Initial Study
for the
Pier S Battery Energy
Storage System Project
Port of Long Beach

Prepared for:

Port of Long Beach
415 W. Ocean Boulevard
Long Beach, California 90802

Prepared by:

HDR Engineering, Inc.
100 Oceangate, Suite 1120
Long Beach, CA 90802

December 2024

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INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Prepared in Accordance with the
California Environmental Quality Act of 1970
for the

PIER S BATTERY ENERGY STORAGE SYSTEM PROJECT

Harbor Development Permit Application No. 23-022

The narrative and attached documents, including the project description and staff analysis, constitute an Initial Study/Mitigated Negative Declaration (IS/MND), prepared in accordance with the California Environmental Quality Act.

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION ISSUED
FOR PUBLIC REVIEW:

DECEMBER 13, 2024 – JANUARY 17, 2025

BY DIRECTOR OF ENVIRONMENTAL PLANNING: ________________________

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION ADOPTED
BY CITY OF LONG BEACH BOARD OF HARBOR COMMISSIONERS

DATE::________________________RESOLUTION NO.:_____________________

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Acronyms and Abbreviations

AB	Assembly Bill
AC	alternating current
ACM	asbestos containing materials
AEGL	Acute Exposure Guideline Level
AIHA	American Industrial Hygiene Association
AOIs	Areas of Interest
AQMP	Air Quality Management Plan
ArcLight	ArcLight Energy Partners Fund VII, L.P.
BESS	Battery Energy Storage System
bgs	below ground surface
BMP	Best Management Practices
BMS	Battery Management System
CAAP	Clean Air Action Plan
CAAQS	California Ambient Air Quality Standards
CAISO	California Independent System Operator
CalEPA	California Environmental Protection Agency
CalFIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CAMS	Consolidated Asset Management Services
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAVA	Climate Adaptation Vulnerability Assessment
CCA	California Coastal Act
CCAR	California Climate Action Registry
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDMP	Construction and Demolition Management Plan
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COPCs	chemicals of potential concern
CoSMos	Coastal Storm Modeling System

CPUC	California Public Utilities Commission
CRHR	California Register of Historic Resources
CUPA	Certified Unified Program Agency
cy	cubic yards
DC	direct current
District 4	Terminal Island Planning District
DOC	California Department of Conservation
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
EIR	Environmental Impact Report
ERPG	Emergency Response Planning Guideline
ESA	Environmental Site Assessment
ESHA	Environmentally Sensitive Habitat Area
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone
GHG	greenhouse gases
GWP	global warming potential
HAPC	Habitat Area of Particular Concern
HFCs	hydroflorocarbons
HCl	hydrogen chloride
HCN	hydrogen cyanide
HF	hydrogen fluoride
HMA	Hazard Mitigation Analysis
HMBP	hazardous materials business plans
IEEE	Institute of Electrical and Electronics Engineers
IFC	International Fire Code
IS/MND	Initial Study/Mitigated Negative Declaration
kv	kilovolt
LBFD	Long Beach Fire Department
LBGS	Long Beach Generation Station
LBMC	Long Beach Municipal Code
LBP	lead based paint
LBPD	Long Beach Police Department
LBUSD	Long Beach Unified School District
LOC	level of concern
MEER	Mechanical Electric Equipment Room

MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendent
MRZ	Mineral Resource Zone
$MTCO_2e$	metric ton of carbon dioxide equivalent
MW	megawatt
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEHRP	National Earthquake Hazard Reduction Program
NESHAP	National Emission Standards for Hazardous Air Pollutants
NF_3	nitrogen trifluoride
NFPA	National Fire Protection Association
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
OCA	Offsite Consequence Analysis
OPC	Ocean Protection Council
Pb	lead
PFCs	perflurorocarbons
PH_3	phosphine
$PM_{2.5}$	particulate matter with diameters of 2.5 microns or less
PM_{10}	particulate matter with diameters of 10 microns or less
PMP	Port Master Plan
POLB	Port of Long Beach
PRC	Public Resources Code
RCP	Regional Comprehensive Plan
RCRA	Resource Conservation and Recovery Act
RFI	Facility Investigation
RTP	Regional Transportation Program
RWQCB	Regional Water Quality Control Board
SCAB	South Coast Air Basin
SCADA	Supervisory Control and Data Acquisition
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCS	Sustainable Communities Strategy
SEA	Significant Ecological Area

