Draft Environmental Assessment
City of Fortuna Wastewater Treatment Plant
Flood Protection Project
Fortuna, California
1884-DR-CA
HMGP 1884-05-05

November 2013

FEMA

Federal Emergency Management Agency
Department of Homeland Security
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This document was prepared by:

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HMGP 1884-05-05

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Acronyms and Abbreviations

APE	area of potential effects
BMPs	best management practices
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Cal OES	Governor's Office of Emergency Services
CNDDB	California Natural Diversity Database
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHRIS	California Historical Resources Information System
CMP	corrugated metal pipe
CNDDB	California Natural Diversity Database
CO	carbon monoxide
CRHR	California Register of Historical Resources
CWA	Clean Water Act
DPS	distinct population segment
EA	environmental assessment
EO	executive order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GCR	General Conformity Rule
HMGP	Hazard Mitigation Grant Program
MBTA	Migratory Bird Treaty Act
MLD	most likely descendant
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCAB	North Coast Air Basin
NCUAQMD	North Coast Air Quality Management District

NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
O_3	ozone
PA	programmatic agreement
Pb	Lead
PRC	Public Resources Code
$PM_{2.5}$	particulate matter less than or equal to 2.5 micrometers in diameter
PM_{10}	particulate matter less than or equal to 10 micrometers in diameter
SIP	State Implementation Plan
SHPO	State Historic Preservation Officer
SO_2	sulfur dioxide
SOx	sulfur oxides
SWPPP	storm water pollution prevention plan
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOCs	volatile organic compounds
WWTP	wastewater treatment plant

Environmental Assessment for the City of Fortuna
Wastewater Treatment Plant Flood Protection Project
1884-DR-CA
HMGP-1884-05-05
July 2013

1. Introduction

The City of Fortuna (City), California, has applied, through the Governor's Office of Emergency Services (Cal OES), to the Department of Homeland Security's Federal Emergency Management Agency (FEMA) for federal assistance in making improvements to the existing wastewater treatment facility to protect the City's wastewater system during flood events. Two improvements to the existing facility are proposed that would eliminate the possibility of effluent spilling into Strongs Creek. To qualify for FEMA funding, the proposed project requires environmental review by FEMA.

FEMA has prepared an environmental assessment (EA) to evaluate the potential environmental, physical and socioeconomic impacts of the identified project alternatives, including the no action alternative. The EA has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321-4327), the associated Council on Environmental Quality (CEQ) regulations (40 CFR 1500-1508), and FEMA's implementing regulations (44 CFR Part 10).

The EA process includes procedures for the evaluation of the potential environmental impacts of the proposed project and a range of reasonable alternatives. The potential impacts are evaluated according to their context and intensity, as defined in the CEQ regulations, The EA process also includes procedures for giving federal, state, and local agencies and the public opportunities to provide input on the proposed project and its alternatives.

2. Purpose of and Need for Action

The purpose of the proposed project is to reduce damage to the Fortuna Wastewater Treatment Plant (WWTP) and avoid loss of wastewater service as a result of flooding in the proposed project area.

Portions of the (WWTP) are constructed within the FEMA 100-year flood plain and are subject to flooding. In addition, the City's gravity effluent outfall to Strongs Creek is below the 100-year flood elevation; this prevents effluent discharge during some flood events. The City is proposing a flood protection project that includes a berm around the plant and construction of a treated effluent pump station.

The proposed project is needed to protect the WWTP from flooding and loss of service. Without this proposed project, the City risks damage to critical equipment at the WWTP, including the City's co-generation system.

FEMA has concluded that the proposed project is needed to reduce the overall risk from flooding and loss of service. The purpose of the proposed federal action is to address this need by providing federal financial assistance to the City to make improvements to the WWTP.

3. Proposed Project and Alternatives

FEMA considered the no action alternative and a proposed project alternative.

3.1 No Action Alternative

CEQ regulations at 40 CFR Part 1502.14(d) require the inclusion of a no action alternative in environmental analysis and documentation. The no action alternative is defined as maintaining the status quo. Thus, no FEMA assistance for any of the alternatives would be provided. The no action alternative is used to evaluate the impacts of not providing assistance for which the proposed project is eligible. It provides a benchmark against which alternatives are evaluated.

The purpose of the HMGP is to provide funds to state and local governments to implement long-term hazard mitigation measures after a major disaster declaration. In other words, the purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable implementation of mitigation measures during the immediate recovery from a declared disaster.

Under the no action alternative, no improvements to the flood protection system would be made and the risk of flooding and associated adverse impacts would continue to occur.

3.2 Proposed Project

The proposed project entails the construction of the following improvements at the City of Fortuna WWTP:

a) An earthen berm around the northwestern portion of the WWTP where existing ground elevations are less than the 100-year flood elevation. The height of the existing berm around the southern and southeastern portion of the WWTP would also be increased where existing ground elevations are less than the 100-year flood elevation.

b) A new treated effluent pump station (with four emergency effluent pumps) within the WWTP grounds to allow effluent disposal during flood conditions when the effluent can no longer flow by gravity. The pump discharge would be tied into the existing 16-inch effluent outfall to Strongs Creek; and

c) modifications to existing piping within the WWTP.

A new flood protection berm would be constructed around the northwestern portion of the WWTP such that the top of the berm would be 43.5 feet, allowing for 1 foot of freeboard at the 100-year flood elevation, which is 42.5 feet. In addition, the height of the existing berm located along the treatment ponds in the southern and eastern perimeter of the WWTP would be raised from 39.6 feet to 43.5 feet. The proposed berms would be 10 feet wide and require between 2 to 6 feet of additional fill to raise the elevation to 43.5 feet. The 30% design plans indicate that Section 1 (along the northern portion of the site) would be approximately 493 feet in length and approximately 1,318 cubic yards in volume and Section 2 (along the eastern and southern edge of the site) would be 1,417 feet in length and approximately 4,200 cubic yards in additional volume. The total length of both berms would be 1,910 feet and approximately 5,518 cubic yards of total added soil volume.

The proposed emergency effluent pumps would be installed below grade in a new wet well, constructed inline with the existing 16" finished effluent line between the existing chlorine contact basin and the outfall to Strongs Creek. Under normal operating conditions, flow from the chlorine contact basin enters a transfer structure, which provides treated effluent to the plant recycled water station or allows water to be discharged via gravity to either percolation ponds on the Eel River (during dry months) or to Strongs Creek (during high river flow periods). The pumps would be designed to supply pressure to the existing 16-inch, 90-foot effluent pipeline to allow the WWTP to discharge to Strongs Creek during flood events. The pump

station would operate in three stages as each of three pumps in series is turned on, allowing the pump station to operate under various head and flow conditions. One pump would be kept in the lag position for redundancy.

In addition to addressing the WWTP's ability to discharge treated effluent, the proposed pump station could be used to discharge water from the existing storage ponds if these ponds are close to overflowing several piping modifications would be needed to assure the full effluent flows can be pushed through the system. The proposed project includes increasing the pipe size between the headworks and the primary clarifiers and between the aeration basins and the secondary clarifier to allow the full peak flows to make it through the entire treatment train.

The location of the proposed project is shown in Figure 1, while Figure 2 shows the proposed project areas. The proposed project is planned to be constructed in 2014. Construction would take approximately 3 to 6 months and would be conducted by a contractor to the City of Fortuna.

3.3 Project Alternatives Considered and Dismissed

A project alternative to reduce the flood elevation is not reasonable because of the large size of the Eel River flood plain at the WWTP site. This alternative would not practicably meet the goals and objectives of the project and was dismissed from further consideration.

The alternative to relocate the WWTP out of the floodplain is not reasonable because of the large investment in water-dependent infrastructure at the WWTP site. Relocating the WWTP would have greater environmental impacts than the proposed project. This alternative would not practicably meet the goals and objectives of the project and was dismissed from further consideration

The alternative to dry proof the site was also evaluated. Under this alternative, the pump station would still be required and dry proofing would not address minor damage to the site and clean up costs during floods. Thus, this alternative would only partially meet the goals and objectives of the project and was dismissed from further consideration.

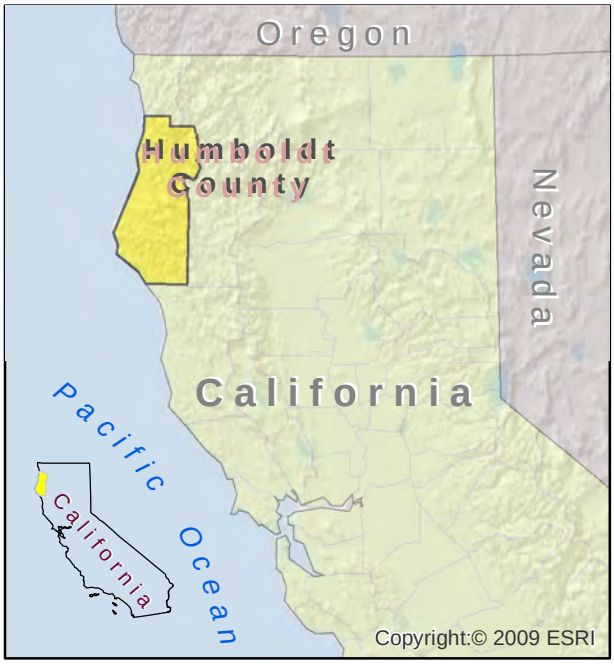
For the reasons provided, the alternatives identified above were dismissed from further consideration.

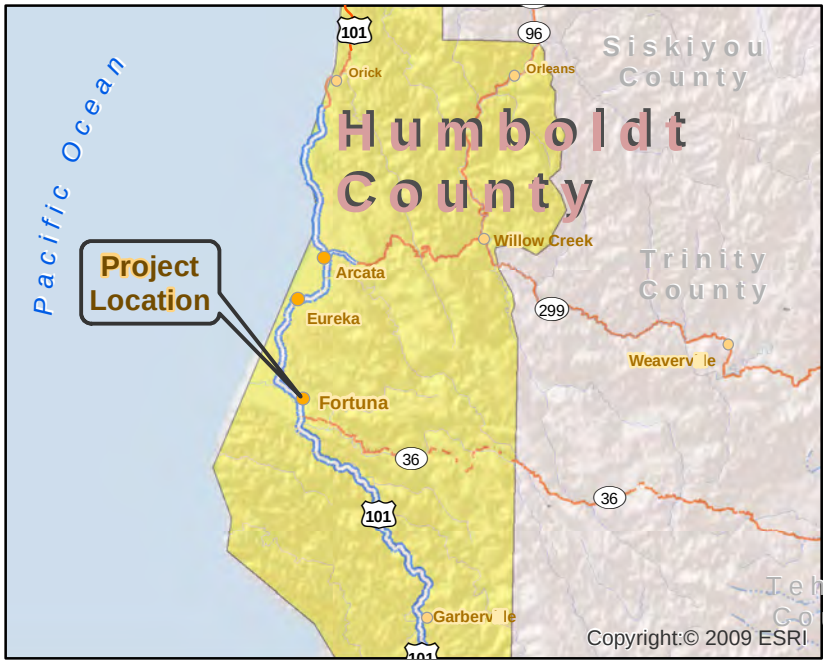
4. Affected Environment and Environmental Consequences

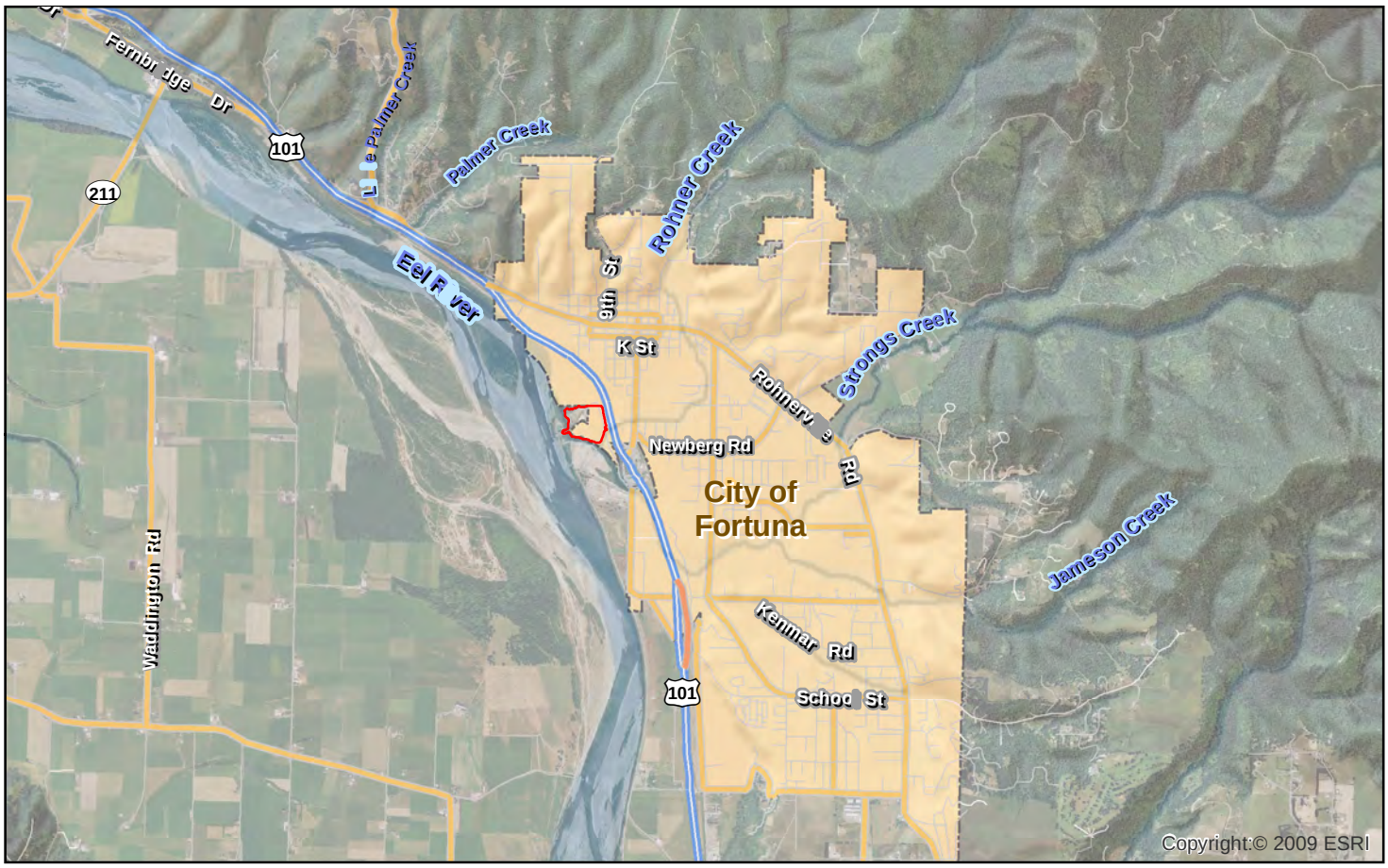
This section focuses on the environmental resources the proposed project has the potential to affect: geology, seismicity, and soils, air quality, water resources, biological resources, historic properties and archaeological resources, socioeconomics, public services, transportation, noise, and visual resources. No other resources that would require evaluation pursuant to NEPA have the potential to be affected by the proposed project. An overview of the existing environmental conditions is shown Figure 3.

4.1 Geology, Seismicity, and Soils

The City of Fortuna is located within a complex geological environment characterized by high rates of tectonic activity. The area is known for a high amount of seismicity, with more than 60 earthquakes producing discernible damage since the mid-1800s. The proposed project area lies north of the Mendocino Triple Junction, where the North American, Pacific and Gorda plates meet. The local geologic setting of Fortuna is characterized by the Little Salmon fault and the Eel River. The City lies east of the Eel River and is built on alluvium derived from the Eel and Van Duzen rivers and from streams draining the hills east of town.







City of Fortuna
Project Boundary
Stream
River
U.S. Highway
Major Road
Local Roads

Paper Size 8.5" x 11" (ANSI A)
0 0.25 0.5 0.75 1
Miles
Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

N

City of Fortuna
WWTF Flood Protection

Job Number 8410440
Revision A
Date 26 Apr 2013

Vicinity Map

Figure 1

718 Third Street Eureka CA 95501 USA T 707 443 8326 F 707 444 8330 E eureka@ghd.com W www.ghd.com

G:\01054 City of Fortuna\8410440 FortunaWWTP FloodProtection\08-GIS\Maps\Figures\F1_Vicinity.mxd

Data source: ESRI Street Map; NAIP aerial 1m. Created by:amshows

Paper Size 11" x 17" (ANSI B)

0 50 100 150 200

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

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Project Boundary
Access Road

Proposed Site Access Location
Proposed Berm Area
Pump Station Proposed Excavation Area
Existing and Proposed Staging Area

City of Fortuna
WWTF Flood Protection

Job Number	8410440
Revision	A
Date	09 May 2013

Proposed Project Areas

Figure 2

718 Third Street Eureka CA 95501 USA **T** 707 443 8326 **F** 707 444 8330 **E** eureka@ghd.com **W** www.ghd.com

Data source: City of Fortuna. 3Di_Aerial. 2010. GHD/PointsWest Survey Data. 2013. Created by:amshows

Paper Size 11" x 17" (ANSI B)

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Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

N

Surveyed Trees

- Cottonwood
- Willow
- Alder
- Elm
- Redwood
- Other (Deciduous)

- Project Boundary
- Project Boundary for Wetland Delineation
- Wetland
- Riparian Dripline/Extent of Branches
- Existing Staging Area/Stock Piles
- Riparian Trees and Brush
- Ruderal (Naturalized Grass)
- Urban Infrastructure
- Manmade Pond
- Access Road

City of Fortuna
WWTF Flood Protection

Job Number	8410440
Revision	A
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Existing Conditions

Figure 3

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Data source: City of Fortuna. 3Di_Aerial. 2010. GHD/PointsWest Survey Data. 2013. Created by:amshows

718 Third Street Eureka CA 95501 USA **T** 707 443 8326 **F** 707 444 8330 **E** eureka@ghd.com **W** www.ghd.com

No Action Alternative

Under the no action alternative, there would be no impact on geology, soils and seismicity as current conditions would not change.

Proposed Project

Construction of the proposed project would temporarily impact previously disturbed soils at the proposed project site. Potential impacts to soils would include compaction and a temporary increase in susceptibility to water and wind erosion as the berm is constructed. Mitigation measures will be implemented to minimize erosion, as discussed in sections 5.1 and 5.3.

The proposed project is not within a liquefaction zone, landslide zone, or any other designated seismic hazard zone.

With implementation of mitigation measures, construction of the proposed project would not result in adverse, long-term impacts to geology, seismicity and soils.

4.2 Air Quality

The proposed project site is in the North Coast Air Basin (NCAB), which is comprised of three air districts. The proposed project site is in the North Coast Unified Air Quality Management District (NCUAQMD).

Under authority of the Clean Air Act, the U.S. Environmental Protection Agency (EPA) established National Ambient Air Quality Standards (NAAQS), which are concentration levels intended to protect public health and welfare. The California Clean Air Act also establishes California Ambient Air Quality Standards (CAAQS), that are often more stringent than the NAAQS. This analysis discusses criteria pollutants, upon which human health-based permissible levels are established. Criteria pollutants regulated on the state and federal level include the following: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter ($PM_{2.5}$ and PM_{10}), and sulfur dioxide (SO_2). O_3 is a secondary pollutant, meaning that it is formed in the atmosphere from reactions of other compounds called precursors under certain conditions. Precursor compounds that lead to O_3 formation include volatile organic compounds (VOCs) and nitrogen oxides (NOx). $PM_{2.5}$ can be directly emitted from sources (e.g., engines) or can form in the atmosphere from precursor compounds. $PM_{2.5}$ precursor compounds in the NCAB include sulfur oxides (SOx), NOx, and VOC.

A network of ambient air quality monitoring stations in the district characterizes the air quality environment. Depending on whether the NAAQS and CAAQS are met or exceeded, an area is designated as nonattainment, maintenance, or attainment. A nonattainment area is an area that has not met one or more ambient air quality standards. A maintenance area is an area that was formerly designated as a nonattainment area, but has since met the NAAQS, and for which the jurisdictional authority has established a maintenance plan to maintain compliance with the standards.

The NCUAQMD is designated as a nonattainment area for the CAAQS 24-hour PM_{10} standard. The NCUAQMD is in attainment or unclassified for all other CAAQS and NAAQS (NCUAQMD 2013).

Under 40 CFR 93, Subpart B, known as the General Conformity Rule (GCR), a non-transportation project subject to federal action in a nonattainment or maintenance area requires a demonstration of conformity with the State Implementation Plan (SIP) or a demonstration that direct and indirect emissions attributable to the proposed project would be below specified de minimis thresholds. A federal action is defined as any action that a federal agency supports in any way, provides financial assistance for, or licenses, permits, or approves. A summary of applicable GCR threshold rates for NCAB is presented in Table 1 below.

