

FINAL

Initial Study and Mitigated Negative Declaration

Road MM Sanitary Sewer Improvement Project

Lead Agency:



City of Orland
815 Fourth Street
Orland, California 95963

August 2018



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

FINAL
Initial Study and Mitigated Negative Declaration
Road MM Sanitary Sewer
Improvement Project

August 2018

Lead Agency:



City of Orland
815 Fourth Street
Orland, California 95963

Prepared by:



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FINAL MITIGATED NEGATIVE DECLARATION ROAD MM SANITARY SEWER IMPROVEMENT PROJECT

Lead Agency: City of Orland

Project Proponent: City of Orland

Project Location: The Proposed Project spans approximately 0.8 mile, and is primarily located outside of Orland City limits in the unincorporated area of Glenn County. The Project is within the East South Street - County Road 200 and the County Road MM right-of-way. (Figure 1. Project Vicinity and Figure 2 Site Location). The approximate center of the site is located at latitude 39°43'54" N and longitude 122°10'07" W.

Project Description: The Proposed Project is the replacement of an existing sewer pipe. The Project would replace the existing deteriorating concrete sewer line with a new, Polyvinyl chloride (PVC) sewer line. The existing cast-in-place, concrete sewer pipe will continue to convey wastewater until the new, PVC line is installed, ensuring no interruption of wastewater conveyance services. At such time that the PVC line is functioning to convey wastewater, the old, existing cast-in-place, concrete sewer pipe will be abandoned in-place.

Public Review Period: August 31 – October 1, 2018

Mitigation Measures Incorporated into the Project to Avoid Significant Effects:

Biological Resources

BIO-1: A qualified professional shall conduct a preconstruction nesting bird survey of all suitable habitat on the project within 14 days of the commencement of construction during the nesting season (February 1 - August 31). Surveys should be conducted within 300 feet of the Project for nesting raptors, and 100 feet of the Project for nesting songbirds. If active nests are found, a no-disturbance buffer around the nest shall be established. The buffer distance shall be established by a biologist in consultation with CDFW or the CEQA lead agency. The buffer shall be maintained until the fledglings are capable of flight and become independent of the nest tree, to be determined by a qualified biologist. Once the young are independent of the nest, no further measures are necessary. Preconstruction nesting surveys are not required for construction activity outside the nesting season.

Timing/Implementation: *Within 14 days prior to grading and construction activities occurring during nesting season (February 1 through August 31)*

Monitoring/Enforcement: *City of Orland*

Cultural Resources

CUL-1: If subsurface deposits believed to be cultural or human in origin are discovered during grading and construction activities, all work must halt within a 100-foot radius of the discovery and the construction manager shall immediately notify the City of Orland. The Project applicant shall retain a qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeologist, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find:

- If the professional archaeologist determines that the find does not represent a cultural resource, work may resume immediately, and no agency notifications are required.
- If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, he or she shall immediately notify the lead agency and applicable landowner. The agencies shall consult on a finding of eligibility and implement appropriate treatment measures, if the find is determined to be eligible for inclusion in the NRHP or CRHR. Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the site either: 1) is not eligible for the NRHP or CRHR; or 2) that the treatment measures have been completed to their satisfaction.
- If the find includes human remains, or remains that are potentially human, he or she shall ensure reasonable protection measures are taken to protect the discovery from disturbance (Assembly Bill [AB] 2641). The archaeologist shall notify the Glenn County Coroner (as per § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California Public Resources Code, and AB 2641 will be implemented. If the Coroner determines the remains are Native American and not the result of a crime scene, the Coroner will notify the NAHC, which then will designate a Native American Most Likely Descendant (MLD) for the Project (§ 5097.98 of the Public Resources Code). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (§ 5097.94 of the Public Resources Code). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the Public Resources Code). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the lead agencies, through consultation as

appropriate, determine that the treatment measures have been completed to their satisfaction.

Timing/Implementation: *During construction*

Monitoring/Enforcement: *City of Orland Planning Department*

CUL-2 If paleontological or other geologically sensitive resources are identified during any phase of project development, the construction manager shall cease operation at the site of the discovery and immediately notify the City of Orland. The Project applicant shall retain a qualified paleontologist to provide an evaluation of the find and to prescribe mitigation measures to reduce impacts to a less-than-significant level. In considering any suggested mitigation proposed by the consulting paleontologist, the City shall determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, land use assumptions, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on other parts of the project site while mitigation for paleontological resources is carried out.

Timing/Implementation: *During construction*

Monitoring/Enforcement: *City of Orland Planning Department*

Tribal Cultural Resources

Implement mitigation measure CUL-1.

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
AE-20	Exclusive agricultural
AMSL	Above mean sea level
AQMP	Air Quality Management Plan
BMPs	Best Management Practices
BRA	Biological Resource Assessment
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CGS	California Geological Society
CH ₄	Methane
CNDDB	California Natural Diversity Database
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
CRHR	California Register of Historic Places
dBA	A-weighted decibels
DEIR	Draft Environmental Impact Report
DOC	California Department of Conservation
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
ECHO	Enforcement and Compliance History Online
EIR	Environmental Impact Report
FEMA	Federal Emergency Management Agency
GCAPCD	Glenn County Air Pollution Control District
GCTC	Glenn County Transportation Commission
GHGs	Greenhouse Gases
GICIMA	Groundwater Information Center Interactive Map Application
gpm	Gallons per minute
L _{dn} /CNEL	Day Night Average Sound Level / Community Noise Equivalent Level
L _{eq}	Equivalent Continuous Sound Level
M	Industrial
MCAQMD	Mendocino County Air Quality Management District
mgd	Million gallons per day
M-H	Heavy Industrial
MLD	Most likely descendant
MND	Mitigated Negative Declaration
MRZ	Mineral Resource Zones

ACRONYMS AND ABBREVIATIONS

MTBA	Migratory Bird Treaty Act
NAHC	Native American Heritage Commission
NRCS	Natural Resource Conservation Service
N ₂ O	Nitrous Oxide
NO _x	Nitrogen Oxides
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSVAB	Northern Sacramento Valley Air Basin
NSVPA	North Sacramento Valley Planning Area
OHP	California Office of Historic Preservation
OPD	Orland Police Department
OUSD	Orland Unified School District
OVFD	Orland Volunteer Fire Department
PF	Public Facility
PM ₁₀ and PM _{2.5}	Particulate Matter
PRC	Public Resources Code
Project	Road MM Sanitary Sewer Improvement Project
PVC	Polyvinyl chloride
RE-1	Residential One-Family
RE-2	Residential Estate – 2-acre minimum
RE-5	Residential Estate – 5-acre minimum
ROG	Reactive Organic Gases
ROW	Right of way
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
USACE	United States Army Corps of Engineers
SGMA	Sustainable Groundwater Management Act
SIP	State Implementation Plan
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic air contaminant
UCMP	California Museum of Paleontology
USEPA	Environmental Protection Agency
USGS	United States Geological Service

SECTION 1.0 BACKGROUND

1.1 Summary

Project Title:	Road MM Sanitary Sewer Improvement Project
Lead Agency Name and Address:	City of Orland 815 Fourth Street Orland, California 95963
Contact Person and Phone Number:	Scott Friend (530) 865-1608
Project Location:	The Proposed Project spans approximately 0.8 mile, and is primarily located outside of Orland City limits in the unincorporated area of Glenn County. The Project is within the County Road 200 and the County Road MM right-of-way. The approximate center of the site is located at latitude 39°43'54" N and longitude 122°10'07" W. The site is located in Section 26, Township 22 North, and Range 3 West of the Mount Diablo Base and Meridian.
General Plan Designation: (adjacent land uses)	Orland: Public Facility, Heavy Industrial and Low Density Residential. Glenn County: Rural Residential and General Agriculture
Zoning: (adjacent land uses)	Orland: Public Facilities (PF), Heavy Industrial (M-H), and Residential One-Family (RE-1). Glenn County: Residential Estate - 1 acre (RE-1), Residential Estate - 5 acre (RE-5) and Exclusive Agricultural – 20-acre (AE-20).

1.2 Introduction

The Initial Study has been prepared to identify and assess the anticipated environmental impacts of the Road MM Sanitary Sewer Improvement Project (Project or Proposed Project). The City of Orland is the Lead Agency for this Initial Study. However, the Proposed Project alignment is located predominately within existing roadway rights-of-way under the jurisdiction of Glenn County (unincorporated lands adjacent to the City limits of Orland). Prior to installation of the proposed pipeline, it will be necessary for the City of Orland to obtain an encroachment permit issued by the County. While the majority of the site is located within unincorporated County land, the City of Orland is the Lead Agency for this Initial Study since the City is funding the proposed infrastructure improvement. Additionally, the new sewer conveyance facility would largely convey wastewater generated within the City limits. Glenn County is a

Responsible Agency as County-approval of the encroachment permit will be required to implement the Project.

This document has been prepared to satisfy the California Environmental Quality Act (CEQA) (Pub. Res. Code, Section 21000 *et seq.*) and State CEQA Guidelines (14 CCR 15000 *et seq.*). CEQA requires that all state and local government agencies consider the environmental consequences of Projects over which they have discretionary authority before acting on those Projects. A CEQA Initial Study is generally used to determine which CEQA document is appropriate for a Project (Negative Declaration, Mitigated Negative Declaration [MND], or Environmental Impact Report [EIR]).

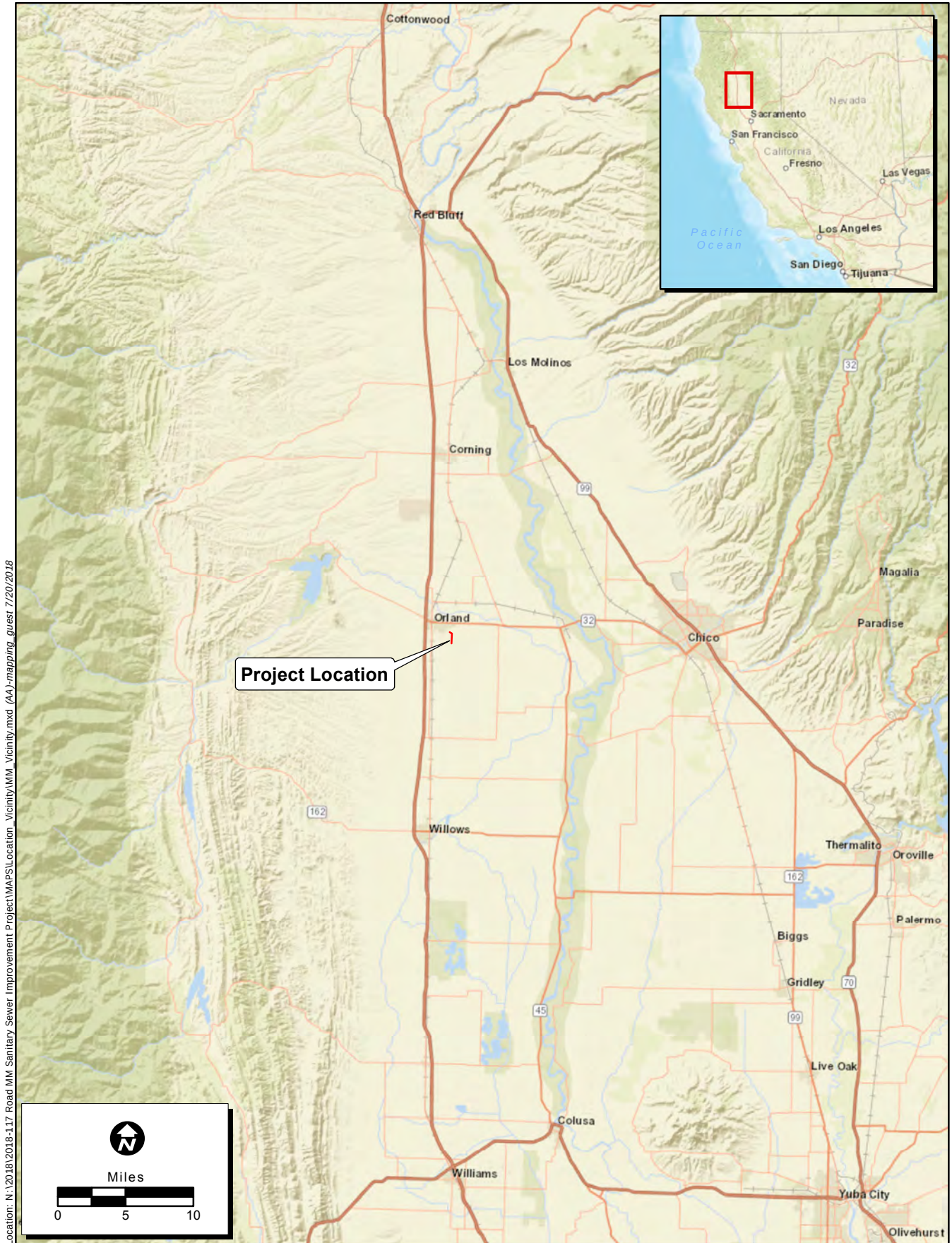
1.3 Project Location

The Proposed Project spans approximately 0.8 mile, and is primarily located outside of, yet adjacent to Orland City limits in the unincorporated area of Glenn County (see Figure 1. Project Vicinity). As illustrated in Figure 2. Site Location, the site starts approximately 900 feet west of the East South Street - County Road 200/ County Road MM intersection and extends south on County Road MM to the County Road MM/County Road 20 intersection.

1.4 Surrounding Land Uses/Environmental Setting

Adjacent lands to the north of the Project include areas within the City of Orland boundaries, designated as Public Facility, Heavy Industrial, and Low Density Residential in the City's General Plan land use diagram (Orland 2010a). Existing uses in this area consist of Lely – Aquatic Park, the Community Recovery Wellness Center, and a single family residential subdivision. City zoning in this area is PF, Heavy Industrial (M-H), and Residential One-Family (RE-1).

Lands to the south, east and west of the Project are all within the jurisdiction of Glenn County. These areas are designated in the Glenn County General Plan as Rural Residential, Suburban Residential, and General Agriculture land uses (Glenn County 2018). The Glenn County Zoning Map identifies these areas as Residential Estate - 1 acre (RE-1) and Residential Estate - 5 acre (RE-5) and Exclusive Agricultural – 20 acre (AE-20) (Glenn County 2018). Existing uses adjacent to the Project site predominately include rural residential properties and agricultural lands. See Figure 3. Aerial View.



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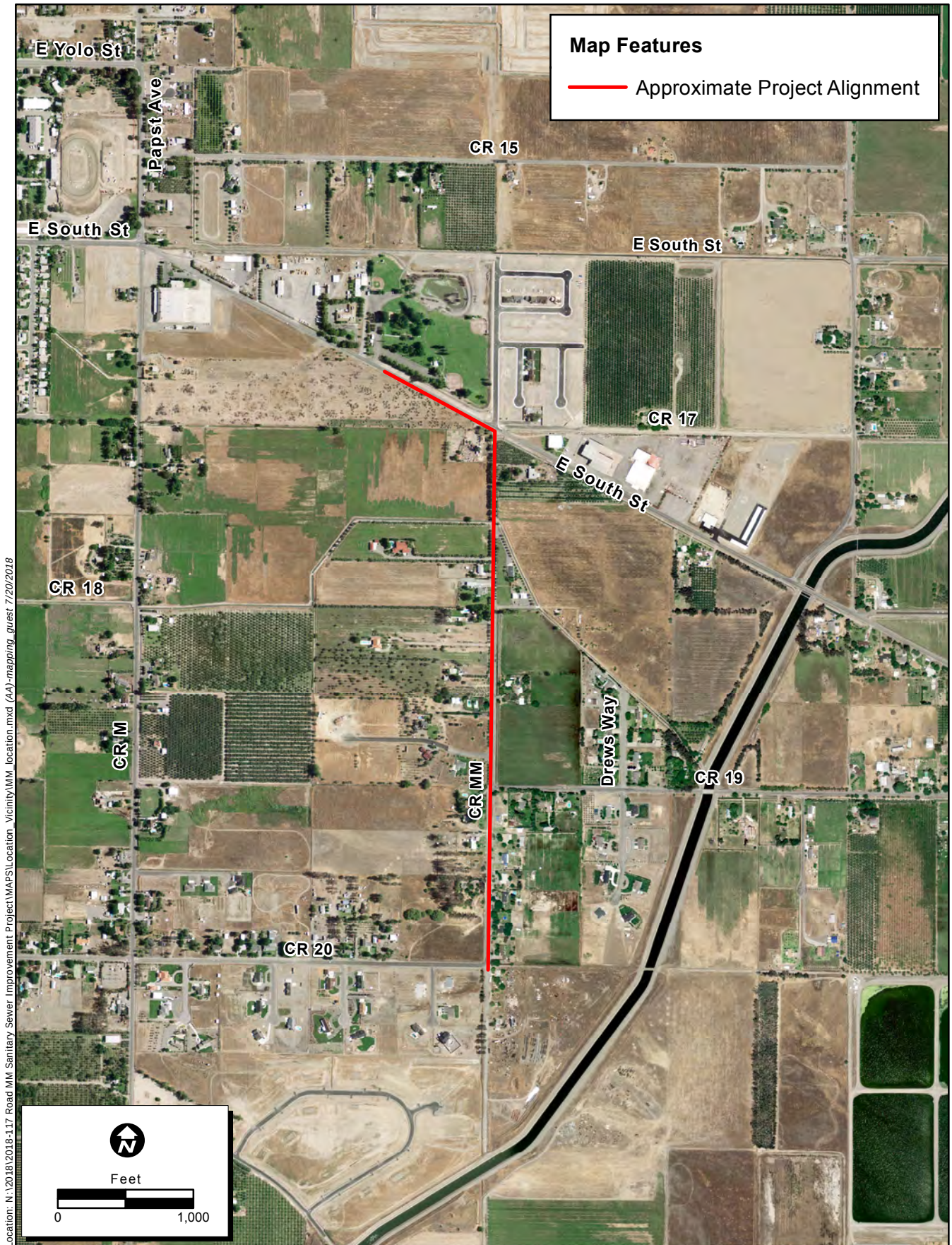
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Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

Figure 1. Project Vicinity

2018-117 Road MM Sanitary Sewer Improvement Project

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Map Date: 7/20/2018

Figure 2. Project Location

2018-117 Road MM Sanitary Sewer Improvement Project

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Google Earth

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Figure 3. Aerial View

2018-117 Road MM Sanitary Sewer Project

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SECTION 2.0 PROJECT DESCRIPTION

2.1 Project Background

The City of Orland provides wastewater conveyance and treatment for all of the City as well as some adjacent areas outside the existing city boundary. The wastewater collection system consists of approximately 30-miles of sanitary sewer main and 400 sanitary sewer manholes. The sewer mains range in size from 6-inch diameter to 24-inch diameter. The sewer mains consist mostly of vitrified clay and concrete pipe, with some PVC in recently developed areas (Orland 2009). According to the City's Public Works Department, the City's wastewater facility currently has an average flow of about 1.0 million gallons daily (mgd). The capacity of the collection system is 3.4 mgd (based on peak flow) and the facility's capacity is 2.1 mgd (based on average flows). Based on these numbers, the system is operating at approximately 50 percent of capacity (Orland 2018a).

2.2 Project Characteristics

The Proposed Project is the replacement of an existing sewer pipe. The specific need for the Proposed Project results from the current state of degradation affecting the existing cast-in-place, concrete sewer pipe, which is slowly being eroded away from the top down as a result of the effects of sewage-related chemical compounds. The Project would remedy this situation with the installation of a new, PVC sewer line. The existing cast-in-place, concrete sewer pipe will continue to convey wastewater until the new, PVC line is installed, ensuring no interruption of wastewater conveyance services. At such time that the PVC line is functioning to convey wastewater, the old, existing cast-in-place, concrete sewer pipe will be abandoned in-place.

The Proposed Project spans approximately 0.8 mile, and is primarily located outside of Orland City limits in the unincorporated area of Glenn County. The new 24-inch sewer pipe will tie into the existing sewer pipe approximately 150 feet west of the East South Street - County Road 200/ County Road MM intersection, adjacent to the City of Orland southern border. From there, a new trench will be dug towards the East South Street - County Road 200/ County Road MM intersection and extend south on County Road MM to the County Road MM/County Road 20 intersection. (See Figure 3.) Trench depth will vary from 5 to 10 feet depending on location. Once the pipeline is installed, it will be covered with soil and gravel and/or pavement. The construction area will be brought back to its pre-construction condition.

The topography of the site is flat with little elevation change, approximately 330 feet above mean sea level (AMSL) over the construction site.

2.2.1 Project Construction Timing

Construction of the Proposed Project is anticipated to begin and be completed in 2019.

2.3 Regulatory Requirements, Permits, and Approvals

CEQA requires that an EIR be prepared by the agency with primary responsibility over the approval of a project (the lead agency). The City of Orland (City) is the lead agency for the proposed Road MM Sanitary

Sewer Improvement Project (Proposed Project; Project). Public agencies are charged with the duty to consider and minimize environmental impacts of proposed development, where feasible, and are obligated to balance a variety of public objectives including economic, environmental, and social factors in their decision-making.

The following approvals and regulatory permits would be required for implementation of the Proposed Project.

2.3.1 Lead Agency Approval

As the lead agency, the City of Orland has the ultimate authority for Project approval or denial. The Proposed Project may require the following discretionary approvals and permits by the City for actions proposed as part of the Project:

- Adoption of the Initial Study/Mitigated Negative Declaration
- Project approval

In addition to the above City actions, the Project may require approvals, permits, and entitlements from other public agencies for which this Initial Study may be used. For the purpose of CEQA, the term *trustee agency* means a state agency having jurisdiction by law over natural resources affected by a project which are held in trust for the people of the state of California. In CEQA, the term *responsible agency* includes all public agencies other than the lead agency that may have approval authority in some regard associated with the proposed project. Interested agencies may have a general interest in the proposal with respect to issues germane to their organization. The following agencies have been identified as potential responsible, trustee, or interested agencies with a direct or indirect interest in the Project:

- California Department of Fish and Wildlife, Region 2
- Glenn County Air Pollution Control District
- County of Glenn

2.4 Relationship of Project to Other Plans and Projects

2.4.1 City of Orland General Plan

California state law requires cities and counties to prepare a general plan describing the location and types of desired land uses and other physical attributes in the city or county. General plans are required to address land use, circulation, housing, conservation, open space, noise, and safety. The Orland General Plan is the City's basic planning document and provides a comprehensive, long-term plan for physical development in the city (City of Orland 2010a).

The Proposed Project alignment is located within existing roadway rights-of-way. The portion of the alignment located within the City limit of Orland are located adjacent to lands designated Public Facility, Heavy Industrial and Low Density Residential by the City General Plan.

2.4.2 Glenn County General Plan

While not a County project, because a portion of the Project lays within Glenn County jurisdiction, the Project is subject to the Glenn County General Plan goals and policies. The Glenn County General Plan serves as a useful guide for local decision-making in the County. The General Plan offers the County the opportunity to plan pro-actively based on the vision for Glenn County over the next 20 years. It allows the County, as well as other public service providers, to plan for services and facilities consistent with the General Plan future development (Glenn County 1993). The portion of the alignment located within the jurisdiction of Glenn County are located adjacent to lands designated Rural Residential and General Agriculture by the County General Plan.

2.5 Consultation with California Native American Tribe(s)

No California Native American tribes traditionally and culturally affiliated with the Project area have submitted written requests to receive notification of the City of Orland's projects pursuant to Public Resources Code section 21080.3.1. Further information on potential Tribal Cultural Resources in the Project area is provided in Section 4.18 of this Initial Study.

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SECTION 3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED AND DETERMINATION

3.1 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | |
|---|--|---|
| ☐ Aesthetics | ☐ Hazards/Hazardous Materials | ☐ Public Services |
| ☐ Agriculture and Forestry Resources | ☐ Hydrology/Water Quality | ☐ Recreation |
| ☐ Air Quality | ☐ Land Use and Planning | ☐ Transportation/Traffic |
| ☒ Biological Resources | ☐ Mineral Resources | ☒ Tribal Cultural Resources |
| ☒ Cultural Resources | ☐ Noise | ☐ Utilities and Service Systems |
| ☐ Geology and Soils | ☐ Paleontological Resources | ☐ Mandatory Findings of Significance |
| ☐ Greenhouse Gas Emissions | ☐ Population and Housing | |

Determination

On the basis of this initial evaluation:

I find that the Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared. ☐

I find that although the Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared. ☒

I find that the Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required. ☐

I find that the Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed. ☐

I find that although the Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the Project, nothing further is required. ☐


Peter R. Carr
City Manager

8/27/18
Date

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SECTION 4.0 ENVIRONMENTAL CHECKLIST AND DISCUSSION

4.1 Aesthetics

4.1.1 Environmental Setting

Scenic views available from the Project site include the Coast Range to the west, and on clear days the Cascade and Sierra Nevada mountains and foothills to the east and northeast.

Regional Setting

The City's General Plan Draft Environmental Impact Report (DEIR) (2010b) identifies views of the Coast Range and the Black Butte Recreation Area, Mount Lassen and the Cascade and Sierra mountains, and Stony Creek, as the most significant natural scenic resource within the Planning Area of the City. The General Plan does not include any policies for the protection of views or identify any viewsheds, or scenic vistas that should be protected.

State Scenic Highways

The intent of the California Scenic Highway Program is to protect and enhance the scenic beauty of California's highways and adjacent corridors. A highway can be designated as scenic based on how much natural beauty can be seen by users of the highway, the quality of the scenic landscape, and if development impacts the enjoyment of the view. No officially designated scenic highways are located within the vicinity of the Project site (Caltrans 2018a).

