
ENVIRONMENTAL ASSESSMENT

MARTIN SLOUGH INTERCEPTOR PROJECT

CITY OF EUREKA
CALIFORNIA

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COVER SHEET

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City of Eureka, Humboldt County, California

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Lead Agency: U.S. Environmental Protection Agency (EPA)

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**Date by Which Comments
Must Be Received:** May 15, 2005. This date provides a comment period of 30 days.

Abstract

EPA proposes to disburse Congressionally authorized funding to assist the City of Eureka, California, in the design of new wastewater collection and conveyance components within an existing public wastewater system, thereby increasing reliability of the system for avoiding wastewater overflows in the project area, as well as improving the cost-effectiveness of system operations. Project components would include new collector lines connecting up to 16 existing lift stations to a new gravity wastewater collector pipeline (the “interceptor”), a new pump station, a new force main, and appurtenant components. This EA provides a summary of analyses of the potential consequences of the proposed action, the no-action alternative, and two program alternatives. Mitigation measures have been identified as necessary to reduce the potentially significant effects to levels that are less-than-significant.

ENVIRONMENTAL ASSESSMENT
Martin Slough Interceptor Project
City of Eureka, California

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ACRONYMS AND ABBREVIATIONS

ADWF	average dry weather flows	HCSD	Humboldt Community Services District
AQMD	Air Quality Management District	HBMWD	Humboldt Bay Municipal Water District
BMP	Best Management Practice	I/I	infiltration and/or inflow
CAA	Clean Air Act	LCP	Local Coastal Program
CEQ	Council on Environmental Quality	MGD	million gallons per day
CEQA	California Environmental Quality Act	MSL	mean sea level
CESA	California Endangered Species Act	NAAQS	National Ambient Air Quality Standards
CFR	Code of Federal Regulations	NEPA	National Environmental Policy Act
CNNDB	California Natural Diversity Data Base	NHPA	National Historic Preservation Act
CNPS	California Native Plant Society	NMFS	National Marine Fisheries Service
DIP	ductile iron pipe	NRHP	National Register of Historic Places
EA	environmental assessment	NPDES	National Pollutant Discharge Elimination System
EIR	Environmental Impact Report	PM10	particulate matter < 10 microns in diameter
EPA	U.S. Environmental Protection Agency	PVC	polyvinyl chloride
ESA	Endangered Species Act	SHPO	State Historic Preservation Office
ESU	evolutionarily significant unit	USACE	U.S. Army Corps of Engineers
FEMA	Federal Emergency Management Agency	USFWS	U.S. Fish and Wildlife Service
FONSI	Finding of No Significant Impact	USC	U.S. Code
FRP	fiber-reinforced plastic	WWTP	wastewater treatment plant
FSWA	Fay Slough Wildlife Area		

EXECUTIVE SUMMARY

BACKGROUND

The U.S. Environmental Protection Agency (EPA) proposes to disburse funding authorized by Congress to assist the City of Eureka, California, in designing the Martin Slough Interceptor Project. The Martin Slough Interceptor Project will include new wastewater collection and conveyance components within an existing public wastewater system, which will increase the reliability of the system for avoiding wastewater overflows in the project area, as well as improving the cost-effectiveness of system operations. Proposed major project components include new collector lines connecting up to 16 existing lift stations to a new gravity wastewater collector pipeline (the “interceptor”), a new pump station, a new force main, and appurtenant improvements.

The project area is located within the Martin Slough basin, in the southern portion of the City of Eureka (2000 Census population 26,128) and in Humboldt County (2000 Census total population 126,518), California, and contains a mixture of low- to medium-density residential areas, commercial areas, and natural resource lands. Martin Slough originates in upland areas within and adjacent to the City of Eureka and flows into Swain Slough, a tributary to Elk River, which is a tributary to Humboldt Bay (approximately 18,000 surface acres), located approximately 230 miles north-northwest of San Francisco and approximately 80 miles south of the Oregon state line.

Wastewater services in the project area are provided by the City of Eureka and the Humboldt Community Services District (HCSD). The City owns and operates the Elk River Wastewater Treatment Plant (WWTP), and provides wastewater collection, conveyance, treatment, and disposal services within City Limits. The District provides wastewater collection and conveyance services within the unincorporated lands in the County; wastewater is delivered to the Elk River WWTP for treatment and disposal pursuant to a contractual agreement between the City and the District. The project does not represent any proposed changes in the treatment or disposal functions of the existing wastewater system.

ENVIRONMENTAL IMPACT ANALYSIS REVIEW PROCESS

This environmental assessment (EA) was prepared in accordance with the National Environmental Policy Act (NEPA),¹ the Council on Environmental Quality (CEQ) NEPA regulations,² the Environmental Protection Agency NEPA regulations,³ and related EPA Region 9 guidance. In accordance with NEPA and the applicable implementing regulations, this EA has been prepared to analyze the potential environmental impacts of the proposed action and its alternatives; as required by NEPA regulations, this EA concentrates on issues that are potentially significant in terms of the proposed action. In addition, this EA provides documentation for EPA’s coastal consistency determination documentation with respect to implementation of the proposed action or alternatives.

¹ Pub. L. 91-190, 42 U.S.C. 4321–4347, January 1, 1970, as amended.

² 40 C.F.R. Parts 1500–1508.

³ 40 C.F.R. Part 6.

This EA will be made available to the public and to federal, state, and local agencies for 30 days, after which time comments will be addressed as appropriate, and the final EA will be issued. Based on this EA and related technical findings, EPA will determine whether to prepare an Environmental Impact Statement (EIS) or issue a Finding of No Significant Impact (FONSI).

The Martin Slough Interceptor Project is also subject to review under the California Environmental Quality Act (CEQA). Accordingly, the City of Eureka has prepared and certified an Environmental Impact Report (EIR) for the project (State Clearinghouse Number 2002082043). The Draft EIR for the Martin Slough Interceptor Project was issued in May 2004, and the Final EIR was certified by the City of Eureka City Council on October 5th, 2004. The Martin Slough Interceptor Project's EIR is hereby incorporated by reference into this EA.

PURPOSE AND NEED

The primary purpose of the currently proposed action is to release an authorized Congressional appropriation that will allow the City to prepare a complete design for the proposed project. The proposed present action (i.e., the release of funds) does not include authorization to construct any project elements, which will be a subject for additional consideration by EPA and other federal and state agencies in the future.

The project's basic purpose, in a larger sense, is to protect human health and the Humboldt Bay ecosystem. The overall objectives for the Martin Slough Interceptor Project are:

- (1) to develop a wastewater collection and conveyance project that reduces the incidences of sanitary sewer system overflows in the Martin Slough basin, thereby avoiding reductions in water quality in the aquatic environment near the City;
- (2) to develop a wastewater collection and conveyance project that will be more economically operated than is the current system, enabling the City and HCSD to discontinue operating as many as 16 existing lift stations, with attendant energy and cost savings; and
- (3) to assure that the newly developed wastewater collection and conveyance project meets future capacity requirements for planned land uses expected to occur within the project area.

PROPOSED ACTION AND ALTERNATIVES

EPA proposes to disburse Congressionally authorized funding to assist the City of Eureka in designing the Martin Slough Interceptor Project. The design would ultimately lead to project construction, following appropriate federal and state authorizations. EPA assumes that the designed and ultimately constructed project would include the same elements as the currently conceptualized ("10-percent design") project. On that basis this EA assesses, categorically, the impacts of the proposed action, two program alternatives, and the "no action" alternative.

The preliminary design for the proposed project was developed to meet the above objectives. The two program alternatives primarily involve different service area boundaries and future build-out scenarios. By strict interpretation, no action could be defined to mean that the EPA would not disperse funding for

this project; however, for the purposes of this environmental review, “no action” (or “no project” as in the project EIR) means not carrying out the project or designing any of the proposed project elements.

PROPOSED PROJECT ALTERNATIVE

The proposed project essentially represents a “re-plumbing” of a portion of an existing public wastewater system’s collection and conveyance components. Project components include a new sewer main interceptor, gravity collection lines, a new pump station, and a new force main. The project will shorten the delivery time of waste flows to the City’s treatment facility and, as stated in the objectives, allow the City to discontinue the use of up to 16 existing wastewater lift stations. The service area boundary for the proposed project was defined to be consistent with the specified “urban limit line” identified for service by public wastewater systems in adopted City and County of Humboldt planning documents. The proposed project will serve a projected total of 9,892 dwelling units at “full build-out” of the project area, together with 94 non-residential units.

ALTERNATIVE 1 – MODIFIED SERVICE AREA BOUNDARY ALTERNATIVE WITHOUT DENSITY ADJUSTMENT

During preliminary design, additional geographical areas were identified that could be considered as logical extensions of the designated service area in the proposed project. One alternative would alter the project’s boundaries to include several similar areas on the terraces south of the City; these areas are located in immediate proximity to the identified future service boundary in adopted planning documents. These additional areas are likely to be subject to development pressure due to their locations adjacent to areas that have been identified for future development. This alternative maintains the unit densities in the adopted planning documents, which are lower than most similarly designated land areas elsewhere in Humboldt County.

Adding the additional land area to that identified previously for the proposed project, the “Modified Service Area Boundary Without Density Adjustment Alternative” identifies a slightly increased total dwelling unit count. This alternative would provide service for a projected total of 10,468 residential dwelling units (576 more than the Proposed Project) and 94 non-residential units. It is likely that the physical components of this alternative would be largely indistinguishable from those of the proposed project. That is, few if any of the project elements identified for the Proposed Project would need to be altered, and locations of the project elements (e.g., the connectors, pump station, and force main) identified for the Proposed Project would likely be the same.

ALTERNATIVE 2 – MODIFIED SERVICE AREA BOUNDARY ALTERNATIVE WITH DENSITY ADJUSTMENT

Another conceptual alternative to the proposed project would serve a larger future population within the project area. The overall project boundary for this alternative would be the same as the boundary for the “Modified Service Area Boundary Without Density Adjustment Alternative;” however, under this alternative the density of units (and thus the total number of units) potentially served by the project both in the currently authorized service boundary and in the expanded boundary would be increased.

This alternative was based on the assumption that it would be reasonable to expect that the adopted land use densities in County’s applicable Community Plan might be subject to alteration (as amendments to the General Plan) in these areas to increase them to be more in line with unit densities elsewhere. This alternative would incorporate a projected total of 13,452 residential dwelling units (3,560 more than the Proposed Project) and 94 non-residential units. This alternative would incorporate 2,984 more residential dwelling units than the modified service area boundary alternative without the density adjustment.

This higher density alternative would probably not involve substantially different project element locations than the element locations identified for the proposed project. In addition, many of the project elements would remain about the same size as with the Proposed Project. However, there is a possibility that the higher dwelling unit numbers associated with this alternative would lead to increased project element sizes, particularly in the “downstream” part of the interceptor and in the force main. If these elements were not increased in size, then the size of the internal system flow-event that would be contained by the system would be reduced (i.e., degree of protection from wastewater overflows would be reduced).

NO ACTION ALTERNATIVE

By strict interpretation, no action could be defined to mean that the EPA would not disperse funding for this project; however, this interpretation would not be meaningful for environmental impact assessment purposes because the funds for design work have essentially already been committed. For the purposes of this EA, “no action” (or “no project” as in the project EIR) means not constructing any of the proposed project elements.

The no project alternative would not result in project components that could be associated with potential direct or indirect impacts to wetlands or to sensitive species and their habitats, thus avoiding these potential adverse impacts. Not carrying out the proposed Martin Slough Interceptor Project would not necessarily be inconsistent with adopted land use plans; however, it would not provide part of the infrastructure needed by development identified in these plans. Most significantly, under the no project alternative, water quality within the Martin Slough valley would not be protected because the occasional releases of wastewater to the environment as a consequence of overloaded lift stations would continue unabated.

SUMMARY OF IMPACTS AND MITIGATION MEASURES

The table below summarizes the potential environmental impacts of the proposed action, program alternatives, and the no action alternative.

Table E-1. Summary of Potential Environmental Impacts of the Proposed Action and Alternatives.