Table 1
General Conformity Rule Emission De Minimis Thresholds in the North Coast Air Basin

Pollutant	Federal Area Designation	GCR De Minimis Threshold (tons/yr)
CO	Attainment	n/a
NOx	Attainment	n/a
PM_{10}	Nonattainment	100
$PM_{2.5}$	Attainment	n/a
SO_2	Attainment	n/a
VOC	Attainment	n/a
Lead	Attainment	n/a

Source: 40 CFR Part 81; EPA 2012
n/a = not applicable

No Action Alternative

Under the no action alternative, there would be no impact on air quality as current conditions would not change.

Proposed Project

It is anticipated that the following equipment would be used during construction, which is anticipated to last for approximately three to six months:

- Excavator
- Bulldozer
- Roller
- Backhoe
- Concrete trucks
- Dump trucks for hauling materials

During proposed project construction, a small number of trips associated with delivery of materials would occur throughout the construction period. The trips would create a minor temporary air quality impact within the neighborhood immediately surrounding the proposed project area.

The proposed project involves construction of earthen berms and a pump station to be used during emergency flooding conditions. Therefore, no long-term operational impacts to air quality would occur. However, implementation of the proposed project would result in temporary increases of fugitive dust including PM_{10} and $PM_{2.5,}$ and combustion emissions (CO, NOx, PM_{10}, $PM_{2.5}$, SO_2 and VOC). Fugitive dust emissions would be generated by vehicle movement over paved and unpaved surfaces, dirt tracked onto paved surfaces from unpaved areas, and particulate matter suspended in the air during construction activities. Combustion emissions would be generated from operation of construction equipment, haul vehicles, and worker vehicles.

To determine conformance with GCR, construction-related emissions were estimated to determine if the de minimis thresholds would be exceeded. Unmitigated emission estimates were based on the use of the California Emissions Estimator Model (CalEEMod) on similar type and scale construction projects. These

emission estimates reflect the number of workers, project schedule, updated equipment load factors, and CalEEMod defaults.

Disturbance of soil at the proposed project site during excavation and earthmoving would contribute to project dust emissions. Proposed project construction would require trucks to remove excess materials to a disposal site and to deliver construction and fill materials to the proposed project site. In addition to haul truck trips, workers would travel to and from the proposed project each day, generating a minor amount of daily commute trips.

Based on the above, the estimated unmitigated PM_{10} emissions expected for the proposed project are in the range of 10 to 20 tons, which is well under the GCR de minimis threshold of 100 tons/year.

Grading operations associated with the construction of the proposed project would be subject to the County of Humboldt grading regulations, which requires implementation of dust control measures. Emissions from the construction phase would be minor, temporary and localized. Therefore, the proposed project would not violate any air quality standard.

The emissions calculated for the proposed project would be below the applicable GCR thresholds. Therefore, conformity with the SIP need not be demonstrated.

In conclusion, air quality impacts from the proposed project would be minor, temporary and less than significant. No permanent impacts would occur.

The proposed project would be required to comply with all rules and standards of the NCUAQMD; therefore emissions would be minimized using the mitigation measures described in Section 5.2.

4.3 Water Resources

4.3.1 Surface Water

The proposed project is located within the Eel River watershed, which drains approximately 3,680 square miles and extends from headwaters in the mountains to the east to the river's mouth at the Pacific Ocean. More specifically, the proposed project site is located within the Strongs Creek watershed, which encompasses approximately 10,700 acres and drains a mix of developed and undeveloped areas. Rainfall in the proposed project area ranges from 41 to 55 inches per year. Flooding is a direct result of storm flows.

No Action Alternative

Under the no action alternative, there would be no impact on surface water as current conditions would not change.

Proposed Project

The City of Fortuna will implement measures to control erosion and sedimentation during construction. A Stormwater Pollution Prevention Plan (SWPPP) will be developed to outline Best Management Practices (BMPs) for controlling soil erosion and preventing the discharge of construction-related contaminants. BMPs will be monitored as specified in the SWPPP for successful implementation. Erosion control measures and other general mitigation measures to prevent the release of soil or other materials during construction are provided in Section 5.3.

With implementation of these measures, the proposed project would have minor short-term impacts and no long-term impacts to surface water resources.

4.3.2 Hydrology and Hydraulics

No Action Alternative

Under the no action alternative, there would be no impact on hydrology and hydraulics as current conditions would not change.

Proposed Project

The proposed project would not materially alter the hydrology and hydraulics of the watershed. It would permanently reduce the risk of flooding at the wastewater treatment plant but would not materially change the rate of area runoff from existing conditions. As a result, less than significant permanent impacts on hydrology and hydraulics would occur.

4.3.3 Executive Order 11988: Floodplain Management

Executive Order (EO) 11988 requires federal agencies to avoid, to the extent possible, the short- and long-term adverse impacts associated with the occupancy and modification of floodplains. If there is no practicable alternative to undertaking an action in a floodplain, any potential adverse impacts must be mitigated. FEMA's regulations for complying with Executive Order 11988 are found in 44 CFR Part 9.

No Action Alternative

Under the no action alternative, because no improvements to the drainage system would occur, the risk of flooding and associated impacts would not be reduced.

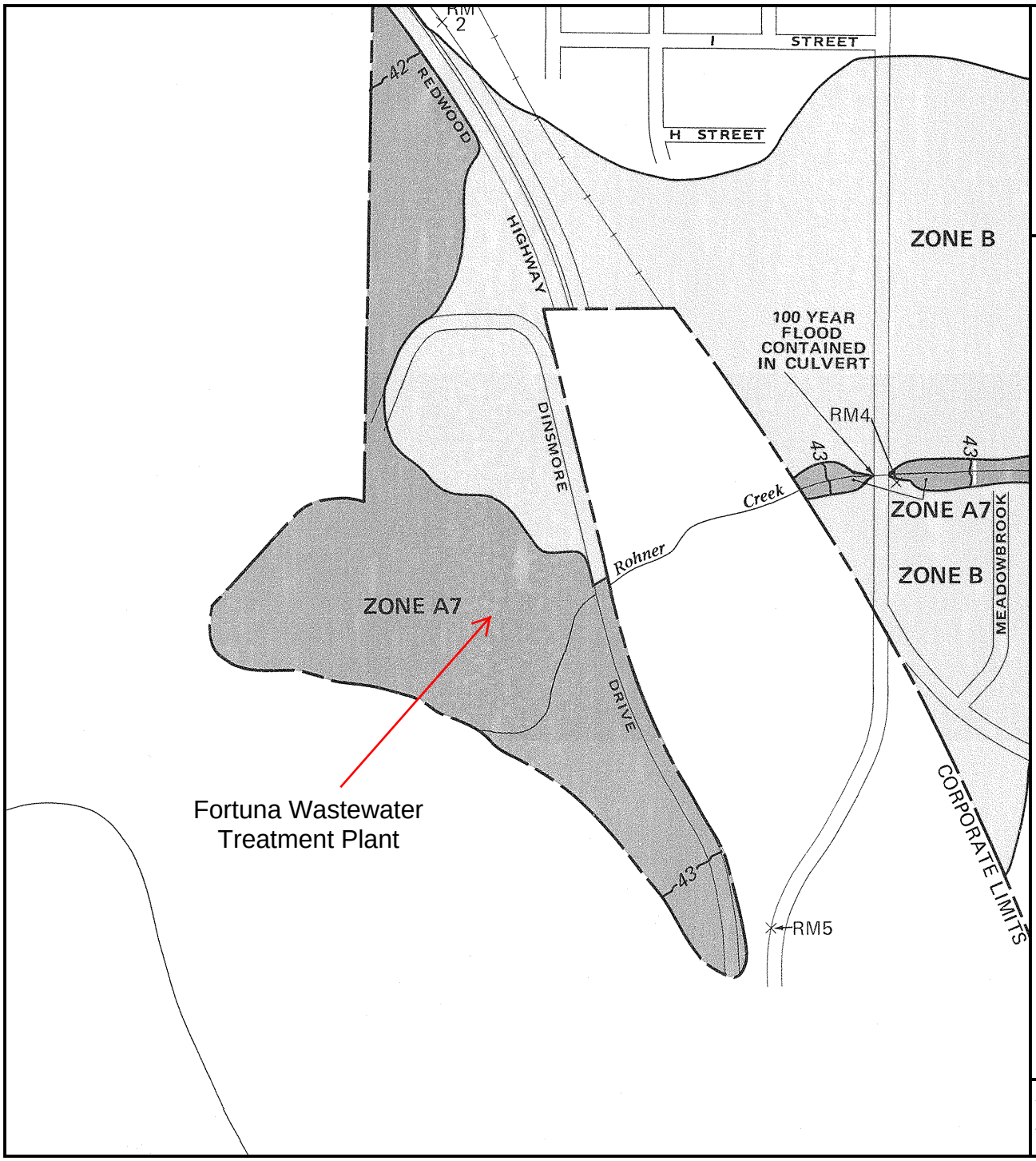
Proposed Project

The proposed project is located within Zone A7, which is a 100-year flood plain. The Firmette is shown in Figure 4. The proposed project is located outside of the defined floodway, in the floodway fringe, which is defined by FEMA as the portion of the flood plain that could be completely obstructed without increasing the water surface elevation of the 100-year flood by more than 1.0 foot at point. The area of the Eel River flood plain in the vicinity of the WWTP is large, ranging between two and three miles, and the increase in flood elevation due to the displacement of flood water from the proposed flood protection berm would be minimal.

There are no alternatives to this location, as the purpose of the proposed project is to protect a critical water-dependent facility from the 100-year flood. The proposed project is justified in being constructed in the floodplain as it is necessary to protect the Fortuna WWTP and protect surface water by avoiding the potential release of untreated wastewater to surface water.

FEMA applied the Eight-Step Decision-Making Process to ensure that the proposed project is consistent with EO 11988. The NEPA compliance process involves essentially the same basic decision-making process to meet its objectives as the Eight-Step Decision-Making Process. Therefore, the Eight-Step Decision-Making Process has been applied through implementation of the NEPA process. FEMA published an Initial Public Notice at the declaration of the disaster. FEMA will ensure publication of a Final Public Notice in compliance with EO 11988 before implementation of the proposed project.

The results of the Eight-Step Decision-Making Process are presented in Appendix A.



APPROXIMATE SCALE

400 0 400 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

CITY OF
FORTUNA, CALIFORNIA
HUMBOLDT COUNTY

PANEL 1 OF 2
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
060063 0001 B

EFFECTIVE DATE:
MAY 3, 1982

Federal Emergency Management Agency

Figure 4 - FIRMette -

4.3.4 Executive Order 11990: Protection of Wetlands

EO 11990, Protection of Wetlands, requires federal agencies to minimize damage to wetlands resulting from federal and federally assisted projects.

On March 11, 2013, a wetland delineation and mapping were completed pursuant to the USACE 1987 Wetland Delineation Manual and the Regional Supplement to the USACE Wetland Delineation Manual: Western Mountains, Valleys, and Coastal Regions. The wetland delineation identified two USACE jurisdictional wetlands at the Fortuna WWTP proposed project site totaling approximately 0.0185 acres (803 square feet). One is a small wetland (538 square feet or 0.0124 acres) which is located in the northern portion of the site near the sites storage and staging area. The other is a small linear wetland (265 square feet or 0.0061 acres) located west of the three water treatment ponds in the southern portion of the site.

FEMA completed the 8-step decision making process in 44 CFR 9.6, including preparation of a draft Public Notice (44 CFR 9.12), in combination with the 8-step decision-making process required for EO 11988. See Section 4.3.3 above.

No Action Alternative

Under the no action alternative, there would be no impact on wetlands as current conditions would not change.

Proposed Project

Construction of the proposed project would not result in disturbance or fill within these potential wetland areas. Therefore, there would be no permanent impacts to wetlands. However, the proposed project would increase the height of the existing berm located along the southern and eastern perimeters of the treatment ponds from 39.6 feet to 43.5 feet, requiring approximately 4,200 cubic yards in additional soil volume. During construction of the berm, there could be indirect impacts to potential wetland areas from erosion.

Mitigation, including implementation of best management practices (BMPs) will be required to avoid or reduce impacts to wetlands from construction. As described in Section 5.3 and Section 5.4, a Storm Water Pollution Prevention Plan (SWPPP) and other mitigation measures will be implemented such that the proposed project would result in less than significant adverse impacts to wetlands and would comply with EO 11990.

4.3.5 Water Quality

The Clean Water Act (CWA) regulates water quality, establishes the National Pollutant Discharge Elimination System (NPDES) (Section 401 and 402), and requires permits for any dredge or fill activities in jurisdictional waters of the United States (Section 404). Temporary localized impacts to water resources could occur during construction. A storm water pollution prevention plan (SWPPP) would be prepared and BMPs would be implemented to reduce the amount of erosion and sedimentation during the construction process.

The proposed project area is located within the Eel River watershed, which has a total drainage area of approximately 3,680 square miles and extends from headwaters in the mountains to the east to the river's mouth at the Pacific Ocean. More specifically, the proposed project area is located within the Strongs Creek watershed, which drains approximately 10,700 acres.

The general water quality parameters established in the Basin Plan for the Eel River are color, taste and odor, floating material, suspended material, settleable material, oil and grease, biostimulatory substances, sediment, turbidity, hydrogen ion pH, dissolved oxygen, bacteria, temperature, toxicity, pesticides, chemical constituents and radioactivity.

The Eel River is listed as impaired for sediment/siltation and temperature.

No Action Alternative

Under the no action alternative, there would be no impact on water quality as current conditions would not change.

Proposed Project

Temporary localized impacts to water resources could occur during construction related to excavation, grading activities, and removal of vegetation, which can cause increased erosion. Stormwater runoff from the proposed project site could transport pollutants to the Eel River if best management practices (BMPs) are not properly implemented.

The proposed project would comply with NPDES requirements that address both construction activities and long term prevention of sediment and suspended solids from entering the Eel River. Therefore, the temporary impact to water quality from the proposed project would be less than significant. As described in Section 3.3.3, a Clean Water Act Section 404 permit from the USACE and Section 401 Water Quality Certification from the RWQCB would be required.

With implementation of mitigation measures for erosion and sediment control, as described in Sections 5.1 and 5.3, impacts to water quality would be minimal.

4.4 Biological Resources

A field review of the proposed project area was conducted on December 13, 2012 by a FEMA-contracted biologist to assess existing vegetation communities, potential wetlands, and habitat for special-status species. Land use in the vicinity of the proposed project area includes commercial, industrial, urban residential, and agricultural uses. A gravel mining operation is located adjacent to and north of the WWTP. Highway 101 runs directly east of the WWTP. Rohner Creek is located to the southeast of the WWTP, meeting Strongs Creek which flows along the southern perimeter to its confluence with the Eel River to the west.

Vegetation Communities

Riparian Woodland

Riparian woodland occurs along Strongs Creek, Rohner Creek, and Eel River. The riparian corridor along Rohner creek includes a total width of approximately 90 feet along the southeastern perimeter of the WWTP. The riparian corridor along Strongs Creek has a total width of approximately 150 feet along the southern perimeter of the WWTP. Tree species along these riparian corridors are dominated by willows (*Salix* spp.), red alder (*Alnus rubra*), and black cottonwood (*Populus balsmifera*), with an understory of Himalayan blackberry (*Rubus armeniacus*), elderberry (*Sambucus racemosa*), thimbleberry (*Rubus parviflorus*), and red osier dogwood (*Cornus sericea*). A drainage ditch runs along the northwestern perimeter of the WWTP, which supports large cottonwoods and understory vegetation including wllows and Himalayan blackberry.

At its confluence with Strongs Creek, the Eel River channel is approximately 1,400 feet wide, but its width varies in the vicinity up to 3,000 feet. The river channel is braided and large, vegetated sand bars are present within the channel. Riparian vegetation along the Eel River in the vicinity of the proposed project area consists predominantly of hardwood species listed above (willow, alder, and cottonwood), with limited coniferous species.

Aquatic Habitat

Within the proposed project area, Strongs Creek and Rohner Creek are narrow and shallow and have substrates consisting of sand and silt, with limited gravel suitable for spawning (CDFG 2010). The banks of both creeks have been armored or channelized in sections to control flooding, and barriers to fish passage exist at some road crossings. The Eel River is wide and shallow with high levels of sedimentation. A levee was constructed along the east side to protect the City of Fortuna from flooding.

Aquatic habitat in the proposed project area also occurs at the treatment ponds located along the southern end of the WWTP. Two of the ponds were largely devoid of vegetation, while the third supported cattails (*Typha* sp.).

Landscaped/Ornamental/Disturbed

A large part of the WWTP is paved and supports only ruderal vegetation. Landscaped areas consisting of managed lawn exist around the water treatment ponds. Large Monterey pine trees line the eastern perimeter of the WWTP.

Wildlife

Wildlife species utilizing the proposed project area include common species adapted to urban areas as well as migratory birds and aquatic species utilizing the aquatic habitat and riparian corridors along Rohner Creek, Strongs Creek, and the Eel River. Wildlife species that were observed in riparian habitat include many species of birds such as American robin (*Turdus migratorius*) song sparrow (*Melospiza melodia*), spotted towhee (*Pipilo maculatus*), Townsend's warbler (*Setophaga townsendi*), and yellow-rumped warbler (*Setophaga coronate*). Other species likely to occur in this riparian habitat include Cooper's hawk (*Accipiter cooperii*), Pacific treefrog (*Hyla regilla*), raccoon (*Procyon lotor*), and coyote (*Canis latrans*).

Wildlife observed utilizing the water treatment ponds include American coot (*Fulica americana*), Northern shoveler (*Anas clypeata*), and bufflehead (*Bucephala albeola*). Within the proposed project area, Strongs Creek, Rohner Creek, and the Eel River have potential habitat for federally listed fish species to occur, as described in Section 4.4.2. Other fish species that occur in these streams likely include largemouth bass (*Micropterus salmoides*) and bluegill (*Lepomis macrochirus*).

No Action Alternative

Under the no action alternative, there would be no impact on vegetation communities and wildlife as current conditions would not change.

Proposed Project

Implementation of the mitigation measures described in Section 5.4 would minimize impacts to vegetation communities and wildlife. See also the specific discussions below in Sections 4.4.1 (migratory birds), 4.4.2 (endangered species), and 4.4.3 (invasive species). Therefore, the impacts would be less than significant.

4.4.1 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) decrees that all migratory birds and their parts (including eggs, nests, and feathers) are fully protected. Nearly all native North American bird species are protected by the MBTA. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Projects that are likely to result in the taking of birds protected under the MBTA would require the issuance of special purpose take permits from the U.S. Fish and Wildlife Service (USFWS). Activities that would require such a permit include destruction of migratory bird nesting habitat during the nesting season when eggs or young are likely to be

present. Under the MBTA, surveys are required to determine if nests will be disturbed and, if so, a buffer area with a specified radius around the nest would be established so that no disturbance or intrusion would be allowed until the young had fledged and left the nest.

No Action Alternative

Under the no action alternative, there would be no impact on migratory birds as current conditions would not change.

Proposed Project

As described in Section 4.4 above, several species of migratory birds utilize the proposed project area and some species may nest there, primarily within riparian woodland habitat. Impacts to nesting migratory birds could occur during trimming or removal of riparian vegetation around the existing fenceline in the southern portion of the site and removal of a few large cottonwood trees in the northwestern perimeter of the WWTP for construction of the berm in these locations. Implementation of the mitigation measures described in Section 5.4 would minimize impacts to migratory birds. Therefore, the City of Fortuna would be in compliance with the MBTA.

4.4.2 Endangered Species Act

The Endangered Species Act (ESA) of 1973 gives the USFWS and National Marine Fisheries Service (NMFS) federal legislative authority for the protection of listed (threatened or endangered) species. This protection includes a prohibition of direct take (i.e., killing, harassing) and indirect take (i.e., destruction of critical habitat).

The USFWS species list was acquired via the U.S. Fish and Wildlife Service, Arcata Office Species List (USFWS 2013), National Marine Fisheries Service Species Lists (NMFS 2013), California Natural Diversity Database (CNDDB) search of the Fortuna 7.5-minute USGS quadrangle (CNDDB 2013). Table 2 shows the federally-listed species and habitat requirements with potential to occur in the vicinity of the proposed project area. See also the Biological Assessment, Appendix B. Of the species listed in Table 2, the following four species have the potential to occur in the proposed proposed project area, based on the habitat present:

- Southern Oregon/Northern California coho salmon (*Oncorhynchus kisutch*), and critical habitat
- Northern California steelhead (*Oncorhyncus mykiss*) and critical habitat
- California coastal chinook salmon (*Oncorhynchus tshawytscha*) and critical habitat
- Western snowy plover (*Charadrius alexandrinus nivosus*) and critical habitat

In addition, two other federally listed species, southern eulachon (*Thaleichthys pacificus*) and green sturgeon (*Acipenser medirostris*), are considered to have low potential to occur within the proposed proposed project area. One federal candidate species, the yellow-billed cuckoo (*Coccyzus americanus*), also has low potential to occur. Further discussion of each of the species identified as having at least a low potential to occur in the proposed proposed project area is provided below.

State-listed or other special-status species may also occur in the proposed project area. If other special-status species are present, the mitigation measures described in Section 5.4 would avoid or reduce adverse effects as with the federally listed species described below.

