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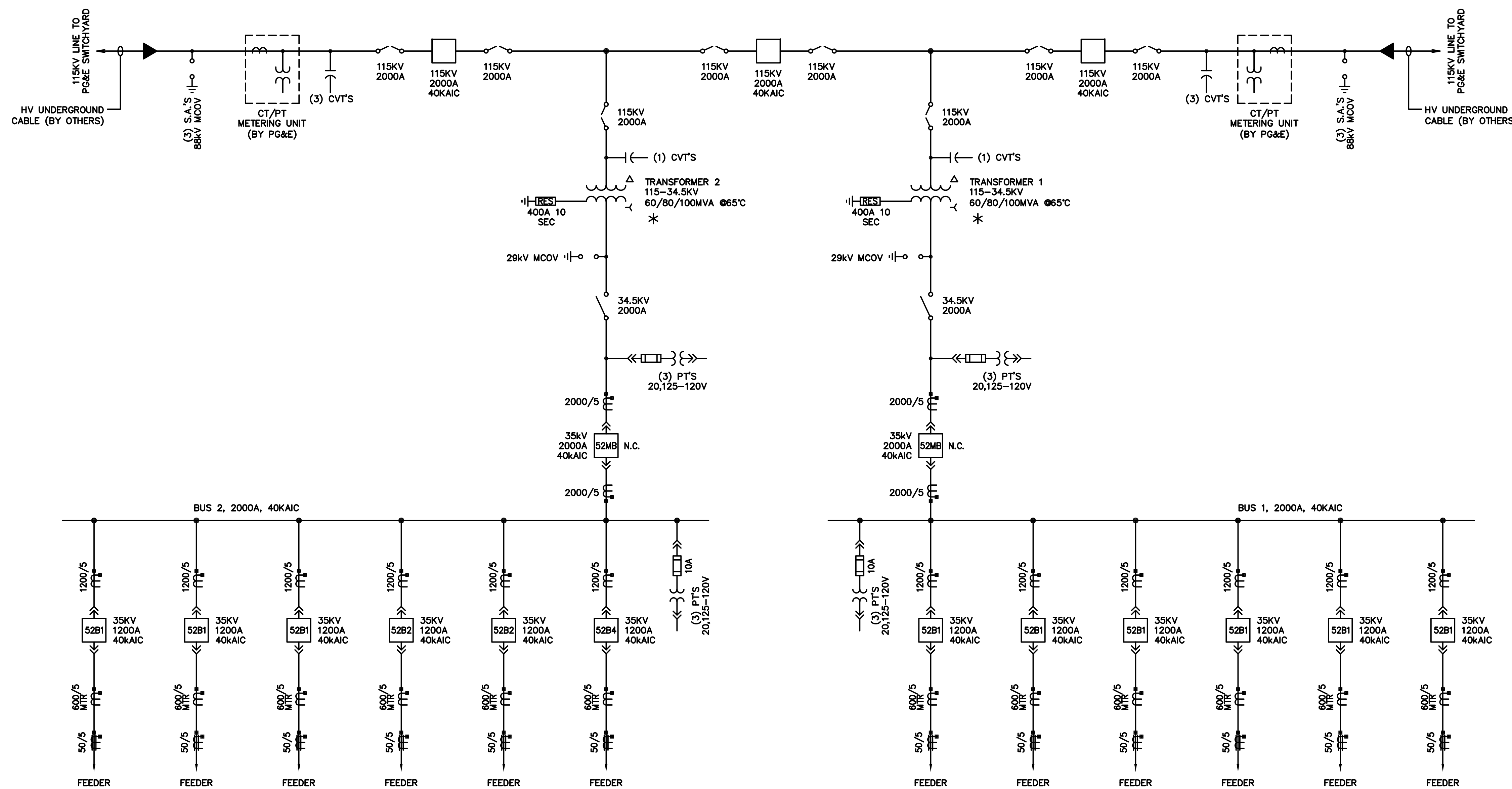
APPENDIX C

Generator Specification Sheets

(Provided Under Separate Cover)

APPENDIX D

Project Substation One-Line Diagram



LEGEND

∗ – PROVIDED BY OTHERS

◀ – 115KV POTHEAD

REV	DESCRIPTION	DATE	DRAWN	ENGINEER
A	ISSUED FOR PRICING	6/11/25	MJF	SWF

DASHIELL ENGINEERS CONSTRUCTORS www.dashiell.com

115–34.5KV SUBSTATION
ONE LINE DIAGRAM

DATE 6/11/25	DWG. NO. N14750A–DE0–11000		REVISION A
DRAWN MJF			
ENG. SWF	SCALE N.T.S.	SHEET 1 of 1	

APPENDIX E

Air Quality and Greenhouse Gas Assessment

3.0 AIR QUALITY

This section presents the evaluation of emissions and impacts resulting from the construction and operation of the NorthTown Backup Generating Facility (NTBGF), which supports the NorthTown Data Center (NTDC). The NTBGF will be comprised of 42 diesel engines, which will provide emergency backup power. This section also presents the proposed mitigation measures to be used in order to minimize emissions and limit impacts to below established significance thresholds. This section is based upon an analysis prepared by Atmospheric Dynamics, Inc. in accordance with the California Energy Commission (CEC) application requirements for a Small Power Plant Exemption (SPPE) pursuant to the power plant siting regulations, and the rules and regulations of the Bay Area Air District (BAAD or District). This analysis is but one part of a larger analysis, which seeks an SPPE Decision from the CEC and an Authority to Construct from the BAAD.

The following Appendices contain support data for the Air Quality and Public Health analyses.

Appendix AQ1 – Emissions Data for Criteria Pollutants, Toxic Pollutants, and GHGs
Appendix AQ2 – Equipment Specifications and Emissions Control System Information
Appendix AQ3 – Air Quality Impact Modeling Support Data
Appendix AQ4 – Construction and Miscellaneous Emissions Evaluation and Support Data
Appendix AQ5 – Risk Assessment Support Data

3.1 ENVIRONMENTAL SETTING

Air quality in the San Francisco Bay Area Air Basin (SFBAAB) is typically better than most other areas of the state, due to its proximity to the Pacific Ocean and the weather patterns that dominate the region. The summer climate of the west coast and the Bay Area region is dominated by a semi-permanent high pressure centered over the northeastern Pacific Ocean. Because this high-pressure cell is quite persistent, storms rarely affect the California coast during the summer. Thus, the conditions that persist along the coast of California during summer are a northwest air flow and negligible precipitation. A thermal low-pressure area from the Sonoran-Mojave Desert also causes air to flow onshore over the San Francisco Bay Area much of the summer.

The steady northwesterly flow around the eastern edge of the Pacific high-pressure cell exerts a stress on the ocean surface along the west coast. This induces upwelling of cold water from below. Upwelling produces a band of cold water that is approximately 80 miles wide off San Francisco. During July the surface waters off San Francisco are 30°F cooler than those off Vancouver, more than 700 miles farther north.

Air approaching the California coast, already cool and moisture-laden from its long trajectory over the Pacific, is further cooled as it flows across this cold bank of water near the coast, thus accentuating the temperature contrast across the coastline. This cooling is often sufficient to produce a high incidence of fog and stratus clouds along the Northern California coast in summer.
In winter, the Pacific High weakens and shifts southward, upwelling ceases, and winter storms become frequent. Almost all of the Bay Area’s annual precipitation takes place in the November through April period. During the winter rainy periods, inversions are weak or nonexistent, winds are often moderate and air pollution potential is very low. During winter periods when the Pacific

high becomes dominant, inversions become strong and often are surface-based; winds are light and pollution potential is high. These periods are characterized by winds that flow out of the Central Valley into the Bay Area and often include Tule fog.

Air quality is determined by measuring ambient concentrations of criteria pollutants at various locations through a defined region. Degradation, or lack thereof, of air quality is determined by comparing past air concentrations to the current ambient air quality standards and establishing trends for the area in question. Toxic air contaminants (TACs) have no ambient air quality standards, and a health risk assessment (HRA) is typically conducted to evaluate whether risks of exposure to TACs will create an adverse impact.

3.1.1.1 *Existing Air Quality*

In 1970, the United States Congress instructed the US EPA to establish standards for air pollutants, which were of nationwide concern. This directive resulted from the concern of the effects of air pollutants on the health and welfare of the public. The resulting Clean Air Act (CAA) set forth air quality standards to protect the health and welfare of the public. Two levels of standards were promulgated – primary standards and secondary standards. Primary national ambient air quality standards (NAAQS) are "those which, in the judgment of the administrator [of the US EPA], based on air quality criteria and allowing an adequate margin of safety, are requisite to protect the public health (state of general health of community or population)." The secondary NAAQS are "those which in the judgment of the administrator [of the US EPA], based on air quality criteria, are requisite to protect the public welfare and ecosystems associated with the presence of air pollutants in the ambient air." To date, NAAQS have been established for seven criteria pollutants as follows: sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sub 10-micron particulate matter (PM10), sub 2.5-micron particulate matter (PM2.5), and lead (Pb).

The criteria pollutants are those that have been demonstrated historically to be widespread and have a potential for adverse health impacts. US EPA developed comprehensive documents detailing the basis of, or criteria for, the standards that limit the ambient concentrations of these pollutants. The State of California has also established ambient air quality standards (AAQS) that further limit the allowable concentrations of certain criteria pollutants. Review of the established air quality standards are undertaken by both US EPA and the State of California on a periodic basis. As a result of the periodic reviews, the standards have been updated, i.e., amended, additions, and deletions, over the ensuing years to the present.

Each federal or state ambient air quality standard is comprised of two basic elements: (1) a numerical limit expressed as an allowable concentration, and (2) an averaging time which specifies the period over which the concentration value is to be measured. Table 3.3-1 presents the current federal and state ambient quality standards.

Table 3.3-1: California and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards Concentration	National Standards Concentration
Ozone	1 hour	0.09 ppm (180 µg/m^3)	-
	8 hours	0.070 ppm (137 µg/m^3)	0.070 ppm (137 µg/m^3)
Carbon monoxide (CO)	8 hours	9.0 ppm (10,000 µg/m^3)	9 ppm (10,000 ug/m^3)
	1 hour	20 ppm (23,000 µg/m^3)	35 ppm (40,000 ug/m^3)
Nitrogen dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)
	1 hour	0.18 ppm (339 µg/m^3)	100 ppb (188 µg/m^3)
Sulfur dioxide (SO_2)	Annual Arithmetic Mean	-	0.030 ppm (80 µg/m^3)
	24 hours	0.04 ppm (105 µg/m^3)	0.14 ppm (365 µg/m^3)
	3 hours	-	0.5 ppm (1300 µg/m^3)
	1 hour	0.25 ppm (655 µg/m^3)	75 ppb (196 µg/m^3)
Suspended particulate matter or PM10 (10 micron)	24 hours	50 µg/m^3	150 µg/m^3
	Annual Arithmetic Mean	20 µg/m^3	-
Suspended particulate matter or PM2.5 (2.5 micron)	Annual Arithmetic Mean	12 µg/m^3	12.0 µg/m^3 (3-year average)
	24 hours	-	35 µg/m^3
Sulfates	24 hours	25 µg/m^3	-
Lead (Pb)	30 days	1.5 µg/m^3	-
	Calendar Quarter	-	1.5 µg/m^3
	Rolling 3-month Average	-	0.15 µg/m^3

ppm = parts per million, ppb=parts per billion, µg/m^3 = micrograms per cubic meter (CARB 2016)

Brief descriptions of health effects for the main criteria pollutants are as follows.

Ozone

Ozone is a reactive pollutant, which is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving precursor organic compounds (POC) and oxides of nitrogen (NO_x). POC and NO_x are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately three hours. Ozone is a regional air pollutant because it is not emitted directly by sources but is formed downwind of sources of POC and NO_x under the influence of wind and sunlight. Short-term exposure to ozone can irritate the eyes and cause constriction of the airways. Besides causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Carbon Monoxide

Carbon monoxide is a non-reactive pollutant that is a product of incomplete combustion. Ambient carbon monoxide concentrations generally follow the spatial and temporal distributions of vehicular traffic and are also influenced by meteorological factors such as wind speed and atmospheric mixing. Under inversion conditions, carbon monoxide concentrations may be distributed more uniformly over an area out to some distance from vehicular sources. When inhaled at high concentrations, carbon monoxide combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease or anemia, as well as fetuses.

Particulate Matter (PM10 and PM2.5)

PM10 consists of particulate matter that is 10 microns or less in diameter (a micron is one- millionth of a meter), and fine particulate matter, PM2.5, which consists of particulate matter 2.5 microns or less in diameter. Both PM10 and PM2.5 represent fractions of particulate matter, which can be inhaled into the air passages and the lungs and can cause adverse health effects. Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, combustion, and atmospheric photochemical reactions. Some of these operations, such as demolition and construction activities, contribute to increases in local PM10 and PM2.5 concentrations, while others, such as stationary source emissions, vehicular traffic, etc. affect regional PM10 and PM2.5 concentrations.

Nitrogen Dioxide and Sulfur Dioxide

Nitrogen dioxide (NO_2) and sulfur dioxide (SO_2) are two gaseous compounds within a larger group of compounds, NO_x and sulfur oxides (SO_x), respectively, which are products of the combustion of fuel. NO_x and SO_x emission sources can elevate local NO_2 and SO_2 concentrations, and both are regional precursor compounds to particulate matter. As described above, NO_x is also an ozone precursor compound and can affect regional visibility. (Nitrogen dioxide is the "whiskey brown" colored gas readily visible during periods of heavy air pollution.) Elevated concentrations of these compounds are associated with increased risk of acute and chronic respiratory disease. Additionally, sulfur dioxide and nitrogen oxides emissions can be oxidized in the atmosphere to eventually form sulfates and nitrates, which contribute to acid rain.

Lead

Gasoline-powered automobile engines used to be the major source of airborne lead in urban areas. Excessive exposure to lead concentrations can result in gastrointestinal disturbances, anemia, kidney disease, and in severe cases of neuromuscular and neurological dysfunction. The use of lead additives in motor vehicle fuel has been eliminated in California, and lead concentrations have declined substantially as a result.

Hydrogen Sulfide

Hydrogen sulfide (H_2S) is a naturally occurring gas contained, as a for-instance, in geothermal steam from the Geysers. H_2S has a "rotten egg" odor at concentration levels as low as 0.005 parts per million (ppm). The state 1-hour standard of 0.03 ppm is set to reduce the potential for substantial odor complaints. At concentrations of approximately 10 ppm, exposure to H_2S can lead to health effects such as eye irritation.

Toxic/Hazardous Air Contaminants

"Toxic air contaminants" (TACs) are air pollutants that are believed to have carcinogenic or adverse non-carcinogenic effects but do not have a corresponding ambient air quality standard. There are hundreds of different types of toxic air contaminants, with varying degrees of toxicity. Sources of toxic air contaminants include industrial processes such as petroleum refining, electric utility and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust.

Toxic air contaminants are regulated under both state and federal laws. Federal laws use the term "Hazardous Air Pollutants" (HAPs) to refer to the same types of compounds referred to as TACs under state law. Both terms generally encompass the same compounds, although the California TAC listing is considerably more extensive than the federal HAPs list. For the sake of consistency, this analysis will use TACs when referring to these compounds rather than HAPs. Under the Clean Air Act Amendments of 1990, approximately 190 substances are designated as TACs. Appendix AQ1 presents the annual emissions of the TACs.

Attainment Status. The EPA designates the attainment status of regional areas with respect to federal air quality standards, while the California Air Resources Board (CARB)designates the attainment status of regional areas of California with respect to state air quality standards. Local air districts in California play a vital role is such designations at both levels. These classifications depend on whether the monitored ambient air quality data shows compliance, or non-compliance with the ambient air quality standards, respectively. Unclassified means the area is in attainment or there is insufficient data to determine the classification. The NTBGF site is located within Santa Clara County, under the jurisdiction of the BAAD. Table 3.3-2 summarizes the attainment status for each of the criteria pollutants in the BAAD with regards to both the federal and state standards.

Table 3.3-2: Attainment Status for the San Francisco Bay Area Air Basin

Pollutant	Averaging Time	Federal Designation	State Designation
Ozone	1 Hour 8 Hour	Marginal Non Attainment Non Attainment	Non Attainment Non Attainment
CO	1 Hour 8 Hour	Maintenance Maintenance	Attainment Attainment
NO_2	1 Hour Annual AM	Attainment Attainment	Attainment Attainment
SO_2	1 Hour 3 Hour 24 Hour Annual AM	Attainment Attainment Attainment Attainment	Attainment Attainment - -
PM10	24 Hour Annual AM	Attainment -	Non Attainment Non Attainment
PM2.5	24 Hour Annual AM	Attainment Attainment	- Non Attainment
Lead	30 day Avg Calendar Qtr. Rolling 3 Month Avg	Attainment Attainment -	Attainment - -
Visibility Reducing PM (VRP)	8 Hour	-	Unclassified
Sulfates	24 Hour	-	Attainment

H_2S	1 Hour	-	Unclassified
Vinyl Chloride	24 Hour	-	No info
Source: BAAD website, 2022. (BAAD, 2017a)			

Existing Conditions. The existing air quality conditions in the project area are summarized in Tables 4.3-3. Table 3.3-4 provides the background ambient air concentrations of criteria pollutants for the previous three (3) years as measured at certified monitoring stations near the project site. To evaluate the potential for air quality degradation as a result of the project, modeled project air concentrations are combined with the respective background concentrations as presented in Table 3.3-4 and used for comparison to the NAAQS and CAAQS.

Table 3.3-3: Measured Ambient Air Quality Concentrations by Year

Pollutant	Units	AvgTime	Concentration Value Type	2021	2022	2023
Ozone	ppb	1-Hr	CAAQS-1st Highs/3-yr Max	0.098	0.090	0.087
Ozone	ppb	8-Hr	CAAQS-1st Highs/3-yr Max	0.084	0.074	0.068
Ozone	ppb	8-Hr	NAAQS-4th Highs/3-yr Avg	0.072	0.062	0.059
NO_2	ppb	1-Hr	CAAQS-1st Highs/3-yr Max	47	47	59
NO_2	ppb	1-Hr	NAAQS-98th%s/3-yr Avg	39	44	44
NO_2	ppb	Annual	CAAQS/NAAQS-AAM/3-yr Max	8.73	9.46	9.28
CO	ppm	1-Hr	CAAQS-1st Highs/3-yr Max	1.7	1.7	1.9
			NAAQS-2nd Highs/3-yr Max	1.6	1.5	1.6
CO	ppm	8-Hr	CAAQS-1st Highs/3-yr Max	1.5	1.4	1.4
			NAAQS-2nd Highs/3-yr Max	1.3	1.3	1.4
SO_2	ppb	1-Hr	CAAQS-1st Highs/3-yr Max	1.8	2	35.7
			NAAQS-99th%s/3-yr Avg	2	2	2
		24-Hr	CAAQS-1st Highs/3-yr Max	0.7	0.9	1.9
			NAAQS-2nd Highs/3-yr Max	0.5	0.6	0.5
		Annual	CAAQS/NAAQS-AAM/3-yr Max	0.17	0.22	0.09
PM10	µg/m³	24-Hr	CAAQS-1st Highs/3-yr Max	134	42	41
			NAAQS-2nd Highs/3-yr 4th High	91	41	41
		Annual	CAAQS-AAM/3-yr Max	24.8	20.1	21.3
PM2.5	µg/m³	24-Hr	NAAQS-98th%/3-yr Avg	23	27	27
		Annual	CAAQS –AAM/3-yr Max	8.9	10.1	8.2
			NAAQS-AAM/3-yr Avg	8.9	10.1	8.2
Notes: Values for 158 East Jackson Street, San Jose, CA, the nearest BAAD monitoring site (all applicable pollutants measured) Data sources: EPA AIRS website and CARB ADAM (12/2024).						

Tables are provided in Appendix AQ-3 that present a detailed summary of the air quality monitoring data derived from the EPA AIRS and CARB ADAM systems. The values presented in Table 3.3-4 represent the derived background concentrations by pollutant for the established averaging times.

TABLE 3.3-4: Background Air Quality Data Summary

Pollutant and Averaging Time	AQ Data Value	Units	Background Value (µg/m³)
Ozone – 1-hour Maximum CAAQS	0.098	ppm	192.4
Ozone – 8-hour Maximum CAAQS	0.084	ppm	164.9

Ozone – 3-year average 4th High NAAQS	0.064	ppm	141.4
PM10 – 24-hour Maximum CAAQS	134	μg/m^3	134
PM10 - 24-hour 3-year 4th High NAAQS	41	μg/m^3	41
PM10 – Annual Maximum CAAQS	24.8	μg/m^3	24.8
PM2.5 – 3-Year Average of Annual 24-hour 98th Percentiles NAAQS	25.7	μg/m^3	25.7
PM2.5 – Annual Maximum CAAQS	10.1	μg/m^3	10.1
PM2.5 - 3-Year Average of Annual Values NAAQS	9.1	μg/m^3	9.1
CO – 1-hour Maximum CAAQS	1.9	ppm	2175
CO - 1-hour High, 2nd High NAAQS	1.6	ppm	1832
CO – 8-hour Maximum CAAQS	1.5	ppm	1718
CO - 8-hour High, 2nd High NAAQS	1.3	ppm	1603
NO_2 – 1-hour Maximum CAAQS	59	ppb	111
NO_2 - 3-Year Average of Annual 98th Percentile 1-hour Daily Maxima NAAQS	42.3	ppb	80
NO_2 – Annual Maximum CAAQS/NAAQS	9.46	ppb	17.8
SO_2 – 1-hour Maximum CAAQS	35.7	ppb	93.4
SO_2 - 3-Year Average of Annual 99th Percentile 1-hour Daily Maxima NAAQS	2	ppb	5.2
SO_2 – 3-hour Maximum NAAQS (Not Available - Used 1-hour Maxima)	35.7	ppb	93.4
SO_2 – 24-hour Maximum CAAQS	1.9	ppb	5
SO_2 - 24-hour High, 2nd High NAAQS	0.9	ppb	1.6
SO_2 – Annual Maximum NAAQS	0.22	ppb	0.6
Values for 158 East Jackson Street, San Jose, CA, the nearest BAAD monitoring site (all applicable pollutants measured). CARB data used for AAM for PM10 for the period 2021-2023. Conversion of ppm/ppb measurements to μg/m^3 concentrations based on: μg/m^3 = ppm x 40.9 x MW, where MW = 48, 28, 46, and 64 for ozone, CO, NO_2, and SO_2, respectively.			

Regulatory Background
Federal, state, and regional agencies regulate air quality within the BAAD, where the project site is located.

Federal. At the federal level, EPA is responsible for overseeing implementation of the federal Clean Air Act and its subsequent amendments (CAA). As required by the federal CAA, NAAQS have been established for the criteria pollutants described above.

New Source Performance Standards
The NTBGF will be subject to the applicable New Source Performance Standards (NSPS) standards that are identified below. A description of the applicant's compliance plan to meet each standard is included.

40 CFR Part 60, Subpart IIII
Standards of Performance for Stationary Compression Ignition Internal Combustion Engines became effective July 11, 2006. The diesel engines are subject to Subpart IIII. The proposed engines are EPA Tier 2 rated and will be equipped with Best Available Control Technology (BACT) to meet Tier 4 emissions standards.

Compression Ignition (CI) Diesel Engines Emission Standards
Based on 40 CFR 60.4202, emergency CI engines rated at > 560 kW are subject to the emissions standards in 40 CFR 89.112, Table 1, as follows:

- Tier 4 – NO_x 0.5 g/bhp-hr
- Tier 4 – NMHC 0.14 g/bhp-hr
- Tier 4 – CO 2.6 g/bhp-hr
- Tier 4 – PM 0.02 g/bhp-hr

The proposed diesel-fired engines will be equipped with SCR catalyst systems (or equivalents) and diesel particulate filters (DPF) which will result in the engines meeting the EPA/CARB Tier 4 emissions standards, as well as the BACT requirements of the BAAD for engines rated at greater than 1000 bhp.

40 CFR Part 60 Subpart ZZZZ
The proposed CI engines are exempt from the requirements of Subpart ZZZZ (63.6590 (c)(1)) if the engines comply with the emissions limitations specified in 40 CFR 60 Subpart IIII. See discussion above.

BAAD Air Quality Standards and Regulations
The section briefly describes the regulations which would apply to the NTBGF as set forth in the BAAD Rules and Regulations. The project will require a New Source Review permit with the BAAD.

<u>BAAD Regulation 2, Rule 2 – New Source Review (NSR)</u>

This rule applies to all new or modified sources requiring a Permit to Operate for any new source with actual or potential emissions above the rule trigger limits. The rule also specifies when BACT is required, when offsets are required and the offset ratios, as well the requirements for the required impact analyses, etc.

BACT Requirements (BAAD Policy)

A review of BACT for CI-Stationary Emergency Standby engines rated at greater than 1000 BHP (BAAD Policy Memo, BACT Determination for Diesel Back-Up Engines Greater than or equal to 1,000 Brake Horsepower, 12/21/2020) indicates that BACT for engines in the stated size range must be in compliance with the EPA Tier 4-Final standards as follows:

- PM 0.02 g/bhp-hr

- NO_x 0.5 g/bhp-hr
- NMHC 0.14 g/bhp-hr
- CO 2.6 g/bhp-hr
- SO_2 fuel sulfur content not to exceed 15 ppmw (~0.005 g/bhp-hr)

The engines proposed for the NTBGF, which are all rated at greater than 1,000 BHP will meet these requirements, so BACT is satisfied.

Additionally, the use of diesel particulate filters on both engine types will reduce the PM emissions to less than or equal to 0.02 g/bhp-hr (the Tier 4 compliance level).

NSR Offset Requirements
Required emissions offsets as identified in this application will be obtained in compliance with the Regulation 2 Rule 2 NSR rule provisions in Section 302. These provisions are discussed as follows:

- Pursuant to the BAAD NSR Rule (Regulation 2 Rule 2), section 2-2-302, offsets must be provided for NO_x or POC (VOC is used in this application), for any source with potential emissions greater than 10 tons/yr. For sources which emit NO_x or VOC in excess of 10 tpy but less than 35 tpy, these offsets can be provided by either of the two methods outlined in subsections 302.1.1 or 302.1.2 as follows; (1) the APCO must provide the required offsets from the Small Facility Bank Account, or (2) if the Small Facility Bank Account is exhausted then it is the responsibility of the Applicant to provide the required offsets to mitigate the proposed emissions net increase. VOC emissions from the proposed facility are less than 10 tpy, so VOC offsets are not required under the District NSR rule. NO_x emissions for the proposed facility are greater than 10 tpy but less than 35 tpy, and as such, NO_x offsets must be secured at a ratio of 1.15:1 for any un-offset cumulative increase in emissions. Presently, NO_x offsets cannot be acquired from the Small Facility Offset Bank so the applicant, as required by BAAD rules, will supply the offsets through the purchase of emission reduction credits pursuant to option (2) above pursuant to the BAAD guidance Policy Memo dated 6/3/2019 (Calculating PTE for Emergency Backup Power Generators).
- Offset mitigation for PM10, PM2.5, and sulfur dioxide emissions is addressed in Section 2-2-303. This section specifies that offsets are only required if the source has the potential to emit any of these pollutants in excess of 100 tons per year. Emissions of PM10, PM2.5, and SO2 are well below the 100 tpy threshold value, therefore mitigation for emissions at these low emissions levels is not warranted, and such mitigation is not required under Regulation 2 Rule 2.

BAAD Regulation 9 Rule 8 – NO_x and CO from Stationary Internal Combustion Engines
- Section 9-8-304 requires that emergency CI engines rated at greater than 175 bhp meet the following limits (at 15% O_2 dry basis): NO_x 110 ppm and CO 310 ppm. But, Section 9-8-110.5 exempts "emergency standby engines" from this requirement. Therefore, the proposed facility generators will be exempt from this requirement.
- Section 9-8-330 requires that emergency CI engines be limited to non-emergency operations of less than or equal to 50 hours per year. Based on Section 9-8-330, the engines will be limited to no more than 50 hours per year.

- Section 9-8-530 requires that each engine be equipped with a non-resettable totalizing meter, and the following must be logged and reported to the AQMD:
  a. Total hours run each year
  b. Total hours of emergency operation per year
  c. Specify the nature of each emergency operation

  Each of the facility generators will be equipped with a non-resettable totalizing meter and the total hours of emergency operation per year and the nature of emergency operations will be documented.

Except as noted for the requirements of Section 9-8-304 above, the proposed engine models will comply with the applicable requirements.

<u>BAAD Regulation 2, Rule 5 – New Source Review of Toxic Air Contaminants</u>

This rule provides for the review of new and modified sources of TAC emissions to evaluate potential public exposure and health risk. The rule also specifies when toxics-BACT is required, trigger limits for further analysis based on substance specific emissions levels (both short and long term), risk assessment procedures, etc. Emergency standby engines have a limited exemption from Regulation 3 Rule 5 Section 2-5-111 which reads as follows: *Limited Exemption, Emergency Standby Engines*: This rule shall not apply to toxic air contaminant emissions occurring from emergency use of emergency standby engines (as defined in Regulation 9, Rule 8, Section 231 or the applicable CARB ATCM); or from initial start-up testing; or from emission testing of emergency standby engines required by the APCO.

State. CARB is the state agency that retains authority to regulate mobile sources throughout the state and oversees implementation of the state air quality laws and regulations, including the California Clean Air Act. The CARB also establishes and revises the CAAQS.

TACs are primarily regulated through state and local risk management programs, which are designed to eliminate, avoid, or minimize the risk of adverse health effects from exposures to TACs. In the BAAD, the two most prominent TAC regulatory programs are the Toxics New Source Review (Regulation 2, Rule 5) rules and the AB2588 Air Toxics Hot Spots Program.

Regional. The BAAD is the primary regional agency responsible for attaining and maintaining air quality conditions in the SFBAAB through a comprehensive program of planning, regulation, and enforcement. Examples of the BAAD's primary air plans and regulations are described below.

BAAD Clean Air Plan. The 2017 Bay Area Clean Air Plan was adopted by the BAAD on April 19, 2017, and provides a regional strategy to protect public health and protect the climate. The 2017 Bay Area Clean Air Plan updates the most recent Bay Area ozone plan, as well as the 2010 Clean Air Plan, and is a multi-pollutant air quality plan addressing four categories of air pollutants (BAAD, 2017b):

1) ozone and the primary ozone precursor pollutants (VOCs and NO_x)
2) Particulate matter (PM10 and PM2.5), as well as their precursors
3) TACs/HAPs
4) Greenhouse gases

3.1.2 Impact Discussion

The following presents the impact determinations for the general CEQA areas related to air quality and public health. Each of these general determinations are discussed in greater detail in the analysis which follows.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
1) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
2) 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?	☐	☒	☐	☐
3) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
4) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Note to reader: Where the following analysis applies to both the NTBGF and NTDC, the word "project" is used to collectively refer to both facilities. Where impacts associated with each facility differ, they are referred to individually as the "NTBGF" or "NTDC".

3.1.2.1 *Significance Criteria*

The project analysis is based upon the general methodologies in the most recent BAAD CEQA Guidelines (BAAD,2017c) and significance thresholds for the SFBAAB, including the criteria pollutant thresholds listed in Table 3.3-5.

Table 3.3-5: BAAD CEQA Thresholds of Significance

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/day)	Annual Average Emissions (tons/year)
Criteria Air Pollutants			
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82 (exhaust only)	82	15
$PM_{2.5}$	54 (exhaust only)	54	10
CO	None	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	

Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable
Health Risks and Hazards for New Sources		
Excess Cancer Risk	10 per one million	10 per one million
Chronic or Acute Hazard Index	1.0	1.0
Incremental annual average $PM_{2.5}$	0.3 µg/m^3	0.3 µg/m^3
GHGs – Stationary Source Projects		
CO_2e	None	10,000 MT/yr (11,023 short tons)
Health Risks and Hazards for Sensitive Receptors (Cumulative from All Sources within 1,000-Foot Zone of Influence) and Cumulative Thresholds for New Sources		
Excess Cancer Risk	100 per 1 million	
Chronic Hazard Index	10.0	
Annual Average $PM_{2.5}$	0.8 µg/m^3	

Source: BAAD CEQA Guidelines, May 2017.

3.1.2.2 *Impact Summary*

The conclusions of the air quality analysis are summarized below as responses to the CEQA checklist items. A full discussion of the air quality analysis underlying these conclusions is presented in the following section.

Impact AIR-1: The project would not conflict with or obstruct implementation of the applicable air quality plan. (Less than Significant Impact)]

The project would not conflict with or obstruct the implementation of the applicable air quality plan due to the following:

- The project will comply with all applicable rules and regulations of the BAAD regarding emissions of criteria pollutants.
- The project will comply with all applicable rules and regulations of the BAAD regarding emissions of toxic pollutants.
- The proposed engines at the project will be certified with or comply with the applicable federal Tier 4 emissions standards for emergency standby electrical generation CI engines.
- The project will comply with all applicable provisions of the applicable 2017 BAAD Air Quality Implementation Plan.
- The project will obtain and maintain all required air quality related permits from the BAAD, and requirements imposed by the California Energy Commission.

Impact AIR-2: The project would not 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)

The project would not 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, due to the following:

- The use of best management practices during the construction phase will ensure that the emissions do not result in a cumulative considerable net increase of any non-attainment pollutants. These emissions are generally short term in nature and vary widely from day to day.
- See offset mitigation requirements under the NSR discussion above applicable to operations emissions.

Impact AIR-3:	**The project would not expose sensitive receptors to substantial pollutant concentrations. (Less than Significant Impact)**

The project would not expose sensitive receptors to substantial pollutant concentrations due to the following:

- The air quality impact analysis presented herein shows that the project will not cause or contribute to a violation of any state or federal ambient air quality standard.
- The construction and operational health risk assessments presented herein indicate that the emissions of toxic air contaminants from the project will not cause a significant risk to any sensitive or non-sensitive receptor with respect to cancer, chronic, or acute impacts.

Impact AIR-4:	**The project would not result in substantial emissions (such as odors) adversely affecting a substantial number of people. (Less than Significant Impact)**

The project would not result in other emissions or odors that would adversely affect a substantial number of people due to the following:

- Similar facilities, both larger and smaller in scale, have not been identified as sources of odors that would adversely affect offsite receptors.
- The project is not one of the project types listed in the BAAD CEQA guidelines as producing odors that may affect offsite receptors.
- The applicant has not identified any operational or construction practices, that are planned for use at the project site, that would generate substantial amounts of odors that would affect offsite receptors.

3.1.2.3 *Project Emissions, Air Quality Impact Analysis, and Health Risk Assessment*

PROJECT EMISSIONS

Construction. Project construction emissions of CO, VOCs, NO_x, SO_2, PM10, PM2.5, and CO2e were evaluated. Detailed construction emission calculations are presented in Appendix AQ4. Onsite construction emissions from construction of the project will result from site preparation and grading activities, building erection and parking lot construction activities, "finish" construction activities, and the use of onsite construction equipment. Construction emissions from the project include emissions from the NTBGF and NTDC. Offsite construction emissions will be derived primarily from materials transport to and from the site, worker travel, etc. Emissions from the continuous approximate 38-month construction period were estimated using the CalEEMod program. Estimated criteria pollutant construction emissions for the project are summarized in Table 3.3-6. Construction of the project is tentatively scheduled to commence in October 2025. Construction support data and the CalEEMod analysis output are presented in Appendix AQ-4.

The BAAD CEQA Air Quality Guidelines considers exposure of sensitive receptors to air pollutant levels that result in an unacceptable cancer risk or hazard to be significant. BAAD recommends a 1,000-foot zone of influence around project boundaries. Since construction activities are typically temporary and mitigation measures as delineated below are proposed to be implemented, and since there are no identified sensitive receptors within 1000 ft. of the site boundary, community risk impacts from construction activities would be *less than significant* (see the Public Health section).

Table 3.3-6: Mitigated Criteria Pollutant Emissions from Construction Activities

Scenario/Year	NO_x	CO	VOC	SO_x	PM10	PM2.5	CO_2e
Max Construction Year	2027	2026	2027	2026	2027	2027	2026
Max Construction Year, tons	1.055	4.358	2.910	0.00852	0.391	0.111	**851.4**
Construction Period, tons	3.08	13.16	3.25	0.026	1.20	0.353	**2583.4**
Avg Daily Emissions, lbs	8.00	33.2	22.1	0.065	0.086 Exhaust	0.085 Exhaust	-
BAAD Significance Thresholds Lbs/day	54	-	54	-	82	54	-
Exceeds Thresholds	No	NA	No	NA	No	No	**NA**

Notes:
Construction schedule for the project is approximately 38 months (maximum), 22 days per avg month, or ~ 858 days.
Annual work period is 12 months, 22 days/month, or ~264 days.
Average daily emissions are based on the max construction year as noted above.
Source: ADI CalEEMod analysis, April 2025.

As shown in Table 3.3-6, construction of the project would not generate VOCs, NO_x, SO_x, PM10 and PM2.5 emissions in excess of BAAD's numeric significance thresholds. The BAAD's CEQA Guidelines consider fugitive dust impacts to be less than significant through the application of best management practices (BMPs).

<u>Mitigation Incorporated into the Construction Phase and Project Design:</u>
To ensure that fugitive dust impacts are less than significant, the project will implement, at a

minimum, the BAAD's recommended BMPs during the construction phase. These BMPs are incorporated into the design of the project and will include:

- All exposed surfaces (soil piles, graded areas, and unpaved access roads) shall be watered at least two times per day.

- All haul trucks transporting material offsite shall be covered.

- All track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day.

- All vehicle speeds on onsite unpaved surfaces shall be limited to less than or equal to 15 miles per hour. In addition, no unpaved roadways will be used to service the project during construction (or operation).

- All roadways, driveways, and sidewalks shall be paved as soon as possible. Building pads shall be completed as soon as possible after grading unless seeding or soil binders are used.

- Equipment idling times shall be minimized to 5 minutes per the Air Toxics Control Measure (ATCM). Idling time signage shall be provided for construction workers at all access points.

- All construction equipment shall be maintained and properly tuned in accordance with manufacturer specifications. All equipment shall be checked by a certified visible emissions evaluator. All equipment will be EPA Tier 4 rated.

- Information on who to contact, contact phone number, and how to initiate complaints about fugitive dust problems will be posted at the site.

Operation. Operational emissions of NO_x, VOCs, CO, SO_2, PM10, PM2.5, and GHGs were evaluated. Diesel particulate matter (DPM) which is the approved surrogate representing "whole diesel exhaust" for purposes of health risk evaluations, was the only toxic air contaminant (TAC) considered to result from operation of the project. Detailed operation emission calculations are presented in Appendix AQ1. Primary operation emissions are a result of diesel fuel combustion from the standby diesel generators, emissions from the building cooling systems, fugitive emissions from fuel storage, and refrigerant use (system leakage). Secondary operational emissions from facility upkeep, such as architectural coatings, consumer product use, landscaping, water use, waste generation, natural gas use for comfort heating, electricity use, offsite vehicle trips for worker commutes and material deliveries were not considered significant. Each of the primary emission sources are described in more detail below.

Stationary Sources. The project's 42 Caterpillar standby diesel generators will be comprised of the following equipment:

- 40 – CAT C175 diesel-fired engines, each rated at 4,423 HP (3000 kWe) at 100% Load
- 2 – CAT 3512C diesel-fired engines, each rated at 2.360 HP (1600 kWe) at 100% Load

The generators proposed for installation are made by Caterpillar and will incorporate emissions control systems to meet Tier 4 emissions standards. The engines will be equipped with diesel particulate filters (DPF) to reduce the diesel particulates to less than or equal to 0.02 grams/brake horse-power hour (g/bhp-hr), and catalyst systems for the control of NO_x, CO, and VOCs. The control systems result in engine emissions compliance with the EPA Tier 4 standards and with BAAD BACT. Ammonia slip from the control system will not exceed 10 ppm. All generators would be operated routinely, i.e., readiness and maintenance testing, to ensure that they would function normally during an emergency event.

Each of the data center buildings will be equipped with the following systems to provide cooling for the data center and administrative areas:

- 1 - Addison (PRAK 150) cooling unit – DOAS Admin – using R454B refrigerant, with a system charge of 41 lbs. GWP = 466.
- 1 – Addison (PRAK 720) cooling unit – DOAS DC – using R454B refrigerant, with a system charge of 144 lbs. GWP = 466.
- 18 – Marley Closed Circuit Cooling Towers (MHF7109EAKBNC3) – 3 fan cells per tower, with a total rated water flow rate at 1782 gpm. These units do NOT use any refrigerants.
- 10 – SMARDT (WE.600.6K) chillers – using R-1234ze refrigerant, with a system charge of 3503 lbs. GWP = 1.
- 4 – SMARDT (WE.100.2H) chillers – using R-1234ze refrigerant, with a system charge of 708 lbs. GWP = 1.
- 2 – Daikin (REYQ264XBYDA – VRF-CU-Admin) cooling units – using R-32 refrigerant, with a system charge of 129.63 lbs. GWP = 675.
- 2 – Daikin (REYQ312XBYDA – VRF-CU-DC) cooling units – using R-32 refrigerant, with a system charge of 129.63 lbs. GWP = 675.

Appendix AQ1 presents the detailed emissions calculations for the proposed engines, fuel storage tanks, and cooling systems. Appendix AQ2 contains the manufacturers specification sheets for the engines, engine add-on air pollution control systems, and the building cooling systems.

During routine readiness testing, criteria pollutants and TACs (as DPM) would be emitted directly from the generators. Criteria pollutant emissions from generator testing were quantified using information provided by the manufacturer, as specified in Appendix AQ1. SO_2 emissions were based on the maximum sulfur content allowed in California diesel (15 parts per million by weight), and an assumed 100 percent conversion of fuel sulfur to SO_2. DPM emissions resulting from diesel stationary combustion were assumed equal to PM10/2.5 emissions. For conservative evaluation purposes, it was assumed that testing would occur for no more than 50 hours per year. 50 hours per year per engine is the limit specified by the Airborne Toxic Control Measure for Stationary Toxic Compression Ignition Engines (Title 17, Section 93115, CCR). The Applicant is not proposing a test schedule, i.e., hours versus load points. Testing will be done based upon the Applicants judgment, taking into account the manufacturers recommendations, staff availability, and need. Maintenance and readiness testing may occur at loads ranging from 10 to 100% load. For purposes of this application, emissions were assumed to occur at 100% load. Tables AQ1-1 and AQ1-2 in Appendix AQ1 present the engine emissions based upon the 100% load point, number of engines tested, etc. Ammonia emissions, calculated as slip from the SCR on the engines, is also provided in Appendix AQ1. The engines were evaluated for the following emissions scenarios:

- CAT C175-16 Engines:
  - Each large engine running for 100 hours per year for Declared Emergency operations, at 100% load, at the guaranteed emissions levels from the Tier 4 control systems.
  - Each large engine running for 50 hours per year for Maintenance and Readiness operations, at 100% load, using composite emissions factors to address both uncontrolled and controlled emissions during such testing.
  - Ammonia slip from the SCR will be limited to 10 ppm.
- CAT 3512C Engines:
  - Each small engine running for 100 hours per year for Declared Emergency operations, at 100% load, at the guaranteed emissions levels from the Tier 4 control systems.
  - Each small engine running for 50 hours per year for Maintenance and Readiness operations, at 100% load, using composite emissions factors to address both uncontrolled and controlled emissions during such testing.
  - Ammonia slip from the SCR will be limited to 10 ppm.

The tables which follow present emissions summaries for the two engines for each of the scenarios noted above in terms of the worst case hourly, daily, and annual emissions. Maximum daily emissions are based on the assumption that only eight (8) of the C175-16 engines will be tested on any day (and the eight (8) engines will not be run concurrently).

Table 3.3-7: Emergency Operations Emissions Summary for CAT C175 and CAT 3512C Engines

Period	NO_x	CO	VOC	SO_2	PM10/2.5	CO_2e
CAT C175						
Max Hourly, lbs	154.36	802.67	43.22	1.54	6.17	-
Max Daily, lbs	3704.6	19264.1	1037.3	37.05	148.19	-
Max Annual, tons	7.72	40.13	2.16	0.08	0.31	7470.2
C175 as defined above. 100 hrs/yr emergency Ops. 32 engines in operation. The redundant engines are not run during emergencies.						
CAT 3512C						
Max Hourly, lbs	5.29	27.51	1.48	0.05	0.21	-
Max Daily, lbs	126.99	660.3	35.56	1.27	5.08	-
Max Annual, tons	0.26	1.38	0.07	0.003	0.011	244.4
3512C as defined above. 100 hrs/yr emergency Ops. All engines in operation.						

Table 3.3-8: M&R Testing Emissions Summary for CAT C175 and 3512C Engines

Period	NO_x	CO	VOC	SO_2	PM10/2.5	CO_2e
CAT C175						

Single Engine Max Hourly, lbs	11.27	25.1	1.35	0.048	0.193	-
8 Engines Max Daily, lbs	90.15	200.7	10.8	0.39	1.54	-
All Engines Max Annual, tons	11.27	25.1	1.35	0.05	0.19	4668.9
Maintenance/Readiness operations, 50 hrs/yr, as defined above.						
CAT 3512C						
Single Engine Max Hourly, lbs	6.18	13.76	0.882	0.026	0.106	-
Single Engine Max Daily, lbs	6.18	13.76	0.882	0.026	0.106	-
All Engines Max Annual, tons	0.31	0.69	0.04	0.001	0.005	122.2
Maintenance/Readiness operations, 50 hrs/yr, as defined above.						

Table 3.3-9: Emergency Operations Emissions Summary for CAT C175 and CAT 3512C Engines

Period	NO_x	CO	VOC	SO_2	PM10/2.5	CO_2e
CAT C175						
Max Annual, tons	7.72	40.13	2.16	0.08	0.31	7470.2
Emergency Ops.						
CAT 3512C						
Max Annual, tons	0.26	1.38	0.07	0.003	0.011	244.4
Emergency Ops.						

Table 3.3-10: M&R Testing Emissions Summary for CAT C175 and CAT 3512C Engines

Period	NO_x	CO	VOC	SO_2	PM10/2.5	CO_2e
CAT C175						
Max Annual, tons	11.27	25.08	1.35	0.05	0.19	4668.9
M&R Testing.						
CAT 3512C						
Max Annual, tons	0.31	0.69	0.04	0.001	0.005	122.2
M&R Testing.						

Table 3.3-11 presents maximum daily and annual emissions data for the various testing scenarios in comparison to the BAAD CEQA significance thresholds.

Table 3.3-11: Facility Scenario Emissions and BAAD CEQA Significance Levels (M&R Testing)

Scenario	Lbs/Day					
	NO_x	CO	VOC	SO_2	PM10	PM2.5
BAAD CEQA Thresholds	54	NA	54	NA	82	54
Worst Case Daily Engine Emissions[1]	90.15	200.7	10.81	0.386	1.54	1.54
Fuel VOC Losses	-	-	0.0896	-	-	-
Cooling Towers	-	-	-	-	1.356	1.356
Daily Emissions	90.15	200.7	10.9	0.386	3.03	3.03
Significance Threshold Exceeded	Yes	NA	No	NA	No	No
Scenario	**Tons/Yr**					
	NO_x	CO	VOC	SO_2	PM10	PM2.5
BAAD CEQA Thresholds	10	AAQS	10	NA	15	10
Fuel VOC Losses	-	-	0.0165	-	-	-
Cooling Towers	-	-	-	-	0.271	0.271
Worst Case Annual Engine Emissions[2]	11.58	25.77	1.39	0.051	0.195	0.195
Annual Emissions	11.58	25.77	1.407	0.051	0.466	0.466
Significance Threshold Exceeded	Yes	NA	No	NA	No	No

[1] Based on the emissions for a 8 engine test day (8 - C175 engines).
[2] Based on the summation of the CAT C175 and CAT 3512C engines.
[2] CO2e emissions are 4791 tpy (4345.6 Mtons/yr) from M&R Testing.

Fuel Storage (Working and Breathing) VOC Emissions

Each of the large CAT C175-16 engines will be equipped with an approximate 6000 gallon belly storage tank, while each of the CAT 3512C engines will be equipped with an approximate 4000 gallon belly storage tank. VOC working and breathing losses (for the 42 proposed tanks) are presented in Appendix AQ-1, and summarized as follows:

- Total VOC losses = 0.0165 tpy or 32.7 lbs/yr or 0.0896 lbs/day.

Building Cooling Systems (Marley CCCTs)

Emissions of PM10/2.5 from the cooling tower systems are as follows:

- 0.062 lbs/hr, 1.486 lbs/day, and 0.271 tpy

These values are included in Table 3.3-11 above.

GHG Emissions from Refrigerant Use

GHG emissions from the cooling systems using refrigerants are as follows:

- 11.852 tpy, or 10.75 Mton/yr

SF6 Use in Electrical Breakers

SF6 Emissions resultant form electrical breaker leakage are as follows:

- 35.2 MTons/yr

The following should be noted with respect to Table 3.3-11 above.

1. NO_x emissions exceed the BAAD CEQA significance levels on the days when the 8 engine M&R tests occur, and on a TPY basis (total emissions from all engines).
2. The emissions of NO_x may be mitigated through the participation in the BAAD ERC Bank, or other alternative methods as negotiated with the BAAD.

Table 3.3-12 presents the summation of emissions for all engines for the maximum of the scenarios noted above, i.e., the 150 hours per year criteria per the BAAD permitting policy criteria.

Table 3.3-12 BAAD 150 Hours per Year Emissions Summation (Tons per year)

Engines	NO_x	CO	VOC	SO_2	PM10/2.5	CO_2e
CAT C175 + CAT 3512C	19.56	67.28	3.63	0.13	0.518	12506
Summation for both engines types. ***These values are NOT the NSR offset applicability values.***						

Table 3.3-13 presents data on the DPM emissions levels (worst case) for both models of engines.

Table 3.3-13: Toxic Air Contaminant (DPM) Emissions from the Proposed Engines (Per engine basis)

Scenario	CAT C175	CAT 3512C
	DPM Emissions	
Maximum Annual, lbs	9.65	5.30

Maximum Hourly, lbs	0.193	0.106

Notes: DPM is the approved surrogate compound for diesel fuel combustion for purposes of health risk assessment.
Annual emissions for each engine are based on the max allowed runtime of 50 hours per year, M&R testing as defined.

Table 3.3-14 presents the hourly and annual fuel use values for the M&R operational scenario as outlined above.

Table 3.3-14 Engine Fuel Use Values

Scenario	CAT C175	CAT 3512C
	Fuel Use, gallons (per engine basis)	
Maximum Hourly, gals	209.01	109.4
Maximum Annual, gals	10455	5470
Total Annual Fuel Use (All Engines)		
Annual Fuel Use, gals	429,140	

Miscellaneous Operational Emissions

Miscellaneous emissions from NTDC/NTBGF operational activities (subsequent to full buildout) such as worker travel, deliveries, energy and fuel use for facility electrical, heating and cooling needs, periodic use of architectural coatings, landscaping, etc. were evaluated by CalEEMod. These emissions are presented in Table 3.3-15.

Table 3.3-15: Miscellaneous Operational Emissions

Scenario	Lbs/Day					
	NO_x	CO	VOC	SO_2	PM10 Exhaust	PM2.5 Exhaust
BAAD CEQA Thresholds, lbs/day	54	NA	54	NA	82	54
Lbs/avg day	2.1	4.0	10.8	0.016	0.14	0.14
Exceeds Thresholds	No	NA	No	NA	No	No
TPY						
BAAD CEQA Thresholds, TPY	10	NA	10	NA	15	10
Tons/yr	0.38	0.73	1.97	0.003	0.026	0.026
Exceeds Thresholds	No	NA	No	NA	No	No

Note: Assumes the full buildout and data center is manned 365 days/yr.
This table does NOT include the emissions from the emergency engines.
All source category includes, mobile worker travel, deliveries, energy use, fuel use, waste disposal, water use, and miscellaneous area sources.
Source: ADI CalEEMod analysis, April 2025.

GHG Operations Emissions

A summary of GHG operational emissions is as follows:

- Miscellaneous Operations (Area, energy, mobile, waste, water) = 1230.1 Mtons CO_2e/yr
- Emergency Engines (M&R Testing only) = 4,345.6 Mtons CO_2e/yr
- Refrigerant leakage emissions = 10.75 Mtons CO2e/yr
- SF6 Breaker emissions = 35.2 MTons CO2e/yr
- 99.5 MW of energy use, 8760 hrs/yr, PG&E Carbon Intensity Factor 204 lbs CO2/Mw-hr = 80,639.7 Mtons CO_2e/yr (see note which follows)

(Note: The emissions noted above, i.e., 80,639.7 Mtons CO_2e/yr are not emitted at the project facility. These emissions result from power generation across the PG&E system, and as such they are reported by PG&E on a specific generating facility basis. These emissions are not part of the project facility inventory. In addition, it should not be implied that "new" generation capacity will be required to be added to the PG&E system to supply the data center needs.

Total CO_2e emissions from facility operations are: 5621.7 Mtons CO_2e/Yr. This value is below the BAAD significance level of 10,000 Mtons/yr for operations.

AIR QUALITY IMPACT ANALYSIS

The 45.8-acre project site (a single parcel), located at 370 W. Trimble Rd. in the City of San Jose (Santa Clara County), is currently a vacant undeveloped parcel. The project proposes to construct the following elements;

- two data center buildings totaling approximately 414,000 sq.ft.,
- onsite water storage tanks,
- an electrical substation,
- ground level parking and internal access roadways, and,
- NTBGF comprised of 42 diesel-fired backup electrical generators (as described above)

There are no existing structures on the site, therefore no demolition is required to be undertaken at the site.

The NTDC buildings would house computer servers for private clients in a secure and environmentally controlled structure. The NTBGF would be designed to provide approximately 99.5 megawatts (MW) of electrical load and Information Technology (IT) power, i.e., 49.75 MW per data center building.

Modeling Overview

The evaluation of the potential air quality impacts and health risks were based on the estimate of the ambient air concentrations that could result from NTBGF air emission sources. This section discusses the selection of the dispersion model, the data that was used in the dispersion model (pollutants modeled with appropriate averaging times, source characterization, building downwash, terrain, and meteorology), etc.

Assessments of ambient concentrations resulting from pollutant emissions (called air quality impacts) are typically conducted using USEPA-approved air quality dispersion models. These models are based on mathematical descriptions of atmospheric diffusion and dispersion processes in which a pollutant source impact can be calculated over a given area and for a specific period of time (called averaging period). By using mathematical models, the assessment of emissions can be determined for both existing sources as well as future sources not yet in operation. Inputs required by most dispersion models, which must be specified by the user, include the following:

- Model options, such as averaging time to be calculated;
- Meteorological data, used by the model to estimate the dispersion conditions experience by the source emissions;
- Source data, such as source location and characteristics – stack emissions like those considered here are modeled as "point" sources, which require user inputs of the release height, exit temperature and velocity, and stack diameter (used by the dispersion model to estimate the mechanical and buoyant plume rise that will occur due to the release of emissions from a stack); and
- Receptor data, which are the location(s) of the given area where ambient concentrations are to be calculated by the dispersion model.

Model Selection

To estimate ambient air concentrations, the latest version of the AERMOD (Version 24142) dispersion model was used. AERMOD is appropriate for use in estimating ground-level short-term ambient air concentrations resulting from non-reactive buoyant emissions from sources located in simple, intermediate, and complex terrain. AERMOD is the preferred guideline model recommended by USEPA for these types of assessments and is based on conservative assumptions (i.e., the model tends to over-predict actual impacts by assuming steady state conditions, no pollutant loss through conservation of mass, no chemical reactions, etc.). AERMOD is capable of assessing impacts from a variety of source types such as point, area, line, and volume sources (as noted above, point source types are used to model stack sources like the NTBGF engine emissions); downwash effects; gradual plume rise as a function of downwind distance; time-dependent exponential decay of pollutants; and can account for settling and dry deposition of particulates (all NTBGF emissions were conservatively modeled as non-reactive gaseous emissions). The model is capable of estimating concentrations for a wide range of averaging times (from one hour to the entire period of meteorological data provided).

AERMOD calculates ambient concentrations in areas of simple terrain (receptor base elevations below the stack release heights), intermediate terrain (receptor base elevations between stack release and final plume height), and complex terrain (receptor base elevations above final plume height). AERMOD assesses these impacts for all meteorological conditions, including those that would limit the amount of final plume rise. Plume impaction on elevated terrain, such as on the slope of a nearby hill, can cause high ground level concentrations, especially under stable atmospheric conditions. Due to the relatively flat nature of the NTBGF project terrain area, including the surrounding properties, plume impaction effects would not be expected to occur. AERMOD also considers receptors located above the receptor base elevation, called flagpole receptors.

Another dispersion condition that can cause high ground level pollutant concentrations is caused by building downwash. Building downwash can occur during high wind speeds or a building or structure is in close proximity to the emission source. This can result in building wake effects where the plume is drawn down toward the ground by the lower pressure region that exists in the lee side (downwind) of the building or structure. This AERMOD feature was also used in modeling the NTBGF emission sources as described later.

Model Input Options

Model options refer to user selections that account for conditions specific to the area being modeled or to the emissions source that needs to be examined. Examples of model options selected for this analysis includes the use of multiple flagpole heights for each receptor modeled and the urban dispersion option (using a Santa Clara County population of ~1.94 million). Land use in the immediate area surrounding the project site is characterized as "urban". This is based on the land uses within the area circumscribed by a three (3) km radius around the project site, which is greater than 50 percent urban. Therefore, in the modeling analyses, the urban dispersion option was selected.

AERMOD also supplies recommended defaults for the user for other model options. This analysis was conducted using AERMOD in the regulatory default mode, which includes the following additional modeling control options:

- adjusting stack heights for stack-tip downwash,
- using upper-bound concentration estimates for sources influenced by building downwash from super-squat buildings,
- incorporating the effects of elevated terrain,
- employing the USEPA-recommended calms processing routine, and
- employing the USEPA-recommended missing data processing routine.

Calculation of chemical concentrations for use in the impact and exposure analysis requires the selection of appropriate concentration averaging times. Average pollutant concentrations ranging from one (1) hour to annual based on the meteorological data were calculated for each NTBGF source and the facility in total.

According to the Auer land use classification scheme, a 3 km radius boundary around the proposed site yields a predominately "urban" classification. This is consistent with the current land use and zoning designation for the site and surrounding area as "commercial, and light and heavy industrial".

Meteorological Data - Modeling Inputs

AERMOD requires a meteorological input file to characterize the transport and dispersion of pollutants in the atmosphere. Surface and upper air meteorological data inputs, along with surface parameter data describing the land use and surface characteristics near a site, are used as inputs into the AERMET meteorological preprocessor. The output files generated by AERMET consist of the surface and upper air meteorological input files required by AERMOD.

AERMOD uses hourly meteorological data to characterize plume dispersion. AERMOD calculates the dispersion conditions for each hour of meteorological data for the emission sources modeled at the user-specific receptor locations. The resulting 1-hour impacts are then averaged by AERMOD for the averaging time(s) specified by the user (accounting for calm winds and missing meteorological data as specified in the model options). Meteorological data from the San Jose

International Airport were provided by the BAAD for the five years of 2013 through 2017, inclusive. The representativeness of the meteorological data is dependent on the proximity of the meteorological monitoring site to the area under consideration; the complexity of the terrain, the exposure of the meteorological monitoring site, and the period of time during which the data are collected. The data was collected approximately three (3) kilometers from the eastern edge of the NTBGF project boundary and were provided by BAAD as the most appropriate meteorological data for this modeling analysis. The data were processed by BAAD with AERMET (version 18081), AERMOD's meteorological data preprocessor module.

The BAAD NTBGF meteorological data consists of surface measurements including wind speed, wind direction, temperature, and solar radiation, which were combined with National Weather Service upper air data from the Oakland International Airport. The USEPA-recommended 90% completeness criteria are met for all modeled parameters in the BAAD meteorological data.

Building Downwash and Receptors – Modeling Inputs

The effects of building downwash on facility emissions were included in the modeling assessment. The **P**lume **Ri**se **M**odel **E**nhancements to the USEPA **B**uilding **P**rofile **I**nput **P**rogram (BPIP-PRIME, version 04274) was used to determine the direction-specific building downwash parameters. The PRIME enhancements in AERMOD calculate fields of turbulence intensity, wind speed, and slopes of the mean streamlines as a function of projected building shape. Using a numerical plume rise model, the PRIME enhancements in AERMOD determine the change in plume centerline location and the rate of plume dispersion with downwind distance. Concentrations are then predicted by AERMOD in both the near and far wake regions, with the plume mass captured by the near wake treated separately from the uncaptured primary plume and re-emitted to the far wake as a volume source. Figure AQ3-1 in Appendix AQ3 presents the building data used in the downwash analysis as well as the emergency generator stack locations and the rooftop chiller locations..

Receptor grids were generated along the fence line (≤10 meter spacing), from the fence line to 300 meters (20 meter spacing), from 300 meters to one kilometer (km) (50-meter spacing), from 1.0 to 5.0 km (200-meter spacing). If any of the maximum impacts occurred on receptors with spacing greater than 20 meters, a refined grid with 20-meter resolution would be created and extended outwards by 500 meters in all directions. All receptor and source locations are referenced in meters using the Universal Transverse Mercator (UTM) Cartesian coordinate system based on the North American Datum of 1983 (NAD83) for Zone 10.

The latest version of AERMAP (version 24142) was used to determine receptor elevations and hill-slope factors utilizing USGS's 1-degree square National Elevation Dataset (NED). NED spacings were 1/3" (~10 meters) for the fence line, 20-meter, 50-meter, and 100-meter spaced receptor grids and 1" (~30 meters) for 200-meter and 500-meter spaced receptor grids and sensitive receptors. Flagpole receptors were generated for the two- and three-story residential areas just north of the project area. Electronic copies of the BPIP-PRIME and AERMAP input and output files, including the NED data, are included with the application will be submitted to Staff electronically. Figure AQ3-2 in Appendix AQ3 presents the receptor grids used in the modeling analyses.

Source Data – Modeling Inputs

Emissions and stack parameters for the 36 Caterpillar diesel engines are presented in Appendix AQ-1 and AQ-3 and were used to develop the modeling inputs. Stack parameters (e.g., stack height, exit temperature, stack diameter, and stack exit velocity) were based on the parameters given by the engine manufacturer and the Applicant. Stack locations for the proposed sources were matched to show their actual location based on the proposed facility plot plan. Appendix AQ-3 presents the locations of the NTBGF sources, and the building outlines considered in the downwash analysis. Stack base elevations were given a common base elevation based on the range of elevations calculated with AERMAP for the stack locations.

Impact Analysis Summary

Operational characteristics of the diesel engines, such as emission rate, exit velocity, and exit temperature, vary by operating loads. The engines could be operated over a range of load conditions from one (1) to 100 percent. Based on similar projects, the 100% load case always produces the maximum ground-based concentrations. Thus, an air quality screening analysis was not performed. The engines were assumed to be tested anytime from 7 AM to 5 PM (controlled using the EMISFACT/HROFDY model option). Although the engines will typically only be tested individually for up to one hour at any one time, each engine was assumed to operate up to 8 hours/day (7AM-5PM) to conservatively represent 8 different engines operating one hour each in any one day for 3-hour, 8-hour, and 24-hour averaging times. Thus, the worst-case stack condition and the worst-case engine location could be determined from the screening analysis. All 42 engines were assumed to be tested for annual averages, with emissions proportioned accordingly. The screening results are presented in Appendix AQ-3.

Based on the results of the screening analyses, all NTBGF sources were modeled in the refined analyses for comparisons with the annual CAAQS and NAAQS and the short-term NAAQS with multi-year statistical forms (1-hour NO_2 and SO_2 and 24-hour PM2.5 and PM10). Impacts during normal testing operations were based on the worst-case screening condition. Since the engines will each be tested far less than 100 hours/year, it the annual average emission rate was included in 1-hour NO_2 and SO_2 NAAQS modeling analyses at the annual average emission rates per EPA guidance due to the statistical nature of these standards (it was the engines were modeled at the maximum 1-hour emission rate for the CAAQS).

For the 1-hour NO_2 modeling assessments, the Ambient Ratio Method Version 2 (ARM2) was used in the modeling analyses with an in-stack NO_2/NO_x ratio of 0.5 (50%) based on EPA Guideline requirements. This is conservative as the NO_2/NO_x ratios for these types of engines are on the order of 10%, as per the EPA's ISR database.

The highest NO_2 background data over the last three (3) years from the 158 East Jackson Street monitoring site was used to assess the CAAQS, which was then added to the modeled NO_2 concentration for the 1-hour CAAQS assessment. The three-year average of the second-highest hourly value for the same three (3) year period were added to the modeled NO_2 concentration for the NAAQS assessment. Assessment with the CAAQS is based on the maximum 1-hour NO_2 concentration (with and without background). NO_2 NAAQS compliance based on the five-year average of the 98^{th} percentile daily maximum annual 1-hour impacts with background concentration (NO_2 SIL for NAAQS compliance based on 5-year average of the annual 1-hour maximum impacts without background concentrations).

Based on the results of the modeling analyses, the modeled concentrations are presented in Table 3.3-16. Note that the annual maximum PM2.5 concentration is less than the significance impact level

(SIL) of 0.13 ug/m^3. Therefore, the project will not cause or contribute to any exceedances of the annual PM2.5 standard.

Table 3.3-16: Modeled Operational Concentrations and Ambient Air Quality Standards

Pollutant	Averaging Period	Maximum Concentration ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total ($\mu g/m^3$)	Ambient Air Quality Standards ($\mu g/m^3$) CAAQS	NAAQS
3-/8-/24-Hour Maxima shown for one engine operating up to 10 hours/day (7AM-5PM)						
NO_2*	1-hour maximum (CAAQS)	121.01	111	232.01	339	-
	3-year average of 1-hour yearly 98th % (NAAQS)**	2.46	80	82.46	-	188
	Annual maximum	1.7	17.8	19.50	57	100
CO	1-hour maximum	419.49	2175	2594.5	23,000	40,000
	8-hour maximum	301.25	1718	2019.3	10,000	10,000
SO_2	1-hour maximum (CAAQS)	0.8	93.4	94.2	655	-
	3-year average of 1-hour yearly 99th % (NAAQS)**	0.01	5.2	5.2	-	196
	24-hour maximum	0.19	5	5.19	105	365
	Annual maximum	0.01	0.6	0.61	-	80
PM10	24-hour maximum (CAAQS)	0.77	134	134.77	50	-
	24-hour 4th highest over 5 years (NAAQS)	0.68	41	41.7	-	150
	Annual maximum (CAAQS)	0.04	24.8	24.84	20	-
PM2.5	3-year average of 24-hour yearly 98th %	0.53	25.7	26.23	-	35
	Annual maximum (CAAQS)	0.04	10.1	10.14	12	-
	3-year average of annual concentrations (NAAQS)	0.03	9.1	9.13	-	12.0

*1-hour NO_2 impacts evaluated with Ambien Ratio Method #2 (ARM2), with the maximum hourly background added in separately. Annual NO_2 impacts evaluated with ARM2. Modeling utilized USEPA-default minimum/maximum NO_2/NOx ambient ratios of 0.5/0.9.

** Impacts for the 1-hour statistical-based NO_2 and SO_2 NAAQS are based on the annual average emissions per USEPA guidance documents for intermittent sources like emergency generators. Impacts for the 1-hour NO_2 and SO_2 CAAQS are based on the 1-hour emission rate since these CAAQS are “values that are not to be exceeded”.

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. These exhaust air pollutant emissions would not be considered to contribute substantially to existing or projected air quality violations. Construction exhaust emissions may still pose health risks for sensitive receptors such as nearby residents. The primary community risk impact issues associated with construction emissions are cancer risk and exposure to PM2.5. Diesel exhaust poses both a potential health and nuisance impact to nearby receptors. A health risk assessment of the project construction activities was conducted that evaluated potential health effects of sensitive receptors at these nearby residences from construction emissions of DPM and PM2.5. The closest sensitive receptors to the project site are residences located north-northwest of the project boundary. Emissions and dispersion modeling were conducted to predict the off-site concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated.

In addition, during excavation, grading, and some building construction activities, substantial amounts of dust could be generated. Most of the dust would result during grading activities. The amount of dust generated would be highly variable and would be dependent on the size of the area disturbed at any given time, amount of activity, soil conditions, and meteorological conditions. To address fugitive dust emissions that lead to elevated PM_{10} and $PM_{2.5}$ levels near construction sites, the BAAD CEQA Air Quality Guidelines identify best management practices. Once included in construction projects, these impacts will be considered less than significant. In addition, diesel emissions from construction related equipment will temporarily result in an increase in health risk to nearby offsite receptors.

For modeling fugitive PM10 and PM2.5 emissions, a near-ground level release height of 0.5 meters (1.6 feet) was used for the area source. Emissions from the construction equipment and on-road vehicle travel were distributed throughout the modeled area source. To represent the construction equipment exhaust emissions, 103 equally spaced (25 meter) point sources were placed within the area of construction activity. Each point source had an emission release height of 3.05 meters (10 feet). The exit temperature and stack velocity were based on an average sized construction engine that could be used for the project. Construction emissions were modeled as occurring daily between 7 a.m. to 5 p.m., when the majority of construction activity would occur. Figure AQ4-1 present the point source and fugitive dust sources that were included in AERMOD.

Table 3.3-17: Modeled Construction Concentrations and Ambient Air Quality Standards

Pollutant	Averaging Period	Maximum Concentration ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total ($\mu g/m^3$)	Ambient Air Quality Standards ($\mu g/m^3$)	
					CAAQS	NAAQS
Construction occurs for up to 10 hours/day (7AM-5PM)						
NO_2*	1-hour maximum (CAAQS)	2.2	111	113.2	339	-
	3-year average of 1-hour yearly 98th % (NAAQS)	1.6	80	81.6	-	188
	Annual maximum	0.27	17.8	18.07	57	100
CO	1-hour maximum	10	2175	2185	23,000	40,000
	8-hour maximum	4.7	1718	1722.7	10,000	10,000
SO_2	1-hour maximum (CAAQS)	0.020	93.4	93.42	655	-
	3-year average of 1-hour yearly 99th % (NAAQS)	0.016	5.2	5.22	-	196
	24-hour maximum	0.0044	5	5.0044	105	365
	Annual maximum	0.0024	0.6	0.6024	-	80
PM10	24-hour maximum (CAAQS)	1.9	134	135.9	50	-
	24-hour H6H (NAAQS)	1.7	41	42.7	-	150
	Annual maximum (CAAQS)	0.81	24.8	25.61	20	-
PM2.5	3-year average of 24-hour yearly 98th %	0.36	25.7	26.06	-	35

Table 3.3-17: Modeled Construction Concentrations and Ambient Air Quality Standards

Pollutant	Averaging Period	Maximum Concentration (µg/m³)	Background (µg/m³)	Total (µg/m³)	Ambient Air Quality Standards (µg/m³) CAAQS	NAAQS
	Annual maximum (CAAQS)	0.22	10.1	10.32	12	-
	3-year average of annual concentrations (NAAQS)	0.20	9.1	9.30	-	9.0

*1-hour NO_2 impacts evaluated with Ambien Ratio Method #2 (ARM2), with the maximum hourly background added in separately. Annual NO_2 impacts evaluated with ARM2. Modeling utilized USEPA-default minimum/maximum NO_2/NOx ambient ratios of 0.5/0.9.
1 - Maximum 8th-highest max daily 1-hr results averaged over 5 years
2 - Maximum 4th-highest
3 - Maximum 8th-highest 24-hr results averaged over 5 years
4 - Maximum annual results averaged over 5 years

The air quality modeling support data will be submitted to Staff electronically.

Based on the modeling results in Table2 4.3-16 and 4.3-17, the only combined modeled impacts and background concentrations greater than the standards are for the 24-hour and annual PM10 CAAQS and the 24-hour PM2.5 NAAQS and annual PM2.5 CAAQS. These exceedances are only because the background concentrations already exceed the standards. Modeled project impacts in these instances are less than the USEPA and/or BAAD significance levels and thus, the project will not cause or contribute to an exceedance of any air quality standard for any averaging time period. The project will therefore comply with the CAAQS and NAAQS.

PUBLIC HEALTH AND HEALTH RISK ASSESSMENT

This section presents the methodology and results of a human health risk assessment performed to assess potential impacts and public exposure associated with airborne emissions from the routine operation of the project.

Air will be the dominant pathway for public exposure to chemical substances released by the project. Emissions to the air will consist primarily of combustion by-products produced by the diesel-fired emergency standby engines. Potential health risks from combustion emissions will occur almost entirely by direct inhalation. To be conservative, additional pathways were included in the health risk modeling; however, direct inhalation is considered the most likely exposure pathway. The risk assessment was conducted in accordance with guidance established by the California Office of Environmental Health Hazard Assessment (OEHHA 2015) and the California Air Resources Board.

Combustion byproducts with established CAAQS or NAAQS, including NO_x, CO, SO_2 and PM10/2.5 were addressed in the previous Air Quality section.

Affected Environment

Sensitive receptors are defined as groups of individuals that may be more susceptible to health risks due to chemical exposure. Schools (public and private), day care facilities, convalescent homes, and hospitals are of particular concern. The nearest sensitive receptors, by type, are listed in Table 3.3-18. There are no sensitive receptors within 1,000 ft. of the facility boundary. Appendix AQ5 contains support materials for the facility health risk assessment, including a listing of sensitive receptors within the facility regional area. HAPs emissions evaluations are presented in Appendix AQ1.

Table 3.3-18: Sensitive Receptors Nearfield of the NTBGF Site

Receptor Type	UTM Coordinates	~ Distance from Site, ft.	~ Distance from Site, miles
Nearest Residences	593704, 4138583	3257	0.62
Nearest Hospital	588739, 4132589	24572	4.65
Nearest School	593335, 4138552	3926	0.74
Nearest Daycare	N/A	-	-
Nearest Convalescent Home	N/A	-	-
Nearest College/Univ.	594248, 4134096	11891	2.25
Source: Google Earth Image 8/2023. All coordinates are approximate.			

The receptors noted above should not be assumed to represent the maximum impact locations based on receptor type. For example, the nearest residence noted in the table may not be the maximum impacted residence on the modeling grid.

The nearest residences are located to the north-northeast of the site at a distance of approximately 0.62 miles. Another set of residences are located to the southeast of the site, also at a distance of approximately 1.81 miles.

Air quality and health risk data presented by CARB in the 2013 Almanac of Emissions and Air Quality (latest version available, CARB 2013) for the state shows that over the period from the mid-1990s through 2013, the average concentrations for DPM have been substantially reduced, and the associated health risks for the state are showing a steady downward trend as well. This same trend has occurred in the BAAD.

Environmental Consequences

Significance Criteria

Cancer Risk

Cancer risk is the probability or chance of contracting cancer over a period of time normally defined as either 30 or 70-years depending on the project type and agency risk procedures. Carcinogens are not assumed to have a threshold below which there would be no human health impact. In other words, any exposure to a carcinogen is assumed to have some probability of causing cancer; the lower the exposure, the lower the cancer risk (i.e., a linear, no-threshold model). Under various state and local regulations, an incremental cancer risk greater than 10-in-one million due to a project is considered to be a significant impact on public health. For example, the 10-in-one-million risk level is used by the Air Toxics Hot Spots (AB 2588) program and California’s Proposition 65 as the public notification level for air toxic emissions from existing sources.

Non-Cancer Risk

Non-cancer health effects can be either chronic or acute. In determining potential non-cancer health risks (chronic and acute) from air toxics, it is assumed there is a dose of the chemical of concern below which there would be no impact on human health. The air concentration corresponding to this dose is called the Reference Exposure Level (REL). Non-cancer health risks are measured in terms of a hazard quotient, which is the calculated exposure of each contaminant divided by its REL. Hazard quotients for pollutants affecting the same target organ are typically summed with the resulting totals expressed as hazard indices for each organ system. A hazard index of less than 1.0 is considered to be an insignificant health risk. For this health risk assessment, all hazard quotients were summed regardless of target organ. This method leads to a conservative (upper bound) assessment. RELs used in the hazard index calculations were those published in the CARB/OEHHA listings dated October 2020.

Chronic toxicity is defined as adverse health effects from prolonged chemical exposure, caused by chemicals accumulating in the body. Because chemical accumulation to toxic levels typically occurs slowly, symptoms of chronic effects usually do not appear until long after exposure commences. The lowest no-effect chronic exposure level for a non-carcinogenic air toxic is the chronic REL. Below this threshold, the body is capable of eliminating or detoxifying the chemical rapidly enough to prevent its accumulation. The chronic hazard index was calculated using the hazard quotients calculated with annual concentrations.

Acute toxicity is defined as adverse health effects caused by a brief chemical exposure of no more than 24 hours. For most chemicals, the air concentration required to produce acute effects is higher than the level required to produce chronic effects because the duration of exposure is shorter. Because acute toxicity is predominantly manifested in the upper respiratory system at threshold exposures, all hazard quotients are typically summed to calculate the acute hazard index. One-hour average concentrations are divided by acute RELs to obtain a hazard index for health effects caused by relatively high, short-term exposure to air toxics. Since this assessment considers only DPM, and DPM has no acute REL, acute HI values were not calculated. The following receptor descriptors are used herein:

- PMI – Point of maximum impact – this receptor represents the highest concentration and risk point on the receptor grid for the analysis under consideration.
- MEIR – Maximum exposed individual residential receptor – this receptor represents the maximum impacted actual residential location on the grid for the analysis under consideration.
- MEIW - Maximum exposed individual worker receptor – this receptor represents the maximum impacted actual worker location on the grid for the analysis under consideration.
- MEIS - Maximum exposed individual sensitive receptor – this receptor represents the maximum impacted actual sensitive location on the grid for the analysis under consideration. This location is a non-residential sensitive receptor, i.e., school, hospital, daycare center, convalescent home, etc.

Construction and Operational Phase Impacts

Environmental consequences potentially associated with the project are potential human exposure to chemical substances emitted into the air. The human health risks potentially associated with these chemical substances were evaluated in a health risk assessment. The chemical substance potentially emitted to the air from the proposed facility is DPM. DPM is the approved surrogate compound for diesel fuel combustion pursuant to CARB and EPA.

Emissions of criteria pollutants will adhere to NAAQS or CAAQS as discussed in the Ambient Air Quality section. The proposed facility emergency electrical backup engines will be either certified or compliant Tier 4 units and as such, they meet the BACT requirements of the BAAD. These engines are equipped with DPFs. Finally, air dispersion modeling results show that emissions will not result in concentrations of criteria pollutants in air that exceed ambient air quality standards (either NAAQS or CAAQS). These standards are intended to protect the general public with a wide margin of safety. Therefore, the project is not anticipated to have a significant impact on public health from emissions of criteria pollutants.

Potential impacts associated with emissions of toxic pollutants to the air from the proposed facility were addressed in a health risk assessment, with support data presented in Appendix AQ5. The risk assessment was prepared using guidelines developed by OEHHA and CARB, as implemented in the latest version of the HARP model (Version 22118). The BAAD risk assessment options in HARP were used for all analyses (BAAD 2016).

Public Health Impact Study Methods

Emissions of toxic air contaminants (TACs) potentially associated with the facility were estimated using emission factors for PM10 as diesel particulate matterderived from the following:

- Caterpillar C175 Engines (20 sources):
    - Each large engine running for 50 hours per year for Maintenance and Readiness operations, at 100% load, using composite emissions factors to address both uncontrolled and controlled emissions during such testing.
- Caterpillar 3512C Engine (1 source):
    - Each small engine running for 50 hours per year for Maintenance and Readiness operations, at 100% load, using composite emissions factors to address both uncontrolled and controlled emissions during such testing.

TACs from fuel storage emissions were not included as the level of emissions are insignificant. The emissions from the diesel fuel storage tanks are often well below the HRA acute and chronic mass emissions triggers in BAAQMD Regulation 2 Rule 5.

TACs from the indirect cooling systems (water cycle portion), based upon the water analysis data supplied by South Bay Water Reclamation were provided in the AQ Appendix Table AQ1-5. This table presents data on non-TACs as well. The 8 substances evaluated as TACs were arsenic, cadmium, total chromium, copper, lead, mercury, nickel and silica. The emissions of these substance for all systems combined were mostly insignificant (per the acute and chronic mass emissions trigger limits in BAAQMD Regulation 2 Rule 5). However, they were included in the HRA analysis.

Concentrations of these pollutants in air potentially associated with the emissions were estimated using dispersion modeling as discussed in the Air Quality section. Modeling allows the estimation of both short-term and long-term average concentrations in air for use in a risk assessment, accounting for site-specific terrain and meteorological conditions. Health risks potentially associated with the estimated concentrations of pollutants in air were characterized in terms of excess lifetime cancer risks, or comparison with reference exposure levels for non-cancer health effects.

Health risks potentially associated with concentrations of carcinogenic pollutants in air were calculated as estimated excess lifetime cancer risks. The excess lifetime cancer risk for a pollutant is estimated as the product of the concentration in air and a unit risk value. The unit risk value is defined as the estimated probability of a person contracting cancer as a result of constant exposure to an ambient concentration of 1 $\mu g/m^3$ over a 30-year lifetime. In other words, it represents the increased cancer risk associated with continuous exposure to a concentration in air over a pre-defined period, i.e., usually a 30-year lifetime. Evaluation of potential non-cancer health effects from exposure to short-term and long-term concentrations in air was performed by comparing modeled concentrations in air with the RELs. An REL is a concentration in air at or below which no adverse health effects are anticipated. RELs are based on the most sensitive adverse effects reported in the medical and toxicological literature. Potential non-cancer effects were evaluated by calculating a ratio of the modeled concentration in air and the REL. This ratio is referred to as a hazard quotient. The unit risk values and RELs used to characterize health risks associated with modeled concentrations in air were obtained from the *Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values* (CARB 01/2025) and are presented in Table 3.3-19.

Table 3.3-19: Toxicity Values Used to Characterize Health Risks

TAC	Unit Risk Factor (µg/m3)-1	Chronic Reference Exposure Level (µg/m3)	Acute Reference Exposure Level (µg/m3)
DPM	.0003	5	--
Source: CARB/OEHHA, 01/2025.			

Table 3.3-20 delineates the maximum hourly and annual emissions of the identified air toxic pollutants (DPM) from the emergency backup engines.

Table 3.3-20: Maximum NTBGF Hourly, Daily, and Annual Air Toxic Emissions

Emergency Standby Engines (per engine basis)				
Engine Model	**Toxic**	**Max Hour Emissions, Lbs**	**Max Daily Emissions, Lbs**	**Max Annual Emissions Lbs**
CAT C175	DPM	0.193	-	9.65
CAR 3512C	DPM	0.106	-	5.30
Note: Engines are equipped with diesel particulate filters at <= 0.02 g/bhp-hr Annual emissions are based on the M&R Testing scenario.				

Construction Phase Impacts

The proposed project would be a source of air pollutant emissions during project construction. The BAAD CEQA Air Quality Guidelines considers exposure of sensitive receptors to air pollutant levels that result in an unacceptable cancer risk or hazard to be significant. BAAD recommends a 1,000-foot zone of influence around project boundaries. Results of the construction related health risk assessment indicate that the risk values from construction would be as follows in Table 3.3-21:

Table 3.3-21: NTDC/NTBGF Construction Health Risk Assessment Summary

Location	Receptor #	UTM (meters)	Cancer Risk	Chronic HI	Acute HI	Cancer Burden
PMI	2411	594610.0, 4137720.0	9.10E-07	0.000510	-	NA
MEIR	3679	593300.0, 4138250.0	4.28E-08	0.000024	-	NA
MEIS	3790	593400.0, 4138400.0	4.28E-08	0.000024	-	NA
MEIW	1644	594250.0, 4137860.0	3.29E-08	0.000182	-	NA
Notes: See acronym definitions above. The PMI noted above is located at the northern fence line. DPM is the surrogate compound for construction equipment diesel exhaust. No acute REL has been established for DPM. 38 month construction period (HRA used 4 years as a conservative exposure period.) FAH=1 for all age groups from 3rd trimester to 16 years, for MEIR and MEIS. FAH not used for MEIW. MEIS – Montague Elementary School						

These values are well below the significance thresholds for construction health risk impacts, and as such the community risk impacts from construction activities would be *less than significant*.

