SONOMA COUNTY FARMS (BIOSTAR SYSTEM LLC) TO FUEL PROJECT – FILE PLP11-0010

Initial Study/Mitigated Negative Declaration

Prepared for
Sonoma County Permit and Resource
Management Department

April 2011

Public Draft

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TABLE OF CONTENTS

Sonoma County Farms (Biostar System LLC) to Fuel Project - PLP11-0010 Initial Study/Mitigated Negative Declaration

Page

Appendices

List of Tables

List of Figures

CHAPTER 1
Project Description

1.1 Introduction

The Sonoma County Permit and Resource Management Department (PRMD) is the Lead Agency under the California Environmental Quality Act (CEQA) for the Sonoma County Farms to Fuel Project proposed by OHR BioStar, LLC (BioStar; project applicant) in Santa Rosa, California (**Figure 1-1**). The purpose of the proposed project is to collect organic waste that would otherwise be field-applied or hauled to a landfill, and process the waste using anaerobic digestion to produce renewable natural gas (biomethane or biogas) that would be used as a source of energy for distribution to the Sonoma County Water Agency (Water Agency) and Pacific Gas and Electric (PG&E). Solids generated in the process would be used to produce commercially viable fertilizer.

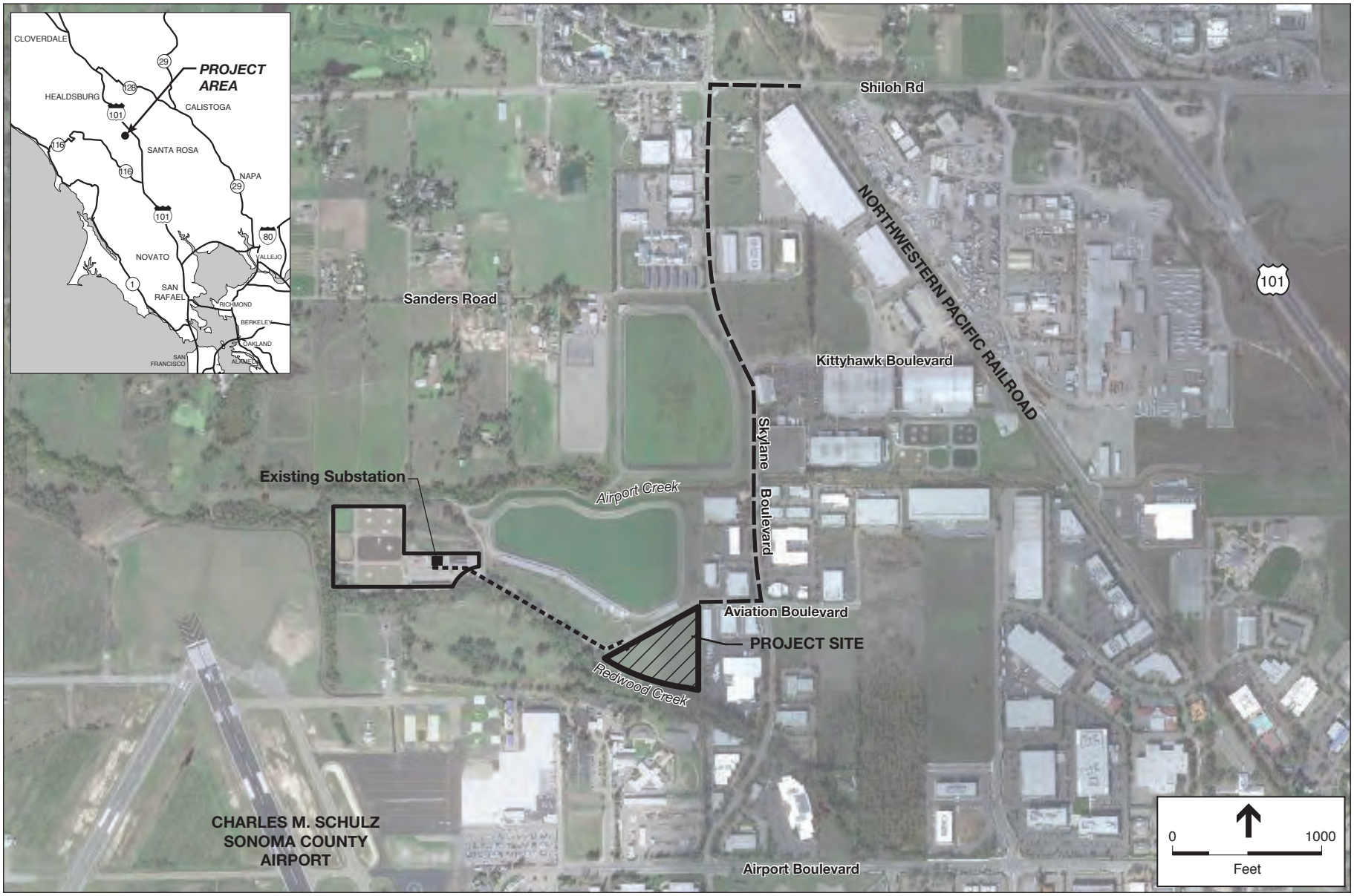
As part of the proposed project, the County of Sonoma would consider 1) approving the construction and operation of proposed facilities as described in this document and 2) issuing the Conditional Use Permit for operation of the proposed project. In addition the Water Agency as a responsible agency for the project would consider entering into a Power Purchase Agreement (PPA) with BioStar; and a lease allowing BioStar to use the Water Agency-owned property.

PRMD has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) to provide the public and responsible and trustee agencies reviewing this project with information about the potential impacts on the local and regional environment. The Water Agency is acting as a Responsible Agency. This IS/MND has been prepared in compliance with the Public Resources Code Section 21000 et seq., CEQA of 1970 (as amended), and Title 14, Chapter 3 of the California Code of Regulations. In accordance with the CEQA Guidelines, Section 15070, a Mitigated Negative Declaration shall be prepared if the following criteria are met:

- There is no substantial evidence, in the light of the whole record, that the project may have a significant effect on the environment; or
- Where there may be a potentially significant effect, revisions to the project agreed to by the applicant would avoid or mitigate the effects to a point where clearly no significant effects would occur.

In accordance with Section 15073 of the CEQA Guidelines, this document is being circulated to local, state and federal agencies and to interested organizations and individuals who may wish to review and comment on the report. Written comments may be forwarded to:

Ken Ellison
Sonoma County Permit and Resource Management Department
2550 Ventura Avenue
Santa Rosa, CA 95403 or emailed to kellison@sonoma-county.org



Power Transmission Line

Proposed Gas Pipeline

Airport/Larkfield/Wikiup Sanitation Zone Wastewater Treatment Plant Site Boundary

SOURCE: ESA

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Figure 1-1
Site Location

1.2 Project Background

1.2.1 Waste to Energy Initiatives

Several statewide actions require the increased future use of renewable energy in California and provide impetus to move forward in the development of waste to energy projects such as the proposed project. Such projects involve co-digestion of organic waste such as manure and other organic substrates, which increases the potential production of methane and energy similar to the proposed project. Co-digestion of organic material can help to mitigate the GHG emissions emanating from California's multiple organic waste streams. Co-digesting multiple biodegradable waste streams such as food processor waste, restaurant leftovers, and manure can add as much as 450 megawatts (MW) to the combined heat and power potential in California (CEC, 2009). The proposed project would be one such waste to energy project that would involve digestion of organic waste streams from local sources in Sonoma County to generate energy.

Sustainability Initiatives in Sonoma County

Sonoma County has been one of the leaders in programs designed to conserve energy in County operations, including building audits, lighting retrofits, and electric and hybrid fleet vehicles. The County has also initiated the Sustainable Policies and Practices Project that aims to monitor and reduce energy use in all County operations on an ongoing basis. In 2005, Sonoma County became the first county in the nation where the County and all of its Cities pledged to measure and reduce their greenhouse gas emissions by 25 percent below 1990 levels by 2015. Reducing energy demand is the primary strategy for meeting this target (Sonoma County, 2008). The 2020 Sonoma County General Plan identifies much additional work that is needed to ensure that the County's efforts are coordinated with evolving state and federal initiatives.

Since 2006, the Water Agency has been pursuing a sustainability initiative; the intent of the Water Agency's sustainability program is to make the Water Agency's facilities and projects "field laboratories" for testing new technologies that reduce greenhouse gas emissions and comply with new and emerging regulatory requirements. The programs implemented include constructing of 2.0 megawatts of solar energy generation capacity at three of its facilities; and converting the first plug-in hybrid vehicle by a government agency in Sonoma County. As part of the Energy Policy recently adopted in March 2011, the Water Agency will implement programs such as the following:

- *Develop renewable energy sources*: The Water Agency will continue to develop projects including anaerobic digestion that reduce the carbon intensity of its power supply.
- *System efficiency*: The Water Agency will implement cost-effective energy conservation measures wherever possible, saving ratepayers' money and reducing environmental impacts.

The County of Sonoma (County), along with the Sonoma County Transportation Authority (SCTA) and the incorporated cities in the county, has made a commitment to reduce their greenhouse gas emissions by 25 percent below 1990 levels by 2015. These parties committed to coordinate efforts to develop, disseminate, and implement climate change programs and policies.

1.2.2 The Water Agency Operations

The Water Agency is a special district created by the California legislature and operates under the direction of a Board of Directors, composed of the members of Sonoma County Board of Supervisors. The law that created the Water Agency and defines its powers and duties authorizes it to produce and furnish surface water and groundwater for beneficial uses, to control flood waters, to generate electricity, to provide recreational facilities in connection with Water Agency water supply facilities, and to treat and dispose of wastewater.

As part of the wastewater treatment and disposal responsibilities, the Water Agency operates the Airport/Larkfield/Wikiup Sanitation Zone (ALWSZ), which has a service area of 2,100 acres with over 3,400 customers.[1] The Water Agency operates and maintains all assets of the ALWSZ including the wastewater treatment plant (WWTP) located at the western end of Aviation Boulevard in Sonoma County (see Figure 1-1). The WWTP has an annual energy usage of approximately 1,500,000 kilowatt-hours (kWh) and an average electrical power usage of approximately 200 kilowatt (kW). Approximately half of the power used at the WWTP is provided by an existing 500 kW-capacity solar power system adjacent to the WWTP, while the rest of the power is supplied by PG&E.

1.3 Project Purpose and Objectives

The purpose of the proposed project is to offset energy demands, and utilize alternative energy resources. The project objectives are to:

- Reduce the County's reliance on traditional fossil fuel-based power sources;
- Contribute toward the goal of reducing greenhouse gas emissions under the County's goals;
- Provide electricity from renewable sources consistent with the County's goals in a cost-effective manner;
- Create a useful fertilizer product from waste generated in the process; and
- Provide renewable fuel to offset natural gas use for heating and electricity.

Consistent with the objectives of the Water Agency's Sustainability Initiative described in Section 1.2, the proposed project would process local organic waste, a non-fossil fuel based renewable resource, and process it using thermophilic (high temperature) anaerobic digestion to produce approximately 1.26 million cubic feet per day of biomethane gas. A portion of the biomethane gas would be used by a fuel cell power plant to generate electricity, and the remaining portion would be injected into PG&E's natural gas pipeline. The project would generate up to 44 million kilowatt-hour (kWh) of electricity annually, which would be purchased by the Water Agency to meet the electrical demand at the ALWSZ WWTP and other Water Agency facilities.

[1] http://www.scwa.ca.gov/lower.php?url=airport-larkfield-wikiup-sanitation-zone

1.4 Project Location and Site Description

The project site consists of a triangular shaped 5.4-acre vacant site at the ALWSZ WWTP, with a new transmission line along the WWTP access road, and an adjacent proposed pipeline alignment located in unincorporated Sonoma County, California (see Figure 1-1). The project site has been used as irrigation fields for the WWTP by the Water Agency. The project site has a chain link fence along its entire perimeter and is bound by the WWTP access road on the north, a commercial park on the east and Redwood Creek on the south. The site is accessed from Aviation Boulevard and site lies over a mile west of Highway 101 and less than 1,000 feet north of the Charles M. Schulz Sonoma County Airport. Implementation of the project would include the following offsite connections to the project site and the ALWSZ WWTP:

1) An approximately 3,500 foot 4-inch pipeline connection from the project site to the existing PGE distribution main located along the SMART Railroad corridor (parallel to U.S. 101). The pipeline would be installed along the WWTP access road, Skylane Boulevard and Shiloh Road;

2) An underground power transmission line from the project site to the ALWSZ WWTP along the existing access road;

3) A PG&E power service connection to the project site from Aviation Boulevard;

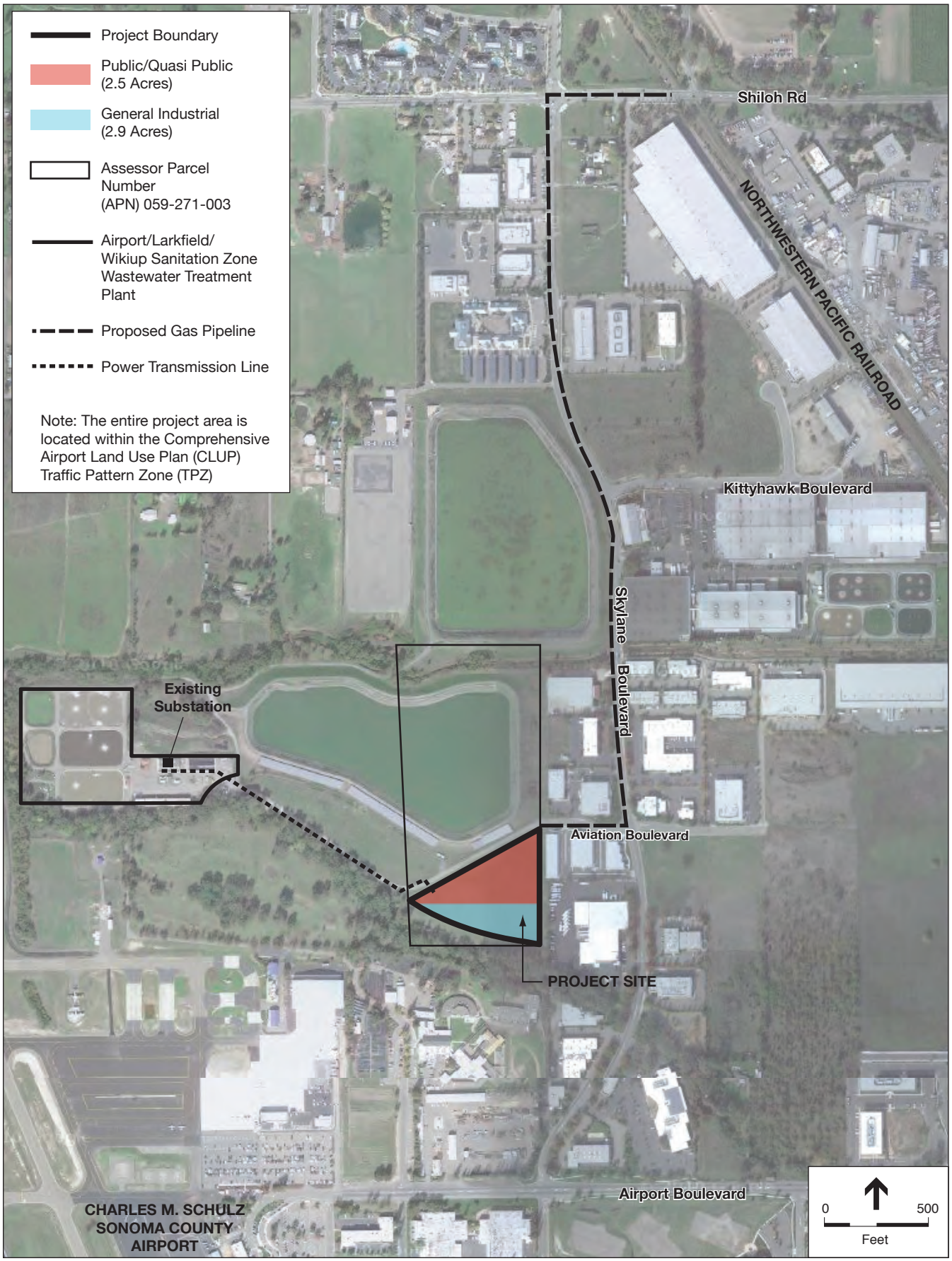
4) An underground PG&E power service connection to the project site from Aviation Boulevard;

5) A 2-inch natural gas service connection to the project site from Aviation Boulevard;

6) Additional utility and service connections from Aviation Boulevard for the project site (discussed below).

The 5.4-acre project site is located in the southern portion of a 22.5-acre parcel (Assessor Parcel Number 059-271-003): the northern approximately 18.6 acres are designated as “Public /Quasi Public” land use and the southern approximately 3.9 acres are designated as “General Industrial” land use in the Sonoma County General Plan (2008) and zoned as “Heavy Industrial”. As shown in **Figure 1-2**, the 5.4-acre project site includes 2.5 acres of the Public/Quasi Public land use designation and 2.9 acres of the General Industrial land use designation. The project site also lies within the Charles M. Schulz Santa Rosa Airport Urban Service Area and is located within the Traffic Pattern Zone of the airport (PRMD, 2001).

The ALWSZ WWTP is located approximately 1,000 feet west of the site. Wastewater collected at the WWTP is treated and stored as reclaimed water in a reservoir located east of the WWTP and north of the project site (see Figure 1-1). The WWTP receives its power supply from PG&E and from the solar power substation shown in Figure 1-1.



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SOURCE: ESA

Figure 1-2
Land Use Designations

1.5 Proposed Project

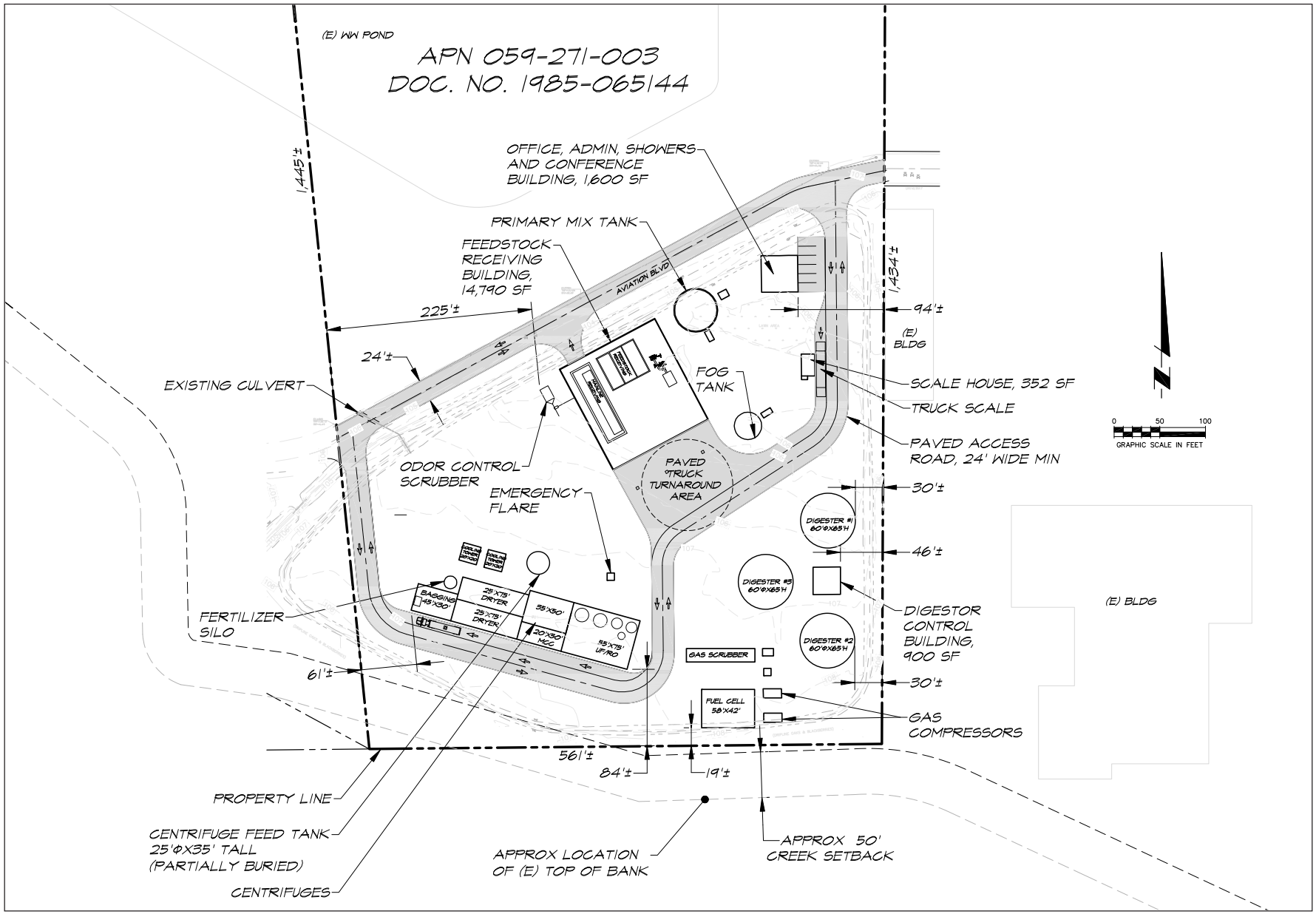
The proposed project would include development of the majority of the 5.4-acre site with proposed facility buildings and a 24-foot-wide access road within the site (see **Figure 1-3**). The remaining site would be landscaped with stormwater infiltration and retention features such as gravel bag filters and fiber rolls and bioswales to route the stormwater to the storm drain onsite. Ingress and egress would occur from the existing WWTP access road to the north through a gated entrance as shown in Figure 1-3. A 50-foot setback from Redwood Creek to the south would be maintained, as required by the County Code. The proposed building heights would not exceed 30 feet, with the exception of the three digesters that would be up to 65 feet in height. The proposed buildings would be painted and metal roofing would be used with non-glare painted materials. The utility connections would be made onsite or extended to existing networks consistent with local zoning.

As part of the proposed project, the County of Sonoma would consider 1) approving the construction and operation of proposed facilities as described in this document and 2) issuing of a Conditional Use Permit for operation of the proposed project. As the responsible agency, the Water Agency would consider 1) entering into a PPA with BioStar and 2) entering into a lease allowing BioStar to use the Water Agency-owned property. A description of individual buildings and unit processes is provided below.

1.5.1 Proposed Buildings and Processes

The proposed project would involve construction of facilities to collect and process organic waste to produce biomethane gas, which would be used as an energy source. Approximately 250 tons per day of organic waste would be processed under the proposed project. Approximately half of the waste would be hauled from Petaluma and the remaining half from the western portion of the County to the project site. Organic waste would be processed through thermophilic anaerobic digestion to produce approximately 1.26 million cubic feet per day of biomethane gas, a portion of which would be used by a fuel cell power plant to generate up to 44 million kWh[2] of electricity annually. This renewable energy source would be used to meet all of the electrical demand at the ALWSZ WWTP. Excess electricity would be transferred through the power grid for use at other Water Agency facilities. The remaining portion of the biomethane gas produced would be injected into the PG&E natural gas network. The solids generated in the digestion process would be converted to a commercial grade organic fertilizer. Figure 1-3 provides a site layout of the proposed facilities described below. **Figure 1-4** shows a schematic of the processes from the organic waste collection to the production of fuel and fertilizer.

[2] Which may include up to four fuel cells.



SOURCE: Summit Engineering, Inc.

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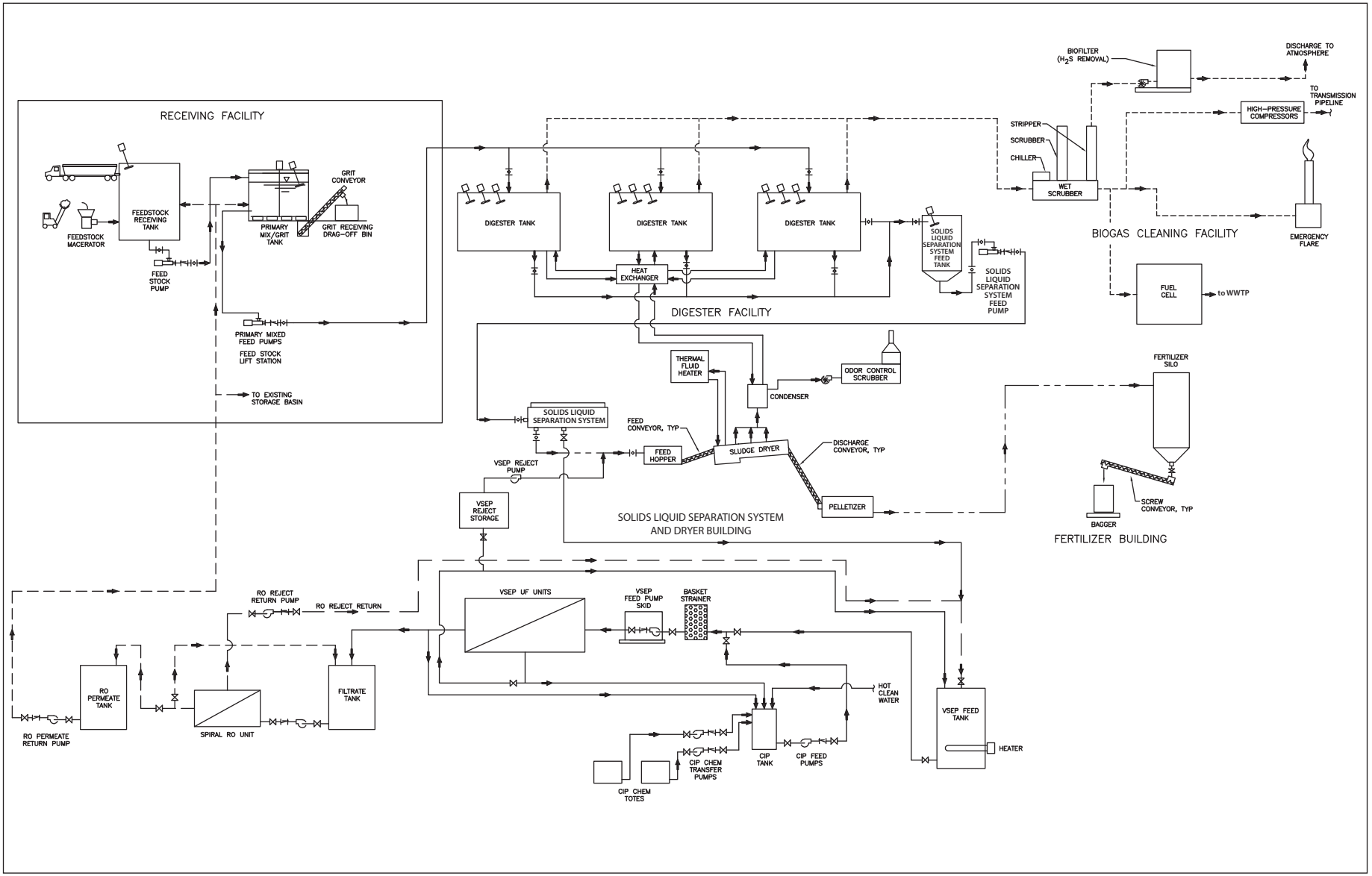
Figure 1-3
Site Layout



SOURCE: OHR BioStar, LLC, 2010

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Figure 1-4
Process Schematic

Waste Receiving Building – Waste Collection

The proposed waste receiving building would consist of a 20-foot tall structure that would collect organic waste such as manure, organic agricultural waste, food processing waste, bakery waste, mortality chickens, and waste fat, oils and grease. The organic waste would be hauled via trucks that would have closed membrane tops with closure seals to avoid any odor leakage. The incoming trucks hauling the organic waste would back up into the waste receiving building such that all the material would be offloaded indoors, within the negative air pressure building and transported within the building using a conveyor belt or auger. Following offloading of the organic waste, the trucks would be washed and cleaned within the building for protection from microbial organisms (biosecurity) and control of pathogens. The wash water would be piped to the digesters (discussed below). Carbon activated scrubbers or biofilter would be used to control odors of the air drawn from the building. No stockpiling of materials would occur outside.

The organic waste received would be diluted with water recycled from the ultra-filtration/reverse osmosis described below or from the ALWSZ WWTP. The diluted waste would be pumped to a holding tank and would be blended in a closed primary mix and grit separation tank outside the building to create a homogenous mixture and to remove non-volatile solids and grit. The degritted mix would then be piped to the digesters. The remaining non-volatile solids in the grit tank, mostly composed of sand and gravel, would be transported via trucks for use at a building materials supplier, or to a landfill.

Digesters – Waste Digestion and Biogas Production

Three digesters would be located in the southeast portion of the site (see Figure 1-3). Each digester would be approximately 65-foot tall with a 60-foot-diameter and digestion capacity of 1.1 million gallons.

The degritted mix from the waste receiving building would be piped into the digesters for anaerobic digestion at temperatures of 125-135° Fahrenheit (F). The wet organic and biodegradable matter would be converted into biogas, which would be collected and piped to the cleaning and compression system discussed below. The digesters would have a computer controlled system for mixing, pH control, temperature control, and a common system for gas collection and conditioning. An automatic valve would divert excess gas to the emergency flares for relief of an over pressurization situation, which is anticipated to be not more than twice in a year. The over pressurization may occur if the fuel cell is down or the biogas delivery system to PG&E is not functional. The flare system would be designed to handle a biogas flow rate of up to 930 cubic feet per minute (cfm) or 33.48 million British Thermal Units per hour or heat energy. The biogas collected from the top of the three proposed anaerobic digesters would be brought together in a single biogas manifold, which would then supply the biogas to the flare system. The flare system may consist of single flare or a dual flare, with a total biogas handling capacity of 930 cfm. The need for a single versus dual flare would be determined during the design phase based on factors such as economics, redundancy goals, turndown needs, flare supplier's recommendations, and the potential to further reduce any thermal effects on aviation. The flares would be operated under a Bay Area Air Quality Management District (BAAQMD) permit in the event the fuel cell or gas conditioning and delivery system were not

functioning. The flares would have a natural gas pilot that would burn continuously. Once a month, the flare would be exercised for five to 10 minutes to ensure functionality of the pilot.

Any deposited grit at the bottom of the digester tanks would be periodically dried (see discussion below) and transported to a local building materials supply vendor. The stabilized effluent containing the digested solids would flow into the solids/liquid separation and any remaining liquid stream would be piped to the ultrafiltration/reverse osmosis system (described below).

Electricity Generation from Biogas

Compressing and Drying Building

The biogas generated in the digesters would consist of approximately 65 percent methane, 35 percent carbon dioxide, and a small fraction of hydrogen sulfide. The biogas would be piped from each digester to a conditioning system to a scrubber (see Figure 1-3) to remove water, particulate, carbon dioxide and sulfides. The biogas would then be compressed and conveyed to the fuel cell onsite (described below) and to an existing PG&E gas pipeline along the SMART Railroad via a 4-inch-diameter pipeline (see Figure 1-1).

Electricity Generation (Fuel Cell)

The fuel cell located in the southern portion of the site would convert the compressed and scrubbed biomethane gas to electricity. The DFC1500^{TM} fuel cell (FuelCell Energy, Inc., 2008) would generate 1.4 MW of electricity from the biogas. The electricity generated would be supplied to the Water Agency substation located northwest of the site through an underground power transmission line. Although only one fuel cell is proposed at this point, there may be up to four fuel cells installed at a future date that would generate up to 5.6 MW of electricity.

Fertilizer Production

Drying and Pelletizing Facility

An approximately 10,000-square-foot, 20-foot tall building would receive the stabilized solids from the digester process, where the solids would be dried to recover approximately 99% of the remaining nutrient rich solids. The solids/liquid separation system would dewater the discharge stream from the digesters to produce sludge with a concentration of 20 to 50 percent total solids. A thermal fluid heater, condenser and sludge dryer would dewater and dry the solids before they would be pelletized. The off-gas from the system would be filtered to collect any particulate matter. The fertilizer product would eventually have 90 percent total solids with a high Nitrogen-Phosphorus-Potassium (NPK) value of 4-4-3 or higher. The dried fertilizer product would be transferred to bulk storage and packaging in the building (fertilizer silo in Figure 1-3) for transport offsite.

A combined liquid stream from the dewatering process would be piped to the ultrafiltration/reverse osmosis system (described below). The nitrogen recovered during the ultrafiltration/reverse osmosis process would be combined with the concentrated solids to create a nutrient-rich feedstock (more

than 95% of the original nutrients of nitrogen, phosphorus and potassium) for the fertilizer production process.

Ultrafiltration/Reverse Osmosis (UF/RO) Building

The ultra-filtration/reverse osmosis (UF/RO) building would be located adjacent to the drying facility. The UF/RO system would receive the liquid stream from the sludge dewatering process. The UF/RO is a filtration process that would consist of removing molecular constituents (i.e., calcium, magnesium, sodium, nitrogen, phosphorous, potassium, etc.) larger than the molecular pore size of the membranes and that do not pass through the UF/RO membranes. The liquid that would pass through the membranes would be piped to the primary mix/grit tank in the waste receiving building. Some of the liquid that would pass through the membranes would be conveyed to the ALWSZ WWTP. The constituents that do not pass through the membranes would be recycled back as reject into the organic waste feedstock in the holding tank near the waste receiving building. The UF/RO system would recover over 94 percent of the nitrogen contained in the liquid stream. The recovered nitrogen would be piped to the solids drying process (see above).

Offsite Connections

The project site would require the following offsite connections:

- Approximately 75 percent of the biogas generated onsite would be conveyed via a new 4-inch-diameter pipeline to an existing PG&E pipeline at the SMART Railroad. The approximately 3,200-foot long pipeline would be underground and would begin at the northeast point of the project site, extend east along the WWTP access road, and then north along Skylane Boulevard, and east along Shiloh Road eventually connecting to the PG&E pipeline (see Figure 1-1).