Environmental Resource Area	Proposed Action	No Action Alternative	Alternative 1	Alternative 2
Wetlands	Potential direct & indirect effects. Not significant after mitigation	No effect	Potential direct & indirect effects. Not significant after mitigation	Potential direct & indirect effects. Not significant after mitigation

Environmental Resource Area	Proposed Action	No Action Alternative	Alternative 1	Alternative 2
Floodplain	No significant effect	No effect	No significant effect	No significant effect
Agricultural Lands / Farmland	No significant effect	No effect	No significant effect	No significant effect
Coastal Zone Management	No significant effect	No effect	No significant effect	No significant effect
Wild and Scenic Rivers	Not applicable	Not applicable	Not applicable	Not applicable
Coastal Barrier Resources	Not applicable	Not applicable	Not applicable	Not applicable
Air Quality & Odor	Potential effect. Not significant after mitigation	Potential effect.	Potential effect. Not significant after mitigation	Potential effect. Not significant after mitigation
Important Vegetation Types	No significant effect	No effect	No significant effect	No significant effect
Endangered / Threatened Species & Critical Habitats	Potential direct & indirect effects. Not significant after mitigation	No effect	Potential direct & indirect effects. Not significant after mitigation	Potential direct & indirect effects. Not significant after mitigation
Topography	No significant effect	No effect	No significant effect	No significant effect
Groundwater	No significant effect	No effect	No significant effect	No significant effect
Water Quality	Potential direct & indirect effects. Not significant after mitigation	Potential significant effect	Potential direct & indirect effects. Not significant after mitigation	Potential direct & indirect effects. Not significant after mitigation
Hazardous Materials	No significant effect	No significant effect	No significant effect	No significant effect
Geology / Seismic / Soils	Potential direct & indirect effects. Not significant after mitigation	No effect	Potential direct & indirect effects. Not significant after mitigation	Potential direct & indirect effects. Not significant after mitigation
National Natural Landmarks	Not applicable	Not applicable	Not applicable	Not applicable
Historical Properties / Archaeology / Cultural Resources	Potential direct & indirect effects. Not significant after mitigation	No effect	Potential direct & indirect effects. Not significant after mitigation	Potential direct & indirect effects. Not significant after mitigation
Aesthetic Resources	Potential direct & indirect effects. Not significant after mitigation	No effect	Potential direct & indirect effects. Not significant after mitigation	Potential direct & indirect effects. Not significant after mitigation
Land Use & Zoning	Potential direct & indirect effects. Not significant after mitigation	No effect	Potential direct & indirect effects. Not significant after mitigation	Potential direct & indirect effects. Not significant after mitigation
Socioeconomic Impacts	No significant effects	No effect	No significant effects	No significant effects

Environmental Resource Area	Proposed Action	No Action Alternative	Alternative 1	Alternative 2
Utilities	No significant effects	No effect	No significant effects	No significant effects
Transportation & Access	Potential direct & indirect effects. Not significant after mitigation	No effect	Potential direct & indirect effects. Not significant after mitigation	Potential direct & indirect effects. Not significant after mitigation
Climate	No effect.	No effect	No effect.	No effect.
Noise	Potential effect. Not significant after mitigation.	No effect	Potential effect. Not significant after mitigation.	Potential effect. Not significant after mitigation.
Environmental Justice	No effect	No effect	No effect	No effect
Tribal Issues	None identified	None identified	None identified	None identified

1.0 PURPOSE AND NEED

1.1 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) proposes to disburse funds authorized by Congress to the City of Eureka, California, to support the design of the Martin Slough Interceptor Project.⁴ The federal funds will supplement local funding provided by wastewater revenue reserves and bonds; it is anticipated that the project will continue to remain an EPA responsibility in terms of future phases of project construction. The proposed project supported by this funding is a municipal wastewater system improvement project involving wastewater collection and conveyance. The project does not involve any changes to the City's existing treatment plant, nor any other alterations to the City's existing wastewater treatment or disposal processes.

As described further in Section 2, the Martin Slough Interceptor Project essentially will be a "re-plumbing" of a substantial portion of the City's existing wastewater collection system. The proposed project ultimately will involve construction of new wastewater collection and conveyance components within an existing public wastewater system, thereby increasing the reliability of the system for avoiding wastewater overflows in the project area, as well as improving the cost-effectiveness of system operations.

The main project components of the Martin Slough Interceptor Project include: a new gravity sewer main conveyance line, or "interceptor," in the Martin Slough valley; new gravity collection lines connecting up to 16 existing lift stations to the new interceptor; a new centralized pump station located toward the bottom of the valley; a new force main to convey wastewater to the City's existing Elk River Wastewater Treatment Plant on Humboldt Bay; and appurtenant improvements, such as manholes and access roads for maintenance. Project components identified in the preliminary design have been sized on the basis of predicted future population in the project's service area that is consistent with projections in adopted local planning documents.

The project area is generally located within the Martin Slough drainage basin, which includes the southern portion of the City of Eureka and adjacent unincorporated areas within the County of Humboldt. Wastewater services within the project area are provided by the City of Eureka (within city limits) and the Humboldt Community Services District (HCSD or "the District") (between city limits and the district boundary). The City of Eureka (2000 Census population 26,128) is an incorporated city located in Humboldt County (total 2000 Census population 126,518) on the northern coast of California, approximately 230 miles north-northwest of San Francisco and approximately 80 miles south of the Oregon state line (Figure 1-1). HCSD is a legally created special district under California law, with an elected board of directors, providing water supply, sewage collection, and street lighting services. Martin Slough is a tributary to Humboldt Bay; the lower reaches of the slough are subject to tidal influence. With approximately 18,000 surface acres, Humboldt Bay is the largest bay between San Francisco and Portland, Oregon.

⁴ Statutory authority is derived from the Consolidated Appropriations Act of 2001 (P.L. 106-554) and Consolidated Appropriations Resolution of 2003 (P.L. 108-7); regulatory authority is derived from 40 CFR Part 31, Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments.

Figure 1-1. Regional Location Map

<http://www.epa.gov/region09/water/eureka/fig1-1-project-location-1004.pdf>

1.2 PURPOSE AND NEED

The primary purpose of the proposed action is to protect human health and to protect the environmental values of the Humboldt Bay ecosystem. Improvements to the City's wastewater collection and conveyance system are needed to protect water quality, reduce the risk of wastewater overflows, improve system efficiency, and reduce odors. Some of the City's existing wastewater collection and treatment system components were originally designed and constructed decades ago to accommodate a proposed regional treatment facility, which was never built. Consequently, for the current collection and conveyance system to function properly, parts of the system currently must rely extensively on lift stations to convey wastewater to the existing Elk River WWTP. The project will improve system operations and efficiency.

In addition, reducing excessive infiltration and inflow (I/I) is an ongoing necessary practice for the City and the District. This additional flow is primarily groundwater or rainwater that has entered the collection system. Excessive I/I generally occurs as a consequence of older system elements that develop cracks or gaps that allow groundwater or runoff to enter the collection system; these flows are usually associated with relatively large or intense rainfall events, which can be exacerbated by prior rainfall events that leave the ground saturated, a common occurrence in this region of California. Excessive flows in the system may exceed the conveyance capacity of system elements, with the result that the contents of the pipelines may be forced out of the collection system, usually at manholes. The pipeline contents always include some wastewater flow, even when highly diluted by excessive I/I; therefore, a discharge of untreated wastewater into the environment is considered to be a violation of the permits issued to the City and the District for operating the overall system.

The Martin Slough Interceptor Project is being designed to reduce the potential for wastewater overflows to occur and to convey wastewater more efficiently to the WWTP. Providing a shorter delivery time of waste flows will also help reduce odors from the wastewater system. The project is expected to shorten the transit time when wastewater is in the collection system, which will reduce odors.

In sum, the objectives for the Martin Slough Interceptor Project are:

- (1) to develop a wastewater collection and conveyance project that reduces the incidences of sanitary sewer system overflows in the Martin Slough basin, thereby avoiding reductions in water quality in the aquatic environment near the City;
- (2) to develop a wastewater collection and conveyance project that will be more economically operated than is the current system, enabling the City and HCSD to discontinue operating as many as 16 existing lift stations, with attendant energy and cost savings; and
- (3) to assure that the newly developed wastewater collection and conveyance project meets future capacity requirements for planned land uses expected to occur within the project area.

1.2.1 DISPOSAL METHODS

The City's WWTP will not be altered by this project. Effluent disposal currently includes an existing outfall line and diffuser located on the bottom of Humboldt Bay's "entrance bay" that discharges fully

treated effluent on outgoing tides, effectively an ocean disposal. This discharge will not be affected by or altered by the proposed project and will not change. Sludge is disposed via land spreading and other methods according to existing NPDES permits; these disposal methods will not be affected by the proposed project and will not change.

1.2.2 POPULATION BASIS FOR CAPACITY DETERMINATION

The proposed project explicitly incorporates both the area served and the population projections identified in the adopted City and County planning documents applicable to the project area. The area served by the proposed project is identified by a solid outline in Figure 1-2. This project boundary incorporates: [1] areas within the limits of the City of Eureka that will gravity-flow into the Martin Slough Interceptor system (that is, areas that currently gravity-flow or are pumped to the existing lift stations); and [2] areas within the unincorporated part of Humboldt County that can reasonably be expected to utilize the Martin Slough Interceptor system based on topography or proximity to the system, which are also within the Urban Limit Line established by: (a) Eureka Community Plan (a component of the Humboldt County General Plan), and (b) the Humboldt Bay Area Plan (a component of the County’s Local Coastal Plan).

This composite area is identified in the adopted planning documents for the region as subject to the provision of urban services, including wastewater services, although the extension of services could require additional, more specific land use approvals from one or more agencies prior to actual construction. Thus, the service area boundary for the proposed project is intentionally defined to be consistent with the specified “urban limit line” identified for service by public wastewater systems in the adopted planning documents.

The project boundary portrayed in Figure 1-2 is associated with a specific projected residential unit count (Table 1-2). The primary assessment method used for identifying units for existing developed areas was aerial photo counts of existing units and undeveloped existing parcels in developed areas. For undeveloped areas (i.e., future development areas) the primary assessment method was based on the unit densities identified in the (County’s) Eureka Community Plan or the Humboldt Bay Area Plan (i.e., the adopted County planning documents), after removing areas that would be undevelopable under existing land use policies.

Table 1-2. Dwelling Units Associated with the Proposed Alternative.

Source	City of Eureka	HCSD	Total
Existing Residential Dwelling Units	1345	2839	4184
Future New Residential Dwelling Units	440	3900	4340
Future New Secondary Dwelling Units	357	1011	1368
Existing Non-residential Units ^A	0	94	94

Table Footnotes:

A No additional future non-residential units are anticipated.

The calculations that led to the data this table therefore indicate that the proposed project should serve a projected total of 9,892 dwelling units at “full build-out” of the project area, together with 94 non-residential units.

Figure 1-2. Alternative Boundaries Map

<http://www.epa.gov/region09/water/eureka/fig1-2-boundary-alternatives-1004.pdf>

1.2.3 DESIGN CAPACITY

1.2.3.1 Treatment Plant

The Martin Slough Interceptor Project is not directly related to the ability of the Elk River WWTP to treat wastewater according to the City's NPDES Permit. The proposed project will not affect the WWTP, nor will it have any effect on the plant's capacity for treating wastewater. The proposed project will alter only the existing collection and conveyance system, and the post-project system will not involve any major changes in the volume of wastewater flowing to the WWTP, at least initially. Future residential development, particularly in the County, is expected to result in increases to wastewater flows in the system.

The WWTP has a capability for treating, storing, and disposing of wastewater that was established by its original design and by the City's ongoing operations and maintenance practices. The 1981 design data for the treatment plant show the year 2001 projected average dry weather flows (ADWF) as 5.96 million gallons per day (MGD). Currently the WWTP receives ADWF of approximately 5.0 MGD; the plant currently is, therefore, operating within its design capacity.

As development proceeds within the greater Eureka area (including Humboldt County's Eureka Community Plan area served by the proposed project), expansion of the treatment plant will need to be considered as wastewater flows or loadings approach or exceed the plant's design capacity. The treatment plant was designed with provisions for future expansion to effectively double its current treatment capability. This expansion would involve constructing a second trickling filter and related components on space that was designated for such an expansion in the original design, without an expansion in the WWTP's "footprint." However, this future plant expansion is independent of the proposed project, which represents only one of many ways that wastewater flows from the greater Eureka area could reach the WWTP.

1.2.3.2 Collection System

The proposed project was designed explicitly to address overflows from an existing collection system that is planned to receive increased flows in the future that result from existing development plus new development that has already been approved by decision-makers. In addition, the collection system is experiencing a certain level of infiltration and/or inflow (I/I) under existing conditions; the I/I reflects climatological factors associated with rainfall and groundwater. It is expected that not all of the I/I can be eliminated owing to cost-effectiveness and feasibility limitations, and the system will continue to experience non-wastewater infiltration and inflow. These two factors (wastewater flows related to population and system flows driven by climatological events) were both considered in the design process that yielded the elements of the Proposed Project.

The proposed project represents an improvement in collection system reliability that is the primary focus of the design. The City's design team used engineering and hydrological modeling techniques to identify a combination of existing wastewater flows and infiltrated groundwater and surface water flows within the collection system in the Martin Slough region. These data were then used to model the future flows in the collection system resulting from population and climatological factors under current and future

conditions, as well as the element sizes that would be needed to convey those volumes without system overflows. The proposed project is expected to contain, without overflow, a peak flow that would be expected to occur no more frequently than once in a 25-year period. All smaller flows would be contained within the system. Based on the design work carried out by the City, the 25-year flow is the largest event that should be conveyed by the system; a system designed to convey larger events would not work as efficiently for the more common, smaller system flows, and the overall system performance would be worse.

The determination that a 25-year flow event was the most cost-effective focus for the system's design was based upon economic assessments that factored in the sizes and costs of system components and operating and maintenance costs. The details of the computations that led to this design are included in the 10-percent design documents, available from the City.

1.2.4 INCREASE OVER PRESENT CAPACITY

1.2.4.1 Treatment Plant

The proposed project does not represent an increase in capacity at the WWTP beyond current capacity.

1.2.4.2 Collection System

The existing collection system in the project area has capacity for additional wastewater flows during the dry season; however, under some wintertime conditions, the existing collection system discharges untreated wastewater to the environment, indicating that it already has a capacity limitation. Future additional development will occur within the project area, and there will also be a gradual increase in the I/I into the collection system. At some point the existing collection-and-conveyance system will not be able to encompass the combination of wastewater and non-wastewater flows from the project area; additional capacity beyond the existing system capacity will be required.

The proposed project includes an increment in conveyance capacity beyond the existing system's capability. The precise degree of capacity increase, with respect to the capacity of the existing system, is undefined. The combination of design parameters identified above reflects the increase beyond current capacity; that is, the collection system is expected to prevent wastewater overflows that result from a combination of complete project-area buildout and large climatological events expected with a frequency of about once per 25 years. Flows that result from all combinations of factors less than this peak "design flow" are not expected to escape the collection-and-conveyance system.

1.2.5 PROPOSED PROJECT'S RELATIONSHIP WITH OTHER PLANNING

The project's closest and most significant relationship with other planning in the region is with local government land use planning (as discussed in the project EIR). The proposed project preliminary design is intentionally based on land use and population projections identified in the adopted City and County planning documents applicable within the project service area.

