HASA, Inc.

901 Loveridge Road
Pittsburg, CA 94565

October 2023

Prepared by:

Yorke Engineering, LLC
www.YorkeEngr.com

Prepared for

City of Pittsburg
Planning Division
65 Civic Avenue,
Pittsburg, CA 94565

CEQA Initial Study
HASA NorCal Project

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List of Acronyms and Abbreviations

AB	Assembly Bill
ALOHA	Areal Locations of Hazardous Atmospheres
amsl	Above Mean Sea Level
APN	Assessor's Parcel Number
ATC	Authority to Construct
BAAQMD	Bay Area Air Quality Management District
bgs	Below Ground Surface
BMP	Best Management Practice
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEPA	California Environmental Protection Agency
CalOES	California Office of Emergency Services
Cal/OSHA	California Division of Occupational Safety and Health
CalARP	California Accidental Release Prevention
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards Code
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAP	Clean Air Plan
CARB	California Air Resources Board
CARE	Community Air Risk Evaluation
CBTP	Community-Based Transportation Plan
CCCFPD	Contra Costa County Fire Protection District
CCHSHMP	Contra Costa Health Services Hazardous Materials Programs
CCTA	Contra Costa Transportation Authority
CCR	California Code of Regulations
Central San	Central Contra Costa Sanitary District
CEQA	California Environmental Quality Act
CERS	California Environmental Reporting System
CFGC	California Fish and Game Code
CGP	California General Permit
CH_4	Methane
Cl_2	Chlorine Gas
CNEL	Community Noise Equivalent Level
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CTP	Countywide Transportation Plan
CUP	Conditional Use Permit

CUPA	Certified Unified Program Agency
CWA	Clean Water Act
CY	cubic yards
dB	Decibel
dBA	A-Weighted Decibel
DPM	Diesel Particulate Matter
DTSC	Department of Toxic Substances Control
EIR	Environmental Impact Report
EISB	Enhanced In-Situ Bioremediation
ft	feet
GHG	Greenhouse Gas
gpm	Gallons per Minute
GWP	Global Warming Potential
H_2S	Hydrogen Sulfide
HCP	Habitat Conservation Plan
HMBP	Hazardous Materials Business Plan
Hz	Hertz
ID#	Identification number
in/sec	inches per second
IS	Initial Study
kW	Kilowatt
kV	Kilovolt
kVA	Kilovolt-Amps
L_{eq}	Equivalent Noise Level
MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendent
MND	Mitigated Negative Declaration
MT	Metric Ton
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NaOH	Sodium Hydroxide
ND	Negative Declaration
NEC	No Exposure Certification
NO_2	Nitrogen Dioxide
NONA	Notice of Non-Applicability
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NWIC	Northwest Information Center
O_3	Ozone
PEL	Permissible Exposure Limit

PG&E	Pacific Gas and Electric
PHA	Process Hazard Analysis
PM	Particulate Matter
PM_{10}	Particulate Matter Less Than 10 Microns in Size
$PM_{2.5}$	Particulate Matter Less Than 2.5 Microns in Size
ppm	Parts per Million
PPV	Peak Particle Velocity
PRC	Public Resources Code
PVC	Polyvinyl Chloride
QSD	Qualified SWPPP Developer
QSP	Qualified SWPPP Practitioner
RMP	Risk Management Plan
ROG	Reactive Organic Gas
RTPC	Regional Transportation Planning Committee
RWQCB	Regional Water Quality Control Board
SAS	Sonoma Archaeological Services, LLC
SB	Senate Bill
SFBAAB	San Francisco Bay Area Air Basin
SGMA	Sustainable Groundwater Management Act
SLF	Sacred Lands File
SMARA	Surface Mining and Reclamation Act
SMARTS	Storm Water Multiple Application and Tracking System
SO_2	Sulfur Dioxide
SPRR	Southern Pacific Railroad
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminant
TCR	Tribal Cultural Resource
U.S. DOT	United States Department of Transportation
U.S. EPA	United States Environmental Protection Agency
UWMP	Urban Water Management Plan
UWMPA	Urban Water Management Planning Act
v/v	Volume to Volume
VMT	Vehicle Miles Traveled
WDR	Waste Discharge Requirement
WQ	Water Quality
WSCP	Water Shortage Contingency Plan

CEQA Initial Study, HASA NorCal Project

1.0 INTRODUCTION

1.1 Project Title

HASA NorCal Project

1.2 Project Overview

HASA, Inc. (HASA) proposes to construct and operate a sodium hypochlorite (bleach) manufacturing and distribution facility in the City of Pittsburg, California. The proposed facility would be located on a 1.57-acre site and consist of an office building with a laboratory, an eight-car parking area, a bleach production plant, a tank farm, and a truck loading rack.

The Project site at 901 Loveridge Road is located in a City of Pittsburg General Plan-designated industrial area and is bordered by other industrial operations. The site is located on non-major streets off of Loveridge Road, approximately 1/2 mile south and inland of the New York Slough. Residential areas are located approximately 0.9 miles west of the Project site, and 0.9 miles to the south across State Route (SR) 4. There are no schools or other sensitive receptors located adjacent to the Project site boundaries.

1.3 CEQA Review Process

Approval of the Project is considered a public agency discretionary action and is subject to the California Environmental Quality Act (CEQA), the CEQA Guidelines [California Code of Regulations (CCR) §15000 et. seq.], and the regulations and policies of the City of Pittsburg, CA. The City of Pittsburg is the Lead Agency for the Project. This CEQA Initial Study (IS) has been prepared in compliance with the relevant provisions of CEQA and the State CEQA Guidelines as implemented by the Planning Department.

CEQA requires that project proponents disclose the potentially significant impacts to the environment from proposed development projects. The intent of CEQA is to foster good planning and to consider environmental issues during the planning process. The Planning Department has directed the preparation of an IS to comply with CEQA. The purpose of the IS is to determine the extent of environmental review necessary to disclose environmental consequences of the Project implementation to decision-makers and the public. Based on the evaluation of the Project design, this IS shows that construction and operation of the Project would not result in any potentially significant impacts, with mitigations, on the environment. This IS, which forms the basis for a Mitigated Negative Declaration (MND), is intended as an informational document that will ultimately be required as part of the Conditional Use Permit (CUP) application to the Planning Department and Conditions of Approval for the project.

The public, including City residents and other local and State resource agencies, will be given the opportunity to review and comment on the CEQA IS document during a 30-day public review period. Comments received during the review period would be considered prior to adoption of the IS/MND and Project approval.

1.4 CEQA Lead Agency and Project Contact Information

Information for the CEQA Lead Agency, including contact person and phone number, are presented in Table 1-1.

Table 1-1: Lead Agency Information

Lead Agency	City of Pittsburg Community & Economic Development Department – Planning Division 65 Civic Avenue, Pittsburg, CA 94565 (925) 252-4920
Contact Person, E-mail, and Phone Number	Maurice Brenyah-Addow Senior Planner (925) 252-4261 mbrenyah-addow@pittsburgca.gov

Information for the Project Sponsor is presented in Table 1-2.

Table 1-2: Project Sponsor Information

Project Sponsor	Erin Rychel Project Manager HASA, Inc. 1251 Loveridge Road Pittsburg, CA 94565
E-mail and Phone Number	ErinRychel@hasapool.com (925) 804-0467

2.0 PROJECT DESCRIPTION

HASA is proposing to build a sodium hypochlorite (bleach) manufacturing and distribution facility in an industrial area of the City of Pittsburg, Contra Costa County, California.

2.1 Project Location

The Project site address is 901 Loveridge Road in the City of Pittsburg in Contra Costa County, California. The Project site, totaling 1.57 acres, will be subdivided by means of a parcel map waiver from an existing parcel, Assessor’s Parcel Number (APN) 073-220-049. The subdivided property is under lease from Corteva, who operates a chemical manufacturing facility at this address adjacent to the Project. Regional access to the site is available using SR 4. The proposed location is shown within a regional map in Figure 2-1, and the site boundary is presented in a detailed map shown in Figure 2-2.

Figure 2-1: Project Regional Map

Figure 2-2: Project Detailed Site Map

Yorke ENGINEERING, LLC www.YorkeEngr.com	TITLE	FACILITY ADDRESS	FIGURE #
	HASA NorCal Project Detail Map	901 Loveridge Road Pittsburg, CA 94565	Figure 2-2 REVISION DATE June 28, 2023

2.2 Existing Site and Surrounding Land Uses

The Project would be constructed within the Industrial General Plan classification and the General Industrial (IG) zone, an industrial area of the City of Pittsburg, as designated in the Pittsburg General Plan 2020 (General Plan). The industrial area is located along the City's northeast boundary and covers approximately 1 square mile.

The 1.57-acre site of the Project is centrally located within the industrial area and is essentially flat. The site has been cleared of all structures, and only the concrete foundation of one building (the white square on Figure 2-2) remains, and there are no landscaped areas. The Project site is located in the midst of property owned by Corteva Agriscience and the majority of the Corteva chemical manufacturing operations are to the north and northwest of the site. HASA has an existing facility at 1251 Loveridge Road south of the Corteva property that manufactures bleach and bottles bleach and muriatic acid. A steel-finishing plant is located to the west of Corteva's property, and a concrete ready-mix facility's silo is to the south. Railroad tracks are adjacent to the eastern boundary of the site and curve around a mostly empty area to the south.

Proximities to surrounding land uses are as follows:

- Approximately ½ mile south of the Sacramento/San Joaquin River Delta waterfront;
- Approximately ½ mile north of the Pittsburg-Antioch Highway (the closest major intersection is Pittsburg-Antioch Highway and Loveridge Road);
- Approximately ⅔ mile southwest of Kirker Creek and a City of Pittsburg designated open space area; and
- Residential areas are located approximately 0.9 miles west and 0.9 miles to the south.

2.2.1 General Plan Land Use Designation

The Project site has a General Plan land use designation of Industrial.

2.2.2 Zoning

The Project site is located in the General Industrial (IG) zoning district.

2.3 Required Permits and Approvals

2.3.1 Regional and Local Permits and Approvals

This Project would require the following regional and local permits and approvals:

- City of Pittsburg CUP and building permit;
- Delta Diablo industrial and sanitary wastewater sewer connection permits;
- Contra Costa County Fire Department construction fire permit; and
- Contra Costa County Health Services hazardous waste generator and hazardous material handler permit.

The Project would not require an Authority to Construct (ATC) permit from the Bay Area Air Quality Management District (BAAQMD) because there are no stationary source emissions of criteria pollutants or toxic air contaminants (TACs). A detailed assessment of air pollutant emissions is presented in Section 4.3, Air Quality.

2.3.2 California Permits and Approvals

This Project would require consultation related to tribal cultural resources and a construction general permit for storm water discharges as follows:

- Approved by Governor Brown on September 25, 2014, Assembly Bill (AB) 52 establishes a formal consultation process for California Native American tribes to identify potential significant impacts to tribal cultural resources (TCRs), as defined in Public Resources Code (PRC) Section 21074, as part of CEQA. As specified in AB 52, lead agencies must provide notice to tribes that are traditionally and culturally affiliated with the geographic area of a project if the tribe has submitted a written request to be notified. The tribe must respond to the lead agency within 30 days of receipt of the notification if it wishes to engage in consultation on the project, and the lead agency must begin the consultation process within 30 days of receiving the request for consultation.

In compliance with AB 52, the Planning Department provided a notice to tribes that a CEQA Initial Study was being prepared and solicited requests for consultation. To date, one response requesting the CEQA documentation has been received. In addition, the City commissioned a cultural resources study which included database searches from the Northwest Information Center at Sonoma State University and the Native American Heritage Commission, and a field survey of the Project site. The results of this study are discussed in Sections 4.5, Cultural Resources and 4.18, Tribal Cultural Resources.

- Storm water discharges associated with facility construction would be permitted under California's construction general permit, which is issued as a statewide permit by the California Environmental Protection Agency, State Water Resources Control Board (SWRCB).

2.3.3 Federal Permits and Approvals

This Project would require the following authorization from the federal government:

- United States Environmental Protection Agency (U.S. EPA) hazardous waste generator identification number.

2.4 Project Objectives and Components

Aqueous sodium hypochlorite bleach in concentrations of 12.5%-30% would be produced by combining chlorine gas (Cl_2) and liquid sodium hydroxide (NaOH, caustic) supplied from existing adjacent operations at the Corteva facility. There is economic demand for the bleach product, which is sold as 12.5% bleach and used for water treatment, primarily as a biocide for drinking water and swimming pool maintenance.

More detail about each of the Project components is provided below.

2.4.1 New Aqueous Bleach Manufacturing and Truck Loading Operations

Table 2-1 summarizes information about the Project equipment and facilities. The proposed site plan is presented in Figure 2-1. The process area would have several skid-mounted bleach manufacturing equipment/components protected by a canopy constructed of structural steel with fiberglass roof panels that is 51.5 feet (ft) x 77.67 ft x 23.5 ft tall. There would also be a maintenance/dry storage building within the process area and adjacent to a canopy that is 20 ft x 24 ft x 18.33 ft tall. The office building would be 48 ft x 45 ft x 13.67 ft tall). The dimensions of the cooling tower, water tank, and 15 process tanks are provided in Table 2-1. The tanks would be painted white, and the building would likely be sand (tan) or another neutral color. No additional fencing is proposed as the Project site is within the Corteva property which already has perimeter security fencing. There is no landscaping currently on this site and no new landscaping is proposed.

The bleach manufacturing capacity of the Project is planned to be phased in starting at 43 gallons per minute (gpm) with the potential for future growth up to 180 gpm. The plant would be in production up to 5,692 hours per year (313 days per year) with seasonal maximum production occurring April through September.

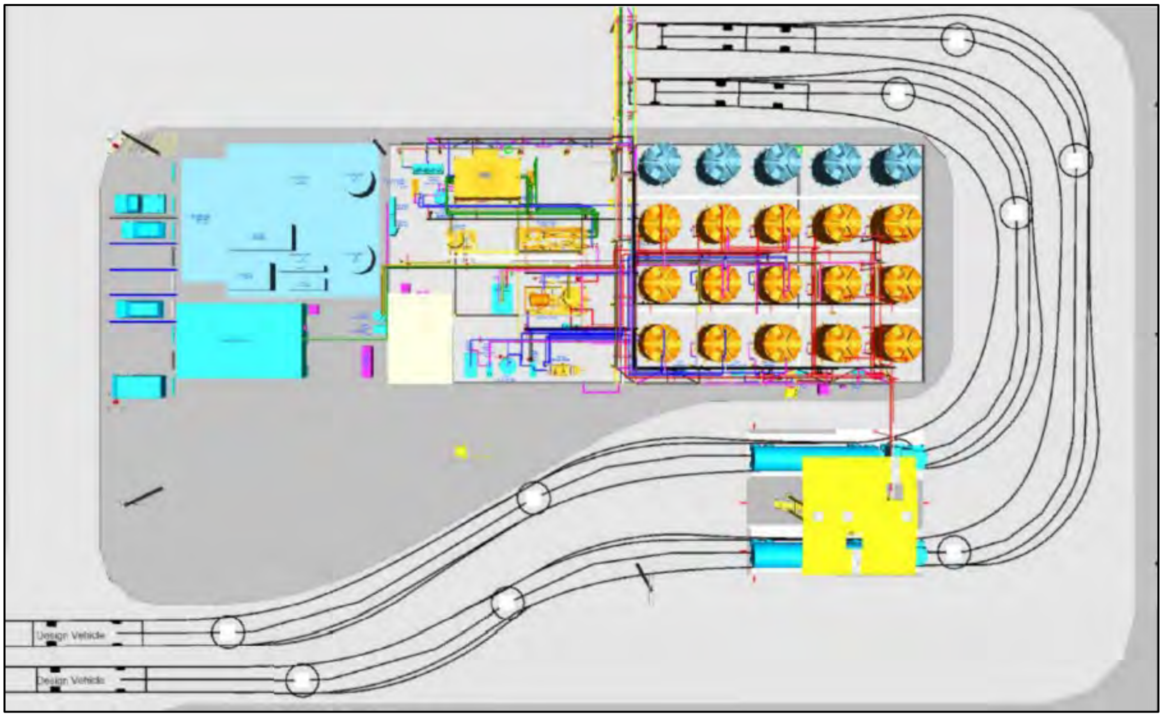
Table 2-1: HASA NorCal Project – Bleach Manufacturing Plant

Component	Size (square feet)	Quantity	Item
Office Building	1,080	1	Restrooms
		1	Lab with a fume hood
		1	Lunch Area
		1	Supervisor office
Employee and Customer Parking	4,700	8	Automobile parking spaces
		1	Handicap-designated parking space
		2	Fire Hydrant
Bleach Plant	9,120	1	Skid Mounted Bleach Plant
		1	Skid Mounted Filter
		1	Filter Press
		1	Cooling Tower (21 ft x 17 ft x 16 ft tall)
		1	Backwash Pump
		1	Water Softener System
		1	Skid Mounted Scrubber
		1	615-gallon water tank (9.25 ft tall x 4 ft diameter)
		2	Air Compressor and Tank
Tank Farm	7,780	15	Process Tanks (11,800 gallons) (16.33 ft tall and 12 ft diameter)
Truck Loading Rack	–	1	Pipe rack with gangway suitable for truck loading

As noted in Section 4.17, Transportation, the average of 8 bleach trucks per day that would support the HASA NorCal Project would be equivalent to the quantity of daily trucks discontinued at the HASA bottling facility south of the Project site (i.e., no net increase in truck traffic in the area).

A benefit of this Project is that the location would allow utilization of chlorine and caustic supplied via pipeline from the adjacent Corteva facility instead of requiring a rail-provided supply of an average of 8 railcars per month. Replacing rail-provided raw material chemicals with on-site pipeline sources would increase safety along local rail transportation corridors by reducing risk of accidental release of chemicals.

Figure 2-3: HASA NorCal Project Site Plan



2.4.2 Utilities

2.4.2.1 Electricity

High and medium voltage electricity transmission power lines are located within the general area; however, 480-volt power is not generally available in the vicinity. The energy consumption for the Project would be an anticipated 3,042,000 kilowatt (kW)-hours per year. A new PG&E feed would be required to provide power at 480 volts to the facility from a nearby 21-kilovolt (kV) transmission power line. HASA’s subcontractor would trench and install a conduit bank containing two 4-inch conduits and one 5-inch conduit [polyvinyl chloride (PVC), Schedule 40 or better]. Following installation of the conduit bank, PG&E would install and connect:

- One 2-1000A QPX service cable in a 5-inch conduit;
- One 3-1/0A EPR UG primary cable in a 4 inch-conduit;
- One 277/480V meter; and
- One 3-way 600A J with 200A tap in the existing #7 vault.

The 750 kilovolt-amps (kVA) pad-mounted transformer would be installed by PG&E on a 90-inch by 106-inch pad. The proposed transformer would lower high voltage to the lower voltage feed required to power the site.

The applicant would trench to 24-inch and 36-inch depths, as required to meet PG&E specifications, for approximately 616 feet, as well as install substructures and backfill per PG&E specifications.

2.4.2.2 Water Supply

The Project would connect to an existing potable water line operated by Corteva to provide potable water in the employee building (bathrooms, kitchen, and lab) and safety showers. As discussed in Sections 4.10, Hydrology and Water Quality, and 4.19, Utilities and Service Systems, the process water supply for the Project would be provided by Corteva, who pumps it from the New York Slough and performs basic filtration treatment prior to distributing to on-site tenants. The average daily consumption of water (process and potable water) is estimated at 37,000 gallons per day, of which approximately 150 gallons per day is potable water.

2.4.2.3 Wastewater Discharge

A new sanitary sewer interconnection and a new industrial process wastewater sewer interconnection would be required for the Project. The interconnection piping would tie in to existing underground pipelines managed by Corteva. The Corteva-managed sewer lines then connect to the public sewer main pipelines maintained and operated by Delta Diablo. The new connections would require sewer permits from Delta Diablo.

During normal operations, no discharge of process wastewater is planned. Process waters would generally be consumed in the final bleach product for delivery. To plan for unexpected process interruptions that could prevent recovery and reuse of process wastewater at the facility, the Project would obtain a permit to connect with Delta Diablo to discharge waters collected during these unexpected and likely infrequent events.

2.4.2.4 Storm Water Control

Storm water runoff during construction would be managed pursuant to coverage under California's construction general storm water permit (Order WQ 2022-0057-DWQ (CGP)). The CGP requires development of a storm water pollution prevention plan (SWPPP) designed to control sediment and related discharges during the project's construction phase. The Regional Water Resources Control Board (RWQCB) enforces the permit requirements, which can include document reviews and site inspections.

During operation, storm water run-off from the plant area would be discharged to Corteva's storm water collection system. Corteva's storm water discharges are permitted under California's industrial general storm water permit (Order 2014-0057-DWQ, as amended; (IGP)). Once the new facility is constructed, Corteva's industrial SWPPP would be updated to incorporate best management practices (BMPs) which would be implemented at the HASA facility in order to manage potential pollutant discharge to storm water.

2.4.2.5 Solid Waste

"Dry Cake" solid waste would be produced during removal of solids from the "Mud Water," a byproduct of the bleach filter system. Dry Cake contains impurities removed from the sodium hypochlorite and contains magnesium chloride, sodium carbonate (soda ash), and perlite filtration materials. The solids would be collected in a dry cake hopper with Enduroliner coating for improved corrosion resistance. The dry cake solids have been classified as non-hazardous waste by HASA and would be properly disposed of by Allied Waste Systems, Inc. dba Republic Services. An estimated 5 cubic yards (CY) of dry cake solid waste would be generated each week. An approximately 20 CY load would be hauled from the site each month.

2.4.3 Construction

The Project would be built within a 68,400-square-foot site (1.57 acres). All buildings that were on the site have previously been removed and a remaining concrete pad would also be removed at the beginning of construction. Construction would include installation of pre-cast concrete piles; grading; paving; construction of reinforced concrete foundations and containment areas; installation of a prefabricated employee building, storage tanks, and skid-mounted production equipment; and construction of a truck loading rack.

The Project site is flat, generally surfaced with gravel. Construction activities would involve grading and excavation from 0-3 feet below grade on more than 50% of the site. Because the site is relatively flat, no import or export of soil would be needed, and the grading plan would be to balance the dirt on the Corteva property. If any excavated dirt is deemed contaminated by Corteva, the material would be chemically characterized and legally disposed off-site by Corteva.

Construction, commissioning, and startup would occur over a 6-month period in the following five phases:

- Construction Phase 1: Concrete pad removal, grading and pile installation;
- Construction Phase 2: Raw material conveyance piping (includes heat-traced chlorine and caustic lines and potable and process water lines from Corteva tie-in points); process equipment; tank farm; and utilities installation;
- Construction Phase 3: Mechanical and electrical work, including new PG&E feed;
- Construction Phase 4: System commissioning; and
- Construction Phase 5: Startup and preliminary operations.

3.0 DETERMINATION

3.1 Environmental Factors Potentially Affected

The environmental factors checked below may be adversely affected by this project as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Greenhouse Gas Emissions	☐ Public Services
☐ Agriculture & Forestry Resources	☑ Hazards & Hazardous Materials	☐ Recreation
☐ Air Quality	☐ Hydrology / Water Quality	☐ Transportation
☐ Biological Resources	☐ Land Use / Planning	☐ Tribal Cultural Resources
☐ Cultural Resources	☐ Mineral Resources	☐ Utilities / Service Systems
☐ Energy	☐ Noise	☐ Wildfire
☑ Geology / Soils	☐ Population / Housing	☐ Mandatory Findings of Significance

3.2 Determination

(To be completed by the Lead Agency)

On the basis of this initial evaluation:

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

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

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

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

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

______________________	______________________
PRINTED NAME	**TITLE**
______________________	______________________
SIGNATURE	**DATE**

4.0 ENVIRONMENTAL IMPACTS EVALUATION

In this section, the Environmental Checklist from Appendix G of the CEQA Guidelines is presented. An assessment of environmental impacts from the Project is presented for each of the criteria listed in the checklist, which covers 21 environmental resource areas.

Air quality and greenhouse gas (GHG) emissions analyses were conducted, and a technical report was prepared for this IS/MND. The Executive Summary of the BAAQMD 2017 Clean Air Plan (CAP) is provided in Appendix A. Supporting documentation and emissions modeling results are presented in Appendices B and C. A Cultural Resources Memorandum is provided in Appendix D and a Geotechnical Report is provided in Appendix E. An analysis of the potential impacts from a chlorine release is provided in Appendix F. The Mitigation, Monitoring, and Reporting Program (MMRP) is described in Appendix G.

The CEQA Environmental Checklist uses a series of questions to identify environmental impacts that could occur if the Project is implemented. The four levels of CEQA environmental impacts are outlined below:

- **Potentially Significant Impact.** This category is applicable if there is substantial evidence that an effect may be significant and no feasible mitigation measures can be identified to reduce impacts to a less than significant level. If there are one or more "Potentially Significant Impact" entries when the determination is made, an Environmental Impact Report (EIR) is required.
- **Less Than Significant After Mitigation Incorporated.** This category applies where the incorporation of mitigation measures would reduce an effect from a "Potentially Significant Impact" to a "Less Than Significant Impact." The Lead Agency must describe the mitigation measure(s) and briefly explain how they would reduce the effect to a less than significant level. Mitigation measures are measures that will minimize, avoid, or eliminate a significant impact (CEQA Guidelines §15370).
- **Less Than Significant Impact.** This category is identified when a project would result in impacts below the threshold of significance, and no mitigation measures are required.
- **No Impact.** This category applies when a project would not create an impact in the specific environmental issue area. "No Impact" answers do not require a detailed explanation if they are adequately supported by the information sources cited by the Lead Agency, showing that the impact does not apply to the specific project (e.g., the project falls outside a fault rupture zone).

If mitigation measures are required for the impact to be Less Than Significant, the specific mitigation measures are described.

4.1 Aesthetics

Significance Criteria	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. Aesthetics. Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☑
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☑
c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☐	☑
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☑	☐

4.1.1 Setting

As shown in the regional map presented in Figure 2-1, the Project site is located in a City of Pittsburg General Plan-designated industrial area and is bordered by industrial operations. The site is located on non-major streets off of Loveridge Road, approximately 1/2 mile south and inland of the New York Slough. Residential areas are located approximately 0.9 miles from the Project site to the south and to the west. There are no sensitive receptors located adjacent to the Project site boundaries.

4.1.2 Environmental Impact Determination

a) Have a substantial adverse effect on a scenic vista?

No Impact. A significant impact would occur if the Project had a substantial adverse effect on a scenic vista. A scenic vista refers to views of focal points or panoramic views of broader geographic areas that have visual interest. A focal point view would consist of a view of a notable object, building, or setting. Diminishment of a scenic vista would occur if the bulk or design of a building or development contrasts enough with a visually interesting view that the quality of the view is permanently affected.

The Project involves the construction and operation of a single-story chemical production and distribution facility in an industrial zone surrounded by similar chemical production equipment and similar buildings. The existing visual character of the surrounding locale is highly urban, and the Project site is not located within or along a designated scenic highway, corridor, or parkway. The Project would not substantially block any scenic vistas. Thus, there would be no impact on aesthetics and no impact on a scenic vista.

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

No Impact. A significant impact would occur if the Project would substantially damage scenic resources within a State Scenic Highway. The Project site is not located along or near an officially designated California or locally designated scenic highway. A portion of California SR 4, also known as Highway 4, is the nearest highway listed as "eligible" for official designation as a scenic highway in the California Scenic Highway Mapping System. The portion of SR 4 that is listed as eligible for scenic designation is located approximately 6 miles east of the Project site along the Sacramento River Delta. Thus, there would be no impact on aesthetics and no impact on a scenic vista.

c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

No Impact. A significant impact would occur if the Project would conflict with applicable zoning and other regulations governing scenic quality. The Project site is in an urbanized, developed area. The Project would be compatible with the General Plan designation of an industrial area and the City zoning as General Industrial. There are no additional regulations governing scenic quality that apply to the subject site. Thus, there would be no impact on aesthetics and no impact on a scenic vista.

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

Less Than Significant Impact. A significant impact would occur if light and glare substantially altered the character of off-site areas surrounding the site or interfered with the performance of an off-site activity. Light impacts are typically associated with the use of artificial light during the evening and night-time hours. Glare may be a daytime occurrence caused by the reflection of sunlight or artificial light from highly polished surfaces, such as window glass and reflective cladding materials, and may interfere with the safe operation of a motor vehicle on adjacent streets. Daytime glare is common in urban areas and is typically associated with mid- to high-rise buildings with exterior facades largely or entirely comprised of highly reflective glass or mirror-like materials. Nighttime glare is primarily associated with bright point-source lighting that contrasts with existing low ambient light conditions.

The Project, including the associated electric substation, is designed with outdoor nighttime lighting. The 2022 California Green Building Standards Code (CALGreen), adopted by the City, contains guidelines for lighting that would be used for the Project. Consistent with CALGreen, outdoor lighting would be designed to minimize unnecessary uplighting and area glare while providing adequate light for worker safety. In addition, there are no sensitive receptors to lighting located in the Project vicinity, which is comprised primarily of other industrial land uses. The impact from outdoor lighting would be less than significant.

4.1.3 Mitigation Measures

With the Project design in compliance with City of Pittsburg building codes, which contain specifications to minimize unnecessary uplighting and area glare, a less than significant impact on aesthetics and a less than significant impact on light and glare would occur. Therefore, no mitigation is required.

4.2 Agriculture and Forestry Resources

Significance Criteria	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
II. 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:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☑
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☑
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☑
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☑

Significance Criteria	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☑

4.2.1 Setting

The Project site is located within a developed and urbanized area of the City of Pittsburg with a zoning designation of General Industrial. No farmland or agricultural activity exists on or near the Project site. No portion of the Project site is designated as Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance.

4.2.2 Environmental Impacts Determination

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?

No Impact. The Project site is located within a developed and urbanized area of the City of Pittsburg. No farmland or agricultural activity exists on or near the Project site. No portion of the Project site is designated as Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance. As such, no impact would occur.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The Project site is located within the jurisdiction of the City of Pittsburg and is subject to the City's applicable land use and zoning requirements. The Project site has a land use designation of Industrial and is zoned General Industrial. The Project site is not zoned for agricultural production, and there is no farmland at the Project site. In addition, no Williamson Act Contracts are in effect for the Project site. As such, no impact would occur.

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

No Impact. The Project site has a land use designation of Industrial and is zoned General Industrial. The Project site is not zoned as forest land or timberland, and there is no timberland production at the Project site. As such, no impact would occur.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. The Project site is not designated or zoned as forest or timberland. Additionally, the Project site is located in an urbanized area of the City and is not within any forest land area. As such, no impact would occur.

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?**

No Impact. Neither the Project site nor nearby properties are currently utilized for agriculture or forestry uses. The Project site is not classified in any “Farmland” category designated by the State of California. As such, no impact would occur.

4.2.3 Mitigation Measures

As detailed in Section 4.2.2, no impact on agricultural or forest lands would occur. Therefore, no mitigation is required.

4.3 Air Quality

Significance Criteria	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III. Air Quality. Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☑
b) 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?	☐	☐	☑	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☑	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☑	☐

4.3.1 Setting

The City of Pittsburg, including the Project site, is within the San Francisco Bay Area Air Basin (SFBAAB). The San Francisco Bay has a moderating influence on the climate of the City and the Project site, which are located along a tidal estuary in the Sacramento/San Joaquin River Delta flowing into the San Francisco Bay called the Carquinez Strait. The surrounding terrain greatly influences winds in this area, resulting in prevailing wind directions from the north and northwest along the Carquinez Strait.

4.3.1.1 Regulatory Setting

The BAAQMD is the regional air quality agency for the SFBAAB. The BAAQMD has been delegated authority under the federal and California Clean Air Acts (CAA) to implement measures to protect air quality within the SFBAAB.

Air quality in the Project region is regulated by the BAAQMD. The BAAQMD regulates stationary sources (with respect to federal, state, and local regulations), monitors regional air pollutant levels (including measurement of TACs), and develops air quality control strategies.

The BAAQMD's *2022 CEQA Air Quality Guidelines*, revised April 2023, establishes significance thresholds, impact assessment, and mitigation guidance for evaluating air quality impacts of construction and operation of new projects. The BAAQMD thresholds of significance are designed to establish the level above which BAAQMD believes air pollution emissions would cause significant environmental impacts under CEQA.

The BAAQMD also requires permits to operate for stationary equipment and operations that emit criteria pollutants and/or TACs into the atmosphere unless excluded by exemption. Permits issued by the BAAQMD include an assessment of compliance with CEQA.

The most recent air quality plan developed by the BAAQMD is the 2017 CAP that was adopted by BAAQMD in April 2017. The 2017 CAP provides a regional strategy to protect public health and the climate. To protect public health, the plan describes how the BAAQMD will continue making progress toward attaining all state and federal air quality standards and eliminating exposure to air pollution among Bay Area communities. The 2017 CAP includes a wide range of control measures designed to decrease emissions of the air pollutants that are most harmful, such as particulate matter (PM), ozone (O_3), and TACs, and to decrease emissions of carbon dioxide (CO_2) by reducing fossil fuel combustion. The 2017 CAP represents the Bay Area's most recent assessment of the region's strategy to attain the state and national O_3 and particulate matter less than 2.5 microns in size ($PM_{2.5}$) standards. The Executive Summary of the 2017 CAP is provided in Appendix A and volumes 1 and 2 of the CAP can be found at:

https://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en and
https://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_proposed-final-cap-volume-2-pdf.pdf?la=en, respectively.

4.3.1.2 Regulation of Criteria Pollutants

The federal and California CAAs have established ambient air quality standards for criteria pollutants.[1] The ambient air quality standards are intended to protect human health and welfare. At the federal level, national ambient air quality standards (NAAQS) have been established for carbon monoxide (CO), O_3, nitrogen dioxide (NO_2), particulate matter less than 10 microns in size (PM_{10}), $PM_{2.5}$, sulfur dioxide (SO_2), and lead. The California ambient air quality standards (CAAQS) are, in general, more stringent than the NAAQS,

[1] Pollutants for which ambient air quality standards have been established are called "criteria pollutants."

and include other pollutants not regulated at the federal level [i.e., sulfates, hydrogen sulfide (H_2S), and vinyl chloride].

Ambient concentrations of criteria pollutants in the SFBAAB are monitored by the BAAQMD. Based on the monitoring data, the SFBAAB does not meet the CAAQS or NAAQS for ground-level O_3 and $PM_{2.5}$, or the CAAQS for PM_{10}. The area is considered attainment or unclassified for all other state and federal criteria pollutants (CARB 2017).

4.3.1.3 Toxic Air Contaminant Regulations

In addition to criteria pollutants, TACs can also be found in ambient air. These contaminants tend to be localized and are found in relatively low concentrations in ambient air. Exposure to TACs can result in adverse health effects. Sources of TACs include industrial processes such as petroleum refining and manufacturing, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. One of the TACs of greatest concern in California is diesel particulate matter (DPM), which results from combustion of diesel fuel in construction equipment, trucks, stationary engines, etc. TAC emissions are regulated at the local, state, and federal level. The Pittsburg/Antioch area is considered an overburdened/impacted community with respect to TAC emissions and is within the BAAQMD Community Air Risk Evaluation (CARE) Program.

4.3.2 Environmental Impact Determination

a) Conflict with or obstruct implementation of the applicable air quality plan?

No Impact. The California CAA requires that air districts create a CAP that describes how the jurisdiction will meet air quality standards. The 2017 CAP (see Appendix A) was adopted by the BAAQMD in April 2017. Under the BAAQMD's methodology, a determination of consistency with the 2017 CAP should demonstrate that a project:

- Supports the primary goals of the air quality plan;
- Includes applicable control measures from the air quality plan; and
- Does not disrupt or hinder implementation of any air quality plan control measures.

A demonstration of how the Project would be consistent with the air quality plan is as follows:

- Supports the primary goals of the air quality plan – the primary goals of the CAP are attainment of state and federal air quality standards and eliminating exposure to air pollution among Bay Area communities. As discussed under criterion (b) below, the Project would not exceed BAAQMD significance thresholds related to criteria air pollutants and thus would not conflict with the 2017 CAP's goal to attain air quality standards.
- Include applicable control measures from the air quality plan – The 2017 CAP includes goals and measures to increase the use of electric vehicles, promote the use of on-site renewable energy, and encourage energy efficiency. The Project would incorporate use of raw materials conveyed by pipeline from an adjacent facility, an efficiency measure that would eliminate rail traffic and emissions associated with raw material deliveries, which would be an energy efficiency improvement.

- Does not disrupt or hinder implementation of any air quality plan control measures – construction and operation of the Project would not disrupt or hinder measures to increase the use of electric vehicles, promote the use of on-site renewable energy, and encourage energy efficiency.

As demonstrated above, the Project would not affect implementation of the 2017 CAP. As such, no impact would occur.

b) 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?

Less Than Significant Impact. A significant impact would occur if the Project would violate any air quality standard or contribute substantially to an existing or projected air quality violation. According to the Air Quality evaluation included in Appendix B, operation of the Project would not have associated emissions of state or federal criteria pollutant emissions, i.e., the pollutants for which ambient air quality standards are established.

Construction and operation-related emissions are evaluated in detail in the Air Quality and GHG Emissions Technical Report and the CalEEMod emissions outputs included in Appendices B and C. In Table 4-1, the expected criteria pollutant emissions from construction and operation of the Project are compared to the BAAQMD CEQA significance thresholds. As shown in Table 4-1, the Project's emissions would be below the BAAQMD's significance thresholds for air quality.

Table 4-1: Comparison of Project Daily Construction and Annual Operation Emissions to BAAQMD Significance Thresholds for Criteria Pollutants

Criteria Pollutant[1]	Construction		Operation[2]		Significant?
	Estimated Average Daily Emissions[3] (lb/day)	Daily Significance Threshold (lb/day)	Estimated Maximum Daily Emissions (lb/day)	Daily Significance Threshold (lb/day)	
ROG	33.8	54	0.70	54	No
NO_x	28.2	54	0.60	54	No
Exhaust PM_{10}	0.98	82	0.06	82	No
Exhaust $PM_{2.5}$	0.91	54	0.02	54	No

1. The BAAQMD only has CEQA significance mass emission thresholds for nonattainment pollutants, including reactive organic gases (ROG), which is an ozone precursor.
2. The BAAQMD also has daily emission thresholds for operation (that are the same as the construction daily emission thresholds), and the daily operation emissions are well below these thresholds.
3. Construction best management practices (BMPs) such as watering, are assumed.

The BAAQMD's *2022 CEQA Air Quality Guidelines* require that projects implement all of the basic BMPs for a project to have a less than significant construction-related fugitive dust emissions impact.

Fugitive Dust BMPs:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off site shall be covered.
- 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.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.
- 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.
- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
- All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
- Unpaved roads providing access to sites located 100 feet or further from a paved road shall be treated with a 6- to 12-inch layer of compacted wood chips, mulch, or gravel.
- A publicly visible sign shall be posted with the telephone number and the person to contact at the City regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Construction and operation emissions for the Project would not exceed the BAAQMD thresholds for the criteria pollutants and the Project would be required to implement the BAAQMD's basic BMPs for controlling fugitive dust. Therefore, the Project would result in a less than significant impact related to regional cumulative emissions.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. A significant impact would occur if the Project were to expose sensitive receptors to pollutant concentration levels determined to pose a health risk. The BAAQMD identifies the following as sensitive receptors: long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, childcare centers, and athletic facilities.

The Project site is surrounded by industrial facilities with the nearest sensitive receptors located 0.9 miles (4,752 feet) and 1 mile (5,280 feet) away, respectively:

- Edgewater Apartments at 2105 Carion Court, Pittsburg, CA; and
- Los Medanos College at 2700 E Leland Road, Pittsburg, CA.

A 2-mile radius from the Project location is shown in Figure 4-1. Residential areas are located to the west and south within 2 miles of the Project. BAAQMD Community At

Risk Evaluation (CARE) impacted areas are shown in Figure 4-2 (map from BAAQMD, CARE). For assessing community risks and hazards, the BAAQMD recommends a 1,000-foot radius around the Project property boundary. At this time, the City of Pittsburg has no additional requirements for proposed new facilities as a result of this designation.

There are no sensitive receptors within 1,000 feet of the Project site fence line. Therefore, construction and operation of the Project would result in a less than significant impact from exposure to pollutant concentrations at sensitive receptors.

Figure 4-1: Regional Map Showing 2-mile Radius from the Project Location

d) **Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?**

<u>Less Than Significant Impact.</u> Potential sources that may emit odors during construction activities include equipment exhaust and architectural coatings. Odors from these sources would be localized and generally confined to the immediate area surrounding the Project site.

Potential sources of odors during operation would be fugitive emissions from the bleach manufacturing process and truck loading. These activities would be conducted outdoors in well-ventilated areas. Based on existing similar bleach manufacturing operations currently performed at the nearby HASA facility located at 1251 Loveridge Road, odors that could adversely affect a substantial number of people would not occur, based on the lack of odor complaints related to the existing facility. Health hazard impacts associated with chlorine emissions are evaluated in Section 4.9, Hazards and Hazardous Materials.

4.3.3 Mitigation Measures

As detailed in Section 4.3.2, air quality impacts from construction, including the implementation of the BMPs, and operation of the Project would result in less than significant impacts to air quality. Therefore, no mitigation is proposed or required.

Figure 4-2: BAAQMD CARE Program Impacted Communities

4.4 Biological Resources

Significance Criteria	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. Biological Resources. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☑
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☑
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☑
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☑
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☑
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☑

4.4.1 Setting

The Project site is located on a previously developed 1.57-acre parcel leased from Corteva. The site is predominantly covered with gravel with sparse vegetation. Vehicle traffic associated with the surrounding industrial activity in this industrial area and the railroad tracks to the east of the site impede potential wildlife access to and from the site.

Proximities to surrounding non-industrial land uses are as follows:

- Approximately ½ mile south of the Sacramento/San Joaquin River Delta waterfront; and
- Approximately ⅔ mile southwest of Kirker Creek and a City of Pittsburg-designated open space area.

4.4.2 Environmental Impact Determination

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

No Impact. The site is located in an area zoned General Industrial, and the General Plan Land Use Designation is industrial. The existing site is generally surfaced with gravel without landscaping. The Project site would also be surfaced with gravel or paved. The Project would not have an adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

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

No Impact. A significant impact would occur if any riparian habitat or natural community would be lost or destroyed as a result of urban development. The Project site does not contain any riparian habitat or any streams or water courses necessary to support riparian habitat. The Project site is 1/2 mile south of the Sacramento/San Joaquin River Delta waterfront. Kirker Creek and a City-designated open space area are located approximately 2/3 mile northeast of the site.

Therefore, the Project would not have a substantial adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. A significant impact would occur if federally protected wetlands would be modified or removed by a project. The Project site does not contain any federally protected wetlands, wetland resources, or other waters of the United States as defined by Section 404 of the Clean Water Act (CWA). The Project site is within a highly industrial area, 1/2 mile south of the Sacramento/San Joaquin River Delta waterfront, 2/3 mile northeast of Kirker Creek and a City-designated open space area. Therefore, the Project would not have an impact on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

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

No Impact. A significant impact would occur if the Project would interfere with, or remove access to, a migratory wildlife corridor or impede use of native wildlife nursery sites. Due to the highly urbanized nature of the Project site and surrounding area, habitat for native resident or migratory species or native nurseries is not present. Therefore, the Project would not interfere with wildlife movement or impede the use of any native wildlife nursery sites.

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

No Impact. There are no trees located on the Project site. The Project site is within an industrial area with no known wildlife corridors or native wildlife nursery sites.

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?

No Impact. According to a dataset available at DataBasin.org (Conservation Biology Institute 2016), a website showing California's Habitat Conservation Plans (HCPs), the Project site is not part of any draft or adopted HCP. According to the California Department of Fish and Wildlife, the Project site is not part of a Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan. Therefore, the Project would not conflict with the provisions of any adopted conservation plan, and no impacts would occur.

4.4.3 Mitigation Measures

As detailed in Section 4.4.2, construction and operation of the Project would not impact biological resources, and therefore, no mitigation would be required.

4.5 Cultural Resources

Significance Criteria	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V. Cultural Resources. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	☐	☐	☐	☑
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☑	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☑	☐	☐

4.5.1 Setting

The Project site is located on a previously developed 1.57-acre parcel leased from Corteva. The entire area is highly industrialized and previously developed. The property is covered with fill dirt to approximately 3 feet deep as discussed in Section 4.7.1, Geology and Soils.

The City commissioned a cultural resources study that was completed by Solano Archaeological Services, LLC (SAS) in July 2023. A copy of the Cultural Resource Technical Memorandum prepared by SAS is contained in Appendix D. A detailed description of the Regulatory, Pre-History, Ethnography, and Historic Settings are provided in that Memorandum in Appendix D.

4.5.2 Environmental Impact Determination

a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?

No Impact. A significant impact could occur if the Project substantially altered the environmental context of, or removed, identified historical resources. The Project would include grading of the site and removal of a concrete pad. No structures remain on-site and none of the structures previously on this site have been identified as a historical resource by local or state agencies.

As part of the cultural resources study (Appendix D), the Northwest Information Center (NWIC) of the California Historical Resources Information System, provided the results of a record search for the Project (NWIC File No. 23-0056). The NWIC indicated that no cultural resources were known to be present within the project area. Four resources had been documented within a half-mile search area. These resources consisted of the old Atchison, Topeka, and Santa Fe Railroad line just to the south of the project area boundary, the Southern Pacific Railroad (SPRR) line, about half-mile south of the Project area, the

Columbia-Geneva Steel Company Plant, and the Mt. Diablo Recycling Center, both located south of the SPRR alignment. These resources would not be impacted by the Project. The Project site has not been determined to be eligible for listing in the National Register of Historic Places or the California Register of Historical Resources. Therefore, no impacts to historical resources would occur.

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

Less Than Significant Impact With Mitigation Incorporated. A significant impact would occur if a known or unknown archaeological resource was removed, altered, or destroyed as a result of the Project. Section 15064.5 of the State CEQA guidelines defines significant archaeological resources as resources that meet the criteria for historical resources, or resources that constitute unique archaeological resources.

As noted in the setting and Section 4.7.1, the site is underlain with approximately 3 feet of fill dirt. Grading and earthwork for structural concrete pads would involve excavation to a maximum depth of 3 feet in many areas of the 1.57-acre site. The electrical utility upgrade would require trenching for new conduit to a maximum depth of 3 feet. Some excavation below 3 feet would occur as approximately 150 piles would be installed to a depth of 48 feet below ground surface (bgs) to support concrete foundations constructed at the facility.

As described in the Cultural Resources Technical Memorandum in Appendix D, the database searches, field survey, and additional archival research did not identify any prehistoric or historic-period cultural resources within the Project area. Historic maps indicate the Project area is located on or at least immediately adjacent to an old slough or wetland area – a setting often favored by early Native American peoples. However, given the grading and filling that clearly was required to fill in this slough or wetland, it is highly likely that had any intact prehistoric resources been present, they would have been destroyed. As such, the Project area exhibits a low/moderate level of sensitivity for retaining traces of early Native American activity. Concerning historic period resources, historic mapping, aerial photographs, and archival research indicate that no developments have occurred directly within the Project area since at least the early 20th century. Consequently, there is very little chance that any intact and potentially significant historic-era resources predating the early 20th century could be present within the Project area. Due to a lack of identified cultural resources and sensitive landforms, the cultural resources study indicated that the proposed Project would have no impact on historical resources.

However, due to the depth of the pile driving and in order to ensure significant impacts do not occur, an inadvertent discovery plan would be implemented in case cultural resources are encountered underground during excavation/trenching work or pile driving. Therefore, impacts would be less than significant with the inadvertent discovery mitigation measure incorporated (See MM-CUL-1).

c) Disturb any human remains, including those interred outside of dedicated cemeteries?

Less Than Significant Impact With Mitigation Incorporated. A significant impact would occur if previously interred human remains were disturbed during excavation activities associated with Project construction. No human remains are expected to be located on the Project site given the prior disturbance and covering the site with 3 feet of fill dirt. If human remains or any associated funerary artifacts are discovered during construction, all work must cease within the immediate vicinity of the discovery. In accordance with the California Health and Safety Code (Section 7050.5), the Contra Costa County Sheriff/Coroner must be contacted immediately. If the Coroner determines the remains to be Native American, the Coroner will notify the Native American Heritage Commission, which will in turn appoint a Most Likely Descendent (MLD) to act as a tribal representative. The MLD will work with the Applicant and a qualified archaeologist to determine the proper treatment of the human remains and any associated funerary objects. Construction activities would not resume until either the human remains are exhumed, or the remains are avoided via Project construction design change. These procedures would be incorporated into the inadvertent discovery plan in MM-CUL-1.

Although there is a low expectation of encountering human remains on this site, impacts would be less than significant with the inadvertent discovery plan mitigation measure incorporated (see MM-CUL-1).

4.5.3 Mitigation Measures

As detailed in Section 4.5.2, construction and operation of the Project would result in less than significant impacts to cultural resources with the implementation of the inadvertent discovery plan mitigation measure.

4.6 Energy

Significance Criteria	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. Energy. Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☑	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☑	☐

4.6.1 Setting

4.6.1.1 Physical Setting

The Project site is located in an industrial area on a previously developed 1.57-acre parcel leased from Corteva. High- and medium-voltage electricity transmission power lines are located within the general area; however, 480-volt power is not generally available in the vicinity.

4.6.1.2 Regulatory Setting

CALGreen was adopted as part of the California Building Standards Code (CCR Title 24) and as part of the City of Pittsburg General Plan. Mandatory standards under Title 24 involve sustainable site development and energy efficiency (in excess of California Energy Code requirements). The current energy efficiency standards were adopted in 2022 and took effect on January 1, 2023.

4.6.2 Environmental Impact Determination

A new PG&E substation would be required to provide power at 480 volts to the facility from nearby 21-kV transmission power lines. The energy consumption for the Project would be approximately 678 kVA at 480 volts. Anticipated annual power consumption would be 3,042 megawatt-hours based on ten hours/day of operation for nine months and 20 hours/day of operation for three months over the year. No natural gas would be used for construction or operation of this Project.

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less Than Significant Impact. The Project would be designed, constructed, and operated in accordance with the City’s green building code, which is CALGreen. The Project would comply with all applicable mandatory provisions of CALGreen. Project construction would last 8 months and would not result in prolonged fuel or energy use. The Project operational energy use is minimized by design to improve profitability. Therefore, impacts due to wasteful, inefficient, or unnecessary consumption of energy resources would be less than significant due to the Project’s compliance with CALGreen and by efficient process design.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less Than Significant Impact. The Project’s improvements and operations would be in accordance with applicable State Building Code Title 24 regulations, which include energy conservation measures. As outlined in earlier sections, Project impacts would be less than significant due to required Project compliance with CALGreen and Title 24.

4.6.3 Mitigation Measures

As detailed in Section 4.6.2, construction and operation of the Project would result in less than significant impacts to energy resources when designed and installed in compliance with CALGreen.

4.7 Geology and Soils

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. Geology and Soils. Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☑
ii) Strong seismic ground shaking?	☐	☑	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☑	☐	☐
iv) Landslides?	☐	☐	☐	☑
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☑	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☑	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☑	☐	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☑
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☑	☐

4.7.1 Setting

A geotechnical study was conducted at the site in 2021 (Geotechnical Report; presented in Appendix E) and included a review of existing data for site setting and results of Cone Penetration Test borings, soil laboratory testing, and a ground motion study. The recommendations of the Geotechnical Report provide the basis of the Project foundation design.

The Project location is a 1.57-acre portion of land leased from Corteva. The site is located 1/2 mile inland from the New York Slough, which branches from the San Joaquin River. Before the site was developed, smaller sloughs flowed through the area from the higher ground south of the plant into New York Slough. When the area was developed, these smaller sloughs were filled in some areas with a mixture of slag, a manufacturing byproduct from steel plants and hydraulically placed dredge sand. According to the Geotechnical Report, the proposed new plant is located mainly within the limits of a buried slough.

According to the City of Pittsburg 2020 General Plan, there are seven active or potentially active faults in the City's vicinity. The Geotechnical Report states that the nearest identified fault is the Great Valley 05 Pittsburg – Kirby Hills fault located 2.7 miles west from the Project site.

4.7.1.1 Above Grade Conditions

The ground surface of the site is relatively level, with ground surface elevations approximately 12 to 13 feet above mean sea level (amsl). The site surface is generally covered with gravel. The eastern portion of the site is vacant, and the western portion of the site is currently used as a storage area. A drainage swale running in the north-south direction exists near the center of the site. Overhead utilities are located to the west, south, and east of the site. The existing infrastructure pipelines adjacent to the site (chlorine, caustic, water) are elevated on pipe racks about 15 to 25 feet above the existing grade. The nearby pipe rack alignments are parallel to G Street along the west side of the roadway and parallel to 6th Street along the south side of the roadway. The ground surface underneath the pipe rack is covered by gravel or asphalt concrete. Per the Geotechnical Report, no evidence of past, major ground movement was observed within areas of existing asphalt concrete.

4.7.1.2 Subsurface Soil Conditions

The fill is highly variable and includes mixtures of clays, silts, sands, and gravels with occasional debris, including slag byproduct. The upper portion of the fill is about 8 feet thick and generally consists of a layer of gravel over predominately sandy clay with layers of sand. The clays are moderately expansive and vary from medium stiff to very stiff. The sands range from loose to dense. The lower portion of the fill is about 7 feet thick and consists of loose to medium dense sands (hydraulic fill). The fill is underlain by marsh deposit soils consisting of highly plastic, soft to medium stiff silt and clay (also known as bay mud). The bay mud is typically a normally consolidated to slightly over-consolidated soil. Near the center of the site, the bay mud is about 9 feet thick. The bay mud is underlain by stiff/dense soils that extend to the maximum depth explored of 122 feet. The Geotechnical Report concludes that the fill soil is prone to liquefaction.

4.7.1.3 Groundwater Conditions

Groundwater was encountered between 3 and 5 feet bgs in borings advanced during the 2021 site geotechnical study. Groundwater levels measured in the vicinity of the site by Jacobs Engineering in 2019 were 3 to 4 feet bgs.

4.7.2 Environmental Impact Determination

a) Directly or indirectly cause 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.

No Impact. A significant impact would occur if the Project would cause personal injury or death or result in property damage as a result of a fault rupture occurring on the Project site and if the Project site is located within a State-designated Alquist-Priolo Zone or other designated fault zone. The Alquist-Priolo Earthquake Fault Zoning Act is intended to mitigate the hazard of surface fault rupture on structures for human occupancy. According to the California Department of Conservation Earthquake Zones of Required Investigation Map, the Project site is not located within an Alquist-Priolo Special Studies Zone or Fault Rupture Study Area. The Geotechnical Report states that the nearest identified fault is the Great Valley 05 Pittsburg – Kirby Hills fault, located 2.7 miles from the Project site. There are no identified faults at the Project site, so the Project would not cause injury or death as a result of fault rupture during an earthquake.

ii) Strong seismic ground shaking?

Less Than Significant Impact With Mitigation Incorporated. A significant impact would occur if the Project would cause personal injury or death or result in property damage as a result of seismic ground shaking. The nearest identified fault is the Great Valley 05 Pittsburg – Kirby Hills fault, located 2.7 miles from the Project site. Several other faults are located in the general vicinity, farther away from the Project site. Consequently, the Project could expose people and structures to strong seismic ground shaking from local or regional active faults.

The Project would be designed and constructed per the recommendations of the Geotechnical Report and in compliance with the most current building codes regulating seismic risk, including the 2022 State of California Building Code. Compliance with these recommendations/jurisdictional requirements would reduce the potential effects of strong ground shaking.

The Geotechnical Report concluded that driven precast, prestressed concrete piles would be appropriate deep foundations for planned site improvements, including concrete pads for the employee building, process area, tanks, tank farm, and tanker loading platform. The deep foundations would transfer the loads down to the stiff and dense alluvial soils well below the fill and marsh deposit soils.

By designing and constructing the Project based on the recommendations of the Geotechnical Report and in compliance with the most current building codes, impacts related to seismic ground shaking would be less than significant with mitigation (see MM-GEO-1).

iii) Seismic-related ground failure, including liquefaction?

Less Than Significant Impact With Mitigation Incorporated. A significant impact may occur if a project site is located within a liquefaction zone. Liquefaction is the loss of soil strength or stiffness due to increased pore-water pressure during severe ground shaking. According to the California Department of Conservation Earthquake Zones of Required Investigation Map, the Project site is located within a liquefaction zone. The Geotechnical report indicates that fills at the site have a moderate to high risk of liquefaction. Liquefaction concern for the Project would be mitigated using deep foundations consisting of driven precast, prestressed concrete piles. Pursuant to recommendations presented in the Geotechnical Report in Appendix E, approximately 150 piles would be installed to a depth of 48 feet bgs to support concrete foundations constructed at the facility.

Piles would be installed to address seismic-related ground failure beneath structural foundations; therefore, the impacts of seismic-related ground failure, including liquefaction, would be less than significant with mitigation (see MM-GEO-1).

iv) Landslides?

No Impact. A significant impact would be identified if the Project site were on a hillside with unstable geological conditions or overlain by soil types susceptible to failure when saturated. Since the Project site and surrounding area are relatively level and not located within a landslide hazard zone per the California Department of Conservation, Division of Mines and Geology Seismic Hazard Zones Map, the Project site would not expose people or structures to landslide hazards.

b) Result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact. Ground surface disturbance would occur within at least 1 acre of the 1.57-acre Project site during shallow grading and excavation work performed to construct the Project facility; these activities could potentially cause soil erosion.

Post-construction, the majority of site surfaces would be covered by concrete, asphalt concrete, or compacted soil overlain by gravel, all of which would prevent soil erosion.

Prior to the start of construction activities, the project would obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit) Order 2009-0009-DWQ. Soil erosion would be reduced through implementation of the construction SWPPP approved as part of the Construction General Permit. Therefore, impacts from soil erosion would be less than significant.

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?

Less Than Significant Impact With Mitigation Incorporated. A significant impact would occur if any unstable geological or soil conditions would result in any type of geological or soil failure, including lateral spreading, landslides, liquefaction, or collapse. The Geotechnical report indicates that fill soils at the site have a moderate to high risk of liquefaction and related settlement. The Geotechnical report indicates that the other effects (landslides, lateral spreading, subsidence, and collapse) are not concerns for the Project site. Piles would be installed to mitigate seismic-related liquefaction ground failure beneath structural foundations. Therefore, impacts would be less than significant with mitigation (see MM-GEO-1).

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

Less Than Significant Impact With Mitigation Incorporated. A significant impact would occur if the Project were built on expansive soils. Expansive soils have relatively high clay mineral and expand with the addition of water and shrink when dried, which can cause damage to overlying structures. The Geotechnical Report provided laboratory data for two soil samples collected at 2 feet bgs. Reported Plasticity Index for the two samples was 25% and 26%, which indicates expansive soil properties. These geotechnical analyses indicate the shallow soils beneath the Project site are expansive.

The Geotechnical Report states that, if needed, the top 6 inches of existing soil could be excavated and replaced with a well-compacted select fill layer to prepare for placement of a concrete pad. Even with this geotechnical remedy, some movement and cracking of the slab may occur. To overcome this potential, all concrete pads to be installed for this Project would be supported by piles, and installation of connected, surface concrete pile caps and pads would require excavation of at least the top 6 inches of existing soil. Because pile and pad construction would require excavation of existing soil to depths of 6 inches or greater and replacement of expansive soils with non-expansive fill would occur, the potential for expansive soils would be a less than significant impact with mitigation incorporated (see MM-GEO-2).

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact. Significant impacts would occur if septic/alternative waste disposal systems were the only feasible means for disposing of sanitary wastewater and site soils were incapable of handling such systems. The Project would connect to the Delta Diablo municipal sewer system currently in operation on the Corteva property to dispose of sanitary wastewater from the new employee building; no septic tanks or alternative wastewater disposal systems would be installed.

Therefore, the soil capacity to support the use of septic tanks or alternative wastewater disposal systems is not applicable to this Project, and no impact would occur.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant Impact. A significant impact would be characterized by disturbance of unique paleontological resources or geologic features during construction activities performed within the Project site. Though site development work would involve site-wide grading and excavation, which could disturb such resources or features if present, it is unlikely that unique paleontological resources are present because the Project site is underlain by artificial fill including slag and hydraulically placed dredge sand. Intact fossil remains of paleontological significance are typically not found in fill materials of this type and location. The bay mud underlying these fill materials consists of recent near-shore deposits that may contain relatively young fossil remains of plants and invertebrates. However, due to the young age and ubiquitous distribution of these remains, they would not be considered significant paleontological resources. While there is a potential that the proposed foundation piles could intersect young fossil remains during pile driving 48 feet bgs into the underlying bay mud, these specimens could not be observed, identified, or recovered, and thus would not benefit the science of paleontology.

The Project site is in a previously developed industrial area situated on reclaimed marshland and sloughs. The site and surrounding area do not contain unique geologic features, nor does the Project site contain a geologic feature that would be destroyed by the proposed construction.

Based on the above discussion, the Project would not destroy paleontological resources or geologic resources and, therefore, the impact is less than significant.

4.7.3 Mitigation Measures

As discussed in Section 4.7.2 and detailed in Section 5.0 (Mitigation Measures), MM-GEO-1 and MM-GEO-2 would be implemented to mitigate potential impacts due to seismic ground shaking, liquefaction, and impacts of expansive soils. With these construction mitigations, the impact of the Project would be less than significant.

4.8 Greenhouse Gas Emissions

Significance Criteria	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. Greenhouse Gas Emissions. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☑	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☑	☐

4.8.1 Setting

GHGs include any gas that absorbs infrared radiation in the atmosphere. GHGs include, but are not limited to, water vapor, CO_2, methane (CH_4), nitrous oxide (N_2O), and fluorocarbons. The warming potential of different types of GHGs varies. The global warming potential (GWP) is the potential of a gas or aerosol to trap heat in the atmosphere.

Since GHGs absorb different amounts of heat, the amount of heat absorbed by a GHG is compared to CO_2 and referred to as the "CO_2 equivalent" (CO_2e).

The increase of GHG emissions has led to the trapping and buildup of heat in the atmosphere near the Earth's surface, commonly known as the greenhouse effect. Human activity, including the burning of fossil fuels, is contributing to increased concentrations of GHGs in the atmosphere that can lead to adverse changes in global climate.

Global climate change is an increase in the average temperature across the Earth. Climate change effects can be measured by changes in weather characteristics such as wind patterns, storms, precipitation, and temperature. Data have indicated that the current temperature record differs significantly from previous climate conditions in both the rate of increase and magnitude.

Unlike criteria air pollutants, which are pollutants of regional and local concern, GHGs have global impacts.

4.8.1.1 Regulatory Setting

AB 32, the California Global Warming Solutions Act of 2006, was adopted by the California legislature. Senate Bill (SB) 32 was signed into law in September 2016 amending AB 32 to require the California Air Resources Board (CARB) to implement statewide reductions in GHG emissions to 40% below 1990 levels by 2030. Following SB 32 enactment, regulations and initiatives from CARB and other state agencies were developed, such as low carbon fuel standards that impact diesel-fueled transport vehicles, and energy efficiency standards that impact building standards.

4.8.2 Environmental Impact Determination

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

Less Than Significant Impact. The BAAQMD CEQA Guidelines include a stationary source (industrial facility) mass emissions threshold of 10,000 metric tons (MT) CO_2e per year to characterize a significant impact on the environment. GHG emissions would be generated by the Project from use of electricity and fuel for Project construction and operation (e.g., for lighting, fluid pumping, air compression, equipment/vehicle use).

The California Emissions Estimator Model (CalEEMod) was used to calculate GHG emissions from Project construction and facility operation (see CalEEMod details in Appendix B and outputs in Appendix C). Table 4-2 presents estimated GHG emissions for the Project and compares the estimated emissions with the BAAQMD significance threshold.

The Project would generate GHG emissions below the BAAQMD CEQA Guidelines significance threshold. Therefore, GHG impacts would be less than significant.

Table 4-2: Project GHG Emissions Compared to BAAQMD CEQA GHG Significance Thresholds

GHG	Project Emissions from Construction	Project Emissions from Operations	BAAQMD CEQA Significance Thresholds (MT/yr)	Significant?
	(MT)	(MT)	Stationary Sources (Operation)	
CO_2	115.0	660.0	--	--
CH_4	< 0.1	0.6		
N_2O	< 0.1	< 0.1		
Refrigerants (ODS)	< 0.1	34.8		
CO_2e	116.0	717.0	10,000	No

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

Less Than Significant Impact. The BAAQMD's 2017 CAP defines an integrated control strategy to reduce interrelated emissions of criteria pollutants and GHGs. To protect the climate, the Plan defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious GHG reduction targets for 2030 and 2050 and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve those GHG reduction targets.

The CAP contains measures (BMPs) to reduce emissions of methane and other "super-GHGs" that are potent climate pollutants in the near-term and to decrease emissions of CO_2 by reducing fossil fuel combustion. The control strategy is designed to combine efforts to improve air quality and protect the climate and is being implemented by partner agencies at the state, regional, and local levels. For instance, the CAP is a regional and multi-agency effort of the BAAQMD, CARB, the Association of Bay Area Governments, the Bay Conservation and Development Commission, the Metropolitan Transportation Commission, and the U.S. EPA. The strategy encompasses 85 control measures that define specific actions to reduce emissions of pollutants from all emissions sources, including transportation, energy use, water use, waste management, and building controls.

The Project would be designed and implemented to align with applicable requirements of the BAAQMD's 2017 CAP, as implemented by the BAAQMD through rulemaking, and as implemented by the City of Pittsburg for the purpose of reducing the emissions of GHGs. The Project would therefore have a less than significant impact in regard to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

4.8.3 Mitigation Measures

As detailed in Section 4.8.2, GHG emissions from construction and operation of the Project would result in less than significant impacts, and therefore, no mitigation measures would be required.

4.9 Hazards and Hazardous Materials

Significance Criteria	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. Hazards and Hazardous Materials. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☑	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☑	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☑	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would create a significant hazard to the public or the environment?	☐	☐	☑	☐
e) For a project located within an airport land use plan, or where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☑
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☑	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☑

4.9.1 Setting

In this section, environmental, health, and safety issues are evaluated related to the handling and use of hazardous materials during construction and operation of the Project.

The setting for evaluation of environmental impacts from handling and use of hazardous materials is the Project location. The Project would be constructed on 1.57 acres subdivided from existing parcel APN 073-220-049, leased from Corteva. The parcel address at 901 Loveridge Road is also where Corteva operates a large chemical manufacturing facility on approximately 993 acres, of which approximately 235 acres are a wetland preserve located on the eastern side.

The Corteva site contains active chemical manufacturing facilities, an active Class II (designated waste) landfill, and a number of closed solid waste disposal units. Several Geotracker identification numbers (ID#'s) address the site, with most of the information consolidated in Geotracker ID#SL20210828. The case documents describe a variety of actions, including groundwater monitoring and remediation, being performed in accordance with Waste Discharge Requirements Order No. R2-2018-0006 issued by the California Regional Water Quality Control Board San Francisco Bay Region (Water Board),.

The surrounding community is the setting for evaluation of health and safety impacts. The closest places to the Project site that are non-industrial, where people may spend a significant amount of time, are the Los Medanos Community College located 0.9 miles to the south and residential areas located 0.9 miles to the southwest. A residential area, several schools, a day care center for children, a nursing home, and a public park are located approximately 1 mile to the west of the Project site.

4.9.1.1 Regulatory Setting

California State hazardous waste and hazardous materials management program requirements include federal requirements. Thus, only California programs will be described herein.

The Certified Unified Program Agency (CUPA) consolidates and coordinates programs for hazardous waste, including Hazardous Materials Business Plans (HMBPs), the California Accidental Release Prevention (CalARP) Program, and the Uniform Fire Code, among others. The Contra Costa Health Services Hazardous Materials Programs (CCHSHMP) is the CUPA for the City of Pittsburg.

A facility would be required to prepare and submit an HMBP for storage of hazardous materials when quantities exceed state-defined thresholds (55 gallons of a liquid, 200 cubic feet of a gas, and 500 pounds of a solid). The HMBP provides owner/operator information including: i) a list of emergency contacts; ii) a hazardous material inventory, which includes identifying each hazardous material, its physical state, the average and maximum quantity handled, the hazards of the material, and the identity of each chemical component; iii) a facility map, which provides the location of each hazardous material within the facility, the location of emergency equipment and emergency evacuation areas, and locations of environmentally sensitive areas such as storm drains, sewer system inlets, etc.; iv) a business emergency plan, which lists all local, state and federal emergency contacts and provides information on emergency equipment and procedures; and v) an employee training plan, which specifies how employees would be trained relative to routine hazardous material handling and non-routine and emergency situations. The HMBP is submitted and updated annually through the California Environmental Protection Agency's

(CalEPA's) web-based California Environmental Reporting System (CERS). Each CERS submission is reviewed and approved by the local CUPA, who also inspects each hazardous material handler on a periodic basis.

The CUPA also oversees the State's CalARP Program, which requires preparation of a risk management plan (RMP) for facilities with regulated substances above threshold quantities within a process. For chlorine gas, the only CalARP regulated substance that would be used by the Project, the threshold quantity requiring an RMP is 100 pounds contained in a process. The CalARP Program requires developing an offsite consequences analysis (OCA) based on a worst-case release scenario for each threshold chemical. Based on the OCA and several other factors, the facility is placed into one of four program levels, which require implementing specified requirements for chemical hazard analysis and developing various management plans for routine and non-routine situations involving the chemical.

Hazardous materials include hazardous wastes. Hazardous waste management in California is regulated overall by CalEPA's Department of Toxic Substances Control (DTSC), and at the local level by the CUPAs. Facilities that generate hazardous waste must obtain a hazardous waste generator ID# and must follow extensive requirements found in Title 22 of the California Code of Regulations. These requirements include waste characterization, accumulation requirements, transportation, employee training and recordkeeping and reporting.

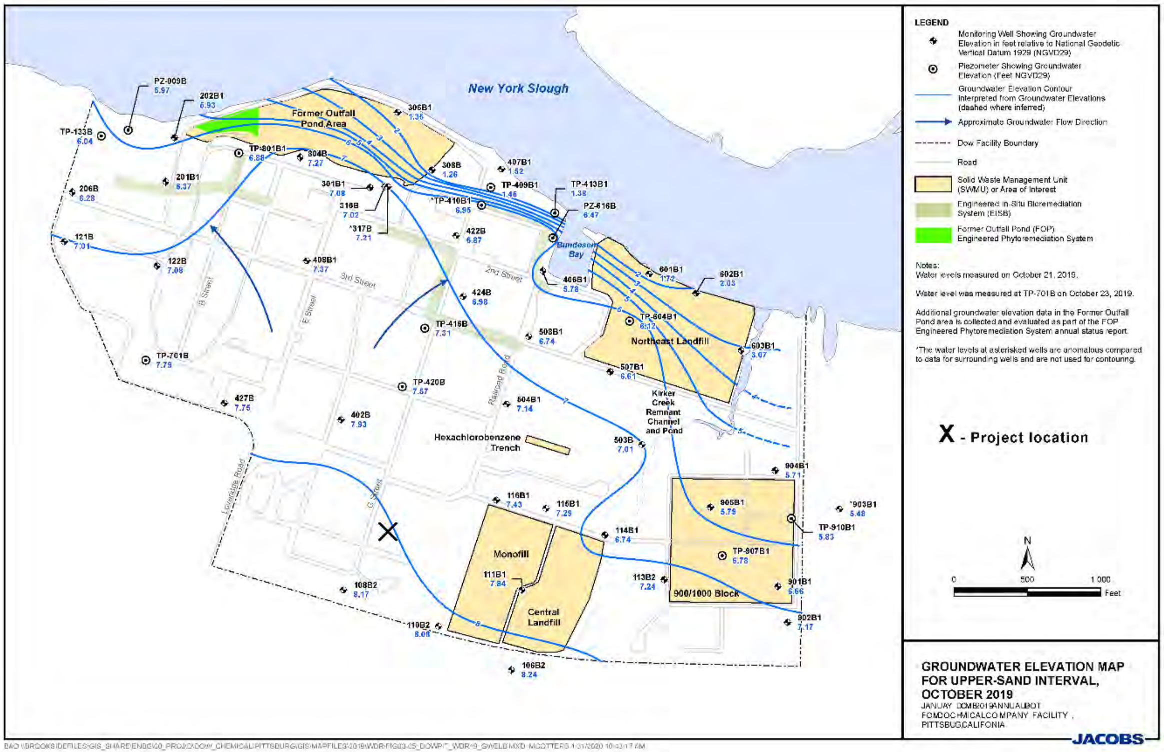
Government Code Section 65962.5 (Cortese List)

Section 65962.5 of the Government Code requires CalEPA to develop and update a list of hazardous waste and substances sites, known as the Hazardous Waste and Substance Sites (Cortese) List. The Cortese List is a planning document used by the State, local agencies, and developers to comply with CEQA requirements in providing information about the location of hazardous materials release sites. The Cortese List includes hazardous substance release sites identified by the DTSC, the State Water Resources Control Board (SWRCB), and the California Department of Resources Recycling and Recovery (CalRecycle).

Corteva's property (including the HASA parcel) is on the Cortese List due to groundwater contamination issues, and, for that reason, is also listed on SWRCB's GeoTracker and DTSC's EnviroStor sites. As noted above, the site is actively remediating contaminated groundwater for potential contaminants of concern such as benzene, toluene, mercury, and chlorinated hydrocarbons.

However, even though the entire Corteva facility is the subject of the listing, the leased site for the Project (which is in the interior of the Corteva property) is located cross-gradient or upgradient of the groundwater contamination plume and neither its construction nor operation are expected to affect, or be affected by, the ongoing remediation activities on the other portions of the property. This positioning of the Project location versus the release locations (landfills) and the groundwater flow direction is illustrated in Figure 4-3, which was taken from the 2029 Annual WDR Report for this site (Jacobs 2020). As the groundwater elevation contours indicate, the Project is upgradient or cross-gradient from the release locations.

Figure 4-3: Groundwater Flow Direction in the Vicinity of the HASA NorCal Project



Corteva is also listed in Geotracker for a permitted underground storage tank and a Class II (designated waste) landfill. According to EnviroStor, the Corteva facility has three Hazardous Waste Facility Permits: a Boiler and Industrial Furnace Permit, a Block 560 Drum Storage Permit, and a Monofill Post-Closure Permit.

4.9.2 Environmental Impact Determination

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

Less Than Significant Impact With Mitigation Incorporated. A significant impact would occur if the Project were to create a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Hazardous materials that would be handled at the facility are liquid caustic soda [50% volume to volume (v/v) or less of sodium hydroxide]; liquid bleach (12.5% v/v of sodium hypochlorite); and chlorine gas.

Process feedstock of chlorine vapor and caustic soda would be conveyed to the Project site via Corteva-owned/operated pipelines. The Corteva facility maintains an RMP under the CalARP Program including RMPs for chlorine vapor, which includes performing a process hazard analysis (PHA). Corteva is required to have an RMP because quantities of chlorine in the process are greater than the applicable CalARP threshold quantities as described in Section 4.9.1.1.

Separate from what is required for Corteva, a CalARP RMP is not required for the HASA NorCal Project for chlorine since the maximum amount of chlorine gas contained within the Project site piping would be 25.7 pounds. This quantity is below the 100-pound threshold quantity for chlorine that would require a CalARP RMP. As part of the project design for safe operations, a PHA was conducted for the Project (ABSG Consulting, August 2022). The PHA reviewed and addressed potential, unintended release scenarios associated with the proposed bleach manufacturing and tanker loading facility design. Recommendations for process design and safety controls generated by the PHA would be included in the Project. Safety measures include air monitoring, alarms and shut-off systems for chlorine supply, monitored conveyance piping with secondary containment, and secondary containment of hazardous materials stored on-site.

Modeling was conducted to assess the potential impact from an accidental release of chlorine from the pipeline on-site for the Project. The chemical release estimate was based on the maximum quantity of chlorine gas in the process that could be released during a catastrophic pipeline rupture.

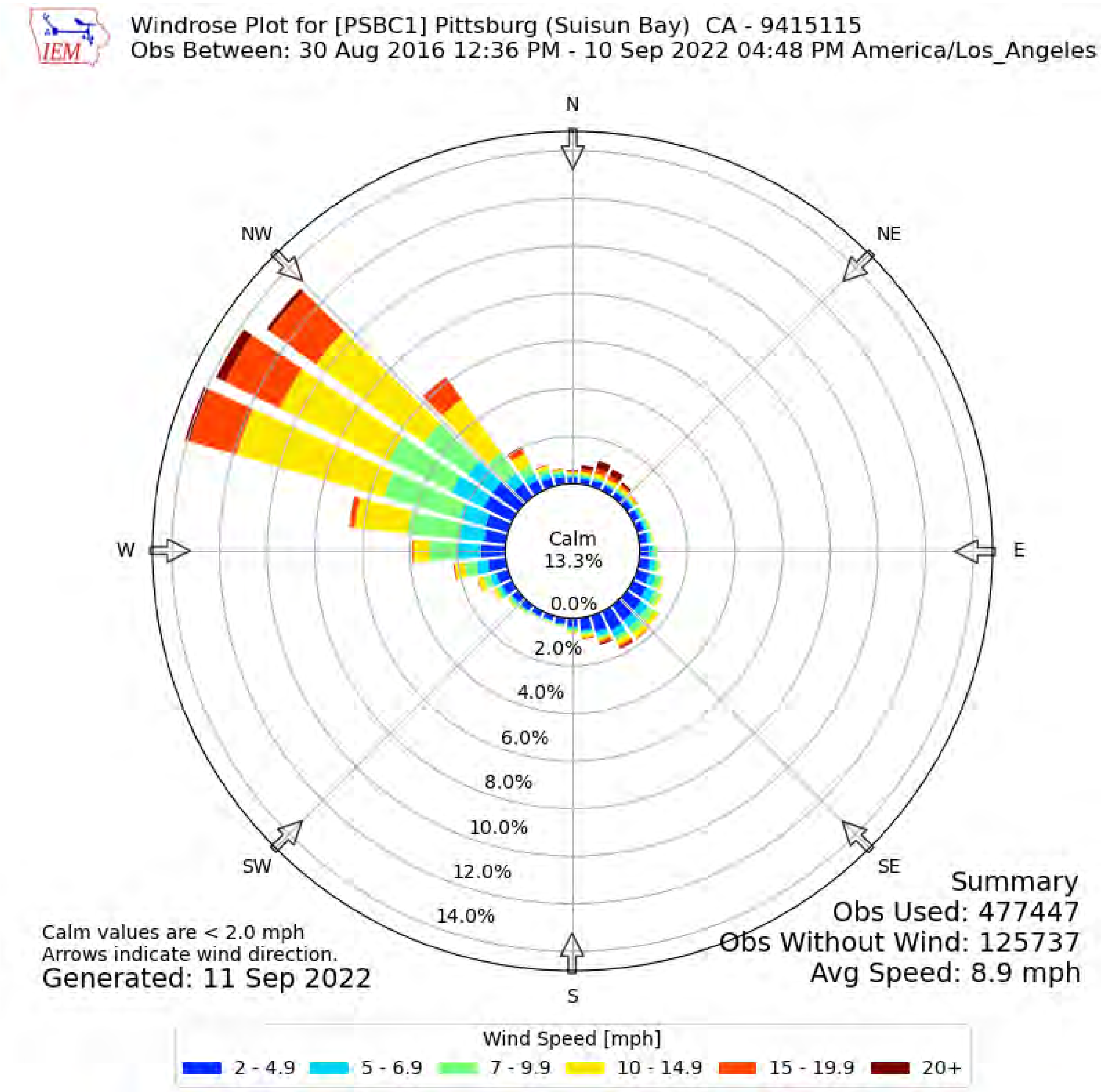
The volume of on-site chlorine piping and weight of chlorine gas it would contain are as follows:

- Pipe volume of 16 cubic feet from the Project Powell bleach skid to the automatic shut-off valve at the Project/Corteva property line; and
- Chlorine weight of 25.7 pounds (calculated by Project design engineers at Eichleay).

Following CalARP guidance (California Governor's Office of Emergency Services CalARP Program Guidance, May 2020) in Section 2750.3 Worst-Case Release Scenario Analysis, impact from a chlorine release was estimated using U.S. EPA's RMP Offsite Consequence Analysis Guidance document and "RMP*Comp" modeling techniques. RMP*Comp was used to estimate the magnitude of a chlorine gas release due to a catastrophic pipeline rupture. RMP*Comp modeling results are presented in Appendix F.

The RMP*Comp model predicted that ambient chlorine concentrations would drop below 3 parts per million (ppm) within one tenth of a mile in any direction from the facility from the worst-case scenario of a release chlorine from a pipe rupture. The CalARP Program Toxic Endpoint is 3 ppm chlorine (equivalent to 0.0087 milligram/liter [mg/L]), and is the appropriate threshold for considering public exposure significance. As noted in Section 4.9.1, the nearest off-site, non-worker, human receptors are located at Los Medanos College, 0.9 miles south from the Project site. The nearest residential development is located 0.9 miles to the southwest. Prevailing winds in the Pittsburg area are normally from the north-northwest (See Figure 4-4). Thus, the dominant wind pattern would blow toward the east southeast, which is an undeveloped area with no receptors. Corteva is the only business located within 0.1-mile radius of the Project potentially at risk of exposure to greater than 3 ppm chlorine from a pipe rupture accident. There are no residential receptors within 0.1 miles of the Project. Thus, people in the residential areas and at Los Medanos College, located 0.9 miles away, are not at an elevated risk from a chlorine pipe rupture accident associated with this Project.