SF_6	sulfur hexafluoride
SLF	Sacred Lands File
SLR	sea level rise
SO_2	sulfur dioxide
SPCC	spill prevention control and countermeasures
SVOC	semi-volatile organic compounds
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TCR	Tribal Cultural Resource
UL	Underwriters Laboratories
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VHFHSZ	very high fire hazard severity zones
VOC	volatile organic compounds
WDR	waste discharge requirement

1 Introduction

1.1 Proposed Project Overview

Pier S Energy Storage LLC (Pier S Energy or Applicant) submitted an application for a Harbor Development Permit (HDP) with the Port of Long Beach (POLB) on April 26, 2023, to construct and operate a 70-megawatt (MW) battery energy storage system (BESS) and accompanying infrastructure on approximately 2.9 acres of an existing privately-owned 18.03-acre power generation site located on Pier S within the POLB Harbor District and make associated infrastructure upgrades on an adjacent 1.5 acres of an existing 23.49-acre Southern California Edison (SCE) parcel (Project). The proposed Project involves installing up to 200 individual metal containers enclosing lithium-ion BESS, a power conversion system, a new BESS substation, and upgrades to the adjacent SCE Long Beach Bus Substation.

1.2 Environmental Analysis

1.2.1 CEQA Process

This Initial Study (IS) and Mitigated Negative Declaration (MND) (collectively, IS/MND) has been prepared pursuant to the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq., the amended State CEQA Guidelines (14 CCR 15000 et seq.). The purpose of the IS/MND is to inform the decision-makers, responsible agencies, and the public of the proposed Project, the existing environment that would be affected by the proposed Project, the environmental effects that would occur if the proposed Project is approved, and proposed mitigation measures that would avoid or reduce environmental effects to the extent feasible.

Under CEQA, if the Lead Agency finds “there is no substantial evidence in light of the whole record before the Lead Agency” that the Project, either as proposed or as modified to include the mitigation measures identified in the IS, may cause a significant effect on the environment, the Lead Agency shall prepare and adopt a Negative Declaration (or MND) for that Project. (Section 21080(c), Public Resources Code). If there is substantial evidence potentially significant impacts would occur as a result of implementation of the Project, the Lead Agency shall prepare an Environmental Impact Report (EIR). (Section 21080(d), Public Resources Code). The Lead Agency is responsible for determining whether a Negative Declaration (or MND) or an EIR is required (Section 21080.1, Public Resources Code).

The IS found potentially significant impacts associated with the proposed Project related to Hazards and Hazardous Materials. However, mitigation measures required for the proposed Project would avoid and/or mitigate the effects to a less than significant level. With the implementation of mitigation measures, there is no substantial evidence in light of the whole record before the Lead Agency that the proposed Project may have a significant effect on the environment. Therefore, this IS/MND was prepared and an EIR is not required.

The IS/MND is prepared in accordance with CEQA and is intended as an informational document undertaken to provide an environmental basis for subsequent discretionary actions for the proposed Project. The resulting documentation is not a policy document and its approval and/or adoption neither presumes nor mandates any actions on the part of other agencies from whom permits and other discretionary approvals would be required for the proposed Project.

1.2.2 CEQA Lead Agency

The City of Long Beach, acting by and through its Board of Harbor Commissioners, the POLB, is the lead agency for review of the proposed Project pursuant to CEQA.

1.2.3 Initial Study

The IS/MND presents an analysis of potential effects of the proposed Project on the environment based on Harbor Development Permit Application 23-022 submitted to the POLB by Pier S Energy on April 26, 2023, associated submittals, POLB data requests, and additional research. Based on Appendix G of the State CEQA Guidelines, the following environmental resource areas are evaluated in the IS/MND based on the proposed Project's potential direct and indirect effects on the environment:

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

The IS/MND has been organized into the following sections:

- **Section 1: Introduction**. Provides an introduction and overview describing the proposed Project and the CEQA process and identifies key areas of environmental concern to be analyzed.
- **Section 2: Project Description**. Provides an in-depth description of the proposed Project, including construction details and methods.
- **Section 3: Environmental Determination**. Presents the results of the analysis completed in Section 4.
- **Section 4: Environmental Analysis**. Provides an analysis of the proposed Project's potential environmental impacts.
- **Section 5: Mitigation Monitoring and Reporting Program.** Provides a list of Project Mitigation Measures and responsibilities for their implementation.
- **Section 6: Report Preparation**. Provides a list of the people with key input into this Project.
- **Section 7: References**. Provides a list of references cited for the environmental analysis.