Visual Character of the Project Site

The Project site is the existing roadway right-of-way (ROW) for East South Street - County Road 200 and County Road MM. The construction of the Project would be within the fully disturbed paved roadway or within the graveled roadway shoulder. All construction would be below the ground surface and once completed, the Project site visual character would be similar to the current roadway visual conditions.

4.1.2 Aesthetics (I) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒

While the City's General Plan DEIR identifies views of the Coast Range and the Black Butte Recreation Area, Mount Lassen and the Cascade and Sierra mountains, and Stony Creek, the General Plan does not include any policies for the protection of views or identify any viewsheds, or scenic vistas that should be protected. Distant views of the Coast Range can be seen from the Project site and surrounding area. However, these views are fragmented by existing development and natural features such as trees and hills.

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The Orland General Plan does not identify any areas considered to be scenic vistas that need to be protected and preserved in the city. Additionally, the Project site is not considered to be in an area of significant visual qualities, nor do these areas have any significant visual features. Once completed, the site would be the similar to the current roadway visual conditions. Therefore, The Proposed Project would have no impact on scenic vistas.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒

The Proposed Project is not located within the vicinity of an officially designated scenic highway. No impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒

The Project site is the existing roadway ROW for East South Street - County Road 200 and County Road MM. The construction of the Project would be within the fully disturbed paved roadway or within the graveled roadway shoulder. All construction would be below the ground surface and once completed, the Project site visual character would be the similar to the current roadway visual conditions. As such, the Proposed Project would not substantially degrade existing visual character or quality of the site and its surroundings and therefore, would have a less than significant impact.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Would the project create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

No new light or glare sources visible beyond the Project site would be introduced during construction of the Proposed Project. All construction work will be performed during normal daylight construction hours, thereby eliminating any need for temporary light sources necessary for nighttime work. Because the Project is the replacement of an existing sewer line, the Project would not include any operational light nor result in glare impacts. Therefore, the Proposed Project would have no on in this area.

4.2 Agriculture and Forestry Resources

4.2.1 Environmental Setting

The California Department of Conservation (DOC) manages the Farmland Mapping and Monitoring Program, which identifies and maps significant farmland. Farmland is classified using a system of five categories including Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land. The classification of farmland as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance is based on the suitability of soils for agricultural production, as determined by a soil survey conducted by the Natural Resources Conservation Service (NRCS). The DOC manages an interactive website, the California Important Farmland Finder. The Project site is within an existing roadway and, as such, not considered to be farmland. This website program identifies some of the lands surrounding the Project site as being Prime Farmland, Unique Farmland, Farmland of Local Importance, Other Land, and Urban Land (DOC 2018). The site nor adjacent lands are subject to a Williamson Act contract (DOC 2016). The Project site is not within an area which contains forest or timber resources and is not zoned for forestland protection or timber production.

4.2.2 Agriculture and Forestry Resources (II) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒

While some land adjacent to the Project site are identified as prime farmland and unique farmland, the Project is the replacement of an existing sewer pipeline within the existing roadway ROW. The Project would not remove or alter the ability to use adjacent lands as farmland. Nor would this replacement result in the conversion of prime or unique farmland to other uses. The Project would have no impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

There are no Williamson Act contract lands within the vicinity of the Project site (DOC 2016). The Project would have no impact in this area.

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Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒

No forest lands exist on the Project site or within the vicinity of the Project. The Project would have no impact in this area.

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

No forest lands exist on the Project site or within the vicinity of the Project. The Project would have no impact in this area.

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

There are agricultural uses adjacent to the site. However, the Project would not limit access to these lands and does not propose the extension of sewer facilities or other urban related uses such as roads or residential development that could lead to the conversion of agricultural land into urban uses. The Project would have no impact in this area.

4.2.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.3 Air Quality

4.3.1 Environmental Setting

The Proposed Project is located in Glenn County, which is in the Northern Sacramento Valley Air Basin (NSVAB). The NSVAB consists of a total of seven counties: Sutter, Yuba, Colusa, Butte, Glenn, Tehama, and Shasta. The NSVAB is bounded on the north and west by the Coastal Mountain Range and on the east by the southern portion of the Cascade Mountain Range and the northern portion of the Sierra Nevada range. These mountain ranges reach heights in excess of 6,000 feet above sea level, with individual peaks rising much higher. The mountains form a substantial physical barrier to locally created pollution as well as that transported northward on prevailing winds from the Sacramento metropolitan area.

Both the U.S. Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants representing safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. The six criteria pollutants are ozone, carbon monoxide (CO), particulate matter (PM), nitrogen oxides (NO_x), sulfur dioxide (SO₂), and lead. Areas that meet ambient air quality standards are classified as attainment areas, while areas that do not meet these standards are classified as nonattainment areas. Glenn County has been designated an attainment or unclassified (data insufficient to support any designation) area for all federal ambient air quality standards (CARB 2017). However, the county is designated a nonattainment area for state particulate matter less than 10 microns (PM₁₀) standards (CARB 2017). The county is designated an attainment or unclassified area for all other state ambient air quality standards (CARB 2017).

The regional air quality regulating authority is the Glenn County Air Pollution Control District (GCAPCD). The GCAPCD monitors air quality in the county, and serves as the lead agency responsible for implementing and enforcing federal, state, and Glenn County air quality regulations. Air pollution sources in the county include seasonal burning of agricultural fields, dust from agricultural operations, and motor vehicle emissions.

4.3.2 Air Quality (III) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒

As part of its enforcement responsibilities, the USEPA requires each state with nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance

standards and market-based programs. Similarly, under state law, the California Clean Air Act requires an air quality attainment plan (AQAP) to be prepared for areas designated as nonattainment with regard to the federal and state ambient air quality standards. Air quality attainment plans outline emissions limits and control measures to achieve and maintain these standards by the earliest practical date.

The North Sacramento Valley Planning Area (NSVPA) 2015 Air Quality Attainment Plan is the most recent air quality planning document covering Glenn County. SIPs are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, and permitting), district rules, state regulations, and federal controls describing how the state will attain ambient air quality standards for ozone and particulate matter. State law makes CARB the lead agency for all purposes related to the SIP. Local air districts prepare SIP elements and submit them to CARB for review and approval. The NSVPA 2015 Air Quality Attainment Plan includes forecast reactive organic gases (ROG) and nitrogen oxides (NO_x) emissions (ozone precursors) for the entire NSVPA region through the year 2020. These emissions are not appropriated by county or municipality.

Criteria for determining consistency with the 2015 Air Quality Attainment Plan (AQAP) are defined by the following indicators:

- Consistency Criterion No. 1: The Proposed Project would not result in an increase in the frequency or severity of existing air quality violations, or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQAP.
- Consistency Criterion No. 2: The Proposed Project would not exceed the assumptions in the AQAP or increments based on the Project buildout phase.

The violations to which Consistency Criterion No. 1 refers are the California ambient air quality standards (CAAQS) and the national ambient air quality standards. As evaluated under Issue b) below, the Project would not exceed the short-term construction standards or long-term operational standards and in so doing would not violate any air quality standards. Thus, a less than significant impact is expected, and the Project would be consistent with the first criterion.

Concerning Consistency Criterion No. 2, the Air Quality Management Plan (AQMP) contains air pollutant reduction strategies and demonstrates that the applicable ambient air quality standards can be achieved within the time frames required under federal law. Growth projections from local general plans adopted by cities in the district are used to develop regional growth forecasts that are used to develop future air quality forecasts for the NSVPA 2015 Air Quality Attainment Plan. Development consistent with the growth projections in the City of Orland General Plan is considered to be consistent with the 2015 Air Quality Attainment Plan AQMP.

In terms of the second criterion, the Project involves the replacement of an existing, degraded sewer pipe, which is slowly being eroded away from the top down as a result of the effects of sewage-related chemical compounds. The Project would remedy this situation with the installation of a new, PVC sewer line. The Proposed Project would not result in an increase of population or a trip-generating land use. Rather, the Project would address existing sewer conveyance deficiencies and implement improvements.

Therefore, the Proposed Project would not involve any uses that would increase population or vehicle trips beyond what is considered in the Orland General Plan. The Proposed Project would be limited to short-term construction activities and would not result in any development or other improvements that could directly or indirectly induce population growth in the area. Therefore, the Project would not affect City-wide plans for population growth at the Project site.

For these reasons, the Proposed Project would not conflict with or obstruct implementation of the NSVPA Air Quality Attainment Plan. No impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐

Implementation of the Proposed Project could result in air quality impacts during construction and operation. The GCAPCD has no established air pollutant emission thresholds under CEQA for the assessment of air quality impacts. Therefore, the Proposed Project will be compared to the significance thresholds established by the Mendocino County Air Quality Management District (MCAQMD), which were established under CEQA for the assessment of air quality impacts. While air quality standards established in Mendocino County are not binding on Glenn County, they are instructive for comparison purposes. The MCAQMD thresholds are consistent with the California Clean Air Act. The thresholds of significance are summarized in Table 4.3-1.

Table 4.3-1. Mendocino County APCD Thresholds of Significance (Pounds per Day)				
Threshold	ROG	NOx	PM10	PM2.5
Construction	54	54	82	54
Operational	180	42	82	54

Source: MCAQMD 2010

Construction Impacts

Construction associated with the Proposed Project would generate short-term emissions of criteria air pollutants. The criteria pollutants of primary concern within the Project area include ozone-precursor pollutants (i.e., reactive organic gas [ROG] and nitrogen oxide [NO_x]) and PM₁₀ and PM_{2.5}. Construction-generated emissions are short term and of temporary duration, lasting only as long as construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the CEQA-related thresholds of significance.

Construction results in the temporary generation of emissions resulting from site excavation, building construction, and paving. Motor vehicle exhaust is associated with construction equipment and worker

trips. Particulate matter is associated with the movement of construction equipment, especially on unpaved surfaces. Emissions of airborne particulate matter are largely dependent on the amount of ground disturbance associated with site preparation activities as well as weather conditions and the appropriate application of water.

Predicted maximum daily construction-generated emissions for the Proposed Project are summarized in Table 4.3-2.

Table 4.3-2. Construction-Related Emissions						
Construction Year	Pollutant (maximum pounds per day)					
	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Year 2019	2.54	37.10	15.95	0.07	7.65	4.05
<i>Potentially Significant Impact Threshold</i>	54	54	None	None	82	54
Exceed Threshold?	No	No	No	No	No	No

Source: CalEEMod version 2016.3.2. Refer to Appendix A for Model Data Outputs.

Notes: Building construction, paving, and architectural coating assumed to occur simultaneously.

As shown in Table 4.3-2, all criteria pollutant emissions would remain below their respective thresholds during Project construction. Therefore, criteria pollutant emissions generated during Project construction would not result in a violation of air quality standards.

Long-Term Operational Impacts

The Proposed Project will not include the provision of new permanent stationary or mobile sources of emissions, and therefore, by its very nature, will not generate quantifiable criteria emissions from Project operations. The Project does not propose any buildings and therefore no permanent source or stationary source emissions. Once the Project is completed, there will be no resultant increase in automobile trips to the area because the improved facilities will not require daily visits. While it is anticipated that the Project would require intermittent maintenance to be conducted by City public works staff, such maintenance would be minimal requiring a negligible amount of traffic trips on an annual basis. Impacts in this regard would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐

Glenn County is currently in nonattainment for state PM₁₀ standards. Due to the region's nonattainment status, if Project-generated emissions of PM₁₀ exceed the long-term thresholds, then the Project's cumulative impacts would be considered significant. As discussed in Issue b), operational significance thresholds would not be surpassed; this results in operational air quality impacts that are considered less than significant. Therefore, cumulative impacts would also be considered less than significant.

Would the Project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
d)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. The CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. Sensitive receptors closest to the Project site include adjacent residences and Lely Park.

Construction

Construction-related activities would result in temporary, short-term, Project-generated emissions of diesel particulate matter (DPM) from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., clearing, grading), soil hauling truck traffic, paving, application of architectural coatings, and other miscellaneous activities.

For construction activity, DPM is the primary toxic air contaminant (TAC) of concern. Particulate exhaust emissions from diesel-fueled engines (i.e., DPM) were identified as a TAC by the CARB in 1998 (CARB 2005). The potential cancer risk from the inhalation of DPM, as discussed below, outweighs the potential for all other health impacts (i.e., non-cancer chronic risk, short-term acute risk) and health impacts from other TACs. Accordingly, DPM is the focus of this discussion.

Based on the emission modeling conducted, the maximum construction-related daily emissions of PM_{2.5} exhaust, considered a surrogate for DPM, would be 1.20 pounds per day during construction activities (See Appendix A). (PM_{2.5} exhaust is considered a surrogate for DPM because more than 90 percent of DPM is less than 1 microgram in diameter and therefore is a subset of particulate matter under 2.5 microns in diameter (i.e., PM_{2.5}), according to CARB. Most PM_{2.5} exhaust derives from combustion, such as use of gasoline and diesel fuels by motor vehicles. Furthermore, even during the most intense month of construction, emissions of DPM would be generated from different locations on the Project site, rather than a single location, because different types of construction activities (e.g., trenching, pipe installation, backfilling, etc.) would not occur at the same place at the same time.

The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for any exposed receptor. Thus, the risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period of time.

According to the Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-, 30-, or 9-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the Proposed Project. Consequently, an important consideration is the fact that construction of the Proposed Project is anticipated to last less than one year. Therefore, considering the relatively low mass of DPM emissions that would be generated during even the most intense phase of construction, the relatively short duration of construction activities (one year) required to implement the Project, and the highly dispersive properties of DPM, construction-related TAC emissions would not expose sensitive receptors to substantial amounts of air toxics.

Operations

The Proposed Project will not include the provision of new permanent stationary or mobile sources of emissions, and therefore, by its very nature, will not be a source of air toxic concentrations during Project operations. Impacts in this regard would be less than significant.

Would the Project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
e)	Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Construction

During construction, the Proposed Project presents the potential for generation of objectionable odors in the form of diesel exhaust in the immediate vicinity of the site. However, these emissions are short-term in nature and will rapidly dissipate and be diluted by the atmosphere downwind of the emission sources. Additionally, odors would be localized and generally confined to the construction area. As previously described, the existing cast-in-place, concrete sewer pipe would continue to convey wastewater until the new, PVC line is installed. Once the line is fully installed the existing sewer pipe would be severed in the moments directly before the new PVC line is linked to the City conveyance system. The area of the new connection would then be buried. As a result, the internal existing sewer conveyance pipe would be exposed to open air for less than 8 hours. Therefore, construction odors would result in a less than significant impact related to odor emissions.

Operations

Implementation of the Proposed Project would not result in the introduction of any new processes that are considered to have a high odor-generation potential and would not result in substantial changes to the overall flow rates or treatment processes that are of primary concern with regard to odor generation (i.e., sludge handling or drying practices). The City of Orland provides wastewater conveyance and treatment for all of the City as well as some adjacent areas outside the existing city boundary. The wastewater collection system consists of about 30-miles of sanitary sewer main and 400 sanitary sewer manholes. The sewer mains range in size from 6-inch diameter to 24-inch diameter. All City systems, including lift stations, are routinely inspected for odors. City employees perform any necessary maintenance according to manufacturer's recommendations for activities such as lubrication of bearings, oil changes, and parts replacement. Additionally, staff monitors each station for leaks and odor control. There is no impact.

4.3.3 Mitigation Measures

No significant impacts were identified and no mitigation measures are required.

4.4 Biological Resources

The following information was provided by the Biological Resource Assessment (BRA) completed by ECORP Consulting, Inc (ECORP). As part of the preparation of the BRA, ECORP biologists conducted a

reconnaissance-level site assessment on June 29, 2018. The findings of this site assessment have been incorporated into the BRA, which is included as Appendix B of this Initial Study.

4.4.1 Environmental Setting

The linear Project site spans approximately 0.8 mile through a rural residential neighborhood, starting approximately 900 feet west of the East South Street - County Road 200/ County Road MM intersection (just east of the entrance to Lely Aquatic Park) and extending south on County Road MM to the County Road MM/County Road 20 intersection. All of the proposed improvement work would be located within the existing roadway ROWs for East South Street-County Road 200 and County Road MM, which are composed of existing asphalt, portions of which would be excavated. The immediate roadside next to East South Street-County Road 200 and County Road MM, containing sparse ruderal vegetation, could also be impacted by the movement of heavy equipment.

The Project site is primarily surrounded by private rural residences. The surrounding lands also include irrigated pastures, fallow or idle fields, orchard land, and a developed park with ballfields. The Tehama-Colusa Canal is located approximately 0.2 mile to the east of County Road MM, with a few small concrete-lined ditches providing water for adjacent agricultural fields.

Vegetation Communities

The Project is made up entirely of paved roadway or ruderal roadside habitat with small patches of ruderal weedy vegetation at the edges of the roadway. The ruderal/nonnative habitat adjacent to the road surface is comprised of compacted dirt, gravel, and patches of weedy vegetation. Plants found in this habitat include nonnative weedy species such as wild oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), and filaree (*Erodium botrys*). Trees bordering the rural residences include a variety of nonnative species including olive (*Olea europaea*), palm trees (e.g. *Phoenix* sp., *Washingtonia* sp.), gum trees (*Eucalyptus* sp.), and pine (*Pinus* sp.).

Soils

According to the *Web Soil Survey* (NRCS 2018), two soil units, or types, have been mapped within the Project. These are: (Czt) Cortina very gravelly sandy loam, moderately deep and (Wg) Wyo loam, deep over gravel.

4.4.2 Biological Resources (IV) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐

4.4.3 Site Evaluation

Special-Status Species

Based on species occurrence information from the literature review and field observations, a list of special-status and California Natural Diversity Data Base (CNDDB)-tracked plant and animal species considered to have the potential to occur within the Project was generated. Species that are tracked in the CNDDB that do not have any state or federal status or protection were not included in the evaluation. For a complete list of special-status species, including those that would not occur in the Proposed Project area, refer to the BRA in Appendix B.

According to the BRA, there are no special-status species previously documented within the Project site boundaries. However, there are 11 special-status plant species and 19 special-status animal species identified as having the potential to occur within the Project based on the literature review contained in the BRA.

Upon the further analysis of ECORP Consulting qualified biologists, none of the 11 potentially occurring special-status plant species were determined to occur due to the absence of suitable habitat and/or because the Project is outside the range of the species. Additionally, 18 of the special-status animal species identified in the literature search were also determined by ECORP to be absent from the Project area due to the lack of suitable habitat and/or the known distribution of the species does not include the Project vicinity.

The Project site does support potential nesting habitat for one special-status bird, the yellow-billed magpie (*Pica nuttalli*). The yellow-billed magpie is not listed pursuant to either the federal or California Endangered Specific Acts but is considered a U.S. Fish and Wildlife Service Bird of Conservation Concern (BCC). This endemic species is a yearlong resident of the Central Valley and Coast Ranges from San Francisco Bay to Santa Barbara County. Yellow-billed magpies build large, bulky nests in trees in a variety of open woodland habitats, typically near grassland, pastures or cropland, and urban parklike settings. Nest building begins in late-January to mid-February, which may take up to six to eight weeks to complete, with eggs laid during April-May, and fledging during May-June. The young leave the nest at about 30 days after hatching. The trees immediately adjacent to the Project site support potentially suitable habitat for this species. As such, implementation of mitigation measure BIO-1 is required.

Migratory Bird Treaty Act (MBTA)-Protected Birds

While not considered "special status" as defined above, most naturally occurring birds and their active nests are protected under the federal Migratory Bird Treaty Act (MBTA). These include common species found nesting within developed areas and human habitations. The trees immediately adjacent to the Project support potential nesting habitat for birds protected under the MBTA. These could include common species such as western kingbird (*Tyrannus verticalis*), northern mockingbird (*Mimus polyglottos*), and house finch (*Haemorrhous mexicanus*), among others. All native birds, including raptors, are protected under the California Fish and Game Code and the federal MBTA. As such, to ensure that there are no impacts to protected active nests, as such, implementation of mitigation measure BIO-1 is required.

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Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒

No creeks, streams, or rivers exist on the Project site. No riparian habitats or other sensitive natural communities identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service have been identified on the Project site. Similarly, the reconnaissance-level site assessment conducted on the Project site did not identify any existing riparian habitats or sensitive natural communities. The Project would have no impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒

During the site assessment conducted for the Project, one irrigation ditch was found onsite. The ditch has been previously mapped in the California Aquatic Resources Inventory database as a "fluvial unnatural" feature. The ditch is concrete-lined and constructed to deliver irrigation to surrounding agricultural fields. According to Regulatory Guidance Letter 07-02 (USACE 2007), the Clean Water Act subsection 404(f)(1)(C) exemption applies to construction and maintenance in an "irrigation ditch", and not considered a protected wetland. Further, the irrigation ditch is not expected to be impacted by the Project. No impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒

The Project is located within an existing paved roadway in a rural residential neighborhood. Wildlife use onsite is minimal due to the highly disturbed nature of the Project site and close proximity to rural

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residences and vehicular traffic. There are no significant habitat features (e.g., wetlands, woodlands) within or adjacent to the Project. Project development would not impact wildlife movement.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

There are currently no adopted or proposed local policies or ordinances that affect the Proposed Project. Therefore, no impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

There are no adopted habitat conservation plans, natural community conservation plans, or any adopted biological resources recovery or conservation plans in the Proposed Project area. As such, no impact would occur.

4.4.4 Mitigation Measures

BIO-1: A qualified professional shall conduct a preconstruction nesting bird survey of all suitable habitat on the Project within 14 days of the commencement of any construction occurring during the nesting season (February 1 - August 31). Construction occurring outside of the nesting season (September 1 – January 31) do not need to conduct a preconstruction nesting bird survey. Surveys should be conducted within 300 feet of the Project for nesting raptors, and 100 feet of the Project for nesting songbirds. If active nests are found, a no-disturbance buffer around the nest shall be established. The buffer distance shall be established by a biologist in consultation with CDFW or the CEQA lead agency. The buffer shall be maintained until the fledglings are capable of flight and become independent of the nest tree, to be determined by a qualified biologist. Once the young are independent of the nest, no further measures are necessary. Preconstruction nesting surveys are not required for construction activity outside the nesting season.

Timing/Implementation: *Within 14 days prior to grading and construction activities occurring during nesting season (February 1 through August 31)*

Monitoring/Enforcement: *City of Orland*

4.5 Cultural Resources

4.5.1 Cultural Resources Records Search and Literature Review

ECORP prepared a Cultural Resources Records Search and Literature Review (ECORP 2018) for the Proposed Project to determine if cultural resources were present in or adjacent to the Project area and assess the sensitivity of the Project area for undiscovered or buried cultural resources. The analysis of cultural resources was based on a records and literature search conducted at the Northeastern Information Center at California State University-Chico on July 9, 2018.

Previous Research

Five previous cultural resource investigations have been conducted within 0.5 mile of the linear Project Area, covering approximately five percent of the total area surrounding the Project area within the record search radius. The previous surveys, conducted between 1967 and 2008, vary in size from 2.1 acres to 250 linear miles. These studies revealed the presence of pre-contact sites, including lithic scatters and habitation sites, as well as historic-period sites, including rock walls and sites associated with historic ranching and farming activities. These surveys also indicate that the property has not been previously surveyed for cultural resources by a professional archaeologist and that no previously recorded resources are situated within the Project area.

In addition to these previous surveys, the records search also determined that one previously recorded historic-period cultural resource, an abandoned concrete canal, is located within 0.5 mile of the Project Area.

Literature Review

A search of the NAHC's Sacred Lands File failed to indicate the presence of Native American cultural resources in the Project area. The NAHC provided a list of Native American contacts and recommends that these individuals be contacted for additional information. ECORP did not carry out any follow-up coordination.

A letter was sent to the Orland Historical & Cultural Society on July 24, 2018 to solicit comments or obtain historical information that the Society might have regarding events, people, or resources of historical significance in the area. No response has been received to date.

The Office of Historic Preservation's Directory of Properties, Historic Property Data File for Glenn County (dated April 5, 2012) did not include any resources within the Project area (OHP 2012).

The National Register Information System (National Park Service 2018) revealed no significant properties within the Project Area; nor were any resources located in the City of Orland.

A review of *California Historical Landmarks* (Office of Historic Preservation [OHP] 1996) listed the Granville P. Swift Adobe (No. 345) as the nearest landmark, located approximately 2.5 miles northwest of the Project area, north of Orland. Granville P. Swift built the first house in Glenn County, an adobe constructed of clay that served as the center of a large cattle ranch with Native American ranch hands. The Swift

Adobe was the location for annual rodeos during the mid-nineteenth century. The OHP website (OHP 2018) was viewed on July 9, 2018 and failed to list any updated Historic Landmarks in the Project vicinity.

A review of *Historic Spots in California* (Kyle 2002) states that Orland began as a railroad station. It was founded by settlers in the early 1870s and was named after a town in England. The Orland Federal Irrigation Project, formed in 1906, is located in Orland. It is the first irrigation project in the western U.S. by the Reclamation Bureau (now the Bureau of Reclamation). Haigh Field, about one mile east of the Project area, is now known as the Orland airport and was first used for training during World War II.

Bureau of Land Management (BLM) General Land Office (GLO) land patent records (BLM 2018) revealed varying sizes of property acreage within or near the Project Area were acquired from the federal government by individuals from the late nineteenth century to the mid-twentieth century. The majority of land was obtained in serial patents under the Homestead Act of 1862 (12 Stat. 392) but several individuals were granted land around the project area as military warrants under the Script Warrant Act of 1855 (10 Stat. 701). and were mostly related to farming and/or homesteading.

The Caltrans local and state bridge inventories (Caltrans 2018a, 2018b) do not list any bridges in the Project area.

4.5.2 Cultural Resources

Environmental Setting

The Project area is located within what is historically documented as Central Wintun (Nomlaki) territory. There were two major divisions of Nomlaki Indians in California: Hill Nomlaki and River Nomlaki. The Hill Nomlaki are identified as the Paskenta Band of Nomlaki Indians. It is this group that has ancestral ties to the Orland area, which includes the Project area.

