coastal program (LCP) to the California Coastal Commission, please review the appeal information sheet. The appeal information sheet describes who is eligible to appeal what types of local government CDP decisions, the proper grounds for appeal, and the procedures for submitting such appeals to the Commission. Appellants are responsible for submitting appeals that conform to the Commission law, including regulations. Appeals that do not conform may not be accepted. If you have any questions about any aspect of the appeal process, please contact staff in the Commission district office with jurisdiction over the area in question (see the Commission's contact page at https://coastal.ca.gov/contact/#/).

Note regarding emailed appeals. Please note that emailed appeals are accepted ONLY at the general email address for the Coastal Commission district office with jurisdiction over the local government in question. For the North Coast district office, the email address is NorthCoast@coastal.ca.gov. An appeal emailed to some other email address, including a different district's general email address or a staff email address, will be rejected. It is the appellant's responsibility to use the correct email address, and appellants are encouraged to contact Commission staff with any questions. For more information, see the Commission's contact page at https://coastal.ca.gov/contact/#/).

1. Appellant information[1]

Name: _____Scott Frazer_____

Mailing address: _____P.O. Box _203_____

Phone number: _____Blue Lake, CA_____95525_____

Email address: _____

How did you participate in the local CDP application and decision-making process?

Did not participate Submitted comment Testified at hearing Other

Describe: _____

Submitted comments at every step of process. Testified at HC Planning Comm.

Hearing, and Appeal before HumCo. Board of Supervisors.

_____

_____

If you did *not* participate in the local CDP application and decision-making process, please identify why you should be allowed to appeal anyway (e.g., if you did not participate because you were not properly noticed).

Describe: _____

_____

_____

_____

Please identify how you exhausted all LCP CDP appeal processes or otherwise identify why you should be allowed to appeal (e.g., if the local government did not follow proper CDP notice and hearing procedures, or it charges a fee for local appellate CDP processes).

Describe: _See response above. Filed appeal to Board of supervisors for

Redwood Region Audubon Society Chapter, and testified during appeal hearing.

_____

_____

_____

[1] If there are multiple appellants, each appellant must provide their own contact and participation information. Please attach additional sheets as necessary.

2. Local CDP decision being appealed[2]

Local government name: _County of Humboldt_____

Local government approval body: ____Humboldt Co. Board of Supervisors

Local government CDP application number: _____1-Hum-20-1004

Local government CDP decision: X CDP approval CDP denial[3]

Date of local government CDP decision: 9/28/2022 decision; 10-13-2022 Notice____

Please identify the location and description of the development that was approved or denied by the local government.

Describe: _Nordic Aquafarms CA, LLC, PLN-2020-16698 APN: 401-112-021; Vance Ave., Samoa area

A Coastal Development Permit and Special Use Permit for the Demolition of the Samoa Pulp Mill facility and

Construction of a land based finfish recirculating aquaculture system. Development through three phases,

Including demolition, remediation, and five buildings totaling 766,530 sq. ft., installation of 4.8 megawatt solar array,

And ancillary support features (parking, fire roads, security fence, storm water management facilities, use of 2.5 million gallons

Per day of freshwater from the Mad River, and 10 million gallons per day of saltwater removed from Humboldt Bay).

_____

_____

[2] Attach additional sheets as necessary to fully describe the local government CDP decision, including a description of the development that was the subject of the CDP application and decision.

[3] Very few local CDP denials are appealable, and those that are also require submittal of an appeal fee. Please see the appeal information sheet for more information.

3. Applicant information

Applicant name(s): Nordic Aquafarms California, LLC

Applicant Address: 511 Congress street, suite 500
Portland, Maine 04101

4. Grounds for this appeal[4]

For appeals of a CDP approval, grounds for appeal are limited to allegations that the approved development does not conform to the LCP or to Coastal Act public access provisions. For appeals of a CDP denial, grounds for appeal are limited to allegations that the development conforms to the LCP and to Coastal Act public access provisions. Please clearly identify the ways in which the development meets or doesn't meet, as applicable, the LCP and Coastal Act provisions, with citations to specific provisions as much as possible. Appellants are encouraged to be concise, and to arrange their appeals by topic area and by individual policies.

Describe: Failure to conform with the Coastal Act and the Local Coastal Plan (LCP).

The Nordic project is inconsistent with the Humboldt Bay Area Plan (HBAP)

subsections: 30250(a) General; 13142.5 (a through d), 30231, 30240, and subsection 8

Coastal Streams, Riparian Vegetation and Marine Resources. The proposed project is not protective of

environmentally sensitive marine habitat (Coastal protective Act Section 30107.5)

such as essential fish habitat, and is not protective of wild salmonids dependent upon

the environmentally sensitive habitats, as identified in the LCP. The use of 10 MGD of saltwater removed from

Humboldt Bay within the Nordic project and the inherent adverse consequences to native fish larvae

from impingement and entrainment were not evaluated prior to approval of the CDP and related approvals.

---

[4] Attach additional sheets as necessary to fully describe the grounds for appeal.

5. Identification of interested persons

On a separate page, please provide the names and contact information (i.e., mailing and email addresses) of all persons whom you know to be interested in the local CDP decision and/or the approved or denied development (e.g., other persons who participated in the local CDP application and decision making process, etc.), and check this box to acknowledge that you have done so.

Interested persons identified and provided on a separate attached sheet

6. Appellant certification[5]

I attest that to the best of my knowledge, all information and facts in this appeal are correct and complete.

Print name : Scott Frazer

Signature

Date of Signature 10-27-22 __

7. Representative authorization[6]

While not required, you may identify others to represent you in the appeal process. If you do, they must have the power to bind you in all matters concerning the appeal. To do so, please complete the representative authorization form below and check this box to acknowledge that you have done so.

I have authorized a representative, and I have provided authorization for them on the representative authorization form attached.

5 If there are multiple appellants, each appellant must provide their own certification. Please attach additional sheets as necessary.

6 If there are multiple appellants, each appellant must provide their own representative authorization form to identify others who represent them. Please attach additional sheets as necessary.

CALIFORNIA COASTAL COMMISSION
455 MARKET STREET, SUITE 300
SAN FRANCISCO, CA 94105-2219
VOICE (415) 904-5200
FAX (415) 904-5400

DISCLOSURE OF REPRESENTATIVES

If you intend to have anyone communicate on your behalf to the California Coastal Commission, individual Commissioners, and/or Commission staff regarding your coastal development permit (CDP) application (including if your project has been appealed to the Commission from a local government decision) or your appeal, then you are required to

5. Identification of interested persons

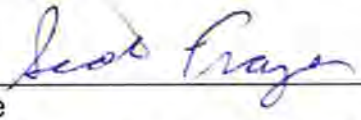
On a separate page, please provide the names and contact information (i.e., mailing and email addresses) of all persons whom you know to be interested in the local CDP decision and/or the approved or denied development (e.g., other persons who participated in the local CDP application and decision making process, etc.), and check this box to acknowledge that you have done so.

☐ Interested persons identified and provided on a separate attached sheet

6. Appellant certification[5]

I attest that to the best of my knowledge, all information and facts in this appeal are correct and complete.

Print name Scott Frazer

Signature 

Date of Signature Oct. 25, 2022

7. Representative authorization[6]

While not required, you may identify others to represent you in the appeal process. If you do, they must have the power to bind you in all matters concerning the appeal. To do so, please complete the representative authorization form below and check this box to acknowledge that you have done so.

☐ I have authorized a representative, and I have provided authorization for them on the representative authorization form attached.

[5] If there are multiple appellants, each appellant must provide their own certification. Please attach additional sheets as necessary.

[6] If there are multiple appellants, each appellant must provide their own representative authorization form to identify others who represent them. Please attach additional sheets as necessary.

From:	Gail Kenny
To:	Northern Spotted Owl
Cc:	NorthCoast@Coastal; Jim Clark
Subject:	Re: RRAS Appeal of Local Government Coastal Development Permit Supplemental Information
Date:	Thursday, October 27, 2022 4:21:04 PM

I approve of the supplemental information in this email.

Sincerely,

Gail Kenny
President
Redwood Region Audubon Society

On Thu, Oct 27, 2022 at 4:09 PM Northern Spotted Owl <northernspottedowl707@gmail.com> wrote:

> Dear Coastal Commission staff,
>
> On behalf of Gail Kenny, RRAS board president, please include the following supplemental information to the appeal form previously submitted and attached here for reference.
>
> RRAS Appeal Points
>
> Below please find specific information regarding Redwood Region Audubon Society's appeal of the County of Humboldt Coastal Development Permit for Nordic Aquafarms, including reasons supporting our appeal to supplement the signed appeal form previously submitted.
>
> Reasons supporting this appeal:
>
> **1. ENVIRONMENTALLY SENSITIVE HABITAT AREA (ESHA)**
>
> According to the Coastal Development Permit staff report, "high quality dune mat located on the project site will be protected by an established requirement of a minimum 35-foot buffer. Within the buffer is a 20-foot-wide fire road." The proposed buffer is not consistent with Section 30240 a and b of the Coastal Act[1] or Policy 3.30 of the Humboldt Bay Area Plan,[2] which both state that
>
> > (a) Environmentally sensitive habitat areas (ESHAs) shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed.
> > (b) Development in areas adjacent to environme
> > and parks and recreation areas shall be sited and
> > impacts which would significantly degrade such a
> > compatible with the continuance of such habitat

EXHIBIT NO. 6
APPEAL FILED BY REDWOOD REGION AUDUBON SOCIETY
APPEAL NO. A-1-HUM-22-0063 (NORDIC AQUAFARMS)

2. COASTAL ACCESS

Industrial Development Policies, Section 3.14 B of the HBAP state that:

- "New industrial development adjacent to areas planned for public recreation, natural resources, or residential use on the North Spit shall include mitigation measures, including at a minimum, setbacks, landscaping, and design controls to minimize significant conflicts with adjacent land uses." 3.14.B.1. under ***30232 (a)

- "Where proposed industrial development would affect wetland or dune habitat, or areas of public access or recreation, it is subject to the policies of Section 3.27, 3.30, and 3.50 of this plan." 3.14.B.3 Coastal Dependent Industrial e(3)

- 3.50 c. Access Inventory

  16. LP DRIVE/U.S.S. MILWAUKEE MARKER – This accessway provides access to the waveslope. Parking is available and logs placed along the access corridor restrict ORVs to the traveled path. (Amended by Res. No. 94-47, 6/7/94)
  RECOMMENDATION: Gate the accessway to restrict vehicle use and improve as a pedestrian accessway to the waveslope. (Amended by Res. No. 94-47, 6/7/94)

This accessway is on the west side of the main entrance to the project site. Improvements should be made for safer coastal access. The increase in truck traffic poses increased hazards to safe coastal access, especially surfers changing into and out of wetsuits close to the roadway.

3. TSUNAMI HAZARD

HBAP 3.17 Hazards

3. Tsunamis–New development below the level of the 100 year tsunami run-up elevation described in Tsunami Predictions for the West Coast of the Continental United States (Technical Report H-78-26 by the Corps of Engineers) shall be limited to public access, boating, public recreation facilities, agriculture, wildlife management, habitat restoration, and ocean intakes, outfalls, and pipelines, and dredge spoils disposal. New subdivisions or development projects which could result in one or more additional dwelling units within a potential tsunami run-up area shall require submission of a tsunami vulnerability report which provides a site-specific prediction of tsunami-run-up elevation resultant from a local Cascadia subduction zone major earthquake. Such developments shall be subject to the following standards or requirements…

The CDP does not include tsunami evacuation plans to protect workers at the facility in the event of a tsunami.

[1] California Coastal Act, Section 30240. hhttps://www.coastal.ca.gov/fedcd/cach3.pdf

[2] Humboldt Bay Area Plan of the Humboldt County Local Coastal Program, Section 3.30. hhttps://humboldtgov.org/DocumentCenter/View/50844/Humboldt-Bay-Area-Local-Coastal-Plan

---------- Forwarded message ---------
From: **Gail Kenny** <gailgkenny@gmail.com>
Date: Wed, Oct 26, 2022 at 8:02 PM
Subject: Appeal of Local Government Coastal Development Permit
To: <NorthCoast@coastal.ca.gov>
Cc: Jim Clark <clarkjimw@gmail.com>

I have attached an Appeal of Local Government Coastal Development Permit. Redwood Region Audubon is appealing the Nordic AquaFarms permit.

Sincerely,

Gail Kenny
President
Redwood Region Audubon Society

CALIFORNIA COASTAL COMMISSION
NOR H COAS D S R C OFF CE
1385 E GH H S REE SU E 130
ARCA A CA 95521
(707) 826-8950
NOR HCOAS @COAS AL CA GOV

APPEAL FORM

Appeal of Local Government Coastal Development Permit

Filing Information (STAFF ONLY)

District Office: North Coast

Appeal Number:

Date Filed:

Appellant Name(s): Redwood Region Audubon Society

APPELLANTS

IMPORTANT. Before you complete and submit this appeal form to appeal a coastal development permit (CDP) decision of a local government with a certified local coastal program (LCP) to the California Coastal Commission, please review the appeal information sheet. The appeal information sheet describes who is eligible to appeal what types of local government CDP decisions, the proper grounds for appeal, and the procedures for submitting such appeals to the Commission. Appellants are responsible for submitting appeals that conform to the Commission law, including regulations. Appeals that do not conform may not be accepted. If you have any questions about any aspect of the appeal process, please contact staff in the Commission district office with jurisdiction over the area in question (see the Commission's contact page at https://coastal.ca.gov/contact/#/).

Note regarding emailed appeals. Please note that emailed appeals are accepted ONLY at the general email address for the Coastal Commission district office with jurisdiction over the local government in question. For the North Coast district office, the email address is NorthCoast@coastal.ca.gov. An appeal emailed to some other email address, including a different district's general email address or a staff email address, will be rejected. It is the appellant's responsibility to use the correct email address, and appellants are encouraged to contact Commission staff with any questions. For more information, see the Commission's contact page at https://coastal.ca.gov/contact/#/).

1. Appellant information[1]

Name: Redwood Region Audubon Society

Mailing address: P. O. Box 1054, Eureka, CA 95502

Phone number: (707) 601-1582

Email address: gailgkenny@gmail.com

How did you participate in the local CDP application and decision-making process?

☐ Did not participate ☑ Submitted comment ☑ Testified at hearing ☐ Other

Describe: Submitted comments at every step, testified at the Planning Commission hearing, appeal to the Planning Commission decision to the Board of Supervisors, and testified at the Board of Supervisors hearing

If you did *not* participate in the local CDP application and decision-making process, please identify why you should be allowed to appeal anyway (e.g., if you did not participate because you were not properly noticed).

Describe:

Please identify how you exhausted all LCP CDP appeal processes or otherwise identify why you should be allowed to appeal (e.g., if the local government did not follow proper CDP notice and hearing procedures, or it charges a fee for local appellate CDP processes).

Describe: See response above, participated throughout the county process and submitted comments, testified at hearings and appeal to the Board of Supervisors

[1] If there are multiple appellants, each appellant must provide their own contact and participation information. Please attach additional sheets as necessary.

2. Local CDP decision being appealed[2]

Local government name:	County of Humboldt
Local government approval body:	Humboldt County Board of Supervisors
Local government CDP application number:	1-HUM-20-1004
Local government CDP decision:	☑ CDP approval ☐ CDP denial[3]
Date of local government CDP decision:	9/28/2022 decision; 10/13/2022 notice

Please identify the location and description of the development that was approved or denied by the local government.

Describe: Nordic Aquafarms California, LLC, PLN-2020-16698
APN: 401-112-021; 364 Vance Ave., Samoa area
A Coastal Development Permit and Special Permit for the demolition and remediation of the Samoa Pulp Mill facility and construction of a land-based finfish recirculating aquaculture system) including development (through three phases, including the demolition and remediation phase) of five buildings totaling 766,530 square feet, installation of 4.8 megawatt solar array and ancillary support features, including paved parking, fire access roads, security fencing, storm water management features, use of approximately 2.5 million gallons per day of freshwater from the Mad River and 10 million gallons per day of saltwater from Humboldt Bay

[2] Attach additional sheets as necessary to fully describe the local government CDP decision, including a description of the development that was the subject of the CDP application and decision.

[3] Very few local CDP denials are appealable, and those that are also require submittal of an appeal fee. Please see the appeal information sheet for more information.

3. Applicant information

Applicant name(s): Nordic Aquafarms California, LLC

Applicant Address: 511 Congress Street, Suite 500
Portland, Maine 04101

4. Grounds for this appeal[4]

For appeals of a CDP approval, grounds for appeal are limited to allegations that the approved development does not conform to the LCP or to Coastal Act public access provisions. For appeals of a CDP denial, grounds for appeal are limited to allegations that the development conforms to the LCP and to Coastal Act public access provisions. Please clearly identify the ways in which the development meets or doesn't meet, as applicable, the LCP and Coastal Act provisions, with citations to specific provisions as much as possible. Appellants are encouraged to be concise, and to arrange their appeals by topic area and by individual policies.

Describe: Failure to conform with the Coastal Act and the Local Coastal Plan

[4] Attach additional sheets as necessary to fully describe the grounds for appeal.

5. Identification of interested persons

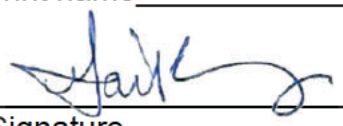
On a separate page, please provide the names and contact information (i.e., mailing and email addresses) of all persons whom you know to be interested in the local CDP decision and/or the approved or denied development (e.g., other persons who participated in the local CDP application and decision making process, etc.), and check this box to acknowledge that you have done so.

☐ Interested persons identified and provided on a separate attached sheet

6. Appellant certification[5]

I attest that to the best of my knowledge, all information and facts in this appeal are correct and complete.

Print name Gail Kenny, President, RRAS



Signature

Date of Signature 10/26/2022

7. Representative authorization[6]

While not required, you may identify others to represent you in the appeal process. If you do, they must have the power to bind you in all matters concerning the appeal. To do so, please complete the representative authorization form below and check this box to acknowledge that you have done so.

☑ I have authorized a representative, and I have provided authorization for them on the representative authorization form attached.

[5] If there are multiple appellants, each appellant must provide their own certification. Please attach additional sheets as necessary.

[6] If there are multiple appellants, each appellant must provide their own representative authorization form to identify others who represent them. Please attach additional sheets as necessary.

CALIFORNIA COASTAL COMMISSION
455 MARKET STREET, SUITE 300
SAN FRANCISCO, CA 94105 2219
VOICE (415) 904 5200
FAX (415) 904 5400

DISCLOSURE OF REPRESENTATIVES

If you intend to have anyone communicate on your behalf to the California Coastal Commission, individual Commissioners, and/or Commission staff regarding your coastal development permit (CDP) application (including if your project has been appealed to the Commission from a local government decision) or your appeal, then you are required to identify the name and contact information for all such persons prior to any such communication occurring (see Public Resources Code, Section 30319). The law provides that failure to comply with this disclosure requirement prior to the time that a communication occurs is a misdemeanor that is punishable by a fine or imprisonment and may lead to denial of an application or rejection of an appeal.

To meet this important disclosure requirement, please list below all representatives who will communicate on your behalf or on the behalf of your business and submit the list to the appropriate Commission office. This list could include a wide variety of people such as attorneys, architects, biologists, engineers, etc. If you identify more than one such representative, please identify a lead representative for ease of coordination and communication. You must submit an updated list anytime your list of representatives changes. You must submit the disclosure list before any communication by your representative to the Commission or staff occurs.

Your Name Gail Kenny, Redwood Region Audubon Society

CDP Application or Appeal Number 1-HUM-20-1004

Lead Representative

Name Jim Clark
Title RRAS Board Member and Conservation Comittee Chair
Street Address. _____
City _____
State, Zip _____
Email Address clarkjimw@gmail.com
Daytime Phone 707-445-8311 (h), 707-499-9158 (cell)

Your Signature 

Date of Signature 10/26/2022

From: Dana Stolzman
To: NorthCoast@Coastal
Subject: SRF NAF Appeal
Date: Wednesday, October 26, 2022 9:35:10 AM
Attachments: SRF_NAF_Appeal_combined.pdf

Hello,

Please confirm receipt of this appeal. I am not sure why it was not attaching correctly.

Thank you.
--
Dana Stolzman
Executive Director | Salmonid Restoration Federation
Office (707) 923-7501 | Fax (707) 923-3135

EXHIBIT NO. 7
APPEAL FILED BY SALMONID RESTORATION FEDERATION
APPEAL NO. A-1-HUM-22-0063
(NORDIC AQUAFARMS)

CALIFORNIA COASTAL COMMISSION
NORTH COAST DISTRICT OFFICE
1385 EIGHTH STREET, SUITE 130
ARCATA, CA 95521
(707) 826-8950
NORTHCOAST@COASTAL.CA.GOV

APPEAL FORM

Appeal of Local Government Coastal Development Permit

Filing Information (STAFF ONLY)

District Office: North Coast

Appeal Number: _____

Date Filed: _____

Appellant Name(s): _____

APPELLANTS

IMPORTANT. Before you complete and submit this appeal form to appeal a coastal development permit (CDP) decision of a local government with a certified local coastal program (LCP) to the California Coastal Commission, please review the appeal information sheet. The appeal information sheet describes who is eligible to appeal what types of local government CDP decisions, the proper grounds for appeal, and the procedures for submitting such appeals to the Commission. Appellants are responsible for submitting appeals that conform to the Commission law, including regulations. Appeals that do not conform may not be accepted. If you have any questions about any aspect of the appeal process, please contact staff in the Commission district office with jurisdiction over the area in question (see the Commission's contact page at https://coastal.ca.gov/contact/#/).

Note regarding emailed appeals. Please note that emailed appeals are accepted ONLY at the general email address for the Coastal Commission district office with jurisdiction over the local government in question. For the North Coast district office, the email address is NorthCoast@coastal.ca.gov. An appeal emailed to some other email address, including a different district's general email address or a staff email address, will be rejected. It is the appellant's responsibility to use the correct email address, and appellants are encouraged to contact Commission staff with any questions. For more information, see the Commission's contact page at https://coastal.ca.gov/contact/#/).

1. Appellant information[1]

Name: Salmonid Restoration Federation

Mailing address: 425 Snug Alley, Unit D, Eureka, CA 95501

Phone number: 707-923-7501

Email address: srf@calsalmon.org

How did you participate in the local CDP application and decision-making process?

☐ Did not participate ☑ Submitted comment ☑ Testified at hearing ☑ Other

Describe: SRF submitted written comments on the IS/MND and DEIR, SRF staff and a Board Member commented during public hearings, and attended local outreach "office hours" meetings with Nordic Aquafarms' staff, representatives, and consultants.

If you did *not* participate in the local CDP application and decision-making process, please identify why you should be allowed to appeal anyway (e.g., if you did not participate because you were not properly noticed).

Describe: n/a

Please identify how you exhausted all LCP CDP appeal processes or otherwise identify why you should be allowed to appeal (e.g., if the local government did not follow proper CDP notice and hearing procedures, or it charges a fee for local appellate CDP processes).

Describe: SRF exhausted the appeal process by having an SRF Board member speaking at a Humboldt County Planning Commission meeting on the DEIR and at the Humboldt County Board of Supervisors final decision meeting. The comments were consistent with our concerns in our comment letters on the IS/MND and DEIR, which have not been addressed in a manner that protects wild salmonids from farmed Atlantic salmon diseases.

[1] If there are multiple appellants, each appellant must provide their own contact and participation information. Please attach additional sheets as necessary.

2. Local CDP decision being appealed[2]

Local government name: Humboldt County

Local government approval body: Humboldt County Board of Supervisors

Local government CDP application number: 1-HUM-20-1004

Local government CDP decision: ☑ CDP approval ☐ CDP denial[3]

Date of local government CDP decision: September 28, 2022

Please identify the location and description of the development that was approved or denied by the local government.

Describe: Nordic Aquafarms proposed Atlantic Salmon Farm (Project) is on the Samoa Peninsula in Humboldt County, at the location of the decommissioned Samoa Pulp Mill. The Project will withdraw 10 million gallons-per-day (MGD) of water from Humboldt Bay and 2.5 MGD from the Mad River. The Project will discharge 12.5 MGD of partially-treated effluent into environmentally sensitive coastal waters that are critical habitat for green sturgeon and essential fish habitat (EFH) for green sturgeon, Chinook salmon, coho salmon, steelhead trout, eulachon, and many other species. Local currents, tidal exchange, and upwelling will all contribute to effluent dispersal in the coastal zone and into Humboldt Bay. Although the Project is described as a recirculating aquaculture facility, the pass-through time of the water from intakes to outfall is approximately 36 hours—indicating that there is very little recirculation. The Project will rear between 27,500 and 29,700 metric tons of Atlantic salmon per year, netting approximately 25,000 to 27,000 tons of finished product, and 5,200 metric tons of potentially-diseased fish waste.

[2] Attach additional sheets as necessary to fully describe the local government CDP decision, including a description of the development that was the subject of the CDP application and decision.

[3] Very few local CDP denials are appealable, and those that are also require submittal of an appeal fee. Please see the appeal information sheet for more information.

3. Applicant information

Applicant name(s): Nordic Aquafarms California, LLC

Applicant Address: PO Box 11477
Eureka, CA 95502

4. Grounds for this appeal[4]

For appeals of a CDP approval, grounds for appeal are limited to allegations that the approved development does not conform to the LCP or to Coastal Act public access provisions. For appeals of a CDP denial, grounds for appeal are limited to allegations that the development conforms to the LCP and to Coastal Act public access provisions. Please clearly identify the ways in which the development meets or doesn't meet, as applicable, the LCP and Coastal Act provisions, with citations to specific provisions as much as possible. Appellants are encouraged to be concise, and to arrange their appeals by topic area and by individual policies.

Describe: The certified local coastal program (LCP) is the 2022 Humboldt Bay Area Plan (HBAP), initially certified by the State Coastal Commission on October 14, 1982. The Project, the Nordic Aquafarms Samoa Peninsula Land-based Aquaculture Project, is inconsistent with HBAP subsections: 30250(a) General; 13142.5 (a through d); 30231, 30240, and Subsection 8--Coastal Streams, Riparian Vegetation and Marine Resources. The proposed Project is not protective of environmentally-sensitive marine habitat (Coastal Act Section 30107.5), such as essential fish habitat and critical habitat, and is not protective of wild salmonids dependent upon the environmentally sensitive habitats, as identified in the LCP. Please see attached explanations of Project inconsistencies with the LCP and the Coastal Act.

See additional attached sheets.

[4] Attach additional sheets as necessary to fully describe the grounds for appeal.

5. Identification of interested persons

On a separate page, please provide the names and contact information (i.e., mailing and email addresses) of all persons whom you know to be interested in the local CDP decision and/or the approved or denied development (e.g., other persons who participated in the local CDP application and decision making process, etc.), and check this box to acknowledge that you have done so.

☐ Interested persons identified and provided on a separate attached sheet

6. Appellant certification[5]

I attest that to the best of my knowledge, all information and facts in this appeal are correct and complete.

Print name Dana Stolzman

Dana Stolzman

Signature

Date of Signature 10/25/2022

7. Representative authorization[6]

While not required, you may identify others to represent you in the appeal process. If you do, they must have the power to bind you in all matters concerning the appeal. To do so, please complete the representative authorization form below and check this box to acknowledge that you have done so.

☐ I have authorized a representative, and I have provided authorization for them on the representative authorization form attached.

[5] If there are multiple appellants, each appellant must provide their own certification. Please attach additional sheets as necessary.

[6] If there are multiple appellants, each appellant must provide their own representative authorization form to identify others who represent them. Please attach additional sheets as necessary.

Attachment to SRF Appeal

The certified local coastal program (LCP) is the 2022 Humboldt Bay Area Plan (HBAP). The HBAP largely adopts Coastal Act Provisions in its Development Policies, and sections of the Coastal Act are reiterated within the document. The subsections of the HBAP utilize the same numbers as the Coastal Act and are identified within HBAP sections described below.

HBAP Section 3.14 Industrial, Development Policies

Subsection 30250(a)

The HBAP's modified 30250(a) states that development "will not have significant adverse effects, either individually or cumulatively, on coastal resources." Pathogens known to occur in farmed Atlantic salmon are not receiving adequate testing and the intake water will receive more disease treatment than the outfall water. If a deleterious salmonid virus (known to occur in farmed Atlantic salmon) escapes the Project, local runs of wild native salmon could be impacted and run failure could result. The Salmonid Restoration Federation (SRF) has partnered with other parties to restore salmonid habitat on the North Coast. Loss of wild salmonid runs will have a significant effect on coastal resources.

Subsection 13142.5 (a)

Subsection 13142.5 Coastal Marine Environment (a) reiterates the Coastal Act provision that waste water discharges shall be treated to protect present and future beneficial uses, giving highest priority to wetlands, estuaries, and other biologically sensitive sites.

There are three outstanding issues with the Project's effluent affecting biologically sensitive species and ecosystems respectively. First is the lack of targeted ozone treatment to adequately treat the effluent to kill viruses that proliferate in Atlantic salmon farms and that are known to harm or kill wild native salmonids. Second is that the proposed sewage treatment design has not been proven to be protective of receiving waters. Third is that effluent dispersal into Humboldt Bay has not been fully analyzed or addressed in the environmental documents, and impacts to the estuarine ecosystem were not given full consideration.

Wastewater leaving the Project will not be as fully treated as the river and estuary water entering the Project (*i.e.*, incoming water will be filtered, UV treated, and ozone treated; outgoing water will only be filtered and UV treated). Lack of ozone treatment of the wastewater and factory floor effluent, combined with the lack of testing Project effluent or fish processing waste for the diseases known to be associated with Atlantic salmon farms, will put in place untried technologies without the practical safety provisions necessary to protect California's wild, native salmonids.

It is unproven that UV-C sterilization will fully treat the 12.5 MGD of effluent leaving the Project. The potential for viruses being present in Project effluent would have significant adverse effects to Coho salmon, Chinook salmon, and steelhead. Viruses attached to the 408 pounds-per-day of suspended solids in the effluent stream, would be capable of surviving the proposed UV treatment of the effluent. The fish processing portion of Project effluent would contain a massive viral load if any of the viruses known to be associated with Atlantic salmon farming have an outbreak in the rearing tanks. This is a serious threat to our native, wild salmon.

Once a salmonid virus enters a wild population, the threat to individual fish goes beyond direct mortality. Ability to swim and forage is typically compromised in infected salmonids, rendering them weak and vulnerable to predation. One or more viral pathogens in wild salmonid populations are implicated in high mortality during outmigration (Furey *et al.* 2021, Jeffries *et al.* 2014, Hinch *et al.* 2012). Other pathogens such as bacteria, fungi, protozoa, myxozoan microparasites, and sea lice compound the physiological stress from viral loads and increase the threat of mortality (Lovell *et al.* 2010). Salmonid viruses that affect internal organs compromise infected salmonids during upmigration (returning to natal streams to spawn). In instances when viral exposure and viral loading does not result in direct mortality to the fish, indirect harm, injury, and mortality are likely to occur when infected wild salmonids experience increased predation, decreased mobility and visual acuity, and lack of energy required for successful migration. (Furey *et al.* 2021, Hinch *et al.* 2012, Jeffries *et al.* 2014, Miller *et al.* 2017). Added stress from viral infection causes salmonids to either not start their up migration to natal streams, or not survive the natural physiological stresses of upmigration. Salmon compromised by viral load are referred to as "dead fish swimming" (Hinch *et al.* 2012).

During fish processing, bodily fluids containing a viral load will be the most difficult to contain and prevent from spreading into wild salmonid populations. Industrial cleansers used for protecting human health during fish processing can be damaging to biofilters, and could compromise the effectiveness of the Project's sewage treatment system to remove sewage solids. Viruses posing the highest risk to wild salmonids are as follows:

> **Infectious Pancreatic Necrosis Virus (IPN)** is a disease first found in 1951 in farmed Atlantic salmon in Canada. It causes fluid in the abdomen (ascites) and sudden mortality. Other symptoms are: swollen eyes, darkening of the skin, anorexia, spiral swimming, fecal casts trailing from the vent, pancreatic necrosis, catarrhal exudate in the intestine, and hemorrhages in the visceral organs. IPN is an acute and highly contagious disease in juvenile salmonids. It causes mortality rates up to 70% in farmed salmon, with freshwater-stage mortality up to 100% (Evensen and Santi 2008).

As well as being found in Atlantic salmon, IPN is also found in farmed rainbow trout (*O. mykiss*). This virulent disease has spread to fish farms in North America, Europe, Chile, Japan, Korea, Taiwan, Iran, Turkey, China, Kenya, and Australia (Dopazo 2020). There has been a push to develop a vaccine for IPN, but it would not be possible to vaccinate all of the wild salmonid species from the Mad River, Eel River, Humboldt Bay, Elk River, Salmon Creek, Freshwater Creek, or Jacoby Creek once wild fish have been exposed to the virus. Because adult and juvenile salmonids will be migrating through the Project's effluent plume, their risk of mortality is high if this virus were to escape the Project. If IPN were introduced by the Project, it could have a significant adverse impact on the Mad River fish hatchery.

Infectious Salmon Anemia Virus, also known as Hemorrhagic Kidney Syndrome, Infectious Salmon Anemia (ISA) is a highly contagious disease associated with farmed Atlantic salmon. First reported in fish farms in Norway in 1984, ISA has since spread to fish farms in Scotland, the Faroe Islands, Chile, northeastern Canada and northeastern U.S. (Maine). Symptoms include: lethargy, anemia, leukopenia, bloated abdomen (ascites), protruding eyes, darkened skin, enlarged spleen, liver necrosis, swollen and discolored kidneys, localized bleeding from skin lesions (USDA *et al.* 2011, USDA 2020), and increased mortality of approximately 5 to 90 percent (Dannevig *et al.* 2008). Rainbow trout may also develop heart lesions.

Infectious Salmon Anemia virus can also be transmitted to Pacific herring (Nylund *et al.* 2002), allowing for spread of the disease to wild salmonids through foraging. Pacific herring can also act as a disease reservoir. Humboldt Bay and its surrounding waters are known to support large populations of Pacific herring.

Salmonid Alphavirus (SAV) causes pancreas disease (PD) in farmed Atlantic salmon and sleeping disease (SD) in farmed rainbow trout. It is found in salmonid farms in Norway, Scotland, England, Ireland, France, Germany Spain, U.S. (Washington), and Italy. Infections of SAV have high mortality rates. Six strains of SAV have been identified (Deperasińska *et al.* 2018). Symptoms include: cessation of feeding, lethargy, muscle damage, fluid in the abdomen, atrophy of red skeletal muscle, pancreatic necrosis, cardiac myopathy, difficulty swimming and staying upright, failure to grow, failure to gain weight, and death. Survivors appear thin and unthrifty, and they can become vectors. SAV was found to have up to 27 percent mortality in net pens in Washington state, but no studies on mortality have been conducted on wild salmonids. Sleeping disease in wild steelhead would make them extremely vulnerable to predation. If SAV escapes the Project, it could have a significant impact on steelhead returns to the Mad River Fish Hatchery.

Piscine Orthoreovirus and Novel Piscine Reoviruses is also known as Atlantic salmon reovirus and novel reovirus. Piscine Orthoreovirus (PRV) symptoms include, but are not limited to: heart and skeletal inflammation (HSMI), inflammatory lesions of the heart and skeletal muscle, burst cells (in Chinook), jaundice, anemia, anorexia, lethargy, inflammation, kidney and liver damage (degenerative/ necrotic lesions of the liver/kidney), and fluid in the abdomen (ascites). There are now three strains of PRV, with both PRV-1 and PRV-3 each having two sub-types with additional mutations.

PRV's expression of HSMI was first characterized in 2010 in farmed Atlantic salmon (Palacios 2010). PRV and HSMI have been found in farmed: Atlantic salmon (Palacios 2010, Kibenge *et al.* 2017), coho salmon (Takano *et al.* 2016, Kibenge *et al.* 2017), Chinook salmon, and rainbow trout (Olsen *et al.* 2015). PRV and HSMI are associated with high morbidity and mortality. PRV and HSMI are now also found in wild coho and Chinook salmon in Canada (Kibenge *et al.* 2017).

PRV and its variants are found in farmed salmonids in Norway, Denmark, Germany, United Kingdom, France, Canada, Japan, Chile, Italy, and the U.S. (Washington, Oregon, and Maine). Kibenge *et al.* (2017) estimated PRV prevalence in the source farmed Atlantic salmon population at 95% or greater. They found escaped, farmed Atlantic salmon had a PRV prevalence close to

100% in Washington State and British Columbia following a large containment failure at a farm in northern Puget Sound. Mordecai *et al*. (2021) found that infection of wild Chinook salmon with PRV-1 infection was closely tied to farm proximity.

First found in farmed Atlantic salmon in 1999 (Kongtorp *et al.* 2004) and later implicated as being associated with HSMI (Palacios 2010), PRV was first described in farmed *O. mykiss* in Norway in 2013; however, symptoms similar to PRV have been described as early as 1977 (Vendramin *et al.* 2019).

Although PRV is ubiquitous in farmed salmon, some argue that symptoms and mortality are less than previously reported (Polinski *et al.* 2019). Emerging studies (Løvell *et al.* 2010, Mordecai *et al.* 2020) have shown that co-occurrences with other viruses and pathogens may drive the expression of symptoms and mortality. PRV is often co-associated with other viruses (Løvell *et al.* 2010, Mordecai *et al.* 2021).

Polinski *et al.* (2019) found that different populations of farmed Atlantic salmon had different responses to PRV, but PRV variants were not isolated in the study. Also, the fish with HSMI in other studies were already sick; whereas PRV-positive but asymptomatic fish in Polinski *et al.* (2019) may have had earlier disease progression than other studies, therefore not yet showing signs of HSMI.

In their study of PRV-3, Sørenson *et al.* (2020) found that the variant had its highest prevalence in grow-out facilities (71.7%) and, in Denmark, disease outbreaks of PRV-3 were only observed in RAS facilities. Considering that the Project is a grow-out RAS facility, the risk of viral loading after disease introduction is very high.

PRV has variable outcomes for farmed salmonids, depending on the PRV strain and the affected species. Stress is thought to be causative when going from a PRV infection to full-on HSMI. There are no studies of heart, liver, or kidney effects to wild salmonids during upmigration to natal streams, but the stress of upmigration would put a phenomenal amount of physiological strain on individual salmonids with PRV. Individuals that avoid predation in their outmigration and marine phases would be the “dead fish swimming” described by Hinch *et al.* (2012) —e.g., not able to complete their full life-history cycle, upmigrate, or reproduce. If PRV escapes the Project, it could have a significant adverse effect on the Mad River Fish Hatchery.

Novel Fish Totivirus is co-associated with PRV and is implicated in Cardiomyopathy Syndrome (CMS), which is a spontaneous heart attack that occurs in farmed fish prior to harvest (Løvell *et al.* 2010). CMS was first reported in Norwegian farmed salmon in 1988 (Amin and Trasti 1988). Totiviruses are typically associated with fungi. Co-association of the novel fish totivirus and PRV is thought to significantly increase salmonid mortality.

Infectious Hematopoietic Necrosis Virus is one of the earlier diseases associated with fish farming and hatcheries. Now known as Infectious Hematopoietic Necrosis Virus (IHNV), earlier names being Oregon Sockeye Salmon Disease, Columbia River Sockeye Disease, Sacramento River Chinook Disease. Juvenile salmonids are more severely affected by IHNV than adults, but those that do survive the disease become vectors by shedding the virus through feces and mucus. IHNV is known to affect Atlantic salmon, sockeye and Chinook salmon, and *O.mykiss*. It is found in continental Europe, Alaska, Japan, Canada, Central California, Oregon, and Washington State.

IHNV causes lethargy, occasional frenzied swimming, darkened skin, abdomen swollen with ascitic fluid, protruding eyes, and hemorrhaging at the mouth, anus, and base of the fins. The cumulative mortality rates on fish farms can reach 90-95%. Occasional disease outbreaks have been reported in wild salmon.

PCR (polymerase chain reaction) testing is available for PRV, SAV, and IHNV. Weekly PCR testing of fish processing waste and Project effluent is needed to ensure early detection and that these deadly viruses do not proliferate at the Project. As PCR testing becomes commercially available for other Atlantic salmon diseases, they should be added to the weekly viral screening at the Project.

Subsection 13142.5 (d)

The HBAP states: “Independent baseline studies of the existing marine system should be conducted in the area that could be affected by a new or expanded industrial facility using seawater in advance of the carrying out of the development.” Contemporary baseline monitoring of the Sacramento River for salmonid pathogens (Mauduit *et al.* 2022) has demonstrated that the technology exists and is a useful tool in establishing a pathogen-burden baseline in local, wild salmonid populations in California. However, Nordic Aquafarms has strenuously rejected such monitoring in favor of biannual veterinary visits to the Project.

With worldwide proliferation of deadly viruses (*e.g.*, PRV, SAV, and IHNV) known to occur in Atlantic salmon farms, a fair assessment and baseline of salmon-farm pathogens is required in order to conform with subsection 13142.5. The baseline monitoring of the Sacramento River, done by Mauduit *et al*. (2022) is an excellent example of using modern investigative techniques to establish a pathogen baseline. Salmonid critical habitat that is likely to interface with Project effluent is the mouths of Mad River, Eel River, Humboldt Bay, Elk River, Salmon Creek, Freshwater Creek, and Jacoby Creek. Salmonids directly exposed to the effluent outfall when migrating past or feeding near the Project’s outfall pipe are likely to disperse pathogens into spawning areas when they migrate upstream. A baseline for each of these rivers and streams, as well as Klamath River and Redwood Creek, is needed in order to track the progression of disease known to be associated with farmed Atlantic salmon.

HBAP Section 3.30 Natural Resources Protection Policies and Standards

Subsection 30240

The HBAP directs that: “Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas.” The Project is not protective of environmentally sensitive marine habitat, such as essential fish habitat and ESA critical habitat, and is not protective of salmonids dependent upon the environmentally sensitive habitats specifically identified in the HBAP. Release of effluent into the migratory path for green sturgeon, coho salmon, Chinook salmon and steelhead trout will cause disruption of migratory behavior. Exposure of salmonids to viruses associated with farmed Atlantic salmon could cause disruption of wild salmonid populations and potential run failure. Loss of important commercial, recreational, and valued native fishes should be considered a significant disruption.

Subsection 8--Coastal Streams, Riparian Vegetation and Marine Resources

Protection of marine resources has a high level of emphasis in the HBAP: “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. Use 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.”

As discussed earlier, the risk of run decimation from Atlantic farmed salmon diseases continues due to lack of monitoring, timely response, mitigation, and remediation. Loss of salmon and steelhead runs in the Mad River, Eel River, Redwood Creek, Klamath River and tributaries to Humboldt Bay would have a profound impact on long-term commercial, recreational, scientific, and educational purposes of Humboldt Bay and the coastal marine area.

Subsection 30231

The HBAP requires protection of biological productivity and coastal waters. It includes direction to minimize adverse effects of waste water discharges and entrainment. Without ozone treatment of Project effluent and without viral monitoring, timely response, mitigation, and remediation for diseases found in Atlantic salmon, the Project will affect the biological productivity and the habitat quality of Humboldt Bay, coastal streams, and the Mad and Eel Rivers. When PRV, SAV, IHNV, and other deadly diseases escape the Project, the biological productivity of coastal waters, streams, wetlands, and estuaries will not be able to maintain optimum populations of wild salmon.