Figure 4-4: Windrose Plot for Pittsburg, CA



Source: Iowa Environmental Mesonet

Potential exposure risks from the Project for employees would be addressed through emergency response plans documented in the HMBP required for HASA and Corteva and submitted to Contra Costa Health Services Department. Coordination of emergency response plans between HASA and potentially exposed businesses would be required to be protective of nearby workers in the event of a pipeline rupture. The state and federal requirements for emergency response procedures are codified in California Code of Regulations Title 22 and Code of Federal Regulations Title 40. They include designating an Emergency Coordinator to notify and coordinate with response agencies (e.g., the CUPA, local fire department, and California Office of Emergency Services [CalOES]).

Sodium hypochlorite (bleach) would be manufactured and handled as an aqueous solution. Bleach is not a CalARP regulated substance. Bleach has a pH greater than 11.86 in order to maintain its stability as a finished product. At lower pH, and when bleach contacts bleach dirt or heat or sunlight, bleach very rapidly breaks down into salt (NaCl) and water. At pH greater than 11.86, the bleach solution would be most stable and would not release any significant amount of chlorine gas.[2] At an elevated pH, which can range up to 12.5, the product would be characterized as a corrosive hazardous material.

An average of eight trucks per day would routinely transport 12.5% liquid bleach solution in tanker trucks to nearby off-site locations. 12.5% liquid bleach can have a pH of 12.5, which is considered a hazardous material (corrosive). The tanker trucks would use U.S. Department of Transportation (DOT) marking and placarding appropriate for corrosive liquids and operate in compliance with applicable standards and regulations. Bleach generated as waste would be returned to the process.

Use of liquid caustic soda [50% volume to volume (v/v) or less of sodium hydroxide] as a feedstock for the bleach production would be through pipeline supply from Corteva. The 50% caustic solution, if released through a pipeline rupture, would have the potential to contact employees working along the pipeline. Emergency showers and eye wash stations would be included nearby within the Project site to treat employees' exposure to caustic liquids. The liquid caustic pipeline from Corteva would include a shutoff valve prior to the pipeline continuance to the Project site. The elevated pipeline would pass over an area of unpaved earth along a railway prior to passing over secondary containment.

The Project design includes recycling and reuse of the process water on-site. Solid waste would be generated from the water recycling process and consist of treatment/filter materials (perlite, powdered cellulose, magnesium chloride, soda ash), particulates filtered from reused water, and the final liquid bleach product. This "dry cake" of filtered solids is characterized as a non-hazardous solid waste and would be disposed of in a municipal landfill.

The Project would use and store small amounts of hazardous materials associated with maintenance work, such as paints, solvents, cleaners, pesticides, light bulbs, used batteries, and empty aerosol cans. All hazardous materials within the Project site would be acquired, handled, used, stored, transported, and disposed of in accordance with all applicable federal, state, and local requirements.

Other hazardous materials handled at the Project facility are subject to the HMBP requirements. These requirements are primarily directed at ensuring local first responders have the information necessary – e.g., through the hazardous materials inventory and maps submitted into the State's CERS system – to respond to a potential hazardous materials emergency. As previously noted, the HMBP regulations (Title 19 of the California Code of Regulations) require the facility to develop standard methods of hazardous materials handling and to train employees on them. This training includes both routine and non-routine handling practices, and training on specific emergency procedures including how to notify outside agencies, how to respond to releases and threatened releases, and facility

[2] "Active Chlorine Released from Sodium Hypochlorite," Regulation (EU) No 528 concerning the making available on the market and use of biocidal products, January 2017. https://echa.europa.eu/documents/10162/a1ed9c2c-7df0-b950-7aab-3c4103ceae0a#:~:text=Active%20chlorine%20is%20released%20from,active%20chlorine%20is%20not%20feasible

evacuation. This program would ensure that the handling of hazardous materials other than chlorine (addressed separately above) would have a less than significant impact.

The RMP*Comp model results assume that the Project design would implement the recommendations of the PHA, an HMBP would be prepared, and a notification procedure would be coordinated with Corteva. Based on the RMP*Comp model results, the prescribed mitigation (see MM-HAZ-1, MM-HAZ-2, and MM-HAZ-3), and regulatory compliance actions described, the Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; thus, impacts would be less than significant with mitigation incorporated.

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?

Less Than Significant Impact With Mitigation Incorporated. A significant impact would occur if the Project created a significant hazard to the public or environment due to a reasonably foreseeable release of hazardous materials.

Chlorine gas and liquid caustic soda are hazardous raw materials that would be supplied to the Project through pipelines from the adjacent Corteva site. As detailed in subsection (a), a worst-case accidental release of a chlorine gas from a pipeline rupture was modeled and it was determined that the impact to surrounding receptors would be less than significant.

An accidental liquid sodium hydroxide or bleach pipeline rupture would result in discharge of caustic liquid to secondary containment areas and, should the liquid overflow the secondary containments, the caustic liquid would flow to adjacent permeable gravel surfaces.

The facility would implement a spill prevention and response plan as part of an HMBP to address spills of liquid caustic and bleach. Employee spill prevention and response training and spill response coordination with local agencies are elements of HMBP and would decrease spill occurrence and increase the likelihood of rapid and effective spill response, thereby reducing spill quantities. The HMBP, which is provided to the County through the CERS website, would include:

- An inventory of hazardous materials at the facility;
- Emergency response plans and procedures to be followed in the event of a release of a hazardous material;
- Safety training for employees in the event of a release or threatened release of a hazardous material, and
- A site map.

Coordinated emergency response and prescribed mitigation measures (see MM-HAZ-1, MM-HAZ-2, and MM-HAZ-3) would reduce the potential and frequency of spills and reduce spill quantities necessary for treatment on-site by HASA and Corteva. Therefore, this impact would be less than significant with mitigation incorporated.

c) **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. The RMP*Comp modeling predicted that impacts from a worst-case release of chlorine would fall below the public health thresholds within 0.1 miles. The proposed site is approximately 0.9 miles from Los Medanos Community College and approximately 1 mile from other schools. Therefore, there would be no impact within one quarter mile of schools.

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

Less Than Significant. A significant impact would occur if the Project site were included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and would create a significant hazard to the public or the environment. The DTSC maintains the EnviroStor database that provides access to detailed information on hazardous waste-permitted sites, corrective action facilities, and existing site characterization/remediation data.

The Project site is leased from Corteva, who is on the Cortese List due to groundwater contamination issues, and, for that reason, is also listed on the SWRCB's GeoTracker and DTSC's EnviroStor sites. According to GeoTracker, the site is actively remediating contaminated groundwater for potential contaminants of concern such as benzene, toluene, mercury, and chlorinated hydrocarbons. The leased site for the Project is located upgradient or cross-gradient of the groundwater contamination plume, and the Project would not use or interact with the groundwater on the site (see Figure 4-3). Because the Project operations would not interact with the groundwater and associated hazardous materials for which the site is listed pursuant to Government Code §65962.5, the impact to the public and the environment from the Project 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 or excessive noise for people residing or working in the project area?**

No Impact. The Project site is not located within an airport land use plan or within 2 miles of a public use airport. Therefore, no safety hazards or noise impacts to people within these areas would occur.

f) **Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

Less Than Significant Impact. The Project would not require the closure of any public or private streets and would not impede emergency vehicle access to the Project site or surrounding area.

Since the Project is located within the property owned by Corteva, emergency access to and from the Project site would be provided in accordance with the emergency response program of Corteva in coordination with and the Pittsburg Fire Department. Because the Project would be integrated into and not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, this would be a less than significant impact.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

No Impact. The Project site is located within a highly urbanized area that does not include wildlands or high-fire-hazard terrain or vegetation. Additionally, the proposed office building would be metal-framed and therefore less susceptible to fire risk. Therefore, the Project would not subject people or structures to a significant risk of loss, injury, or death involving wildland fires, and this is not considered an impact of the Project.

4.9.3 Mitigation Measures

As discussed in Section 4.9.2 and detailed in Section 5.0, Mitigation Measures, MM-HAZ-1, MM-HAZ-2, and MM-HAZ-3 would be implemented to mitigate potential hazards and hazardous materials impacts from construction and operation of the Project, resulting in less than significant impacts to people and structures. These mitigation measures include:

- Implementation of recommendations from the Project PHA to improve safety;
- Coordination with Corteva to align emergency response for the Project to protect nearby Corteva workers;
- Development and implementation of a safety program, emergency response plan, and HMBP; and
- Procedures for receiving and responding to unsafe working conditions should any develop.

Thus, the impact of the Project on health and safety due to use of hazardous materials associated construction and operation would be less than significant with mitigation incorporated.

4.10 Hydrology and Water Quality

Significance Criteria	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
X. Hydrology and Water Quality. Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☑	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☑	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☑	☐
i) result in a substantial erosion or siltation on- or off-site;	☐	☐	☑	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	☑	☐
iii) create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☑	☐
iv) impede or redirect flood flows?	☐	☐	☑	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☑	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☑	☐

4.10.1 Setting

The Project site is located in the 16-square-mile Kirker Creek watershed, which receives approximately 16 inches of rain annually falling primarily from November through April. Kirker Creek, the primary surface water feature in the watershed, is located 2/3 mile southwest of the Project site and flows primarily in the rainy season (i.e., dry in the summer season) north from its headwaters through suburban and commercial areas in the lower watershed and then through a City of Pittsburg-designated open space area. From there Kirker Creek flows into New York Slough approximately half a mile to the north (a channel within the Sacramento/San Joaquin River Delta).

Depending on rainfall duration and intensity, storm water from the Project site currently either infiltrates through unpaved ground surfaces, or discharges via sheet flow into Corteva's existing storm drain network. This system discharges to the City of Pittsburg's municipal storm drain system. Within the City of Pittsburg, storm drains collect rainwater for conveyance to the Sacramento-San Joaquin Delta, whose waterfront is approximately half a mile south of the Project site.

Shallow groundwater levels have been documented at the Project site. The site is generally underlain by variable undocumented fill materials, marsh deposits, and/or alluvial soils (see Section 4.7, Geology and Soils). Groundwater at the Project site has been documented at depths generally 3 to 5 feet bgs.

4.10.1.1 Federal Regulatory Setting

<u>Clean Water Act (CWA)</u>

Increasing public awareness and concern for controlling water pollution led to the enactment of the Federal Water Pollution Control Act Amendments of 1972. Further amended in 1977, this law became commonly known as the CWA (33 U.S. Code 1251 et seq.). The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The CWA established basic guidelines for regulating discharges of pollutants into waters of the United States and requires that states adopt water quality standards to protect public health, enhance the quality of water resources, and ensure implementation of the CWA.

The CWA established a nationwide permitting system for discharges to waters of the United States. This system - the National Pollution Discharge Elimination System (NPDES) – provides for issuing individual and general NPDES permits by states authorized by U.S. EPA to implement the program. California has been delegated this permitting authority through the State Water Resources Control Board (SWRCB).

4.10.1.2 State Regulatory Setting

Storm water discharge at the Project site during construction and operation is regulated in accordance with the SWRCB Water Quality Order No. 2014-0057-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS0000001, Waste Discharge Requirements for Storm Water Discharges. As described below, coverage under the Construction General Permit (CGP) would be required during construction and under the Industrial General Permit (IGP) during operations.

California Porter-Cologne Water Quality Control Act

Since 1973, the California SWRCB and its nine RWQCBs have been delegated the responsibility for administering permitted discharge into the waters of California. The Project site falls within the jurisdiction of the San Francisco Bay RWCQB (RWQCB Region 2). The Porter-Cologne Water Quality Act (California Water Code Section 13000 et seq.; 23 CCR Division 3, Chapter 15) provides requirements for permitting and reporting of the discharge of water with the appropriate RWQCB. California issues wastewater discharge permits for both waters of the U.S. and waters of the State using the permit term Waste Discharge Requirements (WDRs). Federally authorized NPDES permits issued by the SWRCB or a RWQCB therefore carry both an NPDES permit number and a WDR number.

Storm Water Discharges

As indicated in Section 2.4.2.4., California has issued two general NPDES/WDR permits which will be utilized during the construction and operational phases of the facility. Storm water discharges during construction will be regulated under the State's CGP, which applies to construction projects disturbing a total of one acre or more of ground surface. This statewide permit requires obtaining permit coverage through the State's publicly accessible Storm Water Multiple Application and Tracking System (SMARTS); development of a project-specific storm water pollution prevention plan (SWPPP), whose specifics vary somewhat depending on the nature of the project, erosivity of site soils, and other factors; SWPPP implementation, including monitoring of storm water discharges, throughout the entirety of the construction process; post-construction site stabilization; and project completion reporting into SMARTS. Since sediment discharges are typically linked to construction, and sediment impacts on water quality can be significant, the CGP's focus on minimizing such discharges are an important component of surface water quality maintenance.

Storm water discharges during facility operation will be covered under the State's IGP, which applies to industrial facilities within specified Standard Industrial Classification (SIC) codes. The HASA facility is entirely surrounded by the Corteva facility and would make use of its storm drain system. The Corteva facility has existing IGP coverage under waste discharge identification (WDID) number 07I028282, and the HASA operation would utilize this existing permit coverage to discharge operational storm water. Under this arrangement, HASA and Corteva would update the existing Corteva industrial SWPPP to incorporate the new HASA operations and re-submit this document into SMARTS within 30 days of the facility beginning operations. The SWPPP will specify the best management practices (BMPs) that would be implemented to reduce the potential for pollutant discharge to storm water. IGP coverage is required for the life of the facility and is a progressive permit scheme, hence the IGP is re-issued and/or amended periodically to add further protections based on local watershed conditions as well as statewide priorities.

California Antidegradation Policy

The California Antidegradation Policy was adopted by the SWRCB (State Board Resolution No. 68-16) in 1968. Unlike the Federal Antidegradation Policy, the California Antidegradation Policy applies to all waters of the State (e.g., isolated wetlands and groundwater), not just surface waters. The policy states that whenever the existing quality of a water body is better than the quality established in individual Basin Plans issued by each RWQCB, such high quality shall be maintained, and discharges to that water body shall not unreasonably affect present or anticipated beneficial use of such water resource.

California Toxics Rule

The U.S. EPA has established water quality criteria for certain toxic substances via the California Toxics Rule. The California Toxics Rule established acute (i.e., short-term) and chronic (i.e., long-term) standards for bodies of water such as inland surface waters and enclosed bays and estuaries that are designated by each RWQCB as having beneficial uses protective of aquatic life or human health.

4.10.1.3 Local Regulatory Setting

Storm water discharges are further regulated by the City of Pittsburg. Under the State's NPDES system, the RWQCB has issued an MS4 permit to the City (as a co-permittee with the County) which requires two things.

First, storm water generated from conversion or modification of a previously pervious area is subject to storm water management requirements imposed during the building permit process. These requirements – known as low-impact development (LID) measures – are project-specific and may be integrated to some extent with the construction storm water permitting process. The requirements are generally imposed in order to reduce storm water runoff volumes and encourage infiltration, which can be done in a variety of ways. Whatever requirements are imposed, they must be met as a condition of final permit closeout with the City. Whatever requirements are imposed run with the property in perpetuity, ensuring that the reduction in impacts on the local flood control infrastructure, reduction in storm water pollutant loading, and recharge of local groundwater resources continue for the life of the facility.

Ongoing facility operations will also be regulated via the City's storm water ordinance. This ordinance controls use of the MS4, over and above the State's IGP requirements which technically only apply to industrial discharges. The ordinance addresses a variety of requirements, including prohibiting discharge of unauthorized non-storm water discharges. The ordinance again derives from the City's MS4 permit commitments and requires the City to periodically inspect industrial and other discharges for compliance with the ordinance, in order to protect downstream water quality.

4.10.2 Environmental Impact Determination

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less Than Significant Impact. A project would have a significant impact on surface water quality if discharges associated with the project were to create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or cause regulatory standards to be violated, as defined in the applicable NPDES storm water permit or Water Quality Control Plan for the receiving water body. For the purpose of this specific issue, a significant impact may occur if the Project would discharge water that does not meet the quality standards of local agencies that regulate surface water quality and water discharge into storm water drainage systems.

4.10.2.1 Construction

Grading, pile driving, concrete placement, trenching, and building and equipment installation are construction activities that could expose soils and industrial materials to rain and have the potential to pollute storm water discharges which ultimately end up in off-site water bodies, e.g., Kirker Creek.

As described in Section 4.10.1, prior to construction, coverage must be obtained under the State's CGP for construction activities. The construction SWPPP, describes BMPs which the discharger will implement to protect storm water quality and ensure pollutants are not transported offsite in runoff during construction. BMPs would include, at a minimum, requirements for erosion and sediment controls, soils stabilization, dewatering, source controls, pollution prevention measures, and prohibited discharges. BMPs are designed to prevent pollutants from contacting storm water and to keep all products of erosion (i.e., sediment) and storm water pollutants from migrating off-site into storm drains and receiving waters. Typical BMPs implemented at construction sites include placement of sediment barriers around storm drains, the use of fiber rolls or gravel barriers to detain small amounts of sediment from disturbed areas, and temporary or permanent stockpile covers to prevent rainfall from contacting the stockpiled material. In addition to erosion control BMPs, SWPPPs also include BMPs for preventing the discharge of other pollutants, such as paint, solvents, concrete, and petroleum products, to downstream waters. BMPs for these pollutants also include routine leak inspections of equipment, maintaining labelling and inspecting integrity of containers, and ensuring that construction materials are disposed of in accordance with applicable federal and state regulations.

As required by the CGP, the construction-phase SWPPP must be written by a specially qualified professional known as a Qualified SWPPP Developer (QSD). SWPPP implementation is ultimately the responsibility of the permittee (in this case, HASA) but must be overseen at the field level by another specially qualified individual known as a Qualified SWPPP Practitioner (QSP). The QSP ensures that the SWPPP is followed, including BMP implementation up through and including post-construction requirements for site stabilization at the conclusion of the construction process.

4.10.2.2 Operation

During typical Project operations, storm water that enters secondary containment structures within the bleach plant, tank farm, and truck loading areas would be pumped from containment sumps to a "mud tank" within the tank farm. Mud tank water would be conveyed through the filtration system for final reuse in bleach production. Should the facility be unable to handle captured storm/process water due to unplanned system shutdown, this water would be discharged (under a permit issued by Delta Diablo) to the existing industrial sewer system managed by Corteva. Storm water runoff from the parking area would drain to two adjacent catch basins connected to the existing storm drainage system managed by Corteva.

With the exception of the eight-car parking lot area, storm water would be contained in secondary containments constructed within the bleach plant, tank farm, and truck loading areas and would be reused as a raw material for bleach production. Storm water runoff from the parking area would be collected by two new catch basins connected to below-grade, Corteva-operated storm drainage piping. The Project would comply with the storm water NPDES requirements through incorporation within the existing Corteva IGP SWPPP. Parking lot storm water would be directly discharged. However, as noted previously, all discharges from the facility, including non-industrial discharges such as from the employee parking lot, are subject to control under the City's storm water ordinance. The ordinance includes the right of City code enforcement officers to enter the property for storm water discharge inspection purposes.

In the unlikely case of a bleach production upset/shutdown where collected process wastewater cannot be reused internally at the facility, excess process water would be discharged to the industrial sewer system operated by Corteva. Such discharges would be covered under an intermittent industrial discharge permit obtained from Delta Diablo.

Compliance with the requirements of the Construction General Permit and Industrial General Permit, along with the combined requirements of the City-specified LID measures and ongoing City storm water ordinance enforcement, will ensure that the facility is bound to a program of continuously implemented and continuously enforced (at the state and local levels) storm water pollution control program. Moreover, the requirements of the two key ongoing sets of requirements evolve over time to better protect the local watershed, based on the IGP being amended/re-issued to incorporate both locally driven and statewide water quality goals, and on the periodic amendment/re-issuance of the City's MS4 permit driving changes to the local storm water ordinance. Each of these processes will result in increasing the level of protection for local surface water resources. Water quality impacts related to violation of water quality standards or degradation of water quality would be less than significant.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

<u>**Less Than Significant Impact.**</u> A significant impact would occur if the Project were to substantially deplete groundwater or interfere with groundwater recharge.

The Project would not involve long-term groundwater extraction. The water supply for the existing developments on the Project site is the municipal water supply system. The potable water supply would be supplied by Corteva, and based on the facility's small employee population, would have minimal or no impact on supply.

Project construction would involve subsurface excavation for foundations, utilities, and structural support. Groundwater depths vary from 3 to 5 feet bgs at the Project site. It is possible that subsurface excavation during Project construction could intercept shallow groundwater tables. Groundwater encountered during excavation activities would have to be pumped out of the construction trench in order to create a dry work area. However, this activity would be temporary and highly localized and unlikely to involve extensive dewatering; this activity therefore would not substantially affect groundwater levels in the vicinity of the Project.

The process water supply for the Project would be provided by Corteva, who pumps it from the New York Slough and performs basic filtration treatment prior to distributing to on-site tenants. The average daily consumption of water is estimated at 30,000 gallons per day. The plant is designed to run continuously at nameplate capacity with an expected on-stream time of 6,000 hours per year (260 days per year). This water consumption rate is equivalent to that of approximately 100 homes.

The City of Pittsburg 2020 Urban Water Management Plan (UWMP) states that the Pittsburg Groundwater Basin is not a critically over-drafted groundwater basin. Groundwater levels in the basin have historically been stable because the majority of local water demand has been met by surface water. Further, the Project water supply will be provided through Corteva.

SB 610 applies to land use projects with projected water use greater than 500 residential dwellings. The Project would use an estimated 30,000 gallons per day. This water consumption rate is equivalent to that of approximately 100 homes. Thus, SB 610 is not applicable to this Project.

The majority of the Project site and surrounding industrial use area is currently covered with impervious surfaces. The Project would not substantially change impervious surfaces such that groundwater recharge would be impeded as compared to baseline. The Project would not lower the groundwater table as a result of groundwater extraction or through a reduction in groundwater recharge. Therefore, the Project would not decrease groundwater supplies or interfere with groundwater recharge, and impacts related to groundwater depletion and interference with groundwater recharge would be less than significant. In addition, as previously noted, the City has the right to impose LID conditions on facility construction that would be directed, in part, towards groundwater recharge.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) result in a substantial erosion or siltation on- or off-site;

<u>**Less Than Significant Impact.**</u> A significant impact would occur should the Project substantially alter the drainage pattern of the site or surrounding area, including through alteration of the course of a stream or river, such that erosion or siltation occurs. Although the Project site does not contain, nor is adjacent to, any stream or river, construction will temporarily expose on-site soils to wind and surface water runoff and possible soil erosion. Construction-related soil erosion will be mitigated by installing BMPs in compliance with the CGP SWPPP. Compliance with the requirements of the CGP and associated SWPPP and the implementation of associated BMPs would prevent erosion and siltation on- and off-site during construction. Impacts related to erosion and/or siltation due to altered drainage patterns during construction would be less than significant.

Following the completion of construction, the Project would be subject to compliance with the State issued IGP as well as the City's storm water ordinance. Both have specific provisions requiring erosion or other sediment discharge to be controlled. During Project operation, storm water would be managed via catch basin collection/storm water system discharge or process water reuse and/or industrial sewer discharge. These controlling mechanisms will maintain a less than significant impact on on-site erosion.

Significant alterations to existing drainage patterns within the Project site and surrounding area would not occur during Project construction and operation. Therefore, the Project would have a less than significant impact related to the alteration of drainage patterns and on- or off-site erosion or siltation.

ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off- site;

Less Than Significant Impact. The Project would not result in substantially altered on-site drainage patterns. Storm water runoff would continue to be retained on-site, as occurs under existing conditions, via the proposed collection and re-use system. During typical Project operations, storm water that enters secondary containment structures within the bleach plant, tank farm, and truck loading areas would be pumped from containment sumps to a "mud tank" within the tank farm. Mud tank water would be conveyed through the filtration system for final reuse in bleach production. Should the facility be unable to handle captured storm/process water due to unplanned system shutdown, this water would be discharged (under a permit issued by Delta Diablo) to the existing industrial sewer system managed by Corteva. Storm water runoff from the parking area would drain to two adjacent catch basins connected to the existing storm drainage system managed by Corteva.

The Project facility is designed to capture and manage all on-site storm water and mitigate off-site storm water runoff. Therefore, peak storm water discharge rates and volumes from the Project site would remain at or below the existing conditions. These design features would prevent potential on- and off-site flooding due to facility operations; thus, less than significant impacts related to flooding would occur.

iii) create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or

Less Than Significant Impact. As described in detail under topics a) and c.i), the Project would not result in new sources of pollutants that could be transported off-site via storm water runoff. The capacities of secondary containment sump pumping systems and industrial and storm drainage systems are designed to comply with City of Pittsburg Building Department requirements, including the 2021 International Building Code. The process water collection and handling systems are designed to prevent off-site storm water runoff even during an unplanned process system shutdown. Impacts related to exceeding storm water conveyance infrastructure or creating additional sources of polluted runoff would be less than significant.

iv) impede or redirect flood flows?

Less Than Significant Impact. The Project site is not located within a FEMA defined Flood Hazard Area. The Project site is located in an urbanized area that is currently served by storm drain infrastructure. On-site storm water would be captured, treated, re-used, and conveyed via the proposed storm water management system (as described under topic a), above) and would not redirect storm water flows from large storms in a manner that could redirect flood flows off-site as compared to existing conditions. As discussed, the Project would not impede or change local, established drainage patterns, including storm drain infrastructure; therefore, the Project would not substantially alter the existing drainage pattern of the site or area in a manner which would impede or redirect flood flows; the impact would be less than significant.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Less Than Significant Impact. A significant impact would occur if the Project site were sufficiently close to the ocean or other water body to potentially be at risk of seismically induced tidal phenomena (e.g., seiche and tsunami) or were within a flood zone, and if the Project site utilized, stored, or otherwise contained pollutants that would be at risk of release if inundated. According to the CalOES Flood Hazards Map, the Project site is not located within a Tsunami Inundation Zone or Flood Zone. Therefore, impacts resulting from the release of pollutants due to inundation of the Project due to flood waters would be less than significant.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less Than Significant Impact. A significant impact would occur if the Project included potential sources of water use and discharge of pollutants that would have the potential to interfere with a water quality control plan or sustainable groundwater management plan. The Project facility is designed to capture and reuse all process wastewater and on-site storm water.

The RWQCB's Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the principal water quality planning document for the region. The Basin Plan water quality objectives are designed to preserve and enhance water quality and protect the beneficial uses of all regional terrestrial surface water bodies (e.g., creeks, rivers, streams, and lakes) and groundwaters within the RWQCB's jurisdictional area. As discussed above under a), c), and d), the Project would not cause any significant impact related to water quality degradation or groundwater impacts. Construction and operation of the Project would comply with NPDES requirements, which are designed to ensure storm water discharges comply with regulatory requirements and water quality standards, such as the Basin Plan. The Project would not require ongoing groundwater withdrawals or substantially alter groundwater recharge, and therefore would not conflict with or obstruct implementation of a sustainable groundwater management plan. Therefore, impacts relating to conflicting with or obstruction of implementing a water quality control plan or sustainable groundwater management plan would be less than significant.

4.10.3 Mitigation Measures

As detailed in Section 4.10.2, hydrology, water quality, and water supply impacts from construction and operation of the Project would result in less than significant impacts. No mitigation measures are proposed.

4.11 Land Use and Planning

Significance Criteria	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. Land Use and Planning. Would the project:				
a) Physically divide an established residential community?	☐	☐	☐	☑
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☑

4.11.1 Setting

The Project site has a General Plan land use designation of Industrial and is located in the General Industrial zoning district in the City of Pittsburg.

4.11.2 Environmental Impact Determination

a) Physically divide an established community?

No Impact. This potential impact is not applicable to the site, as the site is located within the boundaries of the Corteva industrial facility, which is surrounded by other industrial facilities. Therefore, no impact would occur.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. A significant impact may occur if a project is inconsistent with a General Plan policy or zoning regulation that was designed expressly to avoid or mitigate an environmental effect at the Project site. The land use designation is Industrial. The Project site is zoned General Industrial. No zoning changes would be required for the Project.

4.11.3 Mitigation Measures

As detailed in Section 4.11.2, the Project site is not within a residential area covered by the CTP; thus, no impact would occur, and no mitigation measures would be required.

4.12 Mineral Resources

Significance Criteria	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. Mineral Resources. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state?	☐	☐	☐	☑
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☑

4.12.1 Setting

The California Surface Mining and Reclamation Act (SMARA) of 1975 requires the State Geologist to classify land into mineral resource zones based on the known or inferred mineral resource potential of that land. The primary goal is to ensure that important mineral resources do not become inaccessible due to uninformed land use decisions. Local governments are required to incorporate the report and maps into their general plans and consider the information when making land use decisions.

According to the California Department of Conservation Division of Mines and Geology, the Project site is located within an aggregate resource area classified as Mineral Resource Zone 3, which is an area containing mineral deposits, the significance of which cannot be evaluated from available data.

4.12.2 Environmental Impact Determination

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

<u>No Impact.</u> The Project site is not classified by the City's General Plan as containing significant mineral deposits (i.e., known mineral resources). Therefore, no impact would occur.

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?

<u>No Impact.</u> The Project site is not classified by the City's General Plan as containing significant mineral deposits (i.e., known mineral resources). Therefore, no impact would occur.

4.12.3 Mitigation Measures

As detailed in Section 4.12.2, the Project area is not identified as an area of important mineral resources, and the Project would not cause mineral resources to become unavailable. Thus, the Project is expected to result in no impacts, and mitigation is not required.

4.13 Noise

Significance Criteria	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. Noise. Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☑	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☑	☐
c) For a project located within the vicinity of a private airstrip or 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?	☐	☐	☐	☑

4.13.1 Setting

4.13.1.1 Noise

Sound is caused by vibrations that generate waves of minute air pressure fluctuations in the air. Air pressure fluctuations that occur from 20 to 20,000 times per second can be detected as audible sound. The number of pressure fluctuations per second is normally reported as cycles per second or Hertz (Hz). Different vibrational frequencies produce different tonal qualities for the resulting sound. Sound level data is typically presented in terms of decibel (dB) values, which are a logarithmic index based on ratios between a measured value and a reference value. In the field of atmospheric acoustics, dB scales are based on ratios of the actual pressure fluctuations generated by sound waves compared to a standard reference pressure value.

Human hearing varies in sensitivity for different sound frequencies. Several different frequency weighting schemes have been developed to approximate the way the human ear responds to noise levels or to account for the response of building materials to airborne vibrations and sound. The "A-weighted" decibel scale (dBA) is normally used to approximate human hearing response to sound.

Varying noise levels are often described in terms of the equivalent constant dB level. Equivalent noise levels (L_{eq}) are used to develop single-value descriptions of average noise exposure over various periods of time. Such average noise exposure ratings often include additional weighting factors for annoyance potential due to time of day or other considerations. The L_{eq} data used for these average noise exposure descriptors are generally based on A-weighted sound level measurements, although other weighting systems are used for special conditions (such as blasting noise).

Average noise exposure over a 24-hour period is often presented as a community noise equivalent level (CNEL). CNEL values are calculated from hourly L_{eq} values, with the L_{eq} values for the evening period (7 p.m. to 10 p.m.) increased by 5 dB and the L_{eq} values for the nighttime period (10 p.m. to 7 a.m.) increased by 10 dB to reflect the greater disturbance potential from evening and nighttime noises.

4.13.1.2 Vibration

Ground vibrations are commonly generated from several sources, including roadway traffic, railroad traffic, and construction activity. Vibrations can be measured and quantified using several different parameters, including displacement, velocity, and acceleration. Ground vibrations are typically measured by the velocity of the ground surface and reported as Peak Particle Velocity (PPV). Typical units of PPV are inches per second (in/sec) in the U.S. system or millimeters per second in the international system of units. Typical construction activity that generates vibrations includes pile driving, soil excavation, grading, compaction, concrete demolition, and heavy truck operation. The California Department of Transportation (Caltrans) has published a Transportation and Construction Vibration Guidance Manual. Although the level of vibrations generated from construction equipment can vary widely, some typical vibration levels are presented in Table 4-3.

Table 4-3: Typical Ground Vibrations from Construction Equipment

Equipment	Range	PPV at 25 feet (in/sec)
Impact pile driver	Upper	1.518
	Typical	0.644
Vibratory pile driver	Upper	0.734
	Typical	0.170
Bulldozer	Typical	0.089
Jackhammer	Typical	0.035

Source: Caltrans 2020.

In determining impacts from vibration, distance from the pile is the most important factor governing the magnitude of vibration levels.

The effects of vibration on structures have also been the subject of extensive research. Much of this work originated in the mining industry, where vibration from blasting is a critical issue. Caltrans published a range from 0.12 in/sec in PPV (continuous source) to 1.2 in/sec in PPV (single event) to characterize thresholds for impacts to buildings and equipment. The Federal Transit Administration (FTA) recommends a threshold of 0.5 in/sec in PPV.

The 2020 Pittsburg General Plan includes a Noise Element (i.e., Policy 12-P-9) which limits generation of loud noises near existing development during normal business hours

8:00 am – 5:00 pm. Additionally, the City of Pittsburg Municipal Code §9.44(J) has a Noise Ordinance which prohibits the use of pile drivers between the hours of 10:00 p.m. and 7:00 a.m.

4.13.2 Environmental Impact Determination

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant Impact. Project construction activities would consist of site preparation, grading, pile driving, trenching and utility installation, paving and concrete construction, building installation, and process and truck loading equipment. Construction noise impacts would be considered potentially significant if construction activities would occur outside of the adopted hours of construction in the Pittsburg Municipal Code and Noise Element.

Construction noise levels vary at any given receptor and are dependent on the construction phase, equipment type, duration of use, distance between the noise source and receptor, and the presence or absence of barriers between the noise source and receptor. Project construction would only occur within the allowable hours outlined in General Plan Policy 12-P-9 and the allowable hours outlined in the City of Pittsburg Municipal Code §9.44(J). Therefore, the noise impacts of Project construction would be less than significant.

Noise from operation of the Project would be consistent with the noise generated by the surrounding industrial land uses, and any increases in noise would be negligible once they reach the nearest off-site noise-sensitive receptors. Therefore, operational noise impacts would be less than significant.

b) Generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant Impact.

Construction activities can generate varying degrees of vibration depending on the construction procedures and the type(s) of construction equipment used. Operation of construction equipment generates vibrations that spread through the ground and diminish with distance from the source. The piece of equipment proposed for Project construction that would generate the greatest vibration level is a pile driver. A pile driver can generate a PPV of 0.65 in/sec at a distance of 25 feet (Caltrans, 2020).

A research paper on pile driving vibration impacts from the University of South Alabama Department of Civil Engineering (Utilizing Driven Pile Installations to Predict Ground Vibration Propagation) has recommendations for potential impacts up to 250 feet away from pile driving in sandy soils. At greater distances, the vibrations are sufficiently dampened. The nearest structures are more than 500 feet away from the Project site. The river front is approximately 2,600 feet away from the Project site.

Given the distance of greater than 500 feet to nearby buildings, the pile driver vibration level would be damped to less than 0.5 in/sec in PPV. Thus, the Project would result in a less than significant impact related to construction vibration.

c) For a project located within the vicinity of a private airstrip or 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 Project site is not located within 2 miles of an airport. Therefore, there would be no impacts resulting from airport noise levels to people in the Project area.

4.13.3 Mitigation Measures

As discussed in Section 4.13, the Project would result in less than significant impacts from noise and vibration, and no mitigation measures would be required.

4.14 Population and Housing

Significance Criteria	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. Population and Housing. Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☑
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

4.14.1 Setting

The Project would be constructed within the City of Pittsburg's General Plan-designated industrial area, located along the City's northeast boundary. The City's designated industrial area covers approximately 1 square mile.

4.14.2 Environmental Impact Determination

a) Induce substantial unplanned 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. A potentially significant impact would occur if the Project induced substantial population growth that would not have otherwise occurred as rapidly or in as great a magnitude. The Project would create eight new jobs; these new employees would likely come from the existing area, so new housing and associated infrastructure would unlikely be needed to support these new workers. The physical secondary or indirect impacts of population growth, such as increased traffic or noise, have been adequately studied in other portions of this document. No impacts would be associated with the Project.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. A significant impact may occur if a project resulted in displacement of existing housing units, necessitating the construction of replacement housing elsewhere. The Project site is located in an industrial zone and does not contain existing dwelling units. Therefore, the Project would have no impact related to displacement.

4.14.3 Mitigation Measures

As detailed in Section 4.14.2, the Project site is located in an industrial zone and does not contain existing dwelling units. Therefore, the Project would have no impact related to displacement. No mitigation measures would be needed.

4.15 Public Services

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

4.15.1 Setting

In the City of Pittsburg, the Public Works Department is responsible for the maintenance of all City of Pittsburg facilities and infrastructure and operation of the City's water treatment plant and water distribution system. The area is currently served by the City of Pittsburg Police Department and served by Contra Costa County Fire Protection District (CCCFPD).

4.15.2 Environmental Impact Determination

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant

environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Fire protection?

Less Than Significant Impact. A significant impact would occur if the Pittsburg Fire Department could not adequately serve the Project, necessitating a new or physically altered station. Project site first response would be provided by Corteva fire responders. The surrounding area is currently served by CCCFPD Station 84, located at 1903 Railroad Avenue, approximately 3/4 mile west of the Project site. To maintain the level of fire protection and emergency services, it is not anticipated that CCCFPD would need to build a new or expand an existing fire station to serve the Project and maintain acceptable service ratios, response times, or other performance objectives for fire protection. The Project would not create capacity or service level problems nor result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection. Therefore, the Project would result in a less than significant impact.

Police protection?

Less Than Significant Impact. The Project site would be patrolled by security forces operated by Corteva. The surrounding area is currently served by the City of Pittsburg Police Department located at 65 Civic Center Avenue, which is approximately 3/4 mile west of the Project site. The Project site is located in an industrialized area, and the Project would not change the character of the area. Given that there is a police station in close proximity to the Project site and Corteva operated security forces, there would be no need to build a new or expand an existing police station to serve the Project and maintain acceptable service ratios, response times, or other performance objectives for police protection. Impacts would be less than significant.

Schools?

No Impact. Since employees are expected to come from the current population in the area, the Project would not increase the number of students attending surrounding grade schools. Therefore, the Project would have no impact on public school services.

Parks?

No Impact. Since employees are expected to come from the current population in the area, the Project would not increase the use of local parks or require the construction of new facilities. Therefore, impact would not occur.

Other public facilities?

No Impact. The Project would introduce a new industrial facility into an existing industrial park, which would not substantially increase regional employment or population growth. Therefore, the Project would not result in the need to construct any new or physically alter existing governmental facilities, such as libraries. As such, there would be no impact.

4.15.3 Mitigation Measures

As detailed in Section 4.15.2, the Project would result in less than significant impacts on public facilities, and no mitigation measures would be required.

4.16 Recreation

Significance Criteria	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. Recreation.				
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?	☐	☐	☑	☐
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?	☐	☐	☐	☑

4.16.1 Setting

The Project would be constructed within the City of Pittsburg with existing recreational areas included in the General Plan.

4.16.2 Environmental Impact Determination

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?

Less Than Significant Impact. A significant impact would occur if the Project hired a substantial number of employees and/or caused accelerated population growth, both of which could increase demand for public facilities, exceed facility capacity, and ultimately cause premature deterioration of these recreational facilities. The Project would employ a small number of new employees (eight) and would not substantially increase regional employment or population growth. The Project's small workforce would not cause additional demand on existing recreational facilities; therefore, impacts would be less than significant.

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 Project would not involve the construction or expansion of recreational facilities. Therefore, no impact would occur as a result of construction of the Project.

4.16.3 Mitigation Measures

As detailed in Section 4.16.2, the Project would result in less than significant impacts related to recreation. No mitigation measures would be required.

4.17 Transportation

Significance Criteria	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. Transportation. Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☑	☐
b) Would the project conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?	☐	☐	☑	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☑
d) Result in inadequate emergency access?	☐	☐	☑	☐

4.17.1 Setting

The Project site is located within the Pittsburg-Bay Point 2020 Community-Based Transportation Plan (CBTP) Study Area and outside the Communities of Concern. Eight new employees are expected for the Project facility. The quantity of trucks supporting the new Project facility would be equivalent to the quantity discontinued at the bottling facility adjacent to the Project site (i.e., no net increase in truck traffic); therefore, there would be no project-related increase in trucks and no need to evaluate truck trips.

All Contra Costa County jurisdictions are required to participate in TRANSPLAN, the Regional Transportation Planning Committee (RTPC) for eastern Contra Costa County. TRANSPLAN is composed of the cities of Antioch, Brentwood, Oakley, Pittsburg, and unincorporated Contra Costa County. The Action Plans from the TRANSPLAN Committee are integrated with Action Plans from other RTPCs to form the Countywide Transportation Plan (CTP) under the Contra Costa Transportation Authority (CCTA). The CTP includes measures and programs for mitigation of regional traffic impacts. Plans have focused on residential areas thus far. The Project site is located 0.9 miles from the nearest residential area and is not included in the CTP. Because the Project site is not within a residential area covered by the CTP, no impact would occur.

4.17.2 Environmental Impact Determination

a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less Than Significant Impact. During construction for this 1.57-acre site, an estimated 30 one-way construction worker trips would occur during the 8-month construction period. The additional 20 one-way worker trips for the expected eight new employees during ongoing project operation would be less than significant compared to existing area traffic. Impacts would be less than significant.

The Project site is located on private property, and the Project would not conflict with any program, plan, ordinance, or policy related to transit, bicycle, or pedestrian facilities. Therefore, impacts would be less than significant.

b) Would the project conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?

Less Than Significant Impact. Pursuant to CEQA Guidelines Section 15064.3, subdivision (b), a significant impact to the transportation system may occur if the project causes an increase Vehicle Miles Traveled (VMT) that surpasses established traffic impact criteria. In general, a VMT analysis is required if a project would generate a net increase of 110 or more daily vehicle trips. With only eight new employees, the Project would result in an estimated 22 one-way truck trips and 20 one-way passenger trips, according to results of California Emissions Estimator Model (CalEEMod), included in Appendix C. The total one-way trips expected would be 42, which is less than the 110 trips per day threshold that requires further analysis. The Project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b), and would have a less than significant impact.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact. The Project would not include construction of new roadway or use of new transportation at the Project site; therefore, no impact would occur.

d) Result in inadequate emergency access?

Less Than Significant Impact. A significant impact would occur if the Project resulted in inadequate emergency access. The Project site is on Loveridge Road with regional access to the site available using SR 4, a major thoroughfare. Since emergency access to the site is adequate, the Project impact to emergency access would be less than significant.

4.17.3 Mitigation Measures

As detailed in Section 4.17.2, the Project would be aligned with transportation planning and implementation for the area. As such, the Project would have less than significant impact. No mitigation measures would be required.

4.18 Tribal Cultural Resources

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

4.18.1 Setting

The Project site is located on a previously developed 1.57-acre parcel leased from Corteva. According to the California NAHC Digital Atlas of California Native Americans, the Project site is within the historical tribal area of the Patwin (Southern Wintun) and Miwok Indian tribal councils.

Approved by Governor Brown on September 25, 2014, AB 52 establishes a formal consultation process for California Native American tribes to identify potential significant impacts to TCRs, as defined in PRC Section 21074, as part of CEQA. Effective July 1, 2015, AB 52 applies to projects that file a Notice of Preparation of a Negative Declaration (ND), MND, or EIR on or after July 1, 2015. PRC Section 21084.2 establishes that a project that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment. To help determine whether a project may have such an effect, PRC Section 21080.3.1 requires a lead agency to consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a project. That consultation must take place prior to the release of an ND, MND, or EIR for a project. As a result of AB 52, the following must take place: 1) prescribed notification and response timelines; 2) consultation on alternatives, resource identification, significance determinations, impact evaluation, and mitigation measures; and 3) documentation of all consultation efforts to support CEQA findings for the administrative record.

Under AB 52, if a lead agency determines that a project may cause a substantial adverse change to a TCR, the lead agency must consider measures to mitigate that impact. PRC Section 21074 provides a definition of a TCR. In brief, in order to be considered a TCR, a resource must be either: 1) listed, or determined to be eligible for listing, on the national, state, or local register of historic resources, or 2) a resource that the lead agency chooses, in its discretion supported by substantial evidence, to treat as a TCR. In the latter instance, the lead agency must determine that the resource meets the criteria for listing in the State register of historic resources or City Designated Cultural Resource. In applying those criteria, a lead agency shall consider the value of the resource to the tribe.

As specified in AB 52, lead agencies must provide notice to tribes that are traditionally and culturally affiliated with the geographic area of a project if the tribe has submitted a written request to be notified. The tribe must respond to the lead agency within 30 days of receipt of the notification if it wishes to engage in consultation on the project, and the lead agency must begin the consultation process within 30 days of receiving the request for consultation. The City of Pittsburg sent notifications regarding this Project to tribes that had requested to be notified on June 20, 2023. In addition to the notifications, the City commissioned a cultural resources study by SAS, and the Cultural Resources Technical Memorandum prepared from that study is included in Appendix D.

Per the PRC, Section and Government Code Section 65352.3(a)(2), a written request for consultation must be submitted within 90 days of receipt of the notification letter. To date, only one request for additional information has been received as a result of the City's initial letter in June and a copy of the Cultural Resources Technical Memorandum prepared by SAS was forwarded to this Tribe in response to the request. After receipt of the report, this Tribe noted in an email on August 24, 2023 that "it is not always possible to know for certain if you may find cultural resources or burials at sites where you anticipate ground disturbance" and "the Tribe wishes to be contacted if there are any findings." Mitigation measure MM-CUL-1 has been included in the MMRP (Section 5 and Appendix G) in case there is an inadvertent discovery of archaeological resources made during ground disturbance and includes provisions that if a significant discovery (as assessed by a cultural resources specialist) is Native American in nature, consultation with and/or monitoring by a Tribal representative may be necessary.

To meet PRC requirements, SAS emailed a letter and a map depicting the project area and surrounding vicinity to the NAHC on July 14th, 2023 requesting a Sacred Lands File (SLF) search, and a list of Native American community representatives who might have an interest in, or concerns with the proposed Project. On July 27th, 2023, the NAHC responded to SAS stating that the SLF did not contain any information on sensitive Native American cultural properties within or near the project area. The NAHC also provided contact information for 21 individuals from 10 tribal entities. In addition to the notifications previously sent by the City, SAS contacted each of the individuals identified by NAHC by letter on August 1st, 2023, inquiring if they had any knowledge of culturally sensitive properties or archaeological sites within or near the project area. As of October 11, 2023, SAS has not received any replies to the mailed letters.

As discussed in Sections 4.5, Cultural Resources, and 4.7, Geology and Soils, the site is underlain with fill dirt to a depth of approximately 3 feet. Most of the trenching and excavation work during construction of the Project will be within this layer. However, there would be some pile driving to support the concrete pads/foundations. Additional information on the cultural resources setting is provided in Appendix D.

4.18.2 Environmental Impact Determination

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

<u>No Impact.</u> The Project site has not been listed and is not expected to be eligible for listing in the California Register of Historical Resources or in a local register of historical resources as defined in PRC Section 5020.1(k). As noted above, the NAHC was contacted and a search of the SLF database was requested. The NAHC responded stating that the SLF did not contain any information on sensitive Native American cultural properties within or near the project area. As discussed in Section 4.5, Cultural Resources, a database search by the NWIC did not identify any historic resources on the site and the 4 resources within half a mile of the site (e.g., 2 railroads, a steel plant, and a recycling center), would not be impacted by the Project. Therefore, no impact would occur with respect to historic resources.

ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

<u>Less Than Significant Impact With Mitigation Incorporated.</u>

As discussed in Section 4.5, Cultural Resources, and Appendix D, the potential for finding cultural resources, including TCRs, is low. However, a mitigation measure (MM-CUL-1) has been proposed in case an inadvertent discovery is made during construction. Therefore, the impact would be less than significant with mitigation.

4.18.3 Mitigation Measures

As described above, construction and operation of the Project would result in less than significant impacts to tribal cultural resources with the implementation of the inadvertent discovery plan mitigation measure (MM-CUL-1).

4.19 Utilities and Service Systems

Significance Criteria	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. Utilities and Service Systems. Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☑	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☑	☐
c) 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?	☐	☐	☑	☐
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☑	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☑	☐

4.19.1 Setting

This section describes the utility providers within whose jurisdiction the Project site is located:

- Electricity: PG&E;
- Fuels: Propane – AmeriGas, Suburban Propane;

- Wastewater Discharge and Treatment: Delta Diablo;
- Water Supply: Corteva (process and potable water supply); and
- Solid Waste Disposal: Allied Waste Systems, Inc. dba Republic Services.

4.19.2 Environmental Impact Determination

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less Than Significant Impact. The Project would not result in new or expanded natural gas or telecommunications facilities. The Project would result in expanded water and wastewater drainage and a new electric power substation.

4.19.2.1 Electric Power

Electrical transmission lines are located within the general area; however, 480-volt power is not generally available in the vicinity of the Project site. A power substation would be constructed adjacent to the Project site to provide 480-volt power to the Project. HASA would install approximately 616 feet of trench ranging from 24 inches to 36 inches in depth, pursuant to PG&E requirements; two 4-inch conduits and one 5-inch conduit (PVC, Schedule 40 or better); and backfill per PG&E specifications. PG&E would install:

- One 2-1000A QPX service cable in a 4- to 5-inch conduit;
- One 3-1/0A EPR UG primary cable in a 4-inch conduit;
- One 3-600AL EPR UG primary cable in the existing 6-inch conduit;
- One 277/480V meter; and
- One 3-way 600A J with 200A tap in the existing #7 vault.

A 750 kVA pad-mounted transformer would be installed by PG&E on a 90-inch by 106-inch pad. The proposed transformer would lower high voltage to the lower voltage needed to power the site.

4.19.2.2 Wastewater Treatment

Two points of connection would be made to lateral sewer lines privately managed by Corteva. Sharing of a side sewer line is allowed by the Central Contra Costa Sanitary District (Central San) for dischargers located on properties with the same APN per Section 2-01 of Central San's 2022 Standard Specifications for Design and Construction (Corteva and Aztec Buyer are co-located on APN 073-220-049). The two new underground pipeline connections would be for: 1) a sanitary sewer line from the office building; and 2) intermittent process wastewater discharge in cases of process upset. Construction of the lateral sewer connections would include trenching, piping installation/tie in to existing, below-grade sewer lines adjacent to the Project site, and trench backfill.

Prior to discharge of process wastewater, a Central San Special Discharge Permit would be obtained. Prior to discharge through the sanitary sewer line, a non-residential sewer permit would be obtained from Delta Diablo. The permitting process includes an assessment of pipeline capacity and wastewater chemical composition/treatability.

4.19.2.3 Storm Water

The Project facility is designed to capture and manage all on-site storm water and mitigate off-site storm water runoff.

During typical Project operations, storm water that enters secondary containment structures within the bleach plant, tank farm, and truck loading areas (now considered process water) would be pumped from containment sumps to a “mud tank” within the tank farm. Mud tank water would be conveyed through the filtration system for final reuse in bleach production. Should the facility be unable to handle captured storm/process water due to unplanned system shutdown, this water would be discharged (under a permit issued by Delta Diablo) to the existing industrial sewer system managed by Corteva. Storm water runoff from the parking area would drain to two adjacent catch basins connected to the existing storm drainage system managed by Corteva.

Except for the eight-car parking lot area, storm water runoff within the Project area for the bleach plant tank farm and truck loading area would be captured internally and reused as a raw material for bleach production. Storm water runoff from the parking area would drain as sheet flow from the asphalt of the parking area to the surrounding gravel. The Project would comply with the storm water NPDES through compliance with the existing Corteva SWPPP for the site. The Corteva SWPPP would be revised to include the Project.

4.19.2.4 Water Supply

The process water supply for the Project would be provided by Corteva via a surface water pumping station at the New York Slough. The potable water supply for the office building and safety showers would also be supplied by Corteva. The approximate daily combined consumption of water (process and potable water) is estimated at 25,000 gallons per day with potential for expansion to up to 100,000 gallons per day. This water consumption rate is equivalent to that of approximately 100 homes.

Although the Project water supply would come from surface water, the City of Pittsburg 2020 UWMP states that the Pittsburg Groundwater Basin is not a critically over-drafted groundwater basin. Groundwater levels in the basin have historically been stable because the majority of local water demand has been met by surface water.

Based on the above discussion, impacts from the Project would be less than significant.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

<u>Less Than Significant Impact.</u> A significant impact would occur if the Project increased water consumption to such a degree that the capacity of facilities serving the site was exceeded. The Project’s approximate daily water (process and potable) consumption would be 30,000 gallons; both water sources would be provided by Corteva. During normal facility operations, process wastewater would be recycled in the system, reducing process water needs.

The Project would not create any water system capacity issues because sufficient, reliable water supplies are currently available to meet Project water demands. Therefore, the Project would have a less than significant impact related to availability of water infrastructure.

c) 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?

<u>Less Than Significant Impact.</u> Process water would be recycled in the system such that process wastewater would not typically be discharged to the industrial sewer. Sanitary sewer capacity needs for the Project would be for eight full-time employees. Corteva has confirmed the sanitary sewer line has adequate capacity for the new employee building downstream of the planned tie-in point, which is identified as Block 680 Underground Sewer Tie-In by Corteva. The Project would be served by the City's sewer system downstream of Corteva's local lines and would not exceed wastewater treatment requirements in the area. Impacts would be less than significant.

d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

<u>Less Than Significant Impact.</u> The Project would be required to comply with current regulations for recycling and proper disposal of solid municipal waste. Small amounts of solid waste would be generated by project employees. Impacts would be less than significant.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

<u>Less Than Significant Impact.</u> A significant impact could occur if a project would generate solid waste that was not disposed of in accordance with applicable regulations. These regulations include:

- California Integrated Waste Management Act of 1989 (AB 939), which requires cities and counties to reduce the amount of solid waste entering existing landfills through recycling, reuse, and waste prevention efforts. These efforts have included permitting procedures for waste haulers and handlers.
- California Solid Waste Reuse and Recycling Access Act of 1991 (AB 1327), which requires local jurisdictions to adopt an ordinance requiring commercial buildings to provide an adequate storage area for the collection and removal of recyclable materials.
- AB 341 of 2012, which requires businesses to arrange for recycling services.

The Project would comply with federal, state, and local statutes and regulations relating to solid waste. Impacts would be less than significant.

4.19.3 Mitigation Measures

As detailed in Section 4.19.2, the Project's planned use of utilities and service systems would result in less than significant impacts, and no mitigation measures would be required.

4.20 Wildfire

Significance Criteria	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. Wildfire. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☑
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☑
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☑

4.20.1 Setting

The Project site, when developed, would be predominantly covered by asphalt and concrete.

4.20.2 Environmental Impact Determination

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

<u>No Impact.</u> The Project site is not located in or near State responsibility areas or lands classified as very high fire hazard zones (California Office of the State Fire Marshall, 2022). The Project site is located within an urbanized area of the City and does not include wildlands or high-fire-hazard terrain. As such, no impacts would occur.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

No Impact. The Project site is relatively flat and surrounded by other industrial buildings. It is located within an urbanized area of the City and does not include wildlands or high-fire-hazard terrain. As such, no impacts would occur.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

No Impact. The Project would not require the installation or maintenance of new roads or other infrastructure. As such, no impacts would occur.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact. The Project site is not located in State responsibility areas or lands classified as very high fire hazard zones. The Project site is located within an urbanized area of the City. In addition, the Project site is not susceptible to potential flooding or landslide, nor would the Project result in potential drainage changes. As such, no impacts would occur.

4.20.3 Mitigation Measures

As detailed in Section 4.20.2, the Project site is not located in an area with high wildfire risk and is not expected to cause substantial risk due to wildfires. Thus, the Project would result in no impacts with respect to wildfires, and no mitigation measures would be required.

4.21 Mandatory Findings of Significance

Significance Criteria	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XXI. Mandatory Findings of Significance.				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially 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?	☐	☐	☑	☐

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

4.21.1 Environmental Impact Determination

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially 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?

<u>Less Than Significant Impact.</u> The Project site is located on a previously developed 1.57-acre parcel that is predominantly covered with gravel with sparse vegetation. Due to the lack of potential habitat, the Project was found to have no impact on biological resources. Although the Project has a low potential for impact to cultural resources due to the previously disturbed nature and coverage of fill dirt, compliance with the mitigation measures for the inadvertent find of any unknown cultural resources (MM-CUL-1) would ensure all potential impacts associated with cultural resources would remain at a **less-than-significant** level.

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

<u>Less Than Significant Impact.</u> The City of Pittsburg was contacted to provide a list of other projects in the area that could have a cumulative impact with the Project. The list provided by the City identified mostly residential projects, but none were within one mile of the Project, and many are presumed to have been constructed several years ago. One potential modification to an existing nearby industrial facility was identified, but since that project is currently being analyzed, there are no published documents of what the impacts would be; hence it is speculative and is not included in this analysis.

According to the City's Current Project Pipeline website[3], the only industrial project near (i.e., within a mile) to the HASA NorCal Project with a relatively recent completed CEQA environmental review document (i.e., a Negative Declaration, MND, or EIR) is the K2 Pure Chlorine Rail Transport Curtailment Project. According to the California State Clearing House CEQANet database [4], that proposed project would eliminate railcar transport of chlorine gas. The Negative Declaration that was published in 2019 concluded that the project would have a beneficial impact by eliminating rail transport of chlorine gas. The HASA NorCal Project would also rely on a pipeline for the delivery of chlorine gas, and hence would not have a cumulative detrimental impact.

The City also recently (September 2023) issued a Revised Notice of Preparation (NOP) of an EIR for the H Cycle Pittsburg Renewable Hydrogen Project (H Cycle) (City of Pittsburg, 2023). Figure 4-5 shows the relative locations of the HASA NorCal Project, the K2 Pure Chlorine Project, and the H Cycle Project. The HASA NorCal Project and the H Cycle Project are both on the Corteva property, and although the address for both of these projects is given as Corteva's address (901 Loveridge Road), the H Cycle Project site is located 0.4 miles east of the HASA Project site.

According to the NOP, the H Cycle Project would involve operation of a facility to convert sorted municipal solid waste (MSW) materials from waste suppliers to low-carbon, renewable hydrogen. The renewable hydrogen produced by the facility is expected to be used in the production of conventional and renewable fuels and for direct use in hydrogen-fuel cell vehicles, particularly heavy-duty trucks and buses. The H Cycle website indicates that its technology is a thermal process that uses heat and electricity to transform waste into hydrogen along with a few easily managed products and minimal emissions.

The NOP did not provide detailed information about the expected impacts due to the H Cycle Project, but only indicated the general content of the proposed EIR. The NOP appears to indicate that impacts are expected to be less than significant or mitigatable to less than significant. Most impacts, for instance, aesthetics, biology, noise, etc. would not be cumulatively considerable given the 0.4 miles distance between the two projects. H Cycle would produce renewable hydrogen and non-hazardous vitrified slag byproduct which would be transported in tube trailers and would require up to approximately 30 truck roundtrips per day. As discussed in the Project Description and Transportation Section of this IS, the HASA NorCal Project is not expected to substantially increase traffic since it would use a pipeline for the chlorine delivery and is not expected to increase traffic over what occurs from its current facility. Furthermore, the H Cycle Project would mostly affect roads well away from the HASA location. Although hydrogen is a hazardous material if present in large quantities, the NOP indicates that existing regulations and standards will likely limit the potential for impacts from project hazards and hazardous materials. Construction of H Cycle is anticipated to last 18 to 24 months which could overlap with the 8 months of construction expected for HASA, but both projects would implement the

[3] https://www.pittsburgca.gov/services/community-development/planning/current-project-pipeline.
[4] https://ceqanet.opr.ca.gov/2019109049/2.

fugitive dust BMPs discussed in Section 4.3.2 of this IS, as well as being temporary. Per the NOP, operation of the H Cycle Project would require an air permit from the BAAQMD, and compliance with the permit requirements would ensure that impacts due to emissions from the project equipment to air quality would be less than significant.

Figure 4-5: Proposed[5] Industrial Projects Near the HASA NorCal Project

5 Project sites for the three proposed projects shown in red outline.

There are no other current nearby projects that have been identified with the potential to combine with the Project's impacts to be cumulatively considerable, and thus the HASA NorCal Project would have a **less-than-significant** cumulative impact.

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

Less Than Significant Impact with Mitigation Incorporated. Based on the sections presented in this Initial Study, the potentially significant impacts that may cause an adverse effect to humans are geological hazards and hazards/hazardous materials. With mitigation incorporated, the Project would not have a significant effect on humans. The mitigation measures that ensure this are MM-GEO-1 and MM-GEO-2, which apply to the construction phase only, and MM-HAZ-1, MM-HAZ-2, and MM-HAZ-3.

5.0 MITIGATION MEASURES

Mitigation measures are listed below, and an MMRP is contained in Appendix G.

5.1.1 Cultural Resources

MM-CUL-1 HASA shall implement an inadvertent discovery plan as follows:

Inadvertent Discovery of Archaeological Resources. In the event that archaeological resources (sites, features, or artifacts) are exposed during ground disturbing activities for the Project, all construction work occurring within 50 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find under the California Environmental Quality Act (14 CCR 15064.5(f); California PRC Section 21082), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted. If the discovery is Native American in nature, consultation with and/or monitoring by a Tribal representative may be necessary.

If a discovery consists of possible human remains, the County Coroner shall be contacted immediately as well as the qualified archaeologist and the City. If the Coroner determines that the remains are Native American, the Coroner shall contact the California Native American Heritage Commission (NAHC) who will provide the name and contact information for the Most Likely Descendent (MLD). Treatment of the discovery shall be decided in consultation with the MLD provided by the NAHC. Additionally, a Tribal representative shall be retained to monitor all further subsurface disturbance in the area of the find. In the event of the discovery of human remains, work in the area of discovery may only proceed after the City grants authorization.

5.1.2 Geology and Soils

MM-GEO-1 HASA shall ensure that the construction follows the design of the Project based on the recommendations of the Geotechnical Report and in compliance with the most current applicable building codes.

The Geotechnical Report concluded that driven precast, prestressed concrete piles are appropriate deep foundations for planned site improvements, including concrete pads for the employee building, process area, tanks, tank farm, and tanker loading platform. The deep foundations would transfer the loads down to the stiff and dense alluvial soils well below the fill and marsh deposit soils. Approximately 150 piles would be installed to a depth of 48 feet bgs to support concrete foundations constructed at the facility.

HASA shall enforce this through a contract mechanism or other legally binding requirement.

MM-GEO-2 HASA shall ensure that the construction follows the design of the Project based on the recommendations of the Geotechnical Report and in compliance with the most current building codes.

The Geotechnical Report concluded that the top 6 inches of existing soil should be excavated and replaced with a well-compacted select fill layer to prepare for placement of concrete pads. All concrete pads to be installed for this Project would be supported by piles, and installation of connected, surface concrete pile caps and pads would require excavation of at least the top 6 inches of existing soil.

HASA shall enforce this through a contract mechanism or other legally binding requirement.

5.1.3 Hazards and Hazardous Materials

MM-HAZ-1 HASA shall ensure design of the Project and operation of the Project to include the recommendations generated during the most recent PHA.

MM-HAZ-2 HASA shall prepare and maintain a hazardous material business plan in compliance with Contra Costa County Environmental Health Division.

MM-HAZ-3 HASA shall prepare and document a coordination plan with Corteva for response to a chlorine pipe rupture that includes Corteva notification procedures.

6.0 REFERENCES

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APPENDIX A – EXECUTIVE SUMMARY FROM BAAQMD 2017 CAP

See links below for Volumes 1 and 2 of the BAAQMD CAP:

https://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en

and

https://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_proposed-final-cap-volume-2-pdf.pdf?la=en

EXECUTIVE SUMMARY

The Challenge

Since its formation in 1955 as the first regional air quality agency in the nation, the Bay Area Air Quality Management District (Air District) has led the effort to reduce air pollution and protect public health in the region. Over the past 60 years, we have made great progress in improving air quality throughout the San Francisco Bay Area, while the population and economic output of the region have increased tremendously. Population exposure to unhealthy levels of ozone and particulate matter, and cancer risk from exposure to toxic air contaminants, have all been greatly reduced.

But further progress is needed. As science has improved and progressed, we continue to learn more about the harmful impacts of air pollution. Some Bay Area communities and populations are disproportionately impacted by air pollution. And climate change—which has already begun to impact the region, state and world—threatens to degrade air quality and to potentially jeopardize the health and well-being of Bay Area residents, especially in the most vulnerable communities. To protect public health and stabilize the climate, we must take aggressive action to eliminate fossil fuel combustion and transition to a post-carbon economy.

Transitioning to a post-carbon economy presents a daunting challenge. But this challenge provides a tremendous opportunity for the region to develop new technologies, solutions, and ideas that will help California continue to lead the nation and ensure our continued viability and prosperity as a region. By so doing, we can protect the environment and the climate that make the Bay Area a great place to live, while leading the way toward the innovative policies and technologies that will drive economic change and promote social equity in the 21st century.

Climate change is a global problem. No single region or agency can solve the climate challenge on its own. But in the face of uncertainty at the national level, it is imperative that Bay Area residents, businesses and institutions step up to the challenge and provide leadership. Region-wide action may provide an example of metropolitan-scale solutions to improve air quality and protect the climate; an example that may be replicated throughout California, the United States and beyond.

To help accomplish the long-range vision described in this plan, the Air District will deploy all its tools and resources to continue reducing emissions of air pollutants and greenhouse gases (GHGs) in the Bay Area. But recognizing that climate change represents a profound and long-term challenge, the Air District will also step up to expand its role by fostering research and innovation, developing new partnerships, convening stakeholders, educating Bay Area residents about how they can reduce GHG emissions, and providing leadership as part of the overall regional effort to protect the climate.

Goals and Objectives

The 2017 Clean Air Plan, *Spare the Air, Cool the Climate* (2017 Plan), focuses on two closely-related goals: protecting public health and protecting the climate. Consistent with the GHG reduction targets adopted by the state of California, the plan lays the groundwork for a long-term effort to reduce Bay Area GHG emissions 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050.

To help describe what it will take to achieve the ambitious GHG reduction target for 2050, the Plan offers a long-range vision of how the Bay Area could look and function in a year 2050 post-carbon economy, and describes a comprehensive control strategy that the Air District will implement over the

next three to five years to protect public health and protect the climate, while setting the region on a pathway to achieve the 2050 vision.

The 2017 Plan updates the most recent Bay Area ozone plan, the *2010 Clean Air Plan,* pursuant to air quality planning requirements defined in the California Health & Safety Code.[1] To fulfill state ozone planning requirements, the 2017 control strategy includes all feasible measures to reduce emissions of ozone precursors—reactive organic gases (ROG) and nitrogen oxides (NO_X)—and reduce transport of ozone and its precursors to neighboring air basins. In addition, the Plan builds upon and enhances the Air District's efforts to reduce emissions of fine particulate matter and toxic air contaminants.

The Vision for 2050

By visualizing what the Bay Area may look like in a post-carbon year 2050—where we will live, how we will travel, what we will produce, and what we will consume—we can better discern the policies and actions that we, as a region, need to take in the near- to mid-term to embark on the transformation. The Plan describes a vision for a thriving region with clean air, a stable climate, a robust natural environment and a prosperous and sustainable economy. The vision for 2050 can be briefly summarized as follows.

Where We Live and Work: Buildings

By 2050 the buildings in which we live, work, learn, shop and socialize will be energy efficient, and they will be heated, cooled, and powered by renewable energy.

To eliminate the use of fossil fuels in buildings, we will need to:

- Maximize energy efficiency in both new and existing buildings. Stringent standards already apply to new buildings. However, efforts to retrofit existing commercial and residential buildings will need to be greatly expanded.
- Increase production of on-site renewable energy such as rooftop solar.
- Develop and deploy technologies for on-site energy storage.
- Switch from natural gas to clean electricity, or other renewable energy, for space and water heating, clothes drying, cooking, and other domestic uses.

To reduce emissions of particulate matter (PM) and black carbon, we will also need to eliminate wood burning.

How and Where We Travel: Transportation

By 2050 the transportation sector will be transformed. We will travel by a combination of electric vehicles, both shared and privately-owned; autonomous public transit fleets offering both fixed-route and flexible-route service; with a large share of trips by bicycling, walking and transit.

- New development will need to offer safe and convenient access to jobs, shopping and services by transit, bicycle and walking.
- The majority of trips will need to be made by walking, bicycling, riding transit or sharing vehicles.
- Nearly 90 percent of the motor vehicle fleet will need to be zero emission. Heavy-duty vehicles will need to be powered by electricity, or by renewable forms of diesel or other low-carbon liquid fuels.
- New technologies and services will reduce the need for personal vehicle ownership. Car-sharing services, transportation network companies, and autonomous electric-powered vehicles will greatly reduce emissions of air pollutants and greenhouse gases from transportation.

What We Produce: Sustainable Production

By 2050 the Bay Area economy will be powered by clean, renewable electricity. The region will be a leading incubator and producer of clean energy technologies, and Bay Area industry will lead the world in the carbon-efficiency of our products.

- A smart grid interconnecting renewable energy sources will be needed in order to provide nearly 100 percent renewable electricity.
- Bay Area industries will need to be powered by carbon-free electricity and biofuels.
- The carbon-intensity of products—the amount of carbon emissions associated with making a given product—manufactured in the region will need to be greatly reduced.
- The Bay Area will need to become a hub for the development and production of innovative renewable energy technologies, creating solid jobs requiring diverse education and skills.

What We Consume: "Conscientious Consumption"

By 2050, Bay Area residents will need to develop a low-carbon lifestyle. We will greatly reduce our personal GHG consumption (our "GHG footprint") by driving electric vehicles, living in zero net-energy homes, eating low-carbon foods, and purchasing goods and services with low carbon content. Waste will be greatly reduced, any waste *products will be re-used or recycled, and all organic waste will be composted and put to productive use.*

- The Air District and partner agencies will develop information campaigns to help Bay Area residents understand the active role they can play in reducing GHG emissions. This will include providing information on the factors that influence their GHG footprint and resources to help make effective choices to reduce their personal GHG footprint.
- Bay Area residents will need to reduce their consumption of carbon-intensive foods and adopt a low-carbon diet for at least some portion of their meals.
- Food waste will need to be greatly reduced and all organic matter will need to be diverted from the waste stream and put to productive use.

Pollutants Addressed

The 2017 Plan describes a multi-pollutant strategy to simultaneously reduce emissions and ambient concentrations of ozone, fine particulate matter, toxic air contaminants, as well as greenhouse gases that contribute to climate change. Each category of pollutant is briefly described below.

Ozone: Ozone (O_3), often called smog, is formed by photochemical reactions of precursor chemicals, known as ROG and NO_X, in the presence of sunlight. Exposure to ozone can damage the lungs and aggravate respiratory conditions such as asthma, bronchitis and emphysema. Motor vehicles and industrial sources are the largest sources of ozone precursors in the Bay Area.

Emissions of ozone precursors have been greatly reduced in recent decades. As a result, Bay Area ozone levels and population exposure to harmful levels of smog have decreased substantially. Despite this progress, the Bay Area does not yet fully attain state and national ozone standards. This is primarily due to the progressively tightened national ozone standard, but also to the amount of population and economic growth occurring within the Bay Area. Therefore, we need to further reduce emissions of ozone precursors. This is especially important because rising temperatures associated with climate change are expected to increase emissions of ozone precursors and smog formation.

Particulate matter: Fine particulate matter ($PM_{2.5}$), a diverse mixture of suspended particles and liquid droplets (aerosols), is the air pollutant most harmful to the health of Bay Area residents. Exposure to fine PM, on either a short-term or long-term basis, can cause a wide range of respiratory and cardiovascular health effects, including strokes, heart attacks and premature deaths. Combustion of fossil fuels and wood (primarily residential wood-burning) are the primary sources of $PM_{2.5}$ in the Bay Area. Emissions and ambient concentrations of PM have both been greatly reduced in recent years. As a result, the Bay Area currently meets national and state standards for both daily and annual average levels of $PM_{2.5}$.[2] Despite this progress, some Bay Area communities are still impacted by localized concentrations of PM. In addition, health studies find negative health impacts from exposure to PM even below the current standards. Therefore, we need to continue our efforts to further reduce PM emissions.

Toxic Air Contaminants: Toxic air contaminants (TACs) are a class of pollutants that includes hundreds of chemicals hazardous to human health. Long-term exposure to TACs may cause more severe health effects such as neurological damage, hormone disruption, developmental defects and cancer. Because TAC emissions are highly localized, exposure to TACs is a key criterion that the Air District uses to identify communities that are disproportionately impacted by air pollution. The average cancer risk from TACs in the Bay Area has been reduced by 80 percent since 1990. The Air District will continue working to reduce TACs with the goal of eliminating disparities in health risks from TACs among Bay Area communities.

Greenhouse Gases: The principal greenhouse gases that contribute to global warming and climate change include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), as well as black carbon and fluorinated gases (F-gases): hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6). After increasing rapidly in past decades, GHG emissions throughout California and the Bay Area have leveled off. However, in order to prevent the most dangerous climate change scenarios, we must reduce GHG emissions greatly. It is especially important to rapidly reduce emissions of those GHGs with very high global warming potential, such as methane, black carbon, and F-gases, which we refer to as "super-GHGs" in this document. (The Air Resources Board refers to these compounds as short-lived climate pollutants or SLCPs.) To provide a roadmap, the 2017 Plan describes an ambitious strategy to reduce GHG emissions in order to protect the climate.

The 2017 Control Strategy

The 2017 Plan defines an integrated, multi-pollutant control strategy to reduce emissions of particulate matter, TACs, ozone precursors and greenhouse gases. The proposed control strategy is designed to complement efforts to improve air quality and protect the climate that are being implemented by partner agencies at the state, regional and local scale. The control strategy encompasses 85 individual control measures that describe specific actions to reduce emissions of air and climate pollutants from the full range of emission sources. The control measures are categorized based upon the economic sector framework used by the Air Resources Board for the AB 32 Scoping Plan Update. The sectors include:

Stationary (Industrial) Sources
Transportation
Energy
Buildings
Agriculture
Natural and Working Lands
Waste Management
Water
Super-GHG Pollutants

In addition to fostering consistency with climate planning efforts at the state level, the economic sector framework also ensures that the control strategy addresses all facets of the economy.

The proposed control strategy is based on four key priorities:

- Reduce emissions of criteria air pollutants and toxic air contaminants from all key sources.
- Reduce emissions of "super-GHGs" such as methane, black carbon and fluorinated gases.
- Decrease demand for fossil fuels (gasoline, diesel and natural gas).
    - Increase efficiency of our industrial processes, energy and transportation systems
    - Reduce demand for vehicle travel, and high-carbon goods and services.
- Decarbonize our energy system.
    - Make the electricity supply carbon-free.
    - Electrify the transportation and building sectors.

Key elements in the control strategy are briefly described below.

Stationary sources:

- Decrease emissions of GHGs and criteria air pollutants through a region-wide strategy to reduce combustion and improve combustion efficiency at industrial facilities, beginning with the three largest sources of emissions: oil refineries, power plants and cements plants.
- Reduce methane emissions from landfills, and from oil and natural gas production and distribution.
- Reduce emissions of toxic air contaminants by adopting more stringent thresholds and methods for evaluating toxic risks at existing and new facilities.

Transportation:

- Reduce motor vehicle travel by promoting transit, bicycling, walking and ridesharing.
- Implement pricing measures to reduce travel demand.

- Direct new development to areas that are well-served by transit, and conducive to bicycling and walking.
- Accelerate the widespread adoption of electric vehicles.
- Promote the use of clean fuels and low- or zero-carbon technologies in trucks and heavy-duty equipment.

Buildings and energy:

- Expand the production of low-carbon, renewable energy by promoting on-site technologies such as rooftop solar, wind and ground-source heat pumps.
- Support the expansion of community choice energy programs throughout the Bay Area.
- Promote energy and water efficiency in both new and existing buildings.
- Promote the switch from natural gas to electricity for space and water heating in Bay Area buildings.

The Air District's Tools and Resources

To implement the 2017 control strategy, the Air District will draw upon all the tools and resources at its disposal, including:

- *Rulemaking:* Use its regulatory and permitting authority to adopt and enforce rules to reduce emissions of air and climate pollutants.
- *Funding:* Provide funds and incentives through its grant and incentive programs and other sources.
- *Best Practices:* Develop and promote the use of best practices by public agencies and other entities by means of model ordinances, general plan, specific plan, CEQA and other planning guidance documents, informational campaigns, etc.

- *Informational resources:* Conduct marketing or media campaigns, disseminate educational materials, engage with community groups and other organizations.
- *Advocacy:* Support legislative action at the federal or state level and advocate for funding to support implementation of the measures in the 2017 control strategy.
- *Partnerships:* Work actively within the region and the state to develop partnerships that can enable business, local government and residents to work and learn together to develop viable air pollution and GHG reduction strategies.

What the 2017 Plan Will Accomplish

The 2017 Plan focuses on protecting public health and protecting the climate.

Protecting public health: The proposed control strategy will reduce emissions of the air pollutants that pose the greatest health risk to Bay Area residents. The strategy will decrease population exposure to PM and TACs in the communities that are most impacted by air pollution, and reinforce the Air District's commitment to protect public health in these communities, with a goal of eliminating disparities in exposure to air pollution between communities. The Plan will ensure that the Bay Area continues to meet fine PM standards, while continuing progress toward attaining state and national ozone standards.

The proposed control measures are estimated to reduce emissions of ROG by approximately 11 tons per day, NO_x by 9.3 tons per day, and $PM_{2.5}$ by 3.1 tons per day. These emission reductions are expected to decrease illness and premature mortality. The estimated dollar value of the avoided costs related to health care, lost productivity, and premature death is on the order of $736 million per year.[3]

Protecting the climate: The proposed control measures will reduce emissions of greenhouse gases by approximately 4.4 million metric tons of GHGs on a CO_2-equivalent basis per year by 2030, based on 100-year global warming potential factors and 5.6 MMT based on 20-year global warming potential factors, and set us on a course for deeper GHG reductions that will be needed to achieve the 2050 target. Using a value of $62 per metric ton of CO_2-equivalent to estimate the avoided social and economic costs related to the anticipated impacts of climate change, the GHG reductions from the 2017 Plan control strategy will have an estimated value of approximately $350 million per year (based on 20-year global warming potential).[4]

Moving Forward

The 2017 Plan provides a comprehensive strategy to improve air quality, protect public health, and protect the climate, utilizing all the tools and resources available to the Air District. In addition to reducing emissions of air pollutants and greenhouse gases in the Bay Area over the near term, the 2017 Plan is intended to set us on the pathway for the long-term transformation to a post-carbon future. To implement the Plan, the Air District will collaborate with government agencies, environmental and community groups and other non-profits, the business sector, academic institutions and Bay Area residents.

By taking aggressive action to protect the climate, we can ensure that the Bay Area continues to lead in the development of social and technological innovations that will transform our economy in the coming decades and create a sustainable Bay Area as described in the 2050 vision presented in Chapter 1.

We believe the 2017 Plan can inspire action elsewhere by providing an example of metropolitan-scale solutions to improve air quality and protect the climate that can be replicated throughout California, the nation and the world.

FOOTNOTES

1 The 2017 Plan responds to planning requirements pursuant to state law only. The Plan does not address federal air quality planning requirements, nor is it part of a State Implementation Plan for federal air quality planning purposes.

2 Although monitoring data shows that the Bay Area meets national and state standards for $PM_{2.5}$, the Bay Area is still formally designated as non-attainment for several $PM_{2.5}$ standards. In regard to the national standards, the non-attainment designation will continue to apply until the Air District submits, and the U.S. EPA approves, a re-designation request and a maintenance plan, as discussed in Chapter 2.

3 See Appendix C for how the dollar value of estimated health benefits were quantified.

4 The social cost of $62 per metric ton of CO_2e reduced is used per U.S. EPA guidance.

APPENDIX B – AIR QUALITY AND GHG EMISSIONS TECHNICAL REPORT

Aztec Buyer LLC

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December 2022

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Appendix A
Air Quality and GHG Emissions Technical Report

APPENDIX A
Air Quality and Greenhouse Gas Emissions Technical Report

Prepared for:

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December 2022

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Appendix A – Air Quality and GHG Emissions Technical Report

1.0 INTRODUCTION

The purpose of this air quality and greenhouse gas (GHG) technical report is to document the emissions calculations for the proposed Aztez Buyer LLC NorCal Vertical Integration Project (Project). This report also includes a review of, and compliance demonstration for, applicable federal, state and local air pollution control and air quality requirements for the Proposed Project.

2.0 PROJECT DESCRIPTION

2.1 Process Description

The Aztec Buyer NorCal Vertical Integration Project at 901 Loveridge Road in Pittsburg, California, would manufacture and distribute 12.5% sodium hypochlorite bleach solution, primarily used for water treatment.

The Proposed Project would produce bleach through a continuous system designed to safely produce high-quality sodium hypochlorite utilizing wet vapor chlorine and sodium hydroxide directly from a chlor-alkali process. The skid-mounted unit includes an integrated caustic dilution system, recycle pump and tank, heat exchangers, chlorine reactor, and instrumentation. A new heat-traced pipeline will supply chlorine vapor and sodium hydroxide liquid from the adjacent Corteva Agriscience facility. A caustic scrubber is proposed for control of any chlorine vapor emissions from the bleach production system.

Once produced, unfiltered bleach will be placed in storage tanks before further refinement through a bleach filtration unit, where magnesium chloride and sodium carbonate will be added as filtering agents to remove impurities and visible solids. The filtered product will meet the specifications outlined in Table 2-1.