Characterization Of Risks from Operations Toxic Air Pollutants

The excess lifetime cancer risk associated with operational concentrations in air estimated for the NTBGF PMI location is calculated to be 1.16E-05 or 11.6 per million which is located on the north-northwest project fence line. Excess lifetime cancer risks less than 10 x 10^{-6}, for sources with T-BACT, are unlikely to represent significant public health impacts that require additional controls of facility emissions. Risks higher than 1 x 10^{-6} may or may not be of concern, depending upon several factors. These include the conservatism of assumptions used in risk estimation, size of the potentially exposed population and toxicity of the risk-driving chemicals. Health effects risk thresholds are listed on Table 3.3-22. Risks associated with pollutants potentially emitted from the facility are presented in Tables 4.3-23 and 4.3-24. The chronic hazard indices for all scenarios are well below 1.0. It should be noted that DPM does not currently have an acute hazard index value, and as such, acute health effects were not evaluated in the HRA. Further description of the methodology used to calculate health risks associated with emissions to the air can be found in the HARP User's Manual dated 12/2003 and the ADMRT Manual dated 3/2015 (CARB 2015). As described previously, human health risks associated with emissions from the proposed facility are unlikely to be higher at any other location than at the location of the PMI. However, the location of the PMI is on the project fence line, adjacent to an existing parking lot and does not reflect the potential impact at any of the sensitive receptors, all of which have risks less than 10E-06 or 10 in a million. The rooftop cooling tower risk impacts were not added to the total risk as they were two orders of magnitude less and would not contribute to the overall risk.

Table 3.3-22: Health Risk Significance Thresholds

Risk Category	Significance Thresholds	
	BAAD Project Risk	BAAD Net Project Risk
Cancer Risk	10 x 10^{-6}	10 x 10^{-6}

Cancer Risk (Overburdened Community)	6 x 10^{-6}	6 x 10^{-6}
Chronic Hazard Index	1.0	1.0
Acute Hazard Index	1.0	1.0
Cancer (T-BACT required)	>1 in a million Chronic HI > 0.20	
Cancer Burden	NA	
Source: Regulation 2 Rule 5, NSR for Toxic Air Contaminants		

Table 3.3-23: Operational NTDC/NTBGF Residential/Sensitive Health Risk Assessment Summary

Location	Receptor #	UTM (meters)	Cancer Risk	Chronic HI	Acute HI	Cancer Burden
PMI	67	594394.54, 4137896.71	1.16E-05	0.00311	-	NA
MEIR	7491	596450, 4136000	5.42E-07	0.000146	-	NA
MEIS	3790	593400.0, 4138400.0	8.47E-07	0.000228	-	NA
Notes: See acronym definitions above. The PMI noted above is located at the northern fence line. FAH=1 for all age groups from 3rd trimester to 16 years, for MEIR and MEIS. FAH not used for MEIW. MEIS – Montague Elementary School The maximum 30-year cancer risk from rooftop chillers is 1.46E-09.						

Table 3.3-24: Operational NTDC/NTBGF Worker Health Risk Assessment Summary

Location	Receptor #	UTM	Cancer Risk	Chronic HI	Acute HI	Cancer Burden
PMI	67	594394.54, 4137896.71	3.38E-06	0.00311	-	NA
MEIW	1861	594350, 4137940	2.75E-06	0.00254	-	NA
Notes: See acronym definitions above. The PMI noted above is located at the northern fence line. The maximum worker risk from rooftop chillers is 2.76E-10.						

Cancer risks potentially associated with facility emissions also were not assessed in terms of cancer burden. Cancer burden is a hypothetical upper-bound estimate of the additional number of cancer cases that could be associated with emissions from the facility. Cancer burden is calculated as the worst-case product of excess lifetime cancer risk, at the 1 x 10^{-6} isopleth and the number of individuals at that risk level. Cancer burden evaluations are not required by the BAAD.

The chronic non-cancer hazard quotient associated with concentrations in air are shown in Table 3.3-23. The chronic non-cancer hazard quotient for all target organs falls below 1.0. As described previously, a hazard quotient less than 1.0 is unlikely to represent significant impact to public health. Since DPM does not have an acute REL, no acute hazard index or quotient was calculated. As described previously, human health risks associated with emissions from the proposed facility are unlikely to be higher at any other location than at the location of the PMI. If there is no significant impact associated with concentrations in air at the PMI location, it is unlikely that there would be significant impacts in any other location in the vicinity of the facility.

Detailed risk and hazard values are provided in the HARP output which will be submitted to Staff electronically.

The estimates of excess lifetime cancer risks and non-cancer risks associated with chronic or acute exposures fall below thresholds used for regulating emissions of toxic pollutants to the air. Historically, exposure to any level of a carcinogen has been considered to have a finite risk of inducing cancer. In other words, there is no threshold for carcinogenicity. Since risks at low levels of exposure cannot be quantified directly by either animal or epidemiological studies, mathematical models have estimated such risks by extrapolation from high to low doses. This modeling procedure is designed to provide a highly conservative estimate of cancer risks based on the most sensitive species of laboratory animal for extrapolation to humans (i.e., the assumption being that humans are as sensitive as the most sensitive animal species). Therefore, the true risk is not likely to be higher than risks estimated using unit risk factors and is most likely lower, and could even be zero (USEPA, 1986; USEPA, 1996).

An excess lifetime cancer risk of 1×10^{-6} is typically used as a screening threshold of significance for potential exposure to carcinogenic substances in air. The excess cancer risk level of 1×10^{-6}, which has historically been judged to be an acceptable risk, originates from efforts by the Food and Drug Administration (FDA) to use quantitative risk assessment for regulating carcinogens in food additives in light of the zero-tolerance provision of the Delany Amendment (Hutt, 1985). The associated dose, known as a "virtually safe dose" (VSD) has become a standard used by many policy makers and the lay public for evaluating cancer risks. However, a study of regulatory actions pertaining to carcinogens found that an acceptable risk level can often be determined on a case-by-case basis. This analysis of 132 regulatory decisions, found that regulatory action was not taken to control estimated risks below 1×10^{-6} (one-in-one million), which are called de minimis risks. De minimis risks are historically considered risks of no regulatory concern. Chemical exposures with risks above 4×10^{-3} (four-in-ten thousand), called de manifestis risks, were consistently regulated. De manifestis risks are typically risks of regulatory concern. The risks falling between these two extremes were regulated in some cases, but not in others (Travis et al, 1987).

The estimated lifetime cancer risks to the maximally exposed individual located at the NTBGF PMI, MEIR, MEIW, and MEIS do not exceed the 10×10^{-6} significance level for T-BACT sources. These engines are EPA Tier 4 units equipped with diesel particulate filters, and are used only for emergency power backup, therefore BACT or T-BACT for DPM is satisfied. The chronic hazard index value is also well below the significance threshold of 1.0. These risk estimates were calculated using assumptions that are highly health conservative. Evaluation of the risks associated with the NTBGF emissions should consider that the conservatism in the assumptions and methods used in risk estimation considerably over-state the risks from NTBGF emissions. Based on the results of this risk assessment, there are no significant public health impacts anticipated from emissions of toxic pollutants to the air from the NTBGF.

Operation Odors

The facility is not expected to produce any contaminants at concentrations that could produce objectionable odors.

Summary of Impacts

The health risk assessment for the NTBGF indicates that the maximum cancer risk will be approximately 5.42 x 10^{-7} (versus a significance threshold of 10 x 10^{-6} with T-BACT) at the MEIR to air toxics from NTBGF emissions. This risk level is considered to be not significant. Non-cancer chronic effects for all scenarios are well below the chronic hazard index significance value.

Results from an air toxics risk assessment based on emissions modeling indicate that there will be no significant incremental public health risks from the construction and operation of the NTBGF. Results from criteria pollutant modeling for routine operations indicate that potential ambient concentrations of NO_2, CO, SO_2, and PM_{10} will not significantly impact air quality. Potential concentrations are below the federal and California standards established to protect public health, including the more sensitive members of the population.

Construction and Operation Overlap Assessment

The following analysis addresses the emissions overlap period in which the engines from phase DC1 will be readiness and maintenance tested during the construction of DC2. The overlap data is summarized as follows:

- The overlap period, based upon the current construction schedule, will commence near the end of construction of DC1 (start of construction of DC2). The overlap period will be approximately 19.5 months (1.625 years).
- DC1 consists of 20 large engines (CAT C175) and 1 small engine (CAT 3512C).
- All of the large engines and the single small engine will be readiness and maintenance tested during the 19.5-month period.
- Annual emissions (readiness/maintenance testing only) for the engines are based on 50 hours/yr each over the scheduled 1.625-year period.
- Emissions from construction of DC2 were derived from CalEEMod and adjusted based on Appendix AQ4 Table AQ4-3. These emissions were annualized for any representative 12-month period during the 19.5 month overlap period.

Table 3.3-25 below shows the emissions summary for the overlap period (annualized).

Table 3.3-25 Overlap Emissions Table

Parameter	NO_x	CO	VOC	SO_x	PM10 Exhaust/Fugitive	PM2.5 Exhaust/Fugitive
Total DC1 Engine Emissions, tpy	5.8	12.9	0.70	0.021	0.103	0.103
DC1 Cooling Tower, tpy	-	-	-	-	0.136	0.136
DC2 Annualized Construction Emissions (tpy)	0.959	3.652	1.208	0.007	0.009/0.37	0.009/0.098

Notes:
1. See Table AQ4-3 for the emissions breakout analysis for DC2
2. Engines will be M&R tested for no more than 50 hours/yr. Engines will not be tested concurrently.
3. Construction will occur 5 days/wk for an average of 8 hours/day.

Daily and hourly emissions for the backup generator engines were derived from the emissions calculations presented in Appendix AQ1, while daily and hourly emissions from construction were derived from the annualized construction emissions presented in Table 3.3-25 above. Table 3.3-26 presents the daily and hourly emissions for the overlap period.

Table 3.3-26 Daily and Hourly Emissions for the Overlap Period

Parameter	NO_x	CO	VOC	SO_x	PM10 Exhaust/Fugitive	PM2.5 Exhaust/Fugitive
M&R Testing						
8 Large Engines, lbs/day	90.15	200.69	10.81	0.386	1.544	1.544
DC1 Cooling Tower, lbs/day	-	-	-	-	0.743	0.743
DC2 Annualized Construction Year Emissions (lbs/day)	7.26	27.66	9.15	0.06	0.07/2.80	0.07/0.74
Total Estimated Emissions, lbs/day (w/o cooling tower)	*97.4*	*228.4*	*20.0*	*0.45*	*1.61/2.80*	*1.61/0.74*
1 Large Engine, lbs/hr	11.27	25.08	1.351	0.048	0.193	0.193
DC1 Cooling Tower, lbs/hr	-	-	-	-	0.031	0.031
DC2 Annualized Construction Year Emissions (lbs/hr)	0.91	3.46	1.14	0.007	0.009/0.349	0.009/0.093
Total Estimated Emissions, lbs/hr (w/o cooling tower)	*12.18*	*28.54*	*2.50*	*0.055*	*0.202/0.349*	*0.202/0.093*

Notes:

1. See Table AQ4-3 for the emissions breakout analysis for DC2
2. Max hourly engine emissions are based on 1 large engine (readiness/maintenance testing) for 1 hour/day.
3. Max daily engine emissions are based on 8 large engines tested for 1 hour each per day.
4. Construction for 12 months at 22 days/month = 264 days. 8 hours/day.

Criteria Pollutant Impacts for Overlap Scenario

The same background ambient air quality levels and modeling techniques from the modeling analyses of project operating impacts were used in the construction analysis. The applicable background concentrations of NO_2, SO_2, CO, PM2.5, and PM10 from the operational modeling analyses used in the construction impact analysis are shown in the following table. As with the previous modeling assessment, the USEPA-approved model AERMOD was used to estimate ambient impacts from construction activities, consistent with the facility operational impact analyses and the AERMET meteorological preprocessor was used by BAAD to process the meteorological data from the San Jose (surface data) and Oakland Airport (upper air data).

The emission sources for the construction site were grouped into two categories: exhaust emissions and dust emissions. Combustion equipment exhaust emissions for the overlap analysis were modeled as 173-3.048-meter-high point sources (exhaust parameters of 750 Kelvins, 64.681 m/s exit velocity, and 0.1524-meter stack diameter) placed at regular 20-meter intervals around the construction area of the project. Construction fugitive dust emissions were modeled as an area source covering the construction area with an effective plume height of two (2) meters (6.6 feet). Combustion and fugitive emissions were assumed to occur for 10 hours/day (7 AM to 5 PM) consistent with the expected period of onsite construction activities generating both exhaust emissions and fugitive dust.

The construction impacts modeling analysis used the same receptor locations and meteorological data as used for the project operating impact analysis. Figure AQ4-2 presents the point source and area source locations as well as the locations of the emergency diesel generators next to the DC1 data center. The receptor locations and meteorological data used in this analysis were previously discussed.

Modeling Results

Based on the emission rates of the routine testing of the engines at DC1 plus the construction emissions for DC2 of NO_x, SO_2, CO, PM2.5, and PM10, the modeling options, receptor grids, and meteorological data, AERMOD calculated the short-term and annual ambient impacts for each pollutant. As mentioned above, the modeled 1-hour, 3-hour 8-hour, and 24-hour ambient impacts are based on the worst-case daily emission rates of NO_x, SO_2, CO, PM2.5, and PM10 spread over the estimated daily hours of operation. The annual impacts are based on the annual emission rates of these pollutants. The 1-hour and annual average concentrations of NO_2 were computed using ARM2 method with a NO_2/NO_x ratio of 0.5. Background concentrations were added to the modeled results.

The modeling analysis results are shown in Table 3.3-27 below, including the appropriate background levels and the resulting total ambient impacts. Modeled crossover impacts are expected to be below the most stringent state and Federal standards for all pollutants except PM10 and PM2.5, where the background already exceeds the standards.

For this overlap modeling, with the exception of the fugitive dust from the area source of activity, the emergency generators and cooling towers are less than the applicable annual PM2.5 SIL. While the fugitive dust (PM2.5) remains over the SIL, construction activities are temporary in nature. And as noted in the BAAQMD CEQA Guidelines, application of the fugitive dust control measures would reduce PM fugitive impacts to less than significant. Thus, the overlap modeling demonstrates that the project will not cause or contribute to exceedances of the annual PM2.5 CAAQS or NAAQS.

Table 3.3-27: Modeled Overlap (Construction + Operation) Concentrations and Ambient Air Quality Standards

Pollutant	Averaging Period	Maximum Concentration ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total ($\mu g/m^3$)	Ambient Air Quality Standards ($\mu g/m^3$)	
					CAAQS	NAAQS
Construction occurs for up to 10 hours/day (7AM-5PM)						
NO_2*	1-hour maximum (CAAQS)	121.03	111	232.03	339	-
	3-year average of 1-hour yearly 98th % (NAAQS)	2.76	80	82.76	-	188
	Annual maximum	1.7	17.8	19.5	57	100
CO	1-hour maximum	419.66	2175	2594.66	23,000	40,000
	8-hour maximum	300.84	1718	2018.84	10,000	10,000
SO_2	1-hour maximum (CAAQS)	0.81	93.4	94.21	655	-
	3-year average of 1-hour yearly 99th % (NAAQS)	0.02	5.2	5.22	-	196
	24-hour maximum	0.19	5	5.19	105	365

Table 3.3-27: Modeled Overlap (Construction + Operation) Concentrations and Ambient Air Quality Standards

Pollutant	Averaging Period	Maximum Concentration (µg/m³)	Background (µg/m³)	Total (µg/m³)	Ambient Air Quality Standards (µg/m³)	
					CAAQS	NAAQS
	Annual maximum	0.01	0.6	0.61	-	80
PM10	24-hour maximum (CAAQS)	1.8	134	135.8	50	-
	24-hour H6H (NAAQS)	1.6	41	42.6	-	150
	Annual maximum (CAAQS)	0.8	24.8	25.6	20	-
PM2.5	3-year average of 24-hour yearly 98th %	0.54	25.7	26.24	-	35
	Annual maximum (CAAQS)	0.22	10.1	10.32	12	-
	3-year average of annual concentrations (NAAQS)	0.20	9.1	9.30	-	9.0

*1-hour NO_2 impacts evaluated with Ambien Ratio Method #2 (ARM2), with the maximum hourly background added in separately. Annual NO_2 impacts evaluated with ARM2. Modeling utilized USEPA-default minimum/maximum NO_2/NOx ambient ratios of 0.5/0.9.
1 - Maximum 8th-highest max daily 1-hr results averaged over 5 years
2 - Maximum 4th-highest
3 - Maximum 8th-highest 24-hr results averaged over 5 years
4 - Maximum annual results averaged over 5 years

HRA Impacts for Overlap Scenario

An HRA was performed using the HARP Risk Assessment Standalone Tool (Version 22118). The HRA was performed for DPM only, as DPM is the accepted surrogate compound for whole diesel exhaust. The necessary output files from AERMOD were imported into HARP. Detailed descriptions of the risk assessment methods and support data are contained in the SPPE application document and are not repeated here. Assumptions used in the HRA analysis are as follows:

- The standard project receptor file was used. This file contained an extensive cartesian grid of receptors as well as the identified sensitive receptors included in the other project modeling analyses.
- The BAAD health tables were used (enabled in HARP)
- Two separate analyses were run as follows:
  a. Residential run, FAH=1, 2-year exposure period (see note below)
  b. Worker run, FAH=off, 2-year exposure period (see note below)
  Note: HARP does not allow fractions of years as exposure values, therefore a 2-year exposure period was used to represent the 18-month emissions overlap.
- The PMI, MEIR, MEIW, and MEIS values were derived from the HRA output files.

Table 3.3-21: NTBGF Overlap (Construction + Operation) Health Risk Assessment Summary

Location	Receptor #	UTM (meters)	Cancer Risk	Chronic HI	Acute HI	Cancer Burden
PMI	67	594394.54, 4137896.71	5.15E-06	0.00354	-	NA
MEIR	4008	593600.0,	1.95E-07	0.000134	-	NA

		4138500.0				
MEIS	3845	593450.0, 4138450.0	1.80E-07	0.000124	-	NA
MEIW	1819	594330.0, 4137940.0	1.49E-07	0.00164	-	NA
Notes: See acronym definitions above. The PMI noted above is located on the southeast fenceline. Testing hours for the overlap of construction and operation was set to 50 hours per engine/yr. DPM is the surrogate compound for construction equipment diesel exhaust. No acute REL has been established for DPM. DC2 construction period is 19.5 months (HRA used 2-year exposure period.) FAH=1 for all age groups from 3rd trimester to 16 years, for MEIR and MEIS. FAH not used for MEIW. * MEIS – Montague Elementary School						

CalEnviroScreen 4.0 Survey

Pursuant to recent amendments to BAAD Regulation 2 Rules 1 and 5 which address a lower risk threshold value for sources located in or within 1000 ft of an Overburdened Community (OBC) (an area with a percentile rating of greater than or equal to 70th percentile, the maximum allowed risk from such facilities is 6 x 10^{-6} in place of 10 x 10^{-6}). There is no change to the cumulative risk value threshold of 100-in-a-million. A review of the CalEnviroScreen maps (2/5/2025) indicates the following:

- The project site is situated in zone 6085505007, rated at the 39th percentile.
- The project site is surrounded by zones 6085505202, 6065505100, and 6085505006, all which are rated at less than the 70th percentile.
- The total population for the four (4) zones noted above is currently estimated to be approximately 26,692 individuals.
- The project site is situated approximately 1.7 miles from zone 6085504318 which is rated at the 80th percentile.

Based on the above, the project would not be subject to the lower risk threshold applicable to an OBC per Regulation 2 Rules 1 and 5, i.e., the distance from the project site to a known OBC is greater than 1000 ft.

Cumulative Impacts

BAAD's Role in Air Quality

The BAAD is the primary agency responsible for assuring that the National and California Ambient Air Quality Standards (NAAQS and CAAQS, respectively) are attained and maintained in the Bay Area. BAAD's jurisdiction includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo and Santa Clara counties, and the southern portions of Solano and Sonoma counties. The Air District's responsibilities in improving air quality in the region include: preparing plans for attaining and maintaining air quality standards; adopting and enforcing rules and regulations; issuing permits for stationary sources of air pollutants; inspecting stationary sources and responding to citizen complaints; monitoring air quality and meteorological conditions; awarding grants to reduce mobile emissions; implementing public outreach campaigns; and assisting local governments in addressing climate change.

Under the Small Power Plant Exemption process with the California Energy Commission (CEC), the BAAD acts as a Responsible Agency when it has limited discretionary authority over a portion of a project but does not have the primary discretionary authority of a Lead Agency. As a Responsible Agency, BAAD may coordinate the environmental review process with the lead agency regarding BAAD's permitting process, provide comments to the Lead Agency regarding potential impacts, and recommend mitigation measures.

Cumulative Thresholds of Significance

In accordance with BAAD CEQA Guidelines, a project impact would be considered significant if the project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

In May 2017, the BAAD updated the significance thresholds for agencies to use with environmental review of projects. These thresholds were designed to establish the level at which BAAD believed air pollutant emissions would cause significant impacts under CEQA.

A project would have a cumulative considerable impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius from the fence line of a source plus the contribution from the project, exceeds the following recommended significance thresholds in Table 1-1 below.

Table 3.3-25 Cumulative Significance Thresholds

Health Risks and Hazards for Sensitive Receptors (Cumulative from All Sources within 1,000-Foot Zone of Influence) and Cumulative Thresholds for New Sources	
Excess Cancer Risk	100 per 1 million
Chronic Hazard Index	10.0
Annual Average $PM_{2.5}$	0.8 µg/m^3
$PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less. Source: BAAD, 2018.	

Cumulative Impacts Assessment

Stationary and mobile cumulative source impacts were not assessed for the proposed project as the nearest sensitive receptor is 3,200 feet from the project fence line, well in excess of the 1,000 foot radius established by the BAAD for cumulative assessments. However, for summary purposes, cumulative risks from permitted stationary sources of TACs near the project site were identified using BAAD's *Stationary Source Risk and Hazard Analysis Tool*. This mapping tool uses Google Earth to identify the location of stationary sources and their estimated screening level cancer risk and hazard impacts. This tool identified thirteen (13) sources within 1,000 feet of the project boundaries and the distance adjusted impacts are summarized in Table 3.3-26. The BAAD Health Risk Calculator was utilized to adjust the BAAD provided risk, hazard and PM2.5 concentrations based on distance.

Table 3.3-26 Combined Source Listing (Post-BAAD Distance Adjustments)

Source	Maximum Cancer Risk (per million)	Hazard Index	PM2.5 concentration ($\mu g/m^3$)
17437 Lumileds LLC	15.3015	2.861	0.85487
18923 City of San Jose MWTP	0.1333	0	0
15271 Accurate Finishing	0	0	0
8611 Gilbert Spray Coat	0	0	0.00647
19141 SJC Fuel Company LLC	0.8172	0	0.0009
104171-1 ConocoPhillips	0.4119	0.0018	0
22513 Verizon Business	0.7595	0	0
201160 AutoMax Collision Inc	0	0	0
201418 Toshiba	0.544	0	0.0008
22797 Caliber Collision Center	0	0	0
201834 Harmonic Inc.	2.5265	0	0.0031
23091 Apple Inc.	0.1215	0	0
202171 TBUSA	5.5022	0.0022	0.0066
NTBGF	0.542	0.00015	0.04
Microsoft SJC04/06	0.233	0.00014	0.115
Combined Sources[1]	26.89	2.86	1.03
BAAD Threshold – Combined Sources	***100***	***10.0***	***0.8***
Based on actual distances to the sensitive receptors, the summarized impacts would be much smaller than the listed results. Note: [1]The combined source level is an overestimate because the maximum impact from each source is assumed to occur at the same location.			

The cumulative cancer and hazard index impacts are all less than the BAAD CEQA thresholds. For PM2.5, one facility, Lumileds LLC, is exceeding the cumulative concentration threshold by itself. All PM2.5 concentrations for the NTBGF at all sensitive receptors are well below the BAAD annual significance criteria of 0.3 ug/m^{3}and below the NAAQS significance level of 0.13 *u*g/m^3. Thus, regardless of the background cumulative PM2.5 impacts, the projects contributions will always be less than the BAAD CEQA significance levels and represent an insignificant impact.

Appendix AQ1

Emissions Calculations

Criteria and Toxic Pollutants

and GHG CO2e

Table AQ1-1 Emissions Estimates for Emergency Standby Generators

Use Area: Data Center Bldg (IT Power)

Engine Mfg: **CAT** | # of Units: 40 | Max # of Engines Tested per Day: 8 | # Redundant Engines: 8

Model #: **C175-16** | *(engines are not tested concurrently)* | Emer Ops Engines: 32

Fuel: ULSD

Engine Data

			BHP	kWe	Load %	RPM	Fuel, gph	Stk Ht, ft	Stk Diam, in	Stk Temp, F	mmbtu/hr	Stk Flow, ACFM	Stack Vel, f/s	*METRIC UNITs* Stk Diam, m	Stk Temp, Kelvins	Stk Vel, m/s	NOx lb/hr
Fuel S, %wt:	0.0015																
Fuel wt, lb/gal:	7.05		4376	3100	100	1800	209.01	25.33	28	860.4	28.63	25620.00	99.8584	0.7112	733.37	30.4368	11.268
Btu/gal:	137000		3282	2325	75	1800	160.40	25.33	28	833.4	21.97	20121	78.4251	0.7112	718.37	23.904	8.451
Lbs S/1000 gal:	0.10575		2188	1550	50	1800	124.09	25.33	28	826.2	17.00	17315	67.4882	0.7112	714.37	20.5704	5.634
Lbs SO2/1000 gal:	0.2115		1094	775	25	1800	71.39	25.33	28	793.8	9.78	11409	44.4685	0.7112	696.37	13.554	2.817
Default SO2 EF:	0.005	g/bhp-hr	438	310	10	1800	34.00	25.33	28	615.6	4.66	6901	26.8978	0.7112	597.37	8.1985	1.128

EPA Tier: 2

Control System: SCR + DPF to Meet T4

Turbocharged: Yes

Aftercooled: Yes

Stack Exit Area (sq.ft) = 4.276057

Emissions Factor Scenarios (all values in g/bhp-hr)

Scenarios	**NOx**	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**CO2e lb/mmbtu**
Emergency Ops, 100 hrs/yr, Tier 4 Controlled EFs, 100% Load	0.5	2.6	0.14	0.005	0.02	0.02	163.052
Maint/Readiness Testing, 50 hrs/yr, T2/T4 SU adjusted EFs, 100% Load	1.17	2.60	0.17	0.005	0.02	0.02	163.052
Weighted EF Input and Calculation Data							
0.167 hr Uncontrolled, Tier 2 Stds Efs, 100% Load, w/DPF	4.5	2.6	0.3				
0.833 hr Controlled, T4 Efs, 100% Load, w/DPF	0.5	2.6	0.14				

Diesel engine warm-up time is <= 10 minutes.

Controlled Emissions Factor Scenarios (all values in g/bhp-hr)

	NOx	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**CO2e lb/mmbtu**
Emergency Ops, 100 hrs/yr, Tier 4 Controlled EFs, 100% Load	0.500	2.6	0.14	0.005	0.02	0.02	163.052
Maint/Readiness Testing, 50 hrs/yr, T2/T4 SU adjusted EFs, 100% Load	1.17	2.6	0.14	0.005	0.02	0.02	163.052

Scenario 1: **Emergency Ops, 100 hrs/yr, Tier 4 Controlled EFs, 100% Load**

Redundant engines do NOT operate during emergency operations.

Max Hourly Runtime: 1

Max Daily Runtime: 24

Max Annual Runtime: 100

Single Engine

	NOx	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**CO2e**
lbs/hr	4.824	25.083	1.351	0.048	0.193	0.193	na
lbs/day	115.770	602.003	32.416	1.158	4.631	4.631	na
TPY	0.241	1.254	0.068	0.002	0.010	0.010	233.4

32 Engines

	NOx	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**CO2e**
lbs/hr	154.36	802.67	43.22	1.54	6.17	6.17	na
lbs/day	3704.63	19264.09	1037.30	37.05	148.19	148.19	na
TPY	7.72	40.13	2.16	0.08	0.31	0.31	7470.18

Scenario 2: **Maint/Readiness Testing, 50 hrs/yr, T2/T4 SU adjusted EFs, 100% Load**

Max Hourly Runtime: 1

Max Daily Runtime: 1

Max Annual Runtime: 50

Single Engine

	NOx	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**CO2e**
lbs/hr	11.268	25.083	1.351	0.048	0.193	0.193	na
lbs/day	11.268	25.083	1.351	0.048	0.193	0.193	na
TPY	0.282	0.627	0.034	0.001	0.005	0.005	116.7

8 Engines

	NOx	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**CO2e**
lbs/hr	11.268	25.083	1.351	0.048	0.193	0.193	na
lbs/day	90.146	200.668	10.805	0.386	1.544	1.544	na

All Engines

TPY	11.27	25.08	1.35	0.05	0.19	0.19	4668.86

BAAQMD 150 Hrs/Yr Emissions Totals, TPY:

NOx	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**CO2e**
18.986	65.217	3.512	0.125	0.502	0.502	12139.0

Table AQ1-2 Emissions Estimates for Emergency Standby Generators

Use Area: Data Center Bldg (Admin Power)

Engine Mfg:	**CAT**	# of Units:	2	Max # of Engines Tested per Day:	1	# Redundant Engines:	0
Model #:	**3512C**			*(engines are not tested concurrently)*		Emer Ops Engines:	2
Fuel:	ULSD						
Fuel S, %wt:	0.0015						
Fuel wt, lb/gal:	7.05						
Btu/gal:	137000						
Lbs S/1000 gal:	0.10575						
Lbs SO2/1000 gal:	0.2115						
Default SO2 EF:	0.005	g/bhp-hr					
EPA Tier:	2						
Control System:	SCR + DPF to Meet T4						
Turbocharged:	Yes						
Aftercooled:	Yes						

Engine Data

BHP	kWe	Load %	RPM	Fuel, gph	Stk Ht, ft	Stk Diam, in	Stk Temp, F	mmbtu/hr	Stk Flow, ACFM	Stack Vel, f/s	*METRIC UNITs* Stk Diam, m	Stk Temp, Kelvins	Stk Vel, m/s	NOx lb/hr
2400	1750	100	1800	109.4	22.5	16	820.4	14.99	12943.5	154.5017	0.4064	711.15	47.0921	6.180
1799	1200	75	1800	86.1	22.5	16	819.4	11.80	10575.9	126.2405	0.4064	710.59	38.4781	4.632
1237	800	50	1800	63.8	22.5	16	813.5	8.74	8410	100.3870	0.4064	707.32	30.598	3.185
1012	640	40	1800	54.6	22.5	16	805.6	7.48	7410.8	88.4599	0.4064	702.93	26.9626	2.606

Stack Exit Area (sq.ft) = 1.396263

Emissions Factor Scenarios (all values in g/bhp-hr)

Scenarios	NOx	CO	VOC	SO2	PM10	PM2.5	CO2e lb/mmbtu
Emergency Ops, 100 hrs/yr, Tier 4 Controlled EFs, 100% Load	0.5	2.6	0.14	0.005	0.02	0.02	163.052
Maint/Readiness Testing, 50 hrs/yr, T2/T4 SU Adjusted EFs, 100% Load	1.17	2.60	0.17	0.005	0.02	0.02	163.052
Weighted EF Input and Calculation Data							
0.167 hr Uncontrolled, Tier 2 Stds Efs, 100% Load, w/DPF	4.5	2.6	0.3				
0.833 hr Controlled, T4 Efs, 100% Load, w/DPF	0.5	2.6	0.14				

Diesel engine warm-up time is <= 10 minutes.

Controlled Emissions Factor Scenarios (all values in g/bhp-hr)

	NOx	CO	VOC	SO2	PM10	PM2.5	CO2e lb/mmbtu
Emergency Ops, 100 hrs/yr, Tier 4 Controlled EFs, 100% Load	0.500	2.600	0.140	0.005	0.020	0.020	163.052
Maint/Readiness Testing, 50 hrs/yr, T2/T4 SU Adjusted EFs, 100% Load	1.17	2.600	0.167	0.005	0.020	0.020	163.052

Scenario 1: **Emergency Ops, 100 hrs/yr, Tier 4 Controlled EFs, 100% Load**

Max Hourly Runtime: 1
Max Daily Runtime: 24
Max Annual Runtime: 100

Single Engine

	NOx	CO	VOC	SO2	PM10	PM2.5	CO2e
lbs/hr	2.646	13.757	0.741	0.026	0.106	0.106	na
lbs/day	63.493	330.166	17.778	0.635	2.540	2.540	na
TPY	0.132	0.688	0.037	0.001	0.005	0.005	122.2

All Engines

	NOx	CO	VOC	SO2	PM10	PM2.5	CO2e
lbs/hr	5.29	27.51	1.48	0.05	0.21	0.21	na
lbs/day	126.99	660.33	35.56	1.27	5.08	5.08	na
TPY	0.26	1.38	0.07	0.003	0.011	0.011	244.38

Scenario 2: **Maint/Readiness Testing, 50 hrs/yr, T2/T4 SU Adjusted EFs, 100% Load**

Max Hourly Runtime: 1
Max Daily Runtime: 1
Max Annual Runtime: 50

Single Engine

	NOx	CO	VOC	SO2	PM10	PM2.5	CO2e
lbs/hr	6.180	13.757	0.882	0.026	0.106	0.106	na
lbs/day	6.180	13.757	0.882	0.026	0.106	0.106	na
TPY	0.155	0.344	0.022	0.0007	0.003	0.003	61.1

1 Engine

	NOx	CO	VOC	SO2	PM10	PM2.5	CO2e
lbs/hr	6.180	13.757	0.882	0.026	0.106	0.106	na
lbs/day	6.180	13.757	0.882	0.026	0.106	0.106	na

All Engines

	NOx	CO	VOC	SO2	PM10	PM2.5	CO2e
TPY	0.31	0.69	0.04	0.001	0.005	0.005	122.19

BAAQMD 150 Hrs/Yr Emissions Totals, TPY:

NOx	CO	VOC	SO2	PM10	PM2.5	CO2e
0.574	2.064	0.118	0.004	0.016	0.016	366.6

Table AQ1-3 Fixed Roof Tank Emissions Estimates (Large Tanks)

Ref: AP-42, Section 7.1, 11/2006

			indicates input	
Standing Storage Losses			***Comments***	**Note**
Type of organic liquid:	#2 ULS Diesel		40 Tanks (1 per engine)	
Vapor molecular weight:	Mw	130	AP-42	
Vapor density, lbs/ft3:	Vd	0.00015243		
Liquid density, lbs/gal	Dl	7.05	AP-42	
TVP, psia @ 60F	Vp	0.0065	AP-42 (consistent with Ta below)	
~ Tank diameter, ft.	D	8	equivalent horizontal tank dimensions	
~ Tank height or length, ft.	H	16	equivalent horizontal tank dimensions	
~ Tank capacity, gals	Tc	6000		
Avg vapor space height, ft.	Hv	4	annual avg value based on use versus tank refills	
Vapor space volume, ft3	Vv	201.06		
~Total tank volume, ft3	Tv	802	Based on equivalent tank dimensions	
Avg Annual Temp, F	Ta	56.6	API Bulletin 2517, for SFO region	
Avg diurnal temp change, F	Tc	13.1	Avg max minus avg min.	
Paint factor	Pf	0.17	AP-42, Table 7.1-6, solar absorbance value	1
Product factor	Pd	1	Crude = 0.75, all others = 1	
Turnover factor	Kn	1	If turnover <36/year, the factor = 1. If >36 then calculate Kn. Per AP-42.	
Annual throughput, gals/yr	At	10500	per Tank (at 50 hrs/yr at 100% load)	
Vapor space expansion factor	Ke	0.04	AP-42, default value	
Vapor saturation factor	Ks	0.9986		
# of similar tanks		40	1 tank per engine	2
Standing Loss	**Ls**	**0.45**	**lbs/yr (breathing and standing losses)**	
Working Losses				
Vapor molecular weight:	Mw	130		
Vapor pressure, psia @ 70F	Vp	0.0065		
Throughput, bbl/yr	Q	250.0		
Turnover factor	Kn	1		
Working loss product factor	Kp	1		
Working Loss	**Lw**	**0.21**	**lbs/yr (tank filling and withdrawal losses)**	
	Ls+Lw	**0.66**		
Engineering Uncertainty Factor		1.2		
Uncontrolled Total Tank Losses		**0.79**	**lbs/yr each tank**	
		31.59	**lbs/yr all tanks**	
Control System ?	No	0	control fraction	
System type, etc.	NA, no controls are required on #2 fuel oil storage tanks or delivery systems			3
Controlled Total Tank Losses		**0.79**	**lbs/yr each tank**	
		31.59	**lbs/yr all tanks**	
		0.016	**TPY all tanks**	

Note 1 - paint factor for new tanks located above ground.

Note 2 - thruput based on max hourly fuel consumption for M&R Testing only.

Note 3 - these tanks are exempt from SCAQMD permits.

Air Toxics Emissions - Source: SJVUAPCD AB2588 Air Toxics Profiles (Profile 23 Diesel Fuel Storage)

Toxic Pollutant	EF, lb/lb VOC	Emissions, lbs/yr (all tanks)	lbs/hr
Benzene	0.00088	0.0278	3.17323E-06
Toluene	0.00482	0.1523	1.73806E-05
Xylenes	0.0042	0.1327	1.5145E-05

Table AQ1-4 Fixed Roof Tank Emissions Estimates (Small Tanks)

Ref: AP-42, Section 7.1, 11/2006 and 6/2020.

			indicates input	
Standing Storage Losses			***Comments***	**Note**
Type of organic liquid:	#2 ULS Diesel		2-4000 gal Admin Tanks	
Vapor molecular weight:	Mw	130	AP-42	
Vapor density, lbs/ft3:	Vd	0.00015243		
Liquid density, lbs/gal	Dl	7.05	AP-42	
TVP, psia @ 60F	Vp	0.0065	AP-42 (consistent with Ta below)	
~ Tank diameter, ft.	D	8	equivalent horizontal tank dimensions	
~ Tank height or length, ft.	H	8	equivalent horizontal tank dimensions	
~ Tank capacity, gals	Tc	3000		
Avg vapor space height, ft.	Hv	3	annual avg value based on use versus tank refills	
Vapor space volume, ft3	Vv	150.80		
Total tank volume, ft3	Tv	401	Based on equivalent tank dimensions	
Avg Annual Temp, F	Ta	56.6	API Bulletin 2517 for LA area	
Avg diurnal temp change, F	Tc	13.1	Avg max minus avg min.	
Paint factor	Pf	0.17	AP-42, Table 7.1-6, solar absorbance value	1
Product factor	Pd	1	Crude = 0.75, all others = 1	
Turnover factor	Kn	1	If turnover <36/year, the factor = 1. If >36 then calculate Kn. Per AP-42.	
Annual throughput, gals/yr	At	5500	per Tank (at 50 hrs/yr at 100% load)	
Vapor space expansion factor	Ke	0.04	AP-42, default value	
Vapor saturation factor	Ks	0.9990		
# of similar tanks		2	1 tank per Admin Bldg	2
Standing Loss	**Ls**	**0.34**	**lbs/yr (breathing and standing losses)**	
Working Losses				
Vapor molecular weight:	Mw	130		
Vapor pressure, psia @ 70F	Vp	0.0065		
Throughput, bbl/yr	Q	131.0		
Turnover factor	Kn	1		
Working loss product factor	Kp	1		
Working Loss	**Lw**	**0.11**	**lbs/yr (tank filling and withdrawal losses)**	
	Ls+Lw	**0.45**		
Engineering Uncertainty Factor		1.2		
Uncontrolled Total Tank Losses		**0.54**	**lbs/yr each tank**	
		1.07	**lbs/yr all tanks**	
Control System ?	No	0	control fraction	
System type, etc.	NA, no controls are required on #2 fuel oil storage tanks or delivery systems			3
Controlled Total Tank Losses		**0.54**	**lbs/yr each tank**	
		1.07	**lbs/yr all tanks**	
		5.351E-04	**TPY all tanks**	

Note 1 - paint factor for new tanks located above ground

Note 2 - thruput based on max hourly fuel consumption for M&R Testing only.

Note 3 - these tanks are exempt from SCAQMD permits.

Air Toxics Emissions - Source: SJVUAPCD AB2588 Air Toxics Profiles (Profile 23 Diesel Fuel Storage)

Toxic Pollutant	**EF, lb/lb VOC**	**Emissions, lbs/yr (all tanks)**	**Emissions, TPY**	**lbs/hr**
Benzene	0.00088	0.0009	4.70866E-06	1.08E-07
Toluene	0.00482	0.0052	2.57906E-05	5.89E-07
Xylenes	0.0042	0.0045	2.24731E-05	5.13E-07

Table AQ1-5 Refrigerant Use Emissions Estimation

Parameter	*Value*	*Comments*
Site ID:	NTDC	
System ID:	Addison	PRAK150
Data Sources:	Mfg	
Refrigerant ID:	R-454B	
System Charge, lbs:	41	
# of Similar Systems:	1	
Total Charge, lbs:	41	
Est/Known Leak Rate:	5	% wt/year
	0.05	leak rate fraction
Annual Emissions, Lbs:	2.05	Based on Leak Rate
Annual Emissions, tons:	0.00103	Based on Leak Rate
GWP Value:	466	
CO2e, tons/yr:	0.478	
CO2e Mtons/yr:	0.433	

Parameter	*Value*	*Comments*
Site ID:	NTDC	
System ID:	Addison	PRAK720
Data Sources:	Mfg	
Refrigerant ID:	R-454B	
System Charge, lbs:	144	
# of Similar Systems:	1	
Total Charge, lbs:	144	
Est/Known Leak Rate:	5	% wt/year
	0.05	leak rate fraction
Annual Emissions, Lbs:	7.2	Based on Leak Rate
Annual Emissions, tons:	0.00360	Based on Leak Rate
GWP Value:	466	
CO2e, tons/yr:	1.678	
CO2e Mtons/yr:	1.522	

Parameter	*Value*	*Comments*
Site ID:	NTDC	
System ID:	SMARDT	WE.600.6K
Data Sources:	Mfg	
Refrigerant ID:	R-1234ze	
System Charge, lbs:	3503	
# of Similar Systems:	10	
Total Charge, lbs:	35030	
Est/Known Leak Rate:	5	% wt/year
	0.05	leak rate fraction
Annual Emissions, Lbs:	1751.5	Based on Leak Rate
Annual Emissions, tons:	0.87575	Based on Leak Rate
GWP Value:	1	
CO2e, tons/yr:	0.876	
CO2e Mtons/yr:	0.794	

Parameter	*Value*	*Comments*
Site ID:	NTDC	
System ID:	SMARDT	WE.100.2H
Data Sources:	Mfg	
Refrigerant ID:	R-1234ze	
System Charge, lbs:	708	
# of Similar Systems:	4	
Total Charge, lbs:	2832	
Est/Known Leak Rate:	5	% wt/year
	0.05	leak rate fraction
Annual Emissions, Lbs:	141.6	Based on Leak Rate
Annual Emissions, tons:	0.07080	Based on Leak Rate
GWP Value:	1	
CO2e, tons/yr:	0.071	
CO2e Mtons/yr:	0.064	

Parameter	*Value*	*Comments*
Site ID:	NTDC	
System ID:	Daikin	REYQ264XBYDA
Data Sources:	Mfg	
Refrigerant ID:	R-32	
System Charge, lbs:	129.63	
# of Similar Systems:	2	
Total Charge, lbs:	259.26	
Est/Known Leak Rate:	5	% wt/year
	0.05	leak rate fraction
Annual Emissions, Lbs:	12.963	Based on Leak Rate
Annual Emissions, tons:	0.00648	Based on Leak Rate
GWP Value:	675	
CO2e, tons/yr:	4.375	
CO2e Mtons/yr:	3.968	

Parameter	*Value*	*Comments*
Site ID:	NTDC	
System ID:	Daikin	REYQ312XBYDA
Data Sources:	Mfg	
Refrigerant ID:	R-32	
System Charge, lbs:	129.63	
# of Similar Systems:	2	
Total Charge, lbs:	259.26	
Est/Known Leak Rate:	5	% wt/year
	0.05	leak rate fraction
Annual Emissions, Lbs:	12.963	Based on Leak Rate
Annual Emissions, tons:	0.00648	Based on Leak Rate
GWP Value:	675	
CO2e, tons/yr:	4.375	
CO2e Mtons/yr:	3.968	
Total CO2e tons/Yr:	*11.852*	
Total CO2e Mtons/Yr:	10.750	

Table AQ1-6 Cooling Towers-Wet Surface Condensers PM10/PM2.5 Based on Makeup Water TDS and Cycles of Concentration

Scenario or Project ID:	NorthTown DC (Marley CCCTs)				
Water Source:	Reclaimed Water		**Tower Physical Data (optional)**		
# of Identical Towers:	36	18 per bldg	# of Fans:	108	1 per cell
# of Cells in each Tower:	3			Individual Cell/Fan Data	
Operational Schedule: Hrs/day	24		Fan ACFM:	61400	
Days/Year	365		Fan Diam (ft):	5.50	1.6764 m
Hrs/Year	8760		Exit Vel (ft/sec)	43.07	13.128 m/s
Total tower circulation rate, gpm:	1396.0	Marley Pump flow	Exit Temp, F		
Flow of cooling water (lbs/hr)	698055.8			Individual Tower Data	
TDS in Makeup Water: (mg/l or ppmw)	77.0		Length (ft)	18 ft	5.49 m
Cycles of Concentration:	4.0		Width (ft)	12 ft	3.66 m
Avg TDS of circ water (mg/l or ppmw)	308.0	annual avg value	Deck Ht (ft)	22.25 ft	6.78 m
Flow of dissolved solids (lbs/hr)	215.00		Fan Ht (ft)	22.25 ft	6.78 m
Fraction of flow producing drift*	1.00	1= worst case			
Control efficiency of drift eliminators, %	0.0008	0.000008			
Calculated drift rate (lbs water/hr)		5.584	134.0	Calc lbs/day	

	Per Tower	Per Cell	All Towers
PM10 emissions (lbs/hr)	**0.0017**	**0.0006**	**0.0619**
PM10 emissions (lbs/day)	**0.0413**	**0.0138**	**1.4861**
PM10 emissions (tpy)	**0.0075**	**0.0025**	**0.2712**
PM2.5 fraction of PM10	1.00	1= worst case	
PM2.5 emissions (lbs/hr)	**0.0017**	**0.0006**	**0.0619**
PM2.5 emissions (lbs/day)	**0.0413**	**0.0138**	**1.4861**
PM2.5 emissions (tpy)	**0.0075**	**0.0025**	**0.2712**

Notes:
Based on Method AP 42, Section 13.4, Jan 1995
*Technical Report EPA-600-7-79-251a, Page 63
Effects of Pathogenic and Toxic Materials Transported Via Cooling Device Drift - Volume 1.
CYCLES OF CONCENTRATION-in laymans terms, the TDS in the blowdown or circulating water divided by the TDS in the incoming makeup water yields the cycles of concentration.
Reclaim water analysis: North San Jose-Alviso Treated Water Report 2023. Avg TDS = 77 ppm, annual range is ND-153 ppm.

Table AQ1-8

Recycled Water Quality Information for the San Jose/Santa Clara Water Pollution Control Plant (TPS Only) 2024

Water Quality Parameter	Yearly Average	Standard Deviation	Minimum Level	Maximum Level	Jan-Feb Average	Mar-Apr Average	May-Jun Average	Jul-Aug Average	Sep-Oct Average	Nov-Dec Average	Sample Frequency
General Parameters											
Alkalinity (Total as CaCO3), mg/L	161	16.1	129	244	178	161	142	141	129	153	Weekly
Ammonia (as Nitrogen), mg/L	2.0	0	1.7	2.2	2.0	NA	NA	1.7	1.4	1.8	Monthly
Bicarbonate (HCO3), mg/L	161	16.1	129	244	178	161	142	141	129	153	Weekly
Biological Oxygen Demand, mg/L	1.3	0.3	0	2.5	1.6	1.3	1.1	1.6	1.3	1.4	Weekly
Conductivity, umhos/cm @ 25C	887	47	830	1,390	940	869	850	901	866	981	Weekly
Hardness (as CaCO3), mg/L	195	18.6	161	316	212	196	175	175	166	194	Weekly
Nitrate (as Nitrogen), mg/L	7.7	1.2	6.6	10.5	8.9	6.6	7.7	7.6	8.6	11.0	Monthly
Nitrite (as Nitrogen), mg/L	0.04	0.01	0.02	0.06	0.05	0.03	0.03	0.04	0.05	0.03	Monthly
Permeability SAR [calculated]	3.3	0.2	2.8	3.6	3.2	3.1	3.2	3.6	2.8	3.7	Monthly
pH (units)	7.7	0.1	7.5	7.8	7.5	7.5	7.5	7.5	7.6	7.5	Daily
Temperature, degrees Fahrenheit	69.2	3.6	63	77.2	66.3	68	73.2	76.5	76	69	Daily
Total Coliform Count, MPN/100ml	<8	NA	<1	990	<3	<17	<4	<1	<1	15.9	Daily
Total Dissolved Solids, mg/L	520	46	462	828	572	494	490	516	493	548	Weekly
Total Residual Chlorine, mg/L	5.7	0.4	4.5	8.5	6.1	5.5	5.4	5.6	5.1	5.9	Daily
Total Suspended Solids, mg/L	<1.0	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1	Weekly
Turbidity, NTU	0.4	0.1	0.2	0.7	0.5	0.3	0.3	0.4	0.4	0.5	Daily
Chemical Parameters											
Arsenic (As), ug/L	0.4	0.1	0.3	0.6	0.5	0.3	0.3	0.3	0.3	0.4	Monthly
Boron (B), ug/L	376	20.1	340	456	399	371	360	348	330	290	Monthly
Cadmium (Cd), ug/L	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Monthly
Calcium (Ca), ug/L	38,500	9,120	31,100	65,000	49,000	34,300	32,300	33,700	35,400	40,300	Monthly
Chloride (Cl), ug/L	133,000	14,400	97,500	201,000	149,000	124,000	124,000	142,000	140,000	168,000	Monthly
Total Chromium (Cr), ug/L	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	Monthly
Copper (Cu), ug/L	1.2	0.3	0.7	1.7	1.2	1.5	0.9	0.7	0.8	1.0	Monthly
Iron (Fe), ug/L	<100	NA	<100	<100	<100	<100	<100	<100	<100	<100	Monthly
Lead (Pb), ug/L	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Monthly
Magnesium (Mg), ug/L	27,300	6,630	21,700	47,400	34,800	24,700	22,300	21,400	22,500	25,800	Monthly
Mercury (Hg), ug/L	<0.0007	NA	<0.0005	0.0009	0.0007	0.0008	<0.0006	<0.0006	<0.0006	<0.0005	Monthly
Nickel (Ni), ug/L	2.2	0.4	1.8	3.5	2.7	1.9	2.0	1.9	2.0	2.5	Monthly
Phosphate (PO4), ug/L	1,350	599	708	2,390	1,980	1,270	790	720	1092	877	Monthly
Potassium (K), ug/L	9,990	1,400	8,300	13,100	11,500	8,730	9,780	10,800	12,250	13,200	Monthly
Silicon (Si), ug/L	6,990	887	5,860	9,700	8,020	6,450	6,520	7,080	7,550	8,370	Monthly
Silver (Ag), ug/L	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Monthly
Sodium (Na), ug/L	105,000	12,200	96,000	140,000	119,000	98,000	97,800	113,500	116,500	120,000	Monthly
Sulfate (SO4), ug/L	71,700	9,640	41,600	124,000	82,800	66,300	65,900	72,900	64,650	76,200	Monthly
Zinc (Zn), ug/L	13.3	2.4	9.8	21.5	15.8	13	11	12.2	14.6	17.2	Monthly
Other											
Dissolved Oxygen, mg/L	8.0	0.1	7.1	8.7	8.1	8.1	8.0	7.8	7.7	7.8	Daily
Ortho Phosphate, mg/L	0.8	0.4	0.2	3.3	1.4	0.7	0.6	0.8	0.8	0.4	Weekly

NA = Not Available
MPN = Most Probable Number
SAR = [Na+] /sqrt(([Ca++]+[Mg++])/2)

NTU = Nephelometric Turbidity Units (measure of the suspended material in water) mg/L = Milligrams per Liter (parts per million)
ug/L = Micrograms per Liter (parts per billion)

Table AQ1-7 Cooling Tower HAPs Emissions Estimates

Calculation of Hazardous and Toxic Pollutant Emissions from Cooling Towers

Scenario: NorthTown DC

Reclaimed Water from San Jose Municipal Water System

Total GPM Recirc Rate thru Cooling Unit:	1.40E+03	Op Hrs/Day	24
Drift Rate, lbs/water/hr:	6.98E+05	Op Hrs/Yr:	8760
Drift Rate, %:	8.00E-04		

Total Cooling Units:	36	***Max Drift Rate:	5.584E+00 lbs/hr
Cells per Unit:	3		
Conc Cycles:	4		

Constituent	Conc in Cooling Tower Recirc Water		Total All Units Emissions, lb/hr	Total All Units Emissions, lb/day	Total All Units Emissions, lbs/yr	Single Unit Emissions, lb/hr	Single Unit Emissions, lb/day	Single Unit Emissions, lb/yr	Merged Stack HRA Modeling Emissions Emissions, lb/yr	Merged Stack HRA Modeling Emissions Emissions, lb/hr
Arsenic *	0	ppm	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Boron	0.043	ppm	9.61E-07	2.31E-05	8.41E-03	2.67E-08	6.40E-07	2.34E-04	4.67E-04	5.34E-08
Cadmium *	0	ppm	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Calcium	13	ppm	2.90E-04	6.97E-03	2.54E+00	8.07E-06	1.94E-04	7.07E-02	1.41E-01	1.61E-05
Chloride	5	ppm	1.12E-04	2.68E-03	9.78E-01	3.10E-06	7.45E-05	2.72E-02	5.44E-02	6.20E-06
Total Chromium *	0	ppm	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Copper *	0	ppm	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Iron	0.02	ppm	4.47E-07	1.07E-05	3.91E-03	1.24E-08	2.98E-07	1.09E-04	2.17E-04	2.48E-08
Lead *	0	ppm	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Magnesium	4.3	ppm	9.61E-05	2.31E-03	8.41E-01	2.67E-06	6.40E-05	2.34E-02	4.67E-02	5.34E-06
Mercury *	0	ppm	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nickel *	0	ppm	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Barium	0.1	ppm	2.23E-06	5.36E-05	1.96E-02	6.20E-08	1.49E-06	5.44E-04	1.09E-03	1.24E-07
Potassium	1	ppm	2.23E-05	5.36E-04	1.96E-01	6.20E-07	1.49E-05	5.44E-03	1.09E-02	1.24E-06
Silicon (as silica)	7	ppm	1.56E-04	3.75E-03	1.37E+00	4.34E-06	1.04E-04	3.80E-02	7.61E-02	8.69E-06
Silver	0	ppm	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vanadiun	0	ppm	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
			Total Federal HAPs, lbs/yr:		0.00E+00					
			Total Federal HAPs, tons/yr:		0.00E+00					

Notes:

(1) 2023 Annual reclaimed incoming water analysis data.
(2) mg/l = ppm
(3) ug/l = ppb (convert ppb to equivalent ppm for entry: ppm=ppb/1000)
* indicates a Federal HAP

Table AQ1-9 SF6 Emissions Estimate for Site Electrical Breakers

Site ID	# breakers	lbs/SF6 breaker	lbs/SF6 on site	leak rate	annual loss, lbs/yr	GWP factor	CO2e, Lbs lbs/yr	CO2e short tons/yr	CO2e metric tons/yr
NTDC	5	130	650	0.005	3.25	23900	77675	38.8	35.2
	0	0	0	0	0	0	0	0.0	0.0
	0	0	0	0	0	0	0	0.0	0.0
	0	0	0	0	0	0	0	0.0	0.0
	0	0	0	0	0	0	0	0.0	0.0
	0	0	0	0	0	0	0	0.0	0.0
	0	0	0	0	0	0	0	0.0	0.0

Assumed leak rate is 0.5%, which represents BACT
All data supplied by Applicant.

Table AQ1-10   Ammonia Slip PPM to Lbs/Hr Calculation (for Turbines and IC Engine

Engine ID:	**CAT 175-16**				
Load Case, %:	100				
ACFM to DSCFM					
Stack ACFM	25620		CF		
Stack Temp, F	860.4		0.401394		
Stack % H2O	8.9	0.0890	0.9110		
DSCFM	**9368.5**				
				STP, F	**ft3/lb-mol**
PPM to Lb/Hr Conversion				32	359.05
DSCFM:	9,368.5			60	370.46
Stk % O2:	9.6	known or predicted		68	385.40
%O2 CF:	0.522			70	386.76
Ft^3/lb-mol @ STP:	386.76	= factor:	3.87E+08		
			NH3		
Mol Wt.:			17.01		
ppm @ 15% O2:	BACT Limit		10		
ppm @ stk % O2:			19.2		
Calculated Emissions at			**NH3**		
Stack %O2, lbs/hr:			**0.47**		

%O2 and %H2O from CAT Performance Data Sheet.

Engine ID:	**CAT 3512C**				
Load Case, %:	100				
ACFM to DSCFM					
Stack ACFM	12943.5		CF		
Stack Temp, F	820.4		0.413933		
Stack % H2O	8	0.0800	0.9200		
DSCFM	**4929.1**				
				STP, F	**ft3/lb-mol**
PPM to Lb/Hr Conversion				32	359.05
DSCFM:	4,929.1			60	370.46
Stk % O2:	10	known or predicted		68	385.40
%O2 CF:	0.541			70	386.76
Ft^3/lb-mol @ STP:	386.76	= factor:	3.87E+08		
			NH3		
Mol Wt.:			17.01		
ppm @ 15% O2:	BACT Limit		10		
ppm @ stk % O2:			18.5		
Calculated Emissions at			**NH3**		
Stack %O2, lbs/hr:			**0.24**		

%O2 and %H2O from CAT Performance Data Sheet.

Appendix AQ2

Engine and Control System Specifications

Building Cooling Systems Specifications

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	100 HZ	125 HZ	160 HZ	200 HZ	250 HZ	315 HZ	400 HZ	500 HZ	630 HZ	800 HZ
1,500.0	50	2,305	128.2	116.3	118.1	105.8	107.8	108.7	110.6	112.6	113.4	111.2	112.2
1,200.0	40	1,882	127.0	117.9	118.6	104.1	106.1	107.3	108.9	111.2	111.8	109.5	110.3
900.0	30	1,458	125.7	119.5	119.1	102.3	104.4	105.9	107.3	109.8	110.1	107.7	108.5
750.0	25	1,246	125.1	120.2	119.3	101.4	103.6	105.2	106.4	109.1	109.3	106.8	107.6
600.0	20	1,035	124.4	121.0	119.6	100.6	102.8	104.5	105.6	108.4	108.4	105.9	106.7
300.0	10	611	123.2	122.6	120.0	98.8	101.1	103.0	103.9	106.9	106.8	104.2	104.8

EXHAUST: Sound Power (1/3 Octave Frequencies)

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	1250 HZ	1600 HZ	2000 HZ	2500 HZ	3150 HZ	4000 HZ	5000 HZ	6300 HZ	8000 HZ	10000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
3,000.0	100	4,423	122.2	122.6	123.5	124.9	124.7	123.1	122.4	121.6	120.1	119.0	123.4
2,700.0	90	3,999	120.7	121.0	122.2	123.5	123.2	121.5	120.8	120.0	118.7	117.8	123.8
2,400.0	80	3,576	119.4	119.7	120.8	122.5	121.9	120.4	119.8	119.0	117.7	117.1	123.5
2,250.0	75	3,364	118.8	119.1	120.1	122.0	121.3	119.9	119.4	118.6	117.2	116.8	123.3
2,100.0	70	3,152	118.1	118.5	119.4	121.5	120.6	119.3	119.0	118.2	116.7	116.5	123.1
1,800.0	60	2,729	116.9	117.3	118.0	120.4	119.4	118.3	118.1	117.3	115.6	115.9	122.6
1,500.0	50	2,305	115.6	116.2	116.6	119.4	118.1	117.3	117.2	116.4	114.6	115.3	122.1
1,200.0	40	1,882	114.3	115.0	115.1	118.4	116.8	116.3	116.4	115.6	113.6	114.7	121.6
900.0	30	1,458	113.1	113.8	113.7	117.4	115.6	115.3	115.5	114.7	112.6	114.1	121.1
750.0	25	1,246	112.4	113.2	113.0	116.9	114.9	114.8	115.1	114.3	112.1	113.8	120.9
600.0	20	1,035	111.8	112.6	112.3	116.4	114.3	114.2	114.7	113.9	111.6	113.5	120.7
300.0	10	611	110.5	111.4	110.9	115.4	113.0	113.2	113.8	113.0	110.6	112.9	120.2

MECHANICAL: Sound Power (1/3 Octave Frequencies)

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	100 HZ	125 HZ	160 HZ	200 HZ	250 HZ	315 HZ	400 HZ	500 HZ	630 HZ	800 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
3,000.0	100	4,423	125.9	89.8	105.6	98.4	100.6	104.5	108.3	111.6	113.3	112.5	114.1
2,700.0	90	3,999	125.8	89.4	105.5	97.9	100.9	103.3	108.7	111.1	112.7	112.2	113.8
2,400.0	80	3,576	126.0	89.0	105.0	97.8	99.8	102.4	108.0	111.0	111.8	111.9	113.0
2,250.0	75	3,364	126.1	88.8	104.7	97.8	99.1	102.1	107.5	111.0	111.3	111.7	112.6
2,100.0	70	3,152	126.2	88.5	104.3	97.8	98.4	101.7	107.0	111.0	110.8	111.6	112.2
1,800.0	60	2,729	126.5	88.1	103.7	97.8	96.9	100.9	106.0	111.0	109.8	111.2	111.4
1,500.0	50	2,305	126.7	87.7	103.0	97.8	95.4	100.2	105.1	111.0	108.8	110.9	110.5
1,200.0	40	1,882	127.0	87.3	102.4	97.7	94.0	99.4	104.1	110.9	107.8	110.6	109.7
900.0	30	1,458	127.2	86.9	101.7	97.7	92.5	98.6	103.1	110.9	106.8	110.2	108.9
750.0	25	1,246	127.3	86.7	101.4	97.7	91.8	98.2	102.6	110.9	106.3	110.1	108.5
600.0	20	1,035	127.4	86.4	101.0	97.7	91.0	97.9	102.1	110.9	105.8	109.9	108.1
300.0	10	611	127.7	86.0	100.4	97.7	89.6	97.1	101.2	110.9	104.8	109.6	107.2

MECHANICAL: Sound Power (1/3 Octave Frequencies)

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	1250 HZ	1600 HZ	2000 HZ	2500 HZ	3150 HZ	4000 HZ	5000 HZ	6300 HZ	8000 HZ	10000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
3,000.0	100	4,423	112.7	113.9	114.6	115.3	115.0	112.7	110.9	111.9	114.3	113.4	117.8
2,700.0	90	3,999	112.5	113.7	114.5	115.0	114.5	112.3	110.4	111.1	113.6	112.9	119.2
2,400.0	80	3,576	112.2	113.2	113.8	114.4	114.2	111.9	110.0	110.7	113.2	112.6	121.4
2,250.0	75	3,364	112.0	112.9	113.4	114.0	114.2	111.7	109.8	110.5	112.9	112.6	122.6
2,100.0	70	3,152	111.8	112.6	113.0	113.7	114.1	111.4	109.6	110.3	112.7	112.5	123.8
1,800.0	60	2,729	111.3	112.1	112.2	113.1	113.9	111.0	109.3	110.0	112.3	112.3	126.2
1,500.0	50	2,305	110.9	111.5	111.4	112.4	113.7	110.6	109.0	109.6	111.9	112.1	128.6
1,200.0	40	1,882	110.5	110.9	110.5	111.7	113.5	110.2	108.6	109.3	111.5	111.9	131.0
900.0	30	1,458	110.1	110.3	109.7	111.1	113.4	109.8	108.3	109.0	111.0	111.8	133.4
750.0	25	1,246	109.9	110.0	109.3	110.7	113.3	109.6	108.1	108.8	110.8	111.7	134.6
600.0	20	1,035	109.7	109.7	108.9	110.4	113.2	109.3	107.9	108.6	110.6	111.6	135.8
300.0	10	611	109.3	109.2	108.1	109.7	113.0	108.9	107.6	108.3	110.2	111.4	138.2

Emissions Data Top

Units Filter All Units

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN		EKW	3,000.0	2,250.0	1,500.0	750.0	300.0
ENGINE POWER		BHP	4,423	3,364	2,305	1,246	611
PERCENT LOAD		%	100	75	50	25	10
TOTAL NOX (AS NO2)		G/HR	32,120	21,539	9,430	3,810	3,351
TOTAL CO		G/HR	2,658	3,451	1,789	1,814	1,830
TOTAL HC		G/HR	245	185	358	385	347
PART MATTER		G/HR	160.9	170.2	122.6	134.5	129.4
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	3,723.8	3,345.5	1,874.3	1,261.1	2,241.5
TOTAL CO	(CORR 5% O2)	MG/NM3	268.6	462.8	302.2	502.2	1,002.8
TOTAL HC	(CORR 5% O2)	MG/NM3	20.9	21.5	53.3	95.7	161.8
PART MATTER	(CORR 5% O2)	MG/NM3	14.0	19.8	18.4	33.9	64.3
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,814	1,630	913	614	1,092
TOTAL CO	(CORR 5% O2)	PPM	215	370	242	402	802
TOTAL HC	(CORR 5% O2)	PPM	39	40	100	179	302
TOTAL NOX (AS NO2)		G/HP-HR	7.29	6.42	4.09	3.05	5.47
TOTAL CO		G/HP-HR	0.60	1.03	0.78	1.45	2.99
TOTAL HC		G/HP-HR	0.06	0.06	0.16	0.31	0.57
PART MATTER		G/HP-HR	0.04	0.05	0.05	0.11	0.21
TOTAL NOX (AS NO2)		LB/HR	70.81	47.49	20.79	8.40	7.39
TOTAL CO		LB/HR	5.86	7.61	3.94	4.00	4.03
TOTAL HC		LB/HR	0.54	0.41	0.79	0.85	0.76
PART MATTER		LB/HR	0.35	0.38	0.27	0.30	0.29

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN		EKW	3,000.0	2,250.0	1,500.0	750.0	300.0
ENGINE POWER		BHP	4,423	3,364	2,305	1,246	611
PERCENT LOAD		%	100	75	50	25	10
TOTAL NOX (AS NO2)		G/HR	26,766	17,949	7,858	3,175	2,792
TOTAL CO		G/HR	1,477	1,917	994	1,008	1,017
TOTAL HC		G/HR	184	139	269	289	261
TOTAL CO2		KG/HR	2,236	1,651	1,287	779	428
PART MATTER		G/HR	115.0	121.5	87.6	96.1	92.4
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	3,103.2	2,787.9	1,561.9	1,050.9	1,867.9
TOTAL CO	(CORR 5% O2)	MG/NM3	149.2	257.1	167.9	279.0	557.1
TOTAL HC	(CORR 5% O2)	MG/NM3	15.7	16.2	40.1	72.0	121.7
PART MATTER	(CORR 5% O2)	MG/NM3	10.0	14.2	13.1	24.2	45.9
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,512	1,358	761	512	910
TOTAL CO	(CORR 5% O2)	PPM	119	206	134	223	446
TOTAL HC	(CORR 5% O2)	PPM	29	30	75	134	227
TOTAL NOX (AS NO2)		G/HP-HR	6.07	5.35	3.41	2.55	4.56
TOTAL CO		G/HP-HR	0.34	0.57	0.43	0.81	1.66
TOTAL HC		G/HP-HR	0.04	0.04	0.12	0.23	0.43
PART MATTER		G/HP-HR	0.03	0.04	0.04	0.08	0.15
TOTAL NOX (AS NO2)		LB/HR	59.01	39.57	17.32	7.00	6.16
TOTAL CO		LB/HR	3.26	4.23	2.19	2.22	2.24
TOTAL HC		LB/HR	0.41	0.31	0.59	0.64	0.57
TOTAL CO2		LB/HR	4,930	3,639	2,836	1,717	943
PART MATTER		LB/HR	0.25	0.27	0.19	0.21	0.20
OXYGEN IN EXH		%	9.6	10.2	11.6	12.7	14.5
DRY SMOKE OPACITY		%	0.7	1.0	0.3	0.8	1.8
BOSCH SMOKE NUMBER			0.25	0.36	0.13	0.29	0.62

Regulatory Information Top

EPA TIER 2 **2006 - 2010**

GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 89 SUBPART D AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	NON-ROAD	TIER 2	CO: 3.5 NOx + HC: 6.4 PM: 0.20

EPA EMERGENCY STATIONARY **2011 - ----**

GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 60 SUBPART IIII AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE EMERGENCY STATIONARY REGULATIONS.

EPA EMERGENCY STATIONARY		2011 - ----		
Locality U.S. (INCL CALIF)	**Agency** EPA	**Regulation** STATIONARY	**Tier/Stage** EMERGENCY STATIONARY	**Max Limits - G/BKW - HR** CO: 3.5 NOx + HC: 6.4 PM: 0.20

Altitude Derate Data Top

Note(s)
ALTITUDE DERATE DATA IS BASED ON THE ASSUMPTION OF A 20 DEGREES CELSIUS(36 DEGREES FAHRENHEIT) DIFFERENCE BETWEEN AMBIENT OPERATING TEMPERATURE AND ENGINE INLET MANIFOLD TEMPERATURE (IMAT). AMBIENT OPERATING TEMPERATURE IS DEFINED AS THE AIR TEMPERATURE MEASURED AT THE TURBOCHARGER COMPRESSOR INLET.

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)	30	40	50	60	70	80	90	100	110	120	130	140	NORMAL
ALTITUDE (FT)													
0	4,423	4,423	4,423	4,423	4,423	4,423	4,423	4,423	4,423	4,423	4,423	4,423	4,423
1,000	4,423	4,423	4,423	4,423	4,423	4,423	4,423	4,423	4,423	4,423	4,423	4,405	4,423
2,000	4,423	4,423	4,423	4,423	4,423	4,423	4,423	4,423	4,423	4,423	4,423	4,355	4,423
3,000	4,423	4,423	4,423	4,423	4,423	4,423	4,423	4,423	4,423	4,376	4,309	4,216	4,423
4,000	4,345	4,345	4,345	4,345	4,345	4,345	4,344	4,344	4,343	4,280	4,190	4,100	4,345
5,000	4,174	4,174	4,174	4,174	4,174	4,174	4,173	4,172	4,170	4,130	4,073	4,017	4,174
6,000	4,015	4,015	4,015	4,015	4,015	4,015	4,013	4,011	4,008	3,988	3,960	3,933	4,015
7,000	3,868	3,868	3,868	3,868	3,868	3,868	3,866	3,863	3,859	3,853	3,847	3,840	3,868
8,000	3,751	3,751	3,751	3,751	3,751	3,751	3,749	3,745	3,742	3,736	3,729	3,723	3,751
9,000	3,634	3,634	3,634	3,634	3,634	3,634	3,633	3,628	3,624	3,618	3,612	3,606	3,634
10,000	3,523	3,523	3,523	3,523	3,523	3,523	3,521	3,517	3,512	3,506	3,500	3,495	3,523
11,000	3,417	3,417	3,417	3,417	3,417	3,417	3,415	3,411	3,406	3,400	3,394	3,388	3,417
12,000	3,312	3,312	3,312	3,312	3,312	3,312	3,310	3,304	3,299	3,294	3,288	3,282	3,312
13,000	3,206	3,206	3,206	3,206	3,206	3,206	3,204	3,198	3,193	3,188	3,182	3,176	3,206
14,000	3,100	3,100	3,100	3,100	3,100	3,100	3,098	3,093	3,088	3,083	3,079	3,074	3,100
15,000	2,993	2,993	2,993	2,993	2,993	2,993	2,991	2,988	2,984	2,981	2,977	2,974	2,993

Cross Reference Top

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
3704727	LL6307	3079788	GS265	-	WYB00620	

Performance Parameter Reference Top

Parameters Reference: DM9600 - 11

PERFORMANCE DEFINITIONS

PERFORMANCE DEFINITIONS DM9600

APPLICATION: Engine performance tolerance values below are representative of a typical production engine tested in a calibrated dynamometer test cell at SAE J1995 standard reference conditions. Caterpillar maintains ISO9001:2000 certified quality management systems for engine test Facilities to assure accurate calibration of test equipment. Engine test data is corrected in accordance with SAE J1995. Additional reference material SAE J1228, J1349, ISO 8665, 3046-1:2002E, 3046-3:1989, 1585, 2534, 2288, and 9249 may apply in part or are similar to SAE J1995. Special engine rating request (SERR) test data shall be noted.

PERFORMANCE PARAMETER TOLERANCE FACTORS: Power +/- 3% Torque +/- 3% Exhaust stack temperature +/- 8% Inlet airflow +/- 5% Intake manifold pressure-gage +/- 10% Exhaust flow +/- 6% Specific fuel consumption +/- 3% Fuel rate +/- 5% Specific DEF consumption +/- 3% DEF rate +/- 5% Heat rejection +/- 5% Heat rejection exhaust only +/- 10% Heat rejection CEM only +/- 10%
Heat Rejection values based on using treated water.

Torque is included for truck and industrial applications, do not use for Gen Set or steady state applications.
On C7 - C18 engines, at speeds of 1100 RPM and under these values are provided for reference only, and may not meet the tolerance listed.
These values do not apply to C280/3600. For these models, see the tolerances listed below.

C280/3600 HEAT REJECTION TOLERANCE FACTORS: Heat rejection +/- 10% Heat rejection to Atmosphere +/- 50% Heat rejection to Lube Oil +/- 20% Heat rejection to Aftercooler +/- 5%

TEST CELL TRANSDUCER TOLERANCE FACTORS: Torque +/- 0.5% Speed +/- 0.2% Fuel flow +/- 1.0% Temperature +/- 2.0 C degrees Intake manifold pressure +/- 0.1 kPa
OBSERVED ENGINE PERFORMANCE IS CORRECTED TO SAE J1995 REFERENCE AIR AND FUEL CONDITIONS.

REFERENCE ATMOSPHERIC INLET AIR FOR 3500 ENGINES AND SMALLER SAE J1228 AUG2002 for marine engines, and J1995 JAN2014 for other engines, reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity at the stated aftercooler water temp, or inlet manifold temp.
FOR 3600 ENGINES Engine rating obtained and presented in accordance with ISO 3046/1 and SAE J1995 JANJAN2014 reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity and 150M altitude at the stated aftercooler water temperature.

MEASUREMENT LOCATION FOR INLET AIR TEMPERATURE Location for air temperature measurement air cleaner inlet at stabilized operating conditions.

REFERENCE EXHAUST STACK DIAMETER The Reference Exhaust Stack Diameter published with this dataset is only used for the calculation of Smoke Opacity values displayed in this dataset. This value does not necessarily represent the actual stack diameter of the engine due to the variety of exhaust stack adapter options available. Consult the price list, engine order or general dimension drawings for the actual stack diameter size ordered or options available.

REFERENCE FUEL DIESEL Reference fuel is #2 distillate diesel with a 35API gravity; A lower heating value is 42,780 KJ/KG (18,390 BTU/LB) when used at 29 deg C (84.2 deg F), where the density is 838.9 G/Liter (7.001 Lbs/Gal).
GAS Reference natural gas fuel has a lower heating value of 33.74 KJ/L (905 BTU/CU Ft). Low BTU ratings are based on 18.64 KJ/L (500 BTU/CU FT) lower heating value gas. Propane ratings are based on 87.56 KJ/L (2350 BTU/CU Ft) lower heating value gas.

ENGINE POWER (NET) IS THE CORRECTED FLYWHEEL POWER (GROSS) LESS EXTERNAL AUXILIARY LOAD Engine corrected gross output includes the power required to drive standard equipment; lube oil, scavenge lube oil, fuel transfer, common rail fuel, separate circuit aftercooler and jacket water pumps. Engine net power available for the external (flywheel) load is calculated by subtracting the sum of auxiliary load from the corrected gross flywheel out put power. Typical auxiliary loads are radiator cooling fans, hydraulic pumps, air compressors and battery charging alternators. For Tier 4 ratings additional Parasitic losses would also include Intake, and Exhaust Restrictions.

ALTITUDE CAPABILITY Altitude capability is the maximum altitude above sea level at standard temperature and standard pressure at which the engine could develop full rated output power on the current performance data set. Standard temperature values versus altitude could be seen on TM2001.
When viewing the altitude capability chart the ambient temperature is the inlet air temp at the compressor inlet.
Engines with ADEM MEUI and HEUI fuel systems operating at conditions above the defined altitude capability derate for atmospheric pressure and temperature conditions outside the values defined, see TM2001.
Mechanical governor controlled unit injector engines require a setting change for operation at conditions above the altitude defined on the engine performance sheet. See your Caterpillar technical representative for non standard ratings.

REGULATIONS AND PRODUCT COMPLIANCE TMI Emissions information is presented at 'nominal' and 'Potential Site Variation' values for standard ratings. No tolerances are applied to the emissions data. These values are subject to change at any time. The controlling federal and local emission requirements need to be verified by your Caterpillar technical representative.
Customer's may have special emission site requirements that need to be verified by the Caterpillar Product Group engineer.

EMISSION CYCLE LIMITS: Cycle emissions Max Limits apply to cycle-weighted averages only. Emissions at individual load points may exceed the cycle-weighted limit.

EMISSIONS DEFINITIONS: Emissions : DM1176

EMISSION CYCLE DEFINITIONS
1. For constant-speed marine engines for ship main propulsion, including,diesel-electric drive, test cycle E2 shall be applied, for controllable-pitch propeller sets test cycle E2 shall be applied.
2. For propeller-law-operated main and propeller-law-operated auxiliary engines the test cycle E3 shall be applied.
3. For constant-speed auxiliary engines test cycle D2 shall be applied.
4. For variable-speed, variable-load auxiliary engines, not included above, test cycle C1 shall be applied.

HEAT REJECTION DEFINITIONS: Diesel Circuit Type and HHV Balance : DM9500

HIGH DISPLACEMENT (HD) DEFINITIONS: 3500: EM1500

RATING DEFINITIONS: Agriculture : TM6008
Fire Pump : TM6009
Generator Set : TM6035
Generator (Gas) : TM6041
Industrial Diesel : TM6010
Industrial (Gas) : TM6040
Irrigation : TM5749
Locomotive : TM6037

Marine Auxiliary : TM6036
Marine Prop (Except 3600) : TM5747
Marine Prop (3600 only) : TM5748
MSHA : TM6042
Oil Field (Petroleum) : TM6011
Off-Highway Truck : TM6039
On-Highway Truck : TM6038

SOUND DEFINITIONS: Sound Power : DM8702
Sound Pressure : TM7080

Date Released : 07/10/19

safety POWER

clean essential energy

DESIGN PARAMETERS

The design of the Safety Power emissions reduction system is based on the following conditions.
Note: NOx is calculated as NO_2.

Table 1 – Engine Data

Engine Type:	CAT C175-16	CAT C27	CAT C15
Application	Stand-by	Stand-by	Stand-by
Engine Power	3,000 ekW	800 ekW	500 ekW
Exhaust Temperature	891 °F	952 °F	988 °F
Design Exhaust Flow Rate	25,620 (CFM)	6,011 (CFM)	3,605 (CFM)
Fuel Type	Diesel	Diesel	Diesel

Table 2 – Emissions Data at Full Engine Load

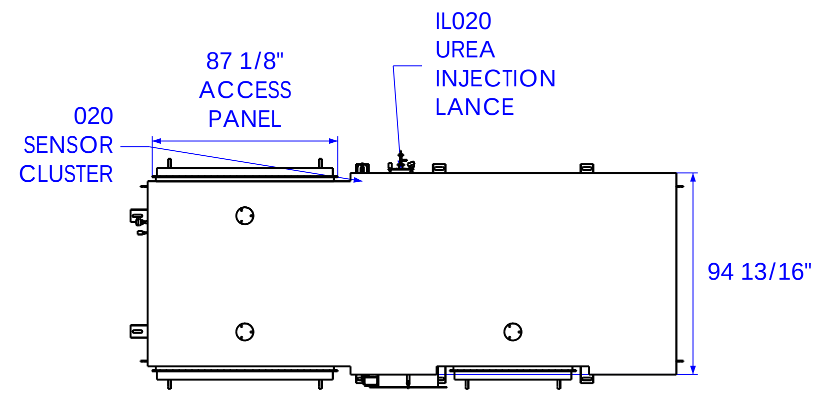
Engine Option	Emissions	Catalyst Inlet	Emissions Requirement	Catalyst Outlet
Option 1 - CAT C175-16 (3,000 ekW)	NOx (g/HP-h)	6.07	0.50	0.50
	CO (g/HP-h)	0.34	2.60	0.34
	NMHC (g/HP-h)	0.04	0.14	0.04
	PM (g/HP-h)	0.03	0.02	0.02
Option 2 - CAT C27 (800 ekW)	NOx (g/HP-h)	5.18	0.50	0.50
	CO (g/HP-h)	0.23	2.60	0.23
	NMHC (g/HP-h)	0.03	0.14	0.03
	PM (g/HP-h)	0.02	0.02	0.02
Option 3 - CAT C15 (500 ekW)	NOx (g/HP-h)	4.58	0.50	0.50
	CO (g/HP-h)	0.63	2.60	0.63
	NMHC (g/HP-h)	0.02	0.14	0.02
	PM (g/HP-h)	0.03	0.02	0.02

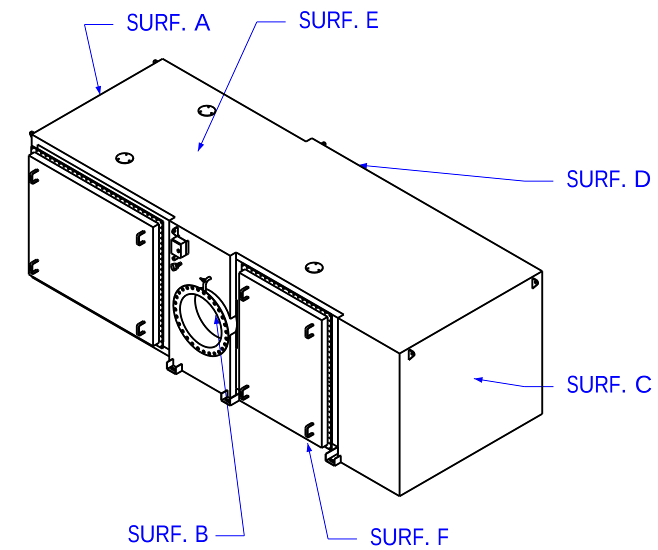
Note: The ecoCUBE emission control performance guarantee included with this proposal is valid provided that the exhaust temperature entering the SCR system is above 260 deg C (500 deg F).