While the project can be expected to aid in protecting water quality by reducing the risk of overflows, it does not have a direct relationship to domestic water services in the area. The largest water supplier in

Humboldt County is the Humboldt Bay Municipal Water District (HBMWD), a wholesale water agency that serves the greater Humboldt Bay area, including the City of Eureka and, through the HCSD, the adjacent unincorporated areas. Water supply is not a constraint in the area. Similarly the project does not have a direct connection to air quality planning or the State Implementation Plan; it is not a designated project intended to have any identified effects on assisting the region meet its air quality goals.

2.0 ALTERNATIVES

2.1 INTRODUCTION

This section describes the proposed action and alternatives to the proposed action. NEPA requires that federal agencies “study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources.”⁵ Under CEQ Regulations, the comparison of alternatives including the proposed action is recognized as the “heart” of an environmental impact statement (EIS),⁶ and, in an EIS, rigorous evaluation of a reasonable range of alternatives is required.

Regarding requirements for the treatment of alternatives in an EA, CEQ regulations⁷ state that an EA shall include a brief discussion of alternatives as required by the above-cited section of NEPA – i.e., for “any proposal that involves unresolved conflicts concerning alternative uses of available resources.” The CEQ regulations do not specifically require that an EA address the “no action alternative.” These requirements have had varying interpretations; generally, however, agencies do not address alternatives in an EA in as much detail or to the same level of analysis as in an EIS.

In this case, the proposed action is to disburse Congressionally authorized funding to assist the City of Eureka in designing the Martin Slough Interceptor Project. Essentially, this funding “decision” has been already made by Congress; thus, the alternatives to this “proposed action” are limited. In addition, the operational requirements of the gravity collection system and its setting within the Martin Slough drainage basin mean that, for practical purposes, alternative system locations and pipeline routes are also necessarily constrained, dictated largely by functional considerations.

The project EIR addressed two program alternatives and the “no project” alternative. Project alternatives considered in the EIR were developed by the City/HCS D planning team as a response to two factors: (1) the specific design elements that are necessary to yield a functioning wastewater collection system for the Martin Slough project area; and (2) the need for system elements to serve the identified land uses in City, District, and County of Humboldt planning documents, including the City’s adopted General Plan and the County’s adopted General Plan elements.

2.2 PROPOSED ACTION

EPA proposes to assist in funding the design of improvements to the City of Eureka’s wastewater collection and conveyance system. The proposed project supported by this funding is a collection and conveyance improvement project, which would replace portions of the existing wastewater system. As shown in Figure 2-1 and as described further below, the proposed project (“Proposed Project Alternative”) can be described in terms of three major components: (1) new collector pipelines and a new interceptor, (2) a new pump station, and (3) a new force main.

⁵ NEPA (42 U.S.C. 4321– 4347); Sec. 102(2)(E).

⁶ CEQ Regulations Implementing NEPA (40 CFR Part 1500 et seq.) at Sec. 1502.14.

⁷ CEQ Regulations Implementing NEPA (40 CFR Part 1500 et seq.) at Sec. 1508.9.

Figure 2-1 Proposed Project Map

<http://www.epa.gov/region09/water/eureka/fig2-1-project-map-1004.pdf>

2.2.1 COLLECTOR PIPELINES AND INTERCEPTOR

The proposed project includes new piping that will connect up to 16 existing lift stations to a new interceptor located in the bottom of the Martin Slough valley; this “re-plumbing” will allow the “lift” function of these lift stations to be discontinued, and wastewater conveyance will occur gravitationally. The smaller collector pipelines will begin at the location of each of the lift stations; the flows that will pass through each lift station will be conveyed to the interceptor by new ductile iron pipe (DIP) or fiber-reinforced plastic (FRP) pipeline. Where each collector line joins the interceptor a new manhole will be constructed.

The proposed interceptor begins at the O Street lift station and drains generally southwest down the valley of Martin Slough. In general, the interceptor likely will be constructed from DIP, from FRP pipe, or possibly from polyvinyl chloride (PVC) plastic pipe, which are typically manufactured in 20-foot-long segments with integral bell-and-spigot watertight joints.

The collection system will operate primarily under the influence of gravity. This places an effective length limit on the interceptor because the line must be buried deeper with distance, as wastewater flows progress down the hydraulic gradient established for the interceptor’s design. Wastewater flows cannot reach the existing City treatment plant solely under the influence of gravity; at some location a pumping facility is needed that provides the “lift” to allow the waste flows to reach the WWTP. This new pumping facility, the Martin Slough pump station, will be the terminus the interceptor (see next section). From the upstream end at the O Street lift station to the Martin Slough pump station, the interceptor will be approximately 11,125 feet long.

The project will incorporate a portion of an existing 14-inch high-density polyethylene (HDPE) pipeline that was constructed in 1991 in the Municipal Golf Course and in the western branch of the Martin Slough valley between the Golf Course and the end of California Street; in effect, this existing line will function as a secondary branch of the Martin Slough interceptor. The project also includes converting an existing 12-inch force main into a gravity collector; this existing force main carries the wastewater pumped by the O Street lift station to the existing gravity mains located in Hemlock Street and Dolbeer Street.

The project also includes constructing a short, capped interceptor branch, or “stub,” that will be available in the future to provide a connection to serve the planned residential development that is planned to occupy the elevated terrace lands southeast of the City of Eureka. This stubbed branch will be located south of Pine Hill and will join the interceptor east of the Martin Slough pump station (see next section). The stubbed branch will join the interceptor at a manhole (at a location where the interceptor is approximately 20 feet below the surface) and will be capped on the other (south) end. This stub and manhole are included as part of the project construction because it is more cost-efficient and less disruptive of operations to construct these components at the same time the interceptor is constructed.

2.2.2 MARTIN SLOUGH PUMP STATION

The project requires a new pump station within the lower Martin Slough valley. The proposed location for the new pump station is a site along the western margin of the Martin Slough valley near Meyers Avenue. The site is currently occupied by an existing single-family residence, which will be acquired by

the City of Eureka pursuant to appropriate laws. The pump station will be constructed as a reinforced concrete structure that will mostly be below the ground surface, with above-ground elements consisting primarily of a single-story building (estimated to be approximately 50 feet by 60 feet), a graveled or concrete working/parking surface, and landscaping within a perimeter security fence. Electrical supply lines will serve the site.

The pump station must be designed to accommodate existing waste flows, operating within accepted engineering design constraints. Then, as additional development occurs in the project area the pump station must be “expandable” to accommodate the increased flows. The pump station design will incorporate techniques to reduce externally perceived sound levels, and it will also include odor-reducing elements.

2.2.3 FORCE MAIN

The project pipeline between the new Martin Slough pump station and the City’s WWTP facility will be a “force main,” because the contents will be under pressure in order that the system may operate within accepted engineering design parameters to deliver the collected wastewater to the treatment facility. The preliminary design for the force main indicated that it likely would be composed of two separate pipelines; each likely would be welded HDPE pipe. The two force main pipelines that were identified in the 10-percent design included an approximately 22-inch diameter pipeline and an approximately 14-inch-diameter pipeline. The initial section of the force main would be constructed so that the new gravity collector from the existing Pine Hill lift station to the new Martin Slough pump station could be co-located within the same trench; the existing HCSD water line in Pine Hill Road would be reconstructed to be located on the southern side of the Pine Hill Road section.

The force main will be bored-and-jacked under Swain Slough. West of Swain Slough, the force main will be located within the section of Pine Hill Road, and then in seasonal wetlands, to a point about 250 feet south of Swain Slough. At this point, the force main will be directionally drilled under Swain Slough and Herrick Avenue. The pipeline will rise to near the surface north of Herrick Road, near the margin of an existing agricultural field, east of the State Highway 101 right-of-way. The alignment, in trench section, will pass north along the eastern side of the Highway 101 right-of-way until the pipeline is approximately due east of the existing treatment facility. This pipeline alignment will cross under Highway 101, approaching the eastern side of the City’s treatment facility, where the route will lie within the facility, ending at the existing headworks. The estimated length of this force main option between the Martin Slough pump station and the inlet works at the treatment facility headworks is approximately 9,150 feet.

2.3 NO ACTION ALTERNATIVE

The “No Action” Alternative for this project could be defined to have several meanings. By strict interpretation, no action could be defined to mean that the EPA would not disperse funding for this project; however, this interpretation would not be meaningful for environmental impact assessment purposes because the funds for design work have essentially already been committed by Congressional action. For the purposes of this EA, “no action” (or “no project” as in the project EIR) means not constructing any of the proposed project elements. The no project alternative does not mean that the City and HCSD would stop all activities related to wastewater system management in the Martin Slough basin;

the no project alternative would include continuing the ongoing inflow and/or infiltration (I/I) correction programs by the City and the HCSD.⁸

Under the no project alternative, the Martin Slough Interceptor Project would not be constructed, and this would have both positive and negative environmental implications. Not constructing the proposed project would preclude the associated, adverse construction-related effects, including potential effects related to sedimentation, water quality, and fish habitats; air quality; wetlands and sensitive environmental habitats; and construction and truck traffic noise. Avoiding these adverse environmental effects would be a positive feature of the no project alternative. Other potential construction-related effects would be associated with the I/I program.

Compared with proposed project to implement the Martin Slough Interceptor Project, the no project alternative may have fewer short-term adverse effects, but the longer-term effects of not implementing the wastewater project are substantially more significant than those of the proposed project, particularly with respect to not addressing existing impacts to water quality. Not constructing the proposed project would also mean that the City would not realize the benefit of developing a wastewater system that would save energy and promote efficiency by discontinuing up 16 existing lift stations.

The no project alternative would not address significant water quality concerns, and this would be a major negative feature of the no project alternative. Not constructing the Martin Slough Interceptor Project would mean that the City would not realize the water quality benefits that would result from developing a collection system that would reduce the incidences of wastewater system overflows in the Martin Slough basin. Without the project, there would be low expectation for reducing water quality effects on the aquatic environment near the City. Under the no project alternative, the occasional releases of wastewater to the environment within the Martin Slough valley as a consequence of overloaded lift stations would continue unabated, and likely would worsen through time as existing system elements deteriorated further and as additional developed areas were added to the area served by the existing system. The no project alternative would not protect water quality in the Martin Slough basin in the long term because it would not correct the causes of unauthorized wastewater discharges.

2.4 ALTERNATIVE 1 – MODIFIED SERVICE AREA BOUNDARY ALTERNATIVE WITHOUT DENSITY ADJUSTMENT

While the Proposed Project Alternative would be designed to serve only the areas within the City and the County that have already been designated for development, additional areas were identified during preliminary design that could be considered as logical extensions of the designated service area. Including these areas into the region served by the project could be envisioned as what the designated development areas “should have been,” assuming a closer focus on topography at the time the adopted planning documents were created. One alternative considered by the City would alter the project’s boundaries to include several such areas on the terrace surface that occur in immediate proximity to the

⁸ The City and the District will also carry out I/I correction if the Martin Slough Interceptor Project is developed, to the extent that funding is available. The program without the project would differ from the program with the project, because priority areas for I/I correction would differ. However, the City and the District have not programmed future I/I correction projects sufficiently to identify projects that may be implemented in addition to the proposed project.

identified future service boundary in adopted planning documents. The City’s design team considers it likely that these additional areas will be subject to development pressure as a direct consequence of their adjacency to areas that have been identified for future development.

This alternative carries forward the per-acre dwelling unit densities that were calculated for the Proposed Project Alternative, applying these densities to the additional areas served. Adding the additional dwelling units to those identified previously for the Proposed Project, the “Modified Service Area Boundary Without Density Adjustment Alternative” identifies a slightly increased total dwelling unit count; this alternative would incorporate a projected 10,468 residential dwelling units (576 more than the Proposed Project) and approximately 94 non-residential units.

The adopted scope of services for the design team did not include identifying the project element sizes that would be necessary to serve this alternative. However, the design team generally concluded that the increment in unit numbers was slight, and that it was likely that few (if any) of the project element sizes that were identified for the Proposed Project would be altered for this alternative. In addition, there would be no reason to expect that the locations of any of the project elements identified for the Proposed Project would be altered to accommodate the additional units included in this alternative. In other words, the physical elements of this alternative are likely to be largely indistinguishable from those of the Proposed Project.

2.5 ALTERNATIVE 2 – MODIFIED SERVICE AREA BOUNDARY ALTERNATIVE WITH DENSITY ADJUSTMENT

The City and the HCSD also identified a conceptual alternative to the Proposed Project that would serve a larger future population within the project area. The overall project boundary for this alternative would be the same as the boundary for the “Modified Service Area Boundary Without Density Adjustment Alternative.” Under this alternative, however, the numbers of units served by the project would be increased.

In identifying the dwelling unit densities for the Proposed Project, the design team identified what appeared to be artificially low dwelling unit densities for several of the future development areas included in the adopted Eureka Community Plan. The dwelling unit densities in these areas are substantially lower than dwelling unit densities that are commonly approved in areas with similar plan and zoning designations that are subject to County land uses regulations elsewhere (such as McKinleyville). It would be reasonable to expect that the adopted land use densities in the Eureka Community Plan might be subject to alteration (as amendments to the General Plan) in these areas to increase them to be more in line with unit densities elsewhere.

This alternative would have a greater development intensity than either of the other development alternatives considered. This alternative would incorporate a projected 13,452 residential dwelling units (3,560 more than the Proposed Project), and 94 non-residential units. This alternative, utilizing the same boundary as the “Modified Service Area Boundary Without Density Adjustment Alternative,” would incorporate 2,984 more residential dwelling units than would that alternative.

This higher density alternative probably would not involve substantially different project element locations than the element locations identified for the Proposed Project. In addition, many of the project elements would remain about the same size as with the Proposed Project. However, there is a possibility that the higher dwelling unit numbers associated with this alternative would lead to increased project element sizes, particularly in the “downstream” parts of the collection system. If these elements were not increased in size, then the size of the internal system flow-event that would be contained by the system would be reduced (i.e., degree of protection from wastewater overflows would be reduced).

