AGENDA
February 28, 2017

PUBLIC UTILITIES COMMISSION MEETING
7:00 p.m.
City Council Chambers
311 Vernon Street
Roseville, California

1. ROLL CALL

2. PLEDGE OF ALLEGIANCE

3. APPROVAL OF JANUARY 24, 2017 MINUTES

3.1. January 24, 2017 Minutes

4. ORAL COMMUNICATIONS/PUBLIC COMMENT

5. NEW BUSINESS

5.1. Roseville Electric Utility Monthly Update

Report by Electric Assistant Utility Director Mike Bloom summarizing monthly status of Electric Utility issues, for information.

5.2. Roseville Electric Utility 10-year Energy Efficiency Goals

Presentation by Acting Electric Retail Services Supervisor David Bradford on Roseville Electric Utility's 10-Year Energy Efficiency Goals, for recommendation.

5.3. Environmental Utilities Monthly Update

Report by Acting Environmental Utilities Director Dale Olson summarizing monthly status of Environmental Utilities issues, for information.

5.4. Environmental Utilities Solid Waste Utility Overview

Presentation by Refuse and Stormwater Manager Devin Whittington on the Solid Waste Overview, for information.

5.5. Pleasant Grove Wastewater Treatment Plan Expansion & Energy Recovery Project Environmental Document

Presentation by Senior Engineer George Hanson and Environmental Coordinator Mark Morse on the Pleasant Grove Expansion & Energy Recovery Project Environmental Document, for recommendation.

6. REPORTS - COMMISSION/STAFF

7. ADJOURNMENT

PUBLIC UTILITIES COMMISSION

Title: January 24, 2017 Minutes

Meeting Date: 2/28/2017
Item #: 3.1.

ATTACHMENTS:

Description

January 24, 2017 draft minutes

MINUTES
Public Utilities Commission
January 24, 2017
7:00 p.m.

Council Chambers
311 Vernon Street
Roseville, CA 95678

1. Roll Call

PUC Commissioners Present: Blandon Granger
Gretchen Hildebrand
James McHan
Kerry Schmitz
John Speight
John Vertido
Jim Viele

Staff Present: Michelle Bertolino, Electric Utility Director
Mike Bloom, Electric Assistant Utility Director
Sonny Person, Electric Assistant Utility Director
Todd White, Electric Rates and Financial Administrator
Petra Wallace, Electric Resources Analyst
Philip McAvoy, Electric Rates & Financial Administrator
Lisa Gist, Electric Business Analyst
Dale Olson, Acting Director of Environmental Utilities
Kelye McKinney, Assistant Environmental Utilities Director
Jim Mulligan, Water Utility Manager
Ken Glotzbach, Wastewater Utility Manager
Todd Jordan, Senior Engineer
Joe Mandell, Senior Deputy City Attorney
Cheryl Hammond, Recording Secretary

2. Pledge of Allegiance

3. Minutes of November 22, 2016

The minutes of November 22, 2016 were approved as presented.

4. Oral Comments/Public Comment

None

5. New Business

a. Roseville Electric Utility Monthly Update
Report by Electric Utility Director Michelle Bertolino summarizing monthly status of Electric issues, for information.

Public Comment: None

b. Roseville Electric Utility Trading Authority Policy Update
Presentation by Electric Resources Analyst Petra Wallace providing an overview of Electric Utility Risk Management Policies and describing planned updates to the Energy Trading Authority Policy, for information.

Opening comments by Electric Rates and Financial Administrator Todd White.

Public Comment: None

c. Roseville Electric Utility Financial Policies
Presentation by Electric Finance and Administration Manager Philip McAvoy and Electric Business Analyst Lisa Gist summarizing updates to Roseville Electric's Financial Policies, for recommendation.

Public Comment: None

Motion: Commissioner Vertido made the motion, which was seconded by Commissioner Schmitz, to recommend approval of the Roseville Electric Utility Financial Policies to City Council.

Ayes: Granger, Hildebrand, McHan, Schmitz, Speight, Viele, Vertido
Noes:
Absent:

d. Environmental Utilities Monthly Update
Report by Acting Environmental Utilities Director Dale Olson summarizing monthly status of Environmental Utilities issues, for information.

Public Comment: None

e. Environmental Utilities "Making Water Conservation a California Way of Life"
Presentation by Assistant Environmental Utilities Director Kelye McKinney on "Making Water Conservation a Way of Life," for information.

Public Comment: None

f. Environmental Utilities Recycled Water Program Overview
Presentation by Senior Engineer Todd Jordan on the Recycled Water Program Overview, for information

Public Comment: None

6. Reports – Commission/Staff

None.

7. Proposed Future Agenda Items

None.

8. Adjournment

Commissioner Vertido moved for adjournment of the January 24, 2017 Public Utilities Commission meeting. Commissioner Schmitz seconded the motion. The motion passed unanimously at 8:31 p.m.

John Speight
Chairperson

Cheryl Hammond
Recording Secretary

PUBLIC UTILITIES COMMISSION

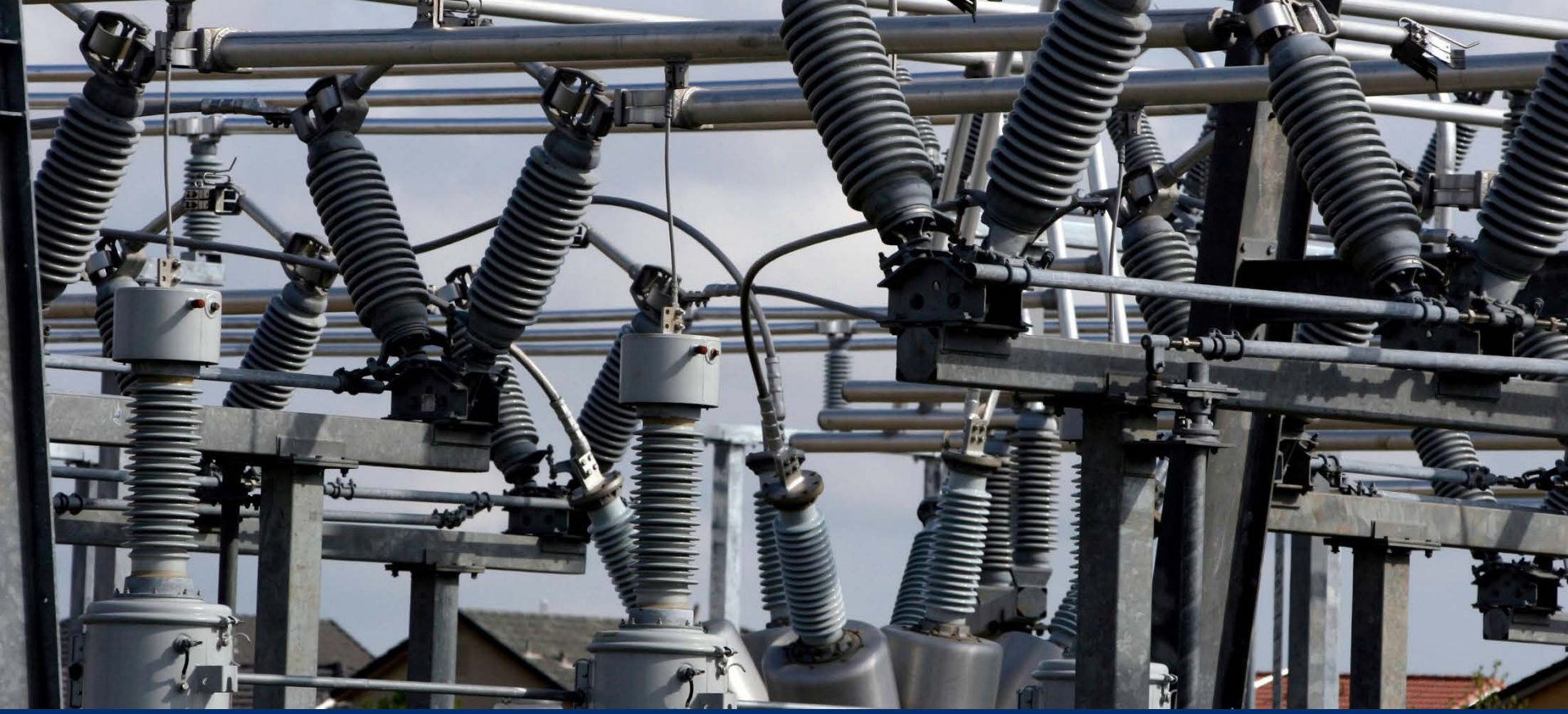
Title: Roseville Electric Utility 10-year Energy Efficiency Goals

Meeting Date: 2/28/2017
Item #: 5.2.

ATTACHMENTS:

Description

Electric 10 Year Energy Efficiency Goals



10 Year
Energy Efficiency Goals

David Bradford, Acting Electric Retail Services Supervisor
Roseville Electric Utility
February 28, 2017

CITY OF ROSEVILLE CALIFORNIA

Public Benefits State Law

- Mandated Energy Efficiency Requirements:
  - Assembly Bill 2021 - Establish Energy Efficiency Goals (10 year forecast, prepared every 4 years)
  - Senate Bill 1037 – Annual Progress Report on Energy Efficiency Programs and Goals
  - Goals and results reported to the California Energy Commission

AB2021 State Law Requirements

- Assembly Bill 2021:
  - Goal stated as a percentage of energy reduced from the total energy sold
  - Goals must be approved by City Council
  - Previous goals approved by City Council in 2007, 2010 and 2013
  - Amended to prepare goals every 4 years

Goal Setting Methodology

- Goal Setting:
  - Assess Roseville market potential using interactive modeling tool – standard across California utilities
  - Assess program performance and technology trends specific to Roseville customer segments
  - Assess forecasted energy use and sales projections
  - Establish 10 year forecast targeting energy saved through public benefit energy efficiency programs

Recommended Goals 2018- 2027

- Proposed 10 Year Energy Efficiency Goals

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Energy (MWh)	8,413	8,549	8,995	9,578	10,063	10,000	9,275	8,556	7,977	7,895
% Energy Reduction	0.71%	0.72%	0.76%	0.81%	0.85%	0.85%	0.80%	0.74%	0.70%	0.70%

Recommendation

- New 10 year goal averaging a 0.76% energy reduction
- An approximate 15% increase over previous goal
- Request recommendation that the City Council adopt the 10 year energy efficiency goal for 2018-2027 period.

PUBLIC UTILITIES COMMISSION

Title:	Pleasant Grove Wastewater Treatment Plan Expansion & Energy Recovery Project Environmental Document

Meeting Date: 2/28/2017
Item #: 5.5.

ATTACHMENTS:

Description

PGWWTP Expansion & Energy Recovery Projects Staff Report

PGWWTP Projects ISMND Comments, Responses and Errata

PGWWTP Projects ISMND Appendix A

PGWWTP Projects ISMND Appendix B - Air Quality and Greenhouse Gas Modeling Data

PGWWTP Projects ISMND Appendix C - WRSP Section 404 Permit and Mitigation Documents

PGWWTP Projects ISMND Appendix D - NPDES Permit

PGWWTP Projects ISMND Appendix E - Noise Modeling Data

CITY OF ROSEVILLE CALIFORNIA

STAFF REPORT

TO:	**Roseville Public Utilities Commission**
FROM:	**George Hanson, Senior Engineer Environmental Utilities**
DATE:	**February 17, 2017**
SUBJECT:	**Pleasant Grove Wastewater Treatment Plant Expansion & Energy Recovery Projects**

Meeting Date: February 28, 2017

SUMMARY RECOMMENDATION

Staff recommends that the Public Utilities Commission:

- Recommend City Council adopt the Initial Study/Mitigated Negative Declaration (IS/MND) (Exhibit A);

BACKGROUND

The City owns and operates the PGWWTP, on behalf of the South Placer Wastewater Authority (SPWA) partners, including Placer County and the South Placer Municipal Utility District. The plant currently has a treatment capacity of 9.5 million gallons per day (mgd) and has been in service since it was constructed in 2004.

The need to expand the PGWWTP is being driven by recent and anticipated growth within the SPWA service area. The PGWWTP presently treats an average dry weather flow (ADWF) of approximately 8 mgd. This expansion project is expected to increase the treatment capacity from 9.5 mgd to 12 mgd to accommodate projected growth through 2040.

The proposed expansion project would add primary clarification, anaerobic digestion, solids handling and ancillary facilities to the current treatment process. Anaerobic digestion produces digester gas, which when separated from carbon dioxide, and its moisture content, is similar in composition to natural gas (methane). To utilize this digester gas, the SPWA is concurrently planning an energy recovery project that will make it possible to utilize the gas as fuel for power generation and vehicles. The project would also utilize additional gas generated from High Strength Waste (HSW) such as food waste and fats, oils and grease (FOG) that would be received at the PGWWTP and processed in the digesters. The expansion project will occur within the existing boundary of the PGWWTP and would last approximately 24 months. It is anticipated construction will begin during the fall of 2017.

The facilities for the Energy Recovery Project would be constructed on City-owned property reserved for treatment plant infrastructure, adjacent to, and immediately south of the existing PGWWTP facilities. The project would include the following facilities: three microturbines, a HSW receiving facility, a food waste pre-processing facility, systems for conditioning and upgrading the digester gas to a renewable compressed natural gas quality r(CNG), and a gas fueling station. The microturbines will produce electrical power that will be used by the treatment

plant and the heat needed for the anaerobic digestion process. Construction of the Energy Recovery Facilities would last approximately 18 months and would begin in late 2017.

ENVIRONMENTAL REVIEW

The California Environmental Quality Act (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. An Initial Study (IS) is a public document used by the decision-making lead agency to describe the proposed project, the existing setting, and to determine whether the project may have a significant impact on the environment. If it is determined in an IS that the proposed project will not have a significant impact on the environment, a Negative Declaration (ND) or Mitigated Negative Declaration (MND) shall be prepared. In accordance with CEQA an IS was prepared for the proposed project (Exhibit A). The conclusion of the Initial Study is that all potential impacts can be mitigated to a less-than-significant level. As such, a MND is proposed by staff to satisfy CEQA requirements. A summary of the potential impacts and recommended mitigation measures contained in the IS/MND is presented below.

Because the project may be partially funded with a loan from the federal Clean Water State Revolving Fund (SRF) administered by the State Water Resources Control Board (SWRCB), the project is also required to comply with certain federal environmental protection laws. Collectively, the SWRCB refers to these requirements as "CEQA-Plus." Therefore, the IS has also been prepared in accordance with the Environmental Review Process Guidelines for State Revolving Fund Loan Applicants and is expanded beyond the typical CEQA IS content requirements. This additional SRF analysis is found in Chapter 4 of the IS, *"Compliance with Federal Regulations"*, as well as in Appendix A *"Alternatives Analysis"* of the IS. These sections of the IS have been prepared to assist SWRCB processing of the SRF loan application and do not require action by the City of Roseville.

Environmental Summary

The IS assesses both individually, and as a combined project, the environmental impacts of the PGWWTP Expansion and the Energy Recover Project. The environmental analysis identified potential impacts to five environmental issue areas. The potential impacts and mitigation measures (MM) are summarized below:

Biological Resources

- Impact: Potential impacts to burrowing owl due to grading at the Energy Recover Project Site
- Mitigation: Implement MM 3.4-1: WRSP EIR MM 4.7-6 avoid nesting sites

Cultural Resources

- Impact: Potential impacts to unknown cultural resources and/or Native American human remains due to ground disturbing activities
- Mitigation: Implement MM 3.5-1: Stop work if cultural resources are found; and, MM 3.5-2: Stop work if human remains are found

Greenhouse Gas Emissions

- Impact: Potentially significant greenhouse gas emissions due to the PGWWTP Expansion Project operation
- Mitigation: Implement MM 3.7-1: Achieve a net reduction of 1,725 MT CO2e/year by either: 1) implementing the Energy Recover Project (which would reduce additional operational emissions from the Expansion Project by 103 percent); 2) Purchase electricity from a higher percentage of renewable sources; or, 3) Purchase Green House Gas (GHG) offsets

Noise

- Impact: Although not anticipated, should night-time construction be required, construction noise could exceed the City's 45 dB nighttime noise standard at residences located west of Westbrook Boulevard.
- Mitigation: Implement MM 3.12-1: Employ noise curtains during nighttime construction involving heavy equipment or haul trucks on the west side of the project sites

Traffic

- Impact: Large trucks accessing the project sites via two-lane roads with adjacent residential uses during construction and/or operation would be incompatible with residential neighborhoods and could temporarily increase hazards.
- Mitigation: Implement MM 3.16-1 which calls for development of a construction traffic management plan; also, adhere to the project access route identified in the project description and shown on IS Figure 2-3 (Fiddyment Road, to Hayden Parkway to Bob Doyle Drive, to Westpark Drive).

A full analysis of the environmental impacts and MMs is contained in the IS. In addition, the full text of all MMs is contained in the Mitigation Monitoring and Reporting Program (MMRP) which is included as Chapter 4 of the Comments, Responses and Errata for the CEQA-Plus IS/MND (Exhibit A).
The IS concludes that with implementation of all recommended mitigation measures, all potential impacts would be reduced to a less-than-significant level and a MND is proposed to satisfy CEQA requirements. Therefore, staff recommends adoption of the IS/MND and approval of the Mitigation Monitoring Plan.

Public Outreach

The ISMND was made available in electronic and hard copy format at the Permit Center front counter and on the City's web site for a 38-day public review and comment period that extended from December 19, 2016 through January 25, 2017. The public review period included an additional week beyond regulatory requirements to account for the fact that it occurred over the holiday season. The Environmental document availability was publicized via legal notice in the Roseville Press Tribune on December 16, 2016 and via post card notices mailed on December 19, 2016 to all properties located within 300 feet of the proposed project. The project notice was also sent to all involved state and federal agencies, nearby local jurisdictions, the Roseville Coalition of Neighborhood Associations (RCONA), and the Roseville Chamber of Commerce. An article was also included in the December 20, 2016 edition of the City of Roseville Newsletter. Electronic and social media outreach included several postings to the City's web site main page, Nextdoor online portal and Facebook. All notices advised of the IS/MND availability and public comment period.

Once the projects are approved, staff will reach out, again, to the public, with advance notice regarding construction of the projects.

Public Comment on the Environmental Document

The City received six (6) comment letters during the public review period as follows:

- Nancy Bullock, Resident, December, 21, 2016
- California Department of Fish and Wildlife, January 5, 2017
- Central Valley Regional Water Quality Control Board, January 12, 2017
- State Water Resources Control Board, January 23, 2017
- Governor's Office of Planning and Research, January 23, 2017
- Placer County, January 25, 2017

Comments received related to the following topics:

- Economic feasibility of the project
- Potential for biological resources to be affected by the project and adequacy of proposed mitigation
- Compliance with applicable water quality regulations
- Compliance with federal requirements under the State Revolving Fund Program

All comment letters and City responses, as well as any IS pages requiring revision (errata pages) based upon comments received, are contained in the Comments, Responses, and Errata for the CEQA-Plus ISMND (Exhibit A). City responses and City initiated changes to the ISMND are not considered significant and re-circulation of the document is not required in accordance with CEQA Guidelines Section 15073.5(c).

RECOMMENDATION

Staff recommends the Commission provide the City Council with a recommendation to adopt the ISMND and approve the PGWWTP Expansion and the Energy Recovery Project's as described in the IS and direct staff to proceed with completing the final design and contract documents.

Respectfully Submitted,

George Hanson, P.E.
Senior Engineer

Exhibit A: Pleasant Grove Wastewater Treatment Plant Expansion and Energy Recover Project Comments, Responses, and Errata for the CEQA-Plus IS/MND

Pleasant Grove Wastewater Treatment Plant Expansion and Energy Recovery Project Comments, Responses, and Errata for the CEQA-Plus Initial Study/ Mitigated Negative Declaration

February 2017

CITY OF ROSEVILLE
CALIFORNIA

311 Vernon Street
Roseville, CA 95678
Contact: Mark Morse
(916) 774-5499

Comments, Responses, and Errata for the CEQA-Plus Initial Study/Mitigated Negative Declaration for the

PGWWTP Expansion and Energy Recovery Project

PREPARED FOR

City of Roseville
311 Vernon Street
Roseville, California 95678
Contact: Mark Morse

PREPARED BY

Ascent Environmental, Inc.
455 Capitol Mall, Suite 300
Sacramento, California 95814
Contact: Stephanie Rasmussen

February 2017

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A Pleasant Grove Wastewater Treatment Plant Expansion and Energy Recovery Project Draft CEQA-Plus Initial Study/Mitigated Negative Declaration

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Table 4-1 PGWWTP Expansion and Energy Recovery Project Mitigation Monitoring and Reporting Program 4-3

ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
CDFW	California Department of Fish and Wildlife's
CEQA	California Environmental Quality Act
City	City of Roseville
CNDDB	California Natural Diversity Database
CNG	compressed natural gas
CNPS	California Native Plant Society
CWSRF	Clean Water State Revolving Fund
DG	digester gas
Draft IS/MND	Pleasant Grove Wastewater Treatment Plant Expansion and Energy Recovery Project CEQA-Plus Initial Study/Mitigated Negative Declaration
EPA	U.S. Environmental Protection Agency
FOG	Fats, Oils and Grease
IPAC	Information for Planning and Conservation
IS/MND	Initial Study/Mitigated Negative Declaration
MMRP	Mitigation Monitoring and Reporting Program
PGWWTP	Pleasant Grove Wastewater Treatment Plant
SRF	State Revolving Fund
SWRCB	State Water Resources Control Board
USFWS	United States Fish and Wildlife Service

1 INTRODUCTION

The Pleasant Grove Wastewater Treatment Plant (PGWWTP) Expansion and Energy Recovery Project was designed to treat 12 million gallons per day (mgd); however, due to high organic loading, the PGWWTP's effective treatment capacity is approximately 9.5 mgd. The City is proposing to expand and increase treatment capacity of the existing PGWWTP (Expansion Project) so that it can meet its original 12 mgd design capacity. The City is also considering the related but separate construction of new energy recovery facilities (Energy Recovery Project) that would beneficially utilize the digester gas produced by anaerobic digestion that is included in the Expansion Project.

This document contains all comments received on the Draft Initial Study/Mitigated Negative Declaration (Draft IS/MND), responses to those comments, and any Initial Study pages requiring revision (errata pages) based upon the comments received. All comments received, and responses to those comments are in Chapter 2 of this document. Revisions to the Draft IS/MND are in Chapter 3 of this document. This document also includes the mitigation monitoring and reporting program (MMRP) in Chapter 4 followed by the Draft IS/MND in its entirety.

Changes to the IS/MND are not considered significant and re-circulation of the document is not required in accordance with the California Environmental Quality Act (CEQA) Guidelines, Section 15073.5(c).

1.1 ADOPTION AND APPROVAL PROCESS

The public review period under the California Environmental Quality Act (CEQA) for the Draft IS/MND commenced on December 19, 2016 and closed on January 25, 2017. The Notice of Completion was provided to the State Clearinghouse on December 19, 2016 and the IS/MND was circulated to the appropriate state agencies. Comment letters received during the public review period are included in Chapter 2, "Responses to Comments."

After consideration of the comments received during the public review period, the City may (1) adopt the Mitigated Negative Declaration and approve the proposed Project; (2) undertake additional environmental studies; or (3) disapprove the Project. If the Project is approved, the City may proceed with detailed design and construction.

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2 COMMENTS AND RESPONSES

This chapter contains the comment letters received during the 38-day public review period for the Draft IS/MND, which commenced on December 19, 2016 and closed on January 25, 2017. (CEQA requires a 30-day public review for MNDs for projects with State responsible agencies.) The Notice of Completion was provided to the State Clearinghouse on December 19, 2016 and the Draft IS/MND was circulated to the appropriate state agencies.

COMMENTERS ON THE DRAFT IS/MND

Table 2-1 below indicates the numerical designation for the comment letters received, the author of the comment letter, and the date of the comment letter. Comment letters have been numbered in the order they were received by the City.

Table 2-1 List of Commenters

Letter	Agency/Organization/Name	Date
1	Nancy Bullock	December 21, 2016
2	California Department of Fish and Wildlife	January 5, 2017
3	Central Valley Regional Water Quality Control Board	January 12, 2017
4	State Water Resources Control Board	January 23, 2017
5	Governor's Office of Planning and Research, State Clearinghouse and Planning Unit	January 23, 2017
6	County of Placer	January 25, 2017

COMMENTS AND RESPONSES ON THE DRAFT IS/MND

All comments received on the Draft IS/MND are reproduced in their entirety, followed by response(s). Each comment is indicated by a bracket and identifying number in the margin of the comment letter. Responses are numbered, corresponding to the comment number in the bracketed letter.

Any revisions that were required to the Draft IS/MND as a result of these comments are included in Chapter 3 of this document, and are denoted by strikeout (~~strikeout~~) for deletions and underline (<u>underline</u>) for additions. Inclusion of this clarifying information does not alter the conclusions of the Draft IS/MND.

Morse, Mark

Letter 1

From: NBullock <raggedynan@comcast.net>
Sent: Wednesday, December 21, 2016 2:02 PM
To: Morse, Mark
Subject: Pleasant Grove Wastewater Treatment Expansion Documents

I have reviewed the Initial Study/Mitigated Negative Declaration documents available for public review on the City's website and have the following questions:

1. It is stated that because of water conservation the inefficiency of the current treatment plant is due to the lack of of liquid necessary to process the effluent the plant was designed for. Have optional sources for degraded water been surveyed? 1-1

2. An article by the University of Florida (see link below) speaks to the possibility of bottling the effluent to be sold on the retail market as fertilizer which could provide more return on investment.Was this possibility explored? Also, was an assessment made as to upgrading the treatment of the sludge to Grade A so it could be sold to a broader customer base? 1-2

http://biogas.ifas.ufl.edu/foodwaste/faqs.asp

3. The article linked to below contains information about some companies that are offering food waste to energy recycling including Harvest Power in Sacramento. While the article appeared in 2014 the profitability was questionable for the industry as a whole. This is reminiscent of the financial struggles of solar companies that continue to this day. What assurances are there that this will not become a boondoggle for the City? Wouldn't it be fiscally prudent to wait a few years to insure viability before committing public funds? 1-3

https://www.theguardian.com/sustainable-business/2014/oct/17/disney-world-biogas-food-waste-energy-clean-tech

4. What will the estimated increase in resident utility bills be for this project? Will residents see the cost of the project reflected in a manner other than utility bill increases? 1-4

I look forward to your response....Nancy

1

Letter 1 Response	Nancy Bullock December 21, 2016

Thank you for taking the time to submit comments on the Project. Responses are provided below.

Response to Comment 1-1

The comment asks if other sources of degraded water have been surveyed. Both the Pleasant Grove Wastewater Treatment Plant (PGWWTP) Expansion and Energy Recovery Project CEQA-Plus Initial Study/Mitigated Negative Declaration (Draft IS/MND) and the Notice of Intent to Adopt a Mitigated Negative Declaration that was distributed announcing the release of the Draft IS/MND document for review, include references to water conservation being a contributory factor for the reduced treatment capacity of the PGWWTP. This was inaccurately stated. The reduced treatment capacity is due to high organic loading of the wastewater received and treated at the PGWWTP. This high loading results from a combination of factors including commercial growth and minimal infiltration and inflow due to relatively new collection infrastructure in the Pleasant Grove service area. The primary reason for the PGWWTP Expansion Project is to restore the treatment capacity to the WWTP's 12 mgd design capacity to accommodate future growth expected in the service area. Further, an addition of "degraded water" would not reduce pollutant loads requiring treatment and would not eliminate the need for the Project.

Response to Comment 1-2

The comment asks if selling effluent as fertilizer was considered. The systems being planned for the PGWWTP Expansion Project are typical facilities that are commonly utilized at wastewater treatment plants across the country. While possible, producing fertilizer is not common in the wastewater industry and would require an investment in additional new processes to create a material that is acceptable for a retail fertilizer market. Additionally, process lines and facilities as well as additional staff for handling, packing, storage, and retail sales would be necessary. Investment of this nature at the PGWWTP, for which there is no guaranteed large scale retail market will pose an extremely high financial risk and therefore was not considered as a viable option for the Project. Bottling effluent at the PGWWTP would not reduce any of its environmental impacts. It is anticipated that the processed biosolids will be used as a commercial agricultural soil amendment. This is a common practice used by many wastewater facilities.

Response to Comment 1-3

The comment asks what assurances there are that the Cogeneration facility will be fiscally sound. This PGWWTP Expansion Project is required primarily to provide the increased treatment capacity necessary to accommodate growth within the PGWWTP service area. Also, excess capacity built into the design of the facilities is required as part of responsible WWTP design to assure compliance with regulations and protection of the environment as well as the health and safety of the public. The available excess capacity provides the opportunity for the PGWWTP to receive and process additional waste streams (in this case, Source Separated Food Waste and Fats, Oils and Grease (FOG)), both referred to as High Strength Waste (HSW). The addition of HSW helps generate greater volumes of digester gas (DG), which can be utilized to provide economic benefits to the treatment operations.

Prior to making the decision to implement the Energy Recovery Project, the City conducted a detailed economic analysis to confirm the viability of utilizing the DG for energy production as well as evaluating the benefits/impacts of receiving and processing HSW. Out of 33 options evaluated, the recommended Energy Recovery Project described in the Draft IS/MND, was the option identified as being most viable and providing the greatest economic and environmental benefit. The Energy Recovery Project, which includes the diversion of Source Separated Food Waste, helps the Solid Waste Utility meet the goals of Assembly Bill (AB) 1826, the State's mandate to recycle organics. Additionally, FOG, which creates maintenance issues in the wastewater collection system, is a rich source of methane (energy) when processed in digesters. Receiving FOG at the PGWWTP, keeps it out of the collection system while allowing the WWTP to harvest the energy it contains.

The examples cited by the comment of private companies describe a category of organizations that made decisions to build infrastructure that was only intended to process organic wastes. In the City's case, building the infrastructure is required to meet wastewater treatment needs generated by growth and spare capacity is used to process other organics. Because the primary objective for the PGWWTP is fundamentally different than the examples cited, a side-by-side comparison of the impacts, benefits and risks, is not appropriate. In addition, much has changed since the writing of the referenced 2014 article. Specifically, California has implemented a series of regulations that are aimed at diverting organics away from landfill and toward anaerobic digestion. As a result, projects like this are driven not only by economics, but also by regulatory compliance.

Response to Comment 1-4

The comment asks what the increase to utility bills will be as a result of the project. The Expansion Project will be paid by fees collected when new customers are connected to the wastewater treatment/collection system. These fees are set aside to pay the cost of the infrastructure needed to serve new customers. Because these fees have been collected for this purpose, existing sewer rates will not be increased as a result of the Expansion Project. The Energy Recovery Project is expected to help reduce the WWTP operating costs and generate revenue that will result in an overall economic benefit. Investing in these improvements is not expected to require a rate increase for existing users.

Morse, Mark

Letter 2

From: Calderaro, Angela@Wildlife <Angela.Calderaro@wildlife.ca.gov>
Sent: Thursday, January 05, 2017 3:51 PM
To: Morse, Mark
Cc: Wildlife R2 CEQA
Subject: Pleasant Grove Wastewater Treatment Plant Expansion and Energy Recovery Project (SCH 2016122040)

Dear Mr. Morse,

The California Department of Fish and Wildlife (Department) is providing comments on the CEQA-Plus Initial Study/Mitigated Negative Declaration (IS/MND) for the Pleasant Grove Wastewater Treatment Plant (WWTP) Expansion and Energy Recovery Project (project) as both a trustee agency and responsible agency under the California Environmental Quality Act (CEQA). As trustee for the State's fish and wildlife resources, the Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of such species (Guidelines § 15386). The Department may also be a responsible agency for a project affecting biological resources where we will exercise our discretion after the lead agency to approve or carry out a proposed project or some facet thereof (CEQA Guidelines § 15096). 2-1

The Project will expand and increase treatment capacity of the existing PGWWTP (Expansion Project) so that it can meet its original 12 mgd design capacity. The Project will also construct new energy recovery facilities (Energy Recovery Project) that would beneficially utilize the digester gas produced by anaerobic digestion that is included in the Expansion Project. These projects combined represent the proposed project (Project).

The Department has concerns that the Project may impact biological resources that were not analyzed in the CEQA document. The environmental documents for the West Roseville Specific Plan and the Westpark Project identified several resources in the Expansion Project area that were not discussed in the IS/MND. It identified the area as Swainson's Hawk foraging habitat, wetlands with potential to support vernal pool fairy shrimp, among other things. 2-2

The aerial photography from Google Earth clearly shows 2 swales running through the property in 2002 and still shows a signature in 2016. The Westpark Specific Plan Wetland Delineation identified vernal pools in these swale systems that could support federally listed vernal pool fairy shrimp.

2-3

Riparian Habitat/ Streambed Alteration Agreement

The CEQA analysis should state what, if any, Department-jurisdictional features will be removed, disturbed, or otherwise altered by the project. The Department's jurisdiction includes the bed, bank and channel and any associated habitat 2-4

1

including areas where water has flowed and where the width of its course can be identified by physical or biological indicators. This may include the floodplain or associated contributing drainage areas. When determining jurisdiction, the Department must consider the fluvial geomorphology of the system including the following: (1) where water currently flows, or has flowed, over a given course during the historic hydrologic regime (can be subsurface flows), (2) the maximal extent of the or expression of a stream on the landscape, (3) the connectivity between the groundwater table and surrounding landscape (may include springs, swales, surface runoff source areas that are a source of water to a stream), and (4) the nexus between the stream and all life associated with the streams. Riparian can include areas adjacent to perennial, intermittent, and ephemeral streams, lakes and estuarine marine shorelines that are transitional between terrestrial and aquatic ecosystems and are distinguished be gradients in biophysical conditions, ecological processes, and biota. They are areas through which surface and subsurface hydrology connect waterbodies with their adjacent uplands. Riparian areas connect upland and aquatic environments through both surface and subsurface hydrologic flow paths. The swales identified in the aerial photographs may be under the jurisdiction of the Department as they flow into the creek to the south.

Direct Impacts

An entity (any person, State, local government agency, or public utility) should consider and analyze whether implementation of the proposed project will result in reasonably foreseeable potentially significant impacts subject to regulation by the Department under Section 1600 et seq. of the FGC. In general, such impacts result whenever a proposed project involves work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel, including ephemeral streams and watercourses. As a responsible agency under CEQA, the Department must rely on the CEQA analysis for the project when exercising our discretion after the lead agency to approve or carry out some facet of a proposed project, such as the issuance of a Lake and Streambed Alteration Agreement (LSAA). Therefore, the CEQA document should include specific, enforceable measures to be carried out onsite or within the same stream system that will avoid, minimize and/or mitigate for project impacts to the natural resources. If CDFW-jurisdictional features will be removed as a result of the project, the Department recommends a minimum *3 acres of restored habitat for each acre removed.* Mitigation measures should also describe when the mitigation measure will be implemented, and explain why the measure is feasible. The Department recommends that the CEQA document does not defer mitigation details to some future time. The CEQA document should identify the following items: how each measure will be carried out; who will perform the measures; when the measures will be performed; the performance standards and mechanisms for achieving success, and an assured source of funding to acquire and manage identified mitigation lands. The CEQA document should describe a range of enforceable mitigation measures that will be implemented in instances where approval and cooperation with the entities identified above either does or does not occur. 2-4 cont

Indirect Impacts

Project activities may result in disrupted reproduction depending on the time of year construction occurs; noise, light, dust, and ground vibration during construction; and possible increased sedimentation into associated seasonal wetlands and floodplain resulting from fill material inadvertently entering the waterway. Indirect impacts from development may occur from effects to water quality, increase in noise, light and human-wildlife interaction, as well as disturbances to wildlife species and the habitats on which they depend.

Nesting Birds and Raptors

The project has the potential to disturb bird species or nests protected under the Migratory Bird Treaty Act (MBTA), FGC §3503 and 3503.5. Since project activities may occur during the nesting season (determined by region, species, and climate), construction activities could result in disturbance to nesting raptors and other migratory birds. Raptors and other migratory birds are protected under the MBTA and FGC §3503.5; therefore, potential impacts may be considered potentially significant unless adequate avoidance, minimization and/or mitigation is incorporated. If nests are identified on or adjacent to the project site, implementation of the project may adversely impact the success of the nest site and/or take a bird, their eggs and/or nest. 2-5

2

Mitigation Measure 3.4.1 states that preconstruction surveys will be conducted within 30 days prior to the start of construction. The Department recommends that this is changed to three (3) days prior to the start of construction or disturbance activities. In addition, if there is a break in construction activity of more than 2 weeks or if there is a change in the level of disturbance at a site, then subsequent surveys should be conducted. Birds may nest in all kind of substrates, i.e., trees, shrubs, manmade structures, on the ground and in the ground. The measure only states it will conduct surveys of trees and Burrowing Owl habitat. The Department recommends that the survey include all areas where birds may nest. All measures to protect birds should be performance-based. While some birds may tolerate disturbance within 350 feet of construction activities, other birds may have a different disturbance threshold and "take" (FGC §86) could occur if the no-work buffers are not designed to reduce stress to that individual pair. The Department recommends including performance-based protection measures for avoiding all nests protected under the Migratory Bird Treaty Act and FGC §3503.5. A 350-foot no-work buffer may be sufficient; however, that buffer may need to be increased based on the birds' tolerance level to the disturbance. Below is an example of a performance-based protection measure: 2-5 cont

Should construction activities cause the nesting bird to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the exclusionary buffer will be increased such that activities are far enough from the nest to stop this agitated behavior. The exclusionary buffer will remain in place until the chicks have fledged or as otherwise determined by a qualified biologist.

The best method is to have a qualified biologist onsite monitoring activities as birds may nest within pipes or on cleared ground. The removal of a nest tree even if it is not within the breeding season may still constitute a significant impact especially for Swainson's hawk a state-listed species and one that has high nest site fidelity. FGC 3503 and 3503.5 does not state if the nest is active or not.

Burrowing Owl

Suitable habitat for burrowing owl is present on and adjacent to the project site. Under the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012), the Department recommends a qualified biologist will complete four surveys for burrowing owl. The biologist will conduct 4 survey visits: 1) at least one site visit between 15 February and 15 April, and 2) a minimum of three survey visits, at least three weeks apart, between 15 April and 15 July, with at least one visit after 15 June. Surveys will be conducted on the project site and within 150 meters of areas that will be directly or indirectly impacted by the project, where feasible. Surveys shall not be conducted during inclement weather, when burrowing owls are typically less active and visible. If burrowing owls or evidence of burrowing owls (e.g., whitewash or pellets) are not observed during surveys, no additional mitigation is necessary. If the birds are present, then there is potential for impacts to occur and the project proponent to take a bird protected under FGC. If any new burrowing owl colonizes the project site after the CEQA document has been adopted, it may constitute changed circumstances that should be addressed in a re-circulated CEQA document (CDFG 2012). 2-6

Passive relocation is considered an impact to the species unless there is adjacent natural habitat nearby. The Department recommends that mitigation measure 3.4-1 (g) and (h) is amended so it is consistent with the *Staff Report on Burrowing Owl Mitigation.* Namely, the project proponent should develop a Burrowing Owl Exclusion Plan approved by the Department. In addition, the impact analysis does not include compensatory mitigation for the loss of occupied burrowing owl habitat. The Department recommends that temporary and permanent loss of habitat is mitigated as outlined in the Department's staff report to include permanent protection of mitigation land, a management plan, and endowment.

California Endangered Species Act

The Department has regulatory authority pursuant to California Endangered Species Act (CESA) over projects that have the potential to result in the take[1] of any species of wildlife designated by the California Fish and Game Commission as an endangered, threatened, or candidate species. Take of species protected pursuant to CESA is prohibited (Fish and Game Code [FGC] § 2080). However, the Department, may authorize the take of these species by permit if the conditions set forth in FGC Section 2081, subdivisions (b) and (c) are met (See also Cal. Code Regs., title 14, § 783.4). 2-7

The Department has concern that the project may adversely affect and may take a State-listed species. If the project may result in the take of any species protected pursuant to CESA, an incidental take permit, issued by the Department, should be obtained before the take occurs. If the Department issues an incidental take permit, the Department must rely on the CEQA document to prepare and issue its own findings regarding the project (CEQA Guidelines §§15096 and 15381). The Department will only use the CEQA document if it adequately addresses the effects of those project activities, including all avoidance, minimization and the mitigation required for the take authorization.

Any activity resulting in loss of habitat, decreased reproductive success, or other negative effects on population levels of species protected pursuant to CESA should be analyzed. Project activities should be designed to avoid and minimize the potential for take of CESA species. If the project has the potential to take CESA species, those impacts will need to be fully mitigated.

2-7 cont

Tricolored Blackbird

Tri-colored blackbird is known to occur in the area; there are numerous occurrences within a 10-mile radius (CDFW 2016; CNDDB layer in BIOS). Tricolored blackbird is a candidate for State listing. Any activity resulting in loss of habitat, decreased reproductive success, or other negative effects on population levels of species protected pursuant to CESA should be analyzed. Project activities should be designed to avoid and minimize the potential for take of CESA species. If the project has the potential to take CESA species, those impacts will need to be fully mitigated. The DEIR should address potential impacts to foraging habitat for tricolored blackbird as it may result in decreased reproductive success such as abandonment of a nearby colony site. The loss of foraging habitat should be mitigated for in relation to the species nesting habitat. Impacts to foraging habitat may have a detrimental impact on a colony. If adjacent foraging habitat is removed, it may cause colony abandonment and result in a tremendous loss of reproductive success for a species that is already at risk and in decline. The mitigation as proposed is not enough to offset impacts to this species.

2-8

Swainson's Hawk

There are numerous occurrence records within a 10-mile radius of the project (CDFW 2017; CNDDB layer in BIOS). The loss of nesting and foraging habitat due to agricultural and urban expansion has greatly reduced the breeding range and abundance of Swainson's Hawk in California (CDFW 1993; 5-year Status Review: Swainson's Hawk). Although the West Roseville Specific Plan EIR identified the Expansion project area as Swainson's Hawk foraging habitat, the IS/MND for the Project does not recommend any mitigation for the loss of this habitat. The Department recommends that mitigation for loss of Swainson's hawk foraging habitat includes 2 acre preserved for each 1 acre lost (2:1 ratio) *at a minimum*. Anything less would constitute a cumulative impact and would be significant. Mitigation land should be of equal or greater value of foraging habitat for Swainson's hawk and preserved in perpetuity under a conservation easement. Nearby preserved nesting sites should be located in close proximity to the mitigation land. In addition the land should not have conflicting land uses (i.e., airports), or conflicting mineral rights or wind rights, and should have an endowment to manage land in perpetuity to uphold habitat values. The Department recommends that any mitigation for loss of Swainson's Hawk foraging habitat is reviewed and approved by the Department, that it includes a greater than 1:1 mitigation ratio, and it includes management and funding in perpetuity specifically for Swainson's hawk. The Department recommends that the analysis consider these potentially significant impacts and propose mitigation that would reduce impacts to a less than significant level.

For mitigation to Swainson's Hawk foraging habitat, the Department considers the following criteria.
1) Proposed mitigation parcel should be occupied by Swainson's Hawk
2) Foraging habitat mitigation sites should be in close proximity to the impact sites
3) Foraging habitat mitigation sites should contain at least the same quality or better of suitable foraging habitat than habitat impact sites
4) Foraging habitat mitigation sites should be connected to other protected habitat thereby contributing to a larger habitat preserve
5) Foraging habitat mitigation sites should be outside of areas identified for urban growth
6) Foraging habitat mitigation sites should be managed in perpetuity as foraging habitat
7) CEQA Lead Agencies should be supportive

2-9

8) Regional conservation efforts should be supportive

The Department recommends that the project provide a minimum 2:1 mitigation ratio. The Draft PCCP uses an approximate 1.4:1 ratio; however this low ratio takes into account the wider aim of the conservation strategy which is to provide large contiguous blocks of habitat which cannot be done on a project-by-project basis. Until the Plan is adopted, the Department must assume a higher mitigation ratio. 2-9 cont

Thank you for considering our comments. If you could please reply and let me know you received this email, it would be greatly appreciated. Department personnel are available for consultation regarding biological resources and strategies to minimize impacts. If you have questions, please do not hesitate to contact me.

Regards,

Angela Calderaro
Senior Environmental Scientist (Specialist)
Habitat Conservation Branch
California Department of Fish and Wildlife, North Central Region
1701 Nimbus Road, Rancho Cordova CA 95670
Office: 916-358-2920
Fax: 916-358-2912
Angela.Calderaro@wildlife.ca.gov
www.wildlife.ca.gov

To report a violation please notify the Californians Turn in Poachers and Polluters (CalTIP) program by calling 1-888-DFG-Caltip or texting "tip411" (numerically, 84741 – Start message with "Caltip") You can even send photos via text. Also, the CalTIP App can be downloaded for free via the Google Play Store and iTunes App Store.

Note: I do not work most Thursdays.

[1] Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

Letter 2 Response	California Department of Fish and Wildlife Angela Calderaro January 5, 2017

Thank you for taking the time to submit comments on the Project. Responses are provided below.

Response to Comment 2-1

Comment noted. The City acknowledges the California Department of Fish and Wildlife's (CDFW) role as a CEQA Trustee Agency.

Response to Comment 2-2

The comment states that the *West Roseville Specific Plan* and the Westpark Project identified Swainson's hawk foraging habitat and vernal pool habitat within the Project site. As discussed in Section 3.4.2 of the Draft IS/MND, the Project would not substantially reduce the amount of foraging habitat for Swainson's hawk in the Project vicinity. In addition, the Southern Expansion Area is within the planning area for the *West Roseville Specific Plan* and all wetland and grassland impacts, including loss of Swainson's hawk and white-tailed kite foraging habitat, have been evaluated and mitigated for in the EIR for the *West Roseville Specific Plan* (City of Roseville 2004). As further discussed in Sections 3.4.1 and 3.4.2 of the Draft IS/MND, there are no wetlands or waters of the U.S. located within the "fence-line" boundary of the PGWWTP. Furthermore, former wetlands located within the Southern Expansion Area have been filled (as permitted) as a result of minor grading and annual maintenance disking. One small, potential seasonal wetland was noted during field surveys conducted for the Project in the northwest portion of the Southern Expansion Area. This potential seasonal wetland and any other remnant wetlands within the Southern Expansion Area are permitted for filling in accordance with the recently modified and reissued *West Roseville Specific Plan* 404 Permit (December 30, 2015) (SPK 2002-00666).

Response to Comment 2-3

The comment notes that aerial photographs from 2002 and 2016 show swales within the Project site. Please see Response to Comment 2-2. Former wetlands located within the Southern Expansion Area have been filled (as permitted) as a result of minor grading and annual maintenance disking. This area and any other remnant wetlands within the Southern Expansion Area are permitted for filling in accordance with the recently modified and reissued *West Roseville Specific Plan* 404 Permit (December 30, 2015) (SPK 2002-00666). Thus, presence of resources typically associated with wetlands would not be expected.

Response to Comment 2-4

This comment indicates that the Draft IS/MND should identify what, if any, Department-jurisdictional features will be removed, disturbed, or otherwise altered by the proposed Project.

The Draft IS/MND disclosed the existing natural features, waters of the U.S., streams and creeks, riparian habitat, and special-status species located on the Project site or for which suitable habitat exists on the site (refer to Section 3.4 and Chapter 4 of the Draft IS/MND). The Draft IS/MND also calculated and disclosed the extent of the Proposed Project's impacts on these features and all biological resources that could be affected by implementation of the Project as proposed, as well as feasible mitigation for all such impacts. CEQA does not require a delineation of CDFW jurisdictional features because a legal determination of the precise extent of CDFW's jurisdiction over resources impacted by the Project ultimately lies with the State, not with the City, the lead agency for the Draft IS/MND.

As described in Section 3.4 of the Draft IS/MND, one small, potential seasonal wetland was noted during field surveys conducted for the Project in the northwest portion of the Southern Expansion Area. This area and any other remnant wetlands within the Southern Expansion Area are permitted for filling in accordance with the recently modified and reissued *West Roseville Specific Plan* 404 Permit (December 30, 2015) (SPK 2002-00666). The Project site does not contain any other sensitive or potentially jurisdictional resources

subject to Section 1600 of the Fish and Game Code and; therefore, it is not anticipated that a Lake and Streambed Alteration Agreement will be needed for the proposed Project and CDFW's jurisdiction is limited to that of a Trustee Agency under CEQA.

Response to Comment 2-5

The comment states that the Project has the potential to disturb bird species or nests protected under the Migratory Bird Treaty Act. Impacts to nesting birds and raptors were addressed in Sections 3.4 and 4.11 of the Draft IS/MND. In response to the suggestions in this comment, Mitigation Measure 3.4-1 has been revised to require that nesting surveys be conducted within 3 days prior to start of construction activities, rather than 30 days, and that surveys be re-conducted if there is a break in construction activities lasting more than 2 weeks. Additional performance standards have been added to Mitigation Measure 3.4-1 consistent with the recommendations of this comment.

As discussed on page 3-30 of the Draft IS/MND, there are no trees within the Southern Expansion Area, and the rows of redwoods along the property border to the south and west are too small to provide suitable habitat for raptors, including Swainson's hawk and white-tailed kite. The nearest oak trees that could provide suitable habitat for nesting raptors are 0.25-mile northeast of the Southern Expansion Area. Therefore, Project-related construction is not likely to disturb nesting raptors that may be nesting in those trees or affect nesting success.

Response to Comment 2-6

The comment states that suitable habitat for burrowing owl is present on or adjacent to the Project site. The Draft IS/MND acknowledges that burrowing owls have potential to occur within the Project site, and as described under Mitigation Measure 3.4-1, this impact was previously mitigated by Mitigation Measure 4.7-6 in the *West Roseville Specific Plan* (City of Roseville 2004). An off-site Preserve was established on the City's Reason Farms property (AKA Al Johnson Wildlife Area).

Because the timing of construction activities is not known, the Draft IS/MND mitigation requires that a take avoidance survey be conducted no more than 30 days prior to disturbance. Appendix D of the Staff Report states "Field experience from 1995 to present supports the conclusion that it would be effective to complete an initial take avoidance survey no less than 14 days prior to initiating ground disturbance activities using the recommended methods described in the Detection Surveys section above". Passive relocation of owls is outlined as a type of exclusion within the Staff Report on Burrowing Owl Mitigation (CDFG 2012). Mitigation Measure 3.4-1 has been revised to clarify that avoidance surveys will be conducted no more than 3 days prior to initial ground disturbance and to clarify that a Burrowing Owl Exclusion Plan shall be developed in accordance with CDFW guidance if active burrows are identified.

The statement that the IS/MND may need to be recirculated if any new burrowing owl colonizes the Project site after the CEQA document has been adopted is an inaccurate statement of the law. Recirculation is required if significant new information is added to an IS/MND after it has been circulated but before it is certified. After an IS/MND is certified, no subsequent or supplemental IS/MND shall be required unless (a) there is a further discretionary approval required; and (b) there is substantial evidence of new or more severe significant impacts due to project changes, changed circumstances, or new information which was not known and could not have been known at the time the IS/MND was certified.

Because the Draft IS/MND already identifies potentially significant impacts to burrowing owls and proposes mitigation to reduce those impacts to a less-than-significant level, a discovery of any new burrowing owl colonies within the Project area in the future would not constitute changed circumstances prompting subsequent analysis under CEQA.

Response to Comment 2-7

The comment states that CDFW has regulatory authority pursuant to the California Endangered Species Act over projects that have the potential to result in take of any State-listed species. The Draft IS/MND disclosed the Project site's existing natural features, including the potential for State-listed special-status species or

suitable habitat to occur within the Project site (see Section 3.4 and Chapter 4). The Draft IS/MND also disclosed the extent of the proposed Project's impacts on these species, as well as feasible mitigation for all such impacts. The City believes that by providing a full discussion of the Project site's existing biological resources and the extent and the extent of potential impacts on species and habitat, the Draft IS/MND provides the necessary information required under CEQA for CDFW's subsequent decision on a take permit application, should one be required.

Response to Comment 2-8

The comment states that Tricolored blackbird is known to occur in the area and potential impacts to the species should be addressed. As discussed in Section 3.4 of the Draft IS/MND, there are no known nesting colonies and no suitable nesting or foraging habitat for Tricolored blackbird present on the Project site.

Response to Comment 2-9

The comment states that the Draft IS/MND does not adequately mitigate for loss of Swainson's hawk foraging habitat. As discussed in Section 3.4.2 of the Draft IS/MND, the Project would not substantially reduce the amount of foraging habitat for Swainson's hawk in the Project vicinity. In addition, the Southern Expansion Area is within the planning area for the *West Roseville Specific Plan* and all grassland impacts, including loss of Swainson's hawk and white-tailed kite foraging habitat, have been evaluated and mitigated for in the EIR for the *West Roseville Specific Plan* (City of Roseville 2004). Mitigation Measure 4.7-8 of the *West Roseville Specific Plan* required on-site and off-site preservation of grassland habitat to mitigate for losses in Swainson's hawk foraging habitat and included development of Swainson's Hawk Grassland Habitat Mitigation Plan in consultation with CDFW. In accordance with this mitigation measure, 2,171.63 acres of grassland habitat were preserved through a combination of on- and off-site preservation and purchase of mitigation credits to mitigate for loss of Swainson's hawk foraging habitat including within the Southern Expansion Area. This mitigation fully mitigated the impacts to Swainson's hawk foraging habitat under the *West Roseville Specific Plan.*

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Letter 3

Water Boards

Central Valley Regional Water Quality Control Board

9 January 2017

Mark Morse
City of Roseville
311 Vernon Street
Roseville, CA 95678

CERTIFIED MAIL
91 7199 9991 7035 8417 7730

COMMENTS TO REQUEST FOR REVIEW FOR THE MITIGATED NEGATIVE DECLARATION, PLEASANT GROVE WASTEWATER TREATMENT PLANT EXPANSION AND ENERGY RECOVERY PROJECT, SCH# 2016122040, PLACER COUNTY

Pursuant to the State Clearinghouse's 19 December 2016 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Mitigated Negative Declaration* for the Pleasant Grove Wastewater Treatment Plant Expansion and Energy Recovery Project, located in Placer County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38. 3-1

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases,

KARL E. LONGLEY ScD, P.E., CHAIR | PAMELA C. CREEDON P.E., BCEE, EXECUTIVE OFFICER
11020 Sun Center Drive #200, Rancho Cordova, CA 95670 | www.waterboards.ca.gov/centralvalley

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the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues.

For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Policy is available on page IV-15.01 at:
http://www.waterboards.ca.gov/centralvalleywater_issues/basin_plans/sacsjr.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

3-1 cont

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit
Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Construction General Permit Order No. 2009-009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan

(SWPPP).

For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml.

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]
The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/.

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

3-1 cont

Industrial Storm Water General Permit
Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ.

For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml.

Clean Water Act Section 404 Permit
If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by the USACOE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water

[1] Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACOE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACOE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications.

Waste Discharge Requirements – Discharges to Waters of the State

If USACOE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation.

3-1 cont

For more information on the Water Quality Certification and WDR processes, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/help/business_help/permit2.shtml.

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Risk General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Risk Waiver) R5-2013-0145. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Risk General Order and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Risk Waiver and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2013-0145_res.pdf

Regulatory Compliance for Commercially Irrigated Agriculture

If the property will be used for commercial irrigated agricultural, the discharger will be required to obtain regulatory coverage under the Irrigated Lands Regulatory Program. There are two options to comply:

1. **Obtain Coverage Under a Coalition Group.** Join the local Coalition Group that supports land owners with the implementation of the Irrigated Lands Regulatory Program. The Coalition Group conducts water quality monitoring and reporting to the Central Valley Water Board on behalf of its growers. The Coalition Groups charge an annual membership fee, which varies by Coalition Group. To find the Coalition Group in your area, visit the Central Valley Water Board's website at: http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/app_approval/index.shtml; or contact water board staff at (916) 464-4611 or via email at IrrLands@waterboards.ca.gov.

2. **Obtain Coverage Under the General Waste Discharge Requirements for Individual Growers, General Order R5-2013-0100.** Dischargers not participating in a third-party group (Coalition) are regulated individually. Depending on the specific site conditions, growers may be required to monitor runoff from their property, install monitoring wells, and submit a notice of intent, farm plan, and other action plans regarding their actions to comply with their General Order. Yearly costs would include State administrative fees (for example, annual fees for farm sizes from 10-100 acres are currently $1,084 + $6.70/Acre); the cost to prepare annual monitoring reports; and water quality monitoring costs. To enroll as an Individual Discharger under the Irrigated Lands Regulatory Program, call the Central Valley Water Board phone line at (916) 464-4611 or e-mail board staff at IrrLands@waterboards.ca.gov.

3-1 cont

Low or Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Dewatering and Other Low Threat Discharges to Surface Waters* (Low Threat General Order) or the General Order for *Limited Threat Discharges of Treated/Untreated Groundwater from Cleanup Sites, Wastewater from Superchlorination Projects, and Other Limited Threat Wastewaters to Surface Water* (Limited Threat General Order). A complete application must be submitted to the Central Valley Water Board to obtain coverage under these General NPDES permits.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0074.pdf

For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0073.pdf

NPDES Permit

If the proposed project discharges waste that could affect the quality of the waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit.

For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/help/business_help/permit3.shtml

3-1 cont

If you have questions regarding these comments, please contact me at (916) 464-4644 or Stephanie.Tadlock@waterboards.ca.gov.

Stephanie Tadlock

Stephanie Tadlock
Environmental Scientist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

Letter 3 Response	Central Valley Regional Water Quality Control Board Stephanie Tadlock January 12, 2017

Thank you for taking the time to submit comments on the Project. Responses are provided below.

Response to Comment 3-1

The Central Valley Regional Water Quality Control Board letter is a standard comment letter listing state permits and regulations that potentially apply to the project. None of the comments address the specific contents of the Draft IS/MND. The City will ensure all applicable permits and regulations are adhered to as part of Project implementation. No further response is required.

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JAN 23 2017
CITY MANAGER'S OFFICE

Letter 4

CALIFORNIA Water Boards

State Water Resources Control Board

JAN 17 2017

Mark Morse
City of Roseville
311 Vernon Street
Roseville, CA 95678

Dear Mr. Morse:

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION (IS/MND) FOR CITY OF ROSEVILLE (CITY); PLEASANT GROVE WASTEWATER TREATMENT PLANT EXPANSION AND ENERGY RECOVERY PROJECT (PROJECT); PLACER COUNTY; STATE CLEARINGHOUSE NO. 201612040

We understand that the City is pursuing Clean Water State Revolving Fund (CWSRF) financing for this Project (CWSRF No. C-06-8215-110). As a funding agency and a state agency with jurisdiction by law to preserve, enhance, and restore the quality of California's water resources, the State Water Resources Control Board (State Water Board) is providing the following information on the IS/MND to be prepared for the Project.

The State Water Board, Division of Financial Assistance, is responsible for administering the CWSRF Program. The primary purpose for the CWSRF Program is to implement the Clean Water Act and various state laws by providing financial assistance for wastewater treatment facilities necessary to prevent water pollution, recycle water, correct nonpoint source and storm drainage pollution problems, provide for estuary enhancement, and thereby protect and promote health, safety and welfare of the inhabitants of the state. The CWSRF Program provides low-interest funding equal to one-half of the most recent State General Obligation Bond Rates with a 30-year term. Applications are accepted and processed continuously. Please refer to the State Water Board's CWSRF website at:
www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/index.shtml.

4-1

FELICIA MARCUS, CHAIR | THOMAS HOWARD, EXECUTIVE DIRECTOR
1001 I Street, Sacramento, CA 95814 | Mailing Address: P.O. Box 100, Sacramento, CA 95812-0100 | www.waterboards.ca.gov

The CWSRF Program is partially funded by the United States Environmental Protection Agency (USEPA) and requires additional "California Environmental Quality Act (CEQA)-Plus" environmental documentation and review. Three (3) enclosures are included that further explain the CWSRF Program environmental review process and the additional federal requirements. For the complete environmental application package please visit: http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/srf_forms.shtml. The State Water Board is required to consult directly with agencies responsible for implementing federal environmental laws and regulations. Any environmental issues raised by federal agencies or their representatives will need to be resolved prior to State Water Board approval of a CWSRF financing commitment for the proposed Project. For further information on the CWSRF Program, please contact Mr. Ahmad Kashkoli, at (916) 341-5855.
It is important to note that prior to a CWSRF financing commitment, projects are subject to provisions of the Federal Endangered Species Act (ESA), and must obtain Section 7 clearance from the United States Department of the Interior, Fish and Wildlife Service (USFWS), and/or the United States Department of Commerce National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) for any potential effects to special-status species.

Please be advised that the State Water Board will consult with the USFWS, and/or the NMFS regarding all federal special-status species that the Project has the potential to impact if the Project is to be financed by the CWSRF Program. The City will need to identify whether the Project will involve any direct effects from construction activities, or indirect effects such as growth inducement, that may affect federally listed threatened, endangered, or candidate species that are known, or have a potential to occur in the Project site, in the surrounding areas, or in the service area, and to identify applicable conservation measures to reduce such effects.

In addition, CWSRF projects must comply with federal laws pertaining to cultural resources, specifically Section 106 of the National Historic Preservation Act (Section 106). The State Water Board has responsibility for ensuring compliance with Section 106, and must consult directly with the California State Historic Preservation Officer (SHPO). SHPO consultation is initiated when sufficient information is provided by the CWSRF applicant. If the City decides to pursue CWSRF financing, please retain a consultant that meets the Secretary of the Interior's Professional Qualifications Standards (http://www.nps.gov/history/local-law/arch_stnds_9.htm) to prepare a Section 106 compliance report.

Note that the City will need to identify the Area of Potential Effects (APE), including construction and staging areas, and the depth of any excavation. The APE is three (3)-dimensional and includes all areas that may be affected by the Project. The APE includes the surface area and extends below ground to the depth of any Project excavations. The records search request should extend to a ½-mile beyond project APE. The appropriate area varies for different projects but should be drawn large enough to provide information on what types of sites may exist in the vicinity.

4-1 cont

Other federal environmental requirements pertinent to the Project under the CWSRF Program include the following (for a complete list of all federal requirements please visit: http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/docs/forms/application_environmental_package.pdf):

A. An alternative analysis discussing environmental impacts of the project in either the CEQA document (Negative Declaration, MND or Environmental Impact Report (EIR)) or in a separate report.
B. A public hearing or meeting must be held for the adoption/certification of all projects except for those with little or no environmental impacts.
C. Compliance with the Federal Clean Air Act: (a) Provide air quality studies that may have been done for the Project; and (b) if the Project is in a nonattainment area or attainment area subject to a maintenance plan; (i) provide a summary of the estimated emissions (in tons per year) that are expected from both the construction and operation of the Project for each federal criteria pollutant in a nonattainment or maintenance area, and indicate if the nonattainment designation is moderate, serious, or severe (if applicable); (ii) if emissions are above the federal de minimis levels, but the Project is sized to meet only the needs of current population projections that are used in the approved State Implementation Plan for air quality, quantitatively indicate how the proposed capacity increase was calculated using population projections.
D. Compliance with the Coastal Zone Management Act: Identify whether the Project is within a coastal zone and the status of any coordination with the California Coastal Commission.
E. Protection of Wetlands: Identify any portion of the proposed Project area that should be evaluated for wetlands or United States waters delineation by the United States Army Corps of Engineers (USACE), or requires a permit from the USACE, and identify the status of coordination with the USACE.
F. Compliance with the Farmland Protection Policy Act: Identify whether the Project will result in the conversion of farmland. State the status of farmland (Prime, Unique, or Local and Statewide Importance) in the Project area and determine if this area is under a Williamson Act Contract.
G. Compliance with the Migratory Bird Treaty Act: List any birds protected under this act that may be impacted by the Project and identify conservation measures to minimize impacts.
H. Compliance with the Flood Plain Management Act: Identify whether or not the Project is in a Flood Management Zone and include a copy of the Federal Emergency Management Agency flood zone maps for the area.
I. Compliance with the Wild and Scenic Rivers Act: Identify whether or not any Wild and Scenic Rivers would be potentially impacted by the Project and include conservation measures to minimize such impacts.

4-2

Following are specific comments on the City's draft IS/MND:

1. Page 1-2 mentions that the IS/MND is tiered from the City's EIR on the Roseville Regional Wastewater Treatment Service Area Master Plan (Master Plan EIR). Please provide the State Water Board with the draft and final version of the Master Plan EIR, the comments and responses received for the Master Plan EIR, the resolution certifying the Master Plan EIR, and the Notice of Determinations (NOD) filed with the Placer County Clerk and State Clearing House.

4-3

2. Page 2-9 states "Four rectangular primary clarifiers, 15 feet wide by 150 feet long, would be located in the southwest corner of the existing Effluent Storage Basin No. 3, north of the existing administration building." Will each individual clarifier be 15 feet wide by 150 feet long, or is to total area required for the four (4) clarifiers 15 feet wide by 150 feet long?

4-4

3. In the Primary Clarifiers section on page 2-9, please provide the projected measurements for the odor control facilities and electrical building. 4-5
4. Does the City know where staging areas for construction for the Expansion Project will be placed? If so, please add this to the construction section on page 2-12. 4-6
5. Exhibit 2-5 displays an access road associated with the Energy Recovery Project (Section 2.6.2). However, Section 2.6.2 does not discuss this access road. Will this be a brand new road? Will it be permanent or will it be abandoned after construction? How long and how wide will the road be? 4-7
6. Page 2-16 mentions that a 4-inch CNG pipeline will be constructed from the Pacific Gas & Electric Main, to the proposed Energy Recovery Project facilities. How will the pipeline be installed (i.e. trenching, horizontal directional drilling, etc.)? How long will the pipeline be? 4-8
7. Please also address staging areas in the Construction section on page 2-16 for the Energy Recovery Project. 4-9
8. Does table 3.4-1 on page 3-27 list every species identified by the California Natural Diversity Database and the California Native Plant Society Inventory of Rare and Endangers Plants? Was the United States Fish and Wildlife Service Information for Planning and Conservation consulted? Please note that the State Water Board requires that all federally listed species identified by these lists be analyzed for the potential to occur within or adjacent to the Project area. 4-10
9. Pages 3-29 and 3-31 mention that the site contains one potential seasonal wetland that is likely a remnant of a larger wetland. The following questions are related to this potential wetland:

    - Where is this wetland located on the Project site?
    - Will be directly or indirectly impacted by construction and/or operation activities?
    - Has the City confirmed that the *West Roseville Specific Plan* 404 Permit (SPK 2002-00666), reissued on December 3, 2015, covers the current Project activities with the United State Army Corps of Engineers? 4-11

10. Page 3-29 also mentions that all Expansion Project facilities would occur within the "fence-line" boundary of the existing wastewater treatment plant (WWTP), which is considered developed and disturbed and does not provide habitat for sensitive or special status species. Could sensitive or special status species occur adjacent to the Project area and be directly or indirectly impacted by construction and/or operation activities? 4-12
11. Page 3-30 states that there are no trees located in the Southern Expansion area, where the Energy Recovery Project will occur. Additionally, the rows of redwoods along the property border to the south and west are too small to provide suitable nesting habitat for raptors and the nearest oak tree providing suitable habitat is 0.25 miles away. Therefore, no nesting habitat occurs within the Project site. The following questions are related to this statement:

    - Could the nearest nesting habitat (above mentioned oak tree) be indirectly impacted by Project activities?
    - Is foraging habitat present within or adjacent to the Project site?
    - If so, could that habitat be directly or indirectly impacted by construction and/or operation activities? 4-13

12. Page 3-39 states that one prehistoric site is located within the 0.5-mile search radius. How far away is this resource from the APE? 4-14

13. Page 3-59 states that a high school is proposed within 0.25-mile of the Project site, but none of the buildings associated with the Project will be located within the high school's footprint. Could the project indirectly affect this school by emitting hazardous emissions or through the handling of hazardous or acutely hazardous materials, substance, or waste? 4-15
14. Page 3-67 states that the project would not have an impact on groundwater recharge on the area. Will the Project introduce new impervious surfaces that could potential impact groundwater recharge? 4-16
15. Page 3-95 states the Chairman of the United Auburn Indian Community responded to the Assembly Bill (AB) 52 request letter on August 24, 2016. The Chairman requested to be allowed to participate in the pedestrian survey. However, since the survey was conducted on August 2, 2016, the City was not able to comply with this request. While the request was received after the close of the 30-day response period for AB 52, is the City doing anything to address this request? 4-17
16. In Appendix A, please expand on the potential environmental impacts for each alternative identified. For the CWSRF Program, the Alternative analysis should include: 4-18

    - A comparative analysis among the alternatives that includes discussions of beneficial and adverse environmental impacts on the existing environment, future environment, and individual sensitive environmental issues;
    - The analysis of direct, indirect, and cumulative impacts on sensitive environmental resources, if applicable;
    - Appropriate mitigation measures not already included in the proposed action or alternatives, if appropriate, to mitigate adverse impacts;
    - And potential reasonable foreseeable future environmental impacts, if applicable.

17. The last sentence of the Circular Clarifier Alternative section on page A-1 states "Environmental impacts, including ground disturbance, water quality, air quality and greenhouse gas emissions, would be the same as with circular clarifiers." Since this section is supposed to be discussing the circular clarifier alternative, this sentence does not make sense. Please clarify what the alternative circular clarifiers is being compared too. 4-19
18. Appendix A needs to identify the chosen alternative for the project. It must also include a through discussion of the reasoning for selecting this alternative. 4-20

Please provide us with the following documents applicable to the proposed Project following the City's CEQA process: (1) one copy of the draft and final IS/MND, (2) the resolution adopting the IS/MND and making CEQA findings, (3) all comments received during the review period and the City's response to those comments, (4) the adopted Mitigation Monitoring and Reporting Program (MMRP), and (5) the NOD filed with the Placer County Clerk and the Governor's Office of Planning and Research, State Clearinghouse. In addition, we would appreciate notices of any hearings or meetings held regarding environmental review of any projects to be funded by the State Water Board. 4-21

Thank you for the opportunity to review the City's draft IS/MND. If you have any questions or concerns, please feel free to contact me at (916)341-5686, or by email at Amanda.Dwyer@waterboards.ca.gov, or contact Ahmad Kashkoli at (916) 341-5855, or by email at Ahmad.Kashkoli@waterboards.ca.gov. 4-21 cont

Sincerely,

Amanda Dwyer

Amanda Dwyer
Environmental Scientist

Enclosures (3):

1. Clean Water State Revolving Fund Environmental Review Requirements
2. Quick Reference Guide to CEQA Requirements for State Revolving Fund Loans
3. Basic Criteria for Cultural Resources Reports

cc: State Clearinghouse
(Re: SCH# 2016122040)
P.O. Box 3044
Sacramento, CA 95812-3044

CLEAN WATER STATE REVOLVING FUND

Basic Criteria for Cultural Resources Report Preparation

State Water Resources Control Board
Division of Financial Assistance

For Section 106 Consultation with the State Historic Preservation Officer (SHPO) under the National Historic Preservation Act

CULTURAL RESOURCES REPORT

The Cultural Resources Report must be prepared by a qualified researcher that meets the Secretary of the Interior's Professional Qualifications Standards. Please see the Professional Qualifications Standards at the following website at: *http://www.cr.nps.gov/local-law/arch_stnds_9.htm*

The Cultural Resources Report should include one of the four "findings" listed in Section 106. These include:

"No historic properties affected"
(no properties are within the area of potential effect (APE; including below the ground).

"No effect to historic properties"
(properties may be near the APE, but the project will not have any adverse effects).

"No adverse effect to historic properties"
(the project may affect "historic properties", but the effects will not be adverse).

"Adverse effect to historic properties"
Note: Consultation with the SHPO will be required if a "no adverse effect to historic properties" or an "adverse effect to historic properties" determination is made, to develop and evaluate alternatives or modifications to the proposed project that could avoid, minimize or mitigate adverse effects on "historic properties."

RECORDS SEARCH

- A records search (less than one year old) extending to a half-mile beyond the project APE from a geographically appropriate Information Center is required. The records search should include maps that show all recorded sites and surveys in relation to the APE for the proposed project, and copies of the confidential site records included as an appendix to the Cultural Resources Report.
- The APE is three-dimensional (depth, length and width) and all areas (e.g., new construction, easements, staging areas, and access roads) directly affected by the proposed project.

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NATIVE AMERICAN and INTERESTED PARTY CONSULTATION

- Native American and interested party consultation should be initiated at the planning phase of the proposed project to gather information to assist with the preparation of an adequate Cultural Resources Report.
- The Native American Heritage Commission (NAHC) must be contacted to obtain documentation of a search of the Sacred Lands Files for or near the project APE.
- All local Native American tribal organizations or individuals identified by the NAHC must be contacted by certified mail, and the letter should include a map and a description of the proposed project.
- Follow-up contact should be made by telephone and a phone log maintained to document the contacts and responses.
- Letters of inquiry seeking historical information on the project area and local vicinity should be sent to local historical societies, preservation organizations, or individual members of the public with a demonstrated interest in the proposed project.

Copies of all documents mentioned above (project description, map, phone log and letters sent to the NAHC and Native American tribal organizations or individuals and interested parties) must be included in the Cultural Resources Report.

Contact information: For more information related to the CWSRF Program Cultural Resources and Requirments, please contact Mr. Ahmad Kashkoli at 916-341-5855 or Ahmad.Kashkoli@waterboards.ca.gov

PRECAUTIONS

A finding of ***"no known resources"*** without supporting evidence is unacceptable. The Cultural Resources Report must identify resources within the APE or demonstrate with sufficient evidence that none are present.

"The area is sensitive for buried archaeological resources," followed by a statement that ***"monitoring is recommended."*** Monitoring is not an acceptable option without good-faith effort to demonstrate that no known resource is present.

If ***"the area is already disturbed by previous construction"*** documentation is still required to demonstrate that the proposed project will not affect "historic properties." An existing road can be protecting a buried archaeological deposit or may itself be a "historic property." Additionally, previous construction may have impacted an archaeological site that has not been previously documented.

SHPO CONSULTATION LETTER

Submit a draft consultation letter prepared by the qualified researcher with the Cultural Resources Report to the State Water Resources Control Board. A draft consultation letter template is available for download on the State Water Board webpage at: *http://www.waterboards.ca.gov/water_issues/programs/grants_loans/cwsrf_requirements.shtml*

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REVISED JAN 2014

CLEAN WATER STATE REVOLVING FUND

Environmental Review Requirements

State Water Resources Control Board
Division of Financial Assistance

REVISED: FEB. 2014

ADDITIONAL INFORMATION

If your project has the potential to affect biological resources or historic properties, the consultation process can be lengthy. Please contact the State Water Board staff early in your planning process to discuss what additional information may be needed for your specific project.

Please contact your State Water Board Project Manager or Mr. Ahmad Kashkoli at (916) 341-5855 or *Ahmad.Kashkoli@waterboards.ca.gov* for more information related to the CWSRF Program environmental review process and requirements.

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STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

www.waterboards.ca.gov

National Historic Preservation Act (NHPA)

Section 106 of the NHPA requires an analysis of the effects on "historic properties." The Section 106 process is designed to accommodate historic preservation concerns for federal actions with the potential to affect historic properties. Early consultation with appropriate government agencies, Indian tribes, and members of the public, will ensure that their views and concerns are addressed during the planning phase.

Historic properties (i.e., buildings, structures, objects, and archaeological sites 50 years or older) are properties that are included in the National Register of Historic Places or meet the criteria for the National Register.

Required Documents:

✓ A draft State Historic Preservation Officer consultation request letter; and

✓ A cultural resources report on historic properties conducted according to the Secretary of the Interior's Standards, including:

- A clearly defined Area of Potential Effect (APE), specifying the length, width, and depth of excavation, with a map clearly illustrating the project APE;
- A records search, less than one year old, extending to a half-mile beyond the project APE;
- Written description of field methods;
- Identification and evaluation of historic properties within the project's APE; and
- Documentation of consultation with the Native American Heritage Commission and local Native American tribes.

ENVIRONMENTAL REVIEW REQUIREMENTS

The Clean Water State Revolving Fund (CWSRF) Program is partially funded by the United States Environmental Protection Agency (EPA), and is subject to federal environmental regulations as well as the California Environmental Quality Act (CEQA). All applicants seeking CWSRF financing must comply with both CEQA and the federal cross-cutting regulations. The "**Environmental Package**" provides the forms and instructions needed to complete the environmental review requirements for CWSRF financing. The forms and instructions are available at: *http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/srf_forms.shtml.*

Lead Agency/Applicant

The applicant will generally act as the "Lead Agency" for environmental review. It will prepare, circulate, and consider the environmental documents prior to approving the project. It also provides the State Water Board with copies of the CEQA documents, and a completed "**Environmental Evaluation Form for Environmental Review and Federal Coordination**" *(http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/docs/forms/application_environmental_package.pdf)* with supporting documents as part of the "**Environmental Package.**"

Responsible Agency/State Water Board

The State Water Board acts on behalf of EPA to review and consider the environmental documents before approving financing. The State Water Board may require additional studies or documentation to make its own CEQA findings, as well as circulate CEQA documents and other environmental reports to relevant federal agencies for consultation before making a determination about the project financing.

The Applicant must address all relevant federal agencies' comments before project financing is approved.

FEDERAL CROSS-CUTTING REGULATIONS

The CWSRF Program requires consultation with relevant federal agencies on the following federal environmental regulations, if applicable to the project:

- Clean Air Act
- Coastal Barriers Resources Act
- Coastal Zone Management Act
- Endangered Species Act
- Environmental Justice
- Farmland Protection Policy Act
- Floodplain Management
- Magnuson-Stevens Fishery Conservation and Management Act
- Migratory Bird Treaty Act
- National Historic Preservation Act
- Protection of Wetlands
- Safe Drinking Water Act, Sole Source Aquifer Protection
- Wild and Scenic Rivers Act

The following is a brief overview of requirements for some of the key regulations.

Clean Air Act (CAA)

The CAA general conformity analysis only applies to projects in areas not meeting the National Ambient Air Quality Standards or subject to a maintenance plan.

If project emissions are below the federal "de minimis" levels then:

- A general conformity analysis is not required.

If project emissions are above the federal "de minimis" levels then:

- A general conformity determination for the project must be made. A general conformity determination can be made if facilities are sized to meet the needs of current population projections used in an approved State Implementation Plan for air quality.
- Using population projections, applicants must explain how the proposed capacity increase was calculated.

An air quality modeling analysis is necessary of all projects for the following criteria pollutants, regardless of attainment status:

- Carbon monoxide
- Lead
- Oxides of nitrogen
- Ozone
- Particulate matter (PM2.5 and PM10)
- Sulfur dioxide

Endangered Species Act (ESA)

The ESA requires an analysis of the effects on federally listed species. The State Water Board will determine the project's potential effects on federally listed species, and will initiate informal/formal consultation with the United States Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service, as necessary under Section 7 of the ESA.

Required Documents:

- ✓ A species list, less than one year old, from the USFWS and the California Department of Fish and Wildlife's Natural Diversity Database;
- ✓ A biological survey conducted during the appropriate time of year;
- ✓ Maps or documents (biological reports or biological assessments, if necessary); and
- ✓ An assessment of the direct or indirect impacts to any federally listed species and/or critical habitat. If no effects are expected, explain why and provide the supporting evidence.

CLEAN WATER STATE REVOLVING FUND

California Environmental Quality Act Requirements

State Water Resources Control Board
Division of Financial Assistance

The State Water Resources Control Board (State Water Board), Division of Financial Assistance, administers the Clean Water State Revolving Fund (CWSRF) Program. The CWSRF Program is partially funded by grants from the United States Environmental Protection Agency. All applicants seeking CWSRF financing must comply with the California Environmental Quality Act (CEQA), and provide sufficient information so that the State Water Board can document compliance with federal environmental laws. The "Environmental Package" provides the forms and instructions needed to complete the environmental review requirements for CWSRF Program financing. It is available at: ***http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/srf_forms.shtml***

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LEAD AGENCY

The applicant is usually the "Lead Agency" and must prepare and circulate an environmental document before approving a project. Only a public agency, such as a local, regional or state government, may be the "Lead Agency" under CEQA. If a project will be completed by a non-governmental organization, "Lead Agency" responsibility goes to the first public agency providing discretionary approval for the project.

RESPONSIBLE AGENCY

The State Water Board is generally a "Responsible Agency" under CEQA. As a "Responsible Agency," the State Water Board must make findings based on information provided by the "Lead Agency" before financing a project.

ENVIRONMENTAL REVIEW

The State Water Board's environmental review of the project's compliance with both CEQA and federal cross-cutting regulations must be completed before a project can be financed by the CWSRF Program.

DOCUMENT REVIEW

Applicants are encouraged to consult with State Water Board staff early during preparation of CEQA document if considering CWSRF financing. Applicants shall also send their environmental documents to the State Water Board, Environmental Review Unit during the CEQA public review period. This way, any environmental concerns can be addressed early in the process.

REQUIRED DOCUMENTS

The Environmental Review Unit requires the documents listed below to make findings and complete its environmental review. Once the State Water Board receives all the required documents and makes its own findings, the environmental review for the project will be complete.

- ✓ Draft and Final Environmental Documents: Environmental Impact Report, Negative Declaration, and Mitigated Negative Declaration as appropriate to the project
- ✓ Resolution adopting/certifying the environmental document, making CEQA findings, and approving the project
- ✓ All comments received during the public review period and the "Lead Agency's" responses to those comments
- ✓ Adopted Mitigation Monitoring and Reporting Plan, if applicable
- ✓ Date-stamped copy of the Notice of Determination or Notice of Exemption filed with the County Clerk(s) and the Governor's Office of Planning and Research
- ✓ CWSRF Evaluation Form for Environmental Review and Federal Coordination with supporting documents

Contact Information: For more information related to the CWSRF Program environmental review process and requirements, please contact your State Water Board Project Manager or Mr. Ahmad Kashkoli at 916-341-5855 or Ahmad.Kashkoli@waterboards.ca.gov

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REVISED FEB 2014

Letter 4 Response	State Water Resources Control Board Amanda Dwyer January 23, 2017

Thank you for taking the time to submit comments on the Project. Responses are provided below.

Response to Comment 4-1

This comment describes the CWSRF Program and requirements. Chapter 4 of the Draft IS/MND addresses compliance and potential impacts of the proposed Project related to federal regulations. The City will ensure all applicable permits and regulations are adhered to as part of Project implementation. A map of the Area of Potential Effects, which encompasses staging areas, for the Project has been provided to the State Water Resources Control Board (SWRCB).

Response to Comment 4-2

This comment lists the federal regulations that are applicable to the Project under the Clean Water State Revolving Fund (CWSRF) Program and notes the requirement to hold a public hearing for project adoption. An alternatives analysis for the Project is provided in Appendix A to the Draft IS/MND; because the document is an MND, this analysis is not required under CEQA. As described in Chapter 1 of the Draft IS/MND, the Project and IS/MND are tentatively scheduled for consideration by the Roseville Public Utilities Commission on February 28, 2017 and by the Roseville City Council on April 5, 2017. The Roseville City Council meeting will serve as the public hearing for adoption of the Project. In addition, the Public Utilities Commission meeting is also open to the public. Chapter 4 of the Draft IS/MND addresses all of the federal regulations listed in Comment 4-2 as they relate to the proposed Project.

Response to Comment 4-3

This comment requests copies of the Draft and Final Environmental Impact Reports on the Roseville Regional Wastewater Treatment Service Area Master Plan, the comments and responses received for the Master Plan EIR, the resolution certifying the Master Plan EIR, and the Notice of Determinations filed with the Placer County Clerk and State Clearing House. These documents were tiered from in preparing the MND. The City will ensure copies of these documents are provided to CWSRF staff as requested.

Response to Comment 4-4

The comment asks for clarification on the dimensions of the primary clarifiers. The primary clarifier structure, including all four clarifiers, would be 200 feet by 112 feet.

Response to Comment 4-5

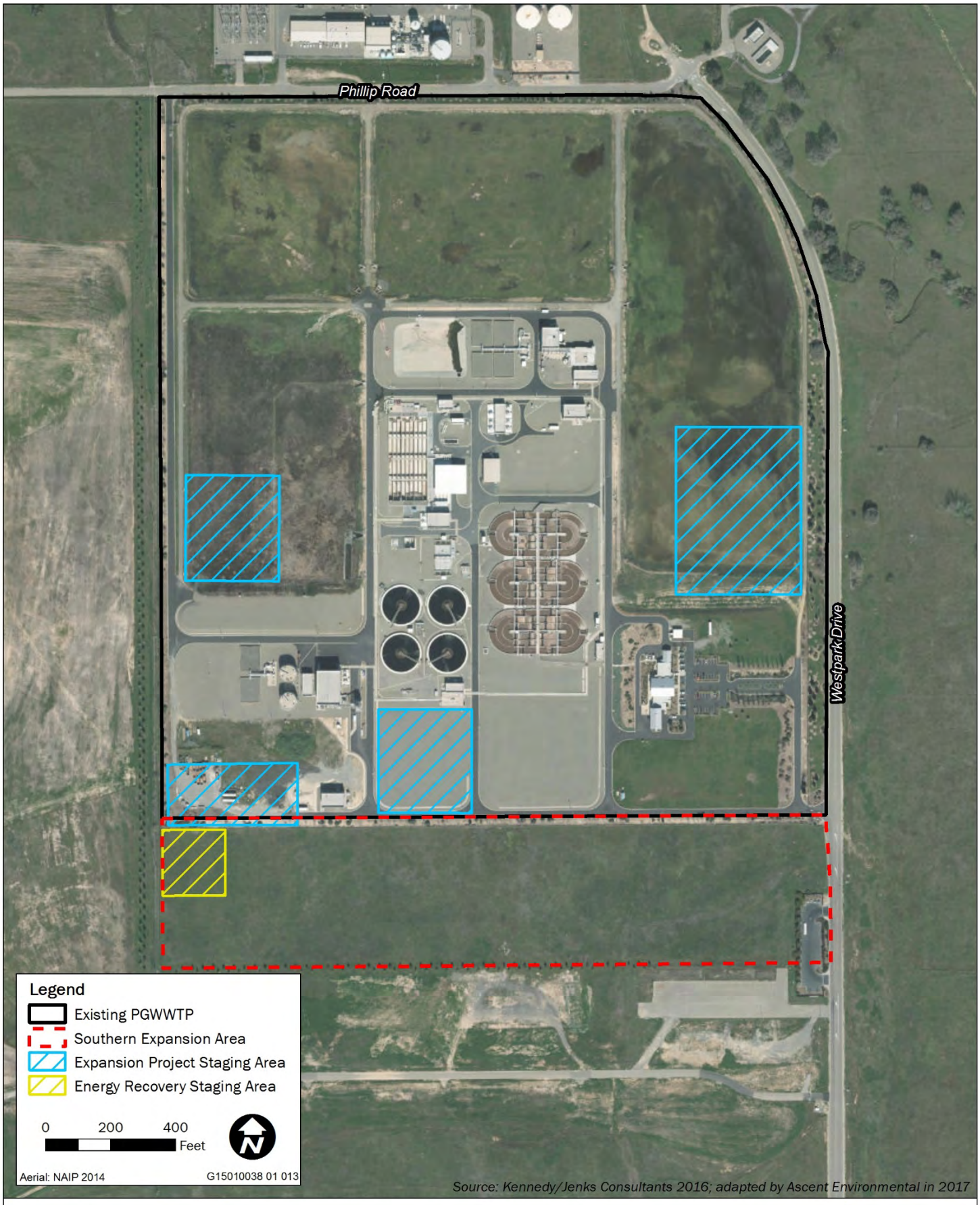
The comment requests dimensions for the odor control facilities and electrical building for the primary clarifier building. The odor control facilities would be approximately 103 feet by 88 feet and the electrical building would be 40 feet by 20 feet.

Response to Comment 4-6

The comment requests the location of the staging areas for the Expansion Project. The location of the staging areas for the Project are shown in Exhibit 2-1 below. Chapter 2 of the Draft IS/MND has been revised to describe the locations of the staging areas. See Chapter 3, “Revisions to the Draft IS/MND,” of this document for the revised text. The proposed staging areas were considered in the analysis of the Draft IS/MND.

Response to Comment 4-7

The comment asks for additional detail regarding the access road shown on Exhibit 2-5 in Chapter 2 of the Draft IS/MND. As discussed on page 2-16 of the Draft IS/MND, the existing access road along the western boundary of the PGWWTP would be extended south and provide access to the fueling station. Therefore, the access road shown on Exhibit 2-5 would be a new extension of an existing access road. This extension would become a permanent extension and access point for the existing road. The access road would be approximately 500 feet in length and 24 feet wide. Potential impacts associated with extension of the existing access road were considered in the Draft IS/MND.



Source: Kennedy/Jenks Consultants 2016; adapted by Ascent Environmental in 2017

Exhibit 2-1 **Staging Areas**

Response to Comment 4-8

The comment asks how the compressed natural gas (CNG) pipeline will be installed and requests the length of the pipeline. The pipeline would be installed with trenching. The 4-inch CNG pipeline would be approximately 1,700 feet in length, extending from the PG&E Main into a tee that splits and decreases in size to 3-inch pipelines to the Expansion and Energy Recovery Projects. The tee is located just south of the PGWWTP fence-line and west of Electrical Building 1 back up fuel tank. From the tee, each 3-inch pipeline extends approximately 300 feet in each direction to point of connection. Potential impacts associated with the CNG pipeline were considered in the Draft IS/MND.

Response to Comment 4-9

The comment requests the location of the staging areas for the Energy Recovery Project. The location of the staging areas for the Project are shown in Exhibit 2-1 above. The staging area for the Energy Recovery Project would be contained entirely within the western portion of the Energy Recovery Project Facilities footprint. Chapter 2 of the Draft IS/MND has been revised to describe the locations of the staging areas. See Chapter 3, "Revisions to the Draft IS/MND," of this document for the revised text. The proposed staging area would be entirely within the footprint of the Energy Recovery Project and was considered in the analysis of the Draft IS/MND.

Response to Comment 4-10

This comment asks if Table 3.4-1 in the Draft IS/MND includes a comprehensive list of species from California Native Plant Society (CNPS) and California Natural Diversity Database (CNDDB) record searches. The comment also requests inclusion of species included in the USFWS Information for Planning and Conservation (IPAC) database. Table 3.4-1 reflects all special-status species identified through the CNPS and CNDDB record searches completed for the project. Table 3.4-1 and associated text has been updated to include species in the USFWS IPAC database. These revisions are included in Chapter 3, "Revisions to the Draft IS/MND," of this document, and do not change the impact conclusions presented in the Draft IS/MND.

Response to Comment 4-11

The comment requests additional details related to the small seasonal wetland observed on-site. The potential seasonal wetland observed on-site was located near the northwest portion of the Southern Expansion Area and would be directly affected by construction of the Energy Recovery Project. However, as discussed on page 3-29 of the Draft IS/MND, development and fill of wetlands and waters of the United States within the Southern Expansion Area, is covered under the Section 404 CWA individual permit for the *West Roseville Specific Plan*. The Section 404 individual permit (SPK-2002-00666) was issued for the *West Roseville Specific Plan* on October 21, 2004. An extension of this permit was issued on December 30, 2015, to allow additional time to complete the work covered under the permit. Impacts to jurisdictional waters has been mitigated through on-site mitigation within the *West Roseville Specific Plan* area and purchase of mitigation credits. Therefore, fill of any wetlands within the Southern Expansion Area has previously been permitted under Section 404 of the CWA and these impacts have been mitigated.

Response to Comment 4-12

The comment asks if sensitive species in the areas surrounding the Project site could be affected by the Project. The Project site is immediately adjacent to non-native grassland. Approximately 800 to 1,500 feet beyond the grassland, the Project site is surrounded by residential development on the eastern, southern, and western sides. The only special-status species with potential to in the grassland habitat adjacent to the Project site are burrowing owl, and foraging Swainson's hawk and white-tailed kite. Construction of the Project would require the use of heavy-duty off-road equipment such as dozers, graders, excavators, concrete trucks and pumps, compressors, and various trucks, which would temporarily increase noise and disturbance levels. No pile driving or blasting would take place. Some construction-related ground vibration, associated with impact equipment such as jackhammers and the operation of some heavy-duty construction equipment, would be generated during construction of new facilities. Operation of the Expansion Project and the Energy Recovery Project would not result in any new long-term operational sources of ground vibration or noise. The temporary increase in noise and vibration due to Project construction is not expected to result in

substantial disturbance to burrowing owl or foraging raptors because there is existing noise and disturbance from the existing WWTP, residential areas, and roadways.

Response to Comment 4-13

The comment asks if Swainson's hawk foraging habitat would be affected by the Project and whether the nearest nesting habitat would be indirectly affected. As discussed on page 3-30 of the Draft IS/MND, the loss of approximately 2.5 acres of grassland would not substantially reduce the amount of foraging habitat for Swainson's hawk and white-tailed kite in the Project vicinity. In addition, the Southern Expansion Area is within the planning area for the *West Roseville Specific Plan* and all wetland and grassland impacts, including loss of Swainson's hawk and white-tailed kite foraging habitat, have been evaluated and mitigated for in the EIR for the *West Roseville Specific Plan* (City of Roseville 2004). The nesting habitat located 0.25-mile from the Project site would not be indirectly affected by the Project because noise and vibration diminishes with distances. The noise and vibration from Project construction is not expected to be substantially greater than existing conditions at a distance of 0.25-mile and is not likely to result in disturbance to nesting Swainson's hawk or white-tailed kite.

Response to Comment 4-14

The comment requests the distance of the nearest prehistoric site to the Area of Potential Effect. The nearest prehistoric site is approximately 0.4-mile from the Area of Potential Effect. The Project would not affect any prehistoric resources.

Response to Comment 4-15

The comment asks if the high school proposed within 0.25-mile could be indirectly affected by hazards associated with the Project. The text on page 3-59 of the Draft IS/MND has been revised to clarify that none of the proposed high school buildings would be within 0.25-mile of the Project site. (See Chapter 3, "Revisions to the Draft IS/MND," of this document for revised text.) In addition, as discussed on page 3-59 of the Draft IS/MND, the SPCC and EAP are currently in place to reduce the risk to adjacent properties associated with existing operations and this would also address the Project. These emergency plans and compliance with Federal, State, and local regulations relating to hazardous materials would ensure that no schools are indirectly affected by potential hazards from the Project.

Response to Comment 4-16

The comment asks if new impervious surfaces would impact groundwater recharge. As discussed on page 3-65 of the Draft IS/MND, the Project site is located on the approximately 350,000-acre North American River subbasin, which is a subbasin of the broader Sacramento Groundwater Basin. A maximum of 8.6 acres would be disturbed for construction of the Project, and although the exact acreage of new impervious surfaces is not known, not all of the disturbed area would be new impervious surfaces. Therefore, the amount of new impervious surfaces would be very small in comparison to the size of the groundwater basin and would not interfere substantially with groundwater recharge within the basin. In addition, the Project would not affect Pleasant Grove Creek or any other waterways that contribute to groundwater recharge in the Project area.

Response to Comment 4-17

The comment inquires about the City's actions to coordinate with the United Auburn Indian Community, including details pertaining to AB 52 compliance. The City has continued to coordinate with United Auburn Indian Community through the CEQA process including providing copies of the Cultural Resources Inventory prepared for the Project and notification of the availability of the Public Draft IS/MND for review and comment. No additional comments or requests related to the Project have been received from the UAIC to date.

Response to Comment 4-18

The comment requests additional detail on the alternatives discussion provided in Appendix A. Because the alternatives analysis in Appendix A to the Draft IS/MND was provided to meet the CEQA-Plus requirements

related to CWSRF loans and per U.S. Environmental Protection Agency (EPA) guidance for environmental information documents, and is not required under CEQA, additional alternative analysis will be provided as part of the CWSRF environmental package provided to SWRCB and is not addressed herein.

Response to Comment 4-19

The comment requests clarification on the alternatives analysis related to circular clarifiers. The text on page A-1 has been revised to clarify that the environmental impacts of the circular clarifiers would be the same as with rectangular clarifiers, which are proposed under the Expansion Project and evaluated throughout the Draft IS/MND. Text revisions are included in Chapter 3, "Revisions to the Draft IS/MND," of this document.

Response to Comment 4-20

The comment states that Appendix A needs to identify the alternative that was chosen and a discussion of the reasons for choosing the selected alternative. Because the alternatives analysis in Appendix A to the Draft IS/MND was provided to meet the CEQA-Plus requirements related to CWSRF loans and per EPA guidance for environmental information documents, and is not required under CEQA, additional alternative analysis will be provided as part of the CWSRF environmental package provided to SWRCB and is not addressed herein.

Response to Comment 4-21

The comment requests that the following documents be provided to the SWRCB: 1 copy of the draft and final IS/MND, the resolution adopting the IS/MND and making CEQA findings, comments received during the review period and the City's response to those comments, the adopted Mitigation Monitoring and Reporting Program, and the NOD filed with the Placer County Clerk and the Governor's Office of Planning and Research, State Clearinghouse, and any hearing notices for the Projects. The City will ensure these documents are provided to the SWRCB as requested.

Letter 5

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit

Edmund G. Brown Jr.
Governor

Ken Alex
Director

RECEIVED BY
JAN 23 2017
CITY MANAGER'S OFFICE

January 18, 2017

Mark Morse
City of Roseville
311 Vernon Street
Roseville, CA 95678

Subject: PGWWTP Expansion and Energy Recovery Project
SCH#: 2016122040

Dear Mark Morse:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on January 17, 2017, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

5-1

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Enclosures
cc: Resources Agency

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2016122040
Project Title PGWWTP Expansion and Energy Recovery Project
Lead Agency Roseville, City of

Type MND Mitigated Negative Declaration

Description The existing PGWWTP was designed to treat 12 million gallons per day; however, due to higher than anticipated organic loading, the PGWWTP's effective treatment capacity is approximately 9.5 mgd. The expansion project would expand and increase treatment capacity of the existing PGWWTP to its original 12 mgd design capacity. The city is also considering the related but separate construction of new energy recover facilities that would beneficially utilize the digester gas produced by anaerobic digestion that is included in the expansion project. These projects combined represents the proposed project. The expansion project can proceed without the Energy Recovery project.

Lead Agency Contact

Name Mark Morse
Agency City of Roseville
Phone (916) 774-5499 **Fax**
email
Address 311 Vernon Street
City Roseville **State** CA **Zip** 95678

Project Location

County Placer
City Roseville
Region
Lat / Long
Cross Streets 5150 Westpark Dr, Roseville
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways
Airports
Railways
Waterways Pleasant Grove Creek
Schools Chilton MS, Junction
Land Use Public/quasi public

Project Issues Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Coastal Zone; Cumulative Effects; Drainage/Absorption; Flood Plain/Flooding; Forest Land/Fire Hazard; Growth Inducing; Landuse; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Schools/Universities; Septic System; Sewer Capacity; Social; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian

Reviewing Agencies Resources Agency; Department of Conservation; Department of Fish and Wildlife, Region 2; Department of Parks and Recreation; Department of Water Resources; Caltrans, District 3 N; State Water Resources Control Board, Division of Water Quality; Regional Water Quality Control Bd., Region 5 (Sacramento); California Energy Commission; Native American Heritage Commission

Date Received 12/19/2016 **Start of Review** 12/19/2016 **End of Review** 01/17/2017

Note: Blanks in data fields result from insufficient information provided by lead agency.

Letter 5 Response	Governor's Office of Planning and Research, State Clearinghouse and Planning Unit Scott Morgan January 23, 2017

Thank you for taking the time to submit comments on the Project. Responses are provided below.

Response to Comment 5-1

The comment states that the State Clearinghouse submitted the Draft IS/MND to selected state agencies for review, and enclosed the comments received to date. The City appreciates the acknowledgement of compliance with the State Clearinghouse requirements for Draft IS/MNDs, pursuant to CEQA. No further response is required.

COUNTY OF Pla

Letter 6

January 25, 2017

via email: mmorse@roseville.ca.us

City of Roseville
ATTN: Mark Morse
311 Vernon Street
Roseville, CA 95678

Subject: Placer County Comments on the PGWWTP Expansion and Energy Recovery Project Mitigated Negative Declaration

Dear Mr. Morse:

Placer County appreciates the opportunity to review the PGWWTP Expansion and Energy Recovery Project Mitigated Negative Declaration and to engage in the environmental review process. The County's Environmental Review Committee has reviewed the PGWWTP Expansion and Energy Recovery Project Mitigated Negative Declaration. After reviewing the MND, the County offers the following comments for your consideration:

1. This project is subject to the requirements of the West Placer Storm Water Quality Design Manual, which was developed cooperatively with Placer County and the City of Roseville to provide a consistent approach in addressing storm water management within the West Placer region.

6-1

Again, Placer County appreciates the opportunity to comment on the PGWWTP Expansion and Energy Recovery Project Mitigated Negative Declaration. Should you have any questions, please contact Crystal Jacobsen, Environmental Coordinator, at cjacobse@placer.ca.gov or 530-745-3085.

Sincerely,

CRYSTAL JACOBSEN
Principal Planner
Placer County

Planning Division • 3091 County Center Drive, #190 • Auburn, CA 95603
(530) 745-3000 office • (530) 745-3080 fax • planning@placer.ca.gov

Letter 6 Response	County of Placer Crystal Jacobsen January 25, 2017

Thank you for taking the time to submit comments on the Project. Responses are provided below.

Response to Comment 6-1

The comment states that the Project is subject to the requirements of the West Placer Storm Water Quality Design Manual. The City will ensure all applicable design regulations are adhered to as part of Project implementation. No further response is required.

3 REVISIONS TO THE DRAFT IS/MND

This chapter contains changes to the text of the Draft IS/MND to correct minor text errors. The changes are presented in the order in which they appear in the Draft IS/MND and are identified by Draft IS/MND page number. Text deletions are shown in strikeout (~~strikeout~~) and additions are shown in underline (underline). Changes to the IS/MND are not considered significant and re-circulation of the document is not required in accordance with the California Environmental Quality Act (CEQA) Guidelines, Section 15073.5(c).

CHAPTER 2, PROJECT DESCRIPTION AND BACKGROUND

The second paragraph on page 2-13 of the Draft IS/MND has been revised as follows:

> Ingress and egress for construction would be via the existing PGWWTP entrance off Westpark Drive. Construction traffic would access the site using Fiddyment Road to Hayden Parkway and then to Bob Doyle Drive, which connects to Westpark Drive. Up to four staging areas (located east of the proposed primary clarifier building, south of the proposed digester control building, east of the proposed digester control building, and north of the proposed solids thickening building) would be used for construction of the Expansion Project. All of the staging areas would be within the fence-line of the existing PGWWTP and all areas are either paved or previously disturbed.

The first paragraph on page 2-17 of the Draft IS/MND has been revised as follows:

> Construction activities would generally take place from Monday through Friday during normal daytime working hours. Ingress and egress for construction would be via the existing PGWWTP entrance off Westpark Drive. Construction traffic would access the site using Fiddyment Road to Hayden Parkway and then to Bob Doyle Drive, which connects to Westpark Drive. One staging area (located within the Energy Recovery Project footprint west of the proposed medium pressure and high pressure storage tanks) would be used for construction of the Energy Recovery Project. This staging area would be entirely within the footprint disturbed for the Energy Recovery Project.

SECTION 3.4, BIOLOGICAL RESOURCES

The last paragraph on page 3-26 and the bullets on page 3-27 of the Draft IS/MND have been revised as follows:

> ~~Prior to the field survey, i~~Information on sensitive biological resources previously recorded in the Project vicinity was collected through a search of the following databases:
>
> - CDFW California Natural Diversity Database (CNDDB) for a 3-mile radius around the project site (CDFW 2016);
> - California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants for the nine U.S. Geological Service (USGS) quadrangles (quads) that surround the project site (~~CDFW 2016,~~ CNPS 2016); and
> - United States Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) Species List (USFWS 2016).

The second paragraph on page 3-27 of the Draft IS/MND has been revised as follows:

> There are ~~six~~twenty-eight special-status wildlife species that are known to occur within a 3-mile radius of the Project site. Of the ~~six~~ twenty-eight species, ~~two~~four (vernal pool fairy shrimp

[*Branchinecta lynchi*], conservancy fairy shrimp [*Branchinecta conservation*], vernal pool tadpole shrimp [*Lepidurus packardi*], and western spadefoot [*Spea hammondii*]) were eliminated from further analysis because ~~both~~ these species are associated with vernal pool habitat, which is not present on the Project site. Four additional species (Delta smelt [*Hypomesus transpacificus*] and steelhead [*Oncorhynchus mykiss irideus*], California red-legged frog [*Rana draytonii*], and giant garter snake [*Thamnophis gigas*]) were eliminated because there is no aquatic habitat on-site suitable for these species. Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) was eliminated from further consideration because there are no elderberry shrubs on-site. In addition, 16 birds (~~tricolored blackbird (*Agelaius tricolor*~~western grebe [*Aechmophorus occidentalis*], tricolored blackbird [*Agelaius tricolor*], short-eared owl [*Asio flammeus*], oak titmouse [*Baeolophus inornatus*], snowy plover [*Charadrius alexandrines*], mountain plover [*Charadrius montanus*], peregrine falcon [*Falco peregrinus*], bald eagle [*Haliaeetus leucocephalus*], loggerhead shrike [*Lanius ludovicianus*], black rail (*Laterallus jamaicensis*), Lewis's woodpecker [*Melanerpes lewis*], long-billed curlew [*Numenius americanus*], fox sparrow [*Passerella iliaca*], yellow-billed magpie [*Pica nuttalli*], Nuttall's woodpecker [*Picoides nuttallii*], and Williamson's sapsucker [*Sphyrapicus thyroideus*]) ~~was~~were eliminated from further consideration because suitable nesting and foraging habitat for these species is not present on the Project site. The remaining three species are Swainson's hawk, white-tailed kite, and burrowing owl.

Table 3.4-1 on pages 3-27 and 3-28 of the Draft IS/MND has been revised as follows:

Table 3.4-1 Potential for Sensitive Species to Occur on the Project site

Common Name and Scientific Name	Federal Status[1]	State Status[1]	California Rare Plant Rank[1]	Potential to Occur within the Southern Expansion Area
INVERTEBRATES				
Conservancy fairy shrimp (*Branchinecta conservatio*)	Endangered	None	–	None. Vernal pool habitat is not present within the Southern Expansion Area.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	Threatened	None	–	None. Vernal pool habitat is not present within the Southern Expansion Area.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	Threatened	None	–	None. No elderberry shrubs (*Sambucus* sp.) are present within the Southern Expansion Area.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	Endangered	None	–	None. Vernal pool habitat is not present within the Southern Expansion Area.
AMPHIBIANS AND REPTILES				
California red-legged frog (*Rana draytonii*)	Threatened	SSC	–	None. Suitable riparian or pond habitat is not present within the Southern Expansion Area.
Western spadefoot (*Spea hammondii*)	None	SSC	–	None. Vernal pool habitat required for breeding, and aestivation, is not present within the Southern Expansion Area.
Giant garter snake (*Thamnophis gigas*)	Threatened	Threatened	–	None. Suitable aquatic and upland refugia habitat is not present within the Southern Expansion Area.
FISH				
Delta smelt (*Hypomesus transpacificus*)	Threatened	Threatened	–	None. Suitable habitat is not present within the Southern Expansion Area.

Table 3.4-1 Potential for Sensitive Species to Occur on the Project site

Common Name and Scientific Name	Federal Status[1]	State Status[1]	California Rare Plant Rank[1]	Potential to Occur within the Southern Expansion Area
Steelhead (*Oncorhynchus mykiss irideus*)	Threatened	None	–	None. Suitable habitat is not present within the Southern Expansion Area.
BIRDS				
Western grebe (*Aechmophorus occidentalis*)	BCC	None	–	None. No suitable aquatic habitat is present within the Southern Expansion Area.
Tricolored blackbird (*Agelaius tricolor*)	BCC~~None~~	SSC	–	None. No suitable nesting and foraging habitat within the Southern Expansion Area.
Short-eared owl (*Asio flammeus*)	BCC	SSC	–	None. Typically found in large, undisturbed areas with low vegetation. No suitable habitat within the Southern Expansion Area.
Burrowing owl (*Athene cunicularia*)	BCC~~None~~	SSC	–	Could occur. Areas of sparsely vegetated annual grassland and ground squirrel burrows were observed on the project site during the reconnaissance survey. The nearest known occurrence (#2115), presumably extant, is approximately 0.15 mile southeast of the Southern Expansion Area.
Oak titmouse (*Baeolophus inornatus*)	BCC	None	–	None. Typically found in oak woodlands. No suitable habitat within the Southern Expansion Area.
Swainson's hawk (*Buteo swainsoni*)	BCC~~None~~	Threatened	~~1B.2~~	Could forage onsite but no suitable breeding habitat is present. Suitable foraging habitat is present in the annual grassland on the project site. Suitable nesting habitat is present along Pleasant Grove Creek, approximately 0.78 mile to the north. The nearest known CNDDB occurrence is 1.57 miles east of Southern Expansion Area.
Snowy plover (*Charadrius alexandrinus*)	BCC	SSC	–	None. Typically found on mud or salt flats. No suitable habitat within the Southern Expansion Area.
Mountain plover (*Charadrius montanus*)	BCC	SSC	–	None. Uses plowed agricultural fields in winter with strong site fidelity to wintering locations. No suitable habitat within the Southern Expansion Area.
White-tailed kite (*Elanus leucurus*)	None	FP	~~1B.2~~	Could forage onsite but no suitable breeding habitat is present. Suitable foraging habitat is present in the annual grassland on the project site. The nearest known CNDDB occurrence is 2.65 miles east of the Southern Expansion Area.
Peregrine falcon (*Falco peregrinus*)	BCC	FP	–	None. Typically found near aquatic areas or where concentrations of waterfowl or other birds are located. No suitable habitat within the Southern Expansion Area.
Bald eagle (*Haliaeetus leucocephalus*)	BCC	FP	–	None. Typically found near lakes or other water bodies. No suitable habitat within the Southern Expansion Area.
Loggerhead shrike (*Lanius ludovicianus*)	BCC	SSC	–	None. Typically found in open areas with shrubs and trees. No suitable habitat within the Southern Expansion Area.
Black rail (*Laterallus jamaicensis*)	BCC	FP	–	None. Typically found in marshes, wet meadows, and flooded grassy vegetation. No suitable habitat within the Southern Expansion Area.
Lewis's woodpecker (*Melanerpes lewis*)	BCC	None	–	None. Typically found in open woodlands. No suitable habitat within the Southern Expansion Area.
Long-billed curlew (*Numenius americanus*)	BCC	None	–	None. Typically found in shortgrass and mixed-grass prairies as well as agricultural fields, which do not occur within the Southern Expansion Area.

Table 3.4-1 Potential for Sensitive Species to Occur on the Project site

Common Name and Scientific Name	Federal Status[1]	State Status[1]	California Rare Plant Rank[1]	Potential to Occur within the Southern Expansion Area
Fox sparrow (*Passerella iliaca*)	BCC	None	–	None. Typically found in scrub and coniferous woodlands, which do not occur within the Southern Expansion Area.
Yellow-billed magpie (*Pica nuttalli*)	BCC	None	–	None. Typically found in oak and other open woodlands, which do not occur within the Southern Expansion Area.
Nuttall's woodpecker (*Picoides nuttallii*)	BCC	None	–	None. Typically found in oak woodlands and riparian woodlands, which do not occur within the Southern Expansion Area.
Williamson's sapsucker (*Sphyrapicus thyroideus*)	BCC	None	–	None. Typically found in montane woodlands, which do not occur within the Southern Expansion Area.
PLANTS				
Big-scale balsamroot (*Balsamorhiza macrolepis*)	None	None	1B.2	Unlikely to occur. Suitable annual grassland habitat is present within the Southern Expansion Area; however, the elevation of the project site is approximately 200 feet below the lowest known elevation for this species. Additionally, this species is very rare in the region; there are only two CNDDB occurrences from Placer County that were recorded more than 50 years ago.
Hispid bird's-beak (*Chloropyron molle* ssp. *Hispidum*)	None	None	1B.1	Unlikely to occur. Alkaline soils are not present within the Southern Expansion Area.
Dwarf downingia (*Downingia pusilla*)	None	None	2B.2	Unlikely to occur. Vernal pool habitat is not present within the Southern Expansion Area.
Boggs Lake hedge-hyssop (*Gratiola heterosepala*)	None	Endangered	1B.2	Unlikely to occur. Vernal pool habitat is not present within the Southern Expansion Area.
Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*)	None	None	1B.1	Unlikely to occur. Requires mesic soils and is very rare; only 10 occurrences recorded in the CNDDB; only one extirpated occurrence in the 9 quads surrounding the Southern Expansion Area.
Red Bluff dwarf rush (*Juncus leiospermus* var. *leiospermus*)	None	None	1B.2	Unlikely to occur. Vernal pool and vernally mesic habitat is not present within the Southern Expansion Area.
Legenere (*Legenere limosa*)	None	None	1B.1	Unlikely to occur. Vernal pool habitat is not present within the Southern Expansion Area.
Pincushion navarretia (*Navarretia myersii* ssp. *Myersii*)	None	None	1B.1	Unlikely to occur. Vernal pool habitat is not present within the Southern Expansion Area.
Sanford's arrowhead (*Sagittaria sanfordii*)	None	None	1B.2	Unlikely to occur. Suitable aquatic habitat, such as marshes and swamps, is not present within the Southern Expansion Area.

Notes:

[1] Status definitions:

Federal:

Endangered (legally protected under ESA)

Threatened (legally protected under ESA)

BCC Bird of Conservation Concern (protected under Migratory Bird Treaty Act, but not legally protected under ESA)

State:

Endangered (legally protected under CESA)

Threatened (legally protected under CESA)

FP Fully Protected (legally protected under California Fish and Game Code)

SSC Species of Special Concern (protected under CEQA, but not legally protected under CESA)

California Rare Plant Rank (CRPR):

1B Plant species considered rare or endangered in California and elsewhere (protected under CEQA, but not legally protected under ESA or CESA)

2 Plant species considered rare or endangered in California but more common elsewhere (protected under CEQA, but not legally protected under ESA or CESA)

CRPR Extensions:

.1 Seriously endangered in California (>80% of occurrences are threatened and/or high degree and immediacy of threat)

.2 Fairly endangered in California (20 to 80% of occurrences are threatened)

.3 Not very endangered in California

Mitigation Measure 3.4-1 on pages 3-30 and 3-31 of the Draft IS/MND has been revised as follows:

Mitigation Measure 3.4-1 (Implement *West Roseville Specific Plan* EIR Mitigation Measure 4.7-6 Avoid Nesting Sites)

The *West Roseville Specific Plan* EIR includes Mitigation Measure 4.7-6 Avoid Nesting Sites. This mitigation measure addresses potential impacts to fully protected bird and raptor species. The only protected bird species that has the potential to be affected by the Energy Recovery Project is burrowing owl. Therefore, those requirements listed under Mitigation Measure 4.7-6 that are not applicable to the Project have been omitted below:

(b) Prior to the beginning of mass grading, including grading for major infrastructure improvements, during the period between February 15 and August 30, all trees and potential burrowing owl habitat within 350 feet of grading or earthmoving activity shall be surveyed for active raptor nests or burrows by a qualified biologist no more than 3~~0~~ days prior to disturbance. In addition, if there is a break in construction activity lasting longer than 2 weeks, new nesting bird surveys must be conducted prior to resuming construction activities. If active raptor nests or burrows are found, and the site is within 350 feet of potential construction activity, a fence shall be erected around the tree or burrow(s) at a distance of 350 feet, depending on the species, from the edge of the canopy to prevent construction disturbance and intrusions on the nest area. The appropriate buffer shall be determined by the City in consultation with CDFW.

(c) No construction vehicles shall be permitted within restricted areas (i.e., raptor protection zones), unless directly related to the management or protection of the legally protected species.

(d) In the event that a nest is abandoned, despite efforts to minimize disturbance, and if the nestlings are still alive, the City shall contact CDFW and, subject to CDFW approval, fund the recovery and hacking (controlled release of captive reared young) of the nestling(s).