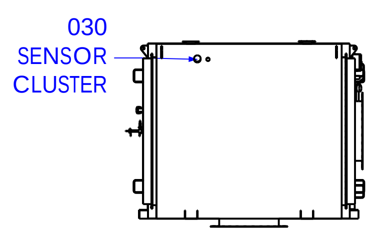
Notes: (1) The EPA does not treat methane and ethane as VOC's. Safety Power can achieve a stated reduction of VOC's based on the EPA definition assuming that the VOC's manifest themselves as propene. (2) all emissions reductions are based on an average at steady state using SCAQMD method 100.1 for NOx and EPA Alternate Method 106 for CO and VOC's or mutually agreed test method approved in writing. (3) if NMHC/VOC data isn't provided 0.6 g/hp-hr is to be assumed (unless otherwise stated).

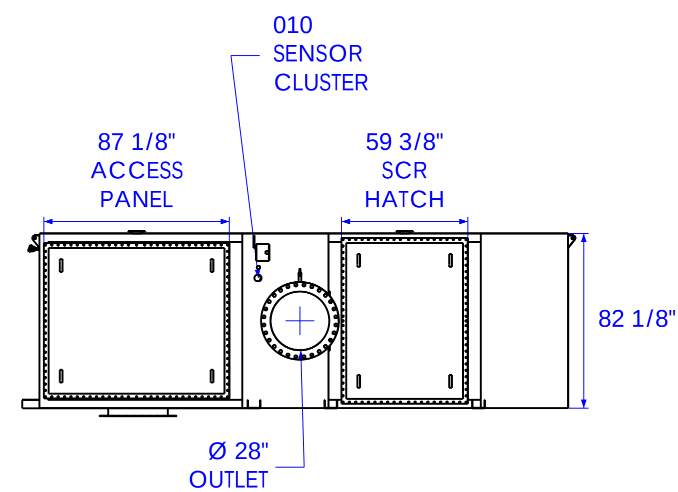
Table 3 – SCR System Data

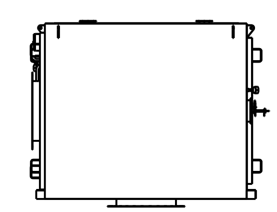
System Details	Option 1 - CAT C175-16 (3,000 ekW)	Option 2 - CAT C27 (800 ekW)	Option 3 - CAT C15 (500 ekW)
Max. Ammonia Slip @ 15% O2	8 ppm	8 ppm	8 ppm
Urea Consumption - 32.5% solution (+/- 15%)	12.4 USG/hr	2.9 USG/hr	1.6 USG/hr
System Pressure Loss	21.5" WC	20.0" WC	15.0" WC
System Inlet/Outlet ANSI Flange Inches	28/28	18/18	18/18

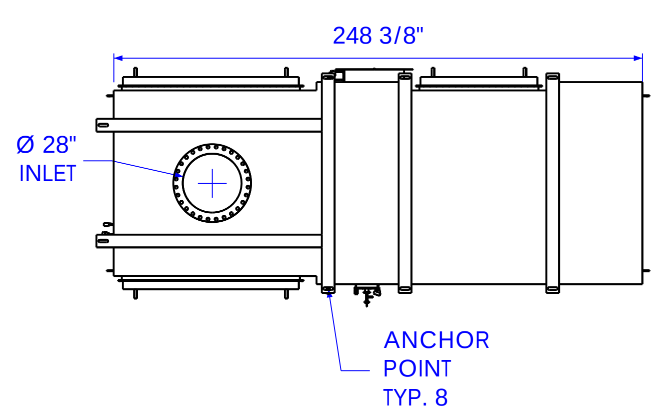












PRELIMINARY ISSUE
FOR INFORMATION ONLY

DIMENSIONS SUBJECT TO CHANGE. SEE APPROVED SHOP DRAWING FOR FINAL.

AXIAL EXPANSION JOINT AVAILABLE UPON REQUEST.

ecoCUBE® IS INSULATED. DIMENSIONS SHOWN WITH INSULATION.

PRE-HEAT SYSTEM AND/OR GAS COOLING SYSTEM AVAILABLE UPON REQUEST.

PLEASE REFER TO PROJECT PROPOSAL FOR PRESSURE DROP AND REACTOR WEIGHT.

MATERIAL SUPPLIED BY SPI AND INSTALLED BY OTHERS, UNLESS SPECIFIED.

NOTES

1. CLIENTS' DUCT MUST BE SUPPORTED INDEPENDENTLY OF ecoCUBE®.
2. UREA LINES TO BE INSULATED AND HEAT TRACED IF AMBIENT TEMPERATURE IS LESS THAN 0°C (32°F).
3. ENSURE FIXED POINTS OF REACTOR ARE RIGIDLY CONNECTED (MAY NOT BE SHOWN ON DRAWING).
4. ENSURE ecoCUBE® FLANGES ARE NOT SUBJECTED TO LOAD DURING STORAGE & INSTALLATION.
5. MINIMUM ACCESS AREA REQUIREMENT OF 2.0', 2.0' & 2.5' FOR SURFACES B, D & E, RESPECTIVELY.
6. MINIMUM ACCESS AREA REQUIREMENT OF 3' (1 M) AROUND ALL SENSOR CLUSTERS & INJECTION LANCE.
7. INLET AND OUTLET FLANGES ARE ANSI 150 SERIES 'A' BOLT PATTERN; FLANGE THICKNESS 3/16".

TITLE: ecoCUBE® Series 8		PROJECT NO. 22110
REV	DESCRIPTION	DATE
1.0	158S-HF4-B028-44-3040EKkNN-R028	16 MAR 2022
SCALE: NTS		ENGINEER:

EcoCube Typical Specification for Tier 4 Final Diesel Emissions Reduction System

1. Provide a Diesel Emissions Reduction System (DERS) for each engine to reduce:
   a. NOx exhaust emissions of each engine to a maximum of 0.67 g/kwh (0.5 g/bhp-hr)
   b. PM (Particulate Matter) to 0.02 g/kwh (0.015 g/bhp-hr)
   c. CO (Carbon Monoxide) to 3.5 g/kwh (2.6 g/bhp-hr)
   d. NMHC (Non Methane HydroCarbons) to 0.19 g/kwh (0.14 g/bhp-hr)

2. The DERS shall be structured in a cube shape so that the mixing duct and SCR reactor are packaged within the cube. The DERS shall include an oxidation catalyst and Diesel Particulate Filter (DPF) upstream of the SCR catalyst to reduce VOC, CO and PM.

3. SCR system to include an optional method/means of silencing exhaust to the equivalent of a hospital grade silencer – to be specific there shall be a minimum noise attenuation of 35 dBA. The silencing method/means must be contained within the same physical housing as the SCR to minimize space and installation.

4. Under no circumstances should the DERS be placed downstream of a silencer with absorptive acoustical material. Any additional silencers should be placed downstream of the DERS.

5. Access to the Diesel Particulate Filters (DPF's) shall be via hinged doors. Maintenance access to the DPF's shall be from the clean (downstream) side. DPF's shall be passively regenerated using an upstream Diesel Oxidation Catalyst (DOC) to ensure effective regeneration.

6. The system shall be equipped with an internal relief valve system to provide protection in the event of an over-pressure around the Diesel Particulate Filters (DPF's) in the system.

7. The catalyst shall be guaranteed for a minimum of 8,000 run hours and shall be capable of long term extended operation from the 60%-100% engine load points.

8. Housing integrity: The housing shall be reinforced to withstand all normal conditions of pressure and temperature with reasonable allowance for excursions of pressure and temperature.

9. The SCR system shall utilize Closed Loop control with solid state NOx sensors both upstream and downstream of the SCR catalyst to provide NOx reduction performance throughout varying engine loads while minimizing ammonia slip. Solid state sensors shall be used to ensure fast response times and durability. In addition, the downstream NOx sensor shall be situated in a way that allows the sensor to analyze several sample points (minimum of 5) at different locations in the same plane normal to the exhaust flow.

10. All SCR electronic controls and urea injection equipment shall be housed in a single NEMA 12 panel no larger than 30" H by 30" W by 8.5" D. The control and urea injection panel will be equipped with an industrial grade urea injection pump system for maximum reliability and precise control. The control system shall provide a Modbus TCP/IP interface so that emissions data can be transferred to the customer's Building Automation System (BAS).

11. The system shall have the capability to provide remote monitoring and diagnostic capabilities through a built in Ethernet port and GSM modem. The remote monitoring capability shall provide the Vendor or facility owner with access to the system so that any alarms and associated trouble shooting can be done from a central location. The remote

monitoring system will provide real time data, and access to historical emissions data. It shall be possible to view the data as trend charts using a normal internet browser.

12. The system controller shall be industrial hardened and capable of operating from 0oF - 140oF. In addition, it shall have at least 256 MB of RAM and 1 GB of solid state storage available for historical logging. The controller also requires at least 1 GFLOPS of computational power/performance so that catalyst reaction kinetics can be accurately modeled in real time.

13. All sensors will be pre-terminated to a single junction box located on the SCR reactor for the purpose of easy wiring. Communication cables shall be used to transfer all sensor signals between this junction box and the SCR control panel.

14. Site air permit conditions may require that the worst case 60-minute average for NOx must be met when the engine is tested under full load. As a result, the Vendor shall quote an optional electric pre-heating system so that the SCR catalyst bed in the DERS is available within a maximum of 5 minutes after the engine is started under a full load test.

15. For worker safety while maintaining instruments or other components on enclosure mounted reactors, the Vendor shall provide an integrated Work Restraint System that allows up to 2 workers to attach Fall Restraint harnesses to the reactor. This Work Restraint System shall be capable of supporting a force of up to 4kN.

16. The SCR shall be designed to operate with commercially available Diesel Emissions Fluid "DEF" as reagent and shall not exceed the Vendor warranted DEF flow rate by more than 20% at 100% load. The dosing panel, tanks and lines with urea must be protected from freezing

17. The DERS shall be compliant with seismic Zone 2 standards. The reactor shall be manufactured with no less than 10 gauge, 409 stainless steel material.

18. The DERS shall be constructed from Stainless Steel. In addition, the DERS should include a minimum of three (3) inches of mineral wool insulation and aluminum cladding to reduce thermal losses in the engine room. If installed outdoors the DERS shall minimize water intrusion in the insulation.

19. DERS components for each engine shall be fabricated so that the system can be mounted from the ceiling or can be floor mounted. It shall be possible to configure the system for bottom entry, top exit or end entry with top exit.

20. As an option the Vendor shall supply a urea storage system to be sized based on two (2) days of full load engine operation. The Urea storage system shall be provided complete with:
    - A pre-engineered external wall mounted fill station to allow a bulk truck to fill the urea storage tank(s). Fill station to be stainless steel, lockable and include high level alarm light and operator instructions in lamacoid signage.
    - If required, a pre-engineered urea booster pump system to transfer urea from the storage tank to the Urea Injection system associated with each SCR shall be provided. Where a shared booster pump is used to supply more than 1 engine it shall be a full-duplex type, such that the failure of a single urea booster pump does not affect more than 1 Urea Injection System
    - Main urea storage tank to be equipped with level measurement, leak detection and alarm
    - If required, heat tracing and insulation will be provided for the urea tank to prevent urea from freezing.

21. The services to be provided by the supplier under this section to include but to not be limited to the following for a complete and satisfactory operating system including the DERS.

    a. Shop drawings, fabrication and assembly as per "reviewed" shop drawings.

    b. Interface control wiring diagrams, schedules and wire running lists between all components

    c. Witness testing procedure to be submitted as a shop drawing for review by the Engineer. Witness testing shall include test equipment and testing to verify performance of the system.

    d. Delivery schedule

    e. Provide technical staff for supervision of site assembly, installation of power and control cable connections, installation and connections, and all other work normal to the M & E trades.

    f. Include site testing, calibration and commissioning, site testing and supplementary witness testing using permanent load bank. Witness testing procedure to be submitted as a shop drawing for review by the Engineer. Handling, installation, to be by the Installation Contractor.

    g. Providing technical staff and manuals for field training of Owner's staff in the complete operation of the system.

    h. Warranties to guarantee the reduction of emissions to the specified levels

    i. Services of a technical representative as required by the Owners to review production schedule, delivery dates, shop drawing changes, shop and field testing and training programs.

22. Unloading, hoisting and setting into place, and work normal to the electrical, mechanical and millwright trades such as providing interface power and control wiring to terminals within the equipment components, piping & ductwork, and installation of major components to be done by the Installation Contractor.

23. Materials and parts comprising the system to be new, of current manufacture, of a high grade and free from all defects and imperfections.

24. Tests shall be conducted, one engine at a time at varying loads up to full load on a third party supplied load bank.

25. Commissioning test results shall be provided to the Engineer for submission to the environmental authority having jurisdiction for final acceptance.

26. The DERS for each engine shall include for all the components, engineering services, field assembly drawings, on-site technical services as long as required by the eventual contractor in assembling the system and initial testing, commissioning, training, operating and maintenance manuals (part of base bid).

27. Include for one (1) year full warranty and verification of SCR performance prior to the expiry of the warranty, and a 2-year pro-rata warranty of the SCR catalyst in the reactors.

28. Reference Supplier

Safety Power Inc. (SPI) www.safetypower.ca
5155 Spectrum Way, unit 26
Mississauga, ON L4W 5A1 Canada
Office: 1-800-657-1280 x21
Mobile: (905) 377-9041
info@safetypower.ca

PERFORMANCE DATA[EM1788]

Performance Number: EM1788 **Change Level: 02**

SALES MODEL:	3512C
BRAND:	CAT
MACHINE SALES MODEL:	
ENGINE POWER (BHP):	2,360
GEN POWER WITH FAN (EKW):	1,600.0
COMPRESSION RATIO:	14.7
RATING LEVEL:	PRIME
PUMP QUANTITY:	1
FUEL TYPE:	DIESEL
MANIFOLD TYPE:	DRY
GOVERNOR TYPE:	ADEM3
ELECTRONICS TYPE:	ADEM3
CAMSHAFT TYPE:	STANDARD
IGNITION TYPE:	CI
INJECTOR TYPE:	EUI
FUEL INJECTOR:	3920221
UNIT INJECTOR TIMING (IN):	64.34
REF EXH STACK DIAMETER (IN):	10
MAX OPERATING ALTITUDE (FT):	2,789
COMBUSTION:	DIRECT INJECTION
ENGINE SPEED (RPM):	1,800
HERTZ:	60
FAN POWER (HP):	114.0
ASPIRATION:	TA
AFTERCOOLER TYPE:	ATAAC
AFTERCOOLER CIRCUIT TYPE:	JW+OC, ATAAC
INLET MANIFOLD AIR TEMP (F):	122
JACKET WATER TEMP (F):	210.2
TURBO CONFIGURATION:	PARALLEL
TURBO QUANTITY:	4
TURBOCHARGER MODEL:	GTB5518BN-52T-1.12
CERTIFICATION YEAR:	2016
CRANKCASE BLOWBY RATE (FT3/HR):	2,358.8
FUEL RATE (RATED RPM) NO LOAD (GAL/HR):	8.3
PISTON SPD @ RATED ENG SPD (FT/MIN):	2,539.4

INDUSTRY	SUBINDUSTRY	APPLICATION
ELECTRIC POWER	STANDARD	PACKAGED GENSET
OIL AND GAS	LAND PRODUCTION	PACKAGED GENSET

General Performance Data

RATING IS AVAILABLE THROUGH DESIGN TO ORDER (DTO) WITH AN APPROVED SPECIAL RATING REQUEST. RATING DEFINITION: PRIME POWER OUTPUT AVAILABLE WITH VARYING LOAD FOR THE DURATION OF AN EMERGENCY OUTAGE. AVERAGE POWER OUTPUT IS 45 - 85% OF THE PRIME POWER RATING. TYPICAL OPERATION IS 200 HOURS PER YEAR, WITH A MAXIMUM EXPECTED USAGE OF 500 HOURS A YEAR. TYPICAL PEAK DEMAND IS 100% OF PRIME RATED EKW WITH 10% OVERLOAD CAPABILITY FOR EMERGENCY USE FOR A MAXIMUM OF 1 HOUR IN 12. OVERLOAD OPERATION CANNOT EXCEED 25 HOURS PER YEAR. TYPICAL APPLICATIONS INCLUDE BUT ARE NOT LIMITED TO: DATA CENTER, HEALTHCARE.

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)
EKW	%	BHP	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR
1,760.0	110	2,584	318	0.334	0.328	121.8	119.5
1,600.0	100	2,360	291	0.329	0.322	109.4	107.3
1,440.0	90	2,136	263	0.332	0.326	100.0	98.1
1,280.0	80	1,911	235	0.337	0.330	90.7	89.0
1,200.0	75	1,799	221	0.340	0.333	86.1	84.5
1,120.0	70	1,686	208	0.343	0.336	81.5	79.9
960.0	60	1,462	180	0.352	0.345	72.5	71.1
800.0	50	1,237	152	0.366	0.359	63.8	62.6
640.0	40	1,012	125	0.382	0.375	54.6	53.5
480.0	30	788	97	0.401	0.394	44.6	43.7
400.0	25	676	83	0.410	0.402	39.0	38.3
320.0	20	563	69	0.419	0.411	33.3	32.7
160.0	10	339	42	0.467	0.458	22.3	21.9

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
EKW	%	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
1,760.0	110	2,584	77.0	121.0	1,175.8	59.3	848.4	82	431.4
1,600.0	100	2,360	68.4	114.3	1,119.4	51.5	820.4	73	388.3
1,440.0	90	2,136	61.9	111.6	1,095.1	46.3	811.3	66	365.8
1,280.0	80	1,911	54.8	111.8	1,085.8	40.9	816.6	59	346.7
1,200.0	75	1,799	50.9	111.2	1,080.1	38.1	819.4	55	335.8
1,120.0	70	1,686	47.2	108.3	1,068.4	35.5	817.6	51	321.9
960.0	60	1,462	40.6	104.5	1,046.5	30.9	814.7	44	295.7
800.0	50	1,237	34.7	103.1	1,026.1	26.8	813.5	38	269.7
640.0	40	1,012	27.7	101.8	993.4	22.1	805.6	30	236.0
480.0	30	788	20.1	101.3	945.6	17.1	788.8	22	204.3
400.0	25	676	16.0	99.4	895.6	14.6	753.7	18	185.6
320.0	20	563	12.0	97.1	827.6	12.0	703.4	14	166.2
160.0	10	339	6.1	92.9	636.6	8.2	569.1	8	130.1

General Performance Data (Continued)

PERFORMANCE DATA[EM1788]

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
EKW	%	BHP	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
1,760.0	110	2,584	5,708.5	14,298.4	24,662.6	25,527.3	5,374.6	4,942.3
1,600.0	100	2,360	5,365.1	12,943.5	22,818.8	23,594.8	4,971.4	4,580.6
1,440.0	90	2,136	5,047.9	12,019.6	21,384.8	22,093.1	4,649.8	4,290.3
1,280.0	80	1,911	4,612.0	11,078.3	19,636.5	20,280.2	4,267.8	3,942.3
1,200.0	75	1,799	4,384.2	10,575.9	18,701.8	19,312.4	4,065.4	3,757.5
1,120.0	70	1,686	4,199.0	10,092.5	17,867.4	18,444.7	3,885.0	3,593.3
960.0	60	1,462	3,872.1	9,222.7	16,392.6	16,906.7	3,558.3	3,297.0
800.0	50	1,237	3,557.6	8,410.0	14,978.0	15,430.9	3,247.8	3,015.2
640.0	40	1,012	3,182.9	7,410.8	13,285.9	13,673.1	2,879.7	2,677.5
480.0	30	788	2,725.0	6,273.0	11,415.7	11,731.8	2,470.4	2,303.7
400.0	25	676	2,492.6	5,564.3	10,466.9	10,744.4	2,254.7	2,107.0
320.0	20	563	2,258.2	4,837.2	9,509.9	9,746.7	2,044.9	1,916.4
160.0	10	339	1,944.2	3,649.8	8,128.3	8,285.9	1,744.3	1,653.6

Heat Rejection Data

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHAUST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTERCOOLER	WORK ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
EKW	%	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
1,760.0	110	2,584	33,967	7,341	99,767	53,671	14,105	31,452	109,585	264,829	282,110
1,600.0	100	2,360	32,243	6,802	88,304	46,689	12,668	25,895	100,092	237,840	253,359
1,440.0	90	2,136	30,057	6,587	81,865	42,801	11,580	22,356	90,566	217,408	231,595
1,280.0	80	1,911	27,002	6,484	76,728	39,743	10,510	18,926	81,040	197,323	210,199
1,200.0	75	1,799	25,598	6,422	73,884	38,074	9,973	17,238	76,277	187,237	199,455
1,120.0	70	1,686	24,788	6,308	70,277	36,208	9,435	15,647	71,514	177,146	188,704
960.0	60	1,462	22,990	6,099	63,830	32,943	8,393	12,867	61,989	157,583	167,865
800.0	50	1,237	21,377	5,936	57,638	29,952	7,394	10,237	52,463	138,815	147,873
640.0	40	1,012	20,852	5,758	49,609	26,048	6,318	7,178	42,937	118,624	126,364
480.0	30	788	17,896	5,332	41,802	21,469	5,161	4,700	33,411	96,892	103,215
400.0	25	676	17,053	5,018	36,012	18,024	4,518	3,611	28,648	84,829	90,364
320.0	20	563	16,307	4,673	29,628	14,237	3,858	2,649	23,886	72,430	77,156
160.0	10	339	13,712	3,892	18,473	7,393	2,584	1,200	14,359	48,505	51,670

Sound Data

SOUND PRESSURE DATA FOR THIS RATING CAN BE FOUND IN PERFORMANCE NUMBER - DM8779.

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:1.5 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,760.0	110	2,584	118.0	109.0	123.0	119.0	111.0
1,600.0	100	2,360	117.0	108.0	122.0	118.0	110.0
1,440.0	90	2,136	116.0	107.0	121.0	117.0	109.0
1,280.0	80	1,911	115.0	106.0	120.0	116.0	108.0
1,200.0	75	1,799	115.0	105.0	120.0	116.0	108.0
1,120.0	70	1,686	114.0	105.0	119.0	115.0	107.0
960.0	60	1,462	113.0	103.0	118.0	114.0	106.0
800.0	50	1,237	112.0	102.0	117.0	113.0	105.0
640.0	40	1,012	110.0	101.0	115.0	111.0	103.0
480.0	30	788	109.0	99.0	114.0	110.0	102.0
400.0	25	676	108.0	98.0	113.0	109.0	101.0
320.0	20	563	107.0	97.0	112.0	108.0	100.0
160.0	10	339	105.0	95.0	110.0	106.0	98.0

PERFORMANCE DATA[EM1788]

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:1.5 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,760.0	110	2,584	110.0	111.0	111.0	109.0
1,600.0	100	2,360	109.0	110.0	110.0	108.0
1,440.0	90	2,136	108.0	109.0	109.0	107.0
1,280.0	80	1,911	107.0	108.0	108.0	106.0
1,200.0	75	1,799	106.0	108.0	107.0	105.0
1,120.0	70	1,686	106.0	107.0	107.0	105.0
960.0	60	1,462	105.0	106.0	106.0	104.0
800.0	50	1,237	103.0	105.0	104.0	102.0
640.0	40	1,012	102.0	103.0	103.0	101.0
480.0	30	788	100.0	102.0	101.0	99.0
400.0	25	676	99.0	101.0	101.0	99.0
320.0	20	563	99.0	100.0	100.0	98.0
160.0	10	339	96.0	98.0	97.0	96.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:7 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,760.0	110	2,584	105.0	96.0	113.0	107.0	99.0
1,600.0	100	2,360	104.0	95.0	112.0	106.0	98.0
1,440.0	90	2,136	103.0	94.0	111.0	105.0	97.0
1,280.0	80	1,911	102.0	93.0	110.0	104.0	96.0
1,200.0	75	1,799	101.0	93.0	109.0	104.0	95.0
1,120.0	70	1,686	101.0	92.0	109.0	103.0	94.0
960.0	60	1,462	100.0	91.0	108.0	102.0	93.0
800.0	50	1,237	98.0	90.0	106.0	101.0	92.0
640.0	40	1,012	97.0	88.0	105.0	99.0	91.0
480.0	30	788	95.0	87.0	103.0	98.0	89.0
400.0	25	676	95.0	86.0	103.0	97.0	88.0
320.0	20	563	94.0	85.0	102.0	96.0	87.0
160.0	10	339	91.0	83.0	99.0	94.0	85.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:7 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,760.0	110	2,584	97.0	98.0	97.0	95.0
1,600.0	100	2,360	96.0	97.0	97.0	94.0
1,440.0	90	2,136	95.0	96.0	96.0	93.0
1,280.0	80	1,911	94.0	95.0	94.0	92.0
1,200.0	75	1,799	93.0	94.0	94.0	91.0
1,120.0	70	1,686	93.0	94.0	93.0	91.0
960.0	60	1,462	92.0	92.0	92.0	89.0
800.0	50	1,237	90.0	91.0	91.0	88.0
640.0	40	1,012	89.0	90.0	90.0	87.0
480.0	30	788	87.0	88.0	88.0	85.0
400.0	25	676	87.0	87.0	87.0	84.0
320.0	20	563	86.0	86.0	86.0	83.0
160.0	10	339	83.0	84.0	84.0	81.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:15 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,760.0	110	2,584	98.0	90.0	106.0	101.0	92.0
1,600.0	100	2,360	97.0	89.0	105.0	100.0	91.0
1,440.0	90	2,136	96.0	88.0	104.0	99.0	90.0
1,280.0	80	1,911	95.0	87.0	103.0	98.0	89.0
1,200.0	75	1,799	95.0	86.0	103.0	97.0	88.0
1,120.0	70	1,686	94.0	86.0	102.0	96.0	88.0

960.0	60	1,462	93.0	84.0	101.0	95.0	87.0
800.0	50	1,237	92.0	83.0	100.0	94.0	85.0
640.0	40	1,012	90.0	82.0	98.0	93.0	84.0
480.0	30	788	89.0	80.0	97.0	91.0	82.0
400.0	25	676	88.0	79.0	96.0	90.0	82.0
320.0	20	563	87.0	78.0	95.0	89.0	81.0
160.0	10	339	85.0	76.0	93.0	87.0	78.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:15 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,760.0	110	2,584	90.0	91.0	91.0	88.0
1,600.0	100	2,360	89.0	90.0	90.0	87.0
1,440.0	90	2,136	88.0	89.0	89.0	86.0
1,280.0	80	1,911	87.0	88.0	88.0	85.0
1,200.0	75	1,799	87.0	87.0	87.0	85.0
1,120.0	70	1,686	86.0	87.0	87.0	84.0
960.0	60	1,462	85.0	86.0	86.0	83.0
800.0	50	1,237	84.0	84.0	84.0	82.0
640.0	40	1,012	82.0	83.0	83.0	80.0
480.0	30	788	81.0	81.0	81.0	79.0
400.0	25	676	80.0	81.0	80.0	78.0
320.0	20	563	79.0	80.0	80.0	77.0
160.0	10	339	77.0	78.0	77.0	75.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:1 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,760.0	110	2,584	104.0	91.0	99.0	100.0	98.0
1,600.0	100	2,360	104.0	91.0	99.0	100.0	98.0
1,440.0	90	2,136	104.0	91.0	99.0	100.0	98.0
1,280.0	80	1,911	104.0	91.0	99.0	100.0	98.0
1,200.0	75	1,799	104.0	91.0	99.0	100.0	98.0
1,120.0	70	1,686	104.0	91.0	99.0	100.0	98.0
960.0	60	1,462	104.0	91.0	99.0	100.0	98.0
800.0	50	1,237	104.0	91.0	99.0	100.0	98.0
640.0	40	1,012	104.0	91.0	99.0	100.0	98.0
480.0	30	788	104.0	91.0	99.0	100.0	98.0
400.0	25	676	104.0	91.0	99.0	100.0	98.0
320.0	20	563	104.0	91.0	99.0	100.0	98.0
160.0	10	339	104.0	91.0	99.0	100.0	98.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:1 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,760.0	110	2,584	99.0	100.0	98.0	102.0
1,600.0	100	2,360	99.0	100.0	98.0	102.0
1,440.0	90	2,136	99.0	100.0	98.0	102.0
1,280.0	80	1,911	99.0	100.0	98.0	102.0
1,200.0	75	1,799	99.0	100.0	98.0	102.0
1,120.0	70	1,686	99.0	100.0	98.0	102.0
960.0	60	1,462	99.0	100.0	98.0	102.0
800.0	50	1,237	99.0	100.0	98.0	102.0
640.0	40	1,012	99.0	100.0	98.0	102.0
480.0	30	788	99.0	100.0	98.0	102.0
400.0	25	676	99.0	100.0	98.0	102.0
320.0	20	563	99.0	100.0	98.0	102.0
160.0	10	339	99.0	100.0	98.0	102.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:7 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,760.0	110	2,584	92.0	80.0	87.0	88.0	86.0
1,600.0	100	2,360	92.0	80.0	87.0	88.0	86.0
1,440.0	90	2,136	92.0	80.0	87.0	88.0	86.0
1,280.0	80	1,911	92.0	80.0	87.0	88.0	86.0
1,200.0	75	1,799	92.0	80.0	87.0	88.0	86.0
1,120.0	70	1,686	92.0	80.0	87.0	88.0	86.0
960.0	60	1,462	92.0	80.0	87.0	88.0	86.0
800.0	50	1,237	92.0	80.0	87.0	88.0	86.0
640.0	40	1,012	92.0	80.0	87.0	88.0	86.0
480.0	30	788	92.0	80.0	87.0	88.0	86.0
400.0	25	676	92.0	80.0	87.0	88.0	86.0
320.0	20	563	92.0	80.0	87.0	88.0	86.0
160.0	10	339	92.0	80.0	87.0	88.0	86.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:7 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,760.0	110	2,584	87.0	88.0	86.0	90.0
1,600.0	100	2,360	87.0	88.0	86.0	90.0
1,440.0	90	2,136	87.0	88.0	86.0	90.0
1,280.0	80	1,911	87.0	88.0	86.0	90.0
1,200.0	75	1,799	87.0	88.0	86.0	90.0
1,120.0	70	1,686	87.0	88.0	86.0	90.0
960.0	60	1,462	87.0	88.0	86.0	90.0
800.0	50	1,237	87.0	88.0	86.0	90.0
640.0	40	1,012	87.0	88.0	86.0	90.0
480.0	30	788	87.0	88.0	86.0	90.0
400.0	25	676	87.0	88.0	86.0	90.0
320.0	20	563	87.0	88.0	86.0	90.0
160.0	10	339	87.0	88.0	86.0	90.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:15 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,760.0	110	2,584	87.0	74.0	81.0	82.0	80.0
1,600.0	100	2,360	87.0	74.0	81.0	82.0	80.0
1,440.0	90	2,136	87.0	74.0	81.0	82.0	80.0
1,280.0	80	1,911	87.0	74.0	81.0	82.0	80.0
1,200.0	75	1,799	87.0	74.0	81.0	82.0	80.0
1,120.0	70	1,686	87.0	74.0	81.0	82.0	80.0
960.0	60	1,462	87.0	74.0	81.0	82.0	80.0
800.0	50	1,237	87.0	74.0	81.0	82.0	80.0
640.0	40	1,012	87.0	74.0	81.0	82.0	80.0
480.0	30	788	87.0	74.0	81.0	82.0	80.0
400.0	25	676	87.0	74.0	81.0	82.0	80.0
320.0	20	563	87.0	74.0	81.0	82.0	80.0
160.0	10	339	87.0	74.0	81.0	82.0	80.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:15 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,760.0	110	2,584	81.0	83.0	80.0	84.0
1,600.0	100	2,360	81.0	83.0	80.0	84.0
1,440.0	90	2,136	81.0	83.0	80.0	84.0
1,280.0	80	1,911	81.0	83.0	80.0	84.0
1,200.0	75	1,799	81.0	83.0	80.0	84.0
1,120.0	70	1,686	81.0	83.0	80.0	84.0
960.0	60	1,462	81.0	83.0	80.0	84.0
800.0	50	1,237	81.0	83.0	80.0	84.0
640.0	40	1,012	81.0	83.0	80.0	84.0
480.0	30	788	81.0	83.0	80.0	84.0

400.0	25	676	81.0	83.0	80.0	84.0
320.0	20	563	81.0	83.0	80.0	84.0
160.0	10	339	81.0	83.0	80.0	84.0

Emissions Data

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN		EKW	1,760.0	1,600.0	1,200.0	800.0	400.0	160.0
PERCENT LOAD		**%**	**110**	**100**	**75**	**50**	**25**	**10**
ENGINE POWER		**BHP**	**2,584**	**2,360**	**1,799**	**1,237**	**676**	**339**
TOTAL NOX (AS NO2)		G/HR	13,263	11,589	7,549	3,869	1,827	1,711
TOTAL CO		G/HR	1,339	1,451	1,404	1,013	815	946
TOTAL HC		G/HR	305	281	243	232	243	295
TOTAL CO2		KG/HR	1,283	1,169	906	666	405	233
PART MATTER		G/HR	133.8	132.9	140.3	143.5	83.4	75.4
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,390.8	2,307.7	1,912.1	1,341.9	1,040.9	1,844.0
TOTAL CO	(CORR 5% O2)	MG/NM3	242.2	293.7	354.1	356.2	464.0	1,013.5
TOTAL HC	(CORR 5% O2)	MG/NM3	47.7	47.8	53.7	69.5	119.0	272.7
PART MATTER	(CORR 5% O2)	MG/NM3	20.3	21.9	30.9	41.4	40.0	71.9
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,165	1,124	931	654	507	898
TOTAL CO	(CORR 5% O2)	PPM	194	235	283	285	371	811
TOTAL HC	(CORR 5% O2)	PPM	89	89	100	130	222	509
TOTAL NOX (AS NO2)		G/HP-HR	5.15	4.92	4.20	3.13	2.71	5.05
TOTAL CO		G/HP-HR	0.52	0.62	0.78	0.82	1.21	2.79
TOTAL HC		G/HP-HR	0.12	0.12	0.14	0.19	0.36	0.87
PART MATTER		G/HP-HR	0.05	0.06	0.08	0.12	0.12	0.22
TOTAL NOX (AS NO2)		LB/HR	29.24	25.55	16.64	8.53	4.03	3.77
TOTAL CO		LB/HR	2.95	3.20	3.10	2.23	1.80	2.08
TOTAL HC		LB/HR	0.67	0.62	0.54	0.51	0.53	0.65
TOTAL CO2		LB/HR	2,829	2,578	1,998	1,467	893	514
PART MATTER		LB/HR	0.30	0.29	0.31	0.32	0.18	0.17
OXYGEN IN EXH		%	10.0	10.3	10.9	11.6	12.9	15.2
DRY SMOKE OPACITY		%	2.1	2.4	3.0	3.6	2.8	3.0
BOSCH SMOKE NUMBER			0.73	0.84	1.10	1.32	1.04	1.11

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN		EKW	1,760.0	1,600.0	1,200.0	800.0	400.0	160.0
PERCENT LOAD		**%**	**110**	**100**	**75**	**50**	**25**	**10**
ENGINE POWER		**BHP**	**2,584**	**2,360**	**1,799**	**1,237**	**676**	**339**
TOTAL NOX (AS NO2)		G/HR	15,916	13,907	9,059	4,642	2,193	2,053
TOTAL CO		G/HR	2,411	2,612	2,528	1,823	1,466	1,702
TOTAL HC		G/HR	406	374	323	308	323	392
PART MATTER		G/HR	187.3	186.0	196.4	200.9	116.7	105.6
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,869.0	2,769.3	2,294.5	1,610.3	1,249.1	2,212.8
TOTAL CO	(CORR 5% O2)	MG/NM3	436.0	528.6	637.4	641.2	835.1	1,824.3
TOTAL HC	(CORR 5% O2)	MG/NM3	63.4	63.6	71.4	92.5	158.3	362.7
PART MATTER	(CORR 5% O2)	MG/NM3	28.4	30.6	43.3	58.0	55.9	100.6
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,397	1,349	1,118	784	608	1,078
TOTAL CO	(CORR 5% O2)	PPM	349	423	510	513	668	1,459
TOTAL HC	(CORR 5% O2)	PPM	118	119	133	173	296	677
TOTAL NOX (AS NO2)		G/HP-HR	6.18	5.91	5.04	3.76	3.25	6.06
TOTAL CO		G/HP-HR	0.94	1.11	1.41	1.48	2.17	5.03
TOTAL HC		G/HP-HR	0.16	0.16	0.18	0.25	0.48	1.16

PART MATTER	G/HP-HR	0.07	0.08	0.11	0.16	0.17	0.31
TOTAL NOX (AS NO2)	LB/HR	35.09	30.66	19.97	10.23	4.83	4.53
TOTAL CO	LB/HR	5.31	5.76	5.57	4.02	3.23	3.75
TOTAL HC	LB/HR	0.89	0.83	0.71	0.68	0.71	0.87
PART MATTER	LB/HR	0.41	0.41	0.43	0.44	0.26	0.23

Regulatory Information

EPA EMERGENCY STATIONARY		2011 - ----		
GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 60 SUBPART IIII AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE EMERGENCY STATIONARY REGULATIONS.				
Locality	**Agency**	**Regulation**	**Tier/Stage**	**Max Limits - G/BKW - HR**
U.S. (INCL CALIF)	EPA	STATIONARY	EMERGENCY STATIONARY	CO: 3.5 NOx + HC: 6.4 PM: 0.20

Altitude Derate Data

STANDARD

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)	30	40	50	60	70	80	90	100	110	120	130	140	NORMAL
ALTITUDE (FT)													
0	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,338	2,360
1,000	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,332	2,293	2,255	2,360
2,000	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,329	2,288	2,249	2,210	2,174	2,360
3,000	2,343	2,343	2,343	2,343	2,343	2,328	2,286	2,245	2,205	2,167	2,131	2,095	2,343
4,000	2,262	2,262	2,262	2,262	2,262	2,243	2,203	2,163	2,125	2,089	2,053	2,019	2,262
5,000	2,184	2,184	2,184	2,184	2,184	2,161	2,122	2,084	2,047	2,012	1,978	1,746	2,184
6,000	2,110	2,110	2,110	2,110	2,110	2,081	2,044	2,007	1,972	1,935	1,676	1,463	2,110
7,000	2,038	2,038	2,038	2,038	2,038	2,004	1,968	1,933	1,770	1,581	1,369	1,204	2,038
8,000	1,969	1,969	1,969	1,969	1,966	1,929	1,894	1,676	1,487	1,274	1,133	1,015	1,969
9,000	1,902	1,902	1,902	1,902	1,891	1,794	1,605	1,392	1,204	1,086	968	897	1,902
10,000	1,838	1,838	1,838	1,838	1,699	1,510	1,298	1,156	1,038	920	850	779	1,838
11,000	1,776	1,776	1,776	1,605	1,416	1,227	1,086	991	897	826	755	708	1,776
12,000	1,717	1,717	1,534	1,322	1,156	1,038	944	850	779	732	684	661	1,628
13,000	1,628	1,416	1,227	1,109	991	897	826	755	708	684	637	614	1,416
14,000	1,322	1,180	1,062	944	873	779	732	708	661	637	590		1,204
15,000	1,109	991	897	826	755	708	684	637	614	590			1,086

Cross Reference

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
4577183	LL8480	4994641	PG041	LS	RRL00001	
4577183	LL8480	5157730	PG041	-	LYP00001	

Supplementary Data

Type	Classification	Performance Number
SOUND	SOUND PRESSURE	DM8779

Performance Parameter Reference

Parameters Reference:DM9600-14

PERFORMANCE DEFINITIONS

PERFORMANCE DEFINITIONS DM9600
APPLICATION:
Engine performance tolerance values below are representative of a typical production engine tested in a calibrated dynamometer test cell at SAE J1995 standard reference conditions. Caterpillar maintains ISO9001:2000 certified quality management systems for engine test Facilities to assure accurate calibration of test equipment. Engine test data is corrected in accordance with SAE J1995. Additional reference material SAE J1228, J1349, ISO 8665, 3046-1:2002E, 3046-3:1989, 1585, 2534, 2288, and 9249 may apply in part or are similar to SAE J1995. Special engine rating request (SERR) test data shall be noted.
PERFORMANCE PARAMETER TOLERANCE FACTORS:
Power +/- 3%
Torque +/- 3%
Exhaust stack temperature +/- 8%
Inlet airflow +/- 5%
Intake manifold pressure-gage +/- 10%
Exhaust flow +/- 6%
Specific fuel consumption +/- 3%
Fuel rate +/- 5%
Specific DEF consumption +/- 3%
DEF rate +/- 5%
Heat rejection +/- 5%
Heat rejection exhaust only +/- 10%
Heat rejection CEM only +/- 10%
Heat Rejection values based on using treated water.
Torque is included for truck and industrial applications, do not use for Gen Set or steady state applications.
On C7 - C18 engines, at speeds of 1100 RPM and under these values are provided for reference only, and may not meet the tolerance listed.
On 3500 and C175 engines, at speeds below Peak Torque these values are provided for reference only, and may not meet the tolerance listed.
These values do not apply to C280/3600. For these models, see the tolerances listed below.
C280/3600 HEAT REJECTION TOLERANCE FACTORS:
Heat rejection +/- 10%
Heat rejection to Atmosphere +/- 50%
Heat rejection to Lube Oil +/- 20%
Heat rejection to Aftercooler +/- 5%
TEST CELL TRANSDUCER TOLERANCE FACTORS:
Torque +/- 0.5%
Speed +/- 0.2%
Fuel flow +/- 1.0%
Temperature +/- 2.0 C degrees
Intake manifold pressure +/- 0.1 kPa
OBSERVED ENGINE PERFORMANCE IS CORRECTED TO SAE J1995 REFERENCE AIR AND FUEL CONDITIONS.
REFERENCE ATMOSPHERIC INLET AIR
FOR 3500 ENGINES AND SMALLER
SAE J1228 AUG2002 for marine engines, and J1995 JAN2014 for other engines, reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity at the stated aftercooler water temp, or inlet manifold temp.
FOR 3600 ENGINES
Engine rating obtained and presented in accordance with ISO 3046/1 and SAE J1995 JANJAN2014 reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity and 150M altitude at the stated aftercooler water temperature.
MEASUREMENT LOCATION FOR INLET AIR TEMPERATURE
Location for air temperature measurement air cleaner inlet at stabilized operating conditions.
REFERENCE EXHAUST STACK DIAMETER
The Reference Exhaust Stack Diameter published with this dataset is only used for the calculation of Smoke Opacity values displayed in this dataset. This value does not necessarily represent the actual stack diameter of the engine due to the variety of exhaust stack adapter options available. Consult the price list, engine order or general dimension drawings for the actual stack diameter size ordered or options available.
REFERENCE FUEL
DIESEL
Reference fuel is #2 distillate diesel with a 35API gravity;
A lower heating value is 42,780 KJ/KG (18,390 BTU/LB) when used at 15 deg C (59 deg F), where the density is 850 G/Liter (7.0936 Lbs/Gal).

GAS
Reference natural gas fuel has a lower heating value of 33.74 KJ/L (905 BTU/CU Ft). Low BTU ratings are based on 18.64 KJ/L (500 BTU/CU FT) lower heating value gas. Propane ratings are based on 87.56 KJ/L (2350 BTU/CU Ft) lower heating value gas.
ENGINE POWER (NET) IS THE CORRECTED FLYWHEEL POWER (GROSS) LESS EXTERNAL AUXILIARY LOAD
Engine corrected gross output includes the power required to drive standard equipment; lube oil, scavenge lube oil, fuel transfer, common rail fuel, separate circuit aftercooler and jacket water pumps. Engine net power available for the external (flywheel) load is calculated by subtracting the sum of auxiliary load from the corrected gross flywheel out put power. Typical auxiliary loads are radiator cooling fans, hydraulic pumps, air compressors and battery charging alternators. For Tier 4 ratings additional Parasitic losses would also include Intake, and Exhaust Restrictions.
ALTITUDE CAPABILITY
Altitude capability is the maximum altitude above sea level at standard temperature and standard pressure at which the engine could develop full rated output power on the current performance data set.
Standard temperature values versus altitude could be seen on TM2001.
When viewing the altitude capability chart the ambient temperature is the inlet air temp at the compressor inlet.
Engines with ADEM MEUI and HEUI fuel systems operating at conditions above the defined altitude capability derate for atmospheric pressure and temperature conditions outside the values defined, see TM2001.
Mechanical governor controlled unit injector engines require a setting change for operation at conditions above the altitude defined on the engine performance sheet. See your Caterpillar technical representative for non standard ratings.
REGULATIONS AND PRODUCT COMPLIANCE
TMI Emissions information is presented at 'nominal' and 'Potential Site Variation' values for standard ratings. No tolerances are applied to the emissions data. These values are subject to change at any time. The controlling federal and local emission requirements need to be verified by your Caterpillar technical representative.
Customer's may have special emission site requirements that need to be verified by the Caterpillar Product Group engineer.
EMISSION CYCLE LIMITS:
Cycle emissions Max Limits apply to cycle-weighted averages only. Emissions at individual load points may exceed the cycle-weighted limit.
WET & DRY EXHAUST/EMISSIONS DESCRIPTION:
Wet - Total exhaust flow or concentration of total exhaust flow
Dry - Total exhaust flow minus water vapor or concentration of exhaust flow with water vapor excluded
EMISSIONS DEFINITIONS:
Emissions : DM1176
EMISSION CYCLE DEFINITIONS
1. For constant-speed marine engines for ship main propulsion, including,diesel-electric drive, test cycle E2 shall be applied, for controllable-pitch propeller sets test cycle E2 shall be applied.
2. For propeller-law-operated main and propeller-law-operated auxiliary engines the test cycle E3 shall be applied.
3. For constant-speed auxiliary engines test cycle D2 shall be applied.
4. For variable-speed, variable-load auxiliary engines, not included above, test cycle C1 shall be applied.
HEAT REJECTION DEFINITIONS:
Diesel Circuit Type and HHV Balance : DM9500
HIGH DISPLACEMENT (HD) DEFINITIONS:
3500: EM1500
RATING DEFINITIONS:
Agriculture : TM6008
Fire Pump : TM6009
Generator Set : TM6035
Generator (Gas) : TM6041
Industrial Diesel : TM6010
Industrial (Gas) : TM6040
Irrigation : TM5749
Locomotive : TM6037
Marine Auxiliary : TM6036
Marine Prop (Except 3600) : TM5747
Marine Prop (3600 only) : TM5748
MSHA : TM6042
Oil Field (Petroleum) : TM6011
Off-Highway Truck : TM6039
On-Highway Truck : TM6038
SOUND DEFINITIONS:
Sound Power : DM8702
Sound Pressure : TM7080
Date Released : 10/27/21

Application & Performance Warranty Data

Project Information

Site Location:	California
Project Name:	Bay Area
Application:	Standby Power
Number Of Engines:	1
Operating Hours per Year:	100

Engine Specifications

Engine Manufacturer:	Caterpillar
Model Number:	3512C
Rated Speed:	1800 RPM
Generator Power:	1600 ekW
Type of Fuel:	Ultra-Low Sulfur Diesel (ULSD)
Type of Lube Oil:	1 wt% sulfated ash or less
Lube Oil Consumption:	0.1 % Fuel Consumption
Number of Exhaust Manifolds:	1

Engine Cycle Data

Load	Speed	Power	Exhaust Flow	Exhaust Temp.	Fuel Cons.	NO_x	CO	NMNEHC	PM_{10}	O_2	H_2O
%		*bhp*	*acfm (cfm)*	*° F*		*g/bhp-hr*	*g/bhp-hr*	*g/bhp-hr*	*g/bhp-hr*	*%*	*%*
100	Rated	2,400	12,943.5	820.4		5.91	1.11	0.16	0.08	10	10

Emission Data (100% Load)

Emission	Raw Engine Emissions						Target Outlet Emissions						Calculated Reduction
	g/bhp-hr	*tons/yr*	*ppmvd @ 15% O_2*	*ppmvd*	*g/kW-hr*	*lb/MW-hr*	*g/bhp-hr*	*tons/yr*	*ppmvd @ 15% O_2*	*ppmvd*	*g/kW-hr*	*lb/MW-hr*	
NO_x*	5.91	1.56	492	908	7.925	17.47	0.5	0.13	42	77	0.671	1.48	91.5%
CO	1.11	0.29	152	280	1.489	3.28	2.6	0.69	355	656	3.487	7.69	
NMNEHC**	0.16	0.04	38	71	0.215	0.47	0.14	0.04	33	62	0.188	0.41	12.5%
PM_{10}	0.08	0.02	26	47	0.107	0.24	0.02	0.01	7	13	0.03	0.07	72.5%

* MW referenced as NO_2

** MW referenced as CH_4. Propane in the exhaust shall not exceed 15% by volume of the NMHC compounds in the exhaust, excluding aldehydes. The 15% (vol.) shall be established on a wet basis, reported on a methane molecular weight basis. The measurement of exhaust NMHC composition shall be based upon EPA method 320 (FTIR), and shall exclude formaldehyde.

System Specifications

DOC/SCR/DPF System Specifications (M3-48-48-24PF-B-R2, ACIS-3, Commissioning & Startup)

SCR Catalyst Space Velocity:	9,176 1/hr
Sound Attenuation:	25-30 dBA insertion loss
Reactant:	Urea
Percent Concentration:	32.5%
Design Exhaust Flow Rate:	12,944 acfm (cfm)
Design Exhaust Temperature[1]:	820° F
Exhaust Temperature Limits:	572° F – 977° F
Minimum Regeneration Temperature[2]:	500° F
SCR Catalyst Volume:	34 ft^3
System Dosing Capacity:	60 L/hr
System Pressure Loss:	15.0 inH_2O (Clean)
Total Catalyst Volume:	34 ft^3
Estimated Reactant Consumption:	7.6 gal/hr (29 L/hr) / Per Engine

MIRATECH Scope of Supply & Equipment Details

	Model Number	Quantity
DOC/SCR/DPF Housing	**M3-48-48-24PF-B-R2**	**1 / engine**
SCR/DPF Housing	M3-48-48-24PF-B-HSG	1 / engine
• Number of Catalyst Layers	1 OXI / 1 DPF / 2 SCR	
• Number of Catalyst Blocks per Layer	48 DPF / 48 SCR	
• Material	Carbon Steel	
• Paint	High Temperature Dark Gray	
• Inlet Location	Bottom	
• Outlet Location	Top	
• Door Location	Sides	
• Insulation	None	
• Dimensions	H 52 in x W 76 in x L 199 in	
• Inlet Pipe Size & Connection	24 in FF Flange, 150# ANSI standard bolt pattern	
• Outlet Pipe Size & Connection	24 in FF Flange, 150# ANSI standard bolt pattern	
• Weight Fully Loaded With Catalyst	9,623 lbs	
• Weight Without Catalyst	6,476 lbs	
Tray Set	STS-M3-48	2 / engine
Tray Set	DTS-M3-48	1 / engine
DPF Block	LTR-DPF-Filter-Block	46 / engine
DPF Spacer	Soot Filter Spacer	2 / engine
SCR Catalyst	SCRC-044-150-450	96 / engine
Oxidation Catalyst	MECR-OX-SB2619-2400-2000-291	2 / engine
SCR Control System	**ACIS-3**	**1 / engine**
SCR Controller	A3C-60-HMI	1 / engine
• Overall Dimensions	W 24.110 in x H 31.535 in x D 12.442 in	
• Weight	76 lbs	
Dosing Box	SEN60-U	1 / engine
• Overall Dimensions	W 15.75 in x H 15.75 in x D 6.562 in	
• Weight	28 lbs	
Reactant Pump	VPN75.lab	1 / engine
• Overall Dimensions	W 19.685 in x H 15.906 in x D 23.031 in	
• Weight	88 lbs	
Reactant Filter	FILTER115	1 / engine
Injector	DEN75-600-U	1 / engine
• Weight	12 lbs	
Differential Pressure Sensor	PT.040	1 / engine
Bypass Probe	NP-16	2 / engine
Temperature Sensor	TT-14-FLEX60-32-1112	2 / engine

	Model Number	Quantity
Air Compressor	CA75.lab	1 / engine
• Overall Dimensions	W 21.445 in x H 26.772 in x D 15.748 in	
• Weight	82 lbs	
NOx Sensor	NOX-24V	2 / engine
Wiring Harness	WH-NOX-24V-50-SL	2 / engine
• Overall Length	600 in	
Commissioning & Startup	**Commissioning & Startup**	**1 / engine**
Analyzer Charges	Analyzer Charges	1 / engine
Expense Charges	Expense Charges	1 / engine
Labor Charges	Labor Charges	1 / engine

Optional Content MIRATECH Scope of Supply & Equipment Details

	Model Number	Quantity
Maintenance Pack	**ACIS-3 Maintenance Pack**	**1 / engine**
Maintenance Pack	VPN75 Maintenance Pack	1 / engine
SCR Parts	601.0015	1 / engine
Maintenance Pack	CA75 Maintenance Pack	1 / engine
SCR Parts	2020.0248	1 / engine
SCR Parts	2020.025	1 / engine
SCR Parts	2020.0249	1 / engine
Maintenance Pack	SEN60 Maintenance Pack	1 / engine
SCR Parts	2020.0234	1 / engine
SCR Parts	902.0021	1 / engine
Maintenance Pack	DEX75.XXX Maintenance Pack	1 / engine
SCR Parts	202.0004	2 / engine
SCR Parts	202.0005	2 / engine
SCR Parts	2070.016	2 / engine
SCR Parts	201.0231	2 / engine
SCR Parts	1304.0007	2 / engine
SCR Parts	1304.0004	2 / engine
Spare Parts	**ACIS-3 Recommended Spare Parts**	**1 / engine**
Recommended Spare Parts	VPN75 Recommended Spare Parts	1 / engine
SCR Parts	2020.001	1 / engine
Recommended Spare Parts	CA75 Recommended Spare Parts	1 / engine
SCR Parts	2020.0237	1 / engine
Recommended Spare Parts	SEN60 Recommended Spare Parts	1 / engine
SCR Parts	2020.0234	1 / engine
Recommended Spare Parts	A3C Recommended Spare Parts	1 / engine
Spare Part	A3C Fuses & Fuse Holders	1 / engine

Customer Scope Of Supply

- Support Structure
- Attachment to Support Structure (Bolts, Nuts, Levels, etc.)
- Design for Structural Support and Thermal Expansion
- Expansion Joints
- Exhaust Piping
- Inlet Pipe Bolts, Nuts, & Gasket
- Outlet Pipe Bolts, Nuts, & Gasket
- Insulation for Exhaust Piping
- Component Installation Including External Tubing and Wiring
- Isolated Engine Load Signal to MIRATECH Equipment (4-20 mA)
- Dry Contact (N.O.) for Engine Run Signal to MIRATECH Equipment
- Reactant Storage Tank

Special Notes & Conditions

1. For housings and exhaust components that are insulated, internally or externally, please refer to Section 7.1 of the General Terms and Conditions of Sale to prevent voiding MIRATECH product warranty.

   For housings and exhaust components that are insulated, internally or externally, please refer to Section 7.1 of the General Terms and Conditions of Sale to prevent voiding MIRATECH product warranty. - Carbon steel is suitable for temperatures up to 900° F / 482° C continuously, when covered with external insulation or a heat shield. For continuous operation above 900° F / 482° C, where the equipment is externally insulated or has a heat shield, stainless steel should be used.

2. Diesel Particulate Filters depend on exhaust temperature to keep soot regenerated and the filter back pressure within acceptable levels. If the engine will be operated consistently at low loads/low exhaust temperatures, the customer should make provisions to add load via facility operations or a load bank. Refer to the included *Guidelines for Successful Operation of LTR™ DPF*.

- A packed silencer installed upstream of the MIRATECH catalyst system will void MIRATECH's limited warranty.

- Final catalyst housings are dependent on engine output and required emission reductions. Changes may be made to optimize the system design at the time of order.

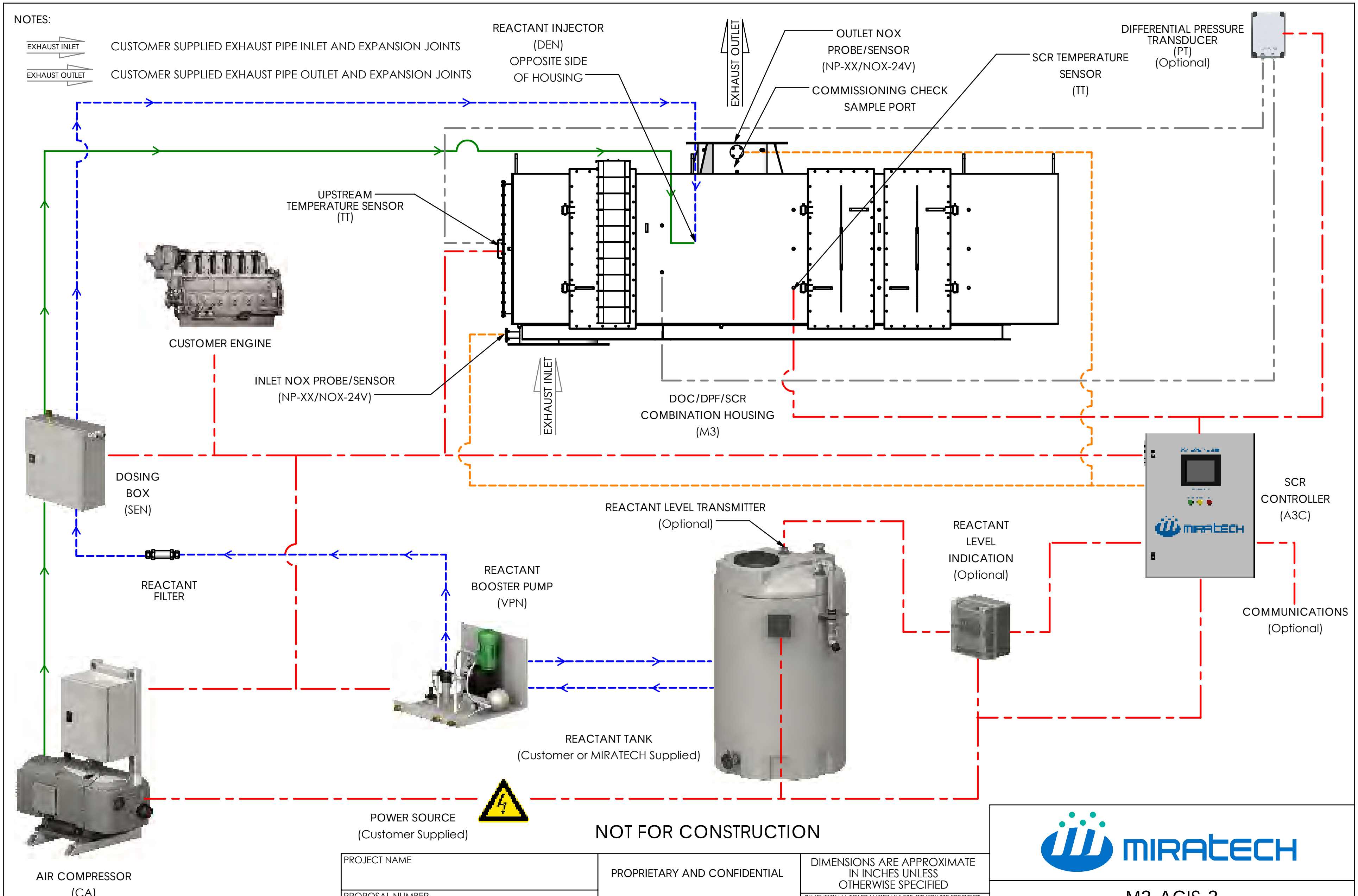
- Any drawings included with this proposal are preliminary in nature and could change depending on final product selection.

- Any sound attenuation listed in this proposal is based on housing with catalyst elements installed.

- MIRATECH Corporation warrants that the emissions reductions requested for this inquiry will be achieved at the design and test load point as outlined in the proposal. Tier 4 is an engine certificate designation, not an actual tons/yr or g/bhp-hr measurement. MIRATECH will utilize the engine manufacturer’s emission data at 100% load to provide our warranty. This is the maximum volume potential point for pollutants to be emitted. Permitting is normally done on a mass flow or tons per year basis, therefore the system will be sized accordingly. The MIRATECH design is to achieve the blended Tier 4 emission targets from the D2 test cycle, measured at 100% engine load conditions.

- Any emission reductions listed in this proposal are based on housing with catalyst elements installed.

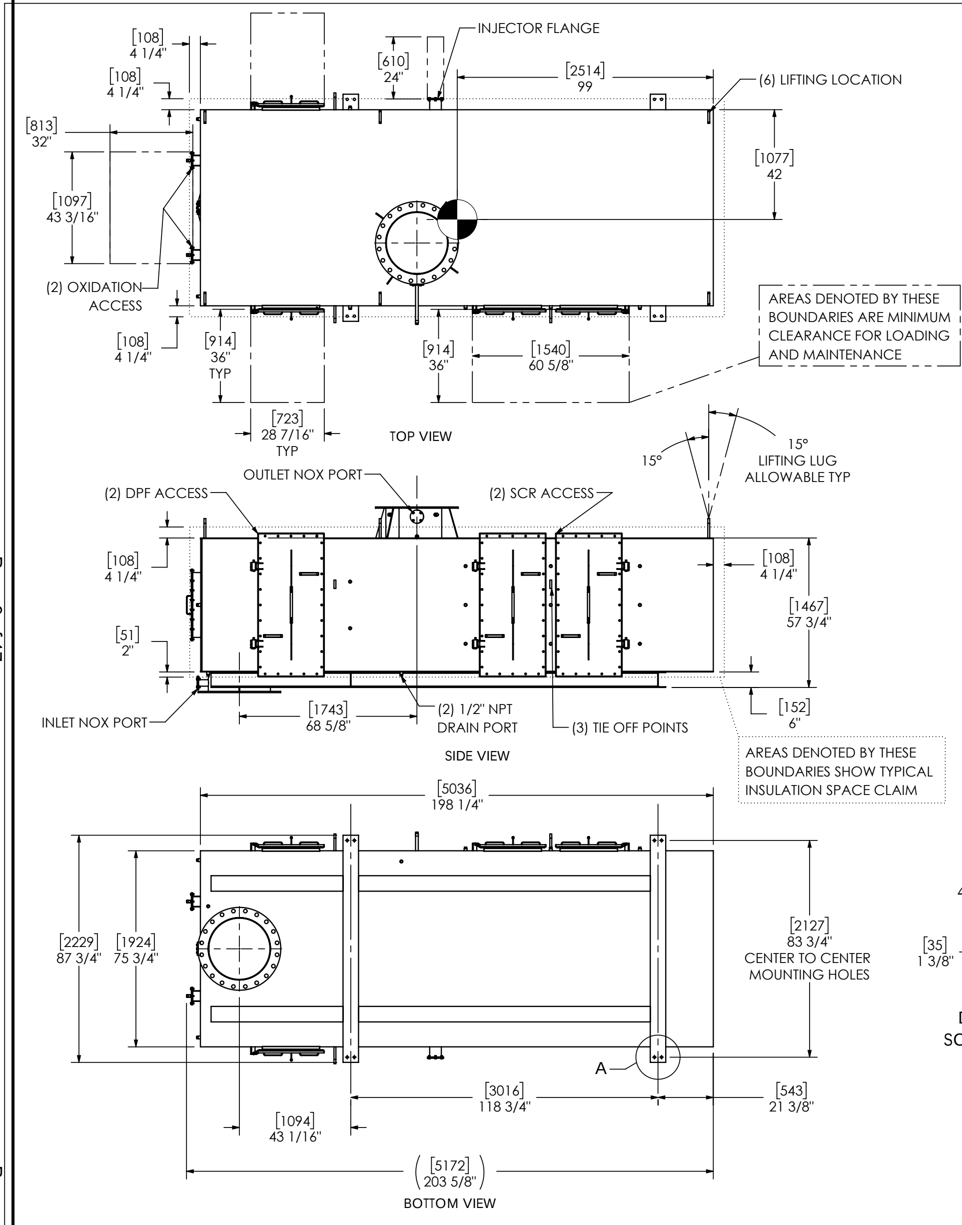
- MIRATECH will confirm shipping location upon placement of order.

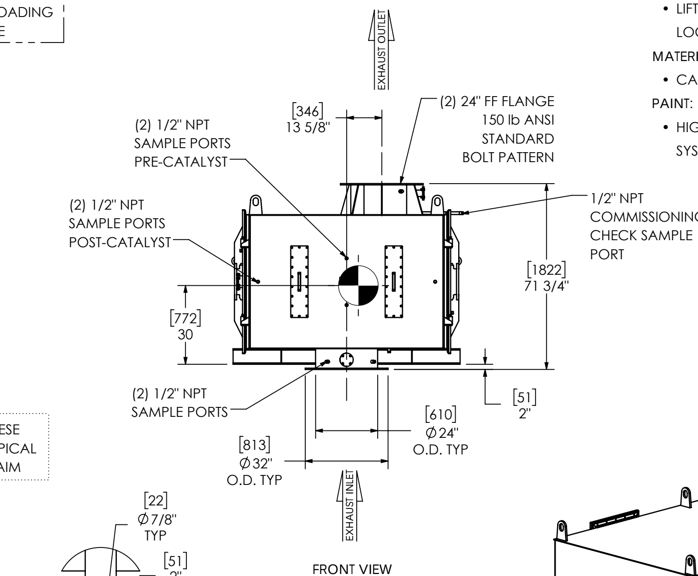


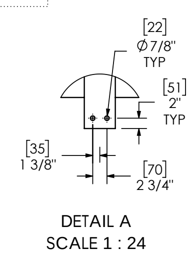
NOT FOR CONSTRUCTION

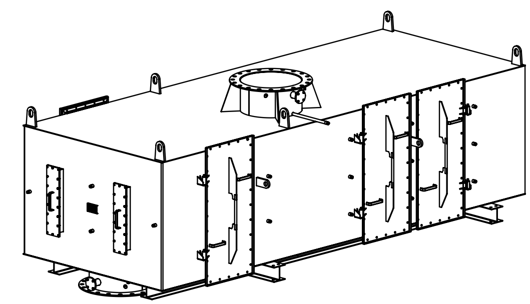
PROJECT NAME	PROPRIETARY AND CONFIDENTIAL	DIMENSIONS ARE APPROXIMATE IN INCHES UNLESS OTHERWISE SPECIFIED	MIRATECH
PROPOSAL NUMBER	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MIRATECH GROUP, LLC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF MIRATECH GROUP, LLC IS PROHIBITED.	DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED ANGLES MACH: ±2° BEND: ±3° INCHES: ±1/8 MILLIMETERS: ±3	M3-ACIS-3 System Overview
SALES ORDER NO.		DO NOT SCALE DRAWING; DRAWN TES; DATE 05/19/2022	DRAWING M3-ACIS-3 SOD; REV 1
CUSTOMER P.O.		REVIEWED BY GFS; DATE 05/20/2022	SIZE A; SCALE: NTS; SHEET 1 OF 1

Note - this unit's injector is 23.625" long.









WEIGHTS (APPROXIMATE)	
EMPTY HOUSING	6476 lb
ONE (1) FULL SCR CATALYST LAYER	840 lb
TWO (2) FULL SCR CATALYST LAYERS	1680 lb
ONE (1) FULL DPF LAYER	840 lb
TWO (2) OXIDATION ELEMENTS	96 lb
INSULATION AND SHEATHING	1444 lb
HOUSING HAS CAPACITY FOR TWO (2) FULL SCR CATALYST LAYERS	

NOTES:

- DO NOT USE EQUIPMENT TO SUPPORT OTHER PARTS OF THE EXHAUST SYSTEM WITHOUT PROPER REINFORCEMENT
- CUSTOMER MOUNTING STRUCTURE TO BE SLOTTED TO ALLOW FOR METAL EXPANSION
- LIFTING HOUSING REQUIRES USE OF ALL (6) LIFTING LOCATIONS

MATERIAL CONSTRUCTION:

- CARBON STEEL

PAINT:

- HIGH TEMPERATURE DARK GRAY (MIRATECH COATING SYSTEM 2)

PROJECT NAME	
PROPOSAL NUMBER	
SALES ORDER NO.	
CUSTOMER P.O.	

DIMENSIONS ARE APPROXIMATE IN INCHES UNLESS OTHERWISE SPECIFIED

DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED
ANGLES MACH: ±2° BEND: ±3° INCHES: ±1/8 MILLIMETERS: ±3

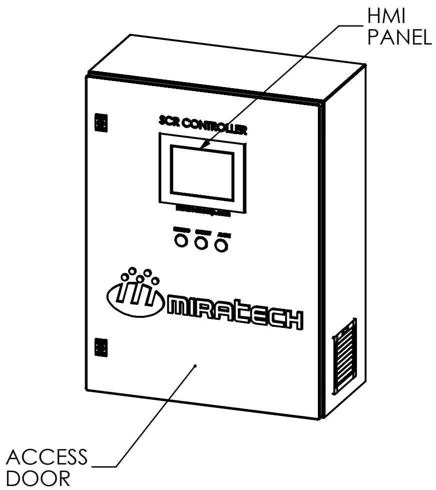
DO NOT SCALE DRAWING

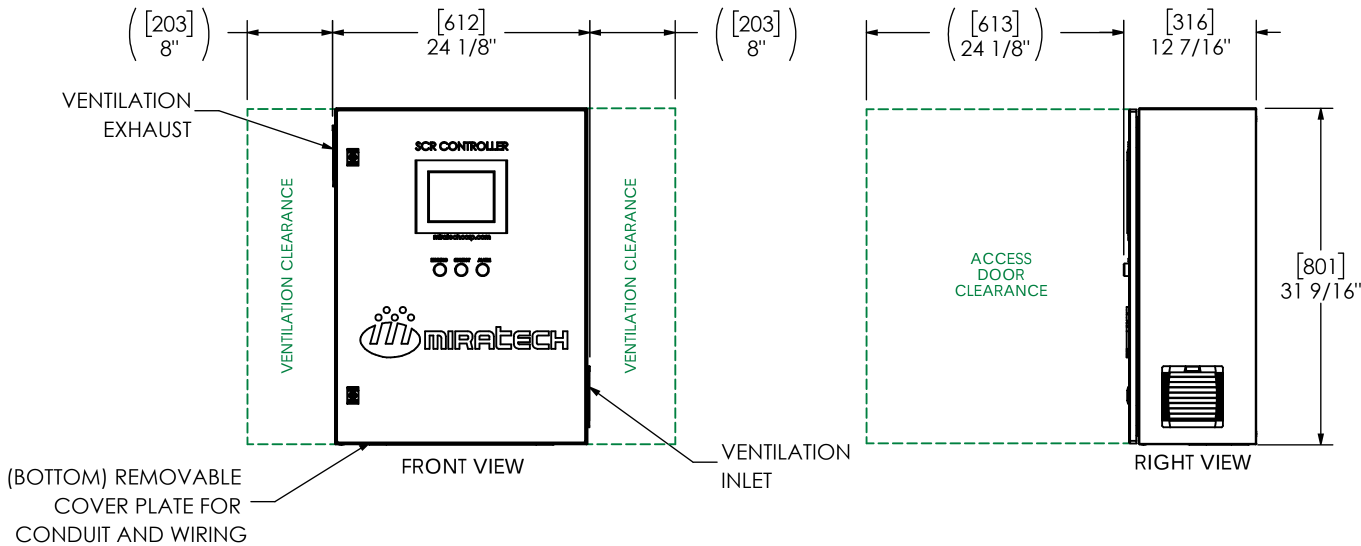
DRAWN	DATE	REVIEWED BY	DATE
JDS	05/12/2022	MSC	05/12/2022

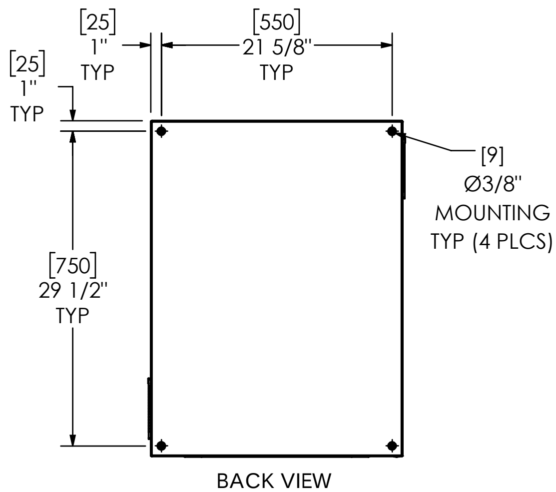
MIRATECH

M3-48-48-24PF-J
Sales Drawing

DRAWING	REV	SIZE	SCALE	SHEET
M3-48-48-24PF-J SD	0	B	SCALE 1:48	SHEET 1 OF 1







NOTES:

- POWER CONSUMPTION: 300 W MAX
- VOLTAGE: 230 VAC +/- 10%, SINGLE Φ, 50 - 60 HZ
- CURRENT DRAW: 1.5 A
- POWER CONSUMPTION OF THE REACTANT BOOSTER PUMP AND DOSING PANEL ARE SUPPLIED USING THE SAME CIRCUIT AS THE OLC; REFERENCE THESE DRAWINGS FOR THEIR ADDED POWER CONSUMPTION
- OPERATING TEMPERATURE: 32°F - 122°F (0°C - 50°C) (NON-CONDENSING)
- UL COMPLIANT

INSTALLATION INSTRUCTIONS:

- ENCLOSURE RATED IP55 (NEMA 12 EQUIVALENT)
- INSTALLATION LOCATION MUST BE VENTILATED AND TEMPERATURE CONTROLLED TO MAINTAIN PROPER OPERATING TEMPERATURE.
- UNIT MAY BE WALL MOUNTED OR INSTALLED ON A BASE
- POWDER COATED GRAY

PROJECT NAME	
PROPOSAL NUMBER	
SALES ORDER NO.	
CUSTOMER P.O.	

DIMENSIONS ARE APPROXIMATE IN INCHES UNLESS OTHERWISE SPECIFIED

DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED

ANGLES			
MACH:	±2°	INCHES:	±0.125
BEND:	±3°	MILLIMETERS:	±3

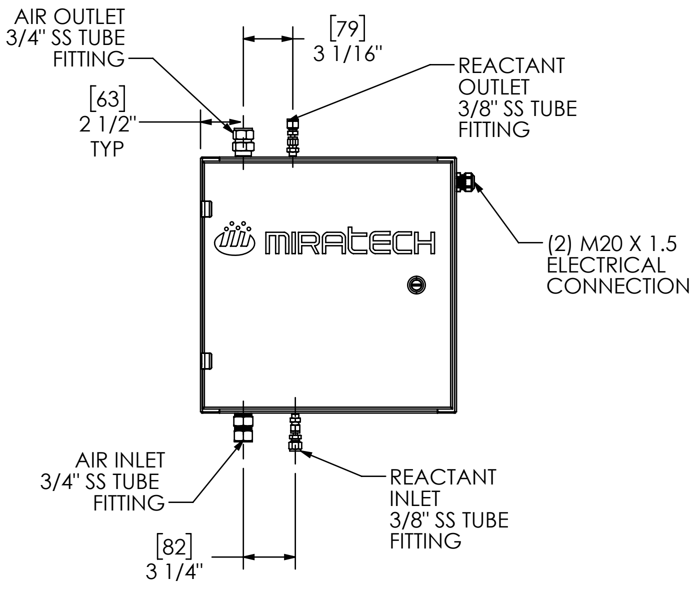
DO NOT SCALE DRAWING

DRAWN	DATE
TES	05/18/2022
REVIEWED BY	DATE
GFS	05/18/2022

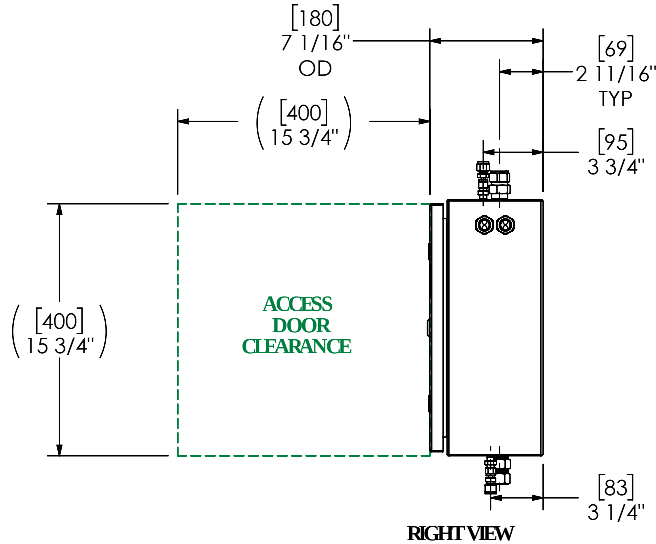
MIRATECH

A3C-60-HMI Controller
Sales Drawing

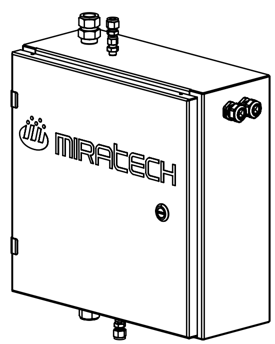
DRAWING			REV
A3C-60-HMI SD			0
SIZE A	SCALE 1:18	WEIGHT: 76lb	SHEET 1 OF 1

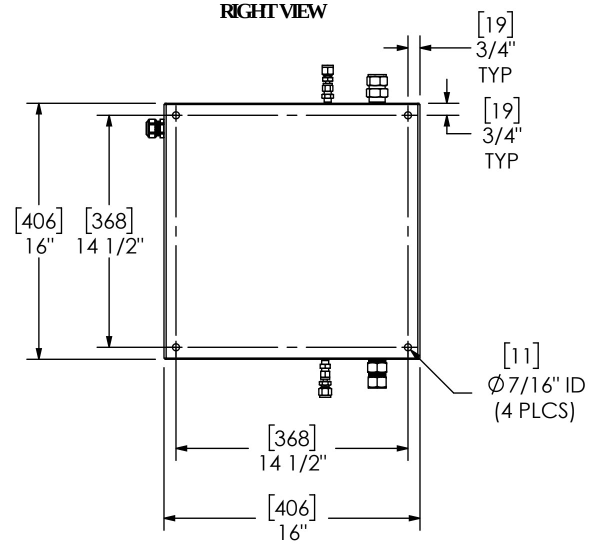


FRONT VIEW



RIGHT VIEW





REAR VIEW

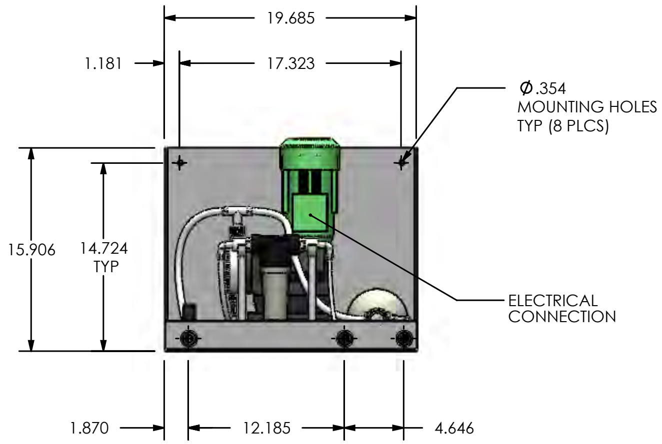
NOTES:

- POWER CONSUMPTION: 5.75 W MAX
- POWER: SUPPLIED FROM SCR CONTROLLER
- OPERATION TEMPERATURE: 40-122°F (5-50°C)
- OPERATING PRESSURE:
  - REACTANT: 3 BAR (43.5 PSI)
  - AIR: 1 BAR (14.5 PSI)
- SUITABLE FOR INDOOR/OUTDOOR USE PER IP55 RATING
- OPERATING FLOW RATE:
  - REACTANT: 60 L/HR MAX (15.9 GAL/HR)
  - AIR: 500 L/MIN (17.7 CFM)

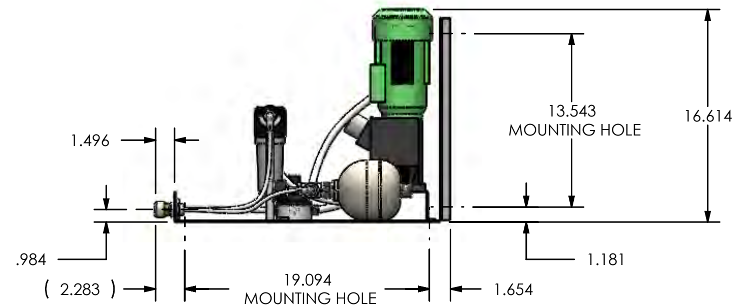
INSTALLATION INSTRUCTIONS:

- IF UNIT IS INSTALLED IN AN ENCLOSURE, THE ENCLOSURE MUST BE VENTILATED AND TEMPERATURE CONTROLLED TO MAINTAIN PROPER OPERATION TEMPERATURE.
- UNIT TO BE MOUNTED SO THAT IT IS ACCESSIBLE WHILE ENGINE IS IN OPERATION AND TUBING IS NO MORE THAN 6.5 FEET (2 M) TO DOSING INJECTOR.
- UREA LINES SHOULD BE HEAT TRACED IF AMBIENT CONDITIONS FALL BELOW 32°F (0°C)

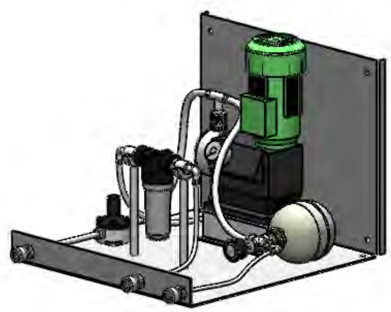
PROJECT NAME	**PROPRIETARY AND CONFIDENTIAL**	DIMENSIONS ARE APPROXIMATE IN INCHES UNLESS OTHERWISE SPECIFIED		MIRATECH			
PROPOSAL NUMBER	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MIRATECH GROUP, LLC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF MIRATECH GROUP, LLC IS PROHIBITED.	DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED: ANGLES MACH: ±2° BEND: ±3°	INCHES: ±1/8 MILLIMETERS: ±3	**SEN60-U Dosing Box Sales Drawing**			
SALES ORDER NO.		DO NOT SCALE DRAWING					
		DRAWN MLC	DATE 05/17/2022	DRAWING SEN60-U SD			REV 0
CUSTOMER P.O.		REVIEWED BY GEP	DATE 05/17/2022	SIZE A	SCALE 1:12	WEIGHT: 51 lb	SHEET 1 OF 1

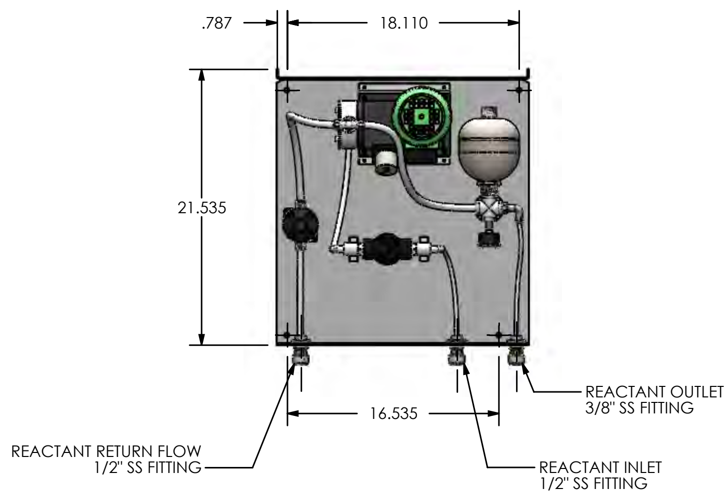


FRONT VIEW



RIGHT VIEW





TOP VIEW

NOTES:

- *POWER CONSUMPTION:* 250 W MAX SUPPLIED BY SNQ CONTROLLER
- *OPERATION TEMPERATURE:* 40°F - 104°F

INSTALLATION INSTRUCTIONS:

- UNIT TO BE MOUNTED SO THAT THE MAXIMUM SUCTION HEIGHT IS LESS THAN 5 FEET
- UREA LINES SHOULD BE HEAT TRACED IF AMBIENT CONDITIONS FALL BELOW 40° F

PROJECT NAME	
PROPOSAL NUMBER	
SALES ORDER NO.	
CUSTOMER P.O.	