- Electricity generated at the fuel cell would be transmitted via an approximately 1,000-foot long, new 4-inch-diameter transmission line extending west and northwest to the existing 12 kilovolt substation owned and operated by the Water Agency. The transmission line would consist of a duct bank encased in concrete and buried along the WWTP access road at a depth of approximately two feet. Approximately 1.4 MW of electricity would be supplied to the Water Agency, part of which would be used at the WWTP.

- Connections with the existing utility services for the project would involve the following new pipeline segments:

    - A new water pipeline would be installed underground from the site along the WWTP access road to the existing Town of Windsor water network on Aviation Boulevard;
    - A new stormwater pipeline would be extended underground to the existing manhole on the WWTP access road that drains into the Sonoma County Public Works stormwater system;
    - Two new pipelines would be installed underground to convey sanitary waste and pre-treated process waste respectively from the site connecting into the ALWSZ WWTP collection system at the WWTP access road;
    - A 2-inch gas pipeline would be installed from the site to the nearest PG&E connection at Skyland Boulevard; and

- An underground power line would be installed between the project site and the existing substation.

In addition to the above utilities, a power transmission line would be installed to connect the PG&E power line at Aviation Boulevard and the project site.

1.5.2 Project Construction

Project construction would involve constructing the buildings and facilities on the 5.4-acre site, installing the proposed gas pipeline and power transmission line, and making the utility connections described in Section 1.5.1 above. The contractor would implement standard engineering practices during project construction. A geotechnical investigation report would be prepared for the project and the project design and construction methods would incorporate the recommendations from the report.

Project construction is scheduled to occur in the 2011 and continue for approximately ten months. Approximately 94 workers would be employed for the duration of the construction activities. No physical entrance, roadway, or intersection improvements would be needed to accommodate construction traffic volume.

New Buildings and Surfaces Onsite

Construction activities would involve site preparation, grading, and earthmoving prior to building the new facilities on the project site. A 50-foot buffer zone would be maintained from Redwood Creek on the south and construction activities would be confined within the site shown in Figure 1-3. The site would be graded, leveled, and slightly sloped to allow for stormwater flow into a drainage swale or a drop inlet with gravel bag. An approximately 24-foot wide paved access road would connect the WWTP access road and enable circulation within the site (see Figure 1-3).

Staging of construction equipment and associated materials and parking of construction vehicles would occur on the project site and close vicinity including the WWTP property. When the building structures have been erected and roofed, electrical equipment (e.g., machinery control consoles, switchboards, and lighting) would be installed followed by final site work such as installing pull boxes, conduits, and cables.

Gas Pipeline

The proposed 4-inch, approximately 3,400-foot long gas pipeline would be installed underground within existing roadways, including the WWTP access road, Skylane Boulevard, and Shiloh Avenue to the PG&E pipeline (see Figure 1-2). The pipeline would be installed underground using standard open-cut trenching within existing roadways, at a depth of approximately three feet, except where deeper installation may be required to avoid cultural or biological resources or utility connections. At these locations, directional drilling may be used to avoid impacts.

Open-cut trenching involves digging a trench, laying the pipe in the trench, and then backfilling the trench. In the case of the proposed project, the construction corridor would be approximately

10-foot wide. Directional drilling is a trenchless construction method used for installing underground pipelines without disturbing the ground surface. Using a horizontal drill rig, the pipeline is installed in two stages: (1) a small diameter pilot hole is directionally drilled along a designed directional path, and (2) the pilot hole is then enlarged to a diameter that would accommodate the pipeline and the pipeline is pulled through the enlarged hole. Slurry, typically bentonite (an inert clay), is used as a drilling lubricant and processed by separating solids from the slurry and discharging the clear liquid to waterways or storm drains, or into mobile tanks to be hauled later to a wastewater treatment plant.

The majority of the excavated material would be hauled offsite or backfilled and new fill material would be hauled, if necessary. Staging of construction equipment and associated materials and parking of construction vehicles would occur mostly on the project site, and along the pipeline right-of-way as feasible. Project implementation would include restoration of any disturbed ground or roadway surface during the final phase of pipeline installation.

Power Transmission Line

The new 4-inch transmission line would consist of a duct bank encased in concrete and would be installed underground from the project site along the WWTP access road west and northwest to the existing substation near the WWTP (see Figure 1-1). The transmission line would be installed using open-cut trenching technique with an excavation of approximately two feet. Staging of construction equipment and associated materials and parking of construction vehicles would occur on the project site, along the WWTP access road, and within the WWTP property as necessary. Following construction, any disturbed ground or roadway surface would be restored. Where the transmission line would be installed along the WWTP access road, the area would be repaved; any temporarily patched areas would be permanently repaved. Unpaved surfaces would be restored by replanting grasses.

1.5.3 Operation and Maintenance

Approximately 36 new workers would be employed to operate and maintain the project facilities. The employees would operate during three separate shifts: fourteen employees would be on duty during an early dayshift; ten during a late dayshift; and eight during a nightshift.

Operation and maintenance of the proposed project would include collection and processing of organic waste to generate biogas, which would partly be converted to electricity and used by the Water Agency, and partly piped to PG&E. The fertilizer produced at the facility would be trucked offsite. One heavy off-road piece of equipment, such as a loader, would operate at the site on a daily basis associated with moving solid materials around the site. As part of the facility operation, approximately 8 incoming truckloads would haul the organic waste to the project site daily. An additional 5 vehicles would transport supplies into the site and transport products out of the site. The potential routes to haul the organic waste to the project site include the following:

- West of Petaluma and Highway 101;
- Northwest of Petaluma and West of Highway 101;

- West of Cotati and West of Highway 101;
- West of Windsor and West of Highway 101.

The waste is currently disposed in a landfill or field applied, therefore these truck trips are considered as re-directed trips. All the truck trips would be scheduled during off-peak hours, as feasible, to minimize any local traffic impacts. Chemicals such as sodium hypochlorite, citric acid, and nitric acid would be stored onsite along with an odorant, which would be added to the gas generated onsite and injected into the gas pipeline to detect any potential leakages. There would be no storage of natural gas or stockpiling of organic waste onsite.

The project would generate a daily average of approximately 28,000 gallons of wastewater stream. The waste stream would be composed of pre-treated process wastewater and sanitary waste, which would be piped separately to the ALWSZ WWTP wastewater collection system at the WWTP access road under an Industrial Waste Discharge permit. Approximately 10 tons of sand and grit removed in the process at the waste receiving building would be recycled as sand and gravel at a local building material supplier in Santa Rosa, or a local landfill, which would require approximately four truckloads per week. The project would also involve operation and maintenance and regular inspections by a trained technician of the utility lines including the gas pipeline. An odorant would be added to the gas to enable detection of odor as it gets conveyed to PG&E via the pipeline.

1.6 Potential Permit Requirements and Approvals

The project applicant would obtain the following potential permit and approvals prior to project implementation (refer to Chapter 2, Environmental Checklist, for further details):

- Conditional Use Permit from the Sonoma County PRMD to operate the project facilities;
- Consistency determination with the California Airport Land Use Plan from the Airport Land Use Commission;
- Industrial Waste Discharge Permit from ALWSZ for wastewater connection;
- General Industrial Stormwater Permit from the North Coast Regional Water Quality Control Board for long-term stormwater control;
- Authority to Construct and Permit to Operate from the Bay Area Air Quality Management District;
- Road Encroachment permit from the County for the pipeline route along the Aviation Boulevard, Skylane Boulevard, and Shiloh Road;
- U.S. Army Corps of Engineers Section 404 Nationwide Permit related to wetlands;
- North Coast Regional Water Quality Control Board 401 Water Quality Certification as required under Section 404 permit listed above.

References – Project Description

California Energy Commission, 2009. Integrated Energy Policy Report, Final Commission Report, December 2009, CEC-100-2009-003-CMF.

Climate Protection Campaign (CPC), 2008. Sonoma County Community Climate Action Plan, http://www.coolplan.org/ccap-report/CCAP_Final_11-05-08.pdf, released October 2008.Central Valley Regional Water Quality Control Board (CVRWQCB), 2010. Dairy Digester and Co-Digester Facilities, Draft Program Environmental Impact Report, SCH # 2010031085, July 2010.

Permit and Resource Management Department (PRMD), *Comprehensive Airport Land Use Plan for Sonoma County (CALUP),* Adopted in January 2001 and amended in October 2001. http://www.sonoma-county.org/prmd/docs/airport/ch8-excerpt.htm Accessed December 1, 2010.

Sonoma County, Sonoma County General Plan, 2008.

CHAPTER 2
Environmental Checklist

1. Project Title:	Sonoma County Farms to Fuel Project File PLP11-0010
2. Lead Agency Name and Address:	Sonoma County Permit Resource and Management Department 2550 Ventura Avenue Santa Rosa, CA 95403
3. Contact Person and Phone Number:	Ken Ellison, 707.565.1928 kellison@sonoma-county.org
4. Project Location:	2025 Aviation Blvd., Santa Rosa, Ca Assessor Parcel #059-271-003 Unincorporated Sonoma County; south of Town of Windsor near the intersection of Skylane Boulevard and Aviation Boulevard.
5. Project Sponsor's Name and Address:	OHR BioStar, LLC (BioStar) 993 Manor Drive, Sonoma, CA 95476
6. General Plan Designation(s):	PQP (Public/Quasi/Public)
7. Zoning Designation(s):	PF (Public Facilities) – VOH (Valley Oak Habitat), and M2 (Heavy Industrial) – 40,000 square foot average – VOH – F1 (Primary Flood) – F2 (Secondary Flood)

8. **Description of Project:** The proposed project involves processing of waste that would be otherwise hauled to a landfill or local agricultural users. The proposed facility would process organic waste and produce biogas, which would be converted to electricity using a fuel cell and distributed to Sonoma County Water Agency (Water Agency) as a power source for its facilities including the Airport/Larkfield/Wikiup Sanitation Zone (ALWSZ) wastewater treatment plant (WWTP). The remaining biogas would be distributed to Pacific Gas &Electric (PG&E) via a pipeline connection. Solids generated in the process would be used to produce commercially viable fertilizer. Solids mostly containing sand and gravel would be transported to a local building material supplier. See Chapter 1, Project Description, for details.

9. **Surrounding Land Uses and Setting.** The proposed project site is owned by ALWSZ. The triangular 5.4-acre site is bound by an existing WWTP access road on the north, a commercial industrial park on the east and Redwood Creek on the south. The site lies over a mile west of Highway 101 and less than 1,000 feet northeast of the Sonoma County Charles M. Schulz

Airport. The project area, including the pipeline alignment, is surrounded by commercial and industrial land uses.

10. **Other public agencies whose approval may be required.** Sonoma County Permit and Resource Management Department, Bay Area Air Quality Management District, Pacific Gas & Electric, Airport Land Use Commission, California Department of Fish and Fame, North Coast Regional Water Quality Control Board, U.S. Fish and Wildlife Service, and U.S. Army Corps of Engineers. See Chapter 1, Project Description, for details.

Environmental Factors Potentially Affected

The proposed project could potentially affect the environmental factor(s) checked below. The following pages present a more detailed checklist and discussion of each environmental factor.

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

DETERMINATION: (To be completed by Lead Agency)

On the basis of this initial study:

☐ 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, no further environmental documentation is required.

Signature _____ Date _____

Printed Name _____ Sonoma County PRMD

Environmental Checklist

Aesthetics

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
1.	**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 daytime or nighttime views in the area?	☐	☐	☒	☐

Discussion

a, b) The 2020 Sonoma County General Plan defines scenic resources under three open space categories: community separators, scenic landscape units, and scenic highway corridors (Sonoma County PRMD, 2008). The project area, including the power transmission and gas pipeline routes, is not identified as any of the three categories of scenic resources. In addition, there are no officially designated or eligible California scenic highways or roadways in the project area (California Department of Transportation, 2007).

As described in Chapter 1, Project Description, the project site is a relatively flat parcel of undeveloped land, vegetated with grasses. The site is adjacent to industrial and commercial areas including the Charles M. Shultz Airport to the south, a commercial park to the east and the Airport/Larkfield/Wikiup Sanitation Zone (ALWSZ) wastewater treatment plant (WWTP) to the west. The southern boundary of the site is lined by trees. Redwood Creek flows just south of the site (see Figure 1-1, in Chapter 1, Project Description). The view facing east from the site consists of 35- to 40-foot tall buildings in the commercial park, a parking lot, and truck-trailers and automotive vehicles. The view facing north consists of the existing ALWSZ WWTP access road and the ALWSZ WWTP solar panels in the background. The view facing west from the site includes undeveloped open land with trees and the ALWSZ WWTP buildings in the distant line of vision. The mature riparian corridor lining Redwood Creek is visible on the south.

The site is currently visible from the commercial park to the east and somewhat visible from vehicles traveling on Skylane Boulevard. The site is also visible to any traffic on the existing ALWSZ WWTP access road, which is used primarily by the employees or visitors at the ALWSZ WWTP. Project construction would involve associated traffic and hauling of equipment and materials equipment along with the construction activities such as grading, excavation, and building of the proposed facilities and associated truck trips along the local roadways. These construction activities would be visible at and around the project site along Skylane and

Aviation Boulevards; however this effect would be short-term and temporary, limited to the project construction period. In the long-term, the proposed project buildings (e.g., 30-foot tall facilities) and 65-foot-tall digesters on the eastern portion of the site would replace the current view of the vacant grassy site. The 30-foot buildings would not be significantly different from the buildings in the site vicinity. Due to their cylindrical shape and their height, the digesters would not be typical of the existing buildings within the project vicinity. However, existing treatment process facilities at the ALWSZ WWTP are cylindrical and have heights of 20 to 30 feet. The project is not located within a scenic vista, therefore the effect is not considered significant. Additionally, buildings constructed as part of the project would be built consistent with the existing structures and facilities adjacent to the project site, such as the commercial park. The proposed gas pipeline and power transmission line route would be would be buried underground, therefore there would be no long term visual effects. Thus, the proposed project would not have an adverse impact on a scenic vista, or result in damage to any scenic resource; no impacts are anticipated.

c) See a) and b) above. The existing visual character around the site includes commercial buildings on the east, solar panels lining the southern end of the storage reservoir to the north, and trees lining Redwood Creek south of the site. The ALWSZ WWTP building forms a part of the distant northwestern view. The proposed project would involve construction of aboveground facility buildings on the currently vacant site and would be visible from the commercial park to the east and somewhat visible from vehicles traveling on the western end of Aviation Boulevard. The existing trees located along Redwood Creek would provide partial screening south of the project site. As part of the site development, a landscaping plan (see Chapter 2, Project Description) would be implemented to provide visual softening of the project site, and integration with the mature riparian corridor along Redwood Creek. The offsite connections such as the proposed gas and power transmission lines would be buried and would not adversely affect the long term visual character. Considering the existing industrial and commercial surroundings of the project site, the project would not significantly degrade the existing visual character. The impact would be less than significant.

d) The proposed facility buildings onsite would be painted metal roofing would be used with non-glare painted materials, which would reduce potential visibility and glare from nearby and long-range views. As discussed in a), b), and c) above, there are limited views of the site except from the commercial park on the east and partly from vehicular traffic on Skylane and Aviation Boulevards. Any required security lighting for the building would be shielded and activated by motion control and would not affect any day or nighttime views. The project would not result in significant light and glare impacts. The impact would be less than significant.

References

California Department of Transportation. California Scenic Highway Mapping System: Sonoma County. http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm. Updated December 2007. Accessed December 7, 2010.

Sonoma County Permit and Resource Management Department. Sonoma County General Plan 2020: Open Space and Resource Conservation Element. Available at http://www.sonoma-county.org/prmd/gp2020/osrce.pdf. September 2008.

Agricultural and Forest Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
2. AGRICULTURAL 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) 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?	☐	☒	☐	☒

Discussion

a) There is no prime, unique or farmland of statewide importance at the project site (Department of Conservation, 2008a). The project would not convert any of the farmland area to a non-agricultural use. Therefore, no impact to agricultural or forest resources would occur.

b,c,d,e) The 5.4-acre project site includes two General Plan designations: 2.5 acres of the Public/Quasi Public land use designation, and 2.9 acres of the General Industrial land use designation. The site is zoned as *Heavy Industrial*. The Airport Industrial Specific Plan land use maps identify a partial *Agricultural* designation on a portion of the site; this designation has not yet been updated with the most recent General Plan designations identified above (Sonoma County PRMD, 2010). Project implementation would not affect agricultural uses. The proposed project would not conflict with any Williamson Act contracts (Department of

Conservation, 2008b). In addition, the project would not conflict with existing zoning for agricultural use, forest land, or timberland nor would it involve other changes in the existing environment related to the conversion of farmland or forest land. Therefore, the project would have no impacts.

References

Department of Conservation. 2008a. Division of Land Resource Protection, Farmland Mapping and Monitoring Program: Sonoma County Important Farmland 2006. Published June 2008.

Department of Conservation. 2008b. Division of Land Resource Protection, Williamson Act Program: Sonoma County Williamson Act Lands 2008 Map.

Sonoma County Zoning Code. http://www.sonoma-county.org/prmd/docs/zoning_data/057-060.pdf. Adopted June, 2007. Accessed December 15, 2010.

Sonoma County PRMD. Ken Ellison, Personal Communication, 2010.

Air Quality

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
3. AIR QUALITY — Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon 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?	☐	☒	☐	☐

Discussion

a) The most recently adopted air quality plan for the San Francisco Air Basin (Air Basin) is the Bay Area *2010 Clean Air Plan* (*2010 CAP*) (BAAQMD, 2010a). The *2010 CAP* is an update to the Bay Area Air Quality Management District (BAAQMD)'s *2005 Ozone Strategy* to comply with the State air quality planning requirements. The *2010 CAP* also serves as a multi-pollutant air quality plan to protect public health and the climate. The *2010 CAP* control

strategy includes revised, updated, and new measures in the three traditional control measure categories: stationary source measures; mobile source measures; and transportation control measures. In addition, the *2010 CAP* identifies two new categories of control measures: land use and local impact measures, and energy and climate measures.

The BAAQMD recommends that lead agencies determine that a project is not consistent with the *2010 CAP* if the project would not support the primary goals of the plan. The primary or "core" goals of the *2010 CAP* are to improve air quality, protect public health, and protect the climate. The BAAQMD's recommended approach for determining project support of these goals is consistency of the project with BAAQMD-approved CEQA thresholds of significance. Short-term construction and long-term operations of the project would result in emissions of criteria pollutants and greenhouse gases that would not exceed the BAAQMD-recommended significance thresholds (see item b) below and a) in Section 7, *Greenhouse Gas Emissions*).

In addition, the project would be consistent with the *2010 CAP* Energy and Climate Control Measure ECM-2, *Renewable Energy*, which is designed to promote distributed renewable energy generation on commercial and residential buildings, and at industrial facilities. Therefore, construction and operation emissions that would be associated with the project would not conflict with the *2010 CAP* and no impacts would occur.

b) The proposed project would result in short-term construction and long-term operational emissions that could contribute to existing air quality violations in the Air Basin.

Construction

Construction of the project would occur over a period of approximately ten months Construction activities that would be associated with the project would include: grading; excavation; road building; heavy truck hauling of equipment, supplies, and soil; and construction of proposed facilities, including the waste receiver building, digester facility, biogas cleaning facility, the fuel cell power plant, centrifuge and drying building, the UF/RO building, fertilizer building, power line, and gas pipeline.

It is estimated that construction of the project facilities would require approximately 12 pieces of heavy-duty, off-road construction equipment: two cranes, one excavator, one grader, one dozer, one loader, one water truck, one paver, one roller, one backhoe, and two forklifts, and that the equipment would operate between four and eight hours per day (5 days per week) for varying durations throughout the construction period depending on the specific equipment type and construction activity. In addition to the off-road equipment, truck trips would be required to deliver and/or haul away materials, equipment, debris, etc., and light-duty automobile trips would be required to transport workers to and from the construction site each workday. For the purposes of this air quality analysis, it is estimated that up to 30, 20-mile heavy-duty truck round-trips would occur per day associated with exporting soil and other debris for disposal and importing materials and supplies, and there would also be several dozen light duty auto round-trips per day associated with commuting workers during the construction period.

Criteria pollutant emissions of reactive organic gases (ROG), nitrogen oxides (NOx), carbon monoxide (CO), respirable particulate matter (PM10), and fine particulate matter (PM2.5) from construction equipment would incrementally add to the regional atmospheric loading of these pollutants during construction of the project. Short-term construction exhaust emissions that would be associated with the project were estimated using the Urban Emissions (URBEMIS) 2007 emissions model. The total and daily average exhaust emissions that would be associated with project construction activities have been estimated and are presented in **Table 2.3-1**.

TABLE 2.3-1
PROJECT CONSTRUCTION EXHAUST EMISSIONS ESTIMATES

	Estimated Emissions				
Project Emission Units	**ROG**	**NOx**	**CO**	**PM10**	**PM2.5**
Tons per Project	0.31	2.82	3.17	0.14	0.12
Pounds per Project	620	5,640	6,340	280	240
Average Pounds per Workday*	3	26	29	1	1
BAAQMD Thresholds	**54**	**54**	**NA**	**82**	**54**
Significant Impact?	No	No	No	No	No

Project construction emissions were estimated using the URBEMIS 2007 emission model. See Appendix A for details. NA = no applicable threshold; Project-related CO emissions are for informational purposes only.

* It is estimated that approximately 215 workdays would be required to construct the project.

The Air Basin is currently non-attainment of ozone, PM10, and PM2.5 standards because the State and/or federal standards for these pollutants are violated at least several times a year. Therefore, the BAAQMD has developed significance criteria for ozone precursors (i.e., ROG and NOx), PM10, and PM2.5 to identify projects that would be considered to significantly contribute to existing violations of air quality standards associated with these pollutants. Under the *BAAQMD CEQA Guidelines* (BAAQMD, 2010b), a project would have a significant short-term construction air quality impact if it would result in average construction-related emissions of ROG, NOx, or PM2.5 (non-inclusive of fugitive dust) of more than 54 pounds per day or emissions of PM10 (non-inclusive of fugitive dust) of more than 82 pounds per day. The BAAQMD recommends calculating the average daily construction emissions by dividing the total construction emissions by the number of workdays (BAAQMD, 2010c). As indicated in Table 2.3-1, equipment and vehicle exhaust emissions would not exceed the BAAQMD's significance thresholds, and would result in less-than-significant impacts.

In addition to exhaust emissions, emissions of fugitive dust would also be generated by project-related construction activities associated with grading and earth disturbance, travel on paved and unpaved roads, etc. With regard to fugitive dust emissions, the BAAQMD recommends that lead agencies focus on implementation of dust control measures for all projects to insure that the impacts would be less than significant rather than comparing estimated levels of fugitive dust to quantitative significance thresholds. Therefore, BAAQMD-recommended fugitive dust control measures (BAAQMD, 2010), which are

contained in **Mitigation Measure AIR-1** (refer to Chapter 3, Summary of Mitigation Measures, for details), would be implemented to insure that impacts associated with fugitive dust emissions would be less than significant.

Operation

As described in Chapter 1, Project Description, project operation would consist of collecting and processing organic waste in digesters to generate biogas, which would be transported by a pipeline to a Pacific Gas and Electric Company (PG&E) pipeline. The remaining biogas would be piped to the proposed fuel cell onsite to generate electricity that would be used by the Sonoma County Water Agency (Water Agency) to power its different facilities including the Airport/Larkfield/Wikiup Sanitation Zone (ALWSZ) wastewater treatment plant (WWTP) adjacent to the site. The solid byproduct of the waste would be further processed and used offsite as fertilizer. Any sand and grit would be transported to a local building material supplier (See Chapter 1, Project Description, for details).

All components of the project would be powered by electricity either obtained from PG&E or generated by the proposed fuel cells and that all non-bio-methane byproducts (e.g., particulate matter, carbon dioxide, and sulfides) would be captured by the proposed scrubber at the biogas cleaning facility and would be prohibited from entering the atmosphere. Therefore, there would be virtually no direct emissions of criteria pollutants that would be associated with routine operations of biogas production. It should be noted that any Biogas combustion that occur through the proposed flare (see Chapter 1, Project Description, for details) would contain criteria pollutants, including ROG, NOx, CO, and particulate emissions. However, flare events would be rare and would only occur during an over-pressure emergency (e.g., when compressor or fuel cells are not functioning). The emergency flare combustion emissions would be regulated by the BAAQMD under Rule 2-1-301, Authority to Construct.

The majority of the long-term emissions that would be associated with the project would be related to off-site vehicle emissions. There would be 36 employees that would operate the project and ancillary facilities that would generate up to 72 one-way commute trips per day. In addition, approximately eight incoming truckloads (16 one-way trips) would be required to haul the waste feedstock to the project site daily. Although these truck trips would be re-directed trips because it is assumed that the waste is currently transported to another facility for disposal, this analysis considers these trips to be new trips for the purposes of a worst-case conservative analysis. Approximately four trucks (eight one-way trips) per day would also be needed to deliver materials and supplies to the site and to export processed fertilizer. Approximately four daily (worst case, four trips per week on average) truckloads (eight one-way truck trips) would transport sand and grit removed from the process facilities to a local building material supplier.

Onsite emissions that would be associated with routine operations of the project would be limited to operations of up to four fuel cells and emissions that would be associated with one heavy off-road piece of equipment, such as a loader, to move solid materials around the

site. Fuel cell technology results in virtually no combustion exhaust emissions and associated pollutant process emissions are extremely limited. The daily average emissions that would be associated with project operations have been estimated and are presented in **Table 2.3-2** (see Appendix A for emission estimate details). Long-term operational emissions that would be associated with mobile sources and the assumed use of one off-road piece of equipment were estimated using the URBEMIS 2007 emissions model and fuel cell emissions were estimated using manufacturer specification emission factors associated with the DFC1500^{TM} fuel cell power plant (FuelCell Energy, Inc., 2010). As indicated in Table 2.3-2, operations-related emissions would not exceed the BAAQMD's significance thresholds, and would therefore, result in less-than-significant impacts.

TABLE 2.3-2
PROJECT OPERATION EMISSIONS ESTIMATES

Project Component/Activities	Estimated Emissions (pounds/day)				
	ROG	NOx	CO	PM10	PM2.5
Fuel Cell Emissions	---	1.3	---	<0.1	<0.1
Mobile Source – Truck and Auto Trips	1.8	18.2	15.4	4.1*	1.1*
Off-road Equipment – Loader	0.5	3.1	2.7	0.3	0.3
Average Pounds per Workday	2.3	22.6	18.1	4.4	1.4
BAAQMD Thresholds	**54**	**54**	**NA**	**82**	**54**
Significant Impact?	No	No	No	No	No

* PM10 and PM2.5 values include fugitive dust. Exhaust emissions associated with mobile sources would be 0.7 pound per day of PM10 and 0.6 pound per day of PM2.5. NA = no applicable threshold; Project-related CO emissions are for informational purposes only.

c) Based on BAAQMD guidance, if a project would result in an increase in ROG, NOx, PM10, or PM2.5 of more than its respective average daily mass thresholds, then it would also be considered to contribute considerably to a significant cumulative impact. In developing thresholds of significance for air pollutants, BAAQMD has considered the emission levels for which a project's individual emissions would be cumulatively considerable. Therefore, if a project would exceed the identified significance thresholds, its emissions would be cumulatively considerable, and if a project would not exceed the significance thresholds, its emissions would not be cumulatively considerable.

Daily emissions of project-related criteria pollutants associated with short-term construction and long-term operational emissions would be less than the BAAQMD's significance thresholds and would not be considered to result in a significant contribution to existing air quality violations (see discussion in b) above). Therefore, the impact associated with short-term and long-term increases in criteria pollutant emissions from operations of the project would not be cumulatively considerable, and associated impacts would be less than significant.

d) Long-term routine operations-related emissions that would be associated with the project would primarily be associated with mobile sources related to haul truck and commuting

worker trips that would be dispersed throughout the County and facility operation. Anticipated long-term emissions that would be generated at the site would be related to operations of the fuel cell, approximately one piece of heavy off-road equipment (e.g., loader), and periodic idling for several minutes at a time associated with approximately 16 diesel trucks per day. These onsite sources would result in negligible emissions of toxic air contaminants, including an estimated less than one-half pound of diesel particulate matter per day. In addition, the closest sensitive receptor[1] is a single rural residence located at a distance of approximately 1,700 feet from the project site. Project-related emissions at this location would be substantially diluted. Long-term operations-related impacts associated with exposure of sensitive receptors to substantial pollutant concentrations would be less than significant.

The project would include up to two flares where biogas would be diverted and combusted in the event of an over-pressure emergency in one of the digesters. Biogas combustion could contain trace amounts of air toxics that would be released to the atmosphere during a flare event. The primary air toxics that would be associated with a biogas flare event would likely include hydrogen sulfide (H_2S) and ammonia (CVRWQCB, 2010). However, flare events would be rare and would only occur during an over-pressure emergency/equipment upset condition. The emergency flares would only be used in the event that the natural gas pipeline would be shut down, which could be up to twice in a year and for over ten minutes a month for maintenance purposes.

Construction activities would generate air pollutant emissions, including diesel particulate matter associated with equipment and heavy truck exhaust emissions. However, construction activities would occur over a period of approximately ten months and onsite emissions would be spatially dispersed over the 5.4-acre project site and the vicinity including the pipeline route. In addition, the closest sensitive receptor to the project site is a single rural residence located approximately 1,700 feet to the northwest. Therefore, project-related construction emissions would be sufficiently diluted at the nearest sensitive receptor location. Short-term construction-related impacts associated with the project exposing sensitive receptors to substantial pollutant concentrations would be less than significant.

e) Factors associated with odor impacts from the project include the proposed digester design and its location in terms of proximity to sensitive receptors and exposure duration. The project site is located immediately adjacent to the ALWSZ WWTP, which is an existing odor source. However, over the past three years, there have been no odor complaints associated with the ALWSZ WWTP filed with the BAAQMD (BAAQMD, 2010d).

[1] For the purposes of this air quality analysis, sensitive receptors are places with people who are considered more sensitive to air pollutants than others. The reasons for greater-than-average sensitivity include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals and convalescent homes are considered sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality.

Manure and other organic material, when under anaerobic decomposition, result in odorous compounds, such as ammonia and H_2S. The proposed digestion process would occur in a closed system in the co-digester facility and the associated emissions would occur in and be captured in a controlled environment. The waste receiving building would be operated under negative pressure with all indoor collection of organic waste. Any foul air would be screened through a scrubber as described in Chapter 1, Project Description. However, the transport, storage, and pre-processing activities of the odiferous manure and other organic substrates could produce nuisance odors at the proposed waste receiving building that could lead to objectionable odors at off-site receptors in the project vicinity. This could be a significant impact, which would be minimized to a less-than-significant level by implementing **Mitigation Measure AIR-2** (refer to Chapter 3, Summary of Mitigation Measures, for details) such that the potential nuisance impact associated with odors would not affect a substantial number of people.

References

Bay Area Air Quality Management District (BAAQMD), 2010a, *The Bay Area 2010 Clean Air Plan*. Adopted September 15, 2010.

BAAQMD, 2010b, *CEQA Air Quality Guidelines Update*, June 2010.

BAAQMD, 2010c, Personal communication with Greg Tholen of the BAAQMD on May 14, 2010.

BAAQMD, 2010d, BAAQMD Public Records response to odor complaint history request associated with the Airport Larkfield Wastewater Treatment Plant, December 13, 2010.

Central Valley Regional Water Quality Control Board (CVRWQCB), 2010. Dairy Digester and Co-Digester Facilities, Draft Program Environmental Impact Report, SCH # 2010031085, July 2010.

FuelCell Energy, Inc., 20010. Brochure for the DFC1500 Stationary Fuel Cell Power Plant, December 8, 2010.

Biological Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
4. 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 Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or 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?	☐	☐	☒	☐

Discussion

a) The approximately 5.4-acre project site is located within unincorporated Sonoma County. The triangular site is bordered on the north and west by the Airport/Larkfield/Wikiup Sanitation Zone (ALWSZ) wastewater treatment plant (WWTP) storage ponds, upland areas, and mitigation wetlands; on the east by light industrial development; and on the south and west by Redwood Creek. The area south of Redwood Creek is developed with business park and light industrial uses along Ordinance Road (see Figure 1-1 in Chapter 1, Project Description). Southwest of Redwood Creek is the Sonoma County Consolidated Wetland Mitigation Area (SACMA Preserve). The project site lies within the California Floristic Province[2] and roughly at the border between the Northwestern California and Central Western regions, and the Outer North Coast Ranges and San Francisco Bay Area subregions. In the "bioregional" characterizations developed as part of California's Agreement on Biological Diversity (a multi-agency memorandum signed in 1993), the area is located within the Bay/Delta Bioregion.

The project site consists primarily of disturbed, non-native ruderal grassland. The site has reportedly been graded in the past, and is regularly mowed and disced as part of the routine maintenance of the ALWSZ WWTP (SCWA, 2010). The area is also irrigated with treated wastewater. During a reconnaissance survey of the site on December 14, 2010, what was likely wild rye (*Leymus* spp.) was observed as the dominant plant species. Ruderal species

[2] Geographic subdivisions are used to describe and predict features of the natural landscape. The system of geographic units is four-tiered: provinces, regions, subregions, and districts. The State of California is covered by three floristic provinces: California Floristic Province, Great Basin and Desert. The California Floristic Province is the largest, includes most of the state and small portions of Oregon, Nevada and Baja California, Mexico and is made up of six regions.

observed included wild radish (*Raphanus raphanistrum*), wild mustard (*Brassica* sp.), and prickly lettuce (*Lactuca serriola*). Hawkbit (*Leontodon taraxicoides*) and mayweed chamomile (*Anthemus cotula*) were also observed.