(f) The City, in consultation with CDFW, shall conduct a pre-construction survey within the phases of the project site that are scheduled for construction activities. The survey shall be conducted by a qualified biologist to determine if burrowing owls are occupying the project site. The survey shall be conducted no more than three weeks prior to grading of the project site.

Should construction activities cause the nesting bird to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the exclusionary buffer will be increased such that activities are far enough from the nest to stop this agitated behavior. The exclusionary buffer will remain in place until the chicks have fledged or as otherwise determined by a qualified biologist.

If the above survey does not identify burrowing owls on the project site, then no further mitigation would be required. However, should burrowing owls be found on the project site, the following measures shall be required.

(g) The City shall avoid all potential burrowing owl burrows that may be disturbed by project construction during the breeding season between February 15 and August 30 (the period when the nest burrows are typically occupied by adults with eggs or young). Avoidance shall include the establishment of a 350-foot diameter non-disturbance buffer zone around any occupied burrows. The buffer zone shall be delineated by highly visible temporary construction fencing. Disturbance of any occupied burrows shall only occur outside of the breeding season (August 30 through February 15).

(h) Based on approval by CDFW, preconstruction and nonbreeding season exclusion measures may be implemented to preclude burrowing owl occupation of the project site prior to project-related disturbance (such as grading). Burrowing owls may be passively excluded from burrows in the

construction area by placing one-way doors in the burrows according to current CDFW protocol. The one-way doors must be in place for a minimum of three days. All burrows that may be occupied by burrowing owls, regardless of whether they exhibit signs of occupation, must be cleared. Burrows that have been cleared through the use of one-way doors shall then be closed or backfilled to prevent owls from entering the burrow. The one-way doors shall not be used more than two weeks before construction to ensure that owls do not recolonize the area of construction.

SECTION 3.7, GREENHOUSE GAS EMISSIONS

The third paragraph on page 3-49 of the Draft IS/MND has been revised as follows:

Energy Recovery Project
At full build-out with a normal digester gas production rate of 210 scf per minute, the Energy Recovery Project would operate a cogeneration facility that uses ~~three~~two-200 kW microturbines with a ~~fourth~~ third used for backup. The Energy Recovery Project would also allow for future expansion of a fourth microturbine. Assuming full operation 24 hours per day and 365 days per year, the microturbines would generate 3,320~~5,260~~ MWh per year, but~~and~~ require an additional parasitic load of 877 M~~k~~Wh per year for gas conditioning and compression. When combined with the additional load required by the Expansion Project (9,466 MWh per year), the Expansion Project and Energy Recovery Project together would require 7,900~~5,083~~ MWh per year of additional electricity beyond existing conditions. The microturbines would also provide residual heat for the digesters.

SECTION 3.8, HAZARDS AND HAZARDOUS MATERIALS

Item c) on page 3-59 of the Draft IS/MND has been revised as follows:

Less than significant. There are no existing schools within a 0.25-mile radius of the Project area. The nearest existing school to the Project area is Chilton Middle School, which is approximately 0.6-mile southeast of the Project site. A high school is proposed within 0.25-mile of the Project site, but none of the proposed high school buildings would be within this footprint. The SPCC and EAP are currently in place to reduce the risk to adjacent properties associated with existing operations and this would also address the Project. While the CNG fueling station would be added to the site, a number of safety features are included to conservatively regulate pressure, ensure no leakage (and detect any leakage if it were to occur), and otherwise provide a margin of safety such that there are no hazards off-site. Therefore, the impact on nearby schools would be less than significant.

SECTION 3.9, HYDROLOGY AND WATER QUALITY

The last paragraph on page 3-62 of the Draft IS/MND has been revised as follows:

Water quality in Pleasant Grove Creek has been degraded by agricultural uses, and contains elevated levels of nitrogen, phosphorus, and coliform bacteria (City of Roseville 1996b: 7-3). It is also currently a Section 303(d) listed water for dissolved oxygen, pyrethroids, mercury, and sediment ~~ammonia, specific conductance, and pH~~ (SWRCB 2012).

CHAPTER 4, COMPLIANCE WITH FEDERAL REGULATIONS

The last paragraph on page 4-4 and the first paragraph on page 4-5 of the Draft IS/MND have been revised as follows:

As discussed in Section 3.4, "Biological Resources," of this Initial Study, the Project would have no effect on listed species. The Project would not affect conservancy fairy shrimp, California red-legged frog, Delta smelt, or steelhead because there is no potential habitat for these species within the

Project area that would be directly or indirectly affected by the Project. Effects on vernal pool fairy shrimp, and vernal pool tadpole shrimp, and their critical habitat in the Project area for the Expansion Project were previously evaluated and USFWS prepared a biological opinion and exemption for incidental take (USFWS 1999, file number 1-1-99-F-0006). All conservation measures and Reasonable and Prudent Measures from the biological opinion were implemented and vernal pool creation and preservation credits were purchased in 1999 to offset the loss of species from development of the existing PGWWTP, which has already occurred. In addition, effects on vernal pool fairy shrimp, ~~and~~vernal pool tadpole shrimp and their critical habitat, valley elderberry longhorn beetle, and giant garter snake in the Southern Expansion Area (where the Energy Recovery Project would occur) were evaluated as part of the Section 7 consultation for the *West Roseville Specific Plan*. As part of this consultation, the USFWS issued a biological opinion and exempted incidental take of vernal pool fairy shrimp and vernal pool tadpole shrimp from development activities associated with the specific plan, including the Southern Expansion Area, and concurred that there would be no effect on valley elderberry longhorn beetle and giant garter snake (USFWS 2005, file number 1-1-05-F-0061). All conservation measures from the biological opinion were implemented and vernal pool creation and preservation credits were purchased in 2005 as part of the original permit and in 2015 as part of an Army Corps permit modification that extended the original permit term and approved changes to the mitigation and monitoring plan. These permits and documentation of required mitigation credit purchases is contained in Appendix C. No other listed species are expected to occur on the Project site and no other consultation with USFWS is required.

APPENDIX A, ALTERNATIVES ANALYSIS IN FULFILLMENT OF SRF REQUIREMENTS

The sixth paragraph on page A-1 of the Draft IS/MND has been revised as follows:

However, circular clarifiers were eliminated from consideration because they require more space, result in higher headloss, and would provide less redundancy and flexibility than rectangular clarifiers. Capital costs are also higher due to additional concrete and piping associated with circular clarifiers. Environmental impacts, including ground disturbance, water quality, air quality and greenhouse gas emissions, would be the same as with rectangular~~circular~~ clarifiers.

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4 MITIGATION MONITORING AND REPORTING PROGRAM

4.1 INTRODUCTION

In accordance with the California Environmental Quality Act (CEQA) Public Resources Code Section 21000 et seq.), the City of Roseville (City) prepared an Initial Study/Mitigated Negative Declaration (IS/MND) that identified adverse environmental impacts related to construction and operation of the Pleasant Grove Wastewater Treatment Plant (PGWWTP) Expansion and Energy Recovery Project (Project). The IS/MND also identifies mitigation measures that would reduce the identified impacts to a less-than-significant level, or that would eliminate these impacts all together.

CEQA Guidelines require public agencies "to adopt a reporting and monitoring program for changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment." A Mitigation Monitoring and Reporting Program (MMRP) is required for the Project because the IS/MND identifies potential significant adverse impacts related to the Project implementation, and mitigation measures have been identified to reduce those impacts. Adoption of the MMRP would occur along with approval of the Project.

4.2 PURPOSE OF MITIGATION MONITORING AND REPORTING PROGRAM

This MMRP has been prepared to ensure that all required mitigation measures are implemented and completed in a satisfactory manner before and during Project construction and operation. The MMRP may be modified by the City during Project implementation, as necessary, in response to changing conditions or other refinements. The attached table has been prepared to assist the responsible parties in implementing the mitigation measures. The table identifies individual mitigation measures, monitoring/mitigation timing, person/agency responsible for implementing each measure, monitoring and reporting procedures, and provides space to confirm implementation of the mitigation measures. The numbering of mitigation measures follows the numbering sequence found in the IS/MND.

4.3 ROLES AND RESPONSIBILITIES

Unless otherwise specified herein, the City is responsible for taking all actions necessary to implement the mitigation measures under its jurisdiction according to the specifications provided for each measure and for demonstrating that the action has been successfully completed. The City, at its discretion, may delegate implementation responsibility or portions thereof to a licensed contractor or other designated agent.

The City would be responsible for overall administration of the MMRP and for verifying that City staff members and/or the construction contractor has completed the necessary actions for each measure. The City would designate a project manager to oversee implementation of the MMRP. Duties of the project manager include the following:

- Ensure routine inspections of the construction site are conducted by appropriate City staff; check plans, reports, and other documents required by the MMRP; and conduct report activities.
- Serve as a liaison between the City and the contractor or project applicant regarding mitigation monitoring issues.
- Complete forms and maintain reports and other records and documents generated for the MMRP.

- Coordinate and ensure that corrective actions or enforcement measures are taken, if necessary.

The responsible party for implementation of each item would identify the staff members responsible for coordinating with the City on the MMRP.

4.4 MITIGATION MONITORING AND REPORTING PLAN TABLE

The categories identified in Table 4-1 are described below.

- Mitigation Measure – This column provides the text of the mitigation measures identified in the approved IS/MND.
- Applicable Project – This column indicates whether the mitigation measure listed would be required for implementation of the Expansion Project, Energy Recovery Project, or both.
- Responsible Party/Monitor – this column identifies the party responsible for enforcing compliance with the requirements of the mitigation measure and monitoring that compliance.
- Timing – this column identifies the time frame in which the mitigation will be implemented.

Table 4-1 PGWWTP Expansion and Energy Recovery Project Mitigation Monitoring and Reporting Program

Mitigation Measure	Applicable Project	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
3.4 Biological Resources				
Mitigation Measure 3.4-1 (Implement *West Roseville Specific Plan* EIR Mitigation Measure 4.7-6 Avoid Nesting Sites): The *West Roseville Specific Plan* EIR includes Mitigation Measure 4.7-6 Avoid Nesting Sites. This mitigation measure addresses potential impacts to fully protected bird and raptor species. The only protected bird species that has the potential to be affected by the Energy Recovery Project is burrowing owl. Therefore, those requirements listed under Mitigation Measure 4.7-6 that are not applicable to the Project have been omitted below: (b) Prior to the beginning of mass grading, including grading for major infrastructure improvements, during the period between February 15 and August 30, all trees and potential burrowing owl habitat within 350 feet of grading or earthmoving activity shall be surveyed for active raptor nests or burrows by a qualified biologist no more than 3 days prior to disturbance. In addition, if there is a break in construction activity lasting longer than 2 weeks, new nesting bird surveys must be conducted prior to resuming construction activities. If active raptor nests or burrows are found, and the site is within 350 feet of potential construction activity, a fence shall be erected around the tree or burrow(s) at a distance of 350 feet, depending on the species, from the edge of the canopy to prevent construction disturbance and intrusions on the nest area. The appropriate buffer shall be determined by the City in consultation with CDFW. (c) No construction vehicles shall be permitted within restricted areas (i.e., raptor protection zones), unless directly related to the management or protection of the legally protected species. (d) In the event that a nest is abandoned, despite efforts to minimize disturbance, and if the nestlings are still alive, the City shall contact CDFW and, subject to CDFW approval, fund the recovery and hacking (controlled release of captive reared young) of the nestling(s). (f) The City, in consultation with CDFW, shall conduct a pre-construction survey within the phases of the project site that are scheduled for construction activities. The survey shall be conducted by a qualified biologist to determine if burrowing owls are occupying the project site. The survey shall be conducted no more than three weeks prior to grading of the project site. Should construction activities cause the nesting bird to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the exclusionary buffer will be increased such that activities are far enough from the nest to stop this agitated behavior. The exclusionary buffer will remain in place until the chicks have fledged or as otherwise determined by a qualified biologist. If the above survey does not identify burrowing owls on the project site, then no further mitigation would be required. However, should burrowing owls be found on the project site, the following measures shall be required. (g) The City shall avoid all potential burrowing owl burrows that may be disturbed by project construction during the breeding season between February 15 and August 30 (the period when the nest burrows are typically occupied by adults with eggs or young). Avoidance shall include the establishment of a 350-foot diameter non-disturbance buffer zone around any occupied burrows.	Energy Recovery Project	City of Roseville	Prior to and during construction	

Table 4-1 PGWWTP Expansion and Energy Recovery Project Mitigation Monitoring and Reporting Program

Mitigation Measure	Applicable Project	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
The buffer zone shall be delineated by highly visible temporary construction fencing. Disturbance of any occupied burrows shall only occur outside of the breeding season (August 30 through February 15). (h) Based on approval by CDFW, preconstruction and nonbreeding season exclusion measures may be implemented to preclude burrowing owl occupation of the project site prior to project-related disturbance (such as grading). Burrowing owls may be passively excluded from burrows in the construction area by placing one-way doors in the burrows according to current CDFW protocol. The one-way doors must be in place for a minimum of three days. All burrows that may be occupied by burrowing owls, regardless of whether they exhibit signs of occupation, must be cleared. Burrows that have been cleared through the use of one-way doors shall then be closed or backfilled to prevent owls from entering the burrow. The one-way doors shall not be used more than two weeks before construction to ensure that owls do not recolonize the area of construction.				
3.5 Cultural Resources				
Mitigation Measure 3.5-1: In the event that any prehistoric or historic-era subsurface archaeological features or deposits, including locally darkened soil (potentially a "midden"), that could conceal cultural deposits, are discovered during construction, all ground-disturbing activity within 100 feet of the resources shall be halted and a qualified professional archaeologist shall be retained to assess the significance of the find. If the find is determined to be significant by the qualified archaeologist (i.e., because it is determined to constitute either an historical resource or a unique archaeological resource), the archaeologist shall develop appropriate procedures to protect the integrity of the resource and ensure that no additional resources are affected. Procedures could include but would not necessarily be limited to preservation in place, archival research, subsurface testing, or contiguous block unit excavation and data recovery.	Expansion Project & Energy Recovery Project	City of Roseville/Contractor	During construction	
Mitigation Measure 3.5-2: If human remains are discovered during any construction activities, potentially damaging ground-disturbing activities in the area of the remains will be halted immediately, and the City will notify the Placer County coroner and the NAHC immediately, according to Section 5097.98 of the State Public Resources Code and Section 7050.5 of California's Health and Safety Code. If the remains are determined by the NAHC to be Native American, the guidelines of the NAHC will be adhered to in the treatment and disposition of the remains. The City will also retain a professional archaeologist with Native American burial experience to conduct a field investigation of the specific site and consult with the Most Likely Descendant (MLD), if any, identified by the NAHC. Following the coroner's and NAHC's findings, the archaeologist, and the NAHC-designated MLD will determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in California Public Resources Code Section 5097.94.	Expansion Project & Energy Recovery Project	City of Roseville/Contractor	During construction	

Table 4-1 PGWWTP Expansion and Energy Recovery Project Mitigation Monitoring and Reporting Program

Mitigation Measure	Applicable Project	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
3.7 Greenhouse Gas Emissions				
Mitigation Measure 3.7-1: To reduce GHG emissions from the Expansion Project, the City may choose any combination of the following measures, to achieve a net reduction of 1,725 MT CO_2e/year (equivalent to reducing the use of 194,104 gallons of gasoline or generating 9,941 MWh/year of electricity from renewable energy): ◢ improve energy efficiency and provide renewable vehicle fuels through the construction and implementation of the Energy Recovery Project which would reduce additional operational emissions from the Expansion Project by 103 percent, reducing emissions below existing conditions, as described herein, ◢ purchase electricity from a higher percentage of renewable sources; or ◢ purchase GHG offsets. Implementation of Mitigation Measure 3.7-1 would ensure that GHG emissions would be reduced below recommended thresholds of significance. The cogeneration capabilities of the Energy Recovery Project would prevent methane-containing digester gas from being flared at the PGWWTP, would combine the conditioned and upgraded digester gas with natural gas to create renewable fuel blend for CNG vehicles, and use the waste tail gas, from digester gas upgrade process (blended with natural gas) for the generation of electricity and heat for digesters. This cogeneration capability would relieve electrical load from local utilities by providing a direct and renewable source of electricity for the PGWWTP.	Expansion Project	City of Roseville	Following construction	
3.12 Noise				
Mitigation Measure 3.12-1: Noise curtains shall be used during any nighttime construction activity (i.e., occurring between 10:00 p.m. and 7:00 a.m.) involving the operation of heavy equipment or haul trucks on the west side of the Project site (i.e., where there are sensitive receptors closer than 1,600 feet). The temporary noise curtains shall meet the following criteria: ◢ The temporary noise curtains shall achieve at a minimum 3 dB noise reduction; ◢ The temporary noise curtains shall be located or as close as possible to the area where heavy construction equipment would be operated; and ◢ Temporary noise curtains shall consist of durable, flexible composite material featuring a noise barrier layer bounded to sound-absorptive material on one side. The noise barrier layer shall consist of rugged, impervious, material with a surface weight of at least one pound per square foot, and shall be designed to block the line-of sight between construction activities and affected receptors.	Expansion Project & Energy Recovery Project	Contractor/City of Roseville	During construction	

Table 4-1 PGWWTP Expansion and Energy Recovery Project Mitigation Monitoring and Reporting Program

Mitigation Measure	Applicable Project	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
3.16 Transportation/Traffic				
Mitigation Measure 3.16-1: The City will require the construction contractor to implement a traffic management plan before construction activities begin. The traffic management plan will include measures to ensure local traffic, including bicycle traffic, is accommodated during construction. This plan would identify general methods by which construction activities will be managed to minimize substantial hazards related to large trucks. These methods may include (but are not limited to): ◢ appropriately sequencing activities (e.g., segment phasing, timing of grading, hours of construction) to minimize conflicts with traffic on affected roadways, ◢ maintaining traffic flow in the project area to the extent possible, ◢ maintaining bicycle and pedestrian access, and ◢ use of flaggers to direct traffic, as needed for ingress or egress of large trucks.	Expansion Project & Energy Recovery Project	Contractor/City of Roseville	Prior to and during construction	

5 REFERENCES

City of Roseville. 2004 (January 9). *Final Environmental Impact Report for West Roseville Specific Plan and Sphere of Influence.* State Clearinghouse No. 2002082057. Prepared by EIP Associates. Roseville, CA. Available: http://www.roseville.ca.us/gov/development_services/_planning/specific_plans_n_planning_areas/west_roseville_specific_plan.asp.

California Department of Fish and Game. 2012. *Staff Report on Burrowing Owl Mitigation*. Natural Resources Agency. California Department of Fish and Wildlife. Sacramento, CA.

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Appendix A

Pleasant Grove Wastewater Treatment Plant Expansion and Energy Recovery Project Draft CEQA-Plus Initial Study/ Mitigated Negative Declaration

Pleasant Grove Wastewater Treatment Plant Expansion and Energy Recovery Project

CEQA-Plus Initial Study/Mitigated Negative Declaration

December 2016

CITY OF ROSEVILLE
CALIFORNIA

311 Vernon Street
Roseville, CA 95678
Contact: Mark Morse
(916) 774-5499

NOTICE OF INTENT

TO ADOPT A MITIGATED NEGATIVE DECLARATION

for the

PGWWTP Expansion and Energy Recovery Project – City of Roseville

Public Notice is hereby given that an Initial Study/Mitigated Negative Declaration (IS/MND) is available for public review for the Pleasant Grove Wastewater Treatment Plant (PGWWTP) Expansion and Energy Recovery Project. The IS/MND has been prepared in accordance with the California Environmental Quality Act (CEQA) and Environmental Review Process Guidelines for State Revolving Fund Loan Applicants (SWRCB 2015, as updated in 2016) and is expanded beyond the typical content requirements of an initial study to include additional "CEQA-Plus" information.

Project Location: Pleasant Grove Wastewater Treatment Plant and Southern Expansion Area located at 5150 Westpark Drive, Roseville, CA.

Project Description: An IS/MND has been prepared by the City of Roseville (City) to evaluate the environmental effects of the PGWWTP Expansion and Energy Recovery Project. The existing PGWWTP was designed to treat 12 million gallons per day (mgd); however, due to higher than anticipated organic loading, the PGWWTP's effective treatment capacity is approximately 9.5 mgd. The Expansion Project would expand and increase treatment capacity of the existing PGWWTP to its original 12 mgd design capacity. The City is also considering the related but separate construction of new energy recovery facilities (Energy Recovery Project) that would beneficially utilize the digester gas produced by anaerobic digestion that is included in the Expansion Project. These projects combined represents the proposed project (Project). The Expansion Project can proceed without the Energy Recovery Project.

Document Review and Availability: In accordance with CEQA Guidelines Section 15105, the public review and comment period will extend for 38 days starting **December 19, 2016** and ending **January 25, 2017 at 5:00 p.m**. Although not required, this includes an additional eight days in recognition that the public review period extends over the holidays. The IS/MND is available for public review at the following location:

City of Roseville Permit Center
311 Vernon Street
Roseville, CA 95678
(8:00 a.m. to 5:00 p.m. Monday through Friday)

The IS/MND can also available be viewed or downloaded from the City's website via the following link: http://www.roseville.ca.us/gov/development_services/planning/environmental_documents_n_public_notices.asp.

Comments/Questions: Comments and/or questions regarding the IS/MND may be directed to: Mark Morse, Environmental Coordinator at the above address or via email to mmorse@roseville.ca.us.

Public Meetings: The Project and IS/MND are tentatively scheduled for consideration by the Roseville Public Utilities Commission on February 28, 2017 and by the Roseville City Council on April 5, 2017. Roseville Public Utility Meetings and City Council Meetings begin at 7:00 p.m. in the Roseville City Council Chambers, 311 Vernon Street, Roseville, CA 95678. Interested parties should call the Roseville City Clerk's Office to confirm meeting agendas, times, and dates (916) 774-5263.

PROPOSED MITIGATED NEGATIVE DECLARATION

Project Title: PGWWTP Expansion and Energy Recovery Project

Project Location: 5051 Westpark Drive in Roseville

Date: December 19, 2016

Project Applicant: City of Roseville

Lead Agency: City of Roseville

Contact Person: Mark Morse, Environmental Coordinator: (916) 774-5334

PROJECT DESCRIPTION

This Initial Study and Mitigated Negative Declaration (IS/MND) evaluates the environmental effects of the Pleasant Grove Wastewater Treatment Plant (PGWWTP) Expansion and Energy Recovery Project. The PGWWTP was designed to treat 12 million gallons per day (mgd); however, due to high organic loading from water conservation and other factors, the PGWWTP's effective treatment capacity is approximately 9.5 mgd. The City is proposing to expand and increase treatment capacity of the existing PGWWTP (Expansion Project) so that it can meet its original 12 mgd design capacity. The City is also considering the related but separate construction of new energy recovery facilities (Energy Recovery Project) that would beneficially utilize the digester gas produced by anaerobic digestion that is included in the Expansion Project. These projects combined represents the proposed project (Project). The Expansion Project can proceed without the Energy Recovery Project.

DECLARATION

The City of Roseville Environmental Coordinator has determined that the above Project will have no significant effect on the environment and is therefore exempt from the requirement of an Environmental Impact Report (EIR). The determination is based on the attached initial study and the following findings:

a) The Project will not degrade environmental quality, substantially reduce habitat, cause a wildlife population to drop below self-sustaining levels, reduce the number or restrict the range of special-status species, or eliminate important examples of California history or prehistory.

b) The Project does not have the potential to achieve short-term, to the disadvantage of long-term, environmental goals.

c) The Project will not have impacts that are individually limited, but cumulatively considerable.

d) The Project will not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly.

e) No substantial evidence exists that the Project will have a negative or adverse effect on the environment.

f) The Project incorporates all applicable mitigation measures identified in the Initial Study.

g) This Mitigated Negative Declaration reflects the independent judgment of the lead agency.

Written comments shall be submitted no later than January 25, 2017. City Council determination on this Mitigated Negative Declaration is final.

Submit comments to:

Mark Morse
Environmental Coordinator
Development and Operations Division
City of Roseville
311 Vernon Street
Roseville, CA 95678

Posting Period:

December 19, 2016 through
January 25, 2017

Initial Study approved by:

Mark Morse, Environmental Coordinator

CEQA-Plus Initial Study/Proposed Mitigated Negative Declaration

for the

PGWWTP Expansion and Energy Recovery Project

PREPARED FOR

City of Roseville
311 Vernon Street
Roseville, California 95678
Contact: Mark Morse

PREPARED BY

Ascent Environmental, Inc.
455 Capitol Mall, Suite 300
Sacramento, California 95814
Contact: Stephanie Rasmussen

December 2016

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ACRONYMS AND ABBREVIATIONS

ADWF	average dry weather flow
AHPA	Archaeological and Historic Preservation Act
BOD	biochemical oxygen demand
CAA	Clean Air Act
CCR	California Codes of Regulations
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
City	City of Roseville
Clean Water Act or CWA	federal Water Pollution Control Act
CNG	compressed natural gas
CWA	Clean Water Act
EFH	Essential Fish Habitat
Energy Recovery Project	new energy recovery facilities
EO	Executive Order
EPA	U.S. Environmental Protection Agency
Expansion Project	Pleasant Grove Wastewater Treatment Plant
FEMA	Federal Emergency Management Agency's
FIRMs	Flood Insurance Rate Maps
FMP	fishery management plans
FOG	fats, oil, and grease
FPPA	Farmland Protection Policy Act
gpm	gallons per minute
IS/MND	initial study/proposed mitigated negative declaration
Master Plan EIR	Environmental Impact Report on the Roseville Regional Wastewater Treatment Service Area Master Plan
MBTA	Migratory Bird Treaty Act
MCC	motor control center
mgd	million gallons per day
NAAQS	National Ambient Air Quality Standards
NHPA	National Historic Preservation Act
NOAA Fisheries	National Oceanic and Atmospheric Administration Fisheries Service

NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
Pb	lead
PCAPCD	Placer County Air Pollution Control District
PG&E	Pacific Gas & Electric
PGWWTP	Pleasant Grove Wastewater Treatment Plant
PM_{10}	respirable particulate matter with an aerodynamic diameter of 10 micrometers or less
$PM_{2.5}$	fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less
PRC	Public Resources Code
Project	proposed project
psi	pounds per square inch
RAS	return activated sludge
rCNG	renewable compressed natural gas
RMC	Roseville Municipal Code
SCADA	supervisory control and data acquisition
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SPMUD	South Placer Municipal Utility District
SPWA	South Placer Wastewater Authority
SPWA	South Placer Water Agency
SRF	Clean Water State Revolving Fund
SRF	State Revolving Fund
SVAB	Sacramento Valley Air Basin
SWRCB	State Water Resources Control Board
TSS	total suspended solids
TWAS	thickened waste activated sludge
USFWS	U.S. Fish and Wildlife Service
UV	ultraviolet
VOC	volatile organic compounds
WAS	waste activated sludge

1 INTRODUCTION

This Initial Study and Mitigated Negative Declaration (IS/MND) evaluates the environmental effects of the Pleasant Grove Wastewater Treatment Plant (PGWWTP) Expansion and Energy Recovery Project. The PGWWTP was designed to treat 12 million gallons per day (mgd); however, due to high organic loading from water conservation and other factors, the PGWWTP's effective treatment capacity is approximately 9.5 mgd. The City is proposing to expand and increase treatment capacity of the existing PGWWTP (Expansion Project) so that it can meet its original 12 mgd design capacity. The City is also considering the related but separate construction of new energy recovery facilities (Energy Recovery Project) that would beneficially utilize the digester gas produced by anaerobic digestion that is included in the Expansion Project. These projects combined represent the proposed project (Project). The Expansion Project can proceed without the Energy Recovery Project.

This IS/MND was prepared to satisfy the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] 21000 et seq.) and State CEQA Guidelines (14 California Codes of Regulations [CCR] 15000 et seq.). The City of Roseville (City) is the lead agency for this proposed Project under CEQA. In addition, the South Placer Wastewater Authority would act as a responsible agency in approving the Project and Project funding.

Additionally, the proposed Project may be partially funded with a loan from the federal Clean Water State Revolving Fund (SRF) program established by the federal Water Pollution Control Act (Clean Water Act or CWA), as amended in 1987. This program is administered, nationally, by the U.S. Environmental Protection Agency, and in certain instances the administration has been delegated to the states. In California, administration of the SRF program has been delegated to the State Water Resources Control Board (SWRCB). In turn, the SWRCB requires that all projects being considered under the SRF program must comply with CEQA and certain federal environmental protection laws. Collectively, the SWRCB refers to these requirements as "CEQA-Plus." Therefore, this IS/MND has been prepared in accordance with the Environmental Review Process Guidelines for State Revolving Fund Loan Applicants (SWRCB 2015, as updated in 2016) and is expanded beyond the typical content requirements of an initial study to include additional "CEQA-Plus" information. Analysis of alternatives are provided to meet SRF Program requirements. CEQA does not require consideration of alternatives in MNDs; therefore, the evaluation of alternatives is provided in an appendix (Appendix A) to this document. The other CEQA-Plus requirements are fulfilled in the IS analysis and associated appendices (see Chapter 4, "Compliance with Federal Regulations," for a complete list of federal laws address in compliance with SRF Program requirements). The SWRCB, as a responsible agency for the Project, will consider this CEQA document prior to any SRF loan authorization.

1.1 PURPOSE OF THIS DOCUMENT

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. An MND, which requires inclusion of an IS, is a public document used by the decision-making lead agency to determine whether a project may have a significant adverse impact on the environment. If the agency finds that the proposed Project may have a significant adverse impact on the environment, but that the impacts will be clearly reduced to a less-than-significant level through implementation of specific mitigation measures, a MND shall be prepared.

This IS/MND is a public information document that describes the proposed Project, existing environmental setting at the Project site, and potential environmental impacts of construction and operation of the proposed Project. It is intended to inform the public and decision-makers of the proposed Project's compliance with CEQA, State CEQA Guidelines, and SRF program requirements.

1.2 TIERING

CEQA allows for the preparation of environmental documents using a multilevel approach whereby a broad-level EIR, termed a "program EIR," includes an analysis of general matters (e.g., the impacts of an entire plan, program, or policy), and subsequent project-level EIRs or negative declarations include analyses of the project-specific effects of projects within the program (State CEQA Guidelines Section 15168). State CEQA Guidelines Section 15168 describes the process of tiering from a program EIR, in which CEQA documents that follow a program EIR incorporate by reference and rely on the general discussions, program-wide analyses, and program-level mitigation measures from the broader EIR, and focus on the site-specific impacts of the individual projects that implement the plan, program, or policy.

The City's Environmental Impact Report on the Roseville Regional Wastewater Treatment Service Area Master Plan (Master Plan EIR) (May 1996) broadly examined the significant environmental effects that could result from implementing the City's Master Plan for major wastewater conveyance and treatment improvements—specifically, the report examined the physical effects associated with construction and operation of the PGWWTP. Potential effects of existing operations at the PGWWTP were covered by the Master Plan EIR. This IS/MND analyzes expansion of the existing PGWWTP and construction of the related but separate Energy Recovery Project, and is tiered from the analysis in the Master Plan EIR. Consistent with State CEQA Guidelines Section 15152 (tiering) and 15168, this IS/MND incorporates by reference general discussions and mitigation from the Master Plan EIR as appropriate, and focuses on the significant effects on the environment that were not sufficiently addressed in that EIR or would be peculiar to the project under consideration.

1.3 REVIEW PROCESS

This IS/MND is being circulated for public and agency review as required by CEQA. Because state agencies will act as responsible or trustee agencies, the City will circulate the IS/MND to the State Clearinghouse of the Governor's Office of Planning and Research for distribution and a 30-day review period. A copy of the CEQA-Plus IS/MND is also available for review on the City's website: http://www.roseville.ca.us/gov/development_services/planning/environmental_documents_n_public_notices.asp.

During the review period, written comments may be submitted to:

Mark Morse
Environmental Coordinator
Development and Operations Division
City of Roseville
311 Vernon Street
Roseville, CA 95678
mmorse@roseville.ca.us

The Project and IS/MND are tentatively scheduled for consideration by the Roseville Public Utilities Commission on February 28, 2017 and by the Roseville City Council on April 5, 2017. Roseville Public Utility Meetings and City Council Meetings begin at 7:00 p.m. in the Roseville City Council Chambers, 311 Vernon Street, Roseville, CA 95678.

After comments are received from the public and reviewing agencies during the public comment period, the City may (1) adopt the Mitigated Negative Declaration and approve the proposed Project; (2) undertake additional environmental studies; or (3) disapprove the Project. If the Project is approved, the City may proceed with detailed design and construction.

1.4 DOCUMENT ORGANIZATION

This IS/MND is organized as follows:

Chapter 1: Introduction. This chapter provides an introduction to the environmental review process, and describes the purpose and organization of this document.

Chapter 2: Project Description. This chapter describes the background of the proposed Project, identifies basic Project objectives, provides a detailed description of the proposed Project, and required permits and approvals.

Chapter 3: Environmental Checklist. This chapter presents an analysis of a range of environmental issues identified in the CEQA Environmental Checklist and determines if Project actions would result in no impact, a less-than-significant impact, a less-than-significant impact with mitigation incorporated, or a potentially significant impact. If any impacts were determined to be potentially significant, an EIR would be required. For this Project, however, none of the impacts were determined to be significant. Where the Expansion Project and Energy Recovery Project would result in different impact conclusions, separate impact discussions and impact conclusions are provided for each; otherwise the effects of the Expansion Project and Energy Recovery Project are discussed together.

Chapter 4: Compliance with Federal Environmental Laws and Regulations. This chapter provides a discussion of compliance with federal executive orders and regulations required for "CEQA-Plus" compliance.

Chapter 5: References. This chapter lists the references used in preparation of this IS/MND.

Chapter 6: List of Preparers. This chapter identifies report preparers.

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2 PROJECT DESCRIPTION AND BACKGROUND

2.1 INTRODUCTION

The City of Roseville (City) is proposing to expand and increase the effective treatment capacity of the existing Pleasant Grove Wastewater Treatment Plant (PGWWTP) (Expansion Project) to its original (see discussion in Section 2.2) 12 million gallons per day (mgd) design capacity. The City is also considering the related but separate construction of new energy recovery facilities (Energy Recovery Project) that would beneficially utilize the digester gas produced by anaerobic digestion that is included in the Expansion Project. These projects combined represents the proposed project (Project). The Expansion Project can proceed without the Energy Recovery Project.

2.2 PROJECT BACKGROUND AND NEED

The City owns and operates the PGWWTP on behalf of the South Placer Wastewater Authority (SPWA). CEQA compliance for construction and initial operation of the PGWWTP was achieved with certification of the *Roseville Regional Wastewater Treatment Service Area Master Plan EIR* (City of Roseville 1996), with construction following; the plant began operation in 2004.

The PGWWTP presently treats 7.1 mgd average dry weather flow (ADWF), has an estimated capacity to treat 9.5 mgd ADWF, and is permitted to discharge 12 mgd ADWF. During its first year of operation, the influent biochemical oxygen demand (BOD) load to the PGWWTP was approximately 96 percent of the design capacity as a result of higher than expected wastewater strength. This change in wastewater characteristics was the result of a combination of factors; including low infiltration and inflow rates, changing demographics, and water conservation efforts. In 2005, the City together with the other SPWA partners (i.e., South Placer Municipal Utility District [SPMUD] and Placer County) began evaluation of expanding the PGWWTP facilities to address treatment capacity limitations resulting from wastewater strength and anticipated growth. A series of technical memoranda were prepared to evaluate expansion options. In 2009, the City completed the recommended Aeration System Upgrades Project, which increased capacity to treat the higher influent BOD load. Because of slow growth following the national housing market collapse in 2008, no further recommendations to expand the PGWWTP were implemented.

Recent and anticipated acceleration of growth within the SPWA service area is driving the need to expand the PGWWTP's treatment capacity. Construction of the proposed Expansion Project would increase the organic treatment capacity to meet the projected wastewater treatment requirements. Based on growth projections for the SPWA service area, ADWFs are projected to exceed 9 mgd around 2025 and be equal to or exceed the PGWWTP's treatment capacity of 9.5 mgd by 2027. In addition to wastewater flow rate, organic and solids loadings are important in determining the treatment capacity of the PGWWTP. Two of the key indicators considered for plant loading are the BOD and the total suspended solids (TSS).

To increase the organic loading capacity at the PGWWTP, the proposed Expansion Project would add primary clarification, sludge thickening, and anaerobic digestion to the treatment process. Anaerobic digestion produces digester gas, which when treated to remove hydrogen sulfide and carbon dioxide, is similar in composition to natural gas and can be utilized as fuel for stationary power generation and vehicles. Therefore, the City is also considering construction of the related but separate Energy Recovery Project that would beneficially use the digester gas produced by anaerobic digestion.

In addition to producing digester gas from the digestion of municipal wastewater solids, the new anaerobic digesters provide an opportunity for the PGWWTP to accept and treat trucked organic waste, such as fats, oil, and grease (FOG); food waste; or other high strength waste that can significantly increase digester gas

production when co-digested with municipal wastewater solids. The Energy Recovery Project would also provide a sustainable disposal option for FOG, food waste, and high strength waste throughout the SPWA service area.

2.3 PROJECT OBJECTIVES

As described above, the present treatment capacity of the PGWWTP is not adequate to treat the projected influent loads that the plant is expected to receive in the future. The Expansion Project is intended to achieve the following objectives:

- increase the treatment capacity of the existing PGWWTP from 9.5 mgd to be consistent with the original design capacity of 12 mgd ADWF and to accommodate the anticipated wastewater treatment demands through approximately 2040; and

- improve the WWTP's treatment reliability and operating efficiency.

Additionally, the Energy Recovery Project is being proposed as a separate project to beneficially use the digester gas produced by the Expansion Project and high strength waste including FOG and food waste. The Energy Recovery Project is intended to achieve the following objectives:

- make the best use of digester gas (highest economic and environmental value);
- provide an economically viable energy recovery facility;
- divert organics from landfills in anticipation of new regulatory requirements;
- maximize the beneficial uses of the energy recovery facility; and
- minimize odors and noise to nearby residences.

2.4 LOCATION

The Expansion Project facilities would be constructed within the existing PGWWTP boundaries located at 5051 Westpark Drive in Roseville, California (Exhibits 2-1 and 2-2). The PGWWTP is located on a 110-acre parcel located approximately 1.5 miles west of Del Webb Sun City Sierra Pines Golf Course, north of Pleasant Grove Boulevard, and south of Blue Oaks Boulevard. The Energy Recovery Project facilities would be constructed on City-owned property, intended for future wastewater treatment infrastructure and deeded to the City as part of the *West Roseville Specific Plan* (City of Roseville 2004). This property is located adjacent to, and immediately south of, the existing PGWWTP. This area is referred to hereafter as the Southern Expansion Area (Exhibit 2-3). The PGWWTP currently serves the north and northwest areas of the City of Roseville, the Stanford Ranch area of the SPMUD service area, the Sunset Industrial Area of Placer County, and will serve the City of Roseville approved (but not yet constructed) Creekview and Amoruso Ranch Specific Plan Areas in the future.

2.5 EXISTING FACILITIES

The current facility began operation in 2004, but was constructed in four phases between 2000 and 2010, and includes a series of treatment facilities that mechanically remove debris and biologically treat wastewater. The liquid treatment process includes raw wastewater screening and grit removal, generation of activated sludge using oxidation ditches, secondary clarification, tertiary filtration, ultraviolet (UV) disinfection for effluent discharge and recycled water. The solids treatment process includes dewatering of waste activated sludge (WAS), which is hauled to and disposed of, at the Western Regional Sanitary Landfill. Three treatment levels are typically assigned to wastewater treatment plants, primary (the most basic where solids are removed), secondary (typically includes chemical or biological breakdown of wastewater organics and nutrient removal), and tertiary (typically advanced filtration and final disinfection). Tertiary treated wastewater can be used as recycled water for certain irrigation, industrial, and construction applications.

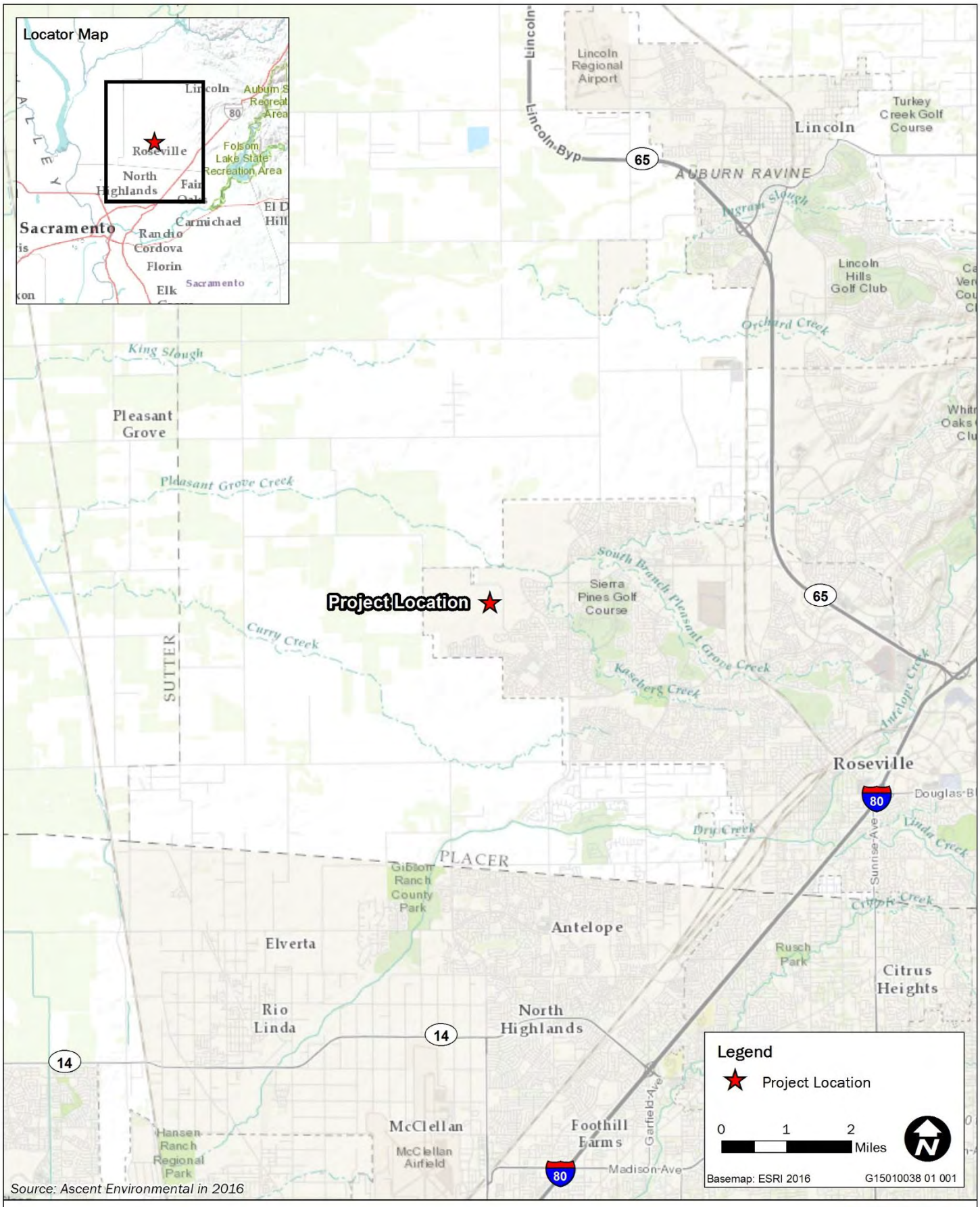


Exhibit 2-1 **Project Vicinity**

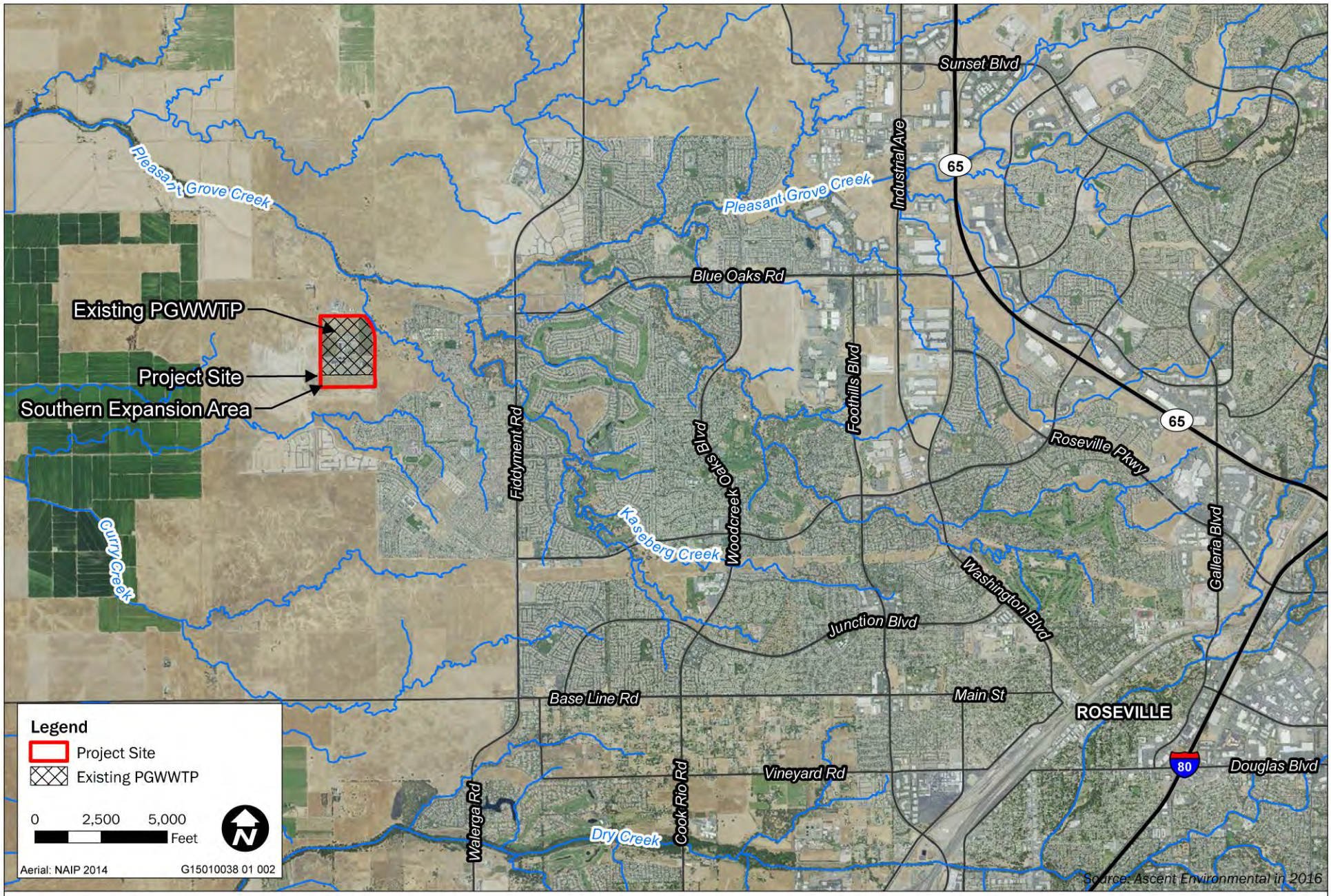


Exhibit 2-2

Project Location

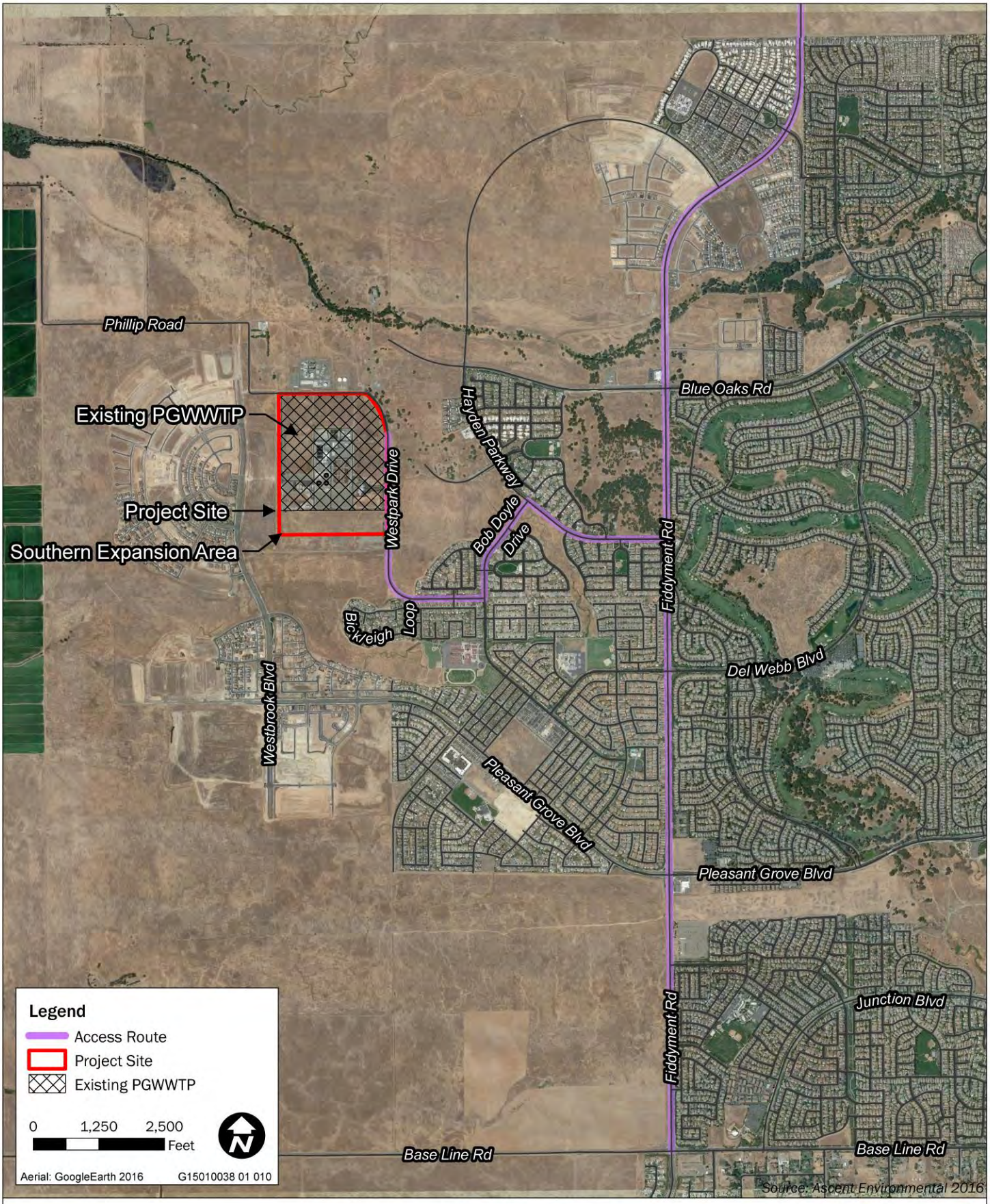


Exhibit 2-3

Roadways

Wastewater at the PGWWTP is currently treated to tertiary levels and disinfected. It is either discharged into the Pleasant Grove Creek or pumped into the City's recycled water distribution system (described further below under Water Reclamation System).

In addition to systems dedicated to treatment of wastewater, the PGWWTP includes ancillary/support systems, such as an odor control system and water reclamation system, which are described in further detail below.

2.5.1 Capacity and Flows

The PGWWTP currently treats approximately 7.1 mgd ADWF, and is authorized to discharge treated effluent into Pleasant Grove Creek under the National Pollutant Discharge Elimination System (NPDES) Permit No. CA0084573/WDR No. R5-2014-0051, which was adopted on March 28, 2014. Under this permit, the PGWWTP is permitted to discharge 12 mgd ADWF to Pleasant Grove Creek. The NPDES permit effluent limitations for the 12 mgd capacity are summarized in Table 2-1.

Table 2-1 Effluent Limitations for 12 MGD

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	–	–
	lbs/day	1,000	1,500	2,000	–	–
pH	standard units	–	–	–	6.5	8.3
Total Suspended Solids	mg/L	10	15	20	–	–
	lbs/day	1,000	1,500	2,000	–	–
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N)	mg/L	1.4	–	2.9	–	–
	lbs/day	140	–	290	–	–
Nitrate Plus Nitrite (as N)	mg/L	10	–	–	–	–

Source: Central Valley RWQCB 2014

2.5.2 Existing Wastewater Treatment Process

The PGWWTP provides tertiary-level treatment including full nitrification and de-nitrification, and produces recycled water that meets Title 22, Division 4, Chapter 3 of the California Code of Regulations (Section 60301 et seq.) for full, unrestricted use. Administration of the Drinking Water Program, including recycled water, has been transferred from the California Department of Public Health to the State Water Resources Control Board (SWRCB) Division of Drinking Water. Wastewater treated to a level consistent with these Title 22 requirements is subject to a high level of contaminant removal resulting in effluent that is acceptable for many forms of reuse including landscape irrigation where public contact may occur (e.g., golf courses, parks).

The PGWWTP wastewater treatment processes currently include the following components:

- screening and grit removal,
- secondary treatment,
- tertiary filtration, and
- disinfection with UV light

- Screening and Grit Removal

The screening and grit removal facilities include coarse screens, influent pump station, and grit chambers. The screening facility includes two mechanically cleaned bar screens with 0.5-inch openings to screen out and remove large material from influent flows. The influent pump station lifts screened influent into the aerated grit influent channel, and includes two low-range pumps and two high-range pumps. Adjacent to the influent pump station is a side-stream pump station that returns recycle flows (e.g., centrate, filter backwash) to the aerated grit influent channel. Two pumps are used to return these side streams. The influent and sidestream flows then move through the two aerated grit basins to remove grit and sand.

SECONDARY AND TERTIARY TREATMENT

The wastewater then goes through secondary treatment, which includes three processes: oxidation ditches, secondary clarifiers, and a return activated sludge pumping station. There are three, 3.2 mg oxidation ditches which provide for removal of dissolved organics as well as nitrification/denitrification, and four 125-foot diameter secondary clarifiers. The secondary clarifiers are designed to perform two functions: clarification to produce a clean effluent and thickening of the settled activated sludge. The activated sludge is either returned to the beginning of the secondary process (known as return activated sludge [RAS]) or is wasted. Wasted sludge, referred to as WAS, is currently dewatered and hauled to a landfill for disposal. There are six filter cells, each consisting of 10 continuous backwash filter modules that are used to treat secondary effluent prior to UV disinfection.

The PGWWTP has internal recycle flows from tertiary filtration, secondary clarifier scum, WAS dewatering operations, onsite wastewater and stormwater, which are combined in the side stream wet well and returned to the aerated grit influent channel for subsequent retreatment and discharge.

DISINFECTION

Following secondary treatment, wastewater is disinfected. The PGWWTP uses UV light to disinfect tertiary effluent discharged to the creek and for recycled water production. The UV disinfection system has three active reactors, each equipped with three banks consisting of UV lamps submerged in open channels. As tertiary effluent travels through the channel, it is exposed to UV light, and any remaining pathogens are irradiated and are inactivated

STORAGE BASINS, EMERGENCY STORAGE, AND OUTFALL DISCHARGE

The PGWWTP includes three storage basins totaling approximately 31.8 acres with a combined capacity of 48.5 million gallons that provide storage capacity and 100-year flood protection. UV effluent that does not meet disinfection criteria is automatically diverted to the storage basins. The non-compliant water is pumped to the sidestream wet well for treatment. The plant stormwater collection and site drainage systems discharge to the Stormwater Drainage Basin. The tertiary filtration system is equipped to divert filtered effluent that does not comply with Title 22 standards to the emergency storage basin. During intense storm events, UV effluent can be diverted to the effluent storage basins to prevent creek flooding events. UV effluent can be stored in the effluent storage basins while creek levels are high. Water in the three storage basins is returned to the sidestream wet well for retreatment before being discharged to the creek. UV effluent flows over a cascade aeration system prior to being discharged to Pleasant Grove Creek via an outfall, approximately 0.35-mile northeast of the PGWWTP. The outfall structure consists of concrete energy dissipaters leading to the creek.

SOLIDS HANDLING AND DISPOSAL

The wastewater treatment process generates a variety of solids that must be disposed, including grit, screenings (i.e., large debris), and WAS. Screenings are mechanically removed, dewatered, and sent to the Western Regional Sanitary Landfill for disposal. Grit collected during the grit removal process is cleaned,

dewatered, and sent to the Western Regional Sanitary Landfill for disposal. WAS is presently pumped into two 48-foot diameter by 26.5-foot sludge storage tanks for storing prior to dewatering and hauling off-site to the same landfill for disposal.

CHEMICAL USE/HAZARDOUS MATERIALS

Treatment of wastewater at the PGWWTP requires the use of several types of chemicals. These chemicals include fuels, flocculants (to make suspended particles stick together), and algaecides. Chemicals currently used and stored onsite include, but are not limited to, the following:

- Hypochlorite (liquid)
- Caustic soda (liquid)
- Polymer (liquid)
- Ferric chloride (liquid)
- Diesel fuel
- Polyaluminum chloride (liquid)

AUXILIARY SYSTEMS

In addition to the facilities associated with the wastewater treatment process at the PGWWTP, auxiliary systems are also in place and include: odor control systems, utility water system, potable water system, non-potable water system, recycled water pump station, and electrical and energy generation systems. These systems/processes are described separately below.

Odor Control Systems

Odors at the PGWWTP are caused by a variety of compounds that result from natural biological activity and treatment processes. The City operates multiple odor control systems associated with screening structures, grit handling, grit removal, and sludge storage/dewatering. In general, foul air from inside buildings or closed vessels where odors are present is routed through biofilters prior to being discharged to the atmosphere.

Water Systems

The PGWWTP has three existing water systems: potable, nonpotable, and utility. The potable water system is supplied by a 4-inch diameter connection to the City of Roseville's potable water distribution system. Potable water at the PGWWTP is currently being used for drinking, sanitary facilities, restrooms, emergency eyewash, and shower stations, Potable water is supplied to the non-potable water system through an air-gap. Nonpotable water is only used for pump seals. Utility water is used for all in plant water usage except pump seals, restrooms, and the lab. It supplies fire hydrants, all process sprays, hose stations, and centrifuge polymer dilution and wash-down water. Current estimated potable water demands at the PGWWTP, which includes both potable and nonpotable water, are approximately 5 gallons per minute (gpm), and the current demands for utility water are 800 gpm. The estimated capacity of the existing PGWWTP potable system is 480 gpm, and the estimated capacity of the utility water system is 4,500 gpm.

Recycled Water Pump Station

A recycled water pump station conveys recycled water to the City's recycled water distribution system. Recycled water is used for irrigation, industrial cooling, and is available for use in construction activities (i.e., soil compaction, dust control, street sweeping).

Electrical and Energy Generation Systems

There are currently two electrical buildings at the PGWWTP, and electricity is provided by Roseville Electric via a 12-kilovolt line. Backup power is provided to the WWTP by two existing 1,750 kilowatt standby generators.

2.6 DESCRIPTION OF PROPOSED PROJECT

2.6.1 Expansion Project

PROPOSED CAPACITY

The Expansion Project would increase the ADWF treatment capacity of the existing PGWWTP by 2.5 mgd, from 9.5 to 12 mgd (i.e., the original design capacity), and increase the BOD treatment capacity from 23,500 lbs/day to 34,500 lbs/day to accommodate projected growth through approximately 2040. The increased treatment capacity based on the proposed improvements would remain within the existing NPDES permit requirements.

PROPOSED FACILITIES

The proposed Expansion Project would include construction of the following facilities within the existing PGWWTP boundaries (Exhibit 2-4):

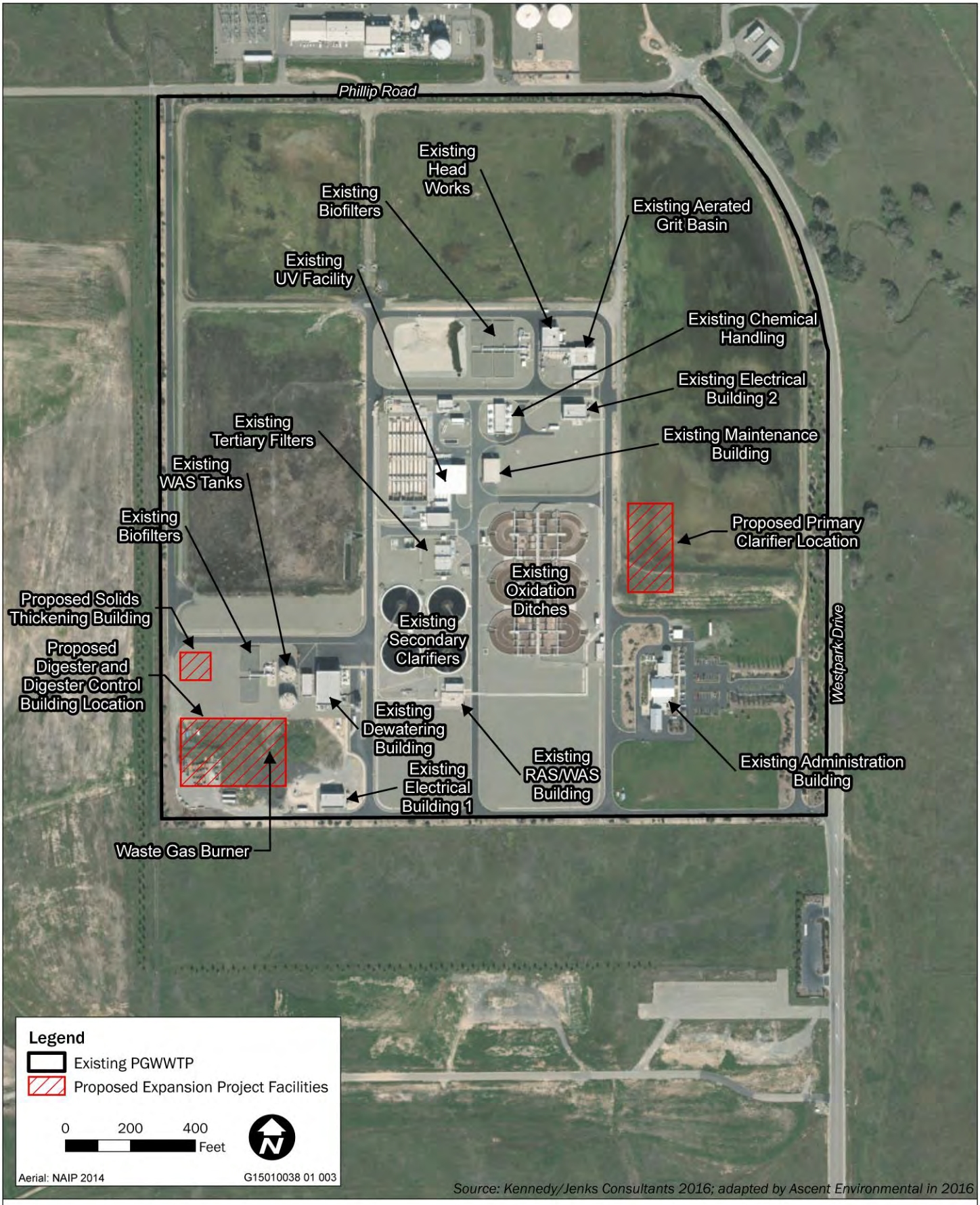
- four primary clarifiers with odor control facilities and an electrical building;
- a solids thickening building with odor control facilities;
- sludge pumping systems;
- two anaerobic digesters;
- a waste gas burner;
- two boilers;
- conversion of an existing WAS holding tank to a centrate storage tank;
- conversion of an existing WAS holding tank to a digested solids holding tank/secondary digester;
- centrate wet well and associated pump system;
- a digester control building; and
- ancillary facilities.

Each of these facilities is described in more detail below.

Primary Clarifiers

Four rectangular primary clarifiers, 15 feet wide by 150 feet long, would be located in the southwest corner of the existing Effluent Storage Basin No. 3, north of the existing administration building. The clarifiers would be constructed of cast-in-place concrete with common walls and elevated concrete walkways. An influent channel and pump gallery would be located on the north end of the primary clarifier tanks and an effluent channel would be located on the south end. Each clarifier would include a chain-and-flight sludge collection and automated scum removal mechanisms. The sludge collection mechanism would move primary sludge from the bottom of the clarifier into a sludge hopper located near the clarifier influent where it would then be pumped from the hopper to the digesters. Two positive displacement type pumps would be provided for each rectangular clarifier to pump primary sludge to the solids handling facilities. The scum removal mechanisms would collect and transfer scum floating on the water surface of the clarifiers to a common wet well. A positive displacement pump would convey scum into the primary sludge piping and delivered to the solids handling facilities. The area surrounding the clarifiers would be constructed at the same grade as the existing paved road to the west. Paved roadways would be provided around the primary clarifiers and odor control facilities.

A new motor control center (MCC) would be located in a new electrical building located west of the primary clarifiers. A foul-air system would convey odors from the primary clarifier head space to a biofiltration system located north of the primary clarifiers.



Source: Kennedy/Jenks Consultants 2016; adapted by Ascent Environmental in 2016

Exhibit 2-4 **Proposed Expansion Project Facilities**

Solids Thickening Building

A new 5,800 square foot single-story two-room solids thickening building would be constructed in a newly paved area immediately west of the existing WAS tanks and associated biofilters. The building would be constructed of concrete masonry block. Rotary drum thickeners would be housed inside this building and used to thicken sludge prior to digestion to reduce the volume of sludge fed to the anaerobic digesters, decrease the required volume of the digesters, and decrease the heat demand of the digesters. The sludge conditioning system would be located upstream of the thickeners and would consist of an in-line, non-clog, mechanical static mixer and polymer injection system. Odors would be conveyed from the Rotary Drum Thickeners through ductwork to the existing adjacent biofilters (City of Roseville 2016a). Electrical equipment would be housed in a second room.

Sludge Pumping Systems

The existing RAS/WAS pump station would pump WAS through a new WAS feed line in the utility trench from the RAS/WAS wet well to the solids thickening building or to the anaerobic digesters. The pump station is equipped with two WAS pumps. New positive displacement pumps would deliver the thickened WAS from the rotary drum thickeners to the digestion process. Each thickener unit would have a dedicated pump. Cross connections between the pumps would allow for redundancy (City of Roseville 2016a).

Anaerobic Digesters

Two new anaerobic digesters (where organic constituents are broken down in the absence of oxygen) would be constructed with the Expansion Project. Each anaerobic digester would be 90 feet in diameter, and would be constructed of concrete with fixed domed covers (City of Roseville 2016a). The digesters would be capable of producing Class B biosolids suitable for use, such as land application. There are two classifications for biosolids as defined by the U.S. Environmental Protection Agency 503B Sludge Regulations:

- Class B biosolids are suitable for land application in areas with restricted public access, and there are limits to the duration of time that must pass before crops exposed to biosolids are harvested.

- Class A biosolids are a higher quality and do not have federal restriction on land application, though there are applicable county ordinances and industry accepted best practices that should be followed.

The anaerobic digestion facilities would be sized to meet maximum month conditions with both digesters in service. If one digester is out of service during maximum month loading conditions, sludge feed can be reduced to achieve a solids retention time suitable to meet Class B standards. If the digestion process fails and Class B biosolids cannot be produced per 503B requirements, the non-Class B sludge must be dewatered and processed elsewhere to meet 503B standards (e.g., composted) or disposed in a landfill.

Digester Control Building

A new single-story multi-room digester control building would be constructed in a previously disturbed area between the two new digesters and immediately south of the existing WAS tanks and associated biofilters. The building would be separated from each of the digesters by 20 feet to allow vehicle passage and to comply with National Electrical Code classification requirements and National Fire Protection Association codes and standards. The digester control building would be approximately 6,500 square feet, and would be designed to accommodate three digester mixing pumps, two heat exchangers, two boilers, three digested solids recirculation pumps, two grinders, three digested solids transfer pumps, and three hot water pumps. The building would also include an electrical room and restroom, and would be equipped with a bridge crane for access to and maintenance of digester equipment (City of Roseville 2016a).

A new waste gas burner would be constructed immediately east of the digester facility and would be used to combust excess digester gas that is not utilized by the digester boilers or Energy Recovery facility.

Digested Solids and Centrate Storage

PGWWTP currently has two 48-foot diameter WAS storage tanks. With the Expansion Project, one of the existing WAS storage tanks would be converted to a digested solids storage tank by removing foul air piping, sealing penetrations, installing hatches, and adding digester gas handling equipment and piping. The digested solids storage tank or "secondary digester" would be unheated and completely mixed. The digested solids would continue to produce digester gas and; therefore, must be connected to the digester gas system.

The other existing WAS storage tank would be converted to a centrate storage tank. Centrate is a byproduct of the dewatering process, and has minimal solids. A separate wet well that receives centrate by gravity, pumps it to the centrate storage tank. Three centrate metering pumps would be located adjacent to the tank and would convey centrate to the onsite system that discharges to the sidestream wet well. The centrate would then be pumped back to the process for retreatment.

Ancillary Systems

Electrical

The existing electrical utility service would remain unchanged with the Expansion Project. Under normal operating conditions, the utility service has sufficient capacity to operate the entire WWTP. In the event of a loss of utility power, the existing standby generators provide sufficient emergency power to support continued operation at full treatment capacity. All underground electrical construction would consist of steel reinforced concrete encased duct bank construction. Conduits would be PVC with plastic coated steel elbows and risers.

New Motor Control Centers and power feeds from existing switchgear would be provided for equipment used to operate primary clarification, solids thickening, and anaerobic digestion processes.

New programmable logic control panels would be located in the solids thickening building and digester control building. The existing fiber-optic cable network would be modified and extended to serve the new controllers (City of Roseville 2016a).

Lighting

Outdoor areas would be lit by pole mounted LED fixtures. To minimize increases in nighttime lighting, all outdoor lighting would be shielded so the illuminated footprint does not extend beyond the area required to be lit. In addition, directional lighting would be used to avoid spillover to adjacent areas, and light levels would be reduced to minimum levels required for operator safety after 10:00 p.m. (City of Roseville 2016a).

Water Systems and Drainage Facilities

The Expansion Project is expected to increase potable water demands by 10 to 40 gpm. The existing potable water piping system would be extended as part of the Expansion Project to supply potable water to the proposed Solids Thickening and Digester Control Buildings for use in the restrooms and emergency eyewash and shower stations. In addition, the Expansion Project would require construction of a new stormdrain facilities that would connect new impervious surfaces to the existing stormdrain system.

CONSTRUCTION

Construction of the Expansion Project would last approximately 24 months and is anticipated to begin in fall of 2017. Typical construction activities would include earthwork such as grading, excavation, trenching, backfilling, hauling, and compaction, and would also include borrow and disposal of spoils and excess earth. Additionally, underground piping and utilities would be constructed. Paving, lighting, drainage, tanks, and reinforced structures including the solids thickening building, digester control building, and electrical building would be constructed. Delivery of construction materials and supplies to the site and off-hauling of approximately 6,000 cubic yards of demolished and excavated material would be required. Excavation, grading, trenching, and earth removal would be required for the new facilities. In total, approximately 6.1 acres would be disturbed and approximately 34,000 cubic yards of material would be imported.

Construction activities would generally take place from Monday through Friday during normal daytime working hours, however, there is the potential for construction activities to occur on weekends or evenings such as tie-ins of new equipment and piping that would be required during low flow conditions, which occur at night.

Ingress and egress for construction would be via the existing PGWWTP entrance off Westpark Drive. Construction traffic would access the site using Fiddyment Road to Hayden Parkway and then to Bob Doyle Drive, which connects to Westpark Drive.

OPERATIONS AND MAINTENANCE

Operation of the Expansion Project would not change the operating hours at the existing PGWWTP. Currently, the plant operates continuously 24 hours per day, every day. PGWWTP staff is onsite 10 hours a day, 7 days a week. The PGWWTP is monitored remotely when staff are not onsite (up to 14.5 hours per day), via the City's supervisory control and data acquisition (SCADA) system, from the Dry Creek WWTP. The Dry Creek WWTP has four operators who run 24-hour shifts. Routine maintenance would occur for all new and expanded facilities, and would generally include preventative maintenance, daily, weekly, monthly, quarterly, and annual inspections and adjustments, and lubrication of bearings and seals. Maintenance would occur periodically or annually depending on the specific facility and would be similar to existing maintenance. Operation of the Expansion Project would require an estimated two additional full-time employees to operate and maintain the new facilities. Operation of the Expansion Project would result in a small increase in long-term vehicle trips associated with the two new employees and increased maintenance activity. In the near-term, operations-related vehicle trips would use the same access route as identified above for construction (Fiddyment Road to Hayden Parkway to Bob Doyle Drive to Westpark Drive). In the long-term, Blue Oaks Boulevard would be extended west to connect to Westbrook Boulevard and Westpark Drive would be extended north to connect with the extended Blue Oaks. Under these built out conditions, operations-related vehicle trips would access the site via Blue Oaks Boulevard to Westpark Drive to Phillip Road, and would use the northwest access to the PGWWTP.

2.6.2 Energy Recovery Project

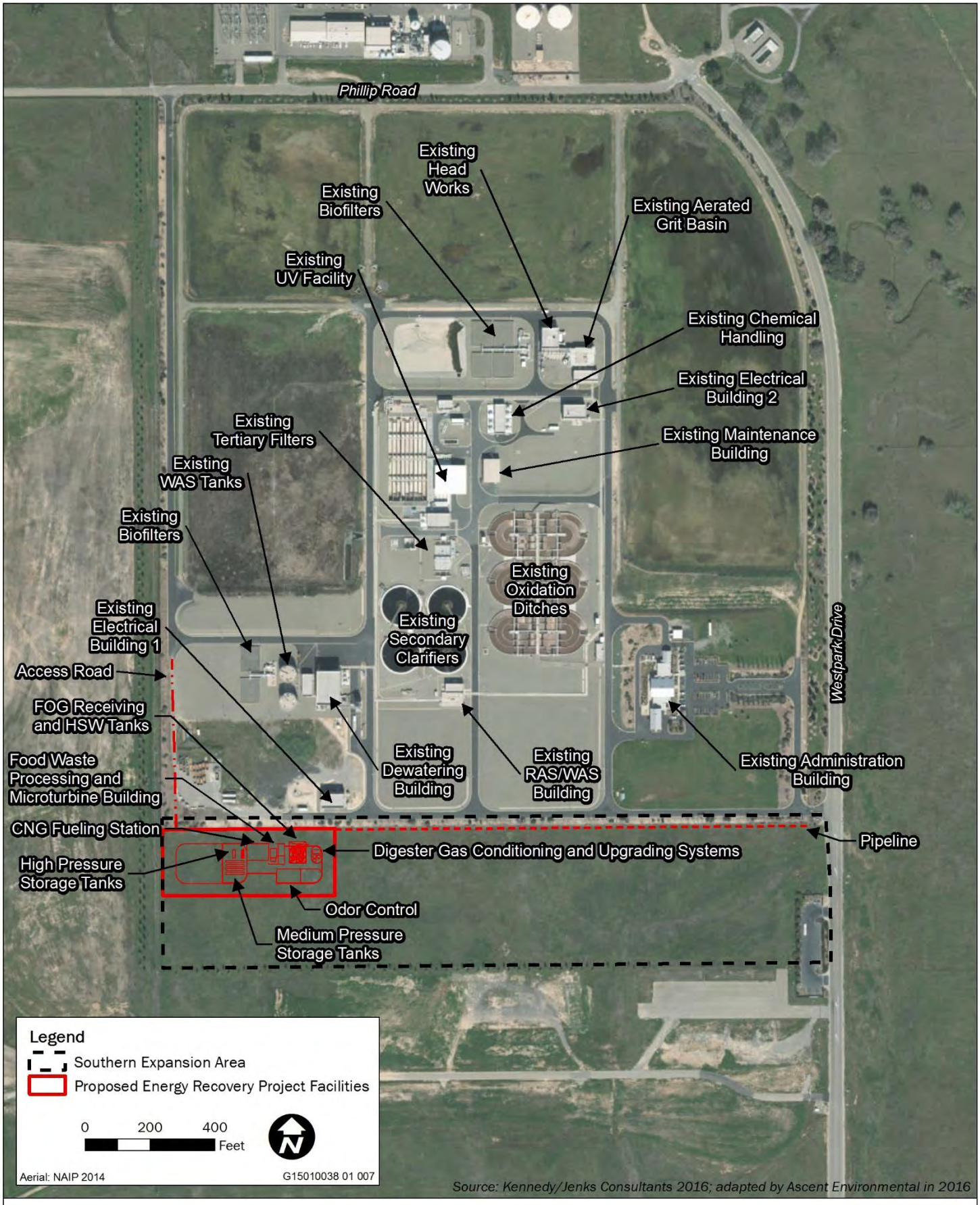
The proposed Energy Recovery Project would be located immediately south of the existing PGWWTP within the Southern Expansion Area (Exhibit 2-5), and would beneficially use digester gas from the anaerobic digesters constructed under the Expansion Project to generate fuel for solid waste trucks, generate electricity, and provide heating for the anaerobic digesters. The Energy Recovery Project would also provide a new receiving location for high strength waste that is currently being collected within the City and hauled to disposal locations outside of the City including CleanWorld in Sacramento.

PROPOSED PROGRAMS AND FACILITIES

The Energy Recovery Project would include the following programs and facilities:

- a high strength waste receiving facility;
- a food waste pre-processing facility;
- digester gas conditioning system;
- digester gas upgrading system;
- up to four microturbines (three constructed immediately and one constructed in the future); and
- a renewable compressed natural gas fueling station and parking associated with fueling.

Each of these facilities is described in more detail below.



Source: Kennedy/Jenks Consultants 2016; adapted by Ascent Environmental in 2016

Exhibit 2-5 **Proposed Energy Recovery Project Facilities**

High Strength Waste Receiving Facility

A new high strength waste (also referred to as HSW) receiving facility would be constructed that would include between two and four vertical storage tanks, associated grinders, mixing pumps, transfer pumps, heat tracing, rock trap and odor control on a concrete slab. This facility would be approximately 50 feet by 50 feet. A pipeline would be installed to connect the high strength waste to the new digesters (City of Roseville 2016b).

Food Waste Processing Facility

A new food waste processing facility would be constructed that would include food waste storage tanks, pumps, a dilution water storage tank, a tipping floor and containment area, a packaged pre-processing system, and a reject material hopper. This facility would be approximately 80 feet by 50 feet. A pipeline would be installed to feed the food waste slurry to the digesters. The facility would be enclosed in a building to contain and treat the odors generated from pre-processing the food waste.

Digester Gas Conditioning System

The Energy Recovery Project would also include a new digester gas conditioning system. The digester conditioning system would remove hydrogen sulfide, siloxanes, and water from the gas using a media that would be disposed of at an approved landfill. This system would consist of the following individual components (City of Roseville 2016b):

- hydrogen sulfide removal vessels (granular iron oxide or iron sponge)
- optional ammonia removal vessels if deemed necessary
- cooling heat exchangers
- blower
- glycol chillers and pumps
- siloxane removal vessels
- particle filters

Digester Gas Upgrading System

The conditioned gas would be processed by a digester gas upgrading system that would use a membrane to separate the CO_2 from the methane. The CO_2 removal process is assumed to have 90 percent methane capture efficiency. In addition, the gas would undergo compression before it is conveyed via pipeline to the fueling station. This renewable natural gas would be compressed to approximately 4,000 pounds per square inch (psi) and would be suitable for use as vehicle fuel. The digester gas upgrading system would be mounted on a skid and be approximately 12 feet by 19 feet and located adjacent to the digester gas conditioning system.

Utility natural gas would be blended with tail gas from the digester gas upgrading system to be used as fuel for the microturbines (City of Roseville 2016b).

Microturbines

Three 200 kW microturbines would be installed within the Energy Recovery Project boundary to produce electrical power and heat for the digesters. In addition, one additional 200 kW microturbine may be added in the future. Tail gas from the digester gas upgrading system would be blended with utility natural gas to fuel the microturbines. Also, if CNG production is out of service, digester gas could be sent directly to the microturbines. Digester gas production would be increased with the co-digestion of high-strength waste, such as FOG and food waste. These facilities would produce a minimum of 1.4 million British thermal units per hour of heat (City of Roseville 2016b).

Renewable CNG Fueling Station

A fueling station would also be constructed that would use renewable compressed natural gas (rCNG) or high-pressure methane generated from the digesters for use as vehicle fuel for the City's solid waste truck fleet. The City's solid waste truck fleet would be converted from diesel to CNG over time separate from the

Project; however, the Energy Recovery Project would allow the City to generate rCNG for fueling of approximately half of the 55 trucks in the solid waste truck fleet to offset the purchase of CNG.

Under the Energy Recovery Project, the gas generated from the digesters would be further compressed using a larger compressor. This rCNG would be stored adjacent to the fueling station in high pressure storage tanks and fed to the dispensers for use. The fueling station would require paving and truck lanes to accommodate solid waste trucks; and the gas compression, storage, and drying equipment would be housed within an area enclosed by a security fence. The dispensers would be located away from the high-pressure storage tank as a safety precaution and to provide space for vehicles. The Energy Recovery Project would produce enough daily rCNG to meet the demands of approximately half of City's current solid waste truck fleet. The ultimate number of vehicles that would be filled at the fueling station each day would be approximately 55 vehicles. The existing access road along the western boundary of the PGWWTP would be extended south and provide access to the fueling station.

Fast-fill and slow-fill fueling station options are being considered for this site. The fast-fill station would have less space for staged vehicles and would incorporate a gas compressor to speed up the transfer from the high-pressure storage tank to the vehicle to quickly fill the vehicles. A slow-fill station would only rely on the pressure difference between the rCNG storage tank and vehicle to fill the vehicle. The slow-fill option would allow additional space on the site to stage up to 55 vehicles at the site for filling whereas the fast fill station would only have spaces for approximately 5 to 10 vehicles at one time. The rCNG storage tanks would have a conservative pressure rating and would be able to withstand up to 1.25 times the tank operating pressure as a safety precaution. Additionally, valves and other safety devices would be included with the fueling stations to prevent leakage from the tank and dispensers. Emergency shutoffs, warning signage, and safety bollards would also be included to protect the rCNG tanks and associated equipment.

Ancillary Systems

Pipelines

A 4-inch CNG pipeline would be constructed from the Pacific Gas & Electric (PG&E) main, located east of the PGWWTP along Westpark Drive, to the proposed Energy Recovery Project facilities (Exhibit 2-5). The pipeline would be constructed just south of the southern boundary of the existing PGWWTP. Two additional 3-inch CNG pipelines would also be constructed from the new 4-inch CNG pipeline line to the microturbines and another to the vehicle fueling facility.

Lighting

Outdoor areas would be lit by pole mounted LED fixtures. To minimize increases in nighttime lighting, all outdoor lighting would be shielded so the illuminated footprint does not extend beyond the area required to be lit. In addition, directional lighting would be used to avoid spillover to adjacent areas, and light levels would be reduced to minimum levels required for operator safety after 10:00 p.m. (City of Roseville 2016a).

Water Systems and Drainage Facilities

The Energy Recovery Project would require the use of potable and non-potable water and would be connected to the existing potable water piping system. Potable water would be used for the new restroom and emergency eyewash stations. Non-potable water would be used for dilution of FOG and food waste. In addition, the Energy Recovery Project would require construction of a new stormdrain facilities that would connect new impervious surfaces to the existing stormdrain system within the existing PGWWTP.

CONSTRUCTION

Construction of the Energy Recovery Facilities would last approximately 18 months and would begin in late 2017 or early 2018. Approximately 2.5 acres would be disturbed for the Energy Recovery Project and minimal vegetation clearing would be required. All of the facilities would be slab-on-grade foundations. There would be minimal excavation and cut and fill would be balanced onsite (City of Roseville 2016b).

Construction activities would generally take place from Monday through Friday during normal daytime working hours. Ingress and egress for construction would be via the existing PGWWTP entrance off Westpark Drive. Construction traffic would access the site using Fiddyment Road to Hayden Parkway and then to Bob Doyle Drive, which connects to Westpark Drive.

OPERATIONS AND MAINTENANCE

The Energy Recovery facilities would be operated continuously. Vehicle fueling for the City's solid waste truck fleet would be limited to daytime hours. Routine maintenance would occur for all new and expanded facilities, and would generally include preventative maintenance, regular inspections and adjustments, replacing media in the digester gas scrubbing system, and replacing oil in compressors. Maintenance would occur periodically or annually depending on the specific equipment. The Energy Recovery Project would require one additional full-time employee to operate and maintain the new facilities. Operation of the Energy Recovery Project would result in long-term vehicle trips associated with one additional full-time employee and occasional trips associated with maintenance.

In addition, operation of the Energy Recovery Project may also provide an opportunity to process high strength waste including FOG and food waste for co-digestion. Food waste is currently being hauled from food service establishments within the City to Clean World in Sacramento. FOG is currently being collected within the City, and although the disposal locations are not currently known, there is currently no FOG receiving facility within the City. Therefore, although it is difficult to quantify, the new high strength waste receiving facility has the potential to reduce total miles of high strength waste because there is currently no disposal location within the City limits for these types of waste.

In the near-term, operations-related vehicle trips would use the same access route as identified above for construction (Fiddyment Road to Hayden Parkway to Bob Doyle Drive to Westpark Drive). In the long-term, Blue Oaks Boulevard would be extended west to connect to Westbrook Boulevard and Westpark Drive would be extended north to the extended Blue Oak Boulevard. Operations-related trips from the north would access the site via Blue Oaks Boulevard to Westpark Drive to Phillip Road. Access from the south would be from Pleasant Grove Boulevard to Westbrook Boulevard to Blue Oaks Boulevard to Westpark Drive, and then to Phillip Road. Operations-related trips would then travel along the western boundary of the PGWWTP. The existing access road along the western boundary of the PGWWTP would be extended south and provide access to the energy recovery facilities (Exhibit 2-5).

2.7 CITY OF ROSEVILLE MITIGATION ORDINANCES, GUIDELINES, AND STANDARDS

The City has adopted the following regulations and ordinances, which include standards and policies that are uniformly applied throughout the City, that substantially mitigate specified environmental effects of future projects:

- Noise Regulation (Roseville Municipal Code [RMC] Ch. 9.24)
- Urban Stormwater Quality Management and Discharge Control Ordinance (RMC Ch. 14.20)
- Stormwater Quality Design Manual (Resolution 07-42)
- City of Roseville Design and Construction Standards (Resolution 07-137)
- Community Design Guidelines (Resolution 95-347)

The City adopted CEQA Findings (Resolution 08-173) that the above ordinances, guidelines and regulations provide mitigation for certain environmental impacts. The City's mitigating ordinances, guidelines, and standards are referenced, where applicable, in the environmental checklist (Chapter 3 of this IS/MND), and would be implemented by the City as part of the proposed Project to reduce potential impacts to a less-than-significant level.

2.8 REQUIRED PERMITS AND PROJECT APPROVALS

Construction of the proposed Project may be partially funded through the Clean Water State Revolving Fund (SRF) loan program, which uses federal funds to reduce interest costs on funds used for clean water Projects. Therefore, the Project is subject to federal environmental regulations, including the Federal Endangered Species Act (Section 7), the National Historic Preservation Act (Section 106), and the General Conformity Rule for the Clean Air Act, among others. In addition to the City (lead agency) approval and CEQA-Plus compliance with the federal regulations for the SRF loan, the SPWA would act as a responsible agency in approving the Project and Project funding. It is expected that the Project would also require a NPDES construction stormwater permit (Notice of Intent to proceed under General Construction Permit) for disturbance of more than 1 acre administered by the SWRCB, and amendments to the Placer County Air Pollution Control District: Authority to construct (for devices that emit air pollutants), permit to operate, and Air Quality Management Plan consistency determination.

3 ENVIRONMENTAL CHECKLIST

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	☐ Agriculture and Forest Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology / Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology / Water Quality
☐ Land Use / Planning	☐ Mineral Resources	☐ Noise
☐ Population / Housing	☐ Public Services	☐ Recreation
☐ Transportation / Traffic	☐ Tribal Cultural Resources	☐ Utilities / Service Systems
☐ Mandatory Findings of Significance		☒ None with Mitigation

DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project could not have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.

☒ I find that although the proposed 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 proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.

☐ I find that the proposed 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 proposed 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 proposed project, nothing further is required.

***

Signature — Date

Mark J Morse — 12-19-16

Mark Morse, Environmental Coordinator

***

City of Roseville

3.1 AESTHETICS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. Aesthetics. Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

3.1.1 Environmental Setting

Aesthetic resources are generally defined as both the natural and built features of the landscape that contribute to the public's experience and appreciation of the environment. Depending on the extent to which a project's presence would negatively alter the perceived visual character and quality of the environment, there may be impacts to aesthetic resources.

The existing PGWWTP is located in an area mixed with development and undeveloped open space. Foreground views to the east, west, and south are of non-native grassland, which are dry most of the year, and landscaping trees along the property line provide screening of the PGWWTP property. Background views to the east, west, and south are of residential development and overhead utility lines (Exhibit 3.1-1). Views to the north are a contrast of the industrial development associated with Roseville Energy Park and the natural riparian area along Pleasant Grove Creek. The nearest sensitive viewers include residences to the east, west, and south located beyond the open space buffer surrounding the existing PGWWTP. Views of the existing PGWWTP include several concrete buildings, large tanks, chain-link fencing, lighting and utility infrastructure, and landscaping trees along the border of the property (Exhibit 3.1-2). Existing security lighting is used on-site. Because of the flat topography, surrounding residences generally have direct, but distant views of the PGWWTP.

There are no scenic roads, resources, or views within or adjacent to the Project site. In addition, the area is not designated as a scenic area in the *City of Roseville General Plan* (City General Plan)*, West Roseville Specific Plan (WRSP),* or the *Placer County General Plan* (City of Roseville 2004).

3.1.2 Discussion

a) Would the project have a substantial adverse effect on a scenic vista?

No impact. A scenic vista is generally considered a view of an area that has remarkable scenery or a resource that is indigenous to the area. There are no scenic vistas in the Project vicinity or with views of the Project site. Because the proposed Project would not adversely affect a scenic vista, there would be no impact.

Exhibit 3.1-1a **Looking East, from Southern Expansion Area**

Exhibit 3.1-1b **Looking West, toward Southern Expansion Area**

Exhibit 3.1-2a **Looking South, from Southern Expansion Area**

Exhibit 3.1-2b **Existing PGWWTP Facilities looking north from Southern Expansion Area**

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No impact. The proposed Project would not be located near a designated or eligible state scenic highway (California Department of Transportation [Caltrans] 2016). Furthermore, the proposed Project would not damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings. Therefore, no impact would occur.

c) Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

Less than significant. The Project site is primarily surrounded by non-native grassland. Although the proposed Project would include construction of new facilities within and south of the existing WWTP, the addition of like buildings and facilities to an already developed site would not substantially change the existing views of the site. Proposed facilities would be visible to persons living in the residences located to the east, west, and south, and motorists on surrounding roadways including Westpark Drive and Westbrook Boulevard. Although views of the site would be altered, the Project would not substantially change the visual character of the site because the proposed Project would be located at or immediately adjacent to the already developed WWTP site. The proposed facilities would be similar in height and visual appearance as the existing WWTP facilities. Minimal new lighting would be used for the Project facilities consistent with existing security lighting. The Project would be visually consistent with the existing WWTP and would not substantially change the surrounding visual character. Therefore, this impact would be less than significant.

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less than significant. Glare is caused by light reflections from vehicles and building materials such as reflective glass and polished surfaces. During daylight hours, the amount of glare depends on the intensity and direction of sunlight. At night, artificial light can cause glare. The proposed Project would include the addition of new lighting fixtures, primarily for the security needs of the WWTP. New lighting would be installed within the WWTP site and the Southern Expansion Area. The new lighting would be directed downward and fully screened to avoid nighttime lighting spillover effects on adjacent land uses and nighttime sky conditions. The limited amount of new lighting would represent a negligible addition relative to the existing facility lighting. In addition, proposed facilities would be constructed with non-reflective materials similar to the existing facilities. Therefore, this impact would be less than significant.

3.2 AGRICULTURE AND FOREST RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
II. Agriculture and Forest Resources.				
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.				
Would the project:				
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?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	☒
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))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
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?	☐	☐	☐	☒

3.2.1 Environmental Setting

Farmlands are mapped by the State of California Department of Conservation (DOC) under the Farmland Mapping and Monitoring Program (FMMP). The FMMP was created by the State of California to provide data on farmland quality for use by decision makers in considering possible conversion of agricultural lands. Under the FMMP, land is delineated into the following eight categories: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, Grazing Land, Urban or Built-Up Land, Other Land, and Water. Mapping is conducted on a county-wide scale, with minimum mapping units of

10 acres unless otherwise specified. The proposed facilities would be within the boundaries of and immediately south of the existing PGWWTP. The existing PGWWTP is designated under the FMMP as Urban and Built-Up Land, and the area immediately south of the PGWWTP, where the Energy Recovery Project would be located, is designated as grazing land, although it is not being actively grazed (Exhibit 3.2-1) (DOC 2014).

3.2.2 Discussion

a) Would the project 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?

No impact. The Expansion Project facilities would be constructed on developed land within the existing boundary of the PGWWTP. The site is not used for agricultural production and is designated as Urban and Built-Up Land by the FMMP (DOC 2014). Although the Southern Expansion Area, where the Energy Recovery Project facilities would be located, is designated as grazing land by the FMMP, it is not considered Important Farmland and is not being actively grazed. Therefore, Important Farmland would not be converted to a non-agricultural use as a result of the Project, and there would be no impact.

b) Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?

No impact. The PGWWTP and the Southern Expansion Area are not subject to Williamson Act contract. Therefore, implementation of the Project would not conflict with existing zoning for agricultural use or a Williamson Act contract. No impact would occur.

c) Would the project 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 impact. No portion of the existing PGWWTP or adjacent lands are zoned for forest land, timberland, or timberland zoned Timberland Production. Therefore, the Project would not conflict with existing zoning for forest land or timberland. No impact would occur.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

No impact. The Expansion Project facilities would be within the boundary of the existing PGWWTP and the footprint for these facilities is either disturbed or currently developed. The Energy Recovery Project facilities would be located in an area of disturbed grassland. No forest lands exist within either footprint. Therefore, implementation of the Project would not result in conversion of forest land to non-forest uses, and there are no Project elements that would otherwise affect forest lands. Therefore, no impact would occur.

e) Would the project 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?

No impact. No forest or agricultural resources are located within or adjacent to the PGWWTP. Therefore, implementation of the Project would not result in conversion of farmland to non-agricultural use or forest land to non-forest use. No impact would occur.

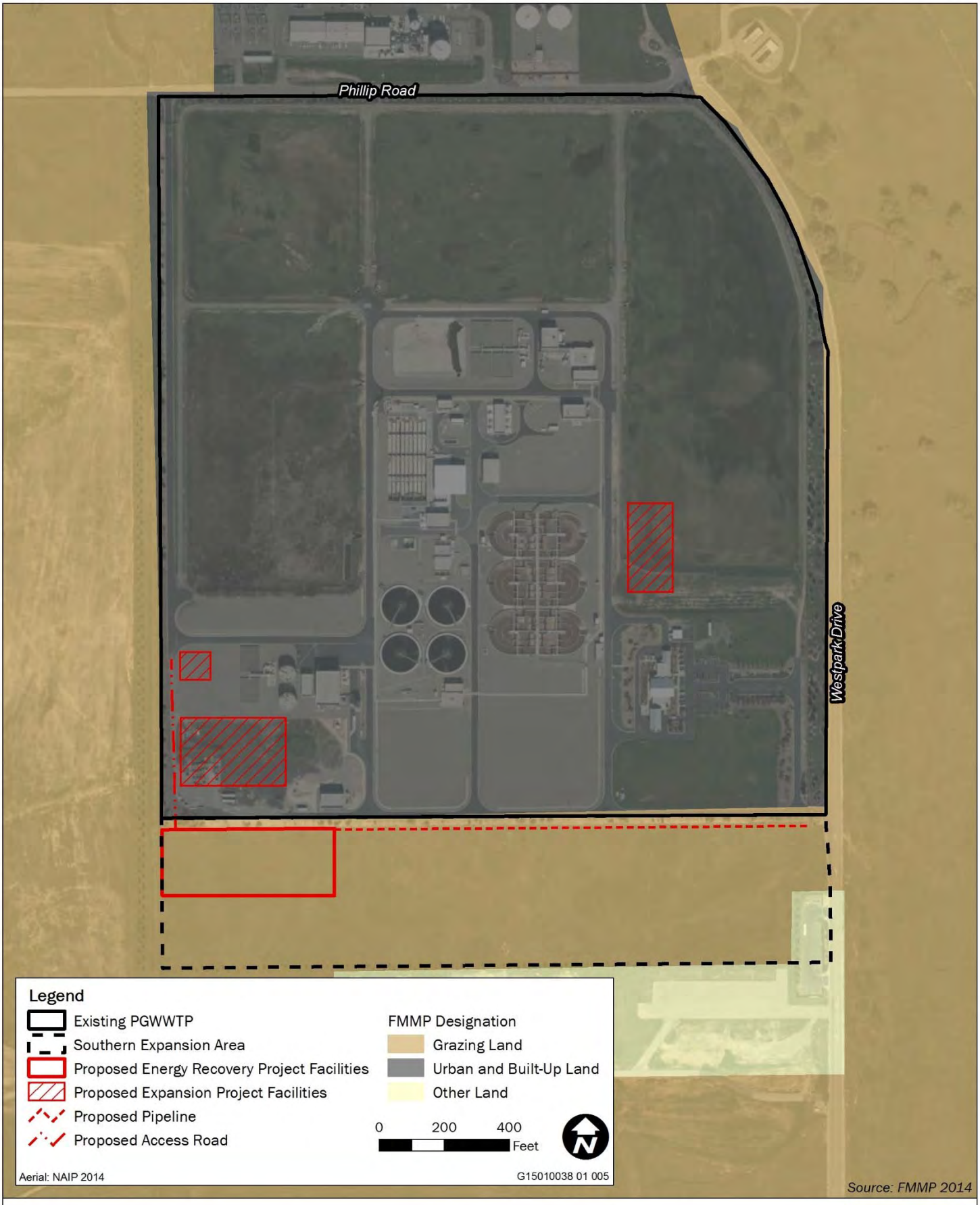


Exhibit 3.2-1 **FMMP Designations**

3.3 AIR QUALITY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III. Air Quality.				
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the following determinations.				
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
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)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

3.3.1 Environmental Setting

The Project site is located in the western portion of Placer County, California, which is within the Sacramento Valley Air Basin (SVAB). The SVAB also includes all of Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba Counties; and the eastern portion of Solano County. The ambient concentrations of air pollutant emissions are determined by the amount of emissions released by the sources of air pollutants and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources, as discussed separately below.

The SVAB is a relatively flat area bordered by the north Coast Ranges to the west and the northern Sierra Nevada to the east. Air flows into the SVAB through the Carquinez Strait, the only breach in the western mountain barrier, and moves across the Sacramento River–San Joaquin River Delta from the San Francisco Bay area.

Of the many pollutants, ozone, particulate matter [i.e., respirable (PM_{10}) and fine ($PM_{2.5}$)], and carbon monoxide (CO) are of primary concern within the County, as well as for much of the rest of the State. The SVAB portion of Placer County is considered by the State, under the terms of the California Clean Air Act (CCAA), to be "non-attainment" for ozone and PM_{10} and to be either "attainment" or unclassified for other pollutants [California Air Resources Board (ARB) 2015a]. Additionally, under the terms of the National Ambient Air Quality Standards (NAAQS), the County is categorized as "non-attainment" for ozone and $PM_{2.5}$, a

"moderate maintenance" area for carbon monoxide, and "attainment" or unclassified for other pollutants [U.S. Environmental Protection Agency (EPA) 2016a].

Criteria air pollutant concentrations are measured at several monitoring stations in SVAB. The Roseville-N Sunrise Boulevard station is the closest station to the Project site, located approximately 7 miles northwest of the Project site, and reports air quality data for ozone, $PM_{2.5}$, and PM_{10}. In general, the ambient air quality measurements from these stations are representative of the air quality near the Project site. Table 3.3-1 summarizes the air quality data for the three most recent calendar years for which data is available. No CO monitoring data was available at monitoring stations within the SVAB, Mountain Counties Air Basin, or San Joaquin Valley Air Basin.

Table 3.3-1 Summary of Annual Data on Ambient Air Quality (2013-2015)[1]

	2013	2014	2015
Ozone			
Maximum concentration (1-hr/8-hr avg, ppm)	0.111/0.084	0.097/0.087	0.098/0.085
Number of days state standard exceeded (1-hr/8-hr)	2/8	4/21	1/6
Number of days national standard exceeded (1-hr/8-hr)	0/2	0/10	0/3
Fine Particulate Matter ($PM_{2.5}$)			
Maximum concentration (24-hour µg/m^3)	57.0	30.7	44.1
Number of days national standard exceeded (24-hour measured[2])	0	0	0
Respirable Particulate Matter (PM_{10})			
Maximum concentration (24-hour µg/m^3)	55.5	31.8	59.1
Number of days state standard exceeded (measured/calculated[2])	1/*	0/0	1/*
Number of days national standard exceeded (measured/calculated[2])	0/0.0	0/0	0/*

Notes:

[1] Measurements from the Roseville-N Sunrise Boulevard Monitoring Station.

[2] Measured days are those days that an actual measurement was greater than the level of the state daily standard or the national daily standard. Measurements are typically collected every 6 days. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.

µg/m^3 = micrograms per cubic meter
ppm = parts per million
* = There was insufficient data to determine the value.
Source: ARB 2016a,b

Although naturally occurring asbestos occurs throughout the State, occurrences within Placer County are located in central areas of the County and are not located within the Roseville City limits. Thus, naturally occurring asbestos is unlikely to be found within the Project area (Van Gosen and Clinkenbeard 2011).

There are several sensitive receptors, mostly single family residences, within 2,000 feet of the PGWWTP with the closest sensitive receptor located as close as 845 feet from the proposed construction staging area on the west side of the Project site. Several clusters of single family homes and some multifamily homes are located between 845 and 3,200 feet west, east, and south of PGWWTP. Chilton Middle School, an existing school with outdoor athletic facilities, is located approximately 2,930 feet southeast of the Project site.

PLACER COUNTY AIR POLLUTION CONTROL DISTRICT

Placer County Air Pollution Control District (PCAPCD) attains and maintains air quality conditions in Placer County through a comprehensive program of planning, regulation, enforcement, technical innovation, and

promotion of the understanding of air quality issues. The clean air strategy of PCAPCD includes the preparation of plans and programs for the attainment of ambient-air quality standards, adoption and enforcement of rules and regulations, and issuance of permits for stationary sources. PCAPCD also inspects stationary sources, responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements other programs and regulations required by the CAA, CAAA, and CCAA.

All projects are subject to adopted PCACPD rules and regulations in effect at the time of construction. Specific rules applicable to the construction and operation of the proposed Project may include but are not limited to the following:

- **Rule 202—Visible Emissions.** Requires that opacity emissions from any source not exceed 20 percent for more than 3 minutes in any 1 hour.
- **Rule 217—Cutback and Emulsified Asphalt Paving Materials.** Prohibits the use of the following asphalt materials for road paving: rapid cure cutback asphalt; slow cure cutback asphalt; medium cure cutback asphalt; or emulsified asphalt.
- **Rule 218—Application of Architectural Coatings.** Requires architectural coatings to meet various volatile organic compound (VOC) content limits.
- **Rule 228—Fugitive Dust.** Establishes standards to be met by activities generating fugitive dust. Minimum dust control requirements include, but are not limited to:
  - Visible emissions are not allowed beyond the project boundary line.
  - Sufficient water must be applied to the area to be disturbed prior to any ground disturbance, including grading, excavating, and land clearing.
  - Speed of vehicle or equipment travelling on unpaved areas must not exceed 15 miles per hour unless the road is sufficiently stabilized.
  - Visible emissions may not have opacity of greater than 40 percent at any time.
  - Track-out must be minimized from paved public roadways.
- **Rule 242—Stationary Internal Combustion Engines.** Establishes limits for NO_X and CO emissions from internal combustion engines.
- **Rule 250—Stationary Gas Turbines.**
  - Requires that NO_X emissions from gas, include natural, digester, and landfill gases, turbines rated between 0.3 and 2.9 megawatts (MW) not exceed the compliance limit of 42 ppm at 15 percent oxygen (O_2) averaged over one hour, except during start up and shut down cycles.
  - The NO_X emissions shall meet at least one of the following averaged over the duration of the startup or shutdown period:
    - 70 ppm at 15 percent O_2 for turbines fired on gas or,
    - 0.16 pounds per MMBtu input for turbines fired on gas or oil.
  - The NO_X emissions shall be kept to a minimum by use of the following:
    - Manufacturer's recommendation for operation during startup and shutdown.
    - Injection of water as soon as reasonably possible
    - Maintaining proper air to fuel ratios

- **Rule 401—Permit Required.** Any person building, altering, or replacing any source of air contaminants shall first obtain an Authority to Construct from the Air Pollution Control Officer. An Authority to Construct shall remain in effect until the Permit to Operate for that source for which the application was filed is either granted or denied or until termination pursuant to other provisions of this Regulation.

- **Rule 501—General Permit Requirements.** Establishes that new stationary sources of air emissions require operating permits from PCAPCD.

- **Rule 502—New Source Review**. Establishes permitting requirements for new sources. This includes thresholds for the requirement to utilize "Best Available Control Technology" and the need to meet "emission offsets" by obtaining emission reduction credits.

Criteria Air Pollutants

As a part of the Sacramento federal ozone nonattainment area, PCAPCD works with the Sacramento Metropolitan Air Pollution Control District (SMAQMD) and other local air districts within the Sacramento area to develop a regional air quality management plan under CAA requirements. The Sacramento Regional 8-hour Ozone Attainment and Reasonable Further Progress Plan, also referred to as the Sacramento Ozone SIP, was prepared to meet requirements of the CAA for the 1997 8-hour ozone standard and was most recently amended in 2013. The SIP describes and demonstrates how Placer County, as well as the Sacramento nonattainment area, would attain the federal 1997 ozone standard by 2018. The new ozone SIP to meet the 2008 ozone standard will be prepared for the Sacramento nonattainment area at a future date (SMAQMD 2013, PCAPCD 2012). One of the proposed mitigation strategies in the SIP is a program that would provide monetary incentives for NO_X reduction in heavy-duty vehicles. Other strategies include reviewing land use projects to ensure the region's vision for "smart growth" is implemented, reducing vehicle miles traveled (VMT) and subsequent mobile-source emissions (SMAQMD 2013).

PCAPCD also adopted the *2014 Reasonably Available Control Technology State Implementation Plan Analysis* (2014 RACT SIP) as federally required for SIPs. The 2014 RACT SIP analysis provides guidelines for specific emission control technologies recommended for 16 difference source categories, including gas turbines, natural gas service stations, fuel tanks, and asphalt (PCACPD 2014).

Plans to maintain the federal $PM_{2.5}$ attainment status in the western portion of Placer County include the *PM2.5 Maintenance Plan and Redesignation Request for the Sacramento PM2.5 Nonattainment Area* and primarily consist of enforcing the existing PCAPCD rules which has led to current attainment levels (SMAQMD et. al 2013).

With respect to ozone and PM_{10} non-attainment of the CAAQS, the CCAA requires PCAPCD and other districts in the SVAB to assess the level of air quality improvement and emissions reductions from control measures for the preceding 3-year period. The most recent report is the *2015 Triennial Report and Progress Plan* compiled by SMAQMD on behalf of air districts within the SVAB, including PCAPCD. This plan includes two major programs relevant to this Project. The Vehicle and Engine Technology program focuses on reducing NO_X emissions from heavy-duty diesel engines and provides financial incentives for replacing or retrofitting on-road heavy-duty diesel vehicles; and the Land Use and Transportation program requires NO_X reductions from diesel construction equipment if the Project has potential air quality impacts (SMAQMD 2015).

Toxic Air Contaminants

At the local level, air pollution control or management districts may adopt and enforce ARB's control measures. PCAPCD limits emissions and public exposure to TACs through a number of programs. PCAPCD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors.

Sources that require a permit are analyzed by PCAPCD (e.g., health risk assessment) based on their potential to emit toxics. If it is determined that the Project would emit toxics in excess of PCAPCD's threshold of significance for TACs (identified below under Thresholds of Significance), sources have to implement

PCAPCD's T-BACT requirement for TACs to reduce emissions. If a source cannot reduce the risk below the threshold of significance even after T-BACT has been implemented, PCAPCD will deny the permit required by the source. This helps to prevent new problems and reduces emissions from existing older sources by requiring them to apply new technology when retrofitting with respect to TACs.

METHODS AND ASSUMPTIONS

Construction and operational emissions were calculated using a combination of model and off-model methods along with the assumptions dictated in the Project description. Emissions from Project construction were estimated with the CalEEMod (Version 2016.3.1) computer program (SCAQMD 2016), recommended by PCAPCD (PCAPCD 2012, PCAPCD 2016a).

In accordance with PCAPCD-recommended methodologies, emissions generated by the Project are modeled and presented on a pound-per-day basis with respect to the metrics in the selected thresholds of significance.

Construction

Construction modeling was performed separately for the Expansion Project and Energy Recovery Project. The modeling was conducted in this manner because the Expansion Project may proceed without the Energy Recovery Project. However, if the Energy Recovery Project is also approved, construction of it and the Expansion Project may overlap; therefore, the modeling results were combined outside of CalEEMod to assess the potential impacts of overlapping construction phases. As stated in Chapter 2, "Project Description and Background," construction modeling assumed construction of the Expansion Project would last approximately 24 months starting in fall of 2017. Construction of the Energy Recovery Project is assumed to begin late 2017 or early 2018 and last approximately 18 months. Construction phasing and equipment details were provided by the City. Additional details with respect to model inputs and assumptions can be found in Appendix B.

Operations

Mobile Sources

Expansion Project

For the Expansion Project, criteria pollutant emissions from mobile sources considered those that would result from the combustion of gasoline and diesel vehicle fuels. Maximum daily VMT and fuel use by vehicle type and fuel type were compared between existing and build-out conditions under the Expansion Project. Emissions calculations accounted for the VMT changes in employee commute trips; conversion of waste activated sludge (WAS) hauling to biosolids hauling; and hauling of chemicals. These calculations were based on data provided by the City and Kennedy/Jenks Consultants (City of Roseville 2016a). The changes in vehicle trips and trip lengths used to calculate the changes in mobile source emissions are shown in Table 3.3-2 below. Additional details can be found in Appendix B.

Vehicle exhaust emissions were calculated using mileage-based emission factors from ARB's Emissions FACtor model (EMFAC2014) for the 2020 calendar year for the Sacramento Valley-portion of Placer County (ARB 2015b). Full project build-out has been assumed in the modeling of operations to represent a worst-case scenario. This is a conservative estimate that assumes full capacity would be reached by the first full year of operation (2020). In reality, there would be an interim period where the amount of wastewater treated would gradually increase in response to new development. This assumption is also conservative because vehicle emissions further into the future are anticipated to decline due to technological and regulatory improvements and a flowrate of 12 mgd may not occur until 2040.

Table 3.3-2 Changes in Daily Vehicle Activity between Existing and Build-Out Conditions of the Expansion Project

Mobile Source	Existing Trips per day	Project Trips per day	Existing Trip Length (mi)	Project Trip Length (mi)
Employee Commute[1, 2]	0	2	15	15
Hauling: WAS/Biosolids[2]	6	7	6	45
Hauling: Chemicals[3]	2	3	7	7

Notes: Amounts may not sum to totals due to rounding. It is assumed that all vehicle trips except for employee commute trips would occur 5 days per week. Employee commute trips would occur 7 days per week.

1 Accounts for new employee trips only.
2 Based on data provided by City and Kennedy/Jenks Consultants (City of Roseville 2016a)
3 Scaled by growth in wastewater treatment capacity.
WAS = waste activated sludge
Source: Compiled by Ascent Environmental in 2016.

Energy Recovery Project

The Energy Recovery Project would use digester gas produced by the Expansion Project and would not be able to operate independently; therefore, operational emissions modeled for the Energy Recovery Project also include operation of the Expansion Project. References to Energy Recovery Project below are assumed to include operation of the Expansion Project. Mobile emission sources modeled for the Energy Recovery Project would include the mobile emission sources modeled above for the Expansion Project in addition to mobile emission sources unique to the Energy Recovery Project (i.e., CNG solid waste collection vehicles, additional employees, and hauling of high strength waste).

Mobile emissions associated with the Energy Recovery Project were based on changes in daily VMT by vehicle type compared to existing conditions and the conversion of solid waste collection vehicle fuel use from CNG to a renewable CNG (rCNG) blend. Maximum daily VMT by vehicle type and fuel type were compared between existing and build-out conditions under the Energy Recovery Project. Using mileage-based emission factors, most mobile source emissions were calculated based on increased employee commute trips; changes in trip length associated with conversion of WAS hauling to biosolids hauling; and hauling of high strength waste (HWS) (including fats, oils, and grease [FOG] and food waste); and increased chemical hauling trips. The changes in vehicle trips and trip lengths used to calculate these changes in mobile source emissions in this analysis are shown in Table 3.3-3 below. Emissions related to the conversion of CNG to an rCNG blend are discussed further below. These calculations were based on data provided by the City and Brown and Caldwell (City of Roseville 2016b,c). Additional details can be found in Appendix B.

Mileage-based tailpipe emission factors for all vehicle types were taken from EMFAC2014 and Argonne National Laboratory's Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation model (GREET 2015), respectively (ARB 2015b, Argonne National Laboratory 2015). Energy-based emission factors for the upstream production of CNG and rCNG were provided by the California-modified version of GREET (CA-GREET Tier 1 Version 2.0) (ARB 2016c). Both upstream and tailpipe emissions were included because the Energy Recovery Project would result in GHGs from the production of rCNG and offset the production of conventional CNG. Upstream emissions include refining, fuel distribution, and pumping emissions for on-site compression and production for rCNG. (ARB 2015c, ARB 2016c, Argonne National Laboratory 2015).

To calculate the CNG and rCNG energy use needed for the upstream emissions calculations, the energy content of the CNG and rCNG used in the solid waste collection vehicles was calculated using energy demand estimates quantified in the *Pleasant Grove Wastewater Treatment Plant Energy Recovery Project Basis of Design Report (Energy Recovery Project Basis of Design Report)* (City of Roseville 2016c). According to this report, the Energy Recovery Project is designed to accommodate a vehicle fuel demand of 2,500 diesel gallons equivalents (DGE) per day. The CNG fuel required to meet that demand would be a blend between the rCNG derived from the digester gas and conventional CNG purchased from the local utility. The vehicle fuel production at the Energy Recovery Project would require approximately 7.9 MMBTU per hour of

natural gas under normal operating conditions (210 scf per minute of digester gas production). Using a lower heating value of 139,000 BTU per gallon of diesel, the Energy Recovery Project would produce 1,136 DGE of digester gas and require 1,364 DGE of natural gas use per day. Assuming production would occur 365 days per year, the annual combustion of digester gas and natural gas for vehicle fuels would be 57,673 MMBTU and 69,251 MMBTU, respectively. This assumes all rCNG produced by the Energy Recovery Project in a single year would be combusted, regardless of decreased fueling activity during weekends and holidays or level of storage. Actual emissions from vehicles fuels may vary depending on the level of digester gas production and diversion ratio of the digester gas between vehicle fuels and the proposed microturbines.

Table 3.3-3 Changes in Daily Vehicle Activity between Existing and Build-Out Conditions of the Energy Recovery Project

Mobile Source	EMFAC Vehicle Type	Existing Trips per day	Project Trips per day	Existing Trip Length (mi)	Project Trip Length (mi)
Employee Commute[1, 2]	LDA/LDT1/LDT2	0	2	15	15
Hauling: HSW[2]	MMDT	2	2	21	7
Hauling: WAS/Biosolids[2]	HHDT	6.4	6.7	6	45
Hauling: Chemicals[3]	MMDT	2	3.4	7	7
CNG Solid Waste Collection Vehicles[4]	T7 SWCV	NA	NA	NA	NA

Notes: Amounts may not sum to totals due to rounding. It is assumed that all vehicle trips except for employee commute trips would occur 5 days per week. Employee commute trips would occur 7 days per week.