PROPRIETARY AND CONFIDENTIAL

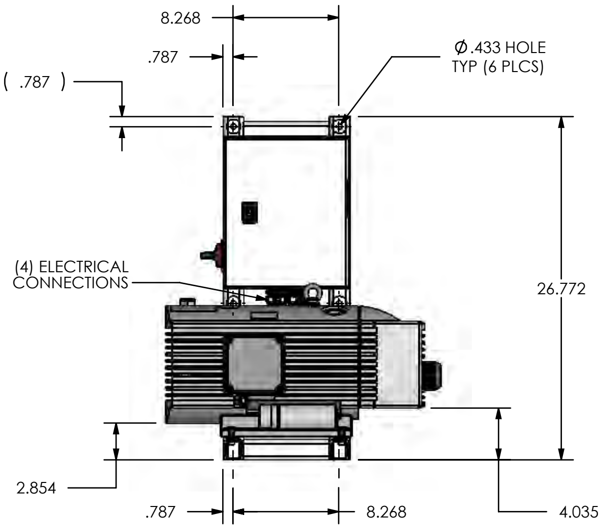
DIMENSIONS ARE APPROXIMATE IN INCHES UNLESS OTHERWISE SPECIFIED

DO NOT SCALE DRAWING

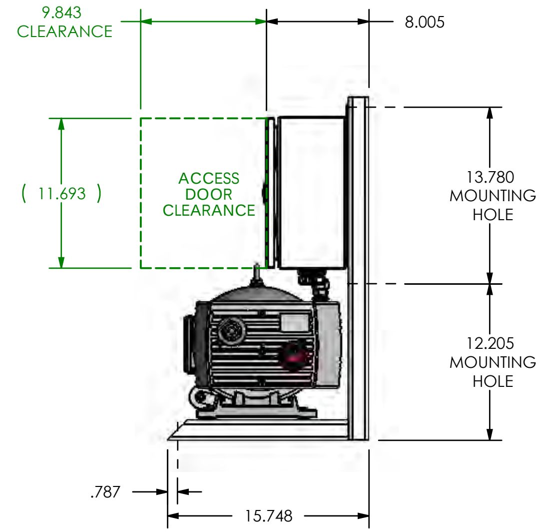
MIRATECH

VPN75 Booster Pump
Sales Drawing

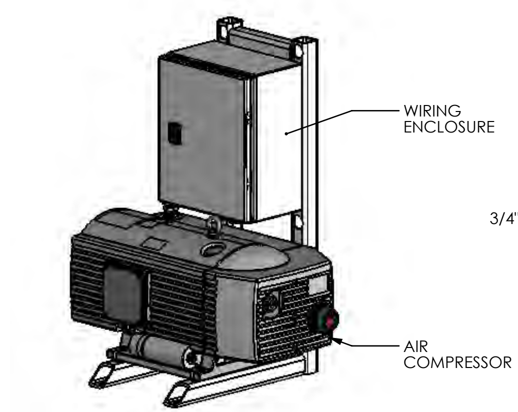
DRAWN: JFS	DATE: 08/22/2011	DRAWING: VPN75 SD	REV: 6
REVIEWED BY: AJM	DATE: 08/22/2011	SIZE: A	SCALE 1:15
WEIGHT: 88 lb	SHEET 1 OF 1		

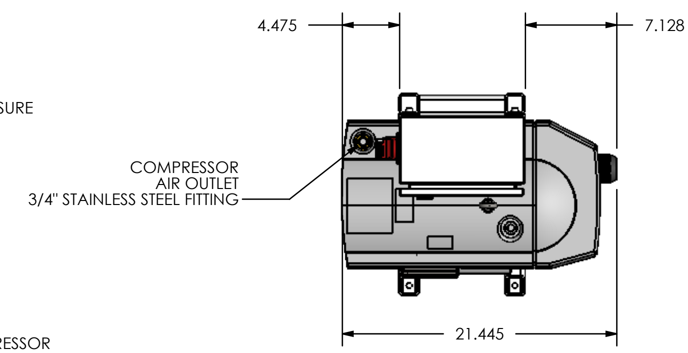


FRONT VIEW



RIGHT VIEW





TOP VIEW

NOTES:

- *POWER CONSUMPTION:* 1300 W MAX
- *VOLTAGE:* 230 VAC +/- 10%, SINGLE Φ, 60 Hz
- *CURRENT DRAW:* 9.5 A
- OPERATION TEMPERATURE: 32°F - 104°F

INSTALLATION INSTRUCTIONS:

- IF UNIT IS INSTALLED IN AN ENCLOSURE, THE ENCLOSURE MUST BE VENTILATED AND TEMPERATURE CONTROLLED TO MAINTAIN PROPER OPERATION TEMPERATURE

PROJECT NAME

PROPOSAL NUMBER

SALES ORDER NO.

CUSTOMER P.O.

PROPRIETARY AND CONFIDENTIAL

DIMENSIONS ARE APPROXIMATE IN INCHES UNLESS OTHERWISE SPECIFIED

DO NOT SCALE DRAWING

MIRATECH

CA75 Air Compressor
Sales Drawing

DRAWN	DATE	DRAWING			REV
JFS	08/22/2011	CA75 SD			6
REVIEWED BY	DATE	SIZE	SCALE 1:15	WEIGHT: 131 lb	SHEET 1 OF 1
AJM	08/22/2011	A			

Closed Circuit Fluid Cooler Datasheet

Job Information

NDA
ATCE
San Jose, CA

Selected by

Norman S. Wright Company - San Francisco
99A South Hill Drive
Brisbane, California 94005

Brian Maher
408-593-4991
bmaher@norman-wright.com

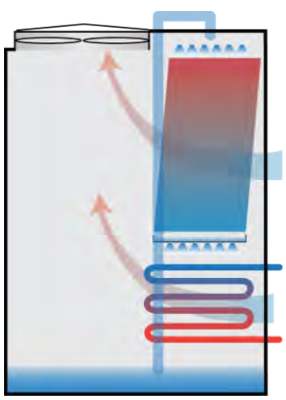
Marley MHF7109EAKBNC3

Marley MHF Induced Draft Crossflow Fill/Coil Hybrid Fluid Cooler
Standard Single Flow, Copper Wet Coil (A)
https://spxcooling.com/evaporative-fluid-coolers/marley-mh-element-fluid-cooler/

Selection

Model	MHF7109EAKBNC3
Number of Cells	18
Capacity	100.5%
ASHRAE 90.1 Eff. (gpm/Hp)	32.9
Fill Type	MX75
Coil Material	Copper

This selection satisfies your design conditions.



Design Conditions

Fluid	Water
Total Flow (gpm)	1782
HWT (°F)	107.6
CWT (°F)	82
WBT (°F)	76.5
Total Heat Load (Btu/h)	22646000

Mechanical

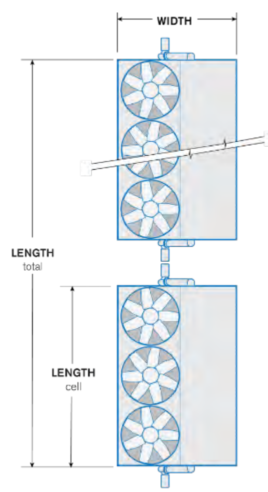
	Per Cell	Total
Fan Type	Low Sound	
Fans	3	
Fan Speed (rpm)	647	
Fan Motor Speed (rpm)	1800	
Fan Motor Nameplate (Hp)	45	
Fan Motor Rated (BHp)	45	
Fan Motor Required (BHp)*	44.29	
Airflow (cfm)	184200	
Pumps	2	
Pump Motor Rated (BHp)	15	
Pump Water Flow (gpm)	1396	

** Fan Motor Required power assumes VFD operation*

Weights / Dimensions (options NOT included, refer to drawings)

	Per Cell
Width	11'-11"
Length	18'-0 ¾"
Height	22'-3 ½"
Shipping Weight (lb)	21900
Heaviest Section (lb)	11400
Max Operating Weight (lb)	39000
Clearance Solid Wall *	13'-7 ¼"
Clearance 50% Open Wall *	9'-1 ⅞"

** Air inlet clearances with no performance impact; reduced if tower elevated*



Other Data

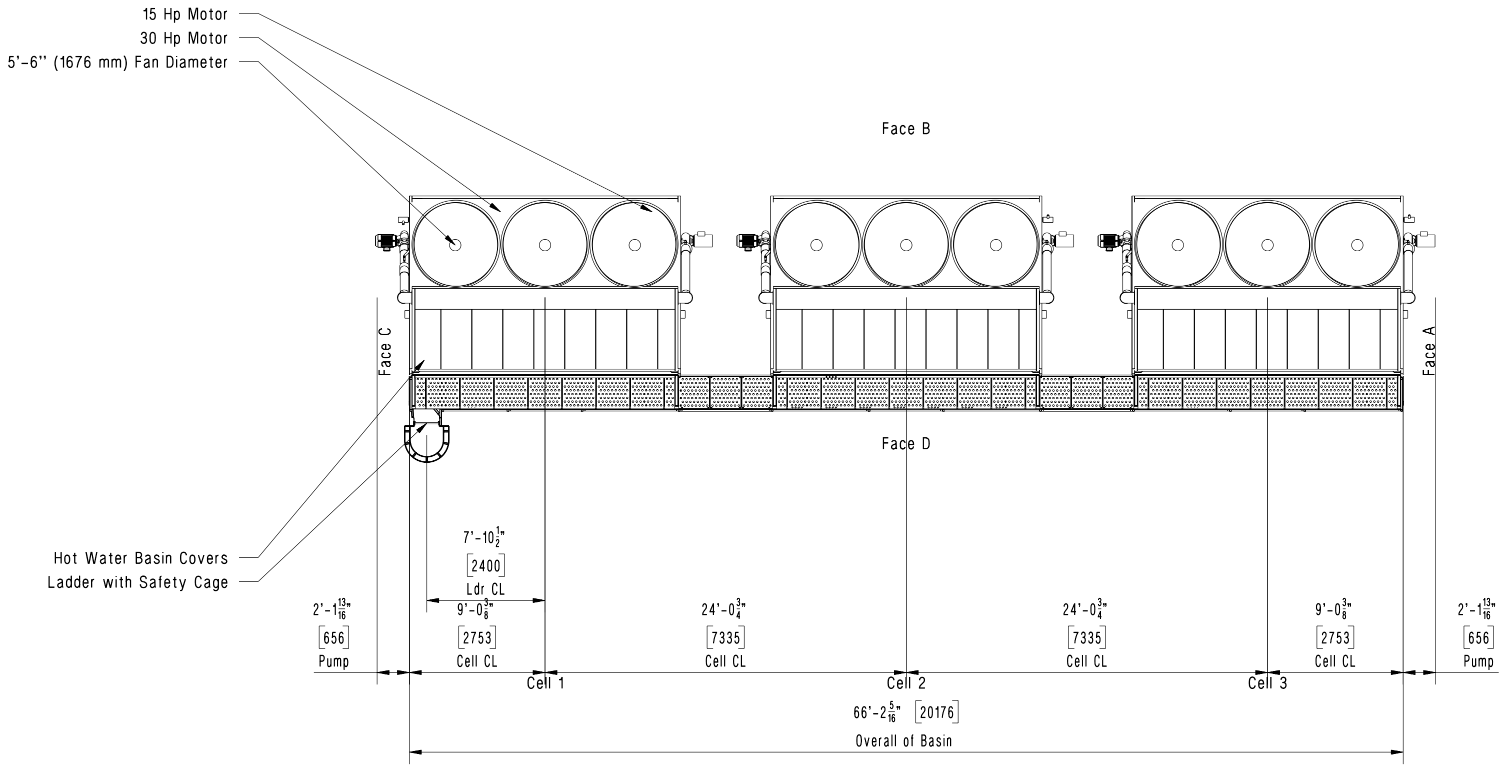
Coil Pressure Drop (psi)	4.26
Dry Switchpoint, 100.0% Load (°F)	NA
Evaporation, 50% RH (gpm)	48.3

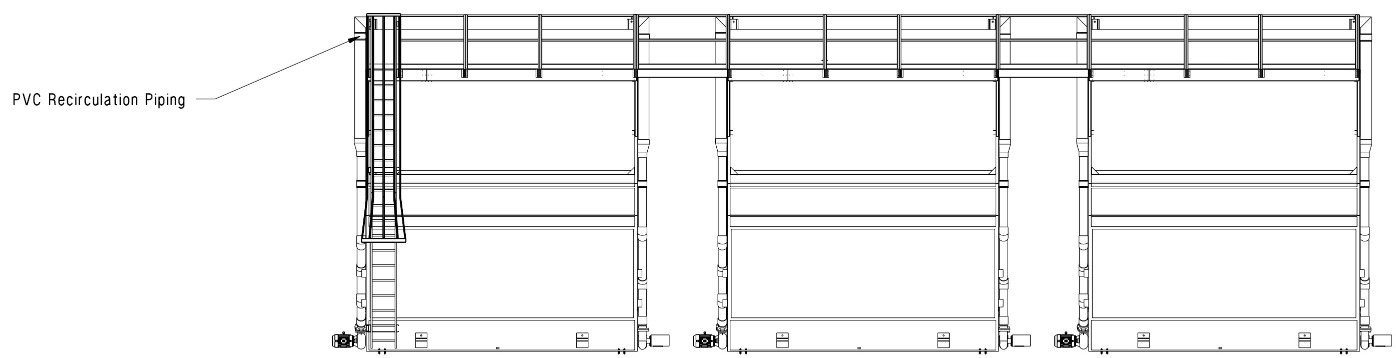
Heater Sizing (to prevent collection basin freezing during shutdown)

kW/Cell	18	15	12	9	7.5	6
Ambient (°F)	-12.9	-3.43	6.04	15.5	20.2	25

Heat Loss (50°F inlet fluid, -10°F ambient, 45mph wind, unit off)

Standard Unit	640400
with Dampers	262100
with Dampers & Insulation	235500





NOTES

1. See Schematic Cased Elevation and Notes drawing for additional notes.
2. The tower assembly tolerance applicable to all dimensions is + or – 1/8" (3 mm). Consult suppliers of supporting structure for construction tolerances.
3. The units of measure are in IP (SI) units unless otherwise noted.

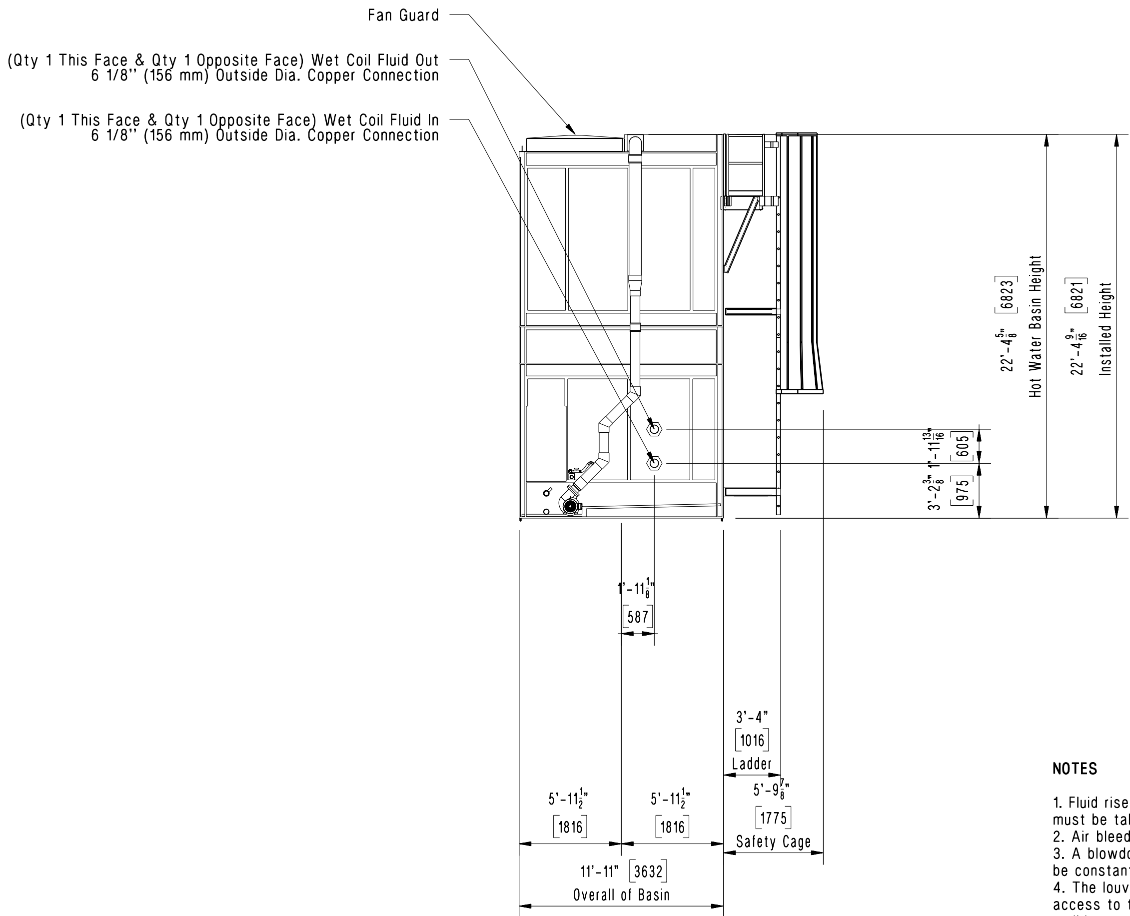
MHF7109EAKBNC3BBF – Schematic Plan and Louver Elevation

San Jose, CA, United States

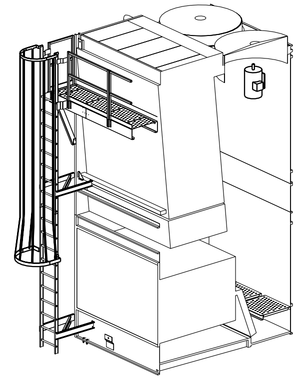
MARLEY

ORDER 10252799

DRAWN BY	CHECKED	REV BY	REV CHK	DATE	APPROVED	DRAWING NUMBER	REV.
Brian Maher_240131_102906252 V1	QTC			02/06/24	SYS	BM880241S	



Face C



NOTES

1. Fluid risers for coils shall be supported independent of the tower and must not add extra weight to the equipment. Precautions must be taken to protect the tower from excess heat when soldering connections.
2. Air bleed valve supplied by others and should be located external to the tower and above the coil outlet header.
3. A blowdown line with valve connected to the recirculating pump riser, by SPX CT, allows a portion of the recirculating by water to be constantly diverted to the tower overflow if desired.
4. The louver face platform consists of 11 gauge steel supports and 16 gauge steel walkway panels. The louver face platform allows access to the hot water basin covers without increasing total tower installation height. The louver face platform does not provide walking access to the top of the tower.
5. The interior mechanical equipment platform consists of the plenum walkway plus an elevated platform for access to the mechanical equipment. A ladder is provided from the plenum walkway to the elevated platform. A handrail system is provided on the elevated platform. The distance from the top of the mechanical equipment platform to the fan is 148.41549682617''.
6. The fan motor must be locked out and inoperable before entering the tower. This warning has been placed on the access door.
7. The plenum walkway consists of 11 gauge steel supports and 16 gauge steel walkway panels. The elevation of the plenum walkway is above the overflow water level of the collection basin.
8. To ensure maximum thermal performance the cooling tower must be installed level and plumb. The air inlet face must have adequate air supply. If obstructions exist, consult your SPX CT representative.
9. Hoisting clips are provided for ease of unloading and positioning. For overhead lifts or where additional safety precautions are prudent, add slings beneath the tower. See Hoisting Details drawing.

MHF7109EAKBNC3BBF – Schematic Cased Elevation and Notes

San Jose, CA, United States

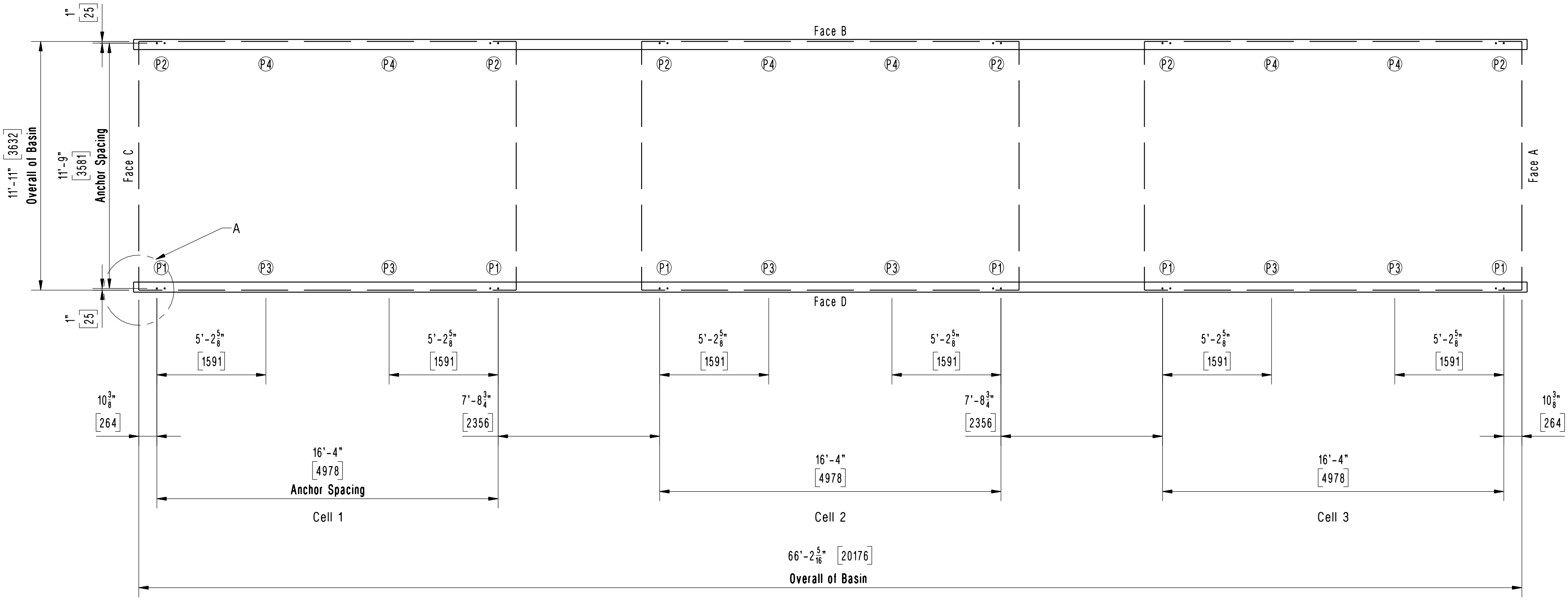
MARLEY

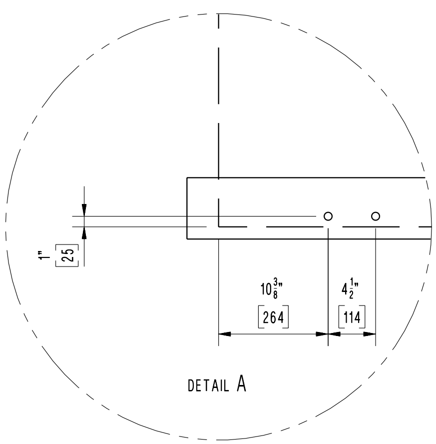
ORDER 10252799

DRAWN BY	CHECKED	REV BY	REV CHK	DATE	APPROVED	DRAWING NUMBER	REV.
Brian Maher_240131_102906252 V1	QTC			02/06/24	SYS	BM880241M	

Shipping Weight		Design Operating Loads						Wind Load Reactions				Seismic Load Reactions			
per Tower	Heaviest Lift	per Tower	per Cell	at P1	at P2	at P3	at P4	Vert. at P1	Vert. at P2	Horz. at P1	Horz. at P2	Vert. at P1	Vert. at P2	Horz. at P1	Horz. at P2
68138 lbs (30907 kgf)	13499 lbs (6123 kgf)	119441 lbs (54178 kgf)	39814 lbs (18059 kgf)	9953 lbs (4515 kgf)	9157 lbs (4154 kgf)	3981 lbs (1806 kgf)	1194 lbs (542 kgf)	207.26 x P lbs (19.26 x P kgf)	205.32 x P lbs (19.07 x P kgf)	185.76 x P lbs (17.26 x P kgf)	185.76 x P lbs (17.26 x P kgf)	11640 x G lbs (5280 x G kgf)	11527 x G lbs (5229 x G kgf)	11106 x G lbs (5038 x G kgf)	11106 x G lbs (5038 x G kgf)

(8) 3/4'' ASTM A307 or M20 Grade 4.6 anchor bolts are required per cell. These anchor bolts are capable of resisting 50 psf (2394 N/m²) wind load applied to the tower. This tower is capable of resisting 50 psf (2394 N/m²) wind load. Wind and seismic capacities are unfactored loads as determined by ASCE7-10. Please contact SPX Engineering if anchor bolt or tower seismic capacities are required. Determination of the site specific design wind and seismic loads is by others.





Two anchor bolts required per cell corner.

NOTES

1. SUPPORTING STEEL: The supporting steel is to be designed, constructed and furnished by the customer. It shall include customer supplied 3/4'' (20 mm) diameter anchor bolts to suit the general dimensions of this drawing. The top surface of the supporting steel must be framed flush and level. The maximum beam deflection shall be limited to 1/360 of span, not to exceed 1/2'' (13 mm) at the anchor bolts.
2. DESIGN OPERATING LOADS: The design operating loads shown in the above table are based upon the volume of recirculating water in the collection basin at shutdown plus process water inside the coils. The shutdown water level has been sized to accommodate the maximum allowable flow rates. The design loads are shown for your use as a quick reference. The actual operating load is variable and dependent upon the design flow rate per cell. Operating levels in excess of that recommended will result in loads exceeding the values stated. Consult a SPX CT representative for greater detail.
3. WIND & SEISMIC LOADS: Reactions shown are the result of the wind/seismic load being applied perpendicular to the cased face of the tower structure. Loads are additive to the operating loads. Wind reactions can be calculated by multiplying by P, which is the wind pressure in psf for Imperial units and kgf/m² for metric units. Seismic reactions can be calculated by design G.
4. SHIPPING WEIGHTS AND MAXIMUM OPERATING LOADS: Values shown in table include the optional equipment weights.
5. The tower assembly tolerance applicable to all dimensions is + or - 1/8'' (3 mm). Consult suppliers of supporting structure for construction tolerances.
6. The units of measure are in IP (SI) units unless otherwise noted.

MHF7109EAKBNC3BBF - Supporting Steel Plan and Details

San Jose, CA, United States

MARLEY

ORDER 10252799

DRAWN BY	CHECKED	REV BY	REV CHK	DATE	APPROVED	DRAWING NUMBER	REV.
Brian Maher_240131_102906252 V1	QTC			02/06/24	SYS	BM880241G	

Job Information

NDA

ATCE

San Jose, CA

Selected by

Norman S. Wright Company - San Francisco
99A South Hill Drive
Brisbane,CaliforniaUSA94005

Brian Maher
Tel 408-593-4991
bmaher@norman-wright.com

Cooling Tower Definition

Manufacturer	Marley
Product	MHF
Model	MHF7109EAKBNC3
Cells	18
Fan	5.5 ft, 5 Blades , Low Sound
Fans per cell	3
Model Group	Standard Single Flow, Copper Wet Coil (A)

Fan Speed (99.5%)	643 rpm
Fan Tip Speed (99.5%)	11120 fpm
Fan Motor Speed (99.5%)	1790 rpm
Fan Motor Capacity per cell	45 Hp
Fan Motor Output per cell	44.29 BHp

Sound

Sound Pressure Level (SPL) expressed in dB (re: 20x10-6 Pa)
Sound Power Level (PWL) expressed in dB (re: 1x10-12 watts)

Distance	Location	Octave Band Center Frequency (Hz) 63	125	250	500	1000	2000	4000	8000	Overall dBA
5 ft	Air Inlet Face SPL	85	86	90	83	78	73	69	68	85
5 ft	Cased Face SPL	81	76	75	72	68	62	59	55	74
5 ft	Fan Discharge SPL	88	91	88	86	84	80	77	74	89
50 ft	Air Inlet Face SPL	84	76	82	75	72	66	57	54	78
50 ft	Cased Face SPL	80	64	67	66	63	61	59	55	69
50 ft	Fan Discharge SPL	74	79	79	73	71	63	60	56	76
	Tower PWL	112	111	112	106	104	97	93	89	109

Notes

- Sound Pressure Levels at Fan Discharge are measured on the cased face side opposite the motor, far enough outside the air stream to prevent air noise from affecting the reading.
- Sound pressure levels were measured and recorded in full conformance with CTI ATC-128 test code November 2019 revision published by the Cooling Technology Institute (CTI).

Other Resources

For additional information on sound-related topics please see:

Sound Power Impacts Per CTI Code Revision
https://spxcooling.com/library/sound-power-impacts-per-cti-code-revision/
Understanding and Evaluating Cooling Tower Sound Levels Among Manufacturers
https://spxcooling.com/library/understanding-and-evaluating-cooling-tower-sound-levels-among-manufacturers/

ADDISON

DEDICATED OUTDOOR AIR SPECIALISTS

AK SERIES COMPACT DOAS

As buildings and city centers continue to evolve, rooftop space comes more at a premium.

At Addison, our drive to provide the best solutions for customers has lead to the development of our all-new compact dedicated outdoor air system.

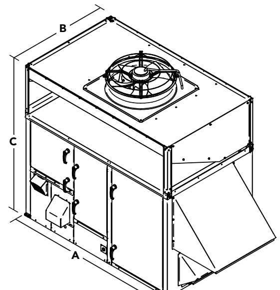
The AK Series delivers exceptional performance and versatility over its standard 3 - 90 Ton range. Featuring a compact footprint with either vertical or horizontal discharge, it's a perfect match for every application requiring dedicated outdoor air, mixed air, and dehumidification. Additionally, the footprint matches many legacy Addison products and, as an added advantage, is smaller than many competitor footprints. From Retail, Offices, Hospitality, and more, the new AK Series is perfect fit for your next project.

STANDARD & OPTIONAL FEATURES:

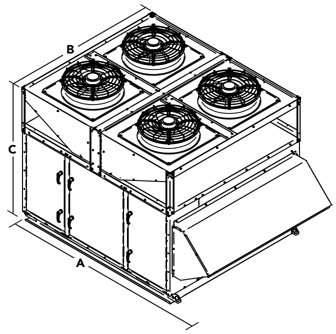
- Capacity from 3 - 90 Tons
- Airflow from 400 - 19,000 CFM
- 2" Foam-Injected Double-Wall Construction (R-13)
- Hinged, Double-Walled Access Doors
- 6-Row Intertwined Air Coils
- Modulating Reheat Circuit
- Switchable SubCooling Circuit
- Variable Speed Scroll Compressors
- All-Digital Controls with BAS Integration
- Direct Drive EC Plenum Supply Blowers
- Modulating Electric or Gas Heat
- 2500 Hour Salt-Spray Rated Cabinet
- MicroChannel Condenser Coils
- Up to 6" of Media Filtration
- Multiple Service Access Points
- Reduced Cabinet Weight
- Compact Footprint
- Optional 10,000 Hour Corrosion Protection

AK SERIES DIMENSIONS

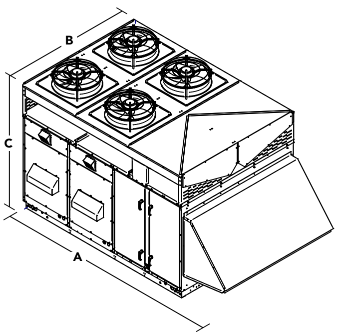
PRAK 1 SERIES CABINET



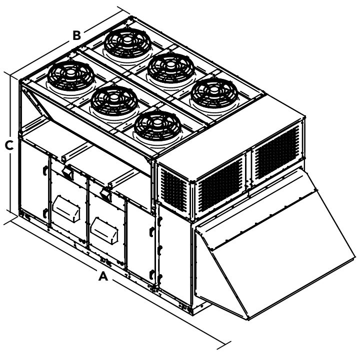
PRAK 3 SERIES CABINET



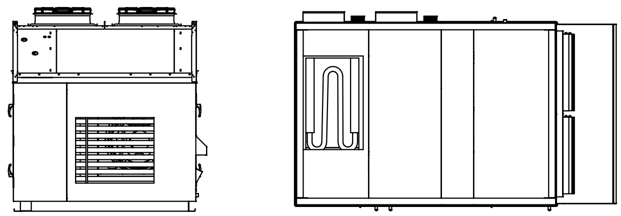
PRAK 5 SERIES CABINET



PRAK 7 SERIES CABINET



PRAK DISCHARGE OPTIONS - HORIZONTAL OR VERTICAL



Note: Dimensions will be dependent on option content, and other field added features. Consult final selection drawings for complete details.

MODEL:	TONNAGE:	CABINET:	MAXIMUM AIRFLOW:	HEAT RANGE:	LENGTH - OA ONLY: (A)	LENGTH - WITH RETURN: (A)	LENGTH - WITH WHEEL: (A)	WIDTH: (B)	HEIGHT: (C)
PRAK036	3	1 Series	750	up to 150MBH	99.25	99.25	129.0	50.625	77.375
PRAK060	5	1 Series	1,250	up to 150MBH	99.25	99.25	129.0	50.625	77.375
PRAK096	8	1 Series	2,000	up to 150MBH	99.25	99.25	129.0	50.625	77.375
PRAK118	10	1 Series	2,500	up to 150MBH	99.25	99.25	129.0	50.625	77.375
PRAK120	10	3 Series	2,500	up to 400MBH	115.5	136.5	160.625	80.0	77.0
PRAK150	12	3 Series	3,125	up to 400MBH	115.5	136.5	160.625	80.0	77.0
PRAK180	15	3 Series	3,750	up to 400MBH	115.5	136.5	160.625	80.0	77.0
PRAK210	18	3 Series	4,375	up to 400MBH	115.5	136.5	160.625	80.0	77.0
PRAK240	20	3 Series	5,000	up to 400MBH	115.5	136.5	160.625	80.0	77.0
PRAK299	25	3 Series	6,250	up to 400MBH	115.5	136.5	160.625	80.0	77.0
PRAK241	20	5 Series	5,000	up to 1200MBH	151.875	185.125	209.625	85.0	87.0
PRAK300	25	5 Series	6,250	up to 1200MBH	151.875	185.125	209.625	85.0	87.0
PRAK360	30	5 Series	7,500	up to 1200MBH	151.875	185.125	209.625	85.0	87.0
PRAK420	35	5 Series	8,750	up to 1200MBH	151.875	185.125	209.625	85.0	87.0
PRAK540	45	5 Series	11,000	up to 1200MBH	151.875	185.125	209.625	85.0	87.0
PRAK541	45	7 Series	11,250	up to 1200MBH	206.75	239.75	271.4375	100.0	110.0
PRAK600	50	7 Series	12,500	up to 1200MBH	206.75	239.75	271.4375	100.0	110.0
PRAK660	55	7 Series	13,750	up to 1200MBH	206.75	239.75	271.4375	100.0	110.0
PRAK720	60	7 Series	15,000	up to 1200MBH	206.75	239.75	271.4375	100.0	110.0
PRAK840	70	7 Series	17,500	up to 1200MBH	206.75	239.75	271.4375	100.0	110.0
PRAK960	80	7 Series	18,500	up to 1200MBH	206.75	239.75	271.4375	100.0	110.0
PRAK09T	90	7 Series	19,000	up to 1200MBH	206.75	239.75	271.4375	100.0	110.0

Sound Data

	63Hz	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	8KHz	Total DBA
Condenser fans	**66.5**	**84.1**	**82**	**86.9**	**85.3**	**80.5**	**75**	**69.8**	**89.4**
Supply	**49**	**56**	**67**	**66.0**	**67.0**	**68.0**	**65**	**59**	**74**

www.addison-hvac.com

DEDICATED OUTDOOR AIR SPECIALISTS

AK SERIES COMPACT DOAS

As buildings and city centers continue to evolve, rooftop space comes more at a premium.

At Addison, our drive to provide the best solutions for customers has lead to the development of our all-new compact dedicated outdoor air system.

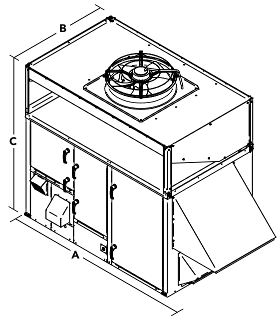
The AK Series delivers exceptional performance and versatility over its standard 3 - 90 Ton range. Featuring a compact footprint with either vertical or horizontal discharge, it's a perfect match for every application requiring dedicated outdoor air, mixed air, and dehumidification. Additionally, the footprint matches many legacy Addison products and, as an added advantage, is smaller than many competitor footprints. From Retail, Offices, Hospitality, and more, the new AK Series is perfect fit for your next project.

STANDARD & OPTIONAL FEATURES:

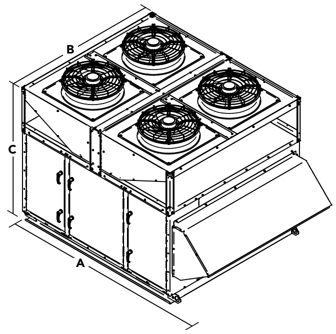
- Capacity from 3 - 90 Tons
- Airflow from 400 - 19,000 CFM
- 2" Foam-Injected Double-Wall Construction (R-13)
- Hinged, Double-Walled Access Doors
- 6-Row Intertwined Air Coils
- Modulating Reheat Circuit
- Switchable SubCooling Circuit
- Variable Speed Scroll Compressors
- All-Digital Controls with BAS Integration
- Direct Drive EC Plenum Supply Blowers
- Modulating Electric or Gas Heat
- 2500 Hour Salt-Spray Rated Cabinet
- MicroChannel Condenser Coils
- Up to 6" of Media Filtration
- Multiple Service Access Points
- Reduced Cabinet Weight
- Compact Footprint
- Optional 10,000 Hour Corrosion Protection

AK SERIES DIMENSIONS

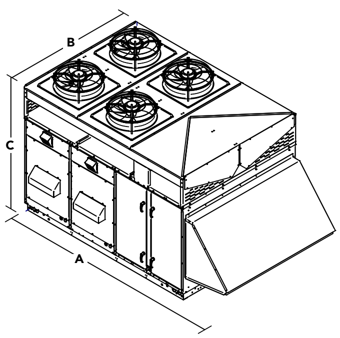
PRAK 1 SERIES CABINET



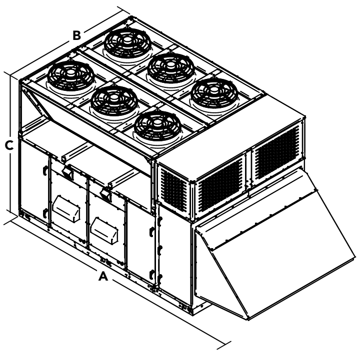
PRAK 3 SERIES CABINET



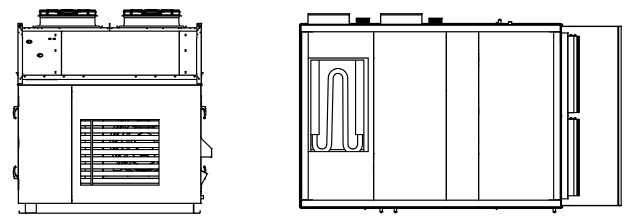
PRAK 5 SERIES CABINET



PRAK 7 SERIES CABINET



PRAK DISCHARGE OPTIONS - HORIZONTAL OR VERTICAL



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MODEL:	TONNAGE:	CABINET:	MAXIMUM AIRFLOW:	HEAT RANGE:	LENGTH - OA ONLY: (A)	LENGTH - WITH RETURN: (A)	LENGTH - WITH WHEEL: (A)	WIDTH: (B)	HEIGHT: (C)
PRAK036	3	1 Series	750	up to 150MBH	99.25	99.25	129.0	50.625	77.375
PRAK060	5	1 Series	1,250	up to 150MBH	99.25	99.25	129.0	50.625	77.375
PRAK096	8	1 Series	2,000	up to 150MBH	99.25	99.25	129.0	50.625	77.375
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PRAK120	10	3 Series	2,500	up to 400MBH	115.5	136.5	160.625	80.0	77.0
PRAK150	12	3 Series	3,125	up to 400MBH	115.5	136.5	160.625	80.0	77.0
PRAK180	15	3 Series	3,750	up to 400MBH	115.5	136.5	160.625	80.0	77.0
PRAK210	18	3 Series	4,375	up to 400MBH	115.5	136.5	160.625	80.0	77.0
PRAK240	20	3 Series	5,000	up to 400MBH	115.5	136.5	160.625	80.0	77.0
PRAK299	25	3 Series	6,250	up to 400MBH	115.5	136.5	160.625	80.0	77.0
PRAK241	20	5 Series	5,000	up to 1200MBH	151.875	185.125	209.625	85.0	87.0
PRAK300	25	5 Series	6,250	up to 1200MBH	151.875	185.125	209.625	85.0	87.0
PRAK360	30	5 Series	7,500	up to 1200MBH	151.875	185.125	209.625	85.0	87.0
PRAK420	35	5 Series	8,750	up to 1200MBH	151.875	185.125	209.625	85.0	87.0
PRAK540	45	5 Series	11,000	up to 1200MBH	151.875	185.125	209.625	85.0	87.0
PRAK541	45	7 Series	11,250	up to 1200MBH	206.75	239.75	271.4375	100.0	110.0
PRAK600	50	7 Series	12,500	up to 1200MBH	206.75	239.75	271.4375	100.0	110.0
PRAK660	55	7 Series	13,750	up to 1200MBH	206.75	239.75	271.4375	100.0	110.0
PRAK720	60	7 Series	15,000	up to 1200MBH	206.75	239.75	271.4375	100.0	110.0
PRAK840	70	7 Series	17,500	up to 1200MBH	206.75	239.75	271.4375	100.0	110.0
PRAK960	80	7 Series	18,500	up to 1200MBH	206.75	239.75	271.4375	100.0	110.0
PRAK09T	90	7 Series	19,000	up to 1200MBH	206.75	239.75	271.4375	100.0	110.0

Sound Data

	63Hz	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	8KHz	Total DBA
Condenser fans	**66.5**	**84.1**	**82**	**86.9**	**85.3**	**80.5**	**75**	**69.8**	**89.4**
Supply	**49**	**56**	**67**	**66.0**	**67.0**	**68.0**	**65**	**59**	**74**

www.addison-hvac.com

Daikin *VRV IV X*
Heat Recovery

VRV IV X

HEAT RECOVERY SYSTEMS

Variable Refrigerant Temperature

VRV IV X

Welcome to innovation.

Engineered and assembled in North America, Daikin's *VRV IV X* adapts *VRV* to North American HVAC market needs by expanding the applications in which *VRV* can be leveraged to solve traditional challenges. Packed with advanced technology, *VRV IV X* is the industry's first 3-phase variable refrigerant flow system with dual-fuel capability, after Daikin's launch of 1-phase *VRV LIFE* in 2018. The new series is equipped with features to optimize initial capital required on phased installations and provides ease of service and maintenance.

Features and Benefits

» **Adapting *VRV* to North American market needs**

- Industry's first 3-phase variable refrigerant flow system to integrate with communicating gas furnaces.
- Design flexibility to enlarge system from single to dual module or dual to triple module without change to installed main pipe sizes**.
- Engineered to optimize capital on phased and tenant fit out commercial buildings.
- Choice of gas furnace or heat pump heating for optimizing operational costs based on utility cost.
- Year round comfort and energy savings with Variable Refrigerant Temperature (VRT) technology.

» **Technology that matters**

- Engineered with Daikin's patented vapor injection compressor technology.
- Corrosion resistant up to 1000† hours Daikin Blue Fin coating as factory standard.
- Heat exchanger engineered with a bottom refrigerant circuit that allows installation without base pan heater.
- Refrigerant cooled inverter technology keeps PCB cool independent of ambient temperature.

» **Engineered for maintenance**

- New service window provides ease of access to the multi-functional display without removing the main electrical panel. The built-in multi-functional display is utilized for commissioning and maintenance and quickly converts to digital gauges to provide refrigerant pressure and temperatures.
- Multi-functional display eliminates the need to connect gauges during regular maintenance checks.
- Ease of commissioning with ability to program off site and upload using configurator tool.
- Field performable intermittent outdoor fan operation to help minimize snow accumulation on fan blades when the system is in thermal off.
- Seamless integration with T-series branch selector boxes, M, P, and T-series indoor units.
- Compatible with the full suite of Daikin *VRV* controls.
- Outstanding 10-Year Parts Warranty* as standard.

10 YEAR PARTS COMMERCIAL WARRANTY

* Complete commercial warranty details available from your local distributor or manufacturer's representative or at www.daikincomfort.com or www.daikinac.com

† When tested in accordance to ASTM B117 methodology.

** Refer to engineering manuals for design rules and pipe sizes.

TECHNICAL DATA FOR *VRV IV X* - XATJA/XAYDA/XAYCA HEAT RECOVERY OUTDOOR UNITS

			6 Ton	8 Ton	10 Ton	12 Ton	14 Ton	16 Ton	18 Ton	20 Ton
Model	208-230V/3Ph/60Hz		REYQ72XBTJA	REYQ96XBTJA	REYQ120XBTJA	REYQ144XBTJA	REYQ168XBTJA	REYQ192XBTJA	REYQ216XBTJA	REYQ240XBTJA
	460V/3Ph/60Hz		REYQ72XBYDA	REYQ96XBYDA	REYQ120XBYDA	REYQ144XBYDA	REYQ168XBYDA	REYQ192XBYDA	REYQ216XBYDA	REYQ240XBYDA
	575V/3Ph/60Hz		REYQ72XBYCA	REYQ96XBYCA	REYQ120XBYCA	REYQ144XBYCA	REYQ168XBYCA	REYQ192XBYCA	REYQ216XBYCA	REYQ240XBYCA
	Combination							2 x REYQ96XB	1 x REYQ96XB 1 x REYQ120XB	2 x REYQ120XB
Performance	Rated Cooling Capacity	BTU/h	69,000	92,000	114,000	138,000	160,000	184,000	206,000	228,000
	Rated Heating Capacity	BTU/h	77,000	103,000	129,000	154,000	180,000	206,000	232,000	256,000
	Standard Operation Range Cooling	°F (°C) DB	23 to 122							
	Standard Operation Range Heating	°F (°C) WB	-13 to 60							
	Sound Pressure	dB(A)	65	65	65	66	66	68	68	68
	Airflow	CFM	7283	7989	7989	9480	9480	7989 + 7989	7989 + 7989	7989 + 7989
	Fan ESP, Standard/Max	in. W.G.	0.12 / 0.32							
Compressor	Compressors, all inverter	Qty	1					2		
	Revolutions per minute	RPM	3738	5142	6888	5214	6330	5214 + 5214	5994 + 5994	6702 + 6702
	Capacity Control Range	%	15-100	13-100	11-100	14-100	12-100	6-100	6-100	5-100
Refrigerant Piping, Layout	Maximum Vertical Pipe Length Above Unit	ft.	164 (295 With Field Setting)							
	Maximum Vertical Pipe Length Below Unit	ft.	130 (195 With Field Setting)							
	Maximum Vertical Pipe Length Between IDU	ft.	100							
	Maximum Actual Pipe Length	ft.	541							
	Maximum Equivalent Pipe Length	ft.	620							
	Maximum Total Pipe Length	ft.	3,280							
Refrigerant Piping, Connections	Liquid Pipe, Main Line	in.	3/8	3/8	1/2	1/2	5/8	5/8	5/8	5/8
	Suction Gas Pipe, Main Line	in.	3/4	7/8	1-1/8	1-1/8	1-1/8	1-1/8	1-1/8	1-3/8
	Discharge Gas Pipe, Main Line	in.	5/8	3/4	3/4	7/8	7/8	1-1/8	1-1/8	1-1/8
Connection Ratio	Standard Connectable Indoor Unit Ratio	%	70 - 200[1]	50 - 200[1]						
	Maximum Number of Indoor Units	Qty	12	16	20	25	29	33	37	41
Electrical	Maximum Overcurrent Protection, MOP (208-230V / 460V / 575V)	A	45 / 25 / 20	45 / 25 / 20	50 / 25 / 25	70 / 40 /30	70 / 40 /30	45 + 45 / 25 + 25 / 20 + 20	45 + 45 / 25 + 25 / 20 + 20	50 + 50 / 25 + 25 / 25 + 25
	Minimum Circuit Amps, MCA (208-230V / 460V / 575V)	A	38.1 / 18.9 / 15.1	38.1 / 21.1 / 16.8	43.0 / 21.1 / 18.2	58.3 / 27.9 / 22.3	61.9 / 31.1 / 24.9	38.1 + 38.1 / 21.1 + 21.1 / 16.8 + 16.8	38.1 + 43.0 / 21.1 + 21.1 / 16.8 + 18.2	43.0+ 43.0 / 21.1 + 21.1 / 18.2 + 18.2
	Compressor Rated Load Amps, (208-230V / 460V / 575V)	A	20.8 / 9.4 / 7.5	23.3 / 10.5 / 8.4	28.2 / 12.8 / 10.2	42.6 / 19.3 / 15.4	49.0 / 22.2 / 17.7	24.7 + 24.7 / 11.2 + 11.2 / 8.9 + 8.9	28.5 + 28.5 / 12.9 + 12.9 / 10.3 + 10.3	29.0 + 29.0 / 13.5 + 13.5 / 10.8 + 10.8
Unit	Factory Refrigerant Charge	lbs.	25.8					25.8 + 25.8		
	Weight	lbs.	727	727	727	793	793	727 + 727	727 + 727	727 + 727
	Dimensions (H x W x D)	in.	66-11/16 x 48-7/8 x 30-3/16					66-11/16 x 48-7/8 x 30-3/16 + 66-11/16 x 48-7/8 x 30-3/16		

[1] Varies based on indoor model selected [2] 35.5 ton for REYQ432XAYCA

OPERATION RANGE FOR ALL *VRV IV X* HEAT RECOVERY OUTDOOR UNITS

Cooling °F DB	-4* – 122
Heating °F WB	-13 – 60

*Application rules apply

	22 Ton	24 Ton	26 Ton	28 Ton	30 Ton	32 Ton	34 Ton	36 Ton[2]	38 Ton
	REYQ264XBTJA	REYQ288XBTJA	REYQ312XBTJA	REYQ336XBTJA	REYQ360XBTJA	REYQ384XBTJA	REYQ408XBTJA	REYQ432XBTJA	REYQ456XBTJA
	REYQ264XBYDA	REYQ288XBYDA	REYQ312XBYDA	REYQ336XBYDA	REYQ360XBYDA	REYQ384XBYDA	REYQ408XBYDA	REYQ432XBYDA	REYQ456XBYDA
	REYQ264XBYCA	REYQ288XBYCA	REYQ312XBYCA	REYQ336XBYCA	REYQ360XBYCA	REYQ384XBYCA	REYQ408XBYCA	REYQ432XBYCA	-
	1 x REYQ120XB 1 x REYQ144XB	2 x REYQ144XB	1 x REYQ144XB 1 x REYQ168XB	2 x REYQ168XB	3 x REYQ120XB	2 x REYQ120XB 1 x REYQ144XB	1 x REYQ120XB 2 x REYQ144XB	3 x REYQ144XB	2 x REYQ144XB 1 x REYQ168XB
	252,000	274,000	296,000	320,000	342,000	364,000	388,000	410,000	430,000
	282,000	294,000	320,000	338,000	376,000	386,000	394,000	405,000	414,000
	23 to 122								
	-13 to 60								
	69	69	69	69	70	71	71	71	71
	7989 + 9480	9480 + 9480	9480 + 9480	9480 + 9480	7989 + 7989 + 7989	7989 + 7989 + 9480	7989 + 9480 + 9480	9480 + 9480 + 9480	9480 + 9480 + 9480
	0.12 / 0.32								
	2				3				
	6504 + 5214	4794 + 4794	5286 + 5286	5664 + 5664	6606 + 6606 + 6606	6426 + 6426 + 5070	6162 + 4470 + 4470	4350 + 4350 + 4350	4470 + 4470 + 4470
	5-100	7-100	7-100	6-100	4-100	3-100	3-100	5-100	4-100
	164 (295 With Field Setting)								
	130 (195 With Field Setting)								
	100								
	541								
	620								
	3,280								
	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
	1-3/8	1-3/8	1-3/8	1-3/8	1-5/8	1-5/8	1-5/8	1-5/8	1-5/8
	1-1/8	1-1/8	1-1/8	1-1/8	1-3/8	1-3/8	1-3/8	1-3/8	1-3/8
	50 - 200[1]								
	45	49	54	58	64				
	50 + 70 / 25 + 40 /	70 + 70 / 40 + 40 / 30 + 30	70 + 70 / 40 + 40 / 30 + 30	70 + 70 / 40 + 40 / 30 + 30	50 + 50 + 50 / 25 + 25 + 25 / 25 + 25 + 25	50 + 50 + 70 / 25 + 25 + 40 / 25 + 25 + 30	50 + 70 + 70 / 25 + 40 + 40/ 25 + 30 + 30	70 + 70 + 70 / 40 + 40 + 40/ 30 + 30 + 30	70 + 70 + 70 / 40 + 40 + 40
	43.0+ 58.3 / 21.1 + 27.9 / 18.2 + 22.3	58.3+ 58.3 / 27.9 + 27.9 / 22.3 + 22.3	58.3+ 61.9 / 27.9 + 31.1 / 22.3 + 24.9	61.9+ 61.9 / 31.1 + 31.1 / 24.9 + 24.9	43.0+ 43.0 + 43.0 / 21.1 + 21.1 + 21.1 / 18.2 + 18.2 + 18.2	43.0+ 43.0 + 58.3/ 21.1 + 21.1 + 27.9 / 18.2 + 18.2 + 22.3	43.0 + 58.3 + 58.3/ 21.1 + 27.9 + 27.9 / 18.2 + 22.3 + 22.3	58.3 + 58.3 + 58.3/ 27.9 + 27.9 + 27.9 / 22.3 + 22.3 + 22.3	58.3 + 58.3 + 61.9/ 27.9 + 27.9 + 31.1
	32.9 + 42.1 / 14.9 + 19.0 / 11.9 + 15.2	43.5 + 43.5 / 19.7 + 19.7 / 15.7 + 15.7	46.5 + 46.5 / 21.0 + 21.0 / 16.8 + 16.8	50.1 + 50.1 / 22.7 + 22.7 / 18.1 + 18.1	32.7 + 32.7 + 32.7 / 14.8 + 14.8 + 14.8 / 11.8 + 11.8 + 11.8	33.8 + 33.8 + 43.7 / 15.3 + 15.3 + 19.8 / 12.2 + 12.2 + 15.8	35.7 + 45.1 + 45.1 / 16.2 + 20.4 + 20.4 / 12.9 + 16.3 + 16.3	45.1 + 45.1 + 45.1 / 20.4 + 20.4 + 20.4 / 16.3 + 16.3 + 16.3	47.0 + 47.0 + 47.0 / 21.3 + 21.3 + 21.3
	25.8 + 25.8				25.8 + 25.8 + 25.8				
	727 + 793	793 + 793	793 + 793	793 + 793	727 + 727 + 727	727 + 727 + 793	727 + 793 + 793	793 + 793 + 793	793 + 793 + 793
	66-11/16 x 48-7/8 x 30-3/16 + 66-11/16 x 48-7/8 x 30-3/16				66-11/16 x 48-7/8 x 30-3/16 + 66-11/16 x 48-7/8 x 30-3/16 + 66-11/16 x 48-7/8 x 30-3/16				

DAIKIN

Daikin *VRV IV X*
Heat Recovery

VRV IV X

HEAT RECOVERY SYSTEMS

Variable Refrigerant Temperature

TECHNICAL DATA FOR *VRV IV X* - XATJA/XAYDA/XAYCA HEAT RECOVERY OUTDOOR UNITS

			6 Ton	8 Ton	10 Ton	12 Ton	14 Ton	16 Ton	18 Ton	20 Ton
Model	208-230V/3Ph/60Hz		REYQ72XBTJA	REYQ96XBTJA	REYQ120XBTJA	REYQ144XBTJA	REYQ168XBTJA	REYQ192XBTJA	REYQ216XBTJA	REYQ240XBTJA
	460V/3Ph/60Hz		REYQ72XBYDA	REYQ96XBYDA	REYQ120XBYDA	REYQ144XBYDA	REYQ168XBYDA	REYQ192XBYDA	REYQ216XBYDA	REYQ240XBYDA
	575V/3Ph/60Hz		REYQ72XBYCA	REYQ96XBYCA	REYQ120XBYCA	REYQ144XBYCA	REYQ168XBYCA	REYQ192XBYCA	REYQ216XBYCA	REYQ240XBYCA
	Combination							2 x REYQ96XB	1 x REYQ96XB 1 x REYQ120XB	2 x REYQ120XB
Performance	Rated Cooling Capacity	BTU/h	69,000	92,000	114,000	138,000	160,000	184,000	206,000	228,000
	Rated Heating Capacity	BTU/h	77,000	103,000	129,000	154,000	180,000	206,000	232,000	256,000
	Standard Operation Range Cooling	°F (°C) DB	23 to 122							
	Standard Operation Range Heating	°F (°C) WB	-13 to 60							
	Sound Pressure	dB(A)	65	65	65	66	66	68	68	68
	Airflow	CFM	7283	7989	7989	9480	9480	7989 + 7989	7989 + 7989	7989 + 7989
	Fan ESP, Standard/Max	in. W.G.	0.12 / 0.32							
Compressor	Compressors, all inverter	Qty	1					2		
	Revolutions per minute	RPM	3738	5142	6888	5214	6330	5214 + 5214	5994 + 5994	6702 + 6702
	Capacity Control Range	%	15-100	13-100	11-100	14-100	12-100	6-100	6-100	5-100
Refrigerant Piping, Layout	Maximum Vertical Pipe Length Above Unit	ft.	164 (295 With Field Setting)							
	Maximum Vertical Pipe Length Below Unit	ft.	130 (195 With Field Setting)							
	Maximum Vertical Pipe Length Between IDU	ft.	100							
	Maximum Actual Pipe Length	ft.	541							
	Maximum Equivalent Pipe Length	ft.	620							
	Maximum Total Pipe Length	ft.	3,280							
Refrigerant Piping, Connections	Liquid Pipe, Main Line	in.	3/8	3/8	1/2	1/2	5/8	5/8	5/8	5/8
	Suction Gas Pipe, Main Line	in.	3/4	7/8	1-1/8	1-1/8	1-1/8	1-1/8	1-1/8	1-3/8
	Discharge Gas Pipe, Main Line	in.	5/8	3/4	3/4	7/8	7/8	1-1/8	1-1/8	1-1/8
Connection Ratio	Standard Connectable Indoor Unit Ratio	%	70 - 200[1]	50 - 200[1]						
	Maximum Number of Indoor Units	Qty	12	16	20	25	29	33	37	41
Electrical	Maximum Overcurrent Protection, MOP (208-230V / 460V / 575V)	A	45 / 25 / 20	45 / 25 / 20	50 / 25 / 25	70 / 40 /30	70 / 40 /30	45 + 45 / 25 + 25 / 20 + 20	45 + 45 / 25 + 25 / 20 + 20	50 + 50 / 25 + 25 / 25 + 25
	Minimum Circuit Amps, MCA (208-230V / 460V / 575V)	A	38.1 / 18.9 / 15.1	38.1 / 21.1 / 16.8	43.0 / 21.1 / 18.2	58.3 / 27.9 / 22.3	61.9 / 31.1 / 24.9	38.1 + 38.1 / 21.1 + 21.1 / 16.8 + 16.8	38.1 + 43.0 / 21.1 + 21.1 / 16.8 + 18.2	43.0+ 43.0 / 21.1 + 21.1 / 18.2 + 18.2
	Compressor Rated Load Amps, (208-230V / 460V / 575V)	A	20.8 / 9.4 / 7.5	23.3 / 10.5 / 8.4	28.2 / 12.8 / 10.2	42.6 / 19.3 / 15.4	49.0 / 22.2 / 17.7	24.7 + 24.7 / 11.2 + 11.2 / 8.9 + 8.9	28.5 + 28.5 / 12.9 + 12.9 / 10.3 + 10.3	29.0 + 29.0 / 13.5 + 13.5 / 10.8 + 10.8
Unit	Factory Refrigerant Charge	lbs.	25.8					25.8 + 25.8		
	Weight	lbs.	727	727	727	793	793	727 + 727	727 + 727	727 + 727
	Dimensions (H x W x D)	in.	66-11/16 x 48-7/8 x 30-3/16					66-11/16 x 48-7/8 x 30-3/16 + 66-11/16 x 48-7/8 x 30-3/16		

[1] Varies based on indoor model selected [2] 35.5 ton for REYQ432XAYCA

OPERATION RANGE FOR ALL *VRV IV X* HEAT RECOVERY OUTDOOR UNITS

Cooling °F DB	-4* – 122
Heating °F WB	-13 – 60

*Application rules apply

	22 Ton	24 Ton	26 Ton	28 Ton	30 Ton	32 Ton	34 Ton	36 Ton[2]	38 Ton
	REYQ264XBTJA	REYQ288XBTJA	REYQ312XBTJA	REYQ336XBTJA	REYQ360XBTJA	REYQ384XBTJA	REYQ408XBTJA	REYQ432XBTJA	REYQ456XBTJA
	REYQ264XBYDA	REYQ288XBYDA	REYQ312XBYDA	REYQ336XBYDA	REYQ360XBYDA	REYQ384XBYDA	REYQ408XBYDA	REYQ432XBYDA	REYQ456XBYDA
	REYQ264XBYCA	REYQ288XBYCA	REYQ312XBYCA	REYQ336XBYCA	REYQ360XBYCA	REYQ384XBYCA	REYQ408XBYCA	REYQ432XBYCA	-
	1 x REYQ120XB 1 x REYQ144XB	2 x REYQ144XB	1 x REYQ144XB 1 x REYQ168XB	2 x REYQ168XB	3 x REYQ120XB	2 x REYQ120XB 1 x REYQ144XB	1 x REYQ120XB 2 x REYQ144XB	3 x REYQ144XB	2 x REYQ144XB 1 x REYQ168XB
	252,000	274,000	296,000	320,000	342,000	364,000	388,000	410,000	430,000
	282,000	294,000	320,000	338,000	376,000	386,000	394,000	405,000	414,000
	23 to 122								
	-13 to 60								
	69	69	69	69	70	71	71	71	71
	7989 + 9480	9480 + 9480	9480 + 9480	9480 + 9480	7989 + 7989 + 7989	7989 + 7989 + 9480	7989 + 9480 + 9480	9480 + 9480 + 9480	9480 + 9480 + 9480
	0.12 / 0.32								
	2				3				
	6504 + 5214	4794 + 4794	5286 + 5286	5664 + 5664	6606 + 6606 + 6606	6426 + 6426 + 5070	6162 + 4470 + 4470	4350 + 4350 + 4350	4470 + 4470 + 4470
	5-100	7-100	7-100	6-100	4-100	3-100	3-100	5-100	4-100
	164 (295 With Field Setting)								
	130 (195 With Field Setting)								
	100								
	541								
	620								
	3,280								
	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
	1-3/8	1-3/8	1-3/8	1-3/8	1-5/8	1-5/8	1-5/8	1-5/8	1-5/8
	1-1/8	1-1/8	1-1/8	1-1/8	1-3/8	1-3/8	1-3/8	1-3/8	1-3/8
	50 - 200[1]								
	45	49	54	58	64				
	50 + 70 / 25 + 40 /	70 + 70 / 40 + 40 / 30 + 30	70 + 70 / 40 + 40 / 30 + 30	70 + 70 / 40 + 40 / 30 + 30	50 + 50 + 50 / 25 + 25 + 25 / 25 + 25 + 25	50 + 50 + 70 / 25 + 25 + 40 / 25 + 25 + 30	50 + 70 + 70 / 25 + 40 + 40/ 25 + 30 + 30	70 + 70 + 70 / 40 + 40 + 40/ 30 + 30 + 30	70 + 70 + 70 / 40 + 40 + 40
	43.0+ 58.3 / 21.1 + 27.9 / 18.2 + 22.3	58.3+ 58.3 / 27.9 + 27.9 / 22.3 + 22.3	58.3+ 61.9 / 27.9 + 31.1 / 22.3 + 24.9	61.9+ 61.9 / 31.1 + 31.1 / 24.9 + 24.9	43.0+ 43.0 + 43.0 / 21.1 + 21.1 + 21.1 / 18.2 + 18.2 + 18.2	43.0+ 43.0 + 58.3/ 21.1 + 21.1 + 27.9 / 18.2 + 18.2 + 22.3	43.0 + 58.3 + 58.3/ 21.1 + 27.9 + 27.9 / 18.2 + 22.3 + 22.3	58.3 + 58.3 + 58.3/ 27.9 + 27.9 + 27.9 / 22.3 + 22.3 + 22.3	58.3 + 58.3 + 61.9/ 27.9 + 27.9 + 31.1
	32.9 + 42.1 / 14.9 + 19.0 / 11.9 + 15.2	43.5 + 43.5 / 19.7 + 19.7 / 15.7 + 15.7	46.5 + 46.5 / 21.0 + 21.0 / 16.8 + 16.8	50.1 + 50.1 / 22.7 + 22.7 / 18.1 + 18.1	32.7 + 32.7 + 32.7 / 14.8 + 14.8 + 14.8 / 11.8 + 11.8 + 11.8	33.8 + 33.8 + 43.7 / 15.3 + 15.3 + 19.8 / 12.2 + 12.2 + 15.8	35.7 + 45.1 + 45.1 / 16.2 + 20.4 + 20.4 / 12.9 + 16.3 + 16.3	45.1 + 45.1 + 45.1 / 20.4 + 20.4 + 20.4 / 16.3 + 16.3 + 16.3	47.0 + 47.0 + 47.0 / 21.3 + 21.3 + 21.3
	25.8 + 25.8				25.8 + 25.8 + 25.8				
	727 + 793	793 + 793	793 + 793	793 + 793	727 + 727 + 727	727 + 727 + 793	727 + 793 + 793	793 + 793 + 793	793 + 793 + 793
	66-11/16 x 48-7/8 x 30-3/16 + 66-11/16 x 48-7/8 x 30-3/16				66-11/16 x 48-7/8 x 30-3/16 + 66-11/16 x 48-7/8 x 30-3/16 + 66-11/16 x 48-7/8 x 30-3/16				

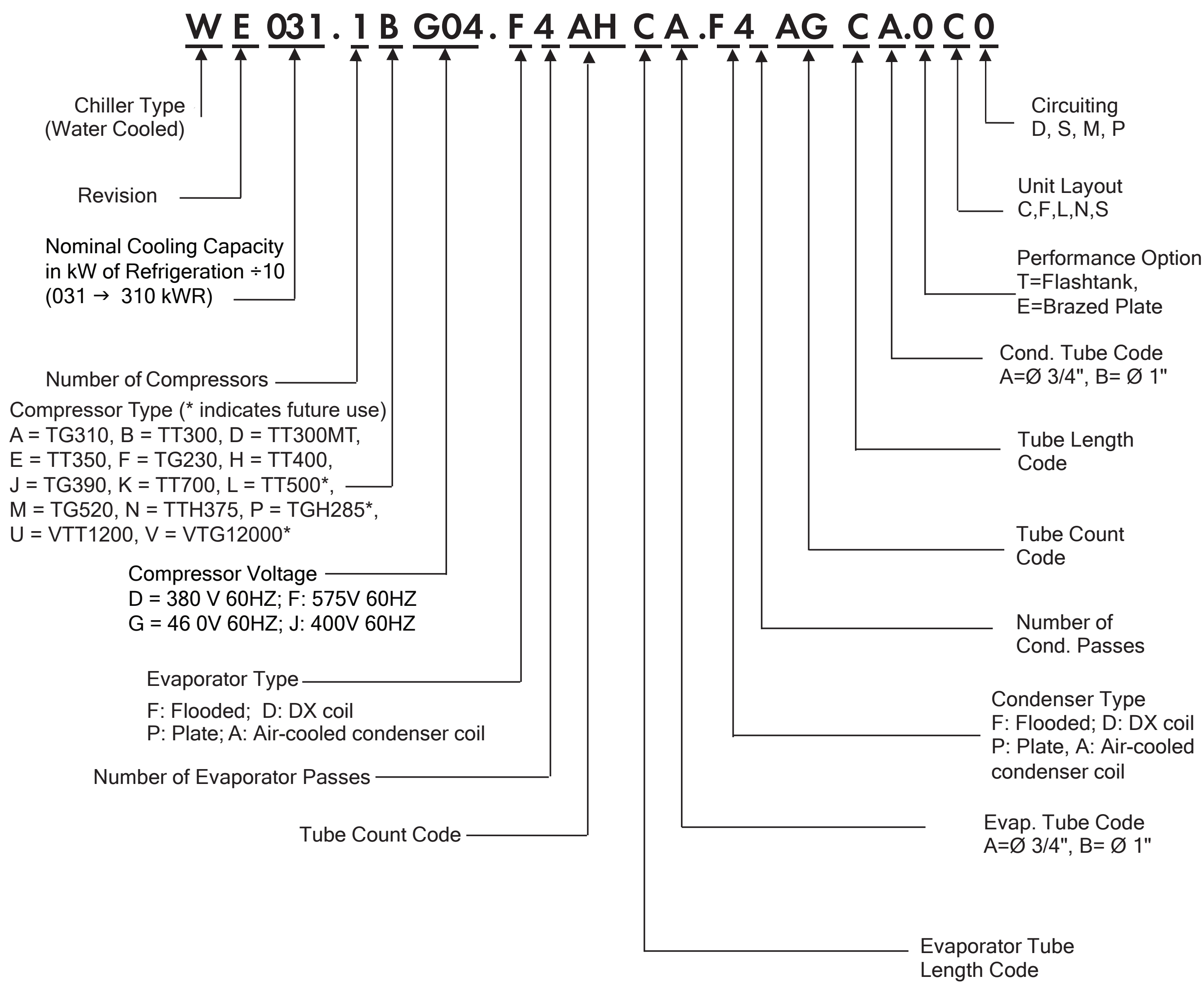
T^W-CLASS WATER-COOLED CHILLERS

WE design series

SMARDT

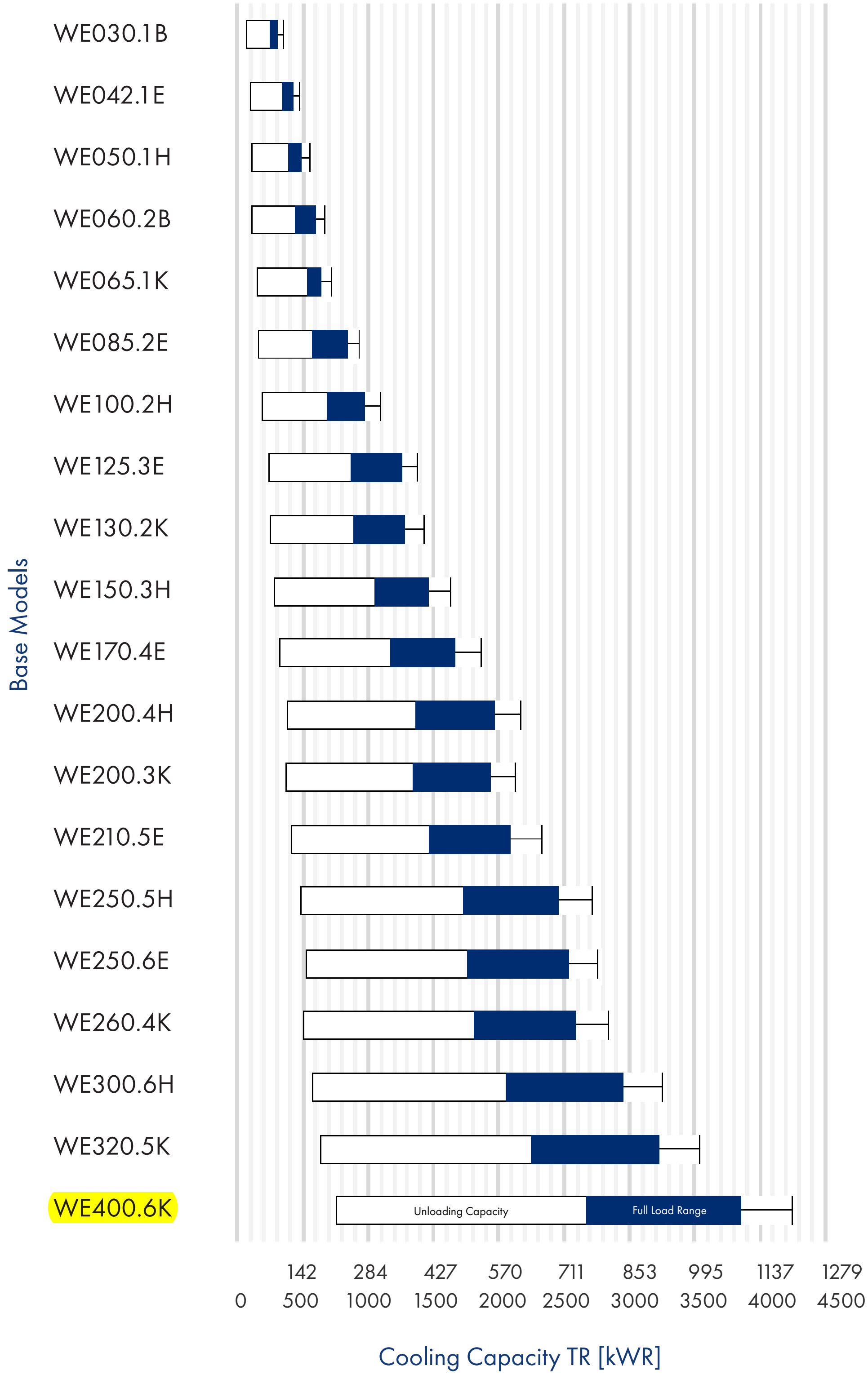
GLOBAL #1 IN OIL-FREE CHILLERS

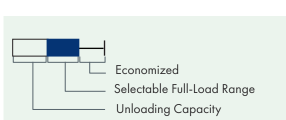
CHILLER NOMENCLATURE



CAPACITY RANGE - T^W-CLASS (R134A)

The T^W-Class range has been designed to meet a wide variety of applications, with full-load capacities of units with R134a, ranging from 85 TR up to 1140 TR (300 kWR up to 4000 kWR).



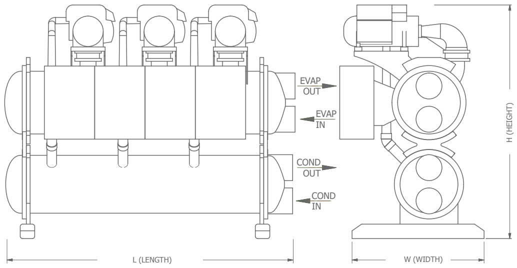


Note: Available cooling capacity will vary with operating conditions and chiller configuration. Capacities shown are based on standard AHRI conditions.

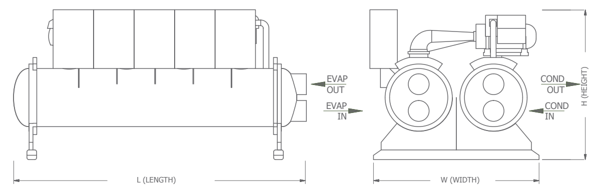
TECHNICAL DATA (IMPERIAL)

LOWER DP - NON-ECONOMIZED

(Anticipating differential pressure (DP) drop in a chilled water circuit is an important factor in effective chiller design. Please consult the technical data tables and your Smardt sales representative to select the appropriate product for your project requirements.)



STACKED (N) DESIGN



SIDE-BY-SIDE (S) DESIGN

WE Line R134A		WE030.1B.F4HBBA. F4AMBA.0NX	WE042.1E.F4HFBA. F4AVBA.0NX	WE050.1H.F4HJBA. F4BBBA.0NX	WE060.2B.F2AEFA. F2ANFA.0NX	WE065.1K.F4HQBA. F4BNBA.0NX	WE085.2E.F2ALFA. F2AXFA.0NX	WE100.2H.F2AQFA. F2BDFA.0NX	WE125.3E.F2AWFA. F2BPFA.0NX	WE130.2K.F2AYFA. F2BSFA.0NX	WE150.3H.F2BEFA. F2BYFA.0NX	WE170.4E.F2AQHB. F2BYHA.0SX	WE200.4H.F2JDHA. F2CJHA.0SX	WE200.3K.F2JDHA. F2CJHA.0NX	WE210.5E.F2AWKB. F2BDKB.0SX	WE250.5H.F2BCKB. F2BLKB.0SX	WE250.6E.F2BCKB. F2BLKB.0SX	WE260.4K.F2JRHA. F2DHHA.0SX	WE300.6H.F2BEKB. F2BVKB.0SX	WE320.5K.F2BMKB. F2CBKB.0SX	WE400.6K.F2BTKB. F2CPKB.0SX
Cooling capacity (1)	TR	85	119	140	171	183	239	279	358	365	419	478	558	548	597	698	717	730	838	913	1095
Power Consumption	kW	56	78	88	57	113	79	90	79	115	90	79	89	113	77	88	78	113	89	113	113
COP (cold)		0.67	0.67	0.65	0.34	0.63	0.34	0.33	0.24	0.32	0.22	0.17	0.16	0.21	0.13	0.13	0.11	0.16	0.11	0.13	0.11
IPLV value		10.45	10.16	10.49	10.3	10.22	10.2	10.5	10.14	10.37	10.46	10.25	10.64	10.34	10.33	10.64	10.33	10.53	10.62	10.59	10.56
Cooling capacity (2)	TR	85	119	140	171	183	239	279	358	365	419	478	558	548	597	698	717	730	838	913	1095
Power Consumption	kW	55	76	87	55	111	77	88	77	112	88	77	87	111	76	87	76	111	87	111	111
COP (cold)		0.64	0.64	0.62	0.33	0.61	0.32	0.32	0.22	0.31	0.21	0.16	0.16	0.20	0.13	0.13	0.11	0.15	0.10	0.12	0.10
ESEER value		9.98	9.78	10.1	9.93	9.65	10.1	10.4	9.95	10.13	10.27	10.08	10.42	10.05	10.1	10.39	10.14	10.32	10.41	10.32	10.24
Cold water flow rate (1)	gpm	189	265	309	378	404	529	618	794	809	928	1058	1237	1213	1323	1547	1587	1617	1856	2022	2426
Cooling water flow (1)	gpm	229	320	374	458	490	640	749	961	979	1123	1281	1498	1469	1602	1872	1922	1958	2247	2448	2937
Compressor number	Pieces	1	1	1	2	1	2	2	3	2	3	4	4	3	5	5	6	4	6	5	6
Pressure drop evaporator (1)	psi	5	6	6	5	6	5	5	6	5	5	4	5	5	4	4	4	5	5	5	5
Pressure drop condenser (1)	psi	5	5	5	4	5	4	3	4	3	3	6	5	5	4	4	4	5	4	4	4
Voltage	V-Ph-Hz	400-3-50 with / without neutral conductor																			
Rated current max	A	145	210	170	290	196	420	340	630	392	510	840	680	588	1050	850	1260	784	1020	980	1176
Starting current each	A	< 5																			
Length	in	82.0	83.5	83.5	115.9	88.0	118.9	118.9	120.4	123.4	123.4	151.0	152.5	152.5	185.5	187.0	187.0	155.5	188.5	190.0	193.0
Width	in	50.7	52.8	52.8	48.7	58.7	52.8	52.8	54.7	58.7	58.7	85.4	87.4	60.7	89.7	94.1	94.1	96.4	100.2	104.1	106.5
Height	in	83.8	89.8	90.9	81.6	101.8	92.7	94.9	97.9	101.8	105.2	77.3	79.6	107.3	81.9	84.3	84.3	84.3	86.2	88.6	90.6
Sound pressure level at 1m distance	dB(A)	77.5	77.9	80.9	80.5	85	80.9	83.9	82.7	88	85.6	84	86.9	89.8	84.9	87.8	85.7	91	88.6	92	92.8
Empty weight	lbs	4345	5589	5970	5661	7496	7888	8459	9833	10132	11321	13869	14991	14176	17059	19074	19749	17950	21367	22648	26193
Charge weight	lbs	335	395	441	459	725	637	708	838	1105	1098	1442	1539	1539	2092	2407	2407	1978	2698	3080	3503
Operational weight	lbs	5860	7562	8133	7372	10728	10589	11422	13283	14107	15860	19165	20959	20144	24392	27412	28087	25706	31081	33484	38504

(1) IPLV-Conditions: chilled water 44.6/53.6 °F, ambient temperature 95 °F, without glycol

(2) ESEER Conditions: chilled water 44.6/53.6 °F, ambient temperature 95 °F, without glycol

COP (Coefficient Of Performance) power in kW (cooling) per kW of drive power (energy consumption)

Max./min. ambient temperature: 113/41 °F, refrigerant R134a.