Nordic Aquafarms has strenuously opposed weekly PCR testing for PRV, SAV, and IHNV—claiming that all PCR positives in the effluent would be false positives, or non-pathogenic. PCR testing is an inexpensive and effective methodology for screening for viral diseases. Positive PCR tests would be an indication that virus has infected the facility and closer inspection for Atlantic salmon diseases is warranted. PCR testing is an important tool for disease control, planning, initial response, mitigation, and remediation.

Full ozone treatment of effluent and vigorous disease monitoring could minimize adverse effects of waste water discharges on wild native salmonids. In addition, technology exists to further remove ammonia and nitrogenous waste from effluent. Without these measures, biological productivity and habitat quality in Humboldt Bay and coastal streams will be compromised.

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From:	Alison Willy
To:	NorthCoast@Coastal
Cc:	Kraemer, Melissa@Coastal; Dana Stolzman
Subject:	Appeal of Nordic Aquafarms CDP, 1-HUM-20-1004
Date:	Tuesday, October 25, 2022 2:47:21 PM
Attachments:	Willy_NAF_appeal_combined_10_25_22.pdf

Please accept the attached appeal. Thank you.

EXHIBIT NO. 8
APPEAL FILED BY ALISON WILLY
APPEAL NO. A-1-HUM-22-0063
(NORDIC AQUAFARMS)

CALIFORNIA COASTAL COMMISSION
NORTH COAST DISTRICT OFFICE
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APPEAL FORM

Appeal of Local Government Coastal Development Permit

Filing Information (STAFF ONLY)

District Office: North Coast

Appeal Number: A-1-HUM-22-0063

Date Filed: 10-25-2022

Appellant Name(s): Alison Willy

APPELLANTS

IMPORTANT. Before you complete and submit this appeal form to appeal a coastal development permit (CDP) decision of a local government with a certified local coastal program (LCP) to the California Coastal Commission, please review the appeal information sheet. The appeal information sheet describes who is eligible to appeal what types of local government CDP decisions, the proper grounds for appeal, and the procedures for submitting such appeals to the Commission. Appellants are responsible for submitting appeals that conform to the Commission law, including regulations. Appeals that do not conform may not be accepted. If you have any questions about any aspect of the appeal process, please contact staff in the Commission district office with jurisdiction over the area in question (see the Commission's contact page at https://coastal.ca.gov/contact/#/).

Note regarding emailed appeals. Please note that emailed appeals are accepted ONLY at the general email address for the Coastal Commission district office with jurisdiction over the local government in question. For the North Coast district office, the email address is NorthCoast@coastal.ca.gov. An appeal emailed to some other email address, including a different district's general email address or a staff email address, will be rejected. It is the appellant's responsibility to use the correct email address, and appellants are encouraged to contact Commission staff with any questions. For more information, see the Commission's contact page at https://coastal.ca.gov/contact/#/).

1. Appellant information[1]

Name: Alison Willy

Mailing address: [redacted] Elk Grove, CA 95624

Phone number: [redacted]

Email address: alison.willy44@gmail.com

How did you participate in the local CDP application and decision-making process?

☐ Did not participate ☑ Submitted comment ☑ Testified at hearing ☑ Other

Describe: I submitted written comments on the IS/MND and DEIR, I commented during public hearings, and I attended local, outreach "office hours" meetings with Nordic Aquafarms' staff, representatives, and consultants.

If you did *not* participate in the local CDP application and decision-making process, please identify why you should be allowed to appeal anyway (e.g., if you did not participate because you were not properly noticed).

Describe: n/a

Please identify how you exhausted all LCP CDP appeal processes or otherwise identify why you should be allowed to appeal (e.g., if the local government did not follow proper CDP notice and hearing procedures, or it charges a fee for local appellate CDP processes).

Describe: I structured an appeal letter on behalf of Humboldt 350, North Coast Region Audubon Society, and Humboldt Fishermen's Marketing Association for their appeal to the Humboldt County Board of Supervisors. I attended the Humboldt County Board of Supervisors' public hearing on the appeal and provided oral comments.

[1] If there are multiple appellants, each appellant must provide their own contact and participation information. Please attach additional sheets as necessary.

2. Local CDP decision being appealed[2]

Local government name: Humboldt County

Local government approval body: Humboldt County Board of Supervisors

Local government CDP application number: 1-HUM-20-1004

Local government CDP decision: ☑ CDP approval ☐ CDP denial[3]

Date of local government CDP decision: September 28, 2022

Please identify the location and description of the development that was approved or denied by the local government.

Describe: Nordic Aquafarms' proposed Atlantic Salmon Farm (Project) is on the Samoa Peninsula in Humboldt County, at the location of the decommissioned Samoa Pulp Mill. The Project will withdraw 10 million gallons-per-day (MGD) of water from Humboldt Bay and 2.5 MGD from the Mad River. The Project will discharge 12.5 MGD of partially-treated effluent into environmentally sensitive coastal waters that are critical habitat for green sturgeon and essential fish habitat (EFH) for green sturgeon, Chinook salmon, coho salmon, steelhead trout, eulachon, and many other species. Local currents, tidal exchange, and upwelling will all contribute to effluent dispersal in the coastal zone and into Humboldt Bay. Although the Project is described as a recirculating aquaculture facility, the pass-through time of the water from intakes to outfall is approximately 36 hours—indicating that there is very little recirculation. The Project will rear between 27,500 and 29,700 metric tons of Atlantic salmon per year, netting approximately 25,000 to 27,000 tons of finished product, and 5,200 metric tons of potentially-diseased fish waste.

[2] Attach additional sheets as necessary to fully describe the local government CDP decision, including a description of the development that was the subject of the CDP application and decision.

[3] Very few local CDP denials are appealable, and those that are also require submittal of an appeal fee. Please see the appeal information sheet for more information.

3. Applicant information

Applicant name(s): Nordic Aquafarms California, LLC

Applicant Address: P,O, Box 11477
Eureka, CA 95502

4. Grounds for this appeal[4]

For appeals of a CDP approval, grounds for appeal are limited to allegations that the approved development does not conform to the LCP or to Coastal Act public access provisions. For appeals of a CDP denial, grounds for appeal are limited to allegations that the development conforms to the LCP and to Coastal Act public access provisions. Please clearly identify the ways in which the development meets or doesn't meet, as applicable, the LCP and Coastal Act provisions, with citations to specific provisions as much as possible. Appellants are encouraged to be concise, and to arrange their appeals by topic area and by individual policies.

Describe: The certified local coastal program (LCP) is the 2022 Humboldt Bay Area Plan (HBAP), initially certified by the State Coastal Commission on October 14, 1982. The Project, the Nordic Aquafarms Samoa Peninsula Land-based Aquaculture Project, is inconsistent with HBAP subsections: 30250(a) General; 13142.5 (a through d); 30231, 30240, and Subsection 8--Coastal Streams, Riparian Vegetation and Marine Resources. The proposed Project is not protective of environmentally-sensitive marine habitat (Coastal Act Section 30107.5), such as essential fish habitat and critical habitat, and is not protective of wild salmonids dependent upon the environmentally sensitive habitats, as identified in the LCP. Please see attached explanations of Project inconsistencies with the LCP and the Coastal Act.

See additional attached sheets.

[4] Attach additional sheets as necessary to fully describe the grounds for appeal.

5. Identification of interested persons

On a separate page, please provide the names and contact information (i.e., mailing and email addresses) of all persons whom you know to be interested in the local CDP decision and/or the approved or denied development (e.g., other persons who participated in the local CDP application and decision making process, etc.), and check this box to acknowledge that you have done so.

☑ Interested persons identified and provided on a separate attached sheet

6. Appellant certification[5]

I attest that to the best of my knowledge, all information and facts in this appeal are correct and complete.

Print name Alison Willy

Signatu 

Date of Signature 10/25/2022

7. Representative authorization[6]

While not required, you may identify others to represent you in the appeal process. If you do, they must have the power to bind you in all matters concerning the appeal. To do so, please complete the representative authorization form below and check this box to acknowledge that you have done so.

☐ I have authorized a representative, and I have provided authorization for them on the representative authorization form attached.

[5] If there are multiple appellants, each appellant must provide their own certification. Please attach additional sheets as necessary.

[6] If there are multiple appellants, each appellant must provide their own representative authorization form to identify others who represent them. Please attach additional sheets as necessary.

The certified local coastal program (LCP) is the 2022 Humboldt Bay Area Plan (HBAP). The HBAP largely adopts Coastal Act Provisions in its Development Policies, and sections of the Coastal Act are reiterated within the document. The subsections of the HBAP utilize the same numbers as the Coastal Act and are identified within HBAP sections described below.

HBAP Section 3.14 Industrial, Development Policies

Subsection 30250(a)

The HBAP's modified 30250(a) states that development "will not have significant adverse effects, either individually or cumulatively, on coastal resources." For the federal Endangered Species Act (ESA) listed species that would be harmed, harassed, killed, or injured by the Project, loss of habitat and prey resources due to water withdrawal is a significant and unaddressed concern. Absence of consultation with the National Marine Fisheries Service (NMFS) means that the level of effects on survival and recovery of ESA-listed species has yet to be determined for adverse effects to EFH, critical habitat, and for take of green sturgeon, California Coastal Chinook salmon, Northern California steelhead, Coho salmon, and eulachon.

The 10 million-gallons-per-day (MGD) that will be removed from Humboldt Bay at the proposed saltwater intakes will reduce the available prey biomass utilized by juvenile salmonids outmigrating from Mad River Slough, Liscom Slough, Ryan Slough, Fay Slough, Eureka Slough, Elk River, Freshwater Slough, Salmon Creek, McDaniel Slough, Rocky Gulch and its tributaries, Jacoby Creek, unnamed tributaries to Freshwater Slough, Swain Slough, Martin Slough and an unnamed tributary to Ryan Slough. The energetic demand on juvenile salmonids as they migrate into sloughs and estuaries is very high (Hinckelman *et al.* 2107, McCormick 2013, Woo *et al.* 2017). Loss of estuarine productivity will occur when plankton and ichthyoplankton are removed from the ecosystem. Loss of forage will harm juvenile salmonids by reducing the carrying capacity of Humboldt Bay. Loss of forage does not just harm individual juvenile salmonids, in harms the cohort as individuals compete amongst themselves for diminished resources.

Juvenile salmonids that depend upon prey biomass in Humboldt Bay would be harmed, killed, or injured by loss and reduction of forage in the estuarine system. The Project's environmental documents discount this harm to threatened species by identifying what Nordic Aquafarms considers a small percentage of estuarine habitat, in the form of flow, that would be lost from the Humboldt Bay estuarine ecosystem on each tidal cycle. Take is typically quantified by the number of individuals that the lost habitat would support and would be killed, injured, harmed or harassed by the loss of that habitat. When loss of habitat and subsequent take is quantifiable, that take is subject to the prohibitions identified in Section 9 of the ESA.

Impacts to listed salmonids from their loss of prey biomass due to the proposed seawater intakes in Humboldt Bay have not undergone consultation with NMFS. Due to the fact that the permitting process on the in-water work has not been conducted, and ESA consultation has not been conducted on the intakes, it is premature to conclude that "potential impact to special status fish in Humboldt Bay would be less than significant." Through formal ESA consultation, NMFS may include reasonable and prudent measures, terms and conditions, or reasonable and prudent alternatives to the permit to minimize or mitigate effects to ESA-listed species. At a minimum, these protective measures should be a part of any final decision or permitting on the Project.

As benthic foragers, green sturgeon forage and migrate near the ocean floor, increasing their risk of exposure to potentially toxic levels of ammonia from the diffusers in the outfall pipe. While foraging on the ocean floor, green sturgeon mouth parts will be in direct contact with precipitated effluent solids. Project effluent is likely to reduce prey availability and affect green sturgeon olfactory receptors used during feeding. The Project's environmental documents claim that sturgeon will swim away from the toxic zone of the effluent and thereby minimize effects to the species. If green sturgeon are forced to change their migratory routes in order to avoid exposure to toxic effluent and contaminated benthos, that level of harassment should undergo formal consultation with NMFS.

Subsection 13142.5 (a)

Subsection 13142.5 Coastal Marine Environment (a) reiterates the Coastal Act provision that waste water discharges shall be treated to protect present and future beneficial uses, giving highest priority to wetlands, estuaries, and other biologically sensitive sites.

There are three outstanding issues with the Project's effluent affecting biologically sensitive species and ecosystems respectively. First is the lack of targeted ozone treatment to adequately treat the effluent to kill viruses that proliferate in Atlantic salmon farms and that are known to harm or kill wild native salmonids. Second is that the proposed sewage treatment design has not been proven to be protective of receiving waters. Third is that effluent dispersal into Humboldt Bay has not been fully analyzed or addressed in the environmental documents, and impacts to the estuarine ecosystem were not given full consideration.

Wastewater leaving the Project will not be as fully treated as the river and estuary water entering the Project (*i.e.*, incoming water with be filtered, UV treated, and ozone treated; outgoing water will only be filtered and UV treated). Lack of ozone treatment of the wastewater and factory floor effluent, combined with the lack of testing Project effluent or fish processing waste for the diseases known to be associated with Atlantic salmon farms, will put in place untried technologies without the practical safety provisions necessary to protect California's wild, native salmonids.

It is unproven that UV-C sterilization will fully treat the 12.5 MGD of effluent leaving the Project. The potential for viruses being present in Project effluent would have significant adverse effects to coho salmon, Chinook salmon, and steelhead. Viruses attached to the 408 pounds-per-day of suspended solids in the effluent stream, would be capable of surviving the proposed UV treatment of the effluent. The fish processing portion of Project effluent would contain a massive viral load if any of the viruses known to be associated with Atlantic salmon farming have an outbreak in the rearing tanks. This is a serious threat to our native, wild salmon.

Once a salmonid virus enters a wild population, the threat to individual fish goes beyond direct mortality. Ability to swim and forage is typically compromised in infected salmonids, rendering them weak and vulnerable to predation. One or more viral pathogens in wild salmonid populations are implicated in high mortality during outmigration (Furey *et al.* 2021, Jeffries *et al.* 2014, Hinch *et al.* 2012). Other pathogens such as bacteria, fungi, protozoa, myxozoan microparasites, and sea lice compound the physiological stress from viral loads and increase the threat of mortality (Lovell *et al.* 2010). Salmonid viruses that affect internal organs compromise infected salmonids during upmigration (returning to natal streams to spawn). In instances when viral exposure and viral loading does not result in direct mortality to the fish, indirect harm, injury, and mortality are likely to occur when infected wild salmonids experience increased predation, decreased mobility and visual acuity, and lack of energy required for successful migration. (Furey *et al.* 2021, Hinch *et al.* 2012, Jeffries *et al.* 2014, Miller *et al.* 2017). Added stress from viral infection causes salmonids to either not start their upmigration to natal streams, or not survive the natural physiological stresses of upmigration. Salmon compromised by viral load are referred to as “dead fish swimming” (Hinch *et al.* 2012).

During fish processing, bodily fluids containing a viral load will be the most difficult to contain and prevent from spreading into wild salmonid populations. Industrial cleansers used for protecting human health during fish processing can be damaging to biofilters, and could compromise the effectiveness of the Project’s sewage treatment system to remove sewage solids. Viruses posing the highest risk to wild salmonids are as follows:

> **Infectious Pancreatic Necrosis Virus (IPN)** is a disease first found in 1951 in farmed Atlantic salmon in Canada. It causes fluid in the abdomen (ascites) and sudden mortality. Other symptoms are: swollen eyes, darkening of the skin, anorexia, spiral swimming, fecal casts trailing from the vent, pancreatic necrosis, catarrhal exudate in the intestine, and hemorrhages in the visceral organs. IPN is an acute and highly contagious disease in juvenile salmonids. It causes mortality rates up to 70% in farmed salmon, with freshwater-stage mortality up to 100% (Evensen and Santi 2008).
>
> As well as being found in Atlantic salmon, IPN is also found in farmed rainbow trout (*O. mykiss*). This virulent disease has spread to fish farms in North America, Europe, Chile, Japan, Korea, Taiwan, Iran, Turkey, China, Kenya, and Australia (Dopazo 2020). There has been a push to develop a vaccine for IPN, but it would not be possible to vaccinate all of the wild salmonid species from the Mad River, Eel River, Humboldt Bay, Elk River, Salmon Creek, Freshwater Creek, or Jacoby Creek once wild fish have been exposed to the virus. Because adult and juvenile salmonids will be migrating through the Project’s effluent plume, their risk of mortality is

high if this virus were to escape the Project. If IPN were introduced by the Project, it could have a significant adverse impact on the Mad River fish hatchery.

Infectious Salmon Anemia Virus, also known as Hemorrhagic Kidney Syndrome, Infectious Salmon Anemia (ISA) is a highly contagious disease associated with farmed Atlantic salmon. First reported in fish farms in Norway in 1984, ISA has since spread to fish farms in Scotland, the Faroe Islands, Chile, northeastern Canada and northeastern U.S. (Maine). Symptoms include: lethargy, anemia, leukopenia, bloated abdomen (ascites), protruding eyes, darkened skin, enlarged spleen, liver necrosis, swollen and discolored kidneys, localized bleeding from skin lesions (USDA *et al.* 2011, USDA 2020), and increased mortality of approximately 5 to 90 percent (Dannevig *et al.* 2008). Rainbow trout may also develop heart lesions.

Infectious Salmon Anemia virus can also be transmitted to Pacific herring (Nylund *et al.* 2002), allowing for spread of the disease to wild salmonids through foraging. Pacific herring can also act as a disease reservoir. Humboldt Bay and its surrounding waters are known to support large populations of Pacific herring.

Salmonid Alphavirus (SAV) causes pancreas disease (PD) in farmed Atlantic salmon and sleeping disease (SD) in farmed rainbow trout. It is found in salmonid farms in Norway, Scotland, England, Ireland, France, Germany Spain, U.S. (Washington), and Italy. Infections of SAV have high mortality rates. Six strains of SAV have been identified (Deperasińska *et al.* 2018). Symptoms include: cessation of feeding, lethargy, muscle damage, fluid in the abdomen, atrophy of red skeletal muscle, pancreatic necrosis, cardiac myopathy, difficulty swimming and staying upright, failure to grow, failure to gain weight, and death. Survivors appear thin and unthrifty, and they can become vectors. SAV was found to have up to 27 percent mortality in net pens in Washington state, but no studies on mortality have been conducted on wild salmonids. Sleeping disease in wild steelhead would make them extremely vulnerable to predation. If SAV escapes the Project, it could have a significant impact on steelhead returns to the Mad River Fish Hatchery.

Piscine Orthoreovirus and Novel Piscine Reoviruses is also known as Atlantic salmon reovirus and novel reovirus. Piscine Orthoreovirus (PRV) symptoms include, but are not limited to: heart and skeletal inflammation (HSMI), inflammatory lesions of the heart and skeletal muscle, burst cells (in Chinook), jaundice, anemia, anorexia, lethargy, inflammation, kidney and liver damage (degenerative/ necrotic lesions of the liver/kidney), and fluid in the abdomen (ascites). There are now three strains of PRV, with both PRV-1 and PRV-3 each having two sub-types with additional mutations.

PRV's expression of HSMI was first characterized in 2010 in farmed Atlantic salmon (Palacios 2010). PRV and HSMI have been found in farmed: Atlantic salmon (Palacios 2010, Kibenge *et al.* 2017), coho salmon (Takano *et al.* 2016, Kibenge *et al.* 2017), Chinook salmon, and rainbow trout (Olsen *et al.* 2015). PRV and HSMI are associated with high morbidity and mortality. PRV and HSMI are now also found in wild coho and Chinook salmon in Canada (Kibenge *et al.* 2017).

PRV and its variants are found in farmed salmonids in Norway, Denmark, Germany, United Kingdom, France, Canada, Japan, Chile, Italy, and the U.S. (Washington, Oregon, and Maine). Kibenge *et al.* (2017) estimated PRV prevalence in the source farmed Atlantic salmon population at 95% or greater. They found escaped, farmed Atlantic salmon had a PRV prevalence close to 100% in Washington State and British Columbia following a large containment failure at a farm in northern Puget Sound. Mordecai *et al*. (2021) found that infection of wild Chinook salmon with PRV-1 infection was closely tied to farm proximity.

First found in farmed Atlantic salmon in 1999 (Kongtorp *et al.* 2004) and later implicated as being associated with HSMI (Palacios 2010), PRV was first described in farmed *O. mykiss* in Norway in 2013; however, symptoms similar to PRV have been described as early as 1977 (Vendramin *et al.* 2019).

Although PRV is ubiquitous in farmed salmon, some argue that symptoms and mortality are less than previously reported (Polinski *et al.* 2019). Emerging studies (Løvell *et al.* 2010, Mordecai *et al.* 2020) have shown that co-occurrences with other viruses and pathogens may drive the expression of symptoms and mortality. PRV is often co-associated with other viruses (Løvell *et al.* 2010, Mordecai *et al.* 2021).

Polinski *et al.* (2019) found that different populations of farmed Atlantic salmon had different responses to PRV, but PRV variants were not isolated in the study. Also, the fish with HSMI in other studies were already sick; whereas PRV-positive but asymptomatic fish in Polinski *et al.* (2019) may have had earlier disease progression than other studies, therefore not yet showing signs of HSMI.

In their study of PRV-3, Sørenson *et al.* (2020) found that the variant had its highest prevalence in grow-out facilities (71.7%) and, in Denmark, disease outbreaks of PRV-3 were only observed in RAS facilities. Considering that the Project is a grow-out RAS facility, the risk of viral loading after disease introduction is very high.

PRV has variable outcomes for farmed salmonids, depending on the PRV strain and the affected species. Stress is thought to be causative when going from a PRV infection to full-on HSMI. There are no studies of heart, liver, or kidney effects to wild salmonids during upmigration to natal streams, but the stress of upmigration would put a phenomenal amount of physiological strain on individual salmonids with PRV. Individuals that avoid predation in their outmigration and marine phases would be the "dead fish swimming" described by Hinch *et al.* (2012) —e.g., not able to complete their full life-history cycle, upmigrate, or reproduce. If PRV escapes the Project, it could have a significant adverse effect on the Mad River Fish Hatchery.

Novel Fish Totivirus is co-associated with PRV and is implicated in Cardiomyopathy Syndrome (CMS), which is a spontaneous heart attack that occurs in farmed fish prior to harvest (Løvell *et al.* 2010). CMS was first reported in Norwegian farmed salmon in 1988 (Amin and Trasti 1988). Totiviruses are typically associated with fungi. Co-association of the novel fish totivirus and PRV is thought to significantly increase salmonid mortality.

Infectious Hematopoietic Necrosis Virus is one of the earlier diseases associated with fish farming and hatcheries. Now known as Infectious Hematopoietic Necrosis Virus (IHNV), earlier names being Oregon Sockeye Salmon Disease, Columbia River Sockeye Disease, Sacramento River Chinook Disease. Juvenile salmonids are more severely affected by IHNV than adults, but those that do survive the disease become vectors by shedding the virus through feces and mucus. IHNV is known to affect Atlantic salmon, sockeye and Chinook salmon, and *O.mykiss*. It is found in continental Europe, Alaska, Japan, Canada, Central California, Oregon, and Washington State.

IHNV causes lethargy, occasional frenzied swimming, darkened skin, abdomen swollen with ascitic fluid, protruding eyes, and hemorrhaging at the mouth, anus, and base of the fins. The cumulative mortality rates on fish farms can reach 90-95%. Occasional disease outbreaks have been reported in wild salmon.

PCR (polymerase chain reaction) testing is available for PRV, SAV, and IHNV. Weekly PCR testing of fish processing waste and Project effluent is needed to ensure early detection and that these deadly viruses do not proliferate at the Project. As PCR testing becomes commercially available for other Atlantic salmon diseases, they should be added to the weekly viral screening at the Project.

Technology exists to further remove Ammonia from Project effluent, but the proposed Project is dependent upon nitrogenous waste being flushed into the marine environment and not persisting in the outfall area. As nitrogenous waste settles on the ocean floor, it is not trapped there. Upwelling events that are common drivers of productivity on the Pacific Coast are likely to redistribute the nitrogenous waste into estuaries and lagoons. The cumulative and additive effects of marine upwelling and nutrient loading from the Project have not been considered or fully addressed. Marine upwelling and nutrient loading have the capacity to seriously degrade the estuarine ecosystem in Humboldt Bay. Upwelling and shifting coastal currents will lead to greater dispersal and estuarine sedimentation of effluent than was analyzed in the Project's environmental documents. The full reach of effluent dispersal and adverse effects from resuspension during upwelling and storm events should be analyzed. An understanding of local currents, tides, and upwelling events leads one to logically expect resuspension and dispersion of sedimented effluent into Humboldt Bay and to the Mad and Eel River estuaries; however, we do not need to speculate. Upwelling modeling such as the Biologically Effective Upwelling Transport Index (BEUTI) combined with NOAA data on local currents can be used to quantify the full reach of nutrient dispersal and loading during upwelling events.

The risk of *Pseudo-nitzschia* blooms worsening due to upwelling and nutrient loading in Humboldt Bay is a serious concern. It is well-established scientifically that a combination of warm water and nutrients is a driver for algal blooms. When those algal blooms include toxic species or species that release toxic substances, such as *Pseudo-nitzchia* and its release of domoic acid, organisms in the environment could be harmed, injured, or killed. *Pseudo-nitzchia* responds very rapidly to localized warming and nutrient loading. The Project's nutrient loading and thermal pollution would exacerbate and accelerate *Pseudo-nitzchia* outbreaks already associated with local warming.Although it is true that domoic acid proliferation is known to be associated with large-scale climate events, the continuing presence of *Pseudo-nitzchia* in coastal waters puts the marine ecosystem at risk from domoic acid events.

Commercial fish feed is a known source of dioxins, PCBs, organochlorine pesticides, polybrominated diphenyl ethers (PBDEs), and mercury (Buckman *et al*. 2016, Choi *et al*., Dietrich *et al*. 2015, Jacobs *et al*. 2002, Ng *et al*. 2018). These toxic chemicals are both bioaccumulated into fish tissue and excreted into the environment. Nordic Aquafarms has only addressed residual onsite dioxins, PCBs, organochlorine pesticides, and PBDEs and they do not address fish feed and excrement as a source of dioxins, PCBs, organochlorine pesticides, PBDEs, and mercury that will be present in Project effluent

The Project's wastewater treatment does not have the ability to remove dioxins, PCBs, PBDEs, and mercury from the effluent. These toxicants can enter Humboldt Bay on a southbound current and incoming tide, and they can precipitate onto tidal wetlands. The risk of additional distribution into Humboldt Bay during an upwelling event has not been addressed and no testing or monitoring is proposed.

Subsection 13142.5 (b)

For industrial processing (*e.g*., the rearing and processing of Atlantic salmon), the HBAP reiterates the Coastal Act and calls for the best available site, design, technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life. According to the HBAP: "Humboldt Bay is by far the largest and most important estuary on the Northern California coast." This being the case, removing productive estuarine waters from Humboldt Bay is not the best available site or measure to minimize mortality of all forms of marine life. Humboldt Bay is the cradle of coastal marine productivity on the Northern California coast, and locating the seawater intakes west of Samoa Peninsula (with adequate screening, as described) is a feasible way to minimize the intake and mortality of marine life. This option was recommended by NMFS in their comments on the DEIS.

Subsection 13142.5 (c)

The HBAP directs that warmed water "shall not significantly alter the overall ecological balance of the receiving area." Marine warming has led to harmful algal blooms and bioaccumulation of domoic acid in the food chain along the coast of California. Additional nutrient loading and thermal pollution (*i.e.,* 9.0 to 10.9°C in winter months) from the Project effluent could extend the season for harmful algal blooms and extend exposure to marine mammals. California sea lions are particularly hard hit from domoic acid poisoning.

The 10 to 20°F warmer water from the outfall pipe is likely to foster a perennial reserve population of *Pseudo-nitzchia* that could trigger a faster domoic acid outbreak than a natural, slow warming trend at a larger scale. The area affected by the Project effluent (including and beyond the vicinity of the outfall pipe) is likely to become a highly retentive region for *Pseudo-nitzchia*, such as described for: Juan de Fuca eddy, Heceta Bank, Monterey Bay, and Point Conception (Trainer *et al.* 2012). The same risk from those areas becoming a "potential hotspot" for *Pseudo-nitzchia* outbreak applies to the area affected by the Project near the effluent pipe and from redistributed effluent into Humboldt Bay.

While the spread of domoic acid from a localized population of *Pseudo-nitzchia* would not affect the entire coastline, such as during a large-scale event, it would certainly affect local recreational and commercial crab fisheries and marine mammals. While larger marine mammals may move their young away from the effluent stream, both adults and juveniles could still be exposed to domoic acid and subsequent neurological effects if the warm and nutrient-laden effluent from the Project result in harmful *Pseudo-nitzchia* algal blooms. Sea lions and harbor seals are at the greatest risk from domoic acid poisoning, which results in lethargy, disorientation, loss of pregnancy, seizures, brain damage, and death. Although the Project is not the proximal cause of marine warming, *per se*, thermal pollution from Project effluent would put marine species at risk. If a marine warming event happens in the early stages of operation, the Project would be contributing to the magnitude of a harmful algal bloom.

Subsection 13142.5 (d)

The HBAP states: “Independent baseline studies of the existing marine system should be conducted in the area that could be affected by a new or expanded industrial facility using seawater in advance of the carrying out of the development.” Contemporary baseline monitoring of the Sacramento River for salmonid pathogens (Mauduit *et al.* 2022) has demonstrated that the technology exists and is a useful tool in establishing a pathogen-burden baseline in local, wild salmonid populations in California. However, Nordic Aquafarms has strenuously rejected such monitoring in favor of biannual veterinary visits to the Project.

Without even considering the cumulative effect of upwelling, effluent dispersion modeling in GHD 2021 clearly shows that effluent will interface with the salmonid critical habitat streams flowing into Humboldt Bay. With worldwide proliferation of deadly viruses (*e.g*., PRV, SAV, and IHNV) known to occur in Atlantic salmon farms, a fair assessment and baseline of salmon-farm pathogens is required in order to conform with subsection 13142.5. The baseline monitoring of the Sacramento River, done by Mauduit *et al*. (2022) is an excellent example of using modern investigative techniques to establish a pathogen baseline. Salmonid critical habitat that is likely to interface with Project effluent is the mouths of Mad River, Eel River, Humboldt Bay, Elk River, Salmon Creek, Freshwater Creek, and Jacoby Creek. Salmonids directly exposed to the effluent outfall when migrating past or feeding near the Project’s outfall pipe are likely to disperse pathogens into spawning areas when they migrate upstream. A baseline for each of these rivers and streams, as well as Klamath River and Redwood Creek, is needed in order to track the progression of disease known to be associated with farmed Atlantic salmon.

HBAP Section 3.30 Natural Resources Protection Policies and Standards

Subsection 30240

The HBAP directs that: “Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas.” The Project is not protective of environmentally sensitive marine habitat, such as essential fish habitat and ESA critical habitat, and is not protective of salmonids dependent upon the environmentally sensitive habitats specifically identified in the HBAP. Release of effluent into the migratory path for green sturgeon, coho salmon, Chinook salmon and steelhead trout will cause disruption of migratory behavior. Exposure of salmonids to viruses associated with farmed Atlantic salmon could cause disruption of wild salmonid populations and potential run failure. Loss of important commercial, recreational, and valued native fishes should be considered a significant disruption.

The nutrient loading and thermal pollution created by the Project would be a key factor in localized algal blooms. *Pseudo-nitzschia* proliferation and domoic acid outbreaks

would have a profound effect on the marine mammals in and around Humboldt Bay, and the Dungeness crab fishery would have to close.

Subsection 8--Coastal Streams, Riparian Vegetation and Marine Resources

Protection of marine resources has a high level of emphasis in the HBAP: “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. Use 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.”

As discussed earlier, the risk of run decimation from Atlantic farmed salmon diseases continues due to lack of monitoring, timely response, mitigation, and remediation. Loss of salmon and steelhead runs in the Mad River, Eel River, Redwood Creek, Klamath River and tributaries to Humboldt Bay would have a profound impact on long-term commercial, recreational, scientific, and educational purposes of Humboldt Bay and the coastal marine area.

Subsection 30231

The HBAP requires protection of biological productivity and coastal waters. It includes direction to minimize adverse effects of waste water discharges and entrainment. Without ozone treatment of Project effluent and without viral monitoring, timely response, mitigation, and remediation for diseases found in Atlantic salmon, the Project will affect the biological productivity and the habitat quality of Humboldt Bay, coastal streams, and the Mad and Eel Rivers. When PRV, SAV, IHNV, and other deadly diseases escape the Project, the biological productivity of coastal waters, streams, wetlands, and estuaries will not be able to maintain optimum populations of wild salmon.

Nordic Aquafarms has strenuously opposed weekly PCR testing for PRV, SAV, and IHNV—claiming that all PCR positives in the effluent would be false positives, or non-pathogenic. PCR testing is an inexpensive and effective methodology for screening for viral diseases. Positive PCR tests would be an indication that virus has infected the facility and closer inspection for Atlantic salmon diseases is warranted. PCR testing is an important tool for disease control, planning, initial response, mitigation, and remediation.

Full ozone treatment of effluent and vigorous disease monitoring could minimize adverse effects of waste water discharges on wild native salmonids. In addition, technology exists to further remove ammonia and nitrogenous waste from effluent. Without these measures, biological productivity and habitat quality in Humboldt Bay and coastal streams will be compromised.

Although the saltwater intakes will be screened, impinged marine organisms will be blasted with air to clear the screens. Most marine fish species are not able to forage on the disintegrated prey from the blasters. Subsection 30231 calls for minimizing the adverse effects of entrainment. Due the fact that Humboldt Bay is an important estuary in California, screens and air blasters may not minimize the effect of impingement to a level that does not reduce the biological productivity of Humboldt Bay.

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Identification of interested persons, 1-HUM-20-1004, Nordic Aquafarms

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PLANNING AND BUILDING DEPARTMENT
COUNTY OF HUMBOLDT
CURRENT PLANNING DIVISION

3015 H Street, Eureka, CA 95501
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http://www.humboldtgov.org/156

California Coastal Commission
1385 8th Street, Ste 130
Arcata, CA 95521

Notice of Final Action Taken

Date: October 11, 2022

Appealable Status Appealable

Applicant: Nordic Aquafarms California, LLC
C/O Brenda Chandler
PO Box 1477
Eureka, CA 95502

Assessor Parcel Number: 401-112-021

Record Number: PLN-2020-16698

Contact: Cade McNamara - 268-3777

Description
The applicant (Nordic Aquafarms California, LLC (NAFC), is requesting a Coastal Development Permit and Special Permit for the demolition and remediation of the Freshwater Tissue Samoa Pulp Mill facility and the construction of a land-based finfish recirculating aquaculture system (RAS) facility. This includes the development of five buildings totaling approximately 766,530 square feet and the installation of 4.8 megawatt (MW) solar panel array mounted on building rooftops, covering approximately 657,000 square feet. The height of the tallest proposed building is 60 feet.

The aquaculture facility would produce fresh head on gutted fish and fillets for delivery to regional markets. The species to be produced at the facility is intended to be Atlantic Salmon, pending approval from CDFW. The project will include ancillary support features such as paved parking, fire access roads, security fencing, and stormwater management features. The project would require approximately 2.5 million gallons per day (MGD) of freshwater and industrial water provided by the Humboldt Bay Municipal Water District, sourced from the Mad River. Existing on-site water service supplied by the Humboldt Bay Municipal Water District would be connected to the new buildings for potable use, fire sprinklers, and irrigation. The project would require approximately 10 MGD of salt water, which will be provided via modernized water intake (sea chest) infrastructure located adjacent to the NAFC Project Site, which will be operated by the Humboldt Bay Harbor, Recreation, and Conservation District. Treated wastewater would be discharged utilizing the existing Redwood Marine Terminal II ocean outfall pipe, which extends one and a half miles offshore. A total volume of 12.5 MGD is anticipated to be released daily. Wastewater discharge is permitted by the North Coast Regional Water Quality Control Board.

The Project will be conducted in two phases and is comprised of the following activities: demolition of existing pulp mill infrastructure; soil contamination remediation; ground densification; aquaculture facility construction; decommission of an existing leach field and connection to the Samoa wastewater treatment system for Phase 2. The Project is located 1,000 feet east of the Samoa Solid Waste Disposal Site (SWDS). A Special Permit is required pursuant to Sections 313-109.3.12 and 31 parking and loading space requirements.

EXHIBIT NO. 9
NOFA + ADOPTED FINDINGS
APPEAL NO. A-1-HUM-22-0063
(NORDIC AQUAFARMS)

Action Taken
Following a noticed Public Hearing the County of Humboldt Planning Commission approved the referenced application on August 4, 2022.
The Planning Commission's decision was appealed to the Board of Supervisors and denied on September 28, 2022 by Resolution 22-123 and is subject to the attached Conditions of Approval.

Appeal Completion
The appeal period for this project has been completed.

Effective Date
Coastal Development Permit record number PLN-2020-16698 will become effective at the end of the California Coastal Commission appeal period and will expire at the end of 1 year .

CURRENT PLANNING DIVISION
PLANNING AND BUILDING DEPARTMENT
COUNTY OF HUMBOLDT

3015 H Street, Eureka, CA 95501
Phone (707) 445-7541 • Fax (707) 268-3792
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Applicant	Owner	Agent
Nordic Aquafarms California, LLC	Humboldt Bay Development Association	GHD
C/O Brenda Chandler	C/O Larry Oetker	C/O Andrea Hilton
PO Box 1477	P.O. Box 1030	P.O. Box 1010
Eureka, CA 95502	Eureka, CA 95502	Eureka, CA 95502

Notice of Board of Supervisors' Decision

Date: October 11, 2022

Assessor Parcel Number: 401-112-021

Permit: PLN-2020-16698

Contact: Cade McNamara - 268-3777

Description
The applicant (Nordic Aquafarms California, LLC (NAFC), is requesting a Coastal Development Permit and Special Permit for the demolition and remediation of the Freshwater Tissue Samoa Pulp Mill facility and the construction of a land-based finfish recirculating aquaculture system (RAS) facility. This includes the development of five buildings totaling approximately 766,530 square feet and the installation of 4.8 megawatt (MW) solar panel array mounted on building rooftops, covering approximately 657,000 square feet. The height of the tallest proposed building is 60 feet.

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The Project will be conducted in two phases and is comprised of the following activities: demolition of existing pulp mill infrastructure; soil contamination remediation; ground densification; aquaculture facility construction; decommission of an existing leach field and connection to the Samoa wastewater treatment system for Phase 2. The Project is located 1,000 feet east of the Samoa Solid Waste Disposal Site (SWDS). A Special Permit is required pursuant to Sections 313-109.3.12 and 313-109.1.5.2 for an exception to the parking and loading space requirements.

Decision
The project was approved by the Board of Supervisors on September 28, 2022 by Resolution 22-123 and is subject to the attached Conditions of Approval.

Appeals
There is no appeal of this decision.

Conditions of Approval
Please review these conditions carefully as other permits may be required before the project commences. In accordance with County Code, this approval may be revoked or rescinded, in whole or in part, if certain grounds are found to exist (See Humboldt County Code §312-14).

California Coastal Commission Appeal
This project is subject to a California Coastal Commission appeal period which begins at the end of the County appeal period. If appealed, the Coastal Commission may deny the project or impose other conditions of approval on the project.

Effective Date
If no appeal is initiated, the day after all appeal periods end will become the effective date of the permit. If an appeal has been initiated the effective date will depend on the outcome of the appeal.

Expiration Date
You will receive an expiration letter stating the effective date and the expiration date at the end of the Coastal Commission appeal period.

Extensions
If the conditions for your project cannot be met before the expiration date, you may apply for an extension with the Planning Division. Extension applications must be submitted with the appropriate fees before the permit expiration date. If the permit expires, a new permit application must be filed and accompanied by applicable fees. The new permit may be subject to different processing requirements and standards. Contact your assigned planner if you have any questions about extensions.

Changes or Modifications to Project
If your project needs minor changes or major modifications, review and approval of the project by the Planning Division is required. Applications for changes or modifications must be filed and accompanied by applicable fees. Contact your assigned planner if you think your project needs to be changed or modified.

BOARD OF SUPERVISORS, COUNTY OF HUMBOLDT, STATE OF CALIFORNIA

Certified copy of portion of proceedings; Meeting on September 28 2022

Resolution No. 22-123
Resolution of the Board of Supervisors of the County of Humboldt ADOPTING FINDINGS OF FACT, CERTIFYING AN ENVIRONMENTAL IMPACT REPORT FOR THE PROJECT PURSUANT TO THE CALIFORNIA ENVIRONMENTAL QUALITY ACT, DENYING THE APPEAL FOR RECORD NO. PLN-2020-16698-APPEAL AND APPROVING THE NORDIC AQUAFARMS, LLC COASTAL DEVELOPMENT PERMIT AND SPECIAL PERMIT RECORD NO. PLN-2020-16698.

WHEREAS, Nordic Aquafarms California, LLC, submitted an application and evidence in support of approving a Coastal Development Permit and Special Permit for the demolition and remediation of the former Samoa Pulp Mill infrastructure and to allow construction of a land-based aquaculture facility; and

WHEREAS, the County Planning Division reviewed the submitted application and evidence and referred the application and evidence to reviewing agencies for site inspections, comments and recommendations; and

WHEREAS, on July 28, 2022, the Planning Commission conducted a Public Hearing and received staff and applicant presentations and public comment. Public comment was closed, and the Public Hearing was continued to August 4, 2022; and

WHEREAS, on August 4, 2022, the Planning Commission adopted Resolutions which did the following:

1. Certified the Environmental Impact Report for the Nordic Aquafarms California, LLC, project, and;

2. Found that the project is consistent with the Humboldt Bay Area Plan and Zoning Ordinance, and;

3. Adopted a Mitigation Monitoring and Reporting Program, and;

4. Approved the Coastal Development Permit and Special Permit (Record Number: PLN-2020-16698) subject to the Conditions of Approval.

WHEREAS, 350Humboldt, the Redwood Regional Audubon Society Chapter, and the Humboldt Regional Fisheries Marketing Association("Appellant") on August 18, 2022, filed an appeal in accordance with the Appeal Procedures specified in Humboldt County Code Section 312-13 et seq.; and

WHEREAS, the Board of Supervisors conducted a duly-noticed public hearing, *de-novo*, on September 28, 2022; and

Now, THEREFORE BE IT RESOLVED, that the Board of Supervisors makes all the following findings:

Project Description.