The Biological Assessment (BA) prepared for the proposed project provides a detailed analysis of the potential effects to federally listed species (CDM Smith 2013). The BA was submitted on October 30, 2013 to USFWS and NMFS for informal consultation under Section 7 of the ESA. A response to the BA from USFWS and NMFS with concurrence that the project is not likely to adversely affect federally listed species has not been received as of the date of this document. The FEMA letter and BA can be found in Appendix B.

Table 2.
Federally Listed Species (and Habitat Requirements) Potentially Present in the Vicinity of the City of Fortuna Wastewater Treatment Plant Flood Protection Proposed Project.

Species	Status	Habitat Requirements	Likelihood of Occurrence
Fish			
Tidewater goby *Eucyclogobius newberryi*	FE, CH	Inhabit coastal lagoons and the uppermost brackish zone of larger estuaries; preferred habitat includes areas with low velocity tidal currents and/or stable areas with infrequent tidal exchange.	No potential; no suitable estuarine habitat in the proposed project area.
Southern eulachon DPS *Thaleichthys pacificus*	FT, CH	Spawn mainly in the lower, tidally-influenced reaches of rivers, prior to the occurrence of full spring freshet.	Low potential; not likely to occur upstream as far as the proposed project area.
Green sturgeon *Acipenser medirostris*	FT, CH	Spawn in cold, clean water in rivers; feed in estuaries and bays, including the Eel River estuary.	Low potential; infrequently observed in upstream reaches of the Eel River.
Southern Oregon/Northern California coast coho salmon *Oncorhynchus kisutch*	FT, CH	Inhabit streams and small freshwater tributaries; spawn in small streams with stable gravel substrates. Migrate to the upper reaches of the Eel River generally between September and February, with peak arrival in the upper reaches of the Eel River in November-December.	Potential to occur within the proposed project area during migration; no suitable spawning habitat in the proposed project area. Designated critical habitat occurs within the proposed project area.
Northern California steelhead *Oncorhyncus mykiss*	FT, CH	Inhabit cool, clean water in streams and rivers with suitable gravel substrate for spawning. Migrate to the upper reaches of the Middle Fork Eel River from March through June. Spawning occurs from late December through April.	Potential to occur within the proposed project area during migration; no suitable spawning habitat in the proposed project area. Designated critical habitat occurs within the proposed project area.
California coastal chinook salmon *Oncorhynchus tshawytscha*	FT, CH	Streams with cool pools of water and areas of higher velocity flow for cover. Spawn in cool, clear, well-oxygenated pools with gravel beds. Migrate to the upper reaches of the Eel River between September and February. Spawning occurs in tributary streams in the winter months.	Potential to occur within the proposed project area during migration; no suitable spawning habitat in the proposed project area. Designated critical habitat occurs within the proposed project area.

Table 2
Federally Listed Species (and Habitat Requirements) Potentially Present in the Vicinity of the City of Fortuna Wastewater Treatment Plant Flood Protection Proposed Project.

Birds			
Western snowy plover *Charadrius alexandrinus nivosus*	FT, CH	Coastal habitats, including beaches, sand spits, sparsely-vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons and estuaries.	Potential to occur along the Eel River within the proposed project area. Designated critical habitat occurs along Eel River within the proposed project area.
Marbled murrelet *Brachyramphus marmoratus*	FT, CH	Inhabit calm, shallow, coastal waters and bays, but breed inland, up to 45 miles from shore, in mature forests (coast Redwood forests in California).	No potential; no suitable habitat in the proposed project area.
Western yellow-billed cuckoo *Coccyzus americanus*	FC	Riparian deciduous forest with dense tree canopy closure (>59 percent) and shrub canopy (>59 percent). Cottonwoods and willows that form open woodlands with dense, low vegetation are particularly preferred.	Low potential to occur transiently in riparian habitat within the proposed project area. No known breeding occurrences within the Eel River watershed.
Northern spotted owl *Strix occidentalis caurina*	FT, CH	Forests characterized by dense canopy closure of mature and old-growth trees, abundant logs, standing snags, and live trees with broken tops.	No potential; no suitable habitat in proposed project area.

Sources: U.S. Fish and Wildlife Service, Arcata Office Species List Quadrangle, National Marine Fisheries Service Species Lists, California Natural Diversity Database (CNDDB) search of the Fortuna 7.5-minute USGS quadrangle. Last accessed September 18, 2013.

CH – Critical Habitat
FC – Federal Candidat
FE – Federal Endangered
FT – Federal Threatened

Federally Listed Fish Species With Potential to Occur in the Proposed Project Area

Southern Oregon/Northern California Coast Coho Salmon and Critical Habitat

The SONCC coho salmon Evolutionarily Significant Unit (ESU) was listed as threatened in 1997, and this status was reaffirmed in 2005 (NMFS 1997; 2005). This Evolutionarily Significant Unit (ESU) includes all coho salmon populations between Punta Gorda, California and Cape Blanco, Oregon.

Coho salmon adults migratoing upriver to spawn may occur within the proposed project area from October to March, with a peak between November and January. Fry emergence takes place between March and July, with peak emergence in March and May. After emergence, fry seek out shallow water along stream margins. Downstream migration of juveniles or smolts can occur from March to August (NMFS 2012b).

Historically, coho salmon were found in Palmer and Strongs creeks and potentially Rohner Creek; however, in recent years (1995) they have only been detected in Strongs Creek (CDFG 2010). Numbers of spawning adult coho salmon in the Eel River have declined dramatically. Historic numbers of spawning adults in the Eel River were probably in the 50,000-100,000 fish per year range. By the 1960s, the number of spawners was likely less than 15,000 fish, with numbers dropping by about 5-10% of spawners per year in subsequent years (Yoshiyama and Moyle 2010).

Critical habitat for SONCC coho salmon was designated as all accessible reaches of rivers (including estuarine areas and tributaries) between Cape Blanco, Oregon, and Punta Gorda, California (NMFS 1999a). Critical habitat includes all waterways, substrate, and adjacent riparian zones below longstanding, naturally impassable barriers (i.e., natural waterfalls in existence for at least several hundred years). Therefore, critical habitat within the proposed project area includes the Eel River as well as Strongs Creek and Rohner Creek.

Northern California Steelhead and Critical Habitat

The Northern California (NC) steelhead Distinct Population Segment (DPS) was listed as threatened in 2000, and threatened status was reaffirmed in 2006 (NMFS 2000, 2006a). The NC steelhead DPS includes all naturally spawned populations of steelhead in California coastal river basins from Redwood Creek in Humboldt County (inclusive) southward to the Russian River in Sonoma County (exclusive).

The Northern California steelhead DPS includes both summer and winter-run steelhead. Summer-run steelhead are immature when they enter freshwater during spring and early summer, and spend several months in freshwater to mature prior to spawning. Winter-run steelhead are generally mature when they enter freshwater during late fall and winter, and spawn shortly after entering freshwater. In addition, "half-pounder" steelhead return to freshwater after a brief 2-3 month period in the ocean. They overwinter in freshwater, returning to the ocean in the spring. This type of steelhead has been observed in the Eel River (NMFS 2007a).

Steelhead runs (both winter and summer) in the Eel River system have declined significantly. Historic numbers were likely 100,000-150,000 adults per year (both runs combined), declining to 10,000-15,000 by the 1960s. Present numbers are probably considerably less than 1,000 fish in both runs (Yoshiyama and Moyle 2010). Steelhead trout were historically found in the Eel River and both Rohner and Strongs Creeks. However, recent steelhead observations have been limited to the Eel River and Strongs Creek (CDFG 2010).

Critical habitat was designated for the NC steelhead DPS in 2005 (NMFS 2005). NMFS designated critical habitat for NC steelhead as occupied watersheds from the Redwood Creek watershed, south to and including the Gualala River watershed. Within the proposed project area, designated critical habitat for the Northern California steelhead includes the Eel River, Strongs Creek, and Rohner Creek (USFWS 2013).

California Coastal Chinook Salmon and Critical Habitat

California coastal (CC) Chinook salmon were first listed as threatened by NMFS in 1999 (NMFS 1999b), and status was reaffirmed in 2005 (NMFS 2005). The CC Chinook ESU includes all naturally spawned populations of Chinook salmon from rivers and streams south of the Klamath River to the Russian River, California.

Fall-run Chinook salmon are specifically adapted for spawning in lowland reaches of big rivers and their tributaries, with sexually mature adults moving into rivers and streams from the ocean in the fall or early winter and spawning within a few weeks or days upon arrival on the spawning grounds. Juveniles emerge from the gravel in late winter or early spring and within a matter of months migrate downstream to the estuary and the ocean. This life history strategy allows fall-run Chinook salmon to utilize quality spawning and rearing areas in the valley reaches of rivers, which are often too warm to support juvenile rearing in the summer (Moyle 2002).

Spring-run Chinook salmon are often stream-type, with sexually immature adults returning to lower-order headwater streams in the spring or early summer and holding in deep pools and coldwater areas until they spawn in early fall. This strategy allows spring-run Chinook salmon to take advantage of mid-elevation habitats that are inaccessible during the summer and fall due to low flows and high water temperatures. Juveniles emerge from the gravel in the early spring and typically spend one year in freshwater before migrating downstream to estuaries and then the ocean (Moyle 2002). It is thought that the spring-run Chinook may have been completely eliminated from this ESU (NMFS 2007b).

Records suggest that historic runs of Chinook salmon probably ranged between 100,000 and 800,000 fish per year, declining to roughly 50,000-100,000 fish per year in the first half of the 20th century (Yoshiyama and Moyle 2010). Following the great floods of 1955 and 1964, annual Chinook salmon runs were generally considerably less than 10,000 fish. The most recent numbers suggest that less than 1,000 wild adults per year have returned to the Eel River basin in recent years (Yoshiyama and Moyle 2010).

Critical habitat was designated for CC Chinook salmon in 2005 (NMFS 2005). Critical habitat for CC Chinook salmon is designated as occupied watersheds from the Redwood Creek watershed, south to and including the Russian River watershed. Within the proposed project area, designated critical habitat for CC Chinook salmon occurs in the Eel River, Strongs Creek, and Rohner Creek (USFWS 2013).

No Action Alternative

Under the no action alternative, there would be no impact on threatened or endangered species as current conditions would not change.

Proposed Project

Potential Effects to Federally Listed Fish Species

Potential adverse effects to SONCC coho salmon ESU, Northern California steelhead DPS, and California coastal Chinook salmon within the proposed project area could occur during construction from increased turbidity in surface waters, including downstream turbidity effects in the Eel River, if there is runoff of soil from areas disturbed by construction. Adverse effects to water quality could also occur from accidental spills or other discharges to surface waters.

Potential adverse effects could also occur through loss or modification of riparian habitat along Rohner Creek or Strongs Creek adjacent to the proposed berm construction areas, as riparian vegetation provides shade and woody debris that are important characteristics of salmon habitat. However, this is not anticipated, as any trimming or removal of vegetation would only occur directly adjacent to the WWTP property fenceline, which is approximately 50 feet from the edge of the creeks. The riparian vegetation between the fence and the creek would largely be undisturbed (except for trimming at the fence) and would also provide a dense vegetative buffer to assist in slowing and capturing any runoff from the disturbed soil at the berm locations. No construction would occur at the existing outfall to Strongs Creek or near the aquatic habitat within Strongs Creek or Rohner Creek.

There would be no permanent effects to riparian vegetation or aquatic habitat and no change in flow or discharge to Strongs Creek through the existing outfall, as pumping from the new discharge pump would only occur during flood events when Strongs Creek is already at flood stage and the discharge cannot flow via gravity. There would be no other modifications of critical habitat from the proposed project.

Noise and human disturbance during construction would not affect listed fish species within the aquatic habitats of Rohner Creek, Strongs Creek, or the Eel River.

Avoidance and minimization measures would be required to avoid or reduce adverse impacts to federally listed fish species and designated critical habitat from turbidity created by runoff from disturbed soil areas or from spills of fuels or oils from equipment during construction. As described in Section 5.3 and Section 5.4, a SWPPP and other BMPs would be implemented such that the proposed project would result in less than significant adverse impacts to water quality. Restoration of disturbed soil areas would be conducted through hydroseeding. With implementation of these measures, temporary effects from increased turbidity in aquatic habitats within the proposed project area, including Rohner Creek, Strongs Creek, or the Eel River would be minimal.

In addition, the proposed project would have benefits to the listed species and critical habitat in avoiding the potential for untreated wastewater to flow into aquatic habitats during flood events. Currently, when the water surface elevation of Strongs Creek reaches an elevation of 38.6 feet (11-year flood event), the plant can no longer discharge and water starts flooding the chlorine contact basin and overflowing into the plant site. When this occurs there is a loss of function of the WWTP and potential for discharge of untreated wastewater to surrounding surface waters, including Rohner Creek, Strongs Creek, and the Eel River.

Therefore, with implementation of avoidance and minimization measures, including a SWPPP, the proposed project may affect but would be unlikely to adversely affect federally listed fish species with potential to occur in the project area.

Potential Effects to Western Snowy Plover and Critical Habitat

The western snowy plover was listed as threatened in 1993 (USFWS 1993). Western snowy plovers forage for invertebrates in beach sand, among tide-cast kelp, and within foredune vegetation. They breed from spring through early fall, laying a clutch of eggs in shallow depressions in the sand, above the high tide line on coastal beaches, sand spits, dune-backed beaches, sparsely vegetated dunes, beaches at river mouths, and salt pans at lagoons and estuaries (USFWS 2007).

Threats to the population include human disturbance, predation, and loss of nesting habitat to encroachment of non-native beachgrass and urban development. Human recreational activities, which tend to coincide with the nesting season, are key factors in the ongoing decline in breeding sites and populations (USFWS 2007).

Critical habitat for the western snowy plover was designated in 2005 (USFWS 2005). Critical habitat occurs within the proposed project area along the Eel River as part of Subunit CA 4D, Eel River Gravel Bars. This Subunit provides essential features for the species, including bare, open gravel bars comprised of both sand and cobble which support reproduction and foraging. This area supports the most important breeding habitat in California north of San Francisco Bay, having the highest fledging success rate of any area from Mendocino County to the Oregon border. Threats to this critical habitat include predators, off-highway vehicles, and disturbance from gravel mining and humans with dogs (USFWS 2005).

Potential adverse effects to western snowy plover would be limited to disturbance of nesting or foraging within suitable habitat on gravel bars and banks of the Eel River. Disturbance from noise and human activity during construction at the WWTP would not be anticipated to affect western snowy plovers that may occupy potential nesting and foraging habitat within the Eel River due to the distance and lack of "line of sight" between the construction areas and the suitable habitat in the Eel River. There would be no constructon within the Eel River or modification of critical habitat. Therefore, the proposed project would have no effect on the western snowy plover or its designated critical habitat within the proposed project area.

Eulachon

NMFS listed the Pacific eulachon (*Thaleichthys pacificus*) as threatened under the ESA in 2010 (NMFS 2010) and critical habitat was designated in 2011 (NMFS 2011). Critical habitat does not occur in the proposed project area.

The eulachon is a relatively small (up to 10 inches) anadromous fish that occurs only on the coast of northwestern North America, from northern California to southwestern Alaska (NMFS 2006b). They spawn mainly in the lower, tidally-influenced reaches of rivers, prior to the occurrence of full spring freshet. Although eulachon historically occupied the Eel River, the species is now considered likely to be extinct from the Eel River (Yoshiyama and Moyle 2010). Therefore, eulachon are not likely to occur in the proposed project area and would not be affected by the proposed project.

Green Sturgeon

The Northern distinct population segment (DPS) of North American green sturgeon (Acipenser medirostris) was listed as a threatened species in 2006 (NMFS 2006c) and critical habitat was designated in 2009 (NMFS 2009). Critical habitat does not occur in the proposed project area.

The Northern DPS includes all spawning populations of green sturgeon northward of and including the Eel River (i.e., the Klamath and Rogue river spawning populations) (NMFS 2006c). Green sturgeon are currently known to spawn in only three rivers: the Sacramento and Klamath rivers in northern California and the Rogue River in southern Oregon (Lindley et al 2008). The green sturgeon is known to forage in estuaries and bays ranging from San Francisco Bay to British Columbia (NMFS 2007c). Adults live in oceanic waters, bays, and estuaries when not spawning. The species may occur in estuaries from June through October (Moser and Lindley 2007). Based on a review by Yoshiyama and Moyle (2010), there are few recent records of green sturgeon in the Eel River. Therefore, green sturgeon are not likely to occur in the proposed project area and would not be affected by the proposed project.

Yellow-billed Cuckoo

The western yellow-billed cuckoo (*Coccyzus americanus*) was accorded candidate status in 2001 (USFWS 2001). Candidate species receive no statutory protection under the ESA. In California, breeding by yellow-billed cuckoos is primarily limited to the South Fork Kern and upper Sacramento Rivers (Laymon 1998). The species requires large blocks of riparian habitat, particularly cottonwood–willow riparian woodlands for breeding (USFWS 2001). Due to the limited riparian habitat within the proposed project area suitable for

yellow-billed cuckoo and the lack of known occurrences, this species is not likely to occur in the proposed project area and would not be affected by the proposed project.

4.4.3 Executive Order 13122, Invasive Species

Under EO 13112, actions that occur on federal lands or are federally funded must be "subject to the availability of appropriations, and within administration budgetary limits, use relevant programs and authorities to: (i) prevent the introduction of invasive species; (ii) detect and respond rapidly to, and control, populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; and (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded." Invasive species were identified within the proposed project area during the field visit, including Himalayan blackberry.

No Action Alternative

Under the no action alternative, there would be no impact on invasive species as current conditions would not change.

Proposed Project

Implementation of mitigation measures**,** as described in Section 5.4**,** would avoid the introduction or spread of invasive plant species in the proposed project area, Therefore, the City of Fortuna would be in compliance with E.O. 13122, Invasive Species.

4.5 Historic Properties and Archaeological Resources

A historic properties inventory report (confidential Appendix C) was prepared in support of the National Environmental Policy Act of 1970 (NEPA) and Section 106 of the NHPA. Historic properties include prehistoric and historic archaeological sites, districts, and objects; standing historic structures, buildings, districts, and objects; locations of important historic events; and Native American sites and cultural properties such as sites of traditional/cultural importance to various groups. A historic property is defined as any prehistoric or historic district, site, building, structure, or object listed in, or eligible for listing in, the National Register of Historic Places (NRHP).

The historic properties study included a literature search review of the area of potential effects (APE) and a 1-mile buffer around the APE and a systematic archaeological pedestrian surface survey of the APE. A literature search was requested from the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) located at Sonoma State University in Rohnert Park, California, on December 17, 2012. A systematic pedestrian archaeological survey was conducted on May 23, 2013,. No archaeological resources were observed.

FEMA initiated consultation with the State Historic Preservation Officer (SHPO) under Section 106 of the NHPA in a letter dated July 12, 2013 (see Appendix D). As of the date of this document, no response has been received.

As with any ground-disturbing project, there would be some theoretical potential for accidental discovery of buried archaeological resources not detected through a surface inventory. Mitigation measures are described in Section 5.5 to avoid impacts to accidentally discovered historic properties.

No Action Alternative

Under the no action alternative, there would be no impact on historic properties and archaeological resources as current conditions would not change.

Proposed Project

The conclusion of the study is that no historic properties would be affected by the proposed project. After a thorough assessment, no historic properties are present within the Fortuna Wastewater Treatment Plant Flood Protection Project survey area and the proposed project area is considered to have a low sensitivity for buried resources. As noted above, FEMA initiated consultation with the SHPO under Section 106 of the NHPA but as of the date of this document, no response from the SHPO has been received.

4.6 Socioeconomics and Public Safety

4.6.1 Executive Order 12898: Environmental Justice

EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, directs federal agencies to make achieving environmental justice part of its mission by identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. This Executive Order also requires that federal agencies ensure that public documents and notifications regarding environmental issues are concise, understandable, and readily accessible.

Table 3 shows data from the 2011 American Community Survey for the census tract that contains the proposed project site and the homes closest to the proposed project site. For comparison, the table shows corresponding data for the City of Fortuna as a whole and Humboldt County as a whole. The total minority population in the census tract is somewhat higher than in the city or county, but is less than 30 percent. The proposed project area does not qualify as an environmental justice population on the basis of minority status (CEQ, 1997, page 25).

Table 3
Demographic Data for the Proposed Project Area from the 2011 American Community Survey

Parameter	Humboldt County census tract 108	City of Fortuna	Humboldt County
Total population	4,564	11,480	129,365
Total minority population[1]	1,296	2,583	28,196
	28.4%	22.5%	21.8%
People over 25 with less than a high school education	347	815	8,740
	11.1%	10.7%	9.8%
People below poverty level	904	2,079	23,833
	19.8%	18.1%	18.4%
Median household income	$34,693	$37,532	$40,376
Median family income	$48,125	$48,467	$52,317
Households	1,729	4,459	53,724
Households in which a language other then English is spoken	251	570	5,452
	14.5%	12.8%	10.1%
Households in which no one at least 14 years old speaks English only or speaks English "very well"	21	42	536
	1.2%	0.9%	1.0%

[1]Persons not "white alone" plus Hispanics and Latinos who are "white alone."