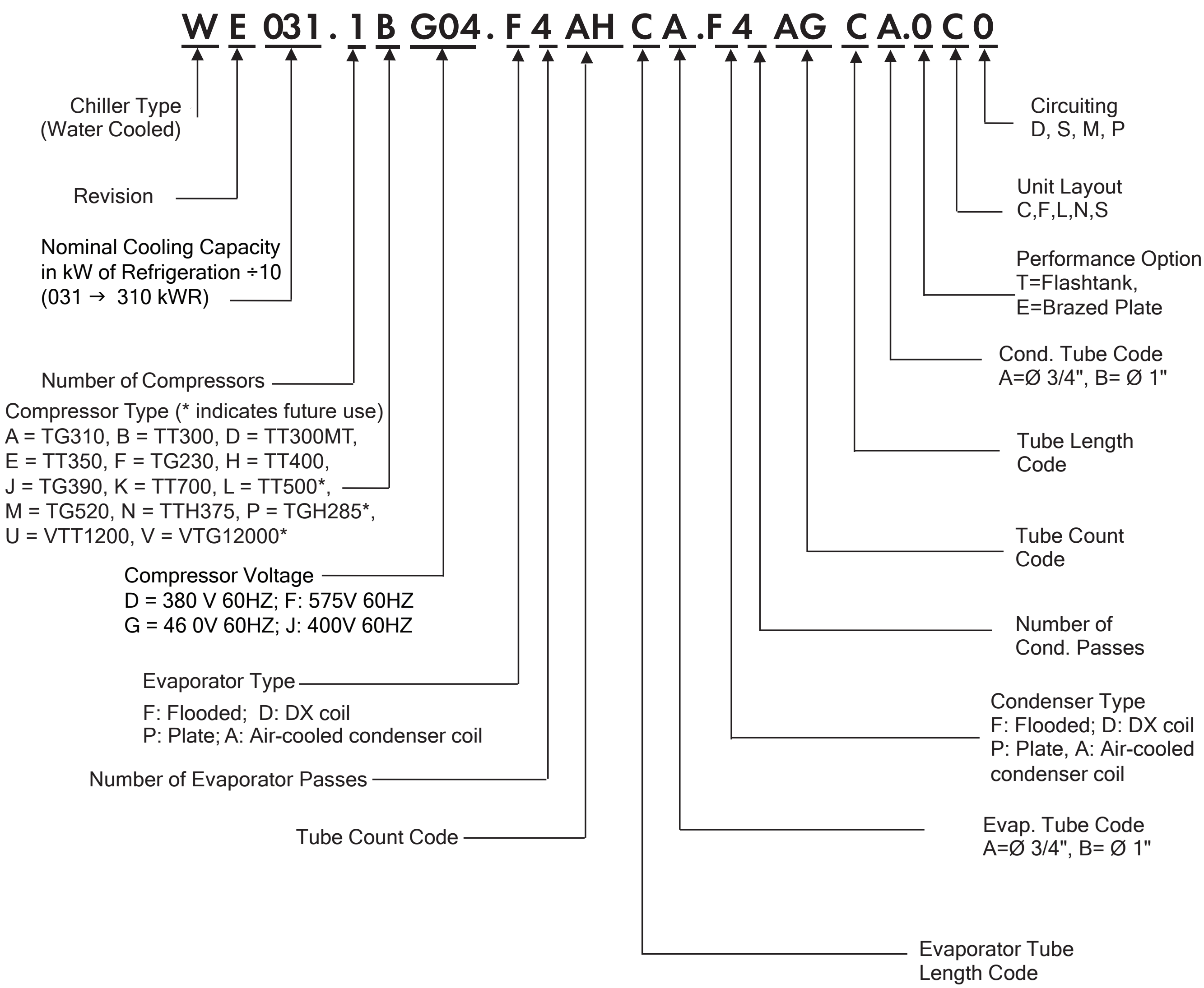
T^W-CLASS WATER-COOLED CHILLERS

WE design series

SMARDT

GLOBAL #1 IN OIL-FREE CHILLERS

CHILLER NOMENCLATURE



CAPACITY RANGE - T^{W}-CLASS (R134A)

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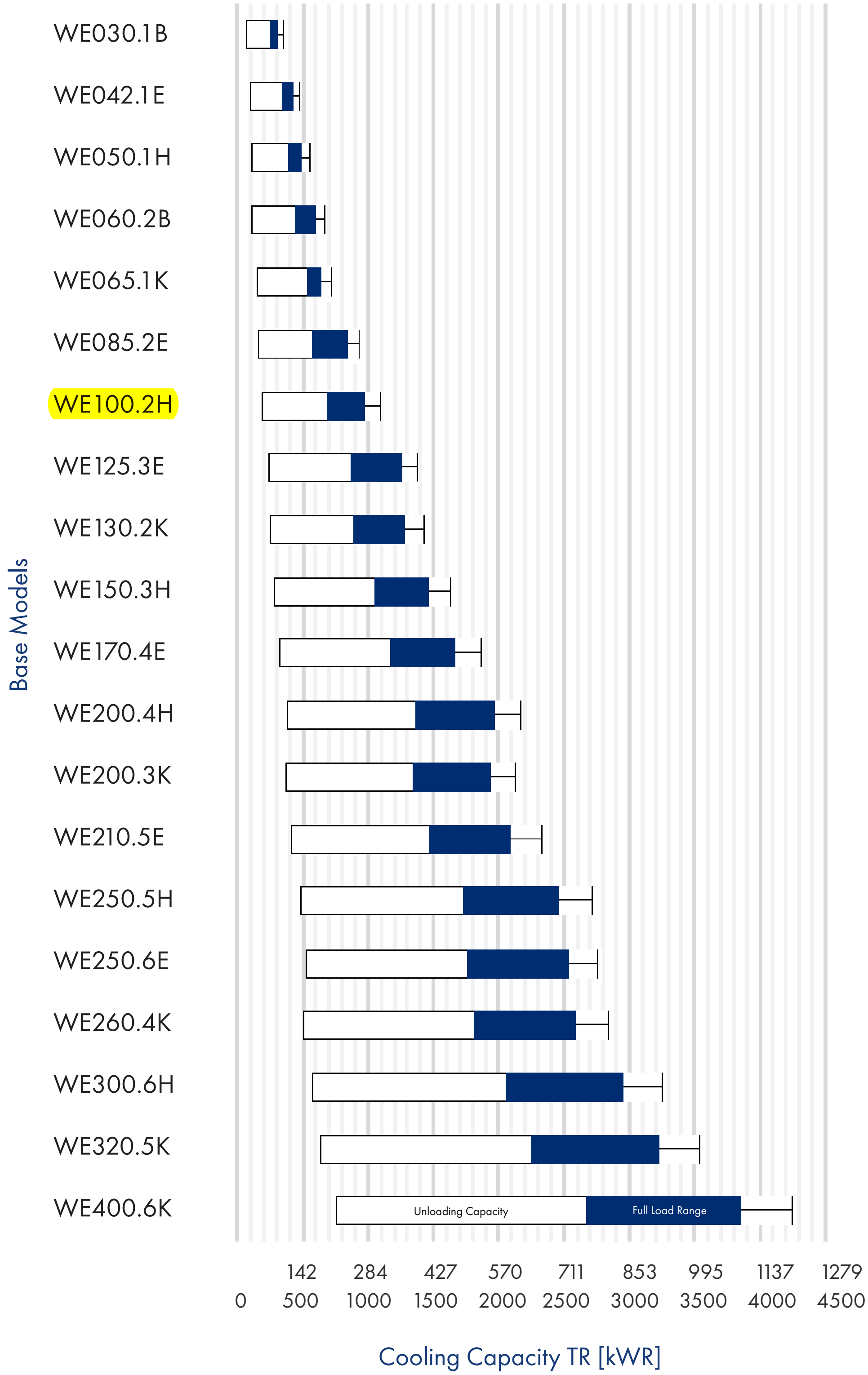
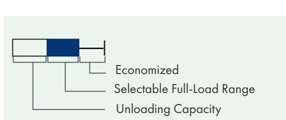


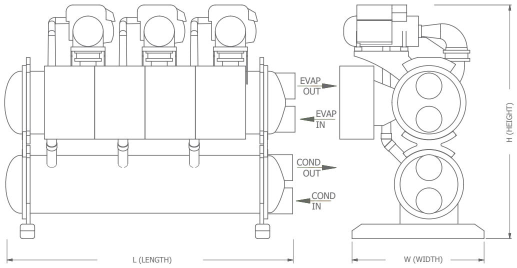


Note: Available cooling capacity will vary with operating conditions and chiller configuration. Capacities shown are based on standard AHRI conditions.

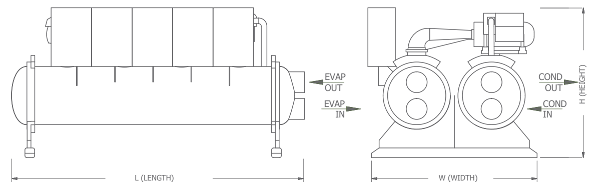
TECHNICAL DATA (IMPERIAL)

LOWER DP - NON-ECONOMIZED

(Anticipating differential pressure (DP) drop in a chilled water circuit is an important factor in effective chiller design. Please consult the technical data tables and your Smardt sales representative to select the appropriate product for your project requirements.)



STACKED (N) DESIGN



SIDE-BY-SIDE (S) DESIGN

WE Line R134A		WE030.1B.F4HBBA. F4AMBA.0NX	WE042.1E.F4HFBA. F4AVBA.0NX	WE050.1H.F4HJBA. F4BBBA.0NX	WE060.2B.F2AEFA. F2ANFA.0NX	WE065.1K.F4HQBA. F4BNBA.0NX	WE085.2E.F2ALFA. F2AXFA.0NX	WE100.2H.F2AQFA. F2BDFA.0NX	WE125.3E.F2AWFA. F2BPFA.0NX	WE130.2K.F2AYFA. F2BSFA.0NX	WE150.3H.F2BEFA. F2BYFA.0NX	WE170.4E.F2AQHB. F2BYHA.0SX	WE200.4H.F2JDHA. F2CJHA.0SX	WE200.3K.F2JDHA. F2CJHA.0NX	WE210.5E.F2AWKB. F2BDKB.0SX	WE250.5H.F2BCKB. F2BLKB.0SX	WE250.6E.F2BCKB. F2BLKB.0SX	WE260.4K.F2JRHA. F2DHHA.0SX	WE300.6H.F2BEKB. F2BVKB.0SX	WE320.5K.F2BMKB. F2CBKB.0SX	WE400.6K.F2BTKB. F2CPKB.0SX
Cooling capacity (1)	TR	85	119	140	171	183	239	279	358	365	419	478	558	548	597	698	717	730	838	913	1095
Power Consumption	kW	56	78	88	57	113	79	90	79	115	90	79	89	113	77	88	78	113	89	113	113
COP (cold)		0.67	0.67	0.65	0.34	0.63	0.34	0.33	0.24	0.32	0.22	0.17	0.16	0.21	0.13	0.13	0.11	0.16	0.11	0.13	0.11
IPLV value		10.45	10.16	10.49	10.3	10.22	10.2	10.5	10.14	10.37	10.46	10.25	10.64	10.34	10.33	10.64	10.33	10.53	10.62	10.59	10.56
Cooling capacity (2)	TR	85	119	140	171	183	239	279	358	365	419	478	558	548	597	698	717	730	838	913	1095
Power Consumption	kW	55	76	87	55	111	77	88	77	112	88	77	87	111	76	87	76	111	87	111	111
COP (cold)		0.64	0.64	0.62	0.33	0.61	0.32	0.32	0.22	0.31	0.21	0.16	0.16	0.20	0.13	0.13	0.11	0.15	0.10	0.12	0.10
ESEER value		9.98	9.78	10.1	9.93	9.65	10.1	10.4	9.95	10.13	10.27	10.08	10.42	10.05	10.1	10.39	10.14	10.32	10.41	10.32	10.24
Cold water flow rate (1)	gpm	189	265	309	378	404	529	618	794	809	928	1058	1237	1213	1323	1547	1587	1617	1856	2022	2426
Cooling water flow (1)	gpm	229	320	374	458	490	640	749	961	979	1123	1281	1498	1469	1602	1872	1922	1958	2247	2448	2937
Compressor number	Pieces	1	1	1	2	1	2	2	3	2	3	4	4	3	5	5	6	4	6	5	6
Pressure drop evaporator (1)	psi	5	6	6	5	6	5	5	6	5	5	4	5	5	4	4	4	5	5	5	5
Pressure drop condenser (1)	psi	5	5	5	4	5	4	3	4	3	3	6	5	5	4	4	4	5	4	4	4
Voltage	V-Ph-Hz	400-3-50 with / without neutral conductor																			
Rated current max	A	145	210	170	290	196	420	340	630	392	510	840	680	588	1050	850	1260	784	1020	980	1176
Starting current each	A	< 5																			
Length	in	82.0	83.5	83.5	115.9	88.0	118.9	118.9	120.4	123.4	123.4	151.0	152.5	152.5	185.5	187.0	187.0	155.5	188.5	190.0	193.0
Width	in	50.7	52.8	52.8	48.7	58.7	52.8	52.8	54.7	58.7	58.7	85.4	87.4	60.7	89.7	94.1	94.1	96.4	100.2	104.1	106.5
Height	in	83.8	89.8	90.9	81.6	101.8	92.7	94.9	97.9	101.8	105.2	77.3	79.6	107.3	81.9	84.3	84.3	84.3	86.2	88.6	90.6
Sound pressure level at 1m distance	dB(A)	77.5	77.9	80.9	80.5	85	80.9	83.9	82.7	88	85.6	84	86.9	89.8	84.9	87.8	85.7	91	88.6	92	92.8
Empty weight	lbs	4345	5589	5970	5661	7496	7888	8459	9833	10132	11321	13869	14991	14176	17059	19074	19749	17950	21367	22648	26193
Charge weight	lbs	335	395	441	459	725	637	708	838	1105	1098	1442	1539	1539	2092	2407	2407	1978	2698	3080	3503
Operational weight	lbs	5860	7562	8133	7372	10728	10589	11422	13283	14107	15860	19165	20959	20144	24392	27412	28087	25706	31081	33484	38504

(1) IPLV-Conditions: chilled water 44.6/53.6 °F, ambient temperature 95 °F, without glycol

(2) ESEER Conditions: chilled water 44.6/53.6 °F, ambient temperature 95 °F, without glycol

COP (Coefficient Of Performance) power in kW (cooling) per kW of drive power (energy consumption)

Max./min. ambient temperature: 113/41 °F, refrigerant R134a.

Appendix AQ3

Air Quality Impact Analysis

Support Data

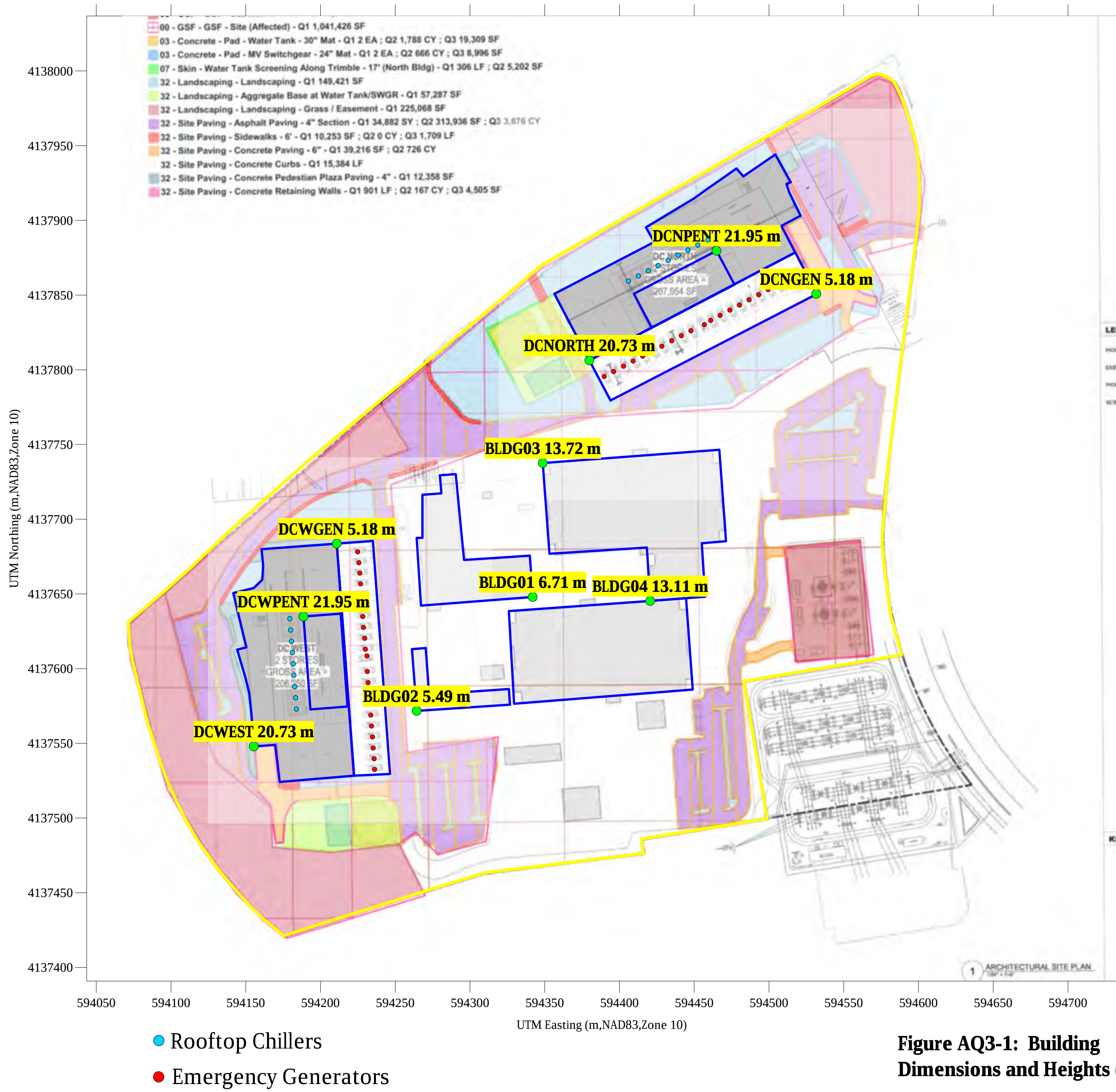


Figure AQ3-1: Building Dimensions and Heights (m)

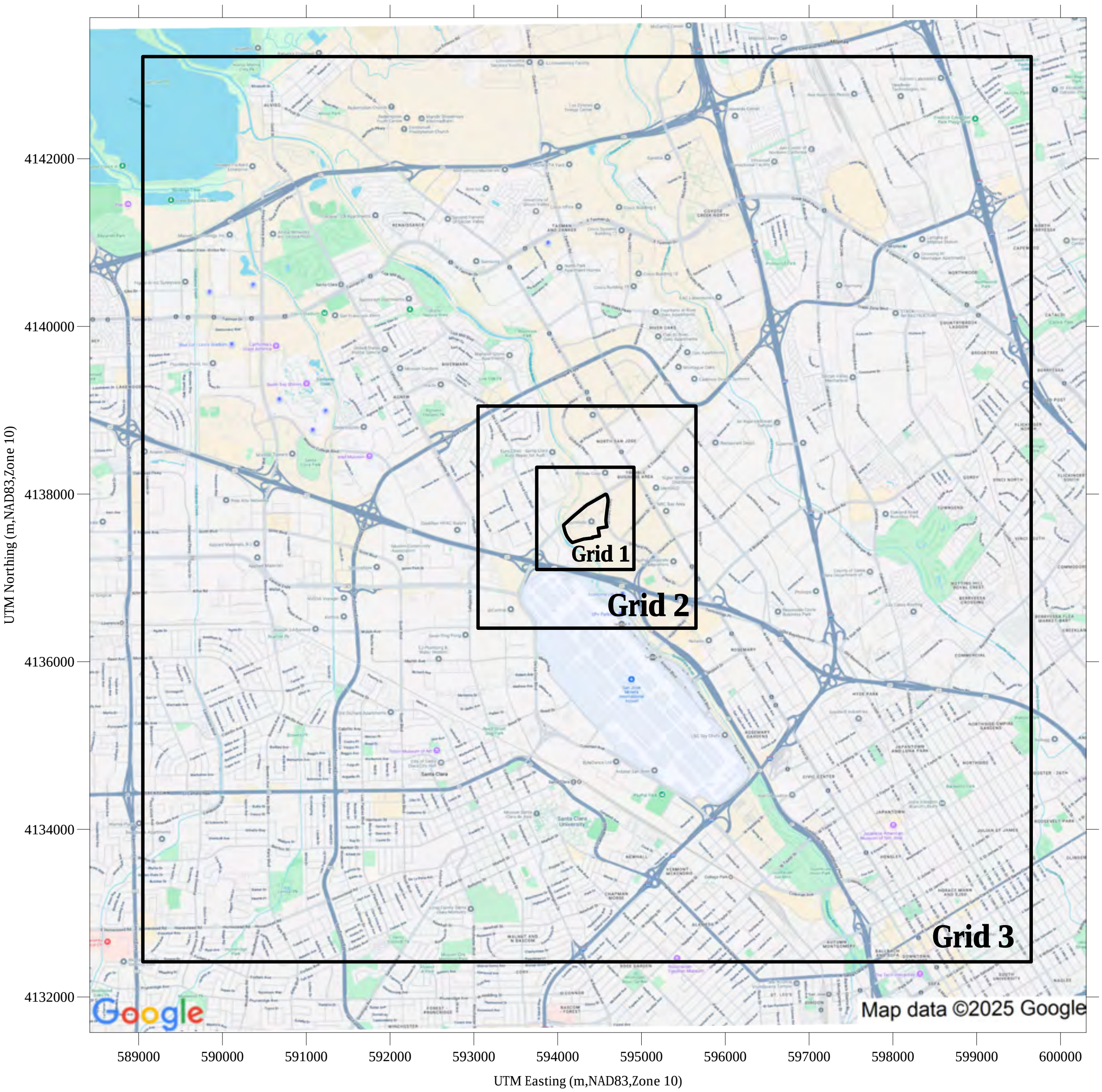


Figure AQ3-2: Receptor Grids:

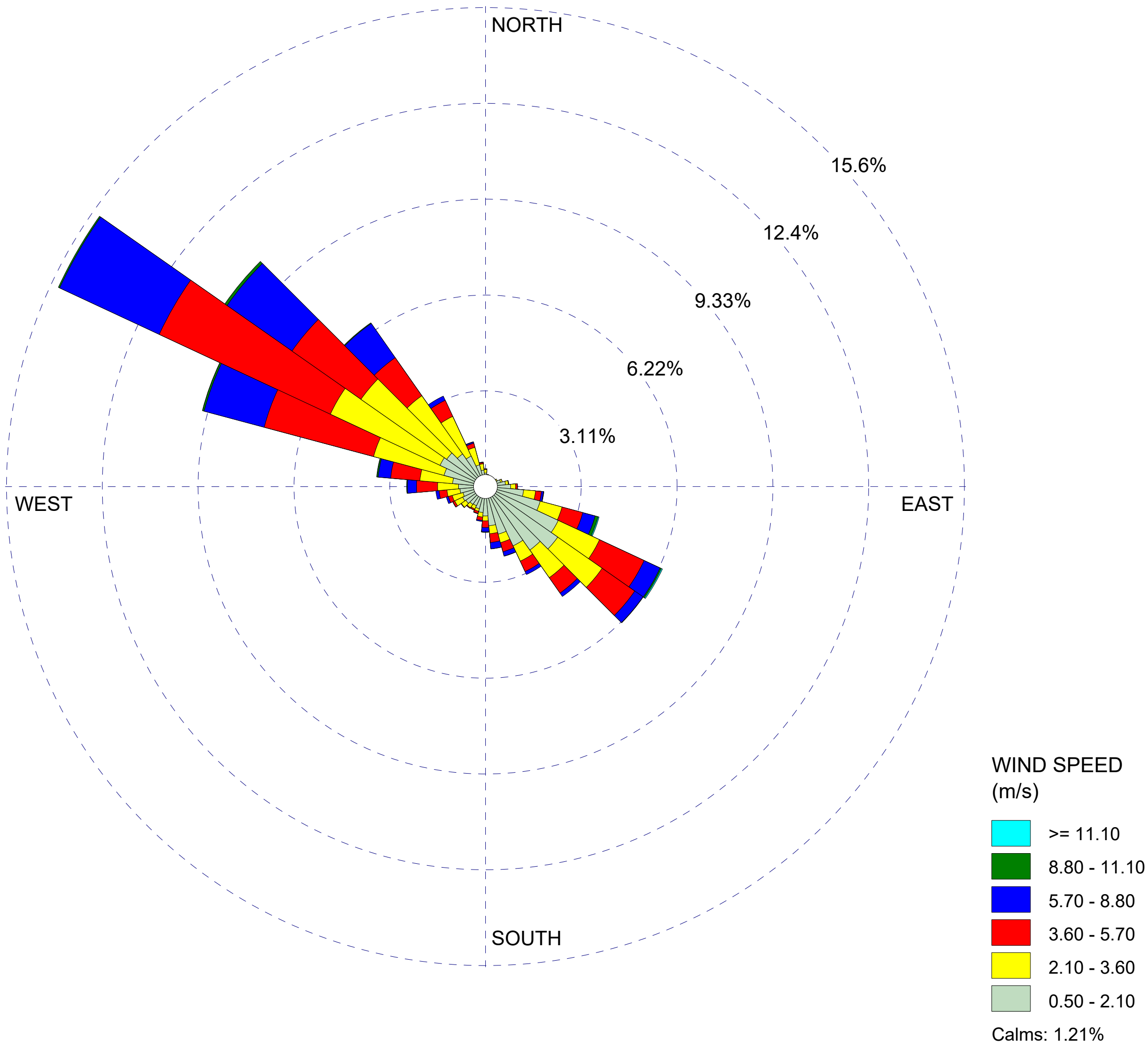
Boundary: 10 m spaced, 181 receptors
Grid 1: 1.16 km x 1.22 km, 20 m spaced, 3190 receptors
Grid 2: 2.60 km x 2.65 km, 50 m spaced, 2262 receptors
Grid 3: 10.6 km x 10.8 km, 200 m spaced, 2774 receptors
Total: 8407 receptors

WIND ROSE PLOT:

BAAD San Jose Airport

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:

DATA PERIOD:

Start Date: 1/1/2013 - 00:00
End Date: 12/31/2017 - 23:59

COMPANY NAME:

Atmospheric Dynamics, Inc.

MODELER:

Alfred E. Neuman

CALM WINDS:

1.21%

TOTAL COUNT:

43766 hrs.

AVG. WIND SPEED:

3.19 m/s

DATE:

6/11/2025

PROJECT NO.:

Summary

Name	Count	Area(ft²)	Length(ft)
Permitted Stationary Sources	13	N/A	N/A

Permitted Stationary Sources

#	Address	Cancer_Ris	Chronic_Ha	City	County
1	361 Laurelwood Road	0.00	0.00	Santa Clara	Santa Clara
2	300 Laurelwood Road	0.00	0.00	Santa Clara	Santa Clara
3	491 W Trimble Road	0.43	0.00	San Jose	Santa Clara
4	2500 Seaboard Avenue	9.08	0.00	San Jose	Santa Clara
5	370 W Trimble Road	22.52	4.21	San Jose	Santa Clara
6	2591 Seaboard Ave	13.66	0.06	San Jose	Santa Clara
7	397 Trimble Road	2.45	0.00	San Jose	Santa Clara
8	535 TRIMBLE RD	0.00	0.00	Santa Clara	Santa Clara
9	55 W TRIMBLE RD	6.80	0.00	San Jose	Santa Clara
10	3165 DE LA CRUZ BLVD	0.00	0.00	Santa Clara	Santa Clara
11	2590 ORCHARD PKWY	8.15	0.00	San Jose	Santa Clara
12	2509 Orchard Parkway	2.43	0.00	San Jose	Santa Clara
13	2570 ORCHARD PARKWAY	25.01	0.01	San Jose	Santa Clara

#	Details	Facility_I	Facility_N	Latitude	Longitude
1	*No Data*	15271	Accurate Finishing	37.38	-121.94
2	*No Data*	8611	Gilbert Spray Coat	37.38	-121.94
3	Generator	18923	City of San Jose Municipal Water	37.38	-121.94
4	Generator	19141	SJC Fuel Company LLC	37.38	-121.94
5	*No Data*	17437	Lumileds LLC	37.38	-121.93
6	Gas Dispensing Facility	104171-1	ConocoPhillips #256429	37.38	-121.94
7	Generator	22513	Verizon Business	37.38	-121.93
8	*No Data*	201160	Auto Max Collision Inc	37.38	-121.94
9	Generator	201418	Toshiba	37.39	-121.93
10	*No Data*	22797	Caliber Collision Center	37.38	-121.94
11	Generator	201834	Harmonic Inc.	37.38	-121.93
12	Generator	23091	Apple Inc. (Orchard Parkway 2)	37.38	-121.93
13	Generator	202171	TBUSA	37.38	-121.93

#	NAICS	NAICS_Indu	NAICS_Sect	NAICS_Subs	PM25
1	237310	Highway, Street, and Bridge Construction	Construction	Heavy and Civil Engineering Construction	0.00
2	332812	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	Manufacturing	Fabricated Metal Product Manufacturing	0.03
3	221310	Water Supply and Irrigation Systems	Utilities	Utilities	0.00
4	488190	Other Support Activities for Air Transportation	Transportation and Warehousing	Support Activities for Transportation	0.01
5	334514	Totalizing Fluid Meter and Counting Device Manufacturing	Manufacturing	Computer and Electronic Product Manufacturing	1.00
6	447110	Gasoline Stations with Convenience Stores	Retail Trade	Gasoline Stations	0.00
7	517210	Wireless Telecommunications Carriers (except Satellite)	Information	Telecommunications	0.00
8	811121	Automotive Body, Paint, and Interior Repair and Maintenance	Other Services (except Public Administration)	Repair and Maintenance	0.00
9	423610	Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers	Wholesale Trade	Merchant Wholesalers, Durable Goods	0.01
10	811121	Automotive Body, Paint, and Interior Repair and Maintenance	Other Services (except Public Administration)	Repair and Maintenance	0.00
11	334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	Manufacturing	Computer and Electronic Product Manufacturing	0.01
12	532412	Construction, Mining, and Forestry Machinery and Equipment Rental and Leasing	Real Estate and Rental and Leasing	Rental and Leasing Services	0.00
13	621511	Medical Laboratories	Health Care and Social Assistance	Ambulatory Health Care Services	0.03

#	State	Zip	Count
1	CA	95054	1
2	CA	95054	1
3	CA	95131	1
4	CA	95131	1
5	CA	95131	1
6	CA	95131	1
7	CA	95131	1
8	CA	95054	1
9	CA	95131	1
10	CA	95054	1
11	CA	95131	1
12	CA	95131	1
13	CA	95131	1

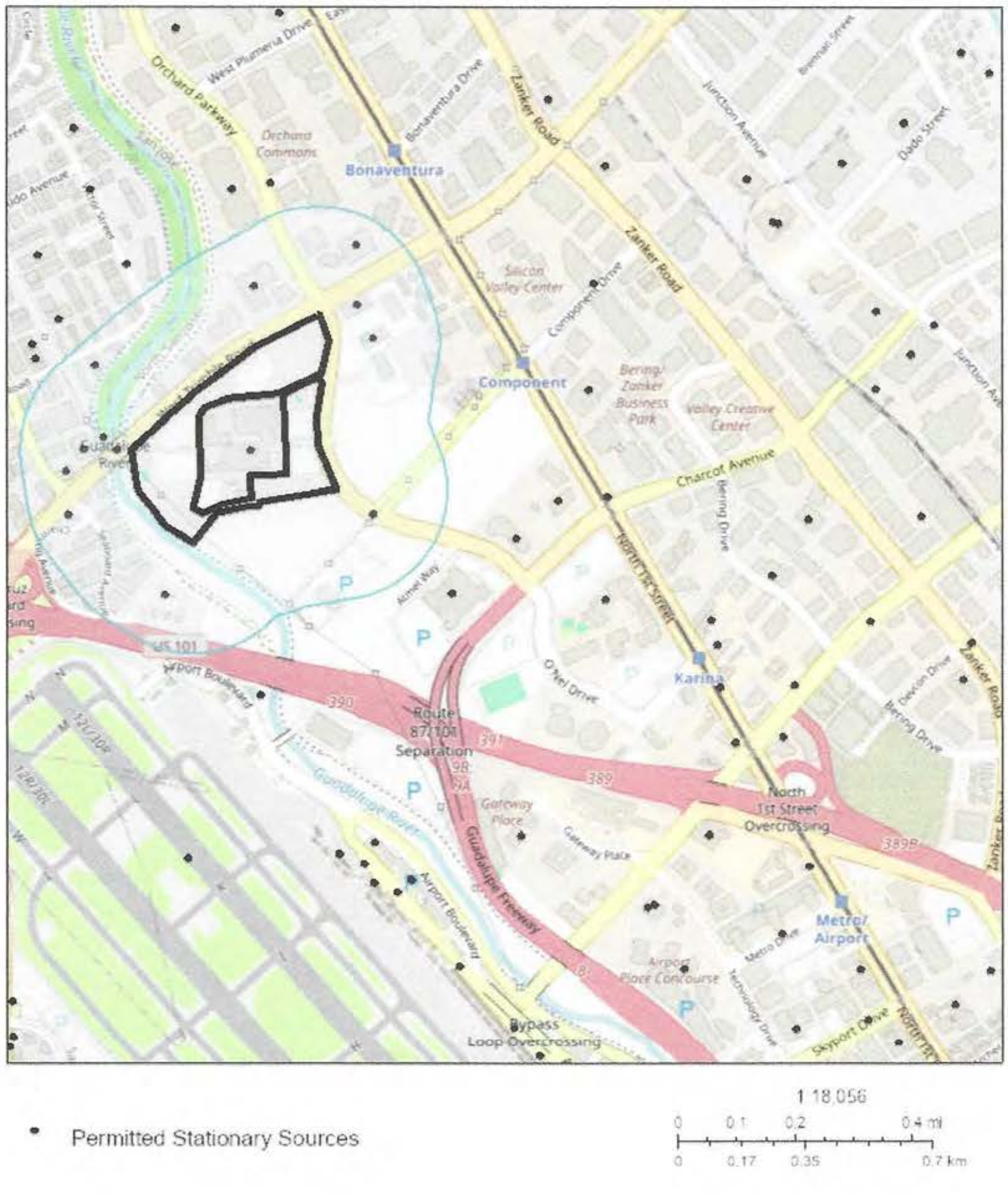
NOTE: A larger buffer than 1,000 may be warranted depending on proximity to significant sources.

Screening Report

Area of Interest (AOI) Information

Area : 11,466,961.36 ft²

Jan 29 2025 18:01:11 Central Standard Time



Appendix AQ4

Construction Emissions

and Support Data

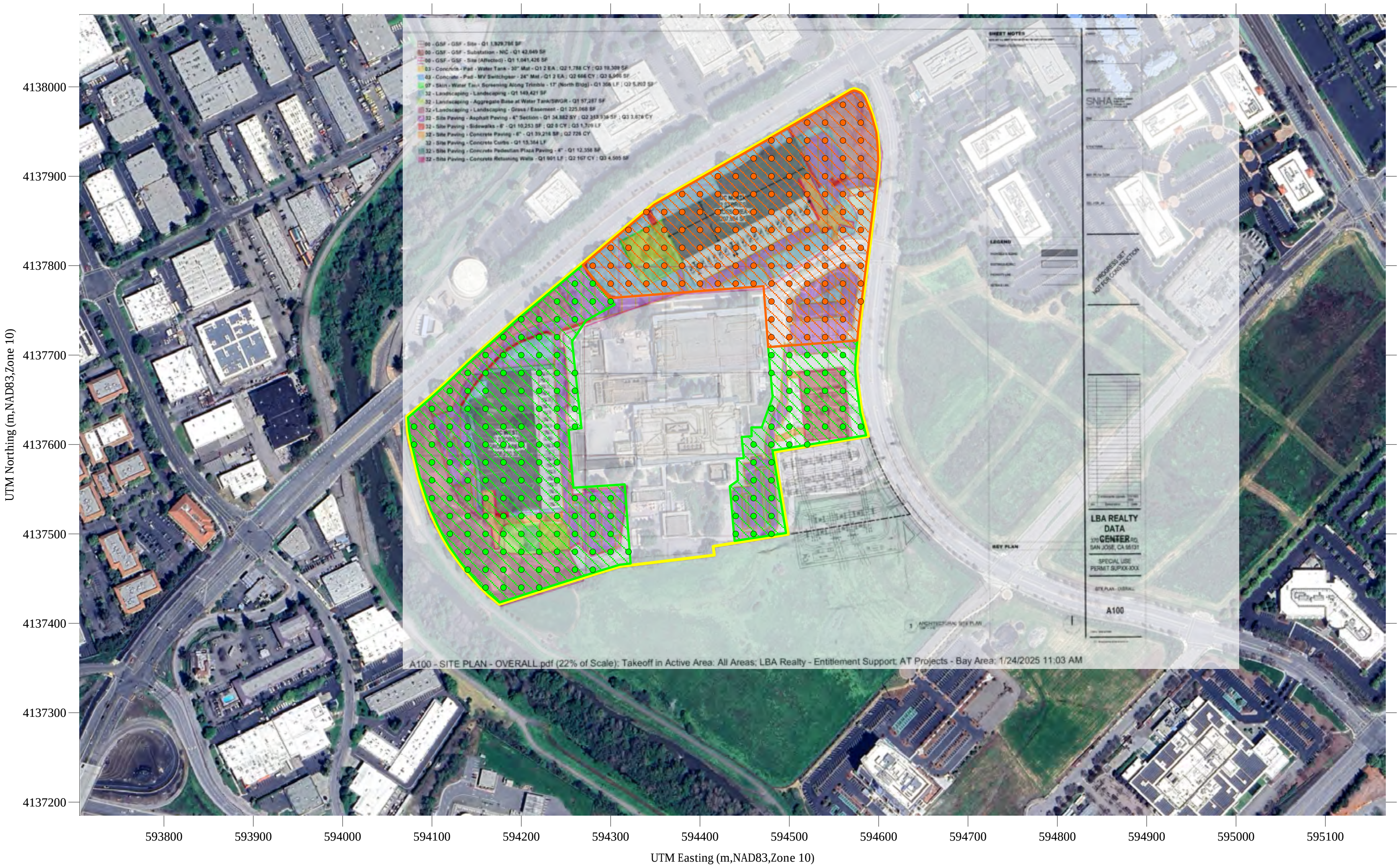


Figure AQ4-1: Constuction Point Source and Fugitive Source Locations
Green: DC West
Orange: DC North

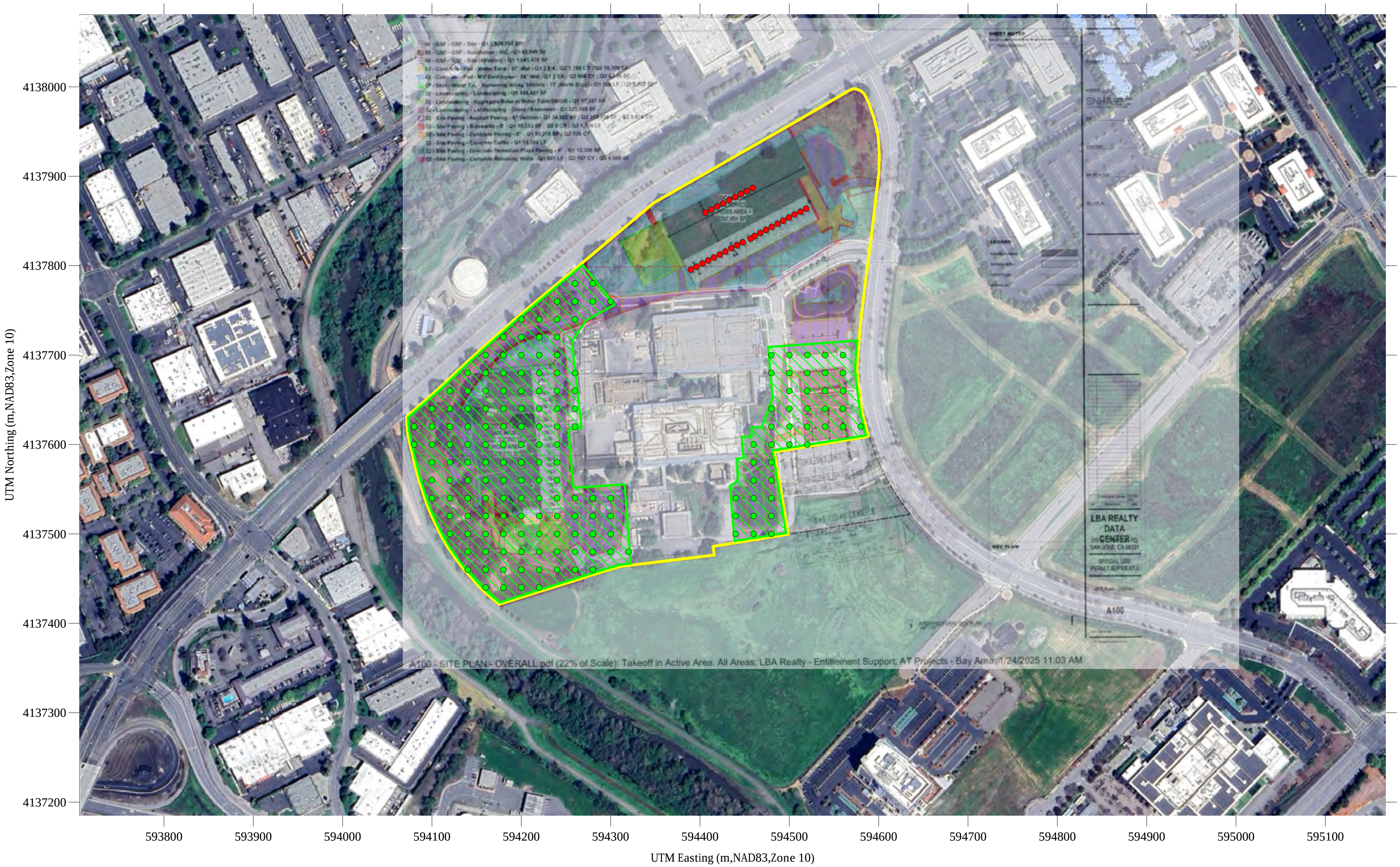


Figure AQ4-2: Overlap Point Source and Fugitive Source Locations
Green: DC West
Red: DC North Operational Sources

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

NTDC

Santa Clara County, Annual

Table AQ4-1

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	414.00	1000sqft	28.50	414,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2029
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Applicant data on project location.

Land Use - Site is 46.79 acres. Only 28.5 acres is impacted by construction and operations.

Construction Phase - Applicant supplied construction schedule.

Off-road Equipment - Applicant supplied data.

Off-road Equipment - Applicant supplied data.

Off-road Equipment - No demolition phase proposed or required.

Off-road Equipment - Applicant supplied data.

Off-road Equipment - Applicant supplied data.

Off-road Equipment - Applicant supplied data.

Trips and VMT - Estimated from manpower data, cut and fill data, etc.

Grading - Best estimate from Applicant.

Architectural Coating - No Residential coating. Parking lot area data from Applicant.

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vehicle Trips - Daily trips divided by 414.0 x 10^3 sq.ft. sq.ft.

Road Dust - No offsite unpaved roads will be used for construction or operations.

Area Coating - Parking lot area data from Applicant.

Water And Wastewater - Water use data supplied by Applicant.

Solid Waste - Based on 115 TPY divided by Bldg 414 X 10^3 sq.ft.

Construction Off-road Equipment Mitigation - Applicant data.

Fleet Mix - Assumed defaults.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	207,000.00	210,000.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	621,000.00	630,000.00
tblArchitecturalCoating	ConstArea_Parking	0.00	160,862.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	0.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	0.00
tblAreaCoating	Area_Nonresidential_Exterior	207000	210000
tblAreaCoating	Area_Nonresidential_Interior	621000	630000
tblAreaCoating	Area_Parking	0	160862
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	16.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
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tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	35.00	118.00
tblConstructionPhase	NumDays	440.00	759.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	NumDays	30.00	0.00
tblConstructionPhase	NumDays	45.00	66.00
tblConstructionPhase	NumDays	35.00	61.00
tblConstructionPhase	NumDays	20.00	31.00
tblGrading	AcresOfGrading	106.43	28.50
tblGrading	AcresOfGrading	103.46	0.00
tblGrading	MaterialExported	0.00	5,400.00
tblGrading	MaterialImported	0.00	11,000.00
tblLandUse	LotAcreage	9.50	28.50
tblOffRoadEquipment	HorsePower	221.00	205.00
tblOffRoadEquipment	HorsePower	231.00	213.00
tblOffRoadEquipment	HorsePower	203.00	199.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	8.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	UsageHours	7.00	8.00

tblOffRoadEquipment	UsageHours	8.00	1.30
tblOffRoadEquipment	UsageHours	8.00	1.30
tblOffRoadEquipment	UsageHours	8.00	1.30
tblOffRoadEquipment	UsageHours	8.00	4.90
tblOffRoadEquipment	UsageHours	7.00	1.00
tblOffRoadEquipment	UsageHours	8.00	1.10
tblSolidWaste	SolidWasteGenerationRate	385.02	0.28
tblTripsAndVMT	HaulingTripLength	20.00	26.00
tblTripsAndVMT	HaulingTripLength	20.00	26.00
tblTripsAndVMT	HaulingTripLength	20.00	26.00
tblTripsAndVMT	HaulingTripNumber	2,050.00	820.00
tblTripsAndVMT	HaulingTripNumber	0.00	3,725.00
tblTripsAndVMT	HaulingTripNumber	0.00	228.00
tblTripsAndVMT	VendorTripNumber	68.00	5.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	28.00	51.00
tblTripsAndVMT	WorkerTripNumber	50.00	76.00
tblTripsAndVMT	WorkerTripNumber	132.00	331.00
tblTripsAndVMT	WorkerTripNumber	26.00	27.00
tblVehicleTrips	ST_TR	2.21	0.34
tblVehicleTrips	SU_TR	0.70	0.34
tblVehicleTrips	WD_TR	9.74	0.34
tblWater	IndoorWaterUseRate	73,581,771.67	173.24
tblWater	OutdoorWaterUseRate	45,098,505.22	848,624.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2025	0.1156	1.1055	1.1489	2.6300e-003	0.1279	0.0455	0.1734	0.0581	0.0419	0.0999						235.4006
2026	0.3377	2.6533	3.8685	8.5200e-003	0.3619	0.1091	0.4710	0.0940	0.1007	0.1947						772.2570
2027	3.0477	2.2545	3.5410	7.7600e-003	0.3807	0.0903	0.4710	0.1015	0.0834	0.1849						704.2484
2028	0.2703	2.0217	3.1765	6.9600e-003	0.3596	0.0828	0.4424	0.0959	0.0765	0.1723						631.2833
Maximum	**3.0477**	**2.6533**	**3.8685**	**8.5200e-003**	**0.3807**	**0.1091**	**0.4710**	**0.1015**	**0.1007**	**0.1947**						**772.2570**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2025	0.0336	0.1582	1.4133	2.6300e-003	0.0678	4.1900e-003	0.0720	0.0289	4.1800e-003	0.0330						235.4004
2026	0.1643	0.9656	4.3584	8.5200e-003	0.3531	0.0114	0.3645	0.0930	0.0112	0.1043						772.2564
2027	2.9102	1.0549	3.8993	7.7600e-003	0.3807	9.8900e-003	0.3906	0.1015	9.7200e-003	0.1112						704.2479
2028	0.1435	0.8981	3.4935	6.9600e-003	0.3596	8.7600e-003	0.3684	0.0959	8.6100e-003	0.1045						631.2829
Maximum	**2.9102**	**1.0549**	**4.3584**	**8.5200e-003**	**0.3807**	**0.0114**	**0.3906**	**0.1015**	**0.0112**	**0.1112**						**772.2564**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**13.78**	**61.71**	**-12.18**	**0.00**	**5.61**	**89.55**	**23.26**	**8.63**	**88.84**	**45.84**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**9-29-2025**	**12-28-2025**	1.1477	0.1796
2	**12-29-2025**	**3-28-2026**	1.2839	0.3308
3	**3-29-2026**	**6-28-2026**	0.5829	0.2669
4	**6-29-2026**	**9-28-2026**	0.5827	0.2667
5	**9-29-2026**	**12-28-2026**	0.5818	0.2691
6	**12-29-2026**	**3-28-2027**	1.0626	0.7515
7	**3-29-2027**	**6-28-2027**	2.1892	1.8670
8	**6-29-2027**	**9-28-2027**	1.4515	1.0620

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

9	**9-29-2027**	**12-28-2027**	0.5790	0.2664
10	**12-29-2027**	**3-28-2028**	0.5767	0.2641
11	**3-29-2028**	**6-28-2028**	0.5780	0.2619
12	**6-29-2028**	**9-28-2028**	0.5778	0.2618
13	**9-29-2028**	**9-30-2028**	0.0126	0.0057
		Highest	2.1892	1.8670

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.8922	3.0000e-005	3.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						7.8800e-003
Energy	0.0362	0.3288	0.2762	1.9700e-003		0.0250	0.0250		0.0250	0.0250						1,024.2248
Mobile	0.0463	0.0480	0.4503	9.7000e-004	0.1243	6.4000e-004	0.1249	0.0332	5.9000e-004	0.0338						91.1939
Waste						0.0000	0.0000		0.0000	0.0000						0.1408
Water						0.0000	0.0000		0.0000	0.0000						0.2779
Total	**1.9746**	**0.3768**	**0.7303**	**2.9400e-003**	**0.1243**	**0.0256**	**0.1499**	**0.0332**	**0.0256**	**0.0588**						**1,115.8452**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.8922	3.0000e-005	3.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						7.8800e-003
Energy	0.0362	0.3288	0.2762	1.9700e-003		0.0250	0.0250		0.0250	0.0250						1,024.2248
Mobile	0.0463	0.0480	0.4503	9.7000e-004	0.1243	6.4000e-004	0.1249	0.0332	5.9000e-004	0.0338						91.1939
Waste						0.0000	0.0000		0.0000	0.0000						0.1408
Water						0.0000	0.0000		0.0000	0.0000						0.1667
Total	**1.9746**	**0.3768**	**0.7303**	**2.9400e-003**	**0.1243**	**0.0256**	**0.1499**	**0.0332**	**0.0256**	**0.0588**						**1,115.7340**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/29/2025	9/28/2025	5	0	No Demolition Phase
2	Site Preparation	Site Preparation	9/29/2025	11/10/2025	5	31	
3	Grading	Grading	11/24/2025	2/23/2026	5	66	

4	Building Construction	Building Construction	2/3/2026	12/29/2028	5	759	
5	Architectural Coating	Architectural Coating	3/1/2027	8/11/2027	5	118	
6	Paving	Paving	7/5/2027	9/27/2027	5	61	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 28.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 630,000; Non-Residential Outdoor: 210,000; Striped Parking Area: 160,862 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Dumpers/Tenders	1	6.70	16	0.38
Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Graders	2	6.70	187	0.41
Site Preparation	Other Construction Equipment	1	8.00	172	0.42
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Scrapers	2	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Bore/Drill Rigs	1	8.00	205	0.50
Grading	Cranes	1	8.00	213	0.29
Grading	Dumpers/Tenders	1	8.00	16	0.38
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Other Construction Equipment	1	8.00	172	0.42
Grading	Rubber Tired Dozers	0	8.00	247	0.40

Grading	Rubber Tired Loaders	1	8.00	199	0.36
Grading	Scrapers	1	4.90	367	0.48
Grading	Tractors/Loaders/Backhoes	8	8.00	97	0.37
Grading	Trenchers	2	8.00	78	0.50
Building Construction	Aerial Lifts	8	4.00	63	0.31
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	6	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Other Construction Equipment	1	8.00	172	0.42
Building Construction	Tractors/Loaders/Backhoes	3	1.00	97	0.37
Building Construction	Welders	4	1.10	46	0.45
Architectural Coating	Aerial Lifts	2	8.00	63	0.31
Architectural Coating	Air Compressors	0	6.00	78	0.48
Architectural Coating	Cranes	1	2.70	231	0.29
Paving	Cement and Mortar Mixers	1	4.00	9	0.56
Paving	Pavers	1	1.30	130	0.42
Paving	Paving Equipment	1	1.30	132	0.36
Paving	Plate Compactors	1	5.30	8	0.43
Paving	Rollers	1	1.30	80	0.38
Paving	Tractors/Loaders/Backhoes	2	4.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	11	51.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	20	76.00	0.00	820.00	10.80	7.30	26.00	LD_Mix	HDT_Mix	HHDT
Building Construction	23	331.00	5.00	3,725.00	10.80	7.30	26.00	LD_Mix	HDT_Mix	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Architectural Coating	3	27.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	1.00	228.00	10.80	7.30	26.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Demolition - 2025

Unmitigated Construction On-Site

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

3.2 Demolition - 2025

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

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

3.2 Demolition - 2025

Mitigated Construction Off-Site

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

3.3 Site Preparation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0933	0.0000	0.0933	0.0513	0.0000	0.0513						0.0000
Off-Road	0.0533	0.5199	0.4741	1.1000e-003		0.0210	0.0210		0.0194	0.0194						97.6881
Total	**0.0533**	**0.5199**	**0.4741**	**1.1000e-003**	**0.0933**	**0.0210**	**0.1144**	**0.0513**	**0.0194**	**0.0707**						**97.6881**

3.3 Site Preparation - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.7400e-003	1.1100e-003	0.0154	5.0000e-005	6.2700e-003	3.0000e-005	6.3000e-003	1.6700e-003	3.0000e-005	1.6900e-003						4.5051
Total	**1.7400e-003**	**1.1100e-003**	**0.0154**	**5.0000e-005**	**6.2700e-003**	**3.0000e-005**	**6.3000e-003**	**1.6700e-003**	**3.0000e-005**	**1.6900e-003**						**4.5051**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0420	0.0000	0.0420	0.0231	0.0000	0.0231						0.0000
Off-Road	0.0134	0.0583	0.5913	1.1000e-003		1.7900e-003	1.7900e-003		1.7900e-003	1.7900e-003						97.6880
Total	**0.0134**	**0.0583**	**0.5913**	**1.1000e-003**	**0.0420**	**1.7900e-003**	**0.0438**	**0.0231**	**1.7900e-003**	**0.0249**						**97.6880**

3.3 Site Preparation - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.7400e-003	1.1100e-003	0.0154	5.0000e-005	6.2700e-003	3.0000e-005	6.3000e-003	1.6700e-003	3.0000e-005	1.6900e-003						4.5051
Total	**1.7400e-003**	**1.1100e-003**	**0.0154**	**5.0000e-005**	**6.2700e-003**	**3.0000e-005**	**6.3000e-003**	**1.6700e-003**	**3.0000e-005**	**1.6900e-003**						**4.5051**

3.4 Grading - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0160	0.0000	0.0160	1.7700e-003	0.0000	1.7700e-003						0.0000
Off-Road	0.0579	0.5534	0.6322	1.2800e-003		0.0241	0.0241		0.0222	0.0222						113.5725
Total	**0.0579**	**0.5534**	**0.6322**	**1.2800e-003**	**0.0160**	**0.0241**	**0.0402**	**1.7700e-003**	**0.0222**	**0.0240**						**113.5725**

3.4 Grading - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.2000e-004	0.0297	6.4800e-003	1.3000e-004	3.8400e-003	2.5000e-004	4.0900e-003	1.0600e-003	2.4000e-004	1.2900e-003						13.5712
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.3500e-003	1.4900e-003	0.0208	7.0000e-005	8.4400e-003	4.0000e-005	8.4800e-003	2.2400e-003	3.0000e-005	2.2800e-003						6.0637
Total	**2.7700e-003**	**0.0312**	**0.0273**	**2.0000e-004**	**0.0123**	**2.9000e-004**	**0.0126**	**3.3000e-003**	**2.7000e-004**	**3.5700e-003**						**19.6349**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.2200e-003	0.0000	7.2200e-003	8.0000e-004	0.0000	8.0000e-004						0.0000
Off-Road	0.0156	0.0677	0.7793	1.2800e-003		2.0800e-003	2.0800e-003		2.0800e-003	2.0800e-003						113.5724
Total	**0.0156**	**0.0677**	**0.7793**	**1.2800e-003**	**7.2200e-003**	**2.0800e-003**	**9.3000e-003**	**8.0000e-004**	**2.0800e-003**	**2.8800e-003**						**113.5724**

3.4 Grading - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.2000e-004	0.0297	6.4800e-003	1.3000e-004	3.8400e-003	2.5000e-004	4.0900e-003	1.0600e-003	2.4000e-004	1.2900e-003						13.5712
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.3500e-003	1.4900e-003	0.0208	7.0000e-005	8.4400e-003	4.0000e-005	8.4800e-003	2.2400e-003	3.0000e-005	2.2800e-003						6.0637
Total	**2.7700e-003**	**0.0312**	**0.0273**	**2.0000e-004**	**0.0123**	**2.9000e-004**	**0.0126**	**3.3000e-003**	**2.7000e-004**	**3.5700e-003**						**19.6349**

3.4 Grading - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0160	0.0000	0.0160	1.7700e-003	0.0000	1.7700e-003						0.0000
Off-Road	0.0785	0.7510	0.8580	1.7400e-003		0.0327	0.0327		0.0301	0.0301						154.1342
Total	**0.0785**	**0.7510**	**0.8580**	**1.7400e-003**	**0.0160**	**0.0327**	**0.0488**	**1.7700e-003**	**0.0301**	**0.0319**						**154.1342**

3.4 Grading - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.6000e-004	0.0399	8.8300e-003	1.7000e-004	5.2100e-003	3.4000e-004	5.5500e-003	1.4300e-003	3.2000e-004	1.7600e-003						18.0411
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	3.0200e-003	1.8500e-003	0.0266	9.0000e-005	0.0115	5.0000e-005	0.0115	3.0500e-003	5.0000e-005	3.0900e-003						7.9783
Total	**3.5800e-003**	**0.0418**	**0.0355**	**2.6000e-004**	**0.0167**	**3.9000e-004**	**0.0171**	**4.4800e-003**	**3.7000e-004**	**4.8500e-003**						**26.0194**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.2200e-003	0.0000	7.2200e-003	8.0000e-004	0.0000	8.0000e-004						0.0000
Off-Road	0.0212	0.0919	1.0577	1.7400e-003		2.8300e-003	2.8300e-003		2.8300e-003	2.8300e-003						154.1340
Total	**0.0212**	**0.0919**	**1.0577**	**1.7400e-003**	**7.2200e-003**	**2.8300e-003**	**0.0101**	**8.0000e-004**	**2.8300e-003**	**3.6300e-003**						**154.1340**

3.4 Grading - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.6000e-004	0.0399	8.8300e-003	1.7000e-004	5.2100e-003	3.4000e-004	5.5500e-003	1.4300e-003	3.2000e-004	1.7600e-003						18.0411
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	3.0200e-003	1.8500e-003	0.0266	9.0000e-005	0.0115	5.0000e-005	0.0115	3.0500e-003	5.0000e-005	3.0900e-003						7.9783
Total	**3.5800e-003**	**0.0418**	**0.0355**	**2.6000e-004**	**0.0167**	**3.9000e-004**	**0.0171**	**4.4800e-003**	**3.7000e-004**	**4.8500e-003**						**26.0194**

3.5 Building Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1713	1.6852	2.2186	3.6200e-003		0.0736	0.0736		0.0680	0.0680						318.0878
Total	**0.1713**	**1.6852**	**2.2186**	**3.6200e-003**		**0.0736**	**0.0736**		**0.0680**	**0.0680**						**318.0878**

3.5 Building Construction - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4000e-003	0.0987	0.0218	4.3000e-004	0.0129	8.4000e-004	0.0137	3.5400e-003	8.0000e-004	4.3400e-003						44.6346
Vendor	6.1000e-004	0.0262	7.9600e-003	1.2000e-004	3.9200e-003	1.6000e-004	4.0700e-003	1.1300e-003	1.5000e-004	1.2800e-003						11.7522
Worker	0.0823	0.0504	0.7266	2.3500e-003	0.3124	1.3400e-003	0.3137	0.0831	1.2300e-003	0.0843						217.6288
Total	**0.0843**	**0.1754**	**0.7564**	**2.9000e-003**	**0.3292**	**2.3400e-003**	**0.3315**	**0.0878**	**2.1800e-003**	**0.0899**						**274.0156**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0552	0.6566	2.5088	3.6200e-003		5.8600e-003	5.8600e-003		5.8600e-003	5.8600e-003						318.0874
Total	**0.0552**	**0.6566**	**2.5088**	**3.6200e-003**		**5.8600e-003**	**5.8600e-003**		**5.8600e-003**	**5.8600e-003**						**318.0874**

3.5 Building Construction - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4000e-003	0.0987	0.0218	4.3000e-004	0.0129	8.4000e-004	0.0137	3.5400e-003	8.0000e-004	4.3400e-003						44.6346
Vendor	6.1000e-004	0.0262	7.9600e-003	1.2000e-004	3.9200e-003	1.6000e-004	4.0700e-003	1.1300e-003	1.5000e-004	1.2800e-003						11.7522
Worker	0.0823	0.0504	0.7266	2.3500e-003	0.3124	1.3400e-003	0.3137	0.0831	1.2300e-003	0.0843						217.6288
Total	**0.0843**	**0.1754**	**0.7564**	**2.9000e-003**	**0.3292**	**2.3400e-003**	**0.3315**	**0.0878**	**2.1800e-003**	**0.0899**						**274.0156**

3.5 Building Construction - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1879	1.8480	2.4330	3.9700e-003		0.0808	0.0808		0.0745	0.0745						348.8274
Total	**0.1879**	**1.8480**	**2.4330**	**3.9700e-003**		**0.0808**	**0.0808**		**0.0745**	**0.0745**						**348.8274**

3.5 Building Construction - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5200e-003	0.1072	0.0240	4.6000e-004	0.0141	9.1000e-004	0.0150	3.8900e-003	8.7000e-004	4.7600e-003						47.8332
Vendor	6.6000e-004	0.0285	8.6300e-003	1.2000e-004	4.3000e-003	1.7000e-004	4.4700e-003	1.2400e-003	1.6000e-004	1.4000e-003						12.6336
Worker	0.0856	0.0507	0.7568	2.5100e-003	0.3426	1.3800e-003	0.3440	0.0911	1.2700e-003	0.0924						231.8656
Total	**0.0878**	**0.1864**	**0.7894**	**3.0900e-003**	**0.3610**	**2.4600e-003**	**0.3635**	**0.0962**	**2.3000e-003**	**0.0986**						**292.3325**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0606	0.7200	2.7512	3.9700e-003		6.4300e-003	6.4300e-003		6.4300e-003	6.4300e-003						348.8270
Total	**0.0606**	**0.7200**	**2.7512**	**3.9700e-003**		**6.4300e-003**	**6.4300e-003**		**6.4300e-003**	**6.4300e-003**						**348.8270**

3.5 Building Construction - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5200e-003	0.1072	0.0240	4.6000e-004	0.0141	9.1000e-004	0.0150	3.8900e-003	8.7000e-004	4.7600e-003						47.8332
Vendor	6.6000e-004	0.0285	8.6300e-003	1.2000e-004	4.3000e-003	1.7000e-004	4.4700e-003	1.2400e-003	1.6000e-004	1.4000e-003						12.6336
Worker	0.0856	0.0507	0.7568	2.5100e-003	0.3426	1.3800e-003	0.3440	0.0911	1.2700e-003	0.0924						231.8656
Total	**0.0878**	**0.1864**	**0.7894**	**3.0900e-003**	**0.3610**	**2.4600e-003**	**0.3635**	**0.0962**	**2.3000e-003**	**0.0986**						**292.3325**

3.5 Building Construction - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1872	1.8409	2.4237	3.9600e-003		0.0804	0.0804		0.0742	0.0742						347.4909
Total	**0.1872**	**1.8409**	**2.4237**	**3.9600e-003**		**0.0804**	**0.0804**		**0.0742**	**0.0742**						**347.4909**

3.5 Building Construction - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5000e-003	0.1058	0.0239	4.5000e-004	0.0141	9.0000e-004	0.0150	3.8700e-003	8.6000e-004	4.7300e-003						46.5384
Vendor	6.4000e-004	0.0283	8.5200e-003	1.2000e-004	4.2800e-003	1.7000e-004	4.4500e-003	1.2400e-003	1.6000e-004	1.4000e-003						12.3402
Worker	0.0810	0.0468	0.7204	2.4300e-003	0.3413	1.2900e-003	0.3426	0.0908	1.1900e-003	0.0920						224.9138
Total	**0.0831**	**0.1808**	**0.7528**	**3.0000e-003**	**0.3596**	**2.3600e-003**	**0.3620**	**0.0959**	**2.2100e-003**	**0.0981**						**283.7924**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0603	0.7173	2.7407	3.9600e-003		6.4000e-003	6.4000e-003		6.4000e-003	6.4000e-003						347.4905
Total	**0.0603**	**0.7173**	**2.7407**	**3.9600e-003**		**6.4000e-003**	**6.4000e-003**		**6.4000e-003**	**6.4000e-003**						**347.4905**

3.5 Building Construction - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5000e-003	0.1058	0.0239	4.5000e-004	0.0141	9.0000e-004	0.0150	3.8700e-003	8.6000e-004	4.7300e-003						46.5384
Vendor	6.4000e-004	0.0283	8.5200e-003	1.2000e-004	4.2800e-003	1.7000e-004	4.4500e-003	1.2400e-003	1.6000e-004	1.4000e-003						12.3402
Worker	0.0810	0.0468	0.7204	2.4300e-003	0.3413	1.2900e-003	0.3426	0.0908	1.1900e-003	0.0920						224.9138
Total	**0.0831**	**0.1808**	**0.7528**	**3.0000e-003**	**0.3596**	**2.3600e-003**	**0.3620**	**0.0959**	**2.2100e-003**	**0.0981**						**283.7924**

3.6 Architectural Coating - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.7492					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	0.0102	0.1245	0.1633	3.1000e-004		3.7300e-003	3.7300e-003		3.4300e-003	3.4300e-003						27.7253
Total	**2.7595**	**0.1245**	**0.1633**	**3.1000e-004**		**3.7300e-003**	**3.7300e-003**		**3.4300e-003**	**3.4300e-003**						**27.7253**

3.6 Architectural Coating - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	3.1600e-003	1.8700e-003	0.0279	9.0000e-005	0.0126	5.0000e-005	0.0127	3.3600e-003	5.0000e-005	3.4100e-003						8.5509
Total	**3.1600e-003**	**1.8700e-003**	**0.0279**	**9.0000e-005**	**0.0126**	**5.0000e-005**	**0.0127**	**3.3600e-003**	**5.0000e-005**	**3.4100e-003**						**8.5509**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.7492					0.0000	0.0000		0.0000	0.0000						0.0000
Off-Road	6.2900e-003	0.1175	0.2022	3.1000e-004		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004						27.7253
Total	**2.7555**	**0.1175**	**0.2022**	**3.1000e-004**		**5.1000e-004**	**5.1000e-004**		**5.1000e-004**	**5.1000e-004**						**27.7253**

3.6 Architectural Coating - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	3.1600e-003	1.8700e-003	0.0279	9.0000e-005	0.0126	5.0000e-005	0.0127	3.3600e-003	5.0000e-005	3.4100e-003						8.5509
Total	**3.1600e-003**	**1.8700e-003**	**0.0279**	**9.0000e-005**	**0.0126**	**5.0000e-005**	**0.0127**	**3.3600e-003**	**5.0000e-005**	**3.4100e-003**						**8.5509**

3.7 Paving - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.0000e-003	0.0727	0.1131	1.7000e-004		3.1000e-003	3.1000e-003		2.8900e-003	2.8900e-003						14.7607
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**8.0000e-003**	**0.0727**	**0.1131**	**1.7000e-004**		**3.1000e-003**	**3.1000e-003**		**2.8900e-003**	**2.8900e-003**						**14.7607**

3.7 Paving - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.7000e-004	0.0191	4.2700e-003	8.0000e-005	2.5200e-003	1.6000e-004	2.6800e-003	6.9000e-004	1.5000e-004	8.5000e-004						8.5141
Vendor	3.0000e-005	1.3300e-003	4.0000e-004	1.0000e-005	2.0000e-004	1.0000e-005	2.1000e-004	6.0000e-005	1.0000e-005	7.0000e-005						0.5905
Worker	1.0900e-003	6.4000e-004	9.6200e-003	3.0000e-005	4.3500e-003	2.0000e-005	4.3700e-003	1.1600e-003	2.0000e-005	1.1700e-003						2.9469
Total	**1.3900e-003**	**0.0210**	**0.0143**	**1.2000e-004**	**7.0700e-003**	**1.9000e-004**	**7.2600e-003**	**1.9100e-003**	**1.8000e-004**	**2.0900e-003**						**12.0516**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8500e-003	8.0300e-003	0.1143	1.7000e-004		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004						14.7607
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**1.8500e-003**	**8.0300e-003**	**0.1143**	**1.7000e-004**		**2.5000e-004**	**2.5000e-004**		**2.5000e-004**	**2.5000e-004**						**14.7607**

3.7 Paving - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.7000e-004	0.0191	4.2700e-003	8.0000e-005	2.5200e-003	1.6000e-004	2.6800e-003	6.9000e-004	1.5000e-004	8.5000e-004						8.5141
Vendor	3.0000e-005	1.3300e-003	4.0000e-004	1.0000e-005	2.0000e-004	1.0000e-005	2.1000e-004	6.0000e-005	1.0000e-005	7.0000e-005						0.5905
Worker	1.0900e-003	6.4000e-004	9.6200e-003	3.0000e-005	4.3500e-003	2.0000e-005	4.3700e-003	1.1600e-003	2.0000e-005	1.1700e-003						2.9469
Total	**1.3900e-003**	**0.0210**	**0.0143**	**1.2000e-004**	**7.0700e-003**	**1.9000e-004**	**7.2600e-003**	**1.9100e-003**	**1.8000e-004**	**2.0900e-003**						**12.0516**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0463	0.0480	0.4503	9.7000e-004	0.1243	6.4000e-004	0.1249	0.0332	5.9000e-004	0.0338						91.1939
Unmitigated	0.0463	0.0480	0.4503	9.7000e-004	0.1243	6.4000e-004	0.1249	0.0332	5.9000e-004	0.0338						91.1939

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	140.76	140.76	140.76	336,382	336,382
Total	140.76	140.76	140.76	336,382	336,382

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.576787	0.056660	0.182855	0.114996	0.020142	0.005351	0.008206	0.006159	0.000860	0.000342	0.024243	0.000849	0.002550

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000						664.1976
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000						664.1976
NaturalGas Mitigated	0.0362	0.3288	0.2762	1.9700e-003		0.0250	0.0250		0.0250	0.0250						360.0272
NaturalGas Unmitigated	0.0362	0.3288	0.2762	1.9700e-003		0.0250	0.0250		0.0250	0.0250						360.0272

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	6.7068e+006	0.0362	0.3288	0.2762	1.9700e-003		0.0250	0.0250		0.0250	0.0250						360.0272
Total		**0.0362**	**0.3288**	**0.2762**	**1.9700e-003**		**0.0250**	**0.0250**		**0.0250**	**0.0250**						**360.0272**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	6.7068e+006	0.0362	0.3288	0.2762	1.9700e-003		0.0250	0.0250		0.0250	0.0250						360.0272
Total		**0.0362**	**0.3288**	**0.2762**	**1.9700e-003**		**0.0250**	**0.0250**		**0.0250**	**0.0250**						**360.0272**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	7.10838e +006				664.1976
Total					**664.1976**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	7.10838e +006				664.1976
Total					**664.1976**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.8922	3.0000e-005	3.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						7.8800e-003
Unmitigated	1.8922	3.0000e-005	3.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						7.8800e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2749					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	1.6169					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	3.5000e-004	3.0000e-005	3.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						7.8800e-003
Total	**1.8922**	**3.0000e-005**	**3.7900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**						**7.8800e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2749					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	1.6169					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	3.5000e-004	3.0000e-005	3.7900e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						7.8800e-003
Total	**1.8922**	**3.0000e-005**	**3.7900e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**						**7.8800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Reclaimed Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				0.1667
Unmitigated				0.2779

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	0.0001732 4 / 0.848624				0.2779
Total					**0.2779**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	0.000103958 / 0.509174				0.1667
Total					**0.1667**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				0.1408
Unmitigated				0.1408

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	0.28				0.1408
Total					**0.1408**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	0.28				0.1408
Total					**0.1408**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Table AQ4-2a Air Quality Construction Support Data

Project Name:		**North Town**						
	See Equipment Data TAB for type, horsepower and load factor		**Continuous Phased Construction**					
	Main Structure Data							
	Large Bldgs (cumulative sq.ft)	**sq.ft. >>**	**414,000**	**Bldgs >= 5000 sq.ft.**			**46.79**	**Project Site area (acres)**
	Small Bldgs (cumulative sq.ft.)	**sq.ft. >>**		**Bldgs < 5000 sq.ft.**			**28.50**	**Acreage affected by constuction.**
	Other Site Structures (cumulative sq.ft.)	**sq.ft. >>**						**Employees and Operational Year Data**
	PG&E Switching Station	**sq.ft. >>**	**74,448**				100	**Total # of NTDC Employees (both bldgs, all shifts);**
	Private Switching Station	**sq.ft. >>**	**48,387**				2029	**Operational Year:**
		sq.ft. >>					8	**Expected # of Operational Visitors to Site per day:**
	Parking Lot Area or Parking Structure	**sq.ft. >>**	**160,862**	**# parking spaces**			6	**Expected # of Operational Deliveries to Site per Day (FedEx, DHL, etc.)**
	Construction Days and Hours (Monday-Friday)	**7:00**	**am to**	**5:00**	**pm**			
	All construction start dates and phase dates are tentative and are the Applicants best estimates.		**Site daily hours based on the time period noted above:**	**10**				

Quantity	Phase Descriptions	HP	Load Factor	Avg Daily Work Hours (2)	EQ Use Days	Est. Use Hrs/day	Phase Hours	Comments and Support Data
								Overall Import/Export Volumes
	Demolition (none proposed)	**Start Date:**	**N/A**	**Total phase days:**	**0**	**Each**		**Demolition Volume**
		End Date:	**N/A**			**Piece**		Square footage of buildings to be demolished
0	Concrete/Industrial Saws	81	0.73	8	0	#DIV/0!	#DIV/0!	(*or* total tons to be hauled)
0	Excavators	158	0.38	8	0	#DIV/0!	#DIV/0!	**0** square feet *or* **tons**
0	Rubber-Tired Dozers	247	0.4	8	0	#DIV/0!	#DIV/0!	
0	Crawler Tractors	208	0.43	8	0	#DIV/0!	#DIV/0!	Demolition debris haul distance to disposal site (miles):
0	Tractors/Loaders/Backhoes	97	0.37	8	0	#DIV/0!	#DIV/0!	
0	Water Truck	172	0.42	8	0	#DIV/0!	#DIV/0!	
0								
	Site Preparation	**Start Date:**	**9/29/2025**	**Total phase days:**	**30**			
		End Date:	**11/10/2025**					**Site Prep Support Data or Comments**
2	Graders	187	0.41	8	25	6.7	333	
1	Rubber Tired Dozers	247	0.4	8	30	8.0	240	**Indicate if all or a portion of the cut and fill noted below in the**
3	Tractors/Loaders/Backhoes	97	0.37	8	30	8.0	720	**Grading/Excavtion/Trenching/Foundation phase occurs in this phase. (0%)**
1	Excavators	162	0.38	8	30	8.0	240	Cut Portion =
2	Scrapers	361	0.48	8	30	8.0	480	Fill portion =
1	Dumper/Tender	16	0.38	8	25	6.7	167	Export portion =
1	Water Truck	172	0.42	8	30	8.0	240	Import portion =
11								
	Grading / Excavation /Trenching / Foundations	**Start Date:**	**11/24/2025**	**Total phase days:**	**65**			
		End Date:	**2/23/2026**					**Soil Hauling Volume (all phases)**
2	Excavators	158	0.38	8	65	8.0	1040	Cut volume = 17,500 cubic yards
2	Graders	187	0.41	8	65	8.0	1040	Fill volume = 13,500 cubic yards
2	Trenchers	80	0.5	8	65	8.0	1040	Export volume = 5,400 cubic yards
1	Scrapers	367	0.48	8	40	4.9	197	Import volume = 11,000 cubic yards
8	Tractors/Loaders/Backhoes	97	0.37	8	65	8.0	4160	
1	Rubber Tired Loaders	199	0.36	8	65	8.0	520	Will Cut = Fill ? Yes, except structural backfill and trenching spoils
1	Drill rig	205	0.5	8	80	9.8	788	
1	Cranes	213	0.29	8	80	9.8	788	Offsite cut and fill haul distance: (miles) = 13 miles
5	Dumper/Tender	16	0.38	8	40	4.9	985	Import/Export portion = 820 trips
1	Water Truck	172	0.42	8	65	8.0	520	at 20 yd3 per load
24								

	Building/Facility Construction	**Start Date:**	**2/23/2026**	**Total phase days:**	**743**			
		End Date:	**12/29/2028**					
1	Cranes	231	0.29	8	340	3.7	1245	**Cement Trucks? 29,800 cy for 3,725 deliveries**
6	Forklifts	89	0.2	8	743	8.0	35664	(assumes 8 yd3 per load)
0	Generator Sets	84	0.74	8	0	0.0	0	Cement data is the cumulative total of all phases.
3	Tractors/Loaders/Backhoes	97	0.37	8	80	0.9	207	
8	Aerial Lifts	62	0.31	8	372	4.0	11888	Utility Trench (Onsite) Cut and Fill = 17070 yd^3 (Phased)
4	Welders	46	0.45	8	100	1.1	431	
1	Water Truck	172	0.42	8	743	8.0	5944	
23								
	Architectural Coating	**Start Date:**	**3/1/2027**	**Total phase days:**	**117**			
		End Date:	**8/11/2027**					
2	Aerial Lifts	62	0.31	8	117	8.0	1872	
1	Cranes	231	0.29	8	40	2.7	109	
0				8	0	0.0	0	
3								
	Paving	**Start Date:**	**7/5/2027**	**Total phase days:**	**60**			**Asphalt? 228 deliveries or 4,550 yd3**
		Start Date:	**9/27/2027**					(assumption: 20 yd3/delivery)
1	Cement and Mortar Mixers	9	0.56	8	30	4.0	120	Avg asphalt thickness for commercial/industrial parking lots is 4"
1	Pavers	130	0.42	8	10	1.3	13	Included gravel base
1	Paving Equipment	132	0.36	8	10	1.3	13	**800 cy of concrete curbs, 100 deliveries**
1	Rollers	80	0.38	8	10	1.3	13	
2	Tractors/Loaders/Backhoes	97	0.37	8	30	4.0	240	
1	Plate Compactors	8	0.43	8	40	5.3	213	
7								

See equipment HP and Load Factors in "Equipment Data" worksheet tab.

Notes:

1. Equipment types by phase derived from CalEEMod, SCAQMD Const Survey, App E-1, 2020, OR
   CalEEMod Tables 3.2, App D, 2020.
2. Avg daily work hours are the total daily site hours minus labor lunch and rest breaks as well as equipment service and
   fueling time (typically a total of 2 hours per day). Example: 10 hour site day - 2 hours = 8 daily work hours
3. Watering for fugitive dust control at a minimum of 2 times per day
4. Onsite speed will be limited to <=5 mph
5. Const phase will be serviced by only offsite paved roads
6. Trench construction times per: Southern Regional Water Pipeline Alliance, 3/08.
   Optimum trench construction progress rate is 80m (260ft) per day.
   Non-optimum trench construction progress rate is 30m (100 ft) per day.
   An average progress of 180 ft/day is used where applicable, or the applicant supplied timeframe.
7. Phase start and end dates supplied by the Applicant.
8. CalEEMod defaults used for worker estimates: No, Applicant supplied manpower data.
9. Avg month work days = 22
10. Work schedule best estimates above results in 836 work days (accounting for overlaps of schedules).
11. Avg monthly workforce ~= 306
12. Offsite cut hauling at 13 mi one-way, RT is 26 mi per Applicant.

Other Misc Ops Data for CalEEMod Input (Final Buildout Ops)

1. Power needs ~96 MW   PG&E Carbon Intensity Factor= 206 lbs CO2/Mwh
2. Reclaimed water use for bldg cooling ~ 1077.7 acre-feet/yr (Applicant data)
3. Potable water use for bldg employees =~ 0.22 acre-feet/yr (Applicant data)
4. Waste generation rates ~ 1.15 ton/yr/employee ~= 115 tons/yr
5. OPs round trips/day: Employees = 100, Visitors = 8, Deliveries = 6
   Estimated OPs total round trips/day = (100 x 1.25)+8+6 = 139
6. Landscaping water use is estimated to be ~13.46 acre-feet/yr.(Applicant data)
   Univ. of CA., Division of Agriculture and Natural Resources (Landscape Calculator)
   https://ucanr.edu/sites/UrbanHort/Water_Use_of_Turfgrass_and_Landscape_Plant_Materials/
7. Ops phase will be serviced by only offsite paved roads
8. ~Total Bldg floor space = 414,000 sq.ft. or 414.0 x10^3
   139 avg daily round trips
   =~ 0.336 RT/day/1000 sq.ft.

Preliminary cut vs fill calcs:
Onsite utility trench = 17070 yd3 (cut and fill phased onsite) no offsite hauls
Other: Cut = 17500 yd3, fill = 13500 yd3, difference is 4000 yd3
Proposed export is 4000 + 1400 = 5400 yd3
Proposed import is 11000 yd3
at 20 yd3 trip
Export = 270 haul trips
Import = 550 haul trips

Table 2b Construction Equipment Data

Typical Equipment Type & Load Factors		
OFFROAD Equipment	**Horsepower**	**Load Factor**
Aerial Lifts	62	0.31
Air Compressors	78	0.48
Bore/Drill Rigs	205	0.5
Cement and Mortar Mixers	9	0.56
Concrete/Industrial Saws	81	0.73
Cranes	226	0.29
Crawler Tractors	208	0.43
Crushing/Proc. Equipment	85	0.78
Dumpers/Tenders	16	0.38
Excavators	162	0.38
Forklifts	89	0.2
Generator Sets	84	0.74
Graders	174	0.41
Off-Highway Tractors	122	0.44
Off-Highway Trucks	400	0.38
Other Construction	171	0.42
Other General Industrial	150	0.34
Other Material Handling	167	0.4
Pavers	125	0.42
Paving Equipment	130	0.36
Plate Compactors	8	0.43
Pressure Washers	13	0.2
Pumps	84	0.74
Rollers	80	0.38
Rough Terrain Forklifts	100	0.4
Rubber Tired Dozers	255	0.4
Rubber Tired Loaders	199	0.36
Scrapers	361	0.48
Signal Boards	6	0.82
Skid Steer Loaders	64	0.37
Surfacing Equipment	253	0.3
Sweepers/Scrubbers	64	0.46
Tractors/Loaders/Backhoes	97	0.37
Trenchers	80	0.5
Welders	46	0.45

Table AQ4-3 Construction Emissions Breakout for BLDG 1 Ops and BLDG 2 Construction Overlap

Overlap period: Mid-May 2027 through December 2028, total of 19.5 months.

		# of				Tons Per Year from CalEEMod							*CO2e*
Bldg DC2 Construction		Months	ROG	Nox	CO	SO2	Fug PM10	Exh PM10	Total PM10	Fug PM2.5	Exh PM2.5	Total PM2.5	*Mtons/yr*
Year	2027*	7.5	1.82	0.66	2.44	0.00485	0.24	0.0062	0.244	0.0634	0.0061	0.07	*440.2*
Year	2028	12	0.1435	0.8981	3.494	0.00696	0.3596	0.00876	0.3684	0.0959	0.00861	0.1045	*631.3*
19.5 Month Period Emissions, tons:			1.9635	1.5581	5.934	0.01181	0.5996	0.01496	0.6124	0.1593	0.01471	0.1745	1071.5
Annualized (12 month period) Emissions:			1.208	0.959	3.652	0.007	0.369	0.009	0.377	0.098	0.009	0.107	659.384615
Annualized Max lbs/day **:			9.15	7.26	27.66	0.06	2.80	0.07	2.86	0.74	0.07	0.81	N/A
Annualized Max lbs/hr ***:			1.144	0.908	3.458	0.007	0.349	0.009	0.357	0.093	0.009	0.102	N/A

* 2027 Partial year adjusted emissions derived as 7.5/12 = 0.625
** Work days per year: 22 days/month X 12 months = 264
*** Avg work day is 8 hrs.

Appendix AQ5

Risk Assessment Support Data

Table AQ5-1 Sensitive Receptors and Distances from Site
(all sites and coordinates from Google Earth unless otherwise noted) Image Date: Aug 2023
Northtown Data Center

Receptor ID	UTM Em	UTM Nm	Distance from Site Mid-Point meters	feet	miles
Site (approx. mid-point)	**594195.00**	**4137720.00**	na	na	
Residences NNE	593704.00	4138583.00	992.9	3257.5	0.62
Residences SW	591708.00	4135884.00	3091.3	10142.0	1.92
Residences SE	596377.00	4135780.00	2919.7	9579.1	1.81
Apartments E	597520.00	4137678.00	3325.3	10909.7	2.07
Residences ENE	596846.00	4138911.00	2906.2	9534.9	1.81
Elem School	593335.00	4138552.00	1196.6	3925.8	0.74
School	593200.00	4139572.00	2102.4	6897.5	1.31
Elem School	592300.00	4135134.00	3206.0	10518.4	1.99
University	594248.00	4134096.00	3624.4	11891.0	2.25
College	595846.00	4133457.00	4571.5	14998.5	2.84
Elem School	598574.00	4134358.00	5520.8	18112.7	3.43
Apartments	595489.00	4139810.00	2458.2	8064.8	1.53
Elem School	599761.00	4137660.00	5566.3	18262.2	3.46
Hospital	588739.00	4132589.00	7489.7	24572.4	4.65
Hospital	588211.00	4132697.00	7812.7	25632.3	4.85
Hospital	601862.00	4135739.00	7918.8	25980.3	4.92

There were no identified hospitals, convalescent care facilities, daycare centers, etc., within 1000 ft. of the facility boundary.