1 Accounts for new employee trips only.
2 Based on data provided by City and Kennedy/Jenks Consultants (City of Roseville 2016a)
3 Scaled by growth in wastewater treatment capacity.
4 Daily trips and trip lengths not available. Emission calculations based on usage of 2,500 diesel gallon equivalents per day, or 6,250 miles per day.

HSW = high strength waste
WAS = waste activated sludge
NA = not available
LDA/LDT1/LDT2 = light duty vehicles and trucks
HHDT = heavy duty vehicles
MMDT = medium duty vehicles
T7 SWCV = T7 rated solid waste collection vehicle
CNG = compressed natural gas

Source: Compiled by Ascent Environmental in 2016.

Process Emissions

Expansion Project

With respect to process emissions, criteria pollutants would result from wastewater treatment processes, flaring of digester gas, and combustion of natural gas for the proposed boilers that provide heat for the digester. Emissions from wastewater treatment processes were scaled from ARB's stationary source facility emissions database for the PGWWTP (ARB 2016d). Process emissions from PGWWTP were available for 2014 and were scaled by the anticipated changes in the wastewater treatment volumes from 7.1 mgd under existing conditions to 12 mgd at full buildout.

Daily emissions from digester gas flaring and natural gas combustion in boilers were calculated by multiplying the estimated daily energy content of each gas by EPA's AP-42 emission factors specific to these applications (EPA 2000). At full build-out and under normal conditions, approximately 210 standard cubic feet (scf) of digester gas per minute (302,400 scf per day) would be produced and flared. Assuming a lower heating value of 546 BTU/scf, the Expansion Project would produce and flare approximately 165 million BTU (MMBTU) of digester gas per day. EPA's AP-42 emission factors for flares of synthetic waste gases were used as a proxy to calculate ROG and NO_X emissions from the proposed digester gas flares. No other criteria pollutant emission factors related to flaring were available.

Natural gas is currently not used on-site. However, with the Expansion Project, approximately 89 MMBTU of natural gas per day will be combusted in small boilers to heat the anaerobic digesters. Criteria pollutant emissions were calculated from EPA's AP-42 factors for uncontrolled combustion of natural gas in boilers (EPA 2000).

Energy Recovery Project

As discussed above, operational modeling for the Energy Recovery Project includes operation of the Expansion Project and references to the Energy Recovery Project below are assumed to include both projects. Process emissions modeled for the Energy Recovery Project included the process emissions discussed above for the Expansion Project as well as criteria pollutants that would result from combustion of natural gas and tail gas in the proposed microturbines. Tail gas is a byproduct from the conversion of digester gas into biomethane used for vehicle fuel.

To calculate emissions from the combustion of tail gas and natural gas in the proposed microturbines, the annual energy use of each gas was calculated and multiplied by the energy-based emission factors from EPA's AP-42 guidance for natural gas-powered turbines (EPA 2000). The Energy Recovery Project would require 2.6 MMBTU per hour of natural gas for use in the microturbines. Based on the microturbine energy requirements in Section 11.1.3.1 of the Energy Recovery Project Basis of Design Report, the combined methane content of tail gas and natural gas used in the microturbines must be equal 50 percent. Tail gas and natural gas have a methane content of 28 and 75 percent, respectively. Assuming a lower heating value of 259 BTU/scf for tail gas, the Energy Recovery Project would combust 18 MMBTU per day of tail gas and 62 MMBTU per day of natural gas in the proposed microturbines.

Thresholds of Significance

As stated in Appendix G of the CEQA Guidelines, the significance criteria established by the applicable AQMD or APCD may be relied on to make the above determinations. PCAPCD adopted revised CEQA thresholds of significance for criteria pollutant emissions on October 13, 2016 (PCAPCD 2016b). These new thresholds are supported by PCAPCD's *California Environmental Quality Act Thresholds of Significance Justification Report* released in September 2016 (PCAPCD 2016a), and were used in evaluation of impacts related to the proposed Project. PCAPCD thresholds of significance are the following:

- a net increase in short-term construction-related emissions of ROG, NO_X, or PM_{10} that exceed mass emissions of 82 pounds per day (lbs/day) in Placer County (PCAPCD 2016a:12);
- a net increase in long-term operation-related (regional) emissions of ROG and NO_X that exceed mass emissions of 55 lbs/day and emissions of PM_{10} that exceed mass emissions of 82 lbs/day in Placer County (PCAPCD 2016a:12);
- exposure of sensitive receptors to TAC emissions that would exceed 10 in 1 million for the carcinogenic risk (i.e., the risk of contracting cancer) or a non-carcinogenic Hazard Index of 1 for the maximally exposed individual (PCAPCD 2012:70); and/or
- a net increase in short-term construction-related or long-term operation-related (regional) emissions of CO that would result in CO concentrations that exceed the 1-hour CAAQS of 20 ppm or the 8-hour CAAQS for the LTAB of 6 ppm.

In addition, according to PCAPCD, a project would result in a considerable contribution to a cumulative impact to air quality if it would result in:

- a net increase in long-term operation-related (regional) emissions of ROG or NO_X that exceed 55 lb/day or emissions of PM_{10} that exceed 82 lbs/day (PCAPCD 2016a:12).

3.3.2 Discussion

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less than significant. The emission inventories used to develop a region's air quality attainment plans are based primarily on land use growth patterns, enforcing limits in emissions through BACT requirements, and enforcing other existing PCAPCD rules. Therefore, projects that would result in increases in population or employment growth beyond that projected in regional or community plans could result in increases in VMT above that planned in the air quality plans, further resulting in mobile-source emissions that could conflict with a region's air quality planning efforts. Also, stationary-source projects that are inconsistent with PCAPCD technology requirements and rules could also conflict with the emission reduction goals in the federal and state attainment plans.

The proposed Project would not result in increases in population or employment beyond those projected in the General Plans of local jurisdictions within the Service Area. Instead, the Project would serve the utility needs identified in those General Plans to accommodate planned growth within the PGWWTP Service Area. The Expansion Project would increase the PGWWTP's ADWF treatment capacity from 9.5 to 12 mgd.

The Expansion Project would result in new stationary sources of emissions related to the new wastewater treatment processes, boilers, and flare operations. The Expansion Project would be subject to all PCAPCD rules pertaining to new stationary sources, including Rule 250, 401, 501, and 502, which are aimed at maintaining or achieving attainment of the NAAQS in the SVAB. However, this analysis assumes the flare and boilers would have no criteria pollutant controls as a conservative estimate.

Table 3.3-4 Summary of Modeled Maximum Daily Emissions of Criteria Air Pollutants and Precursors Associated with Expansion Project Operation[1]

Emissions Source	ROG (lb/day)	NO_X (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Mobile Sources[2]	0.0	0.8	0.0	0.0
WWTP Processes[3]	11.4	2.1	<0.1	<0.1
Digester Gas Flare[4]	10.4	11.2	0.0[5]	0.0[5]
Natural Gas Boilers[4]	0.5	8.6	0.5	0.2
TOTAL	22.3	22.8	0.5	0.2
PCAPCD Thresholds of Significance	55	55	82	NA
Exceeds Thresholds?	No	No	No	NA

Notes: Amounts may not sum to totals due to rounding. See Appendix B for more details.

1 Operation is assumed to begin in 2020.

2 Accounts for changes in employee commute, elimination of WAS hauling, increases in biosolids hauling, and chemical hauling. Emissions estimated using emission factors from EMFAC2014.

3 The increase in emissions from the expanded WWTP is based on 2014 facility-level emissions report from ARB (ARB 2016d) and scaled by the anticipated change in wastewater volume (7.1 to 12 mgd).

4 Estimated using emission factors from EPA's AP-42 guidance documentation (EPA 2000).

5 No emission factors were available for this activity and pollutant.

lb/day = pounds per day
ROG = reactive organic gases
NO_X = oxides of nitrogen
PM_{10} = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less
$PM_{2.5}$ = respirable particulate matter with an aerodynamic diameter of 2.5 micrometers or less
WWTP = wastewater treatment plant
NA = not available
ARB = California Air Resources Board
PCAPCD = Placer County Air Pollution Control District

Source: ARB 2016d, EPA 2000, PCAPCD 2016a, modeling conducted by Ascent Environmental in 2016.

As shown in Table 3.3-4 above, the Expansion Project would result in maximum daily emissions of 22.3 lb ROG/day, 22.8 lb NO_X/day, 0.5 lb PM_{10}/day, and 0.2 lb $PM_{2.5}$/day and would not exceed applicable air quality thresholds.

The Energy Recovery Project would result in a new stationary source of emissions related to the microturbines. The Energy Recovery Project would be subject to all PCAPCD rules pertaining to new stationary sources, including Rule 250, 401, 501, and 502, which are aimed at maintaining or achieving attainment of the NAAQS in the SVAB.

Table 3.3-5 Summary of Modeled Maximum Daily Emissions of Criteria Air Pollutants and Precursors Associated with Energy Recovery Project Operation[1]

Emissions Source	ROG (lb/day)	NO_X (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Mobile Sources[2]	2.1	1.4	0.3	0.3
WWTP Processes[3]	11.4	2.1	<0.1	<0.1
Microturbines[4]	0.2	22.9	0.5	0.1
TOTAL	13.8	26.4	0.8	0.4
PCAPCD Thresholds of Significance	55	55	82	NA
Exceeds Thresholds?	No	No	No	NA

Notes: Amounts may not sum to totals due to rounding. See Appendix B for more details.

1 Operation is assumed to begin in 2020.

2 Accounts for changes in employee commute, elimination of WAS hauling, increases in biosolids hauling, increased hauling of high strength waste, increased chemical hauling, and replacing CNG with a renewable CNG blend in solid waste collection vehicles. Emissions estimated using emission factors from EMFAC2014.

3 The increase in emissions from the expanded WWTP is based on 2014 facility-level emissions report from ARB (ARB 2016d) and scaled by the anticipated change in wastewater volume (7.1 to 12 mgd).

4 Estimated using emission factors from EPA's AP-42 guidance documentation (EPA 2000).

lb/day = pounds per day
ROG = reactive organic gases
NO^X = oxides of nitrogen
PM^{10} = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less
$PM^{2.5}$ = respirable particulate matter with an aerodynamic diameter of 2.5 micrometers or less
WWTP = wastewater treatment plant
WAS = waste activated sludge
NA = not available
CNG = compressed natural gas
mgd = million gallons per day
ARB = California Air Resources Board

Source: ARB 2016d, EPA 2000, PCAPCD 2016a, modeling conducted by Ascent Environmental in 2016.

As shown in Table 3.3-5 above, the Energy Recovery Project (including the Expansion Project) would result in maximum daily emissions of 13.8 lb ROG/day, 26.4 lb NO_X/day, 0.8 lb PM_{10}/day, and 0.4 lb $PM_{2.5}$/day and would not exceed applicable air quality thresholds. These emissions are less than the maximum emissions under the Expansion Project alone mainly because the Energy Recovery Project would use less natural gas and would not have flaring-related emissions.

Both the Expansion Project by itself and Energy Recovery Project and Expansion Project together, would result in emissions consistent with both the NAAQS and CAAQS attainment plans, based on the Project's consistency with PCAPCD thresholds. Also, the neither the Expansion Project nor the Energy Recovery Project and Expansion Project together would result in any regional population growth beyond what is anticipated by the General Plans of local jurisdictions within the Service Area. Therefore, neither the Expansion Project or

the Energy Recovery Project and Expansion Project together would conflict with or obstruct implementation of any air quality planning efforts. As a result, this impact would be less than significant.

b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

As discussed above, modeling was conducted for the Expansion Project by itself and for the Energy Recovery Project and Expansion Project together (referred to as the Energy Recovery Project). The Expansion Project and Energy Recovery Project would both result in emissions of criteria air pollutants and precursors, including ROG, NO_X, PM_{10}, and $PM_{2.5}$ associated with construction (short-term) and operation (long-term). Short-term construction-related and long-term operational impacts are assessed separately below.

Short-Term Construction-Related Regional Criteria Air Pollutant and Precursor Emissions

Less than significant. Table 3.3-6 below summarizes the modeled construction-related emissions of criteria air pollutants and ozone precursors for the Expansion Project by construction year. This reflects maximum daily emissions that would occur due to overlapping construction phases within a calendar year. The significance of construction-related air quality impacts was determined by comparing these modeling results with applicable significance thresholds. Refer to Appendix B for detailed modeling input parameters and results.

Table 3.3-6 Summary of Modeled Maximum Daily Emissions of Criteria Air Pollutants and Precursors Generated during Expansion Project Construction [1]

Construction Year	ROG (lb/day)	NO_X (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
2017[2]	6.7	69.3	15.2	9.4
2018	0.8	6.2	0.5	0.4
2019	1.7	13.2	1.0	0.7
PCAPCD Thresholds of Significance	82	82	82	NA
Exceeds Thresholds?	No	No	No	NA

Notes: Amounts may not sum to totals due to rounding.

1 Modeled using CalEEMod 2016.3.1 (SCAQMD 2016).

2 Construction is assumed to begin in June 2017 and last for approximately 24 months.

lb/day = pounds per day
ROG = reactive organic gases
NO_X = oxides of nitrogen
PM_{10} = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less
$PM_{2.5}$ = fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less

See Appendix B for detailed model inputs, assumptions, and Project-specific modeling parameters.

Source: Modeling conducted by Ascent Environmental in 2016 using CalEEMod Version 2016.3.1 (SCAQMD 2016).

Based on the modeling conducted, construction of the Expansion Project would result in maximum daily emissions of approximately 6.7 lb/day of ROG, 69.3 lb/day of NO_X, 15.2 lb/day of PM_{10} and 9.4 lb/day of $PM_{2.5}$ starting in 2017. These emissions would be less than PCAPCD-recommended thresholds. The Expansion Project would also apply all feasible dust control measures as required by PCAPCD Rule 228 to reduce fugitive dust generated during construction. Although construction of the Expansion Project would be subject to the requirements under Rule 228, the construction emissions estimates do not account for the dust control measures required by Rule 228. Applying Rule 228 requirements to construction activities would result in PM_{10} and $PM_{2.5}$ emissions below those presented in Table 3.3-6. Consequently, the Expansion Project would not result in short-term construction-related emissions that violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Table 3.3-7 summarizes the modeled construction-related emissions of criteria air pollutants and ozone precursors for the Energy Recovery Project by construction year. This reflects maximum daily emissions that would occur due to overlapping construction phases of the Energy Recovery Project and overlapping phases with the Expansion Project within a calendar year. The significance of construction-related air quality impacts was determined by comparing these modeling results with applicable significance thresholds. Refer to Appendix B for detailed modeling input parameters and results.

Table 3.3-7 Summary of Modeled Maximum Daily Emissions of Criteria Air Pollutants and Precursors Generated during Energy Recovery Project Construction [1]

Construction Year	ROG (lb/day)	NO_X (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
2017[2]	6.7	69.3	15.2	9.4
2018	3.0	28.3	3.1	1.6
2019	6.2	54.1	3.6	2.4
PCAPCD Thresholds of Significance	82	82	82	NA
Exceeds Thresholds?	No	No	No	NA

Notes: Amounts may not sum to totals due to rounding.

[1] Modeled using CalEEMod 2016.3.1 (SCAQMD 2016).

[2] Construction is assumed to begin in June 2017 and last for approximately 24 months.

lb/day = pounds per day
ROG = reactive organic gases
NO_X = oxides of nitrogen
PM_{10} = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less
$PM_{2.5}$ = fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less

See Appendix B for detailed model inputs, assumptions, and Project-specific modeling parameters.

Source: Modeling conducted by Ascent Environmental in 2016 using CalEEMod Version 2016.3.1 (SCAQMD 2016).

Based on the modeling conducted, construction of the Energy Recovery Project would result in maximum daily emissions of approximately 6.7 lb/day of ROG, 69.3 lb/day of NO_X, 15.2 lb/day of PM_{10} and 9.4 lb/day of $PM_{2.5}$ starting in 2017. These emissions would be less than PCAPCD-recommended thresholds. The Energy Recovery Project would also apply all feasible dust control measures as required by PCAPCD Rule 228 to reduce fugitive dust generated during construction. Although project construction would be subject to the requirements under Rule 228, the construction emissions estimates do not account for the dust control measures required by Rule 228. Applying Rule 228 requirements to construction activities would result in PM_{10} and $PM_{2.5}$ emissions below those presented in Table 3.3-7. Consequently, the Energy Recovery Project would not result in short-term construction-related emissions that violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Therefore, this impact would be less than significant for both the Expansion Project and Energy Recovery Project and Expansion Project together.

Long-Term Operational-Related Regional Criteria Air Pollutant and Precursor Emissions

Less than significant. Operation of the Expansion Project would result in emissions from additional worker commute trips, materials deliveries, biosolids hauling, WWTP process emissions, flaring of digester gas, and combustion of natural gas in boilers. Table 3.3-4, above, summarizes the modeled increase in emissions of criteria air pollutants and ozone precursors that would occur during operation of the Expansion Project.

The significance of operational air quality impacts was determined by comparing these modeling results with applicable significance thresholds. Refer to Appendix B for detailed modeling input parameters and results. Based on the modeling conducted, operation of the Expansion Project would result in an operational emission increase of approximately 22.3 lb ROG/day, 22.8 lb NO_X/day, 0.5 lb PM_{10}/day, and 0.2 lb

$PM_{2.5}$/day. Maximum emissions estimates would be below applicable PCAPCD-recommended significance thresholds. Thus, the Expansion Project would not result in long-term operational emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation.

In addition to the emissions listed above for the Expansion project, operation of the Energy Recovery Project would result in emissions from additional worker commute trips, materials deliveries, hauling of high strength waste, and combustion of natural gas and digester gas derivatives in microturbines and CNG vehicles; however, the emissions associated with flaring digester gas would be eliminated under the Energy Recovery Project. Table 3.3-5, above, summarizes the modeled increase in emissions of criteria air pollutants and ozone precursors that would occur during operation of the Energy Recovery Project, including operation of the Expansion Project.

Based on the modeling conducted, operation of the Energy Recovery Project, including the Expansion Project, would result in an operational emissions increase of approximately 13.8 lb/day of ROG, 26.4 lb/day of NO_X, 0.8 lb/day of PM_{10}, and 0.4 lb/day of PM_{10}. Maximum emissions estimates would be below applicable PCAPCD-recommended significance thresholds. Thus, the Energy Recovery Project would not result in long-term operational emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Therefore, this impact would be less than significant for both the Expansion Project and Energy Recovery Project and Expansion Project together.

c) Would the project 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)?

Less than significant. The SVAB, including the City of Roseville and the western portion of Placer County, is currently designated as a nonattainment with respect to the NAAQS and CAAQS for ozone and for the CAAQS for PM_{10}. Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By its very nature, regional air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts.

In developing its thresholds of significance for air pollutants, PCAPCD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified cumulative significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions.

As discussed in the analysis under item b) above, Project-generated emissions, including the Expansion Project by itself and Energy Recovery Project and Expansion Project together, would not exceed PCAPCD's thresholds of significance. PCAPCD's recommended cumulative thresholds are equivalent to their operational thresholds. Therefore, the Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment under the CAAQS or NAAQS. As a result, Project-generated emissions of criteria air pollutants and precursors would not be cumulatively considerable. This would be a less-than-significant impact.

d) Would the project expose sensitive receptors to substantial pollutant concentrations?

Several residences are located within 2,000 feet of the Project site. The nearest sensitive receptors are single family homes located approximately 845 feet west of the site. The exposure of these nearby sensitive receptors to substantial air pollutant concentrations during construction and operation of the Project are discussed separately below.

Short-Term Construction

Less than significant. Construction-related activities associated with the Expansion Project and Energy Recovery Project and Expansion Project together would result in temporary, short-term emissions of diesel particulate matter (diesel PM) from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., excavating); underground work; equipment installation; and other miscellaneous activities. Particulate exhaust emissions from diesel-fueled engines (i.e., diesel PM) was identified as a TAC by the ARB in 1998. The potential cancer risk from the inhalation of diesel PM, as discussed below, outweighs the potential for all other health impacts (ARB 2003), so diesel PM is the focus of this discussion. Based on the emission modeling conducted and presented in Appendix B, maximum daily emissions of exhaust-related $PM_{2.5}$, considered a surrogate for diesel PM, would not exceed 3.3 lb/day which would occur during simultaneous grading and trenching phases for construction in the later part of 2017.

Although PCAPCD does not have a recommended mass emission threshold for evaluating emissions of $PM_{2.5}$, 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 (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 30-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the proposed Project (OEHHA 2012:11-3). Consequently, it is important to consider that the use of off-road heavy-duty diesel equipment would be limited to the duration of construction period, which would not exceed 24 months. Also, studies show that diesel PM is highly dispersive from its source (e.g., decrease of 70 percent at 500 feet from the source) (Zhu et al. 2002).

With the nearest sensitive receptors more than 800 feet from on-site construction and considering the highly dispersive properties of diesel PM, the relatively low mass of diesel PM emissions that would be generated during construction, and the relatively short duration of construction activities; construction-related TAC emissions would not expose sensitive receptors to an incremental increase in cancer risk that exceeds 10 in one million or a hazard index greater than 1.0.

As a result, emissions generated during construction of either the Expansion Project or Energy Recovery Project and Expansion Project together would not result in an exceedance of PCAPCD thresholds for risks and hazards. Additionally, the Project would not exceed applicable thresholds with respect to short-term construction emissions, as discussed under b). Thus, the Project would not expose sensitive receptors to substantial pollutant concentrations during construction. This impact would be less than significant.

Long-Term Operation

Less than significant. The Expansion Project would include new stationary sources of TAC emissions, including natural gas-fired boilers and digester gas flares, and the Energy Recovery Project would include new stationary sources of TAC emissions, including microturbines. These types of stationary sources, in addition to any other stationary sources that may emit TACs, would be subject to all applicable PCAPCD rules (e.g., Rules 250, 401, 501, and 502). Thus, PCAPCD would analyze the potential for these sources to emit TACs, potentially including the preparation of a detailed health risk assessment. If it is determined that the sources would emit TACs in excess of PCAPCD's applicable significance threshold, T-BACT would be implemented to reduce emissions. If the implementation of T-BACT would not reduce the risk below the applicable threshold, PCAPCD would deny the required permit to operate.

In addition to T-BACT requirements, permits for equipment that emit TACs may also contain conditions required by the national emissions standards for hazardous air pollutants and Airborne Toxic Control Measures promulgated by the EPA and ARB, respectively. In short, a new stationary source of TACs would not receive the authority to construct or permit to operate if it would result in an incremental increase in cancer risk greater than 10 in 1 million at any off-site receptor; and/or an off-site ground-level concentration of

noncarcinogenic TACs generated from either the Expansion Project or Energy Recovery Project and Expansion Project that would result in a Hazard Index greater than 1.

These permitting criteria are identical to PCAPCD's thresholds of significance for TACs generated by stationary sources. Therefore, this impact would be less than significant.

e) Would the project create objectionable odors affecting a substantial number of people?

Less than significant. The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely cause physical harm, they may still be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies.

Operation of the expanded WWTP would not place receptors substantially closer to existing sources of odors, but would add new permanent odor-generating facilities. For the Expansion Project, these facilities would include new clarifiers, solids thickening building, and digested solids and centrate storage tanks; however, these facilities would be equipped with odor control facilities. In addition, the Energy Recovery Project would result in odors associated with the high strength waste receiving and pre-processing facilities. However, these facilities would be enclosed in buildings with an odor control system. Although the facility's treatment capacity would increase, PCAPCD has not received odor complaints specifically related to current WWTP facility operations; and based on annual on-site inspections, PCAPCD has found odors generated at the existing PGWWTP to be mild. On some occasions PCAPCD found strong odors associated with transport of WAS between the PGWWTP and the Western Regional Sanitary Landfill, mostly along Fiddyment Road (Springsteen, pers. comm. 2016a,b). The Project would reduce these odors because all WAS would be converted to biosolids and WAS would no longer be hauled off-site. There would be an increase in the haul trips associated with biosolids; however, biosolids have an odor similar to topsoil and generally does not have a strong or objectionable odor.

Thus, the Project would not likely result in additional objectionable odors from the expanded WWTP facilities and would eliminate odors associated with WAS transport. Therefore, development of the proposed Project would not expose the nearby existing receptors to new or additional objectionable odors and overall, would reduce odors.

Construction associated with the Project would result in temporary odors from exhaust emissions from onsite diesel equipment, asphalt paving, and the application of architectural coatings. Construction of the Expansion Project would also require cleaning of process tanks that can result in substantial short-term odor; however, cleaning of process tanks is occurring periodically under existing routine maintenance of the PGWWTP and would continue to occur periodically with or without the Project. In addition, such emissions would be intermittent in nature and would dissipate rapidly with increasing distance from the source. Nuisance odors associated with routine maintenance of the PGWWTP were previously addressed in the 1996 Master Plan EIR and were found to be significant and unavoidable under Impact 8-7: Nuisance Odor at Pleasant Grove WWTP.

Implementation of the Project would not involve the construction or operation of any new major odor sources. Thus, based on past maintenance practices and resulting lack of complaints the proposed Project would not be anticipated to result in the exposure of sensitive receptors to objectionable odors. As a result, this impact is expected to be less than significant.

3.4 BIOLOGICAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. Biological Resources. Would the project:				
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 the U.S. Fish and Wildlife Service?				
Expansion Project	☐	☐	☐	☒
Energy Recovery Project	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
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?	☐	☐	☐	☒

3.4.1 Environmental Setting

The facilities proposed for the Expansion Project would be completely within the boundary of the existing PGWWTP. Lands within the PGWWTP boundary are developed with WWTP facilities, paved areas, or other disturbed areas. Because this area is completely developed and does not contain habitat or sensitive resources, the analysis of biological resources focuses on the Energy Recovery Project area within the larger Southern Expansion Area.

A reconnaissance-level survey of the Energy Recovery Project area was conducted by an Ascent biologist on August 9, 2016, to describe the existing conditions and identify the potential occurrence of sensitive biological resources, including special-status plant and wildlife species and sensitive natural communities. The Energy Recovery Project area was surveyed on foot. Common vegetation and wildlife species observed

were recorded and habitat vegetation communities were assessed according to California Department of Fish and Wildlife's (CDFW's) List of Vegetation Alliances and Associations (CDFG 2010).

The Southern Expansion Area, including the Energy Recovery Project area, consists entirely of annual grassland, which varies from open to dense vegetation, with 10 to 25 percent bare ground throughout, and consists of a mix of native and non-native grasses and forbs. The area is regularly disked to maintain the site in "development ready" condition. The undulating topography ranges in elevation from approximately 90 to 110 feet above mean sea level. Dominant species include wild oat (*Avena fatua*), Medusa head (*Elymus caput-medusae*), Italian rye grass (*Festuca perennis*), soft chess (*Bromus hordeaceus*), spikeweed (*Centromadia fitchii*), and narrow tarplant (*Holocarpha virgata*). Other plant species observed include valley tassels (*Castilleja attenuata*), silver hairgrass (*Aira caryophyllea*), little quaking grass (*Briza* minor), yellow star thistle (*Centauria solstitialis*), and Spanish lotus (*Acmispon americanus*). There is one tree, a willow (*Salix* sp.), along the northeast border of the Energy Recovery Project area.

A row of small redwood trees (*Sequoia sempivirons*) planted as landscaping for the PGWWTP are located along the west and south property borders of the Southern Expansion Area.

Common wildlife species observed during the survey include black-tailed jack rabbit (*Lepus californicus*), house finch (*Haemorhous mexicanus*), and American crow (*Corvus brachyrhynchos*). Coyote (*Canus latrans*) scat and ground squirrel (*Otospermophilus beecheyi)* burrows were also observed during the survey.

The Project site is surrounded by mostly undeveloped industrial and recreation designated land that currently supports annual grassland and serves as a buffer between the existing PGWWTP and surrounding residential developments.

SPECIAL-STATUS SPECIES

Special-status species are plants and animals in the following categories:

- officially listed by California or the federal government as endangered, threatened, or rare;
- a candidate for state or federal listing as endangered, threatened, or rare;
- taxa (i.e., taxonomic category or group) that meet the criteria for listing, even if not currently included on any list, as described in California Code of Regulations (CCR) Section 15380 of the State CEQA Guidelines;
- species identified by CDFW as Species of Special Concern;
- species listed as Fully Protected under the California Fish and Game Code;
- species afforded protection under local planning documents; and
- plants considered by the CDFW to be "rare, threatened, or endangered in California" and assigned a California Rare Plant Rank (CRPR). The CDFW system includes five rarity and endangerment ranks for categorizing plant species of concern, which are summarized as follows:
  - CRPR 1A - Plants presumed to be extinct in California;
  - CRPR 1B - Plants that are rare, threatened, or endangered in California and elsewhere;
  - CRPR 2 - Plants that are rare, threatened, or endangered in California but more common elsewhere;
  - CRPR 3 - Plants about which more information is needed (a review list); and
  - CRPR 4 - Plants of limited distribution (a watch list).

Prior to the field survey, information on sensitive biological resources previously recorded in the Project vicinity was collected through a search of the following databases:

- CDFW California Natural Diversity Database (CNDDB) for a 3-mile radius around the project site.
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants for the nine U.S. Geological Service (USGS) quadrangles (quads) that surround the project site (CDFW 2016, CNPS 2016).

A list of special-status plant and wildlife species was compiled from CNPS and CNDDB queries and is presented in Table 3.4-1. This table describes the common and scientific names of each of the species identified, along with their legal status and a brief assessment of the likelihood that the species would occur on the Project site.

There are six special-status wildlife species that are known to occur within a 3-mile radius of the Project site. Of the six species, two (vernal pool fairy shrimp [*Branchinecta lynchi*] and western spadefoot [*Spea hammondii*]) were eliminated from further analysis because both species are associated with vernal pool habitat, which is not present on the Project site. In addition, tricolored blackbird (*Agelaius tricolor*) was eliminated from further consideration because suitable nesting and foraging habitat for this species is not present on the Project site. The remaining three species are Swainson's hawk, white-tailed kite, and burrowing owl.

The nearest known CNDDB occurrences of Swainson's hawk and white-tailed kite are approximately 1.6 and 2.7 miles to the east, respectively. Annual grassland within the Southern Expansion Area could provide foraging habitat for these species; however, suitable nesting habitat is not present because there are no trees of adequate size to support nest structures for Swainson's hawk and white-tailed kite.

The Southern Expansion Area provides potential nesting habitat for burrowing owls in areas of annual grassland that are not densely vegetated. Ground squirrel burrows, which can be used as habitat for burrowing owls, were observed near the northern boundary of the Southern Expansion Area. The nearest known CNDDB occurrence for burrowing owl is approximately 0.2-mile southeast of the Southern Expansion Area.

Nine special-status plant species are known to occur within the Pleasant Grove USGS quad and the nine surrounding quads. It is unlikely that any of these species would occur within the Southern Expansion Area for one or more of the following reasons: the species are associated with habitats (such as vernal pool and freshwater marsh) that are not within the Southern Expansion Area; the Southern Expansion Area is outside the elevational range for the species being evaluated; or microhabitat or soil conditions are not likely to support the species (Table 3.4-1).

Table 3.4-1 Potential for Sensitive Species to Occur on the Project site

Common Name and Scientific Name	Federal Status[1]	State Status[1]	California Rare Plant Rank[1]	Potential to Occur within the Southern Expansion Area
INVERTEBRATES				
Vernal pool fairy shrimp (*Branchinecta lynchi*)	Threatened	None		None. Vernal pool habitat is not present within the Southern Expansion Area.
AMPHIBIANS				
Western spadefoot (*Spea hammondii*)	None	SSC		None. Vernal pool habitat required for breeding, and aestivation, is not present within the Southern Expansion Area.
BIRDS				
Tricolored blackbird (*Agelaius tricolor*)	None	SSC		None. No suitable nesting and foraging habitat within the Southern Expansion Area.
Burrowing owl (*Athene cunicularia*)	None	SSC		Could occur. Areas of sparsely vegetated annual grassland and ground squirrel burrows were observed on the project site during the reconnaissance survey. The nearest known occurrence (#2115), presumably extant, is approximately 0.15 mile southeast of the Southern Expansion Area.

Table 3.4-1 Potential for Sensitive Species to Occur on the Project site

Common Name and Scientific Name	Federal Status[1]	State Status[1]	California Rare Plant Rank[1]	Potential to Occur within the Southern Expansion Area
Swainson's hawk (*Buteo swainsoni*)	None	Threatened	1B.2	Could forage onsite but no suitable breeding habitat is present. Suitable foraging habitat is present in the annual grassland on the project site. Suitable nesting habitat is present along Pleasant Grove Creek, approximately 0.78 mile to the north. The nearest known CNDDB occurrence is 1.57 miles east of Southern Expansion Area.
White-tailed kite (*Elanus leucurus*)	None	FP	1B.2	Could forage onsite but no suitable breeding habitat is present. Suitable foraging habitat is present in the annual grassland on the project site. The nearest known CNDDB occurrence is 2.65 miles east of the Southern Expansion Area.
PLANTS				
Big-scale balsamroot (*Balsamorhiza macrolepis*)	None	None	1B.2	Unlikely to occur. Suitable annual grassland habitat is present within the Southern Expansion Area; however, the elevation of the project site is approximately 200 feet below the lowest known elevation for this species. Additionally, this species is very rare in the region; there are only two CNDDB occurrences from Placer County that were recorded more than 50 years ago.
Hispid bird's-beak (*Chloropyron molle* ssp. *Hispidum*)	None	None	1B.1	Unlikely to occur. Alkaline soils are not present within the Southern Expansion Area.
Dwarf downingia (*Downingia pusilla*)	None	None	2B.2	Unlikely to occur. Vernal pool habitat is not present within the Southern Expansion Area.
Boggs Lake hedge-hyssop (*Gratiola heterosepala*)	None	Endangered	1B.2	Unlikely to occur. Vernal pool habitat is not present within the Southern Expansion Area.
Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*)	None	None	1B.1	Unlikely to occur. Requires mesic soils and is very rare; only 10 occurrences recorded in the CNDDB; only one extirpated occurrence in the 9 quads surrounding the Southern Expansion Area.
Red Bluff dwarf rush (*Juncus leiospermus* var. *leiospermus*)	None	None	1B.2	Unlikely to occur. Vernal pool and vernally mesic habitat is not present within the Southern Expansion Area.
Legenere (*Legenere limosa*)	None	None	1B.1	Unlikely to occur. Vernal pool habitat is not present within the Southern Expansion Area.
Pincushion navarretia (*Navarretia myersii* ssp. *Myersii*)	None	None	1B.1	Unlikely to occur. Vernal pool habitat is not present within the Southern Expansion Area.
Sanford's arrowhead (*Sagittaria sanfordii*)	None	None	1B.2	Unlikely to occur. Suitable aquatic habitat, such as marshes and swamps, is not present within the Southern Expansion Area.

Notes:

[1] Status definitions:

Federal:

Threatened (legally protected under ESA)

State:

Endangered (legally protected under CESA)

Threatened (legally protected under CESA)

FP Fully Protected (legally protected under California Fish and Game Code)

SSC Species of Special Concern (protected under CEQA, but not legally protected under CESA)

California Rare Plant Rank (CRPR):

1B Plant species considered rare or endangered in California and elsewhere (protected under CEQA, but not legally protected under ESA or CESA)

2 Plant species considered rare or endangered in California but more common elsewhere (protected under CEQA, but not legally protected under ESA or CESA)

CRPR Extensions:

.1 Seriously endangered in California (>80% of occurrences are threatened and/or high degree and immediacy of threat)

.2 Fairly endangered in California (20 to 80% of occurrences are threatened)

.3 Not very endangered in California

WETLANDS AND WATERS OF THE U.S.

There are no wetlands currently on the site, with the exception of one potential seasonal wetland that is likely a remnant of a larger wetland that was not completely filled under the Section 404 permit previously issued for development of the Southern Expansion Area (see Regulatory History section below for more detail).

REGULATORY HISTORY

Development of the entire Project site (including the existing PGWWTP and Southern Expansion Area) and fill of wetlands and waters of the United States onsite have been authorized by U.S. Army Corps of Engineers (USACE) Section 404 federal Clean Water Act (CWA) permits.

Development and fill of wetlands and waters of the United States within the "fence-line" boundary of the existing PGWWTP was covered under a Nationwide Permit 26 authorization letter (No. 199800481) issued on December 4, 1998 for construction of the existing PGWWTP. Mitigation credits were purchased to mitigate for impacts to jurisdictional waters. Consultation under Section 7 of the federal Endangered Species Act (ESA) for vernal pool fairy shrimp and vernal pool tadpole shrimp and their critical habitat was also conducted in support of this Nationwide Permit. U.S. Fish and Wildlife Service (USFWS) issued a Biological Opinion (BO) and exemption for incidental take for direct and indirect effects to listed species on May 25, 1999. All conservation measures and Reasonable and Prudent Measures (RPMs) from the BO were implemented, including the purchase of vernal pool creation and preservation credits in 1999 and consultation with USFWS for Phase II of the PGWWTP.

Development and fill of wetlands and waters of the United States within the Southern Expansion Area, was covered under the Section 404 CWA individual permit for the *West Roseville Specific Plan*. The Section 404 individual permit (SPK-2002-00666) was issued for the *West Roseville Specific Plan* on October 21, 2004. An extension of this permit was issued on December 30, 2015, to allow additional time to complete the work covered under the permit. Impacts to jurisdictional waters has been mitigated through on-site mitigation within the *West Roseville Specific Plan* area and purchase of mitigation credits. Section 7 consultation for vernal pool fairy shrimp and vernal pool tadpole shrimp and their critical habitat was also conducted in support of the *West Roseville Specific Plan* Section 404 permit. USFWS issued a BO for this Specific Plan, including the Southern Expansion Area, on March 10, 2005. The BO concluded that this take was not likely to result in jeopardy of these species. The conservation measures from the BO were implemented and vernal pool creation and preservation credits were purchased in 2015. The BO included the RPMs to minimize direct and indirect impacts where vernal pool habitats could be avoided or preserved within the larger *West Roseville Specific Plan Area*. The RPMs from the BO do not apply to the Southern Expansion Area because vernal pool habitats have been filled and the small remnant seasonal wetland would be filled under the conditions of the Section 404 permit.

3.4.2 Discussion

a) Would the project 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 the U.S. Fish and Wildlife Service?

Expansion Project

No impact. The Expansion Project facilities would be within the "fence-line" boundary of the existing PGWWTP. As described above, this area is completely developed or disturbed and there is no habitat for sensitive or special-status species present. Therefore, development of the Expansion Project facilities would have no impact on sensitive or special-status species.

Energy Recovery Project

Less than significant with mitigation. There are no trees within the Southern Expansion Area, and the rows of redwoods along the property border to the south and west are too small to provide suitable habitat for raptors, including Swainson's hawk and white-tailed kite. The nearest oak trees that could provide suitable habitat for nesting raptors are 0.25-mile northeast of the Southern Expansion Area. Therefore, Project-related construction is not likely to disturb nesting raptors that may be nesting in those trees or affect nesting success.

Approximately 2.5 acres of annual grassland would be developed by the Energy Recovery Project. The loss of approximately 2.5 acres of grassland would not substantially reduce the amount of foraging habitat for Swainson's hawk and white-tailed kite in the Project vicinity. In addition, the Southern Expansion Area is within the planning area for the *West Roseville Specific Plan* and all wetland and grassland impacts, including loss of Swainson's hawk and white-tailed kite foraging habitat, have been evaluated and mitigated for in the EIR for the *West Roseville Specific Plan* (City of Roseville 2004).

Annual grassland within the Southern Expansion Area could provide foraging and nesting habitat for burrowing owl. Burrowing owls were not observed on the site during the reconnaissance survey, but if they nest on the site during Project construction, ground-disturbing activities during the burrowing owl breeding season (February–August) could result in nest abandonment and the mortality of eggs and chicks. Although the loss of 2.5 acres of burrowing owl foraging habitat would not be substantial in relation to the total available foraging habitat in the surrounding area, the loss of burrowing owl nest sites or individuals would be a significant impact.

Mitigation Measure 3.4-1 (Implement *West Roseville Specific Plan* EIR Mitigation Measure 4.7-6 Avoid Nesting Sites)

The *West Roseville Specific Plan* EIR includes Mitigation Measure 4.7-6 Avoid Nesting Sites. This mitigation measure addresses potential impacts to fully protected bird and raptor species. The only protected bird species that has the potential to be affected by the Energy Recovery Project is burrowing owl. Therefore, those requirements listed under Mitigation Measure 4.7-6 that are not applicable to the Project have been omitted below:

(b) Prior to the beginning of mass grading, including grading for major infrastructure improvements, during the period between February 15 and August 30, all trees and potential burrowing owl habitat within 350 feet of grading or earthmoving activity shall be surveyed for active raptor nests or burrows by a qualified biologist no more than 30 days prior to disturbance. If active raptor nests or burrows are found, and the site is within 350 feet of potential construction activity, a fence shall be erected around the tree or burrow(s) at a distance of 350 feet, depending on the species, from the edge of the canopy to prevent construction disturbance and intrusions on the nest area. The appropriate buffer shall be determined by the City in consultation with CDFW.

(c) No construction vehicles shall be permitted within restricted areas (i.e., raptor protection zones), unless directly related to the management or protection of the legally protected species.

(d) In the event that a nest is abandoned, despite efforts to minimize disturbance, and if the nestlings are still alive, the City shall contact CDFW and, subject to CDFW approval, fund the recovery and hacking (controlled release of captive reared young) of the nestling(s).

(f) The City, in consultation with CDFW, shall conduct a pre-construction survey within the phases of the project site that are scheduled for construction activities. The survey shall be conducted by a qualified biologist to determine if burrowing owls are occupying the project site. The survey shall be conducted no more than three weeks prior to grading of the project site.

If the above survey does not identify burrowing owls on the project site, then no further mitigation would be required. However, should burrowing owls be found on the project site, the following measures shall be required.

(g) The City shall avoid all potential burrowing owl burrows that may be disturbed by project construction during the breeding season between February 15 and August 30 (the period when the nest burrows are typically occupied by adults with eggs or young). Avoidance shall include the establishment of a 350-foot diameter non-disturbance buffer zone around any occupied burrows. The buffer zone shall be delineated by highly visible temporary construction fencing. Disturbance of any occupied burrows shall only occur outside of the breeding season (August 30 through February 15).

(h) Based on approval by CDFW, preconstruction and nonbreeding season exclusion measures may be implemented to preclude burrowing owl occupation of the project site prior to project-related disturbance (such as grading). Burrowing owls may be passively excluded from burrows in the construction area by placing one-way doors in the burrows according to current CDFW protocol. The one-way doors must be in place for a minimum of three days. All burrows that may be occupied by burrowing owls, regardless of whether they exhibit signs of occupation, must be cleared. Burrows that have been cleared through the use of one-way doors shall then be closed or backfilled to prevent owls from entering the burrow. The one-way doors shall not be used more than two weeks before construction to ensure that owls do not recolonize the area of construction.

Significance after Mitigation

Implementation of Mitigation Measure 3.4-1 would reduce impacts on burrowing owl to a **less-than-significant** level because it would prevent Project-related disturbance during the breeding season and would reduce the likelihood of nest abandonment and loss of eggs or young.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?

No impact. No riparian vegetation or sensitive natural communities occur within the Project site. Therefore, the proposed Project would not result in adverse effects on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations or by CDFW or USFWS.

c) Would the project 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?

No impact. There are no wetlands or waters of the U.S. located within the "fence-line" boundary of the PGWWTP. Furthermore, former wetlands located within the Southern Expansion Area have been filled (as permitted) as a result of minor grading and annual maintenance disking. One small, potential seasonal wetland was noted during field surveys conducted for the Project in the northwest corner of the Southern Expansion Area. This area and any other remnant wetlands within the Southern Expansion Area are permitted for filling in accordance with the recently modified and reissued *West Roseville Specific Plan* 404 Permit (December 30, 2015) (SPK 2002-00666). All mitigation credits have been purchased as required by the reissued Section 404 Permit (Appendix C). Therefore, no impact would occur that would result in a substantial adverse effect to federally protected wetlands.

d) Would the project 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?

No impact. Wildlife corridors are features that provide connections between two or more areas of habitat that would otherwise be isolated and unusable. Often drainages, creeks, or riparian areas are used by wildlife as movement corridors as these features can provide cover and access across a landscape. Pleasant

Grove Creek, located 0.4-mile north of the site is the nearest wildlife corridor. Development within the Project site would not affect Pleasant Grove Creek or otherwise interfere with biological connectivity between the surrounding annual grassland and Pleasant Grove Creek. Therefore, the proposed Project would not impede wildlife movement and no impact would occur.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No impact. Native oak trees in the City of Roseville are protected by City's Tree Preservation Ordinance (Roseville Municipal Code Chapter 19.66). There are no oaks trees within the Project site. In addition, the Project would not require any tree removal. Therefore, the proposed Project would not conflict any local policies or ordinances protecting trees and no impact would occur.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No impact. The Project site is part of the Civic and Resource Protection Zone and within the Public/Quasi-Public District applied to land intended for water treatment plants, according to the Zoning Ordinance (Title 19 of the Roseville Municipal code) for the City of Roseville (City of Roseville 1996a). The Project would not result in a change to land use or land use designation. Mitigation Measure 3.4-1 would reduce any impacts to burrowing owl to a less-than-significant level and therefore the proposed Project would not conflict with policies that address the conservation of natural resources outlined in the Open Space and Conservation Element of the City General Plan. Placer County is in the process of developing the Placer County Conservation Plan (PCCP), which will serve as a Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) for development within the county. The City has an existing memorandum of understanding with USFWS and is not participating in the PCCP. Therefore, there are no HCP/NCCPs that are applicable to the Project site. There would be no impact.

3.5 CULTURAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V. Cultural Resources. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

3.5.1 Environmental Setting

The primary source of information for this section is the Cultural Resources Inventory and Effects Assessment for the City of Roseville Pleasant Grove Wastewater Treatment Plant Project (Natural Investigations Company 2016). A confidential records search for the Project site was conducted in July 2016 North Central Information Center (NCIC) at California State University, Sacramento. The records searched included the Project site and a 0.5-mile buffer area. The records search at the NCIC indicates ten prior studies have been completed within the 0.5-mile search radius. Two of these previous studies included the entirety of the Project site. The records search at the NCIC indicates no cultural resources have been previously recorded within the Project site, while 12 cultural resources are mapped within the 0.5-mile search radius. The 12 known resources include one prehistoric site, two historic-era archaeological sites associated with the Fiddyment Ranch, five historic-era resources with assorted debris, one dirt road, one barn, and two historic-era isolated finds. The Fiddyment Ranch Main Complex, was listed in the National Register of Historic Places (NRHP) in 2010. In addition, Natural Investigations Company conducted a pedestrian survey within the Area of Potential Effects (APE) on August 2, 2016, using intensive-level transect spacing in undeveloped land (20.5 acres) (within the Southern Expansion Area) and a cursory-level survey in the existing PGWWTP facility completed in 2003 (110 acres).

A Project description and maps were sent to the Native American Heritage Commission (NAHC). The purpose was to request a search of the NAHC's sacred lands file and request a list of Native American contacts for the Project area. The NAHC responded on August 12, 2016, stating the sacred land file failed to indicate the presence of Native American traditional cultural properties in the immediate Project vicinity. Each of the four Native American individuals from three tribes provided by the NAHC were contacted by letter dated August 15, 2016, requesting any information regarding sacred lands or other heritage sites that might be affected by the proposed Project. If no response was received, follow-up telephone calls were made on August 29, 2016. To date, no responses have been received from the contact list and messages have been left on voice mail.

- Shingle Springs Band of Miwok Indians, Nicholas Fonseca, Chairperson: unavailable on August 29, 2016; left voice mail.

- T-si Akim Maidu, Grayson Coney, Cultural Director: unavailable on August 29, 2016; left voice mail.
- T-si Akim Maidu, Don Ryberg, Chairperson: unavailable on August 29, 2016; left voice mail.
- United Auburn Indian Community of the Auburn Rancheria, Gene Whitehouse, Chairperson: Mr. Whitehouse was unavailable on August 29, 2016; left voice mail.

PALEONTOLOGICAL SETTING

Significant nonrenewable vertebrate and invertebrate fossils and unique geologic units have been documented throughout California. The fossil-yielding potential of a particular area is highly dependent on the geologic age and origin of the underlying rocks. Paleontological potential refers to the likelihood that a rock unit will yield a unique or significant paleontological resource. All sedimentary rocks, some volcanic rocks, and some low-grade metamorphic rocks have potential to yield paleontological resources. Depending on location, the paleontological potential of subsurface materials generally increases with depth beneath the surface, as well as with proximity to known fossiliferous deposits.

Pleistocene or older (older than 11,000 years) continental sedimentary deposits are considered as having a high paleontological potential while Holocene-age deposits (less than 10,000 years old) are generally considered to have a low paleontological potential because they are geologically immature and are unlikely to have fossilized the remains of organisms. Metamorphic and igneous rocks have a low paleontological potential, either because they formed beneath the surface of the earth (such as granite), or because they have been altered under high heat and pressures, chaotically mixed or severely fractured. Generally, the processes that form igneous and metamorphic rocks are too destructive to preserve identifiable fossil remains.

The Project is located in the Great Valley geomorphic province, consisting of the central part of California between the Coast Range and the Sierra Nevada. The Great Valley is an alluvial plain that is approximately 50 miles wide and 400 miles long where sediment has been deposited almost continually for approximately 160 million years. The Project site is located in the northern part of the Great Valley, which is drained by the Sacramento River (California Geological Survey [CGS] 2002). Geology in the area consists of transitional formations between alluvial deposits of the central valley and volcanic material of the Sierra Nevada. Subsurface conditions are mapped by the California Geological Survey as Miocene nonmarine sandstone, shale, siltstone, conglomerate, and breccia (DOC 1981) from Pleistocene-age alluvial sediments of the Middle Unit of the Riverbank Formation. Riverbank Formation sediments consist of weathered reddish gravel, sand, and silt that form alluvial terraces and fans. Estimates place the age of the formation between 450,000 and 130,000 years before present. A search of the University of California Museum of Paleontology's (UCMP) database was conducted on August 4, 2016. The database did not list any paleontological resources from the Riverbank Formation (UCMP 2016).

REGIONAL PREHISTORY

With the timeframes adjusted for modern calibration curves for radiocarbon dates, the chronological sequence for the Central Valley is: Paleo-Indian (11,500–8,550 cal [calibrated] B.C.), Lower Archaic (8,550–5,550 cal B.C.), Middle Archaic (5,550–550 cal B.C.), Upper Archaic (550 cal B.C.–cal A.D. 1,100), and Emergent or Late Prehistoric Period (cal A.D. 1,100–Historic Contact). There is little evidence of the Paleo-Indian and Lower Archaic periods in the Central Valley. As shown by geoarchaeological studies, large segments of the Late Pleistocene landscape throughout the central California lowlands have been buried or removed by periodic episodes of deposition or erosion.

The archaeological evidence that is available for the Paleo-Indian Period is comprised primarily by basally thinned, fluted projectile points. These points are morphologically similar to the well-dated Clovis points found elsewhere in North America. In the Central Valley, only three archaeological localities (Merced County, Tracey Lake in San Joaquin County, and Tulare Lake basin in Kings County) contain fluted points, which were

recovered at each from remnant features of the Pleistocene landscape. In the Central Valley, the Lower Archaic Period is mainly represented by isolated finds as the early landscape was buried by natural alluvial fan and floodplain deposition. Cultural material dating to this period has been found at only one site in the Central Valley proper. Although abundant milling slabs and handstones have been recovered from Lower Archaic Period foothill sites in eastern Contra Costa County and Calaveras County, no milling tools or plant remains have been found at the valley floor site.

The cultural framework subsequent to the Paleo-Indian and Lower Archaic periods is further divided into three regionally based "patterns." Specific to the Central Valley prehistory and the current Project region, the regionally based patterns are the Windmiller, Berkeley, and Augustine. The patterns mark changes in distinct artifact types, subsistence orientation, and settlement patterns, which began circa 5,550 cal B.C. and lasted until historic contact in the early 1800s.

Middle Archaic Period/Windmiller Pattern (5,550–550 cal B.C.)

For the first 3,000 years of the Middle Archaic, archaeological sites on the valley floor are relatively scarce, in part because of natural geomorphic processes, unlike the foothills where a number of buried sites have been found. The archaeological record in the valley and foothills indicates the subsistence system during this period included a wide range of natural resources that indicate people followed a seasonal foraging strategy. Projectile points with a triangular blade and contracting stems are common at Windmiller Pattern sites. The presence of milling implements (grinding slabs, handstones, and mortar fragments) indicate acorns or seeds were an important part of the Middle Archaic diet. The variety of artifacts recovered from Windmiller Pattern sites includes shell beads, ground and polished charmstones, and bone tools, as well as impressions of twined basketry. Baked clay items include pipes, discoids, and cooking "stones" as well as the net sinkers. The presence of an established trade network is indicated by the recovery of *Olivella* shell beads, obsidian tools, and quartz crystals. Obsidian sources during the Middle Archaic included quarries in the North Coast Ranges, eastern Sierra, and Cascades.

Upper Archaic Period/Berkeley Pattern (550 cal B.C.–cal A.D. 1,100)

Excavated archaeological sites of this period signal an increase in mortars and pestles, as well as archaeobotanical remains, accompanied by a decrease in slab milling stones and handstones. Large, mounded villages that developed around 2,700 years ago in the Delta region included accumulations of habitation debris and features, such as hearths, house floors, rock-lined ovens, and burials. The remains of a variety of aquatic resources in the large shell midden/mounds that developed near salt or fresh water indicate exploitation of shellfish was relatively intensive. Berkeley Pattern artifact assemblages are also characterized by *Olivella* shell beads, *Haliotis* ornaments, and a variety of bone tool types. Mortuary practices continue to be dominated by interment, although a few cremations have been discovered at sites dating to this period. Trade networks brought obsidian toolstone to the Central Valley from the North Coast Ranges and the east side of the Sierra Nevada Range.

Late Prehistoric Period/Augustine Pattern (cal A.D. 1,100–Historic Contact)

The comprehensive archaeological record for this period shows an increase in the number of archaeological sites in the lower Sacramento Valley/Delta region, as well as an increase in the number and diversity of artifacts. The Late Prehistoric Period was shaped by a number of cultural innovations, such as the bow and arrow and more elaborate and diverse fishing technology, as well as an elaborate social and ceremonial organization. During the Late Prehistoric Period, numerous villages were established along the valley floor sloughs and river channels and along the foothills sidestreams. The increase in sedentism and population growth led to the development of social stratification, with an elaborate social and ceremonial organization.

ETHNOGRAPHY

The proposed Project is located in lands historically occupied by the Nisenan (also known as the Southern Maidu). Prior to Euro-American contact, Nisenan territory included the southern extent of the Sacramento Valley, east of the Sacramento River between the North Fork Yuba River and Cosumnes Rivers on the north

and south, respectively, and extended east into the foothills of the Sierra Nevada Range. Neighboring groups included the Plains Miwok on the south, Southern Patwin to the west across the Sacramento River beyond the Yolo Basin, and Konkow and Maidu to the north.

Ethnographic Nisenan established central villages and smaller satellite villages along the main watercourses in their territories. The semi-permanent or winter villages, as well as seasonally occupied campsites were used at various times during the seasonal round of subsistence activities associated with hunting, fishing, and gathering plant resources. Like the majority of Native Californians, the Nisenan relied on acorns as a staple food, which were collected in the fall and then stored in granaries. These seasonally mobile hunter-gatherers also relied on a wide range of abundant natural resources that were available in their territories, including: pronghorn antelope, deer, tule elkcottontails, salmon, pine nuts, and hazelnuts. Foods were processed with a variety of tools, such as bedrock mortars, cobblestone pestles, and anvils. Additional tools and implements included knives, leaching baskets and bowls, and woven strainers.

The traditional culture and lifeways of the Nisenan who inhabited the fertile plains between Sacramento and the Sierra foothills, were disrupted beginning in the early 1800s. Although Spanish explorers entered Nisenan territory as early as 1808, there is no record of the forced movement of Nisenan to the missions. During the Mexican period, native peoples were affected by land grant settlements and decimated by foreign disease epidemics that swept through the densely populated Central Valley. An epidemic that swept the Sacramento Valley in 1833 caused the death of an estimated 75 percent of the Valley Nisenan population, wiping out entire villages.

In the heart of Nisenan territory, the discovery of gold in 1848 at Sutter's Mill on the American River near Coloma had a devastating impact on the remaining Nisenan, as well as other groups of Native Americans in the Central Valley and along the Sierra Nevada foothills. By 1850, with their lands, resources and way of life being overrun by the steady influx of non-native people during the Gold Rush, surviving Nisenan retreated to the foothills and mountains or labored for the growing ranching, farming, and mining industries. Nisenan descendants reside on the Auburn, Berry Creek, Chico, Enterprise, Greenville, Mooretown, Shingle Springs, and Susanville rancherias, as well as on the Round Valley Reservation.

REGIONAL HISTORY

Post-contact history for the State of California generally is divided into three specific periods: Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–present). The Spanish expeditions into the Central Valley in 1806 and 1808 led by Lieutenant Gabriel Moraga explored along the main rivers, including the American, Calaveras, Cosumnes, Feather, Merced, Mokelumne, Sacramento, San Joaquin, and Stanislaus. The last Spanish expedition into California's interior was led by Luis Arguello in 1817 and traveled up the Sacramento River, past the future site of the City of Sacramento to the mouth of the Feather River, before returning to the coast.

After the end of the Mexican Revolution (1810–1821) against the Spanish crown, the Mexican Period is marked by an extensive era of land grants, most of which were in the interior of the state, as well as by exploration by American fur trappers west of the Sierra Nevada Mountains. The largest land grants in the Sacramento Valley were awarded to John Sutter who had become a Mexican citizen. In 1839, he founded a trading and agricultural empire that was headquartered at Sutter's Fort in Sacramento. Between 1830 and 1833, and again in 1837, diseases introduced by the non-indigenous explorers, trappers, and settlers, as well as relocation to the missions, military raids, and settlement by non-native groups, decimated native Californian populations, communities, and tribes in the Sacramento and San Joaquin valleys.

The American Period was initiated in 1848 with the signing of the Treaty of Guadalupe Hidalgo, which ended the Mexican–American War (1846–1848), and California became a territory of the United States. Gold was discovered at Sutter's Mill on the American River in Coloma the same year, and by 1849, nearly 90,000 people had journeyed to the gold fields. In 1850, largely as a result of the Gold Rush, California became the thirty-first state. Four years later, the bustling boomtown of Sacramento became the state capital. In contrast

to the economic boom and population growth that enabled statehood, the loss of land and territory (including traditional hunting and gathering locales), malnutrition, starvation, and violence further contributed to the decline of indigenous Californians in the Central Valley and all along the Sierra Nevada foothills.

LOCAL HISTORY

Placer County was organized in 1851 from parts of neighboring Sutter and Yuba counties, and named after its principal economy at that time, placer mining. The City of Auburn, one of the earliest mining towns in California, was designated the seat of justice when the county was created, and continues to be the county seat today.

The earliest settlers in the general Project vicinity arrived in the late 1840s, as miners poured into the region in search of placer deposits. By the mid-1850s the area was sparsely settled and dotted with small-scale ranches. By the mid-1860s, the construction and development of the railroad industry played a significant role in the region's development. The tracks of the Central Pacific Railroad (later Southern Pacific Railroad [SPRR]) reached Roseville and Rocklin in 1864. Roseville prospered as a principal rail head that provided the frontier towns with goods and services. When the SPRR moved its major locomotive terminal from Rocklin to Roseville in 1908, that town expanded to one of the largest railroad centers in the country. The City was incorporated 3 years after the SPRR moved its facilities to Roseville.

The Boutwell-Dunlap-Kaseberg Ranch and the Fiddyment Ranch, located east of the existing PGWWTP, are among the earliest farms and ranches in this region. Stephen Boutwell acquired 10,500 acres in 1856 and used that acreage for a sheep ranch along with additional holdings acquired by 1861 with partners, William Dunlap and James Kaseberg. Their ranch raised some of the first thoroughbred and trotting horses in California. The extended Fiddyment family continued to live on and run ranch operations, acquiring an airplane by the 1950s, unsuccessfully trying rice farming, raising and selling pistachios on a portion of the land near Pleasant Grove Creek beginning in the early 1970s. As of 2004, Walter Fiddyment's descendants still lived on the family property and continued to work cattle on the ranch. The 14-acre Fiddyment Ranch Main Complex, which is located 0.1 mile east of the existing PGWWTP, was listed in the NRHP in 2010 (No. 10000503). The complex includes the main residence and outbuildings associated with 125 years of ranching by the Fiddyment family. It is significant for its association with early settlement of the region and the architectural style of the ranch house.

The City amended its Sphere of Influence (SOI) to include a 5,527-acre area immediately west of the corporate boundaries and adopted the *West Roseville Specific Plan* in 2004. The SOI does not include the 110-acre PGWWTP or the 70-acre property (Roseville Energy Park) immediately north of the PGWWTP, both owned by the City. The *West Roseville Specific Plan*, which covers 3,162 acres of the SOI Amendment Area, was annexed into the City's jurisdiction to provide for orderly and systematic mixed-used development consistent with the City General Plan policies. The *West Roseville Specific Plan* includes the 1,679-acre Fiddyment Ranch and the 1,483-acre Westpark property located east and south, respectively, of the PGWWTP. A "Remainder Area" for which project objectives had not yet been identified is the 2,365 acres of the SOI outside the *West Roseville Specific Plan* boundaries, divided between an area north of the Roseville Energy Park and west of Fiddyment Ranch, and a second area south of the Westpark property and north of Baseline Road.

3.5.2 Discussion

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

No impact. The Project site includes the existing PGWWTP and Energy Recovery Project area to the south. The current facility was constructed between 2000 and 2008, and includes treatment facilities that treat wastewater. To be considered historical (or architectural), a resource would need to be a standing building (e.g., house, barn, outbuilding, cabin) or intact structure (e.g., dam, bridge) that is at least 50 years old. Therefore, there are no qualifying historic (or architectural) structures within the Project site.

Federal protection of resources is legislated by (a) the National Historic Preservation Act (NHPA) of 1966 as amended by 16 U.S. Code 470, (b) the Archaeological Resource Protection Act of 1979, and (c) the Advisory Council on Historical Preservation. These laws and organizations maintain processes for determination of the effects on historical properties eligible for listing in the National Register of Historic Places (NRHP). Federal and federally-sponsored programs and projects are reviewed pursuant to Section 106 of the NHPA. Section 106 of the NHPA requires federal agencies to consider the effects of proposed federal undertakings on historic properties. Compliance with Section 106 is discussed in Chapter 4, "Compliance with Federal Regulations."

All properties listed in or formally determined eligible for listing in the NRHP are eligible for the California Register of Historical Resources (CRHR). A historic resource must be significant at the local, state, or national level under one or more of the criteria defined in the California Code of Regulations (CCR) Title 15, Chapter 11.5, Section 4850. The CRHR criteria are similar to the NRHP criteria and are tied to CEQA because any resource that meets the criteria is considered a historical resource under CEQA.

The background literature and NWIC records search did not identify any cultural resources (either historical or archaeological) within the Project site and the pedestrian survey on August 2, 2016, identified no historic-era built environment resources. The NRHP-listed Fiddyment Ranch Main Complex is located outside of the Project site. Therefore, there are no resources eligible for listing in the NRHP or CRHR and Project construction and operation would have no impact on historical resources.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less than significant with mitigation incorporated. Excavation, grading, trenching, and earth removal for the Expansion Project would involve approximately 6 acres of disturbed area and approximately 5,300 cubic yards (cy) of material would be excavated during construction. The greatest depth of excavation of 26 feet would occur near the new primary clarifier building (see Exhibit 2-4 in Chapter 2, "Project Description and Background"). For the Energy Recovery Project, approximately 2.5 acres would be disturbed and minimal vegetation clearing would be required. All of the facilities would be slab-on-grade foundations, and the maximum depth of excavation would be 6 feet for pipe trenches.

As discussed above under historic resources, federal and federally-sponsored programs and projects are reviewed pursuant to Section 106 of the NHPA. Section 106 of the NHPA requires federal agencies to consider the effects of proposed federal undertakings on historic properties. Compliance with Section 106 is discussed in Chapter 4, "Compliance with Federal Regulations." All properties listed in or formally determined eligible for listing in the NRHP are eligible for the CRHR, and any resource that meets the criteria is considered a historical resource under CEQA.

The background literature and NWIC records search did not identify any cultural resources within the Project site. Archaeologists conducted a pedestrian survey within the Southern Expansion Area on August 2, 2016.

No prehistoric or historic-era archaeological, or ethnographic resources were identified or recorded during the survey.

Historically, this region has been dominated by agricultural activities, most notably ranching. Agricultural/ranching activities over the last 150 years on the 1,679-acre Fiddyment Ranch on the east and the 1,483-acre Westpark property bordering the Project on the west have included raising poultry and livestock (cattle and sheep) and mainly dry-land farming with some rice and orchard plantings. During the prehistoric, protohistoric, and historic periods, Native Americans established temporary resource gathering or processing camps or permanent settlements near reliable fresh water sources. Only one prehistoric site is mapped within the 0.5-mile search radius, a surface ground stone scatter with no subsurface component. As Pleasant Grove Creek is named "Dry Creek" on the 1855 GLO Plat, and both Pleasant Grove and Curry Creeks, which are located north and south of the Project site, are shown as intermittent streams on historic maps, Native American settlement along these streams or within the Project site appears unlikely.

However, previous disturbance and the lack of previously recorded archaeological resources does not preclude the possibility that significant subsurface cultural resources could be discovered during Project-related grading, excavation, and other earth-moving activities during construction. Impacts of the proposed Project on previously undocumented significant archaeological resources or human remains would be a potentially significant impact.

Mitigation Measure 3.5-1

In the event that any prehistoric or historic-era subsurface archaeological features or deposits, including locally darkened soil (potentially a "midden"), that could conceal cultural deposits, are discovered during construction, all ground-disturbing activity within 100 feet of the resources shall be halted and a qualified professional archaeologist shall be retained to assess the significance of the find. If the find is determined to be significant by the qualified archaeologist (i.e., because it is determined to constitute either an historical resource or a unique archaeological resource), the archaeologist shall develop appropriate procedures to protect the integrity of the resource and ensure that no additional resources are affected. Procedures could include but would not necessarily be limited to preservation in place, archival research, subsurface testing, or contiguous block unit excavation and data recovery.

Significance after Mitigation

Implementation of Mitigation Measure 3.5-1 would reduce impacts associated with archaeological resources to a **less-than-significant** level because it would require the performance of professionally accepted and legally compliant procedures for the discovery of previously undocumented significant archaeological resources.

c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than significant. A search of the UCMP database listed 64 paleontological resources in Placer County; however, all resources are located approximately 30 miles northeast of the City of Roseville, in Tahoe National Forest. The database did not list any paleontological resources from the Riverbank Formation (UCMP 2016).

Greatest depth of excavation of 26 feet would occur near the new primary clarifier building (see Exhibit 2-4 in Chapter 2, "Project Description and Background"). For the Energy Recovery Project facilities, the maximum depth of excavation would be 6 feet for pipe trenches. No documented paleontological resources have been identified within 30 miles of the Project site and no paleontological resources were discovered when the existing PGWWTP was constructed. The UCMP database does not list any paleontological resources from the Riverbank Formation. For these reasons, the potential of encountering paleontological resources within the Project site is considered extremely unlikely. Impacts on paleontological resources would be less than significant.

d) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Less than significant with mitigation incorporated. Based on documentary research, no evidence suggests that any prehistoric or historic-era marked or un-marked human interments are present within or in the immediate vicinity of the Project site. However, there is a possibility that unmarked, previously unknown Native American or other graves could be present within the Project site and could be uncovered by Project-related construction activities.

The California Native American Historical, Cultural and Sacred Sites Act applies to both State and private lands. The Act requires that upon discovery of human remains, construction or excavation activity cease and the county coroner be notified. If the remains are of a Native American, the coroner must notify the NAHC. The NAHC then notifies those persons most likely to be descended from the Native American's remains. Similarly, Section 7050.5(b) of the California Health and Safety code specifies protocol when human remains are discovered.

The location of grave sites and Native American remains can occur outside of identified cemeteries or burial sites. For the Expansion Project, excavation, grading, trenching, and earth removal would be required for the new facilities. In total, approximately 6 acres would be disturbed, approximately 34,000 cy of material would be imported and approximately 6,000 cy or material would be excavated during construction and hauled offsite for disposal. For the Energy Recovery Project, approximately 2.5 acres would be disturbed for this project with minimal vegetation clearing and minimal excavation and fill and cut would be required.

These construction activities would create ground disturbance that could uncover previously unknown human remains. Although there are no known prehistoric or early historic interments on the Project site, Project-related construction activities could uncover or otherwise disturb previously undiscovered or unrecorded human remains. Because any disturbance of human remains would be a significant impact, this impact would be potentially significant.

Mitigation Measure 3.5-2

If human remains are discovered during any construction activities, potentially damaging ground-disturbing activities in the area of the remains will be halted immediately, and the City will notify the Placer County coroner and the NAHC immediately, according to Section 5097.98 of the State Public Resources Code and Section 7050.5 of California's Health and Safety Code. If the remains are determined by the NAHC to be Native American, the guidelines of the NAHC will be adhered to in the treatment and disposition of the remains. The City will also retain a professional archaeologist with Native American burial experience to conduct a field investigation of the specific site and consult with the Most Likely Descendant (MLD), if any, identified by the NAHC. Following the coroner's and NAHC's findings, the archaeologist, and the NAHC-designated MLD will determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in California Public Resources Code Section 5097.94.

Significance after Mitigation

Implementation of Mitigation Measure 3.5-2 would reduce potentially significant impacts to human remains because actions would be implemented to avoid, move, record, or otherwise treat the remains appropriately, in accordance with pertinent laws and regulations. By providing an opportunity to avoid or minimize the disturbance of human remains, and to appropriately treat any remains that are discovered, this impact would be reduced to a **less-than-significant** level.

3.6 GEOLOGY AND SOILS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. Geology and Soils. Would the project:				
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 California Geological Survey Special Publication 42.)	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
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?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property?	☐	☐	☒	☐
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?	☐	☐	☐	☒

3.6.1 Environmental Setting

The geologic, soil, and seismic setting for both the Expansion Project and the Energy Recovery Project, with respect to geology, soils, and seismicity are the same. The specific soil units that have been mapped by the National Resource Conservation Service (NRCS) beneath the proposed expansion and energy recovery facilities differ; however, the scale at which these soils have been mapped is not amenable to a precise description of the soils within the Project site. As such, the NCRS soils survey provides a general description of the types of soils that may be present beneath the facilities, but more detailed, site-specific geotechnical information will be required prior to construction.

GEOLOGY

The Project site is situated within the eastern margin of the Great Valley geomorphic province of California, near the transition to the Sierra Nevada geomorphic province to the east (CGS 2002). The Great Valley is an alluvial basin comprised of thick alluvial sediments lain atop a Mesozoic sequence of thickly-bedded

sedimentary rocks. These alluvial sediments were deposited over millions of years through the erosion and redeposition of the Sierra Nevada mountains. Consequently, the geology in the Project vicinity is entirely alluvial outwash deposits.

The geology in the Project vicinity consists of sedimentary deposits from the coalesced American River – Pleasant Grove Creek alluvial fan. These include, from west to east, the Riverbank, Modesto, Turlock Lake, and Mehrten Formations. The Project vicinity and Project site are comprised of the Riverbank Formation, and younger, unconsolidated Quaternary alluvium. These stratigraphic units are all generally characterized by nested alluvial fans, grading larger from west to east.

SOILS

Soils at the Project site are generally defined by the characteristics present in the alluvial deposits of the Riverbank Formation and other, younger local alluvial deposits in shallow deposits. Soil limitations have been well-characterized in these units, and include slow or variable permeability, low to moderate soil strength, and low to moderate shrink-swell potential associated with clay content. Specific soil units in the Project area include:

- **Cometa-Fiddyment complex (141), 1 to 5 percent slope:** The families that comprise this soil complex, Cometa and Fiddyment, are deep, well-drained, alluvial soils comprised of sandy loam, clay loam, loam, and clay. They occur in alluvial terrace deposits formed from erosion of the weathered granites of the eastern Sierra Nevada (NRCS 2016). Classified as Hydrologic Group D by NRCS, they exhibit a high runoff potential. The Cometa-Fiddyment complex soils do not exhibit episodes of ponding or flooding (NRCS 2013).

- **Cometa-Ramona sandy loams (142), 1 to 5 percent slope:** The soils that comprise this group are similar to the Cometa-Fiddyment complex, but with a higher proportion of sand and loam relative to clay content. Ramona soils exhibit some gravel deep in the soil horizon (between 55 and 73 inches) (NRCS 2016). Ramona soils have a slightly lower runoff potential and are classified by NRCS in Hydrologic Group C (moderately high runoff potential) (NRCS 2013).

- **San Joaquin-Cometa sandy loams (182), 1 to 5 percent slope:** San Joaquin soils have a very similar profile and physical characteristics to Cometa soils, but are comprised of slightly higher proportions of sand.

SEISMICITY

The Project site is situated east of the Sierra Nevada foothills, an area of inactive quaternary faulting. Active faults are defined as those having exhibited movement during the Holocene (less than 11,700 years ago). The nearest faults lie within the Foothills Fault Zone, approximately 16 – 20 miles east of the Project site (Table 3.6-1).

Table 3.6-1 Faults Near the Project Site

Fault or Fault Zone	Distance from Project Site	Status[1]
Spenceville Fault	16 miles	Late Quaternary (<130,000 years ago)
Deadman Fault	17 miles	Late Quaternary
Maidu East Fault	17 miles	Quaternary (<1.6 million years ago)
Dewitt Fault	18 miles	Late Quaternary
Highway 49 Fault (Foothills Fault System, north central reach section)	18 miles	Late Quaternary
Rescue Fault (Foothills Fault System, north central reach section)	20 miles	Late Quaternary

Source: DOC 2010.

[1] Only Holocene-age faults are considered potentially active. Only Quaternary and Late Quaternary movements have occurred in the Project vicinity.

While there are no active faults within the Project vicinity, the State of California generally exhibits more seismic activity than other areas. As a consequence, the state maintains a host of earthquake evaluation resources, including the Ground Motion Interpolator, which identifies the ground motion probability rating for a given location. These probabilities are measured in terms of peak ground acceleration (g), which is the rate of change of speed of ground motion exhibited during an earthquake. Ground motion probabilities are dependent on a range of factors, including soil conditions, slope conditions, and proximity to active faults. At the Project site, ground motion probability is a 2 percent chance of exceeding 0.259 g over a 50-year period (DOC 2008).

Peak acceleration can be converted to earthquake intensity on the Modified Mercalli Intensity Scale, which assigns an intensity value and gives a verbal description of the effects of ground shaking, as experienced by an individual on the ground, based on a range of peak acceleration values (see Table 3.6-2). Based on a peak acceleration of 0.259 g, the Project site has a Modified Mercalli Intensity of VIII, which would result in slight damage to well-designed and engineered structures, and increased damage in structures of lower engineering standard (Table 3.6-2).

Table 3.6-2 Modified Mercalli Intensity Scale

Intensity Value	Intensity Description	Average Peak Acceleration
I.	Not felt except by a very few persons under especially favorable circumstances.	<0.0015g
II.	Felt only by a few persons at rest, especially on upper floors on buildings. Delicately suspended objects may swing.	<0.0015g
III.	Felt quite noticeably indoors, especially on upper floors of buildings, but many persons do not recognize it as an earthquake. Standing cars may rock slightly. Vibration similar to the passing of a truck. Duration estimated.	<0.0015g
IV.	During the day felt indoor by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motorcars rocked noticeably.	0.015g - 0.02g
V.	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.	0.03g - 0.04g
VI.	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.	0.06g - 0.07g
VII.	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving cars.	0.10g - 0.15g
VIII.	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, and walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving cars disturbed.	0.25g - 0.30g
IX.	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.	0.50g - 0.55g
X.	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.	>0.60g
XI.	Few, if any, masonry structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.	>0.60g
XII.	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.	>0.60g

Note: g = gravity = 9.8 meters per second per second.
Source: Bolt 1988

3.6.2 Discussion

a) Would the project 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 California Geological Survey Special Publication 42)?

Less than significant. The Project site is not located in a fault zone, as delineated on an Alquist-Priolo Fault Zoning map (DOC 2007). The nearest fault is approximately 16 miles east of the Project site, in the Sierra Nevada foothills. The Project would not subject people or structures to adverse effects related to rupture of a known fault because there are no known active faults in the Project vicinity (Table 3.6-1). Therefore, this impact would be less than significant.

ii. Strong seismic ground shaking?

Less than significant. The Project site is susceptible to moderate ground shaking (<0.3g) associated with a major earthquake on nearby faults, in which slight to moderate damage to ordinary structures and negligible damage to well-designed and constructed structures is possible. The Project would be designed and constructed to withstand the effects of moderate ground shaking, in compliance with the California Building Code (CBC). The CBC has adopted a modified version of the International Building Code (IBC) for California conditions with modified and/or more stringent regulations. The CBC contains specific minimum safety and design requirements in Chapter 16, including seismic factors that must be considered in structural design. Therefore, this impact would be less than significant.

iii. Seismic-related ground failure, including liquefaction?

Less than significant. Liquefaction is possible in the Project vicinity in areas of loose, sandy soils with a high water content. However, the soils located within the Project site are generally well-drained with a high runoff potential, and therefore have a relatively low potential for liquefaction. Additionally, the City General Plan (City of Roseville 2016d) indicates that liquefaction has not been a significant problem in soils within the City limits. Appropriate grading and foundation preparation would reduce the potential for liquefaction to a negligible level. Therefore, this impact would be less than significant.

iv. Landslides?

Less than significant. The Project site is located on terraced, flat to gently sloping land (0 top 5 percent slopes), with moderately competent rock and soil types. Together, the slope and rock strength for the area results in a landslide susceptibility between 0 and V as defined by the CGS and the U.S. Geological Survey (USGS) in their Susceptibility to Deep-Seated Landslides in California (CGS and USGS 2011). These are the lowest landslide susceptibility classes. In general, landslide susceptibility is very low where slopes are low, even in weak ground material. Because slopes are generally flat in the Project vicinity, landslide susceptibility for the Project would be low. Therefore, this impact would be less than significant.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less than significant. As part of the City's Mitigating Ordinances, Guidelines, and Standards (described in Chapter 2), the proposed Project would be constructed in a manner that minimizes soil erosion or loss of topsoil. However, construction of the Project would involve clearing, grading, and paving, as well as construction of buildings, tanks, and other structures, including concrete slab foundations. Construction of these structures would include moving soil and increasing the overall extent of impervious surfaces on the Project site. Under uncontrolled conditions, construction could increase erosion and result in significant topsoil loss.

However, construction activities associated with either the Expansion Project and/or Energy Recovery Project would require ground disturbance in excess of 1 acre, thereby requiring coverage under the state General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activity (General Permit). This permit is required under the State Water Resources Control Board (SWRCB) Storm Water Program, and is intended to regulate storm water discharges and protect receiving water bodies. A primary objective of the General Permit is to reduce erosion associated with storm water discharges. Implementation of a Storm Water Pollution Prevention Plan (SWPPP) is required by the permit, and must contain measures to limit or prevent erosion. By implementing these measures and adhering to the SWPPP, the potential for erosion and loss of topsoil would be reduced to a less-than-significant level.

c) Would the project be located on a geologic unit or soil that is unstable, or would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less than significant. Soils within the Project vicinity are identified by NRCS with a range of potential engineering constraints, but generally tend toward the less-hazardous end of the soil spectrum. The soils exhibit low shrink-swell capacity, variable drainage characteristics, and medium soil strength. Shrink-swell activity in soils has the potential to exert force on building and structure foundations, and could result in some damage if not adequately addressed during the construction of foundations. Variable permeability could cause issues with site drainage, and medium soil strength characteristics can result in overloading and soil failure.

However, the proposed Project would comply with the City's Mitigating Ordinances, Guidelines, and Standards to reduce impacts related to soil, including on- or off-site landslides, lateral spreading, subsidence, liquefaction, collapse, or expansive soils. In addition, the City would ensure the design specifications in the site-specific geotechnical and geomorphic reports prepared for the Project are incorporated into the Project, in accordance with City of Roseville Design and Construction Standards. Engineering and geotechnical investigations, and compliance with CBC regulations and the City of Roseville Design and Construction Standards would limit the extent to which soil characteristics would impact structures. Development would occur pursuant to the City of Roseville building permit process, during which time evaluations of site-specific conditions would take place, and design and construction would be carried out according to results of those evaluations. Therefore, this impact would be less than significant.

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property?

Less than significant. The soils in the upper 18 inches of the soil profile at the Project site have clay contents of approximately 15 percent, and a coefficient of linear extensibility of 1.5 percent. These properties indicate that the soils have a low expansion potential (NRCS 2013: 618-A.37). These soils are not identified as expansive soils as defined in Table 18-1-B of the Uniform Building Code. Therefore, this impact would be less than significant.

f) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No impact. Any wastewater generated by the Project would be treated on-site at the PGWWTP. The Project would not involve the use of septic tanks or alternative wastewater disposal systems. Therefore, there would be no impact.

3.7 GREENHOUSE GAS EMISSIONS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. Greenhouse Gas Emissions. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?				
Expansion Project	☐	☒	☐	☐
Energy Recovery Project	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				
Expansion Project	☐	☒	☐	☐
Energy Recovery Project	☐	☐	☒	☐

3.7.1 Environmental Setting

Certain gases in the earth's atmosphere, classified as greenhouse gases (GHGs), play a critical role in determining the earth's surface temperature. GHGs are responsible for "trapping" solar radiation in the earth's atmosphere, a phenomenon known as the greenhouse effect. Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Non-CO_2 GHGs can have global warming potentials (GWPs) from a few hundred to several thousand times that of CO_2.

Human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is extremely unlikely that global climate change of the past 50 years can be explained without the contribution from human activities (Intergovernmental Panel on Climate Change [IPCC] 2007:86). By adoption of Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, and Senate Bill (SB) 97, the State of California has acknowledged that GHGs cause adverse environmental impacts. AB 32 mandates that emissions of GHGs must be capped at 1990 levels by the year 2020 (Health and Safety Code Section 38530).

In August 2016, Governor Brown signed SB 32 and AB 197, which extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include Section 38566, which requires ARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels no later than December 31, 2030.

GHGs have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change. Although the emissions of one single project would not cause global climate change, GHGs from multiple projects throughout the world result in a cumulative impact with respect to global climate change.

METHODS AND ASSUMPTIONS

Emissions from the construction of the Project were estimated using CalEEMod. Operational emissions were estimated for a variety of emission sources including operation of the Expansion Project and Energy

Recovery Project and changes in the type of fuel used for solid waste trucks. The level of GHGs generated by the Project are presented in metric tons of CO_2 equivalents per year (MT CO_2e/year). This analysis uses 100-year GWP factors from IPCC's Fourth Assessment Report, consistent with ARB's GHG inventory (ARB 2016e). The Expansion Project is evaluated on its own, first, because it is independent of the Energy Recovery Project and may be approved on its own. The analysis of the Energy Recovery Project also includes the Expansion Project because the Energy Recovery Project would not be constructed independently; both would be constructed and operated.

Construction

Construction-related GHGs are described as "short term" or temporary in duration but have the potential to stay in the atmosphere for long durations. Construction-related activities would result in GHGs associated primarily with the use off-road (e.g., gas and diesel) construction equipment and secondary sources such as on-road hauling trucks and worker commute trips.

The methods and assumptions used to calculate GHGs associated with construction activities of the Project are consistent with those described in Section 3.3, "Air Quality." Refer to Appendix B for additional detail about the methods used to estimate construction emissions.

Operations

The proposed Project would result in the operation of new wastewater treatment processes as part of the Expansion Project and new fuel sources as part of the Energy Recovery Project. The Project would also result in changes to three main GHG emission sources: mobile sources, electricity use, and WWTP processes, including combustion of natural and digester gas.

The Expansion Project would be constructed to accommodate the anticipated wastewater treatment demands through approximately 2040. Operational emissions assume 2040-level operations would occur in 2020 as a worst-case scenario. Refer to Appendix B for additional calculation details.

Mobile Sources

Expansion Project

For the Expansion Project, GHGs from mobile sources would result from the combustion of gasoline and diesel vehicle fuels. Annual vehicle miles travelled (VMT) and fuel use by vehicle type and fuel type were compared between existing and Expansion Project build-out conditions. Emissions calculations accounted for the VMT changes in employee commute trips, conversion of hauling waste activated sludge (WAS) to hauling biosolids, and hauling of chemicals. VMT changes for all hauling trip types except for chemicals are based on changes in trip lengths due to the different disposal locations for the WAS and biosolids. Table 3.7-1 shows the changes in annual VMT by mobile source and is based on data provided by the City and Kennedy/Jenks Consultants (City of Roseville 2016a). Additional details can be found in Appendix B.

Vehicle exhaust emissions were calculated using mileage-based emission factors from ARB's Emissions FACtor model (EMFAC2014) for the 2020 calendar year for the Sacramento Valley-portion of Placer County (ARB 2015b). Full Project capacity use has been assumed in the modeling of operations to represent a worst-case scenario. This is a conservative estimate that assumes full capacity would be reached by the first full year of operation (2020). In reality, there would be an interim period where the amount of wastewater treated would gradually increase in response to new development. This assumption is also conservative because vehicle emissions further into the future are anticipated to decline due to technological and regulatory improvements and a flowrate of 12 mgd may not occur until 2040.

Table 3.7-1 Changes in Annual Vehicle Activity between Existing and Build-Out Conditions of the Expansion Project

Mobile Source	EMFAC Vehicle Type	Existing Annual VMT	Project Annual VMT
Employee Commute[1,2]	LDA/LDT1/LDT2	0	10,950
Hauling: WAS/Biosolids[2]	HHDT	9,406	79,794
Hauling: Chemicals[3]	MMDT	686	1,160

Notes: Amounts may not sum to totals due to rounding. It is assumed that all vehicle trips except for employee commute trips would occur five days per week. Employee commute trips would occur seven days per week.

1 Accounts for new employee trips only.
2 Based on data provided by City and Kennedy/Jenks Consultants (City of Roseville 2016a)
3 Scaled by growth in wastewater treatment capacity.

VMT = vehicle miles travelled
WAS = waste activated sludge
LDA/LDT1/LDT2 = light duty vehicles and trucks
HHDT = heavy duty vehicles
MMDT = medium duty vehicles

Source: Compiled by Ascent Environmental in 2016.

Energy Recovery Project

The Energy Recovery Project would use digester gas produced by the Expansion Project and would not be able to operate independently; therefore, operational emissions modeled for the Energy Recovery Project also include operation of the Expansion Project. References to Energy Recovery Project below include operation of the Expansion Project. Mobile emission sources modeled for the Energy Recovery Project would include the mobile emission sources modeled above for the Expansion Project and mobile emission sources unique to the Energy Recovery Project (i.e., CNG solid waste collection vehicles, additional employees, and hauling of high strength waste).

Mobile emissions associated with the Energy Recovery Project were based on changes in annual VMT by vehicle type compared to existing conditions and the conversion of solid waste collection vehicle fuel use from CNG to a renewable CNG (rCNG) blend. Using mileage-based emission factors, most emissions calculations were based on increased employee commute trips; changes in trip length associated with conversion of WAS hauling to biosolids hauling and hauling of high strength wastes; and increased chemical hauling trips. Emissions related to the conversion of CNG to a rCNG blend for solid waste collection vehicles are discussed further below. The basis for these calculations were provided by the City and Brown and Caldwell (City of Roseville 2016b,c). The VMT used to calculate mobile source emissions in this analysis are shown in Table 3.7-2 below. Additional details can be found in Appendix B.

Mileage-based tailpipe emission factors for all vehicle types were taken from EMFAC2014 and Argonne National Laboratory's Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation model (GREET 2015), respectively (ARB 2015, Argonne National Laboratory 2015). Energy-based emission factors for the upstream production of CNG and rCNG were provided by the California-modified version of GREET (CA-GREET Tier 1 Version 2.0) (ARB 2016). Both upstream and tailpipe emissions were included because the Energy Recovery Project would result in GHGs from the production of rCNG and also offset the production of conventional CNG. Upstream emissions include refining, fuel distribution, and pumping emissions for on-site compression and production for rCNG. (ARB 2015, ARB 2016, Argonne National Laboratory 2015).

To calculate the CNG and rCNG energy use needed for the upstream emissions calculations, the energy content of the CNG and rCNG used in the solid waste collection vehicles was calculated using energy demand estimates quantified in the *Energy Recovery Basis of Design Report* (City of Roseville 2016c). According to this report, the Energy Recovery Project is designed to accommodate a vehicle fuel demand of 2,500 diesel gallons equivalents (DGE) per day. The CNG fuel required to meet that demand would be a blend between the rCNG derived from the digester gas and additional conventional CNG purchased from the local utility. The vehicle fuel production of the Energy Recovery Project would require approximately 7.9 MMBTU per hour of natural gas under normal operating conditions (210 scf per minute of digester gas production). Using a conversion factor of 7.19 DGE per MMBTU, the Energy Recovery Project would produce

1,136 DGE of digester gas and require 1,364 DGE of natural gas use per day. Assuming production would occur 365 days per year, the annual combustion of digester gas and natural gas for vehicle fuels would be 57,673 MMBTU and 69,251 MMBTU, respectively. This assumes all rCNG produced by the Energy Recovery Project in a single year would be combusted, regardless of decreased fueling activity during weekends and holidays or level of storage. Actual emissions from vehicle fuels may vary depending on the level of digester gas production and diversion ratio of the digester gas between vehicle fuels and the proposed microturbines.

Table 3.7-2 Changes in Annual Vehicle Activity between Existing and Build-Out Conditions for the Energy Recovery Project

Mobile Source	EMFAC Vehicle Type	Existing Annual VMT	Project Annual VMT
Employee Commute[1,2]	LDA/LDT1/LDT2	0	21,915
Hauling: HSW[2,3]	MMDT	10,250	3,500
Hauling: WAS/Biosolids[2]	HHDT	9,406	79,794
Hauling: Chemicals[4]	MMDT	686	1,160
CNG Solid Waste Collection Vehicles[5]	T7 SWCV	2,282,813	2,282,813

Notes: Amounts may not sum to totals due to rounding. It is assumed that all vehicle trips except for employee commute trips would occur 5 days per week. Employee commute trips would occur 7 days per week.

1 Accounts for new employee trips only.

2 Based on data provided by City, Kennedy/Jenks Consultants, Brown and Caldwell (City of Roseville 2016a,b,c).

3 Roseville-based hauling trips would change from Clean World's Fruitridge location to the Pleasant Grove Wastewater Treatment Plant, a change from 21 miles per trip to 7 miles per trip.

4 Scaled by growth in wastewater treatment capacity.

5 Project would not contribute to changes in solid waste collection truck VMT; however, emissions calculations still require VMT to calculate emissions using mileage-based emission factors. VMT based on usage of 2,500 diesel gallon equivalents per day with a fuel efficiency of 2.5 miles per gallon.

VMT = vehicle miles travelled
HSW = high strength waste
FOG = fats, oils, and grease
WAS = waste activated sludge
LDA/LDT1/LDT2 = light duty vehicles and trucks
HHDT = heavy duty vehicles
MMDT = medium duty vehicles
T7 SWCV = T7 rated solid waste collection vehicle

Source: Compiled by Ascent Environmental in 2016.

Electricity Use

Expansion Project

To estimate the additional electricity demands from the Expansion Project, current electricity use at the PGWWTP (13,716 megawatts [MWh] per year) was scaled by the change in anticipated wastewater flow between existing conditions (7.1 mgd) and the permitted future scenario (12 mgd). Based on this approach, the Expansion Project would require 9,466 MWh per year of additional electricity.

Energy Recovery Project

At full build-out with a normal digester gas production rate of 210 scf per minute, the Energy Recovery Project would operate a cogeneration facility that uses three-200 kW microturbines with a fourth for backup. Assuming full operation 24 hours per day and 365 days per year, the microturbines would generate 5,260 MWh per year and require an additional load of 877 kWh per year. When combined with the additional load required by the Expansion Project (9,466 MWh per year), the Expansion Project and Energy Recovery Project together would require 5,083 MWh per year of additional electricity beyond existing conditions. The microturbines would also provide residual heat for the digesters.

A CO_2 emission factor of 381 lb CO_2/MWh was scaled from Pacific Gas & Electric's 2014 emission factors assuming the utility's renewable mix would increase from 28 percent to 37 percent based on existing

conditions and contract agreements with the California Public Utilities Commission (CPUC) (The Climate Registry 2016, CPUC 2016). CH_4 and N_2O electricity emission factors that are representative of California were provided by the EPA eGRID data and were scaled by the State's anticipated overall change in the renewable energy mix from 22.7 percent in 2014 to 33 percent in 2020 (EPA 2015, CPUC 2016).

Process Emissions

Existing Conditions

Under existing conditions, only N_2O emissions are emitted from wastewater during treatment. No CH_4 emissions are emitted during treatment due to aerobic treatment processes. N_2O emissions from nitrification and denitrification processes and effluent discharge were based on Equations 10.7 and 10.10, respectively, from the ARB's *Local Government Operations Protocol* (LGOP) Version 1.1 (ARB 2010). These two equations calculated emissions using the estimated population served by the existing PGWWTP.

CH_4 emissions are not generated until the disposal of WAS at the end of the treatment processes. PGWWTP currently sends WAS to the Western Regional Sanitary Landfill (WRSL), located 5.6 miles north of the WWTP, to be landfilled. Landfilled WAS results in methane emissions from the anaerobic decomposition of the buried organic material. However, WRSL also captures landfill gas (LFG) and converts it to electricity for use at the landfill and for sale as a renewable source of electricity. To estimate the net GHG emissions from the landfilling of WAS, the following outlines the calculation of the existing net GHG emissions from PGWWTP's landfilled WAS.

The net emissions from landfilled WAS is the sum of fugitive CH_4 emissions generated by anaerobic decomposition of wastewater sludge, the unburned CH_4 emissions from electricity generation, and the GHG emissions credits from electricity produced by the captured CH_4 generated by the WAS. Fugitive CH_4 emissions are the CH_4 emissions that escape from the LFG capture systems and into the atmosphere. The level of CH_4 production is based on an emission factor of 195 kg CH_4 per MT of dry weight raw sludge from an IPCC background paper (Hobson 1999). PGWWTP landfilled 12,306 lbs per day (5.6 MT/day) of dry weight sludge in 2014, which is equivalent to 1,451 MT per year assuming hauling occurs 5 days per week (Seymour pers. comm., 2016). Using default values from Equation 9.1 of the LGOP, it was assumed the WRSL has a CH_4 collection efficiency of 75 percent. Unburned CH_4 emissions from electricity generation were calculated assuming a default destruction efficiency of 99 percent, also based on Equation 9.1 in the LGOP. Emissions credits from the generation of electricity with the remaining CH_4 are calculated by multiplying the amount of electricity generated by the CH_4 by the local PG&E electricity emission factor (0.174 MT CO_2e/MWh). Electricity generation was estimated by multiplying the remaining CH_4 emissions by the heat of combustion (i.e., energy per kg) of CH_4 and the efficiency of the generators used (36.4 percent for CAT 3561 engines) (WPWMA 2015, Caterpillar 2016). Additional details can be found in Appendix B.

Expansion Project

Under the Expansion Project, GHG emissions would result from anaerobic wastewater treatment processes, flaring of digester gas, and combustion of natural gas for the proposed boilers that provide heat for the digesters. Additional emissions of N_2O would result from the expansion of wastewater treatment processes. N_2O emissions from nitrification and denitrification processes and effluent discharge were based on Equations 10.7 and 10.10, respectively, from the LGOP (ARB 2010). These two equations calculated emissions using the estimated population served by the PGWWTP under the Expansion Project. There would be no emissions from WAS disposal under the Expansion Project because wastewater would be anaerobically treated on-site and would produce biosolids instead of WAS. Biosolids do not generate GHG emissions. Emissions associated with the Expansion Project are estimated based on the difference between existing and project conditions.

Approximately 210 scf of digester gas per minute (302,400 scf per day) would be produced and flared at full build out of the Expansion Project. Assuming 365 days per year and a lower heating value of 546 BTU/scf, the Expansion Project would produce and flare approximately 60,307 million BTU (MMBTU) of digester gas per year. CO_2 emissions from flaring of digester gas is assumed to be biogenic and was not counted towards the GHG emissions related to the Expansion Project. EPA's AP-42 emission factors for flares of synthetic

waste gases were used as a proxy to calculate CH_4 emissions from the proposed digester gas flares. No other GHG emission factors related to flaring activity were available.

Natural gas is currently not used on-site. However, with the Expansion Project, approximately 32,600 MMBTU of natural gas per year would be combusted in boilers to heat the anaerobic digesters (Ryan pers. comm., 2016). GHG emissions were calculated from EPA's AP-42 factors for combustion of natural gas in boilers (EPA 2000).

Energy Recovery Project

Under the Energy Recovery Project, conversion of WAS to biosolids, nitrification and denitrification processes, and effluent discharge would be the same as under the Expansion Project. Additionally, the same amount of digester gas would be produced overall. However, digester gas would be converted into tail gas and blended natural gas for use in the proposed microturbines instead of being flared. Tail gas is a byproduct from the conversion of digester gas into biomethane used for vehicle fuel.

To calculate emissions from the combustion of tail gas and natural gas in the proposed microturbines, the annual energy use of each gas was calculated and multiplied by the energy-based GHG emission factors from EPA's AP-42 guidance for natural gas-powered turbines (EPA 2000). The Energy Recovery Project would require 2.6 MMBTU per hour of natural gas per hour for use in the microturbines. Based on the microturbine energy requirements in Section 11.1.3.1 of the Energy Recovery Basis of Design Report, the combined methane content of tail gas and natural gas used in the microturbines must equal 50 percent (City of Roseville 2016c). Tail gas and natural gas have a methane content of 28 and 75 percent, respectively. Assuming a lower heating value of 259 BTU/scf for tail gas, the Energy Recovery Project would combust 6,743 MMBTU per year of tail gas and 22,792 MMBTU per year of natural gas in the proposed microturbines. It is assumed that any CO_2 emissions from the combustion of tail gas would be biogenic and are not counted toward Project-related emissions.

Thresholds of Significance

PCAPCD recently adopted new CEQA thresholds of significance for evaluating whether the GHG emissions of different types of projects would be a cumulatively considerable contribution to climate change. These new thresholds are supported by PCAPCD's California Environmental Quality Act Thresholds of Significance Justification Report released in September 2016 (PCAPCD 2016). PCAPCD's proposed GHG thresholds more accurately reflect the historical CEQA projects reviewed by PCAPCD over the last 13 years (2003-2015) and the CEQA significance thresholds adopted by other air districts in the Sacramento Area (PCAPCD 2016:5). PCAPCD has adopted an array of GHG thresholds for determining whether a project's GHG emissions would be cumulatively considerable. More specifically, PCAPCD's thresholds include the following:

- a "floor" mass emission threshold of 1,100 MT CO_2e/year, which, if not exceeded, means the project's GHGs would be less than cumulatively considerable (regardless of the project's GHG efficiency).
- a "bright-line cap" mass emission threshold of 10,000 MT CO2e/year levels, which, if exceeded, means the project's GHGs would be cumulatively considerable regardless of the project's GHG efficiency; and
- GHG efficiency-based thresholds for land use development projects, depending on whether the project is rural or urban and residential or non-residential (e.g., 4.5 MT CO_2e/year per capita and 26.5 MT CO_2e/year/1,000 square feet for residential and non-residential land uses in urban areas, respectively) (PCAPCD 2016:E-2).

For this Project, the net change in GHGs from the Project were evaluated in light of the "floor" mass emission thresholds being proposed by PCAPCD. This is because per-capita and per-square footage efficiency metrics are not suitable for industrial sites that provide wastewater treatment and/or fuel and electricity production.

3.7.2 Discussion

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than significant with mitigation. The levels of GHGs associated with construction and operation of the proposed Project are discussed separately below.

Construction

Expansion Project

Construction of the Expansion Project would generate GHGs from off-road heavy-duty equipment, trucks hauling construction supplies, and worker commute trips. As mentioned in Chapter 2, "Project Description and Background," construction would start in fall of 2017 and last approximately 24 months through 2019. Estimated levels of construction-related GHGs are summarized in Table 3.7-3, listed by calendar year.

Table 3.7-3 Summary of Modeled GHGs Associated with Expansion Project Construction Activities[1]

Year	MT CO_2e/year
2017	204
2018	93
2019	69
Total	**367**
Amortized Construction Emissions assuming a 30-year operational life	12

Notes: Amounts may not sum to totals due to rounding. Amounts may not sum to totals due to rounding.
GHG = greenhouse gas
MT CO_2e/year = metric tons of carbon dioxide-equivalent per year
Source: Modeling conducted by Ascent Environmental in 2016 using CalEEMod Version 2016.3.1 (SCAQMD 2013).

As shown in Table 3.7-3, the maximum annual GHGs (204 MT CO_2e/year) from construction of the Expansion Project would occur in 2017. Moreover, total construction emissions over the multi-year construction period would be 367 MT CO_2e, which is less than the annual "floor" mass emissions threshold of 1,100 MT CO_2e. To determine whether emissions from construction activities exceed thresholds, construction emissions were amortized assuming a 30-year operational life for the new facilities. The level of amortized construction-related GHGs is also combined with annual operational GHG estimates, which are presented below.

Energy Recovery Project

Construction of the Energy Recovery Project, which would include construction of both the expansion and the Energy Recovery Facility, would generate GHGs from off-road heavy-duty equipment, trucks hauling construction supplies, and worker commute trips. As mentioned in Chapter 2, "Project Description and Background," construction would start in late 2017 or early 2018 and last approximately 18 months through 2019. Estimated levels of construction-related GHGs are summarized in Table 3.7-4, listed by calendar year.

Table 3.7-4 Summary of Modeled GHGs Associated with the Energy Recovery Project Construction Activities

Year	Expansion Project (MT CO_2e/year)	Energy Recovery Project (MT CO_2e/year)	Combined (MT CO_2e/year)
2017	204	0	204
2018	93	323	416
2019	69	325	394
Total	**367**	**648**	**1,015**
Amortized Construction Emissions assuming a 30-year operational life	12	22	34

Notes: Amounts may not sum to totals due to rounding.
GHG = greenhouse gas
MT CO_2e/year = metric tons of carbon dioxide-equivalent per year
Source: Modeling conducted by Ascent Environmental in 2016 using CalEEMod Version 2016.3.1 (SCAQMD 2013).

As shown in Table 3.7-4, the maximum annual GHGs (416 MT CO_2e/year) from construction of the Energy Recovery Project would occur in 2018. Moreover, total construction emissions over the multi-year construction period would be 1,015 MT CO_2e, which is less than the annual "floor" mass emissions threshold of 1,100 MT CO_2e. To determine whether emissions from construction activities exceed thresholds, construction emissions were amortized assuming a 30-year operational life for the new facilities. The level of amortized construction-related GHGs is also combined with annual operational GHG estimates, which are presented below.

Operations

Expansion Project

Implementation of the Expansion Project would result in new GHG emissions associated with changes in mobile source emissions, as shown in Table 3.7-1; increased use of electricity for the expanded operations; increased natural gas use for boilers and digester heating; the conversion of the WWTP from aerobic to anaerobic treatment, which results in new CH_4 emissions contained within digester gas; and the conversion of WAS to biosolids. The Expansion Project would flare the emitted digester gas to reduce GHG emissions from the CH_4 generated by the anaerobic wastewater treatment processes. A summary of the change in GHG emissions is provided in Table 3.7-5.

Table 3.7-5 Summary of Modeled GHG Emissions Associated with Operation of the Expansion Project[1]

Emissions Source	Existing Conditions (MT CO_2e/year)	Existing Facility + Expansion Project (MT CO_2e/year)	Net Change (MT CO_2e/year)
Employee Commute[2]	0	3	3
Hauling: WAS/Biosolids	17	142	126
Hauling: Chemicals	0.8	1.4	0.6
Wastewater Treatment Processes[3]	1,364	2,244	880
Digester Gas Flare	0	53	53
Natural Gas Boiler	0	1,723	1,723
Electricity Consumption	2,380	4,023	1,643
Landfilled WAS at WRSL[4]	1,615	0	-1,615
Total	**5,377**	**8,189**	**2,812**

Table 3.7-5 Summary of Modeled GHG Emissions Associated with Operation of the Expansion Project[1]

Emissions Source	Existing Conditions (MT CO_2e/year)	Existing Facility + Expansion Project (MT CO_2e/year)	Net Change (MT CO_2e/year)
Amortized Construction Emissions[5]	0	12	12
Net Change in Greenhouse Gas Emissions			**2,825**
PCAPCD "floor" GHG Emission Thresholds			1,100
Exceeds Thresholds?			Yes

Notes: Totals may not equal sum due to rounding. Annual emissions modeled assuming full build-out operations in 2020.

1 See Appendix B for detail on model inputs, assumptions, and Project specific modeling parameters.

2 Existing number of employees was not available. Only the additional employee commute emissions were quantified.

3 Includes N_2O emissions from nitrification/denitrification and effluent discharge to surface waters.

4 Net emissions from landfilling WAS at WRSL, which captures landfill gas and generates electricity with the gas. Assumes a 75 percent collection efficiency, a 99 percent destruction efficiency, and a 36.4 percent efficient generator, based on the operation of CAT 3516 engines (WPWMA 2015, CAT 2016, ARB 2010).

5 Refer Table 3.7-3 for a summary of construction-related emissions.

GHG = greenhouse gas
MT CO_2e/year = metric tons of carbon dioxide equivalent per year
WAS = waste activated sludge
CNG = compressed natural gas
PCAPCD = Placer County Air Pollution Control District
WRSL = Western Regional Sanitary Landfill

Source: Modeling conducted by Ascent Environmental in 2016.

As shown in Table 3.7-5, implementation of the Expansion Project would result in a net increase in GHG emissions of 2,825 MT CO_2e/year over existing conditions at full build-out. Thus, operation of the Expansion Project would exceed PCAPCD's proposed "floor" mass emission threshold of 1,100 MT CO_2e/year by 1,725 MT CO_2e/year, and implementation of the Expansion Project would result in a cumulatively considerable contribution of GHGs. As a result, this impact would be potentially significant.

Mitigation Measure 3.7-1

To reduce GHG emissions from the Expansion Project, the City may choose any combination of the following measures, to achieve a net reduction of 1,725 MT CO_2e/year (equivalent to reducing the use of 194,104 gallons of gasoline or generating 9,941 MWh/year of electricity from renewable energy).

- improve energy efficiency and provide renewable vehicle fuels through the construction and implementation of the Energy Recovery Project which would reduce additional operational emissions from the Expansion Project by 103 percent, reducing emissions below existing conditions, as described herein,
- purchase electricity from a higher percentage of renewable sources; or
- purchase GHG offsets.

Implementation of Mitigation Measure 3.7-1 would ensure that GHG emissions would be reduced below recommended thresholds of significance. The cogeneration capabilities of the Energy Recovery Project would prevent methane-containing digester gas from being flared at the PGWWTP, would combine the conditioned and upgraded digester gas with natural gas to create renewable fuel blend for CNG vehicles, and use the waste tail gas, from digester gas upgrade process (blended with natural gas) for the generation of electricity and heat for digesters. This cogeneration capability would relieve electrical load from local utilities by providing a direct and renewable source of electricity for the PGWWTP.

Significance after Mitigation

Implementation of Mitigation Measure 3.7-1 would reduce the Expansion Project's overall GHG emissions to a level that is below the threshold of 1,100 MT CO_2e/year. Therefore, this impact would be reduced to a **less-than-significant** level with mitigation.

Less than significant

Energy Recovery Project

As discussed under "Methods and Assumptions" above, implementation of the Energy Recovery Project would result in new GHG emissions associated with changes mobile source emissions, as shown in Table 3.7-2; a net increase in the use of electricity for the expanded operations; increased natural gas use for microturbines and fuel blending; the conversion of the WWTP from aerobic to anaerobic treatment, which results in new CH_4 emissions contained within digester gas, and the conversion of WAS to biosolids. The Energy Recovery would utilize the emitted digester gas as a rCNG vehicle fuel and in microturbines along with natural gas to reduce GHG emissions from the CH_4 generated by the anaerobic wastewater treatment processes. A summary of the change in GHG emissions is provided in Table 3.7-6.

Table 3.7-6 Summary of Modeled GHG Emissions Associated with Operation of the Energy Recovery Project[1]

Emissions Source	Existing Conditions (MT CO_2e/year)	Existing Facility + Expansion Project with Energy Recovery (MT CO_2e/year)	Net Change (MT CO_2e/year)
Employee Commute[2]	0	7	7
Hauling: HSW	12	4	-8
Hauling: WAS/Biosolids	17	142	126
Hauling: Chemicals	1	1	1
CNG Solid Waste Collection Vehicles	5,171	3,606	-1,565
Wastewater Treatment Processes[3]	1,364	2,244	880
Microturbines	0	1,186	1,186
Electricity Consumption	2,380	3,262	882
Landfilled WAS at WRSL[4]	1,615	0	-1,615
Total	**10,560**	**10,452**	**-108**
Amortized Construction Emissions[5]	0	34	34
		Net Change in Greenhouse Gas Emissions	-74
		PCAPCD "floor" GHG Emission Thresholds	1,100
		Exceeds Thresholds?	No

Notes: Totals may not equal sum due to rounding. Annual emissions modeled assuming full build-out operations in 2020.

1 See Appendix B for detail on model inputs, assumptions, and Project-specific modeling parameters.

2 Only the additional employee commute emissions were quantified.

3 Includes N_2O emissions from nitrification/denitrification and effluent discharge to rivers.

4 Net emissions from landfilling WAS at WRSL, which captures landfill gas and generates electricity with the gas. Assumes a 75 percent collection efficiency, a 99 percent destruction efficiency, and a 36.4 percent efficient generator, based on the operation of CAT 3516 engines (WPWMA 2015, CAT 2016, ARB 2010).

5 Refer Table 3.7-4 for a summary of construction-related emissions.

GHG = greenhouse gas
MT CO_2e/year = metric tons of carbon dioxide equivalent per year
HWS = high strength waste
WAS = waste activated sludge
CNG = compressed natural gas
PCAPCD = Placer County Air Pollution Control District
WRSL = Western Regional Sanitary Landfill

Source: Modeling conducted by Ascent Environmental in 2016.

As shown in Table 3.7-6, implementation of the Energy Recovery Project would result in a net decrease in GHG emissions of 74 MT CO_2e/year over existing conditions at full build-out. The Energy Recovery Project would reduce additional operational emissions from the Expansion Project by 103 percent, reducing emissions below existing conditions. Thus, the operation of the Energy Recovery Project would not exceed PCAPCD's proposed "floor" mass emission threshold of 1,100 MT CO_2e/year. As a result, implementation of the Energy Recovery Project would not result in a cumulatively considerable contribution of GHGs, and this impact would be less than significant.

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than significant with mitigation.

Expansion Project

As described in a) above, the Expansion Project would exceed the GHG emission thresholds adopted by PCAPCD. These emissions would not be consistent with State targets to reduce overall emissions and would be inconsistent with the Air Quality Element of the City's General Plan because of the substantial increase in GHG emissions. Therefore, the Expansion Project alone would conflict with and obstruct implementation of ARB's Scoping Plan for achieving GHG reductions consistent with AB 32, would be inconsistent with PCAPCD's guidance, and would conflict with applicable General Plan policies. This impact would be potentially significant.

Mitigation Measure 3.7-2

Implement Mitigation Measure 3.7-1 above.

Significance after Mitigation

Implementation of Mitigation Measure 3.7-1 would reduce the Expansion Project's overall GHG emissions to a level that is below PCAPCD's GHG threshold of 1,100 MT CO_2e/year. Mitigation Measure 3.7-1 would minimize GHG emissions from stationary, mobile, and other emission sources. With minimization of emissions and consistency with the PCAPCD GHG threshold, the Expansion Project would not conflict with or obstruct ARB's Scoping Plan for achieving GHG reductions consistent with AB 32, would be consistent with applicable General Plan policies, and would be consistent with PCAPCD's guidance. Therefore, this impact would be reduced to a **less-than-significant** level.

Less than significant.

Energy Recovery Project

As described in a) above, the Energy Recovery Project would meet GHG emission thresholds adopted by PCAPCD, reducing emissions below existing conditions. Thus, these emissions would be consistent with State targets to reduce overall emissions. The Energy Recovery Project would also be consistent with the Air Quality Element of the City's General Plan because the Energy Recovery Project would minimize stationary source emissions from digester gas flares and promote energy conservation. Therefore, the Energy Recovery Project would not conflict with or obstruct ARB's Scoping Plan for achieving GHG reductions consistent with AB 32 and would be consistent with PCAPCD's guidance. This impact would be **less than significant.**

3.8 HAZARDS AND HAZARDOUS MATERIALS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. Hazards and Hazardous Materials. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
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?	☐	☐	☒	☐

3.8.1 Environmental Setting

A data search of various agency lists was conducted for the Project site and surrounding areas to identify potential hazardous contamination sites. The PGWWTP and the Roseville Energy Park immediately north of the Project site are listed as facilities that report to the EPA according to the Envirofacts Web database (EPA 2016b). There are no sites included in the California Department of Toxic Substances Control (DTSC) EnviroStor Database (DTSC 2016), or the Cortese List that are located in the Project vicinity (California Environmental Protection Agency (CalEPA] 2016).

Current operations at the PGWWTP include the transport, storage, and use of hazardous materials. Section 2.5.2 of Chapter 2, "Project Description and Background," includes examples of the types of hazardous materials currently used onsite. Hazardous chemicals onsite are stored in designated hazardous materials storage or containment areas, depending on the nature of the chemical, and are stored according to local, state, and federal regulations.

The PGWWTP currently has an Emergency Action Plan (EAP). The EAP includes the means for addressing and managing all aspects of emergency response that could foreseeably be required at the site, including first aid and medical treatment, evacuation, information on the responsible authorities to notify in the event of an emergency, internal chain-of-command contacts, and documentation. To avoid emergency situations and ensure proper functioning, maintenance workers at the site are responsible carrying out routine maintenance on equipment, which is also documented in the EAP. The PGWWTP also has a Spill Prevention Control and Countermeasure Plan (SPCC), which contains information on the correct maintenance and handling of hydrocarbons and hydrocarbon-related containment.

3.8.2 Discussion

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than significant. Construction of the Project would involve the routine transport and handling of hazardous substances such as diesel fuels, lubricants, solvents, epoxies, and paints. Handling and transport of these materials could result in the exposure of workers to hazardous materials. In addition, operation of the existing PGWWTP includes routine transport, use, and disposal of hazardous materials as described in Section 2.5.2 of Chapter 2, "Project Description and Background." Hazardous materials used for operation of the Expansion Project would be similar to existing operations.

The Project, would result in several new hazardous materials and byproducts onsite, including hydrogen sulfide, siloxane, carbon dioxide, and CNG. However, the Project would be constructed and operated in compliance with applicable federal, state, and local laws pertaining to the handling, transport, usage, and disposal of hazardous substances, including the California Occupational Safety and Health Act (CAL/OSHA) regulations, DTSC regulations, EPA, and regulations specified by the Roseville Fire Department. The Energy Recovery Project would not accept any hazardous high strength waste. In addition, the PGWWTP currently has a SPCC for onsite for storage and handling of hydrocarbons, and an EAP for addressing and managing all aspects of emergency response and these plans will be updated to cover any new facilities and processes included as part of the Project. Contractors handling hazardous materials would also be required to be familiar with the requirements of both the SPCC and EAP. Contractors would be trained in the procedures to follow in the event of a spill, and in the deployment of containment and clean up equipment.