2 Project Description

2.1 Project Title

Pier S Battery Energy Storage System Project

2.2 Lead Agency Name and Address

Port of Long Beach
City of Long Beach Harbor Department
Environmental Planning Division
415 W. Ocean Boulevard
Long Beach, CA 90802

2.3 Lead Agency Contact Person

Anjana Mepani, Environmental Officer of CEQA/NEPA Practices
Environmental Planning Division
(562) 283-7100
piersbess@polb.com

2.4 Project Location

The proposed Project site is located at 2665 Pier S Lane, Long Beach, CA 90802 in the Terminal Island Planning District (District 4) of the Long Beach Harbor (POLB 1990). The proposed Project would be sited on approximately 2.9 acres of an existing 18.03-acre privately-owned parcel (APN 7436-030-814), located on the southeastern border of Pier S and on an adjacent 1.5 acres of an existing 23.49-acre SCE parcel (APN 7436-030-006). The BESS facility would be constructed on the 2.9-acre area and the infrastructure upgrades would occur on the 1.5 acres of the existing SCE parcel. **Figure 1** shows the proposed Project site within a regional context while **Figure 2** shows the existing uses on and adjacent to the proposed Project site.

2.5 Project Applicant's Name and Address

Pier S Energy Storage, LLC
200 Clarendon Street, Floor 55
Boston, MA 02116

2.6 General Plan Land Use Designation

The City of Long Beach General Plan Land Use Element, adopted in 2019, designates the POLB as a Regional-Serving Facility "PlaceType," which is defined as a flexible zoning type including "facilities, businesses and operations that not only serve the City of Long Beach, but also the region and parts of the nation." According to Table LU-6: PlaceTypes and Zoning Districts Consistency Matrix in the City of Long Beach General Plan Land Use Element, this PlaceType is consistent with Light, Medium, General, and Port related Industrial Zoning Districts (COLB 2019a).

2.7 Zoning District

The proposed Project site is located within the Long Beach Harbor District, an area administered by the City of Long Beach Harbor Department. Land use and development in the POLB is guided by its Port Master Plan (PMP) (POLB 1990). The PMP was originally certified by the California Coastal Commission in 1978 and updated and certified in 1983 as the third amendment to the PMP, with the last comprehensive update to the PMP occurring in 1990 as the sixth amendment. Since 1990, 12 amendments to the PMP have been adopted by the POLB and certified by the California Coastal Commission.

The proposed Project site is located within the Terminal Island Planning District (District 4). The PMP identifies permitted land uses for District 4 to include primary port facilities, hazardous cargo facilities, port-related, navigation, federal uses, oil production, ancillary port facilities, utilities, and police headquarters and training academy (POLB 1990). The proposed Project site is located within the boundaries of the City of Long Beach, zoned Port-related Industrial (IP) by the City of Long Beach (COLB 2021).

2.8 Surrounding Land Uses and Setting

The proposed Project site is located on Pier S at the POLB, at 2665 Pier S Lane, Long Beach, CA 90802, to the north of the Long Beach International Gateway Bridge/Interstate I-710 (I-710). As shown in **Figure 2**, to the north of the proposed Project site is the Pacific Crane Maintenance Terminal, LLC, a chassis support facility, and the SCE Long Beach Bus Substation. To the west of the proposed Project site is the Zenith Terminals and to the east of the proposed Project site is the Inner Harbor.

Adjacent roadways providing local vehicular access to the proposed Project site include Pier T Avenue and Pier T Lane to the south. There is secondary access to the proposed Project site to the northeast, however, this access is limited to emergency vehicles only. While additional internal access roads may be constructed as part of the proposed Project, implementation of the proposed Project is not anticipated to change existing vehicular access on public roads to the proposed Project site.