2.6 ALTERNATIVE 3 – POSSIBLE PROJECTS AT DIFFERENT LOCATIONS

While it is reasonable for some projects to consider the possible utility of offsite alternatives for achieving basic project purposes, there is no “offsite” alternative that has a rational meaning for the Martin Slough Interceptor Project. The project must be located in the general vicinity of the valley floor, in order that the existing lift stations may be re-plumbed to gravity-flow to the interceptor. The project’s beginning point could be located at some location other than the existing O Street lift station, but the O Street lift station is the most rational beginning location, given the existing system configuration and operating characteristics. The project’s force main must end at the headworks of the existing wastewater treatment facility. Given these overriding constraints, no project alternative at a different location can be identified that will satisfy the project’s basic purposes.

3.0 PRESENT ENVIRONMENT

3.1 COMMUNITY LOCATION AND GENERAL DESCRIPTION

The City of Eureka is an incorporated city within the County of Humboldt in northwestern California. The City is located on the coastal plain and upland terraces adjacent to Humboldt Bay. With an estimated population of 26,100 (2003),⁹ Eureka is the largest incorporated city in Humboldt County and the seat of County government. The incorporated City contains approximately 17 square miles¹⁰ of land; much of the City is developed in commercial and residential uses, and little developable land remains within the incorporated area. Open space areas include “gulch greenways,” wetlands and riparian areas, parks and preserves, and portions of coastal agricultural parcels (typically grazing areas in farmed wetlands that are diked former tidelands). Housing in the City of Eureka is dominated (approximately 66 percent) by single-family residences; however, nearly one-third of the approximately 11,875 units of total housing stock have typically been multi-family units. The City’s roadway system is dominated by two major features – a grid system and U.S. Highway 101. Highway 101, a major north-south route in the State, operates through Eureka as Broadway and two one-way streets (Fourth Street and Fifth Street); these streets are a major focus of traffic congestion.¹¹

Humboldt County, with an estimated population of 128,300 (2003),¹² is bordered on the north by Del Norte County, on the east by Siskiyou and Trinity Counties, on the south by Mendocino County, and on the west by the Pacific Ocean. The County encompasses 2.3 million acres, approximately 80 percent of which is forest, parks, and recreation areas. Timber production and wood products industries have historically been the major basic economic activities in Humboldt County, and while these activities persist, they have been in decline since the 1970s; timber production in 2000 was in excess of 388 million board feet.¹³ The fishing industry and related food processing employment sectors have also declined over past decades; jobs in these sectors have remained relatively flat in recent years.¹⁴ The largest sectors of County employment are currently (2002) all components of government (including operations in parks and national forests), trade, transportation and utilities, education, and health services.¹⁵ Major employers in Humboldt County include the State University and the community college, government and public administration, hospitals, lumber production and materials, and horticultural specialties.¹⁶ The agricultural sector accounts for approximately 2.2 percent of the County’s total employment.¹⁷ Leading

⁹ State of California, Department of Finance. California Statistical Abstract 2003.

¹⁰ City of Eureka website at <http://www.eurekaweb.com/cityhall/>.

¹¹ Mintier & Associates 1994 and City of Eureka website.

¹² State of California, Department of Finance. California Statistical Abstract 2003.

¹³ County of Humboldt, Community Development Department at <http://www.co.humboldt.ca.us/planning/demograp/humboldt>.

¹⁴ Mintier & Associates 1994.

¹⁵ State of California, Department of Finance; California County Profiles, Humboldt County, at <http://www.dof.ca.gov>, California Employment Development Department (including the Humboldt County “Snapshot”) at <http://www.calmis.ca.gov/htmlfile/subject/COsnaps.htm>; and County of Humboldt, Community Development Department.

¹⁶ California Employment Development Department, Labor Market Information, at <http://www.calmis.ca.gov>.

¹⁷ California Employment Development Department, Humboldt County “Snapshot” at <http://www.calmis.ca.gov/htmlfile/subject/COsnaps.htm>.

agricultural commodities in the County include flower bulbs and nursery products, milk and dairy products, and cattle.

Many County land areas adjacent to the City of Eureka have been developed for residential land uses. The population of these adjacent County areas essentially doubles the effective size of “greater Eureka.” As noted previously, the City is legally precluded from providing most municipal services for non-City areas. The County land areas are served by the Humboldt Community Services District, including areas both inside and outside the project area for the Martin Slough Interceptor Project..

3.2 SERVICE AREA

The proposed project has been designed to make use of gravity flow provided by the natural topography of the Martin Slough basin, which includes the southern portion of the City and the adjacent unincorporated lands in Humboldt County. Wastewater collection services in this area are provided by the City and by the HCSD within their respective service areas. For the City of Eureka, the service area is effectively the area within the city limit. For the HCSD, the service area extends outward from the city limit to the District boundary.

The urban area that is generally recognized as “greater Eureka” includes urban neighborhoods that extend seamlessly from the City into adjacent unincorporated areas, including a number of areas inside the Martin Slough Interceptor Project area adjacent to the irregular City boundary on the south side of Eureka.

The City’s sphere of influence includes urbanized areas within the County. Planning documents for the County and the City have established limits on urbanization, within which water and wastewater and other services may be provided. The service area boundary defined for the proposed project is consistent with the “urban limit line” identified in these adopted planning documents. Land uses within the service area consist of a mixture of uses including residential, commercial, industrial, and resource-related uses. The proposed project will serve an estimated total of 9,892 dwelling units at “full build-out” of the project area, together with an estimated 94 non-residential units.

3.3 GEOLOGY, TOPOGRAPHY, AND SEISMICITY

The Martin Slough Interceptor Project is located within a stream basin that drains indirectly to Humboldt Bay. The Humboldt Bay basin includes the uplands east and southeast of the City limits; the ridgetops that define the basin are virtually all visible from the Bay. Martin Slough is a creek in its upper reaches; only in its downstream reaches, near Elk River, does it resemble a tidal channel with slowly flowing or standing water, a connotation sometimes evoked by the term “slough.” The stream basin has two primary branches: (1) a main or eastern branch that begins near the City’s Sequoia Park; and (2) a western branch that lies mostly south of Harris Street near California Street, and which joins the main branch near the center of the Eureka Municipal Golf Course. The basin includes numerous tributary canyons, many of which contain streams with perennial flows that may be minimal in the late summer but which may be substantial during winter rainstorms.

The project area's surface geological formations are of relatively recent age, less than 1,000,000 (and for most of the area less than 100,000) years old. Virtually all of the valley-floor surface materials in which project elements will be located are less than 10,000 years old. The majority of the project will occur in fine-grained sediments deposited in the past few thousand years under estuarine conditions. The majority of the higher-elevation elements are near-shore terrestrial or marine deposits of middle- to late-Pleistocene age (< 1,000,000 years old). In Eureka these are generally assigned as part of the Hookton Formation. The Eureka terrace surface, however, is mostly composed of near-shore marine-deposited sediments that are much younger (approximately 80,000 to 100,000 years old) than the Hookton Formation on which they rest.

The project's seismic setting includes the potential for seismic shaking from several earthquake sources: (1) intraplate earthquakes (primarily along transform faults) in the Gorda Plate, (2) Mendocino Fault system transform earthquakes, (3) San Andreas Fault system transform earthquakes, (4) intraplate earthquakes (primarily along thrust faults) in the North American Plate, and (5) Cascadia Subduction Zone (CSZ) great thrust earthquakes. The project area is also subject to tsunamis, more commonly known as "tidal waves" or seismic sea waves, generated by submarine landslides or changes in sea floor elevation resulting from earthquakes.

The project area includes lands within approximately two miles of the Little Salmon Fault, a significant intraplate fault in the North American tectonic plate, and is located approximately 12 vertical miles above the Cascadia Subduction Zone; these faults are recognized as potential sources of very large earthquakes in the project region. However, the geotechnical studies conducted for this project did not result in identifying any faults within the geological formations in which the project elements will be placed. Therefore the project may be considered to be subject to potentially strong seismic shaking from nearby faults, but is not expected to be subject to potential effects from fault rupture.

Additional sources of potential damage associated with geotechnical conditions include seismically induced or related land movements. Generally the Martin Slough Interceptor Project elements are unlikely to be subject to failure because of landsliding, since the majority of these elements are located below slopes that might fail. Some of the collector lines traverse slopes that have a potential for landslide failure. Liquefaction could be associated with potential pipe-shearing damage if the pipeline were included in a layer of material that moved because it rested on top of a sediment layer that became liquefied during a strong earthquake.

Seismically induced differential land movement may include differential settlement or differential movement in contrasting geological materials. The potential for materials of differing composition to move differently when subjected to seismic shaking can be associated with shearing movements that could cause pipeline ruptures. There is historical evidence of damage to pipelines in the Humboldt Bay region associated with seismic events. The geotechnical studies conducted for the project identified little risk to project elements as a consequence of potentially expansive soils, which were not encountered in the project area.

Most of the low-elevation project elements will be placed in "recent" (i.e., late-Holocene) estuarine and alluvial deposits. Owing to the mode and locality of their deposition these sediments are generally quite fine-grained (mostly silt), generally being referred to as "bay mud," even though sediments in upstream

parts of the project area are likely to have been deposited in a floodplain context. These sediments often have quite a high organic content, including substantial former marsh deposits (i.e., peats).

3.4 CLIMATE AND AIR QUALITY

Humboldt County has a climate generally recognized as “Mediterranean,” which denotes a dry summer and a wet winter. Seasonal rainfall totals average more than 40 inches in drier areas, and exceed 100 inches in the zones of heavier precipitation. The Humboldt Bay region experiences moderate temperatures and summer fogginess owing to its location near the Pacific Ocean. Because of the moisture and moderate temperatures the average relative humidity is high. With increasing distance from the ocean, the marine influence is less pronounced, and inland areas experience wider variations of temperature and humidity.

Average temperatures along the coast typically vary only 10° Fahrenheit from summer to winter, although a greater range is found over inland areas. Temperatures of 32° F or lower are seldom experienced near the coastline, but colder temperatures are common in the interior. Maximum readings for the year often do not exceed 80° F on the coast, while 100° F-plus readings occur frequently in the mountain valleys.¹⁸

Air quality regulation in the Martin Slough Interceptor Project is the responsibility of the North Coast Unified Air Quality Management District (AQMD) pursuant to the federal Clean Air Act (42 USC §§ 7401 et seq.) and the comparable state law (Health and Safety Code §§ 39000 et seq.).

Air quality in the project area generally meets applicable standards. The North Coast air basin is in attainment status for all federal standards for criteria pollutants. The overall status of the AQMD for federal and state air quality standards for criteria pollutants is summarized in Table 3-1.

Table 3-1. Air Quality Status in the Humboldt Bay Region.

Criteria Pollutant	Status with Respect to Federal Standard	Status with Respect to State Standard
Ozone	Attainment	Attainment
Carbon Monoxide	Attainment	Attainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
Particulate (PM10)	Attainment	Non-attainment
Sulfates	No Federal Standard	Attainment
Lead	Attainment	Attainment
Hydrogen Sulfide	No Federal Standard	Attainment
Vinyl Chloride	No Federal Standard	Attainment

¹⁸ Humboldt County website at <http://www.co.humboldt.ca.us/portal/about.asp>.

The North Coast also is in attainment status for all state standards except that for PM10, suspended particulate matter smaller than 10 micrometers (or “microns;” a micrometer is 1/1000 of a millimeter, or about 1/25,000 of an inch). The adopted federal and state PM10 standards are:

<u>Averaging Time</u>	<u>Federal Standard</u>	<u>California Standard</u>
Annual Arithmetic Mean:	50 µg/m ³	30 µg/m ³
24-Hour Average:	150 µg/m ³	30 µg/m ³

PM10 pollutants may be generated by transportation sources (tire wear, tailpipe emissions, etc.); by construction-generated dust or smoke; and by smoke from appliances like woodstoves, barbecues, or fireplaces. PM10 can be a health hazard, especially for children, the elderly, and people with heart or lung disease. The AQMD adopted a draft PM10 Attainment Plan in 1995.

3.5 ENVIRONMENTAL INVENTORY

Pursuant to the suggested EPA Region 9 guidelines for preparing environmental assessments, the following brief evaluations of selected environmental resources topics indicate whether the resource is present in the service area or nearby and whether it may be affected directly or indirectly by project components or the project as a whole.

3.5.1 WETLANDS

The Executive Order on Protection of Wetlands¹⁹ requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands whenever there is a practicable alternative. Wetlands protection requirements and permitting functions are the responsibility of various federal, state, and local agencies. For a detailed discussion of wetland formal definitions, classification, types, functions, policy contexts, and regulatory processes, see the project EIR.

The Martin Slough Interceptor Project is located in an area replete with wetlands, and the project design has many elements that will, by necessity, be sited in areas that have been identified as wetlands. The collector pipeline elements linking most of the existing lift stations with the interceptor will be located in the floodplain wetlands of stream valleys. Most of the route for the proposed new interceptor pipeline lies within wetlands; the proposed Martin Slough pump station is located in a wetland area, which also contains fill areas that were emplaced in association with road construction and the site’s residential use. The force main is proposed to be located in wetlands that are primarily diked former tidelands.

3.5.2 GROUNDWATER RESOURCES

Most of the municipal water in the Humboldt Bay area, including all of the City’s water service and majority of the District’s water service, is obtained primarily from the Humboldt Bay Municipal Water

¹⁹ Executive Order No. 11990. May 24, 1977; 42 FR 26961.

District, which derives its supply from surface water sources. There are no designated sole source aquifers within the project area.

3.5.3 FLOODPLAIN

Most of the pipeline alignments and major project components of the Martin Slough Interceptor Project are, by physical necessity, located in areas mapped by FEMA as within the 100-year floodplain.²⁰ As described earlier, the proposed project makes use of gravity flow provided by the natural drainages of the Martin Slough basin, including the alignment for the interceptor itself, generally down the Martin Slough valley. The interceptor delivers the wastewater to the proposed pump station near Meyers Avenue (see previous section) at the bottom of the valley; from this location, the project pipeline alignment crosses twice beneath Swain Slough, then proceeds in trench section across farmed wetlands, under Highway 101, through coastal wetlands to the City's WWTP. Thus, except for the upland collector lines, the project components must be located within the floodplain in order to function as designed.