Euro-American contact with Native American groups living in the Central Valley of California began during the last half of the eighteenth century. At this time, the attention of Spanish missionaries shifted away from the coast, and its dwindling Native American population, to the conversion and missionization of interior populations.

Following Euro-American contact, the land was bought to farm; the advent of a canal system and a railroad hub nearby made the land particularly attractive. The population of California was growing, and food producers were needed. The Orland area was particularly suited for fruit and nut trees. At the turn of the previous century, alfalfa, sugar beets, and grains were the more common crops produced in the irrigated fields (NCRC 2015).

Paleontological Resources

A paleontological records search was requested from the University of California Museum of Paleontology (UCMP) on July 30, 2018. The search included a review of the institution's paleontology specimen collection records for Glenn County, including the Project area and vicinity. The purpose of the assessment was to determine the sensitivity of the Project area, whether known occurrences of paleontological resources are present within or immediately adjacent to the Project area, and whether implementation of the Project could result in significant impacts to paleontological resources.

Paleontological resources include mineralized (fossilized) or un-mineralized bones, teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains.

The results of the search of the UCMP indicated that 239 paleontological specimens were recorded from 27 identified localities and 76 unidentified localities in Glenn County. Paleontological resources include fossilized remains of birds, mammals, reptiles, and amphibians. No paleontological resources have been previously recorded within or near the Proposed Project site (UCMP 2018).

4.5.3 Cultural Resources (V) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☒	☐	☐

The Cultural Resources Records Search and Literature Review researched the available historical resources information to determine the potential for historical resources that may be located on the Project site or nearby resources that may be affected by development of the Project. Five previous cultural resource investigations have been conducted within 0.5 mile of the linear Project Area, covering approximately five percent of the total area surrounding the Project area within the record search radius. These studies revealed the presence of pre-contact sites, including lithic scatters and habitation sites, as well as historic-period sites, including rock walls and sites associated with historic ranching and farming activities. In addition to these previous surveys, the records search also determined that one previously recorded historic-period cultural resource, an abandoned concrete canal, is located within 0.5 mile of the Project Area. However, this resource is not located within or adjacent to the Project site.

The Project site itself has not been previously surveyed for cultural resources by a professional archaeologist, and therefore no previously recorded resources have been identified within the Project area. Thus, the potential for the presence of historic cultural resources on this property is unknown, albeit unlikely. The Project site is the existing roadway ROW for East South Street - County Road 200 and County Road MM, which is a paved facility. The construction of the Project would be contained within this fully disturbed paved roadway and the graveled roadway shoulder. All construction would be below the ground surface. Nonetheless, since the potential for the presence of historic cultural resources on this property is unknown and there is a potential that subsurface construction activity could reveal subsurface deposits believed to be cultural or human in origin, mitigation measure CUL-1 is required to reduce potential historic resource impacts to the less than significant level.

In addition to the Records Search and Literature Review, maps and aerial photographs were reviewed for information on the history of the Project area, and it has been determined that the current Project area was mostly an agricultural area from 1914 through present, with the addition of some residential buildings along the roads over time. Furthermore, the map review revealed that the alignments and routes of County Road MM and E South Street/County Road 200 have been present since at least 1914,

making them old enough (over 50 years) to be considered historic-period cultural resources. These have not been formally recorded or evaluated and are not currently listed on the California Register of Historical Resources or National Register of Historic Places.

In between 1914 and the present, County Road MM and E South Street/County Road 200 have undergone substantial improvements, including conversion to paved facilities, on-going, intermittent maintenance (repaving), and the addition of other utility facilities underneath such as sewer conveyance facilities. While the Project is proposing to excavate within these roadway facilities, once the new sewer pipe is installed the construction area would be brought back to its pre-construction condition. More importantly, the alignment of both of these roadways would not be altered as a result of the Project, and they would continue to serve travel needs in Orland in the same historic manner.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐

The Cultural Resources Records Search and Literature Review did not identify any archaeological resources on the site or surrounding area. While no known archaeological resources were found during the analysis, there always remains the potential for ground-disturbing activities to expose previously unrecorded archaeological resources. As such, mitigation measure CUL-1 is required to reduce potential historic resource impacts to the less than significant level.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

A search of the UCMP failed to indicate the presence of paleontological resources in the Project area. Although paleontological resources sites were not identified in the Project area, there is a possibility that unanticipated paleontological resources will be encountered during ground-disturbing, Project-related activities. Therefore, impacts to unknown paleontological resources would be less than significant with incorporation of mitigation measure CUL-2.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

A search of the Sacred Lands File by the Native American Heritage Commission (NAHC) failed to indicate the presence of Native American cultural resources in the Project area. Although Native American burial sites were not identified in the Project area, there is a possibility that unanticipated human remains will be encountered during ground-disturbing, Project-related activities. Therefore, impacts to unknown human remains would be less than significant with incorporation of mitigation measure CUL-1.

4.5.4 4.5.4 Mitigation Measures

CUL-1: If subsurface deposits believed to be cultural or human in origin are discovered during excavation and construction activities, all work must halt within a 100-foot radius of the discovery and the construction manager shall immediately notify the City of Orland. The Project applicant shall retain a qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeologist, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find:

- If the professional archaeologist determines that the find does not represent a cultural resource, work may resume immediately, and no agency notifications are required.
- If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, he or she shall immediately notify the lead agency and applicable landowner. The agencies shall consult on a finding of eligibility and implement appropriate treatment measures, if the find is determined to be eligible for inclusion in the National Register of Historic Places (NRHP) or California Register of Historic Places (CRHR). Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the site either: 1) is not eligible for the NRHP or CRHR; or 2) that the treatment measures have been completed to their satisfaction.
- If the find includes human remains, or remains that are potentially human, he or she shall ensure reasonable protection measures are taken to protect the discovery from disturbance (Assembly Bill [AB] 2641). The archaeologist shall notify the Placer County Coroner (as per § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California Public Resources Code, and AB 2641 will be implemented. If the Coroner determines the remains are Native American and not the result of a crime scene, the Coroner will notify the NAHC, which then will designate a Native American Most Likely Descendant (MLD) for the Project (§ 5097.98 of the Public Resources Code). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (§ 5097.94 of the Public Resources Code). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the Public Resources Code). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a

reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.

Timing/Implementation: *During construction*

Monitoring/Enforcement: *City of Orland Planning Department*

CUL-2 If paleontological or other geologically sensitive resources are identified during any phase of project development, the construction manager shall cease operation at the site of the discovery and immediately notify the City of Orland. The Project applicant shall retain a qualified paleontologist to provide an evaluation of the find and to prescribe mitigation measures to reduce impacts to a less-than-significant level. In considering any suggested mitigation proposed by the consulting paleontologist, the City shall determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, land use assumptions, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on other parts of the project site while mitigation for paleontological resources is carried out.

Timing/Implementation: *During construction*

Monitoring/Enforcement: *City of Orland Planning Department*

4.6 Geology and Soils

4.6.1 Environmental Setting

Geomorphic Setting

The Project site is located in the north-central portion of the Great Valley geomorphic province of California. The Great Valley province is an alluvial plain about 50 miles wide and 400 miles long in the central part of California. Its northern part is the Sacramento Valley, drained by the Sacramento River and its southern part is the San Joaquin Valley drained by the San Joaquin River. The Great Valley is a trough in which sediments have been deposited almost continuously since the Jurassic Period (about 160 million years ago). Great oil fields have been found in southernmost San Joaquin Valley and along anticlinal uplifts on its southwestern margin. In the Sacramento Valley, the Sutter Buttes, the remnants of an isolated Pliocene volcano, rise above the valley floor (CGS 2002).

Site Geology

According to the California Geological Survey (CGS 1960), the Project site is underlain by what is termed Fan and Basin deposits, stratified deposits of gravel, sand, silt, clay, or other debris, moved by streams from higher to lower ground (USGS 2018a).

Site Soils

According to the Natural Resources Conservation Service (NRCS) through the Web Soil Survey database, the Project site is composed of two soil units as shown in Table 4.6-1 below. Among many soil related attributes, the Web Soil Survey identifies drainage, flooding, erosion, runoff, and the linear extensibility potential for the Project soils. According to this survey, the Project soils are somewhat excessively drained to well-drained but have a low runoff potential. The Project site soils have a slight erosion potential and a low linear extensibility (shrink-swell) (NRCS 2018).

Table 4.6-1. Project Area Soil Characteristics

Soil	Percentage of Site	Drainage	Flooding Frequency Class	Erosion Hazard ¹	Runoff Potential ²	Linear Extensibility (Rating) ³	Frost Action ⁴
Cortina very gravelly sandy loam, moderately deep	74.7%	Somewhat excessively drained	Occasional	Slight	A (low)	1.5%	None
Wyo loam, deep over gravel	25.3%	Well drained	None	Slight	B (low)	1.5%	None

Source: NRCS 2018

Notes:

- The ratings are both verbal and numerical. The hazard is described as "slight," "moderate," "severe," or "very severe." A rating of "slight" indicates that erosion is unlikely under ordinary climatic conditions; "moderate" indicates that some erosion is likely and that erosion-control measures may be needed; "severe" indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and "very severe" indicates that significant erosion is expected, loss of soil productivity and offsite damage are likely, and erosion-control measures are costly and generally impractical.
- Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation. Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. Group B. Soils having a moderate infiltration rate when thoroughly wet. Group C. Soils having a slow infiltration rate when thoroughly wet. Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet.
- Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent, moderate if 3 to 6 percent, high if 6 to 9 percent, and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.
- Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Regional Seismicity and Fault Zones

In California, special definitions for active faults were devised to implement the Alquist-Priolo Earthquake Fault Zoning Act of 1972, which regulates development and construction in order to avoid the hazard of surface fault rupture. The State Mining and Geology Board established policies and criteria in accordance with the act. The Board defined an active fault as one which has had surface displacement within Holocene time (about the last 11,000 years). A potentially active fault was considered to be any fault that showed evidence of surface displacement during Quaternary time (last 1.6 million years). Because of the large number of potentially active faults in California, the State Geologist adopted additional definitions and criteria to limit zoning to only those faults with a relatively high potential for surface rupture. Thus, the term "sufficiently active" was defined as a fault for which there was evidence of Holocene surface displacement. This term was used in conjunction with the term "well-defined," which relates to the ability to locate a Holocene fault as a surface or near-surface feature (CGS 2010).

According to the Orland General Plan Update EIR (2010b), the primary seismic hazard associated with the Orland planning area is minor ground shaking. The planning area is not located within an Alquist-Priolo earthquake hazard zone. The closest active fault system is the 40-mile-long Willows fault, located about 10 miles west of the city.

4.6.2 **Geology and Soils (VI) Environmental Checklist and Discussion**

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☒	☐
i)	Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii)	Strong seismic ground shaking?	☐	☐	☒	☐
iii)	Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv)	Landslides?	☐	☐	☐	☒
i)	The Proposed Project site is not located within an Alquist-Priolo Earthquake Zone (CGS 2010, 2015). There would be no impact related to fault rupture.				
ii)	According to CGS's Earthquake Shaking Potential for California mapping, the Proposed Project site is located in an area which is distant from known, active faults and will experience lower levels of ground-shaking less frequently. In most earthquakes, only weaker masonry buildings would be damaged. However, very infrequent earthquakes could still cause strong shaking in the area (CGS 2016). The Proposed Project includes the replacement of a sewer pipeline, which may be affected by a seismic event. However, all structures would be required to comply with the City of Orland Improvement Standards, including any required seismic mitigation standards. Because of the required compliance and the distance from active faults, the Proposed Project would have a less than significant impact related to strong ground shaking.				
iii)	Liquefaction occurs when loose sand and silt that is saturated with water behaves like a liquid when shaken by an earthquake. Liquefaction can result in the following types of seismic-related ground failure:				
	Loss of bearing strength – soils liquefy and lose the ability to support structures				

- Lateral spreading – soils slide down gentle slopes or toward stream banks
- Flow failures – soils move down steep slopes with large displacement
- Ground oscillation – surface soils, riding on a buried liquefied layer, are thrown back and forth by shaking
- Flotation – floating of light buried structures to the surface
- Settlement – settling of ground surface as soils reconsolidate
- Subsidence – compaction of soil and sediment

Three factors are required for liquefaction to occur: (1) loose, granular sediment; (2) saturation of the sediment by groundwater; and (3) strong shaking. Because the Proposed Project site is located in an area determined to have a low chance of seismic hazard and the Project would be required to comply with the City of Orland Improvement Standards, the potential for impacts resulting from liquefaction is considered less than significant.

- iv) The Project site has flat topography, indicating no potential for landslides. As such, the Proposed Project would have no impact in this area.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b)	Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

As shown in Table 4.6-1, the Project soils have a slight erosion potential. A rating of "slight" indicates that erosion is unlikely under ordinary climatic conditions. In addition, the Project site is flat, which would reduce the potential for substantial erosion.

A predominate instigator of erosion on construction sites are storm events and the resulting stormwater runoff. Erosion from stormwater runoff is controlled through adherence to City of Orland General Plan Policy 5.6.A, which requires the preparation of a stormwater pollution prevention plan (SWPPP) in order to comply with the Regional Water Quality Control Board's (RWQCB) General Construction Storm Water Permit. The SWPPP will identify best management practices (BMPs) to be implemented on the Project site to minimize soil erosion. SWPPP generally include the following BMPs:

- diversion of offsite run-off away from the construction area;
- prompt revegetation of proposed landscaped areas;
- perimeter straw wattles or silt fences and/or temporary basins to trap sediment before it leaves the site;
- regular sprinkling of exposed soils to control dust during construction during the dry season;
- installation of a minor retention basin(s) to alleviate discharge of increased flows;

- specifications for construction waste handling and disposal;
- erosion control measures maintained throughout the construction period;
- preparation of stabilized construction entrances to avoid trucks from imprinting debris on city roadways;
- contained wash out and vehicle maintenance areas;
- training of subcontractors on general construction area housekeeping;
- construction scheduling to minimize soil disturbance during the wet weather season; and
- regular maintenance and storm event monitoring.

Note that the SWPPP is a "live" document and should be kept current by the person responsible for its implementation. Preparation of, and compliance with a required SWPPP would effectively prevent Proposed Project onsite erosion and the loss of topsoil from Project implementation. This impact is less than significant.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c)	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐

As discussed previously, the Project site has no potential for landslides due to the flat topography of the site.

Lateral spreading is a form of horizontal displacement of soil toward an open channel or other "free" face, such as an excavation boundary. Lateral spreading can result from either the slump of low cohesion and unconsolidated material or, more commonly, by liquefaction of either the soil layer or a subsurface layer underlying soil material on a slope, resulting in gravitationally driven movement. One indicator of potential lateral expansion is frost action. Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing (NRCS 2018). As indicated in Table 4.6-1, the Web Soil Survey identifies the Project site as having soils with no frost action potential. As such, the potential for impacts due to lateral spreading would be less than significant.

With the withdrawal of fluids, the pore spaces within the soils decrease, leading to a volumetric reduction. If that reduction is significant enough over an appropriately thick sequence of sediments, then regional ground subsidence can occur. This typically only occurs within poorly lithified sediments and not within

competent rock.¹ No oil, gas, or high-volume water extraction wells are known to be present in the Project area. According to the United States Geological Service (USGS), the Project site is not located in an area of land subsidence (USGS 2018b). As such, the potential for impacts due to subsidence would be less than significant.

Collapse occurs when water is introduced to poorly cemented soils, resulting in the dissolution of the soil cementation and the volumetric collapse of the soil. In most cases, the soils are cemented with weak clay (argillic) sediments or soluble precipitates. This phenomenon generally occurs in granular sediments situated within arid environments. Collapsible soils will settle without any additional applied pressure when sufficient water becomes available to the soil. Water weakens or destroys bonding material between particles that can severely reduce the bearing capacity of the original soil resulting in damage to buildings and foundations. Because the Project is the installation of a sewer line, which would not be a heavy structure such as a building, collapse is not a concern. As such, the potential for impacts due to collapse would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐

Expansive soils are types of soil that shrink or swell as the moisture content decreases or increases. Structures built on these soils may experience shifting, cracking, and breaking damage as soils shrink and subside or expand. Expansive soils can be determined by a soil's linear extensibility. There is a direct relationship between linear extensibility of a soil and the potential for expansive behavior, with expansive soil generally having a high linear extensibility. Thus, granular soils typically have a low potential to be expansive, whereas clay-rich soils can have a low to high potential to be expansive.

According to the NRCS, linear extensibility values for the Project site are 1.5 percent. Soils with linear extensibility in that range correlate to soils having a low expansion potential, as noted in Table 4.6-1. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent, moderate if 3 to 6 percent, high if 6 to 9 percent, and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. As shown in Table 4.6-1, 100 percent of the Project site soils have a low shrink-swell potential. As such, the Project would have a less than significant impact in this area.

¹ The processes by which loose sediment is hardened to rock are collectively called lithification.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

The Project is the replacement of sewer pipe. The Proposed Project would not use a septic system or other wastewater disposal system.

4.6.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.7 Greenhouse Gas Emissions

4.7.1 Environmental Setting

Greenhouse gases (GHGs) are released as byproducts of fossil fuel combustion, waste disposal, energy use, land use changes, and other human activities. This release of gases, such as carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and chlorofluorocarbons, creates a blanket around the earth that allows light to pass through but traps heat at the surface, preventing its escape into space. While this is a naturally occurring process known as the greenhouse effect, human activities have accelerated the generation of GHGs beyond natural levels. The overabundance of GHGs in the atmosphere has led to an unexpected warming of the earth and has the potential to severely impact the earth's climate system.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH₄ traps approximately 25 times more heat per molecule than CO₂, and N₂O absorbs 298 times more heat per molecule than CO₂ (IPCC 2014). Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO₂e). Expressing GHG emissions in carbon dioxide equivalents takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO₂ were being emitted.

4.7.2 Greenhouse Gas Emissions (VII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐

GHG emissions contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change. No single project could generate enough GHG emissions to noticeably change the

global average temperature. The combination of GHG emissions from past, present, and future projects contributes substantially to the phenomenon of global climate change and its associated environmental impacts and as such is addressed only as a cumulative impact.

The Proposed Project will not include the provision of new permanent stationary or mobile sources of emissions, and therefore, by its very nature, will not generate quantifiable GHG emissions from Project operations. The Project does not propose any buildings and therefore no permanent source or stationary source emissions. Once the Project is completed, there will be no resultant increase in automobile trips to the area because the improved facilities will not require daily visits. While it is anticipated that the Project would require intermittent maintenance to be conducted by City public works staff, such maintenance would be minimal requiring a negligible amount of traffic trips on an annual basis. Impacts in this regard would be less than significant.

Construction of the Project would result in the generation of 138 metric tons of CO₂e. Since significance thresholds for GHG emissions have not been established in Glenn County, the projected emissions are compared to MCAQMD's recommended threshold of 1,100 metric tons of CO₂e annually. While significance thresholds used in Mendocino County are not binding in Glenn County or Orland, they are instructive for comparison purposes and illustrate the extent of an impact. The 138 metric tons of CO₂e generated over one year of construction is less than the GHG threshold of 1,100 metric tons of CO₂e per year. Therefore, a less than significant impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

The City of Orland does not currently have an applicable plan, policy, or regulation adopted for reducing GHG emissions. The Proposed Project would not conflict with any adopted plans, policies, or regulations adopted for reducing GHG emissions. As identified under Issue a), Project-generated GHG emissions would not surpass GHG significance thresholds, which were prepared to comply with California GHG reduction goals. Therefore, the proposed Project would not conflict with California GHG reduction goals. No impact would occur.

4.7.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.8 Hazards and Hazardous Materials

4.8.1 Environmental Setting

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined by the California Health and Safety Code, Section 25501 as follows:

"Hazardous material" means any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. "Hazardous materials" include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

A hazardous material is defined in Title 22, Section 662601.10, of the California Code of Regulations as follows:

A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed.

The release of hazardous materials into the environment could potentially contaminate soils, surface water, and groundwater supplies.

Under Government Code Section 65962.5, both the DTSC and the State Water Resources Control Board (SWRCB) are required to maintain lists of sites known to have hazardous substances present in the environment. Both agencies maintain up-to-date lists on their websites. A search of the DTSC (2018) and SWRCB (2018) lists identified no open cases of hazardous waste violations within 0.75 mile of the Project site.

The USEPA maintains the Enforcement and Compliance History Online (ECHO) program. The ECHO website provides environmental regulatory compliance and enforcement information for approximately 800,000 regulated facilities nationwide. The ECHO website includes environmental permit, inspection, violation, enforcement action, and penalty information about USEPA-regulated facilities. Facilities included on the site are Clean Air Act (CAA) stationary sources; Clean Water Act (CWA) facilities with direct discharge permits, under the National Pollutant Discharge Elimination System; generators and handlers of hazardous waste, regulated under the Resource Conservation and Recovery Act (RCRA); and public drinking water systems, regulated under the Safe Drinking Water Act. ECHO also includes information about USEPA cases under other environmental statutes. When available, information is provided on surrounding demographics, and ECHO includes other USEPA environmental data sets to provide

additional context for analyses, such as Toxics Release Inventory data. According to the ECHO program, the Project site is not listed as having a hazardous materials violation (USEPA 2018).

4.8.2 Hazards and Hazardous Materials (VIII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐

The Proposed Project is anticipated to require the use of some hazardous materials such as diesel fuel during construction. The transport of hazardous materials by truck is regulated by federal safety standards under the jurisdiction of the U.S. Department of Transportation. The use of such materials would not create a significant hazard to the public and impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐

As discussed in Issue a), the Project would not result in the routine transport, use, disposal, handling, or emission of any hazardous materials that would create a significant hazard to the public or the environment. Potential construction-related hazards could be created during the course of Project construction at the site, given that construction activities involve the use of heavy equipment, which uses small and incidental amounts of oils and fuels and other potentially flammable substances. The level of risk associated with the accidental release of hazardous substances is not considered significant due to the small volume and low concentration of hazardous materials used during construction. The construction contractor would be required to use standard construction controls and safety procedures that would avoid and minimize the potential for accidental release of such substances into the environment. Standard construction practices would be observed such that any materials released are appropriately contained and remediated as required by local, state, and federal law.

The Proposed Project is an infrastructure project that would not require the long-term use or storage of hazardous substances; therefore, no potential for the release of hazardous materials into the environment is expected. A less than significant impact would occur.

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Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

The nearest public school to the Project site is Fairview Elementary School, approximately ¾ mile from the Project site. The Project would have no impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒

Under Government Code Section 65962.5, both the DTSC and the SWRCB are required to maintain lists of sites known to have hazardous substances present in the environment. Both agencies maintain up-to-date lists on their websites. A search of the DTSC and SWRCB lists identified no open cases of hazardous waste violations on the Project site. Therefore, the Project site and the Proposed Project are not on a parcel included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (DTSC 2018; SWRCB 2018). As a result, this would not create a significant hazard to the public or to the environment and would have no impact.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

The Orland Haigh Field Airport is approximately 1.25 miles southeast of the Project site. The Project site is located within the Clear-Zone Safety Area as shown on Map 2 of the Comprehensive Airport Land Use Plan for the Orland Haigh Field Airport (Glenn County 1991). However, the Project does not propose any new structures which may impede aircraft operations and all new sewer lines would occur below ground surface. Thus, no impact would occur.

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Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

The Proposed Project site is not located within the vicinity of a private airstrip and would not result in a safety hazard for people residing or working in the Project area. Therefore, no impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

Standard evacuation routes have not been designated in Glenn County or Orland. However, the Glenn County Sheriff's Office, Office of Emergency Services, has an online link to an emergency preparedness web page stating that in the event of mandatory evacuation, residents will be advised of safe routes to follow, locations of shelters, and other actions that may need to be taken.

According to the Orland General Plan DEIR, it is likely that Caltrans facilities such as State Route 32 and Interstate 5 would be used to evacuate the community in an emergency. Major county roads such as Sixth Street (County Road 99W) and South Street are also suited to evacuation, depending on the location of the emergency (City of Orland 2010b).

The Proposed Project does not include any actions that would impair or physically interfere with an adopted emergency response plan or emergency evacuation plan. All construction activities would not impede the use of surrounding roadways in an emergency evacuation. The Project involves the replacement of an existing wastewater facility and would not interfere with any emergency response or evacuation plans. Implementation of the Proposed Project would result in no impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

The Project site is not in an area designated by CAL FIRE (2007) as a Fire Hazard Severity Zone. Furthermore, no Very High Fire Hazard Severity Zones are located nearby. Finally, the location of the

Project makes it readily accessible by emergency personnel and vehicles in the event of a wildland fire. For these reasons, this impact would be less than significant.

4.8.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.9 Hydrology and Water Quality

4.9.1 Environmental Setting

Regional Hydrology

Surface Water

The City of Orland is located in the greater Sacramento River hydrologic region. The Sacramento River hydrologic region covers approximately 17.4 million acres (27,200 square miles). The region includes all or large portions of Modoc, Siskiyou, Lassen, Shasta, Tehama, Glenn, Plumas, Butte, Colusa, Sutter, Yuba, Sierra, Nevada, Placer, Sacramento, El Dorado, Yolo, Solano, Lake, and Napa counties. Small areas of Alpine and Amador counties are also within the region. Geographically, the region extends south from the Modoc Plateau and Cascade Range at the Oregon border, to the Sacramento-San Joaquin Delta (DWR 2006).

The City of Orland and the Project site are located within boundaries of the Stony Creek watershed. The Stony Creek watershed encompasses approximately 700 square miles and is the second largest Sacramento River tributary on the west side of the Sacramento Valley (Orland 2010b). There are three major impoundments on Stony Creek: Black Butte, Stony Gorge, and East Park reservoirs.

