FINAL

Initial Study/Mitigated Negative Declaration

City of Antioch Water Treatment Plant Disinfection Improvements Project

City of Antioch

January 27, 2017

CDM Smith

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Appendices

Section 1
Introduction and Indices

1.1 Introduction

In compliance with California Environmental Quality (CEQA) Public Resources Code Section 21000 et seq. and in accordance with the Guidelines for Implementation of CEQA (14CCR 15000 et seq.), the City of Antioch (City) has prepared this Final Initial Study/Mitigated Negative Declaration (IS/MND) for the Antioch Water Treatment Plant (WTP) Disinfection Improvements Project (proposed Project). The purpose of the proposed Project is to modify existing facilities at the City's domestic water treatment facility, the Antioch Water Treatment Plant, to replace the existing chlorine (gas) storage and feed system and the existing anhydrous ammonia (gas) storage and feed system with the use of less hazardous chemicals.

This Final IS/MND is comprised of the Response to Comments, corrections/additions to the Revised Draft IS/MND, the Revised Draft IS/MND (provided as **Appendix A**), and the Mitigation Monitoring and Reporting Program. Collectively, these documents will be used by the City of Antioch Public Works Department (as the lead agency) in its review and consideration of the proposed Project. Under CEQA requirements, based on this document, including the IS and the comments received, the City will adopt the final MND if it is determined that the there is no substantial evidence that the Project will have a significant effect on the environment [CEQA Guidelines, Section 15074(b)].

1.1.1 Draft IS/MND

Pursuant to CEQA Guidelines Section 15073, the Draft IS/MND was circulated for public review for a 30-day period from February 3, 2016 to March 4, 2016. A notice of the Draft IS/MND for the proposed Project was mailed to organizations and interested stakeholders potentially affected by or interested in the proposed Project. As required by the California Office of Planning and Research, State Clearinghouse, State agencies were provided the opportunity to comment on the document through March 4, 2016. A notice regarding the Project was filed with the Contra Costa County Clerk-Recorder's office on February 5, 2016. A total of one comment letter was received during the comment period.

A detailed description of the proposed Project is provided in the Draft IS/MND. The original design of the proposed Project included replacing the existing chlorine (gas) storage and feed system with a liquid sodium hypochlorite storage and feed system and replacing the existing anhydrous ammonia (gas) storage and feed system with a liquid aqua ammonia storage and feed system.

After release of the Draft IS/MND and during the design of the improvements, the City decided to modify the design of the treatment improvements to use liquid ammonium sulfate in lieu of liquid aqua ammonia. Liquid ammonium sulfate is non-corrosive and non-toxic, and requires much less extensive permitting activities and significantly lower permitting fees than liquid aqua ammonia. In addition, it can be stored in a fiberglass reinforced plastic (FRP) or high density polyethylene

(HDPE) tank at atmospheric pressure and does not require carriage water. As a result, instead of horizontal carbon steel tank kept under slight pressure to contain liquid aqua ammonia, a vertical HDPE tank would be used for the liquid ammonium sulfate. In addition, a scrubber tank would not be needed for liquid aqua ammonia, and piping and valving for carriage water are also not needed for liquid ammonium sulfate.

In consideration of these modifications to the design, the City decided to update the Draft IS/MND that was released in February 2016 and reissue a Revised Draft IS/MND for circulation for public review and comment.

1.1.2 Revised Draft IS/MND

The Revised Draft IS/MND included changes as a result of clarifications to, and comments received on, the previous Draft IS/MND for the proposed Project, as well as the design change to the project since publication of the previous Draft IS/MND in February 2016. The Revised Draft IS/MND also included a photocopy of the one comment letter received on the previously issued Draft IS/MND along with prepared written responses by the City to the comments.

Pursuant to CEQA Guidelines Section 15073, the Revised Draft IS/MND was circulated for public review for a 30-day period from December 15, 2016 to January 13, 2017. A notice of the Revised Draft IS/MND for the proposed Project was mailed to organizations and interested stakeholders potentially affected by or interested in the proposed Project. As required by the California Office of Planning and Research, State Clearinghouse, State agencies were provided the opportunity to comment on the document through January 13, 2017. A notice regarding the Project was filed with the Contra Costa County Clerk-Recorder's office on December 15, 2016. A notice regarding the Project was published in the Bay Area News Group on December 16, 2016. Notice of Intent and Proofs of Publication for the Revised Draft IS/MND are provided in **Appendix B**. A total of two comment letters were received during the comment period.

The primary components of the Antioch Water Treatment Plant Disinfection Improvements Project are:

- Install 3 new liquid sodium hypochlorite storage tanks (13,000 gallons each), piping, and 2 new mixing/transfer pumps in the existing chemical containment area.
- Install a canopy (approximately 25-30 feet tall) over the new sodium hypochlorite storage tanks and facilities in the existing chemical containment area to shield the tanks from direct sunlight and excessive heat, and limit rainfall in the containment area; construct concrete containment walls (approximately 2.5 feet tall) to provide separate containment for each individual chemical in the bulk storage area should a leak or spill occur, with fire-rated separation panels (approximately 20-22 feet tall) attached to some segments of containment walls; lighting will be provided in the area under the new canopy.
- Install up to 6 new liquid sodium hypochlorite chemical metering pumps and up to 2 new water softening in the existing pump room.
- Install 1 or 2 new water softening systems to condition water for dilution of the liquid sodium hypochlorite in the storage tanks and/or serve as carrier water for the liquid

sodium hypochlorite to the application points throughout the treatment plant. The softening process will periodically generate small amounts of backwash water (100 to 400 gallons every day) and brine (400 to 900 gallons every 1 to 5 days). The backwash water and brine will be discharged to the sanitary sewer, trucked offsite for disposal, or blended and recycled with the used washwater or plant influent and re-treated at the Antioch WTP.

- Decommission and remove all 1-ton chlorine cylinders, chlorinators and related equipment.
- Install 1 new liquid ammonium sulfate storage tank (up to 6,500 gallons), piping, and up to 4 new chemical metering pumps in the existing Chlorine Scrubber area.
- Install a canopy (approximately 15-20 feet tall) over the new liquid ammonium sulfate tank and facilities to shield the tank from direct sunlight and excessive heat and limit rainfall in the containment area; lighting will be provided in the area under the new canopy.
- Decommission and remove the anhydrous ammonia tank, ammoniators and related equipment.
- Install new double-contained chemical application piping to the raw and filtered water application points currently in use for chlorine and ammonia.
- Implement the necessary electrical power, instrumentation, and control system improvements for safe and reliable loading, monitoring and operation of the new systems.

1.1.2 Final IS/MND

This Final IS/MND is organized as follows:

- **Section 1 Introduction** – This section contains a brief description of the project and an overview of elements of the CEQA process and requirements.
- **Section 2 Comments and Responses** – In accordance with CEQA Guidelines Section 15088, the City has prepared written responses to all comments received on the Revised Draft IS. Section 2 lists comments received on the Revised Draft IS/MND and their responses. Photocopies of the original comment letters are provided in **Appendix C**.
- **Section 3 Corrections and Additions** – This section includes any revisions that were made to clarify information presented in the Revised Draft IS/MND and to respond to comments received on the Revised Draft IS/MND. Only minor editorial changes or additions have been made. These changes and additions to the IS/MND do not raise important new issues related to significant effects on the environment.
- Appendices
    - **Appendix A, Revised Draft IS/MND** – This appendix contains the Revised Draft IS/MND document that was circulated for public comment in December 2016.

- **Appendix B, Notice of Intent and Proofs of Publication** - This appendix contains photocopies of the notifications for circulation of the Draft IS/MND.
- **Appendix C, Comment Letters on the Revised Draft IS/MND** – This appendix contains photocopies of the comment letters that were received during the comment period.
- **Appendix D, Mitigation Monitoring and Reporting** – This appendix summarizes mitigation measures proposed by the City to reduce or avoid potential environmental impacts associated with Project construction and operation.

The comments received on the Revised Draft IS/MND do not raise new issues regarding significant effects on the environment. Therefore, no significant effects would result from the proposed project because revisions in the project have been made by or agreed to by the project proponent; therefore, a Mitigated Negative Declaration will be adopted. Mitigation measures proposed by the City to reduce or avoid potential environmental impacts associated with Project construction and operation are considered part of the proposed Project and are listed in **Appendix D** Mitigation and Monitoring and Reporting Program.

The Final IS/MND is available for public review at:

City of Antioch City Hall
Community Development Department
3rd and H Streets
Antioch, CA 94531

Contra Costa County Library,
501 West 18th Street
Antioch, CA 94509

The Final IS/MND is also available online at: www.antioch.ca.us.

Pursuant to CEQA, the Final IS/MND is not circulated for another round of comments and responses. It is presented to the decision-makers for their use in considering the proposed Project. Interested parties may comment on the Final IS/MND in the course of the decision-making process related to the Project; however, the City is not required to provide responses to such comments.

1.2 Index of Comment Letters

Two comment letters were received on the Revised Draft IS/MND during the comment period. These letters were received from the Central Valley Regional Water Quality Control Board and the State of California Department of Transportation. In Section 2, each comment is typed exactly as it appears in the original comment letter; no corrections to typographical errors or other edits to the original comments were made. Each comment is presented, immediately followed by a response. Copies of the original comment letters are provided in **Appendix C.**

In some instances, the response to a particular comment may refer to the response(s) to another comment(s) that is similar in content. In such instances, the response will cross-reference the numbered comment; for example, "Please see response to comment Central Valley Water Board – 8."

Section 2
Comments and Responses

Refer to **Appendix C** of the Final IS/MND for copies of the comment letters received on the City of Antioch Water Treatment Plant Disinfection Improvements Project Revised Draft IS/MND. Letters were received from the Central Valley Regional Water Quality Control Board and the State of California Department of Transportation. The following provides the comments and individual responses to said comments.

Central Valley Water Board - 1

Comment:

Pursuant to the State Clearinghouse's 15 December 2016 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Revised Mitigated Negative Declaration* for the Antioch Water Treatment Plant Disinfection Improvements (P.W. 246-29) Project, located in Contra Costa County.

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

I. Regulatory Setting

Basin Plan

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

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3)

years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues.

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

Response:

Comment noted. Section 4.9 Hydrology and Water Quality contains a Regulatory Setting section that briefly describes the Basin Plan (see page 4-40 of the Revised Draft IS/MND).

Central Valley Water Board - 2

Comment:

Antidegradation Considerations

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

In part it states:

> Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.
>
> This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

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

Response:

As noted in Section 4.9 of the Revised Draft IS/MND, page 4-42, the construction and operation of the proposed project would not generate additional surface water runoff. The proposed Project would be constructed on a previously developed site, and no long-term changes to the existing grade or drainage pattern of the area are proposed. Currently the runoff on the site is collected in stormwater drains and conveyed through buried pipe to two (2) off-site retention ponds basins located south of Putnam Street, east of G street and west of Spartan Way as described on page 2-1 of the Revised Draft IS/MND and illustrated on Figure 1.

As noted in Section 4.9 of the Revised Draft IS/MND, top of page 4-43, groundwater is not expected to be encountered during construction. No groundwater was observed in borings up to 20.3 feet bgs (CDM Smith 2015). Although construction will entail trenching, the trenches will

install piping at: a depth of 2 to 4 feet in the area west of the existing Chemical Storage Area; a depth of 3 to 6 feet for the pipe trench between the existing Plant B and existing Filtered Water Reservoir; and a depth of 3 to 6 feet for the pipe trench between the new Aqua Ammonia facility and existing Plant A. Given the anticipated depth of trenching and the observed depth to groundwater, groundwater is not expected to be encountered during construction, thus no impacts to groundwater are anticipated.

Central Valley Water Board - 3

Comment:

> II. Permitting Requirements
>
> Construction Storm Water General Permit
>
> Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Construction General Permit Order No. 2009-009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).
>
> For more information on the Construction General Permit, visit the State Water Resources Control Board website at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml.

Response:

As shown in Figures 2, 3, 4, and 5 of the Revised Draft IS/MND, the proposed project entails construction of modifications to the existing water treatment plant mostly within existing buildings with a few trenches for new piping. The proposed project will be limited to areas for construction (modifications) at existing outdoor structures; modifications in existing buildings; and outdoor staging areas for equipment, parking, materials storage, etc. Temporary disturbance of soils (for pipe trenching) will be less than 1 acre. Overall construction would disturb less than one acre of soil and therefore, would not require coverage under the Construction General Permit. As noted in Section 4.9 of the Revised Draft IS/MND, page 4-43 construction activities would comply with a project-specific SWPPP and applicable best management practices (BMPs) in order to minimize runoff of polluted stormwater from the site and from exposed or loose soils on the site during construction. Please also see response to comment Central Valley Water Board – 5.

Central Valley Water Board - 4

Comment:

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]

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

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

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

Response:

The City of Antioch was a Phase I MS4 permittee included under Order No. R5-2010-0102, NPDES No. CAS083313, which expired September 1, 2015. Although, the Central Valley Water Board (CVRWQCB-Region 5) has developed a new Region-wide MS4 permit under Order No. R5-2016-0040, NPDES No. CAS0085324, which became effective on October 1, 2016, the City of Antioch, along with all other municipalities and unincorporated County within the jurisdiction of CVRWQCB-Region 5, were approached by Region 5 to go with their Regional permit or be covered under the San Francisco Water Board (SFRWQCB)-Region 2 MS4 permit. All cities and the County recently decided to have coverage under Region 2. Both Regions were notified of the decision and the matter is now before respective staff and boards to draft a resolution. Once resolved, the City of Antioch will be Phase I MS4 permittee under order No. R2-2015-0049, MS4 NPDES No. CAS612008.

As noted in Section 4.17 of the Revised Draft IS/MND, page 4-65, construction of the proposed project would occur primarily in already paved areas and would negligibly change the amount of impervious surface area. New piping would be installed within trenches and disturbed areas would be re-vegetated following construction.

Central Valley Water Board - 5

Comment:

Industrial Storm Water General Permit

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

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

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

Response:

As noted in Section 4.9 of the Revised Draft IS/MND, page 4-42, the proposed Project plans to comply with all applicable requirements pertaining to stormwater and urban runoff, including a Stormwater Pollution and Prevention Plan (SWPPP), incorporation of best Management Practices (BMPs) during construction, and compliance with the latest NPDES Stormwater Regulations. Antioch WTP also has an active a Spill Preventions, Containment and Control Plan (SPCC) in compliance with SPCC regulation.

Central Valley Water Board - 6

Comment:

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by the USACOE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

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

Response:

As noted in Section 4.9 of the Revised Draft IS/MND, page 4-42, the construction and operation of the proposed project would not generate additional wastewater or measurably increase urban runoff. The proposed Project would be constructed on a previously developed site, and no long-term changes to the existing grade or drainage pattern of the area are proposed. The two closest waterbodies to the project site are both approximately 1 mile from the project site, the western portion of Contra Loma Reservoir in Contra Loma Regional Park and the eastern portion of Contra Loma Reservoir north of the Lone Tree Golf Course. In addition, Lake Alhambra and the San Joaquin River are approximately 1.5 miles and 1.8 miles, respectively. As such, given the no measurable increase in runoff and the distance to the nearest waterbodies, the project will not involve the discharge of dredged or fill material into navigable waters or wetlands, and a Section 404 permit is not required for the proposed Project.

Central Valley Water Board - 7

Comment:

Clean Water Act Section 401 Permit - Water Quality Certification

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

Response:

As noted in Section 4.9 of the Revised Draft IS/MND, page 4-43, the proposed Project would be constructed on a previously developed site, currently used as a water treatment plant. The closest waterbodies to the project site are about 1 mile from the project site. The project will not involve the disturbance of waters of the United States (such as streams and wetlands), and a 401 Water Quality Certification is not required for the proposed Project.

Central Valley Water Board - 8

Comment:

Waste Discharge Requirements - Discharges to Waters of the State

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

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

Response:

The closest waterbodies to the project site are about 1 mile from the project site. The proposed Project will not involve discharges to waters of the United States. As noted in Section 4.9 of the Revised Draft IS/MND, page 4-42, construction and operation of the proposed Project would not generate additional wastewater or measurably increase urban runoff into existing storm drains. Please also see response to comment Central Valley Water Board – 5.

Central Valley Water Board - 9

Comment:

Dewatering Permit

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

For more information regarding the Low Risk General Order and the application process, visit the Central Valley Water Board website at: http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Risk Waiver and the application process, visit the Central Valley Water Board website at: http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2013-0145_res.pdf

Response:

As noted in Section 4.9 of the Revised Draft IS/MND, top of page 4-43, groundwater is not expected to be encountered during construction. No groundwater was observed in borings up to 20.3 feet bgs (CDM Smith 2015). Although construction will entail trenching, the trenches will install piping at: a depth of 2 to 4 feet in the area west of the existing Chemical Storage Area; a depth of 3 to 6 feet for the pipe trench between the existing Plant B and existing Filtered Water Reservoir; and a depth of 3 to 6 feet for the pipe trench between the new Aqua Ammonia facility and existing Plant A. Given the anticipated depth of trenching and the observed depth to groundwater, no dewatering during construction is anticipated and a dewatering permit is not required.

Central Valley Water Board - 10

Comment:

Regulatory Compliance for Commercially Irrigated Agriculture

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

1. Obtain Coverage Under a Coalition Group. Join the local Coalition Group that supports land owners with the implementation of the Irrigated Lands Regulatory Program. The Coalition Group conducts water quality monitoring and reporting to the Central Valley Water Board on behalf of its growers. The Coalition Groups charge an annual membership fee, which varies by Coalition Group. To find the Coalition Group in your area, visit the Central Valley Water Board's website at:

http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/app_approval/index.shtml; or contact water board staff at (916) 464-4611 or via email at IrrLands@waterboards.ca.gov.

2. Obtain Coverage Under the General Waste Discharge Requirements for Individual Growers, General Order RS-2013-0100. Dischargers not participating in a third-party group (Coalition) are regulated individually. Depending on the specific site conditions, growers may be required to monitor runoff from their property, install monitoring wells, and submit a notice of intent, farm plan, and other action plans regarding their actions to comply with their General Order. Yearly costs would include State administrative fees (for example, annual fees for farm sizes from 10-100 acres are currently $1,084 + $6. 70/Acre); the cost to prepare annual monitoring reports; and water quality monitoring costs. To enroll as an Individual Discharger under the Irrigated Lands Regulatory Program, call the Central Valley Water Board phone line at (916) 464-4611 or e-mail board staff at lrrLands@waterboards.ca.gov.

Response:

As noted in Section 4.10 of the Revised Draft IS/MND, page 4-45, the proposed project entails construction of modifications to the existing water treatment plant, and operation of the proposed project would be similar to the current operations that already occur on the existing site. The property for the proposed Project will not be used for commercial irrigated agricultural, therefore regulatory coverage under the Irrigated Lands Regulatory Program is not necessary for the proposed Project.

Central Valley Water Board - 11

Comment:

Low or Limited Threat General NPDES Permit

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

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

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

Response:

Given the anticipated depth of trenching and the observed depth to groundwater, no dewatering during construction is anticipated and a dewatering permit is not required. Please see response to comment Central Valley Water Board – 9.

Central Valley Water Board - 12

Comment:

NPDES Permit

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

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

Response:

The closest waterbodies to the project site are about 1 mile from the project site. The proposed Project will not involve discharges to waters of the State. As noted in Section 4.9 of the Revised Draft IS/MND, page 4-42, construction and operation of the proposed Project would not generate additional wastewater or measurably increase urban runoff into existing storm drains. Please also see response to comment Central Valley Water Board – 5.

State of California Department of Transportation - 1

Comment:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the Antioch Water Treatment Plant Disinfection Improvements Project. In tandem with the Metropolitan Transportation Commission's (MTC) Sustainable Communities Strategy (SCS), Caltrans' new mission signals a modernization of our approach to evaluating and mitigating impacts to the State Transportation Network (STN). Caltrans Strategic Management Plan targets aim to reduce Vehicle Miles Travelled (VMT) by tripling bicycle and doubling both pedestrian and transit travel by 2020. Our comments are based on the IS/MND.

Project Understanding

The proposed project for the Antioch Water Treatment Plant would replace the existing gaseous chlorine and anhydrous ammonia storage and feed systems with a liquid sodium hypochlorite and aqua ammonia storage and feed systems. The plant entrance is located at 401 Putnam Street, approximately 0.5 miles south of California State Highway 4 (CA HWY 4) and 0.12 miles west of Lone Tree Way. Treatment chemicals are typically delivered to the Antioch WTP by truck via CA HWY 4 to Lone Tree Way to Putnam Street.

Lead Agency

As the Lead Agency, the City of Antioch is responsible for all project mitigation, including any needed improvements to State highways. The project's fair share contribution, financing, scheduling, implementation responsibilities, and Lead Agency monitoring should be fully discussed for all proposed mitigation measures.

Response:

As noted in Section 4.16 of the Revised Draft IS/MND, page 4-63, traffic increases from the proposed project would be minor, with a total of 2,400 vehicle trips over the 12-month construction period and during operation, an increase of approximately 40 vehicle trips per year associated with the new sodium hypochlorite system. There would be no permanent increase in workforce due to the project, and no construction on any public road including intersections, streets, highways and freeways, pedestrian and bicycle paths and mass transit. Thus, the proposed project's impacts on the capacity of the existing circulation system would be negligible.

Appendix D Mitigation and Monitoring and Reporting Program of this Final IS/MND lists the mitigation measures proposed by the City to reduce or avoid potential environmental impacts associated with Project construction and operation. This program outlines the monitoring agency, implementation timing, monitoring frequency, and actions indicating compliance with each mitigation measure for the proposed project.

Under the provisions of the City of Antioch Municipal Code § 7-5.01, the City of Antioch may impose fees on developments to support public works projects necessitated by each development, such as increased traffic light and street improvements, street lighting facilities, and other facilities. The amount of the fee is determined by the fee schedule as adopted by the Council and as required for all development that requires a building permit under the provisions of the municipal code.

State of California Department of Transportation - 2

Comment:

Cultural Resources Impact Analysis

Section 4.5 on Cultural Resources (p.4-22) cites that the analysis was based on the Hillcrest eBART Station Area Specific Plan Draft EIR (City of Antioch 2009) in place of a current study. However, the Specific Plan does not include the current project area. We recommend that the City of Antioch conduct a cultural resource technical study that includes a records search from the Northwest Information Center of the California Historical Resources Information System (CHRIS) at Sonoma State University and a field survey conducted by a qualified archaeologist and a qualified architectural historian.

Response:

As noted in Section 4.10 of the Revised Draft IS/MND, page 4-45, the proposed project entails construction of modifications to the existing water treatment plant, and operation of the proposed project would be similar to the current operations that already occur on the existing site. As noted in Section 4.5 of the Revised Draft IS/MND, page 4-23, minimal

excavation is associated with the project and would be limited to localized digging within the footprint of existing outdoor facilities or areas adjoining the existing facilities. This land was previously disturbed during the construction of the existing water treatment plant. As such, the likelihood of encountering intact cultural resources is considered extremely low.

Since it is always possible that previously undisturbed resources could be encountered, Mitigation Measure CUL-1 calls for construction to temporarily halt in the event that archaeological or paleontological resources are encountered during the course of grading and/or excavation, until a qualified archaeologist (or paleontologist, if appropriate) is brought onto the project site to properly assess the resources and make recommendations for their disposition. Implementation of this mitigation measure is sufficient to address if unanticipated cultural resources are uncovered during construction of the proposed project, and would reduce potential impacts to less than significant.

State of California Department of Transportation - 3

Comment:

Additionally, Native American consultation is not documented in Section 4.5. Per CEQA and Assembly Bill (AB) 52, we recommend that the City of Antioch conduct Native American consultation with tribes, groups, and individuals who are interested in the project area and may have knowledge of Tribal Cultural Resources, Traditional Cultural Properties, or other sacred sites.

Response:

As noted in Section 4.10 of the Revised Draft IS/MND, page 4-45, the proposed project entails construction of modifications to the existing water treatment plant, and operation of the proposed project would be similar to the current operations that already occur on the existing site. As noted in Section 4.5 of the Revised Draft IS/MND, page 4-23, minimal excavation is associated with the project and would be limited to localized digging within the footprint of existing outdoor facilities or areas adjoining the existing facilities. This land was previously disturbed during the construction of the existing water treatment plant. As such, the likelihood of encountering intact tribal cultural resources is considered extremely low. Thus, no impact to tribal cultural resources is anticipated and Native American consultation was deemed unnecessary.

Although it is always possible that previously undisturbed resources could be encountered, Mitigation Measure CUL-1 calls for construction to temporarily halt in the event that archaeological or paleontological resources are encountered during the course of grading and/or excavation, until a qualified archaeologist (or paleontologist, if appropriate) is brought onto the project site to properly assess the resources and make recommendations for their disposition. Implementation of this mitigation measure is sufficient to address if unanticipated cultural resources are uncovered during construction of the proposed project, and would reduce potential impacts to less than significant.

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Section 3

Corrections and Additions to the Draft IS/MND Text

3.1 Introduction

This section provides changes as a result of clarifications to, and comments received on, the Revised Draft IS/MND for the proposed Project since publication of the Revised Draft IS/MND in December 2016. Changes in the text are signified by ~~strikeout~~ where text is removed and shown in underline where text is added, unless otherwise noted. These changes do not add significant new information to the IS/MND, nor do they disclose or suggest new or more severe significant environmental impacts to the Project.

3.2 Corrections and Additions to the Revised Draft IS/MND Text

Section 1 Introduction

No changes

Section 2 Project Description

No changes

Section 3 Environmental Determination

No changes

Section 4 Evaluation of Environmental Impacts

4.16 Transportation/Traffic

Revise following text in 4.16 Transportation/Traffic, under Trip Generation Analysis on page 4-62, as follows:

> Construction work is anticipated to last approximately 12 months, from ~~March 2016~~ April 2017 to ~~March 2017~~April 2018, and there would be approximately 10 trips per day over 20 work days per month for a total of 2,400 vehicle trips throughout the construction period. These trips would include trucks, other construction vehicles, and construction worker trips.

Section 5 References

No changes.

Appendix A Air Quality Calculations

No changes.

Appendix B Notice of Intent

No changes.

Appendix C Comment Letter on the Draft Initial Study/Mitigated Negative Declaration and City Response

Revise following text under Central Valley Water Board - 1, under Response on page C-10, as follows:

> Comment noted. A Regulatory Setting section has been added to Section 4.9 Hydrology and Water Quality to briefly describe the Basin Plan (see Section 4.9, page 4-40~~3~~ of this Revised Draft~~Final~~ IS/MND).

Appendix A

Revised Draft Initial Study/ Mitigated Negative Declaration

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REVISED
DRAFT

Initial Study/Mitigated Negative Declaration

City of Antioch Water Treatment Plant
Disinfection Improvements Project

City of Antioch

December 8, 2016

CDM Smith

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Appendix

Executive Summary

This Revised Draft Initial Study (IS)/Mitigated Negative Declaration (MND) has been prepared to update the environmental impacts analysis in the Draft IS/MND for the Antioch Water Treatment Plant Disinfection Improvements (P.W. 246-29) Project previously issued in January 2016. The modified project now includes liquid ammonium sulfate (LAS) instead of aqua ammonia (AA) in the previous Draft IS/MND for chloramine formation. In addition to this change in chemical, the main modified project components include elimination of the water softening system and the associated backwash and brine residuals streams, as well as reduced piping from the original proposed project due to the elimination of carriage water.

As shown in the following comparison summary of environmental impacts for the modified project and the originally proposed project, and as supported by the environmental analysis presented in Section 4 of this report, the modified project would not result in any new significant impacts which were not addressed in the previous Draft IS/MND, nor would it substantially increase the severity of previously identified significant impacts.

Table ES.1 Post-MND Summary of Environmental Impacts for the Modified Project

Resource Areas	New Significant Impacts Not Identified in previous Draft IS/MND	Less Than Significant Impact/ Less Than Significant Impact with Mitigation Incorporated	No Impact
AESTHETICS		X	
AGRICULTURAL AND FORESTRY RESOURCES			X
AIR QUALITY		X	
BIOLOGICAL RESOURCES		X	
CULTURAL RESOURCES		X	
GEOLOGYAND SOILS		X	
GREENHOUSE GAS EMISSIONS		X	
HAZARDS AND HAZARDOUS MATERIALS		X	
HYDROLOGY AND WATER QUALITY		X	
LAND USE AND PLANNING			X
MINERAL RESOURCES			X
NOISE		X	
POPULATION AND HOUSING			X
PUBLIC SERVICES			X
RECREATION			X
TRANSPORTATION AND TRAFFIC		X	
UTILITIES AND SERVICE SYSTEMS		X	
MANDATORY FINDINGS OF SIGNFICANCE		X	

Section 1
Background

In compliance with California Environmental Quality (CEQA) Public Resources Code Section 21000 et seq. and in accordance with the Guidelines for Implementation of CEQA (14CCR 15000 et seq.), the City of Antioch (City) has prepared this Revised Draft Initial Study/Mitigated Negative Declaration (IS/MND) for the Antioch Water Treatment Plant (WTP) Disinfection Improvements Project (proposed Project). The purpose of the proposed Project is to modify existing facilities at the City's domestic water treatment facility, the Antioch Water Treatment Plant, to replace the existing chlorine (gas) storage and feed system and the existing anhydrous ammonia (gas) storage and feed system with the use of less hazardous chemicals.

In February 2016, a notice of the Draft IS/MND for the proposed Project was mailed to organizations and interested stakeholders potentially affected by or interested in the proposed Project. As required by the California Office of Planning and Research, State Clearinghouse, State agencies were provided the opportunity to comment on the document through March 4, 2016. A notice regarding the Project was filed with the Contra Costa County Clerk-Recorder's office on February 5, 2016. The Notice of Intent for the Draft IS/MND is provided in **Appendix B**. A total of one comment letter was received during this comment period. The comments received on the previously issued Draft IS/MND do not raise new issues regarding significant effects on the environment.

After release of the Draft IS/MND and during the design of the improvements, the City decided to modify the design of the treatment improvements to use liquid ammonium sulfate in lieu of liquid aqua ammonia. Liquid ammonium sulfate is non-corrosive and non-toxic, and requires much less extensive permitting activities and significantly lower permitting fees than liquid aqua ammonia. In addition, it can be stored in a fiberglass reinforced plastic (FRP) or high density polyethylene (HDPE) tank at atmospheric pressure and does not require carriage water. As a result, instead of horizontal carbon steel tank kept under slight pressure to contain liquid aqua ammonia, a vertical HDPE tank would be used for the liquid ammonium sulfate. In addition, a scrubber tank would not be needed for liquid aqua ammonia, and piping and valving for carriage water are also not needed for liquid ammonium sulfate.

In consideration of these modifications to the design, the City decided to update the Draft IS/MND and reissue this Revised Draft IS/MND for circulation for public review and comment. A photocopy of the one comment letter received on the previously issued Draft IS/MND is provided in **Appendix C** along with prepared written responses by the City to the comments. In this Revised Draft IS/MND, changes as a result of clarifications to, and comments received on, the previous Draft IS/MND for the proposed Project, as well as the design change to the project since publication of the previous Draft IS/MND in January 2016, are signified by ~~strikeout~~ where text is removed and shown in underline where text is added, unless otherwise noted.

1.1 Project Title

Antioch Water Treatment Plant Disinfection Improvements (P.W. 246-29)

1.2 Lead Agency Name and Address

City of Antioch Public Works Department
Capital Improvements Division
200 H Street
Antioch, CA 94531-5007

1.3 Contact Person and Phone Number

Mr. Scott Buenting, P.E., Associate Engineer/Project Manager
City of Antioch Public Works Department, Capital Improvements
Phone: 925-779-7050

1.4 Project Location

The plant is located in the City of Antioch at 401 Putnam Street, Antioch, CA 94509 (See Section 2.1 for additional details).