The project site is also located in the Mark West Creek Sub-Watershed within the northwestern portion of the Santa Rosa Creek Watershed (PRMD, 2010). The Mark West Creek Sub-Watershed covers an area of approximately 83 square miles. Redwood Creek and Airport Creek flow close to the project site and are considered "waters of the United States". Redwood Creek begins near Highway 101 and flows east to west along the southern boundary of the project site, where it consists of a mature oak riparian corridor. Airport Creek also begins near Highway 101, and flows east to west and north of the ALWSZ WWTP. Both creeks (see Figure 1-1 in Chapter 1, Project Description) are intermittent to perennial drainages, with their confluence occurring approximately 0.5 miles west of the project site. The combined tributaries flow west into Windsor Creek, which then flows southwest into Mark West Creek, then into the west-flowing Russian River, and finally to the Pacific Ocean.

Special Status Species

A list of special status plant and wildlife species known to occur within the general region of the project site and potentially occurring within the project site itself was compiled from 1) analysis of previous studies conducted within or near the project area concerning special status plants and animals (Sonoma County PRMD, 2008; LSA, 2005); 2) consultation with the California Natural Diversity Data Base (CNDDB), the U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Game (CDFG), and Institute for Fisheries Resources KRISWEB database; 3) review of pertinent scientific literature about the sensitive species of concern; 4) review of California National Plant Society (CNPS) literature; 5) a reconnaissance survey conducted as a part of this MND; and 6) a preliminary wetland delineation conducted as part of this MND. **Table 2.4-1** provides a focused list of special status species considered in this analysis, together with current federal and State listing status and, in the case of plants, the California Native Plant Society (CNPS) status. Due to a lack of suitable habitat on the project site, some species were not considered further and are omitted from the following discussion.

California Tiger Salamander

During the breeding season, which coincides with the rainy season (typically November to May), adult California tiger salamanders are known to travel distances greater than 1.2 miles to reach breeding locations (Orloff, 2007). For the remainder of the year they retreat to small mammal burrows in adjacent uplands. The nearest known breeding occurrence is documented approximately four miles to the southeast of the project area (CDFG, 2010).

The United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) have jurisdiction over species listed as threatened or endangered under Section 9 of the federal Endangered Species Act. In the project area, NMFS would be responsible for

protection of anadramous fish and USFWS would be responsible for the protection of other listed species. The federal Endangered Species Act protects listed species from "take", which is defined broadly as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct".

TABLE 2.4-1 (Continued)
FOCUSED LIST OF SPECIAL STATUS SPECIES CONSIDERED FOR THE PROJECT

Common Name Scientific Name	Listing Status USFWS/ CDFG/CNPS	General Habitat	Potential for Species Occurrence Within the Project Area
Species Listed or Proposed for Listing			
Animals			
Invertebrates			
California freshwater shrimp *Syncaris pacifica*	FE/CE	Perennial, low-gradient streams with riparian cover and instream refugia such as undercut banks and cavities.	**Low.** Lack of suitable habitat. No record of species in project area streams. Nearest occurrences are approximately 8 miles east and west of the project area.
Fish			
Coho salmon- Central California ESU *Oncorhynchus kisutch*	FE/CE	Accessible Bay Area and coastal rivers and streams with cover, cool water and sufficient dissolved oxygen. Require beds of loose, silt-free gravel for spawning.	**Low.** No critical habitat or records of species in project area streams.
Steelhead- Central California Coast DPS *Oncorhynchus mykiss*	FT/--	Drainages of San Francisco and San Pablo Bays, central Calif. Coastal drainages.	**Low.** No critical habitat or records of species in project area streams.
Chinook salmon- California Coastal ESU *Oncorhynchus tshawytscha*	FT/--	Spawns in gravel riffles of main streams; Russian River and tributaries mark southern extent of this ESU. The Laguna de Santa Rosa watershed, and therefore the project area streams, is *not* included in the federal critical habitat designation.	**Low.** No critical habitat or records of species in project area streams.
Amphibians			
California tiger salamander *Ambystoma californiense*	FE/CT	Non-breeding upland habitat includes grasslands occupied by burrowing mammals; breed in ponds and vernal pools.	**Presumed present.** The project area is within the Santa Rosa Plains Conservation Strategy mapped zone for projects that *May Adversely Affect CTS*. Pooled onsite water may be of a sufficient hydroperiod to support breeding and upland habitat is present. The nearest known breeding record is 4 miles SE of the project area (CDFG, 2010).
California red-legged frog *Rana draytonii*	FT/--	Non-breeding upland habitat includes grasslands occupied by burrowing mammals; breed in ponds, streams, and vernal pools.	**Low.** While Redwood Creek and Airport Creek provide suitable riparian habitat and the project area provides suitable uplands, there are no records for this species within 5 miles (CDFG, 2010).
Plants			
Sonoma alopecurus *Alopecurus aequalis* var. *sonomensis*	FE/--/1B	Freshwater marshes and swamps; on banks with other wetland species in riparian scrub.	**Low.** Disturbed creek banks are overrun with blackberry and provide low-quality wetland habitat.
Sonoma sunshine *Blennosperma bakeri*	FE/CE/1B	Vernal pools and swales. Valley and foothill grassland.	**Moderate.** Potentially suitable habitat in vernal pools.
White sedge *Carex albida*	FE/CE/1B	Freshwater marsh, seeps and meadows.	**Low.** Potentially suitable habitat in seasonal pools.

TABLE 2.4-1 (Continued)
FOCUSED LIST OF SPECIAL STATUS SPECIES CONSIDERED FOR THE PROJECT

Common Name Scientific Name	Listing Status USFWS/ CDFG/CNPS	General Habitat	Potential for Species Occurrence Within the Project Area
Plants (cont.)			
Burke's goldfields *Lasthenia burkei*	FE/CE/1B	Vernal pools and mesic meadows.	**Moderate.** Potentially suitable habitat in vernal pools.
Pitkin's marsh lily *Lilium pardalinum* ssp. *pitkinense*	FE/CE/1B	Meadows and seeps; freshwater marshes and swamps.	**Low.** Potentially suitable habitat in seasonal pools.
Sebastopol meadowfoam *Limnanthes vinculans*	FE/CE/1B	Vernal pools, swales, mesic meadows, or marshy areas in grassland or valley oak savannah.	**Moderate.** Potentially suitable habitat in vernal pools.
Many-flowered navarretia *Navarretia leucocephala* ssp. *plientha*	FE/CE/1B	Vernal pools.	**Moderate.** Potentially suitable habitat in vernal pools.
Showy Indian clover *Trifolium amoenum*	FE/--/1B	Open sites and swales in grassland and coastal bluff scrub; sometimes on serpentine soils.	**Low.** Potentially suitable habitat in grassland swales.
Other Special Status Species			
Animals			
Fish			
Russian River tule perch *Hysterocarpus traskii pomo*	--/CSC	Require deep pools (> 3ft.) in streams with clear flowing water with abundant cover.	**Unlikely.** Lack of suitable habitat. No records of species in project area streams.
River lamprey *Lampetra ayresi*	--/CSC	Clean gravelly riffle necessary for spawning; ammocoetes require sandy stream edges or backwaters.	**Low.** No records of species in project area streams.
Navarro roach *Lavinia symmetricus navarroensis*	--/CSC	Small, warm intermittent streams, especially in the Russian and Navarro Rivers.	**Low.** No records of species in project area streams.
Hardhead *Mylopharodon conocephalus*	--/CSC	Streams with slow velocity; in clear deep pools with sand-gravel-boulder bottoms.	**Low.** No records of species in project area streams.
Reptiles			
Western pond turtle *Actinemys marmorata*	--/CSC	Needs permanent or almost permanent water with basking sites.	**High.** Redwood Creek provides seasonal aquatic habitat. Project area provides upland habitat and a transient route between Redwood and Airport Creeks.
Plants			
Bristly sedge *Carex comosa*	--/--/2	Marshes and swamps; valley and foothill grassland.	**Low.** Potentially suitable habitat in seasonal pools.
Dwarf downingia *Downingia pusilla*	--/--/2	Vernal pools; valley and foothill grassland.	**Moderate.** Potentially suitable habitat in vernal pools.

TABLE 2.4-1 (Continued)
FOCUSED LIST OF SPECIAL STATUS SPECIES CONSIDERED FOR THE PROJECT

Common Name Scientific Name	Listing Status USFWS/ CDFG/CNPS	General Habitat	Potential for Species Occurrence Within the Project Area
Plants (cont.)			
Northern California black walnut *Juglans californica* var. *hindsii*	--/--/1B	Riparian woodland and scrub.	**Moderate.** Potentially present among *Juglans* species observed in Redwood Creek.
Legenere *Legenere limosa*	--/--/1B	Vernal pools.	**Moderate.** Potentially suitable habitat in vernal pools.
Marsh microseris *Microseris paludosa*	--/--/1B	Cismontane woodland, scrub, vernal pools, valley and foothill grassland.	**Moderate.** Potentially suitable habitat in vernal pools.
Baker's navarretia *Navarretia leucocephala* spp. *bakeri*	--/--/1B	Cismontane woodland, vernal pools, valley and foothill grassland.	**Moderate.** Potentially suitable habitat in vernal pools.
White beaked-rush *Rhynchospora alba*	--/--/2	Freshwater marshes, bogs, seeps, and meadows.	**Moderate.** Potentially suitable habitat in seasonal pools.
California beaked-rush *Rhynchospora californica*	--/--/1B	Freshwater marshes, bogs, seeps, and meadows.	**Low.** Potentially suitable habitat in seasonal pools.
Round-headed beaked-rush *Rhynchospora globularis* var. *globularis*	--/--/2	Freshwater marshes and swamps.	**Low.** Potentially suitable habitat in seasonal pools.
Saline clover *Trifolium depauperatum* var. *hydrophilum*	--/--/2	Freshwater marshes, bogs, seeps, and meadows.	**Low.** Potentially suitable habitat in seasonal pools.

[a] Populations south of San Francisco Bay are listed by State as Endangered.

STATUS CODES:

FEDERAL: (U.S. Fish and Wildlife Service)
FE = Listed as Endangered (in danger of extinction) by the Federal Government.
FT = Listed as Threatened (likely to become Endangered within the foreseeable future) by the Federal Government.

STATE: (California Department of Fish and Game)
CE = Listed as Endangered by the State of California
CT = Listed as Threatened by the State of California
CSC = California Species of Special Concern

California Native Plant Society
List 1B = Plants rare, Threatened, or Endangered in California and elsewhere
List 2 = Plants rare, Threatened, or Endangered in California but more common elsewhere

SOURCES: CDFG (2010); CNPS (2010); Hickman (1993); Munz (1968); Peterson (1990); Stebbins (1985); USFWS (2010a)

According to the Santa Rosa Plains Conservation Strategy and Enclosure 1 of the *Programmatic Biological Opinion for U.S. Army Corps of Engineers Permitted Projects that May Affect California Tiger Salamander and Three Endangered Plant Species on the Santa Rosa Plain, California (USFWS, 2007)*, the proposed project is located within an area designated as "May adversely affect listed plants and/or California tiger salamander".

Projects which would adversely affect potential California tiger salamander habitat within this area can presume presence and mitigate for each acre of potential habitat loss. Mitigation ratios for this area are 0.2:1 for each acre of habitat loss, and mitigation can be satisfied by (1) acquiring or protecting an equivalent amount of habitat through the purchase of mitigation credits at an approved California tiger salamander conservation bank; or (2) protecting the appropriate amount of habitat at a mitigation site (i.e., with funding for restoration and support of a long-term management plan if applicable); or (3) contributing to the Santa Rosa Plain Conservation Fund, administered by the California Wildlife Foundation. Use of the Fund is generally intended for smaller projects of 15 acres or less, and is subject to the approval of the USFWS and CDFG.

Project construction would permanently impact 5.4 acres of presumed habitat for California tiger salamander habitat. This could be a significant impact, which could be minimized by implementation of **Mitigation Measure BIO-1** (refer to Chapter 3, Summary of Mitigation Measures, for details), which includes participating in the Santa Rosa Plain Conservation Fund. Implementation of the mitigation measure would reduce potential direct and indirect construction-related impacts to a less-than-significant level and would compensate for permanent habitat impacts.

Western Pond Turtle

Western pond turtle is known to occur in Pool Creek approximately one mile north of the project area, and may be present in Redwood Creek and Airport Creek in the project area. Despite declining populations, western pond turtles are widespread habitat generalists known to occur in nearly all aquatic habitats, albeit infrequently. The project site would be developed with a 50-foot buffer from Redwood Creek to avoid any direct impacts to the creek. However, the project area provides upland habitat and a transient route between Redwood and Airport Creeks, therefore the species is presumed present in all aquatic habitats in the project corridor, and may be present in upland habitats up to 500 meters (0.3 mile) from aquatic habitat. Hatchlings move towards aquatic habitats during early spring (e.g., March) and nesting turtles move towards upland habitats during mid-summer (e.g., June and July); these movement periods coincide with planned project construction.

Western pond turtle may experience direct injury or mortality during project construction activities, especially from ground disturbance and movement of large equipment; they may experience direct injury or mortality from vehicle traffic during project operation. This could be a significant impact. Implementation of **Mitigation Measure BIO-1,** above, would reduce potential impacts on western pond turtle by installing exclusion fencing and performing daily inspections beneath construction equipment prior to operation. **Mitigation Measure**

BIO-2 (refer to Chapter 3, Summary of Mitigation Measures, for details) would further reduce potential impacts on western pond turtle to a less-than-significant level by implementing additional protection measures.

Nesting Birds

The project area provides potential habitat for nesting birds. Redwood Creek and Airport Creek provide mature, high-quality riparian habitat in corridors that are approximately 150 feet wide. The diversity of the riparian canopy provides habitat for a wide variety of birds, including songbirds in the understory and raptors in the large trees. The general nesting period for breeding birds is February 1 through August 31.

The California Endangered Species Act regulates the listing and "take" of state-listed threatened and endangered species. In California, "take" is defined as "hunt, pursue, catch, capture, or kill" or to attempt to do these things. The California Department of Fish and Game (CDFG) may allow take of a listed species through special permit issuance, except for fully protected species. CDFG code sections 3511, 4700, 5050, and 5515 designate fully protected species and protection measures. Fully protected species may not be taken or possessed at any time, and no licenses or permits may be issued for their take except when collecting these species is necessary for scientific research or relocation of birds is necessary for livestock protection.

Most project-area bird species and their occupied nests are protected under the Migratory Bird Treaty Act (MBTA), which prohibits the killing, possessing, or trading of migratory birds, bird parts, eggs and nests. If a project could have a negative impact on migratory birds, then Executive Order 13186 instructs federal agencies to coordinate with the USFWS in developing a Memorandum of Understanding to conserve migratory bird populations. Migratory Bird Permit Memorandum (MBPM-2) dated April 15, 2003, clarifies that destruction of most unoccupied bird nests is permissible under the MBTA, except for the nests of federally threatened or endangered migratory birds, bald eagles, and golden eagles.

Nesting birds are protected under CDFG code sections 3503 and 3503.5, which make it (1) unlawful to take, possess, or destroy the nests or eggs or any such bird of prey except as otherwise provided by the code; and (2) protect the active nests of all other birds (except house sparrow (*Passer domesticus*) and European starling (*Sturnus vulgaris*)). Disturbance that causes nest abandonment and/or reproductive failure is considered a take. No take permits are issued under these statutes.

Site development as part of the proposed project could have an adverse impact, either directly or through habitat modifications, on nesting birds. Noise, disturbance and human presence associated with project construction could result in reproductive failure, nest avoidance, nest abandonment, and/or nest failure. Project operation may result in temporary or permanent habitat avoidance and an unwillingness to return to nest sites in the future. This could be a significant impact. However, implementation of the **Mitigation Measure BIO-3** (refer to Chapter 3, Summary of Mitigation Measures, for details) would reduce potential impacts on nesting birds to a less-than-significant level.

Special-Status Plants

The project area provides suitable habitat for listed plants and potential habitat for CNPS List 1 and 2 plants. According to the provisions of the *Programmatic Biological Opinion for U.S. Army Corps of Engineers Permitted Projects that May Affect California Tiger Salamander and Three Endangered Plant Species on the Santa Rosa Plain, California* (USFWS, 2007), seasonal wetlands within the range of Burke's goldfields (*Lasthenia burkei*), Sonoma sunshine (*Blemnosperma bakeri*), and Sebastopol meadowfoam (*Limnanthes vinculans*) on the Santa Rosa Plain, as mapped in Enclosure 5 of the Biological Opinion, are treated as suitable habitat for these listed plants regardless of negative survey findings; this is because a persistent seed bank may be present even if the plants have not been detected. Mitigation for the adverse effects to occupied or suitable habitat for listed plants is calculated by the impacted acres of seasonal wetlands, and suitable habitat is mitigated at a ratio of 1:1 and 0.5:1. Based on their relative distribution within the Santa Rosa Plain, impacts on Sebastopol meadowfoam are mitigated for independently, while impacts on Burke's goldfields and Sonoma sunshine are combined into a single compensation requirement (USFWS, 2007).

A minimum of 0.85 acre of seasonal wetlands occur on the project site, providing suitable habitat for Burke's goldfields and Sonoma sunshine, with additional ponded areas meeting the minimum 7-day hydroperiod for determining rare plant suitable habitat. Mitigation would be required for these two plant species, as established in the Biological Opinion (USFWS, 2007). For Sebastopol meadowfoam, the species is generally found south of Santa Rosa Creek and not established north of Santa Rosa Creek. However, an extirpated natural occurrence of Sebastopol meadowfoam is reported approximately 0.7 mile east of the project area and an introduced population occurs north of the proposed project site within wetland mitigation sites established by the Water Agency east of the existing storage pond. Mitigation requirements for this species would be established during consultation with USFWS. The project area also provides suitable habitat for numerous other special-status plant species (see Table 2.4-1). Implementation of **Mitigation Measure BIO-4** (refer to Chapter 3, Summary of Mitigation Measures, for details) would reduce impacts on suitable habitat for listed plants and for project impacts on other special-status plants.

b) Activities that would interfere with the natural flow of, or substantially alter the channel, bed, or bank of a lake, river, or stream are regulated by CDFG code sections 1600 through 1616 and require a Streambed Alteration Agreement permit. The project facilities would be constructed adjacent to Redwood Creek, and project pipeline components would be installed within Skylane Boulevard across Airport Creek. Both channels are jurisdictional waters of the State.

Redwood Creek is classified as an Urban Riparian Corridor by the Sonoma County General Plan (2008); the General Plan requires a 50-foot setback to protect riparian habitat in urban areas. The Redwood Creek riparian corridor is fenced along the project area, to a distance of approximately 50 feet, and is therefore inaccessible to project construction as long as the fence remains intact. A 50-foot buffer would be maintained from the creek, as described in

Chapter 1, Project Description. Adjacent to the project area's access road is a roadside ditch that supports a seasonal wetland contiguous with Redwood Creek where a few scattered trees and bushes grow; this area could be directly impacted by project construction.

Airport Creek is also classified as an Urban Riparian Corridor by the Sonoma County General Plan (2008) and is subject to setbacks. Project pipeline components would be installed within Skylane Boulevard across Airport Creek, and could impact up to 0.075 acre of riparian habitat on each side of the crossing (ESA, 2011). It is anticipated that trenchless technology would be used to avoid impacts to this stream corridor, and may include installation within the roadway bridge utility soffet, attachment to the bridge, or directional drill installation under the stream channel. In the event that trenchless technology cannot be implemented at this location, the project applicant would implement **Mitigation Measure BIO-5** below.

The proposed project may affect riparian habitat, which could be a significant impact. CDFG has jurisdiction over riparian habitat, including stream bed and banks, pursuant to Sections 1600-1616 of the Fish and Game Code. The project site development extending to the outer dripline of trees forming the riparian corridor would be subject to CDFG jurisdiction. In the event that Airport Creek and Redwood Creek cannot be avoided, the project applicant will be required to obtain a Streambed Alteration Agreement (SAA) from the CDFG. This impact would be minimized through implementation of **Mitigation Measure BIO-5** (refer to Chapter 3, Summary of Mitigation Measures, for details).

c) Section 404 of the Clean Water Act regulates discharges to waters of the U.S. and is administered by the U.S. Environmental Protection Agency to protect the nation's surface waters, including project area rivers, streams, wetlands, and natural ponds. The U.S. Army Corps of Engineers (Corps) administers Section 404 of the Clean Water Act, and coordinates with the EPA to regulate the discharge of dredged and fill materials into waters of the U.S. via a permitting process. If a project requires a federal approval and could affect state water quality, the federal agency must obtain state certification through Section 401 from the North Coast Regional Water Quality Control Board.

The project site is enclosed by a short earthen berm, presumably built to retain treated wastewater that is occasionally discharged to the site and prevent runoff from entering Redwood Creek, the roadside ditch, or the road. During the reconnaissance survey, the northeastern half of the site was observed to retain water in several pools. Redwood Creek, which borders the project site to the south, is a perennial drainage with a riparian corridor dominated by a mature oak trees overstory and an understory of dense blackberries. Airport Creek, which borders the project site to the north, is a similar perennial drainage that would be crossed by project pipeline components. Both channels are jurisdictional waters of the U.S.

A field reconnaissance survey and a preliminary wetland assessment identified up to 1.0 acre of wetlands on the project site, which supported a variety of ponded areas either associated with Redwood Creek or Airport Creek, adjacent to the project's entry road, or isolated within

grasslands. A subsequent wetland delineation identified (1) 0.062 acre of potentially jurisdictional waters of the U.S. in the form of seasonal wetlands adjacent to the entry road; (2) 0.080 acre of potentially jurisdictional waters of the U.S. in the form of a perennial stream (Airport Creek) and 0.013 acre in the form of a freshwater marsh that would be crossed by project pipeline components installed within Skyland Boulevard; (3) and 0.778 acre of potentially isolated waters of the U.S. in the form of seasonal wetlands located within site grasslands (ESA, 2011). The wetland delineation has been submitted to the Corps for a jurisdictional determination.

The proposed project would affect the wetland habitat onsite, which could be a significant impact. Construction activities resulting in the introduction of fill or other disturbance to jurisdictional wetlands and other waters of the U.S. will require permit approval from the U.S. Army Corps of Engineers and water quality certification from the Regional Water Quality Control Board, pursuant to Section 401 of the Clean Water Act. The proposed project will most likely be authorized under a Nationwide Permit, pursuant to Section 404 of the Clean Water Act. Impacts to jurisdictional wetlands and other waters of the U.S would be minimized through implementation of **Mitigation Measure BIO-6** (refer to Chapter 3, Summary of Mitigation Measures, for details).

d) Terrestrial wildlife movement in the project vicinity is limited due to industrial development to the east of the project site, and ALWSZ WWTP facilities to the north and west. Therefore, any wildlife movement along Redwood Creek and Airport Creek is not anticipated to be affected by the project, and would continue to serve as undisturbed migratory corridors. The upland project area between Redwood Creek and Airport Creek may serve as a wildlife movement corridor. Impacts on wildlife movement corridors, if present in the project area, would be less than significant, as the permanent construction of project facilities would not significantly impede or restrict movement. While construction of the proposed project would substantially decrease the upland habitat present between Redwood Creek and Airport Creek, it would not decrease the already-present "bottleneck" in the travel route between the following two features: a narrow, approximately 100-foot-wide upland area between the ALWSZ WWTP pond and the light industrial park. This bottleneck is present north of the project area, and between the project area and Airport Creek.

Potential avoidance behavior exhibited by native wildlife in response to the noise and disturbance associated with temporary construction activities would also be less than significant, except possibly for the effects on nesting birds discussed under (a), above. Potential avoidance behavior exhibited by native wildlife in response to operation and maintenance activities would not be significant because, although the project hinders an upland travel route between Airport Creek and Redwood Creek, the riparian corridor maintains undisturbed connectivity between these areas and does so within a relatively short distance.

The proposed project could interfere with the movement of a native resident or migratory fish or wildlife species, or with established movement corridors, or impede the use of native wildlife nursery sites, but any such interference would not be substantial. Redwood Creek

and Airport Creek are not designated as critical habitat for salmonids, and no records establish the presence of these species in either creek. No established wildlife corridors or nursery sites are known to occur on the project site, and no wildlife corridors or nursery sites are known to occur in the surrounding project area.

In sum, the proposed project would have a less than significant impact on native resident or migratory fish or wildlife species, established native resident or migratory wildlife corridors, and the use of native wildlife nursery sites. Thus, no mitigation is required.

e) The County has several tree preservation ordinances, including the Valley Oak Protection Ordinance, the Tree Protection and Replacement Ordinance, and the Heritage or Landmark Tree Ordinance. These ordinances would not apply to the project because riparian habitat would not be impacted and, with the exception of several saplings, no other trees occur on the site.

Project implementation could conflict with local policies or ordinances protecting other biological resources, which would be a significant impact. For example, the project would permanently impact approximately one acre of jurisdictional wetlands that provide suitable habitat for listed plants, and 5.4-acres of habitat for California tiger salamander. This would conflict with Sonoma County General Plan Objective OSRC-7.1, which strives to identify and protect wetlands and special-status plant and wildlife species. However, the project applicant would implement the project in accordance with the *Santa Rosa Plain Conservation Strategy* and corresponding *Biological Opinion* (USFWS), which serve to provide a long-term conservation program that is sufficient to mitigate for pending and future development on the Santa Rosa Plain, thereby resolving individual development/natural resource conflicts within a larger framework of conservation. Compliance with Measure BIO-1 would reduce potential impacts to a less than significant level. Therefore, no additional mitigation is required.

f) The project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Although the project area falls within the geographic boundaries of the Santa Rosa Plain Conservation Strategy plan, the Strategy has not yet been adopted (USFWS, 2010b). Thus, while the project would comply with the Programmatic Biological Opinion (USFWS, 2007) containing many of the original provisions from the Strategy, the project is not subject to an adopted local conservation plan.

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Cultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
CULTURAL RESOURCES — Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §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 formal cemeteries?	☐	☒	☐	☐

Discussion

a) A significant impact would occur if the project caused a substantial adverse change to a historical resource, herein referring to historic-period architectural resources or the built environment, including buildings, structures, and objects. A substantial adverse change includes the physical demolition, destruction, relocation, or alteration of the resource.

A records search for the project area and a half-mile radius around the proposed project location was conducted by an ESA archaeologist at the Northwest Information Center (NWIC) of the California Historical Resources Information System at Sonoma State University on December 6, 2010 (File No. 10-535). The records searched and reviewed included previous surveys, studies, and archaeological site records. Records were also reviewed in the *Historic Property Data File for Sonoma County* that contains information on sites of recognized historical significance including those evaluated for listing in the *National Register of Historic Places*, the *California Register of Historical Resources*, the *California Historical Resources Inventory*, *California Historical Landmarks*, and *California Points of Historical Interest*. The purpose of the records search was to (1) determine whether known cultural resources have been recorded within or adjacent to the project area; (2) assess the likelihood for unrecorded cultural resources to be present based on historical references and the distribution of nearby sites; and (3) develop a context for the identification and preliminary evaluation of cultural resources. There was no indication of historic-period buildings or structures in the project area. An ESA Registered Professional Archaeologist conducted an intensive survey of the project area on December 6, 2010. No historic-period buildings or structures were observed within the project area. The proposed project would therefore not affect the significance of a historical resource and would result in no impact.

b) A significant impact would occur if the proposed project caused a substantial adverse change to an archaeological resource through physical demolition, destruction, relocation, or alteration of the resource, which could occur during project construction activities such as ground disturbance from excavation and trenching. The project area is located within the ethnographic territory of the Coast Miwok (Barrett, 1908; Kelly, 1978; Kroeber, 1925). Coast Miwok territory encompassed all of present-day Marin County and parts of Sonoma County, from Duncan's Point on the coast to between the Sonoma and Napa Rivers. Each large village had a tribal leader, however there does not appear to have been a defined larger organization (Kelly, 1978:414).

By the mid-1800s, Spanish missionization, diseases, raids by Mexican slave traders, and dense immigrant settlement had disrupted Coast Miwok culture, dramatically reducing the population and displacing the native people from their villages and land-based resources. By the time of California's initial integration into the United States in the late 1840s, the Coast Miwok population had dwindled from approximately 2,000 individuals to one-eighth of its size before European contact (Kelly, 1978:414).

In 1920, the Bureau of Indian Affairs purchased a 15.45-acre tract of land in Graton for the Marshall, Bodega, Tomales, and Sebastopol Indians. This land was put into a federal trust

and these neighboring peoples that included both Coast Miwok and Southern Pomo were consolidated into one recognized group: the Graton Rancheria. In 1958, the U.S. Government enacted the Rancheria Act of 1958, transferring tribal property into private ownership. Forty-four Rancherias in California were affected, including the Graton Rancheria. Since then, tribal members have continued to protect their cultural heritage and identity despite being essentially landless. On December 27, 2000 President Clinton signed into law legislation restoring federal recognition to the Federated Indians of Graton Rancheria. The tribe currently has approximately 1,100 members.

ESA contacted the Native American Heritage Commission (NAHC) on December 3, 2010 to request a database search for sacred lands or other cultural properties of significance within or adjacent to the project area. The NAHC responded that the sacred lands survey did not have record of specific cultural resources in the project area and provided a list of Native American contacts that might have further knowledge of the project area with respect to cultural resources. Each person or organization identified by the NAHC was initially contacted by ESA Archaeologist Heidi Koenig via letter on December 13, 2010. Each Native American group was asked to comment about the project area with any potential concerns. No responses have been received.

Results of the cultural resources records search conducted at the NWIC indicate that the project area has been previously surveyed, and that two prehistoric archaeological sites (CA-SON-1323 and CA-SON-1324) have been recorded (Origer, 1985a and 1985b) in the vicinity of the project site. CA-SON-1323 is located adjacent to Airport Creek approximately 800 feet north of the project site, and would not be affected by project implementation. CA-SON 1324 is located immediately north of the project site, north of the existing entrance road to the WWTP. Due to its proximity, CA-SON-1324 could be affected by site development and utility installation. This site contained a moderate amount of archaeological materials, including chert and obsidian debitage, as well as faunal remains. Subsequent subsurface investigations at the sites using controlled excavation (Greenway, 1986a; 1986b) revealed extensive deposits to a depth of 80 centimeters (2.6 feet). Excavation units extended below 80 centimeters (to as deep as 110 cm) did not reveal cultural materials.

An ESA Registered Professional Archaeologist conducted an archaeological survey of the project area on December 6, 2010. Visibility was limited to a few areas of disturbance and no artifacts were observed. The general area is disturbed likely from previous construction projects, landscaping, and overall use. No archaeological resources were observed during the pedestrian inspection; however, given the extent of site disturbance, limited surface visibility, and known buried prehistoric cultural resources in the area, portions of the identified site may remain.

CA-SON-1324 has not been formally determined eligible for listing on the California and National Registers by the California State Historic Preservation Officer; however for the purposes of this analysis the site is assumed to be a significant resource. Project construction activities such as excavation or other ground-disturbing activities, including

utility installation, could affect the resource site, which could result in a significant impact on this archeological resource. However, implementation of **Mitigation Measures CUL-1, CUL-2, CUL-3 and CUL-4** (refer to Chapter 3, Summary of Mitigation Measures, for details) would reduce this impact to a less-than-significant level.

c) The proposed project would be located in an area underlain by Holocene-age (less than 10,000 years ago) alluvium. Typically, such deposits are considered too young to have fossilized the remains of organisms (fossilization processes take place over millions of years). However, early-Holocene sediments may contain organisms in the early stages of fossilization. Project construction activities could disturb such sediments, which could cause a significant impact. With implementation of **Mitigation Measure CUL-5** (refer to Chapter 3, Summary of Mitigation Measures, for details), the impacts to paleontological resources would be minimized to less-than-significant levels.

d) Results of the subsurface investigation discussed in a) and b) above indicate that, while the project area has a high potential to contain buried cultural materials; human remains have not been previously encountered at the sites. However the possibility of uncovering human remains cannot be entirely discounted. In the event that human remains are uncovered during ground-disturbing activity as part of project construction, the impact could be significant. However, implementation of **Mitigation Measure CUL-6** (refer to Chapter 3, Summary of Mitigation Measures, for details) would reduce the impact to less-than-significant level.

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Geology, Soils, and Seismicity

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
6. GEOLOGY, SOILS, AND SEISMICITY — 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 Division of Mines and Geology 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), creating substantial risks to life or property?	☐	☐	☒	☐
e) 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?	☐	☐	☐	☒

Discussion

a.i) Seismically-induced ground rupture is defined as the physical displacement of surface deposits in response to an earthquake's seismic waves. The magnitude, sense, and nature of fault rupture can vary for different faults or even along different strands of the same fault. Ground rupture is considered more likely along active faults, including the Rodgers Creek Fault Zone which is located approximately two miles west of the project area. The project area is not located within identified Alquist-Priolo Earthquake Hazards Zones. Although the surface fault rupture is not necessarily limited to a defined Alquist-Priolo zone, the project area is located at a distance from the Rodgers Creek fault (over two miles) sufficient to avoid damage associated with fault rupture. Therefore, any project effects associated with fault rupture would be less than significant.

a.ii) The seismic environment in Northern California and the San Francisco Bay Area is characterized by the San Andreas Fault System, which formed due to major forces occurring at the boundary of shifting tectonic plates. The major faults in the project vicinity include the San Andreas, Healdsburg, Rodgers Creek, Mayacama, Calaveras, and Green Valley faults (CGS, 2010). Historic earthquakes have caused strong ground shaking and damage in the San Francisco Bay Area, the most recent large event being the magnitude 6.9 Loma Prieta earthquake in October 1989. The U.S. Geological Survey (USGS) Working Group on California Earthquake Probabilities estimated a 21 percent chance of the San Andreas fault experiencing an earthquake of magnitude 6.7 or greater in the next 30 years (USGS, 2008).