Groundwater

The Project site is underlain by the Sacramento Valley Groundwater Basin and the Colusa Subbasin. The City of Orland uses groundwater as the source for potable water in the city. This groundwater is extracted from the Colusa Groundwater Subbasin. According to the California Department of Water Resources (DWR), the Colusa Subbasin covers an area of approximately 1,434 square miles (918,380 acres) (DWR 2006). The storage capacity of the subbasin was projected based on estimates of specific yield for the Sacramento Valley as developed in DWR Bulletin 118 (DWR 2006). The estimated storage capacity to a depth of 200 feet is approximately 13,025,887 acre-feet. Estimates of groundwater extraction for the Colusa Subbasin are based on surveys conducted by the California Department of Water Resources during 1993, 1994, and 1999. Surveys included land use and sources of water. Estimates of groundwater extraction for agricultural, municipal, and industrial, and environmental wetland uses are 310,000; 14,000; and 22,000 acre-feet, respectively. Deep percolation from applied water is estimated to be 64,000 acre-feet. The Department of Water Resources has not identified the Colusa Subbasin as overdrafted in its DWR Bulletin 118. Also, there has been no indication of any existing or anticipated overdraft condition in studies prepared by other entities (DWR 2006).

The DWR Groundwater Information Center Interactive Map Application (GICIMA) provides groundwater levels through the state. Among other things, this interactive on-line tool can illustrate the change in

groundwater depth of a certain time period for a particular location, such as the City of Orland. According to the GICIMA information, the change from groundwater to ground surface in the Project area has increased by approximately 20 feet between the fall of 2007 and the fall of 2017. In other words, the groundwater water surface was 40 feet below ground surface 2007 and was 60 feet below ground surface in 2017 (DWR 2018a).

The Sustainable Groundwater Management Act (SGMA) directs DWR to identify groundwater basins and subbasins in conditions of critical overdraft. As defined in the SGMA, "A basin is subject to critical overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts." The Colusa groundwater subbasin is not listed as a critically overdrafted basin (DWR 2018b). DWR is currently working on an update to the Bulletin 118 groundwater report. However, more up to date information of the Colusa subbasin is not available at this time.

Project Site Hydrology and Onsite Drainage

There are no existing natural hydrological features on the Project site. There are irrigation ditches adjacent to some areas of the Project site. However, the Project would not penetrate into these areas and no crossings or modifications to these ditches are proposed.

The topography of the site is flat with little elevation change, varying from approximately 225 feet to 233 feet AMSL over the ±0.8-mile site. Upon completion of pipeline installation, the trench would be filled and brought back to its pre-Project height.

Orland experiences extreme seasonal variation in monthly rainfall. The rainy period of the year lasts for 8.9 months, from September 17 to June 15, with a sliding 31-day rainfall of at least 0.5 inches. The most rain falls during the 31 days centered around February 16, with an average total accumulation of 5.9 inches. The rainless period of the year lasts for 3.1 months, from June 15 to September 17. The least rain falls around July 31, with an average total accumulation of 0.0 inches (Weatherspark 2018).

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for the Project area (Map No. 06021C0400D) shows that the Project site is in unshaded Zone X, meaning that the area is outside of the 0.2 percent annual chance (500-year) floodplain (FEMA 1998).

4.9.2 Hydrology and Water Quality (IX) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐

Long-term operation of the Proposed Project would have no impact on existing water quality standards or waste discharge requirements. The Proposed Project is the replacement of an existing sewer pipe. The specific need for the Proposed Project results from the current state of degradation affecting the existing

cast-in-place, concrete sewer pipe, which is slowly being eroded away from the top down as a result of the effects of sewage-related chemical compounds. The Project would remedy this situation with the installation of a new, PVC sewer line. Implementation of the Proposed Project would serve existing wastewater customers and not increase the amount of wastewater flow to the City's wastewater treatment plant. As such, all wastewater would be processed as it is currently and would not result in a violation of any waste discharge requirements. The Project would have no impact in this area.

While there are no creeks, streams or rivers exist on the Project site, there are irrigation ditches delivering water to adjacent agricultural fields adjacent to the Project. Therefore, there is potential for the Proposed Project to result in degradation of water quality during construction. Site preparation and construction activities associated with proposed pipeline replacement would involve temporary/short-term earth-moving activities including trenching and grading which can facilitate soil erosion and sediment loading to nearby irrigation ditches. Polluted runoff from the Project site during construction could include sediment from soil disturbances and oil and grease from construction equipment. This degradation could result in violation of water quality standards. However as previously described, stormwater runoff is controlled through adherence to City of Orland General Plan Policy 5.6.A, which requires the preparation of a SWPPP in order to comply with the RWQCB's General Construction Storm Water Permit. Required elements of a SWPPP include (1) site description addressing the elements and characteristics specific to the site; (2) descriptions of BMPs for erosion and sediment controls; (3) BMPs for construction waste handling and disposal; (4) implementation of approved local plans; (5) proposed post-construction controls, including a description of local post-construction erosion and sediment control requirements; and (6) non-stormwater management.

The SWPPP must include measures designed to reduce or eliminate erosion and runoff into waterways, and therefore would be required to identify BMPs to be implemented on the Project site to minimize pollutant runoff. BMPs could include wattles, covering of stockpiles, silt fences, and other physical means of slowing stormwater flow from construction site areas to allow sediment to settle before entering stormwater channels. Other examples of typical construction BMPs included in SWPPPs include, but are not limited to, using temporary mulching, seeding, or other suitable stabilization measures to protect uncovered soils; storing materials and equipment to ensure that spills or leaks cannot enter the storm drain system or surface water; developing and implementing a spill prevention and cleanup plan; and installing sediment control devices such as gravel bags, inlet filters, fiber rolls, or silt fences to reduce or eliminate sediment and other pollutants from discharging to the drainage system or receiving waters. The methods used would be described in the SWPPP and would vary depending on the circumstances of construction. SWPPP BMPs are recognized as effective methods to prevent or minimize the potential releases of pollutants into drainages, surface water, or groundwater. Additionally, the SWPPP must demonstrate compliance with all applicable local and regional erosion and sediment control standards, identification of responsible parties, and a detailed construction timeline. Strict SWPPP compliance, coupled with the use of appropriate BMPs, would reduce potential water quality impacts during construction activities. Implementation of BMPs required as part of the SWPPP would ensure that the Proposed Project would not create or contribute to any violations of water quality standards or waste discharge requirements during construction. There would be a less than significant impact.

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Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒

The Project is the replacement of an existing sewer pipeline. The Project would not require the expansion in the of use of water or groundwater. There would be no new impervious surfaces on the Project site as a result of Project construction with the exception of the pipeline and manholes themselves. However, these facilities would not impede the ability of surface water to infiltrate into the groundwater basin as any water would flow around the pipeline and manholes. As such, the Project would have no impact to groundwater supplies or recharge.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐

See Issue a) above. Furthermore, implementation of the Proposed Project would not alter the existing drainage patterns on the site. Instead, the Proposed Project would restore areas affected by pipeline construction to pre-Project conditions relative to topography and groundcover, and would not introduce impervious surfaces beyond what currently exists. This impact is less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☒	☐

As stated previously, there are no creeks, streams, or rivers on the Project site. The proposed pipeline alignment will not alter any stream or river courses nor any of the adjacent irrigation ditches. As noted, the Proposed Project would restore areas affected by pipeline construction to pre-Project conditions relative to topography and groundcover, and would not introduce impervious surfaces beyond what currently exists. As such, the Proposed Project would not substantially alter surface runoff conditions relative to pre-Project conditions, and implementation of the Proposed Project would not result in the alteration of the course of a natural waterway nor substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite. This impact, therefore, is less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐

The Proposed Project would restore areas affected by pipeline construction to pre-Project conditions relative to topography and groundcover. Therefore, any impact of the Project on existing or planned stormwater drainage systems would be less than significant relative to existing conditions. With implementation of the required SWPPP and compliance with standard permit measures for the control and management of construction-related erosion and polluted runoff discussed above, the Proposed Project impacts on the quality and quantity of runoff from the Project site would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐

The Proposed Project would not otherwise result in degradation of water quality. Compliance with SWPPP implementation would ensure that potential water quality impacts are less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒

No housing is proposed for the Project. There would be no impact in this area.

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Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☒

According to FEMA flood hazard maps (Map No. 06021C0400D), the Project site is not located within a flood zone. Therefore, implementation of the Proposed Project will not have an impact related to flooding.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐

The Project site is not protected by levees from any flood hazard. However, the Orland General Plan EIR identifies that the City has the potential to be inundated with flood waters due to dam failure of the Black Butte Dam (Orland 2010b). Dams are regulated by the Division of Safety of Dams of the DWR and are routinely inspected during their impoundment life, which includes monitoring for compliance with seismic stability standards. While the Orland planning area has been identified as having the potential for dam inundation, the required compliance and inspection by the Division of Safety of Dams mitigates this potential. Thus, dam failure is not considered a reasonably foreseeable event, and the Proposed Project would not affect dam operations. As such, the Proposed Project would have a less than significant impact from dam or levee failure.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
j) Be subject to inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

No large bodies of water exist near the Proposed Project site. The Project site is not located within a potential tsunami or seiche inundation area. Damage to the Project site due to a seiche, a seismic-induced wave generated in a restricted body of water, would not occur. Additionally, the Project site is located in an area that is flat with little elevation gain. Therefore, no mudflows are anticipated at the site. No impact would occur.

4.9.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.10 Land Use and Planning

4.10.1 Environmental Setting

Adjacent lands to the Project to the north and within the City of Orland boundaries have been designated as Public Facility, Heavy Industrial, and Low Density Residential in the City's General Plan land use diagram (Orland 2010a). Existing uses in this area consist of Lely – Aquatic Park, the Community Recovery Wellness Center, and a single family residential subdivision (Whitehawk). Zoning in this area is PF, Heavy Industrial (M-H), and Residential One-Family (RE-1).

Lands to the south, east and west of the Project are all within the unincorporated areas of Glenn County. These areas are designated in the Glenn County General Plan as Rural Residential, Suburban Residential, and General Agriculture land uses (Glenn County 2018). The Glenn County Zoning Map identifies these areas as Residential Estate - 1 acre (RE-1) and Residential Estate - 5 acre (RE-5) and Exclusive Agricultural – 20 acre (AE-20) (Glenn County 2018). Existing uses adjacent to the Project site predominately include rural residential properties and agricultural lands.

4.10.2 Land Use and Planning (X) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒

The Proposed Project consists of the replacement of existing wastewater collection pipeline. The proposed pipeline alignment would be within the existing roadway ROW. Replacing the existing pipeline within a 5- to 10-foot trench would not divide any existing communities in the area. The Proposed Project would have no impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

The Proposed Project involves the replacement of existing sewer pipeline. The Proposed Project alignment is located within the existing roadway ROW. Prior to installation of the proposed pipeline, an encroachment permit would be required for construction within the roadway from the City and from Glenn County. Therefore, the Proposed Project would not conflict with any applicable land use plan, policy, or regulation. A less than significant impact would occur, and no mitigation measures are required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

The Project site is not located in an adopted habitat conservation plan, natural community conservation plan, or other approved habitat conservation plan. Thus, no impacts would occur.

4.10.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.11 Mineral Resources

4.11.1 Environmental Setting

The state-mandated Surface Mining and Reclamation Act of 1975 requires the identification and classification of mineral resources in areas within the State subject to urban development or other irreversible land uses that could otherwise prevent the extraction of mineral resources. These designations categorize land as Mineral Resource Zones (MRZ-1 through MRZ-4).

Stony Creek is located on the northern border of the City. Lower Stony Creek traverses its alluvial fan from Black Butte Dam to the Sacramento River, following one of three major fingers of gravelly soil that represent former channel courses. In-stream gravel mining has been particularly intensive in Lower Stony Creek. Generally, Stony Creek aggregates consist of stream channel deposits, including flood and overbank deposits in the upper reaches, and are classified as MRZ-2a (marginal reserves) (Orland 2010b). However, there is currently no mining activity occurring within, nor is it allowed in, the Project vicinity. Furthermore, neither the Orland General Plan nor the Glenn County General Plan identify any mineral resource zones within the City of Orland or unincorporated County lands adjacent to the City (Orland 2010a; Glenn County 1993).

4.11.2 Mineral Resources (XI) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒

As discussed above, neither the City's existing General Plan nor the Glenn County General Plan identifies any mineral resources in the Project vicinity, including on the Project site. Therefore, no impacts would occur to mineral resources.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

The Project site is not identified as a mineral resource recovery site in the Orland General Plan. There would be no impact in this area.

4.11.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.12 Noise

4.12.1 Environmental Setting

Noise Fundamentals

Noise is generally defined as sound that is loud, disagreeable, or unexpected. The selection of a proper noise descriptor for a specific source is dependent on the spatial and temporal distribution, duration, and fluctuation of the noise. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise include the average hourly noise level (in L_{eq}) and the average daily noise levels (in $L_{dn}/CNEL$).

Noise can be generated by a number of sources, including mobile sources, such as automobiles, trucks, and airplanes, and stationary sources, such as construction sites, machinery, and industrial operations. The rate depends on the ground surface and the number or type of objects between the noise source and the receiver. Mobile transportation sources, such as highways, and hard and flat surfaces, such as concrete or asphalt, have an attenuation rate of 3.0 dBA per doubling of distance. Soft surfaces, such as uneven or vegetated terrain, have an attenuation rate of about 4.5 dBA per doubling of distance from the source. Noise generated by stationary sources typically attenuates at a rate of approximately 6.0 to 7.5 dBA per doubling of distance from the source (USEPA 1971).

Sound levels can be reduced by placing barriers between the noise source and the receiver. In general, barriers contribute to decreasing noise levels only when the structure breaks the "line of sight" between the source and the receiver. Buildings, concrete walls, and berms can all act as effective noise barriers. Wooden fences or broad areas of dense foliage can also reduce noise, but are less effective than solid barriers.

Vibration

Ground vibration can be measured several ways to quantify the amplitude of vibration produced. This can be through peak particle velocity or root mean square velocity. These velocity measurements measure

maximum particle at one point or the average of the squared amplitude of the signal, respectively. Vibration impacts on people can be described as the level of annoyance and can vary depending on an individual's sensitivity. Generally, low-level vibrations may cause window rattling but do not pose any threats to the integrity of buildings or structures.

4.12.2 Noise (XII.) Environmental Checklist and Discussion

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐

Construction Impacts

Construction of the Proposed Project would result in a temporary short-term increase of noise levels in the Project vicinity. The noise levels generated by construction equipment would vary greatly depending upon factors such as the type and specific model of the equipment, the operation being performed, the condition of the equipment and the prevailing wind direction. The noise levels for various types of construction equipment that could be required during construction of the Proposed Project are provided in Table 4.12-1.

Table 4.12-1. Typical Noise Levels from Construction Equipment		
Equipment	Typical Noise Level (dBA) at 50 Feet from Source	
	L _{max}	L _{eq}
Air Compressor	80	76
Backhoe/Front End Loader	80	76
Compactor (Ground)	80	73
Concrete Mixer Truck	85	81
Concrete Mixer (Vibratory)	80	73
Concrete Pump Truck	82	75
Concrete Saw	90	83
Crane	85	77
Dozer/Grader/Excavator/Scraper	85	81
Drill Rig Truck	84	77
Generator	82	79
Gradall	85	81

Table 4.12-1. Typical Noise Levels from Construction Equipment

Equipment	Typical Noise Level (dBA) at 50 Feet from Source	
	L _{max}	L _{eq}
Hydraulic Break Ram	90	80
Jackhammer	85	78
Impact Hammer/Hoe Ram (Mounted)	90	83
Pavement Scarifier/Roller	85	78
Paver	85	82
Pneumatic Tools	85	82
Pumps	77	74
Truck (Dump/Flat Bed)	84	80

Source: FTA 2006

During the construction phase of the Project, exterior noise levels resulting from construction could affect nearby sensitive receivers. As shown in Table 4.12-2, L_{eq} noise levels associated with individual construction equipment used for typical construction projects can reach levels of up to 80 - 90 dBA L_{eq} at a distance of 50 feet. Construction noise levels drop off at a rate of about six dBA per doubling of distance between the noise source and the receptor. Since the nearest sensitive receptors (residences) are within 50 feet to the east of the Project site, maximum noise levels are expected to be 90 dBA L_{eq}.

General Plan Noise Element Policy 5.1.J states that noise associated with construction activities is exempt from all noise level limits, and Policy 5.1.K limits construction activities to the hours between 7:00 AM and 5:00 PM. Because construction noise is exempt from specific noise limits and construction activities would be restricted to the hours between 7:00 AM and 5:00 PM, the Proposed Project would result no impact in this regard.

Long-Term Operational Impacts

The Proposed Project would not introduce a new noise-generating source. The Proposed Project involves the improvement currently degrading sewer conveyance facilities. The Proposed Project would not include the provision of new permanent stationary or mobile noise sources, and therefore, by its very nature, would not result in an increase of existing noise levels from Project operations. No impact would occur in this regard.

Would the project		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b)	result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒

Construction Impacts

Construction operations have the potential to result in varying degrees of temporary ground vibration, depending on the specific construction equipment used and operations involved. The ground vibration levels associated with various types of construction equipment are summarized in Table 4.12-2. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The effects of ground vibration may be imperceptible at the lowest levels, low rumbling sounds and detectable vibrations at moderate levels, and slight damage to nearby structures at the highest levels.

Table 4.12-2. Typical Construction Equipment Vibration Levels	
Equipment Type	Peak Particle Velocity at 25 Feet (inches per second)
Large Bulldozer	0.089
Loaded Trucks	0.076
Jackhammer	0.035

Source: FTA 2006; Caltrans 2004

It is acknowledged that construction activities would occur throughout the linear Project site and would not be concentrated at the point closest to the nearest structure. The nearest offsite structures to any of the construction area are residences between 30 to 50 feet distant. Based on the vibration levels presented in Table 4.12-3, ground vibration generated by heavy-duty equipment would not be anticipated to exceed approximately 0.089 inches per second peak particle velocity at these distances. This vibration level is below Caltrans's (2004) recommended standard of 0.2 inches per second peak particle velocity with respect to the prevention of structural damage for older residential buildings. This is also the level at which vibrations may begin to annoy people in buildings. Therefore, since predicted vibration levels at the nearest structures would not exceed recommended criteria and because the City does not regulate vibration associated with construction, there is no impact.

Long-Term Operational Impacts

Once operational, the Project would not be a source of groundborne vibration. For these reasons, there is no impact.

Would the project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c)	result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐

The Proposed Project would not introduce a new noise-generating source. The Proposed Project involves the improvement currently degrading sewer conveyance facilities. The Proposed Project would not include

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the provision of new permanent stationary or mobile noise sources, and therefore, by its very nature, would not result in an increase of existing noise levels from Project operations. No impact would occur in this regard.

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
d) result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐

Noise associated with the construction of the Proposed Project will result in short-term and intermittent noise. As discussed in Issue a), the Proposed Project will abide by Policy 5.1.K of the General Plan Noise Element limiting construction activities to the hours between 7:00 AM and 5:00 PM. Therefore, the Proposed Project would result in a less than significant impact related to a substantial temporary or periodic increase in ambient noise levels.

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the Project Area to excessive noise levels?	☐	☐	☐	☒

The nearest airport to the Project site is Haigh Field, located approximately 1.25 miles southeast of the Project site. However, a review of the City General Plan Noise Element shows the Project site outside of the Airport Land Use Planning Boundary. Therefore, construction workers would not be exposed to excessive airport noise levels. There is no impact.

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the Project Area to excessive noise levels?	☐	☐	☐	☒

There are no private airstrips located within the vicinity of the Project site. No impact would occur.

4.12.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.13 Population and Housing

4.13.1 Environmental Setting

According to the California Department of Finance (DOF), which provides estimated population and housing unit demographics by year throughout the State, the City's population increased 7.6 percent between 2010 and 2018, from 7,291 to 7,844 (DOF 2017, 2018). While the 2018 housing estimates are not currently available, DOF estimates that there were 2,908 total housing units in the City, and a 6.7% vacancy rate as of January 1, 2017. The average household size was estimated to be 2.88 persons per household during the same time period. (DOF 2017).

4.13.2 Population and Housing (XIII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒

No new roads or extensions of existing roads are proposed. The Project does not include the construction of any new homes or the increase of employment opportunities. Therefore, direct or indirect increases in population growth would not occur as a result of the Proposed Project.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

No residences would be displaced or removed as a result of the Proposed Project, and the Project would have no impact on existing housing.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

As discussed under Issue b), the Project would not involve the removal or relocation of any housing and would therefore not displace any people or necessitate the construction of any replacement housing.

4.13.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.14 Public Services

4.14.1 Environmental Setting

Public services include fire protection, police protection, parks and recreation, and schools. Generally, impacts in these areas are related to an increase in population from a residential development. Levels of service are generally based on a service to population ratio, except for fire protection, which is usually based on a response time. For example, the Orland General Plan Policy PFS-8.11 provides a Police Department staffing ratio of 1.9 officers per 1,000 population. Further, in 2003, the Orland City Council set the park dedication standard at 8.4 acres per 1,000 residents. Finally, the average response time for fire protection and emergency medical services in Orland is three to five minutes for arrival at the station, approximately one minute to prepare and leave the station, and an additional two to three minutes to the actual call site (Orland 2010b).

Police Services

The Orland Police Department (OPD) provides law enforcement services to the Project site. OPD reported total calls for service increased to 2,937 (30%) in 2017 (Orland 2018b). The OPD has patrol service 24 hours a day. The K-9 program had 54 deployments in 2017. The Police Department also offer the following services: certified child seat installer, free bike helmets, Alice Training (Active Shooter Training), and Volunteers in Polices Services (VIPs) Program. The OPD personnel plan for the future is to hire two additional patrol officers, a community service officer, lieutenant or additional sergeant position and a full-time detective position (Orland 2018b). The City's police station is located at 817 Fourth Street, approximately 0.7 miles north of the Project site.

Fire Services

The City of Orland Volunteer Fire Department (OVFD) provides fire protection and emergency medical services to the Project site. OVFD responds to various emergency and non-emergency incidents including, but not limited to, all types of fire; medical emergencies; public assists and hazardous situations. As of January 2018, there are 45 active volunteers in the OVFD. There were 736 calls in 2017 (397 city calls and

339 rural calls). Medical calls (292) have increased within the City in the past three years (Orland 2018b). The City's Fire Station is located at 810 Fifth Street, approximately 0.7 mile north of the Project site.

Schools

The Orland Unified School District (OUSD) provides educational services for the City of Orland. The District has two elementary schools (one for grades K-2 and one for grades K-5), one middle schools (grades 6-8), one high school (grades 9-12), and one continuation high school, one community day school (OUSD 2018a). The District had 2,210 students in the 2016-2017 school year (OUSD 2018b). According to the California Department of Education, (DOE), the City also has one private school, the Providence Christian School (DOE 2017).

Parks

The City of Orland has six parks ranging in size from 0.26 acre to 23 acres for a total acreage of 47.16 acres (Orland 2018c). Based on the DOE 2018 estimated City population of 7,844, the City's parkland to population ratio is six acres of parks/1,000 population².

4.14.2 Public Services (XIV) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	☐	☐	☐	☒
Fire Protection?	☐	☐	☐	☒
Police Protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other Public Facilities?	☐	☐	☐	☒

The Proposed Project consists of the installation of a 24-inch sewer pipeline to replace a degrading cast-in-place, concrete sewer pipe. The proposed pipeline would be maintained by City and would not require

² 47.16 acres of parks / (7,844 / 1,000) population = 6.0 acres of parks / 1,000 population.

public services beyond existing conditions. The Project would be constructed in a manner that no public services would become limited or halted. For instance, while construction would occur within E. South Street-County Road 200 and County Road MM it would be conducted in a manner that precludes the need for road closures or detours, and thus police and fire protection services would not be impeded in the Project area. The Proposed Project would not result in an increase in population which in turn would impact public facilities. As such, the Proposed Project would not affect police protection, fire protection, schools, parks, or other public facilities. No impact would occur.

4.14.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.15 Recreation

4.15.1 Environmental Setting

The City has approximately 47.16 acres of parkland. Additionally, the City also provides recreational facilities, such as adult and youth sports leagues for the enjoyment of city residents.

4.15.2 Recreation (XV) Materials Checklist

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒

As stated previously, the need for additional parkland is primarily based on an increase in population to an area. Given that the Proposed Project would not increase the City's population, the Project would not burden any parks in the surrounding area beyond capacity by generating additional recreational users. Therefore, the Proposed Project would not increase the use of park and recreational facilities resulting in substantial physical deterioration of the facility. There would be no impact to recreational facilities from construction of the Proposed Project.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☒	☐

The Proposed Project would not result in additional athletic amenities or require the construction or expansion of additional recreational facilities. As such, the Proposed Project would have a less than significant impact in this issue area.

4.15.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.16 Transportation/Traffic

4.16.1 Environmental Setting

All of the Proposed Project alignment is located within the existing roadway ROWs for East South Street-County Road 200 and County Road MM. These roadways are primarily surrounded by private rural residences. As noted in Section 2 of this Initial Study, the proposed pipeline alignment includes the replacement of an existing pipeline.

The Proposed Project would replace aging facilities with a new pipeline to improve the wastewater collection system quality and reliability for the City. The Proposed Project is not intended to increase service capacity in the system and, as such, would not directly or indirectly result in future growth and development not served by existing facilities.

4.16.2 Transportation/Traffic (XVII.) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐

Because the Proposed Project would not directly or indirectly introduce a new population in the region, the total number of trips generated by the Project is not expected to change from existing conditions. Project construction will, however, result in temporary increases in local traffic due to the transport of construction personnel, equipment and material to the Project site.