1.5 Project Sponsor's Name and Address

Mr. Scott Buenting, P.E., Associate Engineer/Project Manager
City of Antioch Public Works Department
Capital Improvements Division
200 H Street
Antioch, CA 94531

1.6 General Plan Designation

The proposed project's City of Antioch General Plan designation is Open Space, Neighborhood Commercial, Medium Low Density Residential 6 dwelling units per acre (DU/AC).

1.7 Zoning

The proposed project is in the Open Space and Residential (R) – 6 zones.

1.8 Description of Project

The City of Antioch is proposing modifications to existing facilities at the City's domestic water treatment facility, the Antioch Water Treatment Plant. The project will:

- Replace the existing chlorine (gas) storage and feed system with a liquid sodium hypochlorite storage and feed system.
- Replace the existing anhydrous ammonia (gas) storage and feed system with a liquid ammonium sulfate ~~aqua ammonia~~ storage and feed system.

Please refer to Section 2.0 for a detailed project description.

1.9 Surrounding Land Uses and Setting

Land uses surrounding the plant include single family residences to the east of the entrance roadway, and south and west of the plant; commercial properties to the east of the plant; and, Park Middle School and Recreational Facilities west of the entrance roadway and north of the plant. For more detail on the project area, please see Section 2.2, General Setting.

1.10 Other public agencies whose approval is required

Permits and/or necessary approvals may be required from the following agencies for the activities described.

- California State Water Resources Control Board, Central Valley Regional Water Quality Control Board – for National Pollutant Discharge Elimination System, General Construction Permit.
- Local permits, City of Antioch – for grading permits.
- Contra Costa County Fire Protection District – for approvals related to compliance with California Fire Code requirements for storage of hazardous materials
- Contra Costa Health Services Hazardous Materials Division– for compliance with California Accidental Release Prevention (CalARP) Programs with respect to ~~aqua ammonia (CAS Number 7664-41-7; threshold 500 pounds) and~~ sodium hypochlorite (chlorine CAS 7782-50-5; threshold 100 pounds)
- California State Water Resources Control Board, Division of Drinking Water – for amendment to existing permit to operate a public water system.
- Delta Diablo – for special discharge permit for discharge of water softener brine

Section 2
Project Description

2.1 Project Location

The City of Antioch is proposing modifications to existing facilities at the City's domestic water treatment facility, the Antioch Water Treatment Plant. The plant produces up to 36 million gallons per day of drinking water and is located at 401 Putnam Street, Antioch, California 94509. The project will:

- Replace the existing chlorine (gas) storage and feed system with a liquid sodium hypochlorite storage and feed system
- Replace the existing anhydrous ammonia (gas) storage and feed system with a liquid ammonium sulfate ~~aqua ammonia~~ storage and feed system

2.2 General Setting

The proposed project is located within the City of Antioch. As shown in Figure 1, the plant entrance is located at 401 Putnam Street, approximately 0.5 miles south of California State Highway 4 (CA HWY 4) and 0.12 miles west of Lone Tree Way. The plant facilities are located approximately 0.25 miles south of the entrance.

Land uses surrounding the plant include:

- Single family residences- east of entrance roadway; and south and west of the plant facilities
- Commercial properties- east of plant property
- Park Middle School and Recreational Facilities- west of the entrance roadway and north of the plant facilities

The City also owns and maintains a small parcel located south of Putnam Street, east of G Street and west of Spartan Way. The two basins at this location retain a portion of the storm water runoff from the Antioch WTP site and adjacent residential areas. The basins also provide a means to capture chemical spills should they occur outside the engineered chemical containment facilities at the Antioch WTP.

Security fencing is provided at the Antioch WTP and retention basin.

Treatment chemicals are typically delivered to the Antioch WTP by truck via CA HWY 4 to Lone Tree Way to Putnam Street.

2.3 Project Objectives

Free chlorine gas (dissolved in water) is applied to the coagulated water and meets primary disinfection requirements by maintaining a free chlorine residual through the flocculation and

sedimentation basins. Remaining chorine is removed through the biologically active GAC/sand filters. Residual disinfection with monochloramine is provided by sequentially applying ammonia (anhydrous ammonia dissolved in water) and chlorine solutions to the filtered water before distribution.

Chlorine and anhydrous ammonia gases have proven effective to meet drinking water standards for disinfection and disinfection byproducts. However, growing concerns regarding the safety of these hazardous gasses, more stringent regulatory requirements for transportation and handling, and higher costs to permit and maintain the systems has prompted the City to initiate this Disinfection Improvements Project.

Currently, up to fourteen (14) 1-ton chlorine gas cylinders are located within the existing Chlorine Storage Room at the Antioch WTP. Six chlorinators are located in the adjacent Chlorinator Room. The plant includes a Chlorine Scrubber system consisting of a ventilation equipment and tank filled with sodium hydroxide, all within a concrete containment area. The Chlorine Scrubber is designed to capture and treat chlorine gas leaks in the Chlorine Storage Room and/or Chlorinator Room, ranging from small leaks to the contents of a 1-ton chlorine cylinder should a catastrophic failure occur.

Up to 1,500 gallons of anhydrous ammonia is stored in a single outdoor horizontal steel tank. Three ammoniators are located in the Ammoniator Room.

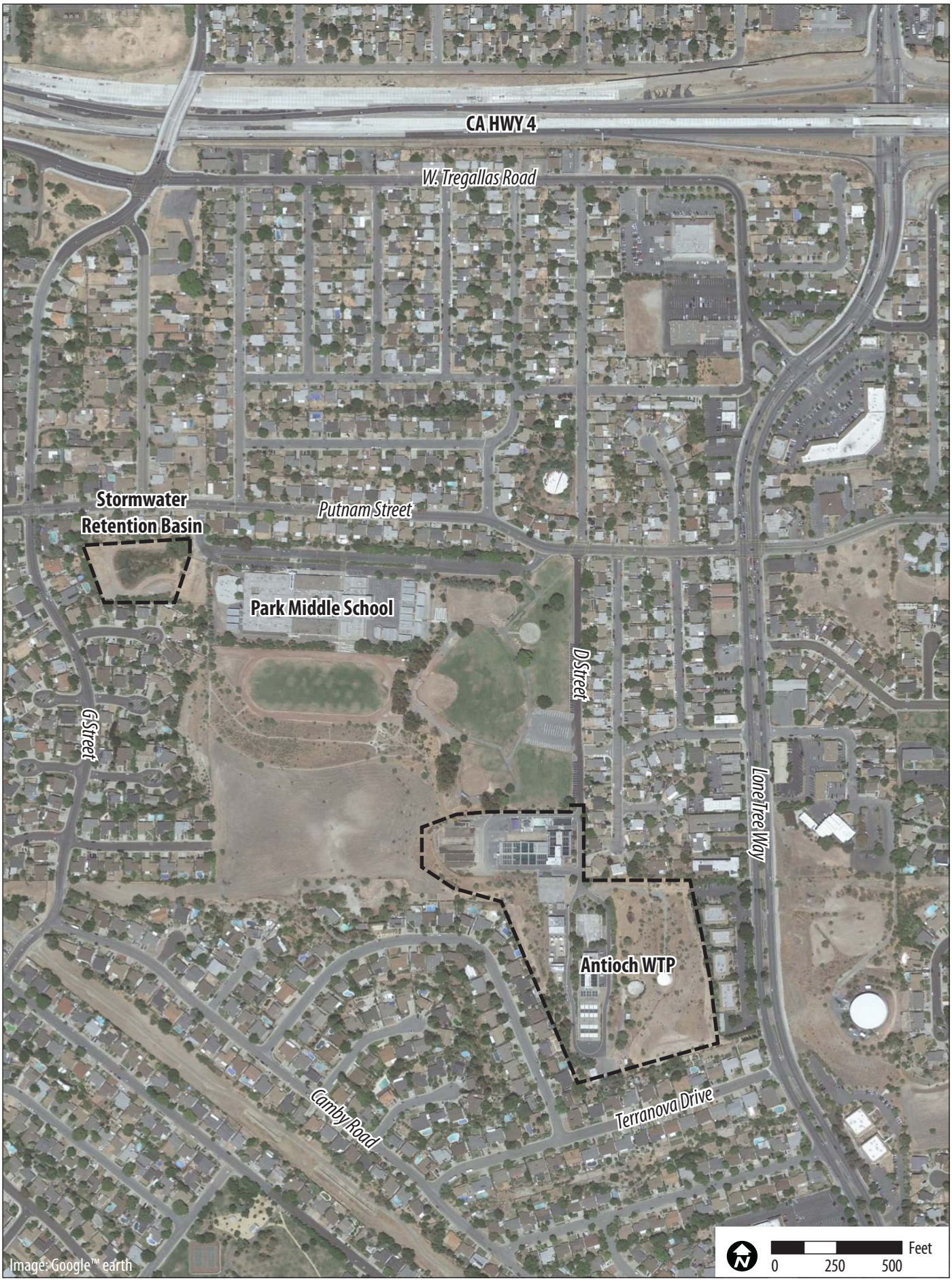
The proposed project would replace the existing chlorine gas and anhydrous ammonia systems with liquid sodium hypochlorite and liquid ammonium sulfate ~~aqua ammonia~~ systems, respectively. The objectives of the project are to:

- Eliminate the risks of accidental spills or leaks for chlorine gas and anhydrous ammonia gas during the transport, handling and application of these chemicals.
- Implement less hazardous liquid sodium hypochlorite (12.5% chlorine by weight) and liquid ammonium sulfate ~~aqua ammonia~~ systems (10.9~~19~~% ammonia by weight).
- Reduce risks to plant staff, neighboring residents and businesses, and the environment along the chemical delivery routes and surrounding the Antioch WTP.
- Improve the safety and reliability of the disinfection processes and equipment at the Antioch WTP.
- Reduce the costs to permit and maintain the chlorine, chlorine scrubber and anhydrous ammonia systems.

2.4 Project Description

An overview of the proposed Antioch WTP Disinfection Improvements Project is~~are~~ shown in Figure 2 and would consist of the following modifications:

- Install 3 new liquid sodium hypochlorite storage tanks (13,000 gallons each), piping, and 2 new mixing/transfer pumps in the existing chemical containment area; See Figure 3.



W:\REPORTS\Antioch, City of\WTP Disinfection Improvements Report_Oct2015\Figures\Figure 1_Antioch WTP Location Map.ai 10/13/15 JJT

CDM Smith

Figure 1
Antioch WTP Location Map

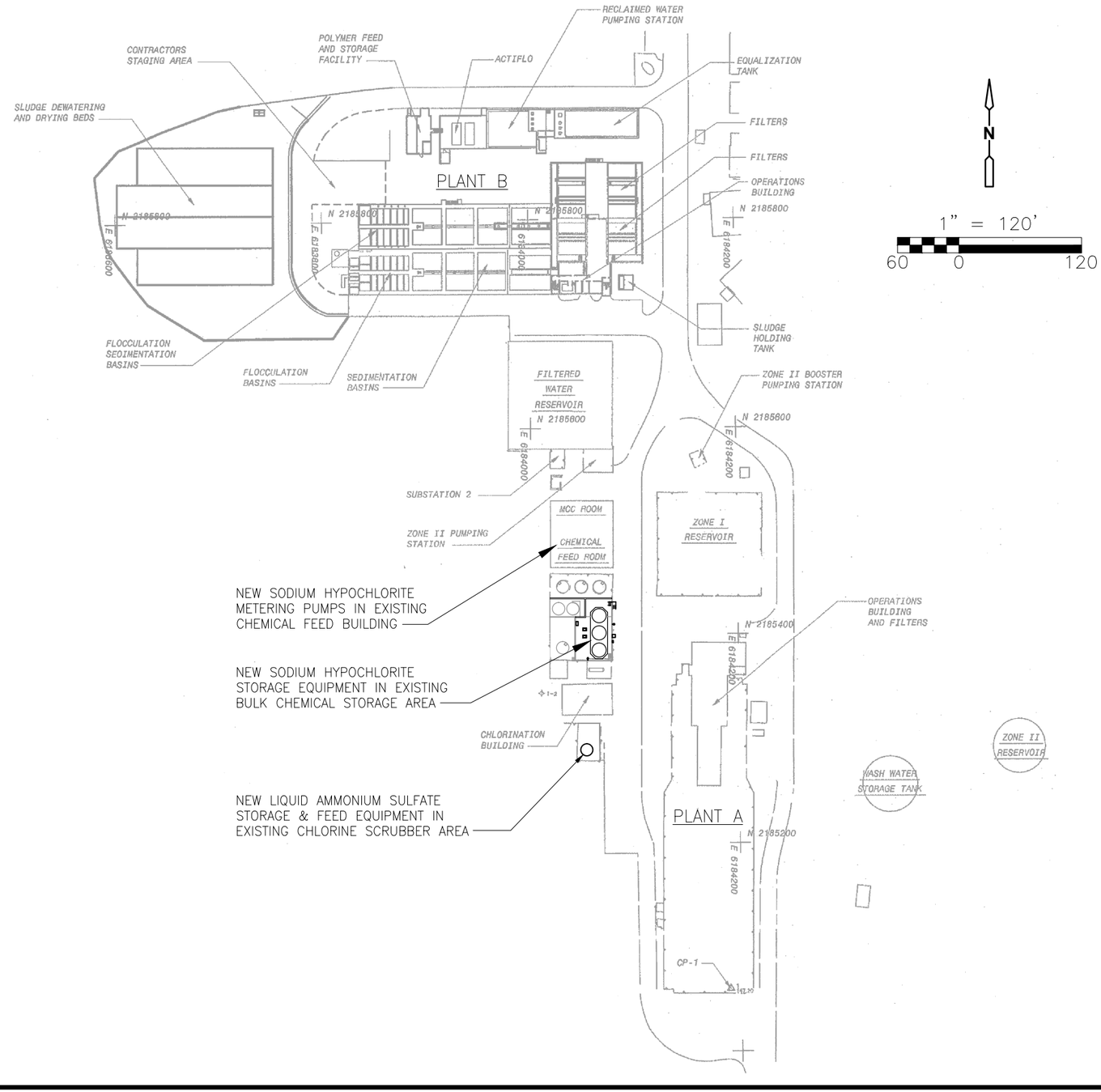


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Figure 2
Proposed Modifications to Antioch Water Treatment Plant Disinfection Improvements Project

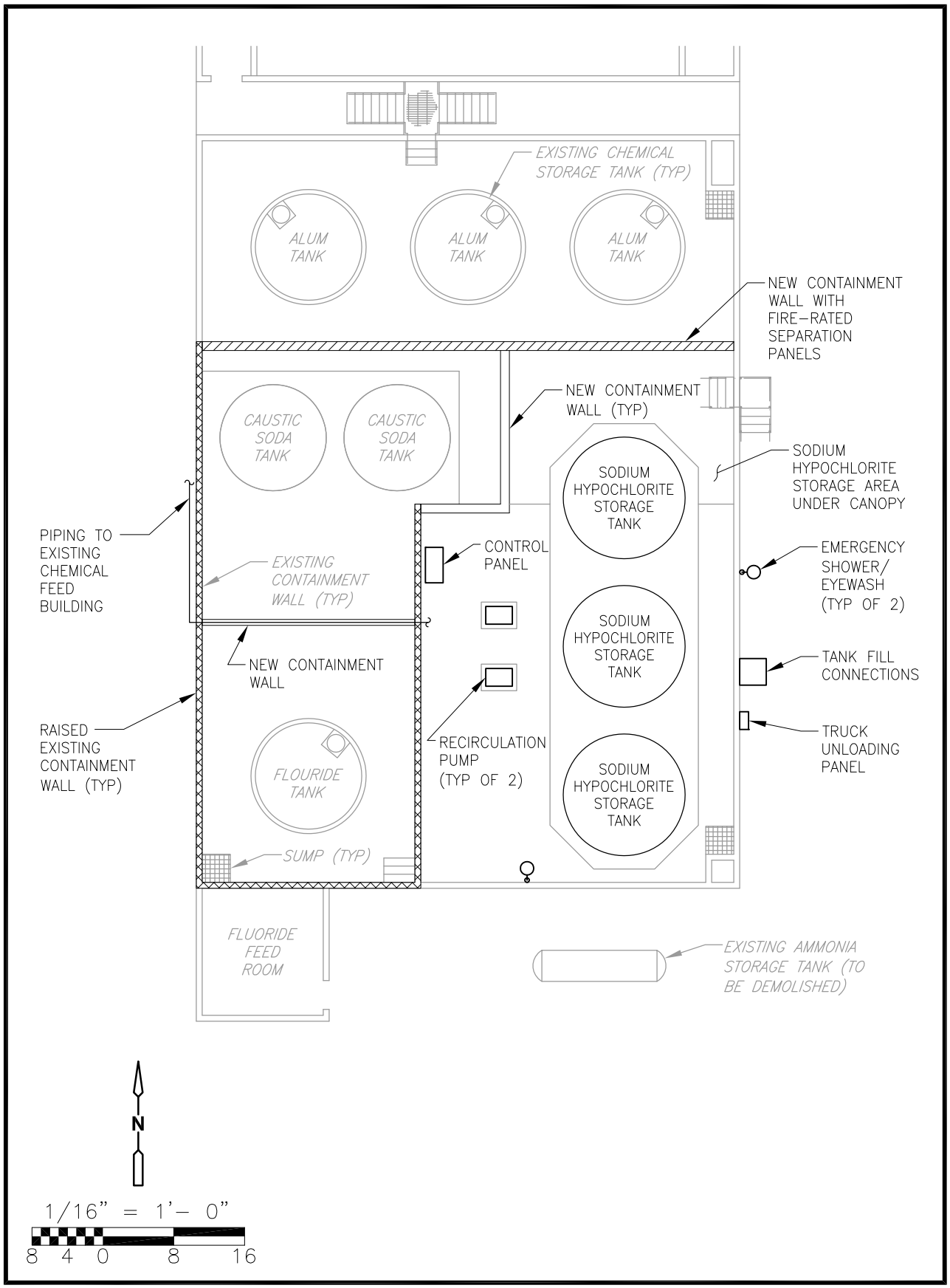

Figure 3
New Sodium Hypochlorite Storage Tanks in Existing Chemical Storage Area

- Install a canopy (approximately 25-30 feet tall) over the new sodium hypochlorite storage tanks and facilities in the existing chemical containment area to shield the tanks from direct sunlight and excessive heat, and limit rainfall in the containment area; construct concrete containment walls (approximately 2.5 feet tall) to provide separate containment for each individual chemical in the bulk storage area should a leak or spill occur, with fire-rated separation panels (approximately 20-22 feet tall) attached to some segments of containment walls; lighting will be provided in the area under the new canopy.
- Install up to 6 new liquid sodium hypochlorite chemical metering pumps and up to 2 new water softening in the existing pump room; See Figure 4.
- Install 1 or 2 new water softening systems to condition water for dilution of the liquid sodium hypochlorite in the storage tanks and/or serve as carrier water for the liquid sodium hypochlorite and aqua ammonia to the application points throughout the treatment plant. The softening process will periodically generate small amounts of backwash water (100 to 400 gallons every day) and brine (400 to 900 gallons every 1 to 5 days). The backwash water and brine will be discharged to the sanitary sewer, trucked offsite for disposal, or blended and recycled with the used washwater or plant influent and re-treated at the Antioch WTP.
- Decommission and remove all 1-ton chlorine cylinders, chlorinators and related equipment.
- Install 1 new ammonium sulfate ~~aqua ammonia~~ storage tank (up to 6,500 gallons), piping, and up to 4 new chemical metering pumps in the existing Chlorine Scrubber area; See Figure 5.
- Install a canopy (approximately 15-20 feet tall) over the new ammonium sulfate ~~aqua ammonia~~ tank and facilities to shield the tank from direct sunlight and excessive heat and limit rainfall in the containment area; lighting will be provided in the area under the new canopy; See Figure 5.
- Decommission and remove the anhydrous ammonia tank, ammoniators and related equipment.
- Install new double-contained chemical application piping to the raw and filtered water application points currently in use for chlorine and ammonia.
- Implement the necessary electrical power, instrumentation, and control system improvements for safe and reliable loading, monitoring and operation of the new systems.

2.5 Construction Schedule

The proposed construction schedule for the Antioch WTP Disinfection Improvements Project would include a construction period of approximately 15 months including a 2-month contingency for unforeseen delays. Because the Antioch WTP must remain in operation throughout the project, construction activities would be staged to: 1) allow the new facilities to be

constructed and tested before decommissioning the existing systems; and 2) minimize the number and duration of temporary plant shut downs (if required).

The anticipated general sequence of construction activities, subject to modification during design and/or construction would be:

- Construct the 3 new sodium hypochlorite storage tanks, containment walls, canopy, piping and ancillary equipment in the existing Chemical Storage Area
- Install the 6 new sodium hypochlorite metering pumps, 2 softening systems and piping and appurtenances in the existing Chemical Pump Room.
- Construct the site improvements including: 1) underground utilities including the new double-contained chemical application piping to the raw and filtered water application points, electrical conduits and signal wire conduits; 2) connections and/or improvements to existing sanitary sewer and/or storm drains; 3) paving (replacement only); and 4) landscaping (return to existing condition as needed).
- Test and commission the new liquid sodium hypochlorite system for up to 30 days.
- Decommission and remove the existing chlorine cylinders, chlorinators, chlorine scrubber and ancillary equipment.
- Construct the new ammonium sulfate ~~aqua ammonia~~ tank, canopy, metering pumps and ancillary equipment in the area previously used for the Chlorine Scrubber.
- Test and commission the new ammonium sulfate ~~aqua ammonia~~ system for up to 30 days.
- Decommission and remove the existing ammonia tank, ammoniators and ancillary equipment.

Construction is anticipated to be limited to normal working hours Monday through Friday, 8:00 AM to 5:00 PM. However, circumstances that arise during design or construction may require extended work hours and/or work on weekends and/or Holidays.

All construction related offices/trailers, parking, facilities, and storage of equipment and materials will be contained within the fenced area of the existing Antioch WTP.

2.6 Environmental Setting

The areas immediately adjacent to the proposed project and along the routes to the project site are characterized by residential and commercial developments, a middle school, and recreational areas (athletic fields and open space). There are no sensitive natural resources at or near the project site; however sensitive receptors such as residents, businesses, middle school students and staff and visitors to the recreational area are adjacent to the project site and along the routes to the site.

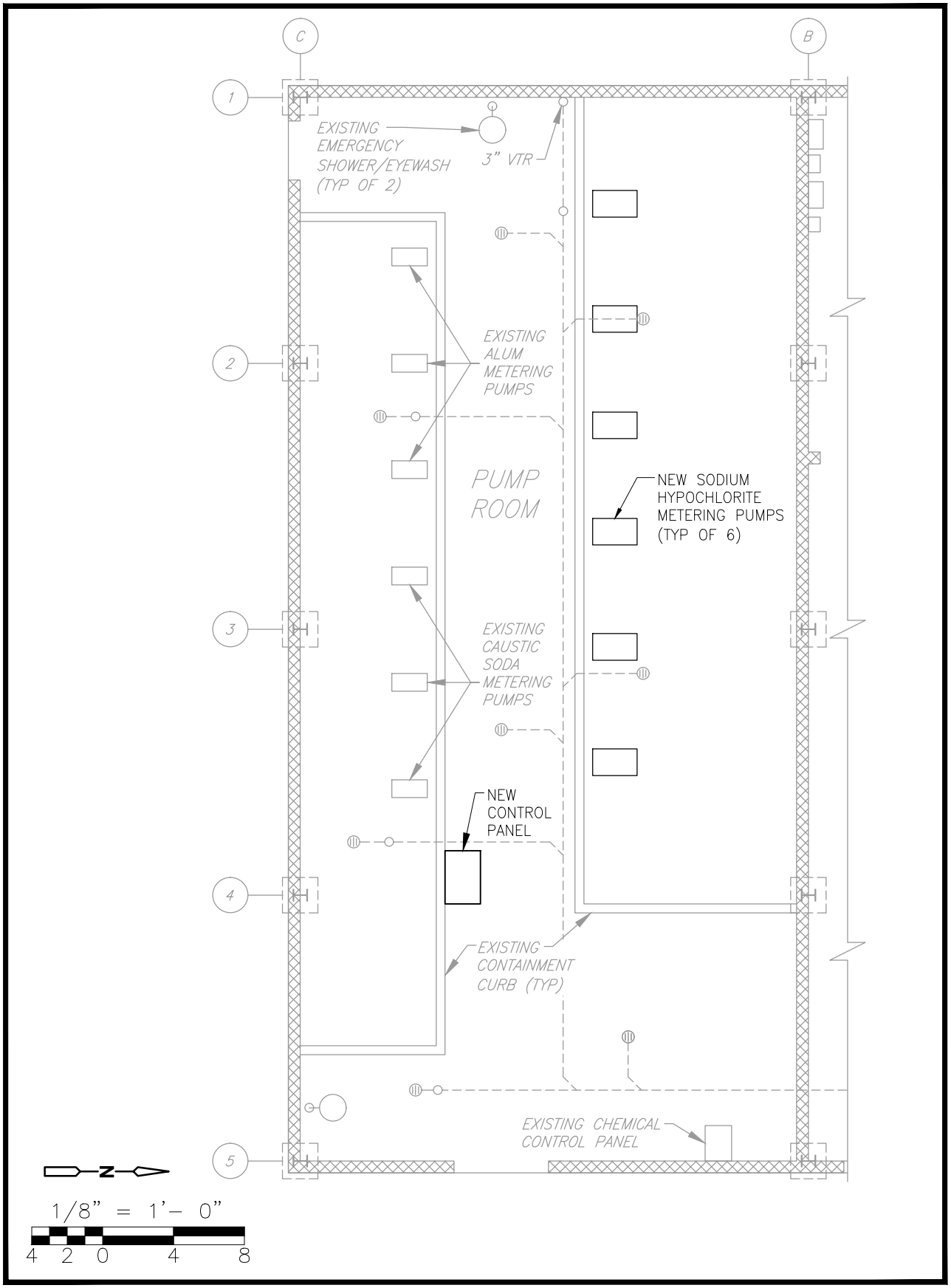

Figure 4
New Sodium Hypochlorite Metering Pumps in Existing Chemical Feed Building

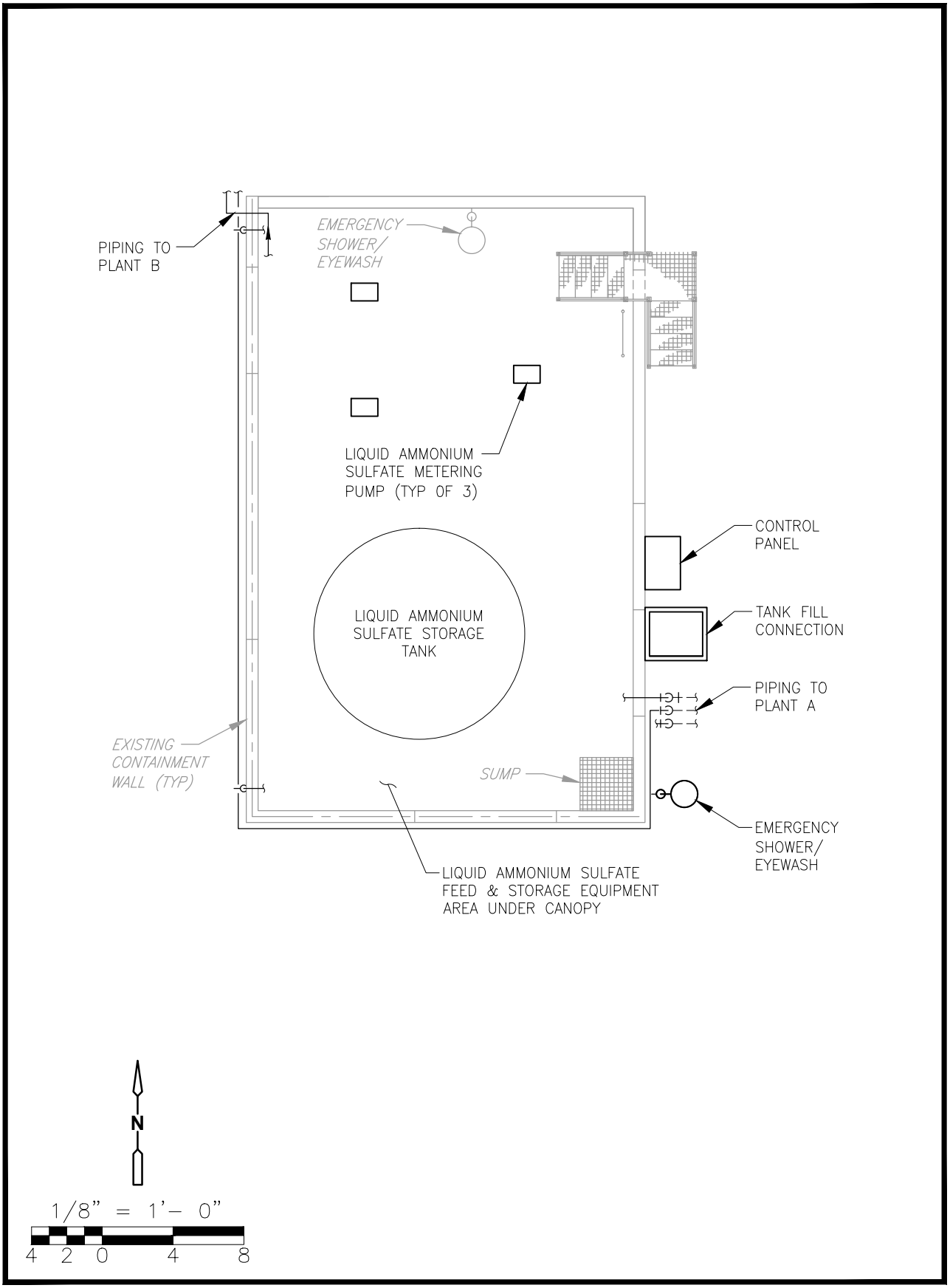

Figure 5
Liquid Ammonium Sulfate Feed & Storage Equipment in Existing Chlorine Scrubber Area

Section 3
Environmental Determination

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

☐ Aesthetics

☐ Agriculture and Forestry Resources

☐ Air Quality

☐ Biological Resources

☐ Cultural Resources

☐ Geology/Soils

☐ Greenhouse Gas Emissions

☐ Hazards & Hazardous Materials

☐ Hydrology/Water Quality

☐ Land Use/Planning

☐ Mineral Resources

☐ Noise

☐ Population/Housing

☐ Public Services

☐ Recreation

☐ Transportation/ Traffic

☐ Utilities/Service Systems

☐ Mandatory Findings of Significance

3.1 Determination

(To be completed by the Lead Agency)

On the basis of this initial evaluation:

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

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

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

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

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

Signature	Date
Title	Agency

Section 4
Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a. Earlier Analysis Used. Identify and state where they are available for review.

    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. The explanation of each issue should identify:

    a. The significance criteria or threshold, if any, used to evaluate each question; and

    b. The mitigation measure identified, if any, to reduce the impact to less than significance.

4.1 Aesthetics

Would the project:

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

Project Setting

The proposed project is located in an area of rolling hills south of State Route (SR) 4. Within the site, the water treatment facilities are located on flat land, while the adjacent undeveloped open space land directly to the east of Plant A slopes up approximately 85 feet from the facilities. This open space area blocks the view of the plant from Lone Tree Way. To the west of Plant A, the topography slopes up toward the residences along View Drive, which are situated approximately 35 feet above the plant facilities. These residences have a view of the project site. However, trees located in the undeveloped area between the residences and Plant A may block some or all of the view of Plant A and the construction area for certain residents.