The proposed Project site is located on the larger former SCE Long Beach Generation Station (LBGS) which has been owned by multiple entities, including SCE (from 1910 to 1998) and Long Beach Generation LLC, also referred to as NRG Energy, Inc (from 1998 to 2021). The property was then sold to Generation Bridge in 2021, a wholly owned subsidiary of ArcLight Energy Partners Fund VII, L.P. (ArcLight). Consolidated Asset Management Services (CAMS) is the current LBGS operator and asset manager on behalf of the property owner, Generation Bridge.

As previously stated, the proposed Project would be sited on approximately 2.9 acres of the existing 18.03-acre privately-owned parcel and on an adjacent 1.5 acres of an existing 23.49-acre SCE parcel. The 15.13 acres that comprise the remainder of the privately-owned parcel is developed with the Long Beach Power Plant and its supporting infrastructure. Overall, the privately-owned parcel is currently used for power generation via the Long Beach Power Plant. Energy generated from the 252 MW gas fired thermal power plant is used to supply backup power when generation from intermittent renewable resources is unavailable or other grid reliability issues occur. Existing utilities at the proposed Project site include high-voltage electrical lines, oil and gas lines, stormwater drains, sewer, water, and communication lines. The proposed Project site also includes wooden-post light poles that are over 100 feet in height and contain downward-oriented light fixtures.

The proposed Project site originally sat approximately 15 feet above mean lower water datum; however, due to oil field development and crude oil well pumping activities in the area, land elevation in the area dropped to approximately 30 feet. The subsidence in the area has resulted in the proposed Project site being sited below sea level. To address subsidence impacts attributable to oil well pumping activities, a levee located on the northeastern portion of the proposed Project site (adjacent to the Inner Harbor) was constructed in 1942 and subsequently raised three times in 1948, 1951, and 1955 with the top of the levee approximately 30 feet higher than the ground floor of the proposed Project site.