Median household income is somewhat lower in the census tract than in the city or county as a whole. Median family income is slightly lower in the census tract, and the poverty rate is slightly higher. These differences are not large enough to qualify the proposed project area as an environmental justice population with respect to income.

In comparison to the city and county as a whole, the census tract containing the proposed project site has slightly higher percentages of people over 25 with less than a high school education, households in which a language other than English is spoken, and households in which no one at least 14 years old speaks English "very well." A language other than English is spoken in approximately 251 (14.5 percent) of the households in the census tract. However, only 21 households (1.2 percent) include no one over 14 who speaks English "very well," and are therefore considered linguistically isolated.

No Action Alternative

Under the no action alternative, there would be no impact on socioeconomics as current conditions would not change. However, flooding would be more likely under the no action alternative, with associated potential adverse impacts on public safety.

Proposed Project

The proposed project would not have a disproportionately high and adverse effect on minority or low-income people in the surrounding community, and complies with EO 12898.

4.7 Public Services and Recreation

No parks or recreational areas are in or adjacent to the proposed project area.

No Action Alternative

Under the no action alternative, there would be no impact on public services and recreation as current conditions would not change.

Proposed Project

With implementation of the mitigation measures described in Section 5.7, less than significant temporary impacts and no permanent adverse impacts to public services or recreation would occur.

4.8 Transportation

The proposed project consists of two facility improvements to protect the City's wastewater system during flood events. The first is to construct an earthen berm along the northwest and eastern portions of the plant and the second is to install a new treated effluent pump and drain pipe within the WWTP station. No long-term increases in traffic would occur.

No Action Alternative

Under the no action alternative, flooding would be more likely, with associated potential temporary adverse impacts on area transportation.

Proposed Project

Increases in traffic would occur during proposed project construction. The proposed project would generate short-term traffic during construction from transport of heavy construction equipment to and from the proposed project site, truck traffic associated with hauling construction components and materials to the site

and removal of debris, and construction workers commuting to and from the site. The temporary increase in traffic would be localized and temporary.

During proposed project construction, truck trips associated with delivery of materials and hauling away of soil and other construction debris would occur.. The trips would create a minor impact within the neighborhood immediately surrounding the proposed project area. However, the impact would be short-term, and once construction is completed, all short-term impacts associated with the proposed project would cease. With implementation of the mitigation measures described in Section 5.8, less than significant temporary impacts and no permanent adverse impacts to transportation are anticipated.

4.9 Noise

Noise in the proposed project area is mainly associated with traffic (particularly Highway 101) and operation of surrounding commercial and industrial uses. Noise-sensitive uses in the proposed project study area include residences across Highway 101, approximately 1000 or more feet from the proposed project site.

No Action Alternative

Under the no action alternative, there would be no impact on noise as current conditions would not change.

Proposed Project

Construction of the proposed project would temporarily increase noise in the immediate vicinity of the WWTP. The temporary noise increases would result from use of construction equipment to construct the berms and install the new treated effluent pumps, as well as from increased traffic as construction workers commute to and from the proposed project site. To prevent noise disturbance to the community, construction would be limited to 7 a.m. to 7 p.m. on weekdays and 9 a.m. to 6 p.m. on weekends and holidays. With implementation of mitigation measures described in Section 5.9, less than significant and no permanent adverse noise impacts are anticipated.

4.10 Visual Resources

The proposed project site is in a predominantly mixed land use area. The proposed project site sits alongside the Eel River and the Pacific Ocean is just to the west. Hilly and mountainous areas lie east of the site. Viewers of the proposed project site and the surrounding area are mostly visitors who view the area at relatively short distances.

No Action Alternative

Under the no action alternative, there would be no impact on visual resources as current conditions would not change.

Proposed Project

The proposed project would have a temporary effect on the visual aspects of the proposed project site and its surroundings during construction. Temporary construction activities would be visible from multiple viewing areas within the proposed project area.

Implementation of the proposed project would not significantly or permanently affect the visual quality or scenic nature of the proposed project site or its surroundings, particularly with implementation of mitigation measures described in Section 5.10.

4.11 Hazardous Materials

Hazardous materials include substances subject to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and the Toxic Substances Control Act (TSCA). The Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (RCRA), which was further amended by the Hazardous and Solid Waste Amendments, defines hazardous wastes, which are also hazardous materials. In general, hazardous materials are substances that, because of their quantity, concentration, physical, chemical, or infectious characteristics, may present substantial danger to public health or welfare or to the environment when released or otherwise improperly managed.

No Action Alternative

Under the no action alternative, conditions in the project area would remain the same. There would be no effects related to hazardous materials under the no action alternative.

Proposed Action

No impacts from offsite facilities or sites are anticipated because no Superfund sites, toxic release inventory sites, or hazardous waste facilities are within 1/4 mile of the wastewater treatment plant project site. According to EPA's EnviroMapper for Envirofacts, the closest hazardous materials site to the WWTP site is a hazardous waste collection facility approximately 0.3 miles from the site.

Implementation of the proposed action would involve the use of heavy equipment with some associated minor risk of spills of fuels, oils, or cleaning fluids. The application of mitigation measures for equipment use would avoid these effects and there would be no significant onsite impacts related to hazardous materials under the proposed action. Excavated soil and waste materials will be managed and disposed of in accordance with applicable local, state, and federal regulations. If contaminated materials are discovered during the construction activities, work will cease until the appropriate procedures and permits can be implemented. Any hazardous materials discovered, generated, or used during construction would be handled and disposed of in accordance with applicable local, state, and federal regulations.

4.12 Cumulative Impacts

Cumulative impacts are impacts to the environment that result from the incremental impact of the proposed project in combination with other past, present, and reasonably foreseeable future projects regardless of the person or agency that undertakes the other projects (40 CFR 1508.7).

The primary source for the cumulative impact analysis was the City of Fortuna General Plan 2030 Draft Programmatic Environmental Impact Report (PEIR). A summary of projections contained in the adopted land use plans of the communities in the planning area was used to analyze cumulative impacts in the PEIR and this EA.

The proposed project would result in temporary, construction-related impacts to visual resources, air quality, biological resources, geology and soils, hydrology and water quality, noise, socioeconomics and public safety, public services and recreation, and transportation and traffic. As described in each respective section of the EA, potential impacts related to these resources would not be substantial or adverse. There would be no long-term, operations-related impacts to any of the resource areas analyzed in this EA. Given the limited extent and short duration of temporary impacts during construction and the lack of long-term impacts during operations of the proposed project, the proposed project's contribution to cumulative impacts in combination with the cumulative impacts analyzed in the Fortuna General Plan 2030 Draft PEIR would be negligible and less than significant.

5. Mitigation Measures

5.1 Geology and Soils

The City of Fortuna will be responsible for implementing erosion protection measures including installing silt fences and mulching cleared soil to avoid or minimize soil erosion during construction. The City of Fortuna will be responsible for implementing permanent erosion control measures including revegetation with native species when construction is completed.

5.2 Air Quality

The City of Fortuna will be required to comply with the rules and standards of the North Coast Unified Air Quality Management District, including the following mitigation measures:

- Covering open-bodied trucks when transporting materials likely to generate airborne dust
- Covering soil stockpiles with tarps
- Watering exposed surfaces and haul roads three times daily during construction operations, grading of roads and land clearing
- Using aqueous diesel fuel in construction equipment, and
- Using diesel particulate filters in construction equipment

5.3 Water Resources

A Stormwater Pollution Prevention Plan (SWPPP) will be developed to outline Best Management Practices (BMPs) for controlling soil erosion and preventing the discharge of construction-related contaminants. BMPs will be monitored as specified in the SWPPP for successful implementation. BMPs to be implemented will be finalized with the final design, but will include the following:

Materials Management

- The City of Fortuna Contractor shall provide protected (covered) storage areas for any potentially toxic materials (concrete, herbicides, pesticides, fertilizer, grease, oils, fuel, paints, stains, solvents, wood preservatives, etc.). Ensure that these materials are protected from vandalism, and that all lids and covers are securely fastened. Clearly mark all hazardous material containers.
- Bags of mortar, concrete, or other supplies shall be placed on pallets and covered with tarps so that if precipitation does occur these materials will not be exposed to stormwater and become a stormwater pollutant.
- Minimize the production or generation of hazardous materials and wastes at the site. Do not allow them to accumulate on the ground. Schedule regular pick up of used materials by licensed waste haulers and ensure proper disposal.
- All hazardous material containers shall be placed in secondary containment. Ensure that adequate secondary containment volume is provided for hazardous materials and that they are located in areas on the site away from stormwater drains or watercourses. Segregate potentially hazardous waste from non-hazardous construction debris. Provide berms, if necessary, to prevent stormwater run-on from contacting the storage area. Also, provide containment berms in fueling and maintenance areas and where the potential for spills is high.

Waste Disposal

- The City of Fortuna Contractor shall provide waste receptacles for common solid wastes at convenient locations on the job site and provide regular collection of wastes, including building materials. Provide cover for receptacles or piles of waste prior to rain events. Not allowing crew to discard miscellaneous trash on the proposed project site.

Spill Prevention and Response

- The City of Fortuna Contractor shall make adequate preparations, including training personnel and providing equipment, to contain and/or clean up spills of oil and other hazardous materials. Ensure that adequate materials such as absorbents, berms, dry sweep shovels, brooms, and absorbent pads are on hand to clean up any accidental spill that may occur. Spills of hazardous materials can originate from fueling, equipment breaking down (such as hydraulic lines), material transfer operations, and other sources. Clean up such spills immediately and properly dispose of all wastes and used spill control materials.

Available Erosion Control Supplies

- The City of Fortuna Contractor shall ensure that sufficient erosion control supplies shall be available on site at all times to deal with areas susceptible to erosion during rain events. Materials will include plastic tarps, geo-fabric, woven coconut fronds, coir rolls/straw wattles, jute netting, erosion control matting, silt fencing, straw mulch or other suitable materials

Non-Stormwater Discharges

- Activities such as vehicle washing, bucket rinsing, paintbrush cleaning, etc. shall be carried out at an approved facility (i.e. car wash or interior sink), wherein the water is discharged into a sanitary sewer. Non-stormwater discharges will be eliminated or reduced to the extent feasible. The City of Fortuna Contractor shall designate a qualified person with the responsibility for ensuring that no materials other than stormwater are discharged in quantities, which will have an adverse effect on receiving waters or storm drain systems.

Sanitary Waste Management

- The City of Fortuna Contractor shall provide sanitary facilities of sufficient number and size to accommodate construction crews. Locate the sanitary facilities in a convenient location, but away from storm drain inlets and drainage facilities. Anchor the facilities sufficiently to prevent them from being blown over or tipped by vandals. Ensure that the facilities are maintained in good working order and emptied at regular intervals by a licensed sanitary waste hauler.

Vehicle and Equipment Fueling

- On-site vehicle and equipment fueling shall only be used where it's impractical to send vehicles and equipment off site for fueling. The City of Fortuna Contractor shall designate an area for equipment fueling and maintenance away from storm drain inlets or drainage channels. The fueling area shall be located on a paved surface (if practical) and shall be protected with berms to prevent run-on and run-off and contain spills. Secondary containment techniques such as drip pans or drop cloths shall be used when fueling to catch drips or leaks.

Vehicle and Equipment Cleaning

- Off-site commercial washing businesses are equipped to handle and dispose of wash water properly and are to be used for vehicle and equipment cleaning as much as possible. If vehicle and equipment washing and cleaning will occur on site and cannot be performed in a building equipped with sanitary sewer facilities, the outside cleaning area shall be located away from storm drain inlets and drainage facilities. The wash area shall be stabilized with aggregate base and bermed to prevent run-off and run-on. The drainage area shall be outfitted with a sump to allow for the collection and disposal of wash water. Wash water is not to be disposed of into storm drains or watercourses.

- The wash area shall be used as little as possible, while using the minimum amount of wash water and soaps necessary. Power washers tend to use less water and must be considered. Steam cleaning is not to be performed at any time. Cleaning solvents shall never to be used on-site.

Vehicle and Equipment Maintenance

- Perform vehicle maintenance off site whenever practical. The City of Fortuna Contractor shall coordinate with the City and designate the on-site vehicle and equipment maintenance areas away from storm drain inlets and watercourses. Locate the maintenance areas on paved surfaces if practical and protect the maintenance area from stormwater run-on and run-off.

- Properly dispose of used oils, fuels, and lubricants. Do not dump fuels or lubricants on the ground, place in dumpsters, or pour into storm drains or watercourses. Properly dispose of or recycle batteries and other waste products.

- Repair leaks of fluids and oil immediately. Place drip pans under vehicles with leaks while they are waiting repair and promptly empty drip pans into proper waste containers.

- Regularly inspect vehicles and equipment for leaks or potential leaks. Perform regularly scheduled preventative maintenance, preferably off site. Inspect the maintenance area regularly and clean up any spills or leaks immediately. Maintain an adequate supply of spill cleanup materials in the maintenance area at all times.

Site Stabilization and Seeding

- All areas of soil disturbance including cut or fill areas that are not paved shall be stabilized by seeding. Access areas where bare ground exists after construction will be hydroseeded. Seeding will be done at an adequate time to develop a uniform vegetative cover (70% or greater) before the seasonal rains begin. If this is not possible at the site due to the construction schedule of the project, the City of Fortuna Contractor shall implement temporary soil stabilization measures until the vegetative cover develops. The City of Fortuna Contractor shall consider measures such as: covering with mulch, temporary seeding/vegetation, soil stabilizers, binders, fiber rolls, blankets, or permanent seeding.

- Seeding and mulching shall be done as soon as grading operations are completed. Proper and timely attention shall be taken to avoid erosion. Erosion control and seed establishment can be enhanced with the use of surface roughening followed by seeding and mulching.

Dust Control

- The occurrence of windy days may also require water to be sprayed onto exposed surface areas for dust control. These areas could include dirt roads, soil disposal areas, or other graded surfaces. Care

must be taken not to create run-off from the application of excessive quantities of water, or to increase vehicle track-out of sediment from this activity.

Stockpiled Soils

- The City of Fortuna Contractor shall work with the Owner to designate an area to be used for stockpiled soils. Trench spoils generated during utility installation and other activities will be securely stockpiled at the site. In the event of rain, care shall be taken to prevent erosion and sediment transport from stockpiled areas. Stockpiles will be securely covered and placed away from drainage channels, preferably in areas with some natural vegetation in place. Silt fences shall be installed around the soil stockpile areas in the event of extended heavy rainfall. Uncovered soil stockpiles are to be wetted as needed during windy days to prevent wind erosion.

Silt Fences

- Prior to construction, after a preconstruction survey has taken place, silt fences shall be installed around wetlands 1 and 2 and to protect the riparian habitat located along the berm action area, as shown on the drawings, to reduce sediments or impacts to habitat or sensitive species in these locations. Silt fences are to be placed along a level contour except at the ends, which will be returned uphill in a "J" hook formation to prevent water and sediment from flowing around the fence.

- The silt fencing shall be maintained throughout construction. Repair undercut fences and repair or replace split, torn, slumping, or weathered fabric. Remove and properly dispose of sediment when it reaches one-third of the fence height. Silt fences shall not be removed until the area draining to the silt fence has stabilized and approved by the Owner, and accumulated materials have been removed. Fill and compact post holes, anchorage trench and grade fence alignment to blend with adjacent ground.

5.4 Biological Resources

The City of Fortuna will be responsible for implementing the following mitigation measures as part of the proposed project to avoid or minimize effects to biological resources.

Scheduling Work

- Proper sequencing of construction activities to reduce erosion potential will be incorporated into the schedule of the construction project especially during rainy season. This proposed project is scheduled to be constructed in the summer season with all work completed prior to the onset of the rainy season, which begins on October 15th. When rainfall is forecast, the construction schedule is to be adjusted to allow the implementation of erosion and sediment controls on all disturbed areas prior to the onset of rains.

Minimize Earthmoving and Vegetation Removal

- Vegetation removal, grading, and other construction activities shall be restricted to the minimum area necessary to complete the proposed project.

Pre-Construction Survey and Avoidance of Habitats

- Disturbance limits will be clearly defined and identified to prevent damage to existing riparian, wetland, or rare plant habitats; and for sensitive wildlife.

- Before project implementation, a preconstruction survey will take place to ensure no adverse impacts will occur to special status plants, wildlife or avian species that may be using the riparian habitat, slated for trimming. Loose bark and cavities within trees will be carefully evaluated. Wildlife exclusion fencing will be erected to protect good quality habitat including existing riparian habitat, protected species and wetlands.

- Temporary impacts accrued from trimming riparian vegetation and the removal of scrub shrub shall be mitigated through revegetation activities with native species.

- Workers assisting with vegetation clearing will be taught how to best avoid adjacent native plants.

- Exclusionary fencing and/or flagging will be erected to alert crews to the presence of sensitive habitat and rare plant populations to serve as a protection feature to alert crews.

Vegetation Removal

- Construction access routes and equipment staging areas shall be limited to the project area.

- The City of Fortuna Contractor shall install temporary construction fencing to identify areas of riparian particularly along the berm area and wetland areas of protection.

- All tree timing and/or removal areas identified on the drawings shall be clearly flagged/marked in the field. Native trees will be protected as much as possible. Following a pre-construction survey to verify that no sensitive species are at risk, trees shall be removed using conventional logging methods. Crews shall stay within designated work areas. The City of Fortuna Contractor shall avoid felling trees or shrubs into or across creeks, as well as into wetland areas. Tree removal shall not change the original ground surface. Trees and debris shall be removed from the site. Offsite reuse options are possible if allowable per ordinances and regulations, such as donated firewood, or chipping for mulch, compost, biomass power generation, etc. Any forest product materials (including but not limited to logs, chipped debris, etc.) leaving property shall have a non-commercial end use unless outlined in a City approved Timber Harvesting Plan. At the completion of tree removal activities, all boles, limbs, and bark shall be removed from the site by methods appropriate for the area.

Post-Construction Restoration of Disturbed Areas

- Native vegetation that is removed or damaged at access ways and within the construction areas shall be replaced under a re-vegetation plan. Trees greater than four inches (4") Diameter at Breast height (DBH) will be replaced in-kind using a 2:1 ratio. Small scrub material will be replaced in-kind using a 1:1 ratio.

Avoidance of Spread of Invasive Plant Species

- Require inspection and cleaning of all equipment. City of Fortuna Contractor shall clean all equipment prior to use onsite, including chainsaws, hand tools, and personal equipment (boots, clothing, personal vehicles), the construction monitor shall inspect for absence of vegetation debris, invasive plant, or soil before allowing equipment onsite. If working in wetlands, all equipment will be treated with a weak bleach scrub and freshwater rinse prior to use in order to avoid the spread of chytrid fungus, and other organisms.

- Establish a cleaning area for vehicles and equipment moving between known infested and uninfected areas. The cleaning area shall be established within the staging area and should be

cleared of invasive plants prior to construction work. Once the area is cleared of invasive plants it shall be monitored throughout the duration of project implementation so that new infestations can quickly be eradicated.

- The cleaning area will consist of an excavated depression (usually placed in the road surface or a pull-out), lined with Tyvek and filled with clean gravel or a metal "Rumble Strip". All vehicles will be required to wash, or "broom" vehicles to remove dirt and debris from the undercarriage, tires, bed, bumper etc. of vehicles, and to cover loads before entering and exiting the treatment area. Pressure washing with clean water is preferred if access to water can be provided. If water is unavailable, manual cleaning will be required. Following completion of the proposed project, the cleaning area will be removed, dispose of properly, and the site restored to natural conditions.

- Keep vehicles on existing road surface or access routes. The City of Fortuna Contractor shall not park in infested areas, or park on or drive over known sites of invasive plants.

Wetland Protection

- The City of Fortuna Contractor will be responsible for avoiding the wetlands during construction activities. The City of Fortuna Contractor will install silt fencing around perimeter of wetlands at a minimum of 6 inches away from wetland boundary and 10 feet away wherever possible around the wetland perimeter.

Protection of Nesting Birds

- The breeding and nesting season occurs from March 1-August 15. If construction activities are proposed during the breeding and nesting season (March 1-August 15) preconstruction site-specific surveys by a qualified biologist shall be performed prior to project construction, as further described below.

- Nesting surveys shall be conducted no more than one week prior to the initiation of site preparation.

- If surveys identify active nests belonging to common migratory bird species, a 100-foot exclusion zone shall be established around each nest to minimize disturbance-related impacts on nesting birds.

- If surveys identify active nests belonging to special status birds, an interim no-activity zone of 300 feet shall be established around the nest.

- If surveys identify active nests belonging to raptors, an interim no-activity zone of 500 feet shall be established around the nest.

- If there is a break of at least five days in construction activities during the nesting season, an additional nesting bird survey shall be conducted to ensure that no birds have occupied nests during the pause in construction activity.

5.5 Historic Properties and Archaeological Resources

If historic properties or archaeological resources or materials are discovered during ground-disturbing activities, the work near the discovery shall cease, and the area will be protected until the find can be evaluated by a Secretary of the Interior-qualified archaeologist.