Therefore, because the City and its contractors would implement and comply with these regulations during construction and operation of the Project, impacts related to creation of significant hazards to the public through routine transport, use, and disposal of hazardous materials would not occur. This impact would be less than significant.

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?

Less than significant. There is a small risk of upset during implementation of the Project during commissioning of new treatment facility components; however, non-compliant effluent would not constitute a hazardous waste. In addition, the City would coordinate with the Central Valley Regional Water Quality Control Board (RWQCB) prior bringing new facility components online to minimize the risk of upset. In the event that an upset should occur during commissioning, it would be handled according to existing protocols, which include diverting non-compliant effluent into the on-site effluent storage basins. Chemicals used in the

treatment process would be managed and contained similar to existing operations, and would be handled according to existing protocols in the event of an upset during Project implementation. Additional hazardous materials would be used onsite as part of the Energy Recovery Project; however, as discussed in a), above, the Project would be subject to local, state, and federal laws concerning the use of hazardous materials at the site. In addition, continued implementation of the SPCC and EAP would also minimize the potential for release of hazardous substances. Therefore, this impact would be less than significant.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less than significant. There are no existing schools within a 0.25-mile radius of the Project area. The nearest existing school to the Project area is Chilton Middle School, which is approximately 0.6-mile southeast of the Project site. A high school is proposed within 0.25-mile of the Project site, but none of the buildings would be within this footprint. The SPCC and EAP are currently in place to reduce the risk to adjacent properties associated with existing operations and this would also address the Project. While the CNG fueling station would be added to the site, a number of safety features are included to conservatively regulate pressure, ensure no leakage (and detect any leakage if it were to occur), and otherwise provide a margin of safety such that there are no hazards off-site. Therefore, the impact on nearby schools would be less than significant.

d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Less than significant. As discussed above in Section 3.8.1, the PGWWTP and the Roseville Energy Park are listed as facilities that report to EPA. However, the Project site is not identified by EPA, DTSC, or Cal EPA as a hazardous materials site (EPA 2016b, DTSC 2016, CalEPA 2016). Thus, the Project would not create a significant hazard to the public or to the environment as a result of existing hazardous material contamination. Therefore, this impact would be less that significant.

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 projects result in a safety hazard for people residing or working in the project area?

No impact. The nearest airport to the Project area is Lincoln Regional Airport, approximately 8 miles north of the Project site. The Project site is not located within the airport land use plan for this airport, or any other airport, nor is it located in a restricted airport zone. Therefore, there would be no impact.

f) For a project within the vicinity of a private airstrip, would the projects result in a safety hazard for people residing or working in the project area?

No impact. There are no private airstrips in the vicinity of the Project site. Therefore, there would be no impact.

g) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No impact. The City has an Emergency Operations Plan (EOP) and a Multi-Hazard Mitigation Plan addressing emergencies within the City. As discussed above, the PGWWTP also has an EAP for operation of the existing facility. This plan would be updated to cover any new facilities and processes included as part of the Project. The Project would not physically interfere with any of these plans. Therefore, there would be no impact.

h) Would the project 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?

Less than significant. The Project site is not located within a forested area, and is not designated as a high fire zone by California Department of Forestry and Fire Protection (CALFIRE 2008). The immediate Project vicinity is dominated by annual grassland, with trees bordering the Project site. Activities associated with construction, including the use of vehicles and other equipment could result in ignition sparks, but contractors would be trained to execute work in a manner that is safe with respect to fire hazards, and fire suppression equipment would be readily available at the construction site. In addition, the use of CNG onsite would increase the potential for a fire during operations. However, the CNG facilities would be within a paved area, and the facilities would have extensive safety measures including being designed with a conservative pressure rating and ability to withstand up to 1.25 times the tank operating pressure. Additionally, valves and other safety devices would be included with the fueling stations to prevent leakage from the tank and dispensers. Emergency shutoffs, warning signage, and safety bollards would also be included to protect the CNG tanks and associated equipment. Additionally, as discussed in Section 3.14, "Public Services," adequate fire protection services are available to serve the Project site. Because of the Project site is not within an area designated as a high fire zone and numerous safety measures would be implemented as part of the Project, this impact would be less than significant.

3.9 HYDROLOGY AND WATER QUALITY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. Hydrology and Water Quality. Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
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 that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
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 which would result in substantial on- or offsite erosion or siltation?	☐	☐	☒	☐
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 which would result in on- or offsite flooding?	☐	☐	☒	☐
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?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
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?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☒
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?	☐	☐	☒	☐
j) Result in inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

3.9.1 Environmental Setting

HYDROLOGY

The Project site is located within the Pleasant Grove Creek watershed. The existing WWTP is within the area covered by the *Pleasant Grove Ecosystem Restoration Plan* (Placer County 2006), which guides various aspects of Pleasant Grove Creek watershed planning, including pollution control, storm water management, and improvement of upstream and headwater conditions.

Pleasant Grove Creek is approximately 0.4-mile north of the Project site, and Curry Creek is located to the south and drains lands south of the Project site. The PGWWTP currently discharges effluent to Pleasant Grove Creek approximately 1 mile downstream of the confluence of the main branch and Kaseberg Creek.

Pleasant Grove Creek is an intermittent, and primarily surface water-fed stream that drains approximately 30,600 acres in the northwestern portion of the cities of Roseville and Rocklin and their outlying western suburbs. The creek comprises four subbasins: Lower Pleasant Grove Creek, Upper Pleasant Grove Creek, South Branch Pleasant Grove Creek, and Kaseberg Creek. The creek headwaters begin in Upper Pleasant Grove Creek, in the low Sierra Nevada foothills at an elevation of approximately 590 feet above mean sea level (amsl), eventually flowing into the Pleasant Grove Creek Canal at approximately 35 feet amsl. The main stretch of the creek, where PGWWTP effluent is discharged, is flat and meandering, with slopes of less than 5 percent.

Streams in the Project vicinity are fed chiefly by surface runoff from rainfall. Consequently, many streams in the area are intermittent, flowing only during the wet season or during rainfall events. In an effort to control the drainage pattern of Pleasant Grove Creek and other rivers in the region, dikes and levees have been constructed in agricultural areas to create a predictable channelized stream. These modifying features have forced Pleasant Grove Creek into what is today a highly channelized stream morphology, which has resulted in increased stage heights during periods of high flow. As a result, the natural floodplain has been all but eliminated, and flooding occurs above areas on the creek where the channel is not capable of accommodating artificially high stage heights. Development in the Roseville area has exacerbated this problem, which has increased direct surface runoff to the stream channel. As a consequence, large swaths of land on either side of Pleasant Grove Creek area are identified by the Federal Emergency Management Agency (FEMA) as having a moderate flood hazard, including the location of the Project site. The moderate flood hazard rating corresponds to the 500-year flood event. While the Project site lies within the 500-year designated floodplain, regulatory restrictions on building are limited to the 100- and 200-year floodplains (Exhibit 3.9-1). Floodplain hazards for the Project site are described in further detail below.

BENEFICIAL USES

Pleasant Grove Creek has no existing cold water fishery and limited warm water fishery value. Because the creek is intermittent, with no flow during the summer months, its value as a recreational resource is limited. However, the creek is of agricultural value, with several sites where water is withdrawn for irrigation. In addition to receiving effluent from the PGWWTP, the stream also receives effluent from several local industry point sources.

WATER QUALITY

Water quality in Pleasant Grove Creek has been degraded by agricultural uses, and contains elevated levels of nitrogen, phosphorus, and coliform bacteria (City of Roseville 1996b: 7-3). It is also currently a Section 303(d) listed water for ammonia, specific conductance, and pH (SWRCB 2012).

Exhibit 3.9-1

Flood Zones

ASCENT ENVIRONMENTAL

NPDES PERMIT CONDITIONS

The PGWWTP operates under the Waste Discharge Requirements (WDR) specified in National Pollutant Discharge Elimination System (NPDES) permit No. CA0084573, issued by the Central Valley RWQCB under Order No. R5-2014-0051 (Appendix D). Under this permit, the PGWWTP is permitted to discharge 12 million gallons per day (mgd) average dry weather flow (ADWF) to Pleasant Grove Creek. The discharge permit implements the Basin Plan's water quality objectives, and establishes PGWWTP effluent standards and receiving water quality standards for Pleasant Grove Creek. The permit sets discharge limitations for contaminants of concern in effluent discharges, including biological oxygen demand, pH, total suspended solids (TSS), total ammonia nitrogen, and total nitrogen, and combined nitrate and nitrite. The permit also sets limits on the quality of water in Pleasant Grove Creek downstream of the treatment facility. The permit dictates that discharge from the PGWWTP shall not cause adverse effects on the following parameters of concern in Pleasant Grove Creek, downstream of the treatment facility:

- Bacteria
- Biostimulatory substances
- Chemical constituents
- Color
- Chemical constituents
- Floating material
- Oil and grease
- pH
- Pesticides
- Radioactivity
- Suspended sediments
- Settleable substances
- Taste and odors
- Temperature
- Toxicity
- Turbidity

REGULATORY FLOODPLAIN

The FEMA oversees federal floodplain management policies and runs the National Flood Insurance Program (NFIP) adopted under the National Flood Insurance Act of 1968. FEMA prepares Flood Insurance Rate Maps (FIRM) that delineate the regulatory floodplain to assist local governments with land use planning and floodplain management decisions to meet the requirements of the NFIP. Floodplains are divided into flood hazard areas, which are areas designated according to their potential for flooding, as delineated on FIRMs. Special Flood Hazard Areas (SFHAs) are the areas identified as having a one percent chance of flooding in a given year (otherwise known as the 100-year flood). In general, the NFIP mandates that development is not to proceed within the regulatory 100-year floodplain, if the development is expected to increase flood elevation by 1 foot or more. The PGWWTP is not located on an SFHA, as identified on FIRM panel 06061C0394F, dated June 8, 1998 (FEMA 1998).

In 2007, the State of California passed a series of laws referred to as SB 5 directing California Department of Water Resources (DWR) to prepare flood maps for the central valley flood system and the State Plan of Flood Control, which includes a system of levees and flood control facilities located in the Central Valley. This legislation also set specific locations within the area affected by the 200-year flood event as the urban level of flood protection (ULOP) for the Central Valley.

SB 5 "requires all cities and counties within the Sacramento–San Joaquin Valley, as defined in California Government Code Sections 65007(h) and (j), to make findings related to a ULOP or the national FEMA standard of flood protection before: (1) entering into a development agreement for any property that is located within a flood hazard zone; (2) approving a discretionary permit or other discretionary entitlement, or a ministerial permit that would result in the construction of a new residence, for a project that is located

within a flood hazard zone; or (3) approving a tentative map, or a parcel map for which a tentative map was not required, for any subdivision that is located within a flood hazard zone."

The City of Roseville has updated its General Plan to meet the requirements of SB 5. There are five locational criteria that must all be met for a ULOP to apply, of which two are applicable across the entire City: the City is an urban area of greater than 10,000 people, and is located within the Sacramento–San Joaquin Valley. The remaining three are:

- The area must be located within a flood hazard zone that is mapped as either an SFHA, of an area of moderate hazard (identified by FEMA as the 500-year floodplain) of FEMA's official FIRM for the NFIP;
- The area must be located within an area with a potential flood depth above three feet, from sources other than localized conditions; and
- The area must be located within a watershed with a contributing area of more than 10 square miles.

Based on these criteria, the Project site is not located in an area covered by the ULOP for the City of Roseville, as identified on Figure VIII-2 of the City General Plan (City of Roseville 2016d).

GROUNDWATER

The City of Roseville is located on the approximately 350,000-acre North American River subbasin, which extends beneath western Placer County, southern Sutter County and northern Sacramento County, and is a subbasin of the broader Sacramento Groundwater Basin (DWR 2006).

The North American subbasin hydrogeology is characterized by an upper groundwater system and a lower groundwater system. The upper groundwater system exists in the deep Quaternary alluvial deposits described in Section 3.6, Geology and Soils. The lower groundwater system is largely confined, and exhibits recharge characteristics that indicate that it is somewhat hydraulically isolated from the upper system. Water-bearing features in the upper system are generally limited to loose, unconsolidated sediments, with water flowing intermittently. The vadose zone is relatively deep, and becoming deeper over time due to groundwater withdrawal for agricultural use. Groundwater recharge occurs through surface water and snowmelt infiltration (DWR 2006).

3.9.2 Discussion

a) Would the project violate any water quality treatment standards or waste discharge requirements?

Less than significant. While the existing PGWWTP operates within the design range for flow rates, biochemical oxygen demand (BOD) loading in existing flows averaged 20,678 lbs/day from September 2010 through June 2016, which represents 88 percent of the 23,500 lbs/day treatment capacity (Exhibit 3.9-2). The higher than anticipated BOD loads increase the potential for exceeding water quality standards and reduce the treatment capacity of the PGWWTP.

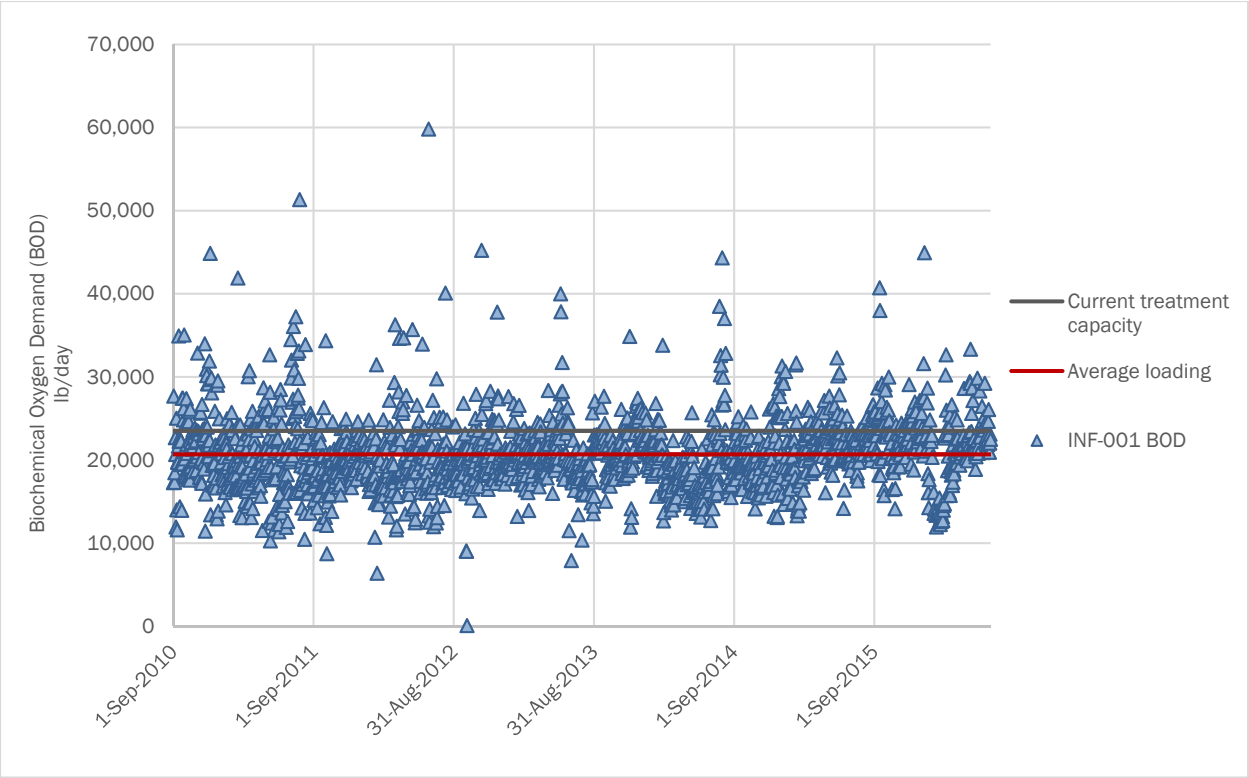


Exhibit 3.9-2 Influent Biochemical Oxygen Demand Loading and Treatment Capacity

While the PGWWTP is permitted and has hydraulic capacity to treat and discharge 12 mgd ADWF, the current BOD loading reduces the treatment capacity to an estimated 9.5 mgd. The Expansion Project would increase the treatment capacity of the PGWWTP, and allow the WWTP to continue to reliably meet effluent limits set forth in the NPDES permit by increasing BOD treatment capacity from 23,500 lb/day to 34,500 lb/day. Water quality in Pleasant Grove Creek is not expected to change as a result of this expansion, and the PGWWTP would continue to operate in compliance with water quality standards set forth in the NPDES permit.

Startup and incorporation of the new water treatment system components into the existing treatment system has the potential to cause a system upset and result in a violation of effluent or receiving water permit limitations. To minimize the risks associated with upset conditions, the City would coordinate with the Central Valley RWQCB prior bringing new facility components online. In the event that an upset should occur during commissioning, it would be handled according to existing protocols.

Operation of the Energy Recovery Project would have no impact on water quality in the Pleasant Grove Creek watershed related to effluent discharges.

Construction activities associated with both the Expansion Project and Energy Recovery Project would include additional site grading and an overall increase in the total acreage of impervious surfaces on the Project site as a result of concrete slabs for additional facilities, and asphalt surfaced roadways and parking areas. To achieve compliance and effectively implement the CWA, the City has adopted Ordinance No. 4822 relating to urban stormwater quality management and discharge control. This chapter of the City code (City of Roseville Code of Ordinances Chapter 14.20) sets forth requirements for any development that would require stormwater control measures. The City would comply with the provisions of this ordinance including preparing a Stormwater Management Plan congruent with the City of Roseville's Stormwater Quality Design Manual and a Stormwater Maintenance Plan.

In addition to the City requirements, the Central Valley RWQCB requires compliance with the General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activity (General Permit) for disturbances over 1 acre. Construction site erosion control methods and other best management practices (BMPs) would be included in the development of Storm Water Pollution Prevention Plans (SWPPPs), per the requirements of the General Permit. Implementation of BMPs during construction would safeguard against violation of the General Permit and associated water quality impacts. Compliance with City and Central Valley RWQCB requirements would reduce this impact to a less-than-significant level.

b) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater discharges such that there would be a net deficient 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?

No impact. The Project would not use groundwater, nor would it have an impact on groundwater recharge in the area. Therefore, no impact would occur.

c) Would the project 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 which would result in substantial erosion or siltation on- or off-site?

Less than significant. Construction of the proposed Project would result in minor alterations to the existing drainage pattern of the site. Grading activities for facility construction could result in increased sediment in stormwater runoff. Through the City stormwater management permitting process, a local grading plan would be developed, which would minimize runoff generation during construction. Additionally, as discussed above under a), SWPPPs would be developed under the General Permit, and incorporate BMPs to minimize stormwater drainage and erosion related to construction.

The Project would increase the amount of impervious surfaces on the site. Grading and construction would be carried out in compliance with SWPPP BMPs, and new stormwater collection facilities would be constructed for the Project that would allow new impervious surfaces to drain into the existing stormwater system. Stormwater that enters the existing WWTP area is currently collected and retained on-site in the stormwater pond, and treated on-site when there is available capacity. Stormwater collected from the new impervious surfaces would be conveyed to the stormwater pond.

The existing stormwater collection system has been designed to avoid substantial erosion on-site or off-site, including within Pleasant Grove Creek. The Project would be designed and constructed to minimize erosion off-site utilizing existing BMPs, and would be incorporated into the existing stormwater collection system. Therefore, this impact would be less than significant.

d) Would the project 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 which would result in flooding on- or off-site?

Less than significant. As discussed in c), the Project would alter the drainage pattern at the site and increase impervious surfaces. New impervious surfaces would be connected to the on-site stormwater collection system, and BMPs would be employed during construction to minimize construction impacts.

The additional area covered by new impervious surfaces would be small in relation to the overall site, and the existing stormwater collection system has been designed to avoid substantial on-site or off-site flooding, including Pleasant Grove Creek. Therefore, this would be less than significant.

e) Would the project create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?

Less than significant. Stormwater that enters the existing WWTP area is currently collected and retained on-site in the stormwater basins, and treated on-site when there is available capacity. Likewise, stormwater collected from the new impervious surfaces would be conveyed to the stormwater basins. The Project would be designed to have adequate on-site drainage, and the PGWWTP would continue to operate in a manner that minimizes stormwater pollution in accordance with City Ordinance No. 4822. During construction activities, BMPs detailed in the SWPPP and in the Stormwater Management Plan would be implemented to minimize the risk of stormwater pollution from erosion. Therefore, this impact would be less than significant.

f) Would the project otherwise substantially degrade water quality?

Less than significant. The proposed Project would add primary clarifiers and anaerobic digesters to the existing treatment system at the PGWWTP. With these additions, the PGWWTP would continue to operate in compliance with the existing NPDES permit. In addition, the Project would comply with City and Central Valley RWQCB requirements for construction and stormwater runoff. Therefore, construction and operation of the Project would not degrade water quality. This impact would be less than significant.

g) Would the project 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 boundary?

No impact. The Expansion Project proposes upgrades to the PGWWTP, and the Energy Recovery Project would involve construction of co-generation facilities. No housing is planned as a part of the Project. Therefore, there would be no impact.

h) Would the project place within a 100-year flood hazard area structures which would impede or redirect flows?

No impact. The Project site is not located within the 100-year flood hazard area as depicted on the FEMA Flood Insurance Rate Map (Map No. 0601C0394 F, FEMA 1998). Therefore, no structures would be placed within a 100-year floodplain. There would be no impact.

i) Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of a failure of a levee or dam?

Less than significant. Increased stormwater runoff and the potential for flooding at the PGWWTP was previously addressed in the 1996 Roseville Regional Wastewater Treatment Service Area Master Plan EIR (Master Plan EIR) and was found to be significant under Impact 6-3: Increased Stormwater Runoff; and, Impact 6-6: Contribution to Flooding of Pleasant Grove Creek. Mitigation Measure 6-2 in the 1996 Master Plan EIR required preparation of a hydrologic study to address these impacts. In 1999, the *Hydrologic Analysis for Pleasant Grove Creek Pleasant Grove Wastewater Treatment Plant Project* was prepared in accordance with this mitigation measure (City of Roseville 1999). This Hydrologic Analysis concluded that a minimum of 48 million gallons (mg) of on-site storage would be needed to avoid downstream flooding during a 100-year flood event. According to the discharge permit, the PGWWTP includes three storage basins with a total of 65.1 mg of storage capacity for 100-year flood protection. The Project would reduce the capacity of Effluent Storage Basin No. 3 due to construction of the new primary clarifier building. New construction within Storage Basin No. 3 would displace between 2.6 and 2.9 mg of existing on-site storage. Therefore, with project implementation, total on-site storage volume would be between 62.2 to 62.5 mg which would continue to accommodate on-site retention requirements during flood events. Thus, the expanded treatment plant would not expose people or structures to a significant risk of loss, injury, or death involving flooding.

In addition, Folsom Dam, which is located more than 12 miles southeast of the Project site, is the closest dam to the Project site. While portions of the City could be subject to flooding in the event of failure or

damage of the Folsom Dam, the Project would not include construction of housing. In addition, the Project would include expansion of an existing facility and would not introduce people or structures into a previously unoccupied area. Therefore, the Project would not pose a new significant risk related to failure of a levee or dam. This impact would be less than significant.

j) Would the project expose people or structures to a significant risk of loss, injury or death as a result of inundation of seiche, tsunami, or mudflow?

No impact. The proposed Project is not located in a coastal region, and is therefore not exposed to the risk of tsunami. Nor is the Project located near a large inland waterbody that would expose it to the risk of seiche. In addition, the Project site is not located in an area where steep terrain would result in the risk of mudslides during an earthquake or heavy rainfall event. Therefore, there would be no impact.

3.10 LAND USE AND PLANNING

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
X. Land Use and Planning. Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

3.10.1 Environmental Setting

Lands surrounding the PGWWTP include Public/Quasi Public lands to the north (the existing Roseville Energy Park), undeveloped open space/parks and recreation designated lands to the east and northwest, and undeveloped lands designated general industrial to the south, and light industrial to the west. To minimize compatibility concerns, a 769-foot non-residential buffer surrounds the PGWWTP with the nearest residences being approximately 845 feet to the west.

The existing PGWWTP is located within the City of Roseville and is designated as Public/Quasi Public by the City General Plan (Exhibit 3.10-1) (City of Roseville 2016d). The City-owned parcel immediately south of the PGWWTP, where the Energy Recovery Project facilities would be located, is also within the City of Roseville, and is within the *West Roseville Specific Plan* area. This parcel is also designated as Public/Quasi Public (City of Roseville 2004). Lands with this designation include areas for education, religious assembly, governmental offices, municipal corporation yards, and water treatment plants. The existing PGWWTP and parcel immediately to the south are both zoned as Public/Quasi Public (City of Roseville 1996a). Lands within the PGWWTP fence-line boundary are developed with WWTP facilities, paved areas, or other disturbed areas. The parcel to the south is currently undeveloped and is primarily disturbed grassland.

3.10.2 Discussion

a) Would the project physically divide an established community?

No impact. The Project facilities for the Expansion Project and the Energy Recovery Project would be located within and adjacent to the existing PGWWTP property, which is separated from the surrounding residential uses by approximately 845 feet. Thus, the Project would not divide an established community and no impact would occur.

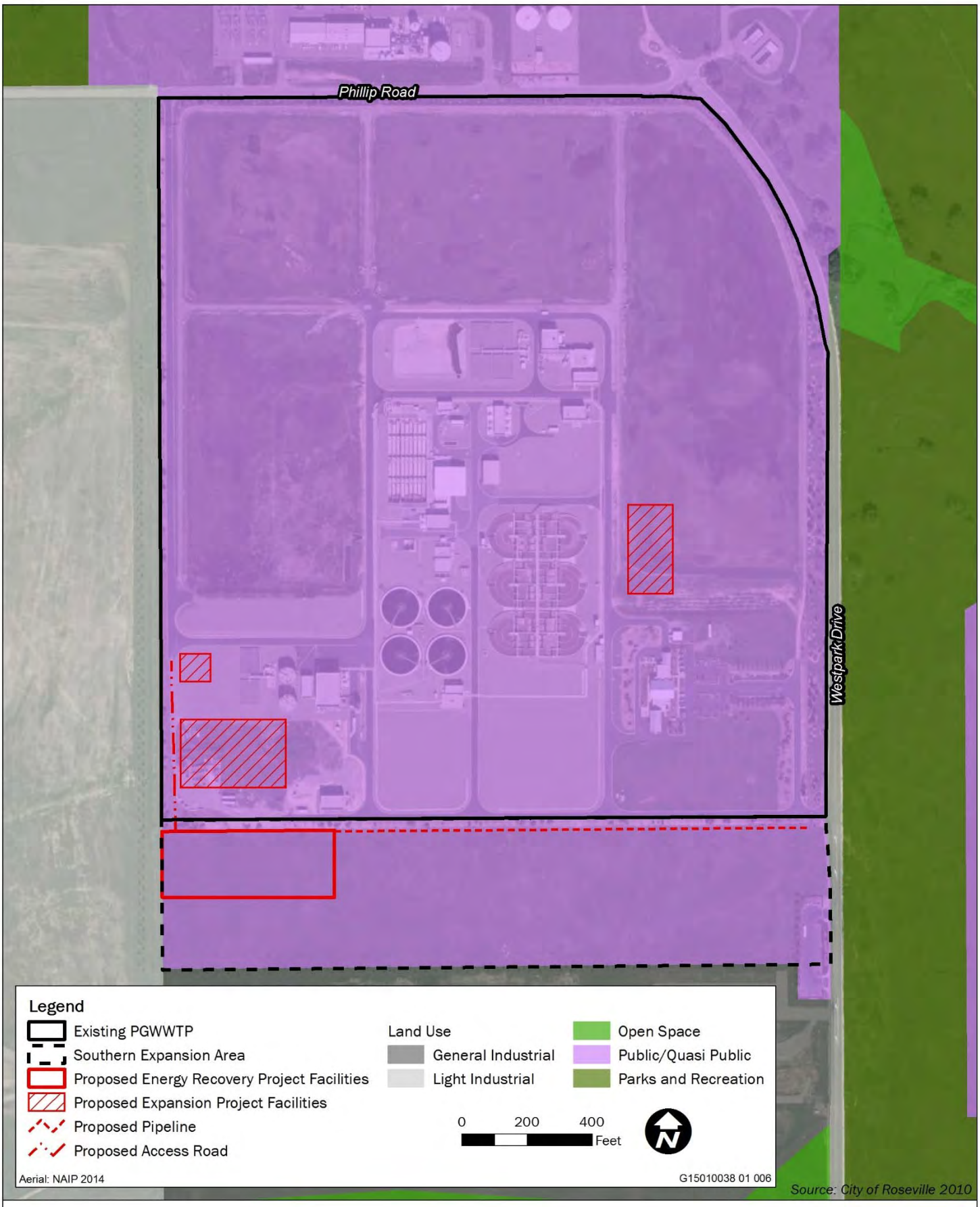


Exhibit 3.10-1 **Land Use Designations**

b) Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No impact. As discussed above, the existing PGWWTP and the city-owned parcel immediately to the south are currently designated as Public/Quasi Public. The PGWWTP and city-owned parcel to the south are also both zoned as Public/Quasi Public, which corresponds to open space and public uses (City of Roseville 1996a). Expansion of the existing WWTP and construction of energy recovery facilities would be consistent with the existing land use and zoning designations. Therefore, the Project would remain consistent with the land use and zoning designation of the site. There would be no impact related to a conflict with a land use policy.

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

No impact. Placer County is in the process of developing the Placer County Conservation Plan (PCCP), which will serve as a HCP/NCCP for development within the county. The City has an existing memorandum of understanding with USFWS and is not participating in the PCCP. Therefore, there are no HCP/NCCPs that are applicable to the Project site. There would be no impact.

3.11 MINERAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. Mineral Resources. Would the project:				
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

3.11.1 Environmental Setting

According to the City General Plan, mineral resources are limited and no mineral extraction operations currently exist within the City General Plan (City of Roseville 2016d). The California Geologic Survey (CGS) classifies the Project site as Mineral Resource Zone (MRZ)-4, which is an area of unknown mineral resource potential. However, the site is not designated by CGS as an area of gold, aggregate, clay, or granite production, and there is no active mineral extraction occurring on-site (DOC 1995).

3.11.2 Discussion

a) Would the project 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?

No impact. Mineral resources within the City are limited, and the Project site is not located within an area of known mineral resources. Therefore, development of the Project would have no effect on the availability of known mineral resources that would be of value to the region and the residents of the state, and no impact would occur.

b) Would the project 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?

No impact. There are no locally important mineral resource recovery sites delineated on a local general plan, specific plan, or other land use plan that include the Project site. Therefore, development of the Project would have no effect on the availability of known mineral resources, and no impact would occur.

3.12 NOISE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. Noise. Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐

3.12.1 Environmental Setting

Existing noise- and vibration-sensitive land uses in the Project vicinity primarily include single-family residences. These residences are considered to be noise-sensitive because they are land use types where noise exposure could result in health-related risks to individuals, as well as places where a quiet setting is an essential element for their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Residential land uses are also considered to be sensitive to noticeable levels of ground vibration. There are noise-sensitive receptors west of the Project along Westbrook Boulevard, southeast of the Project site along Westpark Drive, and east of the Project site along Hayden Parkway, Bickleigh Loop, and Bellanca Way. The residences nearest to the Project site are approximately 845 feet west of the PGWWTP property boundary. Residences are also located approximately 1,500 feet to the east of where the proposed primary clarifiers would be located, and 1,200 feet south of where the proposed energy recovery facilities would be located.

The existing noise environment in the Project vicinity is primarily influenced by transportation noise from vehicle traffic on the surrounding roadway systems (e.g., Westbrook Boulevard, West Park Drive, Pleasant Grove Boulevard) and the Roseville Energy Park to the north. Other noise sources that contribute to the existing noise environment include existing WWTP activities at the Project site. These include mobile noise sources from equipment such as maintenance vehicles, and employee vehicles, as well as stationary noise sources associated with pumps and motors that run the various processes at the WWTP.

An ambient noise survey was conducted on August 24, 2016. The purpose of the survey was to establish existing noise conditions in the Project vicinity, as well as noise levels at existing noise sensitive receptors. Several short-term noise measurements were taken to capture the reference noise levels for equipment on the Project site. Additionally, one long-term noise measurement was taken to capture the ambient noise environment on the western boundary of the Project sites (the area nearest to sensitive receptors). The location of each noise measurement is shown on Exhibit 3.12-1 and the measured noise levels are shown in Table 3.12-1 with corresponding location numbers. Noise level measurements were taken in accordance with American National Standards Institute standards using a Larson Davis Laboratories Model 820 precision integrating sound level meter. The CNEL measured during the long-term noise measurement was 51.5 dB.

Table 3.12-1 Summary of Existing Ambient Noise Measurements Normalized to a Distance of 100 feet

Location[1]	Noise Source	Start (Date/Time)	Stop (Date/Time)	Sound Level (dB)		
				L_{eq}	L_{max}	L_{min}
1	Secondary Clarifiers	August 24, 2016 at 10:22 a.m.	August 24, 2016 at 10:33 a.m.	64.5	74.4	65.2
2	Dewatering Building	August 24, 2016 at 10:48 a.m.	August 24, 2016 at 11:03 a.m.	65.6	66.4	64.7
LT[2]	PGWWTP Operations	August 24, 2016 at 12:00 p.m.	August 25, 2016 at 12:00 p.m.	59.4	80.2	55.0

Notes: L_{eq} = Equivalent Noise Level, or the equivalent steady-state noise level in a stated period of time that would contain the same acoustic energy as the time-varying noise level during the same period (i.e., average noise level).; L_{max} = maximum noise level, or the highest instantaneous noise level during a specified time period; L_{min} = minimum noise level, the lowest instantaneous noise level during a specified time period.

[1] Refer to Exhibit 3.12-1 for ambient noise level measurement locations.

[2] The Community Noise Equivalent Level (CNEL) measured was 51.5 dB.

Source: Data collected by Ascent Environmental in 2016

CITY OF ROSEVILLE GENERAL PLAN

The Noise Element of the City General Plan (City of Roseville 2016d) contains goals, policies, and implementation measures to ensure that residents are not subjected to noise beyond acceptable levels. City General Plan policies applicable to the Project are included below.

- **Policy 1:** Allow the development of new noise-sensitive land uses (which include but are not limited to residential, schools, and hospitals) only in areas exposed to existing or projected levels of noise from transportation noise sources which satisfy the levels specified in Table IX-1 (presented as Table 3.12-2 in this document). Noise mitigation measures may be required to reduce noise in outdoor activity areas and interior spaces to the levels specified in Table IX-1 (presented as Table 3.12-2 in this document).

- **Policy 7:** Require proposed fixed noise sources adjacent to noise-sensitive uses to be mitigated so as not to exceed the noise level performance standards of Table IX-3 (presented as Table 3.12-3 in this document).

- **Policy 9:** Where noise mitigation measures are required to achieve the standards of Tables IX-1 and IX-3 (presented as Tables 3.12-2 and 3.12-3 in this document), the emphasis of such measures should be placed on site planning and project design. These measures may include, but are not limited to, building orientation, setbacks, landscaping, and building construction practices. The use of noise barriers, such as soundwalls, should be considered as a means of achieving the noise standards only after all other practical design-related noise mitigation measures have been integrated into the project.

- **Policy 10:** Regulate construction-related noise to reduce impacts on adjacent uses consistent with the City's Noise Ordinance.

Source: Kennedy/Jenks Consultants 2016; adapted by Ascent Environmental in 2016

Exhibit 3.12-1 **Noise Measurement Locations**

Table 3.12-2 Maximum Allowable Noise Exposure for Transportation Noise Sources

Land Use	Outdoor Activity Areas[1] (L_{dn}/CNEL, dB)	Interior Spaces	
		(L_{dn}/CNEL, dB)	L_{eq}, dB[2]
Residential	60[3]	45	-
Transient Lodging	60[3]	45	-
Hospitals, Nursing Homes	60[3]	45	-
Theaters, Auditoriums, Music Halls	-	-	35
Churches, Meeting Halls	60[3]	-	40
Office Buildings	65	-	45
Schools, Libraries, Museums	-	-	45
Playground, Neighborhood Parks	70	-	-

Notes: L_{dn} = Day-Night Noise Level; CNEL = Community Noise Equivalent Level; dB = decibel; Leq = Equivalent Noise Level

1 Outdoor activity areas for residential developments are considered to be the backyard patios or decks of single family dwellings, and the patios or common areas where people generally congregate for multi-family developments.

Outdoor activity areas for non-residential development are considered to be those common areas where people generally congregate, including pedestrian plazas, seating areas and outside lunch facilities.

Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use.

2 As determined for a typical worst-case hour during periods of use.

3 Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn}/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 75 dB L_{dn}/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

Note: Where a proposed use is not specifically listed on this table, the use shall comply with the noise exposure standards for the nearest similar use as determined by the Planning Division. Commercial and industrial uses have not been listed because such uses are not considered to be particularly sensitive noise exposure.

Source: City of Roseville 2016d:IX-14

Table 3.12-3 Performance Standards for Non-Transportation Noise Sources or Projects Affected by Non-Transportation Noise Sources

Noise Level Descriptor	Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
Hourly L_{eq}, dB	50	45
Maximum Level, dB	70	65

Notes: L_{eq} = Equivalent Noise Level

For municipal power plants consisting primarily of broadband, steady state noise sources, the hourly (L_{eq}) noise standard may be increase up to 10 dB(A), but not exceed 55 dB(A) Hourly L_{eq} dB.

Each of the noise levels specified above should be lowered by 5 dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noise. Such noise levels are generally considered by residents to be particularly annoying and are a primary source of noise complaints. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).

No standards have been included for interior noise levels. Standard construction practices should, with exterior noise levels identified, result in acceptable interior noise levels.

Source: City of Roseville 2016d

CITY OF ROSEVILLE MUNICIPAL CODE

Chapter 9.24, Noise Regulation

9.24.030 – Exemptions

Private construction between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday, and between the hours of 8:00 a.m. and 8:00 p.m. Saturday and Sunday; provided, however, that all construction equipment shall be fitted with factory installed muffling devices and that all construction equipment shall be maintained in good working order.

9.24.100 Sound Limits for Sensitive Receptors

It is unlawful for any person at any location to create any sound, or to allow the creation of any sound, on property owned, leased, occupied or otherwise controlled by such person, which causes the exterior sound level when measured at the property line of any affected sensitive receptor to exceed the ambient sound level by 3 dB or exceed the sound level standards as set forth in Table 3.12-4, by 3 dB, whichever is greater.

Table 3.12-4 Sound Level Standards (for Non-Transportation or Fixed Sound Sources)

Sound Level Descriptor	Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
Hourly L_{eq}, dB	50	45
Maximum Level, dB	70	65

Notes: L_{eq} = Equivalent Noise Level
Source: City of Roseville 2016d

9.24.140 Operational Standards for City Activities

Notwithstanding any other provisions of this chapter, City operations and activities are not subject to the provisions of this chapter. The City council may, by resolution, adopt operational standards for City activities to effectuate the purposes of this chapter.

3.12.2 Discussion

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 in other applicable local, state, or federal standards?

Less than significant. New stationary noise sources associated with the Expansion Project would include new primary clarifiers and the associated electrical building located on the east side of the Project site just north of the existing administration building, a solids thickening building located near the western boundary of the Project site, and anaerobic digestion facilities, located near the southwest corner of the Project site. New stationary noise sources associated with the Energy Recovery Project would include food waste receiving and processing facilities, microturbines, a vehicle fueling station, digester gas conditioning and upgrading system located near the southwest corner of the Project site. The locations of these new noise-generating facilities are show in Exhibit 3.12-1.

It is assumed that the noise levels generated by all of the proposed new stationary sources would be similar to the noise levels generated by existing stationary sources on the Project site. Based on the sound measurements collected and summarized in Table 3.12-1, the highest noise levels generated by existing stationary noise sources are 65.6 dB L_{eq} and 80.2 dB L_{max}. Although the new stationary sources could generate equally loud noise levels, they would be located closer to the PGWWTP property boundary and, therefore, closer to off-site noise-sensitive receptors. The new solids thickening building on the west side of the Project site would be closest to existing off-site noise-sensitive receptors, which are single family residences located approximately 845 feet from the Project site along the west side of Westbrook Boulevard. Through distance alone, the noise levels generated by new on-site stationary noise sources would attenuate to 42 dB L_{eq} and 56 dB L_{max}, which would be less than the daytime and nighttime hourly L_{eq} and L_{max} standards established by the City General Plan (Table 3.12-2) and Noise Ordinance (Table 3.12-3). See Appendix E for noise attenuation calculations. Therefore, the new stationary noise sources that would be part of the Project would not result in the exposure of persons to or generation of noise levels in excess of applicable local standards. Potential impacts associated with mobile noise sources (i.e., transportation-related noise) are discussed below under c). This impact would be less than significant.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less than significant. Operation of the Expansion Project and the Energy Recovery Project would not result in any new long-term operational sources of ground vibration. Some ground vibration would be generated during construction of new facilities that would be a part of the Expansion Project and the Energy Recovery Project. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. Construction-related ground vibration is normally associated with impact equipment such as jackhammers and the operation of some heavy-duty construction equipment, such as dozers and trucks. The effects of ground vibration may be unnoticeable at the lowest levels, result in low rumbling sounds and detectable vibrations at moderate levels, and high levels of vibration can cause sleep disturbance in places where people normally sleep or annoyance in buildings that are primarily used for daytime functions and sleeping.

Construction activities would require the use of heavy-duty off-road equipment such as dozers, graders, excavators, concrete trucks and pumps, compressors, and various trucks (e.g., material and equipment haul trucks, water trucks, fuel trucks). No pile driving or blasting would take place. Table 3.12-5 presents the levels of ground vibration that could be generated by the types of heavy equipment that could be used during construction of the Expansion Project and Energy Recovery Project.

Table 3.12-5 Representative Ground Vibration and Noise Levels for Construction Equipment

Equipment	PPV at 25 feet (in/sec)	Approximate L_v (VdB) at 25 feet
Small Dozer	0.003	58
Loaded Trucks	0.076	86
Large Dozer	0.089	87
Vibratory Roller (Compactor)	0.210	94

Notes: PPV = peak particle velocity; L_V = the root mean square velocity expressed in vibration decibels (VdB), assuming a crest factor of 4; VdB = vibration decibel

Source: FTA 2006

As shown in Table 3.12-5, of the heavy equipment that could be used during Project construction the highest level of ground vibration would be generated by a vibratory roller. A vibratory roller operated within approximately 25 feet of an existing building or structure could expose that structure to levels of ground vibration that exceed Caltrans's recommended level of 0.2 in/sec PPV with respect to the prevention of structural damage. Also, a vibratory roller operated within 75 feet of a building could expose the building occupants to ground vibration levels that exceed the Federal Transit Administration's (FTA) maximum-acceptable vibration standard of 80 VdB with respect to human annoyance for residential uses. Because all construction activity would take place at least 845 from sensitive receptors, there would be no exceedance of Caltrans's recommended level of 0.2 in/sec PPV with respect to the prevention of structural damage and FTA's standard of 80 VdB with respect to human annoyance for residential uses. Therefore, the proposed Project would not expose of persons to excessive levels of groundborne vibration. This impact would be less than significant.

c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than significant. Separate discussions are provided below for increases in stationary noise sources and traffic-related noise sources generated by the proposed Project.

<u>Long-term Operational Stationary Source Noise Exposure to Existing Receptors</u>

As discussed under a) above, new stationary sources would not expose existing off-site noise-sensitive receptors to noise levels that would exceed daytime or nighttime noise standards established in the City General Plan (Table 3.12-2) or Noise Ordinance (Table 3.12-3).

Long-term Operational Traffic Noise Exposure to Existing Receptors

Operation of the Expansion Project would include long-term vehicle trips associated with up to two additional full-time employees, hauling of biosolids, and maintenance. Operation of the Energy Recovery Project would include long-term vehicle trips associated with one additional full-time employee, haul trips for high strength waste, and solid waste trucks fueling at the site. At build-out, a maximum of 55 solid waste trucks would be accessing the site per day; however, the number of trucks fueling at the site would increase gradually as the City's fleet is converted to CNG, and these trips would only occur during daytime hours (i.e., 7:00 a.m. to 10:00 p.m.), with approximately half of the trucks refueling in the morning, and half refueling in the afternoon. In the near-term (i.e., prior to project build-out) operations-related vehicle trips would access the site via Fiddyment Road to Hayden Parkway to Bob Doyle Drive, and then to Westpark Drive. Although there are sensitive receptors along this route, soundwalls such as those separating the roadways and residences along this route typically provide a 7 dB or greater (depending on design and materials) reduction in noise (FHWA 2010). In addition, this route would only be used in the interim and would not be used at project build-out, when the increase in vehicle trips would be at a maximum. A doubling of ADT is required to result in a 3 dBA increase in noise (i.e., the level of increase perceptible to the human ear). The number of trips associated with operational vehicle trips in the interim would be a small fraction of existing and future traffic. Such an increase would not result in a doubling of ADT on any nearby roads and, therefore, would not result in an audible increase in traffic-related noise.

In the long-term, Blue Oaks Boulevard would be extended west to connect to Westbrook Boulevard, and Westpark Drive would be extended north to the extended Blue Oaks Boulevard. Operations-related vehicle trips would use Blue Oaks Boulevard to Westpark Drive to Phillip Road to access the Project site from the north. The existing access road along the western boundary of the PGWWTP would be extended south and provide access to the Energy Recovery Project. Access from the south would be from Pleasant Grove Boulevard to Westbrook Boulevard to Blue Oaks Boulevard to Westpark Drive, and then to Phillip Road. Because these roadways would experience the maximum increase in traffic-related noise at Project build-out, traffic noise levels along Westbrook Boulevard were modeled with and without Project-generated trips using the U.S. Department of Transportation Federal Highway Administration Traffic Noise Model (FHWA 1998). The baseline traffic volume for the modeled roadway segments were provided in the *Final Traffic Study for the Amoruso Ranch Specific Plan* (Fehr & Peers 2016). This modeling was performed to evaluate the degree to which Project-generated vehicle trips would result in a change in traffic noise levels, rather than precisely estimate the roadside noise levels. Table 3.12-6 summarizes the modeled traffic noise levels along these roadway segments under existing and existing-plus-project conditions. For further details on traffic-noise modeling inputs and parameters, refer to Appendix E.

Table 3.12-6 Modeled Traffic Noise Levels along Solid Waste Truck Access Route under Existing and Existing-Plus-Project Conditions

Roadway Segment	CNEL (dB) at 50 feet from Roadway Centerline[1]					
	Existing Conditions	Existing +Project Conditions	Change (dB)	Cumulative No Project Conditions	Cumulative + Project Conditions	Change (dB)
Westbrook Boulevard north of Pleasant Grove Boulevard[2]	59.7	61.3	+1.6	71.9	71.9	0.0

Notes: dB = decibels; CNEL = community noise equivalent level

[1] This modeling was performed to evaluate the degree to which Project-generated vehicle trips would result in a change in traffic noise levels, rather than precisely estimate the roadside noise levels.

[2] Modeled traffic noise levels do not account for noise reduction provided by the existing sound walls on the west side of Westbrook Boulevard.

Source: Modeled by Ascent Environmental 2016. Refer to Appendix E for detailed noise modeling input data and output results.

With respect to how humans perceive and react to changes in noise levels, a 1 dB increase is unnoticeable, a 3 dB increase is barely noticeable, a 6 dB increase is clearly noticeable, and a 10 dB increase is

subjectively perceived as approximately twice as loud (Egan 2007:21; Caltrans 2013:2-45). As shown in Table 3.12-6, Project-related vehicle trips would not result in a noticeable increase in traffic noise levels (i.e., 3 dB or greater) along Westbrook Boulevard. Thus, the proposed Project would not result in a substantial permanent increase in traffic noise levels in the Project vicinity above levels existing without the Project. This impact would be less than significant.

d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than significant with mitigation. The Project would include the Expansion Project, which would increase the treatment capacity of the existing PGWWTP, and the Energy Recovery Project, which would use digester gas to generate fuel for vehicles and electricity and heat. Construction of the Expansion Project would last approximately 24 months and is anticipated to begin in the fall of 2017. Construction of the Energy Recovery Facilities would last approximately 18 months and would begin in late 2017 or early 2018.

Construction of the Energy Recovery Project facilities would occur Monday through Friday between 7:00 a.m. and 7:00 p.m., with the potential for limited work to occur on Saturday or Sunday between 8:00 a.m. and 8:00 p.m. Construction of the Expansion Project would also primarily occur during the noise exempt hours; however, there is the potential for some construction activity to be required outside of these exempt hours. Construction activities would consist of excavation, underground pipeline installation, concrete work, building construction, equipment installation, paving, and testing. No pile driving or blasting would take place. Construction noise levels in the Project vicinity would fluctuate depending on the type, number, and duration in which various equipment would be used. The effects of construction noise largely depend on the type of construction activities occurring on any given day, noise levels generated by those activities, distances to noise-sensitive receptors, and the existing ambient noise environment at nearby receptors. Table 3.12-7 lists reference noise levels for the types of equipment that would generally be used during Project construction. Site preparation and grading typically generates the highest noise levels because these activities involve the use of some of the larger, heavy, off-road equipment operating at full power.

Table 3.12-7 Noise Emission Levels from Construction Equipment

Equipment Type	Typical Noise Level (dB) at 50 feet[1]
Grader	85
Paver	85
Concrete Pump	82
Roller	74
Excavator	85
Dozer	85
Backhoe	80
Fork lift	85
Generator	81

Notes: dB = decibels

[1] Assumes all equipment is fitted with a properly maintained and operational noise control device, per manufacturer specifications. Noise levels listed are manufacture-specified noise levels for each piece of heavy construction equipment.

Source: FTA 2006

Noise-sensitive receptors near the Project site could, at times, experience elevated noise levels from construction activities. As shown in Table 3.12-7, the loudest piece of equipment that may be used during construction, such as a grader, excavator, or forklift, would generate a noise level of 85 dB at a distance of 50 feet. Through distance alone, this noise level would attenuate to less than the City's nighttime hourly L_{eq}

noise standard of 45 dB (Table 3.12-2 and Table 3.12-3) at distance of 1,600 feet (See Appendix E for noise attenuation calculations). Therefore, the single-family homes along Bickleigh Loop, the single-family home at the west end of Bellanca Way, and the Siena Apartments off of Hayden Parkway would not be exposed to noise levels that exceed the daytime or nighttime noise standards established in the City General Plan (Table 3.12-2) or Noise Ordinance (Table 3.12-3).

The single-family homes along the west side of Westbrook Boulevard, however, are located approximately 845 feet from the southeast portion of the Project site where the Energy Recovery Project and solids thickening building would be constructed. At this distance, construction noise levels would attenuate to 53 dB at the nearest property line of the residences along Westbrook Boulevard. (See Appendix E for noise attenuation calculations.) The existing masonry wall along the west side of Westbrook Boulevard would provide, at least 5 dB of noise reduction, thus, reducing the construction noise level at these residential land uses to 48 dB. Any work occurring between 7:00 a.m. and 10:00 p.m. would be subject to the City's daytime noise standards. This level of noise exposure would not exceed the 50 dB daytime hourly L_{eq} standard established in the City General Plan (Table 3.12-2) and Noise Ordinance (Table 3.12-3). Although it is not anticipated, noise generated by any construction activity using heavy equipment or haul trucks occurring on the west side of the Project site during evening or nighttime hours (i.e., 10:00 p.m. to 7:00 a.m.), would exceed the City's 45 dB nighttime hourly L_{eq} standard.

Although most construction would occur during the exempt daytime hours and/or would be located at sufficient distance from sensitive receptors for noise levels to attenuate below noise thresholds, any construction with heavy equipment or haul trucks required outside of the noise-exempt hours would be potentially significant.

Mitigation Measure 3.12-1

Noise curtains shall be used during any nighttime construction activity (i.e., occurring between 10:00 p.m. and 7:00 a.m.) involving the operation of heavy equipment or haul trucks on the west side of the Project site (i.e., where there are sensitive receptors closer than 1,600 feet). The temporary noise curtains shall meet the following criteria:

- The temporary noise curtains shall achieve at a minimum 3 dB noise reduction;
- The temporary noise curtains shall be located or as close as possible to the area where heavy construction equipment would be operated; and
- Temporary noise curtains shall consist of durable, flexible composite material featuring a noise barrier layer bounded to sound-absorptive material on one side. The noise barrier layer shall consist of rugged, impervious, material with a surface weight of at least one pound per square foot, and shall be designed to block the line-of sight between construction activities and affected receptors.

Significance after Mitigation

Implementation of Mitigation Measure 3.12-1 would reduce construction-related noise levels, if it were to occur outside of noise exempt hours, to a **less-than-significant** level because it would reduce the level of noise exposure at off-site noise-sensitive receptors to less than the noise standards established in the City General Plan and Noise Ordinance. Implementation of Mitigation Measure 3.12-1 would prevent the occurrence of a substantial temporary or periodic increase in ambient noise levels at noise-sensitive receptors.

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?

Less than significant. The nearest airport to the Project site is the Lincoln Regional Airport, located approximately 8 miles to the north. At this distance low-flying aircraft performing take-offs and landings at

Lincoln Regional Airport would not affect the noise environment at the Project site. The nearest publicly owned airport to the Project is the Sacramento International Airport, approximately 12 miles southwest of the Project site. The Sacramento International Airport Land Use Compatibility Plan (SACOG 2013) establishes noise contours surrounding the Sacramento International Airport and the Project is located outside of those contours. There are no private airstrips located within the Project vicinity. Because of the distance of the Project site from the nearest airport, the Project would not expose people residing or working in the area to excessive noise levels from aircraft operations. This impact would be less than significant.

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?

Less than significant. See e) above, for discussion.

3.13 POPULATION AND HOUSING

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. Population and Housing. Would the project:				
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)?	☐	☐	☒	☐
b) Displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

3.13.1 Environmental Setting

According to the U.S. Census Bureau, the City of Roseville had a total population of 130,269 in 2015, an approximately 9.8 percent increase from the last population census in 2010. In 2015, the City had 47,757 housing units (U.S. Census Bureau 2015). No houses are located within the Project site, which is an existing wastewater treatment plant and undeveloped land. The nearest residences are located approximately 845 feet west of the Project site.

3.13.2 Discussion

a) Would the project 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)?

Less than significant. The proposed Project would require up to three new full-time employees to operate the expanded PGWWTP and energy recovery facilities. Construction of the facilities would not result in a substantial increase in the numbers of permanent workers/employees. Therefore, it is assumed that construction workers would be local residents and would not induce growth in the Project vicinity, either directly or indirectly.

The proposed Expansion Project would increase the capacity of the existing PGWWTP. By so doing, the Project would accommodate planned growth and expansion of the City through 2040. New collection systems would likely be required for the expanded PGWWTP to serve new developments, and construction of such collection system improvements would be subject to additional CEQA review. However, any new growth that could be served by the proposed Expansion Project was projected and planned for in the general plans of those local jurisdictions with the treatment plant's service area which anticipate a population that exceeds 210,300 residents at full build-out (City of Roseville 2016d; City of Rocklin 2012; Placer County 2013). Goals and policies are outlined in the City of Roseville General Plan, City of Rocklin General Plan, and Placer County General Plan to accommodate this new growth, and its impacts were addressed in the respective EIRs for these general plans. In fact, the Expansion Project would restore the PGWWTP to its originally designed capacity of 12 mgd (see Section 2.2 for a discussion of the current treatment capacity and Project background). The Energy Recovery Project would not directly or indirectly induce growth.

An impact is only deemed to occur when it directly or indirectly affects the ability of agencies to provide needed public services, or if it can be shown that the growth will significantly affect the environment in some other way. While the Project in question would induce some level of growth, this growth was already identified and its effects disclosed and mitigated within the *Roseville Regional Wastewater Treatment Service Area Master Plan EIR* (City of Roseville 1996b), the City and County general plan EIRs, and subsequent specific plan EIRs that have been prepared for existing and proposed development within the wastewater service area. Therefore, the impact of the Project would be less than significant.

b) Would the project displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere?

No impact. The proposed Project would be constructed within the existing PGWWTP boundary and Southern Expansion Area. No existing homes would be removed or displaced by construction or operation of the Project, nor would replacement housing be constructed elsewhere. Therefore, no impact would occur.

c) Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No impact. As described in b) above, the proposed Project would be constructed within and immediately adjacent to the existing PGWWTP property. Therefore, the proposed Project would not displace people or require the construction of replacement housing. No impact would occur.

3.14 PUBLIC SERVICES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. Public Services. Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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?	☐	☐	☒	☐

3.14.1 Environmental Setting

Fire protection, emergency medical services, and hazardous materials management within the City are provided by Roseville Fire Department (RFD). The RFD operates eight fire stations and one fire training center within the City. The RFD comprises approximately 100 staff members for fire operations, 7 fire and life safety personnel, 1 fire training professional, and 7 administrative support personnel (City of Roseville 2016e). The RFD has a mutual aid agreement with Placer County/California Department of Forestry and Fire Protection and the Sacramento Metropolitan Fire District. The RFD also has an automatic aid agreement with the South Placer Fire District, the Rocklin Fire Department, and the Sacramento Fire Metropolitan Fire District. The nearest fire station to the PGWWTP is Roseville Fire Station 9.

Law enforcement within the City is provided by the Roseville Police Department (RPD). The RPD is authorized to have 127 sworn officers and approximately 67 non-sworn employees headquartered at 1051 Junction Boulevard (City of Roseville 2016e). Sworn officers are responsible for emergency and law enforcement related activities. Non-sworn employees are responsible for other duties including: animal control, dispatch, record maintenance, jail management, and administrative tasks. The Placer County Sheriff's Department is responsible for providing law enforcement services to the unincorporated areas of Placer County immediately adjacent to the City.

The nearest school to the PGWWTP is the Barbara Chilton Middle School located approximately 0.6-mile southeast of the site, which serves grades six through eight. The land to the east and northwest of the PGWWTP are designated as open space/parks and recreation; however, these areas are currently undeveloped and there are no park facilities. The nearest park facility is Norm Fratis Park, which is owned by the City, and is located approximately 0.5-mile east of the site.

3.14.2 Discussion

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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?

Less than significant. Roseville Fire Station 9, which is approximately 0.4-mile to the east, would continue to provide primary fire response services to the PGWWTP. Although the Project would include construction and operation of several new structures within and adjacent to the PGWWTP, including a fueling station, the existing PGWWTP is currently served by RFD and expansion of the existing facility is not expected to substantially increase the demand for fire services or reduce the response time. CNG and digester gas are volatile substances, and therefore use of these substances on-site could increase the existing fire risk. However, all facilities would be designed with safety features, including a conservative pressure rating, the ability to withhold up to 1.25 times the tank operating pressure, and valves and other safety devices to prevent leakage from the tank and dispensers. The fueling station would also be located away from habitable structures. The Expansion Project would result in two additional full-time employees, and the Energy Recovery Project would result in one additional full-time employee, resulting in up to three new full-time employees. However, this would be a small increase in demand for employees and is not expected to result in employees relocating to the City. In addition, the Project would not cause an increase in population that would require increased staffing of the RFD. Therefore, the Project would not substantially increase the demand for fire protection services, or increase the response time for RFD. Therefore, the Project would have a less-than-significant impact on fire protection services.

Police protection?

No impact. The PGWWTP would continue to be served by RPD. Several new structures would be constructed within and adjacent to the PGWWTP property; however, the Project would not increase the population in the Project vicinity, such that additional police services would be needed. Therefore, no impact to police protection would occur.

Schools?

No impact. The Project would be within and adjacent to the existing PGWWTP property and the nearest school is approximately 0.6-mile from the site. Therefore, the Project is not expected to have a direct effect on schools. In addition, the Project would not increase the population in the Project vicinity, such that additional schools would be needed. Therefore, the Project would not impact schools.

Parks?

No impact. The PGWWTP is located adjacent to open space and approximately 0.5-mile from the nearest park facility. However, the proposed facilities would be within and adjacent to the existing PGWWTP property, and would have no direct effect on parks or the adjacent open space areas. The Project would also not generate new population. Therefore, the Project would not require the construction of new parks or other public facilities or alterations to existing facilities to maintain performance objectives. Therefore, no impact on parks would occur.

Other public facilities?

Less than significant. The Project would include expansion of the existing PGWWTP, which is a public facility. Potential impacts associated with expansion of the PGWWTP and construction of energy recovery facilities are the subject of this Initial Study, and no additional significant environmental impacts are expected. In addition, the Project would not result in an increase in population in the Project vicinity that would increase the demand for other public facilities, such as libraries and community centers. Therefore, the Project would have a less than significant impact on public facilities.

3.15 RECREATION

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. Recreation. Would the project:				
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?	☐	☐	☐	☒
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

3.15.1 Environmental Setting

As discussed above in Section 3.14, "Public Services," the land east and northwest of the PGWWTP is designated as open space/parks and recreation; however, the area is currently undeveloped and there are no park facilities. The nearest park facility is Norm Fratis Park, which is owned by the City, and is located approximately 0.5-mile east of the site. This park is an approximately 6-acre neighborhood park that provides a play area, swings, covered picnic area, multi-use turf area, half court for basketball, and sand and grass volleyball courts (City of Roseville 2016f). A Class II bike trail is located along Westpark Drive east of Bickleigh Loop.

3.15.2 Discussion

a) Would the project 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?

No impact. The Project would not increase the population or housing in the Project vicinity. Therefore, use of existing neighborhood and regional parks or other recreational facilities would not change as a result of the Project. Because the Project would not result in the physical deterioration of public recreational facilities, no impact would occur.

b) Would the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

No impact. The Project would not increase the population in the Project vicinity. Therefore, the Project would not require construction of new homes or infrastructure, including parks and recreational facilities. No impact would occur.

3.16 TRANSPORTATION/TRAFFIC

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. Transportation/Traffic. Would the project:				
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
c) 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?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐
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?	☐	☐	☐	☒

3.16.1 Environmental Setting

ROADWAY SYSTEM

The Project is located within and adjacent to the existing PGWWTP property located on Westpark Drive in Roseville. Westpark Drive turns into Phillip Road north of the PGWWTP. Local roadways that would be used to access the Project site include Westpark Drive, Bob Doyle Drive, and Hayden Parkway. The main arterials in the vicinity of the Project site include Pleasant Grove Boulevard to the south, Fiddyment Road to the east, Westbrook Boulevard to the west, and Blue Oaks Boulevard to the northeast (see Exhibit 2-3, Chapter 2, "Project Description and Background").

- **Pleasant Grove Boulevard** is an east–west arterial that extends from Market Drive to the City of Rocklin where it becomes Park Drive. It has four lanes from its western terminus at Market Drive to west of Foothills Boulevard. It has six lanes from west of Foothills Boulevard to State Route 65.

- **Fiddyment Road** is a north–south arterial connecting west Roseville with Placer County and the City of Lincoln. Fiddyment Road has recently been widened and realigned as part of the West Roseville Specific Plan. It is currently four lanes between Pleasant Grove Boulevard and the north Roseville City limit.

- **Westbrook Boulevard** is planned as a six-lane facility with a 100-foot ROW extending between a future extension of Blue Oaks Boulevard and Baseline Road.

- **Blue Oaks Boulevard** is an east–west arterial that links the cities of Roseville and Rocklin to each other and to SR 65. Blue Oaks Boulevard has recently been extended west of Fiddyment Road as part of the *West Roseville Specific Plan*/Fiddyment Ranch development, and it will be extended west in the future to Westbrook Boulevard. It is a six-lane facility east of Fiddyment Road. West of Fiddyment Road, Blue Oaks Boulevard is a five-lane facility for a short distance and then narrows to two-lanes.

EXISTING LEVEL OF SERVICE

Traffic operations are evaluated by determining the Level of Service (LOS), a qualitative ranking system which classifies road segments and intersections by progressively worsening traffic conditions. A roadway segment or intersection is assigned a grade, "A through F," with LOS A representing the least amount of traffic congestion with either little or no delay and LOS F representing total breakdown of traffic operations. The City General Plan Circulation Element states that LOS D is the applicable minimum design standard; however, the overall LOS policy goal is to provide a LOS "C" or better at 70 percent of the signalized intersections during the p.m. peak hour (City of Roseville 2016d).

Existing intersection conditions and traffic counts for Pleasant Grove Boulevard, Westbrook Boulevard, Fiddyment Road, Blue Oaks Boulevard, and Hayden Parkway are provided in Tables 3.16-1 and 3.16-2. There are currently no intersection conditions or traffic counts available for Westpark Drive, Phillip Road, or Bob Doyle Drive. Under existing conditions, Pleasant Grove Boulevard has an LOS of B for a.m. peak hour and LOS A for p.m. peak hour at the intersection with Westbrook Boulevard, and an LOS C for a.m. and p.m. peak hour at the intersection with Fiddyment Road (Fehr & Peers 2016). Blue Oaks Boulevard has an LOS B for a.m. and p.m. peak hours at the intersection with Fiddyment Road, and Hayden Parkway has an LOS A for a.m. and p.m. peak hours at the intersection with Fiddyment Road (Fehr & Peers 2016). Traffic counts on Pleasant Grove Boulevard east of Fiddyment Road are 24,000 average daily traffic (ADT), traffic counts on Fiddyment Road north of Pleasant Grove Boulevard are 16,100 ADT, and traffic counts on Blue Oaks Boulevard are 2,500 ADT west of Fiddyment Road and 12,600 ADT east of Fiddyment Road (Fehr & Peers 2016). All of these roadways are currently operating at LOS A.

Table 3.16-1 Existing Peak Hour Intersection Operations

Intersection	Control	Peak Hour	Delay (seconds)	LOS
Pleasant Grove Boulevard/Westbrook Boulevard	Signal	AM PM	10 7	B A
Pleasant Grove Boulevard/Fiddyment Road	Signal	AM PM	26 27	C C
Fiddyment Road/Hayden Parkway	Signal	AM PM	8 8	A A
Blue Oaks Boulevard/Fiddyment Road	Signal	AM PM	18 18	B B
Hayden Parkway/Fiddyment Road (North)	Signal	AM PM	6 7	A A
Hayden Parkway (South)/Fiddyment Road	Signal	AM PM	8 8	A A

Source: Fehr & Peers 2016

Table 3.16-2 Average Daily Traffic Counts in the Project Vicinity

Roadway	Segment	Average Daily Traffic (ADT) Volume	Level of Service	Date of Collection
Pleasant Grove Boulevard	East of Fiddyment Road	24,000	A	2014
Fiddyment Road	North of Pleasant Grove Boulevard	16,100	A	2014
Blue Oaks Boulevard	East of Fiddyment Road	12,600	A	2014
Blue Oaks Boulevard	West of Fiddyment Road	2,500	A	2014

Source: Fehr & Peers 2016

TRANSIT SYSTEM

The City of Roseville Alternative Transportation Division of Public Works is responsible for providing public transit service within Roseville. The City owns and maintains the bus fleet and contracts with a transit provider to provide operation of Roseville Transit. Roseville Transit operates several distinct bus services including local, commuter, dial-a-ride, and paratransit services. Currently, the Project site is not directly served by Roseville Transit, with the nearest transit stop located at Rothbury Lane and Elmsett Place, approximately 1 mile southeast of the PGWWTP.

BICYCLE/PEDESTRIAN SYSTEM

The City has an adopted Bicycle Master Plan, which provides guidelines for the development of a City-wide network of Class I, 1A, II, and III bicycle facilities and design standards (based on Caltrans standards) for new bicycle facilities within Roseville (City of Roseville 2008). The City also has a Pedestrian Master Plan that is intended to establish policies, projects, and programs that improve the pedestrian system in Roseville and increase walking for transportation, recreation, and health (City of Roseville 2011). The City has an extensive network of bicycle and pedestrian facilities. Most residential streets contain improved sidewalk facilities and crosswalks at intersections. Arterial roadways adjacent to existing residential development have wide sidewalks, often flanked by landscaping corridors. Class II bike trails are located along Westpark Drive east of Bickleigh Loop, and along Westbrook Boulevard. Class II bikeways are frequently referred to as on-street bike lanes.

3.16.2 Discussion

a) Would the project 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?

Less than significant. Construction of the Project would result in short-term increases in traffic on local roadways, primarily Westpark Drive, Bob Doyle Drive, Hayden Parkway, and Fiddyment Road. Construction activities would include construction worker commute trips and hauling of equipment and materials to and from the Project site. Construction of the Expansion Project is expected to begin in fall of 2017 and last for 24 months. Construction of the Energy Recovery Project is expected to begin in late 2017 or early 2018 and would last for 18 months. Construction activities and the number of daily vehicle trips would fluctuate during the construction period; however, the maximum number of trips expected during the peak of construction would be approximately 50 trips per day associated with haul trips and worker commute trips. Although there would be some vehicle traffic associated with hauling heavy equipment and construction materials to the site, this would occur for only a few weeks, and would not occur throughout the duration of Project

construction. Workers commuting to and from the site would be associated with the largest increase in traffic volumes during construction, but this would be limited mainly to morning arrival and afternoon departures and would generally not coincide with a.m. and p.m. peak hour traffic. As described above, the intersection of Hayden Parkway and Fiddyment Road has an existing LOS designations of A for a.m. and p.m. peak hour, which is acceptable by City standards. LOS data is not available for Bob Doyle Drive and Westpark Drive; however, the northern portion of Westpark Drive only serve the PGWWTP and Roseville Energy Park and; therefore, has low traffic volumes (Fehr & Peers 2016).

In the near-term, operations-related vehicle trips would use the same access route as identified for construction (Westpark Drive-Bob Doyle Drive-Hayden Parkway-Fiddyment Road). In the long-term (i.e., at project build-out), Blue Oaks Boulevard would be extended west to connect to Westbrook Boulevard and Westpark Drive would be extended north to connect with the extended Blue Oaks Boulevard. Therefore, operations-related vehicle trips from the north would use Blue Oaks Boulevard to Westpark Drive to Phillip Road to access the site. The existing access road along the western boundary of the PGWWTP would be extended south and provide access to the Energy Recovery Project. Access from the south would be from Pleasant Grove Boulevard to Westbrook Boulevard to Blue Oaks Boulevard to Westpark Drive, and then to Phillip Road. Operation of the Expansion Project would result in additional vehicle trips associated with two new full-time employees and hauling of biosolids, and would eliminate haul trips associated with WAS. Maintenance and operation of the Expansion Project would be similar to maintenance and operation of the existing PGWWTP and would not result in a substantial increase in long-term vehicle trips. Operation of the Energy Recovery Project would result in long-term vehicle trips associated with one additional full-time employee, two additional delivery trips per day for high strength waste, and occasional trips associated with maintenance.

Operation of the Energy Recovery Project would also include a fueling station for the City's solid waste truck feet. A maximum of 55 truck trips per day would use the fueling station at build-out; however, the number of trucks fueling at the site would increase gradually as the City converts its fleet to CNG. At project build-out, approximately half of the fleet would fuel in the morning, and the other half would fuel in the afternoon. Each of these fueling periods would be 1 to 2 hours, resulting in a maximum of 28 truck trips associated with the fueling station in either the morning or afternoon. The solid waste truck fleet currently fuels at the City Corporation Yard located on Hilltop Circle approximately 5 miles southeast of the Project site. Therefore, the 55 truck trips per day associated with the fueling station would not be new truck trips generated by the Energy Recovery Project; however, the roadways affected by those truck trips would shift from PFE Road (adjacent to the existing fueling location) to roadways in the Project vicinity.

Cumulative conditions as forecasted by the City's 2035 Capital Improvement Program (CIP) travel demand model includes the roadway extensions and widenings in the City of Roseville CIP. Under the 2035 cumulative condition, Westbrook Boulevard would be operating at LOS B and the Blue Oaks Boulevard/Westbrook Boulevard intersection would be operating at LOS C. The 2035 CIP travel demand model does not include LOS data for Westpark Drive, Phillip Road, or Bob Doyle Drive; however, the Fiddyment Road/Hayden Parkway intersection would be operating at LOS C or better, which is acceptable under City standards.

No mass transit facilities or pedestrian and bicycle paths would be affected by the Project.

Because the Project would not affect any transit or pedestrian facilities, and construction- and operation-related traffic is not expected to be substantial in relation to existing or projected cumulative traffic on area roadways, such that LOS on any roadways would be degraded to an unacceptable level, this impact would be less than significant.

b) Would the project 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?

Less than significant. The City has prepared a CIP to respond to changing conditions and to ensure the development of an adequate transportation system, consistent with the City's LOS policy (City of Roseville 2007). As described in a) above, the addition of vehicle trips to the roadways in the Project vicinity during construction and operation is not expected to be substantial in relation to the existing capacity of those roadways and would not result in the degradation of LOS to an unacceptable level. This impact would be less than significant.

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?

No impact. The nearest airport to the Project site is Lincoln Regional Airport, approximately 8 miles to the north. The Project does not propose any uses that could have an effect on air traffic patterns. Therefore, there would be no impact.

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less than significant with mitigation. The proposed Project would include construction of new facilities within the boundary of the existing PGWWTP and Energy Recovery Project area. These improvements would include ingress and egress of haul trucks during construction and the City's solid waste trucks during operation. Any roadway or parking improvements constructed as part of the Project would be subject to City's Design and Construction Standards and Community Design Guidelines as described in Section 2.7 of Chapter 2, "Project Description and Background," and would be reviewed by the City Engineering Division. However, Westpark Drive between Bickleigh Loop and Bob Doyle Drive, Phillip Road, Bob Doyle Drive, and Hayden Parkway are two-lane narrow roadways. In addition, Hayden Parkway, Bob Doyle Drive, and Westpark Drive have residences on one or both sides (although none of these residences face these streets). Therefore, use of these roadways as access routes for large trucks including haul trucks, could increase hazards related to incompatible uses. The addition of large trucks to these roadways would be potentially significant.

Mitigation Measure 3.16-1

The City will require the construction contractor to implement a traffic management plan before construction activities begin. The traffic management plan will include measures to ensure local traffic, including bicycle traffic, is accommodated during construction. This plan would identify general methods by which construction activities will be managed to minimize substantial hazards related to large trucks.

These methods may include (but are not limited to):

- appropriately sequencing activities (e.g., segment phasing, timing of grading, hours of construction) to minimize conflicts with traffic on affected roadways,
- maintaining traffic flow in the project area to the extent possible,
- maintaining bicycle and pedestrian access, and
- use of flaggers to direct traffic, as needed for ingress or egress of large trucks.

Significance after Mitigation

Implementation of Mitigation Measure 3.16-1 would reduce hazards related ingress and egress of large trucks to a **less-than-significant** level because the contractor would implement a traffic control plan to minimize conflicts between large haul trucks and vehicle and pedestrian traffic.

e) Would the project result in inadequate emergency access?

Less than significant. Emergency access would be provided via Westpark Drive and Phillip Road. During construction activities, emergency access along these roads would be available at all times. All construction-related equipment and vehicles would park at the Project site and would not block roadways or result in inadequate emergency access. Access to the Project site would be maintained during the Project operation. Therefore, this impact would be less than significant.

f) Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

No impact. Project construction and operation would not result in the removal of, or need for, alternative transportation facilities such as bus turnouts or bicycle racks. There are bicycle lanes in the vicinity of the Project site; however, the Project would not interfere with continued use of these facilities. Therefore, the Project would not conflict with adopted policies, plans, or programs supporting alternative transportation. There would be no impact.

3.17 TRIBAL CULTURAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. Tribal Cultural Resources. Would the project:				
a) Would the project 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:				
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	☐	☐	☒	☐
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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐

3.17.1 Environmental Setting

Assembly Bill (AB) 52, signed by Governor Edmund G. Brown, Jr., in September 2014, established a new class of resources under CEQA: "tribal cultural resources" (TCRs). AB 52, as provided in Public Resource Code (PRC) Sections 21080.3.1, 21080.3.2, and 21082.3, requires that lead agencies undertaking CEQA review must, upon written request of a California Native American Tribe, begin consultation once the lead agency determines that the application for the project is complete, prior to the issuance of a Notice of Preparation (NOP) of an environmental impact report (EIR) or notice of intent to adopt a negative declaration or mitigated negative declaration.

AB 52 applies to those projects for which a lead agency had issued a NOP of an EIR or notice of intent to adopt a negative declaration or mitigated negative declaration on or after July 1, 2015. Therefore, the requirements of AB 52 apply and the City of Roseville has initiated consultation with Tribes that have requested consultation. On July 19, 2016, the City sent letters to Gene Whitehouse, Chairman of the United Auburn Indian Community (UAIC), Randy Yonemura, Cultural Committee Chair of the Ione Band of Miwok Indians, and Michael Mirelez, Cultural Monitoring Coordinator for the Torres Martinez Desert Cahuilla Indians. The City received one response, from UAIC on August 24, 2016. The letter requested copies of all cultural resource assessments and to participate in the pedestrian survey. The City will send a copy of the cultural resource survey report that was performed for this proposed Project. Because the survey was performed on August 2, 2016, it was not possible to fulfill the request to participate in the survey. The response letter from UAIC did not identify any tribal concerns or TCRs on the Project site; however, the City responded to UAIC to acknowledge receipt of the letter. In addition, because the letter from UAIC was received after the close of the 30-day response period for AB 52 as defined in PRC Section 21074, AB 52

consultation was not initiated and instead the City continues to communicate with UAIC through the normal CEQA process.

3.17.2 Discussion

a) Would the project 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:

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

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?

Less than significant. In compliance with AB 52, the City of Roseville sent letters to three Native American Tribes; one response was received, from UAIC. The response did not identify any tribal concerns or TCRs on the Project site. In addition, because the letter from UAIC was received after the 30-day response period as defined in PRC Section 21074, the City will continue to coordinate with the tribe under CEQA rather than AB 52. As defined in PRC Section 21074, to be considered a TCR, a resource must be either:

1. listed or determined to be eligible for listing, on the national, state, or local register of historic resources, or

2. a resource that the lead agency determines, in its discretion and supported by substantial evidence, to treat as a tribal cultural resource pursuant to the criteria in PRC Section 50241(c). PRC Section 5024.1(c) provides that a resource meets criteria for listing as an historic resource in the California Register if any of the following apply:

   (1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

   (2) Is associated with the lives of persons important in our past.

   (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

   (4) Has yielded, or may be likely to yield, information important in prehistory or history.

The Project site is located within the lands historically occupied by the Nisenan (see Section 3.5-1, "Environmental Setting," under Section 3.5, "Cultural Resources," above); however, the site is not known to have any special use. In addition, no archaeological remains have been identified on the Project site. The one prehistoric remain previously identified within the 0.5-mile buffer around the Project site was is a ground stone scatter that was recorded as tested, was found to have no subsurface component, and it was concluded that it appears to have been destroyed. For these reasons, no areas within the Project site meet any of the PRC 5024.1(c) criteria listed above. Therefore, the Project would have a less-than-significant impact on TCRs as defined in PRC Section 21074.

3.18 UTILITIES AND SERVICE SYSTEMS

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII.	**Utilities and Service Systems. Would the project:**				
a)	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
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?	☐	☒	☐	☐
c)	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e)	Result in a determination by the wastewater treatment provider that 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?	☐	☐	☐	☒
f)	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g)	Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

3.18.1 Environmental Setting

WATER

Potable water within the City, including the PGWWTP, is provided by the City of Roseville. The primary source of water is the Central Valley Project, which is owned and operated by the U. S. Bureau of Reclamation (USBR). The City also has contracts with Placer County Water Agency (PCWA) and San Juan Water District (SJWD) for municipal and industrial water supply within the City. The City also uses groundwater as a backup water supply and recycled water for irrigation, industrial, and construction uses. In addition, supplemental water is available through interties with the following agencies: SJWD, Sacramento Suburban Water District, PCWA, the California American Water Company, and the Citrus Heights Water District (West Yost 2016).

The City's primary surface water supply is American River water diverted from Folsom Lake. Surface water is delivered from Folsom Lake via USBR facilities through a pumping plant and parallel 48-inch and 60-inch transmission lines to the City's Water Treatment Plant on Barton Road in Granite Bay. The City has contracts for 66,000 acre-feet per year (af/yr) of surface water through contracts with the USBR, PCWA, and SJWD. However, the City is a signatory to the Water Forum Agreement, which limits diversions from the American River to 58,900 af/yr in normal years, 54,900 af/yr in drier years, and 39,800 in the driest years (West Yost 2016).

The PGWWTP has three existing water systems: potable, nonpotable, and utility. The existing potable water system at the PGWWTP is supplied by a 4-inch diameter connection to the City of Roseville's potable water distribution system. Potable water at the PGWWTP is currently being used for drinking, sanitary facilities, restrooms, emergency eyewash, and shower stations, Potable water is supplied to the non-potable water system through an air-gap. Nonpotable water is only used for pump seals. Utility water is used for all in plant water usage except pump seals, restrooms, and the lab. It supplies fire hydrants, all process sprays, hose stations, and centrifuge polymer dilution and wash-down water.

Water for landscaping irrigation at the PGWWTP is recycled water generated on-site. The PGWWTP also supplies recycled to the City's recycled water distribution system. Recycled water is used within the City for irrigation, industrial cooling, and in some instances to support construction activity.

WASTEWATER

The primary purpose of the existing PGWWTP is wastewater treatment, including wastewater generated on-site. The proposed Project would expand the treatment capacity of the existing PGWWTP. The PGWWTP presently treats 7.1 mgd ADWF, has a capacity to treat 9.5 mgd ADWF, and is permitted to discharge 12 mgd ADWF. A description of the existing and proposed wastewater treatment processes and facilities are provided in Chapter 2, "Project Description and Background."

STORMWATER

In the City of Roseville, the stormwater drainage system consists of surface runoff to streets, subsurface storm drainage pipelines, canals, and retention basins. The northern portion of the Project site includes curb and gutter along the side of the road. There are no other stormwater drainage facilities in the Project site. Stormwater drainage is also described above in Section 3.9, "Hydrology and Water Quality."

SOLID WASTE

Solid waste generated within the City, including the PGWWTP, is collected and hauled by the City to the Western Placer Waste Management Authority (WPWMA) for processing and disposal. The WPWMA owns and operates the Materials Recovery Facility and the Western Regional Sanitation Landfill (WRSL), located on 320 acres at the corner of Athens Avenue and Fiddyment Road in Placer County. Solid waste generated within the City limits is delivered to the Materials Recovery Facility, which separates, processes, and markets recyclable materials, prior to disposal of the waste at the WRSL. The Materials Recovery Facility has a mixed waste processing capacity of 2,000 tons per day (WPWMA 2016). In addition, FOG and food waste is currently collected by private companies from food service establishments within City limits. Food waste is currently hauled to CleanWorld, which is an anaerobic digestion facility located in Sacramento.

The WRSL is a Class II/III municipal solid waste (non-hazardous) landfill. The WRSL is permitted to accept 1,900 tons of solid waste per day, and has a total capacity of 36,350,000 cy (CalRecycle 2016). As of July 1, 2013, the WRSL had a remaining capacity of 25,677,600 cy and has an estimated closure date of 2058 (City of Roseville 2016e).

ELECTRICITY

The City of Roseville Electric Department (Roseville Electric) provides electrical service to customers within the City, including the PGWWTP. Roseville Electric purchases electricity from the Western Area Power Agency and the Northern California Power Agency, which acquire electricity from various sources. There are currently two electrical buildings at the PGWWTP, and electricity is provided via a 12-kilovolt line. The existing PGWWTP is also served by two 1,750 kilowatt standby generators.

3.18.2 Discussion

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Less than significant. The primary purpose of Expansion Project is to increase the treatment capacity of the existing PGWWTP. This expansion would allow the existing PGWWTP to meet the design discharge capacity currently permitted in the Central Valley RWQCB 2014 NPDES permit. The proposed WWTP expansion would be designed to meet the City's wastewater treatment demands through approximately 2040. Construction and operation of the energy recovery facilities is not expected to generate additional wastewater that would exceed the requirements of the existing RWQCB permit for the PGWWTP. Because the Project would be designed to meet existing permit requirements, this impact would be less than significant.

b) Would the project 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?

Less than significant with mitigation. The proposed Project would consist of expansion of the existing PGWWTP, which could result in potentially significant impacts to biological resources, cultural resources, and traffic as discussed in the relevant areas of this Initial Study. However, all potentially significant impacts identified herein have been reduced to less than significant with the incorporation of mitigation. Therefore, this impact would be less than significant with mitigation.

c) Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less than significant. The existing WWTP site includes pervious surfaces and impervious surfaces that drain into and are held in an on-site stormwater pond. The stormwater is then discharged to the side stream wet well when treatment capacity is available. The existing WWTP is permitted under the State Water Resources Control Board Water Quality Order No. 2014-0057-DWQ, NPDES General Permit for Storm Water Discharges Associated with Industrial Activities. Consistent with the NPDES General Permit, the PGWWTP has implemented a certified SWPPP. Per the SWPPP, approximately 98 percent of the PGWWTP's stormwater runoff is returned to the WWTP for treatment. The remaining 2 percent of stormwater drains off-site. The proposed Project would involve the construction of additional impervious surfaces (i.e., paved areas and the covered facilities) for the Expansion Project and Energy Recovery Project, and would require modification of the existing stormwater collection system. The proposed Project would include stormwater collection facilities to capture runoff from the additional impervious surfaces associated with the expansion and energy recovery facilities that would connect to the existing stormwater collection system and treated on-site, consistent with current WWTP operations. The environmental impacts of constructing new and/or expanding existing stormwater drainage facilities are evaluated throughout this document and no additional significant impacts would occur. Therefore, this impact would be less than significant.

d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Less than significant. The Project is expected to result in a small increase in potable water demands; however, the existing potable water system has adequate capacity to accommodate increase in demand and is not expected to require capacity related upgrades. No new water supply entitlements, expanded entitlements, or facilities would be required. Therefore, this impact would be less than significant.

e) Would the project result in a determination by the wastewater treatment provider that 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?

No impact. The proposed Project would increase wastewater treatment capacity to accommodate existing and projected flows within the WWTP's service area through approximately 2040. Because the proposed expansion would be designed to accommodate existing and planned growth, projected demand for wastewater treatment services would be adequately served. No impact would occur.

f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

No impact. Currently, solid waste, including dewatered WAS from the PGWWTP is hauled to WRSL. The Project would not require demolition of any structures, and solid waste generated during construction is expected to be minimal. Operation of the anaerobic digesters under the Expansion Project would convert the WAS to biosolids, and WAS would no longer be transported to the WRSL. Biosolids would be disposed of at an approved application site, whenever possible, and would be transported to a landfill when land application is not available (e.g., winter months). Therefore, the amount of waste that would need to be disposed of at a landfill would decrease overall.

In addition, the Energy Recovery Project would provide an additional location for disposal of high strength waste. These wastes are currently hauled to disposal locations outside of the City. Because these wastes are not currently hauled to a landfill, the Energy Recovery Project would have no impact on landfill capacity.

g) Would the project comply with federal, state, and local statutes and regulations related to solid waste?

Less than significant. The proposed Project would reduce the amount of solid waste disposed of at a landfill, and no hazardous wastes would be generated. The Project would continue to comply with federal, state, and local statutes and regulations related to solid waste. Therefore, this impact would be less than significant.

3.19 MANDATORY FINDINGS OF SIGNIFICANCE

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII.	**Mandatory Findings of Significance.**				
a)	Does the project have the potential to substantially 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 an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b)	Does the project 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.)	☐	☒	☐	☐
c)	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Authority: Public Resources Code Sections 21083, 21083.5.

Reference: Government Code Sections 65088.4.
Public Resources Code Sections 21080, 21083.5, 21095; *Eureka Citizens for Responsible Govt. v. City of Eureka* (2007) 147 Cal.App.4th 357; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th at 1109; *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

3.19.1 Discussion

a) Does the project have the potential to substantially 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 an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?

Less than significant with mitigation. As discussed in the Biological Resources, Cultural Resources, Transportation/Traffic, and Utilities and Service Systems sections of this Initial Study, the Project would result in potentially significant impacts and would have the potential to degrade the quality of the environment. However, adoption and implementation of mitigation measures described in this Initial Study would reduce these individual impacts to less-than-significant levels.

Burrowing owls are not expected to occur within the Expansion Project footprint. However, the Energy Recovery Project area contains potential burrowing owl habitat. If active nests are present in or adjacent to the Southern Expansion Area, vehicle and equipment movement and other construction-related disturbance

could disrupt normal behavior of burrowing owl or crush occupied burrows, which may result in nest abandonment or failure or entombment of individuals. However, Mitigation Measure 3.4-1 requires implementation of preconstruction surveys, consultation with CDFW, and protection of active nests, which would reduce this impact to a less-than-significant level.

Although no documented cultural resources are located at the Project site, the potential exists to encounter previously undiscovered archaeological resources during construction-related ground disturbing activities. However, adoption and implementation of Mitigation Measure 3.5-1 would reduce this potential impact to a less-than-significant level because it would require the performance of professionally accepted and legally compliant procedures for the discovery of previously undocumented significant archaeological resources.

No evidence suggests that any prehistoric or historic-era marked or unmarked interments are present within or in the immediate vicinity of the Project site. However, there is a possibility that unmarked previously unknown graves of Native American or Euro-Americans could be present within the Project site. Potential disturbance of previously undiscovered human remains during Project construction would be a potentially significant impact. Implementation of Mitigation Measure 3.5-2 would reduce the Project's potential for disturbance of human remains to a less-than-significant level because actions would be implemented to avoid, move, record, or otherwise treat the remains appropriately, in accordance with pertinent laws and regulations.

As explained in Section 3.16, "Transportation/Traffic," use of collector roadways serving residential areas by haul trucks would be potentially significant. However, implementation of Mitigation Measure 3.16-1 would require implementation of a traffic control plan that would minimize hazards related to large haul trucks. Because this mitigation measure would minimize hazards related to large trucks, this impact would be reduced to a less-than-significant level.

b) Does the project 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.)

Less than significant with mitigation. Cumulative environmental effects are multiple individual effects that, when considered together, would be considerable or compound or increase other environmental impacts. Individual effects may result from a single project or a number of separate projects and may occur at the same place and point in time or at different locations and over extended periods of time. The purpose of the Project is to expand the treatment capacity of the existing PGWWTP and construct energy recovery facilities. The Project would not increase population growth either directly or indirectly beyond what has been planned for in the City General Plan and subsequent specific plans. In addition, ongoing operation and maintenance of the Project would result in a very small increase in number of permanent workers/employees. Implementation of the mitigation measures proposed in this Initial Study would reduce the Project's impacts to a less-than-significant level. The Project's contribution to environmental impacts would be less than cumulatively considerable.

c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

Less than significant. Although the majority of construction would occur during the exempt daytime hours and/or would be located at sufficient distance from sensitive receptors for noise levels to attenuate below noise thresholds, any construction with heavy equipment or haul trucks required outside of the noise-exempt hours would be potentially significant. Implementation of Mitigation Measure 3.12-1 would reduce construction-related noise levels, if it were to occur outside of noise exempt hours, to a less-than-significant level because it would reduce the level of noise exposure at off-site noise-sensitive receptors to less than the noise standards established in the City's General Plan and Noise Ordinance. This would be a less-than-significant impact.

4 COMPLIANCE WITH FEDERAL REGULATIONS

This chapter summarizes the federal environmental laws and regulations that apply to the Project and describes the Project's compliance with those laws and regulations. The federal regulations addressed in this section are based on guidance from the State Water Resources Control Board (SWRCB) for CEQA-Plus environmental review related to State Revolving Fund loans.

4.1 E1.1 CLEAN AIR ACT

4.1.1 Regulatory Background

The Project site lies within the western portion of Placer County and in the Sacramento Valley Air Basin (SVAB) and is under the jurisdiction of the Placer County Air Pollution Control District (PCAPCD). Air quality within the county is regulated by such agencies as the U.S. Environmental Protection Agency (EPA) and California Air Resources Board (ARB) at the federal and state levels, respectively, and PCAPCD at the local level.

At the federal level, EPA implements the national air quality programs. EPA's air quality mandates are drawn primarily from the Federal Clean Air Act (CAA), enacted in 1970. The most recent major amendments were made by Congress in 1990, known as the federal Clean Air Act Amendments. The CAA requires EPA to establish National Ambient Air Quality Standards (NAAQS). EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM_{10}), and fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead (Pb). The primary standards protect public health and the secondary standards protect public welfare. The CAA also requires each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The objective of each SIP is to attain and maintain the NAAQS for all criteria air pollutants in the state. Areas that are not in attainment of NAAQS for any criteria air pollutant are referred to as nonattainment areas. The federal Clean Air Act Amendments added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution and attain the NAAQS.

Specifically, Section 176 (C) of the CAA (42 U.S.C. 7506 (C]) requires any entity of the federal government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable SIP required under Section 110(a) of the CAA (42 U.S.C. 7401 (a]) before the action is otherwise approved. In this context, conformity means that such federal actions must be consistent with the SIP's objective to attain and maintain the NAAQS. Each federal agency must determine that any action it proposes conforms with the applicable SIP before the action is taken. This requirement is commonly known as the General Conformity Rule.

On November 30, 1993, EPA promulgated final general conformity regulations at 40 CFR 93 Subpart B for all federal activities except those covered under the transportation conformity rule. The general conformity regulations apply to a proposed federal action in a nonattainment or maintenance area of a particular criteria air pollutant if the total of direct and indirect emissions of the relevant criteria pollutant, or its precursors, caused by the proposed action equal or exceed applicable *de minimis* levels—this step is referred to as the general conformity applicability analysis. If an applicable *de minimis* level is exceeded, then a full general conformity analysis is needed to make a general conformity determination. A general conformity applicability analysis for the Project is provided below.

4.1.2 Affected Environment

EPA designates each county (or portions of counties) within California as attainment, maintenance, or nonattainment based on the area's ability to comply with NAAQS. Areas are designated as attainment for a particular criteria air pollutant if ambient air concentrations of the pollutant are less than the NAAQS. Areas are designated as nonattainment for a particular criteria air pollutant if ambient air concentrations of the pollutant exceed the NAAQS. Areas previously designated as nonattainment that subsequently demonstrated compliance with the NAAQS are designated as maintenance areas. Table 4-1 shows the designation status of the Project area located within the SVAB for each air pollutant.

Table 4-1 Attainment Status

Pollutant	Federal Attainment Classification	Applicable Standard Version
Ozone[1]	Nonattainment (Severe)	Both 1997 and 2008 standards
Respirable Particulate Matter (PM_{10})	Attainment	1989 standard
Fine Particulate Matter ($PM_{2.5}$)[2]	Moderate Non-Attainment	2006 standard only. Attainment for all other standard years.
Carbon Monoxide (CO)	Moderate Attainment/Maintenance Area	1971 standard
Nitrogen Dioxide (NO_2)	Attainment	1971 standard
Sulfur Dioxide (SO_2)[3]	Attainment	Both 1971 and 2010 standards
Lead (Pb)	Attainment	Both 2008 and 1978 standards

Source: EPA 2016a

As mentioned above, a general conformity determination is required if a federal action results in the generation of air pollutants for which the total of direct and indirect emissions equals or exceeds the *de minimis* thresholds as shown below in Table 4-2. These emission rates are expressed in units of tons per year and are compared to the total of direct and indirect emissions caused by the Project for each 12-month period when construction and operational activities would take place.

Table 4-2 *De Minimis* Thresholds for Determining Applicability of General Conformity Requirements for Federal Actions

Pollutant	Federal Classification	General Conformity *De Minimis* Levels (tons per year)
Ozone	Severe Nonattainment	25
VOC (an ozone precursor)		
NO_X (an ozone precursor)		
PM_{10}	Attainment	NA
$PM_{2.5}$	Nonattainment (Moderate) (2006 24-hour Standard)	100
CO	Maintenance	100
NO_2	Attainment	NA
SO_2	Attainment	NA
Pb	Attainment	NA

NA: Not Applicable

Source: EPA 2016b

Because ozone is a secondary pollutant (i.e., it is not emitted directly into the atmosphere, but formed in the atmosphere from the photochemical reactions in the presence of sunlight), there are de minimis levels for the ozone precursor pollutants, including oxides of nitrogen (NO_X) and volatile organic compounds (VOC). If the net emissions level for either NO_X or VOCs exceeds the applicable de minimis level, then the federal action is subject to a general conformity evaluation for ozone.

4.1.3 Environmental Consequences

Construction emissions and operational emissions were estimated using the models and calculation methods described under "Methodology and Assumptions" in Section 3.3, "Air Quality." Emission level estimates are summarized in Table 4-3.

Table 4-3 Summary of Emissions of Criteria Air Pollutants and Precursors

	Emissions (tons/year)			
	VOC	NO_X	CO	$PM_{2.5}$
Construction Emissions				
Expansion[1]	0.2[3]	2.3	1.2	0.3
Energy Recovery Facility[1]	0.2[3]	2.5	1.5	0.1
Total [2]	**0.4**	**3.3**	**2.0**	**0.2**
Expansion Project Operations				
Mobile-Sources	<0.1[3]	0.4	<0.1	<0.1
Wastewater Treatment Processes	2.1	0.4	<0.1	<0.1
Digester Gas Flaring	1.9	2.1	11.2	0.0
Natural Gas Boiler	0.1	1.6	1.3	<0.1
Total	**4.1**	**4.4**	**12.5**	**<0.1**
Energy Recovery Project Operations				
Mobile-Sources	0.4[4]	0.5	1.7	0.1
Wastewater Treatment Processes	2.1	0.4	<0.1	<0.1
Microturbines	<0.1	4.2	1.0	<0.1
Total	**2.5**	**5.0**	**2.7**	**0.1**
De Minimis Thresholds	*25*	*25*	*100*	*100*

Notes: Totals may not equal sum due to rounding. tons/year = tons per year; CO = carbon monoxide; NO_X = oxides of nitrogen; ROG = reactive organic gases; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less, VOC = volatile organic compounds, EPA = U.S. Environmental Protection Agency, ARB = California Air Resources Board

1 Reflects maximum emissions per year.

2 Does not equal sum. Accounts for the maximum tons per day of the overlap between the construction of the Expansion and Energy Recovery Facility.

3 These emissions are reported as ROG, which is a subset of VOCs. ROG is assumed to be a suitable substitute for VOC for the purposes of this analysis. See additional explanation on the differences between ROG and VOC's in a comparison of definitions provided by ARB (ARB 2004).

4 These emissions are a combination of ROG and VOC, based on the available emission factors. Upstream emissions from the production of CNG were based on VOC emission factors. Tailpipe emission factors from all mobile sources were reported as ROG.

Refer to Appendix B for detailed assumptions and modeling output files.

Source: ARB 2004, EPA 2016b; Data modeled by Ascent Environmental in 2016.

As shown in Table 4-3, emissions of ozone precursors (i.e., VOCs and NO_X), CO, and $PM_{2.5}$ and would less than the applicable *de minimis* thresholds. Therefore, the General Conformity Rule would not apply to the Project.

4.2 E1.2 COASTAL BARRIERS RESOURCES ACT

The Coastal Barrier Resources Act (PL 97-348) designated various undeveloped coastal barrier islands, depicted by specific maps, for inclusion in the Coastal Barrier Resources System (System). Areas so designated were made ineligible for direct or indirect federal financial assistance that might support development, including flood insurance, except for emergency life-saving activities. Exceptions for certain activities, such as fish and wildlife research, are provided, and National Wildlife Refuges and other, otherwise protected areas are excluded from the System. The System includes relatively undeveloped coastal barriers along the Atlantic and Gulf coasts, as well as the Great Lakes and Puerto Rico and the Virgin Islands.

The Project site and surrounding lands are not located within the System; therefore, compliance with this Act is not applicable.

4.3 E1.3 COASTAL ZONE MANAGEMENT ACT

The Coastal Zone Management Act (PL 92-583), administered by NOAA Fisheries' Office of Ocean and Coastal Resource Management, provides for management of the nation's coastal resources, including the Great Lakes, and balances economic development with environmental conservation.

The Act outlines two national programs, the National Coastal Zone Management Program and the National Estuarine Research Reserve System. The 34 coastal programs aim to balance competing land and water issues in the coastal zone, while estuarine reserves serve as field laboratories to provide a greater understanding of estuaries and how humans impact them. The Act's overall program objectives remain balanced to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone."

The Project site and surrounding lands are not located within California's coastal zone, which generally extends 1,000 yards inland from the mean high tide line; therefore, compliance with this Act is not required.

4.4 E1.4 ENDANGERED SPECIES ACT

Pursuant to the federal Endangered Species Act (ESA) (PL 93-205), the U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration Fisheries Service (NOAA Fisheries) have regulatory authority over federally listed species. Under ESA, a permit to "take" a listed species is required for any federal action that may harm an individual of that species. Take is defined under ESA Section 9 as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Under federal regulation, take is further defined to include habitat modification or degradation where it would be expected to result in death or injury to listed wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. ESA Section 7 outlines procedures for federal interagency cooperation to conserve federally listed species and designated critical habitat. Section 7(a)(2) requires federal agencies to consult with USFWS and/or NOAA Fisheries to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species.

As discussed in Section 3.4, "Biological Resources," of this Initial Study, the Project would have no effect on listed species. Effects on vernal pool fairy shrimp and vernal pool tadpole shrimp and their critical habitat in the Project area for the Expansion Project were previously evaluated and USFWS prepared a biological opinion and exemption for incidental take (USFWS 1999, file number 1-1-99-F-0006). All conservation measures and Reasonable and Prudent Measures from the biological opinion were implemented and vernal pool creation and preservation credits were purchased in 1999 to offset the loss of species from development of the existing PGWWTP, which has already occurred. In addition, effects on vernal pool fairy shrimp and vernal pool tadpole shrimp and their critical habitat in the Southern Expansion Area (where the Energy Recovery Project would occur) were evaluated as part of the Section 7 consultation for the *West*

Roseville Specific Plan. As part of this consultation, the USFWS issued a biological opinion and exempted incidental take of vernal pool fairy shrimp and vernal pool tadpole shrimp from development activities associated with the specific plan, including the Southern Expansion Area (USFWS 2005, file number 1-1-05-F-0061). All conservation measures from the biological opinion were implemented and vernal pool creation and preservation credits were purchased in 2005 as part of the original permit and in 2015 as part of an Army Corps permit modification that extended the original permit term and approved changes to the mitigation and monitoring plan. These permits and documentation of required mitigation credit purchases is contained in Appendix C. No other listed species are expected to occur on the Project site and no other consultation with USFWS is required.

4.5 E1.5 ENVIRONMENTAL JUSTICE

Executive Order (EO) 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" (59 Federal Register 7629 (1994]), directs federal agencies to identify and address disproportionately high and adverse health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law. The EO also directs each federal agency to develop a strategy for implementing environmental justice. EO 12898 is also intended to promote nondiscrimination in federal programs that affect human health and the environment, as well as provide minority and low-income communities access to public information and public participation.

The Council on Environmental Quality (CEQ) has oversight of the federal government's compliance with EO 12898. To facilitate compliance, CEQ prepared and issued, in consultation with EPA, Environmental Justice Guidance under the National Environmental Policy Act (CEQ 1997). According to the CEQ's Environmental Justice Guidance, the first step in conducting an environmental justice analysis is to define minority and low-income populations. Based on these guidelines, a minority population is present in a Project area if either (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population. By the same rule, a low-income population exists if the Project area consists of 50 percent or more people living below the poverty threshold, as defined by the U.S. Census Bureau, or is significantly greater than the poverty percentage of the general population.

The second step of an environmental justice analysis requires a finding of a high or adverse effect. The CEQ guidance indicates that when determining whether the effects are high and adverse, agencies are to consider whether the risks or rates of impact "are significant (as employed by NEPA) or above generally accepted norms." The final step requires a finding that the effect on the minority or low-income population be disproportionately high and adverse. The CEQ offers a non-quantitative definition stating that an effect is disproportionate if it appreciably exceeds the risk or rate to the general population.

The following population characteristics are considered in this analysis:

- race and ethnicity as described in the 2010 U.S. Census, and
- per capita income as it relates to the federal poverty threshold.

To make a finding that disproportionately high and adverse effects would likely fall on a minority or low-income population, three conditions must be met simultaneously: (1) there must be a minority or low-income population in the affected area, (2) a high and adverse effect must exist, and (3) the effect must be disproportionately high and adverse on the minority or low-income population.

For purposes of this analysis, information on demographics and income and poverty status was obtained for the City of Roseville, City of Rocklin, and Placer County. The data collected is from the 2010 U.S. Census, which, for purposes of this analysis, is considered "existing conditions." Although more recent data on population is available, the 2010 U.S. Census provides the most comprehensive dataset available to allow a comparison of all potential environmental justice factors.

4.5.1 Demographics

Table 4-4 presents the demographics of City of Roseville, City of Rocklin, and Placer County from the 2010 U.S. Census. In 2010, approximately 79 to 84 percent of the population in the Project area identified themselves as white; approximately 1 to 2 percent identified themselves as black; less than 1 percent identified themselves as American Indian/Alaska Native; and approximately 6 to 8 percent identified themselves as Asian (U.S. Census Bureau 2010a, b, c). Approximately 15 percent of Roseville's and 12 percent of Rocklin's population identified themselves as Hispanic or Latino, which is similar to the County's estimate of 13 percent.

Table 4-4 Demographics: Roseville, Rocklin, and Placer County

	Roseville		Rocklin		Placer County	
	Number	Percent of Total Population	Number	Percent of Total Population	Number	Percent of Total Population
Total Population	118,788	100.0%	56,974	100.0%	348,432	100.0%
Race						
White	94,199	79.3%	47,047	82.6%	290,977	83.5%
Black or African American	2,329	2.0%	858	1.5%	4,751	1.4%
American Indian and Alaska Native	885	0.7%	410	0.7%	3,011	0.9%
Asian	10,026	8.4%	4,105	7.2%	20,435	5.9%
Native Hawaiian and Other Pacific Islander	346	0.3%	150	0.3%	778	0.2%
Some Other Race	5,087	4.3%	1,538	2.7%	13,375	3.8%
Two or More Races	5,916	5.0%	2,866	5.0%	15,105	4.3%
Hispanic or Latino (of any race)						
Hispanic or Latino	17,359	14.6%	6,555	11.5%	44,710	12.8%
Not Hispanic or Latino	101,429	85.4%	50,419	88.5%	303,722	87.2%

Source: U.S. Census Bureau 2010a,b,c

4.5.2 Income and Poverty Status

Table 4-5 presents household income, per capita income, and poverty status for Roseville, Rocklin, and Placer County per the 2010-2014 American Community Survey 5-Year Estimates. Median household income was $76,712 in Roseville, $79,274 in Rocklin, and $73,747 in Placer County (U.S. Census Bureau 2014a,b,c). Between approximately 6 and 7 percent of families and between 8 and 9 percent of individuals in Roseville and Rocklin were below the poverty level, which was similar to that of the County (approximately 6 percent of families and 9 percent of individuals).

In 2010, the weighted average federal poverty threshold was $11,139 for one person and $17,374 for a three-person family (U.S. Census Bureau 2010d).

Table 4-5 Income and Poverty Status: Roseville, Rocklin, and Placer County

	Roseville		Rocklin		Placer County	
	Number	Percent of Total Population	Number	Percent of Total Population	Number	Percent of Total Population
Households	**45,657**	**100.0%**	**21,276**	**100.0%**	**134,111**	**100.0%**
Less than $10,000	1,726	3.8%	843	4.0%	5,508	4.1%
$10,000 to $14,999	1,625	3.6%	781	3.7%	4,755	3.5%
$15,000 to $24,999	3,369	7.4%	1,432	6.7%	10,335	7.7%
$25,000 to $34,999	3,577	7.8%	1,561	7.3%	10,560	7.9%
$35,000 to $49,999	4,968	10.9%	2,124	10.0%	14,758	11.0%
$50,000 to $74,999	7,069	15.5%	3,246	15.3%	22,227	16.6%
$75,000 to $99,999	6,082	13.3%	3,134	14.7%	18,259	13.6%
$100,000 to $149,999	9,770	21.4%	4,330	20.4%	25,438	19.0%
$150,000 to $199,999	4,338	9.5%	2,199	10.3%	11,885	8.9%
$200,000 or more	3,133	6.9%	1,626	7.6%	10,386	7.7%
Median Household Income	$76,712	–	$79,274	–	$73,747	–
Per Capita Income	$34,514	–	$35,200	–	$35,711	–
Poverty Status – Families	–	6.0%	–	6.6%	–	6.2%
Poverty Status – Individuals	–	8.6%	–	8.3%	–	8.9%

Source: U.S. Census Bureau 2014a,b,c

4.5.3 Impact Evaluation

(1) Is there a minority or low-income population in the affected area?

As described above, in the 2010 U.S. Census approximately 15 percent of Roseville's and 12 percent of Rocklin's population identified themselves as Hispanic or Latino, which is similar to the County's average (approximately 13 percent) (U.S. Census Bureau 2010a,b,c). Therefore, for purposes of this analysis, a disproportionately high minority population is not present in the Project area or the area served by the Project.

Between approximately 6 and 7 percent of families and 8 and 9 percent of individuals in Roseville and Rocklin were below the poverty level, which was similar to that of the County (approximately 6 percent of families and 9 percent of individuals). Therefore, for purposes of this analysis, a disproportionately high low-income population is not present in the Project area or the area served by the Project.

According to the EPA, either the county or state percentages can be used when considering the scope of the "general population." A definition of "meaningfully greater" is not given by the CEQ or EPA, although the EPA notes that any affected area that has a percentage of minorities that is above the State's percentage is potentially a minority community and any affected area with a minority percentage at least double that of the state is definitely a minority community under Executive Order 12898.

As discussed above, the percentage of persons of other races, including African Americans and persons of Hispanic origin in the Project vicinity, is slightly higher than the percentages for Placer County, but is not meaningfully greater than the county percentage. In addition, median household income and poverty levels within the Project area and the area served by the Project are similar to income and poverty levels within the overall county. Therefore, no minority or low-income populations have been identified that would be adversely impacted by the proposed Project as determined above. Therefore, in accordance with the provisions of Executive Order 12898 and FHWA Order 6640.23, no further Environmental Justice analysis is required.

(2) Is there a high and adverse effect? and (3) Is the effect disproportionately high and adverse on the minority population?

Expansion of the existing PGWWTP would improve the reliability and operating efficiency for all customers in the service area, improving service for all customers equally. Temporary construction impacts associated with the Project would primarily occur on roadways providing access to the existing PGWWTP. Nearby residences could be subject to construction-related impacts, including increased noise and traffic. However, these impacts would be short-term, and construction would take place when most residents are not expected to be home (i.e., during working hours). In addition, the operation of the energy recovery facilities would primarily affect roadways providing access to the PGWWTP (Westbrook Boulevard and Westpark Drive), and residences adjacent to those roadways. Therefore, construction and operation of the Project would not have a disproportionately high and adverse effect on the minority population.

4.6 E1.6 FARMLAND PROTECTION POLICY ACT

The purpose of the federal Farmland Protection Policy Act (FPPA) of 1981 (Public Law 97-98) is to minimize federal contributions to the conversion of farmland to nonagricultural uses by ensuring that Federal programs are administered in a manner compatible with state government, local government, and private programs designed to protect farmland. The Natural Resources Conservation Service (NRCS) is the agency primarily responsible for implementing the FPPA.

USDA Regulations (7 CFR Part 658) implementing the FPPA requires federal agencies to conduct a farmland conversion impact rating (using USDA Form AD-1006) when a project may convert farmlands to non-agricultural uses. This impact rating should be done when the impacts of a project will affect farmlands in the following categories:

- prime farmland - the highest quality land for food and fiber production having the best chemical and physical characteristics for producing;
- unique farmland - land capable of yielding high value crops such as citrus fruits, olives, etc.; and
- farmlands designated as important by state and local governments, with the approval of the Secretary of Agriculture.

Neither the Act nor the regulations apply if:

- the project site does not contain farmland in categories identified above.
- the project is on prime farmland that is already “committed” to urban development or water storage (applies to prime farmland only – refer to 7 CFR 658.2(a)).
- projects were beyond the planning stage prior to August 6, 1984.
- projects involve grants, loans or mortgage insurance for purchase or rehabilitation of existing structures.

As discussed in Section 3.2, “Agricultural Resources,” of this Initial Study, the PGWWTP Expansion and Energy Recovery Project facilities would be located within and adjacent to the existing PGWWTP, which is designated as Urban and Built-up Land and grazing land pursuant to the FMMP of the California Resources Agency (DOC 2014). Expansion of the existing PGWWTP and construction of energy recovery facilities would have no impact related to conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use.

Consultation with the NRCS (including submittal of the Farmland Conservation Impact Rating form) does not apply to Project sites that do not contain farmland in categories identified above, and therefore is not required for the project.

4.7 E1.7 FLOODPLAIN MANAGEMENT

EO 13690, "The Federal Flood Risk Management Standard" (January 30, 2015) revises EO 11988, "Floodplain Management" (May 24, 1977), and directs federal agencies to take the appropriate actions to reduce risk to federal investments, specifically to "update their flood-risk reduction standards." The goal of this directive is improve the resilience of communities and federal assets against the impacts of flooding and recognizes the risks and losses due to climate change and other threats

The Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRMs) are used to determine if properties are located within Special Flood Hazard Areas. As explained in Section 3.9, "Hydrology and Water Quality," of this Initial Study, the Project site is within the 500-year floodplain for Pleasant Grove Creek, but is outside of the 100-year and 200-year floodplain. In addition, the Project site is not located on a Special Flood Hazard Area, as identified on FIRM panel 06061C0394F, dated June 8, 1998 (FEMA 2006). Furthermore, the Project would include expansion of an existing WWTP and not any new residences. Therefore, the Project would not result in any additional exposure of people or structures to risk of flooding and the Project would have no impact related to a 100-year flood hazard area or risk of flooding.

4.8 E1.8 NATIONAL HISTORICAL PRESERVATION ACT

Federal protection of resources is legislated by (a) the National Historic Preservation Act (NHPA) of 1966 as amended by 16 U.S. Code 470, (b) the Archaeological Resource Protection Act of 1979, and (c) the Advisory Council on Historical Preservation. These laws and organizations maintain processes for determination of the effects on historical properties eligible for listing in the National Register of Historic Places (NRHP). Federal and federally-sponsored programs and projects are reviewed pursuant to Section 106 of the NHPA. Section 106 of the NHPA requires federal agencies to consider the effects of proposed federal undertakings on historic properties. NHPA requires federal agencies to initiate consultation with the State Historic Preservation Officer (SHPO) as part of the Section 106 review process.

DETERMINATION OF EFFECTS

The area of potential effects (APE) has been highly disturbed by construction of the existing PGWWTP and grading related to maintenance of the Southern Expansion Area. The Project would have No Effect on Historic Properties. No documented archaeological or built environment resources are present within the APE (NIC 2016).

4.9 ARCHAEOLOGICAL AND HISTORIC PRESERVATION ACT

Passed and signed into law in 1974, the Archaeological and Historic Preservation Act (AHPA) amended and expanded the Reservoir Salvage Act of 1960. The AHPA provides for the preservation of historical and archeological data which might otherwise be irreparably lost or destroyed as the result of (1) flooding, the building of access roads, the erection of workmen's communities, the relocation of railroads and highways, and other alterations of the terrain caused by the construction of a dam by any agency of the United States, or by any private person or corporation holding a license issued by any such agency or (2) any alteration of the terrain caused as a result of any federal construction project or federally licensed activity or program.

According to the Advisory Council on Historic Preservation, if a project will affect historic properties that have archeological value, the AHPA may impose additional requirements on an agency. As discussed in Section 3.5, "Cultural Resources," the background literature and NWIC records search did not identify any cultural resources (either historical or archaeological) within the APE and the pedestrian survey on August 2, 2016 identified no historic-era built environment resources. Therefore, there are no properties on the Project site that have archaeological value and the AHPA does not apply.

4.10 E1.9 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

In response to growing concern about the status of United States fisheries, Congress passed the Sustainable Fisheries Act of 1996 (Public Law (PL) 104-297) to amend the Magnuson-Stevens Fishery Conservation and Management Act (PL 94-265), the primary law governing marine fisheries management in the Federal waters of the United States. The Magnuson-Stevens Conservation and Management Act, as amended (U.S.C. 180 et seq.), requires that Essential Fish Habitat (EFH) be identified and described in federal fishery management plans (FMPs). Federal action agencies must consult with NOAA Fisheries on any activity which they fund, permit, or carry out, that may adversely affect EFH. NOAA Fisheries is required to provide EFH conservation and enhancement recommendations to the Federal action agencies. EFH is defined as those waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity.