Similar to the San Andreas fault, the 80-mile Rodgers Creek fault is a "strike-slip" fault with its northern extension located approximately two miles east of the Project area.[3] The Healdsburg fault is considered a step-over extension of the Rodgers Creek fault and continues north of the project area into Alexander Valley. The Rodgers Creek fault is an "active" fault because it has experienced displacement during the last 11,000 years.[4] The most recent significant earthquake (magnitude 5.6 and 5.7) on the Rodgers Creek fault occurred on 1 October 1969. The U.S. Geologic Survey (USGS) estimates the probability of a large earthquake (magnitude 6.7 or greater) on the Rodgers Creek fault zone (when considered as an extension of the Hayward fault zone) during the period 2002 to 2032 to be 31 percent (USGS, 2008). The expected ground shaking generated by a seismic event on the Rodgers Creek fault is anticipated to cause significant damage and interruption of service for transportation (e.g., highways, railroads, and marine facilities) and lifeline (e.g., water supply, communications, and petroleum pipelines) facilities throughout Sonoma County.

Earthquake ground motion is commonly described using the motion parameters of acceleration and velocity in addition to the duration of the shaking. A common measure of ground motion is the peak ground acceleration, which is the largest value of horizontal acceleration obtained from a seismograph for a given component of motion. Peak ground acceleration is expressed

[3] Strike-slip faults are those that displace laterally; movement of a strike-slip fault is parallel with the direction of the fault trace.

[4] Active faults pose a potential hazard either directly, due to sudden permanent ground deformations (fault rupture and related deformation), or indirectly due to strong ground shaking.

as the percentage of the acceleration due to gravity (g), which is approximately 980 centimeters per second squared.[5] The peak ground acceleration for the project site is estimated to be 0.543 g (CGS, 2010), which indicates that site is subject to significant shaking.

The greatest potential source for strong seismic ground shaking in the project area is the active Rodgers Creek Fault Zone, which has historically produced moderately large earthquakes (ABAG, 2007). The project area would likely experience very strong shaking intensity in the event of a magnitude 7 earthquake along the Rodgers Creek segment of the Hayward-Rodgers Creek Fault System (ABAG, 2007). Such an event could result in damage to project facilities. Seismically-induced strong ground shaking could result in damage to foundations, buildings and digesters, or the proposed gas pipeline. Damage to the digesters could release the digesting manure into the environment. Breaks to the biogas pipeline could release the gas to the environment presenting potential fire risks at the project facility and along the pipeline to the existing PG&E pipeline. The facility would be offline for an unknown amount of time, depending on the level of damage, availability of repair services and materials. However, the project facilities would be designed based on standard geotechnical engineering evaluation and design criteria, typical for this region of California that are protective of the facility from any such hazards.

The California Building Code (CBC) has been codified in the California Code of Regulations (CCR) as Title 24, Part 2. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety and general welfare through structural strength, means of egress, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. The CBC is based on the International Building Code (IBC) published by the International Code Conference. In addition, the CBC contains necessary California amendments which are based on the American Society of Civil Engineers (ASCE) Minimum Design Standards 7-05. ASCE 7-05 provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (flood, snow, wind, etc.) for inclusion into building codes. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients which are used to determine a Seismic Design Category (SDC) for a project. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site and ranges from SDC A (very small seismic vulnerability) to SDC E/F (very high seismic vulnerability and near a major fault). Design specifications are then determined according to the SDC.

5 In terms of automobile accelerations, one "g" of acceleration is a rate of increase in speed equivalent to a car traveling 328 feet from rest in 4.5 seconds.

Prior to construction, the project applicant would ensure that the design for the proposed project facilities and project construction techniques comply with relevant local, State and federal regulations and building code requirements. Requirements could include, but might not be limited to the preparation of site-specific soil and geotechnical engineering studies performed by a licensed professional engineer or engineering geologist with expertise in geotechnical engineering issues who is registered and/or certified in the State of California, to determine site specific impacts and to recommend the appropriate site specific mitigations. The project applicant would submit site specific soil and geotechnical engineering studies to the appropriate State and local regulatory agencies including, but not limited to, the County for review and approval. The project applicant would implement the feasible recommendations addressing potential seismic hazards and soil constraints; and implement CBC design requirements. Thus regulatory compliance with the CBC requirements and incorporation of recommendations from geotechnical investigation would minimize any significant effects. The impact would be less than significant.

a.iii) Liquefaction is a phenomenon whereby unconsolidated and/or near saturated soils lose cohesion[6] and are converted to a fluid state as a result of severe vibratory motion. The relatively rapid loss of soil shear strength during strong earthquake shaking results in the temporary fluid-like behavior of the soil. Soil liquefaction causes ground failure that can distress, displace, and/or destroy structures, damage roads, pipelines, underground cables, and buildings with shallow foundations. Liquefaction can occur in areas characterized by water-saturated, cohesionless, granular materials at depths less than 40 feet (ABAG, 2007). Geologic materials beneath the project area consist of alluvial fan and fluvial (river) deposits, which are loose unconsolidated stream, channel, levee, flood plain, basin, terrace, and fan deposits ranging in size from clay to boulders. The Seismic Hazard Mapping Act requires the California Geological Survey, in cooperation with the USGS, to update liquefaction hazard maps, however the maps do not include Sonoma County. The current hazard maps produced by the Association of Bay Area Governments (ABAG) depict liquefaction and lateral spreading hazards for the entire Bay Area in the event of a significant seismic event. According to the maps, the project site and the section of the proposed gas pipeline route parallel to Skylane Boulevard lie in an area expected to be moderately susceptible to liquefaction (ABAG, 2007). The portion of the pipeline parallel to Shiloh Road is in an area of low to very low liquefaction susceptibility. The geotechnical investigation conducted on the property immediately to the north indicated some weak subsurface soils that could be susceptible to liquefaction (Tabor, 2000).

As discussed above in a.ii), a geotechnical investigation conducted for the project would identify the soils limitations and provide information on the structural engineering requirements. Because the project site has a moderate susceptibility to liquefaction (ABAG, 2007), the standard engineering remedies identified in the geotechnical report would reduce the potential for exposure to the risk. Such remedies could include replacement of problematic soil materials or specially designed foundations. As discussed above, the project would be constructed

6 Cohesion is the intermolecular force that holds together the molecules in a solid or liquid.

under the CBC and the project design would be based on the criteria in the geotechnical report and incorporate the recommendations and account for the potential site earthquake ground motion and soil type. Therefore, the potential impacts from liquefaction would be less than significant.

a.iv) Slope instability, including landslides, earth flows, and debris flows, have the potential to undermine foundations, cause distortion and distress to overlying structures, and displace or destroy structures. However, the project area is relatively flat and the potential for downslope movement of materials triggered by gravity or by earthquake ground shaking to occur on the site is negligible. In addition, the project would not create engineered slopes. Therefore, the proposed project would not have a significant effect associated with landslides and slope failures.

b) Erosion is the wearing away of soil and rock by processes such as wind and precipitation runoff. Soils containing high amounts of silt or clay can be easily erodible, while sandy soils are less susceptible. Excessive soil erosion can eventually lead to damage of building foundations and roadways. Typically, the soil erosion potential is reduced once the soil is graded and covered with gravel, concrete, structures, or asphalt. Surface soil erosion and loss of topsoil could occur from soil disturbance associated with construction of access road and the project buildings. However, the extent of the soil erosion and topsoil loss expected for the proposed project is minor because the site is relatively flat. In addition, as discussed in Section 9, Hydrology and Water Quality, the project applicant would implement **Mitigation Measure HYD-1** that involves preparation and implementation of a storm water pollution prevention plan (SWPPP) and incorporation of measures to prevent and control storm runoff and erosion. As a result, the project would result in a less-than-significant impact.

c) The geology beneath the project area consists of alluvial fan and fluvial (river) sediments, consisting of unconsolidated stream, channel, levee, flood plain, basin, terrace, and fan deposits ranging in size from clay to boulders. A significant earthquake on the nearby Rodgers Creek fault zone could result in seismically-induced settlement, subsidence, or liquefaction. Settlement is the depression of the bearing soil when a load, such as that of a structure or new fill material, is placed upon it. If not properly engineered, loose, soft, soils comprised of sand, silt, and clay have the potential to settle after a building or other load is placed on the surface. During an earthquake, settlement can occur as a result of the relatively rapid compaction and settling of subsurface materials (particularly loose, uncompacted, and variable sandy sediments) due to the rearrangement of soil particles during prolonged ground shaking. As discussed above in a.ii) and a.iii), the project applicant would prepare a geotechnical investigation report that would identify the soils limitations and provide information on the structural engineering requirements, including standard engineering remedies, in this case, to reduce the potential of risk from unstable soils. Such remedies could include replacement of problematic soil materials or specially designed foundations. As discussed above, the project would comply with CBC, and its design would incorporate potential site earthquake ground motion and soil type as recommended in the geotechnical report. Therefore, the potential presence of

unstable units would be addressed as a part of the project design and would minimize any significant impacts. The impacts would be less than significant.

d) Expansive soils possess a "shrink-swell" behavior, which is the cyclic change in volume (expansion and contraction) that occurs in fine-grained clay sediments from the process of wetting and drying. Structural damage may occur over a long period of time, usually as a result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils. The project area is a relatively flat land parcel underlain by moderately-to well-drained loams referred to as Huichica Loam and Zamora silty clay loam, which are typically located on low bench terraces and alluvial fans (USDA, 2010). Both loams are considered subject to the potential shrink-swell of clays and thus considered potentially expansive. If present, placement of facilities on expansive soils could result in cracks or breakage of foundations or the subsurface natural gas pipeline. This could be a significant impact. However, as discussed above in a.ii) and a.iii), the project would include a geotechnical investigation that would identify the soils' limitations and provide information on the structural engineering requirements, including standard engineering remedies to reduce the potential for damage from soils susceptible to shrink-swell. Such remedies could include replacement of problematic soil materials or specially designed foundations. As discussed above, the project would comply with CBC, and its design would incorporate potential site earthquake ground motion and soil type as recommended in the geotechnical report. Therefore, the potential presence of soils susceptible to shrink-swell would be addressed as a part of the project design and would minimize any significant impacts. The impacts would be less than significant.

e) The proposed project does not include construction of any septic tank or wastewater disposal system. Therefore, the project would have no impact.

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Greenhouse Gas Emissions

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
7. GREENHOUSE GAS EMISSIONS — Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☐	☒
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

Discussion

a) Implementation of the proposed project would result in greenhouse gas (GHG) emissions that would occur during construction of the project as well as a net GHG emission reduction that would occur during operations of the project. Project-related short-term GHG exhaust emissions would be generated during the ten-month construction period associated with use of heavy-duty off-road construction equipment and on-road heavy trucks and light-duty vehicles. GHG emissions that would be generated by construction of the project were estimated to be approximately 542 metric tons carbon dioxide (CO_2) using the URBEMIS 2007 emissions model (see Appendix A for more information regarding emission estimates).

In regards to operations, as shown in **Table 2.7-1**, the project would result in long-term reductions in CO_2 equivalent (CO_2e) emissions primarily due to methane capture through the closed system inherent in the proposed digester process. Whereas, under the current conditions, the animal waste inside the chicken houses, when removed is then either land applied as a fertilizer or taken to a landfill, all of which results in large quantities of methane being released

TABLE 2.7-1
OPERATIONAL GREENHOUSE GAS EMISSIONS

Sources	Greenhouse Gas Emissions (metric tons/year) CO_2e
Methane Capture	-144,448
Fuel Cell Net Emissions	-942
On-road Vehicle Trips	616
Off-road Equipment (Loader)	44
Water Usage Indirect Emissions	31
Electricity Usage Indirect Emissions	1
Total Net Emissions (metric tons/year)	**-144,698**

Refer to Appendix A for additional information on the assumptions, emission factors, and methodologies used to estimate GHG emissions that would be associated with the project.

into the atmosphere as the manure decomposes. Other non-biomethane byproducts, including CO_2, would be captured by the proposed wet scrubber at the biogas cleaning facility and would be combusted and released as exhaust gas in compliance with the air permit under CARB regulations. It should be noted that CO_2 emissions from decomposition of organic material are considered *biogenic*, which means they are a component of the natural cycling of carbon in the biosphere and the atmosphere. Therefore, these emissions are not accounted for in Table 2.7-1. The biomethane produced can be used in place of natural gas for various processes. Thus, development of the proposed project would result in an inherently efficient and renewable source of energy.

Approximately 25 percent of the captured biomethane would be used to fuel the proposed fuel cell, which would create electricity that Sonoma County Water Agency (Water Agency) would use to power its facilities including the Airport/Larkfield/Wikiup Sanitation Zone wastewater treatment plant. The biomethane not used at the fuel cell would be conveyed via the 4-inch PG&E connection pipeline to the PG&E distribution system.

The fuel cell would convert the biomethane to hydrogen, which would be used as the fuel to generate electricity through a series of chemical reactions. The emissions resulting from the chemical reactions would include CO_2, and were estimated using the manufacturer specification CO_2 emission factor associated with the DFC1500^{TM} fuel cell power plant (FuelCell Energy, Inc., 2010). The CO_2 emissions that would be generated by the fuel cell would be slightly lower per megawatt-hour (MWh) than the average unit of energy produced in California that it would displace, as reported by the California Climate Action Registry (CCAR) (CCAR, 2009).

Project operation would also generate an estimated 72 light-duty auto and 32 heavy truck one-way trips each day (six days a week). It is also assumed that one heavy off-road piece of equipment, such as a loader, would generate GHG exhaust emissions at the site on a daily basis associated with moving solid materials around the site. In addition, indirect GHG emissions associated with water use for the digesters and electricity that would be required

for various aspects of the project were estimated for the project employing emission factors and assumptions from the California Energy Commission (CEC) and the CCAR (CEC, 2005 and CCAR, 2009). As indicated in Table 2.7-1, these direct and indirect emissions that would be generated by the project would be negligible compared to the GHG reductions that would be associated with the project.

The Bay Area Air Quality Management District (BAAQMD) recently adopted an approach for assessing GHG-related impacts in CEQA review documents. The BAAQMD's *CEQA Air Quality Guidelines* (BAAQMD, 2010) recommend that lead agencies use an annual operational emissions significance threshold for non-stationary sources of 1,100 metric tons CO_2e per year or an annual operational emissions significance threshold for stationary sources of 10,000 metric tons CO_2e per year. Because the project would result in emission sources of both stationary and non-stationary sources, the more stringent threshold of 1,100 metric tons per year is used in this analysis to assess significance.

As indicated in Table 2.7-1, the project would result in no net increase in GHG emissions. In fact, the project is estimated to result in an overall emissions reduction of up to 144,698 metric tons of CO_2e emissions per year that would occur on an annual basis (even if the 942 metric tons/year fuel cell CO2 emissions were not considered offset, the total project CO2 emissions would be below BAAQMD thresholds). At this emission reduction rate, the GHG emissions that would result during construction of the project would be easily offset during the first two days of project operations. Therefore, the project would not generate GHG emissions, either directly or indirectly, that would have a significant impact on the environment. There would be no impact.

b) In 2005, the ten local governments within Sonoma County set a mutual GHG target in partnership with the Climate Protection Campaign (CPC). The target is to reduce GHG emissions to 25 percent below 1990 levels by 2015, one of the most aggressive targets in the country. To help Sonoma County local governments reach this goal, CPC published the Community Climate Action Plan (CCAP), which recommends regional solutions to reduce emissions from buildings, transportation, the electrical grid, agriculture, forestry, and solid waste. One of the solutions identified in the CCAP to meet the 25 percent reduction goal is Solution # 3 - Switch electricity generation from fossil fuel to renewable sources and construct a portfolio of new, local renewable energy sources (CPC, 2008). The proposed project would be consistent with this CCAP-identified solution because it would result in the generation of a new renewable energy source.

With regard to State policies, the proposed project would not conflict with the California Air Resources Board (CARB) early action strategies identified to support California Assembly Bill 32 (AB 32), also known as the Global Warming Solutions Act of 2006 (CARB, 2009). In fact, the project would be consistent with the GHG reduction measures contained in AB 32, specifically Measures E-3 (achieve a 33 percent renewables mix by 2020) and RW-3 (high recycling/zero waste). Anaerobic digestion produces biomethane, which is a

renewable energy source (supports Measure E-3) and anaerobic digestion is one of the categories listed under measure RW-3.

Therefore, the project would not conflict with an applicable local or State plan, policy, or regulation adopted for the purpose of reducing the emissions of GHG emissions. There would be no impact.

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Hazards and Hazardous Materials

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
8. 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 accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
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?	☐	☐	☒	☐

Discussion

a, b) The term "hazardous material" is defined in law as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment.[7] The storage, transport, and use of hazardous materials are subject to federal, state and local regulatory requirements.

Construction

Project construction activities would involve use and handling of limited quantities of potentially hazardous materials such as gasoline, diesel fuel, lubricating oil, adhesives, paints and solvents for vehicles and other construction equipment. Aboveground storage tanks, drums, or other containers would be used for storage of hazardous materials needed during construction. Activities such as fueling of equipment or handling of any hazardous materials could result in accidental spills, which could pose a hazard to construction workers, the public, and the environment. In addition, although there are no known contaminated sites in the project area (see d) below), it is possible that ground-disturbing activities such as excavation and grading could encounter previously unidentified hazardous materials. In that event, regulations stipulate the procedures for handling, testing and disposal of hazardous materials. Implementation of construction best management practices (BMPs) that include spill prevention and control measures (see 9, *Hydrology and Water Quality*) would minimize spills and reduce the risks

7 State of California, Health and Safety Code, Chapter 6.95, Section 25501(o).

associated with accidental hazardous materials releases. Typical BMPs include: following manufacturer's recommendations on use, storage, and disposal of chemical products; avoidance of overtopping construction equipment fuel tanks; proper containment during routine equipment maintenance; and proper disposal of discarded containers of fuel and other hazardous materials. Regulations administered by the California Occupational Safety and Health Administration (OSHA) would ensure that hazardous materials are handled in a manner that is protective of worker health and safety. Given the size of the project, large quantities of hazardous materials would not be stored at the construction site and, with the implementation of required BMPs, the potential impact from the hazardous materials use, storage and transportation would be less than significant.

Operations

The proposed project involves the production of biogas generated through the anaerobic digestion process. Biogas would be captured, cleaned, and compressed through the removal of hydrogen sulfide, carbon dioxide, and moisture. The biomethane would be partly used to produce electricity onsite, which would be supplied to the Sonoma County Water Agency, with the remaining biogas supplied to PG&E via a high-pressure 4-inch diameter gas pipeline (450 pounds per square inch (psi)) to the PG&E pipeline tie-in (see Figure 1-1, Chapter 1, Project Description). Biogas is comprised primarily of methane. Methane is not toxic, but handling methane can be hazardous. In addition, methane can be flammable. Methane has an ignition temperature of 1,000 degrees Fahrenheit (°F) and is flammable at concentrations between 5 percent and 15 percent in air. Unconfined mixtures of methane in air are not explosive; however, a flammable concentration within an enclosed space in the presence of an ignition source can result in gas flashes. Methane is buoyant at atmospheric temperatures and disperses rapidly in air.

Accidental releases of biogas from digesters or pipelines could pose risks to human health and safety. For example, biogas could be released from a leak or rupture of the digester facility or one of the pipe segments. In most instances, biogas would disperse rapidly in air and would not cause harmful effects. However, if biogas reaches a combustible mixture and an ignition source is present within an enclosed space (all three conditions must be met), a fire and/or explosion could occur, resulting in possible injuries and/or deaths.

With respect to the potential fire hazards associated with the storage and transport of methane and use of small quantities of other hazardous materials such as nitric acid, the National Fire Protection Association (NFPA) has established standards for fire protection that would be applicable to the construction of digesters, support facilities, and pipelines. These standards have been successfully implemented by numerous facilities across the country. Construction and operation of facilities would comply with the California fire code, local building codes (including requirements for the installation of fire suppression systems), and gas pipeline regulations (e.g., General Order No. 112-E, *State of California Rules Governing Design, Construction, Testing, Operation, and Maintenance of Gas Gathering, Transmission, and Distribution Piping Systems*). The local fire agency would be responsible for enforcing the

provisions of the fire code. The California Public Utilities Commission (CPUC) regulates the safety of gas transmission pipelines. Standard safety measures for anaerobic treatment facilities that would minimize the potential for exposure to biogas include leak detection systems, warning signals, and safety flares to reduce excess gas capacity.

Any biogas transmission pipelines would be designed, constructed and operated consistent with State and federal regulations to minimize the risk of rupture and accidental release. As described above, the CPUC has rules governing design construction, testing, operation, and maintenance of gas gathering, transmission, and distribution piping systems. These rules incorporate the federal regulations by reference, but for natural gas pipelines, they do not impose any additional requirements affecting public safety. The federal pipeline regulations include specific standards for material selection and qualification, design requirements, protection from corrosion, worker training, safety and provisions for safety standards specific to the location of the pipeline relative to population densities and sensitive land uses.

Scrubber facilities would be installed for removing hydrogen sulfide from the biogas, and the flushing of the scrubbers would produce sulfur biogas scrubber effluent. Effluent would be sent to the adjacent Airport/Larkfield/Wikiup Sanitation Zone (ALWSZ) wastewater treatment plant (WWTP), and would be required to meet the ALWSZ WWTP's industrial pre-treatment requirements (see Section 9, Hydrology and Water Quality, and 17, Utilities).

The biogas would be under pressure following cleaning and compression. Should a situation arise whereby the gas cleaning and compression system malfunctions, an automatic valve would open to divert excess gas to the emergency flares for combustion. The gas cleaning and compression system is redundant and is engineered to be operational continually. However, flare events would be rare and would only occur for operational maintenance and during an over-pressure emergency (e.g., when compressor or fuel cells are not functioning).

The project would also require long-term operational use of limited quantities of cleaning supplies and other materials such as fuel, hydraulic fluid, solvents, and oils that would be used for maintenance of equipment and vehicles. Such chemicals could be hazardous, therefore the project would be required to submit a Hazardous Materials Business Plan to the local Certified Unified Program Agency (CUPA), the agency that oversees hazardous materials regulations, which would review the adequacy of the plan and perform inspections to ensure compliance with hazardous materials labeling, training, and storage regulations.

Compliance with existing laws and regulations governing the transport, use, storage, handling and disposal of hazardous materials and compliance with stormwater permits for project construction and operation (see Section 9, Hydrology and Water Quality) would sufficiently reduce the risk of hazards and adverse health effects to the public and environment and therefore, this impact would be less than significant.

c) There are no schools located within one-quarter mile of the proposed project facilities. The nearest school, Sonoma Country Day School, is located more than a half-mile east of the site. The potential for a hazardous materials release resulting from project construction or operation to affect individuals at the school is low (see a) and b) above) therefore, this impact would be less than significant.

d) Based on a review of available data, there are no known or suspected hazardous materials in the project area (SWRCB, 2010; DTSC, 2010). Therefore, the project would result in no impacts.

e) The Charles M. Schultz – Sonoma County Airport is located approximately one mile to the southwest of the project area. The proposed project would not include any structures of significant height or include any activities that would impair operations of the airport or any other airport use. The project facility site is located adjacent to but outside of the airport property and the Approach Protection Plan Area (PRMD, 2007). The project site is at least half-mile from the airport runway.

The proposed project is, however, located within the Comprehensive Airport Land Use Plan (CALUP), Traffic Pattern Zone (TPZ) (PRMD, 2007). Within the TPZ, the land use compatibility standard discourages uses involving, as the primary activity, manufacture, storage, or distribution of explosives or flammable materials. The Airport Land Use Commission (ALUC) must make a determination on whether the proposed project is compatible with the land use restrictions of a TPZ. This is a land use consistency issue and is also discussed in the Section 10, Land Use and Land Use Planning. It should be noted that the Airport Land Use Commission has made similar determinations with respect to storage and use of hazardous materials or flammable materials associated with industrial uses within the TPZ. According to Section 8.6.5 of the CALUP, *Findings for Land Uses Which are to be Discouraged in the Airport Plan* (PRMD, 2001), the applicant shall ". . . be directed to consider a development plan that will minimize as much as possible the exposure to hazard. This might involve reducing structure heights, reducing lot coverage, reducing the overall scale of the project, or considering satellite locations for some of the proposed functions of the facility."

As discussed earlier in the chapter, the proposed facilities such as the anaerobic digesters and the gas pipeline would have a relatively low risk of fire. The proposed facilities would be constructed and operated in accordance with industry standards, fire safety codes, and hazardous materials regulations. As part of the Conditional Use Process, the applicant has obtained a determination (April 18, 2011) from the Sonoma County Airport Land Use Commission (ALUC) that the proposed project is consistent with the most recent version of the Comprehensive Airport Land Use Plan for Sonoma County. The proposed construction of the biogas generation facility within the Traffic Pattern Zone (TPZ) is determined to be a compatible land use given its overall planned size, proposed operation, and the existing surrounding land uses. Therefore, although the project is located in the vicinity of an airport, it would not result in a safety hazard for people residing or working in the project area, and impacts would less than significant.

Code of Federal Regulations, Title 14, Part 77 establishes the federal review process for determining whether a proposed development activities in the vicinity of an airport have the potential to result in a hazard to air navigation. The location of the proposed project with respect to the Charles Schultz Sonoma County Airport warrants evaluation to determine if filing notice with the Federal Aviation Administration (FAA) is required and whether the proposed facility represents an obstruction. The project lies approximately 3,000 feet from the nearest runway, Runway 14-32. Since the base elevation of the building is approximately 20 feet lower than the base elevation of the airfield any construction taking place at the project site that exceeds 50 feet (3,000 feet horizontally at a 100 to 1 slope plus the 20 foot differential in ground elevation between the project site and the airfield) would require that a notice be filed with the FAA. Since the 65-foot height (above ground level) of the digesters exceeds the 50-foot above ground elevation at the site, a FAA Form 7460-1, Notice of Proposed Construction or Alteration, would be filed with the FAA.

f) As discussed above under e), the project would be located within the CALUP area (Traffic Pattern Zone) of the Charles M. Schultz – Sonoma County Airport. However, the project would not be located within one mile of a private airport or landing strip. The project would not affect people working or residing around a private landing strip or airport; this impact is considered less than significant. Therefore, although the project is located in proximity to an airport, it would not result in a safety hazard for people residing or working in the project area.

g) The proposed project would not change emergency access to the project area, which would continue to be accessed from Skylane Boulevard and Aviation Boulevard. As discussed in Section 16, Transportation and Traffic, pipeline construction could require excavation across Skylane Boulevard, however, a minimum of one-way traffic flow would be required at all times and the duration of lane closure would be relatively brief. In addition, a traffic control plan as part of Mitigation Measure TRA-1, would be prepared that would include measures to provide access for emergency vehicles. Therefore, the project would not impair implementation of an adopted emergency response plan or emergency evacuation plan and the impact would be less than significant.

h) The proposed project is located within a developed area of Sonoma County that is primarily occupied with commercial, industrial, and governmental facilities, and not within or adjacent to wildland areas. According to the CALFIRE fire hazard severity maps, the project area is not located within a very high fire hazard severity zone (CALFIRE, 2008). While fires can start in commercial and industrial areas, they can be readily controlled through cooperative actions of local fire departments and typically do not get out of control and reach a level considered a wildland fire. Implementation of fire prevention measures and routine inspections would minimize the potential for a fire associated with the digesters or the gas transmission pipeline. These facilities would be constructed in accordance with applicable local and state laws governing natural gas pipelines (see discussion under Items a) and b) above). Considering this and given the distance from the nearest wildland area, the potential for the project to cause or be affected by a large local fire is less than significant.

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Hydrology and Water Quality

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
9. 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 which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, in a manner that would result in substantial erosion or siltation on- or off-site?	☐	☒	☐	☐
d) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☒	☐	☐

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☒	☐	☐
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) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Discussion

a, f) The project site is located in the Mark West Creek Sub-Watershed within the northwestern portion of the Santa Rosa Creek Watershed (PRMD, 2010). The Mark West Creek Sub-Watershed covers an area of approximately 83 square miles. Redwood Creek begins near Highway 101 and flows east to west along the southern boundary of the project site at an elevation of approximately 105 feet mean sea level. Airport Creek also begins near Highway 101 as a drainage slough and flows parallel to Redwood Creek, north of the project site. The project site is located south of an Airport/Larkfield/Wikiup Sanitation Zone (ALWSZ) wastewater treatment plant (WWTP) storage pond with earthen levee banks used to store reclaimed water. Redwood Creek and Airport Creek flow year round (USGS, 1998). The creeks flow west joining together approximately 2,000 feet west of the project site and eventually into Windsor Creek, which then flows southwest into Mark West Creek. Mark West Creek is a tributary to the Russian River, which flows into the Pacific Ocean.

The project site consists of an undeveloped grassy land parcel with an approximately one to two-foot tall soil berm along the outer edge of the entire project site perimeter. The grassy surface onsite allows infiltration of rainwater into subsurface soils with limited water that may drain south into the adjacent Redwood Creek. The proposed project could affect water quality during construction and operation of the proposed facilities.

Construction

Activities such as grading and excavation for access roads, ground leveling, foundations, buildings, digesters, and other structures including the gas pipeline during project construction would cause ground disturbance dislodging soil and sediment that may come into contact with stormwater flow. Project construction would involve use and storage of different

chemicals such as oil and grease, which if not managed, could inadvertently spill or contaminate stormwater. Such sediment-laden or contaminated stormwater, if not managed properly, could flow into the adjacent Redwood Creek or Airport Creek, and affect the downstream water quality. This could be a significant impact. However the impact would be minimized through compliance with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit (2009) for construction-related stormwater discharges as part of the **Mitigation Measure HYD-1** (refer to Chapter 3, Summary of Mitigation Measures, for details).

The project applicant would obtain a grading permit from the County of Sonoma Permit and Resource Management Department (PRMD) prior to site development. The project would also incorporate a 50-foot setback in its site layout (refer to Figure 1-3 in Chapter 1, Project Description) from Redwood Creek in compliance with the Sonoma County Permit and Resource Management Waterway Setback Requirements. Thus, compliance with the SWPPP, the County Code, and implementation of BMPs would minimize any water quality effects on the receiving waters.

Project construction would require excavation and trenching activities at the project site and along the proposed pipeline route, which could encounter subsurface water and require dewatering. Discharge of water resulting from dewatering operations would require an NPDES permit, or a waiver (exemption) from the North Coast Regional Water Quality Control Board (RWQCB), which would establish discharge limitations for specific chemicals (if they occur in the dewatering flows). Discharge of water resulting from dewatering operations would be short-term and temporary during construction, therefore categorized as a Low Threat Discharge under the North Coast RWQCB Resolution No. R1-2009-004. The resolution requires compliance with incorporation of mitigation measures and BMPs for treatment, control, minimization or avoidance of discharges as part of construction procedures. Compliance with the SWPPP as discussed above and implementation of **Mitigation Measure HYD-2** (refer to Chapter 3, Summary of Mitigation Measures, for details) would exempt the project from the resolution. Compliance with general low threat discharge permit requirements that could include proper testing and disposal of the extracted water prior to disposal would ensure that the impacts would be minimal (see). Following construction, the disturbed and excavated areas would be restored to existing conditions.

Operation

Potential long term water quality impacts from the project would be associated with the stormwater flows from the developed project site and wastewater generated from project operation. There would be no long-term water quality effects associated with the gas pipeline following construction.

The proposed project would generate approximately 25,000 square feet of impervious surfaces on a 5.4-acre site that would include the proposed buildings, facilities, and the access road onsite. The new impervious surfaces would reduce stormwater infiltration and increase the

stormwater flow onsite, which could flow into the creek or be routed to the storm drain system. Stormwater on the project site would be required to comply with the Statewide NPDES General Permit (1997) for Stormwater Discharges Associated with Industrial Activity (General Industrial Permit)[8] issued by the SWRCB. The permit requires facility operators to reduce or prevent pollutants in stormwater discharges and authorized non-storm water discharges through the development and implementation of BMPs as part of a SWPPP prepared for the site. Since the project site is located immediately adjacent to a natural waterway (i.e., Redwood Creek), the project would also be subject to the Standard Urban Storm Water Mitigation Plan (SUSMP) developed by the County of Sonoma and the City of Santa Rosa for new and redevelopment projects.

The SUSMP requires preparation and submittal of a preliminary and final Storm Water Mitigation Plan with a written certification of BMPs installed during the project approval process. The purpose of the BMP is to control, minimize, and manage surface water runoff and quality through site design and integration of structural BMPs. BMPs would involve routing the onsite surface water to specifically designed onsite areas where natural infiltration would continue to occur; use porous surface materials for the access road and walkways to increase areas capable of infiltration; or use a retention pond. The SUSMP refers to the two-year 24-hour storm event and the infiltration and drainage infrastructure that would be required for the site. Surface water runoff control and drainage features may include gutters, drains, etc. that route the water to the existing stormwater drain system on Skylane Boulevard to the east. Potential infiltration opportunities for the project include routing structure and road gutters to landscaped areas that are designed for the collection and infiltration of surface water into the subsurface levels. As required by the SUSMP, the project applicant would prepare the Storm Water Mitigation Plan including post-construction BMPs along with the Written Certification of BMPs, which is a document verifying that the BMPs were installed as intended by the designer and/or as recommended by the manufacturer. The landscaping plan as part of the project would retain the majority of the pervious grassy surfaces onsite and incorporate features such as gravel bag filter at drop inlets, drainage swales, and bioswales that would help reduce storm flows and protect stormwater quality. The landscaping plan would also comply with the Sonoma County Water Efficiency Landscape Regulations, which include irrigation and site design recommendations to minimize water use and maximize infiltration.