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Figure 1. Regional Location

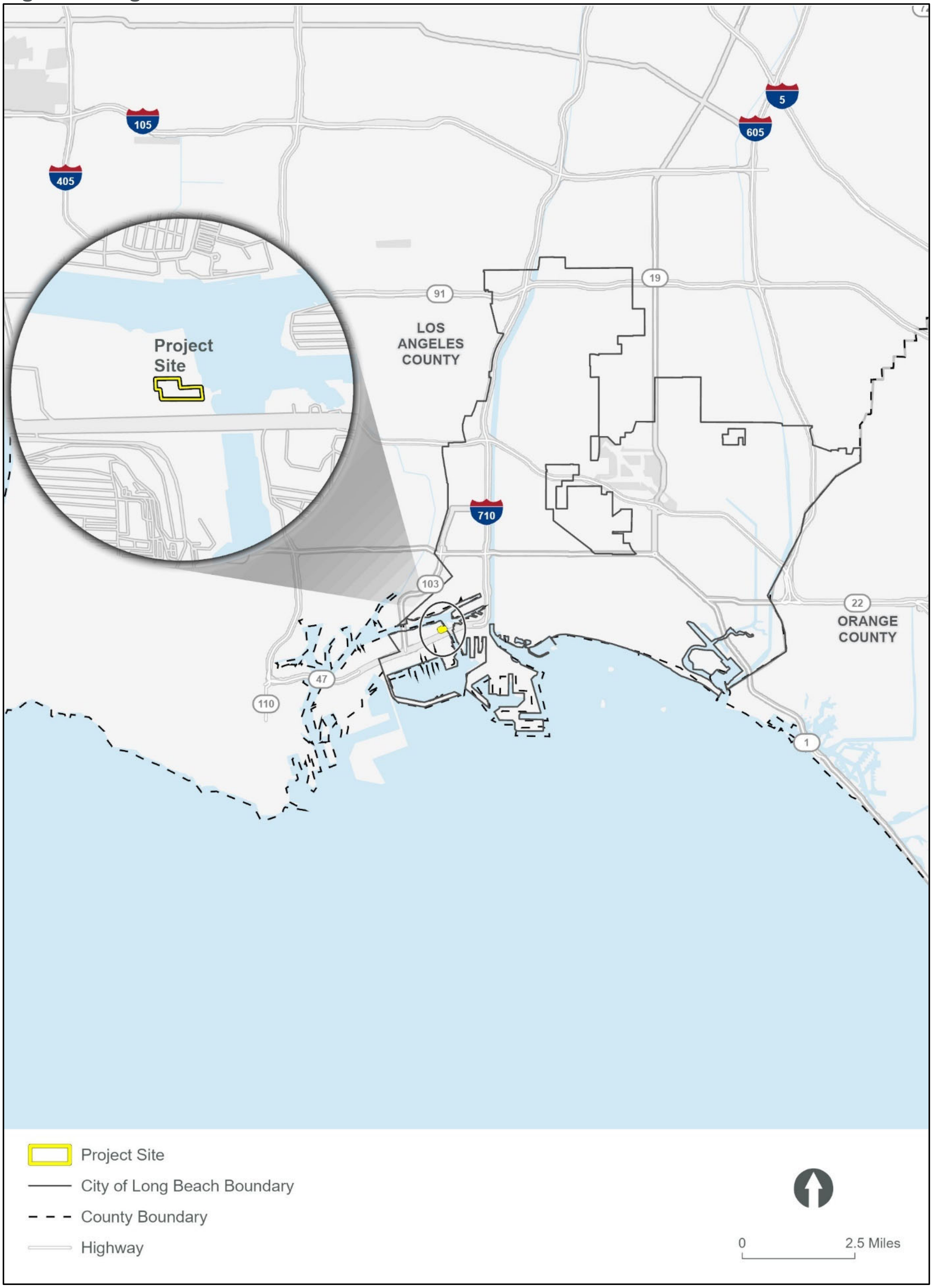

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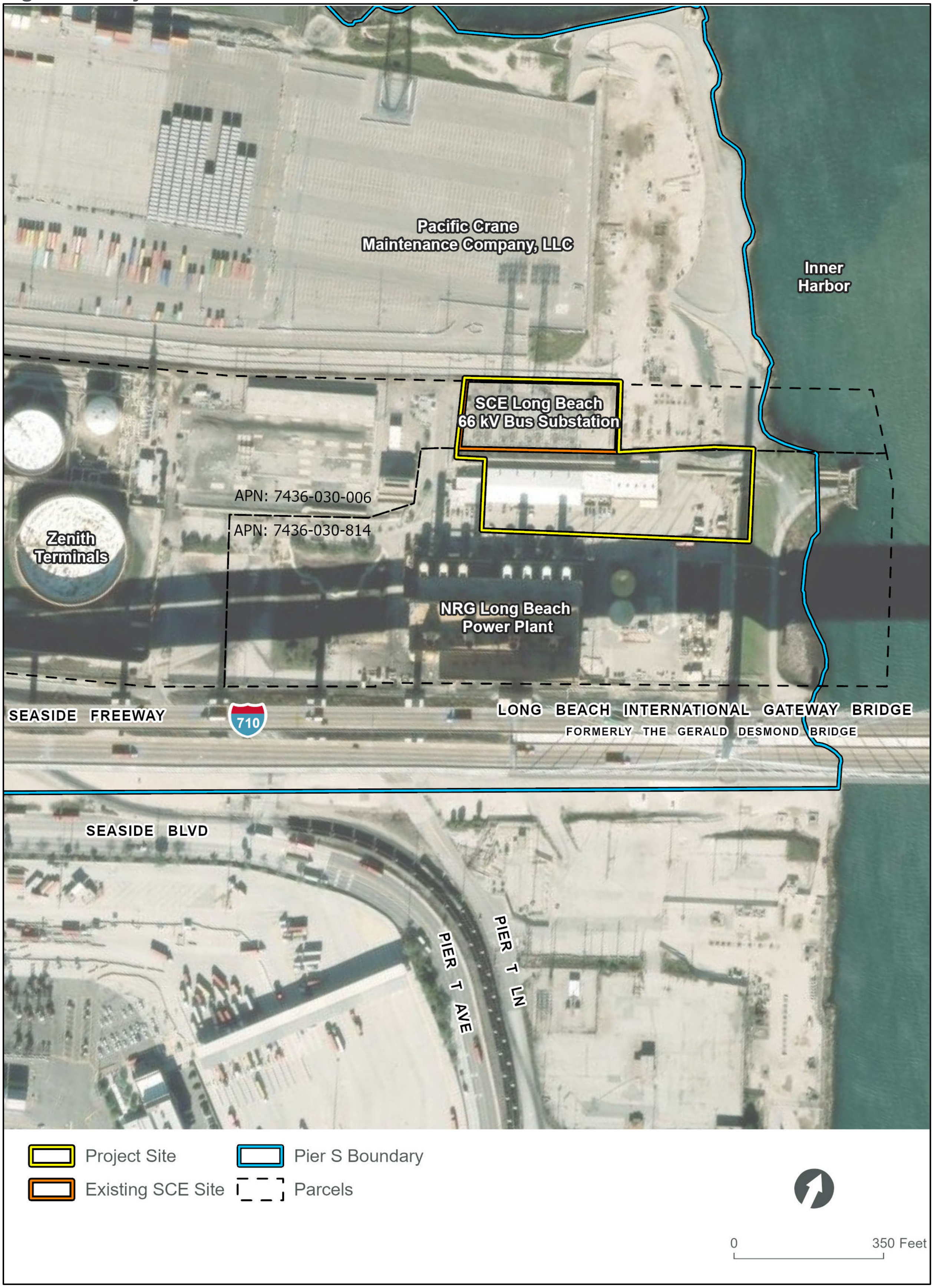
Figure 2. Project Location