As discussed in Section 3.4, "Biological Resources," of this Initial Study, no fish habitat occurs within the Project site. Implementation of the Project would not affect fisheries or waters nor the substrates necessary for fisheries.

4.11 E1.10 MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. Section 703, et seq.), first enacted in 1918, provides for protection of international migratory birds and authorizes the Secretary of the Interior to regulate the taking of migratory birds. The MBTA provides that it shall be unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird, or any part, nest, or egg of any such bird. The current list of species protected by the MBTA can be found in Title 50 of the Code of Federal Regulations (CFR), Section 10.13 (50 CFR 10.13). The list includes nearly all birds native to the United States.

As discussed in Section 3.4, "Biological Resources," of this Initial Study, the Southern Expansion Area provides potential nesting and foraging habitat for burrowing owl, and any ground-disturbing activities during the burrowing owl breeding season (February–August) could result in nest abandonment and the mortality of eggs and chicks. However, implementation of Mitigation Measure 3.4-1 would reduce impacts on burrowing owl to a less-than-significant level because it would prevent Project-related disturbance during the breeding season and would reduce the likelihood of nest abandonment and loss of eggs or young. As further discussed in Section 3.4, "Biological Resources," the Project is not expected to impact any other migratory birds because the nearby trees are not suitable for nesting, and the annual grasslands on the Project site is regularly disked and does not provide suitable habitat for any other nesting birds.

4.12 E1.11 PROTECTION OF WETLANDS

The purpose of EO 11990 (May 24, 1977) is to "minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands." To meet these objectives, EO 11990 requires federal agencies, in planning their actions, to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided. EO 11990 applies to: acquisition, management, and disposition of federal lands and facilities construction and improvement projects which are undertaken, financed, or assisted by federal agencies; and federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation, and licensing activities.

As discussed in Section 3.4, "Biological Resources," of this Initial Study, implementation of the Project would result in no impact to federally protected wetlands. The City and private developers previously received permits under Section 404 of the Clean Water Act (CWA) for fill of wetlands and provided compensatory mitigation for the site. Development and fill of wetlands and waters of the United States within the boundary of the existing PGWWTP was covered under a Nationwide Permit 26 authorization letter (No. 199800481) issued on December 4, 1998, for construction of the existing PGWWTP. Development and fill of wetlands and waters of the United States within the Southern Expansion Area was covered under the Section 404 CWA individual permit for the *West Roseville Specific Plan*. The Section 404 individual permit (SPK-2002-

00666) was issued for the *West Roseville Specific Plan* on October 21, 2004. An extension of this permit was issued on December 30, 2015, to allow additional time to complete the work covered under the permit and to approve changes to mitigation and monitoring requirements. Impacts to jurisdictional waters have been mitigated through on-site mitigation within the *West Roseville Specific Plan* and purchase of mitigation credits and no further permitting or mitigation is necessary (see Appendix C for permits and mitigation credit purchase documents).

4.13 FISH AND WILDLIFE CONSERVATION ACT

The Fish and Wildlife Conservation Act of 1980 (16 USC 2901 et seq.) encourages federal agencies to conserve and promote conservation of non-game fish and wildlife species and their habitats. In addition, the Fish and Wildlife Conservation Act (16 USC 661 et seq.) requires federal agencies undertaking projects affecting water resources to consult with the USFWS and the state agency responsible for fish and wildlife resource whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water will otherwise be controlled or modified for any purpose whatsoever, including navigation and drainages. The 1988 amendment (Public Law 100-653, Title VIII) to the FWCA requires the Secretary of the Interior, through the USFWS, to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973."

The Project would not affect or modify any stream or water body; therefore, compliance with this Act is not applicable.

4.14 E1.12 SAFE DRINKING WATER ACT, SOLE SOURCE AQUIFER PROTECTION

The Safe Drinking Water Act (42 USC Section 300f et seq.) was established to protect the quality of drinking water in the U.S. This law focuses on all waters actually or potentially designed for drinking use, whether from above ground or underground sources.

The Act authorizes EPA to establish minimum standards to protect tap water and requires all owners or operators of public water systems to comply with these primary (health-related) standards. The 1996 amendments to the Act require that EPA consider a detailed risk and cost assessment, and best available peer-reviewed science, when developing these standards. State governments, which can be approved to implement these rules for EPA, also encourage attainment of secondary standards (nuisance-related). Under the Act, EPA also establishes minimum standards for state programs to protect underground sources of drinking water from endangerment by underground injection of fluids.

The Project and surrounding lands are not located within a sole source aquifer, as designated by EPA Region 9 (2016c). In addition, Pleasant Grove Creek, which receives discharges from the PGWWTP is not designated for drinking use and the Project would have no effect on any public water systems or other drinking water sources.

4.15 E1.13 WILD AND SCENIC RIVERS ACT

The Wild and Scenic Rivers Act (16 USC Section 1271 et seq.) establishes a National Wild and Scenic Rivers System for the protection of rivers with important scenic, recreational, fish and wildlife, and other values. Rivers are classified as wild, scenic, or recreational. The act designates specific rivers for inclusion in the System and prescribes the methods and standards by which additional rivers may be added.

Pleasant Grove Creek is immediately north of the site, but is not designated as a wild and scenic river. The nearest designated wild and scenic river is the Lower American River, located more than 15 miles south of the site (BLM et al. 2016).

4.16 CLIMATE CHANGE

4.16.1 Vulnerability

Increases in greenhouse gas (GHG) concentrations in the atmosphere have led to increased global average temperatures (climate change) through the intensification of the greenhouse effect, and associated changes in local, regional, and global average climatic conditions. These changes may translate into a variety of issues and concerns that may affect the Project facilities, including but not limited to:

- increased frequency of droughts associated with changes to precipitation patterns;
- increased stormwater runoff associated with changes to precipitation patterns; and
- increased risk of flooding associated with changes to precipitation patterns.

Although uncertainty exists as to the precise levels of these impacts, there is consensus regarding the range, frequency, or intensity of these impacts that can be expected. The proposed Project could be subject to potential hazards that could be exacerbated by climate change, such as changes in the amount and strength of wastewater, timing and amount of runoff, and the increased risk of flooding associated with changes to precipitation.

Increases in the frequency of droughts could lead to water conservation efforts. There is a tendency for water conservation to result in higher strength effluent because less water is used in household sanitary systems to transport the same base materials (example, flushing the toilet less frequently). This could in turn cause higher strength effluent to flow to the plant, increasing the biological oxygen demand (BOD) load per unit of wastewater. However, the Project would add new treatment processes to the PGWWTP that would allow the WWTP to treat effluent with higher concentrations of BOD.

Increases in intense storm events could result increases in effluent related to stormwater runoff. However, as discussed in Section 3.9, “Hydrology and Water Quality,” the City has ordinances to address stormwater runoff throughout the City that would reduce the extent and severity of climate change-related impacts related to stormwater. In addition, the proposed Project would expand the existing WWTP treatment capacity, which would increase the ability to handle increases in stormwater effluent in the future.

As discussed in Section 3.9, “Hydrology and Water Quality,” the Project site is not within a 100-year or 200-year floodplain (see Exhibit 3.9-1). The City has also established a flood mitigation fee program for the construction of a regional retention basin. These measures would reduce the extent and severity of climate change-related impacts to the Project from increased risk of flooding associated with changes to precipitation patterns. In addition, the Project is not located within a floodzone.

4.16.2 Adaptation

Adaptation measures are measures taken in direct response to vulnerabilities to climate change. Inclusion of the Energy Recovery Project would reduce the Project’s use of nonrenewable resources and improve the long-term sustainability of the PGWWTP.

Implementation of anaerobic digesters under the Expansion Project would allow the PGWWTP to treat higher concentrations of effluent that could occur more frequently with increased droughts. In addition, the proposed Project would be designed to provide adequate stormwater facilities in the event of storms, and the increased capacity would allow the WWTP to handle greater influent in the future.

4.16.3 Mitigation

Although the effects of climate change on the Project facilities is considered less than significant, the Project would include mitigation measures that would reduce the City's overall contribution to climate change including renewable energy sources and methane harvesting. The PGWWTP also produces recycled water for use in the City's landscaping.

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6 LIST OF PREPARERS

CITY OF ROSEVILLE

Ken Glotzbach, P.E. ..... Wastewater Utilities Manager
George Hanson, P.E. ..... Project Manager
Mark Morse ..... Environmental Coordinator

ASCENT ENVIRONMENTAL, INC.

Gary Jakobs, AICP ..... Principal
Stephanie Rasmussen ..... Project Manager
Tiffany Lundy ..... Environmental Planner
Zach Miller, AICP ..... Environmental Planner
Suzanne Enslow ..... Environmental Planner
Alta Cunningham ..... Architectural Historian
Austin Kerr ..... Senior Air Quality, Climate Change, and Noise Specialist
Honey Walters ..... Senior Air Quality, Climate Change, and Noise Specialist
Brenda Hom ..... Air Quality and Climate Change Specialist
Linda Leeman ..... Senior Biologist
Shannon Hickey ..... Botanist and Wetland Ecologist
Lisa Merry ..... GIS Specialist
Phi Ngo ..... GIS Specialist
Gayiety Lane ..... Word Processor

NATURAL INVESTIGATIONS COMPANY

Cindy Arrington, M.S., RPA ..... Principal
Nancy E. Sikes, RPA ..... Principal Investigator
Dylan Stapleton ..... Archaeologist

KENNEDY/JENKS CONSULTANTS

Kevin Kennedy, P.E. ..... Principal
Steve Cheung, P.E. ..... Project Engineer
Mike Downey, P.E. ..... Project Engineer

BROWN AND CALDWELL

Adam Ross, P.E., PMP ..... Project Manager
Alison Nojima, P.E. ..... Project Engineer
Michael J. Harrison, P.E. ..... Managing Engineer

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Appendix A

Alternatives Analysis in Fulfillment of SRF Requirements

ALTERNATIVES ANALYSIS IN FULFILLMENT OF SRF REQUIREMENTS

This appendix includes a discussion of alternatives to the project in compliance with State Water Resources Control Board (SWRCB) CEQA-Plus requirements related to State Revolving Fund loans and per U.S. Environmental Protection Agency guidance for environmental information documents related to Special Appropriation Fund Grants. These alternatives are provided to meet the CEQA-Plus requirements and are not required for compliance with CEQA.

EXPANSION PROJECT ALTERNATIVES

No Project

Under the No Project Alternative for the Expansion Project, the City would continue to operate the existing PGWWTP consistent with existing conditions. Effluent would be treated up to the current capacity of 9.5 million gallons per day (mgd) average dry-weather flow (ADWF). The WWTP would be maintained with normal repairs and ongoing maintenance. Under this alternative no new facilities would be constructed, and there would be no increase in treatment capacity.

This No Project Alternative would not achieve any of the project objectives and would result in increased risk of violating the current National Pollutant Discharge Elimination System (NPDES) permit, which could result in adverse water quality impacts. In addition, the City would be unable to satisfy its objective of providing sufficient wastewater treatment capacity and, therefore, be unable to serve planned populations and development anticipated in the City's General Plan.

Alternative Treatment Technologies

As part of the PGWWTP Expansion Project, the City considered several alternative treatment technologies including a circular primary clarifier alternative, gravity belt thickener alternative, and digester cover alternatives. A discussion of these alternative treatment technologies is provided below.

CIRCULAR CLARIFIER ALTERNATIVE

As an option to the rectangular clarifiers proposed as part of the Expansion Project, circular clarifier configurations are commonly used for primary clarification at WWTPs and were considered for use at PGWWTP. Circular clarifiers would use circular collection mechanisms that have a single main rotating turntable that is located at the deck level and above the water surface. Consequently, circular clarifiers typically have lower overall maintenance costs than rectangular clarifiers.

However, circular clarifiers were eliminated from consideration because they require more space, result in higher headloss, and would provide less redundancy and flexibility than rectangular clarifiers. Capital costs are also higher due to additional concrete and piping associated with circular clarifiers. Environmental impacts, including ground disturbance, water quality, air quality and greenhouse gas emissions, would be the same as with circular clarifiers.

GRAVITY BELT THICKENER ALTERNATIVE

Solids thickening of waste activated sludge (WAS) is achieved through physical separation of solids particles from the liquid. Typically, the mechanisms used for separation are either centrifugal force, filtration, screening, sedimentation, or flotation. The effectiveness of the separation mechanism often depends upon

hydraulic flow rate, solids loading rate, and the quantity of chemicals used for increasing particle size (e.g., polymer flocculation).

In addition to the rotary drum thickeners proposed for the Expansion Project, gravity belt thickeners were also considered for WAS thickening at PGWWTP. Gravity belt thickening utilizes gravity to drain water from the polymer-conditioned sludge as it travels over a filter belt that is under tension. The water is collected beneath the belt as the concentrated sludge is carried above the belt to the discharge end of the thickener.

While gravity belt thickening would meet the minimum requirements for PGWWTP, this treatment alternative could result in excessive odors if the unit is not fully enclosed and ventilated properly, the equipment could be easily damaged by sharp objects, with catastrophic failure resulting in process disruption, cleaning requires large volumes of wash water, and it would have higher construction and maintenance costs. Therefore, this alternative is not environmentally preferable to the project.

FIXED STEEL DIGESTER COVER ALTERNATIVE

In addition to the fixed concrete covers proposed for the digesters as part of the Expansion Project, fixed steel covers for the digesters were also considered. Fixed steel covers are available with either internal or external support systems, though external support system was analyzed for this alternative.

Fixed steel covers were not proposed for the Expansion project because of higher coating/foam roofing repair costs. There are no environmental advantages or disadvantages associated with this alternative when compared to the project.

Regional Consolidation

The City completed the *Roseville Regional Wastewater Treatment Service Area Master Plan* (Master Plan) in May 1996. At that time, wastewater treatment for the City of Roseville, portions of Placer County, and South Placer Municipal Utility District (SPMUD) occurred at the Dry Creek Wastewater Treatment Plant (DCWWTP), which was the City's Regional Wastewater Treatment Plant. Prior to construction of the existing PGWWTP, further expansion of the DCWWTP was considered. However, further expansion of the DCWWTP was rejected in the Master Plan because of environmental impacts including noise and odor impacts and increased potential to negatively affect the cold water fishery associated with Dry Creek. Installation of cooling towers to meet the requirements of the cold water fishery would have been too costly. The expansion of the DCWWTP would have also resulted in higher annual operations and maintenance costs, including higher costs of conveying all wastewater within the service area to the DCWWTP.

In addition, the PGWWTP is currently a regional wastewater treatment plant that serves the north and northwest areas of the City of Roseville, the Stanford Ranch area of the SPMUD service area, the Sunset Industrial Area of Placer County, and will serve the City of Roseville approved (but not yet constructed) Creekview and Amoruso Ranch Specific Plan Areas in the future. Therefore, further regional consolidation of the PGWWTP's service area is not feasible.

ENERGY RECOVERY PROJECT ALTERNATIVES

No Project

Under the No Project Alternative, the City would continue to operate the existing PGWWTP and would likely implement the proposed Expansion Project. However, no facilities associated with the Energy Recovery Project would be constructed under this alternative. The digester gas from the Expansion Project would be flared and would not be converted to electricity or heating or compressed natural gas (CNG) for fueling

vehicles. In addition, the fats, oil, and grease (FOG); food waste; or other high strength waste would continue to be collected by a contractor and hauled outside of the City limits.

This No Project Alternative would not achieve any of the project objectives associated with the Energy Recovery Project, would result in greater environmental impacts, and would increase electricity and CNG usage for the PGWWTP and the City's solid waste truck fleet, which would comparatively increase energy use.

Alternative Technologies

The Energy Recovery Project includes the use of microturbines to generate heat and electricity in combination with construction of a CNG fueling station. The City considered several alternative treatment technologies for the Energy Recovery Project including use of only microturbines, only a vehicle fueling station, or engines. A comparison of these alternative treatment technologies is provided below.

ENGINE ALTERNATIVE

Several options that would use engines to generate heat and electricity were considered for the Energy Recovery Project. Under this alternative, up to two engines would be constructed within a building and used for conversion of digester gas to heat and electricity. Engines ranging from 588 kW to 1,600 kW were considered. However, the use of engines would have higher capital costs and greater environmental impacts related to emissions. In addition, this alternative would provide electricity and heating benefits similar to the Energy Recovery Project, but would not provide any vehicle fueling benefits.

MICROTURBINES ALTERNATIVE

Several options that would use microturbines to generate heat and electricity were also considered. Similar to the Energy Recovery Project, this alternative would include two 200 kW microturbines to be installed to produce electrical power and heat for the digesters. Digester gas from the anaerobic digesters constructed under the Expansion Project would fuel the microturbines. This alternative would not include the conversion of digester gas into CNG for fueling vehicles. This alternative would provide electricity and heating benefits similar to the Energy Recovery Project, but would not provide any vehicle fueling benefits. Therefore, this alternative would have less economic benefit. In addition, any excess digester gas that is not needed for generation of electricity and heat would be flared, which would result in greater environmental impacts related to emissions.

VEHICLE FUEL ALTERNATIVE

Construction of a fueling station and conversion of 100 percent of the digester gas to renewable CNG or high-pressure methane for use as vehicle fuel was also considered. Similar to the Energy Recovery Project, a fast-fill or slow-fill fueling station would be constructed under this alternative; however, this alternative would not include the use of microturbines for generation of electricity and heat. This alternative would require the City to purchase electricity for operation and heating of the digesters, which would require more energy usage and provide less economic benefit compared to the Energy Recovery Project.

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Appendix B

Air Quality and Greenhouse Gas Modeling Data

Model Inputs and Assumptions

Construction

Project Facilities

From project description
From data request
Based on best guess
From separate technical studies
Calculated

Expansion	New Construction?	Arch Coating (Interior or Exterior)	Indoors or Outdoor Processes	Building SQFT	Area Disturbed (sqft)	CalEEMod Land Use Construction Match	Notes
Four primary clarifiers with odor control facilities	Yes	Exterior Only	Indoors	9,000	9,000	Industrial General Heavy Industry	
Electrical Building	Yes	Both	Indoors	540	540	Industrial General Heavy Industry	
Solids thickening building	Yes	Exterior Only	Indoors	5,100	5,100	Industrial General Heavy Industry	
Sludge pumping system (2 pumps)	Yes	Exterior Only	Outdoor	200	200	Industrial General Heavy Industry	Approximated from google image search.
Two anaerobic digesters	Yes	Exterior Only	Indoors	12,723	12,723	unrefrigerated warehouse - no rail	
Waste gas burner	Yes	None	Outdoor	Small	-	Industrial General Heavy Industry	
Conversion of a WAS holding tank to a centrate storage tank	No	None	Indoors	NA	NA		
Conversion of a WAS holding tank to a digester sludge holding tank/secondary digester	No	None	Indoors	NA	NA		
Digester control building	Yes	Both	Indoors	6,500	7,062	Industrial General Heavy Industry	
Ancillary facilities - Electrical	Yes	None	Outdoor	NA	NA		
Ancillary facilities - Lighting	Yes	None	Outdoor	NA	NA		

		Notes		
	TOTAL Building SQFT	34,063		
	TOTAL Area Disturbed (acres)	6.1		
	TOTAL Interior SQFT for Arch Coating	10,560	See Section 4.7 in Appendix A and Section 7 in Appendix E of the CalEEMod User's Guide	
	TOTAL Exterior SQFT for Arch Coating	17,032		
	Total Imported Material (CY)	34,000		
	Total Exported Material (CY)	6,000		

Energy Recovery Facility	New Construction?	Arch Coating (Interior or Exterior)	Indoors or Outdoor Processes	Building SQFT	Area Disturbed (sqft)	CalEEMod Land Use Construction Match	Notes
Four microturbines	Yes	None	Indoors	800	800	Industrial General Heavy Industry	
High strength waste receiving facility	Yes	Exterior Only	Indoors	2,500	3,000	Industrial General Heavy Industry	
Food waste pre-processing facility	Yes	Exterior Only	Indoors	4,000	4,000	Industrial General Heavy Industry	
Digester gas conditioning system	Yes	Exterior Only	Indoors	2,500	2,500	Industrial General Heavy Industry	
Digester gas upgrading system	Yes	Exterior Only	Indoors	NA (mounted on skid)		NA	
Slow Fill Station	Yes	None	Outdoors	45 Pumps	7,500	Gas Station	CalEEMod units are in "pumps". Does not include parking spaces.
Fast Fill Station	Yes	None	Outdoors	10 Pumps	600	Gas Station	
Piping Trench	Yes	None	Outdoors	500 linear feet			
Ductbank	Yes	None	Outdoors	500 linear feet			
Parking Area		Exterior Only		117,500	117,500	Surface Parking Lot	

		Notes		
	TOTAL Building SQFT	9,800		
	TOTAL Parking area	117,500		
	TOTAL Area Disturbed (acres)	2.5		
	TOTAL Interior SQFT for Arch Coating	-	See Section 4.7 in Appendix A and Section 7 in Appendix E of the CalEEMod User's Guide	
	TOTAL Exterior SQFT for Arch Coating (non-parking)	4,900		

Model Inputs and Assumptions

Operation

Expansion Facilities

Four primary clarifiers with odor control facilities		
Electrical Building		
Solids thickening building		
Sludge pumping system		
Two anaerobic digesters		
Waste gas burner		
Digester sludge holding tank/secondary digester		
Digester control building		
Ancillary facilities - Electrical		
Ancillary facilities - Lighting		Source
Existing Electricity Use (kWh)	13,716,000	Kennedy/Jenks

Energy Recovery Facility

Electricity Generation		Source
New Electricity Generation (kWh)	5,259,600	Brown and Caldwell. Accounts for normal operation of 2-300 kW microturbines. A fourth would be constructed any only used as a backup.
New Electricity Load (kWh)	876,600	Brown and Caldwell
Net Electricity Generation (kWh)	4,383,000	
Collection of FOG traps		Would not result in new activity since a third party is currently doing this collection.
Number of round trips associated with FOG collection per day	1	
Miles per trip with existing FOG collection vendor	20.5	From Clean World in Fruitridge to Roseville, CA (Google Maps)
Miles per trip with City as FOG collection vendor	7	From PGWWTP to Roseville, CA (Google Maps)
New Employees	1	
Miles per trip per employee	15	
Trips per day	2	

FOG = Fats Oils and Grease

Distance between PGWWTP and the Western Regional Sanitary Landfill (mi)	5.6

Construction Emissions Modeling Results

Maximum Daily Emissions by Project Component

Approximate Construction Schedule					Max Daily Emissions							
PGWWTP Expansion					Total				Exhaust		Fugitive Dust	
					lbs/day				lbs/day		lbs/day	
Phase Name	Start Date	End Date	Num Days Week	Num Days	ROG	NOX	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
01_Demolition	10/1/2017	10/5/2017	5	4	0.63	6.71	0.84	0.34	0.273	0.251	0.572	0.094
02_Grading	10/6/2017	12/27/2017	5	59	6.12	64.53	14.72	9.01	2.927	2.699	11.797	6.315
03_Trenching	10/15/2017	1/16/2018	5	67	0.58	4.81	0.46	0.36	0.362	0.333	0.102	0.027
04_Building Construction	1/17/2018	7/17/2019	5	391	0.79	6.18	0.51	0.33	0.285	0.268	0.228	0.061
05_Paving	2/1/2019	2/1/2019	5	1	0.73	7.05	0.52	0.41	0.415	0.382	0.102	0.027
06_Architectural Coating	2/2/2019	10/11/2019	5	180	0.91	1.24	0.12	0.10	0.086	0.086	0.038	0.010
PGWWTP Energy Recovery Facility					Total				Exhaust		Fugitive Dust	
					lbs/day				lbs/day		lbs/day	
Phase Name	Start Date	End Date	Num Days Week	Num Days	ROG	NOX	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
01_Slab On Grade	2/1/2018	4/15/2019	5	313	2.218	22.135	2.617	1.293	0.927	0.857	1.690	0.437
02_Bollards	4/16/2019	4/17/2019	5	2	0.597	4.708	0.987	0.356	0.137	0.127	0.850	0.229
03_Paving	4/18/2019	7/4/2019	5	56	4.469	46.679	2.881	1.977	1.844	1.697	1.038	0.279
04_Fencing	7/5/2019	7/9/2019	5	3	1.833	18.200	0.919	0.864	0.919	0.864	0.000	0.000
05_Trench for Utilities	7/10/2019	7/19/2019	5	8	1.108	10.229	0.706	0.499	0.476	0.438	0.230	0.061
06_Architectural Coating	7/20/2019	8/14/2019	5	18	3.674	3.720	0.399	0.296	0.258	0.258	0.141	0.037

Construction Emissions Modeling Results

	Annual Construction Emissions							
PGWWTP Expansion	ROG	NOX	CO	PM2.5	Total CO2	CH4	N2O	CO2e
Year	tons/year				MT/year			
2017	0.197	2.049	1.049	0.276	202.985	0.058	0.000	204.437
2018	0.087	0.712	0.447	0.038	92.626	0.016	0.000	93.031
2019	0.124	0.470	0.351	0.027	69.096	0.010	0.000	69.348
Total	**0.409**	**3.231**	**1.847**	**0.341**	**364.706**	**0.084**	**0.000**	**366.816**
PGWWTP Energy Recovery Facility	ROG	NOX	CO	PM2.5	Total CO2	CH4	N2O	CO2e
Year	tons/year				MT/year			
2017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2018	0.227	2.322	1.367	0.116	322.123	0.050	0.000	323.366
2019	0.231	2.087	1.394	0.097	323.293	0.063	0.000	324.875
Total	**0.458**	**4.408**	**2.761**	**0.213**	**645.416**	**0.113**	**0.000**	**648.241**
Combined	ROG	NOX	CO	PM2.5	Total CO2	CH4	N2O	CO2e
Year	tons/year				MT/year			
2017	0.197	2.049	1.049	0.276	202.985	0.058	0.000	204.437
2018	0.3	3.0	1.8	0.2	414.749	0.066	0.000	416.397
2019	0.355	2.557	1.745	0.124	392.388	0.073	0.000	394.223
Total	**0.866**	**7.639**	**4.608**	**0.554**	**1010.122**	**0.197**	**0.000**	**1015.057**

Amortized construction emissions (MT)

	Total CO2	CH4	N2O	CO2e
PGWWTP Expansion	12.157	0.003	0.000	12.227
PGWWTP Energy Recovery Facility	21.514	0.004	0.000	21.608
Combined	33.671	0.007	0.000	33.835

Lifetime (yr) 30

Construction Emissions Modeling Results

Maximum Daily Emissions for Entire Project

Combined and Overlapping Phases					**Max Daily Emissions**							
					Total				Exhaust		Fugitive Dust	
					lbs/day				lbs/day	lbs/day	lbs/day	lbs/day
First Expansion Phase	Second Expansion Phase	Energy Recovery Phase	Start Date	End Date	ROG	NOX	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
01_Demolition	None	None	10/01/17	10/05/17	0.632	6.709	0.845	0.345	0.273	0.251	0.572	0.094
02_Grading	None	None	10/06/17	10/14/17	6.120	64.532	14.724	9.014	2.927	2.699	11.797	6.315
02_Grading	03_Trenching	None	10/15/17	12/27/17	6.705	69.343	15.188	9.374	3.289	3.032	11.899	6.342
03_Trenching	None	None	12/28/17	01/16/18	0.585	4.811	0.464	0.360	0.362	0.333	0.102	0.027
04_Building Construction	None	None	01/17/18	01/31/18	0.786	6.184	0.513	0.329	0.285	0.268	0.228	0.061
04_Building Construction	None	01_Slab On Grade	02/01/18	01/31/19	3.004	28.319	3.131	1.623	1.212	1.124	1.919	0.498
04_Building Construction	05_Paving	01_Slab On Grade	02/01/19	02/01/19	3.735	35.373	3.648	2.031	1.627	1.506	2.021	0.525
04_Building Construction	06_Architectural Coating	02_Bollards	02/02/19	04/17/19	2.288	12.129	1.625	0.781	0.508	0.481	1.117	0.300
04_Building Construction	06_Architectural Coating	03_Paving	04/18/19	07/17/19	6.161	54.101	3.519	2.402	2.214	2.051	1.304	0.351
06_Architectural Coating	None	03_Paving	07/18/19	07/04/19	5.375	47.916	3.005	2.073	1.930	1.783	1.076	0.290
06_Architectural Coating	None	04_Fencing	07/05/19	07/09/19	2.739	19.437	1.044	0.960	1.005	0.950	0.038	0.010
06_Architectural Coating	None	05_Trench for Utilities	07/10/19	07/19/19	2.014	11.466	0.831	0.596	0.562	0.524	0.268	0.071
06_Architectural Coating	None	06_Architectural Coating	07/20/19	10/11/19	4.580	4.957	0.523	0.392	0.344	0.344	0.179	0.048
None	None	06_Architectural Coating	10/12/19	08/14/19	3.674	3.720	0.399	0.296	0.258	0.258	0.141	0.037

	lbs/day			
Year	ROG	NOX	PM10	PM2.5
2017	6.7	69.3	15.2	9.4
2018	3.0	28.3	3.1	1.6
2019	6.2	54.1	3.6	2.4

Existing Emissions from Landfilling of Waste Activated Sludge

Methane Production from Landfilled WAS			
	Units	Amount	Source
Daily WAS trucked to Western Regional Sanitary Landfill	lb dry weight/day	12,306	Kennedy/Jenks
Trucking days per week	days	5	Kennedy/Jenks
Annual WAS trucked to Western Regional Sanitary Landfill	MT dry weight/year	1,451	Calculated
IPCC methane emissions factor for landfilled raw sludge	kg CH4/MT dry weight of raw sludge	195	IPCC
Annual Methane Emissions from WAS	MT CH4/year	283	Calculated
Annual Methane Emissions from WAS	MTCO2e/year	7,075.07	Calculated

Fugitive Methane Emissions			
Default Collection Efficiency	Percent of methane captured from Landfill	75%	ARB 2010 (Local Government Operations Protocol)
Fugitive Methane Emissions	MTCH4/year	71	Calculated
Fugitive Methane Emissions	MTCO2e/year	1,768.77	Calculated

Unburned Methane Emissions from Electricity Generation			
Methane sent to generator	MTCH4/year	212.25	Calculated
Default Destruction Efficiency	Percent of Methane Successfully Burned in Generators	99%	ARB 2010 (Local Government Operations Protocol)
Annual emissions from unburned methane	MTCH4/year	2.12	Calculated
Annual emissions from unburned methane	MTCO2e/year	53.06	Calculated

Emissions Credits from Electricity Production from Captured WAS Methane			
	Units	Amount	Source
Heat of Combustion of Methane	MJ/kg CH4	55.50	http://people.hofstra.edu/geotrans/eng/ch8en/conc8en/energycontent.html
Conversion	MJ/kWh	3.6	unit conversion
Energy content in burned methane	kWh/year	3,272,218.96	Calculated
CAT G3561A Efficiency	output energy/input energy	36.4%	http://www.cat.com/en_US/products/new/power-systems/electric-power-generation/gas-generator-sets/18486985.html, http://www.wpwma.com/about-wpwma/
Annual Electricity produced by WAS methane	MWh/year	1,191.09	Calculated
Utility Electricity Emission Factor in 2015	MTCO2/MWh	0.173	PGE Emission Factor for 2014
Utility Electricity Emission Factor in 2015	MTCH4/MWh	1.15E-05	PGE Emission Factor for 2014
Utility Electricity Emission Factor in 2015	MTN2O/MWh	2.10E-06	PGE Emission Factor for 2014
Emissions offset from Electricity Production	MTCO2/year	-205.60	Calculated
Emissions offset from Electricity Production	MTCH4/year	-0.01	Calculated
Emissions offset from Electricity Production	MTN2O/year	-0.002	Calculated
Emissions offset from Electricity Production	MTCO2e/year	-206.69	Calculated

Total 2015 Emissions from WAS Landfilled at Western Regional Sanitary Landfill with LFG Capture and Electricity Conversion			
Source	Units	Amount	Source
Fugitive Methane Emissions	MTCO2e/year	1,769	Calculated
Unburned Methane Emissions from Electricity Generatic	MTCO2e/year	53.06	Calculated
Emissions Credits from Electricity Production from Captured WAS Methane	MTCO2e/year	-206.69	Calculated
Total	MTCO2e/year	1,615.14	Calculated

Operational Emissions Modeling Results Summary (Unmitigated)														
Sources	**Maximum Daily Emissions**				**Annual Emissions**									
	lbs/day				tons/ year						MT/Year			
	ROG	**NOX**	**PM10**	**PM2.5**	**ROG**	**NOX**	**CO**	**SOX**	**PM10**	**PM2.5**	**CO2**	**CH4**	**N2O**	**CO2e**
Existing														
Mobile Sources	0.719	10.274	0.461	0.424	0.131	1.891	57.930	0.000	0.084	0.077	4,714.762	19.316	0.011	5,200.993
Electricity Use	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2,367.613	0.158	0.029	2,380.125
Wastewater Treatment Processes	16.548	3.014	0.033	0.033	3.022	0.550	0.040	0.000	0.006	0.006	0.000	0.000	4.578	1,364.223
Landfilled WAS at WRSL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-205.602	72.859	-0.002	1,615.142
Emissions Total	**17.267**	**13.288**	**0.494**	**0.457**	**3.154**	**2.441**	**57.970**	**0.000**	**0.090**	**0.083**	**6,876.773**	**92.333**	**4.615**	**10,560.483**
Expansion Only														
Existing Facilities + Proposed Project														
Mobile Sources	0.753	11.119	0.485	0.435	0.144	2.263	57.940	0.002	0.094	0.082	4,844.336	19.317	0.011	5,330.582
Electricity Use	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4,001.599	0.267	0.049	4,022.746
Wastewater Treatment Processes	27.968	5.094	0.056	0.055	5.108	0.930	0.068	0.000	0.010	0.010	0.000	0.000	7.530	2,243.839
Flaring Digester Gas/Natural Gas Boilers	10.876	19.843	0.491	0.164	1.986	3.624	12.478	0.000	0.090	0.030	1,712.793	2.139	0.031	1,775.629
Emissions Total	**39.597**	**36.055**	**1.032**	**0.654**	**7.238**	**6.817**	**70.486**	**0.002**	**0.193**	**0.122**	**10,558.728**	**21.723**	**7.621**	**13,372.797**
Difference from Existing														
Mobile Sources	0.034	0.844	0.024	0.011	0.013	0.372	0.010	0.001	0.010	0.005	129.574	0.001	0.000	129.589
Electricity Use	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1,633.986	0.109	0.020	1,642.621
Wastewater Treatment Processes	11.420	2.080	0.023	0.022	2.086	0.380	0.028	0.000	0.004	0.004	0.000	0.000	2.952	879.616
Flaring Digester Gas/Natural Gas Boilers	10.876	19.843	0.491	0.164	1.986	3.624	12.478	0.000	0.090	0.030	1,918.395	-70.720	0.034	160.487
Emissions Total	**22.330**	**22.767**	**0.538**	**0.197**	**4.085**	**4.376**	**12.516**	**0.001**	**0.103**	**0.039**	**3,681.954**	**-70.611**	**3.005**	**2,812.314**
										Amortized Construction Emissions	**12.157**	**0.003**	**0.000**	**12.227**
										Emissions Total with Amortized Construction Emissions	**3,694.111**	**-70.608**	**3.005**	**2,824.541**

PCAPCD Threshold	1,100
Additional Reductions Needed to Meet Target	1,725

Expansion + Energy Recovery														
Existing Facilities + Proposed Project														
Mobile Sources	2.848	11.651	0.761	0.714	0.527	2.369	59.607	0.003	0.145	0.133	3,029.326	29.119	0.011	3,760.696
Electricity Use	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3,245.019	0.216	0.039	3,262.168
Wastewater Treatment Processes	27.968	5.094	0.056	0.055	5.108	0.930	0.068	0.000	0.010	0.010	0.000	0.000	7.530	2,243.839
Gas Turbine	0.238	22.922	0.515	0.119	0.044	4.186	0.992	0.000	0.094	0.022	1,137.191	1.455	0.040	1,185.535
Emissions Total	**31.054**	**39.667**	**1.332**	**0.888**	**5.679**	**7.485**	**60.666**	**0.003**	**0.249**	**0.165**	**7,411.536**	**30.790**	**7.621**	**10,452.239**
Difference from Existing														
Mobile Sources	2.129	1.377	0.300	0.290	0.396	0.478	1.677	0.003	0.061	0.056	-1,685.436	9.803	0.000	-1,440.297
Electricity Use	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	877.407	0.058	0.011	882.043
Wastewater Treatment Processes	11.420	2.080	0.023	0.022	2.086	0.380	0.028	0.000	0.004	0.004	0.000	0.000	2.952	879.616
Gas Turbine	0.238	22.922	0.515	0.119	0.044	4.186	0.992	0.000	0.094	0.022	1,342.792	-71.405	0.043	-429.607
Emissions Total	**13.787**	**26.379**	**0.838**	**0.432**	**2.525**	**5.044**	**2.696**	**0.003**	**0.159**	**0.082**	**534.763**	**-61.544**	**3.005**	**-108.244**
										Amortized Construction Emissions	**33.671**	**0.007**	**0.000**	**33.835**
										Emissions Total with Amortized Construction Emissions	**568.433**	**-61.537**	**3.005**	**-74.409**

Mobile Emissions Calculations

	Existing Conditions (with CNG SWCV)	Permitted Current (with CNG SWCV)	Permitted Future - Expansion only (with CNG SWCV)	Permitted Future - Full-Build Out with Energy Recovery (with rCNG SWCV)	Notes
Employee Commute					
Number of new employees	0	0	1	2	Only the number of NEW employees were given
Trips per day	2	2	2	2	Assumption
Days per year	365.25	365.25	365.25	365.25	Assumption
Miles per trip per employee (assumption)	15	15	15	15	Assumption
Employee VMT per year	0	0	10950	21915	Calculated
Vehicle Type	LDA/LDT1/LDT2				EMFAC2007 categories
Hauling Trips: Collection of HSW/FOG traps					
Number of trips per day	2	2	2	2	HSW/FOG collection would not have been diverted to the PGWWTP without the energy recovery facility. HSW/FOG provides more organics to produce 40% additional methane for vehicle fuel.
Days per year	250	250	250	250	Assumption
Miles per hauling trip	21	21	21	7	Existing HSW/FOG trips are from Clean World in Fruitridge to Roseville city center. Proposed trips would be from PGWWTP to Roseville city center.
VMT per year	10,250	10,250	10,250	3,500	
Vehicle Type	MMDT				EMFAC2007 categories
Hauling Trips: Biosolids/WAS	**WAS**	**WAS**	**Biosolids**	**Biosolids**	
Trucks per day	3.23	5.4	3.41	3.41	From email from KJ to Ascent on 11/18/2016.
Number of trips per week	32	54	34	34	Calculated assuming 2 trips per day, 5 days per week.
Weeks per year	52	52	52	52	Assumption
Miles per trip	5.6	5.6	45.0	45.0	Driving distance to Western Regional Sanitary Landfill. Location of WAS/biosolids disposal not assumed to change.
VMT per year	9,406	15,725	79,794	79,794	Calculated
Vehicle Type	HHDT				EMFAC2007 categories
Hauling Trips: Chemicals					
Number of trips per week	2	2.7	3.4	3.4	From data request. Scaled by capacity increase.
Weeks per year	52	52	52	52	Assumption
Miles per trip	6.6	6.6	6.6	6.6	Default vendor distance in CalEEMod
VMT per year	686	918	1,160	1,160	Calculated
Vehicle Type	MMDT				EMFAC2007 categories

Mobile Emissions Calculations (Continued)

	Existing Conditions (with CNG SWCV)	Permitted Current (with CNG SWCV)	Permitted Future - Expansion only (with CNG SWCV)	Permitted Future - Full-Build Out with Energy Recovery (with rCNG SWCV)	Notes
Hauling Trips: Waste Collection Vehicles					
Number of vehicles	55	55	55	55	Numbers based on maximum fueling capacity at build out, not actual number of waste collection vehicles that would operate. Number of vehicles assumed to be the same between existing and project conditions to allow the project to only account for the change in vehicle fuels and not the change in VMT.
Days per year	365.25	365.25	365.25	365.25	Assumes all gas produced by the facility would be combusted.
DGE used per day (rCNG)	0	0	0	1,136	Total DGE/day minues CNG DGE/day
DGE used per day (CNG)	2,500	2,500	2,500	1,364	Converted from total MMBTU/year
Total DGE used per day	2,500	2,500	2,500	2,500	According to the Basis of Design Report from B&C, the fleet currently requires 2,500 DGE per day. To avoid taking credit for the conversion of diesel trucks to CNG, the mobile emissions calculations assume existing SWCVs are CNG-fueled.
Diesel gallon equivalents (DGE) used per year	913,125	913,125	913,125	913,125	Multiplied by number of days per year. This assumes all vehicle fuel produced by the Energy Recovery Facility in a year would be combusted.
Miles per diesel gallons equivalent	2.5	2.5	2.5	2.5	Assumption
VMT per day per vehicle	114	114	114	114	For rCNG vehicles, adds difference in miles assuming only one round trip to the fueling station per day per vehicle.
VMT per year	2,282,813	2,282,813	2,282,813	2,282,813	Calculated
MMBTU used per year (rCNG)	0	0	0	57,673	Calculated from DGE per day
MMBTU used per year (CNG)	126,924	126,924	126,924	69,251	Annual natural gas MMBTU under Energy Recovery based on 7,900 MBTU/hr demand provided by Kennedy Jenks. Other NG demand based on 2,500 DGE/day.
Total MMBTU per year	126,924	126,924	126,924	126,924	Calculated
Vehicle Type	T7 SWCV				Solid Waste Collection vehicle under EMFAC2011 Categories

SWCV = Solid Waste Collection Vehicle

Vehicle Activity Summary

Trip Type	Existing Conditions (with CNG SWCV)	Permitted Current (with CNG SWCV)	Permitted Future - Expansion only (with CNG SWCV)	Permitted Future - Full-Build Out with Energy Recovery (with rCNG SWCV)	Vehicle Type
Employee Commute (VMT/year)	0	0	10,950	21,915	LDA/LDT/LDT2
Hauling Trips: Collection of HSW/FOG traps (VMT/year)	10,250	10,250	10,250	3,500	MHDT
Hauling Trips: Biosolids/WAS (VMT/year)	9,406	15,725	79,794	79,794	HHDT
Hauling Trips: Chemicals (VMT/year)	686	918	1,160	1,160	MHDT
Hauling Trips: Waste Collection Vehicles					
CNG/rCNG (VMT/year)	2,282,813	2,282,813	2,282,813	2,282,813	Non-Renewable CNG for all scenarios except with Energy Recovery which will have a rCNG-CNG Mix
SWCV rCNG/CNG (MMTBTU/year)	126,924	126,924	126,924	126,924	Non-Renewable CNG for all scenarios except with Energy Recovery which will have a rCNG-CNG Mix

EMFAC and CA-GREET Emission Factors

Vehicle Type	Source	ROG	NOx	CO	PM_{10}	$PM_{2.5}$	Sox	CO_2	CH_4	N2O	Fuel Type
Tailpipe Emissions in 2020 (g/mi)											
LDA/LDT1/LDT2	EMFAC2014	0.126	0.087	0.047	0.047	0.020	0.003	309.741	0.007	0.000	Mix
HHDT	EMFAC2014	0.146	4.768	0.116	0.116	0.055	0.017	1,784.492	0.008	0.000	Mix
MHDT	EMFAC2014	0.132	2.445	0.181	0.181	0.096	0.012	1,213.274	0.008	0.000	Mix
PGWWTP rCNG-CNG Mix	Calculated	0.051	0.720	23.020	0.032	0.030	0.000	998.469	8.060	0.001	CNG
Renewable CNG	GREET 2015	0.051	0.720	23.020	0.032	0.030	0.000	0.000	8.060	0.001	CNG
Non-Renewable CNG	GREET 2015	0.051	0.720	23.020	0.032	0.030	0.000	1,830.000	8.060	0.001	CNG
Upstream Emissions (g/MMBTU)											
PGWWTP rCNG-CNG Mix	Calculated	2.733	0.878	11.922	0.370	0.370	0.012	4,689.207	84.448	0.081	CNG
Renewable CNG	CA-GREET 2.0	6.015	1.932	26.237	0.815	0.815	0.026	5,521.844	177.180	0.083	CNG
Non-Renewable CNG	CA-GREET 2.0	0.000	0.000	0.000	0.000	0.000	0.000	3,995.782	7.220	0.079	CNG

Source: EMFAC2014, CA-GREET 2.0, GREET 2015

Upstream Emissions from Diesel, rCNG, and CNG

	VOC	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	CH4: leakage	Total CH4	N2O
California Ultra Low-Sulfur Diesel upstream production (g/MMBTU)											
Refining	These emissions are not generated in the air district.						15,299.704	28.267	0.000	28.267	0.270
Transportation Distribution							567.758	0.000	0.000	0.761	0.011
Refueling Station and Bulk Terminal	1.087	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	1.087	0.000	0.000	0.000	0.000	0.000	15,867.463	28.267	0.000	29.028	0.281
Wastewater Sludge to CNG production (On-Site Refueling) (g/MMBTU)											
rCNG Production	3.948	17.222	1.268	0.535	0.535	0.017	1,897.160	28.082	134.399	162.482	0.055
On-Site Compression	2.067	9.014	0.664	0.280	0.280	0.009	3,624.684	14.698	0.000	14.698	0.029
Total	6.015	26.237	1.932	0.815	0.815	0.026	5,521.844	42.781	134.399	177.180	0.083
Conventional Compressed Natural Gas upstream production (g/MMBTU)											
NG Compression	These emissions are not generated in the air district.						3,995.782	7.220	0.000	7.220	0.079
Total	0.000	0.000	0.000	0.000	0.000	0.000	3,995.782	7.220	0.000	7.220	0.079
PGWWTP rCNG-CNG Mix Upstream Production (g/MMBTU)											
Total	2.733	11.922	0.878	0.370	0.370	0.012	4,689.207	23.379	61.070	84.448	0.081

Source: CA-GREET 2.0

Notes: Anaerobic digestion emissions and electricity offsets not included here because they are already accounted for under the Process Emissions analysis. Heating energy needs for digestion would be available from the heat given off by the digester gas-powered microturbine.

rCNG = Renewable CNG

rCNG:CNG Ratio used in Vehicle Fuel under Full Build-Out

	Percent of CNG energy content used in Solid Waste Vehicles Under Full Build-Out
Renewable CNG from Digester Gas produced at PGWWTP	45%
Conventional Compressed Natural Gas purchased for the Energy Recovery Facility	55%
Total	100%

Calculated from ratio of DGE (rCNG) to DGE (CNG) per day

Mobile Emissions Calculations (Continued)

Mobile-Source Emissions Summary

	Maximum Daily Emissions				Annual Emissions									
	lbs/day				tons/ year						MT/Year			
Existing Conditions (with CNG SWCV)	**ROG**	**NOX**	**PM10**	**PM2.5**	**ROG**	**NOX**	**CO**	**SOX**	**PM10**	**PM2.5**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Employee Commute	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00E+00	0.000	0.000	0.000	0.000	0.000	0.000
Hauling Trips: Collection of HSW/FOG	0.012	0.221	0.016	0.009	0.001	0.028	0.002	1.31E-04	0.002	0.001	12.436	0.000	0.000	12.438
Hauling Trips: Biosolids/WAS	0.004	0.118	0.003	0.001	0.002	0.049	0.001	1.77E-04	0.001	0.001	16.785	0.000	0.000	16.786
Hauling Trips: Chemicals	0.001	0.015	0.001	0.001	0.000	0.002	0.000	8.78E-06	0.000	0.000	0.833	0.000	0.000	0.833
Hauling Trips: Waste Collection Vehicles	0.703	9.921	0.441	0.413	0.128	1.812	57.927	0.00E+00	0.081	0.075	4,684.709	19.316	0.011	5,170.936
Permitted Current (with CNG SWCV)														
Employee Commute	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00E+00	0.000	0.000	0.000	0.000	0.000	0.000
Hauling Trips: Collection of HSW/FOG	0.012	0.221	0.016	0.009	0.001	0.028	0.002	1.31E-04	0.002	0.001	12.436	0.000	0.000	12.438
Hauling Trips: Biosolids/WAS	0.004	0.118	0.003	0.001	0.003	0.083	0.002	2.95E-04	0.002	0.001	28.061	0.000	0.000	28.064
Hauling Trips: Chemicals	0.001	0.020	0.001	0.001	0.000	0.002	0.000	1.17E-05	0.000	0.000	1.114	0.000	0.000	1.114
Hauling Trips: Waste Collection Vehicles	0.703	9.921	0.441	0.413	0.128	1.812	57.927	0.00E+00	0.081	0.075	4,684.709	19.316	0.011	5,170.936
Permitted Future - Expansion only (with CNG SWCV)														
Employee Commute	0.008	0.006	0.003	0.001	0.002	0.001	0.001	3.75E-05	0.001	0.000	3.392	0.000	0.000	3.393
Hauling Trips: Collection of HSW/FOG	0.012	0.221	0.016	0.009	0.001	0.028	0.002	1.31E-04	0.002	0.001	12.436	0.000	0.000	12.438
Hauling Trips: Biosolids/WAS	0.029	0.946	0.023	0.011	0.013	0.419	0.010	1.50E-03	0.010	0.005	142.392	0.001	0.000	142.407
Hauling Trips: Chemicals	0.001	0.025	0.002	0.001	0.000	0.003	0.000	1.48E-05	0.000	0.000	1.408	0.000	0.000	1.408
Hauling Trips: Waste Collection Vehicles	0.703	9.921	0.441	0.413	0.128	1.812	57.927	0.00E+00	0.081	0.075	4,684.709	19.316	0.011	5,170.936
Permitted Future - Full-Build Out with Energy Recovery (with rCNG SWCV)														
Employee Commute	0.017	0.012	0.006	0.003	0.003	0.002	0.001	7.51E-05	0.001	0.000	6.788	0.000	0.000	6.792
Hauling Trips: Collection of HSW/FOG	0.004	0.075	0.006	0.003	0.001	0.009	0.001	4.48E-05	0.001	0.000	4.246	0.000	0.000	4.247
Hauling Trips: Biosolids/WAS	0.029	0.946	0.023	0.011	0.013	0.419	0.010	1.50E-03	0.010	0.005	142.392	0.001	0.000	142.407
Hauling Trips: Chemicals	0.001	0.025	0.002	0.001	0.000	0.003	0.000	1.48E-05	0.000	0.000	1.408	0.000	0.000	1.408
Hauling Trips: Waste Collection Vehicles	2.797	10.593	0.725	0.697	0.511	1.935	59.595	1.64E-03	0.132	0.127	2,874.492	29.118	0.011	3,605.843

Mobile Emissions Calculations (Continued)

Mobile-Source Emissions Summary

Difference from Existing

	Maximum Daily Emissions				Annual Emissions									
	lbs/day				tons/ year						MT/Year			
Permitted Current (with CNG SWCV)	**ROG**	**NOX**	**PM10**	**PM2.5**	**ROG**	**NOX**	**CO**	**SOX**	**PM10**	**PM2.5**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Employee Commute	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00E+00	0.000	0.000	0.000	0.000	0.000	0.000
Hauling Trips: Collection of HSW/FOG	0.012	0.221	0.016	0.009	0.001	0.028	0.002	1.31E-04	0.002	0.001	12.436	0.000	0.000	12.438
Hauling Trips: Biosolids/WAS	0.000	0.000	0.000	0.000	0.001	0.033	0.001	1.19E-04	0.001	0.000	11.276	0.000	0.000	11.278
Hauling Trips: Chemicals	0.000	0.005	0.000	0.000	0.000	0.001	0.000	2.97E-06	0.000	0.000	0.282	0.000	0.000	0.282
Hauling Trips: Waste Collection Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00E+00	0.000	0.000	0.000	0.000	0.000	0.000
Total Mobile Sources	0.012	0.226	0.017	0.009	0.003	0.061	0.003	2.53E-04	0.003	0.001	23.994	0.000	0.000	23.997
Permitted Future - Expansion only (with CNG SWCV)														
Employee Commute	0.008	0.006	0.003	0.001	0.002	0.001	0.001	3.75E-05	0.001	0.000	3.392	0.000	0.000	3.393
Hauling Trips: Collection of HSW/FOG	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00E+00	0.000	0.000	0.000	0.000	0.000	0.000
Hauling Trips: Biosolids/WAS	0.025	0.828	0.020	0.009	0.011	0.370	0.009	1.32E-03	0.009	0.004	125.607	0.001	0.000	125.621
Hauling Trips: Chemicals	0.001	0.010	0.001	0.000	0.000	0.001	0.000	6.06E-06	0.000	0.000	0.575	0.000	0.000	0.575
Hauling Trips: Waste Collection Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00E+00	0.000	0.000	0.000	0.000	0.000	0.000
Total Mobile Sources	0.034	0.844	0.024	0.011	0.013	0.372	0.010	1.37E-03	0.010	0.005	129.574	0.001	0.000	129.589
Permitted Future - Energy Recovery Only														
Employee Commute	0.008	0.006	0.003	0.001	0.002	0.001	0.001	3.75E-05	0.001	0.000	3.392	0.000	0.000	3.393
Hauling Trips: Collection of HSW/FOG	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00E+00	0.000	0.000	0.000	0.000	0.000	0.000
Hauling Trips: Biosolids/WAS	0.025	0.828	0.020	0.009	0.011	0.370	0.009	1.32E-03	0.009	0.004	125.607	0.001	0.000	125.621
Hauling Trips: Chemicals	0.001	0.010	0.001	0.000	0.000	0.001	0.000	6.06E-06	0.000	0.000	0.575	0.000	0.000	0.575
Hauling Trips: Waste Collection Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00E+00	0.000	0.000	0.000	0.000	0.000	0.000
Total Mobile Sources	0.000	0.844	0.024	0.011	0.013	0.372	0.010	1.37E-03	0.010	0.005	129.574	0.001	0.000	129.589
Permitted Future - Full-Build Out with Energy Recovery (with rCNG SWCV)														
Employee Commute	0.017	0.012	0.006	0.003	0.003	0.002	0.001	7.51E-05	0.001	0.000	6.788	0.000	0.000	6.792
Hauling Trips: Collection of HSW/FOG	-0.008	-0.146	-0.011	-0.006	-0.001	-0.018	-0.001	-8.63E-05	-0.001	-0.001	-8.190	0.000	0.000	-8.191
Hauling Trips: Biosolids/WAS	0.025	0.828	0.020	0.009	0.011	0.370	0.009	1.32E-03	0.009	0.004	125.607	0.001	0.000	125.621
Hauling Trips: Chemicals	0.001	0.010	0.001	0.000	0.000	0.001	0.000	6.06E-06	0.000	0.000	0.575	0.000	0.000	0.575
Hauling Trips: Waste Collection Vehicles	2.094	0.672	0.284	0.284	0.382	0.123	1.668	1.64E-03	0.052	0.052	-1,810.217	9.802	0.000	-1,565.093
Total Mobile Sources	2.129	1.377	0.300	0.290	0.396	0.478	1.677	2.95E-03	0.061	0.056	-1,685.436	9.803	0.000	-1,440.297

Building Emissions Calculations

Parameter	Existing Conditions	Permitted Current	Permitted Future - Expansion only	Permitted Future - Energy Recovery Only	Permitted Future - Combined
Wastewater Treatment Volume (MGD)	7.1	9.5	12	12	12
Electrical Energy Use (Annual MW-hr)	13,716	18,352	23,182	-4,383	18,799
			9,466		5,083

Building Emissions Estimates

		Annual Emissions			
		MT/Year	MT/Year	MT/Year	MT/Year
Scenario	**Source**	**CO2**	**CH4**	**N2O**	**CO2e**
Existing Conditions	Electricity	2,367.613	0.158	0.029	2,380
Permitted Current	Electricity	3,167.932	0.211	0.038	3,185
Permitted Future - Expansion only	Electricity	4,001.599	0.267	0.049	4,023
Permitted Future - Energy Recovery Only	Electricity	-756.580	-0.050	-0.009	-761
Permitted Future - Combined	Electricity	3,245.019	0.216	0.039	3,262

Building Emissions Estimates - Difference from Existing

		Annual Emissions			
		MT/Year	MT/Year	MT/Year	MT/Year
Scenario	**Source**	**CO2**	**CH4**	**N2O**	**CO2e**
Permitted Current	Electricity	800.320	0.053	0.010	804.549
Permitted Future - Expansion only	Electricity	1,633.986	0.109	0.020	1,642.621
Permitted Future - Energy Recovery Only	Electricity	-3,124.192	-0.208	-0.038	-3,140.703
Permitted Future - Combined	Electricity	877.407	0.058	0.011	882.043

Electricity Assumptions

Electricity Emission Factors for 2020	MT/MWh
CO2	0.172616844
CH4	1.15E-05
N2O	2.10E-06
Source:	2020 system average PG&E emissions based on 2014 emission factors from The Climate Registry and a 22.7% renewable portfolio reported by CPUC (http://www.cpuc.ca.gov/RPS_Homepage/). Assumes a 37% renewable mix by 2020 based on PGE contract with the state.

Electricity Use

	Existing Conditions	Permitted Current	Permitted Future - with Expansion only	Permitted Future - Energy Recovery Only	Permitted Future - Combined	Notes
Wastewater Treated (MGD)	7.1	9.5	12	NA	12	
Electricity Use (kWh)	13,716,000	18,352,394	23,181,972	-4,383,000	18,798,972	Existing capacity and expansion scaled by change in volume from existing conditions. Existing conditions from the project applicant. Energy recovery electricity generation from Brown and Caldwell.
Difference in Electricity Use from Existing (kWh)			9,465,972	-	5,082,972	Energy use attributable to the Project

WWTP Process Emissions Calculations

Parameter	Existing Conditions	Future Scenarios		
		1	2	3
		Permitted Current	Permitted Future (Expansion Only)	Permitted Future (Expansion with Energy Recovery)
MGD	**7.1**	**9.5**	**12**	**12**
Describe any anaerobic processes, if any (e.g. anaerobic lagoons). Are methane emissions captured or flared?	Aerobic processes with landfilled WAS at WRSL	Aerobic processes with landfilled WAS at WRSL	Proposed anaerobic digester. Methane capture would be either combusted in turbine or flared.	Proposed anaerobic digester. Methane capture would be either combusted in turbine or converted to rCNG.
Existing/Future Population served	126,300	168,993	207,735	207,735
Is industrial and commercial wastewater accepted?	Yes			
Wastewater Treatment Process				
N2O Emissions Calculations from Wastewater Treatment Processes (1)				
F_ind-com	1.25	1.25	1.25	1.25
N2O emissions from Nitrification/Denitrification (MT/year) (Equation 10.7 from LGOP)	1.1	1.5	1.8	1.8
N2O emissions from Effluent Discharge to Rivers and Estuaries (MT/year) (Equation 10.10 from LGOP)	3.5	4.6	5.7	5.7
MT N2O/year	5	6	8	8
Criteria Pollutant Emissions from Wastewater Treatment Processes (Scaled from existing processes) (2)				
lb TOG/day	23.687	31.694	40.035	40.035
lb ROG/day	16.548	22.142	27.968	27.968
lb NOX/day	3.014	4.032	5.094	5.094
lb CO/day	0.219	0.293	0.370	0.370
lb PM10/day	0.033	0.044	0.056	0.056
lb PM2.5/day	0.033	0.044	0.055	0.055
Digester and Natural Gas Production and Use				
Digester gas production (cf per minute)			210	210
Digester gas production (cf per day)			302,400	302,400
Percent used in vehicles			0%	76%
Percent used in microturbines			0%	24%
Percent flared			100%	0%
Digester gas used for vehicles (cf/day)			0	231,116
Digester gas used (as tail gas) for microturbines (cf/day)			0	71,284
Digester gas flared (cf/day)			302,400	0
Natural gas use for digester heating (therms/day)			893	624
Digester Gas and Natural Gas Turbine/Flaring Emissions				
Digester/Tail Gas				
Combustion method	(See separate calculation)	(See separate calculation)	Flared	Microturbines
Type of Gas	Methane	Methane	Digester Gas	Tail Gas
Fraction of CH4	(See separate calculation)	(See separate calculation)	60%	28%
Amount combusted (scf/day)			302,400	71,284
Amount combusted (MMBTU/day)			165	18
Amount combusted (MMBTU/year)			60,306.57	6,743.41
lb VOC/day (3)			10.40	0.11
lb NOX/day (3)			11.23	2.95
lb CO/day (3)			61.09	0.31
lb PM10/day (3)			0.00	0.22
lb PM2.5/day (3)			0.00	0.00
MTCO2/year (4)	-205.60	-275.10	0.00	0.00
MTCH4/year (1)	72.86	97.49	2.11	1.37
MTN2O/year	-0.002	-0.003	0.00	0.01

WWTP Process Emissions Calculations (continued)

Parameter	Existing Conditions	Future Scenarios		
		1	2	3
		Permitted Current	Permitted Future (Expansion Only)	Permitted Future (Expansion with Energy Recovery)
Natural Gas (NG)				
NG combustion method			Small Boiler	Microturbines
Methane Content of ALL gas sent to Microturbines				50%
Fraction of CH4 in Gas			75%	75%
NG combusted (cubic feet per day)			89,254	62,400
NG combusted (MMBTU/day)			89	62
NG combusted (MMBTU/year)			32,600	22,792
lb VOC/day (3)			0.47	0.13
lb NOX/day (3)			8.62	19.97
lb CO/day (3)			7.24	5.12
lb PM10/day (3)			0.49	0.29
lb PM2.5/day (3)			0.16	0.12
MTCO2/year (3)			1,712.79	1,137.19
MTCH4/year (3)			0.03	0.09
MTN2O/year (3)			0.03	0.03
Percent of energy use from DG/TG			65%	23%
Percent of energy use from NG			35%	77%
Wastewater Treatment Processes - Emissions Summary				
lb VOC/day	16.55	22.14	27.97	27.97
lb NOX/day	3.01	4.03	5.09	5.09
lb CO/day	0.22	0.29	0.37	0.37
lb PM10/day	0.03	0.04	0.06	0.06
lb PM2.5/day	0.03	0.04	0.06	0.06
MTCO2/year	0.00	0.00	0.00	0.00
MTCH4/year	0.00	0.00	0.00	0.00
MTN2O/year	4.58	6.13	7.53	7.53
Flaring/Turbine - Emissions Summary				
lb VOC/day			10.88	0.24
lb NOX/day			19.84	22.92
lb CO/day			68.33	5.43
lb PM10/day			0.49	0.51
lb PM2.5/day			0.16	0.12
MTCO2/year	-205.60	-275.10	1,712.79	1,137.19
MTCH4/year	72.86	97.49	2.14	1.45
MTN2O/year	0.00	0.00	0.03	0.04

WAS = Waste Activated Sludge. WRSL = Western Regional Sanitary Landfill. WRSL currently captures landfill gas and converts it to electricity.

Source: (1) ARB Local Government Operations Protocol (Version 1.1), (2) ARB 2014 Facility Emissions Data (https://www.arb.ca.gov/ei/areasrc/pointsources.htm), (3) EPA AP-42 Emission Factors https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s01.pdf, assumes that tail and digester gas have similar criteria pollutant emissions. No PM emission factors were available for flared digester gas., (4) Biogenic CO2 not included in emissions inventory.

WWTP Process Emissions Calculations (continued)

WWTP Process Emissions Equations from ARB's Local Government Protocol

Equation 10.1	Stationary CH_4 from Incomplete Combustion of Digester Gas (site-specific digester gas data)
Annual CH_4 emissions (metric tons CO_2e) = (Digester Gas x F_{CH4} x $\rho(CH_4)$ x (1-DE) x 0.0283 x 365.25 x 10^{-6}) x GWP	

Where:

Term		Description	Value
Digester Gas	=	measured standard cubic feet of digester gas produced per day [ft^3/day]	user input
F CH_4	=	measured fraction of CH_4 in biogas	user input
$p(CH_4)$	=	density of methane at standard conditions [g/m^3]	662.00
DE	=	CH_4 Destruction Efficiency	.99
0.0283	=	conversion from ft^3 to m^3 [m^3/ft^3]	0.0283
365.25	=	conversion factor [day/year]	365.25
10^{-6}	=	conversion from g to metric ton [metric ton/g]	10^{-6}
GWP	=	Global Warming Potential	21

Source: EPA *Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2007*, Chapter 8, 8-7 (2009).

10.3.2.1 Process Emissions from WWTP with Nitrification/Denitrification

Equation 10.7	Process N_2O Emissions from WWTP with Nitrification/Denitrification
Annual N_2O emissions (metric tons CO_2e) = ((P_{total} x $F_{ind-com}$) x EF nit/denit x 10^{-6}) x GWP	

Where:

Term		Description	Value
P_{total}	=	total population that is served by the centralized WWTP adjusted for industrial discharge, if applicable [person]	user input
$F_{ind-com}$	=	factor for industrial and commercial co-discharge waste into the sewer system	1.25
EF nit/denit	=	emission factor for a WWTP with nitrification/denitrification [g N_2O/person/year]	7
10^{-6}	=	conversion from g to metric ton [metric ton/g]	10^{-6}
GWP	=	N_2O Global Warming Potential	310

Source: EPA *Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2007*, Chapter 8, 8-13 (2009).

WWTP Process Emissions Calculations (continued)

WWTP Process Emissions Equations from ARB's Local Government Protocol (Continued)

Equation 10.10	Process N_2O Emissions from Effluent Discharge (default N load data)

Annual N_2O emissions (metric tons CO_2e) =

$((P_{total} \times F_{ind\text{-}com}) \times (\text{Total N Load} - \text{N uptake} \times BOD_5 \text{ load}) \times \text{EF effluent} \times 44/28 \times (1 - \text{F plant nit/denit}) \times 365.25 \times 10^{-3}) \times GWP$

Where:

Term		Description	Value
P_{total}	=	population served [person]	user input
$F_{ind\text{-}com}$	=	factor for industrial and commercial co-discharge waste into the sewer system	1.25
Total N Load[27]	=	total nitrogen load [kg N/person/day]	0.026
N uptake[28]	=	nitrogen uptake for cell growth in aerobic system (kg N/kg BOD_5)	0.05[1]
	=	nitrogen uptake for cell growth in anaerobic system (e.g., lagoon) (kg N/kg BOD_5)	0.005[1]
BOD_5 load	=	amount of BOD_5 produced per person per day [kg BOD_5/person/day]	0.090
EF effluent	=	emission factor [kg N_2O-N/kg sewage-N produced]	0.005
44/28	=	molecular weight ratio of N_2O to N_2	1.57
F plant nit/denit	=	fraction of nitrogen removed for the centralized WWTP with nitrification/denitrification	0.7[1]
	=	fraction of nitrogen removed for the centralized WWTP w/o nitrification/denitrification	0.0[1]
365.25	=	conversion factor [day/year]	365.25
10^{-3}	=	conversion from kg to metric ton [metric ton/kg]	10^{-3}
GWP	=	Global Warming Potential	310

Source: EPA *Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2007*, Chapter 8, 8-13 (2009), except:
[1] Grady, C. P. L., Jr., G. T. Daigger, and H. C. Lim, *Biological Wastewater Treatment*, p. 108-109, 644 2nd Edition (1999).

WWTP Process Emissions Calculations (continued)

AP-42 Emission Factors

AP-42 Gas Turbine Emission Factors for Digester Gas Turbines (lb/MMBTU)	
VOC	0.006
NOx	0.160
PM10	0.012
CO	0.017

Source: EPA AP-42 Emission Factors (for an uncontrolled turbine)

AP-42 Gas Turbine Emission Factors for Natural Gas Turbines (lb/MMBTU)	
VOC	0.0021
NOX	0.32
CO	0.082
Condensable PM (PM10)	0.0047
Filterable PM (PM2.5)	0.0019
CO2	110
CH4	0.0086
N2O	0.003

Source: EPA AP-42 Emission Factors (for an uncontrolled turbine)

AP-42 Gas Turbine Emission Factors for Natural Gas Combustion in Boilers		
	lb/million scf	lb/MMBTU
VOC	5.5	0.005
NOX (uncontrolled - small boiler)	100	0.097
CO (uncontrolled - small boiler)	84	0.081
Condensable PM (PM10)	5.7	0.006
Filterable PM (PM2.5)	1.9	0.002
CO2	120000	115.830
CH4	2.3	0.002
N2O	2.2	0.002

Source: EPA AP-42 Emission Factors

AP-42 Emission Factors for Flares (based on synthetic waste gas)		
	lb/MMBTU	
VOC	0.063	Total hydrocarbons x % non-methane
NOX	0.068	
CO	0.37	
CH4	0.077	Total hydrocarbons x % methane

Source: EPA AP-42 Emission Factors

Note: Flared emission factors based on tests using crude propylene containing 80% propylene and 20% propane. Emissions from flaring of digester gas may vary. Also, EPA states: "Oxides of sulfur (SOX) will only appear in a significant quantity if heavy oils are fired in the turbine." Thus, no SOX emissions are assumed from turbine or flaring operations

WWTP Process Emissions Calculations (Continued)

Process Emissions Summary

	Maximum Daily Emissions					Annual Emissions								
	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	tons/ year	tons/ year	tons/ year	tons/ year	tons/ year	MT/Year	MT/Year	MT/Year	MT/Year
Scenario	**ROG**	**NOX**	**CO**	**PM10**	**PM2.5**	**ROG**	**NOX**	**CO**	**PM10**	**PM2.5**	**CO2**	**CH4**	**N2O**	**CO2e**
Existing Conditions	**16.548**	**3.014**	**0.219**	**0.033**	**0.033**	**3.022**	**0.550**	**0.040**	**0.006**	**0.006**	**-205.602**	**72.859**	**4.575**	**2,979.365**
Wastewater Treatment Processes	16.548	3.014	0.219	0.033	0.033	3.022	0.550	0.040	0.006	0.006	0.000	0.000	4.578	1,364.223
Emissions from Landfilled WAS at WRSL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-205.602	72.859	-0.002	1,615.142
Permitted Future (Expansion Only)	**38.844**	**24.936**	**68.698**	**0.547**	**0.219**	**7.094**	**4.554**	**12.546**	**0.100**	**0.040**	**1,712.793**	**2.139**	**7.561**	**4,019.468**
Wastewater Treatment Processes	27.968	5.094	0.370	0.056	0.055	5.108	0.930	0.068	0.010	0.010	0.000	0.000	7.530	2,243.839
Flare/Boiler	10.876	19.843	68.328	0.491	0.164	1.986	3.624	12.478	0.090	0.030	1,712.793	2.139	0.031	1,775.629
Permitted Future (Expansion with Energy Recovery)	**28.207**	**28.016**	**5.801**	**0.570**	**0.174**	**5.151**	**5.116**	**1.059**	**0.104**	**0.032**	**1,137.191**	**1.455**	**7.570**	**3,429.374**
Wastewater Treatment Processes	27.968	5.094	0.370	0.056	0.055	5.108	0.930	0.068	0.010	0.010	0.000	0.000	**7.530**	2,243.839
Gas Turbine	0.238	22.922	5.431	0.515	0.119	0.044	4.186	0.992	0.094	0.022	1,137.191	1.455	0.040	1,185.535

Process Emissions Summary - Difference from Existing

	Maximum Daily Emissions					Annual Emissions								
	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	tons/ year	tons/ year		tons/ year	tons/ year	MT/Year	MT/Year	MT/Year	MT/Year
Scenario	**ROG**	**NOX**	**CO**	**PM10**	**PM2.5**	**ROG**	**NOX**		**PM10**	**PM2.5**	**CO2**	**CH4**	**N2O**	**CO2e**
Permitted Future (Expansion Only)	**22.296**	**21.923**	**68.479**	**0.514**	**0.186**	**4.072**	**4.004**	**12.506**	**0.094**	**0.034**	**1,918.395**	**-70.720**	**2.986**	**1,040.103**
Wastewater Treatment Processes	11.420	2.080	0.151	0.023	0.022	2.086	0.380	0.028	0.004	0.004	0.000	0.000	2.952	879.616
Flare/Boiler	10.876	19.843	68.328	0.491	0.164	1.986	3.624	12.478	0.090	0.030	1,918.395	-70.720	0.034	160.487
Permitted Future (Expansion with Energy Recovery)	**11.659**	**25.002**	**5.582**	**0.538**	**0.141**	**2.129**	**4.566**	**1.019**	**0.098**	**0.026**	**1,342.792**	**-71.405**	**2.994**	**450.009**
Wastewater Treatment Processes	11.420	2.080	0.151	0.023	0.022	2.086	0.380	0.028	0.004	0.004	0.000	0.000	2.952	879.616
Gas Turbine	0.238	22.922	5.431	0.515	0.119	0.044	4.186	0.992	0.094	0.022	1,342.792	-71.405	0.043	-429.607

Assumptions

Category	Value	Notes	Source
Conversions			
g/lb	453.592		
g/MT	1000000		
g/ton	907185		
lb/MT	2204.622622		
kg/MT	1000		
kWh/MWh	1000		
MWh/GWh	1000		
Btu/therm	100000		
MMBtu/therm	0.1		
therm/scf	0.01		
gal diesel/MMBTU diesel	7.194244604		Engineering Toolbox
BTU/f3	1036	Natural gas	
BTU/f3	546	Digester Gas (60% methane) - LHV	Table 11-2. Energy Recovery Basis of Design Report. (Nov 2016)
BTU/f3	865	Digester Gas for Vehicles (95% methane) - LHV	Table 11-2. Energy Recovery Basis of Design Report. (Nov 2016)
BTU/f3	259	Tail Gas for Microturbines (28% methane) - LHV	Table 11-2. Energy Recovery Basis of Design Report. (Nov 2016)
MMBTU/scf	0.000546	Digester Gas (60% methane) - LHV	converted
MMBTU/scf	0.000865	Digester Gas for Vehicles (95% methane) - LHV	converted
MMBTU/scf	0.000259	Tail Gas for Microturbines (28% methane) - LHV	converted
gal/cubic foot	7.480519481		
gal/Liter	3.785411784		
gallon/acrefoot	325851.429		
GWP			
CO2	1		
CH4	25	100 year lifespan.	IPCC Fourth Assessment Report - Chapter 8. Table 8.7
N2O	298	100 year lifespan.	IPCC Fourth Assessment Report - Chapter 8. Table 8.7
Energy Emission Factors	**Value**	**Notes**	**Source**
lbs CO2/MWh	434.92	Electricity (2014 PGE EF)	The Climate Registry 2016
MT CO2/MWh	0.197	Electricity (2014 PGE EF)	Calculated
lb CH4/GWh	31.12	Electricity (22.7% renewable)	eGrid 2012 (Updated October 2015) https://www.epa.gov/energy/egrid-faq/ State-wide RPS percent from CPUC 2016 for 2013.
lb N2O/GWh	5.67	Electricity (22.7% renewable)	
MT CO2/MWh	0.197	Electricity - 2014 (28% renewable)	CPUC 2016 http://www.cpuc.ca.gov/RPS_Homepage/
MT CO2/MWh	0.173	Electricity - 2020 (37% renewable)	CPUC 2016 (PGE is under a 37% RPS contract by 2020)
MT CH4/MWh	1.15E-05	Electricity (37% renewable)	Calculated from eGrid 2012 assuming eGrid factors are
MT N2O/MWh	2.10E-06	Electricity (37% renewable)	represented by 22.7% renewables
lbs CO2/MWh	434.92	Electricity - 2014 (28% renewable)	Calculated
lbs CO2/MWh	380.56	Electricity - 2020 (37% renewable)	Calculated
lb CH4/MWh	0.027	Electricity (37% renewable)	Calculated
lb N2O/MWh	0.00499	Electricity (37% renewable)	Calculated

Pleasant Grove WWTP Expansion

Placer-Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	21.34	1000sqft	0.49	21,902.00	0
Unrefrigerated Warehouse-No Rail	12.72	1000sqft	0.29	12,723.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	74
Climate Zone	2			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	380.56	**CH4 Intensity (lb/MWhr)**	0.027	**N2O Intensity (lb/MWhr)**	0.005

1.3 User Entered Comments & Non-Default Data

Pleasant Grove WWTP Expansion - Placer-Sacramento County, Annual

Project Characteristics - 2020 system average PG&E emissions based on 2014 emission factors from The Climate Registry and a 22.7% renewable portfolio reported by CPUC (http://www.cpuc.ca.gov/RPS_Homepage/). Assumes a 37% renewable mix by 2020 based on PGE contract with the state.

Land Use - Land use input based on data request and project description.

Construction Phase - Data request shows that equipment pieces may only be operated during a portion of a phase's schedule. As a conservative approach, all equipment in each phase is assumed to operate during the entire phase period.

Off-road Equipment - Based on Pleasant Grove Data Request

Off-road Equipment - Based on Pleasant Grove Data Request

Off-road Equipment - Trenching activity

Off-road Equipment - Based on Pleasant Grove Data Request

Off-road Equipment - Based on Pleasant Grove Data Request

Trips and VMT - Haul lengths for imported fill from Data Request. Haul lengths for demo based on distance from PGWWTP to WRSL. Haul trips for grading and building construction from data request.

Demolition - Asphalt removed for misc trenching within existing paved areas

Grading - Based on Pleasant Grove project description

Architectural Coating - Arch coating sqft based on project building types. Not all may require interior painting.

Vehicle Trips - Mobile calculated seperately

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Consumer Products - Assume no consumer products at WWTP.

Area Coating - Arch coating sqft based on project building types. Not all may require interior painting.

Energy Use - Energy use calculated seperately.

Water And Wastewater - Calculated seperately.

Solid Waste - Calculated seperately.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	17,313.00	17,032.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	51,938.00	10,560.00
tblAreaCoating	Area_Nonresidential_Exterior	17313	17032

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tblAreaCoating	Area_Nonresidential_Interior	51938	10560
tblConstructionPhase	NumDays	5.00	180.00
tblConstructionPhase	NumDays	100.00	391.00
tblConstructionPhase	NumDays	10.00	4.00
tblConstructionPhase	NumDays	2.00	59.00
tblConstructionPhase	NumDays	5.00	1.00
tblConstructionPhase	PhaseEndDate	6/9/2020	10/11/2019
tblConstructionPhase	PhaseEndDate	9/30/2019	7/17/2019
tblConstructionPhase	PhaseEndDate	10/1/2019	2/1/2019
tblConstructionPhase	PhaseEndDate	3/30/2018	1/16/2018
tblConstructionPhase	PhaseStartDate	10/2/2019	2/2/2019
tblConstructionPhase	PhaseStartDate	3/31/2018	1/17/2018
tblConstructionPhase	PhaseStartDate	10/1/2019	2/1/2019
tblConstructionPhase	PhaseStartDate	12/28/2017	10/15/2017
tblGrading	AcresOfGrading	25.81	6.10
tblGrading	MaterialExported	0.00	6,000.00
tblGrading	MaterialImported	0.00	34,000.00
tblLandUse	BuildingSpaceSquareFeet	21,340.00	21,902.00
tblLandUse	BuildingSpaceSquareFeet	12,720.00	12,723.00
tblLandUse	LandUseSquareFeet	21,340.00	21,902.00
tblLandUse	LandUseSquareFeet	12,720.00	12,723.00
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	130.00	125.00
tblOffRoadEquipment	HorsePower	247.00	255.00
tblOffRoadEquipment	HorsePower	247.00	200.00
tblOffRoadEquipment	HorsePower	158.00	162.00
tblOffRoadEquipment	HorsePower	158.00	162.00

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tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	HorsePower	402.00	380.00
tblOffRoadEquipment	HorsePower	402.00	400.00
tblOffRoadEquipment	HorsePower	78.00	80.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	2.00
tblOffRoadEquipment	UsageHours	6.00	2.00
tblOffRoadEquipment	UsageHours	7.00	7.50
tblOffRoadEquipment	UsageHours	7.00	7.50
tblOffRoadEquipment	UsageHours	1.00	7.50
tblOffRoadEquipment	UsageHours	6.00	4.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.027
tblProjectCharacteristics	CO2IntensityFactor	641.35	380.56
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	HaulingTripLength	20.00	5.60

tblTripsAndVMT	HaulingTripLength	20.00	9.00
tblTripsAndVMT	HaulingTripNumber	9.00	0.00
tblTripsAndVMT	HaulingTripNumber	5,000.00	0.00
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblVehicleTrips	CC_TL	7.30	6.60
tblVehicleTrips	CC_TL	7.30	6.60
tblVehicleTrips	CNW_TL	7.30	6.60
tblVehicleTrips	CNW_TL	7.30	6.60
tblVehicleTrips	CW_TL	9.50	14.70
tblVehicleTrips	CW_TL	9.50	14.70
tblWater	IndoorWaterUseRate	4,934,875.00	0.00
tblWater	IndoorWaterUseRate	2,941,500.00	0.00

2.0 Emissions Summary

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					
2017	0.1972	2.0489	1.0489	2.2000e-003	0.3514	0.0968	0.4483	0.1871	0.0893	0.2764	0.0000	202.9848	202.9848	0.0581	0.0000	204.4380
2018	0.0871	0.7122	0.4468	1.0500e-003	0.0278	0.0320	0.0598	7.5000e-003	0.0301	0.0376	0.0000	92.6258	92.6258	0.0162	0.0000	93.0305
2019	0.1242	0.4699	0.3508	7.9000e-004	0.0189	0.0229	0.0418	5.0800e-003	0.0220	0.0271	0.0000	69.0955	69.0955	0.0101	0.0000	69.3477
Maximum	**0.1972**	**2.0489**	**1.0489**	**2.2000e-003**	**0.3514**	**0.0968**	**0.4483**	**0.1871**	**0.0893**	**0.2764**	**0.0000**	**202.9848**	**202.9848**	**0.0581**	**0.0000**	**204.4380**

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					
2017	0.1972	2.0489	1.0489	2.2000e-003	0.3514	0.0968	0.4483	0.1871	0.0893	0.2764	0.0000	202.9845	202.9845	0.0581	0.0000	204.4378
2018	0.0871	0.7122	0.4468	1.0500e-003	0.0278	0.0320	0.0598	7.5000e-003	0.0301	0.0376	0.0000	92.6258	92.6258	0.0162	0.0000	93.0305
2019	0.1242	0.4699	0.3508	7.9000e-004	0.0189	0.0229	0.0418	5.0800e-003	0.0220	0.0271	0.0000	69.0955	69.0955	0.0101	0.0000	69.3477
Maximum	**0.1972**	**2.0489**	**1.0489**	**2.2000e-003**	**0.3514**	**0.0968**	**0.4483**	**0.1871**	**0.0893**	**0.2764**	**0.0000**	**202.9845**	**202.9845**	**0.0581**	**0.0000**	**204.4378**

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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	N20	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**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**10-1-2017**	**12-31-2017**	2.2577	2.2577
2	**1-1-2018**	**3-31-2018**	0.1910	0.1910
3	**4-1-2018**	**6-30-2018**	0.2008	0.2008
4	**7-1-2018**	**9-30-2018**	0.2030	0.2030
5	**10-1-2018**	**12-31-2018**	0.2039	0.2039
6	**1-1-2019**	**3-31-2019**	0.2275	0.2275
7	**4-1-2019**	**6-30-2019**	0.2511	0.2511
8	**7-1-2019**	**9-30-2019**	0.1042	0.1042
		Highest	2.2577	2.2577

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	0.1417	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.1000e-004	6.1000e-004	0.0000	0.0000	6.5000e-004
Energy	2.6300e-003	0.0239	0.0201	1.4000e-004		1.8200e-003	1.8200e-003		1.8200e-003	1.8200e-003	0.0000	68.8901	68.8901	3.5400e-003	1.0400e-003	69.2886
Mobile	0.0215	0.1572	0.2797	1.0400e-003	0.0767	1.1400e-003	0.0778	0.0206	1.0800e-003	0.0217	0.0000	95.1798	95.1798	3.5500e-003	0.0000	95.2686
Waste						0.0000	0.0000		0.0000	0.0000	7.7989	0.0000	7.7989	0.4609	0.0000	19.3215
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1658**	**0.1811**	**0.3001**	**1.1800e-003**	**0.0767**	**2.9600e-003**	**0.0796**	**0.0206**	**2.9000e-003**	**0.0235**	**7.7989**	**164.0706**	**171.8695**	**0.4680**	**1.0400e-003**	**183.8794**

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	0.1417	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.1000e-004	6.1000e-004	0.0000	0.0000	6.5000e-004
Energy	2.6300e-003	0.0239	0.0201	1.4000e-004		1.8200e-003	1.8200e-003		1.8200e-003	1.8200e-003	0.0000	68.8901	68.8901	3.5400e-003	1.0400e-003	69.2886
Mobile	0.0215	0.1572	0.2797	1.0400e-003	0.0767	1.1400e-003	0.0778	0.0206	1.0800e-003	0.0217	0.0000	95.1798	95.1798	3.5500e-003	0.0000	95.2686
Waste						0.0000	0.0000		0.0000	0.0000	7.7989	0.0000	7.7989	0.4609	0.0000	19.3215
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1658**	**0.1811**	**0.3001**	**1.1800e-003**	**0.0767**	**2.9600e-003**	**0.0796**	**0.0206**	**2.9000e-003**	**0.0235**	**7.7989**	**164.0706**	**171.8695**	**0.4680**	**1.0400e-003**	**183.8794**

	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	N20	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

Pleasant Grove WWTP Expansion - Placer-Sacramento County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	01_Demolition	Demolition	10/1/2017	10/5/2017	5	4	4
2	02_Grading	Grading	10/6/2017	12/27/2017	5	59	59
3	03_Trenching	Trenching	10/15/2017	1/16/2018	5	67	67
4	04_Building Construction	Building Construction	1/17/2018	7/17/2019	5	391	391
5	05_Paving	Paving	2/1/2019	2/1/2019	5	1	1
6	06_Architectural Coating	Architectural Coating	2/2/2019	10/11/2019	5	180	180

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 10,560; Non-Residential Outdoor: 17,032; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Pleasant Grove WWTP Expansion - Placer-Sacramento County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
01_Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
01_Demolition	Excavators	1	4.00	162	0.38
01_Demolition	Off-Highway Trucks	1	4.00	380	0.38
01_Demolition	Rubber Tired Dozers	0	1.00	255	0.40
01_Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37
02_Grading	Concrete/Industrial Saws	0	8.00	81	0.73
02_Grading	Excavators	1	7.00	162	0.38
02_Grading	Generator Sets	1	2.00	84	0.74
02_Grading	Graders	1	7.00	174	0.41
02_Grading	Off-Highway Trucks	4	6.00	400	0.38
02_Grading	Rubber Tired Dozers	2	7.50	200	0.40
02_Grading	Tractors/Loaders/Backhoes	1	4.00	97	0.37
03_Trenching	Plate Compactors	1	4.00	8	0.43
03_Trenching	Tractors/Loaders/Backhoes	1	6.00	97	0.37
03_Trenching	Trenchers	1	4.00	80	0.50
04_Building Construction	Cement and Mortar Mixers	1	2.00	9	0.56
04_Building Construction	Cranes	1	4.00	226	0.29
04_Building Construction	Forklifts	1	2.00	89	0.20
04_Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
04_Building Construction	Welders	1	4.00	46	0.45
05_Paving	Cement and Mortar Mixers	0	6.00	9	0.56
05_Paving	Pavers	1	7.50	125	0.42
05_Paving	Rollers	2	7.50	80	0.38
05_Paving	Tractors/Loaders/Backhoes	0	7.00	97	0.37
06_Architectural Coating	Air Compressors	2	2.00	78	0.48

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
01_Demolition	2	5.00	0.00	0.00	16.80	6.60	5.60	LD_Mix	HDT_Mix	HHDT
02_Grading	10	25.00	0.00	0.00	16.80	6.60	9.00	LD_Mix	HDT_Mix	HHDT
03_Trenching	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
04_Building Construction	4	15.00	6.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
05_Paving	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
06_Architectural Coating	2	3.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 01_Demolition - 2017

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					1.0200e-003	0.0000	1.0200e-003	1.5000e-004	0.0000	1.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1900e-003	0.0134	7.8700e-003	2.0000e-005		5.4000e-004	5.4000e-004		5.0000e-004	5.0000e-004	0.0000	1.6495	1.6495	5.1000e-004	0.0000	1.6622
Total	**1.1900e-003**	**0.0134**	**7.8700e-003**	**2.0000e-005**	**1.0200e-003**	**5.4000e-004**	**1.5600e-003**	**1.5000e-004**	**5.0000e-004**	**6.5000e-004**	**0.0000**	**1.6495**	**1.6495**	**5.1000e-004**	**0.0000**	**1.6622**

3.2 01_Demolition - 2017

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	7.0000e-005	5.0000e-005	5.4000e-004	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1144	0.1144	0.0000	0.0000	0.1145
Total	**7.0000e-005**	**5.0000e-005**	**5.4000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1144**	**0.1144**	**0.0000**	**0.0000**	**0.1145**

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					1.0200e-003	0.0000	1.0200e-003	1.5000e-004	0.0000	1.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1900e-003	0.0134	7.8700e-003	2.0000e-005		5.4000e-004	5.4000e-004		5.0000e-004	5.0000e-004	0.0000	1.6495	1.6495	5.1000e-004	0.0000	1.6622
Total	**1.1900e-003**	**0.0134**	**7.8700e-003**	**2.0000e-005**	**1.0200e-003**	**5.4000e-004**	**1.5600e-003**	**1.5000e-004**	**5.0000e-004**	**6.5000e-004**	**0.0000**	**1.6495**	**1.6495**	**5.1000e-004**	**0.0000**	**1.6622**

3.2 01_Demolition - 2017

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	7.0000e-005	5.0000e-005	5.4000e-004	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1144	0.1144	0.0000	0.0000	0.1145
Total	**7.0000e-005**	**5.0000e-005**	**5.4000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1144**	**0.1144**	**0.0000**	**0.0000**	**0.1145**

3.3 02_Grading - 2017

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					0.3386	0.0000	0.3386	0.1838	0.0000	0.1838	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1751	1.8994	0.8982	1.9400e-003		0.0863	0.0863		0.0796	0.0796	0.0000	179.4670	179.4670	0.0541	0.0000	180.8182
Total	**0.1751**	**1.8994**	**0.8982**	**1.9400e-003**	**0.3386**	**0.0863**	**0.4249**	**0.1838**	**0.0796**	**0.2634**	**0.0000**	**179.4670**	**179.4670**	**0.0541**	**0.0000**	**180.8182**

3.3 02_Grading - 2017

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	4.8800e-003	3.9200e-003	0.0397	9.0000e-005	9.0000e-003	6.0000e-005	9.0700e-003	2.4000e-003	6.0000e-005	2.4500e-003	0.0000	8.4351	8.4351	2.7000e-004	0.0000	8.4418
Total	**4.8800e-003**	**3.9200e-003**	**0.0397**	**9.0000e-005**	**9.0000e-003**	**6.0000e-005**	**9.0700e-003**	**2.4000e-003**	**6.0000e-005**	**2.4500e-003**	**0.0000**	**8.4351**	**8.4351**	**2.7000e-004**	**0.0000**	**8.4418**

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					0.3386	0.0000	0.3386	0.1838	0.0000	0.1838	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1751	1.8994	0.8982	1.9400e-003		0.0863	0.0863		0.0796	0.0796	0.0000	179.4668	179.4668	0.0541	0.0000	180.8180
Total	**0.1751**	**1.8994**	**0.8982**	**1.9400e-003**	**0.3386**	**0.0863**	**0.4249**	**0.1838**	**0.0796**	**0.2634**	**0.0000**	**179.4668**	**179.4668**	**0.0541**	**0.0000**	**180.8180**

3.3 02_Grading - 2017

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	4.8800e-003	3.9200e-003	0.0397	9.0000e-005	9.0000e-003	6.0000e-005	9.0700e-003	2.4000e-003	6.0000e-005	2.4500e-003	0.0000	8.4351	8.4351	2.7000e-004	0.0000	8.4418
Total	**4.8800e-003**	**3.9200e-003**	**0.0397**	**9.0000e-005**	**9.0000e-003**	**6.0000e-005**	**9.0700e-003**	**2.4000e-003**	**6.0000e-005**	**2.4500e-003**	**0.0000**	**8.4351**	**8.4351**	**2.7000e-004**	**0.0000**	**8.4418**

3.4 03_Trenching - 2017

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	0.0145	0.1310	0.0908	1.2000e-004		9.9300e-003	9.9300e-003		9.1500e-003	9.1500e-003	0.0000	10.8026	10.8026	3.2200e-003	0.0000	10.8831
Total	**0.0145**	**0.1310**	**0.0908**	**1.2000e-004**		**9.9300e-003**	**9.9300e-003**		**9.1500e-003**	**9.1500e-003**	**0.0000**	**10.8026**	**10.8026**	**3.2200e-003**	**0.0000**	**10.8831**

3.4 03_Trenching - 2017

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	1.4600e-003	1.1700e-003	0.0118	3.0000e-005	2.6900e-003	2.0000e-005	2.7000e-003	7.1000e-004	2.0000e-005	7.3000e-004	0.0000	2.5162	2.5162	8.0000e-005	0.0000	2.5182
Total	**1.4600e-003**	**1.1700e-003**	**0.0118**	**3.0000e-005**	**2.6900e-003**	**2.0000e-005**	**2.7000e-003**	**7.1000e-004**	**2.0000e-005**	**7.3000e-004**	**0.0000**	**2.5162**	**2.5162**	**8.0000e-005**	**0.0000**	**2.5182**

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	0.0145	0.1310	0.0908	1.2000e-004		9.9300e-003	9.9300e-003		9.1500e-003	9.1500e-003	0.0000	10.8026	10.8026	3.2200e-003	0.0000	10.8831
Total	**0.0145**	**0.1310**	**0.0908**	**1.2000e-004**		**9.9300e-003**	**9.9300e-003**		**9.1500e-003**	**9.1500e-003**	**0.0000**	**10.8026**	**10.8026**	**3.2200e-003**	**0.0000**	**10.8831**

3.4 03_Trenching - 2017

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	1.4600e-003	1.1700e-003	0.0118	3.0000e-005	2.6900e-003	2.0000e-005	2.7000e-003	7.1000e-004	2.0000e-005	7.3000e-004	0.0000	2.5162	2.5162	8.0000e-005	0.0000	2.5182
Total	**1.4600e-003**	**1.1700e-003**	**0.0118**	**3.0000e-005**	**2.6900e-003**	**2.0000e-005**	**2.7000e-003**	**7.1000e-004**	**2.0000e-005**	**7.3000e-004**	**0.0000**	**2.5162**	**2.5162**	**8.0000e-005**	**0.0000**	**2.5182**

3.4 03_Trenching - 2018

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	2.7100e-003	0.0251	0.0193	3.0000e-005		1.8200e-003	1.8200e-003		1.6800e-003	1.6800e-003	0.0000	2.3186	2.3186	7.0000e-004	0.0000	2.3362
Total	**2.7100e-003**	**0.0251**	**0.0193**	**3.0000e-005**		**1.8200e-003**	**1.8200e-003**		**1.6800e-003**	**1.6800e-003**	**0.0000**	**2.3186**	**2.3186**	**7.0000e-004**	**0.0000**	**2.3362**

3.4 03_Trenching - 2018

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	2.8000e-004	2.2000e-004	2.2400e-003	1.0000e-005	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5332	0.5332	2.0000e-005	0.0000	0.5336
Total	**2.8000e-004**	**2.2000e-004**	**2.2400e-003**	**1.0000e-005**	**5.9000e-004**	**0.0000**	**5.9000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.5332**	**0.5332**	**2.0000e-005**	**0.0000**	**0.5336**

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	2.7100e-003	0.0251	0.0193	3.0000e-005		1.8200e-003	1.8200e-003		1.6800e-003	1.6800e-003	0.0000	2.3186	2.3186	7.0000e-004	0.0000	2.3362
Total	**2.7100e-003**	**0.0251**	**0.0193**	**3.0000e-005**		**1.8200e-003**	**1.8200e-003**		**1.6800e-003**	**1.6800e-003**	**0.0000**	**2.3186**	**2.3186**	**7.0000e-004**	**0.0000**	**2.3362**

3.4 03_Trenching - 2018

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	2.8000e-004	2.2000e-004	2.2400e-003	1.0000e-005	5.9000e-004	0.0000	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5332	0.5332	2.0000e-005	0.0000	0.5336
Total	**2.8000e-004**	**2.2000e-004**	**2.2400e-003**	**1.0000e-005**	**5.9000e-004**	**0.0000**	**5.9000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.5332**	**0.5332**	**2.0000e-005**	**0.0000**	**0.5336**

3.5 04_Building Construction - 2018

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	0.0696	0.5806	0.3166	5.8000e-004		0.0294	0.0294		0.0277	0.0277	0.0000	49.5635	49.5635	0.0137	0.0000	49.9068
Total	**0.0696**	**0.5806**	**0.3166**	**5.8000e-004**		**0.0294**	**0.0294**		**0.0277**	**0.0277**	**0.0000**	**49.5635**	**49.5635**	**0.0137**	**0.0000**	**49.9068**

3.5 04_Building Construction - 2018

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	3.5400e-003	0.0977	0.0214	2.1000e-004	4.4100e-003	6.6000e-004	5.0700e-003	1.2800e-003	6.3000e-004	1.9000e-003	0.0000	19.4639	19.4639	1.1400e-003	0.0000	19.4925
Worker	0.0109	8.6000e-003	0.0872	2.3000e-004	0.0228	1.5000e-004	0.0230	6.0700e-003	1.4000e-004	6.2100e-003	0.0000	20.7466	20.7466	5.9000e-004	0.0000	20.7614
Total	**0.0144**	**0.1063**	**0.1086**	**4.4000e-004**	**0.0272**	**8.1000e-004**	**0.0280**	**7.3500e-003**	**7.7000e-004**	**8.1100e-003**	**0.0000**	**40.2105**	**40.2105**	**1.7300e-003**	**0.0000**	**40.2539**

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	0.0696	0.5806	0.3166	5.8000e-004		0.0294	0.0294		0.0277	0.0277	0.0000	49.5634	49.5634	0.0137	0.0000	49.9067
Total	**0.0696**	**0.5806**	**0.3166**	**5.8000e-004**		**0.0294**	**0.0294**		**0.0277**	**0.0277**	**0.0000**	**49.5634**	**49.5634**	**0.0137**	**0.0000**	**49.9067**

3.5 04_Building Construction - 2018

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	3.5400e-003	0.0977	0.0214	2.1000e-004	4.4100e-003	6.6000e-004	5.0700e-003	1.2800e-003	6.3000e-004	1.9000e-003	0.0000	19.4639	19.4639	1.1400e-003	0.0000	19.4925
Worker	0.0109	8.6000e-003	0.0872	2.3000e-004	0.0228	1.5000e-004	0.0230	6.0700e-003	1.4000e-004	6.2100e-003	0.0000	20.7466	20.7466	5.9000e-004	0.0000	20.7614
Total	**0.0144**	**0.1063**	**0.1086**	**4.4000e-004**	**0.0272**	**8.1000e-004**	**0.0280**	**7.3500e-003**	**7.7000e-004**	**8.1100e-003**	**0.0000**	**40.2105**	**40.2105**	**1.7300e-003**	**0.0000**	**40.2539**

3.5 04_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	0.0351	0.2982	0.1705	3.3000e-004		0.0146	0.0146		0.0137	0.0137	0.0000	27.9296	27.9296	7.6700e-003	0.0000	28.1213
Total	**0.0351**	**0.2982**	**0.1705**	**3.3000e-004**		**0.0146**	**0.0146**		**0.0137**	**0.0137**	**0.0000**	**27.9296**	**27.9296**	**7.6700e-003**	**0.0000**	**28.1213**

3.5 04_Building Construction - 2019

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	1.7800e-003	0.0526	0.0109	1.2000e-004	2.5200e-003	3.0000e-004	2.8200e-003	7.3000e-004	2.9000e-004	1.0200e-003	0.0000	11.0060	11.0060	6.2000e-004	0.0000	11.0215
Worker	5.6300e-003	4.3100e-003	0.0445	1.3000e-004	0.0130	8.0000e-005	0.0131	3.4600e-003	8.0000e-005	3.5400e-003	0.0000	11.4765	11.4765	3.0000e-004	0.0000	11.4841
Total	**7.4100e-003**	**0.0569**	**0.0554**	**2.5000e-004**	**0.0155**	**3.8000e-004**	**0.0159**	**4.1900e-003**	**3.7000e-004**	**4.5600e-003**	**0.0000**	**22.4825**	**22.4825**	**9.2000e-004**	**0.0000**	**22.5055**

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	0.0351	0.2982	0.1705	3.3000e-004		0.0146	0.0146		0.0137	0.0137	0.0000	27.9296	27.9296	7.6700e-003	0.0000	28.1212
Total	**0.0351**	**0.2982**	**0.1705**	**3.3000e-004**		**0.0146**	**0.0146**		**0.0137**	**0.0137**	**0.0000**	**27.9296**	**27.9296**	**7.6700e-003**	**0.0000**	**28.1212**

3.5 04_Building Construction - 2019

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	1.7800e-003	0.0526	0.0109	1.2000e-004	2.5200e-003	3.0000e-004	2.8200e-003	7.3000e-004	2.9000e-004	1.0200e-003	0.0000	11.0060	11.0060	6.2000e-004	0.0000	11.0215
Worker	5.6300e-003	4.3100e-003	0.0445	1.3000e-004	0.0130	8.0000e-005	0.0131	3.4600e-003	8.0000e-005	3.5400e-003	0.0000	11.4765	11.4765	3.0000e-004	0.0000	11.4841
Total	**7.4100e-003**	**0.0569**	**0.0554**	**2.5000e-004**	**0.0155**	**3.8000e-004**	**0.0159**	**4.1900e-003**	**3.7000e-004**	**4.5600e-003**	**0.0000**	**22.4825**	**22.4825**	**9.2000e-004**	**0.0000**	**22.5055**

3.6 05_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	3.4000e-004	3.5100e-003	3.1000e-003	0.0000		2.1000e-004	2.1000e-004		1.9000e-004	1.9000e-004	0.0000	0.4112	0.4112	1.3000e-004	0.0000	0.4145
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.4000e-004**	**3.5100e-003**	**3.1000e-003**	**0.0000**		**2.1000e-004**	**2.1000e-004**		**1.9000e-004**	**1.9000e-004**	**0.0000**	**0.4112**	**0.4112**	**1.3000e-004**	**0.0000**	**0.4145**

3.6 05_Paving - 2019

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	2.0000e-005	2.0000e-005	1.7000e-004	0.0000	5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0431	0.0431	0.0000	0.0000	0.0431
Total	**2.0000e-005**	**2.0000e-005**	**1.7000e-004**	**0.0000**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0431**	**0.0431**	**0.0000**	**0.0000**	**0.0431**

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	3.4000e-004	3.5100e-003	3.1000e-003	0.0000		2.1000e-004	2.1000e-004		1.9000e-004	1.9000e-004	0.0000	0.4112	0.4112	1.3000e-004	0.0000	0.4145
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.4000e-004**	**3.5100e-003**	**3.1000e-003**	**0.0000**		**2.1000e-004**	**2.1000e-004**		**1.9000e-004**	**1.9000e-004**	**0.0000**	**0.4112**	**0.4112**	**1.3000e-004**	**0.0000**	**0.4145**

3.6 05_Paving - 2019

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	2.0000e-005	2.0000e-005	1.7000e-004	0.0000	5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0431	0.0431	0.0000	0.0000	0.0431
Total	**2.0000e-005**	**2.0000e-005**	**1.7000e-004**	**0.0000**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0431**	**0.0431**	**0.0000**	**0.0000**	**0.0431**

3.7 06_Architectural Coating - 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					
Archit. Coating	0.0639					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0160	0.1101	0.1105	1.8000e-004		7.7300e-003	7.7300e-003		7.7300e-003	7.7300e-003	0.0000	15.3195	15.3195	1.2900e-003	0.0000	15.3519
Total	**0.0799**	**0.1101**	**0.1105**	**1.8000e-004**		**7.7300e-003**	**7.7300e-003**		**7.7300e-003**	**7.7300e-003**	**0.0000**	**15.3195**	**15.3195**	**1.2900e-003**	**0.0000**	**15.3519**

3.7 06_Architectural Coating - 2019

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	1.4300e-003	1.0900e-003	0.0113	3.0000e-005	3.3000e-003	2.0000e-005	3.3200e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.9096	2.9096	8.0000e-005	0.0000	2.9115
Total	**1.4300e-003**	**1.0900e-003**	**0.0113**	**3.0000e-005**	**3.3000e-003**	**2.0000e-005**	**3.3200e-003**	**8.8000e-004**	**2.0000e-005**	**9.0000e-004**	**0.0000**	**2.9096**	**2.9096**	**8.0000e-005**	**0.0000**	**2.9115**

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					
Archit. Coating	0.0639					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0160	0.1101	0.1105	1.8000e-004		7.7300e-003	7.7300e-003		7.7300e-003	7.7300e-003	0.0000	15.3195	15.3195	1.2900e-003	0.0000	15.3519
Total	**0.0799**	**0.1101**	**0.1105**	**1.8000e-004**		**7.7300e-003**	**7.7300e-003**		**7.7300e-003**	**7.7300e-003**	**0.0000**	**15.3195**	**15.3195**	**1.2900e-003**	**0.0000**	**15.3519**

3.7 06_Architectural Coating - 2019

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	1.4300e-003	1.0900e-003	0.0113	3.0000e-005	3.3000e-003	2.0000e-005	3.3200e-003	8.8000e-004	2.0000e-005	9.0000e-004	0.0000	2.9096	2.9096	8.0000e-005	0.0000	2.9115
Total	**1.4300e-003**	**1.0900e-003**	**0.0113**	**3.0000e-005**	**3.3000e-003**	**2.0000e-005**	**3.3200e-003**	**8.8000e-004**	**2.0000e-005**	**9.0000e-004**	**0.0000**	**2.9096**	**2.9096**	**8.0000e-005**	**0.0000**	**2.9115**

4.0 Operational Detail - Mobile

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	0.0215	0.1572	0.2797	1.0400e-003	0.0767	1.1400e-003	0.0778	0.0206	1.0800e-003	0.0217	0.0000	95.1798	95.1798	3.5500e-003	0.0000	95.2686
Unmitigated	0.0215	0.1572	0.2797	1.0400e-003	0.0767	1.1400e-003	0.0778	0.0206	1.0800e-003	0.0217	0.0000	95.1798	95.1798	3.5500e-003	0.0000	95.2686

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	32.01	32.01	32.01	123,670	123,670
Unrefrigerated Warehouse-No Rail	21.37	21.37	21.37	82,561	82,561
Total	53.38	53.38	53.38	206,230	206,230

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
General Heavy Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3
Unrefrigerated Warehouse-No	14.70	6.60	6.60	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.489257	0.041257	0.220156	0.132626	0.025790	0.006586	0.027831	0.045583	0.001467	0.001229	0.006102	0.000783	0.001333
Unrefrigerated Warehouse-No Rail	0.489257	0.041257	0.220156	0.132626	0.025790	0.006586	0.027831	0.045583	0.001467	0.001229	0.006102	0.000783	0.001333

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	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	42.8302	42.8302	3.0400e-003	5.6000e-004	43.0739
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	42.8302	42.8302	3.0400e-003	5.6000e-004	43.0739
NaturalGas Mitigated	2.6300e-003	0.0239	0.0201	1.4000e-004		1.8200e-003	1.8200e-003		1.8200e-003	1.8200e-003	0.0000	26.0599	26.0599	5.0000e-004	4.8000e-004	26.2147
NaturalGas Unmitigated	2.6300e-003	0.0239	0.0201	1.4000e-004		1.8200e-003	1.8200e-003		1.8200e-003	1.8200e-003	0.0000	26.0599	26.0599	5.0000e-004	4.8000e-004	26.2147

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	tons/yr										MT/yr					
General Heavy Industry	410224	2.2100e-003	0.0201	0.0169	1.2000e-004		1.5300e-003	1.5300e-003		1.5300e-003	1.5300e-003	0.0000	21.8911	21.8911	4.2000e-004	4.0000e-004	22.0212
Unrefrigerated Warehouse-No Rail	78119.2	4.2000e-004	3.8300e-003	3.2200e-003	2.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	4.1687	4.1687	8.0000e-005	8.0000e-005	4.1935
Total		**2.6300e-003**	**0.0239**	**0.0201**	**1.4000e-004**		**1.8200e-003**	**1.8200e-003**		**1.8200e-003**	**1.8200e-003**	**0.0000**	**26.0599**	**26.0599**	**5.0000e-004**	**4.8000e-004**	**26.2147**

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	tons/yr										MT/yr					
General Heavy Industry	410224	2.2100e-003	0.0201	0.0169	1.2000e-004		1.5300e-003	1.5300e-003		1.5300e-003	1.5300e-003	0.0000	21.8911	21.8911	4.2000e-004	4.0000e-004	22.0212
Unrefrigerated Warehouse-No Rail	78119.2	4.2000e-004	3.8300e-003	3.2200e-003	2.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	4.1687	4.1687	8.0000e-005	8.0000e-005	4.1935
Total		**2.6300e-003**	**0.0239**	**0.0201**	**1.4000e-004**		**1.8200e-003**	**1.8200e-003**		**1.8200e-003**	**1.8200e-003**	**0.0000**	**26.0599**	**26.0599**	**5.0000e-004**	**4.8000e-004**	**26.2147**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	188576	32.5519	2.3100e-003	4.3000e-004	32.7371
Unrefrigerated Warehouse-No Rail	59543.6	10.2784	7.3000e-004	1.4000e-004	10.3368
Total		**42.8302**	**3.0400e-003**	**5.7000e-004**	**43.0739**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	188576	32.5519	2.3100e-003	4.3000e-004	32.7371
Unrefrigerated Warehouse-No Rail	59543.6	10.2784	7.3000e-004	1.4000e-004	10.3368
Total		**42.8302**	**3.0400e-003**	**5.7000e-004**	**43.0739**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	0.1417	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.1000e-004	6.1000e-004	0.0000	0.0000	6.5000e-004
Unmitigated	0.1417	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.1000e-004	6.1000e-004	0.0000	0.0000	6.5000e-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	tons/yr										MT/yr					
Architectural Coating	6.3900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1352					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.1000e-004	6.1000e-004	0.0000	0.0000	6.5000e-004
Total	**0.1417**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.1000e-004**	**6.1000e-004**	**0.0000**	**0.0000**	**6.5000e-004**

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	6.3900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1352					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.1000e-004	6.1000e-004	0.0000	0.0000	6.5000e-004
Total	**0.1417**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.1000e-004**	**6.1000e-004**	**0.0000**	**0.0000**	**6.5000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	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			
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	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	7.7989	0.4609	0.0000	19.3215
Unmitigated	7.7989	0.4609	0.0000	19.3215

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	26.46	5.3711	0.3174	0.0000	13.3068
Unrefrigerated Warehouse-No Rail	11.96	2.4278	0.1435	0.0000	6.0147
Total		**7.7989**	**0.4609**	**0.0000**	**19.3215**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	26.46	5.3711	0.3174	0.0000	13.3068
Unrefrigerated Warehouse-No Rail	11.96	2.4278	0.1435	0.0000	6.0147
Total		**7.7989**	**0.4609**	**0.0000**	**19.3215**

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

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Pleasant Grove WWTP Expansion

Placer-Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	21.34	1000sqft	0.49	21,902.00	0
Unrefrigerated Warehouse-No Rail	12.72	1000sqft	0.29	12,723.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	74
Climate Zone	2			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	380.56	**CH4 Intensity (lb/MWhr)**	0.027	**N2O Intensity (lb/MWhr)**	0.005

1.3 User Entered Comments & Non-Default Data

Pleasant Grove WWTP Expansion - Placer-Sacramento County, Summer

Project Characteristics - 2020 system average PG&E emissions based on 2014 emission factors from The Climate Registry and a 22.7% renewable portfolio reported by CPUC (http://www.cpuc.ca.gov/RPS_Homepage/). Assumes a 37% renewable mix by 2020 based on PGE contract with the state.

Land Use - Land use input based on data request and project description.

Construction Phase - Data request shows that equipment pieces may only be operated during a portion of a phase's schedule. As a conservative approach, all equipment in each phase is assumed to operate during the entire phase period.

Off-road Equipment - Based on Pleasant Grove Data Request

Off-road Equipment - Based on Pleasant Grove Data Request

Off-road Equipment - Trenching activity

Off-road Equipment - Based on Pleasant Grove Data Request

Off-road Equipment - Based on Pleasant Grove Data Request

Trips and VMT - Haul lengths for imported fill from Data Request. Haul lengths for demo based on distance from PGWWTP to WRSL. Haul trips for grading and building construction from data request.

Demolition - Asphalt removed for misc trenching within existing paved areas

Grading - Based on Pleasant Grove project description

Architectural Coating - Arch coating sqft based on project building types. Not all may require interior painting.

Vehicle Trips - Mobile calculated seperately

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Consumer Products - Assume no consumer products at WWTP.

Area Coating - Arch coating sqft based on project building types. Not all may require interior painting.

Energy Use - Energy use calculated seperately.

Water And Wastewater - Calculated seperately.