Table 2-1: Filtered Bleach Product Quality

Chemical Composition (percent by weight)	Minimum	Maximum
Sodium Hypochlorite (NaOCl)	12.50	15.60
Sodium Chloride (NaCl)	10.00	12.50
Sodium Hydroxide (NaOH)	0.1	2.0
Sodium Carbonate (Na_2CO_3)	0.00	0.5
Inorganic salts of Iron	0.00	0.5 mg/L
Inorganic salts of Copper	0.00	0.05 mg/L
Inorganic salts of Nickel	0.00	0.05 mg/L

The filtered bleach product will be stored on site in tanks before being loaded into tanker trucks and delivered to off-site packaging facilities. Transfer of the bleach to tanker trucks will be through a pipeline connecting the storage tanks to a dual-truck loading platform and liquid loading and transfer equipment. The facility is expected to produce approximately 57,600,000 gallons of 12.5% bleach per year.

2.2 Construction Description

Construction activities for the Project would include grading, installation of pre-cast concrete piles, construction of reinforced cement foundations and containment areas; installation of storage tanks and skid-mounted production equipment; and construction of a truck loading rack. Emissions associated with construction will occur from the equipment used for construction, trucks delivering equipment, and workers commuting. Construction activities are estimated to take approximately 8 months starting in early-2024.

3.0 AIR POLLUTION CONTROL AND AIR QUALITY REQUIREMENTS

3.1 Bay Area Air Quality Management District (BAAQMD) Stationary Source Permit Requirements

BAAQMD requires permits to operate for any equipment or operation that emits pollutants into the atmosphere unless it is excluded from BAAQMD Regulations per Regulation 1 or exempted from District permit requirements by a specific section of Regulation 2 Rule 1. Compliance with applicable air pollution control requirements is enforced through the conditions of the permit.

As stated in BAAQMD Regulation 2, Rule 1, a permit to operate is not required for a source of air pollution if it meets:

1. Any categorically exempt sources as set forth in Sections 2-1-105 to 2-1-128; or
2. Meets all the following requirements:
   - NOT subject to Source Specific Regulations (Regulations 6, 8, 9 – 12) and
   - Actual emission of a criteria pollutant are less than 10 pounds per highest day or less than 150 pounds per year and
   - Toxic air contaminant emissions below the toxic thresholds as defined under BAAQMD Regulation 2-5 and
   - Is not an ozone generator emitting 1 lb/day or more of ozone.

The equipment and operations of the proposed NorCal Vertical Integration Project are exempt from permit pursuant to the exemptions summarized in Table 3-1 and discussed in detail in the following sections.

Table 3-1: BAAQMD Permit Exemptions Applicable to Project Tanks

Regulation Citation	Exemption	NorCal VI Project Applicability
2-1-123.2	Tanks, vessels and pumping equipment used exclusively for the storage or dispensing of any aqueous solution which contains less than 1 percent (wt) organic compounds.	Product stored in tanks and transferred through loading racks on site will contain (% wt): 12.5% sodium hypochlorite; 0.5% sodium hydroxide; 12.8% sodium chloride; balance water. These materials are not organic compounds; thus the tanks and pumping are exempt from permitting requirements.

Regulation Citation	Exemption	NorCal VI Project Applicability
2-1-103	Any source that is not already exempt from the requirements of Section 2-1-301 and 302 as set forth in Sections 2- 1-105 to 2-1-128, is exempt from Section 2-1-301 and 302 if the source meets all of the following criteria: 103.1 The source is not in a source category subject to any of the provisions of Regulation 6(1), Regulation 8(2) excluding Rules 1 through 4, or Regulations 9 through 12; and 103.2 The source is not subject to any of the provisions of Sections 2-1-316 through 319; and 103.3 Actual emissions of precursor organic compounds (POC), non-precursor organic compounds (NPOC), nitrogen oxides (NOx), sulfur dioxide (SO2), PM2.5, PM10 and carbon monoxide (CO) from the source are each (i) less than 10 pounds per highest day; or (ii) if greater than 10 pounds per highest day, total emissions are less than 150 pounds per year, per pollutant; and 103.4 The source is not an ozone generator (a piece of equipment designed to generate ozone) emitting 1 lb/day or more of ozone	At the pH of finished product, bleach solution does not release any significant chlorine gas. Thus, bleach manufacturing operation is not subject to Rule 2-5 or any other District rule and exempt from permitting requirements.

3.1.1 Loading Rack and Tanks Associated with Bleach Manufacturing

BAAQMD Regulation 8-1-201 defines an organic compound as "Any compound of carbon, excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates and ammonium carbonate." The loading racks and tanks to be used on site will contain less than one percent by weight organic compounds and are thus not subject to permitting pursuant to Regulation 2-1-123.2.

3.1.2 Bleach Manufacturing Process

Sodium hypochlorite is not a substance regulated by BAAQMD. Furthermore, sodium hypochlorite (bleach) is manufactured and handled as an aqueous solution with a pH greater than 11 in order to maintain its stability as a finished product. At this pH, the bleach solution does not release any significant amount of chlorine gas[1]. Therefore, any trace levels released are expected to be below toxic air contaminant trigger levels listed in Table 2-5-1 of BAAQMD Regulation 2, Rule 5, and will not require permitting by the BAAQMD pursuant to 2-1-103 (Source not Subject to Any District Rule).

[1] "Active Chlorine Released from Sodium Hypochlorite," Regulation (EU) No 528 concerning the making available on the market and use of biocidal products, January 2017. https://echa.europa.eu/documents/10162/a1ed9c2c-7df0-b950-7aab-3c4103ceae0a#:~:text=Active%20chlorine%20is%20released%20from,active%20chlorine%20is%20not%20feasible.

The new sodium hypochlorite manufacturing operation as proposed fits the definition of exempt equipment in BAAQMD Regulation 2-1, Section 2-1-123.2, Liquid Storage and Loading Equipment and Section 2-1-103, Source not Subject to Any District Rule.

3.2 California Environmental Quality Act (CEQA) Analysis of Non-stationary Source Criteria Pollutant Emissions and Greenhouse Gas Emissions from Project Construction and Operation

Construction projects are evaluated to determine if use of construction equipment and construction activities exceed CEQA significance thresholds.

A project's construction phase produces many types of emissions, but respirable particulate matter (PM_{10}) [including fine particular matter ($PM_{2.5}$)] in fugitive dust and diesel engine exhaust are the pollutants of greatest concern. Fugitive dust emissions can result from a variety of construction activities, including excavation, grading, demolition, vehicle travel on paved and unpaved surfaces, and vehicle exhaust. Construction-related emissions can cause substantial increases in localized concentrations of PM_{10}, as well as affect PM_{10} compliance with ambient air quality standards on a regional basis. Particulate emissions from construction activities can lead to adverse health effects and nuisance concerns such as reduced visibility and soiling of exposed surfaces. The use of diesel-powered construction equipment emits ozone precursors oxides of nitrogen (NO_x) and reactive organic gases (ROGs), as well as diesel particulate matter (DPM), the latter being a composite of toxic air contaminants (TACs). Use of architectural coatings and other materials associated with finishing buildings may also emit ROGs and TACs.

3.2.1 CalEEMod Model Input Data and Assumptions

Non-stationary source, vehicular air pollutant emissions generated by project construction and operation were estimated using the California Emissions Estimator Model (CalEEMod), version 2022.1, the official statewide land use computer model designed to provide a uniform platform for estimating potential criteria pollutant[2] and greenhouse gas (GHG)[3] emissions associated with construction of a development project. The model quantifies direct emissions from construction (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. The mobile source emission factors used in the model – published by the California Air Resources Board (CARB) – include the Pavley standards and Low Carbon Fuel Standards. The model allows the user to incorporate project design features, regulatory measures, and mitigation measures to reduce criteria pollutant and GHG emissions and calculates the benefits achieved from selected measures. Default land use data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) were provided by the various California air districts to account for local requirements and conditions.

Emissions modeled include mobile source emissions (i.e., vehicle emissions), energy emissions, and area source emissions. Mobile source emissions are generated by vehicle trips to and from the project site. The daily trip generation rates for industrial operations

[2] Criteria pollutants include oxides of nitrogen (NO_x), oxides of sulfur (SO_x), carbon monoxide (CO), reactuve organic gases (ROGs), and respirable and fine particulate matter (PM_{10} and $PM_{2.5}$).
[3] GHGs include, but are not limited to, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O).

were provided by the Project Applicant. Default trip generation rates associated with the office were sourced from the Project Metrics in CalEEMod (Appendix B). Construction would occur over approximately 5-6 months, between April-September 2023. It is estimated that no material will be imported, and 1,733 cubic yards of soil will be exported during grading. The construction equipment used to model emissions is subject to change and the CalEEMod inputs used were conservative estimates for the duration of time a given piece of equipment would be used during construction hours. Not all CalEEMod defaults used are listed, but the default assumptions that have a particularly important impact on the project emissions are listed.

- Defined in Project Description of the Project:
  - Basic project design features, including project vicinity, site plan, building sizes, length of construction (5-6 months);
  - Number of full-time employees (10);
  - Peak season bleach trucks per day (11); and
  - No demolition, 1,733 cubic yards of material export.
- Assumptions:
  - Off-road equipment used in construction includes cranes, forklifts, generator sets, graders, rubber-tired dozers, tractors, loaders, backhoes, cement and mortar mixers, pavers, rollers, air compressors, and welders; and
  - During construction, exposed soil will be watered three times daily.
- CalEEMod defaults were used for:
  - Construction equipment load factor, usage hours, and average age;
  - Architectural coating areas;
  - Vehicle emission profiles and all calculations related to traffic and mobile source emissions; and
  - All other calculations not specifically listed as an assumption.

PM_{10} emitted during construction can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions, and other factors, making quantification difficult. Despite this variability in emissions, experience has shown that there are several feasible control measures that can be reasonably implemented to significantly reduce fugitive dust emissions from construction, such as frequent water application to exposed surfaces. For these emissions estimates, standard (i.e., CalEEMod default) construction mitigation measures are assumed.

The land use data in Table 3-2 was used as the CalEEMod input for construction and operation. Table 3-2 data are based on information provided for the Project and the listed assumptions. Additional data inputs are provided in the CalEEMod outputs provided in Appendix B.

Table 3-2: Land Use Data for CalEEMod Input

Project Element	Land Use Type	Land Use Subtype	Unit Amount (1,000 sq. ft.)	Lot Size (acres)	Estimated Area (sq. ft.)
Process Area	Industrial	General Heavy Industry	9.12	0.21	9,120
Tank Farm	Industrial	Unrefrigerated Warehouse - Rail	7.78	0.18	7,780
Parking Lot	Parking	Other Asphalt Surfaces	50.42	1.16	50,420
Office Building	Commercial	General Office Building	1.08	0.02	1,080
Project Site				**1.57**	**68,400**

3.2.2 Criteria Emissions from Project Construction and Operation

Table 3-3 summarizes maximum daily construction and annual operating criteria pollutant emissions from construction and operation of the Project are compared to the BAAQMD CEQA significance thresholds. CalEEMod output reports are provided in Appendix B.

Table 3-3: Daily Construction and Annual Operation Emissions Summary

Criteria Pollutant[1]	Construction		Operation[2]		Significant?
	Estimated Average Daily Emissions[3] (lb/day)	Daily Significance Threshold (lb/day)	Estimated Maximum Annual Emissions (lb/yr)	Annual Significance Threshold (lb/yr)	
ROG	33.8	54	0.70	20,000	No
NO_x	28.2	54	0.60	20,000	No
Exhaust PM_{10}	0.98	82	0.06	30,000	No
Exhaust $PM_{2.5}$	0.91	54	0.02	20,000	No

1. The BAAQMD only has CEQA significance mass emission thresholds for nonattainment pollutants, including reactive organic gases (ROG), which is an ozone precursor.
2. The BAAQMD also has daily emission thresholds for operation (that are the same as the construction daily emission thresholds), and the daily operation emissions are well below these thresholds.
3. Mitigation measures, such as construction best management practices (BMPs) and watering, are assumed.

3.2.3 Greenhouse Gas Emissions from Project Construction and Operation

GHGs – collectively reported as carbon dioxide equivalents (CO_2e) – are directly emitted from mobile sources such as on-road vehicles and off-road construction equipment burning fuels such as gasoline, diesel, biodiesel, propane, or natural gas. As part of GHG emissions impact assessment, CalEEMod Version 2022.1 quantifies common refrigerant GHGs (abbreviated to "R" in the model) used in air conditioning and refrigeration equipment, some of which are HFCs.

GHG emissions in metric tons (MT)[4] were estimated for construction and operation of the Project using CalEEMod; the results are shown in Table 3-4. GHG mitigations assumed are use of required high efficiency lighting in the facility and required improvements in vehicle emissions. CalEEMod output reports are provided in Appendix B.

Pursuant to Senate Bill (SB) 32, the threshold of 10,000 MT CO_2e per year stated in the 2017 BAAQMD CEQA Guidelines was discounted by 40% to 6,000 MT CO_2e per year for significance evaluation. As shown in Table 3-4, total estimated GHG emissions as CO_2e are below the threshold amount for stationary sources, which represent operational emissions, and land use project, which represent construction emissions. Therefore, the Project is not expected to create a significant impact to GHG emissions when constructed and operated as proposed.

Table 3-4: Annual Construction and Operation GHG Emissions Summary

GHG	Project Emissions from Construction	Project Emissions from Operations	BAAQMD CEQA Significance Thresholds (MT/yr)	Significant?
	(MT)	(MT)	Stationary Sources (Operation)	
CO_2	115.0	660.0		
CH_4	< 0.1	0.6		
N_2O	< 0.1	< 0.1		
Refrigerants (ODS)	< 0.1	34.8		
CO_2e	116.0	717.0	6,000	No

[4] Construction of each phase is expected to last no more than 1 year, so the emissions presented in tons are the total construction for each phase and the maximum annual emissions.

APPENDIX C – CALEEMOD VERSION 2022.1 OUTPUTS FOR THE PROJECT

AztecBuyer_11-15-22 Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	AztecBuyer_11-15-22
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.60
Precipitation (days)	0.80
Location	901 Loveridge Rd, Pittsburg, CA 94565, USA
County	Contra Costa
City	Pittsburg
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1347
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Heavy Industry	9.12	1000sqft	0.21	9,120	0.00	—	—	Process Area
Unrefrigerated Warehouse-No Rail	7.78	1000sqft	0.18	7,780	0.00	—	—	Tank Farm

Parking Lot	50.4	1000sqft	1.16	0.00	0.00	—	—	Parking Lot & Other Paved Surfaces
General Office Building	1.08	1000sqft	0.02	1,080	0.00	—	—	Office Building

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-12	Sweep Paved Roads
Water	W-4	Require Low-Flow Water Fixtures
Area	AS-2	Use Low-VOC Paints

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	33.8	28.2	21.6	0.07	0.98	9.25	10.2	0.91	4.01	4.92	—	10,578	10,578	0.76	1.30	17.5	11,001
Mit.	33.8	28.2	21.6	0.07	0.98	4.89	5.86	0.91	1.91	2.82	—	10,578	10,578	0.76	1.30	17.5	11,001
% Reduced	—	—	—	—	—	47%	43%	—	52%	43%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.98	3.53	3.69	0.01	0.15	0.11	0.26	0.14	0.05	0.18	—	694	694	0.03	0.02	0.11	700
Mit.	0.98	3.53	3.69	0.01	0.15	0.07	0.22	0.14	0.02	0.16	—	694	694	0.03	0.02	0.11	700

% Reduced	—	—	—	—	—	40%	17%	—	48%	12%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.18	0.64	0.67	< 0.005	0.03	0.02	0.05	0.02	0.01	0.03	—	115	115	< 0.005	< 0.005	0.02	116
Mit.	0.18	0.64	0.67	< 0.005	0.03	0.01	0.04	0.02	< 0.005	0.03	—	115	115	< 0.005	< 0.005	0.02	116
% Reduced	—	—	—	—	—	40%	17%	—	48%	12%	—	—	—	—	—	—	—
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	54.0	54.0	—	—	82.0	—	—	54.0	—	—	—	—	—	—	—	—	—
Unmit.	No	No	—	—	No	—	Yes	No	—	—	—	—	—	—	—	—	—
Mit.	No	No	—	—	No	—	Yes	No	—	—	—	—	—	—	—	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	54.0	54.0	—	—	82.0	—	—	54.0	—	—	—	—	—	—	—	—	—
Unmit.	No	No	—	—	No	—	Yes	No	—	—	—	—	—	—	—	—	—
Mit.	No	No	—	—	No	—	Yes	No	—	—	—	—	—	—	—	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	Yes	Yes	—	Yes	—	—	—	—	—	—	—	—	—	—	—	—	—
Mit.	Yes	Yes	—	Yes	—	—	—	—	—	—	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	33.8	28.2	21.6	0.07	0.98	9.25	10.2	0.91	4.01	4.92	—	10,578	10,578	0.76	1.30	17.5	11,001
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.98	3.53	3.69	0.01	0.15	0.11	0.26	0.14	0.05	0.18	—	694	694	0.03	0.02	0.11	700
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.18	0.64	0.67	< 0.005	0.03	0.02	0.05	0.02	0.01	0.03	—	115	115	< 0.005	< 0.005	0.02	116

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	33.8	28.2	21.6	0.07	0.98	4.89	5.86	0.91	1.91	2.82	—	10,578	10,578	0.76	1.30	17.5	11,001
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.98	3.53	3.69	0.01	0.15	0.07	0.22	0.14	0.02	0.16	—	694	694	0.03	0.02	0.11	700
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.18	0.64	0.67	< 0.005	0.03	0.01	0.04	0.02	< 0.005	0.03	—	115	115	< 0.005	< 0.005	0.02	116

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.68	0.53	1.76	< 0.005	0.01	0.05	0.06	0.01	0.01	0.02	31.6	3,962	3,994	3.83	0.14	210	4,341
Mit.	0.65	0.53	1.76	< 0.005	0.01	0.05	0.06	0.01	0.01	0.02	31.5	3,962	3,994	3.83	0.14	210	4,340
% Reduced	4%	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.54	0.55	0.95	< 0.005	0.01	0.05	0.06	0.01	0.01	0.02	31.6	3,950	3,982	3.83	0.14	210	4,328
Mit.	0.51	0.55	0.95	< 0.005	0.01	0.05	0.06	0.01	0.01	0.02	31.5	3,950	3,982	3.83	0.14	210	4,328
% Reduced	6%	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.61	0.54	1.30	< 0.005	0.01	0.05	0.06	0.01	0.01	0.02	31.6	3,953	3,984	3.83	0.14	210	4,331
Mit.	0.58	0.54	1.30	< 0.005	0.01	0.05	0.06	0.01	0.01	0.02	31.5	3,953	3,984	3.83	0.14	210	4,331
% Reduced	5%	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.11	0.10	0.24	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	5.23	654	660	0.63	0.02	34.8	717
Mit.	0.11	0.10	0.24	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	5.22	654	660	0.63	0.02	34.8	717
% Reduced	5%	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	< 0.5%
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Threshold	54.0	54.0	—	—	—	—	82.0	—	—	54.0	—	—	—	—	—	—	—
Unmit.	No	No	—	—	Yes	—	No	Yes	—	No	—	—	—	—	—	—	—
Mit.	No	No	—	—	Yes	—	No	Yes	—	No	—	—	—	—	—	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	54.0	54.0	—	—	—	—	82.0	—	—	54.0	—	—	—	—	—	—	—
Unmit.	No	No	—	—	Yes	—	No	Yes	—	No	—	—	—	—	—	—	—
Mit.	No	No	—	—	Yes	—	No	Yes	—	No	—	—	—	—	—	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	10.0	10.0	—	40.0	—	—	15.0	—	—	10.0	—	—	—	—	—	—	1,100
Unmit.	No	No	—	No	Yes	—	No	Yes	—	No	—	—	—	—	—	—	No
Mit.	No	No	—	No	Yes	—	No	Yes	—	No	—	—	—	—	—	—	No

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.10	0.40	0.87	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	190	190	0.02	0.01	0.63	195
Area	0.57	0.01	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.22	3.22	< 0.005	< 0.005	—	3.23
Energy	0.01	0.13	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	3,729	3,729	0.59	0.07	—	3,765
Water	—	—	—	—	—	—	—	—	—	—	21.0	39.6	60.6	2.16	0.05	—	130
Waste	—	—	—	—	—	—	—	—	—	—	10.6	0.00	10.6	1.06	0.00	—	37.0
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	210	210
Total	0.68	0.53	1.76	< 0.005	0.01	0.05	0.06	0.01	0.01	0.02	31.6	3,962	3,994	3.83	0.14	210	4,341

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.09	0.43	0.84	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	181	181	0.02	0.02	0.02	186
Area	0.44	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.01	0.13	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	3,729	3,729	0.59	0.07	—	3,765
Water	—	—	—	—	—	—	—	—	—	—	21.0	39.6	60.6	2.16	0.05	—	130
Waste	—	—	—	—	—	—	—	—	—	—	10.6	0.00	10.6	1.06	0.00	—	37.0
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	210	210
Total	0.54	0.55	0.95	< 0.005	0.01	0.05	0.06	0.01	0.01	0.02	31.6	3,950	3,982	3.83	0.14	210	4,328
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.09	0.41	0.81	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	182	182	0.02	0.02	0.27	187
Area	0.51	< 0.005	0.39	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.59	1.59	< 0.005	< 0.005	—	1.59
Energy	0.01	0.13	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	3,729	3,729	0.59	0.07	—	3,765
Water	—	—	—	—	—	—	—	—	—	—	21.0	39.6	60.6	2.16	0.05	—	130
Waste	—	—	—	—	—	—	—	—	—	—	10.6	0.00	10.6	1.06	0.00	—	37.0
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	210	210
Total	0.61	0.54	1.30	< 0.005	0.01	0.05	0.06	0.01	0.01	0.02	31.6	3,953	3,984	3.83	0.14	210	4,331
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.08	0.15	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.1	30.1	< 0.005	< 0.005	0.04	31.0
Area	0.09	< 0.005	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.26	0.26	< 0.005	< 0.005	—	0.26
Energy	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	617	617	0.10	0.01	—	623
Water	—	—	—	—	—	—	—	—	—	—	3.47	6.56	10.0	0.36	0.01	—	21.5
Waste	—	—	—	—	—	—	—	—	—	—	1.75	0.00	1.75	0.18	0.00	—	6.13
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	34.7	34.7
Total	0.11	0.10	0.24	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	5.23	654	660	0.63	0.02	34.8	717

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.10	0.40	0.87	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	190	190	0.02	0.01	0.63	195
Area	0.54	0.01	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.22	3.22	< 0.005	< 0.005	—	3.23
Energy	0.01	0.13	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	3,729	3,729	0.59	0.07	—	3,765
Water	—	—	—	—	—	—	—	—	—	—	21.0	39.6	60.5	2.16	0.05	—	130
Waste	—	—	—	—	—	—	—	—	—	—	10.6	0.00	10.6	1.06	0.00	—	37.0
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	210	210
Total	0.65	0.53	1.76	< 0.005	0.01	0.05	0.06	0.01	0.01	0.02	31.5	3,962	3,994	3.83	0.14	210	4,340
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.09	0.43	0.84	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	181	181	0.02	0.02	0.02	186
Area	0.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.01	0.13	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	3,729	3,729	0.59	0.07	—	3,765
Water	—	—	—	—	—	—	—	—	—	—	21.0	39.6	60.5	2.16	0.05	—	130
Waste	—	—	—	—	—	—	—	—	—	—	10.6	0.00	10.6	1.06	0.00	—	37.0
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	210	210
Total	0.51	0.55	0.95	< 0.005	0.01	0.05	0.06	0.01	0.01	0.02	31.5	3,950	3,982	3.83	0.14	210	4,328
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.09	0.41	0.81	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	182	182	0.02	0.02	0.27	187
Area	0.48	< 0.005	0.39	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.59	1.59	< 0.005	< 0.005	—	1.59
Energy	0.01	0.13	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	3,729	3,729	0.59	0.07	—	3,765
Water	—	—	—	—	—	—	—	—	—	—	21.0	39.6	60.5	2.16	0.05	—	130

Waste	—	—	—	—	—	—	—	—	—	—	10.6	0.00	10.6	1.06	0.00	—	37.0
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	210	210
Total	0.58	0.54	1.30	< 0.005	0.01	0.05	0.06	0.01	0.01	0.02	31.5	3,953	3,984	3.83	0.14	210	4,331
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.08	0.15	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.1	30.1	< 0.005	< 0.005	0.04	31.0
Area	0.09	< 0.005	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.26	0.26	< 0.005	< 0.005	—	0.26
Energy	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	617	617	0.10	0.01	—	623
Water	—	—	—	—	—	—	—	—	—	—	3.47	6.55	10.0	0.36	0.01	—	21.5
Waste	—	—	—	—	—	—	—	—	—	—	1.75	0.00	1.75	0.18	0.00	—	6.13
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	34.7	34.7
Total	0.11	0.10	0.24	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	5.22	654	660	0.63	0.02	34.8	717

3. Construction Emissions Details

3.1. Demolition (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.74	17.0	16.9	0.02	0.76	—	0.76	0.70	—	0.70	—	2,494	2,494	0.10	0.02	—	2,502
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.05	0.47	0.46	< 0.005	0.02	—	0.02	0.02	—	0.02	—	68.3	68.3	< 0.005	< 0.005	—	68.6
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.09	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.3	11.3	< 0.005	< 0.005	—	11.3
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.03	0.61	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	115	115	0.01	< 0.005	0.52	117
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	2.90	2.90	< 0.005	< 0.005	0.01	2.94
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.49
Vendor	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
Hauling	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

3.2. Demolition (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.74	17.0	16.9	0.02	0.76	—	0.76	0.70	—	0.70	—	2,494	2,494	0.10	0.02	—	2,502
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.47	0.46	< 0.005	0.02	—	0.02	0.02	—	0.02	—	68.3	68.3	< 0.005	< 0.005	—	68.6
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.09	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.3	11.3	< 0.005	< 0.005	—	11.3
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.03	0.61	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	115	115	0.01	< 0.005	0.52	117
Vendor	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
Hauling	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

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	2.90	2.90	< 0.005	< 0.005	0.01	2.94
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.48	0.48	< 0.005	< 0.005	< 0.005	0.49
Vendor	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
Hauling	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

3.3. Site Preparation (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.54	15.1	13.7	0.02	0.72	—	0.72	0.66	—	0.66	—	2,063	2,063	0.08	0.02	—	2,070
Dust From Material Movement	—	—	—	—	—	6.26	6.26	—	3.00	3.00	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.08	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.3	11.3	< 0.005	< 0.005	—	11.3
Dust From Material Movement	—	—	—	—	—	0.03	0.03	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.87	1.87	< 0.005	< 0.005	—	1.88
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.36	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	68.7	68.7	< 0.005	< 0.005	0.31	69.9
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.35	0.35	< 0.005	< 0.005	< 0.005	0.35
Vendor	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

Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.06	0.06	< 0.005	< 0.005	< 0.005	0.06
Vendor	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
Hauling	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

3.4. Site Preparation (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.54	15.1	13.7	0.02	0.72	—	0.72	0.66	—	0.66	—	2,063	2,063	0.08	0.02	—	2,070
Dust From Material Movement	—	—	—	—	—	2.44	2.44	—	1.17	1.17	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.08	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.3	11.3	< 0.005	< 0.005	—	11.3
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	0.01	0.01	—	—	—	—	—	—	—

Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.87	1.87	< 0.005	< 0.005	—	1.88
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.36	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	68.7	68.7	< 0.005	< 0.005	0.31	69.9
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.35	0.35	< 0.005	< 0.005	< 0.005	0.35
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.06	0.06	< 0.005	< 0.005	< 0.005	0.06
Vendor	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
Hauling	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

3.5. Grading (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.78	17.5	16.3	0.02	0.83	—	0.83	0.77	—	0.77	—	2,453	2,453	0.10	0.02	—	2,462
Dust From Material Movement	—	—	—	—	—	7.16	7.16	—	3.44	3.44	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.4	13.4	< 0.005	< 0.005	—	13.5
Dust From Material Movement	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.23	2.23	< 0.005	< 0.005	—	2.23

Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.49	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	91.7	91.7	< 0.005	< 0.005	0.41	93.2
Vendor	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
Hauling	0.17	10.6	4.88	0.05	0.14	0.57	0.72	0.14	0.19	0.33	—	8,033	8,033	0.65	1.27	17.1	8,446
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.46	0.46	< 0.005	< 0.005	< 0.005	0.47
Vendor	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
Hauling	< 0.005	0.06	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	44.0	44.0	< 0.005	0.01	0.04	46.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
Vendor	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
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.29	7.29	< 0.005	< 0.005	0.01	7.65

3.6. Grading (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.78	17.5	16.3	0.02	0.83	—	0.83	0.77	—	0.77	—	2,453	2,453	0.10	0.02	—	2,462
Dust From Material Movement	—	—	—	—	—	2.79	2.79	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.4	13.4	< 0.005	< 0.005	—	13.5
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.23	2.23	< 0.005	< 0.005	—	2.23
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.49	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	91.7	91.7	< 0.005	< 0.005	0.41	93.2
Vendor	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
Hauling	0.17	10.6	4.88	0.05	0.14	0.57	0.72	0.14	0.19	0.33	—	8,033	8,033	0.65	1.27	17.1	8,446
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.46	0.46	< 0.005	< 0.005	< 0.005	0.47
Vendor	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
Hauling	< 0.005	0.06	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	44.0	44.0	< 0.005	0.01	0.04	46.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
Vendor	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
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.29	7.29	< 0.005	< 0.005	0.01	7.65

3.7. Building Construction (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.19	9.81	10.2	0.02	0.41	—	0.41	0.38	—	0.38	—	1,801	1,801	0.07	0.01	—	1,807
Onsite truck	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

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	2.69	2.79	0.01	0.11	—	0.11	0.10	—	0.10	—	493	493	0.02	< 0.005	—	495
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.49	0.51	< 0.005	0.02	—	0.02	0.02	—	0.02	—	81.7	81.7	< 0.005	< 0.005	—	82.0
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.36	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	68.2	68.2	< 0.005	< 0.005	0.31	69.4
Vendor	< 0.005	0.12	0.06	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	81.8	81.8	< 0.005	0.01	0.21	85.7
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.08	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	17.3	17.3	< 0.005	< 0.005	0.04	17.5
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	22.4	22.4	< 0.005	< 0.005	0.03	23.5
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	2.86	2.86	< 0.005	< 0.005	0.01	2.90
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.71	3.71	< 0.005	< 0.005	< 0.005	3.88

Hauling	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

3.8. Building Construction (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.19	9.81	10.2	0.02	0.41	—	0.41	0.38	—	0.38	—	1,801	1,801	0.07	0.01	—	1,807
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	2.69	2.79	0.01	0.11	—	0.11	0.10	—	0.10	—	493	493	0.02	< 0.005	—	495
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.49	0.51	< 0.005	0.02	—	0.02	0.02	—	0.02	—	81.7	81.7	< 0.005	< 0.005	—	82.0
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.36	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	68.2	68.2	< 0.005	< 0.005	0.31	69.4

Vendor	< 0.005	0.12	0.06	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	81.8	81.8	< 0.005	0.01	0.21	85.7
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.08	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	17.3	17.3	< 0.005	< 0.005	0.04	17.5
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	22.4	22.4	< 0.005	< 0.005	0.03	23.5
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	2.86	2.86	< 0.005	< 0.005	0.01	2.90
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.71	3.71	< 0.005	< 0.005	< 0.005	3.88
Hauling	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

3.9. Paving (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	5.09	6.53	0.01	0.25	—	0.25	0.23	—	0.23	—	992	992	0.04	0.01	—	995
Paving	0.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	16.3	16.3	< 0.005	< 0.005	—	16.4
Paving	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.70	2.70	< 0.005	< 0.005	—	2.71
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.03	0.61	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	115	115	0.01	< 0.005	0.52	117
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	1.74	1.74	< 0.005	< 0.005	< 0.005	1.77
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.29	0.29	< 0.005	< 0.005	< 0.005	0.29
Vendor	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

Hauling	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

3.10. Paving (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	5.09	6.53	0.01	0.25	—	0.25	0.23	—	0.23	—	992	992	0.04	0.01	—	995
Paving	0.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	16.3	16.3	< 0.005	< 0.005	—	16.4
Paving	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.70	2.70	< 0.005	< 0.005	—	2.71
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.03	0.61	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	115	115	0.01	< 0.005	0.52	117
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	1.74	1.74	< 0.005	< 0.005	< 0.005	1.77
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.29	0.29	< 0.005	< 0.005	< 0.005	0.29
Vendor	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
Hauling	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

3.11. Architectural Coating (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.93	1.15	< 0.005	0.04	—	0.04	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	33.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.19	2.19	< 0.005	< 0.005	—	2.20
Architectural Coatings	0.55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.36	0.36	< 0.005	< 0.005	—	0.36
Architectural Coatings	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.07	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	13.6	13.6	< 0.005	< 0.005	0.06	13.9
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.21	0.21	< 0.005	< 0.005	< 0.005	0.21
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Vendor	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
Hauling	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

3.12. Architectural Coating (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.93	1.15	< 0.005	0.04	—	0.04	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	33.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.19	2.19	< 0.005	< 0.005	—	2.20
Architectural Coatings	0.55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.36	0.36	< 0.005	< 0.005	—	0.36
Architectural Coatings	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.07	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	13.6	13.6	< 0.005	< 0.005	0.06	13.9
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.21	0.21	< 0.005	< 0.005	< 0.005	0.21
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Vendor	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
Hauling	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

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.01	0.34	0.23	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	57.5	57.5	0.02	0.01	0.04	60.8
Unrefrigerated Warehouse-No Rail	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
Parking Lot	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
General Office Building	0.08	0.06	0.64	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	132	132	0.01	0.01	0.58	135
Total	0.10	0.40	0.87	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	190	190	0.02	0.01	0.63	195
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.01	0.35	0.24	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	58.0	58.0	0.02	0.01	< 0.005	61.3

Unrefrigerated Warehouse-No Rail	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
Parking Lot	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
General Office Building	0.08	0.07	0.60	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	123	123	0.01	0.01	0.02	125
Total	0.09	0.43	0.84	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	181	181	0.02	0.02	0.02	186
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	< 0.005	0.06	0.04	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.56	9.56	< 0.005	< 0.005	< 0.005	10.1
Unrefrigerated Warehouse-No Rail	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
Parking Lot	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
General Office Building	0.01	0.01	0.11	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	20.6	20.6	< 0.005	< 0.005	0.04	20.9
Total	0.02	0.08	0.15	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	30.1	30.1	< 0.005	< 0.005	0.04	31.0

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	0.01	0.34	0.23	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	57.5	57.5	0.02	0.01	0.04	60.8
Unrefrigerated Warehouse-No Rail	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
Parking Lot	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
General Office Building	0.08	0.06	0.64	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	132	132	0.01	0.01	0.58	135
Total	0.10	0.40	0.87	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	190	190	0.02	0.01	0.63	195
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.01	0.35	0.24	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	58.0	58.0	0.02	0.01	< 0.005	61.3
Unrefrigerated Warehouse-No Rail	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
Parking Lot	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
General Office Building	0.08	0.07	0.60	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	123	123	0.01	0.01	0.02	125
Total	0.09	0.43	0.84	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	181	181	0.02	0.02	0.02	186
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	< 0.005	0.06	0.04	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.56	9.56	< 0.005	< 0.005	< 0.005	10.1

Unrefrigerated	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
Parking Lot	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
General Office Building	0.01	0.01	0.11	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	20.6	20.6	< 0.005	< 0.005	0.04	20.9
Total	0.02	0.08	0.15	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	30.1	30.1	< 0.005	< 0.005	0.04	31.0

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	3,499	3,499	0.57	0.07	—	3,534
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	43.6	43.6	0.01	< 0.005	—	44.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	24.7	24.7	< 0.005	< 0.005	—	24.9
General Office Building	—	—	—	—	—	—	—	—	—	—	—	12.8	12.8	< 0.005	< 0.005	—	12.9
Total	—	—	—	—	—	—	—	—	—	—	—	3,580	3,580	0.58	0.07	—	3,616
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	3,499	3,499	0.57	0.07	—	3,534
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	43.6	43.6	0.01	< 0.005	—	44.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	24.7	24.7	< 0.005	< 0.005	—	24.9
General Office Building	—	—	—	—	—	—	—	—	—	—	—	12.8	12.8	< 0.005	< 0.005	—	12.9
Total	—	—	—	—	—	—	—	—	—	—	—	3,580	3,580	0.58	0.07	—	3,616
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	579	579	0.09	0.01	—	585
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	7.21	7.21	< 0.005	< 0.005	—	7.28
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	4.09	4.09	< 0.005	< 0.005	—	4.13
General Office Building	—	—	—	—	—	—	—	—	—	—	—	2.12	2.12	< 0.005	< 0.005	—	2.14
Total	—	—	—	—	—	—	—	—	—	—	—	593	593	0.10	0.01	—	599

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	3,499	3,499	0.57	0.07	—	3,534
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	43.6	43.6	0.01	< 0.005	—	44.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	24.7	24.7	< 0.005	< 0.005	—	24.9
General Office Building	—	—	—	—	—	—	—	—	—	—	—	12.8	12.8	< 0.005	< 0.005	—	12.9
Total	—	—	—	—	—	—	—	—	—	—	—	3,580	3,580	0.58	0.07	—	3,616
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	3,499	3,499	0.57	0.07	—	3,534
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	43.6	43.6	0.01	< 0.005	—	44.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	24.7	24.7	< 0.005	< 0.005	—	24.9
General Office Building	—	—	—	—	—	—	—	—	—	—	—	12.8	12.8	< 0.005	< 0.005	—	12.9
Total	—	—	—	—	—	—	—	—	—	—	—	3,580	3,580	0.58	0.07	—	3,616
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	579	579	0.09	0.01	—	585
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	7.21	7.21	< 0.005	< 0.005	—	7.28
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	4.09	4.09	< 0.005	< 0.005	—	4.13
General Office Building	—	—	—	—	—	—	—	—	—	—	—	2.12	2.12	< 0.005	< 0.005	—	2.14
Total	—	—	—	—	—	—	—	—	—	—	—	593	593	0.10	0.01	—	599

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	128	128	0.01	< 0.005	—	128
Unrefrigerated Warehouse-No Rail	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.1	13.1	< 0.005	< 0.005	—	13.1
Parking Lot	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
General Office Building	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.22	8.22	< 0.005	< 0.005	—	8.24
Total	0.01	0.13	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	149	149	0.01	< 0.005	—	150

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	128	128	0.01	< 0.005	—	128
Unrefrigerated Warehouse-No Rail	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.1	13.1	< 0.005	< 0.005	—	13.1
Parking Lot	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
General Office Building	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.22	8.22	< 0.005	< 0.005	—	8.24
Total	0.01	0.13	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	149	149	0.01	< 0.005	—	150
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.2	21.2	< 0.005	< 0.005	—	21.2
Unrefrigerated Warehouse-No Rail	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.17	2.17	< 0.005	< 0.005	—	2.18
Parking Lot	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
General Office Building	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.36	1.36	< 0.005	< 0.005	—	1.36
Total	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	24.7	24.7	< 0.005	< 0.005	—	24.8

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	128	128	0.01	< 0.005	—	128
Unrefrigerated Warehouse-No Rail	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.1	13.1	< 0.005	< 0.005	—	13.1
Parking Lot	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
General Office Building	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.22	8.22	< 0.005	< 0.005	—	8.24
Total	0.01	0.13	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	149	149	0.01	< 0.005	—	150
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.01	0.11	0.09	< 0.005	0.01	—	0.01	0.01	—	0.01	—	128	128	0.01	< 0.005	—	128
Unrefrigerated Warehouse-No Rail	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.1	13.1	< 0.005	< 0.005	—	13.1
Parking Lot	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
General Office Building	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.22	8.22	< 0.005	< 0.005	—	8.24
Total	0.01	0.13	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	149	149	0.01	< 0.005	—	150
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	21.2	21.2	< 0.005	< 0.005	—	21.2
Unrefrigerated Warehouse-No Rail	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.17	2.17	< 0.005	< 0.005	—	2.18
Parking Lot	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
General Office Building	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.36	1.36	< 0.005	< 0.005	—	1.36
Total	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	24.7	24.7	< 0.005	< 0.005	—	24.8

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.13	0.01	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.22	3.22	< 0.005	< 0.005	—	3.23
Total	0.57	0.01	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.22	3.22	< 0.005	< 0.005	—	3.23

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.44	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	< 0.005	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.26	0.26	< 0.005	< 0.005	—	0.26
Total	0.09	< 0.005	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.26	0.26	< 0.005	< 0.005	—	0.26

4.3.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coatings	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.13	0.01	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.22	3.22	< 0.005	< 0.005	—	3.23
Total	0.54	0.01	0.78	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.22	3.22	< 0.005	< 0.005	—	3.23
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	< 0.005	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.26	0.26	< 0.005	< 0.005	—	0.26
Total	0.09	< 0.005	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.26	0.26	< 0.005	< 0.005	—	0.26

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	20.6	38.9	59.5	2.12	0.05	—	128
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
General Office Building	—	—	—	—	—	—	—	—	—	—	0.37	0.69	1.06	0.04	< 0.005	—	2.28
Total	—	—	—	—	—	—	—	—	—	—	21.0	39.6	60.6	2.16	0.05	—	130
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	20.6	38.9	59.5	2.12	0.05	—	128
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
General Office Building	—	—	—	—	—	—	—	—	—	—	0.37	0.69	1.06	0.04	< 0.005	—	2.28
Total	—	—	—	—	—	—	—	—	—	—	21.0	39.6	60.6	2.16	0.05	—	130

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	3.41	6.45	9.86	0.35	0.01	—	21.1
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
General Office Building	—	—	—	—	—	—	—	—	—	—	0.06	0.12	0.18	0.01	< 0.005	—	0.38
Total	—	—	—	—	—	—	—	—	—	—	3.47	6.56	10.0	0.36	0.01	—	21.5

4.4.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	20.6	38.9	59.5	2.12	0.05	—	128
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
General Office Building	—	—	—	—	—	—	—	—	—	—	0.34	0.65	0.99	0.04	< 0.005	—	2.12

Total	—	—	—	—	—	—	—	—	—	—	21.0	39.6	60.5	2.16	0.05	—	130
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	20.6	38.9	59.5	2.12	0.05	—	128
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
General Office Building	—	—	—	—	—	—	—	—	—	—	0.34	0.65	0.99	0.04	< 0.005	—	2.12
Total	—	—	—	—	—	—	—	—	—	—	21.0	39.6	60.5	2.16	0.05	—	130
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	3.41	6.45	9.86	0.35	0.01	—	21.1
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
General Office Building	—	—	—	—	—	—	—	—	—	—	0.06	0.11	0.16	0.01	< 0.005	—	0.35
Total	—	—	—	—	—	—	—	—	—	—	3.47	6.55	10.0	0.36	0.01	—	21.5

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	6.09	0.00	6.09	0.61	0.00	—	21.3
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	3.94	0.00	3.94	0.39	0.00	—	13.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
General Office Building	—	—	—	—	—	—	—	—	—	—	0.54	0.00	0.54	0.05	0.00	—	1.89
Total	—	—	—	—	—	—	—	—	—	—	10.6	0.00	10.6	1.06	0.00	—	37.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	6.09	0.00	6.09	0.61	0.00	—	21.3
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	3.94	0.00	3.94	0.39	0.00	—	13.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

General Office Building	—	—	—	—	—	—	—	—	—	—	0.54	0.00	0.54	0.05	0.00	—	1.89
Total	—	—	—	—	—	—	—	—	—	—	10.6	0.00	10.6	1.06	0.00	—	37.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	1.01	0.00	1.01	0.10	0.00	—	3.53
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.65	0.00	0.65	0.07	0.00	—	2.28
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
General Office Building	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	—	0.31
Total	—	—	—	—	—	—	—	—	—	—	1.75	0.00	1.75	0.18	0.00	—	6.13

4.5.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	6.09	0.00	6.09	0.61	0.00	—	21.3
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	3.94	0.00	3.94	0.39	0.00	—	13.8

Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
General Office Building	—	—	—	—	—	—	—	—	—	—	0.54	0.00	0.54	0.05	0.00	—	1.89
Total	—	—	—	—	—	—	—	—	—	—	10.6	0.00	10.6	1.06	0.00	—	37.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	6.09	0.00	6.09	0.61	0.00	—	21.3
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	3.94	0.00	3.94	0.39	0.00	—	13.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
General Office Building	—	—	—	—	—	—	—	—	—	—	0.54	0.00	0.54	0.05	0.00	—	1.89
Total	—	—	—	—	—	—	—	—	—	—	10.6	0.00	10.6	1.06	0.00	—	37.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	1.01	0.00	1.01	0.10	0.00	—	3.53
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	0.65	0.00	0.65	0.07	0.00	—	2.28
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

General Office Building	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	—	0.31
Total	—	—	—	—	—	—	—	—	—	—	1.75	0.00	1.75	0.18	0.00	—	6.13

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.37	2.37
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	207	207
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	210	210
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.37	2.37

Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	207	207
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	210	210
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.39	0.39
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	34.3	34.3
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	34.7	34.7

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.37	2.37

Unrefrigerated Warehouse-No	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	207	207
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	210	210
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.37	2.37
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	207	207
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	210	210
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.39	0.39
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	34.3	34.3
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	34.7	34.7

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	4/3/2023	4/14/2023	5.00	10.0	—
Site Preparation	Site Preparation	4/15/2023	4/18/2023	5.00	2.00	—
Grading	Grading	4/19/2023	4/20/2023	5.00	2.00	—

Building Construction	Building Construction	4/21/2023	9/7/2023	5.00	100	—
Paving	Paving	9/8/2023	9/15/2023	5.00	6.00	—
Architectural Coating	Architectural Coating	9/16/2023	9/25/2023	5.00	6.00	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	7.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	6.00	367	0.29
Building Construction	Forklifts	Diesel	Average	1.00	6.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	6.00	81.0	0.42

Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	7.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	6.00	367	0.29
Building Construction	Forklifts	Diesel	Average	1.00	6.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	6.00	81.0	0.42

Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	12.5	11.7	LDA,LDT1,LDT2
Demolition	Vendor	—	8.40	HHDT,MHDT
Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	109	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	7.44	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	2.95	8.40	HHDT,MHDT

Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	12.5	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	1.49	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	12.5	11.7	LDA,LDT1,LDT2
Demolition	Vendor	—	8.40	HHDT,MHDT
Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	11.7	LDA,LDT1,LDT2

Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	109	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	7.44	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	2.95	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	12.5	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	1.49	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	26,970	8,990	3,025

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	1.88	0.00	—
Grading	—	1,733	2.00	0.00	—
Paving	0.00	0.00	0.00	0.00	1.16

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Heavy Industry	0.00	0%
Unrefrigerated Warehouse-No Rail	0.00	0%
Parking Lot	1.16	100%
General Office Building	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year

General Heavy Industry	22.0	22.0	22.0	8,029	5.49	5.49	5.49	2,005
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
General Office Building	20.0	20.0	20.0	7,300	155	155	155	56,480

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Heavy Industry	22.0	22.0	22.0	8,029	5.49	5.49	5.49	2,005
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
General Office Building	20.0	20.0	20.0	7,300	155	155	155	56,480

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	26,970	8,990	3,025

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	6,261,200	204	0.0330	0.0040	399,357
Unrefrigerated Warehouse-No Rail	77,939	204	0.0330	0.0040	40,878
Parking Lot	44,168	204	0.0330	0.0040	0.00
General Office Building	22,862	204	0.0330	0.0040	25,650

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	6,261,200	204	0.0330	0.0040	399,357
Unrefrigerated Warehouse-No Rail	77,939	204	0.0330	0.0040	40,878

Parking Lot	44,168	204	0.0330	0.0040	0.00
General Office Building	22,862	204	0.0330	0.0040	25,650

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	10,758,048	0.00
Unrefrigerated Warehouse-No Rail	0.00	0.00
Parking Lot	0.00	0.00
General Office Building	191,952	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	10,758,048	0.00
Unrefrigerated Warehouse-No Rail	0.00	0.00
Parking Lot	0.00	0.00
General Office Building	178,247	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	11.3	0.00
Unrefrigerated Warehouse-No Rail	7.31	0.00
Parking Lot	0.00	0.00
General Office Building	1.00	0.00

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	11.3	0.00
Unrefrigerated Warehouse-No Rail	7.31	0.00
Parking Lot	0.00	0.00
General Office Building	1.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0
Unrefrigerated Warehouse-No Rail	Cold storage	R-404A	3,922	7.50	7.50	7.50	25.0
General Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0
Unrefrigerated Warehouse-No Rail	Cold storage	R-404A	3,922	7.50	7.50	7.50	25.0
General Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00

General Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	18.8	annual days of extreme heat
Extreme Precipitation	2.20	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	1	0	0	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack	N/A	N/A	N/A	N/A
Air Quality	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	1	1	1	2
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack	N/A	N/A	N/A	N/A
Air Quality	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	37.6
AQ-PM	30.7
AQ-DPM	55.5

Drinking Water	19.0
Lead Risk Housing	34.5
Pesticides	0.00
Toxic Releases	70.5
Traffic	15.7
Effect Indicators	—
CleanUp Sites	98.9
Groundwater	91.6
Haz Waste Facilities/Generators	99.5
Impaired Water Bodies	98.7
Solid Waste	88.9
Sensitive Population	—
Asthma	93.2
Cardio-vascular	72.2
Low Birth Weights	93.5
Socioeconomic Factor Indicators	—
Education	40.1
Housing	44.5
Linguistic	10.4
Poverty	54.8
Unemployment	94.3

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	61.92737072

Employed	28.26895932
Median HI	59.96407032
Education	—
Bachelor's or higher	44.02669062
High school enrollment	26.62645964
Preschool enrollment	89.60605672
Transportation	—
Auto Access	59.70742974
Active commuting	70.52482998
Social	—
2-parent households	8.674451431
Voting	68.98498653
Neighborhood	—
Alcohol availability	38.56024637
Park access	81.35506224
Retail density	17.37456692
Supermarket access	73.05273964
Tree canopy	50.69934557
Housing	—
Homeownership	53.70204029
Housing habitability	43.8855383
Low-inc homeowner severe housing cost burden	32.01591172
Low-inc renter severe housing cost burden	18.72192994
Uncrowded housing	45.96432696
Health Outcomes	—
Insured adults	52.48299756
Arthritis	0.0

Asthma ER Admissions	1.2
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	25.8
Cognitively Disabled	38.1
Physically Disabled	17.3
Heart Attack ER Admissions	3.0
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	30.7
Children	20.9
Elderly	49.5
English Speaking	84.5

Foreign-born	38.5
Outdoor Workers	81.9
Climate Change Adaptive Capacity	—
Impervious Surface Cover	30.0
Traffic Density	11.7
Traffic Access	23.0
Other Indices	—
Hardship	49.9
Other Decision Support	—
2016 Voting	29.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	83.0
Healthy Places Index Score for Project Location (b)	59.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Planned construction start and completion date provided by client.
Operations: Vehicle Data	Facility will receive input through pipeline and output would be transported off facility via truck trips, maximum of 11 one-way truck trips per day during the peak season, or 2.412 trips per 1,000sf. Trucks would travel approximately 1 mile to a different facility. 10 full-time employees, or 18.519 trips per 1,000sf of office space. Trip length for office trips are default.
Operations: Fleet Mix	All haul trips will be performed by heavy-heavy duty trucks.
Operations: Water and Waste Water	Water usage was provided as 30,000 gallons per day/10,9590,000 gallons per year of process and potable water. CalEEMod default for water usage by the office building was 191,952 gallons/year, so water usage of the Process Area (General Heavy Industry) was adjusted accordingly.
Construction: Demolition	No demolition required.
Operations: Energy Use	Project applicant provided electric power consumption of 1.1 MW. The plant is expected to be in production up to 5,692 hours per year (313 days per year) with seasonal maximum production occurring April through September.

APPENDIX D – CULTURAL RESOURCES TECHNICAL MEMORANDUM

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CULTURAL RESOURCES TECHNICAL MEMORANDUM

Date: August 3rd, 2023
To: RCH Group
From: Solano Archaeological Services, LLC

Subject: HASA NorCal Project, City of Pittsburg, Contra Costa County, California

INTRODUCTION

This technical memorandum summarizes the background research, Native American community outreach, archaeological survey, and study findings for the proposed HASA NorCal Project (the Project) located in the City of Pittsburg, in Contra Costa County, California (Attachment A, Figure 1). The Project is subject to California Environmental Quality Act (CEQA) requirements, and Solano Archaeological Services, LLC (SAS) has prepared this report to support compliance with the cultural resources provisions of CEQA.

PROJECT LOCATION

The project area consists of 1.57 acres (ac.) at 901 Loveridge Road in the City of Pittsburg, in an area generally bounded by a rail line (Southern Pacific Railroad [SPRR]) to the south, commercial and industrial development to the west, Pittsburg Waterfront Road to the north, and rail spurs to the east (Attachment A, Figure 1). The project area is located on Assessor's Parcel Number 073-220-049, and is depicted on the *Antioch North, California* U.S. Geological Survey (USGS) topographic 7.5 minute quadrangle in the *Rancho Los Medanos* land grant in projected Township 2 North, Range 1 East, Section 15 (Attachment A, Figures 2, 3).

PROJECT DESCRIPTION

HASA Inc. is proposing to build a sodium hypochlorite (bleach) manufacturing and distribution facility. The facility would be constructed within the Industrial General Plan classification and the General Industrial zone as designated in the 2020 Pittsburg General Plan. Construction will include installation of pre-cast concrete piles; grading; paving; construction of reinforced concrete foundations and containment areas; installation of a pre-fabricated employee building, storage tanks, and skid-mounted production equipment; and construction of a truck loading rack.

The project area is flat, and generally surfaced with gravel. Construction activities will involve grading and excavation from 0–3 feet (ft.) below grade on more than 50% of the site. Construction and potential ground disturbances are anticipated to occur in the following phases:

- Construction Phase 1: Grading and pile installation
- Construction Phase 2: Raw material conveyance piping (includes heat-traced chlorine and caustic lines and potable and process water lines from Corteva tie-in points); process equipment; tank farm; and utilities installation
- Construction Phase 3: Mechanical and electrical work, including new PG&E feed

Regulatory Setting

CEQA requires that public agencies having authority to finance or approve public or private projects assess the effects of those projects on cultural resources. Cultural resources include buildings, sites, structures, objects, or districts, each of which may have historical, architectural, archaeological, cultural, or scientific significance. CEQA states that if a proposed project would result in an effect that may cause a substantial adverse change in the significance of a significant cultural resource (termed a "historical resource"), alternative plans or mitigation measures must be considered. Because only significant cultural resources need to be addressed, the significance of cultural resources must be determined before mitigation measures are developed.

CEQA §5024.1 (Public Resources Code [PRC] §5024.1) and §15064.5 of the State CEQA Guidelines (14 California Code of Regulations [CCR] §15064.5) define a *historical resource* as "a resource listed or eligible for listing on the California Register of Historical Resources." A historical resource may be eligible for inclusion in the California Register of Historical Resources if it:

1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage
2) Is associated with the lives of persons important to our past
3) Embodies the distinctive characteristics of a type, period, region, or method of construction represents the work of an important creative individual; or possesses high artistic values; or
4) Has yielded, or may be likely to yield, information important to prehistory or history

In addition, CEQA also distinguishes between two classes of archaeological resources: archaeological sites that meet the definition of a historical resource, and "unique archaeological resources." An archaeological resource is considered unique if it:

- Is associated with an event or person of recognized significance in California or American history or of recognized scientific importance in prehistory
- Can provide information that is of demonstrable public interest and is useful in addressing scientifically consequential and reasonable research questions
- Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind
- Is at least 100 years old and possesses substantial stratigraphic integrity; or
- Involves important research questions that historical research has shown can be answered only with archaeological methods (Public Resources Code §21083.2)

According to the CEQA Guidelines, a project with an effect that may cause a substantial adverse change in the significance of a historical resource, or a unique archaeological resource is a project that may have a significant effect on the environment (14 CCR §15064.5[b]). CEQA further states that a substantial adverse change in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired.

Natural and Cultural Setting

Existing Environment

The climatic pattern in the project area and surrounding region is characterized as Mediterranean, with cool, wet winters and hot, dry summers. Soil studies suggest that the general climate may have been wetter in the past but periods of persistent drought in California occurred between the years 912–1112, and 1210–1350 (Tanksley 2003). Shorter drought periods have also been documented over the last 2,000 years using dendrochronology, soil core borings, and other methods.

The dominant natural vegetative communities in the vicinity of the project area include prairie grasslands and tule marshes, with some areas of riparian woodland also being present (Kuchler 1977). Tule marshes are characterized by stands of tules, cattails, sedges, rushes, and clumps of willows. Vegetation tends to be sparse in the prairie grasslands and is generally limited to grasses and flowering herbs. However, valley oaks are found in the grasslands, and each can produce 300–500 pounds of acorns on an annual basis (Baumhoff 1963). Tule marshes provided a diverse array of faunal and floral resources including tule roots that were ground into an edible meal (Wallace 1978). Native Americans burned off the grasslands annually to increase the following year's seed crop (Cook 1960), and tule supplied reeds for a diverse array of uses such as housing, clothing, rafts, and baskets.

Prehistoric Setting

Native American occupation and use of the greater Bay Area, including the regions comprising present-day Pittsburg extends to over 5,000 to 7,000 years and possibly longer. Research during the 1930s identified temporal periods in central California prehistory and provided an initial chronological sequence. In the late 1940s and early 1950s, Richard Beardsley of the University of California Berkeley documented similarities in artifacts among sites in the San Francisco Bay region and the Delta and refined his findings into a cultural model that ultimately became known as the Central California Taxonomic System (CCTS) which proposed a uniform, linear sequence of cultural succession (Beardsley 1948)

To address flaws in the CCTS system, David Fredrickson introduced a revision that incorporated a system of spatial and cultural integrative units. Fredrickson separated cultural, temporal, and spatial units from each other and assigned them to six chronological periods: PaleoIndian (12,000 to 8,000 years before the present day [BP]); Lower, Middle and Upper Archaic (8,000 BP to 1,500 BP), and Emergent (Upper and Lower, 1,500 BP to 1800). The suggested temporal ranges are similar to earlier horizons, which were broad cultural units that could be arranged in a temporal sequence (Fredrickson 1973, 1974). In addition, Fredrickson defined several patterns—a general way of life shared within a specific geographical region. These patterns consist of the Windmiller Pattern or Early Horizon (5,000 to 3,000 BP), the Berkeley Pattern or Middle Horizon (3,000 BP to 1,500 BP), and the Augustine Pattern or Late Horizon (1,500 BP to historic period) (see Fredrickson 1973 for elaborations on these patterns/horizons).

The Paleo-Archaic-Emergent cultural sequence developed by Fredrickson (1974) is still commonly used to interpret the prehistoric occupation of Central California. However, research by Groza (2002), LaJeunesse and Pryor (1996), and Meyer and Rosenthal (1997) using radiocarbon dates have updated Fredrickson's interpretation to delineate the cultural sequence into the following periods: the Paleo-Indian period (13,550 to 10,550 BP); the three-staged Archaic period, consisting of the Lower Archaic (10,550 to 7,550 BP), Middle Archaic (7,550 to 2,550 BP), and Upper Archaic (2,550 BP to 900 BP); and the Emergent period (1100 to 1769).

The Paleo-Indian period began with the first entry of people into California, with the Central Valley area settled by native Californians as early as 13,500 years ago (Rosenthal et al. 2007). Population numbers during the Paleo-Indian period were low and probably consisted of small groups moving frequently in order to exploit plant and animal resources. Current research, however, indicates more sedentism, plant processing, and trading than previously believed.

The Archaic period is characterized by increased use of plant foods, elaboration of grave goods, and increasingly complex trade networks (Bennyhoff and Fredrickson 1994; Moratto 1984). The Emergent period is marked by the introduction of the bow and arrow, the ascendance of wealth-linked social status, and the elaboration and expansion of trade networks, signified in part by the appearance of clam disk bead money (Moratto 1984).

Penutian populations migrated into central California around 4,500 years ago and were firmly settled in the Bay Area by 1500 (Moratto 1984). During the Emergent period, ancestors of the Ohlone entered the region and occupied the area from the Carquinez Strait south to Point Sur (Kroeber 1925; Levy 1978). This area was dominated by freshwater marshes and wetlands at the bay margin, oak groves and grasslands at the base of adjacent hills, and redwood groves in the hills. In the Bay Area to the north of the project area vicinity, many villages were established by 4,000 BP. Village sites, commonly located along perennial waterways or adjacent to resource-rich bay shore and marsh habitats, often had deep stratified deposits of shellfish and other remains from repeated occupations over time. The introduction of the bow and arrow, harpoon, and the use of clam disk beads as currency for trade are just a few indications that populations were larger and more densely settled (Moratto1984).

Ethnographic Context

The project area and immediate surrounding lands are situated within an area traditionally occupied by the Bay Miwok cultural group. Two other Native American cultures, the Northern Valley Yokuts, and the Plains Miwok probably also inhabited territory within or very near the project area. Over time, late prehistoric, and ethnographic period tribal boundaries were likely fluid to some extent and with the project area being at the intersection of multiple tribal boundaries, more than likely all of these groups inhabited the present-day Pittsburg area or at least exploited the diverse resources provided in the region adjacent to Suisun Bay just to the north. Consequently, much of what is currently expressed in the anthropological literature represents tribal boundaries at one point in time only; that period in the historic past when early Spanish and Mexican accounts discuss the cultural affinities of the local indigenous populations, and shortly thereafter when structured ethnographic studies began to occur.

The Bay Miwok occupied the eastern portions of what is now Contra Costa County, from Mount Diablo northeast into the Sacramento-San Joaquin Delta. They were skilled hunters and food collectors who lived in a favorable environment that was rich in all manner of floral and faunal resources. The populations living adjacent to the bays and waterways relied heavily on shellfish and aquatic animals for their primary sustenance. Plant foods were gathered on a seasonal basis, with acorns being the most important staple because they could be stored in great quantity and processed into various forms. Tools and ornaments were manufactured from stone, bone, and shell typically obtained from local sources, and their basketry was well developed in terms of style and form. The Bay Miwok were also known to have cultivated a form of tobacco and domesticated the dog (Kroeber 1925; Levy 1978).

The Bay Miwok had several types of structures with semi-subterranean, earth-covered dwellings serving as winter homes. Other structures included sweathouses, acorn granaries, and conical grinding huts over bedrock mortars. The focal point of most ritual and social gatherings were large semi-subterranean structures where significant political and spiritual events were often housed. These buildings were constructed in the largest villages that once the Mission period began, were quickly abandoned. The Bay Miwok were some of the first Miwok peoples to be missionized and the largest group went to Mission San Jose. Unfortunately, structured ethnographic data for the San Francisco Bay Area is not extensive and much of what is known of the traditional lifeways of the Bay Miwok has been gleaned from oral histories and the accounts of Spanish and Mexican missionaries, and military expeditions. Regardless, it appears that much of the aboriginal lifestyle was severely impacted by the introduction of Euro-American diseases, a declining birth rate, and ultimately, the mission system (Bennyhoff 1977; Kroeber 1925; Levy 1978; Milliken 1995).

The project area is within a region specifically occupied by the *Julpun* tribelet of the Bay Miwok who inhabited the south shore of Suisun Bay extending from Port Chicago to the mouth of Marsh Creek on the west, with the tribelet center of *Chupcan* located about 3.5 miles (mi.) east-northeast of the project area on the south bank of the San Joaquin River channel (Bennyhoff 1977; Levy 1978). Permanent villages such as *Chupcan*, and *San Ricardo* several mi. further to the east were usually surrounded by a number of temporary and seasonal camps. Politically autonomous, the groups of 50–500 individuals in each tribelet followed an annual round of subsistence activities focused on the gathering of botanical, riparian, and aquatic resources. In addition, trade was common with other groups in the region, including those located within the Central Valley, and in the Sierra Nevada.

Historic Period Setting

Spanish Period

Although Spanish expeditions to the California coastline date to the 16th and early 17th centuries (e.g., Juan Rodriguez Cabrillo in 1542, Sebastian Rodriguez Cermeño in 1595, and Sebastián Vizcaino in 1602), the conventional date for the beginning of the Spanish Period in California is 1769, the date of the founding of the first mission, Mission San Diego de Alcalá. Spanish exploration of the San Francisco Peninsula and surrounding lands also began in 1769 when Gaspar de Portola led his expedition into Alta California to explore Monterey Bay. In 1774, Fray Palou joined the expedition of Don Fernando de Rivera y Moncada to identify potential mission sites, and Juan Bautista de Anza followed with a similar expedition in 1776 (Beck and Haase 1976).

Spanish colonial policy from 1769–1821 was directed at the founding of presidios, missions, and secular towns, with the land held by the Crown. The depletion of the coastal native populations resulted in Spanish missionaries shifting to conversion of the interior peoples. The Bay Miwok were the first of the Eastern Miwok to be missionized, and were generally not willing converts. Mission baptismal records show that Native Americans went to Mission San Francisco de Assisi, founded in 1776, and Mission San Jose, founded in 1797. Their traditional lifeways apparently disappeared by about 1810 due to disruptions of disease, a declining birth rate, and the general impact of the mission system.

Mexican Period

The Mexican Period (1821 to 1848) was marked by secularization and division of mission lands among the Californios as land grants, termed *ranchos*. During this period, Mariano Vallejo assumed authority of Sonoma Mission and established a rapport with the Native Americans who were living there. In particular, Vallejo worked closely with Chief Solano, a Patwin who served as Vallejo's spokesman when problems with Native American tribes arose. The large rancho lands often were worked by Native Americans who were used as forced labor.

Shoup and Milliken (1999) state that mission secularization removed the social protection and support on which Native Americans had come to rely. It exposed them to further exploitation by outside interests, often forcing them into a marginal existence as laborers for large ranchos. Following mission secularization, the Mexican population grew as the Native American population continued to decline. Euro-American settlers began to arrive in California during this period and often married into Mexican families, becoming Mexican citizens, which made them eligible to receive massive land grants from the Mexican government. One of these, *Rancho Los Medanos,* incorporated the project area. This 8,859-ac. grant was provided to Jose Antonio Mesa (the son of Corporal José Valerio Mesa who came to California with the 1776 de Anza Expedition) and Jose Miguel Garcia in 1835 by Governor Juan Alvarado.

In 1846, on the eve of the U.S.-Mexican War (1846 to 1848), the estimated population of California was 8,000 non-natives and 10,000 Native Americans. However, these estimates have been debated. Cook (1976) suggests the Native American population was 100,000 in 1850 but the U.S. Census of 1880 reports the Native American population at 20,385.

American Expansion and Contra Costa County

The east side of San Francisco Bay, directly across from the City of San Francisco, became known as the "opposite coast" (or *contra costa*) by the Spanish. The county was formed in December of 1849 and is one of the original 27 California counties, with the seat in Martinez (Hoover et al. 2002). Contra Costa County, like much of California, was seen as a land of economic opportunity, not just for its mining resources but also for its productive land where farmers could cultivate a variety of crops. Agriculture became a significant portion of the California economy in the late 1850s, and homesteading became a means by which people could own and operate a family farm. By the early 1880s, special interests advertised the County's virtues as a place to cultivate. Early settlers began to speak of beneficial soils that supported a range of crops—pears, prunes, peaches, almonds, walnuts, and grapes flourished—with seasonal rainfall, and favorable climates. In addition, Contra Costa County was strategically located at crossing of trade routes with a waterfront location and relative closeness to the San Francisco metropolis. Large-scale commercial operations began to capitalize on mechanical innovations just as irrigation developed in the early 1880s. Consequently, competing economic interests caused land prices to increase and make family farming a less profitable enterprise.

By the mid-20th century agriculture began to give way to commercial and residential land uses. In the 1960s and 1970s, large companies followed their employees to suburban areas east of San Francisco. The establishment of large population centers fostered the development of equally large shopping centers. To meet demand on infrastructure, the State of California modernized highways and roadways, and with the establishment of the Bay Area Rapid Transit (BART) system, the urbanization trajectory for the region was complete.

City of Pittsburg

The City can trace its historic foundation to 1849 when Colonel Jonathan D. Stevenson (from New York) purchased land in the area and laid out a town he called the New York of the Pacific (Durham 1998). Stevenson was likely drawn to the area as it was the midway stopping point for schooners traveling from San Francisco and their passengers headed to the gold country further inland. Fishing, farming, and cattle raising for the hide and tallow industry were the major economic activities during this time (City of Pittsburg 2022) but in 1859, coal was discovered in the nearby town of Nortonville. The Black Diamond Coal Mining Company commenced operations, building a rail line to Nortonville with present-day Pittsburg being the main shipping point (Durham 1998). The local coal boom ended in 1885, when the company moved to Washington state to work a new claim.

Despite the coal boom having long since ended, in 1903 the town was incorporated and renamed "Black Diamond", after the mining firm. Fishing, transportation, and agriculture, however, constituted the foundation of the area's economy until Columbia Steel Company opened its California steel plant in the town in 1910. It made steel castings for the dredging, lumber and shipping industries (Durham 1998). In recognition of the new dominant local industry, the town's name was changed to "Pittsburg" in 1911 honoring Pittsburgh, Pennsylvania, as the two cities shared a common steel and mining industrial heritage (City of Pittsburg 2022). The Pittsburg plant continued to grow under various owners and by the late 1990s, the facility employed nearly 1,000 workers and shipped over 1.6 million U.S. tons per year of steel to over 175 customers in the Western U. S., Mexico, Canada and the Pacific Rim (Heredia 1999). However, as of 2023, the entire facility has closed and been purchased by Amazon for the establishment of a product fulfillment center, ending over a century of steel manufacture in the City.

NATIVE AMERICAN COMMUNITY OUTREACH

The PRC Sections 21080.1, 21080.3.1, and 21080.3.2 require public agencies to consult with the appropriate California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of mitigating impacts to cultural resources. To meet PRC requirements, on July 14th, 2023, SAS emailed a letter and a map depicting the project area and surrounding vicinity to the NAHC requesting a Sacred Lands File (SLF) search, and a list of Native American community representatives who might have an interest in, or concerns with the proposed Project (Attachment B). On July 27th, 2023, the NAHC responded to SAS stating that the SLF did not contain any information on sensitive Native American cultural properties within or near the project area. The NAHC also provided contact information for the following individuals:

- Amah Mutsun Tribal Band of Mission San Juan Bautista - Irene Zwierlein, Chair
- Chicken Ranch Rancheria of Me-Wuk Indians - Lloyd Mathiesen, Chair
- Guidiville Rancheria of California - Michael Derry, Historian
- Guidiville Rancheria of California - Bunny Tarin, Tribal Administrator
- Indian Canyon Mutsun Band of Costanoan - Ann Marie Sayers, Chair
- Indian Canyon Mutsun Band of Costanoan - Kanyon Sayers-Roods, Most Likely Descendent
- Muwekma Ohlone Indian Tribe of the San Francisco Bay Area - Monica Arellano, Vice Chair
- Muwekma Ohlone Indian Tribe of the San Francisco Bay Area - Charlene Nijmeh, Chair
- Nashville Enterprise Miwok-Maidu-Nishinam Tribe - Cosme Valdez, Chair
- Nashville Enterprise Miwok-Maidu-Nishinam Tribe – Leland Valdez, Cultural Resources
- North Valley Yokuts Tribe - Katherine Perez, Chair
- North Valley Yokuts Tribe - Timothy Perez
- The Ohlone Indian Tribe - Andrew Galvan, Chair
- The Ohlone Indian Tribe – Desiree Vigil, Tribal Historic Preservation Officer
- The Ohlone Indian Tribe – Vincent Medina, Tribal Consultant
- Wilton Rancheria - Steven Hutchason, Tribal Historic Preservation Officer
- Wilton Rancheria - Jesus Tarango, Chair
- Wilton Rancheria - Dahlton Brown, Director of Administration
- Confederated Villages of Lisjan Nation - Deja Gould, Language Program Manager
- Confederated Villages of Lisjan Nation - Corrina Gould, Chair
- Confederated Villages of Lisjan Nation - Cheyenne Gould, Tribal Cultural Resource Manager

SAS contacted each of the individuals listed above by letter on August 1st, 2023, inquiring if they had any knowledge of culturally sensitive properties or archaeological sites within or near the project area. As of this report, SAS has not received any replies to the mailed letters. However, if substantive contacts are made at a later date, SAS will prepare an addendum to this report as necessary.

California Historical Resources Information System Records Search

On July 24th, 2023, the Northwest Information Center (NWIC) of the California Historical Resources Information System, provided the results of a record search for the Project (NWIC File No. 23-0056) (Attachment C). The NWIC indicated that no cultural resources were known to be present within the project area, but four resources had been documented within a 1/2-mile search area. These resources consisted of the old Atchison, Topeka, and Santa Fe Railroad line (P-07-000806) just to the south of the project area boundary, the SPRR line (P-07-000813), about ½-mile south of the project area, the Columbia-Geneva Steel Company Plant (P-07-000827), and the Mt. Diablo Recycling Center (P-07-004705), both located south of the SPRR alignment. The NWIC research also reported that no previous cultural resources studies included the current project area, but an additional 13 investigations have occurred within the 1/2-mile search area.

Additional Research

To ascertain patterns of land ownership and use within the project area and identify potential undocumented sites, cultural deposits, and sensitive landforms, SAS conducted additional archival research focused on historical mapping and land transfer records. This consisted of reviews of the Bureau of Land Management's General Land Office (GLO) archives including patent records and plat maps, historical USGS topographic quadrangle maps, and other archival sources.

Starting in the early 1850s, the U.S. General Land Office started conducting widespread mapping of lands within California, as well as throughout the western United States. These "plat" maps of townships, ranges, and sections typically depicted major landforms, waterways, historic-era developments such as ranches, farms, and associated buildings, and occasionally provided assessments of the suitability of land for livestock grazing, agriculture, or timber harvesting. However, the GLO typically did not survey land grant properties, and this was the case with Township 2 North, Range 1 East (within which the project area is located). Consequently, no man-made features or natural landmarks were depicted on the only GLO plat of the area, dating to 1870.

Apart from surveying government lands, the GLO was also responsible for selling, granting, or otherwise transferring public lands to private, corporate, or institutional recipients. Numerous regulatory frameworks governed and provided for these transfers including the 1851 California Land Act (9 Stat. 631). The California Land Act was instituted following the Treaty of Guadalupe Hidalgo and the admission of California as a state in 1850. This Act stablished a three-member Public Land Commission to determine the validity of prior Spanish and Mexican land grants. It required landowners who claimed title under the Mexican government to file their claim with a commission within two years. Contrary to the Treaty of Guadalupe Hidalgo, which guaranteed full protection of all property rights for Mexican citizens, it placed the burden on landholders to prove their title. While the commission eventually confirmed 604 of the 813 claims, almost all of the claims went to court and resulted in protracted litigation. The expense of the long court battles required many land holders to sell portions of the property or trade it in payment for legal services and a few cases were litigated into the 1940s (Gates 1971). It was under this act that Ellen Fallon, Michael Murray, Jonathan D. Sevenson, and James Welch were formally granted the 8,858-ac. Rancho Los Medanos in 1872.

A review of historic USGS topographic quadrangle maps indicates that for at least the first half of the 20th century, no developments of any kind occurred within the project area. Quadrangle maps dated 1908, 1914, 1918, 1936, 1943, 1947, 1951, and 1955 depicted little change in the project area which during this time appears to have consisted at least partially of a wetland or slough that might at one time have connected directly with the San Francisco Bay. Also during the time, the alignment of the Pittsburg Railroad can be seen immediately to the east of the project area and the Santa Fe Railroad (later the Atchison, Topeka, and Santa Fe) rail line was in place immediately to the south. Similarly, aerial photography of the project area and surrounding vicinity dating between 1960, and 1969 does not show any development in the project area. However, the project area does appear to have been used throughout the 20th century as an equipment and materials staging, and storage yard, but no buildings, structures, or other permanent built environment features were constructed.

FIELD SURVEY

Methods

On July 26th, 2023, SAS archaeologist Karena Skinner conducted an intensive pedestrian survey of the project area utilizing pedestrian transects spaced no greater than 10 meters apart. Due to client concerns regarding proprietary equipment and facilities on immediately adjacent lots, no photographs were taken of the project area or vicinity during the field survey. A 2–3-meter accurate GPS unit (Samsung Galaxy Tablet with *Avenza* application) was utilized to verify the project area perimeter and document resource boundaries as appropriate.

Results

The survey noted that the entire project area was graded and covered in crushed road gravel with new or no patches of natural ground surface being exposed. Traces of a poured concrete building foundation were present but due to its recent appearance it was not recorded. Heavy weed growth in some areas indicates the lot has not been used recently and no prehistoric or historic-era cultural sites, features, or artifacts were documented.

SUMMARY AND RECOMMENDATIONS

Archival research and an intensive field survey did not identify any prehistoric or historic-period cultural resources within the project area. Historic map and aerial photography reviews indicate that since at least the early 20th century, no permanent developments of any kind have been built within the project area. Historic maps also indicate the project area is located on or at least immediately adjacent to an old slough or wetland area – a setting often favored by early Native American peoples. However, given the grading and filling that clearly was required to fill in this slough or wetland, it is highly likely that had any intact prehistoric resources been present, they would have been destroyed. As such, SAS recommends that the project are exhibits a low/moderate level of sensitivity for retaining traces of early Native American activity. Concerning historic period resources, historic mapping, aerial photographs, and archival research indicate that no developments have occurred within directly within the project area since at least the early 20th century. Consequently, there is very little chance that any intact and potentially significant historic-era resources pre-dating the early 20th century could be present within the project area. Due to a lack of identified cultural resources and sensitive landforms, SAS recommends that the proposed project would have *no impact on historical resources* per CEQA.

If human remains or any associated funerary artifacts are discovered during construction, all work must cease within the immediate vicinity of the discovery. In accordance with the California Health and Safety Code (Section 7050.5), the Contra Costa County Sheriff/Coroner must be contacted immediately. If the Coroner determines the remains to be Native American, the Coroner will notify the Native American Heritage Commission, which will in turn appoint a Most Likely Descendent (MLD) to act as a tribal representative. The MLD will work with the Applicant and a qualified archaeologist to determine the proper treatment of the human remains and any associated funerary objects. Construction activities will not resume until either the human remains are exhumed, or the remains are avoided via Project construction design change.

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ATTACHMENT A

Figures

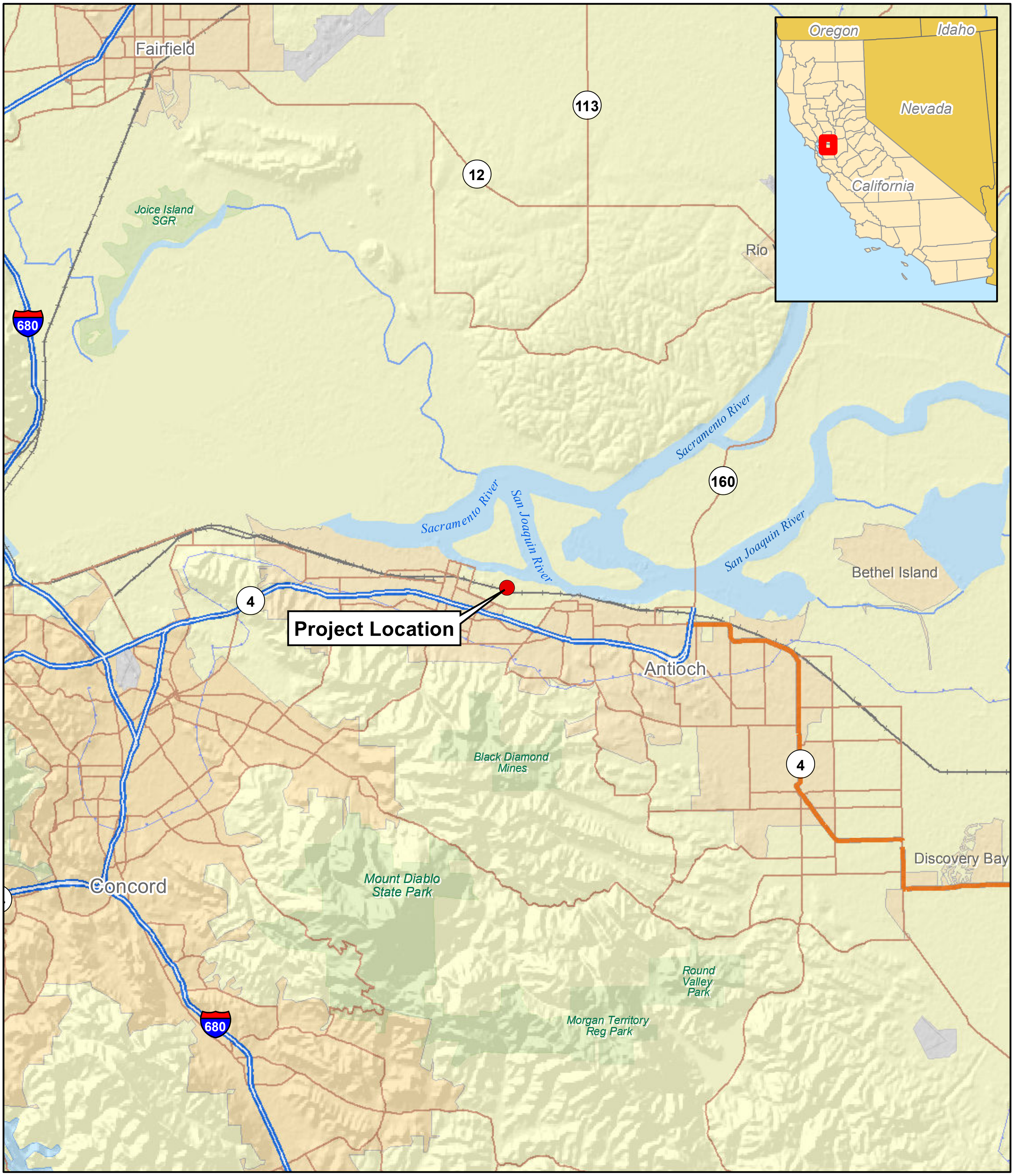

Figure 1. Project Vicinity Map.