The project would involve collection and storage of materials such as fertilizer and the fuel, lubricants, oils, and other chemicals required to operate the facility. Such materials, if not managed properly, could cause accidental spills and migrate into the adjacent surface waters. However, as discussed in Section 8, Hazards and Hazardous Materials, the project applicant would develop and implement operations plans and spill prevention and response plans, which would include procedures to contain and store chemicals to prevent, control, and minimize any accidental spills. Such measures would also form a part of the stormwater mitigation plan mentioned above in addition to the spill prevention and response, and operations

8 The new draft NPDES Industrial General Permit was issued in January 2011 for public comments.

plans, which would minimize any water quality impacts. The long-term impact associated with stormwater would be less than significant.

Operation of the project facilities would generate approximately 28,000 gallons of wastewater per day, which would be routed to the ALWSZ WWTP. The ALWSZ WWTP has a design capacity of 900,000 gallons per day and operates under the Waste Discharge Requirements Order No. R1-2001-69 issued by the North Coast RWQCB. The wastewater would include sanitary waste and process waste such as digestate from the digestion process. The wastewater would be subject to the NPDES Industrial Waste Discharger pre-treatment requirements. As part of the discharge permit, the project applicant would be required to pre-treat the wastewater in order to comply with wastewater pre-treatment limits and execute regular wastewater sampling and monitoring programs. The project applicant would comply with the Industrial Waste Discharge permit requirements and the project wastewater would be collected and treated at the ALWSZ WWTP and would not cause a significant water quality impact.

b) Groundwater levels at the ALWSZ WWTP property adjacent to and north of the project site ranged from 94 to 99.6 feet mean sea level (i.e., approximately 11 feet below ground surface) in April 2000 (Tabor, 2000). The North Coast RWQCB identifies groundwater in the basin as a water supply resource. However, the proposed project would not involve long term withdrawals of groundwater and would not cause depletion or affect groundwater levels. The impact would be less than significant.

The proposed project would include installation of foundation structures for buildings and digesters, and subsurface piping to deliver the biogas onsite. The gas pipeline would be installed at a depth of approximately three to five feet depending on the site conditions (see Chapter 1, Project Description, for details). Project construction would require excavation at the project site, and trenching and directional drilling in the case of the proposed gas pipeline and power transmission line. Such activities may encounter perched or shallow water table, which may require dewatering. The dewatering process would be temporary and short-term during construction, therefore would not affect deeper groundwater levels.

The proposed project would result in development of the 5.4-acre site with new impervious surfaces, reducing the current available surface for natural infiltration. The project site is a part of the larger 83-square-mile Mark West Creek Subwatershed and is located within a heavy industrial and developed commercial area. Further, as described in a) above, preparation of a SUSMP would include provisions for establishment of areas for natural infiltration. Therefore the project is not expected to have a substantial impact on groundwater recharge. The impact is considered less than significant.

c,d,e) As discussed above in a), the proposed project would result in the addition of new impervious surfaces on the project site and thus reduce the extent of the stormwater infiltration available. The project would be constructed with a 50-foot setback from Redwood Creek along the southern edge of the site and therefore would not alter the creek drainage. Preparation and implementation of a SWPPP (Mitigation Measure HYD-1), as discussed under a)

above, would control and minimize any stormwater runoff and drainage impacts related to construction activities. In the long term, implementation of the Stormwater Mitigation Plan as required under the SUSMP and Industrial General Permit described in a) above, would control, minimize, and manage surface water runoff and quality. The majority of the stormwater would infiltrate through the pervious surfaces and the remaining stormwater would be routed to the site stormwater drainage system. The proposed stormwater control features would help control erosion and flow volumes draining outside the site (see discussion a) above). The proposed project would therefore not increase the stormwater flow to cause significant erosion, siltation, or flooding downstream. The impact would be less than significant.

g) The project area, including the pipeline route, does not lie within a 100-year floodplain (FEMA, 2010) nor does the proposed Project involve placing housing in the project area. The project would result in no impact.

h) The project area is located adjacent to but not within the 100-year flood zone. The site is located adjacent to Redwood Creek, which designated as Zone AE (FEMA, 2010). The proposed facilities would not be located within a flood plain and would not impede or redirect flood flows. The project would result in a less than significant impact.

i) No reservoirs or dams exist in the project vicinity. Therefore, the project would not 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. There would be no impact.

j) Although within a seismically-active region, the proposed project is not located in an area near large bodies of water or the ocean and therefore would not expose people or structures to a significant risk of loss or injury from a seiche, tsunami, or mudflow. There would be no impact.

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United States Geological Survey (USGS), *Windsor Quadrangle Topographic Map*, July 1, 1998.

Land Use and Land Use Planning

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
10.	**LAND USE AND LAND USE 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 the 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?	☐	☐	☐	☒

Discussion

a) Construction and operation of the proposed Project would not result in long-term disruption, physical division, or isolation of existing residences or communities in the vicinity and therefore no impact would occur.

b) The proposed project site is located in unincorporated portion of central Sonoma County between the cities of Santa Rosa and Windsor. The site lies over a mile west of Highway 101. The site is bound by the existing access road to the ALWSZ wastewater treatment plant on the north, a commercial park on the east and Redwood Creek on the south. As shown in **Figure 1-2** in **Chapter 1, Project Description**, the triangular project site is located on the southern portion of an approximately 22.5-acre parcel (Assessor Parcel Number 059-271-003). The northern 2.5 acres of the 5.4 acre-project site are designated as "Public Quasi Public" land use under the Sonoma County General Plan and is zoned as Public Facilities and the southern 2.9 acres are designated as "General Industrial" land use in the Sonoma County General Plan and is zoned as "Heavy Industrial". The Public/Quasi Public designation provides sites which serve the community or public need and are owned or operated by government agencies, non-profit entities, or public utilities (Sonoma County PRMD, 2009). Permitted uses within the Public/Quasi Public designation include waste disposal sites and sewage treatment plants. Permitted uses in a Public Facilities zoning include facilities for the production, generation, storage or transmission of water or the production or generation of electrical energy by a special district (Sonoma County Zoning Code, 2007). The General Industrial designation provides sites for industrial activities and employment that require urban services and that primarily serve an urban population (Sonoma County PRMD, 2009). Permitted uses in the General Industrial land designation include manufacturing compounding, assembling or treating of articles or merchandise from the previously prepared materials (Sonoma County Zoning Code, 2007). Permitted uses within the Heavy Industrial zoning include processing and manufacturing facilities.

The proposed project would involve construction and operation of facilities that would collect and process waste to produce biomethane (see Chapter 1, Project Description for details), which is consistent with the industrial designation of the project site. As described in Chapter 1, Project Description, the project applicant would be required to obtain a conditional use permit from the Sonoma County Permit Resources Management Department (PRMD). There are also flood overlay zones on the subject parcel associated with the creek at the south end of the property – However the entire project site lies outside of the flood zone. Therefore, the proposed project would not conflict with the Sonoma County Land Use Element of the County General Plan or Zoning Code, and the impact would be less than significant.

The project site is located less than 1,000 feet from the Charles M. Schulz Sonoma County Airport and falls within the Santa Rosa Airport Urban Service Area (Sonoma County PRMD, 2008). Although the site is not located within the Sonoma County airport property boundary limits, the site lies within the Comprehensive Airport Land Use Plan (CALUP), Traffic Pattern Zone (TPZ) (PRMD, 2001). The TPZ land use compatibility standard discourages manufacture, storage, or distribution of explosives or flammable materials as a primary use within the area (Sonoma County PRMD, 2001). The proposed project would include piping of the biogas generated at the project site to the PG&E pipeline over a mile northeast of the site. The project would not involve storage of natural gas onsite. As part of the Conditional Use Process, the applicant has obtained a determination (April 18, 2011)

from the Sonoma County Airport Land Use Commission (ALUC) that the proposed project is consistent with the related policies and standards of the California Public Utilities Code, the California Airport Land Use Planning Airport Handbook and the Comprehensive Airport Land Use Plan for Sonoma County (ALUC, 2011). The proposed construction of the biogas generation facility within the Traffic Pattern Zone (TPZ) is determined to be a compatible land use given its overall planned size, proposed operation, and the existing surrounding land uses. Therefore, potential impacts to land use consistency would be less than significant.

c) As discussed in Section 4, Biological Resources, the proposed Project would not conflict with any applicable government-adopted habitat conservation plan or natural community conservation plan. No impact is anticipated.

References

Sonoma County Airport Land Use Commission (ALUC), Resolution Number 11-01, *Resolution of the Sonoma County Airport Land Use Commission Determining that the proposed Sonoma County Farms to Fuel Project at the Airport-Larkfield-Wikiup Wastewater Treatment Plant Is Consistent with the Comprehensive Airport Land Use Plan for Sonoma County*. April 18, 2011.

Sonoma County Permit and Resource Management Department, Sonoma County General Plan 2020, Land Use Element. Amended December 8, 2009.

Sonoma County Permit and Resource Management Department (PRMD), *Comprehensive Airport Land Use Plan for Sonoma County (CALUP)*, Adopted in January 2001 and amended in October 2001. http://www.sonoma-county.org/prmd/docs/airport/ch8-excerpt.htm Accessed December 1, 2010.

Sonoma County Permit and Resource Management Department, Sonoma County General Plan 2020, Air Transportation Element. 2008. http://www.sonoma-county.org/prmd/gp2020/ate.pdf, Accessed December 1, 2010.

Sonoma County Zoning Code. http://www.sonoma-county.org/prmd/docs/zoning_data/057-060.pdf. Adopted June, 2007. Accessed December 8, 2010.

Mineral Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
11. 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?	☐	☐	☐	☒

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Discussion

a, b) The project area is located within Mineral Resource Zone MRZ-3a, which is an area containing known mineral occurrences of undetermined significance. The designation likely refers to the known subsurface presence of the Glen Ellen Formation beneath the project area (Tabor, 2000). The Glen Ellen consists of older Plio-Pleistocene fluvial gravel, sand, and silt, which qualifies it as a potential aggregate mineral resource. However, Tabor (2000) encountered the Glen Ellen formation in soil core samples drilled at the Airport/Larksfield/Wikiup Sanitation Zone wastewater treatment plant west of the project site at depths of approximately 31.5 feet, well below the depth of construction activities for the proposed project. The shallower soils are not specifically identified by the California Geological Survey as a mineral resource.

Project construction and operation would not result in loss of any known mineral resources or loss of availability of a locally-important mineral resource recovery site. Therefore, the project would have no impact on mineral resources.

References

California Geological Survey, Miller, Russell V., Susan L. Kohler, Lawrence L Busch, Don Dupras, and John Clinkenbeard, *Mineral Land Classification of Aggregate Materials in Sonoma County, California*, California Department of Conservation, California Geological Survey, Special Report 175, 2005.

Tabor Consultants, Preliminary Subsurface Investigation, Airport-Larkfield-Wikiup Sanitation Zone, Tertiary Treatment Plant Upgrade Project, Sonoma County, California, July 7, 2000.

Noise

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
12. NOISE — Would the project:				
a) Result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
b) Result in exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
d) Result in 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 area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	☐	☐	☒	☐
f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion

a) The proposed project site is located in unincorporated Sonoma County between the cities of Santa Rosa and Windsor. Short-term construction noise, such as the noise that would occur under the proposed project, is not addressed in the County of Sonoma General Plan 2020 Noise Element (County of Sonoma, 2008) and the County of Sonoma does not have an adopted noise ordinance. In addition, there are no noise standards of other agencies that would be applicable to construction of the proposed project. The project site is located in a mostly commercial and industrial area (see Chapter 1, Project Description, for details). Project construction would be short-term and temporary and because there are no specific noise standards applicable for construction activities, there is no potential that construction would expose persons to or generate noise levels in excess of standards established in an applicable plan or noise ordinance, or applicable standards of other agencies.

Regarding long-term operations-related noise, County of Sonoma General Plan Policy NE-1c applies to non-transportation related noise at sensitive land uses from new projects, such as the proposed project. Sonoma County defines noise sensitive uses as residences, schools, hospitals, nursing homes, churches, libraries, long-term medical or mental care facilities, and office building interiors (Sonoma County, 2008). The policy includes daytime and nighttime exterior noise level limits for various noise metrics, the most stringent of which are a nighttime L50 of 45 decibel (dBA) and a daytime L50 of 50 dBA.[9] An L50 of 45 dBA means that 45 dBA can be exceeded 50 percent of the time or 30 minutes in any hour.

Light-industrial buildings that may contain office space are approximately 250 feet from the proposed location of the fuel cell and gas compressors. For the purposes of this analysis, these buildings are considered to be sensitive receptors during daytime work hours. The

[9] Sound pressure level is measured in A-weighted decibels or dBA.

nearest residential sensitive receptors are approximately 1,700 feet northwest of the project site and approximately 250 feet south of the site is a detention facility.

Long-term operational noise at the project site would be generated from several non-transportation sources, including two gas compressors and the fuel cell power plant (see Figure 1-3). Typical operating conditions would result in combined compressor noise levels of approximately 88 dBA (assuming two compressors operating simultaneously) at 10 feet (Roca, 2011) and noise levels that would be associated with operation of the proposed fuel cell would be approximately 72 dBA at 10 feet (FuelCell Energy, Inc., 2010).

For the purposes of this analysis, it is assumed that noise from the non-transportation sources would attenuate at a rate of 6.0 dBA per doubling of distance from the source. At the light industrial building 250 feet to the east, combined noise levels of the compressors and fuel cell power plant would be approximately 57 dBA. Although the County only considers the inside of office buildings to be sensitive, this noise level would above be above allowed inside limits on the outside of the closest building, so could potentially violate the daytime interior limits (depending on how much noise attenuation the building wall has - Typically at least 15 dBA, which would reduce interior noise below the standard) identified in Sonoma County Policy NE-1c. At the detention facility approximately 250 to the south, combined operational noise levels would be approximately 47 dBA due to the additional attenuation of up to 10 dBA that would be associated with the 200-foot wide wooded area that blocks the line of sight between the project site and the detention facility. This noise level would potentially violate the nighttime limits identified in Sonoma County Policy NE-1c. However, the detention facility runs onsite generators at night which produce more than 47 dBA, so no significant impact is expected. The project noise levels at the nearest residences would be approximately 30 dBA accounting for the wastewater treatment plant storage pond levee that would block the line of sight between the noise sources and the residence.

As indicated above, combined non-transportation noise levels that would be associated with the project could exceed the exterior and interior noise limits identified in Sonoma County Policy NE-1c, which could result in a potentially significant impact. Implementation of **Mitigation Measure NOI-1** (refer to Chapter 3, Summary of Mitigation Measures, for details) would ensure that noise levels associated with the Project would be consistent with noise limits identified in Sonoma County Policy NE-1c. Therefore, impacts would be mitigated to a less-than-significant level.

b) Some types of construction equipment can produce vibration levels that can cause architectural damage to structures and be annoying to nearby sensitive receptors, such as residences. Vibration levels generated by the proposed project would vary. Typical vibration levels for the construction equipment type that would generally result in the highest vibration levels associated with the project (e.g., a large dozer) are presented in **Table 2.12-1**.

A numerical threshold to identify the point at which a vibration impact occurs has not been identified by County standards or municipal codes. Therefore, peak particle velocity (PPV)

thresholds identified by the California Department of Transportation (Caltrans) are used in this analysis to determine the significance of vibration impacts related to adverse human reaction

Table 2.12-1
VIBRATION LEVELS FROM Construction equipment

	Peak Particle Velocity (in/sec)
Distance (feet)	**Large Dozer**
10	0.24
30	0.07
50	0.04

SOURCE: Caltrans, 2004.

and risk of architectural damage to normal dwelling houses with plastered walls and ceilings. The human reaction and architectural damage thresholds are 0.10 inches per second and 0.20 inches per second, respectively (Caltrans, 2004). These respective PPV levels have been found to be annoying to people in buildings and can pose a risk of architectural damage to residential buildings.

The nearest existing building would be located approximately 30 feet from active project construction equipment. At this distance, construction equipment PPV levels would be up to 0.07 inches per second, which would be lower than the identified significance thresholds. Therefore, vibration impacts associated with the project would be less than significant.

c) Ambient noise levels in the vicinity of the site are influenced primarily by activity at Sonoma County Airport to the southwest and the light industrial and institutional (i.e., detention facility) uses to the east and south, respectively. Ambient L_{eq}[10] and L_{max}[11] short-term noise levels were measured to characterize noise conditions in the vicinity of the existing nearby light-industrial and institutional uses. Short-term measurements were taken at two locations (see **Table 2.12-2** for the measured noise levels) at the Project site to represent the ambient noise levels at the adjacent uses. The peak noise levels that occurred during the measurement periods were noted to be associated with aircraft taxiing and landing. Other noted noise sources were outdoor activities at the detention facility.

As indicated in a) above, long-term non-transportation operational noise that would be generated at the proposed project site would result in noise levels of up to 57 dBA at the outside of the nearest receptor location. Given the ambient noise levels in the area, this long-

10 The equivalent sound level is used to describe noise over a specified period of time, in terms of a single numerical value. The L_{eq} is the constant sound level that would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

11 The instantaneous maximum noise level measured during the measurement period of interest.

term increase in noise could be perceived as substantial. However, pursuant to **Mitigation Measure NOI-1**, operational noise associated with the project would be reduced to ensure compliance with Sonoma County Policy NE-1c. Therefore, the impact related to the project-related increase in ambient noise levels would be mitigated to a less-than-significant level.

TABLE 2.12-2
Ambient NOISE LEVELs measured at THE Project site

No.	Measurement Location	Time	L_{eq}	L_{max}
1	Eastern border of the site, approximately ten feet from the fence line of a light-industrial use (Budweiser distributor).	4:07 p.m.	49.0	63.8
2	Southern border of the site, approximately ten feet from creek fence line, and approximately 250 feet from an institutional use (detention facility).	4:20 p.m.	52.4	68.9

NOTE: Short-term (ten-minute) measurements were collected on Wednesday, April 13, 2011.

In addition to non-transportation noise sources, the project would include transportation noise sources in form of approximately 20 truck round-trips and up to 36 commute round-trips per day. Periodic levels associated with these trips would be in the high-60-dBA-to-high-80-dBA-range 50 feet from the passing vehicle. The vehicles would likely access the site via Aviation Boulevard, Shiloh Road, Skylane Boulevard, Airport Boulevard, and Highway 101. Ambient noise levels along these roads would slightly increase due to the additional traffic that would be associated with the proposed project; however, the increase would be negligible due to the industrial nature and the general absence of sensitive receptors along these routes. The project impact would be less than significant.

d) For the purposes of this noise analysis, temporary impacts during construction activities would be considered significant if they would substantially interfere with sensitive land uses. Substantial interference could result from a combination of factors, including: exposing sensitive receptors to the generation of substantial noise levels (i.e., equal to or greater than 90 dBA)[12] at sensitive receptor locations lasting long periods of time at any one location (i.e., more than one week); and/or construction activities that would affect residential noise-sensitive uses during the nighttime.

Construction of the project would occur over a period of approximately ten months. Construction activities that would be associated with the project would include: grading; excavation; road building; heavy truck hauling of equipment, supplies, and soil; and construction of proposed facilities and buildings. These construction activities would require the use of heavy-duty construction equipment, including cranes, an excavator, grader, dozer, loader, and a water

[12] The Federal Transportation Administration has identified a daytime hourly L_{eq} level of 90 dBA as a noise level where adverse community reaction could occur (FTA, 2006, p.B-2).

truck. Operation of this equipment would represent a potential incremental increase in temporary noise levels in the vicinity of the site.

Table 2.12-3 presents the noise levels associated with the heavy-duty equipment that would be required to construct the project. As indicated, construction noise levels would range up to 88 dBA at a distance of 50 feet from the proposed project site. These pieces of construction

Table 2.12-3
Noise levels associated with construction equipment

Equipment Description	Noise Level at 50 feet (dBA)	dBA at Nearest Sensitive Receptor
Crane	83	42
Excavator/Dozer	85	44
Grader	85	44
Loader	85	44
Jack Hammer	88	47
Water Truck	88	47

The noise attenuation rate is assumed to be approximately 6.0 dBA for each doubling of distance from the source. An additional attenuation of 10 dBA has been applied to account for the ALWSZ WWTP pond levee that would block the line of sight between the project site and the nearest sensitive receptors

SOURCE: FTA, 2006.

equipment would likely operate between four and eight hours per day, five days a week, and would be dispersed throughout the project site and along the pipeline route. These noise levels may represent a nuisance to the nearby uses, but given the short-term nature of the construction activities, they would not be considered substantial.

In addition to activities at the project site, it is assumed that the construction of project would require approximately 30 heavy-duty truck round-trips per day associated with exporting soil and other debris and importing materials and supplies, and there would also be several dozen light duty auto round-trips per day associated with commuting workers during the construction period. Noise levels that would occur along the vehicle routes associated with a passing vehicle would range from a high 60-dBA to high 80-dBA range, depending on the type of vehicle and distance to the vehicle. Ambient noise levels along the traveled roads would temporarily increase due to the additional traffic that would be associated with construction of the project; however, the increase would be negligible due to the short duration of the construction period and the industrial nature and absence of sensitive receptors along the route in the project area. Impacts would be less than significant.

e) The proposed project site is approximately one half mile east of the nearest runway associated with the Charles M. Schultz Sonoma County Airport; however, due to the orientation of the airport runways relative to the project site, the site is located outside of the 55 dBA noise contour projected for the airport (County of Sonoma, 2008). The proposed project does not involve the development of noise-sensitive land uses and due to the orientation of the runways;

workers at the site would not be exposed to excessive aircraft noise. The project impacts would be less than significant.

f) There are no private landing strips in the vicinity of the project site. The proposed project does not involve the development of noise-sensitive land uses, and thus, implementation of the proposed project would not expose people to excessive aircraft noise. No impact would occur.

References

California Department of Transportation (Caltrans), *Transportation and Construction-Induced Vibration Guidance Manual*, June 2004.

County of Sonoma, Permits and Resources Management Department, *County of Sonoma General Plan 2020*, Noise Element, adopted September 23, 2008.

Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment*, May 2006, available online: http://www.fta.dot.gov/documents/FTA_Noise_and_ Vibration_Manual.pdf, Accessed April 20, 2010.

FuelCell Energy, Inc., 2010. Brochure for the DFC1500 Stationary Fuel Cell Power Plant, December 8, 2010.

Roca, Ross. 2011. Personal communication between Ross Roca, the project equipment supplier, and John Naab of Biostar Systems, forwarded to Environmental Science Associates on April 17, 2011.

Population and Housing

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
13. 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 housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

a) As part of the proposed project, approximately 94 workers would be employed in the short-term for construction and 36 workers would be employed in the long-term for the operation

of the facility. The workers would be employed from the local area in the project vicinity. The project would not involve new homes or extensive infrastructure systems that may induce substantial population growth in the area. The impact would be less than significant.

b,c) See a) above. The proposed project would not involve housing and would not displace or replace any existing housing units. No impact is expected.

Public Services

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
14. PUBLIC SERVICES — Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of, 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 following public services:				
i) Fire protection?	☐	☐	☒	☐
ii) Police protection?	☐	☐	☒	☐
iii) Schools?	☐	☐	☒	☐
iv) Parks?	☐	☐	☒	☐
v) Other public facilities?	☐	☐	☒	☐

Discussion

a.i) Sonoma County contracts with various municipal and district fire agencies to provide backup services in the County to volunteer companies (Sonoma County PRMD, 1989). The Sonoma County Fire Services Division coordinates all fire service activities in the unincorporated areas of Sonoma County. The project area is located in the Rincon Valley Fire Protection District's service area (Kurvhals, 2010) and is under the service of the main Rincon Valley Fire Department station located at 8200 Old Redwood Highway in the Town of Windsor.

In the short-term, project construction would include daily arrival and departure of construction workers, trucks hauling equipment and materials, and the removal of construction debris could cause temporary traffic congestion along Aviation Boulevard and Skylane Boulevard. Installation of the proposed gas pipeline could result in road restrictions in the crossing at Skylane Boulevard in order to provide adequate construction work area. This could affect access to emergency response vehicles. However, as described in Section 16, Transportation and Traffic, implementation of Mitigation Measure TRA-1, the impact would be minimized to a less than significant level.

In the long-term, the proposed project would require approximately 36 ongoing full time employees to operate the project facilities. The new workers employed from the local areas plus the operation of the project facilities would not result in the need for new fire protection facilities. The impact would be less than significant.

a.ii) The Sonoma County Sheriff's Department provides police protection services and is responsible for primary law enforcement services in the unincorporated Sonoma County area (Sonoma County, 2010b). The project site lies with Law Enforcement Zone 3, which is staffed by the Sonoma County Sheriff's main office located at 2796 Ventura Avenue in Santa Rosa. As stated above, the proposed Project would require approximately 94 short-term construction and development workers, plus 36 ongoing full time employees to operate the project and the ancillary facilities. The proposed project would not result in a need for new police protection services.

As stated in Section 16, Traffic and Circulation, installation of the proposed gas pipeline could result in road restrictions at the Skylane Boulevard crossing, which could affect the vehicle travel lanes in order to provide adequate construction work area. This could temporarily block vehicle access to local streets or property driveways, including access for emergency vehicles, which could increase the demand for police protection services to assist in traffic management or in the event of an accident. With the implementation of Mitigation Measure TRA-1, the impact would be less than significant (See Section 16, Transportation and Traffic, for additional information).

a.iii) The Santa Rosa City High School (Mark West Union) District provides public school education services in the project vicinity. The Sonoma County Office of Education, Sonoma County School Superintendent, and the Office of Special Education administrative offices are located one-quarter mile southeast of the proposed Project area at 5340 Skylane Boulevard. This building is not a school facility; therefore the project impacts are considered less than significant. The Sonoma County Day School, a private K-8 school, is located at 4400 Day School Place approximately 0.7 miles east from the project site past the Northwestern Pacific Railroad. Additional schools in the project vicinity include Mark West Elementary, John B. Riebli Elementary, San Miguel Elementary, and Mark West Charter School. As described in a.i) through a.iii) above, the workers for project construction and operation would be employed from the local areas and would not substantially increase the local population nor would it provide additional housing opportunities or increase the level of service at the school. There would be no new need for schools. Pursuant to State and local laws, the project would also be required to pay all applicable school impact fees adopted by local school districts to mitigate potential cumulative school impacts. Therefore, the impact would be less than significant.

a.iv) The Sonoma County Regional Parks Department owns and operates the regional parks in Sonoma County, including the Shiloh Ranch Regional Park, located approximately two miles east of the project area (Sonoma County, 2010a). The Windsor Parks and Recreation Department owns and operates neighborhood and community parks in the Town of Windsor, including

Acorn Neighborhood Park, R.T. Mitchell Neighborhood Park, both located approximately one mile north of the project area (Town of Windsor, 2010). Additionally the privately owned Windsor Golf Club is located approximately 0.8 miles north of the project site (see Section 15, Recreation, for additional information). As described above, the workers for the project would be employed from the local area and would not result in a need for new park facilities. The impact would be less than significant.

a.v) See a.iv) above. The workers for the proposed project would be employed from the local area and would not increase the population such that it would result in a need for new public facilities such as libraries or hospitals. Pursuant to local laws, all adopted applicable cumulative development impact fees, such as the local traffic impact fee, must also be paid. Therefore the impact would be less than significant.

References

Kurvhals, Donna. Sonoma County Fire and Emergency Services Department. Fire Protection Service Area Information Personal Communication. December 3, 2010.

Sonoma County. Sonoma County Regional Parks Department: Sonoma County Regional Parks-Shiloh Ranch Regional Park. http://www.sonoma-county.org/parks/pk_shilo.htm. Accessed December 8, 2010a.

Sonoma County. Sonoma County Sheriff's Office: Law Enforcement Division Webpage. http://www.sonomasheriff.org/about_law_enforcement.php. Accessed December 2, 2010b.

Town of Windsor. Windsor Parks and Facilities Map. Available at http://www.ci.windsor.ca.us/DocumentView.aspx?DID=1423. Accessed December 3, 2010.

Recreation

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
15.	**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 facilities 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?	☐	☐	☒	☐

Discussion

a) The project area is located in unincorporated Sonoma County, and is surrounded by agricultural, commercial and industrial land uses. As stated in Section 14, Public Services, the Sonoma

County Regional Parks Department and the Windsor Parks and Recreation Department own and operate parks in the vicinity of the project site. Sonoma County Regional Parks Department owns and operates Shiloh Ranch Regional Park, which is located east of Highway 101 approximately two miles from the project area (Sonoma County, 2010). Windsor Parks and Recreation Department owns and maintains Acorn Neighborhood Park and R.T. Mitchell Neighborhood Park, both located on 12th Hole Drive approximately one mile north of the proposed project (Town of Windsor, 2010). The privately owned Windsor Golf Club, located on Golf Course Drive, is approximately 0.8 miles north of the project area.

The project would require approximately 36 new full time workers from the local areas. The number of workers required by the project would not result in a substantial increase in the use of the existing park and recreation facilities to cause deterioration of the facilities. The impact would be less than significant.

b) As described in a) above, the proposed project would not result in a substantial increase in the use of existing recreational facilities. The project does not include construction or expansion of any recreation facilities and would not result in the need for new recreational facilities. The impact would be less than significant.

References

Town of Windsor. Windsor Parks and Facilities Map. Available at http://www.ci.windsor.ca.us/DocumentView.aspx?DID=1423. Accessed December 3, 2010.

Sonoma County. Sonoma County Regional Parks Department: Sonoma County Regional Parks-Shiloh Ranch Regional Park. http://www.sonoma-county.org/parks/pk_shilo.htm. Accessed December 8, 2010.

Transportation and Traffic

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
16. TRANSPORTATION AND 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?	☐	☒	☐	☐
• At County intersections, the project would have a significant impact if the project's traffic would cause an intersection currently operating at an acceptable level of service (LOS D or better) to operate worse than the County's LOS D standard (i.e., at LOS E				

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
or F). This criterion applies to all signalized, all-way stop-controlled, and side street stop-controlled intersections with project traffic volumes over 30 vehicles per hour per intersection approach or per exclusive left-turn movement. • If a County intersection currently operates, or is projected to operate, worse than the County LOS standard (i.e., at LOS E or F), then the project's impact would be significant if it causes the average vehicle delay to increase by five seconds or more. This criterion applies to all signalized, all-way stop-controlled, and side street stop-controlled intersections with project traffic volumes over 30 vehicles per hour per intersection approach or per exclusive left-turn movement. • At County intersections, the project would have a significant impact if the addition of project traffic would cause the 95th percentile queue length to exceed roadway turn lane storage capacity. • At County intersections, the project would have a significant impact if the addition of the project's vehicle or pedestrian traffic would cause an intersection to meet or exceed Caltrans' signal warrant criteria. • At County intersections, the project would have a significant impact if the addition of project traffic would cause an intersection to meet or exceed criteria for provision of a right- or left-turn lane on an intersection approach.				
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)? • At County intersections, the project would have a significant impact if the project would add traffic to an existing unsignalized intersection approach that does not have adequate sight lines based upon County criteria.	☐	☐	☒	☐
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?	☐	☐	☒	☐

Discussion

a) The proposed project would be located adjacent to and is accessed from two-lane Aviation Boulevard, a local-serving road that connects with U.S. Highway 101 interchanges via Skylane Boulevard and Airport Boulevard or Shiloh Road. Skylane Boulevard is an arterial with two lanes plus a center two-way left-turn lane on the segment from Airport Boulevard to north of Shiloh Road; the road narrows (to two lanes, and then widens to provide separate turn lanes at the signalized intersection with Shiloh Road. Airport Boulevard is an arterial of varying width (segments with two lanes, two lanes plus a center two-way left-turn lane, and four lanes). Shiloh Road is a two-lane road that widens to provide separate turn lanes at the aforementioned intersection with Skylane Boulevard.[13] Highway 101 has four lanes in the project area, with an average daily traffic volume of about 80,000 vehicles near the Airport Boulevard interchange (Caltrans, 2010).

Project Construction

As described in Chapter 1, Project Description, the proposed project would involve construction and operation of facilities that would collect and process waste to produce biomethane gas that would be used as an energy source. Construction activities would involve site preparation, grading, building the new facilities on the project site and for the offsite connections. Direct traffic impacts from construction of the project would be short-term and temporary. The duration of impacts related to short-term disruption of traffic flow and potential increased congestion generated by construction vehicles would be limited to the period of time needed to complete construction of the project components.

Construction activities over the ten-month period that would generate off-site traffic would include the delivery of construction vehicles and equipment to the Project site, the daily arrival and departure of construction workers, the delivery of materials throughout the construction period, and the removal of construction debris. Construction equipment would be delivered to and removed from the project site in phases for the different construction activities. The estimated truck traffic would vary depending on the activity, but would average up to eight trucks per day, which would yield up to 16 daily one-way trips to and from the project site, which would be spread over the course of the work day.[14] There would be about 94 construction workers on an average day, and they would commute to and from the worksite primarily before or after peak traffic hours. Construction-generated traffic would be temporary, and therefore, would not result in any long-term degradation in operating conditions on any locally used roadways for the project. The impact of construction-related traffic would be a temporary and intermittent lessening of the capacities of streets in the project area because of the slower movements and larger turning radii of construction trucks compared to passenger vehicles.

[13] Given the presence of traffic signals at the intersection of Shiloh Road / Skylane Boulevard (and the side-street stop-sign traffic control at the intersection of Airport Boulevard / Skylane Boulevard), it is anticipated that project-generated truck traffic would use Shiloh Road to travel between Highway 101 and the work sites. It is further anticipated that project workers (construction and operation) would be made on Shiloh Road by workers who live to the north, and on Airport Boulevard by those who live to the south.