Project construction would have a temporary impact on traffic flow near the proposed pipeline alignment. Existing traffic levels would increase on East South Street-County Road 200 and County Road MM due to deliveries of materials and equipment to the Project site and by workers commuting to the site daily. It is assumed that construction workers would travel to and from the construction site daily in personal

vehicles. Construction equipment and machinery would be staged at the City Corporation Yard on East South Street-County Road 200. In addition to possible lane closures, vehicles hauling construction equipment and materials would be traveling at slower speeds than through-traffic.

Construction is considered to have only short-term effects on traffic and circulation conditions within the area proposed for construction. There are no planned road closures as a result of Project construction and traffic control would be provided. As such the Proposed Project's impact on local traffic conditions would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐

The City of Orland is part of the Glenn County 2015 Regional Transportation Plan (RTP). The 2015 RTP serves as the planning blueprint to guide transportation investments in Glenn County involving local, state, and federal funding over the next 20 years. Transportation improvements in the RTP are identified as short-term (2025) or long-term (2035) (Glenn County Transportation Commission 2015).

The Project does not propose new roads or extensions of existing roads. The Project does not include the construction of any new homes or businesses. The Proposed Project is the replacement of an existing facility and would not increase population to the area. Therefore, the Proposed Project would not conflict with the 2015 RTP. As such, the Project would not be inconsistent with any adopted local or regional transportation plans and would have a less than significant impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒

The Proposed Project is the replacement of an existing sewer pipe. The Project does not include the construction of any new homes or businesses. Development of this Project would not increase population to the area. Because the Proposed Project would not directly or indirectly result in an increase in population to the area, the Project would not increase air traffic levels. Therefore, the Project would have no impact in this area.

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Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒

No modifications to roadway features are proposed as part of the Project. Therefore, the Project would have no impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
e) Result in inadequate emergency access?	☐	☐	☒	☐

The Proposed Project would construct a below-ground sewer pipeline and associated manholes. No long-term modifications to roadway features are proposed as part of the project and, therefore would not result in any long-term adverse impact on emergency access. Therefore, the Project would have a less than significant impact regarding emergency access.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

The Proposed Project would construct a below-ground sewer pipeline and associated manholes. No long-term modifications to roadway features are proposed that would conflict with adopted policies, plans or programs regarding alternative transportation. Existing transit options would remain intact and not otherwise be affected by the Project. Therefore, impacts related to existing alternative transportation would not result from the Project, and the Proposed Project would not conflict with adopted policies, plans, or programs supporting alternative transportation. No impact would occur.

4.16.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.17 Tribal Cultural Resources

4.17.1 Environmental Setting

Prior to the arrival of Euro-Americans in the region, California was inhabited by groups of Native Americans speaking more than 100 different languages and occupying a variety of ecological settings. Kroeber (1925, 1936) subdivided California into four subculture areas, Northwestern, Northeastern, Southern, and Central. Orland is in Kroeber's Central Area within Nomlaki territory. Nomlaki, a division of the Wintu, occupied a territory that extended from the vicinity of Cottonwood Creek in the north to Glenn County in the south and from the crest of the Coast Range in the west past the Sacramento River in the east (Goldschmidt 1978). There were two distinct divisions of Nomlaki: Hill Nomlaki and River Nomlaki. The Hill Nomlaki occupied the areas to the west and south in the foothills (Orland 2010b).

The Nomlaki were divided into local groups centered in a village or *kewel*. A typical village consisted of a chieftain's house, family houses surrounding the chieftain's house, a dance house, and a menstrual hut that was placed on the side of the village opposite the water source. Population size varied among villages ranging from 25 inhabitants to over 200 occupying 5 to 50 family houses. Group activities included smoking, storytelling, dancing, and gambling. The position of chieftain (*cabatu*) was hereditary, although men in a village could voice an opinion regarding a change in succession of a chieftain. The chief's status derived from his personal qualifications and from his wealth. His position also exempted him from strenuous manual labor (DuBois 1935). Villages were commonly located near springs or along creeks. Many villages also claimed territory at higher elevations that could be occupied during hot summer months (Orland 2010b).

Trade among Nomlaki was common and integral to their survival. They primarily engaged in three exchange systems: internal or trading between neighbors, east-west trading, and north-south trading. Internal trading included families exchanging utilitarian items. This economic activity occurred as required by individuals in a village and was conducted in a rather casual manner. In addition, the chief could facilitate the supply of utilitarian items by acquiring them and selling them, as necessary, to village inhabitants (Orland 2010b).

The second exchange system, east-west trade, was conducted between Hill Nomlaki and River Nomlaki. These two groups exchanged resources easily accessible to each group for resources that could not be easily obtained in their respective territories. For example, River Nomlaki traded riverine resources such as salmon for acorns and other resources more common in Hill Nomlaki territory. The primary medium of exchange in these transactions appears to be shell money and/or other valuable items. East-west economic exchanges also included trading with Yuki for salt (Orland 2010b).

The third exchange system, north-south trade, was extensive, ranging from San Francisco Bay to Shasta Wintu territory. Clamshell disks moved from the south to the north, and obsidian, animal pelts, and yew wood moved from the north to the south. Nomlaki contributed salt and magnesite beads to this exchange system. Magnesite beads were used by all Wintu groups and were greatly valued. Regardless of the items contributed to the exchange system by Nomlaki, they primarily profited by being located in the middle of the system. Nomlaki acted as middlemen in the exchange system and could affect the supply of

goods flowing in either direction. Nomlaki would also convert raw materials from the north or south into usable or more valuable items and take a profit from the groups to whom they were trading the items. Consequently, participation in and continuation of the north-south exchange system was an important and lucrative economic activity among Nomlaki (Orland 2010b).

Nomlaki usually buried their dead in areas approximately 1,000 to 1,200 feet from a village. Nomlaki cemeteries were occasionally shared by more than one village. Circular graves were dug to a depth of three to four feet using a mahogany stick. The body of the deceased individual was tightly flexed, pushing the head between the knees and folding the hands at the sides. Next, the body was bound tightly with sinew rope and wrapped in black bear hide, which was highly prized for this purpose, whenever possible. Finally, a net was wrapped around the bundle and the individual was placed in the grave. Most of the personal belongings of the deceased were burned, but items such as beads and ornaments could be buried with an individual. Burials were usually accompanied by wailing and mourning (Orland 2010b).

4.17.2 Tribal Consultation

ECORP contacted the California NAHC on July 16, 2018 to request a search of the Sacred Lands File for the APE. This search can determine whether Sacred Lands have been recorded by California Native American tribes within the Project site, because the Sacred Lands File is populated by members of the Native American community who have knowledge about the locations of tribal resources. In requesting a search of the Sacred Lands File, ECORP solicited information from the Native American community regarding tribal cultural resources. The search of the Sacred Lands File by the NAHC failed to indicate the presence of Native American cultural resources in the Project area (ECORP 2018).

AB 52 requires *that* prior to the release of a CEQA document for a project, an agency begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project if: (1) the California Native American tribe requested to the lead agency, in writing, to be informed by the lead agency through formal notification of proposed projects in the geographic area that is traditionally and culturally affiliated with the tribe and (2) the California Native American tribe responds, in writing, within 30 days of receipt of the formal notification, and requests the consultation. The City of Orland has not received any formal notification requests by any California Native American tribes. As such, the consultation responsibilities required by AB 52 have been met by the City for the Proposed Project.

4.17.3 Tribal Cultural Resources (XVII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or	☐	☐	☒	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.	☐	☒	☐	☐

No known cultural resources or significant archaeological resources have been identified within the Project area. The site has not been identified as either a site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native American tribe. However, unanticipated and accidental discovery of California Native American tribal cultural resources are possible during Project implementation, especially during excavation, and have the potential to impact unique cultural resources. As such, mitigation measure CUL-1 has been included to reduce the potential for impacts to tribal cultural resources to a less than significant level.

4.17.4 Mitigation Measures

Implement mitigation measure CUL-1.

4.18 Utilities and Service Systems

4.18.1 Environmental Setting

The City of Orland Public Works Department is responsible for water, wastewater, and storm drainage for the city. The City contracts with Waste Management to provide solid waste collection services in the city.

Water Service

The source of water supply for Orland is groundwater pumped from six wells that produce between 350 to 1,090 gallons per minute (gpm). The wells are located throughout the City and range in depth from 150 feet to 400 feet. Gravity flow from an 80,000-gallon elevated storage tank provides the water pressure in the city. The water transmission and distribution systems consist of approximately 34 miles of pipeline ranging in diameter from 4 - 10 inches. The water system is operated at 50 - 65 pounds per square inch (psi) pressure under normal demand. The six wells are capable of producing 5,130 gpm at 55 psi system pressure. (Orland 2014)

Wastewater

All sewage is collected and processed by the Orland Wastewater Facility. The facility utilizes a primary treatment process consisting of a bar-screen located at the headworks building with screened effluent disposed into a rotating series of four sewage disposal ponds located west of the airport. These four primary settling ponds, along with two specially lined and isolated brine ponds, are located on a 50-acre, City-owned parcel of land.

The wastewater facility is currently operating under Waste Discharge Requirements Order No. 96-129, which was adopted by the Central Valley Regional Water Quality Control Board on May 3, 1996. The City's Waste Discharge Requirements indicate that the design capacity in 1996 for the four stabilization ponds and disposal field was 2.1 mgd, with an average domestic wastewater flow of 1.3 mgd (Orland 2010b). The City has recently updated the wastewater facility by adding the Blue Frog Aeration System to the facility's aeration ponds. The addition of the Blue Frog Aeration System allows for better processing of the wastewater.

According to the City's Public Works Department, the City's wastewater facility currently has an average flow of about 1.0 mgd. The capacity of the collection system is 3.4 mgd (based on peak flow) and the facility's capacity is 2.1 mgd (based on average flows). Based on these numbers, the system is operating at approximately 50 percent of capacity (Orland 2018a). The City's current population is estimated to be 7,844. The wastewater facility can support a population of approximately 12,000 (Orland 2010b).

Storm Drainage

The City of Orland stormwater drainage system consists primarily of surface water conveyance utilizing curbs and gutters which lead to underground drainage pipes that eventually discharge into the Lely Aquatic Pond, the Stony Creek Basin Tributary Area, or onsite retention basin and leach field systems.

Approximately 80 percent of the City's area is served by, and discharges into, the Lely Aquatic Pond. The City Engineer estimates that this pond is capable of accommodating all storm events up to and including

a 50-year storm (Orland 2010b). Storm events which exceed this return interval will cause some localized ponding of runoff throughout the City within street roadbeds. Should the groundwater table become elevated due to cumulative stormwater runoff and percolation (likely occurring in late winter through early spring), the Lely Aquatic Pond capacity decreases, thereby resulting in a situation where larger storm events may cause the pond to exceed its capacity. When this occurs, runoff flows southeasterly along East South Street (County Road 200) until it reaches the Tehama-Colusa Canal, which thereafter becomes a dike preventing further street flow (Orland 2010b).

Solid Waste

The City of Orland is a member of the Glenn County Waste Management Regional Agency. The California Department of Resources Recycling and Recovery (CalRecycle) provides solid waste disposal and recycling information for jurisdictions in the state, including the Glenn County Waste Management Regional Agency.

As shown in Table 4.18-1, the majority of the Agency's solid waste is disposed of at the Glenn County Landfill. According to the figures published by the CalRecycle (2018a), in 2016, the Glenn County Landfill received approximately 97.5 percent of the Agency's solid waste, or 21,186 tons (CalRecycle 2018a).

Table 4.18-1. Solid Waste Disposal Facilities Used by the Glenn County Waste Management Regional Agency						
Destination Facility	Solid Waste Disposal (tons/year)			Landfill Information		
	2014	2015	2016	Remaining Capacity (cubic yards)	Remaining Capacity Date	Cease Operation Date
Altamont Landfill and Resource Recovery	27	4	-			
Anderson Landfill, Inc	483	10	10	51,512,201	9/30/12	1/1/2045
Forward Landfill, Inc.	33	9	10	22,100,000	12/31/2012	1/1/2020
Glenn County Landfill	19,506	19,956	21,186	866,521	2/28/2015	7/1/2016
Neal Road Recycling and Waste Facility	181	33	53	20,847,970	7/1/2009	1/1/2033
North County Landfill & Recycling	-	-	2	35,400,000	12/31/2009	12/31/2048
Potrero Hills Landfill		16	174	13,872,000	1/1/2006	2/14/2048
Recology Hay Road	7	6	161	30,433,000	7/28/2010	1/1/2077
Recology Ostrom Road LF Inc.	-	1	18	39,223,000	6/1/2007	12/31/2066
Vasco Road Sanitary Landfill	-	1	-	7,379,000	10/31/2016	12/31/2023
Yolo County Central Landfill	-	-	110	n/a	n/a	1/1/2081
Yearly Total	20,236	20,038	21,724			
Average per Resident (lbs./day)	3.9	3.8	4.2			
Average per Employee (lbs./day)	13.1	12.6	13.4			

Source: CalRecycle 2018a, 2018b, and 2018c

4.18.2 Utilities and Service Systems (XVIII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒

The Orland Wastewater Facility is currently in compliance with all wastewater standards and treatment requirements of the Central Valley RWQCB. The Proposed Project would not result in an increase of wastewater generation, to the point of requiring new wastewater facilities or the exceedance of existing treatment requirements. As such, the development of the Proposed Project would not result in the city or the wastewater facility exceeding the wastewater standards of the Central Valley RWQCB and would have no impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒

The Project is the replacement of an existing sewer pipeline. The existing cast-in-place, concrete sewer pipe will continue to convey wastewater until the new, PVC line is installed, ensuring no interruption of wastewater conveyance services. No new water or wastewater treatment facilities would be required as a result of the Project. The Project would have no impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒

As described in subsection 4.9 Hydrology and Water Quality, the Project site would be returned to pre-Project conditions and no changes to onsite stormwater runoff are anticipated as a result of implementation of the Proposed Project. No construction of new stormwater infrastructure or the expansion of existing infrastructure would be required for Project operation. No Impact would occur.

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Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒

The Project does not result in an increased demand for water and no new or expanded entitlements are required. Therefore, the Proposed Project would not result in the exceedance of an allotted water supply for the City and the Project would have no impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒

The Project is the replacement of existing sewer lines provided by the City. No additional increase in wastewater flow would result from this replacement. The Project would have no impact in this area.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐

As previously described in discussion item a), the Proposed Project would be installed in a trench, with a maximum depth of 10 feet below ground surface. No recycling or waste disposal would be required for operation and maintenance of the Proposed Project and therefore would not affect landfill capacity because the amount of construction debris requiring disposal would be minor and would only occur during the construction period (e.g., cardboard, wood scraps, plastic straps). A less than significant impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

The Proposed Project is required to comply with all state and federal statutes regarding solid waste. This impact is considered less than significant.

4.18.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.19 Mandatory Findings of Significance

4.19.1 Mandatory Findings of Significance (XIX.) Environmental Checklist and Discussion

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐

As discussed in Sections 4.4 Biological Resources and 4.5 Cultural Resources, the Proposed Project would have potential impacts to these resources. However, with implementation of mitigation measures proposed in the relevant sections of this Initial Study, these potential impacts would be reduced to a level that is considered less than significant.

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐

Implementation of the Proposed Project, in conjunction with other approved or pending projects in the region, has the potential to result in cumulatively considerable impacts to the physical environment. However, with implementation of mitigation measures proposed in the relevant subsections of this Initial Study, these potential impacts would be reduced to a level that is considered less than significant.

Final Initial Study and Mitigated Negative Declaration
Road MM Sanitary Sewer Improvement Project

Does the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c)	Have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Direct and indirect impacts to human beings would not occur as a result of implementation of the Proposed Project. The Project would have a less than significant impact.

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SECTION 7.0 LIST OF APPENDICES

Appendix A – Air Quality Emissions Modeling

Appendix B – Biological Resources Assessment

Appendix C - Greenhouse Gas Emissions Modeling

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APPENDIX A

Air Quality Emissions Modeling

Road MM Sewer Improvement Project - Glenn County, Summer

Road MM Sewer Improvement Project

Glenn County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	1.50	Acre	1.50	65,340.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	61
Climate Zone	3			Operational Year	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction represents removal of existing pavement, trenching of sewer line, installation of HDPE pipe, backfilling, and paving

Off-road Equipment - No grader

Off-road Equipment -

Off-road Equipment -

Grading -

Demolition -

Road MM Sewer Improvement Project - Glenn County, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	20.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	2.00	20.00
tblConstructionPhase	PhaseEndDate	5/21/2019	5/31/2019
tblConstructionPhase	PhaseEndDate	8/6/2018	4/5/2019
tblConstructionPhase	PhaseEndDate	6/4/2019	6/28/2019
tblConstructionPhase	PhaseEndDate	8/8/2018	5/3/2019
tblConstructionPhase	PhaseStartDate	8/15/2018	5/4/2019
tblConstructionPhase	PhaseStartDate	7/10/2018	3/10/2019
tblConstructionPhase	PhaseStartDate	5/22/2019	6/1/2019
tblConstructionPhase	PhaseStartDate	8/7/2018	4/6/2019
tblGrading	MaterialExported	0.00	6,453.00
tblGrading	MaterialImported	0.00	6,453.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	WorkerTripNumber	5.00	8.00

2.0 Emissions Summary

Road MM Sewer Improvement Project - Glenn County, Summer

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	2.5493	37.1005	15.9521	0.0785	6.8578	1.2939	7.6542	3.3223	1.2090	4.0595	0.0000	8,156.6587	8,156.6587	0.6379	0.0000	8,172.6050
Maximum	2.5493	37.1005	15.9521	0.0785	6.8578	1.2939	7.6542	3.3223	1.2090	4.0595	0.0000	8,156.6587	8,156.6587	0.6379	0.0000	8,172.6050

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	2.5493	37.1005	15.9521	0.0785	6.8578	1.2939	7.6542	3.3223	1.2090	4.0595	0.0000	8,156.6587	8,156.6587	0.6379	0.0000	8,172.6050
Maximum	2.5493	37.1005	15.9521	0.0785	6.8578	1.2939	7.6542	3.3223	1.2090	4.0595	0.0000	8,156.6587	8,156.6587	0.6379	0.0000	8,172.6050

[illegible]

Road MM Sewer Improvement Project - Glenn County, Summer

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0356	0.0000	1.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		3.3000e-004	3.3000e-004	0.0000		3.5000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0356	0.0000	1.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		3.3000e-004	3.3000e-004	0.0000	0.0000	3.5000e-004

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0356	0.0000	1.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		3.3000e-004	3.3000e-004	0.0000		3.5000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0356	0.0000	1.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		3.3000e-004	3.3000e-004	0.0000	0.0000	3.5000e-004

Road MM Sewer Improvement Project - Glenn County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/10/2019	4/5/2019	5	20	
2	Site Preparation	Site Preparation	4/6/2019	5/3/2019	5	20	
3	Building Construction	Building Construction	5/4/2019	5/31/2019	5	20	
4	Paving	Paving	6/1/2019	6/28/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 1.5

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Road MM Sewer Improvement Project - Glenn County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	0	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	83.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	8.00	0.00	1,613.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	27.00	11.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Road MM Sewer Improvement Project - Glenn County, Summer

3.2 Demolition - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.8977	0.0000	0.8977	0.1359	0.0000	0.1359			0.0000			0.0000
Off-Road	2.2950	22.6751	14.8943	0.0241		1.2863	1.2863		1.2017	1.2017		2,360.7198	2,360.7198	0.6011		2,375.7475
Total	2.2950	22.6751	14.8943	0.0241	0.8977	1.2863	2.1840	0.1359	1.2017	1.3377		2,360.7198	2,360.7198	0.6011		2,375.7475

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0390	1.2429	0.1980	3.4400e-003	0.0727	6.4000e-003	0.0791	0.0200	6.1300e-003	0.0261		360.1064	360.1064	0.0155		360.4945
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1003	0.0706	0.8597	1.8200e-003	0.1661	1.2300e-003	0.1673	0.0440	1.1400e-003	0.0452		180.6274	180.6274	7.7300e-003		180.8207
Total	0.1394	1.3135	1.0577	5.2600e-003	0.2388	7.6300e-003	0.2464	0.0640	7.2700e-003	0.0712		540.7338	540.7338	0.0233		541.3152

Road MM Sewer Improvement Project - Glenn County, Summer

3.2 Demolition - 2019**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.8977	0.0000	0.8977	0.1359	0.0000	0.1359			0.0000			0.0000
Off-Road	2.2950	22.6751	14.8943	0.0241		1.2863	1.2863		1.2017	1.2017	0.0000	2,360.719 7	2,360.719 7	0.6011		2,375.747 5
Total	2.2950	22.6751	14.8943	0.0241	0.8977	1.2863	2.1840	0.1359	1.2017	1.3377	0.0000	2,360.719 7	2,360.719 7	0.6011		2,375.747 5

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0390	1.2429	0.1980	3.4400e-003	0.0727	6.4000e-003	0.0791	0.0200	6.1300e-003	0.0261		360.1064	360.1064	0.0155		360.4945
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1003	0.0706	0.8597	1.8200e-003	0.1661	1.2300e-003	0.1673	0.0440	1.1400e-003	0.0452		180.6274	180.6274	7.7300e-003		180.8207
Total	0.1394	1.3135	1.0577	5.2600e-003	0.2388	7.6300e-003	0.2464	0.0640	7.2700e-003	0.0712		540.7338	540.7338	0.0233		541.3152

Road MM Sewer Improvement Project - Glenn County, Summer

3.3 Site Preparation - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3423	0.0000	5.3423	2.9075	0.0000	2.9075			0.0000			0.0000
Off-Road	1.2256	12.9025	6.0513	0.0106		0.6712	0.6712		0.6175	0.6175		1,047.2918	1,047.2918	0.3314		1,055.5756
Total	1.2256	12.9025	6.0513	0.0106	5.3423	0.6712	6.0135	2.9075	0.6175	3.5250		1,047.2918	1,047.2918	0.3314		1,055.5756

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.7581	24.1546	3.8479	0.0668	1.4133	0.1245	1.5378	0.3877	0.1191	0.5067		6,998.2116	6,998.2116	0.3017		7,005.7551
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0618	0.0434	0.5291	1.1200e-003	0.1022	7.6000e-004	0.1029	0.0271	7.0000e-004	0.0278		111.1553	111.1553	4.7600e-003		111.2743
Total	0.8198	24.1980	4.3770	0.0679	1.5155	0.1252	1.6407	0.4148	0.1198	0.5345		7,109.3669	7,109.3669	0.3065		7,117.0294

Road MM Sewer Improvement Project - Glenn County, Summer

3.3 Site Preparation - 2019**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3423	0.0000	5.3423	2.9075	0.0000	2.9075			0.0000			0.0000
Off-Road	1.2256	12.9025	6.0513	0.0106		0.6712	0.6712		0.6175	0.6175	0.0000	1,047.2918	1,047.2918	0.3314		1,055.5756
Total	1.2256	12.9025	6.0513	0.0106	5.3423	0.6712	6.0135	2.9075	0.6175	3.5250	0.0000	1,047.2918	1,047.2918	0.3314		1,055.5756

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.7581	24.1546	3.8479	0.0668	1.4133	0.1245	1.5378	0.3877	0.1191	0.5067		6,998.2116	6,998.2116	0.3017		7,005.7551
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0618	0.0434	0.5291	1.1200e-003	0.1022	7.6000e-004	0.1029	0.0271	7.0000e-004	0.0278		111.1553	111.1553	4.7600e-003		111.2743
Total	0.8198	24.1980	4.3770	0.0679	1.5155	0.1252	1.6407	0.4148	0.1198	0.5345		7,109.3669	7,109.3669	0.3065		7,117.0294

Road MM Sewer Improvement Project - Glenn County, Summer

3.4 Building Construction - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846		2,018.0224	2,018.0224	0.3879		2,027.7210
Total	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846		2,018.0224	2,018.0224	0.3879		2,027.7210

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0688	1.3888	0.4451	3.0600e-003	0.0675	0.0108	0.0783	0.0194	0.0103	0.0298		318.9522	318.9522	0.0230		319.5264
Worker	0.2084	0.1465	1.7856	3.7700e-003	0.3449	2.5600e-003	0.3474	0.0915	2.3600e-003	0.0938		375.1492	375.1492	0.0161		375.5506
Total	0.2772	1.5353	2.2307	6.8300e-003	0.4123	0.0134	0.4257	0.1109	0.0127	0.1236		694.1014	694.1014	0.0390		695.0771

Road MM Sewer Improvement Project - Glenn County, Summer

3.4 Building Construction - 2019**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846	0.0000	2,018.0224	2,018.0224	0.3879		2,027.7210
Total	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846	0.0000	2,018.0224	2,018.0224	0.3879		2,027.7210

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0688	1.3888	0.4451	3.0600e-003	0.0675	0.0108	0.0783	0.0194	0.0103	0.0298		318.9522	318.9522	0.0230		319.5264
Worker	0.2084	0.1465	1.7856	3.7700e-003	0.3449	2.5600e-003	0.3474	0.0915	2.3600e-003	0.0938		375.1492	375.1492	0.0161		375.5506
Total	0.2772	1.5353	2.2307	6.8300e-003	0.4123	0.0134	0.4257	0.1109	0.0127	0.1236		694.1014	694.1014	0.0390		695.0771

Road MM Sewer Improvement Project - Glenn County, Summer

3.5 Paving - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815		1,325.095 3	1,325.095 3	0.4112		1,335.375 1
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815		1,325.095 3	1,325.095 3	0.4112		1,335.375 1

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1003	0.0706	0.8597	1.8200e-003	0.1661	1.2300e-003	0.1673	0.0440	1.1400e-003	0.0452		180.6274	180.6274	7.7300e-003		180.8207
Total	0.1003	0.0706	0.8597	1.8200e-003	0.1661	1.2300e-003	0.1673	0.0440	1.1400e-003	0.0452		180.6274	180.6274	7.7300e-003		180.8207

Road MM Sewer Improvement Project - Glenn County, Summer

3.5 Paving - 2019**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815	0.0000	1,325.095 3	1,325.095 3	0.4112		1,335.375 1
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815	0.0000	1,325.095 3	1,325.095 3	0.4112		1,335.375 1

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1003	0.0706	0.8597	1.8200e-003	0.1661	1.2300e-003	0.1673	0.0440	1.1400e-003	0.0452		180.6274	180.6274	7.7300e-003		180.8207
Total	0.1003	0.0706	0.8597	1.8200e-003	0.1661	1.2300e-003	0.1673	0.0440	1.1400e-003	0.0452		180.6274	180.6274	7.7300e-003		180.8207

4.0 Operational Detail - Mobile

Road MM Sewer Improvement Project - Glenn County, Summer

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.527625	0.034128	0.170517	0.133884	0.037488	0.008360	0.010441	0.067935	0.001069	0.001802	0.004932	0.000833	0.000986

Road MM Sewer Improvement Project - Glenn County, Summer

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Road MM Sewer Improvement Project - Glenn County, Summer

5.2 Energy by Land Use - NaturalGas**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail**6.1 Mitigation Measures Area**

Road MM Sewer Improvement Project - Glenn County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0356	0.0000	1.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		3.3000e-004	3.3000e-004	0.0000		3.5000e-004
Unmitigated	0.0356	0.0000	1.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		3.3000e-004	3.3000e-004	0.0000		3.5000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0124					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0231					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		3.3000e-004	3.3000e-004	0.0000		3.5000e-004
Total	0.0356	0.0000	1.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		3.3000e-004	3.3000e-004	0.0000		3.5000e-004

Road MM Sewer Improvement Project - Glenn County, Summer

6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0124					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0231					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		3.3000e-004	3.3000e-004	0.0000		3.5000e-004
Total	0.0356	0.0000	1.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		3.3000e-004	3.3000e-004	0.0000		3.5000e-004

7.0 Water Detail**7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

Road MM Sewer Improvement Project - Glenn County, Summer

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

APPENDIX B

Biological Resources Assessment

Biological Resources Assessment

City of Orland – Road MM Sanitary Sewer Improvement Project
Glenn County, California

Prepared For:

City of Orland



ECORP Consulting, Inc. has assisted public and private land owners with environmental regulation compliance since 1987. We offer full service capability, from initial baseline environmental studies through environmental planning review, permitting negotiation, liaison to obtain legal agreements, mitigation design, and monitoring and compliance reporting.