California Health and Safety Code Section 7050.5 states that if human remains are encountered, the County Coroner shall be notified immediately and no further disturbance shall occur until the County Coroner has

made a determination of origin and disposition pursuant to PRC Section 5097.98. If the remains are determined to be Native American, the County Coroner shall notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant (MLD). With the permission of the landowner or his or her authorized representative, the MLD may inspect the site of the discovery. The MLD will complete the inspection within 48 hours of notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

5.6 Socioeconomics and Public Safety

The City of Fortuna will be responsible for implementation of the following measures to protect the health and safety of the community surrounding the proposed project site during the proposed project:

- The work area and other public hazards will be barricaded and properly marked.
- Construction vehicles traveling through the area will maintain legal and safe speeds.

5.7 Public Services and Recreation

All public utility and service providers will be notified in advance of the construction and the City will work with such service providers to prevent any disruption of services during construction. The City of Fortuna will be responsible for ensuring that any affected residents are notified well in advance of any disruption to utility services.

5.8 Transportation

The City of Fortuna will be responsible for implementing the following measures to minimize the potential short-term impacts to transportation in the proposed project area during construction:

- No public traffic routes shall be fully blocked at any time.
- Workers shall park their privately owned vehicles at designated locations to reduce traffic impacts.
- Temporary parking advisory signs shall be posted at least 24 hours, but no more than 48 hours, in advance of construction.
- Haul routes shall be utilized by construction trucks to minimize truck traffic on local roadways to the extent possible. When necessary, flaggers and/or signage to guide vehicles through and/or around the construction zone shall be utilized.
- Truck trips shall be scheduled outside of peak morning and afternoon commute periods to the extent possible.
- The City of Fortuna shall be responsible for ensuring that any affected residents are notified well in advance of any disruption to the transportation infrastructure.

5.9 Noise

The City of Fortuna will be responsible for implementation of the following measures to reduce noise and vibration in the community surrounding the proposed project area during construction of the proposed project:

- To reduce noise from construction equipment, the City of Fortuna Contractor shall insure that equipment mufflers are in good working condition.

- To prevent noise disturbance to the community, construction will be limited to 7 a.m. to 7 p.m. on weekdays and 9 a.m. to 6 p.m. on weekends and holidays.

5.10 Visual Resources

The City of Fortuna will be responsible for implementing mitigation measures to address potential short-term and long-term impacts to visual resources. The measures will include but are not limited to the following:

- Contouring of finished surfaces to blend with adjacent natural terrain where appropriate
- Replacing vegetation removed from the proposed project area during construction with native vegetation

Maintaining replacement native vegetation until it is well established.

5.11 Hazardous Materials and Wastes

Hazardous materials used in construction will be handled in accordance with state and local ordinances and regulations that govern such materials.

6. Public Participation and Coordination

The public will be notified of the availability of this Draft EA through the FEMA website and publication of a public notice in a local newspaper. During the public comment period, FEMA will accept written comments on the Draft EA addressed to Donna M. Meyer, DREO, FEMA Region IX Environmental and Historic Preservation office, 1111 Broadway, Suite 1200, Oakland, California 94607 or donna.meyer@fema.dhs.gov.

At the end of the comment period, FEMA will review the comments and consider them in its preparation of a Final EA and its determination of either a finding of no significant impact (FONSI) or a finding that an environmental impact statement will be prepared. FEMA will publish the Final EA and finding on its website and the finding only in a local newspaper.

7. Irreversible Or Irretrievable Commitment of Resoureces and Short-Term Uses of the Environment and Mainteance and Enhancement of Long-Term Productivity

7.1 IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES

The no action alternative would not require the commitment of resources. However, continued flooding risk and its potential to damage critical public facilities with resulting loss of resources would remain in the proposed project area.

The proposed project would require the commitment of resources. The expenditure of labor for this alternative would occur predominantly during construction. However, maintenance would occur throughout the life of the alternative. Funding for the proposed project would not be available for other uses and would therefore be irretrievable.

Nonrenewable and irretrievable fossil fuel use by construction equipment would be required. Labor and materials would also be irretrievably committed during proposed project construction. However, the

proposed project would not require a large amount of these materials, the materials are commonly available, and their use would not result in a material impact on the availability of these resources.

Although the proposed project would result in the commitment of resources as described above, The proposed project would reduce the risk of loss to critical facilities and property in the proposed project area.

7.2 SHORT-TERM USES OF THE ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The proposed project would require short-term uses of the environment, as documented in Sections 4.1 through 4.12. However, the uses of the environment would be offset by the long-term reduction in the risk of flooding and resulting damage to facilities. The drainage improvements would enhance the long-term productivity of resources by reducing flooding risks.

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9. List of Preparers

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Gloriella Cardenas, Historic Properties
Gwen Pelletier, Air Quality

APPENDIX A—Eight-Step Decisionmaking Document

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Floodplain Management and Protection of Wetlands
Summary of 8-Step Decision-Making Process
City of Fortuna Wastewater Treatment Plant Flood Protection Project
FEMA-1884-DR-CA

The Department of Homeland Security's Federal Emergency Management Agency (FEMA) proposes to provide Federal financial assistance, through the Governor's Office of Emergency Services (Cal OES), to the City of Fortuna Department of Public Works (subapplicant) for construction of flood control improvements to protect the City's Wastewater Treatment Plant (WWTP), located in Fortuna, California, during flood events. The assistance would be provided through the Hazard Mitigation Grant Program. This document is a summary of the results of the Eight-Step Decision-Making Process that was completed for the proposed project in compliance with Executive Order (EO) 11988 (Floodplain Management), EO 11990 (Protection of Wetlands), and 44 CFR Part 9 (Floodplain Management and Protection of Wetlands).

The proposed project would increase flood protection by constructing improvements at the WWTP, which is located within the FEMA 100-year floodplain and subject to flooding. In addition, when surface elevation of Strongs Creek reaches 38.6 feet AMSL (11-year flood), it is no longer possible to discharge effluent via gravity to the outfall at Strongs Creek. During such flood events, wastewater backs up into the collection system and onto the plant grounds, and has the potential to reach surrounding surface waters. By providing increased flood protection, the proposed project would avoid potential release of untreated wastewater to surface water. The WWTP serves approximately 11,000 residential, commercial, and institutional users within the City of Fortuna and the Rohnerville-Campton Heights Area. The proposed flood protection project would benefit all the system wastewater customers and protects the WWTP up to the 100-year flood event.

The proposed project entails the construction of the following improvements at the City of Fortuna WWTP:

a) An earthen berm around the northwestern portion of the WWTP where existing ground elevations are less than the 100-year flood elevation. The height of the existing berm around the southern and southeastern portion of the WWTP would also be increased where existing ground elevations are less than the 100-year flood elevation.

b) A new treated effluent pump station (with four emergency effluent pumps) within the WWTP grounds to allow effluent disposal during flood conditions when the effluent can no longer flow by gravity. The pump discharge would be tied into the existing 16-inch effluent outfall to Strongs Creek; and

c) modifications to existing piping within the WWTP.

A new flood protection berm would be constructed around the northwestern portion of the WWTP such that the top of the berm would be 43.5 feet, allowing for 1 foot of freeboard at the 100-year flood elevation, which is 42.5 feet. In addition, the height of the existing berm located along the treatment ponds in the southern and eastern perimeter of the WWTP would be raised from 39.6 feet to 43.5 feet. The proposed berms would be 10 feet wide and require between 2 to 6 feet of additional fill to raise the elevation to 43.5 feet. The 30% design plans indicate that Section 1 (along the northern portion of the site) would be approximately 493 feet in length and approximately 1,318 cubic yards in volume and Section 2 (along the eastern and southern edge of the site) would be 1,417 feet in length and approximately 4,200 cubic yards in additional volume. The total length of both berms would be 1,910 feet and approximately 5,518 cubic yards of total added soil volume.

The proposed emergency effluent pumps would be installed below grade in a new wet well constructed inline with the existing 16" finished effluent line between the existing chlorine contact basin and the outfall to Strongs Creek. Under normal operating conditions, flow from the chlorine contact basin enters a transfer structure, which provides treated effluent to the plant recycled water station or allows water to be discharged via gravity to either percolation ponds on the Eel River (during dry months) or to Strongs Creek (during high river flow periods). The pumps would be designed to supply pressure to the existing 16-inch, 90-foot effluent pipeline to allow the WWTP to discharge to Strongs Creek during flood events. The pump station would operate in three stages as each of three pumps in series is turned on, allowing the pump station to operate under various head and flow conditions. One pump would be kept in the lag position for redundancy.

In addition to addressing the WWTP's ability to discharge treated effluent, the proposed pump station could be used to discharge water from the existing storage ponds if these ponds are close to overflowing several piping modifications would be needed to assure the full effluent flows can be pushed through the system. The proposed project includes increasing the pipe size between the headworks and the primary clarifiers and between the aeration basins and the secondary clarifier to allow the full peak flows to make it through the entire treatment train.

The results of the Eight-Step Decision-Making Process are summarized below.

Step 1. *Determine whether the proposed action is located in a wetland and/or the 100-year floodplain (500-year floodplain for critical actions); and whether it has the potential to affect or be affected by a floodplain or wetland.*

Floodplains

The project area is located in the 100-year floodplain, and therefore has the potential to affect the floodplain. FEMA Firm Map 060063 001 B, which has an effective date of

May 3, 1982, indicates that the project area is in Zone A7 (now called Zone AE). Zone A7 is defined as an area having a 1% probability of flooding every year (the 100-year floodplain), and where predicted flood water elevations above mean sea level have been established.

Wetlands

Three water treatment ponds are mapped by the National Wetlands Inventory (NWI) as palustrine, emergent, persistent, unconsolidated bottom, permanently flooded, excavated wetlands (PEM1/UBHx). One of these ponds supports emergent freshwater marsh vegetation dominated by cattails, while the other two ponds are largely devoid of vegetation. Wetlands may also exist along the Eel River, approximately 200 feet to the west of the treatment ponds.

Construction of the proposed project would not result in disturbance or fill within these potential wetland areas. However, the proposed project would increase the height of the existing berm located along the southern and eastern perimeters of the treatment ponds from 39.6 feet to 43.5 feet, requiring approximately 1,008 cubic yards in additional soil volume. During construction of the berm, there could be indirect impacts to potential wetland areas from erosion. Therefore, there could be impacts to potential wetlands from the proposed project.

Step 2. *Notify the public at the earliest possible time of the intent to carry out an action in a floodplain or wetland, and involve the affected and interested public in the decision-making process.*

FEMA published a cumulative Initial Public Notice that included information about FEMA's intent to carry out actions in or affecting the floodplain and potential wetland areas. To FEMA's knowledge, no comments were received in response to the Initial Public Notice.

Step 3. *Identify and evaluate practicable alternatives to locating the proposed action in a floodplain or wetland (including alternative sites, actions and the "no action" option). If a practicable alternative exists outside the floodplain or wetland FEMA must locate the action at the alternative site.*

The subapplicant considered other alternatives in addition to the no action alternative to address flooding at the WWTP, including relocating the facility and dry proofing the site. Due to the nature of the facility and existing investment at the site, it is not possible to relocate the facility. Dry proofing would still require the new pump and would not address minor damage to the site and clean up costs during floods. An initial cost evaluation showed dry proofing would not be a less costly project. Under the no action alternative, major equipment within the WWTP would remain subject to damage at the 100-year flood event, which could result in loss of function of the plant. During such an event, untreated wastewater could back up in the collection system and be discharged to

surface water, threatening public health and the environment. There are no other practicable alternatives that would reduce the hazard of flooding at the WWTP. Based on this information, FEMA determined that the only practicable alternative is the proposed project.

Step 4. *Identify the potential direct and indirect impacts associated with the occupancy or modification of floodplains and wetlands and the potential direct and indirect support of floodplain and wetland development that could result from the proposed action.*

Floodplains

There is no proposed work as part of the project that would change the water surface elevations or would alter the delineation of the adjacent surface waters. Therefore, there would be no impacts to the floodplain.

Wetlands

During construction, best management practices (BMPs) would be implemented to avoid erosion and sedimentation to protect these potential wetland areas as well as adjacent surface waters of Rohner Creek, Strongs Creek, and the Eel River. Erosion control measures would be applied to all exposed areas during construction, including the placement of barriers, such as silt fences or fiber rolls, to prevent runoff to surface waters. Restoration of disturbed soil areas would occur through hydroseeding. Therefore, there would be no impacts to wetlands.

Step 5. *Minimize the potential adverse impacts and support to or within floodplains and wetlands to be identified under Step 4, restore and preserve the natural and beneficial values served by floodplains, and preserve and enhance the natural and beneficial values served by wetlands.*

As described in Step 4, the proposed action would not result in adverse impacts to the floodplain or wetlands.

Step 6. *Reevaluate the proposed action to determine first, if it is still practicable in light of its exposure to flood hazards, the extent to which it will aggravate the hazards to others, and its potential to disrupt floodplain and wetland values and second, if alternatives preliminarily rejected at Step 3 are practicable in light of the information gained in Steps 4 and 5. FEMA shall not act in a floodplain or wetland unless it is the only practicable location.*

As described in Step 3, there are no practicable alternatives to the proposed action. The proposed action would not result in adverse impacts to the floodplain or wetlands.

Step 7. *Prepare and provide the public with a finding and public explanation of any final decision that the floodplain or wetland is the only practicable alternative.*

Floodplains and Wetlands

The subapplicant will publish a Final Public Notice for the proposed action in in a local newspaper. The notice will include a description of the actions that would occur within the 100-year floodplain and within wetlands and an explanation of why the proposed action was the only practicable alternative.

Step 8. *Review the implementation and post-implementation phases of the proposed action to ensure that the requirements are fully implemented. Oversight responsibility shall be integrated into existing processes.*

The subapplicant would be responsible for overseeing the implementation and post-implementation phases of the proposed action, including BMPs and restoration of disturbed soil areas.

APPENDIX B—Biological Assessment and USFWS/NMFS Consultation Letters

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U.S. Department of Homeland Security
Region IX
1111 Broadway, Suite 1200
Oakland, CA 94607-4052

FEMA

October 30, 2013

Ms. Ann Garrett
NOAA
National Marine Fisheries Service
1655 Heindon Road
Arcata, CA 95521

Subject: FEMA-1884-DR-CA, HMGP #1884-05-05
Subapplicant: City of Fortuna, CA

Dear Ms. Garrett:

The City of Fortuna, CA has applied to the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) for funding of a wastewater treatment plant flood protection project in Fortuna, Humboldt County, California. The proposed project would provide flood protection to the City's wastewater treatment plant by constructing a berm around portions of the plant site and by constructing a treated effluent pump station. FEMA is proposing to fund the project through the Hazard Mitigation Grant Program (HMGP) under Presidential disaster declaration FEMA-1884- DR-CA pursuant to Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 (42 U.S. Code [U.S.C.] § 5170c) and FEMA's implementing regulations: Title 44 Code of Federal Regulations § 206.

All federal agencies are required under Section 7(a) (2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (ESA), to consult with the National Marine Fisheries Service (NMFS) to ensure that any action authorized, funded or carried out by the agency is not likely to jeopardize the continued existence of any endangered or threatened species under NMFS's jurisdiction, or result in the destruction or adverse modification of designated critical habitat. This letter, supported by the enclosed Biological Assessment, serves as FEMA's request to initiate informal consultation with NMFS under Section 7(a) (2) of the ESA.

As described in the enclosed Biological Assessment, FEMA has determined that the proposed action may affect, but is not likely to adversely affect, the following ESA-listed species and their designated critical habitat: Southern Oregon/ Northern California coho salmon (*Oncorhynchus kisutch,* Northern California steelhe*ad (Oncorhyncus mykiss),* and California coastal Chinook salmon (*Oncorhynchus tshawytscha).* FEMA requests your concurrence with the "not likely to adversely affect" determination pursuant to Section 7 and 50 CFR Part 402.

If you have any questions or require any additional information please do not hesitate to contact me a donna.meyer@fema.dhs.gov or (510) 627-7728.

Sincerely,

Donna M. Meyer, CEM/HPS
Deputy Regional Environmental Officer

Enclosure

U.S. Department of Homeland Security
Region IX
1111 Broadway, Suite 1200
Oakland, CA 94607-4052

FEMA

October 30, 2013

Ms. Kathleen Brubaker
Supervisory Fish and Wildlife Biologist
Arcata Fish and Wildlife Office
U.S. Fish and Wildlife Service
Arcata Field Office
1655 Heindon Road
Arcata, CA 95521

Subject: FEMA-1884-DR-CA, HMGP #1884-05-05
Subapplicant: City of Fortuna, CA

Dear Ms. Brubaker:

The City of Fortuna, CA has applied to the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) for funding of a wastewater treatment plant flood protection project in Fortuna, Humboldt County, California. The proposed project would provide flood protection to the City's wastewater treatment plant by constructing a berm around portions of the plant site and by constructing a treated effluent pump station. FEMA is proposing to fund the project through the Hazard Mitigation Grant Program (HMGP) under Presidential disaster declaration FEMA-1884- DR-CA pursuant to Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 (42 U.S. Code [U.S.C.] § 5170c) and FEMA's implementing regulations: Title 44 Code of Federal Regulations § 206.

All federal agencies are required under Section 7(a) (2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (ESA), to consult with the U.S. Fish and Wildlife Service (Service) to ensure that any action authorized, funded or carried out by the agency is not likely to jeopardize the continued existence of any endangered or threatened species under the Service's jurisdiction, or result in the destruction or adverse modification of designated critical habitat. This letter, supported by the enclosed Biological Assessment, serves as FEMA's request to initiate informal consultation with the Service under Section 7(a) (2) of the ESA.

As described in the enclosed Biological Assessment, FEMA has determined that the proposed project action may affect, but is not likely to adversely affect, the following ESA-listed species and its designated critical habitat: Western snowy plover (*Charadrius alexanddrinus*

nivosus). FEMA requests your concurrence with the "not likely to adversely affect" determination pursuant to Section 7 and 50 CFR Part 402.

FEMA understands the proposed project site is located in the Pacific Flyway and that several species of migratory birds pass through or use areas within the proposed project action area. FEMA will through the grant conditions, notify the Grantee of their responsibilities pursuant to the Migratory Bird Treaty Act and require the Grantee to consult with the Service regarding the proposed project's potential to impact migratory birds. The grant will be conditioned such that construction activities occurring between March 1 and August 15 will require a site-specific preconstruction survey by a qualified biologist prior to project construction and that a qualified biologist will be retained by the City to conduct a nesting survey for migratory birds within one (1) week of commencing construction at any of the project site.

If you have any questions or require any additional information please do not hesitate to contact me a donna.meyer@fema.dhs.gov or (510) 627-7728.

Sincerely,

Donna M. Meyer, CEM/HPS
Deputy Regional Environmental Officer

Enclosure

Biological Assessment
City of Fortuna Wastewater Treatment Plant Flood Protection Project City of Fortuna, California

Section 1 Introduction

Under Section 7 of the Endangered Species Act (ESA), federal agencies are required to ensure that their actions do not jeopardize federally listed species or their habitats. The purpose of this Biological Assessment (BA) is to review the proposed flood protection project (proposed project and Federal action) in sufficient detail to determine if it may affect any federally listed threatened, endangered, or candidate fish, plant, or wildlife species and designated critical habitat.

1.1 Project Proponent and Federal Nexus

The City of Fortuna has applied, through the Governor's Office of Emergency Services (Cal OES), for FEMA funding assistance to protect the City's wastewater system during flood events. As a federal agency, and project proponent, FEMA is required to coordinate with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) on decisions that may affect listed species under Section 7 of the ESA. The proposed project would also require an Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA).

1.2 Project Purpose

The purpose of the proposed project is to improve flood protection by constructing improvements at the City of Fortuna's Wastewater Treatment Plant (WWTP). The WWTP is located within the FEMA 100-year floodplain and subject to flooding. In addition, when surface elevation of Strongs Creek reaches 38.6 feet (11-year flood), it is no longer possible to discharge effluent via gravity to the outfall at Strongs Creek. During such flood events, wastewater backs up into the collection system and onto the plant grounds, and has the potential to reach surrounding surface waters. By providing improved flood protection, the proposed project avoids potential release of untreated wastewater to surface water. The WWTP serves approximately 11,000 residential, commercial, and institutional users within the City of Fortuna and the Rohnerville-Campton Heights Area. The proposed flood protection project benefits all the system wastewater customers and protects the WWTP up to the 100-year flood event.

1.3 Project Location and Setting

The proposed project is located in the City of Fortuna, Humboldt County, California (Figure 1). Land use in the project vicinity includes residential, commercial, light industrial, and agricultural uses along with municipal use at the WWTP itself. The proposed project area includes Rohner Creek, Strongs Creek, and the Eel River. The mountains of the northwestern Coast Ranges of California lie northeast of Fortuna and include the 7,472-acre Bureau of Land Management (BLM) Headwaters Forest Reserve, located approximately four miles northeast of Fortuna (Figure 1).

1.4 Project Description

The proposed project entails the construction of the following improvements at the City of Fortuna WWTP:

a) An earthen berm around the northwestern portion of the WWTP where existing ground elevations are less than the 100-year flood elevation. The height of the existing berm around the southern and southeastern portion of the WWTP would also be increased where existing ground elevations are less than the 100-year flood elevation.

b) A new treated effluent pump station (with four emergency effluent pumps) within the WWTP grounds to allow effluent disposal during flood conditions when the effluent can no longer flow by gravity. The pump discharge would be tied into the existing 16-inch effluent outfall to Strongs Creek; and

c) modifications to existing piping within the WWTP.