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2.9 Project Overview

Pier S Energy proposes to construct an approximately 70 MW BESS, power conversion system, new BESS substation, as well as perform upgrades to the existing SCE Long Beach Bus Substation.

The proposed Project would provide additional capacity to deliver on-demand distributed energy to a critical load pocket in response to the California Public Utilities Commission's (CPUC) mandate to procure 15,500 MWs of non-fossil fuel sourced energy by 2028 to meet State reliability goals within the State (CPUC 2023). The proposed BESS facility would improve grid reliability as California transitions to more renewable energy resources and would allow for the electrical grid to draw from stored battery energy to meet peak demand, reduce electricity costs, and to decrease reliance on fossil fuels. The siting of the BESS facility near, but not connected to, the existing Long Beach Power Plant located on the parcel may reduce the run time associated with the fossil fuel asset (i.e., the existing thermal power plant). In the event that stored battery energy is needed to meet energy demands, notification from SCE would automatically be sent electronically or via telephone to control room operations staff located at the Long Beach Power Plant.

The proposed location for the BESS facility also provides co-location benefits and takes advantage of existing infrastructure, as it would connect to the existing SCE power poles and the 66-kilovolt (kV) SCE Long Beach Bus Substation located adjacent to the proposed Project site.

In order to construct the BESS facility, the proposed Project would involve the demolition of three buildings consisting of a warehouse/receiving building, a locker building, and a fabrication/machine shop located in the northwestern portion of the proposed Project site and approximately 580 feet of existing 12-foot diameter abandoned concrete saltwater intake pipes located on the northern portion of the proposed Project site (see **Figures 3** and **4**). Additional details pertaining to the demolition of these buildings and structures is provided in Section 2.9.1 Construction.

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Figure 3. Photo Location Viewpoints on the Project Site

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**Figure 4. Project Site Existing Viewpoints
(Page 1 of 5)**

Viewpoint 1. *View of Project site taken from eastern boundary looking westward.*

Viewpoint 2. Frontage view of western warehouse/receiving building looking westward.

Figure 4. Project Site Existing Viewpoints
(Page 2 of 5)

Viewpoint 3. Frontage view of western warehouse/receiving building looking eastward.

Viewpoint 4. Frontage view of locker building looking westward.

Figure 4. Project Site Existing Viewpoints

(Page 3 of 5)

Viewpoint 5. Frontage view of eastern fabrication/machine shop building looking westward.

Viewpoint 6. View of abandoned concrete saltwater intake pipe looking eastward.

Figure 4. Project Site Existing Viewpoints

(Page 4 of 5)

Viewpoint 7. Backside view of eastern fabrication/machine shop building looking westward.

Viewpoint 8. Backside view of eastern fabrication/machine shop and abandoned concrete saltwater intake pipe looking southwestward.

Figure 4. Project Site Existing Viewpoints

(Page 5 of 5)

Viewpoint 9. View of adjacent SCE Long Beach Bus Substation looking westward.

As shown on **Figure 5**, the proposed Project includes the following components:

- ***Battery Energy Storage System.*** The proposed BESS would consist of approximately 100 to 200 individual metal containers enclosing lithium-ion battery storage systems that would be placed on-site. Depending on the final site configuration for the proposed BESS, the containers may be stacked but would not exceed 45 feet in height. A diagram of a conceptual BESS is shown in **Figure 6**. Each of the individual containers would contain battery cells, consolidated into racks; a direct current collection system; alternating current distribution for auxiliary power; communications network; and fire suppression system.