The Martin Slough basin as a whole has a known historical tendency to become inundated during winter rainy periods. Intensified runoff resulting from development in the basin is a factor in this flooding, but it is only one of several factors; others factors include the low stream gradient in the lower Martin Slough valley, the presence of a "hydraulic dam" caused by floodwaters or elevated tidewaters in Elk River, and the presence of a levee across the lower valley with limited culvert discharge capability.

The presence of elevated water surfaces in Swain Slough and the Elk River valley, whether from high tidal elevations or from Elk River floodwaters, prevents floodwaters from draining out of the Martin Slough valley. These factors, among others, were evaluated in a Martin Slough Drainage Study prepared jointly for the City and the County more than a decade ago.²¹ This study documented an anticipated increase in peak runoff that would occur as a consequence of development in the Martin Slough basin. The drainage study also documented, however, that the perceived effect of the additional development would be a barely perceptible increase in floodwater surface elevation and a minor increase in the expected duration of flooding in the Martin Slough valley.²²

In summary, the previous drainage study indicated that: (1) flooding in the Martin Slough valley occurs because the valley has a very low stream gradient and a stream channel that cannot contain the flows that are delivered to the valley from upland areas; (2) ponding occurs in the lowlands that reflects the low rate at which water drains from the valley, even after inflow from the uplands has ceased; (3) most of the flow that leaves the valley when it is flooded flows over the top of the Swain Slough levee, rather than out through the culverts where Martin Slough empties into Swain Slough, because the culvert outlets are submerged; and (4) the increased runoff resulting from development in the uplands would also leave the

²⁰ Federal Emergency Management Agency (FEMA), National Flood Insurance Program.

²¹ Oscar Larson & Associates 1990.

²² The overall result is indicated most clearly in a memorandum to the County Board of Supervisors prepared by the Deputy Director of the County Public Works Department, 13 February 1990: "If the watershed was developed to the ultimate anticipated level, a 10-year storm would increase the duration of flooding from 35 hours to 38 hours (8½ percent) and raise the water surface about 1/8". This is because most of the water spills across the top of the dike and has little impact on the volume of water retained in the ponded area." On the basis of this study the County determined that increasing culvert numbers or capacity would not significantly improve flood inundation conditions in the lower Martin Slough valley.

basin over the top of the Swain Slough levee, creating a very minor increase in the duration of flooding and an insignificant increase in the floodwater elevation.

3.5.4 IMPORTANT / SIGNIFICANT AGRICULTURAL LANDS

Commercial agriculture in Humboldt County is primarily associated with grazing and livestock raising; other agricultural production includes nursery products, flower bulbs, and dairy products. Much of the agricultural activity around Humboldt Bay consists of livestock grazing and occurs on farmed wetlands (diked former tidelands). The local coastal programs of both the City and the County require protection for coastal agriculture; the City's certified Local Coastal Plan designates all soils in the City's Coastal Zone as "non-prime" soils.²³ While conversion of agricultural lands is a concern of various state and federal agencies, there are no known areas within the project area containing agricultural lands of statewide or national significance. This project will not be associated with significant direct or indirect agricultural impacts.

3.5.5 COASTAL ZONE MANAGEMENT

The Coastal Zone Management Act of 1972²⁴ requires that federal actions reasonably likely to affect any land or water use or natural resources of the coastal zone be consistent with the adopted state coastal management programs. The California Coastal Act requires that each jurisdiction within the Coastal Zone develop a Local Coastal Program (LCP) that is consistent with the Act. Land use regulation for portions of the project area located within the Coastal Zone in the vicinity of Humboldt Bay is the shared responsibility of the City, the County, and the California Coastal Commission.

Within the project area, City planning documents are applicable to coastal and non-coastal areas within city limits where the City provides sewer service. County planning documents apply to unincorporated land areas in coastal and non-coastal areas where HCSO provides or plans to provide sewer service within the greater Eureka region.

Portions of the project area are also located within the Coastal Commission's retained coastal development permit jurisdiction. Within the project area, the Commission has permit jurisdiction for project components located within the diked former tidelands and within mapped riparian corridors along Elk River, Swain Slough, and Martin Slough, extending up Martin Slough to the Coastal Zone boundary. The Martin Slough Interceptor project is considered a "development" under the Coastal Act (Section 30106), and thus a permit is required from the Commission in order to construct project elements within the Commission's retained permit jurisdiction.

3.5.6 WILD AND SCENIC RIVERS

There are no rivers in the immediate project area that have received formal designation under the Wild and Scenic Rivers Act, or that are under consideration for designation under that Act.²⁵

²³ Mintier & Associates 1994.

²⁴ 16 U.S.C. 1451 et seq.

²⁵ Public Law 90-542 (1968).

3.5.7 COASTAL BARRIER RESOURCES

No designated coastal barrier resources are known in the vicinity of the proposed project. The project does not involve federally-subsidized development within a defined Coastal Barrier Resources System.

3.5.8 MAJOR BOTANICAL FEATURES

Most of the vegetation within the project area has been altered by human occupation and activities, including logging, agricultural clearing, grazing, drainage improvements, residential development, and urbanization. Nevertheless, remnant patches of native vegetation and introduced species, create a range of vegetative cover throughout much of the area. Particularly important for environmental values are riparian corridors along the streams and tributaries, and wetland vegetation, including coastal wetlands.

3.5.9 IMPORTANT FISH AND WILDLIFE

For the purposes of this assessment, the “important” fish and wildlife in the project area are considered to be those that are listed by state and federal agencies and the California Native Plant Society (CNPS) as rare, threatened, endangered, or otherwise sensitive species, as discussed in the next subsection.

3.5.10 ENDANGERED & THREATENED SPECIES

3.5.10.1 Aquatic Species

Seven fish “species”²⁶ and/or their habitats could be affected adversely by the proposed project in a context that would be considered to result in significant environmental effects because these species are listed by trustee agencies, in some form, under the federal Endangered Species Act (ESA), the California Endangered Species Act (CESA), or other state wildlife law (Table 6-1).

Table 3-2. Fish Species Occurring in the Project Area Listed Under Federal or State Endangered Species Acts.²⁷

Taxonomic Name	Common Name	Federal/State ESA Status ^A	Federal Critical Habitat?
<i>Oncorhynchus tshawytscha</i> ^B	Chinook (King) Salmon	FT / --	No
<i>Oncorhynchus kisutch</i> ^C	Coho (Silver) Salmon	FT / CSC ^D	Yes
<i>Oncorhynchus mykiss</i> ^E	Steelhead	FT / CSC ^F	No
<i>Oncorhynchus clarki clarki</i>	Coastal Cutthroat Trout	-- / CSC	--

²⁶ The pseudo-taxonomic unit that is most germane for salmonids under the Endangered Species Act is the “evolutionarily significant unit” (ESU), a concept that refers to distinctive groupings of Pacific salmon, steelhead, and sea-run cutthroat trout. The ESU concept was created by the National Marine Fisheries Service (now NOAA Fisheries) to designate, pursuant to the Endangered Species Act, distinctive “populations” of salmonids that were declining significantly and were therefore potentially subject to the Act.

²⁷ These listings may be reviewed on the state’s listing of “Special Animals,” dated August 2004; see: <http://www.dfg.ca.gov/hcpb/species/lists.shtml>.

Taxonomic Name	Common Name	Federal/State ESA Status ^A	Federal Critical Habitat?
<i>Spirinchus thaleichthys</i>	Longfin Smelt	-- / CSC	--
<i>Thaleichthys pacificus</i>	Eulachon	-- / CSC	--
<i>Eucyclogobius newberryi</i>	Tidewater Goby	FE / CSC	Yes

Table Footnotes:

- A FE Federal Endangered
 FT Federal Threatened
 FSC Federal Species of Concern
 CSC California “Special Concern”
- B California Coastal ESU.
 C Southern Oregon/Northern California Coasts ESU.
 D A petition was filed to list this ESU in April 2001; accepted as a candidate species, with a determination that listing is warranted. Listing has been delayed until a recovery plan is prepared.
 E Northern California ESU.
 F “Summer run” only.

3.5.10.2 Sensitive Terrestrial Plants

Biological assessments conducted for the project EIR at the direction of the City initially identified 34 sensitive plant species that occurred within the broadly defined environs surrounding the project area. A preliminary consideration of the habitat requirements or habitat associations for these species resulted in a reduced list of 33 species that were considered as potentially occurring in the project area; these species are identified in Table 3-3. Only three species listed in this table (Humboldt Bay wallflower, beach layia, and western lily) have a formal listing status (“endangered” under both the federal and California Endangered Species Acts). The other 30 species are nonetheless considered to be environmentally sensitive species primarily because they are included in the California Natural Diversity Data Base (CNDDB), based on their inclusion on inventory lists promulgated by the California Native Plant Society (CNPS).

Table 3-3. Sensitive Plant Species Considered During the Proposed Project Assessment. ^{A 28}

Taxonomic Name	Common Name	Federal/State/CNPS Status ^B
<i>Abronia umbellata</i> ssp. <i>breviflora</i>	Pink sand verbena	-- / -- / 1B
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	Coastal marsh milk vetch	-- / -- / 1B
<i>Carex arcta</i>	Northern clustered sedge	-- / -- / 2
<i>Carex leptalea</i>	Flaccid sedge	-- / -- / 2
<i>Carex lyngbyei</i>	Lyngbye’s sedge	-- / -- / 2
<i>Carex praticola</i>	Meadow sedge	-- / -- / 2
<i>Carex viridula</i> var. <i>viridula</i>	Green sedge	-- / -- / 2
<i>Castilleja affinis</i> ssp. <i>litoralis</i>	Oregon coast Indian paintbrush	-- / -- / 2
<i>Castilleja ambigua</i> ssp. <i>humboldtiensis</i>	Humboldt Bay owl’s-clover	-- / -- / 1B

²⁸ These listings may be reviewed on the state’s listing of “Special Plants,” dated July 2004; see: <http://www.dfg.ca.gov/hcpb/species/lists.shtml>.

Taxonomic Name	Common Name	Federal/State/CNPS Status ^B
<i>Clarkia amoena</i> ssp. <i>whitneyi</i>	Whitney's farewell-to-spring	-- / -- / 1B
<i>Cordylanthus maritimus</i> ssp. <i>palustris</i>	Point Reyes bird's-beak	-- / -- / 1B
<i>Erysimum menziesii</i> ssp. <i>eurekaense</i>	Humboldt Bay wallflower	FE / CE / 1B
<i>Erythronium revolutum</i>	Coast fawn lily	-- / -- / 2
<i>Fissidens pauperculus</i>	none	-- / -- / 1B
<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	-- / -- / 1B
<i>Gilia millefoliata</i>	Dark-eyed gilia	-- / -- / 1B
<i>Hesperevax sparsiflora</i> var. <i>breviflora</i>	Short-leaved evax	-- / -- / 2
<i>Lathyrus japonicus</i>	Sand pea	-- / -- / 2
<i>Lathyrus palustris</i>	Marsh pea	-- / -- / 2
<i>Layia carnosa</i>	Beach layia	FE / CE / 1B
<i>Lilium occidentale</i>	Western lily	FE / CE / 1B
<i>Lycopodium clavatum</i>	Running pine	-- / -- / 2
<i>Mitella caulescens</i>	Leafy-stemmed mitrewort	-- / -- / 2
<i>Monotropa uniflora</i>	Indian pipe	-- / -- / 2
<i>Montia howellii</i>	Howell's montia	-- / -- / 2
<i>Puccinellia pumila</i>	Dwarf alkali grass	-- / -- / 2
<i>Sidalcea malachroides</i>	Maple-leaved checkerbloom	-- / -- / 1B
<i>Sidalcea malviflora</i> ssp. <i>patula</i>	Siskiyou checkerbloom	-- / -- / 1B
<i>Sidalcea oregana</i> ssp. <i>eximia</i>	Coast checkerbloom	-- / -- / 1B
<i>Spergularia canadensis</i> var. <i>occidentalis</i>	Western sand spurry	-- / -- / 2
<i>Viola palustris</i>	Marsh violet	-- / -- / 2

Table Footnotes:

A Species observed in the project area are shown in bold; see Appendix D.

B FE Federal Endangered

CE California Endangered

CNPS 1B Plants Rare, Threatened, or Endangered in California and elsewhere

CNPS 2 Plants Rare, Threatened, or Endangered in California, but more common elsewhere

3.5.10.3 Sensitive Wildlife Species

Biological assessments conducted for the project EIR at the direction of the City also evaluated the potential of the project to affect sensitive wildlife species. The assessment initially identified 26 wildlife species that might occur within the broadly defined environs surrounding the project area, as shown in Table 3-4.

Table 3-4. Sensitive Wildlife Species Considered During the Proposed Project Assessment.