[14] On individual days (e.g., when pouring a concrete pad), there could be 25 or more concrete trucks.

The proposed 4-inch gas pipeline would be installed within existing roadways (WWTP Access Road, Skylane and Shiloh Road) from the site to the Pacific Gas and Electric (PG&E) tie in. The pipeline would be installed using open-cut trenching technique and directional boring where necessary for utility crossings. Open-cut trenching involves digging a trench, laying the pipe in the trench, and then backfilling the trench, and would require temporary single lane closure. Trenches would be temporarily closed at the end of each work day, by covering with steel trench plates and installing barricades to restrict access to staging areas. Excavation would occur up to a depth of approximately three feet, except for the two cultural resources locations, where the depth would be about five feet. A majority of the excavated material would be backfilled; the material displaced by the installed pipeline (spoils) would be spread onsite.

The primary off-site impacts resulting from the movement of construction trucks would include a short-term and intermittent lessening of roadway capacities due to the slower movements and larger turning radii of the trucks compared to passenger vehicles. Drivers could experience delays if they were traveling behind a heavy truck. Although project construction-related traffic would not be substantial in relation to traffic flow conditions on Highway 101, Shiloh Road and Airport Boulevard, there could be localized impacts, especially if truck trips were to occur during peak traffic hours on the affected roadways. For purposes of this analysis, this impact is considered potentially significant. Implementation of **Mitigation Measure TRA-1** (refer to Chapter 3, Summary of Mitigation Measures, for details) would lessen the impacts to traffic flow and congestion on area roadways during project construction to a less-than-significant level by avoiding as needed truck trips during peak commute hours, minimizing use of local roads by haul trucks, maintaining, at a minimum, alternate one-way traffic flow past the construction zone, and coordinating with emergency service providers, schools, and transit providers. The impact would be less than significant.

Project Operations

The project operations would consist of collection and processing of waste to generate biogas that would be conveyed to the PG&E pipeline and would be converted to electricity to be supplied to Airport/Larksfield/Wikiup wastewater treatment plant. The fertilizer produced in the project facility would be trucked offsite.

An average of approximately eight incoming truckloads (16 one-way trips) is expected to haul the waste feedstock to the project site daily. The waste is currently hauled to a landfill or field applied as a fertilizer, and therefore, these truck trips are considered as re-directed trips. On average, about two trucks (four one-way trips) per day would be needed for materials and supplies at the site, and approximately two trucks (four one-way trips) would off-haul the fertilizer generated onsite on a daily basis, six days a week. Sand and grit removed from the feedstock would be recycled as sand and gravel at a local building material supplier in Santa Rosa, which would need about four trucks (eight one-way trips) per week (i.e., an average of one truck [two one-way trips] per day. The truck trips would be spread over the

course of a day, and would be scheduled in off-peak traffic hours to minimize any local traffic impacts, resulting in a less-than-substantial increase in truck traffic in relation to traffic flow conditions on local roadways.

There would be 36 employees operating the project and ancillary facilities, and they would generate up to 36 peak-hour commute trips in both the morning (inbound to the site) and the evening (outbound from the site). The residential locations of the employees is not known, but it is reasonable to assume (as stated in the footnote 13) that the commute trips to and from the project site would be divided between Shiloh Road and Airport Boulevard, reducing the effect of those trips on traffic flow conditions on local roadways. The impact from project operations would be less than significant.

The above-described project-generated traffic increases would not be expected to cause queue lengths to exceed the turn lane storage capacity at area intersections, nor to cause the intersection of Skylane Boulevard / Airport Boulevard to meet or exceed Caltrans' signal warrant criteria.

b) Level-of-service standards for roadways that are part of the Sonoma County Congestion Management Program network are intended to regulate long-term traffic increases from operation of new development and do not apply to temporary construction projects. As described above, project operations would generate less-than-substantial traffic increases (about 26 one-way truck trips per day, spread over the course of the day, and up to 36 auto trips during the a.m. and p.m. peak hours) on area roads. As such, it is reasonable to conclude that the proposed project would not exceed level-of-service standards established by the Sonoma County Congestion Management Agency (i.e., the Sonoma County Transportation Authority) for roadways. In addition, the project is required by law to pay the applicable cumulative traffic impact fee for local improvements to the roadway system. Therefore, the impact would be less than significant.

c) The project site lies less than 1,000 feet north of the Sonoma County Airport, and the proposed project would not place any object within the flight path for airplanes in the area. The project would not 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. There would be no impact.

d) Neither project construction nor project operations would alter the physical configuration of the existing roadway network serving the area, and would not introduce unsafe design features. The proposed project also would not introduce uses that are incompatible with existing uses already served by the road system that serves the Project area (also refer to Section 10, Land Use and Land Use Planning, for details). In addition, as described above, project operations would not generate substantial added traffic on that road system. Lastly, the available sight distance for drivers on stop-sign-controlled Skylane Boulevard at Airport Boulevard is sufficient to safely accommodate project-generated traffic on that intersection approach. Therefore, the proposed project would have a less-than-significant traffic hazard impact.

e) Project operations would have no effect on access to local streets or adjacent uses (including access for emergency vehicles). Nor would bicycle/pedestrian access and circulation be adversely affected by facility operations. The project would, however, result in construction of a new pipeline within public right-of-way. Such construction activity could result in road restrictions, particularly at the Skylane Boulevard intersection for the pipeline, that affect the vehicle travel lanes in order to provide adequate construction work area, and could temporarily block vehicle, bicycle and pedestrian access to local streets or property driveways, including access for emergency vehicles. This impact is considered potentially significant. Implementation of Mitigation Measure TRA-1 above would lessen the impacts to emergency access during project construction to a less-than-significant level by maintaining, at a minimum, alternate one-way traffic flow past the construction zone, and coordinating with emergency service providers. The impact would be less than significant.

f) Implementation of the project would neither directly nor indirectly eliminate existing or planned alternative transportation corridors or facilities (e.g., bike paths, lanes, bus turnouts, etc.), include changes in policies or programs that support alternative transportation, nor construct facilities in locations in which future alternative transportation facilities are planned. The proposed project would not conflict with adopted policies, plans and programs supporting alternative transportation. The impact would be less than significant.

References

California Department of Transportation (Caltrans), *2009 Traffic Volumes on California State Highways*, 2010.

Sonoma County, *General Plan 2020, Circulation and Transit Element* – Roadway Classifications, Adopted September 23, 2008.

Utilities and Service Systems

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
17. UTILITIES AND SERVICE SYSTEMS — Would the project:				
a) Conflict with 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?	☐	☐	☒	☐

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e) Result in a determination by the wastewater treatment provider that would 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?	☐	☐	☒	☐

Discussion

a) The project area is within the Airport/Larkfield/Wikiup Sanitation Zone, which is owned and managed by the Sonoma County Water Agency and has a wastewater service area of approximately 3,400 residences and businesses (SCWA, 2010). The proposed project would involve construction and operation of facilities that would collect and process waste to produce biomethane (see Chapter 1, Project Description for details). The composite waste stream from the proposed project would average approximately 28,000 gallons per day of wastewater that would be conveyed to the Airport/Larkfield/Wikiup Sanitation Zone (ALWSZ) Waste Water Treatment Plant (WWTP), located approximately 1,000 feet west of the project site, through a new sewer connection. The ALWSZ WWTP currently operates under the Waste Discharge Requirements and Master Reclamation Permit (R1-2001-69) issued by the North Coast Regional Water Quality Control Board (RWQCB) and has a design capacity of 900,000 gallons per day (SCWA, 2010; North Coast RWQCB, 2001). The project applicant would obtain a Industrial Discharger permit. As per the permit requirements, the wastewater would be regularly monitored for water quality and would undergo pretreatment prior to conveying the project wastewater to the ALWSZ WWTP.

The wastewater from the project facilities would not affect the capacity of the ALWSZ WWTP or result in a need for additional wastewater treatment facilities. The ALWSZ WWTP would receive the project wastewater and continue operation under its permitted capacity of 900,000 gallons. The impact would be less than significant. See Section 8, Hydrology and Water Quality, for additional information on wastewater quality.

b,e) As described in a) above, the ALWSZ WWTP provides wastewater treatment to the project area. The proposed project would generate an average of approximately 28,000 gallons per day of wastewater, which would be conveyed to the ALWSZ WWTP through a new sewer connection under a Discharger Permit obtained by the project applicant. There would be no

change in the existing capacity of the ALWSZ WWTP to treat the composite flow. The impact would be less than significant.

c) The project site is undeveloped and is not served by stormwater facilities. Currently stormwater onsite infiltrates through the grassy surfaces. The proposed project would result in development of most of the 5.4-acre site with creation of new impervious surfaces, which could increase the amount of stormwater runoff at the project site. As discussed in Section 8, Hydrology and Water Quality, the project applicant would implement a landscaping plan that would retain the natural and pervious surface on the site to the extent feasible and would incorporate measures such as green roofs or detention ponds to manage the stormwater flow. The project applicant would also prepare a Stormwater Mitigation Plan to control the long-term storm runoff from the site. Any stormwater that is remaining after the infiltration onsite would be routed to the existing County storm drain system on Aviation Boulevard. The construction of the stormwater connection would be a part of the overall project construction, which is discussed in Chapter 1, Project Description, and section above in this chapter. The project would not generate a need for expansion of existing facilities nor would construction of the stormwater connection have substantial environmental effects. The impact would be less than significant.

d) The project site lies in the Airport Service Area of Windsor Water Master Plan (Town of Windsor, 2009). The Town of Windsor serves the Airport Service Area of unincorporated Sonoma County. Windsor's planning includes buildout under the Airport Specific Plan (Town of Windsor, 2009). The proposed project would have an estimated water demand of approximately 1,500 gallons per day of which approximately 1,250 gallons would potable water provided by the Town of Windsor and nonpotable (recycled water) provided by the ALWSZ. This incremental increase in water demand is incorporated in demand projections within the Airport Area, which are based on land use designations. Therefore, the impact would be less than significant.

f, g) The Sonoma County Waste Management Agency (SCWMA), formed by a Joint Powers Agreement among the County and the Cities, provides for solid waste disposal and recycling programs in Sonoma County (SCWMA, 2010a). Local jurisdictions have contracts with franchised garbage companies to provide service for collection of solid waste. The project site is served by Redwood Empire Disposal (SCWMA, 2010b). As discussed in Chapter 1, Project Description, construction of the proposed project would involve installation of a 4-inch gas pipeline. A majority of the excavated material from the pipeline installation would be backfilled. Any material displaced by the installed pipeline (spoils) would be spread onsite. In the long term, the project would generate solid waste related to administrative and operating facility (e.g., refuse) such as sand, gravel fertilizer, paper and garbage. The waste would be hauled according to SCWMA's standard operations protocol and in compliance with the applicable solid waste regulations. Operation of the facility would generate sand and grit removed from the organic waste feedstock (see Chapter 1, Project Description), which would be recycled as sand and gravel at a local building material supplier. The project

would not affect available solid waste disposal capacity in the project area. The impact would be less than significant.

References

North Coast Regional Water Quality Control Board (RWQCB), Waste Discharge Requirements and Master Reclamation Permit for the Airport/Larkfield/Wikiup Sanitation Zone Wastewater Treatment Facility, Order No. R1-2001-69. 2001.

Sonoma County Water Agency (SCWA). Airport/Larkfield/Wikiup Sanitation Zone webpage. http://www.scwa.ca.gov/lower.php?url=airport-larkfield-wikiup-sanitation-zone. Accessed December 8, 2010

Sonoma County Waste Management Agency (SCWMA). Agency: About webpage. http://www.recyclenow.org/agency/about.asp. Accessed December 8, 2010a.

Sonoma County Waste Management Agency (SCWMA). Locate your garbage company webpage. http://www.recyclenow.org/disposal/garbage.asp. Accessed December 9, 2010b.

Town of Windsor. 2009. Town of Windsor Water Master Plan Update, Draft Report. Prepared by RMC. June 2009. Available at http://www.ci.windsor.ca.us/DocumentView.aspx?DID=2980.

Energy

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
18.	**ENERGY — Would the project:**				
a)	Result in a substantial increase in overall or per capita energy consumption?	☐	☐	☒	☐
b)	Result in wasteful or unnecessary consumption of energy?	☐	☐	☒	☐
c)	Require or result in the construction of new sources of energy supplies or additional energy infrastructure capacity the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d)	Conflict with applicable energy efficiency policies or standards?	☐	☐	☒	☐

Discussion

a, b) The proposed project would result in energy consumption during the construction phase and long-term operation of the facilities, however the project would not consume energy so as to result in a significant effect.

Construction

Energy consumed during project construction would not be significant as to represent an irreversible consumption of finite natural energy resources. Energy expended during construction would include both direct and indirect uses of energy in the form of fuel and electricity. Direct energy use typically represents about one-quarter of total construction energy, while indirect energy use represents about three-quarters of total construction energy (Hannon et al., 1978). Direct energy use would include the consumption of petroleum-based products for operating construction vehicles and electricity for operating construction equipment, such as welding machines and power tools. Indirect energy use would include the consumption of energy for the extraction of raw materials, manufacturing, and transportation to make materials used in the construction of the proposed project.

Energy in the form of electricity that would be consumed by construction power equipment would be relatively minimal, as would electricity that would be required for lighting and heating of any onsite trailers and operation of ancillary electrical equipment. The precise construction supply-demand threshold for electricity is uncertain due to larger-scale issues, such as the reliability of the power generation system and changes in regional demand characteristics. However, construction activities would not reduce or interrupt existing electrical service due to insufficient supply. Project construction would not interrupt existing local service provided by Pacific Gas and Electric Company (PG&E) and project-related construction electricity demand would not require a significant portion of PG&E's electricity supply. Therefore, electricity consumption by construction activities would not result in a significant increase in overall or per capita energy consumption.

Energy in the form of diesel and gasoline fuel would be consumed by the majority of construction equipment and vehicles that would be required for the project. It is estimated that up to several hundred gallons of fuel would be consumed each workday. The precise construction supply-demand threshold for fuel is uncertain due to changes in regional demand characteristics. However, construction activities would not reduce or interrupt existing fuel distribution service due to insufficient supply. Project construction would not interrupt existing local fuel distribution and project-related construction fuel demand would not require a significant portion of the fuel supply in the region. Therefore, fuel consumption by construction activities would not result in a significant increase in overall or per capita energy consumption.

While construction would result in irreversible consumption of energy resources, the project would not result in long-term depletion of non-renewable energy resources or permanently or substantially increase consumption of energy resources that are not renewable.

Operation

The proposed project would result in the long-term production and consumption of electricity. The proposed project would convert organic waste into biogas that would be converted to electricity for use by Sonoma County Water Agency (Water Agency) at its facilities including

the Airport/Larkfield/Wikiup Sanitation Zone (ALWSZ) wastewater treatment plant (WWTP). The proposed project would deliver remaining biogas to PG&E for distribution. The annual peak electrical demand for project operation has been estimated at 3.5 million kilowatt-hours (kWh). This annual consumption would represent approximately 0.12 percent of 2009 electricity usage in Sonoma County (2,853 million kWh). The power required for the proposed biogas production facility would be supplied by PG&E. It is assumed that the project would use newer more energy efficient equipment, to the extent feasible.

The proposed fuel cell power plant would have the capacity to produce up to 44 million kilowatt-hours (kWh), which would be supplied to SCWA through a proposed power transmission line. A portion of the electricity (approximately 200 kW) would be supplied to the ALWSZ WWTP and remaining electricity would be used for other local SCWA facilities.

Operations and maintenance of the proposed project would require daily delivery of waste feedstock, daily transportation of fertilizer product offsite, as well as additional deliveries of materials and supplies needed at the site. Trucks and employee vehicles used as part of the project and operations and practices would follow procedures toward efficient use of fuel as feasible.

Gas and electricity for project operation would be provided by PG&E. The proposed project would therefore increase the use of energy from renewable resource in the region. However, as described in Chapter 1, Project Description, the project involves generation of biogas and electricity, which would be supplied to PG&E and the Water Agency respectively. Therefore, overall the project would result in a net decrease in annual energy consumed from the grid by the ALWSZ WWTP and result in additional renewable energy supplies for PG&E. Thus, the project would reduce the overall demand on the regional electrical and natural gas systems. Impacts would be less than significant.

c) The proposed project would include construction of a new energy-generating facility. As discussed in Chapter 2, Environmental Analysis, construction and operation of the proposed project would cause environmental impacts. Any significant impacts would be minimized to less-than-significant levels with regulatory compliance and incorporation of mitigation measures into the project. The project is not expected to result in significant environmental effects.

d) Energy standards such as the Energy Policy Act of 2005, the State of California Integrated Energy Policy, and Title 24 promote strategic planning and building standards that reduce consumption of fossil fuels, increase use of renewable resources, and enhance energy efficiency. Additionally, the 2020 Sonoma County General Plan calls for promoting energy conservation and increasing reliance on renewable energy sources in the County (Sonoma County, 2008). The proposed project would therefore contribute toward compliance with these energy standards. The proposed project would accomplish the goal of contributing to the supply of renewable energy in the state and the county as stated in the State of California Integrated Energy Policy and the 2020 Sonoma County General Plan, primarily by increasing reliance

on renewable energy sources. Construction activities for the proposed project would be short-term and would use only the minimum of resources needed to construct the project facilities including hauling any construction debris to the local landfill to the extent possible. A local labor force would be recruited for the project. Therefore, construction of the proposed project would be consistent with the goals and strategies of local and State energy standards.

Operation of the proposed project would generate electricity from renewable resources, which would support the objective of both State and local energy standards. Fuel required for operation and maintenance vehicles would be used as efficiently as possible. Truck trips would be minimized and fuel-efficient vehicles would be utilized to the extent possible. Additionally, some of the biogas produced at the project facility would be used eventually by the County vehicles that operate on natural gas. Consequently, maintenance and operation of the project would increase use of renewable energy and would not be anticipated to result in a substantially increased use of fuel or electricity. Therefore, construction and operations of the project would not conflict with current energy standards and would result in a less-than-significant impact.

References

California Energy Commission (CEC), 2010. *California Electricity Consumption Data*, available online at http://www.ecdms.energy.ca.gov/elecbycounty.asp, accessed December 10, 2010.

Hannon, Bruce, Richard G. Stein, B.Z. Segal, and Diane Stein (Hannon et al.), 1978. "Energy and Labor in the Construction Sector," *Science* magazine, Vol. 202, No. 4370. November 24, 1978.

Sonoma County, *2020 Sonoma County General Plan*, adopted September 23, 2008.

Mandatory Findings of Significance

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
19. MANDATORY FINDINGS OF SIGNIFICANCE — Would the project:				
a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c) Have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Discussion

a, c) As described in the sections above, impacts resulting from the proposed project would not degrade the quality of the environment during construction and operation. Potential impacts associated with biological resources such as sensitive habitat and special status species and cultural resources, would be reduced to less than significant levels with implementation of proposed mitigation measures, as summarized in Chapter 3 of this document.

b, c) Implementation of the proposed project would increase the use of renewable energy resources in the County as discussed in Chapter 1, Project Description. A review of the projects proposed in the past, present, and in the reasonably foreseeable future in the project vicinity (e.g., in and around Windsor, Santa Rosa, and nearby unincorporated Sonoma County) indicates that construction of residential communities, mixed use developments, and commercial facilities, such as the Santa Rosa Sutter Medical Center, may take place concurrently with the proposed project (Town of Windsor, 2010; City of Santa Rosa, 2010; Sonoma County PRMD, 2010). Project impacts associated with construction activities such as impacts to traffic, noise and air quality would be short-term, temporary, and less than significant as described above in *Sections 16, Traffic and Transportation, 3, Air Quality, and 12, Noise*. The impacts related to access to the project site and the construction-related traffic along the local roadways would be minimized by coordinating and scheduling project activities with other local jurisdictions as part of **Mitigation Measure CUMU-1** (refer to Chapter 3, Summary of Mitigation Measures, for details). As discussed in the sections above, the proposed project would not permanently degrade the quality of the environment. There would be no substantial adverse effects on human beings. The impact would be less than significant.

Long-term impacts associated with the project would be mostly related to aesthetics, traffic, air quality, greenhouse gas (GHG) emissions, and energy resources. As discussed in the sections above, these impacts would be less than significant or minimized through implementation of mitigation measures. Further, the project would use renewable resources for energy generation and result in overall reduction of GHG emissions. This would contribute toward the County goal of net reduction of 25 percent in GHG emissions by 2015. In combination with past, present, and foreseeably future projects within the region, the project contribution would not be cumulatively considerable. Therefore, the impact would be less

than significant. The project would not have environmental effects that would cause substantial adverse effect to the environment or humans.

References

City of Santa Rosa, Building Permit Activity Reports, available online at http://ci.santa-rosa.ca.us/departments/communitydev/building/Pages/ActivityReports.aspx, accessed on December 15, 2010.

Sonoma County Permit and Resource Management Department (PRMD), Planning Projects, available online at http://www.sonoma-county.org/prmd/divpages/projrevdiv.htm, accessed on December 15, 2010.

Town of Windsor, Current Projects Status Summary, available online at http://www.ci.windsor.ca.us/DocumentView.aspx?DID=105, accessed on December 15, 2010.

CHAPTER 3
Mitigation Measures/Monitoring Plan and Conditions of Approval

Circulation:	April 25, 2011 to May 26, 2011	**File No.:**	PLP11-0010
Applicant:	Biostar Systems LLC	**APN:**	059-271-003
Address:	2025 Aviation Blvd, Santa Rosa		

Project Description: Request for a Use Permit and Design Review for an alternative energy system on a 5.4 acre site, including construction of facilities to collect and process agricultural and commercial organic waste in biodigesters to produce approximately 1.26 million cubic feet per day of biomethane gas, which would be used both in fuel cells to produce electricity (powering the onsite public wastewater treatment plant and other offsite public or private facilities), and directly injected into the PG&E natural gas network. Solids remaining from the biodigestion process would be converted to a commercial grade organic fertilizer and distributed through wholesale channels.

Prior to commencing the use, evidence must be submitted to the file that all of the following non-operational conditions have been met.

1. Within five working days after project approval, the applicant shall pay a mandatory Notice of Determination filing fee of $50.00 (or latest fee in effect at time of payment) for County Clerk processing, and $2,044.00 (or latest fee in effect at time of payment) because a Mitigated Negative Declaration was prepared, for a total of $2,094.00 made payable to Sonoma County Clerk and submitted to PRMD. If the required filing fee is not paid for a project, the project will not be operative, vested, or final and any local permits issued for the project will be invalid (Section 711.4(c)(3) of the Fish and Game Code.) NOTE: If the fee is not paid within five days after approval of the project, it will extend time frames for CEQA legal challenges.

BUILDING:

2. The applicant shall apply for and obtain building related permits from the Permit and Resource Management Department (PRMD). The necessary applications appear to be, but may not be limited to, site review, building permit, and grading permit.

3. Prior to initiation of the approved use, the project shall comply with the accessibility requirements set forth in the most recent California Building Code (CBC), as determined by the PRMD Building Division. Such accessibility requirements shall apply to all new construction and remodeling and, where required by the CBC, to retrofitting of the existing structure.

4. The applicant shall apply for and obtain building related permits from PRMD for new buildings. The necessary applications appear to be, but may not be limited to site review and building permit(s). Construction inspections shall occur and the building permit(s) finaled prior to occupancy of new or remodeled structure(s).

5. A soils report is required to be submitted to PRMD Plancheck section prior to issuance of grading permits.

6. Any structures to be constructed as part of the required grading, such as retaining or sound walls, shall require separate building applications and permits.

7. All required paths of travel (parking lots, sidewalks) shall comply with State and Federal accessibility guidelines. Grading plans submitted to PRMD shall include sufficient details of features to validate compliance.

8. All buildings, structures, sidewalks, curbs, and related facilities shall be accessible to and usable by persons with disabilities.

9. Accessible parking shall be provided for both assigned and unassigned and/or visitor spaces per

CBC requirements.

10. This project is required to comply with wildland-urban interface (WUI) regulations, Chapter 7A of the CBC. These regulations apply to building materials, systems and/or assemblies used in the exterior design and construction of new buildings.

11. Project shall be designed and constructed complying with the Sonoma County Green Building Standards Code. Plans shall show all required compliance elements.

12. If any changes to plans, drawings, documents or specifications required pursuant to any conditions herein specified occur, these changes shall be brought to the appropriate department for review and approval prior to any construction or improvements. Also, these changes shall be reviewed by all departments involved in the initial approval of the subject plans, drawings, documents or specifications that are proposed for change.

HEALTH:

Air Quality

13. **Mitigation Measure AIR-1:** The project applicant will implement applicable BAAQMD basic control measures. The project applicant will include the following requirements in the construction contracts for all areas with active construction activities:

    a. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) will be watered two times per day, if humidity is below 50 percent;

    b. All haul trucks transporting soil, sand, or other loose material off-site will be covered;

    c. All visible mud or dirt track-out onto adjacent public roads will be removed using wet power vacuum street sweepers at least once per day;

    d. All vehicle speeds on unpaved roads shall be limited to 15 mph;

    e. All roadways, driveways, and sidewalks to be paved will be completed as soon as possible. Building and foundation pads shall be laid as soon as possible after grading unless seeding or soil binders are used; and

    f. Post a publicly visible sign with the telephone number and person to contact representing the project applicant regarding dust complaints. This person will respond and take corrective action within 48 hours of a complaint. The BAAQMD's phone number will also be visible to ensure compliance with applicable regulations.

Mitigation Monitoring: The applicant shall submit a letter to the PRMD Project Review Health Specialist indicating compliance with the conditions prior to issuance of grading permits. Complaints received by PRMD regarding non-compliance with operative provisions during construction shall be investigated by PRMD staff within one week and may result in a stop work order being issued if violations are confirmed.

PRIOR TO BUILDING PERMIT AND VESTING THE USE PERMIT:

14. **Mitigation Measure AIR-2:** The project applicant will implement an Odor Management Plan (OMP) to specifically address odor control associated with digester operations that will include:

    a. A list of potential odor sources, both on and off site (from haul trucks);

    b. Identification and description of the most likely sources of odor;

    c. Identification of potential, intensity, and frequency of odor from likely sources;

d. A list of odor control technologies and management practices that could be implemented to minimize odor releases. These management practices will include the establishment of the following criteria:

e. Include on-site storage with sufficient capacity to store the quantity of materials that could be received within a 48-hour time period.

f. Establish time limit for on-site retention of undigested co-substrates (i.e., organic co substrates must be put into the digester within 48 hours of receipt).

g. Establish contingency plans for operating downtime (e.g., equipment malfunction, power outage).

h. Manage delivery schedule to facilitate prompt handling of odorous co substrates.

i. Protocol for monitoring and recording odor events.

j. Protocol for reporting and responding to odor events.

Mitigation Monitoring: The applicant shall submit the Odor Management Plan to the PRMD Project Review Health Specialist for review and approval prior to issuance of building permits. Complaints received by PRMD regarding non-compliance with operative provisions of the Odor Management Plan shall be referred to BAAQMD and investigated by PRMD staff within one week and if violations are confirmed the applicant shall be required to take steps to correct the problem. Continued non-compliance may result in the project being returned to hearing for potential modification and/or revocation of the use permit.

Noise

15. **Mitigation Measure NOI-1:** Operational Noise Reduction Plan. The Applicant shall ensure that noise levels associated with the Project non-transportation sources do not exceed the limits identified in Sonoma County Policy NE-1c noise limits for public property and/or the General Plan normally acceptable land use noise exposure limits (further specified in these conditions of approval). Noise control techniques may include, but not be limited to: locating the gas compressors with as much setback from the existing light-industrial and institutional properties as possible, use of noise enclosures and/or walls, and the use of equipment with special noise control specifications designed in a way to specifically achieve acceptable regulatory noise standards.

Mitigation Monitoring: The applicant shall submit the Operational Noise Reduction Plan to the PRMD Project Review Health Specialist for review and approval prior to issuance of building permits. Complaints received by PRMD regarding non-compliance with operative provisions of the Operational Noise Reduction Plan shall be investigated by PRMD staff within one week and if violations are confirmed in PRMD's opinion, the applicant shall be required to take steps to correct the problem within 60 days and/or submit further noise monitoring reports. Continued non-compliance may result in the project being returned to hearing for potential modification and/or revocation of the use permit.

<u>Water:</u>

16. Connection shall be made to public sewer and water. Prior to building permit issuance and vesting the Use Permit the applicant shall submit a "Will Serve Letter" for water and sewer to the Project Review Health Specialist to verify compliance, except for a connection to a County operated sewer system where clearance for the sewer will come from the PRMD Sanitation Section.

17. Toilet facilities shall be provided for employees prior to vesting the Use Permit. A copy of the Floor Plan showing the location of the restrooms shall be submitted to the Project Review Health Specialist prior to issuance of building permits.

Vector Control:

18. A Mosquito and Vector Control Plan for fly control acceptable to the Marin-Sonoma Mosquito and Vector Control District (telephone 707-285-2200) and the Project Review Health Specialist shall be submitted prior to the trucking of agricultural waste onto this site and prior to vesting the Use Permit. The fly control plan must specifically address criteria for manures that are, or are not acceptable with respect to fly, larvae or maggot content for loading into trucks and transporting across the County. The Project Review Health Specialist shall receive a copy of the Mosquito and Vector Control Plan and an acceptance letter from the Marin-Sonoma Mosquito and Vector Control District.

PRIOR TO OCCUPANCY:

Noise:

19. Prior to building occupancy the applicant shall submit a letter from a qualified sound consultant to the PRMD Project Review Health Specialist regarding conformance with the design and final construction with the Operational Sound Reduction Plan and compliance with the General Plan Noise Standards (further specified in these conditions).

OPERATIONAL REQUIREMENTS:

20. Prior to any educational activities occurring on site, the applicant shall submit a letter at least two weeks in advance explaining the activity to the PRMD Project Review Health Specialist to review for compliance with applicable Health and Safety laws.

Water:

21. A safe, potable water supply shall be provided and maintained.

Vector Control:

22. No manure or agricultural waste shall be transported to this site in violation of the approved Fly Control Plan.

Odor:

23. Operation of this facility shall at all times comply with the approved Odor Control Plan, including transport of feedstock materials, and at no time shall this facility be operated so as to create a public nuisance due to odor.

24. Trucks in the process of making manure deliveries to this project will only be spotted or parked at the originating farm where they are based, or at the project site (the bio-gas plant site). The trucks will not be spotted or parked at other unrelated locations while making manure deliveries to this project excepting for required servicing or fueling of the truck or due to unforseen circumstances such as accidents or breakdowns.

25. Obtain and maintain all required permits from the Bay Area Air Quality Maintenance District. This facility shall be operated at all times to be in compliance with all applicable laws, codes, ordinances, orders, directives and policies of the Bay Area Air Quality Maintenance District.

Hazardous Materials:

26. Comply with applicable hazardous waste generator, underground storage tank, above ground storage tank and AB2185 (Hazardous Materials Handling) requirements and maintain any applicable permits for these programs from the Hazardous Materials Division of Sonoma County

Department of Emergency Services.

Noise:

27. Noise shall be controlled in accordance with Table NE-2 (or an adjusted Table NE-2 with respect to ambient noise as described in General Plan 2020, Policy NE-1c,) as measured at the exterior property line of any affected residential or sensitive land use:

TABLE NE-2:Maximum Allowable Exterior Noise Exposures

Hourly Noise Metric[1], dBA	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
L50 (30 minutes in any hour)	50	45
L25 (15 minutes in any hour)	55	50
L08 (5 minutes in any hour)	60	55
L02 (1 minute in any hour)	65	60

[1] The sound level exceeded n% of the time in any hour. For example, the L50 is the value exceeded 50% of the time or 30 minutes in any hour; this is the median noise level. The L02 is the sound level exceeded 1 minute in any hour.

Solid Waste:

28. Prior to building permit issuance, the applicant shall submit a design for trash enclosures and recycling areas for review and approval by the PRMD Building Plan Check Section. (Fees may apply.) Note that trash trucks must have at least a 32-foot turning radius at the trash enclosure and the dumpster must have 16 feet of overhead clearance. Please note that the Local Enforcement Agency (at Environmental Health) bills at an hourly rate for enforcement of violations of the solid waste requirements.

TRANSPORTATION AND PUBLIC WORKS:

Transportation and Traffic

29. **Mitigation Measure TRA-1:** Prior to issuance of grading permits, the project applicant will submit a Traffic Safety/Traffic Management Plan to Sonoma County's Transportation and Public Works Department. Elements of the plan will include, but are not necessarily limited to, the following:

    a. Develop circulation and detour plans to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible. Use flaggers and/or signage to guide vehicles through and/or around the construction zone.

    b. To the extent feasible, and as needed, avoid adverse impacts on traffic flow, schedule truck trips outside of peak morning and evening commute hours.

    c. Limit lane closures along pipeline alignments during peak traffic hours to the extent possible. Restore roads and streets to normal operation by covering trenches with steel plates outside of allowed working hours or when work is not in progress.

    d. Limit, where possible, the pipeline construction work zone to a width that, at a minimum, maintains alternate one-way traffic flow past the construction zone.

    e. Install traffic control devices as specified in Caltrans' Manual of Traffic Controls for Construction and Maintenance Work Zones where needed to maintain safe driving conditions. Use flaggers and/or signage to safely direct traffic through construction work zones.

    f. Coordinate with facility owners or administrators of sensitive land uses such as police and

fire stations, hospitals, and schools. Provide advance notification to the facility owner or operator of the timing, location, and duration of construction activities.

g. To the maximum extent feasible, maintain access to private driveways located within pipeline construction zones.