1. **FINDING** **Project Description:** A Coastal Development Permit and Special Permit for demolition and remediation of the Samoa Pulp Mill facility and construction of a land-based finfish recirculating aquaculture system (RAS) facility. This includes development of five buildings totaling 766,530 square feet and installation of a 4.8 megawatt (MW) solar array mounted on

building rooftops, covering approximately 657,000 square feet. A Special Permit is required pursuant to HCC Section 313-109.1.5.2 for an exception to the loading space requirements. The height of the tallest proposed building is 60 feet. The project will be constructed in three phases: Phase 0 will involve demolition and site preparation, Phase 1 will include intake and outfall connections, hatchery building, Phase 1 grow-out modules, fish processing and administration building, central utility plant, Intake water treatment, wastewater treatment building, backup systems plant, oxygen generation plant, and utility and infrastructure installation and Phase 2 will consist of Phase 2 grow-out module construction. The aquaculture facility would produce fresh head on gutted fish and fillets for delivery to regional markets. The species produced at the facility is intended to be Atlantic Salmon, pending approval from CDFW. The Project will include ancillary support features including paved parking, fire access roads, security fencing, and stormwater management features. The Project would require approximately 2.5 million gallons per day (MGD) of freshwater and industrial water provided by the Humboldt Bay Municipal Water District, sourced from the Mad River. Existing on-site water service supplied by the Humboldt Bay Municipal Water District would be connected to the new buildings for potable use, fire sprinklers, and irrigation. The Project would require approximately 10 MGD of salt water, which will be provided by upgraded water intake infrastructure located adjacent to the NAFC Project Site, on Humboldt Bay. Treated wastewater would be discharged utilizing the existing Redwood Marine Terminal II ocean outfall pipe, which extends one and a half miles offshore. A total of 12.5 MGD would be released daily. The EIR evaluated all phases of project development.

EVIDENCE a) The project description has remained stable and can reviewed in file PLN-2020-16698.

b) The project description in the DEIR provides a complete description of all activities associated with site development and operation.

2. **FINDING:** **Lead Agency -** The County of Humboldt is the lead agency for preparation of the Environmental Impact Report because the County is the public agency with the greatest responsibility for supervising or approving the project as a whole consistent with CEQA Guidelines sections 15050(a) and 15051.

EVIDENCE: a) Permitting demolition and remediation of the Samoa Pulp Mill facility and construction of land-based finfish recirculating aquaculture system (RAS) facility for Nordic Aquafarms LLC (Project) is the largest component of the permitting and provides the best perspective from which to evaluate the whole of the action including the sea water intake and ocean outfall. ..

b) The County has permit authority of the land-based portion of the proposed project. A complete environmental analysis of all components of the project, including the environmental effects of these components, were included in the EIR with the County as the Lead Agency.

3. **FINDING:** **CEQA Compliance -** The County of Humboldt completed an Environmental Impact Report (EIR) for the Nordic Aquafarms RAS Facility Project in compliance with California Environmental Quality Act (CEQA).

EVIDENCE: a) An Initial Study/ Mitigated Negative Declaration was prepared for the proposed Coastal Development Permit and Special Permit pursuant to Section 15074 of the CEQA Guidelines. The ISMND was circulated for public review from April 23, 2021, to May 24, 2021. 325 comments were received on the IS/MND.

b) In response to public comment and to address the potential environmental impacts of the water intake and ocean outfall being permitted by the Harbor District, it was decided to prepare an Environmental Impact Report.

c) The County issued a Notice of Preparation (NOP) of a Draft Environmental Impact Report on May 28, 2021, and conducted two separate scoping meetings; an agency scoping meeting during the morning of June 10, 2021, and a separate public meeting on the evening of June 10, 2021. The NOP was sent to state agencies, property owners within 1,000 feet of the project site, and people who expressed an interest in the project. The County issued a press release for the NOP and it was posted with the State Clearinghouse between May 28, 2021 and June 28, 2021.

d) The June 10, 2021public scoping meeting generated comments related to GHG emissions, energy use, Sea Level Rise, alternative transportation, cumulative impact analysis, impacts to coastal access, impacts to water quality, improvements for water intake, and source of fish eggs.

e) The June 10, 2021, agency meeting was attended by 5 agencies including the California Coastal Commission, California Department of Fish & Wildlife, National Marine Fisheries Service, Regional Water Quality Control Board, and the Air Quality Management District, as well as the County Department of Environmental Health. Comments focused on emissions from the facility, landfill gas, water outfall monitoring and improvements for the intake.

f) The NOP elicited 12 comment letters identifying areas of concern involving: project alternatives, energy use, effluent discharge, species selection, greenhouse gas emissions, traffic, quality control for pathogens, and cumulative biological impacts.

g) In accordance with CEQA Guidelines section 15082(c) the County of Humboldt consulted with the California Department of Fish and Wildlife, Regional Water Quality Control Board, California Coastal Commission and National Marine Fisheries Service to more accurately define and address agency concerns in preparing the DEIR. These meetings were separate from the scoping meeting and were conducted as a series of meetings.

h) The Draft Environmental Impact Report (DEIR) (State Clearinghouse #2021040532) was prepared and circulated for a 60-day public review and comment period from December 20, 2021, to February 18, 2022. The Notice of Completion was also filed with the State Clearinghouse on December 20, 2021.

i) The Notice of Availability for the DEIR identified it was available for review at the Planning and Building Department Website, Planning and Building Department, County Clerk-Recorder's office, Humboldt State University Library, Humboldt County Library and the Humboldt Bay Harbor, Recreation and Conservation District Office.

j) The Environmental Impact Report (EIR) includes 18 mitigation measures which have been incorporated into a Mitigation Monitoring and Reporting Plan (MMRP) and is adopted as part of the project.

k) In accordance with CEQA Guidelines section 15091(a)(1) and 15091(d) all project changes required to avoid significant effects on the environment have been incorporated into the project and/or are made conditions of approval. A Mitigation Monitoring and Reporting Plan has been prepared in accordance with CEQA Guidelines Section 15097 and is designed to ensure compliance during project implementation and is has been adopted in conjunction with project approval. The applicant must enter, an "Agreement to Implement a Mitigation Monitoring and Reporting Plan" as a condition of project approval (Condition of Approval No. 5).

l) The Draft EIR elicited 242 public comments: 12 from local, state, and federal agencies; 19 from non-governmental organizations; 79 from individuals; and 132 letters of support from both individuals and non-government organizations.

m) Each of the comments on the DEIR were identified, considered, and evaluated to determine if any comments present new information or raise issues needing to be addressed. No new issues were raised, but each comment was responded to providing clarification of the information available.

n) To better address frequently made comments, eleven (11) Master Responses were prepared which addressed specific topics including: (1) Truck Traffic and Road Safety, (2) Greenhouse Gas and Energy, (3) Fish Escape, (4) Fish Health and Biosecurity, (5) Marine Outfall, (6) Statements Unrelated to Environmental Issues as Defined Under CEQA, (7) Intake Biologic Productivity, (8) Substantial Evidence, Speculation, and Unsubstantiated Opinion, (9) Level of Detail in EIR and Responses to Comments, (10) Fish Feed, and (11) Waste Handling and Disposal.

o) A Final EIR was prepared. The Final EIR includes an Introduction, comments and responses, comments received following the close of public review period, Errata to the DEIR, References, and a list of preparers. The Total contents of the FEIR are the DEIR the FEIR document, and the Errata to the FEIR.

p) In preparation for public hearings on the project, the County held two (2) public workshops, at the Planning Commission on April 21, 2022 (held in person at Planning Commission and via zoom) and May 19, 2022 (held in person at Planning Commission and via zoom), where the Commission and public were presented with the project and the components of the EIR.

q) The FEIR was made available for review by Board of Supervisors, the Planning Commission, public and agencies who commented on the DEIR on July 1, 2022 (27 days before the public hearing at the Planning Commission) consistent with CEQA Guidelines Section 15089. The EIR was made available by sending notices providing information on how to access the FEIR. The FEIR was only provided electronically with the ability to either view it, or to copy and download it.

r) An Errata to the FEIR was produced on July 15, 2022. One comment had not been responded to and there were several minor typographical corrections where words were omitted. The Errata was provided to everybody who received instructions of how to obtain the FEIR.

s) Public Notice was given for the Public Hearing at both the Planning Commission and Board of Supervisors describing the Project including consideration of certification of the EIR prepared for the project in accordance with CEQA Guidelines 15202(e).

t) The Humboldt County Planning and Building Department, located at 3015 H Street, Eureka, CA 95501 is the custodian of documents and other materials that constitute the record of proceedings upon which the decision to certify the EIR is based.

4. **FINDING** The County completed government to government consultation under AB 52 (CEQA 21080.3.1) to determine if there was the potential for tribal cultural resources associated with the Site. No Tribal Cultural Resources were identified.

EVIDENCE a) On November 2020, as part of the preparation of a Negative Declaration, the County invited tribes with traditional affiliation associated with the site to engage in government to government consultation relative to the potential for Tribal Cultural Resources associated with the site.

b) On November 24, 2020, the Blue Lake Rancheria declined government to government consultation.

c) On December 9, 2020, the County met with the Bear River Band of the Rohnerville Rancheria. No Tribal Cultural concerns were identified. Some project related questions were asked. On February 9, 2021, the County provided follow up information for the Tribe.

d) On March 2, 2021, the County conducted government to government consultation with the Yurok Tribe. No expression of Tribal Cultural Resources related to the site were identified.

e) On June 4, 2021, the County as part of preparation of the EIR sent out invitations to the Tribes in the County (Wiyot, Blue Lake Rancheria, Bear River Band of the Rohnerville Rancheria, and Yurok) to engage in government-to-government consultation related to Tribal Cultural Resources. On July 21, 2021, the County sent out a letter stating there had been no response to the June 4, 2021, invitation and the offer to consult would be closed as of July 23, 2021, unless a request for consultation was received.

f) After the closing of AB52 consultation, continued coordination ensued between the County and local Tribes.

g) On August 21, 2021, the County had a second meeting with the Bear River Band of the Rohnerville Rancheria to discuss the project and answer questions.

h) On October 21, 2021, the County met again with the Wiyot Tribe to discuss the project and answer questions.

i) On May 23, 2022, the Bear River Band submitted a letter identifying components of the project that pleased the Tribe and requested the standard inadvertent discovery protocol condition be applied to the project.

j) On June 6, 2022, the County received a letter from the Blue Lake Rancheria identifying content with the environmental document and the support of the sustainable aquaculture proposed.

5. **FINDING** **AREAS OF NO IMPACT.** Based upon the findings of the Initial Study/Mitigated Negative Declaration, and as discussed in section 5 of the DEIR, Agriculture and Forestry, mineral extraction and mining, Land Use, Public Services, and Recreation were determined to not have any environmental impact and were not further evaluated in the EIR.

EVIDENCE

a) The project site does not include any farmland, forest land, or timberland, or land zoned for these uses; thus, there could be no impact.

b) There are no known mineral resources or mining operations in the area, and, thus, there is no impact.

c) The site is an existing Brownfield site, supporting the remains of an old pulp mill with a land use and zoning designation of Coastal Dependent Industrial. Aquaculture is a principal use in the Coastal Dependent Industrial zone and is completely consistent with the intent of this zone and there is no impact to land use.

d) The project would not create the need for additional public service or governmental facilities, nor would it result in increased response times thus there is no impact to public services.

e) The project would not interfere with any existing recreational facility nor create the need for additional recreational facilities; thus, there is no impact to recreation.

6. **FINDING** **ENVIRONMENTAL IMPACTS FOUND NOT TO BE SIGNIFICANT:**
The EIR determined that there would be No Impact or a Less Than Significant impact to the following potential areas of impact: Aesthetics; Biology-ocean discharge, Biology- sensitive communities for the terrestrial development, ocean discharge and water intake, Biology- migration of species for terrestrial development, ocean discharge and water intake, Biology- conflict with regulations to protect resources, Biology- conflict with

conservation plan, Biology- cumulative impacts; Cultural Resources– historic resources, Cultural Resources– cumulative impacts; Energy; Greenhouse Gas, Hydrology – groundwater supplies, drainage, flood flows and cumulative impacts; Noise; Population and Housing; Transportation; Utilities; and Wildfire. These impact determinations were addressed using the criteria taken from Appendix G of the CEQA Guidelines.

EVIDENCE

a) The impact on aesthetic resources is less than significant because the project area is not associated with a scenic vista, is not in a location identified as a scenic resource, and the project will not damage the visual character of a site characterized by remnants of a prior industrial use and will not create substantial light or glare.

b) The impact on biology related to effects on riparian or other sensitive natural communities is less than significant because there are not riparian habitat or other sensitive natural communities in the location of the wastewater discharge or intake.

c) The impact on biology related to adverse effects on wetlands is less than significant for the ocean discharge, water intakes, and compensation work because there will not be water or fill material taken from or added to wetlands associated with these activities.

d) The impact on biology related to the movement of any native resident or migratory fish or wildlife species, established native resident or migratory wildlife corridors or the use of native wildlife nursery sites is less than significant because the project will not interfere with any known migration route or nursery site.

e) The project will not conflict with any local policies or ordinances for the protection biological resources or conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional., or state HCP, so the biological impact is deemed less than significant.

f) There are no known historical resources located on the site and so the impact is less than significant. The buildings to be removed on site are not important architecturally or historically and so their removal is a less than significant impact. The removal of the piers for the compensatory restoration is less than significant only because the pier piles represent past activity of the location, but they represent no historical value.

g) The project will not result in wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation nor will it conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The Project will use a significant amount of power for operation of pumps and filters, but the applicant proposes to purchase renewable or non-carbon power in accordance with Redwood Coast Energy Authority objectives. This is consistent with state and local objectives to minimize greenhouse gas emission through use of carbon-less and renewable power production. The impact is less than significant.

h) The Project would not directly or indirectly cause strong seismic ground shaking or cause seismic-related ground failure, including liquefaction, landslides, or otherwise unstable soils, does not include soils incapable of supporting septic tanks, will not destroy paleontological resources or geologic features and will not contribute to a significant impact to geology or soils and thus the impact will be less than significant.

i) Based upon the CalEEmod modeling competed, the project will not generate greenhouse gas (GHG) emissions, either directly or indirectly, and will not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. The CalEEmod modeling considered the GHG impacts associated with power production, operation

of the plant and transportation related impacts. The primary source of GHG emissions would be production of electricity, but the applicant has proposed to purchase power from renewable or non-carbon sources and thus the impact is less than significant.

j) The Project would not create a significant hazard to the public or the environment from the routine transport, use, handling, or disposal of hazardous materials, or hazardous emissions, is not located within an airport land use plan, will not result in a safety hazard or excessive noise for the people residing or working in the area, and will not interfere with an adopted emergency response plan or emergency evacuation plan and thus the impact related to Hazards and Hazardous materials is less than significant.

k) The Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin, alter existing drainage patterns of the site or the area, redirect flood flows, conflict with will water quality control plans or sustainable ground water management plans or. The site will not use ground water and the source of water is the bay for salt water and the Humboldt Bay Municipal Water District Mad River water allocation. There are not any drainage features on site that will be impacted and thus the impact is less than significant.

l) The Project would not result in generation of a substantial temporary or permanent increase in ambient noise, result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. The Impact will be less than significant.

m) The project will not result in new roadways so will not increase hazards due to geometric design features, will not require trip lengths beyond the average for the county and will not compromise emergency access and so the impact related to transportation is less than significant.

n) The project does not require extending, or significant upgrading, of existing utility infrastructure. There are sufficient water supplies to serve the project. The proposed wastewater treatment plant has been designed to accommodate the development of this site. Solid waste generated by the site will be reused or composted to the extent feasible, consistent with statewide waste reduction targets.

o) The proposed project Is in an area served by the fire protection district which has the capacity to serve this project, and the project is not in a location subject to wildfire to there will be a less than significant impact related to wildfire risk.

7. **FINDING** **ENVIRONMENTAL IMPACTS MITIGATED TO LESS THAN SIGNIFICANT –** The EIR identified potentially significant impacts to air quality, biological impacts related to dark eyed gilia, trapping animals during construction, bats, special status amphibians, replacement of osprey nests, avian nesting, marine mammals, long fin smelt and coastal habitat, cultural resources, geology and soils, that could result from the project and provides mitigation measures to reduce these impacts to a less than significant level. (CEQA Guidelines Section 15091(a)(1))

EVIDENCE a) **Air Quality**: Activities associated with demolition of existing pulp mill infrastructure and construction of the aquaculture facility have the potential to impact air quality. The primary concerns are related to dust and release of asbestos during demolition. Mitigation Measures establish performance standards to address these potential impacts. With the

implementation of these mitigation measures the potential impact is reduced to less than significant.

b) **Biological Resources:** Potentially significant impacts on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service will be mitigated to a less than significant level with the implementation of the following mitigation measures:

i. Loss of dark-eyed gilia shall be replaced at a ratio of 3:1
ii. Steep-sided excavations capable of trapping mammals shall be ramped or covered if left overnight.
iii. Bats shall be protected by following the schedule for demolition
iv. Special status amphibians shall be protected by determining possible presence through a pre-construction survey and if present shall be relocated or addressed in consultation with CDFW.
v. Any new Osprey nests established within the Project Site that require relocation will be removed (after nesting has occurred) and replaced at a 1:1 ratio in consultation with CDFW
vi. Ground disturbing activities shall be conducted outside of avian nesting season to protect special status avian species.
vii. Soil Densification shall only occur during certain tidal elevations to avoid Impacts to Marine Mammals
viii. For Special Status plant species around the piling removal a habitat survey will be conducted, and areas of special status plant species shall be avoided.
ix. For the protection of Longfin Smelt, Mitigation Measure BIO 6a states that The Humboldt Bay Harbor District shall mitigate for the potential loss of Longfin Smelt larvae due to entrainment by the intakes. Mitigation consists of Habitat creation or enhancement to provide Longfin Smelt spawning, rearing, or nursery habitat capable of producing the number of Longfin Smelt larvae lost to entrainment.
x. Sensitive communities shall be replaced through compensatory Mitigation for Coastal Brambles and Dune Mat.

With these mitigation measures the impact will be less than significant.

c) **Cultural Resource** No cultural resources are identified on the site, however in the event that resources are inadvertently found a cultural monitor will be on site during earth disturbing activity and inadvertent discovery protocols will be implemented. Based on this the potential impact is less than significant.

d) **Geology and Soils.** The project site is in a location of geologic activity and there is the potential for liquefaction at lower levels. These impacts are mitigated by implementation of the geotechnical requirements as dictated by the geotechnical report prepared for this project, which includes seismic guidelines to be incorporated into building plans. In addition, anytime there is grading there is the potential for soil erosion and sedimentation. Mitigation has been provided with performance standards to minimize potential impacts from erosion. With these mitigation measures, potential impacts to geological resources are less than significant.

e) **Hazards and Hazardous Materials** the cleanup of the site will involve the removal of potentially hazardous materials. In order to address this, an Interim Measures Work Plan has been developed to guide testing, assessment and removal of materials. There is also mitigation for the removal of asbestos, and control of runoff from the site. With these mitigation measures in place, the potential impact is less than significant.

f) **Hydrology and Water Quality** The primary impacts to water quality associated with the site result from sedimentation during construction

activities. Mitigation Measures are proposed that include performance criteria to minimize the potential for sediment to be transported off site or to surface waters. With these mitigation measures the impact to hydrology and water quality is less than significant.

8. **FINDING** Pursuant to CEQA Guidelines Section 15130 the DEIR addresses Cumulative impacts. The EIR did not identify an incremental effect that is "cumulatively considerable" and thus there are no significant adverse cumulative impacts associated with the project.

EVIDENCE

a) Cumulative Impacts as defined by CEQA Guidelines Section 15355 are addressed in each of the environmental resource sections.

b) There is a list of relevant projects that are included in Table 3-1 of the DEIR. these are the projects used to analyze cumulative impacts

c) The project will not contribute to impacts to a scenic resource or contribute to a change in the night sky as all the lighting will be shielded and down cast. The cumulative impact to aesthetics is less than significant.

d) Air Quality impacts are predominantly cumulative impacts and compliance with an air quality compliance plan addresses the cumulative impacts for air quality. the project would result in a cumulatively considerable net increase of a nonattainment criteria pollutant through generate of fugitive dust during construction. However, implementation of Mitigation Measure AQ-1 would reduce these impacts to less than significant. Therefore, the Project would not result in a cumulatively considerable impact for attainment plan consistency or cumulatively considerable emissions of nonattainment criteria pollutants after incorporation of Mitigation Measure AQ-1.

e) The cumulative impact to biological resources is less than significant because the primary impacts are construction related and of short duration. There is no loss of habitat associated with the proposed project.

f) The absence of known cultural resources on the site indicates no impact and thus will not result in a cumulative impact. The potential impact is less than significant.

g) All power usage associated with the project is for necessary equipment, there is no wasteful use of power. The project does not result in a cumulative significant adverse impact to energy resources due to the applicant's commitment to using power from a non-carbon or renewable source. The location is in close proximity to residential areas minimizing vehicle miles traveled for employees.

h) The only cumulative impacts related to Geology and Soils would be sedimentation and erosion. Mitigation has been instituted to address these potential impacts so any cumulative impact would be less than significant.

i) Greenhouse gas emissions will not exceed the EPA's Greenhouse Gas Reporting Program reporting threshold for 'large' industrial sources, or the BAAQMD and SCAQMD's threshold for industrial sources of 10,000 MT CO2e/year. the Project would be consistent with the CARB's adopted Scoping Plan and would not impede the state in meeting Assembly Bill 32 (AB 32) greenhouse gas reduction goals. The Project's contribution to cumulative greenhouse gas impacts will be less than significant.

j) Compliance with existing regulations will address the use and transportation of hazardous materials associated with this site and other similar hazardous materials applications. Mitigation measures will adequately mitigation existing hazardous materials on the site which will be removed as part of this project. The project will not obstruct any emergency response plan and is not in a location subject to wildfire risk, thus this project will not result in a cumulative impact relative to hazards or hazardous materials.

k) Constituents in the Project discharge would not combine with constituents in the Fairhaven Power and the Samoa wastewater treatment facility discharges to result in any undesirable chemical reactions. All other projects

identified in Table 3-1, including the proposed Project, would not include in-water construction or operations and would not otherwise involve Humboldt Bay. The potential cumulative impact to Humboldt Bay water quality resulting from both construction and operation would thus be less than significant.

l) The Terrestrial Development and Humboldt Bay Intakes components would both generate construction noise. There are no sensitive noise receptors within the vicinity of the Project Site and operational noise would be limited to primarily
vehicular noise and is not considered impactful. The Project's contribution to cumulative construction noise impacts will not be cumulatively considerable, and therefore will be less than significant.

m) The project has no impacts on Population and Housing and will not have any cumulative impact. Any impact would be less than significant.

n) The project will not interfere with any existing or proposed transportation facility, and the Vehicle Miles Traveled associated with the project consistutes a less than significant impact. The project will have a less than significant cumulative impact on transportation.

o) The Project would not result in an impact or a need to expand utilities or service systems, including water, wastewater, electrical power, or telecommunications. Electric power upgrades to the existing system and installation of solar power would ensure the Project can operate without new or expanded utility infrastructure. Relative to utilities, the project will not result in cumulative impact and therefore has been deemed less than significant.

p) The Project would have a less-than-significant impact associated with the exacerbation of wildfire risks. However, given the moderate fire risk at the Project Site, a grassland fire could occur at the Project Site. The other terrestrial-based projects identified in Table 3-1 could potentially similarly result in a grassland fire during construction or operation given the use of heavy machinery, construction equipment and presence of grassland and other vegetation in the vicinity. Cumulative projects would be subject to compliance with applicable regulations, including federal, state, and local regulations. The Project and the cumulative projects would be served by the PCSD or equivalent Fire Department in the event of a grassland fire. The Project's contribution to cumulative impacts related to the exacerbation of wildfire risks would not be cumulatively considerable, and therefore less than significant.

9. **FINDING** The Final EIR reflects the County of Humboldt's independent judgment and analysis. The Planning Commission and Board of Supervisors considered the information presented in the FEIR in its entirety and considered the public comment on the FEIR prior to rendering its decision.

a) The Planning Commission and Board of Supervisors received a copy of the DEIR on December 20, 2021and FEIR on July 1, 2022. The EIR was presented to the Planning Commission and Board of Supervisors in its entirety and the Planning Commission and Board of Supervisors reviewed and considered it before approving the Project.

b) At the Planning Commission meeting on July 28, 2022, the staff presentation included a thorough presentation of the FEIR. The Planning Commission then received presentations from the Co-applicants, Nordic Aquafarms, and the Harbor District.

c) After the applicant's presentation the Planning Commission received public comment where 64 members of the public addressed the commission, not including the applicant team. Of those who spoke 36 spoke in favor of the project citing the need for jobs, and the benefit this project would bring to the community. The remainder of the comments expressed concerns related to the large electrical use, concerns with climate change and

greenhouse gas emissions, volume of water use and discharge into the ocean, concern that studies were incomplete, the source of fish feed, the impact to local fishermen, location in a location subject to earthquakes and tsunamis, that the site should be remediated to residential standards and the size of the project. The Planning Commission finished receiving public comment, closed public comment and continued the item to the meeting of August 4, 2022.

During the course of discussion, the applicant agreed to begin monitoring water from the outfall as soon as the project became operational that resulted in a modified condition to reflect that change. The commission explored some of the comments made by the public but did not make any other changes to the conditions. The commission expressed that overall, this is a good project and voted unanimously to approve (6-0, Mitchell absent). The Planning Commission found that the EIR had been prepared in conformance with the California Environmental Quality Act and voted to certify the EIR.
The Board of Supervisors considered the information presented to the Planning Commission and the information presented in the Appeal and finds that the EIR has been prepared in compliance with CEQA.

10. **FINDING** **RECIRCULATION OF THE DEIR IS NOT REQUIRED**. While new information was included in FEIR, there is not new information in the FEIR which would trigger the thresholds for recirculation contained in CEQA Guidelines Section 15088.5. The new information has not changed the impact identification or mitigation measures in such a way that the public has been deprived of a meaningful opportunity to comment on a substantial adverse environmental effect of the project or a feasible way to mitigate such effect. No new information has been added that identifies a new significant environmental impact not previously disclosed, no substantial increase in the severity of the identified environmental impacts would result from implementation of the approved project or implementation of the mitigation measures, no feasible project alternative or mitigation measures considerably different from those analyzed in the DEIR have been identified and the DEIR is adequate, allowing meaningful public review and comment. The new information added in the FEIR merely clarifies and amplifies and did not make significant modifications to an adequate DEIR (CEQA Guidelines 15088.5).

EVIDENCE a) Chapter 4 of the FEIR (Errata) included minor technical corrections that did not present new information or have the potential to impact determinations; so, these changes do not have the potential to deprive the public of the ability to participate, particularly since the FEIR was released 27 days before the public hearing. The corrections are as follows:

1. <u>Project Description</u>
   - Section 4.1.1 – Corrected distance of Water Pipeline
   - Section 2.1.6 – Correction to Longfin Smelt Listing Status (Not Federally Listed, State Listing is correct)
   - Section 2.2.1 – Switchyard Upgrades – reservation of capacity for Harbor District
   - Section 2.2.1 – Tenant Relocation and tenant improvements
   - Section 2.2.3 – Tenant Relocation During Phase 0
   - Section 2.2.4 – Project Operations / Facility Parking calculations
   - Section 2.2.4 – Project Operations / Daily Facility Truck Traffic
   - Section 2.2.4 – Project Operations / Access Roads
   - Section 2.2.4 – Project Operations / Intake and Discharge Water – Specify Nordic will use treated water, others do not.
   - Section 2.3 – Ocean Discharge specify port exit velocity

Section 2.4.4 – Intake Design Considerations – Nordic uses treated water
Section 2.5.4 – Project Construction – Sediment removal
Section 2.5.7 – Off-Site Compensatory Restoration – removal of creosote piles

2. Biological Resources
   Section 3.3.6 – Water Quality Related to Special Status Marine Life – specify number of diffuser ports.
   Section 3.3.6 – Critical Habitat for the Humpback Whale and Southern Resident Killer Whale supports analysis in DEIR
   Section 3.3.6 – Number of Piles to be Removed Section 3.3.6 – Osprey Mitigation Reduced piles from 1,007 to 998
3. Energy Resources
   Section 3.5.2 – Setting –Specify RCEA's goals
   Section 3.5.2 – Setting/Nordic Energy Mix Commitments – Nordic provided more specific information on commitment to use renewable and or non-carbon-based energy.
   Section 3.5.7 – Cumulative Impacts – specify RCEA's goals
4. Greenhouse Gasses
   Section 3.7.6 – Impacts and Mitigation Measures year reference changed from 2030 to 2025.
   Section 3.7.6 – Impacts and Mitigation Measures – Delete section on comparison of current fish imports.
5. Transportation
   Section 3.12.2 – Setting / Roadways – description of roadway speeds
   Section 3.12.2 – Setting / Pedestrian and Bicycle Facilities – description of shoulder widths
   Section 3.12.2 – Setting / Transportation Management Plan – Applicant added a transportation management plan to the project description.
   Section 3.12.3 – Regulatory Framework / Bicycle Plan –Identification of bicycle routes.
   Section 3.12.6 – Impacts and Mitigation Measures / Impact TR-c – Discussion of Truck distribution and historical collision data supporting conclusions in DEIR.
6. Alternatives
   Table 4-2 Draft EIR – Additional information added to address Atlantic Salmon.
7. Appendices
   Section Appendix D – Marine Resources Biological Evaluation – Change to List of Preparers

Section Appendix M – NOP Scoping and Comment Letters – Change to recipients of NOP.

b) The modification to the project description to affirm the commitment to use the RCEA energy mix is not a change to the project, it is a clarification of a commitment. This is not new mitigation and does not create a new impact not previously identified.
The modification to the project description to add a transportation management plan is not a change to the project it is a management activity to further reduce vehicle miles traveled. This is not new mitigation and does not create a new impact not previously identified.

c) REVISED MITIGATION MEASURE.
The DEIR included Mitigation Measure BIO-6a: Protection of Longfin Smelt (LFS), requiring the Humboldt Bay Harbor District to mitigate for the potential loss of Longfin Smelt larvae due to entrainment by the intakes via removing Kramer Dock pilings from the Bay. The strategy behind pile removal as an appropriate mitigation measure is removal of creosote pilings from Kramer Dock would

remove toxins from the bay leading to improved Bay health and improved habitat, water quality improvements, resulting in the proliferation of marine species particularly Long Fin Smelt. Benefitting adult LFS would benefit the species overall population. A letter from CDFW expressed concerns that this mitigation did not address the appropriate life stage impacted for Longfin Smelt. Impacts from the intake would be to larval LFS, and therefore pile removal in open water may not fully mitigate for LFS Larvae due to juvenile LFS known habitat being in brackish waters. CDFW recommended that the County implement habitat creation for juvenile LFS in the form of spawning and rearing habitat within fresh/brackish waters of Humboldt Bay. This mitigation measure is an equivalent or more effective mitigation for potential significant effects. The impact determination remains the same with this revised mitigation measure. The creation of new spawning, rearing, or nursery habitat does not create a new adverse impact not previously identified. The revised mitigation measure is consistent with 15074.1 of CEQA Guidelines. Recirculation is not required consistent with 15088.5(b) of CEQA Guidelines

11. **FINDING** An equivalent and more effective mitigation measure has been substituted for mitigation Bio 6a consistent with CEQA Guidelines section 15074.1. Initial mitigation within the DEIR sought to mitigate the potential entrainment of LFS larvae through removal of pilings in the bay. The FEIR proposed the revised mitigation measure requires providing LFS larval habitat creation at a 1:1 ratio for the compensation of every individual of the species impacted. Habitat creation will consist of creation or enhancement of LFS spawning, rearing and nursery habitat in Humboldt Bay.

EVIDENCE

a) Comments from CDFW expressed concern that compensatory habitat corelate to the life stage impacted, in this case, LFS larvae. Habitat creation in the form of spawning, rearing and nursery habitat adequately addresses these concerns.

b) Impacts to Long Fin Smelt will not involve the loss of habitat. The creation of spawning, rearing, and nursery habitat will benefit the listed species Longfin Smelt. No impacts are associated with habitat loss to mitigate for the loss of individuals of larval LFS. This is consistent with sections 15074.1 and 15088.5 of CEQA Guidelines. Longfin Smelt is a Threatened Species under the California Endangered Species Act. As such the EIR treated the potential loss of individual fish as a potentially significant impact.

12. **FINDING** The biological productivity of the bay and criteria of Area of Productivity Forgone being adequately addressed as part of the permitting for the overall Nordic project. The studies completed for the EIR are complete and adequate for public disclosure and development of mitigation measures there are no necessary studies or mitigation being deferred.

EVIDENCE

a) The Harbor District has filed a Coastal Development Permit to the California Coastal Commission for the upgrade of the water intakes.

b) Biological productivity and criteria of Area of Productivity Forgone is a Coastal Commission measure for implementing Coastal Act Section 30231 requiring protection of biological productivity associated with a water intake in marine waters.

c) Biological productivity and criteria of Area of Productivity Forgone are not environmental resource considerations in CEQA Appendix G which is the significance criteria used for preparation of the EIR. The impact of the water intake within Humboldt Bay was considered and determined to not be a potentially significant impact to species other that Long Fin Smelt.

d) CEQA Guidelines Section 15091(a)(2), stipulates that *no public agency shall approve or carry out a project for which an EIR has been certified which identifies one or more significant environmental effects of the project unless the public agency makes one or more written findings for each of those significant*

effects, accompanied by a brief explanation of the rationale for each finding. A finding is *Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.*

e) The Coastal Commission will address any impacts to the Biological Productivity of the Bay as part of the Coastal Development Permit submitted by the Harbor District.

13. **FINDING** **ENVIRONMENTAL IMPACTS LESS THAN SIGNIFICANT** The proposed Project would not result in significant and unavoidable impacts. All potential environmental impacts will be mitigated to a less than significant level with incorporation of mitigation measures.

EVIDENCE a) The DEIR used Appendix G from the CEQA Guidelines for determining the potential significance of impacts.
The DEIR identified that there were 18 potentially significant environmental effects, but each of these could be mitigated to a level of less than significant. See Finding 6 for a summary of the impacts and mitigation measures.

14. **FINDING** **ALTERNATIVES TO THE PROPOSED PROJECT –** In compliance with CEQA Guidelines section 15126.6, the DEIR considered a range of reasonable alternatives to the Project that could feasibly accomplish most of the basic project objectives. The EIR considered the alternatives described below which are more fully described in the DEIR. There were also a range of alternative considered but rejected as explained in the EIR. None of the Alternatives reduced any impact more than the proposed mitigation measures and are thus not as effective at reducing impacts than the proposed project with mitigation. The No Project alternative would have the least environmental impact but is not consistent with the project objectives and would not result in the removal of existing visual blight or removal of hazardous materials.

EVIDENCE a) The EIR included the following as project objectives:

1. To establish a world-class land-based finfish RAS aquaculture facility on the Samoa Peninsula
2. To provide a fresh local food source, produced in the region where it is consumed, to mitigate the damaging environmental impacts associated with long-distance air shipment of seafood
3. To produce nutritious seafood for the West Coast market free of antibiotics and avoidance of GMOs
4. To construct and operate a fresh water-efficient aquaculture facility with a minimal environmental impact
5. To provide approximately 150 fulltime jobs, including engineers, biologists, administration staff, maintenance staff, fish processing, and other operations staff
6. To remediate existing environmental contamination at the Project Site associated with a former industrial site (brownfield) encountered during demolition and re-development of the site
7. Redevelop an existing underutilized industrial site absent residential neighbors to minimize environmental impacts as much as possible, remediating existing environmental contamination that may be present to meet the standards of food production and safety.
8. To support local industry and innovation by selling nutrient-rich aquaculture coproducts to local businesses for beneficial uses.

As discussed in section 4.2.3 of the DEIR, a series of offsite locations around Humboldt Bay were considered and rejected primarily because of lack of access to water and or the ability to dispose of water.

b) Alternative 1- No Project Alternative

A No Project Alternative assumes the proposed Project on the RMT II site would not be developed, leaving the RMT II site, as owned by the HBDA, in its present condition. The No Project Alternative would be the environmentally superior alternative, as potential impacts related to all resource categories except aesthetic resources, hazards, and hydrology and water quality would not occur. Construction, biological, noise, water quality, soil disturbance, and other related impacts would be avoided. The aesthetic impact would be greater, as the existing industrial blight, including the smokestack, 12 story boiler building, black liquor tanks, black liquor recovery pit, and other partially demolished buildings would remain indefinitely on the Project Site. Additionally, the remnant contamination from the former pulp mill would also remain on the Project Site, resulting in a greater environmental impact related to hazards and hazardous materials, especially in the event of a major Cascadia event. Similarly, compensatory off-site restoration to remove creosote piles and up to one acre of Spartina in Humboldt Bay would not occur. A No Project Alternative would entirely fail to meet any of the goals and objectives of the Project.

c) Alternative 2 – Off-Site Location

An Off-site location was defined. The RMT I parcel locationally worked, but alone was infeasible due to its extended shape. The RMT I (APN 401-031-040) parcel was combined with two adjacent parcels to the west owned by Samoa Pacific Group LLC (Danco) (APN 401-031-055 and APN 401-031-070, see Figure 4-2 – Alternatives Analysis: Redwood Marine Terminal I and Danco Property). All three parcels are appropriately zoned Coastal Dependent Industrial and are generally vacant and/or underutilized. These parcels are also presently proposed to be encumbered by the Harbor District as part of a future Renewable Energy Port. While this alternative is feasible, it does not reduce any impact finding, does not remove existing dilapidated buildings, and would require extension of water intake lines, water discharge lines and power lines. It does not completely achieve the project objectives and does not lessen any impacts, but actually requires installation of more infrastructure.

d) Alternative 3 – Water Source (DEIR 4.3.3)

Three alternate water sources include:

Water Source Alternative 1 – Slant Well
A slant well (or number of slant wells) drilled to withdraw brackish or saltwater from beneath the ground surface. The saltwater is extracted from the ground via pumping. Based upon testing conducted by the Harbor District approximately 40 slant wells would be required to achieve an equivalent volume of water to the proposed intakes. Its unlikely 40 slant wells could be located on the Project Site. Given the historic soil and potential for groundwater contamination on the site any risk of encountering contaminated would be too great for a food production system. This alternative is not technically feasible.

<u>Water Source Alternative 2 – Oceanic Seawater Intake</u>
Oceanic seawater intake pipes directionally drilled under adjacent properties, New Navy Base Road, and the surf zone, "daylighting" in the Pacific on the ocean floor. An oceanic seawater intake would require substantial in-water construction. The location of the oceanic seawater intake would need to be sufficiently offshore to avoid the wave energy and shifting sands associated with the surf zone. The pipes would need to be attached to a screened intake system installed from the ocean surface, connected to the

directionally drilled pipes, and sufficiently anchored to the seafloor. The screens would require intermittent cleaning to maintain intake screen approach velocities and functionality. The screens would need to be lifted to the surface periodically to be inspected and clean. Piping would have to be constructed through surf, potential ESHA for the land-based portion of piping, and maintenance of the oceanic intake would complicate the standard procedural monitoring and cleanings of the intake screens. Impacts associated with an intake, such as entrainment and impingement, are still risks associated with an ocean water intake. This alternative results in additional improvements in areas that currently do not have development and thus this would not reduce environmental effects.

Water Source Alternative 3 – Humboldt Bay Seawater Wells
Humboldt Bay seawater wells would require extensive in-water construction. Environmental impacts associated with this construction have not been analyzed. Humboldt Bay seawater intake pipe wells would be drilled beneath the seafloor of Humboldt Bay to extract salt water. Salt water would be brought to the Project Site via piping. The pipe would need to be attached to a screened intake system installed on the Humboldt Bay seafloor, connected to the directionally drilled pipe, and sufficiently anchored to the Humboldt Bay seafloor. The screens would require intermittent cleaning to maintain intake screen approach velocities and functionality. The screens would also need to be lifted to the surface periodically to inspect and clean. More than one Humboldt Bay Sea water well would be required to meet the water requirements of the Project. This alternative water source would require substantial in-water construction. This alternative results in additional improvements in areas that currently do not have development and thus this would not reduce environmental effects.

e) Alternative 3-Fish Species (DEIR 4.3.3)

i. Steelhead in seawater, Rainbow Trout in freshwater, and Yellowtail Kingfish were identified as potential alternatives.
ii. Rainbow trout would use a large amount of freshwater and does not replace existing imports resulting in a higher CO2 emission. There would also be an increase in nutrient discharge from this species.
iii. Steelhead would also have no imports to replace resulting in higher CO2 emission and a higher nutrient discharge.
iv. Yellowtail kingfish require three times the water use of Atlantic salmon, have a higher marine protein content in their feed, and would have a higher energy use as a result of needing cooler water.
v. Egg supply is also seasonal for these three species.

Atlantic salmon has a lower nutrient discharge, lower net water use, has consistent egg supply, and would be replacing 1/3 of the CO2 footprint as a result of reducing import fresh fish from south America or Europe. As a result, this is the most environmentally feasible option.

FINDINGS FOR COASTAL DEVELOPMENT PERMIT: CONFORMANCE WITH THE LOCAL COASTAL PLAN (HBAP)

15. **FINDING:** The proposed development is in conformance with the land use designation of Humboldt Bay Area Plan (HBAP) designating the site for Coastal Dependent (MC) and Industrial, General - Coastal Areas (MG) which allows Aquaculture as a permitted use when it meets the Coastal Dependent Industrial regulations.

EVIDENCE:

a) The Project Site is designated Industrial, Coastal Dependent (MC) and Industrial, General - Coastal Areas (MG) under the HBAP. All development will occur within the MC designation.

b) Aquaculture and aquaculture support facilities are principally permitted uses under both the MC and MG land use designations.

c) Section 3.13 and 3.25 Coastal-Dependent Industrial -30255; of the Humboldt Bay Area Plan states that Aquaculture is a coastal-dependent use, and coastal dependent uses shall have priority over other developments near the shoreline, shall not be sited in a wetland which this facility is not located in a wetland.

d) The proposed project is a land-based aquaculture facility farming Atlantic Salmon. This use is a coastal dependent use due to the operational need for saltwater.

16. FINDING:

The project is consistent with Section 3.14 and 3.26, 30250(a) of HBAP, requiring new industrial development to be located within, contiguous with, or in close proximity to existing industrial areas able to accommodate the proposed use without an impact on coastal resources.

EVIDENCE:

a) The project is proposed on an existing Industrial Brownfield Site previously used by a Freshwater Tissue Pulp Mill. No significant impacts to coastal resources will result from this development.

17. FINDING:

The project site is equipped with sufficient power to support the use, and there is both fresh potable water infrastructure and fresh industrial water available to serve the site.

a) PG&E service is delivered to the Project Area via the existing energy infrastructure located on the Samoa Peninsula. The Project will be served by an existing 60-kilovolt (KV), 20 Megawatt (MW) electrical switchyard located on site.

b) NAFC will be taking over the existing meter and expanding the total capacity of the switchyard to 30-35 MW to be utilized by NAFC and HBHRCD RMT II operations. Additional onsite power will be generated by an approximate 4.8 MW rooftop solar installation.

c) The facility will utilize onsite dual-fuel emergency backup generators to power all critical functions of the facility in the event of grid power disruption. The emergency backup generators would have a combined capacity of approximately 20 MW.

d) Will-serve letter on-file dated August 14, 2021, states that Humboldt Bay Municipal Water District has the ability to provide 502,000 gallons of domestic potable water per day and 2 million gallons of non-potable industrial water per day using existing HBMWD waterline infrastructure. This exceeds/meets the required amount for facility operations. The Humboldt Bay Municipal Water District has stated that this will-serve is as a result of project demand and that the District is capable of providing more water, though not required for the project.