● HASA NorCal Project Location

Sources: *USA Base Map* [layer],*Data and Maps* [CD]. ESRI, 2006.

1:250,000

0 3 Miles

0 6 Kilometers

ARCHAEOLOGICAL SERVICES SOLANO SAS

Figure 2. Project Location Map.

HASA NorCal Project Area

Los Medanos Land Grant (Presumed T02N, R01E, Section 15).
Antioch North 7.5' Series Quadrangle, USGS, 1979.

1:24,000

0.5 Miles

1 Kilometers

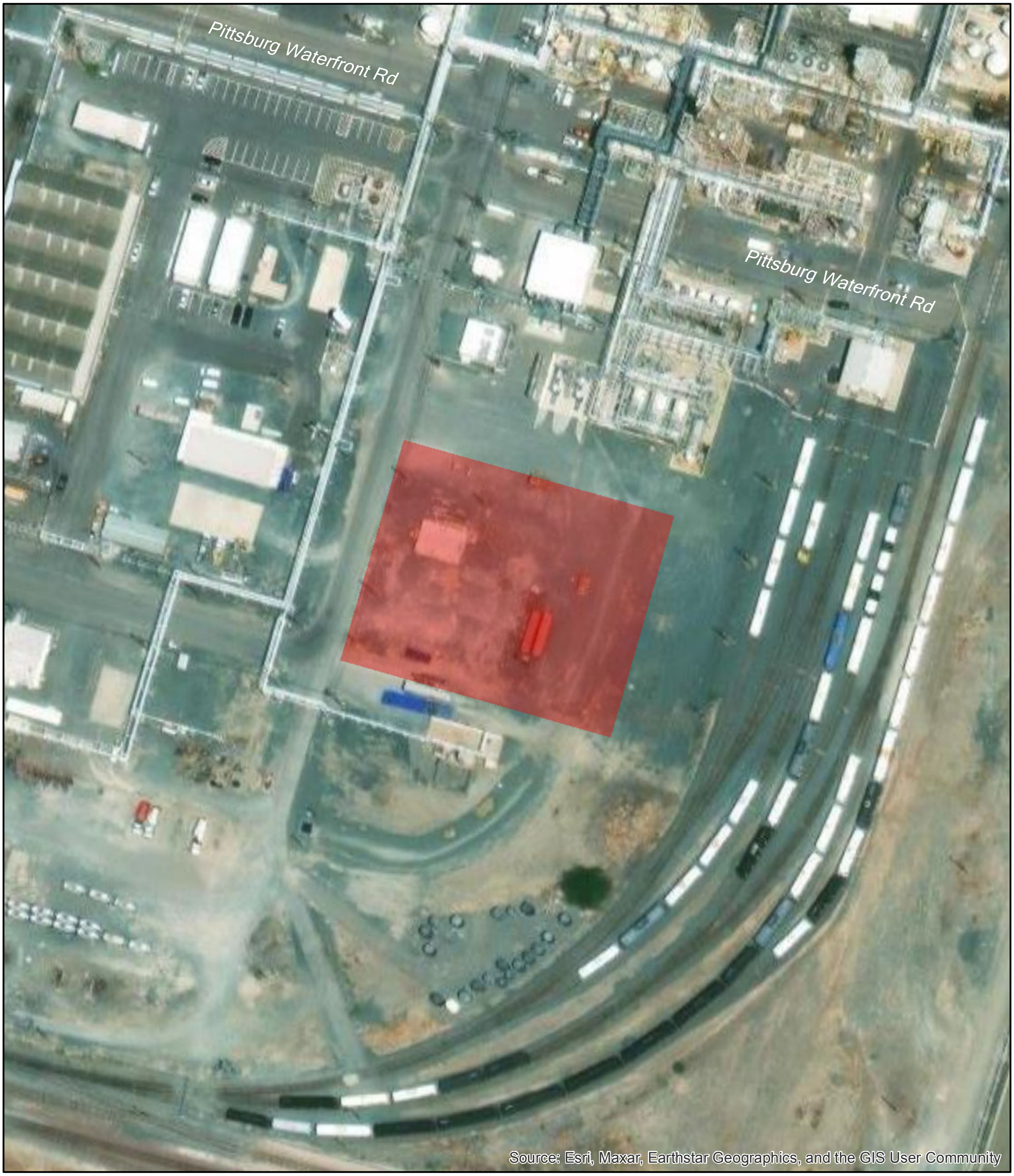

Figure 3. Project Area Map.

HASA NorCal Project Area

Total Acres: 1.57

1:1,500

0 100 Feet

0 50 Meters

SAS SOLANO ARCHAEOLOGICAL SERVICES

ATTACHMENT B

Native American Community Outreach

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento, California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

July 27, 2023

Brian Ludwig, Ph.D.
Solano Archaeological Services

Via Email to: brian@solanoarchaeology.com

Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, Aztec NorCal Vertical Integration Project, Contra Costa County

To Whom It May Concern:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) ("Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.")

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measures.

     All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of any Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was negative.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Cody.Campagne@nahc.ca.gov.

Sincerely,

Cody Campagne

Cody Campagne
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Contra Costa County
7/27/2023

County	Tribe Name	Fed (F) Non-Fed (N)	Contact Person	Contact Address	Phone #	Fax #	Email Address	Cultural Affiliation	Counties	Last Updated
Contra Costa	Amah MutsunTribal Band of Mission San Juan Bautista	N	Irene Zwierlein, Chairperson	3030 Soda Bay Road Lakeport, CA, 95453	(650) 851-7489	(650) 332-1526	amahmutsuntribal@gmail.com	Costanoan	Alameda,Contra Costa,Monterey,San Benito,San Francisco,San Mateo,Santa Clara,Santa Cruz	
	Chicken Ranch Rancheria of Me-Wuk Indians	F	Lloyd Mathiesen, Chairperson	P.O. Box 1159 Jamestown, CA, 95327	(209) 984-9066	(209) 984-9269	lmathiesen@crtribal.com	Me-Wuk	Alpine,Amador,Calaveras,Contra Costa,El Dorado,Fresno,Madera,Mariposa,Merced,Mono,Sacramento,San	
	Confederated Villages of Lisjan Nation	N	Corrina Gould, Chairperson	10926 Edes Avenue Oakland, CA, 94603	(510) 575-8408		cvltribe@gmail.com	Bay Miwok Ohlone Delta Yokut	Alameda,Contra Costa,Sacramento,San Joaquin,Santa Clara,Solano,Stanislaus	3/22/2023
	Confederated Villages of Lisjan Nation	N	Deja Gould, Language Program Manager	10926 Edes Ave Oakland, CA, 94603	(510) 575-8408		cvltribe@gmail.com	Bay Miwok Ohlone Delta Yokut	Alameda,Contra Costa,Sacramento,San Joaquin,Santa Clara,Solano,Stanislaus	3/22/2023
	Confederated Villages of Lisjan Nation	N	Cheyenne Gould, Tribal Cultural Resource Manager	10926 Edes Ave Oakland, CA, 94603	(510) 575-8408		cvltribe@gmail.com	Bay Miwok Ohlone Delta Yokut	Alameda,Contra Costa,Sacramento,San Joaquin,Santa Clara,Solano,Stanislaus	3/22/2023
	Guidiville Rancheria of California	F	Bunny Tarin, Tribal Administrator	PO Box 339 Talmage, CA, 95481	(707) 462-3682		admin@guidiville.net	Pomo	Alameda,Contra Costa,Lake,Marin,Mendocino,Napa,Sacramento,San Joaquin,Solano,Sonoma	6/21/2023
	Guidiville Rancheria of California	F	Michael Derry, Historian	PO Box 339 Talmage, CA, 95481	(707) 391-1665		historian@guidiville.net	Pomo	Alameda,Contra Costa,Lake,Marin,Mendocino,Napa,Sacramento,San Joaquin,Solano,Sonoma	6/21/2023
	Indian Canyon Mutsun Band of Costanoan	N	Ann Marie Sayers, Chairperson	P.O. Box 28 Hollister, CA, 95024	(831) 637-4238		ams@indiancanyon.org	Costanoan	Alameda,Contra Costa,Monterey,San Benito,San Francisco,San Mateo,Santa Clara,Santa Cruz	
	Indian Canyon Mutsun Band of Costanoan	N	Kanyon Sayers-Roods, MLD Contact	1615 Pearson Court San Jose, CA, 95122	(408) 673-0626		kanyon@kanyonkonsulting.com	Costanoan	Alameda,Contra Costa,Monterey,San Benito,San Francisco,San Mateo,Santa Clara,Santa Cruz	4/17/2018
	Muwekma Ohlone Indian Tribe of the SF Bay Area	N	Monica Arellano, Vice Chairwoman	20885 Redwood Road, Suite 232 Castro Valley, CA, 94546	(408) 205-9714		monicavarellano@gmail.com	Costanoan	Alameda,Contra Costa,Marin,Merced,Napa,Sacramento,San Francisco,San Joaquin,San Mateo,Santa Clara,Santa Cruz,Solano,Sonoma,Stanislaus	7/12/2019
	Muwekma Ohlone Indian Tribe of the SF Bay Area	N	Charlene Nijmeh, Chairperson	20885 Redwood Road, Suite 232 Castro Valley, CA, 94546	(408) 464-2892		cnijmeh@muwekma.org	Costanoan	Alameda,Contra Costa,Marin,Merced,Napa,Sacramento,San Francisco,San Joaquin,San Mateo,Santa Clara,Santa Cruz,Solano,Sonoma,Stanislaus	
	Nashville Enterprise Miwok-Maidu-Nishinam Tribe	N	Cosme Valdez, Chairperson	P.O. Box 580986 Elk Grove, CA, 95758-0017	(916) 396-1173		valdezcome@comcast.net	Miwok	Alpine,Amador,Calaveras,Contra Costa,El Dorado,Fresno,Madera,Mariposa,Merced,Mono,Sacramento,San	7/17/2023
	Nashville Enterprise Miwok-Maidu-Nishinam Tribe	N	Leland Valdez, Cultural Resources		(916) 429-8047			Miwok	Alpine,Amador,Calaveras,Contra Costa,El Dorado,Fresno,Madera,Mariposa,Merced,Mo	7/17/2023
	North Valley Yokuts Tribe	N	Timothy Perez,	P.O. Box 717 Linden, CA, 95236	(209) 662-2788		huskanam@gmail.com	Costanoan Northern Valley Yokut	Alameda,Calaveras,Contra Costa,Fresno,Madera,Mariposa,Merced,Sacramento,San Benito,San Joaquin,Santa	5/12/2020
	North Valley Yokuts Tribe	N	Katherine Perez, Chairperson	P.O. Box 717 Linden, CA, 95236	(209) 887-3415		canutes@verizon.net	Costanoan Northern Valley Yokut	Alameda,Calaveras,Contra Costa,Fresno,Madera,Mariposa,Merced,Sacramento,San Benito,San Joaquin,Santa	
	The Ohlone Indian Tribe	N	Desiree Vigil, THPO	1775 Marco Polo Way, Apt. 21 Burlingame, CA, 94010	(650) 290-0245		dirwin0368@yahoo.com	Bay Miwok Ohlone Patwin Plains Miwok	Alameda,Contra Costa,San Francisco,San Mateo,Santa Clara	8/25/2022
	The Ohlone Indian Tribe	N	Andrew Galvan, Chairperson	P.O. Box 3388 Fremont, CA, 94539	Phone: (510) 882-0527	(510) 687-9393	chochenyo@AOL.com	Bay Miwok Ohlone Patwin Plains Miwok	Alameda,Contra Costa,San Francisco,San Mateo,Santa Clara	7/24/2023
	The Ohlone Indian Tribe	N	Vincent Medina, Tribal Consultant	17365 Via Del Rey San Lorenzo, CA, 94580	(510) 610-7587		vincent.d.medina@gmail.com	Bay Miwok Ohlone Patwin Plains Miwok	Alameda,Contra Costa,San Francisco,San Mateo,Santa Clara	7/24/2023
	Wilton Rancheria	F	Dahlton Brown, Director of Administration	9728 Kent Street Elk Grove, CA, 95624	(916) 683-6000		dbrown@wiltonrancheria-nsn.gov	Miwok	Alameda,Alpine,Amador,Contra Costa,El Dorado,Mono,Nevada,Placer,Sacramento,San	6/25/2020
	Wilton Rancheria	F	Steven Hutchason, THPO	9728 Kent Street Elk Grove, CA, 95624	(916) 683-6000	(916) 863-6015	shutchason@wiltonrancheria-nsn.gov	Miwok	Alameda,Alpine,Amador,Contra Costa,El Dorado,Mono,Nevada,Placer,Sacramento,San	10/28/2020
	Wilton Rancheria	F	Jesus Tarango, Chairperson	9728 Kent Street Elk Grove, CA, 95624	(916) 683-6000	(916) 683-6015	jtarango@wiltonrancheria-nsn.gov	Miwok	Alameda,Alpine,Amador,Contra Costa,El Dorado,Mono,Nevada,Placer,Sacramento,San	

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Aztec NorCal Vertical Integration Project, Contra Costa County.

Record: PROJ-2023-003733
Report Type: AB52 GIS
Counties: Contra Costa
NAHC Group: All

P.O. Box 367
Elmira, CA 95625

707-718-1416 ▴ Fax 707-451-4775
www.solanoarchaeology.com

August 1st, 2023

The Ohlone Indian Tribe
Andrew Galvan, Chairperson
P.O. Box 3388
Fremont, CA, 94539

Re: Aztec NorCal Vertical Integration Project, City of Pittsburg, Contra Costa County, California

Dear Mr. Galvan:

RCH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 1.57-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to construct a sodium hypochlorite (bleach) manufacturing and distribution facility within the project area. The project area is located at 901 Loveridge Road in Pittsburg and is situated in Township 2 North, Range 1 East on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

The cultural investigation will include an intensive field survey and we would like to know if you have any knowledge of cultural resources in the vicinity. For your information, the Native American Heritage Commission conducted a search of the Sacred Lands File and did not identify any previously documented culturally sensitive sites or properties within or near the APE. However, if you have any concerns with the project or know of any potentially significant properties in the area, I would appreciate hearing from you.

If you have any questions, feel free to contact me by email at brian@solanoarchaeology, or via phone at 530-417-7007.

Regards,

Brian Ludwig, Ph.D.
Principal Investigator

Project Location Map

Aztec Buyer LLC NorCal Vertical Integration Project Area

Los Medanos Land Grant (Presumed T02N, R01E, Section 15).
Antioch North 7.5' Series Quadrangle, USGS, 1979.

1:24,000

0.5 Miles

1 Kilometers

P.O. Box 367
Elmira, CA 95625

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www.solanoarchaeology.com

August 1st, 2023

Indian Canyon Mutsun Band of Costanoan
Ann Marie Sayers, Chair
P.O. Box 28
Hollister, CA 95024

Re: Aztec NorCal Vertical Integration Project, City of Pittsburg, Contra Costa County, California

Dear Ms. Sayers:

RCH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 1.57-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to construct a sodium hypochlorite (bleach) manufacturing and distribution facility within the project area. The project area is located at 901 Loveridge Road in Pittsburg and is situated in Township 2 North, Range 1 East on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Regards,

Brian Ludwig, Ph.D.
Principal Investigator

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Elmira, CA 95625

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www.solanoarchaeology.com

August 1st, 2023

Guidiville Rancheria of California
Bunny Tarin, Tribal Administrator
P.O. Box 339
Talmage, CA 95481

Re: Aztec NorCal Vertical Integration Project, City of Pittsburg, Contra Costa County, California

Dear Ms. Tarin:

RCH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 1.57-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to construct a sodium hypochlorite (bleach) manufacturing and distribution facility within the project area. The project area is located at 901 Loveridge Road in Pittsburg and is situated in Township 2 North, Range 1 East on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Principal Investigator

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Elmira, CA 95625

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August 1st, 2023

Muwekma Ohlone Indian Tribe of the San Francisco Bay Area
Charlene Nijmeh, Chair
20885 Redwood Rd.
Suite 232
Castro Valley, CA 94546

Re: Aztec NorCal Vertical Integration Project, City of Pittsburg, Contra Costa County, California

Dear Ms. Nijmeh:

RCH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 1.57-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to construct a sodium hypochlorite (bleach) manufacturing and distribution facility within the project area. The project area is located at 901 Loveridge Road in Pittsburg and is situated in Township 2 North, Range 1 East on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Brian Ludwig, Ph.D.
Principal Investigator

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August 1st, 2023

Confederated Villages of Lisjan Nation
Cheyenne Gould, Language Program manager
10926 Edes Ave.
Oakland, CA 94603

Re: Aztec NorCal Vertical Integration Project, City of Pittsburg, Contra Costa County, California

Dear Ms. Gould:

RCH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 1.57-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to construct a sodium hypochlorite (bleach) manufacturing and distribution facility within the project area. The project area is located at 901 Loveridge Road in Pittsburg and is situated in Township 2 North, Range 1 East on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Principal Investigator

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Elmira, CA 95625

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August 1st, 2023

Confederated Villages of Lisjan Nation
Corrina Gould, Chair
10926 Edes Ave.
Oakland, CA 94603

Re: Aztec NorCal Vertical Integration Project, City of Pittsburg, Contra Costa County, California

Dear Ms. Gould:

RCH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 1.57-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to construct a sodium hypochlorite (bleach) manufacturing and distribution facility within the project area. The project area is located at 901 Loveridge Road in Pittsburg and is situated in Township 2 North, Range 1 East on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Regards,

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

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www.solanoarchaeology.com

August 1st, 2023

Nashville Enterprise Miwok-Maidu-Nishinam Tribe
Cosme Valdez, Chair
P.O. Box 580986
Elk Grove, CA 95758

Re: Aztec NorCal Vertical Integration Project, City of Pittsburg, Contra Costa County, California

Dear Mr. Valdez:

RCH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 1.57-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to construct a sodium hypochlorite (bleach) manufacturing and distribution facility within the project area. The project area is located at 901 Loveridge Road in Pittsburg and is situated in Township 2 North, Range 1 East on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Brian Ludwig, Ph.D.
Principal Investigator

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Elmira, CA 95625

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www.solanoarchaeology.com

August 1st, 2023

Wilton Rancheria
Dahlton Brown, Director of Administration
9728 Kent St.
Elk Grove, CA 95624

Re: Aztec NorCal Vertical Integration Project, City of Pittsburg, Contra Costa County, California

Dear Mr. Brown:

RCH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 1.57-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to construct a sodium hypochlorite (bleach) manufacturing and distribution facility within the project area. The project area is located at 901 Loveridge Road in Pittsburg and is situated in Township 2 North, Range 1 East on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Brian Ludwig, Ph.D.
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August 1st, 2023

Confederated Villages of Lisjan Nation
Deja Gould, Language Program manager
10926 Edes Ave.
Oakland, CA 94603

Re: Aztec NorCal Vertical Integration Project, City of Pittsburg, Contra Costa County, California

Dear Ms. Gould:

RCH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 1.57-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to construct a sodium hypochlorite (bleach) manufacturing and distribution facility within the project area. The project area is located at 901 Loveridge Road in Pittsburg and is situated in Township 2 North, Range 1 East on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

The cultural investigation will include an intensive field survey and we would like to know if you have any knowledge of cultural resources in the vicinity. For your information, the Native American Heritage Commission conducted a search of the Sacred Lands File and did not identify any previously documented culturally sensitive sites or properties within or near the APE. However, if you have any concerns with the project or know of any potentially significant properties in the area, I would appreciate hearing from you.

If you have any questions, feel free to contact me by email at brian@solanoarchaeology, or via phone at 530-417-7007.

Regards,

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

707-718-1416 ▴ Fax 707-451-4775
www.solanoarchaeology.com

August 1st, 2023

The Ohlone Indian Tribe
Desiree Vigil, Tribal Historic Preservation Officer
1775 Marco Polo Way, Apt. 21
Burlingame, CA, 94010

Re: Aztec NorCal Vertical Integration Project, City of Pittsburg, Contra Costa County, California

Dear Ms. Vigil:

RCH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 1.57-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to construct a sodium hypochlorite (bleach) manufacturing and distribution facility within the project area. The project area is located at 901 Loveridge Road in Pittsburg and is situated in Township 2 North, Range 1 East on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Regards,

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

SAS

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www.solanoarchaeology.com

August 1st, 2023

Amah Mutsun Tribal Band of Mission San Juan Bautista
Irene Zwierlein
3030 Soda Bay Road.
Lakeport, CA 95453

Re: Aztec NorCal Vertical Integration Project, City of Pittsburg, Contra Costa County, California

Dear Ms. Zwierlein:

RCH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 1.57-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to construct a sodium hypochlorite (bleach) manufacturing and distribution facility within the project area. The project area is located at 901 Loveridge Road in Pittsburg and is situated in Township 2 North, Range 1 East on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Regards,

Brian Ludwig, Ph.D.
Principal Investigator

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www.solanoarchaeology.com

August 1st, 2023

Wilton Rancheria
Jesus Tarango, Chair
9728 Kent St.
Elk Grove, CA 95624

Re: Aztec NorCal Vertical Integration Project, City of Pittsburg, Contra Costa County, California

Dear Mr. Tarango:

RCH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 1.57-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to construct a sodium hypochlorite (bleach) manufacturing and distribution facility within the project area. The project area is located at 901 Loveridge Road in Pittsburg and is situated in Township 2 North, Range 1 East on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Regards,

Brian Ludwig, Ph.D.
Principal Investigator

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Elmira, CA 95625

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www.solanoarchaeology.com

August 1st, 2023

Indian Canyon Mutsun Band of Costanoan
Kanyon Sayers-Roods, Most Likely Descendent Contact
1615 Pearson Ct.
San Jose, CA 95122

Re: Aztec NorCal Vertical Integration Project, City of Pittsburg, Contra Costa County, California

Dear Ms. Sayers-Roods:

RCH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 1.57-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to construct a sodium hypochlorite (bleach) manufacturing and distribution facility within the project area. The project area is located at 901 Loveridge Road in Pittsburg and is situated in Township 2 North, Range 1 East on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Regards,

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

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www.solanoarchaeology.com

August 1st, 2023

Katherine Perez
North Valley Yokuts Tribe
P.O. Box 717
Linden, CA 95236

Re: Aztec NorCal Vertical Integration Project, City of Pittsburg, Contra Costa County, California

Dear Ms. Perez:

RCH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 1.57-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to construct a sodium hypochlorite (bleach) manufacturing and distribution facility within the project area. The project area is located at 901 Loveridge Road in Pittsburg and is situated in Township 2 North, Range 1 East on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Regards,

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

707-718-1416 ▲ Fax 707-451-4775
www.solanoarchaeology.com

August 1st, 2023

Nashville Enterprise Miwok-Maidu-Nishinam Tribe
Leland Valdez, Cultural Resources
P.O. Box 580986
Elk Grove, CA 95758

Re: Aztec NorCal Vertical Integration Project, City of Pittsburg, Contra Costa County, California

Dear Mr. Valdez:

RCH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 1.57-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to construct a sodium hypochlorite (bleach) manufacturing and distribution facility within the project area. The project area is located at 901 Loveridge Road in Pittsburg and is situated in Township 2 North, Range 1 East on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Regards,

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

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www.solanoarchaeology.com

August 1st, 2023

Chicken Ranch Rancheria of Me-Wuk Indians
Lloyd Mathiesen
P.O. Box 1159
Jamestown, CA 95327

Re: Aztec NorCal Vertical Integration Project, City of Pittsburg, Contra Costa County, California

Dear Mr. Mathiesen:

RCH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 1.57-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to construct a sodium hypochlorite (bleach) manufacturing and distribution facility within the project area. The project area is located at 901 Loveridge Road in Pittsburg and is situated in Township 2 North, Range 1 East on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Regards,

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

707-718-1416 ▴ Fax 707-451-4775
www.solanoarchaeology.com

August 1st, 2023

Guidiville Rancheria of California
Michael Derry, Historian
P.O. Box 339
Talmage, CA 95481

Re: Aztec NorCal Vertical Integration Project, City of Pittsburg, Contra Costa County, California

Dear Mr. Derry:

RCH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 1.57-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to construct a sodium hypochlorite (bleach) manufacturing and distribution facility within the project area. The project area is located at 901 Loveridge Road in Pittsburg and is situated in Township 2 North, Range 1 East on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Regards,

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

707-718-1416 ▴ Fax 707-451-4775
www.solanoarchaeology.com

August 1st, 2023

Muwekma Ohlone Indian Tribe of the San Francisco Bay Area
Monica Arellano, Vice Chair
20885 Redwood Rd.
Suite 232
Castro Valley, CA 94546

Re: Aztec NorCal Vertical Integration Project, City of Pittsburg, Contra Costa County, California

Dear Ms. Arellano:

RCH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 1.57-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to construct a sodium hypochlorite (bleach) manufacturing and distribution facility within the project area. The project area is located at 901 Loveridge Road in Pittsburg and is situated in Township 2 North, Range 1 East on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Regards,

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

707-718-1416 ▴ Fax 707-451-4775
www.solanoarchaeology.com

August 1st, 2023

Wilton Rancheria
Steven Hutchason, Tribal Historic Preservation Officer
9728 Kent St.
Elk Grove, CA 95624

Re: Aztec NorCal Vertical Integration Project, City of Pittsburg, Contra Costa County, California

Dear Mr. Hutchason:

RCH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 1.57-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to construct a sodium hypochlorite (bleach) manufacturing and distribution facility within the project area. The project area is located at 901 Loveridge Road in Pittsburg and is situated in Township 2 North, Range 1 East on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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Regards,

Brian Ludwig, Ph.D.
Principal Investigator

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Elmira, CA 95625

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www.solanoarchaeology.com

August 1st, 2023

Timothy Perez
North Valley Yokuts Tribe
P.O. Box 717
Linden, CA 95236

Re: Aztec NorCal Vertical Integration Project, City of Pittsburg, Contra Costa County, California

Dear Mr. Perez:

RCH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 1.57-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to construct a sodium hypochlorite (bleach) manufacturing and distribution facility within the project area. The project area is located at 901 Loveridge Road in Pittsburg and is situated in Township 2 North, Range 1 East on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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If you have any questions, feel free to contact me by email at brian@solanoarchaeology, or via phone at 530-417-7007.

Regards,

Brian Ludwig, Ph.D.
Principal Investigator

P.O. Box 367
Elmira, CA 95625

707-718-1416 ▲ Fax 707-451-4775
www.solanoarchaeology.com

August 1st, 2023

The Ohlone Indian Tribe
Vincent Medina
17365 Via Del Rey
San Lorenzo, CA 94580

Re: Aztec NorCal Vertical Integration Project, City of Pittsburg, Contra Costa County, California

Dear Mr. Medina:

RCH Group has retained Solano Archaeological Services (SAS) to conduct a California Environmental Quality Act (CEQA)-compliant cultural resources inventory of an approximately 1.57-acre project area in Pittsburg, Contra Costa County, California. RCH Group proposes to construct a sodium hypochlorite (bleach) manufacturing and distribution facility within the project area. The project area is located at 901 Loveridge Road in Pittsburg and is situated in Township 2 North, Range 1 East on the attached *Antioch North, California* USGS 7.5' topographic quadrangle map.

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If you have any questions, feel free to contact me by email at brian@solanoarchaeology, or via phone at 530-417-7007.

Regards,

Brian Ludwig, Ph.D.
Principal Investigator

ATTACHMENT C

Records Search Documentation

Northwest Information Center
Sonoma State University
1400 Valley House Drive, Suite 210
Rohnert Park, California 94928-3609
Tel: 707.588.8455
nwic@sonoma.edu
https://nwic.sonoma.edu

7/24/2023 NWIC File No.: 23-0056

Brian Ludwig
Solano Archaeological Services
P.O. Box 367
Elmira, CA 95628

Re: Pittsburg Aztec Project

The Northwest Information Center received your record search request for the project area referenced above, located on the Antioch North USGS 7.5' quad(s). The following reflects the results of the records search for the project area and a 0.5 mi. radius:

Resources within project area:	None listed
Resources within 0.05 mi. radius:	P-07-000806, P-07-000813, P-07-004705, P-07-004995
Reports within project area:	None listed
Reports within 0.5 mi. radius:	S-7647, 18352, 18440, 22929, 24322, 30387, 30579, 31405, 35196, 35861, 39696, 46909, 50521

Resource Database Printout (list):	☐ enclosed	☒ not requested	☐ nothing listed
Resource Database Printout (details):	☒ enclosed	☐ not requested	☐ nothing listed
Resource Digital Database Records:	☐ enclosed	☒ not requested	☐ nothing listed
Report Database Printout (list):	☒ enclosed	☐ not requested	☐ nothing listed
Report Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Report Digital Database Records:	☐ enclosed	☒ not requested	☐ nothing listed
Resource Record Copies: [within]	☐ enclosed	☐ not requested	☐ nothing listed
Report Copies:	☐ enclosed	☒ not requested	☐ nothing listed
OHP Built Environment Resources Directory:	☒ enclosed	☐ not requested	☐ nothing listed
Archaeological Determinations of Eligibility:	☒ enclosed	☐ not requested	☐ nothing listed
CA Inventory of Historic Resources (1976):	☒ enclosed	☐ not requested	☐ nothing listed
GLO and/or Rancho Plat Maps:	☐ enclosed	☒ not requested	☐ nothing listed
Historical Maps:	☐ enclosed	☒ not requested	☐ nothing listed

Local Inventories:	☐ enclosed	☒ not requested	☐ nothing listed
Caltrans Bridge Survey:	☐ enclosed	☒ not requested	☐ nothing listed
Ethnographic Information:	☐ enclosed	☒ not requested	☐ nothing listed
Historical Literature:	☐ enclosed	☒ not requested	☐ nothing listed
Shipwreck Inventory:	☐ enclosed	☒ not requested	☐ nothing listed

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,

Annette Neal

Researcher

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
S-007647		1985		Cultural Resource Investigation of the Proposed Pittsburg Marina Expansion Project.	Woodward-Clyde Consultants	
S-018352		1976		East/Central Contra Costa County Wastewater Management Plan, California: Cultural Resources Survey	Arthur D. Little, Inc.	07-000080, 07-000813
S-018352a		1976	Adam Cvijanovic and Larry Aull	Assessment of Historical and Architectural Resources	American Institute of Architects	
S-018352b		1976	Colin I. Busby	Assessment of Archaeological Resources: East/Central Contra Costa County Wastewater Management Plan	University of California, Berkeley, Department of Anthropology	
S-018440		1996	G. James West and Patrick Welch	Class II Archaeological Survey of the Contra Costa Canal, Contra Costa County, California	U.S. Bureau of Reclamation, Mid-Pacific Region	07-002695
S-022929	Voided - S-22930	2000	Sara M. Atchley	Positive Archaeological Survey and Historic Resources Evaluation Report for the State Route 4/Loveridge Road Flood Relief Project - Kirker Creek, City of Pittsburg, Contra Costa County	Jones & Stokes	07-000806, 07-000813, 07-000814, 07-000815, 07-000816, 07-000817, 07-000818, 07-000819, 07-000820, 07-000821, 07-000822, 07-000823, 07-000824, 07-000825, 07-000826, 07-000827, 07-000828, 07-000829, 07-000830, 07-000831, 07-000832, 07-000833, 07-000834, 07-000835, 07-000836
S-022929a		2000	Aimee Dour-Smith	State Route 4 Flood Relief Project on Kirker Creek- Supplement to Archaeological Survey Report	Jones & Stokes	
S-022929b		2000	Janice C. Calpo	Historic Architectural Survey Report for the State Route 4/Loveridge Road Flood Relief Project- Kirker Creek, City of Pittsburg, Contra Costa County	Jones & Stokes	
S-024322	Voided - S-20465; Voided - S-24323	1998	Sally Morgan and Bruce Bachand	Pittsburg District Energy Facility, Cultural Resources Technical Report (Appendix K)	Woodward-Clyde Consultants	07-000761
S-024322a		1998	Sally Morgan and Bruce Bachand	Pittsburg District Energy Facility, Cultural Resources Technical Report (Supplement to Appendix K)	Woodward-Clyde Consultants	
S-024322b		2000		Pittsburg District Energy Facility Cultural Resources, Technical Report Addendum 1, Appendix K (Additional Construction Laydown Area)	URS	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
S-030387		2005	Bai "Tom" Tang, Michael Hogan, Josh Smallwood, and Terri Jacquemain	Historical Resources Compliance Report, Burlington Northern Santa Fe Railway Double Track Project (Segment 2), Oakley (MP 1146.1) to Port Chicago (MP 1164.4), In and Near the Cities of Oakley, Antioch, and Pittsburg, and the Port Chicago Naval Weapons Station, Contra Costa County, California	CRM TECH	07-000806, 07-000813
S-030387a		2005	Bai "Tom" Tang, Michael Hogan, Josh Smallwood, and Terri Jacquemain	Archaeological Survey Report/Historical Resource Evaluation	CRM TECH	
S-030579	Other - CEC Project 98-AFC-3C	2004	Colin I. Busby	Cultural Resources Report, Delta Energy Center Site (DEC) and Associated Linears, Cities of Pittsburg and Antioch, Contra Costa County, California, California Energy Commission (CEC), Project 98-AFC-3C	Basin Research Associates, Inc.	07-002563
S-031405		2006	James M. Allan	Archaeological Survey and Cultural Resources Assessment for the City of Antioch's proposed Antioch Recycled Water Pipeline project (letter report)	William Self Associates, Inc.	
S-035196	OHP PRN - BUR070508H	2006	Allen Estes, Aimee Arrigoni, David Buckley, James Allan, and William Self	Cultural Resource Assessment Delta Diablo Sanitation District and the City of Antioch Recycled Water Pipeline Extension Project, Antioch, Conta Costa County, California	William Self Associates, Inc.	
S-035196a		2007	Milford Wayne Donaldson and Susan M. Fry	BUR070508H; Proposed Extension of a Recycled Water Pipeline with the City of Antioch, Contra Costa County, California (07-SCAO-086)	Office of Historic Preservation, Bureau of Reclamation	
S-035861		2009	Bai "Tom" Tang	Historic Property Survey Report, proposed undertaking to upgrade the capacity of the Burlington Northern Santa Fe (BNSF) Railway's mainline from Mile Post (MP) 1146.1 to MP 1164.4, between the City of Oakley and the Port Chicago Naval Weapons Station in Contra Costa County	CRM TECH	07-000806
S-035861a		2009	Bai "Tom" Tang, Michael Hogan, Josh Smallwood, and Terri Jacquemain	Archaeological Survey Report/Historical Resource Evaluation Report, Burlington Northern Santa Fe Railway Double Track Project (Segment 2), In and near the Cities of Oakley, Antioch, and Pittsburg and the Port Chicago Naval Weapons Station, Contra Costa County, California	CRM TECH	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
S-039696		2012	Carrie D. Wills and Kathleen A. Crawford	Cultural Resources Records Search and Site Visit Results for Sprint Nextel Candidate FNO3XC120-C (Loveridge Road), 1501 Loveridge Road, Pittsburg, Contra Costa County, California (letter report)	Michael Brandman Associates	
S-046909		2015	Aisha Rahimi-Fike	Delta Diablo Recycled Water System Expansion Project, Historical Resources Inventory and Evaluation Report, Contra Costa County, California	ICF International	07-000806, 07-000889, 07-004702, 07-004703, 07-004704, 07-004705, 07-004706
S-046909a		2015		Delta Diablo Recycled Water System Expansion Project, Archaeological Inventory Report, Contra Costa County, California	ICF International	
S-050521	Submitter - ESA Project No. D150433	2017	Heidi Koenig	Antioch Brackish Water Desalination Project, Cities of Antioch And Pittsburg, Contra Costa County, Cultural Resources Survey Report	Environmental Science Associates	07-004833
S-050521a		2019	Heidi Koenig	Cultural Resources Survey Report, Antioch Brackish Water Desalination Project, Cities of Antioch and Pittsburg, Contra Costa County, Revised 2019	Environmental Science Associates	

Resource Detail: P-07-000806

Identifying information

Primary No.: P-07-000806

Trinomial: CA-CCO-000732H

Name: Atchison, Topeka & Santa Fe Railroad

Other IDs:

Type	*Name*
Resource Name	Atchison, Topeka & Santa Fe Railroad
Other	ATSF-4
Other	ATSF-5
Other	ATSF-6
Other	ATSF-7
Other	C-Antioch North-1
Other	BEIR-2
Other	ATSF Railroad
OHP Property Numb	119709
OHP PRN	DOE-07-99-0002
OHP PRN	ADOE-07-97-004-00
OHP PRN	EPA981214A

Cross-refs: Subsumes 07-000494
Subsumes 07-000495
Subsumes 07-000496
Subsumes 07-000497
Subsumes 07-000776
See also 07-000514
Physically overlaps or intersects 07-002397
Physically overlaps or intersects 07-002402
Physically overlaps or intersects 07-002403
Physically overlaps or intersects 07-002951
Physically overlaps or intersects 07-002956
Physically overlaps or intersects 07-004688

Attributes

Resource type: Structure

Age: Historic

Information base: Survey, Analysis, Other

Attribute codes: AH07 (Roads/trails/railroad grades); HP39 (Other) - railroad

Disclosure: Not for publication

Collections: No

Accession no(s):

Facility:

General notes

Recording events

	Date	*Recorder(s)*	*Affiliation*	*Notes*
f	10/22/1999	S. Atchley, G. Roark	Jones & Stokes Associates, Inc.	original record for P-07-000806
g	12/15/2004	Josh Smallwood	CRM Tech	supplement for P-07-000806
a	1/1/1995	Brian Hatoff	Woodward Clyde	original record for P-07-000494, voided
b	1/1/1995	Brian Hatoff	Woodward Clyde	original record for P-07-000495, voided
c	1/1/1995	Brian Hatoff	Woodward Clyde	original record for P-07-000496, voided
d	1/1/1995	Brian Hatoff	Woodward Clyde	original record for P-07-000497, voided
e	3/8/1998	S. Ashkar	Jones & Stokes Associates, Inc.	original record for P-07-000776: voided
h	9/1/2009	J. Lang	GANDA	supplement 'b' P-07-000776,

				voided
i	8/1/1996	Ward Hill	[none]	original recording P-07-000514 (pulled from record) NOT voided
j	5/1/1998	Meta Bunse	JRP Historical Consulting	update; also updates other resources
k	6/9/2016	Polly S. Allen	JPR Historical Consulting	update; also updates other resources

Associated reports

Report No.	*Year*	*Title*	*Affiliation*
S-017993	1995	Cultural Resources Inventory Report for the Proposed Mojave Northward Expansion Project	Woodward-Clyde Consultants
S-020808	1998	Cultural Resources Inventory and Evaluation Report for the City of Brentwood Wastewater Facilities Expansion Project, Contra Costa County, California	Jones & Stokes Associates, Inc.
S-022929	2000	Positive Archaeological Survey and Historic Resources Evaluation Report for the State Route 4/Loveridge Road Flood Relief Project - Kirker Creek, City of Pittsburg, Contra Costa County	Jones & Stokes
S-030387	2005	Historical Resources Compliance Report, Burlington Northern Santa Fe Railway Double Track Project (Segment 2), Oakley (MP 1146.1) to Port Chicago (MP 1164.4), In and Near the Cities of Oakley, Antioch, and Pittsburg, and the Port Chicago Naval Weapons Station, Contra Costa County, California	CRM TECH
S-035861	2009	Historic Property Survey Report, proposed undertaking to upgrade the capacity of the Burlington Northern Santa Fe (BNSF) Railway's mainline from Mile Post (MP) 1146.1 to MP 1164.4, between the City of Oakley and the Port Chicago Naval Weapons Station in Contra Costa County	CRM TECH
S-043685	2010	Cultural Resources Inventory for the San Joaquin Valley Right-of-Way Maintenance Environmental Assessment Project	Garcia and Associates
S-043849	2011	U.S. Army Integrated Cultural Resources Management Plan, 834th Transportation Battalion Military Ocean Terminal, Concord, California	TEC Inc./Louis Berger Group, Inc.
S-046155	2009	Historic Building Inventory and Evaluation Update Report, Concord Naval Weapons Station, Contra Costa County, California	JRP Historical Consulting Services
S-046889	2011	Pacific Gas and Electric Lines 114 and 191 Replacement Project, Archaeological Survey Report, Contra Costa County, California	Condor Country Consulting, Inc.
S-046909	2015	Delta Diablo Recycled Water System Expansion Project, Historical Resources Inventory and Evaluation Report, Contra Costa County, California	ICF International
S-051501	2016	Cultural Resources Constraints Report, Pittsburg-Eastshore-San Mateo-Tassajara-San Ramon-Moraga 230 kV Transmission Line ROW Vegetation Management, PM Number: 8099163	Blue Rock Services, Inc
S-051534	1986	Cultural and Paleontological Overview for the San Joaquin Valley Pipeline Project	Woodward-Clyde Consultants
S-054224	2019	Cultural Resources Inventory Report, Oakley Logistics Center Project, City Of Oakley, Contra Costa County, California	Solano Archaeological Services

Resource Detail: P-07-000806

S-056282	2020	Cultural Resources Assessment Report Addendum Los Vaqueros Reservoir Expansion Project, Phase 2, Alameda and Contra Costa Counties, California	Environmental Science Associates

Location information

County: Contra Costa

USGS quad(s): Antioch North, Antioch South, Benicia, Brentwood, Honker Bay, Jersey Island, Mare Island, Vine Hill

Address:

PLSS:

UTMs: Zone 10 614620mE 4205460mN NAD27 (former location P-07-776)
Zone 10 581370mE 4207150mN NAD27 (former location P-07-497)
Zone 10 590090mE 4210790mN NAD27 (former location P-07-496)
Zone 10 595090mE 4209240mN NAD27 (former location P-07-495)
Zone 10 605510mE 4207940mN NAD27 (former location P-07-494)
Zone 10 613920mE 4206023mN NAD83 (update segment of ATSF Railroad,
Zone 10 620592mE 4200390mN NAD83 (update segment of ATSF Railroad,

Management status

Database record metadata

	Date	*User*	
Entered:	4/1/2005	icrds	
Last modified:	3/10/2017	rinerg	
IC actions:	*Date*	*User*	*Action taken*
	7/19/2016	neala	added recording event 'a' from P-07-514
	9/19/2016	simsa	Added recording events 'j' and 'k' from S-46155
	10/21/2016	castrom	Removed from Verified because at least Recording Event I (Ward Hill 1996) segment is not mapped in GIS. Mapping needs to be double-checked.
	3/10/2017	rinerg	add 'EPA981214A' ohp prn identifier
	10/24/2016	simsa	Updated GIS: added features for recording events 'f', 'g', 'h', and 'i'
	8/17/2000	AOLPJ	Primary number 07-000806 assigned.
	4/1/2005	jay	Appended records from discontinued ICRDS.
	4/22/2009	jordanl	subsumed P-776, P-497, P-496, P-495, P-494
	8/24/2000	AOLPJ	Added Trinomial CCO-000732
Record status:	Verified		

Resource Detail: P-07-000813

Identifying information

Primary No.: P-07-000813

Trinomial: CA-CCO-000733H

Name: Southern Pacific Railroad

Other IDs:

Type	*Name*
Other	C-Antioch South-1, C-Antioch North-1, C-Antioch North-2
Resource Name	Southern Pacific Railroad
Other	Union Pacific Railroad
Other	Central Pacific Railroad
Voided	P-07-002568
Other	San Pablo & Tulare Railroad
Other	SPN-3
Other	Central, Southern, Union Pacific RR
Other	SPN-1
Other	Old Southern Pacific Railroad Route Segment
Other	San Pablo & Tulare Railroad
Other	GANDA-509-01H
Other	Abandoned Railroad Spurs & Warehouse Complex
Voided	P-07-000503
Other	San Pablo- Tulare Railroad Brentwood Segment
Other	Map Ref #A-09

Cross-refs:
Subsumes 07-000503
Subsumes 07-000505
Subsumes 07-002553
Subsumes 07-002568
Subsumes 07-002769
See also 07-000196
See also 07-000487
See also 07-000499
See also 07-000500
Physically overlaps or intersects 07-000487
Physically overlaps or intersects 07-002499
Physically overlaps or intersects 07-004698
Extends into another county as 01-001783
Extends into another county as 35-000334
Extends into another county as 41-001877
Extends into another county as 43-000928
Extends into another county as 44-000377
Extends into another county as 48-000549
Extends into another county as 49-001510

Attributes

Resource type: Building, Structure

Age: Historic

Information base: Survey, Analysis, Other

Attribute codes: AH07 (Roads/trails/railroad grades); HP08 (Industrial building); HP11 (Engineering structure) - railroad grade; HP19 (Bridge) - bridges/trestles

Disclosure: Unrestricted

Collections: No

Accession no(s):

Facility:

General notes

This resource's recorded segments extend outside the NWIC service area (into San Joaquin County)

Recording events

Date	*Recorder(s)*	*Affiliation*	*Notes*
10/22/1999	S. Atchley, C. Roark	Jones & Stokes Associates	supplement for P-07-000813

b	4/15/1999	Barry Scott	Jones & Stokes Associates	original record for P-07-002568
f	11/1/2006	Suzanne Baker	Archaeological/Historical Consultants	supplement for P-07-000813
a	10/22/1999	S. Atchley, G. Roark	Jones & Stokes Associates	original record for P-07-000806
	12/15/2004	Josh Smallwood	CRM Tech	supplement for P-07-000806
	1/1/1995	Brian Hatoff	Woodward Clyde	original record for P-07-000813
	1/1/1995	Hatoff, Voss, Waechter, Wee, Bente	Woodward Clyde	
c	2/4/2002	Bryan Larson, Meta Bunse	JRP Historical Consulting Services	
g	12/9/2009	Richard H. Norwood, Allen Beck, Doug Tilto	HDR | DTA	
j	5/5/2009	T. Martin, K. Frank	Garcia and Associates	GANDA-509-01H
k	9/26/2011	Scott Billat	EarthTouch, Inc.	
l	9/18/2008	Ian Alexander, Juan Cervantes	Holman & Associates	
d	10/4/2011	Tracy Bakic, Cindy Baker	PAR Environmental Services	
m	11/5/2014	Ric Windmiller	[none}	says 1 of 2 but ony pg 1 submitted
n	5/5/1994	Hatoff, Voss, Waetcher, Wee, Bente	Woodward-Clyde Consultants	Railroad Spur

Associated reports

Report No.	*Year*	*Title*	*Affiliation*
S-010268	1988	Cultural Resources Evaluations for the Pittsburgh-Antioch Alternatives Analysis, Contra Costa County, California	David Chavez & Associates
S-017993	1995	Cultural Resources Inventory Report for the Proposed Mojave Northward Expansion Project	Woodward-Clyde Consultants
S-018352	1976	East/Central Contra Costa County Wastewater Management Plan, California: Cultural Resources Survey	Arthur D. Little, Inc.
S-022464	1999	Cultural Resource Inventory Report for the Williams Communications, Inc. Fiber Optic Cable System Installation Project, Pittsburg to Sacramento, California	Jones & Stokes Associates, Inc.
S-022812	1997	Contra Costa County Water Multipurpose Pipeline Project, Environmental Documentation Study, Cultural Resources Review (letter report)	Basin Research Associates
S-022929	2000	Positive Archaeological Survey and Historic Resources Evaluation Report for the State Route 4/Loveridge Road Flood Relief Project - Kirker Creek, City of Pittsburg, Contra Costa County	Jones & Stokes
S-030387	2005	Historical Resources Compliance Report, Burlington Northern Santa Fe Railway Double Track Project (Segment 2), Oakley (MP 1146.1) to Port Chicago (MP 1164.4), In and Near the Cities of Oakley, Antioch, and Pittsburg, and the Port Chicago Naval Weapons Station, Contra Costa County, California	CRM TECH
S-031375	2004	State Route 4 (East) Widening Project: Loveridge Road to State Route 160, 04-CC-4-KP 37.8/R47.6 (PM 23.5/R29.6), EA 04275-228500, Contra Costa County	Parsons; JRP Historical Consulting Services; Far Western Anthropological Research Group, Inc.
S-031961	2006	Archaeological Survey and Cultural Resources Assessment for the Balfour Center Project, Brentwood, Contra Costa County, California (letter report)	William Self Associates, Inc.

Resource Detail: P-07-000813

S-033643	2006	Historic Property Survey Report, Byron Highway Shoulder Improvement Project, Contra Costa County, California, EA 946100, STP-5928 (071)	William Self Associates
S-034865		VOIDED S# - additional citation of S-035244	
S-034866		VOIDED S# - additonal citation of S-035244	
S-035244	2008	eBart Project EIR, Archaeological Survey Report: eBart Project, Contra Costa County, California	Archaeological/Historical Consultants
S-037839	2010	Archaeological Survey and Cultural Resources Assessment of the SR-4 Bypass SR-4/160 Connectors, Contra Costa County, California (letter report)	William Self Associates
S-037849	2011	Cultural Resource Investigations for Sprint/Nextel SF74XC985-A, 1931 Minnesota Avenue, Brentwood, Contra Costa County, California	Archaeological Resources Technology
S-040338	2012	Historic Property Survey Report, Hercules Intermodal Transit Center (ITC), San Francisco Bay Trail portion, TGR2DGL-5117(011)	Far Western Anthropological Research Group, Inc
S-040530	2013	New Tower Submission Packet, Parr Blvd & Giant Road, CNU4225	Earth Touch, Inc.
S-043313	2002	Historic Resources Survey for East Altamont Energy Center	California Energy Commission, PAR Environmental Services, Inc.
S-043685	2010	Cultural Resources Inventory for the San Joaquin Valley Right-of-Way Maintenance Environmental Assessment Project	Garcia and Associates
S-046773	2015	Brentwood Recycled Water Pipeline Project, Cultural Resources Assessment, Contra Costa County, California	
S-046889	2011	Pacific Gas and Electric Lines 114 and 191 Replacement Project, Archaeological Survey Report, Contra Costa County, California	Condor Country Consulting, Inc.
S-047775	2016	Historic Property Survey Report for the CCTA Interstate 680 Express Lanes Project, Contra Costa County, California; 04-CCO-680 PM R8.0-25.0, EA 04H610 (EFIS ID# 0413000216)	Far Western Anthropological Research Group, Inc.
S-051366	2013	Cultural Resources Constraints Report: Kirker 2106 Blitz-Pittsburg Utility Pole Replacement Project	Cardno ENTRIX
S-051501	2016	Cultural Resources Constraints Report, Pittsburg-Eastshore-San Mateo-Tassajara-San Ramon-Moraga 230 kV Transmission Line ROW Vegetation Management, PM Number: 8099163	Blue Rock Services, Inc

Location information

County: Contra Costa

USGS quad(s): Antioch North, Antioch South, Brentwood, Byron Hot Springs, Clifton Court Forebay, Honker Bay, Jersey Island, Mare Island, Richmond, Vine Hill

Address:

PLSS: T2N R2E SW¼ of NE¼ of Sec. 28 MDBM

UTMs: Zone 10 556155mE 4202761mN NAD83 (Railroad Spurs & Warehouse Com
Zone 10 610358mE 4204680mN NAD83 (Contra Costa Canal Segment)
Zone 10 623822mE 4186953mN NAD83 (CA Aqueduct Segment)
Zone 10 599400mE 4208190mN NAD27
Zone 10 601500mE 4207340mN NAD27
Zone 10 608937mE 4205831mN NAD83 (9/18/08 record)

Management status

Resource Detail: P-07-000813

Database record metadata

	Date	User	
Entered:	4/1/2005	icrds	
Last modified:	1/11/2021	neala	
IC actions:	*Date*	*User*	*Action taken*
	7/18/2016	Thibaulte	added recording event 'M'
	4/25/2017	moored	Added recording event 'n', took recording event from P-07-000487. Updated GIS to include this segment
	3/10/2017	rinerg	digitize section of RR from Scott's 1999 recording - between West Pittsburg to eastern edge of Honker Bay 7.5'
	10/12/2015	paganob	added recording event 9/18/08
	3/10/2017	rinerg	add digitization of spurs & warehouse from Billat 2011 recording (located in Richmond/San Pablo area)
	3/10/2017	rinerg	digitize section of railroad through Hercules Powder plant - between Rodeo and Pinole Creek in Mare Island 7.5' (Norwood; Beck; Tilton recording of 2009/2010) (only digitized area in their project boundary)
	8/24/2000	AOLPJ	Primary number 07-000813 assigned.
	8/24/2000	AOLPJ	Trinomial CCO-000733 assigned.
	4/1/2005	jay	Appended records from discontinued ICRDS.
	9/18/2006	leigh	nrcs fg added Antioch North
Record status:	Verified		

Resource Detail: P-07-000827

Identifying information

Primary No.: P-07-000827
Trinomial:
Name: 1501 Loveridge Road
Other IDs:

Type	*Name*
Resource Name	1501 Loveridge Road
Other	Map Reference #23
Other	Columbia-Geneva Steel Company Plant

Cross-refs:

Attributes

Resource type: Building
Age: Historic
Information base: Survey
Attribute codes: HP08 (Industrial building)
Disclosure: Unrestricted
Collections: No
Accession no(s):
Facility:

General notes

Recording events

Date	*Recorder(s)*	*Affiliation*	*Notes*
10/6/1999	Janice Calpo	Jones & Stokes	

Associated reports

Report No.	*Year*	*Title*	*Affiliation*
S-022929	2000	Positive Archaeological Survey and Historic Resources Evaluation Report for the State Route 4/Loveridge Road Flood Relief Project - Kirker Creek, City of Pittsburg, Contra Costa County	Jones & Stokes
S-022930		VOIDED S#- see additional citation 'b' of S-22929	

Location information

County: Contra Costa
USGS quad(s): Antioch North
Address:

Address	*City*	*Assessor's parcel no.*	*Zip code*
1501 Loveridge Road	Pittsburg	073-230-033	

PLSS:
UTMs: Zone 10 600640mE 4208040mN NAD83
Zone 10 600360mE 4207880mN NAD83
Zone 10 600570mE 4207830mN NAD83
Zone 10 600440mE 4208100mN NAD83

Management status

Database record metadata

	Date	*User*
Entered:	4/1/2005	icrds
Last modified:	5/13/2019	akmenkalnsj

IC actions:

Date	*User*	*Action taken*
5/7/2019	moored	Added other id, corrected attributes and disclosure.
5/13/2019	akmenkalnsj	Verified
8/24/2000	AOLPJ	Primary number 07-000827 assigned.

	4/1/2005	jay	Appended records from discontinued ICRDS.
	9/18/2006	leigh	nrcs fg added Antioch North
Record status:	Verified		

Resource Detail: P-07-004705

Identifying information

Primary No.: P-07-004705
Trinomial:
Name: Mt. Diablo Recycling Center
Other IDs:

Type	*Name*
Resource Name	Mt. Diablo Recycling Center

Cross-refs:

Attributes

Resource type: Building
Age: Historic
Information base: Survey
Attribute codes: HP09 (Public utility building)
Disclosure: Unrestricted
Collections: No
Accession no(s):
Facility:

General notes

Recording events

	Date	*Recorder(s)*	*Affiliation*	*Notes*
a	4/3/2014	Aisha Rahimi-Fike	ICF International	

Associated reports

Report No.	*Year*	*Title*	*Affiliation*
S-046909	2015	Delta Diablo Recycled Water System Expansion Project, Historical Resources Inventory and Evaluation Report, Contra Costa County, California	ICF International

Location information

County: Contra Costa
USGS quad(s): Antioch North
Address:

Address	*City*	*Assessor's parcel no.*	*Zip code*
1300 Loveridge Road	Pittsburg	073-200-015	94565

PLSS: T3N R1E Sec. MDBM
UTMs:

Management status

Database record metadata

	Date	*User*
Entered:	8/12/2016	faycurryj
Last modified:	5/7/2019	moored

IC actions:

Date	*User*	*Action taken*
5/7/2019	moored	Added info base.

Record status: Verified

Resource Detail: P-07-004995

Identifying information

Primary No.: P-07-004995
Trinomial: CA-CCO-000869H
Name: Camp Stoneman Wastwater Treatment Facility

Other IDs:

Type	*Name*
Resource Name	Camp Stoneman Wastwater Treatment Facility
Other	REJ-061622-SITE-01

Cross-refs:

Attributes

Resource type: Site
Age: Historic
Information base: Survey, Other
Attribute codes: AH02 (Foundations/structure pads); AH04 (Privies/dumps/trash scatters); AH15 (Standing structures) - two digester tanks
Disclosure: Not for publication
Collections: No
Accession no(s):
Facility:

General notes

Recording events

Date	*Recorder(s)*	*Affiliation*	*Notes*
6/16/2022	Ronnie Johnson	TRC Companies	cited report not on file

Associated reports

Location information

County: Contra Costa
USGS quad(s): Antioch North

Address:

Address	*City*	*Assessor's parcel no.*	*Zip code*
1301 Standard Oil Ave	Pittsburg		

PLSS:
UTMs: Zone 10 600784mE 4208300mN NAD83 (6/2022)

Management status

Database record metadata

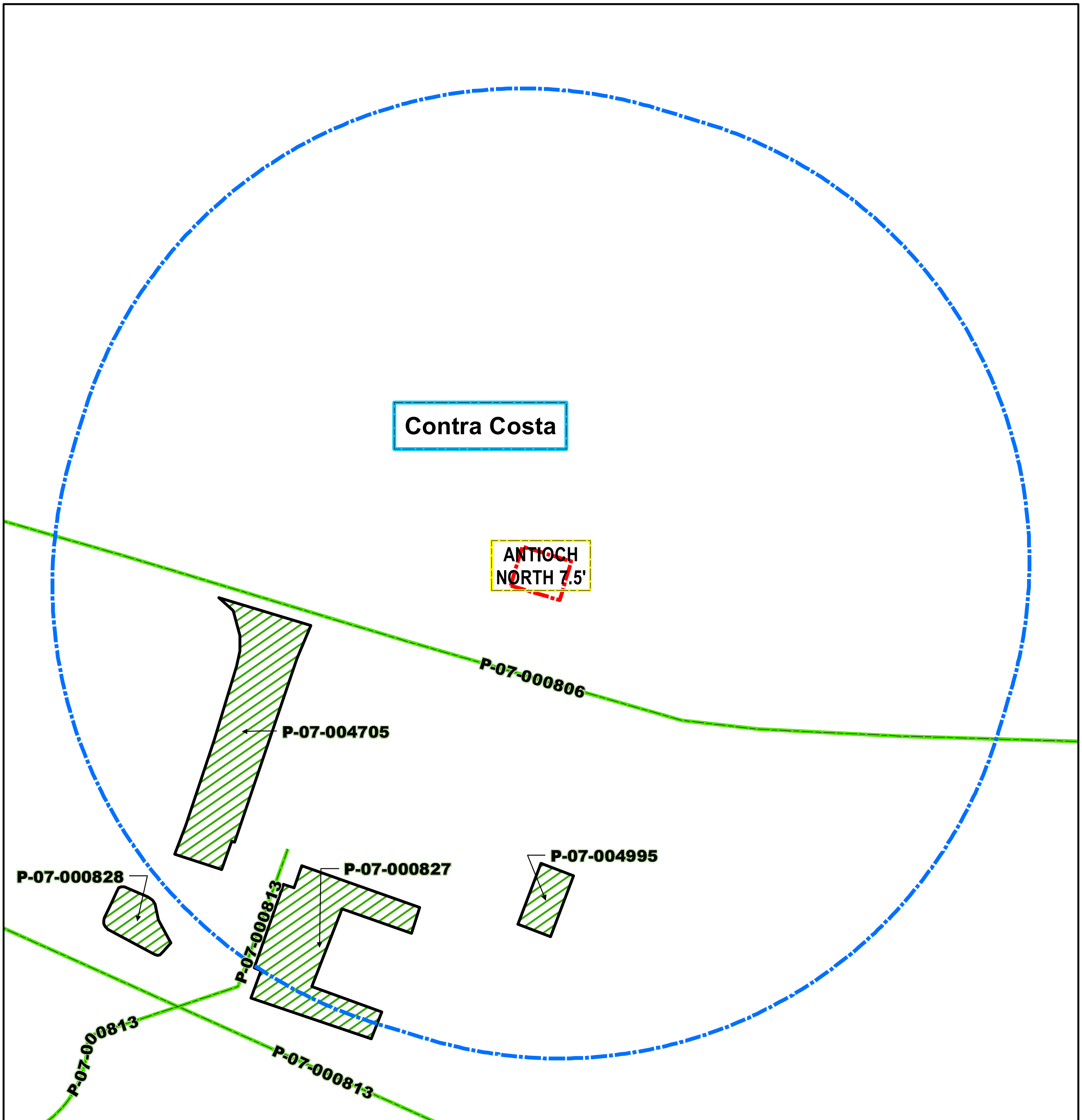
	Date	*User*
Entered:	10/3/2022	neala
Last modified:	5/24/2023	rinerg

IC actions:

Date	*User*	*Action taken*
10/3/2022	neala	Matt Wetherbee notified; mapped in batch '20221003_Resources_AN'

Record status: Verified

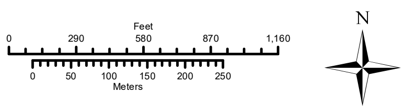
Pittsburg Aztec Project
Results Map



Northwest Information Center

File # 23-0056 24 July 2023 A.Neal

May depict confidential cultural resource locations.
Do not distribute.



23-0056_0.5 mi. Buffer
23_0056_Project_area
Resources (lines)
Resources (polygons)
Quad outlines
County outlines

APPENDIX E – GEOTECHNICAL REPORT

GEOTECHNICAL INVESTIGATION

NEW PLANT IN BLOCK 680
CORTEVA AGRISCIENCE FACILITY
PITTSBURG, CALIFORNIA
PO 4381318973

Project No. 197.67
December 8, 2021

Prepared by

Hultgren – Tillis Engineers

A California Corporation
Specializing in Geotechnical Engineering

Hultgren-Tillis Engineers

December 8, 2021
Project No. 197.67

CORTEVA Agriscience Facility
901 Loveridge Road
Pittsburg, California 94565

Attention: Mr. Jason Ruhl

Geotechnical Investigation
New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California
PO 4381318973

Dear Mr. Ruhl:

We performed a geotechnical investigation for the new plant in Block 680 at the Corteva Agriscience facility in Pittsburg, California in accordance with our proposal dated September 2, 2021. The results of our investigation are presented in the attached report.

It was a pleasure working with you on this phase of the project and we look forward to working with you during subsequent phases including construction. If you have any questions, please call.

Sincerely,

Hultgren – Tillis Engineers

REGISTERED PROFESSIONAL ENGINEER
CALLAN YU
No. GE 3117
GEOTECHNICAL
STATE OF CALIFORNIA

Callan J. Yu
Geotechnical Engineer

REGISTERED PROFESSIONAL ENGINEER
CHRISTIAN P. MULLER
NO. GE 2036
GEOTECHNICAL
STATE OF CALIFORNIA

Christian P. Muller
Geotechnical Engineer

CJY:CPM:KAS:lm:la

4 copies submitted

cc: Azman Ezaddin, Eichleay (via email)
Jason Paredes, Eichleay (via email)

File: 19767R01 rev1

TABLE OF CONTENTS

I. INTRODUCTION

This report presents the results of our geotechnical investigation for the new plant in Block 680 at the Corteva Agriscience facility in Pittsburg, California. The new plant will be located northeast of the intersection of 6th and "G" Streets. The project will also include pipelines nearby in Blocks 580, 590, and 690. A vicinity map showing the approximate location of the site is presented on Plate 1.

The project improvements will include several pipelines on existing pipe racks and new sleepers, 13,000-gallon storage tanks (a tank farm with containment area and sump), a cooling water tower bottomed not more than 4 feet deep, small pipe racks, miscellaneous tanks, filter and bleach process skids, canopies, containment areas, several process and office buildings, loading/unloading stations with containment trench and sump, and truck driveways. Most of the structures will be supported on deep foundations. Some of the proposed structures may have long fundamental periods. We anticipate that site grades will not be raised more than 1 foot. The site layouts are shown on the Site Plan, Plate 2

Our scope of services was outlined in our proposal dated September 2, 2021. Our scope of services consisted of conducting a geotechnical investigation that included reviewing existing data, conducting Cone Penetration Test (CPT) soundings, performing laboratory testing, performing a ground motion study, and developing conclusions and recommendations regarding geotechnical aspects of the project. The results of our geotechnical investigation are presented in this report.

II. DATA REVIEW, FIELD EXPLORATION AND LABORATORY TESTING

A. Data Review

We reviewed previous reports of geotechnical investigations performed near the site. Selected reports relevant to this project are listed below:

- Harding Lawson Associates 1984. Soil Investigation, Incinerator, Dow Chemical Company, Pittsburg, California, dated August 10, 1984.
- Harding Lawson Associates 1984. Soil Investigation, Lontrel Manufacturing Plant, Pittsburg, California, dated July 20, 1984.
- Harding Lawson Associates 1986. Summary of Pile Installation, Plant 662 – Block 660, Sym-Tet Expansion, Pittsburg, California, dated May 16, 1986.
- Harding Lawson Associates 1987. Geotechnical Consultation, Planned Storage Tanks, Pittsburg, California, dated September 11, 1987.
- Harding Lawson Associates 1987. Observations and Conclusions During Pile Driving, Plant 662, 680 Block, Dow Chemical Plant, Pittsburg, California, dated December 22, 1987.
- Harding Lawson Associates 1992. Geotechnical Investigation, Rail Car Management Upgrade, Block 680, Dow Chemical Plant, Pittsburg, California, dated January 24, 1992.
- Hultgren – Tillis Engineers 2014. Geotechnical Investigation, A456 HEX Loading Station, Block 680, The Dow Chemical Company, Pittsburg, California, dated October 16, 2014 (HT Project No. 197.45).
- Hultgren – Tillis Engineers 2017. Geotechnical Investigation, Piperacks and Pipe Bridges Upgrades, The Dow Chemical Company, Pittsburg, California, dated October 24, 2017 (HT Project No. 197.56).

These previous reports include data from Cone Penetration Test (CPT) soundings, borings, and test pits that were explored at the approximate locations shown on Plate 2. Copies of the previous exploration logs are presented in Appendix A.

B. Field Exploration and Laboratory Testing

We explored subsurface conditions on September 27 and September 28, 2021 by performing seven CPTs (1, 2, 3, 4, 5, 5a, and 5b). CPT-1 met practical refusal at a depth of about 122 feet below ground surface. CPT-2, CPT-3, and CPT-5b were pushed to a depth of about 60 feet below ground surface. CPT-4, CPT-5, and CPT-5a met practical refusal at depths ranging from about 7 to 13 feet below ground surface. The 122-foot CPT (designated SCPT-1) included shear wave velocity measurements. The approximate locations of the CPTs are shown on Plate 2. The CPTs were completed by Gregg Drilling, LLC with a 30-ton truck-mounted CPT rig.

Before pushing the CPTs, the upper 6 feet of soil was hand augered to reduce the risk of damage to underground utilities. No CPT data was obtained in the upper 6 feet. Hand auger borings HA-4a and HA-4b met practical refusal at depths ranging from 4.7 to 6 feet below ground surface. The CPT was not pushed at the locations of HA-4a and HA-4b. Our engineer logged the borings and collected bag samples of the hand auger cuttings for visual classification and selection of materials for laboratory testing. The logs of borings are presented in Appendix B, Plates B-1 through B-9. The soil descriptions are presented in general accordance with the Soil Classification System presented on Plate B-10.

The CPT logs and relevant information are also presented in Appendix B. The CPT logs are presented on Plates B-11 through B-17. The CPT logs are presented in general accordance with the CPT Soil Behavior Type Legend, Plate B-18. After pushing each CPT, the holes were backfilled with grout.

Shear wave velocity tests for SCPT-1 were performed at intervals of approximately 5 feet. The shear wave was generated at the ground surface by striking a beam with an impact hammer. A geophone in the CPT tip recorded the data at each interval. Shear wave velocity measurements from SCPT-1 are presented on Plate B-19.

Pore pressure dissipation tests were performed at various depths to estimate piezometric levels. The results of the pore pressure dissipation tests for SCPT-1, CPT-2, CPT-3, and CPT-5 are presented on Plates B-20 through B-23.

C. Laboratory Testing

Laboratory tests were performed on selected samples from the hand auger borings. The laboratory testing program consisted of Atterberg limits, grain size distribution, and corrosion potential. The laboratory test results, including a brief evaluation of the corrosion test results are presented in Appendix C. Atterberg limits test results are presented on Plate C-1. Grain size distribution test results are presented on Plate C-2. Corrosion test results are presented on Plates C-3 and C-4.

III. SITE CONDITIONS

A. Geologic Setting

The Corteva Agriscience plant is located along the shore of New York Slough, which branches from the San Joaquin River. Before the plant was developed, smaller sloughs flowed through the plant from the higher ground south of the plant and into New York Slough. When the plant was developed, these smaller sloughs were filled in some areas with a mix of slag, a manufacturing by-product from steel plants, and hydraulically placed dredge sand.

Review of historical aerial photographs and geotechnical data indicates that the proposed new plant is located mainly within the limits of a buried slough. The buried slough is approximately 300 feet wide, as shown generally on Plate 2. The buried slough limits shown on Plate 2 are for discussion purposes only.

B. Surface Conditions

The ground surfaces of the site are relatively level, with ground surface elevations of approximately 12 to 13 feet above the Plant vertical datum. The Plant vertical datum (the level of zero elevation) is approximately 1.2 feet above the National Geodetic Vertical Datum of 1929 (NGVD29) and about 3.8 feet above the North American Vertical Datum of 1988 (NAVD88). For example, Elevation 12 feet based on the Plant vertical datum would convert to 13.2 feet NGVD29 and 15.8 feet NAVD88. Unless noted otherwise, elevations in this report are based on the Plant vertical datum.

The site is generally surfaced with gravels. The eastern portion of the site is vacant and the western portion of the site is currently used as a storage area. Portions of the western area of the site are fenced. A drainage swale running in the north-south direction exists near the center of the site. Overhead utilities are located to the west, south, and east of the site.

The existing infrastructure pipelines are elevated about 15 to 25 feet above the existing grade. The piperack alignment is parallel to G Street along the west side of the roadway and parallel to 6^{th} Street along the south side of the roadway. The ground surface underneath the piperack is generally covered by gravels. Some areas underneath the piperack are covered by asphalt concrete pavement. We did not observe evidence of large ground movements. We observed minor cracking in some of the asphalt pavement.

C. Subsurface Conditions

The site is generally underlain by variable undocumented fills, marsh deposits, and/or alluvial soils. These soil layers are described in the following paragraphs.

The fill is highly variable and includes mixtures of clays, silts, sands, and gravels with occasional debris including slag byproduct. Several hand auger borings and CPTs met refusal within the fill. The upper portion of the fill generally consists of a layer of gravel over predominately sandy clay with layers of sand. The clays are moderately expansive and vary from medium stiff to very stiff. The sands range from loose to dense. The lower portion of the fill consists of loose to medium dense sands (hydraulic fill). Near the center of the site (SCPT-1), the upper portion of the fill was about 8 feet thick and the lower hydraulic fill was about 7 feet thick. The base of the fill corresponded to about Elevation -3 feet near the center of the site.

The fill is underlain by marsh deposit soils consisting of highly plastic, soft to medium stiff silt and clay (also known as bay mud). The bay mud is typically a normally consolidated to slightly over-consolidated soil. Near the center of the site, the bay mud was about 9 feet thick. These marsh soils are weak and highly compressible. The base of the bay mud corresponded to about Elevation -12 feet near the center of the site.

The marsh deposits are underlain by stiff to hard clays and dense to very dense sand. These stiff/dense soils extend to the maximum depth explored of 122 feet.

D. Groundwater

Groundwater was encountered in the previous borings at depths generally 3 to 5 feet below the existing ground surface at the time the borings were drilled. These groundwater depths correspond to elevations of approximately 7 feet to 9 feet above the Plant vertical datum. Water levels encountered in borings can change over time and may not represent stabilized groundwater conditions.

Groundwater maps by Jacobs developed in 2019 indicate that groundwater elevations near the site were approximately 8 to 9 feet above the Plant vertical datum. These elevations correspond to depths of about 3 to 4 feet below existing grades.

The above descriptions of soil and groundwater conditions include field observations by others at the times of their field investigations. Conditions are expected to vary across the site due to seasonal precipitation, land use changes, environmental remediation activities, and other factors.

IV. DISCUSSION AND CONCLUSIONS

A. General

The Corteva Agriscience facility in Pittsburg, California has a long history of chemical manufacturing dating back more than 80 years. At an industrial facility such as this, there is always the possibility that hazardous chemicals may have leaked into the ground or were contained in groundwater. The purpose of our investigation was limited to evaluating some of the characteristics of the soils as they relate to foundation design and construction. We did not assess the possible chemical constituents within the soils or groundwater. Contractors should contact the plant's environmental personnel for advice and precautions to be taken for site excavations.

The primary geotechnical concern for the project is the presence of highly variable fills and marsh soils. The fills include debris and slag and soils susceptible to liquefaction in an earthquake. During an earthquake, the liquefiable soils could lose strength and cause excessive settlement or bearing capacity failures of shallow foundations. The liquefaction concern can be mitigated using deep foundations. Slag or other large pieces of debris can cause refusal for piles. However, we understand that driven precast, prestressed concrete piles were installed at a facility north of the site. The pile locations were predrilled about 6 to 7 feet below grade and the piles were driven to depths of about 55 to 65 feet below the ground surface. Based on our current exploration, deeper predrilling should be anticipated for the planned site.

We conclude that driven precast, prestressed concrete piles are appropriate deep foundations for the planned improvements. We also evaluated augered cast-in-place (ACIP) piles and drilled displacement piles (DDPs). The deep foundations will transfer the loads down to the stiff and dense alluvial soils well below the fill and marsh deposit soils. Large overturning loads from seismic forces may require relatively deep piles to provide enough vertical and lateral soil resistance for foundation support.

Under static loading conditions, the existing fills and marsh deposits will consolidate from new loads on the ground such as the weight of new fills or shallow foundations and the structures placed on top of the foundations. We estimate that a one foot thickness of new fill will cause about 1-inch of ground surface settlement. Seismic shaking can cause additional settlement or bearing capacity failure of shallow foundations. For lightly loaded structures that can tolerate settlement, shallow foundations such as spread footings may be appropriate. We can consider shallow foundations on a case-by-case basis.

These geotechnical issues and other considerations for design and construction of the project are discussed further in the following paragraphs.

B. Shallow Groundwater

As discussed previously, shallow groundwater levels may be encountered at the site. The selected depths of foundation excavations should be as shallow as practical to reduce the risk of encountering groundwater or other fluids. Ideally, earthwork should be performed during the summer before the rainy season. Trapped or perched fluids are often encountered in excavations. The contractor should be prepared to provide dewatering equipment and temporary systems to keep fluids out of the excavations. Dewatering systems will need to be carefully installed and coordinated with the facility operators.

Compaction of wet soils at the bottom of excavations will be difficult and may not be feasible. Detailed earthwork recommendations are presented later in this report.

C. Expansive Soil

Atterberg limits test results indicate that some of the near surface soils have a moderate expansion potential. Expansive soils change volume with changes in their moisture content. As the moisture content increases, expansive soil swells; as expansive soil dries, it shrinks. Structures and other project improvements located directly on expansive soils will heave and settle in response to these movements. Uneven changes in moisture content can cause differential movement within the expansive soil. Differential heave or settlement of the expansive soil can cause cracking, uneven surfaces and tripping hazards within slabs, exterior site works and pavements and also induce stresses into foundations.

The impact of expansive soil on concrete slabs-on-grade can be partly offset by soaking the subgrade before casting the slab. Further reduction in vertical movements can be achieved by placing select fill of low expansion potential below the slabs. The purpose of the select fill is to provide a buffer zone between the expansive materials and concrete slabs. The select fill will also help spread differential movement over a larger area and reduce the stress within slabs.

We judge that a well-compacted select fill layer at least 6-inches thick should provide a level of performance generally acceptable for this project. Providing additional reinforcement in concrete slabs will help hold the slabs together and control slab offsets and tripping hazards. Even with these mitigating measures some movement and cracking of the slab may occur.

For lightly loaded footings or mats, if any, a select fill layer may not be necessary depending on the loads, locations and depths. We should evaluate this issue on a case-by-case basis.

D. Seismic Hazards

The predominant seismic hazard for the site is strong groundshaking resulting from earthquakes. The structures should be designed to accommodate such groundshaking in accordance with existing codes. No known active faults pass through the site, and we conclude that the risk of fault rupture at the site is low.

For use with the 2019 California Building Code (CBC) based on ASCE 7-16, the site can be classified as Site Class F due to the presence of potentially liquefiable soils. A site response analysis is required for structures with fundamental periods of vibration greater than 0.5 second. For Site Class F, we performed a ground motions study for use in structural design. The results of our ground motion study are attached as Appendix D.

For structures with fundamental periods of vibration equal to or less than 0.5 second, ASCE 7-16 allows the site class to be determined in accordance with the definitions for site classes A through E. Based on shear wave velocity data and soil shear strength data from the site, we conclude that structures with fundamental periods of vibration equal to or less than 0.5 second may be converted to Site Class D, a stiff soil profile. The site coordinates used in the ATC Hazard by Location online tool are estimated to be: Latitude 38.02150 and Longitude -121.85207. From the ATC website calculator, the mapped acceleration parameters S_S and S_1 are 1.735 and 0.583, respectively.

Soil liquefaction is a phenomenon in which a loose to medium dense, saturated granular soil undergoes reduction of internal strength as a result of increased pore water pressure generated by shear strains within the soil mass. This behavior is most commonly induced by strong groundshaking associated with earthquakes. Unsaturated loose sands and low plasticity soils may also densify and settle in a seismic event. Soil conditions at the site include variable fills with loose to medium dense sands that are prone to liquefaction. We judge that the risk of liquefaction and seismic settlement is moderate to high. If liquefaction and/or densification occurs, we judge that ground surface settlements could range from about 2- to 5-inches. We judge that the risk of large lateral movement due to liquefaction is low. Differential settlement would occur between new piles and features supported by shallow foundations. The differential settlement would be about the same as the ground surface settlement, approximately 2- to 5-inches.

For shallow foundations such as spread footings or mats, the presence of shallow groundwater and liquefiable soils indicates a risk of large differential settlement and possibly bearing capacity failure. In general, shallow foundations should be avoided. For light structures that can tolerate settlement and possible bearing failure, we can consider shallow foundations on a case-by-case basis.

For deep foundations, we considered the drag load (negative skin friction) that could occur due to liquefaction-induced settlements. We conclude that the drag load can be disregarded for the anticipated deep foundations of this project.

Seismic ground motions can cause curvature issues for deep foundations where large changes in stiffness occur suddenly within the subsurface profile. Based on the geotechnical data, we conclude that such changes in stiffness are unlikely and that pile curvature due to seismic shaking can be disregarded.

E. Deep Foundation Considerations

To mitigate settlement concerns, the improvements can be supported by new piles bearing in stiff/dense soils below the marsh deposit soils. We considered several ground improvement options such as surcharging, excavation/replacement, vibro-replacement, grouting, and soil mixing. In our opinion, ground improvement options would either be more costly or time consuming and would be less reliable than pile foundations.

Deep foundations will gain vertical support from skin friction and end bearing in firm and dense alluvial soils. Prestressed concrete piles, ACIP piles, and DDPs have been used previously in this facility. The primary advantages of DDPs over “non-displacement” piles such as ACIP piles and drilled shafts include generally higher skin friction and end bearing resistance for a given diameter and penetration depth, and a large reduction of drilling spoils. The primary disadvantage of DDPs is that the demand for torque and downforce for the rig is greater, which limits the ability to install DDPs in stiff/dense soils to depths that would otherwise be attainable for a non-displacement pile.

If the proposed improvements are supported by piles, we estimate that total settlement of the structures will be less than 1-inch and differential settlement will likely be less than ½-inch over a horizontal distance of 20 feet. Differential settlements of about 2- to 5-inches (after a large earthquake) could occur between the new piles and the surrounding ground. Flexible connections should be considered where utilities and other at-grade structures will tie into the pile-supported structures.

F. Pile Driving Vibrations

We judge that vibrations induced by pile installation of driven prestressed concrete piles will likely be small relative to the tolerances of nearby improvements. If existing structures near the site are sensitive to vibrations, then vibration monitoring should be considered. The contractor should be responsible for selecting a hammer appropriate to advance the piles to their design driving criteria without damaging the pile and/or existing structures.

G. Corrosion Potential

Soil corrosion testing was performed on selected soil samples collected from the hand auger borings. The test results indicate that the soils are corrosive. The corrosion test results and a brief evaluation are included in Appendix C. Corrosion protection features should be considered in the design of project improvements.

V. RECOMMENDATIONS

A. Earthwork

1. Site Preparation

The site should be cleared of surface and subsurface deleterious matter including concrete and debris designated for removal. These materials should be removed from the site and should not be used as fill or backfill.

Temporary shoring, bracing and dewatering features may be needed to complete the foundation excavations. The contractor should be solely responsible for design and construction of temporary construction systems. Preconstruction surveys and periodic monitoring should be performed to evaluate the condition of existing features near the excavations. The contractor should develop shoring/bracing, dewatering, and monitoring plans for review by the owner's construction team.

2. Fill Materials

Common fill placed at the site, if any, should be a soil or soil/rock mixture free of deleterious matter and contain no rocks or hard fragments larger than 4-inches in maximum dimension with less than 15 percent larger than 1-inch in maximum dimension. On-site native soil and fill materials free of deleterious matter and meeting the above requirements may be used for common fill. Imported fill, except where select fill is recommended, should meet the requirements for common fill and have a plasticity index below 20. Common fill and imported fill may be used for general grading except where select fill or other designated materials are recommended.