Solid Waste - Calculated seperately.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	17,313.00	17,032.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	51,938.00	10,560.00
tblAreaCoating	Area_Nonresidential_Exterior	17313	17032

Pleasant Grove WWTP Expansion - Placer-Sacramento County, Summer

tblAreaCoating	Area_Nonresidential_Interior	51938	10560
tblConstructionPhase	NumDays	5.00	180.00
tblConstructionPhase	NumDays	100.00	391.00
tblConstructionPhase	NumDays	10.00	4.00
tblConstructionPhase	NumDays	2.00	59.00
tblConstructionPhase	NumDays	5.00	1.00
tblConstructionPhase	PhaseEndDate	6/9/2020	10/11/2019
tblConstructionPhase	PhaseEndDate	9/30/2019	7/17/2019
tblConstructionPhase	PhaseEndDate	10/1/2019	2/1/2019
tblConstructionPhase	PhaseEndDate	3/30/2018	1/16/2018
tblConstructionPhase	PhaseStartDate	10/2/2019	2/2/2019
tblConstructionPhase	PhaseStartDate	3/31/2018	1/17/2018
tblConstructionPhase	PhaseStartDate	10/1/2019	2/1/2019
tblConstructionPhase	PhaseStartDate	12/28/2017	10/15/2017
tblGrading	AcresOfGrading	25.81	6.10
tblGrading	MaterialExported	0.00	6,000.00
tblGrading	MaterialImported	0.00	34,000.00
tblLandUse	BuildingSpaceSquareFeet	21,340.00	21,902.00
tblLandUse	BuildingSpaceSquareFeet	12,720.00	12,723.00
tblLandUse	LandUseSquareFeet	21,340.00	21,902.00
tblLandUse	LandUseSquareFeet	12,720.00	12,723.00
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	130.00	125.00
tblOffRoadEquipment	HorsePower	247.00	255.00
tblOffRoadEquipment	HorsePower	247.00	200.00
tblOffRoadEquipment	HorsePower	158.00	162.00
tblOffRoadEquipment	HorsePower	158.00	162.00

Pleasant Grove WWTP Expansion - Placer-Sacramento County, Summer

tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	HorsePower	402.00	380.00
tblOffRoadEquipment	HorsePower	402.00	400.00
tblOffRoadEquipment	HorsePower	78.00	80.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	2.00
tblOffRoadEquipment	UsageHours	6.00	2.00
tblOffRoadEquipment	UsageHours	7.00	7.50
tblOffRoadEquipment	UsageHours	7.00	7.50
tblOffRoadEquipment	UsageHours	1.00	7.50
tblOffRoadEquipment	UsageHours	6.00	4.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.027
tblProjectCharacteristics	CO2IntensityFactor	641.35	380.56
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	HaulingTripLength	20.00	5.60

tblTripsAndVMT	HaulingTripLength	20.00	9.00
tblTripsAndVMT	HaulingTripNumber	9.00	0.00
tblTripsAndVMT	HaulingTripNumber	5,000.00	0.00
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblVehicleTrips	CC_TL	7.30	6.60
tblVehicleTrips	CC_TL	7.30	6.60
tblVehicleTrips	CNW_TL	7.30	6.60
tblVehicleTrips	CNW_TL	7.30	6.60
tblVehicleTrips	CW_TL	9.50	14.70
tblVehicleTrips	CW_TL	9.50	14.70
tblWater	IndoorWaterUseRate	4,934,875.00	0.00
tblWater	IndoorWaterUseRate	2,941,500.00	0.00

2.0 Emissions Summary

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					
2017	6.6983	69.3037	35.7658	0.0746	11.8992	3.2888	15.1880	6.3419	3.0321	9.3740	0.0000	7,595.1004	7,595.1004	2.1633	0.0000	7,649.1837
2018	0.6818	5.4953	3.6451	8.3500e-003	0.2284	0.3040	0.4710	0.0614	0.2800	0.3071	0.0000	815.1484	815.1484	0.1369	0.0000	818.5719
2019	1.5095	12.0298	9.8372	0.0185	0.3305	0.6259	0.9564	0.0885	0.5802	0.6687	0.0000	1,813.1711	1,813.1711	0.4228	0.0000	1,823.7416
Maximum	**6.6983**	**69.3037**	**35.7658**	**0.0746**	**11.8992**	**3.2888**	**15.1880**	**6.3419**	**3.0321**	**9.3740**	**0.0000**	**7,595.1004**	**7,595.1004**	**2.1633**	**0.0000**	**7,649.1837**

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					
2017	6.6983	69.3037	35.7658	0.0746	11.8992	3.2888	15.1880	6.3419	3.0321	9.3740	0.0000	7,595.1003	7,595.1003	2.1633	0.0000	7,649.1837
2018	0.6818	5.4953	3.6451	8.3500e-003	0.2284	0.3040	0.4710	0.0614	0.2800	0.3071	0.0000	815.1484	815.1484	0.1369	0.0000	818.5719
2019	1.5095	12.0298	9.8372	0.0185	0.3305	0.6259	0.9564	0.0885	0.5802	0.6687	0.0000	1,813.1711	1,813.1711	0.4228	0.0000	1,823.7416
Maximum	**6.6983**	**69.3037**	**35.7658**	**0.0746**	**11.8992**	**3.2888**	**15.1880**	**6.3419**	**3.0321**	**9.3740**	**0.0000**	**7,595.1003**	**7,595.1003**	**2.1633**	**0.0000**	**7,649.1837**

Pleasant Grove WWTP Expansion - Placer-Sacramento 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	N20	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**

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	0.7763	3.0000e-005	3.5000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.4500e-003	7.4500e-003	2.0000e-005		7.9500e-003
Energy	0.0144	0.1312	0.1102	7.9000e-004		9.9700e-003	9.9700e-003		9.9700e-003	9.9700e-003		157.4033	157.4033	3.0200e-003	2.8900e-003	158.3387
Mobile	0.1384	0.8301	1.6767	6.0700e-003	0.4402	6.2400e-003	0.4464	0.1180	5.8900e-003	0.1239		614.5520	614.5520	0.0218		615.0964
Total	**0.9292**	**0.9613**	**1.7903**	**6.8600e-003**	**0.4402**	**0.0162**	**0.4564**	**0.1180**	**0.0159**	**0.1338**		**771.9627**	**771.9627**	**0.0248**	**2.8900e-003**	**773.4430**

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	0.7763	3.0000e-005	3.5000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.4500e-003	7.4500e-003	2.0000e-005		7.9500e-003
Energy	0.0144	0.1312	0.1102	7.9000e-004		9.9700e-003	9.9700e-003		9.9700e-003	9.9700e-003		157.4033	157.4033	3.0200e-003	2.8900e-003	158.3387
Mobile	0.1384	0.8301	1.6767	6.0700e-003	0.4402	6.2400e-003	0.4464	0.1180	5.8900e-003	0.1239		614.5520	614.5520	0.0218		615.0964
Total	**0.9292**	**0.9613**	**1.7903**	**6.8600e-003**	**0.4402**	**0.0162**	**0.4564**	**0.1180**	**0.0159**	**0.1338**		**771.9627**	**771.9627**	**0.0248**	**2.8900e-003**	**773.4430**

	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	N20	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	01_Demolition	Demolition	10/1/2017	10/5/2017	5	4	4
2	02_Grading	Grading	10/6/2017	12/27/2017	5	59	59
3	03_Trenching	Trenching	10/15/2017	1/16/2018	5	67	67
4	04_Building Construction	Building Construction	1/17/2018	7/17/2019	5	391	391
5	05_Paving	Paving	2/1/2019	2/1/2019	5	1	1
6	06_Architectural Coating	Architectural Coating	2/2/2019	10/11/2019	5	180	180

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 10,560; Non-Residential Outdoor: 17,032; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Pleasant Grove WWTP Expansion - Placer-Sacramento County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
01_Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
01_Demolition	Excavators	1	4.00	162	0.38
01_Demolition	Off-Highway Trucks	1	4.00	380	0.38
01_Demolition	Rubber Tired Dozers	0	1.00	255	0.40
01_Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37
02_Grading	Concrete/Industrial Saws	0	8.00	81	0.73
02_Grading	Excavators	1	7.00	162	0.38
02_Grading	Generator Sets	1	2.00	84	0.74
02_Grading	Graders	1	7.00	174	0.41
02_Grading	Off-Highway Trucks	4	6.00	400	0.38
02_Grading	Rubber Tired Dozers	2	7.50	200	0.40
02_Grading	Tractors/Loaders/Backhoes	1	4.00	97	0.37
03_Trenching	Plate Compactors	1	4.00	8	0.43
03_Trenching	Tractors/Loaders/Backhoes	1	6.00	97	0.37
03_Trenching	Trenchers	1	4.00	80	0.50
04_Building Construction	Cement and Mortar Mixers	1	2.00	9	0.56
04_Building Construction	Cranes	1	4.00	226	0.29
04_Building Construction	Forklifts	1	2.00	89	0.20
04_Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
04_Building Construction	Welders	1	4.00	46	0.45
05_Paving	Cement and Mortar Mixers	0	6.00	9	0.56
05_Paving	Pavers	1	7.50	125	0.42
05_Paving	Rollers	2	7.50	80	0.38
05_Paving	Tractors/Loaders/Backhoes	0	7.00	97	0.37
06_Architectural Coating	Air Compressors	2	2.00	78	0.48

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
01_Demolition	2	5.00	0.00	0.00	16.80	6.60	5.60	LD_Mix	HDT_Mix	HHDT
02_Grading	10	25.00	0.00	0.00	16.80	6.60	9.00	LD_Mix	HDT_Mix	HHDT
03_Trenching	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
04_Building Construction	4	15.00	6.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
05_Paving	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
06_Architectural Coating	2	3.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 01_Demolition - 2017

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					0.5082	0.0000	0.5082	0.0770	0.0000	0.0770			0.0000			0.0000
Off-Road	0.5953	6.6797	3.9361	8.8900e-003		0.2722	0.2722		0.2505	0.2505		909.1556	909.1556	0.2786		916.1196
Total	**0.5953**	**6.6797**	**3.9361**	**8.8900e-003**	**0.5082**	**0.2722**	**0.7805**	**0.0770**	**0.2505**	**0.3274**		**909.1556**	**909.1556**	**0.2786**		**916.1196**

3.2 01_Demolition - 2017

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	0.0357	0.0233	0.3058	6.9000e-004	0.0639	4.1000e-004	0.0643	0.0169	3.8000e-004	0.0173		69.0967	69.0967	2.2000e-003		69.1518
Total	**0.0357**	**0.0233**	**0.3058**	**6.9000e-004**	**0.0639**	**4.1000e-004**	**0.0643**	**0.0169**	**3.8000e-004**	**0.0173**		**69.0967**	**69.0967**	**2.2000e-003**		**69.1518**

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					0.5082	0.0000	0.5082	0.0770	0.0000	0.0770			0.0000			0.0000
Off-Road	0.5953	6.6797	3.9361	8.8900e-003		0.2722	0.2722		0.2505	0.2505	0.0000	909.1556	909.1556	0.2786		916.1196
Total	**0.5953**	**6.6797**	**3.9361**	**8.8900e-003**	**0.5082**	**0.2722**	**0.7805**	**0.0770**	**0.2505**	**0.3274**	**0.0000**	**909.1556**	**909.1556**	**0.2786**		**916.1196**

3.2 01_Demolition - 2017

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	0.0357	0.0233	0.3058	6.9000e-004	0.0639	4.1000e-004	0.0643	0.0169	3.8000e-004	0.0173		69.0967	69.0967	2.2000e-003		69.1518
Total	**0.0357**	**0.0233**	**0.3058**	**6.9000e-004**	**0.0639**	**4.1000e-004**	**0.0643**	**0.0169**	**3.8000e-004**	**0.0173**		**69.0967**	**69.0967**	**2.2000e-003**		**69.1518**

3.3 02_Grading - 2017

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					11.4777	0.0000	11.4777	6.2301	0.0000	6.2301			0.0000			0.0000
Off-Road	5.9366	64.3854	30.4474	0.0657		2.9250	2.9250		2.6970	2.6970		6,706.0513	6,706.0513	2.0196		6,756.5414
Total	**5.9366**	**64.3854**	**30.4474**	**0.0657**	**11.4777**	**2.9250**	**14.4027**	**6.2301**	**2.6970**	**8.9271**		**6,706.0513**	**6,706.0513**	**2.0196**		**6,756.5414**

3.3 02_Grading - 2017

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	0.1784	0.1166	1.5288	3.4700e-003	0.3193	2.0700e-003	0.3214	0.0847	1.9100e-003	0.0866		345.4836	345.4836	0.0110		345.7591
Total	**0.1784**	**0.1166**	**1.5288**	**3.4700e-003**	**0.3193**	**2.0700e-003**	**0.3214**	**0.0847**	**1.9100e-003**	**0.0866**		**345.4836**	**345.4836**	**0.0110**		**345.7591**

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					11.4777	0.0000	11.4777	6.2301	0.0000	6.2301			0.0000			0.0000
Off-Road	5.9366	64.3854	30.4474	0.0657		2.9250	2.9250		2.6970	2.6970	0.0000	6,706.0512	6,706.0512	2.0196		6,756.5414
Total	**5.9366**	**64.3854**	**30.4474**	**0.0657**	**11.4777**	**2.9250**	**14.4027**	**6.2301**	**2.6970**	**8.9271**	**0.0000**	**6,706.0512**	**6,706.0512**	**2.0196**		**6,756.5414**

3.3 02_Grading - 2017

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	0.1784	0.1166	1.5288	3.4700e-003	0.3193	2.0700e-003	0.3214	0.0847	1.9100e-003	0.0866		345.4836	345.4836	0.0110		345.7591
Total	**0.1784**	**0.1166**	**1.5288**	**3.4700e-003**	**0.3193**	**2.0700e-003**	**0.3214**	**0.0847**	**1.9100e-003**	**0.0866**		**345.4836**	**345.4836**	**0.0110**		**345.7591**

3.4 03_Trenching - 2017

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	0.5263	4.7644	3.3004	4.3000e-003		0.3611	0.3611		0.3326	0.3326		433.0107	433.0107	0.1292		436.2403
Total	**0.5263**	**4.7644**	**3.3004**	**4.3000e-003**		**0.3611**	**0.3611**		**0.3326**	**0.3326**		**433.0107**	**433.0107**	**0.1292**		**436.2403**

3.4 03_Trenching - 2017

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	0.0571	0.0373	0.4892	1.1100e-003	0.1022	6.6000e-004	0.1029	0.0271	6.1000e-004	0.0277		110.5548	110.5548	3.5300e-003		110.6429
Total	**0.0571**	**0.0373**	**0.4892**	**1.1100e-003**	**0.1022**	**6.6000e-004**	**0.1029**	**0.0271**	**6.1000e-004**	**0.0277**		**110.5548**	**110.5548**	**3.5300e-003**		**110.6429**

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	0.5263	4.7644	3.3004	4.3000e-003		0.3611	0.3611		0.3326	0.3326	0.0000	433.0107	433.0107	0.1292		436.2403
Total	**0.5263**	**4.7644**	**3.3004**	**4.3000e-003**		**0.3611**	**0.3611**		**0.3326**	**0.3326**	**0.0000**	**433.0107**	**433.0107**	**0.1292**		**436.2403**

3.4 03_Trenching - 2017

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	0.0571	0.0373	0.4892	1.1100e-003	0.1022	6.6000e-004	0.1029	0.0271	6.1000e-004	0.0277		110.5548	110.5548	3.5300e-003		110.6429
Total	**0.0571**	**0.0373**	**0.4892**	**1.1100e-003**	**0.1022**	**6.6000e-004**	**0.1029**	**0.0271**	**6.1000e-004**	**0.0277**		**110.5548**	**110.5548**	**3.5300e-003**		**110.6429**

3.4 03_Trenching - 2018

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	0.4518	4.1845	3.2176	4.3000e-003		0.3033	0.3033		0.2795	0.2795		425.9745	425.9745	0.1290		429.2004
Total	**0.4518**	**4.1845**	**3.2176**	**4.3000e-003**		**0.3033**	**0.3033**		**0.2795**	**0.2795**		**425.9745**	**425.9745**	**0.1290**		**429.2004**

3.4 03_Trenching - 2018

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	0.0505	0.0324	0.4276	1.0800e-003	0.1022	6.4000e-004	0.1028	0.0271	5.9000e-004	0.0277		107.4032	107.4032	3.0800e-003		107.4803
Total	**0.0505**	**0.0324**	**0.4276**	**1.0800e-003**	**0.1022**	**6.4000e-004**	**0.1028**	**0.0271**	**5.9000e-004**	**0.0277**		**107.4032**	**107.4032**	**3.0800e-003**		**107.4803**

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	0.4518	4.1845	3.2176	4.3000e-003		0.3033	0.3033		0.2795	0.2795	0.0000	425.9745	425.9745	0.1290		429.2004
Total	**0.4518**	**4.1845**	**3.2176**	**4.3000e-003**		**0.3033**	**0.3033**		**0.2795**	**0.2795**	**0.0000**	**425.9745**	**425.9745**	**0.1290**		**429.2004**

3.4 03_Trenching - 2018

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	0.0505	0.0324	0.4276	1.0800e-003	0.1022	6.4000e-004	0.1028	0.0271	5.9000e-004	0.0277		107.4032	107.4032	3.0800e-003		107.4803
Total	**0.0505**	**0.0324**	**0.4276**	**1.0800e-003**	**0.1022**	**6.4000e-004**	**0.1028**	**0.0271**	**5.9000e-004**	**0.0277**		**107.4032**	**107.4032**	**3.0800e-003**		**107.4803**

3.5 04_Building Construction - 2018

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	0.5593	4.6632	2.5430	4.6600e-003		0.2362	0.2362		0.2222	0.2222		438.8303	438.8303	0.1216		441.8702
Total	**0.5593**	**4.6632**	**2.5430**	**4.6600e-003**		**0.2362**	**0.2362**		**0.2222**	**0.2222**		**438.8303**	**438.8303**	**0.1216**		**441.8702**

3.5 04_Building Construction - 2018

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	0.0278	0.7714	0.1564	1.6700e-003	0.0368	5.2100e-003	0.0420	0.0106	4.9900e-003	0.0156		174.9372	174.9372	9.5600e-003		175.1762
Worker	0.0947	0.0607	0.8017	2.0200e-003	0.1916	1.2000e-003	0.1928	0.0508	1.1100e-003	0.0519		201.3810	201.3810	5.7800e-003		201.5256
Total	**0.1225**	**0.8320**	**0.9581**	**3.6900e-003**	**0.2284**	**6.4100e-003**	**0.2348**	**0.0614**	**6.1000e-003**	**0.0675**		**376.3182**	**376.3182**	**0.0153**		**376.7017**

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	0.5593	4.6632	2.5430	4.6600e-003		0.2362	0.2362		0.2222	0.2222	0.0000	438.8303	438.8303	0.1216		441.8702
Total	**0.5593**	**4.6632**	**2.5430**	**4.6600e-003**		**0.2362**	**0.2362**		**0.2222**	**0.2222**	**0.0000**	**438.8303**	**438.8303**	**0.1216**		**441.8702**

3.5 04_Building Construction - 2018

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	0.0278	0.7714	0.1564	1.6700e-003	0.0368	5.2100e-003	0.0420	0.0106	4.9900e-003	0.0156		174.9372	174.9372	9.5600e-003		175.1762
Worker	0.0947	0.0607	0.8017	2.0200e-003	0.1916	1.2000e-003	0.1928	0.0508	1.1100e-003	0.0519		201.3810	201.3810	5.7800e-003		201.5256
Total	**0.1225**	**0.8320**	**0.9581**	**3.6900e-003**	**0.2284**	**6.4100e-003**	**0.2348**	**0.0614**	**6.1000e-003**	**0.0675**		**376.3182**	**376.3182**	**0.0153**		**376.7017**

3.5 04_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	0.4938	4.1997	2.4009	4.6600e-003		0.2057	0.2057		0.1935	0.1935		433.6214	433.6214	0.1190		436.5971
Total	**0.4938**	**4.1997**	**2.4009**	**4.6600e-003**		**0.2057**	**0.2057**		**0.1935**	**0.1935**		**433.6214**	**433.6214**	**0.1190**		**436.5971**

3.5 04_Building Construction - 2019

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	0.0245	0.7299	0.1392	1.6600e-003	0.0368	4.2300e-003	0.0410	0.0106	4.0400e-003	0.0146		173.4780	173.4780	9.0700e-003		173.7049
Worker	0.0859	0.0534	0.7208	1.9600e-003	0.1916	1.1900e-003	0.1928	0.0508	1.1000e-003	0.0519		195.3553	195.3553	5.1500e-003		195.4841
Total	**0.1104**	**0.7832**	**0.8600**	**3.6200e-003**	**0.2284**	**5.4200e-003**	**0.2338**	**0.0614**	**5.1400e-003**	**0.0665**		**368.8334**	**368.8334**	**0.0142**		**369.1891**

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	0.4938	4.1997	2.4009	4.6600e-003		0.2057	0.2057		0.1935	0.1935	0.0000	433.6214	433.6214	0.1190		436.5971
Total	**0.4938**	**4.1997**	**2.4009**	**4.6600e-003**		**0.2057**	**0.2057**		**0.1935**	**0.1935**	**0.0000**	**433.6214**	**433.6214**	**0.1190**		**436.5971**

3.5 04_Building Construction - 2019

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	0.0245	0.7299	0.1392	1.6600e-003	0.0368	4.2300e-003	0.0410	0.0106	4.0400e-003	0.0146		173.4780	173.4780	9.0700e-003		173.7049
Worker	0.0859	0.0534	0.7208	1.9600e-003	0.1916	1.1900e-003	0.1928	0.0508	1.1000e-003	0.0519		195.3553	195.3553	5.1500e-003		195.4841
Total	**0.1104**	**0.7832**	**0.8600**	**3.6200e-003**	**0.2284**	**5.4200e-003**	**0.2338**	**0.0614**	**5.1400e-003**	**0.0665**		**368.8334**	**368.8334**	**0.0142**		**369.1891**

3.6 05_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	0.6841	7.0183	6.1918	9.1500e-003		0.4142	0.4142		0.3810	0.3810		906.5268	906.5268	0.2868		913.6972
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6841**	**7.0183**	**6.1918**	**9.1500e-003**		**0.4142**	**0.4142**		**0.3810**	**0.3810**		**906.5268**	**906.5268**	**0.2868**		**913.6972**

3.6 05_Paving - 2019

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	0.0458	0.0285	0.3844	1.0500e-003	0.1022	6.3000e-004	0.1028	0.0271	5.9000e-004	0.0277		104.1895	104.1895	2.7500e-003		104.2582
Total	**0.0458**	**0.0285**	**0.3844**	**1.0500e-003**	**0.1022**	**6.3000e-004**	**0.1028**	**0.0271**	**5.9000e-004**	**0.0277**		**104.1895**	**104.1895**	**2.7500e-003**		**104.2582**

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	0.6841	7.0183	6.1918	9.1500e-003		0.4142	0.4142		0.3810	0.3810	0.0000	906.5268	906.5268	0.2868		913.6972
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6841**	**7.0183**	**6.1918**	**9.1500e-003**		**0.4142**	**0.4142**		**0.3810**	**0.3810**	**0.0000**	**906.5268**	**906.5268**	**0.2868**		**913.6972**

3.6 05_Paving - 2019

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	0.0458	0.0285	0.3844	1.0500e-003	0.1022	6.3000e-004	0.1028	0.0271	5.9000e-004	0.0277		104.1895	104.1895	2.7500e-003		104.2582
Total	**0.0458**	**0.0285**	**0.3844**	**1.0500e-003**	**0.1022**	**6.3000e-004**	**0.1028**	**0.0271**	**5.9000e-004**	**0.0277**		**104.1895**	**104.1895**	**2.7500e-003**		**104.2582**

3.7 06_Architectural Coating - 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					
Archit. Coating	0.7105					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1776	1.2236	1.2276	1.9800e-003		0.0858	0.0858		0.0858	0.0858		187.6320	187.6320	0.0159		188.0282
Total	**0.8881**	**1.2236**	**1.2276**	**1.9800e-003**		**0.0858**	**0.0858**		**0.0858**	**0.0858**		**187.6320**	**187.6320**	**0.0159**		**188.0282**

3.7 06_Architectural Coating - 2019

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	0.0172	0.0107	0.1442	3.9000e-004	0.0383	2.4000e-004	0.0386	0.0102	2.2000e-004	0.0104		39.0711	39.0711	1.0300e-003		39.0968
Total	**0.0172**	**0.0107**	**0.1442**	**3.9000e-004**	**0.0383**	**2.4000e-004**	**0.0386**	**0.0102**	**2.2000e-004**	**0.0104**		**39.0711**	**39.0711**	**1.0300e-003**		**39.0968**

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					
Archit. Coating	0.7105					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1776	1.2236	1.2276	1.9800e-003		0.0858	0.0858		0.0858	0.0858	0.0000	187.6320	187.6320	0.0159		188.0282
Total	**0.8881**	**1.2236**	**1.2276**	**1.9800e-003**		**0.0858**	**0.0858**		**0.0858**	**0.0858**	**0.0000**	**187.6320**	**187.6320**	**0.0159**		**188.0282**

3.7 06_Architectural Coating - 2019

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	0.0172	0.0107	0.1442	3.9000e-004	0.0383	2.4000e-004	0.0386	0.0102	2.2000e-004	0.0104		39.0711	39.0711	1.0300e-003		39.0968
Total	**0.0172**	**0.0107**	**0.1442**	**3.9000e-004**	**0.0383**	**2.4000e-004**	**0.0386**	**0.0102**	**2.2000e-004**	**0.0104**		**39.0711**	**39.0711**	**1.0300e-003**		**39.0968**

4.0 Operational Detail - Mobile

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	0.1384	0.8301	1.6767	6.0700e-003	0.4402	6.2400e-003	0.4464	0.1180	5.8900e-003	0.1239		614.5520	614.5520	0.0218		615.0964
Unmitigated	0.1384	0.8301	1.6767	6.0700e-003	0.4402	6.2400e-003	0.4464	0.1180	5.8900e-003	0.1239		614.5520	614.5520	0.0218		615.0964

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	32.01	32.01	32.01	123,670	123,670
Unrefrigerated Warehouse-No Rail	21.37	21.37	21.37	82,561	82,561
Total	53.38	53.38	53.38	206,230	206,230

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
General Heavy Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3
Unrefrigerated Warehouse-No	14.70	6.60	6.60	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.489257	0.041257	0.220156	0.132626	0.025790	0.006586	0.027831	0.045583	0.001467	0.001229	0.006102	0.000783	0.001333
Unrefrigerated Warehouse-No Rail	0.489257	0.041257	0.220156	0.132626	0.025790	0.006586	0.027831	0.045583	0.001467	0.001229	0.006102	0.000783	0.001333

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	0.0144	0.1312	0.1102	7.9000e-004		9.9700e-003	9.9700e-003		9.9700e-003	9.9700e-003		157.4033	157.4033	3.0200e-003	2.8900e-003	158.3387
NaturalGas Unmitigated	0.0144	0.1312	0.1102	7.9000e-004		9.9700e-003	9.9700e-003		9.9700e-003	9.9700e-003		157.4033	157.4033	3.0200e-003	2.8900e-003	158.3387

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					
General Heavy Industry	1123.9	0.0121	0.1102	0.0926	6.6000e-004		8.3700e-003	8.3700e-003		8.3700e-003	8.3700e-003		132.2238	132.2238	2.5300e-003	2.4200e-003	133.0096
Unrefrigerated Warehouse-No Rail	214.025	2.3100e-003	0.0210	0.0176	1.3000e-004		1.5900e-003	1.5900e-003		1.5900e-003	1.5900e-003		25.1794	25.1794	4.8000e-004	4.6000e-004	25.3291
Total		**0.0144**	**0.1312**	**0.1102**	**7.9000e-004**		**9.9600e-003**	**9.9600e-003**		**9.9600e-003**	**9.9600e-003**		**157.4033**	**157.4033**	**3.0100e-003**	**2.8800e-003**	**158.3387**

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					
General Heavy Industry	1.1239	0.0121	0.1102	0.0926	6.6000e-004		8.3700e-003	8.3700e-003		8.3700e-003	8.3700e-003		132.2238	132.2238	2.5300e-003	2.4200e-003	133.0096
Unrefrigerated Warehouse-No Rail	0.214025	2.3100e-003	0.0210	0.0176	1.3000e-004		1.5900e-003	1.5900e-003		1.5900e-003	1.5900e-003		25.1794	25.1794	4.8000e-004	4.6000e-004	25.3291
Total		**0.0144**	**0.1312**	**0.1102**	**7.9000e-004**		**9.9600e-003**	**9.9600e-003**		**9.9600e-003**	**9.9600e-003**		**157.4033**	**157.4033**	**3.0100e-003**	**2.8800e-003**	**158.3387**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	0.7763	3.0000e-005	3.5000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.4500e-003	7.4500e-003	2.0000e-005		7.9500e-003
Unmitigated	0.7763	3.0000e-005	3.5000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.4500e-003	7.4500e-003	2.0000e-005		7.9500e-003

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	0.0350					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.3000e-004	3.0000e-005	3.5000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.4500e-003	7.4500e-003	2.0000e-005		7.9500e-003
Total	**0.7764**	**3.0000e-005**	**3.5000e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**7.4500e-003**	**7.4500e-003**	**2.0000e-005**		**7.9500e-003**

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	0.0350					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.3000e-004	3.0000e-005	3.5000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		7.4500e-003	7.4500e-003	2.0000e-005		7.9500e-003
Total	**0.7764**	**3.0000e-005**	**3.5000e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**7.4500e-003**	**7.4500e-003**	**2.0000e-005**		**7.9500e-003**

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

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Pleasant Grove WWTP Energy Recovery

Placer-Sacramento County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	9.80	1000sqft	0.22	9,800.00	0
Parking Lot	117.50	1000sqft	2.70	117,500.00	0
Gasoline/Service Station	55.00	Pump	0.18	7,764.62	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	74
Climate Zone	2			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	380.56	**CH4 Intensity (lb/MWhr)**	0.027	**N2O Intensity (lb/MWhr)**	0.005

1.3 User Entered Comments & Non-Default Data

Pleasant Grove WWTP Energy Recovery - Placer-Sacramento County, Annual

Project Characteristics - 2020 system average PG&E emissions based on 2014 emission factors from The Climate Registry and a 22.7% renewable portfolio reported by CPUC (http://www.cpuc.ca.gov/RPS_Homepage/). Assumes a 37% renewable mix by 2020 based on PGE contract with the state.

Land Use - Land use input based on data request and project description.

Construction Phase - Construction schedule based on data request. Only equipment-hours were provided and no specific construction phasing were provided. Number of days were based on operation of equipment of approximately 6 hours per day.

Off-road Equipment - Based on Pleasant Grove Data Request

Off-road Equipment - Conservatively assumes that all equipment used in the phase would be used simulatenously. Other Construction Equipment = Walk Behind Trowel. Pumps = concrete pumps. Plate Compactors = gas engine vibrators.

Off-road Equipment - Only 1 backhoe/loader used to install bollards.

Off-road Equipment - 'Based on Pleasant Grove Data Request

Off-road Equipment - 'Based on Pleasant Grove Data Request

Off-road Equipment - 'Based on Pleasant Grove Data Request

Off-road Equipment - assumption based on size of arch coating

Trips and VMT - Hauling trips based on material/building supplies needed for construction.

Architectural Coating - No interior painting for the energy recovery facility. Exterior area based on sun of sqft described in project description.

Vehicle Trips -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Consumer Products -

Area Coating - See previous remarks regarding architectural coating

Energy Use -

Water And Wastewater -

Solid Waste -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	8,782.00	4,900.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	26,347.00	0.00
tblAreaCoating	Area_Nonresidential_Exterior	8782	4900

Pleasant Grove WWTP Energy Recovery - Placer-Sacramento County, Annual

tblAreaCoating	Area_Nonresidential_Interior	26347	0
tblConstructionPhase	NumDays	230.00	313.00
tblConstructionPhase	NumDays	230.00	2.00
tblConstructionPhase	NumDays	230.00	3.00
tblConstructionPhase	NumDays	18.00	56.00
tblConstructionPhase	PhaseEndDate	4/25/2019	4/15/2019
tblConstructionPhase	PhaseEndDate	4/29/2019	4/17/2019
tblConstructionPhase	PhaseEndDate	5/2/2019	7/9/2019
tblConstructionPhase	PhaseEndDate	7/19/2019	7/4/2019
tblConstructionPhase	PhaseEndDate	2/12/2018	7/19/2019
tblConstructionPhase	PhaseStartDate	2/13/2018	2/1/2018
tblConstructionPhase	PhaseStartDate	4/26/2019	4/16/2019
tblConstructionPhase	PhaseStartDate	4/30/2019	7/5/2019
tblConstructionPhase	PhaseStartDate	5/3/2019	4/18/2019
tblConstructionPhase	PhaseStartDate	2/1/2018	7/10/2019
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	80.00	60.00
tblOffRoadEquipment	HorsePower	97.00	48.00
tblOffRoadEquipment	HorsePower	221.00	205.00
tblOffRoadEquipment	HorsePower	221.00	150.00
tblOffRoadEquipment	HorsePower	158.00	162.00
tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	HorsePower	124.00	380.00
tblOffRoadEquipment	HorsePower	124.00	450.00

tblOffRoadEquipment	HorsePower	402.00	400.00
tblOffRoadEquipment	HorsePower	402.00	400.00
tblOffRoadEquipment	HorsePower	402.00	400.00
tblOffRoadEquipment	HorsePower	402.00	400.00
tblOffRoadEquipment	HorsePower	402.00	400.00
tblOffRoadEquipment	HorsePower	402.00	150.00
tblOffRoadEquipment	HorsePower	172.00	150.00
tblOffRoadEquipment	HorsePower	172.00	9.00
tblOffRoadEquipment	HorsePower	172.00	11.00
tblOffRoadEquipment	HorsePower	8.00	60.00
tblOffRoadEquipment	HorsePower	8.00	60.00
tblOffRoadEquipment	HorsePower	8.00	9.00
tblOffRoadEquipment	HorsePower	84.00	9.00
tblOffRoadEquipment	HorsePower	80.00	60.00
tblOffRoadEquipment	HorsePower	247.00	97.00
tblOffRoadEquipment	HorsePower	247.00	300.00
tblOffRoadEquipment	LoadFactor	0.50	0.34
tblOffRoadEquipment	LoadFactor	0.44	0.38
tblOffRoadEquipment	LoadFactor	0.44	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.34
tblOffRoadEquipment	LoadFactor	0.42	0.34
tblOffRoadEquipment	LoadFactor	0.42	0.36
tblOffRoadEquipment	LoadFactor	0.42	0.34
tblOffRoadEquipment	LoadFactor	0.43	0.38
tblOffRoadEquipment	LoadFactor	0.43	0.38
tblOffRoadEquipment	LoadFactor	0.43	0.56
tblOffRoadEquipment	LoadFactor	0.74	0.56

tblOffRoadEquipment	LoadFactor	0.40	0.37
tblOffRoadEquipment	LoadFactor	0.40	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	3.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.027
tblProjectCharacteristics	CO2IntensityFactor	641.35	380.56
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2018	2020
tblSolidWaste	SolidWasteGenerationRate	29.64	35.57
tblSolidWaste	SolidWasteGenerationRate	12.15	9.92
tblTripsAndVMT	HaulingTripNumber	0.00	1,306.00

tblTripsAndVMT	HaulingTripNumber	0.00	1,481.00
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblVehicleTrips	CC_TL	7.30	6.60
tblVehicleTrips	CC_TL	7.30	6.60
tblVehicleTrips	CC_TL	7.30	6.60
tblVehicleTrips	CNW_TL	7.30	6.60
tblVehicleTrips	CNW_TL	7.30	6.60
tblVehicleTrips	CNW_TL	7.30	6.60
tblVehicleTrips	CW_TL	9.50	14.70
tblVehicleTrips	CW_TL	9.50	14.70
tblVehicleTrips	CW_TL	9.50	14.70
tblWater	IndoorWaterUseRate	730,503.89	876,604.67
tblWater	IndoorWaterUseRate	2,266,250.00	1,850,000.00
tblWater	OutdoorWaterUseRate	447,728.19	537,273.82

2.0 Emissions Summary

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					
2018	0.2266	2.3216	1.3667	3.5300e-003	0.1072	0.0945	0.2016	0.0289	0.0873	0.1162	0.0000	322.1232	322.1232	0.0497	0.0000	323.3645
2019	0.2309	2.0868	1.3944	3.5500e-003	0.0713	0.0842	0.1555	0.0191	0.0778	0.0969	0.0000	323.2926	323.2926	0.0633	0.0000	324.8743
Maximum	**0.2309**	**2.3216**	**1.3944**	**3.5500e-003**	**0.1072**	**0.0945**	**0.2016**	**0.0289**	**0.0873**	**0.1162**	**0.0000**	**323.2926**	**323.2926**	**0.0633**	**0.0000**	**324.8743**

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					
2018	0.2266	2.3216	1.3667	3.5300e-003	0.1072	0.0945	0.2016	0.0289	0.0873	0.1162	0.0000	322.1231	322.1231	0.0497	0.0000	323.3643
2019	0.2309	2.0868	1.3944	3.5500e-003	0.0713	0.0842	0.1555	0.0191	0.0778	0.0969	0.0000	323.2924	323.2924	0.0633	0.0000	324.8741
Maximum	**0.2309**	**2.3216**	**1.3944**	**3.5500e-003**	**0.1072**	**0.0945**	**0.2016**	**0.0289**	**0.0873**	**0.1162**	**0.0000**	**323.2924**	**323.2924**	**0.0633**	**0.0000**	**324.8741**

	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	N20	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**

Pleasant Grove WWTP Energy Recovery - Placer-Sacramento County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
5	2-1-2019	4-30-2019	0.2363	0.2363
6	5-1-2019	7-31-2019	1.2129	1.2129
7	8-1-2019	9-30-2019	0.0369	0.0369
		Highest	1.2129	1.2129

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	0.0791	2.0000e-005	1.6900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2600e-003	3.2600e-003	1.0000e-005	0.0000	3.4800e-003
Energy	1.7700e-003	0.0161	0.0136	1.0000e-004		1.2300e-003	1.2300e-003		1.2300e-003	1.2300e-003	0.0000	61.5102	61.5102	3.4500e-003	9.0000e-004	61.8645
Mobile	2.1956	13.0068	15.0264	0.0368	1.8552	0.0408	1.8959	0.4990	0.0384	0.5374	0.0000	3,395.7117	3,395.7117	0.2830	0.0000	3,402.7871
Waste						0.0000	0.0000		0.0000	0.0000	9.2341	0.0000	9.2341	0.5457	0.0000	22.8770
Water						0.0000	0.0000		0.0000	0.0000	0.8650	2.8714	3.7364	0.0891	2.1400e-003	6.5991
Total	**2.2765**	**13.0229**	**15.0416**	**0.0369**	**1.8552**	**0.0420**	**1.8972**	**0.4990**	**0.0396**	**0.5387**	**10.0991**	**3,460.0964**	**3,470.1955**	**0.9213**	**3.0400e-003**	**3,494.1312**

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	0.0791	2.0000e-005	1.6900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2600e-003	3.2600e-003	1.0000e-005	0.0000	3.4800e-003
Energy	1.7700e-003	0.0161	0.0136	1.0000e-004		1.2300e-003	1.2300e-003		1.2300e-003	1.2300e-003	0.0000	61.5102	61.5102	3.4500e-003	9.0000e-004	61.8645
Mobile	2.1956	13.0068	15.0264	0.0368	1.8552	0.0408	1.8959	0.4990	0.0384	0.5374	0.0000	3,395.7117	3,395.7117	0.2830	0.0000	3,402.7871
Waste						0.0000	0.0000		0.0000	0.0000	9.2341	0.0000	9.2341	0.5457	0.0000	22.8770
Water						0.0000	0.0000		0.0000	0.0000	0.8650	2.8714	3.7364	0.0891	2.1400e-003	6.5991
Total	**2.2765**	**13.0229**	**15.0416**	**0.0369**	**1.8552**	**0.0420**	**1.8972**	**0.4990**	**0.0396**	**0.5387**	**10.0991**	**3,460.0964**	**3,470.1955**	**0.9213**	**3.0400e-003**	**3,494.1312**

	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	N20	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

Pleasant Grove WWTP Energy Recovery - Placer-Sacramento County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	01_Slab On Grade	Building Construction	2/1/2018	4/15/2019	5	313	313
2	02_Bollards	Building Construction	4/16/2019	4/17/2019	5	2	2
3	03_Paving	Paving	4/18/2019	7/4/2019	5	56	56
4	04_Fencing	Building Construction	7/5/2019	7/9/2019	5	3	3
5	05_Trench for Utilities	Trenching	7/10/2019	7/19/2019	5	8	8
6	06_Architectural Coating	Architectural Coating	7/20/2019	8/14/2019	5	18	default

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 2.7

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 4,900; Striped Parking Area: 7,050 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
05_Trench for Utilities	Excavators	1	6.00	162	0.38
05_Trench for Utilities	Off-Highway Trucks	1	6.00	400	0.38
05_Trench for Utilities	Plate Compactors	1	6.00	60	0.38
05_Trench for Utilities	Plate Compactors	1	6.00	60	0.38
05_Trench for Utilities	Rollers	1	6.00	60	0.38
05_Trench for Utilities	Rubber Tired Dozers	1	6.00	97	0.37
05_Trench for Utilities	Tractors/Loaders/Backhoes	1	5.00	97	0.37
01_Slab On Grade	Cranes	1	6.00	226	0.29
01_Slab On Grade	Forklifts	0	8.00	89	0.20
01_Slab On Grade	Generator Sets	0	8.00	84	0.74

01_Slab On Grade	Graders	1	6.00	174	0.41
01_Slab On Grade	Other Construction Equipment	1	6.00	150	0.34
01_Slab On Grade	Plate Compactors	1	6.00	9	0.56
01_Slab On Grade	Pumps	1	6.00	9	0.56
01_Slab On Grade	Tractors/Loaders/Backhoes	0	7.00	97	0.37
01_Slab On Grade	Welders	0	8.00	46	0.45
02_Bollards	Cranes	0	7.00	226	0.29
02_Bollards	Forklifts	0	8.00	89	0.20
02_Bollards	Generator Sets	0	8.00	84	0.74
02_Bollards	Tractors/Loaders/Backhoes	1	6.00	97	0.37
02_Bollards	Welders	0	8.00	46	0.45
04_Fencing	Bore/Drill Rigs	1	6.00	205	0.50
04_Fencing	Cranes	1	3.00	226	0.29
04_Fencing	Forklifts	3	8.00	89	0.20
04_Fencing	Generator Sets	1	8.00	84	0.74
04_Fencing	Off-Highway Trucks	1	6.00	400	0.38
04_Fencing	Tractors/Loaders/Backhoes	0	7.00	97	0.37
04_Fencing	Welders	0	8.00	46	0.45
03_Paving	Bore/Drill Rigs	1	1.00	150	0.34
03_Paving	Cement and Mortar Mixers	0	6.00	9	0.56
03_Paving	Graders	1	6.00	174	0.41
03_Paving	Off-Highway Tractors	1	3.00	380	0.38
03_Paving	Off-Highway Tractors	1	6.00	450	0.38
03_Paving	Off-Highway Trucks	1	6.00	400	0.38
03_Paving	Off-Highway Trucks	1	6.00	400	0.38
03_Paving	Off-Highway Trucks	1	3.00	400	0.38
03_Paving	Off-Highway Trucks	1	3.00	150	0.34

03_Paving	Other Construction Equipment	1	3.00	9	0.36
03_Paving	Other Construction Equipment	1	1.00	11	0.34
03_Paving	Pavers	1	6.00	130	0.42
03_Paving	Paving Equipment	2	6.00	132	0.36
03_Paving	Rollers	2	6.00	60	0.38
03_Paving	Rubber Tired Dozers	1	6.00	300	0.37
03_Paving	Sweepers/Scrubbers	1	1.00	64	0.46
03_Paving	Tractors/Loaders/Backhoes	1	3.00	48	0.37
06_Architectural Coating	Air Compressors	2	6.00	78	0.48

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
05_Trench for Utilities	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
01_Slab On Grade	5	56.00	22.00	1,306.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
02_Bollards	1	56.00	22.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
04_Fencing	7	56.00	22.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
03_Paving	18	45.00	0.00	1,481.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
06_Architectural Coating	2	11.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 01_Slab On Grade - 2018

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	0.1705	1.7896	0.9547	1.5700e-003		0.0909	0.0909		0.0839	0.0839	0.0000	140.3801	140.3801	0.0421	0.0000	141.4320
Total	**0.1705**	**1.7896**	**0.9547**	**1.5700e-003**		**0.0909**	**0.0909**		**0.0839**	**0.0839**	**0.0000**	**140.3801**	**140.3801**	**0.0421**	**0.0000**	**141.4320**

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	4.8700e-003	0.1591	0.0258	4.2000e-004	0.0103	7.5000e-004	0.0111	2.7800e-003	7.2000e-004	3.5000e-003	0.0000	39.4960	39.4960	1.4500e-003	0.0000	39.5323
Vendor	0.0124	0.3423	0.0750	7.2000e-004	0.0155	2.3000e-003	0.0178	4.4800e-003	2.2000e-003	6.6700e-003	0.0000	68.2150	68.2150	4.0000e-003	0.0000	68.3150
Worker	0.0389	0.0307	0.3112	8.2000e-004	0.0814	5.3000e-004	0.0819	0.0217	4.9000e-004	0.0221	0.0000	74.0321	74.0321	2.1200e-003	0.0000	74.0852
Total	**0.0562**	**0.5320**	**0.4120**	**1.9600e-003**	**0.1072**	**3.5800e-003**	**0.1107**	**0.0289**	**3.4100e-003**	**0.0323**	**0.0000**	**181.7431**	**181.7431**	**7.5700e-003**	**0.0000**	**181.9325**

3.2 01_Slab On Grade - 2018

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	0.1705	1.7896	0.9547	1.5700e-003		0.0909	0.0909		0.0839	0.0839	0.0000	140.3799	140.3799	0.0421	0.0000	141.4319
Total	**0.1705**	**1.7896**	**0.9547**	**1.5700e-003**		**0.0909**	**0.0909**		**0.0839**	**0.0839**	**0.0000**	**140.3799**	**140.3799**	**0.0421**	**0.0000**	**141.4319**

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	4.8700e-003	0.1591	0.0258	4.2000e-004	0.0103	7.5000e-004	0.0111	2.7800e-003	7.2000e-004	3.5000e-003	0.0000	39.4960	39.4960	1.4500e-003	0.0000	39.5323
Vendor	0.0124	0.3423	0.0750	7.2000e-004	0.0155	2.3000e-003	0.0178	4.4800e-003	2.2000e-003	6.6700e-003	0.0000	68.2150	68.2150	4.0000e-003	0.0000	68.3150
Worker	0.0389	0.0307	0.3112	8.2000e-004	0.0814	5.3000e-004	0.0819	0.0217	4.9000e-004	0.0221	0.0000	74.0321	74.0321	2.1200e-003	0.0000	74.0852
Total	**0.0562**	**0.5320**	**0.4120**	**1.9600e-003**	**0.1072**	**3.5800e-003**	**0.1107**	**0.0289**	**3.4100e-003**	**0.0323**	**0.0000**	**181.7431**	**181.7431**	**7.5700e-003**	**0.0000**	**181.9325**

3.2 01_Slab On Grade - 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	0.0494	0.5122	0.2924	5.0000e-004		0.0258	0.0258		0.0238	0.0238	0.0000	43.5626	43.5626	0.0133	0.0000	43.8939
Total	**0.0494**	**0.5122**	**0.2924**	**5.0000e-004**		**0.0258**	**0.0258**		**0.0238**	**0.0238**	**0.0000**	**43.5626**	**43.5626**	**0.0133**	**0.0000**	**43.8939**

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	1.4100e-003	0.0470	7.6200e-003	1.3000e-004	8.8600e-003	2.0000e-004	9.0600e-003	2.2500e-003	1.9000e-004	2.4400e-003	0.0000	12.3068	12.3068	4.4000e-004	0.0000	12.3177
Vendor	3.4500e-003	0.1019	0.0211	2.2000e-004	4.8700e-003	5.9000e-004	5.4600e-003	1.4100e-003	5.6000e-004	1.9700e-003	0.0000	21.3144	21.3144	1.2000e-003	0.0000	21.3444
Worker	0.0111	8.4900e-003	0.0876	2.5000e-004	0.0256	1.7000e-004	0.0258	6.8200e-003	1.5000e-004	6.9800e-003	0.0000	22.6298	22.6298	5.9000e-004	0.0000	22.6446
Total	**0.0160**	**0.1574**	**0.1164**	**6.0000e-004**	**0.0394**	**9.6000e-004**	**0.0403**	**0.0105**	**9.0000e-004**	**0.0114**	**0.0000**	**56.2510**	**56.2510**	**2.2300e-003**	**0.0000**	**56.3067**

3.2 01_Slab On Grade - 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	0.0494	0.5122	0.2924	5.0000e-004		0.0258	0.0258		0.0238	0.0238	0.0000	43.5626	43.5626	0.0133	0.0000	43.8939
Total	**0.0494**	**0.5122**	**0.2924**	**5.0000e-004**		**0.0258**	**0.0258**		**0.0238**	**0.0238**	**0.0000**	**43.5626**	**43.5626**	**0.0133**	**0.0000**	**43.8939**

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	1.4100e-003	0.0470	7.6200e-003	1.3000e-004	8.8600e-003	2.0000e-004	9.0600e-003	2.2500e-003	1.9000e-004	2.4400e-003	0.0000	12.3068	12.3068	4.4000e-004	0.0000	12.3177
Vendor	3.4500e-003	0.1019	0.0211	2.2000e-004	4.8700e-003	5.9000e-004	5.4600e-003	1.4100e-003	5.6000e-004	1.9700e-003	0.0000	21.3144	21.3144	1.2000e-003	0.0000	21.3444
Worker	0.0111	8.4900e-003	0.0876	2.5000e-004	0.0256	1.7000e-004	0.0258	6.8200e-003	1.5000e-004	6.9800e-003	0.0000	22.6298	22.6298	5.9000e-004	0.0000	22.6446
Total	**0.0160**	**0.1574**	**0.1164**	**6.0000e-004**	**0.0394**	**9.6000e-004**	**0.0403**	**0.0105**	**9.0000e-004**	**0.0114**	**0.0000**	**56.2510**	**56.2510**	**2.2300e-003**	**0.0000**	**56.3067**

3.3 02_Bollards - 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	1.7000e-004	1.7500e-003	1.7300e-003	0.0000		1.2000e-004	1.2000e-004		1.1000e-004	1.1000e-004	0.0000	0.2093	0.2093	7.0000e-005	0.0000	0.2109
Total	**1.7000e-004**	**1.7500e-003**	**1.7300e-003**	**0.0000**		**1.2000e-004**	**1.2000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**0.2093**	**0.2093**	**7.0000e-005**	**0.0000**	**0.2109**

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	9.0000e-005	2.7200e-003	5.6000e-004	1.0000e-005	1.3000e-004	2.0000e-005	1.5000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.5684	0.5684	3.0000e-005	0.0000	0.5692
Worker	3.0000e-004	2.3000e-004	2.3400e-003	1.0000e-005	6.8000e-004	0.0000	6.9000e-004	1.8000e-004	0.0000	1.9000e-004	0.0000	0.6035	0.6035	2.0000e-005	0.0000	0.6039
Total	**3.9000e-004**	**2.9500e-003**	**2.9000e-003**	**2.0000e-005**	**8.1000e-004**	**2.0000e-005**	**8.4000e-004**	**2.2000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**1.1718**	**1.1718**	**5.0000e-005**	**0.0000**	**1.1730**

3.3 02_Bollards - 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	1.7000e-004	1.7500e-003	1.7300e-003	0.0000		1.2000e-004	1.2000e-004		1.1000e-004	1.1000e-004	0.0000	0.2093	0.2093	7.0000e-005	0.0000	0.2109
Total	**1.7000e-004**	**1.7500e-003**	**1.7300e-003**	**0.0000**		**1.2000e-004**	**1.2000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**0.2093**	**0.2093**	**7.0000e-005**	**0.0000**	**0.2109**

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	9.0000e-005	2.7200e-003	5.6000e-004	1.0000e-005	1.3000e-004	2.0000e-005	1.5000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.5684	0.5684	3.0000e-005	0.0000	0.5692
Worker	3.0000e-004	2.3000e-004	2.3400e-003	1.0000e-005	6.8000e-004	0.0000	6.9000e-004	1.8000e-004	0.0000	1.9000e-004	0.0000	0.6035	0.6035	2.0000e-005	0.0000	0.6039
Total	**3.9000e-004**	**2.9500e-003**	**2.9000e-003**	**2.0000e-005**	**8.1000e-004**	**2.0000e-005**	**8.4000e-004**	**2.2000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**1.1718**	**1.1718**	**5.0000e-005**	**0.0000**	**1.1730**

3.4 03_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	0.1074	1.0792	0.7968	1.4700e-003		0.0506	0.0506		0.0465	0.0465	0.0000	131.9296	131.9296	0.0417	0.0000	132.9731
Paving	3.5400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1110**	**1.0792**	**0.7968**	**1.4700e-003**		**0.0506**	**0.0506**		**0.0465**	**0.0465**	**0.0000**	**131.9296**	**131.9296**	**0.0417**	**0.0000**	**132.9731**

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	6.6800e-003	0.2222	0.0361	6.1000e-004	0.0125	9.4000e-004	0.0134	3.4300e-003	8.9000e-004	4.3200e-003	0.0000	58.2424	58.2424	2.0700e-003	0.0000	58.2942
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	6.6600e-003	5.1000e-003	0.0526	1.5000e-004	0.0154	1.0000e-004	0.0155	4.0900e-003	9.0000e-005	4.1900e-003	0.0000	13.5779	13.5779	3.6000e-004	0.0000	13.5868
Total	**0.0133**	**0.2273**	**0.0887**	**7.6000e-004**	**0.0278**	**1.0400e-003**	**0.0289**	**7.5200e-003**	**9.8000e-004**	**8.5100e-003**	**0.0000**	**71.8203**	**71.8203**	**2.4300e-003**	**0.0000**	**71.8809**

3.4 03_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	0.1074	1.0792	0.7968	1.4700e-003		0.0506	0.0506		0.0465	0.0465	0.0000	131.9294	131.9294	0.0417	0.0000	132.9729
Paving	3.5400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1110**	**1.0792**	**0.7968**	**1.4700e-003**		**0.0506**	**0.0506**		**0.0465**	**0.0465**	**0.0000**	**131.9294**	**131.9294**	**0.0417**	**0.0000**	**132.9729**

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	6.6800e-003	0.2222	0.0361	6.1000e-004	0.0125	9.4000e-004	0.0134	3.4300e-003	8.9000e-004	4.3200e-003	0.0000	58.2424	58.2424	2.0700e-003	0.0000	58.2942
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	6.6600e-003	5.1000e-003	0.0526	1.5000e-004	0.0154	1.0000e-004	0.0155	4.0900e-003	9.0000e-005	4.1900e-003	0.0000	13.5779	13.5779	3.6000e-004	0.0000	13.5868
Total	**0.0133**	**0.2273**	**0.0887**	**7.6000e-004**	**0.0278**	**1.0400e-003**	**0.0289**	**7.5200e-003**	**9.8000e-004**	**8.5100e-003**	**0.0000**	**71.8203**	**71.8203**	**2.4300e-003**	**0.0000**	**71.8809**

3.5 04_Fencing - 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	2.7500e-003	0.0273	0.0189	4.0000e-005		1.3800e-003	1.3800e-003		1.3000e-003	1.3000e-003	0.0000	3.9566	3.9566	1.0400e-003	0.0000	3.9825
Total	**2.7500e-003**	**0.0273**	**0.0189**	**4.0000e-005**		**1.3800e-003**	**1.3800e-003**		**1.3000e-003**	**1.3000e-003**	**0.0000**	**3.9566**	**3.9566**	**1.0400e-003**	**0.0000**	**3.9825**

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	1.4000e-004	4.0800e-003	8.4000e-004	1.0000e-005	1.9000e-004	2.0000e-005	2.2000e-004	6.0000e-005	2.0000e-005	8.0000e-005	0.0000	0.8526	0.8526	5.0000e-005	0.0000	0.8538
Worker	4.4000e-004	3.4000e-004	3.5100e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0300e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.9052	0.9052	2.0000e-005	0.0000	0.9058
Total	**5.8000e-004**	**4.4200e-003**	**4.3500e-003**	**2.0000e-005**	**1.2200e-003**	**3.0000e-005**	**1.2500e-003**	**3.3000e-004**	**3.0000e-005**	**3.6000e-004**	**0.0000**	**1.7578**	**1.7578**	**7.0000e-005**	**0.0000**	**1.7596**

3.5 04_Fencing - 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	2.7500e-003	0.0273	0.0189	4.0000e-005		1.3800e-003	1.3800e-003		1.3000e-003	1.3000e-003	0.0000	3.9566	3.9566	1.0400e-003	0.0000	3.9825
Total	**2.7500e-003**	**0.0273**	**0.0189**	**4.0000e-005**		**1.3800e-003**	**1.3800e-003**		**1.3000e-003**	**1.3000e-003**	**0.0000**	**3.9566**	**3.9566**	**1.0400e-003**	**0.0000**	**3.9825**

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	1.4000e-004	4.0800e-003	8.4000e-004	1.0000e-005	1.9000e-004	2.0000e-005	2.2000e-004	6.0000e-005	2.0000e-005	8.0000e-005	0.0000	0.8526	0.8526	5.0000e-005	0.0000	0.8538
Worker	4.4000e-004	3.4000e-004	3.5100e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0300e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.9052	0.9052	2.0000e-005	0.0000	0.9058
Total	**5.8000e-004**	**4.4200e-003**	**4.3500e-003**	**2.0000e-005**	**1.2200e-003**	**3.0000e-005**	**1.2500e-003**	**3.3000e-004**	**3.0000e-005**	**3.6000e-004**	**0.0000**	**1.7578**	**1.7578**	**7.0000e-005**	**0.0000**	**1.7596**

3.6 05_Trench for Utilities - 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	4.0100e-003	0.0406	0.0320	7.0000e-005		1.9000e-003	1.9000e-003		1.7500e-003	1.7500e-003	0.0000	6.1952	6.1952	1.9600e-003	0.0000	6.2442
Total	**4.0100e-003**	**0.0406**	**0.0320**	**7.0000e-005**		**1.9000e-003**	**1.9000e-003**		**1.7500e-003**	**1.7500e-003**	**0.0000**	**6.1952**	**6.1952**	**1.9600e-003**	**0.0000**	**6.2442**

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	3.8000e-004	2.9000e-004	3.0000e-003	1.0000e-005	8.8000e-004	1.0000e-005	8.8000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.7759	0.7759	2.0000e-005	0.0000	0.7764
Total	**3.8000e-004**	**2.9000e-004**	**3.0000e-003**	**1.0000e-005**	**8.8000e-004**	**1.0000e-005**	**8.8000e-004**	**2.3000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.7759**	**0.7759**	**2.0000e-005**	**0.0000**	**0.7764**

3.6 05_Trench for Utilities - 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	4.0100e-003	0.0406	0.0320	7.0000e-005		1.9000e-003	1.9000e-003		1.7500e-003	1.7500e-003	0.0000	6.1952	6.1952	1.9600e-003	0.0000	6.2442
Total	**4.0100e-003**	**0.0406**	**0.0320**	**7.0000e-005**		**1.9000e-003**	**1.9000e-003**		**1.7500e-003**	**1.7500e-003**	**0.0000**	**6.1952**	**6.1952**	**1.9600e-003**	**0.0000**	**6.2442**

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	3.8000e-004	2.9000e-004	3.0000e-003	1.0000e-005	8.8000e-004	1.0000e-005	8.8000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.7759	0.7759	2.0000e-005	0.0000	0.7764
Total	**3.8000e-004**	**2.9000e-004**	**3.0000e-003**	**1.0000e-005**	**8.8000e-004**	**1.0000e-005**	**8.8000e-004**	**2.3000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.7759**	**0.7759**	**2.0000e-005**	**0.0000**	**0.7764**

3.7 06_Architectural Coating - 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					
Archit. Coating	0.0277					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8000e-003	0.0330	0.0331	5.0000e-005		2.3200e-003	2.3200e-003		2.3200e-003	2.3200e-003	0.0000	4.5959	4.5959	3.9000e-004	0.0000	4.6056
Total	**0.0325**	**0.0330**	**0.0331**	**5.0000e-005**		**2.3200e-003**	**2.3200e-003**		**2.3200e-003**	**2.3200e-003**	**0.0000**	**4.5959**	**4.5959**	**3.9000e-004**	**0.0000**	**4.6056**

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	5.2000e-004	4.0000e-004	4.1300e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0668	1.0668	3.0000e-005	0.0000	1.0675
Total	**5.2000e-004**	**4.0000e-004**	**4.1300e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0668**	**1.0668**	**3.0000e-005**	**0.0000**	**1.0675**

3.7 06_Architectural Coating - 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					
Archit. Coating	0.0277					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8000e-003	0.0330	0.0331	5.0000e-005		2.3200e-003	2.3200e-003		2.3200e-003	2.3200e-003	0.0000	4.5959	4.5959	3.9000e-004	0.0000	4.6056
Total	**0.0325**	**0.0330**	**0.0331**	**5.0000e-005**		**2.3200e-003**	**2.3200e-003**		**2.3200e-003**	**2.3200e-003**	**0.0000**	**4.5959**	**4.5959**	**3.9000e-004**	**0.0000**	**4.6056**

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	5.2000e-004	4.0000e-004	4.1300e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0668	1.0668	3.0000e-005	0.0000	1.0675
Total	**5.2000e-004**	**4.0000e-004**	**4.1300e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0668**	**1.0668**	**3.0000e-005**	**0.0000**	**1.0675**

4.0 Operational Detail - Mobile

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	2.1956	13.0068	15.0264	0.0368	1.8552	0.0408	1.8959	0.4990	0.0384	0.5374	0.0000	3,395.7117	3,395.7117	0.2830	0.0000	3,402.7871
Unmitigated	2.1956	13.0068	15.0264	0.0368	1.8552	0.0408	1.8959	0.4990	0.0384	0.5374	0.0000	3,395.7117	3,395.7117	0.2830	0.0000	3,402.7871

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Gasoline/Service Station	9,270.80	9,270.80	9270.80	4,934,011	4,934,011
General Heavy Industry	14.70	14.70	14.70	56,793	56,793
Parking Lot	0.00	0.00	0.00		
Total	9,285.50	9,285.50	9,285.50	4,990,804	4,990,804

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
Gasoline/Service Station	14.70	6.60	6.60	2.00	79.00	19.00	14	27	59
General Heavy Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3
Parking Lot	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
General Heavy Industry	0.489257	0.041257	0.220156	0.132626	0.025790	0.006586	0.027831	0.045583	0.001467	0.001229	0.006102	0.000783	0.001333
Parking Lot	0.489257	0.041257	0.220156	0.132626	0.025790	0.006586	0.027831	0.045583	0.001467	0.001229	0.006102	0.000783	0.001333
Gasoline/Service Station	0.489257	0.041257	0.220156	0.132626	0.025790	0.006586	0.027831	0.045583	0.001467	0.001229	0.006102	0.000783	0.001333

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	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	43.9542	43.9542	3.1200e-003	5.8000e-004	44.2043
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	43.9542	43.9542	3.1200e-003	5.8000e-004	44.2043
NaturalGas Mitigated	1.7700e-003	0.0161	0.0136	1.0000e-004		1.2300e-003	1.2300e-003		1.2300e-003	1.2300e-003	0.0000	17.5559	17.5559	3.4000e-004	3.2000e-004	17.6602
NaturalGas Unmitigated	1.7700e-003	0.0161	0.0136	1.0000e-004		1.2300e-003	1.2300e-003		1.2300e-003	1.2300e-003	0.0000	17.5559	17.5559	3.4000e-004	3.2000e-004	17.6602

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	tons/yr										MT/yr					
Gasoline/Service Station	145431	7.8000e-004	7.1300e-003	5.9900e-003	4.0000e-005		5.4000e-004	5.4000e-004		5.4000e-004	5.4000e-004	0.0000	7.7608	7.7608	1.5000e-004	1.4000e-004	7.8069
General Heavy Industry	183554	9.9000e-004	9.0000e-003	7.5600e-003	5.0000e-005		6.8000e-004	6.8000e-004		6.8000e-004	6.8000e-004	0.0000	9.7951	9.7951	1.9000e-004	1.8000e-004	9.8534
Parking Lot	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	0.0000
Total		**1.7700e-003**	**0.0161**	**0.0136**	**9.0000e-005**		**1.2200e-003**	**1.2200e-003**		**1.2200e-003**	**1.2200e-003**	**0.0000**	**17.5559**	**17.5559**	**3.4000e-004**	**3.2000e-004**	**17.6602**

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	tons/yr										MT/yr					
Gasoline/Service Station	145431	7.8000e-004	7.1300e-003	5.9900e-003	4.0000e-005		5.4000e-004	5.4000e-004		5.4000e-004	5.4000e-004	0.0000	7.7608	7.7608	1.5000e-004	1.4000e-004	7.8069
General Heavy Industry	183554	9.9000e-004	9.0000e-003	7.5600e-003	5.0000e-005		6.8000e-004	6.8000e-004		6.8000e-004	6.8000e-004	0.0000	9.7951	9.7951	1.9000e-004	1.8000e-004	9.8534
Parking Lot	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	0.0000
Total		**1.7700e-003**	**0.0161**	**0.0136**	**9.0000e-005**		**1.2200e-003**	**1.2200e-003**		**1.2200e-003**	**1.2200e-003**	**0.0000**	**17.5559**	**17.5559**	**3.4000e-004**	**3.2000e-004**	**17.6602**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Gasoline/Service Station	66853.4	11.5402	8.2000e-004	1.5000e-004	11.6058
General Heavy Industry	84378	14.5653	1.0300e-003	1.9000e-004	14.6481
Parking Lot	103400	17.8488	1.2700e-003	2.3000e-004	17.9504
Total		**43.9543**	**3.1200e-003**	**5.7000e-004**	**44.2043**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Gasoline/Service Station	66853.4	11.5402	8.2000e-004	1.5000e-004	11.6058
General Heavy Industry	84378	14.5653	1.0300e-003	1.9000e-004	14.6481
Parking Lot	103400	17.8488	1.2700e-003	2.3000e-004	17.9504
Total		**43.9543**	**3.1200e-003**	**5.7000e-004**	**44.2043**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	0.0791	2.0000e-005	1.6900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2600e-003	3.2600e-003	1.0000e-005	0.0000	3.4800e-003
Unmitigated	0.0791	2.0000e-005	1.6900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2600e-003	3.2600e-003	1.0000e-005	0.0000	3.4800e-003

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	2.7700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0762					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6000e-004	2.0000e-005	1.6900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2600e-003	3.2600e-003	1.0000e-005	0.0000	3.4800e-003
Total	**0.0791**	**2.0000e-005**	**1.6900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.2600e-003**	**3.2600e-003**	**1.0000e-005**	**0.0000**	**3.4800e-003**

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	2.7700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0762					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6000e-004	2.0000e-005	1.6900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.2600e-003	3.2600e-003	1.0000e-005	0.0000	3.4800e-003
Total	**0.0791**	**2.0000e-005**	**1.6900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.2600e-003**	**3.2600e-003**	**1.0000e-005**	**0.0000**	**3.4800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	3.7364	0.0891	2.1400e-003	6.5991
Unmitigated	3.7364	0.0891	2.1400e-003	6.5991

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Gasoline/Service Station	0.876605 / 0.537274	1.4215	0.0287	6.9000e-004	2.3431
General Heavy Industry	1.85 / 0	2.3149	0.0604	1.4500e-003	4.2560
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**3.7364**	**0.0891**	**2.1400e-003**	**6.5991**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Gasoline/Service Station	0.876605 / 0.537274	1.4215	0.0287	6.9000e-004	2.3431
General Heavy Industry	1.85 / 0	2.3149	0.0604	1.4500e-003	4.2560
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**3.7364**	**0.0891**	**2.1400e-003**	**6.5991**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	9.2341	0.5457	0.0000	22.8770
Unmitigated	9.2341	0.5457	0.0000	22.8770

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Gasoline/Service Station	35.57	7.2204	0.4267	0.0000	17.8882
General Heavy Industry	9.92	2.0137	0.1190	0.0000	4.9888
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**9.2341**	**0.5457**	**0.0000**	**22.8770**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Gasoline/Service Station	35.57	7.2204	0.4267	0.0000	17.8882
General Heavy Industry	9.92	2.0137	0.1190	0.0000	4.9888
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**9.2341**	**0.5457**	**0.0000**	**22.8770**

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

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Pleasant Grove WWTP Energy Recovery

Placer-Sacramento County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	9.80	1000sqft	0.22	9,800.00	0
Parking Lot	117.50	1000sqft	2.70	117,500.00	0
Gasoline/Service Station	55.00	Pump	0.18	7,764.62	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	74
Climate Zone	2			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	380.56	**CH4 Intensity (lb/MWhr)**	0.027	**N2O Intensity (lb/MWhr)**	0.005

1.3 User Entered Comments & Non-Default Data

Pleasant Grove WWTP Energy Recovery - Placer-Sacramento County, Summer

Project Characteristics - 2020 system average PG&E emissions based on 2014 emission factors from The Climate Registry and a 22.7% renewable portfolio reported by CPUC (http://www.cpuc.ca.gov/RPS_Homepage/). Assumes a 37% renewable mix by 2020 based on PGE contract with the state.

Land Use - Land use input based on data request and project description.

Construction Phase - Construction schedule based on data request. Only equipment-hours were provided and no specific construction phasing were provided. Number of days were based on operation of equipment of approximately 6 hours per day.

Off-road Equipment - Based on Pleasant Grove Data Request

Off-road Equipment - Conservatively assumes that all equipment used in the phase would be used simulatenously. Other Construction Equipment = Walk Behind Trowel. Pumps = concrete pumps. Plate Compactors = gas engine vibrators.

Off-road Equipment - Only 1 backhoe/loader used to install bollards.

Off-road Equipment - 'Based on Pleasant Grove Data Request

Off-road Equipment - 'Based on Pleasant Grove Data Request

Off-road Equipment - 'Based on Pleasant Grove Data Request

Off-road Equipment - assumption based on size of arch coating

Trips and VMT - Hauling trips based on material/building supplies needed for construction.

Architectural Coating - No interior painting for the energy recovery facility. Exterior area based on sun of sqft described in project description.

Vehicle Trips -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Consumer Products -

Area Coating - See previous remarks regarding architectural coating

Energy Use -

Water And Wastewater -

Solid Waste -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	8,782.00	4,900.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	26,347.00	0.00
tblAreaCoating	Area_Nonresidential_Exterior	8782	4900

Pleasant Grove WWTP Energy Recovery - Placer-Sacramento County, Summer

tblAreaCoating	Area_Nonresidential_Interior	26347	0
tblConstructionPhase	NumDays	230.00	313.00
tblConstructionPhase	NumDays	230.00	2.00
tblConstructionPhase	NumDays	230.00	3.00
tblConstructionPhase	NumDays	18.00	56.00
tblConstructionPhase	PhaseEndDate	4/25/2019	4/15/2019
tblConstructionPhase	PhaseEndDate	4/29/2019	4/17/2019
tblConstructionPhase	PhaseEndDate	5/2/2019	7/9/2019
tblConstructionPhase	PhaseEndDate	7/19/2019	7/4/2019
tblConstructionPhase	PhaseEndDate	2/12/2018	7/19/2019
tblConstructionPhase	PhaseStartDate	2/13/2018	2/1/2018
tblConstructionPhase	PhaseStartDate	4/26/2019	4/16/2019
tblConstructionPhase	PhaseStartDate	4/30/2019	7/5/2019
tblConstructionPhase	PhaseStartDate	5/3/2019	4/18/2019
tblConstructionPhase	PhaseStartDate	2/1/2018	7/10/2019
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	80.00	60.00
tblOffRoadEquipment	HorsePower	97.00	48.00
tblOffRoadEquipment	HorsePower	221.00	205.00
tblOffRoadEquipment	HorsePower	221.00	150.00
tblOffRoadEquipment	HorsePower	158.00	162.00
tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	HorsePower	124.00	380.00
tblOffRoadEquipment	HorsePower	124.00	450.00

tblOffRoadEquipment	HorsePower	402.00	400.00
tblOffRoadEquipment	HorsePower	402.00	400.00
tblOffRoadEquipment	HorsePower	402.00	400.00
tblOffRoadEquipment	HorsePower	402.00	400.00
tblOffRoadEquipment	HorsePower	402.00	400.00
tblOffRoadEquipment	HorsePower	402.00	150.00
tblOffRoadEquipment	HorsePower	172.00	150.00
tblOffRoadEquipment	HorsePower	172.00	9.00
tblOffRoadEquipment	HorsePower	172.00	11.00
tblOffRoadEquipment	HorsePower	8.00	60.00
tblOffRoadEquipment	HorsePower	8.00	60.00
tblOffRoadEquipment	HorsePower	8.00	9.00
tblOffRoadEquipment	HorsePower	84.00	9.00
tblOffRoadEquipment	HorsePower	80.00	60.00
tblOffRoadEquipment	HorsePower	247.00	97.00
tblOffRoadEquipment	HorsePower	247.00	300.00
tblOffRoadEquipment	LoadFactor	0.50	0.34
tblOffRoadEquipment	LoadFactor	0.44	0.38
tblOffRoadEquipment	LoadFactor	0.44	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.34
tblOffRoadEquipment	LoadFactor	0.42	0.34
tblOffRoadEquipment	LoadFactor	0.42	0.36
tblOffRoadEquipment	LoadFactor	0.42	0.34
tblOffRoadEquipment	LoadFactor	0.43	0.38
tblOffRoadEquipment	LoadFactor	0.43	0.38
tblOffRoadEquipment	LoadFactor	0.43	0.56
tblOffRoadEquipment	LoadFactor	0.74	0.56

tblOffRoadEquipment	LoadFactor	0.40	0.37
tblOffRoadEquipment	LoadFactor	0.40	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	3.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.027
tblProjectCharacteristics	CO2IntensityFactor	641.35	380.56
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2018	2020
tblSolidWaste	SolidWasteGenerationRate	29.64	35.57
tblSolidWaste	SolidWasteGenerationRate	12.15	9.92
tblTripsAndVMT	HaulingTripNumber	0.00	1,306.00

tblTripsAndVMT	HaulingTripNumber	0.00	1,481.00
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	VendorTripLength	7.30	6.60
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblTripsAndVMT	WorkerTripLength	10.80	16.80
tblVehicleTrips	CC_TL	7.30	6.60
tblVehicleTrips	CC_TL	7.30	6.60
tblVehicleTrips	CC_TL	7.30	6.60
tblVehicleTrips	CNW_TL	7.30	6.60
tblVehicleTrips	CNW_TL	7.30	6.60
tblVehicleTrips	CNW_TL	7.30	6.60
tblVehicleTrips	CW_TL	9.50	14.70
tblVehicleTrips	CW_TL	9.50	14.70
tblVehicleTrips	CW_TL	9.50	14.70
tblWater	IndoorWaterUseRate	730,503.89	876,604.67
tblWater	IndoorWaterUseRate	2,266,250.00	1,850,000.00
tblWater	OutdoorWaterUseRate	447,728.19	537,273.82

2.0 Emissions Summary

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					
2018	1.9281	19.3943	11.7938	0.0304	0.9405	0.7934	1.7339	0.2528	0.7331	0.9859	0.0000	3,062.9964	3,062.9964	0.4592	0.0000	3,074.4752
2019	4.4548	46.4312	31.8349	0.0804	1.0981	1.8427	2.8802	0.2915	1.6965	1.9758	0.0000	8,095.1210	8,095.1210	1.7360	0.0000	8,138.5206
Maximum	**4.4548**	**46.4312**	**31.8349**	**0.0804**	**1.0981**	**1.8427**	**2.8802**	**0.2915**	**1.6965**	**1.9758**	**0.0000**	**8,095.1210**	**8,095.1210**	**1.7360**	**0.0000**	**8,138.5206**

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					
2018	1.9281	19.3943	11.7938	0.0304	0.9405	0.7934	1.7339	0.2528	0.7331	0.9859	0.0000	3,062.9964	3,062.9964	0.4592	0.0000	3,074.4752
2019	4.4548	46.4312	31.8349	0.0804	1.0981	1.8427	2.8802	0.2915	1.6965	1.9758	0.0000	8,095.1209	8,095.1209	1.7360	0.0000	8,138.5206
Maximum	**4.4548**	**46.4312**	**31.8349**	**0.0804**	**1.0981**	**1.8427**	**2.8802**	**0.2915**	**1.6965**	**1.9758**	**0.0000**	**8,095.1209**	**8,095.1209**	**1.7360**	**0.0000**	**8,138.5206**

	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	N20	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**

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	0.4344	1.7000e-004	0.0187	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0399	0.0399	1.1000e-004		0.0426
Energy	9.7200e-003	0.0884	0.0742	5.3000e-004		6.7200e-003	6.7200e-003		6.7200e-003	6.7200e-003		106.0388	106.0388	2.0300e-003	1.9400e-003	106.6689
Mobile	15.3583	71.1314	76.6876	0.2143	10.6526	0.2195	10.8721	2.8547	0.2066	3.0614		21,810.4794	21,810.4794	1.6190		21,850.9553
Total	**15.8024**	**71.2199**	**76.7805**	**0.2149**	**10.6526**	**0.2263**	**10.8789**	**2.8547**	**0.2134**	**3.0682**		**21,916.5581**	**21,916.5581**	**1.6212**	**1.9400e-003**	**21,957.6668**

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	0.4344	1.7000e-004	0.0187	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0399	0.0399	1.1000e-004		0.0426
Energy	9.7200e-003	0.0884	0.0742	5.3000e-004		6.7200e-003	6.7200e-003		6.7200e-003	6.7200e-003		106.0388	106.0388	2.0300e-003	1.9400e-003	106.6689
Mobile	15.3583	71.1314	76.6876	0.2143	10.6526	0.2195	10.8721	2.8547	0.2066	3.0614		21,810.4794	21,810.4794	1.6190		21,850.9553
Total	**15.8024**	**71.2199**	**76.7805**	**0.2149**	**10.6526**	**0.2263**	**10.8789**	**2.8547**	**0.2134**	**3.0682**		**21,916.5581**	**21,916.5581**	**1.6212**	**1.9400e-003**	**21,957.6668**

	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	N20	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	01_Slab On Grade	Building Construction	2/1/2018	4/15/2019	5	313	313
2	02_Bollards	Building Construction	4/16/2019	4/17/2019	5	2	2
3	03_Paving	Paving	4/18/2019	7/4/2019	5	56	56
4	04_Fencing	Building Construction	7/5/2019	7/9/2019	5	3	3
5	05_Trench for Utilities	Trenching	7/10/2019	7/19/2019	5	8	8
6	06_Architectural Coating	Architectural Coating	7/20/2019	8/14/2019	5	18	default

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 2.7

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 4,900; Striped Parking Area: 7,050 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
05_Trench for Utilities	Excavators	1	6.00	162	0.38
05_Trench for Utilities	Off-Highway Trucks	1	6.00	400	0.38
05_Trench for Utilities	Plate Compactors	1	6.00	60	0.38
05_Trench for Utilities	Plate Compactors	1	6.00	60	0.38

05_Trench for Utilities	Rollers	1	6.00	60	0.38
05_Trench for Utilities	Rubber Tired Dozers	1	6.00	97	0.37
05_Trench for Utilities	Tractors/Loaders/Backhoes	1	5.00	97	0.37
01_Slab On Grade	Cranes	1	6.00	226	0.29
01_Slab On Grade	Forklifts	0	8.00	89	0.20
01_Slab On Grade	Generator Sets	0	8.00	84	0.74
01_Slab On Grade	Graders	1	6.00	174	0.41
01_Slab On Grade	Other Construction Equipment	1	6.00	150	0.34
01_Slab On Grade	Plate Compactors	1	6.00	9	0.56
01_Slab On Grade	Pumps	1	6.00	9	0.56
01_Slab On Grade	Tractors/Loaders/Backhoes	0	7.00	97	0.37
01_Slab On Grade	Welders	0	8.00	46	0.45
02_Bollards	Cranes	0	7.00	226	0.29
02_Bollards	Forklifts	0	8.00	89	0.20
02_Bollards	Generator Sets	0	8.00	84	0.74
02_Bollards	Tractors/Loaders/Backhoes	1	6.00	97	0.37
02_Bollards	Welders	0	8.00	46	0.45
04_Fencing	Bore/Drill Rigs	1	6.00	205	0.50
04_Fencing	Cranes	1	3.00	226	0.29
04_Fencing	Forklifts	3	8.00	89	0.20
04_Fencing	Generator Sets	1	8.00	84	0.74
04_Fencing	Off-Highway Trucks	1	6.00	400	0.38
04_Fencing	Tractors/Loaders/Backhoes	0	7.00	97	0.37
04_Fencing	Welders	0	8.00	46	0.45
03_Paving	Bore/Drill Rigs	1	1.00	150	0.34
03_Paving	Cement and Mortar Mixers	0	6.00	9	0.56
03_Paving	Graders	1	6.00	174	0.41

03_Paving	Off-Highway Tractors	1	3.00	380	0.38
03_Paving	Off-Highway Tractors	1	6.00	450	0.38
03_Paving	Off-Highway Trucks	1	6.00	400	0.38
03_Paving	Off-Highway Trucks	1	6.00	400	0.38
03_Paving	Off-Highway Trucks	1	3.00	400	0.38
03_Paving	Off-Highway Trucks	1	3.00	150	0.34
03_Paving	Other Construction Equipment	1	3.00	9	0.36
03_Paving	Other Construction Equipment	1	1.00	11	0.34
03_Paving	Pavers	1	6.00	130	0.42
03_Paving	Paving Equipment	2	6.00	132	0.36
03_Paving	Rollers	2	6.00	60	0.38
03_Paving	Rubber Tired Dozers	1	6.00	300	0.37
03_Paving	Sweepers/Scrubbers	1	1.00	64	0.46
03_Paving	Tractors/Loaders/Backhoes	1	3.00	48	0.37
06_Architectural Coating	Air Compressors	2	6.00	78	0.48

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
05_Trench for Utilities	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
01_Slab On Grade	5	56.00	22.00	1,306.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
02_Bollards	1	56.00	22.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
04_Fencing	7	56.00	22.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
03_Paving	18	45.00	0.00	1,481.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
06_Architectural Coating	2	11.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 01_Slab On Grade - 2018

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	1.4325	15.0388	8.0226	0.0132		0.7636	0.7636		0.7047	0.7047		1,300.3578	1,300.3578	0.3898		1,310.1019
Total	**1.4325**	**15.0388**	**8.0226**	**0.0132**		**0.7636**	**0.7636**		**0.7047**	**0.7047**		**1,300.3578**	**1,300.3578**	**0.3898**		**1,310.1019**

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	0.0403	1.3005	0.2046	3.5300e-003	0.0904	6.2500e-003	0.0966	0.0243	5.9800e-003	0.0303		369.3799	369.3799	0.0128		369.6987
Vendor	0.1020	2.8284	0.5736	6.1300e-003	0.1348	0.0191	0.1539	0.0388	0.0183	0.0571		641.4364	641.4364	0.0351		642.3126
Worker	0.3534	0.2265	2.9930	7.5500e-003	0.7153	4.4900e-003	0.7198	0.1897	4.1400e-003	0.1938		751.8223	751.8223	0.0216		752.3621
Total	**0.4957**	**4.3554**	**3.7712**	**0.0172**	**0.9405**	**0.0299**	**0.9703**	**0.2528**	**0.0284**	**0.2812**		**1,762.6386**	**1,762.6386**	**0.0694**		**1,764.3733**

3.2 01_Slab On Grade - 2018

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	1.4325	15.0388	8.0226	0.0132		0.7636	0.7636		0.7047	0.7047	0.0000	1,300.3578	1,300.3578	0.3898		1,310.1019
Total	**1.4325**	**15.0388**	**8.0226**	**0.0132**		**0.7636**	**0.7636**		**0.7047**	**0.7047**	**0.0000**	**1,300.3578**	**1,300.3578**	**0.3898**		**1,310.1019**

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	0.0403	1.3005	0.2046	3.5300e-003	0.0904	6.2500e-003	0.0966	0.0243	5.9800e-003	0.0303		369.3799	369.3799	0.0128		369.6987
Vendor	0.1020	2.8284	0.5736	6.1300e-003	0.1348	0.0191	0.1539	0.0388	0.0183	0.0571		641.4364	641.4364	0.0351		642.3126
Worker	0.3534	0.2265	2.9930	7.5500e-003	0.7153	4.4900e-003	0.7198	0.1897	4.1400e-003	0.1938		751.8223	751.8223	0.0216		752.3621
Total	**0.4957**	**4.3554**	**3.7712**	**0.0172**	**0.9405**	**0.0299**	**0.9703**	**0.2528**	**0.0284**	**0.2812**		**1,762.6386**	**1,762.6386**	**0.0694**		**1,764.3733**

3.2 01_Slab On Grade - 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	1.3163	13.6591	7.7979	0.0132		0.6887	0.6887		0.6357	0.6357		1,280.5219	1,280.5219	0.3896		1,290.2611
Total	**1.3163**	**13.6591**	**7.7979**	**0.0132**		**0.6887**	**0.6887**		**0.6357**	**0.6357**		**1,280.5219**	**1,280.5219**	**0.3896**		**1,290.2611**

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	0.0370	1.2193	0.1917	3.4900e-003	0.2481	5.2100e-003	0.2533	0.0630	4.9900e-003	0.0680		365.2782	365.2782	0.0122		365.5829
Vendor	0.0899	2.6762	0.5106	6.0800e-003	0.1348	0.0155	0.1503	0.0388	0.0148	0.0536		636.0862	636.0862	0.0333		636.9180
Worker	0.3207	0.1992	2.6908	7.3200e-003	0.7153	4.4400e-003	0.7197	0.1897	4.1000e-003	0.1938		729.3266	729.3266	0.0192		729.8075
Total	**0.4476**	**4.0948**	**3.3931**	**0.0169**	**1.0981**	**0.0252**	**1.1233**	**0.2915**	**0.0239**	**0.3154**		**1,730.6909**	**1,730.6909**	**0.0647**		**1,732.3084**

3.2 01_Slab On Grade - 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	1.3163	13.6591	7.7979	0.0132		0.6887	0.6887		0.6357	0.6357	0.0000	1,280.5219	1,280.5219	0.3896		1,290.2611
Total	**1.3163**	**13.6591**	**7.7979**	**0.0132**		**0.6887**	**0.6887**		**0.6357**	**0.6357**	**0.0000**	**1,280.5219**	**1,280.5219**	**0.3896**		**1,290.2611**

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	0.0370	1.2193	0.1917	3.4900e-003	0.2481	5.2100e-003	0.2533	0.0630	4.9900e-003	0.0680		365.2782	365.2782	0.0122		365.5829
Vendor	0.0899	2.6762	0.5106	6.0800e-003	0.1348	0.0155	0.1503	0.0388	0.0148	0.0536		636.0862	636.0862	0.0333		636.9180
Worker	0.3207	0.1992	2.6908	7.3200e-003	0.7153	4.4400e-003	0.7197	0.1897	4.1000e-003	0.1938		729.3266	729.3266	0.0192		729.8075
Total	**0.4476**	**4.0948**	**3.3931**	**0.0169**	**1.0981**	**0.0252**	**1.1233**	**0.2915**	**0.0239**	**0.3154**		**1,730.6909**	**1,730.6909**	**0.0647**		**1,732.3084**

3.3 02_Bollards - 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	0.1746	1.7530	1.7270	2.3300e-003		0.1170	0.1170		0.1077	0.1077		230.6564	230.6564	0.0730		232.4808
Total	**0.1746**	**1.7530**	**1.7270**	**2.3300e-003**		**0.1170**	**0.1170**		**0.1077**	**0.1077**		**230.6564**	**230.6564**	**0.0730**		**232.4808**

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	0.0899	2.6762	0.5106	6.0800e-003	0.1348	0.0155	0.1503	0.0388	0.0148	0.0536		636.0862	636.0862	0.0333		636.9180
Worker	0.3207	0.1992	2.6908	7.3200e-003	0.7153	4.4400e-003	0.7197	0.1897	4.1000e-003	0.1938		729.3266	729.3266	0.0192		729.8075
Total	**0.4106**	**2.8755**	**3.2013**	**0.0134**	**0.8501**	**0.0199**	**0.8700**	**0.2285**	**0.0189**	**0.2474**		**1,365.4127**	**1,365.4127**	**0.0525**		**1,366.7255**

3.3 02_Bollards - 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	0.1746	1.7530	1.7270	2.3300e-003		0.1170	0.1170		0.1077	0.1077	0.0000	230.6564	230.6564	0.0730		232.4808
Total	**0.1746**	**1.7530**	**1.7270**	**2.3300e-003**		**0.1170**	**0.1170**		**0.1077**	**0.1077**	**0.0000**	**230.6564**	**230.6564**	**0.0730**		**232.4808**

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	0.0899	2.6762	0.5106	6.0800e-003	0.1348	0.0155	0.1503	0.0388	0.0148	0.0536		636.0862	636.0862	0.0333		636.9180
Worker	0.3207	0.1992	2.6908	7.3200e-003	0.7153	4.4400e-003	0.7197	0.1897	4.1000e-003	0.1938		729.3266	729.3266	0.0192		729.8075
Total	**0.4106**	**2.8755**	**3.2013**	**0.0134**	**0.8501**	**0.0199**	**0.8700**	**0.2285**	**0.0189**	**0.2474**		**1,365.4127**	**1,365.4127**	**0.0525**		**1,366.7255**

3.4 03_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	3.8362	38.5428	28.4574	0.0525		1.8061	1.8061		1.6616	1.6616		5,193.8368	5,193.8368	1.6433		5,234.9187
Paving	0.1263					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.9625**	**38.5428**	**28.4574**	**0.0525**		**1.8061**	**1.8061**		**1.6616**	**1.6616**		**5,193.8368**	**5,193.8368**	**1.6433**		**5,234.9187**

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	0.2346	7.7284	1.2153	0.0221	0.4627	0.0331	0.4957	0.1268	0.0316	0.1585		2,315.2181	2,315.2181	0.0773		2,317.1495
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	0.2577	0.1601	2.1622	5.8800e-003	0.5748	3.5700e-003	0.5784	0.1524	3.2900e-003	0.1557		586.0660	586.0660	0.0155		586.4524
Total	**0.4923**	**7.8885**	**3.3775**	**0.0280**	**1.0375**	**0.0366**	**1.0741**	**0.2793**	**0.0349**	**0.3142**		**2,901.2841**	**2,901.2841**	**0.0927**		**2,903.6019**

3.4 03_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	3.8362	38.5428	28.4574	0.0525		1.8061	1.8061		1.6616	1.6616	0.0000	5,193.8368	5,193.8368	1.6433		5,234.9187
Paving	0.1263					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.9625**	**38.5428**	**28.4574**	**0.0525**		**1.8061**	**1.8061**		**1.6616**	**1.6616**	**0.0000**	**5,193.8368**	**5,193.8368**	**1.6433**		**5,234.9187**

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	0.2346	7.7284	1.2153	0.0221	0.4627	0.0331	0.4957	0.1268	0.0316	0.1585		2,315.2181	2,315.2181	0.0773		2,317.1495
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	0.2577	0.1601	2.1622	5.8800e-003	0.5748	3.5700e-003	0.5784	0.1524	3.2900e-003	0.1557		586.0660	586.0660	0.0155		586.4524
Total	**0.4923**	**7.8885**	**3.3775**	**0.0280**	**1.0375**	**0.0366**	**1.0741**	**0.2793**	**0.0349**	**0.3142**		**2,901.2841**	**2,901.2841**	**0.0927**		**2,903.6019**

3.5 04_Fencing - 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	1.8329	18.2004	12.5676	0.0297		0.9192	0.9192		0.8637	0.8637		2,907.5784	2,907.5784	0.7623		2,926.6352
Total	**1.8329**	**18.2004**	**12.5676**	**0.0297**		**0.9192**	**0.9192**		**0.8637**	**0.8637**		**2,907.5784**	**2,907.5784**	**0.7623**		**2,926.6352**

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	0.0899	2.6762	0.5106	6.0800e-003	0.1348	0.0155	0.1503	0.0388	0.0148	0.0536		636.0862	636.0862	0.0333		636.9180
Worker	0.3207	0.1992	2.6908	7.3200e-003	0.7153	4.4400e-003	0.7197	0.1897	4.1000e-003	0.1938		729.3266	729.3266	0.0192		729.8075
Total	**0.4106**	**2.8755**	**3.2013**	**0.0134**	**0.8501**	**0.0199**	**0.8700**	**0.2285**	**0.0189**	**0.2474**		**1,365.4127**	**1,365.4127**	**0.0525**		**1,366.7255**

3.5 04_Fencing - 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	1.8329	18.2004	12.5676	0.0297		0.9192	0.9192		0.8637	0.8637	0.0000	2,907.5784	2,907.5784	0.7623		2,926.6352
Total	**1.8329**	**18.2004**	**12.5676**	**0.0297**		**0.9192**	**0.9192**		**0.8637**	**0.8637**	**0.0000**	**2,907.5784**	**2,907.5784**	**0.7623**		**2,926.6352**

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	0.0899	2.6762	0.5106	6.0800e-003	0.1348	0.0155	0.1503	0.0388	0.0148	0.0536		636.0862	636.0862	0.0333		636.9180
Worker	0.3207	0.1992	2.6908	7.3200e-003	0.7153	4.4400e-003	0.7197	0.1897	4.1000e-003	0.1938		729.3266	729.3266	0.0192		729.8075
Total	**0.4106**	**2.8755**	**3.2013**	**0.0134**	**0.8501**	**0.0199**	**0.8700**	**0.2285**	**0.0189**	**0.2474**		**1,365.4127**	**1,365.4127**	**0.0525**		**1,366.7255**

3.6 05_Trench for Utilities - 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	1.0032	10.1490	8.0041	0.0173		0.4750	0.4750		0.4370	0.4370		1,707.2539	1,707.2539	0.5402		1,720.7579
Total	**1.0032**	**10.1490**	**8.0041**	**0.0173**		**0.4750**	**0.4750**		**0.4370**	**0.4370**		**1,707.2539**	**1,707.2539**	**0.5402**		**1,720.7579**

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	0.1031	0.0640	0.8649	2.3500e-003	0.2299	1.4300e-003	0.2313	0.0610	1.3200e-003	0.0623		234.4264	234.4264	6.1800e-003		234.5810
Total	**0.1031**	**0.0640**	**0.8649**	**2.3500e-003**	**0.2299**	**1.4300e-003**	**0.2313**	**0.0610**	**1.3200e-003**	**0.0623**		**234.4264**	**234.4264**	**6.1800e-003**		**234.5810**

3.6 05_Trench for Utilities - 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	1.0032	10.1490	8.0041	0.0173		0.4750	0.4750		0.4370	0.4370	0.0000	1,707.2539	1,707.2539	0.5402		1,720.7579
Total	**1.0032**	**10.1490**	**8.0041**	**0.0173**		**0.4750**	**0.4750**		**0.4370**	**0.4370**	**0.0000**	**1,707.2539**	**1,707.2539**	**0.5402**		**1,720.7579**

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	0.1031	0.0640	0.8649	2.3500e-003	0.2299	1.4300e-003	0.2313	0.0610	1.3200e-003	0.0623		234.4264	234.4264	6.1800e-003		234.5810
Total	**0.1031**	**0.0640**	**0.8649**	**2.3500e-003**	**0.2299**	**1.4300e-003**	**0.2313**	**0.0610**	**1.3200e-003**	**0.0623**		**234.4264**	**234.4264**	**6.1800e-003**		**234.5810**

3.7 06_Architectural Coating - 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					
Archit. Coating	3.0771					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.5329	3.6708	3.6827	5.9400e-003		0.2575	0.2575		0.2575	0.2575		562.8961	562.8961	0.0475		564.0847
Total	**3.6100**	**3.6708**	**3.6827**	**5.9400e-003**		**0.2575**	**0.2575**		**0.2575**	**0.2575**		**562.8961**	**562.8961**	**0.0475**		**564.0847**

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	0.0630	0.0391	0.5286	1.4400e-003	0.1405	8.7000e-004	0.1414	0.0373	8.0000e-004	0.0381		143.2606	143.2606	3.7800e-003		143.3550
Total	**0.0630**	**0.0391**	**0.5286**	**1.4400e-003**	**0.1405**	**8.7000e-004**	**0.1414**	**0.0373**	**8.0000e-004**	**0.0381**		**143.2606**	**143.2606**	**3.7800e-003**		**143.3550**

3.7 06_Architectural Coating - 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					
Archit. Coating	3.0771					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.5329	3.6708	3.6827	5.9400e-003		0.2575	0.2575		0.2575	0.2575	0.0000	562.8961	562.8961	0.0475		564.0847
Total	**3.6100**	**3.6708**	**3.6827**	**5.9400e-003**		**0.2575**	**0.2575**		**0.2575**	**0.2575**	**0.0000**	**562.8961**	**562.8961**	**0.0475**		**564.0847**

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	0.0630	0.0391	0.5286	1.4400e-003	0.1405	8.7000e-004	0.1414	0.0373	8.0000e-004	0.0381		143.2606	143.2606	3.7800e-003		143.3550
Total	**0.0630**	**0.0391**	**0.5286**	**1.4400e-003**	**0.1405**	**8.7000e-004**	**0.1414**	**0.0373**	**8.0000e-004**	**0.0381**		**143.2606**	**143.2606**	**3.7800e-003**		**143.3550**

4.0 Operational Detail - Mobile

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	15.3583	71.1314	76.6876	0.2143	10.6526	0.2195	10.8721	2.8547	0.2066	3.0614		21,810.4794	21,810.4794	1.6190		21,850.9553
Unmitigated	15.3583	71.1314	76.6876	0.2143	10.6526	0.2195	10.8721	2.8547	0.2066	3.0614		21,810.4794	21,810.4794	1.6190		21,850.9553

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Gasoline/Service Station	9,270.80	9,270.80	9270.80	4,934,011	4,934,011
General Heavy Industry	14.70	14.70	14.70	56,793	56,793
Parking Lot	0.00	0.00	0.00		
Total	9,285.50	9,285.50	9,285.50	4,990,804	4,990,804

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
Gasoline/Service Station	14.70	6.60	6.60	2.00	79.00	19.00	14	27	59
General Heavy Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3
Parking Lot	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
General Heavy Industry	0.489257	0.041257	0.220156	0.132626	0.025790	0.006586	0.027831	0.045583	0.001467	0.001229	0.006102	0.000783	0.001333
Parking Lot	0.489257	0.041257	0.220156	0.132626	0.025790	0.006586	0.027831	0.045583	0.001467	0.001229	0.006102	0.000783	0.001333
Gasoline/Service Station	0.489257	0.041257	0.220156	0.132626	0.025790	0.006586	0.027831	0.045583	0.001467	0.001229	0.006102	0.000783	0.001333

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	9.7200e-003	0.0884	0.0742	5.3000e-004		6.7200e-003	6.7200e-003		6.7200e-003	6.7200e-003		106.0388	106.0388	2.0300e-003	1.9400e-003	106.6689
NaturalGas Unmitigated	9.7200e-003	0.0884	0.0742	5.3000e-004		6.7200e-003	6.7200e-003		6.7200e-003	6.7200e-003		106.0388	106.0388	2.0300e-003	1.9400e-003	106.6689

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					
Gasoline/Service Station	398.442	4.3000e-003	0.0391	0.0328	2.3000e-004		2.9700e-003	2.9700e-003		2.9700e-003	2.9700e-003		46.8755	46.8755	9.0000e-004	8.6000e-004	47.1541
General Heavy Industry	502.888	5.4200e-003	0.0493	0.0414	3.0000e-004		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003		59.1633	59.1633	1.1300e-003	1.0800e-003	59.5148
Parking Lot	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		**9.7200e-003**	**0.0884**	**0.0742**	**5.3000e-004**		**6.7200e-003**	**6.7200e-003**		**6.7200e-003**	**6.7200e-003**		**106.0388**	**106.0388**	**2.0300e-003**	**1.9400e-003**	**106.6689**

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					
Gasoline/Service Station	0.398442	4.3000e-003	0.0391	0.0328	2.3000e-004		2.9700e-003	2.9700e-003		2.9700e-003	2.9700e-003		46.8755	46.8755	9.0000e-004	8.6000e-004	47.1541
General Heavy Industry	0.502888	5.4200e-003	0.0493	0.0414	3.0000e-004		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003		59.1633	59.1633	1.1300e-003	1.0800e-003	59.5148
Parking Lot	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		**9.7200e-003**	**0.0884**	**0.0742**	**5.3000e-004**		**6.7200e-003**	**6.7200e-003**		**6.7200e-003**	**6.7200e-003**		**106.0388**	**106.0388**	**2.0300e-003**	**1.9400e-003**	**106.6689**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	0.4344	1.7000e-004	0.0187	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0399	0.0399	1.1000e-004		0.0426
Unmitigated	0.4344	1.7000e-004	0.0187	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0399	0.0399	1.1000e-004		0.0426

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	0.0152					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.4175					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.7600e-003	1.7000e-004	0.0187	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0399	0.0399	1.1000e-004		0.0426
Total	**0.4344**	**1.7000e-004**	**0.0187**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**		**0.0399**	**0.0399**	**1.1000e-004**		**0.0426**

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	0.0152					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.4175					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.7600e-003	1.7000e-004	0.0187	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0399	0.0399	1.1000e-004		0.0426
Total	**0.4344**	**1.7000e-004**	**0.0187**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**		**0.0399**	**0.0399**	**1.1000e-004**		**0.0426**

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

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix C

WRSP Section 404 Permit and Mitigation Documents

AGREEMENT FOR SALE OF MITIGATION CREDITS
TOAD HILL RANCH MITIGATION BANK
USACE File No. SPK-2002-00666

This Agreement for Sale of Mitigation Credits ("**Agreement**") is entered into this 30th day of December, 2015, by and between WILDLANDS TOAD HILL HOLDINGS, LLC, a Delaware limited liability company ("**Banker**"), SIGNATURE PROPERTIES, INC., a California corporation (the "**Project Applicant**"), jointly referred to as the "**Parties**," as follows:

RECITALS

A. The Banker has developed the Toad Hill Ranch Mitigation Bank ("**Bank**") located in Placer County, California; and

B. The Bank was approved by the U.S. Army Corps of Engineers ("**USACE**"), the U.S. Fish and Wildlife Service ("**USFWS**"), and the U.S. Environmental Protection Agency ("**USEPA**") (collectively, the "**IRT**") on May 25, 2010, and is currently in good standing with these agencies; and

C. The Bank has received approval from the IRT to offer seasonal wetland creation, vernal pool creation, and vernal pool preservation credits for sale as compensation for the loss of waters of the United States and certain protected species through the Toad Hill Ranch Mitigation Bank Enabling Instrument ("**Bank Agreement**"); and

D. Project Applicant is seeking to implement the project described on **Exhibit "A"** attached hereto ("**Project**"), which may unavoidably and adversely impact waters of the United States, and seeks to compensate for the potential loss of waters of the United States by purchasing seasonal wetland creation credits from Bank; and

E. Project Applicant is seeking authorization by USACE File No. SPK-2002-00666 to purchase 1.8 acres of seasonal wetland creation credits to compensate for the potential loss of waters of the United States; and

F. Project Applicant desires to purchase from Banker and Banker desires to sell to Project Applicant 1.8 acres of seasonal wetland creation credits, all on the terms of this Agreement.

NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

1. Purchase and Sale. Banker hereby sells to Project Applicant and Project Applicant hereby purchases from Banker 1.8 acres of seasonal wetland creation credits ("**Credits**") for the purchase price of $270,000.00 ("**Purchase Price**"). The Purchase Price for the Credits shall be paid by wire transfer of funds or by check payable to "Wildlands Toad Hill Holdings, LLC." No later than five days after the receipt of the Purchase Price, Banker will deliver to Project Applicant an executed Bill of Sale in the form attached hereto as **Exhibit "B."**

2. No Interest in Real Property. The sale and transfer herein is not intended as a sale or transfer to Project Applicant of a security, license, lease, easement, or possessory or non-possessory interest in real property, nor the granting of any interest of the foregoing.

3. Limitation on Obligations. Project Applicant shall have no obligation whatsoever by reason of the purchase of the Credits, to support, pay for, monitor, report on, sustain, continue in perpetuity, or otherwise be obligated or liable for the success or continued expense or maintenance in perpetuity of the credits sold, or the Bank. Pursuant to the Bank Agreement and any amendments thereto, Banker shall monitor and make reports to the appropriate agency or agencies on the status of any Credits sold to Project Applicant. Banker shall be fully and completely responsible for satisfying any and all conditions placed on the Bank or the Credits by all state or federal jurisdictional agencies. Banker shall indemnify Project Applicant from all such liabilities and obligations.

4. Assignment of Agreement. Except as otherwise provided in this Section 4, Project Applicant shall not assign this Agreement, voluntarily or by operation of law, without the prior written consent of Banker, which may be given or withheld in Banker's sole and absolute discretion.

a. Assignment to Successor Project Developer. Subject to the provisions of this Section 4(a), Project Applicant shall have the right to assign this Agreement to any successor in and to the Project (the **"Successor Project Developer"**). In order for such assignment to be valid, (i) any such assignment shall be in writing, (ii) the Successor Project Developer shall have agreed in such written assignment to assume all of the obligations of Project Applicant hereunder, (iii) any such assignment shall be an assignment of all of Project Applicant's rights and obligations under this Agreement, (iv) a copy of the written assignment shall be delivered to Banker promptly following its execution, and (v) the written assignment shall contain the name, address, telephone number, facsimile number and contact person for the Successor Project Developer. Any attempted assignment in violation of the foregoing provision shall be void. Absent a written agreement between the parties hereto to the contrary, no assignment of any of the rights or obligations under this Agreement shall result in a novation or in any other manner release Project Applicant from its obligations under this Agreement.

5. Transfer of Credits. In the event that Project Applicant determines at any time after the Closing that it no longer needs all or any portion of the Credits (the **"Excess Mitigation"**), Project Applicant shall have the right to remarket the Credits for sale and procure a third-party buyer to purchase the Excess Credits. In the event that Project Applicant is successful in procuring a buyer to purchase the Excess Mitigation, the terms and conditions of the agreement for the purchase and sale of the Excess Mitigation shall be subject to Banker's prior written approval, which shall not be unreasonably withheld. In the event that the total purchase price paid by the third-party buyer for the Excess Mitigation exceeds the total purchase price paid by Project Applicant to Banker for such Excess Mitigation, then the excess amount shall be equally shared by Banker and Project Applicant.

a. Approval of Regulatory Agencies. Project Applicant alone shall be responsible for obtaining the applicable regulatory agencies' approval to sell, assign, or transfer the Excess Mitigation. In that regard, Banker has made and makes no representation, warranty or guaranty that the applicable regulatory agencies will approve the Excess Mitigation as suitable mitigation for other projects. Banker shall reasonably cooperate with Project Applicant's efforts to obtain the applicable regulatory agencies' approval for use of the Excess Mitigation by providing information required by the applicable regulatory agencies and executing documents required by the applicable regulatory agencies. Banker shall not be obligated to bear any cost greater than ordinary and reasonable expense or incur any additional liability to Project Applicant in connection with such cooperation.

b. Survival. The provision of this Section 5 shall survive the Closing.

6. Payment of Purchase Price. Project Applicant must deliver the Purchase Price to Banker within 30 days after the date on which this Agreement is fully executed by Banker and Project Applicant. If Project Applicant fails to pay the Purchase Price to Banker prior to the expiration of such 30-day

period, this Agreement shall be considered null and void and the parties shall have no further obligations hereunder.

7. Notices and Inventory Ledger. Upon purchase of the Credits specified above, Banker shall submit to the parties listed in the Notices section of the Bank Agreement copies of the: a) Agreement for Sale of Mitigation Credits; b) Bill of Sale; c) Payment Receipt; and d) an updated inventory ledger. The updated inventory ledger must detail: i) Project Applicant; ii) Project Name; iii) Status (sale complete/sale not complete); iv) Credit Sale Date; v) USFWS File Number; vi) USACE File Number (if applicable); vii) Total Number of Credits Authorized to Sell; viii) Total Number of Credits Sold to Date (inclusive); and ix) Balance of all Credits Available. The inventory ledger should include all sales data from bank opening/establishment to the present.

8. Miscellaneous.

a. Attorneys' Fees. If any Party commences an action against another Party to interpret or enforce any of the terms of this Agreement or because of the breach by another Party of any of the terms hereof, the losing Party shall pay to the prevailing party reasonable attorneys' fees, costs and expenses and court costs and other costs of action incurred in connection with the prosecution or defense of such action, whether or not the action is prosecuted to a final judgment. For the purpose of this Agreement, the terms "attorneys' fees" or "attorneys' fees and costs" shall mean the fees and expenses of counsel to the Parties hereto, which may include printing, photostating, duplicating and other expenses, air freight charges, and fees billed for law clerks, paralegals, librarians and others not admitted to the bar but performing services under the supervision of an attorney. The terms "attorneys' fees" or "attorneys' fees and costs" shall also include, without limitation, all such fees and expenses incurred with respect to appeals, arbitrations and bankruptcy proceedings, and whether or not any action or proceeding is brought with respect to the matter for which said fees and expenses were incurred. The term "attorney" shall have the same meaning as the term "counsel."

b. Successors and Assigns. This Agreement shall be binding upon and shall inure to the benefit of the successors and assigns of the Parties hereto.

c. Further Assurances. Each Party agrees to perform any further acts and execute and deliver any further documents reasonably necessary to carry out the intent of this Agreement.

d. Recitals. The Recitals herein, and any exhibits to this Agreement, are hereby incorporated by reference into this Agreement.

e. Counterparts. This Agreement may be executed in multiple counterparts, each of which shall be deemed an original, but all of which, together, shall constitute one and the same instrument. The Parties agree that the electronic transmittal of the original execution signatures of this Agreement shall be treated as original signatures and given the same legal effect as an original signature.

******Signatures on the following page******

IN WITNESS WHEREOF, the parties have executed this Agreement the day and year first above written.

BANKER:

WILDLANDS TOAD HILL HOLDINGS, LLC,
a Delaware limited liability company

By: _____

Its: Wildlands, Manager
~~Mark Heintz, Manager~~

Date: 1-4-2016

PROJECT APPLICANT:

SIGNATURE PROPERTIES, INC.,
a California corporation

By: _____
Designated Agent

Its: _____

Date: 12-30-15

Exhibit "A"

DESCRIPTION OF PROJECT
TO BE
MITIGATED

The Westpark/Fiddyment Ranch Project is located within the approximately 3,160-acre West Roseville Specific Plan area. The Project includes residential construction, open space, parks, public/quasi-public uses, community/commercial uses, business professional uses and light industrial and general industrial uses. The Project is located in the northwest portion of the City of Roseville, Placer County, and west of Fiddyment Road within portions of Sections 13, 14, 22, 23, 24, 25, 26 and 27 of Township 11 North, and Range 5 East and Section 18 and 19 of Township 11 North, and Range 6 East of the Mount Diablo Baseline and Meridian as depicted on the "Roseville, California" 7.5 minute topographic quadrangle and the "Pleasant Grove" 7.5 minute topographic quadrangle.

*****

Exhibit "B"

BILL OF SALE

Contract # THRMB-15-___

USACE File No. SPK-2002-00666

In consideration of Two Hundred Seventy Thousand and No/100ths Dollars ($270,000.00), receipt of which is hereby acknowledged, WILDLANDS TOAD HILL HOLDINGS, LLC, a Delaware limited liability company ("**Banker**"), does hereby bargain, sell and transfer to ATC REALTY ONE, LLC, a Delaware limited liability company and SIGNATURE PROPERTIES, INC., a California corporation (collectively, the "**Project Applicant**"), 1.8 Seasonal Wetland Creation Credits for the Westpark/Fiddyment Ranch Project from the Toad Hill Ranch Mitigation Bank in Placer County, California, developed, and approved by the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and the U.S. Environmental Protection Agency.

Banker represents and warrants that it has good title to the credits, has good right to sell the same, and that they are free and clear of all claims, liens, or encumbrances.

Banker covenants and agrees with the Project Applicant to warrant and defend the sale of the credits hereinbefore described against all and every person and persons whomsoever lawfully claiming or to claim the same.

DATED: _____

WILDLANDS TOAD HILL HOLDINGS, LLC, a Delaware limited liability company

By: _____
Name:
Its:

Exhibit "C"

TOAD HILL RANCH MITIGATION BANK
SEASONAL WETLAND CREATION CREDITS: PAYMENT RECEIPT

PARTICIPANTS INFORMATION

Name: SIGNATURE PROPERTIES, INC., a California corporation

Address: 4670 Willow Road, Suite 200, Pleasanton, CA 94588

Contact Name: Attention: James W. McKeehan

Contact Phone: 925.580.7231

PROJECT INFORMATION

Project Description: Westpark/Fiddyment Ranch

USFWS File Number: SPK-2002-00666

Habitat Affected: Waters of the U.S.

Credits Purchased: 1.8 acres of seasonal wetland creation credits

Payment Amount: $270,000.00

Project Location: Northwest portion of City of Roseville; west of Fiddyment Road

County: Placer

Address: n/a

PAYMENT INFORMATION

Payee: Wildlands Toad Hill Holdings, LLC

Payer: Signature Properties, Inc., a California corporation

Amount: Two Hundred Seventy Thousand and No/100ths Dollars ($270,000.00)

Method of Payment: Cash_____ Check#_____ Other _____

_____
(Signature)

Name: _____

Title: _____

Date: _____

Appendix D

PGWWTP NPDES Permit

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

11020 Sun Center Drive, #200 Rancho Cordova, California 95670-6114
Phone (916) 464-3291 Ÿ Fax (916) 464-4645
http://www.waterboards.ca.gov/centralvalley

ORDER R5-2014-0051
NPDES NO. CA0084573

WASTE DISCHARGE REQUIREMENTS FOR THE CITY OF ROSEVILLE PLEASANT GROVE WASTEWATER TREATMENT PLANT PLACER COUNTY

The following Discharger is subject to waste discharge requirements (WDR's) set forth in this Order:

Table 1. Discharger Information

Discharger	City of Roseville
Name of Facility	Pleasant Grove Wastewater Treatment Plant
Facility Address	5051 Westpark Drive
	Roseville, CA 95747
	Placer County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Treated Municipal Wastewater	38˚ 79' 21"	121˚ 37' 01"	Pleasant Grove Creek

Table 3. Administrative Information

This Order was adopted on:	**28 March 2014**
This Order shall become effective on:	**1 May 2014**
This Order shall expire on:	**30 April 2019**
The Discharger shall file a Report of Waste Discharge as an application for reissuance of WDR's in accordance with title 23, California Code of Regulations, and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	**180 days prior to the Order expiration date**
The U.S. Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, Central Valley Region have classified this discharge as follows:	**Major**

I, **PAMELA CREEDON**, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on the date indicated above.

Original Signed by

PAMELA C. CREEDON, Executive Officer

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Attachment E – Monitoring and Reporting Program E-1
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I. FACILITY INFORMATION

Information describing the Pleasant Grove Wastewater Treatment Plant (Facility) is summarized in Table 1 and in sections I and II of the Fact Sheet (Attachment F). Section I of the Fact Sheet also includes information regarding the Facility's permit application.

II. FINDINGS

The California Regional Water Quality Control Board, Central Valley Region (hereinafter Central Valley Water Board), finds:

A. Legal Authorities. This Order serves as WDR's pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260).This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from this facility to surface waters.

B. Background and Rationale for Requirements. The Central Valley Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements in this Order, is hereby incorporated into and constitutes Findings for this Order. Attachments A through E and G through H are also incorporated into this Order.

C. Provisions and Requirements Implementing State Law. The provisions/requirements in subsections IV.B, IV.C, and V.B are included to implement State law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

D. Monitoring and Reporting. 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Central Valley Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. The Monitoring and Reporting Program is provided in Attachment E.

The technical and monitoring reports in this Order are required in accordance with Water Code section 13267, which states the following in subsection (b)(1), "*In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged or discharges, or is suspected of having discharged discharging, or who proposes to discharge waste within its region, or any citizen or domiciary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports*."

The Discharger owns and operates the Facility subject to this Order. The monitoring reports required by this Order are necessary to determine compliance with this Order. The need for the monitoring reports is discussed in the Fact Sheet.

E. Notification of Interested Parties. The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of the notification are provided in the Fact Sheet.

F. Consideration of Public Comment. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet.

THEREFORE, IT IS HEREBY ORDERED that Order R5-2008-0079-01 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. This action in no way prevents the Central Valley Water Board from taking enforcement action for past violations of the previous Order.

III. DISCHARGE PROHIBITIONS

A. Discharge of wastewater from the Facility, as the Facility is specifically described in the Fact Sheet in section II.B, in a manner different from that described in this Order is prohibited.

B. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Federal Standard Provisions I.G. and I.H. (Attachment D).

C. Neither the discharge nor its treatment shall create a nuisance as defined in section 13050 of the Water Code.

D. The Discharger shall not allow pollutant-free wastewater to be discharged into the treatment or disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point 001

1. Final Effluent Limitations – Discharge Point 001 (12 MGD)

Effective immediately and until the Executive Officer approves the flow increase allowed by Special Provision VI.C.6.b, the Discharger shall maintain compliance with the following effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location EFF-001 (unless otherwise noted) as described in the Monitoring and Reporting Program, Attachment E:

a. The Discharger shall maintain compliance with the effluent limitations specified in Table 4:

Table 4. Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	--	--
	lbs/day[1]	1,000	1,500	2,000	--	--
pH	standard units	--	--	--	6.5	8.3

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Total Suspended Solids	mg/L	10	15	20	--	--
	lbs/day[1]	1,000	1,500	2,000	--	--
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N)	mg/L	1.4	--	2.9	--	--
	lbs/day[1]	140	--	290	--	--
Nitrate Plus Nitrite (as N)	mg/L	10	--	--	--	--

[1] Based on an average dry weather flow of 12 million gallons per day (MGD).

b. **Percent Removal:** The average monthly percent removal of 5-day biochemical oxygen demand (BOD_5) and total suspended solids (TSS) shall not be less than 85 percent.

c. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

i. 70%, minimum for any one bioassay; and
ii. 90%, median for any three consecutive bioassays.

d. **Total Coliform Organisms.** Effluent total coliform organisms at Monitoring Location UVS-002 shall not exceed:

i. 2.2 most probable number (MPN) per 100 mL, as a 7-day median;
ii. 23 MPN/100 mL, more than once in any 30-day period; and
iii. 240 MPN/100 mL, at any time.

e. **Average Dry Weather Flow.** The average dry weather discharge flow shall not exceed 12 MGD.

f. **Mercury, total.** The total annual mass discharge of total mercury shall not exceed 1.39 pounds/year.

g. **Fluoride.** For a calendar year, the annual average effluent fluoride concentration shall not exceed 2,000 µg/L.