The proposed facilities would be appropriately designed to fit the general character of the site and to minimize visual impacts. The new canopies would be approximately 25-30 feet high for the sodium hypochlorite storage area and 15-20 feet high for the ammonium sulfate ~~aqua ammonia~~ storage and feed area. The canopies would consist of steel support structures, painted metal roofing to protect the new facilities from direct sunlight and precipitation, and exterior

lighting mounted under the canopies. The canopies would also shield views of the new equipment and new exterior from adjacent areas at higher elevations than the plant.

Disturbed areas onsite would be re-vegetated with plant species to match the existing conditions.

Major viewpoints of importance within the city are the San Joaquin River and Mount Diablo. There are no scenic vistas in the vicinity of the plant site and the proposed project would take place on the already developed land of the existing water treatment plant. The Antioch General Plan Update Environmental Impact Report (EIR) describes the local designation of Lone Tree Way and Hillcrest Avenue as scenic arterials and gateways to the City (City of Antioch 2003a). Both of these streets are located east of the project site and would not be affected by the proposed project.

The California Department of Transportation (Caltrans) State Scenic Highway System includes a list of highways officially designated as scenic highways or corridors. The state-designated scenic highway in Contra Costa County is SR-24. SR-24 runs south of the project area by approximately 20 miles (Caltrans 2015).

Impact Analysis

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

NO IMPACT. The nearest scenic resources to the project site are the hills of Contra Loma Regional Park to the south and southwest of the project site, which rise to an elevation of approximately 600 feet, and the Diablo Range further south, with Mt Diablo peaking at an elevation of 3,848 feet. The project would not introduce incompatible visual elements within the view of the mountains or alter the view of the mountains. The project would include installation of new storage tanks and facilities at the plant that would be consistent with the existing character of the site. The majority of the proposed project would take place inside existing buildings at the plant site. The additions to the plant would not substantially alter the existing visual or aesthetic presence of the plant. New canopies would be installed above the new tanks and would be approximately 25-30 feet high for the sodium hypochlorite storage area and 15-20 feet high for the ammonium sulfate ~~aqua ammonia~~ storage and feed area. These canopies would be partially or entirely visible from the residences to the west of the site. The canopies would be consistent with the general character of the site, which includes several existing water treatment structures and facilities. Therefore, the project would have no impact on a scenic vista.

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

LESS THAN SIGNIFICANT. The project area consists primarily of residential and public school uses. There are no scenic highways located near the project site. Construction of the project components would not substantially damage scenic resources such as trees, rock outcroppings and other features that contribute to a scenic public setting. The contract documents would require that the project site to be returned to its condition prior to construction, including re-vegetation of trenched areas. Therefore, impacts to trees or other scenic resources would be less than significant.

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

LESS THAN SIGNIFICANT. Residents to the west of the plant site may have partial or full view of construction activities. During construction, areas disturbed for pipe trenches may be visible. This would be a temporary and less than significant impact, as disturbed areas would be re-vegetated after construction. The proposed project would involve interior modifications in existing structures. New features located within the footprints of existing outdoor facilities would consist of: containment walls between existing and proposed chemical tanks, and a canopy over the new sodium hypochlorite storage tanks and facilities (within the existing Chemical Storage Area); a canopy over the new ammonium sulfate ~~sodium aqua ammonia~~ tank and facilities (within the existing Chlorine Scrubber containment structure); and construction of new above grade and underground utilities. Construction of these new additions to the plant site would not substantially alter the visual character or quality of the site and its surroundings. Therefore, impacts would be less than significant.

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

LESS THAN SIGNIFICANT. The proposed project would mostly modify the interior of existing structures that have exterior and interior illumination already in place. New exterior lighting would be installed under the proposed canopies, thus mitigating potential viewing impacts. The components of the project would not add a new source of substantial light or glare that would adversely affect day or nighttime views in the area. The proposed project would involve the construction of various elements at the water treatment plant; the construction phase would be temporary and activities would only occur during daylight hours and thereby not require additional lighting. In addition, the project site is located in an area with existing residential and non-residential developments that already generate lighting and/or glare. Operation of the water treatment plant would continue to function in the same manner as existing and would not create or require new sources of light or glare; therefore, no additional light or glare impacts would occur and there would be no impacts related to substantial light or glare sources from the construction and operation of the project.

4.2 Agriculture and Forestry 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 Dept. 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:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
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))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
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?				X

Project Setting

The California Department of Conservation (DOC), Farmland Mapping and Monitoring Program (FMMP) depicts the project site as "urban and built-up land" (California DOC 2014). None of the project site is considered important farmland (i.e., prime farmland, farmland of statewide importance, farmland of local importance and unique farmland). The closest land designated as prime farmland is over 1 mile east of the project site.

The California Legislature passed the California Land Conservation Act in 1965. Better known as the Williamson Act, the Act protects agricultural and open space lands by discouraging conversation to urban uses. The Act allows voluntary agreements to be made between private landowners and local governments restricting land to agricultural and open space uses. In return for entering into the contract, restricted parcels are assessed at a lower tax rate and thus landowners pay lower taxes. According to the most recent Williamson Act mapping available from the state, the project site is not under Williamson Act contract (California DOC 2013).

Impact Analysis

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

NO IMPACT. The proposed project would occur on an existing developed site. Since the proposed project site is not identified as Prime Farmland, Unique Farmland or Farmland of Statewide Importance that would be converted to non-agricultural use, there would be no impact from the construction and operation of the proposed project.

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

NO IMPACT. As discussed above, the site is not under Williamson Act contract. According to the most recent Williamson Act mapping available from the state, the project site is designated as Urban and Built-up land. The proposed project would not conflict with any Williamson Act contract.

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

NO IMPACT. The proposed project would occur on an existing developed site. There is no forestland or timberland in the vicinity and there are no parcels zoned for forestland or timberland in the vicinity. Therefore, construction and operation of the proposed project would not conflict with the existing zoning or cause rezoning of forestland or timberland resources and no impact is anticipated.

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

NO IMPACT. See item c) above.

e) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

NO IMPACT. See items a) through c) above.

4.3 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:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?			X	
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)?			X	
d) Expose sensitive receptors to substantial pollutant concentrations?			X	
e) Create objectionable odors affecting a substantial number of people?			X	

Project Setting

The California Air Resources Board (CARB) regulates air quality in California. The CARB divided California into regional air basins according to similar meteorological and geographic conditions. The proposed project is located in Contra Costa County, part of the San Francisco Bay Area Air Basin (Basin). The Bay Area Air Quality Management District (BAAQMD) is the regional agency responsible for air quality regulations within the Basin, including enforcing the California Ambient Air Quality Standards (CAAQS) and implementing strategies to improve air quality and to mitigate effects from new growth.

The United States Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) for ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter fewer than 10 microns in diameter (PM_{10}), particulate matter fewer than 2.5 microns in diameter ($PM_{2.5}$), and lead (Pb). California has its own standards for the same pollutants, plus additional standards for sulfates, hydrogen sulfide (H_2S), vinyl chloride, and visibility reducing particles.

Nonattainment and attainment designations for each pollutant are based on whether or not air quality standards have been achieved. Nationally, the Basin is designated as a nonattainment area for $PM_{2.5}$, a marginal nonattainment area for O_3, and a maintenance area for CO. At the state-level, the Basin is designated as a nonattainment area for the O_3, PM_{10}, and $PM_{2.5}$ CAAQS. Table 1 shows the current NAAQS and CAAQS for federal and state criteria pollutants.

Table 1 State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS	NAAQS	
			Primary	Secondary
Ozone (O_3)	8-Hour 1-Hour	0.070 ppm (137µg/m^3) 0.09 ppm (180 µg/m^3)	0.070 ppm (137 µg/m^3) N/A	Same as Primary N/A
Carbon Monoxide (CO)	8-Hour 1-Hour	9.0 ppm (10 mg/m^3) 20 ppm (23 mg/m^3)	9 ppm (10 mg/m^3) 35 ppm (40 mg/m^3)	N/A N/A
Nitrogen Dioxide (NO_2)	AAM 1-Hour	0.03 ppm (57 µg/m^3) 0.18 ppm (339 µg/m^3)	0.053 ppm (100 µg/m^3) 0.100 ppm (188 µg/m^3)	Same as Primary N/A
Sulfur Dioxide (SO_2)	AAM 24-Hour 3-Hour 1-Hour	N/A 0.04 ppm (105 µg/m^3) N/A 0.25 ppm (655 µg/m^3)	0.030 ppm 0.14 ppm N/A 75 ppb (196 µg/m^3)	N/A N/A 0.5 ppm (1300 µg/m^3) N/A
Inhalable Particulate Matter (PM_{10})	AAM 24-Hour	20 µg/m^3 50 µg/m^3	N/A 150 µg/m^3	N/A Same as Primary
Fine Particulate Matter ($PM_{2.5}$)	AAM 24-Hour	12 µg/m^3 N/A*	12.0 µg/m^3 35 µg/m^3	15.0 µg/m^3 Same as Primary
Lead (Pb)	30-Day Avg Quarterly 3-Month	1.5 µg/m^3 N/A N/A	N/A 1.5 µg/m^3 0.15 µg/m^3	N/A Same as Primary Same as Primary
Sulfates	24-Hour	25 µg/m^3	N/A	N/A
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m^3)	N/A	N/A
Vinyl Chloride	24-hour	0.01 ppm (26 µg/m^3)	N/A	N/A

Source: California Air Resources Board, Ambient Air Quality Standards (California and Federal), Available: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf [Last updated October 1, 2015].

ppm = parts per million (by volume)
N/A = Not applicable
µg/m^3 = micrograms per cubic meter
mg/m^3 = milligrams per cubic meter
AAM = Annual arithmetic mean
* There is no separate 24-hour $PM_{2.5}$ standard in California; however, the USEPA promulgated at 24-hour $PM_{2.5}$ ambient air quality standard of 35 µg/m^3.

Regulatory Setting

Federal

National Ambient Air Quality Standards

The Clean Air Act (CAA), which was last amended in 1990, requires the USEPA to set NAAQS for pollutants considered harmful to public health and the environment (40 Code of Federal Regulations [CFR] Part 50). The CAA established two types of national air quality standards. Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. The USEPA Office of Air Quality Planning and Standards has set NAAQS for six principal pollutants (see Project Setting), which are called "criteria" pollutants. Units of measurement for the standards are parts per million by volume (ppmv), milligrams per cubic meter (mg/m^3) of air, and micrograms per cubic meter (µg/m^3) of air.

State

State Implementation Plan

The State Implementation Plan (SIP) describes measures the state would use to attain and maintain federal NAAQS. The SIP consists of narrative, rules, technical documentation, and agreements that an individual state will use to clean up polluted areas. The California Clean Air Act (CCAA), passed in 1988, provides the basis for air quality planning and regulation independent of federal regulations. A major element of the CCAA is the requirement that local air districts in violation of the CAAQS prepare attainment plans identifying air quality problems, causes, trends and actions to be taken to attain and maintain California's air quality standards by the earliest practicable date.

Local

Air quality is managed at the local level through land use and development planning practices. The proposed project would be regulated under the jurisdiction of the BAAQMD. The BAAQMD is responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws. Within the project area, the BAAQMD, in cooperation with the Metropolitan Transportation Commission (MTC), the Bay Conservation and Development Commission (BCDC), and the Association of Bay Area Governments (ABAG), has the responsibility for preparing several regional initiatives that address federal and state Clean Air Act requirements.

Plan Bay Area is a long-range regional plan that integrates transportation and land use planning decisions through 2040 for the Bay Area. The plan establishes several goals and targets related to climate protection, adequate housing, healthy and safe communities, open space and agricultural preservation, equitable access, economic vitality, and transportation system effectiveness. A key component of Plan Bay Area is the sustainable communities strategy, as required by Senate Bill (SB) 375.

The 2010 Clean Air Plan (CAP) details goals, policies and programs for improving air quality in the region. The 2010 CAP provides a control strategy to reduce O_3, particulate matter, air toxics, and greenhouse gases. ~~It~~The document also establishes emission control measures to be adopted during 2010 through 2020.

Antioch General Plan

The City of Antioch's updated 2003 General Plan recognizes the poor air quality in the Bay Area and the actions undertaken by the City directly or indirectly to improve air quality including facilitation of pedestrian and bicycle transportation, installation of transit improvements and the use of alternative fuel vehicles in the community. This General Plan will guide the City through the year 2028.

CEQA Thresholds of Significance

Environmental review of individual projects within the region must demonstrate that construction and operation of the project would not cause an ambient air quality to be exceeded nor would the number or severity of existing air quality violations be increased. The BAAQMD has developed quantitative operational and qualitative construction related thresholds of significance

for air quality impacts of projects proposed in the Basin. These thresholds, which are described in detail in the BAAQMD CEQA Air Quality Guidelines, are used for purposes of CEQA.

Emissions Calculation Methodology

The emissions estimation method was based on the California Emission Estimator Model (CalEEMod), Version 2013.2.2 (California Air Pollution Control Officers Association 2015). Activities contributing to construction emissions include fugitive dust and vehicle exhaust emissions from site grading, repaving, removing the chlorine scrubber tank and equipment, piping, chlorinators, ammonia tank, ammoniators, and construction debris. Hauling or importing of soils is not anticipated. Operational emissions would occur from a slight increase in truck trips for chemical deliveries.

Appendix A provides detailed information on the emission calculations.

Impact Analysis

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

LESS THAN SIGNIFICANT. The applicable air quality plans in the region include the Bay Area 2005 Ozone Strategy, the Bay Area 2010 CAP and the Particulate Matter Implementation Schedule adopted as part of SB 656.

The BAAQMD California Environmental Quality Act Air Quality Guidelines provide thresholds of significance for construction-related activities. If emissions are less than the thresholds, then emissions are considered to be less than significant and compliant with the measures in the Bay Area 2005 Ozone Strategy. A quantitative analysis of emissions and necessary mitigation measures are described in further detail below in b) and c). Construction activities are therefore not expected to conflict with or obstruct implementation of the Bay Area 2005 Ozone Strategy. The Bay Area 2010 CAP is a multi-pollutant plan to reduce O_3 precursors, particulate matter, toxic air contaminants, and greenhouse gases, and is currently being updated. The Bay Area 2010 CAP contains several measures designed to improve air quality in the Bay Area, including an update to the State Ozone Plan. All construction activities would be completed in accordance with the requirements of the BAAQMD CEQA Guidelines and would not conflict with the implementation of the Bay Area 2010 CAP.

BAAQMD Regulation 6 contains a series of measures designed to control fugitive dust measures associated with construction activities. The regulation was found to be equivalent to several of the control measures compiled by CARB as part of SB 656. All construction activities would be completed in accordance with the requirements of Regulation 6; therefore, the proposed project would not conflict with the requirements of the particulate matter air quality plan.

The Contra Costa County Congestion Management Agency (CMA) Congestion Management Program (CMP) principal arterials and state highways include California State Highway 4 (CA HWY 4), which is approximately one-half mile north of the proposed project. The total anticipated construction-related vehicle trips for the proposed project is 2,400, approximately 10 trips per day. Operation of the proposed project would require 21

additional vehicle trips per year. These additional vehicle trips would have less than significant impacts on the CMP designated state highway, as it is well under the CMP threshold of 100 new peak hour vehicle trips. As such, there would be less than significant impacts to the local or regional air quality or congestion management plans.

Since the existing General Plan was revised 12 years ago, the implementation of the proposed project is not anticipated within the City's General Plan. However, the proposed project would not increase the capacity of the water treatment plant, and would not have an impact on the type, size or location of transportation infrastructure in the long-term and would thus be consistent with MTC's Regional Mobility Plan, Transportation 2035 Plan for the San Francisco Bay Area.

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

LESS THAN SIGNIFICANT. See item c) below for a description of the proposed project's compliance with the state and federal air quality standards.

The BAAQMD has finalized Basic Construction Mitigation Measures that should be implemented for all construction projects. The following control measures would be implemented, as required by the BAAQMD's CEQA Air Quality Guidelines (2012), during all construction activities at the site.

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes. Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

With implementation of these measures, impacts associated with violating air quality standards would be less than significant.

c) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

LESS THAN SIGNIFICANT. The proposed project would be located in the Central Bay sub-area of the San Francisco Bay Air Basin (Basin). Contra Costa County is designated as a federal nonattainment area for $PM_{2.5}$, a marginal nonattainment area for O_3, and a maintenance area for CO. The County is also designated as a nonattainment area for the state O_3, PM_{10}, and $PM_{2.5}$ standards. The BAAQMD, the regional agency that regulates stationary sources, maintains an extensive air quality-monitoring network to measure criteria pollutant concentrations throughout the Basin. The closest air monitoring station to the project is the Bethel Island Road Air Monitoring Station, located approximately twelve miles from the proposed project in the City of Antioch, near the intersection of Bethel Island Road and Sandmound Boulevard. Air quality data at this station from 2012-2014 are summarized in Table 2.

Table 2 Ambient Air Quality Monitoring Summary, Bethel Island Road Monitoring Station 2012-2014

Pollutant/Standard	Number of Days Threshold Was Exceeded and Maximum Levels During Such Violations		
	2012	2013	2014
Ozone			
State 1-Hour > 0.09 ppm	1	0	0
State 8-Hour > 0.070 ppm	4	1	1
Federal 8-Hour > 0.075 ppm [1]	2	0	0
Max. 1-Hour Conc. (ppm)	0.098	0.082	0.092
Max. 8-Hour Conc. (ppm)	0.088	0.076	0.071
Carbon Monoxide			
State 1-Hour > 20 ppm	0	0	0
State 8-Hour > 9.0 ppm	0	0	0
Federal 1-Hour > 35 ppm	0	0	0
Federal 8-Hour > 9.0 ppm	0	0	0
Max 1-Hour Conc. (ppm)	1.5	1.0	0.9
Max. 8-Hour Conc. (ppm)	0.89	0.8	0.7
Nitrogen Dioxide			
State 1-Hour > 180 ppb	0	0	0
Federal 1-Hour > 100 ppb	0	0	0
Max. 1-Hour Conc. (ppb)	32.1	33.3	33.9
Annual Arithmetic Mean (ppb) [2]	6	*	5
Sulfur Dioxide			
Max. 1-Hour Conc. (ppb)	19.7	4.0	10.5
Max. 24-Hour Conc. (ppb)	2.5	1.5	3.4
Annual Average (ppb)	*	*	*
Inhalable Particles (PM_{10})			
State 24-Hour > 50 µg/m^3	6.1	*	*
Federal 24-Hour > 150 µg/m^3	0	*	*
Max. State 24-Hour Conc. (µg/m^3)	52.3	50.7	61.3
Max. Federal 24-Hour Conc. (µg/m^3)	51.4	47.4	57.8
Annual Arithmetic Mean (µg/m^3) [3]	14.1	*	*

Table 2 Ambient Air Quality Monitoring Summary, Bethel Island Road Monitoring Station 2012-2014

Pollutant/Standard	Number of Days Threshold Was Exceeded and Maximum Levels During Such Violations		
	2012	2013	2014
Fine Particles ($PM_{2.5}$) [4]			
Federal 24-Hour > 35 µg/m³	0	1	0
Max. 24-Hour Conc. (µg/m³)	32.2	36.2	30.6
Annual Arithmetic Mean (µg/m³) [5]	6.6	7.6	6.7

Sources: California Air Resources Board, iADAM Air Quality Data Statistics. http://www.arb.ca.gov/adam/
USEPA, AirData, http://www.epa.gov/oar/data/index.html.

ppm = parts per million
µg/m³ = micrograms per cubic meter
[1] On October 1, 2015, the 8-hour O3 NAAQS was lowered to 0.070 ppm. Because the monitored values were recorded prior to the implementation of the new standard, values are compared to the previous NAAQS (0.075 ppm).
[2] Annual NO_2 CAAQS = 0.030 ppm; Annual NO_2 NAAQS = 0.53 ppm.
[3] Annual PM_{10} CAAQS = 20 µg/m³.
[4] PM2.5 is not monitored at the Bethel Island Road Monitoring Station; therefore, PM2.5 statistics are from Concord-2975 Treat Blvd Monitoring Station
[5] Annual $PM_{2.5}$ CAAQS = 12 µg/m³; Annual Primary $PM_{2.5}$ NAAQS = 12.0 µg/m³; Annual Secondary $PM_{2.5}$ NAAQS = 15.0 µg/m³.
* There was insufficient (or no) data available to determine the value.

The BAAQMD publishes CEQA Guidelines to assist lead agencies with complying with CEQA's requirements. These guidelines were updated in June 2010 (amended in May 2011) to include new and updated significance thresholds. On March 5, 2012, the Alameda County Superior Court issued a judgment indicating that the BAAQMD failed to comply with CEQA when it adopted the guidelines and ordered that the significance thresholds be set aside; therefore, new guidelines were published in May 2012 that removed the quantitative significance thresholds. The BAAQMD, however, allows lead agencies to use its 1999 thresholds of significance. While the 2012 guidelines were used as the primary document in this analysis, the quantitative thresholds in the 1999 guidelines were used to supplement the analysis. The BAAQMD significance threshold criteria are shown in Table 3.

Table 3 Proposed Air Quality CEQA Thresholds of Significance

Pollutant	Threshold
Project Construction	
PM10/$PM_{2.5}$	Best Management Practices and Control Measures
Project Operations	
Local CO	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)
Total Emissions: ROG NOx PM_{10} (exhaust)	 80 lb/day, 15 ton/yr 80 lb/day, 15 ton/yr 80 lb/day, 15 ton/yr
Odors	More than one confirmed complaint per year averaged over three years or 3 unconfirmed complaints per year averaged over three years
Toxic Air Contaminants	Cancer risk of > 10.0 in a million Non-cancer risk of > 1.0 Hazard Index

Table 3 Proposed Air Quality CEQA Thresholds of Significance

Pollutant	Threshold
Accidental Releases/ Acutely Hazardous Air Emissions	Storage or use of acutely hazardous materials locating near receptors or new receptors locating near stored or used acutely hazardous materials
Cumulative Impacts	Consistent with local general plan and the Clean Air Plan

Construction Emissions

The construction air quality analysis was conducted for the proposed project to determine construction-related emissions using CalEEMod, Version 2013.2.2. A conservative analysis was completed that assumed site preparation and grading activities would occur entirely within the footprint of the existing buildings that would house the new equipment. Because construction activities would only occur in a fraction of a building, this approach analyzed worst-case construction emissions.

Air contaminant emissions would result from the use of construction equipment, construction worker vehicles, and various haul trucks. Diesel emissions would result from truck trips associated with supply delivery, transport of removed equipment and construction debris, and transport of aggregate base and concrete to the site. Fugitive emissions would result from paved road dust, road re-paving and site grading. See Table 4 for daily construction emissions totals, which are also equivalent to the annual threshold (i.e., 80 pounds per day for 365 days per year is approximately 15 tons).

Table 4 Estimated Air Emissions from Construction

Air Pollutant	Estimated Emissions (lbs/day)	BAAQMD Threshold (lbs/day)
Reactive Organic Gases (ROGs)	3	80
Nitrogen Oxides (NOx)	27	80
Inhalable Particulate Matter (PM_{10})	2	80
Fine Particulate Matter ($PM_{2.5}$)	2	N/A

Source: CalEEMod, Version 2013.2.2

As indicated in Table 4, criteria pollutants would be below BAAQMD significance thresholds for construction activities. Furthermore, construction emissions would be short-term in nature and would be limited only to the period when construction activity is taking place. Additionally, the construction emissions analysis incorporated conservative assumptions. As such, construction emissions are not expected to add to long-term air quality degradation. Furthermore, the proposed project would implement standard BAAQMD-approved construction procedures, such as those provided in Section 8 of the CEQA Air Quality Guidelines. Construction of the proposed project would not result in a violation of air quality standards or substantially contribute to existing or projected air quality violations and the impact would be less than significant.

Operation Emissions

The proposed project would replace the existing chlorine gas storage and feed system with a liquid sodium hypochlorite storage and feed system and the existing anhydrous ammonia gas storage and feed system with a liquid ammonium sulfate ~~aqua ammonia~~ storage and feed system, but would not increase the capacity. The proposed project would not increase worker or vendor trips. However, operation of the proposed project would require 21 additional vehicle trips per year for chemical deliveries. As a result, any operational emissions are expected to be minimal and emissions would be less than significant.

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

LESS THAN SIGNIFICANT. A residential neighborhood is located east of the entrance roadway and south and west of the plant facilities, approximately 75 feet (closest residence) from the area of construction of the storage and feed systems. Park Middle School and recreational facilities are located west of the entrance roadway and north of the plant facilities, approximately 800 feet from the area of construction. As discussed above under item c), daily construction emissions would be below significance thresholds and construction activities would occur for approximately 12 months; therefore, impacts to sensitive receptors from construction-related air emissions would be less than significant. In addition, operation emissions of the proposed project would be below significance thresholds. Furthermore, when compared to existing chlorine gas and anhydrous ammonia, liquid sodium hypochlorite and ammonium sulfate ~~aqua ammonia~~ provide a lower potential for injury or death to operators and/or neighbors in the event of an accident during the transport, handling or application of these chemicals. Liquid ammonium sulfate ~~Ammonia~~ is a non-toxic chemical, ~~but~~and will be enclosed in storages tanks and transported underground through double-contained chemical application piping during operations, reducing potential exposure. As such, the project is not expected to expose sensitive receptors including nearby residences to substantial pollutant concentrations. Therefore, impacts from project operation would be less than significant.

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

LESS THAN SIGNIFICANT. Odors (e.g., odors from construction vehicle emissions) would be controlled in accordance with BAAQMD Regulation 7 (Odorous Substances). During project construction, there would be diesel exhaust from construction equipment. Due to the short construction period, diesel exhaust would be a less than significant odor air quality effect. In addition, no materials or chemicals, including the sodium hypochlorite and liquid ammonium sulfate ~~aqua ammonia~~ that would be stored on-site would have the potential to cause odor impacts during the construction or operations of the proposed project. Therefore, construction and operation of the proposed project is anticipated to have less than significant odor impacts.

4.4 Biological Resources

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		X		
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 US Fish and Wildlife Service?				X
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?				X
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?				X
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			X	
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?				X

Project Setting

The proposed project is located on developed land used as an existing water treatment plant. Land cover at the proposed project site includes paved surfaces, buildings and other facilities, and unpaved landscaped areas. Adjacent land use consists of single family residences to the east of the entrance roadway and south and west of the plant facilities; commercial properties located east of the plant; and Park Middle School and recreational facilities located west of the entrance roadway and north of the plant facilities.

Sensitive Habitats, Wildlife Corridors, and Habitat Conservation Plans

No wetlands, riparian areas, or other sensitive habitats occur on the proposed project site. The site is not part of a wildlife corridor, and there are no habitat or natural community conservation plans that include the project site or vicinity.

There are two areas of undeveloped open space located adjacent to the plant: one to the northwest and south of the Park Middle School and another to the east of the plant. These areas consist of hillslopes supporting non-native annual grassland and scattered trees.

Migratory Birds

The vacant lands adjacent to the proposed project site supports primarily non-native vegetation that provides limited habitat for wildlife. Scattered trees and shrubs in this area likely support some migratory birds by providing cover, foraging, and nesting habitat. Migratory birds are protected by the Federal Migratory Bird Treaty Act and the California Fish and Game Code Sections 3500 through 3705. These laws and regulations protect most native North American birds and their parts (including eggs, nests and feathers) and protect migratory bird nesting habitat during the nesting season when eggs or young are likely to be present. While habitat at the water treatment plant is very limited, undeveloped areas adjacent to the site may provide habitat for migratory birds.

Special-Status Species

To determine the potential for special-status plant and wildlife species to occur on the project site, a search of the California Natural Diversity Database (CNDDB) was conducted for the Antioch South 7.5-minute U.S. Geologic Survey topographic quadrangle in which the site is located. The CNDDB is a program administered by the California Department of Fish and Wildlife (CDFW) that inventories the status and locations of rare plants and animals in California. Special-status species include those federal- and/or state-listed as threatened, endangered, and/or candidate plant or wildlife species as well as those identified as species of concern by CDFW (for wildlife) and as rare, threatened, or endangered by the California Native Plant Society (CNPS, for plants). These special-status species are protected by the federal Endangered Species Act (ESA) and the California ESA.

Special-status species listed on the CNDDB as having the potential to occur within the Antioch South quadrangle are listed below.

Table 5 Special-Status Species with Potential to Occur in the Antioch South Quadrangle

Common Name	Scientific Name	Status	General Habitat	Potential to Occur at the Project Site
Invertebrates				
Blennosperma vernal pool andrenid bee	*Andrena blennospermatis*	None	Vernal pools; nests in uplands surrounding vernal pools.	None. No suitable habitat present.
Crotch's bumble bee	*Bombus crotchii*	None	Coastal scrub	None. No suitable habitat present.
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT	Grasslands of the Central Valley, Central and South Coast mountains, in astatic rain-filled pools.	None. No suitable habitat present.
Bridges' coast range shoulderband	*Helminthoglypta nickliniana bridgesi*	None	Open hillsides in valley and foothill grasslands	Low potential to occur in grasslands adjacent to the site.
Vernal pool tadpole shrimp	*Lepidurus packardi*	FE	Vernal pools and swales in the Sacramento Valley containing clear to highly turbid water.	None. No suitable habitat present.

Table 5 Special-Status Species with Potential to Occur in the Antioch South Quadrangle

Common Name	Scientific Name	Status	General Habitat	Potential to Occur at the Project Site
California linderiella	*Linderiella occidentalis*	None	Vernal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions.	None. No suitable habitat present.
Molestan blister beetle	*Lytta molesta*	None	Vernal pools	None. No suitable habitat present.
Amphibians				
California tiger salamander	*Ambystoma californiense*	FT, ST, CSC	Valley and foothill grasslands, riparian woodlands. Require underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	None. No suitable habitat present.
California red-legged frog	*Rana draytonii*	FT, CSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	None. No suitable habitat present.
Reptiles				
Silvery legless lizard	*Anniella pulchra*	CSC	Chaparral, coastal dunes, and scrub. Require moist sandy or loose loamy soils.	None. No suitable habitat present.
Western pond turtle	*Emys marmorata*	CSC	Ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 feet elevation.	None. No suitable habitat present.
Alameda whipsnake	*Masticophis lateralis euryxanthus*	FT, ST	Typically found in chaparral and scrub habitats but will also use adjacent grassland, oak savanna and woodland habitats.	None. No suitable habitat present.
Birds				
Burrowing owl	*Athene cunicularia*	CSC	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation.	None. No suitable habitat present.
Swainson's hawk	*Buteo swainsoni*	ST	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees.	None. No suitable habitat present.
Mammals				
Pallid bat	*Antrozous pallidus*	CSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting.	None. No suitable habitat present.
Western red bat	*Lasiurus blossevillii*	CSC	Roosts primarily in trees, 2-40 feet above ground, from sea level up through mixed conifer forests.	None. No suitable habitat present.
San Joaquin Pocket Mouse	*Perognathus inornatus*	None	Grassland, oak savanna and arid scrubland	Low potential to occur in grasslands adjacent to the site.