Taxonomic Name	Common Name	Federal/State Status ^A
<i>Phalacrocorax auritus</i>	Double-breasted cormorant	-- / CSC
<i>Ardea alba</i>	Great egret	-- / CSC
<i>Ardea herodias</i>	Great blue heron	-- / CSC

Taxonomic Name	Common Name	Federal/State Status ^A
<i>Egretta thula</i>	Snowy egret	-- / CSC
<i>Nycticorax nycticorax</i>	Black-crowned night heron	-- / CSC
<i>Accipiter cooperi</i>	Cooper's hawk	-- / CSC
<i>Accipiter striatus</i>	Sharp-shinned hawk	-- / CSC
<i>Elanus leucurus</i>	White-tailed kite	-- / CSC (FP)
<i>Pandion haliaetus</i>	Osprey	-- / CSC
<i>Falco columbarius</i>	Merlin	-- / CSC
<i>Rallus longirostris</i> ssp. <i>obsoletus</i>	California clapper rail	FE / CE (FP)
<i>Charadrius alexandrinus</i> ssp. <i>nivosus</i>	Western snowy plover	FT / CSC
<i>Strix occidentalis</i> ssp. <i>caurina</i>	Northern spotted owl	FT / CSC
<i>Empidonax traillii</i>	Willow flycatcher	-- / CE
<i>Progne subis</i>	Purple martin	-- / CSC
<i>Poecile atricapillus</i>	Black-capped chickadee	-- / CSC
<i>Dendroica petechia</i>	Yellow warbler	-- / CSC
<i>Icteria virens</i>	Yellow-breasted chat	-- / CSC
<i>Agelaius tricolor</i>	Tricolored blackbird	FSC / CSC
<i>Rhyacotriton variegatus</i>	Southern torrent salamander	-- / CSC
<i>Ascaphus truei</i>	Tailed frog	-- / CSC
<i>Rana aurora</i> ssp. <i>aurora</i>	Northern red-legged frog	-- / CSC
<i>Rana boyleii</i>	Foothill yellow-legged frog	-- / CSC
<i>Clemmys marmorata</i> ssp. <i>marmorata</i>	Northwestern pond turtle	-- / CSC
<i>Arborimus albipes</i>	White-footed vole	-- / CSC
<i>Arborimus pomo</i>	Red tree vole	-- / CSC

Table Footnotes:

- A FE Federal Endangered
- CE California Endangered
- FSC Federal Special Concern
- CSC California Special concern
- FP "Fully Protected" pursuant to California Fish & Game Code § 3511

Three of the species in Table 3-4 have a formal listing status under the ESA or the CESA: the California clapper rail (listed under both acts), the western snowy plover, and the northern spotted owl. All of the other species listed in table above are considered as "environmentally sensitive" under California environmental regulations but do not have a formal status under either the state or federal Act.

3.5.11 CRITICAL HABITATS

Under the federal Endangered Species Act, critical habitat is defined as "the specific areas within the geographic area occupied by a species on which are found those physical and biological features essential to the conservation of the species, and that may require special management considerations or protection; and specific areas outside the geographic area occupied by a species at the time it is listed, upon determination that such areas are essential for the conservation of the species." Of a total of

approximately 1265 threatened and endangered species in the United States (292 in California), critical habitat has been designated for 472 species.²⁹

In the above lists, there are two species for which critical habitat has been designated:

Coho (Silver) Salmon (*Oncorhynchus kisutch*) – Federally threatened

Tidewater Goby (*Eucyclogobius newberryi*) – Federally endangered

3.5.12 ENVIRONMENTALLY SENSITIVE AREAS

In addition to the habitats of the sensitive species identified above, the ecosystem complex that includes the Martin Slough stream basin also includes the Humboldt Bay estuary, and the estuary constitutes an essential element in the life cycles of anadromous fish species that are a concern in this region. The estuary technically includes Swain Slough and the lowermost portions of the Elk River, which are fully tidal in the vicinity of the Martin Slough mouth. Martin Slough is tributary to Swain Slough through several large culverts with tidegates, but these gates are not a complete barrier to fish.

3.5.13 NATIONAL NATURAL LANDMARKS

The purpose of the National Natural Landmarks Program,³⁰ established in 1962 and administered by the National Park Service, is to identify and recognize nationally significant natural areas throughout the United States and to encourage their continued preservation. Landmarks may be in either public or private ownership. The program has recognized some 587 sites nationally; there are no designated National Natural Landmarks near the project area.

3.5.14 CULTURAL RESOURCES

The Humboldt Bay area, where the proposed project is generally located, is a region with known archaeological and historical sensitivities. In order to characterize the nature and extent of potential effects of the proposed project on cultural resources, the City commissioned a site-specific cultural resources study for the proposed project as part of the work on the project EIR.³¹ No archaeological sites were identified within the area of potential impact for the project. One of two potentially significant identified historic properties within the area of potential impact was found to be eligible for the California Register of Historical Resources. No determination was made regarding eligibility for the Federal Register of Historic Places.

3.5.15 AESTHETIC RESOURCES

For this assessment, “aesthetic resources” primarily means those locations, sites, or natural or man-made features that have been designated or otherwise identified, typically by a public agency, as possessing visual or other qualities that should be protected from adverse effects. There are no known resources of

²⁹ Information as of September 2004 from the U.S. Fish & Wildlife website at <http://endangered.fws.gov/>.

³⁰ Authorization for the program is derived from the Historic Sites Act of 1935, Public Law 74-292, 16 U.S.C. 461; General Authorities Act of 1970, Public Law 94-458, 16 U.S.C. 1a-5; Mining in National Parks Act of 1976, Public Law 94-429, 16 U.S.C. 1908.

³¹ Roscoe and Van Kirk. 2002.

this type in the area. Highway 101, a scenic highway elsewhere in the State, possesses no special aesthetic designation or attributes in the vicinity of this project pipeline alignment. There are no scenic byways in the area. Also included under “aesthetic resources” are associated issues such as lighting, noise, and odor.

3.5.16 HAZARDOUS MATERIALS

Various land uses within the service areas for this project, including commercial uses within designated commercial areas, are likely to use or have historically used materials that are classified as hazardous; in addition, structures in the service areas may contain lead-based paint and asbestos-containing materials. The primary structural hazards concern for buildings in the area is seismic motion and shaking. Areas in Eureka, particularly along and adjacent to the City’s waterfront and in industrial areas, are known to contain sites identified by the Regional Water Quality Control Board as containing toxic soils and / or groundwater contamination.³²

3.6 PRESENT FACILITIES

3.6.1 COLLECTION, TREATMENT, AND DISPOSAL

The proposed project will be constructed within the context of an existing wastewater collection, treatment, and disposal system. The project is essentially a “re-plumbing” of one part of the existing collection system, and will have no effect on the system’s ability to treat and dispose of wastewater. Collection services in the project area are provided by the City and the HCSD within their respective jurisdictions. The City/HCSD wastewater system includes many miles of collection system elements, composed largely of the laterals from homes or businesses to gravity mains in the streets in improved areas. These mains contribute flows to an “inversely branching system” of mains that become larger in size to accommodate increasing flow volumes. Because of the design history of the wastewater collection and treatment system, portions of the system have relied extensively on wastewater lift stations to convey wastewater to the current location of the treatment plant.

The collection system is prone to infiltration and/or inflow (I/I); excessive I/I flows (generally occurring as a consequence of relatively large or intense rainfall events) create a potential that flows in the system may exceed the conveyance capacity of system elements. The result is that the contents of the pipelines may be forced out of the collection system, usually at manholes. The contents of the pipelines always include some waste flow, even when highly diluted by excessive I/I.

Wastewater treatment and disposal are provided by a public wastewater treatment facility owned and operated by the City of Eureka, located near the mouth of Elk River along the eastern shore of Humboldt Bay, near the southern city limit. The City provides wastewater treatment and disposal services for HCSD customers under agreement between the City and HCSD. The Martin Slough Interceptor Project will not directly affect the existing treatment facility, other than to involve a minor reconstruction of part of the inlet “headworks” to accommodate coupling the end of the force main to the headworks.

³² Mintier & Associates. 1994. City of Eureka General Plan Background Report.

In the past the City accepted septage for treatment at the Elk River Treatment Plant. In the summer of 2002 the City discontinued accepting septage from septage haulers, in order to allow for required maintenance at the plant. At that time the County issued a permit to a private party for a septage/sludge dewatering and disposal facility in McKinleyville. This facility is currently accepting all septage that previously went to the City's WWTP. The City has no plans to resume accepting septage from outside the greater Eureka area in the future. Therefore, the potential that septage treatment could alter the operational characteristics of the facility is considered minimal.

3.6.2 CAPACITY AND FLOW

The Elk River plant design was based upon expected average dry weather wastewater flow, projected to occur in the year 2001, of 5.96 million gallons per day (MGD), peak dry weather flows of 9.5 MGD, and peak wet weather flows into the facility of 32.2 MGD. The facility design also was based upon a calculated waste loading on the plant that was based upon the expected population served during that design lifetime.

The City WWTP facility was designed and constructed to treat the wastewater generated within the City and the Humboldt Community Services District at the time the facility was constructed, as well as the additional flows that resulted from approved population growth in the service area. The Martin Slough Interceptor Project is not expected to accelerate any expansion of the WWTP beyond that which was anticipated when the plant was initially constructed.

As noted above, the 1981 treatment plant design projected the 2001 Average Dry Weather Flows (ADWF) as 5.96 MGD; currently the plant receives ADWF of approximately 5.0 MGD, and the plant is, therefore, operating within its design capacity. As development proceeds within the greater Eureka area, expansion of the WWTP will need to be considered as wastewater flows approach the plant's design capacity. The treatment plant was designed with provisions for future construction that will double its current waste load treatment capability.

3.6.3 EFFLUENT QUALITY, DISPOSAL METHOD, AND RECEIVING WATERS

When operated according to the design and within the design loading, the WWTP is expected to produce treated effluent that is consistent with the discharge limitations in the City's NPDES permit. The Elk River plant produces effluent that complies with effluent limitation standards included in a permit issued by the North Coast Regional Water Quality Control Board (RWQCB) pursuant to the National Pollutant Discharge Elimination System (NPDES Permit No. CA0024449). The permit authorizes the City of Eureka to discharge effluent through an outfall that is located near the mouth of Humboldt Bay. The discharge may only occur on out-going tides, and the discharge is considered an "ocean discharge" because the effluent is rapidly mixed with seawater in the Pacific Ocean. In order to comply with the discharge timing limitation, the Elk River facility includes substantial storage capacity for effluent within the facility.

3.7 WATER QUALITY CONCERNS TO BE ADDRESSED

As a “publicly owned treatment works,” the City’s wastewater collection, treatment, and disposal facilities are operated pursuant to an issued NPDES Permit (see above). While the NPDES Permit incorporates discharge requirements for the plant’s effluent release, the operative element with respect to water quality in the project area is the Permit’s prohibition on discharging untreated wastewater from the collection system into the environment.

The unauthorized discharges that occur in the Martin Slough valley from time to time under present conditions therefore present a significant environmental concern, both in terms of physical (e.g., potential water quality) effects as well as in terms of regulatory compliance. The discharges result from wastewater flows in the collection system in combination with additional inflows of non-wastewater and the entry of groundwater into the system (I/I). The current collection system in the project area allows a concentration of wastewater and I/I flows at the lift stations, which occur at low points in the collection system; when the flows into the lift stations exceed the short-term storage and pumping capacity of these lift stations, some of the influent flows may escape the system. A discharge of untreated wastewater into the environment is considered to be a violation of the permits issued to the City and the District for operating the treatment system. This discharge of wastewater from the collection system is an expressly prohibited “point source” violation of the City’s NPDES Permit.

The system’s periodic release of waste flows under present conditions is a function of system geography (particularly the location of the lift stations at low points), an increase in wastewater flows as a consequence of additional development, and increasing I/I that is a function of the age of the collection system. It is possible that increased future wastewater flows to the existing lift stations (a result of development allowed by approved land use plans) and an anticipated gradual increase in I/I could increase overflows from the system. The City considers this potential increase in overflows to be a significant environmental concern, and this significant environmental concern is the primary reason that the City is seeking to implement the Martin Slough Interceptor Project.

4.0 ENVIRONMENTAL IMPACTS

4.1 EFFECTS OF THE PROPOSED ACTION

4.1.1 WETLANDS

Nearly all of the project alignment is, by necessity, located in wetland areas, and project construction will affect wetland areas and wetland functions in coastal and non-coastal areas of the Martin Slough valley. Impact analyses for the project EIR (and in anticipation of permitting requirements) calculated that project construction would affect a total area of 23.17 wetland acres if the project that has yet to be formally designed maintains the elements of the preliminary (“10-percent”) design.

4.1.1.1 Seasonal Emergent Wetlands

The collector pipeline elements linking most of the existing lift stations with the interceptor will be located in the floodplain wetlands of stream valleys. The force main is proposed to be located in areas that are primarily diked former tidelands. Based on the remnant slough channels and meander scars, the valley at the time of European settlement was intertidal up to approximately the location of the western Fairway Drive crossing, and the dominant vegetation was salt-tolerant marsh. Upstream from this zone the stream was undoubtedly tidally influenced to the limit of the flat valley bottom (i.e., to about Sequoia Park in the main valley and to near the foot of Lowell Street and the vicinity of the Sea Avenue lift station in the west branch), although the floodplain vegetation was probably “riparian” forest (see below). During high tides and winter storms with substantial runoff it is likely that the entire Martin Slough floodplain and the Elk River lowlands would have been inundated.

Under current conditions most of the diked former tidelands and former floodplain areas are seasonally inundated or saturated emergent wetlands, with fine-grained soils that limit infiltration of rainfall and surface flows. The dominant species in these grass-dominated habitats today usually are the introduced Eurasian perennials velvetgrass (*Holcus lanatus*) and vernalgrass (*Anthoxanthum odoratum*); a number of other Eurasian species may be present, including fescue (*Festuca*) species, orchardgrass (*Dactylis glomerata*), one or more ryegrass (*Lolium*) species, redtop (*Agrostis stolonifera*), and tall fescue (*F. arundinacea*). The native water foxtail (*Alopecurus geniculatus*) may dominate very wet sites. The grasses commonly co-occur with herbaceous broadleaved forbs, such as *Hypochoeris* (false dandelion) species, English plantain (*Plantago lanceolata*), and trefoil (*Lotus* spp.).

Most pastures in the Humboldt Bay region have rushes (*Juncus*); the most common is soft rush (*J. effusus*). Other narrow-leaved monocots that may be present include spike-rush (*Eleocharis macrostachya*) and sedges, especially slough sedge (*Carex obnupta*). The pastures invariably are colonized by low-growing woody vines and shrubs, and dense stands of sedges intermixed with vines, unless removed, tend to replace the grasslands. California blackberry (*Rubus ursinus*) is widespread; Himalayan blackberry (*R. discolor*) is favored in disturbed areas. Coyotebrush (*Baccharis pilularis*) usually colonizes mounded soil and levees.