In addition to meeting the requirements for common fill, *select fill* should have a low expansion potential, which for this site should be defined as having a liquid limit less than 40 and a plasticity index less than 15. Select fill should be predominantly granular with 100 percent passing a 2-inch sieve and less than 30 percent passing the Number 200 sieve.

Aggregate base should meet the requirements for Caltrans Class 2 aggregate base.

Samples of fill material should be submitted to us for approval before importing to the site.

3. Compaction

Fill and backfill soils, if any, should be placed in lifts 8-inches or less in loose thickness and moisture conditioned to at least optimum moisture content for select fill and at least 2 percent over optimum for common fill. Moisture conditioning should be performed before compaction. Each lift should be methodically compacted to at least 90 percent relative compaction. ASTM test D-1557 should be used to establish the reference values for computing optimum moisture content and relative compaction. A sheepsfoot compactor or equivalent equipment should be used for compacting clay soils. Material that fails to meet the moisture or compaction criteria should be loosened by ripping or scarifying, moisture conditioned, and then recompacted. After compaction, fills should not be allowed to dry out. This may require periodic sprinkling or covering with an impermeable barrier.

Aggregate base should be placed in thin lifts no greater than 6-inches in loose thickness and in a manner that avoids segregation, moisture conditioned as necessary, and compacted to at least 95 percent relative compaction.

B. Driven Piles

Precast, prestressed concrete piles may be used to support the proposed improvements. New piles should be at least 14-inches wide. The minimum pile spacing should be 3 pile widths, center-to-center.

Plate 3 presents estimated ultimate pile resistance for axial loading of 14-inch square piles. Our pile resistance values are based on assumed soil conditions at SCPT-1 near the center of the site where the marsh deposits are deepest. The axial pile chart is based on support from both skin friction and end bearing.

Lateral resistances of the piles were evaluated using the computer program LPile 2019 by Ensoft. We performed lateral load analyses for 14-inch square piles, assuming both free head and fixed head conditions. The lateral load analyses results for piles spaced at least 6 pile widths, center-to-center are presented on Plates 5 through 8. For lateral load resistance of piles spaced at 3 pile diameters, center-to-center, use 70 percent of the lateral loads shown on the plates for a given deflection. Linear interpolation can be used for the resistance of piles with spacings between 3 and 6 pile diameters. For the lateral pile analyses, we assumed a maximum lateral deflection of ½-inch for fixed-head piles, and 1-inch for free-head piles. We assumed axial compression of 200 kips and tension of 100 kips for the analyses. No external moment was applied. The analyses do not include a factor of safety, and the designer should check the structural capacity of the pile. Plates 5 through 8 are not intended to show the structural capacity of the pile.

After the project plans are further developed, we should review the pile group layouts to see if the above recommendations may need to be modified.

Geotechnical parameters used in our axial and lateral analyses are presented below for each subsurface scenario and may be used to analyze various conditions as needed for project design.

Table 1: Lateral and Axial Soil Parameters for Piles

Soil Layer	Depth Below Top of Pile (feet)	LPILE Soil Type	Shear Strength C (psf)	Friction Angle Φ (deg)	Effective Unit Weight (pcf)	Strain at 50% ϵ_{50}	Modulus K_i
1	0 - 3	Stiff Clay without Free Water (Reese)	1,000	-	115	0*	0*
2	3 - 5	Stiff Clay without Free Water (Reese)	800	-	52.6	0*	0*
3	5 - 15	Liquefied Soil (Rollins)	-	-	42.6	-	-
4	15 - 24	Soft Clay (Matlock)	600	-	42.6	0*	0*
5	24 - 29.5	Stiff Clay without Free Water (Reese)	2,000	-	62.6	0*	0*
6	29.5 - 33.5	Stiff Clay without Free Water (Reese)	1,200	36	62.6	0*	0*
7	33.5 - 45	Stiff Clay without Free Water (Reese)	4,000	-	62.6	0*	0*
8	45 - 120	Sand (Reese)	-	35	62.6	0*	0*

*We recommend using default values provided by the program for the strain and modulus input.

Lateral loads can also be resisted by passive soil pressure against the below-grade portion of the pile cap and grade beams. An equivalent fluid weight of 350 pounds per cubic foot (pcf) may be used to calculate ultimate passive soil resistance on the pile cap. Passive pressure should be neglected in the upper one foot of soil unless the adjacent surface is confined by concrete slabs or asphalt pavements. The above lateral resistance values do not include a factor of safety.

For estimating purposes at this time, we recommend an assumed pile length of 65 feet. An indicator pile program should be developed to refine the estimated pile lengths, develop criteria for practical driving criteria, and evaluate the contractor's installation methods and equipment.

The indicator pile program should be developed to refine the estimated pile lengths as discussed above. In general, indicator piles should be located near the borings and CPTs, and to fill gaps between data points. We can provide recommendations for the number of indicator piles and the number and type of load tests as the project scope becomes more developed.

We recommend that the pile driving contractor retain a pile driving specialist to perform wave equation analyses to check that the hammer proposed is capable of installing the piles. Results of the wave equation analyses should be submitted to the design team for review. Dynamic pile stresses should be recorded using a Pile Dynamic Analyzer (PDA) while driving the indicator piles and during subsequent restrikes of the indicator piles. Upon review and analysis of the dynamic measurements during the indicator pile program, additional recommendations regarding installation methods and/or the type and size of pile hammer may need to be developed.

Pile "restrikes" should be performed on all driven indicator piles. The restrikes should be performed at least 3 days after initial driving. Waiting longer could result in higher capacity estimates due to pore pressure dissipation in the clayey soils. Both initial driving and restrike data should be analyzed using the Case Pile Wave Analysis Program (CAPWAP) to check the pile capacity and distribution of soil resistance along the length of all indicator piles.

Below a depth of about 55 feet, driven piles may encounter dense sands and meet practical driving refusal. Driven piles tend to densify the surrounding soil by displacing it laterally. To reduce the likelihood of refusal due to densification, driven pile caps should be installed with the interior piles first, working outward from the center of the pile cap.

Predrilling through upper portions of the fill can aid in pile placement. The predrilled hole diameter should not be greater than the pile width. The contractor should be responsible for maintaining the stability of the predrilled hole prior to pile placement. Below groundwater levels, predrilling can be used to break up hard materials without removing the materials from the hole. The depths of predrilling will depend on the materials encountered. Based on the current exploration results, we estimate that predrilling depths could range from about 7 to 15 feet. Details of the predrilling requirements should be developed during the indicator pile program.

The prestressed concrete piles have a risk of ground heave during pile installation. Heaved soils will need to be removed during construction. The ground heave can sometimes cause previously driven piles to heave along with the ground. Pile elevations should be checked and the piles that heave should be redriven to their original depth.

C. ACIP and DDP

Non-displacement ACIP piles can be considered for the project. ACIP piles should be installed in accordance with the latest version of PIP standard STS02465. For ACIP piles, we judge that load tests are not required.

DDPs can also be considered for this project because of their increased capacity and reduced spoils in comparison to non-displacement piles. The project design team should consult with several DDP installers regarding feasibility of construction. DDP equipment and methods may vary from contractor to contractor, and access constraints for a DDP rig may be a design constraint.

In addition, to check acceptability of the DDP contractor’s procedures, equipment and materials, at least three test piles should be installed and load tested ahead of the production piles. Dynamic load tests using a Pile Dynamic Analyzer according to the ASTM D4945 standard should be performed by a specialty firm retained by the piling contractor. The dynamic load tests are considered acceptable if the test results indicate that the compression resistance of the test piles is consistent with the pile resistance chart presented on Plate 3 of this report.

In general, piles should be spaced at least 3 widths apart, center-to-center. Typical pile diameters are 16- to 24-inches. We recommend that piles be installed to a tip elevation of -40 feet or deeper. DDPs and ACIP piles will obtain axial support by skin friction and end bearing. Plates 3 and 4 present estimated ultimate pile resistance for axial loading for both pile types. Our pile resistance values on Plates 3 and 4 are based on assumed soil conditions at SCPT-1 near the center of the site where the marsh deposits are deepest. The axial pile charts are based on support from both skin friction and end bearing.

Lateral loads can be resisted in part by bending in the piles. We believe that both DDPs and ACIP piles will have the same resistance to lateral loads for this project. Lateral resistances of the piles were evaluated using the computer program LPile 2019 by Ensoft. Results of the analysis for piles spaced at least 6 pile widths, center-to-center, are presented on Plates 9 through 16. For lateral load resistance of piles spaced at 3 pile diameters, center-to-center, use 70 percent of the lateral loads shown on the plates for a given deflection. Linear interpolation can be used for the resistance of piles with spacings between 3 and 6 pile diameters. For the lateral pile analyses, we assumed a maximum lateral deflection of ½-inch for fixed-head piles, and 1-inch for free-head piles. For 16-inch diameter piles, we assumed axial compression of 200 kips and tension of 100 kips. For 24-inch diameter piles, we assumed axial compression of 250 kips and tension of 150 kips. No external moment was applied. The analyses do not include a factor of safety, and the designer should check the structural capacity of the pile. Plates 9 through 16 are not intended to show the structural capacity of the pile.

After the project plans are further developed, we should review the pile group layouts to see if the above recommendations may need to be modified.

Geotechnical parameters used in our axial and lateral analyses are presented below for each subsurface scenario and may be used to analyze various conditions as needed for project design.

Table 2: Lateral and Axial Soil Parameters for ACIP and DDP Piles

Soil Layer	Depth Below Top of Pile (feet)	LPILE Soil Type	Shear Strength C (psf)	Friction Angle Φ (deg)	Effective Unit Weight (pcf)	Strain at 50% ϵ_{50}	Modulus K_i
1	0 - 3	Stiff Clay without Free Water (Reese)	1,000	-	115	0*	0*
2	3 - 5	Stiff Clay without Free Water (Reese)	800	-	52.6	0*	0*
3	5 - 15	Liquefied Soil (Rollins)	-	-	42.6	-	-
4	15 - 24	Soft Clay (Matlock)	600	-	42.6	0*	0*
5	24 - 29.5	Stiff Clay without Free Water (Reese)	2,000	-	62.6	0*	0*
6	29.5 - 33.5	Stiff Clay without Free Water (Reese)	1,200	36	62.6	0*	0*
7	33.5 - 45	Stiff Clay without Free Water (Reese)	4,000	-	62.6	0*	0*
8	45 - 120	Sand (Reese)	-	35	62.6	0*	0*

*We recommend using default values provided by the program for the strain and modulus input.

For estimating lateral resistance due to passive pressures against the sides of grade beams or pile caps, we recommend using an equivalent fluid weight of 350 pounds per cubic foot (pcf). Passive pressure should be neglected in the upper one foot of soil unless the adjacent surface is confined by concrete slabs or pavements. This lateral resistance value does not include a factor of safety.

D. Asphalt Concrete Pavement

The recommendations for thickness of asphalt concrete pavement sections presented in Table 3 below are based on assumed traffic loading and on an assumed subgrade R-Value of 5. To develop the pavement thicknesses we used the procedure outlined in the Caltrans design manual for asphalt pavements.

Table 3: Recommended Pavement Design Sections

Location	**Assumed Traffic Index (TI)**	**Asphalt Concrete (inches)**	**Aggregate Base (inches)**
Auto Parking	4.5	2.5	9.0
Light Truck Lanes	5.5	3.0	12.0
Heavy Truck Lanes	7.0	4.0	16.0

E. Surface Drainage

Proper surface drainage is important to reduce changes in soil moisture content. Ground surfaces should be sloped to prevent ponding of surface water especially adjacent to the structures; no ponding of surface water should be allowed adjacent to structures. The site should be graded to drain toward swales and/or into a storm drain system.

F. Further Geotechnical Services

Before construction, we should be retained to review project foundation and grading plans and specifications for conformance with the intent of our recommendations. During construction we should observe and/or test the geotechnical aspects of grading and foundation construction, including but not limited to site preparation, placement and compaction of fill and backfill, pile installations, and load testing. If conditions are encountered during construction that are not consistent with those described herein, we should be contacted to review our recommendations and provide alternatives, if appropriate.

PLATES

N

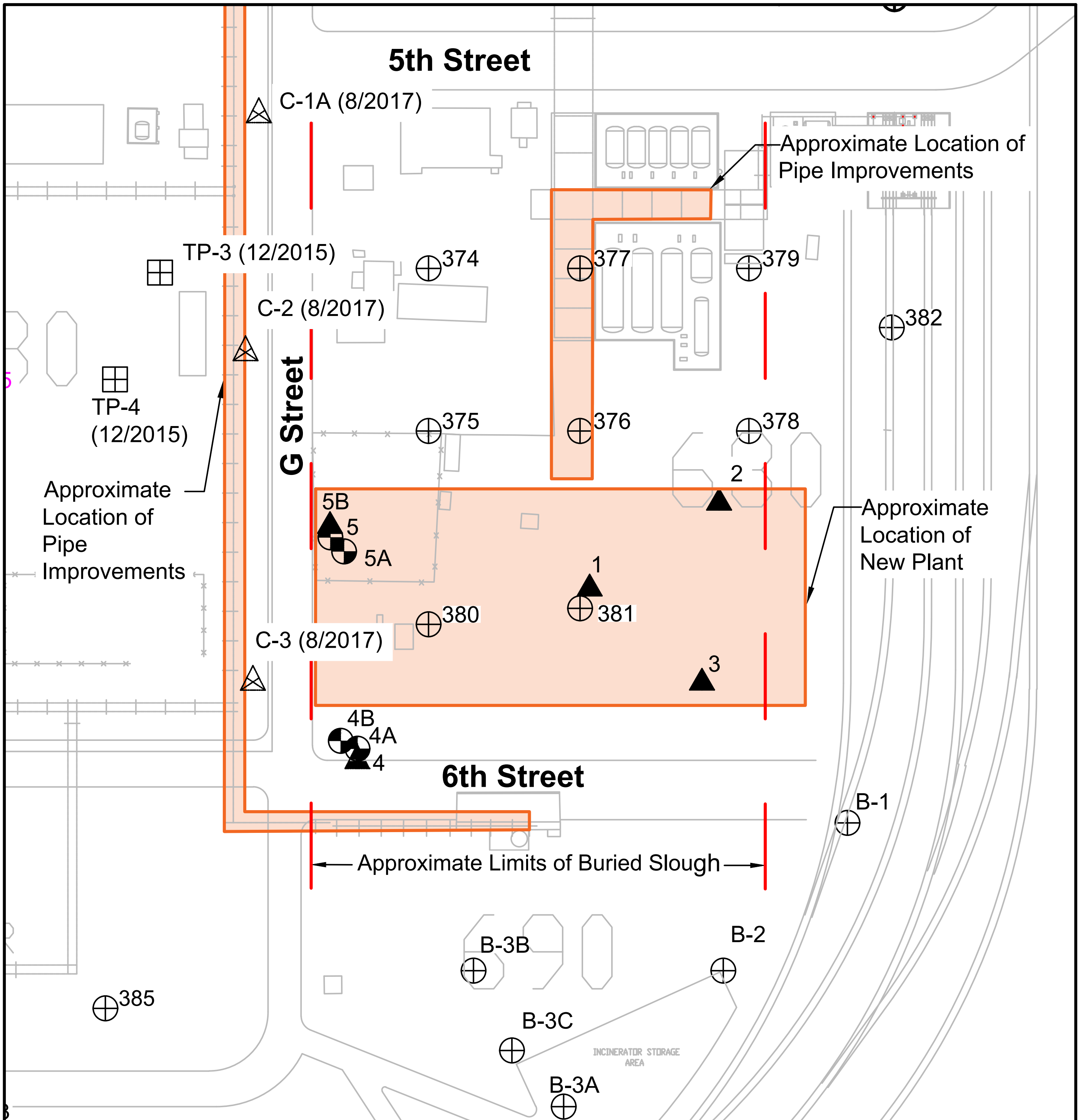
0 1,000 feet

1 inch = 1,000 feet

New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California

Vicinity Map

Hultgren - Tillis Engineers	Project No. 197.67	Plate No. 1



Approximate Location of Previous Boring

Approximate Location of Previous CPT

Approximate Location of Previous Test Pit

Approximate Location of Boring

Approximate Location of CPT

Plant North

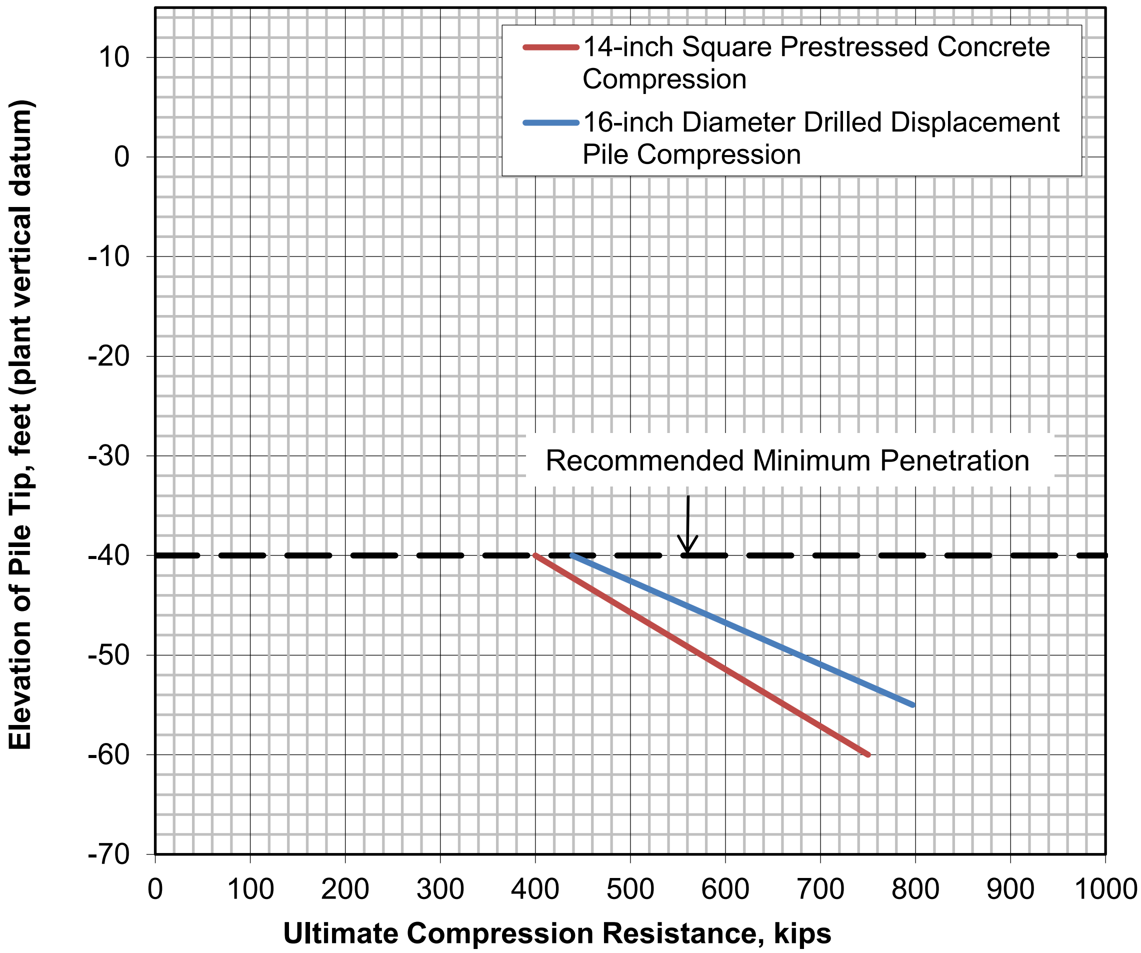
SCALE

0 100 feet

1 inch = 100 feet

New Plant in Block 680 Corteva Agriscience Facility Pittsburg, California	**Site Plan**

Hultgren - Tillis Engineers	Project No. 197.67	Plate No. 2

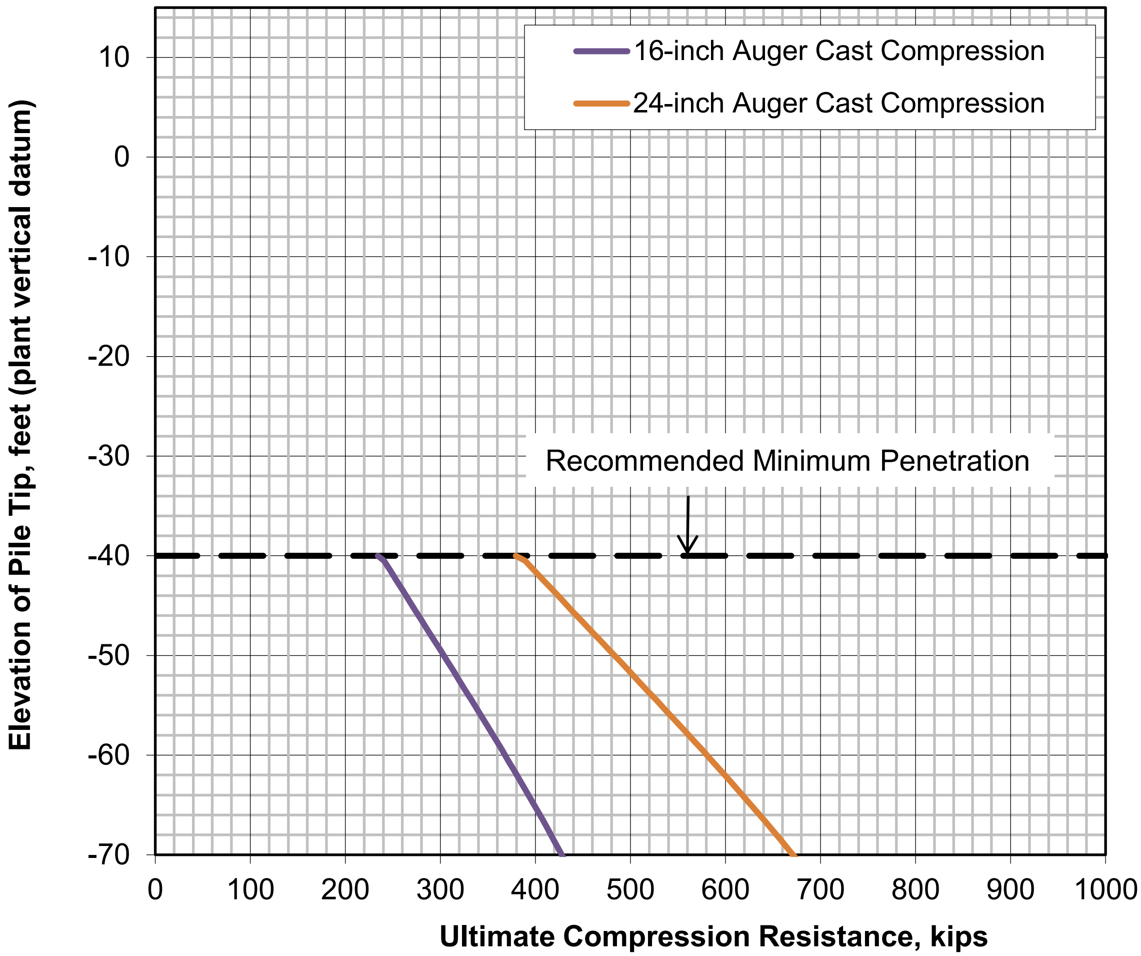


Notes:

1. Piles should be spaced at least 3 pile widths, center-to-center.
2. Minimum pile tip elevation should be -40 feet (about 52.5 feet below grade).
3. The ultimate resistances shown in the chart are based on soil strength; structural capacity of the pile should be checked.
4. We recommend factors of safety of at least 2.5 for long-term loads and 1.9 for short-term loads including wind or seismic.
5. For tension resistance including the buoyant weight of pile, use 70% of the compression resistance.
6. Calculations based on data from CPT-1 for preliminary lengths. Final pile lengths should be based on indicator pile results.

New Plant in Block 680 Corteva Agriscience Facility Pittsburg, California	**Axial Pile Resistance at CPT-1 for Prestressed Concrete and Drilled Displacement Piles**

Hultgren - Tillis Engineers	Project No. 197.67	Plate No. 3

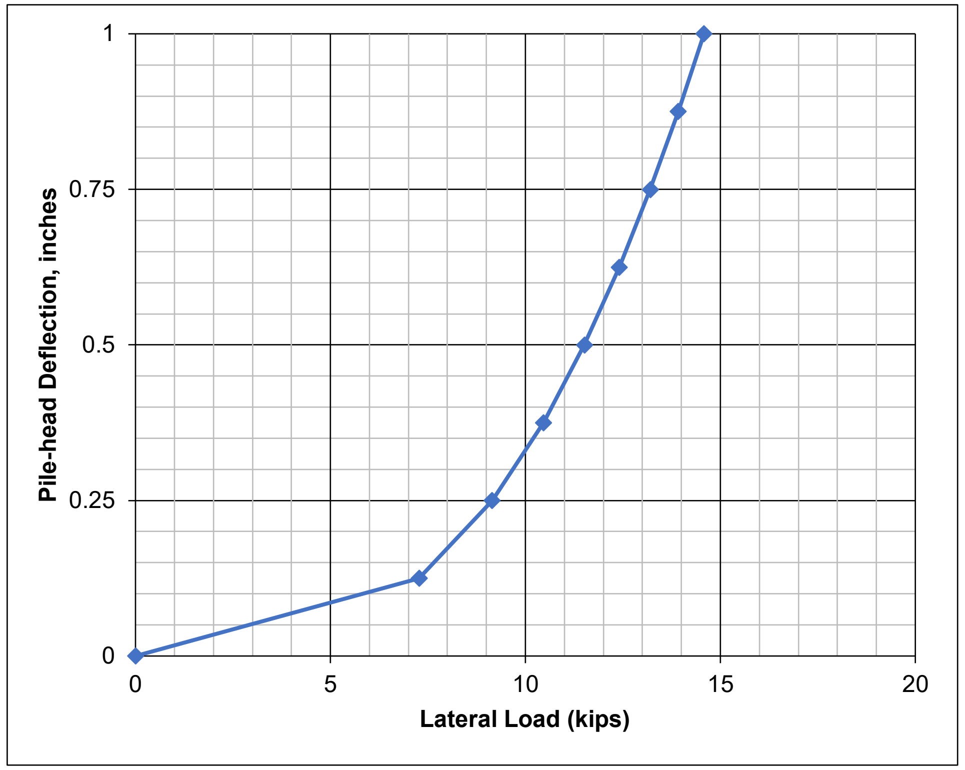


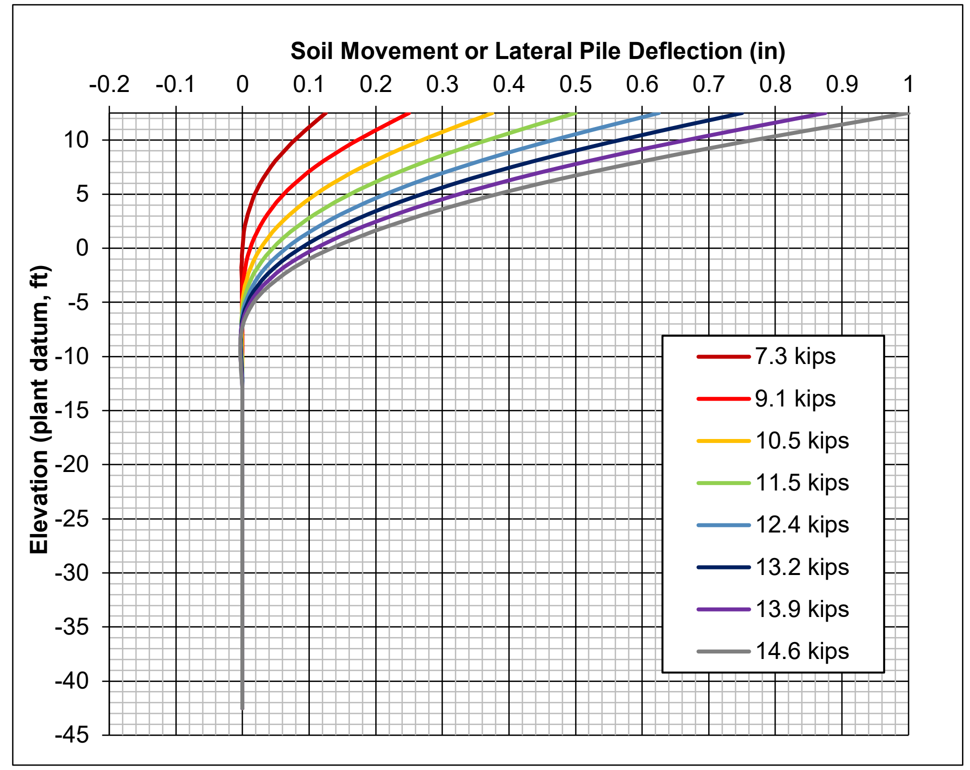
Notes:

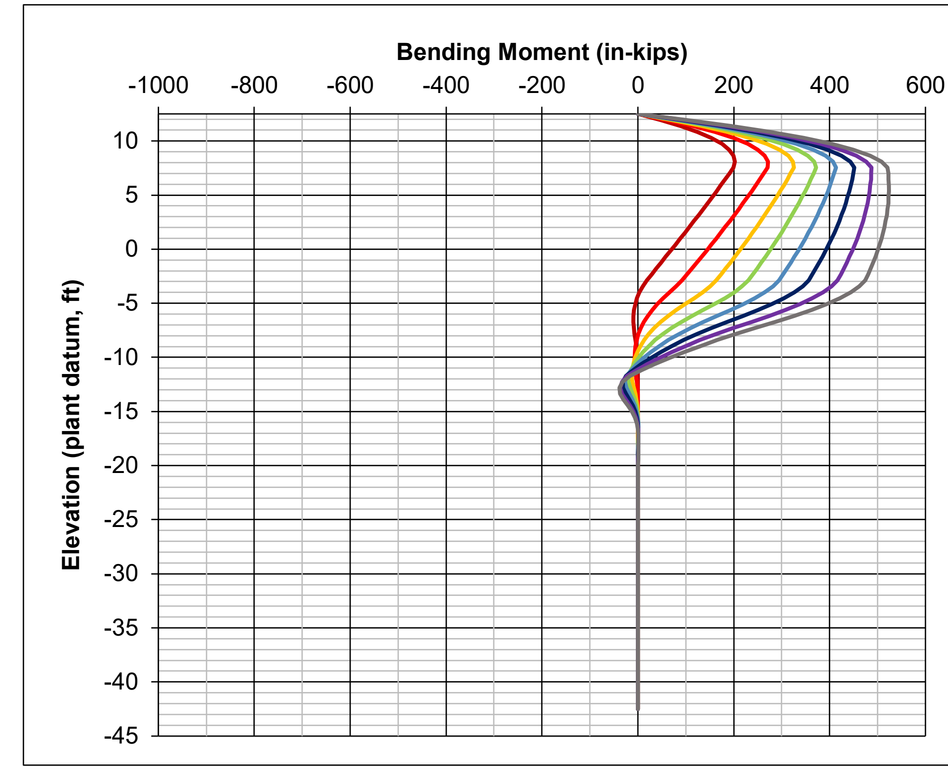
1. Piles should be spaced at least 3 pile widths, center-to-center.
2. Minimum pile tip elevation should be -40 feet (about 52.5 feet below grade).
3. The ultimate resistances shown in the chart are based on soil strength; structural capacity of the pile should be checked.
4. We recommend factors of safety of at least 2.5 for long-term loads and 1.9 for short-term loads including wind or seismic.
5. For tension resistance including the buoyant weight of pile, use 70% of the compression resistance.

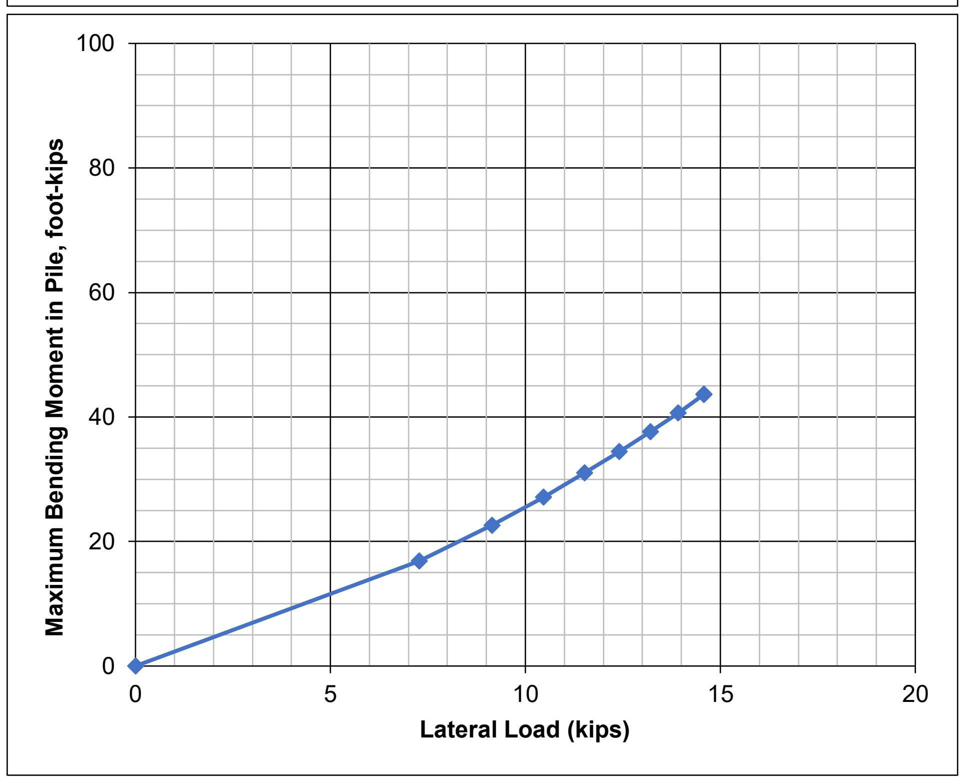
New Plant in Block 680 Corteva Agriscience Facility Pittsburg, California	**Axial Pile Resistance at CPT-1 for Non-Displacement Auger-Cast Piles**

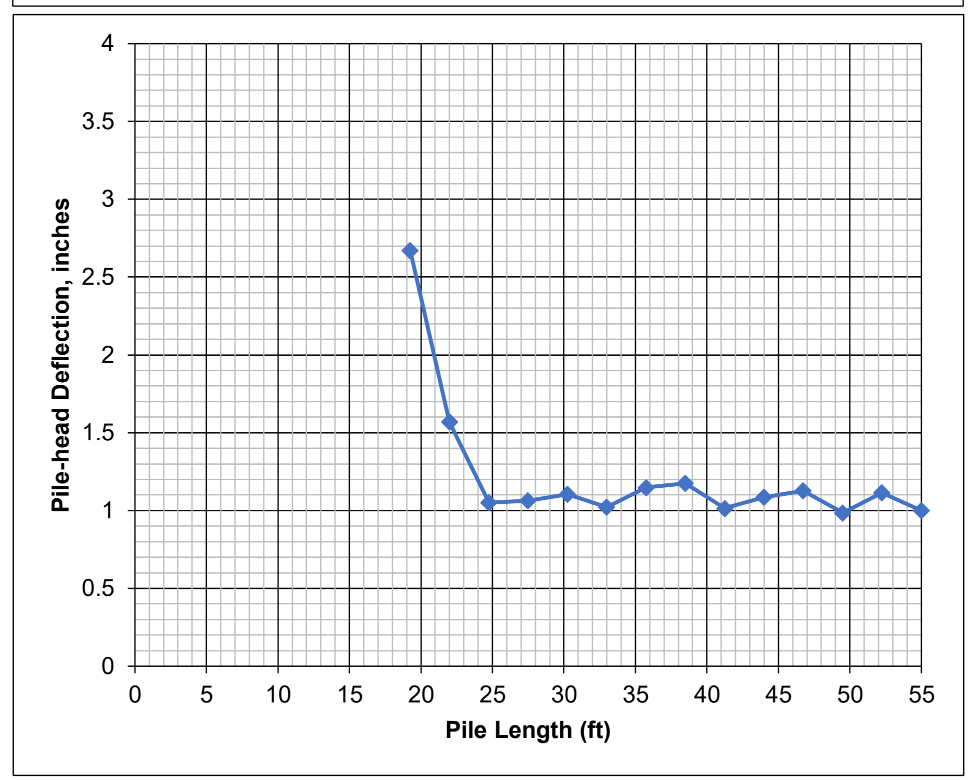
Hultgren - Tillis Engineers	Project No. 197.67	Plate No. 4







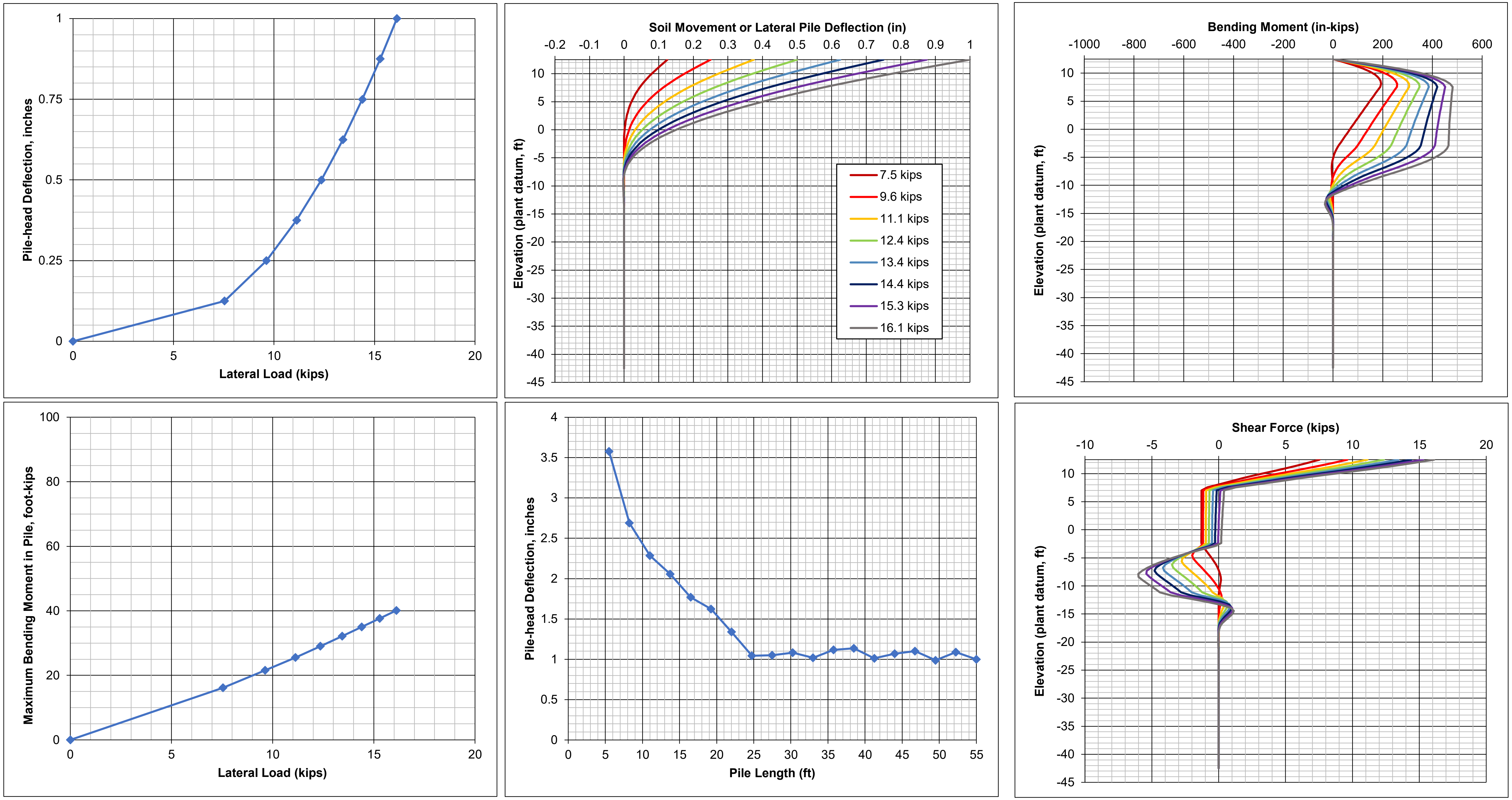




Notes:

1. Assumed pile spacing of at least 6 times the pile width on centers.
2. Pile head is assumed to be in a "free-head" condition at the ground surface, with no external moment applied.
3. Loads are assumed to be short-term and static, and may be used for pseudo-static earthquake analysis.
4. Analysis based on soil strengths; structural capacity of the pile should be checked.
5. Assumed constant EI for prestressed concrete piles.
6. Assumed axial compression of 200 kips and tension of 100 kips.
7. Deflection is measured at the top of the pile where the lateral load is applied, assumed at Elevation 12.5 feet, plant datum.
8. Assumed level ground outside the pile foundation.
9. No factor of safety has been applied.

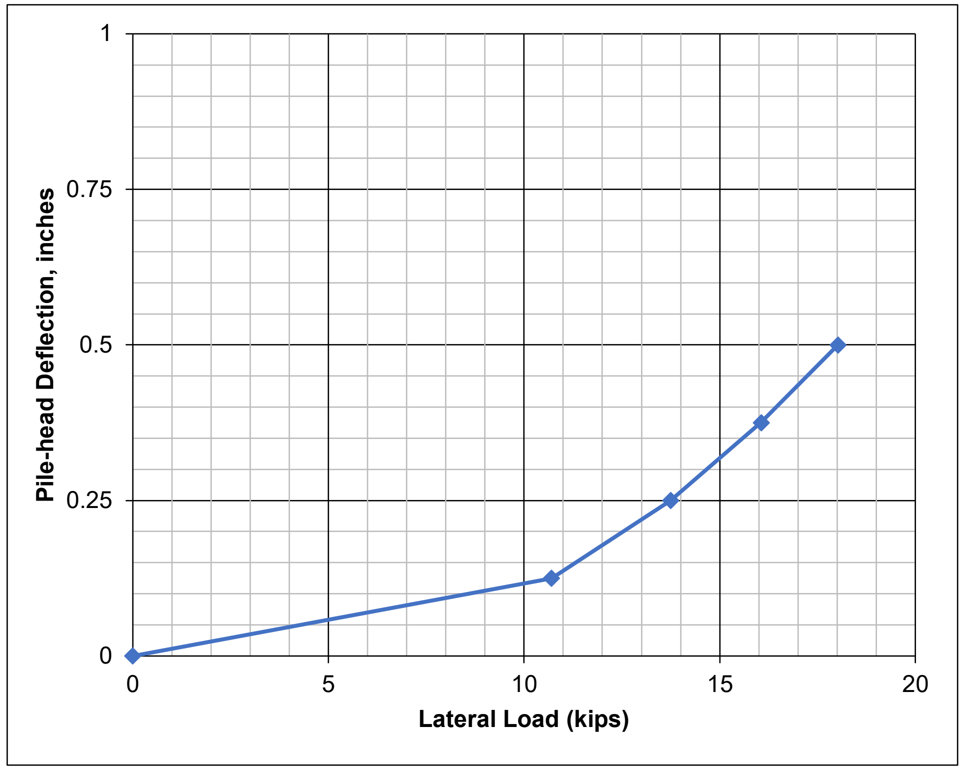
New Plant in Block 680 Corteva Agriscience Facility Pittsburg, California	**Laterally Loaded Piles** **Free Head - Compression** **14-inch Square Prestressed Concrete Piles**	
Hultgren - Tillis Engineers	Project No. 197.67	Plate No. 5

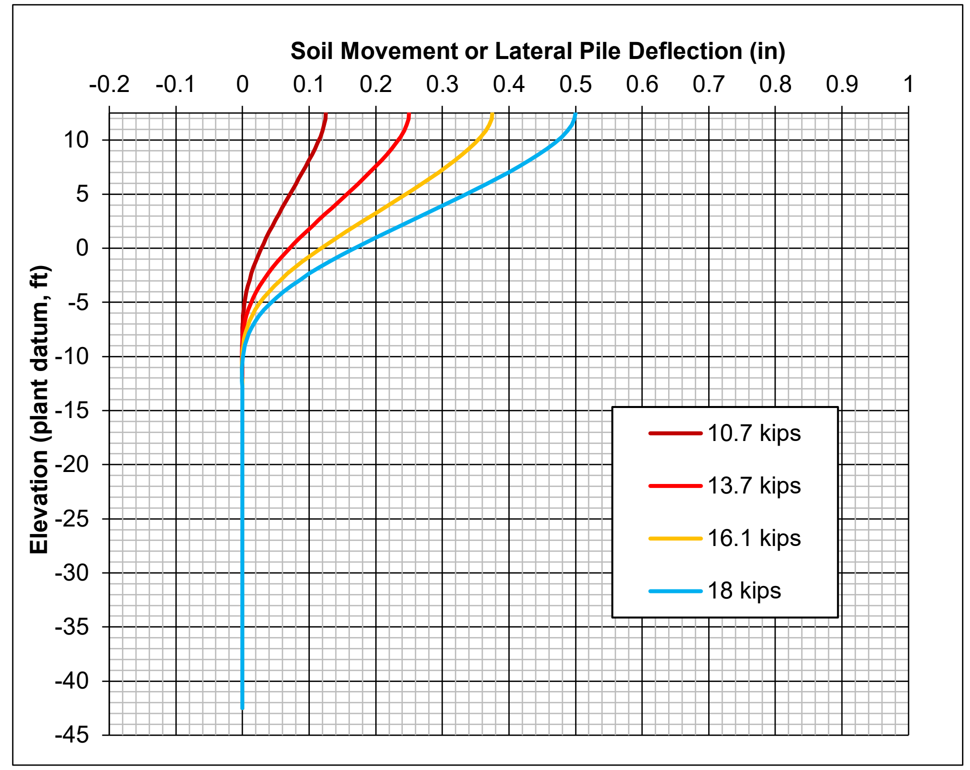


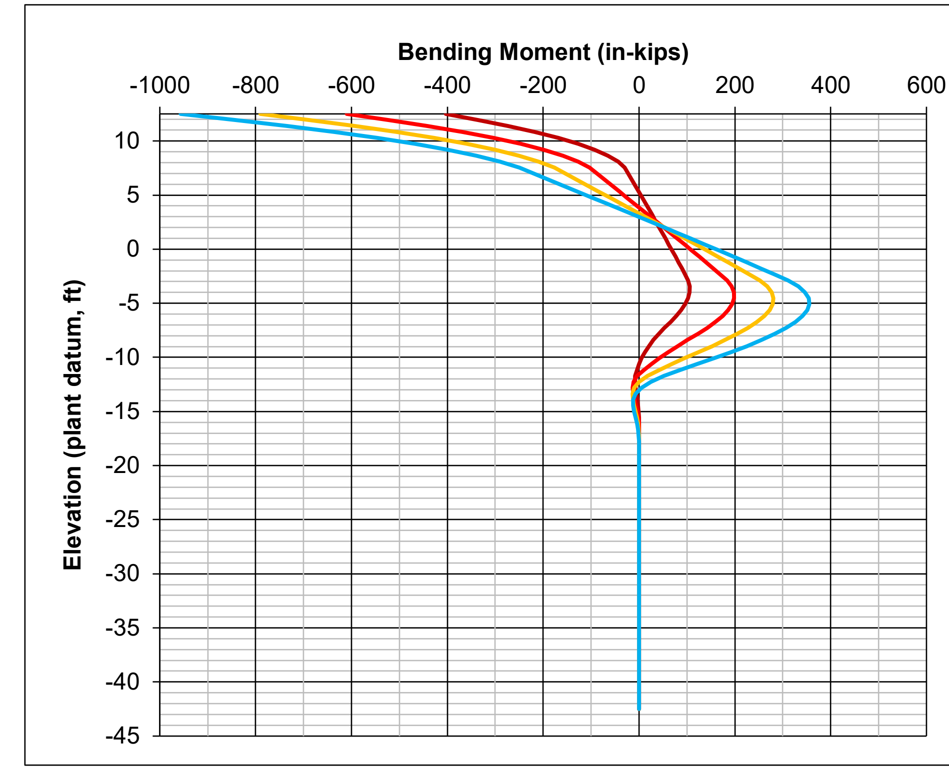
Notes:

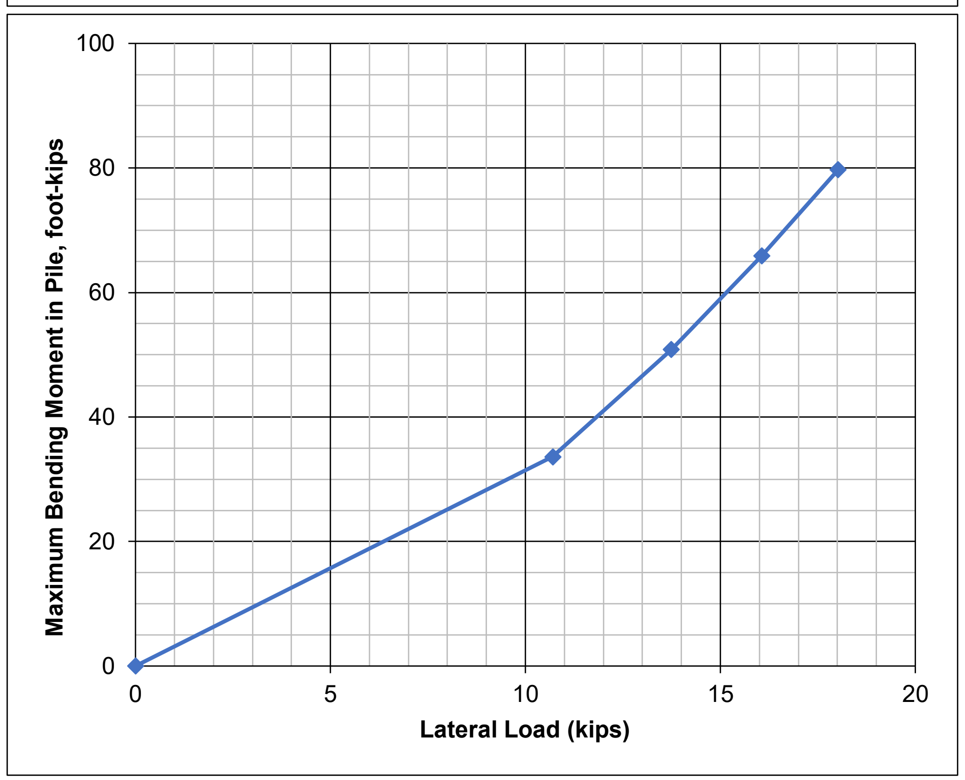
1. Assumed pile spacing of at least 6 times the pile width on centers.
2. Pile head is assumed to be in a "free-head" condition at the ground surface, with no external moment applied.
3. Loads are assumed to be short-term and static, and may be used for pseudo-static earthquake analysis.
4. Analysis based on soil strengths; structural capacity of the pile should be checked.
5. Assumed constant EI for prestressed concrete piles.
6. Assumed axial compression of 200 kips and tension of 100 kips.
7. Deflection is measured at the top of the pile where the lateral load is applied, assumed at Elevation 12.5 feet, plant datum.
8. Assumed level ground outside the pile foundation.
9. No factor of safety has been applied.

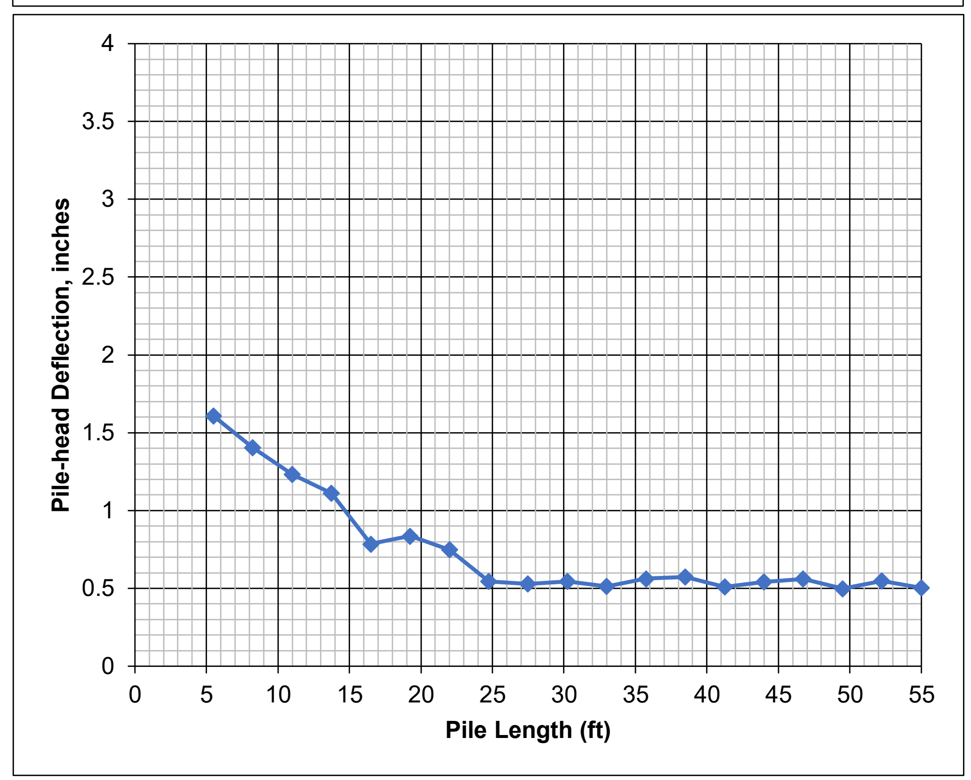
New Plant in Block 680 Corteva Agriscience Facility Pittsburg, California	**Laterally Loaded Piles** **Free Head - Tension** **14-inch Square Prestressed Concrete Piles**
Hultgren - Tillis Engineers	Project No. 197.67 | Plate No. 6

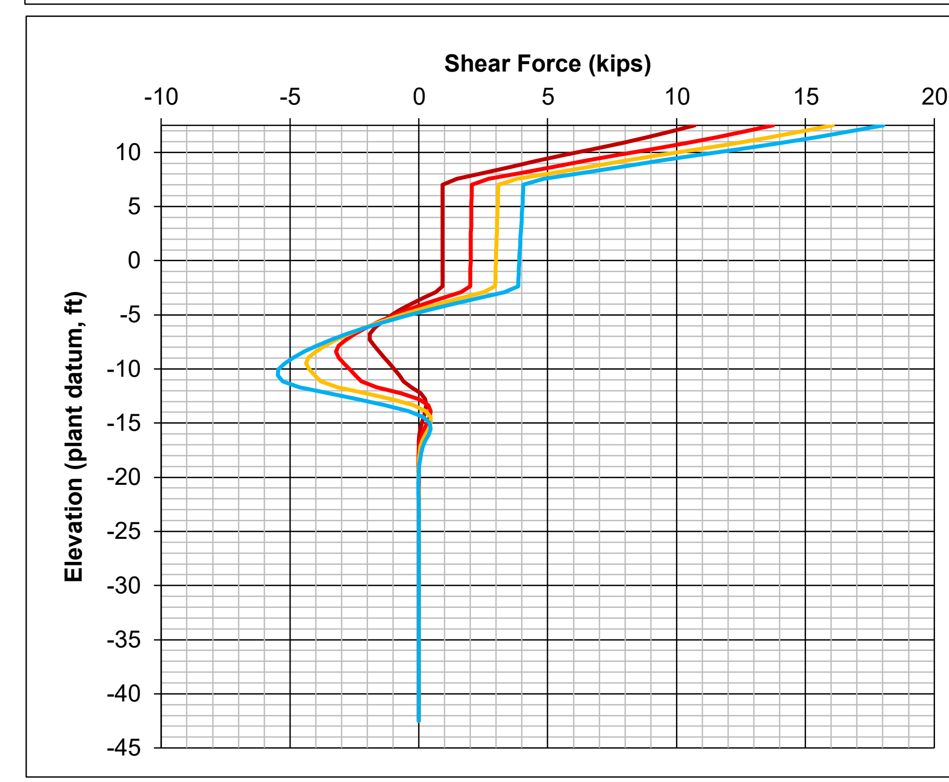








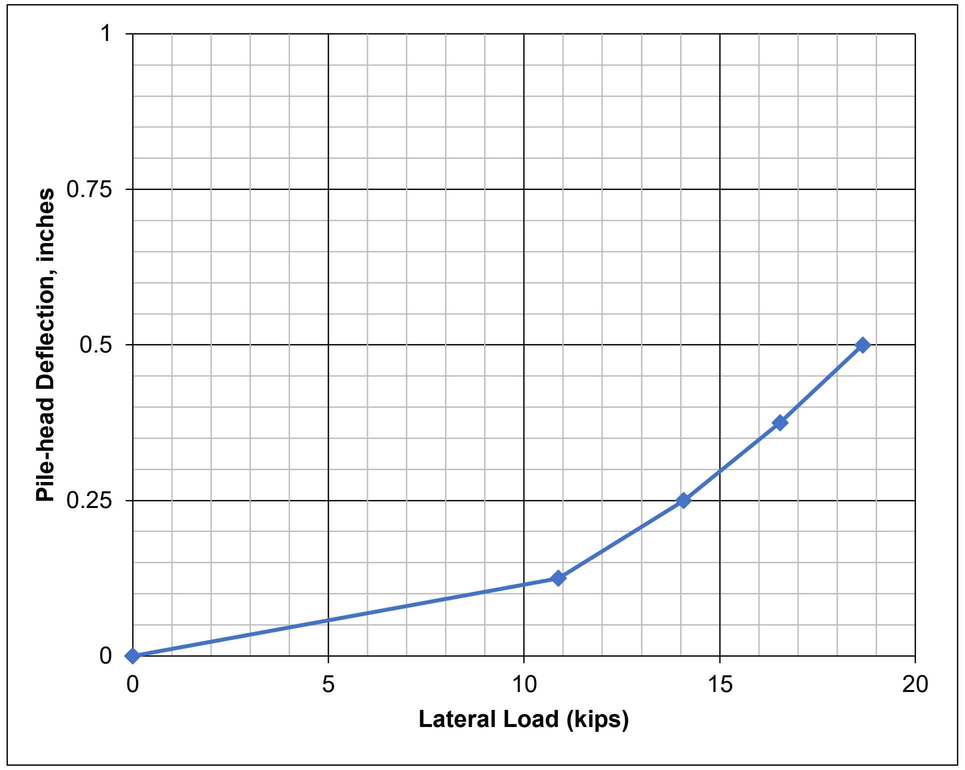


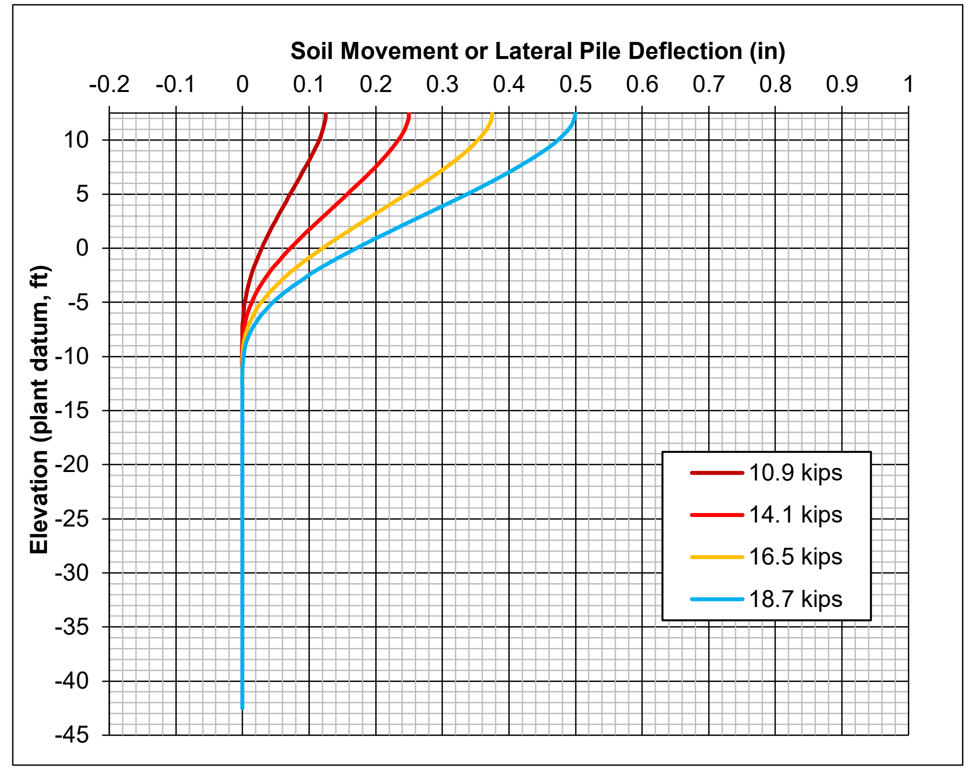


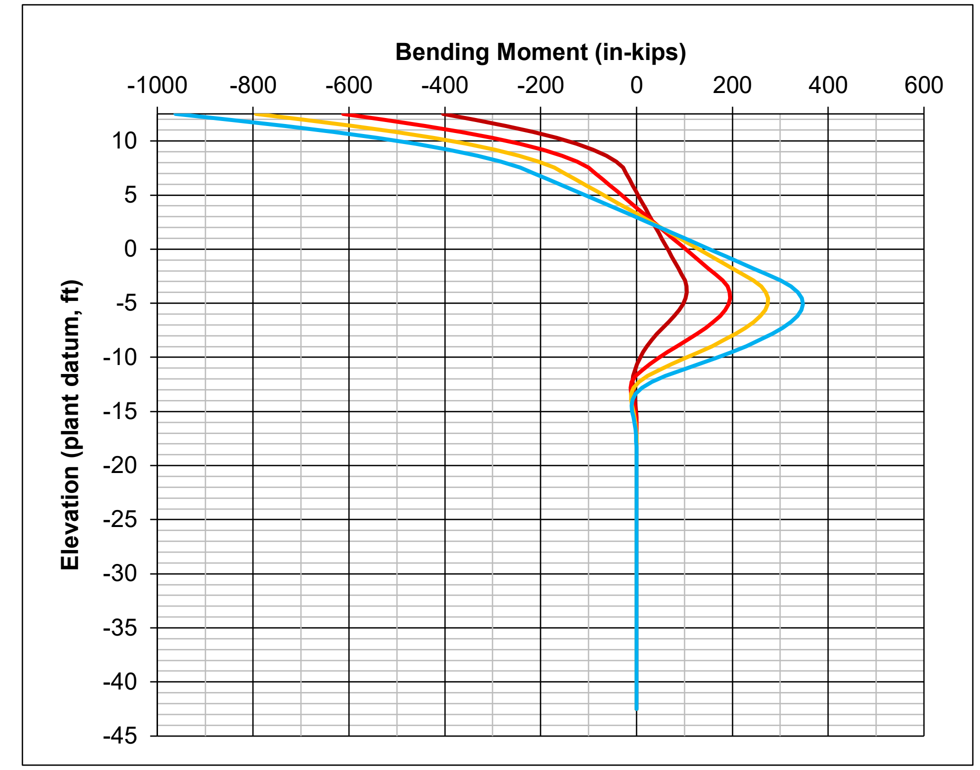
Notes:

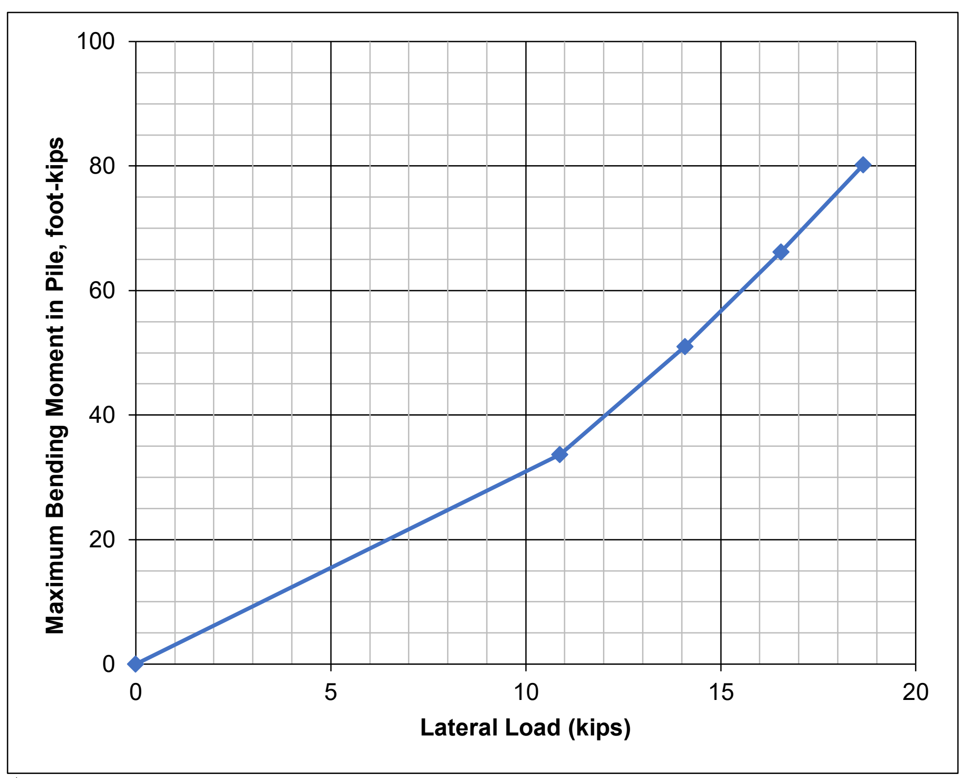
1. Assumed pile spacing of at least 6 times the pile width on centers.
2. Pile head is assumed to be in a "fixed-head" condition at the ground surface, with no external moment applied.
3. Loads are assumed to be short-term and static, and may be used for pseudo-static earthquake analysis.
4. Analysis based on soil strengths; structural capacity of the pile should be checked.
5. Assumed constant EI for prestressed concrete piles.
6. Assumed axial compression of 200 kips and tension of 100 kips.
7. Deflection is measured at the top of the pile where the lateral load is applied, assumed at Elevation 12.5 feet, plant datum.
8. Assumed level ground outside the pile foundation.
9. No factor of safety has been applied.

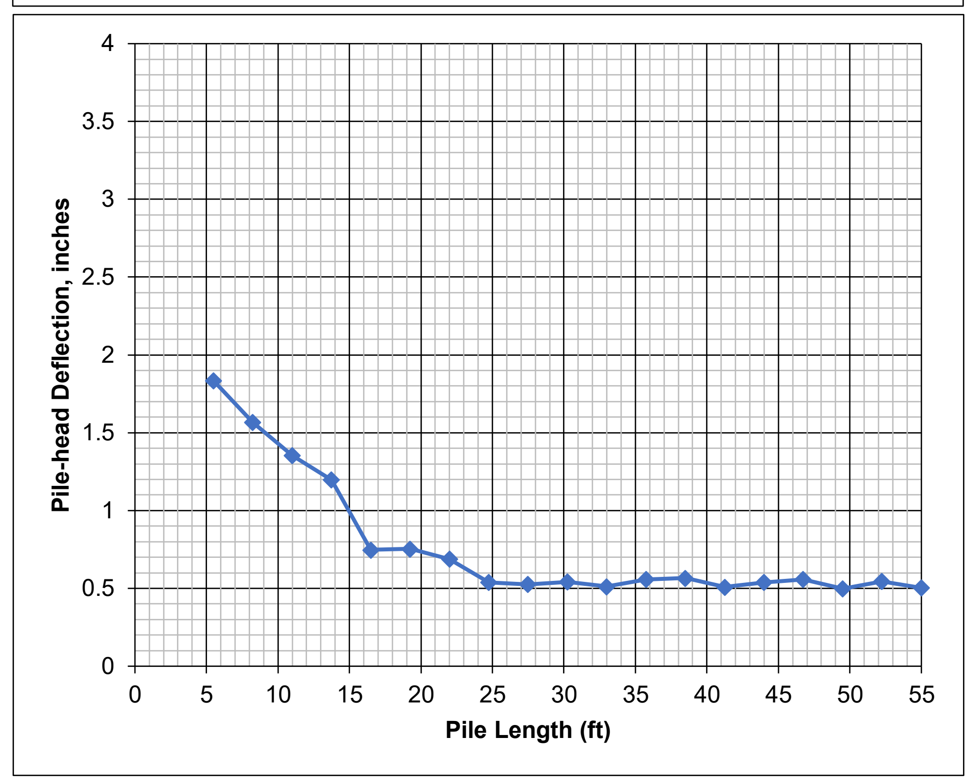
New Plant in Block 680 Corteva Agriscience Facility Pittsburg, California	**Laterally Loaded Piles** **Fixed Head - Compression** **14-inch Square Prestressed Concrete Piles**
Hultgren - Tillis Engineers	Project No. 197.67 — Plate No. 7

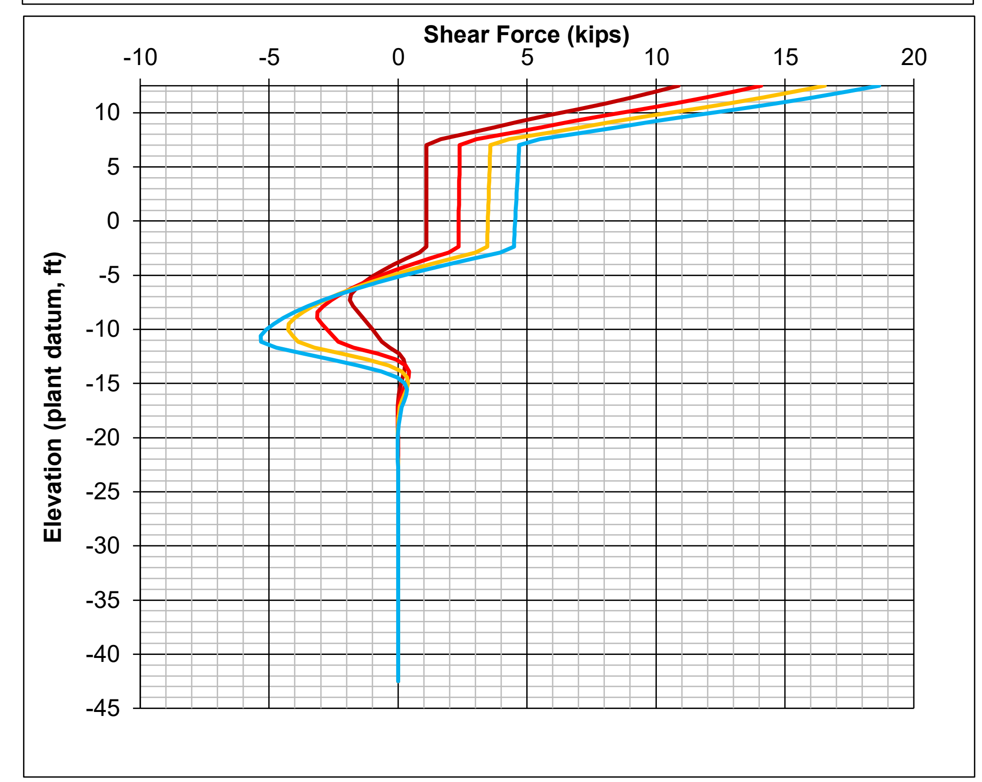










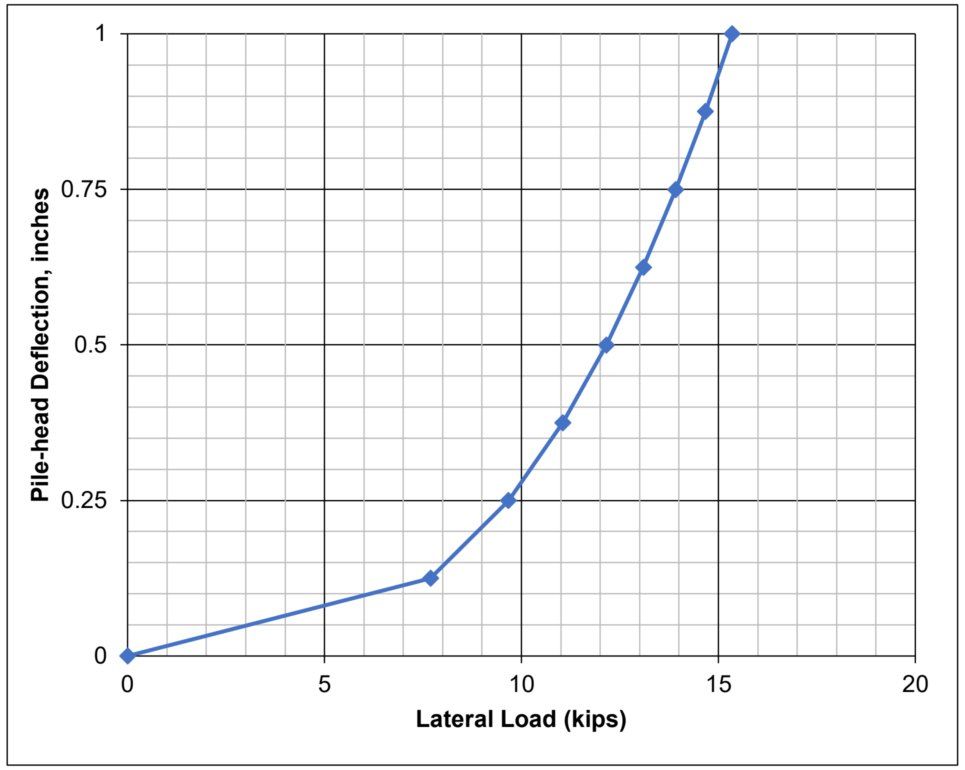


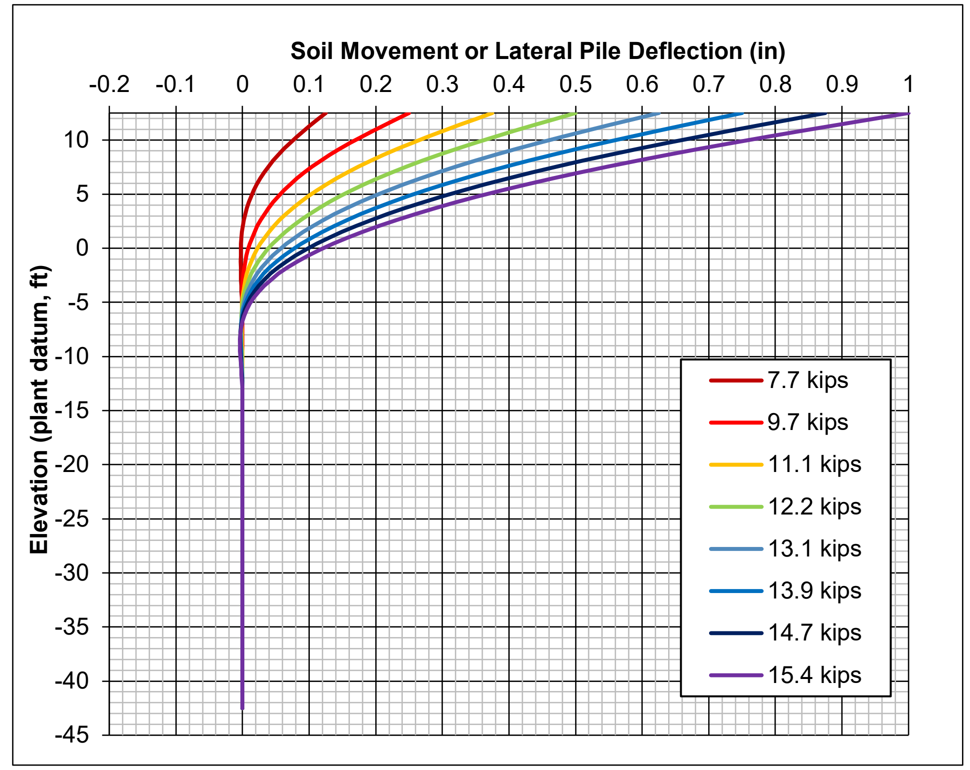
Notes:

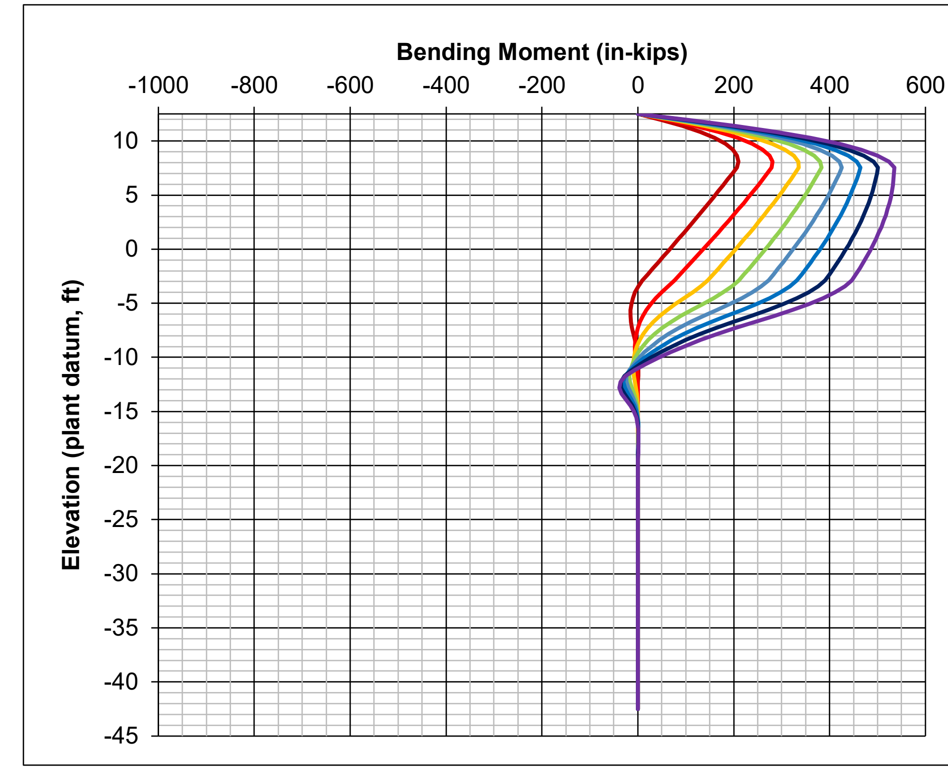
1. Assumed pile spacing of at least 6 times the pile width on centers.
2. Pile head is assumed to be in a "fixed-head" condition at the ground surface, with no external moment applied.
3. Loads are assumed to be short-term and static, and may be used for pseudo-static earthquake analysis.
4. Analysis based on soil strengths; structural capacity of the pile should be checked.
5. Assumed constant EI for prestressed concrete piles.
6. Assumed axial compression of 200 kips and tension of 100 kips.
7. Deflection is measured at the top of the pile where the lateral load is applied, assumed at Elevation 12.5 feet, plant datum.
8. Assumed level ground outside the pile foundation.
9. No factor of safety has been applied.