Table 5 Special-Status Species with Potential to Occur in the Antioch South Quadrangle

Common Name	Scientific Name	Status	General Habitat	Potential to Occur at the Project Site
American badger	*Taxidea taxus*	CSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	None. No suitable habitat present.
San Joaquin kit fox	*Vulpes macrotis mutica*	FE, ST	Annual grasslands or grassy open stages with scattered shrubby vegetation.	None. No suitable habitat present.
Plants				
Large-flowered fiddleneck	*Amsinckia grandiflora*	FE, SE, List 1B.1	Annual grassland in various soils	None. Outside of known range.
Slender silver moss	*Anomobryum julaceum*	List 4.2	Damp rocks and soil; acidic substrates; usually seen on roadcuts	None. No suitable habitat present.
Mt. Diablo manzanita	*Arctostaphylos auriculata*	List 1B.3	In canyons and on slopes on sandstone	None. No suitable habitat present.
Brittlescale	*Atriplex depressa*	List 1B.2	Usually in alkali scalds or alkaline clay in meadows or annual grassland	None. No suitable habitat present.
Big tarplant	*Blepharizonia plumosa*	List 1B.1	Dry hills and plains in annual grassland; clay to clay-loam soils; usually on slopes and often in burned areas	None. No suitable habitat present.
Round-leaved filaree	*California macrophylla*	List 1B.2	Clay soils	None. No suitable habitat present.
Mt. Diablo fairy-lantern	*Calochortus pulchellus*	List 1B.2	On wooded and brushy slopes	None. No suitable habitat present.
Hoover's cryptantha	*Cryptantha hooveri*	List 1A	Coarse sand	None. No suitable habitat present.
Mt. Diablo buckwheat	*Eriogonum truncatum*	List 1B.1	Dry, exposed clay or sandy substrates	None. No suitable habitat present.
San Joaquin spearscale	*Extriplex joaquinana*	List 1B.2	In seasonal alkali wetlands or alkali sink scrub	None. No suitable habitat present.
Diablo helianthella	*Helianthella castanea*	List 1B.2	Usually in chaparral/oak woodland interface in rocky, azonal soils; often in partial shade	None. No suitable habitat present.
Brewer's western flax	*Hesperolinon breweri*	List 1B.2	Often in rocky serpentine soil in serpentine chaparral and serpentine grassland	None. No suitable habitat present.
Contra Costa goldfields	*Lasthenia conjugens*	FE, List 1B.1	Vernal pools, swales, low depressions, in open grassy areas	None. No suitable habitat present.
Showy golden madia	*Madia radiata*	List 1B.1	Mostly on adobe clay in grassland or among shrubs	None. No suitable habitat present.
Hall's bush-mallow	*Malacothamnus hallii*	List 1B.2	Some populations on serpentine	None. No suitable habitat present.
Shining navarretia	*Navarretia nigelliformis ssp. radians*	List 1B.2	Apparently in grassland, and not necessarily in vernal pools	None. Outside of known range.

Table 5 Special-Status Species with Potential to Occur in the Antioch South Quadrangle

Common Name	Scientific Name	Status	General Habitat	Potential to Occur at the Project Site
Chaparral ragwort	*Senecio aphanactis*	List 2B.2	Drying alkaline flats	None. No suitable habitat present.
Oval-leaved viburnum	*Viburnum ellipticum*	List 2B.3	Chaparral, cismontane woodland, lower montane coniferous forest	None. No suitable habitat present.

Source: California Natural Diversity Database (CNDDB), October 14, 2015
FE = Federally Endangered
FT = Federally Threatened
List 1A = Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
List 1B.1 = Plants Rare, Threatened, or Endangered in California and Elsewhere; Seriously threatened in California
List 1B.2 = Plants Rare, Threatened, or Endangered in California and Elsewhere; Moderately threatened in California
List 1B.3 = Plants Rare, Threatened, or Endangered in California and Elsewhere; Not very threatened in California
List 2B.2 = Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere; Moderately threatened in California
List 2B.3 = Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere; Not very threatened in California
List 4.2 = Plants of Limited Distribution; Moderately threatened in California
None: No official federal or state listing but considered rare to varying extent
SE = State Endangered
ST = State Threatened

Based on the lack of suitable habitat, there is no potential for any special-status species to occur on the project site. There is low potential for two species, the Bridges' coast range shoulderband snail and the San Joaquin pocket mouse, to occur in the open grassland areas adjacent to the site.

Protected Trees

The City of Antioch Tree Ordinance sets forth a policy for the protection of landmark and/or heritage trees (trees with a trunk diameter of 48 inches and/or in excess of 40 feet above natural grade in height), mature trees (trees with a trunk diameter of 26 inches and/or 4 ½ feet above natural grade) and indigenous or native trees (Blue Oak, Valley Oak, Coast Live Oak, Canyon Live Oak, Interior Live Oak, California Buckeye, and California Bay). The Tree Preservation Ordinance requires a permit from the City of Antioch, Public Works Department prior to tree removal.

No landmark/heritage trees are located within the construction area for the proposed project. If it is necessary to remove other protected trees that are located within the construction area under the proposed project, a tree removal permit would be obtained from the City of Antioch.

Impact Analysis

Under the proposed project, most of the construction activities would occur inside buildings or in paved areas. A canopy would be installed over the new sodium hypochlorite storage tanks in the existing chemical containment area, and a canopy would be installed over the new ammonium sulfate ~~sodium aqua ammonia~~ tank and facilities in the existing chlorine scrubber area. These canopies would require footings that may include limited excavation outside the existing perimeter of the existing Chemical Storage Area or existing Chlorine Scrubber area. Permanent removal of vegetation could occur adjacent to the existing Chlorine Scrubber area or west of the existing Chemical Storage Area.

In addition, there may be some temporary loss of vegetation along the pipe trenchlines through the landscaped area adjacent to the Operations Building and Plant A; or along the undeveloped sloped area adjacent to the west wall of the existing Chemical Storage Area.

Implementation of construction measures would ensure the site is returned to its general pre-construction condition state. This would include re-vegetation of areas disturbed during construction to the extent possible under a Vegetation Restoration Plan to be included in the construction specifications.

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. The proposed project site is mostly developed and does not provide suitable habitat for special-status species to occur. However, undeveloped areas adjacent to the site may provide habitat for migratory birds, which are protected under the Migratory Bird Treaty Act. If construction occurs during the migratory bird nesting season (February 15 to September 15), there could be impacts to nesting migratory birds nearby. Implementation of **Mitigation Measure BIO-1** would reduce impacts to less than significant.

> **Mitigation Measure BIO-1**: Nesting bird survey. If construction occurs during the migratory bird nesting season (February 15 to September 15), a nesting bird survey of trees or other habitat within 300 feet of the construction area will be conducted prior to construction. If an active bird nest is found, construction may be delayed until the nest is no longer active, or other measures may be implemented in coordination with CDFW.

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

NO IMPACT. No riparian communities or other sensitive habitats are located on or near the proposed project site. Therefore, no impact is anticipated.

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

NO IMPACT. The proposed project is located on the developed site of an existing water treatment plant. There are no wetlands located on or adjacent to the project site and there would be no direct removal, filing or hydrological interruption to local protected wetlands. Therefore, there would be no impact on federally protected wetlands from the construction and operation of the proposed project.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

NO IMPACT. The proposed project site is not located within a wildlife corridor and is not a native wildlife nursery site. Therefore, no impact is anticipated.

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

LESS THAN SIGNIFICANT. No landmark/heritage trees are located within the construction area for the proposed project. If it is necessary to remove other protected trees that are located within the construction area under the proposed project, a tree removal permit would be obtained from the City of Antioch. Compliance with the City of Antioch Tree Ordinance would reduce impacts from tree removal to less than significant.

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

NO IMPACT. The proposed project is not located within an area affected by or subject to an adopted Habitat Conservation Plan, Natural Communities Conservation Plan or other approved local, regional or state habitat conservation plan. Therefore, there would be no impact.

4.5 Cultural Resources

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?				X
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?		X		
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X
d) Disturb any human remains, including those interred outside of formal cemeteries?				X

Project Setting

This cultural resources assessment is based on the Cultural Resources section of the Hillcrest eBART Station Area Specific Plan Draft EIR (City of Antioch 2009). The Hillcrest eBART Station planning area included the Antioch South USGS 7.5' quadrangle in which the project site is

located. Based in this report, there are no federal-, state-, or county-listed historic sites and no known recorded archeological sites in the project vicinity.

Impact Analysis

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

NO IMPACT. There are no federal-, state-, or county-listed historic sites near the project site. Therefore, there would be no impact to historical resources.

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

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. Minimal excavation would be associated with the project and would be limited to localized digging within the footprint of existing outdoor facilities or areas adjoining the existing facilities. Trenching would be conducted to install piping within areas that have been previously disturbed for the original plant construction. Therefore, the likelihood of encountering intact archaeological resources is considered extremely low. Nevertheless, it is always possible that previously undisturbed resources could be encountered. Should the project encounter undisturbed archeological resources, Implementation of **Mitigation Measure CUL-1** would reduce potential impacts from significant to less than significant.

> **Mitigation Measure CUL-1**: In the event that archaeological or paleontological resources are encountered during the course of grading and/or excavation, all construction shall temporarily cease within the vicinity of the area until a qualified archaeologist (or paleontologist if appropriate) is brought onto the project site to properly assess the resources and make recommendations for their disposition. In the event that human remains are discovered, there shall be no disposition of such human remains, other than in accordance with the procedures and requirements set forth in California Health and Safety Code Section 7050.5 and Public Resources Code Section 50973.98. These code provisions require notification of the County Coroner and the Native American Heritage Commission, who in turn must notify those persons believed to be most likely descended from the deceased Native American for appropriate disposition of the remains. Excavation or disturbance may continue in other areas of the project site that are not reasonably suspected to overlie adjacent remains or archaeological resources.

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

NO IMPACT. There are no known unique paleontological resources or unique geologic features on the project site. Therefore, no impact on these resources would occur.

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

NO IMPACT. The proposed project would not affect known cemeteries and no evidence of burials exists at the project location. However, in the highly unlikely event that human

remains are discovered during construction, implementation of the measure described under item V b) above would avoid potential impact. No impact would occur from the project.

4.6 Geology and Soils

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.		X		
ii) Strong seismic ground shaking?		X		
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?		X		
b) Result in substantial soil erosion or the loss of topsoil?			X	
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?			X	
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?			X	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				X

Project Setting

The proposed project site is closed to the public. The nearest resident, business or occupied building is approximately 100 feet from the project site, upslope to the west. The existing water treatment plant facilities would remain in use during construction of the proposed project.

Information used in this analysis was obtained from the following:

- City of Antioch General Plan (2003b), Environmental Hazards section.
- Fault Activity Map of California (2010), California Department of Conservation, California Geological Survey

- Draft Technical Memorandum: Antioch WTP Improvements Geotechnical Recommendations (CDM Smith 2015)

Existing Geologic and Seismic Conditions

The project site is within the Coast Range Geomorphic Province of California, characterized by a series of northwest-trending mountain ranges, ridges, and intervening valleys that run generally parallel to the San Andreas Fault System. The San Andreas Fault System includes several major fault zones, including the San Andreas, Hayward, and Calaveras fault zones.

Contra Costa County is underlain by the Franciscan Formation, which represents pieces of former oceanic crust that have been accreted to North America by subduction and collision. Bedrock underlying this region is composed primarily of deep marine sandstone and shale (ancient seafloor sediments), basalt, chert, and greenstone. The surficial geology in the project site vicinity is characterized by unconsolidated alluvium, terrace deposits, and bay mud. At the toe of the foothills to Mount Diablo, the bedrock geology is comprised of sedimentary deposits of non-marine siltstone, sandstone, and conglomerate, with some tuff.

The project site is not located within a State of California Fault Rupture Hazard Zone. The nearest active fault zone to the project site is the Concord fault, located over 10 miles to the west (California Geological Survey 2010).

Impact Analysis

a) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. Because there is no active fault on the project site, the hazard potential from fault rupture is low. If fault rupture did occur at the site, it could result in a substantial adverse impact such as loss, injury or death if heavy equipment used during construction and operation fell on workers or caused property damage. The proposed project would be constructed in compliance with all relevant local and state seismic safety standards, including the California Building Code. With proper construction of the project components, the proposed project would not likely cause substantial adverse effect if a fault rupture did occur at the project site. In addition, the proposed project preparation and implementation of a Construction Risk Management Plan (CRMP), including procedures during an emergency, would ensure that impacts, such as loss, injury or death from fault rupture during construction would be less than significant. See Mitigation Measure HAZ-1 in Section 3.8 for details on the CRMP.

ii. Strong seismic ground shaking?

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. The City of Antioch is located in one of the most seismically-active regions in the United States. The 1997 Uniform Building Code locates the entire Bay Area within Seismic Risk Zone 4, which represents the maximum seismic risk zone. Seismic activity at regional faults may result in ground shaking at the project site. Strong seismic ground shaking at the site could result in a substantial adverse impact such as loss, injury or death if heavy equipment used during construction and operation of the proposed project fell on workers or caused property damage. Compliance with all relevant local and state seismic safety standards required by the California Building Code would provide the seismic reliability of the proposed project components. With proper construction of the components, the proposed project would not likely cause substantial adverse impacts if strong seismic ground shaking did occur at the project site. In addition, the preparation and implementation of a CRMP, including procedures during an emergency, would ensure that impacts such as loss, injury or death from ground shaking during construction would less than significant. See **Mitigation Measure HAZ-1** in Section 3.8 for details on the CRMP.

iii. Seismic-related ground failure, including liquefaction?

LESS THAN SIGNIFICANT. According to the City of Antioch General Plan, the area of Antioch directly adjacent to the San Joaquin River has a high to very high potential for liquefaction. However, upland areas away from the river, such as the project site, have a very low to moderate potential for liquefaction. Therefore, impacts related to liquefaction or other seismic-related ground failure are anticipated to be less than significant.

iv. Landslides?

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. According to the City of Antioch General Plan, there may be areas of unstable slopes near the project site. Compliance with all relevant local and state seismic and geologic safety standards required by the California Building Code would be required. With proper construction of the components, the proposed project would not likely cause substantial adverse impacts if landslides did occur at the project site. In addition, the preparation and implementation of a CRMP, including procedures during an emergency, would ensure that impacts such as loss, injury or death from landslides during construction would less than significant. See **Mitigation Measure HAZ-1** in Section 3.8 for details on the CRMP.

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

LESS THAN SIGNIFICANT. Construction of the proposed project would involve excavation, grading and other earth-moving activities. Therefore, there is the potential for impacts from erosion and loss of topsoil during construction. Rain and wind could result in erosion of exposed soils, and construction vehicles traveling through the site could mobilize soils. Erosion impacts during construction would be minimized through implementation of best management practices (BMPs), including an erosion control plan. In addition, disturbed areas where soils are exposed would be re-vegetated, which would reduce the impacts from erosion

to less than significant. Implementation of BMPs would reduce soil erosion impacts during construction to less than significant.

To prevent topsoil loss during construction, segregation and storage of topsoil would be required during construction. Following construction, topsoil would be placed back on areas where revegetation would occur. Therefore, impacts from topsoil loss during construction would be less than significant.

Operation of the proposed project does not involve activities that would cause soil erosion or the loss of topsoil. Therefore, a less than significant impact on soil erosion or loss of topsoil is expected because of operation of the proposed project.

c) Would the project 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?

LESS THAN SIGNIFICANT. The project site is not located on a geologic unit or soil that is unstable or would become unstable as a result of the project. Therefore, impacts related to on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse are anticipated to be less than significant.

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

LESS THAN SIGNIFICANT. The proposed project would entail trenching to install piping at: a depth of 2 to 4 feet in the area west of the existing Chemical Storage Area; a depth of 3 to 6 feet for the pipe trench between the existing Plant B and existing Filtered Water Reservoir; and a depth of 3 to 6 feet for the pipe trench between the new ammonium sulfate ~~Aqua Ammonia~~ facility and existing Plant A. Subsurface conditions near the proposed tanks were explored by Converse in October 1986 (CDM Smith 2015). Investigation of a borehole located near the proposed ammonium sulfate ~~Aqua Ammonia~~ tank encountered silty clay from 0 to 4 feet, clayey silt from 4 to 9 feet, then sandstone bedrock to the explored depth of 20 feet. A borehole located near the proposed sodium hypochlorite ~~NaOCl~~ tanks encountered silty clay from 0 to 4.5 feet, clayey silt from 4.5 to 8 feet, then sandstone bedrock to the explored depth of 20.3 feet. No groundwater was observed in the borings. Silty clay has moderate to high expansion potential and clayey silt has low to moderate expansion potential.

Such soils could be subjected to volume changes (shrink-swell) during seasonal fluctuations in moisture content. This will be addressed in the project foundation design. The proposed project would be constructed to meet applicable California and Uniform Building Code standards for the soil type and/or conditioning of the soil where piping would be installed. Therefore, a less than significant impact is anticipated from construction and operation of the proposed project.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

NO IMPACT. The proposed project is the modification of an existing water treatment plant that would not expand the current capacity. It does not involve the use of septic tanks or alternative wastewater disposal systems. Therefore, no impacts related to soil compatibility with septic systems would occur.

4.7 Greenhouse Gas Emissions

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				X

Project Setting

Briefly stated, global climate change (GCC) is a change in the average climate conditions of the earth, as characterized by changes in wind patterns, storms, precipitation, and temperature. The baseline by which these changes are measured originates in historical records identifying temperature changes that have occurred in the past, such as during previous ice ages. Many of the recent concerns over GCC use this data to extrapolate a level of statistical significance, specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from previous climate changes in rate and magnitude.

The United Nations Intergovernmental Panel on Climate Change (IPCC) constructed several emission projections of greenhouse gas (GHG) needed to stabilize global temperatures and GCC impacts. The IPCC predicted that the range of global mean temperature increase from 1990 to 2100, given six scenarios, could range from 1.4 to 5.8 degrees Celsius (°C) (IPCC 2001). Regardless of analytical methodology, global average temperature and mean sea level are expected to rise under all scenarios.

Climate models applied to California's conditions project that, under different scenarios, temperatures in California are expected to increase by 4.1 to 8.6 degrees Fahrenheit (°F) by 2100 (California Climate Change Center 2012). Almost all climate scenarios include a continuing trend of warming through the end of the 21st century given the substantial amounts of GHG already released, and the difficulties associated with reducing emissions to a level that would stabilize the climate. As such, temperature increases would lead to adverse environmental impacts in a wide variety of areas, including: sea level rise, reduced snowpack resulting in changes to existing water

resources, increased risk of wildfires, public health hazards associated with higher peak temperatures, heat waves, and deteriorated air quality.

In May 2014, the California Air Resources Control Board (CARB) released The First Update to the Climate Change Scoping Plan (CARB 2014), including additional strategies and recommendations, which outlines the state's strategy to achieve the 2020 GHG emissions limit mandated by Assembly Bill 32 (AB 32). AB 32 requires the state to reduce GHG emissions to 1990 levels by 2020. GHG emissions in the State are expected to increase by nearly 30 percent between the 2002-2004 levels (average emissions) and 2020 under the business-as-usual (BAU) conditions. CARB estimated the 1990 emission level, or the 2020 GHG emission limit, as approximately 431 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) (CARB 2014). The state would need to reduce emissions by 173 $MMTCO_2e$ in 2020 as compared to BAU to meet the emission targets; this represents a nearly 30 percent decrease in emissions from BAU.

Regulatory Setting

Federal

On December 14, 2012 the USEPA and the Department of Transportation issued a joint Final Rulemaking to further reduce GHG emissions by establishing GHG and fuel economy standards for light-duty vehicles produced model year 2017 to 2025. This ruling requires these vehicles to meet emission standards of 163 grams of CO_2 per mile, which is equivalent to 54.5 miles per gallon, in the model year 2025.

State

California adopted the Global Warming Solutions Act of 2006 (AB 32) on September 27, 2006 to address the threat of global warming caused by the increase in GHG emissions. AB 32 requires sources within the state to reduce GHG emissions to 1990 level by the year 2020. Primary sources of GHG emissions include on-road transportation, electric power generation, and industrial facilities (AB32 Chapter 488).

In 2009, CARB required mandatory reporting for significant sources of GHGs in response to AB 32 (Subchapter 10, Article 1, Sections 95100 to 95133, Title 17, CCR). CARB developed a scoping plan that indicates how GHG emission reductions would be achieved from significant GHG sources.

Local

The 2003 City of Antioch General Plan does not address GHG emissions and climate change. However, the BAAQMD has developed quantitative operational and qualitative construction-related thresholds of significance for air quality impacts of projects proposed in the Basin. These thresholds, which are described in detail in the BAAQMD CEQA Air Quality Guidelines, are used for purposes of CEQA.

Emissions Calculation Methodology

Emissions from site grading, repaving, off-road construction equipment, construction worker commuting, and on-road haul trucks were estimated using the CalEEMod, Version 2013.2.2. Additional information on how emissions were estimated is provided in Section 3.3, Air Quality.

Impact Analysis

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

LESS THAN SIGNIFICANT. The final version of the BAAQMD CEQA Guidelines, updated in 2012, contains specific criteria for GHG emissions that are used to estimate significance in this document.

The BAAQMD did not establish a threshold of significance for construction-related GHG emissions; however, it recommends that construction emissions are quantified and disclosed. Construction-related GHG emissions are provided in Table 6. The BAAQMD also recommends that best management practices (BMPs) be followed to mitigate any construction-related emissions to the extent possible. The following BMPs are recommended by the BAAQMD:

- Alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment of at least 15 percent of the fleet;
- Local building materials of at least 10 percent; and
- Recycle or reuse at least 50 percent of construction waste or demolition materials.

Total GHG emissions associated with construction-related activities are expected to be minimal when compared to the most commonly used threshold of 10,000 $MTCO_2e$ per year, as shown in Table 6. In addition, the proposed project would integrate the listed BMPs to the maximum extent possible. GHG emissions are therefore expected to be less than significant.

Table 6 Estimated GHG Emissions from Construction

Air Pollutant	Estimated Emissions (metric tons/year)		
	Carbon Dioxide (CO_2)	Methane (CH_4)	Total
Off-Road Construction Equipment	115	<1	N/A
On-Road Vehicles	88	<1	N/A
Total	203	<1	N/A
Global Warming Potential*	1	25	N/A
CO_2e Emission	203	<1	203

Source: CalEEMod, Version 2013.2.2

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

NO IMPACT. The BAAQMD has been very proactive in its efforts to reduce emissions of GHGs. In 2005, the BAAQMD initiated a Climate Protection Program to address climate change and climate protection through BAAQMD activities. The BAAQMD also partnered with the Institute for Local Government to develop the San Francisco Climate Action Web Portal to allow local governments to access tools and resources for implementing climate actions.

One of the objectives in the Bay Area 2010 CAP is to reduce emissions of GHGs to 1990 levels by 2020 and 40 percent below 1990 levels by 2035, which is consistent with the state's

climate protection goals. The Bay Area 2010 CAP includes the following measures to reduce emissions from construction and farming equipment:

- Expenditure of cash incentives to retrofit construction and farm equipment with diesel particulate matter filters or upgrade equipment to Tier III or Tier IV off-road engines;
- Work with CARB, the California Energy Commission (CEC), and others to develop more fuel-efficient off-road engines and drive-trains; and
- Work with local communities, contractors and developers to encourage the use of renewable alternative fuels in applicable equipment.

Furthermore, CARB's AB 32 Scoping Plan (updated May 2014) had several measures to reduce emissions from transportation fuels, which would indirectly reduce emissions from construction equipment. These include the Low Carbon Fuel Standard (LCFS), which became effective on January 12, 2010, which would reduce GHG emissions by reducing the full fuel-cycle carbon intensity of transportation fuels used in California.

The various plans, policies, and regulations at the state and local level do not directly require the reduction of GHG emissions from construction equipment; however, emissions will be indirectly reduced through programs like the LCFS and engine retrofits. Several rules adopted to reduce emissions of non-GHGs, such as CARB's In-Use Off-Road Diesel Vehicle Regulation (13 CCR 2449), could also reduce GHG emissions as a co-benefit. Since the construction equipment will operate in compliance with all applicable regulations for off-road equipment, the proposed project will not conflict with any plan, policy, or regulation adopted for the purpose of reducing GHG emissions. Therefore, there would be no impact.

4.8 Hazards and Hazardous Materials

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?		X		
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?		X		
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X	

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?			X	
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?				X
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?				X
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
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?		X		

Project Setting

The proposed project entails the modification of an existing water treatment plant to a) replace the existing chlorine (gas) storage and feed system with a liquid sodium hypochlorite storage and feed system and b) replace the existing anhydrous ammonia (gas) storage and feed system with a liquid ammonium sulfate ~~aqua ammonia~~ storage and feed system. One of the main reasons for the project is growing concerns regarding the safety of these hazardous gases.

Existing safety measures are in place to capture and treat gas leaks. However, there is concern about the risks of accidental spills or leaks of chlorine gas and anhydrous ammonia gas during the transport, handling and application of these chemicals. Liquid sodium hypochlorite and ammonium sulfate ~~aqua ammonia~~ system are less hazardous and present fewer safety concerns.

Operation of the project would include the regular transport, handling, and application of sodium hypochlorite (12.5% chlorine by weight), a hazardous material. At high concentrations, sodium hypochlorite can be a strong oxidizer, causing corrosive reactions that can burn the skin and cause eye damage. Solutions in the 5.0 – 12.5% range are not considered oxidizers (NFPA 2004), but care must be taken to avoid contact with skin, eyes, nose, throat, or inhalation of vapors. Human health impacts could also occur if sodium hypochlorite is mixed with acid materials, which could generate toxic chlorine gas.

Operation of the project would also include the regular transport, handling, and application of liquid ammonium sulfate ~~aqua ammonia~~ (10.9~~19~~% ammonia by weight)~~, a hazardous material~~. ~~While l~~Liquid ammonium sulfate ~~aqua ammonia~~ is non-corrosive and non-toxic although it can be

an irritant to skin, eyes, nose, throat, or inhalation of vapors. It is also stable and does not support combustion~~, it can be corrosive. Care must be taken to avoid contact with skin, eyes, nose, throat, or inhalation of vapors~~. Liquid ammonium sulfate is not classified as a hazardous material in CalARP, and no hazardous materials permitting activities would be required for its use other than annual updates to the Hazardous Materials Business Plan (HMBP).

During operation of the proposed project, compliance with the federal and California Occupational Safety and Health Acts would be required. This entails special training of handlers of hazardous materials, notification to employees who work in the vicinity of hazardous materials, acquisition from the manufacturer of material safety data sheets (MSDS) which describe the proper use of hazardous materials, and training of employees to remediate any hazardous material accidental releases. In addition, compliance with the Business Emergency Plan/Hazardous Materials Business Plan requires facilities which meet minimum hazardous materials use/storage thresholds to file a Business Emergency Plan (BEP), or a Hazardous Materials Business Plan (HMBP), which includes a complete inventory of the hazardous materials being used and stored on a site. Employee training and emergency response plans and procedures for the accidental release of hazardous materials are also included in a BEP.

The proposed project site is located on developed land used for an existing water treatment plant. The EnviroStor Database, maintained by the California Department of Toxic Substances Control (DTSC),) identifies hazardous materials sites listed pursuant to Government Code Section 65962.5. A search of EnviroStor was conducted to identify hazardous materials sites located within a one-mile-radius of the proposed project. According to the results of the search, no hazardous materials sites that would create a significant hazard to the public or the environment are located on or within one mile of the proposed project site (DTSC 2015).

The State Water Resources Control Board (SWRCB) maintains a separate database, known as Geotracker, which identifies hazardous materials sites listed pursuant to Government Code Section 65962.5, including leaking underground storage tank sites. A search of the Geotracker database was conducted to identify hazardous materials sites located within a one-mile radius of the proposed project. Based on the search, the following 11 sites are located within one mile of the proposed project site (SWRCB 2015):

- Antioch Yard Property, James Donolon Boulevard. Completed - Case Closed
- BP Oil, 3720 Lone Tree Way. Completed - Case Closed
- Chevron #9-4585, 2413 A Street. Open - Eligible For Closure
- Chevron TAOC A Street, 2205 A Street. Open - Site Assessment
- Discount Liquor Store, 39 Rossi Avenue. Completed - Case Closed
- Former Exxon 7-3615, 2610 Contra Loma Boulevard. Completed - Case Closed
- Olympian Texaco Station, 2310 A Street. Open - Verification Monitoring
- PG&E (Former Corp. Yard), Buchanan Road. Completed - Case Closed

- Shell, 2838 Lone Tree Way . Completed - Case Closed
- Shell Service Station Case #2, 2838 Lone Tree. Completed - Case Closed
- Tosco - Facility #5963, 2701 Contra Loma Boulevard. Completed - Case Closed

Impact Analysis

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. Based on the results of the EnviroStor and Geotracker database searches, there are 11 identified hazardous materials sites within one mile of the project site. Eight of these have been closed and of the three sites with open status, one is eligible for closure, and the other two are conducting site assessment and monitoring. Therefore, it is unlikely that contaminated soil or groundwater would be encountered during construction of the proposed project. However, a Construction Risk Management Plan (CRMP) would be developed and implemented to include a project specific contingency plan for hazardous materials and waste operations to the appropriate agency having jurisdiction before site activities proceed. The CRMP would include a Health and Safety Plan that outlines policies and procedures to protect workers and the public from potential hazards posed by hazardous wastes. Any areas of suspected contamination would be monitored for odors and analyzed with a photo ionization detector to determine the potential for soil contamination and the need for specialized soil handling procedures. If contamination is encountered, excavated soils shall be segregated and sampled relative to the profiling requirements of the accepting landfill. Any contaminated materials would be transported and disposed of in accordance with applicable codes and regulations. Such transport and disposal is not expected to create a significant hazard to workers or the community.

Mitigation Measure HAZ-1: Construction Risk Management Plan. A CRMP would be prepared and submitted by the contractor prior to construction to address hazardous materials and other worker health and safety issues that may arise during construction of the project. The contractor's CRMP shall be reviewed prior to commencement of construction to see that, at a minimum, it includes the following details:

- A site-specific Health and Safety Plan (HASP) prepared by a qualified health and safety professional in accordance with applicable laws, rules and regulations. The HASP shall include all required measures to protect construction workers and the general public by including engineering controls, monitoring and security measures to prevent unauthorized entry to the construction area. If prescribed exposure levels were exceeded, personal protective equipment would be required for workers in accordance with state and federal regulations.
- Measures to halt construction and implement the CRMP in the case that contaminated soils~~souls~~ or other hazardous materials are encountered during any soil moving operation during construction (e.g., trenching, excavation, grading).

- Instructions to workers on the recognition and reporting of materials that may be hazardous.
- Procedures to minimize delays by continuing performance of the work in areas not affected by hazardous materials operations.
- Identification and contact information for subcontractors and licensed personnel qualified to undertake storage, removal, transportation, disposal, and other remedial work required by, and in accordance with, laws and regulations.
- Fire-prevention and emergency-response procedures, including procedures for the containment and cleanup of accidental releases of hazardous materials used or stored during construction activities. This would include procedures to ensure that, prior to construction, all staging areas, welding areas, or areas slated for development using spark-producing equipment will be cleared of dried vegetation or other material that could ignite. Any construction equipment that includes a spark arrestor shall be equipped with a spark arrestor in good working order. During construction, all vehicles and crews working at the project site(s) will have access to functional fire extinguishers at all times. If welding activities are conducted in areas where there is risk of wildland fires, construction crews will be required to have a spotter to look out for potentially dangerous situations, including accidental sparks.
- Procedures for notification of emergency coordinators and neighboring facilities in the event that construction activities require a temporary closure of a roadway, which could interfere with emergency response or evacuation plans. This would include procedures for emergency response related to seismic activity, including rupture, ground-shaking, and landslides.

Operation of the proposed project would entail the storage and use of sodium hypochlorite ~~and liquid aqua ammonia~~, which is a~~are~~ hazardous material~~s~~. Compliance with existing laws and regulations regarding the use and storage of thi~~se~~s~~e~~ material~~s~~ would ensure that impacts would be less than significant.

b) Would the project 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?

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. Construction activities would involve use of hazardous materials such as fuels, oils, solvents, lead solder, and glues during construction. These materials would be contained within vessels inside excavation equipment, generators, and other construction equipment. However, spills could occur during onsite fueling of equipment or during an accident. To minimize potential impacts during construction, a Hazardous Materials Management/Spill Prevention Plan would be developed and given to all contractors working on the project. Implementation of the Hazardous Materials Management/Spill Prevention Plan would ensure impacts from the accidental release of hazardous materials during construction would be less than significant.