Citation: ECORP Consulting, Inc. (ECORP). 2018. Biological Resources Assessment for the City of Orland – Road MM Sanitary Sewer Improvement Project. Prepared for the City of Orland. Rocklin, California.

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LIST OF ATTACHMENTS

Attachment A – Representative Site Photographs

Attachment B – Special-Status Species Searches (9-Quad CNPS Search, CNNDDB Search, and Project Area IPaC Search)

LIST OF ACRONYMS AND ABBREVIATIONS

BCC	Birds of conservation concern
BO	Biological opinion
BRA	Biological resources assessment
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	Glenn County
CRPR	California Rare Plant Rank
CWA	Clean Water Act's
ESA	Endangered Species Act
MBTA	Migratory Bird Treaty Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
Project	Road MM Sanitary Sewer Improvement Project
RWQCB	Regional Water Quality Control Board
SSC	CDFW Species of Special Concern
USACE's	U.S. Army Corps of Engineers'
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1.0 INTRODUCTION

On behalf of the City of Orland, ECORP Consulting, Inc. conducted a biological resources assessment (BRA) for the approximately 0.8 linear mile Road MM Sanitary Sewer Improvement Project (Project) located in the city of Orland, Glenn County, California. The purpose of the assessment was to collect information on the biological resources present or with the potential to occur in the Project Study Area, assess potential biological impacts related to Project activities, and identify potential mitigation measures to inform and support the Project's California Environmental Quality Act (CEQA) documentation for biological resources.

1.1 Project Location

The linear Project is located along County Road MM between County Road 20 and East South Street and an approximately 920-foot segment along East South Street between County Road MM and just east of the entrance to Lely Aquatic Park (Figure 1. *Project Location and Vicinity*). The site corresponds to Section 26, Township 22 North, and Range 3 West (Mount Diablo Base and Meridian) within the "Orland, California" 7.5-minute quadrangle (U.S. Geological Survey [USGS] 1958, photorevised 1978). The approximate center of the site is located at latitude 39.732139° (NAD83) and longitude -122.168843° (NAD83) within the Sacramento-Stone Corral Watershed (Hydrologic Unit Code #18020104) Watershed (Natural Resources Conservation Service [NRCS], USGS, and U.S. Environmental Protection Agency [USEPA] 2017).

1.2 Purpose of this Biological Resources Assessment

The purpose of this BRA is to assess the potential for occurrence of special-status plant and animal species and their habitats and sensitive habitats such as wetlands and riparian communities within the Project Study Area. This assessment includes information generated from the reconnaissance-level site assessment and does not include a wetland delineation performed according to U.S. Army Corps of Engineers' (USACE's) standards, nor does it include determinate field surveys for special-status plant and animal species.

This assessment includes a preliminary analysis of impacts on biological resources anticipated to result from the Project as presently defined. The mitigation recommendations presented in this assessment are based on a preliminary impact analysis, a review of existing literature, and the results of the site reconnaissance survey.

For the purposes of this assessment, special-status species are defined as plants or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA);
- are listed or candidates for future listing as threatened or endangered under the California ESA;
- meet the definitions of endangered or rare under § 15380 of the CEQA Guidelines;
- are identified as a species of special concern by the California Department of Fish and Wildlife (CDFW);

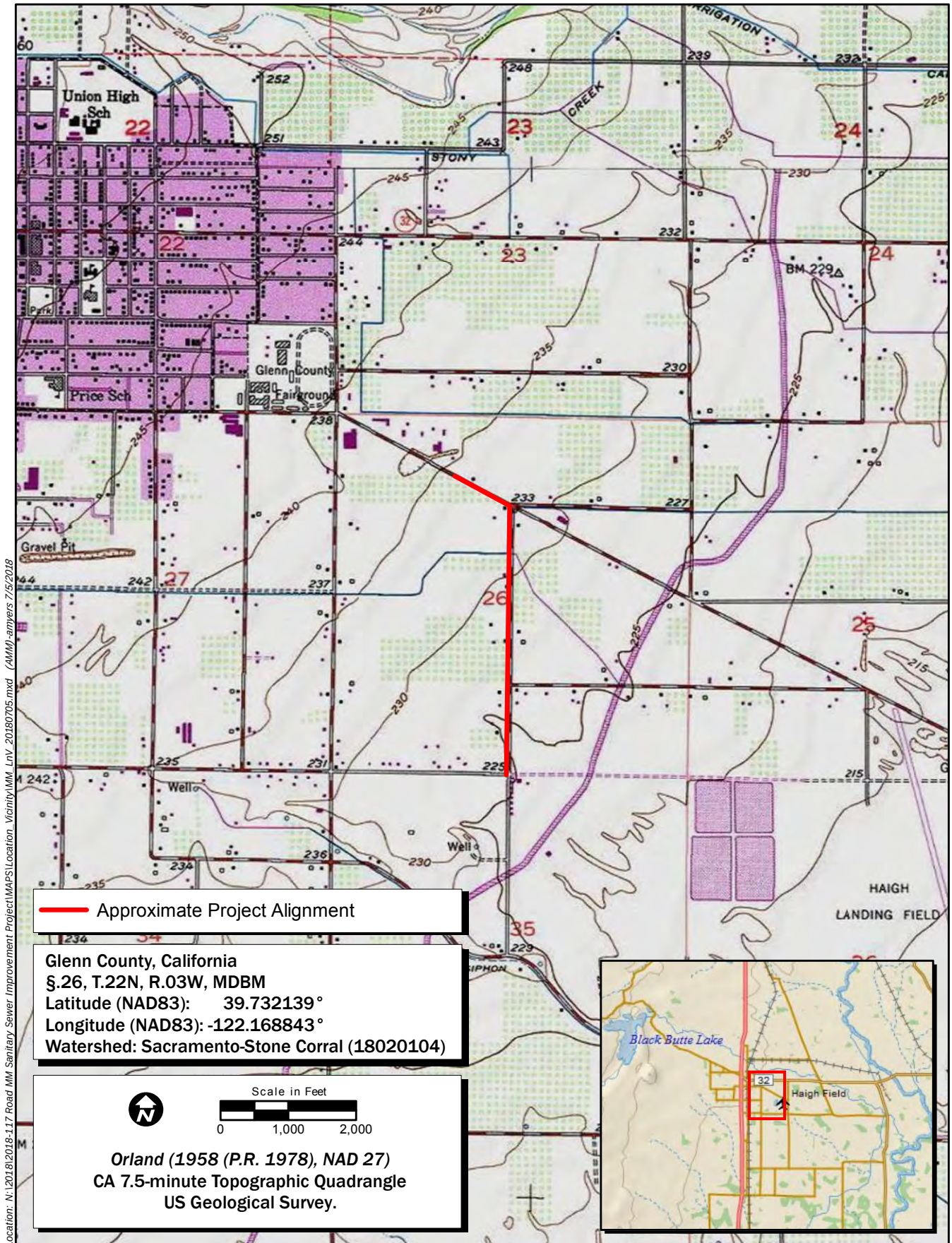


Figure 1. Project Location and Vicinity

2018-117 Road MM Sanitary Sewer Improvement Project

- are birds identified as birds of conservation concern (BCC) by the U.S. Fish and Wildlife Service (USFWS);
- are considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California", "plants about which more information is needed", or "plants of limited distribution – a watch list" (i.e., species with a California Rare Plant Rank [CRPR] of 1B, 2, 3, or 4);
- are plants listed as rare under the California Native Plant Protection Act (NPPA) (California Fish and Game Code, § 1900 et seq.); or
- are fully protected in California in accordance with the California Fish and Game Code, §§ 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

2.0 REGULATORY SETTING

2.1 Federal Regulations

2.1.1 Endangered Species Act

The ESA protects plants and animals that are listed as endangered or threatened by USFWS and the National Marine Fisheries Service (NMFS). Section 9 of ESA prohibits, without authorization, the taking of listed wildlife, where take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" [50 Code of Federal Regulations (CFR) 17.3]. For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant under federal jurisdiction and removing, cutting, digging up, damaging, or destroying any listed plant in any other area in knowing violation of state law [16 U.S. Code (USC) 1538].

Under Section 7 of ESA, federal agencies are required to consult with USFWS and/or NMFS if their actions, including permit approvals and funding, could adversely affect a listed (or proposed) species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion (BO), USFWS and NMFS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. Section 10 of ESA provides for the issuance of incidental take permits where no other federal actions are necessary provided a habitat conservation plan is developed.

Section 7 Consultation

Section 7 of ESA mandates that all federal agencies consult with USFWS and/or NMFS to ensure that federal agencies' actions do not jeopardize the continued existence of a listed species or adversely modify critical habitat for listed species. If direct and/or indirect effects will occur to critical habitat that appreciably diminish the value of critical habitat for both the survival and recovery of a species, the adverse modifications will require formal consultation with USFWS or NMFS. If adverse effects are likely, the federal lead agency must prepare a biological assessment (BA) for the purpose of analyzing the potential effects of the proposed project on listed species and critical habitat to establish and justify an "effect determination." Often a third-party, non-federal applicant drafts the BA for the lead federal

agencies. The USFWS/NMFS reviews the BA; if it concludes that the project may adversely affect a listed species or its habitat, it prepares a BO. The BO may recommend "reasonable and prudent alternatives" to the project to avoid jeopardizing or adversely modifying habitat.

Critical Habitat

Critical Habitat is defined in Section 3 of ESA as:

1. the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features essential to the conservation of the species and that may require special management considerations or protection; and
2. specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

For inclusion in a Critical Habitat designation, habitat within the geographical area occupied by the species at the time it was listed must first have features essential to the conservation of the species (16 USC 1533). Critical Habitat designations identify, to the extent known and using the best scientific data available, habitat areas that provide essential life cycle needs of the species (areas on which are found the primary constituent elements). Primary constituent elements are the physical and biological features that are essential to the conservation of the species and that may require special management considerations or protection. These include but are not limited to the following:

1. Space for individual and population growth and for normal behavior
2. Food, water, air, light, minerals, or other nutritional or physiological requirements
3. Cover or shelter
4. Sites for breeding, reproduction, or rearing (or development) of offspring
5. Habitats that are protected from disturbance or are representative of the historic, geographical, and ecological distributions of a species

2.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized under the MBTA, USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State

of California has incorporated the protection of non-game birds in § 3800, migratory birds in § 3513, and birds of prey in § 3503.5 of the California Fish and Game Code.

2.1.3 Clean Water Act

The purpose of the federal Clean Water Act (CWA) is to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” Section 404 of the CWA prohibits the discharge of dredged or fill material into “Waters of the United States” without a permit from the USACE. The definition of Waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas “that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” [33 CFR 328.3 7b]. The USEPA also has authority over wetlands, including the authority to veto permits issued by USACE under CWA Section 404(c).

Projects involving activities that have no more than minimal individual and cumulative adverse environmental effects may meet the conditions of one of the Nationwide Permits already issued by USACE (Federal Register 82:1860, January 6, 2017). If impacts on wetlands could be substantial, an individual permit is required. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

2.2 State and Local Regulations

2.2.1 California Endangered Species Act

The California ESA (California Fish and Game Code §§ 2050-2116) protects species of fish, wildlife, and plants listed by the state as endangered or threatened. Species identified as candidates for listing may also receive protection. Section 2080 of the California ESA prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit. Take is defined in Section 86 of the California Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” The California ESA allows for take incidental to otherwise lawful projects under permits issued by CDFW.

2.2.2 Fully Protected Species

The State of California first began to designate species as “fully protected” prior to the creation of the federal and the California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the federal and/or California ESAs. Fully protected species are identified in the California Fish and Game Code § 4700 for mammals, § 3511 for birds, § 5050 for reptiles and amphibians, and § 5515 for fish.

These sections of the California Fish and Game Code provide that fully protected species may not be taken or possessed at any time, including prohibition of CDFW from issuing incidental take permits for fully protected species under the California ESA. CDFW will issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit and may allow incidental take for lawful activities carried out under an approved Natural Community Conservation Plan within which such species are covered.

2.2.3 Native Plant Protection Act

The NPPA of 1977 (California Fish and Game Code §§ 1900-1913) was established with the intent to “preserve, protect and enhance rare and endangered plants in this state.” The NPPA is administered by CDFW. The Fish and Game Commission has the authority to designate native plants as “endangered” or “rare”. The NPPA prohibits the take of plants listed under the NPPA, but the NPPA contains a number of exemptions to this prohibition that have not been clarified by regulation or judicial rule. In 1984, the California ESA brought under its protection all plants previously listed as endangered under NPPA. Plants listed as rare under NPPA are not protected under the California ESA, but are still protected under the provisions of NPPA. The Fish and Game Commission no longer lists plants under NPPA, reserving all listings to the California ESA.

2.2.4 California Fish and Game Code Special Protections for Birds

In addition to protections contained within the California ESA and California Fish and Game Code § 3511 described above, the California Fish and Game Code includes a number of sections that specifically protect certain birds.

Section 3800 states that it is unlawful to take nongame birds, such as those occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds, except when in accordance with regulations of the California Fish and Game Commission or a mitigation plan approved by CDFW for mining operations.

Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird.

Section 3503.5 protects birds of prey (which includes eagles, hawks, falcons, kites, ospreys, and owls) and prohibits the take, possession, or destruction of any birds and their nests

Section 3505 makes it unlawful to take, sell, or purchase egrets, ospreys, and several exotic non-native species, or any part of these birds.

Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

2.2.5 Lake or Streambed Alteration Agreements

Section 1602 of the California Fish and Game Code requires individuals or agencies to provide a Notification of Lake or Streambed Alteration to CDFW for “any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake.”

CDFW reviews the proposed actions and, if necessary, proposed measures to protect affected fish and wildlife resources. The final proposal mutually agreed upon by CDFW and the applicant is the Lake or Streambed Alteration Agreement.

2.2.6 Porter-Cologne Water Quality Act

The RWQCB implements water quality regulations under the federal CWA and the Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of stormwater runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan. Under the Porter-Cologne Water Quality Act, the RWQCB regulates actions that would involve “discharging waste, or proposing to discharge waste, with any region that could affect the water of the state” [Water Code 13260(a)]. Waters of the State are defined as “any surface water or groundwater, including saline waters, within the boundaries of the state” [Water Code 13050 (e)]. The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into Waters of the State, that are not regulated by USACE due to a lack of connectivity with a navigable water body. The RWQCB may require issuance of a Waste Discharge Requirements for these activities.

2.2.7 California Environmental Quality Act

In accordance with CEQA Guidelines § 15380, a species or subspecies not specifically protected under the federal or California ESAs or NPPA may be considered endangered, rare, or threatened for CEQA review purposes if the species meets certain criteria specified in the Guidelines. These criteria include definitions similar to definitions used in ESA, the California ESA, and NPPA. Section 15380 was included in the CEQA Guidelines primarily to address situations in which a project under review may have a significant effect on a species that has not been listed under ESA, the California ESA, or NPPA, but that may meet the definition of endangered, rare, or threatened. Animal species identified as species of special concern (SSC) by CDFW and plants identified by the CNPS as rare, threatened, or endangered may meet the CEQA definition of rare or endangered.

Species of Special Concern

SSC are defined by the CDFW as a species, subspecies, or distinct population of an animal native to California that are not legally protected under ESA, the California ESA, or the California Fish and Game Code, but currently satisfies one or more of the following criteria:

- The species has been completely extirpated from the state or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role
- The species is listed as federally (but not State) threatened or endangered, or meets the State definition of threatened or endangered but has not formally been listed

- The species has or is experiencing serious (nonscyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status
- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for state threatened or endangered status, and
- SSC are typically associated with habitats that are threatened.

Depending on the policy of the lead agency, projects that result in substantial impacts to SSC may be considered significant under CEQA.

U.S. Fish and Wildlife Service Birds of Conservation Concern

The 1988 amendment to the Fish and Wildlife Conservation Act mandates USFWS “identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under ESA.” To meet this requirement, USFWS published a list of BCC (USFWS 2008) for the United States. The list identifies the migratory and nonmigratory bird species (beyond those already designated as federally threatened or endangered) that represent USFWS’s highest conservation priorities. Depending on the policy of the lead agency, projects that result in substantial impacts to BCC may be considered significant under CEQA.

California Rare Plant Ranks

The CNPS maintains the *Inventory of Rare and Endangered Plants of California* (CNPS 2018), which provides a list of plant species native to California that are threatened with extinction, have limited distributions, and/or low populations. Plant species meeting one of these criteria are assigned to one of six CRPRs. The rank system was developed in collaboration with government, academia, non-governmental organizations, and private sector botanists, and is jointly managed by CDFW and the CNPS. The CRPRs are currently recognized in the California Natural Diversity Database (CNDDB). The following are definitions of the CNPS CRPRs:

- Rare Plant Rank 1A – presumed extirpated in California and either rare or extinct elsewhere
- Rare Plant Rank 1B – rare, threatened, or endangered in California and elsewhere
- Rare Plant Rank 2A – presumed extirpated in California, but more common elsewhere
- Rare Plant Rank 2B – rare, threatened, or endangered in California but more common elsewhere
- Rare Plant Rank 3 – a review list of plants about which more information is needed
- Rare Plant Rank 4 – a watch list of plants of limited distribution

Additionally, CNPS has defined Threat Ranks that are added to the CRPR as an extension. Threat Ranks designate the level of threat on a scale of 1 through 3, with 1 being the most threatened and 3 being the least threatened. Threat Ranks are generally present for all plants ranked 1B, 2B, or 4, and for the majority

of plants ranked 3. Plant species ranked 1A and 2A (presumed extirpated in California), and some species ranked 3, which lack threat information, do not typically have a Threat Rank extension. The following are definitions of the CNPS Threat Ranks:

- Threat Rank 0.1 – Seriously threatened in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)
- Threat Rank 0.2 – Moderately threatened in California (20-80 percent occurrences threatened/moderate degree and immediacy of threat)
- Threat Rank 0.3 – Not very threatened in California (<20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known)

Factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Rank; and differences in Threat Ranks do not constitute additional or different protection (CNPS 2018).

Depending on the policy of the lead agency, substantial impacts to plants ranked 1A, 1B, or 2, and 3 are typically considered significant under CEQA Guidelines § 15380. Significance under CEQA is typically evaluated on a case-by-case basis for plants ranked 4 and at the discretion of the CEQA lead agency.

California Environmental Quality Act Significance Criteria

Sections 15063-15065 of the CEQA Guidelines address how an impact is identified as significant. Generally, impacts to listed (rare, threatened, or endangered) species are considered significant. Assessment of "impact significance" to populations of non-listed species (e.g., SSC) usually considers the proportion of the species' range that will be affected by a project, impacts to habitat, and the regional and population level effects.

Specifically, § 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant under CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish or result in the permanent loss of an important resource on a population-wide or region-wide basis.

3.0 METHODS

3.1 Literature Review

The following resources were reviewed to determine the special-status species that had been previously documented within or in the vicinity of the Project Study Area:

- CDFW CNDDDB data for the Project site as well as a 5-mile radius surrounding the Project site (CDFW 2018);
- USFWS list of species and other resources under the U.S. Fish and Wildlife Service jurisdiction that are known or expected to be on or near the Project area (USFWS 2018); and
- CNPS' electronic *Inventory of Rare and Endangered Plants of California* was queried for the "Orland, California" 7.5-minute quadrangle and the nine surrounding USGS quadrangles (CNPS 2018).

3.2 Field Surveys Conducted

ECORP biologist Keith Kwan conducted a reconnaissance-level site assessment on June 29, 2018. The findings of this site assessment have been incorporated into this BRA.

3.3 Special-Status Species Considered for the Project

Based on species occurrence information from the literature review and field observations, a list of special-status and CNDDDB-tracked plant and animal species considered to have the potential to occur within the Project was generated and is summarized in Section 4.0 (Results). Each of the species that were considered as potentially occurring within the Project or vicinity was evaluated based on the following criteria:

- **Present** - Species was observed during field surveys or is known to occur within the Project based on documented occurrences within the CNDDDB or other literature.
- **Potential to Occur** - Habitat (including soils and elevation requirements) for the species occurs within the Project.
- **Low Potential to Occur** - Marginal or limited amounts of habitat occurs and/or the species is not known to occur within the vicinity of the Project based on CNDDDB records and other available documentation.
- **Absent** - No suitable habitat (including soils and elevation requirements) and/or the species is not known to occur within the vicinity of the Project based on CNDDDB records and other documentation.

4.0 RESULTS

4.1 Site Characteristics and Land Use

The Project is located within a rural residential portion of the City of Orland in leveled terrain situated at an elevation of approximately 230 feet above mean sea level in the Sacramento Valley subregion of the Great Valley region of the California floristic province (Baldwin et. al. 2012). There is an existing asphalt roadway that will be excavated and a sewer line that will be demolished and replaced. Please see Attachment A for representative site photographs. From 1903-2016 in Orland, the average minimum temperatures ranged from 36.7°F (January) to an average maximum temperature of 96.7°F (July); average annual precipitation was 19.95 inches at the Orland reporting station (Western Regional Climate Center 2018). The Project will be constructed within a paved roadway or in the ruderal roadside next to the road surface.

The surrounding lands include rural residences, irrigated pastures, fallow or idle fields, orchard, a developed park with ballfields, and residential development. The Tehama-Colusa Canal is located approximately 0.2 mile to the east of County Road 20, with a few small concrete-lined ditches providing water for adjacent agricultural fields.

4.2 Vegetation Communities

The Project is made up entirely of paved roadway or ruderal roadside habitat with small patches of ruderal weedy vegetation at the edges of the roadway. The ruderal/nonnative habitat adjacent to the road surface is comprised of compacted dirt, gravel, and patches of weedy vegetation. Plants found in this habitat include nonnative weedy species such as wild oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), and filaree (*Erodium botrys*). Trees bordering the rural residences include a variety of nonnative species including olive (*Olea europaea*), palm trees (e.g. *Phoenix* sp., *Washingtonia* sp.), gum trees (*Eucalyptus* sp.), and pine (*Pinus* sp.).

4.3 Soils

According to the *Web Soil Survey* (NRCS 2018), two soil units, or types, have been mapped within the Project. These are: (Czt) Cortina very gravelly sandy loam, moderately deep and (Wg) Wyo loam, deep over gravel (*Figure 2. Natural Resources Conservation Service Soil Types*).

4.4 Potential Waters of the U.S.

During the site assessment one irrigation ditch was found onsite. The ditch has been previously mapped in the California Aquatic Resources Inventory database as a “fluvial unnatural” feature (*Figure 3. California Aquatic Resource Inventory*). The ditch is concrete-lined and constructed to deliver irrigation to surrounding agricultural fields. According to Regulatory Guidance Letter 07-02 (USACE 2007), the Clean Water Act subsection 404(f)(1)(C) exemption applies to construction and maintenance in an “irrigation ditch.” Further, the irrigation ditch is not expected to be impacted by this Project.