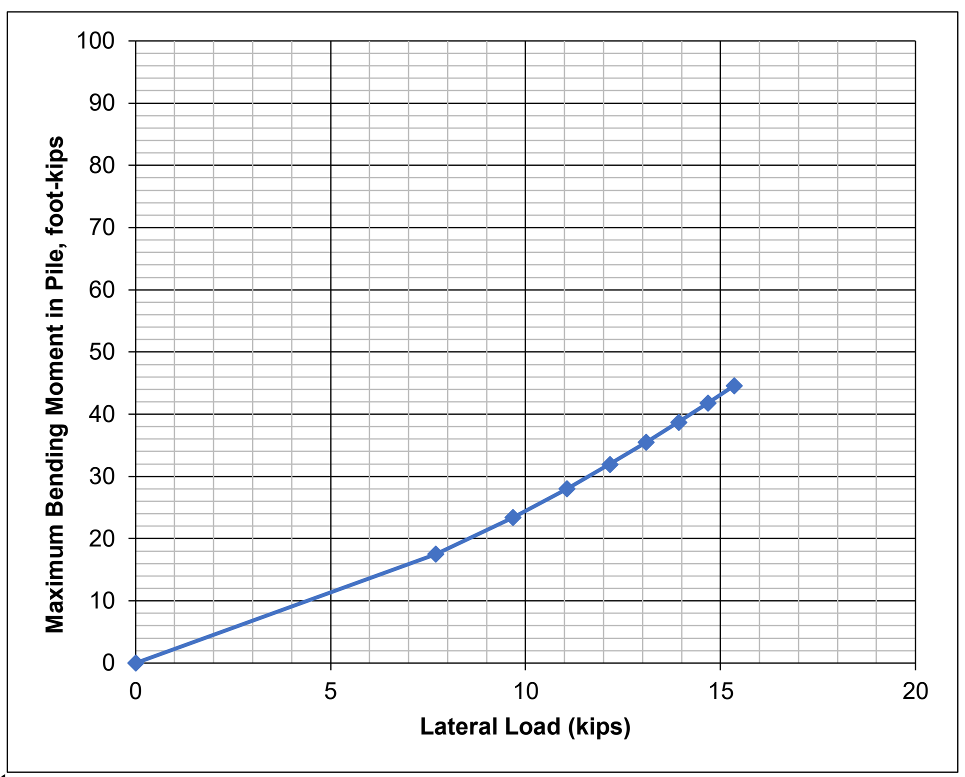
New Plant in Block 680 Corteva Agriscience Facility Pittsburg, California	**Laterally Loaded Piles** **Fixed Head - Tension** **14-inch Square Prestressed Concrete Piles**

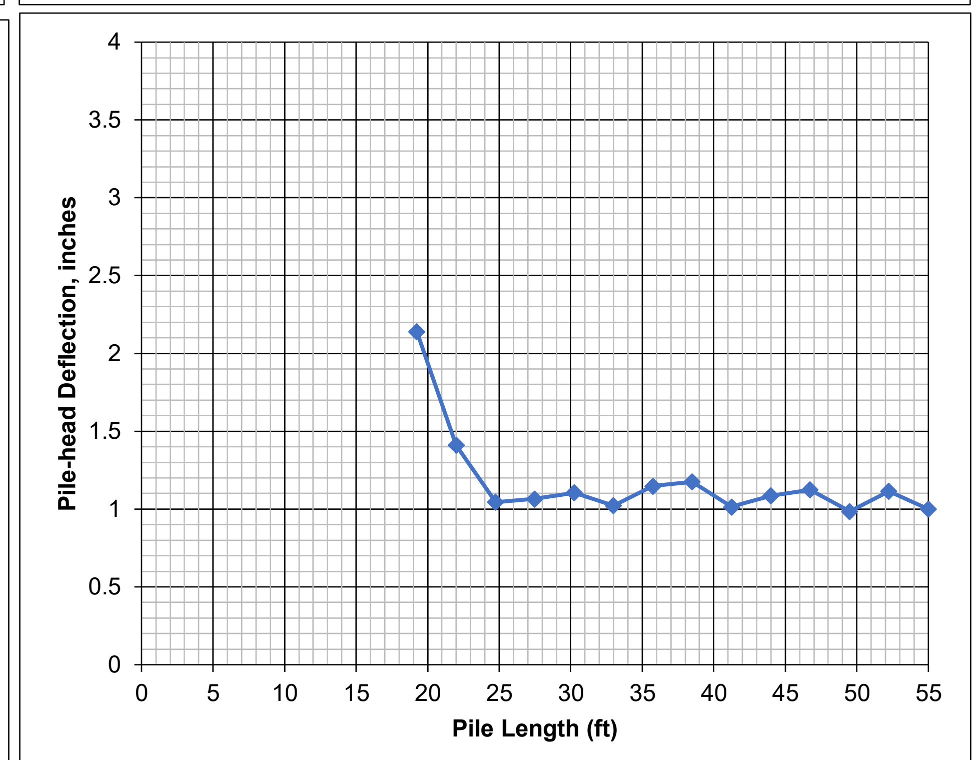
Hultgren - Tillis Engineers	Project No. 197.67	Plate No. 8

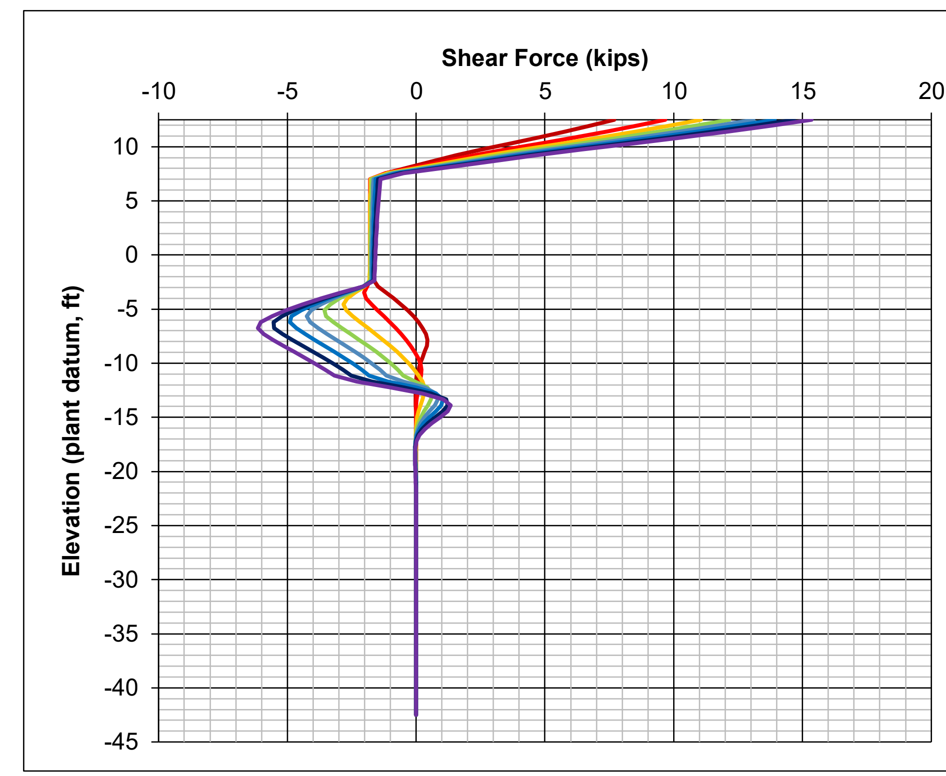








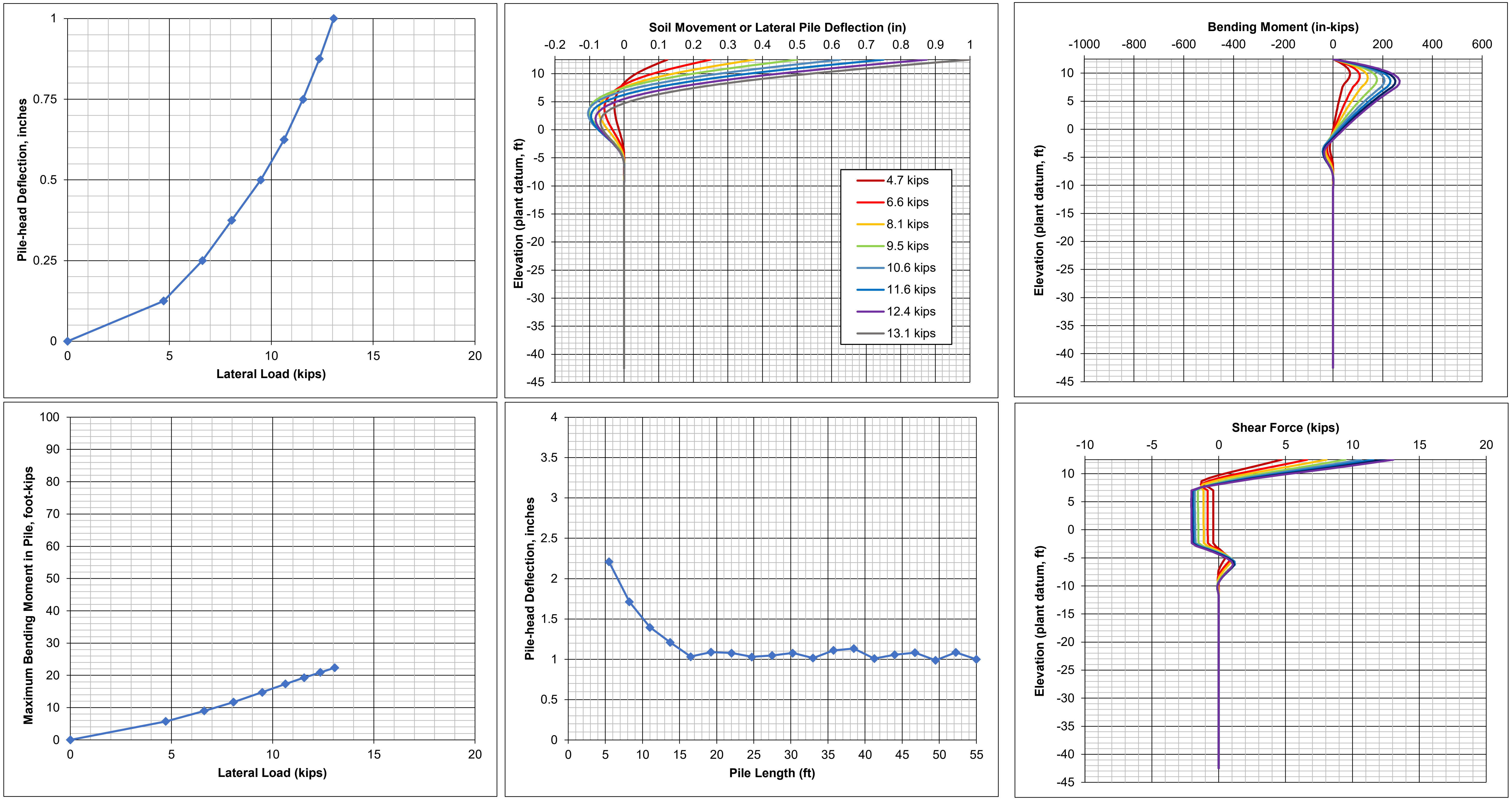




Notes:

1. Assumed pile spacing of at least 6 times the pile width on centers.
2. Pile head is assumed to be in a "free-head" condition at the ground surface, with no external moment applied.
3. Loads are assumed to be short-term and static, and may be used for pseudo-static earthquake analysis.
4. Analysis based on soil strengths; structural capacity of the pile should be checked.
5. Assumed reinforcement of about 2 percent of gross pile area.
6. Assumed axial compression of 200 kips and tension of 100 kips.
7. Deflection is measured at the top of the pile where the lateral load is applied, assumed at Elevation 12.5 feet, plant datum.
8. Assumed level ground outside the pile foundation.
9. No factor of safety has been applied.

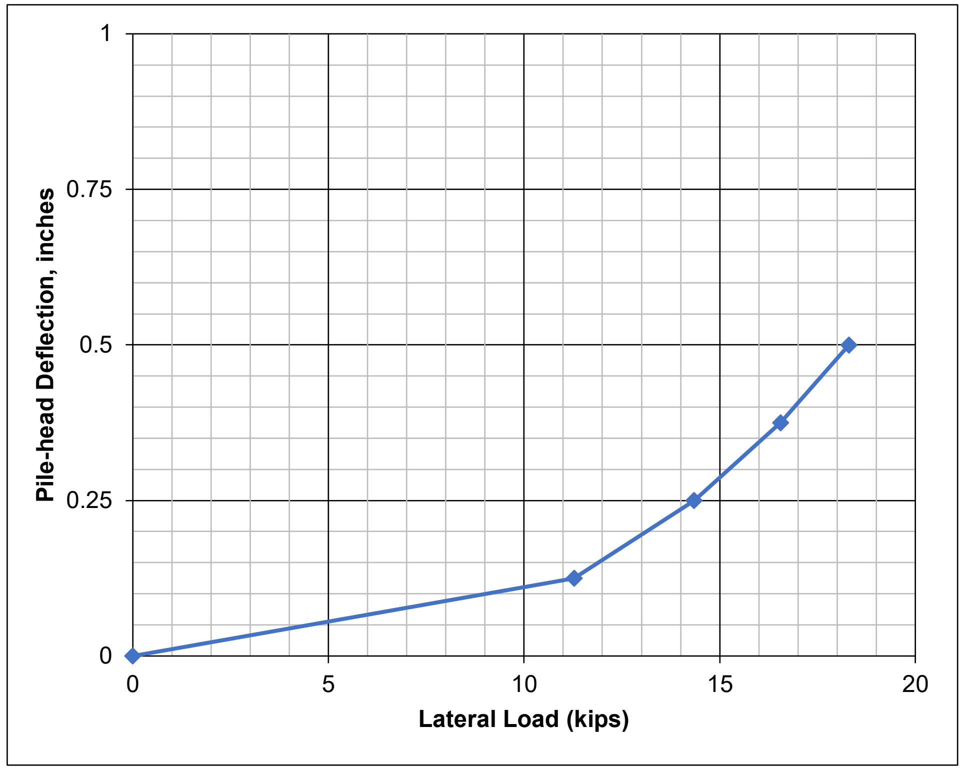
New Plant in Block 680 Corteva Agriscience Facility Pittsburg, California	**Laterally Loaded Piles** **Free Head - Compression** **16-inch Diameter ACIP and DDP**	
Hultgren - Tillis Engineers	Project No. 197.67	Plate No. 9

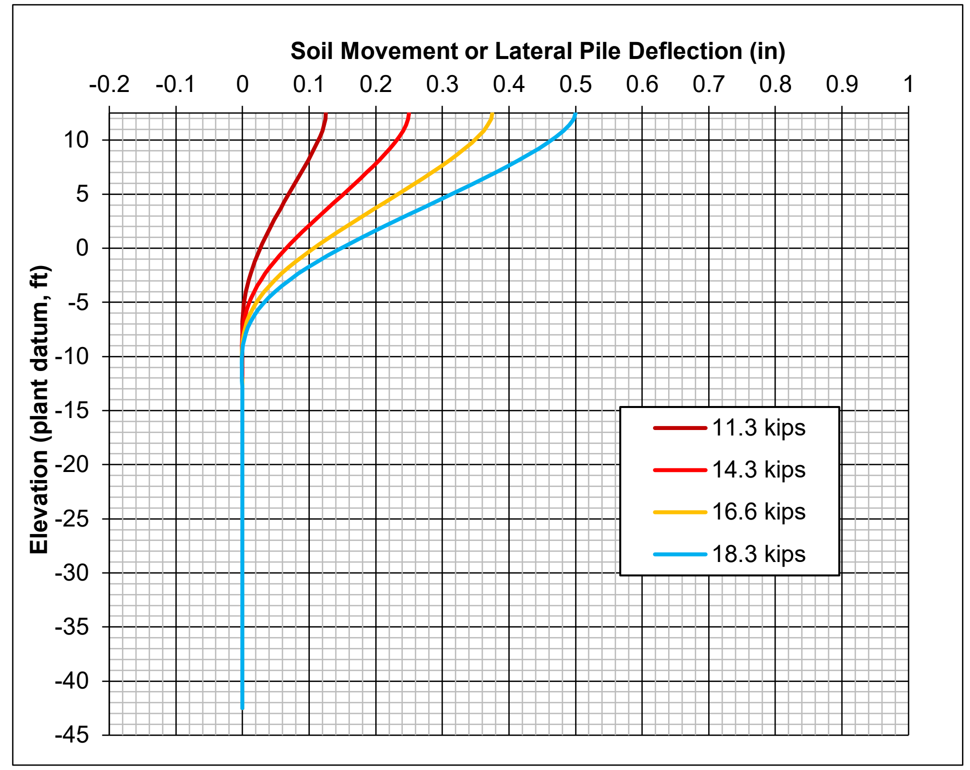


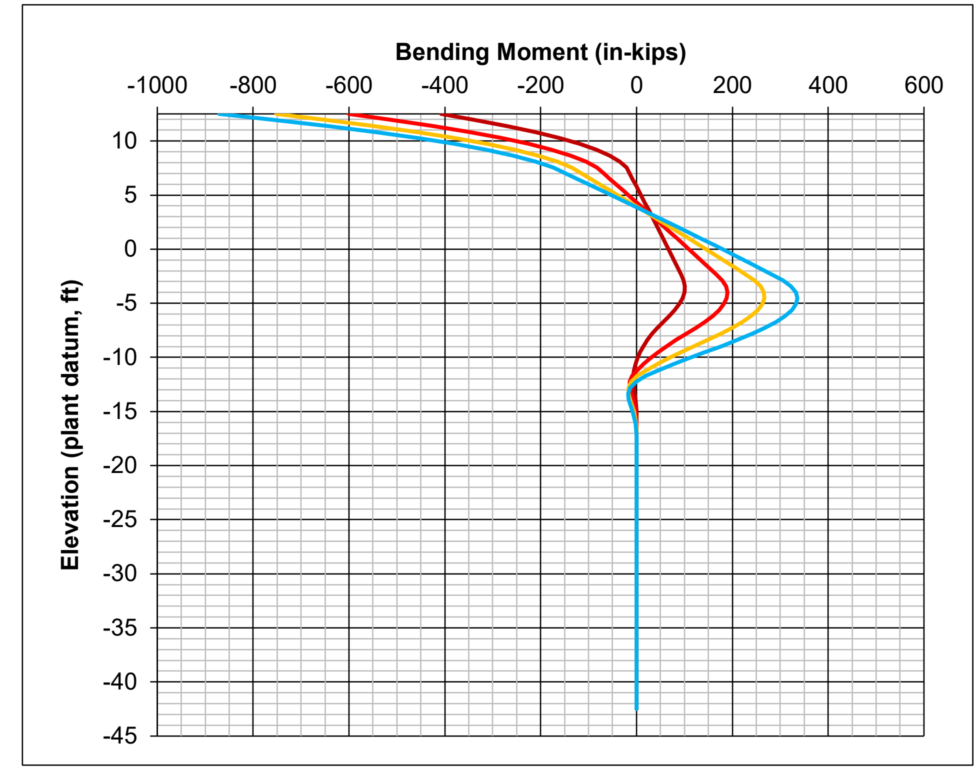
Notes:

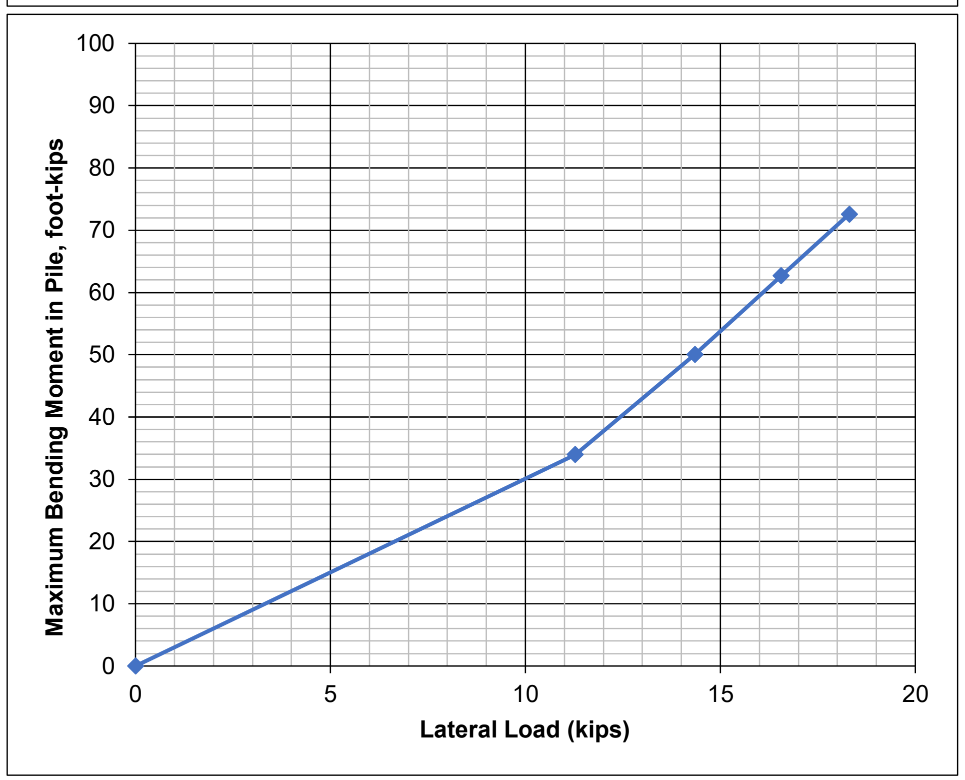
1. Assumed pile spacing of at least 6 times the pile width on centers.
2. Pile head is assumed to be in a "free-head" condition at the ground surface, with no external moment applied.
3. Loads are assumed to be short-term and static, and may be used for pseudo-static earthquake analysis.
4. Analysis based on soil strengths; structural capacity of the pile should be checked.
5. Assumed reinforcement of about 2 percent of gross pile area.
6. Assumed axial compression of 200 kips and tension of 100 kips.
7. Deflection is measured at the top of the pile where the lateral load is applied, assumed at Elevation 12.5 feet, plant datum.
8. Assumed level ground outside the pile foundation.
9. No factor of safety has been applied.

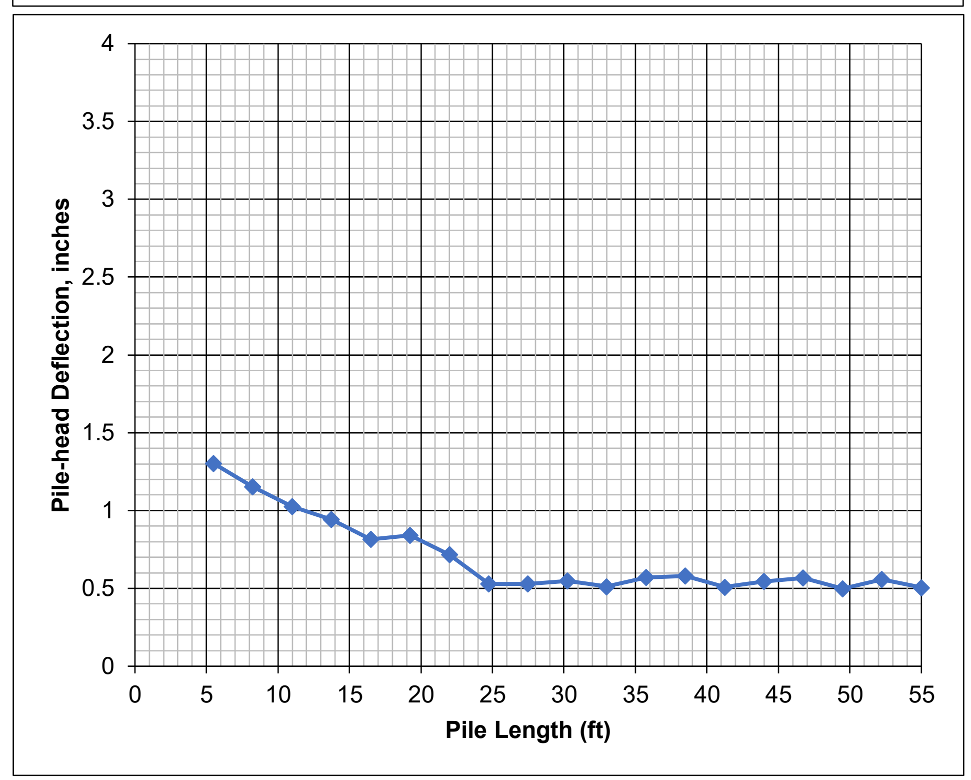
New Plant in Block 680 Corteva Agriscience Facility Pittsburg, California		**Laterally Loaded Piles** **Free Head - Tension** **16-inch Diameter ACIP and DDP**
Hultgren - Tillis Engineers	Project No. 197.67	Plate No. 10

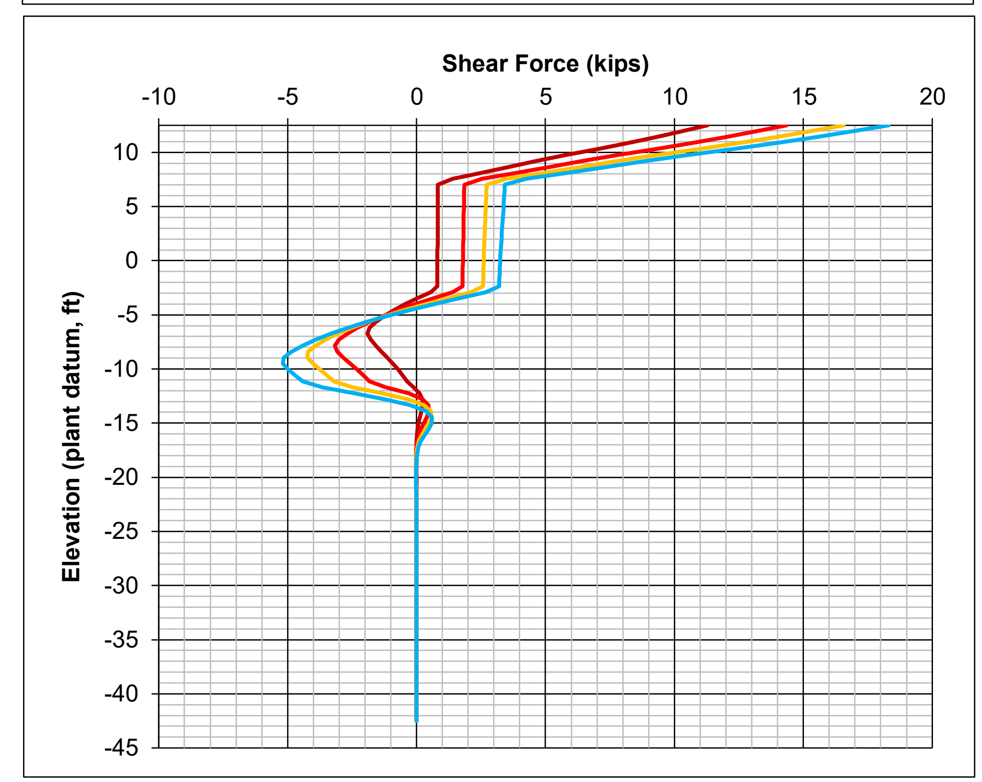








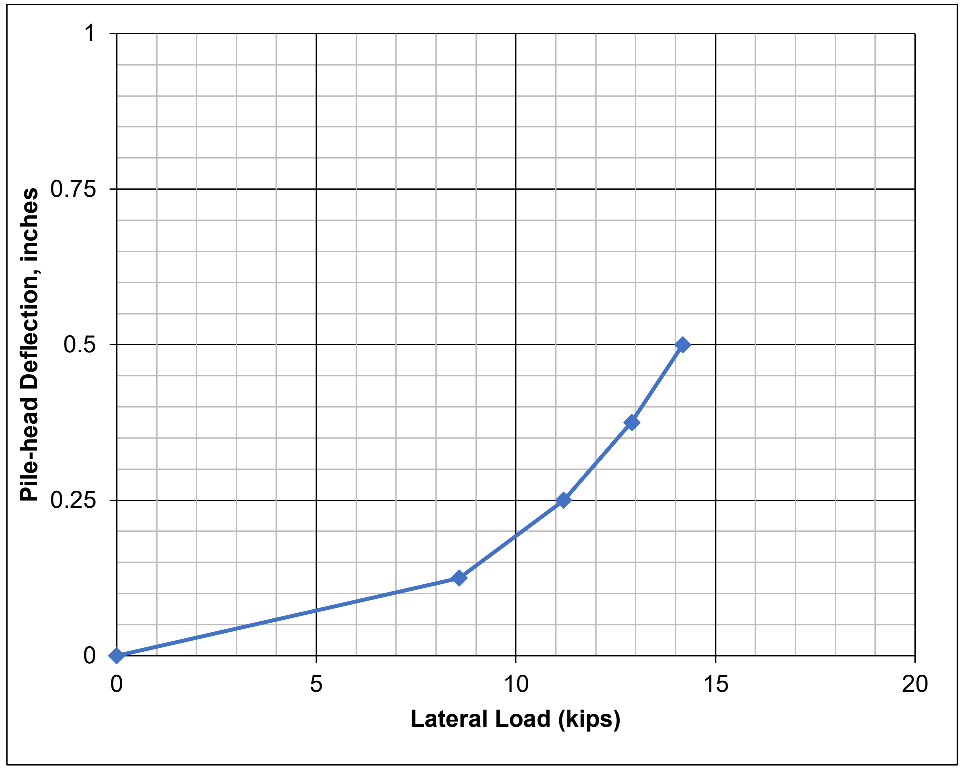


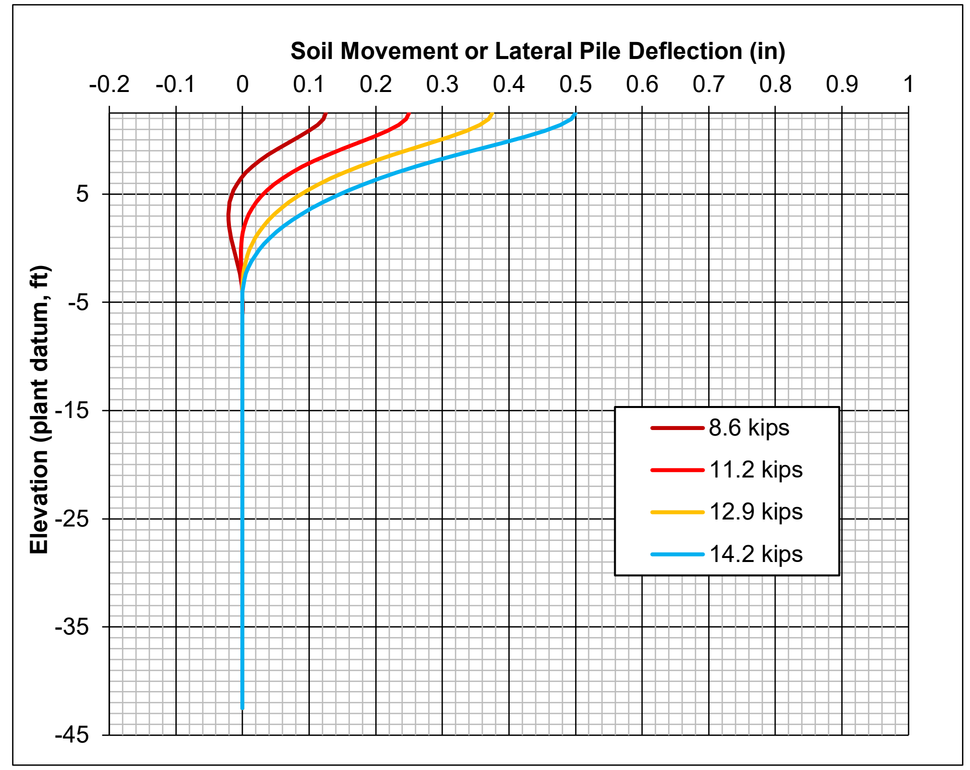


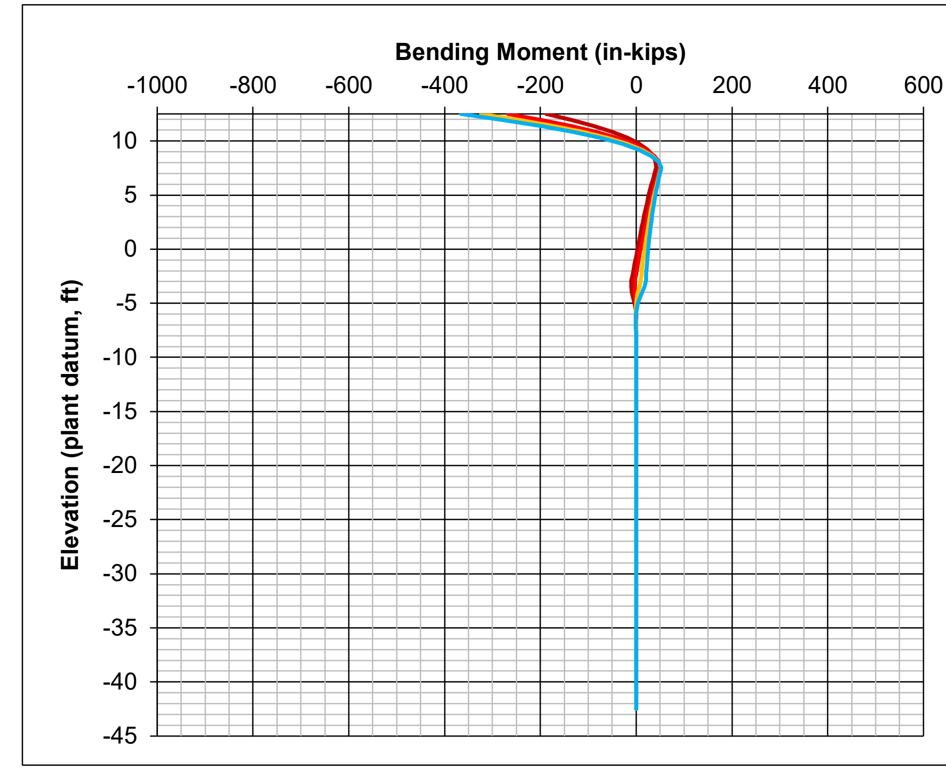
Notes:

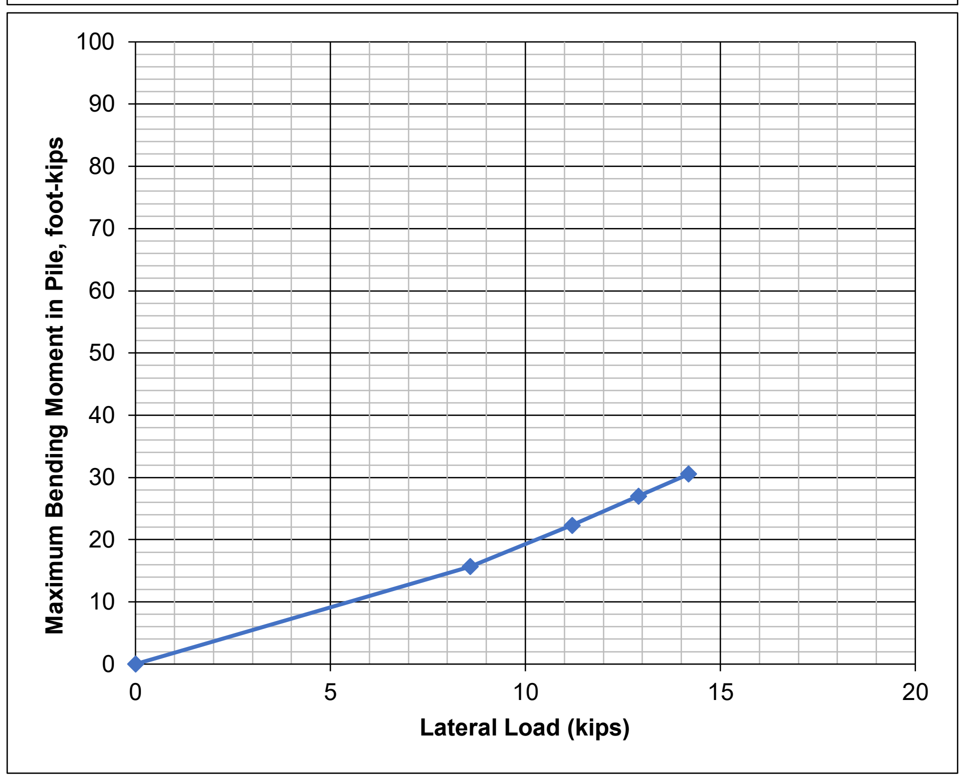
1. Assumed pile spacing of at least 6 times the pile width on centers.
2. Pile head is assumed to be in a "fixed-head" condition at the ground surface, with no external moment applied.
3. Loads are assumed to be short-term and static, and may be used for pseudo-static earthquake analysis.
4. Analysis based on soil strengths; structural capacity of the pile should be checked.
5. Assumed reinforcement of about 2 percent of gross pile area.
6. Assumed axial compression of 200 kips and tension of 100 kips.
7. Deflection is measured at the top of the pile where the lateral load is applied, assumed at Elevation 12.5 feet, plant datum.
8. Assumed level ground outside the pile foundation.
9. No factor of safety has been applied.

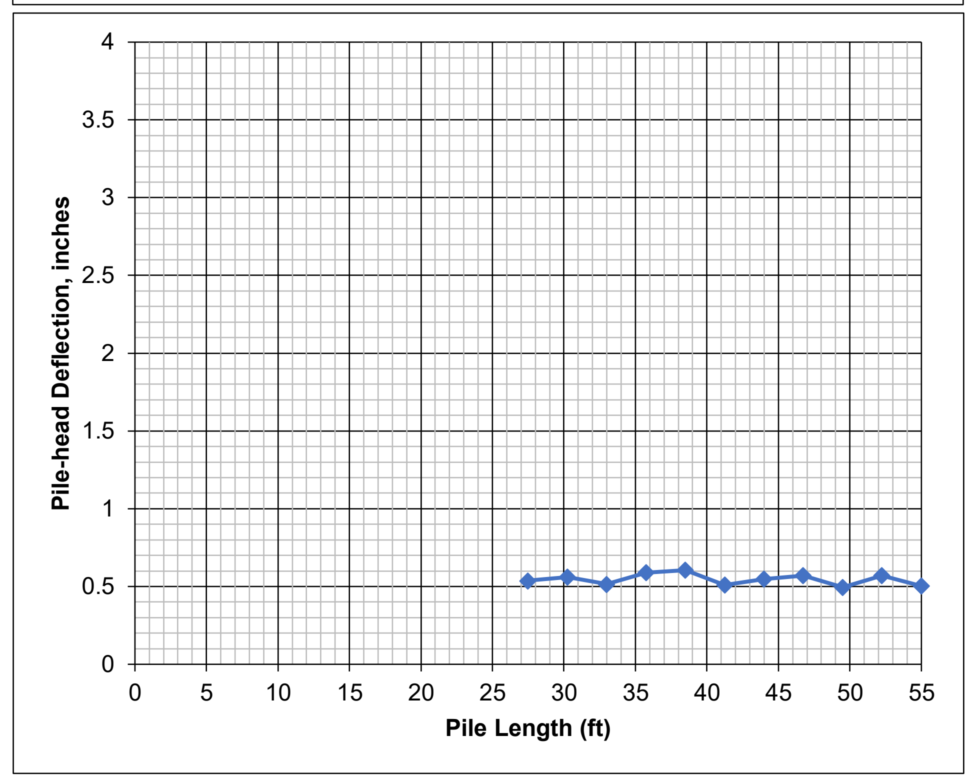
New Plant in Block 680 Corteva Agriscience Facility Pittsburg, California	**Laterally Loaded Piles** **Fixed Head - Compression** **16-inch Diameter ACIP and DDP**	
Hultgren - Tillis Engineers	Project No. 197.67	Plate No. 11

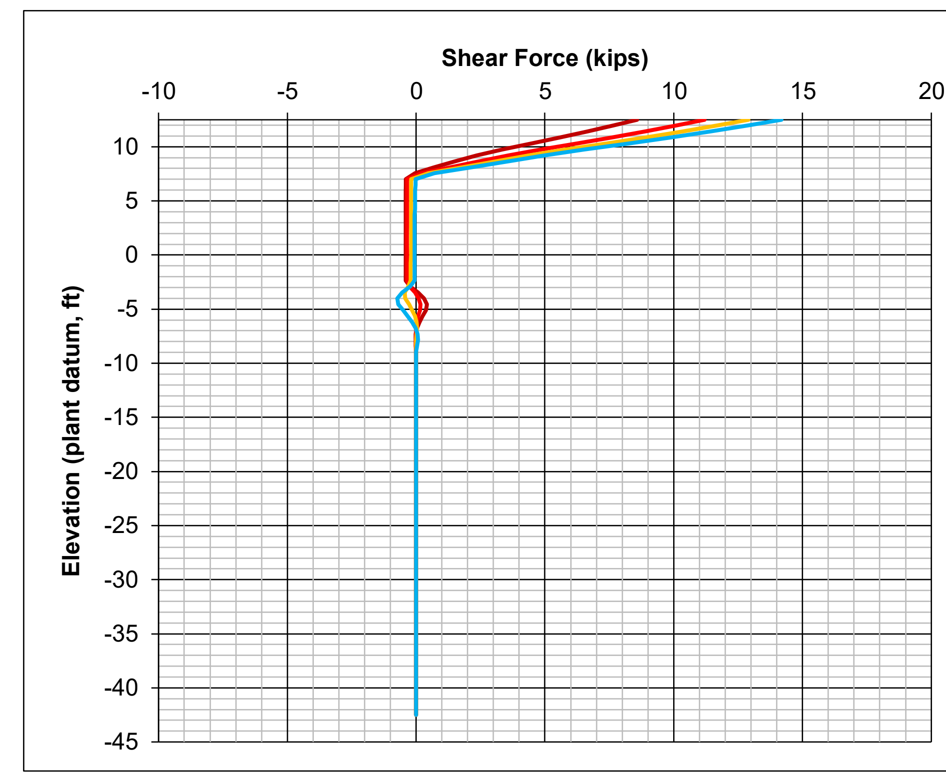








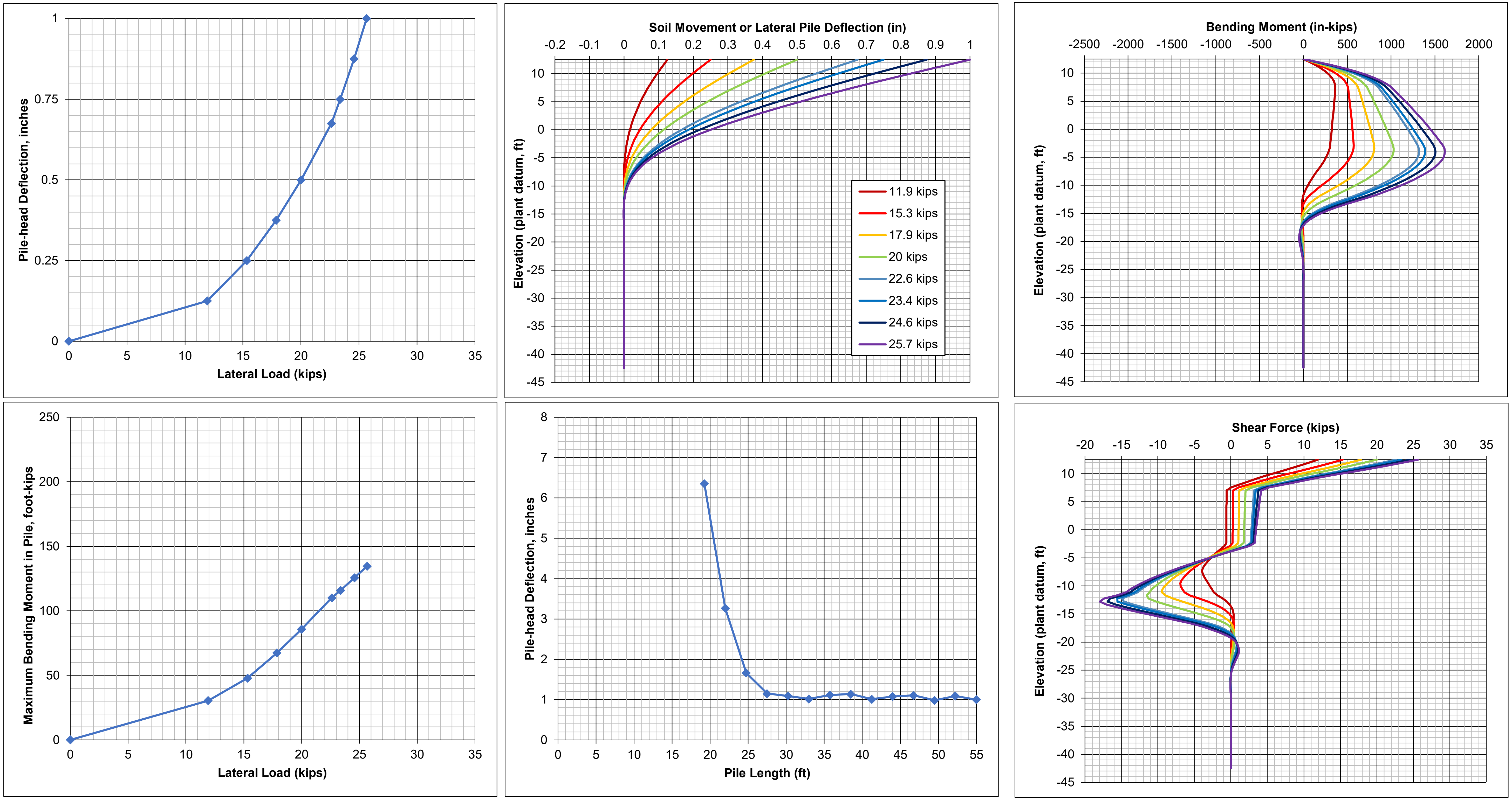




Notes:

1. Assumed pile spacing of at least 6 times the pile width on centers.
2. Pile head is assumed to be in a "fixed-head" condition at the ground surface, with no external moment applied.
3. Loads are assumed to be short-term and static, and may be used for pseudo-static earthquake analysis.
4. Analysis based on soil strengths; structural capacity of the pile should be checked.
5. Assumed reinforcement of about 2 percent of gross pile area.
6. Assumed axial compression of 200 kips and tension of 100 kips.
7. Deflection is measured at the top of the pile where the lateral load is applied, assumed at Elevation 12.5 feet, plant datum.
8. Assumed level ground outside the pile foundation.
9. No factor of safety has been applied.

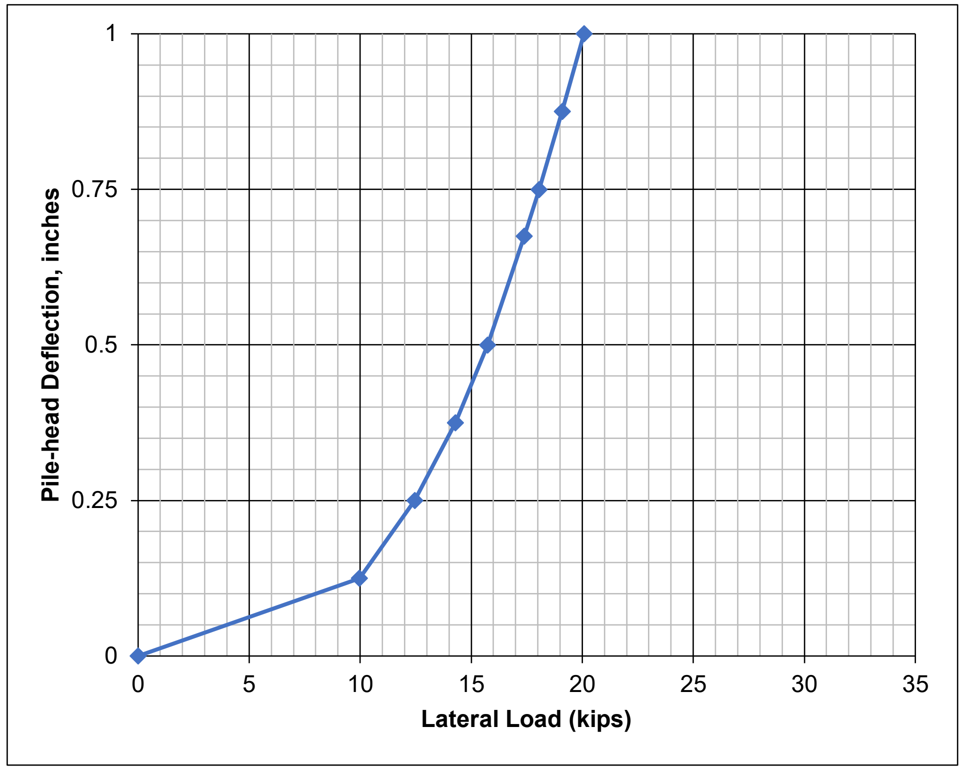
New Plant in Block 680 Corteva Agriscience Facility Pittsburg, California	**Laterally Loaded Piles** **Fixed Head - Tension** **16-inch Diameter ACIP and DDP**	
Hultgren - Tillis Engineers	Project No. 197.67	Plate No. 12

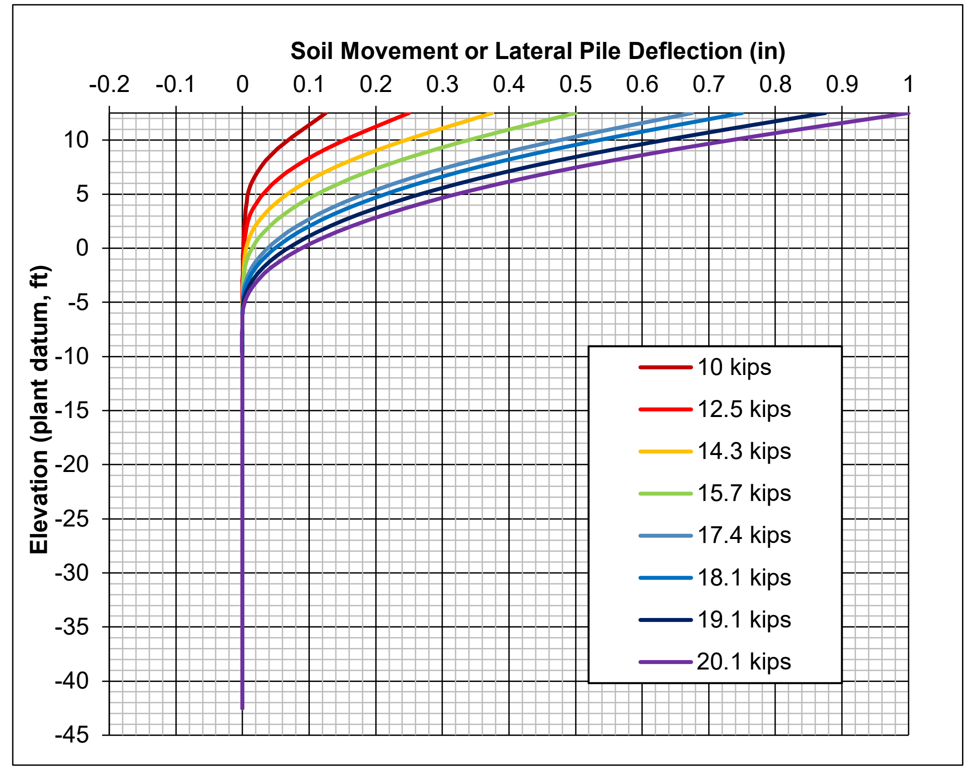


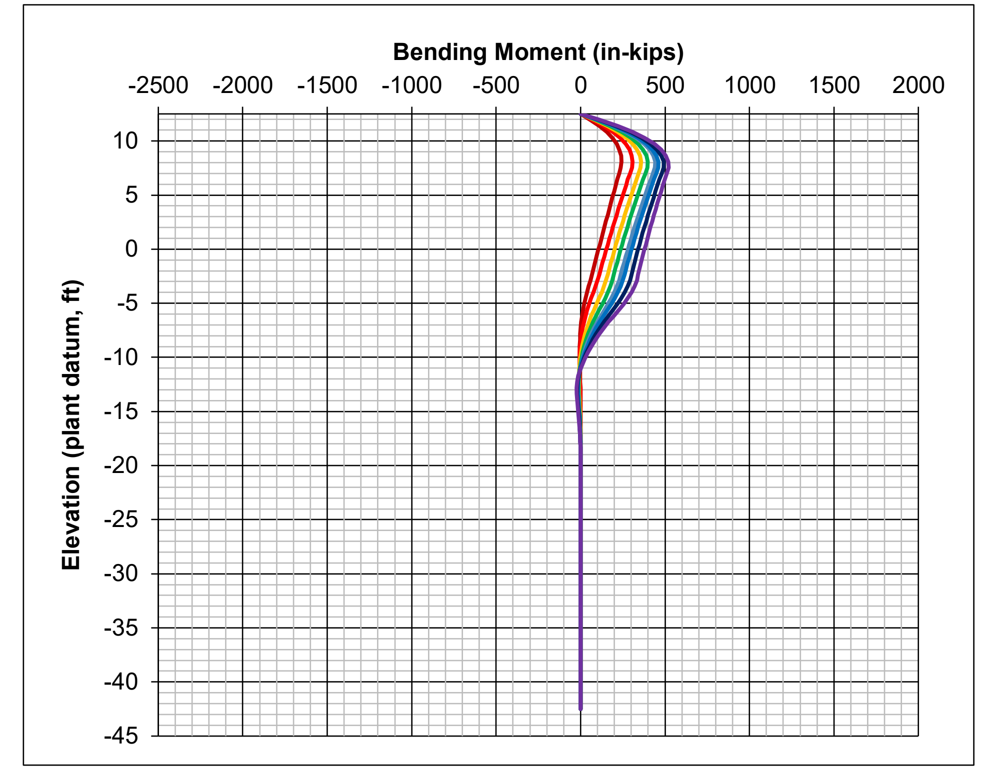
Notes:

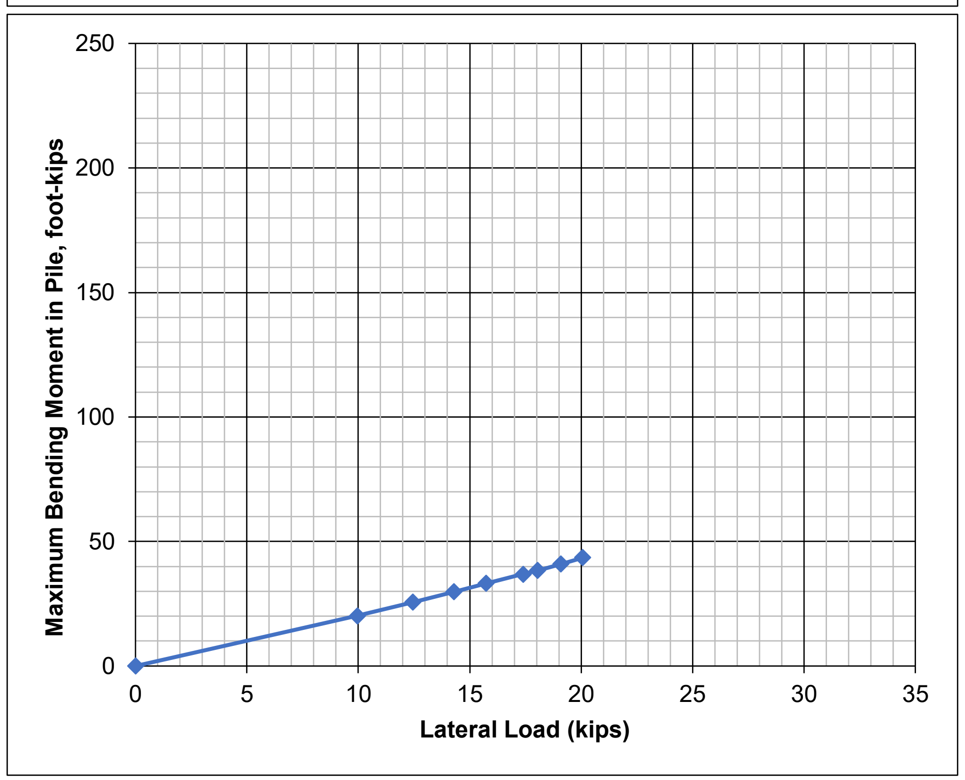
1. Assumed pile spacing of at least 6 times the pile width on centers.
2. Pile head is assumed to be in a "free-head" condition at the ground surface, with no external moment applied.
3. Loads are assumed to be short-term and static, and may be used for pseudo-static earthquake analysis.
4. Analysis based on soil strengths; structural capacity of the pile should be checked.
5. Assumed reinforcement of about 2 percent of gross pile area.
6. Assumed axial compression of 250 kips and tension of 150 kips.
7. Deflection is measured at the top of the pile where the lateral load is applied, assumed at Elevation 12.5 feet, plant datum.
8. Assumed level ground outside the pile foundation.
9. No factor of safety has been applied.

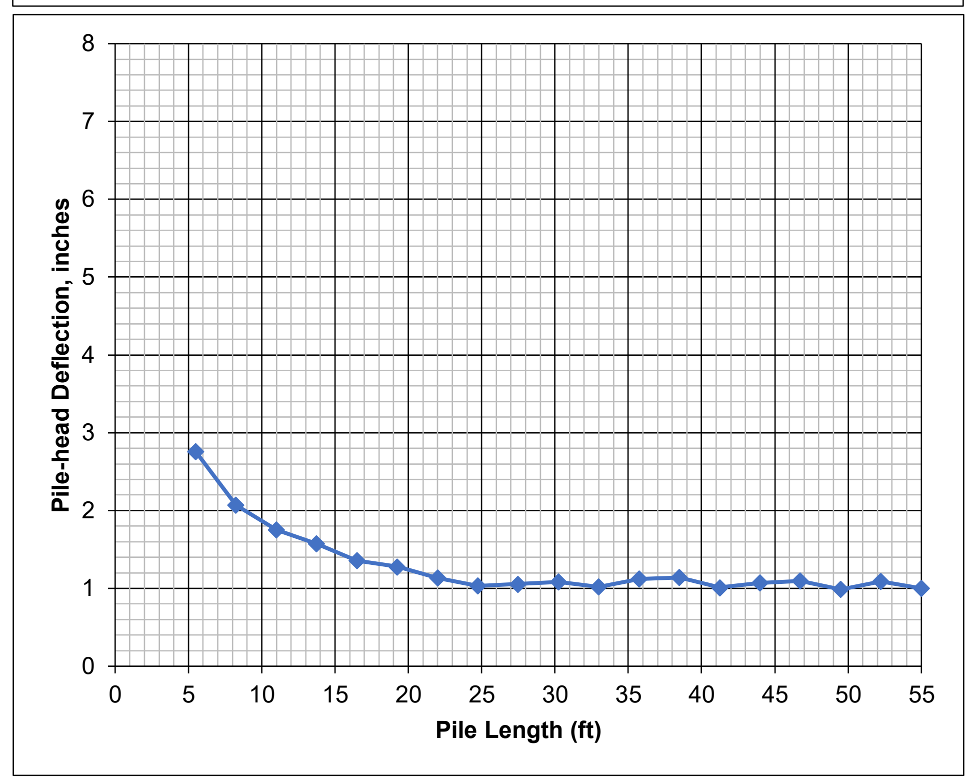
New Plant in Block 680 Corteva Agriscience Facility Pittsburg, California	**Laterally Loaded Piles** **Free Head - Compression** **24-inch Diameter ACIP and DDP**	
Hultgren - Tillis Engineers	Project No. 197.67	Plate No. 13

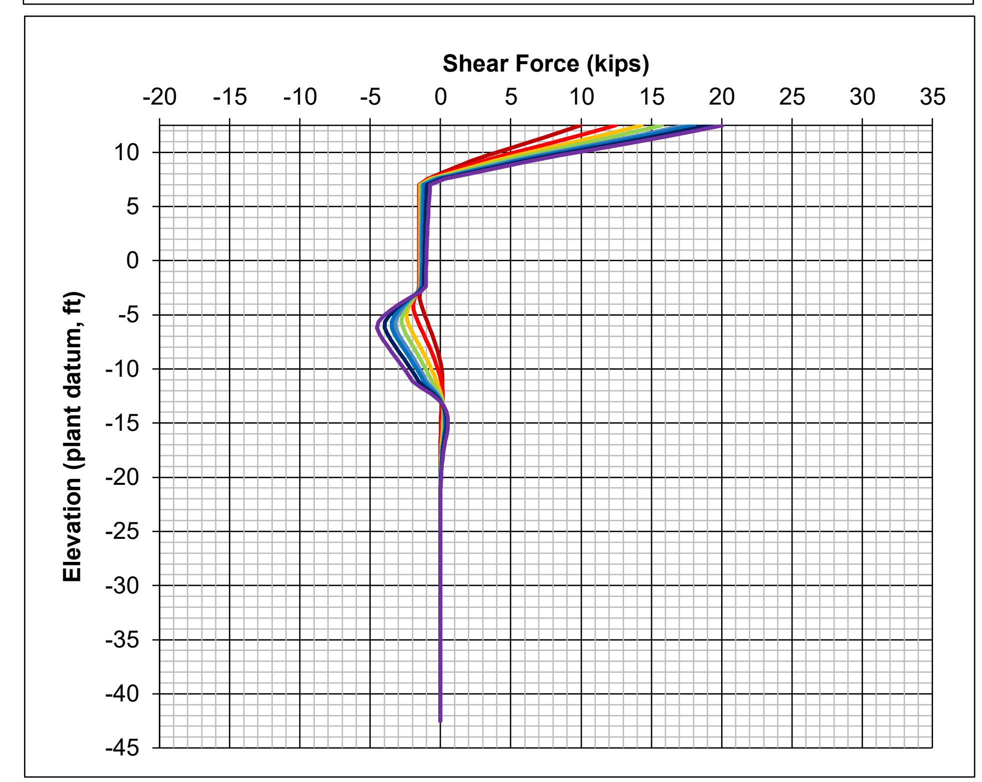








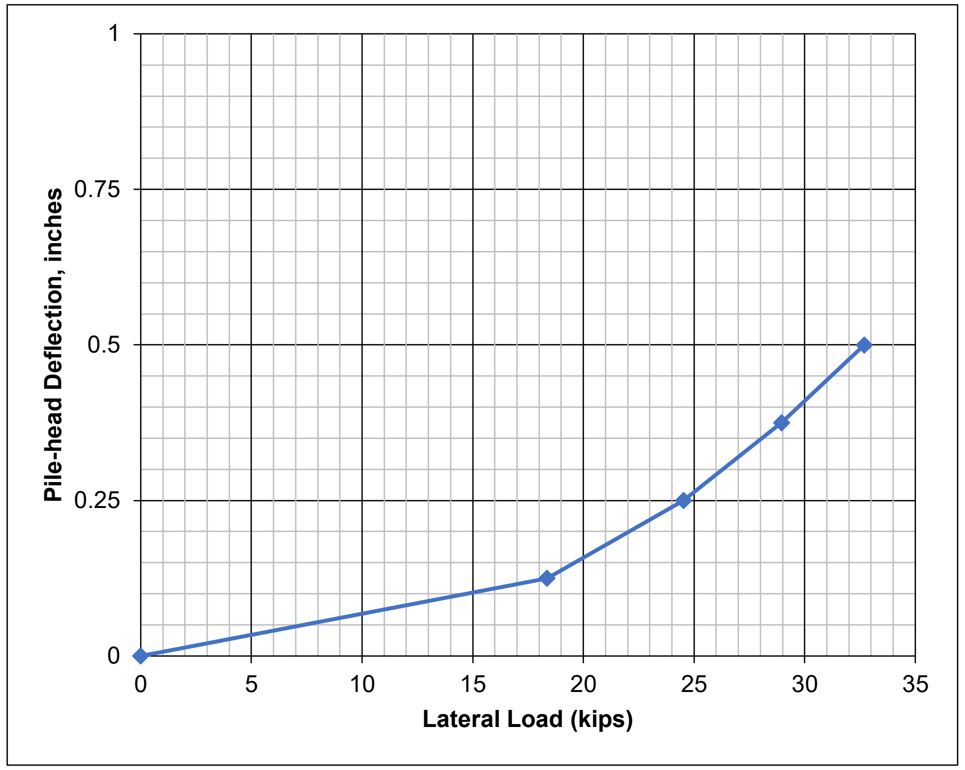


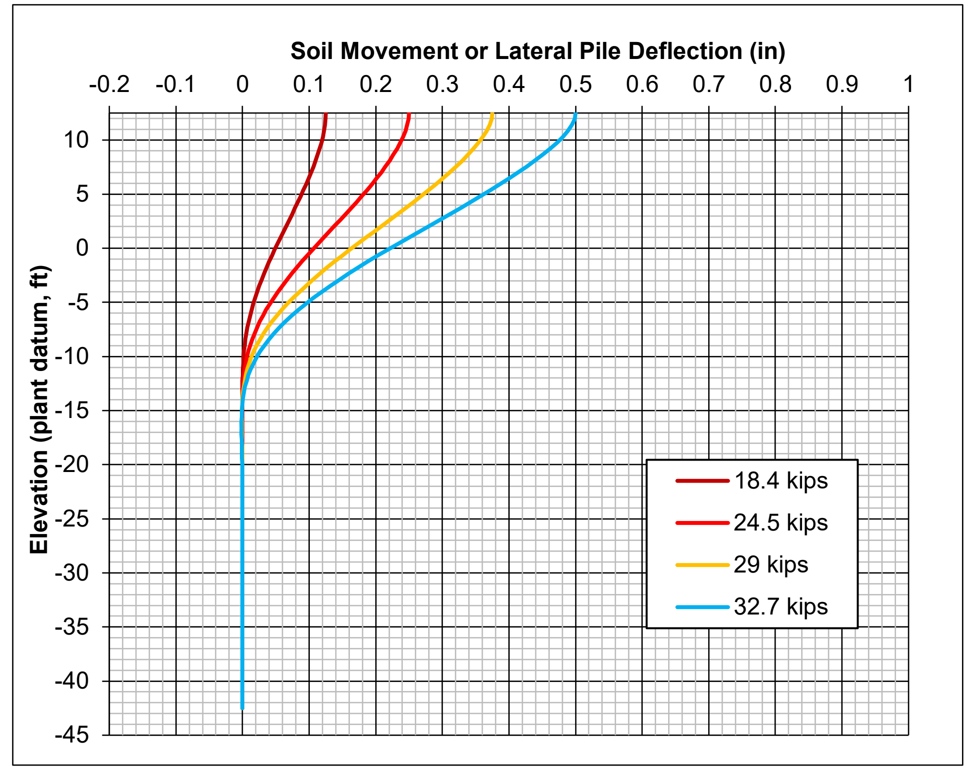


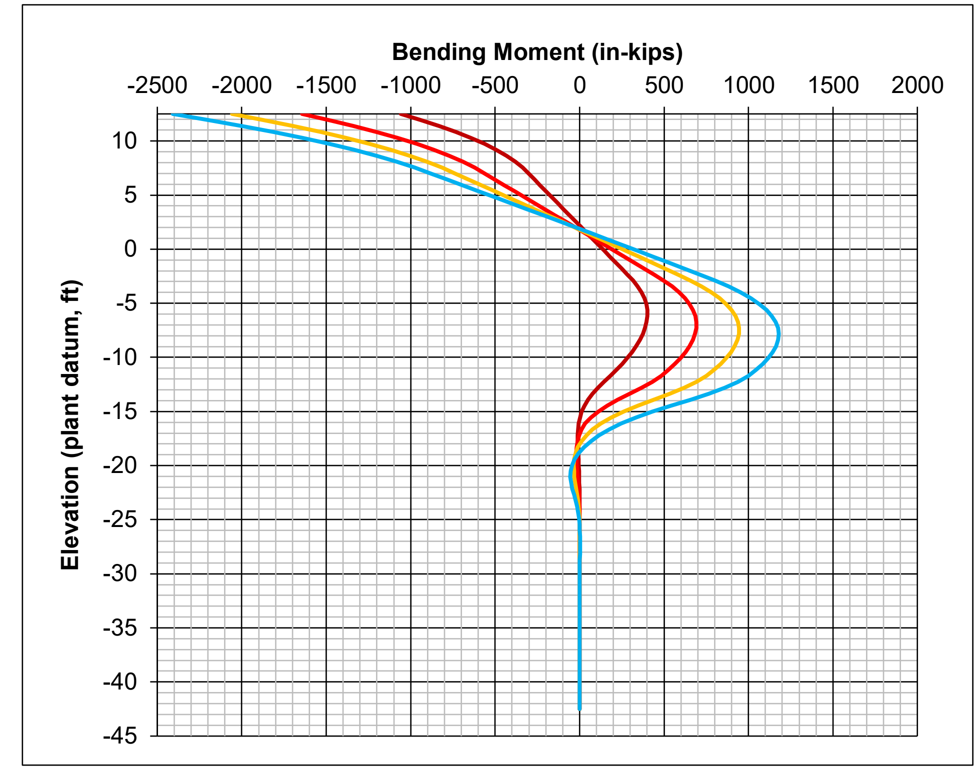
Notes:

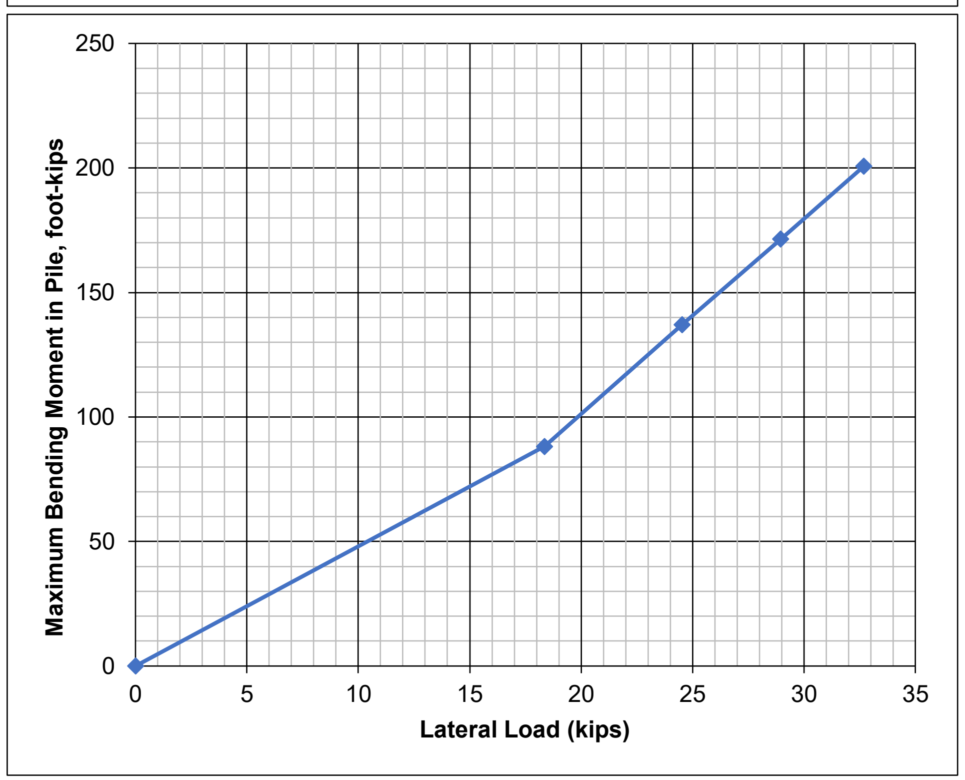
1. Assumed pile spacing of at least 6 times the pile width on centers.
2. Pile head is assumed to be in a "free-head" condition at the ground surface, with no external moment applied.
3. Loads are assumed to be short-term and static, and may be used for pseudo-static earthquake analysis.
4. Analysis based on soil strengths; structural capacity of the pile should be checked.
5. Assumed reinforcement of about 2 percent of gross pile area.
6. Assumed axial compression of 250 kips and tension of 150 kips.
7. Deflection is measured at the top of the pile where the lateral load is applied, assumed at Elevation 12.5 feet, plant datum.
8. Assumed level ground outside the pile foundation.
9. No factor of safety has been applied.

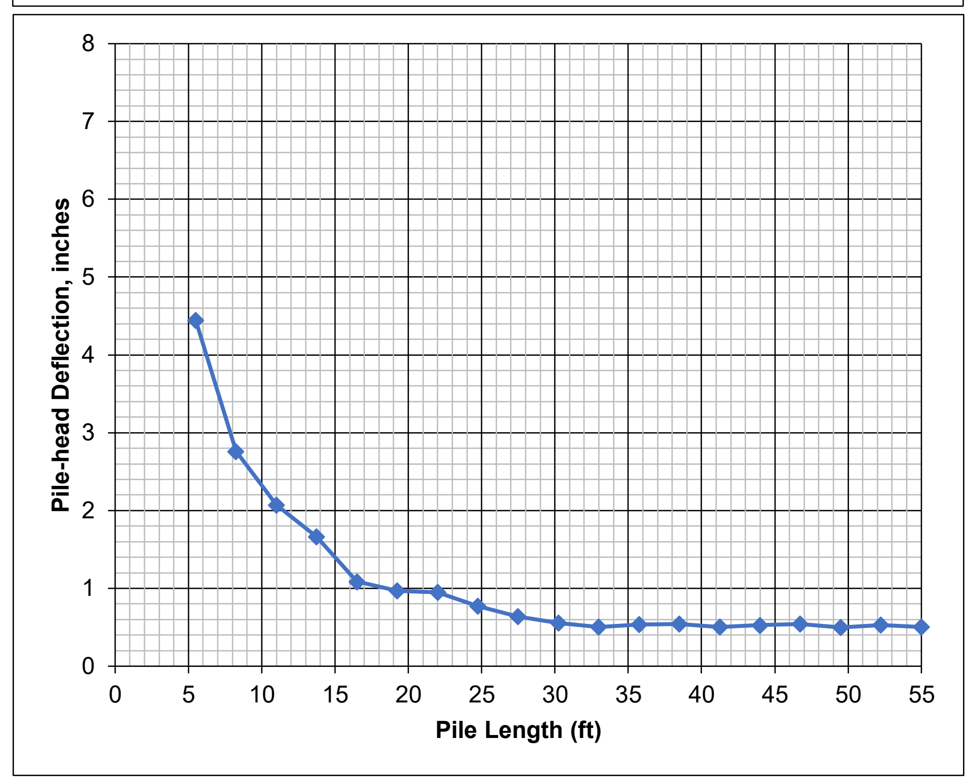
New Plant in Block 680 Corteva Agriscience Facility Pittsburg, California	**Laterally Loaded Piles** **Free Head - Tension** **24-inch Diameter ACIP and DDP**	
Hultgren - Tillis Engineers	Project No. 197.67	Plate No. 14

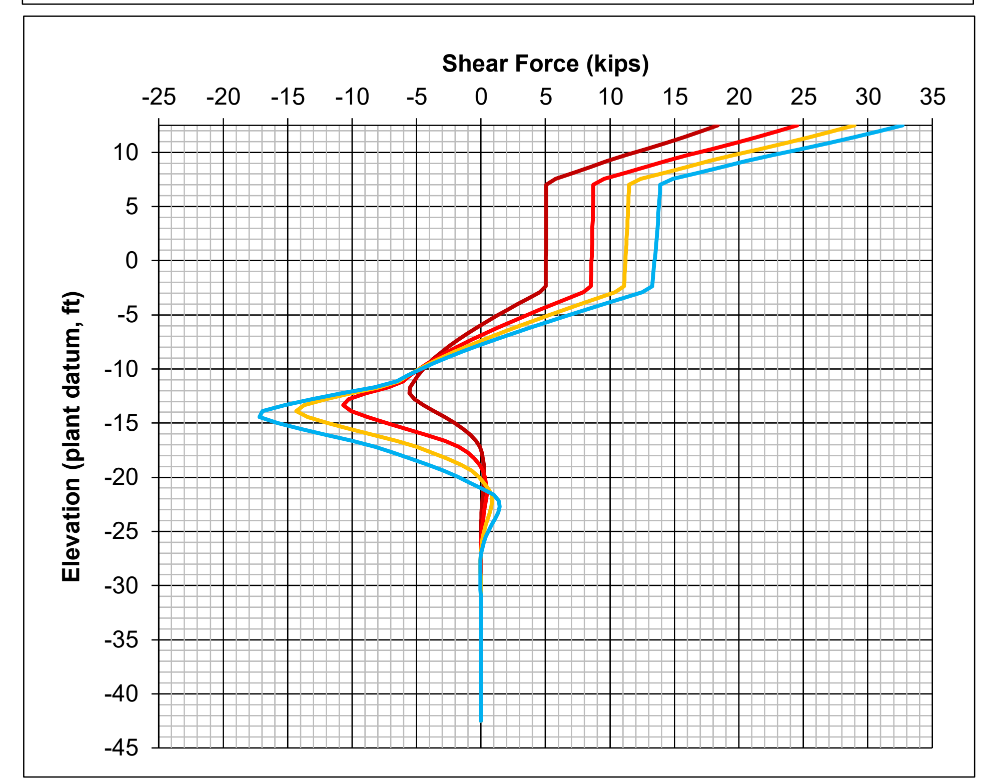








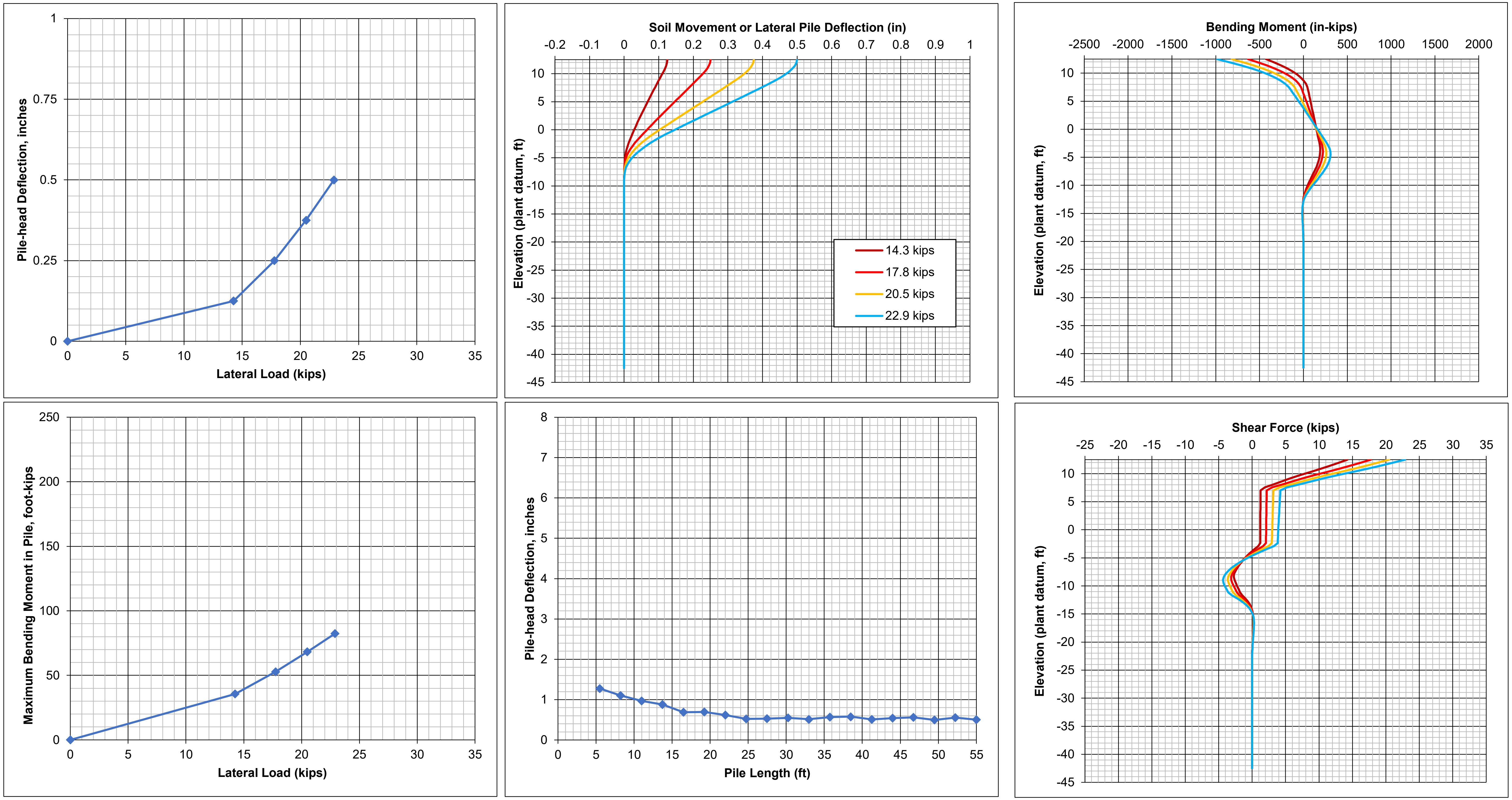




Notes:

1. Assumed pile spacing of at least 6 times the pile width on centers.
2. Pile head is assumed to be in a "fixed-head" condition at the ground surface, with no external moment applied.
3. Loads are assumed to be short-term and static, and may be used for pseudo-static earthquake analysis.
4. Analysis based on soil strengths; structural capacity of the pile should be checked.
5. Assumed reinforcement of about 2 percent of gross pile area.
6. Assumed axial compression of 250 kips and tension of 150 kips.
7. Deflection is measured at the top of the pile where the lateral load is applied, assumed at Elevation 12.5 feet, plant datum.
8. Assumed level ground outside the pile foundation.
9. No factor of safety has been applied.

New Plant in Block 680 Corteva Agriscience Facility Pittsburg, California	**Laterally Loaded Piles** **Fixed Head - Compression** **24-inch Diameter ACIP and DDP**	
Hultgren - Tillis Engineers	Project No. 197.67	Plate No. 15



Notes:

1. Assumed pile spacing of at least 6 times the pile width on centers.
2. Pile head is assumed to be in a "fixed-head" condition at the ground surface, with no external moment applied.
3. Loads are assumed to be short-term and static, and may be used for pseudo-static earthquake analysis.
4. Analysis based on soil strengths; structural capacity of the pile should be checked.
5. Assumed reinforcement of about 2 percent of gross pile area.
6. Assumed axial compression of 250 kips and tension of 150 kips.
7. Deflection is measured at the top of the pile where the lateral load is applied, assumed at Elevation 12.5 feet, plant datum.
8. Assumed level ground outside the pile foundation.
9. No factor of safety has been applied.