Mitigation Measure HAZ-2: Hazardous Materials Management/Spill Prevention Plan. A Hazardous Materials Management/Spill Prevention Plan would be developed prior to construction and implemented during construction to reduce the risk of accidental release of construction-related hazardous materials and mitigate any adverse effects if releases do occur. At least one copy of the plan would be onsite at all times. The purpose of the plan is to provide onsite construction managers, environmental compliance monitors and regulatory agencies with a detailed description of hazardous materials management, spill prevention and spill response/cleanup measures associated with the construction of project components. The primary objective of the plan is to prevent the spill of hazardous materials. Elements of the plan shall include, but not be limited to, the following:

- Description of the storage tank area design features including secondary containment for the tank, spill collection for the unloading area, and all-concrete construction;
- A discussion of hazardous materials management including delineation of hazardous material and hazardous waste storage areas, access and egress routes, waterways, emergency assembly areas and temporary hazardous waste storage areas;
- Spill control and countermeasures including employee spill prevention/response training; and
- Notification and documentation procedures.

Operation of the proposed project would involve the storage and use of sodium hypochlorite ~~and liquid aqua ammonia~~. Accidental release of thi<u>s</u>~~se~~ hazardous material~~s~~ could occur through spills or leaks, creating potentially hazardous conditions. Design features built into the project include, but are not limited to: secondary containment for the tanks; spill collection for the concrete unloading area, and compliance with existing laws and regulations regarding the storage and use of sodium hypochlorite ~~and liquid aqua ammonia~~. These provisions would ensure that impacts from an accidental release would be less than significant.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. Construction activities would involve use of hazardous materials such as fuels, oils, solvents, lead solder, and glues during construction. These materials would be contained within vessels inside excavation equipment, generators, and other construction equipment. However, spills could occur during onsite fueling of equipment or during an accident. A Hazardous Materials Management/Spill Prevention Plan would be developed and given to all contractors working on the project. Implementation of the Hazardous Materials Management/Spill Prevention Plan **(Mitigation**

Measure HAZ-2) would ensure impacts from the accidental release of hazardous materials during construction would be less than significant.

~~**Mitigation Measure HAZ-2:** Hazardous Materials Management/Spill Prevention Plan. A Hazardous Materials Management/Spill Prevention Plan would be developed prior to construction and implemented during construction to reduce the risk of accidental release of construction-related hazardous materials and mitigate any adverse effects if releases do occur. At least one copy of the plan would be onsite at all times. The purpose of the plan is to provide onsite construction managers, environmental compliance monitors and regulatory agencies with a detailed description of hazardous materials management, spill prevention and spill response/cleanup measures associated with the construction of project components. The primary objective of the plan is to prevent the spill of hazardous materials. Elements of the plan shall include, but not be limited to, the following:~~

- ~~Description of the storage tank area design features including secondary containment for the tank, spill collection for the unloading area, and all-concrete construction;~~
- ~~A discussion of hazardous materials management including delineation of hazardous material and hazardous waste storage areas, access and egress routes, waterways, emergency assembly areas and temporary hazardous waste storage areas;~~
- ~~Spill control and countermeasures including employee spill prevention/response training; and~~
- ~~Notification and documentation procedures.~~

Operation of the proposed project would involve the storage and use of sodium hypochlorite ~~and liquid aqua ammonia~~. Accidental release of thi**s**~~ese~~ hazardous material~~s~~ could occur through spills or leaks, creating potentially hazardous conditions. Design features built into the project include, but are not limited to: secondary containment for the tanks; spill collection for the concrete unloading area and compliance with existing laws and regulations regarding the storage and use of sodium hypochlorite ~~and liquid aqua ammonia~~. These provisions would ensure that impacts from an accidental release would be less than significant.

d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

LESS THAN SIGNIFICANT. The project is not located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Due to the distance from the proposed project site, case status, and/or involvement of other regulatory agencies it was determined that the potential of environmental impact to the proposed project related to the facilities identified by the Geotracker database search is negligible. If during construction or operation of the proposed project, contamination is

discovered with the potential to create a significant hazard to the public or the environment, the applicable regulatory agency would be contacted and the appropriate corrective actions undertaken to eliminate the hazard. Therefore, impacts would be less than significant.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

NO IMPACT. The nearest public or public use airport to the proposed project is the Buchanan Field Airport, a county-owned public-use airport located approximately 13 miles west of the site. Therefore, neither construction nor operation of the proposed project would have an impact on a public or public use airport.

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?

NO IMPACT. The nearest private airstrip to the project site is the Funny Farm Airport, located approximately nine miles southeast of the site. Therefore, neither construction nor operation of the proposed project would have an impact on a private airstrip.

g) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

NO IMPACT. The proposed project would not impair or physically interfere with an adopted emergency response plan or a local, state or federal agency's emergency evacuation plan. The proposed project is not located within the public right-of-way, so temporary lane closures would not be required during project construction. However, there would be coordination with City of Antioch Police and Fire Departments to ensure access to the project site in case of emergencies.

The proposed project would be located at the existing water treatment plant and would not alter the adjacent street system. Therefore, construction and operation of the proposed project would not impair or interfere with implementation of an adopted emergency response plan or emergency evacuation plan and there would be no impact.

h) Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

LESS THAN SIGNIFICANT. While construction would occur within the existing water treatment plant, there are undeveloped open space areas adjacent to the plant that support grasses and trees. During construction, the CRMP would outline procedures to ensure that construction activities would not ignite dry grasses or other wildfire fuel that may exist in the adjacent undeveloped areas. Operation of the proposed project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires. Therefore, impacts would be less than significant.

4.9 Hydrology and Water Quality

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?			X	
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)?				X
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?				X
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?				X
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?			X	
f) Otherwise substantially degrade water quality?			X	
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?				X
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				X
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?			X	
j) Inundation by seiche, tsunami, or mudflow?				X

Project Setting

The project site is not within a 100-year floodplain as delineated by the Federal Emergency Management Agency (FEMA) (FEMA 2015). According to soil borings conducted by Converse in October 1986, no groundwater was observed at a depth of 20.3 feet (CDM Smith 2015). The two closest waterbodies to the project site are the western portion of Contra Loma Reservoir in Contra Loma Regional Park and the eastern portion of Contra Loma Reservoir north of the Lone

Tree Golf Course. These are both approximately 1 mile from the project site. Lake Alhambra and the San Joaquin River are approximately 1.5 miles and 1.8 miles, respectively, north of the project site.

Regulatory Setting

Federal

Clean Water Act

The Clean Water Act (CWA) of 1972 designates the U.S. Environmental Protection Agency (EPA) as the agency to establish federal guidelines, objectives, and limits to protect and restore the nation's water by monitoring the water quality and controlling discharge from point sources. This act is administered at the state level by the State Water Resources Control Board (SWRCB), and enforced at the local level by nine Regional Water Quality Control Boards (RWQCB).

Through their delegated authority under the CWA, the SWRCB and the Central Valley Regional Water Quality Control Board (Central Valley Water Board) have adopted and enforced various permits and other regulatory actions that affect local permitted entities.

National Pollutant Discharge Elimination System Program

Under the CWA, the RWQCB issues National Pollutant Discharge Elimination System (NDPES) permits to all point dischargers of waste. Industrial and municipal facilities that discharge directly to surface waters must also obtain NPDES permits. To ensure protection of water quality, NPDES permits contain effluent limitations on pollutants of concern, pollutant monitoring frequencies, reporting requirements, schedules of compliance (when appropriate), operating conditions, best management practices, and administrative requirements.

The NDPES permit system for municipal, industrial, and construction activities is discussed further in the following subsections.

State

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Act (Act) is the primary law in California for the regulation of water quality in surface waters, wetlands, and groundwater, and to both point and nonpoint sources of pollution. The purpose of the Act is to protect water quality and designated beneficial uses of water, including implementation of the NPDES program, dredge and fill programs, and civil and administrative penalties. Under this Act, the SWRCB is authorized to establish statewide policies and regulations for the implementation of water quality control programs, while the RWQCB implement such policy programs, develop regional basin plans, and issue NPDES permits. Together, the SWRCB and the nine RWQCB protect water quality and allocate surface water rights.

Water Quality Control Plan for the Central Valley Region

Under the Porter-Cologne Water Quality Act, the State of California is divided into nine regional water quality control boards for individual permitting, inspection, and enforcement actions. Each RWQCB is required to prepare and periodically update a Water Quality Control Plan (Basin Plan) that identifies existing and potential beneficial uses for specific water bodies. Basin Plans are the

master policy documents that contain descriptions of the legal, technical, and programmatic basis for water quality regulation in each region.

The Basin Plan for the Central Valley Region was recently revised in July 2016. The Basin Plan identifies the beneficial uses of State waters (both surface waters and groundwater), provides water quality objectives and policies, and includes implementation plans and monitoring programs to control nonpoint and point sources of pollutants to the State's waters. Basin Plan requirements must be implemented in all projects requiring permits from the RWQCB (i.e., waste discharge requirements and NPDES permits), taking into consideration the beneficial uses that need to be protected.

NPDES Construction General Permit

The SWRCB issues the statewide NPDES general permit (Construction General Permit Order No. 2009-009-DWQ) for stormwater discharges associated with construction activities (Construction General Permit). This permit requires monitoring for sediment and non-visible pollutants under specified circumstances. Any project that disturbs an area greater than one acre requires a Notice of Intent (NOI) to discharge under the General Construction Permit. This requirement applies to both private and public agency construction projects. The General Construction Permit includes measures to eliminate or reduce pollutant discharges through a Stormwater Pollution Prevention Plan (SWPPP), which describes the implementation and maintenance of best management practices (BMPs) to control stormwater and other runoff during and after construction. The General Construction Permit contains receiving water limitations, which require stormwater discharges to not cause or contribute to a violation of any applicable water quality standard. The permit also requires implementation of programs for visual inspections and sampling for specified constituents (e.g., non-visible pollutants).

NPDES Industrial General Permit

Pursuant to CWA, the SWRCB re-issued a statewide Industrial Stormwater General Permit (Industrial General Permit) (SWRCB Order No. 2014-057-DWQ) in 2014, which became effective on July 1, 2015. The Industrial General Permit regulates the discharge of 9 categories of facilities.

The Industrial General Permit requires the implementation of the Best Available Technology Economically Achievable (BAT), the Best Conventional Pollution Control Technology (BCT), and the development of an Industrial SWPPP and monitoring plan. The Industrial SWPPP should identify the potential sources of pollutants and source management measures to reduce stormwater pollution. The Industrial General Permit also requires advanced structural BMPs (i.e., related to exposure minimization, stormwater reduction and discharge reduction, and treatment control) if Numeric Action Levels (NALs) established in the Industrial General Permit are exceeded.

Anti-degradation Policy

In accordance with the Federal Anti-degradation Policy(40 CFR §131.12) which requires states to develop statewide anti-degradation policies and identify methods for implementing them, the SWRCB adopted Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality Waters in California (more commonly referred to as the State's Anti-degradation Policy), which restricts the degradation of surface waters of the State and protects waterbodies where the

existing water quality is higher than necessary for the protection of present and anticipated designated beneficial uses. The State Anti-degradation Policy is implemented by the RWQCB.

Regional

NPDES Municipal Separate Storm Sewer (MS4) Permit

Operators of large municipal separate storm sewer systems (MS4s) are regulated under NPDES permits, which require each regulated entity to develop a stormwater management program designed to prevent harmful pollutants from impacting water quality via stormwater runoff. The City of Antioch was a Phase I MS4 permittee included under Order No. R5-2010-0102, NPDES No. CAS083313, which expired September 1, 2015. Although, the Central Valley Water Board (CVRWQCB-Region 5) has developed a new Region-wide MS4 permit under Order No. R5-2016-0040, NPDES No. CAS0085324, which became effective on October 1, 2016, the City of Antioch, along with all other municipalities and unincorporated County within the jurisdiction of CVRWQCB-Region 5, were approached by Region 5 to go with their Regional permit or be covered under the San Francisco Water Board (SFRWQCB)-Region 2 MS4 permit. All cities and the County recently decided to have coverage under Region 2. Both Regions were notified of the decision and the matter is now before respective staff and boards to draft a resolution. Once resolved, the City of Antioch will be Phase I MS4 permittee under order No. R2-2015-0049, MS4 NPDES No. CAS612008.

The MS4 Permit identifies conditions, requirements, and programs that municipalities must comply with to protect regional water resources from adverse impacts associated with pollutants in stormwater and urban runoff. Under the MS4 Permit, permittees are expected to reduce pollutants in stormwater discharges to the maximum extent practicable (MEP).

Impact Analysis

a) Would the project violate any water quality standards or waste discharge requirements?

LESS THAN SIGNIFICANT. The construction and operation of the proposed project would not generate additional wastewater or measurably increase urban runoff into existing storm drains. Soil exposure during excavation, grading and other construction activities would allow for possible erosion and runoff into storm drains. Thus, construction of the proposed project has the potential to violate water quality standards during construction; however, the soil exposure would be temporary, minimal and localized, thereby resulting in less than significant erosion or runoff. In addition, any on-site grading and site preparation would comply with all applicable requirements pertaining to stormwater and urban runoff, including a Stormwater Pollution and Prevention Plan (SWPPP) and compliance with the latest NPDES Stormwater Regulations. Therefore, the impact would be less than significant.

b) Would the project 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)?

NO IMPACT. The proposed project would not use groundwater resources or measurably alter ground water recharge potential. Groundwater is not expected to be encountered during construction, and dewatering would not occur in quantities that would substantially deplete groundwater supplies or interfere substantially with groundwater recharge. Changes to the groundwater supply are not anticipated because of construction and operation of the proposed project and no impact would occur.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

NO IMPACT. The proposed project would be constructed on a previously developed site and there would be no long-term changes to the existing grade or drainage pattern of the area are proposed; there would be no changes to the amount of impervious surface area at the site. Construction of the proposed project would not alter the course of a stream or river nor would it change the rate or amount of surface runoff that would result in substantial erosion or flooding. Operation of the proposed project would not be changed from the current operation of the existing water treatment plant. Therefore, no impact would result in terms of erosion, siltation or flooding on- or off-site because of construction and operation of the proposed project.

d) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

NO IMPACT. See item C) above.

e) Would the project 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?

LESS THAN SIGNIFICANT. Construction activities would comply with the project-specific SWPPP and applicable best management practices (BMPs) in order to minimize runoff of polluted stormwater from the site and from exposed or loose soils on the site during construction. The proposed project would not add impervious surfaces to the project site and would not create or contribute large additional quantities of runoff water. Consequently, impacts to stormwater systems from increased runoff volumes or polluted runoff due to construction or operation of the proposed project would be less than significant.

f) Would the project otherwise substantially degrade water quality?

LESS THAN SIGNIFICANT. As discussed in part a) above, excavation and construction activities would result in temporary, limited exposure of soils which could result in erosion and runoff into the storm drains. Thus, construction of the proposed project has the potential, albeit small, to violate water quality standards during construction if proper controls are not implemented. However, construction would be required to comply with applicable requirements for erosion and sedimentation control (as specified in the SWPPP), which

would prevent substantial soil erosion or the loss of topsoil from exposed soils. If dewatering were necessary during construction, the water would be treated as necessary and discharged into the nearby storm drain system. Construction and operations of the proposed project would result in a less than significant impact on water quality.

g) Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

NO IMPACT. The proposed project does not include any new housing and therefore, would not have an impact related to placement of housing in a flood hazard area.

h) Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?

NO IMPACT. According to FEMA floodplain mapping, the project area is in flood zone X, an area of minimal flood hazard (FEMA 2015). Thus, there would be no impact in a 100-year flood hazard area.

i) Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

LESS THAN SIGNIFICANT. The project site is in an area of dike failure in the case that the Contra Loma Reservoir Dam failed. The safety classification of this dam is "satisfactory" as determined by the Bureau of Reclamation Division of Dam Safety (City of Antioch 2003b). As the WTP currently exists on the project site, the proposed treatment changes and upgrades would not create new or increased exposure to potential risks as a result of potential failure of the dam. The impact would be less than significant.

j) Would the project result in inundation by seiche, tsunami, or mudflow?

NO IMPACT. The City of Antioch is located over 50 miles from the Pacific Coast and is surrounded by hillsides to the south. Due to this location, the proposed project would not expose people or property to flooding from seiches or tsunamis. Additionally, the hillside topography surrounding the City to the south is generally stable and is not prone to mudflows (City of Antioch 2003a). There would be no impact.

4.10 Land Use and Planning

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Physically divide an established community?				X
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?				X
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				X

Project Setting

The project site is in Contra Costa County in the City of Antioch. The land is currently zoned Open Space (OS) and Residential (R6). The nearest private residences are directly west along View Drive and northeast along Elizabeth Lane.

The project site is closed to the public and includes several structures and facilities associated with water treatment. The land cover types found at the site are predominantly paved surfaces and structures. Land uses surrounding the project site consist of a public school (Park Middle School), undeveloped open space areas, medium-low density residential uses, and neighborhood commercial uses. There are no sensitive habitats in the project vicinity and the proposed project site is not within any habitat or natural communities' conservation plans.

Impact Analysis

a) Would the project physically divide an established community?

NO IMPACT. Established communities are located adjacent to the proposed project site. The proposed project entails construction of modifications to the existing water treatment plant, and operation of the proposed project would occur on the existing site. Therefore, it would not physically divide the community and there would be no impact.

b) Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

NO IMPACT. Construction of the proposed project entails modifications to the City of Antioch's existing water treatment plant and operation would be similar to the current operations. Therefore, there would be no impacts to adjacent land uses and no conflict with general plan designations or the zoning ordinance.

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

NO IMPACT. There is no habitat conservation plan or community conservation plan applicable to the project site and no new land uses would be introduced that would substantially change the existing character of the land uses on the site or in the surrounding area. Therefore, the construction and operation of the proposed project would not conflict with habitat or natural community conservation plans.

4.11 Mineral Resources

Would the project:

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

Project Setting

The City of Antioch General Plan refers to historic mineral extraction in the southwestern portion of the General Plan study area (City of Antioch 2003b). There are no active mining sites near the proposed project site.

Impact Analysis

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

NO IMPACT. Neither the construction nor the operation of the proposed project would require the use of significant aggregate resources. Therefore, the construction and operation of the proposed project would not 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. There would be no impact.

b) Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

NO IMPACT. Neither the construction nor the operation of the proposed project would require the use of significant aggregate resources. Therefore, the construction and operation of the proposed project would not result in the loss of availability of a locally-important mineral resource recovery site. There would be no impact.

4.12 Noise

Would the project result in:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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?		X		
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			X	
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				X

Project Setting

The proposed project is located in a residential and commercial area of the City of Antioch. The nearest noise-sensitive residential receptors are approximately 75 feet from the area of construction of the storage and feed systems. Park Middle School and recreational facilities are located west of the entrance roadway and north of the plant facilities, approximately 800 feet from the area of construction. Construction activities would be limited to Monday through Friday between the hours of 7:00 AM to 6:00 PM. Nighttime construction and/or work on weekends and holidays would be permitted only under special construction circumstances.

Noise and Vibration Terminology

Noise

Noise is defined as any unwanted or objectionable sound. When noise levels increase, there may be adverse impacts to humans and the natural environment. Noise impacts can be short-term, such as temporary noise generated from construction activities, or long-term, such as the permanent operation of new facilities.

The human ear perceives sound, which is mechanical energy, as pressure on the ear. Sound level meters measure the air pressure fluctuations caused by sound waves, with separate measurements made for different sound frequency ranges. The decibel (dB) scale for describing

sound uses a logarithmic scale to account for the large range of audible sound intensities. Most sounds consist of a broad range of sound frequencies, and several frequency-weighting schemes have been used to develop composite dB scales that approximate the way the human ear responds to noise levels. The A-weighted dB scale (dBA) is the most widely used for environmental noise assessments. The scale relates sound amplitude to human sensitivity by deemphasizing the low and high-end frequencies that humans cannot hear well. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud).

Since sounds in the environment usually vary with time, they cannot simply be described with a single number. Two methods are used to describe variable sounds. These are exceedance levels and equivalent levels, both of which are derived from a large number of moment-to-moment A-weighted noise level measurements. Exceedance levels are values from the cumulative amplitude distribution of all the noise levels observed during a measurement period. These levels are designated Ln, where n represents a value from 0 to 100 percent. For example, L50 is the median noise level or the noise level in dBA exceeded 50 percent of the time during the measurement period.

The equivalent noise level (Leq) is the constant sound level that in a given period has the same sound energy level as the actual time-varying sound pressure level. Leq provides a methodology for combining noise from individual events and steady state sources into a measure of cumulative noise exposure. It is used by local jurisdictions and the Federal Highway Administration (FHWA) to evaluate noise impacts.

Since community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law requires that, for planning purposes, an artificial decibel increment be added to quiet time noise levels in a 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL) or Day-Night Noise Level (Ldn). The CNEL descriptor requires that an artificial increment of five dBA be added to the actual noise level for the hours from 7:00 a.m. to 10:00 p.m. and 10 dBA for the hours from 10:00 p.m. to 7:00 a.m. The Ldn descriptor uses the same methodology except that there is no artificial increment added to the hours between 7:00 a.m. and 10:00 p.m. Both descriptors give roughly the same 24-hour level with the CNEL being only slightly more restrictive (i.e., higher).

A key concept in evaluating potential noise impacts is the perceived effect of incremental increase in existing noise levels. The impact of increasing noise levels is presented in Table 7. For example, the table shows that an increase of 3 dBA is barely perceptible, an increase of 5 dBA is readily perceptible (noticeable), and that a 10 dBA increase would be perceived by someone to be a doubling of noise.

Table 7 Decibel Changes, Loudness and Energy Loss

Sound Level Change (dBA)	Relative Loudness	Acoustical Energy Loss (percent)
0	Reference	0
+3	Barely Perceptible Change	50
+5	Readily Perceptible Change	67
+10	Twice as Loud	90
+20	Four times as Loud	99
+30	Eight times as Loud	99.9

Source: FHWA 2011

Sound levels from isolated point sources of noise typically decrease by about 6 dBA for every doubling of distance from the noise source. When the noise source is a continuous line, such as vehicle traffic on a highway, sound levels decrease by about 3 dBA for every doubling of distance. Noise levels can also be affected by several factors other than the distance from the noise source. Topographic features and structural barriers that absorb, reflect, or scatter sound waves can affect the reduction of noise levels. Atmospheric conditions (wind speed and direction, humidity levels, and temperatures) and the presence of dense vegetation can also affect the degree to which sound is attenuated over distance.

Noise standards are typically established at the county and local level; while the USEPA and the State of California provide general guidelines. These guidelines and regulations use the dBA scale described above.

Vibration

In conjunction with noise levels and analysis of the impacts of noise, groundborne vibration can have a significant effect on persons and buildings. Construction activities have the potential to produce vibration levels that may be annoying or disturbing to humans and may cause damage to structures. Groundborne vibration from construction projects is caused by general equipment operations. For the proposed alternatives, the equipment types that could cause groundborne vibration include large bulldozers, vibratory rollers, and construction trucks.

Measurements of vibration are expressed in terms of the peak particle velocity (PPV) in the unit of inches per second. The PPV is the maximum velocity experienced by any point in a structure during a vibration event. It is an indication of the magnitude of energy transmitted through vibration. PPV is an indicator often used in determining potential damage to buildings from stress associated with blasting and other construction activities.

Construction activities can either result in continuous or single-impact (transient) vibration impacts. Typical equipment or activities that could result in continuous vibration impacts include excavation equipment, traffic, vibratory pile drivers, and vibratory compaction equipment; examples of transient vibration sources include blasting and drop balls. Some construction activities, like jackhammers or impact pile drivers, can continually generate single transient events at a high frequency; however, for evaluation purposes, these equipment would be regarded as having continuous vibration impacts. Damage thresholds for continuous sources are approximately half of the thresholds for transient sources.

While "safe" levels (i.e., levels at which damage to buildings would not occur) of continuous vibration are not well understood, research has been conducted to evaluate the effects of different vibration levels on buildings. The way in which a building is constructed and its condition influence the degree to which it can handle vibration effects. Table 8summarizes vibration levels and the reactions of people and the effects on buildings.

Table 8 Reaction of People and Damage to Buildings at Continuous Vibration Levels

PPV		Human Reaction	Effect on Buildings
mm/sec	in/sec		
0.15-0.30	0.006-0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of "architectural" damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of "architectural" damage to normal dwelling – houses with plastered walls and ceilings
10-15	0.4-0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

Source: Caltrans 2013.
Key: in/sec = inches per second; mm/sec = millimeters per second; PPV = peak particle velocity

Noise Environment

The noise environment consists of the existing ambient noise levels at the project site and the relevant local regulations and policies. Existing noise levels at the project site are moderate, consistent with the residential and commercial character of the area. The dominant sources of noise are traffic on CA HWY 4 and Lone Tree Way, to a lesser degree. Since there is no recent noise monitoring data available at or near the project site, data on noise levels provided in the USEPA document "Information on Levels of Environmental Noise Requisite to Protect Public Health with an Adequate Margin of Safety" (March 1974) were used to estimate average ambient noise levels at the project site. According to this USEPA document, the average daytime Leq is estimated to be 55 dBA (corresponding to a suburban residential area). The average daytime Leq is estimated to be 45 dBA for indoor areas such as schools.

Vibration Environment

Truck traffic on CA HWY 4 and Lone Tree Way is the only occasional perceptible source of vibration at the project site. Operation of the proposed project would not generate groundbourne vibration. With no major sources of vibration in the area, the project site would be expected to have an existing vibration level of less than 0.005 inches per second (ips) peak particle velocity, which is below the level of perceptibility as shown in Table 9.

Table 9 Summary of Vibration Levels and Effects on Humans and Buildings

PPV (in/sec)	Effects on Humans	Effects on Buildings
<0.005	Imperceptible	No effect on buildings
0.005 to 0.015	Barely perceptible	No effect on buildings
0.02 to 0.05	Level at which continuous vibrations begin to annoy people in buildings	No effect on buildings
0.1 to 0.5	Vibrations considered unacceptable for people exposed to continuous or long-term vibration	Minimal potential for damage to weak or sensitive structures.
0.5 to 1.0	Vibrations considered bothersome by most people, however tolerable if short-term in length	Threshold at which there is a risk of architectural damage to buildings with plastered ceilings and walls. Some risk to ancient monuments and ruins
1.0 to 2.0	Vibrations considered unpleasant by most people	U.S. Bureau of Mines data indicates that blasting vibration in this range will not harm most buildings. Most construction vibration limits are in this range.
>3.0	Vibration is unpleasant	Potential for architectural damage and possible minor structural damage.

Source: Michael Minor & Associates, no date.

Regulatory Setting

Federal

In the past, the USEPA coordinated all federal noise control activities through its Office of Noise Abatement and Control. However, in 1981, Congress concluded that noise issues were best handled at the state or local government level. As a result, the USEPA phased out the office's funding in 1982 as part of a shift in federal noise control policy to transfer the primary responsibility of regulating noise to state and local governments. However, the Noise Control Act of 1972 and the Quiet Communities Act of 1978 were not rescinded by Congress and remain in effect today, although essentially unfunded. Additionally, Title IV – Noise Pollution, of the Clean Air Act provides guidance to state and local entities in establishing appropriate noise control standards.

State

The state's General Plan Guidelines state that local governments must "'analyze and quantify' noise levels and the extent of noise exposure through actual measurement or the use of noise modeling." In addition to other requirements, the guidelines state that "technical data relating to mobile and point sources must be collected and synthesized into a set of noise control policies and programs that 'minimizes the exposure of community residents to excessive noise'" (California Governor's Office of Planning and Research [OPR] 2003).

Analysis of existing conditions and community tolerance for noise are used to dictate the normally acceptable community noise exposure. Measured in dBA, a normally acceptable community noise exposure is used by the state to signify satisfactory land use in relation to noise exposure. Table 10 provides community noise exposure levels associated with various land use categories.

Table 10 Noise Compatible Land Use Planning

Land use	Community Noise Exposure L_{dn} or CNEL (dBA)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential – Low Density Single Family, Duplex, Mobile Homes	50-60	55-70	70-75	75+
Residential – Multi Family	50-65	60-70	70-75	75+
Transient Lodging – Motels, Hotels	50-65	60-70	70-80	80+
Schools, Libraries, Churches, Hospitals, Nursing Homes	50-70	60-70	70-80	80+
Auditoriums, Concert Halls, Amphitheaters	N/A	50-70	N/A	65+
Sports Arena, Outdoor Spectator Sports	N/A	50-75	N/A	70+
Playgrounds, Neighborhood Parks	50-70	N/A	67-75	72+
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50-75	N/A	70-80	80+
Office Buildings, Business Commercial and Professional	50-70	67-77	75+	N/A
Industrial, Manufacturing, Utilities, Agriculture	50-75	70-80	75+	N/A

Source: OPR 2003
N/A = not applicable

While neither Caltrans nor the FHWA have adopted standards related to vibration effects, Caltrans conducted a comprehensive literature review to evaluate criteria that various researchers, organizations, and governmental agencies have proposed. Caltrans completed a synthesis of the vibration criteria to provide guidelines for the potential of vibration impacts to damage buildings. Caltrans also completed a similar synthesis of criteria for human perception of vibration impacts. Some individuals may be annoyed at barely perceptible levels of vibration, and so it is important to understand that there is a wide range of human responses to vibration (Caltrans 2013). Furthermore, vibration is seldom annoying to people who are outdoors because without the effects of the shaking of a building, the motion does not provoke the same human reaction (Federal Transit Administration [FTA] 2006). Table 11summarizes the resulting potential for adverse impacts from vibration.

Table 11 Guideline Vibration Impacts Potential Criteria

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Table 11 Guideline Vibration Impacts Potential Criteria

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Human Response		
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

Source: Caltrans 2013

Local

The proposed project is located in the City of Antioch and the relevant local regulations and policies are the Noise Objective and Policies in Chapter 11 of the 2003 General Plan and noise standards in the Antioch Municipal Code.

Noise conditions listed in the 2003 General Plan include major transportation routes, especially along CA HWY 4, the closest freeway to the proposed project. Rail lines are another source of transportation related noise. Industrial, commercial development and noise from construction activity is another major noise source. The City has no military or general aviation airports or any other ground facilities and maintenance functions related to airport operation, so there is no noise interference with residential development from airports. The 2003 Antioch General Plan aims to achieve and maintain exterior noise levels of 60 dBA CNEL for residential land uses, 65 dBA for classrooms and 70 dBA for play and sport areas and commercial uses. Additionally, the General Plan also includes requirements for temporary construction.

- Ensure that construction activities are regulated as to hours of operation in order to avoid or mitigate noise impacts on adjacent noise-sensitive land uses.
- Require proposed development adjacent to occupied noise sensitive land uses to implement a construction-related noise mitigation plan. This plan would depict the location of construction equipment storage and maintenance areas, and document methods to be employed to minimize noise impacts on adjacent noise sensitive land uses.
- Require that all construction equipment utilize noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.
- The construction-related noise mitigation plan required shall also specify that haul truck deliveries be subject to the same hours specified for construction equipment. Additionally, the plan shall denote any construction traffic haul routes where heavy trucks would exceed 100 daily trips (counting those both to and from the construction site). To the extent feasible, the plan shall denote haul routes that do not pass sensitive land uses or residential dwellings. Lastly, the construction-related noise mitigation plan shall incorporate any other restrictions imposed by the City.

The City of Antioch's noise ordinance (Section 5-17.050) requires that temporary noise barriers be constructed to minimize noise impacts and break the line of sight between the noise-sensitive use (e.g., schools during school hours) and the construction project, where construction activities adjacent to noise sensitive areas last for a year or more. Section 5-17.060 of the ordinance limits construction activity to the hours of 7:00 a.m. and 6:00 p.m. on weekdays, 8:00 a.m. to 5:00 p.m. on weekdays within 300 feet of occupied dwellings, and 9:00 a.m. to 5:00 p.m. on weekends and holidays. The City prohibits the use of construction equipment such as pile drivers, sources of impulsive sound and jack hammers on Sundays and City holidays, and requires all construction equipment powered by internal combustion engines to be properly muffles and maintained. Additionally, the unnecessary idling of internal combustion engines is prohibited.