A new flood protection berm would be constructed around the northwestern portion of the WWTP such that the top of the berm would be 43.5 feet, allowing for 1 foot of freeboard at the 100-year flood elevation, which is 42.5 feet. In addition, the height of the existing berm located along the treatment ponds in the southern and eastern perimeter of the WWTP would be raised from 39.6 feet to 43.5 feet. The proposed berms would be 10 feet wide and require between 2 to 6 feet of additional fill to raise the elevation to 43.5 feet. The 30% design plans indicate that Section 1 (along the northern portion of the site) would be approximately 493 feet in length and approximately 1,318 cubic yards in volume and Section 2 (along the eastern and southern edge of the site) would be 1,417 feet in length and approximately 4,200 cubic yards in additional volume. The total length of both berms would be 1,910 feet and approximately 5,518 cubic yards of total added soil volume.

The proposed emergency effluent pumps would be installed below grade in a new wet well constructed inline with the existing 16" finished effluent line between the existing chlorine contact basin and the outfall to Strongs Creek. Under normal operating conditions, flow from the chlorine contact basin enters a transfer structure, which provides treated effluent to the plant recycled water station or allows water to be discharged via gravity to either percolation ponds on the Eel River (during dry

months) or to Strongs Creek (during high river flow periods). The pumps would be designed to supply pressure to the existing 16-inch, 90-foot effluent pipeline to allow the WWTP to discharge to Strongs Creek during flood events. The pump station would operate in three stages as each of three pumps in series is turned on, allowing the pump station to operate under various head and flow conditions. One pump would be kept in the lag position for redundancy.

In addition to addressing the WWTP's ability to discharge treated effluent, the proposed pump station could be used to discharge water from the existing storage ponds if these ponds are close to overflowing several piping modifications would be needed to assure the full effluent flows can be pushed through the system. The proposed project includes increasing the pipe size between the headworks and the primary clarifiers and between the aeration basins and the secondary clarifier to allow the full peak flows to make it through the entire treatment train.

Proposed improvements are shown in Figure 2, Proposed Project Areas. The proposed project is planned to be constructed in 2014. Construction would take approximately 3 to 6 months and would be conducted by a contractor to the City of Fortuna. Prior to construction, the City would apply for permits from the California Department of Fish and Game, U.S. Army Corps of Engineers, and North Coast Regional Water Quality Control Board.

1.5 Avoidance and Minimization Measures

Mitigation measures will be implemented as part of the proposed project to avoid or minimize effects to federally listed species and their habitats.

Scheduling Work

- Proper sequencing of construction activities to reduce erosion potential shall be incorporated into the schedule of the proposed construction project especially during rainy season. The proposed project is scheduled to be constructed in the summer season with all work completed prior to the onset of the rainy season, which begins on October 15th. When rainfall is forecast, the construction schedule is to be adjusted to allow the implementation of erosion and sediment controls on all disturbed areas prior to the onset of rains.

Minimize Earthmoving and Vegetation Removal

- Vegetation removal, grading, and other construction activities shall be restricted to the minimum area necessary to complete the proposed project.

Pre-Construction Survey and Avoidance of Habitats

- Disturbance limits shall be clearly defined and identified to prevent damage to existing riparian, wetland, or rare plant habitats; and for sensitive wildlife.

- Before project implementation, a preconstruction survey shall take place to ensure no adverse impacts would occur to special status plants, wildlife or avian species

that may be using the riparian habitat, slated for trimming. Loose bark and cavities within trees shall be carefully evaluated. Wildlife exclusion fencing will be erected to protect good quality habitat including existing riparian habitat, protected species and wetlands.

- The migratory bird breeding and nesting season occurs from March 1-August 15. If construction activities are proposed during the breeding and nesting season (March 1-August 15) preconstruction site-specific surveys by a qualified biologist must be performed prior to project construction, as further described below.

    - Nesting surveys shall be conducted no more than one week prior to the initiation of site preparation. If surveys identify active nests belonging to common migratory bird species, a 100-foot exclusion zone shall be established around each nest to minimize disturbance-related impacts on nesting birds. If surveys identify active nests belonging to special status birds, an interim no-activity zone of 300 feet shall be established around the nest. If surveys identify active nests belonging to raptors, an interim no-activity zone of 500 feet shall be established around the nest.

    - If there is a break of at least five days in construction activities during the nesting season, an additional nesting bird survey shall be conducted to ensure that no birds have occupied nests during the pause in construction activity.

- Temporary impacts accrued from trimming riparian vegetation and the removal of scrub shrub shall be mitigated through revegetation activities with native species.

- Workers assisting with vegetation clearing shall be taught how to best avoid adjacent native plants.

- Exclusionary fencing and/or flagging shall be erected to alert crews to the presence of sensitive habitat and rare plant populations to serve as a protection feature to alert crews.

<u>Vegetation Removal</u>

- Construction access routes and equipment staging areas shall be limited to the project area.

- The City of Fortuna Contractor shall install temporary construction fencing to identify areas of riparian habitat, particularly along the berm area and areas of wetland protection.

- All tree timing and/or removal areas identified on the drawings shall be clearly flagged/marked in the field. Native trees will be protected as much as possible. Following a pre-construction survey to verify that no sensitive species are at risk, trees shall be removed using conventional logging methods. Crews shall stay within designated work areas. The City of Fortuna Contractor shall avoid felling trees or shrubs into or across creeks, as well as into wetland areas. Tree removal shall not change the original ground surface. Trees and debris shall be removed from the site. Offsite reuse options are possible if allowable per ordinances and regulations, such as donated firewood, or chipping for mulch, compost, biomass power generation, etc. Any forest product materials (including but not limited to logs, chipped debris, etc.) leaving property shall have a non-commercial end use unless outlined in a City approved Timber Harvesting Plan. At the completion of tree removal activities, all boles, limbs, and bark shall be removed from the site by methods appropriate for the area.

Post-Construction Restoration of Disturbed Areas

- Native vegetation that is removed or damaged at access ways and within the construction areas shall be replaced under a re-vegetation plan. Trees greater than four inches (4") Diameter at Breast height (DBH) will be replaced in-kind using a 2:1 ratio. Small scrub material will be replaced in-kind using a 1:1 ratio.

Stormwater Pollution Prevention Plan (SWPPP)

A SWPPP shall be developed to outline Best Management Practices (BMPs) for controlling soil erosion and preventing the discharge of construction-related contaminants. BMPs will be monitored as specified in the SWPPP for successful implementation. BMPs to be implemented would be finalized with the final design, but shall include the following:

Materials Management

- The City of Fortuna Contractor shall provide protected (covered) storage areas for any potentially toxic materials (concrete, herbicides, pesticides, fertilizer, grease, oils, fuel, paints, stains, solvents, wood preservatives, etc.). Ensure that these materials are protected from vandalism, and that all lids and covers are securely fastened. Clearly mark all hazardous material containers.

- Bags of mortar, concrete, or other supplies shall be placed on pallets and covered with tarps so that if precipitation does occur these materials will not be exposed to stormwater and become a stormwater pollutant.

- Minimize the production or generation of hazardous materials and wastes at the site. Do not allow them to accumulate on the ground. Schedule regular pick up of used materials by licensed waste haulers and ensure proper disposal.

- All hazardous material containers shall be placed in secondary containment. Ensure that adequate secondary containment volume is provided for hazardous materials and that they are located in areas on the site away from stormwater drains or watercourses. Segregate potentially hazardous waste from non-hazardous construction debris. Provide berms, if necessary, to prevent stormwater run-on from contacting the storage area. Also, use containment berms in fueling and maintenance areas and where the potential for spills is high.

Waste Disposal

- The City of Fortuna Contractor shall provide waste receptacles for common solid wastes at convenient locations on the job site and provide regular collection of wastes, including building materials. Provide cover for receptacles or piles of waste prior to rain events. Do not allow crew to discard miscellaneous trash on the project site.

Spill Prevention and Response

- The City of Fortuna Contractor shall make adequate preparations, including training personnel and providing equipment, to contain and/or clean up spills of oil and other hazardous materials. Ensure that adequate materials such as absorbents, berms, dry sweep shovels, brooms, and absorbent pads are on hand to clean up any accidental spill that may occur. Spills of hazardous materials can originate from fueling, equipment breaking down (such as hydraulic lines), material transfer operations, and other sources. Clean up such spills immediately and properly dispose of all wastes and used spill control materials.

Available Erosion Control Supplies

- The City of Fortuna Contractor shall ensure that sufficient erosion control supplies shall be available on site at all times to deal with areas susceptible to erosion during rain events. Materials may include plastic tarps, geo-fabric, woven coconut fronds, coir rolls/straw wattles, jute netting, erosion control matting, silt fencing, straw mulch or other suitable materials

Non-Stormwater Discharges

- Activities such as vehicle washing, bucket rinsing, paintbrush cleaning, etc. shall be carried out at an approved facility (i.e. car wash or interior sink), wherein the water is discharged into a sanitary sewer. Non-stormwater discharges will be eliminated or reduced to the extent feasible. The City of Fortuna Contractor shall designate a qualified person with the responsibility for ensuring that no materials other than stormwater are discharged in quantities, which will have an adverse effect on receiving waters or storm drain systems.

Sanitary Waste Management

- The City of Fortuna Contractor shall provide sanitary facilities of sufficient number and size to accommodate construction crews. Locate the sanitary facilities in a convenient location, but away from storm drain inlets and drainage facilities. Anchor the facilities sufficiently to prevent them from being blown over or tipped by vandals. Ensure that the facilities are maintained in good working order and emptied at regular intervals by a licensed sanitary waste hauler.

Vehicle and Equipment Fueling

- On-site vehicle and equipment fueling will only be used where it's impractical to send vehicles and equipment off site for fueling. The City of Fortuna Contractor shall designate an area for equipment fueling and maintenance away from storm drain inlets or drainage channels. The fueling area shall be located on a paved surface (if practical) and shall be protected with berms to prevent run-on and run-off and contain spills. Secondary containment techniques such as drip pans or drop cloths shall be used when fueling to catch drips or leaks.

Vehicle and Equipment Cleaning

- Off-site commercial washing businesses are equipped to handle and dispose of wash water properly and are to be used for vehicle and equipment cleaning as much as possible. If vehicle and equipment washing and cleaning must occur on site and cannot be performed in a building equipped with sanitary sewer facilities, the outside cleaning area shall be located away from storm drain inlets and drainage facilities. The wash area shall be stabilized with aggregate base and bermed to prevent run-off and run-on. The drainage area shall be outfitted with a sump to allow for the collection and disposal of wash water. Wash water is not to be disposed of into storm drains or watercourses.

- The wash area shall be used as little as possible, while using the minimum amount of wash water and soaps necessary. Power washers tend to use less water and should be considered. Steam cleaning is not to be performed at any time. Cleaning solvents shall never to be used on-site.

Vehicle and Equipment Maintenance

- Perform vehicle maintenance off site whenever practical. The City of Fortuna Contractor shall coordinate with the City and designate the on-site vehicle and equipment maintenance areas away from storm drain inlets and watercourses. Locate the maintenance areas on paved surfaces if practical and protect the maintenance area from stormwater run-on and run-off.

- Properly dispose of used oils, fuels, and lubricants. Do not dump fuels or lubricants on the ground, place in dumpsters, or pour into storm drains or

watercourses. Properly dispose of or recycle batteries and other waste products.

- Repair leaks of fluids and oil immediately. Place drip pans under vehicles with leaks while they are waiting repair and promptly empty drip pans into proper waste containers.

- Regularly inspect vehicles and equipment for leaks or potential leaks. Perform regularly scheduled preventative maintenance, preferably off site. Inspect the maintenance area regularly and clean up any spills or leaks immediately. Maintain an adequate supply of spill cleanup materials in the maintenance area at all times.

Site Stabilization and Seeding

- All areas of soil disturbance including cut or fill areas that are not paved shall be stabilized by seeding. Access areas where bare ground exists after construction will be hydroseeded. Seeding will be done at an adequate time to develop a uniform vegetative cover (70% or greater) before the seasonal rains begin. If this is not possible at the site due to the construction schedule of the proposed project, the City of Fortuna Contractor shall implement temporary soil stabilization measures until the vegetative cover develops. The City of Fortuna Contractor shall consider measures such as: covering with mulch, temporary seeding/vegetation, soil stabilizers, binders, fiber rolls, blankets, or permanent seeding.

- Seeding and mulching will be done as soon as grading operations are completed. Proper and timely attention shall be taken to avoid erosion. Erosion control and seed establishment can be enhanced with the use of surface roughening followed by seeding and mulching.

Dust Control

- The occurrence of windy days may also require water to be sprayed onto exposed surface areas for dust control. These areas could include dirt roads, soil disposal areas, or other graded surfaces. Care should be taken not to create run-off from the application of excessive quantities of water, or to increase vehicle track-out of sediment from this activity.

Stockpiled Soils

- The City of Fortuna Contractor shall work with the Owner to designate an area to be used for stockpiled soils. Trench spoils generated during utility installation and other activities must be securely stockpiled at the site. In the event of rain, care shall be taken to prevent erosion and sediment transport from stockpiled areas. Stockpiles will be securely covered and placed away from drainage channels, preferably in areas with some natural vegetation in place. Silt fences shall be installed around the soil stockpile areas in the event of extended heavy rainfall.

Uncovered soil stockpiles are to be wetted as needed during windy days to prevent wind erosion.

Silt Fences

- Prior to construction, after a preconstruction survey has taken place, silt fences shall be installed around wetlands 1 and 2 and to protect the riparian habitat located along the berm action area, as shown on the drawings, to reduce sediments or impacts to habitat or sensitive species in these locations. Silt fences are to be placed along a level contour except at the ends, which should be returned uphill in a "J" hook formation to prevent water and sediment from flowing around the fence.

- The silt fencing shall be maintained throughout construction. Repair undercut fences and repair or replace split, torn, slumping, or weathered fabric. Remove and properly dispose of sediment when it reaches one-third of the fence height. Silt fences shall not be removed until the area draining to the silt fence has stabilized and approved by the Owner, and accumulated materials have been removed. Fill and compact post holes, anchorage trench and grade fence alignment to blend with adjacent ground.

1.6 Action Area

For the analysis of the potential effects of the proposed project on listed species, a project action area is identified. The action area is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR §402.02). Thus, observable or measurable effects of the proposed project are not expected beyond the boundaries of the identified project action area.

The action area includes the WWTP where construction would occur for installation of the new effluent pumps, pipeline modifications, and construction of berms. The action area also includes the adjacent riparian areas along the east, south, and west perimeters of the WWTP and the area where trees or other vegetation may be removed for the new berm along the north side of the WWTP. The action area also includes a 200 foot buffer around these areas to encompass the geographic extent of noise and disturbance from heavy equipment. No increased turbidity is expected within Rohner Creek, Strongs Creek, or the Eel River with the implementation of avoidance and minimization measures described in Section 1.5. The action area is shown in Figure 2.

Section 2
Study Methods

The methodology used to evaluate effects to federally listed species from the proposed project included a review of existing data sources followed by a field reconnaissance to establish the presence and existing condition of suitable habitat within the project action area.

2.1 Review Existing Data and Studies

A list of plant, wildlife and fish species federally listed as endangered, threatened, and/or proposed for listing, and designated critical habitat, with potential to occur in the action area was obtained from the sources below using data for the Fortuna USGS 7.5-minute quadrangle. The list is provided in Table 1.

- USFWS official species list for (USFWS 2013a),
- NMFS Northwest Regional Office website species list (NMFS 2013).
- California Natural Diversity Database (CNDDB 2013).

Existing studies conducted in the vicinity of the action area were reviewed for pertinent information on biological resources, including the City of Fortuna General Plan 2030 Program Environmental Impact Report (City of Fortuna 2010).

2.2 Field Reconnaissance

A field reconnaissance was conducted by a FEMA-contracted biologist on December 13, 2012. The field reconnaissance consisted of visual observation and photographic documentation of the project area (including the project footprint, action area, and vicinity), focusing on habitat within the WWTP and the adjacent riparian corridors of Strongs Creek, Rohner Creek, and the Eel River. The potential for special-status species to occur within the project area was evaluated against the presence of suitable habitat observed during the field reconnaissance.

Section 3
Environmental Setting

3.1 Affected Environment

The proposed project site is located within the Middle Subbasin of the Lower Eel River basin (CDFG 2010). The proposed project would be constructed primarily within the existing City of Fortuna WWTP. The WWTP is located near the confluence of Strongs Creek and the Eel River, which occurs at approximately River Mile 10 on the Eel River. Strongs Creek runs along the southern perimeter of the WWTP, and Rohner Creek meets Strongs Creek at the southeastern corner of the WWTP, approximately 1,000 feet upstream of the Strongs Creek confluence with the Eel River.

Wildlife habitat within the action area includes riparian habitat along Rohner Creek, Strongs Creek, and the Eel River, and aquatic habitat within these surface waters as well as the water treatment ponds within the WWTP. Wildlife habitat is also provided by mature Monterey pine trees along the eastern perimeter of the WWTP and along a drainage ditch that runs along the northern perimeter of the WWTP, which supports large cottonwoods and other vegetation. These habitats are described in the subsections below. Photographs of the action area are included in Figure 3

Land use in the vicinity of the action area includes commercial, industrial, urban residential, and agricultural uses. A gravel mining operation is located adjacent to and north of the WWTP. Highway 101 runs directly east of the WWTP.

3.1.1 Watershed Conditions

The Eel River watershed covers an area of 3,681 square miles and is the third largest watershed in California. The climate in the watershed typically consists of wet winters and dry summers, with 90 percent of rainfall occurring between October and April. Precipitation ranges from 40 inches per year in the coastal lowlands and 80 inches or more at higher elevations (CDFG 2010).

The Eel River experiences high rates of erosion and sediment transport, as little flood runoff is stored in the basin due to the steep slopes and constricted valley bottoms. The geology of the watershed is naturally unstable, and high flows in the Eel River produce some of the highest levels of suspended sediment in the world. Large floods such as that of December 1964, have led to widespread channel braiding, channel widening, and aggradation (Lisle 1990). The 1964 flood is often cited as an example of a natural event that drastically altered the structure, function, and aquatic biota of a river system by mobilizing slopes and soils destabilized by decades of poor land-use practices. The massive amounts of sediments transported down-slope and downriver have aggraded the stream channel, filled-in pools, and created other conditions from which the aquatic habitats of the Eel River have not yet recovered (CDFG 1996).

The predominant vegetative cover type in the Lower Eel Basin is conifer forest, dominated by coast redwood (*Sequoia sempervirens*) and Douglas-fir (*Pseudotsuga menziesii*). Land uses in the watershed include grazing and agriculture, timber management, rural and residential development, recreation, and gravel extraction. Despite the low population density, large areas are affected by grazing, timber harvesting, or associated road construction. Changes in the watershed, including increased impervious surfaces, road drainage, and vegetation removal, have altered the basin's response to heavy precipitation and increased sediment transport. As a result, the Eel River has a predominance of aggraded, shallow, and shifting channels (CDFG 2010).

3.1.2 Floodplain and Riparian Habitat Conditions

Within the action area, riparian habitat occurs along Strongs Creek, Rohner Creek, and Eel River. The riparian buffer along Rohner creek includes a total width of approximately 90 feet along the southeastern perimeter of the WWTP. The riparian buffer along Strongs Creek has a total width of approximately 150 feet along the southern perimeter of the WWTP.

Tree species along these riparian corridors are dominated by willows (*Salix* spp.), red alder (*Alnus rubra*), and black cottonwood (*Populus balsmifera*), with an understory of Himalayan blackberry (*Rubus armeniacus*), elderberry (*Sambucus racemosa*), thimbleberry (*Rubus parviflorus*), and red osier dogwood (*Cornus sericea).*

At its confluence with Strongs Creek, the Eel River channel is approximately 1,400 feet wide, but its width varies in the vicinity up to 3,000 feet. The river channel is braided and large, vegetated sand bars are present within the channel. Riparian vegetation along the Eel River in the vicinity of the action area consists predominantly of hardwood species listed above (willow, alder, and cottonwood), with limited coniferous species that would provide the large woody debris, streamside shade, and bank stability important for salmon habitat.

Wildlife species that were observed in riparian habitat within the action area include many species of birds such as American robin (*Turdus migratorius*) song sparrow (*Melospiza melodia*), spotted towhee (*Pipilo maculatus*), Townsend's warbler (*Setophaga townsendi*), and yellow-rumped warbler (*Setophaga coronate*). Other species likely to occur in this riparian habitat include Cooper's hawk *(Accipiter cooperii),* Pacific treefrog (*Hyla regilla*), raccoon (*Procyon lotor*), and coyote (*Canis latrans*).

3.1.3 Aquatic Habitat Conditions

Within the action area, Strongs Creek and Rohner Creek are narrow and shallow and have substrates consisting of sand and silt, with limited gravel suitable for spawning (CDFG 2010). The banks of both creeks have been armored or channelized in sections to control flooding, and barriers to fish passage exist at some road crossings.