New Plant in Block 680 Corteva Agriscience Facility Pittsburg, California	**Laterally Loaded Piles** **Fixed Head - Tension** **24-inch Diameter ACIP and DDP**	
Hultgren - Tillis Engineers	Project No. 197.67	Plate No. 16

APPENDIX A

LOGS OF PREVIOUS EXPLORATION

New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California

Project No. 197.67

Plate No. A-1

Equipment 8" Rotary Wash

Elevation 12.5 feet*** Date 5/22/84

Laboratory Tests	Blows/foot*	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Description
				0	2" GRAVEL
	20				BROWN SILTY SAND (SM) medium dense, moist, with abundant gravel — FILL
	14**			5	BROWN SAND (SP) medium dense, moist; becomes saturated
	5				BROWN SILTY SAND (SM) loose, saturated
				10	GRAY CLAYEY SILT (MH) medium stiff, saturated
	11			15	YELLOW-BROWN SANDY CLAYEY SILT (ML) stiff, saturated; becomes more sandy
	10			20	YELLOW-BROWN VERY SILTY SAND (SM) medium dense, saturated
	23			25	LIGHT BROWN SILTY CLAY (CL) very stiff, saturated
	36			30	LIGHT BROWN CLAYEY SANDY SILT (ML) hard, saturated
	14	31.2	90	35	becomes less clayey, micaceous
	36			40	becomes clayey

(Continuation of Log)

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Description
				40	
	40			45	
Tx 1800 (3500)	29	32.9	85	50	Bottom of hole @ 49.5 feet Water level obscured by drilling method
				55	
				60	
				65	
				70	
				75	
				80	

Harding Lawson Associates
Engineers, Geologists & Geophysicists

Log of Boring 1 (374)
Incinerator,
Dow Chemical Company
Pittsburg, California

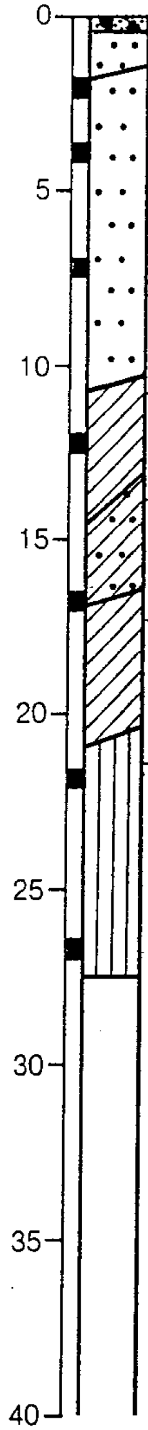
PLATE 2

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
Shields	4013,047.03	[illegible]	6/84		

Equipment 8" Rotary Wash

Elevation 12.5 feet*** Date 5/23/84

Laboratory Tests	Blows/foot *	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample
	22				
	12				
	6				
	9				
	7				
	31				
	27	22.7	103.1		



BROWN SANDY GRAVEL (GP) medium dense, moist — FILL

BROWN GRAVELLY SAND (SP) medium dense, moist

BROWN SAND (SP) medium dense, moist

becomes saturated

micaceous

MOTTLED BROWN AND GRAY SILTY CLAY (CL) stiff, saturated

MOTTLED GRAY AND BROWN CLAYEY SAND (SC) loose, saturated

BROWN SANDY CLAY (CL) very stiff, saturated

LIGHT BROWN SANDY SILT (ML) hard, saturated, with some clay

becomes very clayey

Bottom of hole @ 27.5 feet

Water level obscured by drilling method

Harding Lawson Associates
Engineers, Geologists & Geophysicists

Log of Boring 2 (375)
Incenerator, Dow Chemical Company
Pittsburg, California

PLATE **3**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
Shields	4013,047.03	ESL	6/84		

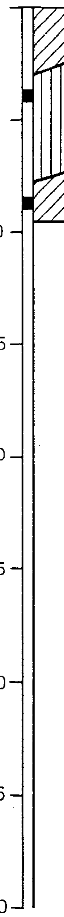
Equipment 8" Rotary Wash

Elevation 12.5 feet*** Date 5/23/84

Laboratory Tests	Blows/foot*	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Description
				0	BROWN SILTY SAND (SM) dense, moist — FILL
	11				MIXED BROWN AND DARK BROWN SILTY CLAY (CL) stiff, moist, with some sand
	33**			5	▽ Water level on 6/25/84
					BROWN SILTY SAND (SM) medium dense, moist becomes saturated @ 7.0 feet
Passing Sieve No. 200 = 2% Gradation Curve See Plate 19	6				becomes loose, less silty
				10	
	4				color change to gray becomes more silty
				15	
					DARK BROWN ORGANIC SILT (OH) medium stiff, saturated
	4				
				20	GRAY CLAYEY SILT (MH) medium stiff, saturated abundant organic material
	push				
				25	
					GRAY SILTY CLAY (CL) very stiff, saturated
	17				
				30	
	28	21.6	107		becomes sandy
				35	
	37				becomes hard
				40	

(Continuation of Log)

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Description
				40	
					YELLOW-BROWN CLAYEY SANDY SILT (ML) very stiff, saturated
	29				
				45	
					LIGHT BROWN SANDY CLAY (CL) very stiff, saturated
	17				
					Bottom of hole @ 49.5 feet
				50	Observation well installed
				55	
				60	
				65	
				70	
				75	
				80	



Harding Lawson Associates
Engineers, Geologists & Geophysicists

Log of Boring 3 (376)
Incinerator,
Dow Chemical Company
Pittsburg, California

PLATE 4

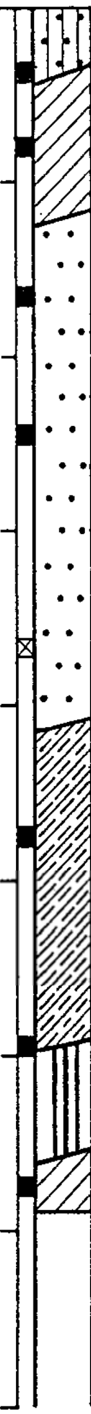
DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
Shields	4013,047.03	ESL	6/84		

Equipment 8" Rotary Wash

Elevation 12.5 feet*** Date 5/23/84

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Description
				0	DARK BROWN SILTY SAND (SM) medium dense, moist
	16				DARK BROWN SILTY CLAY (CL) stiff, moist with some gravel and brick-like slag by-product, fragments and occasional organics
	10			5	
					color change to mixed brown-gray and dark brown
	22				becomes saturated
				10	BROWN SAND (SP-SM) medium dense, saturated with trace silt
Passing Sieve No. 200 = 7% Gradation Curve See Plate 19	7				color change to gray, becomes loose
				15	
	10**				color change to green brown becomes medium dense
				20	BLACK ORGANIC SILT (OH) medium stiff, saturated
	6				
				25	
	5			30	GRAY BROWN CLAYEY SILT (MH) medium stiff, saturated
	15				GRAY SANDY CLAY (CL) very stiff, saturated
				35	Bottom of hole @ 34.5 feet
					Water level obscured by drilling method
				40	

FILL (0 to approx. 6 ft)



Harding Lawson Associates
Engineers, Geologists & Geophysicists

Log of Boring 4 (377)

Incinerator, Dow Chemical Company
Pittsburg, California

PLATE 5

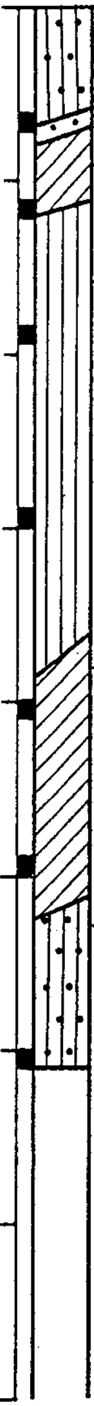
DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
Shields	4013,047.03	ESL	6/84		

Equipment 8" Rotary Wash

Elevation 12.5 feet*** Date 5/24/84

Laboratory Tests	Blows/foot *	Moisture Content (%)	Dry Density (pcf)	Depth (ft)
	15			
	25			
Tx 3790 (1000)	31	22.4	104	
	21			
	21	23.6	103.2	
	38			
	54			

Depth (ft): 0, 5, 10, 15, 20, 25, 30, 35, 40



BROWN SILTY SAND (SM) medium dense, moist, with some gravel, concrete fragments and occasional clay lenses — FILL

BROWN SAND (SP) medium dense, moist

ORANGE-BROWN SANDY CLAY (CL) very stiff, moist

LIGHT ORANGE-BROWN CLAYEY SILT (ML) very stiff, moist, with abundant fine sand

calcareous seams @ 9.5 feet

color change to brown, micaceous

GRAY SANDY CLAY (CL) very stiff, saturated

color change to brown

BROWN SILTY FINE SAND (SM) very dense, saturated

Bottom of hole @ 30.5 feet

Water level obscured by drilling method

Harding Lawson Associates
Engineers, Geologists & Geophysicists

Log of Boring 5 (378)
Incinerator, Dow Chemical Company
Pittsburg, California

PLATE 6

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
Shields	4013,047.03	ESL	6/84		

Equipment 8" Rotary Wash

Elevation 12.5 feet*** Date 5/23/84

Laboratory Tests	Blows/foot*	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Description
				0	BROWN SILTY SAND (SM) dense, moist with some gravel and brick like slag by-product fragments — FILL
	24				BROWN SAND (SP) medium dense, moist
				5	DARK BROWN SILTY CLAY (CL-CH) stiff, moist
	14				LIGHT ORANGE-BROWN CLAYEY SILT (ML) very stiff, moist
	24	12.5	113	10	
					becomes more clayey
	16			15	
					LIGHT BROWN SILTY CLAY (CL) very stiff, saturated
	27			20	
					sand lens
Tx 1240 (1900)	17	29.2	95	25	
	39			30	MOTTLED GRAY AND BROWN VERY SILTY SAND (SM) dense, saturated, micaceous
	40**			35	MOTTLED BROWN AND GRAY FINE SANDY SILT (ML) very stiff, saturated
	28			40	

(Continuation of Log)

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Description
				40	
	38			45	GRAY SILTY FINE SAND (SM) dense, saturated, with occasional sandy silt lenses
	30			50	LIGHT BROWN SILTY CLAY (CL) very stiff, saturated
					Bottom of hole @ 49.5 feet
					Water level obscured by drilling method
				55	
				60	
				65	
				70	
				75	
				80	

Harding Lawson Associates
Engineers, Geologists & Geophysicists

Log of Boring 6 (379)
Incinerator,
Dow Chemical Company
Pittsburg, California

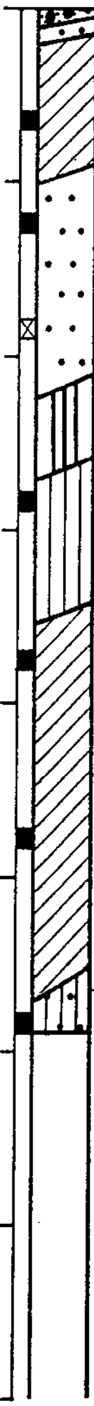
PLATE **7**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
Shields	4013,047.03		6/84		

Laboratory Tests	Blows/foot *	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample

Equipment 8" Rotary Wash

Elevation 12.5 feet*** Date 5/24/84



Depth (ft)	Blows/foot *	Description
0		BROWN SANDY GRAVEL (GW) medium dense, moist — FILL
		BROWN GRAVELLY SAND (SP) medium dense, moist — FILL
	25	BROWN SANDY CLAY (CL) stiff, moist, with abundant gravel & debris — FILL
5	18	BROWN SAND (SP) medium dense, moist, with few mica flakes; becomes saturated at 7 feet
	9**	
10		DARK GRAY CLAYEY SILT (MH) medium stiff, saturated
	14	MOTTLED GRAY CLAYEY SILT (ML) stiff, saturated, with some fine sand
15		
	18	GRAY-GREEN SANDY CLAY (CL) very stiff, saturated, with some silt
20		
	39	
25		
	39	LIGHT BROWN VERY SILTY FINE SAND (SM) dense, saturated with some mica
30		Bottom of hole @ 29.5 feet
		Water level obscured by drilling method
35		
40		

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Log of Boring 7 (380)
Incinerator, Dow Chemical Company
Pittsburg, California

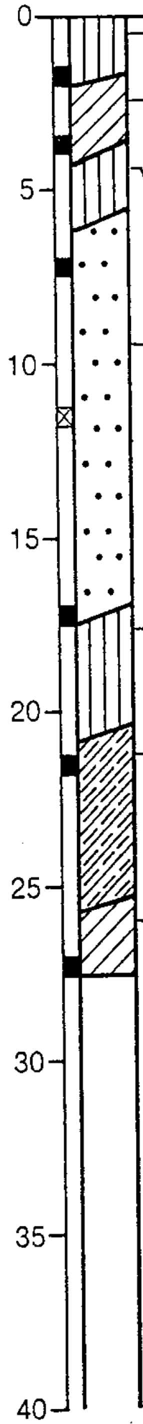
PLATE **8**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
Shields	4013,047.03	ESL	6/84		

Laboratory Tests	Blows/foot *	Moisture Content (%)	Dry Density (pcf)	Depth (ft)
	18			
	8			
	19			
	4**			
	3			
	7			
	13			

Equipment 8" Rotary Wash

Elevation 12.5 feet*** Date 5/24/84



DARK BROWN CLAYEY SILT (ML) stiff, moist, with much organic material and some sand and debris — FILL

BROWN SANDY CLAY (CL) stiff, moist

LIGHT ORANGE-BROWN CLAYEY SILT (ML) stiff, moist, with some sand

BROWN SAND (SP) medium dense, saturated

color change to gray
becomes loose

interlayered silty clay lenses from 15.0 feet

GRAY VERY SANDY SILT (ML-SM) medium stiff, saturated, micaceous

BLACK ORGANIC SILT (OH) medium stiff, saturated

GRAY SANDY CLAY (CL) stiff, saturated

Bottom of hole @ 27.5 feet

Water level obscured by drilling method

Harding Lawson Associates
Engineers, Geologists & Geophysicists

Log of Boring 8 (381)
Incinerator, Dow Chemical Company
Pittsburg, California

PLATE **9**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
Shields	4013,047.03	ESC	6/84		

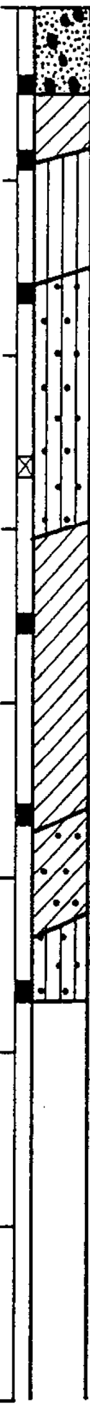
Equipment 8" Rotary Wash

Elevation 12.5 feet*** Date 5/24/84

Laboratory Tests	Blows/foot *	Moisture Content (%)	Dry Density (pcf)
	27		
	19		
	10		
	17**		
	15	23.8	103
	48		
	40		

Depth (ft): 0, 5, 10, 15, 20, 25, 30, 35, 40

Sample



BROWN SANDY GRAVEL (GP) medium dense, moist with brick & glass fragments, gravel sizes to 1-½ inch — FILL

DARK BROWN SANDY CLAY (CL) stiff, moist, with gravel to 1/2 inch size

LIGHT ORANGE-BROWN CLAYEY SILT (ML) stiff, moist becomes saturated

YELLOW-BROWN SILTY SAND (SM) loose to medium dense, saturated, with abundant gravel to 1/4 inch size

less gravel at 13.0 feet

LIGHT BROWN SANDY CLAY (CL) very stiff, saturated

calcareous nodules below 21.0 feet

MOTTLED BROWN AND GRAY CLAYEY FINE SAND (SC) dense, saturated

MOTTLED BROWN AND GRAY SILTY FINE SAND (SM) dense, saturated

Bottom of hole @ 28.5 feet

Water level obscured by drilling method

Harding Lawson Associates
Engineers, Geologists & Geophysicists

Log of Boring 9 (382)
Incinerator, Dow Chemical Company
Pittsburg, California

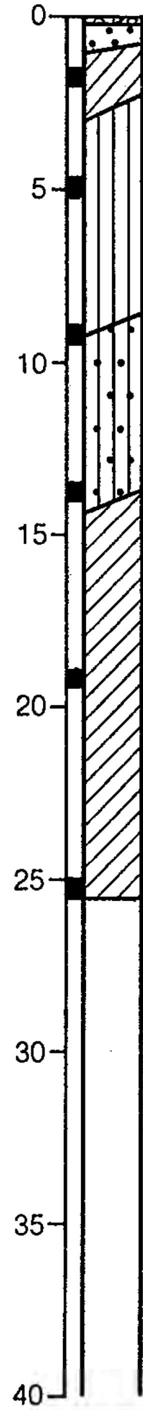
PLATE **10**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
Shields	4013,047.03	[illegible]	6/84		

Equipment 8" Rotary Wash

Elevation 13.0 feet*** Date 5/25/84

Laboratory Tests	Blows/foot *	Moisture Content (%)	Dry Density (pcf)	Depth (ft)
	29			
	57			5
Tx 1790 (1000)	23	39.7	88	10
	29			15
	16	30.1	93	20
	28			25
				30
				35
				40



2" CRUSHED ROCK FILL

BROWN GRAVELLY SAND (SP)
medium dense, moist

BROWN SANDY CLAY (CL)
very stiff, moist

LIGHT ORANGE-BROWN SANDY SILT (ML)
very stiff, moist
calcareous lens

MIXED BROWN AND GRAY SILTY SAND (SM)
dense, saturated
color change to brown, becomes very silty

BROWN SANDY CLAY (CL)
very stiff, saturated

color change to mottled brown-gray

Bottom of hole @ 25.5 feet

Water level obscured by drilling method

Harding Lawson Associates
Engineers, Geologists & Geophysicists

Log of Boring 12 (385)
Incinerator, Dow Chemical Company
Pittsburg, California

PLATE **13**

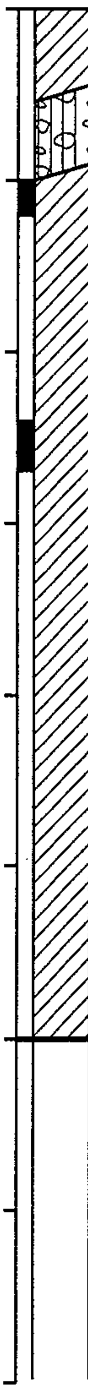
DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
Shields	4013,047.03	ESL	6/84		

Equipment Hollow Stem Auger

Elevation ≈ + 12 feet Date 10/29/91

Laboratory Tests	Blows/foot *	Moisture Content (%)	Dry Density (pcf)	Depth (ft.)	Sample	Description
				0		BROWN LEAN CLAY (CL), with sand, stiff, moist, (Fill)
						BROWN SILTY GRAVEL (GM), dense, moist,
				5		LIGHT BROWN LEAN CLAY (CL), stiff to very stiff, moist
	32					
				10		
TxUU 3039 (750)	25	20	105			
				15		
				20		*water level at time of drilling (10/29/91)*
				25		
				30		Bottom of boring at 30 feet Boring grouted before water level stabilized
				35		
				40		

FILL



* *Field blow counts per foot converted to Standard Penetration Test N-Values.*

Harding Lawson Associates
Engineering and Environmental Services

Log of Boring B–1 (10/1991)
Rail Car Management Upgrade
Block 680, Dow Chemical Plant
Pittsburg, California

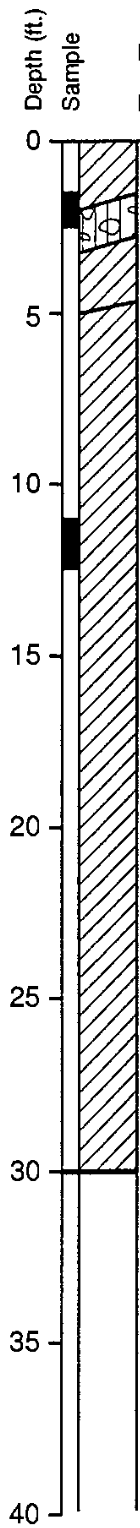
PLATE **2**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
S. Patel	4013,092.03	MAK	01/23/92	

Equipment Hollow Stem Auger

Elevation + 11 feet Date 10/29/91

Laboratory Tests	Blows/foot *	Moisture Content (%)	Dry Density (pcf)	Depth (ft.)
	18			
TxUU 1815 (700)	18	19.6	103	



— BROWN LEAN CLAY (CL), with gravel, stiff, moist, (Fill)

— BROWN SILTY GRAVEL (GM), medium dense, moist, (Fill)

— DARK BROWN LEAN CLAY (CL), with gravel, stiff, moist, (Fill)

FILL

LIGHT BROWN LEAN CLAY (CL), stiff to very stiff, moist

▽ *water level at time of drilling (10/29/91)*

Bottom of boring at 30 feet

Boring grouted before water level stabilized

Harding Lawson Associates
Engineering and Environmental Services

Log of Boring B–2 (10/1991)
Rail Car Management Upgrade
Block 680, Dow Chemical Plant
Pittsburg, California

PLATE **3**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
S. Patel	4013,092.03	MAK	01/23/92	

Laboratory Tests	Blows/foot *	Moisture Content (%)	Dry Density (pcf)	Depth (ft.)	Sample	
				0		Equipment Hollow Stem Auger Elevation ≈ + 13 feet Date 10/29/91
						BROWN LEAN CLAY (CL), with sand, stiff, moist, (Fill)
						BROWN SANDY GRAVEL (GP), dense, moist to saturated (Fill)
						water level at time of drilling (10/29/91)
	31			5		slag at 5 feet, hard drilling
						Bottom of boring at 6 feet
				10		
				15		
				20		
				25		
				30		
				35		
				40		

Harding Lawson Associates
Engineering and Environmental Services

Log of Boring B–3A (10/1991)
Rail Car Management Upgrade
Block 680, Dow Chemical Plant
Pittsburg, California

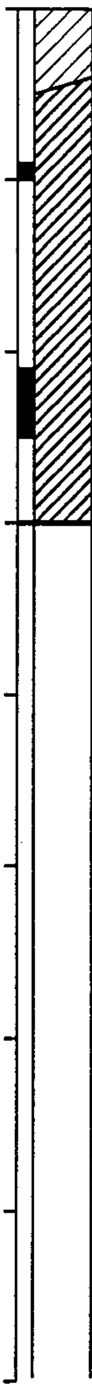
PLATE **4**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
S. Patel	4013,092.03	MAK	01/23/92	

Equipment Hollow Stem Auger

Elevation ≈ 12 feet Date 10/29/91

Laboratory Tests	Blows/foot *	Moisture Content (%)	Dry Density (pcf)	Depth (ft.)	Sample	Description
				0		DARK BROWN LEAN CLAY (CL), with sand (Fill) — FILL
						▽ *water level at time of drilling (10/29/91)*
						DARK GRAY FAT CLAY (CH), with peat, soft, saturated
	2			5		
				10		
	push					
				15		Bottom of boring at 15 feet
				20		
				25		
				30		
				35		
				40		



Harding Lawson Associates
Engineering and Environmental Services

Log of Boring B–3B (10/1991)
Rail Car Management Upgrade
Block 680, Dow Chemical Plant
Pittsburg, California

PLATE **5**

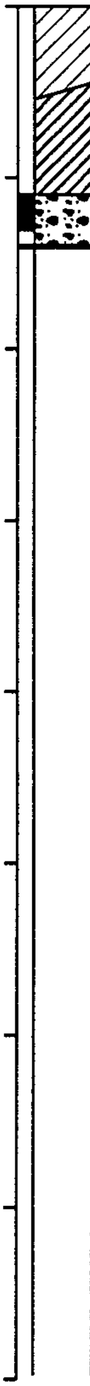
DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
S. Patel	4013,092.03	MAK	01/23/92	

Laboratory Tests	Blows/foot *	Moisture Content (%)	Dry Density (pcf)	Depth (ft.)	Sample
	31			5	

Equipment Hollow Stem Auger

Elevation ≈ + 11 feet Date 10/29/91

Depth (ft.): 0, 5, 10, 15, 20, 25, 30, 35, 40



LIGHT BROWN LEAN CLAY (CL), with silt, stiff, moist, (Fill) — Fill

DARK BROWN FAT CLAY (CH), soft, moist to saturated

∇ *water level at time of drilling (10/29/91)*

slag at 5.5 feet, hard drilling

Bottom of boring at 7 feet

Harding Lawson Associates
Engineering and Environmental Services

HLA

Log of Boring B–3C (10/1991)
Rail Car Management Upgrade
Block 680, Dow Chemical Plant
Pittsburg, California

PLATE **6**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
S. Patel	4013,092.03	MAK	01/23/92	

Piperacks and Pipe Bridges Upgrades
The Dow Chemical Company
Pittsburg, California

Project No. 197.56

Plate No. 9

New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California

Project No. 197.67

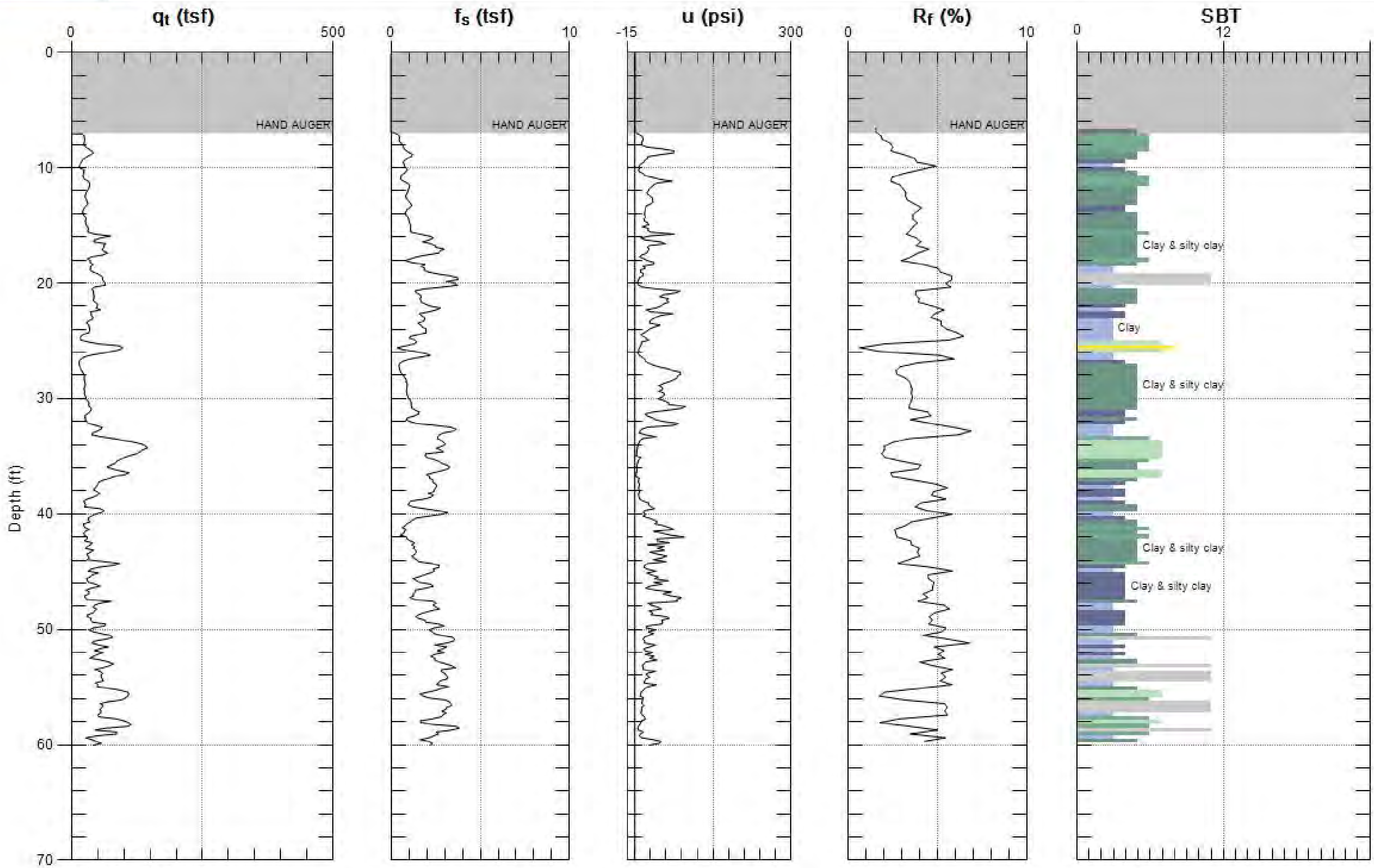
Plate No. A-16

GREGG

HULTGREN & TILLIS

Site: DOW SEISMIC UPG.
Sounding: C-1A (8/2017)

Engineer: R.NOCHE
Date: 8/23/2017 01:30



Max. Depth: 60.039 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Piperacks and Pipe Bridges Upgrades
The Dow Chemical Company
Pittsburg, California
Project No. 197.56
Plate No. 11

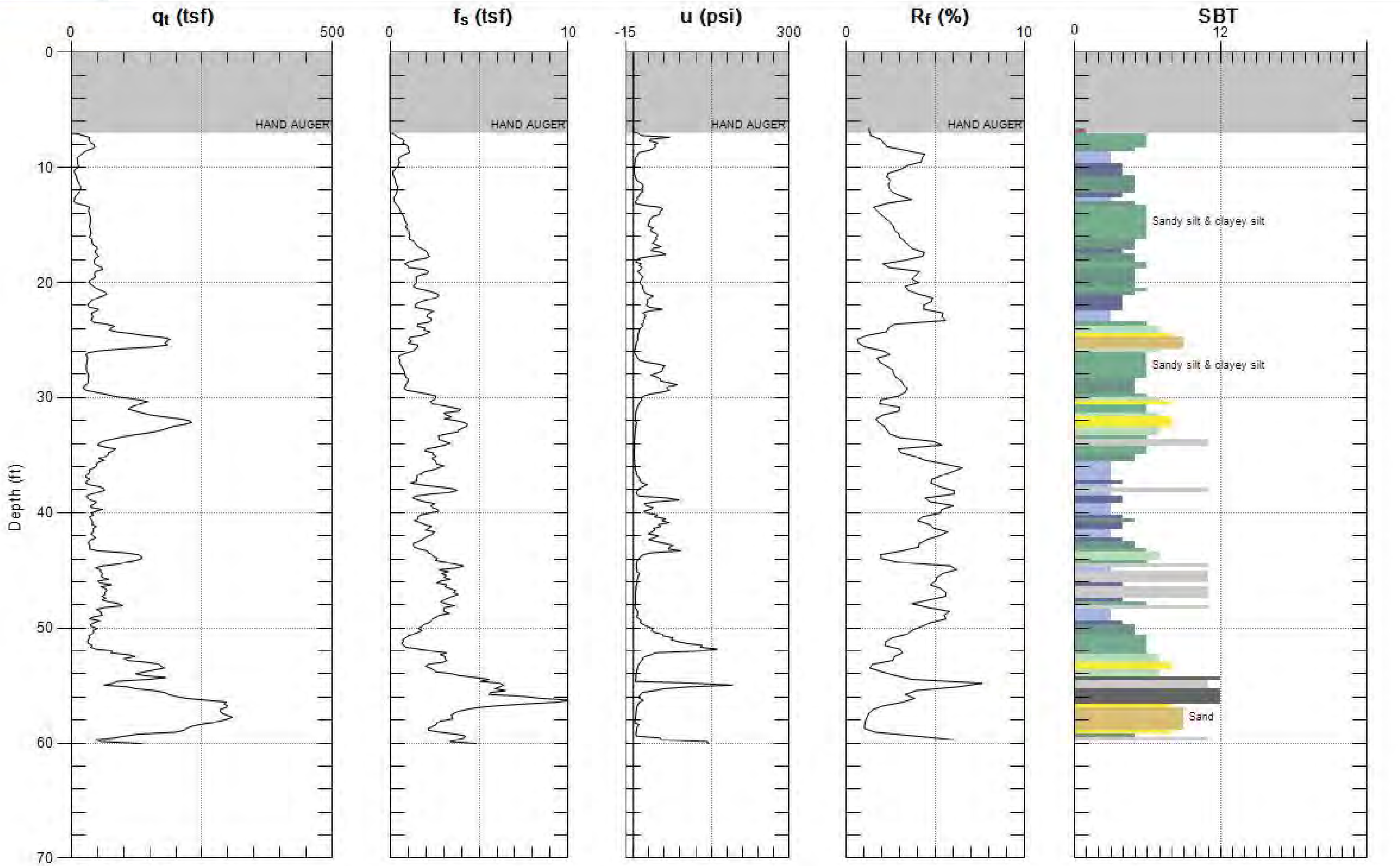
New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California
Project No. 197.67
Plate No. A-17

GREGG

HULTGREN & TILLIS

Site: DOW SEISMIC UPG.
Sounding: C-2 (8/2017)

Engineer: R.NOCHE
Date: 8/23/2017 10:46



Max. Depth: 60.039 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Piperacks and Pipe Bridges Upgrades
The Dow Chemical Company
Pittsburg, California

New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California

Project No. 197.56
Project No. 197.67

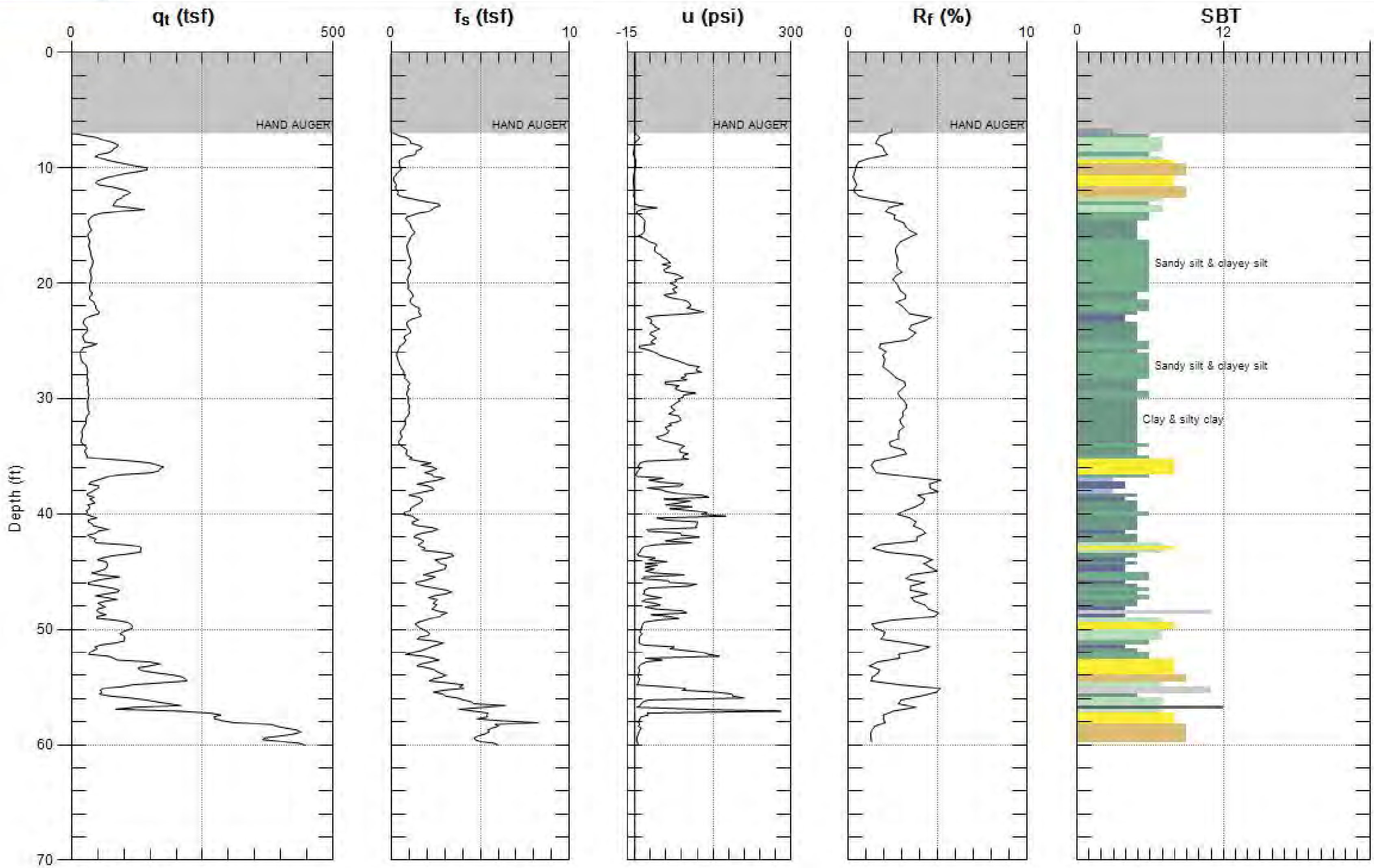
Plate No. 12
Plate No. A-18

GREGG

HULTGREN & TILLIS

Site: DOW SEISMIC UPG.
Sounding: C-3 (8/2017)

Engineer: R.NOCHE
Date: 8/23/2017 08:05



Max. Depth: 60.039 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Date	: 12/23/2015
Drilling Method	: Test Pit
Elevation (Feet)	:
Latitude	: 38.02229
Longitude	: -121.85284

Depth in Feet	Samples Type/ Recovery	Blow Count	Graphic	USCS	Water Levels	Material Description	Torvane (tsf)	Pocket Pen (tsf)	Moisture Content (%)	Dry Density (pcf)	Other Laboratory Tests
				GW		Well-Graded Gravel with Sand (GW), gray, wet, medium dense, up to 3/4-inch gravel, (aggregate base), (fill)					
1											
	B			SC		Clayey Sand (SC), gray brown, wet, medium dense, (fill)		4.5+			
2						Fat Clay (CH), dark brown, wet, very stiff, (fill)		3.5			
	B			CH				3.0			
3	B							3.0			

Bottom of test pit at 3 feet
No groundwater encountered

Blocks 560 and 580 RCRA Containment
The Dow Chemical Company
Pittsburg, California

Log of Test Pit 3 TP-3 (12/2015)
(Page 1 of 1)

Hultgren - Tillis Engineers	Project No. 197.50	Plate No. 5

Date : 12/23/2015
Drilling Method : Test Pit
Elevation (Feet) :
Latitude : 38.02213
Longitude : -121.85301

Depth in Feet	Samples Type/ Recovery	Blow Count	Graphic	USCS	Water Levels	Material Description	Torvane (tsf)	Pocket Pen (tsf)	Moisture Content (%)	Dry Density (pcf)	Other Laboratory Tests
				GP		Poorly-Graded Gravel (GP), gray, dry, loose, gravel up to 1.5-inches, (ballast), (1.5-inches), (fill)					
				GW		Well-Graded Gravel with Sand (GW), gray, dry, dense, (aggregate base), (4-inches), (fill)					
1	B			CL		Lean Clay (CL), brown, moist, very stiff to hard, (fill)		4.5+			
								4.5+			
2	B					Becomes softer		3.5			
	B							3.7			
3											

Bottom of test pit at 3 feet
No groundwater encountered

Blocks 560 and 580 RCRA Containment
The Dow Chemical Company
Pittsburg, California

Log of Test Pit 4 TP-4 (12/2015)
(Page 1 of 1)

Hultgren - Tillis Engineers	Project No. 197.50	Plate No. 6

APPENDIX B

LOGS OF CURRENT EXPLORATION

Date : 9/27/2021
Drilling Method : Hand Auger
Elevation (Feet) : 12.5
Latitude : 38.02150
Longitude : -121.85207

Depth in Feet	Samples Type/ Recovery	Blow Count	Graphic	USCS	Water Levels	Material Description	Torvane (tsf)	Pocket Pen (tsf)	Moisture Content (%)	Dry Density (pcf)	Other Laboratory Tests
	B					3/4-inch crushed drain rock, gray, loose, dry, (3-inches thick)					
	B			GW		Well-Graded Gravel (GW), gray, dry, very dense, (fill)					
	B			CL		Lean Clay (CL), dark brown, moist, stiff to very stiff, (fill)			38		
5				CL		Lean Clay (CL), light brown, wet, stiff to very stiff, trace sand, (fill)					
	B			SP-SM	▽	Poorly-Graded Sand with Silt (SP-SM), dark brown, wet, medium dense					Sieve

Bottom of hand auger at 6 feet
Groundwater encountered at 6 feet

New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California

Log of Hand Auger Boring at CPT-01
(Page 1 of 1)

Hultgren - Tillis Engineers | Project No. 197.67 | Plate No. B-1

Date	: 9/27/2021
Drilling Method	: Hand Auger
Elevation (Feet)	: 12.5
Latitude	: 38.02158
Longitude	: -121.85172

Depth in Feet	Samples Type/ Recovery	Blow Count	Graphic	USCS	Water Levels	Material Description	Torvane (tsf)	Pocket Pen (tsf)	Moisture Content (%)	Dry Density (pcf)	Other Laboratory Tests
						3/4-inch crushed drain rock, gray, loose, dry, (3-inches thick)					
				GW		Well-Graded Gravel (GW), light brown, dry, very dense, (fill)					
	B B			SP		Poorly-Graded Sand (SP), light brown, dry, medium dense, (fill)					
	B B B			CL		Lean Clay (CL), mottled light brown and orange, moist to wet, stiff to very stiff, (fill)			20		LL=41 PI=26
5	B			SM		Silty Sand (SM), brown, wet, medium dense					Sieve

Bottom of hand auger at 6 feet
No groundwater encountered

New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California

Log of Hand Auger Boring at CPT-02
(Page 1 of 1)

Hultgren - Tillis Engineers

Project No. 197.67

Plate No. B-2

Depth in Feet	Samples Type/ Recovery	Blow Count	Graphic	USCS	Water Levels	Date : 9/27/2021 Drilling Method : Hand Auger Elevation (Feet) : 12.5 Latitude : 38.02126 Longitude : -121.85188 Material Description	Torvane (tsf)	Pocket Pen (tsf)	Moisture Content (%)	Dry Density (pcf)	Other Laboratory Tests
						3/4-inch crushed drain rock, gray, dry, loose, (3-inches thick)					
	B			GW		Well-Graded Gravel (GW), brown, dry, very dense, (fill)					
	B			CL		Lean Clay (CL), mottled dark brown and orange, wet, stiff to very stiff, (fill)					
	B			CL		Lean Clay (CL), dark brown to gray, moist, hard, (fill)					
	B			CL		Lean Clay (CL), light brown, moist to wet, stiff, (fill)					LL=39 PI=25
						Lean Clay (CL), dark brown, moist to wet, stiff, (fill)			15		
	B										
	B			CL		Trace gravel					
5	B										
	B										

Bottom of hand auger at 6 feet
No groundwater encountered

New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California

Log of Hand Auger Boring at CPT-03
(Page 1 of 1)

Hultgren - Tillis Engineers | Project No. 197.67 | Plate No. B-3

Date	: 9/27/2021
Drilling Method	: Hand Auger
Elevation (Feet)	: 12.5
Latitude	: 38.02132
Longitude	: -121.85270

Depth in Feet	Samples Type/ Recovery	Blow Count	Graphic	USCS	Water Levels	Material Description	Torvane (tsf)	Pocket Pen (tsf)	Moisture Content (%)	Dry Density (pcf)	Other Laboratory Tests
	B			GW		Well-Graded Gravel (GW), gray, dry, very dense to hard, (fill)					
	B										
	B										
	B			CL		Lean Clay with Sand (CL), brown, wet, very stiff, (fill)					
	B			SM		Silty Sand (SM), brown, wet, medium dense, (fill)					
	B										
	B										
	B										
5	B					Light gray Trace gravel					
				CL		Lean Clay (CL), black, wet, stiff, (fill)					

Bottom of hand auger at 6 feet
No groundwater encountered

New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California

Log of Hand Auger Boring at CPT-04
(Page 1 of 1)

Hultgren - Tillis Engineers | Project No. 197.67 | Plate No. B-4

Date : 9/27/2021
Drilling Method : Hand Auger
Elevation (Feet) : 12.5
Latitude : 38.02172
Longitude : -121.85261

Depth in Feet	Samples Type/ Recovery	Blow Count	Graphic	USCS	Water Levels	Material Description	Torvane (tsf)	Pocket Pen (tsf)	Moisture Content (%)	Dry Density (pcf)	Other Laboratory Tests
	B					3/4-inch crushed drain rock, gray, dry, loose, (3-inches thick)					
				GW		Well-Graded Gravel (GW), gray, dry, very dense, (fill)					
	B			CL		Lean Clay (CL), brown, wet, stiff to very stiff, (fill)					
	B										
	B			SM		Silty Sand (SM), brown, wet, medium dense, (fill)					Sieve
	B										
5	B			CL		Lean Clay (CL), dark brown, wet, stiff, (fill)					
	B					Turns darker brown					

Bottom of hand auger at 6 feet
No groundwater encountered

New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California

Log of Hand Auger Boring at CPT-05
(Page 1 of 1)

Hultgren - Tillis Engineers | Project No. 197.67 | Plate No. B-5

Depth in Feet	Samples Type/ Recovery	Blow Count	Graphic	USCS	Water Levels	Date : 9/27/2021 Drilling Method : Hand Auger Elevation (Feet) : 12.5 Latitude : 38.02170 Longitude : -121.85260 Material Description	Torvane (tsf)	Pocket Pen (tsf)	Moisture Content (%)	Dry Density (pcf)	Other Laboratory Tests
	B					3/4-inch crushed drain rock, gray, dry, loose, (3-inches thick)					
	B			GW		Well-Graded Gravel (GW), gray brown, dry to moist, dense, (fill)					
	B			CL		Lean Clay (CL), brown, wet, stiff, (fill)					
	B B					Increasing sand					
5	B B			SM		Silty Sand (SM), brown, wet, medium dense, (fill)					
				ML		Silt (ML), dark gray black, wet, stiff, with organics, (fill)					

Bottom of hand auger at 6 feet
No groundwater encountered

New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California

Log of Hand Auger Boring at CPT-05a
(Page 1 of 1)

Hultgren - Tillis Engineers | Project No. 197.67 | Plate No. B-6

Date : 9/27/2021
Drilling Method : Hand Auger
Elevation (Feet) : 12.5
Latitude : 38.02176
Longitude : -121.85263

Depth in Feet	Samples Type/ Recovery	Blow Count	Graphic	USCS	Water Levels	Material Description	Torvane (tsf)	Pocket Pen (tsf)	Moisture Content (%)	Dry Density (pcf)	Other Laboratory Tests
	B					3/4-inch crushed drain rock, gray, dry, loose, (3-inches thick)					
				GW		Well-Graded Gravel (GW), gray brown, dry, dense to very dense, (fill)					
	B			CL		Lean Clay (CL), gray brown, moist, stiff, (fill)					
	B			CL		Sandy Lean Clay (CL), black, wet, stiff					
	B										
	B								26		
5				CL		Lean Clay (CL), brown, wet, stiff With rootlets					
	B										

Bottom of hand auger at 6 feet
No groundwater encountered

New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California

Log of Hand Auger Boring at CPT-05b
(Page 1 of 1)

Hultgren - Tillis Engineers | Project No. 197.67 | Plate No. B-7

Depth in Feet	Samples Type/ Recovery	Blow Count	Graphic	USCS	Water Levels	Date : 9/27/2021 Drilling Method : Hand Auger Elevation (Feet) : 12.5 Latitude : 38.02134 Longitude : -121.85271 Material Description	Torvane (tsf)	Pocket Pen (tsf)	Moisture Content (%)	Dry Density (pcf)	Other Laboratory Tests
	B			GW		Well-Graded Gravel (GW), gray, dry, very dense, 3/4-inch size, (fill)					
	B										
	B			CL		Lean Clay (CL), brown, moist, hard, trace sand, (fill)					
	B			SM		Silty Sand (SM), brown, wet, medium dense, (fill)					
	B										
	B										
	B										
	B					Grey white					
5	B			GW		Well-Graded Gravel with Sand (GW), gray blue, wet, dense, 1/8-inch size, (fill) Practical refusal at 6 feet					

Bottom of hand auger at 6 feet
No groundwater encountered

New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California

Log of Hand Auger Boring HA-04a
(Page 1 of 1)

Hultgren - Tillis Engineers | Project No. 197.67 | Plate No. B-8

Date : 9/27/2021
Drilling Method : Hand Auger
Elevation (Feet) : 12.5
Latitude : 38.02136
Longitude : -121.85273

Depth in Feet	Samples Type/ Recovery	Blow Count	Graphic	USCS	Water Levels	Material Description	Torvane (tsf)	Pocket Pen (tsf)	Moisture Content (%)	Dry Density (pcf)	Other Laboratory Tests
	B			GW		Well-Graded Gravel (GW), gray brown, dry, dense, (fill)					
	B			CL		Lean Clay with Sand (CL), brown, wet, stiff, (fill)					
1	B										
	B										
2	B								21		
3	B			GW		Well-Graded Gravel (GW), gray green, wet, medium dense, (fill)					
4	B			GP		Poorly-Graded Gravel (GP), black, wet, very dense, (fill) Practical refusal at 4.7 feet					

Bottom of hand auger at 4.7 feet
No groundwater encountered

New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California

Log of Hand Auger Boring HA-04b
(Page 1 of 1)

Hultgren - Tillis Engineers | Project No. 197.67 | Plate No. B-9

MAJOR DIVISIONS				GROUP NAMES
COARSE GRAINED SOILS MORE THAN 50% RETAINED ON NO. 200 SIEVE	**GRAVELS** MORE THAN 50% OF COARSE FRACTION IS RETAINED ON NO. 4 SIEVE	**CLEAN GRAVELS** WITH LESS THAN 5% FINES	GW	WELL GRADED GRAVEL
			GP	POORLY GRADED GRAVEL
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVEL
			GC	CLAYEY GRAVEL
	SANDS 50% OR MORE OF COARSE FRACTION PASSES NO. 4 SIEVE	**CLEAN SANDS** WITH LESS THAN 5% FINES	SW	WELL GRADED SAND
			SP	POORLY GRADED SAND
		SANDS WITH OVER 12% FINES	SM	SILTY SAND
			SC	CLAYEY SAND
FINE GRAINED SOILS 50% OR MORE PASSES NO. 200 SIEVE	**SILTS AND CLAYS** LIQUID LIMIT LESS THAN 50		ML	SILT
			CL	LEAN CLAY
			OL	ORGANIC CLAY, ORGANIC SILT
	SILTS AND CLAYS LIQUID LIMIT 50 OR MORE		MH	ELASTIC SILT
			CH	FAT CLAY
			OH	ORGANIC CLAY, ORGANIC SILT
HIGHLY ORGANIC SOILS			Pt	PEAT

UNIFIED SOIL CLASSIFICATION SYSTEM- ASTM D 2487

S	- SPT		- Water Level at Time of Drilling	P	- Push
			- Water Level after Drilling (with date measured)	Perm	- Permeability
M	- 2.5 inch	Consol	- Consolidation	Sieve	- Particle Size Analysis
		Gs	- Specific Gravity	VS	- Laboratory Vane Shear (psf)
C	- 3.0 inch	LL	- Liquid Limit (%)	-200	- % Passing No. 200 Sieve
		PI	- Plasticity Index (%)		
T	- Shelby Tube	TxUU	- Shear Strength (psf) - Unconsolidated Undrained Triaxial Shear		
		TxCU	- Shear Strength (psf) - Consolidated Undrained Triaxial Shear		
B	- Bag	UC	- Compressive Strength (psf) - Unconfined Compression		

KEY TO TEST DATA

New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California

Soil Classification Chart

Hultgren - Tillis Engineers | Project No. 197.67 | Plate No. B-10

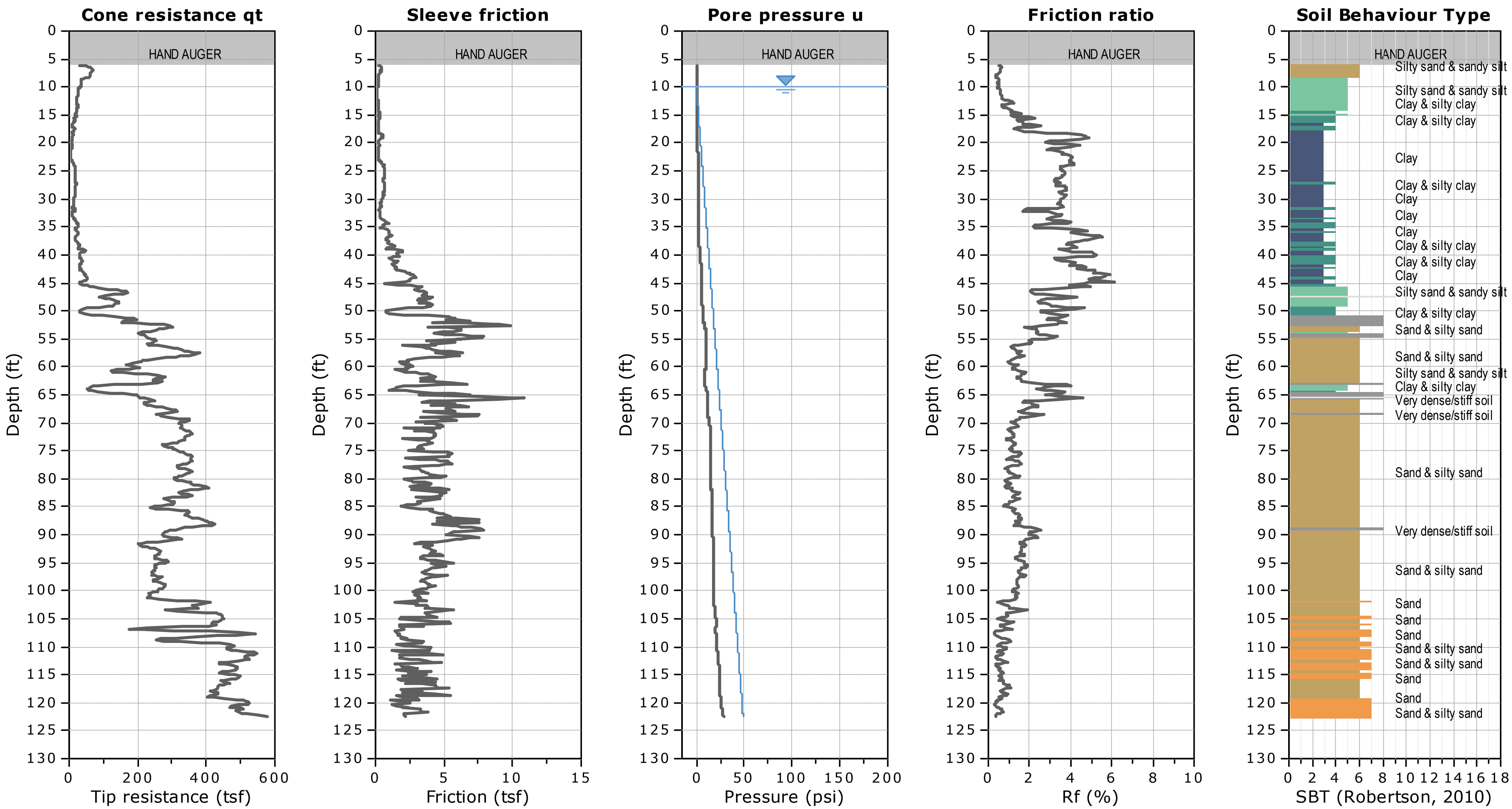
GREGG DRILLING, LLC
WWW.GREGGDRILLING.COM

CPT: SCPT-01

CLIENT: HULTGREN-TILLIS
SITE: CORTEVA AGRISCIENCE FACILITY, PITTSBURG

Latitude: 38.02150
Longitude: -121.85207
Elevation: 12.5 feet

FIELD REP: KATHRYN S.
Total depth: 122.38 ft, Date: 9/27/2021



1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty clay
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to clayey
9. Very stiff fine grained

WATER TABLE FOR ESTIMATING PURPOSES ONLY

CPeT-IT v.19.0.1.24 - CPTU data presentation & interpretation software - Report created on: 9/29/2021, 1:55:55 PM
Project file: C:\CPT-2021\5082SH\REPORT\215082SH.cpt

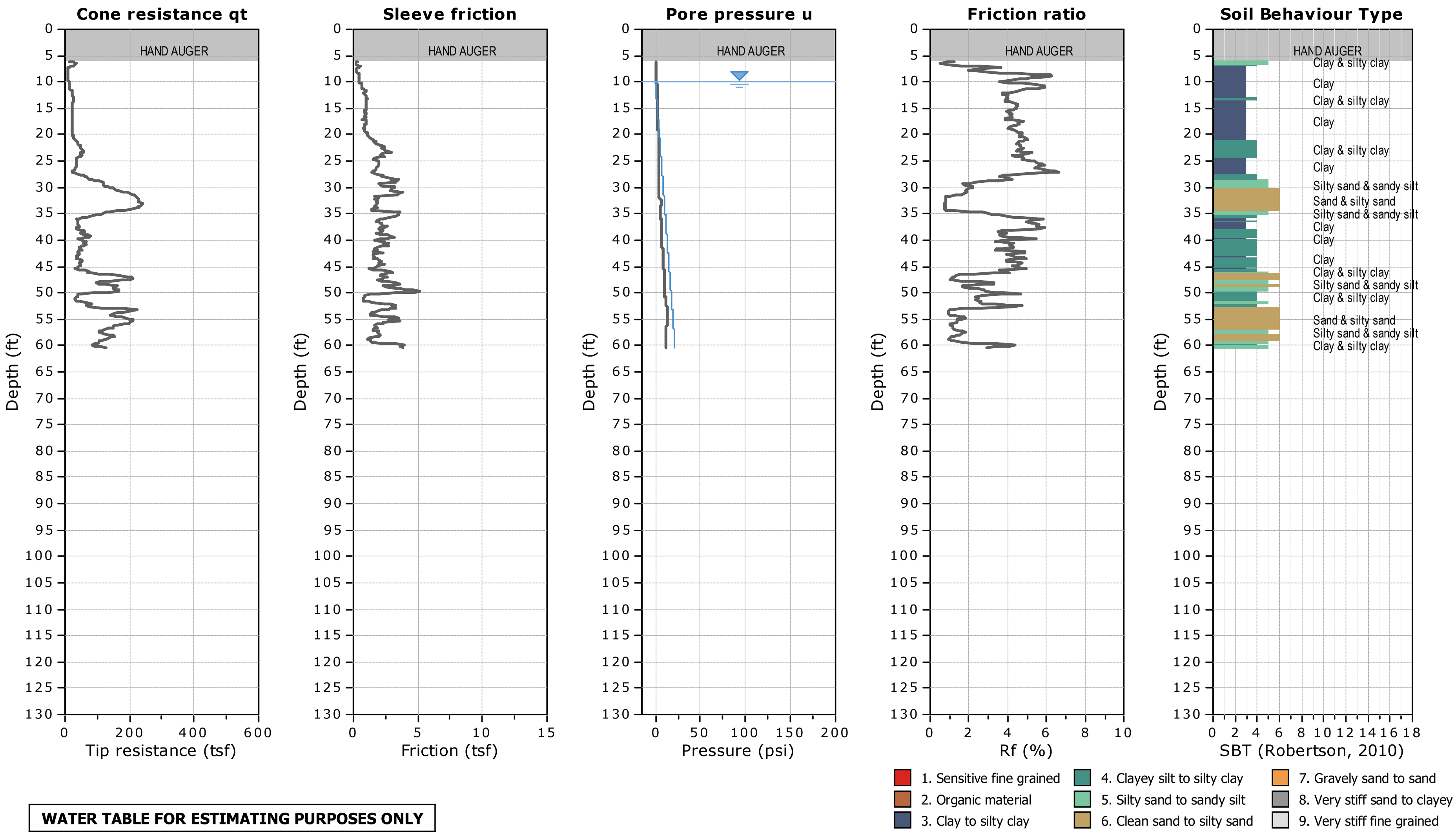
GREGG DRILLING, LLC
WWW.GREGGDRILLING.COM

CPT: CPT-02

CLIENT: HULTGREN-TILLIS
SITE: CORTEVA AGRISCIENCE FACILITY, PITTSBURG

Latitude: 38.02158
Longitude: -121.85172
Elevation: 12.5 feet

FIELD REP: KATHRYN S.
Total depth: 60.37 ft, Date: 9/28/2021



WATER TABLE FOR ESTIMATING PURPOSES ONLY

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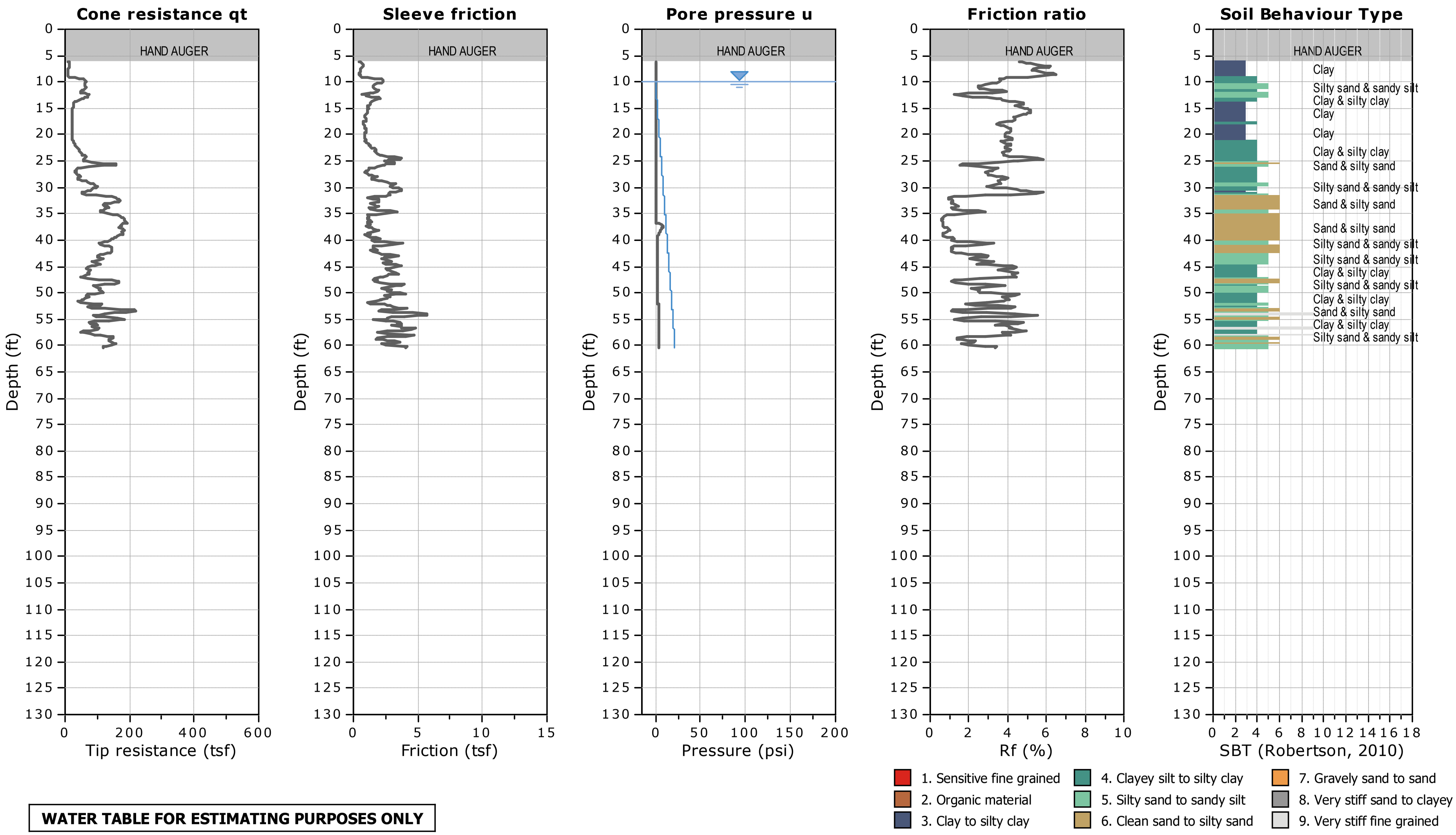
GREGG DRILLING, LLC
WWW.GREGGDRILLING.COM

CPT: CPT-03

CLIENT: HULTGREN-TILLIS
SITE: CORTEVA AGRISCIENCE FACILITY, PITTSBURG

Latitude: 38.02126
Longitude: -121.85188
Elevation: 12.5 feet

FIELD REP: KATHRYN S.
Total depth: 60.37 ft, Date: 9/28/2021



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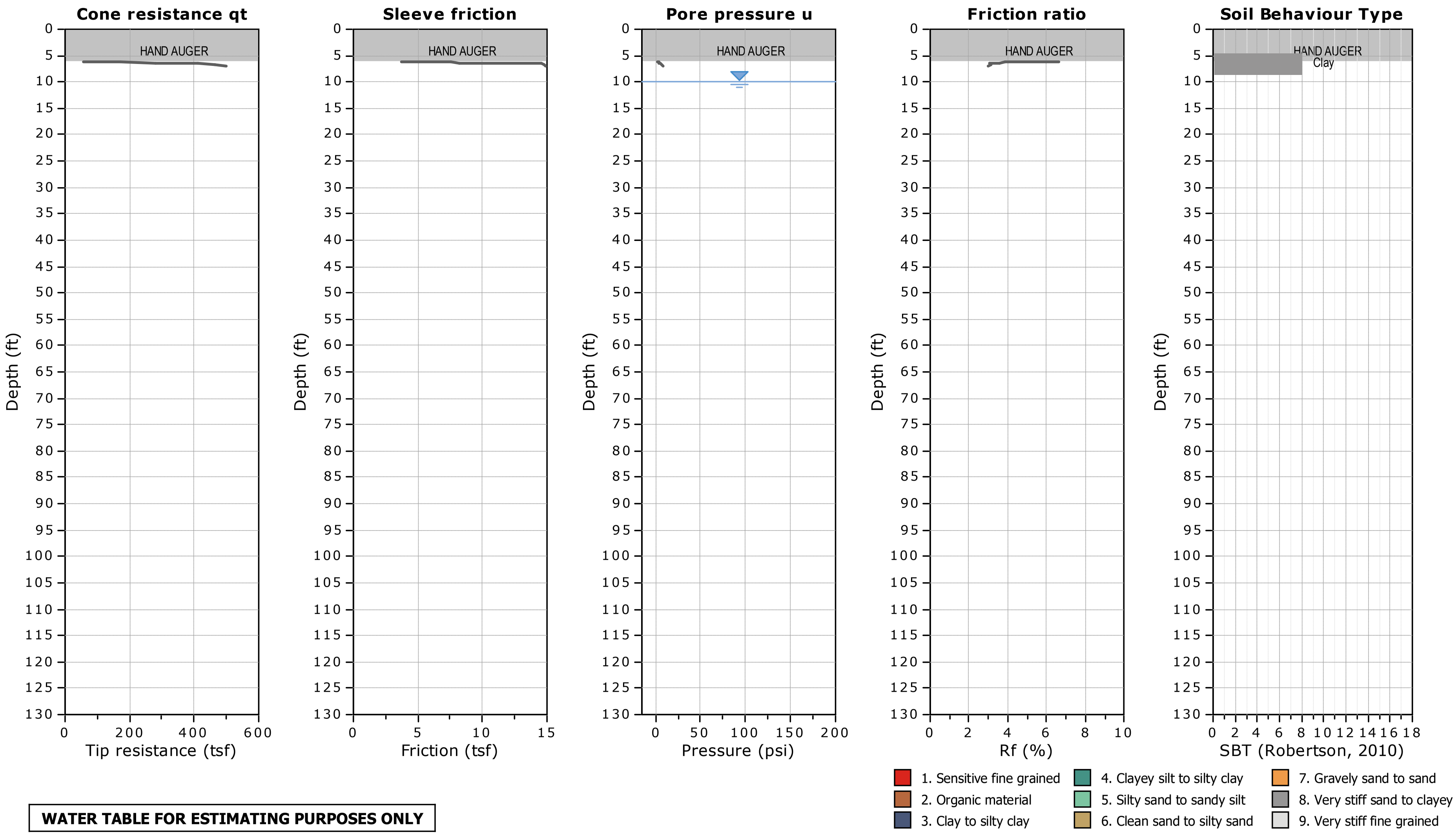
GREGG DRILLING, LLC
WWW.GREGGDRILLING.COM

CPT: CPT-04

CLIENT: HULTGREN-TILLIS
SITE: CORTEVA AGRISCIENCE FACILITY, PITTSBURG

Latitude: 38.02132
Longitude: -121.85270
Elevation: 12.5 feet

FIELD REP: KATHRYN S.
Total depth: 6.89 ft, Date: 9/28/2021



WATER TABLE FOR ESTIMATING PURPOSES ONLY

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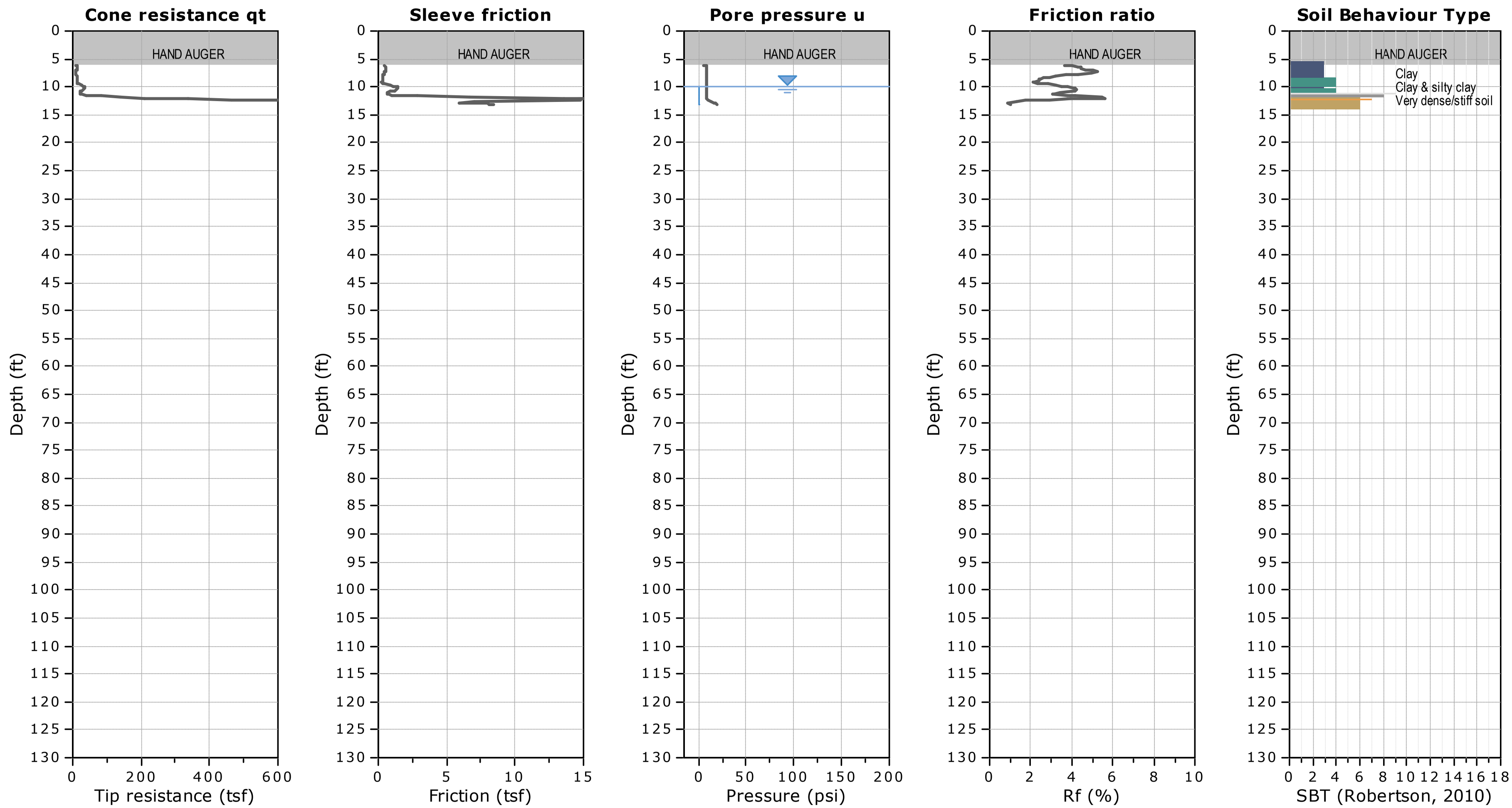
CPT: CPT-05

CLIENT: HULTGREN-TILLIS
SITE: CORTEVA AGRISCIENCE FACILITY, PITTSBURG

Latitude: 38.02172
Longitude: -121.85261
Elevation: 12.5 feet

FIELD REP: KATHRYN S.
Total depth: 13.29 ft, Date: 9/28/2021



1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty clay
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to clayey
9. Very stiff fine grained

WATER TABLE FOR ESTIMATING PURPOSES ONLY

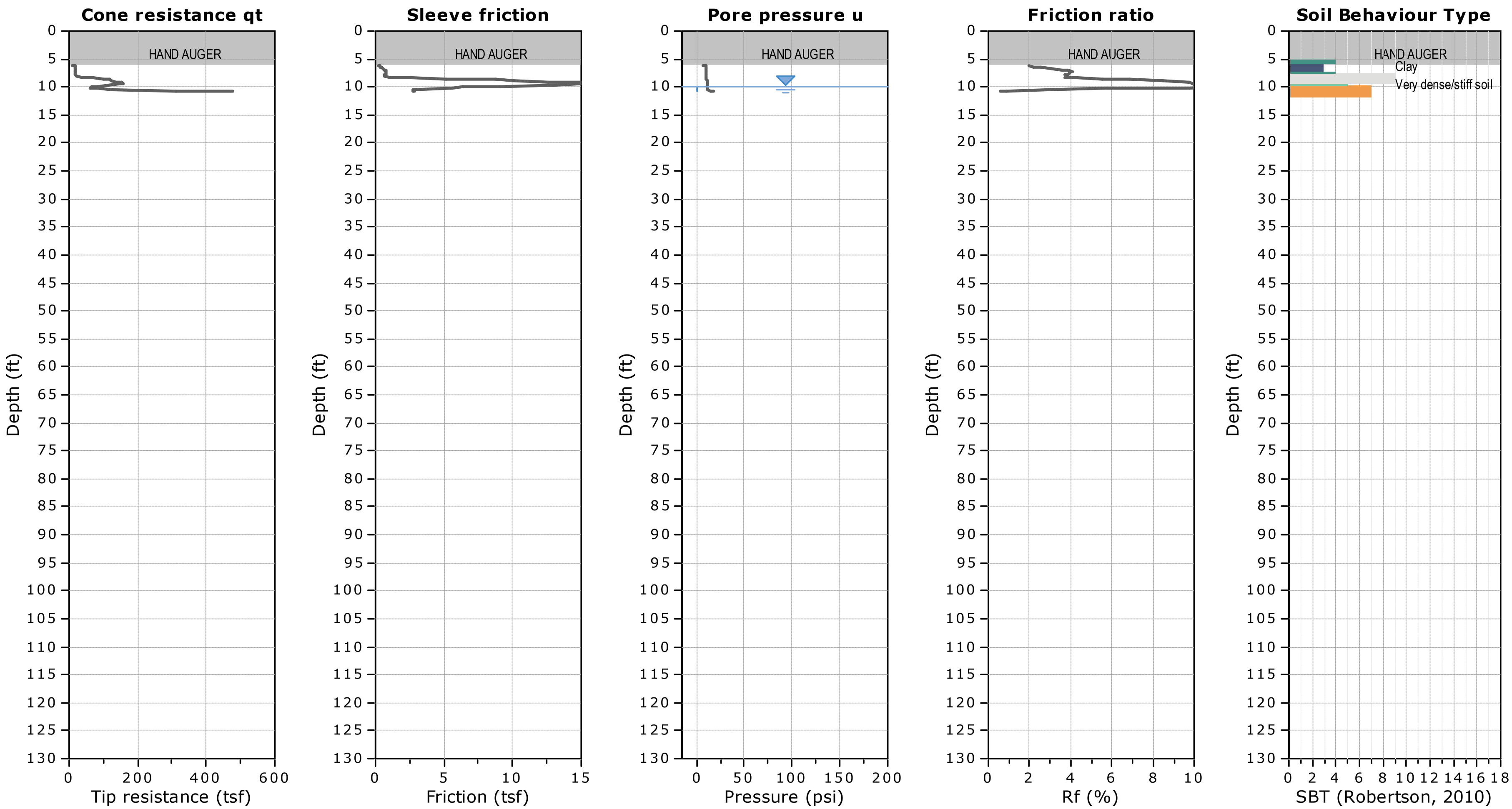
GREGG DRILLING, LLC
WWW.GREGGDRILLING.COM

CPT: CPT-05a

CLIENT: HULTGREN-TILLIS
SITE: CORTEVA AGRISCIENCE FACILITY, PITTSBURG

Latitude: 38.02170
Longitude: -121.85260
Elevation: 12.5 feet

FIELD REP: KATHRYN S.
Total depth: 10.83 ft, Date: 9/28/2021



1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty clay
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to clayey
9. Very stiff fine grained

WATER TABLE FOR ESTIMATING PURPOSES ONLY

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Project file: C:\CPT-2021\5082SH\REPORT\215082SH.cpt

GREGG DRILLING, LLC
WWW.GREGGDRILLING.COM

CPT: CPT-05b

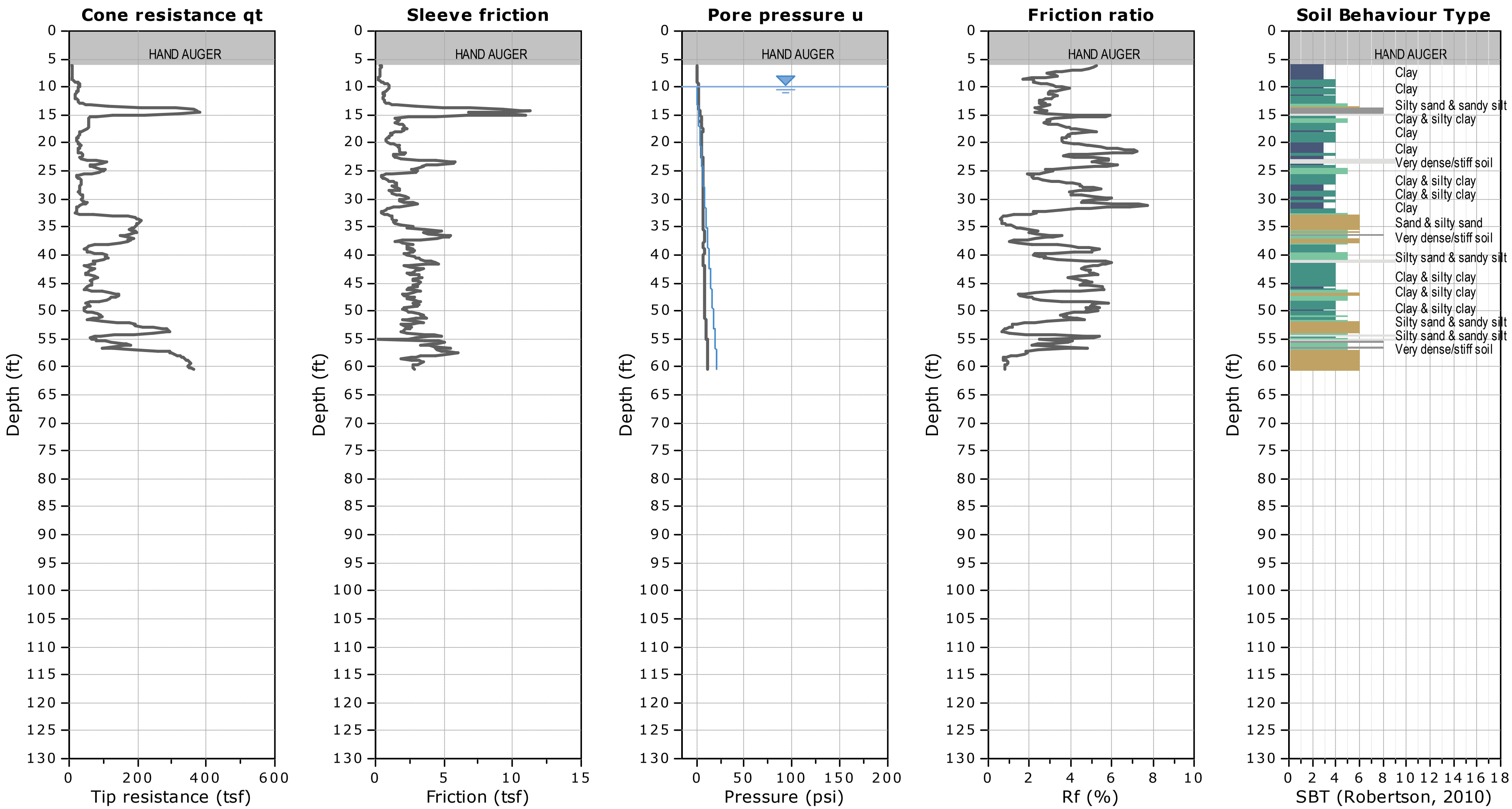
CLIENT: HULTGREN-TILLIS

SITE: CORTEVA AGRISCIENCE FACILITY, PITTSBURG

Latitude: 38.02176
Longitude: -121.85263
Elevation: 12.5 feet

FIELD REP: KATHRYN S.

Total depth: 60.37 ft, Date: 9/28/2021



1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty clay
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to clayey
9. Very stiff fine grained

WATER TABLE FOR ESTIMATING PURPOSES ONLY

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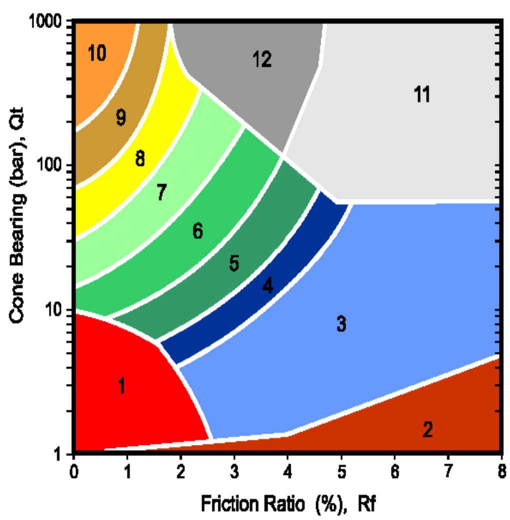
Project file: C:\CPT-2021\5082SH\REPORT\215082SH.cpt

Cone Penetration Test Data & Interpretation

The Cone Penetration Test (CPT) data collected are presented in graphical and electronic form in the report. The plots include interpreted Soil Behavior Type (SBT) based on the charts described by Robertson (1990). Typical plots display SBT based on the non-normalized charts of Robertson et al (1986). For CPT soundings deeper than 30m, we recommend the use of the normalized charts of Robertson (1990) which can be displayed as SBTn, upon request. The report also includes spreadsheet output of computer calculations of basic interpretation in terms of SBT and SBTn and various geotechnical parameters using current published correlations based on the comprehensive review by Lunne, Robertson and Powell (1997), as well as recent updates by Professor Robertson (Guide to Cone Penetration Testing, 2015). The interpretations are presented only as a guide for geotechnical use and should be carefully reviewed. Gregg Drilling & Testing Inc. does not warranty the correctness or the applicability of any of the geotechnical parameters interpreted by the software and does not assume any liability for use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used in the software. Some interpretation methods require input of the groundwater level to calculate vertical effective stress. An estimate of the in-situ groundwater level has been made based on field observations and/or CPT results, but should be verified by the user.

A summary of locations and depths is available in Table 1. Note that all penetration depths referenced in the data are with respect to the existing ground surface.

Note that it is not always possible to clearly identify a soil type based solely on q_t, f_s, and u_2. In these situations, experience, judgment, and an assessment of the pore pressure dissipation data should be used to infer the correct soil behavior type.