Impact Analysis

a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

LESS THAN SIGNIFICANT WITH MITIGATION. The proposed project is located in a residential/commercial area with a residential neighborhood east of the entrance roadway and south and west of the plant facilities. The distance from the boundary of the proposed construction of the storage and feed systems to the closest residential sensitive receptor is approximately 75 feet.

Construction noise levels at and near the proposed project would fluctuate depending on the particular type, number and duration of use of various pieces of construction equipment. The construction is anticipated to be completed in approximately 12 months. Table 12 shows noise levels associated with various types of construction-related machinery that may be used during construction, and the percentage of time that the equipment would operate at full power (i.e., its loudest condition) during an hour. According to this table, temporary noise levels as high as 85 dBA could be generated at 50 feet. At the nearest sensitive receptor this maximum temporary noise level would be attenuated by distance to approximately 81 dBA. Average levels would be considerably lower.

Table 12 Demolition and Construction Equipment Source Noise Levels

Equipment Type	Usage Factor (%)	Lmax at 50 ft. (dBA)
Backhoe	40	78
Concrete Mixer Truck	40	79
Grader	40	85
Front End Loader	40	79
Paver	50	77
Roller	20	80
Tractor	40	84

Source: FHWA 2006

Construction of the proposed project would temporarily generate an increase in ambient noise levels in the project vicinity. The exposure of persons to a periodic increase in ambient

noise levels would be short-term and would not be substantial. The proposed construction activities would be limited to normal working hours, typically to between the hours of 7:00 a.m. to 6:00 p.m. on Monday through Friday, when most residents are away from their homes. However, noise regulations for the City of Antioch require construction activities within 300 feet of occupied dwellings be limited to between the hours of 8:00 a.m. to 5:00 p.m. on weekdays. Therefore, the construction schedule of the proposed project would be modified to limit all construction activities to between the hours of 8:00 a.m. and 5:00 p.m. on Monday through Friday to mitigate potential noise impacts on the surrounding homes. This would reduce construction noise impacts. Nighttime and weekend construction would be permitted only under special circumstances. The additional noise reduction measures provided below, while not required to avoid significant noise impacts, would further reduce the potential for noise impacts.

- Construction equipment, stationary and mobile, shall be equipped with properly operating and maintained muffling devices.
- Effective communication with the local residents shall be maintained during construction including keeping them informed of the schedule, duration and progress of the construction to minimize public complaints regarding noise levels.
- Material stockpiles and/or vehicle staging areas shall be located as far as practical from dwelling units.

No noise impacts to surrounding sensitive receptors would occur because of the operation of the proposed project. Construction and operation of the proposed project would have less than significant impacts, with mitigation incorporated, related to exposing persons to or generating noise levels in excess of applicable standards.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

LESS THAN SIGNIFICANT. Groundborne vibration is measured in terms of the velocity of the vibration oscillations. As with noise, a logarithmic decibel scale (VdB) is used to quantify vibration intensity. When groundborne vibration exceeds 75 to 80 VdB, it is usually perceived as annoying to building occupants. The degree of annoyance is dependent upon type of land use, individual sensitivity to vibration and the frequency of the vibration events. Typically, vibration levels must exceed 100 VdB before building damage occurs.

For the proposed project, the only major vibration-generating construction activity that would occur is soil compacting around the newly laid underground piping and repaving. Although construction of the proposed project would include heavy equipment, it is unlikely that construction would result in perceptible groundborne vibration or groundborne noise levels. Operation of the proposed project would not cause any additional groundborne vibration or noise levels. A less than significant impact would occur from construction and operation of the proposed project.

c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

LESS THAN SIGNIFICANT. Project operations would not substantially increase ambient noise levels in the project vicinity because the project equipment and operations do not generate high noise levels. There would be no new significant permanent noise sources from the completed project. As noted, the nearest noise-sensitive receptor is approximately 75 feet from the area of construction of the storage and feed systems. CA HWY 4 and Lone Tree Way traffic is the dominant source of noise at the residential receptors. Project operation noise levels at the nearest receptors would be imperceptibly higher than existing. Therefore, the impact would be less than significant.

d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

LESS THAN SIGNIFICANT. As discussed in item a) above, construction noise levels at and near the proposed project would fluctuate depending on the particular type, number and duration of use of various pieces of construction equipment. Construction would generate a temporary increase in noise levels in the project vicinity. The exposure of persons to the increase in noise levels would be short-term during the construction phase. With adherence to the noise regulations in the City of Antioch's Ordinance, the temporary increase in noise levels in the project vicinity would be less than significant.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

NO IMPACT. The nearest public or public use airport to the proposed project is the Buchanan Field Airport located approximately 17 miles from the site in the City of Concord. Therefore, the proposed project would not expose people residing or working in the project are to excessive airport-related noise levels and no impacts would occur.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

NO IMPACT. The proposed project is not located within the vicinity of a private airstrip. Therefore, the proposed project would not expose workers to excessive noise levels and no impacts would occur.

4.13 Population and Housing

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X

Project Setting

The project site is adjacent to established medium-low density residential areas.

Impact Analysis

a) Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

NO IMPACT. The proposed project is the modification of an existing water treatment plant that would not expand the current capacity. The project would not induce population growth through new homes and business or through extension of roads or other infrastructure. No growth-inducing impacts are anticipated to result from the construction and operation of the proposed project. There would be no impact.

b) Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

NO IMPACT. The proposed project is the modification of an existing water treatment plant that would not displace existing housing. In addition, the project would not create demand for additional housing or require the construction of replacement housing. Therefore, construction and operation of the proposed project would have no impact.

c) Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

NO IMPACT. The proposed project is the modification of an existing water treatment plant that would not displace existing housing. In addition, the project would not create demand for additional housing or require the construction of replacement housing. Therefore, construction and operation of the proposed project would have no impact.

4.14 Public Services

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

Project Setting

The Contra Costa County Fire Protection District is responsible for fire protection at the existing water treatment plant site. The closest fire station is located at 6500 Center Street in Clayton, approximately seven miles southwest of the project site. The Antioch Police Department is located at 300 "L" Street, approximately two miles north of the site. The school district that serves the City of Antioch is the Antioch Unified School District (AUSD). Park Middle School is located adjacent to the site. There are 34 park facilities within the City of Antioch. The closest park facility is Chichibu Park, located at Longview Road and Acorn Drive, approximately one quarter mile from the site.

Impact Analysis

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

a) Fire protection?

NO IMPACT. The proposed project would not result in an increase in demand for public services including fire protection. The presence of construction workers would be temporary during construction and the need for fire protection services would not exceed the current demand and capacity. Operation of the proposed project would not change from the current operations of the existing water treatment plant. Therefore, no new or expanded fire protection service infrastructure would need to be built in order to maintain acceptable service ratios, response times or other performance objectives. There would be no impact.

b) Police protection?

NO IMPACT. The proposed project would not result in an increase in demand for police protection during construction or operation. Therefore, no new or expanded police protection service infrastructure would need to be built in order to maintain acceptable service ratios, response times or other performance objectives. There would be no impact.

c) Schools?

NO IMPACT. The project would not induce population growth or have other growth-inducing impacts. Therefore, no new or expanded school service infrastructure would need to be built in order to maintain acceptable service ratios or other performance objectives. There would be no impact.

d) Parks?

NO IMPACT. The proposed project would not result in an increase in demand for parks during construction or operation. Therefore, no new or expanded park service infrastructure would need to be built in order to maintain acceptable service ratios or other performance objectives. There would be no impact.

e) Other Public Facilities?

NO IMPACT. The proposed project is the modification of an existing water treatment plant that would not expand the current capacity and would not have growth-inducing impacts. Therefore, no new or expanded public facilities or infrastructure would need to be built. There would be no impact.

4.15 Recreation

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X

Project Setting

The closest recreational facility is the City of Antioch's Chichibu Park, located at Longview Road and Acorn Drive, approximately one quarter mile from the site.

Impact Analysis

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

NO IMPACT. The proposed project would not induce population growth or have other growth-inducing impacts. Therefore, the project would not increase the use of existing neighborhood or regional parks or other recreational facilities. There would be no impact.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

NO IMPACT. The proposed project is the modification of an existing water treatment plant that would not expand the current capacity and would not have growth-inducing impacts. Construction and operation of the proposed project would not include recreational facilities or require construction or expansion of recreational facilities. There would be no impact.

4.16 Transportation/Traffic

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?				X
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?			X	
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?				X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Result in inadequate emergency access?				X
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?				X

Project Setting

The project is located on Putnam Street approximately 0.5 miles south of SR-4 between Lone Tree Way and G Street. SR-4 and SR-160 provide direct access to the City. SR-4 is one of the more congested freeways in Contra Costa County, particularly in the vicinity of Lone Tree Way which is approximately 0.13 miles east of the project site. Putnam Street and D Street are the main access points to the project site (see Figure 1, Location Map). G Street and Putnam Street are defined as major collectors and are two lane, two way roads and Lone Tree Way is defined as an arterial and is a four lane, two way road with a median in the center (City of Antioch 2003a). Lone Tree Way and SR-4 are both classified as truck routes (City of Antioch no date).

Level of service (LOS) is used to measure the perceptions of traffic conditions by motorists and passengers; it generally reflects driving conditions such as travel time and speed; freedom to maneuver; and, traffic interruptions (City of Antioch 2003a). The definitions of LOS measurements are summarized in Table 13. Table 14 summarizes the most recent traffic and level of service (LOS) data for roadways in the vicinity of the proposed project.

Table 13 Level of Service Definitions

Level of Service	Definition
A	Represents free flow. Individual vehicles are virtually unaffected by the presence of others in the traffic stream
B	Is in the range of stable flow, but the presence of other vehicles in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver.
C	Is in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual vehicles becomes significantly affected by interactions with other vehicles in the traffic stream.
D	Is a crowded segment of roadway with a large number of vehicles restricting mobility and a stable flow. Speed and freedom to maneuver are severely restricted, and the driver experiences a generally poor level of comfort and convenience.
E	Represents operating conditions at or near the level capacity. All speeds are reduced to a low, but relatively uniform value. Small increases in flow will cause breakdowns in traffic movement.
F	Is used to define forced or breakdown flow (stop-and-go gridlock). This condition exists when the amount of traffic exceeds the amount that can travel to a destination. Operations within the queues are characterized by stop and go waves, and they are extremely unstable.

Source: City of Antioch 2003a

Table 14 Roadways, Traffic Conditions, and Level of Service in the Project Area

Roadway	Classification	LOS E Threshold (assumed capacity of facility)	Annual Average Daily Traffic[1]
SR-4 at Contra Loma Boulevard	Divided freeway	93,600	103,000
SR-4 at G Street	Divided freeway	93,600	97,000
SR-4 at Lone Tree Way	Divided freeway	93,600	89,000
Lone Tree Way, south of Tegallas Road	Arterial	17,000	21,670
Putnam Street, east of G Street	Major collector	12,500	7,510
G Street, south of 18th Street	Major collector	12,500	6,380

Source: City of Antioch 2003a; Caltrans 2014.

Notes:

[1]Data is most recent available. For SR-4, Caltrans collects traffic data every year and for Lone Tree Way, Putnam and G streets, City data is from 2003.

Trip Generation Analysis

The proposed project would include excavation and construction activities by a Contractor, supported by City staff and subcontractors. Trucks and construction workers would access the site from Putnam Street and D Street. The Contractor would attempt to schedule truck trips outside peak morning and evening commute hours. Haul routes that minimize truck traffic on local roadways would be used to the greatest extent possible.

Construction work is anticipated to last approximately 12 months, from March 2016 to March 2017, and there would be approximately 10 trips per day over 20 work days per month for a total of 2,400 vehicle trips throughout the construction period. These trips would include trucks, other construction vehicles, and construction worker trips.

Operations Phase

Under existing conditions, the WTP receives partial loads of anhydrous ammonia (gas) every other week (total of 26 trips per year). The new ammonium sulfate ~~aqua ammonia~~ system would require approximately ~~8~~10 truckloads (trips) per year of liquid ammonium sulfate ~~aqua ammonia~~ (assuming 4,000 gallons each truckload; 10.9~~19~~% ammonia by weight).

The WTP currently receives shipments of 7 one-ton cylinders of liquid chlorine (gas) approximately 26 times per year. The new sodium hypochlorite system would require approximately 65 truckloads (trips) per year of liquid sodium hypochlorite (assuming 4,500 gallons each truckload; 12.5% by weight).

Operations of the proposed project would result in no change to the number of employees at the plant site.

a) Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

LESS THAN SIGNIFICANT. The proposed project consists of modifying an existing water treatment plant but the capacity of the plant would not be changed. Traffic increases from the proposed project would be minor, with a total of 2,400 vehicle trips over the 12 month construction period. Long-term, there would be a slight increase in truck trips associated with the new sodium hypochlorite system. This would result in an increase of approximately 40 vehicle trips per year. There would be no permanent increase in population or workforce in the area due to the project. In addition, the project does not include construction of relevant circulation system components, including intersections, streets, highways and freeways, pedestrian and bicycle paths and mass transit. Therefore, effects on the capacity of the existing circulation system would be negligible. Impacts would be less than significant.

b) Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

NO IMPACT. The Contra Costa Transportation Authority services as the Congestion Management Agency for Contra Costa County. Under Measure J, jurisdictions must conduct traffic impact analyses for any proposed development project, development plan, or General Plan Amendment that would generate more than 100 net new peak hour vehicle trips (CCTA 2015).

The operation of the proposed project would not add any new employees and would only generate approximately 40 additional vehicle trips per year for the delivery of sodium hypochlorite; as such, negligible traffic impacts would occur because of the operation of the project. Since construction activities would not add enough peak-hour trips to the existing street system to trigger further analysis and no such activities would occur on the CMP system, no impacts to traffic levels of service on the CMP system from construction and operation of the proposed project would occur.

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

NO IMPACT. The construction and operation of the proposed project would not generate air traffic nor affect such activities. No air traffic impacts would occur from construction or operation of the proposed project.

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

NO IMPACT. The proposed project would not include any public road construction nor increase hazards due to project design features (e.g., sharp curves or dangerous intersections) or incompatible uses. Therefore, no associated impacts would occur from construction and operation of the proposed project.

e) Would the project result in inadequate emergency access?

NO IMPACT. During construction of the proposed project, construction vehicles would not be parked on public roads. All construction related vehicles would be parked in the existing parking lot at the water treatment plant. Compared to existing traffic on Putnam Street and other roadways in the vicinity of the plant site, the volume of construction traffic would be minimal; therefore, construction traffic would not be expected to delay the response time of emergency vehicles on Mission Boulevard or I-680. No construction activity would take place on a public road. Construction activities would occur in accordance with the City of Antioch Engineering Division, City of Antioch Fire Department and City of Antioch Police Department. Emergency access requirements and emergency access would be maintained during construction activities. Therefore, there would be no impact on emergency access.

f) Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

NO IMPACT. No changes to transportation system components are proposed as part of the project. Therefore, the proposed project would not conflict with adopted policies supporting alternative transportation. Therefore, no impacts would result from construction and operation the proposed project.

4.17 Utilities and Service Systems

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				X
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?			X	
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?				X
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				X
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			X	
g) Comply with federal, state, and local statutes and regulations related to solid waste?				X

Project Setting

The project site is served by the local sewer system and there is no wastewater treatment facility near the project site. The proposed project is a part of the existing water supply system that currently serves the City of Antioch. Minimal solid waste from the proposed project would be generated during construction and operation.

Impact Analysis

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

NO IMPACT. The proposed project is the modification of an existing water treatment plant that would not expand the current capacity. Operation of the project would not result in an increase in the generation of wastewater or result in changes to operations at existing wastewater treatment facilities. Project operation would not exceed wastewater treatment requirements of the Central Valley RWQCB. There would be no impact.

b) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

LESS THAN SIGNIFICANT. The proposed project is the modification of an existing water treatment plant that would not expand the current capacity or result in an increase in the generation of wastewater. Therefore, the project would not require the construction of additional water or wastewater treatment facilities or require further expansion of existing facilities. Impacts from construction and operation of the proposed project would be less than significant.

c) Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

NO IMPACT. Construction of the proposed project would occur primarily in already paved areas and would negligibly change the amount of impervious surface area. New piping would be installed within trenches and disturbed areas would be re-vegetated following construction. Operation of the proposed project would not affect existing stormwater drainage facilities or require new stormwater drainage facilities. There would be no impact.

d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

NO IMPACT. The proposed project is the modification of an existing water treatment plant that would not expand the current capacity. No new or expanded water supply resources or entitlements would be needed during construction or operation of the proposed project. There would be no impact.

e) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

NO IMPACT. The proposed project is the modification of an existing water treatment plant that would not expand the current capacity or result in an increase in the generation of wastewater. The project would not affect the capacity of existing wastewater treatment facilities to serve the projected demand in addition to existing commitments. There would be no impact.

f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

LESS THAN SIGNIFICANT. Excavation and construction debris would either be recycled or transported to a landfill for appropriate disposal. It is not anticipated that there would be export of cut material from the project.

Under the City of Antioch's Code of Ordinances, the proposed project, being a city-sponsored project, is considered a "covered project" and is subject to the requirements in Title 6, Chapter 3, Article II of the code. This regulation requires the preparation and submittal of a Waste Management Plan (WMP). No site development permits are issued until the WMP Compliance Official approves the WMP for the project. As preparation and submittal of the WMP is required for the project, it is considered part of the project and not mitigation. The completed WMP would indicate:

- A list of the C&D debris material types to be generated;
- The vendor or facility that the applicant proposes to use to collect or receive the materials; and
- Acknowledgment of responsibility. The WMP shall be signed by both the contractor and owner indicating that:
    - They understand the consequences of not meeting the 50% diversion requirement including being subject to fines; and
    - They are responsible for the actions of their subcontractors with regard to this diversion requirement.

It is anticipated that the following recycling and disposal facilities would be used during construction of the proposed project:

- Recycling Center & Transfer Station operated by Contra Costa Waste Services and located at 1300 Loveridge Road, Pittsburg, CA 94565.
- Keller Canyon Landfill operated by Republic Services and located at 901 Bailey Road, Bay Point, CA 94565

Preparation of the WMP would ensure compliance with city regulations. The temporary generation of construction debris would not affect the landfill capacity significantly. Operation of the proposed project would generate minimal solid waste and would not affect landfill capacity significantly. Impacts would be less than significant.

g) Would the project comply with federal, state, and local statutes and regulations related to solid waste?

NO IMPACT. As mentioned above in item f), construction debris would be recycled or disposed of according to local and regional standards and operation of the project would generate minimal solid waste. The project would comply with federal, state, and local statutes and regulations related to solid waste. There would be no impact.

4.18 Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Does the project 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?			X	
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			X	
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

a) Does the project 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?

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. The discussion throughout the above sections, Evaluation of Environmental Effects, describes potentially significant impacts in the areas of biological resources, hazards/hazardous materials, geology and soils, and cultural resources. Mitigation measures to reduce these potential impacts to a less than significant level are described in the above sections. Therefore, with mitigation, the project would not have the potential to degrade the quality of the environment, substantially affect fish or wildlife species, or eliminate important examples of California history or prehistory.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

LESS THAN SIGNIFICANT. CEQA Guidelines (Section 15130) require an evaluation of significant environmental impacts that would result from project-related actions in combination with "closely related past, present, and probable future projects" located in the immediate vicinity (CEQA Guidelines, § 15130 [b] [1] [A]). These cumulative impacts are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines, § 15355).

The evaluation of cumulative impacts for this Initial Study considered past, present and reasonably foreseeable projects within the City of Antioch. Identification of these projects was accomplished through research of the city municipal website and consultation with city staff. The proposed project area is developed and no recent past, present, or reasonably foreseeable private projects have been identified. While the City is investigating the feasibility of implementing brackish water desalination, no project has been planned, and no expansion of the WTP is anticipated.

This initial study determined that the proposed project would have "no impact" on agricultural and forest resources, land use and planning, mineral resources, population and housing, public services, and recreation; therefore, it would not be possible for the proposed project to contribute to cumulative impacts related to these categories.

The proposed project would result in temporary, construction-related impacts to aesthetics, air quality, greenhouse gas emissions, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, transportation and traffic, utilities and service systems. As described throughout the Evaluation of Environmental Effects, potential impacts related to these resources would either be less than significant or less than significant with the implementation of appropriate mitigation measures and compliance with applicable permit requirements and proper engineering

design of the project. There would be no long-term, operations-related significant impacts to any of the resource areas analyzed in this initial study. Given the limited extent and duration of potential impacts resulting from construction and operations of the proposed project, as described, the proposed project's contribution to potentially cumulatively considerable significant impacts from past, present, and reasonably foreseeable projects in the would be less than significant.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

The discussion throughout this section, Evaluation of Environmental Effects, describes potentially significant impacts in the areas of biological resources, hazards and hazardous materials, geology and soils, and cultural resources. No significant impacts or no impacts were identified in the areas of aesthetics, agricultural resources, air quality, greenhouse gas emissions, geology and soils, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, traffic and transportation, recreation, and utilities. Therefore, with implementation of the mitigation measures described previously~~in the following section~~, the proposed project would not have the potential to cause substantial adverse effects on human beings, either directly or indirectly.

Section 5
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Appendix A

Air Quality Calculations

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Antioch WTP Disinfection Improvements Initial Study

Contra Costa County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	4.94	1000sqft	0.11	4,935.00	0
Other Asphalt Surfaces	4.94	1000sqft	0.11	4,935.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2016
Utility Company					
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Asumming one year construction in 2016, based on project description

Grading - Default

Trips and VMT - Trips provided by project engineer

Vehicle Trips - Assumes 5 workers and 2 truck trips

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	261.00
tblConstructionPhase	NumDays	1.00	261.00
tblConstructionPhase	PhaseEndDate	1/1/2018	12/31/2016
tblConstructionPhase	PhaseEndDate	12/30/2016	12/31/2016
tblConstructionPhase	PhaseStartDate	1/1/2017	1/1/2016
tblGrading	AcresOfGrading	130.50	0.50
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripNumber	0.00	2,400.00
tblVehicleTrips	ST_TR	1.32	1.42
tblVehicleTrips	SU_TR	0.68	1.42
tblVehicleTrips	WD_TR	6.97	1.42

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	2.8069	27.2038	18.6951	0.0298	0.3791	1.5319	1.9110	0.1016	1.4129	1.5145	0.0000	2,956.4639	2,956.4639	0.6071	0.0000	2,969.2136
Total	**2.8069**	**27.2038**	**18.6951**	**0.0298**	**0.3791**	**1.5319**	**1.9110**	**0.1016**	**1.4129**	**1.5145**	**0.0000**	**2,956.4639**	**2,956.4639**	**0.6071**	**0.0000**	**2,969.2136**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	2.8069	27.2038	18.6951	0.0298	0.3780	1.5319	1.9099	0.1015	1.4129	1.5144	0.0000	2,956.4639	2,956.4639	0.6071	0.0000	2,969.2136
Total	**2.8069**	**27.2038**	**18.6951**	**0.0298**	**0.3780**	**1.5319**	**1.9099**	**0.1015**	**1.4129**	**1.5144**	**0.0000**	**2,956.4639**	**2,956.4639**	**0.6071**	**0.0000**	**2,969.2136**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.30**	**0.00**	**0.06**	**0.12**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2395	1.0000e-005	1.0300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1600e-003	2.1600e-003	1.0000e-005		2.2900e-003
Energy	4.0000e-003	0.0363	0.0305	2.2000e-004		2.7600e-003	2.7600e-003		2.7600e-003	2.7600e-003		43.5998	43.5998	8.4000e-004	8.0000e-004	43.8651
Mobile	0.0288	0.0692	0.3275	5.8000e-004	0.0433	8.1000e-004	0.0441	0.0116	7.5000e-004	0.0123		50.8666	50.8666	2.3000e-003		50.9149
Total	**0.2724**	**0.1056**	**0.3590**	**8.0000e-004**	**0.0433**	**3.5700e-003**	**0.0469**	**0.0116**	**3.5100e-003**	**0.0151**		**94.4685**	**94.4685**	**3.1500e-003**	**8.0000e-004**	**94.7823**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2395	1.0000e-005	1.0300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1600e-003	2.1600e-003	1.0000e-005		2.2900e-003
Energy	4.0000e-003	0.0363	0.0305	2.2000e-004		2.7600e-003	2.7600e-003		2.7600e-003	2.7600e-003		43.5998	43.5998	8.4000e-004	8.0000e-004	43.8651
Mobile	0.0288	0.0692	0.3275	5.8000e-004	0.0433	8.1000e-004	0.0441	0.0116	7.5000e-004	0.0123		50.8666	50.8666	2.3000e-003		50.9149
Total	**0.2724**	**0.1056**	**0.3590**	**8.0000e-004**	**0.0433**	**3.5700e-003**	**0.0469**	**0.0116**	**3.5100e-003**	**0.0151**		**94.4685**	**94.4685**	**3.1500e-003**	**8.0000e-004**	**94.7823**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2016	12/31/2016	5	261	
2	Paving	Paving	1/1/2016	12/31/2016	5	261	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Site Preparation	Graders	1	8.00	174	0.41
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	2,400.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Site Preparation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.0300e-003	0.0000	2.0300e-003	2.2000e-004	0.0000	2.2000e-004			0.0000			0.0000
Off-Road	1.3593	13.6350	7.3401	9.3500e-003		0.8338	0.8338		0.7671	0.7671		973.0842	973.0842	0.2935		979.2481
Total	**1.3593**	**13.6350**	**7.3401**	**9.3500e-003**	**2.0300e-003**	**0.8338**	**0.8358**	**2.2000e-004**	**0.7671**	**0.7673**		**973.0842**	**973.0842**	**0.2935**		**979.2481**

3.2 Site Preparation - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2337	2.8004	2.7635	6.9000e-003	0.1602	0.0358	0.1960	0.0439	0.0330	0.0768		693.8864	693.8864	5.2000e-003		693.9956
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0201	0.0305	0.2822	5.3000e-004	0.0472	3.7000e-004	0.0475	0.0125	3.4000e-004	0.0129		44.7631	44.7631	2.5100e-003		44.8158
Total	**0.2538**	**2.8309**	**3.0457**	**7.4300e-003**	**0.2073**	**0.0362**	**0.2435**	**0.0564**	**0.0333**	**0.0897**		**738.6495**	**738.6495**	**7.7100e-003**		**738.8113**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.1000e-004	0.0000	9.1000e-004	1.0000e-004	0.0000	1.0000e-004			0.0000			0.0000
Off-Road	1.3593	13.6350	7.3401	9.3500e-003		0.8338	0.8338		0.7671	0.7671	0.0000	973.0842	973.0842	0.2935		979.2481
Total	**1.3593**	**13.6350**	**7.3401**	**9.3500e-003**	**9.1000e-004**	**0.8338**	**0.8347**	**1.0000e-004**	**0.7671**	**0.7672**	**0.0000**	**973.0842**	**973.0842**	**0.2935**		**979.2481**

3.2 Site Preparation - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2337	2.8004	2.7635	6.9000e-003	0.1602	0.0358	0.1960	0.0439	0.0330	0.0768		693.8864	693.8864	5.2000e-003		693.9956
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0201	0.0305	0.2822	5.3000e-004	0.0472	3.7000e-004	0.0475	0.0125	3.4000e-004	0.0129		44.7631	44.7631	2.5100e-003		44.8158
Total	**0.2538**	**2.8309**	**3.0457**	**7.4300e-003**	**0.2073**	**0.0362**	**0.2435**	**0.0564**	**0.0333**	**0.0897**		**738.6495**	**738.6495**	**7.7100e-003**		**738.8113**

3.3 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1203	10.6282	7.2935	0.0111		0.6606	0.6606		0.6113	0.6113		1,083.5832	1,083.5832	0.2969		1,089.8175
Paving	1.1000e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1214**	**10.6282**	**7.2935**	**0.0111**		**0.6606**	**0.6606**		**0.6113**	**0.6113**		**1,083.5832**	**1,083.5832**	**0.2969**		**1,089.8175**

3.3 Paving - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0724	0.1097	1.0158	1.9200e-003	0.1698	1.3400e-003	0.1711	0.0450	1.2200e-003	0.0462		161.1470	161.1470	9.0400e-003		161.3368
Total	**0.0724**	**0.1097**	**1.0158**	**1.9200e-003**	**0.1698**	**1.3400e-003**	**0.1711**	**0.0450**	**1.2200e-003**	**0.0462**		**161.1470**	**161.1470**	**9.0400e-003**		**161.3368**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1203	10.6282	7.2935	0.0111		0.6606	0.6606		0.6113	0.6113	0.0000	1,083.5832	1,083.5832	0.2969		1,089.8175
Paving	1.1000e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1214**	**10.6282**	**7.2935**	**0.0111**		**0.6606**	**0.6606**		**0.6113**	**0.6113**	**0.0000**	**1,083.5832**	**1,083.5832**	**0.2969**		**1,089.8175**

3.3 Paving - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0724	0.1097	1.0158	1.9200e-003	0.1698	1.3400e-003	0.1711	0.0450	1.2200e-003	0.0462		161.1470	161.1470	9.0400e-003		161.3368
Total	**0.0724**	**0.1097**	**1.0158**	**1.9200e-003**	**0.1698**	**1.3400e-003**	**0.1711**	**0.0450**	**1.2200e-003**	**0.0462**		**161.1470**	**161.1470**	**9.0400e-003**		**161.3368**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0288	0.0692	0.3275	5.8000e-004	0.0433	8.1000e-004	0.0441	0.0116	7.5000e-004	0.0123		50.8666	50.8666	2.3000e-003		50.9149
Unmitigated	0.0288	0.0692	0.3275	5.8000e-004	0.0433	8.1000e-004	0.0441	0.0116	7.5000e-004	0.0123		50.8666	50.8666	2.3000e-003		50.9149

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	7.01	7.01	7.01	20,459	20,459
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	7.01	7.01	7.01	20,459	20,459

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.527627	0.065080	0.176461	0.145848	0.036424	0.004888	0.009671	0.020781	0.001221	0.001487	0.006359	0.002101	0.002052

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	4.0000e-003	0.0363	0.0305	2.2000e-004		2.7600e-003	2.7600e-003		2.7600e-003	2.7600e-003		43.5998	43.5998	8.4000e-004	8.0000e-004	43.8651
NaturalGas Unmitigated	4.0000e-003	0.0363	0.0305	2.2000e-004		2.7600e-003	2.7600e-003		2.7600e-003	2.7600e-003		43.5998	43.5998	8.4000e-004	8.0000e-004	43.8651

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	370.598	4.0000e-003	0.0363	0.0305	2.2000e-004		2.7600e-003	2.7600e-003		2.7600e-003	2.7600e-003		43.5998	43.5998	8.4000e-004	8.0000e-004	43.8651
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.0000e-003**	**0.0363**	**0.0305**	**2.2000e-004**		**2.7600e-003**	**2.7600e-003**		**2.7600e-003**	**2.7600e-003**		**43.5998**	**43.5998**	**8.4000e-004**	**8.0000e-004**	**43.8651**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
General Light Industry	0.370598	4.0000e-003	0.0363	0.0305	2.2000e-004		2.7600e-003	2.7600e-003		2.7600e-003	2.7600e-003		43.5998	43.5998	8.4000e-004	8.0000e-004	43.8651
Total		**4.0000e-003**	**0.0363**	**0.0305**	**2.2000e-004**		**2.7600e-003**	**2.7600e-003**		**2.7600e-003**	**2.7600e-003**		**43.5998**	**43.5998**	**8.4000e-004**	**8.0000e-004**	**43.8651**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2395	1.0000e-005	1.0300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1600e-003	2.1600e-003	1.0000e-005		2.2900e-003
Unmitigated	0.2395	1.0000e-005	1.0300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1600e-003	2.1600e-003	1.0000e-005		2.2900e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0282					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2112					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-004	1.0000e-005	1.0300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1600e-003	2.1600e-003	1.0000e-005		2.2900e-003
Total	**0.2395**	**1.0000e-005**	**1.0300e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.1600e-003**	**2.1600e-003**	**1.0000e-005**		**2.2900e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0282					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2112					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-004	1.0000e-005	1.0300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1600e-003	2.1600e-003	1.0000e-005		2.2900e-003
Total	**0.2395**	**1.0000e-005**	**1.0300e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.1600e-003**	**2.1600e-003**	**1.0000e-005**		**2.2900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Vegetation