2. Final Effluent Limitations – Discharge Point 001 (15 MGD)

Effective upon compliance with Special Provision VI.C.6.b, the Discharger shall maintain compliance with the following effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location EFF-001 (unless otherwise noted) as described in the Monitoring and Reporting Program, Attachment E:

a. The Discharger shall maintain compliance with the effluent limitations specified in Table 5:

Table 5. Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	--	--
	lbs/day[1]	1,250	1,875	2,500	--	--
pH	standard units	--	--	--	6.5	8.3
Total Suspended Solids	mg/L	10	15	20	--	--
	lbs/day[1]	1,250	1,875	2,500	--	--
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N)	mg/L	1.4	--	2.9	--	--
	lbs/day[1]	180	--	360	--	--
Nitrate Plus Nitrite (as N)	mg/L	10	--	--	--	--

[1] Based on an average dry weather flow of 15 MGD.

b. **Percent Removal:** The average monthly percent removal of BOD_5 and TSS shall not be less than 85 percent.

c. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

i. 70%, minimum for any one bioassay; and
ii. 90%, median for any three consecutive bioassays.

d. **Total Coliform Organisms.** Effluent total coliform organisms at Monitoring Location UVS-002 shall not exceed:

i. 2.2 MPN/100 mL, as a 7-day median;
ii. 23 MPN/100 mL, more than once in any 30-day period; and
iii. 240 MPN/100 mL, at any time.

e. **Average Dry Weather Flow.** The average dry weather discharge flow shall not exceed 15 MGD.

f. **Mercury, total.** The total annual mass discharge of total mercury shall not exceed 1.39 pounds/year.

g. **Fluoride.** For a calendar year, the annual average effluent fluoride concentration shall not exceed 2,000 µg/L.

3. Interim Effluent Limitations – Not Applicable

B. Land Discharge Specifications – Not Applicable

C. Recycling Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

The discharge shall not cause the following in Pleasant Grove Creek:

1. **Bacteria.** The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor

more than 10 percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL.

2. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.
5. **Dissolved Oxygen:**
    a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;
    b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor
    c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.
6. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
7. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
8. **pH.** The pH to be depressed below 6.5 nor raised above 8.5.
9. **Pesticides:**
    a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;
    b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;
    c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by USEPA or the Executive Officer;
    d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR 131.12.);
    e. Pesticide concentrations to exceed the lowest levels technically and economically achievable;
    f. Pesticides to be present in concentration in excess of the maximum contaminant levels (MCLs) set forth in CCR, Title 22, division 4, chapter 15; nor
    g. Thiobencarb to be present in excess of 1.0 µg/L.
10. **Radioactivity:**
    a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
    b. Radionuclides to be present in excess of the MCLs specified in Table 64442 of section 64442 and Table 64443 of section 64443 of Title 22 of the California Code of Regulations.

11. **Suspended Sediments.** The suspended sediment load and suspended sediment discharge rate of surface waters to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

12. **Settleable Substances.** Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.

13. **Suspended Material.** Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.

14. **Taste and Odors.** Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.

15. **Temperature.** The temperature at Monitoring Location RSW-002 to exceed the following:

Table 6. Temperature Receiving Water Limitations

Period	Period Maximum (ºF)[1]	Period Average (ºF)[2]
January and February	69	64
March	70	67
April	74	70
May	78	75
June	81	77
July – September	83	80
October	81	77
November	77	72
December	70	65

[1] Instantaneous maximum not to be exceeded in period.
[2] Arithmetic average of measurements not to be exceeded in period.

16. **Toxicity.** Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.

17. **Turbidity:**

    a. Shall not exceed 2 Nephelometric Turbidity Units (NTU) where natural turbidity is less than 1 NTU;

    b. Shall not increase more than 1 NTU where natural turbidity is between 1 and 5 NTUs;

    c. Shall not increase more than 20 percent where natural turbidity is between 5 and 50 NTUs;

    d. Shall not increase more than 10 NTU where natural turbidity is between 50 and 100 NTUs; nor

    e. Shall not increase more than 10 percent where natural turbidity is greater than 100 NTUs.

B. Groundwater Limitations

Release of waste constituents from any storage, treatment, or disposal component associated with the Facility, shall not cause the underlying groundwater to contain waste constituents in concentrations greater than background water quality or water quality objectives, whichever is greater.

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D.
2. The Discharger shall comply with the following provisions. In the event that there is any conflict, duplication, or overlap between provisions specified by this Order, the more stringent provision shall apply:

   a. If the Discharger's wastewater treatment plant is publicly owned or subject to regulation by California Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to Title 23, CCR, division 3, chapter 26.

   b. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:

      i. violation of any term or condition contained in this Order;

      ii. obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;

      iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and

      iv. a material change in the character, location, or volume of discharge.

      The causes for modification include:

      · *New regulations.* New regulations have been promulgated under section 405(d) of the CWA, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.

      · *Land application plans.* When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.

      · *Change in sludge use or disposal practice.* Under 40 CFR 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

      The Central Valley Water Board may review and revise this Order at any time upon application of any affected person or the Central Valley Water Board's own motion.

   c. If a toxic effluent standard or prohibition (including any scheduled compliance specified in such effluent standard or prohibition) is established under section 307(a) of the CWA, or amendments thereto, for a toxic pollutant that is present in the discharge authorized herein, and such standard or prohibition is more stringent than any limitation upon such pollutant in this Order, the Central Valley Water Board will revise or modify this Order in accordance with such toxic effluent standard or prohibition.

      The Discharger shall comply with effluent standards and prohibitions within the time provided in the regulations that establish those standards or prohibitions, even if this Order has not yet been modified.

d. This Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:

   i. Contains different conditions or is otherwise more stringent than any effluent limitation in the Order; or

   ii. Controls any pollutant limited in the Order.

   The Order, as modified or reissued under this paragraph, shall also contain any other requirements of the CWA then applicable.

e. The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.

f. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.

g. The Discharger shall ensure compliance with any existing or future pretreatment standard promulgated by USEPA under section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.

h. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.

i. Safeguard to electric power failure:

   i. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.

   ii. Upon written request by the Central Valley Water Board, the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past 5 years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Central Valley Water Board.

   iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Central Valley Water Board not approve the existing safeguards, the Discharger shall, within 90 days of having been advised in writing by the Central Valley Water Board that the existing safeguards are inadequate, provide to the Central Valley Water Board and USEPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Central Valley Water Board, become a condition of this Order.

j. The Discharger, upon written request of the Central Valley Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. This report may be combined with that required under the Central Valley Water Board Standard Provision contained in section VI.A.2.i of this Order.

The technical report shall:

i. Identify the possible sources of spills, leaks, untreated waste by-pass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.

ii. Evaluate the effectiveness of present facilities and procedures and state when they became operational.

iii. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

The Central Valley Water Board, after review of the technical report, may establish conditions which it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions shall be incorporated as part of this Order, upon notice to the Discharger.

k. A publicly owned treatment works whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last 3 years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in 4 years, the Discharger shall notify the Central Valley Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Central Valley Water Board may extend the time for submitting the report.

l. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

m. The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

n. For publicly owned treatment works, prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a

permanent decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. (Water Code section 1211).

o. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.

p. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily effluent limitation, hourly average effluent limitation, or receiving water limitation of this Order, the Discharger shall notify the Central Valley Water Board by telephone (916) 464-3291 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within five days, unless the Central Valley Water Board waives confirmation. The written notification shall state the nature, time, duration, and cause of noncompliance, and shall describe the measures being taken to remedy the current noncompliance and prevent recurrence including, where applicable, a schedule of implementation. Other noncompliance requires written notification as above at the time of the normal monitoring report.

B. Monitoring and Reporting Program (MRP) Requirements

The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E.

C. Special Provisions

1. Reopener Provisions

a. Conditions that necessitate a major modification of a permit are described in 40 CFR 122.62, including, but not limited to:

i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.

ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.

b. **Mercury.** If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened and the mass effluent limitation modified (higher or lower) or an effluent concentration limitation imposed. If the Central Valley Water Board determines that a mercury offset program is feasible for Dischargers subject to a NPDES permit, then this Order may be reopened to reevaluate the mercury mass loading limitation(s) and the need for a mercury offset program for the Discharger.

c. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions that would require the establishment of numeric chronic toxicity effluent limitations, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions.

d. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. **Chronic Whole Effluent Toxicity.** For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct chronic whole effluent toxicity (WET) testing, as specified in MRP section V. Furthermore, this Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exceeds the numeric toxicity monitoring trigger during accelerated monitoring established in this Provision, the Discharger is required to initiate a TRE in accordance with an approved TRE Work Plan, and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. This Provision includes procedures for accelerated chronic toxicity monitoring and TRE initiation.

i. **Accelerated Monitoring and TRE Initiation.** When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, and the testing meets all test acceptability criteria, the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications. The Discharger shall initiate a TRE to address effluent toxicity if any WET testing results exceed the numeric toxicity monitoring trigger during accelerated monitoring.

ii. **Numeric Toxicity Monitoring Trigger.** The numeric toxicity monitoring trigger to initiate a TRE is >1 TUc (where TUc = 100/NOEC). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE.

iii. **Accelerated Monitoring Specifications.** If the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity testing, the Discharger shall initiate accelerated monitoring within 14-days of notification by the laboratory of the exceedance. Accelerated monitoring shall consist of four chronic toxicity tests conducted once every two weeks using the species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:

(a) If the results of four consecutive accelerated monitoring tests do not exceed the monitoring trigger, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring. However, notwithstanding the accelerated monitoring results, if there is adequate evidence of a pattern of effluent toxicity, the Executive Officer may require that the Discharger initiate a TRE.

(b) If the source(s) of the toxicity is easily identified (e.g., temporary plant upset), the Discharger shall make necessary corrections to the facility and

shall continue accelerated monitoring until four consecutive accelerated tests do not exceed the monitoring trigger. Upon confirmation that the effluent toxicity has been removed, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring.

(c) If the result of any accelerated toxicity test exceeds the monitoring trigger, the Discharger shall cease accelerated monitoring and begin a TRE to investigate the cause(s) of, and identify corrective actions to reduce or eliminate effluent toxicity. Within thirty (30) days of notification by the laboratory of any test result exceeding the monitoring trigger during accelerated monitoring, the Discharger shall submit a TRE Action Plan to the Central Valley Water Board including, at minimum:

(1) Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including a TRE WET monitoring schedule;

(2) Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and

(3) A schedule for these actions.

Within sixty (60) days of notification by the laboratory of the test results, the Discharger shall submit to the Central Valley Water Board a TRE Workplan for approval by the Executive Officer. The TRE Workplan shall outline the procedures for identifying the source(s) of, and reducing or eliminating effluent toxicity. The TRE Workplan must be developed in accordance with USEPA guidance[1].

3. Best Management Practices and Pollution Prevention

a. **Salinity Evaluation and Minimization Plan.** The Discharger shall continue to implement a salinity evaluation and minimization plan to identify and address sources of salinity from the Facility. The Discharger shall provide annual reports demonstrating reasonable progress in the reduction of salinity in its discharge to Pleasant Grove Creek in accordance with section X.D.1 of the Monitoring and Reporting Program (Attachment E).

b. **Pollution Prevention Plan (PPP) for Mercury.** The Discharger shall continue to implement a PPP for mercury Progress reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, section X.D.1).

4. Construction, Operation and Maintenance Specifications

a. **Filtration System Operating Specifications.** To ensure the filtration system is operating properly to facilitate adequate disinfection of the wastewater, the turbidity of the filter effluent measured at Monitoring Location FIL-001 shall not exceed:

i. 2 NTU as a daily average;
ii. 5 NTU more than 5 percent of the time within a 24-hour period; and
iii. 10 NTU, at any time.

b. **Ultraviolet Light (UV) Disinfection System Operating Specifications.** The UV disinfection system must be operated in accordance with an operations and maintenance program that assures adequate disinfection, and shall meet the

[1] See the Fact Sheet (Attachment F, section VI.B.2.a.) for a list of USEPA guidance documents that must be considered in development of the TRE Workplan.

following minimum specifications to provide virus inactivation equivalent to Title 22 Disinfected Tertiary Recycled Water:

i. **UV Dose.** The minimum hourly average UV dose in the UV reactor shall be 100 millijoules per square centimeter (mJ/cm^2).

ii. **UV Transmittance.** The minimum hourly average UV transmittance (at 254 nanometers) in the wastewater measured at Monitoring Location UVS-001 shall not fall below 55 percent.

iii. The lamp sleeves and cleaning system components must be visually inspected per the manufacturer's operations manual for physical wear (scoring, solarization, seal leaks, cleaning fluid levels, etc.) and to check the efficacy of the cleaning system.

iv. The lamp sleeves must be cleaned periodically as necessary to meet the UV dose requirements.

v. Lamps must be replaced per the manufacturer's operations manual, or sooner, if there are indications the lamps are failing to provide adequate disinfection. Lamp age and lamp replacement records must be maintained.

c. **Effluent and Emergency Storage Basins Operating Requirements**

i. The storage basins shall be used only to prevent overwhelming of the treatment process (up to 100-year flood protection), to store partially treated wastewater, or to prevent plant upsets by diverting influent that would be harmful to the treatment process.

ii. Objectionable odors originating from the storage basins shall not be perceivable beyond the limits of the property owned by the Discharger.

iii. As a means of discerning compliance with item ii above, the dissolved oxygen content in the upper zone (1 foot) of wastewater in the basins shall not be less than 1.0 mg/L.

iv. Storage basins containing water for more than 7 consecutive days shall not have a pH less than 6.5 or greater than 8.5.

v. The storage basins shall be managed to prevent breeding of mosquitoes. In particular:

(a) An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface;

(b) Weeds shall be minimized; and

(c) Vegetation, debris, and dead algae shall not accumulate on the water surface.

vi. Public contact with wastewater shall be precluded through means as fences, signs, and other acceptable alternatives.

vii. Freeboard shall never be less than 2 feet (measured vertically to the lowest point of overflow). In no case shall wind/wave action cause overtopping of levees (freeboard of more than 2 feet may be necessary).

viii. Wastewater contained in the storage basins must be returned to the treatment facility to receive treatment to meet all effluent limitations in Sections IV.A.1 and IV.A.2 prior to discharge to Pleasant Grove Creek.

ix. The Discharger shall keep a log related to the use of the storage basins. In particular, the Discharger shall record the following when any type of wastewater is directed to any storage basin:

(a) The date(s) when the wastewater is directed to each storage basin;

(b) The type(s) of wastewater (e.g., untreated due to plant upset, tertiary treated) directed to each storage basin;

(c) The total volume of wastewater directed to each storage basin;

(d) The duration of time wastewater is collected in each storage basin; prior to redirection back to the wastewater treatment plant; and

(e) The date when all wastewater in each storage basin has been redirected to the wastewater treatment plant.

The storage basin log shall be submitted with the monthly self-monitoring reports required in the Monitoring and Reporting Program (Attachment E, Section X.B).

5. Special Provisions for Municipal Facilities (POTWs Only)

a. **Pretreatment Requirements**

i. The Discharger shall be responsible and liable for the performance of all Control Authority pretreatment requirements contained in 40 CFR Part 403, including any subsequent regulatory revisions to 40 CFR Part 403. For violations of pretreatment requirements, the Discharger shall be subject to enforcement actions, penalties, fines, and other remedies by USEPA or other appropriate parties, as provided in the CWA. USEPA may initiate enforcement action against a nondomestic user for noncompliance with applicable standards and requirements as provided in the CWA.

ii. The Discharger shall enforce the requirements promulgated under sections 307(b), 307(c), 307(d), and 402(b) of the CWA with timely, appropriate and effective enforcement actions. The Discharger shall cause all nondomestic users subject to federal categorical standards to achieve compliance no later than the date specified in those requirements or, in the case of a new nondomestic user, upon commencement of the discharge.

iii. The Discharger shall perform the pretreatment functions as required in 40 CFR Part 403 including, but not limited to:

(a) Implement the necessary legal authorities as provided in 40 CFR 403.8(f)(1);

(b) Enforce the pretreatment requirements under 40 CFR 403.5 and 403.6;

(c) Implement the programmatic functions as provided in 40 CFR 403.8(f)(2); and

(d) Provide the requisite funding and personnel to implement the pretreatment program as provided in 40 CFR 403.8(f)(3).

b. **Sludge/Biosolids Treatment or Discharge Specifications.** Sludge in this document means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screening material generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the wastewater

treatment plant. Biosolids refer to sludge that has been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil amendment for agricultural, silvicultural, horticultural, and land reclamation activities as specified under 40 CFR Part 503.

i. Collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste, as set forth in Title 27, CCR, division 2, subdivision 1, section 20005, et seq. Removal for further treatment, storage, disposal, or reuse at sites (e.g., landfill, composting sites, soil amendment sites) that are operated in accordance with valid waste discharge requirements issued by a Regional Water Board will satisfy these specifications.

   Sludge and solid waste shall be removed from screens, sumps, ponds, clarifiers, etc. as needed to ensure optimal plant performance.

   The treatment of sludge generated at the Facility shall be confined to the Facility property and conducted in a manner that precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations in section V.B. of this Order. In addition, the storage of residual sludge, solid waste, and biosolids on Facility property shall be temporary and controlled, and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations included in section V.B. of this Order.

ii. The use, disposal, storage, and transportation of biosolids shall comply with existing federal and state laws and regulations, including permitting requirements and technical standards included in 40 CFR Part 503. If the State Water Board and the Central Valley Water Board are given the authority to implement regulations contained in 40 CFR Part 503, this Order may be reopened to incorporate appropriate time schedules and technical standards. The Discharger must comply with the standards and time schedules contained in 40 CFR Part 503 whether or not they have been incorporated into this Order.

iii. The Discharger shall comply with Section IX.A. Biosolids of the Monitoring and Reporting Program, Attachment E.

iv. Any proposed change in biosolids use or disposal practice from a previously approved practice shall be reported to the Executive Officer and USEPA Regional Administrator at least **90 days** in advance of the change.

v. **By 180 days of the permit effective date,** the Discharger shall submit a biosolids use or disposal plan to the Central Valley Water Board. The plan shall describe at a minimum:

   (a) Sources and amounts of biosolids generated annually.

   (b) Location(s) of on-site storage and description of the containment area.

   (c) Plans for ultimate disposal. For landfill disposal, include the present classification of the landfill and the name and location of the landfill.

vi. The Discharger is encouraged to comply with the “Manual of Good Practice for Agricultural Land Application of Biosolids” developed by the California Water Environment Association.

vii. Use of biosolids as a soil amendment shall comply with valid WDRs issued by the State or Regional Water Boards. In most cases, this means the WDRs contained in State Water Board Water Quality Order No. 2004-0012-DWQ, *General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities* (Biosolids General Order). For a biosolids use project to be covered by the Biosolids General Order, the Discharger must file a complete Notice of Intent and receive a Notice of Applicability for each project, or be under contract with a biosolids disposal contractor regulated by valid WDRs.

c. **Collection System.** On 2 May 2006, the State Water Board adopted State Water Board Order 2006-0003-DWQ, Statewide General WDRs for Sanitary Sewer Systems. The Discharger shall be subject to the requirements of Order 2006-0003-DWQ and any future revisions thereto. Order 2006-0003-DWQ requires that all public agencies that currently own or operate sanitary sewer systems apply for coverage under the general WDRs. The Discharger has applied for and has been approved for coverage under Order 2006-0003-DWQ for operation of its wastewater collection system.

6. Other Special Provisions

a. Wastewater shall be oxidized, coagulated (as needed), filtered, and adequately disinfected pursuant to the Department of Public Health (DPH; formerly the Department of Health Services) reclamation criteria, CCR, Title 22, division 4, chapter 3, (Title 22), or equivalent.

b. **Facility Expansion**

i. **Facility Improvements.** Within 60 days after completion of the wastewater treatment plant expansion project to increase the Facility average dry weather flow to 15 MGD, the Discharger shall submit a report to the Central Valley Water Board documenting the increase in Facility tertiary treatment capacity. The report shall be certified by a registered and licensed Civil Engineer that the Facility has appropriate tertiary treatment capacity to the new design flow rate.

ii. **Request for Increase.** The Discharger shall submit a request for an increase in the permitted flow rate to 15 MGD average dry weather flow. The increase in the permitted discharge flow rate shall not be effective until the Executive Officer approves the Discharger's request.

c. By **1 October 2014**, the Discharger shall submit a *Groundwater Monitoring Well Destruction Workplan* for the wells that are not used at the Facility. The workplan shall describe the proposed abandonment procedures, which shall comply with *California Well Standards Bulletin 74-90* (June 1991); *State of California Bulletin 94-81* (December 1981); and any more stringent standards adopted by the state or county pursuant to Water Code section 13801. At a minimum, the workplan shall specifically address the monitoring wells listed in Table E-1 of the Monitoring and Reporting Program, Attachment E. For each well that will not be destroyed, provide an explanation of the need to maintain the well for monitoring purposes.

d. By **1 October 2015**, a *Well Destruction Report* shall be submitted to the Central Valley Water Board that describes in detail the methods used to abandon each well and includes copies of the well abandonment permits issued by the City of Roseville Environmental Utilities Department.

7. Compliance Schedules – Not Applicable

VII. COMPLIANCE DETERMINATION

A. BOD_5 and TSS Effluent Limitations (Sections IV.A.1.a, IV.A.1.b, IV.A.2.a, and IV.A.2.b). Compliance with the final effluent limitations for BOD_5 and TSS required in Limitations and Discharge Requirements sections IV.A.1.a and IV.A.2.a shall be ascertained by 24-hour composite samples. Compliance with effluent limitations required in Limitations and Discharge Requirements sections IV.A.1.b and IV.A.2.b for percent removal shall be calculated using the arithmetic mean of BOD_5 and TSS in effluent samples collected over a monthly period as a percentage of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.

B. Total Mercury Mass Loading Effluent Limitations (Sections IV.A.1.f and IV.A.2.f). The procedures for calculating mass loadings are as follows:

1. The total pollutant mass load for each individual calendar month shall be determined using an average of all concentration data collected that month and the corresponding total monthly flow. All Facility effluent monitoring data collected under the monitoring and reporting program, pretreatment program, and any special studies shall be used for these calculations. The total annual mass loading shall be the sum of the individual calendar months.
2. In calculating compliance, the Discharger shall count all non-detect measures at one-half of the detection level. If compliance with the effluent limitation is not attained due to the non-detect contribution, the Discharger shall improve and implement available analytical capabilities and compliance shall be evaluated with consideration of the detection limits.

C. Average Dry Weather Flow Effluent Limitations (Sections IV.A.1.e and IV.A.2.e). The average dry weather discharge flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow effluent limitations will be determined annually based on the average daily flow over three consecutive dry weather months (e.g., July, August, and September).

D. Total Coliform Organisms Effluent Limitations (Sections IV.A.1.d and IV.A.2.d). For each day that an effluent sample is collected and analyzed for total coliform organisms, the 7-day median shall be determined by calculating the median concentration of total coliform bacteria in the effluent utilizing the bacteriological results of the last 7 days. For example, if a sample is collected on a Wednesday, the result from that sampling event and all results from the previous 6 days (i.e., Tuesday, Monday, Sunday, Saturday, Friday, and Thursday) are used to calculate the 7-day median. If the 7-day median of total coliform organisms exceeds a most probable number (MPN) of 2.2 per 100 milliliters, the Discharger will be considered out of compliance. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are <2, in which case the median value shall be the lower of the two data points.

E. Mass Effluent Limitations. The mass effluent limitations contained in the Final Effluent Limitations IV.A.1.a are based on the permitted average dry weather flow and calculated as follows:.

Mass (lbs/day) = Flow (MGD) x Concentration (mg/L) x 8.34 (conversion factor)

If the effluent flow exceeds the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations contained in Final Effluent Limitations IV.A.1.a and IV.A.2.1 shall not apply. If the effluent flow is below the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations do apply.

F. Priority Pollutant Effluent Limitations. Compliance with effluent limitations for priority pollutants shall be determined in accordance with Section 2.4.5 of the SIP, as follows:

1. Dischargers shall be deemed out of compliance with an effluent limitation, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

2. Dischargers shall be required to conduct a Pollutant Minimization Program (PMP) in accordance with section 2.4.5.1 of the SIP when there is evidence that the priority pollutant is present in the effluent above an effluent limitation and either:

   a. A sample result is reported as detected, but not quantified (DNQ) and the effluent limitation is less than the RL; or

   b. A sample result is reported as non-detect (ND) and the effluent limitation is less than the method detection limit (MDL).

3. When determining compliance with an average monthly effluent limitation (AMEL) and more than one sample result is available in a month, the discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or ND. In those cases, the discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

   a. The data set shall be ranked from low to high, reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

   b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

4. If a sample result, or the arithmetic mean or median of multiple sample results, is below the RL, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the discharger conducts a PMP (as described in section 2.4.5.1), the discharger shall <u>not</u> be deemed out of compliance.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ)
Also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL)
The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)
The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Bioaccumulative
Those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic
Pollutants are substances that are known to cause cancer in living organisms.

Coefficient of Variation (CV)
CV is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Daily Discharge
Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ)
DNQ are those sample results less than the RL, but greater than or equal to the laboratory's MDL. Sample results reported as DNQ are estimated concentrations.

Dilution Credit
Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Effluent Concentration Allowance (ECA)
ECA is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in U.S. EPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays
Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration
The estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Estuaries
Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inland Surface Waters
All surface waters of the state that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation
The highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation
The lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL)
The highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median
The middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of

measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the n/2 and n/2+1).

Method Detection Limit (MDL)
MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in in 40 C.F.R. part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML)
ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone
Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Not Detected (ND)
Sample results which are less than the laboratory's MDL.

Ocean Waters
The territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

Persistent Pollutants
Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program (PMP)
PMP means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Central Valley Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution Prevention
Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State Water Resources Control Board (State Water Board) or Central Valley Water Board.

Satellite Collection System
The portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility that a sanitary sewer system is tributary to.

Source of Drinking Water
Any water designated as municipal or domestic supply (MUN) in a Central Valley Water Board Basin Plan.

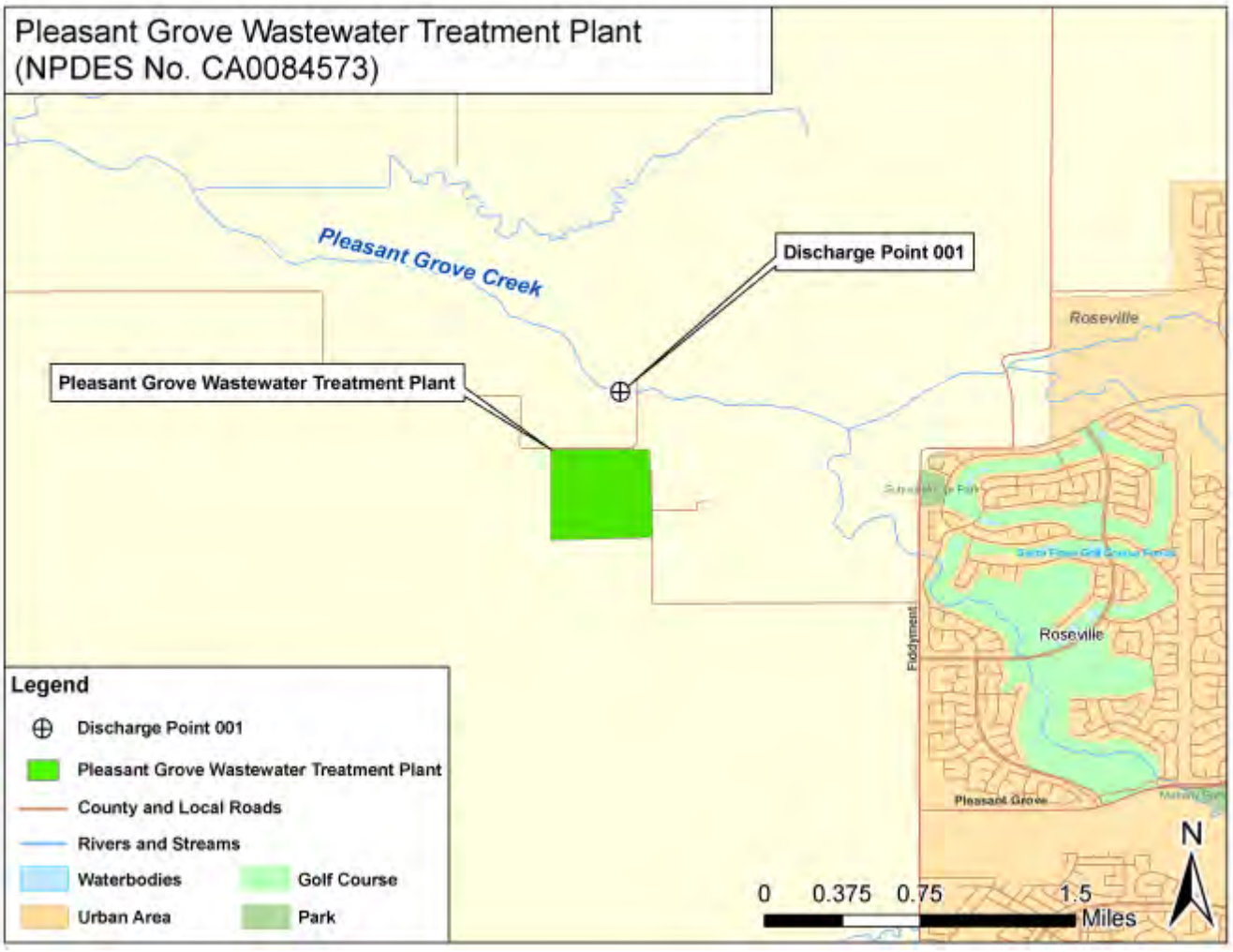
Standard Deviation (s)
Standard Deviation is a measure of variability that is calculated as follows:

$$s = (\sum[(x - m)^2]/(n - 1))^{0.5}$$

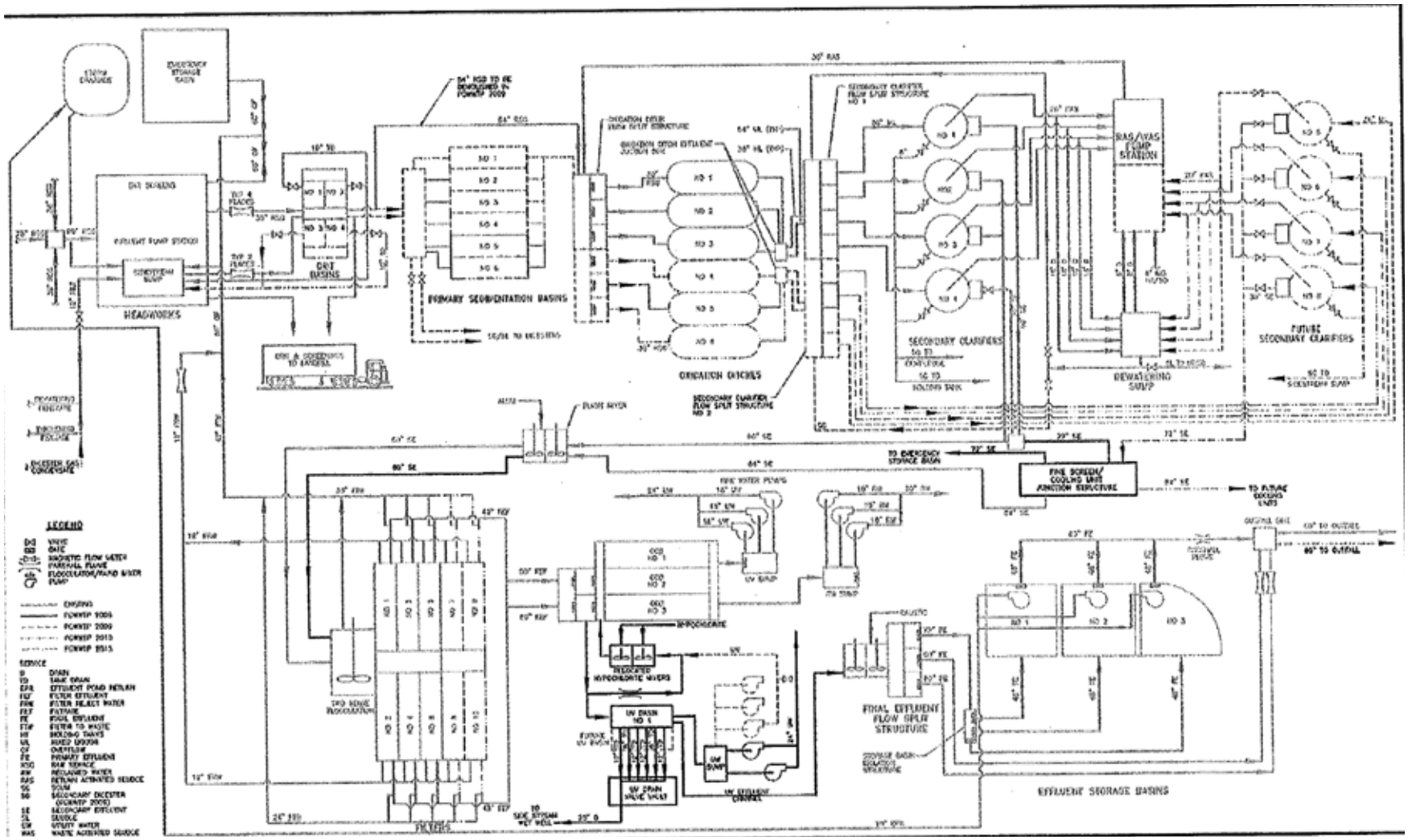
where:
x is the observed value;
m is the arithmetic mean of the observed values; and
n is the number of samples.

Toxicity Reduction Evaluation (TRE)
TRE is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

ATTACHMENT B – MAP



ATTACHMENT C – FLOW SCHEMATIC



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 C.F.R. § 122.41(a).)
2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 C.F.R. § 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 C.F.R. § 122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 C.F.R. § 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)
2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. § 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Central Valley Water Board, State Water Board, U.S. EPA, and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 C.F.R. § 122.41(i); Wat. Code, § 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 C.F.R. § 122.41(i)(1));

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 C.F.R. § 122.41(i)(2));

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 C.F.R. § 122.41(i)(3)); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 C.F.R. § 122.41(i)(4).)

G. Bypass

1. Definitions

   a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i).)

   b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii).)

2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. § 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Central Valley Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):

   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));

   b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and

   c. The Discharger submitted notice to the Central Valley Water Boardas required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)

4. The Central Valley Water Board may approve an anticipated bypass, after considering its adverse effects, if the Central Valley Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)

5. Notice

   a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 C.F.R. § 122.41(m)(3)(i).)

b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 C.F.R. § 122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 C.F.R. § 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2).)
2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. § 122.41(n)(3)):
   a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));
   b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));
   c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and
   d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv).)
3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 C.F.R. § 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 C.F.R. § 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the Central Valley Water Board. The Central Valley Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other

requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. § 122.41(l)(3); § 122.61.)

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures under 40 C.F.R. part 136 or, in the case of sludge use or disposal, approved under 40 C.F.R. part 136 unless otherwise specified in 40 C.F.R. part 503 unless other test procedures have been specified in this Order. (40 C.F.R. § 122.41(j)(4); § 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 C.F.R. part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Central Valley Water Board Executive Officer at any time. (40 C.F.R. § 122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));
2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));
3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));
4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));
5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and
6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and
2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Central Valley Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the Central Valley Water Board, State Water Board, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Central Valley Water Board, State Water Board, or U.S. EPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, § 13267.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Central Valley Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 C.F.R. § 122.41(k).)
2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA). (40 C.F.R. § 122.22(a)(3).).
3. All reports required by this Order and other information requested by the Central Valley Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
   a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 C.F.R. § 122.22(b)(1));
   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and
   c. The written authorization is submitted to the Central Valley Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)
4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Central Valley Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)
5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 C.F.R. § 122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.41(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Central Valley Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 C.F.R. § 122.41(l)(4)(i).)

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 C.F.R. part 136, or another method required for an industry-specific waste stream under 40 C.F.R. subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Central Valley Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 C.F.R. § 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 C.F.R. § 122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 C.F.R. § 122.41(l)(6)(ii)):

   a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)

   b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)

3. The Central Valley Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(iii).)

F. Planned Changes

The Discharger shall give notice to the Central Valley Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 C.F.R. § 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 C.F.R. § 122.41(l)(1)(ii).)

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 C.F.R.§ 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Central Valley Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with this Order's requirements. (40 C.F.R. § 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 C.F.R. § 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Central Valley Water Board**,** State Water Board, or U.S. EPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Central Valley Water Board of the following (40 C.F.R. § 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 C.F.R. § 122.42(b)(1)); and
2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order. (40 C.F.R. § 122.42(b)(2).)
3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 C.F.R. § 122.42(b)(3).)

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations (40 C.F.R. § 122.48) requires that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Central Valley Water Board to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements that implement federal and California regulations.

I. GENERAL MONITORING PROVISIONS

A. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of the Central Valley Water Board.

B. Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.

C. Chemical, bacteriological, and bioassay analyses of any material required by this Order shall be conducted by a laboratory certified for such analyses by the Department of Public Health (DPH). Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. In the event a certified laboratory is not available to the Discharger for any onsite field measurements such as pH, dissolved oxygen (DO), turbidity, temperature, and residual chlorine, such analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program for any onsite field measurements such as pH, DO, turbidity, temperature, and residual chlorine must be kept onsite in the treatment facility laboratory and shall be available for inspection by Central Valley Water Board staff. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Central Valley Water Board.

D. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.

E. Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.

F. Laboratories analyzing monitoring samples shall be certified by DPH, in accordance with the provision of Water Code section 13176, and the laboratory must include quality assurance/quality control data with their reports.

G. U.S. EPA's requires major and selected minor permittees under the NPDES program to participate in the annual Discharge Monitoring Report–Quality Assurance (DMR-QA) Study program. The DMR-QA Study program evaluates the analytical ability of laboratories that routinely perform self-monitoring analyses required by NPDES permits. Therefore, the Discharger shall submit annually the results of the DMR-QA Study test to the State Water Resources Control Board at the following address:

DMR-QA Coordinator
Office of Information Management and Analysis
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

H. The Discharger shall file with the Central Valley Water Board technical reports on self-monitoring performed according to the detailed specifications contained in this Monitoring and Reporting Program.

I. The results of all monitoring required by this Order shall be reported to the Central Valley Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INF-001	A location where a representative sample of the influent into the Facility can be collected.
001	EFF-001	A location(s) where a representative sample of the effluent can be collected downstream from the last connection through which wastes can be admitted into the outfall. Latitude: 38˚ 79' 21" N Longitude: 121˚ 37' 01" W
--	RSW-001	In Pleasant Grove Creek, approximately 200 feet upstream of Discharge Point 001.
--	RSW-002	In Pleasant Grove Creek, approximately 200 feet downstream of Discharge Point 001.
--	LND-001	Monitoring within Effluent Storage Basin 1.
--	LND-002	Monitoring within Effluent Storage Basin 2.
--	LND-003	Monitoring within Effluent Storage Basin 3.
--	LND-004	Monitoring within the Emergency Storage Basin.
--	GW-001	Groundwater monitoring well (identified as MW-01).
--	GW-002	Groundwater monitoring well (identified as MW-02).
--	GW-003	Groundwater monitoring well (identified as MW-03).
--	BIO-001	A location where a representative sample of the biosolids can be obtained.
--	FIL-001	Monitoring of the filter effluent to be measured downstream of the filters and ultraviolet light (UV) disinfection system and upstream of the point of diversion to the effluent storage basins.
--	UVS-001	A location where a representative sample of wastewater can be collected immediately upstream of the UV disinfection system.
--	UVS-002	A location where a representative sample of wastewater can be collected immediately downstream of the UV disinfection system.

The North latitude and West longitude information in Table E-1 are approximate for administrative purposes.

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

1. The Discharger shall monitor influent to the Facility at Monitoring Location INF-001 as follows:

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite[1]	3/Week	[2]
Total Suspended Solids	mg/L	24-hr Composite[1]	3/Week	[2]

[1] 24-hour flow proportional composite.
[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; or by methods approved by the Central Valley Water Board or the State Water Board.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor treated wastewater at Monitoring Location EFF-001 as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite[1]	3/Week	[2]
	lbs/day	Calculate	3/Week	--
pH	standard units	Meter	Continuous[3]	[2]
Total Suspended Solids	mg/L	24-hr Composite[1]	3/Week	[2]
	lbs/day	Calculate	3/Week	--
Priority Pollutants				
Mercury, Total Recoverable	µg/L	Grab	1/Month	[2,4]
Priority Pollutants and Other Constituents of Concern	See Section IX.C	See Section IX.C	See Section IX.C	[2]
Non-Conventional Pollutants				
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Week[3,5]	[2]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week	[2]
Fluoride, Total	µg/L	Grab	1/Month	[2]
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Month	[2]
Nitrate Nitrogen, Total (as N)	mg/L	Grab	1/Month[6]	[2]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Nitrite Nitrogen, Total (as N)	mg/L	Grab	1/Month[6]	[2]
Temperature	°F(°C)	Grab	1/Day[3]	[2]
Total Dissolved Solids	mg/L	Grab	1/Month	[2]

[1] 24-hour flow proportional composite.
[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136 or by methods approved by the Central Valley Water Board or the State Water Board.
[3] pH and temperature shall be recorded at the time of ammonia sample collection.
[4] Total mercury samples shall be grab samples taken using clean hands/dirty hands procedures, as described in U.S. EPA method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by U.S. EPA method 1631 (Revision E) with a reporting level of 0.5 ng/L.
[5] Concurrent with whole effluent toxicity monitoring.
[6] Monitoring for nitrite and nitrate shall be conducted concurrently.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Acute Toxicity Testing. The Discharger shall conduct acute toxicity testing to determine whether the effluent is contributing acute toxicity to the receiving water. The Discharger shall meet the following acute toxicity testing requirements:

1. *Monitoring Frequency* – The Discharger shall perform semi-annual acute toxicity testing, concurrent with effluent ammonia sampling.
2. *Sample Types* – The Discharger may use flow-through or static renewal testing. For static renewal testing, the samples shall be flow proportional 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-001.
3. *Test Species* – Test species shall be rainbow trout (*Oncorhynchus mykiss*).
4. *Methods* – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.
5. *Test Failure* – If an acute toxicity test does not meet all test acceptability criteria, as specified in the test method, the Discharger must re-sample and re-test as soon as possible, not to exceed 7 days following notification of test failure.

B. Chronic Toxicity Testing. The Discharger shall conduct three species chronic toxicity testing to determine whether the effluent is contributing chronic toxicity to the receiving water. The Discharger shall meet the following chronic toxicity testing requirements:

1. *Monitoring Frequency* – The Discharger shall perform quarterly three species chronic toxicity testing.
2. *Sample Types* – Effluent samples shall be flow proportional 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at Monitoring Location EFF-001. The receiving water control shall be a grab sample obtained from Monitoring Location RSW-001, as identified in this Monitoring and Reporting Program.
3. *Sample Volumes* – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.

4. *Test Species* – Chronic toxicity testing measures sublethal (e.g., reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:

   - The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
   - The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
   - The green alga, *Selenastrum capricornutum* (growth test).

5. Methods – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition,* EPA/821-R-02-013, October 2002.

6. *Reference Toxicant* – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.

7. *Dilutions* – For routine and accelerated chronic toxicity monitoring, it is not necessary to perform the test using a dilution series. The test may be performed using 100% effluent and one control. For TRE monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-4, below, unless an alternative dilution series is detailed in the submitted TRE Action Plan. A receiving water control or laboratory water control may be used as the diluent.

Table E-4. TRE Monitoring Chronic Toxicity Testing Dilution Series

Sample	Dilutions[a] (%)					Control
	100	75	50	25	12.5	
% Effluent	100	75	50	25	12.5	0
% Control Water	0	25	50	75	87.5	100

[a] Receiving water control or laboratory water control may be used as the diluent.

8. *Test Failure* – The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:

   a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or

   b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in Table 6 on page 52 of the Method Manual. (A retest is only required in this case if the test results do not exceed the monitoring trigger specified in the Special Provision at section VI. 2.a.ii. of the Order.)

C. WET Testing Notification Requirements. The Discharger shall notify the Central Valley Water Board within 24-hours after the receipt of test results exceeding the monitoring trigger during regular or accelerated monitoring, or an exceedance of the acute toxicity effluent limitation.

D. WET Testing Reporting Requirements. All toxicity test reports shall include the contracting laboratory's complete report provided to the Discharger and shall be in accordance with the appropriate "Report Preparation and Test Review" sections of the method manuals. At a minimum, whole effluent toxicity monitoring shall be reported as follows:

1. **Chronic WET Reporting.** Regular chronic toxicity monitoring results shall be reported to the Central Valley Water Board with the quarterly self-monitoring reports, as described in Table E-9, following completion of the test, and shall contain, at minimum:

   a. The results expressed in TUc, measured as 100/NOEC, and also measured as 100/LC50, 100/EC25, 100/IC25, and 100/IC50, as appropriate.

   b. The statistical methods used to calculate endpoints;

   c. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);

   d. The dates of sample collection and initiation of each toxicity test; and

   e. The results compared to the numeric toxicity monitoring trigger.

   Additionally, the monthly discharger self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TUc, and organized by test species, type of test (survival, growth or reproduction), and monitoring frequency, i.e., either quarterly, monthly, accelerated, or Toxicity Reduction Evaluation (TRE).

2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the monthly discharger self-monitoring reports and reported as percent survival.

3. **TRE Reporting.** Reports for TREs shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Workplan, or as amended by the Discharger's TRE Action Plan.

4. **Quality Assurance (QA).** The Discharger must provide the following information for QA purposes:

   a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.

   b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.

   c. Any information on deviations or problems encountered and how they were dealt with.

VI. LAND DISCHARGE MONITORING REQUIREMENTS

A. Monitoring Locations LND-001, LND-002, LND-003, and LND-004

1. When the emergency storage basins have held water for more than 7 days, the Discharger shall monitor emergency storage basins at Monitoring Locations LND-001, LND-002, LND-003, and LND-004 as follows:

Table E-5. Land Discharge Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Freeboard	Feet[1,2]	Measure	1/Day	--
pH	standard units	Grab	1/Week	[3]
Electrical Conductivity @ 25˚C	µmhos/cm	Grab	1/Week	[3]
Odors	Observation	--	1/Week	--
Levee Condition	Observation	--	1/Week	--

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dissolved Oxygen	mg/L	Grab	1/Month	[3]

[1] To be measured vertically to the lowest point of overflow.
[2] Include estimation of volume of wastewater in each pond.
[3] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136 or by methods approved by the Central Valley Water Board or the State Water Board.

VII. RECYCLING MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS

A. Monitoring Locations RSW-001 and RSW-002

1. The Discharger shall monitor Pleasant Grove Creek at Monitoring Locations RSW-001 and RSW-002 as follows:

Table E-6. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Conventional Pollutants				
pH	standard units	Grab[1]	1/Week	[2]
Priority Pollutants				
Priority Pollutants and Other Constituents of Concern	See Section IX.C	See Section IX.C	See Section IX.C[3]	[2,4]
Non-Conventional Pollutants				
Dissolved Oxygen	mg/L	Grab[1]	1/Week	[2]
Electrical Conductivity @ 25˚C	µmhos/cm	Grab[1]	1/Week	[2]
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Month	[2]
Temperature	˚F(˚C)	Grab[1]	1/Week	[2]

[1] A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.
[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136 or by methods approved by the Central Valley Water Board or the State Water Board.
[3] Monitoring required at Monitoring Location RSW-001 only.
[4] For priority pollutant constituents the reporting level shall be consistent with Sections 2.4.2 and 2.4.3 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (See Attachment E, section IX.C).

2. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Monitoring Locations RSW-001 an RSW-002. Attention shall be given to the presence or absence of:

   d. Floating or suspended matter,
   e. Discoloration,
   f. Bottom deposits,
   g. Aquatic life,
   h. Visible films, sheens, or coatings,
   i. Fungi, slimes, or objectionable growths,

j. Potential nuisance conditions.

Notes on receiving water conditions shall be summarized in the monitoring report.

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids

1. Monitoring Location BIO-001

a. A composite sample of sludge shall be collected quarterly at Monitoring Location BIO-001 in accordance with EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989, and tested for priority pollutants listed in 40 CFR Part 122, Appendix D, Tables II and III (excluding total phenols).

b. Biosolids monitoring shall be conducted using the methods in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (EPA publication SW-846), as required in 40 CFR 503.8(b)(4). All results must be reported on a 100% dry weight basis. Records of all analyses must state on each page of the laboratory report whether the results are expressed in "100% dry weight" or "as is."

c. Sampling records shall be retained for a minimum of 5 years. A log shall be maintained of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log must be complete enough to serve as a basis for part of the annual report.

B. Ultraviolet Light (UV) Disinfection System

1. Monitoring Locations UVS-001, UVS-002, and FIL-001

The Discharger shall monitor the UV disinfection system at Monitoring Locations UVS-001, UVS-002, and FIL-001 as follows:

Table E-7. Ultraviolet Light Disinfection System Monitoring Requirements

Parameter	Units	Sample Type	Monitoring Location	Minimum Sampling Frequency
Flow	MGD	Meter	UVS-001	Continuous[1]
Turbidity	NTU	Meter	FIL-001	Continuous[1,2]
Number of UV banks in operation	Number	Observation	N/A	Continuous[1]
UV Transmittance	Percent (%)	Meter	UVS-001	Continuous[1]
UV Dose[3]	mJ/cm^2	Calculated	UVS-001	Continuous[1]
Total Coliform Organisms	MPN/100 mL	Grab	UVS-002	5/Week

[1] For continuous analyzers, the Discharger shall maintain a log documenting routine meter maintenance activities including date, time of day, and duration, in which the analyzer(s) is not in operation. If analyzer(s) fail to provide continuous monitoring for more than two hours and influent and/or effluent from the disinfection process is not diverted for retreatment, the Discharger shall obtain and report hourly manual and/or grab sample results. The Discharger shall not decrease power settings or reduce the number of UV lamp banks in operation while the continuous analyzers are out of service and water is being disinfected.

[2] Report daily average and maximum turbidity.

[3] Report daily minimum hourly UV dose and daily average UV dose. The minimum hourly average dose shall consist of lowest hourly average dose provided in any channel that had at least one bank of lamps operating during the hour interval. For channels that did not operate for the entire hour interval, the dose will be averaged based on the actual operation time.

C. Effluent and Receiving Water Characterization

1. **Third Year, Quarterly Monitoring.** Quarterly priority pollutant samples shall be collected from the effluent and upstream receiving water (Monitoring Locations EFF-001 and RSW-001) and analyzed for the constituents listed in Table E-8, below. Quarterly monitoring shall be conducted during the third year of the permit term (four consecutive samples, evenly distributed throughout the year) and the results of such monitoring be submitted to the Central Valley Water Board with the quarterly SMR's described in Table E-9. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.
2. **Concurrent Sampling.** Effluent and receiving water sampling shall be performed at approximately the same time, on the same date.
3. **Sample type.** All receiving water samples shall be taken as grab samples. Effluent samples shall be taken as described in Table E-8, below.

Table E-8. Effluent and Receiving Water Characterization Monitoring

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
1,1-Dichloroethane	µg/L	Grab	1
1,1-Dichloroethene	µg/L	Grab	0.5
1,1,1-Trichloroethane	µg/L	Grab	2
1,1,2-Trichloroethane	µg/L	Grab	0.5
1,1,2,2-Tetrachloroethane	µg/L	Grab	0.5
1,2-Dichlorobenzene	µg/L	Grab	2
1,2-Dichloroethane	µg/L	Grab	0.5
cis-1,2-Dichloroethene	µg/L	Grab	
1,2-Dichloropropane	µg/L	Grab	0.5
1,2,4-Trichlorobenzene	µg/L	Grab	1
1,3-Dichlorobenzene	µg/L	Grab	2
1,3-Dichloropropene	µg/L	Grab	0.5
1,4-Dichlorobenzene	µg/L	Grab	2
Acrolein	µg/L	Grab	2
Acrylonitrile	µg/L	Grab	2
Benzene	µg/L	Grab	0.5
Bromoform	µg/L	Grab	2
Bromomethane	µg/L	Grab	2
Carbon tetrachloride	µg/L	Grab	0.5
Chlorobenzene (mono chlorobenzene)	µg/L	Grab	2
Chloroethane	µg/L	Grab	2
2- Chloroethyl vinyl ether	µg/L	Grab	1
Chloroform	µg/L	Grab	2
Chloromethane	µg/L	Grab	2
Dibromochloromethane	µg/L	Grab	0.5
Dichlorobromomethane	µg/L	Grab	0.5
Dichloromethane	µg/L	Grab	2
Ethylbenzene	µg/L	Grab	2
Hexachlorobenzene	µg/L	Grab	1
Hexachlorobutadiene	µg/L	Grab	1
Hexachloroethane	µg/L	Grab	1
Naphthalene	µg/L	Grab	10
Tetrachloroethene	µg/L	Grab	0.5

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
Toluene	µg/L	Grab	2
trans-1,2-Dichloroethylene	µg/L	Grab	1
Trichloroethene	µg/L	Grab	2
Vinyl chloride	µg/L	Grab	0.5
Methyl-tert-butyl ether (MTBE)	µg/L	Grab	
Trichlorofluoromethane	µg/L	Grab	
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	Grab	
Styrene	µg/L	Grab	
Xylenes	µg/L	Grab	
1,2-Benzanthracene	µg/L	24-hr Composite[2]	5
1,2-Diphenylhydrazine	µg/L	24-hr Composite[2]	1
2-Chlorophenol	µg/L	24-hr Composite[2]	5
2,4-Dichlorophenol	µg/L	24-hr Composite[2]	5
2,4-Dimethylphenol	µg/L	24-hr Composite[2]	2
2,4-Dinitrophenol	µg/L	24-hr Composite[2]	5
2,4-Dinitrotoluene	µg/L	24-hr Composite[2]	5
2,4,6-Trichlorophenol	µg/L	24-hr Composite[2]	10
2,6-Dinitrotoluene	µg/L	24-hr Composite[2]	5
2-Nitrophenol	µg/L	24-hr Composite[2]	10
2-Chloronaphthalene	µg/L	24-hr Composite[2]	10
3,3'-Dichlorobenzidine	µg/L	24-hr Composite[2]	5
3,4-Benzofluoranthene	µg/L	24-hr Composite[2]	10
4-Chloro-3-methylphenol	µg/L	24-hr Composite[2]	5
4,6-Dinitro-2-methylphenol	µg/L	24-hr Composite[2]	10
4-Nitrophenol	µg/L	24-hr Composite[2]	10
4-Bromophenyl phenyl ether	µg/L	24-hr Composite[2]	10
4-Chlorophenyl phenyl ether	µg/L	24-hr Composite[2]	5
Acenaphthene	µg/L	24-hr Composite[2]	1
Acenaphthylene	µg/L	24-hr Composite[2]	10
Anthracene	µg/L	24-hr Composite[2]	10
Benzidine	µg/L	24-hr Composite[2]	5
Benzo(a)pyrene (3,4-Benzopyrene)	µg/L	24-hr Composite[2]	2
Benzo(g,h,i)perylene	µg/L	24-hr Composite[2]	5
Benzo(k)fluoranthene	µg/L	24-hr Composite[2]	2
Bis(2-chloroethoxy) methane	µg/L	24-hr Composite[2]	5
Bis(2-chloroethyl) ether	µg/L	24-hr Composite[2]	1
Bis(2-chloroisopropyl) ether	µg/L	24-hr Composite[2]	10
Bis(2-ethylhexyl) phthalate	µg/L	Grab	5[3]
Butyl benzyl phthalate	µg/L	24-hr Composite[2]	10
Chrysene	µg/L	24-hr Composite[2]	5
Di-n-butylphthalate	µg/L	24-hr Composite[2]	10
Di-n-octylphthalate	µg/L	24-hr Composite[2]	10
Dibenzo(a,h)-anthracene	µg/L	24-hr Composite[2]	0.1
Diethyl phthalate	µg/L	24-hr Composite[2]	10
Dimethyl phthalate	µg/L	24-hr Composite[2]	10
Fluoranthene	µg/L	24-hr Composite[2]	10
Fluorene	µg/L	24-hr Composite[2]	10
Hexachlorocyclopentadiene	µg/L	24-hr Composite[2]	5
Indeno(1,2,3-c,d)pyrene	µg/L	24-hr Composite[2]	0.05
Isophorone	µg/L	24-hr Composite[2]	1

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
N-Nitrosodiphenylamine	µg/L	24-hr Composite[2]	1
N-Nitrosodimethylamine	µg/L	24-hr Composite[2]	5
N-Nitrosodi-n-propylamine	µg/L	24-hr Composite[2]	5
Nitrobenzene	µg/L	24-hr Composite[2]	10
Pentachlorophenol	µg/L	24-hr Composite[2]	1
Phenanthrene	µg/L	24-hr Composite[2]	5
Phenol	µg/L	24-hr Composite[2]	1
Pyrene	µg/L	24-hr Composite[2]	10
Aluminum	µg/L	24-hr Composite[2]	--
Antimony	µg/L	24-hr Composite[2]	5
Arsenic	µg/L	24-hr Composite[2]	10
Asbestos	µg/L	24-hr Composite[2]	--
Barium	µg/L	24-hr Composite[2]	--
Beryllium	µg/L	24-hr Composite[2]	2
Cadmium	µg/L	24-hr Composite[2]	0.5
Chromium (III)	µg/L	24-hr Composite[2]	50
Chromium (VI)	µg/L	24-hr Composite[2]	10
Copper	µg/L	24-hr Composite[2]	2
Cyanide	µg/L	Grab	5
Fluoride[4]	µg/L	Grab	--
Iron	µg/L	24-hr Composite[2]	--
Lead	µg/L	24-hr Composite[2]	0.5
Mercury[4]	µg/L	Grab	0.5
Manganese	µg/L	24-hr Composite[2]	--
Molybdenum	µg/L	24-hr Composite[2]	--
Nickel	µg/L	24-hr Composite[2]	20
Selenium	µg/L	24-hr Composite[2]	5
Silver	µg/L	24-hr Composite[2]	0.25
Thallium	µg/L	24-hr Composite[2]	1
Tributyltin	µg/L	24-hr Composite[2]	--
Zinc	µg/L	24-hr Composite[2]	20
4,4'-DDD	µg/L	24-hr Composite[2]	0.05
4,4'-DDE	µg/L	24-hr Composite[2]	0.05
4,4'-DDT	µg/L	24-hr Composite[2]	0.01
alpha-Endosulfan	µg/L	24-hr Composite[2]	0.02
alpha-Hexachlorocyclohexane (BHC)	µg/L	24-hr Composite[2]	0.01
Alachlor	µg/L	24-hr Composite[2]	--
Aldrin	µg/L	24-hr Composite[2]	0.005
beta-Endosulfan	µg/L	24-hr Composite[2]	0.01
beta-Hexachlorocyclohexane	µg/L	24-hr Composite[2]	0.005
Chlordane	µg/L	24-hr Composite[2]	0.1
delta-Hexachlorocyclohexane	µg/L	24-hr Composite[2]	0.005
Dieldrin	µg/L	24-hr Composite[2]	0.01
Endosulfan sulfate	µg/L	24-hr Composite[2]	0.05
Endrin	µg/L	24-hr Composite[2]	0.01
Endrin Aldehyde	µg/L	24-hr Composite[2]	0.01
Heptachlor	µg/L	24-hr Composite[2]	0.01
Heptachlor Epoxide	µg/L	24-hr Composite[2]	0.01
Lindane (gamma-Hexachlorocyclohexane)	µg/L	24-hr Composite[2]	0.02

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]
PCB-1016	µg/L	24-hr Composite[2]	0.5
PCB-1221	µg/L	24-hr Composite[2]	0.5
PCB-1232	µg/L	24-hr Composite[2]	0.5
PCB-1242	µg/L	24-hr Composite[2]	0.5
PCB-1248	µg/L	24-hr Composite[2]	0.5
PCB-1254	µg/L	24-hr Composite[2]	0.5
PCB-1260	µg/L	24-hr Composite[2]	0.5
Toxaphene	µg/L	24-hr Composite[2]	0.5
Atrazine	µg/L	Grab	--
Bentazon	µg/L	Grab	--
Carbofuran	µg/L	Grab	--
2,4-D	µg/L	Grab	--
Dalapon	µg/L	Grab	--
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	Grab	--
Di(2-ethylhexyl)adipate	µg/L	Grab	--
Dinoseb	µg/L	Grab	--
Diquat	µg/L	Grab	--
Endothal	µg/L	Grab	--
Ethylene Dibromide	µg/L	Grab	--
Glyphosate	µg/L	Grab	--
Methoxychlor	µg/L	Grab	--
Molinate (Ordram)	µg/L	Grab	--
Oxamyl	µg/L	Grab	--
Picloram	µg/L	Grab	--
Simazine (Princep)	µg/L	Grab	--
Thiobencarb	µg/L	24-hr Composite[2]	--
2,3,7,8-TCDD (Dioxin)	µg/L	24-hr Composite[2]	--
2,4,5-TP (Silvex)	µg/L	Grab	--
Diazinon	µg/L	24-hr Composite[2]	0.015
Chlorpyrifos	µg/L	24-hr Composite[2]	0.014
Boron	µg/L	24-hr Composite[2]	--
Chloride	mg/L	24-hr Composite[2]	--
Flow	MGD	--	--
Hardness (as $CaCO_3$)[4]	mg/L	Grab	--
Foaming Agents (MBAS)	µg/L	Grab	--
Mercury, Methyl	ng/L	Grab	0.05
Nitrate (as N)[4]	mg/L	Grab	2.0
Nitrite (as N)[4]	mg/L	Grab	0.4
pH[4]	standard units	Grab	0.1
Phosphorus, Total (as P)	mg/L	24-hr Composite[2]	--
Specific conductance (EC)[4]	µmhos/cm	Grab	--
Sulfate	mg/L	24-hr Composite[2]	500
Sulfide (as S)	mg/L	Grab	--
Sulfite (as SO_3)	mg/L	24-hr Composite[2]	--
Temperature[4]	°F(°C)	Grab	--
Total Dissolved Solids (TDS)[4]	mg/L	Grab	--

Parameter	Units	Effluent Sample Type	Maximum Reporting Level[1]

[1] The reporting levels required in this table for priority pollutant constituents are established based on Section 2.4.2 and Appendix 4 of the SIP.
[2] 24-hour flow proportional composite.
[3] In order to verify if bis (2-ethylhexyl) phthalate is truly present in the effluent and receiving water, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.
[4] The Discharger is not required to conduct effluent monitoring for constituents that have already been sampled in a given quarter, as required in Table E-3, except for hardness, pH, and temperature, which shall be conducted concurrently with the effluent and receiving water sampling.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.
2. Upon written request of the Central Valley Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).
3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Central Valley Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board by letter when it returns to compliance with the compliance time schedule.
4. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "*Emergency Planning and Community Right to Know Act*" of 1986.

B. Self-Monitoring Reports (SMR's)

1. The Discharger shall electronically submit SMR's using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). The CIWQS Web site will provide additional information for SMR submittal in the event there will be a planned service interruption for electronic submittal.
2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP under sections III through IX. The Discharger shall submit monthly SMR's including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. SMR's are to include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.
3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-9. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with monthly SMR
1/Day	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with monthly SMR
1/Week	Permit effective date	Sunday through Saturday	Submit with monthly SMR
3/Week	Permit effective date	Sunday through Saturday	Submit with monthly SMR
5/Week	Permit effective date	Sunday through Saturday	Submit with monthly SMR
1/Month	Permit effective date	1st day of calendar month through last day of calendar month	1st day of the second month following month of sampling
1/Quarter	Permit effective date	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 August 1 November 1 February of the following year
2/Year	Permit effective date	1 January through 30 June 1 July through 31 December	1 August 1 February of the following year
1/Year	Permit effective date	1 January through 31 December	1 February of the following year

4. **Reporting Protocols.** The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current laboratory's Method Detection Limit (MDL), as determined by the procedure in 40 C.F.R. part 136.

   The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

      For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ. The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (± a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

   c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

d. Dischargers are to instruct laboratories to establish calibration standards so that the Minimum Level (ML) value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

5. **Multiple Sample Data.** When determining compliance with an AMEL, AWEL, or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

   a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

   b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

6. The Discharger shall submit SMR's in accordance with the following requirements:

   a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

   b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDR's; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

7. The Discharger shall submit in the SMR's calculations and reports in accordance with the following requirements:

   a. **Average Dry Weather Flow.** The Discharger shall calculate and report the average dry weather flow for the effluent. The average dry weather flow shall be calculated as specified in Section VII.C of the Limitations and Discharge Requirements and reported in the December SMR.

   b. **Calendar Annual Average Limitations.** For constituents with effluent limitations specified as "calendar annual average" (fluoride) the Discharger shall report the calendar annual average in the December SMR. The calendar annual average shall be calculated as the average of the samples gathered for the calendar year.

   c. **Mass Loading Limitations**. For BOD_5, TSS, and ammonia, the Discharger shall calculate and report the mass loading (lbs/day) in the SMRs. The mass loading shall be calculated as follows:

Mass Loading (lbs/day) = Flow (MGD) x Concentration (mg/L) x 8.34

When calculating daily mass loading, the daily average flow and constituent concentration shall be used. For weekly average mass loading, the weekly average flow and constituent concentration shall be used. For monthly average mass loading, the monthly average flow and constituent concentration shall be used.

d. **Removal Efficiency (BOD_5 and TSS).** The Discharger shall calculate and report the percent removal of BOD_5 and TSS in the SMRs. The percent removal shall be calculated as specified in Section VII.A. of the Limitations and Discharge Requirements.

e. **Total Coliform Organisms Effluent Limitations**. The Discharger shall calculate and report the 7-day median of total coliform organisms for the effluent. The 7 day median of total coliform organisms shall be calculated as specified in Section VII.D. of the Limitations and Discharge Requirements.

f. **Dissolved Oxygen Receiving Water Limitations**. The Discharger shall measure or calculate, where appropriate, and report monthly in the self-monitoring report: i) the dissolved oxygen concentration, ii) the percent of saturation in the main water mass, and iii) the 95th percentile dissolved oxygen concentration.

g. **Turbidity Receiving Water Limitations**. The Discharger shall calculate and report the turbidity increase in the receiving water applicable to the natural turbidity condition specified in Section V.A.17.a-e. of the Limitations and Discharge Requirements.

h. **Temperature Receiving Water Limitations**. The Discharger shall calculate and report the maximum and average temperatures for the periods listed in Table 6 of the Limitations and Discharge Requirements in the December SMR.

i. **Total Calendar Annual Mass Loading Mercury Effluent Limitations.** The Discharger shall calculate and report the total calendar annual mercury mass loading for the effluent in the December SMR. The total calendar year annual mass loading shall be calculated as specified in Section VII.B. of the Limitations and Discharge Requirements.

C. Discharge Monitoring Reports (DMR's)

1. At any time during the term of this permit, the State Water Board or Central Valley Water Board may notify the Discharger to electronically submit DMR's. Until such notification is given specifically for the submittal of DMR's, the Discharger shall submit DMR's in accordance with the requirements described below.

2. DMR's must be signed and certified as required by the standard provisions (Attachment D). The Discharger shall submit the original DMR to the address listed below:

STANDARD MAIL	FEDEX/UPS/ OTHER PRIVATE CARRIERS
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15th Floor Sacramento, CA 95814

3. All discharge monitoring results must be reported on the official U.S. EPA pre-printed DMR forms (EPA Form 3320-1) or on self-generated forms that follow the exact same format of EPA Form 3320-1.

D. Other Reports

1. **Special Study Reports and Progress Reports.** As specified in the Special Provisions contained in section VI of the Order, special study and progress reports shall be submitted in accordance with the following reporting requirements.

Table E-10. Reporting Requirements for Special Provisions Reports

Special Provision	Reporting Requirements
Salinity Evaluation and Minimization Plan, Annual Reports (Special Provision VI.C.3.a)	**1 February**, annually
Pollution Prevention Plan for Mercury, Progress Reports (Special Provision VI.C.3.b)	**1 February**, annually
Sewage Sludge Use and Disposal Plan (Special Provision VI.C.5.b.v)	**By 180 days** of the effective date

2. The Discharger shall report the results of any special studies, acute and chronic toxicity testing, TRE/TIE, PMP, and Pollution Prevention Plan required by Special Provisions VI.C. The Discharger shall submit reports with the first monthly SMR scheduled to be submitted on or immediately following the report due date.

3. **Within 60 days of permit effective date**, the Discharger shall submit a report outlining reporting levels (RLs), method detection limits, and analytical methods for approval. The Discharger shall comply with the monitoring and reporting requirements for CTR constituents as outlined in section 2.3 and 2.4 of the SIP. The maximum required reporting levels for priority pollutant constituents shall be based on the Minimum Levels (MLs) contained in Appendix 4 of the SIP, determined in accordance with Section 2.4.2 and Section 2.4.3 of the SIP. In accordance with Section 2.4.2 of the SIP, when there is more than one ML value for a given substance, the Central Valley Water Board shall include as RLs, in the permit, all ML values, and their associated analytical methods, listed in Appendix 4 that are below the calculated effluent limitation. The Discharger may select any one of those cited analytical methods for compliance determination. If no ML value is below the effluent limitation, then the Central Valley Water Board shall select as the RL, the lowest ML value, and its associated analytical method, listed in Appendix 4 for inclusion in the permit. Attachment E, Section IX.C provides required maximum reporting levels in accordance with the SIP.

4. **Annual Operations Report. By 1 February of each year**, the Discharger shall submit a written report to the Executive Officer containing the following:

a. The names, certificate grades, and general responsibilities of all persons employed at the Facility.

b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.

c. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.

d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

e. The Discharger may also be requested to submit an annual report to the Central Valley Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

5. **Annual Pretreatment Reporting Requirements**. The Discharger shall submit annually a report to the Central Valley Water Board, with copies to USEPA Region 9 and the State Water Board, describing the Discharger's pretreatment activities over the previous 12 months (1 January through 31 December). In the event that the Discharger is not in compliance with any conditions or requirements of this Order, including noncompliance with pretreatment audit/compliance inspection requirements, then the Discharger shall also include the reasons for noncompliance and state how and when the Discharger shall comply with such conditions and requirements.

   The Discharger may combine annual pretreatment reporting requirements for both this Facility and their Dry Creek Wastewater Treatment Plant (NPDES No. CA0079502). If the reports are combined for both plants, then the Discharger shall note so in its transmittal letter accompanying the submission of the annual report.

   An annual report shall be submitted by **28 February** and include at least the following items:

   a. A summary of analytical results from representative, flow proportioned, 24-hour composite sampling of the POTW's influent and effluent for those pollutants USEPA has identified under section 307(a) of the CWA which are known or suspected to be discharged by nondomestic users.

      Sludge shall be sampled during the same 24-hour period and analyzed for the same pollutants as the influent and effluent sampling and analysis. The sludge analyzed shall be a composite sample of a number of discrete samples taken at equal time intervals during operational hours. Wastewater and sludge sampling and analysis shall be performed at least annually. The Discharger shall also provide any influent, effluent or sludge monitoring data for nonpriority pollutants which may be causing or contributing to interference, pass-through or adversely impacting sludge quality. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 CFR Part 136 and amendments thereto.

   b. A discussion of upset, interference, or pass-through incidents, if any, at the treatment plant, which the Discharger knows or suspects were caused by nondomestic users of the POTW. The discussion shall include the reasons why the

incidents occurred, the corrective actions taken and, if known, the name and address of, the nondomestic user(s) responsible. The discussion shall also include a review of the applicable pollutant limitations to determine whether any additional limitations, or changes to existing requirements, may be necessary to prevent pass-through, interference, or noncompliance with sludge disposal requirements.

c. The cumulative number of nondomestic users that the Discharger has notified regarding Baseline Monitoring Reports and the cumulative number of nondomestic user responses.

d. An updated list of the Discharger's significant industrial users (SIUs) including their names and addresses, or a list of deletions, additions and SIU name changes keyed to a previously submitted list. The Discharger shall provide a brief explanation for each change. The list shall identify the SIUs subject to federal categorical standards by specifying which set(s) of standards are applicable to each SIU. The list shall indicate which SIUs, or specific pollutants from each industry, are subject to local limitations. Local limitations that are more stringent than the federal categorical standards shall also be identified.

e. The Discharger shall characterize the compliance status through the year of record of each SIU by employing the following descriptions:

   i. complied with baseline monitoring report requirements (where applicable);

   ii. consistently achieved compliance;

   iii. inconsistently achieved compliance;

   iv. significantly violated applicable pretreatment requirements as defined by 40 CFR 403.8(f)(2)(vii);

   v. complied with schedule to achieve compliance (include the date final compliance is required);

   vi. did not achieve compliance and not on a compliance schedule; and

   vii. compliance status unknown.

f. A report describing the compliance status of each SIU characterized by the descriptions in items iii through vii above shall be submitted for each calendar quarter by the first day of the second month following the end of the quarter. The report shall identify the specific compliance status of each such SIU and shall also identify the compliance status of the POTW with regards to audit/pretreatment compliance inspection requirements. If none of the aforementioned conditions exist, at a minimum, a letter indicating that all industries are in compliance and no violations or changes to the pretreatment program have occurred during the quarter must be submitted. The information required in the fourth quarter report shall be included as part of the annual report due every 28 February. This quarterly reporting requirement shall commence upon issuance of this Order.

g. A summary of the inspection and sampling activities conducted by the Discharger during the past year to gather information and data regarding the SIUs. The summary shall include:

   i. The names and addresses of the SIUs subjected to surveillance and an explanation of whether they were inspected, sampled, or both and the frequency of these activities at each user; and

ii. The conclusions or results from the inspection or sampling of each industrial user.

h. The Discharger shall characterize the compliance status of each SIU by providing a list or table which includes the following information:

i. Name of SIU;

ii. Category, if subject to federal categorical standards;

iii. The type of wastewater treatment or control processes in place;

iv. The number of samples taken by the POTW during the year;

v. The number of samples taken by the SIU during the year;

vi. For an SIU subject to discharge requirements for total toxic organics, whether all required certifications were provided;

vii. A list of the standards violated during the year. Identify whether the violations were for categorical standards or local limits.

viii. Whether the facility is in significant noncompliance (SNC) as defined at 40 CFR 403.8(f)(2)(viii) at any time during the year; and

ix. A summary of enforcement or other actions taken during the year to return the SIU to compliance. Describe the type of action (e.g., warning letters or notices of violation, administrative orders, civil actions, and criminal actions), final compliance date, and the amount of fines and penalties collected, if any. Describe any proposed actions for bringing the SIU into compliance;

x. Restriction of flow to the POTW.

xi. Disconnection from discharge to the POTW.

i. A brief description of any programs the POTW implements to reduce pollutants from nondomestic users that are not classified as SIUs;

j. A brief description of any significant changes in operating the pretreatment program which differ from the previous year including, but not limited to, changes concerning: the program's administrative structure, local limits, monitoring program or monitoring frequencies, legal authority, enforcement policy, funding levels, or staffing levels;

k. A summary of the annual pretreatment budget, including the cost of pretreatment program functions and equipment purchases; and

l. A summary of activities to involve and inform the public of the program including a copy of the newspaper notice, if any, required under 40 CFR 403.8(f)(2)(viii).

Duplicate signed copies of these Pretreatment Program reports shall be submitted to the Central Valley Water Board and the:

State Water Resources Control Board
Division of Water Quality
1001 I Street or P.O. Box 100
Sacramento, CA 95812

and the

Regional Administrator
U.S. Environmental Protection Agency WTR-5
75 Hawthorne Street
San Francisco, CA 94105

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in section I, the Central Valley Water Board incorporates this Fact Sheet as findings of the Central Valley Water Board supporting the issuance of this Order. This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as "not applicable" have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as "not applicable" are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	5A310106007
Discharger	City of Roseville
Name of Facility	Pleasant Grove Wastewater Treatment Plant
Facility Address	5051 Westpark Drive Roseville, CA 95747 Placer County
Facility Contact, Title and Phone	Alfred Lawrence, Chief Operator, (916) 746-1802
Authorized Person to Sign and Submit Reports	Ken Glotzbach, Wastewater Utility Manager, (916) 774-5754
Mailing Address	2005 Hilltop Circle, Roseville, CA 95747
Billing Address	Same as mailing address
Type of Facility	Publicly Owned Treatment Works (POTW)
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Yes
Recycling Requirements	Not Applicable
Facility Permitted Flow	Existing Plant: 12 million gallons per day (MGD), average dry weather flow Expanded Plant: 15 MGD, average dry weather flow
Facility Design Flow	Existing Plant: 12 MGD, average dry weather flow Expanded Plant: 15 MGD, average dry weather flow
Watershed	Lower Sacramento
Receiving Water	Pleasant Grove Creek
Receiving Water Type	Inland Surface Water

A. The City of Roseville (hereinafter Discharger) is the owner and operator of the Pleasant Grove Wastewater Treatment Plant (hereinafter Facility), a POTW.

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

The Facility discharges wastewater to Pleasant Grove Creek, a water of the United States, and a tributary to the Sacramento River via the Pleasant Grove Creek Canal and the Natomas Cross Canal, within the Lower Sacramento watershed. The Discharger was previously regulated by National Pollutant Discharge Elimination System (NPDES) Permit No. CA0084573 adopted on 12 June 2008 (Order R5-2008-0079) and amended on 31 May 2013 (Order R5-2008-0079-01) and expired on 1 June 2013. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

Prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. The State Water Board retains the jurisdictional authority to enforce such requirements under Water Code section 1211.

B. The Discharger filed a report of waste discharge (ROWD) and submitted an application for reissuance of its WDR's and NPDES permit on 30 November 2012. The application was deemed complete on 27 May 2013. A site visit was conducted on 3 June 2013 to observe operations and collect additional data to develop permit limitations and requirements for waste discharge.

II. FACILITY DESCRIPTION

The Discharger provides sewerage service for the northwest portion of the City of Roseville, portions of Placer County, and the South Placer Municipal Utilities District and serves a population of approximately 102,000 and nine of the City's 10 significant industrial users. The Discharger owns and operates portions of the wastewater collection system. Placer County and the South Placer Municipal Utilities District own and operate the remaining portions of the collection system. The current design average dry weather flow capacity of the Facility is 12 MGD.

A. Description of Wastewater and Biosolids Treatment and Controls

The treatment system at the Facility includes preliminary treatment (two bar screen and four aerated grit chambers), secondary treatment (three oxidation ditches and four secondary clarifiers), and tertiary treatment (six sand filters, three equipped ultraviolet light [UV] disinfection channels). A fourth UV disinfection channel is present but not equipped until the Facility is expanded.

As a condition of the approval under the California Environmental Quality Act (CEQA) for the construction of the Facility, effluent storage was required as a mitigation measure to reduce the potential for downstream flooding of Pleasant Grove Creek due to discharges from the Facility. The Facility includes three storage basins (approximately 31.8 acres with a combined capacity of 65.1 million gallons) that provide effluent storage capacity and 100-year flood protection by storing partially treated effluent for short periods or by storing only tertiary treated effluent. These storage basins are also used in the event of plant upsets to prevent discharge of effluent that does not meet discharge requirements. An additional emergency storage basin (approximately 10 acres with a capacity of 20.6 million gallons) is used to store influent that could compromise the plant process, as well as secondary effluent or tertiary filter effluent from plant upsets.

Solids collected from the primary and secondary clarifiers are sent to three centrifuges for dewatering. Biosolids are disposed at the Western Regional Sanitary Landfill.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 23, T11N, R5E, MDB&M, as shown in Attachment B, a part of this Order.

2. Treated municipal wastewater is discharged at Discharge Point 001 to Pleasant Grove Creek, a water of the United States and tributary to Pleasant Grove Creek Canal, Natomas Cross Canal, and the Sacramento River, south of confluence with the Feather River, at a point latitude 38° 79' 21" N and longitude 121° 37' 01" W.

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Effluent limitations contained in Order R5-2008-0079-01 for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order R5-2008-0079-01 are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (August 2008 – April 2013)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Average Dry Weather Flow	MGD	--	--	12[1]/15[2]	--	--	14.22[3]
Biochemical Oxygen Demand (5-day @ 20˚C)	mg/L	10	15	20	7.0	7.0	8.0
	lbs/day[4]	1,000	1,500	2,000	413	456	612
	lbs/day[5]	1,250	1,875	2,500	NA	NA	NA
	% removal	85	--	--	NR	--	--
Total Suspended Solids	mg/L	10	15	20	4.1	6.1	15
	lbs/day[4]	1,000	1,500	2,000	276	347	991
	lbs/day[5]	1,250	1,875	2,500	NA	NA	NA
	% removal	85	--	--	NR	--	--
pH	standard units	--	--	6.5 – 8.0	--	--	4.0[19] – 7.9
Ammonia Nitrogen, Total (as N)	mg/L	1.9	--	5.5	0.11	--	0.16
	lbs/day[4]	190	--	551	6.5	--	8.5
	lbs/day[5]	238	--	689	NA	--	NA
Aluminum, Total Recoverable	µg/L	374/200[6]	--	750	251/90[7]	--	251
Cadmium, Total Recoverable	µg/L	1.4	--	3.3	0.26	--	0.26
Cyanide, Total (as CN)	µg/L	3.5	--	9.6	2.3	--	2.3
Chlorodibromomethane	µg/L	0.41	--	0.82	<0.17	--	<0.17
Dichlorobromomethane	µg/L	0.56	--	1.12	<0.16	--	<0.16
Fluoride, Total	µg/L	2,000[6]	--	--	2,358[7]	--	--
Iron, Total Recoverable	µg/L	300[6]	--	--	53[7]	--	--
Manganese, Total Recoverable	µg/L	50[6]	--	--	12[7]	--	--
Mercury, Total Recoverable	lbs/year	1.39[8]	--	--	NR	--	--
Zinc, Total Recoverable	µg/L	47	--	94	67	--	67

Parameter	Units	Effluent Limitation			Monitoring Data (August 2008 – April 2013)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Settleable Solids	ml/L	0.1	--	0.2	0.05	--	0.2
Total Coliform Organisms	MPN/ 100 mL	--	2.2[9]	23[10]/240[11]	--	--	50
Chlorine, Total Residual	mg/L	--	0.011[12]	0.019[13]	--	--	0.01
Turbidity	NTU	--	2[14]	5[15]/10[11]	--	--	2
Acute Toxicity	% survival	--	--	70[16]/90[17]	--	--	95[18]

NR – Not reported.

NA – Not available.

[1] Effective until the completion of upgrades to the Facility, the average dry weather flow shall not exceed 12 MGD.

[2] Effective upon completion of upgrades to the Facility, the average dry weather flow shall not exceed 15 MGD.

[3] Represents the maximum observed average daily flow.

[4] Based on an average dry weather flow of 12 MGD. Effective until completion of upgrades to the Facility.

[5] Based on an average dry weather flow of 15 MGD. Effective upon completion of upgrades to the Facility.

[6] Applied as an annual average effluent limitation.

[7] Represents the maximum observed annual average concentration.

[8] Applied as a total annual mass loading effluent limitation.

[9] Applied as a 7-day median effluent limitation.

[10] Not to be exceeded more than once in any 30-day period.

[11] Applied as an instantaneous maximum effluent limitation.

[12] Applied as a 4-day average effluent limitation.

[13] Applied as 1-hour average effluent limitation.

[14] Applied as a daily average effluent limitation.

[15] Not to be exceeded more than 5 percent of the time within a 24-hour period.

[16] Minimum for any one bioassay.

[17] Median for any three consecutive bioassays.

[18] Represents the minimum observed percent survival.

[19] The Discharger clarified in the Report of Waste Discharge that a minimum pH of 4.0 was measured during this period, but is not representative because it occurred during normal maintenance of the on-line pH probe. All other sample results were 6.5 or greater.

D. Compliance Summary

1. The Central Valley Water Board issued Administrative Civil Liability (ACL) Complaint Order R5-2013-0512 on 11 January 2013 which proposed to assess a civil liability of $54,000 against the Discharger for violations of effluent limitations for total coliform organisms during the term of Order R5-2008-0079-01. The Discharger settled the ACL by payment.

2. A Compliance and Enforcement Inspection (CEI) was conducted at the Facility on 20 February 2009. The inspection produced the following adverse findings:

   a. Standard Provision VI.A.2.n of Order R5-2008-0079-01 states that laboratories performing analyses must be identified on all monitoring reports. The self-monitoring reports (SMRs) did not identify the laboratories performing the analyses.

b. Attachment E, Monitoring and Reporting Program Provision X.B.6 of Order R5-2008-0079-01 requires that the letter transmitting the SMRs contain the penalty of perjury statement described in the Standard Provisions. The monthly SMRs did not contain the required penalty of perjury statement.

c. Attachment A, Definitions of Order R5-2008-0079-01 includes a definition for 'Daily Discharge' which states "*The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day. For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.*" The influent and effluent composite samples are taken over the 24-hour period of 6:30 am to 6:30 am (i.e., not a calendar day). The Discharger reports the analytical result for the 24-hour period as the result for the calendar day in which the 24-hour period began, not when the period ends, as required.

d. Receiving Water Limitation V.A.15 of Order R5-2008-0079-01 for temperature states the discharge cannot cause the natural temperature in Pleasant Grove Creek to be increased by more than 5°F. The Discharger reported in the December 2008 SMR that the discharge caused the natural temperature of the receiving water at Monitoring Location RSW-002 to increase by more than 5°F on 3 December 2008 (68°F) and 11 December 2008 (67°F). The maximum allowable temperature during this period was 63°F.

e. Special Provision IV.A.1.e of Order R5-2008-0079-01 includes a requirement that effluent total coliform organisms shall not exceed 2.2 MPN/100 mL, as a 7-day median. The Discharger reported in the January 2008 SMR that the 7-day median was exceeded on 16 January 2008. Upon review of the data, the inspector observed that the 7-day median limit had not been exceeded as reported by the Discharger. The Facility representative concurred and stated that a revised report would be submitted to the Central Valley Water Board.

f. Attachment D, Standard Provision III.B of Order R5-2008-0079-01 requires monitoring to be performed in accordance to procedures specified in 40 CFR Part 136. The required preservation method for total suspended solids (TSS) and biochemical oxygen demand (BOD) is refrigeration, ≤6°C. For 24-hour composite samples collected using an automated sampler, the sample should be refrigerated during collection. The 24-hour composite samples collected at the influent were not refrigerated during collection. Because the influent composite sampler is located in an explosive environment, an order for an explosion-proof refrigerated sampler was placed with the manufacturer on 26 November 2008. The Facility representative said the new sampler would be placed in service as soon as it is received.

g. Attachment D, Standard Provision III.B of Order R5-2008-0079-01 requires monitoring to be performed in accordance to procedures specified in 40 CFR Part 136. Accordingly, samples for pH must be analyzed within 15 minutes of sample collection. The influent grab samples for pH are not analyzed within 15 minutes of sample collection. The samples are transported to the Dry Creek Wastewater Treatment Plant laboratory for analysis because the on-site laboratory is not certified. According to the laboratory technician, the samples were analyzed immediately upon arrival at the Dry Creek Wastewater Treatment Plant laboratory, approximately 20-30 minutes from the time of sample collection. The on-site

laboratory is in the process of obtaining Environmental Laboratory Accreditation Program (ELAP) certification.

3. A CEI was conducted at the Facility on 9 December 2009. The inspection produced the following adverse findings:

   a. Receiving Water Limitation V.A.15 of Order R5-2008-0079-01 for temperature states the discharge cannot cause the natural temperature in Pleasant Grove Creek to be increased by more than 5°F. The Discharger reported in the January, February, and March 2009 SMRs that the discharge caused the natural temperature of the receiving water at Monitoring Location RSW-02 to increase by more than 5°F. Temperature exceedances were reported on 9 January (64°F), 23 January (66°F), 28 January (60°F), 6 February (65°F), and 20 March (68°F). The Discharger states in the SMR cover letters that the exceedances result from low upstream flow and low ambient temperatures in Pleasant Grove Creek. The majority of the downstream flow in Pleasant Grove Creek at Monitoring Location RSW-002 consists of final effluent in comparison to upstream flow.

   b. Attachment A, Definitions of Order R5-2008-0079-01 includes a definition for ”Not Detected (ND)” as those sample results less than the laboratory’s method detection limit (MDL). The Discharger did not correctly report ND in the February 2009 SMR. The February 2009 SMR reports no sample results for BOD and only three sample results for TSS. Rather than reporting sample results or ND on the SMR, the February 2009 sample results column on the SMR contains “****”, defined in the footnote as “*indicates no sample, equipment or test failure*”. However, review of the February 2009 laboratory bench sheets shows samples were indeed taken and analyzed for BOD and TSS on all days except 17, 18, 23 and 24 February 2009. Results for effluent BOD and TSS for February 2009 for the days sampled and analyzed, except for TSS on 1, 19, and 20 February 2009 were less than the MDL and should have been recorded as ND.

4. A CEI was conducted at the Facility on 16 December 2010. The inspection produced the following adverse findings:

   a. Attachment E, Monitoring and Reporting Program section IV.A.1 of Order R5-2008-0079-01 requires the Discharger to sample Facility effluent for BOD and TSS on a daily basis with a 24-hour composite sample. On two occasions the Discharger failed to collect and analyze a representative sample for BOD and TSS.

      i. On 4 June 2010 the “*composite sampler did not collect a representative 24hr composite sample*.” The Discharger reported this instance to the Central Valley Water Board in its June 2010 SMR submittal.

      ii. On 27 August 2010 the “*composite sample for both samplers was incomplete*” due to a power disruption to the effluent samplers. The Discharger reported this instance to the Central Valley Water Board in its August 2010 SMR submittal.

5. A CEI was conducted at the Facility on 13 February 2012. No adverse findings were observed during the inspection.

6. A CEI was conducted at the Facility on 26 February 2013. No adverse findings were observed during the inspection.

E. Planned Changes

The Discharger is planning an upgrade and expansion to the Facility to accommodate anticipated development in the service area, which will be scheduled as needed based on growth and flow projections. The upgrade and expansion will increase the design treatment capacity from 12 MGD to 15 MGD and will include new primary clarifiers, possible expansion of secondary treatment processes including the addition of a new oxidation ditch and secondary clarifier, expansion of the solids handling facilities, and addition of anaerobic digesters.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order serves as WDR's pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from this Facility to surface waters.

B. California Environmental Quality Act (CEQA)

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of CEQA, (commencing with section 21100) of Division 13 of the Public Resources Code.

C. State and Federal Laws, Regulations, Policies, and Plans

1. **Water Quality Control Plans.** Requirements of this Order specifically implement the applicable Water Quality Control Plans.

   c. **Basin Plan.** The Central Valley Water Board adopted a Water Quality Control Plan, Fourth Edition (Revised October 2011), for the Sacramento and San Joaquin River Basins (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Requirements in this Order implement the Basin Plan.

   The Basin Plan at II-2.00 states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. The Basin Plan in Table II-1, Section II, does not specifically identify beneficial uses for Pleasant Grove Creek, but does identify present and potential uses for the Sacramento River from the Colusa Basin Drain to the I Street Bridge, to which Pleasant Grove Creek, via the Pleasant Grove Creek Canal and the Natomas Cross Canal, is tributary. In addition, the Basin Plan implements State Water Board Resolution 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Thus, beneficial uses applicable to Pleasant Grove Creek are as follows:

Table F-3. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Pleasant Grove Creek	Existing: Municipal and domestic supply (MUN); agricultural supply for irrigation (AGR); water contact recreation, including canoeing and rafting (REC-1); non-contact water recreation (REC-2); warm freshwater aquatic habitat (WARM); cold freshwater aquatic habitat (COLD); warm and cold migration of aquatic organisms (MIGR); warm and cold spawning, reproduction, and/or early development (SPWN); wildlife habitat (WILD); and navigation (NAV).
--	Groundwater	Municipal and domestic supply (MUN); Industrial service supply (IND); Industrial process supply (PRO); and Agricultural irrigation (AGR);

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About forty criteria in the NTR applied in California. On 18 May 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain federal water quality criteria for priority pollutants.

3. **State Implementation Policy.** On 2 March 2000, the State Water Board adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP). The SIP became effective on 28 April 2000, with respect to the priority pollutant criteria promulgated for California by the U.S. EPA through the NTR and to the priority pollutant objectives established by the Central Valley Water Board in the Basin Plan. The SIP became effective on 18 May 2000, with respect to the priority pollutant criteria promulgated by the U.S. EPA through the CTR. The State Water Board adopted amendments to the SIP on 24 February 2005, that became effective on 13 July 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

4. **Antidegradation Policy.** Federal regulation 40 C.F.R. section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16. Resolution 68-16 is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Central Valley Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 C.F.R. section 131.12 and State Water Board Resolution 68-16.

5. **Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.

6. **Human Right to Water Act.** In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring discharges to meet maximum contaminant levels (MCLs) designed to protect human health and ensure that water is safe for domestic use.

7. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, §§ 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. §§ 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

8. **Emergency Planning and Community Right to Know Act.** Section 13263.6(a) of the Water Code, requires that *"the Regional Water Board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRA) indicate as discharged into the POTW, for which the State Water Board or the Regional Water Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective"*.

   The EPCRA section 313 toxic chemical release data report indicates that ammonia, hydrogen fluoride, nitrate compounds, and nitric acid were discharged into the Discharger's collection system between 2008 and 2012. As detailed in section IV.C.3 of this Fact Sheet, available effluent quality data indicate that effluent concentrations of ammonia, fluoride, and nitrate plus nitrite have a reasonable potential to cause or contribute to an excursion above numeric water quality objectives. Effluent limitations for ammonia, fluoride, and nitrate plus nitrite are included in this permit pursuant to Water Code section 13263.6(a).

9. **Storm Water Requirements.** USEPA promulgated federal regulations for storm water on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from wastewater treatment facilities. Wastewater treatment plants are applicable industries under the storm water program and are obligated to comply with the federal regulations. The Discharger has submitted a Notice of Intent (NOI) and been approved for coverage under the State Water Board's Industrial Storm water General Order. Therefore, this Order does not regulate storm water.

D. Impaired Water Bodies on CWA 303(d) List

1. Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 11 October 2011 USEPA gave final approval to California's 2008-2010 section 303(d) List of Water Quality Limited Segments (WQLSs). The Basin Plan references this list of WQLSs, which are defined as "…*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the*

application of appropriate limitations for point sources (40 CFR Part 130, et seq.)." The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment*." Pleasant Grove Creek is listed as an impaired waterbody on the 2010 303(d) list for dissolved oxygen, pyrethroids, and sediment toxicity. The Natomas Cross Canal in Sutter County, downstream of the discharge, is listed as an impaired waterbody on the 2010 303(d) list for mercury.

2. **Total Maximum Daily Loads (TMDLs).** USEPA requires the Central Valley Water Board to develop TMDLs for each 303(d) listed pollutant and water body combination. Table F-4, below, identifies the 303(d) listings and the status of each TMDL.

Table F-4. 303(d) List for Pleasant Grove Creek and Natomas Cross Canal

Pollutant	Potential Sources	Proposed TMDL Completion
Dissolved Oxygen	Source Unknown	2021
Pyrethroids	Urban Runoff/ Storm Sewers	2021
Sediment Toxicity	Source Unknown	2021
Mercury	Resource Extraction	2021

E. Other Plans, Polices and Regulations

1. **Title 27.** The discharge authorized herein and the treatment and storage facilities associated with the discharge of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, California Code of Regulations (CCR), section 20005 *et seq* (hereafter Title 27). The exemption, pursuant to Title 27 CCR section 20090(a), is based on the following:

   a. The waste consists primarily of domestic sewage and treated effluent;

   b. The waste discharge requirements are consistent with water quality objectives; and

   c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

Effluent limitations and toxic and pretreatment effluent standards established pursuant to sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the CWA and amendments thereto are applicable to the discharge.

The CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., §1311(b)(1)(C); 40 CFR 122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to federal regulations, 40 CFR 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that *"are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality.*" Federal regulations, 40 CFR 122.44(d)(1)(vi), further provide that *"[w]here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits."*

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 CFR 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR 122.44(d) requires that permits include WQBELs to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Basin Plan at page IV-17.00, contains an implementation policy, "Policy for Application of Water Quality Objectives, that specifies that the Central Valley Water Board "*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives*." This Policy complies with 40 CFR 122.44(d)(1). With respect to narrative objectives, the Central Valley Water Board must establish effluent limitations using one or more of three specified sources, including: (1) USEPA's published water quality criteria, (2) a proposed state criterion (i.e., water quality objective) or an explicit state policy interpreting its narrative water quality criteria (i.e., the Central Valley Water Board's "Policy for Application of Water Quality Objectives")(40 CFR 122.44(d)(1)(vi)(A), (B) or (C)), or (3) an indicator parameter.

The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, discoloration, radionuclides, and tastes and odors. The narrative toxicity objective states: *"All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life."* (Basin Plan at III-8.00) The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The narrative chemical constituents objective states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, *"…water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)"* in Title 22 of CCR. The Basin Plan further states that, to protect all beneficial uses, the Central Valley Water Board may apply limits more stringent than MCLs. The narrative tastes and odors objective states: *"Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses."*

A. Discharge Prohibitions

1. **Prohibition III.A (No discharge or application of waste other than that described in this Order).** This prohibition is based on Water Code section 13260 that requires filing of a ROWD before discharges can occur. The Discharger submitted a ROWD for the discharges described in this Order; therefore, discharges not described in this Order are prohibited.

2. **Prohibition III.B (No bypasses or overflow of untreated wastewater, except under the conditions at CFR Part 122.41(m)(4)).** As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal regulations, 40 CFR 122.41(m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of the federal regulations, 40 CFR 122.41(m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Water Board's prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the federal regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.

3. **Prohibition III.C (No controllable condition shall create a nuisance).** This prohibition is based on Water Code section 13050 that requires water quality objectives established for the prevention of nuisance within a specific area. The Basin Plan prohibits conditions that create a nuisance.

4. **Prohibition III.D (No inclusion of pollutant free wastewater shall cause improper operation of the Facility's systems).** This prohibition is based on CFR Part 122.41 et seq. that requires the proper design and operation of treatment facilities.

B. Technology-Based Effluent Limitations

1. Scope and Authority

Section 301(b) of the CWA and implementing U.S. EPA permit regulations at 40 C.F.R. section 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 C.F.R. part 133.

Regulations promulgated in 40 C.F.R. section 125.3(a)(1) require technology-based effluent limitations for municipal Dischargers to be placed in NPDES permits based on Secondary Treatment Standards or Equivalent to Secondary Treatment Standards.

The Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) established the minimum performance requirements for POTWs [defined in section 304(d)(1)]. Section 301(b)(1)(B) of that Act requires that such treatment works must, as a minimum, meet effluent limitations based on secondary treatment as defined by the U.S. EPA Administrator.

Based on this statutory requirement, U.S. EPA developed secondary treatment regulations, which are specified in 40 C.F.R. part 133. These technology-based regulations apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of BOD_5, TSS, and pH.

1. Applicable Technology-Based Effluent Limitations

a. **BOD_5 and TSS.** Federal regulations, 40 CFR Part 133, establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD_5 and TSS. This Order establishes WQBELs that are equal to or more stringent than the secondary technology-based treatment described in 40 CFR Part 133 and are necessary to protect the beneficial uses of the receiving stream. (See section IV.C.3.b.v of this Attachment for the discussion on WQBELs for pathogens.) In addition, 40 CFR 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. This Order contains a limitation requiring an average of 85 percent removal of BOD_5 and TSS over each calendar month.

b. **Flow.** The Facility was designed to provide a tertiary level of treatment for up to a design average dry weather flow of 12 MGD. Therefore, this Order contains an average dry weather discharge flow effluent limit of 12 MGD. The Discharger is planning to upgrade and expand the Facility to provide a tertiary level of treatment for up to a design average dry weather flow of 15 MGD. Therefore, this Order contains an average dry weather flow effluent limitation of 15 MGD effective upon completion of the upgrade and expansion of the Facility.

c. **pH.** The secondary treatment regulations at 40 CFR Part 133 also require that pH be maintained between 6.0 and 9.0 standard units.

Summary of Technology-based Effluent Limitations
Discharge Point 001

Table F-5. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Average Dry Weather Flow	MGD	12[1]	--	--	--	--
		15[2]	--	--	--	--
Conventional Pollutants						
Biochemical Oxygen Demand (5-day 20°C)[3]	mg/L	30	45	--	--	--
	lbs/day[4]	3,000	4,500	--	--	--
	lbs/day[5]	3,800	5,600	--	--	--
	% Removal	85	--	--	--	--
pH[3]	standard units	--	--	--	6.0	9.0
Total Suspended Solids[3]	mg/L	30	45	--	--	--
	lbs/day[4]	3,000	4,500	--	--	--
	lbs/day[5]	3,800	5,600	--	--	--
	% Removal	85	--	--	--	--

1 The average dry weather flow shall not exceed 12 MGD. Effective immediately and until compliance with Special Provision VI.C.6.b.
2 The average dry weather flow shall not exceed 15 MGD. Effective upon compliance with Special Provision VI.C.6.b.
3 Note that more stringent WQBELs for BOD_5, pH, and TSS are applicable and are established as final effluent limitations in this Order (see section IV.C.3.b.v of this Fact Sheet).
4 Based on an average dry weather flow of 12 MGD.
5 Based on an average dry weather flow of 15 MGD.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

CWA Section 301(b) and 40 C.F.R. section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as a technology equivalence requirement, more stringent than secondary treatment requirements that are necessary to meet applicable water quality standards. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements or other provisions, is discussed in section IV.C.3.b.v of the Fact Sheet.

Section 122.44(d)(1)(i) of 40 C.F.R. requires that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established using: (1) U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion,

such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply.

The Basin Plan on page II-1.00 states: "*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning*…" and with respect to disposal of wastewaters states that "...*disposal of wastewaters is* [not] *a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses*."

The federal CWA section 101(a)(2), states: "*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983.*" Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. Section 131.3(e), 40 CFR, defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

a. **Receiving Water and Beneficial Uses.** Refer to III.C.1. above for a complete description of the receiving water and beneficial uses.

   The Basin Plan, on page IV-24, prohibits the direct discharge of municipal and industrial wastewater into the Sacramento River from the confluence with the Feather River to the Freeport Bridge. When sufficient water is present, the discharged effluent flows through western Placer County and Sutter County where it commingles with water in Pleasant Grove Creek Canal and Natomas Cross Canal before entering the Sacramento River. The discharge to the Sacramento River is not a direct discharge.

b. **Effluent and Ambient Background Data.** The reasonable potential analysis (RPA), as described in section IV.C.3 of this Fact Sheet, was based on data from 1 August 2008 through 30 April 2013, which includes effluent and ambient background data submitted in SMRs.

The Discharger converted from chlorine disinfection to UV disinfection in September 2010. Therefore, effluent data collected prior to 1 September 2010 is not representative of the Facility's typical functional capabilities and was, therefore, not considered in the RPA for evaluating chlorine disinfection byproducts (i.e., chlorodibromomethane and dichlorobromomethane), cyanide, and salinity.

c. **Assimilative Capacity/Mixing Zone.** Based on the available information, the worst-case dilution is assumed to be zero to provide protection for the receiving water beneficial uses. The impact of assuming zero assimilative capacity within the receiving water is that discharge limitations are end-of-pipe limits with no allowance for dilution within the receiving water.

d. **Conversion Factors.** The CTR contains aquatic life criteria for arsenic, cadmium, chromium III, chromium VI, copper, lead, nickel, silver, and zinc which are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The default USEPA conversion factors contained in Appendix 3 of the SIP were used to convert the applicable dissolved criteria to total recoverable criteria.

e. **Hardness-Dependent CTR Metals Criteria.** The *California Toxics Rule* and the *National Toxics Rule* contain water quality criteria for seven metals that vary as a function of hardness. The lower the hardness the lower the water quality criteria. The metals with hardness-dependent criteria include cadmium, copper, chromium III, lead, nickel, silver, and zinc.

This Order has established the criteria for hardness-dependent metals based on the reasonable worst-case ambient hardness as required by the SIP[1], the CTR[2] and State Water Board Order No. WQO 2008-0008 (City of Davis). The SIP and the CTR require the use of "receiving water" or "actual ambient" hardness, respectively, to determine effluent limitations for these metals. (SIP, § 1.2; 40 CFR § 131.38(c)(4)) The CTR does not define whether the term "ambient," as applied in the regulations, necessarily requires the consideration of upstream as opposed to downstream hardness conditions. Therefore, where reliable, representative data are available, the hardness value for calculating criteria can be the downstream receiving water hardness, after mixing with the effluent (Order WQO 2008-0008, p. 11). The Central Valley Water Board thus has considerable discretion in determining ambient hardness (*Id.*, p.10).

As discussed below, scientific literature provides a reliable method for calculating protective hardness-dependent CTR criteria, considering all discharge conditions. This methodology produces hardness-dependent CTR criteria based on the reasonable worst-case downstream ambient hardness that ensure these metals do not cause receiving water toxicity under any downstream receiving water condition. Under this methodology, the Central Valley Water Board considers all hardness conditions that could occur in the ambient downstream receiving water after the effluent has mixed with the water body[3]. This ensures that effluent limitations are

[1] The SIP does not address how to determine the hardness for application to the equations for the protection of aquatic life when using hardness-dependent metals criteria. It simply states, in Section 1.2, that the criteria shall be properly adjusted for hardness using the hardness of the receiving water.

[2] The CTR requires that, for waters with a hardness of 400 mg/L (as $CaCO_3$), or less, the actual ambient hardness of the surface water must be used. It further requires that the hardness values used must be consistent with the design discharge conditions for design flows and mixing zones.

[3] All effluent discharges will change the ambient downstream metals concentration and hardness. It is not possible to change the metals concentration without also changing the hardness.

fully protective of aquatic life in all areas of the receiving water affected by the discharge under all flow conditions, at the fully mixed location, and throughout the water body including at the point of discharge into the water body.

i. **Conducting the RPA.** The SIP in Section 1.3 states, "*The RWQCB shall…determine whether a discharge may: (1) cause, (2) have a reasonable potential to cause, or (3) contribute to an excursion above any applicable priority pollutant criterion or objective*." Section 1.3 provides a step-by-step procedure for conducting the RPA. The procedure requires the comparison of the maximum effluent concentration (MEC) and maximum ambient background concentration to the applicable criterion that has been properly adjusted for hardness. Unless otherwise noted, for the hardness-dependent CTR metals criteria the following procedures were followed for properly adjusting the criterion for hardness when conducting the RPA.

(a) The SIP requires WQBELs if the MEC is equal to or exceeds the applicable criterion, adjusted for hardness. For comparing the MEC to the applicable criterion, the "fully mixed" reasonable worst-case downstream ambient hardness was used to adjust the criterion. In this evaluation the portion of the receiving water affected by the discharge is analyzed. For hardness-dependent criteria, the hardness of the effluent has an impact on the determination of the applicable criterion in areas of the receiving water affected by the discharge. Therefore, for comparing the MEC to the applicable criterion, the reasonable worst-case downstream ambient hardness was used to adjust the criterion. For this situation it is necessary to consider the hardness of the effluent in determining the applicable hardness to adjust the criterion. The procedures for determining the applicable criterion after proper adjustment using the reasonable worst-case downstream ambient hardness is outlined in subsection ii, below.

(b) The SIP requires WQBELs if the receiving water is impaired upstream (outside the influence) of the discharge, i.e., if the maximum ambient background concentration of a pollutant exceeds the applicable criterion, adjusted for hardness[1]. For comparing the maximum ambient background concentration to the applicable criterion, the reasonable worst-case upstream ambient hardness was used to adjust the criteria. This is appropriate, because this area is outside the influence of the discharge. Since the discharge does not impact the upstream hardness, the effect of the effluent hardness was not included in this evaluation.

ii. **Calculating WQBELs.** The remaining discussion in this section relates to the development of WQBELs when it has been determined that the discharge has reasonable potential to cause or contribute to an exceedance of the CTR hardness-dependent metals criteria in the receiving water.

A 2006 Study[2] developed procedures for calculating the effluent concentration allowance (ECA)[3] for CTR hardness-dependent metals. The 2006 Study demonstrated that it is necessary to evaluate all discharge conditions (e.g., high and low flow conditions) and the hardness and metals concentrations of

[1] The pollutant must also be detected in the effluent.
[2] Emerick, R.W.; Borroum, Y.; & Pedri, J.E., 2006. California and National Toxics Rule Implementation and Development of Protective Hardness Based Metal Effluent Limitations. WEFTEC, Chicago, Ill.
[3] The ECA is defined in Appendix 1 of the SIP (page Appendix 1-2). The ECA is used to calculate WQBELs in accordance with Section 1.4 of the SIP.

the effluent and receiving water when determining the appropriate ECA for these hardness-dependent metals. This method is superior to relying on downstream receiving water samples alone because it captures all possible mixed conditions in the receiving water. Both receiving water and effluent hardness vary based on flow and other factors, but the variability of receiving water and effluent hardness is sometimes independent. Using a calculated hardness value ensures that the Central Valley Water Board considers all possible mixed downstream values that may result from these two independent variables. Relying on receiving water sampling alone is less likely to capture all possible mixed downstream conditions.

The equation describing the total recoverable regulatory criterion, as established in the CTR[1], is as follows:

$$\text{CTR Criterion} = \text{WER} \times (e^{m[\ln(H)]+b}) \quad \text{(Equation 1)}$$

Where:
H = hardness (as $CaCO_3$)[2]
WER = water-effect ratio
m, b = metal- and criterion-specific constants

In accordance with the CTR, the default value for the WER is 1. A WER study must be conducted to use a value other than 1. The constants "m" and "b" are specific to both the metal under consideration, and the type of total recoverable criterion (i.e., acute or chronic). The metal-specific values for these constants are provided in the CTR at paragraph (b)(2), Table 1.

The equation for the ECA is defined in Section 1.4, Step 2, of the SIP and is as follows:

$$\text{ECA} = C \quad (\text{when } C \leq B)^3 \quad \text{(Equation 2)}$$

Where:

C = the priority pollutant criterion/objective, adjusted for hardness (see Equation 1, above)

B = the ambient background concentration

The 2006 Study demonstrated that the relationship between hardness and the calculated criteria is the same for some metals, so the same procedure for calculating the ECA may be used for these metals. The same procedure can be used for chronic cadmium, chromium III, copper, nickel, and zinc. These metals are hereinafter referred to as "Concave Down Metals". "Concave Down" refers to the shape of the curve represented by the relationship between hardness and the CTR criteria in Equation 1. Another similar procedure can be used for determining the ECA for acute cadmium, lead, and acute silver, which are referred to hereafter as "Concave Up Metals".

ECA for Chronic Cadmium, Chromium III, Copper, Nickel, and Zinc – For Concave Down Metals (i.e., chronic cadmium, chromium III, copper, nickel, and zinc) the 2006 Study demonstrates that when the effluent is in compliance with the CTR criteria and the upstream receiving water is in compliance with the

[1] 40 CFR § 131.38(b)(2).
[2] For this discussion, all hardness values are in mg/L as $CaCO_3$.
[3] The 2006 Study assumes the ambient background metals concentration is equal to the CTR criterion (i.e., C ≤ B)

CTR criteria, any mixture of the effluent and receiving water will always be in compliance with the CTR criteria[1]. The 2006 Study proves that regardless of whether the effluent hardness is lower or greater than the upstream hardness, the reasonable worst-case flow condition is the effluent dominated condition (i.e., no receiving water flow)[2]. Consequently, for Concave Down Metals, the CTR criteria have been calculated using the downstream ambient hardness under this condition.

The effluent hardness ranged from 75 mg/L to 142 mg/L, based on 61 samples collected between August 2008 and April 2013. The upstream receiving water hardness varied from 46 mg/L to 175 mg/L, based on 59 samples collected between August 2008 and April 2013. Under the effluent dominated condition, the reasonable worst-case downstream ambient hardness is 75 mg/L. As demonstrated in the example shown in Table F-6, below, using this hardness to calculate the ECA for all Concave Down Metals will result in WQBELs that are protective under all flow conditions, from the effluent dominated condition to high flow condition. This example for zinc assumes the following conservative conditions for the upstream receiving water:

- Upstream receiving water always at the lowest observed upstream receiving water hardness (i.e., 46 mg/L)
- Upstream receiving water zinc concentration always at the CTR criteria (i.e., no assimilative capacity).

Using these reasonable worst-case receiving water conditions, a simple mass balance (as shown in Equation 3, below) accounts for all possible mixtures of effluent and receiving water under all flow conditions.

$$C_{MIX} = C_{RW} \times (1-EF) + C_{Eff} \times (EF) \quad \text{(Equation 3)}$$

Where:
C_{MIX} = Mixed concentration (e.g. metals or hardness)
C_{RW} = Upstream receiving water concentration
C_{Eff} = Effluent concentration
EF = Effluent Fraction

In this example, for zinc, for any receiving water flow condition (high flow to low flow), the fully-mixed downstream ambient zinc concentration is in compliance with the CTR criteria[3].

[1] 2006 Study, p. 5700

[2] There are two typographical errors in the 2006 Study in the discussion of Concave Down Metals when the effluent hardness is less than the receiving water hardness. The effluent and receiving water hardness were transposed in the discussion, but the correct hardness values were used in the calculations. The typographical errors were confirmed by the author of the 2006 Study, by email dated 1 April 2011, from Dr. Robert Emerick to Mr. James Marshall, Central Valley Water Board.

[3] This method considers the actual lowest observed upstream hardness and actual lowest observed effluent hardness to determine the reasonable worst-case ambient downstream hardness under all possible receiving water flow conditions. Table F-6 demonstrates that the receiving water is always in compliance with the CTR criteria at the fully-mixed location in the receiving water. It also demonstrates that the receiving water is in compliance with the CTR criteria for all mixtures from the point of discharge to the fully-mixed location. Therefore, a mixing zone is not used for compliance.

Table F-6. Zinc ECA Evaluation

Lowest Observed Effluent Hardness					**75 mg/L (as $CaCO_3$)**
Lowest Observed Upstream Receiving Water Hardness					**46 mg/L (as $CaCO_3$)**
Highest Assumed Upstream Receiving Water Zinc Concentration					**62 µg/L[1]**
Zinc $ECA_{chronic}$[2]					**94 µg/L**
Effluent Fraction[6]		**Fully Mixed Downstream Ambient Concentration**			
		Hardness[3] (mg/L)	**CTR Criteria[4] (µg/L)**	**Zinc[5] (µg/L)**	**Complies with CTR Criteria**
High Flow	1%	46	62	62	**Yes**
	5%	47	64	64	**Yes**
	15%	50	67	67	**Yes**
	25%	53	70	70	**Yes**
	50%	61	78	78	**Yes**
Low Flow	75%	68	86	86	**Yes**
	100%	75	94	94	**Yes**

[1] Highest assumed upstream receiving water zinc concentration calculated using Equation 1 for chronic criterion at a hardness of 46 mg/L.
[2] ECA calculated using Equation 1 for chronic criterion at a hardness of 75 mg/L.
[3] Fully mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction using Equation 3.
[4] Fully mixed downstream ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.
[5] Fully mixed downstream ambient zinc concentration is the mixture of the receiving water and effluent zinc concentrations at the applicable effluent fraction using Equation 3.
[6] The effluent fraction ranges from 1% at the high receiving water flow condition, to 100% at the lowest receiving water flow condition (i.e., effluent dominated).

ECA for Acute Cadmium, Lead, and Acute Silver – For Concave Up Metals (i.e., acute cadmium, lead, and acute silver), the relationship between hardness and the metals criteria is different than for Concave Down Metals. The 2006 Study demonstrates that for Concave Up Metals, the effluent and upstream receiving water can be in compliance with the CTR criteria, but the resulting mixture may contain metals concentrations that exceed the CTR criteria and could cause toxicity. For these metals, the 2006 Study provides a mathematical approach to calculate the ECA that is protective of aquatic life, in all areas of the receiving water affected by the discharge, under all discharge and receiving water flow conditions (see Equation 4, below).