18. FINDING:

The wastewater discharge while not being permitted by the County is consistent with 3.14 HBAP section 13142.5 requiring wastewater discharge be treated to protect beneficial uses of receiving waters; not significantly alter overall ecological balance of receiving area; and be supported by independent baseline studies of the existing marine system should be conducted in the area that could be affected by a new or expanded industrial facility using seawater prior to development and where feasible should be made available to supplement existing surface and groundwater supplies.

a) A wastewater treatment facility is a component of the proposed project, treating all effluent prior to discharge in the ocean outfall. The wastewater

treatment facility will include a multistage process consisting of the following: anoxic /bioreactor system for nitrogen reduction, phosphorous removal, Ultrafiltration Membrane Bioreactor systems (MBR), Ultra violate dosing, and treatment of filtrate period to recycling.
The wastewater treatment results in effluent with a 99 percent reduction of total suspended solids, BOD, and phosphorus, and a 90± percent reduction of nitrogen. Ammonium nitrogen release is modelled at .004 mg/L which conforms to the Nitrate Ocean Plan standard of .6mg/L.

b) Discharge is regulated under a National Pollution Discharge Elimination System (NPDES) order No. R1- 2021-0026 administered by the RWQCB, which would require ongoing operational monitoring and reporting to ensure compliance.

c) To ensure RWQCB/Clean Water Act regulatory objectives are met, an independent baseline Dilution Study was prepared by GHD (2020), which examined the modeled effluent for the various mixing zones near the diffuser finding conformance with the Ocean Plan and Thermal Plan (quality control plans established by the State Water Resources Control Board).
The project proponent has proposed and is conditioned to conduct baseline sampling at the outfall and to conduct sampling at the outfall location until phase 2 has been in operation for two years. This information can be used by the RWQCB to refine the NPDES permit.

d) The Dilution Study found with 64 open ports the predicted mixing zone (i.e., marine toxicity and physiological stress to biotic receptors) is met within 5 ft of the diffuser on the basis of the near-field modelling achieving conformance per Ocean Plan implemented by the RWQCB's NPDES Permit. The marine toxicity is temperature and low salinity.

e) The Project's effluent discharge would not discharge into a coastal wetland or area of special biological significance, marine reserves, or kelp beds. The ecological balance of the receiving area would not be significantly impacted. There have not been areas of special biological significance identified by CDFW or RWQCB. The outfall is existing and currently utilized by other users along Samoa Peninsula. There are no marine reserves within the subject area. The Dilution Study identifies receiving waters regulatory targets met consistent with the RWQCB and the Clean Waters Act. Ongoing annual monitoring of receiving waters is a Condition of Approval (COA#21).

19. FINDING: The seawater intake, while not being permitted by the County is consistent with 3.14 HBAP section 13142.5, requiring the best available site, design, technology, and mitigation measures feasible shall be used to minimize the intake and mortality of all forms of marine life and Independent baseline studies of the existing marine system be conducted in the area that could be affected by a new industrial facility using seawater in advance of the carrying out of the development . The intake is regulated and permitted separately by the California Coastal Commission and the process being followed achieves compliance with these LCP Policies.

EVIDENCE:

a) The California Coastal Commission will evaluate impacts to biological productivity as part of the Coastal Development Permit. The Harbor District, as part of their CDP application to the Coastal Commission has sampled the bay for biological constituency and a model is being prepared to predict impacts to biological productivity. These potential impacts will be compensated for through the Coastal Development Permit.

b)

c) The EIR identifies potential impacts to larval Longfin Smelt at the seawater intake location due to potential entrainment. Longfin Smelt is a Threatened Species under the California Endangered Species Act. As such the EIR treated the potential loss of individual fish as a potentially significant impact.

d) LFS is being mitigated on the basis of the area necessary to support reproducing females producing larvae equivalent to the number of larvae potentially lost due to entrapment. The mitigation would require creation of spawning/rearing habitat within Humboldt Bay and its tributaries.

e) National Marine Fisheries Service (NMFS) requires 1.75mm (0.07 in.) or less slot opening for screening water intakes to prevent impingement or entrainment. The proposed intake screen slot size openings for both two screens are 1.0 mm (0.04 inch).

f) Both federal and state regulations require a maximum through-screen velocity of 0.5 feet per second (fps) to meet compliance standards for minimizing impacts due to impingement. Intake screen slot size is designed to result in low approach velocities of 0.2 fps (6 cm per second) or less.

g) Compensatory restoration will be required for any reduction in biological productivity and would include pile removal and spartina removal, implemented by the California Coastal Commission through a Coastal Development Permit for ocean water intake upgrades.

h) Pile removal would include up to 988 piles and 151 crossbeams from the Kramer Dock in Humboldt Bay. The creosote piles are toxic and their removal will expand habitat area within the bay for many marine organisms thus increasing the productivity of the bay.

i) Spartina removal would include up to one (1) acre and would be conducted under existing permits issued to the Harbor District (Harbor District Permit 14- 05 and Coastal Development Permit 1-14-0249).

20. FINDING: The proposed project is consistent with 3.14 HBAP section 30232, requiring protection against spillage of petroleum products, or hazardous substances.

EVIDENCE:

a) Removal of piles and Spartina would occur in and near wetted environments in tidal settings and has the potential to impact water quality primarily increases in turbidity due to ground disturbance. Potential impacts and mitigation measures for the removal of Spartina were evaluated in the 2013 Spartina PEIR (H.T. Harvey & Associates and GHD 2013) which included mitigation for Fuel or Petroleum Spills (WQ-3). Compliance with this Mitigation measure will adequately implement this policy.

b) Fueling operations or storage of petroleum products associated with the operation of the site shall be done in accordance with a spill prevention and management plan.

21. FINDING: The project is consistent with 3.17 and 3.29 HBAP section 30253(1), requiring new development to minimize risk to life and property in areas of high geologic, flood, or fire hazard and to assure structural stability and integrity.

EVIDENCE:

a) <u>Geologic Safety:</u> The property is located in an area of low to moderate geologic instability. A Geotechnical Investigation by SHN in 2020 outlines natural hazards associated with the site and recommends that the project be designed with seismic and foundation design criteria, as well as site preparation and grading criteria per California Building Code and the American Society of Civil Engineers (ASCE) 7-16 Minimum Design Loads for Buildings and Other Structures. Adherence to the recommendations in the Geotechnical Report are required for the project in Mitigation measure GEO-1 of the EIR. The geotechnical recommendations will be incorporated into the final plans and specifications for the Project and will

be implemented during construction. Therefore, the Project is consistent with Seismic and Public Safety Elements of Volume 1 the General Plan, which is referenced as applicable criteria within the HBAP.

b) Flooding: All development is outside of the 100-year flood plain.: Sea Level Rise, Hydrodynamic Modeling, and Inundation Vulnerability Mapping prepared by Northern Hydrology and Engineering (2015) provides evidence that the risk of inundation is low compared to surrounding sites along the Humboldt Bay.

c) Tsunami: The project involves ocean intake, outfall, and land-based development allowable for new development within the 100-year tsunami run up elevation outlined in the HBAP. The parcel is within a tsunami hazard area. Deep foundations and ground densification grade will be constructed as recommended by the Project's geotechnical evaluation and site-specific tsunami inundation analysis (Martin & Chock, Inc., 2020), to protect structural integrity in the event of a tsunami and associated potential wave scouring. Backup generators will be elevated above the predicted tsunami wave height to avoid potential for release of pollutants in the event of a tsunami. Diesel fuel storage would be underground in two 25,000-gallon tanks vented, anchored, and armored to prevent release. Building designs for the hatchery would require tanks to be developed to withstand a 2,500-year event. Adherence to Mitigation Measures GEO-1 and HAZ-1 are identified in the EIR.

d) Fire Hazard: A portion of the parcel is rated moderate fire hazard severity. The parcel is served by the Peninsula Community Services District (CSD), who responds to structural fires and emergencies. The project site is developed with impervious surfaces. Circulation within the campus would allow traffic to flow unobstructed, and a 20-foot-wide fire road is proposed on the south side of Building 2 to ensure fire access is supported throughout the facility. The site is served by industrial water supply via Humboldt Bay Municipal Water District and emergency water sources exist on-site. The Peninsula CSD has recommended approval of the Project and confirmed serviceability and that the fire road is sufficient for emergency vehicle access.

e) Structural designs/construction plans, including site densification, will ensure of structural integrity in the rare event of a natural disaster and is designed that no significant erosion, geologic instability, or site alterations would occur to natural landforms.

22. FINDING: The project is consistent with Section 3.30 Natural Resource Protection Policies and Standards.

EVIDENCE:

a) Section 3.30 – 30240(a), (b) Environmentally Sensitive Habitat Areas (ESHA): The project has been designed to preserve Environmentally Sensitive Habitat in place, with an appropriate setback for the type of plant community. Biological studies identified high quality dune mat (ESHA) along the southern property line of the site. The project has been redesigned to preserve this area of ESHA with development setbacks of 35-feet. Within the setback is a 20-foot-wide fire road. The road will only be used for emergency access. Construction fencing is required along the edge of the buffer, to prevent vehicles, equipment, or materials from entering the ESHA. The grading plans for the project site shall design finished pad grades to not result in grade changes at the edge of the buffer or fire road within the ESHA buffer. The ESHA protection measures are described as Mitigation Measure BIO-7 of the EIR. Other areas where dune mat habitat was identified was anthropogenically modified or contained such a high percentage of non-native species that it did not qualify as ESHA.

b) Section 3.30 – 30233 Diking, Filling, or Dredging of Open Coastal Waters, Wetlands, and Estuaries (a): There will not be water or fill material taken from or added to wetlands associated with the project.

c) Section 3.30 Wetland Buffer – Section 6(d): A wetland delineation was completed for the Project Site as part of the Special Status Plant Survey and Vegetation Community Mapping/ESHA/Wetland Baseline Evaluation, Rev. 1 prepared by GHD dated February 16, 2021. Delineated wetlands are classified as one-parameter coastal willow thickets *(Salix hookeriana)* and were not found to contain hydric soils. A total of 0.27-acres of coastal willow thickets are mapped within the project area and would not be impacted as a result of construction. Due to the size and poor quality of wetlands, the Project establishes a 100-foot wetland buffer, consistent with HBAP wetlands setback. Development within the buffer is allowable provided no more than 25% of the developed surface is effectively impervious, stormwater runoff does not detrimentally affect the wetland, areas of temporary disturbance are restored and promptly replanted, and erosion impacts related to construction are minimized with BMPs. Development within the buffer would be limited to site grading and would not result in extensive new impervious surface. Following construction, graded surfaces would be reseeded and/or replanted as identified in the Project's landscaping plan. The Project's stormwater drainage system would route stormwater away from the one-parameter wetlands, avoiding any potential impact related to stormwater. Erosion control BMPs are included in Mitigation Measure GEO-2 of the EIR and would be implemented to protect wetlands during construction.

d) Section 3.30 – 30230 Coastal Streams, Riparian Vegetation and Marine Resources: Marine resources will be maintained. This policy is applicable to both the wastewater discharge, the ocean outfall and construction related impacts. A Marine Resources Biological Evaluation Report, Rev. 3 was prepared by GHD on February 1, 2021modeling the effluent discharge from the project with respect to applicable water quality regulations. As summarized in Section 3.3 - Biological Resources of the EIR, the treated wastewater would not be detrimental to the health of the marine resources that occur near the diffuser of the ocean outfall pipe. The applicant has also agreed to do baseline sampling prior to the discharge and to conduct operational sampling until sampling has been conducted for two years into phase 2. This will be information available to the Regional Water Quality Control Board as the NPDES permit is reviewed and renewed every 5 years.

As addressed above in Finding 19, impact of seawater extraction and the impact the Biological Productivity of the Bay is being addressed as part of the Coastal Development Permit issued by the Coastal Commission.

Potential impacts from construction noise on marine life are addressed in Mitigation Measure BIO-6 requiring soil densification to only occur when the tidal surface water elevation is below the 330-foot radius where Level B injury could occur. Final construction plans are required to show the tidal elevation that corresponds with the 330-foot radius shown in Figure 2 of the Project's Hydroacoustic, Noise, and Vibration Assessment (Illingworth and Rodkin 2020, Appendix J of the EIR).

The Project Site does not include a stream, tributary, or other waterway with riparian habitat. Riparian habitat is not present within development footprint and appropriate setbacks are in place for ESHA/wetlands on the parcel. Therefore, there would be no impact to riparian habitat and associated species resulting from the Project.

23. FINDING: The Project is consistent with section 3.40 Visual Resource Protection of the HBAP, protecting scenic and visual qualities of coastal resources

EVIDENCE:

a) Project Site currently has low visual quality, low visual sensitivity, and poor visual character. Removal of existing abandoned and dilapidated industrial infrastructure, including the former pulp mills 270-foot-tall smokestack, which are the dominant views of the proposed Terrestrial Development and surrounding area will have a beneficial visual impact upon the area. The existing smokestack is visible from as far north as Arcata, as well as the communities of Eureka, and Humboldt Hill. The smokestack and 12-story Reboiler Building are also visible from Samoa Beach and surrounding dunes by the recreating public.

b) The maximum height of the new facility would be approximately 60 feet, a reduction in comparison to existing conditions. There would be views of the buildings visible between the dunes via New Navy Base Road. Façade colors and patterns have been chosen to integrate the buildings into the natural setting and visually integrate into surrounding scenic resources absent negative visual effects on the Coastal Scenic Area west of New Navy Base Road. Distant views would exist from the City of Eureka shoreline.

c) The HBAP does not identify this location as having unique or important scenic value and thus development of an industrial facility on Coastal Dependent Industrial Land will not detract from any scenic vista or visual protection policies.

FINDINGS FOR COASTAL DEVELOPMENT PERMIT AND SPECIAL PERMIT: CONSISTENCY WITH THE ZONING ORDINANCE.

24. FINDING: The proposed development is consistent with the purposes of the MC zone, meets applicable development standards within the MC zone.

EVIDENCE:

a) Coastal-Dependent Industrial (MC) Zone is intended to protect and reserve parcels on or near the sea for industrial uses dependent on the harbor or the sea. The proposed aquaculture use is reliant upon existing infrastructure along Humboldt Bay and in the Pacific Ocean. Aquaculture is a principally permitted Coastal Dependent use.

b) The 76-acre lot exceeds 10,000 square feet lot minimum. No lot changes are proposed.

c) The subject parcel meets applicable setbacks within MC zone and combining zones (no setbacks).

d) The tallest building is 60 feet of the 75-foot maximum allowed in the MC zone. Front yard setbacks exceed 100+ feet to justify building height.

e) Lot coverage is approximately 48% (36-acre development/76-acre parcel).

25. FINDING: The proposed development is consistent with the purposes of the Archaeological Resource Area Outside of Shelter Cove (A) Combing Zone.

EVIDENCE:

a) Historical Resource Investigation Report prepared by Roscoe and Associates, September 2020 (on-file), finding no culturally or historically significant resources within the Project's development site. The investigation report recommends following Mitigation Measures CR-1 through CR-3, which are implemented as Mitigation Measures for the project.

b) During ground disturbing activities the applicant shall implement Mitigation Measure CR-1: Implementation of Protocols for Cultural Monitoring During Ground Disturbance,

c) In the event that culturally or historically sensitive resources are discovered, the applicant shall implement Mitigation Measure CR-2: Implementation of Inadvertent Discovery Protocols.

d) In the event that Archeological resources or human remains are encountered the applicant shall implement Mitigation Measure CR-3: Minimize Impacts to Unknown Archaeological Resources and Human Remains if Encountered.

26. FINDING: The Project is consistent with section 314.3 of the Industrial Development Policies set forth in the HBAP, requiring an alternative site analysis. There is no alternative site found to better suit the project/aquaculture needs. Additionally, the project is found to be consistent with Supplemental Coastal Zone Industrial Use Type Findings within section 312-35.1 that the proposed use be located on a site with the lowest numeric priority.

EVIDENCE:

a) Consultation between the County, HBHRCD, CCC, and USACE identified that there were no alternative locations for the proposed project. Only Priority 4 sites, which lack essential outfall infrastructure. These sites lacked essential infrastructure needed for project operation. New construction of water pipelines and intakes require installation of additional infrastructure, increase cost and cause additional environmental impacts. The selected site is the only site within the County with the necessary infrastructure required for project operation.

b) The site is classified as a Priority 2 Site, a site that requires new construction of facilities without conversions of wetlands. This is the second lowest numerical site prioritization. Priority 1 would require utilization of existing facilities. The existing facilities on site are not reusable and require demolition.

c) The selected site has existing infrastructure necessary for the Project's coastal dependent industrial use and would involve the upgrade of public use infrastructure (ocean water intake) which has the potential to serve future project sites for the coastal dependent industrial zoned properties along the North Spit of the Samoa Peninsula.

27. FINDING: The Project includes an approved parking exception request under section 313-109.1.4.4 Industrial Uses. The exception request is appropriate because sufficient parking is provided to meet the parking demand of the operation of the aquaculture facility. The proposal will not be detrimental to public welfare consistent with the Supplemental Coastal Zone Findings for Granting an Exception in Section 312-41.1.2

EVIDENCE:

a) The proposed facility contains 6,400 s.f. of management office area and 20 office employees, the resulting office-related number of required parking spaces is 41 ((6,400 s.f./300 s.f.) + 20 office employees). The requirement to provide 41 spaces to meet the parking needs of 20 office workers is excessive, even when factoring in the need for visitor parking.

b) The regulatory standard presented is one space per 1,500 s.f. of gross floor space. If this standard were applied to the project, it would require an overly excessive amount of parking for what would be utilized by staff: 437 spaces (655,859 s.f./1,500 s.f.) to serve the 90 employees present on the largest shift.

c) The applicant has proposed to provide off-street parking per the following: Office Staff and Visitors: 30 spaces (one space per employee + 10 visitor spaces) Production Staff: 90 spaces (one space per employee on the largest shift)
Total: 120 Spaces (Amount shown on current site plan on-file). Of these 120 spaces, five (5) ADA parking spaces would be established, satisfying the ADA requirements prescribed in Section 313-109.1.3.8.

d) There will be no impact to environmentally sensitive communities as the loading and unloading exemption is not located in an environmentally sensitive area and is proposing less loading space designed on a need basis.

28. FINDING: The project also includes a reduction in loading space requirements from 29 to seven (7) which is found to be appropriate given the design and function of the facility. The seven proposed loading docks would appropriately meet the needs of the operation without impacts to public health, safety, and welfare.

EVIDENCE

a) The regulatory standard is one loading space per 20,000 square feet of gross floor area, requiring 29 loading spaces for the project.

b) The regulatory intent of the loading space requirements is to prevent unsafe situations resulting from freight or delivery trucks blocking roadways, a process is provided where appropriate to reduce the number of loading spaces when it can be demonstrated.

c) Operation will involve regular loading and unloading of material such as fish feed, waste, and finished product. To accomplish this, the facility proposes seven loading docks and bays.

d) The Project is in a geographical location capable of handling all necessary freight traffic including ingress, egress, queuing, loading, and unloading. The type, number, and design of the proposed docks/bays will meet the facility's needs in a way that does not block or impede internal or external circulation.

e) The level of anticipated use of incoming and outgoing truck traffic has been accurately estimated through detailed operational planning and existing comparable facilities. Daily truck percentage on these roadways increases by at most 0.5% with the project operational at full build out (Section 3.12 Transportation and Errata of the EIR).

f) The Project facility is not a shipping warehouse requiring significant space devoted to moving materials in and out of the buildings. The number of loading spaces are appropriate for the number of trucks entering and leaving the site on a daily basis.

29. FINDING: The parcel was created in compliance with all applicable state and local subdivision regulations.

EVIDENCE:

a) Lot Line Adjustment: LLA-10-02/CDP-10-06; Notice of Lot Line Adjustment and Certificate of Subdivision Compliance (document number 2009-2423); memorialized in Book 69 of Surveys, Page 106-107.

30. FINDING: As conditioned, the project is consistent with standards for the operation of industrial development applied to all industrial use types in Humboldt County sections 313-103.1.4, Standards for Non-residentially Impacted Industrial Development

EVIDENCE:

a) The project site is zoned coastal dependent industrial (MC) and is surrounded by other industrially planned and zoned properties, therefore the project location is considered non-residential.

b) Vibrations will not impact adjacent lands/land use as they would not be a result from facility operations consistent with section 103.1.4.4

c) As designed and consistent with operations plans, the facility will not interfere with radio or television reception consistent with 103.1.4.5

d) All operational activities for the facility at full build out will take place within fully enclosed buildings consistent with section 313-103.1.4.6. and noise generating by industrial operations shall not exceed 70dB(A) anywhere off the site as a result of enclosed activities consistent with 103.1.4.4

31. FINDING: The project is designed and will be operated with mitigation measures that address the following:

45.1.7.1Adverse environmental effects will be mitigated to the maximum extent feasible and will conform to the applicable provisions of the Special Area Combining Zone Regulations, and the other resource protection regulations of this Division;

45.1.7.2Maximum feasible and legally permissible multi-company use shall occur;

45.1.7.3The total volume of oil spilled shall be minimized;

45.1.7.4Approved facilities shall have ready access to the most effective feasible containment and recovery equipment for spills;

45.1.7.5Approved facilities shall have onshore deballasting facilities to receive fouled ballast water from tankers where operationally or legally required; (

45.1.7.6New development or expansion of marine petroleum transfer facilities will not increase the risk of an oil spill to Humboldt Bay;

45.1.7.7Where expansion of existing marine petroleum transfer facilities or construction of new facilities may result in an increased risk of spill associated with the expanded facility, such risk will be mitigated through alteration of existing operations. .

EVIDENCE: a) An EIR has been prepare for this project which identified potentially significant impacts to air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, that could result from the Project and provides mitigation measures to reduce these impacts to a less that significant level. (CEQA Guidelines Section 15091(a)(1))

b) The applicant is required to implement the Mitigation Monitoring and Reporting Program, containing 18 mitigation measures and complete all Conditions of Approval for the project prior to and during operation.

c) Findings related to petroleum transfer facilities are not applicable as this project does not include any such facilities.

32. FINDING: The project as approved with Mitigation Measures and Conditions of Approval will not be operated or maintained in a manner that will be detrimental to the public health, safety, or welfare or materially injurious to properties or improvements in the vicinity.

EVIDENCE: a) After EPA grant funding was issued and used, the Project site cleanup was still incomplete. Site cleanup would likely not occur without the redevelopment of the site through private funding. The applicant is responsible for the complete remediation of the project site with removal of all hazardous materials subject to all applicable Conditions of Approval and Mitigations within the Mitigation Monitoring and Reporting Program which will be beneficial to public health, safety, and welfare.

b) No project would result in no Brownfield cleanup and no adaptive reuse of the site and associated public infrastructure (intake and outfall). No Brownfield clean up could result in harm to the public's welfare and safety, and to the environment, as hazardous materials remain onsite. As latent hazardous materials sit, they pose environmental risk as they potentially leach further into groundwater. This poses a significant risk to water quality and bay ecosystems as sea level rise grows closer to the groundwater table in coming years. This can be avoided with project implementation.

c) Concerns of Harmful Algal Blooms as a result of the projects use of an existing operational ocean outfall. The DEIR evaluates toxic algae (Harmful Algal Blooms [HAB]) in Section 3.3 (Biological Resources, page 3.3-29) and Section 3.9 (Hydrology and Water Quality, page 3.9). HABs are driven by large-scale oceanic processes. Receiving waters will be monitored annually as a Condition of Approval (COA#21).

d) Concerns for pedestrian/bicyclist safety as a result of the facility's operational traffic were made. Truck traffic will increase an estimated 0.5% (3.12 Transportation and Errata of the EIR). Additionally, State Route 255 has sufficient shoulder width to safely accommodate pedestrians and bicyclist travel, where most existing shoulder widths vary between approximately six feet and eight feet. The Samoa Bridge Structures have shoulder width of roughly four to five feet wide and are identified as shared facilities by Caltrans.

e) Concerns over energy use were addressed by Condition of Approval (COA#22) requiring NAFC to commit to non-carbon and renewable energy-based sources to off-set emissions.

f) Concerns of fish health are addressed by the biosecurity program for the aquaculture facility. The biosecurity program for the quarantine area includes ultrafiltration and UV disinfection for inflow and effluent water treatment, ventilation control, restrictions on staff and visitors, as well as strict control on intake of feed, other consumables, equipment, potential vectors, and disposal of fish mortalities. Third party audits for biosecurity in the quarantine would occur twice per year through veterinary visits to the farm.

g) The project will not result in effluent from the facility which is harmful to fish or wildlife and the operation of the facility will continuously be monitored through the NPDES process to ensure the effluent is safe.

h) Prior to issuance of any construction permits for phase 2, phase 1 of the project must be operating in compliance with the County CDP, RWQCB NPDES Permit, and any other local, state, or federal permit issued to Nordic or their successor. This shall be to the satisfaction of the Director of Planning and Building.
(COA#24)

i) Nordic Aquafarms shall provide an annual Sustainability Report initiated within one year of operation, describing efforts to decarbonize trucking activities, GHG impacts associated with fish feed and other relevant issues. Nordic shall host a summit by invitation for the local NGOs, Community Leaders, Academia, Tribal Government Leadership and members of the public. In addition to reviewing Nordics Annual Sustainability Report, a forum is created where issues and solutions are discussed by all. Agreed upon elements can be incorporated into Nordic's sustainability goals in the following years. These collaborative solutions are not exclusive to Nordic, leaving opportunity for development of community wide initiatives and creating a cycle of sustainability improvements that can be adopted over the years. Sponsorship of these initiatives can be borne by Nordic up to an annual limit and can be combined with matching funds and sponsorships from various sources. At a minimum Nordic will provide $25,000 annually to an appropriate community project.
(COA#25)

33. FINDING: The proposed development does not reduce the residential density for any parcel below that utilized by the Department of Housing and Community Development in determining compliance with housing element law.

EVIDENCE: (a) The parcel was not included in the housing inventory of Humboldt County's 2019 Housing Element but does have the potential to support one housing unit in the form of a caretaker's unit. The approval of an aquaculture facility on this parcel will not conflict with the ability for a residence to be constructed on this parcel.

34. FINDING The Humboldt County Code requires an appeal to state specifically why the decision of the Planning Commission is not in accord with the standards and regulations of the zoning ordinances, or why it is believed that there was an error or an abuse of discretion. The appellant's claim is unsubstantiated that the FEIR erroneously identifies the severity of the project's impacts including greenhouse gas emissions and energy impacts, impacts to existing commercial fisheries, impacts to coastal and bay ecosystems, and impacts to native salmonoids, is incorrect. The EIR has not understated impacts, but has appropriately disclosed impacts, has disclosed changes the applicant has made to the project to address impacts and identified appropriate mitigation

EVIDENCE a) Of the 16 issues raised, no new information or substantial evidence have been provided to support the assertions made.

b) An effect on the environment shall not be considered significant in the absence of substantial evidence (CEQA Statute Section 21082.2(c), Guidelines Section 15384(b) and 15604 (f)(5)).

c) Argument, speculation, unsubstantiated opinion or narrative, or evidence that is clearly inaccurate or erroneous, or evidence that is not credible, shall not constitute substantial evidence (CEQA Statute Section 21082.2(c), Guidelines Section 15384(a) and 15604 (f)(5)).

d) The impacts associated with greenhouse gas have been disclosed and evaluated. The appellant is asking for a life cycle analysis of Greenhouse Gas emissions which would include analysis of other locations who provide material and goods to the project. This is not a requirement of CEQA and is discussed in more detail below.

e) The impacts to energy have been thoroughly disclosed. The amount of power 22.5 mw is disclosed in the EIR. The concern with being able to convert to non-carbon power sources is discussed in the EIR and the applicant has agreed to use power sources which are non-carbon based.

f) Impacts to coastal and bay ecosystems and impacts to native salmonoids have been disclosed and discussed in the EIR. The EIR identifies that the impact from the wastewater outfall to be very minor, and this will continue to be monitored under a permit from the Regional Water Quality Control Board. The primary constituents of concern with the outfall are low salinity and temperature. This will not be detectible outside of five feet from the outfall. The impacts of the intake will not destroy habitat or reduce any species below self-sustaining levels. There could be take of a listed Long Fin Smelt and mitigation is included which will fully mitigate for this potential impact.

35. FINDING The appellants incorrectly claim that the FEIR erroneously states that emissions from fish feed do not need to be counted under CEQA. This is asking for a level of analysis that is inconsistent with CEQA.

EVIDENCE a) CEQA Guidelines 15358 define "Effects" and "impacts" synonymously as:

(a) Effects include:

(1) Direct or primary effects which are caused by the project and occur at the same time and place.

(2) Indirect or secondary effects which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect or secondary effects may include growth-

inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems.

(b) Effects analyzed under CEQA must be related to a physical change.

b) Greenhouse gas (GHG) emissions from the production of fish feed at a yet-to-be determined non-Project facility are beyond the scope of the required analysis under CEQA. CEQA requires an agency to analyze the direct and reasonably foreseeable indirect impacts of a Project. (CEQA Guidelines Section 15064.) Where an impact is speculative, it is not reasonably foreseeable and should not be considered as part of the Project analysis.

c) There are multiple approaches to developing an emissions inventory. Approaches vary in the breadth of their scope in terms of what processes and inputs are included and excluded in the inventory. Emissions from the production of feed were not included in the estimate used in the EIR because:

- In 2017 The Association of Environmental Professionals (AEP) California Chapter Climate Change Committee identified the methodology that was appropriate for evaluating industrial projects (such as NAFC's) under CEQA. The methodology identified does not include embedded or lifecycle emissions in goods and services consumed by the Project (such as feed in the case of NAFC). AEP's conclusions were published in a white paper in 2017 (AEP 2017).
- California Natural Resources Agency (CNRA) indicated in 2009 that requiring a lifecycle analysis may not be consistent with CEQA, stating: As a general matter, the term could refer to emissions beyond those that could be considered "indirect effects" of a project as that term is defined in section 15358 of the State CEQA Guidelines (CNRA 2009).
- The State inventory does not include lifecycle emission from goods and services from outside the state that are used or consumed within the state.

d) This issue was addressed in section 2-16 of the FEIR where the preceding information was presented.

e) As identified in DEIR Section 3.7 (Greenhouse Gas Emissions) starting on page 3.7-1, the DEIR's regulatory context for GHG is the State of California. The quantitative numeric thresholds of significance, qualitative plan-consistency threshold of significance applied, and evaluation of the Project's potential to conflict with the State's adopted Scoping Plan are all derived from or relate to California's statewide emission reduction goals and planning activities. The inventory methodology for the Project's analysis should be consistent with the inventory methodology used by State emission reduction plans (Scoping Plan). As stated in the AEP Whitepaper (AEP 2017): ... in order to compare a project-level GHG inventory to a threshold derived from a statewide reduction target based on the statewide inventory, the GHG emissions included in the Project inventory must be accounted for in a similar manner to the way the state accounts for GHG emissions. If a project-level emissions inventory included emission sources or approaches that are not included in the state inventory, then the Project's inventory would no longer be comparable to thresholds derived from statewide reduction targets.

36. FINDING

The appellants incorrectly claim that the FEIR erroneously states that the project will emit zero emissions from its electricity consumption. The DEIR evaluated a non-zero carbon intensity factor for the power source. As part of the FEIR and conditions of approval it was affirmed that NAHC is committed to 100%

renewable and carbon free energy. It is not inappropriate to say that the analysis should be for carbon free power.

EVIDENCE a) The EIR's conclusions regarding energy consumption are accurate and supported by substantial evidence in the record. The DEIR's emissions estimate of GHG associated with energy consumption were overly conservative (in other words, if anything the emissions were overstated) by applying a non-zero carbon intensity factor.

b) The non-zero carbon intensity factor applied was the most current third party-verified carbon intensity factor for Pacific Gas & Electric Company (PG&E) available at the time of analysis – the 2019 PG&E carbon intensity factor of 2.68 pounds per megawatt hour (lbs./MWh). For 2019 emissions reporting, PG&E used the California Energy Commission's (CEC) Power Source Disclosure program methodology to calculate the carbon dioxide (CO2) emission rate associated with the electricity delivered to retail customers.

c) NAFC has voluntarily agreed to purchase 100% renewable and or carbon free energy for this project. This is made enforced by Condition of Approval 19. The applicant will be required to meet RCEA and the State of California's goals of utilizing non-carbon-based energy sources implemented in the following ways:

- Purchase renewable and/or non-carbon energy through RCEA, relying on its available portfolio; or
- Purchase a 100% non-carbon and/or renewable portfolio from one of the other Energy Service Providers (ESPs) in California.
- Baseline would be the ESP's component of non-carbon/renewable + purchase of credits to ensure a 100% non-carbon and/or renewable portfolio.
- In addition, as technically and commercially feasible, NAFC would enter into Power Purchase Agreements (PPAs) with the proposed offshore wind project and /or other non-carbon, renewable electricity sources located in Humboldt County.

d) As a result of AB 1110, Power Content Labels prepared under the CEC's PSD program identify carbon intensity factors for each energy provider's electricity portfolio starting with year 2020. The CEC specifies that the regulatory updates are substantial and represent a significantly modified methodology. Consequently, program data for years prior to 2019 may not be comparable to data under the updated program. As shown in the PG&E's Power Content Labels starting in year 2020. PG&E provides the following two non-carbon, 100% renewable electricity portfolios:

- 100% Solar Choice portfolio
- Greensaver Portfolio

e) Based on the information presented above both potential energy providers (RCEA and PG&E) have demonstrated the ability to deliver 100% renewable and/or non-carbon energy. All power purchased will need to be from these sources.

37. FINDING The appellants incorrectly claim that greenhouse gas emissions from refrigerants require further analysis in the FEIR. It is accepted that refrigerants have a high global warming potential, but this is only true if refrigerants are emitted into the atmosphere. No evidence has been presented that a brand-new facility constructed in compliances with current standards will emit refrigerants at a level to cause a potentially significant impact. In fact, current regulations adequately address this issue.

EVIDENCE a) Refrigerants will be contained within closed cooling systems and a full-time maintenance staff will monitor the systems, repairing and reporting any issues with the systems including leaks.

b) As described on page 2-17 of the FEIR:

The GHGs normally associated with the Project are listed on DEIR page 3.7-2 through 3.7-3 and includes a list of potential refrigerants. DEIR Subsection 3.7.3 (Regulatory Framework) discusses in detail all applicable GHG regulations. The Project would utilize multiple systems, including icemaking and two different chiller systems. The Project will be subject to regulations and programs within the California Significant New Alternatives Policy (SNAP), founded on SB 1013 and the California Air Resources Board (CARB) Hydrofluorocarbon (HFC) regulations. Specifically, the chillers will be subject to CARB's HFC Regulation and refrigerators will be subject to CARB's Refrigerant Management Program (RMP). Under the RMP, leak detection and monitoring requirements are based on system sizing.

c) Regulations specific to refrigerants are specifically addressed on DEIR page 3.7-6, including the requirements for leak detection maintenance programs and maximum global warming potential of refrigerants:

- Starting in 2022, the Refrigerant Management Program (RMP) requires facilities with refrigeration systems containing more than 50 pounds of high-GWP refrigerant to conduct and report periodic leak inspections, promptly repair leaks; and keep service records on site.
- Additionally, newly adopted regulations by CARB require new stationary refrigeration installations to use refrigerants with a global warming potential of 150 or less.

d) Estimates of leakage rates for older systems in previous years (before 2022) are not accurate indications of potential leaks in the future due to new regulatory requirements for leak inspection, prompt repair, and reporting implemented in 2022.

e) The appellant's citation of an EPA study of average supermarket emissions, is cited from 2011 and assumes the use of R-404A refrigerant (global warming potential of 3,921.6) with an annual leak rate of 25% per year (EPA 2011). Under the CARB's SNAP and RMP, use of high global warming potential (GWP) refrigerants, including R-404A, is prohibited for new refrigeration systems.

38. FINDING The applicant incorrectly claims that the FEIR uses inappropriate methods to calculate GHG impacts related to vehicle miles traveled by trucks. The background studies supporting the EIR appropriately relied on an accepted software and methodologies supported by a team of traffic engineers for purposes of analyzing transportation impacts and associated GHG emissions.

EVIDENCE a) As described on pages 2-18 through 2-20 of the FEIR:

The Project's emissions generated by on-road mobile activity were estimated using CalEEMod v. 2020.4.0, as described in DEIR Section 3.2 (Air Quality) on page 3.2-6 and Section 3.7 (Greenhouse Gas Emissions) on page 3.7-10. The criteria pollutant and GHG estimates for mobile activity are based on annual mobile activity and compared against annual thresholds of significance. For the purposes of modeling, inputs were adjusted in order to achieve the Project's estimated annual vehicle miles travelled (VMT) for each of the following mobile sources:

- *Employee Activity*
- *Hauling within the NCUACMD's Jurisdiction (short hauling)*
- *Hauling outside of the NCUAQMD's Jurisdiction (long-hauling)*

b) Emissions for mobile activity were estimated separately from other sources of operational GHG emissions (such as energy consumption or emergency

backup generator use). For clarity, and because of how CalEEMod utilizes fleet mix, trip type, trip purpose, and other parameters of mobile activity, separate CalEEMod runs were prepared for each of the mobile sources listed above. As an example, the CalEEMod run for operational employee trips contains the parameters necessary to appropriately assess annual emissions from employee trips alone and includes parameters to estimate emissions from energy consumption, backup generator use, hauling, or other sources of operational GHGs. Emissions from nonmobile emissions sources were estimated in separate CalEEMod modeling scenarios, which are provided in DEIR Appendix B (CalEEMod Modeling Results).

c) CalEEMod contains assumptions for trip length based on the type of trip (trip type), distribution of trip types, and trip purpose. Each of these components is used to generate total VMT estimates, which then feed into the GHG emission calculations. The trip types, trip lengths, distribution and trip purpose distribution are detailed in the CalEEMod output, which is included in Appendix B of the DEIR.

d) The annual VMT for short-hauling and long-hauling were provided by the applicant and developed using the Humboldt County Travel Demand Model (the model adopted by the Humboldt County Association of Governments and Caltrans to forecast vehicle travel), and the data entry for daily trip rates and lengths were modified to support the Project-specific annual VMT.

e) CalEEMod is the emissions estimation model recommended by BAAQMD and other air districts throughout California. CalEEMod was prepared for the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the South Coast Air Quality Management District and other California Air Districts. CalEEMod uses the EMFAC2017 emission factors for vehicles, which is CARB-developed and EPA-approved for use in estimating on-road mobile emissions in California.

f) SmartWay is not the EPA-recommended model for assessing on-road mobile emissions – the Motor Vehicle Emissions Simulator (MOVES) is EPA's emission modeling system for mobile sources. However, MOVES is not appropriate emissions model to use for projects located in California – CARB's EMFAC is the appropriate emissions model.

g) *The MOVES defaults do not capture all the details of California emission standards and control programs. Instead, California uses California-specific models for modeling mobile sources. (EPA 2021)*

39. FINDING

The appellant incorrectly claims that the FEIR erroneously concludes that the no-project alternative would not result in any significant unmitigable impacts or eliminate any significant unmitigable impacts. The EIR concluded, based on substantial evidence and exhaustive technical analysis, that the Project will have no significant and unavoidable impacts. The DEIR incorporated extensive environmental impact analysis including detailed technical evaluations of the Project and the alternatives to support decision makers in assessing the environmental consequences of the Project. The No Project Alternative was appropriately identified as the Environmentally Superior Alternative, but it did not meet the project objectives.

EVIDENCE a) The project is consistent with section 15151 of CEQA Guidelines in that:

1) The EIR was prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences.
2) An evaluation of the environmental effects of the proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible.
3) Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among experts.

4) The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at disclosure.

b) The County has provided substantive analysis to both disclose potential environmental effects resulting from the whole of the Project to the public and to inform the Planning Commission and Board of Supervisors as to the potential environmental consequences of the Project. Substantial evidence supports this analysis, including the analysis of the No Project Alternative.

c) No project would result in no Brownfield cleanup and no adaptive reuse of the site and associated public infrastructure (intake and outfall). No Brownfield clean up could result in harm to the public's welfare and safety, and to the environment, as hazardous materials remain onsite. As latent hazardous materials sit, they pose environmental risk as they potentially leach further into groundwater. This poses a significant risk to water quality and bay ecosystems as sea level rise grows closer to the groundwater table in coming years. This can be avoided with project implementation.

d) As Stated in Section 4.4 of the DEIR:

> Only the No Project Alternative (Alternative 1) would be less impactful to the environmental; however, the goals and objectives of the Project would not be achieved, and the current degraded brownfield site would remain as is with its current negative impacts and hazards.

40. FINDING The appellants incorrectly claim that the FEIR did not consider alternatives of a small project or multi-phase modular build-out. It is not clear what impact or issue the appellant raises in this criticism, the Alternatives Analysis did provide a reasonable range of alternatives that have the potential to reduce significant environmental effects and are consistent with the project objectives. It is not clear how a smaller project alternative better addresses significant effects when there are no significant adverse effects identified in the EIR.

EVIDENCE a) CEQA requires that an EIR "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project." (CEQA Guidelines 15126.6.) An EIR need not consider every conceivable alternative. (As described in section 4. Alternatives Description and Analysis.) The Project EIR complied with this requirement.

b) Confidential information provided to the County provides insight on financial feasibility for a smaller project alternative. Given the amount of money involved in remediation, construction of facilities, and environmental review processes, NAFC is unable to consider a smaller project alternative. This was reviewed and accepted by the County and is the reason that a smaller project alternative was not included in the EIR. The comments from the applicant came after the EIR was prepared so there was not the ability to include this in the EIR.

c) The EIR proposes 18 mitigation measures that effectively reduce the potential impacts to a less than significant level. No information has been submitted to indicate how a smaller project alternative would better mitigate any of these impacts.

d) The project will undergo monitoring from multiple agencies (CCC, RWQCB, the County) as remediation and construction activities ensue. A phased build out is proposed. Monitoring of mitigations and conditions applied to the project must be followed. To continue buildout and obtain other permits associated with the project, the applicant must demonstrate compliance.

e) A smaller project alternative would result in less remediation of the site. Portions of the site would no longer require screening and excavation of hazardous materials due to a decrease in development footprint. As described in finding 6(d), this would result in potential risk to water quality and

bay ecosystems in the years to come. This can be avoided with project implementation as proposed.

41. FINDING

The appellants incorrectly claim that the FEIR makes conclusions regarding threatened species prior to completing formal consultation on project effects to those species. Formal Endangered Species Act (ESA) consultation prior to issuance of the EIR is not a correct understanding of the purpose of the CEQA process. The purpose of an EIR is to disclose potential environmental effects, and to mitigate those potential effects to the extent feasible (CEQA Guidelines 15002). The EIR accomplishes this and identifies additional permitting required from State and Federal Agencies.