Mitigation Monitoring: The applicant shall submit the Traffic Safety/Traffic Management Plan to the County Department of Public Works for review and approval prior to issuance of grading permits. Complaints received by PRMD or Public Works regarding non-compliance with operative provisions of the Traffic Safety/Traffic Management Plan shall be investigated by PRMD or Public Works staff within three working days, and if violations are confirmed the applicant shall be required to take steps to correct the problem and/or a stop work order shall be issued.

30. The applicant shall weekly sweep Aviation Boulevard between the Water Agency access gate and the Skylane Boulevard intersection to remove incidental dirt and materials tracked onto the public roadway resulting from the shipment of waste feedstock. Sweeping shall be performed by mechanized sweeping equipment that can collect the sweepings and is equipped with devices/features to adequately control dust. Sweeping operations shall be performed under the appropriate traffic control contained in the California Manual of Uniform Traffic Control Devices (MUTCD) and for which the applicant will be required to obtain a blanket encroachment permit from the County's Permit and Resource Management Department.

31. Prior to issuance of any building permit that results from approval of this application, a development fee (Traffic Mitigation Fee) shall be paid to the County of Sonoma, as required by Section 26, Article 98 of the Sonoma County Code.

32. The Developer shall obtain an Encroachment Permit from the Permit and Resource Management Department prior to constructing any gas pipelines and appurtenances within public road rights-of-way.

33. Prior to issuance of an encroachment permit for pipeline construction, the applicant shall submit to the Encroachment Section of the Engineering Division of PRMD the name and qualifications of the entity providing the inspection, testing and certification of the pipeline construction. A copy of the certification shall be provided to the Encroachment section prior to finalization of the permit by PRMD.

GRADING AND STORMWATER:

Hydrology and Water Quality

34. **Mitigation Measure HYD-1:** The project applicant will implement the following measure:

a. Prepare and submit a Stormwater Pollution Prevention Plan (SWPPP) along with a Notice of Intent and permit registration documents (PRDs) to the State Water Resources Control Board (SWRCB) prior to construction;

b. Develop and implement the SWPPP identifying best management practices (BMPs) to reduce erosion of disturbed soils and release of hazardous materials into water courses during and following project construction. The BMPs include the use of straw waddles, silt fencing, water detention structures, temporary storage tanks, and other control measures that would limit construction-related storm runoff. Non-stormwater management BMPs would include installing specific discharge controls during activities such as paving operations, vehicle and equipment washing and fueling;

c. Implement BMPs from the most recent CASQA BMP Handbook to effectively reduce degradation of surface waters to an acceptable level. BMPs that relate to the handling of hazardous materials, spill prevention and clean up, and the handling of contaminated soil

could include minimizing the storage of hazardous materials storage onsite, providing training on spill prevention and cleanup, and ensuring proper handling procedures for contaminated soils;

d. File a Notice of Termination following construction.

Mitigation Monitoring: The applicant shall submit a letter to the PRMD Project Review Drainage Specialist indicating compliance with the conditions prior to issuance of grading permits. Complaints received by PRMD regarding non-compliance with operative provisions during and post construction shall be referred to the SWRCB and investigated by PRMD staff within one week and may result in a stop work order being issued if violations are confirmed, or the project being returned to hearing for potential modification and/or revocation of the use permit.

35. **Mitigation Measure HYD-2:** The project applicant will implement the following measure:

a. Obtain coverage for any discharges from dewatering during construction from the North Coast RWQCB. The RWQCB could require sampling and/or treatment of the flows prior to discharge. The coverage may be obtained as part of the Construction General Permit for stormwater control during construction or General Industrial Permit, or separate permit for the project.

b. The groundwater removed by dewatering would either be discharged to the sanitary sewer or storm drain system with authorization from the RWQCB

Mitigation Monitoring: The applicant shall submit a letter to the PRMD Project Review Drainage Specialist indicating compliance with the conditions prior to issuance of grading permits. Complaints received by PRMD regarding non-compliance with operative provisions during construction shall be referred to the RWQCB and investigated by PRMD staff within one week and may result in a stop work order being issued if violations are confirmed.

36. Grading and/or building permits require review and approval by the Grading & Storm Water Section of PRMD prior to issuance. Grading permit applications shall abide by all applicable standards and provisions of the Sonoma County Code and all other relevant laws and regulations.

37. A drainage report for the proposed project shall be prepared by a civil engineer, currently registered in the State of California, be submitted with the grading and/or building permit application, and be subject to review and approval by the Grading & Storm Water Section of PRMD. The drainage report shall include, at a minimum, a project narrative, on- and off-site hydrology maps, hydrologic calculations, hydraulic calculations, pre- and post-development analysis for all existing and proposed drainage facilities. The drainage report shall abide by and contain all applicable items in the Drainage Report Required Contents (DRN-006) handout.

38. The following development and redevelopment projects are required to implement post-construction treatment controls to mitigate all project-related storm water pollution:

a. All development and redevelopment projects creating or replacing a combined total of 1.0 acre or more of impervious surface.

b. All development and redevelopment projects that include four or more houses.

c. Streets, roads, industrial parks, commercial strip malls, retail gasoline outlets, restaurants, parking lots, and automotive service facilities creating or replacing a combined total of 10,000 square feet or more of impervious surface.

Measures to mitigate the project impacts to the quality of post-construction storm water discharges from the site shall be incorporated into the drainage design of the project. A final Storm Water Mitigation Plan, including long term maintenance of all drainage improvements, shall be submitted with the grading and/or building permit application, and be subject to review and

approval by the Grading & Storm Water Section of PRMD prior to the issuance of any grading or building permits. Post-construction storm water features must be installed per approved plans and specifications, and working properly prior to finaling the grading permit and associated building permits.

39. Drainage improvements shall be designed by a civil engineer, currently registered in the State of California, and in accordance with the Sonoma County Water Agency Flood Control Design Criteria. Drainage improvements shall be shown on the grading/site plans and be submitted to the Grading & Storm Water Section of PRMD for review and approval. Drainage improvements shall maintain off-site natural drainage patterns, limit post-development storm water levels and pollutant discharges in compliance with PRMD's best management practices guide, and shall abide by all applicable standards and provisions of the Sonoma County Code and all other relevant laws and regulations. Drainage improvements shall not adversely affect adjacent properties or drainage systems.

40. The applicant shall provide grading plans, prepared by a civil engineer currently registered in the State of California, which clearly indicate the nature and extent of the work proposed and include all existing and proposed land features, elevations, roads, driveways, buildings, limits of grading, adequate grading cross sections and drainage facilities such as swales, channels, closed conduits, or drainage structures. The grading plans shall abide by and contain all applicable items from the Grading Permit Required Application Contents (GRD-004) handout.

41. The proposed project is located on a parcel with portions of land within a Special Flood Hazard Area (SFHA) that is affected by flooding from Redwood Creek. No fill shall be placed within the SFHA. Any land subject to inundation by a SFHA shall be delineated and shown on the grading plans as "SUBJECT TO INUNDATION" in one-inch lettering. The base flood elevation (BFE) varies throughout the site but the lowest floor elevation of any habitable structure must be at least 1 foot higher than the nearest adjacent BFE. The grading plans shall show all elevations based upon the North American Vertical Datum of 1988 (NVGD 88).

42. As part of the grading plans, the applicant shall include an erosion prevention/sediment control plan which clearly shows best management practices to be implemented, limits of disturbed areas, vegetated areas to be preserved, pertinent details, notes, and specifications to prevent damages and minimize adverse impacts to the environment. Appropriate Best Management Practices shall be implemented during construction activities to effectively prevent and minimize polluted storm water discharges. Tracking of soil or construction debris into the public right-of-way shall be prohibited. Runoff containing concrete waste or by-products shall not be allowed to drain to the storm drain system, waterway(s), or adjacent lands. The erosion prevention/sediment control plan shall abide by and contain all applicable items in the Grading Permit Required Application Contents (GRD-004) handout.

43. Runoff from waste receptacles or outside washing areas shall not be allowed to drain directly to the storm drain system, waterway(s) or adjacent lands. Areas used for waste receptacles and outside washing areas shall be separated from the rest of the project site by grade breaks that prevent storm water run-on. Any surface water flow from a waste receptacle or outside washing area shall not be permitted to enter the storm drain system without receiving appropriate treatment.

44. Existing drainage patterns shall be maintained in such a manner that does not adversely affect surrounding properties.

45. Any waterway setbacks, including but not limited to building setbacks, grading setbacks, or riparian corridor setbacks, shall be clearly shown and noted on the grading/site plans.

46. Before construction may begin near a waterway, a protective construction fence shall be placed in such a manner to allow the proposed development while preventing land disturbance adjacent to the waterway to the maximum extent possible. The protective construction fence shall be shown and noted on the grading/site plans.

47. Construction within a Sonoma County Water Agency (SCWA) property or easement requires a revocable license from SCWA. The applicant shall provide a letter of approval from SCWA to the Grading & Storm Water Section of PRMD prior to issuance of any permit allowing work to occur within a SCWA property or easement. The following note shall be placed prominently on the grading plans: "The contractor shall obtain a revocable license from the Sonoma County Water Agency (SCWA) prior to the start of any construction activities within a SCWA property or easement."

48. If the cumulative land disturbance of the project is equal to or greater than one acre, then the project is subject to National Pollutant Discharge Elimination System (NPDES) requirements and must obtain coverage under the State Water Resource Control Board's General Construction Permit (General Permit). Documentation of coverage under the General Permit must be submitted to the Grading & Storm Water Section of PRMD prior to issuance of any grading permit for the proposed project.

49. The applicant is responsible to contact the North Coast Regional Water Quality Control Board and obtain any necessary permits or waivers for proposed work in or near a waterway. The applicant shall provide said documentation to the Grading & Storm Water Section of PRMD prior to issuance of any permit for the proposed project.

SANITATION:

50. The Applicant shall obtain a Survey for Commercial/Industrial Wastewater Discharge Requirements ("Green form") from the Sonoma County Permit and Resource Management Department (PRMD), and shall submit the completed Survey, along with two (2) copies of the project site plan, floor plan and plumbing plan to the Engineering Division of PRMD. If additional sewer pre-treatment and/or monitoring facilities (i.e. Grease trap, Sampling Manhole, etc.) are required by the Sonoma County Water Agency (SCWA) per this Survey, the Applicant shall comply with the requirements of the Survey prior to occupancy of the proposed energy generation facility.

51. The Applicant shall submit improvement plans to the Engineering Division of PRMD for review and approval of the sanitary sewer design. Improvement plans shall be blue line or black line drawings on standard bond paper, 24 inch by 36 inch in size, prepared by a licensed civil engineer registered in the State of California. Sanitary sewer facilities shall be designed and improvement plans prepared in accordance with SCWA "Design and Construction Standards for Sanitation Facilities". The Applicant shall pay Plan Checking fees to the Engineering Division of PRMD prior to the start of improvement plan review.

    Please note that review of the sanitary sewer design is a separate review from that of the buildings, drainage and frontage improvements, and shall be performed by the Sanitation Section of the Permit and Resource Management Department under a separate permit.

    The sewer design originals shall be signed by the SCWA Chief Engineer prior to the issuance of any permits for construction of the sanitary sewer facilities. The design engineer shall submit improvement plans to the Engineering Division of PRMD on 24 inch by 36 inch mylar or vellum originals for signature by SCWA. All sanitary sewer inspection permits shall be obtained from the Engineering Division of PRMD prior to the start of construction.

52. The Applicant shall construct a Sampling Manhole with dual waste lines for discharge of both domestic and "process" wastewater from the proposed energy generation facility. The Sampling manhole and dual waste lines serving the proposed facility shall be constructed in accordance with SCWA "Design and Construction Standards for Sanitation Facilities" and shall be constructed with a sewer permit issued by the Engineering Division of PRMD.

53. Prior to the start of construction of the sanitary sewer facilities for the proposed energy generation facility, the Applicant shall obtain a Sewer Construction Permit and a Road Encroachment Permit

from the Engineering Division of PRMD. The Encroachment Permit shall be issued to allow for construction activities within the County right-of-way. The Contractor shall provide five (5) sets of signed approved improvement plans to the Engineering Division of PRMD when obtaining the Sewer Construction and Encroachment permits for this project.

54. All road and sewer construction shall be inspected and accepted by the Engineering Division of PRMD prior to the start of operations of the proposed energy generation facility. Completion Notices shall be issued by the Inspectors before occupancy or temporary occupancy is approved for this project.

55. All Sewer Fees per Airport/Larkfield/Wikiup Sanitation Zone Ordinances (latest revision) shall be paid to the Engineering Division of PRMD prior to occupancy of the energy generation facility. Sewer Use Fees for sewer service shall be calculated at the prevailing Sewer Connection and Annual Sewer Service Charge rates in effect at the time of sewer permit issuance. The sewer usage fees for 36 full time employees is estimated to be two (2) Equivalent Single-family Dwelling ("ESD") billing units.

56. The Applicant shall be responsible for the restoration of existing conditions including, but not limited to surfacing, landscaping, utilities and other public improvements that have been disturbed due to the construction of sanitary sewer facilities. Restoration shall be completed prior to the issuance of a Completion Notice, unless otherwise specifically approved in advance by PRMD.

57. The Applicant shall have "record drawings" prepared by the project engineer, in accordance with Section 6-05, of the SCWA "Design and Construction Standards for Sanitation Facilities". The record drawings shall be submitted to the Engineering Division of PRMD for review and approval prior to acceptance of the sanitary sewer facilities.

PLANNING:

"The conditions below have been satisfied" BY _____ DATE _____

Biology

58. **Mitigation Measure BIO-1:** The project applicant will implement the following measures:

a. Prior to construction, a survey will be conducted and any salamanders returning to aquatic breeding habitat (project area wetlands) will be trapped and translocated to an appropriate breeding site. Alternatively, California tiger salamander larvae may be collected and translocated to an appropriate site. Translocation will follow the guidelines presented in the Section 4.7 of the Santa Rosa Plains Conservation Strategy;

b. Prior to construction, fencing will be installed to exclude California tiger salamanders from entering the project site. Fences with ramps may be required to allow any California tiger salamanders onsite to move into an adjacent habitat offsite. In these instances translocation may occur and would be determined on a case-by-case basis;

c. Prior to construction, routes and boundaries of road work will be clearly marked. Access routes, number and size of staging areas, and work areas will be limited to the minimum footprint necessary to achieve project goals;

d. An erosion and sediment control plan will be implemented to prevent impacts of wetland restoration and construction on habitat outside the work areas;

e. A USFWS-approved biological monitor will conduct a Worker Environmental Awareness Program training for construction personnel, addressing the species' basic biology and identifying characteristics, legal status, job-specific protection measures, and penalties for non compliance;

f. A USFWS-approved biological monitor will also be onsite each day during initial site grading;

g. Grading and clearing activities will be conducted between April 15 and October 15 of any given year, depending on the level of rainfall and/or site conditions;

h. Before the start of work each day, the biological monitor will check for animals under any equipment such as vehicles and stored pipes. The biological monitor will check all excavated steep-walled holes or trenches greater than one-foot deep for any California tiger salamander. If present, California tiger salamanders will be removed by the biological monitor and translocated as described in Enclosure 4 of the Programmatic Biological Opinion for U.S. Army Corps of Engineers Permitted Projects that May Affect California Tiger Salamander and Three Endangered Plant Species on the Santa Rosa Plain, California (USFWS, 2007) or as directed by USFWS;

i. All foods and food-related trash items will be enclosed in sealed trash containers at the end of each workday, and removed from the site every three days;

j. No pets will be allowed on the project site;

k. No more than a maximum speed limit of 15 mph will be permitted;

l. All equipment will be maintained such that there will be no leaks of automotive fluids such as gasoline, oils, or solvents;

m. Hazardous fuels, oils, solvents, etc., will be stored in sealable containers in a designated location that is at least 200 feet from aquatic habitats. All fueling and maintenance of vehicles and other equipment and staging areas will occur at least 200 feet from any aquatic habitat;

n. Project areas temporarily disturbed by construction activities will be revegetated with locally-occurring native plants; and

o. The project applicant will mitigate for California tiger salamander habitat loss according to the provisions of the Programmatic Biological Opinion for U.S. Army Corps of Engineers Permitted Projects that May Affect California Tiger Salamander and Three Endangered Plant Species on the Santa Rosa Plain, California (USFWS, 2007).

Mitigation Monitoring: The applicant shall submit a letter to the PRMD Project Review Planner indicating compliance with the conditions prior to issuance of grading permits. Complaints received by PRMD regarding non-compliance with operative provisions during construction shall be investigated by PRMD staff within one week and may result in a stop work order being issued if violations are confirmed, or the project being returned to hearing for potential modification and/or revocation of the use permit.

59. **Mitigation Measure BIO-2:** The project applicant will implement the following measures throughout the project area:

a. Include western pond turtle in the Worker Environmental Awareness Program training.

b. Following installation of exclusion fencing and prior to groundbreaking activities begin, a qualified biologist will conduct a survey for western pond turtle within the construction area. Any pond turtles located within the construction area will be relocated outside of the fenced construction area to the nearest safe location, as determined by the biologist.

c. Construction personnel will check under construction vehicles prior to their operation, including after lunch or any other period that vehicles have remained stationary for 15 minutes or more. Construction personnel will also check around stockpiled materials or equipment prior to changing their position. If a pond turtle or other species is observed,

the vehicle or materials pile will remain stationary until the biological monitor relocates the species or takes other appropriate action.

d. To minimize the likelihood of encountering turtles in upland areas near stream crossings, construction footprints will be restricted to the smallest area possible.

Mitigation Monitoring: The applicant shall submit a letter to the PRMD Project Review Planner indicating compliance with the conditions prior to issuance of grading permits. Complaints received by PRMD regarding non-compliance with operative provisions during construction shall be investigated by PRMD staff within one week and may result in a stop work order being issued if violations are confirmed, or the project being returned to hearing for potential modification and/or revocation of the use permit.

60. **Mitigation Measure BIO-3:** The project applicant will implement the following measures for the protection of nesting birds and raptors:

a. Project construction will avoid the nesting season, if possible;

b. If the nesting season cannot be avoided, a preconstruction survey will be performed to identify any birds nesting within 500 feet of the project area. This survey will be conducted within no more than 15 days of the start of construction;

c. If active nests are not identified during the preconstruction survey, no further action is required for breeding birds;

d. If active nests are identified during the preconstruction survey, the following measures will be implemented to avoid and minimize impacts:

e. Buffer zones around active nests will be established in coordination with CDFG. For raptors, buffer zones are typically a minimum of 500 feet, and for passerine birds are typically 250 feet. Buffer zones shall remain in effect until young have fledged.

f. Monitoring of the nest by a qualified biologist may be required if the project-related activity has potential to adversely impact the nest.

g. CDFG may, on a case-by-case basis, allow construction activities to continue even if raptors and passerine birds nest within the buffers of the work activities.

h. For activities conducted with CDFG approval within a raptor-nesting buffer zone, a qualified biologist shall monitor construction activities and the nest(s) to monitor reactions to activities. If activities are deemed to have a negative effect on nesting raptors, the biologist will immediately inform the construction manager that work should be halted, and CDFG will be consulted.

Mitigation Monitoring: The applicant shall submit a letter to the PRMD Project Review Planner indicating compliance with the conditions prior to issuance of grading permits. Complaints received by PRMD regarding non-compliance with operative provisions during construction shall be investigated by PRMD staff within one week and may result in a stop work order being issued if violations are confirmed, or the project being returned to hearing for potential modification and/or revocation of the use permit.

61. **Mitigation Measure BIO-4:** The project applicant will implement the following measures to mitigate the impacts to listed and special-status plants:

a. Mitigate for rare plant habitat loss according to the provisions of the Programmatic Biological Opinion for U.S. Army Corps of Engineers Permitted Projects that May Affect California Tiger Salamander and Three Endangered Plant Species on the Santa Rosa Plain, California (USFWS, 2007).

b. Conduct plant surveys in accordance with Appendix D of the Santa Rosa Plain

Conservation Strategy, Plant Survey Protocol, or as appropriate based on consultation with USFWS and CDFG.

c. Complete seed/soil collection and salvage at the project site prior to ground disturbance.

d. Prior to ground disturbance, the project applicant will complete one of the following:

e. Purchase appropriate plant credits at a USFWS- and CDFG-approved bank; or

f. Conserve occupied and established plant habitat at a location and number of acres approved by USFWS and CDFG. The conserved land must also have a USFWS- and CDFG-approved management plan and non-wasting endowment fund. Mitigation sites proposed under this option will be evaluated on a case-by-case basis.

Mitigation Monitoring: The applicant shall submit a letter/proof to the PRMD Project Review Planner indicating compliance with the conditions prior to issuance of grading permits. Complaints received by PRMD regarding non-compliance with operative provisions during construction shall be investigated by PRMD staff within one week and may result in a stop work order being issued if violations are confirmed, or the project being returned to hearing for potential modification and/or revocation of the use permit.

62. **Mitigation Measure BIO-5:** Implement the following measures to avoid, minimize and compensate for impacts to riparian habitat:

a. Avoid impacts to riparian habitat where feasible through the use of trenchless technology to install the pipeline such that no impact to riparian areas occur. Such technology may include installation within the roadway, attachment to the bridge, or directional drill installation beneath the stream channel

b. Where avoidance is not possible, acquire appropriate regulatory permits from USACE, CDFG and RWQCB and offset any temporary or permanent impacts to riparian habitat through restoration or compensatory mitigation, as required

Mitigation Monitoring: The applicant shall submit a letter/proof to the PRMD Project Review Planner indicating compliance with the conditions prior to issuance of grading permits. Complaints received by PRMD regarding non-compliance with operative provisions during construction shall be investigated by PRMD staff within one week and may result in a stop work order being issued if violations are confirmed, or the project being returned to hearing for potential modification and/or revocation of the use permit.

63. **Mitigation Measure BIO-6:** Implement the following measures to avoid, minimize and compensate for impacts to jurisdictional wetlands and other waters of the U.S.:

a. Project design will attempt to minimize or avoid direct impacts to wetlands.

b. Where avoidance is not feasible, acquire appropriate regulatory permits from USACE, CDFG and RWQCB and offset any temporary or permanent impacts to riparian habitat through restoration or compensatory mitigation, as required. It is anticipated that the compliance with Mitigation Measure BIO-4 would also provide compliance with compensatory requirements for these agencies.

Mitigation Monitoring: The applicant shall submit a letter/proof to the PRMD Project Review Planner indicating compliance with the conditions prior to issuance of grading permits. Complaints received by PRMD regarding non-compliance with operative provisions during construction shall be investigated by PRMD staff within one week and may result in a stop work order being issued if violations are confirmed, or the project being returned to hearing for potential modification and/or revocation of the use permit.

Cultural Resources

64. **Mitigation Measure CUL-1:** The project applicant will implement the following measures to avoid

Site CA-SON-1324:

a. Design the project to avoid impacts to CA-SON-1324 and known archaeological site boundaries.

b. Conduct subsurface sampling along northern boundary of proposed project site to confirm that elements of CA-SON-1324 do not extend onto the proposed project site, and to confirm that grading activities, including utility connections, will not affect CA-SON-1324.

c. In the event that subsurface sampling determines that project implementation, particularly utility connections, would intersect CA-SON-1324, redesign project footprint to avoid potential impacts. This may include directional drilling techniques that would install utility connections below CA-SON-1324. The known archaeological site depths are 2.6 feet or 80 centimeters (cm) below ground surface (bgs). Therefore, the pipeline will be installed at a depth of 5 feet (1.5 meters or 150 centimeters) bgs or deeper. Entrance and exit pits for the directional drilling will be (at a minimum) 33 feet (10 meters) away from the known archaeological site boundaries.

d. A qualified archaeologist and Native American representative shall be on site during all ground disturbing activities (See Mitigation Measure CUL-4).

Mitigation Monitoring: The applicant shall submit a letter to the PRMD Project Review Planner indicating compliance with the conditions prior to issuance of grading permits. Complaints received by PRMD regarding non-compliance with operative provisions during construction shall be investigated by PRMD staff within one week and may result in a stop work order being issued if violations are confirmed, or the project being returned to hearing for potential modification and/or revocation of the use permit.

65. **Mitigation Measure CUL-2:** In the event that CA-SON-1324 cannot be avoided through the above measures, the project applicant will implement the following measures:

Formal Determination of Significance and Data Recovery Program: If the site cannot be avoided by project design, the project applicant will implement the following measures of formal significance determination and data recovery program, prior to construction at the site:

a. Formal determination of significance for CA-SON-1324. CA-SON-1324 has not been formally determined eligible for listing on the California and National Registers by the California State Historic Preservation Officer (SHPO). Prior to the start of any ground-disturbing activity, the project applicant will request a formal determination of eligibility from the SHPO. This can be accomplished by requesting documented SHPO concurrence on the previous investigations and the current project's potential to impact these significant resources.

b. Archaeological Research Design and Treatment Plan. Assuming SHPO concurrence of CA-SON-1324 eligibility and prior to the start of any ground-disturbing activity, the project applicant will engage a qualified archaeologist to draft a detailed Archaeological Research Design and Treatment Plan (ARDTP). The ARDTP will be prepared by an archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for archaeology, in consultation with an affiliated Native American representative. The ARDTP will:

1. Identify how the proposed data recovery program would preserve the significant information the archaeological resource contains if significant resources are encountered within the proposed area of disturbance.

2. Identify the scientific/historic research questions that the site may answer, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions.

3. Take into consideration that the area has previously been recorded as containing archaeological sites; in addition to the fact the area has been previously disturbed by excavation a nd other ground disturbing activities.

4. Will provide a treatment plan for the discovery of human remains and associated artifacts. The results of the ARDTP will be presented in a report that contains methods, analysis, report production, laboratory analysis, and appropriate curation of materials.

5. If potentially significant features or artifacts are not present, it is anticipated that no further work will be required.

Mitigation Monitoring: The applicant shall submit a letter to the PRMD Project Review Planner indicating compliance with the conditions prior to issuance of grading permits. Complaints received by PRMD regarding non-compliance with operative provisions during construction shall be investigated by PRMD staff within one week and may result in a stop work order being issued if violations are confirmed, or the project being returned to hearing for potential modification and/or revocation of the use permit.

66. **Mitigation Measure CUL-3:** Prior to project construction, Applicant will prepare and submit to PRMD a cultural resources monitoring plan for review and approval.

Prepare a Cultural Resources Monitoring Plan. Monitoring shall be required for all surface alteration and subsurface excavation work including trenching, boring, grading, use of staging areas and access roads, and driving vehicles and equipment within all areas delineated as sensitive for cultural resources. A qualified professional archaeologist shall prepare the plan. The plan shall address (but not be limited to) the following issues:

a. Training program for all construction and field workers involved in site disturbance;

b. Person(s) responsible for conducting monitoring activities, including Native American monitors;

c. How the monitoring shall be conducted and the required format and content of monitoring reports, including any necessary archaeological re-survey of the final pipeline alignment (including the need to conduct shovel-test units or auger samples to identify deposits in advance of construction), assessment, designation and mapping of the sensitive cultural resource areas on final project maps, assessment and survey of any previously unsurveyed areas;

d. Person(s) responsible for overseeing and directing the monitors;

e. Schedule for submittal of monitoring reports and person(s) responsible for review and approval of monitoring reports;

f. Procedures and construction methods to avoid sensitive cultural resource areas (i.e. boring conduit underneath recorded or discovered cultural resource site);

g. Clear delineation and fencing of sensitive cultural resource areas requiring monitoring;

h. Physical monitoring boundaries (e.g., 200-foot radius of a known site);

i. Protocol for notifications in case of encountering of cultural resources, as well as methods of dealing with the encountered resources (e.g., collection, identification, curation);

j. Methods to ensure security of cultural resources sites;

k. Protocol for notifying local authorities (i.e. Sheriff, Police) should site looting and other illegal activities occur during construction.

Mitigation Monitoring: The applicant shall submit the Cultural Resources Monitoring Plan to the PRMD Project Review Planner prior to issuance of grading permits. Complaints received by PRMD regarding non-compliance with operative provisions during construction shall be investigated by PRMD staff within one week and may result in a stop work order being issued if violations are confirmed, or the project being returned to hearing for potential modification and/or revocation of the use permit.

67. **Mitigation Measure CUL-4:** Archaeological and Native American Monitoring. The applicant shall retain the services of a Native American monitor and a qualified archaeological consultant that has expertise in California prehistory to monitor ground-disturbing within areas designated as being sensitive for buried cultural resources. The monitors shall, after making a reasonable effort to assess the identity, integrity, and significance of the encountered archaeological deposit, present the findings of this assessment to PRMD. During the course of the monitoring, the archaeologist may adjust the frequency-from continuous to intermittent-of the monitoring based on the conditions and professional judgment regarding the potential to impact resources. If resources are found during monitoring, the applicant shall:

    a. Cease all soil disturbing activities in the vicinity of the deposit until the deposit is evaluated.

    b. Re-design the project to avoid any adverse effect on the significant archaeological resource; or,

    c. Implement an archaeological data recovery program (ADRP) (unless the archaeologist determines that the archaeological resource is of greater interpretive than research significance and that interpretive use of the resource is feasible). If the circumstances warrant an archaeological data recovery program, an ADRP shall be conducted. The project archaeologist, PRMD and the applicant shall meet and consult to determine the scope of the ADRP. The archaeologist shall prepare a draft ADRP that shall be submitted to PRMD for review and approval. The ADRP shall identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain. The ADRP shall identify the scientific/historic research questions applicable to the expected resource, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, shall be limited to the portions of the historic property that could be adversely affected. Destructive data recovery methods shall not be applied to portions of the archaeological resources if nondestructive methods are practical.

Mitigation Monitoring: The applicant shall submit a letter to the PRMD Project Review Planner indicating compliance with the conditions prior to issuance of grading permits. Complaints received by PRMD regarding non-compliance with operative provisions during construction shall be investigated by PRMD staff within one week and may result in a stop work order being issued if violations are confirmed, or the project being returned to hearing for potential modification and/or revocation of the use permit.

68. **Mitigation Measure CUL-5:** The project applicant will implement the following measure:

    If paleontological resources, such as fossilized bone, teeth, shell, tracks, trails, casts, molds, or impressions are discovered during ground disturbing activities, work will stop in that area and within 100 feet of the find until a qualified paleontologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with SCWA and/or regulatory agencies involved.

Mitigation Monitoring: Complaints received by PRMD regarding non-compliance with operative provisions during construction shall be investigated by PRMD staff within one week and may result in a stop work order being issued if violations are confirmed, or the project being returned to hearing for potential modification and/or revocation of the use permit. In addition, PRMD Planning staff shall not grant clearance for the projects grading permit until the following note is printed on the plan sheets:

''In the event that archaeological resources such as pottery, arrowheads, midden or culturally modified soil deposits are discovered at any time during grading, scraping or excavation within the property, all work shall be halted in the vicinity of the find and County PRMD - Project Review staff shall be notified and a qualified archaeologist shall be contacted immediately to make an evaluation of the find and report to PRMD. PRMD staff may consult and/or notify the appropriate tribal representative from tribes known to PRMD to have interests in the area. Artifacts associated with prehistoric sites include humanly modified stone, shell, bone or other cultural materials such as charcoal, ash and burned rock indicative of food procurement or processing activities. Prehistoric domestic resources include hearths, fire pits, or house floor depressions whereas typical mortuary resources are represented by human skeletal remains. Historic artifacts potentially include all by-products of human land use greater than fifty (50) years of age including trash pits older than fifty (50) years of age. When contacted, a member of PRMD Project Review staff and the archaeologist shall visit the site to determine the extent of the resources and to develop and coordinate proper protection/mitigation measures required for the discovery. PRMD may refer the mitigation/protection plan to designated tribal representatives for review and comment. No work shall commence until a protection/mitigation plan is reviewed and approved by PRMD - Project Review staff. Mitigations may include avoidance, removal, preservation and/or recordation in accordance with California law. Archeological evaluation and mitigation shall be at the applicant's sole expense."

69. **Mitigation Measure CUL-6:** The project applicant will implement the following measure:

If human remains are encountered unexpectedly during ground-disturbing activities, the project applicant will halt work in the vicinity of the find and contact the Sonoma County coroner in accordance with the State Health and Safety Code Section 7050.5. No further disturbance will occur until the Coroner has made the necessary findings as to the origin and disposition pursuant to Public Resources Code (PRC) Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission (NAHC). The NAHC will then identify the person(s) thought to be the Most Likely Descendent, who will help determine what course of action should be taken in dealing with the remains. Work may resume once approved by the cultural and Native American monitors.

Mitigation Monitoring: Complaints received by PRMD regarding non-compliance with operative provisions during construction shall be investigated by PRMD staff within one week and may result in a stop work order being issued if violations are confirmed, or the project being returned to hearing for potential modification and/or revocation of the use permit. In addition, PRMD Planning staff shall not grant clearance for the projects grading permit until the following note is printed on the plan sheets:

''If human remains are encountered, all work must stop in the immediate vicinity of the discovered remains and PRMD staff, County Coroner and a qualified archaeologist must be notified immediately so that an evaluation can be performed. If the remains are deemed to be Native American, the Native American Heritage Commission must be contacted by the Coroner so that a ''Most Likely Descendant'' can be designated and the appropriate provisions of the California Government Code and California Public Resources Code will be followed.''

Cumulative

70. **Mitigation Measure CUMU-1:** The project applicant will coordinate with or notify the local agencies (e.g., Sonoma County, Town of Windsor, City of Santa Rosa) concerning construction schedule, as required, and implement measures such as scheduling project traffic during construction to minimize any construction-related cumulative impacts.

Mitigation Monitoring: The applicant shall submit a letter to the PRMD Project Review Planner indicating compliance with the condition prior to issuance of grading permits. Complaints received by PRMD regarding non-compliance with operative provisions during construction shall be investigated by PRMD staff within one week and may result in a stop work order being issued if violations are confirmed, or the project being returned to hearing for potential modification and/or revocation of the use permit.