The ECA, as calculated using Equation 4, is based on the reasonable worst-case upstream receiving water hardness, the lowest observed effluent hardness, and assuming no receiving water assimilative capacity for metals (i.e., ambient background metals concentrations are at their respective CTR criterion). Equation 4 is not used in place of the CTR equation (Equation 1). Rather, Equation 4, which is derived using the CTR equation, is used as a direct approach for calculating the ECA. This replaces an iterative approach for calculating the ECA. The CTR equation has been used to evaluate the receiving water downstream of the discharge at all discharge and flow conditions to ensure the ECA is protective (e.g., see Table F-7).

$$ECA = \left[m(H_e - H_{rw})\left(e^{m\{\ln(H_{rw})\}+b}\right) / H_{rw} \right] + e^{m\{\ln(H_{rw})\}+b} \quad \text{(Equation 4)}$$

Where:
m, b= criterion specific constants (from CTR)
H_e = lowest observed effluent hardness
H_{rw} = reasonable worst-case upstream receiving water hardness

An example similar to the Concave Down Metals is shown for lead, a Concave Up Metal, in Table F-7, below. As previously mentioned, the lowest effluent hardness is 75 mg/L, while the upstream receiving water hardness ranged from 46 mg/L to 175 mg/L. In this case, the reasonable worst-case upstream receiving water hardness to use in Equation 4 to calculate the ECA is 175 mg/L.

Using the procedures discussed above to calculate the ECA for all Concave Up Metals will result in WQBELs that are protective under all potential effluent/receiving water flow conditions (high flow to low flow) and under all known hardness conditions, as demonstrated in Table F-7, for lead.

Table F-7. Lead ECA Evaluation

Lowest Observed Effluent Hardness					**75 mg/L**
Reasonable Worst-case Upstream Receiving Water Hardness					**175 mg/L**
Reasonable Worst-case Upstream Receiving Water Lead Concentration					**6.5 µg/L[1]**
Lead $ECA_{chronic}$[2]					**1.8 µg/L**
Effluent Fraction[6]		**Fully Mixed Downstream Ambient Concentration**			
		Hardness[3] (mg/L) (as $CaCO_3$)	**CTR Criteria[4] (µg/L)**	**Lead[5] (µg/L)**	**Complies with CTR Criteria**
High Flow	1%	174	6.4	6.4	**Yes**
	5%	170	6.3	6.3	**Yes**
	15%	160	5.8	5.8	**Yes**
	25%	150	5.3	5.3	**Yes**
	50%	125	4.2	4.1	**Yes**
	75%	100	3.2	2.9	**Yes**
Low Flow	100%	75	2.2	1.8	**Yes**

1 Reasonable worst-case upstream receiving water lead concentration calculated using Equation 1 for chronic criterion at a hardness of 175 mg/L.
2 ECA calculated using Equation 4 for chronic criteria.
3 Fully mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.
4 Fully mixed downstream ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.
5 Fully mixed downstream ambient lead concentration is the mixture of the receiving water and effluent lead concentrations at the applicable effluent fraction.
6 The effluent fraction ranges from 1% at the high receiving water flow condition, to 100% at the lowest receiving water flow condition (i.e., effluent dominated).

Based on the procedures discussed above, Table F-8 lists all the CTR hardness-dependent metals and the associated ECA used in this Order.

Table F-8. Summary of ECA Evaluations for CTR Hardness-dependent Metals

CTR Metals	ECA (µg/L, total recoverable)[1]	
	acute	chronic
Copper	11	7.3
Chromium III	1,400	160
Cadmium	3.0	2.0
Lead	45	1.8
Nickel	370	41
Silver	0.18	--
Zinc	94	94

[1] Metal criteria established as two significant figures in accordance with the CTR.

3. Determining the Need for WQBELs

a. **Constituents with No Reasonable Potential.** WQBELs are not included in this Order for constituents that do not demonstrate reasonable potential (i.e. constituents were not detected in the effluent or receiving water); however, monitoring for those pollutants is established in this Order as required by the SIP. If the results of effluent monitoring demonstrate reasonable potential, this Order may be reopened and modified by adding an appropriate effluent limitation.

Most constituents with no reasonable potential are not discussed in this Order. However, the following constituents were found to have no reasonable potential after assessment of the data:

i. **Aluminum**

Aluminum is the third most abundant element in the earth's crust and is ubiquitous in both soils and aquatic sediments. When mobilized in surface waters, aluminum has been shown to be toxic to various fish species. However, the potential for aluminum toxicity in surface waters is directly related to the chemical form of aluminum present, and the chemical form is highly dependent on water quality characteristics that ultimately determine the mechanism of aluminum toxicity. Surface water characteristics, including pH, temperature, colloidal material, fluoride and sulfate concentrations, and total organic carbon, all influence aluminum speciation and its subsequent bioavailability to aquatic life. Calcium [hardness] concentrations in surface water may also reduce aluminum toxicity by competing with monomeric aluminum (Al^{3+}) binding to negatively charged fish gills.

(a) **WQO.** The Code of Federal Regulations promulgated criteria for priority toxic pollutants for California's surface waters as part of section 131.38 Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California (California Toxics Rule or CTR), including metals criteria. However, aluminum criteria were not promulgated as part of the CTR. Absent numeric aquatic life criteria for aluminum, WQBEL's in the Central Valley Region's NPDES permits are based on the Basin Plans' narrative toxicity objective. The Basin Plans' Policy for Application of Water Quality Objectives requires the Central Valley Water Board to consider, "*on a case-by-case basis, direct evidence of beneficial use impacts, all material and relevant information submitted by the discharger and other interested parties, and relevant numerical criteria and guidelines developed and/or published by other agencies and organizations. In considering such criteria, the Board evaluates whether the specific numerical criteria which*

are available through these sources and through other information supplied to the Board, are relevant and appropriate to the situation at hand and, therefore, should be used in determining compliance with the narrative objective." Relevant information includes, but is not limited to (1) USEPA Ambient Water Quality Criteria (NAWQC) and subsequent Correction, (2) site-specific conditions of Pleasant Grove Creek, the receiving water, and (3) site-specific aluminum studies conducted by dischargers within the Central Valley Region. (Basin Plan, p. IV.-17.00; see also, 40 CFR 122.44(d)(vi).)

USEPA NAWQC. USEPA recommended the NAWQC aluminum acute criterion at 750 µg/L based on test waters with a pH of 6.5 to 9.0. USEPA also recommended the NAWQC aluminum chronic criterion at 87 µg/L based upon the following two toxicity tests. All test waters contained hardness at 12 mg/L as $CaCO_3$.

(1) Acute toxicity tests at various aluminum doses were conducted in various acidic waters (pH 6.0 – 6.5) on 159- and 160-day old striped bass. The 159-day old striped bass showed no mortality in waters with pH at 6.5 and aluminum doses at 390 µg/L, and the 160-day old striped bass showed 58% mortality at a dose of 174.4 µg/L in same pH waters. However, the 160-day old striped bass showed 98% mortality at aluminum dose of 87.2 µg/L in waters with pH at 6.0, which is USEPA's basis for the 87 µg/L chronic criterion. The varied results draw into question this study and the applicability of the NAWQC chronic criterion of 87 µg/L.

(2) Chronic toxicity effects on 60-day old brook trout were evaluated in circumneutral pH waters (6.5-6.9 pH) in five cells at various aluminum doses (4, 57, 88, 169, and 350 µg/L). Chronic evaluation started upon hatching of eyed eggs of brook trout, and their weight and length were measure after 45 days and 60 days. The 60-day old brook trout showed 24% weight loss at 169 µg/L of aluminum and 4% weight loss at 88 µg/L of aluminum, which is the basis for USEPA's chronic criteria. Though this test study shows chronic toxic effects 4% reduction in weight after exposure for 60-days, the chronic criterion is based on 4-day exposure; so again, the applicability of the NAWQC chronic criterion of 87 µg/L is questionable.

Site-specific Conditions. Effluent and receiving water monitoring data indicate that the pH and hardness values are not similar to the low pH and hardness conditions under which the chronic criterion for aluminum was developed, as shown in the table below, and therefore, the Central Valley Water Board does not expect aluminum to be as reactive in Pleasant Grove Creek as in the previously described toxicity tests. The pH of Pleasant Grove Creek, the receiving water, ranged from 6.9 to 9.4 with an average of 7.7 based on 247 monitoring results obtained between August 2008 and April 2013. These water conditions are circumneutral pH where aluminum is predominately in the form of $Al(OH)_3$ and non-toxic to aquatic life. The hardness of Pleasant Grove Creek ranged from 46 mg/L to 175 mg/L based on 59 samples, which is above the conditions, and thus less toxic, than the tests used to develop the chronic criterion. Pleasant Grove Creek supports aquatic species such as Chinook salmon and steelhead (rainbow trout). Brook trout and striped bass have not been

surveyed nor expected to be present in Pleasant Grove Creek (http://bios.dfg.ca.gov/), and brook trout is not expected to be present since they reside in higher elevation lakes and streams. However, stripped bass, although non-native to California, are present within the Delta and thus could potentially migrate upstream to Pleasant Grove Creek. Nevertheless, as described in detail in the following section (i.e. Local Enviornmental Conditions and Studies), site-specific aluminum toxicity tests show that aluminum does not have toxic effects to aquatic species in receiving waters with similar water quality characteristics.

Parameter	Units	Test Conditions for Applicability of Chronic Criterion	Effluent	Receiving Water
pH	standard units	6.0 – 6.5	4.0 – 7.9	6.9 – 9.4
Hardness, Total (as $CaCO_3$)	mg/L	12	75 – 142	46 – 175
Aluminum, Total Recoverable	µg/L	87.2 - 390	0.2 J – 251	65 – 270

Local Environmental Conditions and Studies. Twenty-one site-specific aluminum toxicity tests have been conducted within the Central Valley Region. The pH and hardness of Pleasant Grove Creek are similar, as shown in the table below, and thus the results of these site-specific aluminum toxicity tests are relevant and appropriate for Pleasant Grove Creek. As shown in the following table, all EC_{50} toxicity study result values are at concentrations of aluminum above 5,000 µg/L. Thus, the toxic effects of aluminum in surface waters within the Central Valley Region, including Pleasant Grove Creek, is less toxic (or less reactive) to aquatic species then demonstrated in the toxicity tests that USEPA used for the basis of establishing the chronic criterion of 87 µg/L. This new information, and review of the toxicity tests USEPA used to establish the chronic criterion, indicates that 87 µg/L is overly stringent and not applicable to Pleasant Grove Creek.

Discharger (City)	Species	Test Waters	Hardness Value	Total Aluminum EC_{50} Value	pH	WER
Auburn	*Ceriodaphnia dubia*	Effluent	99	>5270	7.44	>19.3
	" "	Surface Water	16	>5160	7.44	>12.4
Manteca	" "	Surface Water/Effluent	124	>8800	9.14	N/C
	" "	Effluent	117	>8700	7.21	>27.8
	" "	Surface Water	57	7823	7.58	25.0
	" "	Effluent	139	>9500	7.97	>21.2
	" "	Surface Water	104	>11000	8.28	>24.5
	" "	Effluent	128	>9700	7.78	>25.0
	" "	Surface Water	85	>9450	7.85	>25.7
	" "	Effluent	106	>11900	7.66	>15.3
	" "	Surface Water	146	>10650	7.81	>13.7
Modesto	" "	Surface Water/Effluent	120/156	31604	8.96	211
Yuba City	" "	Surface Water/Effluent	114/164[1]	>8000	7.60/7.46	>53.5
Placer County	" "	Effluent	150	>5000	7.4 – 8.7	>13.7
Manteca	*Daphnia magna*	Surface Water/Effluent	124	>8350	9.14	N/C
Modesto	" "	Surface Water/Effluent	120/156	>11900	8.96	>79.6

Discharger (City)	Species	Test Waters	Hardness Value	Total Aluminum EC_{50} Value	pH	WER
Yuba City	" "	Surface Water/Effluent	114/164[1]	>8000	7.60/7.46	>53.5
Manteca	*Oncorhynchus mykiss* (rainbow trout)	Surface Water/Effluent	124	>8600	9.14	N/C
Auburn	" "	Surface Water	16	>16500	7.44	N/C
Modesto	" "	Surface Water/Effluent	120/156	>34250	8.96	>229
Yuba City	" "	Surface Water/Effluent	114/164[1]	>8000	7.60/7.46	>53.5

[1] Hardness values may be biased high because the EDTA titrimetic method is subject to interferences that measure as hardness (barium, cadmium, lead, manganese, strontium, and zinc will be measured as hardness) producing hardness numbers that are likely to be greater than the calculation of hardness based upon the ICP analysis of calcium and magnesium. Upstream receiving water hardness ranged from 30 to 50.9 mg/L as $CaCO_3$ between January 2008 and August 2011. Furthermore, the upstream receiving water hardness was 37 mg/L as $CaCO_3$ on 4 October 2005, 7 days prior to the Feasibility Assessment (first phase of a Water Effects Ratio study) sample collection date of 11 October 2005. It is likely that matrix interferences from other metals were responsible for the unexpected hardness values reported by Pacific EcoRisk.

The Discharger has not conducted a toxicity test for aluminum; however, the City of Auburn conducted two toxicity tests in Auburn Ravine, shown highlighted in the previous table. The City of Auburn is located at an elevation of approximately 1,400 feet above sea level, and is surrounded by forest. As shown, the test water quality characteristics of Auburn Ravine are similar to Pleasant Grove Creek, with the pH at 7.4 and hardness at 16 mg/L as $CaCO_3$ in comparison to the mean pH at 7.7 and the minimum hardness at 46 mg/L (mean hardness at 99 mg/L) as $CaCO_3$, respectively. Thus, based on these two similar primary water quality characteristics (pH and hardness) that drive aluminum speciation, the aluminum toxicity within Auburn Ravine is expected to be similar in Pleasant Grove Creek. Therefore, the Auburn Ravine aluminum toxicity test study is relevant and appropriate in this case for use in determining the specific numerical criteria to be used in determining compliance with the Basin Plan's narrative toxicity objective. The Auburn Ravine aluminum toxicity study resulted in a site-specific aluminum objective at 1,079 µg/L. Thus, these results support the conclusion that the 87 µg/L chronic criterion is overly stringent for Pleasant Grove Creek.

Order R5-2008-0079-01 contained effluent limitations of aluminum based on the State of California Department of Public Health (DPH) MCL of 200 µg/L and the U.S. EPA NAWQC acute criterion of 750 µg/L for the protection of aquatic life.

Order R5-2008-0079-01 required the Discharger to complete and submit a site-specific study for aluminum. The Discharger's 30 June 2010 *Aluminum Site-Specific Study for City of Roseville Pleasant Grove and Dry Creek WWTPs* summarized receiving water pH and hardness conditions and compared application of the chronic criterion in several Central Valley Permits. Based on the study results, the Discharger concluded that the NAWQC chronic criterion of 87 µg/L was overly stringent for Pleasant Grove Creek, and that the Secondary MCL and NAWQC acute criterion are adequately protective of the beneficial uses in Pleasant Grove Creek.

(b) **RPA Results.** For priority pollutants, the SIP dictates the procedures for conducting the RPA. Aluminum is not a priority pollutant. Therefore, the

Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used its judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent. The most stringent objective is the Secondary MCL, which is derived from human welfare considerations (e.g., taste, odor, laundry staining), not for toxicity. Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. To be consistent with how compliance with the standards is determined, the RPA was conducted based on the calendar annual average effluent aluminum concentrations.

The maximum annual average effluent concentration for aluminum was 90 µg/L based on 60 samples collected between August 2008 and April 2013. Thus, the annual average effluent concentrations for aluminum is less than the concentrations in the receiving water and below the Secondary MCL. Therefore, the Central Valley Water Board finds the discharge does not have reasonable potential to cause or contribute to an exceedance in the receiving water and the Facility is adequately controlling the discharge of aluminum. Since the discharge does not demonstrate reasonable potential, the effluent limitations for aluminum have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

ii. **Cadmium**

(a) **WQO.** The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for cadmium. These criteria for cadmium are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default USEPA translators were used for the receiving water and effluent. Order R5-2008-0079-01 included effluent limitations for cadmium based on the CTR criteria.

(b) **RPA Results.** Section IV.C.2.e of this Fact Sheet includes procedures for conducting the RPA for hardness-dependent CTR metals, such as cadmium. The CTR includes hardness-dependent criteria for cadmium for the receiving water. The RPA was conducted using the upstream receiving water hardness to calculate the criteria for comparison to the maximum ambient background concentration, and likewise using the reasonable worst-case downstream hardness to compare the MEC. The table below shows the specific criteria used for the RPA.

Table F-9. Cadmium RPA

	CTR Chronic Criterion (Total Recoverable)	Maximum Concentration (Total Recoverable)	Reasonable Potential? (Y/N)
Receiving Water	1.3 µg/L[1]	0.02 µg/L	No[2]
Effluent	2.0 µg/L[3]	0.26 µg/L	No[4]

	CTR Chronic Criterion (Total Recoverable)	Maximum Concentration (Total Recoverable)	Reasonable Potential? (Y/N)

[1] Based on lowest observed upstream hardness of 46 mg/L (as $CaCO_3$)
[3] Per Section 1.3, step 6 of the SIP.
[2] Based on reasonable worst-case downstream hardness of 75 mg/L (as $CaCO_3$)
[4] Per Section 1.3, step 4 of the SIP.

Based on the available data, cadmium in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR chronic criterion, and the WQBELs for cadmium have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

iii. **Chlorine, Total Residual**

(a) **WQO.** USEPA developed NAWQC for protection of freshwater aquatic life for chlorine residual. The recommended 4-day average (chronic) and 1-hour average (acute) criteria for chlorine residual are 0.011 mg/L and 0.019 mg/L, respectively. These criteria are protective of the Basin Plan's narrative toxicity objective. Order R5-2008-0079-01 included effluent limitations for chlorine residual based on the NAWQC criteria.

(b) **RPA Results.** The Discharger converted from chlorine disinfection to UV disinfection in September 2010 and no longer uses chlorine-containing compounds within the treatment process. Therefore, the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective and the effluent limitations for chlorine residual have not been retained. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

iv. **Chlorodibromomethane**

(a) **WQO.** The CTR includes a criterion of 0.41 µg/L for chlorodibromomethane for the protection of human health for waters where both water and organisms are consumed. Order R5-2008-0079-01 included effluent limitations for chlorodibromomethane based on the CTR criterion.

(b) **RPA Results.** Chlorodibromomethane was not detected in the effluent based on 36 samples collected between September 2010 and April 2013 (minimum MDL 0.17 µg/L, minimum RL 0.5 µg/L). Chlorodibromomethane was not detected in the upstream receiving water based on four samples collected between August 2008 and April 2013 (minimum MDL 0.17 µg/L, minimum RL 0.5 µg/L). Therefore, chlorodibromomethane in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR human health criterion, and the WQBELs for the chlorodibromomethane have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

v. **Cyanide**

(a) **WQO.** The CTR includes maximum 1-hour average and 4-day average criteria of 5.2 µg/L and 22 µg/L, respectively, for cyanide, for the protection of freshwater aquatic life. Order R5-2008-0079-01 included effluent limitations for cyanide based on the CTR criteria.

(b) **RPA Results.** The MEC for cyanide was 2.3 µg/L based on 36 samples collected between September 2010 and April 2013 (minimum MDL 0.6 µg/L, minimum RL 3 µg/L). The maximum observed upstream receiving water concentration for cyanide was 1.3 µg/L based on four samples collected between August 2008 and April 2013 (minimum MDL 0.6 µg/L, minimum RL 3 µg/L). Therefore, cyanide in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR aquatic life criterion, and the effluent limitations for cyanide have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

vi. **Dichlorobromomethane**

(a) **WQO.** The CTR includes a criterion of 0.56 µg/L for the protection of human health for waters where both water and organisms are consumed. Order R5-2008-0079-01 included effluent limitations for dichlorobromomethane based on the CTR criterion.

(b) **RPA Results.** Dichlorobromomethane was not detected in the effluent based on 36 samples collected between September 2010 and April 2013 (minimum MDL 0.16 µg/L, minimum RL 0.5 µg/L). Dichlorobromomethane was not detected in the upstream receiving water based on four samples collected between August 2008 and April 2013 (minimum MDL 0.16 µg/L, minimum RL 0.5 µg/L). Therefore, dichlorobromomethane in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR human health criterion, and the WQBELs for the dichlorobromomethane have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

vii. **Iron**

(a) **WQO.** DPH has developed a Secondary MCL for total recoverable iron of 300 µg/L. Order R5-2008-0079-01 established an effluent limitation for iron based on the Secondary MCL.

(b) **RPA Results.** For priority pollutants, the SIP dictates the procedures for conducting the RPA. Iron is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used its judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent. The most stringent objective is the Secondary MCL, which is derived from human welfare considerations (e.g., taste, odor, laundry staining), not for toxicity. Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly.

To be consistent with how compliance with the standards is determined, the RPA was conducted based on the calendar annual average effluent iron concentrations.

The maximum annual average effluent concentration for iron was 53 µg/L based on 60 samples collected between August 2008 and April 2013. Although the receiving water contains iron exceeding the Secondary MCL, the effluent iron is consistently less than the concentrations in the receiving water and below the Secondary MCL. Therefore, the Central Valley Water Board finds the discharge does not have reasonable potential to cause or contribute to an exceedance in the receiving water and the Facility is adequately controlling the discharge of iron. Since the discharge does not demonstrate reasonable potential, the effluent limitation for iron has not been retained in this Order. Removal of this effluent limitation is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

viii. **Manganese**

(a) **WQO.** USEPA has developed a Secondary MCL for total recoverable manganese of 50 µg/L. Order R5-2008-0079-01 established an effluent limitation for manganese based on the Secondary MCL.

(b) **RPA Results.** For priority pollutants, the SIP dictates the procedures for conducting the RPA. Manganese is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used its judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent. The most stringent objective is the Secondary MCL, which is derived from human welfare considerations (e.g., taste, odor, laundry staining), not for toxicity. Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. To be consistent with how compliance with the standards is determined, the RPA was conducted based on the calendar annual average effluent manganese concentrations.

The maximum observed annual average effluent concentration for manganese was 12 µg/L based on 60 samples collected between August 2008 and April 2013. Therefore, the Central Valley Water Board finds the discharge does not have reasonable potential to cause or contribute to an exceedance in the receiving water and the Facility is adequately controlling the discharge of manganese. Since the discharge does not demonstrate reasonable potential, the effluent limitation for manganese has not been retained in this Order. Removal of this effluent limitation is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

ix. **Salinity**

(a) **WQO.** The Basin Plan contains a chemical constituent objective that incorporates state MCLs, contains a narrative objective, and contains numeric water quality objectives for certain specified water bodies for electrical conductivity, total dissolved solids, sulfate, and chloride. The

USEPA Ambient Water Quality Criteria for Chloride recommends acute and chronic criteria for the protection of aquatic life. There are no USEPA water quality criteria for the protection of aquatic life for electrical conductivity, total dissolved solids, and sulfate. Additionally, there are no USEPA numeric water quality criteria for the protection of agricultural, livestock, and industrial uses. Numeric values for the protection of these uses are typically based on site specific conditions and evaluations to determine the appropriate constituent threshold necessary to interpret the narrative chemical constituent Basin Plan objective. The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. The Central Valley Water Board is currently implementing the CV SALTS initiative to develop a Basin Plan Amendment that will establish a salt and nitrate Management Plan for the Central Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objective is to be interpreted for the protection of agricultural use. All studies conducted through this Order to establish an agricultural limit to implement the narrative objective will be reviewed by and consistent with the efforts currently underway by CV SALTS.

Table F-10. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Objective[1]	Secondary MCL[2]	USEPA NAWQC	Effluent	
				Average[3]	Maximum
EC (µmhos/cm)	Varies	900, 1600, 2200	N/A	477	790
TDS (mg/L)	Varies	500, 1000, 1500	N/A	296	340
Sulfate (mg/L)	Varies	250, 500, 600	N/A	31	32
Chloride (mg/L)	Varies	250, 500, 600	860 1-hr 230 4-day	63	66

1 Narrative chemical constituent objective of the Basin Plan. Procedures for establishing the applicable numeric limitation to implement the narrative objective can be found in the Policy for Application of Water Quality, Chapter IV, Section 8 of the Basin Plan. However, the Basin Plan does not require improvement over naturally occurring background concentrations. In cases where the natural background concentration of a particular constituent exceeds an applicable water quality objective, the natural background concentration will be considered to comply with the objective.

2 The Secondary MCLs are stated as a recommended level, upper level, and a short-term maximum level.

3 Maximum calendar annual average.

(1) **Chloride.** The Secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.

(2) **Electrical Conductivity.** The Secondary MCL for electrical conductivity is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum.

(3) **Sulfate.** The Secondary MCL for sulfate is 250 mg/L as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.

(4) **Total Dissolved Solids.** The Secondary MCL for total dissolved solids is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum.

(b) **RPA Results**

(1) **Chloride.** Chloride concentrations in the effluent ranged from 59 mg/L to 66 mg/L, with a maximum calendar year annual average of 63 mg/L. These levels do not exceed the Secondary MCL. Background concentrations in Pleasant Grove Creek ranged from 13 mg/L to 63 mg/L, with an average of 28 mg/L, for four samples collected by the Discharger from August 2008 through April 2013.

(2) **Electrical Conductivity.** A review of the Discharger's monitoring reports shows a maximum calendar year annual average effluent electrical conductivity of 477 µmhos/cm, with a range from 340 µmhos/cm to 790 µmhos/cm. The background receiving water electrical conductivity ranged from 110 µmhos/cm to 590 µmhos/cm with a maximum calendar year annual average of 399 µmhos/cm. These levels do not exceed the Secondary MCL.

(3) **Sulfate.** Sulfate concentrations in the effluent ranged from 30 mg/L to 32 mg/L, with a maximum calendar year annual average of 31 mg/L. These levels do not exceed the Secondary MCL. Background concentrations in Pleasant Grove Creek ranged from 6.3 mg/L to 30 mg/L, with a maximum calendar year annual average of 25 mg/L.

(4) **Total Dissolved Solids.** The maximum calendar year annual average total dissolved solids effluent concentration was 296 mg/L with concentrations ranging from 250 mg/L to 340 mg/L. These levels do not exceed the Secondary MCL. Background concentrations in Pleasant Grove Creek ranged from 120 mg/L to 270 mg/L, with a maximum calendar year annual average of 225 mg/L

Order R5-2008-0079-01 required the Discharger to complete a site-specific study of appropriate electrical conductivity levels to protect the AGR and MUN beneficial uses, a salinity reduction goal of the water supply plus 500 µmhos/cm, and a salinity evaluation and minimization plan. The Discharger's February 2012 *Pleasant Grove Wastewater Treatment Plant Site-Specific Salinity Study* concluded that the Secondary MCL of 900 µmhos/cm is protective of both AGR and MUN uses. The Discharger's 9 March 2009 *Salinity Evaluation and Minimization Plan* identified salinity contributions from the water supply and residential, commercial, and industrial users, and indicated that salinity may increase when water from their Aquifer Storage and Recovery wells is used, but that the discharge would still be in compliance with the Salinity Goal. In the Discharger's November 2012 *Salinity Reduction Progress Report for Pleasant Grove Wastewater Treatment Plant*, the Discharger indicated that the conversion from chlorine disinfection to UV disinfection resulted in decreases in effluent electrical conductivity. Based on monitoring data collected after conversion to UV disinfection, effluent electrical conductivity ranged from 340 µmhos/cm to 790 µmhos/cm, with a maximum annual average of 477 µmhos/cm (2011).Based on the relatively low reported salinity since the conversion to UV disinfection, the discharge does not

have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity. In order to ensure that the Discharger will continue to control the discharge of salinity, this Order includes a requirement to continue to implement the salinity evaluation and minimization plan.

x. **Settleable Solids**

(a) **WQO.** For inland surface waters, the Basin Plan states that "[w]*ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses*." Order R5-2008-0079-01 established an average monthly effluent limitation (AMEL) of 0.1 ml/L and maximum daily effluent limitation (MDEL) of 0.2 ml/L for settleable solids to implement the narrative settleable solids objective.

(b) **RPA Results.** The maximum observed effluent settleable solids concentration was 0.2 ml/L based on 246 samples collected between August 2008 and April 2013. Therefore, the discharge does not have reasonable potential for settleable solids and the WQBELs for settleable solids have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

xi. **Zinc**

(a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for zinc. These criteria for zinc are presented in dissolved concentrations, as 1-hour acute criteria and 4-day chronic criteria. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default USEPA translators were used for the receiving water and effluent. Order R5-2008-0079 included effluent limitations for zinc based on the CTR criteria.

(b) **RPA Results.** Section IV.C.2.e of this Fact Sheet includes procedures for conducting the RPA for hardness-dependent CTR metals, such as zinc. The CTR includes hardness-dependent criteria for zinc for the receiving water. The RPA was conducted using the upstream receiving water hardness to calculate the criteria for comparison to the maximum ambient background concentration, and likewise using the reasonable worst-case downstream hardness to compare the MEC. The table below shows the specific criteria used for the RPA.

Table F-11. Zinc RPA

	CTR Chronic Criterion (Total Recoverable)	Maximum Concentration (Total Recoverable)	Reasonable Potential? (Y/N)
Receiving Water	62 µg/L[1]	58 µg/L	No[2]
Effluent	94 µg/L[3]	67 µg/L	No[4]

[1] Based on lowest observed upstream hardness of 46 mg/L (as $CaCO_3$)
[2] Based on reasonable worst-case downstream hardness of 75 mg/L (as $CaCO_3$)
[3] Per Section 1.3, step 6 of the SIP.
[4] Per Section 1.3, step 4 of the SIP.

Based on the available data, zinc in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR chronic criterion, and the WQBELs for zinc have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

b. **Constituents with Reasonable Potential.** The Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for ammonia, BOD_5, fluoride, mercury, nitrate plus nitrite, pH, total coliform organisms, and TSS. WQBELs for these constituents are included in this Order. A summary of the RPA is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

i. **Ammonia**

(a) **WQO.** The NAWQC for the protection of freshwater aquatic life for total ammonia, recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. USEPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC. USEPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature. Because Pleasant Grove Creek has a beneficial use of cold freshwater habitat and the presence of salmonids and early fish life stages in Pleasant Grove Creek is well-documented, the recommended criteria for waters where salmonids and early life stages are present, were used.

The maximum permitted effluent pH is 8.3. The Basin Plan objective for pH in the receiving stream is the range of 6.5 to 8.5, however a site-specific pH limit of 8.3 has been established for discharges from the Facility as discussed in section IV.C.3.b.vi. In order to protect against the worst-case short-term exposure of an organism, a pH value of 8.3 was used to derive the acute criterion. The resulting acute criterion is 3.15 mg/L.

A chronic criterion was calculated for each day when paired temperature and pH were measured using downstream receiving water data for temperature and pH. Rolling 30-day average criteria were calculated from downstream data using the criteria calculated for each day and the minimum observed 30-day average criterion was established as the applicable 30-day average chronic criterion, or 30-day CCC. The resulting 30-day CCC is 1.50 mg/L (as N). The 4-day average concentration is derived in accordance with the USEPA criterion as 2.5 times the 30-day CCC. Based on the 30-day CCC of 1.50 mg/L (as N), the 4-day average concentration that should not be exceeded is 3.75 mg/L (as N).

(b) **RPA Results.** The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that, without treatment, would be harmful to fish and would violate the Basin

Plan narrative toxicity objective if discharged to the receiving water. Reasonable potential therefore exists and effluent limitations are required.

Federal regulations at 40 C.F.R. §122.44(d)(1)(i) requires that, *"Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."* For priority pollutants, the SIP dictates the procedures for conducting the RPA. Ammonia is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs discharging to contact recreational waters)*." USEPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "*When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data*." With regard to POTWs, USEPA recommends that, "*POTWs should also be characterized for the possibility of chlorine and ammonia problems*." (TSD, p. 50)

Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger currently uses nitrification to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Discharges of ammonia in concentrations that produce detrimental physiological responses to human, plant, animal, or aquatic life would violate the Basin Plan narrative toxicity objective. Although the Discharger nitrifies the discharge, inadequate or incomplete nitrification creates the potential for ammonia to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for ammonia and WQBELs are required.

(c) **WQBELs.** The Central Valley Water Board calculates WQBELs in accordance with SIP procedures for non-CTR constituents, and ammonia is a non-CTR constituent. The SIP procedure assumes a 4-day averaging period for calculating the long-term average discharge condition (LTA). However, USEPA recommends modifying the procedure for calculating permit limits for ammonia using a 30-day averaging period for the calculation of the LTA corresponding to the 30-day CCC. Therefore, while the LTAs corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then selected for deriving the AMEL and the MDEL. The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures. This Order contains a final AMEL and MDEL for ammonia of 1.4 mg/L and 2.9 mg/L, respectively, based on NAWQC.

(d) **Plant Performance and Attainability.** The Facility is designed to provide complete nitrification of the discharge. Therefore, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.

ii. **Fluoride**

(a) **WQO.** DPH has adopted a Primary MCL for the protection of human health for fluoride of 2,000 µg/L.

(b) **RPA Results.** Federal regulations at 40 C.F.R. §122.44(d)(1)(i) requires that, "*Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality*." For priority pollutants, the SIP dictates the procedures for conducting the RPA. Fluoride is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, *"State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs discharging to contact recreational waters)."* USEPA's TSD also recommends that factors other than effluent data should be considered in the RPA, *"When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where*

facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data." (TSD, p. 50)

Based on 63 samples taken from August 2008 to April 2013, the maximum observed annual average effluent concentration for fluoride was 2,358 µg/L, which exceeds the Primary MCL. The Facility is a POTW that accepts industrial discharges in accordance with a Pretreatment Program. In the Discharger's 2011 Annual Pollution Prevention Plan (PPP) Progress Report, the Discharger identified Telefunken Corporation as a major source of fluoride in the influent and issued a new Industrial Waste Discharge Permit in November 2009 with a reduced fluoride effluent limitation and compliance schedule. Based on the known source of fluoride in the influent, reasonable potential for fluoride exists and WQBELs are required.

(c) **WQBELs.** This Order contains an annual average effluent limitation for fluoride of 2,000 µg/L based on the Primary MCL.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows the Facility can meet these WQBELs.

iii. **Mercury**

(a) **WQO.** The current NAWQC for protection of freshwater aquatic life, continuous concentration, for mercury is 0.77 µg/L (30-day average, chronic criteria). The CTR contains a human health criterion (based on a threshold dose level causing neurological effects in infants) of 0.050 µg/L for waters from which both water and aquatic organisms are consumed. Both values are controversial and subject to change. In 40 CFR Part 131, USEPA acknowledges that the human health criteria may not be protective of some aquatic or endangered species and that "…*more stringent mercury limits may be determined and implemented through use of the State's narrative criterion.*" In the CTR, USEPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date.

(b) **RPA Results.** The MEC for mercury was 0.0047 µg/L based on 60 samples collected between August 2008 and April 2013 (minimum MDL 0.0002 µg/L, minimum RL 0.0005 µg/L). The maximum observed upstream receiving water mercury concentration was 0.0035 µg/L based on four samples collected between August 2008 and April 2013 (minimum MDL 0.0002 µg/L, minimum RL 0.0005 µg/L). Although the discharge does not exceed the CTR human health criteria, mercury bioaccumulates in fish tissue and, therefore, the discharge of mercury to the receiving water may contribute to exceedances of the narrative toxicity objective and impact beneficial uses. The Natomas Cross Canal has been listed as an impaired water body pursuant to CWA section 303(d) because of mercury and the discharge must not cause or contribute to increased mercury levels. In addition, a TMDL is under development for the Natomas Cross Canal downstream of the Facility which may include a waste load allocation applicable to the Facility.

(c) **WQBELs.** This Order contains a performance-based mass effluent limitation of 1.39 lbs/year for mercury for the effluent discharged to the

receiving water. This limitation is based on maintaining the mercury loading at the current level until a TMDL can be established and USEPA develops mercury standards that are protective of human health. If USEPA develops new water quality standards for mercury, this permit may be reopened and the effluent limitations adjusted.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows the Facility can meet this WQBEL.

iv. **Nitrate and Nitrite**

(a) **WQO.** DPH has adopted Primary MCLs for the protection of human health for nitrite and nitrate that are equal to 1 mg/L and 10 mg/L (measured as nitrogen), respectively. DPH has also adopted a Primary MCL of 10 mg/L for the sum of nitrate and nitrite, measured as nitrogen.

USEPA has developed a primary MCL and an MCL goal of 1 mg/L for nitrite (as nitrogen). For nitrate, USEPA has developed Drinking Water Standards (10 mg/L as Primary MCL) and NAWQC for protection of human health (10 mg/L for non-cancer health effects). Recent toxicity studies[1] have indicated a possibility that nitrate is toxic to aquatic organisms.

(b) **RPA Results.** The Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia in concentrations that, if untreated, will be harmful to fish and will violate the Basin Plan's narrative toxicity objective. This Order, therefore, requires removal of ammonia (i.e., nitrification). Nitrification is a biological process that converts ammonia to nitrate and nitrite, and will result in effluent nitrate concentrations above the primary MCL for nitrate plus nitrite. Nitrate concentrations in a drinking water supply above the Primary MCL threatens the health of human fetuses and newborn babies by reducing the oxygen-carrying capacity of the blood (methemoglobinemia). Reasonable potential for nitrate and nitrite therefore exists and WQBELs are required.

Federal regulations at 40 C.F.R. §122.44(d)(1)(i) requires that, *"Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."* For priority pollutants, the SIP dictates the procedures for conducting the RPA. Nitrate and nitrite are not priority pollutants. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

[1] Camargo, Julio A., Alvaro Alonso, Annabella Salamanca, "Nitrate toxicity to aquatic animals: a review with new data for freshwater invertebrates". Accepted 25 October 2004-Chemosphere 58 (2005) 1255-1267; Canadian Council of Ministers of the Environment, National Guidelines and Standards Office, "Canadian Water Quality Guidelines for the Protection of Aquatic Life". 2012; Minnesota Pollution Control Agency, "Developing Surface Water Nitrate Standards and Strategies for Reducing Nitrogen Loading". December 2010.

USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, *"State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs discharging to contact recreational waters)."* USEPA's TSD also recommends that factors other than effluent data should be considered in the RPA, *"When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data."* With regard to POTWS, USEPA recommends that, "*POTWs should also be characterized for the possibility of chlorine and ammonia problems*." (TSD, p. 50)

The concentration of nitrogen in raw domestic wastewater is sufficiently high that the resultant treated wastewater has a reasonable potential to exceed or threaten to exceed the Primary MCL for nitrate plus nitrite unless the wastewater is treated for nitrogen removal, and therefore an effluent limit for nitrate plus nitrite is required. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger currently uses nitrification/denitrification to remove ammonia, nitrite, and nitrate from the waste stream. Inadequate or incomplete denitrification may result in the discharge of nitrate and/or nitrite to the receiving stream. Discharges of nitrate plus nitrite in concentrations that exceed the Primary MCL would violate the Basin Plan narrative chemical constituents objective. Although the Discharger denitrifies the discharge, inadequate or incomplete denitrification creates the potential for nitrate and nitrite to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for nitrate plus nitrite and WQBELs are required.

(c) **WQBELs.** This Order contains a final AMEL for nitrate plus nitrite of 10 mg/L (total as N), based on the Primary MCL. This effluent limitation is included in this Order to assure the treatment process adequately nitrifies and denitrifies the waste stream to protect the beneficial use of municipal and domestic supply.

(d) **Plant Performance and Attainability.** The Facility was designed to provide nitrification and denitrification. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

v. **Pathogens**

(a) **WQO.** DPH has developed reclamation criteria, CCR, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL, at any time.

Title 22 also requires that recycled water used as a source of water supply for non-restricted recreational impoundments be disinfected tertiary recycled water that has been subjected to conventional treatment. A non-restricted recreational impoundment is defined as *"…an impoundment of recycled water, in which no limitations are imposed on body-contact water recreational activities.*" Title 22 is not directly applicable to surface waters; however, the Central Valley Water Board finds that it is appropriate to apply an equivalent level of treatment to that required by the DPH's reclamation criteria because the receiving water is used for irrigation of agricultural land and for contact recreation purposes. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for the irrigation of food crops and/or for body-contact water recreation. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens.

(b) **RPA Results.** Raw domestic wastewater inherently contains human pathogens that threaten human health and life, and constitute a threatened pollution and nuisance under CWC Section 13050 if discharged untreated to the receiving water. Reasonable potential for pathogens therefore exists and WQBELs are required.

Federal regulations at 40 C.F.R. §122.44(d)(1)(i) requires that, *"Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."* For priority pollutants, the SIP dictates the procedures for conducting the RPA. Pathogens are not priority pollutants. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, *"State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs*

discharging to contact recreational waters).” USEPA's TSD also recommends that factors other than effluent data should be considered in the RPA, *“When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data.”* (TSD, p. 50)

The beneficial uses of Pleasant Grove Creek include municipal and domestic supply, water contact recreation, and agricultural irrigation supply, and there is, at times, less than 20:1 dilution. To protect these beneficial uses, the Central Valley Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. Although the Discharger provides disinfection, inadequate or incomplete disinfection creates the potential for pathogens to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for pathogens and WQBELs are required.

(c) **WQBELs.** In accordance with the requirements of Title 22, this Order includes effluent limitations for total coliform organisms of 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL as an instantaneous maximum.

The tertiary treatment process, or equivalent, is capable of reliably treating wastewater to a turbidity level of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform concentrations. Therefore, to ensure compliance with the DPH recommended Title 22 disinfection criteria, weekly average specifications are impracticable for turbidity. This Order includes operational specifications for turbidity of 2 NTU as a daily average; 5 NTU, not to be exceeded more than 5 percent of the time within a 24-hour period; and 10 NTU as an instantaneous maximum.

This Order contains effluent limitations for BOD_5, total coliform organisms, and TSS and requires a tertiary level of treatment, or equivalent, necessary to protect the beneficial uses of the receiving water. The Central Valley Water Board has previously considered the factors in Water Code section 13241 in establishing these requirements.

Final WQBELs for BOD_5 and TSS are based on the technical capability of the tertiary process, which is necessary to protect the beneficial uses of the receiving water. BOD_5 is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The tertiary treatment standards for BOD_5 and TSS are indicators of the effectiveness of the tertiary treatment process. The principal design parameter for wastewater

treatment plants is the daily BOD_5 and TSS loading rates and the corresponding removal rate of the system. The application of tertiary treatment processes results in the ability to achieve lower levels for BOD_5 and TSS than the secondary standards currently prescribed. Therefore, this Order requires AMELs for BOD_5 and TSS of 10 mg/L, which is technically based on the capability of a tertiary system. In addition to the average weekly effluent limitations (AWELs) and AMELs, MDELs for BOD_5 and TSS are included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities.

(d) **Plant Performance and Attainability.** The Facility possesses a media filtration and UV disinfection system which was designed to achieve Title 22 criteria. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

vi. **pH**

(a) **WQO.** The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the "…*pH shall not be depressed below 6.5 nor raised above 8.5.*"

(b) **RPA Results.** Raw domestic wastewater inherently has variable pH. Additionally, some wastewater treatment processes can increase or decrease wastewater pH which if not properly controlled, would violate the Basin Plan's numeric objective for pH in the receiving water. Therefore, reasonable potential exists for pH and WQBELs are required.

Federal regulations at 40 C.F.R. §122.44(d)(1)(i) requires that, *"Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."* For priority pollutants, the SIP dictates the procedures for conducting the RPA. pH is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent.

USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, *"State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs discharging to contact recreational waters)."* USEPA's TSD also recommends that factors other than effluent data should be considered in the RPA, *"When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where*

facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data." (TSD, p. 50)

The Facility is a POTW that treats domestic wastewater. Based on 1,186 samples taken from January 2010 to March 2013, the maximum pH reported was 7.9 and the minimum was 4.0. Although the Discharger has proper pH controls in place, the pH for the Facility's influent varies due to the nature of municipal sewage, which provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's numeric objective for pH in the receiving water. Therefore, WQBELs for pH are required in this Order.

(c) **WQBELs.** Order R5-2008-0079-01 contained minimum and maximum effluent limitations of 6.5 and 8.0 at Discharge Point 001. The maximum effluent limitation of 8.0 is more stringent than required by the Basin Plan pH objectives and was based on the treatment capabilities of the Facility. The Discharger has requested a relaxed maximum effluent pH limitation. Since the effluent pH has not exceeded 8.3 during the term of Order R5-2008-0079-01 and a pH of 8.3 is more stringent than the applicable water quality objective, this Order includes a maximum effluent limitation of 8.3.

(d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the range of observed pH performance levels is within the bounds of the applicable WQBELs. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

4. WQBEL Calculations

a. This Order includes WQBELs for ammonia, BOD_5, fluoride, mercury, nitrate plus nitrite, pH, total coliform organisms, and TSS. The general methodology for calculating WQBELs based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See Attachment H for the WQBEL calculations.

b. **Effluent Concentration Allowance.** For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from Section 1.4 of the SIP:

$$ECA = C + D(C - B) \quad \text{where } C>B, \text{ and}$$
$$ECA = C \quad \text{where } C \leq B$$

where:

ECA = effluent concentration allowance
D = dilution credit
C = the priority pollutant criterion/objective
B = the ambient background concentration.

According to the SIP, the ambient background concentration (B) in the equation above shall be the observed maximum with the exception that an ECA calculated from a priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the arithmetic mean concentration of the ambient background samples. For ECAs based on MCLs, which implement the Basin Plan's

chemical constituents objective and are applied as annual averages, an arithmetic mean is also used for B due to the long-term basis of the criteria.

c. **Basin Plan Objectives and MCLs.** For WQBELs based on site-specific numeric Basin Plan objectives or MCLs, the effluent limitations are applied directly as the ECA as either an MDEL, AMEL, or average annual effluent limitations, depending on the averaging period of the objective.

d. **Aquatic Toxicity Criteria.** WQBELs based on acute and chronic aquatic toxicity criteria are calculated in accordance with Section 1.4 of the SIP. The ECAs are converted to equivalent long-term averages (i.e. LTAacute and LTAchronic) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers.

e. **Human Health Criteria.** WQBELs based on human health criteria, are also calculated in accordance with Section 1.4 of the SIP. The ECAs are set equal to the AMEL and a statistical multiplier was used to calculate the MDEL.

$$AMEL = mult_{AMEL}\left[\min\left(\overbrace{M_A ECA_{acute}}^{LTA_{acute}}, M_C ECA_{chronic}\right)\right]$$

$$MDEL = mult_{MDEL}\left[\min\left(M_A ECA_{acute}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}}\right)\right]$$

$$MDEL_{HH} = \left(\frac{mult_{MDEL}}{mult_{AMEL}}\right) AMEL_{HH}$$

where:
$mult_{AMEL}$ = statistical multiplier converting minimum LTA to AMEL
$mult_{MDEL}$ = statistical multiplier converting minimum LTA to MDEL
M_A = statistical multiplier converting acute ECA to LTA_{acute}
M_C = statistical multiplier converting chronic ECA to $LTA_{chronic}$

Summary of Water Quality-Based Effluent Limitations
Discharge Point 001

Table F-12. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	--	--
	lbs/day[1]	1,000	1,500	2,000	--	--
	lbs/day[2]	1,250	1,875	2,500	--	--
pH	standard units	--	--	--	6.5	8.3
Total Suspended Solids	mg/L	10	15	20	--	--
	lbs/day[1]	1,000	1,500	2,000	--	--
	lbs/day[2]	1,250	1,875	2,500	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Priority Pollutants						
Mercury, Total Recoverable	lbs/year	1.39[3]	--	--	--	--
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N)	mg/L	1.4	--	2.9	--	--
	lbs/day[1]	140	--	290	--	--
	lbs/day[2]	180	--	360	--	--
Fluoride, Total	µg/L	2,000[4]	--	--	--	--
Nitrate plus Nitrite (as N)	mg/L	10	--	--	--	--
Total Coliform Organisms	MPN/100 mL	--	2.2[5]	23[6]	--	240

1 Based on an average dry weather flow of 12 MGD. Effective immediately and until compliance with Special Provision VI.C.6.b.
2 Based on an average dry weather flow of 15 MGD. Effective upon compliance with Special Provision VI.C.6.b.
3 The total annual mass discharge of total mercury shall not exceed 1.39 lbs/year.
4 Applied as an annual average effluent limitation.
5 Applied as a 7-day median effluent limitation.
6 Not to be exceeded more than once in any 30-day period.

5. Whole Effluent Toxicity (WET)

For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct whole effluent toxicity testing for acute and chronic toxicity, as specified in the Monitoring and Reporting Program (Attachment E section V.). This Order also contains effluent limitations for acute toxicity and requires the Discharger to implement best management practices to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity.

a. **Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, *"All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life."* (Basin Plan at page III-8.0) The Basin Plan also states that, *"…effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate…"*

For priority pollutants, the SIP dictates the procedures for conducting the RPA. Acute toxicity is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Acute whole effluent toxicity is not a priority pollutant. Therefore, due to the site-specific conditions of the discharge, the Central Valley Water Board has used professional judgment in determining the appropriate method for conducting the RPA . USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "*State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available…A permitting authority might also determine that WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs discharging to contact recreational waters).*" Although the

discharge has been consistently in compliance with the acute effluent limitations, the Facility is a POTW that treats domestic wastewater containing ammonia and other acutely toxic pollutants. Acute toxicity effluent limits are required to ensure compliance with the Basin Plan's narrative toxicity objective.

USEPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, *"In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc."* Accordingly, effluent limitations for acute toxicity have been included in this Order as follows:

> **Acute Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
>
> Minimum for any one bioassay ---------- 70%
> Median for any three consecutive bioassays---------- 90%

b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00) As shown in Table F-13 below, the effluent exhibited chronic toxicity to *Ceriodaphnia dubia* in the second quarter of 2010, the fourth quarter of 2010, the third quarter of 2011, and second quarter of 2013. Accelerated monitoring following the second quarter 2010 and fourth quarter 2010 sampling events did not exhibit toxicity; however, toxicity was observed in accelerated monitoring following the third quarter 2011 test. Therefore, the Discharger conducted a Toxicity Reduction Evaluation (TRE), which identified poor filter performance as the cause of the observed toxicity. To address the toxicity, the Discharger implemented a more robust operations and maintenance program for the filters. Toxicity to *Ceriodaphnia dubia* was again observed in the second quarter of 2013 and the cover letter for the quarterly SMR indicated that the toxicity was the result of a malfunction in the mechanical gate at the head of the UV channel that released a small amount of hydraulic fluid into the UV channel. Testing the following week resulted in 1 TUc for survival and 1.3 TUc for reproduction. The discharge exceeded the numeric monitoring trigger for *Pimephales promelas* growth and *Selenastrum capricornutum* once. Accelerated monitoring for *Pimephales* promelas did not indicate toxicity. Accelerated monitoring was not conducted following the *Selenastrum capricornutum* exceedance. As the toxicity issues associated with *Ceriodaphnia dubia* exceedances have been rectified, accelerated monitoring following the *Pimpehales promelas* exceedance did not exhibit toxicity, and toxicity was not observed in the remaining 3-species toxicity tests, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

Table F-13. Whole Effluent Chronic Toxicity Testing Results

Date	Fathead Minnow *Pimephales promelas*		Water Flea *Ceriodaphnia dubia*		Green Algae *Selenastrum capricornutum*
	Survival (TUc)	Growth (TUc)	Survival (TUc)	Reproduction (TUc)	Growth (TUc)
4th Quarter 2008	1	1	1	1	1
1st Quarter 2009	1	1	1	1	1
2nd Quarter 2009	1	1	1	1	1
3rd Quarter 2009	1	1	1	1	1
4th Quarter 2009	1	1	1	1	1
1st Quarter 2010	1	1	1	1	1
2nd Quarter 2010	1	1	1	**4**[1]	1
3rd Quarter 2010	1	1	1	1	1
4th Quarter 2010	1	1	1	**8**[1]	1
1st Quarter 2011	1	1	1	1	1
2nd Quarter 2011	1	1	1	1	1
3rd Quarter 2011	1	1	1	**2**[2]	1
4th Quarter 2011	1	1	See Table F-14	See Table F-14	1
1st Quarter 2012	1	1	See Table F-14	See Table F-14	1
2nd Quarter 2012	1	1	See Table F-14	See Table F-14	1
3rd Quarter 2012	1	1	1	1	**2**
4th Quarter 2012	1	1	1	1	1
1st Quarter 2013	1	**8**[1]	1	1	1
2nd Quarter 2013	1	1	**>8**	**12.8**	1

[1] Triggered accelerated monitoring. See Table F-14 for accelerated monitoring results.

[2] Triggered accelerated monitoring and initiation of a TRE. See Table F-14 for accelerated monitoring and TRE monitoring results.

Table F-14. Whole Effluent Chronic Toxicity Testing Results

Date		*Ceriodaphnia dubia*		*Pimephales promelas*
		Survival	Reproduction	Growth
2nd 2010	12 May 2010	1	1	
	27 May 2010	1	1	
	11 June 2010	1	1	
	24 June 2010	1	1	
4th 2010	12 January 2011	1	1	
	25 January 2011	1	1	
	9 February 2011	1	1	
	24 February 2011	1	1	
TRE 3rd 2011 - 2nd 2012	29 August 2011	1	**>8**	
	20 September 2011	1	**8**	
	3 October 2011	**8**	**8**	
	4 January 2012	1	1	
	20 February 2012	1	1	
	21 May 2012	1	1	
	18 June 2012	1	1	
1st 2013	23 April 2013			1
	7 May 2013			1
	21 May 2013			1
	4 June 2013			1

The Monitoring and Reporting Program of this Order requires quarterly chronic WET monitoring for demonstration of compliance with the narrative toxicity objective. In addition to WET monitoring, the Special Provision in section VI.C.2.a of the Order includes a numeric toxicity monitoring trigger, requirements for accelerated monitoring, and requirements for TRE initiation if toxicity is demonstrated.

Numeric chronic WET effluent limitations have not been included in this Order. The SIP contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region[1] that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012, "*In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits.*"

[1] In the Matter of the Review of Own Motion of Waste Discharge Requirements Order Nos. R4-2002-0121 [NPDES No. CA0054011] and R4-2002-0123 [NPDES NO. CA0055119] and Time Schedule Order Nos. R4-2002-0122 and R4-2002-0124 for Los Coyotes and Long Beach Wastewater Reclamation Plants Issued by the California Regional Water Quality Control Board, Los Angeles Region SWRCB/OCC FILES A-1496 AND 1496(a)

The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 CFR 122.44(k).

To ensure compliance with the Basin Plan's narrative toxicity objective, the Discharger is required to conduct chronic WET testing, as specified in the Monitoring and Reporting Program (Attachment E section V.). Furthermore, the Special Provision contained at VI.C.2.a. of this Order requires the Discharger to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity. If the discharge demonstrates toxicity exceeding the numeric toxicity monitoring trigger, the Discharger is required to initiate a TRE in accordance with an approved TRE workplan. The numeric toxicity monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to perform accelerated chronic toxicity monitoring, as well as, the threshold to initiate a TRE if effluent toxicity has been demonstrated.

D. Final Effluent Limitation Considerations

1. Mass-based Effluent Limitations

40 CFR 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 CFR 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 CFR 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g., CTR criteria and MCLs) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

Mass-based effluent limitations have been established in this Order for ammonia, BOD_5, and TSS because they are oxygen demanding substances. Except for the pollutants listed above, mass-based effluent limitations are not included in this Order for pollutant parameters for which effluent limitations are based on water quality objectives and criteria that are concentration-based.

Mass-based effluent limitations were calculated based upon the design flow (average dry weather flow) permitted in sections IV.A.1.e and IV.A.2.e of this Order.

2. Averaging Periods for Effluent Limitations

40 CFR 122.45 (d) requires AWELs and AMELs discharge limitations for POTWs unless impracticable. However, for toxic pollutants and pollutant parameters in water quality permitting, USEPA recommends the use of an MDEL in lieu of AWELs for two reasons. "*First, the basis for the 7-day average for POTWs derives from the secondary treatment requirements. This basis is not related to the need for assuring achievement of water quality standards. Second, a 7-day average, which could comprise up to seven or more daily samples, could average out peak toxic concentrations and therefore the discharge's potential for causing acute toxic effects would be missed.*" (TSD, pg. 96) This Order uses MDELs in lieu of AWELs for ammonia as recommended by the TSD for the achievement of water quality standards and for the protection of the beneficial uses of

the receiving stream. Furthermore, for BOD_5, pH, and TSS, AWELs have been replaced or supplemented with effluent limitations utilizing shorter averaging periods. The rationale for using shorter averaging periods for these constituents is discussed in section IV.C.3 of this Fact Sheet.

For effluent limitations based on Primary MCLs, except nitrate and nitrite, this Order includes annual average effluent limitations. The Primary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. Title 22 requires compliance with these standards on an annual average basis (except for nitrate and nitrite), when sampling at least quarterly. Since it is necessary to determine compliance on an annual average basis, it is impracticable to calculate AWELs and AMELs.

3. Satisfaction of Anti-Backsliding Requirements

The Clean Water Act specifies that a revised permit may not include effluent limitations that are less stringent than the previous permit unless a less stringent limitation is justified based on exceptions to the anti-backsliding provisions contained in Clean Water Act sections 402(o) or 303(d)(4), or, where applicable, 40 CFR 122.44(l).

The effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order, with the exception of effluent limitations for aluminum, cadmium, chlorine residual, chlorodibromomethane, cyanide, dichlorobromomethane, iron, manganese, pH, settleable solids, turbidity, and zinc. The effluent limitations for these pollutants are less stringent than those in Order No. R5-2008-0079-01. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

a. **CWA section 402(o)(1) and 303(d)(4).** CWA section 402(o)(1) prohibits the establishment of less stringent WQBELs "*except in compliance with Section 303(d)(4)*." CWA section 303(d)(4) has two parts: paragraph (A) which applies to nonattainment waters and paragraph (B) which applies to attainment waters.

   i. For waters where standards are not attained, CWA section 304(d)(4)(A) specifies that any effluent limit based on a TMDL or other WLA may be revised only if the cumulative effect of all such revised effluent limits based on such TMDLs or WLAs will assure the attainment of such water quality standards.

   ii. For attainment waters, CWA section 303(d)(4)(B) specifies that a limitation based on a water quality standard may be relaxed where the action is consistent with the antidegradation policy.

   Pleasant Grove Creek is considered an attainment water for aluminum, cadmium, chlorine residual, chlorodibromomethane, cyanide, dichlorobromomethane, iron, manganese, pH, settleable solids, and zinc because the receiving water is not listed as impaired on the 303(d) list for these constituents[1]. As discussed in section IV.D.4, the removal or relaxation of WQBELs for these pollutants from Order R5-2008-0079-01 meets the exception in CWA section 303(d)(4)(B).

b. **CWA section 402(o)(2)**. CWA section 402(o)(2) provides several exceptions to the anti-backsliding regulations. CWA 402(o)(2)(B)(i) allows a renewed, reissued, or modified permit to contain a less stringent effluent limitation for a pollutant if information is available which was not available at the time of permit issuance (other

[1] "*The exceptions in Section 303(d)(4) address both waters in attainment with water quality standards and those not in attainment, i.e. waters on the section 303(d) impaired waters list*." State Water Board Order WQ 2008-0006, Berry Petroleum Company, Poso Creek/McVan Facility.

than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.

As described further in section IV.C.3.a of this Fact Sheet, updated information that was not available at the time Order R5-2008-0079 was issued indicates that aluminum, cadmium, chlorine residual, chlorodibromomethane, cyanide, dichlorobromomethane, iron, manganese, settleable solids, and zinc do not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water. The updated information that supports the removal of effluent limitations for these constituents includes the following:

i. **Aluminum.** As discussed in Section IV.C.3 of the Fact Sheet, based on the site-specific study completed by the Discharger and new aluminum toxicity studies developed by other dischargers with similar receiving water conditions, the Central Valley Water Board finds that based on site-specific conditions of Pleasant Grove Creek, the chronic criterion (87 µg/L) recommended in U.S. EPA's NAWQC for aluminum is not applicable. Effluent monitoring data collected between August 2008 and April 2013 indicates that the discharge does not demonstrate reasonable potential to cause or contribute to an exceedance of the Secondary MCL or the NAWQC acute criterion.

ii. **Cadmium.** Effluent and receiving water monitoring data collected between August 2008 and April 2013 indicates that the discharge does not demonstrate reasonable potential to cause or contribute to an exceedance of the CTR aquatic life criteria.

iii. **Chlorine Residual.** Use of chlorine for disinfection and maintenance processes has been discontinued at the Facility since September 2010. Therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective.

iv. **Chlorodibromomethane.** Effluent monitoring data collected between September 2010 and April 2013 and receiving water monitoring data collected between August 2008 and April 2013 indicates that the discharge does not demonstrate reasonable potential to cause or contribute to an exceedance of the CTR human health criteria.

v. **Cyanide.** Effluent monitoring data collected between September 2010 and April 2013 and receiving water monitoring data collected between August 2008 and April 2013 indicates that the discharge does not demonstrate reasonable potential to cause or contribute to an exceedance of the CTR aquatic life criteria.

vi. **Dichlorobromomethane.** Effluent monitoring data collected between September 2010 and April 2013 and receiving water monitoring data collected between August 2008 and April 2013 indicates that the discharge does not demonstrate reasonable potential to cause or contribute to an exceedance of the CTR human health criteria.

vii. **Iron.** Effluent data collected between August 2008 and April 2013 indicates that the discharge does not demonstrate reasonable potential to cause or contribute to an exceedance of the Secondary MCL.

viii. **Manganese.** Effluent data collected between August 2008 and April 2013 indicates that the discharge does not demonstrate reasonable potential to cause or contribute to an exceedance of the Secondary MCL.

ix. **Settleable Solids.** Effluent data collected between August 2008 and April 2013 indicates that the discharge does not demonstrate reasonable potential to cause or contribute to an exceedance of the Basin Plan narrative objective.

x. **Zinc, Total Recoverable.** Effluent and receiving water monitoring data collected between August 2008 and April 2013 indicates that the discharge does not demonstrate reasonable potential to cause or contribute to an exceedance of the CTR aquatic life criteria.

Thus, removal of the effluent limitations for aluminum, cadmium, chlorine residual, chlorodibromomethane, cyanide, dichlorobromomethane, iron, manganese, settleable solids, and zinc from Order R5-2008-0079 is in accordance with CWA section 402(o)(2)(B)(i), which allows for the removal or relaxation of effluent limitations based on information that was not available at the time of permit issuance.

c. **Turbidity**. Order R5-2008-0079-01 contained effluent limitations for turbidity. The prior limitations were solely an operational check to ensure the treatment system was functioning properly and could meet the limits for solids and coliform. The prior effluent limitations were not intended to regulate turbidity in the receiving water. Rather, turbidity is an operational parameter to determine proper system functioning and not a WQBEL.

This Order contains operational turbidity specifications to be met in lieu of effluent limitations. The revised Order does not include effluent limitations for turbidity. However, the performance-based specification in this Order is an equivalent limit that is not less stringent, and therefore does not constitute backsliding.

The revised operational specifications for turbidity are the same as the effluent limitations in Order R5-2008-0079-01. These revisions are consistent with State regulations implementing recycled water requirements. The revision in the turbidity limitation is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16 because this Order imposes equivalent or more stringent requirements than Order R5-2008-0079-01 and therefore does not allow degradation.

4. Antidegradation Policies

a. **Surface Water.** At the time Order R5-2008-0079-01 was adopted, the Discharger was planning an upgrade and expansion project to accommodate anticipated development in the service area which would increase the design treatment capacity of the Facility from 12 MGD to 15 MGD. The Discharger has not yet initiated the upgrade and expansion project; however, the Discharger anticipates that the treatment capacity may need to be increased to 15 MGD during the term of this Order to accommodate growth in the community. The Central Valley Water Board found in Order R5-2008-0079-01 that "*This Order provides for an increase in the volume and mass of pollutants discharged and is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16 as updated by State Water Board Administrative Procedure Update (APU) No. 90-004."* Therefore, an increase in the permitted average dry weather discharge flow from 12 MGD to 15 MGD was authorized under Order R5-2008-0079-01. Consistent with Order R5-2008-0079-01, this Order allows for an increase in the permitted average dry weather discharge flow in accordance with Special Provision VI.C.6.b. This Order does not allow for an increase in flow or

mass of pollutants to the receiving water beyond that allowed by Order R5-2008-0079-01. Therefore, a complete antidegradation analysis is not necessary. The Order requires compliance with applicable federal technology-based standards and with WQBELs where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

This Order removes existing effluent limitations for constituents in which updated monitoring data demonstrates that the effluent does not cause or contribute to an exceedance of the applicable water quality criteria or objectives in the receiving water (i.e., aluminum, cadmium, chlorine residual, chlorodibromomethane, cyanide, dichlorobromomethane, iron, manganese, settleable solids, and zinc). This Order also includes a maximum effluent limitation for pH which is less stringent than was include in Order R5-2008-0079-01, but is still more stringent than the applicable Basin Plan objective. The Central Valley Water Board finds that the removal of the effluent limitations for aluminum, cadmium, chlorine residual, chlorodibromomethane, cyanide, dichlorobromomethane, iron, manganese, settleable solids, and zinc and the relaxation of the effluent limitation for pH does not result in an allowed increase in pollutants or any additional degradation of the receiving water. Thus, the removal and relaxation of effluent limitations is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16.

b. **Groundwater**. The Discharger utilizes an emergency storage pond with an earthen liner that was tested during construction for permeability of less than 1×10^{-6} centimeter per second. This is the only pond used for routine filter maintenance and for storage of raw influent, the storage of raw influent occurred once between 2009 and 2012. The stored raw influent used less than 1 foot of freeboard in the emergency storage pond, plus all stored water is sent back through the treatment process as soon as possible. Seperately, the effluent storage ponds contain only secondary and tertiary treated wastewater; furthermore, use is infrequent and pond water is retreated as soon as possible. Therefore, the Central Valley Water Board is not requiring routine groundwater monitoring.

5. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based effluent limitations and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on flow and percent removal requirements for BOD_5 and TSS. Restrictions on these parameters are discussed in section IV.B.2 of the Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order contains effluent limitations more stringent than the minimum, federal technology-based requirements that are necessary to meet water quality standards.

WQBELs have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 C.F.R. section 131.38. The procedures for calculating the individual WQBELs for priority pollutants are based on the CTR implemented by the

SIP, which was approved by U.S. EPA on May 18, 2000. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by U.S. EPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to U.S. EPA prior to May 30, 2000, but not approved by U.S. EPA before that date, are nonetheless "*applicable water quality standards for purposes of the CWA*" pursuant to 40 C.F.R. section 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

This Order contains pollutant restrictions that are more stringent than applicable federal requirements and standards. Specifically, this Order includes effluent limitations for total coliform organisms that are more stringent than applicable federal standards, but that are nonetheless necessary to meet numeric objectives or protect beneficial uses. The rationale for including these limitations is explained in section IV.C.3 of this Fact Sheet. In addition, the Central Valley Water Board has considered the factors in Water Code section 13241 in section IV.C.3 of this Fact Sheet.

Summary of Final Effluent Limitations
Discharge Point 001

Table F-15. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Average Dry Weather Flow	MGD	12[2]/15[3]	--	--	--	--	DC
Conventional Pollutants							
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	--	--	TTC
	lbs/day[4]	1,000	1,500	2,000	--	--	
	lbs/day[5]	1,250	1,875	2,500	--	--	
	% Removal	85	--	--	--	--	CFR
pH	standard units	--	--	--	6.5	8.3	BP, PB
Total Suspended Solids	mg/L	10	15	20	--	--	TTC
	lbs/day[4]	1,000	1,500	2,000	--	--	
	lbs/day[5]	1,250	1,875	2,500	--	--	
	% Removal	85	--	--	--	--	CFR
Priority Pollutants							
Mercury, Total Recoverable	lbs/year	1.39[6]	--	--	--	--	Pending TMDL
Non-Conventional Pollutants							
Ammonia Nitrogen, Total (as N)	mg/L	1.4	--	2.9	--	--	NAWQC
	lbs/day[4]	140	--	290	--	--	
	lbs/day[5]	180	--	360	--	--	
Fluoride, Total	µg/L	2,000[7]					MCL
Nitrate plus Nitrite (as N)	mg/L	10	--	--	--	--	MCL
Total Coliform Organisms	MPN/ 100 mL	--	2.2[8]	23[9]	--	240	Title 22

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Acute Toxicity	% Survival	70[10]/90[11]	--	--	--	--	BP

[1] DC – Based on the design capacity of the Facility.
TTC – Based on tertiary treatment capability. These effluent limitations reflect the capability of a properly operated tertiary treatment plant.
CFR – Based on secondary treatment standards contained in 40 CFR Part 133.
BP – Based on water quality objectives contained in the Basin Plan.
Pending TMDL – Based on maintaining the mercury loading at the current level until a TMDL can be established.
NAWQC – Based on USEPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
MCL – Based on the Primary Maximum Contaminant Level.
Title 22 – Based on CA Department of Public Health Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).

[2] The average dry weather flow shall not exceed 12 MGD. Effective immediately and until compliance with Special Provision VI.C.6.b.

[3] The average dry weather flow shall not exceed 15 MGD. Effective upon compliance with Special Provision VI.C.6.b.

[4] Based on an average dry weather flow of 12 MGD. Effective immediately and until compliance with Special Provision VI.C.6.b.

[5] Based on an average dry weather flow of 15 MGD. Effective upon compliance with Special Provision VI.C.6.b.

[6] The total annual mass discharge of total mercury shall not exceed 1.39 lbs/year.

[7] Applied as an annual average effluent limitation.

[8] Applied as a 7-day median effluent limitation.

[9] Not to be exceeded more than once in any 30-day period.

[10] 70% minimum of any one bioassay.

[11] 90% median for any three consecutive bioassays.

E. Interim Effluent Limitations – Not Applicable

F. Land Discharge Specifications – Not Applicable

G. Recycling Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Basin Plan water quality objectives to protect the beneficial uses of surface water and groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity, and tastes and odors. The toxicity objective requires that surface water and groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective requires that surface water and groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use or that exceed the MCLs in Title 22, CCR. The tastes and odors objective states that surface water and groundwater shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances in concentrations that adversely affect domestic drinking water supply, agricultural supply, or any other beneficial use.

A. Surface Water

1. CWA section 303(a-c), requires states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Central Valley Water Board

adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that "[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses." The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains receiving surface water limitations based on the Basin Plan numerical and narrative water quality objectives for bacteria, biostimulatory substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, suspended sediment, settleable substances, suspended material, tastes and odors, temperature, toxicity, and turbidity.

a. **pH.** Order R5-2008-0079-01 established a receiving water limitation for pH specifying that discharges from the Facility shall not cause the ambient pH to change by more than 0.5 units based on the water quality objective for pH in the Basin Plan, and allowed an annual averaging period for calculating pH change. The Central Valley Water Board adopted Resolution R5-2007-0136 on 25 October 2007, amending the Basin Plan to delete the portion of the pH water quality objective that limits the change in pH to 0.5 units and the allowance of averaging periods for pH. The Basin Plan amendment has been approved by the State Water Board, the Office of Administrative Law, and USEPA. Consistent with the revised water quality objective in the Basin Plan, this Order does not require a receiving water limitation for pH change.

   In Finding No. 14 of Resolution R5-2007-0136 the Central Valley Water Board found that the change in the pH receiving water objective is consistent with the State Water Board Resolution No. 68-16, in that the changes to water quality objectives (i) consider maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 CFR 131.12).

   Ammonia is the only constituent in the discharge regulated by this Order directly related to pH. The fixed ammonia effluent limitations in this Order are based on reasonable worse-case conditions. Although ammonia criteria are based on pH, and the pH receiving water limitations are more lenient in this Order than in the previous permit, the fixed ammonia limits are developed to protect under worse-case pH conditions. Therefore the relaxation of the pH receiving water limitation will protect aquatic life and other beneficial uses and will not unreasonably affect present and anticipated beneficial uses nor result in water quality less than described in applicable policies. The relaxation of the receiving water limitation is not expected to cause other impacts on water quality. The Central Valley Water Board finds that the relaxation of the pH receiving water limitation (i) is to the maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 CFR 131.12).

   The revised receiving water limitation for pH, which is based on the amendment to the Basin Plan's pH water quality objective, reflects current scientifically supported pH requirements for the protection of aquatic life and other beneficial uses. The revised receiving water limitation for pH is more consistent with the current USEPA recommended criteria and is fully protective of aquatic life and the other beneficial uses listed in the Basin Plan. Changes in pH when pH is maintained within the range of 6.5 to 8.5 are neither beneficial nor adverse and, therefore, are not

considered to be degradation in water quality. Attempting to restrict pH changes to 0.5 pH units would incur substantial costs without demonstrable benefits to beneficial uses. Thus, any changes in pH that would occur under the revised pH limitation would not only be protective of beneficial uses, but also would be consistent with maximum benefit to people of the State. Therefore the proposed amendment will not violate antidegradation policies.

b. **Turbidity.** Order R5-2008-0079-01 established a receiving water limitation for turbidity specifying that discharges from the Facility shall not cause the turbidity to increase more than 1 NTU where natural turbidity is between 0 and 5 NTU based on the water quality objective for turbidity in the Basin Plan. The Central Valley Water Board adopted Resolution R5-2007-0136 on 25 October 2007, amending the Basin Plan to limit turbidity to 2 NTU when the natural turbidity is less than 1 NTU. The Basin Plan amendment has been approved by the State Water Board, the Office of Administrative Law, and USEPA. Consistent with the revised water quality objective in the Basin Plan, this Order limits turbidity to 2 NTU when the natural turbidity is less than 1 NTU.

In Finding No. 14 of Resolution R5-2007-0136 the Central Valley Water Board found that the change in the turbidity receiving water objective is consistent with the State Water Board Resolution No. 68-16, in that the changes to water quality objectives (i) consider maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 CFR 131.12).

This Order includes operational specifications that require the Discharger to operate the treatment system to insure that turbidity shall not exceed 2 NTU as a daily average, and 5 NTU more than 5 percent of the time within a 24 hour period, and 10 NTU, at any time. Because this Order limits the average daily discharge of turbidity to 2 NTU, the Order will be protective of the receiving water under all natural background conditions as defined in the Basin Plan's revised water quality objective for turbidity. The relaxation of the turbidity receiving water limitation will protect aquatic life and other beneficial uses and will not unreasonably affect present and anticipated beneficial uses nor result in water quality less than described in applicable policies. The relaxation of the receiving water limitation is not expected to cause other impacts on water quality. The Central Valley Water Board finds that the relaxation of the turbidity receiving water limitation is to the maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 CFR 131.12).

The revised receiving water limitation for turbidity, which is based on the amendment to the Basin Plan's turbidity water quality objective, reflects current scientifically supported turbidity requirements for the protection of aquatic life and other beneficial uses and, therefore, will be fully protective of aquatic life and the other beneficial uses listed in the Basin Plan. Changes in turbidity allowed by the revised receiving water limitation, when ambient turbidity is below 1 NTU, would not adversely affect beneficial uses and would maintain water quality at a level higher than necessary to protect beneficial uses. Restricting low-level turbidity changes further may require costly upgrades, which would not provide any additional protection of beneficial uses. Thus, any changes in turbidity that would occur under the amended turbidity receiving water limitation would not only be protective of

beneficial uses, but also would be consistent with maximum benefit to people of the State. Therefore, the relaxed receiving water limitations for turbidity will not violate antidegradation policies.

c. **Temperature.** Pleasant Grove Creek has the beneficial uses of COLD and WARM. The Basin Plan includes the objective that "[a]*t not time or place shall the temperature of COLD or WARM intrastate waters be increased more than 5°F above natural receiving water temperature.*" Order R5-2008-0079-01 included a receiving water limitation based on the Basin Plan objective.

The Discharger is unable to consistently comply with the Basin Plan objective and submitted an August 2012 *Temperature Study City of Roseville Pleasant Grove Wastewater Treatment Plant* (Robertson-Bryan, Inc.) supporting site-specific receiving water limits for temperature. The temperature study concluded that "*The intermittency of flow and the disrupted hydrology caused by an urbanized watershed render upstream versus downstream temperature differentials an inappropriate means of regulating the Thermal effects of the PGWWTP discharge to Pleasant Grove Creek."* In lieu of receiving water limitations based on the Basin Plan objective, the Discharger proposed site-specific receiving water limitations for Pleasant Grove Creek, with compliance measured at Monitoring Location RSW-002, as follows:

Table F-16. Site-Specific Temperature Receiving Water Limitations

Period	Period Maximum (ºF)[1]	Period Average (ºF)[2]
January and February	69	64
March	70	67
April	74	70
May	78	75
June	81	77
July – September	83	80
October	81	77
November	77	72
December	70	65

[1] Instantaneous maximum not to be exceeded in period.
[2] Arithmetic average of measurements not to be exceeded in period.

The Department of Fish and Wildlife (DFW) reviewed the temperature study and submitted a letter to the Central Valley Water Board dated 4 September 2013 indicating that the Basin Plan objective is not practical in a stream system such as Pleasant Grove Creek that lacks flow and determining that the Discharger's proposed site-specific temperature limitations are protective of aquatic life beneficial uses for species that are known to occur or likely to occur in Pleasant Grove Creek at this time. DFW recommended that the Central Valley Water Board accept the Discharger's proposed temperature limitations in this Order. Therefore, this Order discontinues the receiving water limitation for temperature based on the Basin Plan objective and includes site-specific temperature receiving water limitations based on the Discharger's temperature study.

B. Groundwater

The Discharger utilizes an emergency storage pond with an earthen liner that was tested during construction for permeability of less than 1×10^{-6} centimeter per second. This is the only pond used for routine filter maintenance and for storage of raw influent, the storage of raw influent occurred once between 2009 and 2012. The stored raw influent used less than 1 foot of freeboard in the emergency storage pond, plus all stored water is sent back through

the treatment process as soon as possible. Seperately, the effluent storage ponds contain only secondary and tertiary treated wastewater; furthermore, use is infrequent and pond water is retreated as soon as possible. Therefore, the Central Valley Water Board is not requiring routine groundwater monitoring.

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 C.F.R. section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 C.F.R. section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42.

Sections 122.41(a)(1) and (b) through (n) of 40 C.F.R. establish conditions that apply to all state-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) of 40 C.F.R. allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 C.F.R. section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 C.F.R. sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Reopener Provisions

a. **Mercury.** This provision allows the Central Valley Water Board to reopen this Order in the event mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted. In addition, this Order may be reopened if the Central Valley Water Board determines that a mercury offset program is feasible for dischargers subject to NPDES permits.

b. **Whole Effluent Toxicity.** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a TRE. This Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity limitation based on that objective.

c. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

2. Special Studies and Additional Monitoring Requirements

a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*." (Basin Plan at page III-8.00.) Based on whole

effluent chronic toxicity testing performed by the Discharger from August 2008 through April 2013, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

The Monitoring and Reporting Program of this Order requires chronic WET monitoring for demonstration of compliance with the narrative toxicity objective. The provision also includes a numeric toxicity monitoring trigger, requirements for accelerated monitoring, and requirements for TRE initiation if toxicity is demonstrated. As required by Order R5-2008-0079-01, the Discharger submitted the *Pleasant Grove Wastewater Treatment Plant Initial Investigative TRE Work Plan* on 22 August 2008 to ensure the Discharger has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered. Consistent with Order R5-2008-0079-01, this Order requires submission of a full TRE Workplan within 60 days of notification of test results exhibiting toxicity during accelerated monitoring.

Monitoring Trigger. A numeric toxicity monitoring trigger of **> 1** TUc (where TUc = 100/NOEC) is applied in the provision, because this Order does not allow any dilution for the chronic condition. Therefore, a TRE is triggered when the effluent exhibits toxicity at 100% effluent.

Accelerated Monitoring. The provision requires accelerated WET testing when a regular WET test result exceeds the monitoring trigger. The purpose of accelerated monitoring is to determine, in an expedient manner, whether there is toxicity before requiring the implementation of a TRE. Due to possible seasonality of the toxicity, the accelerated monitoring should be performed in a timely manner, preferably taking no more than 2 to 3 months to complete.

The provision requires accelerated monitoring consisting of four chronic toxicity tests in a six-week period (i.e., one test every two weeks) using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water Quality-based Toxics Control,* EPA/505/2-90-001, March 1991 (TSD). The TSD at page 118 states, "*EPA recommends if toxicity is repeatedly or periodically present at levels above effluent limits more than 20 percent of the time, a TRE should be required.*" Therefore, four accelerated monitoring tests are required in this provision. If no toxicity is demonstrated in the four accelerated tests, then it demonstrates that toxicity is not present at levels above the monitoring trigger more than 20 percent of the time (only 1 of 5 tests are toxic, including the initial test). However, notwithstanding the accelerated monitoring results, if there is adequate evidence of effluent toxicity (i.e. toxicity present exceeding the monitoring trigger more than 20 percent of the time), the Executive Officer may require that the Discharger initiate a TRE.

See the WET Accelerated Monitoring Flow Chart (Figure F-1), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

TRE Guidance. The Discharger is required to prepare a TRE Workplan in accordance with USEPA guidance. Numerous guidance documents are available, as identified below:

- *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants,* EPA/833-B-99/002, August 1999.

· *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs),* EPA/600/2-88/070, April 1989.

· *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures, Second Edition,* EPA 600/6-91/003, February 1991.

· *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I,* EPA/600/6-91/005F, May 1992.

· *Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition,* EPA/600/R-92/080, September 1993.

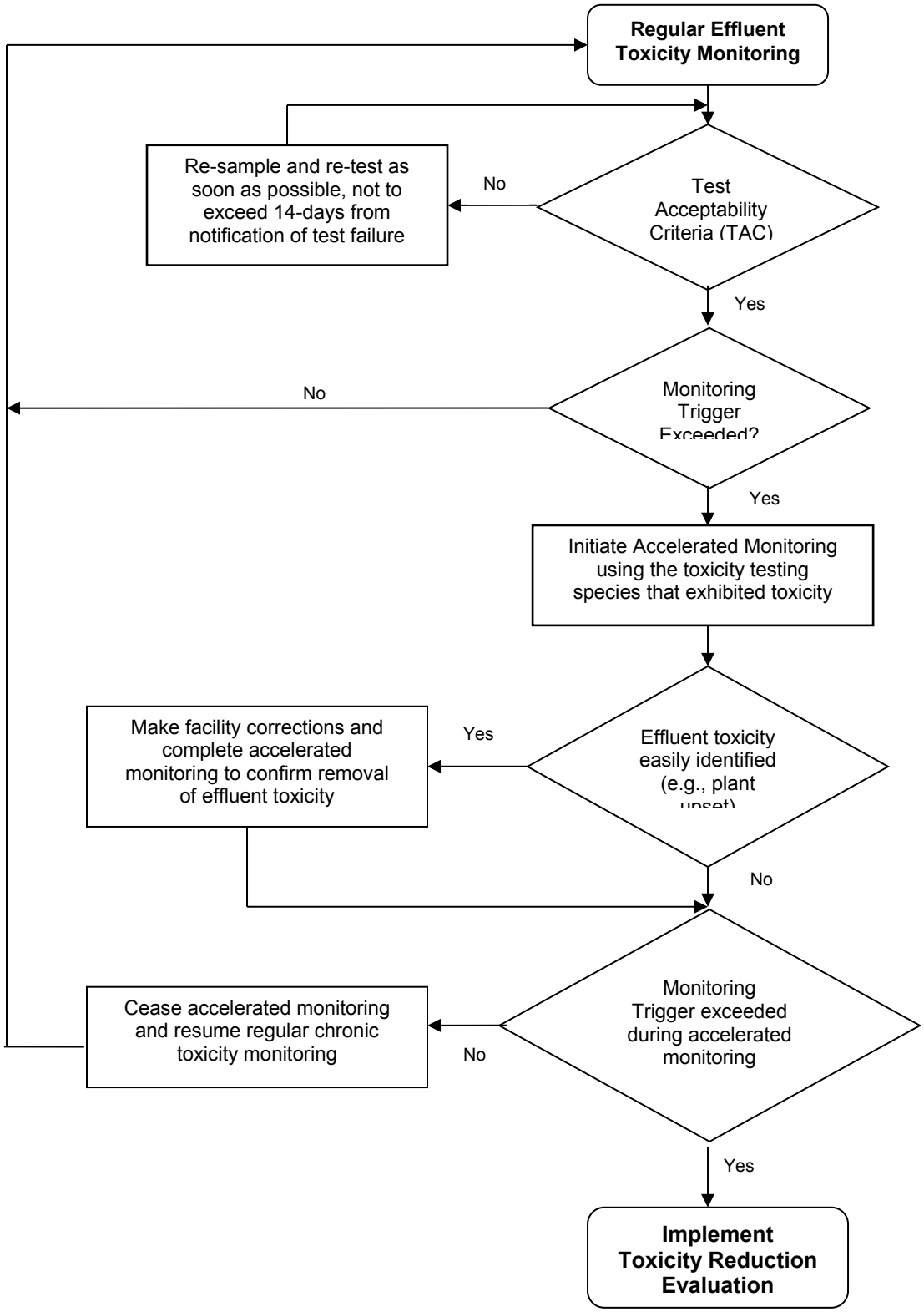
· *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition,* EPA 600/R-92/081, September 1993.

· *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition,* EPA-821-R-02-012, October 2002.

· *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA-821-R-02-013, October 2002.

· *Technical Support Document for Water Quality-based Toxics Control,* EPA/505/2-90-001, March 1991.

Figure F-1
WET Accelerated Monitoring Flow Chart



3. Best Management Practices and Pollution Prevention

a. **Salinity Evaluation and Minimization Plan.** The Discharger submitted a *DCWWTP and PGWWTP Salinity Evaluation and Minimization Plan* on 9 March 2009, which identified salinity contributions from the water supply and residential, commercial, and industrial users, and indicated that salinity may increase when water from their Aquifer Storage and Recovery wells is used, but that the discharge would still be in compliance with the Salinity Goal contained in Order R5-2008-0079-01. This Order requires the Discharger to continue to implement its Salinity Evaluation and Minimization Plan to ensure adequate measures are developed and implemented by the Discharger to reduce the discharge of salinity to Pleasant Grove Creek.

b. **Pollution Prevention Plan (PPP).** The Discharger submitted a Pollution Minimization Plan for mercury for the Discharger's service area on 12 October 2001 and has continued to institute the recommendations from the plan. As discussed in section IV.C.3.b of this Fact Sheet, a TMDL is under development for the Natomas Cross Canal downstream of the Facility which may include a waste load allocation applicable to the Facility. Therefore, this Order requires the Discharger to continue to implement their PPP for mercury per Water Code section 13263.3(d)(1)(D). Progress reports shall be submitted annually in accordance with the Monitoring and Reporting Program (Attachment E, section X.D.1). The progress reports shall discuss the effectiveness of the PPP in the reduction of mercury in the discharge, include a summary of mercury monitoring results, and discuss updates to the PPP.

4. Construction, Operation, and Maintenance Specifications

a. **Filtration System Operating Specifications.** Turbidity is included as an operational specification as an indicator of the effectiveness of the filtration system for providing adequate disinfection. The tertiary treatment process utilized at this Facility is capable of reliably meeting a turbidity limitation of 2 NTU as a daily average. Failure of the treatment system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity and could impact UV dosage. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. The operational specification requires that turbidity prior to disinfection shall not exceed 2 NTU as a daily average; 5 NTU, more than 5 percent of the time within a 24-hour period, and an instantaneous maximum of 10 NTU.

b. **Ultraviolet Light (UV) Disinfection System Operating Specifications.** This Order requires that wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to DPH reclamation criteria, CCR, Title 22, division 4, chapter 3, (Title 22), or equivalent. To ensure that the UV disinfection system is operated to achieve the required pathogen removal, this Order includes effluent limits for total coliform organisms, filtration system operating specifications, and UV disinfection system operating specifications. Compliance with total coliform effluent limits alone does not ensure that pathogens in the municipal wastewater have been deactivated by the UV disinfection system. Compliance with the effluent limits and the filtration system and UV disinfection operating specifications demonstrates compliance with the equivalency to Title 22 disinfection requirement.

The National Water Research Institute (NWRI) and American Water Works Association Research Foundation (AWWRF) *Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse"* first published in December 2000 and revised as a Third Edition dated August 2012 (NWRI guidelines) includes UV operating

specifications for compliance with Title 22. For water recycling in accordance with Title 22, the UV system shall be an approved system included in the Treatment Technology Report for Recycled Water, December 2009 (or a later version, as applicable) published by the DPH. The UV system shall also conform to all requirements and operating specifications of the NWRI guidelines. A Memorandum dated 1 November 2004 issued by DPH to Regional Water Board executive officers recommended that provisions be included in permits for water recycling treatment plants employing UV disinfection requiring Dischargers to establish fixed cleaning frequency of lamp sleeves, as well as, include provisions that specify minimum delivered UV dose that must be maintained (per the NWRI Guidelines).

The Discharger submitted an Engineering Report dated November 2012 that demonstrates the UV system is equivalent to a Title 22 approved UV system. The Engineering Report also demonstrates that during validation testing a minimum hourly average UV dose of 100 mJ/cm^2 with a minimum UV transmittance of 74% will achieve the virus inactivation required by Title 22 for Disinfected Tertiary Recycled Water. However, the Engineering Report dated November 2012 was not approved by DPH; therefore, the NWRI guidelines of a minimum hourly average UV dosage of 100 mJ/cm^2 and a UV transmittance of 55% were included in this Order.

c. **Pond Operating Requirements.** This operating and maintenance specifications for the storage basins are necessary to protect the beneficial uses of the groundwater. The specifications included in this Order are retained from Order R5-2008-0079-01. In addition, reporting requirements related to use of the basins are required to monitor their use and the potential impact on groundwater.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. **Pretreatment Requirements**

i. The federal CWA section 307(b), and federal regulations, 40 CFR Part 403, require publicly owned treatment works to develop an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants, which will interfere with treatment plant operations or sludge disposal, and prevent pass through of pollutants that exceed water quality objectives, standards or permit limitations. Pretreatment requirements are imposed pursuant to 40 CFR Part 403.

ii. The Discharger shall implement and enforce its approved pretreatment program and is an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the Central Valley Water Board, the State Water Board or USEPA may take enforcement actions against the Discharger as authorized by the CWA.

iii. The Discharger operates a pretreatment program that addresses discharges to both the Facility and the Discharger's Dry Creek Wastewater Treatment Plant. Although the pretreatment program requirements, including the requirements to submit annual reports on program progress, are included in the permits for both plants, the Discharger will be allowed to submit one report that addresses the Discharger's activities that affect both plants.

b. The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order 2006-0003-DWQ (General Order) on 2 May 2006. The Monitoring and Reporting Requirements for the General Order were amended by Water Quality Order WQ 2008-0002-EXEC on 20 February 2008. The General Order requires public agencies that own or operate sanitary sewer

systems with greater than one mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans (SSMPs) and report all sanitary sewer overflows (SSOs), among other requirements and prohibitions.

Furthermore, the General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows. The Discharger is enrolled under State Water Board Order 2006-0003-DWQ.

6. Other Special Provisions

a. **Title 22, or Equivalent, Disinfection Requirements.** Consistent with Order R5-2008-0079-01, this Order requires wastewater to be oxidized, coagulated, filtered, and adequately disinfected pursuant to DPH reclamation criteria, CCR, Title 22, division 4, chapter 3 (Title 22), or equivalent.

b. **Facility Expansion.** The Discharger is currently planning to upgrade and expand the Facility to accommodate anticipated growth within the service area, which will increase the design average dry weather flow treatment capacity of the Facility to 15 MGD. Prior to the adoption of Order R5-2008-0079-01 (and as documented in Section IV.D.4 of Order R5-2008-0079-01) the Discharger completed an anti-degradation analysis consistent with an increase in regulated capacity up to an average dry weather flow capacity of 15 MGD. Subsequent to completion of all Facility upgrades necessary to develop such tertiary treatment capacity and certification by a registered and licensed Civil Engineer, the Discharger is authorized to discharge at a certified average dry weather flow capacity of 15 MGD.

c. By **1 October 2014**, the Discharger shall submit a *Groundwater Monitoring Well Destruction Workplan* for the wells that are not used at the Facility. The workplan shall describe the proposed abandonment procedures, which shall comply with *California Well Standards Bulletin 74-90* (June 1991); *State of California Bulletin 94-81* (December 1981); and any more stringent standards adopted by the state or county pursuant to Water Code section 13801. At a minimum, the workplan shall specifically address the monitoring wells listed in Table 1 of the Monitoring and Reporting Program, Attachment E. For each well that will not be destroyed, provide an explanation of the need to maintain the well for monitoring purposes.

d. By **1 October 2015**, a *Well Destruction Report* shall be submitted to the Central Valley Water Board that describes in detail the methods used to abandon each well and includes copies of the well abandonment permits issued by the City of Roseville Environmental Utilities Department.

7. Compliance Schedules – Not Applicable

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 of 40 C.F.R. requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Central Valley Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP), Attachment E, establishes monitoring and reporting requirements that implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this Facility.

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD_5 and TSS reduction requirements). The monitoring frequency for flow (continuous) has been retained from Order R5-2008-0079-01.
2. Order R5-2008-0079-01 required daily monitoring for BOD_5 and TSS. The monitoring frequencies for BOD_5 and TSS have been reduced to three times per week. The Central Valley Water Board finds that this frequency is adequate to assess compliance with effluent limitations and monitor the performance of the Facility.
3. Order R5-2008-0079-01 required monitoring for pH and hardness. Monitoring requirements for these constituents have not been retained from Order R5-2008-0079-01 as monitoring is not necessary to determine compliance with permit requirements.

B. Effluent Monitoring

1. Pursuant to the requirements of 40 CFR 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.
2. Effluent monitoring frequencies and sample types for flow (continuous), ammonia (weekly), hardness (monthly), fluoride (monthly), mercury (monthly), nitrate (monthly), pH (continuous), temperature (daily), and total dissolved solids (monthly) have been retained from Order R5-2008-0079-01 to determine compliance with effluent limitations for these parameters.
3. Monitoring data collected during the term of Order R5-2008-0079-01 indicates that the Facility has maintained compliance with the applicable effluent limitations for BOD_5 and TSS. Therefore, the effluent monitoring frequency for BOD_5 and TSS has been decreased from daily to three times per week. The Central Valley Water Board finds that this frequency is sufficient to determine compliance with the applicable effluent limitations and monitor the performance of the Facility.
4. Monitoring data collected during the term of Order R5-2008-0079-01 indicates that the Facility does not have reasonable potential for salinity. However, monitoring for electrical conductivity and total dissolved solids, indicator parameters for salinity, is necessary to characterize the discharge and ensure that the Discharger continues to implement adequate measures to reduce the discharge of salinity to Pleasant Grove Creek. Therefore, the effluent monitoring frequency for electrical conductivity has been decreased from daily to weekly. The Central Valley Water Board finds that this frequency is sufficient to monitor the performance of the Facility.
5. Monitoring data collected over the term of Order R5-2008-0079-01 for 1,1-dichloroethylene, aluminum, bis (2-ethylhexyl) phthalate, cadmium, chlorine residual, chlorodibromomethane, cyanide, dichlorobromomethane, iron, manganese, persistent chlorinated hydrocarbon pesticides, settleable solids, and zinc did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order R5-2008-0079-01.
6. This Order establishes a new effluent limitation for nitrate plus nitrite. Therefore, this Order establishes monthly monitoring for nitrate and nitrite to determine compliance with the applicable effluent limitation.

7. Monitoring data collected during the term of Order R5-2008-0079-01 indicates that the Facility has maintained compliance with the applicable effluent limitations for total coliform organisms, except for a number of exceedances in 2011 caused by poor filter performance, which has since been addressed. Therefore, the effluent monitoring frequency for total coliform organisms has been decreased from daily to five times per week. The Central Valley Water Board finds that this frequency is sufficient to determine compliance with the applicable effluent limitations and monitor the performance of the Facility. This Order moves the point of compliance from Monitoring Location EFF-001 to an internal compliance point following the UV disinfection system. Therefore, monitoring for total coliform organisms is required at Monitoring Location UVS-002.

8. This Order includes operational specifications for turbidity. Although turbidity monitoring is necessary to monitor filter performance, the Discharger does not have a monitoring location for the combined effluent from the filters prior to the UV disinfection system. Rather, the Discharger monitors turbidity at a point downstream of the UV disinfection system and, if the turbidity specifications are exceeded, the Discharger diverts the wastewater to the effluent storage basins to avoid discharges of effluent that have not been adequately disinfected. Since the UV disinfection process has no effect on the turbidity of the wastewater and the Discharger has a system in place to automatically divert wastewater to the effluent storage basins if turbidity specifications are exceeded, monitoring for turbidity at a location downstream of the UV disinfection process and upstream of the point of diversion to the effluent storage basins is sufficient to determine compliance with the turbidity specifications and to ensure that the filtration system is operating properly to provide adequate disinfection. Therefore, this Order moves the point of compliance from the final effluent after disinfection to an internal compliance point following the filtration system and UV disinfection system but prior to the point of diversion to the effluent storage basins. Therefore, monitoring for turbidity is required at Monitoring Location FIL-001.

9. In accordance with Section 1.3 of the SIP, periodic monitoring is required for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. Consistent with Order R5-2008-0079-01, this Order requires effluent monitoring for priority pollutants quarterly during the third year of the permit term. See Attachment E, Section IX.C for more detailed requirements related to performing priority pollutant monitoring.

10. California Water Code section 13176, subdivision (a), states: "*The analysis of any material required by [Water Code sections 13000-16104] shall be performed by a laboratory that has accreditation or certification pursuant to Article 3 (commencing with Section 100825) of Chapter 4 of Part 1 of Division 101 of the Health and Safety Code*." DPH certifies laboratories through its ELAP.

    California Water Code section 13176, subdivision (a), states: "*The analysis of any material required by [Water Code sections 13000-16104] shall be performed by a laboratory that has accreditation or certification pursuant to Article 3 (commencing with Section 100825) of Chapter 4 of Part 1 of Division 101 of the Health and Safety Code*." DPH certifies laboratories through its Environmental Laboratory Accreditation Program (ELAP). The Facility has an ELAP-certified laboratory on-site.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Based on acute toxicity testing conducted during the term of Order R5-2008-0079-01, the discharge has been in compliance with the effluent limitations for acute toxicity. Therefore, this Order reduces the frequency for 96-hour bioassay testing

from quarterly to twice per year to demonstrate compliance with the effluent limitation for acute toxicity..

2. **Chronic Toxicity.** Consistent with Order R5-2008-0079-01, quarterly chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

D. Receiving Water Monitoring

1. Surface Water

a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.

b. The receiving water monitoring frequency and sample type for dissolved oxygen (weekly), hardness (monthly), pH (weekly), electrical conductivity (weekly), and temperature (weekly) have been retained from Order R5-2008-0079-01.

c. In accordance with Section 1.3 of the SIP, periodic monitoring for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires monitoring for priority pollutants and other pollutants of concern at Monitoring Location RSW-001 quarterly during the third year of the permit term, concurrent with effluent monitoring, in order to collect data to conduct an RPA for the next permit renewal. See Attachment E, Section IX.C for more detailed requirements related to performing priority pollutant monitoring.

2. Groundwater

Groundwater monitoring has been discontinued because the emergency storage basin is lined with low permeability liner and was used once for storage of a minimal amout of raw influent (less than 1 foot freeboard) between 2009 and 2012 and was returned for full treatement as soon as possible.

E. Other Monitoring Requirements

1. **Biosolids Monitoring**

Biosolids monitoring is required to ensure compliance with the biosolids disposal requirements contained in the Special Provision contained in section VI.C.5.b. of this Order. Biosolids disposal requirements are imposed pursuant to 40 CFR Part 503 to protect public health and prevent groundwater degradation.

2. **Water Supply Monitoring**

Order R5-2008-0079-01 contains water supply monitoring requirements which have not been retained in this Order. Due to the relatively low effluent salinity concentrations, the Central Valley Water Board finds that water supply monitoring is no longer necessary to evaluate salinity sources in the wastewater.

3. **UV Disinfection System Monitoring**

UV system monitoring and reporting are required to ensure that the UV system is operated to adequately inactivate pathogens in the wastewater. UV disinfection system monitoring is imposed to achieve equivalency to requirements established by DPH, and the NWRI/AWWARF's "*Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse.*"

4. **Land Discharge Monitoring**

Emergency storage basin monitoring has been retained from Order R5-2008-0079-01 to ensure proper operation of the storage basins.

VIII. PUBLIC PARTICIPATION

The Central Valley Water Board has considered the issuance of WDR's that will serve as an NPDES permit for the Pleasant Grove Wastewater Treatment Plant. As a step in the WDR adoption process, the Central Valley Water Board staff has developed tentative WDR's and has encouraged public participation in the WDR adoption process.

A. Notification of Interested Parties

The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDR's for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through the Notification was provided through the following, Notice of Public Hearings were posted at the Discharger's Facility, City Hall and in the Roseville Press Tribune on 24 January 2014.

The public had access to the agenda and any changes in dates and locations through the Central Valley Water Board's website at:
http://www.waterboards.ca.gov/centralvalley/

B. Written Comments

Interested persons were invited to submit written comments concerning tentative WDR's as provided through the notification process. Comments were due either in person or by mail to the Executive Office at the Central Valley Water Board at the address on the cover page of this Order.

To be fully responded to by staff and considered by the Central Valley Water Board, the written comments were due at the Central Valley Water Board office by 5:00 p.m. on 18 February 2014.

C. Public Hearing

The **Central Valley Water Board** held a public hearing on the tentative WDR's during its regular Board meeting on the following date and time and at the following location:

Date:	27/28 March 2014
Time:	9:00 a.m.
Location:	Regional Water Quality Control Board, Central Valley Region 11020 Sun Center Dr., Suite #200 Rancho Cordova, CA 95670

Interested persons were invited to attend. At the public hearing, the Central Valley Water Board heard testimony pertinent to the discharge, WDR's, and permit. For accuracy of the record, important testimony was requested in writing.

D. Reconsideration of Waste Discharge Requirements

Any aggrieved person may petition the State Water Board to review the decision of the Central Valley Water Board regarding the final WDR's. The petition must be received by the State Water Board at the following address within 30 calendar days of the Central Valley Water Board's action:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

For instructions on how to file a petition for review, see
http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml

E. Information and Copying

The Report of Waste Discharge, other supporting documents, and comments received are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Central Valley Water Board by calling (916) 464-3291.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDR's and NPDES permit should contact the Central Valley Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Joshua Palmer at (916) 464-4674.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS FOR CONSTITUENTS OF CONCERN

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Aluminum, Total Recoverable	µg/L	90[1]	181[1]	200	750[2]	--	--	--	--	200	No
Ammonia Nitrogen, Total (as N)	mg/L	0.16	0.12	1.50	5.62[2]	1.50[3]	--	--	--	--	Yes
Cadmium, Total Recoverable	µg/L	0.26	0.02	2.0[4]/1.3[5]	3.0[4]/1.9[5]	2.0[4]/1.3[5]	--	--	--	5	No
Chloride	mg/L	66	63	230	860[2]	230[6]	--	--	--	250	No
Chlorodibromomethane	µg/L	<0.17	<0.17	0.41	--	--	0.41	34	--	80[7]	No
Cyanide, Total (as CN)	µg/L	2.3	1.3	5.2	22	5.2	700	220,000	--	150	No
Dichlorobromomethane	µg/L	<0.16	<0.16	0.56	--	--	0.56	46	--	80[7]	No
Electrical Conductivity @ 25°C	µmhos/cm	477[1]	399[1]	900	--	--	--	--	--	900	No
Fluoride, Total	µg/L	2,358[1]	1,245[1]	2,000	--	--	--	--	--	2,000	Yes
Iron, Total Recoverable	µg/L	53[1]	480[1]	300	--	--	--	--	--	300	No
Manganese, Total Recoverable	µg/L	12[1]	39[1]	50	--	--	--	--	--	50	No
Mercury, Total Recoverable	µg/L	0.0047	0.0035	0.050	--	--	0.050	0.051	--	2	Yes[8]
Nitrate Nitrogen, Total (as N)	mg/L	7.9	2.1	10	--	--	--	--	--	10	Yes[8]
Nitrite Nitrogen, Total (as N)	mg/L	0.004	0.007	1.0	--	--	--	--	--	1.0	Yes[8]
Sulfate	mg/L	31[1]	25[1]	250	--	--	--	--	--	250	No
Total Dissolved Solids	mg/L	296[1]	225[1]	500	--	--	--	--	--	500	No
Zinc, Total Recoverable	µg/L	67	58	94[4]/62[5]	94[4]/62[5]	94[4]/62[5]	--	--	--	5,000	No

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential

General Note: All inorganic concentrations are given as a total recoverable.
MEC = Maximum Effluent Concentration
B = Maximum Receiving Water Concentration or lowest detection level, if non-detect
C = Criterion used for Reasonable Potential Analysis
CMC = Criterion Maximum Concentration (CTR or NTR)
CCC = Criterion Continuous Concentration (CTR or NTR)
Water & Org = Human Health Criterion for Consumption of Water & Organisms (CTR or NTR)
Org. Only = Human Health Criterion for Consumption of Organisms Only (CTR or NTR)
Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective
MCL = Drinking Water Standards Maximum Contaminant Level
NA = Not Available
ND = Non-detect

Footnotes:
(1) Represents the maximum observed annual average concentration for comparison with the MCL.
(2) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour average.
(3) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-day average.
(4) Criterion to be compared to the MEC.
(5) Criterion to be compared to the maximum upstream upstream receiving water concentration.
(6) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day average.
(7) Represents the Primary MCL for Total Trihalomethanes which include bromoform, chlorodibromomethane, chloroform, and dichlorobromomethane.
(8) See section IV.C.3.b of the Fact Sheet (Attachment F) for a discussion of the RPA results.

ATTACHMENT H – CALCULATION OF WQBELS

Parameter	Units	Most Stringent Criteria			HH Calculations[1]			Aquatic Life Calculations[1]									Final Effluent Limitations	
		HH	CMC	CCC	ECA_{HH} = $AMEL_{HH}$	AMEL/MDEL $Multiplier_{HH}$	$MDEL_{HH}$	ECA $Multiplier_{acute}$	LTA_{acute}	ECA $Multiplier_{chronic}$	$LTA_{chronic}$	Lowest LTA	AMEL $Multiplier_{95}$	$AMEL_{AL}$	MDEL $Multiplier_{99}$	$MDEL_{AL}$	Lowest AMEL	Lowest MDEL
Ammonia Nitrogen, Total (as N)	mg/L	--	3.15	1.50	--	--	--	0.45	1.42	0.85	1.28	1.28	1.12	1.4	2.24	2.9	1.4	2.9

[1] As described in section IV.C.2.c of the Fact Sheet (Attachment F), calculation of effluent limitations for the protection of human health and aquatic life are determined without the allowance of dilution credits.

Appendix E

Noise Modeling Data

Traffic Noise Spreadsheet Calculator

Project: **Pleasant Grove WWTP Expansion Project and Energy Recovery Project 15010038.01**

Segment Description and Location									
Number	**Name**	**From**	**To**	**Existing Conditions**	**Existing + Project Conditions**	**Δ Existing – Existing + Project**	**Cumulative Conditions**	**Cumulative +Project Conditions**	**Δ Cumulative – Cumulative + Project**
Summary of Net Changes									
1	Westbrook Blvd	Pleasant Grove Blvd	Phillip Rd	59.7	61.3	1.6	71.9	71.9	0.0

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator

Project: Pleasant Grove WWTP Expansion Project and Energy Recovery Project 15010038.01

Noise Level Descriptor: CNEL
Site Conditions: Soft
Traffic Input: ADT
Traffic K-Factor:

Number	Name	Segment Description and Location From	To	ADT	Speed (mph)	Distance to Directional Centerline, (feet)[4] Near	Far	Traffic Distribution Characteristics % Auto	% Medium	% Heavy	% Day	% Eve	% Night	CNEL, (dBA)[5,6,7]	Distance to Contour, (feet)[3] 70 dBA	65 dBA	60 dBA	55 dBA
					Input									Output				
Existing Conditions																		
1	Westbrook Blvd	Pleasant Grove Blvd	Phillip Rd	2,100	45	50	50	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	59.7	10	22	48	103
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
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					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator

Project: Pleasant Grove WWTP Expansion Project and Energy Recovery Project 15010038.01

Noise Level Descriptor: CNEL
Site Conditions: Soft
Traffic Input: ADT
Traffic K-Factor:

Number	Name	Segment Description and Location From	To	ADT	Speed (mph)	Distance to Directional Centerline, (feet)[4] Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night	CNEL, (dBA)[5,6,7]	Distance to Contour, (feet)[3] 70 dBA	65 dBA	60 dBA	55 dBA
				Input					Traffic Distribution Characteristics					Output				
Existing Conditions																		
1	Westbrook Blvd	Pleasant Grove Blvd	Phillip Rd	2,155	45	50	50	93.0%	2.0%	5.0%	80.0%	15.0%	5.0%	61.3	13	28	61	131
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
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					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator

Project: Pleasant Grove WWTP Expansion Project and Energy Recovery Project 15010038.01

Noise Level Descriptor: CNEL
Site Conditions: Soft
Traffic Input: ADT
Traffic K-Factor:

		Segment Description and Location		Input										Output				
						Distance to Directional Centerline, (feet)[4]		Traffic Distribution Characteristics							Distance to Contour, (feet)[3]			
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night	CNEL, (dBA)[5,6,7]	70 dBA	65 dBA	60 dBA	55 dBA
Existing Conditions																		
1	Westbrook Blvd	Pleasant Grove Blvd	Phillip Rd	34,900	45	50	50	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	71.9	67	144	311	670
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
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					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator

Project: Pleasant Grove WWTP Expansion Project and Energy Recovery Project 15010038.01

Noise Level Descriptor: CNEL
Site Conditions: Soft
Traffic Input: ADT
Traffic K-Factor:

		Segment Description and Location		Input										Output				
						Distance to Directional Centerline, (feet)[4]		Traffic Distribution Characteristics							Distance to Contour, (feet)[3]			
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night	CNEL, (dBA)[5,6,7]	70 dBA	65 dBA	60 dBA	55 dBA
Existing Conditions																		
1	Westbrook Blvd	Pleasant Grove Blvd	Phillip Rd	34,955	45	50	50	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%	71.9	67	144	311	670
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					
					35	100	100	97.0%	2.0%	1.0%	80.0%	15.0%	5.0%					

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Citation	Reference	
1	Caltrans Technical Noise Supplement. 2009 (November). Table (5-11), Pg 5-60.	Caltrans Technical Noise Supplement. 2013 (September). Table (4-2), Pg 4-17.
2	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-26), Pg 5-60.	Caltrans Technical Noise Supplement. 2013 (September). Equation (4-5), Pg 4-17.
3	Caltrans Technical Noise Supplement. 2009 (November). Equation (2-16), Pg 2-32.	NOT THE SAME. Does not exist in 2013 document. Consider revising. Original cita
4	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-11), Pg 5-47, 48.	Does not exist in 2013 document.
5	Caltrans Technical Noise Supplement. 2009 (November). Equation (2-26), Pg 2-55, 56.	Caltrans Technical Noise Supplement. 2013 (September). Equation (2-23), Pg 2-51
6	Caltrans Technical Noise Supplement. 2009 (November). Equation (2-27), Pg 2-57.	Caltrans Technical Noise Supplement. 2013 (September). Equation (2-24), Pg 2-53
7	Caltrans Technical Noise Supplement. 2009 (November). Pg 2-53.	Caltrans Technical Noise Supplement. 2013 (September). Pg 2-57.
8	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-7), Pg 5-45.	Does not exist in 2013 document.
9	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-8), Pg 5-45.	Does not exist in 2013 document.
10	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-9), Pg 5-45.	Does not exist in 2013 document.
11	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-13), Pg 5-49.	Does not exist in 2013 document.
12	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-14), Pg 5-49.	Does not exist in 2013 document.
13	Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (16), Pg 67	
14	Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (20), Pg 69	
15	Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (18), Pg 69	

Attenuation Calculations for Stationary Noise Sources

KEY:
- Orange cells are for input.
- Grey cells are intermediate calculations performed by the model.
- Green cells are data to present in a written analysis (output).

STEP 1: Identify the noise source and enter the reference noise level (dBA and distance).

STEP 2: Select the ground type (hard or soft), and enter the source and receiver heights.

STEP 3: Select the distance to the receiver.

Noise Source/ID	Reference Noise Level			Attenuation Characteristics				Attenuated Noise Level at Receptor		
	noise level (dBA)	@	distance (ft)	Ground Type (soft/hard)	Source Height (ft)	Receiver Height (ft)	Ground Factor	noise level (dBA)	@	distance (ft)
Loudest type of construction equipment - Lmax	85.0	@	50	soft	8	5	0.63	45.4	@	1600

Notes:

Estimates of attenuated noise levels do not account for reductions from intervening barriers, including walls, trees, vegetation, or structures of any type.

Computation of the attenuated noise level is based on the equation presented on pg. 12-3 and 12-4 of FTA 2006.

Computation of the ground factor is based on the equation presentd in Figure 6-23 on pg. 6-23 of FTA 2006, where the distance of the reference noise leve can be adjusted and the usage factor is not applied (i.e., the usage factor is equal to 1).

Sources:

Federal Transit Association (FTA). 2006 (May). Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. Washington, D.C. Available: <http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf>. Accessed: September 24, 2010.

Attenuation Calculations for Stationary Noise Sources

KEY:
- Orange cells are for input.
- Grey cells are intermediate calculations performed by the model.
- Green cells are data to present in a written analysis (output).

STEP 1: Identify the noise source and enter the reference noise level (dBA and distance).

STEP 2: Select the ground type (hard or soft), and enter the source and receiver heights.

STEP 3: Select the distance to the receiver.

Noise Source/ID	Reference Noise Level			Attenuation Characteristics				Attenuated Noise Level at Receptor		
	noise level (dBA)	@	distance (ft)	Ground Type (soft/hard)	Source Height (ft)	Receiver Height (ft)	Ground Factor	noise level (dBA)	@	distance (ft)
Existing Primary Clarifiers - Leq	66.4	@	80	hard	8	5	0.00	64.5	@	100
Existing Primary Clarifiers - Lmax	76.3	@	80	hard	8	5	0.00	74.4	@	100
Existing Primary Clarifiers - Lmin	65.2	@	100	hard	12	5	0.00	65.2	@	100
Existing Dewatering Buildng w/doos open - Leq	65.6	@	100	hard	12	5	0.00	65.6	@	100
Existing Dewatering Buildng w/doos open - Lmax	66.4	@	100	hard	12	5	0.00	66.4	@	100
Existing Dewatering Buildng w/doos open - Lmin	64.7	@	100	hard	12	5	0.00	64.7	@	100
Existing Biofilters - Leq	48.5	@	350	hard	12	5	0.00	59.4	@	100
Existing Biofilters - Lmax	69.3	@	350	hard	12	5	0.00	80.2	@	100
Existing Biofilters - Lmin	44.1	@	350	hard	12	5	0.00	55.0	@	100
							0.66			
Loudest New Stationary Source -Leq	65.6	@	100	soft	12	5	0.60	41.5	@	850
Loudest New Stationary Source -Lmax	80.2	@	100	soft	12	5	0.60	56.0	@	850
							0.66			

Notes:

Estimates of attenuated noise levels do not account for reductions from intervening barriers, including walls, trees, vegetation, or structures of any type.

Computation of the attenuated noise level is based on the equation presented on pg. 12-3 and 12-4 of FTA 2006.

Computation of the ground factor is based on the equation presentd in Figure 6-23 on pg. 6-23 of FTA 2006, where the distance of the reference noise leve can be adjusted and the usage factor is not applied (i.e., the usage factor is equal to 1).

Sources:

Federal Transit Association (FTA). 2006 (May). Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. Washington, D.C. Available: <http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf>. Accessed: September 24, 2010.