ZONE		SBT
1		Sensitive, fine grained
2		Organic materials
3		Clay
4		Silty clay to clay
5		Clayey silt to silty clay
6		Sandy silt to clayey silt
7		Silty sand to sandy silt
8		Sand to silty sand
9		Sand
10		Gravely sand to sand
11		Very stiff fine grained*
12		Sand to clayey sand*

*over consolidated or cemented

Figure SBT (After Robertson et al., 1986) – Note: Colors may vary slightly compared to plots

Shear Wave Velocity Calculations

CORTEVA

SCPT-01

Geophone Offset: 0.66 Feet
Source Offset: 1.67 Feet

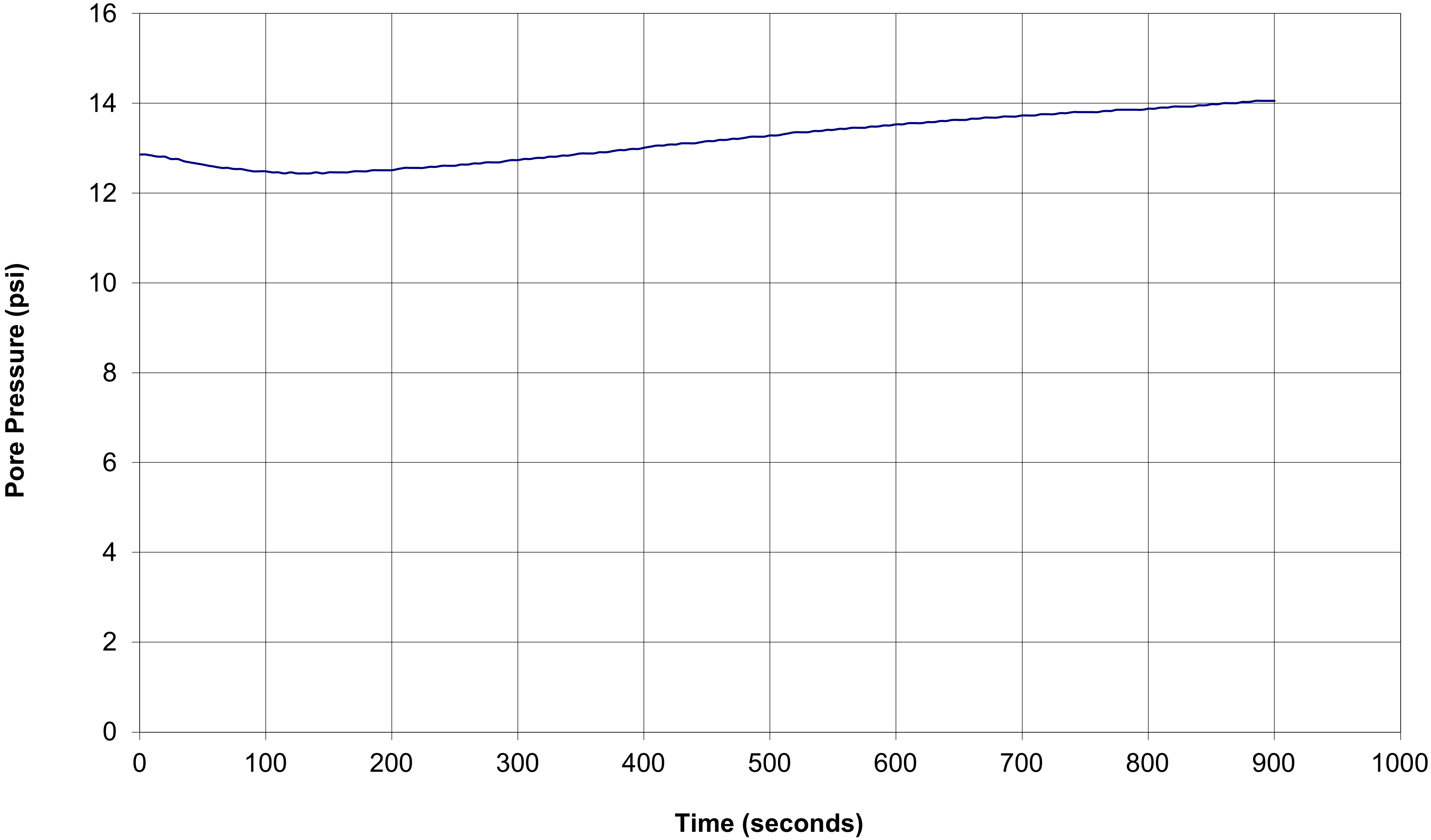
09/27/21

Test Depth (Feet)	Geophone Depth (Feet)	Waveform Ray Path (Feet)	Incremental Distance (Feet)	Characteristic Arrival Time (ms)	Incremental Time Interval (ms)	Interval Velocity (Ft/Sec)	Interval Depth (Feet)
10.17	9.51	9.66	9.66	27.0500			
15.26	14.60	14.69	5.04	41.8000	14.7500	341.4	12.05
20.18	19.52	19.59	4.90	56.2500	14.4500	338.9	17.06
25.26	24.60	24.66	5.07	64.7000	8.4500	600.1	22.06
30.35	29.69	29.73	5.08	75.2000	10.5000	483.4	27.15
35.27	34.61	34.65	4.91	84.1500	8.9500	549.1	32.15
40.35	39.69	39.73	5.08	91.6500	7.5000	677.4	37.15
45.11	44.45	44.48	4.75	96.1000	4.4500	1068.2	42.07
50.20	49.54	49.56	5.08	102.1000	6.0000	847.0	46.99
55.45	54.79	54.81	5.25	106.6000	4.5000	1165.9	52.16
60.20	59.54	59.57	4.76	110.6000	4.0000	1188.8	57.16
65.29	64.63	64.65	5.08	115.5500	4.9500	1027.0	62.09
71.52	70.86	70.88	6.23	121.8000	6.2500	997.1	67.75
75.13	74.47	74.49	3.61	125.0500	3.2500	1110.1	72.67
80.22	79.56	79.57	5.08	128.3000	3.2500	1564.3	77.01
85.30	84.64	84.66	5.08	133.0000	4.7000	1081.8	82.10
90.22	89.56	89.58	4.92	136.5000	3.5000	1405.8	87.10
95.31	94.65	94.66	5.08	141.5000	5.0000	1016.9	92.11
100.23	99.57	99.58	4.92	145.2500	3.7500	1312.1	97.11
105.31	104.65	104.67	5.08	151.7000	6.4500	788.3	102.11
110.24	109.58	109.59	4.92	154.7000	3.0000	1640.2	107.12
115.32	114.66	114.67	5.08	158.2000	3.5000	1452.8	112.12
120.57	119.91	119.92	5.25	162.4500	4.2500	1235.0	117.29
122.37	121.71	121.73	1.80	163.1500	0.7000	2577.5	120.81

GREGG DRILLING & TESTING

Pore Pressure Dissipation Test

Sounding: SCPT-01
Depth (ft): 70.21
Site: CORTEVA
Engineer: KATHRYN S.



New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California

Project No. 197.67

GREGG DRILLING & TESTING

Pore Pressure Dissipation Test

Sounding: CPT-02
Depth (ft): 32.15
Site: CORTEVA
Engineer: KATHRYN S.

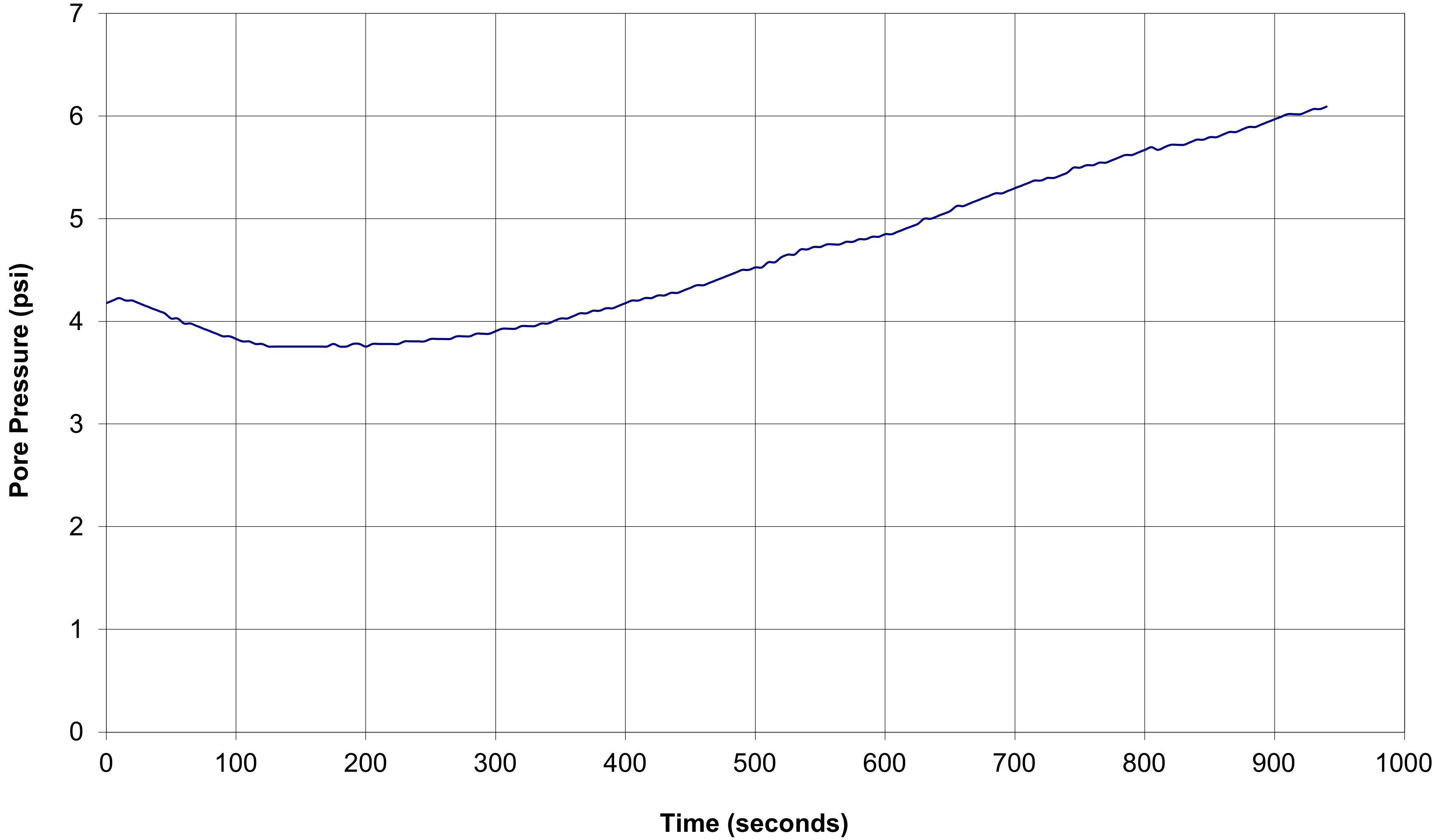


Plate No. B-21

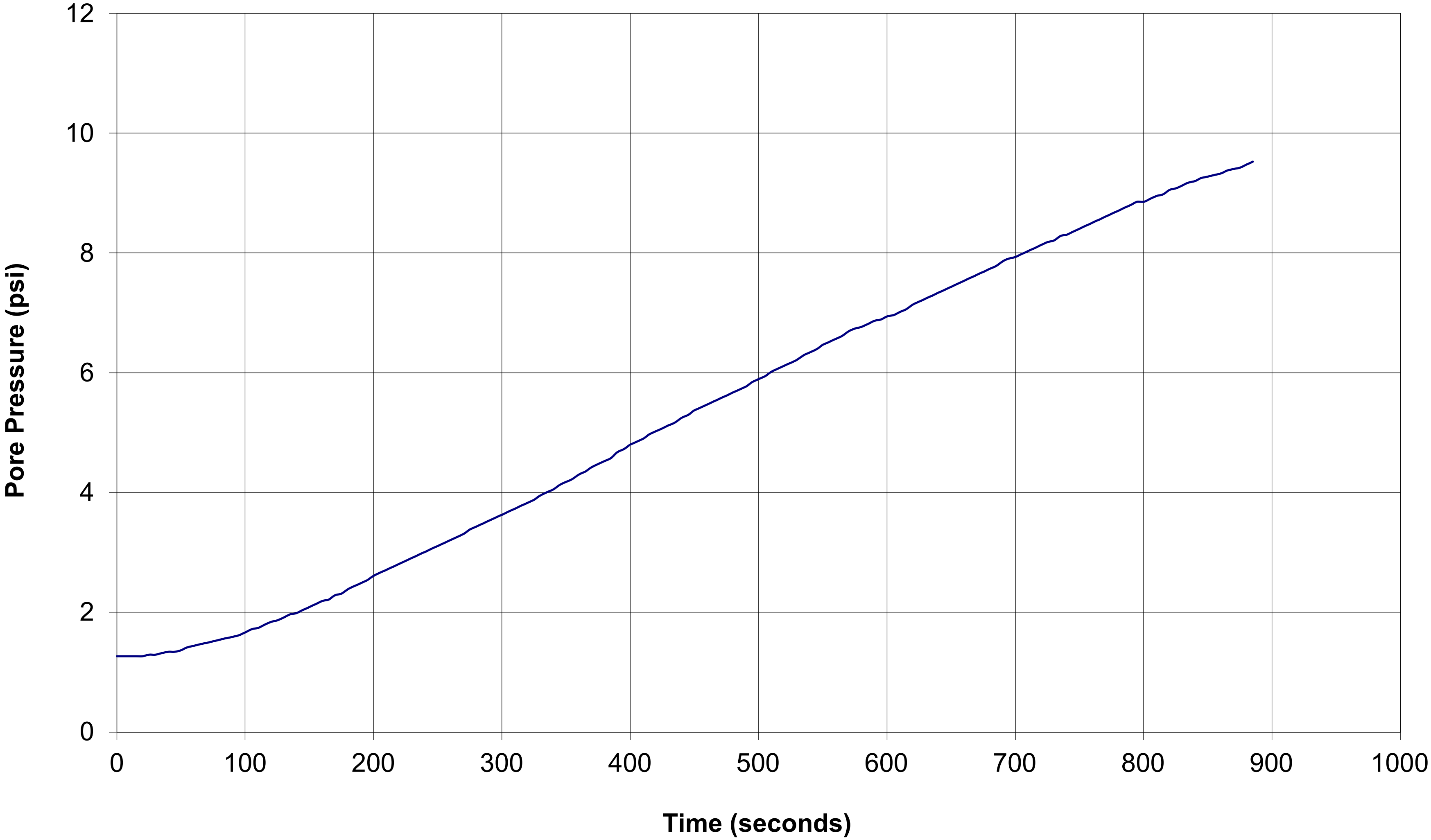
New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California

Project No. 197.67

GREGG DRILLING & TESTING

Pore Pressure Dissipation Test

Sounding:	CPT-03
Depth (ft):	36.91
Site:	CORTEVA
Engineer:	KATHRYN S.



New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California

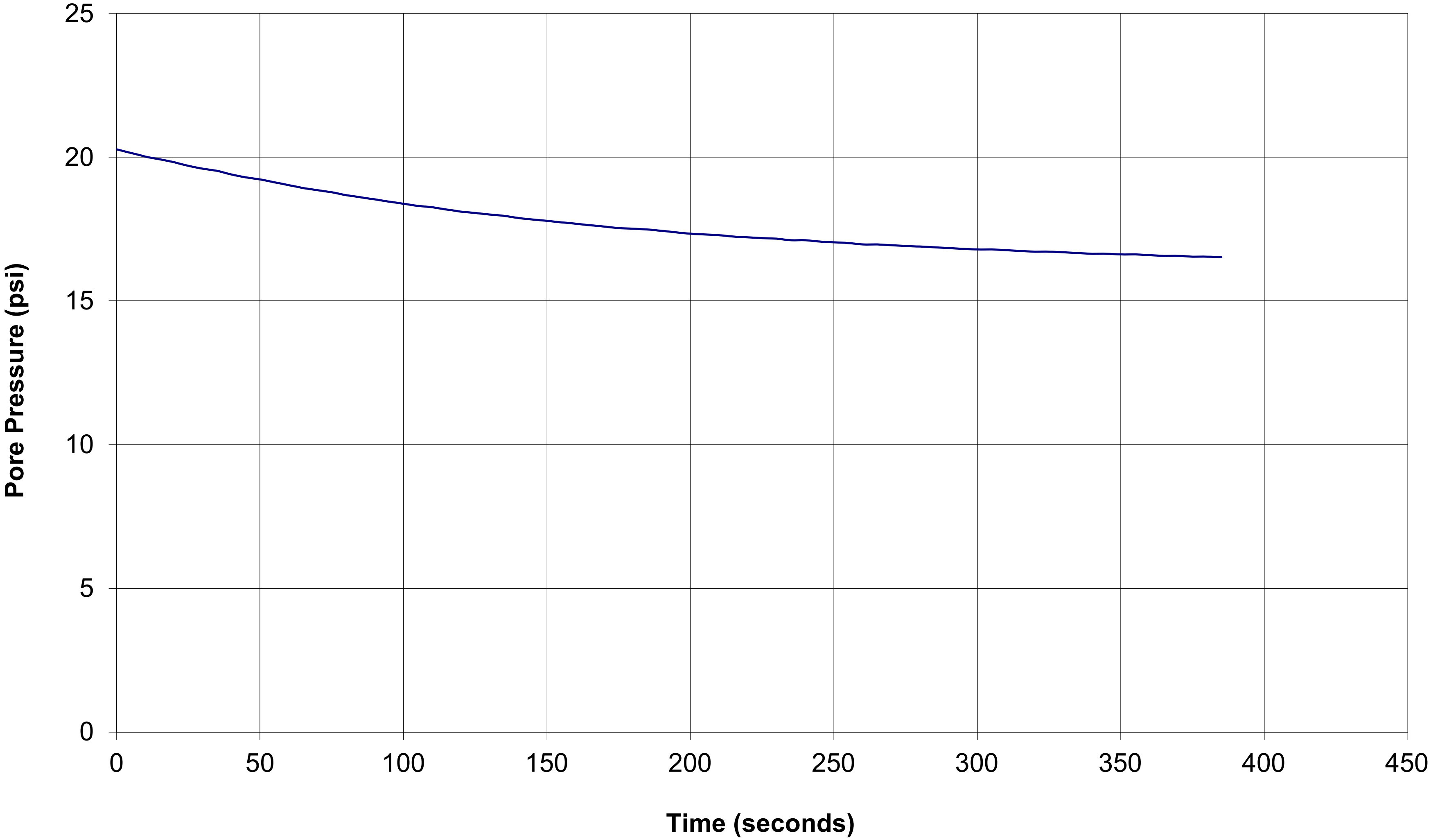
Project No. 197.67

Plate No. B-23

GREGG DRILLING & TESTING

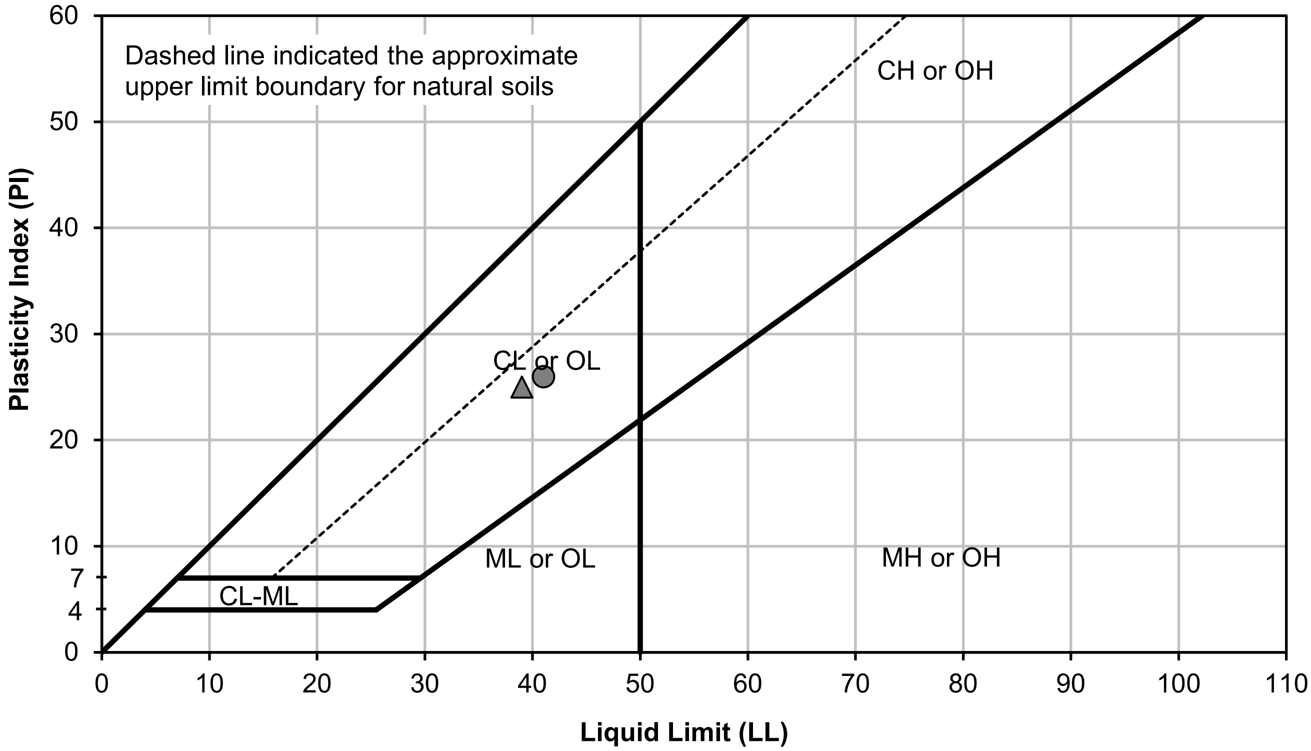
Pore Pressure Dissipation Test

Sounding: CPT-05
Depth (ft): 13.29
Site: CORTEVA
Engineer: KATHRYN S.



APPENDIX C

LABORATORY DATA



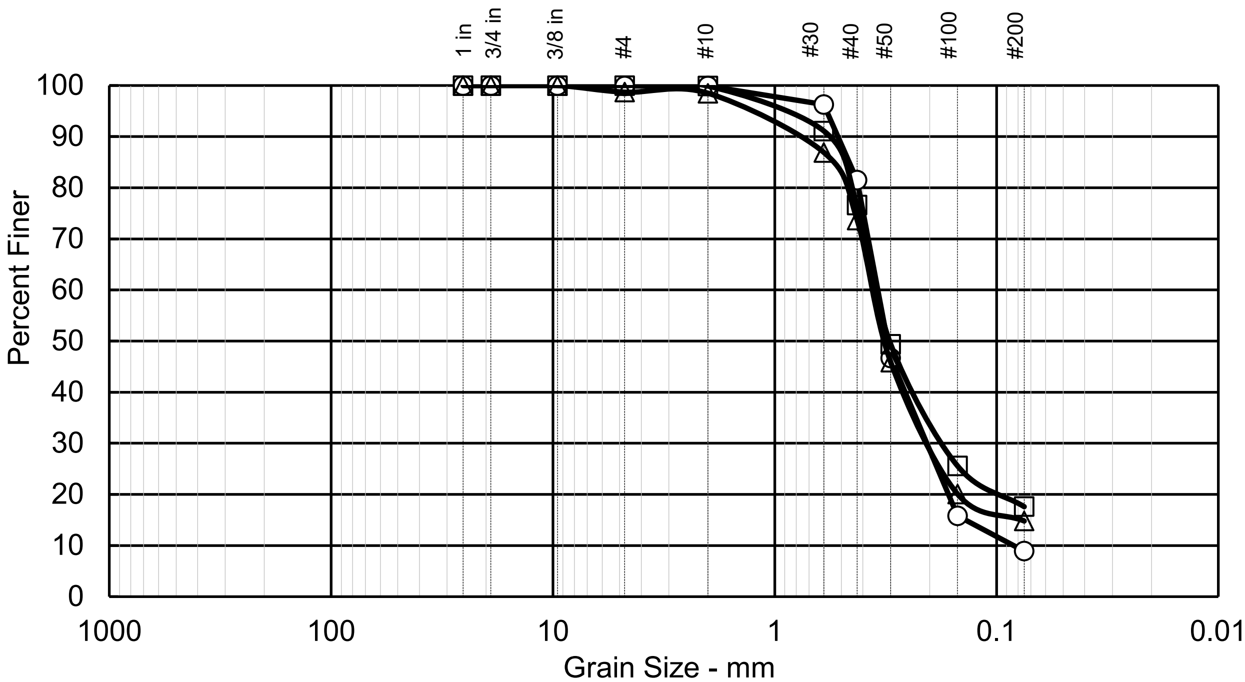
Symbol	CPT Number	Depth (feet)	Soil Description	LL (%)	PL (%)	PI (%)	Moisture Content (%)
● (filled circle)	2	2	Mottled Light Brown and Orange Lean Clay (CL)	41	15	26	20
▲ (filled triangle)	3	2	Light Brown Lean Clay (CL)	39	14	25	15
■							
◆							
○							
△							
□							
◇							

Testing performed by Cooper Testing Laboratory

New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California

Atterberg Limits

Hultgren - Tillis Engineers | Project No. 197.67 | Plate No. C-1



Sieve Size	○	□	△
	Percent Finer		
1 in	100.0	100.0	100.0
3/4 in	100.0	100.0	100.0
3/8 in	100.0	100.0	100.0
#4	99.9	100.0	98.7
#10	99.9	99.9	98.5
#30	96.3	91.1	86.9
#40	81.5	76.6	73.7
#50	46.7	49.4	45.9
#100	15.8	25.6	20.1
#200	8.9	17.6	14.8
	Grain Size		
D60	0.341	0.343	0.356
D30	0.239	0.193	0.226
D10	0.873	-	-
	Coefficients		
Cc	1.91	-	-
Cu	3.91	-	-

Soil Description	
○	Dark Brown Poorly-Graded Sand with Silt (SP-SM)
□	Brown Silty Sand (SM)
△	Brown Silty Sand (SM)

Sample Key	
○	CPT-1 at 6 feet
□	CPT-2 at 5 feet
△	CPT-5 at 3.6 feet

Testing performed by
Cooper Testing Laboratory

New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California

Sieve Analysis Results

Hultgren - Tillis Engineers | Project No. 197.67 | Plate No. C-2

CERCO
analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 **462 2771** Fax. 925 **462 2775**
www.cercoanalytical.com

8 October, 2021

Job No. 2109043
Cust. No. 11451

Ms. Kathryn Spence
Hultgren-Tillis Engineers
4085 Nelson Avenue, Suite A
Concord, CA 94520-1257

Subject: Project No.: 197.67
Project Name: Corteva Agriscience
Corrosivity Analysis – ASTM Test Methods

Dear Ms. Spence:

Pursuant to your request, CERCO Analytical has analyzed the soil samples submitted on September 29, 2021. Based on the analytical results, this brief corrosivity evaluation is enclosed for your consideration.

Based upon the resistivity measurements, SampleNo.001 is classified as "severely corrosive" and Sample No.002 is classified as "corrosive". All buried iron, steel, cast iron, ductile iron, galvanized steel and dielectric coated steel or iron should be properly protected against corrosion depending upon the critical nature of the structure. All buried metallic pressure piping such as ductile iron firewater pipelines should be protected against corrosion.

The chloride ion concentrations are none detected and 29 mg/kg. Both samples are determined to be insufficient to attack steel embedded in a concrete mortar coating.

The sulfate ion concentrations are 160 mg/kg and 220 mg/kg and are determined to be sufficient to potentially be detrimental to reinforced concrete structures and cement mortar-coated steel at these locations. Therefore, concrete that comes into contact with this soil should use sulfate resistant cement such as Type II, with a maximum water-to-cement ratio of 0.55.

The pH of the soils are 7.21 and 8.10, which does not present corrosion problems for buried iron, steel, mortar-coated steel and reinforced concrete structures.

The redox potentials are 220-mV and 250-mV. Both samples are indicative of potentially "slightly corrosive" soils resulting from anaerobic soil conditions.

This corrosivity evaluation is based on general corrosion engineering standards and is non-specific in nature. For specific long-term corrosion control design recommendations or consultation, please call *JDH Corrosion Consultants, Inc. at (925) 927-6630.*

We appreciate the opportunity of working with you on this project. If you have any questions, or if you require further information, please do not hesitate to contact us.

Very truly yours,
CERCO ANALYTICAL, INC.

for Sheryl Moore
J. Darby Howard, Jr., P.E.
President

JDH/jdl
Enclosure

New Plant in Block 680
Corteva Agriscience Facility
Pittsburg, California

Project No. 197.67

CERCO analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 462 2771 Fax. 925 462 2775
www.cercoanalytical.com

Client: Hultgren-Tillis Engineers
Client's Project No.: 197.67
Client's Project Name: Corteva Agriscience
Date Sampled: 09/27 & 28/21
Date Received: 29-Sep-21
Matrix: Soil
Authorization: Signed Chain of Custody

Date of Report: 8-Oct-2021

Job/Sample No.	Sample I.D.	Redox (mV)	pH	Conductivity (umhos/cm)*	Resistivity (100% Saturation) (ohms-cm)	Sulfide (mg/kg)*	Chloride (mg/kg)*	Sulfate (mg/kg)*
2109043-001	CPT-01 @ 2'	220	8.10	-	430	-	N.D.	220
2109043-002	CPT-05 @ 3'	250	7.21	-	740	-	29	160

Method:	ASTM D1498	ASTM D4972	ASTM D1125M	ASTM G57	ASTM D4658M	ASTM D4327	ASTM D4327
Reporting Limit:	-	-	10	-	50	150	15
Date Analyzed:	7-Oct-2021	7-Oct-2021	-	7-Oct-2021	-	7-Oct-2021	7-Oct-2021

* Results Reported on "As Received" Basis
N.D. - None Detected

for Cheryl McMillen
Laboratory Director

Quality Control Summary - All laboratory quality control parameters were found to be within established limits

APPENDIX D

GROUND MOTIONS STUDY REPORT

1205 Contra Costa Dr
El Cerrito, CA 94530
(510) 816-1323

November 3, 2021

Hultgren–Tillis Engineers
4085 Nelson Avenue, Suite A
Concord, California 94520

Attention: Messrs. Callan Yu and Chris Muller

Subject: **Ground Motion Study Report – Corteva (Block 680) Facility in Pittsburg, California**

Dear Messrs. Yu and Muller:

Applied Geodynamics, Inc. (AGDI) is pleased to present this report summarizing the results of ground motion studies performed for seismic design of facilities at Corteva site (Block 680) in Pittsburg, California.

PROJECT DESCRIPTION AND TECDHNICAL APPROACH

We understand that Corteva site (Block 680) has plan dimensions of about 600 feet by 600 feet and is, on average, underlain by 20 feet of potentially liquefiable fill over 10 feet of soft to medium stiff clayey silt layer. The thickness of soft to medium stiff clayey silt layer increases towards the west side of the site and is underlain by alluvial deposits. Shear wave velocity of the alluvium was measured at this site as well as at a site immediately to the east of Block 680 site.

The proposed facilities include pipe racks, tank farms, cooling water tower, process structures, office / lab buildings, truck loading stations, and other related components.

Hultgren-Tillis Engineers (HT) had planned to perform a 130-foot seismic cone penetration test (seismic CPT) sounding, extending100 feet below the bottom of clayey silt layer to measure site specific shear wave velocity for use in ground motion studies. However, the CPT met refusal at a depth of 120 feet.

For our use, we received the following documents.

1. Soil Investigation, Incinerator, Dow Chemical Company, Pittsburg, California, prepared by Harding Lawson Associates, dated August 10, 1984, Project No. 4013,047.03.
2. CPT Site Investigation, Corteva Agriscience Facility, Pittsburg, California, prepared by Gregg Drilling, LLC, dated September 29, 2021, Project No. D1215082.

These documents included 14 mud-rotary borings drilled to a maximum depth of 49½ feet below the existing ground surface (bgs), select laboratory testing including strength, consolidation, and index testing, and 7 cone penetration test (CPT) logs including one seismic CPT advanced to a maximum depth of 122 feet bgs.

Our analysis involved the following steps, which are described in further detail below.

- Develop the Risk-Targeted, Maximum-Rotated Maximum Considered Earthquake (MCE_R) and Design Earthquake (DE) response spectra for the base-of-profile condition.
- Select and scale a suite of ground-motion time histories to be compatible with the base-of-profile MCE_R response spectrum. (Same suite is compatible with the DE spectrum considering a reduction factor of 2/3.)

- Develop subsurface one-dimensional liquefiable and non-liquefiable soil profiles for use in the site response analysis based on site data provided in Harding Lawson Associates (1984) and Gregg Drilling (2021).
- Propagate ground motions through ground models to obtain surface-to-base response spectral ratios (calculated period by period) under the DE ground motions, for the non-liquefiable profile, and the MCE_R ground motions, for the liquefiable profile.
- Obtain response spectra at the ground surface by multiplying the MCE_R and DE base motions by the average of the aforementioned ratios and by comparison with 80-percent of the code spectra per Chapter 21 of ASCE 7-16 and taking the maximum response.

BASE-OF-PROFILE CONDITION AND SEISMIC HAZARD ANALYSIS

Based on the shear wave velocity profiled measured in SCPT-1, we established the base-of-the profile at 50 feet bgs in a material with shear wave velocity of 1,170 feet per second (ft/sec). We completed the following tasks to develop the MCE_R and DE response spectra for the base-of-profile condition:

- Perform probabilistic seismic-hazard analysis (PSHA) to develop a risk-targeted, maximum-rotated response spectrum corresponding to a 2-percent probability of exceedance in 50 years (2,475-year return period).
- Perform deterministic seismic-hazard analysis (DSHA) to develop an 84th-percentile maximum-rotated response spectrum.
- Compare the DSHA response spectrum with the Deterministic Lower Limit in accordance with Section 21.2.2 of ASCE 7-16 and Supplement No. 1.
- Compare the risk-targeted and maximum-rotated probabilistic and the max-rotated deterministic response spectra to obtain the site-specific MCER response spectrum for the site.
- Multiply the site-specific MCE_R response spectrum by two-thirds to obtain the site-specific DE spectrum for the site.
- Compare the MCE_R and DE response spectra developed in the previous step with their corresponding 80-percent Site Class D mapped response spectra to develop the recommended site-specific MCE_R and DE response spectra at the base-of-profile.

GROUND MOTION MODELS AND SITE PARAMETERS

We used four semi-empirical ground motion models (GMMs) from Next Generation Attenuation West 2 (NGA West 2) project in the seismic-hazard analysis for this project. These include Abrahamson et al. (2014), Boore et al. (2014), Campbell and Bozorgnia (2014), and Chiou and Youngs (2014). We performed our analysis using all four GMMs for a spectral damping of 5 percent of critical damping. We used the logic-tree approach and assigned equal weight (0.25) to the four GMMs in our analysis.

The ground-motion models incorporate "site parameters" to model how subsurface soil will amplify or attenuate ground motions as they propagate from deeper, underlying bedrock. These site parameters include:

- Time-averaged shear-wave velocity over the top 100 feet or 30 meters (V_{S30})
- Depth at which the shear-wave velocity (V_S) reaches 3,280 feet/sec or 1.0 kilometer/sec ($z_{1.0}$)
- Depth at which V_S reaches 8,200 feet/sec or 2.5 kilometers/sec ($z_{2.5}$)

We estimated a V_{S30} value of 1,170 feet/sec (357 meters/sec) for the base-of-profile condition. This base-of-profile condition corresponds to Site Class D, per Chapter 20 of ASCE/SEI 7-16. We used USGS Bay Area Velocity Model version 8.3.0 Basin Depth models as implemented in the USGS Site Data

Application Software (OpenSHA) to estimate $z_{1.0}$ and $z_{2.5}$. We used $z_{1.0}$ and $z_{2.5}$ values of 1,831 and 11,352 feet (558 and 3,460 meters) in our analysis, respectively.

PROBABILISTIC SEISMIC HAZARD ANALYSIS

Fault Database and Probabilistic Model

We performed a probabilistic seismic-hazard analysis (PSHA) for the project site for a return period of 2,475 years. We utilized the Third California Earthquake Rupture Forecast model (UCERF3). This is the most up-to-date rupture forecast model for the state of California and is required by ASCE 7-16. We calculated the seismic hazard using the standard methodology for hazard analysis (McGuire, 2004). The seismic-hazard calculations can be represented by the following equation, which is an application of the total-probability theorem.

$$H(a) = \sum_i v_i \iint P[A > a|m,r]\, f_{Mi}(\mathrm{m})\, f_{Ri|Mi}(\mathrm{r},\mathrm{m})\, dr\, dm$$

In this equation, the hazard **H*(a)*** is the annual frequency of earthquakes that produce a ground motion amplitude ***A*** higher than ***a***. Amplitude ***A*** may represent peak ground acceleration, velocity, or it may represent spectral pseudo-acceleration (PSa) at a given frequency. The summation in the equation shown extends over all sources (i.e. over all faults and areas). In the above equation, v_i is the annual rate of earthquakes (with magnitude higher than some threshold $\mathbf{M_i}$) in source ***i***, and $f_{Mi}(m)$ and $f_{Ri|Mi}(r,m)$ are the probability density functions on magnitude and distance, respectively. $P[A > a|m, r]$ is the probability that an earthquake of magnitude ***m*** at distance ***r*** produces a ground-motion amplitude ***A*** at the site that is greater than ***a***. Seismic sources may be either faults or area sources; the specification of source geometries and the calculation of $f_{Ri|Mi}$, are performed differently for these two types of sources.

Deaggregation of the Seismic Hazard

We deaggregated the hazard associated with the 2,475-year return period seismic hazard at the peak ground acceleration, and at periods of 0.5, 2.0, and 5.0 seconds. These deaggregation results are presented in Appendix A. We summarize the dominant scenarios and their relative contributions to the hazard at each period in Table 1.

TABLE 1: Summary of Deaggregation Results for a 2,475-Year Return Period*

SOURCE	R_{RUP}		M_W	PERCENT CONTRIBUTION			
	KM	MILES		PGA	0.5 SEC	2.0 SEC	5.0 SEC
Great Valley 05 Pittsburg - Kirby Hills alt1 [0]	4.3	2.7	6.42	29.8	28.5	20.4	6.7
Los Medanos - Roe Island [0]	5.2	3.2	7.42	4.2	4.8	6.0	5.1
Clayton [0]	10.5	6.5	7	4.3	5.4	6.5	4.7
Great Valley 06 Midland alt2 [1]	10.7	6.6	7.28	5.2	5.7	5.4	3.0
Great Valley 05 Pittsburg	11.0	6.8	6.93	13.3	11.1	7.5	2.7

- Kirby Hills alt2 [6]							
Mount Diablo Thrust North CFM [1]	15.1	9.4	7.3	5.6	6.6	9.4	9.1
Great Valley 06 (Midland) alt1 [5]	15.3	9.5	7.02	1.7	2.0	2.0	1.0
Concord [2]	16.7	10.4	7.29	7.0	9.0	9.2	6.4
Greenville (No) [6]	17.2	10.7	6.93	1.3	1.7	1.8	1.3
Franklin [1]	23.3	14.5	7.46	< 1.0	< 1.0	2.7	3.8
Calaveras (No) [0]	26.7	16.6	7.35	< 1.0	< 1.0	3.0	3.7
Hayward (No) [1]	37.9	23.5	7.51	< 1.0	< 1.0	3.6	6.7
San Andreas (Peninsula) [10]	68.4	42.5	8.08	< 1.0	< 1.0	4.7	14.7
Cascadia Megathrust - whole CSZ Characteristic	282.8	175.7	9.14	< 1.0	< 1.0	< 1.0	10.9

*Based on USGS Unified Hazard Tool: Dynamic Conterminous U.S. 2014 (update) (v4.2.0)

These results represent sources contributing at least one percent to the seismic hazard at the site for the spectral periods considered and for the given return period. Gridded or areal sources are not presented. The assigned moment magnitudes (M_W) are based on values assigned according to UCERF 3, and the numbers in square brackets after the fault names correspond to fault subsections assigned by UCERF 3. Due to variability between the two fault models (FM 3.1 and 3.2) utilized by UCERF 3, we considered the maximum magnitude for each source for the spectral periods considered.

Deterministic Seismic Hazards Analysis

The deterministic seismic-hazard analysis (DSHA) involves developing the 84th percentile (i.e., lognormal mean plus one standard deviation) maximum-rotated response spectrum for a spectral damping of 5 percent of critical damping considering characteristic magnitudes of significant faults, without background seismicity, and the aforementioned ground-motion models. However, it is important to note that the definition of the characteristic magnitude is ambiguous when using the UCERF3 model due to its complexity. Based on our communications with developers of UCERF3 and the 2020 NEHRP Provisions, in deterministic analyses, "scenario" earthquakes with significant contribution to hazard should be used in lieu of "characteristic" earthquakes when using UCERF3. We identified the scenario earthquakes by considering the results of the deaggregation. Accordingly, we considered the scenarios in Table 1, as described below.

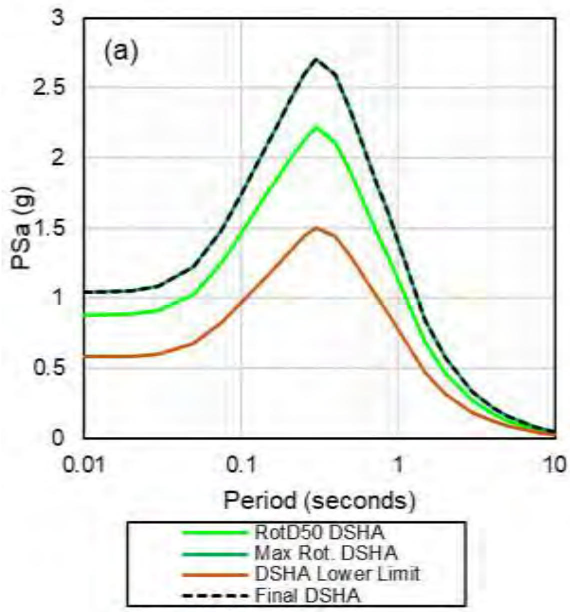
We considered the magnitudes in Table 1 and associated distances (R_{RUP}, R_{JB}, R_X) to calculate the deterministic spectrum. We estimated additional ground motion model parameters (e.g., rupture width, depth to top of rupture, etc.) for each fault/scenario based on fault-specific information published on the United States Geologic Survey (USGS) website. Our analyses, along with considering the percent contribution to the hazard, indicate controlling events on the Great Valley 05 Pittsburg – Kirby Hills Fault with a moment magnitude (M_W) of 6.42 within 2.7 miles (4.3 kilometers) of the site, at periods smaller or equal to 1.5 seconds, and on the Mount Diablo Thrust North CFM Fault with a M_W of 7.30 within 9.4 miles (15.1 kilometers) of the site, at periods longer than 1.5 seconds.

Resulting Base-of-Profile Response Spectrum

Following steps described above, we developed probabilistic and deterministic median-component (RotD50) response spectra. To convert the RotD50 response spectra to maximum-rotated response spectra, we applied the maximum rotation factors discussed in Shahi and Baker (2014). We also applied the mapped risk factors defined in Section 21.2.1.1 of ASCE/SEI 7-16 to the probabilistic response spectrum in order to develop a risk-targeted spectrum. We then compared the maximum-rotated deterministic response spectrum with the lower limit deterministic response spectrum defined in Section 21.2.2 of ASCE/SEI 7-16 and Supplement No. 1 to finalize the deterministic spectrum.

According to Section 21.2.3 of ASCE/SEI 7-16, the MCER is controlled by the lesser of the maximum-rotated and risk-targeted probabilistic and the 84th percentile maximum-rotated deterministic response spectra. At this site, the spectral accelerations associated with the probabilistic response spectrum are less than the deterministic response spectrum. Additionally, the MCER and DE are not permitted to be lower than 80 percent of the mapped MCE_R and DE spectra (i.e., the code minimum), respectively. Exhibit 1 presents the development of the max-rotated 84th percentile deterministic and risk-targeted and max-rotated probabilistic response spectra. Exhibits 2 and 3 depict the recommended site-specific MCE_R and DE spectra for the base-of-profile condition at project site, respectively.

EXHIBIT 1: (a) Deterministic and (b) Probabilistic Seismic-Hazard Analysis Results



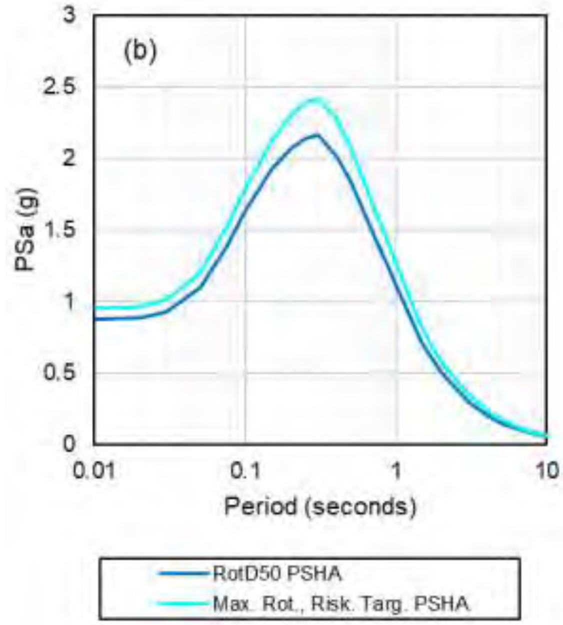


EXHIBIT 2: Site-specific MCE$_R$ Response Spectra at the Base-of-Profile Condition

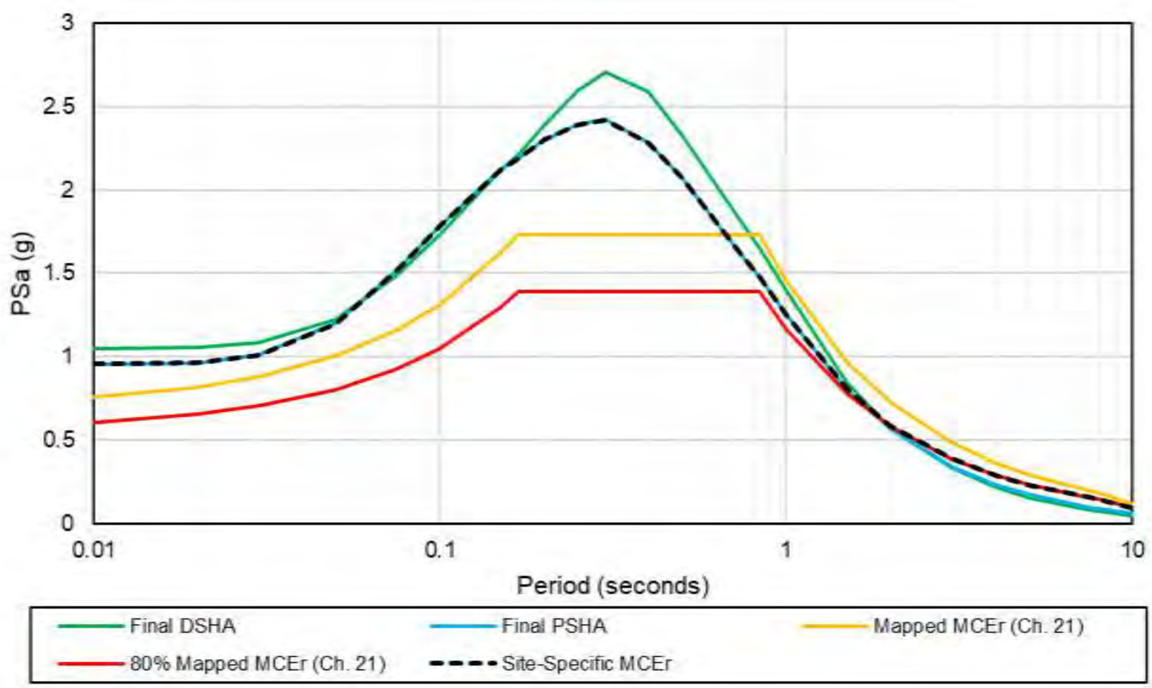
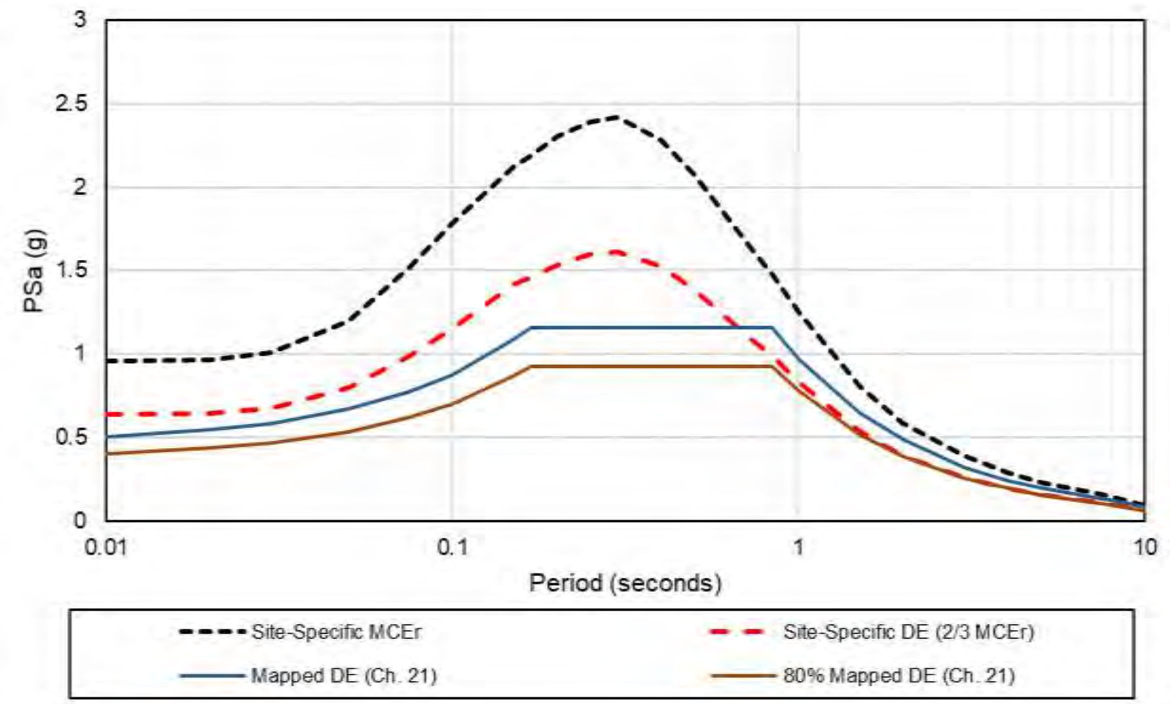


EXHIBIT 3: Site-specific DE Response Spectra at the Base-of-Profile Condition



HORIZONTAL GROUND MOTION SELECTION AND SCALING

We selected and scaled a suite of ground-motion time histories consisting of 11 pairs of horizontal, orthogonal acceleration records for use in our site-response analysis from the NGA West 2 database (Ancheta et al., 2014). We scaled the selected ground-motions to the base-of-profile site-specific MCE_R target spectrum shown in Exhibit 2. We selected spectral scaling rather than spectral matching as scaling more closely preserves the critical features of the ground-motions. We considered the disaggregation of the seismic hazard presented in Table 1 in order to guide our ground-motion selection. We considered dominant magnitudes, distances, and fault mechanisms. We also developed criteria for significant duration, $D_{5\text{-}95}$, based on the Kempton and Stewart (2006) model, Arias Intensity and I_A, based on the Abrahamson et al. (2016) model. Table 2 provides a summary of the selected ground motion suite.

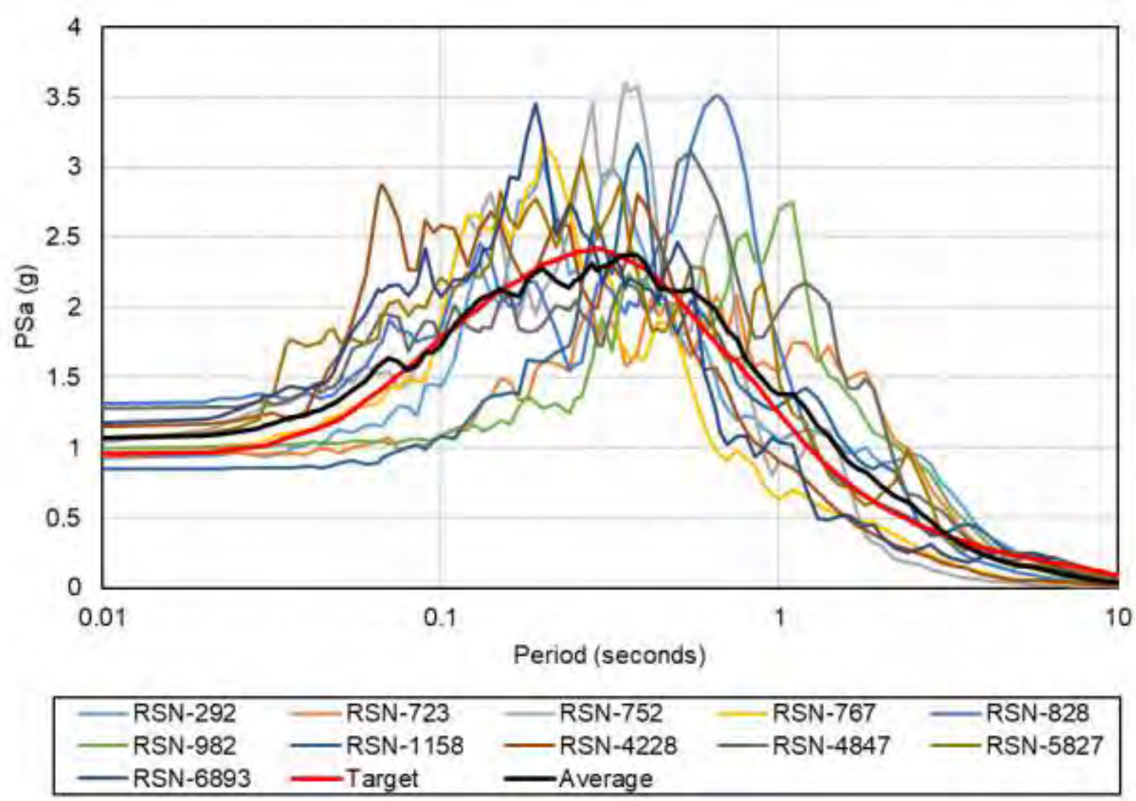
We selected seven ground motions with a velocity pulse based on the criteria in Hayden et al. (2014) and Shahi and Baker (2011). We selected pulse-like ground motions with pulse periods ranging from 1.4 to 3.3 seconds, with an average pulse period of 2.5 seconds.

Per Section 21.1.1 of ASCE/SEI 7-16, we scaled the ground motions such that the average response spectrum is in agreement with the base target MCE_R response spectrum. Specifically, we scaled the GMs such that the average median-component (RotD50) response spectrum of all ground motions is in satisfactory agreement with the target spectrum. We limited the scale factors to be less than 3.5. We also used a scaled factor of 2/3 to all the ground motions to develop a suite based on target DE response spectrum. Exhibit 4 shows the RotD50 response spectra for each ground motion, along with the mean and base target response spectra.

TABLE 2: Ground Motions and Scale Factors Used in the Site-Response Analysis

EARTHQUAKE	RSN	PULSE PERIOD (sec)	Mw	R_{RUP} (km)	FAULT TYPE	V_{S30} (m/s)	D_{5-95} (sec)	Scaled Ia (m/s)	SCALE FACTOR For MCE_R	SCALE FACTOR For DE
Irpinia_ Italy-01	292	3.3	6.90	10.8	Normal	382	15.2	14.79	3.25	2.17
Superstition Hills-02	723	2.4	6.54	1.0	Strike Slip	349	11	17.10	2.15	1.44
Loma Prieta	752	-	6.93	15.2	Reverse Oblique	289	13.2	21.30	2.20	1.47
Loma Prieta	767	2.6	6.93	12.8	Reverse Oblique	350	11.4	8.40	2.00	1.34
Cape Mendocino	828	3.0	7.01	8.2	Reverse	422	17.7	16.76	2.10	1.40
Northridge-01	982	3.2	6.69	5.4	Reverse	373	12.5	19.11	1.90	1.27
Kocaeli_ Turkey	1158	-	7.51	15.4	Strike Slip	282	11.8	9.13	2.65	1.77
Niigata_ Japan	4228	1.8	6.63	8.9	Reverse	375	12.2	11.14	2.25	1.5
Chuetsu-oki_ Japan	4847	1.4	6.80	11.9	Reverse	383	20.3	20.70	3.00	2.00
El Mayor-Cucapah_ Mexico	5827	-	7.20	15.9	Strike Slip	242	34.5	38.13	2.50	1.67
Darfield_ New Zealand	6893	-	7.00	11.9	Strike Slip	344	21.3	18.93	2.60	1.74

EXHIBIT 4: RotD50 Response Spectra of the Ground Motions Used in Site-Response Analysis (MCE_R Target Response Spectrum)



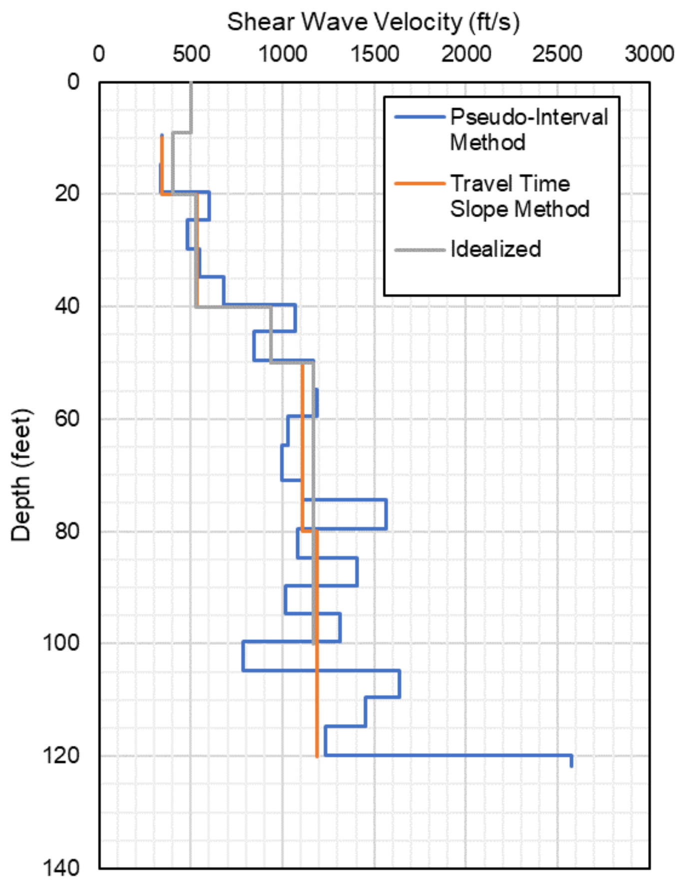
SITE RESPONSE ANALYSIS

To perform site response analysis, a model of the soil profile is required. Each soil layer in the model is defined by a thickness, shear-wave velocity (V_S), and unit weight (g). Additionally, nonlinear modulus reduction (G/G_{max}) and damping ratio (D) curves are required for each layer. This section describes how we developed the site-response models and the analysis procedures.

V_s Profile Development

To perform a site-response analysis, a profile of the shear-wave velocity (V_S) as a function of depth is required. We developed a V_S profile from a seismic cone penetrometer test (SCPT-1) using the data provided in Gregg Drilling (2021). We present this idealized profile in Exhibit 5.

EXHIBIT 5: Idealized V_S Profile Considered in Site-Response Analysis



Modulus Reduction and Damping Curves

Nonlinear modulus reduction (G/G_{max}) and damping (D) curves are required for each soil layer considered in the site-response analysis. We assigned G/G_{max} and D curves based on the confining pressure and material-dependent relationships provided in Darendeli (2001). We estimated the parameters for the Darendeli (2001) model from the borings, laboratory data, and CPT data provided by Harding Lawson Associates (1984) and Gregg Drilling (2021).

At large strains (greater than approximately 0.5 percent), the G/G_{max} curves from empirical relationships are unbounded by laboratory measurements and can imply unrealistic shear strengths. Thus, when large strains are expected in the site response analysis, it is necessary to adjust the large-strain portions of the G/G_{max} curves to account for the soil shear strength. Accordingly, we adjusted the high-strain G/G_{max} values in all layers to reflect the estimated shear strength of the soil. We estimated shear strengths based on CPT data and SPT data.

We estimated the undrained shear strength (S_u) for cohesive soils using CPT correlations based on tip resistance. For granular soil, we used a friction angle range of 33 to 40 degrees based on the available blow count data. The friction angles were converted to shear strength by taking the tangent and multiplying by the vertical effective stress.

Analysis Procedures

We used the General Quadratic/Hyperbolic (GQ/H) constitutive model, as implemented in DEEPSOIL v7.1 (Groholski et al. 2016; Hashash et al. 2017), to perform non-linear (NL) site response analyses. Note that NL analyses are performed in the time domain and solve for the dynamic response of multi-degree-of-freedom systems subject to base excitation (Kim et al., 2016). Thus, the NL analyses did not directly use the G/G_{max} and damping curves above. Rather, the constitutive model parameters are calibrated such that the nonlinear behavior implied by the G/G_{max} and damping curves is captured.

We performed two analyses for the considered profile. We performed a site-response analysis that assumes no liquefaction occurs ("non-liquefied analysis") and an analysis, which accounts for the generation of excess pore pressures and liquefaction ("liquefied analysis"). We considered both cases because it is uncertain whether the soil will liquefy during intense ground shaking.

We performed the non-liquefied analysis at the DE level with ground motions scaled to the DE target response spectrum and the non-liquefied analysis at the MCE_R level. In order to perform this analysis, we scaled the MCE_R-level ground motions by a factor of 2/3 and propagated them through the profile. We used the amplification factors from the analysis to calculate a DE response spectrum at the surface, and then multiplied by a factor of 1.5 to develop a non-liquefied surface MCE_R response spectrum.

We performed liquefaction analysis using MCE_R-level ground motions, because these ground motions are more likely to induce high excess pore pressures and liquefaction. Our liquefied analysis used the pore water pressure generation and dissipation model based on Sand-Vucetic-Dobry (Vucetic and Dobry, 1988; Matasovic and Vucetic, 1995) as described in the DEEPSOIL v7.1 manual. This set of analyses comprises effective stress analyses with generation and dissipation of pore water pressure. We selected the associated parameters based on subsurface data from Harding Lawson Associates (1984) and Gregg Drilling (2021), shear wave velocity profile presented in Exhibit 5, and suggested values in the DEEPSOIL v7.1 manual.

Results

We calculated amplification factors (AF) for the profile and each ground motion and we present them in Appendix B. Exhibit 6 shows the mean AF of all ground motions for each profile considering non-liquefied conditions with DE-level ground motions. Exhibit 7 shows the mean AF of all ground motions for each profile considering the liquefiable conditions with MCE_R-level ground motions.

We calculated the surface response spectrum for each ground motion by applying the period-dependent amplification factors to the appropriate base-of-profile response spectrum (DE-level or MCE_R-level).

EXHIBIT 6: Amplification factors obtained from site-response analysis considering non-liquefied condition with DE-level ground motions

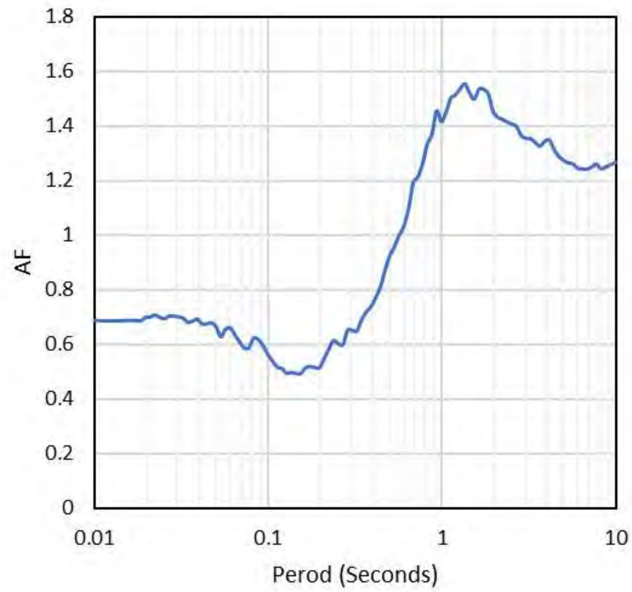
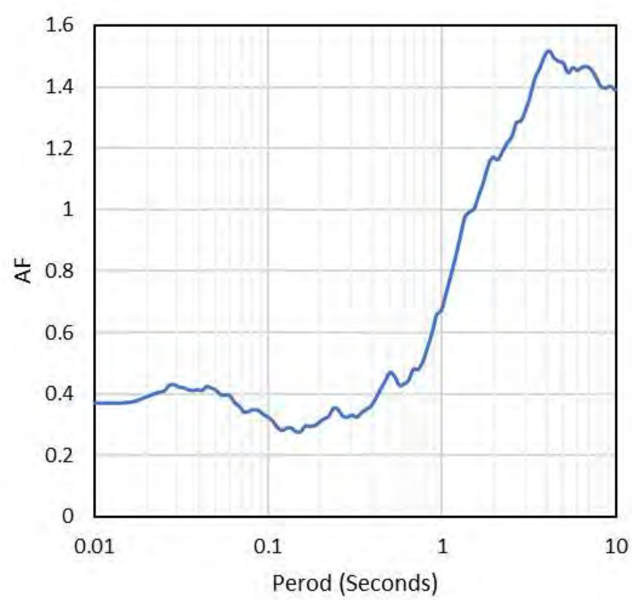


EXHIBIT 7: Amplification factors obtained from site-response analysis considering liquefied condition with MCE$_R$-level ground motions



SURFACE MCE$_R$ AND DE RESPONSE SPECTRA

We used the Site AF values in Exhibits 6 and 7 to develop MCE$_R$ response spectra for the non-liquefied and liquefiable conditions, as shown in Exhibit 8. Note that since the non-liquefied analysis was performed on DE-level ground motions, we multiplied the mean surface response spectrum by a factor of 1.5 to obtain an MCE_R-level response spectrum.

Based on the measured shear-wave velocity (SCPT-1) presented by Gregg Drilling (2021), the time-averaged shear wave velocity in the upper 30 meters (V_{S30}) of the project site is 208 meters per second (682 feet per second). Per Section 20.3.3 and Table 20.3-1 of ASCE/SEI 7-16, the project site is a Site Class D in the absence of liquefaction. Therefore, we took the exception of Section 21.3 to develop the 80 percent of mapped spectrum for a Site Class. Accordingly, we also used F_a of 1 and F_v of 2.5 to develop the mapped spectra. We show the mapped MCE_R response spectrum for Site Class D (defined in Chapters 11 and 21 of ASCE/SEI 7-16) and 80 percent of this mapped spectrum (i.e., the code minimum) in Exhibit 8. In order to develop the recommended surface MCE_R for the site, we compared the code minimum to the surface response spectra from our site-response analyses and enveloped the results. The final surface MCE_R response spectrum is shown in Exhibit 8 and tabulated in Table 3. In addition, the DE response spectrum (2/3 of the MCE_R response spectrum) is also provided in Table 3 and shown in Exhibit 9. Table 4 summarizes the site-specific design acceleration parameters per Section 21.4 and 21.5 of ASCE/SEI 7-16. For evaluation of soil liquefaction, a PGA_M of 0.60g and a magnitude of 7.3 may be used.

EXHIBIT 8: Recommended surface MCE_R response spectrum

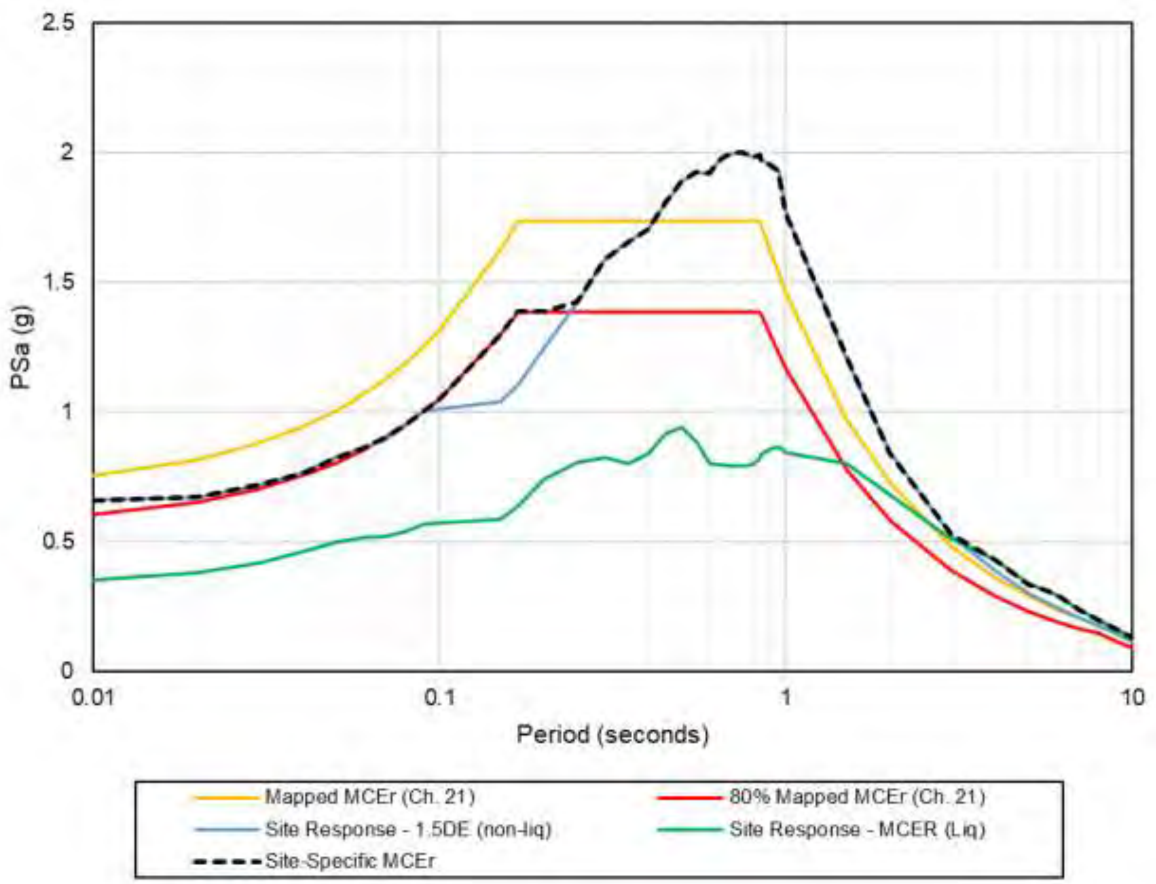


EXHIBIT 9: Recommended surface MCE_R and DE response spectra

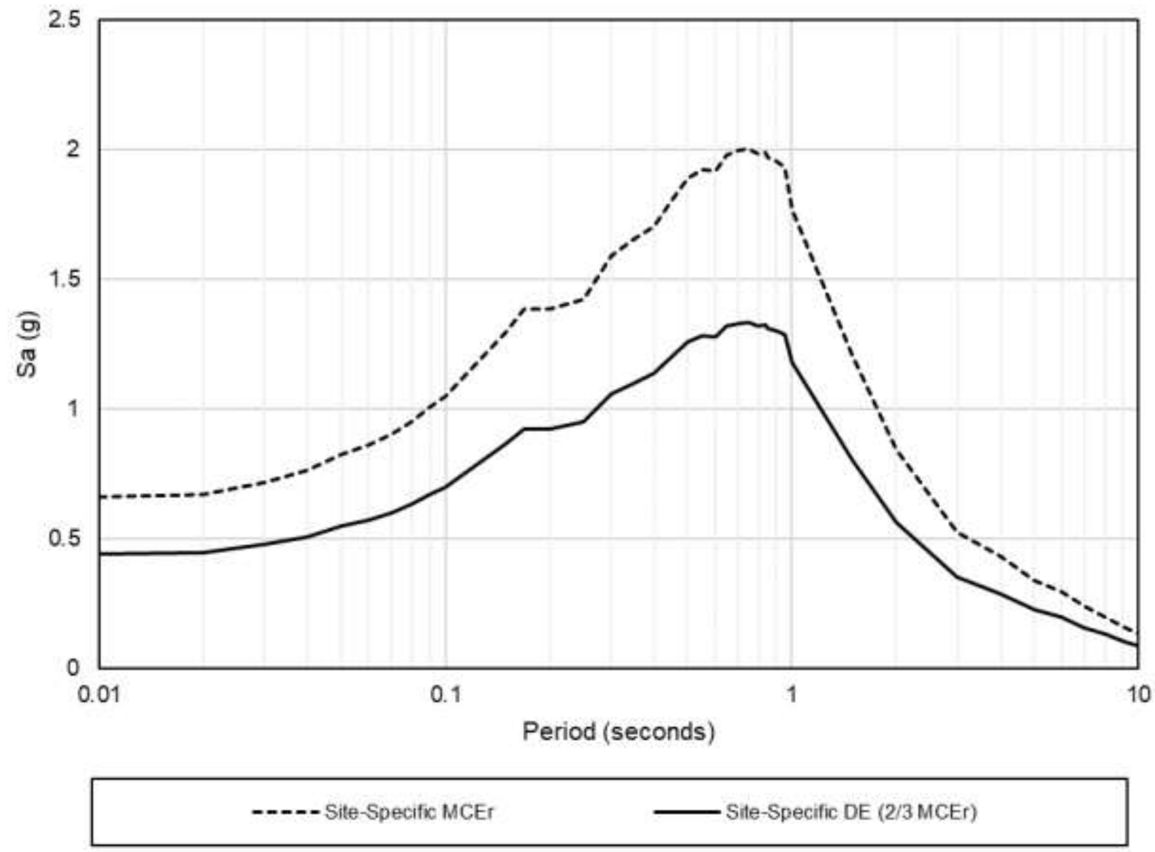


TABLE 3: Recommended Surface MCE_R and DE Response Spectra

PERIOD (seconds)	RECOMMENDED SPECTRAL ACCELERATION (g)	
	MCE_R	DE
0.010	0.660	0.440
0.020	0.672	0.448
0.030	0.720	0.480
0.040	0.764	0.509
0.050	0.825	0.550
0.060	0.860	0.573
0.070	0.902	0.601
0.080	0.952	0.634
0.090	1.005	0.670

0.100	1.051	0.701
0.150	1.299	0.866
0.168	1.388	0.925
0.200	1.388	0.925
0.250	1.425	0.950
0.300	1.589	1.060
0.350	1.655	1.103
0.400	1.705	1.136
0.450	1.807	1.204
0.500	1.888	1.259
0.550	1.923	1.282
0.600	1.919	1.280
0.650	1.979	1.319
0.700	1.998	1.332
0.750	2.001	1.334
0.800	1.982	1.321
0.840	1.989	1.326
0.850	1.968	1.312
0.900	1.955	1.303
0.950	1.931	1.288
1.000	1.769	1.179
1.500	1.204	0.803
2.000	0.842	0.561
3.000	0.527	0.352
4.000	0.432	0.288
5.000	0.337	0.225
6.000	0.299	0.199
7.000	0.239	0.159
8.000	0.198	0.132
9.000	0.162	0.108
10.000	0.131	0.088

TABLE 4:Design Acceleration Parameters based on ASCE 7-16 Section 21.4 and 21.5

ACCELERATION PARAMETER	VALUE (g)
Mapped MCE_R Spectral Response Acceleration at Short Periods, S_S	2.271
Mapped MCE_R Spectral Response Acceleration at 1-second Period, S_1	0.880
MCE_R Spectral Response Acceleration at Short Periods, S_{MS}	1.801
MCE_R Spectral Response Acceleration at 1-second Period, S_{M1}	1.806
Design Spectral Response Acceleration at Short Periods, S_{DS}	1.201
Design Spectral Response Acceleration at 1-second Period, S_{D1}	1.204
Site-Specific Peak Ground Acceleration, PGA_M	0.600

Attachments: References
Appendix A – Disaggregation Results
Appendix B – Amplification Ratios and Surface Response Spectra

SELECT REFERENCES

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APPENDIX F –CHLORINE PIPING RUPTURE ACCIDENT – EPA*COMP MODEL RESULTS FOR THE PROJECT

RMP*Comp

Back

Estimated Distance Calculation

Estimated distance to toxic endpoint: 0.1 miles (0.2 kilometers)

This is the downwind distance to the toxic endpoint specified for this regulated substance under the RMP Rule. Report all distances shorter than 0.1 mile as 0.1 mile, and all distances longer than 25 miles as 25 miles.

Scenario Summary

Chemical:	Chlorine
CAS number:	7782-50-5
Threat type:	Toxic Gas
Scenario type:	Worst-case
Quantity released:	25.7 pounds
Release duration:	10 min
Release rate:	2.57 pounds per minute
Mitigation measures:	NONE
Surrounding terrain type:	Urban surroundings (many obstacles in the immediate area)
Toxic endpoint:	0.0087 mg/L; basis: ERPG-2

Assumptions about this scenario

Wind speed:	1.5 meters/second (3.4 miles/hour)
Stability class:	F
Air temperature:	77 degrees F (25 degrees C)

APPENDIX G – MITIGATION, MONITORING, AND REPORTING PROGRAM

The California Environmental Quality Act (CEQA) and CEQA Guidelines require Lead Agencies to adopt a program for monitoring the mitigation measures required to avoid significant environmental impacts of a project. The Mitigation, Monitoring, and Reporting Program ensures that mitigation measures imposed by the City are completed at the appropriate time in the development process.

The mitigation measures identified in the Initial Study/Mitigated Negative Declaration for the HASA NorCal Project are listed below along with the party responsible for implementation of the mitigation measure, the party responsible for monitoring implementation of the mitigation measure, the milestones for implementation and monitoring, and a sign off that the mitigation measure has been implemented.

Mitigation, Monitoring, and Reporting Program HASA NorCal Project					
Measure ID	**Impact**	**Mitigation Measure**	**Monitoring Agency**	**Implementation Schedule**	**Sign-off**
Cultural and Tribal Cultural Resources					
MM-CUL-1	Potential inadvertent finds of cultural or tribal cultural resources or human remains during construction.	HASA shall implement an inadvertent discovery plan as follows: **Inadvertent Discovery of Archaeological Resources.** In the event that archaeological resources (sites, features, or artifacts) are exposed during ground disturbing activities for the Project, all construction work occurring within 50 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find under the California Environmental Quality Act (14 CCR 15064.5(f); California PRC Section 21082), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted. If the discovery is Native American in nature, consultation with and/or monitoring by a Tribal representative may be necessary. If a discovery consists of possible human remains, the County Coroner shall be contacted immediately as well as the qualified archaeologist and the City. If the Coroner determines that the	City of Pittsburg Community Development Department	During ground disturbing activities during construction	

Mitigation, Monitoring, and Reporting Program HASA NorCal Project					
		remains are Native American, the Coroner shall contact the California Native American Heritage Commission (NAHC) who will provide the name and contact information for the Most Likely Descendent (MLD). Treatment of the discovery shall be decided in consultation with the MLD provided by the NAHC. Additionally, a Tribal representative shall be retained to monitor all further subsurface disturbance in the area of the find. In the event of the discovery of human remains, work in the area of discovery may only proceed after the City grants authorization**.**			
Geology and Soils					
MM-GEO-1	Could directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: - Strong seismic ground shaking. - Seismic-related ground failure, including liquefaction.	HASA shall ensure that the construction follows the design of the Project based on the recommendations of the Geotechnical Report and in compliance with the most current building codes. The Geotechnical Report concluded that driven precast, prestressed concrete piles are appropriate deep foundations for planned site improvements, including concrete pads for the employee building, process area, tanks, tank farm, and tanker loading platform. The deep foundations would transfer the loads down to the stiff and dense alluvial soils well below the fill and marsh deposit soils. Approximately 150 piles will be installed to a depth of 48 feet bgs to support concrete foundations constructed at the facility. HASA shall enforce this measure through a contract mechanism or other legally binding requirement.	City of Pittsburg City Engineer	Prior to approval of project development or building plans	

Mitigation, Monitoring, and Reporting Program HASA NorCal Project					
MM-GEO-2	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.	HASA shall ensure that the construction follows the design of the Project based on the recommendations of the Geotechnical Report and in compliance with the most current building codes. The Geotechnical Report concluded that the top 6 inches of existing soil should be excavated and replaced with a well-compacted select fill layer to prepare for placement of concrete pads. All concrete pads to be installed for this Project shall be supported by piles, and installation of connected, surface concrete pile caps and pads will require excavation of at least the top 6 inches of existing soil. HASA shall enforce this through a contract mechanism or other legally binding requirement.	City of Pittsburg City Engineer	Prior to approval of project development or building plans	
Hazards and Hazardous Material Handling					
MM-HAZ-1	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.	HASA shall assure design of the Project and operation of the Project to include the recommendations generated during the most recent PHA.	City of Pittsburg Community Development Department Contra Costa Health Services Department	Prior to approval of project development or building plans	
MM-HAZ-2	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	HASA shall prepare and maintain a hazard material business plan in compliance with Contra Costa Health Services.	Contra Costa Health Services Department	Prior to approval of project development or building plans	

Mitigation, Monitoring, and Reporting Program HASA NorCal Project					
MM-HAZ-3	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.	HASA shall prepare and document a coordination plan with Corteva for response to a chlorine pipe rupture that includes Corteva notification procedures.	City of Pittsburg Community Development Department Contra Costa Health Services Department	Prior to approval of project development or building plans	