This list represents identified sensitive receptors that are located close to the site. It should not be assumed that the PMI, MEIR or MEIW will be a receptor on this list. These important HRA locations will be determined from the modeling grid and HRA output. With respect to the MEIS, this location will most likely be one of the receptors on the above list, since the list contains the identified nearfield sensitive receptors.

APPENDIX F

Arborist Report

ARBORIST REPORT

4/22/2022
5154.00

PROJECT
350 Trimble – Advanced Manufacturing
San Jose, CA

PREPARED FOR
LBA Realty

PREPARED BY
HMH
1570 Oakland Road
San Jose, CA 95131
William Sowa
ISA Certified Arborist #WE-12270A

TABLE OF CONTENTS

INTRODUCTION AND OVERVIEW

HMH was contracted by LBA Realty to complete a tree survey, assessment and arborist report for trees located within the limit of work illustrated on Exhibit A, attached. The project site is approximately 10 acres. There is currently a large industrial development located adjacent to this area and it is made up most of access roads, open undeveloped lot and parking lot. Our scope of services includes locating, measuring DBH, assessing, and photographing the condition of all trees within the limit of work. Disposition and health recommendations are based on current site conditions. Site development/ design may affect the preservation suitability.

METHODOLOGY

Our tree survey work is a deliberate and systematic methodology for cataloging trees on site:

1. Identify each tree species.
2. Note each tree's location on a site map.
3. Measure each trunk circumference at 4.5' above grade per ISA standards.
4. Evaluate the health and structure of each tree using the following numerical standard:

   5 *- A healthy, vigorous tree, reasonably free of disease, with good structure and form typical of the species.*

   4 *- A tree with slight decline in vigor, small amount of twig dieback, minor structural defects that could be corrected.*

   3 *- A tree with moderate vigor, moderate twig and small branch dieback, thinning of crown, poor leaf color, moderate structural defects that may that might be mitigated with care.*

   2 *- A tree in decline, epicormic growth, extensive dieback of medium to large branches, significant structural defects that cannot be abated.*

   1 *- A tree in severe decline, dieback of scaffold branches and or trunk, mostly epicormic growth; extensive structural defects that cannot be abated.*

   0 - Tree is dead.

SUMMARY OF FINDINGS

HMH conducted a tree inventory of 116 trees located within the limit of work outlined in Exhibit A and B. 65 of the trees inventoried are classified as ordinance-sized trees under the City of San Jose Tree Removal permit.

An ordinance-size tree is:
Single Trunk - 38 inches or more in circumference at 4 ½ feet above ground; or
Multi-trunk - The combined measurements of each trunk circumference (at 4 ½ feet above ground) add up to 38 inches or more.

Table 1 - Tree Quantity Summary summarizes tree quantities by both species and size. Each species that was inventoried as part of this scope is included. This is a useful tool for analyzing the mixture of trees as part of the project. The size table is useful when calculating mitigation requirements in the case of tree removal as well as aiding in determining tree maturity.

Table 2 - Tree Evaluation Summary lists each tree number, botanical name, common name, DBH, circumference, ordinance trees, health rating, preservation suitability, general notes and observations and recommendations.

See Exhibit A & B for Existing Tree Locations
See Table 1 for Tree Quantity Summary by species and size.
See Table 2 for Tree Evaluation Summary for sizes, notes and recommendations regarding each tree.

GENERAL OBSERVATIONS AND RECOMMENDATIONS

Species: *Cedrus deodara* (Deodar cedar)
Quantity: 2
Observations: In general, the deodar cedars planted onsite were observed in moderate – good health. This is a very resilient species in this area and is a good candidate for preservation on this site, given that it is allowed adequate room to mature.
Recommendations: Many specimens could use a crown raising to improve aesthetics and reduce crowding in the lower limbs.

Species: *Ginkgo biloba* (Maidenhair tree)
Quantity: 10
Observations: These are recently planted tree along the new entry road and in the parking lot. A few of them are showing signs of stress. Large cracks in the soil around many of these trees may indicate that the irrigation has be turned off to the site. Continue decline will occur without supplemental summer water as these are juvenile trees with inadequate root structure.

Species: *Lagerstroemia indica* (crape myrtle)
Quantity: 8
Observations: Nearly all the crape myrtles located onsite are healthy specimens with a moderate to good preservation suitability. Although some specimens showed signs of powdery mildew on new growth, it is unlikely that symptoms will persist through the warmer seasons.
Recommendations: Monitor suckering growth and remove, as necessary.

Species: *Pinus canariensis* (Canary Island Pine)
Quantity: 4
Observations: Canary Island Pine trees represent about 11% of the site. All the pines look to have been infested and are in various stages of decline. Some of the stronger specimens may be able to slow the infestation for the next 5 – 10 years, however it's likely that all pines will need to be replaced with a more suitable species.
Recommendations: It is important that these trees are monitored closely and removed as they decline to reduce the likelihood of a hazardous situation.

Species: *Pistacia chinensis* (Chinese pistache)
Quantity: 4
Observations: The Chinese pistache is a dependable tree in this area and the specimens on this site are no exception. The average health rating for specimens on this project was moderate. Some specimens showed consistent signs of stress exhibited by thinning in the crown. The reason for this stress is unknown, however it could be attributed to overcrowding and competition for resources.
Recommendations: Many of the Chinese pistache on this site could benefit from a crown cleaning to remove dead limbs and growth inside the canopy.

Species: *Platanus x acerifolia* (London Plane)
Quantity: 16
Observations:. The London plane trees are city street trees and are in moderate shape. The planting area is small so it is likely there will be some stunted growth. Many would benefit from structural pruning and clearing of the die back. Many have a slight lean from prevailing winds. There are two newly planted trees near the near the building.

Species: *Pyrus calleryana* (Ornamental Pear)
Quantity: 18
Observations: The Ornamental pear trees are city street trees and are in moderate shape. The planting areas is small so it is likely there will be some stunted growth. Many would benefit from structural pruning and clearing of the die back. Many have a slight lean from prevailing winds. There is some visual evidence of fire blight so a maintenance program should be started to combat this.
Recommendations: Use proper pruning techniques to remove blighted limbs.

Species: *Quercus agrifolia* (coast live oak)
Quantity: 18
Observations: Although coast live oaks tend to do well and commonly inhabit the urban forest locally, there was a wide range of variation in health observed on this site. Most of the coast live oaks are in moderate – good health, however there are a handful of trees that are in poor health and slowly declining. There were no obvious indications to explain the decline other than the possibility of overwatering and/or possible root damage attributed to evidence of rodent burrowing in the root zone.
Recommendations: Specimens in poor health should be removed, the rest should be monitored.

Species: *Sequoia sempervirens* (coast redwood)
Quantity: 24
Observations: Most of the coast redwoods are large, mature specimens. Although these trees tend to be grouped closely in nature, it's generally not the most pleasing arrangement in practice. Grouping these fast-growing trees close to each other and nearby buildings tends to require additional maintenance to maintain a high crown as the tree grows. Additionally, as the trees grow closely together, they compete for light, water, and nutrients. In many cases this can lead to an increased occurrence of leaf and branch drop, which is not ideal near parking lots or walkways.
Recommendations: Specimens that were less healthy were not likely receiving adequate irrigation to the root zone. Increase irrigation to these specimens.

Species: *Zelkova serrata* (elm)
Quantity: 9
Observations: These are recently planted tree along the new entry road.

RECOMMENDATIONS FOR TREE PROTECTION DURING CONSTRUCTION

Site preparation: All existing trees to be preserved shall be fenced off 10' beyond the outside the drip line (foliar spread) of the tree. Alternatively, where this is not feasible, fence to the drip line of the tree. Where fencing is not possible, the trunk shall be protected straw waddle and orange snow fencing. The fence should be a minimum of six feet high, made of pig wire with steel stakes or any material superior in quality, such as cyclone fencing. Tree protection zone sign shall be affixed to fencing at appropriate intervals as determined by the arborist on site. If the fence is within the drip line of the trees, the foliar fringe shall be raised to offset the chance of limb breakage from construction equipment encroaching within the drip line. All contractors, subcontractors and other personnel shall be warned that encroachment within the fenced area is forbidden without the consent of the certified arborist on the job. This includes, but is not limited to, storage of lumber and other materials, disposal of paints, solvents or other noxious materials, parked cars, grading equipment or other heavy equipment. Penalties, based on the cost of remedial repairs and the evaluation guide published by the international society of arboriculture, shall be assessed for damages to the trees. See tree preservation detail for additional information, including tree protection zone sign.

Grading/excavating: All grading plans that specify grading within the drip line of any tree, or within the distance from the trunk as outlined in the site preparation section above when said distance is outside the drip line, shall first be reviewed by a certified arborist. Provisions for aeration, drainage, pruning, tunneling beneath roots, root pruning or other necessary actions to protect the trees shall be outlined by an arborist. If trenching is necessary within the area as described above, said trenching shall be undertaken by hand labor and dug directly beneath the trunk of the tree. All roots 2 inches or larger shall be tunneled under and other roots shall be cut smoothly to the trunk side of the trench. The trunk side should be draped immediately with two layers of untreated burlap to a depth of 3 feet from the surface. The burlap shall be soaked nightly and left in place until the trench is back filled to the original level. An arborist shall examine the trench prior to back filling to ascertain the number and size of roots cut, so as to suggest the necessary remedial repairs.

Remedial repairs: An arborist shall have the responsibility of observing all ongoing activities that may affect the trees, and prescribing necessary remedial work to ensure the health and stability of the trees. This includes, but is not limited to, all arborist activities brought out in the previous sections. In addition, pruning, as outlined in the "pruning standards" of the western chapter of the International Society of Arboriculture, shall be prescribed as necessary. Fertilizing, aeration, irrigation, pest control and other activities shall be prescribed according to the tree needs, local site requirements, and state agricultural pest control laws. All specifications shall be in writing. For pest control operations, consult the local county agricultural commissioner's office for individuals licensed as pest control advisors or pest control operators.

Final inspection: Upon completion of the project, the arborist shall review all work undertaken that may impact the existing trees. Special attention shall be given to cuts and fills, compacting, drainage, pruning and future remedial work. An arborist should submit a final report in writing outlining the ongoing remedial care following the final inspection.

MAINTENANCE RECOMMENDATIONS FOR TREES TO REMAIN

Regular maintenance, designed to promote plant health and vigor, ensures longevity of existing trees. Regular inspections and the necessary follow-up care of mulching, fertilizing, and pruning, can detect problems and correct them before they become damaging or fatal.

Tree Inspection: Regular inspections of mature trees at least once a year can prevent or reduce the severity of future disease, insect, and environmental problems. During tree inspection, four characteristics of tree vigor should be examined: new leaves or buds, leaf size, twig growth, and absence of crown dieback (gradual death of the upper part of the tree). A reduction in the extension of shoots (new growing parts), such as buds or new leaves, is a fairly reliable cue that the tree's health has recently changed. Growth of the shoots over the past three years may be compared to determine whether there is a reduction in the tree's typical growth pattern. Further signs of poor tree health are trunk decay, crown dieback, or both. These symptoms often indicate problems that began several years before. Loose bark or deformed growths, such as trunk conks (mushrooms), are common signs of stem decay. Any abnormalities found during these inspections, including insect activity and spotted, deformed, discolored, or dead leaves and twigs, should be noted and observed closely.

Mulching: Mulch, or decomposed organic material, placed over the root zone of a tree reduces environmental stress by providing a root environment that is cooler and contains more moisture than the surrounding soil. Mulch can also prevent mechanical damage by keeping machines such as lawn mowers and string trimmers away from the tree's base. Furthermore, mulch reduces competition from surrounding weeds and turf. To be most effective, mulch should be placed 2 to 4 inches deep and cover the entire root system, which may be as far as 2 or 3 times the diameter of the branch spread of the tree. If the area and activities happening around the tree do not permit the entire area to be mulched, it is recommended that as much of the area under the drip line of the tree is mulched as possible. When placing mulch, care should be taken not to cover the actual trunk of the tree. This mulch-free area, 1 to 2 inches wide at the base, is sufficient to avoid moist bark conditions and prevent trunk decay. An organic mulch layer 2 to 4 inches deep of loosely packed shredded leaves, pine straw, peat moss, or composted wood chips is adequate. Plastic should not be used as it interferes with the exchange of gases between soil and air, which inhibits root growth. Thicker mulch layers, 5 to 6 inches deep or greater, may also inhibit gas exchange.

Fertilization: Trees require certain nutrients (essential elements) to function and grow. Urban landscape trees may be growing in soils that do not contain sufficient available nutrients for satisfactory growth and development. In certain situations, it may be necessary to fertilize to improve plant vigor. Fertilizing a tree can improve growth; however, if fertilizer is not applied wisely, it may not benefit the tree at all and may even adversely affect the tree. Mature trees making satisfactory growth may not require fertilization. When considering supplemental fertilizer, it is important to consider nutrients deficiencies and how and when to amend the deficiencies. Soil conditions, especially pH and organic matter content, vary greatly, making the proper selection and use of fertilizer a somewhat complex process. To that end, it is recommended that the soil be tested for nutrient content. A soil testing laboratory and can give advice on application rates, timing, and the best blend of fertilizer for each tree and other landscape plants on site. Mature trees have expansive root systems that extend from 2 to 3 times the size of the leaf canopy. A major portion of actively growing roots is located outside the tree's drip line. Understanding the actual size and extent of a tree's root system before applying fertilizer is paramount to determine quantity, type and rate at which to best apply fertilizer. Always follow manufacturer recommendations for use and application.

Pruning: Pruning is often desirable or necessary to remove dead, diseased, or insect-infested branches and to improve tree structure, enhance vigor, or maintain safety. Because each cut has the potential to change the growth of (or cause damage to) a tree, no branch should be removed without reason. Removing foliage from a tree has two distinct effects on growth: (1) it reduces photosynthesis and, (2) it may reduce overall growth. Pruning should always be performed sparingly. Caution must be taken not to over-prune as a tree may not be able to gather and process enough sunlight to survive. Pruning mature trees may require special equipment, training, and experience. Arborists are equipped to provide a variety of services to assist in performing the job safely and reducing risk of personal injury and property damage *(See also Addendum A - ANSI A300 Part 1 Pruning Standards).*

Removal: There are circumstances when removal is necessary. An arborist can help decide whether or not a tree should be removed. Professionally trained arborists have the skills and equipment to safely and efficiently remove trees. Removal is recommended when a tree: (1) is dead, dying, or considered irreparably hazardous; (2) is causing an obstruction or is crowding and causing harm to other trees and the situation is impossible to correct through pruning; (3) is to be replaced by a more suitable specimen, and; (4) should be removed to allow for construction. Pruning or removing trees, especially large trees, can be dangerous work. It should be performed only by those trained and equipped to work safely in trees.

TERMS AND CONDITIONS

The following terms and conditions apply to all oral and written reports and correspondence pertaining to consultations, inspections and activities of HMH.

1. The scope of any report or other correspondence is limited to the trees and conditions specifically mentioned in those reports and correspondence. HMH assumes no liability for the failure of trees or parts of trees, either inspected or otherwise. HMH assumes no responsibility to report on the condition of any tree or landscape feature not specifically requested by the named client.
2. No tree described in this report was climbed, unless otherwise stated. HMH does not take responsibility for any defects, which could have only been discovered by climbing. A full root collar inspection, consisting of excavating the soil around the tree to uncover the root collar and major buttress roots was not performed unless otherwise stated. HMH does not take responsibility for any root defects, which could only have been discovered by such an inspection.
3. HMH shall not be required to provide further documentation, give testimony, be deposed, or attend court by reason of this appraisal or report unless subsequent contractual arrangements are made, including payment of additional fees for such services as described by HMH or in the schedule of fees or contract.
4. HMH guarantees no warrantee, either expressed or implied, as to the suitability of the information contained in the reports for any reason. It is the responsibility of the client to determine applicability to his/her case.
5. Any report and the values, observations and recommendations expressed therein represent the professional opinion of HMH, and the fee for services is in no manner contingent upon the reporting of a specified value nor upon any particular finding to be reported.
6. Any photographs, diagrams, graphs, sketches or other graphic material included in any report, being intended solely as visual aids, are not necessarily to scale and should not be construed as engineering reports or surveys, unless otherwise noted in the report. Any reproductions of graphic material or the work produced by other persons, is intended solely for clarification and ease of reference. Inclusion of said information does not constitute a representation by HMH as to the sufficiency or accuracy of that information.
7. Trees can be managed, but they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all risk associated with trees is to eliminate all trees.

Existing Tree Map
Exhibit A

N

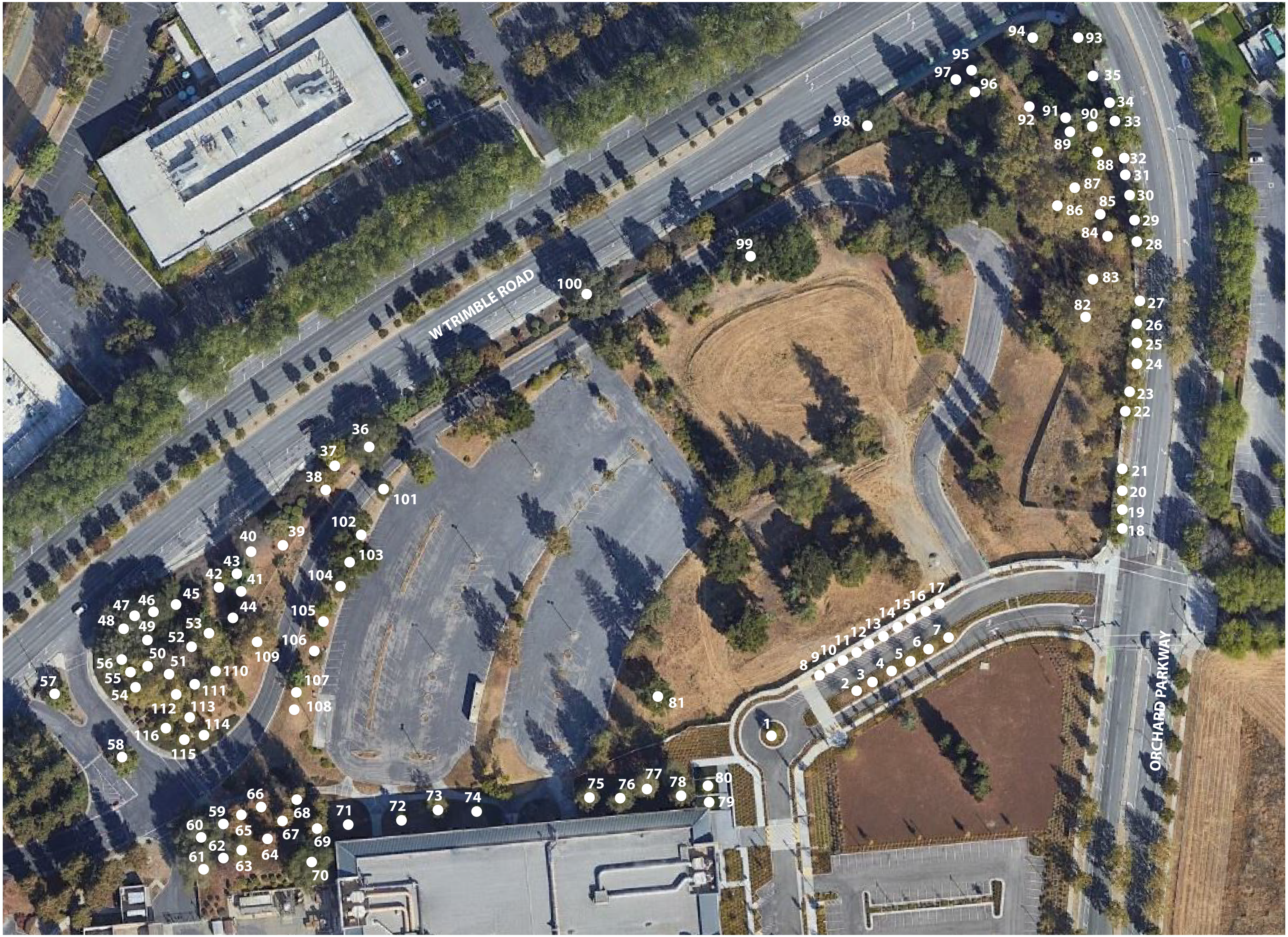

TABLE 1 - TREE QUANTITY SUMMARY

Tree Quantity by Species		
Species	**Quantity**	**% of Site**
Cedrus deodara	2	2%
Ginkgo biloba	10	9%
Lagerstroemia indica	8	7%
Pinus canariensis	4	3%
Pistacia chinensis	4	3%
Platanus x acerifolia	16	14%
Pyrus calleryana	18	16%
Quercus agrifolia	18	16%
Quercus douglasii	1	1%
Quercus lobata	1	1%
Robinia pseudoacacia	1	1%
Sequoia sempervirens	24	21%
Zelkova serrata	9	8%
Total Trees	**116**	**100%**

TABLE 2 - TREE EVALUATION SUMMARY

Prepared By: William Sowa ISA Certified Arborist WE-12270A

DBH MEASUREMENT HEIGHT: 54"

Date of Evaluation: 4/14/2022

Suitability for Preservation is based on the following		
Good - Trees with good health and structural stability that have the potential for longevity at the site.		
Moderate - Trees in somewhat declining health and/or exhibits structural defects that cannot be abated with treatment. Trees will require more intense management and will have a shorter lifespan than those in the 'Good' category.		
Poor - Trees in poor health or with significant structural defects that cannot be mitigated. Tree is expected to decline, regardless of treatment.		
Health Rating		
5	A healthy, vigorous tree, reasonably free of disease, with good structure and form typical of the species.	
4	A tree with slight decline in vigor, small amount of twig dieback, minor structural defects that could be corrected.	
3	A tree with moderate vigor, moderate twig and small branch dieback, thinning of crown, poor leaf color, moderate structural defects that may that might be mitigated with care.	
2	A tree in decline, epicormic growth, extensive dieback of medium to large branches, significant structural defects that cannot be abated.	
1	A tree in severe decline, dieback of scaffold branches and or trunk, mostly epicormic growth; extensive structural defects that cannot be abated.	
0	Tree is dead.	
Abbreviations and Definitions		
CD	Codominant branches	Forked branches nearly the same size in diameter, arising from a common junction an lacking a normal branch union.
CDB	Dieback in Crown	Condition where branches in the tree crown die from the tips toward the center.
CR	CR	Tree is bounded closely by one or more of the following: structure, tree, Etc.
D	Decline	Tree shows obvious signs of decline, which may be indicative of the presence of multiple biotic and abiotic disorders.
DBH	Diameter at Breast Height	Measurement of tree diameter in inches. Measurement height varies by City and is noted above.
EG	Epicormic Growth	Watersprouting on trunk and main leaders. Typically indicative of tree stress.
EH	Exposed Heartwood	Exposure of the tree's heartwood is typically seen as an open wound that leaves a tree more susceptible to pathogens, disease or infection.
H	Hazardous	A tree that in it's current condition, presents a hazard.
HD	Headed	Poor pruning practice of cutting back branches. Often practiced under utility lines to limit tree height.
IB	Included Bark	Structural defect where bark is included between the branch attachment so the wood can't join. Such defect can have a higher probability of failure.
LC	Low crotch	Multiple central leaders originating below the DBH measurement site.
LN	Leaning Tree	Tree leaning, see notes for severity.
ML	Multiple Leaders	More than one upright primary stem
PT	Phototropism	Tree exhibits phototropic growth habits. Reduced trunk taper, misshapen trunk and canopy growth are examples of this growth habit.
S	Suckers	Shoot arising from the roots.
SD	Structural Defects	Naturally or secondary conditions including cavities, poor branch attachments, cracks, or decayed wood in any part of the tree that may contribute to structural failure.
SE	Severe	Indicates the severity of the following term.
SL	Slight	Indicates the mildness of the following term.
SR	Surface Roots	Roots visible at finished grade.
ST	Stress	Environmental factor inhibiting regular tree growth. Includes drought, salty soils, nitrogen and other nutrient deficiencies in the soil.
WU	Weak Union	Weak union or fork in tree branching structure.
	Ordinance Tree	Ordinance-Size Trees.An ordinance-size tree is: Single Trunk - 38 inches or more in circum-ference at 4 ½ feet above ground; or Multi-trunk - The combined measurements of each trunk circumference (at 4 ½ feet above ground) add up to 38 inches or more.

TREE #	BOTANICAL NAME	COMMON NAME	DBH (INCHES)	CIRCUMF-ERENCE (INCHES)	ORDINANCE TREE	HEALTH	PRESERVATION SUITABILITY	NOTES
1	*Zelkova serrata*	Elm	4.0	13	NO	4	Moderate	
2	*Zelkova serrata*	Elm	4.0	13	NO	4	Moderate	
3	*Zelkova serrata*	Elm	4.0	13	NO	4	Moderate	
4	*Zelkova serrata*	Elm	4.0	13	NO	4	Moderate	
5	*Zelkova serrata*	Elm	4.0	13	NO	4	Moderate	
6	*Zelkova serrata*	Elm	4.0	13	NO	4	Moderate	
7	*Zelkova serrata*	Elm	4.0	13	NO	4	Moderate	
8	*Ginkgo biloba*	Maidenhair tree	1.0	3	NO	4	Moderate	
9	*Ginkgo biloba*	Maidenhair tree	1.0	3	NO	4	Moderate	
10	*Ginkgo biloba*	Maidenhair tree	1.0	3	NO	4	Moderate	
11	*Ginkgo biloba*	Maidenhair tree	1.0	3	NO	4	Moderate	
12	*Ginkgo biloba*	Maidenhair tree	1.0	3	NO	4	Moderate	
13	*Ginkgo biloba*	Maidenhair tree	1.0	3	NO	4	Moderate	
14	*Ginkgo biloba*	Maidenhair tree	1.0	3	NO	4	Moderate	
15	*Ginkgo biloba*	Maidenhair tree	1.0	3	NO	4	Moderate	
16	*Ginkgo biloba*	Maidenhair tree	1.0	3	NO	4	Moderate	
17	*Ginkgo biloba*	Maidenhair tree	1.0	3	NO	4	Moderate	
18	*Pyrus calleryana*	callery pear	11.0	35	NO	4	Good	S, EG
19	*Pyrus calleryana*	callery pear	7.2	23	NO	4	Good	S, EG
20	*Pyrus calleryana*	callery pear	8.5	27	NO	4	Good	S, EG
21	*Pyrus calleryana*	callery pear	9.0	28	NO	4	Good	S, EG

TREE #	BOTANICAL NAME	COMMON NAME	DBH (INCHES)	CIRCUMF-ERENCE (INCHES)	ORDINANCE TREE	HEALTH	PRESERVATION SUITABILITY	NOTES
22	*Pyrus calleryana*	callery pear	8.0	25	NO	4	Good	SL LN
23	*Pyrus calleryana*	callery pear	10.5	33	NO	3	Moderate	EG, SL CDB
24	*Pyrus calleryana*	callery pear	11.0	35	NO	3	Moderate	EG, SL CDB
25	*Pyrus calleryana*	callery pear	10.5	33	NO	3	Moderate	EG, LN, SL CDB
26	*Pyrus calleryana*	callery pear	10.5	33	NO	2	Moderate	LN, S, EG, CDB
27	*Pyrus calleryana*	callery pear	9.5	30	NO	2	Moderate	CDB, EG, LN
28	*Pyrus calleryana*	callery pear	10.0	31	NO	2	Moderate	LN, EH, Dropped limb- wound, SL CDB
29	*Pyrus calleryana*	callery pear	10.5	33	NO	3	Moderate	S, EG, SL CDB
30	*Pyrus calleryana*	callery pear	11.5	36	NO	3	Moderate	EG, SL CDB
31	*Pyrus calleryana*	callery pear	9.0	28	NO	3	Moderate	LN, SL CDB
32	*Pyrus calleryana*	callery pear	10.5	33	NO	3	Moderate	SL LN, SL CDB, EG
33	*Pyrus calleryana*	callery pear	8.5	27	NO	1	Poor	SE CDB, LN, S
34	*Pyrus calleryana*	callery pear	13.0	41	YES	3	Moderate	SL CDB, LN, S
35	*Pyrus calleryana*	callery pear	12.0	38	YES	4	Good	SL CDB
36	*Quercus agrifolia*	coast live oak	26.0	82	YES	3	Moderate	SL CDB, MA, IB
37	*Pistacia chinensis*	Chinese pistache	10.5	33	NO	3	Moderate	SL CDB, MA, IB
38	*Pistacia chinensis*	Chinese pistache	8.5	27	NO	3	Moderate	SL CDB, MA, IB
39	*Sequoia sempervirens*	coast redwood	38.5	121	YES	3	Moderate	LN, S
40	*Quercus douglasii*	blue oak	14.5	46	YES	3	Moderate	SL ST, SE spider mites, SL CDB
41	*Cedrus deodara*	deodar cedar	16.5	52	YES	4	Good	LN, SL CR
42	*Lagerstroemia indica*	crape myrtle	18.6	58	YES	4	Good	CR, SL LN

TREE #	BOTANICAL NAME	COMMON NAME	DBH (INCHES)	CIRCUMF-ERENCE (INCHES)	ORDINANCE TREE	HEALTH	PRESERVATION SUITABILITY	NOTES
43	*Quercus agrifolia*	coast live oak	6.0	19	NO	3	Moderate	
44	*Cedrus deodara*	deodar cedar	11.0	35	NO	4	Good	SL LN
45	*Quercus agrifolia*	coast live oak	19.0	60	YES	3	Moderate	trunk cankers, CD, IB, SL CDB, CR
46	*Quercus agrifolia*	coast live oak	21.0	66	YES	3	Moderate	SLCDB, CR, SR, MA, IB, EG
47	*Quercus agrifolia*	coast live oak	21.5	68	YES	4	Good	CR, SR
48	*Quercus agrifolia*	coast live oak	25.5	80	YES	4	Good	SL LN, MA, IB
49	*Platanus x acerifolia*	London plane	11.5	36	NO	3	Moderate	CDB, SS, CR, LN
50	*Platanus x acerifolia*	London plane	15.5	49	YES	4	Good	LN, SS, CR
51	*Platanus x acerifolia*	London plane	12.5	39	YES	4	Good	CR, SS
52	*Platanus x acerifolia*	London plane	16.0	50	YES	4	Good	SS, SL CN
53	*Platanus x acerifolia*	London plane	14.5	46	YES	4	Good	SS, SL CN
54	*Lagerstroemia indica*	crape myrtle	14.0	44	YES	4	Good	MS
55	*Lagerstroemia indica*	crape myrtle	14.0	44	YES	4	Good	MS, CR
56	*Lagerstroemia indica*	crape myrtle	8.0	25	NO	3	Moderate	SE CR, MS, PT, UNDER 306
57	*Pistacia chinensis*	Chinese pistache	11.5	36	NO	3	Moderate	SL CBD, SL ST, MA
58	*Pistacia chinensis*	Chinese pistache	12.0	38	YES	4	Good	SL CD
59	*Sequoia sempervirens*	coast redwood	8.0	25	NO	2	Good	SE CR, PT, LN, under canopy of tree 122
60	*Quercus agrifolia*	coast live oak	30.6	96	YES	3	Moderate	LN, MA, IB, EG, Chlorosis
61	*Quercus agrifolia*	coast live oak	23.0	72	YES	3	Moderate	CR, LN, CD, IB, SL CDB
62	*Quercus agrifolia*	coast live oak	21.2	67	YES	3	Moderate	LN, SE CR, PT
63	*Sequoia sempervirens*	coast redwood	13.1	41	YES	4	Good	SL CR, EG

TREE #	BOTANICAL NAME	COMMON NAME	DBH (INCHES)	CIRCUMF-ERENCE (INCHES)	ORDINANCE TREE	HEALTH	PRESERVATION SUITABILITY	NOTES
64	*Sequoia sempervirens*	coast redwood	15.0	47	YES	4	Good	SL CR, EG
65	*Sequoia sempervirens*	coast redwood	13.6	43	YES	4	Good	SL CR, EG
66	*Sequoia sempervirens*	coast redwood	17.0	53	YES	4	Good	SL CDB
67	*Sequoia sempervirens*	coast redwood	17.9	56	YES	4	Good	SL CR
68	*Sequoia sempervirens*	coast redwood	16.4	51	YES	4	Good	SL CR
69	*Sequoia sempervirens*	coast redwood	21.8	68	YES	4	Good	SL CR
70	*Quercus agrifolia*	coast live oak	22.2	70	YES	4	Good	CD, IB, spider mites
71	*Platanus x acerifolia*	London plane	2.0	6	NO	4	Good	Staked, SS
72	*Platanus x acerifolia*	London plane	2.0	6	NO	4	Good	Staked, Planted to high, SS
73	*Robinia pseudoacacia*	purple robe locust	10.5	33	NO	2	Moderate	CDB, LN, EG, CD, IB
74	*Platanus x acerifolia*	London plane	2.0	6	NO	4	Good	juvenile, staked, SS
75	*Sequoia sempervirens*	coast redwood	28.0	88	YES	3	Moderate	SL CDB
76	*Sequoia sempervirens*	coast redwood	28.9	91	YES	3	Moderate	SL CDB
77	*Sequoia sempervirens*	coast redwood	33.0	104	YES	4	Good	
78	*Sequoia sempervirens*	coast redwood	33.0	104	YES	4	Good	
79	*Zelkova serrata*	Elm	2.5	8	NO		Moderate	
80	*Zelkova serrata*	Elm	2.5	8	NO	4	Moderate	
81	*Quercus agrifolia*	coast live oak	23.0	72	YES	4	Good	CD, IB, SL Chlorosis
82	*Platanus x acerifolia*	London plane	27.0	85	YES	4	Good	SL EG, SL CR, SS
83	*Platanus x acerifolia*	London plane	21.1	66	YES	4	Good	SL CR, SS
84	*Platanus x acerifolia*	London plane	8.0	25	NO	4	Good	SS,SL CDB, SL LN

TREE #	BOTANICAL NAME	COMMON NAME	DBH (INCHES)	CIRCUMF-ERENCE (INCHES)	ORDINANCE TREE	HEALTH	PRESERVATION SUITABILITY	NOTES
85	*Platanus x acerifolia*	London plane	5.0	16	NO	3	Moderate	CDB, LN, EG, SS, ST
86	*Platanus x acerifolia*	London plane	20.5	64	YES	3	Moderate	CDB, LN, EG, SS, ST
87	*Platanus x acerifolia*	London plane	18.0	57	YES	4	Good	SL CDB, SS, LN
88	*Lagerstroemia indica*	crape myrtle	18.0	57	YES	3	Moderate	MS, CR, PT
89	*Sequoia sempervirens*	coast redwood	16.0	50	YES	3	Moderate	EG, SL CDB, CR
90	*Sequoia sempervirens*	coast redwood	25.5	80	YES	3	Moderate	EG, SL CDB, CR
91	*Sequoia sempervirens*	coast redwood	23.5	74	YES	3	Moderate	EG, SL CDB, CR
92	*Sequoia sempervirens*	coast redwood	22.0	69	YES	3	Moderate	EG, SL CDB, CR
93	*Quercus agrifolia*	coast live oak	30.0	94	YES	4	Good	SL LN, MA, IB
94	*Sequoia sempervirens*	coast redwood	34.5	108	YES	4	Good	EG
95	*Sequoia sempervirens*	coast redwood	23.0	72	YES	3	Moderate	CR, SL CDB
96	*Sequoia sempervirens*	coast redwood	19.5	61	YES	3	Moderate	CR, SL CDB
97	*Sequoia sempervirens*	coast redwood	18.0	57	YES	3	Moderate	CR, SL CDB
98	*Quercus agrifolia*	coast live oak	18.5	58	YES	3	Moderate	LN, SR, MA, IB, trunk cankers
99	*Quercus agrifolia*	coast live oak	28.0	88	YES	5	Good	LN, IB
100	*Quercus lobata*	valley oak	30.0	94	YES	3	Moderate	SE Oak galls, SC, ST, SL LN, SL CDB
101	*Quercus agrifolia*	coast live oak	9.5	30	NO	4	Good	LN, spider mites
102	*Quercus agrifolia*	coast live oak	14.0	44	YES	3	Moderate	LN, spider mites, trunk cankers, ID, IB
103	*Quercus agrifolia*	coast live oak	27.5	86	YES	4	Moderate	CD, spider mites
104	*Quercus agrifolia*	coast live oak	19.0	60	YES	3	Moderate	CD, SL CDB, ST ,EG
105	*Pinus canariensis*	canary island pine	12.0	38	YES	3	Moderate	LN, SL CDB, ST

TREE #	BOTANICAL NAME	COMMON NAME	DBH (INCHES)	CIRCUMF-ERENCE (INCHES)	ORDINANCE TREE	HEALTH	PRESERVATION SUITABILITY	NOTES
106	*Pinus canariensis*	canary island pine	15.0	47	YES	4	Good	LN, SL CDB, ST
107	*Pinus canariensis*	canary island pine	14.0	44	YES	3	Moderate	SL LN
108	*Pinus canariensis*	canary island pine	10.0	31	NO	2	Moderate	CDB, ST, CD, SST
109	Platanus x acerifolia	London plane	25.0	79	YES	3.0	Moderate	
110	*Sequoia sempervirens*	coast redwood	20.0	63	YES	3	Moderate	EG, SL CDB, CR
111	*Sequoia sempervirens*	coast redwood	21.0	66	YES	3	Moderate	EG, SL CDB, CR
112	*Platanus x acerifolia*	London plane	13.5	42	YES	3	Moderate	SS, LN, CR
113	*Sequoia sempervirens*	coast redwood	15.0	47	YES	3	Moderate	EG, SL CDB, CR
114	*Lagerstroemia indica*	crape myrtle	24.0	75	YES	4	Good	MS, SR, LL, WU
115	*Lagerstroemia indica*	crape myrtle	21.0	66	YES	4	Good	MS, SR
116	*Lagerstroemia indica*	crape myrtle	32.0	100	YES	4	Good	MS, SR

APPENDIX G

Biological Resources Report

H. T. HARVEY & ASSOCIATES
Ecological Consultants

NorthTown Data Center
Biological Resources Report

Project #4658-05

Prepared for:

Mimi McNamara
David J. Powers & Associates, Inc.
1871 The Alameda, Suite 200
San José, CA 95126

Prepared by:

H. T. Harvey & Associates

June 27, 2025

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List of Preparers

Robin Carle, M.S., Principal/Senior Wildlife Ecologist
Kelly Hardwicke, Ph.D., Senior Plant/Wetland Ecologist
Steve Rottenborn, Ph.D., Senior Wildlife Ecologist
Ben Pearl, M.S., Project Manager/Senior Wildlife Ecologist
Vanessa Morales, B.A., Plant/Wetland Ecologist
Steve Carpenter, B.S., Wildlife Ecologist

Section 1. Introduction

This report describes the biological resources present on the NorthTown Data Center project site, as well as the potential biological impacts of proposed site redevelopment and measures necessary to reduce these impacts to less-than-significant levels under the California Environmental Quality Act (CEQA). This assessment is based on the project maps and description provided to H. T. Harvey & Associates by David J. Powers & Associates through May 2025.

1.1 Project Location

The project site is located at 330 West Trimble Road in San José, California (Figures 1 and 2). The majority of the 28.5-acre site is currently developed as an office campus with existing commercial buildings, parking areas, and associated landscape vegetation, but the site also includes an approximately 10-acre undeveloped grass field at the corner of West Trimble Road and Orchard Parkway (Figure 2). The Guadalupe River flows south to north along the western boundary of the project site. Surrounding areas consist of dense urban development in San José, several undeveloped vacant parcels to the east and south, and the Norman Y. Mineta San José International Airport (Airport) across U.S. Highway 101 to the south. The project site is located on the *Milpitas, California* 7.5-minute United States Geological Survey (USGS) quadrangle.

The project site is located within the Santa Clara Valley Habitat Plan (VHP) permit area, and the proposed project is a *covered project* under the VHP (ICF International 2012). As a result, the proposed project is required to implement conservation measures specified by VHP conditions. Thus, all applicable VHP conditions (see Section 6.1) are considered part of the proposed project description rather than as mitigation measures.

1.2 Project Description

1.1.1 Project Overview

The project consists of the NorthTown Data Center (NTDC), NorthTown Backup Generating Facility (NTBGF), and associated infrastructure. The NTBGF will include a total of 42 diesel-fired generators that will be used exclusively to provide up to 97.3 megawatt (MW)[1] of backup emergency generation to support the NTDC. The NTDC will consist of two data center buildings designated *DC North* and *DC West*. These buildings would be located within an existing developed property associated with 350 and 370 West Trimble Road in San José, California.

Of the 42 total generators, two of the generators will each have a generating capacity of up to 1.75 MW and the remaining 40 generators will each have a generating capacity of 3 MW. Of those 40 generators rated 3 MW,

[1] Maximum electrical demand of the NTDC.

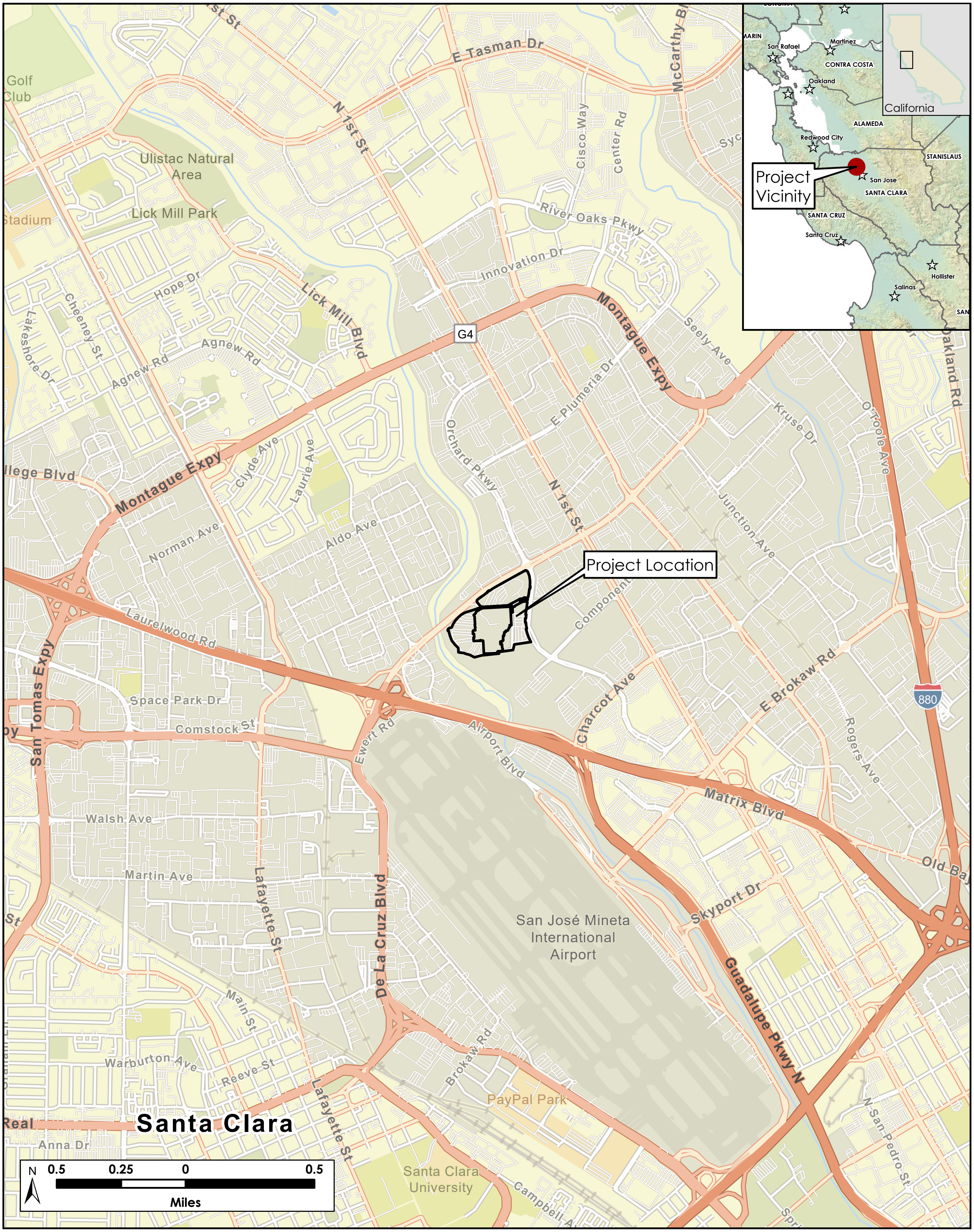

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Figure 1. Vicinity Map
NorthTown Data Center Biological Resources Report (4658-05)
June 2025

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Figure 2. Project Site
NorthTown Data Center Biological Resources Report (4658-05)
June 2025

eight will be redundant. The generators will be arranged in two generation yards located adjacent to each data center building (DC North and DC West). All 40 of the 3-MW generators would be dedicated to replacing the electricity needs of the data center in case of a loss of utility power, while the two 1.75-MW generators would be used to support general office loads along with building and life safety services (i.e., house generators).

The components of the project will include:

- The NTDC, consisting of two approximately 207,000 square-foot two-story data center buildings designated as *DC North* and *DC West*;
- The NTBGF;
- Ancillary water pump houses and storage water tanks serving DC North and DC West;
- A 115-34.5 kilovolt, 110 megavolt-ampere electrical substation;
- Expansion of an existing permitted PG&E switching station;
- Site access and surface parking;
- Landscaping;
- Stormwater controls and features;
- Water and sewer pipeline interconnections;
- Improvements to the right-of-way at the project frontage including curb, gutter, and sidewalk replacement, reconstruction or relocation of driveway cuts, and addition of storm, sewer, and water utility laterals to the project site; and
- Intersection improvements at the southwest and southeast corners of the Trimble Road and Orchard Parkway intersection.

1.1.2 NTBGF and NTDC Facility Operation

The backup generators will be run for short periods for testing and maintenance purposes and otherwise will not operate unless there is a disturbance or interruption of the utility supply. The Bay Area Air District's Authority to Construct and the California Air Resources Board's Airborne Toxic Control Measures limits each engine to no more than 50 hours annually for reliability purposes (i.e., testing and maintenance). Each generator will be tested individually during monthly and annual testing. Generators will only be run simultaneously during an emergency utility outage.

Each data center building is expected to have between 20 employees and 30 visitors (including deliveries) visit the site per day.

1.1.3 Site Access and Parking

The site will have four access points from the bordering public streets of West Trimble Road and Orchard Parkway. As the project is a redevelopment of an existing site, portions of the existing access and circulation system will remain. Primary access to common site-wide circulation exists via a right-in and right-out access point on West Trimble Road and a signalized full-movement intersection on Orchard Parkway. A secondary right-in, right-out access point will be created approximately 300 feet south of the existing signalized intersection on Orchard Parkway. These three access points will be connected to a private common circulation access loop serving the existing facility to remain, DC North and DC West. A fourth access point will also be created approximately 220 feet north of the existing signalized intersection on Orchard Parkway. This access point is dedicated to vehicular access to DC North employee/visitor parking and is right-in and right-out only.

The project will provide a total of 133 parking spaces on site dedicated specifically to DC North and DC West. Of the aggregate total, 123 parking spaces will be standard spaces, 6 parking spaces will be Americans with Disabilities Act standard spaces, 2 parking spaces will be Americans with Disabilities act Van Accessible spaces and 2 parking spaces will be Electric Vehicle Supply Equipment accessible spaces. Of the 123 standard parking spaces, 12 parking spaces will be Electric Vehicle Supply Equipment spaces, and 56 parking spaces will be Electric Vehicle capable spaces. The proposed parking plan conforms to City of San José Municipal Code and California Green Building Standards.

1.2 Construction

Site grading, excavation, and construction is anticipated to begin in January 2026 and run through December 2028. Construction will total approximately 36 months. The peak construction workforce will be approximately 600 workers per month with an average of approximately 300 workers per month.

The proposed grading will involve cut and fill throughout the project site. Cut and fill will generally be limited to approximately 4 feet, excluding excavations for utilities and deep foundation systems. Excess soils will be exported off-site to an appropriate location to be determined during the permitting and construction phases of the project.

Since the site preparation activities for the NTDC will include the ground preparation and grading of the entire site, the only construction activities for the NTBGF would involve construction of the generation yards for each data center building. This will include construction of concrete slabs, fencing, installation of underground and above-ground conduit and electrical cabling to interconnect to the NTDC switchgear, as well as placement and securing of the generators. Prior to construction of the NTBGF, new site circulation roadways, fire lanes, utility tie-ins, and parking facilities serving the existing industrial buildings will have been established. Consequently, construction of the NTBGF will not materially impact the operational capacity of the existing industrial facilities located directly adjacent to the project site.

The generators themselves will be assembled off-site and delivered to site by truck. Each generator will be placed within the generation yards by a crane. Construction of the generation yards and placement of the generators is expected to take six months and is included in the overall construction schedule for the NTDC. Construction personnel for the NTBGF are estimated to range from 10 to 15 workers including one crane operator.

Section 2. Methods

2.1 Background Review

Prior to conducting field work, H. T. Harvey & Associates ecologists reviewed the project description, plans, and maps provided by David J. Powers & Associates through May 2025; aerial images (Google Inc. 2025); a USGS topographic map; the California Department of Fish and Wildlife's (CDFW's) California Natural Diversity Database (CNDDB) (2025); the *370 W. Trimble Road Planned Development Rezoning Initial Study/Addendum to the Final Program Environmental Impact Report for the North San José Development Update and the Final Program Environmental Impact Report for the Envision San José 2020 General Plan* (City of San José 2017), the City of San José's General Plan *Envision San José 2040* (City of San José 2020); habitat and species information from the VHP (ICF International 2012); and other relevant reports, scientific literature, and technical databases. For the purposes of this report, the *project vicinity* is defined as the area within a 5-mile radius surrounding the project site.

In addition, for plants, we reviewed all species on current California Native Plant Society (CNPS) California Rare Plant Rank (CRPR) 1A, 1B, 2A, 2B, 3, and 4 lists occurring in the project region, which is defined as the *Milpitas, California* USGS 7.5-minute quadrangles and surrounding eight quadrangles (*Newark, Niles*, *La Costa Valley*, *Mountain View*, *Calaveras Reservoir*, *Cupertino*, *San Jose West*, and *San Jose East*). In addition, we queried the CNDDB (2025) for natural communities of special concern that occur on the project site, and we perused records of birds reported in nearby areas, such as at the Airport and along the Guadalupe River Trail, on eBird (Cornell Lab of Ornithology 2025) and on the South-Bay-Birds List Serve (2025).

2.2 Site Visits

H. T. Harvey & Associates plant and wetland ecologist Vanessa Morales, B.S., and wildlife ecologist Steve Carpenter, B.S., conducted a reconnaissance-level survey of the project site on February 27, 2025. The purpose of the survey was to provide an impact assessment specific to the proposed construction of the project, as described above. Specifically, the survey was conducted to (1) assess existing biotic habitats and plant and animal communities on the project site, (2) assess the project site for its potential to support special-status species and their habitats, and (3) identify potential jurisdictional and sensitive habitats, such as waters of the U.S./state and riparian habitat. S. Carpenter also conducted a focused survey for (1) burrowing owls (*Athene cunicularia*) and suitable burrowing owl roosting and nesting habitat (i.e., burrows of California ground squirrels [*Otospermophilus beecheyi*]) on and within 250 feet of the site, (2) evidence of previous raptor nesting activity (i.e., large stick nests) on and immediately adjacent to the site, (3) potential bat roosting habitat on the site, and (4) northwestern pond turtles (*Actinemys marmorata*) and suitable habitat for this species on and adjacent to the site. H. T. Harvey & Associates senior wildlife ecologist Robin Carle, M.S., conducted a focused survey for Crotch's bumble bees (*Bombus crotchii*) on the site on April 13, 2025.

In addition, H. T. Harvey & Associates has a long history of performing burrowing owl surveys in the immediate vicinity of the project site. Since the late 1990s, and continuing to the present, we have performed burrowing owl surveys for various owners of adjacent properties along Orchard Parkway and Component Drive. Thus, we incorporated the results of our previous burrowing owl surveys of adjacent properties to inform our assessment.

Because the proposed project is a covered project under the approved VHP (ICF International 2012), VHP mapping of land cover types was field-verified and modified as necessary based upon site conditions observed during the surveys. In addition, because the reach of the Guadalupe River adjacent to the project site is mapped by the VHP as potentially suitable nesting habitat for the tricolored blackbird (*Agelaius tricolor*), V. Morales and S. Carpenter conducted a habitat survey to determine whether any potential nesting substrate for tricolored blackbirds was present within 250 feet of the project site, per Condition 17 of the VHP.

Due to the close proximity of the Guadalupe River to the project site, V. Morales also mapped the limits of the riparian canopy and the top of bank on the east side of the river adjacent to the site using a sub-meter GPS in the field. Per California Energy Commission (CEC) requirements, V. Morales also mapped the approximate boundaries of potentially sensitive and regulated habitats, such as wetlands, other waters of the U.S./state, and riparian habitat, within 250 feet of the site. Biotic habitats on the project site, sensitive and regulated habitats within 250 feet of the site, and the top of bank of the Guadalupe River are shown on Figure 3.

Per CEC requirements, a list of all plant and animal species observed on the site during the surveys is provided in Appendix A.

Figure 3. Land Cover Map

Section 3. Regulatory Setting

Biological resources on the project site are regulated by a number of federal, state, and local laws and ordinances, as described below.

3.1 Federal Regulations

3.1.1 Clean Water Act

The Clean Water Act (CWA) functions to maintain and restore the physical, chemical, and biological integrity of waters of the U.S., which include, but are not limited to, tributaries to traditionally navigable waters currently or historically used for interstate or foreign commerce, and adjacent wetlands. Historically, in non-tidal waters, U.S. Army Corps of Engineers (USACE) jurisdiction extends to the ordinary high water (OHW) mark, which is defined in Title 33, Code of Federal Regulations, Part 328.3. If there are wetlands adjacent to channelized features, the limits of USACE jurisdiction extend beyond the OHW mark to the outer edges of the wetlands. Wetlands that are not adjacent to waters of the U.S. are termed "isolated wetlands" and, depending on the circumstances, may be subject to USACE jurisdiction. In tidal waters, USACE jurisdiction extends to the landward extent of vegetation associated with salt or brackish water or the high tide line. The high tide line is defined in 33 Code of Federal Regulations Part 328.3 as "the line of intersection of the land with the water's surface at the maximum height reached by a rising tide." If there are wetlands adjacent to channelized features, the limits of USACE jurisdiction extend beyond the OHW mark or high tide line to the outer edges of the wetlands.

A May 25, 2023, U.S. Supreme Court decision in *Sackett v. Environmental Protection Agency* limited the definition of jurisdictional wetlands that are considered waters of the U.S. to those wetlands having a continuous surface connection with traditional navigable waters. In September 2023, the EPA released the current definition of waters of the U.S., called the conforming rule. The San Francisco District of the USACE has not yet issued specific guidance regarding exactly how these *Sackett* limitations affect the identification of jurisdictional wetlands for sites such as the project site.

Construction activities within jurisdictional waters are regulated by the USACE. The placement of fill into such waters must comply with permit requirements of the USACE. No USACE permit will be effective in the absence of Section 401 Water Quality Certification. The State Water Resources Control Board (SWRCB) is the state agency (together with the Regional Water Quality Control Boards [RWQCBs]) charged with implementing water quality certification in California.

Project Applicability: The project site does not support wetland or aquatic habitats. The Guadalupe River, located off-site to the west, is considered waters of the U.S. based the presence of an OHW mark, regular flow, and direct hydrologic connectivity to the San Francisco Bay. All wetlands associated with Guadalupe River occur within the OHW mark. These jurisdictional wetlands and waters are located approximately 65 feet outside of the property and more than 100 feet from the project's proposed improvements, and are separated from the site by an approximately 8-foot tall levee. As a result, the project will avoid direct and indirect impacts to wetlands or waters subject to the CWA, and a permit from the USACE would not be required for the project.

3.1.2 Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act of 1899 prohibits the creation of any obstruction to the navigable capacity of waters of the U.S., including discharge of fill and the building of any wharfs, piers, jetties, and other structures without Congressional approval or authorization by the Chief of Engineers and Secretary of the Army (33 U.S.C. 403).

Navigable waters of the U.S., which are defined in 33 CFR, Part 329.4, include all waters subject to the ebb and flow of the tide, and/or those which are presently or have historically been used to transport commerce. The shoreward jurisdictional limit of tidal waters is further defined in 33 CFR, Part 329.12 as "the line on the shore reached by the plane of the mean (average) high water." It is important to understand that the USACE does not regulate wetlands under Section 10, only the aquatic or open waters component of bay habitat, and that there is overlap between Section 10 jurisdiction and Section 404 jurisdiction. According to 33 CFR, Part 329.9, a waterbody that was once navigable in its natural or improved state retains its character as "navigable in law" even though it is not presently used for commerce as a result of changed conditions and/or the presence of obstructions. Historical Section 10 waters may occur behind levees in areas that are not currently exposed to tidal or muted-tidal influence, and meet the following criteria: (1) the area is presently at or below the mean high water line; (2) the area was historically at or below mean high water in its "unobstructed, natural state"; and (3) there is no evidence that the area was ever above mean high water.

As mentioned above, Section 404 of the CWA authorizes the USACE to issue permits to regulate the discharge of dredged or fill material into waters of the U.S. If a project also proposes to discharge dredged or fill material and/or introduce other potential obstructions in navigable waters of the U.S., a Letter of Permission authorizing these impacts must be obtained from the USACE under Section 10 of the Rivers and Harbors Act.

<u>Project Applicability:</u> The Guadalupe River contains current Section 10 waters only along the river's lower reaches where it is subject to tidal influence (miles downstream from the project site). However, no current or historical Section 10 Waters are present within or close to the project site. Therefore, a Letter of Permission from the USACE is not required.

3.1.3 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) protects federally listed wildlife species from harm or *take*, which is broadly defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct." *Take* can also include habitat modification or degradation that directly results in death or injury of a listed wildlife species. An activity can be defined as *take* even if it is unintentional or accidental. Listed plant species are provided less protection than listed wildlife species. Listed plant species are legally protected from take under the FESA only if they occur on federal lands.

The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) have jurisdiction over federally listed, threatened, and endangered species under FESA. The USFWS also maintains lists of proposed and candidate species. Species on these lists are not legally protected under FESA, but may become listed in the near future and are often included in their review of a project.

Project Applicability: No federally listed or candidate plant or animal species occur on the site. The federally threatened Central California Coast steelhead (*Oncorhynchus mykiss*) is known to occur in the Guadalupe River immediately adjacent to the project site; however, due to the presence of an approximately 8-foot tall levee between the site and the river, project activities are not expected to directly or indirectly affect the steelhead. The monarch butterfly (*Danaus plexippus*), a candidate for listing under FESA, and the northwestern pond turtle (*Actinemys marmorata*), federally proposed as threatened, may occur on the project site, and there is some potential for the project to result in impacts on these species if they are present.

3.1.4 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act governs all fishery management activities that occur in federal waters within the United States' 200-nautical-mile limit. The Act establishes eight Regional Fishery Management Councils responsible for the preparation of fishery management plans (FMPs) to achieve the optimum yield from U.S. fisheries in their regions. These councils, with assistance from NMFS, establish Essential Fish Habitat (EFH) in FMPs for all managed species. Federal agencies that fund, permit, or implement activities that may adversely affect EFH are required to consult with NMFS regarding potential adverse effects of their actions on EFH, and respond in writing to recommendations by NMFS.

Project Applicability: The Pacific Fisheries Management Council has designated EFH for the Pacific Coast Salmon FMP within the Guadalupe River adjacent to the project site due to the presence of the Chinook salmon (*Oncorhynchus tshawytscha*). However, due to the presence of a tall levee between the site and the river, project activities are not expected to directly or indirectly affect this species.

3.1.5 Federal Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA), 16 U.S.C. Section 703, prohibits killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. The MBTA protects whole birds, parts of birds, and bird eggs and nests, and it prohibits the possession of all nests of protected bird species whether they are active or inactive. An *active* nest is defined as having eggs or young, as described by the USFWS in its June 14, 2018 memorandum "Destruction and Relocation of Migratory Bird Nest Contents". Nest starts (nests that are under construction and do not yet contain eggs) and inactive nests are not protected from destruction.

Project Applicability: All native bird species that occur on the project site are protected under the MBTA.

3.2 State Regulations

3.2.1 Porter-Cologne Water Quality Control Act

The SWRCB works in coordination with the nine RWQCBs to preserve, protect, enhance, and restore water quality. Each RWQCB makes decisions related to water quality for its region, and may approve, with or without conditions, or deny projects that could affect waters of the state. Their authority comes from the CWA and the Porter-Cologne Water Quality Control Act (Porter-Cologne). Porter-Cologne broadly defines waters of the state as "any surface water or groundwater, including saline waters, within the boundaries of the state." Because Porter-Cologne applies to any water, whereas the CWA applies only to certain waters, California's jurisdictional reach overlaps and may exceed the boundaries of waters of the U.S. For example, Water Quality Order No. 2004-0004-DWQ states that "shallow" waters of the state include headwaters, wetlands, and riparian areas. Moreover, the San Francisco Bay Region RWQCB's Assistant Executive Director has stated that, in practice, the RWQCBs claim jurisdiction over riparian areas. Where riparian habitat is not present, such as may be the case at headwaters, jurisdiction is taken to the top of bank.

On April 2, 2019, the SWRCB adopted the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*. In these new guidelines, riparian habitats are not specifically described as waters of the state but instead as important buffer habitats to streams that do conform to the State Wetland Definition. The *Procedures* describe riparian habitat buffers as important resources that may both be included in required mitigation packages for permits for impacts to waters of the state, as well as areas requiring permit authorization from the RWQCBs to impact.

Pursuant to the CWA, projects that are regulated by the USACE must also obtain a Section 401 Water Quality Certification permit from the RWQCB. This certification ensures that a proposed project will uphold state water quality standards. Because California's jurisdiction to regulate its water resources is much broader than that of the federal government, proposed impacts on waters of the state require Water Quality Certification even if the area occurs outside of USACE jurisdiction. Moreover, the RWQCB may impose mitigation requirements even if the USACE does not. Under the Porter-Cologne, the SWRCB and the nine regional boards also have the responsibility of granting CWA National Pollutant Discharge Elimination System (NPDES) permits and Waste Discharge Requirements for certain point-source and non-point discharges to waters. These regulations limit impacts on aquatic and riparian habitats from a variety of urban sources.

Project Applicability: No waters of the state or riparian habitat occur on the project site. Adjacent to the project site, waters of the state include all potential waters of the U.S., including the Guadalupe River and its associated wetlands. The RWQCB will also consider the riparian vegetation and areas of the riparian banks above OHW and below top of bank to be important buffers to waters of the state associated with the river (Figure 3). No impacts to waters of the state or riparian habitat will result from the project because no work is proposed adjacent to or within the Guadalupe River channel or the riparian corridor, and a Section 401 permit or Waste Discharge Requirement from the RWQCB would not be required.

3.2.2 California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code, Chapter 1.5, Sections 2050-2116) prohibits the take of any plant or animal listed or proposed for listing as rare (plants only), threatened, or endangered. In accordance with CESA, the CDFW has jurisdiction over state-listed species (Fish and Game Code 2070). The CDFW regulates activities that may result in *take* of individuals (i.e., "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill"). Habitat degradation or modification is not expressly included in the definition of *take* under the California Fish and Game Code. The CDFW, however, has interpreted *take* to include the "killing of a member of a species which is the proximate result of habitat modification."

<u>Project Applicability</u>: Crotch's bumble bee and burrowing owl, which are candidates for listing under CESA, may occur on the project site in small numbers. These species are not expected to nest on the site under current conditions (i.e., where no ground squirrel burrows are present). However, if ground squirrels should colonize the site in the future, burrowing owls could potentially nest or roost in burrows on the site, and Crotch's bumble bees could also potentially nest in burrows on the site. In addition, burrowing owls could potentially nest or roost on nearby properties within 250 feet, where they could be indirectly disturbed by construction activities. No state-listed plant species or additional state-listed animal species are reasonably expected to occur on or near the project site.

3.2.3 California Environmental Quality Act

CEQA is a state law that requires state and local agencies to document and consider the environmental implications of their actions and to refrain from approving projects with significant environmental effects if there are feasible alternatives or mitigation measures that can substantially lessen or avoid those effects. CEQA requires the full disclosure of the environmental effects of agency actions, such as approval of a general plan update or the projects covered by that plan, on resources such as air quality, water quality, cultural resources, and biological resources. The State Resources Agency promulgated guidelines for implementing CEQA known as the State CEQA Guidelines.

Section 15380(b) of the State CEQA Guidelines provides that a species not listed on the federal or state lists of protected species may be considered rare if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definitions in the FESA and the CESA and the section of the California Fish and Game Code dealing with rare or endangered plants and animals. This section was included in the guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on a species that has not yet been listed by either the USFWS or CDFW or species that are locally or regionally rare.

The CDFW has produced three lists (amphibians and reptiles, birds, and mammals) of "species of special concern" that serve as "watch lists". Species on these lists are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. Thus, their populations should be monitored. They may receive special attention during environmental review as potential rare species, but do not have specific statutory protection. All potentially rare or sensitive species, or habitats capable of supporting rare species, are considered for environmental review per the CEQA Section 15380(b).

The CNPS, a non-governmental conservation organization, has developed CRPRs for plant species of concern in California in the CNPS Inventory of Rare and Endangered Plants. The CRPRs include lichens, vascular, and non-vascular plants, and are defined as follows:

- CRPR 1A Plants considered extinct.
- CRPR 1B Plants rare, threatened, or endangered in California and elsewhere.
- CRPR 2A Plants considered extinct in California but more common elsewhere.
- CRPR 2B Plants rare, threatened, or endangered in California but more common elsewhere.
- CRPR 3 Plants about which more information is needed - review list.
- CRPR 4 Plants of limited distribution-watch list.

The CRPRs are further described by the following threat code extensions:

- .1—seriously endangered in California;
- .2—fairly endangered in California;
- .3—not very endangered in California.

Although the CNPS is not a regulatory agency and plants on these lists have no formal regulatory protection, plants appearing as CRPR 1B or 2 are, in general, considered to meet CEQA's Section 15380 criteria, and adverse effects to these species may be considered significant. Impacts on plants that are listed by the CNPS on CRPR 3 or 4 are also considered during CEQA review, although because these species are typically not as rare as those of CRPR 1B or 2, impacts on them are less frequently considered significant.

Compliance with CEQA Guidelines Section 15065(a) requires consideration of natural communities of special concern, in addition to plant and wildlife species. Vegetation types of "special concern" are tracked in Rarefind (CNDDB 2025). Further, the CDFW ranks sensitive vegetation alliances based on their global (G) and state (S) rankings analogous to those provided in the CNDDB. Global rankings (G1–G5) of natural communities reflect the overall condition (rarity and endangerment) of a habitat throughout its range, whereas S rankings are a reflection of the condition of a habitat within California. If an alliance is marked as a G1–G3, all of the associations within it would also be of high priority. The CDFW provides the Vegetation Classification and

Mapping Program's (VegCAMP's) currently accepted list of vegetation alliances and associations (CDFW 2025).

Project Applicability: All potential impacts on biological resources will be considered during CEQA review of the project in the context of this biological resources report. Project impacts are discussed in Section 6 below.

3.2.4 California Fish and Game Code

Ephemeral and intermittent streams, rivers, creeks, dry washes, sloughs, blue line streams on USGS maps, and watercourses with subsurface flows fall under CDFW jurisdiction. Canals, aqueducts, irrigation ditches, and other means of water conveyance may also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. A *stream* is defined in Title 14, California Code of Regulations Section 1.72, as "a body of water that follows at least periodically or intermittently through a bed or channel having banks and that supports fish and other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." Using this definition, CDFW extends its jurisdiction to encompass riparian habitats that function as a part of a watercourse. California Fish and Game Code Section 2786 defines *riparian habitat* as "lands which contain habitat which grows close to and which depends upon soil moisture from a nearby freshwater source." The lateral extent of a stream and associated riparian habitat that would fall under the jurisdiction of CDFW can be measured in several ways, depending on the particular situation and the type of fish or wildlife at risk. At minimum, CDFW would claim jurisdiction over a stream's bed and bank. Where riparian habitat is present, the outer edge of riparian vegetation is generally used as the line of demarcation between riparian and upland habitats.

Pursuant to California Fish and Game Code Section 1603, CDFW regulates any project proposed by any person that will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds." California Fish and Game Code Section 1602 requires an entity to notify CDFW of any proposed activity that may modify a river, stream, or lake. If CDFW determines that proposed activities may substantially adversely affect fish and wildlife resources, a Lake and Streambed Alteration Agreement (LSAA) must be prepared. The LSAA sets reasonable conditions necessary to protect fish and wildlife, and must comply with CEQA. The applicant may then proceed with the activity in accordance with the final LSAA.

Certain sections of the California Fish and Game Code describe regulations pertaining to protection of certain wildlife species. For example, Code Section 2000 prohibits take of any bird, mammal, fish, reptile, or amphibian except as provided by other sections of the code.

The California Fish and Game Code Sections 3503, 3513, and 3800 (and other sections and subsections) protect native birds, including their nests and eggs, from all forms of take. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered *take* by the CDFW. Raptors (e.g., eagles, hawks, and owls) and their nests are specifically protected in California under Code Section 3503.5. Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."

Bats and other non-game mammals are protected by California Fish and Game Code Section 4150, which states that all non-game mammals or parts thereof may not be taken or possessed except as provided otherwise in the code or in accordance with regulations adopted by the commission. Activities resulting in mortality of non-game mammals (e.g., destruction of an occupied nonbreeding bat roost, resulting in the death of bats), or disturbance that causes the loss of a maternity colony of bats (resulting in the death of young), may be considered *take* by the CDFW.

Project Applicability: CDFW jurisdiction under Section 1602 of the California Fish and Game Code would extend up to the top of bank of the Guadalupe River adjacent to the project site. There will be no project impacts on riparian habitat subject to CDFW jurisdiction because no work is proposed within the top of bank of the Guadalupe River channel. Therefore, a CDFW LSAA would not be required for the project.

Most native bird, mammal, and other wildlife species that occur on the project site and in the immediate vicinity are protected under the California Fish and Game Code. Project impacts on these species are discussed in Section 6.

3.2.5 State Water Resources Control Board Stormwater Regulation

Construction Phase. Construction projects in California causing land disturbances that are equal to 1 acre or greater must comply with state requirements to control the discharge of stormwater pollutants under the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit; Water Board Order No. 2009-0009-DWQ, as amended and administratively extended). Prior to the start of construction/demolition, a Notice of Intent must be filed with the SWRCB describing the project. A Storm Water Pollution Prevention Plan must be developed and maintained during the project and it must include the use of best management practices (BMPs) to protect water quality until the site is stabilized.

Standard permit conditions under the Construction General Permit requires that the applicant utilize various measures including: on-site sediment control BMPs, damp street sweeping, temporary cover of disturbed land surfaces to control erosion during construction, and utilization of stabilized construction entrances and/or wash racks, among other factors. Additionally, the Construction General Permit does not extend coverage to projects if stormwater discharge-related activities are likely to jeopardize the continued existence, or result in take of any federally listed endangered or threatened species.

Post-Construction Phase. In many Bay Area counties, including Santa Clara County, projects must also comply with the California RWQCB, San Francisco Bay Region, Municipal Regional Stormwater NPDES Permit (Water Board Order No. R2-2015-0049, as amended). This permit requires that all projects implement BMPs and incorporate Low Impact Development practices into the design that prevent stormwater runoff pollution, promote infiltration, and hold/slow down the volume of water coming from a site. In order to meet these permit and policy requirements, projects must incorporate the use of green roofs, impervious surfaces, tree planters, grassy swales, bioretention and/or detention basins, among other factors.

Project Applicability. The project will comply with the requirements of the NPDES Statewide Storm Water Permit and Statewide General Construction Permit. Therefore, construction-phase activities would not result in detrimental water quality effects on biological or regulated resources.

3.3 Local Regulations

3.3.1 City of San José Tree Ordinance

The City of San José promotes the health, safety, and welfare of the city by regulating the planting, removal, and maintenance of trees in the city. The City provides tree protection under the Municipal Code Section 13.28 (street trees, hedges, and shrubs), 13.32 (tree removal controls), and 13.44.220 (damaging park property). The Municipal Code details permit requirements for tree related work, including removal, pruning, and planting. Removal of trees within the street right-of-way are subject to tree removal permitting by the City of San José. Street trees are located in the public right-of-way between the curb and the sidewalk. Pruning or removal of street trees is illegal without a permit issued by the City. Replacement trees are required for the removal of ordinance-size street trees. A single trunk tree qualifies as an ordinance-size tree if it measures 38 inches or more in circumference at 4.5 feet above ground (approximately 12 inches diameter at breast height). A multi-trunk tree qualifies as ordinance-size if the combined measurement of each trunk circumference (at 4.5 feet above ground) adds up to 38 inches or more. As part of the permit application, it is required to contact the planning division with regard to the replacement of ordinance-size trees.

Removal of trees on private property, commercial, and industrial properties are also subject to tree removal permitting by the City of San José. A permit is required to remove a tree of "any size" from a commercial and industrial property. A separate "permit adjustment application" is required to be filed for non-ordinance-sized trees that will be removed from commercial and industrial properties. As part of the permit application it is required to contact the City's planning division with regard to the replacement of trees on private, commercial and industrial properties.

Project Applicability: Ordinance-sized trees are present on the project site. A tree survey may be required in order to (1) identify any trees that may potentially need to be trimmed or removed for some portion of project implementation, and (2) site project activities to minimize tree impacts. The project will comply with the City of San José's tree replacement guidelines and policies for any trees that need to be removed.

3.3.2 City of San José Riparian Corridor Protection and Bird-Safe Design Policy

Measures to protect riparian corridors are provided in the City's *Riparian Corridor Policy Study* (City of San José 1999), which was incorporated into the City's Envision San José 2040 General Plan (City of San José 2020); the

Zoning Code (Title 20 of the San José Municipal Code); and the City Council-adopted VHP, specifically Condition 11. The term *riparian corridor* as defined by the City means any defined stream channel, including the area up to the bank full-flow line, as well as all characteristic streamside vegetation in contiguous adjacent uplands.

In 2016, the City released Council Policy 6-34 to provide guidance on the implementation of riparian corridor protection consistent with all City policies and requirements that provide for riparian protection. Council Policy 6-34 indicates that riparian setbacks should be measured from the outside edges of riparian habitat or the top of bank, whichever is greater, and that development of new buildings and roads generally should be set back 100 feet from the riparian corridor. However, Council Policy 6-34 also indicates that a reduced setback may be considered under limited circumstances, including the existence of legal uses within the minimum setback, and utility or equipment installations or replacements that involve no significant disturbance to the riparian corridor during construction and operation and that generate only incidental human activity.

<u>Project Applicability:</u> A riparian corridor associated with the Guadalupe River is located immediately adjacent to the project site. The project would need to comply with the City's riparian corridor policy, which includes guidance for allowable uses within riparian setbacks as well as bird-safe design for new buildings and structures.

3.3.3 Santa Clara Valley Habitat Plan

The VHP (ICF International 2012) provides a framework for promoting the protection and recovery of natural resources, including endangered and threatened species, while streamlining the permitting process for planned development, infrastructure, and maintenance activities. The VHP allows the County of Santa Clara, Valley Water, the Santa Clara Valley Transportation Authority, and the cities of Gilroy, Morgan Hill, and San José (collectively, the Local Partners or Permittees) to receive endangered species permits for activities and projects they conduct and those under their jurisdiction. The Santa Clara Valley Open Space Authority also contributed to VHP preparation. The VHP will protect, enhance, and restore natural resources in specific areas of Santa Clara County and contribute to the recovery of endangered species. Rather than separately permitting and mitigating individual projects, the VHP evaluates natural-resource impacts and mitigation requirements comprehensively in a way that is more efficient and effective for at-risk species and their essential habitats.

The VHP was developed in association with the USFWS and CDFW and in consultation with stakeholder groups and the general public. The USFWS has issued the Permittees a 50-year permit that authorizes incidental take of listed species under FESA, while CDFW has issued a 50-year permit that authorizes take of all covered species under the Natural Community Conservation Planning Act. This approach allows the Permittees to streamline future mitigation requirements into one comprehensive program. In addition to obtaining take authorization for each participating agency's respective activities, the cities and County will be able to extend take authorization to project applicants under their jurisdiction.

The USFWS and CDFW will also provide assurances to the Permittees that no further commitments of funds, land, or water will be required to address impacts on covered species beyond that described in the VHP to address changed circumstances. In addition to strengthening local control over land use and species protection, the VHP provides a more efficient process for protecting natural resources by creating new habitat reserves that will be larger in scale, more ecologically valuable, and easier to manage than the individual mitigation sites created under the current approach.

The VHP and associated documents are approved and adopted by the six Local Partners (Cities of Gilroy, Morgan Hill and San José, County of Santa Clara, Santa Clara Valley Transportation Authority, and Valley Water).

Project Applicability. The project site is located within the VHP permit area. Therefore, project activities are considered covered under the VHP and are required to comply with applicable VHP conditions (ICF International 2012).

Section 4. Environmental Setting

4.1 General Project Area Description

The project site is located in San José in Santa Clara County, California (Figure 1). The climate in the project vicinity is coastal Mediterranean, with most rain falling in the winter and spring. Mild cool temperatures are common in the winter. Hot to mild temperatures are common in the summer. Climate conditions in the vicinity include a 30-year average of approximately 14.13 inches of annual precipitation with a monthly average temperature range from 49.9ºF to 70.3ºF (PRISM Climate Group 2025). Elevations on the project site range from 26 to 36 feet above mean sea level (Google Inc. 2025). The Natural Resource Conservation Service= has mapped five soil units on the project site: (1) Urbanland-Campbell complex, 0–2% slopes, (2) Campbell silt loam, 0–2% slopes, (3) Elder fine sandy loam, 0–2 % slopes, (4) Urban land, 0–2% slopes and (5) Urbanland-Elder complex, 0–2% slopes (Natural Resource Conservation Service 2025). The Urban land, Urbanland-Campbell, and Urbanland-Elder complexes are found on basin floors, and are composed of disturbed and human transported material (Urbanland soil series), and very deep, well-drained soils that formed in alluvium from mixed rock sources (Elder and Campbell series). Campbell silt loam soils are very deep, moderately well-drained soils on alluvial fans formed in gravelly alluvium from metamorphic and sedimentary rocks, and/or alluvium from metavolcanics (Natural Resource Conservation Service 2025).

4.2 Land Cover

As described above, biotic habitats on the project site were classified according to the land cover classification system described in the VHP (ICF International 2012), with modifications based upon site conditions verified during the 2025 field survey. The reconnaissance-level surveys identified two land cover types on the project site: urban-suburban (i.e., developed/landscaped) and California annual grassland (Figure 3). These land cover types are described in detail below. Plant and animal species observed during the reconnaissance survey are listed in Appendix A.

4.2.1 Urban-Suburban

Vegetation. The majority of the project site (18.2 acres) consists of existing developed areas, including paved pedestrian paths, office buildings, parking lots, associated landscape vegetation, and a gravel access road (Figure 3) (Photos 1 and 2 in Appendix B). These developed areas fall within the VHP *urban-suburban* land cover type. Landscaped vegetation within these areas consists of predominantly nonnative ornamental trees, shrubs, and groundcovers including turf, hairy crab grass (*Digitaria sanguinalis*), London plane tree (*Platanus* x *hybrida*), English elm (*Ulmus minor*), crape myrtle (*Lagerstroemia indica*), and cotoneaster (*Cotoneaster pannosus*). A number of native tress, including coast live oak (*Quercus agrifolia*) trees, are also present.

Wildlife. The urban-suburban areas of the project site serve as wildlife habitat only in a very limited capacity, and most wildlife species that occur in these areas are tolerant of frequent human disturbances. Species that use these areas include the nonnative European starling (*Sturnus vulgaris*), rock pigeon (*Columba livia*), house mouse (*Mus musculus*), and Norway rat (*Rattus norvegicus*), as well as the native raccoon (*Procyon lotor*) and striped skunk (*Mephitis mephitis*). Western fence lizards (*Sceloporus occidentalis*) commonly occur in urban-suburban areas, and may bask on road or parking lot surfaces in order to raise their body temperature. Bird species including the American crow (*Corvus brachyrhynchos*), northern mockingbird (*Mimus polyglottos*), California scrub-jay (*Aphelocoma californica*), Anna's hummingbird (*Calypte anna*), California towhee (*Melozone crissalis*), bushtit (*Psaltriparus minimus*), and dark-eyed junco (*Junco hyemalis*) will nest and forage in landscape vegetation. Large trees adjacent to the project site provide potential nesting sites for raptors, such as red-shouldered hawks (*Buteo lineatus*) and Cooper's hawks (*Accipiter cooperii*), although no old, existing raptor nests were observed within or adjacent to the project site during the site visit.

4.2.2 California Annual Grassland

Vegetation. California annual grassland occupies 10.3 acres of the project site. The majority of this land cover is located in the northern portion of the site near the intersection of West Trimble Road and Orchard Parkway (Photos 3 and 4 in Appendix B) (Figure 3). A portion of this area was previously developed as a paved parking lot, and the remaining portion supported mature landscape trees and a small grassland (Google Earth 2025). The area was then cleared and graded in 2022 in preparation for a previous construction project that did not move forward. A number of mature, planted trees remain on the periphery of this area including coast live oaks, coast redwoods (*Sequoia sempervirens*), and others. Small patches of gravel are present throughout this area. An approximately 6-foot tall wooden fence separates this grassland from the rest of the site, and the remaining boundaries are enclosed by chain-link fencing.

An additional small area of grassland is present in the southern portion of the site, adjacent to the parking area (Figure 3). This grassland is located on the periphery of a larger grassland that has been regularly mown and maintained for decades. Barrels labelled as containing hazardous materials were present in this area during the February 2025 site visit. A line of coast live oaks grows adjacent to the southern grassland along the parking lot.

All of the grasslands on the site appear to be regularly mown, and during our February 2025 site visit the vegetation in these areas was starting to sprout with nonnative grasses ranging between 1–2 feet tall. All grasslands on the site are dominated by nonnative grasses such as wild oats (*Avena fatua*) and ripgut brome (*Bromus diandrus*), as well as weedy forbs such as wild radish (*Raphanus sativus*), short-podded mustard (*Hirschfeldia incana*), black mustard (*Brassica nigra*), goose grass (*Galium aparine*), and dissected geranium (*Geranium dissectum*). These areas support a number of species ranked by the California Invasive Plant Council (Cal-IPC) as being moderately or highly invasive, discussed in Section 5.3.5.

Wildlife. Wildlife use of grasslands on the project site is limited by human disturbance (e.g., due to mowing), the limited extent of the grassland areas, and the isolation of this habitat from more extensive grasslands in the region (i.e., in the Diablo Range to the east). As a result, some of the wildlife species associated with extensive grasslands in the South Bay, such as the grasshopper sparrow (*Ammodramus savannarum*), are absent from the grasslands on the project site. Many of the wildlife species that occur in this grassland area occur primarily in adjacent developed or riparian areas and use the grasslands on the project site for foraging. Such species include the house finch (*Haemorhous mexicanus*), bushtit, and lesser goldfinch (*Spinus psaltria*), which forage on seeds in grassland areas, and the black phoebe (*Sayornis nigricans*), cliff swallow (*Petrochelidon pyrrhonota*), and Mexican free-tailed bat (*Tadarida brasiliensis*), which forage aerially over grassland habitats for insects.