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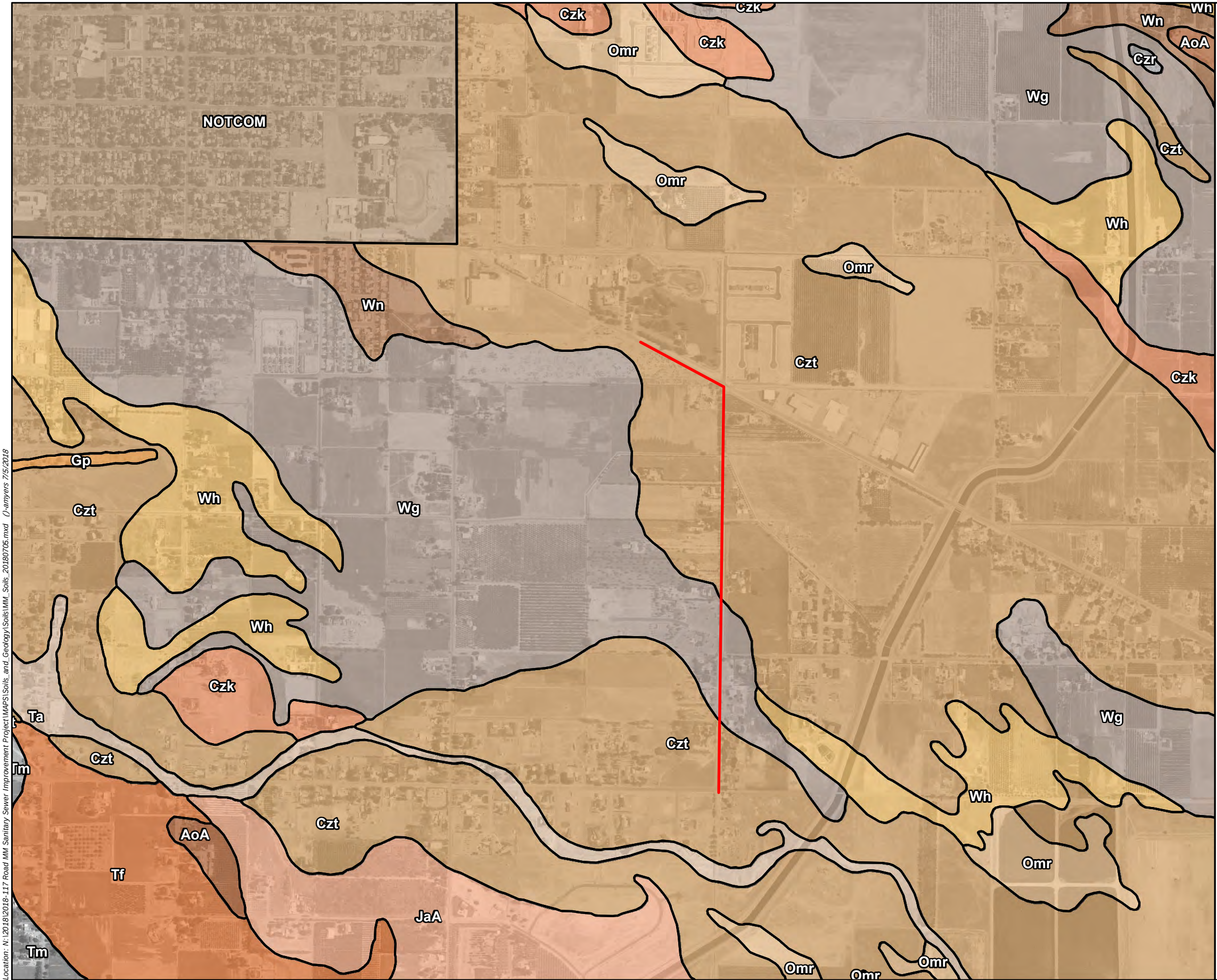


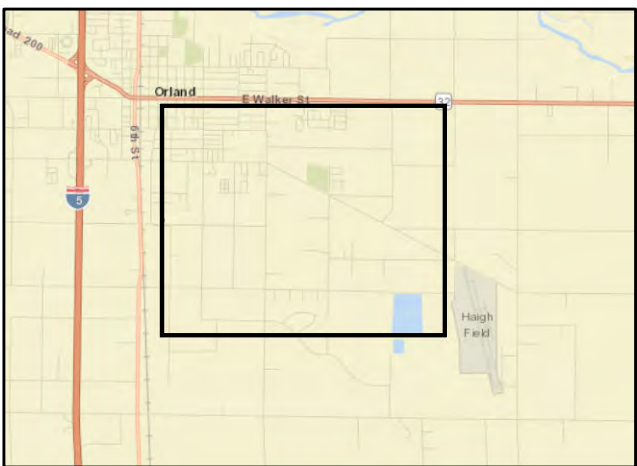
Figure 2.
Natural Resources Conservation
Service Soil Units

Map Features

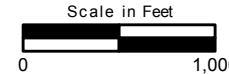
— Approximate Project Alignment

Series Code - Series Name

- AoA - Arbuckle gravelly loam, 0 to 2 percent slopes, MLRA 17
- Czk - Cortina gravelly fine sandy loam, shallow
- Czt - Cortina very gravelly sandy loam, moderately deep
- Gp - Gravel pits
- JaA - Jacinto fine sandy loam, 0 to 2 percent slopes
- JaB - Jacinto fine sandy loam, 2 to 8 percent slopes
- NOTCOM - No Digital Data Available
- Omr - Orland loam, moderately deep over gravel
- Ta - Tehama loam, moderately deep over gravel, 0 to 2 percent slopes
- Tf - Tehama fine sandy loam, 0 to 3 percent slopes
- Wg - Wyo loam, deep over gravel
- Wh - Wyo gravelly loam, moderately deep over gravel
- Wn - Wyo silt loam



Location: N:\2018\2018-117 Road MM Sanitary Sewer Improvement Project\Maps\Soils_and_Geology\Soils_MM_Soils_20180705.mxd (lanyers 7/5/2018)



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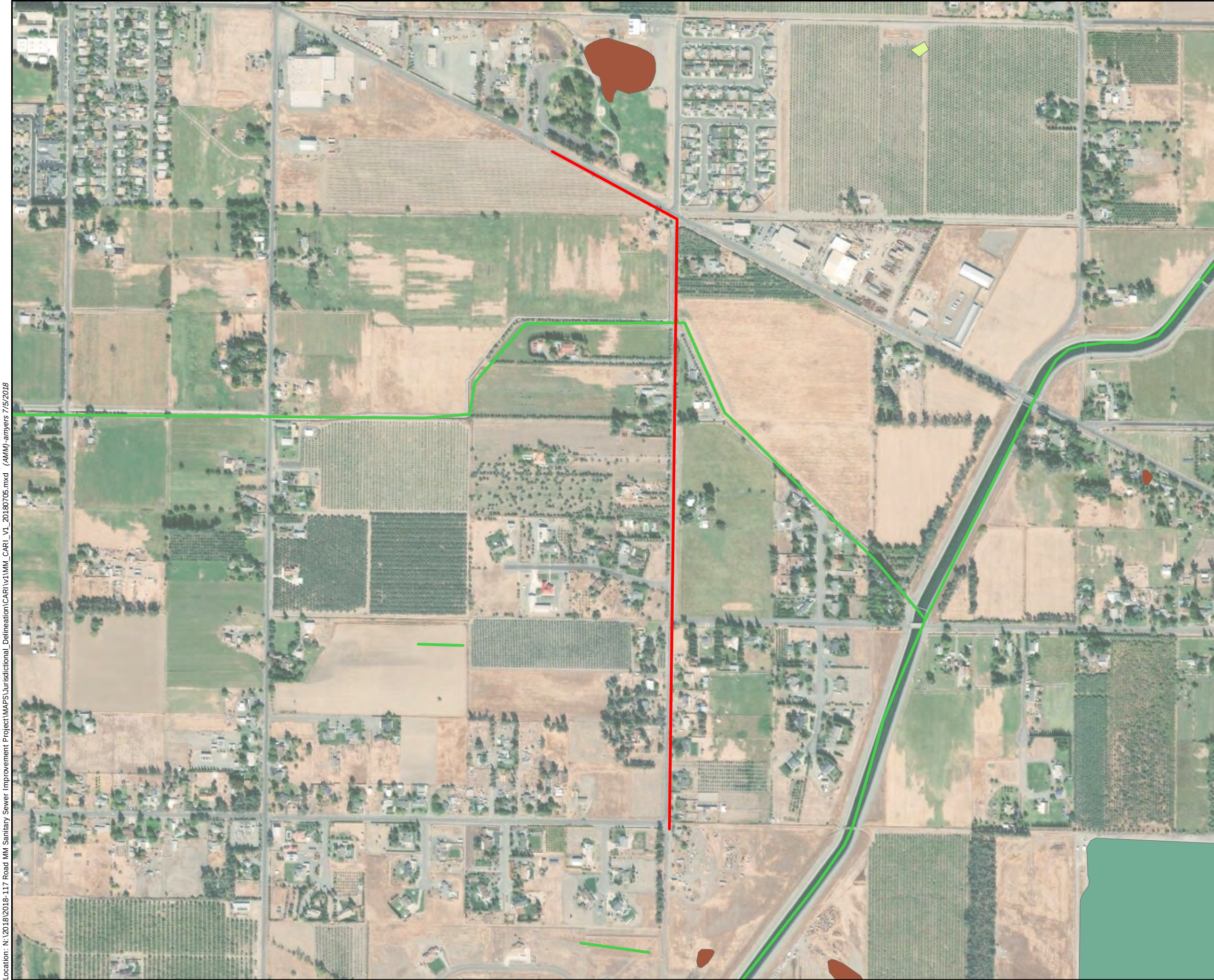


Figure 3.
California Aquatic Resource
Inventory

Map Features

— Approximate Project

Waters

Depressional Perennial Unnatural Non-vegetated

Depressional Seasonal Unnatural Non-vegetated

Lacustrine Unnatural Non-vegetated

Fluvial Unnatural

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



4.4.1 Wildlife

Wildlife use onsite is expected to be minimal due to the highly disturbed nature of the Project site and close proximity to rural residences and vehicular traffic. Bird species found within the Project site during this assessment included Eurasian collard-dove (*Streptopelia decaocto*), Nuttall's woodpecker (*Picoides nuttallii*), American kestrel (*Falco sparverius*), western kingbird (*Tyrannus verticalis*), California scrub-jay (*Aphelocoma californica*), yellow-billed magpie (*Pica nuttallii*), northern mockingbird (*Mimus polyglottos*), house finch (*Haemorhous mexicanus*), and lesser goldfinch (*Spinus psaltria*). California ground squirrels (*Otospermophilus beecheyi*) are present throughout the berm to the north of East South Street, adjacent to the ball fields.

4.5 Evaluation of Special-Status Species Identified in the Literature Search

There are no special-status species previously documented within the Project site boundaries, but 11 special-status species are known to occur within an approximate five-mile radius of the Project (CDFW 2018). These species are: pink cream sacs (*Castilleja rubicundula* var. *rubicundula*), Stony Creek spurge (*Euphorbia ocellata* ssp. *rattanii*), Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*), Ahart's paronychia (*Paronychia aharti*), crotch bumble bee (*Bombus crotchii*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardii*), Central Valley DPS steelhead (*Oncorhynchus mykiss irideus*), Swainson's hawk (*Buteo swainsoni*), burrowing owl (*Athene cunicularia*), and tricolored blackbird (*Agelaius tricolor*).

These species and other special-status species that were evaluated are presented in Table 1, which list all of the special-status plants and animal species identified in the literature review as potentially occurring within the Project. Included in these tables are the listing status for each species, a brief habitat description, and a determination on the potential to occur within the Project site. Following the tables are brief descriptions and discussions of each special-status species that have the potential to occur in the Project or were found to occur in the Project during the site visit.

Several species came up in the database and literature searches (Attachment B) but are not included in Table 1. These species were not included in Table 1 because the species are only tracked by the CNDDb and possess no special-status or because the identified sensitive habitats are not located within the Project area. They are not discussed further in this report.

Table 1. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur On-Site
	ESA	CESA/ NPPA	Other			
Plants						
Brittlescale (<i>Atriplex depressa</i>)	-	-	1B.2	Alkaline, clay soils within chenopod scrub, meadows and seeps, playas, valley and foothill grasslands, and vernal pools (3' – 1,050').	April – October	Absent – no suitable habitat present.
Pink creamsacs (<i>Castilleja rubicundula</i> var. <i>rubicundula</i>)	-	-	1B.2	Serpentine substrates in chaparral openings, cismontane woodland, meadows and seeps, and valley and foothill grassland (66' – 2,986').	April – June	Absent – no suitable habitat present.
Dwarf downingia (<i>Downingia pusilla</i>)	-	-	2B.2	Mesic areas in valley and foothill grassland, and vernal pools. Species appears to have an affinity for slight disturbance (i.e., scraped depressions, ditches, etc.) (Baldwin et al. 2012, CDFW 2018) (3' – 1,460').	March – May	Absent – no suitable habitat present.
Stony Creek spurge (<i>Euphorbia ocellata</i> ssp. <i>rattanii</i>)	-	-	1B.2	Chaparral, riparian scrub (streambank), valley/foothill grassland (sandy or rocky) (213' – 2,625').	May – October	Absent – no suitable habitat present.
San Joaquin spearscale (<i>Extriplex joaquinana</i>)	-	-	1B.2	Alkaline soils within chenopod scrub, meadows and seeps, playas, and valley and foothill grassland (3' – 2,740').	April – October	Absent – no suitable habitat present.
Adobe-lily (<i>Fritillaria pluriflora</i>)	-	-	1B.2	Chaparral, cismontane woodland, valley/foothill grasslands (often adobe) (197' – 2,313').	February – April	Absent – no suitable habitat present.
Red Bluff dwarf rush (<i>Juncus leiospermus</i> var. <i>leiospermus</i>)	-	-	1B.1	Vernally mesic areas in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools (115' – 4,101').	March – June	Absent – no suitable habitat present.

Table 1. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur On-Site
	ESA	CESA/ NPPA	Other			
Baker's navarretia (<i>Navarretia leucocephala</i> ssp. <i>bakeri</i>)	-	-	1B.1	Vernal pools and mesic areas within cismontane woodlands, lower montane coniferous forests, meadows and seeps, and valley and foothill grasslands (15' – 5,709').	April – July	Absent – no suitable habitat present.
Ahart's paronychia (<i>Paronychia ahartii</i>)	-	-	1B.1	Cismontane woodland; valley and foothill grasslands; vernal pools (98' – 1,673').	February – June	Absent – no suitable habitat present.
Caper-fruited tropidocarpum (<i>Tropidocarpum capparideum</i>)	-	-	1B.1	Alkaline hills in valley and foothill grassland (3' – 1,493').	March – April	Absent – no suitable habitat present.
Brazilian watermeal (<i>Wolffia brasiliensis</i>)	-	-	2B.3	Assorted shallow freshwater marshes and swamps (66' – 328').	April – December	Absent – no suitable habitat present.
Invertebrates						
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	FT	-	-	Elderberry shrubs.	Any season	Absent – no suitable habitat present.
Conservancy fairy shrimp (<i>Branchinecta conservatio</i>)	FE	-	-	Vernal pools/wetlands.	November-April	Absent – no suitable habitat present.
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	FT	-	-	Vernal pools/wetlands.	November-April	Absent – no suitable habitat present.
Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>)	FE	-	-	Vernal pools/wetlands.	November-April	Absent – no suitable habitat present.
Fish						
Delta smelt (<i>Hypomesus transpacificus</i>)	FT	CE	-	Sacramento-San Joaquin delta.	N/A	Absent – no suitable habitat present.
Steelhead (CA Central Valley DPS) (<i>Oncorhynchus mykiss</i>)	FT	-	-	Undammed rivers, streams, creeks.	N/A	Absent – no suitable habitat present.
Amphibians						
California red-legged frog (<i>Rana draytonii</i>)	FT	-	SSC	Lowlands or foothills at waters with dense shrubby or emergent riparian vegetation. Adults must have aestivation habitat to endure summer dry down.	May 1-November 1	Absent – No suitable habitat present.

Table 1. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur On-Site
	ESA	CESA/ NPPA	Other			
Western spadefoot (<i>Spea hammondi</i>)	-	-	SSC	California endemic species of vernal pools, swales, wetlands and adjacent grasslands throughout the Central Valley.	March-May	Absent – No suitable habitat present.
Reptiles						
Giant garter snake (<i>Thamnophis gigas</i>)	FT	CT	-	Freshwater ditches, sloughs, and marshes in the Central Valley. Almost extirpated from the southern parts of its range.	April-October	Absent – no suitable habitat present.
Birds						
Rufous hummingbird (<i>Selasphorus rufus</i>)	-	-	BCC	Breeds in extreme northwestern California north into British Columbia and Alaska. Winters in coastal Southern California south into Mexico. Common migrant during March-April in Sierra Nevada foothills and June-August in Lower Conifer to Alpine zone of Sierra Nevada. Nesting habitat includes secondary succession communities and openings, mature forests, parks and residential area.	April-July	Absent – no suitable habitat present
Whimbrel (<i>Numenius phaeopus</i>)	-	-	BCC	Nesting occurs in Alaska and northern Canada; winters in coastal Oregon, California, south to Central America; wintering habitat includes tidal mudflats, coral reefs, lagoons, marshes, swamps, estuaries, sandy beaches, and rocky shores.	October-March	Absent – no suitable habitat present
Long-billed curlew (<i>Numenius americanus</i>)	-	-	BCC	Breeds east of the Cascades in Washington, Oregon, northeastern California (Siskiyou, Modoc, Lassen Cos.), east-central California (Inyo Co.), through Great Basin region into Great Plains. Winters in California, Texas, and Louisiana. Wintering habitat includes tidal	September-March (wintering)	Absent – no suitable habitat present

Table 1. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur On-Site
	ESA	CESA/ NPPA	Other			
				mudflats and estuaries, wet pastures, sandy beaches, salt marsh, managed wetlands, evaporation ponds, sewage ponds, and grasslands.		
Swainson's hawk (<i>Buteo swainsoni</i>)	-	CT	BCC	Nesting occurs in trees in agricultural, riparian, oak woodland, scrub, and urban landscapes. Forages over grassland, agricultural lands, particularly during disking/harvesting, irrigated pastures	March-August	Absent – no suitable habitat present
Burrowing owl (<i>Athene cunicularia</i>)	-	-	BCC, SSC	Nests in burrows or burrow surrogates in open, treeless, areas within grassland, steppe, and desert biomes. Often with other burrowing mammals (e.g. prairie dogs, California ground squirrels). May also use human-made habitat such as agricultural fields, golf courses, cemeteries, roadside, airports, vacant urban lots, and fairgrounds.	February-August	Absent – no suitable habitat present
Nuttall's woodpecker (<i>Picoides nuttallii</i>)	-	-	BCC	Resident from northern California south to Baja California. Nests in tree cavities in oak woodlands and riparian woodlands.	April-July	Absent – no suitable habitat present
Yellow-billed magpie (<i>Pica nuttallii</i>)	-	-	BCC	Endemic to California; found in the Central Valley and coast range south of San Francisco Bay and north of Los Angeles County.; nesting habitat includes oak savannah with large in large expanses of open ground; also found in urban parklike settings.	April-June	Low Potential – marginally suitable habitat present
Oak titmouse (<i>Baeolophus inornatus</i>)			BCC	Nests in tree cavities within dry oak or oak-pine woodland and riparian; where oaks are absent, they nest in juniper	March-July	Absent – no suitable habitat present

Table 1. Potentially Occurring Special-Status Species						
Common Name (Scientific Name)	Status			Habitat Description	Survey Period	Potential To Occur On-Site
	ESA	CESA/ NPPA	Other			
				woodland, open forests (gray, Jeffrey, Coulter, pinyon pines and Joshua tree)		
Song sparrow "Modesto" <i>(Melospiza melodia heermanni)</i>	-	-	BCC, SSC	Resident in central and southwest California, including Central Valley; nests in marsh, scrub habitat	April-June	Absent – no suitable habitat present
Tricolored blackbird <i>(Agelaius tricolor)</i>	-	CT	BCC, SSC	Breeds locally west of Cascade-Sierra Nevada and southeastern deserts from Humboldt and Shasta Cos south to San Bernardino, Riverside and San Diego Counties. Central California, Sierra Nevada foothills and Central Valley, Siskiyou, Modoc and Lassen Counties. Nests colonially in freshwater marsh, blackberry bramble, milk thistle, triticale fields, weedy (mustard, mallow) fields, giant cane, safflower, stinging nettles, tamarisk, riparian scrublands and forests, fiddleneck and fava bean fields.	March-August	Absent – no suitable habitat present

Status Codes NOTE:

FESA	Federal Endangered Species Act
CESA	California Endangered Species Act
FE	FESA listed, Endangered.
FT	FESA listed, Threatened.
BCC	USFWS Bird of Conservation Concern.
CT	CESA- or NPPA-listed, Threatened.
CE	CESA or NPPA listed, Endangered.
SSC	CDFW Species of Special Concern (CDFW, updated July 2017).
1B	CRPR/Rare or Endangered in California and elsewhere.
2	CRPR/Rare or Endangered in California, more common elsewhere.
0.1	Threat Rank/Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2	Threat Rank/Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
0.3	Threat Rank/Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

4.5.1 Special-Status Plants

Eleven special-status plant species were identified as having the potential to occur within the Project based on the literature review (Table 1). However, upon further analysis, none were determined to

potentially occur as a result of literature review and the absence of suitable habitat or because the Project is outside the range of the species. No further discussion of these species is provided in this analysis.

4.5.2 Special-Status Animals

Nineteen special-status animal species were identified as having the potential to occur within the Project Study Area based on the literature review. However, upon further analysis and following the reconnaissance site assessment, 18 of the special-status animal species identified in the literature search were determined to be absent from the Project Study Area due to the lack of suitable habitat and/or the known distribution of the species does not include the Project vicinity. No further discussion of these species is provided in this analysis. The Project supports potential nesting habitat for one special-status bird, the yellow-billed magpie.

Birds

One special-status bird species was identified as potentially occurring in the Project.

Yellow-Billed Magpie

The yellow-billed magpie is not listed pursuant to either the federal or California ESAs, but is considered a USFWS BCC. This endemic species is a yearlong resident of the Central Valley and Coast Ranges from San Francisco Bay to Santa Barbara County. Yellow-billed magpies build large, bulky nests in trees in a variety of open woodland habitats, typically near grassland, pastures or cropland, and urban parklike settings. Nest building begins in late-January to mid-February, which may take up to six to eight weeks to complete, with eggs laid during April-May, and fledging during May-June (Koenig and Reynolds 2009). The young leave the nest at about 30 days after hatching (Koenig and Reynolds 2009). The trees immediately adjacent to the Project site support potentially suitable habitat for this species.

MBTA Protected Birds

The trees immediately adjacent to the Project support potential nesting habitat for birds protected under the MBTA. These could include common species such as western kingbird, northern mockingbird, and house finch, among others.

4.6 Wildlife Movement/Corridors

The Project is located within an existing paved roadway in a rural residential portion of the city of Orland. There are no significant habitat features (e.g., wetlands, woodlands) within or adjacent to the Project. Project development is not expected to impact wildlife movement.

4.6.1 Critical Habitat

There is no Critical Habitat designated within the Project or within a five-mile radius of the Project (CDFW 2018, USFWS 2018).

5.0 RECOMMENDATIONS

This section summarizes possible measures to avoid, minimize, or compensate for potential impacts to biological resources from the proposed Project, including those to Waters of the U.S., special-status plant and wildlife resources, movement corridors, and oak woodland. Mitigation recommendations are provided, but many may not be necessary should impacts be determined less than significant in the CEQA analysis.

5.1 Waters of the U.S.

There are no aquatic features or potential waters of the U.S. present, so no avoidance or mitigation measures are recommended.

5.2 Special-Status Plants

The Project is located within a paved roadway in a rural residential neighborhood. There are no native or unaltered vegetation communities present that can support potentially occurring special-status plants. No avoidance or mitigation measures are recommended.

5.3 Special-Status Animal Species

5.3.1 Special-Status Birds and MBTA-Protected Birds (including nesting raptors)

Project construction could result in direct permanent impacts to vegetation communities and habitats that provide suitable nesting habitat for birds protected under the MBTA. All nongame native birds (resident and migratory) and the nests and eggs of all birds are protected under the California Fish and Game Code (§§ 3800, 3813, and 3503) and all migratory birds are protected under the federal MBTA. As such, to ensure that there are no impacts to protected birds, the following measures are recommended:

- During the nesting season (approximately February 1 to August 31) conduct pre-construction nesting bird surveys of suitable habitats in the Project within 14 days prior to the commencement of construction.
- If active nests are found, a no-disturbance buffer should be established around the nest. The buffer distance should be established by a qualified biologist in consultation with CDFW. The buffer should be maintained until the fledglings are capable of flight and become independent of the nest tree, to be determined by a qualified biologist. Once the young are independent of the nest, no further measures would be necessary. Pre-construction nesting surveys would not be required for construction activity that begins outside the nesting season (September 1 to January 31).

6.0 REFERENCES

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- U.S. Fish and Wildlife Service (USFWS). 2008. Birds of Conservation Concern 2008. U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. (Online version available at <http://migratorybirds.fws.gov/reports/bcc2008.pdf>).
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- Western Regional Climate Center. 2018. Orland, California (046506), Monthly Climate Summary 03/01/1903 to 06/10/2016. Available online at: <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6506>.