Antioch WTP Disinfection Improvements Initial Study

Contra Costa County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	4.94	1000sqft	0.11	4,935.00	0
Other Asphalt Surfaces	4.94	1000sqft	0.11	4,935.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2016
Utility Company					
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Asumming one year construction in 2016, based on project description

Grading - Default

Trips and VMT - Trips provided by project engineer

Vehicle Trips - Assumes 5 workers and 2 truck trips

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	261.00
tblConstructionPhase	NumDays	1.00	261.00
tblConstructionPhase	PhaseEndDate	1/1/2018	12/31/2016
tblConstructionPhase	PhaseEndDate	12/30/2016	12/31/2016
tblConstructionPhase	PhaseStartDate	1/1/2017	1/1/2016
tblGrading	AcresOfGrading	130.50	0.50
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripNumber	0.00	2,400.00
tblVehicleTrips	ST_TR	1.32	1.42
tblVehicleTrips	SU_TR	0.68	1.42
tblVehicleTrips	WD_TR	6.97	1.42

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	2.7722	27.0354	17.8606	0.0301	0.3791	1.5318	1.9109	0.1016	1.4128	1.5144	0.0000	2,979.2131	2,979.2131	0.6071	0.0000	2,991.9615
Total	**2.7722**	**27.0354**	**17.8606**	**0.0301**	**0.3791**	**1.5318**	**1.9109**	**0.1016**	**1.4128**	**1.5144**	**0.0000**	**2,979.2131**	**2,979.2131**	**0.6071**	**0.0000**	**2,991.9615**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	2.7722	27.0354	17.8606	0.0301	0.3780	1.5318	1.9098	0.1015	1.4128	1.5143	0.0000	2,979.2131	2,979.2131	0.6071	0.0000	2,991.9615
Total	**2.7722**	**27.0354**	**17.8606**	**0.0301**	**0.3780**	**1.5318**	**1.9098**	**0.1015**	**1.4128**	**1.5143**	**0.0000**	**2,979.2131**	**2,979.2131**	**0.6071**	**0.0000**	**2,991.9615**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.30**	**0.00**	**0.06**	**0.12**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2395	1.0000e-005	1.0300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1600e-003	2.1600e-003	1.0000e-005		2.2900e-003
Energy	4.0000e-003	0.0363	0.0305	2.2000e-004		2.7600e-003	2.7600e-003		2.7600e-003	2.7600e-003		43.5998	43.5998	8.4000e-004	8.0000e-004	43.8651
Mobile	0.0285	0.0618	0.3047	6.3000e-004	0.0433	8.1000e-004	0.0441	0.0116	7.4000e-004	0.0123		54.9808	54.9808	2.3000e-003		55.0291
Total	**0.2721**	**0.0981**	**0.3362**	**8.5000e-004**	**0.0433**	**3.5700e-003**	**0.0469**	**0.0116**	**3.5000e-003**	**0.0151**		**98.5828**	**98.5828**	**3.1500e-003**	**8.0000e-004**	**98.8965**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2395	1.0000e-005	1.0300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1600e-003	2.1600e-003	1.0000e-005		2.2900e-003
Energy	4.0000e-003	0.0363	0.0305	2.2000e-004		2.7600e-003	2.7600e-003		2.7600e-003	2.7600e-003		43.5998	43.5998	8.4000e-004	8.0000e-004	43.8651
Mobile	0.0285	0.0618	0.3047	6.3000e-004	0.0433	8.1000e-004	0.0441	0.0116	7.4000e-004	0.0123		54.9808	54.9808	2.3000e-003		55.0291
Total	**0.2721**	**0.0981**	**0.3362**	**8.5000e-004**	**0.0433**	**3.5700e-003**	**0.0469**	**0.0116**	**3.5000e-003**	**0.0151**		**98.5828**	**98.5828**	**3.1500e-003**	**8.0000e-004**	**98.8965**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2016	12/31/2016	5	261	
2	Paving	Paving	1/1/2016	12/31/2016	5	261	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Site Preparation	Graders	1	8.00	174	0.41
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	2,400.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Site Preparation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.0300e-003	0.0000	2.0300e-003	2.2000e-004	0.0000	2.2000e-004			0.0000			0.0000
Off-Road	1.3593	13.6350	7.3401	9.3500e-003		0.8338	0.8338		0.7671	0.7671		973.0842	973.0842	0.2935		979.2481
Total	**1.3593**	**13.6350**	**7.3401**	**9.3500e-003**	**2.0300e-003**	**0.8338**	**0.8358**	**2.2000e-004**	**0.7671**	**0.7673**		**973.0842**	**973.0842**	**0.2935**		**979.2481**

3.2 Site Preparation - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1958	2.6586	1.8662	6.9000e-003	0.1602	0.0357	0.1959	0.0439	0.0329	0.0767		695.5116	695.5116	5.1300e-003		695.6194
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0208	0.0247	0.2958	5.9000e-004	0.0472	3.7000e-004	0.0475	0.0125	3.4000e-004	0.0129		49.3552	49.3552	2.5100e-003		49.4080
Total	**0.2166**	**2.6833**	**2.1620**	**7.4900e-003**	**0.2073**	**0.0361**	**0.2434**	**0.0564**	**0.0332**	**0.0896**		**744.8669**	**744.8669**	**7.6400e-003**		**745.0274**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.1000e-004	0.0000	9.1000e-004	1.0000e-004	0.0000	1.0000e-004			0.0000			0.0000
Off-Road	1.3593	13.6350	7.3401	9.3500e-003		0.8338	0.8338		0.7671	0.7671	0.0000	973.0842	973.0842	0.2935		979.2481
Total	**1.3593**	**13.6350**	**7.3401**	**9.3500e-003**	**9.1000e-004**	**0.8338**	**0.8347**	**1.0000e-004**	**0.7671**	**0.7672**	**0.0000**	**973.0842**	**973.0842**	**0.2935**		**979.2481**

3.2 Site Preparation - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1958	2.6586	1.8662	6.9000e-003	0.1602	0.0357	0.1959	0.0439	0.0329	0.0767		695.5116	695.5116	5.1300e-003		695.6194
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0208	0.0247	0.2958	5.9000e-004	0.0472	3.7000e-004	0.0475	0.0125	3.4000e-004	0.0129		49.3552	49.3552	2.5100e-003		49.4080
Total	**0.2166**	**2.6833**	**2.1620**	**7.4900e-003**	**0.2073**	**0.0361**	**0.2434**	**0.0564**	**0.0332**	**0.0896**		**744.8669**	**744.8669**	**7.6400e-003**		**745.0274**

3.3 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1203	10.6282	7.2935	0.0111		0.6606	0.6606		0.6113	0.6113		1,083.5832	1,083.5832	0.2969		1,089.8175
Paving	1.1000e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1214**	**10.6282**	**7.2935**	**0.0111**		**0.6606**	**0.6606**		**0.6113**	**0.6113**		**1,083.5832**	**1,083.5832**	**0.2969**		**1,089.8175**

3.3 Paving - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0749	0.0889	1.0649	2.1200e-003	0.1698	1.3400e-003	0.1711	0.0450	1.2200e-003	0.0462		177.6788	177.6788	9.0400e-003		177.8686
Total	**0.0749**	**0.0889**	**1.0649**	**2.1200e-003**	**0.1698**	**1.3400e-003**	**0.1711**	**0.0450**	**1.2200e-003**	**0.0462**		**177.6788**	**177.6788**	**9.0400e-003**		**177.8686**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1203	10.6282	7.2935	0.0111		0.6606	0.6606		0.6113	0.6113	0.0000	1,083.5832	1,083.5832	0.2969		1,089.8175
Paving	1.1000e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1214**	**10.6282**	**7.2935**	**0.0111**		**0.6606**	**0.6606**		**0.6113**	**0.6113**	**0.0000**	**1,083.5832**	**1,083.5832**	**0.2969**		**1,089.8175**

3.3 Paving - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0749	0.0889	1.0649	2.1200e-003	0.1698	1.3400e-003	0.1711	0.0450	1.2200e-003	0.0462		177.6788	177.6788	9.0400e-003		177.8686
Total	**0.0749**	**0.0889**	**1.0649**	**2.1200e-003**	**0.1698**	**1.3400e-003**	**0.1711**	**0.0450**	**1.2200e-003**	**0.0462**		**177.6788**	**177.6788**	**9.0400e-003**		**177.8686**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0285	0.0618	0.3047	6.3000e-004	0.0433	8.1000e-004	0.0441	0.0116	7.4000e-004	0.0123		54.9808	54.9808	2.3000e-003		55.0291
Unmitigated	0.0285	0.0618	0.3047	6.3000e-004	0.0433	8.1000e-004	0.0441	0.0116	7.4000e-004	0.0123		54.9808	54.9808	2.3000e-003		55.0291

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	7.01	7.01	7.01	20,459	20,459
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	7.01	7.01	7.01	20,459	20,459

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.527627	0.065080	0.176461	0.145848	0.036424	0.004888	0.009671	0.020781	0.001221	0.001487	0.006359	0.002101	0.002052

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	4.0000e-003	0.0363	0.0305	2.2000e-004		2.7600e-003	2.7600e-003		2.7600e-003	2.7600e-003		43.5998	43.5998	8.4000e-004	8.0000e-004	43.8651
NaturalGas Unmitigated	4.0000e-003	0.0363	0.0305	2.2000e-004		2.7600e-003	2.7600e-003		2.7600e-003	2.7600e-003		43.5998	43.5998	8.4000e-004	8.0000e-004	43.8651

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	370.598	4.0000e-003	0.0363	0.0305	2.2000e-004		2.7600e-003	2.7600e-003		2.7600e-003	2.7600e-003		43.5998	43.5998	8.4000e-004	8.0000e-004	43.8651
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.0000e-003**	**0.0363**	**0.0305**	**2.2000e-004**		**2.7600e-003**	**2.7600e-003**		**2.7600e-003**	**2.7600e-003**		**43.5998**	**43.5998**	**8.4000e-004**	**8.0000e-004**	**43.8651**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
General Light Industry	0.370598	4.0000e-003	0.0363	0.0305	2.2000e-004		2.7600e-003	2.7600e-003		2.7600e-003	2.7600e-003		43.5998	43.5998	8.4000e-004	8.0000e-004	43.8651
Total		**4.0000e-003**	**0.0363**	**0.0305**	**2.2000e-004**		**2.7600e-003**	**2.7600e-003**		**2.7600e-003**	**2.7600e-003**		**43.5998**	**43.5998**	**8.4000e-004**	**8.0000e-004**	**43.8651**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2395	1.0000e-005	1.0300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1600e-003	2.1600e-003	1.0000e-005		2.2900e-003
Unmitigated	0.2395	1.0000e-005	1.0300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1600e-003	2.1600e-003	1.0000e-005		2.2900e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0282					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2112					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-004	1.0000e-005	1.0300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1600e-003	2.1600e-003	1.0000e-005		2.2900e-003
Total	**0.2395**	**1.0000e-005**	**1.0300e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.1600e-003**	**2.1600e-003**	**1.0000e-005**		**2.2900e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0282					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2112					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-004	1.0000e-005	1.0300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.1600e-003	2.1600e-003	1.0000e-005		2.2900e-003
Total	**0.2395**	**1.0000e-005**	**1.0300e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.1600e-003**	**2.1600e-003**	**1.0000e-005**		**2.2900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Vegetation

Antioch WTP Disinfection Improvements Initial Study

Contra Costa County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	4.94	1000sqft	0.11	4,935.00	0
Other Asphalt Surfaces	4.94	1000sqft	0.11	4,935.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2016
Utility Company					
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Asumming one year construction in 2016, based on project description

Grading - Default

Trips and VMT - Trips provided by project engineer

Vehicle Trips - Assumes 5 workers and 2 truck trips

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	261.00
tblConstructionPhase	NumDays	1.00	261.00
tblConstructionPhase	PhaseEndDate	1/1/2018	12/31/2016
tblConstructionPhase	PhaseEndDate	12/30/2016	12/31/2016
tblConstructionPhase	PhaseStartDate	1/1/2017	1/1/2016
tblGrading	AcresOfGrading	130.50	0.50
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripNumber	0.00	2,400.00
tblVehicleTrips	ST_TR	1.32	1.42
tblVehicleTrips	SU_TR	0.68	1.42
tblVehicleTrips	WD_TR	6.97	1.42

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.3628	3.5428	2.3718	3.8900e-003	0.0479	0.1999	0.2478	0.0129	0.1844	0.1972	0.0000	350.4216	350.4216	0.0719	0.0000	351.9310
Total	**0.3628**	**3.5428**	**2.3718**	**3.8900e-003**	**0.0479**	**0.1999**	**0.2478**	**0.0129**	**0.1844**	**0.1972**	**0.0000**	**350.4216**	**350.4216**	**0.0719**	**0.0000**	**351.9310**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.3628	3.5428	2.3718	3.8900e-003	0.0477	0.1999	0.2476	0.0129	0.1844	0.1972	0.0000	350.4214	350.4214	0.0719	0.0000	351.9307
Total	**0.3628**	**3.5428**	**2.3718**	**3.8900e-003**	**0.0477**	**0.1999**	**0.2476**	**0.0129**	**0.1844**	**0.1972**	**0.0000**	**350.4214**	**350.4214**	**0.0719**	**0.0000**	**351.9307**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.31**	**0.00**	**0.06**	**0.16**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0437	0.0000	9.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8000e-004	1.8000e-004	0.0000	0.0000	1.9000e-004
Energy	7.3000e-004	6.6300e-003	5.5700e-003	4.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	7.2184	7.2184	1.4000e-004	1.3000e-004	7.2624
Mobile	4.9000e-003	0.0120	0.0548	1.1000e-004	7.6100e-003	1.5000e-004	7.7600e-003	2.0400e-003	1.4000e-004	2.1700e-003	0.0000	8.4735	8.4735	3.8000e-004	0.0000	8.4814
Waste						0.0000	0.0000		0.0000	0.0000	1.2403	0.0000	1.2403	0.0733	0.0000	2.7795
Water						0.0000	0.0000		0.0000	0.0000	0.3617	0.0000	0.3617	0.0372	8.8000e-004	1.4137
Total	**0.0493**	**0.0186**	**0.0604**	**1.5000e-004**	**7.6100e-003**	**6.5000e-004**	**8.2600e-003**	**2.0400e-003**	**6.4000e-004**	**2.6700e-003**	**1.6020**	**15.6921**	**17.2940**	**0.1110**	**1.0100e-003**	**19.9373**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0437	0.0000	9.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8000e-004	1.8000e-004	0.0000	0.0000	1.9000e-004
Energy	7.3000e-004	6.6300e-003	5.5700e-003	4.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	7.2184	7.2184	1.4000e-004	1.3000e-004	7.2624
Mobile	4.9000e-003	0.0120	0.0548	1.1000e-004	7.6100e-003	1.5000e-004	7.7600e-003	2.0400e-003	1.4000e-004	2.1700e-003	0.0000	8.4735	8.4735	3.8000e-004	0.0000	8.4814
Waste						0.0000	0.0000		0.0000	0.0000	1.2403	0.0000	1.2403	0.0733	0.0000	2.7795
Water						0.0000	0.0000		0.0000	0.0000	0.3617	0.0000	0.3617	0.0372	8.8000e-004	1.4137
Total	**0.0493**	**0.0186**	**0.0604**	**1.5000e-004**	**7.6100e-003**	**6.5000e-004**	**8.2600e-003**	**2.0400e-003**	**6.4000e-004**	**2.6700e-003**	**1.6020**	**15.6921**	**17.2940**	**0.1110**	**1.0100e-003**	**19.9373**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2016	12/31/2016	5	261	
2	Paving	Paving	1/1/2016	12/31/2016	5	261	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Site Preparation	Graders	1	8.00	174	0.41
Paving	Pavers	1	7.00	125	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	2,400.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Clean Paved Roads

3.2 Site Preparation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1774	1.7794	0.9579	1.2200e-003		0.1088	0.1088		0.1001	0.1001	0.0000	115.2011	115.2011	0.0348	0.0000	115.9308
Total	**0.1774**	**1.7794**	**0.9579**	**1.2200e-003**	**2.7000e-004**	**0.1088**	**0.1091**	**3.0000e-005**	**0.1001**	**0.1001**	**0.0000**	**115.2011**	**115.2011**	**0.0348**	**0.0000**	**115.9308**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0278	0.3598	0.2998	9.0000e-004	0.0203	4.6700e-003	0.0249	5.5700e-003	4.2900e-003	9.8600e-003	0.0000	82.2592	82.2592	6.1000e-004	0.0000	82.2720
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4600e-003	3.6100e-003	0.0353	7.0000e-005	5.9400e-003	5.0000e-005	5.9900e-003	1.5800e-003	4.0000e-005	1.6200e-003	0.0000	5.3649	5.3649	3.0000e-004	0.0000	5.3711
Total	**0.0302**	**0.3634**	**0.3351**	**9.7000e-004**	**0.0262**	**4.7200e-003**	**0.0309**	**7.1500e-003**	**4.3300e-003**	**0.0115**	**0.0000**	**87.6241**	**87.6241**	**9.1000e-004**	**0.0000**	**87.6431**

3.2 Site Preparation - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.2000e-004	0.0000	1.2000e-004	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1774	1.7794	0.9579	1.2200e-003		0.1088	0.1088		0.1001	0.1001	0.0000	115.2010	115.2010	0.0348	0.0000	115.9307
Total	**0.1774**	**1.7794**	**0.9579**	**1.2200e-003**	**1.2000e-004**	**0.1088**	**0.1089**	**1.0000e-005**	**0.1001**	**0.1001**	**0.0000**	**115.2010**	**115.2010**	**0.0348**	**0.0000**	**115.9307**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0278	0.3598	0.2998	9.0000e-004	0.0203	4.6700e-003	0.0249	5.5700e-003	4.2900e-003	9.8600e-003	0.0000	82.2592	82.2592	6.1000e-004	0.0000	82.2720
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4600e-003	3.6100e-003	0.0353	7.0000e-005	5.9400e-003	5.0000e-005	5.9900e-003	1.5800e-003	4.0000e-005	1.6200e-003	0.0000	5.3649	5.3649	3.0000e-004	0.0000	5.3711
Total	**0.0302**	**0.3634**	**0.3351**	**9.7000e-004**	**0.0262**	**4.7200e-003**	**0.0309**	**7.1500e-003**	**4.3300e-003**	**0.0115**	**0.0000**	**87.6241**	**87.6241**	**9.1000e-004**	**0.0000**	**87.6431**

3.3 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1462	1.3870	0.9518	1.4500e-003		0.0862	0.0862		0.0798	0.0798	0.0000	128.2828	128.2828	0.0352	0.0000	129.0209
Paving	1.4000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1463**	**1.3870**	**0.9518**	**1.4500e-003**		**0.0862**	**0.0862**		**0.0798**	**0.0798**	**0.0000**	**128.2828**	**128.2828**	**0.0352**	**0.0000**	**129.0209**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.8500e-003	0.0130	0.1270	2.5000e-004	0.0214	1.7000e-004	0.0216	5.6900e-003	1.6000e-004	5.8500e-003	0.0000	19.3137	19.3137	1.0700e-003	0.0000	19.3361
Total	**8.8500e-003**	**0.0130**	**0.1270**	**2.5000e-004**	**0.0214**	**1.7000e-004**	**0.0216**	**5.6900e-003**	**1.6000e-004**	**5.8500e-003**	**0.0000**	**19.3137**	**19.3137**	**1.0700e-003**	**0.0000**	**19.3361**

3.3 Paving - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1462	1.3870	0.9518	1.4500e-003		0.0862	0.0862		0.0798	0.0798	0.0000	128.2827	128.2827	0.0352	0.0000	129.0207
Paving	1.4000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1463**	**1.3870**	**0.9518**	**1.4500e-003**		**0.0862**	**0.0862**		**0.0798**	**0.0798**	**0.0000**	**128.2827**	**128.2827**	**0.0352**	**0.0000**	**129.0207**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.8500e-003	0.0130	0.1270	2.5000e-004	0.0214	1.7000e-004	0.0216	5.6900e-003	1.6000e-004	5.8500e-003	0.0000	19.3137	19.3137	1.0700e-003	0.0000	19.3361
Total	**8.8500e-003**	**0.0130**	**0.1270**	**2.5000e-004**	**0.0214**	**1.7000e-004**	**0.0216**	**5.6900e-003**	**1.6000e-004**	**5.8500e-003**	**0.0000**	**19.3137**	**19.3137**	**1.0700e-003**	**0.0000**	**19.3361**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.9000e-003	0.0120	0.0548	1.1000e-004	7.6100e-003	1.5000e-004	7.7600e-003	2.0400e-003	1.4000e-004	2.1700e-003	0.0000	8.4735	8.4735	3.8000e-004	0.0000	8.4814
Unmitigated	4.9000e-003	0.0120	0.0548	1.1000e-004	7.6100e-003	1.5000e-004	7.7600e-003	2.0400e-003	1.4000e-004	2.1700e-003	0.0000	8.4735	8.4735	3.8000e-004	0.0000	8.4814

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	7.01	7.01	7.01	20,459	20,459
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	7.01	7.01	7.01	20,459	20,459

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.527627	0.065080	0.176461	0.145848	0.036424	0.004888	0.009671	0.020781	0.001221	0.001487	0.006359	0.002101	0.002052

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	7.3000e-004	6.6300e-003	5.5700e-003	4.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	7.2184	7.2184	1.4000e-004	1.3000e-004	7.2624
NaturalGas Unmitigated	7.3000e-004	6.6300e-003	5.5700e-003	4.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	7.2184	7.2184	1.4000e-004	1.3000e-004	7.2624

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Light Industry	135268	7.3000e-004	6.6300e-003	5.5700e-003	4.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	7.2184	7.2184	1.4000e-004	1.3000e-004	7.2624
Total		**7.3000e-004**	**6.6300e-003**	**5.5700e-003**	**4.0000e-005**		**5.0000e-004**	**5.0000e-004**		**5.0000e-004**	**5.0000e-004**	**0.0000**	**7.2184**	**7.2184**	**1.4000e-004**	**1.3000e-004**	**7.2624**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Light Industry	135268	7.3000e-004	6.6300e-003	5.5700e-003	4.0000e-005		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	7.2184	7.2184	1.4000e-004	1.3000e-004	7.2624
Total		**7.3000e-004**	**6.6300e-003**	**5.5700e-003**	**4.0000e-005**		**5.0000e-004**	**5.0000e-004**		**5.0000e-004**	**5.0000e-004**	**0.0000**	**7.2184**	**7.2184**	**1.4000e-004**	**1.3000e-004**	**7.2624**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	44563	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	44563	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0437	0.0000	9.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8000e-004	1.8000e-004	0.0000	0.0000	1.9000e-004
Unmitigated	0.0437	0.0000	9.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8000e-004	1.8000e-004	0.0000	0.0000	1.9000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	5.1500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0386					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	9.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8000e-004	1.8000e-004	0.0000	0.0000	1.9000e-004
Total	**0.0437**	**0.0000**	**9.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.8000e-004**	**1.8000e-004**	**0.0000**	**0.0000**	**1.9000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	5.1500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0386					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	9.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8000e-004	1.8000e-004	0.0000	0.0000	1.9000e-004
Total	**0.0437**	**0.0000**	**9.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.8000e-004**	**1.8000e-004**	**0.0000**	**0.0000**	**1.9000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.3617	0.0372	8.8000e-004	1.4137
Unmitigated	0.3617	0.0372	8.8000e-004	1.4137

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	1.14006 / 0	0.3617	0.0372	8.8000e-004	1.4137
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.3617**	**0.0372**	**8.8000e-004**	**1.4137**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	1.14006 / 0	0.3617	0.0372	8.8000e-004	1.4137
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.3617**	**0.0372**	**8.8000e-004**	**1.4137**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.2403	0.0733	0.0000	2.7795
Unmitigated	1.2403	0.0733	0.0000	2.7795

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	6.11	1.2403	0.0733	0.0000	2.7795
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**1.2403**	**0.0733**	**0.0000**	**2.7795**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	6.11	1.2403	0.0733	0.0000	2.7795
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**1.2403**	**0.0733**	**0.0000**	**2.7795**

9.0 Operational Offroad

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

10.0 Vegetation

Appendix B

Notice of Intent

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PW 240-29

Notice of Intent to Adopt an Initial Study and Mitigated Negative Declaration

FILED
FEB 05 2016
J.E. CANCIAMILLA COUNTY CLERK
CONTRA COSTA COUNTY
BY DEPUTY

DATE: January 26, 2016

TO: Responsible Agencies, Interested Parties, and Organizations

SUBJECT: **NOTICE OF INTENT TO ADOPT AN INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION FOR THE ANTIOCH WATER TREATMENT PLANT DISINFECTION IMPROVEMENTS PROJECT (P.W. 246-29)**

The City of Antioch Public Works Department Capital Improvements Division is the Lead Agency for the proposed Antioch Water Treatment Plant Disinfection Improvements (Project). In compliance with the California Environmental Quality Act (CEQA), an Initial Study and Mitigated Negative Declaration (IS/MND) was prepared for the Project. The purpose of an IS/MND is to provide decision makers, public agencies, and the general public with an objective and informative document that facilitates a basic understanding of the Project and fully discloses the potential environmental effects associated with the Project, including direct, indirect, and cumulative environmental effects. The City of Antioch will use the IS/MND to obtain permits, agreements, and approvals from necessary agencies to implement the Project.

Project Location: The Project is located within the Antioch Water Treatment Plant (WTP) at 401 Putnam Street in the City of Antioch, Contra Costa County, California.

Project Description: The Project is intended to replace two existing disinfection chemical systems at the Antioch WTP with new liquid chemical systems: 1) Liquid sodium hypochlorite (12.5% NaOCl by weight) will replace chlorine (Cl_2) gas; and 2) Liquid aqua ammonia (19% NH_4OH by weight) will replace anhydrous ammonia (NH_3) gas. Chlorine and ammonia (in gas or liquid forms) provide primary disinfection of pathogens and residual disinfection throughout the City's drinking water distribution system; and are essential to meeting primary drinking water standards established by the United States Environmental Protection Agency and State of California Water Resources Control Board Division of Drinking Water. The objectives of the project include: 1) mitigate the risks to the community, operating staff and environment associated with accidental spills or leaks of gaseous chlorine and ammonia during the transportation and application of these chemicals in the drinking water treatment process; 2) Improve the reliability of the disinfection systems; and 3) Reduce the costs to permit and maintain the chlorine gas and anhydrous ammonia systems.

The Project work activities would occur within the Antioch WTP site; with the majority of construction and facilities located within existing buildings and existing outdoor chemical containment areas. Major components include: 4 new outdoor chemical storage tanks; 2 new canopies over the tanks; safety improvements to the chemical containment areas; 8 to 10 new chemical metering pumps; removal and disposal of existing chemical system equipment; and associated electrical, piping and control system improvements. The duration of construction is estimated at 13 to 15 months.

Potentially Significant Environmental Impacts: All impacts would be reduced to a less than significant level with the implementation of mitigation measures.

Public Review Period: In compliance with CEQA, the City of Antioch Public Works Department, Capital Improvements Division has established a 30-day public review period beginning February 3, 2016 to solicit comments and input on the Draft IS/MND.

To ensure that all environmental issues are fully identified and adequately addressed, written comments are invited from all interested parties. Written comments regarding the scope and content of information in the Draft IS/MND should be submitted no later than 5:00 pm on March 4, 2016 to:

CDM Smith
1755 Creekside Oaks Drive
Suite 200
Sacramento, CA 95833

Attn: Gwen Pelletier/Antioch WTP Disinfection Improvements IS/MND

Correspondence and comments regarding the scope and content of information in the Draft IS/MND may also be submitted to: Gwen Pelletier, Senior Planner, CDM Smith (916) 657-7517, email: PelletierGA@CDMSmith.com.

Document Availability: Copies of the Mitigated Negative Declaration are available for review Monday through Friday, between the hours of 8:00 a.m. and 11:30 a.m., and between the hours of 1:00 p.m. and 5:00 p.m. by appointment only, at the City of Antioch City Hall, Community Development Department, 3rd and H Street, Antioch, CA, except on specified holidays. The Mitigated Negative Declaration is also available online at: www.ci.antioch.ca.us and at the Contra Costa County Public Library, at 501 W. Eighteenth Street, Antioch, California.

03 FEB 2016

Scott Buenting, P.E.
Project Manager
City of Antioch Public Works Department

CLERK'S CERTIFICATION OF POSTING

CONTRA COSTA COUNTY
P.O. Box 350
Martinez, CA 94553

I certify that I am an employee of the county of Contra Costa and that a true copy of the foregoing notice for project:

ANTIOCH WATER TREATMENT PLANT DISINFECTION IMPROVEMENTS PROJECT (P.W. 246-29)

(Project Name)

was posted for review at:

Contra Costa County Clerk-Recorder's Office
555 Escobar Street
Martinez, CA 94553

This notice was posted for a minimum of 35 days on 02/05/2016
(Filing Date)

Dated: APR 01 2016
(Mailing Date)

By: J. BARTON
Deputy. County Clerk

Appendix C

Comment Letter on the Draft Initial Study/ Mitigated Negative Declaration and City Response

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CALIFORNIA Water Boards

Edmund G. Brown Jr.
GOVERNOR

Matthew Rodriquez
SECRETARY FOR ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

RECEIVED
MAR 01 2016
CITY OF ANTIOCH
CAPITAL IMPROVEMENTS

25 February 2016

Scott Buenting
City of Antioch Public Works
Capital Improvements Division
200 H Street
Antioch, CA 94531-5007

CERTIFIED MAIL
91 7199 9991 7035 8422 5905

COMMENTS TO REQUEST FOR REVIEW FOR THE MITIGATED NEGATIVE DECLARATION, ANTIOCH WATER TREATMENT PLANT DISINFECTION IMPROVEMENTS (P.W. 246-29) PROJECT, SCH# 2016022012, CONTRA COSTA COUNTY

Pursuant to the State Clearinghouse's 3 February 2016 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Mitigated Negative Declaration* for the Antioch Water Treatment Plant Disinfection Improvements (P.W. 246-29) Project, located in Contra Costa County.

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

I. Regulatory Setting

Basin Plan

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

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

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

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

Antidegradation Considerations

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

In part it states:

> *Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.*
>
> *This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.*

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

II. Permitting Requirements

Construction Storm Water General Permit

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

requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

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

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]

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

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

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

Industrial Storm Water General Permit

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

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

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by the USACOE, the Central Valley Water Board will review the permit application to ensure

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

that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

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

Clean Water Act Section 401 Permit – Water Quality Certification

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

Waste Discharge Requirements – Discharges to Waters of the State

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

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

Dewatering Permit

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

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

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

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

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

Regulatory Compliance for Commercially Irrigated Agriculture

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

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

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

Low or Limited Threat General NPDES Permit

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

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

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

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

Stephanie Tadlock
Environmental Scientist

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

Comments and Responses

Only one comment letter was received on the previous Draft IS/MND during the comment period in February 2016. This letter was received from the Central Valley Regional Water Quality Control Board, and the text of the letter is considered to have 11 individual comments. The following provides the comments and individual responses to said comments. In this section, each comment is typed exactly as it appears in the original comment letter; no corrections to typographical errors or other edits to the original comments were made. Each comment is presented, immediately followed by a response.