As described above, the Eel River is wide and shallow with high levels of sedimentation that have degraded salmon habitat. A levee was constructed along the east side to protect the City of Fortuna from flooding. The levee reduces floodplain connectivity and alters the naturally occurring fluvial processes of the river (CDFG 2010). Based on their review, Yoshiyama and Moyle (2010) concluded that salmon species are on a trajectory towards extinction in the Eel River basin.

According to NMFS, Strongs Creek and Rohner Creek have potential habitat for Southern Oregon/Northern California coast (SONCC) coho salmon (*Oncorhynchus kisutch*), with juvenile coho observed in both Strongs and Rohner Creeks (NMFS 2012). Northern California steelhead (*Oncorhyncus mykiss*) and California coastal Chinook salmon (*Oncorhynchus tshawytscha*) also have potential to occur. A watershed analysis of the Lower Eel River and Eel River Delta lists Strongs Creek as one of two streams containing the majority of the potential steelhead habitat in the Eel Delta area (Hart Crowser 2006).

Aquatic habitat in the action area also occurs at the treatment ponds located along the southern end of the WWTP. Two of the ponds were largely devoid of vegetation, while the third supported cattails (*Typha* spp.). Wildlife observed utilizing these ponds include American coot (*Fulica americana*), Northern shoveler (*Anas clypeata*), and bufflehead (*Bucephala albeola*).

The water treatment ponds are mapped by the National Wetlands Inventory (NWI) as palustrine, emergent, persistent, unconsolidated bottom, permanently flooded, excavated wetlands (PEM1/UBHx) (USFWS 2012). No other wetlands are mapped by NWI in the action area.

3.1.4 Water Quality

Total Maximum Daily Loads (TMDLs) were established in 1992 for sediment in the Lower Eel River and its tributaries and for temperature in tributaries under Section 303(d) of the Clean Water Act. EPA has determined that a temperature TMDL is not necessary for the main channel (USEPA 2007). The North Coast Regional Water Quality Control Board (NCRWQCB) has continued to identify the Lower Eel River as impaired in subsequent listing cycles, the latest in 2006 (USEPA 2007).

Water quality in surface waters of the Lower Eel River Middle Subbasin near the action area is affected by livestock grazing. Livestock are allowed unrestricted access to parts of Strongs Creek, increasing the potential for nutrient and bacterial contamination and increased sediment through bank erosion and degradation of riparian vegetation. Another important water quality concern in this subbasin is the increased amount of chemical pollutants from urban runoff in Fortuna (CDFG 2010).

Based on data collected from 1997-2003, Strongs Creek and Rohner Creek have generally good water quality for salmon. Specific exceptions include the following:

- average turbidity levels were above recommended levels for coho (30 NTUs) for 9 months out of the year in Rohner Creek and 8 months out of the year in Strongs Creek;
- average conductivity was above levels recommended for coho salmon (375 micromhos) in Rohner Creek from November through May and in Strongs Creek from June through October;
- average dissolved oxygen was below 7.0 in Rohner Creek in August, September and October, and below 7.0 in Strongs Creek in August (CDFG 2010).

3.2 Listed Species and Critical Habitat Present in the Action Area

Table 1 lists the federally listed species with potential to occur in the project action area. Of the species listed in Table 1, the following four species have the potential to occur in the action area, based on the habitat present:

- Southern Oregon/Northern California coho salmon (*Oncorhynchus kisutch*) and critical habitat
- Northern California steelhead (*Oncorhyncus mykiss*) and critical habitat
- California coastal chinook salmon (*Oncorhynchus tshawytscha*) and critical habitat
- Western snowy plover (*Charadrius alexandrinus nivosus*) and critical habitat

These four species are all federally threatened. This BA assesses the potential effects of the proposed project on these four species and their designated critical habitat and documents appropriate avoidance measures to be included in the proposed project.

In addition, two other federally threatened species, southern eulachon (*Thaleichthys pacificus*) and green sturgeon (*Acipenser medirostris*) were identified by the USFWS species list as having the potential to occur in the vicinity of the proposed project, but are considered to have low potential to occur within the action area. Further discussion of these species is provided in Section 3.3.

One federal candidate species, western yellow-billed cuckoo (*Coccyzus americanus*) was also identified on the USFWS species list as having potential to occur. Candidate species receive no statutory protection under the ESA. In California, breeding by yellow-billed cuckoos is primarily limited to the South Fork Kern and upper Sacramento Rivers (Laymon 1998). The species requires large blocks of riparian habitat, particularly cottonwood–willow riparian woodlands for breeding (USFWS 2001). Due to the limited riparian habitat within the action area suitable for yellow-billed cuckoo and the lack of known occurrences, this species is not likely to occur and is not considered further in this BA.

Table 1. Federally Listed Species with Potential to Occur in the Project Action Area.

Species	Status	Habitat Requirements	Likelihood of Occurrence
Fish			
Tidewater goby *Eucyclogobius newberryi*	FE, CH	Inhabit coastal lagoons and the uppermost brackish zone of larger estuaries; preferred habitat includes areas with low velocity tidal currents and/or stable areas with infrequent tidal exchange.	No potential; no suitable estuarine habitat in action area.
Southern eulachon DPS *Thaleichthys pacificus*	FT, CH	Spawn mainly in the lower, tidally-influenced reaches of rivers, prior to the occurrence of full spring freshet.	Low potential; not likely to occur upstream as far as the action area.
Green sturgeon *Acipenser medirostris*	FT, CH	Spawn in cold, clean water in rivers; feed in estuaries and bays, including the Eel River estuary.	Low potential; infrequently observed in upstream reaches of the Eel River.
Southern Oregon/Northern California coast coho salmon *Oncorhynchus kisutch*	FT, CH	Inhabit streams and small freshwater tributaries; spawn in small streams with stable gravel substrates. Migrate to the upper reaches of the Eel River generally between September and February, with peak arrival in the upper reaches of the Eel River in November-December.	Potential to occur within the action area during migration; no suitable spawning habitat in the action area. Designated critical habitat occurs within the action area.
Northern California steelhead *Oncorhyncus mykiss*	FT, CH	Inhabit cool, clean water in streams and rivers with suitable gravel substrate for spawning. Migrate to the upper reaches of the Middle Fork Eel River from March through June. Spawning occurs from late December through April.	Potential to occur within the action area during migration; no suitable spawning habitat in the action area. Designated critical habitat occurs within the action area.
California coastal chinook salmon *Oncorhynchus tshawytscha*	FT, CH	Streams with cool pools of water and areas of higher velocity flow for cover. Spawn in cool, clear, well-oxygenated pools with gravel beds. Migrate to the upper reaches of the Eel River between September and February. Spawning occurs in tributary streams in the winter months.	Potential to occur within the action area during migration; no suitable spawning habitat in the action area. Designated critical habitat occurs within the action area.
Birds			
Western snowy plover *Charadrius alexandrinus nivosus*	FT, CH	Coastal habitats, including beaches, sand spits, sparsely-vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons and estuaries.	Potential to occur along the Eel River within the action area. Designated critical habitat occurs along Eel River within the action area.
Marbled murrelet *Brachyramphus marmoratus*	FT, CH	Inhabit calm, shallow, coastal waters and bays, but breed inland, up to 45 miles from shore, in mature forests (coast Redwood forests in California).	No potential; no suitable habitat in action area.
Western yellow-billed cuckoo *Coccyzus americanus*	FC	Riparian deciduous forest with dense tree canopy closure (>59 percent) and shrub canopy (>59 percent). Cottonwoods and willows that form open woodlands with dense, low vegetation are particularly preferred.	Low potential to occur transiently in riparian habitat within the action area. No known breeding occurrences within the Eel River watershed.
Northern spotted owl *Strix occidentalis caurina*	FT, CH	Forests characterized by dense canopy closure of mature and old-growth trees, abundant logs, standing snags, and live trees with broken tops.	No potential; no suitable habitat in action area.

Sources: U.S. Fish and Wildlife Service, Arcata Office Species List Quadrangle, National Marine Fisheries Service Species Lists, California Natural Diversity Database (CNDDB) search of the Fortuna 7.5-minute USGS quadrangle. Last accessed September 18, 2013.
CH – Critical Habitat
FC – Federal Candidate
FE – Federal Endangered
FT – Federal Threatened

3.2.1 Southern Oregon/Northern California Coast Coho Salmon

The SONCC coho salmon Evolutionarily Significant Unit (ESU) was listed as threatened in 1997, and this status was reaffirmed in 2005 (NMFS 1997; 2005). This Evolutionarily Significant Unit (ESU) includes all coho salmon populations between Punta Gorda, California and Cape Blanco, Oregon.

Coho salmon generally exhibit a relatively simple 3-year life cycle. Adults typically begin their freshwater spawning migration in the late summer and fall, spawn by mid-winter, and then die. The run and spawning times vary between and within populations. Upriver migration of adults to spawning areas normally occurs from October to March for populations in the SONCC coho salmon ESU, with a peak between November and January (NMFS 2012).

Depending on river temperatures, eggs incubate in redds for 1.5 to 4 months before hatching. Juveniles rear in fresh water for up to 15 months, then migrate to the ocean as smolts in the spring. Downstream migration of coho salmon in the SONCC coho salmon ESU begins in the spring sometime between April and May and continues into June. The Eel River has the broadest range of outmigrant timing, from March to August (NMFS 2012).

Coho salmon typically spend two growing seasons in the ocean before returning to their natal stream to spawn as three year-olds. Some precocious males, called ''jacks,'' return to spawn after only 6 months at sea. Fry emergence takes place between March and July, with peak emergence in March and May. After emergence, fry seek out shallow water along stream margins. The dominant life history pattern is for juvenile coho salmon to feed and rear within the streams of their natal watershed for a year before migrating to the ocean. However, they may spend up to two years rearing in freshwater or emigrate to an estuary shortly after emerging from spawning gravels (NMFS 2012).

Historically, coho salmon were found in Palmer and Strongs creeks and potentially Rohner Creek; however, in recent years (1995) they have only been detected in Strongs Creek (CDFG 2010). Numbers of spawning adult coho salmon in the Eel River have declined dramatically. Historic numbers of spawning adults in the Eel River were probably in the 50,000-100,000 fish per year range. By the 1960s, the number of spawners was likely less than 15,000 fish, with numbers dropping by about 5-10% of spawners per year in subsequent years (Yoshiyama and Moyle 2010).

3.2.2 SONCC Coho Salmon Critical Habitat

Critical habitat for SONCC coho salmon was designated as all accessible reaches of rivers (including estuarine areas and tributaries) between Cape Blanco, Oregon, and Punta Gorda, California (NMFS 1999a). Critical habitat includes all waterways, substrate, and adjacent riparian zones below longstanding, naturally impassable barriers (i.e., natural waterfalls in existence for at least several hundred years).

In the critical habitat designation, NMFS identified five essential habitat types for SONCC coho salmon: (1) spawning areas; (2) adult migration corridors; (3) juvenile summer and winter rearing areas; (4) juvenile migration corridors; and (5) areas for growth and development to adulthood. Spawning and rearing are often located in small headwater streams and side channels. Adult and juvenile migration corridors include these tributaries as well as mainstem reaches and estuarine zones. Growth and development to adulthood occurs primarily in near-and off-shore marine waters, although final maturation takes place in freshwater tributaries when the adults return to spawn (NMFS 1999a). Within these areas, essential features of coho salmon critical habitat include adequate substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food, riparian vegetation, space, and safe passage conditions. In addition, designated freshwater and estuarine critical habitat includes riparian areas that provide the following functions: shade, sediment, nutrient or chemical regulation, stream bank stability, and input of large woody debris or organic matter (NMFS 1999a).

The critical habitat designation includes all accessible reaches of rivers (including estuarine areas and tributaries) between Cape Blanco, Oregon, and Punta Gorda, California (NMFS 1999a). Therefore, critical habitat within the action area includes the Eel River as well as Strongs Creek and Rohner Creek.

3.2.3 Northern California Steelhead

The Northern California (NC) steelhead Distinct Population Segment (DPS) was listed as threatened in 2000, and threatened status was reaffirmed in 2006 (NMFS 2000, 2006a). The NC steelhead DPS includes all naturally spawned populations of steelhead in California coastal river basins from Redwood Creek in Humboldt County (inclusive) southward to the Russian River in Sonoma County (exclusive).

Like other salmonids, steelhead spend time in the ocean, migrating to freshwater to spawn; however, not all adult steelhead die after spawning. The Northern California steelhead DPS includes both summer and winter-run steelhead. Summer-run steelhead are immature when they enter freshwater during spring and early summer, and spend several months in freshwater to mature prior to spawning. Winter-run steelhead are generally mature when they enter freshwater during late fall and winter, and spawn shortly after entering freshwater. In addition, "half-pounder" steelhead return to freshwater after a brief 2-3 month period in the ocean. They overwinter in freshwater, returning to the ocean in the spring. This type of steelhead has been observed in the Eel River (NMFS 2007a).

Steelhead runs (both winter and summer) in the Eel River system have declined significantly. Historic numbers were likely 100,000-150,000 adults per year (both runs combined), declining to 10,000-15,000 by the 1960s. Present numbers are probably considerably less than 1,000 fish in both runs (Yoshiyama and Moyle 2010). Steelhead trout were historically found in the Eel River and both Rohner and Strongs Creeks. However, recent steelhead observations have been limited to the Eel River and Strongs Creek (CDFG 2010).

3.2.4 Northern California Steelhead Critical Habitat

Critical habitat was designated for the NC steelhead DPS in 2005 (NMFS 2005). NMFS designated critical habitat for NC steelhead as occupied watersheds from the Redwood Creek watershed, south to and including the Gualala River watershed. The specific primary constituent elements (PCEs) essential for the conservation of each species include: 1) freshwater spawning, (2) freshwater rearing, (3) freshwater migration, (4) estuarine areas, (5) nearshore marine areas, and (6) offshore marine areas. Within the PCEs, essential elements of critical habitat include adequate substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food, riparian vegetation, space, safe passage conditions, and salinity conditions (NMFS 2005).

Within the action area, designated critical habitat for the Northern California steelhead includes the Eel River, Strongs Creek, and Rohner Creek (USFWS 2013b).

3.2.5 California Coastal Chinook Salmon

California coastal (CC) Chinook salmon were first listed as threatened by NMFS in 1999 (NMFS 1999b), and status was reaffirmed in 2005 (NMFS 2005). The CC Chinook ESU includes all naturally spawned populations of Chinook salmon from rivers and streams south of the Klamath River to the Russian River, California.

Adult Chinook salmon reach sexual maturity usually at 3 to 5 years of age, and die soon after spawning. Fall-run Chinook salmon are specifically adapted for spawning in lowland reaches of big rivers and their tributaries, with sexually mature adults moving into rivers and streams from the ocean in the fall or early winter and spawning within a few weeks or days upon arrival on the spawning grounds. Juveniles emerge from the gravel in late winter or early spring and within a matter of months migrate downstream to the estuary and the ocean. This life history strategy allows fall-run Chinook salmon to utilize quality spawning and rearing areas in the valley reaches of rivers, which are often too warm to support juvenile rearing in the summer (Moyle 2002).

Spring-run Chinook salmon are often stream-type, with sexually immature adults returning to lower-order headwater streams in the spring or early summer and holding in deep pools and coldwater areas until they spawn in early fall. This strategy allows spring-run Chinook salmon to take advantage of mid-elevation habitats that are inaccessible during the summer and fall due to low flows and high water temperatures. Juveniles emerge from the gravel in the early spring and typically spend one year in freshwater before migrating downstream to estuaries and then the ocean (Moyle 2002). It is thought that the spring-run Chinook may have been completely eliminated from this ESU (NMFS 2007b).

Records suggest that historic runs of Chinook salmon probably ranged between 100,000 and 800,000 fish per year, declining to roughly 50,000-100,000 fish per year in the first half of the 20th century (Yoshiyama and Moyle 2010). Following the great floods of 1955 and 1964, annual Chinook salmon runs were generally considerably less than 10,000 fish.

The most recent numbers suggest that less than 1,000 wild adults per year have returned to the Eel River basin in recent years (Yoshiyama and Moyle 2010).

3.2.6 California Coastal Chinook Salmon Critical Habitat

Critical habitat was designated for CC Chinook salmon in 2005 (NMFS 2005). Critical habitat for CC Chinook salmon is designated as occupied watersheds from the Redwood Creek watershed, south to and including the Russian River watershed. PCEs identified by NMFS are the same as those for NC steelhead.

Within the action area, designated critical habitat for CC Chinook salmon occurs in the Eel River, Strongs Creek, and Rohner Creek (USFWS 2013b).

3.2.7 Western Snowy Plover

The western snowy plover was listed as threatened in 1993 (USFWS 1993). Western snowy plovers forage for invertebrates in beach sand, among tide-cast kelp, and within foredune vegetation. They breed from spring through early fall, laying a clutch of eggs in shallow depressions in the sand, above the high tide line on coastal beaches, sand spits, dune-backed beaches, sparsely vegetated dunes, beaches at river mouths, and salt pans at lagoons and estuaries (USFWS 2007).

Threats to the population include human disturbance, predation, and loss of nesting habitat to encroachment of non-native beachgrass and urban development. Human recreational activities, which tend to coincide with the nesting season, are key factors in the ongoing decline in breeding sites and populations (USFWS 2007).

3.2.8 Western Snowy Plover Critical Habitat

Critical habitat for the western snowy plover was designated in 2005 (USFWS 2005). Critical habitat occurs within the action area along the Eel River as part of Subunit CA 4D, Eel River Gravel Bars. This Subunit provides essential features for the species, including bare, open gravel bars comprised of both sand and cobble which support reproduction and foraging. This area supports the most important breeding habitat in California north of San Francisco Bay, having the highest fledging success rate of any area from Mendocino County to the Oregon border. Threats to this critical habitat include predators, off-highway vehicles, and disturbance from gravel mining and humans with dogs (USFWS 2005).

3.3 Federally Listed Species with Low Potential to Occur in the Action Area

3.3.1 Eulachon

NMFS listed the Pacific eulachon (*Thaleichthys pacificus*) as threatened under the ESA in 2010 (NMFS 2010) and critical habitat was designated in 2011 (NMFS 2011). Critical habitat does not occur in the action area.

The eulachon is a relatively small (up to 10 inches) anadromous fish that occurs only on the coast of northwestern North America, from northern California to southwestern Alaska (NMFS 2006b). They spawn mainly in the lower, tidally-influenced reaches of rivers, prior to the occurrence of full spring freshet. Spawning occurs at varying depths from 1-25 feet on substrates ranging from silt, sand, or gravel to cobble and detritus, with sand being most common. Eggs do not adhere to sand immediately but drift downstream for a short time. Even after adherence, water velocity can move the sand grains farther downstream (NMFS 2006b). Newly hatched young are carried to the sea with the current where they feed mainly on copepod larvae and other plankton. After three to four years at sea, they return as adults to spawn. After spawning, the majority of eulachon die (NMFS 2006b).

Although eulachon historically occupied the Eel River, the species is now considered likely to be extinct from the Eel River (Yoshiyama and Moyle 2010). Therefore, eulachon are not likely to occur in the action area.

3.3.2 Green Sturgeon

The Northern distinct population segment (DPS) of North American green sturgeon (*Acipenser medirostris)* was listed as a threatened species in 2006 (NMFS 2006c) and critical habitat was designated in 2009 (NMFS 2009). Critical habitat does not occur in the action area.

The Northern DPS includes all spawning populations of green sturgeon northward of and including the Eel River (i.e., the Klamath and Rogue river spawning populations) (NMFS 2006c). Green sturgeon are currently known to spawn in only three rivers: the Sacramento and Klamath rivers in northern California and the Rogue River in southern Oregon (Lindley et al 2008). The green sturgeon is known to forage in estuaries and bays ranging from San Francisco Bay to British Columbia (NMFS 2007c). Adults live in oceanic waters, bays, and estuaries when not spawning. The species may occur in estuaries from June through October (Moser and Lindley 2007). Based on a review by Yoshiyama and Moyle (2010), there are few recent records of green sturgeon in the Eel River. Therefore, green sturgeon are not likely to occur in the action area.

Section 4
Effects of the Action

The proposed project is to improve flood protection by constructing improvements at the Fortuna WWTP, including construction of earthern berms, installation of new pump stations, and modifications to existing piping. The proposed construction is expected to occur in 2014 and would take approximately 3 to 6 months to complete.

During construction, the mitigation measures described in Section 1.5 would be implemented to avoid or minimize effects to listed species and their habitats.

Potential adverse effects to SONCC coho salmon ESU, Northern California steelhead DPS, and California coastal Chinook salmon within the project area could occur during construction from increased turbidity in surface waters, including downstream turbidity effects in the Eel River, if there is runoff of soil from areas disturbed by construction. Adverse effects to water quality could also occur from accidental spills or other discharges to surface waters. With implementation of the avoidance and minimization measuresdescribed in Section 1.5, temporary impacts from increased turbidity in aquatic habitats within the action area, including Rohner Creek, Strongs Creek, or the Eel River would be minimal.