EVIDENCE

a) CEQA Guidelines section 15050 states that "the agency which will act first on the project in question will normally be the lead agency." Humboldt County Planning and Building is the lead agency for CEQA review since the County has the principal responsibility for approving the Project (CEQA Guidelines §15367).

b) Page 10 of the Marine Resources Biological Evaluation, Appendix D, agency coordination included pre-project meetings held with the U.S. Army Corps of Engineers, North Coast Regional Board Water Quality Control Board, Humboldt Bay Harbor, Recreation, and Conservation District, California Coastal Commission (Coastal Commission), Humboldt County Planning Department, National Marine Fisheries Service (NMFS), State Lands Commission, and California Department of Fish and Wildlife.

c) The DEIR examines impacts to listed marine life. The Appendix D Marine Resources Biological Evaluation provides a comprehensive list of fish that may be impacted by the Project and what those impacts may be. Table 5.1 - Marine Species Potential to Occur in the Project Area lists green sturgeon on page 19, Coho salmon on page 21, and Chinook salmon, steelhead and eulachon on page 22. Further, starting on page 29 analysis of Special Status Fish begins with green sturgeon, followed by Coho salmon, then Chinook salmon and steelhead on the following page. On page 38, effects to designated critical habitat of green sturgeon is analyzed. Less than significant impacts to marine resources are expected as a result of the Project's discharge via the RMT II ocean outfall, as modeled by GHD (2020), no avoidance or minimization measures for marine resources are proposed.

d) Regarding potential take of federally listed species, the statement that the formal Endangered Species Act (ESA) consultation will include reasonable and prudent alternatives or reasonable and prudent measures is incorrect. If the NMFS determines in their ESA Section 7 consultation Biological Opinion that the action is likely to jeopardize the continued existence of any listed species or destroy or adversely modify critical habitat, the Project may not go forward unless NMFS provides a "reasonable and prudent alternative" that would avoid jeopardy and destruction or adverse modification. However, if NMFS concludes, in their opinion, that the Project is not likely to jeopardize the continued existence of any listed species or destroy or adversely modify critical habitat, they will include terms and conditions to minimize and monitor impacts to listed species and exclude a reasonable and prudent alternative.

e) LFS is the only (CA) listed species identified as potentially impacted and will be mitigated for the life stage impacted to a 1:1 ratio in the form of spawning and rearing nursery habitat creation within brackish water of Humboldt Bay. Mitigates for the loss of every individual LFS larvae.

42. FINDING

The appellants incorrectly claim that the FEIR fails for fully evaluate the potential adverse environmental effects of using up to 10 million gallons per day (MGD) of saltwater sources from an as yet unpermitted intake diversion. The EIR identifies the amount of water to be used and the potential impacts of the water intake.

EVIDENCE a) The DEIR analyzes the effects of seawater intake entrainment on essential fish habitat and specific fish species, including Pacific herring and northern anchovy starting on page 3.3-50. The DEIR analyzes the Project's effect on other commercial and recreational fish species on page 3.3-53. As part of the Coastal Commission's CDP, the Area of Production Forgone calculation is used to determine appropriate compensation for impacts to organisms such as phytoplankton and zooplankton potentially subject to entrainment, even though they may not have been included in the sampling.

b) As described in the FEIR on page 2-49 through 2-51:
The effects on smaller phytoplankton and zooplankton are typically not studied because their large abundances, wide distributions, and short generation times make them less susceptible to the effects of entrainment, especially at an intake with a volume that represents only 0.0304% of the Bay volume at mean sea level. On top of the volume of water that is in the Bay at mean sea level, nearly 68 billion gallons of water is exchanged in Humboldt Bay in each 24-hour period through tidal flow. In other words, 17 billion gallons of water enters the Bay in the transition from low tide to high tide and then 17 billion gallons of water leaves the Bay in the transition from high tide to low tide. This cycle repeats twice each day. Accordingly, the proposed amount of water to be withdrawn is a minor fraction of the volume of water in the dynamic Humboldt Bay system (SHN 2022).

c) The Water Board's Ocean Plan establishes the procedures for analyzing the ETM / APF for Phytoplankton and zooplankton biomass.

d) The results of the ETM analyses of the organisms selected for study are used to calculate an estimate of the habitat area necessary to compensate for the entrainment losses or the Area of Production Foregone (APF). The estimates of APF for the various organisms are typically averaged to provide an integrated estimate of the habitat area required to compensate for the losses to both the organisms analyzed and other organisms potentially subject to entrainment. Therefore, one of the goals of the final estimate of APF is to determine appropriate compensation for impacts to organisms such as phytoplankton and zooplankton potentially subject to entrainment even though they may not have been included in the sampling. This will be addressed as part of the Coastal Commission Coastal Development Permit review, the mitigation for which is evaluated in the EIR (Pile removal/Spartina eradication.)

43. FINDING

The appellants incorrectly claim that the FEIR uses a "piecemeal" approach to permitting the saltwater intake. The EIR analyzes the whole of the project, even though there are different responsible agencies issuing permits for components of the project. This is entirely consistent with CEQA.

EVIDENCE a) The EIR addresses all project components which include the land-based development, the intakes, and the outfall.

b) Piecemealing occurs when a component of the project has not been analyzed in one complete document. All components of the project have been analyzed within the EIR.

c) Multiple permits associated with development does not imply piecemeal. The entirety of the project has been environmentally assessed. Receiving permits after certification of an environmental document will provide evidence for the issuance of associated permits. This is standard practice.

44. FINDING

The appellants incorrectly claim that the FEIR fails to conduct a serious and rigorous alternatives analysis for the saltwater intake. The EIR analyzed multiple alternatives for the seawater intakes, including the relative environmental impacts. These alternatives were either not feasible or provided no environmental benefit to the project analyzed.

EVIDENCE

a) Three alternatives are outlined in the EIR which include: slant wells, oceanic seawater intake, and Humboldt Bay seawater wells. Details evaluations of these alternatives can be found on pages 4-16 through 4-17 of the DEIR.

b) A new offshore intake may lead to more environmental impacts not yet studied. Using existing infrastructure is least intensive. Piping would have to be constructed through surf, potential ESHA for the land-based portion of piping, and maintenance of the oceanic intake would complicate the standard procedural checks and cleanings of the intake screens. An intake could not be added to current outfall piping as it would jeopardize existing and future users by limiting the available capacity of the piping system. See section 4.0 - Alternatives Description and Analysis, in the DEIR regarding other species selection and site/infrastructure alternatives.

c) The claim that NOAA recommends that intakes be located offshore, when possible, to minimize fish contact, is misleading. This is applied to new construction. The current intakes are existing. Impacts associated with the intakes in operation have been mitigated to a level of less than significant.

d) EIR Appendix R reflects a 12-page summation of NMFS guidance applied to the project.

45. FINDING

The appellants incorrectly claim that the FEIR fails to identify or quantify the amount of ocean sources of fish food that will be utilized in the production of 25,000 metric tons of Atlantic salmon is not a component of the proposed project.

EVIDENCE

a) NAFC will not be producing fish feed as a part of this project, nor will they be harvesting wild fish or manufacturing feed at any of its facilities.

b) As discussed in the FEIR on pages 2-57 through 59:

As stated on page 2-38 of the DEIR, NAFC has not yet made a final decision on a feed supplier for the Project. It is too early in the process to do so because the sources of ingredients making up these diets are changing as the aquaculture industry continuously strives for improvement in the sustainability ranking of those ingredients. A feed formulation that may be the best available today may not be the best four to five years in the future when operations are planned to commence. For instance, there is increasing production of new raw materials such as microalgae, single cell proteins and insect meal as alternatives to traditional marine sourced ingredients. As an example, Nordic Aquafarms' facilities in Fredrikstad, Norway, have now started using microalgae as a supplement in the diet fed to the fish.

c) As described on pages 2-38 of the DEIR, NAFC recognizes the importance of the Fish-In-Fish-Out (FIFO) score as a measure of ecological efficiency of feed and the Project will include target limits that are among the best in the industry. In fact, Nordic Aquafarms' Fredrikstad Seafoods land-based facility growing Atlantic salmon in Norway, regularly achieves a FIFO score of 0.8 meaning more fish protein would be produced by the farm than whole fish included in the feed. NAFC will target, at least, the same high standard for the Project in California with the ultimate aim of exceeding this target as the salmon diet continues to evolve and reduce its dependence on traditional marine ingredients.

e) NAFC will be purchasing from certified feed manufacturers.

46. FINDING

The appellant's incorrectly claim that the FEIR makes arbitrary determinations of "less than significant" effects prior to obtaining data or documenting factual basis for determinations due to incomplete studies. Often studies continue after an EIR is prepared to provide more precise information to the responsible agency for determining mitigation ratios and compensation for areas impacted.

EVIDENCE

a) It is common practice for agencies to approve projects while studies regarding specific project elements are pending. The mitigation and ratios for all impacts have been clearly laid out with performance metrics. All potential impacts have been reduced to less than significant after mitigation. The DEIR Section 3.9 - Hydrology and Water Quality provides clear analysis of the potential impacts to hydrology and water quality resulting from construction and operation of the Project against significance thresholds derived from applicable local, state, or federal policies, or from Appendix G of the CEQA Guidelines

b) It is common for projects to move forward as sampling continues and information is gathered. It is proper to defer mitigation to the future, provided that the parameters by which the efficacy of that mitigation will be measured. The ETM provided sufficient data for regulators to make an informed decision about the potential impacts of the operation of the modernized sea chests. The sampling effort will provide finer resolution to the results of the ETM. This stepwise process is what was recommended by the Coastal Commission, and is how the Project is proceeding

c) The mitigation and ratios for all impacts have been clearly laid out with performance metrics. All potential impacts have been reduced to less than significant after mitigation. Technical evaluations and associated impact analyses were prepared. The County has provided substantive analysis to both disclose potential environmental effects resulting from the whole of the Project to the public and to inform the Planning Commission as to the potential environmental consequences of the Project, and the EIR clearly lays out how the efficacy of mitigation will be evaluated. The analysis of environmental impacts is supported by substantial evidence

47. FINDING

The Appellant's claim that the FEIR makes arbitrary determinations regarding risk to wild salmon populations, and that the "less than significant"' effect determinations place wild salmonid population at risk of viral exposure from waste effluent water discharges is incorrect. The EIR's conclusion that there is a less-than-significant risk to wild salmon populations is based on substantial evidence in the record.

EVIDENCE

a) The EIR's analysis of biological impacts demonstrates that the EIR's impact determination is based upon a comprehensive analysis of potential effects. The EIR concluded, based on substantial evidence, that impacts to wild salmon populations would be less than significant

b) As depicted on page 2-25 of the Project Description, all water from the facilities operations is routed to the wastewater treatment plant for full treatment. Line G shows all processing wastewater going in to the first step at the wastewater treatment plant. Solids are largely removed in this first step. The following steps further remove materials with the final step being a 0.04-micron ultrafiltration followed by a 300 mJ/cm^2 UV. As stated in the DEIR on page 3.3-25, all water captured by floor drains is sent to the wastewater treatment plant for the same treatment as production water

c) Section 2-41 of the DEIR describes that the proposed effluent treatment is designed to remove 99% of total suspended solids (TSS), biological oxygen demand (BOD) as well as 90% of total nitrogen (TN). As designed, the Project's effluent treatment includes ultrafiltration, biofiltration and UV treatment. The level of ultrafiltration used by itself (without use of UV) is suitable biocontainment for bacteria, parasites, fungus, and most salmonid viruses of regulatory concern

d) Any viruses that might pass filtration are subject to high dose UV disinfection (300 mJ/cm^2). This dose is sufficient to mitigate the threat of any salmonid viruses of concern. Upon initiating operation of the UV equipment, NAFC would be required to demonstrate compliance with the UV dose requirement to the NCRWQCB. Further conditions of the NPDES permit require NAFC to

maintain a program for routine inspection and maintenance of the UV equipment. UV is highly effective against pathogens as demonstrated in Table 2.9 on page 2-32 of the FEIR. The table identifies that the UV dose applied to water filtration exceeds the dosage needed to kill pathogens that impact salmonoids and other species.

48. FINDING The Appellant's incorrectly claim that the FEIR fails to adequately address domoic acid proliferation that may result from the Project.

EVIDENCE

a) Master Response 5 on Marine Outfall between pages 2-37 and 2-47 in the FEIR addresses how localized warming, currents, tidal flux and upwelling will contribute to domoic acid proliferation. There will not be a continued risk of domoic acid events because toxic blooms require a certain set of environmental conditions. Project activities will not create an environment that supports toxic Harmful Algae Blooms (HABs).

b) The DEIR evaluates toxic algae (Harmful Algal Blooms [HAB]) in Section 3.3 (Biological Resources, page 3.3-29) and Section 3.9 (Hydrology and Water Quality, page 3.9). HABs are driven by large-scale oceanic processes. Numerical modeling (DEIR Appendix E) demonstrated that elevated levels of nutrients from the Marine Outfall are limited and unlikely to contribute to a HAB in the coastal waters potentially affected by the Project. There is minimal risk of nutrients entering Humboldt Bay because the effluent 1) enters the Pacific Ocean at the location of the diffuser array, and 2) is dispersed at fast enough rates that regardless of oceanographic forces, effluent would not recirculate nor reenter into Humboldt Bay. The Project's potential contribution to a HAB is unfounded

c) The FEIR also addresses the potential for localized upwelling and warming contributing to HABs. This is explained in the discussion of how nutrient loading from the Project will not drive toxic blooms. Project activities (i.e., localized nutrient loading and increased temperature) will not result in significant changes in water quality.

d) The Outfall will be monitored in order to confirm that the project will not contribute to HAB. This monitoring is more rigorous than regulatory requirements and includes monitoring as requested by commenters. As a result, there is a negligible risk for localized and regional HAB events that would impact fisheries and marine resources. Since Project activities will not contribute to increased toxic HAB events, marine fisheries will not be impacted by the Project.

49. FINDING The appellants claim that the FIER fails to address impacts associated with entrainment at the saltwater intake is incorrect.

a) Pacific Sand Lance is not a listed species under the Endangered Species Acts (CESA/ESA).

b) There is no evidence that would reflect a significant impact to Sand Lance or impacts related to this population as a food source.

c) An effect on the environment shall not be considered significant in the absence of substantial evidence (CEQA Statute Section 21082.2(c), Guidelines Section 15384(b) and 15604 (f)(5)).

d) There is no provided evidence showing that the operation of the saltwater intakes would have an impact on Sand Lance, or the food web associated with fish, bird, and marine species identified in the appellants claim.

e) The results of the ETM analyses of the organisms selected for study are used to calculate an estimate of the habitat area necessary to compensate for the entrainment losses or the Area of Production Foregone (APF). The estimates of APF for the various organisms are typically averaged to provide an integrated estimate of the habitat area required to compensate for the losses to both the

organisms analyzed and other organisms potentially subject to entrainment. Therefore, one of the goals of the final estimate of APF is to determine appropriate compensation for impacts to organisms subject to entrainment even though they may not have been included in the sampling. This will be addressed as part of the Coastal Commission Coastal Development Permit review, the mitigation for which is evaluated in the EIR (Pile removal/Spartina eradication.)

NOW, THEREFORE, based on the above findings and evidence, the Humboldt County Board of Supervisors does hereby:

1. Certifies the Environmental Impact Report prepared for the Nordic Aquafarms California, LLC, the project has been prepared in compliance with CEQA pursuant to Section 15090 and 15091 of the State CEQA Guidelines; and

2. Finds that the proposed Coastal Development Permit and Special Permit is consistent with the Humboldt Bay Area Plan and Zoning Ordinance; and

3. Finds that that there are no grounds to support the appeal; and

4. Denies the Appeal submitted by Humboldt 350, Audubon Society and Commercial Fisherman's Association; and

5. Adopts the Mitigation and Monitoring Program; and

6. Approves the Coastal Development Permit and Special Permit.

The foregoing Resolution is hereby passed and adopted by the Board of Supervisors on September 28, 2022, by the following vote:

Adopted on motion by Supervisor Bohn, seconded by Supervisor Wilson and the following vote:

AYES: Supervisors: Wilson, Bohn, Bushnell, Bass

NOES: Supervisors: Madrone

ABSENT: Supervisors:

Virginia Bass, Chair
Humboldt County Board of Supervisors

STATE OF CALIFORNIA)) SS. County of Humboldt

I, Kathy Hayes, Clerk of the Board of Supervisors of the County of Humboldt, State of California do hereby certify the foregoing to be a full, true, and correct copy of the original made in the above-titled matter by said Board of Supervisors at a meeting held in Eureka, California as the same now appears of record in my office.

In Witness Whereof, I have hereunto set my hand and affixed the Seal of said Board of Supervisors.

KATHY HAYES Clerk of the Board of Supervisors of the County of Humboldt, State of California

By: KATHY HAYES

Date: September 28, 2022

By _____ Deputy

EXHIBIT 1

REVISED **CONDITIONS OF APPROVAL**

APPROVAL OF THE COASTAL DEVELOPMENT PERMIT AND SPECIAL PERMIT IS CONDITIONED ON THE FOLLOWING TERMS AND REQUIREMENTS.

A. General Conditions

1. The applicant shall submit a check to the Planning Division payable to the Humboldt County Clerk/Recorder in the amount of $3,539.25. Pursuant to Section 711.4 of the Fish and Game Code, the amount includes the CDFW fee plus the $50 document handling fee to the Clerk. This fee is effective through December 31, 2022, at such time the fee will be adjusted pursuant to Section 713 of the Fish and Game Code.

2. All components of project shall be developed, operated, and maintained in conformance with the Project Description, the approved Site Plan, Mitigation Monitoring and Reporting Program, and these conditions of approval. Changes shall require modification of this permit except where consistent with Humboldt County Code Section 312-11.1, Minor Deviations to Approved Plot Plan.

3. The applicant is responsible for obtaining all necessary County and State permits and licenses, and for meeting all requirements set forth by other regulatory agencies.

4. The applicant is required to pay for permit processing on a time and material basis as set forth in the schedule of fees and charges as adopted by ordinance of the Humboldt County Board of Supervisors. The Planning and Building Department will provide a bill to the applicant after the decision. Any and all outstanding planning fees to cover the processing of the application to decision by the Hearing Officer shall be paid to the Humboldt County Planning Division, 3015 "H" Street, Eureka.

5. The Applicant is responsible for costs for post-approval review for determining project conformance with conditions. A deposit is collected to cover this staff review. Permit conformance with conditions must be demonstrated prior to release of building permit or initiation of use and at time of annual inspection. A conformance review deposit as set forth in the schedule of fees and charges as adopted by ordinance of the Humboldt County Board of Supervisors (currently $750) shall be paid within sixty (60) days of the effective date of the permit or upon filing of the Compliance Agreement (where applicable), whichever occurs first. Payment shall be made to the Humboldt County Planning Division, 3015 "H" Street, Eureka.

6. The applicant is responsible for completing and implementing all mitigation measures outlined within the MMRP which shall be completed as required within the MMRP and the applicant/developer/responsible party shall provide all reporting as required in the MMRP.

7. An annual report shall be submitted outlining conformance with ongoing conditions and identifying conditions completed within the given year due January 1 of each year. This condition shall be implemented for the life of the project.

8. The approved building plans shall meet all applicable fire codes, including fire suppression infrastructure requirements deemed necessary for the project by the Building Inspection Division. Sign-off on the Occupancy Permit by the Building Division shall satisfy this requirement.

9. Prior to issuance of a demolition permit, the applicant shall obtain a permit for demolition activities from the North Coast Unified Air Quality Management District (NCUAQMD). A letter or similar communication from the NCUAQMD verifying that all their requirements have been met will satisfy this condition.

10. Prior to Phase 1 operation, the applicant shall obtain a National Pollutant Discharge Elimination System (NPDES) permit for the use of the existing outfall pipe infrastructure to discharge the proposed treated wastewater associated with Project operations from the RWQCB. A letter or similar communication from the State Water Board verifying that all their requirements have been met will satisfy this condition.

11. Prior to demolition or earth moving activity the applicant shall provide a copy of the Storm Water Pollution Prevention Plan submitted to the RWQCB.

12. Before the import of any Construction and Demolition and Inert debris (CDI) not generated by the demolition or construction on any parcel subject to this project, the applicant will consult with DEH Solid Waste Local Enforcement Agency (LEA) program staff for regulatory parameters.

13. Prior to issuance of construction permits for Phase 1, the applicant shall obtain a permit for the use of the existing Onsite Wastewater Treatment System (OWTS) with the Division of Environmental Health (DEH).

14. Prior to approval of any permits for Phase 2 and prior to commencement of any work on the system, the applicant shall receive from DEH approval of an OWTS Destruction Permit for abandonment of the existing Onsite Wastewater Treatment System (OWTS) .

15. Prior to approval of any construction permits or commencement of any work, the applicant/developer shall complete the recommendations within the Landfill Gas Workplan (SHN January 2021) to verify that there is no hazard associated with landfill gasses generated at the Samoa Ash Disposal site. If landfill gasses are observed in exceedance of regulatory thresholds, a landfill gas collection and management system will be required.

16. The applicant shall comply with the California Health and Safety Code, Division 20, Chapter 6.95, Article 1, Health and Safety Code, Division 20, Chapter 6.5, Health and Safety Code, Division 20, Chapter 6.95, Article 2, Health and Safety Code, Division 20, Chapter 6.7, Health and Safety Code, Division 20, Chapter 6.67, Sections 25270-25270.13, and California Code of Regulations, Title 27, Division 2, Chapter 4.5. Implementation of these requirements shall be coordinated through the County of Humboldt's Certified Unified Program Agency (CUPA).

17. Prior to any construction activities an engineer's report shall be submited to the Building Inspection Division certifying that the abatement and demolition activity has been completed in accordance with the issued Demolition Permit and other applicable permits.

18. As part of the application for a Building Permit, the applicant shall submit a landscaping plan for the off-street parking facility as described by Humboldt County Code Section 313-109.1.6.2 Landscaping. The landscaping material shall be appropriately placed within off-street parking areas that are equivalent to not less than two percent (2%) of the total area devoted to off-street parking including associated drives or aisles. The plan shall incorporate the use of native species to the extent practicable. The landscaping plan shall be reviewed and approved by the Planning Department prior to issuance of Building Permits. All landscaping shall be installed prior to occupancy. The landscaping shall be maintained in a healthy and clean condition for the life of the project.

19. Prior to Phase 1 Occupancy, the Applicant shall prepare and receive approval from the Planning and Building Department of a Transportation Management Plan designed to reduce the number of single-occupant commute vehicles traveling to the site each day. The plan shall provide measures to reduce the number of single occupant employee vehicles traveling to the site. The Transportation Management Plan may utilize various mechanisms to achieve this including but not limited to:

a. Encourage ride-sharing and carpooling vanpooling. The operator of the facility should design and implement carpooling and ride-sharing incentive program for employees. For this to be considered effective, there must be incentives provided.
b. Encourage employees to remain on-site during meal breaks by providing a break room with kitchen, catering options, or cafeteria.
c. Work with the local transit authority to extend bus service to the site. The current bus transit stop is approximately 2-miles away. Installation of a transit stop in proximity to the project can be used to satisfy the condition.
d. Install shower facilities and places for employees to dress for those who commute via bicycle.

An annual report detailing the measures implemented as part of the Transportation Management Plan shall be submitted to the Planning and Building Department by January 1 of each year.

20. The applicant shall obtain an encroachment permit from the Humboldt County Department of Public Works – Land Use Division for any signage located in the County right of way. Construction staging signage shall conform to the standards of the California Manual on Uniform Traffic Control Devices (CA MUTCD).

21. The applicant shall conduct the following monitoring activities as described in section 2.3.2 of the DEIR.

    a. Baseline monitoring prior to operation of the outfall. This monitoring shall commence once Phase 1 demolition is initiated.

    b. Post-discharge receiving water monitoring shall commence at discharge from Phase 1 and continue for three years following completion of Phase 2 operations (full facility discharge) following the same methodology as the baseline monitoring. The post-discharge monitoring would provide "before-after-control-impact" or "before-after-gradient" design for the biological monitoring program

    The monitoring program would be conducted during the summer/fall period of upwelling "relaxation," when conditions are least energetic, and dilution of the discharge would thus be lowest and would include baseline, pre-discharge monitoring. Two annual surveys would occur during the summer/fall period, ideally in August or September, separated by at least two weeks.

    The monitoring shall

    i. Gather coastal oceanographic data with an acoustic doppler current profiler (ACDP) to measure current velocities (deployment and retrieval during the first and second surveys of each year, respectively), and the use of a conductivity, temperature, and depth (CTD) profiler to characterize spatial patterns of temperature and salinity of the ambient waters and any effects in proximity to the discharge. CTD profiles would be collected at approximately 100 to 300 feet (near diffuser) to approximately 500 to 1,000 feet (distant from diffuser), and reference profiles shall be collected greater than one mile from the diffuser. The deployment of the ADCP shall be within 0.5 mile of the diffuser at a similar depth.

    ii. Identify Water quality parameters including monitoring of nutrients (NHx, NOx, TN), suspended solids and turbidity, and chlorophyll. Sampling shall include near surface (~1-3 ft below surface and near seabed (approximately 5 feet above bottom) grab samples shall be collected at half of the profiling stations (proportionally by near the diffuser, far from the diffuser, and reference profiles) and analyzed by an appropriately accredited laboratory.

iii. In addition to the biological sampling required under the NPDES permit, supplemental biological sampling shall be conducted to determine if effluent discharge is having a significant effect on biota in the Ocean Discharge Study Area, defined as the proximal marine waters as modelled in Appendix E to the DEIR. Supplemental biological sampling would occur concurrently with water quality monitoring. The study approach would utilize visual methods, either a remotely operated vehicle (ROV) and/or a drop camera with laser lights for scale. Transects and point surveys shall be conducted at a height of two to five feet above the bottom. Surveys shall be conducted outside of the zone of influence estimated in Appendix E of the DEIR for this time period (e.g., reference sites), and within the zone of influence, and along the discharge pipe, at approximately the 82 feet (25 meter) isobath.

The results of the monitoring shall be readily shared with Project stakeholders. Reporting shall be completed following each post-discharge monitoring event by a qualified consultant and shared with the County and stakeholders thereafter once each year.

22. The applicant/operator shall meet its energy needs in one of the following ways:
    a. Purchase renewable and/or non-carbon energy through RCEA, relying on its available portfolio, or

    b. Purchase a 100% non-carbon/renewable portfolio from one of the other Energy Service Providers (ESPs) in California.

        i. Can be satisfied with the ESP´s component of non-carbon/renewable and purchase of credits to ensure a 100% non-carbon/renewable portfolio.

        ii. As technically and commercially feasible, Nordic will enter into Power Purchase Agreements (PPAs) with the proposed offshore wind project and/or other non-carbon, renewable electricity sources located in Humboldt County provided to increase the total cost of energy is not more than 10% above what Nordic could buy in the market of 100% renewable/non-carbon energy

23. The applicant shall submit a Tsunami Safety Plan to the Planning and Building Department for review and approval. The Plan shall consider evacuation routes, signage, and education trainings to inform employees and guests of the potential for tsunami inundation and identify active protective measures. Once approved, the Plan shall be made available at the NAFC Facility to members of the public and employees of the facility.

24. ***Prior to issuance of any construction permits for phase 2, phase 1 of the project must be operating in compliance with the County CDP, RWQCB NPDES Permit, and any other local, state, or federal permit issued to Nordic or their successor. This shall be to the satisfaction of the Director of Planning and Building.***

25. ***Nordic Aquafarms shall provide an annual Sustainability Report initiated within one year of operation, describing efforts to decarbonize trucking activities, GHG impacts associated with fish feed and other relevant issues. Nordic shall host a summit by invitation for the local NGOs, Community Leaders, Academia, Tribal Government Leadership and members of the public. In addition to reviewing Nordics Annual Sustainability Report, a forum is created where issues and solutions are discussed by all. Agreed upon elements can be incorporated into Nordic's sustainability goals in the following years. These collaborative solutions are not exclusive to Nordic, leaving opportunity for development of community wide initiatives and creating a cycle of sustainability improvements that can be adopted over the years. Sponsorship of these initiatives can be borne by Nordic up to an annual limit and can be combined with matching funds and sponsorships from various sources. At a minimum Nordic will provide $25,000 annually to an appropriate community project.***

B. Ongoing Requirements/Development Restrictions Which Must be Satisfied for the Life of the Project:

1. For the life of the project, the applicant shall adhere to the Mitigation and Monitoring Reporting Program adopted fort the project. Annual monitoring reports shall be made available to the Planning Department at the time of the annual inspection.

2. Lighting shall be shielded and down casted to preclude illumination of the night sky or light spillover onto adjacent properties.

3. The applicant shall adhere to the requirements of the NPDES Permit for the life of the project.

4. The applicant shall adhere to the requirements of the submitted SWPPP for the life of the project.

5. Ensure all generators be located on stable surfaces with a minimum 200 feet buffer from all waterways measured horizontally from the outer edge of the riparian drip zone, per CDFW referral comments received January 4, 2018.

6. All refuse shall be contained in wildlife proof storage containers and disposed of at an authorized waste management facility.

   The emergency backup generators shall only be used during required testing (as outlined in the NCUAQMD's permit requirements) and power outages. Typical run time for testing would be approximately 10 hrs and would be no more than 50 hours per year.

7. The use of anticoagulant rodenticide is prohibited.

8. Inspections. The permit holder and subject property owner are to permit the County or representative(s) or designee(s) to make inspections at any reasonable time deemed necessary to assure that the activities being performed under the authority of this permit are in accordance with the terms and conditions prescribed herein.

EXHIBIT 2

HUMBOLDT COUNTY PLANNING & BUILDING DEPARTMENT
MITIGATION MONITORING & REPORT PROGRAM

For the Nordic Aquafarms California, LLC Coastal Development Permit and Special Permit
Assessor Parcel Number: 401-112-021; Record Number: PLN-2020-16698

Mitigation measures were incorporated into conditions of project approval for the above referenced project. The following is a list of these measures and a verification form that the conditions have been met. For conditions that require on-going monitoring, attach the Monitoring Form for Continuing Requirements for subsequent verifications.

Agency Acronyms:

HCP&BD -Humboldt County Planning and Building Department
CDFW -California Department of Fish and Wildlife
CCC -California Coastal Commission
RWQCB -Regional Water Quality Control Board
NCUAQMD -North Coast Unified Air Quality Management District
USFWS -United States Fish and Wildlife Service
NMFS -National Marine Fisheries Service

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
						Initials	Date	Comments
	SECTION 3.2 - AIR QUALITY							
AQ-1	Best Management Practices to Reduce Air Pollution: The contractor shall implement the following BMPs during construction; the BMPs shall be included as notes on final construction plans: - Equipment and activity must not emit dust that is visible crossing the property line, except for short-term activities related to explosive demolition of the boiler building and smokestack. - All exposed surfaces (e.g., parking areas, staging areas, soil piles, active graded areas, excavations, and unpaved access roads) shall be watered two times per day in areas of active construction or as necessary in conjecture with other dust suppression methods (such as gravel application) to appropriately control dust. The County or NCUAQMD may require additional treatment in periods of high wind or other circumstances causing visible dust to be generated by the construction site. - All vehicle speeds on unpaved roads shall be limited to 15 mph, unless the unpaved road surface has been treated for dust suppression with water, rock, wood chip mulch, or other dust prevention measures. - All haul trucks transporting soil, sand, or other loose material off-site shall clean all side boards and headboards of material and be adequately wetted and covered. - Use of mud rumbler mats will be required to reduce off-site tracking of mud and dirt. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day, as necessary. The use of dry power sweeping is prohibited. - All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. - Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes. Clear signage shall be provided for construction workers at all access points. - All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications. - Materials screening, transfer points on a belt conveyor, and crushers must have dust control measures such that: • No screening operation, or transfer point on a belt conveyor discharge into the air any visible emissions other than uncombined water vapor, for a period aggregating more than three minutes in any one hour which are 50% as dark or darker in shade as that designated as number one on the Ringelmann Chart, or 10% opacity. • No crusher discharges into the air any visible emissions other than uncombined water vapor, for a period aggregating more than three minutes in any one hour which are 75% as dark or darker in shade as that designated as number one on the Ringelmann Chart, or 15% opacity. • Control measures may include installation and operation of spray bars on all conveyors; installation of shrouds at all drop points; or any other measure(s) deemed as effective as the prior listed measures.	Project Contractor	During Project construction	HCP&BD and NCUAQMD	A note detailing the BMPs shall be placed on all improvement plans. On-site construction manager shall ensure staff is trained and use of BMPs is documented daily.			
AQ-2	Best Management Practices to Reduce Asbestos Emissions During Demolition: The contractor shall implement the following BMPs during abatement and demolition; the BMPs shall be included as notes on final demolition plans:	Project Contractor	During abatement	HCP&BD and NCUAQMD	A note shall be placed on all demolition and/or			

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
						Initials	Date	Comments
	- Work impacting material containing less than 1% asbestos (unclassified work) shall be performed in accordance with Class II asbestos work protocols as outlined in in 8 CCR 1529. - All interior asbestos abatement work impacting asbestos, including Class II and unclassified work, shall be performed within sealed negative-pressure containments. - Negative-pressure containments established at the interior of a structure shall be constructed and vented to the exterior in accordance with 8 CCR 1529. If additional suspect asbestos material is discovered during site work, then work in that area shall stop, the material wetted, and access to the area restricted until an appropriate asbestos characterization can be made.		and demolition		improvement plans. Adherence to BMPs shall be documented on a daily basis			
	SECTION 3.3 – BIOLOGICAL RESOURCES							
BIO-1	Implementation of Compensatory Mitigation for Loss of Dark-eyed Gilia: Loss of dark-eyed gilia habitat shall be mitigated through compensatory mitigation at a ratio of no less than 3:1 (area). Prior to issuance of any construction related permits, a Restoration and Monitoring Plan (RMP) shall be submitted for review and approval by the Planning and Building Department after consultation with CDFW. The RMP shall be in substantial conformance with the RMP dated August 4, 2021, prepared by GHD. Both on-site and off-site methods, success criteria, monitoring requirements, and reporting requirements for mitigation shall be conducted as followed: - Pre-construction (non-native removal) surveys for rare plants, including dark-eyed gilia, shall occur at both on-site and off-site mitigation areas identified in the RMP. - Sensitive dark-eyed gilia habitats will be marked with flagging and signage prior to replanting designated on-site restoration areas to avoid disturbing the rare plant population. - The location of the off-site mitigation shall be identified, and all proposed work shall be specific to that location(s). - The established dark-eyed gilia population to be preserved on-site and translocation macroplots shall be searched for dark-eyed gilia during the blooming period. Macroplots measuring approximately 100 square meters (m2) are to be established at the time of translocation in the best available habitat and these will be marked by GPS in the field. - Successful mitigation of impacts to dark-eyed gilia is defined by protecting the remaining rare plant habitat along the southern boundary and translocating the population from the project footprint to suitable restored off-site habitat. - Annual success is defined by a total population estimate for dark-eyed gilia at restoration sites equivalent to the baseline population estimate within the project footprint, to be established by pre-project surveys in May 2022, as detailed in the RMP. - Monitoring shall be implemented for a minimum 5-year period with annual	Project Applicant/ Qualified Biologist	Pre-construction surveys prior to construction. Monitoring shall be implemented for a minimum of 5 years	HCP&BD and CDFW	Prior to issuance of any construction related permits			

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
						Initials	Date	Comments
	reports provided to the Planning and Building Department. Each report shall identify the expected success criteria, whether the criteria has been satisfied, and remedial actions needed to achieve the success criteria. Monitoring, reporting and corrective actions shall continue until the success criteria has been achieved for two consecutive years starting in year 4. Year 1: After density-based population sampling to obtain baseline population estimates, dark-eyed gilia seeds will be collected from the Project footprint and broadcast at designated restoration macroplots. The remaining population outside of the footprint will be preserved. Year 2-5: Dark-eyed gilia shall be counted and/or systematically sampled at restoration sites. Establishment of total population numbers equal to or greater than the 90 percent confidence interval for the baseline population estimate shall indicate success. Annual monitoring will begin by navigating by GPS to the established macroplots. Transects spaced every 3m will be carefully walked to search for and count dark-eyed gilia plants where they are sparse. If plants become too numerous to reliably count, a systematic sampling scheme comparable to baseline monitoring may be implemented to obtain a good population estimate. The assessment of population health and adaptive management recommendations for additional reseeding shall be included in annual reports submitted to the Planning and Building Department for approval.							
BIO-2	Protect Special Status Terrestrial Mammals: The construction plans will specify that steep-sided excavations capable of trapping mammals shall be ramped or covered if left overnight. No pets (i.e., dogs) shall be allowed on the Project Site during construction. Trash receptacles shall be covered and removed from site at least weekly. Trash shall be managed so that it is not a nuisance, fire hazard, or attract animals. No poisons (including anticoagulant rodenticides) or other potentially injurious materials attractive to mammals shall be utilized or left unattended during construction or operation activities	Project Applicant	During Project construction and operation	HCP&BD	A Note to be placed on all construction plans			
BIO-3	Protect Special Status Bats: Buildings on-site will be demolished in the following two-phase sequence. 1. The following buildings will be removed as part of the first phase of demolition during daylight hours only (following naming in Appendix C2; WRA 2021a, Table 2, page 4-5). Phase 1 buildings listed below may be removed in any order. a. Machine Building b. Warehouse c. Existing Offices d. Brick Silos (all) e. Structure (concrete) f. Structure 2 (concrete) g. 3-Story Boiler Building h. 2-Story Building Near Smokestack i. Elevated Water Tanks j. Smokestack	Project Contractor	During demolition	HCP&BD	Prior to issuance of demolition permit, building removal phasing, including proposed times and dates of removal shall be submitted to HCP&BD			

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
						Initials	Date	Comments
	k. 12-Story Boiler Building and Attached Structure l. Foundations & Structures, Footings 2. Following removal of the Phase 1 buildings listed above, Phase 2 buildings will be removed in any order and include the Pump House, Sub Fl. 2, and Filter/Softener Tank Building during daylight hours only.							
BIO-4	<u>Protect Special Status Amphibians</u>: - No more than one week prior to commencement of ground disturbance within 50 feet of the anthropogenic rectangular concrete pool, a qualified biologist shall perform a pre-construction survey for NRLF and shall relocate any individuals or egg masses that occur within the work-impact zone to nearby suitable habitat. - If any NRLF are observed during the pre-construction survey, CDFW shall be consulted to determine the best way to avoid impacts to NRLF. Ground-disturbing activities should be conducted during the dry season (May 15-October 15) to minimize take of NRLF. If construction activities are conducted within the dry season (May 15-October 15), exclusion fencing shall be installed around the work area prior to October 15 to prevent NRLF from migrating into work areas. The fencing material and design shall be reviewed and approved by the Planning and Building Department in consultation with CDFW before installation. - In the event a NRLF is encountered on-site during construction, all construction activities will cease until the animal has left the Project area on its own and is no longer in danger of harm. The project construction manager or project biologist will report the sighting to CDFW within 24 hours. No one other than a CDFW-approved biologist is permitted to handle or capture NRLF, and NRLF will not be taken or harassed. - An Environmental Awareness Training will be provided to the construction crew prior to commencement of construction activities. This "tailgate" training is intended to enable the construction crew to be able to identify NRLF and to safely relocate them outside of the Project Site.	Project Applicant/ Qualified Biologist	Prior to Project construction	HCP&BD and CDFW	7 days prior to ground disturbance. Results of Survey shall be provided to HCP&BD. Surveys shall be approved by staff prior to issuance of permit authorizing ground disturbance within designated area.			
BIO-5	<u>Protect Special Status, Migratory, and Nesting Birds</u>: In order to mitigate potential impacts to special status migratory and nesting birds, one of the following measures shall be implemented: 1. If ground disturbance (i.e., ground densification and building demolition) or vegetation clearing is conducted outside the avian nesting season (March 15 – August 15) the applicant, contractor or responsible individual for the construction shall submit a construction timeline indicating dates of work to be implemented to the Planning and Building Department prior to construction or demolition permits and/or commencing of densification, ground disturbance, and/or vegetation clearing. Any deviation from this approved timeline shall require prior approval from the Planning and Building Department. Or 2. If ground disturbance occurs during the nesting season, a qualified ornithologist shall conduct preconstruction surveys within the vicinity of the Project Site to check for nesting activity of native birds and to	Project Applicant/ Qualified Biologist/ Qualified Ornithologist	Prior to and during Project construction	HCP&BD, CDFW, and USFWS	Construction timeline to be submitted prior to any permits issued related to ground disturbance. Surveys shall be completed no more than 7 days prior to ground disturbance according to submitted schedule.			

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
						Initials	Date	Comments
	evaluate the site for presence of raptors and special status bird species in the buildings subject for demolition. The ornithologist shall conduct at minimum a one-day preconstruction survey within the 7-day period prior to vegetation removal, demolition, and ground-disturbing activities. If ground disturbance, demolition, or vegetation removal work lapses for seven days or longer during the breeding season, a qualified ornithologist shall conduct a supplemental avian pre-construction survey before Project work is reinitiated. The report from the ornithologist shall be submitted to the Planning and Building Department prior to issuance of a Notice to Proceed before commencing demolition or construction activity. If active nests are detected within the construction footprint or up to 500 feet from construction activities, the ornithologist shall flag a buffer around each nest (assuming property access). A plan showing the buffer shall be submitted to the Planning and Building Department prior to commencement of construction activities. Construction activities shall avoid nest sites until the ornithologist determines that the young have fledged, or nesting activity has ceased. If nests are documented outside of the construction (disturbance) footprint, but within 500 feet of the construction area, buffers will be implemented as needed (buffer size dependent on species). Buffer sizes for common species would be determined on a case-by-case basis in consultation with CDFW and, if applicable, with USFWS. Buffer sizes will 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 survey, the qualified ornithologist 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 ornithologist, 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 ornithologist 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 or nesting activity has ceased, placement of visual screens or sound dampening structures between the nest and construction activity, reducing speed limits, replacing and updating noisy equipment, separating trucks in queue 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. Upon completion of the survey, a memo will be provided to the Planning and Building Department that will describe the methods and results of the survey and				Surveys must be approved by staff prior to the issuance of any permits related to ground disturbance.			

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
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	any related recommendations. All requirements and recommendations of the ornithologist shall be conditions of the Coastal Development Permit and shall be incorporated into the construction plans.							
BIO-5a	Protection of Osprey: Any new Osprey nests established within the Project Site that require relocation will be removed (after nesting has occurred) and replaced at a 1:1 ratio in consultation with CDFW. The Harbor District shall develop an Osprey Management Plan for current and future osprey nests. The Osprey Management Plan shall include performance criteria such as no-net-loss of osprey breeding territories with sufficient alternative nest sites within the Project area, and that any created nest sites are of equal or higher quality than nests removed.	Project Applicant/ Qualified Biologist	Prior to and during Project construction and operation	HCP&BD and CDFW	Prior to ground disturbance, if identified by Ornithologist within 7 days of construction schedule pursuant to MM 5.			
BIO-6	Limits on Soil Densification Construction to Avoid Impacts to Marine Mammals: When soil densification construction occurs within the Phase 2 Grow-Out Module footprint as shown in Image 4-7 above (Appendix J, Illingworth and Rodkin 2021), soil densification shall only occur when the tidal surface water elevation is below the 330-foot (100 meter) radius where Level B injury could occur. Final construction plans shall show the tidal elevation that corresponds with the 330-foot radius shown in Figure 2 of the Project's Hydroacoustic, Noise, and Vibration Assessment (Appendix J, Illingworth and Rodkin 2021). In addition, final construction plans shall also show the explicit portion of the Phase 2 Grow-Out Module required to adhere to soil densification construction during low tide conditions.	Project Applicant/ Project Contractor	Prior to construction of Phase 2 Grow-Out Module	HCP&BD	A note shall be placed on Final Construction Plans.			
BIO-6a	Protection of Longfin Smelt: The Humboldt Bay Harbor District shall mitigate for the potential loss of Longfin Smelt larvae due to entrainment by the intakes. The number of larvae that could potentially be entrained by the intakes is currently estimated to be approximately 24,000. A more precise number will be confirmed when monthly larval surveys are completed in December 2022 followed by entrainment modeling. Mitigation shall consist of the following: 1. Habitat creation or enhancement to provide Longfin Smelt spawning, rearing, or nursery habitat capable of producing the number of Longfin Smelt larvae lost to entrainment. Habitat creation or enhancement shall be within tributaries of Humboldt Bay in areas of fresh and/or brackish water and shall create habitat suitable for spawning and may include debris (e.g., pile) removal. 2. The area of habitat to be provided will be based on the area needed to support the number of spawning female Longfin Smelt needed to provide the target number of larvae. The mitigation will be based on an estimate that a single female Longfin Smelt requires 43 square feet (4 square meters) for spawning. 3. For this mitigation measure, the number of larvae produced per female is 1,000. 4. The total mitigation area will be calculated on a 1:1 basis. The equation to determine mitigation area will be: ([larvae entrained]/[1,000 larvae per female])*(43 square feet). Based on current sampling and calculations	Project Applicant/ Qualified Biologist	Prior to operation of Phase 1 of the facility	HCP&BD and CDFW	Prior to occupancy of Phase 1 and prior to the issuance of any construction permits related to ocean water intake upgrades.			