In some instances, the response to a particular comment may refer to the response(s) to another comment(s) that is similar in content. In such instances, the response will cross-reference the numbered comment; for example, "Please see response to comment Central Valley Water Board – 8."

Central Valley Water Board - 1

Comment:

Pursuant to the State Clearinghouse's 3 February 2016 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the Request for Review for the Mitigated Negative Declaration for the Antioch Water Treatment Plant Disinfection Improvements (P.W. 246-29) Project, located in Contra Costa County.

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

I. Regulatory Setting

Basin Plan

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

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

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

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

Response:

Comment noted. A Regulatory Setting section has been added to Section 4.9 Hydrology and Water Quality to briefly describe the Basin Plan (see Section 3 of this Final IS/MND).

Central Valley Water Board - 2

Comment:

Antidegradation Considerations

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

In part it states:

> Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.
>
> This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

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

Response:

As noted in Section 4.9 of the Draft IS/MND, pages 4-39 and 4-40, the construction and operation of the proposed project would not generate additional surface water runoff. The proposed Project would be constructed on a previously developed site, and no long-term changes to the existing grade or drainage pattern of the area are proposed. Currently the runoff on the site is collected in stormwater drains and conveyed through buried pipe to two (2) off-site retention ponds basins located south of Putnam Street, east of G street and west of Spartan Way as described on page 2-1 of the Draft IS/MND and illustrated on Figure 1.

As noted in Section 4.9 of the Draft IS/MND, page 4-40, groundwater is not expected to be encountered during construction. No groundwater was observed in borings up to 20.3 feet bgs (CDM Smith 2015). Although construction will entail trenching, the trenches will install piping at: a depth of 2 to 4 feet in the area west of the existing Chemical Storage Area; a depth of 3 to 6 feet for the pipe trench between the existing Plant B and existing Filtered Water Reservoir; and a depth of 3 to 6 feet for the pipe trench between the new Aqua Ammonia facility and existing Plant A. Given the anticipated depth of trenching and the observed depth to groundwater, groundwater is not expected to be encountered during construction, thus no impacts to groundwater are anticipated.

Central Valley Water Board - 3

Comment:

II. Permitting Requirements

Construction Storm Water General Permit

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

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

Response:

As shown in Figures 2, 3, 4, and 5 of the Draft IS/MND, the proposed project entails construction of modifications to the existing water treatment plant mostly within existing buildings with a few trenches for new piping. The proposed project will be limited to areas for construction (modifications) at existing outdoor structures; modifications in existing buildings; and outdoor staging areas for equipment, parking, materials storage, etc. Temporary disturbance of soils (for pipe trenching) will be less than 1 acre. Overall construction would disturb less than one acre of soil and therefore, would not require coverage under the Construction General Permit. As noted in Section 4.9 of the Draft IS/MND, page 4-41, construction activities would comply with a project-specific SWPPP and applicable best management practices (BMPs) in order to minimize runoff of polluted stormwater from the site and from exposed or loose soils on the site during construction. Please also see response to comment Central Valley Water Board – 5.

Central Valley Water Board - 4

Comment:

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits

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

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

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

Response:

The City of Antioch was a Phase I MS4 permittee included under Order No. R5-2010-0102, NPDES No. CAS083313, which expired September 1, 2015. Although, the Central Valley Water Board (CVRWQCB-Region 5) has developed a new Region-wide MS4 permit under Order No. R5-2016-0040, NPDES No. CAS0085324, which became effective on October 1, 2016, the City of Antioch, along with all other municipalities and unincorporated County within the jurisdiction of CVRWQCB-Region 5, were approached by Region 5 to go with their Regional permit or be covered under the San Francisco Water Board (SFRWQCB)-Region 2 MS4 permit. All cities and the County recently decided to have coverage under Region 2. Both Regions were notified of the decision and the matter is now before respective staff and boards to draft a resolution. Once resolved, the City of Antioch will be Phase I MS4 permittee under order No. R2-2015-0049, MS4 NPDES No. CAS612008.

As noted in Section 4.17 of the Draft IS/MND, page 4-62, construction of the proposed project would occur primarily in already paved areas and would negligibly change the amount of impervious surface area. New piping would be installed within trenches and disturbed areas would be re-vegetated following construction.

Central Valley Water Board - 5

Comment:

Industrial Storm Water General Permit

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

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

Response:

As noted in Section 4.9 of the Draft IS/MND, page 4-40, the proposed Project plans to comply with all applicable requirements pertaining to stormwater and urban runoff, including a Stormwater Pollution and Prevention Plan (SWPPP), incorporation of best Management Practices (BMPs) during construction, and compliance with the latest NPDES Stormwater Regulations. Antioch WTP also has an active a Spill Preventions, Containment and Control Plan (SPCC) in compliance with SPCC regulation.

Central Valley Water Board - 6

Comment:

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by the USACOE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

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

Response:

As noted in Section 4.9 of the Draft IS/MND, pages 4-39 and 4-40, the construction and operation of the proposed project would not generate additional wastewater or measurably increase urban runoff. The proposed Project would be constructed on a previously developed site, and no long-term changes to the existing grade or drainage pattern of the area are proposed. The two closest waterbodies to the project site are both approximately 1 mile from the project site, the western portion of Contra Loma Reservoir in Contra Loma Regional Park and the eastern portion of Contra Loma Reservoir north of the Lone Tree Golf Course. In addition, Lake Alhambra and the San Joaquin River are approximately 1.5 miles and 1.8 miles, respectively. As such, given the no measurable increase in runoff and the distance to the nearest waterbodies, the project will not involve the discharge of dredged or fill material into navigable waters or wetlands, and a Section 404 permit is not required for the proposed Project.

Central Valley Water Board - 7

Comment:

Clean Water Act Section 401 Permit - Water Quality Certification

If an USACOE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit}, or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be

obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications.

Response:

As noted in Section 4.9 of the Draft IS/MND, pages 4-39 and 4-40, the proposed Project would be constructed on a previously developed site, currently used as a water treatment plant. The closest waterbodies to the project site are about 1 mile from the project site. The project will not involve the disturbance of waters of the United States (such as streams and wetlands), and a 401 Water Quality Certification is not required for the proposed Project.

Central Valley Water Board - 8

Comment:

Waste Discharge Requirements - Discharges to Waters of the State

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

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

Response:

The closest waterbodies to the project site are about 1 mile from the project site. The proposed Project will not involve discharges to waters of the United States. As noted in Section 4.9 of the Draft IS/MND, page 4-40, construction and operation of the proposed Project would not generate additional wastewater or measurably increase urban runoff into existing storm drains. Please also see response to comment Central Valley Water Board – 5.

Central Valley Water Board - 9

Comment:

Dewatering Permit

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

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

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

For more information regarding the Low Risk Waiver and the application process, visit the Central Valley Water Board website at: http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2013-0145_res.pdf

Response:

As noted in Section 4.9 of the Draft IS/MND, page 4-40, groundwater is not expected to be encountered during construction. No groundwater was observed in borings up to 20.3 feet bgs (CDM Smith 2015). Although construction will entail trenching, the trenches will install piping at: a depth of 2 to 4 feet in the area west of the existing Chemical Storage Area; a depth of 3 to 6 feet for the pipe trench between the existing Plant B and existing Filtered Water Reservoir; and a depth of 3 to 6 feet for the pipe trench between the new Aqua Ammonia facility and existing Plant A. Given the anticipated depth of trenching and the observed depth to groundwater, no dewatering during construction is anticipated and a dewatering permit is not required.

Central Valley Water Board - 10

Comment:

Regulatory Compliance for Commercially Irrigated Agriculture

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

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

2. Obtain Coverage Under the General Waste Discharge Requirements for Individual Growers, General Order RS-2013-0100. Dischargers not participating in a third-party group (Coalition) are regulated individually. Depending on the specific site conditions, growers may be required to monitor runoff from their property, install monitoring wells, and submit a notice of intent, farm plan, and other action plans regarding their actions to comply with their General Order. Yearly costs would include State administrative fees (for example, annual fees for farm sizes from 10-100 acres are currently $1,084 + $6. 70/Acre); the cost to prepare annual monitoring reports; and water quality monitoring costs. To enroll as an Individual Discharger under the Irrigated Lands Regulatory Program, call the Central Valley Water Board phone line at (916) 464-4611 or e-mail board staff at lrrLands@waterboards.ca.gov.

Response:

As noted in Section 4.10 of the Draft IS/MND, page 4-43, the proposed project entails construction of modifications to the existing water treatment plant, and operation of the proposed project would be similar to the current operations and occur on the existing site. The property for the proposed Project will not be used for commercial irrigated agricultural, therefore regulatory coverage under the Irrigated Lands Regulatory Program is not necessary for the proposed Project.

Central Valley Water Board - 11

Comment:

Low or Limited Threat General NPDES Permit

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

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

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

Response:

Given the anticipated depth of trenching and the observed depth to groundwater, no dewatering during construction is anticipated and a dewatering permit is not required. Please see response to comment Central Valley Water Board – 9.

CDM Smith

cdmsmith.com

Appendix B

Notice of Intent and Proofs of Publication

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Notice of Intent to Adopt an Initial Study and Mitigated Negative Declaration

FILED
DEC 15 2016
J.E. CANCIAMILLA COUNTY CLERK
CONTRA COSTA COUNTY
BY DEPUTY

DATE: December 13, 2016

TO: Responsible Agencies, Interested Parties, and Organizations

SUBJECT: **NOTICE OF INTENT TO ADOPT AN INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION FOR THE ANTIOCH WATER TREATMENT PLANT DISINFECTION IMPROVEMENTS PROJECT (P.W. 246-29)**

The City of Antioch Public Works Department Capital Improvements Division is the Lead Agency for the proposed Antioch Water Treatment Plant Disinfection Improvements (Project). In compliance with the California Environmental Quality Act (CEQA), an Initial Study and Mitigated Negative Declaration (IS/MND) was prepared for the Project. The purpose of an IS/MND is to provide decision makers, public agencies, and the general public with an objective and informative document that facilitates a basic understanding of the Project and fully discloses the potential environmental effects associated with the Project, including direct, indirect, and cumulative environmental effects. The City of Antioch will use the IS/MND to obtain permits, agreements, and approvals from necessary agencies to implement the Project.

Project Location: The Project is located within the Antioch Water Treatment Plant (WTP) at 401 Putnam Street in the City of Antioch, Contra Costa County, California.

Project Description:
The Project is intended to replace two existing disinfection chemical systems at the Antioch WTP with new liquid chemical systems: 1) Liquid sodium hypochlorite (NaOCl; 12.5% as chlorine or Cl_2 by weight) will replace chlorine (Cl_2) gas; and 2) Liquid ammonium sulfate ($(NH_4)_2SO_4$; 10.9% as ammonia or NH_3 by weight) will replace anhydrous ammonia (NH_3) gas. Chlorine and ammonia (in gas or liquid forms) provide primary disinfection of pathogens and residual disinfection throughout the City's drinking water distribution system; and are essential to meeting primary drinking water standards established by the United States Environmental Protection Agency and State of California Water Resources Control Board Division of Drinking Water. The objectives of the project include: 1) mitigate the risks to the community, operating staff and environment associated with accidental spills or leaks of gaseous chlorine and ammonia during the transportation and application of these chemicals in the drinking water treatment process; 2) Improve the reliability of the disinfection systems; and 3) Reduce the costs to permit and maintain the chlorine gas and anhydrous ammonia systems.

The Project work activities would occur within the Antioch WTP site; with the majority of construction and facilities located within existing buildings and existing outdoor chemical containment areas. Major components include: 4 new outdoor chemical storage tanks; 2 new canopies over the tanks; safety improvements to the chemical containment areas; 8 to 10 new chemical metering pumps; removal and disposal of existing chemical system equipment; and associated electrical, piping and control system improvements. The duration of construction is estimated at 13 to 15 months.

Potentially Significant Environmental Impacts: All impacts would be reduced to a less than significant level with the implementation of mitigation measures.

Public Review Period: In compliance with CEQA, the City of Antioch Public Works Department, Capital Improvements Division has established a 30-day public review period beginning December 16, 2016 to solicit comments and input on the Draft IS/MND.

To ensure that all environmental issues are fully identified and adequately addressed, written comments are invited from all interested parties. Written comments regarding the scope and content of information in the Draft IS/MND should be submitted no later than 5:00 pm on January 15, 2017 to:

CDM Smith
1755 Creekside Oaks Drive
Suite 200
Sacramento, CA 95833

Attn: Gwen Pelletier/Antioch WTP Disinfection Improvements IS/MND

Correspondence and comments regarding the scope and content of information in the Draft IS/MND may also be submitted to: Gwen Pelletier, Senior Planner, CDM Smith (916) 657-7517, email: PelletierGA@CDMSmith.com.

Document Availability: Copies of the Mitigated Negative Declaration are available for review Monday through Friday, between the hours of 8:00 a.m. and 11:30 a.m., and between the hours of 1:00 p.m. and 5:00 p.m. by appointment only, at the City of Antioch City Hall, Community Development Department, 3rd and H Street, Antioch, CA, except on specified holidays. The Mitigated Negative Declaration is also available online at: www.ci.antioch.ca.us and at the Contra Costa County Public Library, at 501 W. Eighteenth Street, Antioch, California.

Scott Buenting, P.E.
Associate Engineer
City of Antioch

December 16, 2016

TO: Responsible Agencies, Interested Parties, and Organizations

SUBJECT: NOTICE OF INTENT TO ADOPT AN INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION FOR THE ANTIOCH WATER TREATMENT PLANT DISINFECTION IMPROVEMENTS PROJECT (P.W. 246-29)

The City of Antioch Public Works Department Capital Improvements Division is the Lead Agency for the proposed Antioch Water Treatment Plant Disinfection Improvements (Project). In compliance with the California Environmental Quality Act (CEQA), an Initial Study and Mitigated Negative Declaration (IS/MND) was prepared for the Project. The purpose of an IS/MND is to provide decision makers, public agencies, and the general public with an objective and informative document that facilitates a basic understanding of the Project and fully discloses the potential environmental effects associated with the Project, including direct, indirect, and cumulative environmental effects. The City of Antioch will use the IS/MND to obtain permits, agreements, and approvals from necessary agencies to implement the Project.

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Chlorine and ammonia (in gas or liquid forms) provide primary disinfection of pathogens and residual disinfection throughout the City's drinking water distribution system; and are essential to meeting primary drinking water standards established by the United States Environmental Protection Agency and State of California Water Resources Control Board Division of Drinking Water. The objectives of the project include: 1) mitigate the risks to the community, operating staff and environment associated with accidental spills or leaks of gaseous chlorine and ammonia during the transportation and application of these chemicals in the drinking water treatment process; 2) improve the reliability of the disinfection systems; and 3) Reduce the costs to permit and maintain the chlorine gas and anhydrous ammonia systems.

The Project work activities would occur within the Antioch WTP site; with the majority of construction and facilities located within existing buildings and existing outdoor chemical containment areas. Major components include: 4 new outdoor chemical storage tanks; 2 new canopies over the tanks; safety improvements to the chemical containment areas; 8 to 10 new chemical metering pumps; removal and disposal of existing chemical system equipment; and associated electrical, piping and control system improvements. The duration of construction is estimated at 13 to 15 months.

Potentially Significant Environmental Impacts: All impacts would be reduced to a less than significant level with the implementation of mitigation measures.

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To ensure that all environmental issues are fully identified and adequately addressed, written comments are invited from all interested parties. Written comments regarding the scope and content of information in the Draft IS/MND should be submitted no later than 5:00 pm on January 16, 2017 to:

CDM Smith
1755 Creekside Oaks Drive, Suite 200
Sacramento, CA 95833
Attn: Gwen Pelletier/
Antioch WTP Disinfection Improvements IS/MND

Correspondence and comments regarding the scope and content of information in the Draft IS/MND may also be submitted to: Gwen Pelletier, Senior Planner, CDM Smith (916) 657-7617, email: PelletierGA@CDMSmith.com.

Document Availability: Copies of the Mitigated Negative Declaration are available for review Monday through Friday, between the hours of 8:00 a.m. and 11:30 a.m., and between the hours of 1:00 p.m. and 5:00 p.m. by appointment only, at the City of Antioch City Hall, Community Development Department, 200 H Street, Antioch, CA, except on specified holidays. The Mitigated Negative Declaration is also available online at: www.ci.antioch.ca.us and at the Contra Costa County Public Library, at 501 W. Eighteenth Street, Antioch, California.

Date of Publication:
Friday, December 16, 2016

ECT#5871188 Dec. 16, 2016

Appendix C

Comment Letters on the Revised Draft Initial Study/ Mitigated Negative Declaration

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STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Edmund G. Brown Jr.
Governor

Ken Alex
Director

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JAN 20 2017

CITY OF ANTIOCH
CAPITAL IMPROVEMENTS

January 17, 2017

Scott Buenting
City of Antioch
200 H Street
Antioch, CA 94531-5007

Subject: Antioch Water Treatment Plant Disinfection Improvements (P.W. 246-29)
SCH#: 2016022012

Dear Scott Buenting:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on January 13, 2017, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

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

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

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

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

Sincerely,

Scott Morgan
Director, State Clearinghouse

Enclosures
cc: Resources Agency

Document Details Report
State Clearinghouse Data Base

SCH# 2016022012
Project Title Antioch Water Treatment Plant Disinfection Improvements (P.W. 246-29)
Lead Agency Antioch, City of

Type **MND** Mitigated Negative Declaration

Description Note: Revised

Replace the existing gaseous chlorine and anhydrous ammonia storage and feed systems with a liquid sodium hypochlorite and aqua ammonia storage and feed systems. The objectives of the project include; 1) mitigate the risks to community, operating staff and environment associated with accidental spills or leaks of gaseous chlorine and ammonia during the transportation and application of these chemicals in the drinking water treatment process; 2) Improve the reliability of the disinfection systems; and 3) Reduce the costs to permit and maintain the chlorine gas and anhydrous ammonia systems. The Project work activities would occur within the Antioch WTP site with the majority of facilities located within existing buildings and existing outdoor chemical containment structures. The anticipated duration of construction is 13 to 15 months.

Lead Agency Contact

Name Scott Buenting
Agency City of Antioch
Phone 925-779-7050 ***Fax***
email
Address 200 H Street
City Antioch ***State*** CA ***Zip*** 94531-5007

Project Location

County Contra Costa
City Antioch
Region
Lat / Long 37° 59' 22" N / 121° 48' 37" W
Cross Streets 401 Putnam Street; south of CA Hwy 4 between D St. and G St.
Parcel No. 0711400101
Township ***Range*** ***Section*** ***Base***

Proximity to:

Highways 4
Airports
Railways Amtrak
Waterways Sacramento - San Joaquin Delta, Contra Loma Reservoir
Schools Park Middle School
Land Use Municipal Gov't (MGOV); Open Space and Residential (R)

Project Issues Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Drainage/Absorption; Forest Land/Fire Hazard; Geologic/Seismic; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Schools/Universities; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Landuse; Cumulative Effects; Other Issues

---

Reviewing Agencies Resources Agency; Department of Fish and Wildlife, Region 3; Delta Protection Commission; Department of Parks and Recreation; Office of Emergency Services, California; Caltrans, District 4; State Water Resources Control Board, Division of Drinking Water; State Water Resources Control Board, Division of Drinking Water, District 9; State Water Resources Control Board, Divison of Financial Assistance; State Water Resources Control Board, Division of Water Quality; Regional Water Quality Control Bd., Region 5 (Sacramento); Native American Heritage Commission

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

Document Details Report
State Clearinghouse Data Base

Date Received 12/15/2016 *Start of Review* 12/15/2016 *End of Review* 01/13/2017

California Water Boards

Edmund G. Brown Jr.
Governor

Matthew Rodriquez
Secretary for
Environmental Protection

Central Valley Regional Water Quality Control Board

clear 1/13/17

6 January 2017

Governor's Office of Planning & Research

JAN 09 2017

STATE CLEARINGHOUSE

CERTIFIED MAIL
7199 9991 7035 8417 7723

Scott Buenting
City of Antioch Public Works
Capital Improvements Division
200 H Street
Antioch, CA 94531-5007

COMMENTS TO REQUEST FOR REVIEW FOR THE REVISED MITIGATED NEGATIVE DECLARATION, ANTIOCH WATER TREATMENT PLANT DISINFECTION IMPROVEMENTS (P.W. 246-29) PROJECT, SCH# 2016022012, CONTRA COSTA COUNTY

Pursuant to the State Clearinghouse's 15 December 2016 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Revised Mitigated Negative Declaration* for the Antioch Water Treatment Plant Disinfection Improvements (P.W. 246-29) Project, located in Contra Costa County.

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

I. Regulatory Setting

Basin Plan

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

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

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

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

Antidegradation Considerations

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

In part it states:

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

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

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

II. Permitting Requirements

Construction Storm Water General Permit

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

requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

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

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]

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

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

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

Industrial Storm Water General Permit

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

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

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by the USACOE, the Central Valley Water Board will review the permit application to ensure

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

that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

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

Clean Water Act Section 401 Permit – Water Quality Certification

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

Waste Discharge Requirements – Discharges to Waters of the State

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

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

Dewatering Permit

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

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

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

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

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

Regulatory Compliance for Commercially Irrigated Agriculture

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

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

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

Low or Limited Threat General NPDES Permit

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

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

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

NPDES Permit

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

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

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

Stephanie Tadlock

Stephanie Tadlock
Environmental Scientist

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

DEPARTMENT OF TRANSPORTATION
DISTRICT 4
OFFICE OF TRANSIT AND COMMUNITY PLANNING
P.O. BOX 23660, MS-10D
OAKLAND, CA 94623-0660
PHONE (510) 286-5528
FAX (510) 286-5559
TTY 711
www.dot.ca.gov

Serious Drought.
Help save water!

January 3, 2017

SCH # 2016022012
GTS # 04-CC-2016-00061
CC-004-PM 27.78

Mr. Scott Buenting
Public Works, Capital Improvements Division
City of Antioch
200 H Street
Antioch, CA 94531

Antioch Water Treatment Plant Disinfection Improvements Project (P.W. 246-29) – Initial Study / Mitigated Negative Declaration

Dear Mr. Buenting:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the Antioch Water Treatment Plant Disinfection Improvements Project. In tandem with the Metropolitan Transportation Commission's (MTC) Sustainable Communities Strategy (SCS), Caltrans' new mission signals a modernization of our approach to evaluating and mitigating impacts to the State Transportation Network (STN). Caltrans Strategic Management Plan targets aim to reduce Vehicle Miles Travelled (VMT) by tripling bicycle and doubling both pedestrian and transit travel by 2020. Our comments are based on the IS/MND.

Project Understanding
The proposed project for the Antioch Water Treatment Plant would replace the existing gaseous chlorine and anhydrous ammonia storage and feed systems with a liquid sodium hypochlorite and aqua ammonia storage and feed systems. The plant entrance is located at 401 Putnam Street, approximately 0.5 miles south of California State Highway 4 (CA HWY 4) and 0.12 miles west of Lone Tree Way. Treatment chemicals are typically delivered to the Antioch WTP by truck via CA HWY 4 to Lone Tree Way to Putnam Street.

Lead Agency
As the Lead Agency, the City of Antioch is responsible for all project mitigation, including any needed improvements to State highways. The project's fair share contribution, financing, scheduling, implementation responsibilities, and Lead Agency monitoring should be fully discussed for all proposed mitigation measures.

Cultural Resources Impact Analysis
Section 4.5 on Cultural Resources (p.4-22) cites that the analysis was based on the Hillcrest eBART Station Area Specific Plan Draft EIR (City of Antioch 2009) in place of a current study.

However, the Specific Plan does not include the current project area. We recommend that the City of Antioch conduct a cultural resource technical study that includes a records search from the Northwest Information Center of the California Historical Resources Information System (CHRIS) at Sonoma State University and a field survey conducted by a qualified archaeologist and a qualified architectural historian.

Additionally, Native American consultation is not documented in Section 4.5. Per CEQA and Assembly Bill (AB) 52, we recommend that the City of Antioch conduct Native American consultation with tribes, groups, and individuals who are interested in the project area and may have knowledge of Tribal Cultural Resources, Traditional Cultural Properties, or other sacred sites.

Thank you again for including Caltrans in the environmental review process. Should you have any questions regarding this letter, please contact Dianne Yee at 510.622.1670 or dianne.yee@dot.ca.gov.

Sincerely,

Patci

PATRICIA MAURICE
District Branch Chief
Local Development – Intergovernmental Review

c: State Clearinghouse

Appendix D

Mitigation Monitoring and Reporting Program

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Table 1 Project-Specific Mitigation Measures

	Mitigation Measures	Impact Being Addressed	Timing of Implementation	Monitoring Frequency	Actions Indicating Compliance
		BIOLOGICAL RESOURCES			
Mitigation Measure BIO-1 **Monitoring Agency: City of Antioch**	**Nesting bird survey.** If construction occurs during the migratory bird nesting season (February 15 to September 15), a nesting bird survey of trees or other habitat within 300 feet of the construction area will be conducted prior to construction. If an active bird nest is found, construction may be delayed until the nest is no longer active, or other measures may be implemented in coordination with the California Department of Fish and Wildlife.	Potential loss of nesting birds/raptors subject to the Migratory Bird Treaty Act	If construction occurs between February 15 to September 15, removal of vegetation outside the nesting season, if feasible. If not, pre-construction surveys.	If active nests are present and may be impacted, a Biological Monitor shall be present during the periods when construction activities will occur during active nest areas.	Completion of pre-construction nesting bird survey if construction occurs between February 15 to September 15. If no nests are found, a report indicating such should be filed. If an active bird nest is found, reporting in compliance with California Department of Fish and Wildlife.
		CULTURAL RESOURCES			
Mitigation Measure CUL-1 **Monitoring Agency: City of Antioch**	In the event that archaeological or paleontological resources are encountered during the course of grading and/or excavation, all construction shall temporarily cease within the vicinity of the area until a qualified archaeologist (or paleontologist, if appropriate) is brought onto the project site to properly assess the resources and make recommendations for their disposition. In the event that human remains are discovered, there shall be no disposition of such human remains, other than in accordance with the procedures and requirements set forth in California Health and Safety Code Section 7050.5 and Public Resources Code Section 50973.98. These code provisions require notification of the County Coroner and the Native American Heritage Commission, who in turn must notify those persons believed to be most likely descended from the deceased Native American for appropriate disposition of the remains. Excavation or	Loss or destruction of archaeological or paleontological resources	Upon discovery of potential archaeological or paleontological resources	On-going during excavation and grading activities	Filing of appropriate reports (i.e., excavation/recovery report) with the City by project archaeologist (or paleontologist). If no resources are found, a report indicating such should be filed.

Table 1 Project-Specific Mitigation Measures

	Mitigation Measures	Impact Being Addressed	Timing of Implementation	Monitoring Frequency	Actions Indicating Compliance
	disturbance may continue in other areas of the project site that are not reasonably suspected to overlie adjacent remains or archaeological resources.				
Mitigation Measure HAZ-1 **Monitoring Agency:** **City of Antioch**	**Construction Risk Management Plan (CRMP).** A CRMP would be prepared and submitted by the contractor prior to construction to address hazardous materials and other worker health and safety issues that may arise during construction of the project. The contractor's CRMP shall be reviewed prior to commencement of construction to see that, at a minimum, it includes the following details: ▪ A site-specific Health and Safety Plan (HASP) prepared by a qualified health and safety professional in accordance with applicable laws, rules and regulations. The HASP shall include all required measures to protect construction workers and the general public by including engineering controls, monitoring and security measures to prevent unauthorized entry to the construction area. If prescribed exposure levels were exceeded, personal protective equipment would be required for workers in accordance with state and federal regulations. ▪ Measures to halt construction and implement the CRMP in the case that contaminated soils or other hazardous materials are encountered during any soil moving operation during construction (e.g., trenching, excavation, grading). ▪ Instructions to workers on the recognition and reporting of materials that may be hazardous. ▪ Procedures to minimize delays by continuing performance of the work in areas not affected by hazardous materials operations. ▪ Identification and contact information for subcontractors and licensed personnel qualified to undertake storage, removal, transportation, disposal, and other remedial work required by, and in accordance with, laws and regulations.	**HAZARDS AND HAZARDOUS WASTE** Exposure to hazardous materials and other worker health and safety issues that may arise during construction of the project	Included as condition of construction contracts	Once prior to commencement of construction	Completion of Construction Risk Management Plan

Table 1 Project-Specific Mitigation Measures

	Mitigation Measures	Impact Being Addressed	Timing of Implementation	Monitoring Frequency	Actions Indicating Compliance
	▪ Fire-prevention and emergency-response procedures, including procedures for the containment and cleanup of accidental releases of hazardous materials used or stored during construction activities. This would include procedures to ensure that, prior to construction, all staging areas, welding areas, or areas slated for development using spark-producing equipment will be cleared of dried vegetation or other material that could ignite. Any construction equipment that includes a spark arrestor shall be equipped with a spark arrestor in good working order. During construction, all vehicles and crews working at the project site(s) will have access to functional fire extinguishers at all times. If welding activities are conducted in areas where there is risk of wildland fires, construction crews will be required to have a spotter to look out for potentially dangerous situations, including accidental sparks. ▪ Procedures for notification of emergency coordinators and neighboring facilities in the event that construction activities require a temporary closure of a roadway, which could interfere with emergency response or evacuation plans. This would include procedures for emergency response related to seismic activity, including rupture, ground-shaking, and landslides.				
Mitigation Measure HAZ-2 **Monitoring Agency: City of Antioch**	**Hazardous Materials Management/Spill Prevention Plan.** A Hazardous Materials Management/Spill Prevention Plan would be developed prior to construction and implemented during construction to reduce the risk of accidental release of construction-related hazardous materials and mitigate any adverse effects if releases do occur. At least one copy of the plan would be onsite at all times. The purpose of the plan is to provide onsite construction managers, environmental compliance monitors and regulatory agencies with a detailed	**HAZARDS AND HAZARDOUS WASTE** Accidental release of construction-related hazardous materials	Included as condition of construction contracts	Once prior to commencement of construction	Completion of Hazardous Materials Management/Spill Prevention Plan

Table 1 Project-Specific Mitigation Measures

	Mitigation Measures	Impact Being Addressed	Timing of Implementation	Monitoring Frequency	Actions Indicating Compliance
	description of hazardous materials management, spill prevention and spill response/cleanup measures associated with the construction of project components. The primary objective of the plan is to prevent the spill of hazardous materials. Elements of the plan shall include, but not be limited to, the following: ▪ Description of the storage tank area design features including secondary containment for the tank, spill collection for the unloading area, and all-concrete construction; ▪ A discussion of hazardous materials management including delineation of hazardous material and hazardous waste storage areas, access and egress routes, waterways, emergency assembly areas and temporary hazardous waste storage areas; ▪ Spill control and countermeasures including employee spill prevention/response training; and ▪ Notification and documentation procedures.				

Table 2 BAAQMD Basic Construction Mitigation Measures

	Mitigation Measures	Impact Being Addressed	Timing of Implementation	Monitoring Frequency	Actions Indicating Compliance
Monitoring Agency: City of Antioch	**AIR QUALITY** 1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. 2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered. 3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. 4. All vehicle speeds on unpaved roads shall be limited to 15 mph. 5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. 6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes. Clear signage shall be provided for construction workers at all access points. 7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. 8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.	Construction-related air pollutant emissions	Included as condition of grading, excavation, or demolition contracts	Pre-construction/ During Construction	Completion of implementation plan

CDM Smith

cdmsmith.com