Project construction will affect a total of approximately 23 acres of wetlands, including approximately 18 acres of seasonal emergent wetlands. The design elements and mitigation measures included in the project will result in restoring pre-project conditions in all but approximately one acre of the seasonal

emergent wetlands. The one acre of converted seasonal wetland represents permanent wetland fill that is associated with manholes and maintenance access roads; the City has wetland mitigation credits available to offset the permanent fill (see below). Thus the project is not associated with permanent loss of area of seasonal emergent wetlands.

4.1.1.2 Riparian Forested Wetlands

Construction will also affect riparian forested wetlands dominated by woody vegetation.³³ The riparian forests contain various mixtures of large woody (i.e., tree) species, including red alder (*Alnus rubra*), pacific willow (*S. lucida* ssp. *lasiandra*), black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), Sitka spruce (*Picea sitchensis*), and redwood (*Sequoia sempervirens*). The most common woody species in the riparian forestlands in the Martin Slough valley today is the shrubby arroyo willow (*Salix lasiolepis*), which is a pioneer species in these forests. Another common shrubby willow species in the project area is Sitka willow (*S. sitchensis*).

These floodplain riparian forests typically have an open overstory with a relatively dense herbaceous layer; dominant plant species in these wetlands include slough sedge (*Carex obnupta*), skunk cabbage (*Lysichiton americanum*), small-fruit bulrush (*Scirpus microcarpus*), soft rush (*Juncus effusus*), and water parsley (*Oenanthe sarmentosa*). In floodplains that lack a dense forest overstory or a dense shrub understory a “sedge meadow” may develop. However, floodplains typically are colonized by woody species, particularly salmonberry (*Rubus spectabilis*); other woody shrub species present may include cascara (*Rhamnus purshiana*), twinberry (*Lonicera involucrata*), Oregon crabapple (*Malus fusca*), and dogwood (*Cornus* spp.).

The construction process in riparian forested wetlands will involve removing all woody vegetation within the pipeline corridor’s construction zone; substantial excavation, with temporary spoil storage and the storage of various construction supplies and project components in wetlands; and soil compaction. The area of riparian forested wetland directly affected by excavation and other construction activities will be approximately five acres.

The changes in area of forested riparian wetlands because of project construction constitute an environmentally significant effect. The mitigation measures and construction practices incorporated into the project will avoid a long-term reduction in the area of these habitats; that is, areas that are currently riparian forest will continue to be, and function as, riparian forest. As in the project EIR, the conclusion can be made that the loss of forested riparian wetland area will be reduced below the threshold of significance, and a significant loss of riparian forested wetland area will not occur as a consequence of the pipeline construction.

There will be a permanent conversion of approximately half an acre of riparian forested wetland to manhole and access roadway fill. The mitigation for the conversion is included in the mitigation credit to be exercised (see below). The project’s construction also will result in a temporal loss of wetland functions, associated with the removal of woody riparian vegetation (see below).

³³ Riparian areas are not necessarily all wetlands, but for the Martin Slough Interceptor Project the riparian areas in which project elements will be sited do meet local, state, and federal criteria for being identified as wetlands.

4.1.1.3 Restoration of Wetlands

The project design team developed, and the City will incorporate into project construction documents, a “context-sensitive” construction approach for wetland areas that will restore pre-construction wetland conditions in most of the affected wetlands. The design team also developed several techniques for stream crossings, which are expected to prevent significant effects in these aquatic environments.

These alternative techniques include construction techniques for crossing aquatic features using culverts, pumped crossings, or trenchless techniques such as boring-and-jacking and directional drilling. Where the project will use construction techniques that do not involve working within the water, it is expected that no adverse effects on the Martin Slough or Swain Slough channels or the associated aquatic ecosystem will result from these crossing elements.

Almost all of the wetland acres affected by construction will be restored to pre-project wetland conditions by the identified techniques and mitigation measures, and after mitigation, the environmental effect to wetland areas and functions will not be significant. The temporal loss of some wetland functions will not be fully mitigated by identified mitigation measures; this effect, however, is relatively short-term, and for the purposes of NEPA, found to be not significant.

4.1.1.4 Mitigation for Permanent Wetland Area Loss

The construction process will involve permanent access roadways and manholes within what are now wetland areas. Roadway and manhole fill constitutes permanent replacement of wetland surface with gravel fill and non-wetland structures. The total area directly affected will be approximately 1.4 acres that will not be restored to wetland conditions. The access roads and manholes will occur only in the collection system, and predominantly involve the interceptor itself. Approximately two-thirds of the affected area will involve perennial grassland emergent marshes; approximately a third of the affected area includes manholes and access roadways placed in forested riparian wetland areas.

The City has identified mitigation for these effects, involving the use of mitigation credits previously purchased by the City from the County of Humboldt at the Fay Slough Wildlife Area (FSWA).³⁴ The City has rights to 2.0 acres of “credit” within the FSWA. These credits were established in the late 1980s for the City’s use in order to offset impacts from future public works projects, and the credits are available for the wetland impacts from the Martin Slough Interceptor Project. Because the “mitigation wetlands” already exist, the City concluded that a “mitigation ratio” by area of 1:1 would be appropriate, and the mitigation needs for 1.4 acres of permanent wetland fill from the Martin Slough project are satisfied by using 1.4 acres of mitigation credit available to the City at the FSWA.

Thus, the project has avoided long- and short-term impacts to wetlands to the extent possible. Project design parameters are constrained by the physical necessity of the gravity flow; the City has not identified any practicable alternative to the project alignment that avoids all impacts to wetlands. The construction

³⁴ The Fay Slough Wildlife Area is owned by the State of California, and is under the control and jurisdiction of the California Department of Fish and Game. The development of the FSWA included removing a number of former farm buildings and associated fill, thus restoring formerly filled lands to wetland condition. The City of Eureka purchased mitigation “credit” at the FSWA, for future public services projects, at the time the Wildlife Area was restored, as noted in the main text.

of permanent access roadways and manholes will result in a permanent wetland losses within the Martin Slough valley of approximately 1.4 acres of what are now wetland areas. Compensation for this loss has been provided through “withdrawal” of credits from a mitigation bank within the Humboldt Bay watershed. Thus the finding can be made that the project will have no adverse, long-term effect on wetland area within the Humboldt Bay watershed.

4.1.1.5 Mitigation for Wetland Functions

The project EIR assessed the potential effects on wetland areas, and also assessed potential effects on wetland functions, owing to the need for project permit approval from the U. S. Army Corps of Engineers. Corps reviews must evaluate impacts to wetland functions pursuant to Regulatory Guidance Letter (RGL) 02-2.³⁵ The proposed project will affect the functions that are provided by the wetlands in which project elements are located, including flood-management functions, water quality functions, and habitat functions. The principal effects will occur with respect to cumulative effects on wetland functions for sediment retention, nutrient removal or transformation, aquatic diversity and abundance, and “terrestrial diversity and abundance,” in combination with the effects resulting from the enabled development that will follow from the project.

The construction process associated with the project will implement a number of mitigation measures identified by the City of Eureka that will have the effect of avoiding short-term and long-term impacts on wetland functions, including both direct impacts and indirect impacts (see Chapter 8 in the project’s EIR). The project will not result in the permanent loss of any wetland functions currently available in the project area. The project will not result in a significant reduction in wetland functions, with one exception: there will be a temporal loss of some habitat functions in forested riparian wetlands. The area of riparian forested wetland affected by this temporal functional effect is approximately five acres. The habitat function in these wetlands is related to the stature of the woody vegetation, and it will take several years before these forests resume providing this function.

This temporal effect is identified in the project EIR as environmentally significant on account of the need for Corps of Engineers approval for the project that will ultimately be constructed. However, the Corps approval will be based upon the project that will be designed following the release of the Congressionally appropriated funds by the EPA. The City of Eureka has acknowledged that Corps permit application reviews are expected to identify this effect as a concern, and that increased mitigation proposals will likely be required in order to offset the temporal loss of habitat functions in forested wetlands. The City has stated that riparian forest restoration is a well-understood process in the Humboldt Bay region, and that there are several options for riparian forest enhancement within the Humboldt Bay watershed. The City has also stated its conclusion that identifying a proposed mitigation option in advance of the Corps application is considered to be premature, as well as likely to increase the cost of the mitigation unnecessarily. The City has stated that it is confident that mitigation to fully offset the temporal habitat function loss is feasible and will be identified during the Corps permit review process. Thus the finding

³⁵ RGL 02-2 directs Corps District staff to identify any function assessment methodologies that should be used in meeting its requirements. To date the San Francisco District has not identified function assessment methodologies to be used for applications in the District. RGL 02-2 may be downloaded from URL: http://www.usace.army.mil/inet/functions/cw/hot_topics/RGL_02-2.pdf.

can be made that the project will have no adverse, long-term effect on wetland functions within the Humboldt Bay watershed.

4.1.2 FLOODPLAIN

Much of the project is located in areas mapped by FEMA as occurring within a 100-year floodplain and a designated floodway. The project, however, does not involve the placement of new residential structures in areas subject to flood hazards; nor is it likely that any of the project components, individually or cumulatively, represent a significant encroachment into the floodway that would raise the flood elevation measurably. The pipeline will be installed in trench section and the ground surface for most of the project area will be restored to pre-project elevations and surface conditions.

Manholes within the interceptor will be designed to have their inlets higher than the designated 100-year flood elevation, or will be fitted with gaskets that will prevent floodwaters from entering the collection system. The project's new pump station near Meyers Avenue will be located in an area mapped as within the floodplain; the project's "10-percent" design has identified a final floor elevation for the single above-ground building story (approximately 12 feet) that is two feet higher than the identified 100-year flood elevation at that site (currently identified as 9.8 feet NAVD 88). This structure, which will have only limited and periodic occupancy, will be largely underground.

The Martin Slough Valley has a known tendency to become inundated during some wintertime runoff events. While development that will be served by the proposed project will cause increases in peak runoff, other currently existing, physical and man-made factors already control flood elevations, and the increased runoff resulting from development that will be served by the proposed project will not contribute to increased flood hazards in the project area. Existing studies previously prepared and adopted by the County of Humboldt indicate that the increased runoff resulting from development will have minimal effects on flooding in the valley. The project EIR concluded that the permanent fill within the floodplain that would result from the project would not have a significant impact on flooding [see Draft EIR page 5-14 (section 5.3.2.2) and page 8-20 (footnote 17) for additional information].

The proposed project would not create significant direct impacts on flooding, or be adversely affected by flooding. The proposed project will not create significant indirect effects on flooding, nor be part of an environmentally significant cumulative flooding impact. Because of the restoration of pre-project conditions, the project will not have significant adverse impacts on natural and beneficial values of the floodplain.

4.1.3 COASTAL ZONE

Coastal Act policies most germane for this project cover four topics: (a) coastal wetlands, (b) other environmentally sensitive areas, (c) coastal agriculture, and (d) expanded public services. As part of the permit review process, the California Coastal Commission must find that project elements within the Commission's jurisdiction comply with the policies of the California Coastal Act.

As part of the City's environmental review under CEQA, the EIR assessed potential conflicts with Coastal Act policies, if any, particularly if the conflict would be associated with an adverse physical change in the environment. The EIR concluded that findings could be made that the proposed project is

consistent with Coastal Act policies in the identified policy areas. Mitigation measures for impacts to coastal wetlands and environmentally sensitive areas have reduced the potential impacts within these policy areas to less-than-significant. In transitional coastal agricultural lands such as those in the project area, “incidental public services purposes” are among the “allowable uses,” and the project was found to present no significant effects to coastal agriculture. The project design takes into account future development, including an increase in the served population; however, because the system is being designed to serve the development designated by approved coastal and non-coastal planning documents, this increase does not represent a significant conflict with Coastal Act policies.

4.1.4 AIR QUALITY

The proposed project’s construction cycle, which may extend over a period of years, will be associated with PM10 generation. Earth-moving activities during construction present a potential for raising dust, which could be blown off the site; some of this dust would be PM10. Construction vehicles will produce engine exhaust, potentially including smoke and other particulate matter in the PM10 size range. If authorized by the North Coast Unified AQMD, some vegetation waste could be burned in the project construction area, which would produce smoke having a high concentration of PM10-sized particulate matter.

The particulates generated by project-related construction activities are not necessarily an environmentally significant effect by themselves; however, the concern is related more to the cumulative effect of all such generation activities in the air basin, which is in “nonattainment” for this pollutant under State of California (but not federal) criteria. Because the proposed project would contribute to the PM10 nonattainment, mitigation measures, identified in the project EIR, have been incorporated into the project design. These measures require project construction contractors to comply with specified provisions related to particulate matter, fugitive dust emissions, and use of water application for dust control. With the incorporation of these measures, potential effects to air quality are found to be less-than-significant.

4.1.5 IMPORTANT FISH AND WILDLIFE

Effects to “important” fish and wildlife are addressed in the next section.

4.1.6 ENDANGERED AND THREATENED SPECIES

Potential Effects on Sensitive Fish Species. Project construction has a potential for directly affecting fish species listed under federal or state Endangered Species Acts, through pollutants in the construction zone that subsequently enter the aquatic environment. The proposed project also has a potential for indirectly affecting these species, through the delivery of pollutants in runoff from newly urbanized areas, and through hydrological alterations that result from increased impervious surface area associated with development. The most important pollutant associated with construction is mobilized sediment, which would adversely affect environmentally sensitive fish species and their habitats.