Burrows of California ground squirrels were not observed on the project site during the February 2025 site visit. Other rodent species that can potentially occur in the grassland habitat on the project site include the Botta's pocket gopher (*Thomomys bottae*), California vole (*Microtus californicus*) and deer mouse (*Peromyscus maniculatus*). Diurnal raptors such as red-tailed hawks (*Buteo jamaicensis*) and red-shouldered hawks forage for these small mammals over grasslands during the day, and at night nocturnal raptors, such as barn owls (*Tyto alba*), will forage for nocturnal rodents, such as deer mice.

Several reptile species regularly occur in grassland habitats, including the western fence lizard, gopher snake (*Pituophis catenifer*), and southern alligator lizard (*Elgaria multicarinata*). Mammals such as the native striped skunk, raccoon, and black-tailed jackrabbit (*Lepus californicus*), as well as the nonnative Virginia opossum (*Didelphis virginiana*) and feral cat (*Felis catus*) will use the grassland habitats on the project site for foraging.

4.3 Adjacent Habitat Areas

The project site is located adjacent to the Guadalupe River, which supports mixed riparian woodland and forest, riverine, and coastal and valley freshwater marsh habitats just outside the western boundary of the project site.

The top of bank of the Guadalupe River adjacent to the project site is well-defined by the Guadalupe River Trail (Photos 5 and 6 in Appendix B). Within the banks of the Guadalupe River, mixed riparian woodland and forest habitat is characterized by moderately dense canopy with a mix of native and nonnative mature trees, and an understory of smaller trees, saplings, shrubs, herbaceous species, and grasses. Riparian trees present within this habitat are mostly native and include native red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), Fremont cottonwood (*Populus fremontii* ssp. *fremontii*), and nonnative London plane. The majority of the tree cover is composed of cottonwoods and willows, with minor canopy branch die back, including a few standing snags of dead individual trees. Understory shrubs include poison oak (*Toxicodendron diversilobum*) and Himalayan blackberry (*Rubus armeniacus*). Herbaceous species observed in the understory include common annual grassland species such as ripgut brome and wild oats.

Along the edge of the channel bed of the Guadalupe River, patches and strips of coastal and valley freshwater marsh are present. Herbaceous wetland vegetation within these marshes includes bristly ox-tongue (*Helminthotheca echioides*), floating primrose willow (*Ludwigia peploides*), fiddleleaf dock (*Rumex pulcher*), cattail (*Typha angustifolia*), and dotted smartweed (*Persicaria punctata*) (Photos 5 and 6 in Appendix B). The hydrology of these wetlands is maintained by the riverine habitat present within the Guadalupe River.

Riparian habitats in California generally support exceptionally rich animal communities and contribute disproportionately to landscape-level species diversity. The presence of perennial flow and abundant invertebrate fauna provide foraging opportunities and the diverse habitat structure provides cover and breeding opportunities for many species along this reach of the Guadalupe River. Many bird species that are attracted to herbaceous vegetation and aquatic habitats along the river are expected to move past the project site when flying to, from, or along the Guadalupe River. The numbers of these birds moving through the site will vary by time of year and by species. Many birds, such as waterfowl, often tend to move in large groups, while other species, such as migrating landbirds, will move through individually or in smaller flocks. Local bird numbers also vary by time of year, as many birds form small to large flocks during winter and migration, and occur in more widely spaced pairs during the breeding season.

We consider the riparian habitat along this reach of the Guadalupe River to be of moderately high quality for birds. The large numbers of mature trees and native trees and presence of dense understory vegetation in some areas contribute positively to the value of this habitat for birds. However, the relatively narrow width of the riparian canopy, regularly disturbed nature of the stream channel (for stream maintenance/flood prevention purposes), and trampling/disturbance of this habitat from homeless encampments negatively affect the quality of this habitat for birds. This riparian habitat is also somewhat fragmented due to the surrounding high-density urban development and the presence of bridges, road crossings, and channelization along nearby portions of the river, and therefore lacks connectivity to higher-quality riparian habitats in the region. In addition, many feral cats are present along this reach of the river, and these cats will prey upon native birds. Nevertheless, songbirds that migrate along the Pacific Flyway and travel through the site vicinity are expected to be attracted to this reach of the Guadalupe River, and this habitat is used fairly heavily by migrating birds. Further, this reach of the Guadalupe River is used regularly by resident birds that are present in the vicinity year-round and are attracted to the riparian habitat for foraging and nesting opportunities. Although eBird, a database of bird sightings curated by Cornell University's Laboratory of Ornithology, has no "hotspot" for the segment of river between Highway 101 and Trimble Road adjacent to the project site, approximately 165 bird species have been recorded in the segment immediately downstream (between Trimble Road and Montague Expressway), demonstrating the high bird diversity associated with habitats along this general region of the Guadalupe River (Cornell Lab of Ornithology 2025).

Reptiles such as the gopher snake, western fence lizard, and southern alligator lizard also are present in the riparian habitat along the Guadalupe River. Amphibians such as the arboreal salamander (*Aneides lugubris*) occur in the leaf litter in this habitat and the native Pacific tree frog (*Pseudacris regilla*) is also known to be present. Urban-adapted mammals, such as the native raccoon and striped skunk, as well as the nonnative Virginia opossum, Norway rat, black rat, feral cat, and eastern gray squirrel (*Sciurus carolinensis*), reside in riparian habitat and adjacent habitats along the Guadalupe River.

4.4 Wildlife Movement

Wildlife movement within and in the vicinity of the project site takes many forms, and is different for the various suites of species associated with these lands. Bird and bat species move readily over the landscape in the project vicinity, foraging over and within both natural lands and landscaped areas. Mammals of different species move within their home ranges, but also disperse between patches of habitat. Generally, reptiles and amphibians similarly settle within home ranges, sometimes moving to central breeding areas, upland refugia, or hibernacula in a predictable manner, but also dispersing to new areas. Some species, especially among the birds and bats, are migratory, moving into or through the project vicinity during specific seasons. Aside from bats, there are no other mammal species in the vicinity of the site that are truly migratory. However, the young of many mammal species disperse from their natal home ranges, sometimes moving over relatively long distances in search of new areas in which to establish.

Movement corridors are segments of habitat that provide linkage for wildlife through the mosaic of suitable and unsuitable habitat types found within a landscape while also providing cover. On a broader level, corridors also function as paths along which wide-ranging animals can travel, populations can move in response to environmental changes and natural disasters, and genetic interchange can occur. In California, environmental corridors often consist of riparian areas along streams, rivers, or other natural features.

Due to the density of development in the project region and the lack of continuous, well-vegetated pathways through the City, there are currently no well-defined movement corridors for mammals or reptiles within or through the project site. Wildlife species may move through the area using cover and refugia as they find them available. However, most dispersal by wildlife species in the region likely occurs along higher-quality habitats, such as the Guadalupe River corridor to the southwest, and along the edge of the Bay to the north.

The Guadalupe River, which eventually drains to the open waters of the San Francisco Bay, and its associated riparian corridor adjacent to the site serves as a movement corridor for several common and special-status species of birds, fish, mammals, reptiles, and amphibians in the project vicinity. In addition, a number of birds, mammals, reptiles, and amphibians utilize the riparian corridor of the Guadalupe River for movement purposes, as it provides sufficient vegetative cover preferred by these species when navigating across the landscape. Specifically, migratory passerines, rabbits, striped skunks, raccoons, Pacific treefrogs, and alligator lizards, amongst other species, are expected to move along this corridor adjacent to the project site.

In summary, the project site is not a particularly important area for movement by non-flying wildlife, and it does not contain any high-quality corridors allowing dispersal of such animals through the City. However, the Guadalupe River located immediately west of the site provides a corridor for wildlife species to disperse north and south through San José.

Section 5. Special-Status Species and Sensitive Habitats

CEQA requires assessment of the effects of a project on species that are protected by state, federal, or local governments as "threatened, rare, or endangered"; such species are typically described as "special-status species". For the purpose of the environmental review of the project, special-status species have been defined as described below. Impacts on these species are regulated by some of the federal, state, and local laws and ordinances described in Section 3 above.

For purposes of this analysis, "special-status" plants are considered plant species that meet one or more of the following criteria:

- Listed under FESA as threatened, endangered, proposed threatened, proposed endangered, or a candidate species.
- Listed under CESA as threatened, endangered, rare, or a candidate species.
- Listed by the CNPS as CRPR 1A, 1B, 2, 3, or 4.

For purposes of this analysis, "special-status" animals are considered animal species that meet one or more of the following criteria:

- Listed under FESA as threatened, endangered, proposed threatened, proposed endangered, or a candidate species.
- Listed under CESA as threatened, endangered, or a candidate threatened or endangered species.
- Designated by the CDFW as a California species of special concern.
- Listed in the California Fish and Game Code as fully protected species (fully protected birds are provided in Section 3511, mammals in Section 4700, reptiles and amphibians in Section 5050, and fish in Section 5515).

Information concerning threatened, endangered, and other special-status species that potentially occur on the project site was collected from several sources and reviewed by H. T. Harvey & Associates biologists as described in Section 2.1 above. Figure 4 depicts CNDDB records of special-status plant species in the general vicinity of the project site and Figure 5 depicts CNDDB records of special-status animal species. These generalized maps show areas where special-status species are known to occur or have occurred historically. Per CEC requirements, these maps include CNDDB records within 10 miles of the project site and the boundaries of applicable local Habitat Conservation Plans (i.e., the VHP permit area). No wildlife nursery sites (e.g., egret rookeries) are present near the project site (San Francisco Bay Bird Observatory 2020).

Figure 4. CNDDB-Mapped Records of Special-Status Plants

NorthTown Data Center Biological Resources Report (4658-05)

June 2025

H. T. HARVEY & ASSOCIATES

Ecological Consultants

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Figure 5. CNDDB-Mapped Records of Special-Status Animals
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5.1 Special-Status Plant Species

The CNPS (2025) and CNDDB (2025) identify 67 special-status plant species as potentially occurring in at least one of the nine USGS 7.5-minute quadrangles containing or surrounding the project site for species in CRPR 1 and 2, or in Santa Clara County for CRPR 3 and 4 species. Of the 67 potentially occurring special-status plant species, all but one were determined to be absent from the project site for at least one of the following reasons: (1) absence of suitable habitat types; (2) lack of specific microhabitat or edaphic requirements, such as serpentine soils; (3) the elevation range of the species is outside of the range of the project site; and/or (4) the species is presumed extirpated from the project region. Many species are known to occur in marsh habitat associated with the San Francisco Bay to the northwest, or serpentine and alkaline soils associated with the Diablo Range to the northeast where outcrops of serpentine geology and soils are present. Serpentine soils do not occur within or adjacent the project site. Project activities will be largely be restricted to previously developed areas and California annual grassland that has been previously disturbed by grading and regular mowing.

Suitable habitat, edaphic requirements, and elevation range are present on the project site for only one special-status plant species, Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*). Congdon's tarplant has been documented by the CNDDB in the project vicinity (Figure 4) and can persist in disturbed grasslands. An expanded discussion of this species is provided below.

Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*). Federal Listing Status: None; State Listing Status: None; CRPR: 1B.1. Congdon's tarplant is an annual herb in the composite family (Asteraceae) that is endemic to California. It has a variable blooming period extending from approximately May through November. Congdon's tarplant occurs in valley and foothill grassland habitat, floodplains, and swales, particularly those with alkaline substrates; and in disturbed areas with nonnative grasses such as wild oats, ripgut brome, Italian rye grass (*Festuca perennis*), and seaside barley (*Hordeum marinum*) (Baldwin et al. 2012, CNDDB 2025, CNPS 2025). Congdon's tarplant occurs in Alameda, Contra Costa, Monterey, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, and Solano Counties (CNDDB 2025). In Santa Clara County, populations occur in ruderal grassland at Moffett Federal Airfield; in ruderal grassland and seasonal wetland habitats within Sunnyvale Baylands Park; in annually disked ruderal grassland in Alviso, north of Highway 237 and east of North First Street; and in ruderal grassland along railroad tracks in Milpitas.

Four occurrences of Congdon's tarplant are recorded on CNDDB (2025) within 5 miles of the project site: Occurrences #17, #18, #40, and #41. The closest record to the project site is Occurrence #41, which is a population located adjacent to a wastewater facility in Alviso (CNDDB 2025). The remaining three occurrences are located more than 3 miles north, northwest, and southwest of the of the project site. Record #18 occurs at the Sunnyvale Baylands Park in relatively high-quality grassland habitat, record #17 occurs in highly disturbed, ruderal grassland habitat, similar to that observed on the project site, and record #40 is a historic population that is considered to be extinct due to development in eastern San José.

The California annual grassland habitat on the project site provides some suitable habitat for Congdon's tarplant, though the soils on the site are not alkaline, which Congdon's tarplant prefers. Due to the lack of alkaline soils, high herbaceous vegetation cover, and regular disturbance from mowing, the habitat on the project site is considered only marginally suitable for this species (CNPS 2025).

The survey performed in February 2025 was too early in the year to detect Congdon's tarplant. Thus, the possibility that the species may be present on the site cannot be ruled out.

5.2 Special-Status Animal Species

The legal status and likelihood of occurrence on the project site of special-status animal species known to occur, or potentially occurring, in the surrounding region are presented in Table 1. Most of the special-status species listed in Table 1 are not expected to occur on the project site because it lacks suitable habitat, is outside the known range of the species, and/or is isolated from the nearest known extant populations by development or otherwise unsuitable habitat.

The following special-status species that are present in less urbanized settings in the South Bay, or in specialized habitats in the South Bay, are absent from the project site due to a lack of suitable habitat and/or isolation of the site from populations by urbanization: the Bay checkerspot butterfly (*Euphydryas editha bayensis*), California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), foothill yellow-legged frog (*Rana boylii*), bald eagle (*Haliaeetus leucocephalus*), loggerhead shrike (*Lanius ludovicianus*), riffle sculpin (*Cottus gulosus*), least Bell's vireo (*Vireo bellii pusillus*), San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), American badger (*Taxidea taxus*), San Joaquin kit fox (*Vulpes macrotis mutica*), Townsend's big-eared bat (*Corynorhinus townsendii*), and mountain lion (*Puma concolor*). While bald eagles may fly over the project site at times, none are expected to nest in, or make regular/heavy use of, any resources on the project site. No nests of San Francisco dusky-footed woodrats or suitable habitat for this species were observed on the project site during the February 2025 survey, and this species is also determined to be absent. The western bumble bee (*Bombus occidentalis*) occurred historically in the South Bay but no longer occurs in the region due to range contractions.

No aquatic habitats to support special-status fish species are present on the project site; however, the site is located adjacent to the Guadalupe River, which provides habitat for the Central California Coast steelhead, Central Valley fall-run Chinook salmon, Pacific lamprey (*Entosphenus tridentatus*), Sacramento hitch (*Lavinia exilicauda exilicauda*), and Central California roach (*Lavinia symmetricus symmetricus*). These special-status species will not be directly or indirectly affected by project activities due to the presence of an approximately 8-foot tall levee in between the project site and the Guadalupe River. As a result, these species are not discussed further in this report.

A number of special-status bird species can occasionally occur on the project site as nonbreeding foragers (i.e., they do not nest on the site). These are the Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*), tricolored blackbird, and golden eagle (*Aquila chrysaetos*). The pallid bat (*Antrozous pallidus*), a California species of special concern, may also forage on the project site. These species are not expected to nest, roost, or breed in or immediately adjacent to the project site due to a lack of suitable nesting, roosting, or breeding habitat, and will be affected very little, if at all, by the proposed project. In addition, the grasshopper sparrow, a bird species that is considered a California species of special concern only when it is nesting, may occur occasionally in grasslands on the project site as a nonbreeding transient, forager, or migrant, but no suitable nesting habitat for this species occurs on the project site. Because the Bryant's savannah sparrow and grasshopper sparrow are only considered species of special concern when nesting, they are not "special-status species" when they occur as a nonbreeding visitor to the site.

The yellow warbler (*Setophaga petechia*) and San Francisco common yellowthroat (*Geothlypis trichas sinuosa*) can potentially nest in riparian habitat along the Guadalupe River adjacent to the project site. Although these species will not be directly affected by project activities, there is some potential for project activities to result in indirect effects on nesting individuals due to their close proximity to the project site. Individuals of either species will also occasionally occur on the project site as nonbreeding foragers.

The Crotch's bumble bee, monarch butterfly, burrowing owl, northwestern pond turtle, and white-tailed kite (*Elanus leucurus*), are addressed in greater detail in Table 1 below because these species can potentially breed or occur on or immediately adjacent to the project site and/or may be significantly impacted by project construction (see Section 6 *Impacts and Mitigation Measures* below).

Table 1. Special-status Animal Species, Their Status, and Potential Occurrence on the Project Site

Name	*Status	Habitat	Potential for Occurrence on the Project Site
Federal or State Endangered, Threatened, or Candidate Species			
Bay checkerspot butterfly (*Euphydryas editha bayensis*)	FT, VHP	Native grasslands on serpentine soils. Larval host plants are *Plantago erecta* and/or *Castilleja exserta* or *C. densiflora*.	Absent. No suitable native grasslands or serpentine soils to support this species are present on the project site to support this species, and the VHP does not map suitable habitat on the project site (ICF International 2012). Determined to be absent.
Monarch butterfly (*Danaus plexippus*)	FC	Requires milkweeds (*Asclepias* spp.) for egg-laying and larval development, but adults obtain nectar from a wide variety of flowering plants in many habitats. Individuals congregate in winter roosts, primarily in Mexico and in widely scattered locations on the central and southern California coast.	May be Present as Breeder. The monarch butterfly occurs throughout the region primarily as a migrant. No larval host plants were observed on the project site during the February 2025 survey; however, milkweeds, if present, would not have been detectable at that time of year. If milkweeds are present on the site, monarch butterflies may breed on the project site from March through October. However, due to the limited size of the site, only small numbers of monarch butterflies are expected to breed there, if any. Small numbers of individuals may forage throughout the project site, especially during spring and fall migration. However, the site does not provide high-quality foraging habitat for this species. No suitably dense groves of trees are present on the project site to provide suitable overwintering habitat for monarchs, and no current or historical overwintering sites are known as far inland as the project site; the nearest known overwintering location is approximately 3.9 miles to the northwest at Sunnyvale Baylands Park (Xerces Society 2025).

Name	*Status	Habitat	Potential for Occurrence on the Project Site
Crotch's bumble bee (*Bombus crotchii*)	SC	Open grassland and scrub habitats.	May be Present. Concern over possible population declines and range contractions led CDFW (2019) to consider this species a candidate for listing under CESA. However, since 2019, there have been documented occurrences of more than 150 individuals from about 25 locations in Santa Clara County (Bumble Bee Watch 2025, iNaturalist 2025, S. Rottenborn, pers. obs.), indicating that the species is still extant, and fairly widespread (albeit in low numbers in most locations) in the county. No individuals were observed on the site during a focused survey conducted in April 2025, and the project site does not provide high-quality habitat for this species, as few flowering plants are present and the grasslands are regularly maintained by mowing. Due to the low quality of the habitat present as well as the lack of ground squirrel burrows, nesting on the site is not expected under current conditions. However, individuals may occur occasionally and in small numbers as foragers. In addition, should California ground squirrels colonize the site in the future (e.g., by moving onto the site from adjacent properties), burrows would provide suitable nesting sites for this species, and nesting could potentially occur.
Western bumble bee (*Bombus occidentalis*)	SC	Meadows and grasslands with abundant floral resources.	Absent. Although the species was historically found throughout much of central and northern California, including the project vicinity, it is not expected to occur on the site due to recent range contractions. Determined to be absent.
Central California Coast steelhead (*Oncorhynchus mykiss*)	FT	Cool streams with suitable spawning habitat and conditions allowing migration between spawning and marine habitats.	Present in Adjacent Waters. No aquatic habitats are present on the project site to provide suitable habitat for steelhead, and this species is absent from the project site. However, steelhead are known to occur in the Guadalupe River immediately adjacent to the project site (Smith 2013). This reach of the Guadalupe River functions as a migration corridor for individuals traveling between the San Francisco Bay and spawning and rearing habitat farther upstream.

Name	*Status	Habitat	Potential for Occurrence on the Project Site
California tiger salamander (*Ambystoma californiense*)	FT, ST, VHP	Vernal or temporary pools in annual grasslands or open woodlands.	Absent. Populations located on the Santa Clara Valley floor have been extirpated due to habitat loss, and the species is now considered absent from the majority of the Valley floor, including the project site (H. T. Harvey & Associates 1999a, 2012, Valley Water 2011). No recent records of California tiger salamanders are located anywhere in the project vicinity (CNDDB 2025). Determined to be absent.
California red-legged frog (*Rana draytonii*)	FT, CSSC, VHP	Streams, freshwater pools, and ponds with emergent or overhanging vegetation.	Absent. No aquatic habitat to support this species occurs on the project site. The VHP maps the Guadalupe River adjacent to the site as breeding habitat for California red-legged frogs (ICF International 2012). However, this species has been extirpated from the majority of the project region, including the entire urbanized Santa Clara Valley floor, due to development, the alteration of hydrology of its aquatic habitats, and the introduction of nonnative predators such as nonnative fishes and bullfrogs (H. T. Harvey & Associates 1997, Valley Water 2011). Determined to be absent.
Foothill yellow-legged frog (*Rana boylii*)	FPT, SE, VHP	Partially shaded shallow streams and riffles with a rocky substrate. Occurs in a variety of habitats in coast ranges.	Absent. No aquatic habitat to support this species occurs on the project site. The VHP maps the Guadalupe River adjacent to the site as secondary habitat for foothill yellow-legged frogs (ICF International 2012). However, this species has been extirpated from valley floor areas of Santa Clara County, and is no longer known to occur along the County's streams below major reservoirs, including Calero and Almaden Reservoirs which are located upstream of the project (H. T. Harvey & Associates 1999b). Determined to be absent.

Name	*Status	Habitat	Potential for Occurrence on the Project Site
Northwestern pond turtle (*Actinemys pallida*)	CSSC, VHP, FPT	Permanent or nearly permanent water in a variety of habitats.	May be Present. No suitable aquatic habitat is present on the project site, and breeding populations of northwestern pond turtles have been extirpated from most urbanized areas in the region. However, individuals of this long-lived species still occur in urban streams and ponds in the Santa Clara Valley, including the Guadalupe River immediately adjacent to the project site, where one was observed in 1997 (CNDDB 2025), although none were observed during the 2025 site visit. Potentially suitable nesting habitat for northwestern pond turtles is present in grassland areas on the project site. Although a chain-link fence surrounding the site prevents access by this species along most of the site adjacent to the river, an approximately 10-inch square gap is present that would allow access. Thus, it is possible that an individual could occasionally access the project site, although the likelihood is very low due to the very specific route it would need to navigate through the gap in the fence.

Burrowing owl (*Athene cunicularia*)	CSSC, VHP, SC	Nests and roosts in open grasslands and ruderal habitats with suitable burrows, usually those made by California ground squirrels.	May be Present. No records of burrowing owls are known from the project site (CNDDB 2025, Cornell Lab of Ornithology 2025). Although a CNDDB burrowing owl record overlaps the site slightly at its southeast corner, this record is centered on the adjacent property and is dated 1986–2015, during which time the small area of overlap has been entirely developed as a driveway and sidewalk that does not provide suitable habitat (Google Earth 2025). Thus, for the purpose of this assessment, we do not consider this a record of an owl nesting or roosting on the project site. However, burrowing owls have been known to occur on the undeveloped properties adjacent to the site (CNDDB 2025, Cornell Lab of Ornithology 2025). The closest known record of a burrowing owl to the project site was less than 200 feet to the east, where owls were previously known to nest and occur year-round (CNDDB 2025). The most recent records of wintering owls near the project site are few, consisting of (1) a single owl detected by H. T. Harvey & Associates staff in late February and early March 2025 on an undeveloped property approximately 0.3 mile (1,780 feet) to the east, near the corner of Component Drive and North First Street (the owl was not observed during surveys from late March through mid-April and was determined to be a nonbreeder); and (2) a single owl detected on the undeveloped property to the east by a Santa Clara Valley Habitat Agency biologist on December 4, 2015 (City of San José 2016). The most recent record of a pair of nesting burrowing owls near the project site was detected by H. T. Harvey & Associates staff at the Pacific Gas & Electric substation on Component Drive approximately 1,415 feet to the northeast on June 2, 2015. In addition, owls have been known to nest, roost, and forage south of the project site on the Airport airfield for decades (Albion Environmental, Inc. 1997), but in recent years the population has declined to the point that only one burrowing owl was observed at the Airport in 2023 (U.S. Department of Agriculture 2024). At the time of the February 2025 site visit, the grassland habitat on the project site provided suitable foraging habitat for owls, but did not provide suitable nesting and roosting habitat due to the absence of California ground squirrel burrows. No owls were detected on the project site or surrounding areas within 250 feet during the February 2025 site visit. Due to the distance between the site and the nearest owl nesting locations, the site is not

Name	*Status	Habitat	Potential for Occurrence on the Project Site
			currently considered to provide foraging habitat for any known breeding pairs of this species (Santa Clara Valley Habitat Agency 2025). Thus, if burrowing owls occur on the site at all under current conditions, they are expected to occur as occasional foraging migrants or dispersants, rather than breeders, and they are not expected to occur regularly. However, should California ground squirrels colonize the site in the future (e.g., by moving onto the site from adjacent properties), burrows would provide suitable nesting and roosting sites for this species, and nesting or roosting individuals could potentially occur.
Bald eagle (*Haliaeetus leucocephalus*)	SE, SP	Occurs mainly along seacoasts, rivers, and lakes; nests in tall trees or in cliffs, occasionally on electrical towers. Feeds mostly on fish.	Absent. Nests and forages in the region primarily at inland reservoirs. No suitable nesting or foraging habitat is present on the project site.
Least Bell's vireo (*Vireo bellii pusillus*)	FE, SE, VHP	Nests in heterogeneous riparian habitat, often dominated by cottonwoods and willows.	Absent. This species has not been recorded nesting along the Guadalupe River, which does not provide high-quality nesting habitat, or anywhere in the project vicinity. The only breeding records in Santa Clara County are from Llagas Creek southeast of Gilroy in 1997 and the Pajaro River south of Gilroy in 1932 (Rottenborn 2007a). Otherwise, records in the County of potential least Bell's vireos include 1–2 singing males along lower Llagas Creek in May 2001 (CNDDB 2025), a singing male in June 2006 along Coyote Creek near the Coyote Creek Golf Club (H. T. Harvey & Associates 2007; not seen, so subspecies not confirmed), and a singing male on May 23, 2016 in Alviso (Jeffers, pers. comm.). The VHP does not map suitable habitat for this species as occurring within or adjacent to the project site (ICF International 2012). Although the abundance and distribution of this species may increase as core populations increase, it is unlikely to be more than a rare and very locally occurring breeder along southern Santa Clara County streams (south of the project site). Determined to be absent.

Name	*Status	Habitat	Potential for Occurrence on the Project Site
Tricolored blackbird (*Agelaius tricolor*)	ST, VHP	Nests near fresh water in dense emergent vegetation.	Absent as Breeder. In Santa Clara County, has bred in only a few scattered locations, and is absent from, or occurs only as a nonbreeder in, most of the County (Rottenborn 2007b). Typically nests in extensive stands of tall emergent herbaceous vegetation in non-tidal freshwater marshes and ponds. No suitable nesting habitat is present on the project site or along the Guadalupe River adjacent to the project site; this species (whose colonies are loud and conspicuous) has never been recorded nesting within or adjacent to the project site, and high levels of adjacent disturbance likely preclude nesting by this species. Thus, this species is expected to occur only in low numbers, and only occasionally, as a nonbreeding forager.
San Joaquin kit fox (*Vulpes macrotis mutica*)	FE, ST, VHP	Annual grassland or mixed shrub and grassland habitats throughout low, rolling hills and in valleys.	Absent. This species has not been recorded in the site vicinity, and is not expected to occur on the project site. The closest area of potential occurrence (based on VHP mapping) is approximately 35.7 miles southeast of the project site in the vicinity of Pacheco Creek and the uppermost reaches of the Pajaro River, where it may occur infrequently and in low numbers during dispersal (ICF International 2012). Determined to be absent.
Mountain lion (*Puma concolor*) Southern California/Central Coast ESU	SC	Has a large home range size and occurs in a variety of habitats. Natal dens are typically located in remote, rugged terrain far from human activity. May occasionally occur in areas near human development, especially during dispersal.	Absent. In the project region, mountain lions occur primarily in the Santa Cruz Mountains and the Diablo Range. This species is not expected to occur on the project site owing to high levels of human activity and the project's location in urbanized San José. Determined to be absent.

California Species of Special Concern			
Central Valley fall-run Chinook salmon (*Oncorhynchus tshawytscha*)	CSSC	Cool rivers and large streams that reach the ocean and that have shallow, partly shaded pools, riffles, and runs.	Present in Adjacent Waters. No aquatic habitats are present on the project site to provide suitable habitat for Chinook salmon, and this species is absent from the project site. This species may not have spawned historically in South Bay streams; however, small numbers have been detected in the Guadalupe River (Leidy 2007). The reach of the Guadalupe River adjacent to the project site typically functions as a migration corridor for individuals traveling between the San Francisco Bay and higher-quality spawning habitat farther upstream. However, Chinook salmon may attempt spawning in this reach if they are unable to access higher-quality habitat upstream due to seasonally low flows.
Pacific lamprey (*Entosphenus tridentatus*)	CSSC	Medium- and large-sized, low-gradient cold rivers and streams, with a wide range of habitats (e.g., gravel, low-gradient riffles).	Present in Adjacent Waters. No aquatic habitats are present on the project site to provide suitable habitat for Pacific lamprey, and this species is absent from the project site. This species is known to be present in the Guadalupe River adjacent to the project site (Leidy 2007). Spawning is expected to occur primarily in cooler water; ammocoetes may also be present in waters (buried in muddy banks) adjacent to the project site.
Central California roach (*Lavinia symmetricus symmetricus*)	CSSC	Generally found in small streams, they are well adapted to intermittent watercourses (e.g., tolerant of high temperatures and low oxygen levels).	Present in Adjacent Waters. No aquatic habitats are present on the project site to provide suitable habitat for Central California roach, and this species is absent from the project site. This species is known to be present in the Guadalupe River (Leidy 2007). It occurs widely, often in unshaded pools with warm temperatures, and is expected to occur within the Guadalupe River adjacent to the project site.
Sacramento hitch (*Lavinia exilicauda exilicauda*)	CSSC	Warm, lowland, waters including clear streams, turbid sloughs, lakes, and reservoirs. Has a high tolerance for varying stream conditions and water temperature.	Present in Adjacent Waters. No aquatic habitats are present on the project site to provide suitable habitat for Sacramento hitch, and this species is absent from the project site. This species is known to be present in the Guadalupe River (Leidy 2007). It has a high tolerance of stream conditions and water temperatures it is expected to occur adjacent to the project site.

Riffle sculpin (Cottus gulosus)	CSSC	Permanent, cool, headwater streams with an abundance of riffles and rocky substrates.	Likely Absent from Adjacent Waters. Riffle sculpin are widespread and locally abundant in the region, typically within cooler reaches near stream headwaters, and have historically been detected in the Guadalupe River (Leidy 2007). Warmer conditions along the reach of the Guadalupe River adjacent to the site likely preclude the presence of this species.
Loggerhead shrike (*Lanius ludovicianus*)	CSSC (nesting)	Nests in tall shrubs and dense trees; forages in grasslands, marshes, and ruderal habitats.	Absent. Nests (or at least formerly nested) in a number of locations around the South Bay where open grassland, ruderal, or agricultural habitat with scattered brush, chaparral, or trees provides perches and nesting sites (Bousman 2007), though populations have declined in recent years as suitable habitat has been increasingly developed. Potentially suitable nesting habitat for loggerhead shrikes is present in dense shrubs and trees on the project site. However, this species has disappeared from much of the urban valley floor, and the habitat on the site is not sufficiently extensive to support a nesting pair. Determined to be absent.
Yellow warbler (*Setophaga petechia*)	CSSC (nesting)	Nests in riparian woodlands.	May be Present in Adjacent Areas. No suitable nesting habitat for yellow warblers is present on the project site. However, suitable riparian nesting habitat for this species is present adjacent to the site along the Guadalupe River. Yellow warblers forage along the Guadalupe River in large numbers during migration, and up to one or two pairs of yellow warblers can potentially nest adjacent to the project site.
San Francisco common yellowthroat (*Geothlypis trichas sinuosa*)	CSSC	Nests in herbaceous vegetation, usually in wetlands or moist floodplains.	May be Present in Adjacent Areas. No suitable nesting habitat for common yellowthroats is present on the project site. Suitable nesting and foraging habitat for common yellowthroats is present in the herbaceous vegetation and floodplain riparian habitat along the Guadalupe River adjacent to the site, and one to two pairs of this species may nest and forage within this habitat.
Grasshopper sparrow (*Ammodramus savannarum*)	CSSC (nesting)	Nests and forages in grasslands, meadows, fallow fields, and pastures.	Absent as Breeder. Known to occur in the region primarily in grasslands and less frequently disturbed agricultural habitats, mostly in the foothills. This species does not breed on grassland on the Santa Clara Valley floor. Small numbers of individuals may forage in grasslands in the project site during migration.

Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*)	CSSC	Nests in pickleweed dominant salt marsh and adjacent ruderal habitat.	Absent as Breeder. In the South San Francisco Bay, nests primarily in short pickleweed-dominated portions of diked/muted tidal salt marsh habitat and in adjacent ruderal habitats (Rottenborn 2007c). No suitable nesting habitat occurs on the project site. Individuals of several savannah sparrow subspecies, including *alaudinus*, may forage on the project site during migration and winter.
Pallid bat (*Antrozous pallidus*)	CSSC	Forages over many habitats; roosts in caves, rock outcrops, buildings, and hollow trees.	Absent as Breeder. Historically, pallid bats were likely present in a number of locations throughout the project region, but their populations have declined in recent decades. This species has been extirpated as a breeder from urban areas close to the Bay, as is the case in the project site. No suitable roosting habitat is present on the project site, and no known maternity colonies of this species are present within or adjacent to the project site. There is a low probability that the species occurs in the site vicinity at all due to urbanization; however, individuals from more remote colonies could potentially forage on the project site on rare occasions.
Townsend's big-eared bat (*Corynorhinus townsendii*)	CSSC	Roosts in caves and mine tunnels, and occasionally in deep crevices in trees such as redwoods or in abandoned buildings, in a variety of habitats.	Absent. No known extant populations of the Townsend's big-eared bat occur on the Santa Clara Valley floor. Suitable breeding habitat is not present on the project site, and no colonies are known from the site vicinity. Determined to be absent.
San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*)	CSSC	Nests in a variety of habitats including riparian areas, oak woodlands, and scrub.	Absent. No suitable habitat for this species is present on the project site, and no woodrat nests were observe during the February 2025 site visit. Suitable habitat for this species is present along the Guadalupe River adjacent to the project site. However, with the exception of records along Coyote Creek and along the edges of the Valley, San Francisco dusky-footed woodrats are not known to occur in the more urbanized portions of Santa Clara County (H. T. Harvey & Associates 2010). Determined to be absent.
American badger (*Taxidea taxus*)	CSSC	Burrows in grasslands and occasionally in infrequently disked agricultural areas.	Absent. Known to occur in the project region primarily in extensive grasslands and agricultural habitats, mostly in the foothills. Suitably extensive grasslands or agricultural habitats are not present on or near the project site, and the grasslands on the project site are isolated from more extensive grasslands in the foothills to the east and the mountains to the northwest by high-density urban development. Determined to be absent.

State Fully Protected Species			
Golden eagle (*Aquila chrysaetos*)	SP	Breeds on cliffs or in large trees (rarely on electrical towers); forages in open areas.	Absent as Breeder. No suitable nesting habitat for golden eagles is present on the project site. Nevertheless, this species may occur on the project site as an occasional forager.
White-tailed kite (*Elanus leucurus*)	SP	Nests in tall shrubs and trees; forages in grasslands, marshes, and ruderal habitats.	May be Present. Potentially suitable nesting habitat for this species is present in trees on and adjacent to the project site, and suitable foraging habitat is present in grasslands on the project site. Up to one pair of white-tailed kites may nest on or adjacent to the site, and occasional individuals may forage on the site year-round.

Key to Abbreviations:

Status: Federally Endangered (FE); Federally Threatened (FT); Federal Candidate for Listing (FC); Federally Proposed as Threatened (FPT); State Endangered (SE); State Threatened (ST); State Candidate (SC); State Fully Protected (SP); California Species of Special Concern (CSSC); Santa Clara Valley Habitat Plan Covered Species (VHP).

5.3 Sensitive Natural Communities, Vegetation Alliances, and Habitats

Natural communities have been considered part of the Natural Heritage Conservation triad, along with plants and animals of conservation significance, since the state inception of the Natural Heritage Program in 1979. The CDFW determines the level of rarity and imperilment of vegetation types, and tracks sensitive communities in its Rarefind database (CNDDB 2025). Global rankings (G) of natural communities reflect the overall condition (rarity and endangerment) of a habitat throughout its range, whereas state (S) rankings are a reflection of the condition of a habitat within California. Natural communities are defined using NatureServe's standard heritage program methodology as follows (Faber-Langendoen et al. 2012):

G1/S1: Critically imperiled

G2/S2: Imperiled

G3/S3: Vulnerable.

G4/S4: Apparently secure

G5/S4: Secure

In addition to tracking sensitive natural communities, the CDFW also ranks vegetation alliances, defined by repeating patterns of plants across a landscape that reflect climate, soil, water, disturbance, and other environmental factors (Sawyer et al. 2009). If an alliance is marked G1-G3, all of the vegetation associations within it will also be of high priority (CDFW 2025). The CDFW provides VegCAMP's currently accepted list of vegetation alliances and associations (CDFW 2025).

Impacts on CDFW sensitive natural communities, vegetation alliances/associations, or any such community identified in local or regional plans, policies, and regulations, must be considered and evaluated under CEQA (Title 14, Division 6, Chapter 3, Appendix G of the California Code of Regulations). Furthermore, aquatic, wetland and riparian habitats are also protected under applicable federal, state, or local regulations, and are generally subject to regulation, protection, or consideration by the USACE, RWQCB, CDFW, and/or the USFWS.

5.3.1 Sensitive Natural Communities

A query of sensitive habitats in the CNDDB (2025) identified two sensitive natural communities as occurring within the nine 7.5-minute USGS quadrangles containing or surrounding the project site: (1) sycamore alluvial woodland (Rank G1/S1.1) and (2) northern coastal salt marsh (Rank G3/S3.2). No riparian habitat occurs on the project site. Additionally, neighboring mixed riparian woodland and forest habitat occurring along the Guadalupe River adjacent to the project site does not meet the definition of sycamore alluvial woodland, which is dominated by western sycamore (*Platanus racemosa*), and occurs within braided, depositional channels of intermittent streams, usually with cobble or boulder substrate (Holland 1986). Similarly, no marsh habitat occurs on the project site. Coastal and valley freshwater marsh is present along the Guadalupe River; however, it is not considered northern coastal salt marsh because it is not dominated by pickleweed (*Salicornia* spp.) (Holland 1986).

5.3.2 Sensitive Vegetation Alliances

The undeveloped portions of the project site are dominated by wild oats and *Bromus* sp. and would be considered "Wild oats and annual brome grasslands (*Avena* spp. – *Bromus* spp.)" alliance (CDFW 2025). This alliance does not have a global or state ranking, but because it is defined by dominance of nonnative species, is not considered sensitive by VegCAMP. No sensitive alliances occur on the project site.

5.3.3 CDFW Riparian Habitat

Due to its rarity and disproportionately high habitat values and functions to wildlife, the CDFW considers riparian habitat to be sensitive. As described above in Section 3.2.4, the CDFW would likely claim jurisdiction over areas at, and below, the tops of bank on either side of Guadalupe River regardless of the vegetative composition of these areas. Riparian habitat associated with the Guadalupe River corridor does not occur on the project site, nor would it be directly or indirectly impacted by project activities.

5.3.4 Sensitive Habitats (Waters of the U.S./State)

No waters or wetlands of the U.S./state occur on the project site.

5.3.5 Nonnative and Invasive Species

Several nonnative, invasive plant species occur on the project site (Appendix A). Of these, the following have a rating of "limited" invasiveness (considered invasive but their ecological impacts are minor on a statewide level and their reproductive biology and other attributes result in low to moderate rates of invasiveness) according to the Cal-IPC (2025): bristly ox-tongue, milk thistle (*Silybum marianum*), wild radish, variable burclover (*Medicago polymorpha*), and smilo grass (*Stipa miliacea*). The following species have a "moderate" rating, indicating that they have substantial and apparent-but generally not severe-ecological impacts on physical processes, plant and animal communities, and vegetation structure, and that their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment would be generally dependent upon ecological disturbance: silverleaf cotoneaster, wild oats, ripgut brome, Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), Italian thistle (*Carduus pycnocephalus* ssp. *pycnosephalus*), stinkwort (*Dittrichia graveolens*), black mustard, and dissected geranium. Species with a "high" invasive rating by the Cal-IPC have the potential to cause severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment, and most are widely distributed ecologically (Cal-IPC 2022). On the project site, the following species with a "high" rating were observed: English ivy (*Hedera helix*) and Himalayan blackberry. Due to their ubiquity in the region, and the fact that proposed project activities are expected to clear and develop all areas where populations of invasive species are located, project activities are not expected to result in the spread of nonnative and invasive plant species.

Section 6. Impacts and Mitigation Measures

CEQA and the State CEQA Guidelines provide guidance in evaluating impacts of projects on biological resources and determining which impacts will be significant. The Act defines "significant effect on the environment" as "a substantial adverse change in the physical conditions which exist in the area affected by the proposed project."

Appendix G of State CEQA Guidelines provides a checklist of other potential impacts to consider when analyzing the significance of project effects. The impacts listed in Appendix G (Chapter IV) may or may not be significant, depending on the level of the impact. For biological resources, these impacts include whether the project would:

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

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

C. "Have a substantial adverse effect on 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"

Potential impacts on biological resources as a result of the proposed project were systematically evaluated at the project level based on the project description and plans provided to us by David J. Powers & Associates through May 2025. Based on this information, it is our understanding that all project impacts including grading, construction, staging, and access will occur within the limits of boundaries provided, and that all project impacts will be permanent. Accordingly, we have used these boundaries to delineate the DC North and DC West Permanent Impact Areas on Figure 7. We further understand that no direct project impacts will occur within the portions of the project site located outside of these boundaries.

Impacts on biological resources were first evaluated to qualitatively describe how proposed project activities could impact biological resources. Impacts were then evaluated with the application of any applicable VHP conditions (see below) with which the proposed project must comply to determine whether the impacts were significant (and thus required mitigation) even with VHP compliance.

6.1 Santa Clara Valley Habitat Plan

The proposed project is classified as an "Urban Development" project, which is a "covered project" under the VHP (ICF International 2012). Urban Development projects include private development projects within the planning limits of urban growth in San José. The Santa Clara Valley Habitat Agency (SCVHA) leads the implementation of the VHP, which is a regional partnership between the CDFW, the USFWS, and six local partners, including Valley Water, the County of Santa Clara, the Santa Clara Valley Transportation Authority, and the Cities of San José, Gilroy, and Morgan Hill. The VHP was adopted in 2013 by all local participating agencies, and permits were issued from the USFWS and CDFW. The VHP is both a habitat conservation plan and natural community conservation plan, or HCP/NCCP. The planning document helps private and public entities plan and conduct projects and activities in ways that lessen impacts on natural resources, including specific threatened and endangered species. The VHP identifies regional lands (called reserves) to be preserved or restored to the benefit of at-risk species, and describes how reserves will be managed and monitored to ensure that they benefit those species. In providing a long-term, coordinated planning for habitat restoration and conservation, the VHP aims to enhance the viability of threatened and endangered species throughout the Santa Clara Valley.

The VHP defines measures to avoid, minimize, and mitigate impacts on covered species and their habitats while allowing for the implementation of certain *covered projects*. Chapter 6 of the VHP includes detailed and comprehensive conditions to avoid and minimize impacts on the 18 "covered species" (nine animal species and nine plant species) included in the plan area, which consists of 519,506 acres, or approximately 62% of Santa Clara County. These conditions are designed to achieve the following objectives:

- provide avoidance of certain covered species during implementation of covered activities throughout the project site;
- prevent take of individuals of certain covered species from covered activities as prohibited by law (e.g., take of fully protected species);
- minimize impacts on natural communities and covered species where conservation actions will take place; and
- avoid and minimize impacts on jurisdictional wetlands and waters throughout the study area to facilitate project-by-project wetland permitting.

In conformance with the VHP, project proponents are required to pay impact fees in accordance with the types and acreage of habitat or "land cover" impacted, and to implement conservation measures specified by the

VHP. Land cover impacts are used because it is the best predictor of potential species habitat, and is applicable to all of the covered species (with the exception of the burrowing owl). The SCVHA has mapped the following three fee zones in the VHP area: (1) ranchland and natural lands, (2), agricultural and valley floor lands, and (3) small vacant sites (SCVHA 2025). The following areas are exempt from land cover fees:

- all development that occurs on land mapped by the VHP as urban-suburban, landfill, reservoir (excluding dams), or agriculture developed land cover types;
- urban development in Fee Zones A–C on parcels less than 0.5 acre;
- additions to structures within 50 feet of an existing structure that result in less than 5,000 feet of impervious surface so long as there is no effect on wetland or serpentine land cover types; and
- construction of recreational facilities within the reserve system.

Additional fees in-lieu of providing compensatory mitigation are imposed for projects that impact serpentine habitat, wetlands, and burrowing owls, and for certain projects that result in atmospheric nitrogen emissions, although in some cases, project proponents may provide land to restore or create habitats protected by the VHP in lieu of payment of fees.

The project is located within the VHP Urban Service Area for the City of San José (Figure 6). In regards to the VHP's land cover fee zones, the project site falls entirely within Urban Areas (No Land Cover Fee) (Figure 6). The project site also does not include lands mapped as occupied burrowing owl nesting habitat, and no burrowing owl fee applies (this is discussed in greater detail under Section 6.2.6 below). The project will also engender an anticipated 378 operational vehicle trips per month by personnel visiting the facilities and may therefore be required to pay fees for nitrogen emissions.

The impact assessment in Section 6.2 below summarizes the types of applicable fees and conservation measures that are required by the VHP. VHP conditions that apply to the proposed project are as follows:

Condition 1. Avoid Direct Impacts on Legally Protected Plant and Wildlife Species

Several wildlife species that occur in the project vicinity are protected under state and federal laws. Some of these animal species are listed as fully protected under the California Fish and Game Code (e.g., the white-tailed kite), and eagles are protected under the Bald and Golden Eagle Protection Act. Further, all native bird species and their nests are protected under the MBTA and California Fish and Game Code. Actions conducted under the VHP must comply with the provisions of the MBTA and California Fish and Game Code.

Condition 3. Maintain Hydrologic Conditions and Protect Water Quality

Condition 3 applies to all projects and identifies a set of programmatic BMPs, performance standards, and control measures to minimize increases of peak discharge of storm water and to reduce runoff of pollutants to protect water quality, including during project construction. These requirements include preconstruction,

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Figure 6. VHP Urban Service Area, Development Areas, and Fee Zones
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construction site, and post-construction actions. Preconstruction conditions are site design planning approaches that protect water quality by preventing and reducing the adverse impacts of stormwater pollutants and increases in peak runoff rate and volume. They include hydrologic source control measures that focus on the protection of natural resources. Construction site conditions include source and treatment control measure to prevent pollutants from leaving the construction site and minimizing site erosion and local stream sedimentation during construction. Post-construction conditions include measures for stormwater treatment and flow control.

Condition 11. Stream and Riparian Setbacks

Condition 11 applies to covered projects that may affect streams and associated riparian vegetation within the VHP plan area. This condition requires new covered projects to adhere to setbacks from creeks and streams and associated riparian vegetation to minimize and avoid impacts on aquatic and riparian land cover types, covered species, and wildlife corridors. The standard required setback for the reach of Guadalupe River (a Category 1 stream) on the project site is 100 feet from the top of bank because the slope of the project site is less than 30%, no areas 35 feet from the edge of riparian vegetation extend past the 100-foot buffer, and the project site is located inside of VHP-designated urban service areas. However, some exemptions may be applicable depending on the nature of the channel. Further, as described in Section 3.3.2, City Council Policy 6-34 provides guidance on the implementation of riparian corridor protection consistent with all City policies and requirements that may provide for riparian protection, including those contained in the Council-adopted VHP, and calls for a setback of 100 feet from the edge of riparian canopy rather than from top of bank (or 35 feet from edge of canopy) in accordance with VHP Condition 11. Because the riparian canopy does not extend beyond the top of bank of the Guadalupe River adjacent to the project site, the City and VHP riparian setbacks are the same (Figure 7).

The 100-foot setback along the Guadalupe River overlaps a portion of the project property, but does not overlap the project site (i.e., areas where project improvements will occur). Therefore, the project complies with Condition 11.

Condition 15. Western Burrowing Owl / Burrowing Owl Mitigation Agreement

Condition 15 requires the implementation of measures to avoid and minimize direct impacts on burrowing owls, including pre-construction surveys, establishment of 250-foot non-disturbance buffers around active nests during the breeding season (February 1 through August 31), establishment of 250-foot non-disturbance buffers around occupied burrows during the nonbreeding season, and construction monitoring. Pre-construction surveys for burrowing owls are required by the VHP in areas mapped as breeding habitat. As mentioned above, additional fees in-lieu of providing compensatory mitigation are imposed for VHP covered projects that impact burrowing owls.

Agilent Technologies, Inc., a former owner of the project property, entered into a mitigation agreement with the CDFW (Ref. No. 1802-2000-073-03) in 2001 that provided for the purchase of off-site burrowing owl

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Figure 7. Project Impacts
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habitat in other, less developed and protected areas in the region to offset the loss of habitat on the property (inclusive of all areas of the project site). A copy of the mitigation agreement is provided in Appendix C, and the area covered by the mitigation agreement is shown on Figure 7. Although burrowing owls have not been recorded with certainty on the project site, the larger area covered by Agilent's mitigation agreement was formerly occupied by two pairs of nesting burrowing owls and one resident adult burrowing owl. Portions of this larger area have since been developed, and portions remain undeveloped. The purpose of the mitigation agreement was to offset the loss of burrowing owl habitat and provide for survival of the species in other areas. Agilent Technologies, Inc. provided mitigation at a ratio of 6.5 acres of burrowing owl habitat for each pair and single burrowing owl displaced from the area in conformance with CDFW (then the California Department of Fish and Game) mitigation requirements at that time, for a total of 19.5 acres.

Provisions within Chapters 6 and 9 of the VHP exempt a project proponent from its conditions and/or fees provided the proponent provides to the Implementing Agency (here, the City of San José) written confirmation from the CDFW and USFWS, as applicable, that specifically refers to the activity and states that such activity is not likely to result in take of any state or federally listed species, and will not preclude the successful implementation of the conservation strategy of all covered species (ICF International 2012). In a letter dated November 15, 2012 to the City of San José, the CDFW confirmed that the terms of the mitigation agreement have been fulfilled and, per the terms of the agreement, that CDFW requires no additional mitigation for impacts on burrowing owls on the project site. According to the CDFW, "any determination by the City regarding the property that was formerly the Agilent project area will not affect the City's ability to successfully implement the conservation strategy for the western burrowing owl described in the VHP and will not change the strategy." A copy of the letter is provided in Appendix C. The project proponent is not required to provide a letter from the USFWS, as the burrowing owl is not a federally listed species.

Exhibit A: Corrections, Clarifications, and Updates to the Santa Clara Valley Habitat Plan (HCP/NCCP), dated April 4, 2013, Section 1.2 Errata, 1.2.3, states that the implementation of the VHP will not add or remove any of the rights and obligations to any development agreement between the Implementing Agency (here, the City of San José) and a private applicant. The provision applies to any mitigation agreement that was entered into and adopted prior to the operative date of the VHP and remains consistent with the City of San José's land use approvals for the project. The valid Mitigation Agreement for the property was adopted in 2004, prior to the 2013 operative date of the VHP. For this reason, the 2012 VHP did not map the project site within a Burrowing Owl Fee Zone (ICF International 2012). Both the mitigation agreement and the letter from CDFW provide sufficient documentation to the City of San José that the proposed development of the project site, in conformance with the mitigation agreement, will not preclude the successful implementation of the conservation strategy for the burrowing owl. Therefore, the project is not subject to the fees or requirements of Condition 15. Nevertheless, should it be determined that the project would impact occupied burrowing owl nesting habitat (i.e., suitable grassland habitat within 0.5 mile of a nest burrow that has been active in the prior three years), the project will pay VHP burrowing owl specialty fees, consistent with the SCVHA's Voluntary Fee Payments Policy, as mitigation to offset cumulative impacts under CEQA (this is discussed in greater detail in Section 6.6 *Impacts on the Burrowing Owl* below).

The mitigation agreement states that the take of individual owls is prohibited per the California Fish and Game Code (Section 3503.3), and that no burrowing owls would be evicted from burrows during the nesting season (defined as February 1 to August 31). The eviction of burrowing owls outside the nesting season may be permitted as a means to avoid take, pending evaluation of eviction plans and receipt of formal written approval from the CDFW authorizing the eviction. The project shall adhere to these requirements to avoid and minimize impacts on burrowing owls during project construction. Because the burrowing owl is now a candidate for listing under CESA, an Incidental Take Permit from the CDFW would be needed to authorize the eviction of owls from burrows.

Condition 17. Tricolored Blackbird

This condition applies to projects that are located within 250 feet of any riparian, coastal, and valley freshwater marsh and helps to protect tricolored blackbirds by prescribing preconstruction surveys, construction buffer zones, biological monitoring, and other requirements. If a project is located within 250 feet of habitat mapped as pond by the VHP, a qualified biologist must confirm that the pond land cover type is present. If a qualified biologist verifies that the project area is within 250 feet of pond habitat, a qualified biologist must conduct a field investigation to identify and map potential nesting substrate. If suitable nesting substrate is identified, avoidance and minimization measures must be implemented (see pages 4-43 to 4-44 of the VHP).

Although tricolored blackbirds have never been recorded nesting on or near the project site, the proposed project is located within 250 feet of an area (i.e., the Guadalupe River) mapped by the VHP as suitable nesting habitat for the tricolored blackbird (ICF International 2012). Therefore, per Condition 17 of the VHP, H. T. Harvey & Associates wildlife ecologist S. Carpenter, B.S., conducted a field investigation to identify and map potential nesting substrate for tricolored blackbirds on February 27, 2025. No suitable vegetation for nesting by tricolored blackbirds was present along the Guadalupe River within 250 feet of the project site due to predominance by woody riparian vegetation and shorter ruderal vegetation, and the absence of large stands of emergent vegetation or other tall, dense herbaceous vegetation. Thus, no tricolored blackbird nesting colonies are expected to occur on or within 250 feet of the site, and no additional surveys or avoidance and minimization measures pertaining to this species are required.

6.2 Impacts on Special-Status Species: 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 CDFW or USFWS (Less than Significant with Mitigation)

6.2.1 Impacts on California Annual Grassland and Associated Common Plant and Wildlife Species (Less than Significant)

Proposed project activities would result in 10.3 acres of permanent impacts on California annual grassland habitat on the project site. These impacts would reduce the extent of vegetation within the impact area and result in a reduction in abundance of some of the common plant and wildlife species that occur on the site. However, the area of California annual grassland to be impacted occurs in a location in San José that has been subject to disturbance and fragmentation in the past and is embedded within a highly developed urban area, such that this area does not provide regionally rare or especially high-value habitat for native vegetation or wildlife, or special-status species aside from the burrowing owl (discussed in Section 6.2.6 below). In addition, California annual grassland is abundant and widespread regionally and is not particularly sensitive, and the habitat on the project site is not especially valuable (from the perspective of providing important plant or wildlife habitat [again, aside from habitat for the burrowing owl discussed in Section 6.2.6]) or an exemplary occurrence of this habitat type. Therefore, impacts on this habitat are considered less than significant. Further, because the number of individuals of any common plant or animal species within this habitat, and the proportion of these species' regional populations that could be disturbed, is very small, the project's impacts would not substantially reduce regional populations of these species. Thus, these impacts do not meet the CEQA standard of having a *substantial* adverse effect, and would not be considered significant under CEQA.

6.2.2 Impacts on Water Quality and Special-Status Fish (No Impact)

No direct impacts are proposed within the bed and banks of the Guadalupe River, which flows adjacent to the project site, and no indirect impacts on the Guadalupe River, water quality within the channel, or fish species inhabiting the river are expected to occur as a result of project activities.

The project site is separated from the river by an approximately 8-foot tall levee, and any fuel leaks or spills on the project site would be well contained by that levee. No construction activities are proposed on the levee or within 100 feet of the top of bank (Figure 7), and no outfalls from the site to the Guadalupe River are proposed as part of the project. Thus, the project will have no impact on water quality within the Guadalupe River or special-status fish species within the river channel.

Additionally, the project shall comply with all VHP conditions, including Condition 3, which requires implementation of design phase, construction phase, and post-construction phase measures, including programmatic BMPs, performance standards, and control measures, to minimize increases of peak discharge of storm water and to reduce runoff of pollutants to protect water quality, including during construction. Construction projects in California causing land disturbances that are equal to 1 acre or greater must comply with state requirements to control the discharge of storm water pollutants under the NPDES *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit; Water Board Order No. 2009-0009-DWQ, as amended and administratively extended). Prior to the start of construction/demolition, a Notice of Intent must be filed with the SWRCB describing the project. A Storm Water Pollution Prevention Plan must be developed and maintained during the project and it must include the use of BMPs to protect water quality until the site is stabilized. Standard permit conditions under the Construction General Permit require that the applicant utilize various measures including: on-site sediment control BMPs, damp street sweeping, temporary cover of disturbed land surfaces to control erosion during construction, and utilization of stabilized construction entrances and/or wash racks, among other factors.

In many Bay Area counties, including Santa Clara County, projects must also comply with the California Regional Water Quality Control Board, San Francisco Bay Region, Municipal Regional Stormwater National Pollutant Discharge Elimination System Permit (Water Board Order No. R2-2015-0049). This permit requires that all projects implement BMPs and incorporate Low Impact Development practices into the design to prevent stormwater runoff pollution, promote infiltration, and hold/slow down the volume of water coming from a site after construction has been completed. In order to meet these permit and policy requirements, projects must incorporate the use of green roofs, impervious surfaces, tree planters, grassy swales, bioretention and/or detention basins, among other factors.

6.2.3 Impacts on Nonbreeding Special-Status Birds, and Mammals (Less than Significant)

Several special-status invertebrate, bird, and mammal species may occur on the project site as nonbreeding migrants, transients, or foragers, but they are not known or expected to breed or occur in large numbers within or near the project impact area. These are the tricolored blackbird, Bryant's savannah sparrow, grasshopper sparrow, golden eagle, and pallid bat.

The tricolored blackbird (a state threatened species and covered under the VHP) is not expected to occur within or close to the project site as a breeder due to the absence of suitable habitat, but individuals may occur occasionally as foragers during the nonbreeding season. The Bryant's savannah sparrow (a California species of special concern) breeds in marshes along the San Francisco Bay to the north, and individuals may forage in California annual grassland on the project site during the nonbreeding season. Similarly, the grasshopper sparrow (a California species of special concern) breeds in expansive grassland habitats in the foothills, and individuals may occasionally forage in grasslands in the project site during migration. The golden eagle (state fully protected species) is not expected to breed in the project site due to a lack of suitable nesting habitat, though individuals of these species may occasionally forage in the project site in small numbers. The pallid bat (a California species of special concern) may occur on the project site as an occasional forager, but is not expected to breed on the project site due to a lack of suitable habitat, and there are no known maternity colonies in the project site. Nevertheless, individuals from more remote colonies could potentially forage over open grasslands in the project site on rare occasions.

Activities under the proposed project would have some potential to impact foraging habitats and/or disturb individuals of these species. Construction activities might result in a temporary direct impact through the alteration of foraging patterns (e.g., avoidance of work sites because of increased noise and activity levels during maintenance activities) but would not result in the loss of individuals, as individuals of these species would fly away from any construction areas or equipment before they could be injured or killed. Further, the project site does not provide important foraging habitat used regularly or by large numbers of individuals of any of these species. As a result, impacts of the project will have little impact on these species' foraging habitat and no substantive impact on regional populations of these species. Therefore, this impact would be less than significant.

6.2.4 Impacts on the Monarch Butterfly (Less than Significant)

Project activities will temporarily and/or permanently impact 10.3 acres of California annual grassland, as well as some limited landscape areas, that may be occupied by monarch butterflies. Given the limited size of the project site and the lack of any evidence that it supports high densities of the larval host plant (milkweed), nectar plants, or an overwintering site, few, if any, monarch butterflies are expected to be present on the project site when work occurs. Nevertheless, project activities could result in the loss of larval host plants and adult nectar sources for monarch butterflies, and potentially also the loss of eggs, larvae, or pupae due to crushing by construction personnel or equipment, vegetation removal, excavations, and placement of soil stockpiles.

The proposed project would impact only a very small proportion of the species' regionally available habitat and populations, and the number of individuals likely to be displaced by habitat disturbance and loss would be very small with respect to the amount of suitable habitat available in the local area and the region. Thus, due to the abundance of suitable habitat in the project region and the lack of any evidence that large numbers of monarch butterflies occur on the project site, project activities are not expected to result in a substantial impact on breeding and foraging habitat for monarch butterflies. Therefore, the potential loss of small numbers of individuals as a result of the project, as well as the permanent loss of potential breeding and foraging habitat, would not rise to the CEQA standard of having a *substantial* adverse effect, and these impacts would thus not constitute a significant impact on this species or its habitats under CEQA.

6.2.5 Impacts on the Yellow Warbler, San Francisco Common Yellowthroat, and White-Tailed Kite (Less than Significant)

The yellow warbler and San Francisco common yellowthroat (California species of special concern) could potentially nest immediately adjacent to the project impact areas; the yellow warbler may nest in riparian trees along the Guadalupe River, and the San Francisco common yellowthroat may nest in herbaceous riparian vegetation along the Guadalupe River. The white-tailed kite (a state fully protected species) may nest in trees along the Guadalupe River or in landscape areas adjacent to the project site. These three species are assessed together because the potential impacts of the project on these species would be similar.

Based on site observations, the areal extent of suitable habitats within and adjacent to the project site, and known nesting densities of these species, it is likely that no more than 1–2 pairs of yellow warblers and San Francisco common yellowthroats, and one pair of white-tailed kites, could potentially nest within or immediately adjacent to the project site. The project would not result in the loss of suitable nesting or foraging habitat for the yellow warbler and San Francisco common yellowthroat, as no activities are proposed within the bed and banks of the Guadalupe River. The project would result in the permanent loss of suitable nesting and foraging habitat for the white-tailed kite. In addition, activities that occur during the nesting season and cause a substantial increase in noise or human activity near active nests may result in the abandonment of active nests (i.e., nests with eggs or young). Heavy ground disturbance, noise, and vibrations caused by project activities could potentially disturb nesting and foraging individuals and cause them to move away from work areas.

The project is expected to increase the number of human users of the Guadalupe River trail, potentially subjecting nesting special-status birds within the riparian corridor to increased human disturbance. However, this trail is already heavily used by pedestrians and cyclists, and use of the riparian habitat along the river by homeless already introduces human disturbance within the riparian habitat. The increase in users of the Guadalupe River trail as a result of this project is not expected to contribute substantially to human disturbance of special-status birds that nest within the Guadalupe River corridor.

Given the abundance of these species in the region, project impacts on 1–2 pairs of yellow warblers, San Francisco common yellowthroats, and white-tailed kites would represent a marginal impact on their regional populations. Therefore, neither the potential loss of individual yellow warblers, San Francisco common yellowthroats, or white-tailed kites, nor the disturbance of nesting and foraging habitat, would rise to the CEQA standard of having a *substantial* adverse effect, and these impacts would thus not constitute a significant impact on these species or their habitat under CEQA. All native bird species are protected from direct take by federal and state statutes, and the project shall comply with VHP Condition 1 either by restricting work to the non-nesting season (September 1 through January 31) or by conducting preconstruction surveys prior to project activities and maintaining appropriate buffers around active nests of protected birds.

6.2.6 Impacts on the Burrowing Owl (Less than Significant with Mitigation)

The project may impact burrowing owls as a result of the permanent removal of foraging habitat, as well as disturbance of individuals during construction due to the disturbance of foraging individuals on the site and/or the disturbance of nesting and roosting individuals on adjacent properties.

The February 2025 site visit did not detect burrowing owls or signs of burrowing owl presence on or within 250 feet of the project site. No suitable nesting or roosting habitat for burrowing owls (i.e., burrows of California ground squirrels) is present on the project site; however, suitable nesting and roosting habitat is present on nearby properties to the south and east along Orchard Parkway and Component Drive.

As discussed in Section 5.2 above, no records of burrowing owls are known from the project site, but burrowing owls have historically occupied the larger undeveloped area formed by the project site and adjacent parcels. The closest known record of a burrowing owl to the site was less than 200 feet to the east, where owls were previously (i.e., in 2015) known to nest and occur year-round (CNDDB 2025). The most recent records of wintering owls near the project site are few, consisting of (1) a single owl detected by H. T. Harvey & Associates staff in late February and early March 2025 on an undeveloped property approximately 0.3 mile (1,780 feet) to the east, near the corner of Component Drive and North First Street (the owl was not observed during surveys from late March through mid-April and was thus determined to be a nonbreeder); and (2) a single owl detected on the undeveloped property to the east by a Santa Clara Valley Habitat Agency biologist on December 4, 2015 (City of San José 2016). The most recent record of a pair of nesting burrowing owls near the project site was detected by H. T. Harvey & Associates staff at the Pacific Gas & Electric substation on Component Drive approximately 1,415 feet to the northeast on June 2, 2015. In addition, owls have been known to nest, roost, and forage south of the project site on the Airport airfield for decades (Albion Environmental, Inc. 1997). However, in recent years the number of owls at the airfield has steeply declined, and in 2023 and 2024 only one owl was observed on the airfield (U.S. Department of Agriculture 2024). Based on these available data, there is no evidence that burrowing owls currently nest on any of the undeveloped properties along Orchard Parkway or Component Drive. However, migrant burrowing owls from populations outside the Bay area occur in the region during migration and winter, and occasional such individuals have been observed on these properties (one in 2015 and one in 2025). Therefore, occasional migrant burrowing owls could roost on one of the nearby properties where burrows of California ground squirrels are present, and use the grasslands on the project site for foraging.

Impacts on Individual Burrowing Owls. Individual burrowing owls may be affected during construction activities, if present on or very close to the site. Because burrows of California ground squirrels are currently absent from the site, the direct loss of individuals due to project construction is not expected to occur under current conditions. However, California ground squirrels occur on adjacent properties, and it is possible that ground squirrels may disperse to the site prior to project construction and establish new burrows, which could then be used by burrowing owls. Should burrowing owls be nesting or roosting underground in burrows on the site when construction occurs, there is some possibility that the direct loss of individual burrowing owls could occur due to project construction (e.g., due to trampling or compaction of burrows by construction personnel or equipment). The loss of individual burrowing owls would be considered significant under CEQA due to the low and declining regional population of the species.

Construction activities might also result in a temporary direct impact through the alteration of foraging patterns (e.g., avoidance of work sites because of increased noise and activity levels during maintenance activities). However, such disturbance would not result in the direct loss of individuals, as individuals of this species that are foraging on the site would fly away from any construction areas or equipment before they could be injured or killed. Such an impact would not be considered significant under CEQA.

In addition, construction activities that occur in close proximity to active burrows located on the site or on adjacent properties may disturb owls, potentially to the point of abandoning their burrows. Burrowing owls that are flushed from their burrows, which provide refugia from predators, would be subject to increased risk of mortality due to predation. In addition, should burrowing owls abandon an active nest burrow, the project could result in the incidental loss of eggs or nestlings due to abandonment. The loss of individual burrowing owls that are flushed from their burrows (e.g., due to predation) and the loss of eggs or young in nests due to abandonment would be considered significant under CEQA due to the low and declining regional populations of the species.

The project would adhere to the requirements of the mitigation agreement described under *Condition 15. Western Burrowing Owl and Burrowing Owl Mitigation Agreement* in Section 6.1 above, which will help to reduce project impacts on burrowing owls and their habitat. Applicable measures from the mitigation agreement are as follows:

- No burrowing owls shall be evicted from burrows during the nesting season (February 1 through August 31). Eviction outside the nesting season may be permitted as a means to avoid take, pending evaluation of eviction plans and receipt of formal written approval from the CDFW authorizing the eviction[2].
- A protected area 250 feet in radius, within which no new activity shall be permissible, shall be maintained between project activities and nesting burrowing owls or individual resident burrowing owls. This protected area shall remain in effect between February 1 and August 31, or, at CDFW's discretion and based upon monitoring evidence, until any young owls are foraging independently. In the non-nesting season (September 1 through January 31), a protected area 165 feet in radius, within which no new activity shall be permissible, shall be maintained between project activities and burrows occupied by burrowing owls. Any development within these protected radii shall be approved beforehand in a Memorandum of Understanding or Mitigation agreement with the CDFW. Notwithstanding anything to the contrary in this paragraph, the CDFW has the discretion to contract the nesting season period based on evidence the CDFW deems satisfactory.
- If accidental take occurs, the applicant shall contact the CDFW immediately.

To support compliance with these measures, the project will implement the preconstruction surveys, construction avoidance measures, and construction monitoring measures in Condition 15 of the VHP to protect individual burrowing owls prior to and during construction, as follows (provided verbatim from the VHP):

- **Preconstruction Surveys.** Preconstruction surveys will be required if suitable habitat is identified during the habitat survey and the project does not fully avoid impacts on the suitable habitat. Suitable habitat is considered fully avoided if the project footprint does not impinge on a 250-foot buffer around the suitable burrow.

  Prior to any ground disturbance related to covered activities, a qualified biologist will conduct preconstruction surveys in all suitable habitat areas as identified during habitat surveys. The purpose of the preconstruction survey is to document the presence or absence of burrowing owls on the project site, particularly in areas within 250 feet of construction activity.

  To maximize the likelihood of detecting owls, the preconstruction survey will last a minimum of 3 hours. The survey will begin 1 hour before sunrise and continue until 2 hours after sunrise (for 3 hours total) or begin 2 hours before sunset and continue until 1 hour after sunset. Additional time may be required for large project sites. A minimum of two surveys will be conducted (if owls are detected on the first survey, a second survey is not needed). All owls observed will be counted and their locations will be mapped.

  Surveys will conclude no more than 2 calendar days prior to construction. Therefore, the project proponent must begin surveys no more than 4 days prior to construction (2 days of surveying plus up to 2 days between surveys and construction). To avoid last-minute changes in schedule or contracting that may occur

[2] Because the burrowing owl is now a candidate for listing under CESA, a CDFW Incidental Take Permit is likely to be needed to authorize the eviction of owls from burrows.

if burrowing owls are found, the project proponent may also conduct a preliminary survey up to 14 days before construction. This preliminary survey may count as the first of the two required surveys as long as the second survey concludes no more than 2 calendar days in advance of construction.

- **Avoidance Measures During Construction – Breeding Season.** If evidence of western burrowing owls is found during the breeding season (February 1–August 31), the project proponent will avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young (occupation includes individuals or family groups foraging on or near the site following fledging). Avoidance will include establishment of a 250-foot non-disturbance buffer zone around nests. Construction may occur outside of the 250-foot non-disturbance buffer zone. Construction may occur inside of the 250-foot non-disturbance buffer during the breeding season if:
  - The nest is not disturbed, and
  - The project proponent develops an avoidance, minimization, and monitoring plan that will be reviewed by the Habitat Agency and the Wildlife Agencies prior to project construction based on the following criteria.
    - The Habitat Agency and the Wildlife Agencies approve of the avoidance and minimization plan provided by the project proponent.
    - A qualified biologist monitors the owls for at least 3 days prior to construction to determine baseline nesting and foraging behavior (i.e., behavior without construction).
    - The same qualified biologist monitors the owls during construction and finds no change in owl nesting and foraging behavior in response to construction activities.
    - If there is any change in owl nesting and foraging behavior as a result of construction activities, these activities will cease within the 250-foot buffer. Construction cannot resume within the 250-foot buffer until the adults and juveniles from the occupied burrows have moved out of the project site.
    - If monitoring indicates that the nest is abandoned prior to the end of nesting season and the burrow is no longer in use by owls, the non-disturbance buffer zone may be removed. The biologist will excavate the burrow to prevent reoccupation after receiving approval from the Wildlife Agencies.

  The Habitat Agency and the Wildlife Agencies have 21 calendar days to respond to a request from the project proponent to review the proposed avoidance, minimization, and monitoring plan. If these parties do not respond within 21 calendar days, it will be presumed that they concur with the proposal and work can commence.

- **Avoidance Measures During Construction – Nonbreeding Season.** During the non-breeding season (September 1–January 31), the project proponent will establish a 250-foot non-disturbance buffer around occupied burrows as determined by a qualified biologist. Construction activities outside of this 250-foot buffer are allowed. Construction activities within the non-disturbance buffer are allowed if the following criteria are met in order to prevent owls from abandoning important overwintering sites.

- A qualified biologist monitors the owls for at least 3 days prior to construction to determine baseline foraging behavior (i.e., behavior without construction).
- The same qualified biologist monitors the owls during construction and finds no change in owl foraging behavior in response to construction activities.
- If there is any change in owl foraging behavior as a result of construction activities, these activities will cease within the 250-foot buffer.
- If the owls are gone for at least 1 week, the project proponent may request approval from the Habitat Agency that a qualified biologist excavate usable burrows to prevent owls from reoccupying the site. After all usable burrows are excavated, the buffer zone will be removed and construction may continue.

Monitoring must continue as described above for the non-breeding season as long as the burrow remains active.

- **Construction Monitoring.** Based on the avoidance, minimization, and monitoring plan developed (as required under Step 4), during construction, the non-disturbance buffer zones will be established and maintained as applicable. A qualified biologist will monitor the site consistent with the requirements described above to ensure that buffers are enforced and owls are not disturbed. The biological monitor will also conduct training of construction personnel on avoidance procedures, buffer zones, and protocols in the event that a burrowing owl enters an active construction zone.

Impacts on Burrowing Owl Habitat. Project activities would result in a reduction in available foraging habitat for migrant burrowing owls due to the permanent loss of 10.3 acres of grasslands on the site. However, these grasslands likely receive very limited use by burrowing owls as foraging habitat given that only two individuals have been observed on adjacent properties during relatively intensive surveys over the past 10 years. In addition, burrowing owls are known to occur more widely in the South San Francisco Bay region in winter than they do during the nesting season, using habitats within Coyote Valley and adjacent foothills that are not used for nesting by birds within the South Bay nesting population (ICF International 2012). Given the vast extent of grassland and ruderal habitat within the foothills of the Diablo Range and Santa Cruz Mountains (and to some extent on the valley floor in southern Santa Clara County) that provide suitable migrant and wintering habitat for owls, the loss of 10.3 acres of grassland habitat on the project site, which is likely used only by nonbreeding owls if it is used at all, is not expected to have a substantial impact on populations of burrowing owls that migrate and winter in the South Bay but nest outside the region.

The loss of 10.3 acres of grassland habitat on the site would also result in the loss of suitable foraging habitat that could be used by nesting burrowing owls, should burrowing owls nest within 0.5 mile of the site in the future[3]. As the availability of grassland habitat used for nesting in the South San Francisco Bay area continues to dwindle because of development, the South Bay nesting population of burrowing owls faces extirpation caused by lack of sufficient suitable nesting habitat and nesting-season foraging habitat, isolation from other populations and habitat areas, and demographic effects (such as difficulty in finding mates and inbreeding) resulting from low population sizes. However, there is no evidence that nesting burrowing owls currently occupy suitable habitat within 0.5 mile of the site, as nesting burrowing owls have not been detected in these areas since 2015. Therefore, the probability that the project would result in the removal of occupied burrowing owl nesting habitat (i.e., foraging habitat that supports a nesting pair) is extremely low. Nevertheless, should an owl nest within 0.5 mile of the site within any of the three years immediately prior to project implementation, the loss of nearby grassland habitat on the site could be considered significant under CEQA, because the nesting owls are expected to rely on this habitat to support their nest.

As discussed under *Condition 15. Western Burrowing Owl and Burrowing Owl Mitigation Agreement* in Section 6.1 above and documented in a mitigation agreement with the CDFW (Ref. No. 1802-2000-073-03) (Appendix C), the loss of burrowing owl habitat on the project site has been mitigated previously via the purchase of off-site burrowing owl habitat in other, less developed and protected areas in the region. In a letter dated November 15, 2012, to the City of San José, the CDFW confirmed that the terms of the 1802 burrowing owl agreement have been fulfilled and, per the terms of the agreement, that CDFW requires no additional mitigation for impacts on burrowing owls on the property (inclusive of the project site). However, should an owl nest within 0.5 mile of the site within any of the three years immediately prior to project implementation, the loss of grassland habitat on the site located within 0.5 mile of the nest could be considered biologically significant to owls in the South Bay region.

Feasible mitigation for the loss of occupied burrowing owl nesting habitat on the site that will directly benefit the South Bay burrowing owl population has been made available since the mitigation agreement was finalized due to the adoption of the VHP, to which the City of San José is signatory. The VHP's vast conservation program conserves numerous habitats, including grasslands and other habitats, which provide roosting and foraging habitat for burrowing owls in the project region. Therefore, payment of the VHP burrowing owl specialty fee would contribute to a conservation program that benefits the burrowing owl, and would reduce potential project impacts on occupied burrowing owl nesting habitat to less-than-significant levels.

If nesting burrowing owls are absent from areas within 0.5 mile of the site for the three years immediately prior to project implementation (as mapped by the SCVHA and based on the results of the project's pre-activity surveys as well as other surveys regularly performed in the area), project impacts due to the loss of local burrowing owl habitat on the site would be less than significant. However, if a burrowing owl is detected nesting within 0.5 mile of the project site prior to project construction, the project would implement Mitigation Measure BIO-1 below to pay burrowing owl specialty fees to offset the loss of occupied nesting habitat. With the

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[3] Suitable habitat is considered by the SCVHA to be occupied by nesting burrowing owls if it is located within 0.5 mile of any burrows that have been used for nesting by owls within the prior three years.

implementation of Mitigation Measure BIO-1, potential project impacts due to the loss of occupied burrowing owl nesting habitat would be less than significant under CEQA.

Mitigation Measure BIO-1. Pay VHP Burrowing Owl Fees for Impacts on Occupied Nesting Habitat. The project will pay VHP burrowing owl fees for the portion of California annual grassland on the site that is permanently lost and located within 0.5 mile of a burrow that has been used for nesting within the three years prior to the start of construction, as mapped in the SCVHA's burrowing owl fee zone or based on the results of the project's pre-activity surveys and other surveys regularly performed in the area.

Even though the project is not subject to compliance with VHP Condition 15 due to the project's inclusion in the Agilent mitigation agreement with CDFW, payment of VHP burrowing owl fees would be appropriate to reduce the project's contribution to cumulative impacts on burrowing owls to less-than-significant levels under CEQA if a burrowing owl nest is detected within 0.5 mile of the project site's grassland because these fees would directly benefit burrowing owls in the South Bay region. This mitigation approach is consistent with the SCVHA's Voluntary Fee Payments Policy, which states that such voluntary burrowing owl fees paid as mitigation "will be applied toward burrowing owl management agreements, burrowing owl habitat management and monitoring, as well as burrowing owl habitat restoration and land acquisition." The SCVHA will be able to use these voluntary fees, in conjunction with fees from other projects, to successfully conserve South Bay burrowing owl populations. Thus, VHP fees are appropriate to compensate for direct, indirect, and cumulative impacts on burrowing owls as a result of the project.

6.2.7 Impacts on Crotch's Bumble Bee (Less than Significant)

The California annual grassland habitat on the project site provides only low-quality habitat for Crotch's bumble bee, as the area supports limited floral resources and is regularly maintained by mowing. In addition, nesting is not expected to occur under current conditions due to the absence of California ground squirrel burrows. Given the low quality of the habitat on the project site, as well as the sparse nature of this species' occurrence in the South Bay (with widely scattered records but no high concentrations known to occur in lowland areas such as the project site), few, if any, Crotch's bumble bee individuals are expected to be present on the site when work occurs.

Nevertheless, should small numbers of individuals be present, construction activities would result in the loss of foraging habitat for Crotch's bumble bees, and potentially the loss of individuals due to crushing by construction personnel or equipment, vegetation removal, excavations, and placement of soil stockpiles. In addition, should California ground squirrels colonize the site in the future, the project could potentially impact a nest of this species.

If the project impacts Crotch's bumble bee at all, given that the project site supports only a very small proportion of the species' regionally available habitat (i.e., grassland, scrub, and woodland throughout the South San Francisco Bay area), it would impact only a small number of individuals/nests representing a very small proportion of the species' regional population. The areas of California annual grassland that would be impacted by the project do not support high-quality foraging habitat for this species. Thus, due to the abundance of suitable foraging habitat in the project region (i.e., east and southeast of the project site in the foothills of the Diablo Range and along Coyote Ridge), the project is not expected to result in a *substantial* impact on regional Crotch's bumble bee populations or nesting and foraging habitat for this species. Therefore, these impacts would not constitute a significant impact on this species or its habitat under CEQA, which specifies that a project should have a "substantial adverse effect" for impacts to be significant.

Crotch's bumble bee is not currently a covered species under the VHP, though it is proposed for addition as a covered species via the VHP amendment currently in progress. However, compliance with VHP conditions would help reduce project impacts on this species by reducing impacts to biological resources in general. Further, Crotch's bumble bee will benefit from the VHP conservation program (i.e., the preservation, enhancement, and management of numerous habitat types throughout the VHP Reserve System) to which the project applicant would contribute via payment of VHP impact fees. As discussed in Section 6.1 above and in the EIR for the VHP (USFWS et al. 2012), as an NCCP the VHP's reserve system will benefit whole communities of plant and animal species in Santa Clara County, including many common and rare animal species. The reserve system will benefit Crotch's bumble bee based on the wide distribution of this species' habitats in Santa Clara County, the known occurrence of the species on some existing reserves, and its expected occurrence on future acquisitions, given the locations of recent occurrences in Santa Clara County. Therefore, the payment of VHP fees and compliance with the VHP's conditions is expected to have a net benefit on the conservation of this species.

If Crotch's bumble bee is still a candidate or is listed under CESA and not covered by the VHP at the time impacts occur, the applicant might consider implementing take avoidance surveys to avoid take under CESA. However, because the project would not result in a substantial impact on regional populations or nesting and foraging habitat for this species, take avoidance surveys are not necessary to reduce project impacts to less-than-significant levels under CEQA, in our opinion.

6.2.8 Impacts on the Northwestern Pond Turtle (Less than Significant)

Northwestern pond turtles occurring along the Guadalupe River can potentially access the project site via an approximately 10-inch diameter hole at the base of the chain-link fence that separates the site from the river. However, the likelihood that any pond turtles would travel to the site, which is mostly developed, via this very specific route is extremely low. Grasslands on the site provide suitable nesting habitat for pond turtles; however, the majority of these grasslands are inaccessible to pond turtles due to the presence of additional fencing surrounding the approximately 10-acre area in the site's northern corner. The narrow area of grassland along the southern portion of the site, adjacent to the paved driveway, would potentially be accessible to turtles, should they occur on the site.

Due to the potential for pond turtles to access the site, project activities could potentially disturb upland habitat used for nesting by pond turtles. Individual turtles or their eggs that are present in the work areas may be harmed or killed due to crushing by construction personnel or equipment, or as a result of desiccation or burying (e.g., during grading). Although pond turtles are widespread in the project region, the species is not particularly abundant, and the loss of individuals could reduce the viability of a population to the extent that it would be extirpated.