Potential adverse effects could also occur through loss or modification of riparian habitat along Rohner Creek or Strongs Creek adjacent to the proposed berm construction areas, as riparian vegetation provides shade and woody debris that are important characteristics of salmon habitat. However, this is not anticipated, as any trimming or removal of vegetation would only occur directly adjacent to the WWTP property fenceline, which is approximately 50 feet from the edge of the creeks. The riparian vegetation between the fence and the creek would largely be undisturbed (except for trimming at the fence) and would also provide a dense vegetative buffer to assist in slowing and capturing any runoff from the disturbed soil at the berm locations. No construction would occur at the existing outfall to Strongs Creek or near the aquatic habitat within Strongs Creek or Rohner Creek.

There would be no permanent effects to riparian vegetation or aquatic habitat and no change in flow or discharge to Strongs Creek through the existing outfall, as pumping from the new discharge pump would only occur during flood events when Strongs Creek is already at flood stage and the discharge cannot flow via gravity. There would be no other modifications of critical habitat from the proposed project.

Noise and human disturbance during construction would not affect listed fish species within the aquatic habitats of Rohner Creek, Strongs Creek, or the Eel River.

With implementation of avoidance and minimization measures to avoid or reduce erosion from disturbed soil and accidental discharge of any materials that could

adversely affect water quality, temporary effects from increased turbidity in aquatic habitats within the proposed project area, including Rohner Creek, Strongs Creek, or the Eel River would be minimal.

In addition, the proposed action would have benefits to the listed species and critical habitat in avoiding the potential for untreated wastewater to flow into aquatic habitats during flood events. Currently, when the water surface elevation of Strongs Creek reaches an elevation of 38.6 feet (11-year flood event), the plant can no longer discharge and water starts flooding the chlorine contact basin and overflowing into the plant site. When this occurs there is a loss of function of the WWTP and potential for discharge of untreated wastewater to surrounding surface waters, including Rohner Creek, Strongs Creek, and the Eel River.

Potential adverse effects to western snowy plover would be limited to disturbance of nesting or foraging within suitable habitat on gravel bars and banks of the Eel River. Disturbance from noise and human activity during construction at the WWTP would not be anticipated to affect western snowy plovers that may occupy potential nesting and foraging habitat within the Eel River due to the distance and lack of "line of sight" between the construction areas and the suitable habitat in the Eel River. There would be no construction within the Eel River or modification of critical habitat. Therefore, the proposed project would not result in adverse effects to western snowy plover or critical habitat within the proposed project area.

4.1 Determination of Effects

The determination of potential effects of the proposed action on SONCC coho salmon, Northern California steelhead, California coastal Chinook salmon, and western snowy plover and designated critical habitat for each of these species considered the following:

- Environmental setting described in Section 3.1
- Importance of the action area to listed species described in Section 3.2
- The degree of predicted effects of the proposed action with the implementation of proposed avoidance and minimization measures described in Section 4

4.1.1 Effects Determination for SONCC Coho Salmon and Critical Habitat

Based on the effects analysis, it is concluded that the proposed action **"may affect"** but is **"not likely to adversely affect"** SONCC coho salmon or its designated critical habitat. This determination is based on the implementation of proposed avoidance and minimization measures that would avoid and/or minimize impacts to aquatic and riparian habitats within the action area.

4.1.2 Effects Determination for Northern California Steelhead and Critical Habitat

Based on the effects analysis, the proposed action **"may affect"** but is **"not likely to adversely affect"** Northern California steelhead or its designated critical habitat. This determination is based on the implementation of proposed avoidance and minimization measures that would avoid and/or minimize impacts to aquatic and riparian habitats within the action area.

4.1.3 Effects Determination for California Coastal Chinook Salmon and Critical Habitat

Based on the effects analysis, the proposed action **"may affect"** but is **"not likely to adversely affect"** California coastal chinook salmon or its designated critical habitat. This determination is based on the implementation of proposed avoidance and minimization measures that would avoid and/or minimize impacts to aquatic and riparian habitats within the action area.

4.1.4 Effects Determination for Western Snowy Plover and Critical Habitat

Based on the effects analysis, the proposed action would have **"no effect"** on western snowy plover or its designated critical habitat. This determination is based on the fact that no construction would occur within or near habitat for the species along the Eel River. In addition, implementation of proposed avoidance and minimization measures would avoid and/or minimize impacts to suitable habitat within the action area.

Section 5
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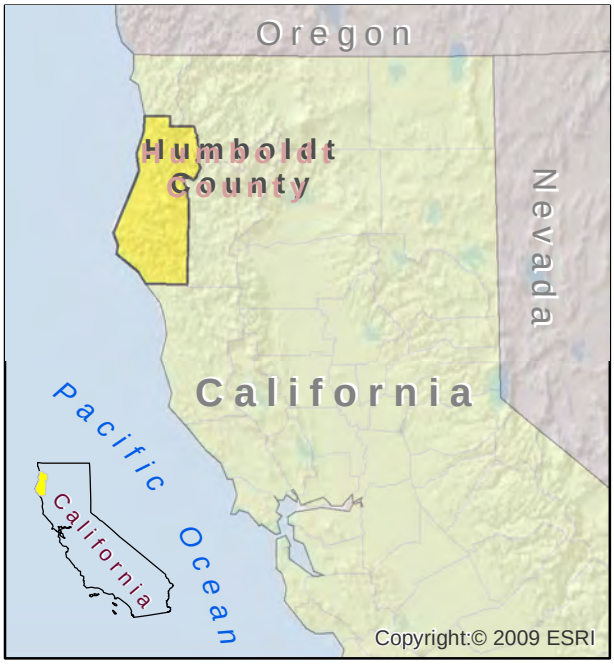

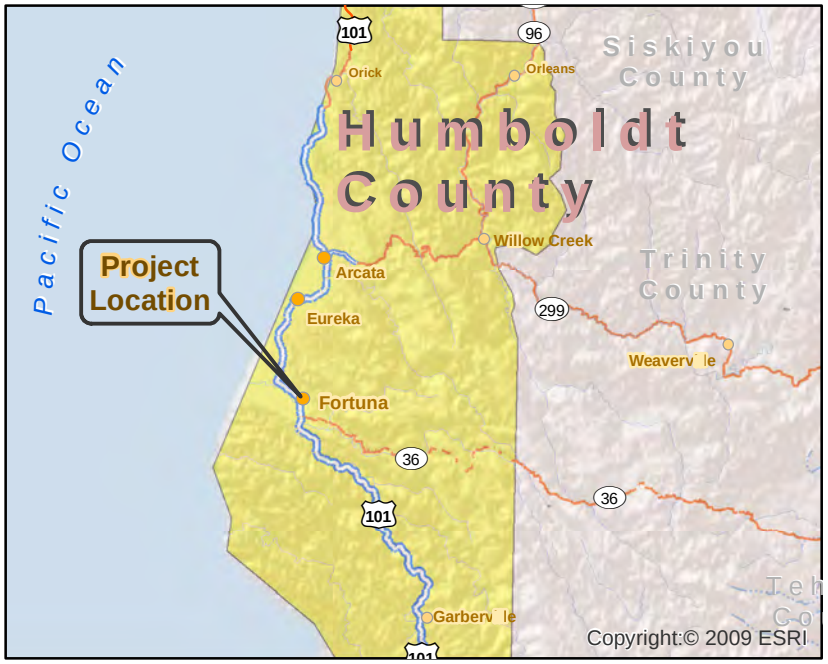

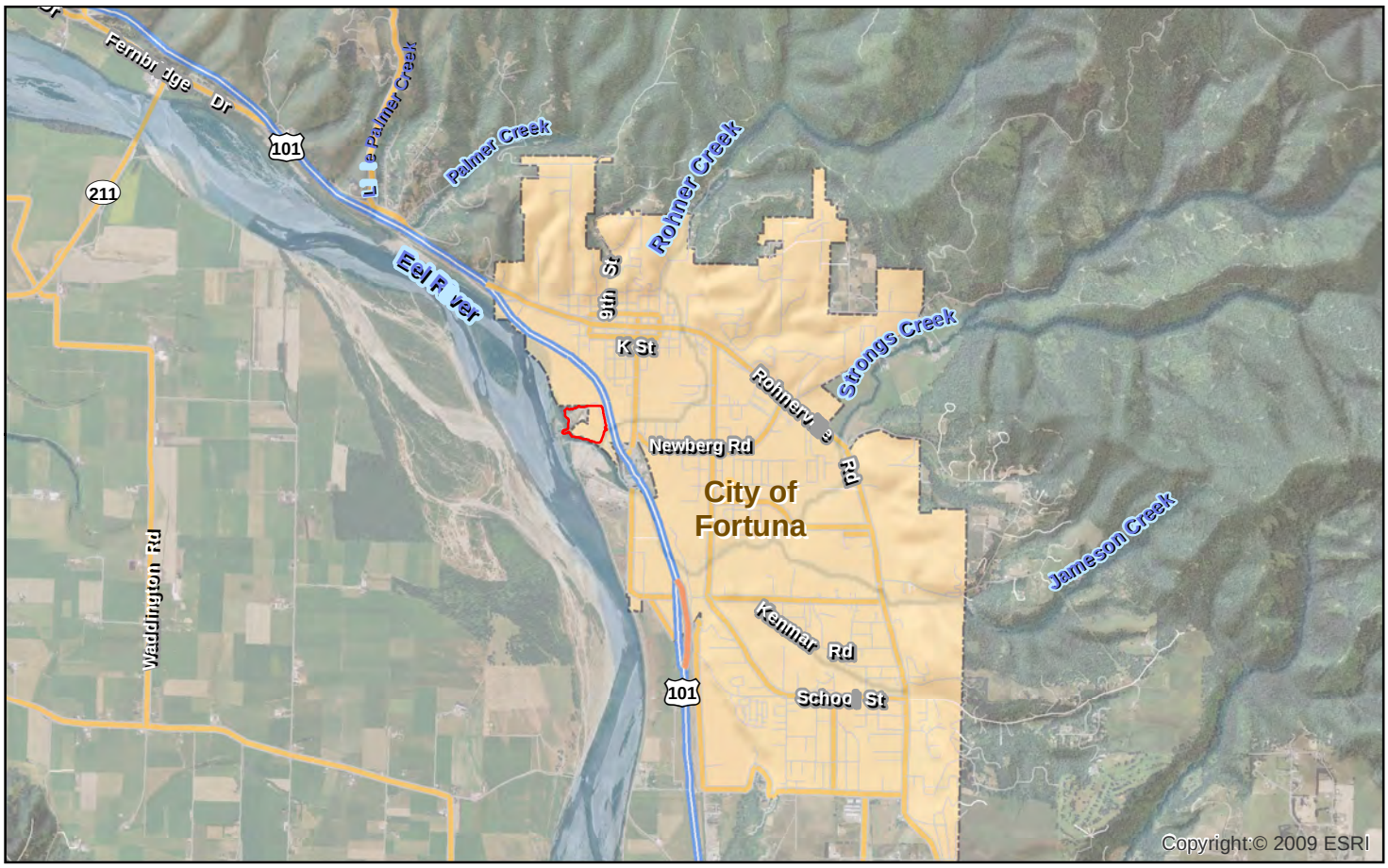

City of Fortuna
Project Boundary
Stream
River
U.S. Highway
Major Road
Local Roads

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Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
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City of Fortuna
WWTF Flood Protection

Job Number 8410440
Revision A
Date 26 Apr 2013

Vicinity Map

Figure 1

718 Third Street Eureka CA 95501 USA T 707 443 8326 F 707 444 8330 E eureka@ghd.com W www.ghd.com

G:\01054 City of Fortuna\8410440 FortunaWWTP FloodProtection\08-GIS\Maps\Figures\F1_Vicinity.mxd

Data source: ESRI Street Map; NAIP aerial 1m. Created by:amshows

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0 50 100 150 200

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
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Project Boundary
Access Road

Proposed Site Access Location
Proposed Berm Area
Pump Station Proposed Excavation Area
Existing and Proposed Staging Area

City of Fortuna
WWTF Flood Protection

Job Number	8410440
Revision	A
Date	09 May 2013

Proposed Project Areas

Figure 2

718 Third Street Eureka CA 95501 USA **T** 707 443 8326 **F** 707 444 8330 **E** eureka@ghd.com **W** www.ghd.com

Data source: City of Fortuna. 3Di_Aerial. 2010. GHD/PointsWest Survey Data. 2013. Created by:amshows

Figure 3a. Location of proposed berm along the eastern perimeter of the WWTP. Riparian vegetation along Rohner Creek is located just east (to the right in the photo) of the fence. Mature Monterey pine trees are shown in the distance, to the north.

Figure 3b. Another view of riparian vegetation along Rohner Creek.

Figure 3c. Location of proposed berm along the southern perimeter of the WWTP. Riparian vegetation along Strongs Creek is shown just south (to the right in the photo) of the fence.

Figure 3d. Riparian vegetation along Strongs Creek south of the WWTP.

Figure 3e. Easternmost of three water treatment ponds located in the southern portion of the WWTP.

Figure 3f. Middle of three water treatment ponds located in the southern portion of the WWTP.

Figure 3g. Westernmost of three water treatment ponds located in the southern portion of the WWTP.

Figure 3h. Location of proposed new berm along northwest perimeter of the WWTP.

APPENDIX C—Historic Properties Inventory Report (Confidential)

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APPENDIX D—SHPO Consultation Correspondence

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U.S. Department of Homeland Security
Region IX
1111 Broadway, Suite 1200
Oakland, CA 94607-4052

FEMA

July 12, 2013

Dr. Carol Roland-Nawi, Ph.D.
State Historic Preservation Officer
Office of Historic Preservation
Department of Parks and Recreation
1725 23rd Street, Suite 100
Sacramento, CA 95816
Attn: Ms. Susan Stratton

RE: Hazard Mitigation Grant Program-CA-DR-1884-14-05
Fortuna Wastewater Treatment Plant Flood Protection Project
Subapplicant: City of Fortuna, CA

Dear Dr. Roland-Nawi:

The City of Fortuna (Subapplicant) has applied to the Department of Homeland Security's Federal Emergency Management Agency through the California Emergency Management Agency (Cal EMA, Grantee) for federal financial assistance to implement the proposed project. The funding would be provided under the Hazard Mitigation Grant Program (HMGP). FEMA's action of providing Federal financial assistance meets the definition of an Undertaking in 36 CFR 800.16(y) and therefore requires the completion of a Section 106 review in accordance with the National Historic Preservation Act of 1966 (16 U.S.C. 470f).

The proposed project area of potential effect (APE) is within the Fortuna wastewater treatment plant (WWTP) facilities, which consist of maintained access roads (paved and unpaved), structures, tanks, pumps, piping, artificial berms, and other constructions. The WWTP area land use consists of commercial and other built environments to the east of Eel River and open space to the west of the river.

The proposed project consists of the following four improvements that the City of Fortuna would make to its WWTP to protect the City's wastewater system during flood events.

- Construct an earthen berm along the northwestern boundary of the plant
- Increase the height of the earthen berm around the southern and eastern end of the plant

- Install two new emergency effluent pumps in a new extension to the existing recycled-water wet-well
- Increase the diameter of the pipe between the headworks and the primary clarifiers and between the aeration basins and the secondary clarifier to accommodate the output of the new effluent pumps

Berm Section 1 along the northern portion of the site is approximately 493 feet in length and approximately 1,318 cubic yards in volume. Berm Section 2 along the western and southern edge of the site is 1,417 feet in length and approximately 4,200 cubic yards in volume. The total length of both berms is 1,910 feet and is approximately 5,518 cubic yards in volume.

Construction of Berm Section 1 requires that a portion of the existing chain link and barbed wire security fence at the south side of the plant be removed and re-installed along new berm. The west side of Berm Section 1 crosses an existing gravel access road, which is currently the drainage route for storm runoff. A new culvert is proposed, which would allow storm water to flow underneath the berm such that the existing drainage route remains unchanged.

The APE is depicted in Figure 1. Additionally, the construction design plans are provided in Appendix C of the technical report. The proposed project area was subject to a historic properties inventory. No properties were found within the APE.

FEMA has made a determination that no historic properties would be affected. In accordance with Stipulation VII.A of the 2005 First Amended Programmatic Agreement (PA) among FEMA, the State Historic Preservation Officer, the California Emergency Management Agency, and the Advisory Council on Historic Preservation, the project's APE for direct impacts consists of the areas that would be subject to construction activities. The vertical APE would consist of work in disturbed soils within the existing WWTP.

For your review, FEMA has enclosed documentation in accordance with 36 CFR Part 800.11(d). FEMA will authorize funding for the Subapplicant's proposed project unless you notify FEMA of your objection to our finding within 45 days of receipt of this documentation.

If you have any questions or require additional information please do not hesitate to contact me at (510) 627-7728, the letterhead address above or donna.meyer@fema.dhs.gov.

Sincerely,

Donna M. Meyer, CEM/HPS
Deputy Regional Environmental Officer

Enclosures:
Figure 1—APE and Survey Area
Attachment A-CH2M HILL Technical Report

FINDING OF NO HISTORIC PROPERTIES AFFECTED
City of Fortuna
Fortuna Wastewater Treatment Plant Flood Protection Project
HMGP-DR-1884-14-05

"A description of the undertaking, specifying the Federal involvement, and its area of potential effects, including photographs, maps, drawings, as necessary" (36 CFR 800.11(d)(1))

The City of Fortuna (Subapplicant) has applied to the Department of Homeland Security's Federal Emergency Management Agency through the California Emergency Management Agency (Cal EMA, Grantee) for federal financial assistance to implement the proposed project. The funding would be provided under the Hazard Mitigation Grant Program (HMGP). FEMA's action of providing Federal financial assistance meets the definition of an Undertaking in 36 CFR 800.16(y) and therefore requires the completion of a Section 106 review in accordance with the National Historic Preservation Act of 1966 (16 U.S.C. 470f).

The proposed project area of potential effect (APE) is within the Fortuna wastewater treatment plant (WWTP) facilities, which consist of maintained access roads (paved and unpaved), structures, tanks, pumps, piping, artificial berms, and other constructions. The WWTP area land use consists of commercial and other built environments to the east of Eel River and open space to the west of the river. The APE is depicted in Figure 1. Additionally, the construction designs are found in the technical report's Appendix C, Vertical and Horizontal APE – Design Maps.

The proposed project consists of the following four improvements that the City of Fortuna would make to its wastewater treatment plant (WWTP) to protect the City's wastewater system during flood events.

- Construct an earthen berm along the northwestern boundary of the plant
- Increase the height of the earthen berm around the southern and eastern end of the plant
- Install two new emergency effluent pumps in a new extension to the existing recycled-water wet-well
- Increase the diameter of the pipe between the headworks and the primary clarifiers and between the aeration basins and the secondary clarifier to accommodate the output of the new effluent pumps

The proposed project includes two major new berms along the southern and northern boundaries of the WWTP. The 100 year flood elevation at the Fortuna WWTP site is 42.5 feet and much of the plant site is below that elevation. The new berm sections would raise the existing ground elevation to 43.5 feet, allowing for 1 foot of freeboard above the 100-year flood elevation. These improvements would ensure that the entire WWTP perimeter is above the 100-year flood level.

The proposed berms would also be used as roads by plant personnel to access portions of the plant, as the berms are proposed to be constructed over the existing access routes. The berms are proposed to be 10-feet wide at the top, with 2:1 (Horizontal: Vertical) typical side slopes, with 1:1 side slopes on portions of the berm where the footprint is limited at the south side of the plant. Typically, between 2 to 6 feet of fill would be required to raise the ground elevation to 43.5 feet. Aggregate base would be placed on top of the berms to allow vehicle access and stabilization. The useful life of the berms is 50 years or more.

In accordance with Stipulation VII.A of the 2005 First Amended Programmatic Agreement (PA) among FEMA, the State Historic Preservation Officer, the California Emergency Management Agency, and the Advisory Council on Historic Preservation, FEMA has determined that the APE is limited to existing disturbed context that contains road fill, drainage channels, and utilities.

"A description of the steps taken to identify historic properties, including, as appropriate, efforts to seek information pursuant to 36 CFR 800.4(b)" (36 CFR 800.11(d)(2))

Pursuant to Stipulation VII.B of the PA, a FEMA contractor conducted a literature search review of the APE, as well as a 1-mile buffer around the APE at the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) located at Sonoma State University in Rohnert Park, California, on December 17, 2012. A systematic pedestrian archaeological survey and intensive standing structures survey were conducted on May 23, 2013. No historic properties were observed or identified.

"The basis for determining that no historic properties are present or affected" (36 CFR 800.11(d)(3))

No historic properties were identified in the APE or the 1-mile buffer during the historic properties records search. No historic properties or archaeological resources were identified during the pedestrian survey. FEMA has determined that no properties eligible for listing in the National Register of Historic Places exist within the APE. Therefore, in accordance with Stipulation VII.C of the PA, FEMA has determined that the Undertaking would result in "no historic properties affected."

Area of Potential Effects/ Survey Area

- Proposed Berm Area
- Pump Station Proposed Excavation Area
- Existing and Proposed Staging Area

N

0 100 200

Feet

FIGURE 1
WWTP Project
Area of Potential Effects
Humboldt County, California

CH2MHILL.

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