<table>
<tr><th rowspan="2">Mitigation Number</th><th rowspan="2">Mitigation Measure</th><th rowspan="2">Implementation Responsibility</th><th rowspan="2">Timing</th><th rowspan="2">Monitoring Responsibility</th><th rowspan="2">Monitoring Action</th><th colspan="3">Verification of Compliance</th></tr>
<tr><th>Initials</th><th>Date</th><th>Comments</th></tr>
<tr><td></td><td>the mitigation area would be (24,000/1,000)*43 = 1,032 square feet of habitat replacement area.

Habitat restoration to mitigate for Longfin Smelt entrainment shall be completed prior to operation of Phase 1 of the facility.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>BIO-7a</td><td><u>Implement Compensatory Mitigation for Sensitive Natural Communities</u>: Loss of Sensitive Natural Communities shall be mitigated through compensatory mitigation based on the ratios (acreages) stated below. Mitigation shall include removal of invasive European beachgrass, yellow bush lupine scrub, and other non-natives on- and off-site in locations where restoration planting is being conducted. On-site restoration is preferred by jurisdictional permitting resource agencies.
- Coastal Brambles: No less than 3:1, on-site only
- Dune Mat: No less than 2:1, on-site and off-site (BIO-1 can be combined with this requirement in which case the mitigation ratio is 3:1)
- Pre-construction surveys for rare plants shall occur at both on-site and off-site mitigation areas, as identified in the RMP
- Annual success criteria shall be defined as follows in Table 3.3-3:

Table 3.3-3 Annual Success Criteria
<table><tr><td>Invasive Vegetation</td><td>1</td><td>≥50% Reduction in target invasive plant cover (absolute) at dune restoration sites.</td></tr><tr><td></td><td>2</td><td>≥65% Reduction in target invasive plant cover at dune restoration sites.</td></tr><tr><td></td><td>3</td><td>≥80% Reduction in target invasive plant cover at dune restoration sites.</td></tr><tr><td></td><td>4</td><td>≥90% Reduction in target invasive plant cover at dune restoration sites.</td></tr><tr><td></td><td>5</td><td>≥95% Reduction in target invasive plant cover at dune restoration sites.</td></tr><tr><td>Native Dune Mat</td><td>5</td><td>Dune restoration areas (at all sites) are dominated by native dune mat species (≥50% relative percent cover).</td></tr><tr><td>Native Coastal Brambles</td><td>5</td><td>Coastal brambles restoration areas are dominated by native species associated with the community (≥50% relative percent cover).</td></tr><tr><td>Maintenance</td><td>All Years</td><td>The restoration crew completed invasive plant removal on schedule.</td></tr></table></td><td>Project Applicant/ Qualified Biologist</td><td></td><td>HCP&BD and CDFW</td><td>Prior to occupancy of Phase 1</td><td></td><td></td><td></td></tr>
<tr><td>BIO-7b</td><td><u>Construction Protocol for Protection of ESHA</u>: Prior to issuance of any permits, orange net or other appropriate fencing shall be placed around the 35-foot ESHA setback or at the limit of the Fire Road encroachment. The fencing shall remain in place throughout the construction period to prevent vehicles, equipment, or materials from entering the ESHA. The grading plans for the project site shall design finished pad grades to not result in grade changes at the edge of the buffer or fire road within the ESHA buffer.</td><td>Project Contractor/ Project Engineer</td><td>Prior to issuance of any permits</td><td>HCP&BD</td><td>Prior to issuance of any permits; AQ</td><td></td><td></td><td></td></tr>
<tr><td>HWG-1</td><td><u>Implement Stormwater Pollution Plan (SWPPP)</u>: Refer to Chapter 3.9 (Hydrology and Water Quality), Impact (a), for the full text of Mitigation Measure HWQ-1: Implement Stormwater Pollution Prevention Plan (SWPPP).</td><td>Project Contractor</td><td>Prior to and during Project construction</td><td>HCP&BD</td><td>A Note shall be placed on all improvement plans</td><td></td><td></td><td></td></tr>
<tr><td>HWG-3</td><td><u>Protection of Water Quality During Pile Removal</u>: Refer to Chapter 3.9 (Hydrology and Water Quality), Impact (a), for the full text of Mitigation Measure HWQ-3: Protection of Water Quality During Pile Removal.</td><td>Project Contractor/</td><td>During Project construction</td><td>HCP&BD,</td><td>Applicant shall submit proof that HWQ-3 has been</td><td></td><td></td><td></td></tr>
</table>

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
						Initials	Date	Comments
		Crane and Excavator Operators		Harbor District, CCC and RWQCB	complied with prior to occupancy of Phase 1			
GEO-2	Construction Best Management Practices: Refer to Chapter 3.2 (Geology and Soils), Impact (b), for the full text of Mitigation Measure GEO-2: Construction Best Management Practices.	Project Contractor	During Project construction	HCP&BD	A Note shall be placed on the plans			
Spartina PEIR BIO-1	Minimize Effects of Mechanical Spartina Removal Methods to Special Status Fish Species: On a project specific basis, a habitat analysis shall be done to determine if special status fish species have the potential to occur. If they could occur, then surveys may be done to establish that these species are absent, using protocols approved by USFWS or NMFS. If such surveys are not conducted, then the species will be assumed present. If special status fish species are present, then Spartina control methods will be selected that minimize potential impacts. To minimize erosion effects, control methods that are most likely to cause erosion (i.e., grinding, tilling, disking and digging/excavating) will not occur within 15 ft of any aquatic habitat containing special status fish species, but this distance could be increased depending on site specific conditions, such as soil stability and bank slopes. Additionally, amphibious vehicles will not contact the channel substrate where special status fish species are present, and the vehicles will be operated in such a manner that they avoid causing erosion into the channels. Furthermore, no flooding will be conducted in areas where special status fish species are present. Treatments that do not involve ground disturbance, such as top mowing, crushing, and covering will be the only methods used in close proximity (e.g., within 15 ft) to special status fish species. This mitigation measure is intended to avoid take as defined by the ESA and California ESA (H.T. Harvey & Associates and GHD 2013, page 62).	Qualified Biologist	Prior to Project construction	HCP&BD, CDFW, USFWS, and NMFS	Prior to occupancy of Phase 1 and prior to the issuance of any construction permits related to ocean water intake upgrades, documentation shall be provided to HCP&BD			
Spartina PEIR BIO-2	Minimize Noise Effects: Breeding special status birds could be present based on habitat and time of year. The breeding season is generally October through mid-August. On a project specific basis, a habitat analysis shall be done to determine if special status bird species have the potential to occur. If the habitat would support special status birds, and if eradication is planned to occur when these birds may be breeding, then surveys will be done to establish that these species are absent, using protocols approved by USFWS. If such surveys are not conducted, then the species will be assumed present. Response of birds to noise varies by species as well as site specific factors including ambient noise levels, topography and vegetation. A limit of 60 dB reaching breeding songbirds has recently been advocated for the by the California Department of Fish and Wildlife (see ICF Jones and Stokes 2009 as cited in H.T. Harvey and GHD 2013). For the purpose of this PEIR, if breeding birds are known or assumed present within close proximity to Spartina control activities than actions will be taken to ensure that ≤60 dB reaches the breeding area. Actions may include the use of sound measuring devices to determine the range of noise production and limit Spartina control methods accordingly (i.e., use quieter methods near breeding special-status birds) (From 2013 Spartina PEIR, H.T. Harvey & Associates and GHD 2013, page 63).	Qualified Biologist	Prior to Project construction	HCP&BD and CDFW	Prior to occupancy of Phase 1 and prior to the issuance of any construction permits related to ocean water intake upgrades, documentation shall be provided to HCP&BD			

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
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Spartina PEIR BIO-3	Minimize Impacts to Special Status Plant Species: On a site specific basis, a habitat analysis shall be done to determine if special status plant species have the potential to occur. If they could occur, then surveys may be done to establish that these species are absent, using protocols approved by CDFW. If such surveys are not conducted, then the species will be assumed present. If special status plant species are present, then Spartina control methods will be selected that avoid or minimize potential impacts. Staked locations of special status plant populations or special status plant habitat shall be recorded, and field crews on foot or in vehicles shall be instructed to avoid and protect special status plant populations or plant habitat. Impact to the endangered dune plants beach layia and Humboldt Bay wallflower will be avoided by selecting access routes that do not contain these plants. For Humboldt Bay owl's clover and Point Reyes bird's beak, avoidance is determined not to be necessary because temporary effects during Spartina control are mitigated by the explosive increase in population that has been demonstrated after Spartina control (Pickart 2012 as cited in H.T. Harvey and GHD 2013). For other annual special status plants such as Western sand spurrey, avoidance shall occur by using only treatment methods that are highly selective; for example heavy equipment will not be operated where these plants or their habitat occur. For perennial plants such as Lyngbye's sedge, a qualified botanist shall stake out locations of special status plants and provide training to control crews to ensure that they minimize impacts to these plants. If special status plant populations or habitat occur near the high tide line, wrack and large deposits of mown Spartina shall be removed during the growing season. To avoid trampling of special status plant species, in areas where frequent access will occur, paths shall be marked and used that avoid special status plant species to the maximum extent possible (H.T. Harvey & Associates and GHD 2013, page 64).	Qualified Biologist	Prior to Project construction	HCP&BD and CDFW	Prior to occupancy of Phase 1 and prior to the issuance of any construction permits related to ocean water intake upgrades, documentation shall be provided to HCP&BD			
Spartina PEIR BIO-3	Avoid Northern Harrier and Short-Eared Owl Nests: The breeding season is March-August for northern harriers (Loughman and McLandress 1994 cited in H.T. Harvey and GHD 2013) and March-July for short-eared owls (Gill 1977 cited in H.T. Harvey and GHD 2013). If Spartina control activities are planned to occur during these periods (i.e., between March-August) then a qualified biologist will assess whether there is potential nesting habitat for northern harrier or short-eared owls. If there is potential habitat, it will be avoided, or a qualified biologist will survey the potential habitat immediately prior to Spartina control work and if nests are found then a minimum 300 ft buffer zone will be delineated. The buffer zone will be avoided by Spartina control workers and equipment (From 2013 Spartina PEIR, H.T. Harvey & Associates and GHD 2013, page 63).	Qualified Biologist	Prior to Project construction	HCP&BD and CDFW	Prior to occupancy of Phase 1 and prior to the issuance of any construction permits related to ocean water intake upgrades, documentation shall be provided to HCP&BD			
Spartina PEIR BIO-5	Avoid Impacts to Eelgrass: - Workers removing Spartina in areas with the potential for eelgrass shall be trained to recognize eelgrass and the mudflats that are habitat for eelgrass. Training shall be conducted by a qualified biologist. Only methods that avoid physical disturbance to eelgrass plants shall be used in close proximity to eelgrass, such as top mowing and excavation. With this mitigation measure, there will be no impact to eelgrass (H.T. Harvey & Associates and GHD 2013, page 66-67).	Qualified Biologist	Prior to Project construction	HCP&BD and CDFW	Prior to occupancy of Phase 1 and prior to the issuance of any construction permits related to ocean water intake upgrades,			

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
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	Temporary Loss of Habitat to Northern Harrier and Short-Eared Owl - The northern harrier may experience temporary and limited loss of nesting and foraging habitat when Spartina infested areas are treated. Similarly, the short-eared owl may temporarily lose a limited amount of breeding habitat. Effects on these species will be short-term (up to two years but likely less). Based on the short-term nature of these impacts, effects are less than significant, and no mitigation is required (From 2013 Spartina PEIR, H.T. Harvey & Associates and GHD 2013, page 63).				documentation shall be provided to HCP&BD			
Spartina PEIR BIO-6	Reduce Noise near Marine Mammals: If marine mammals are present within 200 feet of Spartina control operations, then methods which cause relatively high levels of noise (i.e., brushcutters, the Marsh Master, and airboats) shall not be used. Other construction methods which do not generate a relatively high level of noise can be used (From 2013 Spartina PEIR, H.T. Harvey & Associates and GHD 2013, page 67).	Qualified Biologist	Prior to Project construction	HCP&BD, CDFW, and NMFS	Prior to occupancy of Phase 1 and prior to the issuance of any construction permits related to ocean water intake upgrades, documentation shall be provided to HCP&BD			
Spartina PEIR WQ-3	Minimize Fuel and Petroleum Spill Risks: Refer to Chapter 3.9 (Hydrology and Water Quality), Impact (a), for the full text of Mitigation Measure Spartina PEIR WQ-3: Minimize Fuel and Petroleum Spill Risks.	Project Contractor	During Project construction	HCP&BD and NCRWQCB	A note detailing the spill prevention plan criteria shall be placed on all improvement plans. On-site construction manager shall ensure staff is trained and use of BMPs is documented daily. Prior to occupancy of Phase 1 and prior to the issuance of any construction permits related to ocean water intake upgrades.			
Spartina PEIR WQ-6	Designate Ingress/Egress Routes: Refer to Chapter 3.9 (Hydrology and Water Quality), Impact (a), for the full text of Mitigation Measure Spartina PEIR WQ-6: Designate Ingress/Egress Routes.	Project Applicant/ Project Contractor	Prior to and during Project construction	HCP&BD	Prior to occupancy of Phase 1 and prior to the issuance of			

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
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					any construction permits related to ocean water intake upgrades, documentation shall be provided to HCP&BD			
Spartina PEIR WQ-7	Removal of Wrack: Refer to Chapter 3.9 (Hydrology and Water Quality), Impact (a), for the full text of Mitigation Measure Spartina PEIR WQ-7: Removal of Wrack.	Project Construction/ Qualified Biologist	Prior to Project construction	HCP&BD	Prior to occupancy of Phase 1 and prior to the issuance of any construction permits related to ocean water intake upgrades, documentation shall be provided to HCP&BD			
Spartina PEIR HHM-2	Accidents Associated with Release of Chemicals and Motor Fuel: Refer to Chapter 3.9 (Hydrology and Water Quality), Impact (a), for the full text of Mitigation Measure Spartina PEIR HHM-2: Accidents Associated with Release of Chemicals and Motor Fuel.	Project Contractor/ Equipment Operators	Prior to and during Project construction and operation	HCP&BD and NCRWQCB	Prior to occupancy of Phase 1 and prior to the issuance of any construction permits related to ocean water intake upgrades, documentation shall be provided to HCP&BD			
SECTION 3.4 – CULTURAL RESOURCES								
CR-1	Implementation of Protocols for Cultural Monitoring During Ground Disturbance: NAFC shall retain a qualified cultural resource monitor who is approved by the Wiyot Tribe, Bear River Band of the Rohnerville Rancheria, and the Blue Lake Rancheria to monitor ground disturbing activities related to this Project in areas the Tribes deem culturally sensitive. The three Tribal Historic Preservation Officers or their functional equivalent shall be contacted to set up and implement a cultural monitoring contract when a construction schedule has been determined. Advanced coordination with the qualified cultural monitor is required. As landowner, the Humboldt Bay Harbor, Recreation, and Conservation District (landowner) shall be provided with written verification for compliance. NAFC shall adhere to the Standard Operating Procedures for Inadvertent Archaeological Discovery (General), as detailed in the Archaeological and Historical Resource Investigation Report prepared for the Project by Roscoe and Associates (2020).	Project Applicant/ Qualified Cultural Resource Monitor	During Project construction	HCP&BD, NAHC, and THPOs	Prior to issuance of a permit for ground-disturbing activities, agreement for cultural resource monitoring shall be provided to HCP&BD			

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
						Initials	Date	Comments
CR-2	Implementation of Inadvertent Discovery Protocols: If cultural or historic-era resources are encountered during construction activities, the contractor onsite shall cease all work in the immediate area and within a 50-foot buffer of the discovery location. A qualified archaeologist, as well as the Tribal Historic Preservation Officers for the Bear River Band Rohnerville Rancheria, Blue Lake Rancheria, and Wiyot Tribe shall be contacted to evaluate the discovery and, in consultation with the applicant and lead agency, develop a treatment plan in any instance where significant impacts cannot be avoided. The Humboldt Bay Harbor, Recreation, and Conservation District (landowner) shall also be notified. In the event of inadvertent discoveries, the Standard Operating Procedures as outlined by Roscoe and Associates (2020) shall be followed. NAFC shall adhere to the Standard Operating Procedures for Inadvertent Archaeological Discovery (General) and Standard Operating Procedures for Documenting Inadvertent Archaeological Discoveries, as detailed in the Archaeological and Historical Resource Investigation Report prepared for the Project by Roscoe and Associates (2020).	Project Contractor/ Qualified Archaeologist	During Project construction	HCP&BD, NAHC, and THPOs	A note shall be placed on all construction plans			
CR-3	Minimize Impacts to Unknown Archaeological Resources or Human Remains if Encountered: If human remains are discovered during Project implementation, all work shall be halted and the Humboldt Bay Harbor, Recreation, and Conservation District (landowner) and tribal representatives shall be contacted immediately. The Humboldt Bay Harbor, Recreation, and Conservation District shall contact the County Coroner immediately and the Coroner would evaluate the find to determine the subsequent course of action, including notification of tribal representatives. In the event of inadvertent discoveries, the Standard Operating Procedures as outlined by Roscoe and Associates (2020) shall be followed, including Standard Operating Procedures for Inadvertent Discovery of Native American Remains and Grave Goods.	Project Contractor	During Project construction	HCP&BD, County Coroner, NAHC, and THPOs	A note shall be placed on all construction plans			
	SECTION 3.6 – GEOLOGY AND SOILS							
GEO-1	Implement Geotechnical Recommendations: As part of the Project design process, NAFC has engaged a California-registered Geotechnical Engineer to conduct a design-level geotechnical study for the Project. NAFC shall ensure that the Project is designed to comply with the site-specific recommendations identified in the Project's geotechnical report prepared for the Project by SHN (2020) and any subsequent geotechnical recommendations prepared as the Project's design advances. Geotechnical recommendations require designs in accordance with the seismic and foundation design criteria, as well as site preparation and grading recommendations included in the report. The geotechnical recommendations shall be incorporated into the final plans and specifications for the Project and shall be implemented during construction.	California-Registered Geotechnical Engineer/ Project Contractor	Prior to and during Project construction	HCP&BD	Adherence to geotechnical recommendations shall be placed on all construction plans			
GEO-2	Construction Best Management Practices: The contractor shall implement BMPs during construction, including the following BMPs from the current California Stormwater BMP Handbook for Construction: EC-1: Scheduling; EC-2: Preservation of Existing Vegetation; NS-2: Dewatering Operations; NS-9: Vehicle Equipment and Fueling; NS-10: Vehicle & Equipment Maintenance; WM-2: Material Use; WM-4: Spill Prevention and Control. Additionally, the following conditions shall be required during construction:	Project Contractor	During Project construction	HCP&BD	A note shall be placed on all construction plans. A note detailing the BMPs shall be placed on all improvement			

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
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	- - Silt fences shall be deployed as needed at onshore construction areas to prevent any sediment from flowing into Humboldt Bay. Required silt fence and erosion control locations and specifications for installation shall be included in the final construction plan set. If the silt fences are not adequately containing sediment, construction activity shall cease until remedial measures are implemented that prevents sediment from entering the waters east of the construction area; - Construction materials and debris shall not be placed or stored where it may be allowed to enter into or washed by rainfall into Humboldt Bay; - Best Management Practices (BMPs) shall be implemented to prevent: 1) entry of stormwater runoff into Humboldt Bay during construction, 2) the entrainment of excavated contaminated materials leaving the site, and 3) the entry of polluted stormwater runoff into coastal waters during the transportation and storage of excavated materials. These BMPs will be included in the Stormwater Pollution Prevention Program (SWPPP), which is required for the Project (see Section 3.9 – Hydrology and Water Quality); • Construction Storm Water Pollution Prevention Plan (SWPPP): The SWPPP shall be required to be implemented during the demolition and construction phases of the project. The SWPPP shall be submitted to the SWRCB Stormwater Multiple Application and Report Tracking System website (SMARTS) and contain the following components: best management practices to address erosion and sediment control, monitoring and testing for site runoff, an inspection program, and site maps. The SWPPP shall be updated and documented in the annual reporting to the RWQCB during the project to reflect changes in conditions (Mitigation Measure HWQ-1). - Non-essential work vehicles and equipment shall be parked at least 100 feet away from the shoreline; - Sufficient erosion control supplies shall be maintained on-site at all times, available for prompt use in areas susceptible to erosion during rain events; - Disturbance of existing vegetation shall be minimized to only areas approved for development; - Dewatering operations shall be conducted in the event that groundwater is encountered at the work location and stored or disposed of appropriately. Any groundwater encountered during demolition and construction that requires removal would be pumped into appropriate containers, such as Baker tanks for characterization. Excavation depths for construction are not anticipated to extend to groundwater and the use of dewatering wells for the Project is not planned (SHN 2020b). Water sourced from dewatering shall not be discharged to on-site one-parameter wetlands or Humboldt Bay; - **Dewatering and Discharge Plan (DDP)**: It is not anticipated that groundwater will be encountered during demolition or construction, but in the event that it is encountered, development of a plan for water management that includes handling, storage, testing, treatment,				plans. On-site construction manager shall ensure staff is trained and use of BMPs is documented daily.			

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
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	monitoring, and discharge shall be prepared for the project and submitted to the RWQCB for approval to complete the project. The plan shall use available groundwater testing results to identify appropriate treatment and include a monitoring program to ensure discharge parameters contained in the permit are met. The approved plan shall be submitted to the Planning and Building Department prior to water management activities; - Vehicle and equipment maintenance shall not occur within 100 feet of Humboldt Bay or wetlands; - As required in the SWPPP, contractor shall ensure that the site is prepared with BMPs prior to the onset of any storm predicted to receive 0.5 inches or more of rain over 24 hours; - All erosion and sediment control measures shall be maintained in accordance to their respective BMP fact sheet until disturbed areas are stabilized. Erosion and sediment control measures shall be explicitly included in the final construction plan set and shall be conditions of the Coastal Development Permit; and - The Stormwater Pollution Prevention Plan (SWPPP) may not cover all the situations that arise during construction due to unanticipated field conditions. Variations may be made to the SWPPP in emergency circumstances in the field subject to the approval of or at the direction of The Regional Water Quality Control Board and NAFC Project Manager or Construction Manager.							
GEO-3	Inadvertent Discovery of Paleontological Resources: In the event that fossils are encountered during construction (i.e., bones, teeth, or unusually abundant and well-preserved invertebrates or plants), construction activities shall be diverted away from the discovery within 50 feet of the find, and a professional paleontologist shall be notified to document the discovery as needed, to evaluate the potential resource, and to assess the nature and importance of the find. Based on the scientific value or uniqueness of the find, the paleontologist may record the find and allow work to continue, or recommend salvage and recovery of the material, if it is determined that the find cannot be avoided. The paleontologist shall make recommendations for any necessary treatment that is consistent with currently accepted scientific practices. Any fossils collected from the area shall then be deposited in an accredited and permanent scientific institution where they would be properly curated and preserved.	Project Contractor/ Qualified Paleontologist	During Project construction	HCP&BD	A note shall be placed on all construction plans			
HWQ-1	Implement Stormwater Pollution Prevention Plan (SWPPP): Refer to Section 3.9 (Hydrology and Water Quality), for the full text of Mitigation Measure HWQ-1 Implement Stormwater Pollution Prevention Plan.	Project Contractor	Prior to and during Project construction	HCP&BD	A note shall be placed on all construction plans			
Spartina PEIR GS-1/ WQ-5	Erosion Control: Spartina control methods which directly impact the soil (i.e., grinding, tilling, disking, digging and excavation) shall not be conducted on salt marsh areas that are within 15 ft of a salt marsh edge that is directly exposed to wave action. Other control methods can be used in these areas. This mitigation measure only applies to salt marsh edges along Humboldt Bay proper where wave	Project Operator	Prior to and during Project construction	HCP&BD	Prior to occupancy of Phase 1 and prior to the issuance of any construction			

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
						Initials	Date	Comments
	action is relatively high, not attached sloughs/channels nor the Eel River or Mad River estuaries.		and operation		permits related to ocean water intake upgrades, documentation shall be provided to HCP&BD			
	SECTION 3.8 – HAZARDS AND HAZARDOUS MATERIALS							
HAZ-1	Implement Recommendations of Interim Measures Work Plan: To address historic soil and groundwater contaminants remaining at the Project Site from historic use, the Project will implement recommendations included in the Interim Measures Work Plan developed by SHN (2020b). Interim measures in the plan include the following required actions to be implemented before and or during demolition and construction activities: - **Monitoring and Reporting Program (MRP)**: Site redevelopment has the potential to affect 18 existing monitoring wells at the site. Modifications to the existing MRP will be required to address proper closure and replacement of wells. Prior to ground disturbance, a request for modifications to the MRP shall be submitted to the RWQCB that includes a work plan for well destruction and replacement for implementation prior to initiation of site demolition work. Justification for wells to be completely removed from the MRP shall be provided in the request with supporting documentation. - **Construction Storm Water Pollution Prevention Plan (SWPPP)**: The SWPPP shall be required to be implemented during the demolition and construction phases of the project. The SWPPP shall be submitted to the SWRCB Stormwater Multiple Application and Report Tracking System website (SMARTS) and contain the following components: best management practices to address erosion and sediment control, monitoring and testing for site runoff, an inspection program, and site maps. The SWPPP shall be updated and documented in the annual reporting to the RWQCB during the project to reflect changes in conditions (Mitigation Measure HWQ-1). - **Sampling and Analysis Plan (SAP)**: Prior to demolition and ground disturbance, the project SAP shall be submitted to the RWQCB for approval. The SAP shall describe protocols and procedures that shall be implemented for characterization of chemical impacts associated with past operations at the site. The SAP shall address characterization of excavated soils, assessment of final in-place conditions, and testing of materials for reuse or offsite disposal. The SAP shall be the primary guide used to determine suitability of material for reuse. The use of Incremental Sampling Methodology (ISM) for characterization of soils is the preferred approach to assess suitability of reuse. The SAP shall contain the ISM program to evaluate the chemical quality of the material. The approved SAP shall be submitted to the Planning and Building Department prior to demolition and ground disturbance.	Project Applicant/ Project Contractor	Prior to and during Project demolition and construction	HCP&BD, NCRWQCB, DEH, CalRecycle, and NCUAQMD	Recommendations of Interim Measures Work Plan shall be placed on all construction plans			

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
						Initials	Date	Comments
	- **Dewatering and Discharge Plan (DDP)**: It is not anticipated that groundwater will be encountered during demolition or construction, but in the event that it is encountered, development of a plan for water management that includes handling, storage, testing, treatment, monitoring, and discharge shall be prepared for the project and submitted to the RWQCB for approval to complete the project. The plan shall use available groundwater testing results to identify appropriate treatment and include a monitoring program to ensure discharge parameters contained in the permit are met. The approved plan shall be submitted to the Planning and Building Department prior to water management activities. - **Soil Gas Monitoring Program**: The planned project development will occur within 1,000 feet of the Samoa Solid Waste Disposal Site (SWDS). An evaluation of soil pore gas from the SWDS will be required, per Title 27 California Code of Regulations Section 20925. A work plan to address soil gas conditions shall be submitted to the Humboldt County Department of Environmental Health and CalRecycle for approval and implementation. The workplan shall contain installation of soil gas probes and a monitoring program to evaluate subsurface conditions and potential impacts to site development. One year of site monitoring for soil gas is anticipated to be completed as part of this assessment program. - **Health and Safety Plan (HASP)**: Preparation of a site-specific health and safety plan shall be required for workers that may come in contact with contaminated materials. The HASP shall outline procedures, training requirements, and contain applicable monitoring programs to limit worker exposure. A hazard analysis must be performed in accordance with industry standards to determine the appropriate level of personnel protection required for completing the work. The HASP shall be submitted to Planning and Building Department for approval prior to demolition activities - **Demolition Plan**: Standard demolition and excavation equipment will be used to remove structures and to segregate the material for sorting and processing. A demolition plan shall be prepared for the project that describes the approach and processes to be implemented by the selected contractor. The plan shall be an overview that evaluates all structures designated for removal and shall require augmentation as it relates to specific engineering or onsite activities requiring additional planning. Special handling and disposal of building materials identified to be impacted during the site-wide hazardous materials survey will be conducted (GHD, 2020). Separate plans provided by specialized contractors to address the removal and disposal of lead, asbestos-containing material, and universal waste shall be prepared as part of the demolition permit for National Emission Standards for Hazardous Air Pollutants compliance and submitted to the North Coast Air Quality Management District. Approval of these plans will be required prior to							

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
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	initiation of site wide demolition activities. As structures are demolished, the material shall be segregated and stockpiled. Non-hazardous debris will be transported offsite for disposal as municipal solid waste (MSW) and metals shall be recycled. Much of the concrete, brick, and tile is considered usable material and machines will sort and downsize the material for preparation as onsite reuse or recycling. A Demolition Plan shall be submitted to the Planning and Building Department prior to issuance of a demolition permit. - **Excavation of Soils**: Soils excavated during demolition and construction at the site shall be screened in the field according to methods described in Section 4.3 of the IMWP and stockpiled appropriately. To evaluate whether excess soil can be reused onsite or disposed of offsite, samples of the soil shall be collected and tested, and the results compared to established screening levels. Excavated soils identified to have impacts from mill operations that require offsite disposal shall be moved for temporary stockpiling to a secure area of the site that is away from routine traffic and is high enough that water will not pond on or around the soil. The contaminated soil shall be placed on, and covered with, plastic (Visqueen®) in such a way that the soil pile is protected from water runon and runoff. Soils that are not hazardous shall be considered for site reuse if analytical results are below the published regulatory thresholds for residential or industrial soils. See Table 1 in the Interim Measures Work Plan (Appendix G) for Regulatory Screening Thresholds for Site Reuse. - **Field Screening**: Field screening of debris and excavated soils shall occur through visual observation and hand-held tools that shall be outlined in the project SAP. All debris and excavated soils shall be assessed for visible discoloration or staining, and if noticeable odors are present. Use of a hand-held Niton XLp 702A x-ray fluorescence (XRF) meter for metals and a portable photoionization detector (PID) for VOCs shall be used to assist in field screening activities. The use of a pH meter for extracted water and pH strips on soil mixed with deionized water shall additionally be implemented in the field to assess levels present. Construction materials such as concrete and brick shall be tested in the field for metals using the XRF prior to being processed (crushed) for reuse onsite. Exterior surfaces of materials selected for field screening shall be analyzed using the device's "standard bulk" mode, which includes analysis for 15 elements. Records of concentrations of cadmium, chromium, lead, nickel, and zinc shall be maintained through the field screening program. Frequency of testing with the XRF and for quality control shall be developed based on the volume of material and the Area of Interest (AOI) of generation for RWQCB approval and implementation in the project SAP. All meter readings for soil samples screened in the field for metals and VOCs will be recorded on logs or daily field record sheets and kept on file. - **Quality Assurance and Quality Control and Reporting**: The project SAP shall outline quality assurance and control quality (QA/QC) for the field							

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
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	program and laboratory testing. Standard Operating Procedures shall be provided for field activities and the designated testing laboratory quality assurance manual shall be included. A frequency according to industry standards for the number of samples to be analyzed, duplicate requirements, and testing limits for COPCs shall be determined based on the volumes of material generated. Following the completion of the field and testing program, a summary of findings shall be prepared and submitted on behalf of NAFC to the RWQCB. The report shall include a description of the work performed, a summary of field screening and laboratory testing results, analytical laboratory reports, maps depicting the analytical results, and recommendations for additional work, if necessary. The report and supporting documentation shall be provided to the Planning and Building Department at the same time of submittal to the RWQCB.							
AQ-2	Best Management Practices to Reduce Asbestos Emissions During Demolition: Refer to Section 3.2 (Air Quality), Impact (d), for the full text of Mitigation Measure AIR-2: Best Management Practices to Reduce Asbestos Emissions During Demolition.	Project Contractor	During abatement and demolition	HCP&BD and NCUAQMD	A note shall be placed on all construction plans with conformance verified on a monthly basis during the duration of development			
GEO-2	Construction Best Management Practices: Refer to Section 3.2 (Geology and Soils), Impact (b), for the full text of Mitigation Measure GEO-2: Construction Best Management Practices.	Project Contractor	During Project construction	HCP&BD	A note shall be placed on all construction plans			
HWQ-1	Implement Stormwater Pollution Prevention Plan (SWPPP): Refer to Section 3.9 (Hydrology and Water Quality), Impact (a), for the full text of Mitigation Measure HWQ-1: Implement SWPPP.	Project Contractor	Prior to and during Project construction	HCP&BD	A note shall be placed on all construction plans			
HWQ-3	Protection of Water Quality During Pile Removal: Refer to Section 3.9 (Hydrology and Water Quality), Impact (a), for the full text of Mitigation Measure HWQ-1: Implement Stormwater Pollution Protection Plan (SWPPP).	Project Contractor/ Crane and Excavator Operators	During Project construction	HCP&BD and Harbor District	A note shall be placed on all construction plans			
Spartina PEIR WQ-3	Minimize Fuel and Petroleum Spill Risks: Refer to Section 3.9 (Hydrology and Water Quality), Impact (a), for the full text of Mitigation Measure HWQ-1: Implement Stormwater Pollution Protection Plan (SWPPP).	Project Contractor	During Project construction	HCP&BD and NCRWQCB	A note detailing the spill prevention plan criteria shall be placed on all improvement plans. On-site construction manager shall ensure staff is trained and use of			

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
						Initials	Date	Comments
					BMPs is documented daily. Prior to occupancy of Phase 1 and prior to the issuance of any construction permits related to ocean water intake upgrades.			
Spartina PEIR HHM-2	Accidents Associated with Release of Chemicals and Motor Fuel: Refer to Section 3.9 (Hydrology and Water Quality), Impact (a), for the full text of Mitigation Measure HWQ-1: Implement Stormwater Pollution Protection Plan (SWPPP)	Project Contractor/ Equipment Operators	Prior to and during Project construction and operation	HCP&BD and NCRWQCB	A note detailing the Hazardous Materials Spill Prevention Control and Countermeasures criteria shall be placed on all improvement plans. On-site construction manager shall ensure staff is trained and use of BMPs is documented daily. Proof of Approval by the NCRWQCB is required prior to permit issuance for construction activities. Prior to occupancy of Phase 1 and prior to the issuance of any construction permits related to ocean water intake upgrades.			
	SECTION 3.9 – HYDROLOGY AND WATER QUALITY							

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
						Initials	Date	Comments
HWQ-1	Implement BMPs as part of Construction Permitting and Stormwater Pollution Prevention Plan (SWPPP) for Terrestrial Development: The Project will implement, at a minimum, the list of Best Management Practices identified below as part of approved construction permits and as part of compliance with State Water Resources Control Board (Water Board) Order No. 2009-0009-DWQ, Waste Discharge Requirements for Discharges of Stormwater Runoff Associated with Construction and Land Disturbance Activities. NAFC will include these requirements on all construction plans and submit permit registration documents (notice of intent, risk assessment, site maps, Stormwater Pollution Prevention Plan (SWPPP), annual fee, and certifications) to the Water Board. The SWPPP will address pollutant sources, BMPs, and other requirements specified in the Order. The following BMPs are the minimum necessary to reduce potential impacts to a less than significant level: General Construction a) Construction activities shall be scheduled and sequenced to minimize the areal extent and duration of site disturbance at any time. b) Drainage from outside the construction area shall be directed away from or around the site through use of berms, ditches, or other structures to divert surface runoff. c) Install weed-free fiber rolls, straw-wattles, coir logs, silt fences, or other effective devices along locations where water drain off the construction site. d) All graded slopes shall receive slope protection measures such as fiber rolls, drainage ditches, or erosion control fabrics to minimize the potential for concentrated surface runoff to cause erosion. e) Implement wind erosion or dust control procedures consisting of applying water or other dust palliatives as necessary to prevent or alleviate dust nuisance generated by construction activities. The contractor may choose to cover small stockpiles or areas as an alternative to applying water or other dust palliatives. f) Control water application rates to prevent runoff and ponding. Repair leaks from water trucks and equipment immediately. Hazardous Materials a) Hazardous materials shall be stored in areas protected from rain, provide secondary containment and must be a minimum of 100 feet from any wetland or Environmentally Sensitive Habitat Area. b) Implement the following hazardous materials handling, storage, and spill response practices to reduce the possibility of adverse impacts from use or accidental spills or releases of contaminants: i. Conduct all refueling and servicing of equipment more than 100 feet from any wetland or Environmentally Sensitive Habitat Area with absorbent material or drip pans underneath to contain spilled fuel. Collect any fluid drained from machinery during servicing in leak-	Project Contractor	Prior to and during Project construction	HCP&BD	A note detailing the BMPs and SWPPP criteria shall be placed on all improvement plans. On-site construction manager shall ensure staff is trained and use of BMPs is documented daily.			

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
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	proof containers and deliver to an appropriate disposal or recycling facility. ii. Prevent raw cement; concrete or concrete washings; asphalt, paint, or other coating material; oil or other petroleum products; or any other substances that could be hazardous to aquatic life from contaminating the soil or surface water. <u>Dewatering and Treatment Controls</u> In the event dewatering is determined to be necessary the following steps shall be taken: a) Prepare a dewatering plan prior to excavation. b) Impound dewatering discharges in sediment retention basins or other holding facilities to settle the solids and provide treatment prior to discharge to receiving waters as necessary to meet Basin Plan water quality objectives.							
HWQ-2	<u>Implement BMPs as part of Construction Permitting and Stormwater Pollution Prevention Plan (SWPPP) for the Water Intakes</u>: The Harbor District shall implement, at a minimum, the list of Best Management Practices identified below as part of approved construction permits and as part of compliance with State Water Resources Control Board (Water Board) Order No. 2009-0009-DWQ, Waste Discharge Requirements for Discharges of Stormwater Runoff Associated with Construction and Land Disturbance Activities. The Harbor District will include these requirements on all construction plans and submit permit registration documents (notice of intent, risk assessment, site maps, Stormwater Pollution Prevention Plan (SWPPP), annual fee, and certifications) to the Water Board. The SWPPP will address pollutant sources, BMPs, and other requirements specified in the Order. The following BMPs are the minimum necessary to reduce potential impacts to a less than significant level: <u>General Construction</u> a) Construction activities shall be scheduled and sequenced to minimize the areal extent and duration of site disturbance at any time. b) Drainage from outside the construction area shall be directed away from or around the site through use of berms, ditches, or other structures to divert surface runoff. c) Install weed-free fiber rolls, straw-wattles, coir logs, silt fences, or other effective devices along locations where water drain off the construction site. d) All graded slopes shall receive slope protection measures such as fiber rolls, drainage ditches, or erosion control fabrics to minimize the potential for concentrated surface runoff to cause erosion. e) Implement wind erosion or dust control procedures consisting of applying water or other dust palliatives as necessary to prevent or alleviate dust nuisance generated by construction activities. The contractor may choose to cover small stockpiles or areas as an alternative to applying water or other dust palliatives.	Harbor District/ Project Contractor	Prior to and during Project construction	HCP&BD and SWRCB	A note detailing the BMPs and SWPPP criteria shall be placed on all improvement plans. On-site construction manager shall ensure staff is trained and use of BMPs is documented daily.			

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
						Initials	Date	Comments
	f) Control water application rates to prevent runoff and ponding. Repair leaks from water trucks and equipment immediately. <u>Hazardous Materials</u> a) Hazardous materials shall be stored in areas protected from rain, provide secondary containment and must be a minimum of 100 feet from any wetland or Environmentally Sensitive Habitat Area. b) Implement the following hazardous materials handling, storage, and spill response practices to reduce the possibility of adverse impacts from use or accidental spills or releases of contaminants: i. Conduct all refueling and servicing of equipment more than 100 feet from any wetland or Environmentally Sensitive Habitat Area with absorbent material or drip pans underneath to contain spilled fuel. Collect any fluid drained from machinery during servicing in leakproof containers and deliver to an appropriate disposal or recycling facility. ii. Prevent raw cement; concrete or concrete washings; asphalt, paint, or other coating material; oil or other petroleum products; or any other substances that could be hazardous to aquatic life from contaminating the soil or surface water. <u>Dewatering and Treatment Controls</u> In the event dewatering is determined to be necessary the following steps shall be taken: a) Prepare a dewatering plan prior to excavation. b) Impound dewatering discharges in sediment retention basins or other holding facilities to settle the solids and provide treatment prior to discharge to receiving waters as necessary to meet Basin Plan water quality objectives.							
HWQ-3	<u>Protection of Water Quality During Pile Removal</u>: The following requirements shall be implemented during the removal of piles in and near the waters of Humboldt Bay. A Harbor District staff or representative will be present to ensure adherence to these requirements. - Neither the barge nor the tug will anchor during the project. The barge may attach to existing piles in order to maintain its position. - Piles will be removed during a tide of sufficient elevation to float the barge and tug boat adjacent to the piles being removed without scarring the mudflats or injuring eelgrass. - Grounding of the barge is not permitted. - A floating containment boom shall be installed and maintained around each pile being removed to collect any debris Including debris floating below the surface but not sinking to the bottom, weighted plastic mesh (similar to orange construction fencing) will be attached to the boom and extended across the area surrounding the pile. If debris sinks to the bottom, then it shall be removed by a diver.	Project Contractor/ Crane and Excavator Operators	During Project construction	HCP&BD and Harbor District	A note shall be placed on all plans related to pile removal. Prior to occupancy of Phase 1 and prior to the issuance of any construction permits related to ocean water intake upgrades, documentation shall be provided to HCP&BD			

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
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	- Any equipment used shall be without leaks of any coolant, hydraulic fluid, transmission fluid, or petroleum products. All equipment shall be checked before use in order certify that there are no fluid leaks. A spill response kit, including oil absorbent pads shall be on-site to collect any petroleum product accidently released. - Crane excavator and tug operators shall be experienced with vibratory pile removal. - The crane or excavator operator shall break the soil/pile bond prior to pulling in order to minimize pile breakage and sediment adhesion. - Piles shall be removed slowly to limit sediment disturbance. - Piles shall not be hosed off, scraped, or otherwise cleaned once they are removed from the sediment. - Piles shall be placed in a containment area on the barge to capture sediment attached to the piles. - The containment area shall include a structure around the perimeter which precludes sediment or contaminated water from reentering the bay. - Holes left in the sediment by the removed pilings will not be filled. They are expected to naturally fill. - Piles and debris shall be removed from the barge and moved to a designated site for disposal preparation in such a manner as to prevent release of debris or contaminated material. Prior to disposal, the piles and debris will be stored on paved areas, in containers, or on impermeable material. Debris will be stored covered with tarps and surrounded by a soil erosion boom in order to prevent potential leaching or discharge of debris or contaminated material. - All removed piles or portions of piles shall be disposed of at an authorized facility. Piles or portions of piles shall not be re-used in Humboldt Bay or along shoreline areas. - Land operations shall not be conducted in wetlands in proximity to the staging site.							
GEO-2	Construction Best Management Practices: Refer to Chapter 3.2 (Geology and Soils), Impact (b), for the full text of Mitigation Measure GEO-2: Construction Best Management Practices.	Project Contractor	During Project construction	HCP&BD	A note detailing the BMPs shall be placed on all improvement plans. On-site construction manager shall ensure staff is trained and use of BMPs is documented daily.			