71. This Use Permit allows the applicant to construct and operate an alternative energy system on a 5.4 acre site, including construction of facilities to collect and process agricultural and commercial organic waste in biodigesters to produce approximately 1.26 million cubic feet per day of biomethane gas, which would be used both in fuel cells to produce electricity (powering the onsite public wastewater treatment plant and other offsite public or private facilities), and directly injected into the PG&E natural gas network. Solids remaining from the biodigestion process would be converted to a commercial grade organic fertilizer and distributed through wholesale channels.

    The permitted hours of operation are 24 hours a day, 365 days a year. The use shall be operated in accordance with the proposal statement and site plan located in File No. PLP11-0010 as modified by these conditions.

    At least eighty five percent (85%) by weight of all daily processed agricultural and commercial organic waste material used in the facility shall come from sources within Sonoma County. Any trucks hauling organic waste from outside the County must also haul out fertilizer or other by-product from the facility in the same truck. The transport to, or disposal of, organic waste at the site by members of the general public is prohibited.

    All fertilizer produced from the facility shall be distributed from the site wholesale. The direct sale to or transport from the site of fertilizer by members of the general public is prohibited.

72. The applicant shall submit an annual report to the County PRMD and Water Agency prepared by or verified by an independent third party showing compliance with the conditions of approval of this use permit.

73. The applicant shall post a sign at least 2' by 3' in size (subject to Design Review by PRMD staff) at the entrance to the facility on Aviation Boulevard identifying the project and providing a 24 hour a day, 7 day a week telephone number for the project manager or other designated representative, that can receive complaints about the operation of the project. All hot line calls must be responded to within 60 minutes of receipt. Any changes to the phone number must be immediately placed on the sign, and noticed to adjacent neighbors within one week.

74. This use shall be constructed, maintained, and operated in conformance with all applicable county, state, and federal statutes, ordinances, rules, and regulations. A violation of any applicable statute, ordinance, rule or regulation shall be a violation of the Use Permit, subject to revocation.

75. The applicant shall pay all applicable development fees prior to issuance of building permits, unless otherwise specified by County ordinance.

76. Development on this parcel is subject to the Sonoma County Fire Safe Standards and shall be reviewed and approved by the County Fire Marshal and Local Fire Protection District. Said plan shall include, but not be limited to: emergency vehicle access and turn-around at the building site(s), addressing, water storage for fire fighting and fire break maintenance around all structures. Prior to occupancy, written approval that the required improvements have been installed shall be provided to PRMD from the County Fire Marshal/Local Fire Protection District.

    More specifically, the applicant shall:

    a. Request and attend a Fire Services Pre-Construction meeting.

    b. Comply with the Sonoma County Fire Safety Ordinance which includes the California Fire Code with local amendments and Sonoma County Fire Safe Standards.

    c. To determine the acceptability of technologies, processes, products, facilities, materials and uses attending the design, operation or use of the buildings and premises, the applicant shall provide, a fire and safety risk analysis prepared by a qualified engineer, specialist, or fire safety specialty organization acceptable to the fire code official which

shall analyze the fire safety properties of the design, operation or use of the building or premises and the facilities and appurtenances situated thereon.

d. Applicable standards of the National Fire Protection Association (NFPA) shall be used in addition to the codes, regulations, ordinances or bylaws adopted by the jurisdiction to meet the intent of the codes.

e. Except where more restrictive by the California Fire Code as adopted and amended by Sonoma County Code, this project shall be in compliance with the most current edition of applicable NFPA Standards that are referenced within the body of NFPA 853, and NFPA 853 - Standard for the Installation of Stationary Fuel Cell Power.

f. Except where more restrictive by the California Fire Code as adopted and amended by Sonoma County Code, this project shall be in compliance with the most current edition of applicable NFPA Standards that are referenced within the body of NFPA 820, and NFPA 820 - Standard for Fire Protection in Wastewater Treatment and Collection Facilities

g. This project shall be in full compliance with Zoning regulations, Building Code regulations, Hazardous Materials regulations, and Fire Code Regulations,

h. Applicable Fire Code operational permits shall be obtained prior to the operation of any activity that would require such permit as required by California Fire Code as adopted and amended by Sonoma County Code.

i. This site shall pay an annual fire safety inspection fee. The county or district which inspects the facility may charge and collect the fee for the inspection from the owner of the facility in an amount, as determined by the county or district, sufficient to pay its costs of that inspection.

j. Applicable Hazardous Materials Business Plan and Inventory Statement shall be provided. In addition to standard code requirements, the Hazardous Material Plan shall include:

    1. Emergency plans to address temporary loss of outside power to the facility, including steps to stabilize and shut down the biodigesters if necessary.

    2. Emergency plans to address accidental venting or breach of the biodigesters to the atmosphere.

    3. A protocol for notifying regional dispatch, local agencies, and instructions for appropriate response in the event of an emergency (notices to neighbors, etc.).

k. Applicable hazardous materials operational permits shall be obtained prior to the operation of any activity that would require such permit as required by Sonoma County Code.

l. Fire department access roadways shall be provided in compliance with California Fire Code.

m. Roadways, driveways, bridges and gates shall be in compliance with the California Fire Code and the Sonoma County Fire Safe Standards.

n. Addressing shall be in compliance with Sonoma County Fire Safe Standards.

o. Individual parcels, buildings, or groups of buildings served by a private driveway or similar roadway system, shall be provided with an address directory. The address directory shall be placed at the intersection of those roads, streets and/or private lanes. The directory shall be maintained by the property owner, Homeowner's Association, or other individual

or group in charge of the property.

p. Emergency water supply for fire suppression shall be provided in compliance with California Fire Code as adopted and amended by Sonoma County Code.

q. Fire protection systems shall be installed in compliance with California Fire Code Chapter-9, as adopted and amended by Sonoma County Code, and as required by the applicable NFPA Standards.

r. Building setbacks and fire resistive construction shall be in compliance with California Building Code.

s. Defensible space shall be required and maintained throughout the life of the building(s) as required in Sonoma County Fire Safe Standards.

t. Prior to occupancy, written approval that the required improvements have been installed shall be provided by the applicant to both PRMD and the County Fire Marshal/Local Fire Protection District.

77. Prior to the issuance of a building permit, the applicant shall submit to PRMD a Condition Compliance Review fee deposit (amount to be determined consistent with the ordinance in effect at the time). In addition, the applicant shall be responsible for payment of any additional compliance review fees that exceed the initial deposit (based upon hours of staff time worked) prior to final inspection being granted.

78. This “At Cost” entitlement is not vested until all permit processing costs are paid in full. Additionally, no grading or building permits shall be issued until all permit processing costs are paid in full.

79. The applicant shall include these Conditions of Approval on a separate sheet(s) of plan sets to be submitted for building and grading permit applications.

80. The project shall comply with all provisions of the County Low Water Use Landscaping Ordinance.

81. The project shall include a dense evergreen vegetative screen at least twelve (12) feet high for the full length between the east side of the project and the adjacent industrial building (presently occupied by Eagle Distributing Company).

82. All new structures, lighting and signs shall require final design review (by PRMD or Design Review Committee) prior to issuance of building permits. All exterior finishes shall be of non-reflective materials and colors.

83. The applicant shall be required to maintain in good condition all landscape, irrigation, road improvements, pedestrian paths, and drainage features constructed. Landscape plans shall be subject to Design Review approval prior to issuance of grading or building permits. Landscaping shall consist of a mixture of trees, shrubs and groundcover in accordance with an approved landscape plan. All landscaping shall be automatically irrigated with primary irrigation lines and equipment located on private property.

84. Prior to issuance of building permits, an exterior lighting plan shall be submitted for design review (by PRMD or Design Review Committee). Except as otherwise required by the Federal Aviation Administration, exterior lighting shall be low mounted, downward casting and fully shielded to prevent glare. Lighting shall not wash out structures or any portions of the site. Light fixtures shall not be located at the periphery of the property and shall not spill over onto adjacent properties or into the night sky. Flood lights are not permitted. All parking lot and street lights shall be full cut-off fixtures. Lighting shall shut of automatically after closing and security lighting shall be motion-sensor activated.

85. Parking lot fixtures shall not exceed 20 feet in height. All parking lot and/or street light fixtures shall use full cut-off fixtures.

86. Any proposed modification, alteration, and/or expansion of the use authorized by this Use Permit shall require the prior review and approval of PRMD or the Board of Zoning Adjustments, as appropriate. Such changes may require a new or modified Use Permit and additional environmental review.

87. The applicant shall participate in the Sonoma County Office of Education's (SCOE) Regional Occupational Program, or a similar program authorized by SCOE. Participation shall include providing a minimum 2 hours per week access to the facility by SCOE students, and $14,000 to $17,000 annual contribution to the program, for the term of the lease.

88. Prior to building permit issuance, an engineered plan and cost estimate to properly close and clean this facility shall be submitted to PRMD and the Water Agency for review and concurrence. Said plan shall include but not be limited to cleaning all residual solid, liquid and gaseous products out of the processing equipment and accessories such as piping, sumps, trenches, floors, etc., and removing all manufactured equipment such a dryers, pumps, etc. The building structures may remain.

    Prior to building permit issuance, financial assurances to properly close and clean the facility by the developer (referencing the engineered cost estimate), shall be submitted for review and approval by PRMD and the Sonoma County Water Agency. The financial assurance may be peer reviewed by private consultants selected by PRMD or the Sonoma County Water Agency at the applicants expense. Recommendations resulting from peer review and with concurrence by PRMD and the Sonoma County Water Agency shall be incorporated into the financial assurance. The financial requirements for cleaning and closing the facility shall be incorporated into all contracts or leases for this site, and any required letters of credit, bonds, cash or certificates of deposit may be held as security by either the Sonoma County Water Agency or PRMD as a warranty of future performance by the developer.

89. Prior to building permit issuance, an engineered plan and cost estimate to properly operate and maintain this facility over the life of the lease shall be submitted to PRMD and the Water Agency for review and concurrence. Said plan shall include but not be limited all necessary maintenance and parts replacement for the facility to be operating in good condition at the end of the lease period.

    Prior to building permit issuance, the PRMD or Water Agency may require the applicant to provide financial assurances to properly maintain all or part of the facility in good condition (referencing the engineered cost estimate). Said financial assurances, if required, shall be submitted for review and approval by PRMD and the Sonoma County Water Agency. The financial assurance may be peer reviewed by private consultants selected by PRMD or the Sonoma County Water Agency at the applicants expense. Recommendations resulting from peer review and with concurrence by PRMD or the Sonoma County Water Agency shall be incorporated into the financial assurance. The financial requirements for maintaining the facility (if required) shall be incorporated into all contracts or leases for this site, and any required letters of credit, bonds, cash or certificates of deposit may be held as security by either the Sonoma County Water Agency or PRMD as a warranty of future performance by the developer.

90. In the event the ownership or operation of the proposed use is to change hands, it shall be the current operators responsibility to provide adequate technical information and training for the new operator/owner to safely take over and continue to operate the facility in compliance with all applicable County, State, and Federal statutes, ordinances, rules, regulations, and these conditions of approval.

91. In order to secure compliance with these conditions of approval and to deter future violations of these conditions and in addition to any other remedy allowed by law or this permit, in the Director of the Department of Permit and Resources Management's sole discretion, any violation of this

permit may be punishable by a fine not to exceed $2,500 per day from the date of issuance through December 31, 2014 and $3,125 per day from January 1, 2015 through December 31, 2030. Thereafter the maximum daily penalty shall increase by 25% every fifteen years. The amount of a penalty imposed under this condition shall be proportional to the gravity of the violation and shall comport with the attached "Penalty Calculation Sheet" or other penalty calculation policies, as approved by the Sonoma County Board of Supervisors. Each day that the violation exists shall constitute a separate and distinct violation, punishable to the fullest extent allowed by law or this permit.

The Permittee may appeal any penalty imposed under this paragraph to a Sonoma County Administrative Abatement Hearing Officer and either the County or the Permittee may appeal the hearing officer's decision to a court in the time and manner required by law. In the event that the County, or its designee, successfully proves that the Permittee or its agents violated a condition of this permit to an administrative hearing officer or in a court of law, Permittee shall indemnify County for all costs and attorney fees incurred as the result of enforcing the conditions of approval of this permit.

92. Upon reasonable notice, Permittee hereby authorizes the County, or its designee, to enter and inspect the parcel for compliance with these conditions and the Sonoma County Code.

93. The Director of PRMD is hereby authorized to modify these conditions for minor adjustments to respond to unforeseen field constraints provided that the goals of these conditions can be safely achieved in some other manner. The applicant must submit a written request to PRMD demonstrating that the condition(s) is infeasible due to specific constraints (e.g. lack of property rights) and shall include a proposed alternative measure or option to meet the goal or purpose of the condition. PRMD shall consult with affected departments and agencies and may require an application for modification of the approved permit. Changes to conditions that may be authorized by PRMD are limited to those items that are not adopted standards or were not adopted as mitigation measures or that were not at issue during the public hearing process. Any modification of the permit conditions shall be documented with an approval letter from PRMD, and shall not affect the original permit approval date or the term for expiration of the permit.

The owner/operator and all successors in interest, shall comply with all applicable provisions of the Sonoma County Code and all other applicable local, state and federal regulations.

94. This permit shall be subject to revocation or modification by the Board of Zoning Adjustments if: (a) the Board finds that there has been noncompliance with any of the conditions or (b) the Board finds that the use for which this permit is hereby granted constitutes a nuisance. Any such revocation shall be preceded by a public hearing noticed and heard pursuant to Section 26-92-120 and 26-92-140 of the Sonoma County Code.

In any case where a Use Permit has not been used within two (2) year after the date of the granting thereof, or for such additional period as may be specified in the permit, such permit shall become automatically void and of no further effect, provided however, that upon written request by the applicant prior to the expiration of the two year period the permit approval may be extended for not more than one (1) year by the authority which granted the original permit pursuant to Section 26-92-130 of the Sonoma County Code.

PENALTY CALCULATION SHEET

	SCORE	WEIGHT	WEIGHTED
Seriousness of Violation = 30% of Total a) Minor violations (1 pt) b) May cause human health/safety or environmental damage (5 pts) c) Has caused human health/safety or environmental damage (10 pts)	_____	x .30 =	_____
Length of Time Violation has Existed = 5% of Total a) Less that six (6) months (1 pt) b) Six (6) months to one (1) year (5 pts) c) More than one (1) year (10 pts)	_____	x .05 =	_____
Diligence/Cooperation of Violator/Owner = 15% of Total a) Violator/Owner quickly responded & acted w/ diligence (1 pt) b) Violator/Owner responded after numerous attempts (5 pts) c) Violator/Owner delayed response (10 pts)	_____	x .15 =	_____
Effect on Other Properties = 10% of Total a) Minor effect (1 pt) b) Some effect but not significant (5 pts) c) Significant effect on other properties (10 pts)	_____	x .10 =	_____
Culpability of Violator/Owner = 20% of Total a) Violator/Owner did not actively create violation (1 pt) b) Violator/Owner created or added to violation (5 pts) c) Violator/Owner had economic incentive/benefit, repeat Violator/Owner or flagrant violation (10 pts)	_____	x .20 =	_____
Sophistication of Violator/Owner = 20% of Total a) Unknowing of regulations (1 pt) b) Possible knowledge of regulations (5 pts) c) Regulations were known (10 pts)	_____	x .20 =	_____
		TOTAL =	_____

* If significant environmental damage was caused by the violation, add 5 points to the total score, but in no case shall the total score exceed 10.

Appendix A
Air Quality

ESA

2/22/2011 10:58:12 AM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: \\sfo-file01\PROJECTS\SFO\210xxx\D210580.00 - BioStar Systems Waste to Energy Project\03 Working Documents\Individual Sections\AQ and N Files\BioStar 022211.urb924

Project Name: Sonoma County Farms to Fuel Project

Project Location: Sonoma County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	4.35	36.92	37.84	0.05	277.03	1.86	278.89	57.88	1.71	59.59	6,938.63
2012 TOTALS (lbs/day unmitigated)	2.41	22.30	28.17	0.04	0.19	1.03	1.21	0.06	0.94	1.00	5,481.76

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	1.83	18.21	15.42	0.03	4.09	1.12	3,601.61

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	1.83	18.21	15.42	0.03	4.09	1.12	3,601.61

Construction Unmitigated Detail Report:

2/22/2011 10:58:12 AM

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 7/4/2011-7/22/2011 Active Days: 15	3.57	34.28	17.41	0.02	20.07	1.56	21.63	4.20	1.44	5.64	4,164.35
Fine Grading 07/04/2011-07/22/2011	3.57	34.28	17.41	0.02	20.07	1.56	21.63	4.20	1.44	5.64	4,164.35
Fine Grading Dust	0.00	0.00	0.00	0.00	20.00	0.00	20.00	4.18	0.00	4.18	0.00
Fine Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Fine Grading On Road Diesel	0.68	10.73	3.47	0.02	0.06	0.39	0.45	0.02	0.36	0.38	1,731.99
Fine Grading Worker Trips	0.06	0.11	1.99	0.00	0.01	0.00	0.01	0.00	0.00	0.01	185.04
Time Slice 7/25/2011-7/29/2011 Active Days: 5	2.62	24.77	30.22	0.04	0.19	1.15	1.33	0.06	1.05	1.12	5,480.56
Building 07/25/2011-04/23/2012	2.62	24.77	30.22	0.04	0.19	1.15	1.33	0.06	1.05	1.12	5,480.56
Building Off Road Diesel	1.11	8.51	4.68	0.00	0.00	0.54	0.54	0.00	0.50	0.50	893.39
Building Vendor Trips	1.10	15.43	10.97	0.03	0.12	0.57	0.69	0.04	0.52	0.56	3,233.03
Building Worker Trips	0.41	0.84	14.57	0.01	0.07	0.04	0.10	0.02	0.03	0.06	1,354.14

2/22/2011 10:58:12 AM

Time Slice 8/1/2011-9/9/2011 Active Days: 30	**4.35**	**36.92**	**37.84**	**0.05**	**277.03**	**1.86**	**278.89**	**57.88**	**1.71**	**59.59**	**6,938.63**
Building 07/25/2011-04/23/2012	2.62	24.77	30.22	0.04	0.19	1.15	1.33	0.06	1.05	1.12	5,480.56
Building Off Road Diesel	1.11	8.51	4.68	0.00	0.00	0.54	0.54	0.00	0.50	0.50	893.39
Building Vendor Trips	1.10	15.43	10.97	0.03	0.12	0.57	0.69	0.04	0.52	0.56	3,233.03
Building Worker Trips	0.41	0.84	14.57	0.01	0.07	0.04	0.10	0.02	0.03	0.06	1,354.14
Fine Grading 08/01/2011-09/09/2011	1.72	12.15	7.62	0.00	276.84	0.71	277.55	57.82	0.65	58.47	1,458.07
Fine Grading Dust	0.00	0.00	0.00	0.00	276.83	0.00	276.83	57.81	0.00	57.81	0.00
Fine Grading Off Road Diesel	1.62	11.06	5.81	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,158.25
Fine Grading On Road Diesel	0.06	1.00	0.32	0.00	0.01	0.04	0.04	0.00	0.03	0.03	161.04
Fine Grading Worker Trips	0.04	0.09	1.49	0.00	0.01	0.00	0.01	0.00	0.00	0.01	138.78
Time Slice 9/12/2011-12/30/2011 Active Days: 80	2.62	24.77	30.22	0.04	0.19	1.15	1.33	0.06	1.05	1.12	5,480.56
Building 07/25/2011-04/23/2012	2.62	24.77	30.22	0.04	0.19	1.15	1.33	0.06	1.05	1.12	5,480.56
Building Off Road Diesel	1.11	8.51	4.68	0.00	0.00	0.54	0.54	0.00	0.50	0.50	893.39
Building Vendor Trips	1.10	15.43	10.97	0.03	0.12	0.57	0.69	0.04	0.52	0.56	3,233.03
Building Worker Trips	0.41	0.84	14.57	0.01	0.07	0.04	0.10	0.02	0.03	0.06	1,354.14
Time Slice 1/2/2012-4/23/2012 Active Days: 81	2.41	22.30	28.17	0.04	0.19	1.03	1.21	0.06	0.94	1.00	5,481.76
Building 07/25/2011-04/23/2012	2.41	22.30	28.17	0.04	0.19	1.03	1.21	0.06	0.94	1.00	5,481.76
Building Off Road Diesel	1.03	7.87	4.56	0.00	0.00	0.49	0.49	0.00	0.45	0.45	893.39
Building Vendor Trips	1.01	13.67	10.17	0.03	0.12	0.50	0.62	0.04	0.46	0.50	3,233.34
Building Worker Trips	0.37	0.76	13.44	0.01	0.07	0.04	0.10	0.02	0.03	0.06	1,355.04

Time Slice 4/24/2012-5/4/2012 Active Days: 9	2.23	12.80	10.71	0.01	0.03	0.99	1.02	0.01	0.91	0.92	1,664.11
Asphalt 04/24/2012-05/04/2012	2.23	12.80	10.71	0.01	0.03	0.99	1.02	0.01	0.91	0.92	1,664.11
Paving Off-Gas	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.72	10.64	6.84	0.00	0.00	0.91	0.91	0.00	0.84	0.84	979.23
Paving On Road Diesel	0.13	1.98	0.65	0.00	0.01	0.07	0.08	0.00	0.07	0.07	360.85
Paving Worker Trips	0.09	0.18	3.21	0.00	0.02	0.01	0.02	0.01	0.01	0.01	324.03

Phase Assumptions

Phase: Fine Grading 7/4/2011 - 7/22/2011 - Site Preperation

Total Acres Disturbed: 4

Maximum Daily Acreage Disturbed: 1

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 430.2

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 8/1/2011 - 9/9/2011 - Pipeline Construction

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 2346 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 40

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 8 hours per day

2/22/2011 10:58:12 AM

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Paving 4/24/2012 - 5/4/2012 - Site paving

Acres to be Paved: 1

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/25/2011 - 4/23/2012 - Construction of Facilities

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
General heavy industry	1.83	18.21	15.42	0.03	4.09	1.12	3,601.61
TOTALS (lbs/day, unmitigated)	1.83	18.21	15.42	0.03	4.09	1.12	3,601.61

Operational Settings:

2/22/2011 10:58:12 AM

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2012 Temperature (F): 40 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General heavy industry		26.00	acres	4.00	104.00	2,080.00
					104.00	2,080.00

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	69.0	1.1	98.5	0.4
Light Truck < 3750 lbs	0.0	2.2	92.3	5.5
Light Truck 3751-5750 lbs	0.0	1.0	98.5	0.5
Med Truck 5751-8500 lbs	0.0	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	72.2	27.8
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	16.7	83.3
Heavy-Heavy Truck 33,001-60,000 lbs	31.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	0.0	60.0	40.0	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	0.0	90.0	10.0

2/22/2011 10:58:12 AM

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	20.0	20.0	20.0	20.0	20.0	20.0
Rural Trip Length (miles)	20.0	20.0	20.0	20.0	20.0	20.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
General heavy industry				90.0	5.0	5.0

2/22/2011 11:01:06 AM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: \\sfo-file01\PROJECTS\SFO\210xxx\D210580.00 - BioStar Systems Waste to Energy Project\03 Working Documents\Individual Sections\AQ and N Files\BioStar 022211.urb924

Project Name: Sonoma County Farms to Fuel Project

Project Location: Sonoma County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (tons/year unmitigated)	0.20	1.86	1.98	0.00	4.31	0.09	4.40	0.90	0.08	0.98	368.24
2012 TOTALS (tons/year unmitigated)	0.11	0.96	1.19	0.00	0.01	0.05	0.05	0.00	0.04	0.04	229.50

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.31	2.92	2.90	0.01	0.75	0.21	679.38

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.31	2.92	2.90	0.01	0.75	0.21	679.38

Construction Unmitigated Detail Report:

2/22/2011 11:01:06 AM

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011	0.20	1.86	1.98	0.00	4.31	0.09	4.40	0.90	0.08	0.98	368.24
Fine Grading 07/04/2011-07/22/2011	0.03	0.26	0.13	0.00	0.15	0.01	0.16	0.03	0.01	0.04	31.23
Fine Grading Dust	0.00	0.00	0.00	0.00	0.15	0.00	0.15	0.03	0.00	0.03	0.00
Fine Grading Off Road Diesel	0.02	0.18	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.01	16.85
Fine Grading On Road Diesel	0.01	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.99
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39
Building 07/25/2011-04/23/2012	0.15	1.42	1.74	0.00	0.01	0.07	0.08	0.00	0.06	0.06	315.13
Building Off Road Diesel	0.06	0.49	0.27	0.00	0.00	0.03	0.03	0.00	0.03	0.03	51.37
Building Vendor Trips	0.06	0.89	0.63	0.00	0.01	0.03	0.04	0.00	0.03	0.03	185.90
Building Worker Trips	0.02	0.05	0.84	0.00	0.00	0.00	0.01	0.00	0.00	0.00	77.86
Fine Grading 08/01/2011-09/09/2011	0.03	0.18	0.11	0.00	4.15	0.01	4.16	0.87	0.01	0.88	21.87
Fine Grading Dust	0.00	0.00	0.00	0.00	4.15	0.00	4.15	0.87	0.00	0.87	0.00
Fine Grading Off Road Diesel	0.02	0.17	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.01	17.37
Fine Grading On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.42
Fine Grading Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.08

2012	0.11	0.96	1.19	0.00	0.01	0.05	0.05	0.00	0.04	0.04	229.50
Building 07/25/2011-04/23/2012	0.10	0.90	1.14	0.00	0.01	0.04	0.05	0.00	0.04	0.04	222.01
Building Off Road Diesel	0.04	0.32	0.18	0.00	0.00	0.02	0.02	0.00	0.02	0.02	36.18
Building Vendor Trips	0.04	0.55	0.41	0.00	0.00	0.02	0.03	0.00	0.02	0.02	130.95
Building Worker Trips	0.01	0.03	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	54.88
Asphalt 04/24/2012-05/04/2012	0.01	0.06	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.49
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.05	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.41
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46

Phase Assumptions

Phase: Fine Grading 7/4/2011 - 7/22/2011 - Site Preperation

Total Acres Disturbed: 4

Maximum Daily Acreage Disturbed: 1

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 430.2

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 8/1/2011 - 9/9/2011 - Pipeline Construction

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

2/22/2011 11:01:06 AM

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 2346 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 40

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Paving 4/24/2012 - 5/4/2012 - Site paving

Acres to be Paved: 1

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 7/25/2011 - 4/23/2012 - Construction of Facilities

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
General heavy industry	0.31	2.92	2.90	0.01	0.75	0.21	679.38
TOTALS (tons/year, unmitigated)	0.31	2.92	2.90	0.01	0.75	0.21	679.38

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2012 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General heavy industry		26.00	acres	4.00	104.00	2,080.00
					104.00	2,080.00

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	69.0	1.1	98.5	0.4
Light Truck < 3750 lbs	0.0	2.2	92.3	5.5
Light Truck 3751-5750 lbs	0.0	1.0	98.5	0.5
Med Truck 5751-8500 lbs	0.0	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	72.2	27.8
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	50.0	50.0

2/22/2011 11:01:06 AM

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	16.7	83.3
Heavy-Heavy Truck 33,001-60,000 lbs	31.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	0.0	60.0	40.0	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	0.0	90.0	10.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	20.0	20.0	20.0	20.0	20.0	20.0
Rural Trip Length (miles)	20.0	20.0	20.0	20.0	20.0	20.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
General heavy industry				90.0	5.0	5.0

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\MATT\BioStar\Operations - loader.urb924

Project Name: Sonoma County Farms to Fuel Project - Loader

Project Location: Sonoma County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012 TOTALS (lbs/day unmitigated)	0.49	3.13	2.71	0.00	0.00	0.27	0.28	0.00	0.25	0.25	373.75

12/10/2010 2:54:59 PM

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/2/2012-12/31/2012 Active Days: 261	**0.49**	**3.13**	**2.71**	**0.00**	**0.00**	**0.27**	**0.28**	**0.00**	**0.25**	**0.25**	373.75
Fine Grading 01/02/2012-12/31/2012	0.49	3.13	2.71	0.00	0.00	0.27	0.28	0.00	0.25	0.25	373.75
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.48	3.11	2.25	0.00	0.00	0.27	0.27	0.00	0.25	0.25	327.46
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.03	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.29

Phase Assumptions

Phase: Fine Grading 1/2/2012 - 12/31/2012 - Long-term operations of one loader

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

0 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

12/10/2010 2:54:00 PM

Urbemis 2007 Version 9.2.4

Summary Report for Annual Emissions (Tons/Year)

File Name: C:\MATT\BioStar\Operations - loader.urb924

Project Name: Sonoma County Farms to Fuel Project - Loader

Project Location: Sonoma County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012 TOTALS (tons/year unmitigated)	0.06	0.41	0.35	0.00	0.00	0.04	0.04	0.00	0.03	0.03	48.77

Construction Emissions

Criteria Pollutants

Project Emission Units	ROG	NOx	CO	PM10	PM2.5
tons per project (URBEMIS)	0.31	2.82	3.17	0.14	0.12
pounds per project	620	5,640	6,340	280	240
Average Pounds per Work-Day	3	26	29	1	1

Greenhouse Gases	CO2
tons per year	597.7
metric tons per year	542.3

Notes and References:

PM10 and PM2.5 emissions do not include dust; only exhaust emissions

The construction period would be 10 months; It is estimated that there would be 215 workdays (10*30*(5/7))

See URBEMIS print out sheets for tons per project (includes 2011 and 2012 emissions)

Direct Methane Capture Emissions Reductions

cubic feet methane/year	300,000,000
pounds methane/year	12,738,000
metric tons methane/year	5,778
metric tons CO2e/year	144,448

Direct GHG Emissions from Fuel Cell Operations

Maximum Electricity Production	44,000,000	kilowatt-hours/year (kWh/yr)
Maximum Electricity Production	44,000	megawatt-hours/year (MWh/yr)
CO2 Emission Factor (fuel cell)	680	pounds/MW-hrs
CO2 Emissions	13,572	metric tons/year

Indirect GHG Emissions Displaced by Fuel Cell Electricity

Indirect GHG gases	Emission Factor lb/MW-hr	Project Electricity Use (MW-hr)	GHGs metric tons	Equivalent Factor	CO2 Equivalent Emissions (metric tons)	
Carbon Dioxide (CO2)	724.12	44,000	14,452	1	14,452	
Nitrous Oxide (N2O)	0.0081	44,000	0.2	296	48	
Methane (CH4)	0.0302	44,000	0.6	23	14	
	Total Indirect GHG Emissions Displaced by Fuel Cell Electricity Use=				14,514	annual average
				Net	-942	

Notes and References:

Direct emission reductions are based on daily production of biomethane (820,000 ft3/day) for 365 days.
Fuel cell emission factor for CO2: Direct FuelCell, 2010.
Indirect CO2, CH4, and N2O Emission Factors are for California Energy Portfolio Source: CCAR, 2009
Global Warming Potential for CH4 = 25.
lbs/metric ton = 2204.6
CH4 lbs/ft3 = 0.04246

Loader GHG Emissions	**CO2**
tons per year (URBEMIS)	48.77
metric tons per year	44.24

Vehicle GHG Trip Emissions	**CO2**
tons per year (URBEMIS)	679
metric tons per year	615.98

Indirect Water Useage Emissions

Water Demand

43,000	gallons/day wastewater (Source: project description)
64,500	gallons/day potable water (assumes potable water would be equal to 150% of wastewater).
23,542,500	gallons/year
23.54	million gallons/year

Water Energy use factor* (CEC, 2005)

4,000	kW-hr/MG

*Includes supply and conveyance, treatment, distribution, and wastewater treatment for Northern California area.

Water Related Electrical Consumption

94,170	kW-hr/yr
94	MW-hr/yr

Electricity Use Emission Factors (CCAR, 2009)

	CO2	CH4	N2O
lbs/MW-hr	724.12	0.0302	0.0081

Electricity Use for Water Emissions

	CO2	CH4	N2O
lb/yr	68,190.38	2.84	0.76
CO2e lb/yr	68,190.38	71.10	225.78
CO2e ton/yr	34.10	0.04	0.11
CO2e MT/yr	30.92	0.03	0.10
Total CO2e MT/yr		**31.06**	

Global Warming Potential for CH4 = 25; GWP for N2O = 296.

References:

California Energy Commission (CEC), 2005. California's Water - Energy Relationship Prepared in Suppot of the 2005 Integrated Energy Policy Report Proceeding (04-IEPR-01E), November 2005 (Table 1-3, page 11).

California Climate Action Registry, 2009. General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.Tables C.4 and C.7.

Indirect Energy Useage Emissions

Energy Use

3,500 kW-hr/yr
3.5 MW-hr/yr

Electricity Use Emission Factors (CCAR, 2009)

	CO2	CH4	N2O
lbs/MW-hr	724.12	0.0302	0.0081

Electricity Use Indirect Emissions

	CO2	CH4	N2O
lb/yr	2,534	0	0
CO2e lb/yr	2,534	3	8
CO2e ton/yr	1.27	0.00	0.00
CO2e MT/yr	1.15	0.00	0.00
Total CO2e MT/yr		**1.15**	

Global Warming Potential for CH4 = 25; GWP for N2O = 296.

References:

California Climate Action Registry, 2009. General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.Tables C.4 and C.7.

Fuel Cell Emissions

	NOx	Sox	PM
Emission Factors (lb/MWh)	0.01	0.0001	0.00002
Production per Fuel Cell (MWh/day)	33.6	33.6	33.6
Number of Fuel Cells	4	4	4
lb/day	1.344	0.01344	0.002688

Notes and References:

Fuel cell emission factors: Direct FuelCell, 2010

Fuel cell production assumes a power plant rating of 1,400 kW