LIST OF ATTACHMENTS

Attachment A – Representative Site Photographs

Attachment B – Special-Status Species Searches (9-Quad CNPS Search, CNNDDB Search, and Project Area IPaC Search)

ATTACHMENT A

Representative Site Photographs



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ATTACHMENT B

Special-Status Species Searches
(9-Quad CNPS Search, CNNDB Search, and Project Area IPaC Search)



Inventory of Rare and Endangered Plants - 7th edition

interface
v7-18mar 3-19-18

Status: search results - Mon, Jul. 2, 2018, 13:10 ET b

{QUADS_123} =~ m/578B|594C|594D|579A|579D|595D|578A|578C|578D/ Search

Tip: Want to search by county? Try the [county index](#).[\[all tips and help.\]](#)[\[search history\]](#)

Your Quad Selection: Orland (578B) 3912262, Kirkwood (594C) 3912272, Foster Island (594D) 3912271, Fruto NE (579A) 3912263, Stone Valley (579D) 3912253, Black Butte Dam (595D) 3912273, Hamilton City (578A) 3912261, Willows (578C) 3912252, Glenn (578D) 3912251

Hits 1 to 11 of 11

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press
check all
check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
	☐	1	<u>Atriplex depressa</u> 	brittlescale	Chenopodiaceae	List 1B.2
	☐	1	<u>Castilleja rubicundula</u> var. <u>rubicundula</u>	pink creamsacs	Orobanchaceae	List 1B.2
	☐	1	<u>Downingia pusilla</u> 	dwarf downingia	Campanulaceae	List 2B.2
	☐	1	<u>Euphorbia ocellata</u> ssp. <u>rattanii</u>	Stony Creek spurge	Euphorbiaceae	List 1B.2
	☐	1	<u>Extriplex joaquinana</u>	San Joaquin spearscale	Chenopodiaceae	List 1B.2
	☐	1	<u>Fritillaria pluriflora</u> 	adobe-lily	Liliaceae	List 1B.2
	☐	1	<u>Juncus leiospermus</u> var. <u>leiospermus</u> 	Red Bluff dwarf rush	Juncaceae	List 1B.1
	☐	1	<u>Navarretia leucocephala</u> ssp. <u>bakeri</u> 	Baker's navarretia	Polemoniaceae	List 1B.1
	☐	1	<u>Paronychia ahartii</u> 	Ahart's paronychia	Caryophyllaceae	List 1B.1
	☐	1	<u>Tropidocarpum capparideum</u> 	caper-fruited tropidocarpum	Brassicaceae	List 1B.1
	☐	1	<u>Wolffia brasiliensis</u>	Brazilian watermeal	Araceae	List 2B.3

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press
check all
check none

Selections will appear in a new window.

No more hits.










Selected Elements by Element Code

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad> IS <(Orland (3912262))

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
ABNKC19070	<i>Buteo swainsoni</i> Swainson's hawk	None	Threatened	G5	S3	
ABPBXB0020	<i>Agelaius tricolor</i> tricolored blackbird	None	Candidate Endangered	G2G3	S1S2	SSC
IIHYM24480	<i>Bombus crotchii</i> Crotch bumble bee	None	None	G3G4	S1S2	

Record Count: 3

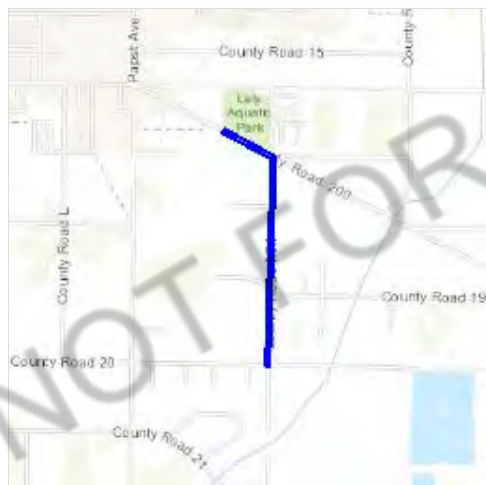
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Glenn County, California



Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📠 (916) 414-6713

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Reptiles

NAME

STATUS

Giant Garter Snake *Thamnophis gigas*

Threatened

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/4482>

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp <i>Branchinecta conservatio</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2246	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A
BREEDING SEASON IS INDICATED
FOR A BIRD ON YOUR LIST, THE
BIRD MAY BREED IN YOUR
PROJECT AREA SOMETIME WITHIN
THE TIMEFRAME SPECIFIED,
WHICH IS A VERY LIBERAL
ESTIMATE OF THE DATES INSIDE
WHICH THE BIRD BREEDS
ACROSS ITS ENTIRE RANGE.
"BREEDS ELSEWHERE" INDICATES
THAT THE BIRD DOES NOT LIKELY
BREED IN YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus*

Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Long-billed Curlew *Numenius americanus*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/5511>

Nuttall's Woodpecker *Picoides nuttallii*

Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/9410>

Oak Titmouse *Baeolophus inornatus*

Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9656>

Rufous Hummingbird *Selasphorus rufus*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/8002>

Song Sparrow *Melospiza melodia*

Breeds Feb 20 to Sep 5

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Spotted Towhee *Pipilo maculatus clementae*

Breeds Apr 15 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/4243>

Tricolored Blackbird *Agelaius tricolor*

Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/3910>

Whimbrel *Numenius phaeopus*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9483>

Yellow-billed Magpie *Pica nuttalli*

Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9726>

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

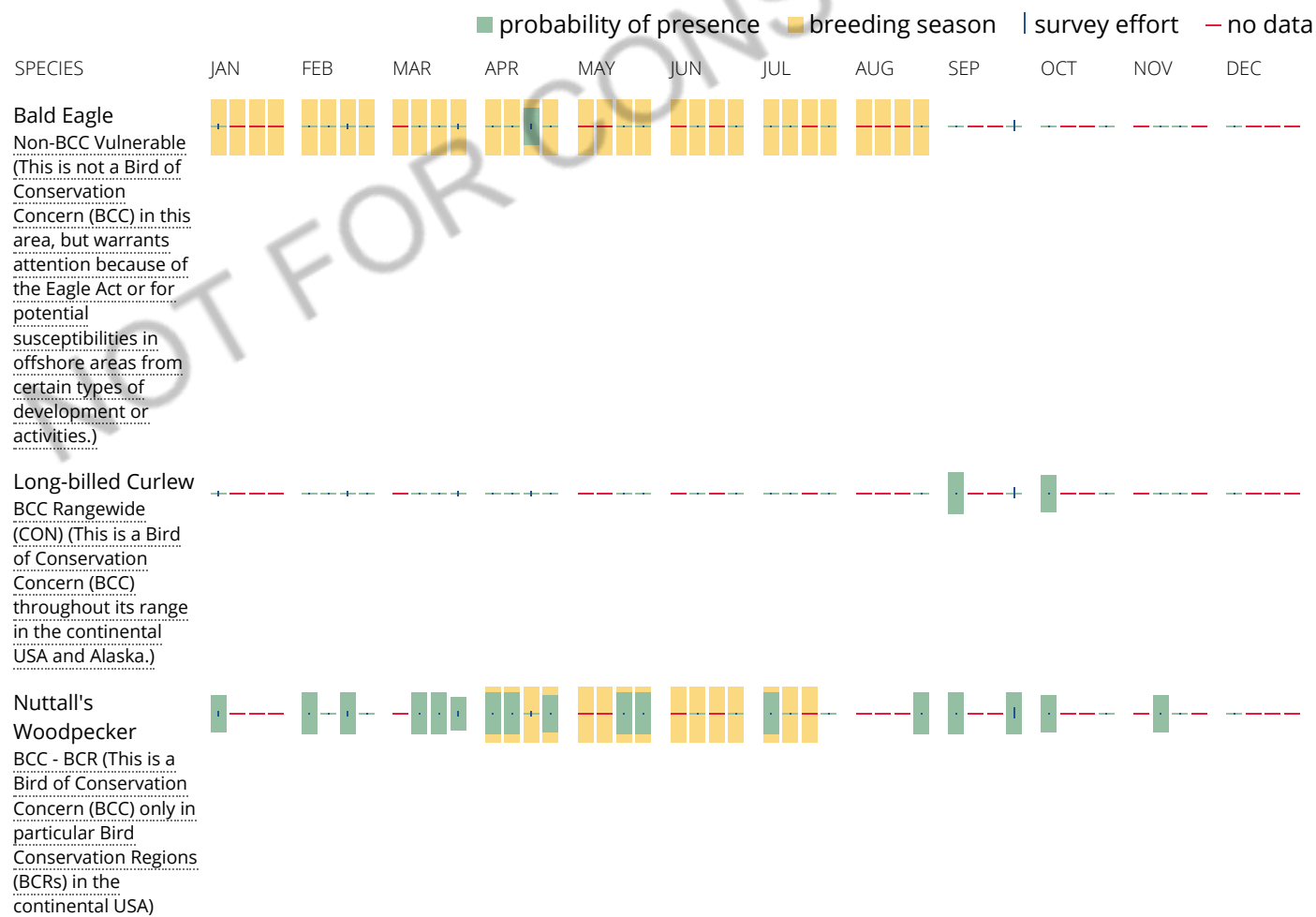
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

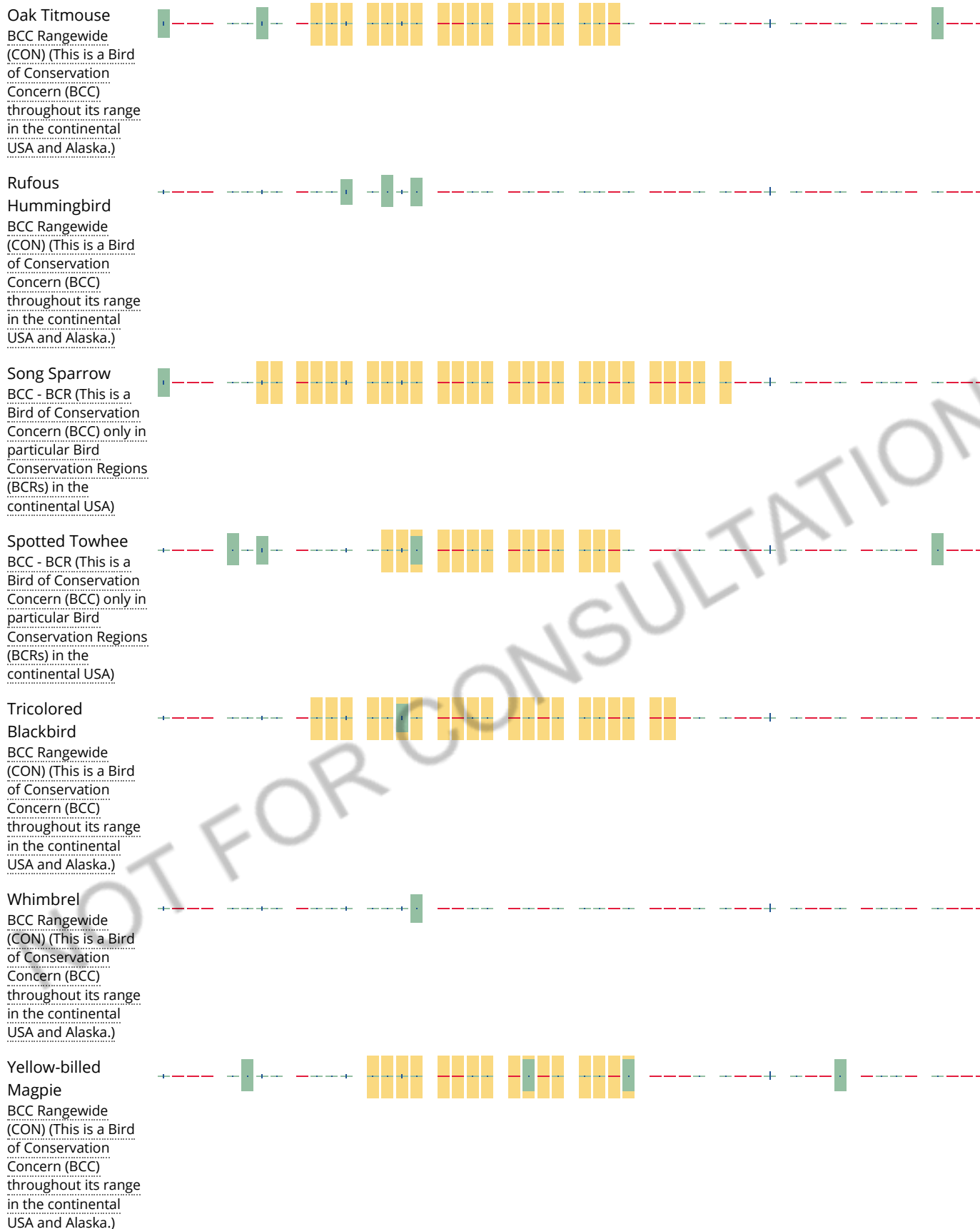
No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and

avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [E-bird Explore Data Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird

impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

[R4SBCx](#)

[R5UBFx](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

APPENDIX C

GHG Emissions Modeling

Road MM Sewer Improvement Project - Glenn County, Annual

Road MM Sewer Improvement Project Glenn County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	1.50	Acre	1.50	65,340.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	61
Climate Zone	3			Operational Year	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction represents removal of existing pavement, trenching of sewer line, installation of HDPE pipe, backfilling, and paving

Off-road Equipment - No grader

Off-road Equipment -

Off-road Equipment -

Grading -

Demolition -

Road MM Sewer Improvement Project - Glenn County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	20.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	2.00	20.00
tblConstructionPhase	PhaseEndDate	5/21/2019	5/31/2019
tblConstructionPhase	PhaseEndDate	8/6/2018	4/5/2019
tblConstructionPhase	PhaseEndDate	6/4/2019	6/28/2019
tblConstructionPhase	PhaseEndDate	8/8/2018	5/3/2019
tblConstructionPhase	PhaseStartDate	8/15/2018	5/4/2019
tblConstructionPhase	PhaseStartDate	7/10/2018	3/10/2019
tblConstructionPhase	PhaseStartDate	5/22/2019	6/1/2019
tblConstructionPhase	PhaseStartDate	8/7/2018	4/6/2019
tblGrading	MaterialExported	0.00	6,453.00
tblGrading	MaterialImported	0.00	6,453.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	WorkerTripNumber	5.00	8.00

2.0 Emissions Summary

Road MM Sewer Improvement Project - Glenn County, Annual

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0800	0.8873	0.5149	1.5100e-003	0.0850	0.0355	0.1204	0.0366	0.0333	0.0699	0.0000	137.1583	137.1583	0.0193	0.0000	137.6394
Maximum	0.0800	0.8873	0.5149	1.5100e-003	0.0850	0.0355	0.1204	0.0366	0.0333	0.0699	0.0000	137.1583	137.1583	0.0193	0.0000	137.6394

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0800	0.8873	0.5149	1.5100e-003	0.0850	0.0355	0.1204	0.0366	0.0333	0.0699	0.0000	137.1582	137.1582	0.0193	0.0000	137.6394
Maximum	0.0800	0.8873	0.5149	1.5100e-003	0.0850	0.0355	0.1204	0.0366	0.0333	0.0699	0.0000	137.1582	137.1582	0.0193	0.0000	137.6394

[illegible]

Road MM Sewer Improvement Project - Glenn County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
3	1-10-2019	4-9-2019	0.3112	0.3112
4	4-10-2019	7-9-2019	0.6387	0.6387
		Highest	0.6387	0.6387

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.5000e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	6.5000e-003	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005

Road MM Sewer Improvement Project - Glenn County, Annual

2.2 Overall Operational**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.5000e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	6.5000e-003	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail**Construction Phase**

Road MM Sewer Improvement Project - Glenn County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/10/2019	4/5/2019	5	20	
2	Site Preparation	Site Preparation	4/6/2019	5/3/2019	5	20	
3	Building Construction	Building Construction	5/4/2019	5/31/2019	5	20	
4	Paving	Paving	6/1/2019	6/28/2019	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 1.5

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Road MM Sewer Improvement Project - Glenn County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	0	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	83.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	8.00	0.00	1,613.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	27.00	11.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Road MM Sewer Improvement Project - Glenn County, Annual

3.2 Demolition - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.9800e-003	0.0000	8.9800e-003	1.3600e-003	0.0000	1.3600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0230	0.2268	0.1489	2.4000e-004		0.0129	0.0129		0.0120	0.0120	0.0000	21.4161	21.4161	5.4500e-003	0.0000	21.5524
Total	0.0230	0.2268	0.1489	2.4000e-004	8.9800e-003	0.0129	0.0218	1.3600e-003	0.0120	0.0134	0.0000	21.4161	21.4161	5.4500e-003	0.0000	21.5524

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-004	0.0128	2.0900e-003	3.0000e-005	7.0000e-004	6.0000e-005	7.7000e-004	1.9000e-004	6.0000e-005	2.6000e-004	0.0000	3.2348	3.2348	1.5000e-004	0.0000	3.2385
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-004	7.8000e-004	7.2800e-003	2.0000e-005	1.6000e-003	1.0000e-005	1.6100e-003	4.3000e-004	1.0000e-005	4.4000e-004	0.0000	1.4839	1.4839	6.0000e-005	0.0000	1.4855
Total	1.3000e-003	0.0136	9.3700e-003	5.0000e-005	2.3000e-003	7.0000e-005	2.3800e-003	6.2000e-004	7.0000e-005	7.0000e-004	0.0000	4.7188	4.7188	2.1000e-004	0.0000	4.7240

Road MM Sewer Improvement Project - Glenn County, Annual

3.2 Demolition - 2019**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.9800e-003	0.0000	8.9800e-003	1.3600e-003	0.0000	1.3600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0230	0.2268	0.1489	2.4000e-004		0.0129	0.0129		0.0120	0.0120	0.0000	21.4161	21.4161	5.4500e-003	0.0000	21.5524
Total	0.0230	0.2268	0.1489	2.4000e-004	8.9800e-003	0.0129	0.0218	1.3600e-003	0.0120	0.0134	0.0000	21.4161	21.4161	5.4500e-003	0.0000	21.5524

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-004	0.0128	2.0900e-003	3.0000e-005	7.0000e-004	6.0000e-005	7.7000e-004	1.9000e-004	6.0000e-005	2.6000e-004	0.0000	3.2348	3.2348	1.5000e-004	0.0000	3.2385
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-004	7.8000e-004	7.2800e-003	2.0000e-005	1.6000e-003	1.0000e-005	1.6100e-003	4.3000e-004	1.0000e-005	4.4000e-004	0.0000	1.4839	1.4839	6.0000e-005	0.0000	1.4855
Total	1.3000e-003	0.0136	9.3700e-003	5.0000e-005	2.3000e-003	7.0000e-005	2.3800e-003	6.2000e-004	7.0000e-005	7.0000e-004	0.0000	4.7188	4.7188	2.1000e-004	0.0000	4.7240

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3.3 Site Preparation - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0534	0.0000	0.0534	0.0291	0.0000	0.0291	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0123	0.1290	0.0605	1.1000e-004		6.7100e-003	6.7100e-003		6.1700e-003	6.1700e-003	0.0000	9.5009	9.5009	3.0100e-003	0.0000	9.5760
Total	0.0123	0.1290	0.0605	1.1000e-004	0.0534	6.7100e-003	0.0601	0.0291	6.1700e-003	0.0352	0.0000	9.5009	9.5009	3.0100e-003	0.0000	9.5760

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.7000e-003	0.2492	0.0406	6.6000e-004	0.0137	1.2600e-003	0.0150	3.7700e-003	1.2000e-003	4.9700e-003	0.0000	62.8649	62.8649	2.8800e-003	0.0000	62.9369
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6000e-004	4.8000e-004	4.4800e-003	1.0000e-005	9.8000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.9132	0.9132	4.0000e-005	0.0000	0.9142
Total	8.2600e-003	0.2497	0.0451	6.7000e-004	0.0147	1.2700e-003	0.0159	4.0300e-003	1.2100e-003	5.2400e-003	0.0000	63.7781	63.7781	2.9200e-003	0.0000	63.8510

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3.3 Site Preparation - 2019**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0534	0.0000	0.0534	0.0291	0.0000	0.0291	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0123	0.1290	0.0605	1.1000e-004		6.7100e-003	6.7100e-003		6.1700e-003	6.1700e-003	0.0000	9.5009	9.5009	3.0100e-003	0.0000	9.5760
Total	0.0123	0.1290	0.0605	1.1000e-004	0.0534	6.7100e-003	0.0601	0.0291	6.1700e-003	0.0352	0.0000	9.5009	9.5009	3.0100e-003	0.0000	9.5760

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.7000e-003	0.2492	0.0406	6.6000e-004	0.0137	1.2600e-003	0.0150	3.7700e-003	1.2000e-003	4.9700e-003	0.0000	62.8649	62.8649	2.8800e-003	0.0000	62.9369
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6000e-004	4.8000e-004	4.4800e-003	1.0000e-005	9.8000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.9132	0.9132	4.0000e-005	0.0000	0.9142
Total	8.2600e-003	0.2497	0.0451	6.7000e-004	0.0147	1.2700e-003	0.0159	4.0300e-003	1.2100e-003	5.2400e-003	0.0000	63.7781	63.7781	2.9200e-003	0.0000	63.8510

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3.4 Building Construction - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0227	0.1598	0.1349	2.2000e-004		9.1600e-003	9.1600e-003		8.8500e-003	8.8500e-003	0.0000	18.3072	18.3072	3.5200e-003	0.0000	18.3952
Total	0.0227	0.1598	0.1349	2.2000e-004		9.1600e-003	9.1600e-003		8.8500e-003	8.8500e-003	0.0000	18.3072	18.3072	3.5200e-003	0.0000	18.3952

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-004	0.0142	4.7300e-003	3.0000e-005	6.5000e-004	1.1000e-004	7.6000e-004	1.9000e-004	1.0000e-004	2.9000e-004	0.0000	2.8502	2.8502	2.2000e-004	0.0000	2.8557
Worker	1.8700e-003	1.6200e-003	0.0151	3.0000e-005	3.3200e-003	3.0000e-005	3.3500e-003	8.8000e-004	2.0000e-005	9.1000e-004	0.0000	3.0820	3.0820	1.3000e-004	0.0000	3.0853
Total	2.5700e-003	0.0158	0.0199	6.0000e-005	3.9700e-003	1.4000e-004	4.1100e-003	1.0700e-003	1.2000e-004	1.2000e-003	0.0000	5.9323	5.9323	3.5000e-004	0.0000	5.9410

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3.4 Building Construction - 2019**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0227	0.1598	0.1349	2.2000e-004		9.1600e-003	9.1600e-003		8.8500e-003	8.8500e-003	0.0000	18.3072	18.3072	3.5200e-003	0.0000	18.3952
Total	0.0227	0.1598	0.1349	2.2000e-004		9.1600e-003	9.1600e-003		8.8500e-003	8.8500e-003	0.0000	18.3072	18.3072	3.5200e-003	0.0000	18.3952

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-004	0.0142	4.7300e-003	3.0000e-005	6.5000e-004	1.1000e-004	7.6000e-004	1.9000e-004	1.0000e-004	2.9000e-004	0.0000	2.8502	2.8502	2.2000e-004	0.0000	2.8557
Worker	1.8700e-003	1.6200e-003	0.0151	3.0000e-005	3.3200e-003	3.0000e-005	3.3500e-003	8.8000e-004	2.0000e-005	9.1000e-004	0.0000	3.0820	3.0820	1.3000e-004	0.0000	3.0853
Total	2.5700e-003	0.0158	0.0199	6.0000e-005	3.9700e-003	1.4000e-004	4.1100e-003	1.0700e-003	1.2000e-004	1.2000e-003	0.0000	5.9323	5.9323	3.5000e-004	0.0000	5.9410

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3.5 Paving - 2019**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.0400e-003	0.0917	0.0890	1.4000e-004		5.2200e-003	5.2200e-003		4.8200e-003	4.8200e-003	0.0000	12.0211	12.0211	3.7300e-003	0.0000	12.1143
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	9.0400e-003	0.0917	0.0890	1.4000e-004		5.2200e-003	5.2200e-003		4.8200e-003	4.8200e-003	0.0000	12.0211	12.0211	3.7300e-003	0.0000	12.1143

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-004	7.8000e-004	7.2800e-003	2.0000e-005	1.6000e-003	1.0000e-005	1.6100e-003	4.3000e-004	1.0000e-005	4.4000e-004	0.0000	1.4839	1.4839	6.0000e-005	0.0000	1.4855
Total	9.0000e-004	7.8000e-004	7.2800e-003	2.0000e-005	1.6000e-003	1.0000e-005	1.6100e-003	4.3000e-004	1.0000e-005	4.4000e-004	0.0000	1.4839	1.4839	6.0000e-005	0.0000	1.4855

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3.5 Paving - 2019**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.0400e-003	0.0917	0.0890	1.4000e-004		5.2200e-003	5.2200e-003		4.8200e-003	4.8200e-003	0.0000	12.0211	12.0211	3.7300e-003	0.0000	12.1143
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	9.0400e-003	0.0917	0.0890	1.4000e-004		5.2200e-003	5.2200e-003		4.8200e-003	4.8200e-003	0.0000	12.0211	12.0211	3.7300e-003	0.0000	12.1143

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-004	7.8000e-004	7.2800e-003	2.0000e-005	1.6000e-003	1.0000e-005	1.6100e-003	4.3000e-004	1.0000e-005	4.4000e-004	0.0000	1.4839	1.4839	6.0000e-005	0.0000	1.4855
Total	9.0000e-004	7.8000e-004	7.2800e-003	2.0000e-005	1.6000e-003	1.0000e-005	1.6100e-003	4.3000e-004	1.0000e-005	4.4000e-004	0.0000	1.4839	1.4839	6.0000e-005	0.0000	1.4855

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.527625	0.034128	0.170517	0.133884	0.037488	0.008360	0.010441	0.067935	0.001069	0.001802	0.004932	0.000833	0.000986

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5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

[illegible]

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5.2 Energy by Land Use - NaturalGas

Unmitigated

[illegible]

Mitigated

[illegible]

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5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	6.5000e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	6.5000e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.2700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.2200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Total	6.4900e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005

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6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.2700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.2200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Total	6.4900e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005

7.0 Water Detail**7.1 Mitigation Measures Water**

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

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7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste**Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

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