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
						Initials	Date	Comments
HAZ-1	Implement Recommendations of Interim Measures Work Plan: Refer to Chapter 3.8 (Hazards and Hazardous Conditions), Impact HAZ-b, for the full text of Mitigation Measure HAZ-1: Implement Recommendations of Interim Measures Work Plan.	Project Applicant/ Project Contractor	Prior to and during Project demolition and construction	HCP&BD, NCRWQCB, DEH, CalRecycle, and NCUAQMD	A note detailing the Interim Measures Work Plan criteria shall be placed on all improvement plans.			
Spartina PEIR WQ-3	Minimize Fuel and Petroleum Spill Risks: Fueling operations or storage of petroleum products shall be maintained off-site, and a spill prevention and management plan shall be developed and implemented to contain and clean up spills. Transport vessels and vehicles, and other equipment (e.g., mowers) shall not be serviced or fueled in the field except under emergency conditions; hand-held gas-powered equipment shall be fueled in the field using precautions to minimize or avoid fuel spills within the marsh. For example, gas cans will be placed on an oil drip pan with a PIG® Oil-Only Mat Pad placed on top to prevent oil/gas contamination. Only vegetable oil-based hydraulic fluid will be used in heavy equipment and vehicles during Spartina control efforts. When feasible, biodiesel will be used instead of petroleum diesel in heavy equipment and vehicles during Spartina control efforts. Other, specific BMPs shall be specified as appropriate to comply with the Basin Plan and the other applicable Water Quality Certifications and/or NPDES requirements. This mitigation is intended to be carried out in conjunction with Mitigation HMM-2 in order to reduce potential impacts to less than significant level (H.T. Harvey & Associates and GHD 2013, page 126).	Project Contractor	During Project construction	HCP&BD and NCRWQCB	A note detailing the spill prevention plan criteria shall be placed on all improvement plans. On-site construction manager shall ensure staff is trained and use of BMPs is documented daily. Prior to occupancy of Phase 1 and prior to the issuance of any construction permits related to ocean water intake upgrades.			
Spartina PEIR WQ-6	Designate Ingress/Egress Routes: Temporary ground disturbance associated with site ingress/egress, staging, stockpiling, and equipment storage areas could occur in areas outside and adjoining work areas. Where areas adjacent to staging and stockpile areas are erosion prone, the extent of staging and stockpile shall be minimized by flagging their boundaries. An erosion/sediment control plan shall be developed for erosion prone areas outside the work area where greater than 0.25 acre (0.1 hectare) of ground disturbance may occur as a result of ingress/egress, access roads, staging and stockpile areas. The erosion/sediment control plan shall be developed by a qualified professional and identify BMPs for controlling soil erosion and discharge for treatment-related contaminants. The erosion/sediment control plan shall be prepared prior to any ground disturbing activities and implemented during construction (H.T. Harvey & Associates and GHD 2013, page 128).	Project Applicant/ Project Contractor	Prior to and during Project construction	HCP&BD	A note detailing the sediment and erosion control criteria shall be placed on all improvement plans. On-site construction manager shall ensure staff is trained and use of BMPs is documented daily.			

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
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					Prior to occupancy of Phase 1 and prior to the issuance of any construction permits related to ocean water intake upgrades.			
Spartina PEIR WQ-7	Removal of Wrack: During site specific planning, tidal circulation will be visually assessed. In areas with relatively low tidal circulation, it will either be assumed that dissolved oxygen levels are depressed, or monitoring will be conducted to determine if dissolved oxygen levels are depressed. In treatment areas located within or adjacent to waters known or expected to have depressed dissolved oxygen, if wrack is generated during the treatment process, the wrack shall be removed from the treatment area subject to tidal inundation or mulched finely and left in place (H.T. Harvey & Associates and GHD 2013, page 129).	Project Construction/ Qualified Biologist	Prior to Project construction	HCP&BD	A note shall be placed on all improvement plans, Prior to occupancy of Phase 1 and prior to the issuance of any construction permits related to ocean water intake upgrades.			
Spartina PEIR HHM-2	Accidents Associated with Release of Chemicals and Motor Fuel: Contractors and equipment operators on site during Project activities will be required to have emergency spill cleanup kits immediately accessible. If fuel storage containers are utilized exceeding a single tank capacity of 660 gallons or cumulative storage greater than 1,320 gallons, a Hazardous Materials Spill Prevention Control and Countermeasure Plan (HMSPCCP) would be required and approved by the NCRWQCB. The HMSPCCP regulations are not applicable for chemicals other than petroleum products; therefore, the contractor shall prepare a spill prevention and response plan for the specific chemicals utilized during Project activities (H.T. Harvey & Associates and GHD 2013, page 85).	Project Contractor/ Equipment Operators	Prior to and during Project construction and operation	HCP&BD and NCRWQCB	A note detailing the Hazardous Materials Spill Prevention Control and Countermeasures criteria shall be placed on all improvement plans. On-site construction manager shall ensure staff is trained and use of BMPs is documented daily. Proof of Approval by the NCRWQCB is required prior to permit issuance for construction activities. Prior to occupancy of			

Mitigation Number	Mitigation Measure	Implementation Responsibility	Timing	Monitoring Responsibility	Monitoring Action	Verification of Compliance		
						Initials	Date	Comments
					Phase 1 and prior to the issuance of any construction permits related to ocean water intake upgrades.			

Mitigation Measures and Applicant Proposed Operating Restrictions:

To: Board of Supervisors

From: Planning and Building Department

Agenda Section: Public Hearing

SUBJECT:
Appeal by Redwood Regional Audubon Society Chapter, Humboldt 350, and the Humboldt Fisherman's Marketing Association, Inc. of the Planning Commission's Certification of an Environmental Impact Report for and approval of the Nordic Aquafarms Project to demolish a dilapidated pulp mill site and construct a land-based recirculating aquaculture facility.

RECOMMENDATION(S):
That the Board of Supervisors:

1. Open the public hearing and receive the staff report, applicants, testimony by the appellants, and public; and
2. Close the public hearing; and
3. Adopt the resolution (Resolution 22-__). (Attachment 1) which does the following:
    a. Certifies the Environmental Impact Report prepared for the Nordic Aquafarms California, LLC, the project has been prepared in compliance with CEQA pursuant to Section 15090 and 15091 of the State CEQA Guidelines; and
    b. Certifies that the Final EIR (FEIR) was presented to the Board of Supervisors and the Board of Supervisors has reviewed and considered the information contained in the FEIR before approving the project; and
    c. Certifies that the FEIR reflects the county's independent judgment and analysis;
    d. Finds that the proposed Coastal Development Permit and Special Permit is consistent with the Humboldt Bay Area Plan and Zoning Ordinance; and
    e. Finds that that there are no grounds to support the appeal; and
    f. Denies the Appeal submitted by Redwood Regional Audubon Society Chapter, Humboldt 350, and the Humboldt Fisherman's Marketing Association, Inc.; and
    g. Adopts the Mitigation and Monitoring and Reporting Program (MMRP); and
    h. Approves the Coastal Development Permit and Special Permit subject to Conditions of Approval.
4. Direct the Clerk of the Board to give notice of the decision to the appellant, the Planning and Building Department, and any other interested party.
5. If approved, direct Planning Staff to prepare and file a Notice of Determination with the County Clerk and Office of Planning and Research within five (5) business days of project approval.

SOURCE OF FUNDING:
The Appellants have paid the fee associated with filing this appeal (1100277-608000).

DISCUSSION:

1. Executive Summary

This is an appeal of the Humboldt County Planning Commission's August 4th, 2022, approval of the Nordic Aquafarms California, LLC Coastal Development Permit and Special Permit and certification of the Environmental Impact Report prepared on behalf of the project (SCH#2021040532) by a unanimous vote (6-0, Commissioner Mitchel absent). Redwood Regional Audubon Society Chapter, Humboldt 350, and the Humboldt Fisherman's Marketing Association, Inc. (Appellants), are appealing the decision to approve the project and have requested that additional studies and alternatives be further evaluated in the Environmental Impact Report if the applicant still intends on pursuing the proposed project. The appellants are requesting that the Board of Supervisors: 1) do not Certify the Final Environmental Impact Report (FEIR) prepared for the Nordic Aquafarms California LLC project pursuant to Section 15090 of the CEQA Guidelines, 2) do not adopt the Mitigation Monitoring and Reporting program pursuant to Section 15097 of the CEQA Guidelines, 3) do not make findings for approval of the Coastal Development Permit and Special Permit, and 4) do not approve the Coastal Development Permit and Special Permit for Nordic Aquafarms California. The appeal claims that the Environmental Impact Report does not accurately evaluate impacts associated to energy use, greenhouse gas production associated with the fish feed, greenhouse gas emissions related to truck traffic, greenhouse gas emissions related to the use of refrigerants, biological impacts associated with operating the existing saltwater intake system, biological impacts associated with use of the outfall -specifically to salmonoids and other coastal species, and the lack of information provided discussing project alternatives (either no project or a smaller project). There is also a claim that the CEQA process followed violates CEQA Guidelines by piecemealing. The appellant is requesting that the project only be brought forward only if/when the necessary studies have been completed, that findings of significance have been altered to reflect revised studies, that the EIR be recirculated, and that the EIR and permitting process are reformulated to address the entire project as a whole.

The appellants did not raise concerns or provide evidence pertaining to the Coastal Development Permit and Special Permit, nor have they formulated a list of requested studies intended to strengthen the EIR. The Environmental Impact Report prepared for the project does evaluate and assess all components of the project which include demolition and construction, use of the existing intake system, and use of the outfall. The EIR is compiled of numerous technical reports executed by subject matter experts within their respective fields, consistent with CEQA Guidelines. The FEIR has undergone vigorous review and reflects the County's independent judgement. The appellants do not raise concerns which have not fully been addressed. The County is recommending that the Board of Supervisors deny the appeal, approve the Coastal Development Permit and Special Permit, and Certify the Environmental Impact Report, as recommended. This is a *de novo* hearing. The Board of Supervisors is not limited to evidence in the existing record and may receive new evidence at the appeal hearing.

2. Project Description and Phasing

The project under consideration is a Coastal Development Permit and Special Permit for the demolition and remediation of the Samoa Pulp Mill facility and construction of a land-based finfish recirculating aquaculture system (RAS) facility. This RAS facility includes five buildings

totaling 766,530 square feet and the installation of 4.8 megawatt (MW) solar panel array mounted on building rooftops. The height of the tallest proposed building is 60 feet.

The aquaculture facility would produce fresh head on gutted fish and fillets for delivery to regional markets. The species to be produced at the facility is intended to be Atlantic Salmon, pending approval from CDFW. The project will include ancillary facilities such as paved parking, fire access roads, security fencing, and stormwater management features.

The project would use approximately 2.5 million gallons of domestic and industrial freshwater per day (MGD) provided by the Humboldt Bay Municipal Water District. The project would require approximately 10 MGD of salt water, provided via modernized seawater intake (sea chest) infrastructure located adjacent to the NAFC Project Site, operated by the Humboldt Bay Harbor, Recreation, and Conservation District. Treated wastewater would be discharged utilizing the existing Redwood Marine Terminal II ocean outfall pipe, which extends one and a half miles offshore. A total volume of 12.5 MGD is anticipated to be released daily.

The Project is anticipated to be built out in two primary phases, with preliminary site preparation (Phase 0):

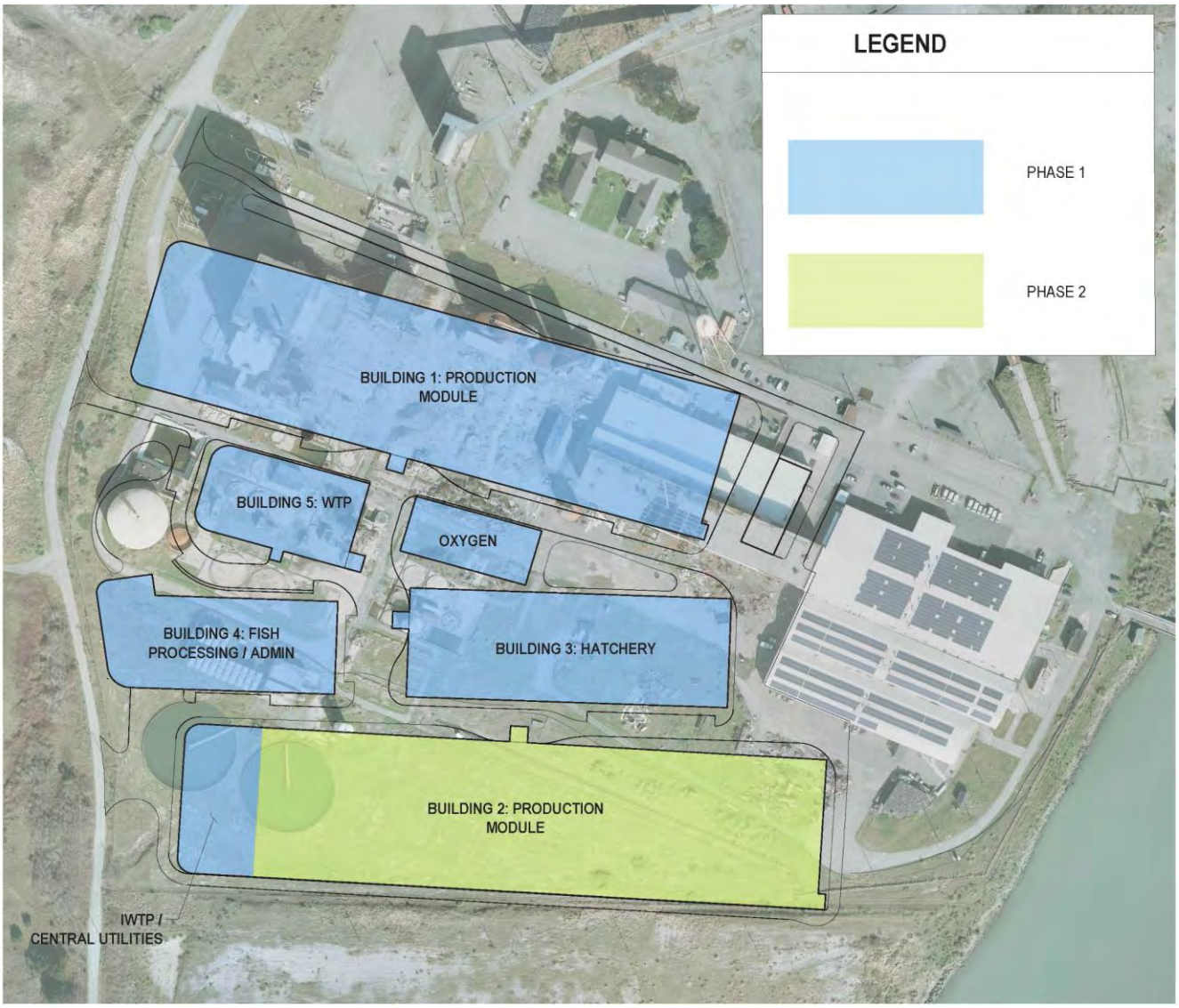
1. Phase 0 – Brownfield Redevelopment: asbestos and lead abatement; structure demolition; soil remediation; waste stream characterization, transportation, and disposal.

2. Phase 1 – Brownfield Redevelopment and Aquaculture Facility Stage 1: Intake and outfall connections; soil remediation; ground densification to prepare for construction of building foundations; construction of Phase 1 grow out module (Building 1), Hatchery (Building 3), Fish Processing Plant/Administrative (Building 4), Wastewater Treatment and Backup Power (Building 5); Oxygen generation storage; stormwater systems; onsite and offsite biological mitigation.

3. Phase 2 – Aquaculture Facility Stage 2: Ground densification; Phase 2 grow out module (Building 2); soil remediation; expansion of utilities; existing leach field decommissioning and connection to Peninsula CSD.

The Project is located 1,000 feet east of the Samoa Solid Waste Disposal Site (SWDS). A Special Permit is required pursuant to Sections 313-109.3.12 and 313-109.1.5.2 for an exception to the parking and loading space requirements.

Project Phasing



1. Building 1 (Grow-out Module 1): 265,028 square feet; 55-feet-tall; 1 story
2. Building 2 (Grow-out Module 2): 286,888 square feet; 55-feet-tall; 1 story
3. Building 3 (Hatchery): 105,085 square feet; 55-feet-tall; 1story
4. Building 4 (Fish Processing and Administration): 66,878 square feet; 60-feet-tall; 3 stories
5. Building 5 (Wastewater Treatment and Backup Power): 42,651 square feet; 40-feet-tall with 40-foot backup; generator exhaust stack; 2 stories.

3. Permitting

This project involves many different permits in order to obtain all approvals necessary to operate. The EIR has been prepared to address the entire project from construction to operation and consider the water intake and effluent discharge from the facility. The Water Intake is a project being undertaken by the Humboldt Bay Harbor, Recreation, and Conservation District (Harbor District). This is not part of the County Permit. The outfall is also owned by the Harbor District

and is not part of the County permit. The County is responsible for the permits associated with the land-based development, in this case, the Coastal Development Permit and Special Permit.

Permitting responsibility is as follows:

Activity	Jurisdiction	Permit Type
Aquaculture Facility	County of Humboldt	CDP, SP
Intake Upgrades	Coastal Commission, National Marine Fisheries Service, US Army Corps of Engineers, RWQCB	CDP, 404, Section 7 consultation, and National Pollutant Discharge Elimination System (NPDES)
Outfall	Coastal Commission, and RWQCB	CDP, NPDES
Fish Species Egg Importation	CDFW	Fish Species/Egg Importation

4. Overview of EIR

The County is the Lead Agency as defined under CEQA Guidelines sections 15050(a) and 15051 and is responsible for preparing the EIR and granting approval of the project.

An Initial Study and Mitigated Negative Declaration was prepared for the project pursuant Section 15074 of CEQA Guidelines. The draft Initial Study and Mitigated Negative Declaration was circulated for public review from July 17, 2020, to August 17, 2020. After circulation of the IS/MND and due to substantial comments received expressing concerns related to energy usage, impacts associated with effluent discharge and related monitoring, transportation and traffic, alternative fish species, and potential biological impacts related to the water intake, the applicant and the County as the Lead Agency determined that an Environmental Impact Report (EIR) should be prepared for the proposed project.

Lead Agency obligations under AB 52 (CEQA 21080.3.1) were conducted. The County began consulting Tribes to determine the potential for cultural resources associated with the project site. No Tribal cultural resources were identified. In November of 2020, the County formally invited local Tribes to engage in government-to-government consultation in preparation of the MND. Blue Lake Rancheria declined on November 24, 2020. Bear River Band of the Rohnerville Rancheria met with the County on December 9, 2020, to discuss the project. No Tribal cultural concerns were identified. Follow up information was provided to the Bear River Band on February 9, 2021. Government-to-government consultation between the County and the Yurok Tribe occurred on March 2, 2021. No Tribal cultural resources were identified on-site. As part of EIR preparation, invitations were sent to local Tribes asking for government-to-government consultation related to

Tribal cultural resources. The Wiyot Tribe, Blue Lake Rancheria, Bear River Band of the Rohnerville Rancheria, and Yurok Tribe were sent invitations for consultation on June 4, 2021. The County sent out letters on July 21, 2021, stating that there had been no response to the request for consultation. On July 23, 2021, government-to-government consultation was closed, unless request for consultation was received. This concluded AB 52 consultation. Though outside of the consultation period, it should be noted that continued coordination occurred with local Tribes. The County met with the Bear River Band on August 21, 2021, to discuss the project and answer questions and on October 21, 2021, the County met with the Wiyot Tribe to discuss the project and answer questions. The County received letters regarding the project from the Blue Lake Rancheria and the Bear River Band. On May 23, 2022, the Bear River Band submitted a letter identifying components of the project that pleased the Tribe and requested the standard inadvertent discovery protocol condition be applied to the project. On June 6, 2022, the County received a letter from the Blue Lake Rancheria identifying content with the environmental document and the support of the sustainable aquaculture proposed.

The County prepared and circulated a Notice of Preparation (NOP), on May 28, 2021, to notify Responsible Agencies, Trustee Agencies, the Office of Planning and Research, involved Federal Agencies, and the Public, that the County planned to prepare an EIR for this project. The NOP was posted to the State Clearinghouse for 30-days, through June 28, 2021. The NOP was solicited in a press release on June 3, 2021, encouraging participation in scoping meetings to be held on June 10, 2021. The County held two (2) separate scoping meetings, one for the public on June 10, 2021, at 6pm, and one for Responsible and Trustee Agencies on June 10, 2021, at 11am, to identify significant environmental issues, reasonable alternatives, and mitigation measures to be explored. 12 comment letters were elicited identifying areas of concern involving: project alternatives, energy use, effluent discharge, species selection, greenhouse gas emissions, traffic, quality control for pathogens, and cumulative biological impacts.

Agency scoping meetings were held with California Department of Fish and Wildlife, Regional Water Quality Control Board, National Marine Fisheries Service, California Coastal Commission, and the County in accordance with section 15082(c) of CEQA Guidelines. Following scoping meetings, and with the continued consultation of these agencies, the Draft Environmental Impact Report was prepared. The DEIR addresses all components of the project; the intake, outfall, and land-based development; to thoroughly evaluate the project in its entirety.
A Notice of Availability (NOA) was prepared, and DEIR uploaded to State Clearinghouse on December 20, 2021. The NOA and DEIR were made available for review at the Humboldt County Planning and Building Department, the Humboldt County Library, the Humboldt County Clerk-Recorder's Office, the Humboldt Bay Harbor, Recreation, and Conservation District, and at the Humboldt State University Library. Document files were also be made available at https://humboldtgov.org/3218/Nordic-Aquafarms-Project. The Draft EIR was circulated for 60 days, from December 20, 2021 to February 18, 2022, to allow interested individuals and public agencies to review and comment on the document. Comments were submitted in writing via the United States Postal Service or via email. Written comments on the Draft EIR were accepted until February 18, 2022.

A total of 242 comments were reviewed as a result of circulation. Letters received consisted of the following: 12 letters were local, state, and federal agency comments; 19 were non-governmental

organizations; 79 were from individuals, and 132 were letters of support for the project. The FEIR responds to all comments made on the DEIR. For comments that required more explanation or comments which had many of the same inquiry, Master Responses were prepared. Eleven (11) Master Responses were prepared which addressed specific topics including: (1) Truck Traffic and Road Safety, (2) Greenhouse Gas and Energy, (3) Fish Escape, (4) Fish Health and Biosecurity, (5) Marine Outfall, (6) Statements Unrelated to Environmental Issues as Defined Under CEQA, (7) Intake Biologic Productivity, (8) Substantial Evidence, Speculation, and Unsubstantiated Opinion, (9) Level of Detail in EIR and Responses to Comments, (10) Fish Feed, and (11) Waste Handling and Disposal. Master Responses thoroughly address public comments that are most common and provide a more concise explanation of points of interest within the EIR. The FEIR consists of response to comments, master responses, a description of circulation, errata to the DEIR, references, and lists of preparers. An Errata to the FEIR was uploaded to SCH and the County website on July 15, 2022.

Main areas of concern revolve around the amount of energy required for operation, cumulative analysis of greenhouse gas emissions for the project, and potential impacts associated with the intake and outfall components of the project. Currently, NAFC is proposing to use the same amount of energy as the City of Eureka and Fortuna combined. The applicant has voluntarily agreed to procuring 100% renewable and/or non-carbon energy. This commitment has been vested in the project description within the EIR and is enforceable as a Condition of Approval (COA#22) of the Coastal Development Permit and Special Permit. This commitment came to fruition in part by working with Nongovernment Organization (NGO) environmental groups, energy providers, and the applicant's voluntary commitment. If this condition were not in place, there would be reliance on the local gas fired power plant. Green energy sourcing provides an alternative that significantly reduces the greenhouse gas emissions produced by facility operation. By sourcing net-zero carbon and renewable energy, the greenhouse gas impact has been deemed less than significant. The applicant has worked with RCEA, whose sustainability goals are in line with state initiative, to ensure that this commitment can be accomplished. By 2030, Humboldt County will be its own net exporter of renewables. The applicant is looking to purchase local renewables assuming that the market cost does not exceed 10% of their current commitment with RCEA. The standing condition offsets the carbon footprint of the facility's operations related to energy consumption.

There has been extensive consideration for the effluent discharge via the existing ocean outfall pipeline within the EIR. Modelling results show that the treated effluent will achieve and far exceed conformance requirements outlined within the NPDES permit, issued by the RWQCB, required for discharge. Temperature, salinity, and ammonia are the criteria evaluated to determine marine toxicity and physiological stress. When evaluating the modelling, temperature and salinity are the areas of focus within the study. Ammonia, specifically ammonium nitrate, is modelled to be 100-fold from the allowable discharge thresholds. Numeric modelling results within the mixing zones show that the temperature of the effluent water released is slightly higher than ambient water temperatures (an increase of .1F within the mixing zone), and that salinity is slightly lower than ambient waters. The study finds that the effluent meets the dilution target within 5 feet of the diffusers, and that nutrient release, specifically ammonium nitrogen, is significantly lower than the threshold allowable (.004mg/L of the .6mg/L allowable).

There was still some public concern over the increased use of the outfall and the potential impacts that could be associated with the discharge 12.5 MGD of treated wastewater. To address these concerns, the project was initially conditioned to include monitoring of the outfall beginning at operation to ensure that no unforeseeable impacts occur as a result of facility operation. During the July 28, 2022, Planning Commission meeting, the applicant voluntarily agreed to baseline monitoring. This was incorporated into the Condition of Approval (COA#21) applied to the project. The Condition of Approval (COA#21) was revised to reflect baseline monitoring prior to facility operation, continued monitoring during phased buildout, and additional monitoring at full build out. This will provide transparency and a verification of the modelling used within the EIR. The NPDES permit will be required prior to discharge/use of the outfall. Baseline monitoring and additional monitoring that has been conditioned will provide a more robust data set for the RWQCB to review in its issuance and compliance verification of the discharge permit. The NPDES permit will require renewal every 5 years and requires its own standard monitoring. The monitoring that has been conditioned exceeds that which is required by the RWQCB. This additional monitoring will strengthen a determination by the RWQCB and provides public assurance enforceable as a Condition of Approval for the project.

There has also been extensive consideration for the proposed use and modernization of the existing saltwater intake systems proposed for facility operation. The EIR identifies how screen modernization, specifically design criteria, flow rate, position related to tidal flow, and cleaning systems, have been designed to minimize the potential impacts to biological productivity within the bay. These considerations were largely made in part through collaboration with the National Marine Fisheries Service (NMFS) and California Department of Fish and Wildlife (CDFW). The NMFS and CDFW both provided agency insight when preparing the EIR. NMFS guidance helped formulate a screen design to minimize impingement/entrainment of marine species (Appendix R, FEIR). Screen size and flow rate have been designed to exceed regulatory criteria at both the federal and state level. The flow rate of the intake has been designed to operate at a 0.2 fps or less through-screen velocity, which is less than the 0.5 fps requirement for intakes. The screen size has been designed to 1mm for screen openings, smaller than the 1.75mm requirement. The screen has also been designed so that it will sit parallel with intertidal flow. The reduction of intake flow, reduction of screen size openings, and placement of the screen relative to intertidal flow are all criteria evaluated in the EIR to reduce the potential entrainment of larval biota within the bay.

There is only one mitigation measure identified relative to the use of the intake system. BIO-6A identifies mitigation for the California listed species, Longfin Smelt (LFS). This mitigation was created to reduce the impact of entrainment of larval Longfin Smelt at the intakes. Pile removal at the Kramer Dock location was originally proposed as mitigation for Longfin Smelt. The ideology behind pile removal is that the overall removal of creosote pilings would largely contribute to bay habitat and water quality improvements, which would contribute to the proliferation of LFS as a species, and the overall ecosystem. By benefitting adult longfin smelt habitat, the species would benefit as a whole. During circulation of the DEIR, comments were received from CDFW expressing concern over mitigation measure BIO-6A. CDFW stated that the mitigation proposed did not address the appropriate life stage impacted for LFS because it would be addressing adult LFS and not larval LFS. Impacts associated with intake operation would be associated with larval LFS, and so the mitigation may not address the appropriate life stage. Pile removal in open water may not fully mitigate for LFS larvae. LFS known larval habitat is within fresh/brackish waters. To

mitigate for the appropriate life stage, CDFW recommended that the County revise the mitigation measure to reflect habitat creation for larval LFS in the form of spawning/rearing nursery habitat.

BIO-6A has been substituted to concur with comments received from CDFW during the DEIR circulation period. BIO-6A now reflects habitat creation at a 1:1 basis to mitigate for the loss of every individual LFS as a result of intake operation. Utilizing the formula for the spawning area required per Longfin Smelt and the egg production per female, habitat creation in the form of spawning/rearing nursery habitat will be required within the brackish waters of Humboldt Bay. Impacts identified in the EIR did not reflect degradation of larval habitat, rather the potential impact to a life stage of a California listed species. For this reason, the formation of habitat for larval Longfin Smelt does alter the findings of the EIR and does not pose new impacts. BIO-6A is the only substituted mitigation measure. The mitigation substitution is consistent with section 15074.1 of CEQA Guidelines for substitute mitigation measures. BIO-6A is also consistent with section 15088.5 of CEQA Guidelines, identifying new information which clarifies and amplifies findings within the EIR and does not identify new impacts; therefore, recirculation is not required.

Consistent with sections 15126.6 of CEQA Guidelines, an alternatives analysis was prepared within the EIR to discuss and consider alternatives for the project. There were three alternatives analyzed in the EIR: 1) no project alternative, 2) an off-site location, and 3) alternative water sources and fish species selection. The no project alternative evaluated an analysis of the environmental/other impacts associated with no project. If there were no project, there would be no site remediation and no public infrastructure improvements via private funding. No site remediation would result in the failure to abate hazardous materials at the existing Pulp Mill site and failure in its demolition. The site has already received EPA grant funding and still remains a superfund site. For remediation to be accomplished, private funding will need to be sourced. If Nordic is not approved, adaptive reuse of the parcel may be extremely difficult for a different user given the costs associated with hazardous material abatement. Additionally, ground densification would require that the site undergo a more thorough remediation process. Ground densification would require the applicant to dig and screen all material down to the water table. This would remove all potentially hazardous subsurface material not currently identified. If not for the ground densification, standard testing would occur via core sampling at areas with the potential for having hazardous materials by the RWQCB. Core sampling would not usher the same remediation effort. Lastly, improvements to public infrastructure to be used by Nordic -intake and outfall- would not occur. No improvements to this infrastructure could impact the potential for future users of the intake and outfall. This could result in taxpayers paying for said improvements if future users require the use of these facilities. The blight of the Pulp Mill site would sit as it does today, which could pose a risk to public safety and welfare.

The alternatives analysis does evaluate off-site locations within the EIR. These potential locations were identified in collaboration with the County, The Humboldt Bay Harbor, Recreation, and Conservation District (Harbor District), and the California Coastal Commission (CCC), during agency coordination as part of the EIR process. The Redwood Marine Terminal 1 (RMT 1) parcel to the north was considered infeasible due to its extended shape which is long and thin. This shape would not be conducive to the proposed development given its proposed size and need for more space. An alternative was analyzed which combined the RMT 1 parcel with two parcels to the west, owned by Samoa Pacific Group, LLC. All three parcels are appropriately zoned Coastal

Dependent Industrial and are generally vacant/underutilized. These parcels are presently proposed to be encumbered by the Harbor District as part of a future Off-shore Wind Energy Port. While the alternative is feasible, it does not reduce impact findings, does not remove the dilapidated Pulp Mill, and would require an extension of infrastructure (intake water lines, outfall water lines, power lines). The extension of infrastructure could pose additional environmental impacts. No other project site would be feasible for the applicants because there isn't the required infrastructure needed for the project. Without the saltwater intake, ocean outfall, existing electrical transmission lines capable of providing the adequate amount of power, and existing water lines to provide the appropriate amount of freshwater, there is no other feasible project location within Humboldt County. A smaller project is not financially feasible for the applicant. Evidence of feasibility is on-file and confidential due to the nature of the document containing trade-secret information.

The DEIR outlines three alternatives to the saltwater intake: slant wells, oceanic seawater intake, and Humboldt Bay seawater wells. These alternatives can be found in the Alternatives Description and Analysis on pages 4-16 and 4-17 of the DEIR. Slant wells were found to be infeasible due to the rate and magnitude required for the projects use. An estimated 40 slant wells would be required to achieve the equivalent capacity needed. With the facility footprint taking up a majority of functional space, there are also issues of where to put the field of wells. Site contamination poses a risk of groundwater contamination too great to supply a food production system. A new offshore intake may lead to more environmental impacts not yet evaluated. Using existing infrastructure is least intensive. Piping would have to be constructed through surf, potential ESHA for the land-based portion of piping, and maintenance of the oceanic intake would complicate the standard procedural monitoring and cleanings of the intake screens. Impacts associated with an intake, such as entrainment and impingement, are still risks associated with an ocean water intake. Humboldt Bay seawater wells would require extensive in-water construction. Environmental impacts associated with this construction have not been analyzed. The project would require more than one seawater well to serve project needs during operation. Screens would need to be cleaned regularly and would likely also need a compressed air line to ensure the piping remain clear of debris. For these reasons, these three alternatives were not deemed feasible alternatives.

The EIR addresses all components of the project: the intake, outfall, and land-based development of the project, reflecting the County's independent judgement. The net finding of the EIR is that there are no significant unavoidable impacts associated with the project. All potential impacts will be mitigated to a level of less than significance via mitigation measures or have been previously identified and held actionable through vesting within the project description, made enforceable by Conditions of Approval.

5. Policy Analysis

The project site is located within the Coastal Zone and is subject to the Humboldt Bay Area Plan and Coastal Zoning Ordinance. The proposed development is in conformance with the applicable policies set forth in the HBAP. The following are discussions of the various policies and requirements applicable to the site.

a) Use. The site is designated Industrial, Coastal Dependent (MC) and Industrial, General - Coastal Areas (MG) under the HBAP. All development will occur within the MC designation.

Aquaculture and aquaculture support facilities are principally permitted coastal dependent industrial uses under both the MC and MG land use designations.

Aquaculture is a coastal-dependent use, and coastal dependent uses shall have priority over other developments near the shoreline, except they shall not be sited in a wetland (3.13 - 30255). The project is sited directly adjacent to Humboldt Bay to the east. The project development will not be sited in/on a wetland. One-parameter wetlands do exist on-site and will not be impacted as a result of the project.

b) Location. The HBAP encourages coastal dependent industrial uses to locate or expand within existing sites and shall be permitted reasonable long-term growth where consistent with the LCP. The project site is located within a historically industrial area, planned and zoned for coastal dependent industrial use. The project location has a history of heavy industrial use, previously occupied by the Freshwater Tissue Pulp Mill. The proposed aquaculture facility would utilize that same infrastructure to accommodate facility needs. (3.14-250)

The project will utilize existing sea chest infrastructure at the Red Tank Dock and RMT II dock. Existing ocean intake public infrastructure will be upgraded. Improvements to the sea chest are required to undergo environmental review and have been addressed in the Environmental Impact Report for the project. Sea water intake upgrades will require an additional CDP from the California Coastal Commission. The intake water treatment system will be designed to ensure that sediment, and pathogens do not enter the facility.

Policy requires wastewater discharges to be treated to protect present and future beneficial uses, and where feasible, to restore past beneficial uses of the receiving waters (3.14-13412.5). A wastewater treatment plant will be implemented in the facility design, and water will be treated on-site prior to discharge off-site. Wastewater discharge permitting, monitoring, and reporting will be conducted under the NPDES permit authorized by the NCRWQCB. The applicant is required to provide the County with evidence of an issued NPDES permit prior to project operations. Compliance with the permit is a Condition of Approval. Additionally, the applicant is required to undergo annual monitoring for project as a voluntary commitment made by the applicant in the FEIR. This commitment to monitor receiving waters is a Condition of Approval (COA#19).

The wastewater effluent entering the Pacific Ocean via the existing RMT II outfall pipe will not significantly alter the ecological balance of the receiving waters, as determined by the Dilution Study prepared by GHD (2020). The study examined the modeled effluent for the various mixing zones near the diffuser. The Project's effluent discharge would not discharge into a coastal wetland or area of special biological significance, marine reserves, or kelp beds; the ecological balance of the receiving area would not be significantly impacted. The NPDES permit will set standards for the discharged effluent. Treated effluent achieves a reduction of 99 percent of total suspended solids, BOD, and phosphorus, with a 90± percent reduction of nitrogen. Ammonium nitrogen release is modelled at .004 mg/L which conforms to the Nitrate Ocean Plan standard of .6mg/L. The preliminary concept design of 64 open ports yields a predicted mixing zone (i.e., marine toxicity and physiological stress to biotic receptors) that is met within 5 ft of the diffuser on the basis of the near-field modelling achieving conformance per Ocean Plan implemented by the RWQCB's NPDES Permit.

Geologic Safety:
The property is located in an area of low to moderate geologic instability. A Geotechnical Investigation by SHN in 2020 outlines an analysis of natural hazards in the County and recommends that the project require designs in accordance with seismic and foundation design criteria, as well as site preparation and grading criteria per California Building Code and the American Society of Civil Engineers (ASCE) 7-16 Minimum Design Loads for Buildings and Other Structures. Existing structural hazards will not impact the proposed project as existing infrastructure will be demolished and the site remediated. Adherence to the recommendations in the Geotechnical Report are required for the project and identified as Mitigation measure GEO-1 of the EIR. The geotechnical recommendations will be incorporated into the final plans and specifications for the Project and will be implemented during construction. Therefore, the project is consistent with Seismic and Public Safety Elements of the General Plan. Structural designs/construction plans, including site densification, will ensure of structural integrity in the rare event of a natural disaster and is designed that no significant erosion, geologic instability, or site alterations would occur to natural landforms.

Tsunami:
The project involves ocean intake, outfall, and land-based development allowable for new development within the 100-year tsunami run up elevation outlined in the HBAP. The parcel is within a tsunami hazard area. Deep foundations and ground densification grade will be constructed as recommended by the Project's geotechnical evaluation and site-specific tsunami inundation analysis (Martin & Chock, Inc., 2020), to protect structural integrity in the event of a tsunami and associated potential wave scouring. Backup generators will be elevated above the predicted tsunami wave height to avoid potential for release of pollutants in the event of a tsunami. Diesel fuel storage would be underground in two 25,000-gallon tanks vented, anchored, and armored to prevent release. Building designs for the hatchery would require tanks to be developed to withstand a 2,500-year event. Adherence to Mitigation Measures GEO-1 and HAZ-1 are identified in the EIR.

Commitment to Renewable Energy:
The project will not result in wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation not will it conflict with or obstruction of a state or local plan for renewable energy or energy efficiency and will not result in a cumulatively significant impact to energy resources. The project will use a significant amount of power for operation of pumps and filters, but the applicant has agreed to purchase power that is renewable or non-carbon in accordance with the Redwood Coast Energy Authority objectives. This is in line with state and local ambitions to minimize greenhouse gas emission through power production. The impact is less than significant.

Protection of Environmentally Sensitive Habitat Area (ESHA):
The Project is consistent with Section 30240 (a) and (b) of the Coastal Act. High quality dune mat located on the project site will be protected by an established requirement of a minimum 35-foot buffer. Within the buffer is a 20-foot-wide fire road. The road will also act as a buffer, as it would only be used in an emergency. To prevent trampling and disturbance of the ESHA, construction fencing is required along the edge of the buffer, as shown on the Site Plan (setback 15 feet from

the road). The fencing shall remain in place throughout the construction period to prevent vehicles, equipment, or materials from entering the ESHA. The grading plans for the project site shall design finished pad grades to not result in grade changes at the edge of the buffer or fire road within the ESHA buffer. The ESHA protection measures are described as Mitigation Measure BIO-7a of the EIR. Additionally, the project was redesigned to ensure setback protections for ESHA during construction and operation of the facility. Other areas where dune mat habitat was identified was anthropogenically modified or contained such a high percentage of non-native species that it did not qualify as ESHA.

Wetlands:
A wetland delineation was completed for the Project Site as part of the Special Status Plant Survey and Vegetation Community Mapping/ESHA/Wetland Baseline Evaluation, Rev. 1 prepared by GHD dated February 16, 2021. Delineated wetlands are classified as one-parameter coastal willow thickets (Salix hookeriana) and were not found to contain hydric soils. A total of 0.27-acres of coastal willow thickets are mapped within the project area and would not be impacted as a result of construction. Due to the size and poor quality of wetlands, the project establishes a 100-foot wetland buffer, consistent with HBAP wetlands setback requirements outside of the urban limit line. Development within the buffer is allowable provided no more than 25% of the developed surface is effectively impervious, stormwater runoff does not detrimentally affect the wetland, areas of temporary disturbance are restored and promptly replanted, and erosion impacts related to construction are minimized with BMPs. Development within the buffer would be limited to site grading and would not result in extensive new impervious surface. Following construction, graded surfaces would be reseeded and/or replanted as identified in the Project's landscaping plan. The Project's stormwater drainage system would route stormwater away from the one-parameter wetlands, avoiding any potential impact related to stormwater. Erosion control BMPs are included in Mitigation Measure GEO-2 of the EIR and would be implemented to protect wetlands during construction.

Offsite Compensatory Restoration: The project is consistent with 3.14 HBAP section 13142.5(b) development policies for Coastal Marine Environment, for each industrial installation for an industrial activity using seawater, requiring mitigation measures feasible shall be used to minimize the intake and mortality of all forms of marine life. Compensatory off-site habitat restoration activities required by the Coastal Development Permit issued by the California Coastal Commission to (1) offset a small reduction in the Humboldt Bay's biological productivity as a result of entrainment of non-special status larval species, and (2) compensate for the potential take of longfin smelt (LFS) larvae during the operation of the two sea water intakes.

Visual Resource Protection:
Project Site currently has low visual quality, low visual sensitivity, and poor visual character. Remediation and demolition activities include the removal of an existing abandoned and dilapidated industrial infrastructure, including the former pulp mills 270-foot-tall smokestack, which are the dominant views of the proposed Terrestrial Development and surrounding area. The existing smokestack is visible from as far north as Arcata, as well as the communities of Eureka, and Humboldt Hill. The smokestack and 12-story Reboiler Building are also visible from Samoa Beach and surrounding dunes by the recreating public. Removal of existing infrastructure will improve overall aesthetics and benefit coastal visual resources. The maximum height of the new

facility would be approximately 60 feet, a reduction in comparison to existing conditions. There would be views of the buildings visible between the dunes via New Navy Base Road. Façade colors and patterns have been chosen to integrate the buildings into the natural setting and visually integrate into surrounding scenic resources absent negative visual effects on the Coastal Scenic Area west of New Navy Base Road. Distant views would exist from the City of Eureka shoreline.