The City, in consultation with state and federal regulatory agencies, has identified, and incorporated into the preliminary project design, measures that will avoid, reduce, or offset the project-related effects on sensitive fish species and their habitats. Further consultations, particularly under the requirements of the federal ESA, are anticipated when the project design has been advanced sufficiently to allow the City to

apply for permits; additional mitigation requirements identified during these future consultations, if any, will be incorporated into the project's final design and construction to address the project's direct, construction-related effects. Thus the finding can be made that the project will not have adverse direct effects on sensitive aquatic species within the Humboldt Bay watershed.

The City of Eureka has stated that the potential indirect effects on the project on aquatic ecosystems and sensitive aquatic species have been, and are being, addressed by both City of Eureka and County of Humboldt approaches to runoff management that will be required in areas that will be developed in the future. The City and the County are each working with federal and state fisheries agencies to identify suitable land use practices and development standards that will be applied to the project area, which will avoid, minimize, or offset the indirect and cumulative effects of urbanization on sensitive species and their habitats.

The preliminary consultations have resulted in the determination by NOAA Fisheries, Arcata office, that the "consultation" required pursuant to Section 7 of the ESA will occur when the Army Corps permit application for project construction is sought by the City. The consultation, and any resulting Incidental Take Permit or other authorization to affect listed fish species, will apply to both the City and the Corps. Any necessary additional mitigation to avoid a jeopardy determination for the project reviewed by the Corps will be incorporated into the Corps' project approval. The finding can be made that the project will not have adverse indirect effects on sensitive aquatic species within the Humboldt Bay watershed.

Potential Effects on Terrestrial Plant and Wildlife Species. The Proposed Project may affect sensitive terrestrial plant and wildlife species. The City, in consultation with state and federal regulatory agencies, has incorporated measures into preliminary project design that will avoid, reduce, or offset the project-related effects on terrestrial plant and wildlife species; no significant effects to any terrestrial species considered sensitive under state or federal law are expected.

4.1.7 ENVIRONMENTALLY SENSITIVE AREAS

Mitigation measures incorporated into the project will reduce potential adverse effects to environmentally sensitive areas – including wetlands, habitat for sensitive species, and aquatic habitats – to levels that are less-than-significant, as discussed in other, related sections of this EA.

4.1.8 GEOLOGY, SEISMIC CONSIDERATIONS, AND SOILS

The project area exhibits a high potential for effects associated with geological and geotechnical conditions, including unstable soils, seismic hazards, adverse conditions due to high groundwater, and other forms of geological and geotechnical risk. Implementation during project construction of the consulting geologists' recommendations (e.g., for soil stability, grading, and erosion control) are expected to reduce potential geological and geotechnical effects to less-than-significant levels.

4.1.9 CULTURAL RESOURCES

No significant prehistoric cultural resources were identified by the project-specific cultural resources investigation within the project's potential areas of direct impact. None of the known and recorded archaeological properties within the regional context would be affected by construction of the project.

Representatives of local Native American communities, who were consulted for the EIR investigation and who reviewed the proposed project alignments and toured the project area, identified no significant cultural sites within areas potentially affected by the project. Because of the general archaeological sensitivity of the surrounding regional context, however, there is a slight possibility that additional buried archaeological materials may be encountered during construction operations within the project area. Construction documents will include appropriate requirements for archaeological monitoring and stopping work if unknown materials are encountered. With these measures, the potential for affecting unknown but potentially significant sites is found to be not a significant impact.

Project construction, including excavation and other ground-disturbing activities, could adversely affect the historic “Lorensen Ranch” property, which is an historical property potentially eligible for the California Register of Historical Resources near the alignment of the interceptor pipeline. The eligibility of the structure for the National Register of Historic Places has not been determined. Mitigation measures, including provisions for specified construction techniques, have been identified and will be incorporated into construction documents to avoid significant effects on the structure or its setting.

4.1.10 AESTHETIC RESOURCES

The project involves minor changes in visual quality, odor, and noise conditions. Introducing new sources of nighttime lighting is also anticipated with respect to possible nighttime construction.

Visual quality. The project is not associated with substantial adverse effects on a designated scenic vista or state scenic highway. Temporary adverse effects of nighttime lighting during construction will be reduced by implementing mitigation measures to reduce these effects to levels that are less-than-significant.

Noise. During project construction, the nearness of trucks to occupied structures is expected to create noise-related aesthetic effects. Because the City has not identified the specific haul routes for project-related truck traffic, the associated noise was considered in the EIR to be an unmitigated effect. During project operation, project components will create unwanted sound, including the occasional use of an emergency generator at the pump station site. Mitigation measures included in the project are expected to assure that noise associated with project construction and operation will remain to the extent possible within identified noise standards.

Odor. The project has a potential for releasing odors that may cross a threshold of significance for nearby residences and businesses. Mitigation approaches are included into the project’s preliminary design that will reduce potential odor releases to a level that is less-than-significant.

4.2 SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES

According to the CEQ NEPA Regulations, “significantly,” as used in NEPA, requires considerations of both context and intensity.³⁶ Under NEPA, significance varies with the setting of the proposed action and the severity of impact; significance is primarily used to determine whether an EIS is required or a Finding

³⁶ CEQ Regulations Implementing NEPA (40 CFR Part 1500 et seq.) at Section 1508.27.

of No Significant Impact (FNSI) may be issued. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined to be significant under NEPA.

In the project EIR, the City concludes that nearly all potentially significant effects of the Proposed Project can be reduced to less-than-significant levels by identified mitigation measures. Preliminary project design and the associated environmental review have resulted in a project that will incorporate a number of mitigation measures. These measures are presented in Appendix A. The project EIR also found, however, that the following were significant, unavoidable issues.

Cumulative Effects Related to Runoff Intensification and Water Quality. These indirect (or secondary) effects will occur within the Martin Slough basin and the Humboldt Bay watershed because of the effects of development authorized by adopted land use plans, including areas for which the City lacks jurisdiction to prescribe mitigation measures.

Following the completion of the EIR's public review process, the City consulted further with the County of Humboldt regarding the County's approach to managing the runoff-related future effects of the development that will be served by the project. The County signaled its intention to adopt development-review requirements that were as protective as those required by the City (see Attachment B). On the basis of the proposed approach identified by the County of Humboldt, the City revised the conclusion of significance regarding indirect effects when formulating the Final EIR for the project. Consequently the potential cumulative and indirect effects of the proposed project on hydrological and water quality changes that may be associated with future development are currently considered not to be environmentally significant.

Temporal Loss of Riparian Forested Wetland Functions. The Proposed Project will result in construction-related temporary losses of habitat functions in approximately five acres of riparian forested wetland. Because of the mitigation measures identified in the project EIR, there will be no long-term loss of riparian forested wetland area; however, the short-term loss of wetland functions resulting from project construction was identified as an environmentally significant effect under criteria identified by the U. S. Army Corps of Engineers as applicable for identifying environmental effects pursuant to the federal Clean Water Act. Under criteria currently in use by state and local agencies, this effect is not recognized.

This issue will be further addressed during the permitting activities for the project, when the Corps application-review process is conducted; as noted above, feasible mitigation measures for the temporal loss of wetland functions are available, and the effect will not be environmentally significant.

Cumulative Loss of Wetland Functions. The project participates in a cumulatively significant national and statewide impact on wetland functions, mediated through a combination of short-term direct effects (i.e., effects resulting from construction and other project-related changes) and longer-term indirect effects (i.e., effects result from development facilitated by the project, including the water-quality-related effects identified above).

Because the finding for a significant cumulative effect is based on the finding for a project-specific effect, and the project-specific effect is considered as likely to be reduced to a level of non-significance during the Corps review process, the project's participation in a cumulative effect will also be reduced to a level

of non-significance as a consequence of the additional measures incorporated during the Corps review process.

Direct Traffic Effects of Construction Vehicles. The project will require the transportation of a large volume of excess soils materials to a yet-unknown disposal site. The haul route and disposal site will be determined during final project design. The effects of this traffic on local circulation and roadways are considered likely to be significant. A traffic management plan will be developed and mitigation measures will be identified and conducted that are anticipated to reduce these short term impacts below the threshold of significance.

Construction-Related Noise Effects. The proximity of some construction activities to residential and commercial land uses will result in exposing some of these uses to sound levels in excess of the noise standards in adopted land use documents. With the identified mitigation measures, these short term direct effects are anticipated to be reduced to a level of non-significance.

4.3 WATER QUALITY BENEFITS OF THE PROPOSED PROJECT

Implementation of the Martin Slough Interceptor Project will protect both human health and the environmental values of the Humboldt Bay ecosystem. Improvements to the City's wastewater collection and conveyance system will protect water quality, by reducing the risk of wastewater overflows. Under certain, present conditions, unauthorized discharges currently occur into the Martin Slough valley. Project implementation will reduce the incidences of sanitary sewer system overflows in the Martin Slough basin and thereby avoid related reductions in water quality in the aquatic environment near the City. Implementing the proposed project will provide more efficient wastewater collection services in the area currently served by the existing collection system. The project is expected to have a significant, beneficial effect on water quality by preventing system overflows and inadvertent releases. Once realized, the benefits of the project are considered unlikely to be reversed.

4.4 SHORT-TERM USE OF THE ENVIRONMENT VERSUS LONG-TERM PRODUCTIVITY

NEPA requires federal agencies to include in "every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment" a "detailed statement" on several broad environmental topics, including "the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity."³⁷ This topic is required in an environmental impact statement (EIS); in practice, whether this topic is addressed in an EA is at the discretion of the lead agency.

Construction of the Martin Slough Interceptor Project will have a number of effects on the environment, as discussed in this EA and in the project EIR. Construction-related effects are generally and appropriately considered to be short-term "uses" of the environment; for this project, mitigation measures have been identified for all identified potentially significant effects, and these measures will be implemented as requirements in construction documents.

³⁷ NEPA, Section 102 (42 U.S.C. Section 4332).

In the longer term, the project will contribute to major consequences in two main areas: land use and water quality. These long-term consequences far outweigh the short-term “uses.” As discussed below (Section 4.5), the Martin Slough Interceptor Project will facilitate providing wastewater services in areas of the Martin Slough basin that are not presently part of the existing collection system, a result that will facilitate development in these areas. Long-term development in greater Eureka area will have substantial physical effects on the environment of the Martin Slough basin in terms of establishing future land use patterns, changing watershed functions, adding new roads and traffic, and other changes. The fundamental decisions to commit these areas to development, however, were made at the time the land use plans were approved, and decisions on the Martin Slough Interceptor Project do not need to revisit the previously adopted land use policies.

As discussed above (Section 4.3), the project’s other major, long-term contribution to the future of the greater Eureka environment is through the protection of human health and the environmental values of the Humboldt Bay ecosystem. This overriding benefit of the project means that it will have a beneficial effect on the maintenance and enhancement of long-term productivity.

4.5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The Martin Slough Interceptor Project is associated with relatively minor direct “irreversible” changes in the environment. These effects are related to building some project components; for example, project-related construction will result in the loss of a limited amount of wetland area within the Martin Slough valley, even though mitigation will be provided to offset the loss within the larger Humboldt Bay watershed. Also, nonrenewable materials and fuel used for equipment and vehicles will not be recoverable; however, such effects are typical of construction projects and are not considered to be significant, irreversible physical changes in the environment.

The Martin Slough Interceptor Project is also associated with irreversible indirect effects to the environment. The project will facilitate providing wastewater services in areas of the Martin Slough basin that are not presently part of the existing collection system, a result that will facilitate development in these areas. The resulting land development must be considered a “permanent” change in the project area. That is, the project is associated with long-term land use consequences in the greater Eureka area that are, collectively, “irreversible.”

Long-term development in greater Eureka area will have substantial physical effects on the environment of the Martin Slough basin in terms of establishing future land use patterns, changing watershed functions, adding new roads and traffic, and other changes. Decisions to commit currently undeveloped lands to future residential development were made at the time the applicable County General Plan documents were approved, particularly the County’s Eureka Community Plan. The proposed project – or any other, alternative wastewater project that could be designed for this area – will facilitate these changes in the project environment, changes that are effectively irreversible. Future residential and other development projects will be required to undergo project-specific reviews under local and state processes at the times they are proposed.

5.0 CUMULATIVE EFFECTS

CEQ NEPA regulations state that a cumulative effects analysis should consider the potential environmental impacts resulting from “the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions.”³⁸ CEQ guidance is provided in *Considering Cumulative Effects under the National Environmental Policy Act* (CEQ 1997).

The Proposed Project has a potential for participating in several cumulative effects, as described below.

Cumulative Effects Related to Air Quality. The Proposed Project would contribute to a cumulative air quality effect by adding another increment of impact to the existing non-attainment for particulate matter. [This effect only occurs pursuant to California air quality standards; the air basin maintains “attainment” status for all federal standards.] This effect will be reduced to a level that is less-than-significant.

Cumulative Loss of Wetland Functions. The project’s direct contribution to a national, statewide, and local loss of wetland functions, though short-term, participates in a significant cumulative effect. This effect arises, in part, through a combination of project-related direct effects and indirect effects on the aquatic environment that will result from future development served by the project. The project EIR concluded that this effect was not expected to be reduced to a level of insignificance; however, if the project’s direct effects are reduced to a level of insignificance (see Section 4.2), then the project’s contribution to a cumulative effect will also be reduced to a level of insignificance. For the purposes of NEPA, the finding can be made that, after mitigation, there will be no net loss of wetland area or function and that no other practicable alternative exists to take the place of the proposed project.

Indirect Traffic Cumulative Effects. Development authorized by adopted planning documents, which will be facilitated by the Proposed Project, will create significant circulation impacts within and outside the development area – that is, within both the City of Eureka as well as the County of Humboldt. The project EIR identified a programmatic mitigation measure (see the project EIR, page 11-15) that will, when implemented by the City, the County, and the HCSD, reduce cumulative traffic effects to a less-than-significant level.

³⁸ CEQ Regulations Implementing NEPA (40 CFR Part 1500 et seq.) at Section 1508.7.

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