The VHP does not provide species-level avoidance and minimization measures for the northwestern pond turtle. Nevertheless, the project would adhere to the general conditions of the VHP described in Section 6.1 above, which will help to reduce proposed project impacts on the northwestern pond turtle and its habitats. Applicable VHP Conditions that will minimize potential project impacts on the northwestern pond turtle are Conditions 3 and 11. Because the project will comply with all relevant VHP conditions, impacts on the northwestern pond turtle will be less than significant under CEQA.

6.2.9 Impacts due to Bird Collisions (Less than Significant with Mitigation)

Under existing conditions, terrestrial land uses and habitat conditions in areas surrounding the project site consist primarily of developed areas such as commercial and residential buildings (primarily of one or two stories), parking lots, and roads, with the exception of several adjacent properties to the east and south, which are undeveloped with California annual grassland vegetation. Away from the Guadalupe River, vegetation in most of the surrounding areas is absent or very limited in extent, and consists primarily of nonnative landscape trees and shrubs. Nonnative vegetation supports fewer of the resources required by native birds than native vegetation, and the structural simplicity of the vegetation (without well-developed ground cover, understory, and canopy layers) further limits resources available to birds (Anderson et al. 1977, Mills et al. 1989). Thus, although some bird species will regularly use the vegetation on the project site and surrounding developed areas, they typically do so in low numbers, and particularly rare species or species of conservation concern are not expected to occur on the project site. As a result, the number of individual landbirds that inhabit and regularly use vegetation on the project site at any given time is low under existing conditions.

Under proposed conditions, the project site will provide habitat of relatively similar value to landbirds compared to existing conditions due to the removal of a number of large, mature trees from the site (including several native coast live oak trees), followed by the addition of a greater number of smaller landscape trees. Based on the preliminary landscape plan, proposed vegetation includes unknown numbers of nonnative strawberry trees (*Arbutus compacta*), European hornbeams (*Carpinus betulus*), incense cedars (*Cedrus deodara*), Chinese hackberry (*Celtis sinensis*), eastern redbud (*Cercis canadensis*), maidenhair tree (*Ginkgo biloba*), crape myrtle, Brisbane box (*Lophostemon confertus*), paperbark tree (*Melaleuca quinquenervia*), London plane trees, and others, as well as native western redbud (*Cercis occidentalis*) that will be planted around parking areas and buildings on the project site, as well as a mix of native and nonnative shrub and ground cover vegetation. Thus, the future landscape vegetation that will be planted on the site is expected to provide somewhat similar habitat structure and foraging opportunities for landbirds compared to the existing grassland and landscape vegetation, primarily due to the presence of more trees on the site compared to existing conditions.

As discussed in Section 4.3, riparian habitats along the Guadalupe River adjacent to the project site support relatively high bird diversity and abundance, and songbirds that migrate along the Pacific Flyway disperse and forage along the Guadalupe River in relatively large numbers (Cornell Lab of Ornithology 2025, South-Bay-Birds List Serve 2025). Resident birds that are present in the vicinity year-round are similarly attracted to this riparian habitat in relatively large numbers for foraging and nesting opportunities compared to regional populations (Cornell Lab of Ornithology 2025, South-Bay-Birds List Serve 2025). Although many of these birds are initially attracted to the riparian habitat along the river and do much of their foraging there, these birds also disperse outward from the river looking for other foraging, nesting, or roosting sites. During more than 100 hours of observation along the Guadalupe River between the project site and Montague Expressway, H. T. Harvey & Associates ornithologist Steve Rottenborn has frequently observed a variety of species, including both migrants and residents, moving between the riparian corridor and landscaping trees in adjacent commercial and industrial properties. Therefore, on the project site, we expect birds to move between the riparian habitat along the Guadalupe River and planted landscape vegetation on the project site (i.e., toward the proposed buildings) to look for feeding and resting opportunities in landscape vegetation.

It has been well documented that glass windows and building façades can result in injury or mortality of birds due to birds' collisions with these surfaces (Klem 2009, Sheppard and Phillips 2015). Because birds do not perceive glass as an obstruction the way humans do, they may collide with glass when the sky or vegetation is reflected in glass (e.g., they see the glass as sky or vegetated areas); when transparent windows allow birds to perceive an unobstructed flight route through the glass (such as at corners); and when the combination of transparent glass and interior vegetation (such as in planted atria) results in attempts by birds to fly through glass to reach that vegetation. The greatest risk of avian collisions with buildings occurs in the area within 40–60 feet of the ground because this is the area in which most bird activity occurs (San Francisco Planning Department 2011, Sheppard and Phillips 2015). Very tall buildings (e.g., buildings 500 feet or more high) may pose a threat to birds that are migrating through the area, particularly to nocturnal migrants that may not see the buildings or that may be attracted to lights on the buildings (San Francisco Planning Department 2011).

Some migrating landbirds are expected to disperse from the riparian habitat along the Guadalupe River into the project site from the west. As a result, the highest potential for bird collisions with new buildings is with glazing that faces the Guadalupe River (i.e., the west façade of the DC West building). In addition, trees that extend alongside and in between the proposed buildings are attractive to birds, and provide connectivity between the habitat along the Guadalupe River and portions of the project site located farther to the northeast. Therefore, there is some potential for collisions of moderate numbers of birds with glazed areas of all facades of the DC West and DC North buildings due to the connectivity of landscape vegetation and trees surrounding these buildings with the Guadalupe River.

Birds would potentially collide with glazing on façades of the DC North and DC West buildings for the following reasons:

- Songbirds utilizing habitat along the Guadalupe River may disperse outward looking for other foraging, nesting, or roosting sites. If glass is present on the facades of these buildings, birds making such movements are unlikely to be able to distinguish these façades as solid features to avoid and, as a result, some of these birds are expected to collide with the buildings.

- Under the project, trees and other landscaping will be present adjacent to glass façades of buildings on the project site. Such vegetation is expected to attract birds. Once birds are using that vegetation, they may not perceive the glass as a solid structure. Vegetation will be reflected in the glass of the buildings' façades, potentially causing birds to attempt to fly in to the reflected "vegetation" and strike the glass. As a result, some birds that are attracted to the trees and other landscaping that are adjacent to the glass façades are expected to collide with the glass.
- Reflections of the sky in glass façades may be perceived by birds as an open flight path (i.e., the sky) rather than solid glass, and birds may then collide with the facades.
- Night lighting associated with new buildings has some potential to disorient birds, especially during inclement weather when night migrating birds descend to lower altitudes. As a result, some birds moving through the project site at night may be disoriented by night lighting and potentially collide with buildings.

Thus, some of the birds using adjacent riparian habitats are expected to occasionally collide with the new buildings, resulting in injury or death. Buildings are estimated to result in the mortality of an estimated 365 to 988 million birds per year, or 2–9% of all North American birds, with low-rise buildings such as the proposed project accounting for the mortality of an estimated 62–664 million birds (median 246 million) each year (Loss et al. 2014). Most birds that are vulnerable to collisions with low-rise buildings are migrants that move through during the spring and fall (Loss et al. 2014). However, certain groups of birds are also more vulnerable to collisions, including hummingbirds, swifts, waxwings, warblers, nuthatches, tits, and creepers (Loss et al. 2014), all of which occur in the riparian habitat along the Guadalupe River either as migrants or year-round residents. Considering the close proximity of the Guadalupe River, relatively large numbers of birds compared to other areas of San José and surrounding areas can potentially be attracted to the site over the long term. As a result, construction of the project can potentially result in the mortality of large numbers of birds relative to the size of regional populations, and enough individuals of common bird species can potentially strike the buildings over the long term to result in a significant impact according to CEQA. Mitigation Measures BIO-2 below would incorporate bird-safe design elements into the project design, and reduce this impact to a less-than-significant level. These measures would also support project compliance with the bird-safe design guidance provided in the City's Riparian Corridor Protection and Bird-Safe Design Policy.

Mitigation Measure BIO-2. Implement Bird-Safe Building Design. Due to the potential for bird collisions with the DC North and DC West buildings, the project shall implement the following bird-safe building design considerations:

- Reduce the extent of glass on building facades, to the extent feasible (as determined in consultation with the City and consistent with any City building design standards and California Building Code requirements).
- Reduce or eliminate the visibility of plants behind glass.

- All glazing used on the building facades shall have a reflectivity index of no more than 20%. Any bird-safe glazing shall have a reflectivity index of no more than 15%.
- No more than 10% of the surface area of the combined façades for each building shall have untreated glazing between the ground and 60 feet above ground. Bird-safe glazing treatments may include fritting, netting, permanent stencils, frosted glass, exterior screens, physical grids placed on the exterior of glazing or ultraviolet patterns visible to birds. Bird-safe treatments shall have the following specifications, to ensure they are sufficiently effective:
    - Vertical elements of the window patterns should be at least 0.25 inch wide at a maximum spacing of 4 inches or have horizontal elements at least 0.125 inch wide at a maximum spacing of 2 inches.

      OR
    - Bird-safe glazing should have a Threat Factor[4] less than or equal to 30.
- Avoid free-standing clear glass walls, skywalks, transparent building corners, glass enclosures (e.g., greenhouses) on rooftops, and free-standing clear glass railings where feasible. If any such features are included in the project design, all glazing used in any such features shall be 100% treated as specified above. These features shall be treated to a height of 60 feet above grade. Features located more than 60 feet above grade are not required to be treated. For transparent glass corners, the required treatment area extends horizontally from a building corner as far the corner as it is possible to see through the corner to the other side of the building.
- Landscaping, including planted vegetation and water features, shall be designed to minimize the potential for collisions adjacent to glazed building facades. For example, vegetation providing particularly valuable resources to birds (such as fruits) shall be planted away from glass facades, and vegetation in general shall be planted in such a way that it is not clearly reflected in windows. Water features shall be located away from building exteriors to reduce the attraction of birds toward glazed facades.

Due to the potential for night lighting to disorient birds, the project shall implement the following bird-safe design considerations for all new interior and exterior lighting on the project site:

- Minimize exterior lighting to the extent feasible, except as needed for safety/security. All exterior lights shall be shielded and directed toward facilities on the project site to ensure that light is not directed upward or outward toward the Guadalupe River.

[4] A material's Threat Factor is assigned by the American Bird Conservancy, and refers to the level of danger posed to birds based on birds' ability to perceive the material as an obstruction, as tested using a "tunnel" protocol (a standardized test that uses wild birds to determine the relative effectiveness of various products at deterring bird collisions). The higher the Threat Factor, the greater the risk that collisions will occur. An opaque material will have a Threat Factor of 0, and a completely transparent material will have a Threat Factor of 100. Threat Factors for many commercially available façade materials can be found at https://abcbirds.org/glass-collisions/products-database/.

- Occupancy sensors or other switch control devices shall be installed on interior lights, with the exception of emergency lights or lights needed for safety/security purposes. If occupancy sensors are not active, these lights shall be programmed to shut off during non-work hours and between 10:00 p.m. and sunrise.
- To the extent consistent with the normal and expected operations of commercial uses under the project, take appropriate measures to avoid use of unnecessary lighting at night. Such measures may include the installation of motion-sensor lighting, automatic light shut-off mechanisms, downward-facing exterior light fixtures, the use of Dark-Sky-approved lighting[5], and others.

6.2.10 Impacts due to Increased Lighting (Less than Significant with Mitigation)

Many animals are sensitive to light cues, which influence their physiology and shape their behaviors, particularly during the breeding season (Ringer 1972, de Molenaar et al. 2006). Artificial light has been used as a means of manipulating breeding behavior and productivity in captive birds for decades (de Molenaar et al. 2006), and has been shown to influence the territorial singing behavior of wild birds (Longcore and Rich 2004, Miller 2006, de Molenaar et al. 2006). While it is difficult to extrapolate results of experiments on captive birds to wild populations, it is known that photoperiod (the relative amount of light and dark in a 24-hour period) is an essential cue triggering physiological processes as diverse as growth, metabolism, development, breeding behavior, and molting (de Molenaar et al. 2006). This holds true for birds, mammals (Beier 2006), and other taxa as well, suggesting that increases in ambient light may interfere with these processes across a wide range of species, resulting in impacts on wildlife populations.

Artificial lighting may indirectly impact mammals and birds by increasing the nocturnal activity of predators like owls, hawks, and mammalian predators (Negro et al 2000, Longcore and Rich 2004, DeCandido and Allen 2006, Beier 2006). The presence of artificial light may also influence habitat use by rodents (Beier 2006) and by breeding birds (Rogers et al. 2006, de Molenaar et al. 2006), by causing avoidance of well-lit areas, resulting in a net loss of habitat availability and quality.

Although the literature has shown how an increase in artificial lighting may indirectly affect birds, mammals, fish, and nesting sea turtles, little is known about potential effects of artificial lighting on many species of amphibians and reptiles, including freshwater turtles (Perry et al. 2008). Northwestern pond turtles most likely exhibit physiological and behavioral responses in the presence of novel artificial light sources. However, few studies have revealed any conclusive data on what the impacts may be from artificial lighting in urban environments on adjacent habitats where freshwater turtles may occur (Perry et al. 2008). To our knowledge, no specific studies have been conducted that have attempted to elucidate pond turtle responses to an increase in artificial lighting conditions in their natural aquatic habitats. Northwestern pond turtles are primarily active during the day, spending the majority of their time basking on haul-out structures, such as patches of floating vegetation and logs near the edges or in the middle of their aquatic habitats, where they can quickly escape if

[5] Exterior lighting fixtures that meet the International Dark-Sky Association's standards for artificial lighting minimize glare while reducing light trespass and skyglow, and are required to be fully shielded and minimize the amount of blue light in the nighttime environment (International Dark-Sky Association 2025).

threatened (Jennings and Hayes 1994). Some crepuscular and nocturnal movements have been observed by the species, but pond turtles typically take refuge at the bottom of aquatic habitats, burying themselves in muddy bottoms or dense vegetation during the night, and thus, in our opinion, would not be significantly affected by an increase in artificial light conditions.

The project will result in the construction of buildings and other features (e.g., pedestrian walkways and open space areas) that will increase the amount of lighting within and around the project site. Lighting from the project would be the result of light fixtures illuminating buildings, building architectural lighting, and parking lot and pedestrian lighting. Depending on the location, direction, and intensity of exterior lighting, this lighting can potentially spill into adjacent natural areas, thereby resulting in an increase in lighting compared to existing conditions. Areas to the northwest, northeast, and southeast are primarily developed urban habitats that do not support sensitive species that might be significantly impacted by illuminance from the project. However, the riparian and wetland habitats along the Guadalupe River provide suitable habitat for a variety of wildlife species, including sensitive species such as the San Francisco common yellowthroat, and are close enough to the project site to be affected by an increase in lighting.

The existing Guadalupe River levee, which is approximately 8 feet above grade on the project site, separates the project site from the Guadalupe River. This existing barrier is expected to limit the spill of lighting between the project site and the Guadalupe River to some extent. However, light from tall buildings (potentially up to 72 feet tall at the penthouse) that will be constructed under the project could spill over this barrier and increase lighting in these adjacent natural areas.

The species inhabiting the sensitive habitats along the Guadalupe River are already habituated to the existing artificial illuminance from a variety of urban and natural light sources that are found nearby. However, due to the ecological importance of the riparian and aquatic habitats of the Guadalupe River and the fish and wildlife communities they support, substantial increases in illuminance of the Guadalupe River and its associated riparian and aquatic habitats could result in a potentially significant impact under CEQA by disrupting the natural behaviors of the species using these habitats. Although there is agreement throughout the literature that increases in illuminance can affect wildlife behavior, as described above, there is no quantitative level of illuminance increase (above ambient light) that is agreed upon as a threshold for significant impacts to animals. In our professional opinion, Mitigation Measure BIO-2 above would reduce this impact to a less-than-significant level under CEQA.

6.2.11 Nitrogen Deposition Impacts (Less than Significant)

Several special-status plant and animal species that are absent from the project site and its vicinity occur on serpentine substrates in hills on either side of the Santa Clara Valley. These species include the Bay checkerspot butterfly and a number of rare plants, including the VHP-covered Tiburon Indian paintbrush (*Castilleja affinis* var. *neglecta*), coyote ceanothus (*Ceanothus ferrisiae*), Mount Hamilton thistle (*Cirsium fontinale* var. *campylon*), Santa Clara Valley dudleya (*Dudleya abramsii* ssp. *setchellii*), fragrant fritillary (*Fritillaria liliacea*), Loma Prieta hoita (*Hoita* *strobilina*), smooth lessingia (*Lessingia micradenia* var. *glabrata*), Metcalf Canyon jewelflower (*Streptanthus albidus* ssp. *albidus*), and most beautiful jewelflower (*Streptanthus albidus* ssp. *peramoenus*).

The USFWS has identified critical habitat for the federally threatened Bay checkerspot butterfly (73 FR 50406) south of U.S. Route 101 and Yerba Buena Road in San José, approximately 9.0 miles southeast of the project site (Unit 6 at Communications Hill) (USFWS 2008). The conservation of critical habitat is considered essential for the conservation of the Bay checkerspot butterfly, and this serpentine habitat also supports serpentine-associated rare plant species (including the VHP-covered species listed above). Nonnative grasses have been reported to increase in these habitats, crowding out native rare plants as well the native larval host plants needed by the Bay checkerspot butterfly, due to increased nitrogen deposition from human sources throughout San José and the greater Bay Area.

Nitrogen deposition contribution estimates in Santa Clara County were made as a part of the development of the VHP (ICF International 2012). About 46% of nitrogen deposition on habitat areas of concern for the base years (2005–2007) was estimated to come from existing development and traffic generated locally within the VHP study area, which includes all of San José. The remainder of Santa Clara County was estimated to contribute a substantially smaller amount (17% of the nitrogen deposition) while the other eight Bay Area counties account for about 11%. Nitrogen deposition modeling completed for future years (2035 and 2060) as a part of the VHP process assumed that urban and rural development in the County and broader San Francisco Bay Area is expected to increase air pollutant emissions due to an increase in passenger and commercial vehicle trips and other new industrial and nonindustrial sources.

Construction of the project will result in an estimated 378 new operational vehicle trips per month to the project site. Providing new office space in San José (which is housing rich) may reduce some vehicle trips currently occurring to other cities in the region and thus reduce NOx emissions to some extent. Nevertheless, these new vehicle trips will result in an increase in NOx emissions, which in turn will contribute to the effects of nitrogen deposition on the serpentine grassland ecosystem. To mitigate this impact, a conservation strategy in the VHP includes collection of fees within the VHP area based upon the generation of new vehicle trips to fund acquisition and management of serpentine grasslands in the Coyote Ridge area and elsewhere in the foothills along the Santa Clara Valley. The goal of this strategy is to improve the viability of existing populations of the Bay checkerspot butterfly and rare plants, increase the number of populations, and expand the geographic distribution to ensure the long-term persistence of serpentine-associated species in the VHP area.

A nexus study was completed for the VHP to assist with identifying appropriate fees to fund measures in the VHP. The nitrogen deposition fee was calculated and adopted based on VHP costs related to mitigating the impacts of airborne nitrogen deposition from covered activities in the VHP area. The amount of the fee is based on the number of new daily vehicle trips generated by a covered activity. The fee-per-vehicle-trip is a surrogate that captures the overall effects of a project, recognizing that vehicle trips are not the only source of a project's NOx emissions. Due to an increase in NOx emissions under CEQA, the project shall be required to pay nitrogen deposition fees, which will then be used to fund the acquisition and management of habitat for the serpentine-associated species potentially impacted by nitrogen deposition. As a result, the project's nitrogen deposition impacts will be less than significant under CEQA.

6.2.12 Impacts due to Increased Noise Levels (Less than Significant)

There is some potential for wildlife inhabiting the riparian habitat along the Guadalupe River, located as close as 115 feet west of the proposed improvements, to vacate portions of the river located near the project site due to increased noise levels during or following construction. Wildlife individuals that move away from the site due to disturbance from project-related noise may be exposed to increased competition from conspecifics already occupying the area to which they are displaced and/or increased levels of predation because of unfamiliarity with the new area or lack of sufficient cover.

According to the project's noise study, measured ambient noise levels on the project site range from 61-73 decibels (dBA) throughout the day and 53–66 dBA at night, with peak noise levels of 74–77 dbA (Illingworth & Rodkin Inc. 2025). Ambient noise levels measured closest to the Guadalupe River (approximately 240 feet northeast of the river and similarly close to West Trimble Road) were 61–67 dBA during the day and 54–66 dBA at night (Illingworth & Rodkin Inc. 2025). These noise levels are primarily influenced by traffic on adjacent roadways on the site's boundaries (including at the location near the Guadalupe River) and by the operation of mechanical equipment in the central portion of the site. Peak noise levels are the result of aircraft and were generally lower in the eastern portion of the site and on a property east of Orchard Parkway (74 dBA), farther from the airport, and higher in the western portion of the site (77 dBA) and at a location approximately 300 feet west of the Guadlupe River (83 dBA), closer to the airport.

Daily operational noise levels following construction were estimated at a distance of approximately 150 feet from the site, which is close to the distance of the Guadalupe River from the closest project improvements (115 feet), and are anticipated to be 60 dBA during normal operating conditions (i.e., when no generators are operating) and 64 dBA when the generators are operating (Illingworth & Rodkin Inc. 2025). As discussed under Section 1.2 *Project Description* above, the backup generators will run for short periods for testing and maintenance purposes (limited to no more than 50 hours per year), and otherwise will not operate unless there is a disturbance or interruption of the utility supply. Typically, not more than one generator would be tested in any one hour, and generator testing would be limited to the hours of 7:00 a.m. to 7:00 p.m. (Illingworth & Rodkin Inc. 2025). The frequency and duration of power interruptions are unknown, but are expected to be infrequent and of limited duration. As a result, measured existing ambient noise levels are expected to be similar to future ambient noise levels following construction, whether the generators are operating or not.

During construction, noise levels measured 150 feet from the activity (i.e., noise that may reach the Guadalupe River) would vary by construction phase, ranging from an estimated 74 dBA for architectural coating to 85 dBA for paving work, with worst-case hourly average noise levels ranging from 65–82 dBA (Illingworth & Rodkin Inc. 2025). Thus, noise levels along the Guadalupe River would increase somewhat from 61–67 dBA (e.g., similar to an office or a normal conversation) with frequent peaks of 77–83 dBA due to aircraft, to regular or sustained levels of 65–82 dBA (e.g., similar to a garbage disposal or vehicle traffic). Construction activities would occur for a period of 1,015 working days over 39 months.

Wildlife that occur along the Guadalupe River are acclimated to existing noise levels (approximately 61–67 dBA during the day and 54–66 dBA at night, with frequent peaks of approximately 77–83 dBA due to aircraft). These existing noise levels are expected to be similar to operational ambient noise levels following construction, regardless of whether the generators are operating, and thus no significant impacts would occur due to future operational noise levels on the site. During construction, noise levels along the Guadalupe River would increase to regular or sustained levels of 65–82 dBA for a period of 1,015 working days over 39 months. However, based on data indicating that an average of 369 flights per day have transited the airport over the past year (San José Mineta International Airport 2025), wildlife along the Guadalupe River experience extremely frequent peaks in noise levels due to aircraft on a daily basis. Because the anticipated noise from construction (65–82 dBA) is similar to the extremely frequent noise currently experienced in the immediate area due to aircraft (approximately 77–83 dBA), and wildlife along the Guadalupe River are acclimated to the noise-related disturbances from aircraft, impacts due to construction activities on the site would be less than significant under CEQA. Further, as noted in the discussion for lighting above, the presence of the levee in between the project site and the Guadalupe River will block and/or reduce some noise from construction and operation of the project from detection by wildlife that use the riparian corridor, further reducing this impact.

6.3 Impacts on Sensitive Communities: 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 CDFW or USFWS (Less than Significant)

6.3.1 Impacts on Riparian Habitat or Other Sensitive Natural Communities (No Impact)

The CDFW defines sensitive natural communities and vegetation alliances using NatureServe's standard heritage program methodology (CDFW 2025), as described above in Section 5.3. Aquatic, wetland, and riparian habitats are also protected under applicable federal, state, or local regulations, and are generally subject to regulation, protection, or consideration by the USACE, RWQCB, CDFW, and/or the USFWS (see Section 6.4 below). Project impacts on sensitive natural communities, vegetation alliances/associations, or any such community identified in local or regional plans, policies, and regulations, were considered and evaluated.

The Guadalupe River flows from south to north adjacent to, but not through, the project site. The entirety of ground-disturbing project impacts will occur outside of the riparian corridor and northeast of the Guadalupe River Trail, on the far side of the levee from the riparian habitat. Thus, the proposed project will have no direct permanent or temporary impacts on riparian habitat.

6.3.2 Impacts Due to Encroachment into the Stream/Riparian Buffer (Less than Significant)

As described above, City policies and regulations, including the Envision San Jose 2040 General Plan (City of San José 2020), the Zoning Code (Title 20 of the San Jose Municipal Code), and the City Council-adopted VHP, specifically Condition 11, include measures meant to limit development and protect sensitive riparian resources. City Council Policy 6-34 (issued August 3, 2016) provides guidance on the implementation of riparian corridor protection consistent with all City policies and requirements that provide for riparian protection. The policy indicates that riparian setbacks should be measured from the outside edges of riparian habitat or the top of bank, whichever is greater, and that development of new buildings and roads generally should be set back 100 feet from the riparian corridor defined by the outer edge of riparian vegetation.

For the purposes of this project, the City's riparian setback extends 100 feet landward from the outer edge of the top of bank of the Guadalupe River, which was demarcated using methods developed and approved by resource and regulatory agencies with jurisdiction within such channels (i.e., CDFW, USACE, and RWQCB); this 100-foot setback includes a portion of the property nearest the river, but does not include any portions of the project's impact areas (Figure 7). The setback is applicable to all proposed development on the project site. Council Policy 6-34 explains that the City's riparian setback requirements supplement the VHP-required riparian setbacks on Category 1 streams on parcels with slopes less than 30%, for which the VHP requires a setback of 35 feet from the riparian canopy or 100 feet from top of bank, whichever is greater. In the case of this project, the VHP setback and the City's setback are identical, being set at 100 feet from the top of bank (Figure 7).

No improvements will be constructed within the 100-foot VHP and City riparian setback, no planting of landscape vegetation is proposed, and no temporary impacts within the 100-foot setback will occur during the course of construction. Therefore, impacts due to encroachment along the riparian corridor along the Guadalupe River would be less than significant under CEQA.

6.4 Impacts on Wetlands: 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)

Wetlands and other waters of the U.S./state are present adjacent to the project site within the Guadalupe River corridor. The project design avoids all direct and indirect impacts on state or federally protected wetlands and aquatic habitats by limiting project impacts to the northeastern side of the Guadalupe River Trail, on the far side of the levee from wetland habitats. Thus, no wetland habitat will be impacted directly or indirectly by the project.

6.5 Impacts on Wildlife Movement: 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 (Less than Significant)

For many species, the landscape is a mosaic of suitable and unsuitable habitat types. Environmental corridors are segments of land that provide a link between these different habitats while also providing cover. Development that fragments natural habitats (i.e., breaks them into smaller, disjunct pieces) can have a twofold impact on wildlife: first, as habitat patches become smaller they are unable to support as many individuals (patch size); and second, the area between habitat patches may be unsuitable for wildlife species to traverse (connectivity).

The Guadalupe River and the associated riparian corridor provide an important movement pathway for both aquatic and terrestrial wildlife species, connecting the associated wetlands to the San Francisco Bay. Songbirds that migrate along the Pacific Flyway disperse and forage along the Guadalupe River in relatively large numbers. Common, urban-adapted species such as raccoons and striped skunks may use the vegetation along the river to move north and south through the San José area. Small mammals, such as mice and shrews, will also use this vegetation to move between habitats. Common species of reptiles and amphibians, such as Pacific treefrogs, and alligator lizards, amongst other species, are also expected to move along this corridor adjacent to the project site. Proposed project development along the river will not result in any loss of aquatic, wetland, or riparian habitat along the Guadalupe River or in any substantial reduction in the value of the Guadalupe River corridor for wildlife movement. The project is expected to increase the number of human users of the Guadalupe River trail, potentially subjecting animals within the riparian corridor to increased human disturbance. However, this trail is already heavily used by pedestrians and cyclists, and use of the riparian habitat along the river by homeless already introduces human disturbance within the riparian habitat. The increase in users of the Guadalupe River trail as a result of this project is not expected to contribute substantially to human disturbance of animals using the Guadalupe River corridor. Thus, aquatic and terrestrial species would continue to be able to move north to south along the Guadalupe River following project development. Therefore, the project would not 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, and this impact is determined to be less than significant.

6.6 Impacts due to Conflicts with Local Policies: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (Less than Significant)

6.6.1 Impacts Due to the Removal of Ordinance-Sized Trees (Less than Significant)

The project proposes to remove a number of existing trees on the site. Many of these trees would meet the requirements to be considered ordinance-sized trees as defined by the City of San José, and the project proponent will submit a permit application for tree removal. In accordance with the provisions of the San José Municipal Code, the Standard Permit Conditions listed below would be implemented by the project.

Standard Permit Conditions

Trees impacted by the project will be replaced in accordance with all applicable laws, policies or guidelines, including Chapter 13 of the San José Municipal Code, General Plan policies MS-21.4, MS-21.5, MS-21.6, and CD-1.24, and City tree replacement ratios outlined in Table 2 below. Following the removal of trees on the site, a greater number of trees will be planted on the project site following construction.

Table 2. City of San José Standard Tree Replacement Ratios

Diameter of Tree to Be Removed	Type of Tree to be Removed[1]			Minimum Size of Each Replacement Tree
	Native	Nonnative	Orchard	
38 inches or greater	5:1	4:1	3:1	15-gallon container
19 up to 38 inches	3:1	2:1	none	15-gallon container
Less than 19 inches	1:1	1:1	none	15-gallon container

[1]x:x = tree replacement to tree loss ratio; Trees greater than 38" diameter shall not be removed unless a Tree Removal Permit, or equivalent, has been approved for the removal of such trees.

Where applicable, the project proponent will implement a Tree Protection Plan and include measures to implement during project construction to minimize impacts to trees to remain. The measures include marking trees to remain in place in project plans and have tree protection zones established around the canopy drip line zone to avoid serious injury or loss.

Table 2 shows tree replacement ratios required by the project proponent. The species of trees to be planted shall be determined in consultation with the City Arborist and the Department of Planning, Building and Code Enforcement.

In the event the project site does not have sufficient area to accommodate the required tree mitigation, one or more of the following measures would be implemented during the final design phase of the project, to the satisfaction of the City Arborist and the Director of Planning, Building and Code Enforcement:

- During the final design phase, the size of a 15-gallon replacement tree may be increased to 24-inch box and count as two replacement trees to be planted on the project site.
- The project may pay Off-Site Tree Replacement Fee(s) to the City, prior to the issuance of Public Works grading permit(s), in accordance with the City Council approved Fee Resolution. The City will use the off-site tree replacement fee(s) to plant trees at alternative sites.

With the incorporation of the above measures to insure compliance with the City of San José tree ordinance, any potential impacts related to conflict with local policies or ordinances protecting trees would be less than significant.

6.7 Impact due to Conflicts with an Adopted Habitat Conservation Plan: Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan (Less Than Significant with Mitigation)

The City of San José is a signatory to the VHP, which is a Habitat Conservation Plan and Natural Community Conservation Plan. As described in Section 6.1, the project is considered a "covered project" under the VHP. All VHP-covered species that may be affected by the proposed project are discussed in this report, including the burrowing owl (Section 6.2.6 above) and northwestern pond turtle (Section 6.2.7 above). Similarly, impacts on sensitive habitats, such as stream and serpentine habitats for which the VHP requires specific impact fees, are discussed in this report. The project will apply for VHP coverage and will adhere to all applicable VHP Conditions during project implementation. Conditions applicable to the proposed project include Conditions 1 (avoid direct impacts to legally protected plant and wildlife species), 3 (maintain hydrologic conditions and protect water quality), 11 (stream and riparian setbacks), and 17 (tricolored blackbird). In addition, the project will implement the preconstruction surveys, construction avoidance measures, and construction monitoring measures of Condition 15 and pay VHP burrowing owl specialty fees as a mitigation measure (Mitigation Measure BIO-1), as discussed in Section 6.2.6 above. Therefore, the proposed project would not be in conflict with the VHP.

The proposed project would not be in conflict with any other adopted habitat conservation plans or natural community conservation plans, or with any other approved local, regional, or state habitat conservation plans or natural community conservation plans. Thus, impacts associated with conflicts between the proposed project and any adopted habitat conservation plan or natural community conservation plan are less than significant.

VHP Condition 11 requires new covered projects to adhere to setbacks from creeks and streams and associated riparian vegetation to minimize and avoid impacts on aquatic and riparian land cover types, covered species, and wildlife corridors. The standard required setback for the reach of the Guadalupe River (a Category 1 stream) adjacent to the project site is 100 feet from the top of bank (Figure 7). The project would not result in encroachment within the standard VHP stream setback as described under Section 6.3.2 *Impacts due to Encroachment into the Stream/Riparian Corridor*. Thus, impacts associated with encroachment into the riparian setback are less than significant.

Construction disturbance and project tree removal during the avian breeding season (February 1 through August 31 inclusive, for most species) could result in the incidental loss of eggs or nestlings, either directly through the destruction or disturbance of active nests or indirectly by causing the abandonment of nests. Because such an impact would conflict with Condition 1 of the VHP, it would be considered a significant impact under CEQA. Mitigation Measures BIO-3 and BIO-4 would be implemented to reduce impacts due to conflicts with Condition 1 of the VHP to a less-than-significant level.

Mitigation Measure BIO-3. Nesting-Season Avoidance. To the extent feasible, commencement of construction activities should be scheduled to avoid the nesting season. If construction activities are scheduled to commence outside the nesting season, all impacts to nesting birds protected under the MBTA and California Fish and Game Code would be avoided. The nesting season for most birds in Santa Clara County extends from February 1 through August 31, inclusive.

Mitigation Measure BIO-4. Preconstruction/Pre-disturbance Surveys and Buffers. If it is not possible to schedule commencement of construction activities and/or tree removal between September 1 and January 31, preconstruction surveys for nesting birds shall be conducted by a qualified ornithologist to ensure that no nests shall be disturbed during project implementation. These surveys shall be conducted no more than seven days prior to the initiation of demolition or construction activities, including tree removal and pruning. During this survey, the ornithologist shall inspect all trees and other potential nesting habitats (e.g., trees, shrubs, ruderal grasslands, buildings) in and immediately adjacent to the impact areas for nests. If an active nest is found sufficiently close to work areas to be disturbed by these activities, the ornithologist shall determine the extent of a construction-free buffer zone to be established around the nest (typically 300 feet for raptors and 100 feet for other species), to ensure that no nests of species protected by the MBTA and California Fish and Game Code shall be disturbed during project implementation.

6.8 Cumulative Impacts (Less than Significant with Mitigation)

Cumulative impacts arise due to the linking of impacts from past, current, and reasonably foreseeable future projects in the region. Future development activities in the City of San José and development activities covered by the VHP will result in impacts on the same habitat types and species that will be affected by the proposed project. The proposed project, in combination with other projects in the area and other activities that impact the species that are affected under the project, could contribute to cumulative effects on special-status species. Other projects in the area include both development and maintenance projects that could adversely affect these species and restoration projects that will benefit these species.

The cumulative impact on biological resources resulting from the project in combination with other projects in the region would be dependent on the relative magnitude of adverse effects of these projects on biological resources compared to the relative benefit of impact avoidance and minimization efforts prescribed by planning documents, CEQA mitigation measures, and permit requirements for each project; compensatory mitigation and proactive conservation measures associated with each project, and the benefits to biological resources accruing from the VHP. In the absence of such avoidance, minimization, compensatory mitigation, and conservation measures, cumulatively significant impacts on biological resources would occur.

However, the San José General Plan contains conservation measures that would benefit biological resources, as well as measures to avoid, minimize, and mitigate impacts on these resources and the VHP includes numerous conservation measures to offset adverse effects on covered activities. Many projects in the region that impact resources similar to those impacted by the proposed project will be covered activities under the

VHP and will mitigate impacts on sensitive habitats and many special-status species through that program, which will require payment of fees for habitat restoration. Further, the project would implement a number of BMPs and mitigation measures to reduce impacts on both common and special-status species, as described above. Thus, the project will not contribute to substantial cumulative effects on biological resources.

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Appendix A. Plants and Animals Observed

Table A-1. Plant Species Observed

Family	Scientific Name	Common Name	Cal-IPC Status[1]
CUPRESSACEAE – CYPRESS FAMILY	*Calocedrus decurrens*	incense cedar	
CUPRESSACEAE – CYPRESS FAMILY	*Sequoia sempervirens*	coast redwood	
ARALIACEAE – GINSENG FAMILY	*Hedera helix**	English ivy	High
ASTERACEAE – SUNFLOWER FAMILY	*Carduus pycnocephalus ssp. pycnocephalus**	Italian thistle	Moderate
ASTERACEAE – SUNFLOWER FAMILY	*Dittrichia graveolens**	stinkwort	Moderate
ASTERACEAE – SUNFLOWER FAMILY	*Helminthotheca echioides**	bristly ox-tongue	Limited
ASTERACEAE – SUNFLOWER FAMILY	*Silybum marianum**	milk thistle	Limited
BORAGINACEAE – BORAGE FAMILY	*Amsinckia menziesii*	common fiddleneck	
BRASSICACEAE – MUSTARD FAMILY	*Brassica nigra**	black mustard	Moderate
BRASSICACEAE – MUSTARD FAMILY	*Raphanus sativus**	wild radish	Limited
CARYOPHYLLACEAE – PINK FAMILY	*Stellaria media**	common chickweed	
ERICACEAE – HEATH FAMILY	*Arbutus unedo**	strawberry tree	
FABACEAE – LEGUME FAMILY	*Lupinus bicolor*	miniature lupine	
FABACEAE – LEGUME FAMILY	*Medicago polymorpha**	variable burclover	Limited
FABACEAE – LEGUME FAMILY	*Vicia sativa**	garden vetch	
FAGACEAE – OAK FAMILY	*Quercus agrifolia*	coast live oak	
FAGACEAE – OAK FAMILY	*Quercus lobata*	valley oak	
FAGACEAE – OAK FAMILY	*Quercus suber**	cork oak	
GERANIACEAE – GERANIUM FAMILY	*Geranium dissectum**	dissected geranium	Moderate
GERANIACEAE – GERANIUM FAMILY	*Geranium molle**	soft geranium	
LAMIACEAE – MINT FAMILY	*Lamium amplexicaule**	henbit	

Family	Scientific Name	Common Name	Cal-IPC Status[1]
LYTHRACEAE – LOOSESTRIFE FAMILY	*Lagerstroemia indica**	crape myrtle	
MALVACEAE – MALLOW FAMILY	*Malva parviflora**	cheeseweed	
MYRTACEAE – MYRTLE FAMILY	*Eucalyptus sideroxylon**	red iron bark	
OLEACEAE – OLIVE FAMILY	*Fraxinus uhdei**	shamel ash	
ONAGRACEAE – EVENING PRIMROSE FAMILY	*Epilobium brachycarpum*	short-fruited willowherb	
PAPAVERACEAE – POPPY FAMILY	*Fumaria officinalis**	fumitory	
PLANTAGINACEAE – PLANTAIN FAMILY	*Veronica persica**	Persian speedwell	
PLATANACEAE – SYCAMORE FAMILY	*Platanus × hispanica**	London plane tree	
ROSACEAE – ROSE FAMILY	*Cotoneaster pannosus**	silverleaf cotoneaster	Moderate
ROSACEAE – ROSE FAMILY	*Heteromeles arbutifolia*	toyon	
ROSACEAE – ROSE FAMILY	*Potentilla sp.*	cinquefoil	
ROSACEAE – ROSE FAMILY	*Rubus armeniacus**	Himalayan blackberry	High
RUBIACEAE – COFFEE FAMILY	*Galium aparine*	goose grass	
SALICACEAE – WILLOW FAMILY	*Populus fremontii ssp. fremontii*	Fremont cottonwood	
SALICACEAE – WILLOW FAMILY	*Salix lasiolepis*	arroyo willow	
SAPINDACEAE – SOAPBERRY FAMILY	*Aesculus californica*	California buckeye	
ULMACEAE – ELM FAMILY	*Ulmus minor**	English elm	
URTICACEAE – NETTLE FAMILY	*Urtica urens**	dwarf nettle	
POACEAE – GRASS FAMILY	*Avena fatua**	wild oat	Moderate
POACEAE – GRASS FAMILY	*Bromus diandrus**	ripgut brome	Moderate
POACEAE – GRASS FAMILY	*Hordeum marinum* ssp. *gussoneanum**	Mediterranean barley	Moderate

[1.] Cal-IPC status (Cal-IPC 2025):

L = Limited. These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score.

M = Moderate. These species have substantial and apparent-but generally not severe-ecological impacts on physical processes, plant and animal communities, and vegetation structure.

Family	Scientific Name	Common Name	Cal-IPC Status[1]
H = High. These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.			
*Nonnative			

Table A-2. Animal Species Observed

Common Name	Scientific Name
Yellow-faced bumble bee	*Bombus vosnesenskii*
Yellow bumble bee	*Bombus fervidus*
Black-tailed bumble bee	*Bombus melanopygus*
Canada goose	*Branta canadensis*
Red-tailed hawk	*Buteo jamaicensis*
Red-shouldered hawk	*Buteo lineatus*
Anna's hummingbird	*Calypte anna*
American crow	*Corvus brachyrhynchos*
Northern mockingbird	*Mimus polyglottos*
Eastern gray squirrel	*Sciurus carolinensis*

Appendix B. Photos of the Project Site

Photo 1. Representative photo of urban-suburban ornamental vegetation and developed areas on the project site.

Photo 2. Representative photo of urban-suburban landscape vegetation and developed areas on the project site.

Photo 3. Representative photo of California annual grassland habitat on the project site.

Photo 4. Representative photo of California annual grassland habitat on the project site.

Photo 5. Wetland, riverine, and riparian habitat along the Guadalupe River west of the project site.

Photo 6. Wetland, riverine, and riparian habitat along the Guadalupe River west of the project site.

Appendix C. Burrowing Owl Mitigation Agreement

MITIGATION AGREEMENT

between

AGILENT TECHNOLOGIES, INC.

and the

CALIFORNIA DEPARTMENT OF FISH AND GAME

Ref. No. **1802-2000-073-3**

This Mitigation Agreement ("Agreement") is made and entered into by and between Agilent Technologies, Inc. ("Agilent") and the California Department of Fish and Game (the "Department"), a Department of the State of California, collectively "the Parties."

The purpose of this Agreement is to mitigate significant environmental impacts to the Western burrowing owl (*Athene cunicularia*), caused by development at property owned by Agilent (Exhibit B) at 350 Trimble Road, San Jose, California (the "Project"). The Western burrowing owl is a State designated Species-of-Special-Concern.

RECITALS

A. WHEREAS, Agilent proposes to engage in development of a site occupied by 2 nesting pairs of burrowing owls and one resident adult burrowing owl. Agilent proposes to mitigate for impacts to burrowing owls and habitat essential for their survival which occurs on the parcel proposed for development; and

B. WHEREAS, Agilent has agreed that significant environmental impacts to Western burrowing owl habitat may occur as a result of development; and whereas the Department is a responsible agency under the California Environmental Quality Act (CEQA); and

C. WHEREAS, Agilent and the Department have reached agreement on acceptable ways to mitigate the significant environmental impacts to Western burrowing owl habitat; and

D. WHEREAS, Agilent will mitigate Western burrowing owl habitat at a ratio of 6.5 acres of owl habitat for every pair of burrowing owls or single burrowing owl displaced from the project area; and

E. WHEREAS, the Department is trustee for the fish and wildlife resources of the State of California and has jurisdiction over the conservation and protection of fish, wildlife, and native plants, and the habitat necessary for biologically sustainable populations thereof pursuant to California Fish and Game Code Section 1802; and

F. WHEREAS, Western burrowing owls and/or their habitat occurs on the parcel identified for development; and

G. WHEREAS, Agilent's proposed development may result in permanent impacts to habitat occupied by two nesting pairs of burrowing owls and one adult burrowing owl; and

H. WHEREAS, the Department desires, consistent with the policies of California Fish and Game Code Section 1802, that there is permanent protection for burrowing owls and their habitat to assure the conservation, restoration, and long-term survival of this species; and

I. WHEREAS, Agilent agrees to undertake the mitigation measures set forth in this Agreement to offset the adverse impacts to burrowing owls caused by the Project; and

J. WHEREAS, the Project will not be allowed to result in the take of individual burrowing owls, which is prohibited by Fish and Game Code Section 3503.5, and whereas measures will be implemented to assure that no take will occur through the eviction of burrowing owls from the proposed development site during the non-nesting season (September 1 to January 31),

NOW THEREFORE, the Parties agree as follows:

1. NOTIFICATION.

Agilent intends to pursue development opportunities upon execution of this Agreement. This Agreement serves as notification that Agilent intends to commence development activities at its facility in San Jose, California.

2. RESPONSIBLE PARTY.

By execution of this Agreement, Agilent is notifying the Department that Ms. Barrie Simpson, Agilent Technologies, Inc.,350 Trimble Road, San Jose, CA 95131, TEL:(408) 435-4183, or his/her designee, is responsible for overseeing compliance with this Agreement.

3. EVICTION OF OWLS, BUFFER ZONES AND REPORTING OF TAKE

Agilent agrees to comply with the following restrictions during development of the Project:

A. No burrowing owls will be evicted from burrows during the nesting season (February 1 through August 31). Eviction outside the nesting season may be permitted as a means to avoid take, pending evaluation of eviction plans and receipt of formal written approval from the Department authorizing the eviction.

B. A protected area 75 meters (250-foot) in radius, within which no new activity will be permissible, will be maintained between Project activities and nesting burrowing owls or individual resident burrowing owls. This protected area will remain in effect between February 1 and August 31, or, at the Department's discretion and based upon monitoring evidence, until any young owls are foraging independently. In the non-nesting season (September 1 through January 31), a protected area 50 m (165 feet) in radius, within which no new activity will be permissible, will be maintained between Project activities and burrows occupied by burrowing owls. Any development within these protected radii will be approved beforehand in a Memorandum of Understanding or Mitigation agreement with the Department. <u>Notwithstanding anything to the contrary in this paragraph, the Department has the discretion to contract the nesting season period based on evidence the Department deems satisfactory</u>.

C. If accidental take occurs, Agilent will contact the Department immediately.

4. <u>ACQUISITION OF HABITAT LANDS</u>.

A. Agilent agrees to acquire and preserve an area of 19.5 acres of existing burrowing owl foraging and breeding Habitat Management (HM) lands. Alternatively, 19.5 acres of suitable habitat not currently sustaining a burrowing owl population but that (at Agilent's expense, and pending approval by the Department) can be suitably modified to become HM lands may be provided. This acreage is based on 6.5 acres of habitat for each of the two pairs of burrowing owls and one single burrowing owl resident in the project area during the year 2000.

B. HM lands acquired by Agilent shall be transferred to the Department in fee title, or preserved through a conservation easement or a declaration of deed restriction that is approved by the Department. In lieu of transfer to the Department, the HM lands may be transferred to a non-profit corporation or public entity approved by the Department under terms approved by the Department. Agilent agrees to obtain the Department's approval of the HM lands for their biological suitability prior to approval under this agreement or any transfer.

C. In lieu of HM lands acquired directly by Agilent as mitigation for project impacts, acquisition of HM lands through a Department-approved mitigation bank, and in an acreage amount acceptable to the Department, will serve as approved mitigation.

5. <u>LAND RATIO REQUIREMENT</u>.

The required HM lands acreage is based upon the agreement between Agilent and the Department that the development site is utilized for foraging and/or breeding habitat by two pairs of burrowing owls and one single adult burrowing owl, and that one acceptable method of mitigating impacts to burrowing owls and their habitat is off-site preservation of existing burrowing owl habitat in an amount sufficient to sustain the displaced birds or an equivalent population of burrowing owls.

6. <u>CONDITIONS OF HABITAT ENHANCEMENT</u>.

A. The HM lands must comprise existing burrowing owl habitat, or Agilent must undertake habitat enhancement measures. Enhancement measures intended to fulfill suitability requirements for HM lands must be reviewed and approved by the Department. Agilent agrees to demonstrate that the HM lands are suitable for burrowing owl mitigation by providing information that shows burrowing owl distribution on the proposed HM lands or in the vicinity. The total acreage of HM lands protected through this Agreement may exceed the 19.5 acres required, because areas of the HM lands that are not suitable for burrowing owls will not be applied to the total mitigation requirement. Any HM lands protected for the purposes of this Agreement must include areas on-site where burrowing owls can breed successfully. Agilent will be responsible for creating breeding habitat (artificial burrows) on the HM lands if it is determined to be necessary by the Department. Agilent agrees to provide the Department a recent preliminary title report and Level I environmental report for the HM lands. All documents conveying HM lands and all conditions of title are subject to the approval of the Department, the Department of General Services and, if applicable, the Fish and Game Commission.

B. Agilent agrees to acquire 19.5 acres of HM lands within 18 months of the full execution of this Agreement. This requirement will forever mitigate impacts to burrowing owl habitat caused by development activities from Agilent's Project.

C. If Agilent fails to complete the acquisition of 19.5 acres of HM lands within 18 months, or fails to perform other duties identified in this Agreement within the time periods specified, the Department, at its option, may demand that Agilent cure its breach forthwith. The Department may draw upon the security to complete the required acquisition, enhancement and management of HM lands and may pursue other remedies if Agilent fails to cure its breach upon demand.

7. FUNDING REQUIREMENTS FOR MITIGATION LANDS.

A. Agilent shall enhance burrowing owl habitat on the HM lands if the species is not already found on the HM lands, and if the Department approves proposed enhancements as a means of fulfilling suitability requirements on lands not presently suitable. In addition, Agilent shall be responsible for initial protection and enhancement measures on the HM lands; these measures may include but are not limited to fencing, trash clean-up, artificial burrow creation, grazing or mowing, and any habitat restoration deemed necessary by the Department. Alternatively, as its exclusive obligation to enhance owl habitat on HM lands, Agilent may fund the Department's initial protection and enhancement activities on the HM lands by providing the Department a check in the amount of $20,000 drawn from a banking institution located with California. Any unobligated funds for initial protection and enhancement of the HM lands shall be returned to Agilent upon completion of all such activities.

B. Agilent agrees to provide the Department (or non-profit corporation or other public entity, as applicable) with a check in the amount of $40,000 to establish an endowment for the long-term management of the HM lands. Agilent shall transfer these funds to the Department, or its designee, upon the Department's approval of the biological suitability of the HM lands, exceptions and conditions of title, and acquisition by the Department or an agent approved by the Department of HM lands as provided herein. The funds shall be in the form of a check drawn from a banking institution located within California. Such funding shall be used as principal for a permanent capital endowment. Interest from this amount shall be available for operations, management and protection of the HM lands acquired pursuant to this Agreement.

Operation, management and protection activities may include reasonable administrative overhead, biological monitoring, improvements to biological carrying capacity, law enforcement measures, and any other actions designed to protect or improve the habitat values of the HM lands. Money received by the Department pursuant to this provision shall be deposited in a special account established pursuant to Government Code Section 16370. The Department may pool the endowment with other endowments for the operation, management and protection of HM lands for local populations of the Western burrowing owl.

C. Agilent agrees to reimburse the Department for reasonable expenses incurred as a result of the approval and implementation of this Agreement, including costs of title and documentation review, expenses incurred from other state agency reviews and reasonable overhead directly related to this agreement. The Parties estimate that this Agreement will create an additional cost to the Department of up to $3,000 per HM lands acquisition transaction processed regardless of the number of acres in each transaction.

D. Agilent plans to proceed with the Project prior to fully performing the mitigation described in this Agreement. Agilent therefore agrees to secure the performance of its mitigation duties by providing the Department with security in the amount of $414,000, by depositing the same in a Department-approved escrow account at Chase Manhattan Bank in San Francisco within 10 working, days from the date of full execution of this Agreement. If Agilent has not fully performed its duties and obligations under this agreement within 18 months of the execution of this Agreement, Agilent shall pay the Department the estimated cost of performing any unperformed obligation. In the event that Agilent does not pay such a sum to the Department within 10 days' written notice of such an amount being due, the Department may draw upon the deposit provided pursuant to this Agreement and use such funds to acquire, protect, enhance and manage HM lands. Agilent agrees to provide security in the amount of $414,000, including: (1) $20,000 for initial protection and enhancement of the HM lands, (2) $351,000 (19.5 acres at an estimated $18,000 an acre) for the acquisition and/or preservation of the HM lands, (3) $40,000 for an endowment for the long-term management of the HM lands, and (4) $3,000 for transaction processing, if required.

E. The parties estimate that Agilent's costs for the acquisition and transfer of suitable HM lands totaling 19.5 acres of burrowing owl habitat will be $351,000, at an estimated cost of $18,000 an acre. Notwithstanding the above estimate, in the event that acquisition costs exceed the projected amount, Agilent shall not be released from performance of the requirements unless the Department and Agilent agree to modify this Agreement to provide for alternate effective burrowing owl mitigation measures acceptable to the Department. In the event that acquisition costs are less than estimated, Agilent's obligation shall be the actual acquisition cost and associated expenses described in the Agreement.

F. Once Agilent locates the required acreage of suitable HM lands, and demonstrates to the Department's satisfaction that the land is acceptable for mitigation purposes and that the proposed HM lands will be acquired, within ten (10) working days after written request by Agilent, the Department shall authorize for expenditure or return the acquisition funds to Agilent in the amount of $351,000 for purchase of HM lands.

OTHER PROVISIONS

8. The Department, its designee or successor shall hold title to and protect all HM lands conveyed in fee title under this Agreement solely for the purposes of conservation, protection, restoration, and enhancement of the Western burrowing owl and/or its habitats. This covenant shall remain in effect with the land and no use of such land shall be permitted by the Department or any subsequent title holder or assignee which is in conflict with the stated conservation purposes of this Agreement. The Department, its designee or successor may allow some limited grazing on the HM lands if said uses or the management of said uses do not conflict in any way with the Department's conservation goals for burrowing owls.

9. The Department, its designee or successor shall record on each deed a statement that the HM lands described in the deed of record have been conveyed to the Department, its designee or successor for purposes of conservation, protection, restoration and enhancement of the burrowing owl and its habitat.

10. In the event Agilent defaults on any of its material obligations under this Agreement, the Department shall have all rights with respect to any cash security and all remedies available at law or in equity, including specific performance injunction, and without limitation all rights of a secured party pursuant to the California Uniform Commercial Code.

11. All notices and other communications required or permitted under this Agreement shall be in writing and addressed to the parties at the following addresses, or at substitute addresses subsequently provided to any of the parties:

AGILENT TECHNOLOGIES, INCORPORATED:

Barrie Simpson
SPG Environmental Regional Manager
Agilent Technologies, Inc.
350 Trimble Road
San Jose, CA 95131
(408) 435-4183

AND

Environmental Counsel
Agilent Technologies, Inc.
395 Page Mill Rd.
Palo Alto, CA 94306
(650) 752-5000

DEPARTMENT:	General Counsel Legal Affairs Division Department of Fish and Game 1416 Ninth Street, Twelfth Floor Sacramento, CA 95814 (916) 654-5295
AND	Mr. Scott Wilson Region 3 California Department of Fish and Game P.O. Box 47 Yountville, CA 94599 (707) 944-5529

12. Any sale or assignment of this Agreement or any of the rights or obligations thereunder is void absent the written consent of the Parties; provided, however, that no consent shall be required for assignment or pledge made by Agilent (a) to any entity that shall succeed by purchase, merger or consolidation to the properties of Agilent; (b) as security for a debt under the provision of any mortgage, deed of trust, indenture, bank credit agreement, or similar instrument; or (c) to any purchaser of any portion of the San Jose property as further described in Exhibit B attached hereto and incorporated herein.

13. This Agreement comprises the entire agreement and understanding between the Parties concerning the project, and the mitigation of significant environmental impacts regarding western burrowing owls and their habitat. This Agreement supersedes all prior and contemporaneous agreements, representations or understandings, whether oral or written.

14. This Agreement shall be governed by the laws of the State of California. Actual or threatened breach of this Agreement may be prohibited or restrained by a court of competent jurisdiction.

15. This Agreement is solely for the benefit of the People of the State of California, by and through the Department or its designated representative, and Agilent and its successors.

16. From time to time, the Parties shall by mutual agreement execute such instruments and other documents, and take such other actions, as may be reasonably necessary to carry out the terms of this Agreement. This Agreement cannot be amended or modified in any way except by a written instrument duly executed by the Parties or their successors. In any action requiring the agreement or approval of either of the Parties, such agreement or approval shall not be unreasonably denied or withheld, so long as it does not substantially alter the Agreements, duties and remedies of the Parties.

17. It is acknowledged that the purpose of this Agreement is to set forth the obligations and rights of the Parties with respect to the Project and the mitigation of significant environmental impacts on the western burrowing owl and its habitat. The Department will not seek further mitigation or compensation for the western burrowing owl or its habitat from Agilent for impacts within the Project area.

18. This Agreement shall be immediately effective upon execution by the Parties.

19. This Agreement includes and incorporates the following:

EXHIBIT A – Certificate of Public Purpose
EXHIBIT B – Project Description

The Parties acknowledge and accept the terms and conditions of this Agreement as evidenced by the following signatures of their duly authorized representatives. It is the intent of the Parties that this Agreement shall become operative on the last date written below.

AGILENT TECHNOLOGIES, INCORPORATED:

Jim Schnur
Global Real Estate Manager

Date: 1/3/01

CALIFORNIA DEPARTMENT OF FISH AND GAME

Robert W. Floerke
Regional Manager, Region 3

Date: 1/5/01

EXHIBIT A

CERTIFICATE OF PUBLIC PURPOSE

This is to certify that the interest in real property conveyed by the deed or grant of the following property____

____

____, dated _____________________, from ____, to the California Department of Fish and Game (the "Department"), grantee, a governmental agency (under section 27281 of the Government Code) is hereby accepted by the undersigned officer on behalf of the Department, pursuant to authority conferred upon him by resolution of the ___________________________ on ______________________.

The public purpose of this real property conveyance and the recordation hereof is being accomplished pursuant to the terms and conditions of the Mitigation Agreement ("Agreement") entered into on ______________________ by and between_________________ and the Department.

The Agreement, among other terms and conditions not relevant here, provides at paragraph 8:

> "The Department, its designee or successor shall hold title to and protect all HM lands conveyed in fee title under this Agreement solely for the purposes of conservation, protection, restoration, and enhancement of the western burrowing owl. This covenant shall run with the land and no use of such land shall be permitted by the Department or any subsequent title holder or assignee which is in conflict with the stated conservation purposes of this Agreement. The Department, its designee or successor may allow some limited grazing on the HM lands if said uses or the management of said uses do not conflict in any way with the conservation goals for burrowing owls."

A copy of this Agreement in its entirety may be obtained by interested parties by sending a request to the Director of the Department at the address below.

DEPARTMENT OF FISH AND GAME
OF THE STATE OF CALIFORNIA
1416 Ninth Street
Sacramento, California 95814

By:___________________________
Title:__________________________
Authorized Representative
Date:__________________________

EXHIBIT B

LEGAL DESCRIPTION

All that certain Real Property in the City of San Jose, County of Santa Clara, State of California, as described as follows:

Parcel One:

Parcel "D" as shown on that Parcel Map filed for record in the Office of the Recorder of the County of Santa Clara, State of California on March 28, 1979, in Book 415 of Maps at Pages 40 and 41.

Together with that portion of Parcel "A" as Parcel "A" is shown on said Parcel Map filed for record in Book 415 of Maps at Pages 40 and 41, Santa Clara County Records, described as follows:

Beginning at the most Westerly corner of Parcel "A" as shown on said Parcel Map, said corner being a point in the general Northeasterly boundary of said Parcel "D"; thence along said boundary of Parcel "D" the following two (2) courses; South 30° 45' 42" East 34.57 feet; thence along a tangent curve to the left having a radius of 167.00 feet, through a central angle of 56° 05' 54", an arc distance of 163.51 feet to the True Point of Beginning; thence continuing along said general Northeasterly boundary of said Parcel "D" following two (2) courses: continuing along the last said tangent curve to the left having a radius of 167.00 feet, through a central angle of 4° 54' 33", an arc distant of 14.31 feet; thence North 88° 13' 51" East 372.44 feet; thence leaving said boundary along the Northwesterly prolongation of the boundary line labeled with "North 46° 46' 09" West 233.00" on said Parcel Map, North 46° 46' 09" West 192.19 feet; thence South 59° 53' 26" West 284.99 feet to said True Point of Beginning.

Excepting therefrom that portion of Parcel "D" as Parcel "D" is shown on said Parcel Map filed for record in Book 415 of Maps at Pages 40 and 41, Santa Clara County Records, described as follows:

Beginning at the most Northerly corner of said Parcel "D", said corner being on the Southwesterly line of Trimble Road; thence along the Easterly line of said Parcel "D" the following three courses: South 29° 48' 03" 159.30 feet; thence South 4° 14' 18" West 189.49 feet; thence South 45° 45' 42" East 70.32 feet to the True Point of Beginning; thence continuing along said Easterly line, South 45° 45' 42" East 266.06 feet; thence South 30° 45' 42" East recorded 62.48 feet thence leaving said Easterly line South 59° 14' 18" West 86.11 feet; thence along a tangent curve to the right having a radius of 246.00 feet, through a central angel of 38° 25' 29", an arc length of 164.98 feet; thence North 82° 20' 13" West 4.00 feet, thence along a tangent curve to the left having a radius of 28.00 feet through a central angle of 90° 00' 00" for an arc length of 43.98 feet; thence North 7° 39' 47" East 327.99 feet; thence along a tangent curve to the left having a radius of 650.00 feet through a central angel of 1° 15' 37" for an arc length of 14.30 feet to the True Point of Beginning.

Excepting therefrom all oil, gas, other hydrocarbon substances, minerals, and naturally created hot water and steam in and under said real property and lying below a plane which is 500 feet below the surface of the ground; provided, however, that any exploration for or removal of any such oil, gas, other hydrocarbon substances, minerals, and naturally created hot water and steam shall be by means of slant drill or other kinds of drilling coming from said real property and shall be performed so as not to endanger said surface or any structure which shall be erected or constructed thereon, as reserved by Pacific Gas and Electric Company, a California Corporation By Deed recorded March 31, 1978 in Book D 564, Page 495, Official Records of Santa Clara County.

Parcel Two:

Commencing at a 3" x 4" post marked B.1 standing on the Westerly line of the San Jose and Alviso County Road, from which an iron rod in the center of said road bears North 43 deg. 24' East distant 40.20 feet; thence running along the Westerly line of the San Jose and Alviso County Road, South 30 deg. 45' East 10.50 chains to a 3" x 4" stake marked 1 and 2; thence South 44 deg. 23' West along the line between Lots 1 and 2 of the Horn Subdivision, 32.93 chains to a 3" x 4" post marked 4 and 2; thence North 43 deg. 24' East and along the line between lands of W. H. Dawson and the Horn Subdivision, 33.85 chains to the place of commencement.

And being Lot 2 of the Horn Subdivision of B. Bardue Tract, Santa Clara County, California

NOTE: There is no Map of Record of the Horn Subdivision hereinabove referred to.

Excepting therefrom, that portion thereof, as conveyed to City of San Jose, A Municipal Corporation by Deed Recorded August 26, 1985 in Book J438, Page 330 of Official Records, described as follows:

Being a portion of Lot 2 of the Horn Subdivision of B. Bardue Tract (unrecorded) and also being a portion of that certain 33.939 acres parcel of land shown on Sheet 5 of 5 of that certain Record of Survey filed in Book 381 of Maps at Pages 19 through 23, Records of Santa Clara County, California and more particularly described as follows:

Beginning at the point of intersection of the Southwesterly line of North First street (40.00 feet half-sheet) with the dividing line between the said 33.939 acres parcel of land and that certain 34.903 acres parcel of land as said parcels and Street are shown on said Record of Survey, thence Northwesterly along the said Southwesterly line of North First Street North 29 deg. 59' 11" West 718.81 feet to the Northeasterly corner of said 33.939 acres parcel of land South 44 deg. 00' 22" West 28.49 feet to a point that is 77.00 feet Southwesterly at right angles to the centerline of North First Street; thence Southerly South 5 deg. 37' 02" East 52.93 feet to a point on a curve; thence Easterly and Southeasterly along said curve from a tangent that bears North 84 deg. 22' 58" East with a radius of 52.50 feet through a central angle of 62 deg. 21' 24" and an arc length of 57.14 feet; thence Southeasterly the following described courses: South 33 deg. 15' 39" East 54.02 feet, South 29 deg. 59' 11" East 48.00 feet, South 40 deg. 36' 22" East 28.49 feet, South 29 deg. 59' 11" East 118.50 feet, South 31 deg. 37' 23" East 96.29 feet, South 29 deg. 59' 11" East 74.99 feet to the said dividing line between the 33.939 acres parcel and 34.903 acre parcel; thence Northeasterly along the said dividing line North 43 deg. 07' 44" East 17.59 feet to the point of beginning.

Also Excepting therefrom

All that certain Parcel of land situate in the City of San Jose, County of Santa Clara, State of California, and being a portion of Lot 2 of the Horn Subdivision of B. Bardue Tract (unrecorded) and also being a portion of that certain 33.939 acres parcel of land shown on Sheet 5 of 5 of that certain Record of Survey Map filed in Book 381 of Maps at Pages 19 through 23, Records of Santa Clara County, California, and more particularly described as follows:

Beginning at the Southwesterly corner of that certain parcel of land described in that Grant Deed filed in Book J438, Page 330, Official Records of Santa Clara County, California, thence Northwesterly along the Southwesterly lines of the said Parcel of land above referenced the following four (4) described coursed:

1.) North 29 deg. 59' 11" West 274.99 feet,
2.) North 31 deg. 37' 23" West 96.29 feet,
3.) North 29 deg. 59' 11" West 118.50 feet,
4.) North 40 deg. 36' 22" West 28.49 feet to a point of cusp with a line that is parallel to and distant 65.00 feet Southwesterly and measured at right angle to the centerline of North First Street as said Street is shown on said Record of Survey; thence Southeasterly along the said parallel line South 29 deg. 59' 11" East 519.98 feet to the Southeasterly line of the said 33.939 acre parcel of land; thence Northeasterly along the said Southeasterly line North 45 deg. 07' 44" East 8.28 feet to the Point of Beginning.

Parcel Three:

Commencing at a 3" x 4" post marked 4 and 2 standing on the line between the lands of W. H. Dawson, and the Horn Subdivision; and running thence South 43 deg. 24' West 14.49 chains to a 3" x 4" post marked B.14; standing on the Easterly bank of the Guadalupe River, from which a leaning Live Oak Tree 3 feet in diameter marked B.T.B.14 bears North 14 deg. 20' West 4 links, running thence along Easterly bank of the said Guadalupe River on the following courses and distances: South 14 deg. 20' East 1.03 chains to a point marked B.13, South 5 deg. 54' East 2.97 chains to a post marked B.12; South 13 deg. 14' West 1.84 chains to a 2" x 4" marked Lots 3 and 4; leaving said river and running North 44 deg. 58' East along a line between Lots 3 and 4 of the Horn Subdivision 16.90 chains to a 3" x 4" post marked 3-4 & 2 standing on the Westerly line of Lot 2 of the Horn Subdivision; thence along the Westerly line of said Lot 2, North 34 deg. 54' West 5.24 chains to the place of commencement.

Being Lot 4 of the Horn Subdivision of the B. Bardue Tract, Santa Clara County, California, Course True. Magnetic Variation 16 deg. East.

NOTE: There is no map of record of the Horn Subdivision hereinabove referred to. Excepting therefrom that certain 1.529 acre tract of land described in the Deed from Martimer A. French, et al., to the Santa Clara County Flood Control and Water Conservation District, State of California, Dated October 26, 1960 recorded December 6, 1960 in Book 5003 of Official Records, at Page 141, Santa Clara County Records, described as follows:

Beginning at a point in the Southeasterly line of the 95.97 acre parcel of land conveyed to Clementine R. Goscila recorded in Book 1644 of Official Records, at Page 427 in the Office of the Recorder of the County of Santa Clara, State of California, (said point being a 3" x 4" post marked 4 and 2 standing on the line between lands of W. H. Dawson and the Horn Subdivisions) said point being distant along said Southeasterly line of said 95.97 acre parcel of land South 44 deg. 02' 24" West 2281.90 feet from the point of intersection of said Southeasterly line with the center line of the San Jose-Alviso Road; thence from said point continuing along said Southeasterly line South 44 deg. 02' 24" West 791.60 feet to the True Point of Beginning of this description; thence from said point of beginning from a tangent bearing South 33 deg. 24' 25" East on a curve to the right with a radius of 650 feet through an angle of 31 deg. 51' 18" for a distance of 361.38 feet to a point in the line between Lots 3 and 4 of said Horn Subdivision; thence Southwesterly along said line being the present Southeasterly line of Alden French, et al., to a point in the Westerly line of said lands of French; thence Northerly along said Westerly line of said lands of French said point bearing South 44 deg. 02' 24" West from the point of beginning; thence North 44 deg. 02' 24" East along said line last mentioned to the True Point of Beginning of this description, being a part of Lot 4 of the Horn Subdivision of the B. Bardue Tract containing 1.529 acres of land more or less, and being all that parcel of the lands of French Northeasterly adjacent to the Guadalupe River lying within the bounds of the proposed 300 foot realignment channel of the Guadalupe River 1959 Project C-1-3.

Parcel Four:

An easement for ingress and egress as conveyed to Hewlett-Packard Company, a California Corporation by that certain grant Deed executed by Watkins-Johnson Company and recorded August 23, 1978 in Book D906, Page 357, Official Records, being more particularly described as follows:

All that certain Real Property situate in the City of San Jose, County of Santa Clara, State of California, being a portion of that certain parcel of land shown as Parcel "B" on that certain Parcel Map recorded in Book 415 of Maps at Pages 40 and 41 Santa Clara County Records.

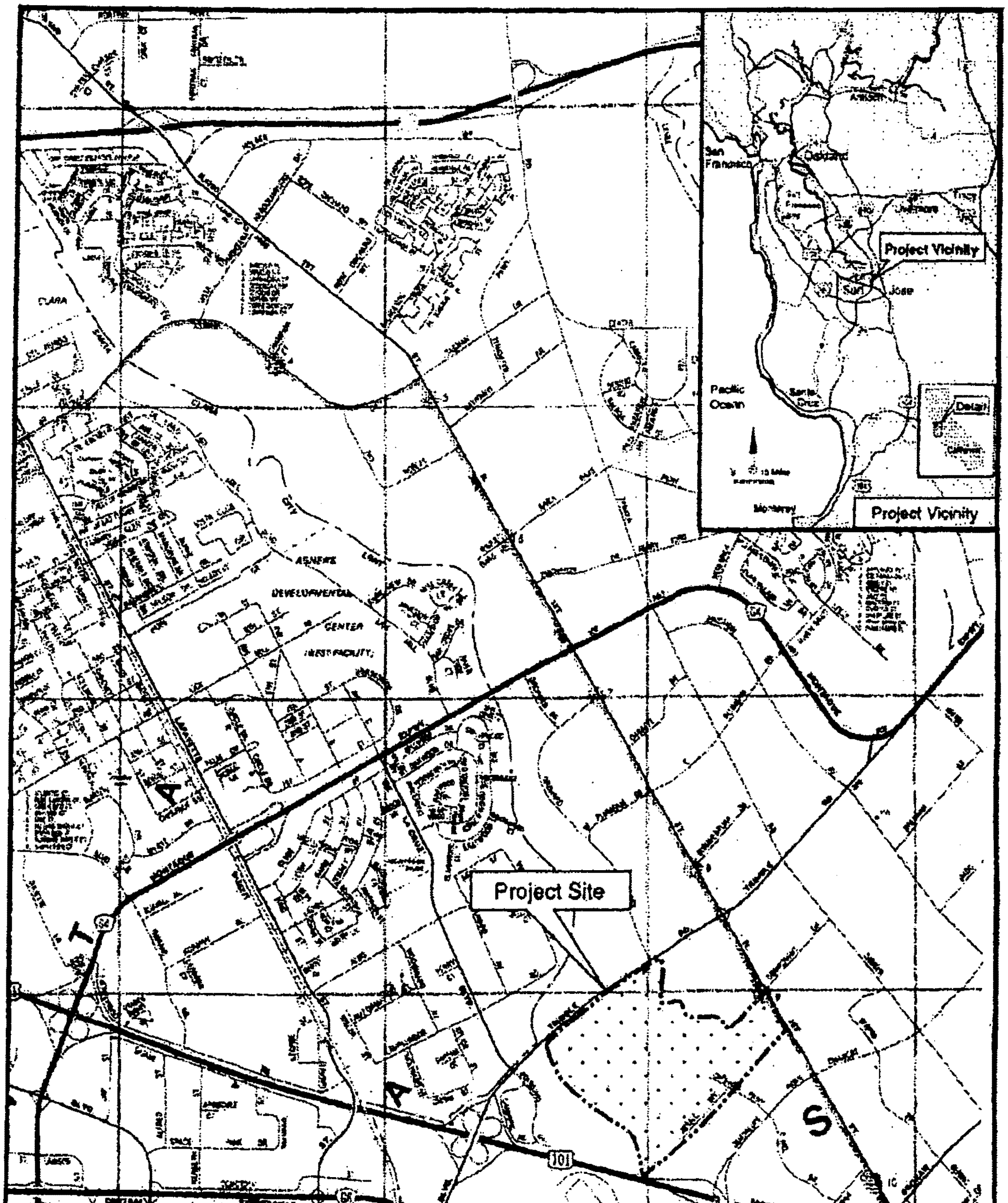
Beginning at the most Westerly corner of said parcel, said corner lying on the Southeasterly line of Trimble Road, as said Road is shown on said Map; thence along said Southeasterly line, being common with the Northwesterly line of said parcel, North 60 deg. 11' 57" East 65.37 feet; thence leaving said common line, in a Southerly direction along a nontangent curve to the left having a radius of 60.00 feet, concave to the East, whose radius point bears South 65 deg. 02' 54" East through a central angle of 54 deg. 45' 09" an arc length of 57.34 feet to a point in a line that is parallel with and 40.00 feet Northeasterly measured at right angles from the most Northerly course in the general Southwesterly line of said parcel; thence along said parallel line South 29 deg. 48' 03" East 50.00 feet; thence along a tangent curve to the right having a radius of 186.00 feet through a central angle of 35 deg. 40' 26" an arc length of 114.81 feet to the point of reverse curvature; thence along a tangent curve to the left, having a radius of 150.00 feet, through a central angel of 51 deg. 38' 05" an arc length of 135.18 feet; thence South 45 deg. 45' 42" East 169.47 feet; thence along a tangent curve to the left having a radius of 100.00 feet through a central angle of 60 deg. 04' 00", an arc length of 104.84 feet; thence South 30 deg. 45' 42" East 55.38 feet; thence South 59 deg. 14' 18" West 10.98 feet; thence along a tangent curve to the left having a radius of 50.00 feet, through a central angle of 32 deg. 14' 18", an arc length off 28.13 feet to a point of reverse curvature; thence along a tangent curve to the right, having a radius of 50.00 feet, through a central angle of 143 deg. 32' 50" an arc length of 125.27 feet to a point of reverse curvature; thence along a tangent curve to the left, having a radius of 50.00 feet, through a central angle of 36 deg. 18' 32" an arc length of 31.69 feet; thence North 45 deg. 45' 42" West 265.51 feet; thence along a tangent curve to the left having a radius of 25.00 feet through a central angel of 10 deg. 58' 11", an arc length of 4.79 feet to a point in the general Northwesterly line of said Parcel B; thence along said generally Southwesterly line the following courses; thence North 4 deg. 14' 18" East 148.43 feet; thence North 29 deg. 48' 03" West 159.30 feet to the Point of Beginning.

Excepted therefrom that portion thereof vacated by that certain Quitclaim Deed recorded June 17, 1998 as Instrument No. 13742915, Official Records.

Parcel Five

All that certain real property situated in the City of San Jose, County of Santa Clara, State of California, being a portion of that certain Parcel of Land shown as containing 7.802 acres, more or les, on Sheet 4 of that certain Record of Survey, recorded in Book 381 of Maps at Pages 19 through 23, Santa Clara County Records and being more particularly described as follows:

Commencing at the most Easterly corner of said parcel, said corner being also a point on the centerline of North First Street, as said street is shown on said map; thence leaving said centerline, South 48 deg. 52' 01" West 78.28 feet to the Point of Beginning lying on a line that is parallel with, and 77.00 feet Southwesterly, measured at right angles, from said centerline; thence leaving said parallel line, continuing South 48 deg. 52' 01" West 279.77 feet; thence along a tangent curve to the left having a radius of 1,000.00 feet, through a central angel of 4 deg. 38' 10" an arc length of 98.37 feet to a point in a line that is parallel with and 40.00 feet Northwesterly, measured at right angles, from the Southeasterly line of said 7.802 acre parcel; thence along said parcel line South 43 deg. 13' 51" West 420.78 feet; thence leaving said parallel line North 46 deg. 46' 09" West 40.00 feet to a point in the general Northwesterly line of said parcel, said point of being also the most Southerly corner of that certain parcel of land shown as Parcel 1, on that certain Parcel Map recorded in Book 390 of Maps, at Pages 25 and 26, Santa Clara County Records; thence along said Parcel 1, North 43 deg. 13' 51" East 110.00 feet to an angle point in said common general line; thence leaving said common general line, continuing North 43 deg. 13' 51" East 310.78 feet; thence along a tangent curve to the right, having a radius of 1,040.00 feet, through a central angle of 5 deg. 38' 10" an arc length of 102.30 feet; thence North 48 deg. 52' 01" East 242.07 feet; thence along a tangent curve to the left, having a radius of 54.00 feet, through a central angle of 68 deg. 97' 59" an arc length of 64.21 feet to a point on said common general line; thence along said common general line, North 43 deg.13' 51" East 1.13 feet to a point on a line that is parallel with, and 77.00 feet Southwesterly, measured at right angles, from said center line of North First Street; thence leaving said common general line along said parallel line South 30 deg. 45' 42" East 75.23 feet to the Point of Beginning.



H.T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS

Agilent Technologies Burrowing Owl Nests

File No. 1672-02	Date 8/31/00	Figure 1

Map Copyrighted September 1999
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Automobile Association
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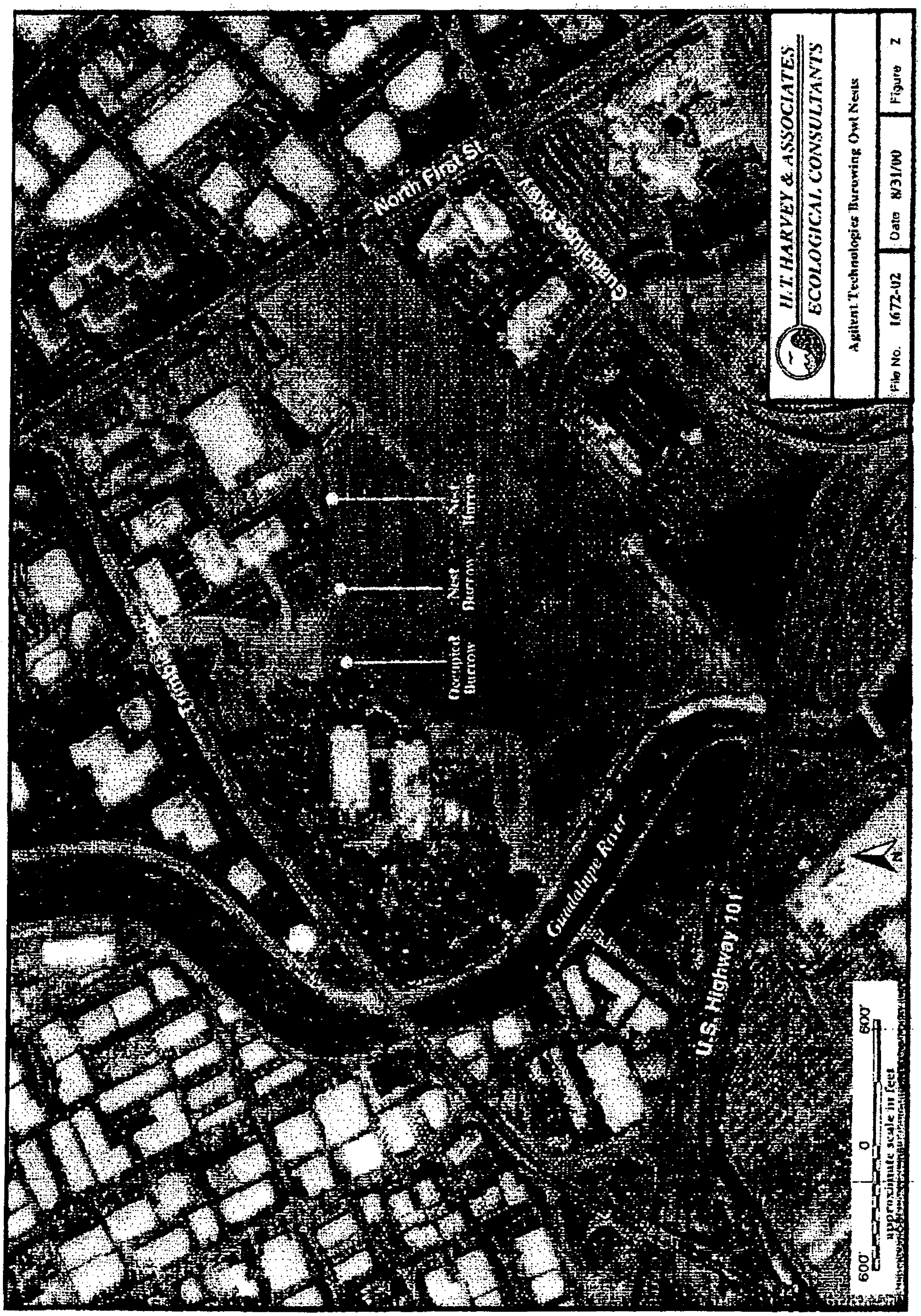
N

0 1 mile
approximate scale in miles



H.T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS
Agilent Technologies Burrowing Owl Nests
File No. 1672-02
Date 8/31/00
Figure 2
North First St.
Guadalupe Pkwy
Occupied Burrow
Nest Burrow
Nest Burrow
Guadalupe River
U.S. Highway 101
600
0
600
approximate scale in feet

State of California – The Natural Resources Agency
EDMUND G. BROWN JR., *Governor*
DEPARTMENT OF FISH AND GAME
CHARLTON H. BONHAM, *Director*
Bay Delta Region
7329 Silverado Trail
Napa, CA 94558
(707) 944-5500
www.dfg.ca.gov

November 15, 2012

Ms. Vera Todorov
Sr. Deputy City Attorney
200 East Santa Clara Street, 16th Floor Tower
San Jose, CA 95113-1905

Dear Ms. Todorov:

Subject: Santa Clara Valley Habitat Plan – Mitigation Agreement Between Agilent Technologies, Inc. and California Department of Fish and Game (Ref. No. 1802-2000-073-03)

The California Department of Fish and Game (DFG) has reviewed your letter dated November 2, 2012 requesting the status of the above referenced Agreement. DFG confirms that the terms of the Agreement have been fulfilled and per the terms of the Agreement, DFG requires no additional mitigation.

From your letter and conversations between City of San Jose (City) staff and DFG, it is our understanding that any determination by the City regarding the property that was formerly the Agilent project area will not affect the City's ability to successfully implement the conservation strategy for the western burrowing owl described in the Santa Clara Valley Habitat Plan and will not change that strategy.

If you have any questions, please feel free to contact me at (707) 944-5517.

Sincerely,

Scott Wilson
Acting Regional Manager
Bay Delta Region