Additionally, the EIR identifies potential impacts to larval Longfin Smelt at the seawater intake location due to potential entrainment. LFS is being mitigated on a 1:1 basis in the form of larval habitat creation within brackish waters of Humboldt Bay known for spawning/rearing habitat explicitly for the potentially impacted LFS life-stage. Off-site compensatory restoration would include pile removal and spartina removal. Pile removal would include up to 988 piles and 151 crossbeams from the Kramer Dock in Humboldt Bay, and Spartina removal would include up to one (1) acre and would be conducted under existing permits issued to the Harbor District (Harbor District Permit 14- 05 and Coastal Development Permit 1-14-0249). Implementation of these measures will be a requirement of the Coastal Development Permit required by the California Coastal Commission.

Zoning:

As described by Humboldt County Code (HCC), the Parcel is zoned Industrial Coastal Dependent (MC) with the combining zone Archaeological Resource Area Outside Shelter Cove (A) and the lands west of Vance Avenue are zoned Industrial General (MG). The aquaculture facility will be constructed on the MC-zoned portion of the parcel. The proposed use of "aquaculture" is principally permitted in the MC zone. Principally permitted uses are explicitly allowed within a given zone district. Coastal dependent industrial uses include but are not limited to the following: fish processing for human consumption, ocean intake, outfall and discharge pipelines, and aquaculture and aquaculture support facilities. Industrial zones involve onsite production of goods by methods that are not agricultural or extractive in nature as defined in Humboldt County Code (HCC Section 313-175). Aquaculture is a principally permitted use and is explicitly allowable in both the MC and MG zoning designations applicable to the Parcel.

The A combining zone is applied to parcels that may contain archaeological and paleontological value as identified by the State Historic Preservation Office. A Cultural Resources Study (CRS) was conducted for the project by a qualified archeological professional. Field investigations did not find evidence of cultural resources on the site (see Appendix 3 – Environmental Impact Report – Cultural Resources for further discussion). Given that the area is archaeologically sensitive, the EIR has required that a cultural monitor be present on-site during ground disturbing activities and that normal inadvertent discovery protocol be followed if any resources are encountered. Based upon these precautions the project is consistent with the requirements of the A combining zone.

The parcel is accessed from Vance Avenue via New Navy Base Road and LP Drive and is served by a 50-foot-wide non-exclusive easement for ingress and egress on Vance Avenue. Repair, resurfacing, and striping upgrades of Vance Avenue and LP Drive is expected to support site access, construction, and operation. Significant expansion of the paved surface of Vance Ave is not expected through the repair and resurfacing process. Temporary signage along Vance Avenue will

be provided as needed during construction activities then permanent signage installed as appropriate for operations. Temporary construction and staging signage to New Navy Base Road will require an encroachment permit from the Public Works – Land Use Division.

Facility Parking

Parking will be located throughout the central campus corridor between Building 1 and Building 2. The facility will include a three-truck loading docks, seven-truck unloading / loading areas, 115 standard light vehicle parking spots, and 6 ADA-accessible light vehicle parking spots. At full production there would be approximately 90 employees at the facility at any given time, comprised of 20 employees in the approximately 6,400-square-foot office/management area of Building 4 and approximately 70 employees spread throughout the rest of the facility.

A Special Permit (SP) has been applied for concurrently with the CDP for an exception to the parking and loading space requirements pursuant to HCC Sections 313-109.1.3.12 and 313-109.1.5.2 Exceptions. Humboldt County Code Section 313-109.1.3.12 allows for a reduction in the required parking spaces due to geographic location of site and levels of anticipated use. As stated in the Parking and Loading Nordic Aquafarms Memorandum prepared by GHD dated November 24, 2020, the applicant is requesting a reduction in required parking spaces to 12 and requesting an exception to the loading zone requirements to reduce the number of loading zones required to 7 loading zones (see Attachment 4). The applicant states the operation of the proposed facility will involve regular loading and unloading of material such as fish feed, waste, and finished product. To accomplish this, the facility proposes seven specially designed loading docks and bays. The justification for the reduction is as follows:

1. Geographic Location of the Site. The proposed facility is located on a large industrial site capable of handling all necessary freight traffic including ingress, egress, queuing, loading, and unloading. The type, number, and design of the proposed docks/bays will meet the facility's needs in a way that does not block or impede internal or external circulation.

2. Levels of Anticipated Use. The proposed facility is highly specialized in its design and function. The anticipated number of staff and the amount of incoming and outgoing truck traffic has been accurately estimated through detailed operational planning and existing comparable facilities. Because of this, the appropriate number (seven) and function of the loading docks is understood and well justified.

Based on the parking demand analysis above and justification described by Parking and Loading Nordic Aquafarms Memorandum prepared by GHD dated November 24, 2020, there is justification for approval of the SP.

Facility Truck Traffic

The level of anticipated use of incoming and outgoing truck traffic has been accurately estimated through detailed operational planning and existing comparable facilities. Daily truck percentage on these roadways increases by at most 0.5% with the project operational at full build out (Section 3.12 Transportation and Errata of the EIR). Facility operations will include regular shipments from and deliveries to the facility. Shipments would include finished product to market and waste streams to secondary use processing sites. While the final distribution strategy for the facility is

still in development, initial estimates have been made based on knowledge of existing West Coast markets in relative proximity to the Project Site. At full production it is currently estimated that there will be 40 outgoing product delivery trucks per week with approximately 30% going to the Seattle area, approximately 30% going to the Los Angeles area, and approximately 40% going to the San Francisco Bay Area. It is expected at full production there will be 32 outgoing trucks weekly carrying waste streams to various secondary use processing sites within 150 miles of the facility. Deliveries to the facility include fish feed, shipping materials, and process chemicals. The final feed vendor will be selected at a later date. Deliveries of shipping materials and process chemicals will consist of three trucks per week likely originating in the Redding or San Francisco Bay area.

Solar and Energy Utilities

Pacific Gas and Electric Company (PG&E) provides electricity to the project site. The estimated normal daily electricity usage is 21.4 megawatts (MW). A portion of this usage will be offset by the 3-5 MW rooftop solar installation which will cover approximately 657,000 square feet of facility rooftops. Normal operation of the facility will use exclusively electricity. In the event of an emergency, the applicant proposes several dual fuel (natural gas or diesel) generators with a combined capacity of approximately 20 MW needed to supply emergency power to the fully developed facility. Regular testing and maintenance of the backup energy system will make use of small amounts of natural gas and diesel fuel. Diesel fuel would be supplied by two new 25,000 gallon double walled fiberglass underground storage tanks (UST), which will be located underground east of Building 5. Modernization and upgrade of the existing 60-kilovolt (KV), 20 megawatt (MW) electrical switchyard is planned to expand the total capacity of the switchyard to 30-35 MW to be utilized by NAFC and HBHRCD RMT II operations.

Sewer

The property is developed with an existing septic system and leach field which will be used temporarily during construction and operation of Phase 1. The septic system use will be discontinued once construction begins on Phase 2 production modules. The second production module building is proposed over the existing leach field. Prior to the site being disconnected from the septic system, the Project Site will be connected to the Peninsula Community Services District (PCSD) sewer line that will be constructed west of the Project Site.

Saltwater Intake

Salt water for NAFC will be provided by the co-applicant, the Humboldt Bay Harbor Recreation and Conservation District. The HBHRCD owns two existing sea chests (water intake structures) at the nearby RMT II and Red Tank Docks which they will modernize and operate. Saltwater usage is estimated at a maximum of 10 MGD. The HBHRCD is in the process of permitting upgrades to the sea chests that will increase water withdrawal capacity and add features that reduce environmental impacts, including upgraded intake screens that enhance the protection of juvenile fish/lavae. The RMT II Dock screen will be 36-inch diameter with a maximum intake flow rate of 5,500 gpm, and the Red Tank Dock screen will be 24-inch diameter with a maximum intake flow rate of 2,750 gpm. Screens are comprised of woven stainless-steel material with approximately 1.0mm spacing between bars (smaller than the standard requirement of 1.75mm). Committing to smaller screens on the intakes is intended to prevent entrainment and impingement of aquatic organisms. No fish are anticipated to be entrained. The sea chest pumps operated by HBHRCD would supply seawater

through piping affixed to the existing docks. The piping infrastructure would extend onshore underground at least 50 feet from the RMT II dock terminus. The aquaculture facility would tie into the sea chest piping at the southeast corner of the RMT II building.

Freshwater

Freshwater is provided to the Project Site by an existing one-million-gallon (1-MG) water storage tank operated by Humboldt Bay Municipal Water District. The existing onsite water service would be connected to the new buildings for potable use, fire suppression, and possibly irrigation. Water service to the buildings would connect to an underground water line running from the 1-MG tank to the Project Site. The HBMWD provided a will-serve letter on March 12, 2021, confirming the District has the capacity to serve NAFC facilities with three (3) million gallons of industrial water per day, and 300,000 gallons of domestic, potable water per day sourced from the Mad River. Service capacity exceeds the anticipated maximum usage of 2.5 MGD of industrial fresh water.

Wastewater Treatment and Discharge

Process Wastewater from the aquaculture facility will be treated on-site prior to discharge into the Pacific Ocean via the existing ocean outfall pipe that extends approximately 1.55 miles offshore. An advanced wastewater treatment plant will be developed to treat wastewater, including a Moving Bed Biofilm Reactor (MBBR), an ultrafiltration membrane bioreactor (MBR), and 300 millijoules per square centimeter (mJ/cm) UV-C disinfection system. Total water volume discharged at full operational capacity is estimated at a maximum of 12.5 million gallons per day (MGD). Previous discharge from the former mill operations was 20 MGD.

Current outfall users, DG Fairhaven and Samoa Wastewater Treatment Plant, are permitted under the National Pollutant Discharge and Elimination System permit program to discharge 350,000 gallons per day and 53,000 gallons per day, respectively. The total hydraulic discharge capacity for the outfall is estimated at 40MGD. The discharge effluent is regulated by the North Coast Regional Water Quality Control Board (NCRWQCB). The NRWQCB draft permit No. CA1000003 would authorize a maximum of 12.5 MGD of treated effluent to be discharged by NAFC. The draft permit prohibits the following: the discharge of waste to Humboldt Bay; the discharge of domestic waste, treated or untreated, to surface waters; and discharge in excess of 12.5 MDG. Additional prohibitions are cited in the draft permit document. The National Pollutant Discharge Elimination System (NPDES) program requires monitoring of effluent constituents, with samples requirements ranging from daily to monthly collection samples. The Monitoring and Reporting Program (MRP) is outlined in attachments of the draft NPDES permit document. The applicant is required to provide the County with evidence of final permit issuance from the RWQCB prior to project operations. Compliance with the requirements of the final NPDES is an on-going requirement for the life of the Project. Water quality parameters of pre-treated effluent discharge were evaluated and conform to the applicable water quality parameters established in both the Ocean Plan and Thermal Plan.

6. Planning Commission Action

The Planning Commission conducted a public hearing for this project spanning the July 28, and August 4, 2022, Planning Commission meetings. On July 28, 2022, all members of the Planning Commission were present, and the public hearing was opened. Staff presented the project and the

EIR. The Planning Commission then received presentations from the Co-applicants, Nordic Aquafarms, and the Harbor District. After the applicant's presentation the Planning Commission received public comment where 64 members of the public addressed the commission, not including the applicant team. Of those who spoke 36 spoke in favor of the project citing the need for jobs, and the benefit this project would bring to the community. The remainder of the comments expressed concerns related to the large electrical use, concerns with climate change and greenhouse gas emissions, volume of water use and discharge into the ocean, concern that studies were incomplete, the source of fish feed, the impact to local fishermen, location in a location subject to earthquakes and tsunamis, that the site should be remediated to residential standards and the size of the project. The Planning Commission finished receiving public comment, closed public comment, and continued the item to the meeting of August 4, 2022.

During the course of discussion, the applicant agreed to begin monitoring water from the outfall as soon as the project became operational that resulted in a modified condition to reflect that change. The commission explored some of the comments made by the public but did not make any other changes to the conditions. The commission expressed that overall, this is a good project and voted unanimously to approve (6-0, Mitchell absent.)

7. Appeal

On August 18, 2022, the Redwood Regional Audubon Society Chapter, Humboldt 350, and the Humboldt Fisherman's Marketing Association, Inc., submitted a timely appeal contesting the approval of the Nordic Aquafarms California, LLC Coastal Development Permit and Special Permit and certification of the Environmental Impact Report (SCH#2021040532) at the August 4, 2020, Planning Commission meeting. The appellants are requesting that the Board of Supervisors: 1) Do not Certify the Final Environmental Impact Report (FEIR) prepared for the Nordic Aquafarms California LLC project pursuant to Section 15090 of the CEQA Guidelines, 2) do not adopt the Mitigation Monitoring and Reporting program pursuant to Section 15097 of the CEQA Guidelines, 3) do not make findings for approval of the Coastal Development Permit and Special Permit, and 4) do not approve the Coastal Development Permit and Special Permit for Nordic Aquafarms California. The following issues were raised by the appellant groups:

Issue 1: The appellants claim is that the FEIR erroneously identifies the severity of the project's impacts including greenhouse gas emissions and energy impacts, impacts to existing commercial fisheries, impacts to coastal and bay ecosystems, and impacts to native salmonoids.

Staff Response to Issue 1: The issues raised were thoroughly addressed in the EIR by subject matter experts in each relevant discipline including air quality and climate change, traffic and transportation, biological resources, and water quality. The EIR provides a comprehensive analysis of environmental impacts associated with the project. The appellant has not submitted substantial evidence supporting these conclusions. Per CEQA Guidelines:

> *An effect on the environment shall not be considered significant in the absence of substantial evidence (CEQA Statute Section 21082.2(c), Guidelines Section 15384(b) and 15604 (f)(5)).*

Argument, speculation, unsubstantiated opinion or narrative, or evidence that is clearly inaccurate or erroneous, or evidence that is not credible, shall not constitute substantial evidence (CEQA Statute Section 21082.2(c), Guidelines Section 15384(a) and 15604 (f)(5)).

Issue 2: The appellants claim is that the FEIR erroneously states that emissions from fish feed do not need to be counted under CEQA and that Nordic will be required to report 80,000 to 190,000 metric tons of CO2 a year based off the projection of needing 36,000 metric tons of fish feed to be used annually during operation.

Staff Response to Issue 2: Nordic Aquafarms California, LLC is not proposing to produce fish feed and is not a feed manufacturer. Nordic will be purchasing fish feed but has not yet selected a desired manufacturer. Greenhouse gasses related to fish feed are not considered an indirect effect of the project as defined in section 15358 of CEQA Guidelines. Truck traffic associated with the transport of fish feed to the proposed facility has been rigorously analyzed in the EIR, specifically section 3.7 Greenhouse Gasses. There is no metric provided by the appellant to support the claim that the fish farm would be required to report 80,000-160,000 metric tons of CO2 annually attributed to the use of fish feed. Since the applicant is not producing fish feed, the production of fish feed is considered a separate project under CEQA.

Issue 3: The appellants claim is that the FEIR erroneously states that the project will emit zero emissions from its electricity consumption.

Staff Response to Issue 3: Nordic Aquafarms has committed to RCEA's non-carbon and renewable energy goals which state:

- *By 2025: 100% of RCEA's power mix will be from a combination of state-designated renewable energy sources—solar, wind, biomass, small hydroelectric, and geothermal—and state-designated net-zero-carbon emission from existing large hydroelectric facilities.*

- *By 2030: Humboldt County will be a net exporter of renewable electricity and RCEA's power mix will consist of 100% net-zero-carbon-emission renewable sources.*

The facility shall purchase 100% renewable energy/power mix from RCEA, who goals are in line with state initiatives. This commitment is vested within the Project Description and Greenhouse Gas sections of the EIR and will be enforceable via Condition of Approval (COA#22) of the Coastal Development Permit and Special Permit for the land-based development of the project. By procuring renewable power mix from RCEA the potential impact has been deemed less than significant. For these reasons the FEIR states that the appropriate carbon intensity factor for electricity use would be zero (0). Applying a zero-carbon intensity factor (0 lbs. CO_2e/MWh) reduces the Project's anticipated operational emissions to 4,024.32 $MTCO_2e$/year and 3,757.75 $MTCO_2e$/year for years 2025 and 2029, respectively.

Issue 4: The appellants claim is that greenhouse gas emissions from refrigerants require further analysis in the FEIR.

Staff Response to Issue 4: Greenhouse gas emissions attributed to refrigerants are analyzed in the EIR. Greenhouse gases are directly correlated to leaks within a cooling system, specifically refrigerants. The appellants claim that greenhouse gas emissions from refrigerants are not adequately addressed is due to their assumption of annual leak rates and the use of refrigerants that the facility may use. The appellant's citation of an EPA study of average supermarket emissions, is cited from 2011 and assumes the use of R-404A refrigerant (global warming potential of 3,921.6) with an annual leak rate of 25% per year (EPA 2011). Under the California Air Resources Board's (CARB) Supplemental Nutrition Assistance Program (SNAP) and Restaurant Meals Program (RMP), the use of high global warming potential (GWP) refrigerants, including R-404A, is prohibited for new refrigeration systems (applicable to the proposed project). The GWP cap for new refrigeration systems is 150 (which is less than 5% the GWP of R-404a). The EPA study's assumed leak rate of 25% is not representative of foreseeable leak rate for the Project. Estimates of leakage rates for older systems in previous years (before 2022) are not accurate indications of potential leaks in the future due to new regulatory requirements for leak inspection, prompt repair, and reporting implemented in 2022.

> *Starting in 2022, the Refrigerant Management Program (RMP) requires facilities with refrigeration systems containing more than 50 pounds of high-GWP refrigerant to conduct and report periodic leak inspections, promptly repair leaks; and keep service records on site.*
>
> *New adopted regulations by CARB require new stationary refrigeration installations to use refrigerants with a global warming potential of 150 or less.*

The new facility would employ a full-time maintenance team as listed in the DEIR table 2-7, page 2-29. Preventative maintenance checks, service, and inspections are effective means of preventing leaks from occurring in these systems. A Refrigerant Management Plan and refrigerant selection with a GWP of 150 or less will be required by the California Air Resources Board. In monitoring refrigerants within the closed cooling systems, and having full-time maintenance team on-site, substantial evidence within the EIR concludes that refrigerants will not be a source of GHG emissions resulting from project operations.

Issue 5: The appellants claim is that the FEIR uses inappropriate methods to calculate greenhouse gas impacts related to vehicle miles traveled by trucks.

Staff Response to Issue 5: Vehicle miles travelled are accurately calculated within the EIR. On-road mobile activity, including truck activity in the CalEEMod analysis, were appropriately assessed, and used within the framework of annual emissions estimation and annual activity. On-road mobile activity emissions were estimated using CalEEMod version 2020.4.0, as described in DEIR Section 3.2 (Air Quality) on page 3.2-6 and Section 3.7 (Greenhouse Gas Emissions) on page 3.7-10. VMT was calculated for employee activity, hauling within NCUAQMD's Jurisdiction (short-hauling), and for hauling outside of NCUAMQD's Jurisdiction (long-hauling), which account for all mobile activity on an annual basis for the Project. CalEEMod contains assumptions for trip length based on the type of trip (trip type), distribution of trip types, and trip purpose. Each of these components is used to generate total VMT estimates, which then feed into the GHG emission calculations. The SmartWay program is a voluntary program started in 2004 as an extension of corporate social responsibility for improving freight sustainability related to fossil fuel consumption. SmartWay is not the EPA-recommended model for assessing on-road mobile

emissions – the Motor Vehicle Emissions Simulator (MOVES) is EPA's emission modeling system for mobile sources. However, MOVES is not appropriate emissions model to use for projects located in California – CARB's EMFAC is the appropriate emissions model. The EMFAC emissions model is developed and used by CARB to assess emissions from on-road vehicles including cars, trucks, and buses in California, and to support CARB's regulatory and air quality planning efforts to meet the Federal Highway Administration's transportation planning requirements.

> *The MOVES defaults do not capture all the details of California emission standards and control programs. Instead, California uses California-specific models for modeling mobile sources. (EPA 2021)*

Issue 6: The appellants claim is that the FEIR erroneously concludes that the no-project alternative would not result in any significant unmitigable impacts or eliminate any significant unmitigable impacts.

Staff Response to Issue 6: The EIR concludes that there are no significant and unavoidable impacts on a basis of extensive environmental analysis utilizing substantial evidence and technical reports to make determinations. No project would result in no Brownfield cleanup, no adaptive reuse of the site, and no public infrastructure improvements via private funding (intake and outfall). No Brownfield clean up could result in harm to the public's welfare and safety, and to the environment, as hazardous materials remain onsite. As latent hazardous materials sit, they pose environmental risk as they potentially leach further into groundwater. This poses risk to water quality and bay ecosystems as sea level rise grows closer to the groundwater table in coming years. This can be avoided with project implementation. The County has provided substantive analysis to both disclose potential environmental effects resulting from the whole of the Project and to inform the Planning Commission of the potential environmental consequences of the no project alternative. Substantial evidence supports this analysis, including the analysis of the No Project Alternative. The project is consistent with section 15151 of CEQA Guidelines in that:

> *The EIR was prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences (no consequences were found that could not be mitigated to a level of less than significant).*
>
> *An evaluation of the environmental effects of the proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible.*
>
> *Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among experts.*
>
> *The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at disclosure.*

Issue 7: The appellants claim is that the FEIR did not consider alternatives of a small project or multi-phase modular build-out.

Staff Response to Issue 7: The County did discuss and consider smaller project alternatives with the applicant in preparation of the environmental document. Confidential information provided to the County provides insight on financial feasibility for a smaller project alternative. Given the amount of money involved in remediation, construction of facilities, and environmental review processes, NAFC is unable to consider a smaller project alternative and remain profitable. A smaller project alternative would result in no project. No project would result in no Brownfield cleanup and no adaptive reuse of the site and associated public infrastructure (intake and outfall). The project will undergo monitoring from multiple agencies (CCC, RWQCB, the County) as remediation and construction activities ensue. A phased build out is proposed. Monitoring of mitigations and conditions applied to the project must be followed. To continue buildout and obtain other permits associated with the project, the applicant must demonstrate compliance. Additionally, if a smaller project alternative was considered it would result in less remediation of the site. Portions of the site would no longer require screening and excavation of hazardous materials due to a decrease in development footprint. This can be avoided with project implementation as proposed.

Issue 8: The appellants claim is that there was no ESA consultation performed when considering biological resources within the EIR.

Staff Response to Issue 8: Local, state, and federal agencies were consulted in preparation of the environmental document. Page 10 of the Marine Resources Biological Evaluation, Appendix D, highlights agency coordination which included pre-project meetings held with the U.S. Army Corps of Engineers, North Coast Regional Board Water Quality Control Board, Humboldt Bay Harbor, Recreation, and Conservation District, California Coastal Commission (Coastal Commission), Humboldt County Planning Department, National Marine Fisheries Service (NMFS), State Lands Commission, and California Department of Fish and Wildlife. NMFS guidelines are contributing criteria for intake design. The EIR did not identify impacts to federally listed species which would require ESA consultation. Essential Fish Habitat was evaluated in the Ocean Discharge Study Area in the Marine Resources Biological Evaluation (Appendix D) using data from Numerical Modelling (Appendix E), which identified that the effects of discharge would not result in significant benthic impacts based off of limited spatial area and organic loading. This results in a low risk of adverse effects to EFH in proximity to the diffuser.

> *"Take" under the ESA includes activities such as "harass, harm, pursue, hunt shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." USFWS regulations define harm to include "significant habitat modification or degradation."*

If habitat were impacted and take identified, then a permit would be required per ESA, requiring consultation. Substantial evidence and analysis within the DEIR have determined that no impacts to EFH will occur as a result of discharge, and therefore no impacts to federally listed species were identified.

The only listed species identified which may be impacted is the California listed species Longfin Smelt (LFS). Impacts to LFS are attributed to the operation of the saltwater intake and are mitigated to a level of less than significance. LFS, in consultation with CDFW, has been mitigated

for the loss of every individual LFS. Mitigation consists of spawning and rearing nursery habitat creation for larval LFS at a 1:1 basis within the brackish waters of Humboldt Bay. No impacts were identified for federally listed species with relation to operation of the saltwater intake.

Issue 9: The appellants claim is that the FEIR has not adequately addressed impacts associated with the saltwater intake, specifically planktonic organisms which may result in ecosystem changes or disrupt the food web.

Staff Response to Issue 9: Effects of the saltwater intake have been analyzed in the EIR, specifically effects due to entrainment on essential fish habitat and specific fish species. These fish species account for listed species (federal and state) and commercial and recreational species. Longfin Smelt is the only species identified requiring mitigation under CEQA. LFS is a California listed species which will be mitigated at a 1:1 basis, accounting for the loss of every individual LFS larvae. Mitigation will be in the form of LFS spawning and rearing nursery habitat creation within the brackish waters of Humboldt Bay. This mitigation will account for the life stage impacted. No habitat impacts were identified as a result of intake operation. Area of Production Forgone (APF) will be analyzed in the Coastal Development Permit required by the California Coastal Commission. The EIR does outline mitigation for APF in the form of pile removal from Kramer Dock and invasive Spartina removal. APF will be determined by the CCC. APF will account for organisms such as zooplankton and phytoplankton which may be entrained by the saltwater intakes. These planktonic species are generally not studied due to their large populations, geographic outspread, and regeneration rates which make them less susceptible to effects of entrainment with the current intake volume reflecting only three percent of overall bay volume at the mean sea level. Planktonic species and eggs are accounted for in the final assessment of each organism with planktonic eggs in the ETM analysis. This will be used for the CCC to evaluate APF. Impacts associated with the use of the existing saltwater intakes have been mitigated to a level of less than significant, supported by substantial evidence in the EIR.

Issue 10: The appellants claim is that the FEIR uses a "piecemeal" approach to permitting the saltwater intake.

Staff Response to Issue 10: The EIR thoroughly addresses all components of the proposed project including land-based development and use of the existing saltwater intakes and outfall infrastructure. Piecemealing occurs when a component of the project has not been analyzed or is analyzed separately. Receiving or applying for multiple permits associated with a project is not piecemealing, it is standard practice. The EIR encapsulates all proposed components and functions associated with the proposed project. This environmental document will be used to provide evidence for the issuance of permits associated with the proposed development. The Lead Agency, the County, must carry out a determination on the project and associated EIR prior to the approval of other permits. In this case, the saltwater intake will not be permitted prior to the permitting of the terrestrial development or certification of the EIR, if approved. In preparation of the EIR, consultation meetings were held with the County, Harbor District, Coastal Commission, Regional Water Quality Control Board, United States Army Corps of Engineers, and others to determine and identify all permits required with the proposed development. An outline of required permits and approvals is disclosed in the Project Description of the DEIR, table 2-2 on pages 2-6 through 2-8.

Additionally, the saltwater intake is addressed in the Project Description and Biological Resource sections of the EIR.

The Humboldt Bay Municipal Water District has provided a will-serve letter which states that they have the capacity to provide the required amount of domestic and industrial water for project operation (504,000 gallons daily of domestic water and 2 million gallons daily of industrial water) with the ability to provide more water if needed. No new infrastructure is required for freshwater allocation from HBMWD to the project site.

Issue 11: The appellants claim is that the FEIR fails to conduct a serious and rigorous alternatives analysis for the saltwater intake.

Staff Response to Issue 11: The DEIR outlines three alternatives to the saltwater intake: slant wells, oceanic seawater intake, and Humboldt Bay seawater wells. These alternatives can be found in the Alternatives Description and Analysis on pages 4-16 and 4-17 of the DEIR. Slant wells were found to be infeasible due to the rate and magnitude required for the projects use. An estimated 40 slant wells would be required to achieve the equivalent capacity needed. With the facility footprint taking up a majority of functional space, there are also issues of where to put the field of wells. Site contamination poses a risk of groundwater contamination too great to supply a food production system. A new offshore intake may lead to more environmental impacts not yet evaluated. Using existing infrastructure is least intensive. Piping would have to be constructed through surf, potential ESHA for the land-based portion of piping, and maintenance of the oceanic intake would complicate the standard procedural monitoring and cleanings of the intake screens. Impacts associated with an intake, such and entrainment and impingement, are still risks associated with an ocean water intake. Humboldt Bay seawater wells would require extensive in water construction. Environmental impacts associated with this construction have not been analyzed. The project would require more than one seawater well to serve project needs during operation. Screens would need to be cleaned regularly and would likely also need a compressed air line to ensure the piping remain clear of debris. The appellant (HFMA) proposed the use of the outfall pipe for the intake of saltwater. An intake could not be added to current outfall piping as it would jeopardize existing and future users by limiting the available capacity of the piping system, this includes the proposed project. The current intakes proposed for use are existing. Impacts associated with the intakes in operation have been mitigated to a level of less than significant. For these reasons, the project alternatives have been deemed infeasible compared to the proposed seawater intakes.

The claim that NOAA recommends that intakes be located offshore, when possible, to minimize fish contact, is misleading. This is applied to new construction. EIR Appendix R reflects a 12-page summation of NMFS guidance applied to the project.

Issue 12: The appellants claim is that the FEIR fails to identify or quantify the amount of ocean sources of fish food that will be utilized in the production of 25,000 metric tons of Atlantic salmon for the project.

Staff Response to Issue 12: Nordic Aquafarms California is not a feed producer. The appellants claim seeks to regulate feed sourcing for an aquaculture facility that will not be operational until after demolition, remediation, and construction of Phase 1 facilities has been completed. This

means that the facility will likely not be operational for roughly five years. Fish feed make-up and ingredient sources have been rapidly changing. Supplemental proteins such as insect meal, fish byproduct trimmings, microalgae, and others allow for manufacturers to rely less on sourcing wild fish proteins. Feed make-up is anticipated to improve in the coming years. Each market is different, and like any market, there are good players and bad players within the fish feed manufacturing market. Nordic Aquafarms has committed to purchasing feed from certified feed manufacturers within the United States whose sustainability goals are in line with theirs. In sourcing a certified product Nordic is ensuring that feed make-up is transparent.

Items 1-7 on page 2-38 of the DEIR states:

> *NAFC will choose a feed supplier that will support responsible Supply Certification Programs or similar initiatives that ensure that the raw materials making up the diet, and ingredient suppliers, are evaluated and approved prior to supply. These raw materials are purchased according to strict specifications and the ingredients are analyzed regularly to ensure consistency in quality as well as compliance with feed regulations governed by FDA under the Federal Food, Drug, and Cosmetic Act and administered by FDA – Center of Veterinary Medicine (page 2-37 of the DEIR). A practical example of this can again be seen at NAFC Aquafarms facilities at Fredrikstad in Norway where a key determining factor in selecting the preferred supplier of feed was the fact that the supplier was the first company in the aquaculture industry certified under the ProSustain™ sustainability standard. ProSustain™ is an independent system for certifying continual improvement in product sustainability including market perception analysis, Eco-Efficiency Analysis, and a whole-chain traceability program designed to assess and steer its product portfolio based on defined sustainability and quality criteria. NAFC will look for similar high standards when assessing potential suppliers for the proposed project to ensure the feed mill meets strict environmental and social requirements, source ingredients from socially responsible suppliers, and use environmentally responsible raw materials.*
>
> *Detailed feed specifications can be provided along with FDA approved labels once NAFC has chosen the supplier that best fits the company's vision of achieving some of the highest environmental stewardship standards of any aquaculture facility in the world today. This information will be provided to the County no later than 90 days prior to stocking the site with feed.*

Nordic Aquafarms California will not be harvesting wild fish, will not be producing feed, and have voiced their commitment to transparency and accountability in purchasing feed from permitted, licensed, and certified manufacturers. Fish feed has been analyzed within the EIR, though impacts associated with the production of fish feed are not considered indirect effects of the proposed project as defined in section 15358 of CEQA Guidelines.

Issue 13: The appellants claim is that the FEIR makes arbitrary determinations of "less than significant" effects prior to obtaining data or documenting factual basis for determinations due to incomplete studies.

Staff Response to Issue 13: Approving projects with ongoing studies is common practice as long as mitigation and ratios for the associated impacts have been clearly identified with performance criteria. Potential impacts associated with the project have been mitigated to a level of less than

significant with mitigation. The Hydrology and Water Quality section of the EIR analyzes water quality associated with construction and operation against the significance thresholds from Appendix G of CEQA Guidelines. As discussed on page 3.3-51 of the Biological Resources section of the DEIR:

> *One of the advantages of the Empirical Transport Model (ETM) is that it provides a relative measure of impacts that should be less prone to estimation error than an absolute measure based on an estimate of the number of larvae entrained per year. The absolute numbers of larvae entrained will change considerably within and between years because of numerous physical and biological factors that affect levels of larval production and survival. The ETM provides a relative measure of impact integrated over some time period (called proportional mortality [PM] in the ETM terminology) that should vary much less over time than absolute levels of impact, such as an estimate of total entrained fishes. An estimate of PM that is very low relative to other natural sources of mortality, or levels of natural variation, indicates that entrainment effects on that organism are not likely to be significant to the population.*

With regard to ongoing sampling at the intake, specific mitigation has been identified to mitigate for the loss of every individual LFS larvae. BIO-6A outlines specific criteria and performance standards that will allow this mitigation to be effective. Technical reports within the EIR provide substantial evidence that strengthen the document and lay out specific performance metrics which have allowed the County to make a determination of less than significant.

Issue 14: The appellants claim is that the FEIR makes arbitrary determinations regarding risk to wild salmon populations, and that the “less than significant"" effect determinations place wild salmonid population at risk of viral exposure from waste effluent water discharges.

Staff Response to Issue 14: Water used for the facility is treated both when it enters the facility and prior to its discharge from the facility. The wastewater treatment plant will utilize three forms of filtration: ultrafiltration, biofiltration, and UV filtration. This ensures that the fish being raised are safeguarded and that the biota within the Pacific Ocean is safeguarded. Filtration would accomplish a removal of 99% total suspended solid, phosphorus, biological oxygen demand, and the removal of 90% of total nitrogen. Table 2.9, page 2-32 of the FEIR shows the effectiveness of UV filtration on pathogens that impact salmonoids and other fish species associated with fish farming. The table identifies that the UV dose applied to water filtration exceeds the dosage needed to kill pathogens that impact salmonoids and other species.

In attaining an NPDES permit, the NCRWQCB will require the supplier of UV equipment to demonstrate compliance with UV dose requirements (log-3 reduction or 300mJ/cm^2 UV). Additionally, the NPDES permit require NAFC to maintain a program for routine inspection and maintenance of the UV equipment. As a result of the substantial evidence outlined in the EIR, risk to wild salmon populations was determined less than significant.

Issue 15: The appellants claim is that the FEIR fails to adequately address domoic acid proliferation that may result from the Project.

Staff Response to Issue 15: The appellants claims are addressed within the Project Description, Biological Resources, and Hydrology and Water Quality sections of the DEIR, as well as Master Response 5 of the FEIR. Domoic acid proliferation and the potential for HABs have been addressed using Appendix E, the Numeric Modeling Study, also known as a Dilution Study. This study explains how temperature, salinity, and nutrients resulting from the effluent discharge will not impact surrounding water quality or oceanic biota/ecosystems. Numeric modeling shows that the temperature of the effluent water released is slightly higher than ambient water temperatures (an increase of .1F within the mixing zone), that salinity is slightly lower than ambient waters, and that nutrient release, specifically ammonium nitrogen is significantly lower than the threshold allowable (.004mg/L of the .6mg/L allowable). The dilution targets are met within 5 feet of the diffuser. These targets are met as a result of outfall diffuser design, discharge rates, and the wastewater treatment facility reducing 90% of nitrogen from the effluent prior to discharge. Specific safeguards are in place for the project which consist of required monitoring for the National Pollutant Discharge Elimination Systems Permit required by the NCRWQCB for discharge into the Pacific Ocean, and through voluntary monitoring consisting of baseline monitoring (prior to facility operation) and continued monitoring during the projects phasing a full operational capacity. Voluntary monitoring will provide a more robust data set for the RWQCB to review in their overview of the NPDES permit. This is made enforceable through 1) requirement of an NPDES permit for operation and 2) Condition of Approval #21.

The FEIR addresses the potential for localized upwelling and warming contributing to HABs. This is explained in the discussion of how nutrient loading from the Project will not drive toxic blooms. As discussed on pages 2-46 through 2-47 of the FEIR:

> *The environmental (and oceanographic) conditions at the Ocean Discharge site are not suitable for localized HABs. Compared to more southern regions, Northern California has significantly more wind and wave energy, and higher upwelling indices (Jacox 2018). As described in DEIR Section 3.3.6 (Biological Resources) starting on page 3.3-27 and 3.3-29 and Section 3.9 (Hydrology and Water Quality) starting on page 3.9-23, the highly energetic climate yields strong currents in waters nearby the Project. Quantitative predictions and numerical models describing the fast dispersal rate and degree to which effluent is diluted (throughout space and time) in the surrounding waters are provided in DEIR Appendix E. For example, Section 5.3 of the DEIR Appendix E shows that elevated temperatures from the comingled discharge into the ocean are limited to within several feet of the diffuser nozzles to meet the thermal dilution target of 4, and hence cannot provide a thermal refugia for Pseudo-nitzschia spp. Since the effluent is dispersed and diluted at such high rates, the capacity for an algal bloom (including, but not limited to Pseudo-nitzschia spp.) to develop at the Ocean Discharge site because of the Project's effluent is drastically reduced, if not eliminated, and therefore, there also is no temporal window and environmental conditions (e.g., retentive features) to produce toxins (such as domoic acid).*
>
> *Regional HABs (including that of Pseudo-nitzschia) in Northern California are also unlikely to develop as a result of the effluent discharge because they require significantly larger scale changes in the oceanographic environment (McCabe 2016). Compared to changes in nutrients driven by changes in wind and upwelling, Project effluent will not result in significant changes in water quality, as the high-level wastewater treatment removes a large portion of nitrogen prior to discharge. This holds true, regardless of the dispersal and dilution rates described in DEIR Appendix E. There is also minimal evidence suggesting that human*

activities (such as agricultural runoff, submarine groundwater discharge etc.) contribute to toxic HABs (Anderson 2008).

Proliferation of domoic acid and potential for Harmful Algal Blooms (HABs) are unlikely to result from the project. These occurrences are largely due to large scale changes in marine toxicity and phycological stress (temperature, salinity, and ammonia). Appendix E provides data that refutes the possibility of this claim with substantial evidence as outlined within the EIR. Large scale oceanic processes lead to HABs. These processes are as a result of temporal and environmental processes that are unlikely resulting from the fish farms outfall discharge. Additionally, location of the outfall (1.55 miles offshore) and disbursement rates/filtration quality of the effluent prevent the disbursement of particulates from circulating into Humboldt Bay. This is verified via the following methods:

- Establishment of water quality objectives for the coastal waters.
- Near-field modelling to ascertain if the water quality objectives are achieved in close proximity to the diffuser.
- Three-dimensional (3D) hydrodynamic modelling to predict the spatial extent that water quality objectives are met if not met in close proximity to the diffuser.
- 3D particle modelling to evaluate whether particulate organic loads pose a risk to the proximal benthic habitat.

The use of the outfall and analysis of the effluent discharge have been evaluated thoroughly within the EIR. Per CEQA Guidelines:

Argument, speculation, unsubstantiated opinion or narrative, or evidence that is clearly inaccurate or erroneous, or evidence that is not credible, shall not constitute substantial evidence (CEQA Statute Section 21082.2(c), Guidelines Section 15384(a) and 15604 (f)(5)).

The appellant has not provided evidence substantiating the above claims.

<u>*Issue 16*</u>: The appellants claim is that the FIER fails to address sand lance spawning habitat within the vicinity of the operational saltwater intakes.

<u>*Staff Response to Issue 16*</u>: Pacific Sand Lance is not a listed species under the Endangered Species Acts (CESA/ESA). There is not evidence that would reflect a significant impact to Sand Lance or impacts related to this population as a food source. Construction and redevelopment activities are largely attributed to land-based development. Construction related to seawater intake upgrades consisted of a modernized screen replacement and piping. These activities are minimal and would be executed within a short-term time. Per CEQA Guidelines:

An effect on the environment shall not be considered significant in the absence of substantial evidence (CEQA Statute Section 21082.2(c), Guidelines Section 15384(b) and 15604 (f)(5)).

There is currently no provided evidence showing that the operation of the intakes would have an impact on Sand Lance, or the vast food web associated with fish, bird, and marine species.

8. Recommendation

On a basis of substantial evidence in the record, an Environmental Impact Report was prepared reflecting the independent judgment of the Lead Agency, the County, evaluating all components of the proposed project. The appellants have presented 16 claims lacking substantial evidence pursuant CEQA Statute Section 21082.2(c), Guidelines Section 15384(b) and 15604 (f)(5). No new information has been presented identifying a new significant environmental impact or new mitigation measure. The Environmental Impact Report is not subject to recirculation pursuant section 15088.5 of CEQA Guidelines. All claims raised by the appellant have been addressed thoroughly in both the EIR, Staff Report, and Resolution prepared for the project. Based off of this information, the County recommends that the Board of Supervisors act in accordance with the Planning Commission decision on August 4, 2022, certifying the Environmental Impact Report prepared on behalf of the project subject to the Mitigation Monitoring and Reporting Program and approving the Coastal Development Permit and Special Permit subject to the Conditions of Approval applied to the project.
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FINANCIAL IMPACT:
The Appellant has paid the fee associated with filing this appeal (1100277-608000). There will be no additional impact on the General Fund.

STRATEGIC FRAMEWORK:
This action supports your Board's Strategic Framework by supporting business, workforce development and creation of private-sector jobs

OTHER AGENCY INVOLVEMENT:
CDFW -California Department of Fish and Wildlife
CCC -California Coastal Commission
RWQCB -Regional Water Quality Control Board
NCUAQMD -North Coast Unified Air Quality Management District
USFWS -United States Fish and Wildlife Service
NMFS -National Marine Fisheries Service
USACE -United States Army Corps of Engineers

ALTERNATIVES TO STAFF RECOMMENDATIONS:
The Board could choose to approve the appeal, refuse the Certification of the EIR prepared on behalf of the project, and deny the Coastal Development Permit and Special Permit for Nordic Aquafarms California, LLC. The Board could also choose to revise or add other conditions of approval.

ATTACHMENTS:
NOTE: The attachments supporting this report have been provided to the Board of Supervisors; copies are available for review in the Clerk of the Board's Office.

Attachment 1: Resolution
Exhibit 1: Conditions of Approval

Exhibit 2: MMRP
Attachment 2: Appeal Letter
Attachment 3: Applicant Response to Appeal Letter
Attachment 4: FEIR
Attachment 4A: FEIR Errata
Attachment 5: DEIR
Attachment 6: Appendices
Attachment 7: PC Staff Report 7.28.22
Attachment 7A: PC Staff Report 8.4.22
Attachment 8: Letters from Tribes
Attachment 9: Public Comments

PREVIOUS ACTION/REFERRAL:
Board Order No.: Click or tap here to enter text.
Meeting of: Click or tap here to enter text.
File No.: Click or tap here to enter text.