  Energy stored at the BESS facility would be routed to an existing power pole on-site which would then connect to the existing 66 kV SCE Long Beach Bus Substation immediately adjacent to the proposed Project site. In order to connect the BESS infrastructure to the substation, the Project would involve the installation of approximately 400 to 500 feet of electrical conduit which would be located in aboveground cable trays.

- ***Power Conversion System.*** As part of the proposed Project, a power conversion system would be installed on the proposed Project site. The power conversion system consists of paired inverters and transformers that change power from direct current (DC) to alternating current (AC). The power conversion system is needed as the electricity transmission grid system operates in AC, but the battery energy is stored as DC. Therefore, the power needs to be converted from AC to DC to enable its storage in the batteries, and conversely, it needs to be converted from DC to AC when power from the batteries is fed back into the electrical transmission grid.

  The power conversion system would contain approximately 50 to 100 inverters and set-up transformers. For purposes of this analysis, each inverter is approximately 7.12 feet high, 2.7 feet wide and 4.3 feet deep. The power conversion system components, including the cables which connect to the batteries, would be installed on above-ground cable trays on the proposed Project site and would be electrically connected between the BESS and the substation.

- ***BESS Substation.*** A new 66 kv substation would be required to transform the voltage between the power conversion system and the substation transmission system. The BESS Substation would contain the generation step-up transformer (GSU), a prefabricated Mechanical Electric Equipment Room (MEER), and associated infrastructure such as breakers, switches, meters, and metering equipment and appurtenant equipment necessary to tie into the existing SCE Long Beach Bus Substation.

- ***SCE Long Beach Bus Substation Upgrades.*** Associated upgrades to the existing 66 kv SCE Long Beach Bus Substation would also be required to accommodate the Project. Pier S Energy has completed Phase II of the Interconnection Study and the Engineering Study which identifies the necessary infrastructure improvements needed to connect the proposed BESS facility to the SCE energy grid. Based on the results of these studies, SCE would upgrade the existing Long Beach Bus Substation located adjacent to the proposed Project site to the north to accommodate the BESS facility through the following improvements:

- Removal the following above grade equipment and above and below grade associated foundations at two positions:
  - Four 66 kV Circuit Breakers and associated foundations
  - Eight group-operated disconnect switches
  - Four Bus supports steel structures and insulators and foundations
  - One 66 kV overhead line
  - Four sets of circuit breaker disconnect switches
  - Removal of control cables between the SCE Long Beach Bus Substation and the LBGS
- Installation of interconnection facilities, including approximately 100 to 150 feet of 66 kV generation tie-line (from the Long Beach Bus Substation to the proposed BESS facility outside the substation on the south side).
- Installation of a new 66 kV switch rack position for the generation tie-line. This new equipment would include two new 66 kV circuit breakers, new rack structures, four new 66 kV group-operated disconnect switches, metering equipment, and foundations at the SCE Long Beach Bus Substation.
- Installation of new protective relays and telecommunication equipment inside SCE's existing Long Beach Bus Substation Control House.
- Modification of the existing 66 kV SCE-owned circuit breaker wiring so that remote controls of these circuit breakers can only be done through the SCE facility, and removal of several existing control cables and modify the wiring of existing interface cabinet.
- Installation of an approximately 350 feet long by 8 feet tall fence and ground grid located up to 15 feet south from the existing SCE Long Beach Bus Substation's southern boundary and associated fence line.
- Installation of an approximately 270 feet long by 4 feet tall fence and ground grid inside the existing SCE Long Beach Bus Substation.
- Upgrade of the existing substation ground grid.
- Installation of two diverse optical connections from the proposed BESS communications points of change of ownership to SCE Long Beach Bus Substation. Each optical connection may include a new "meet-me" structure south of the SCE Long Beach Bus Substation, approximately 80 to 100 feet of new underground conduit and approximately 200 to 400 feet of new fiber optic cable through new and existing underground structures from the "meet-me" structure manhole to the existing SCE Long Beach Bus Substation Control House.

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Figure 5. Conceptual Site Plan

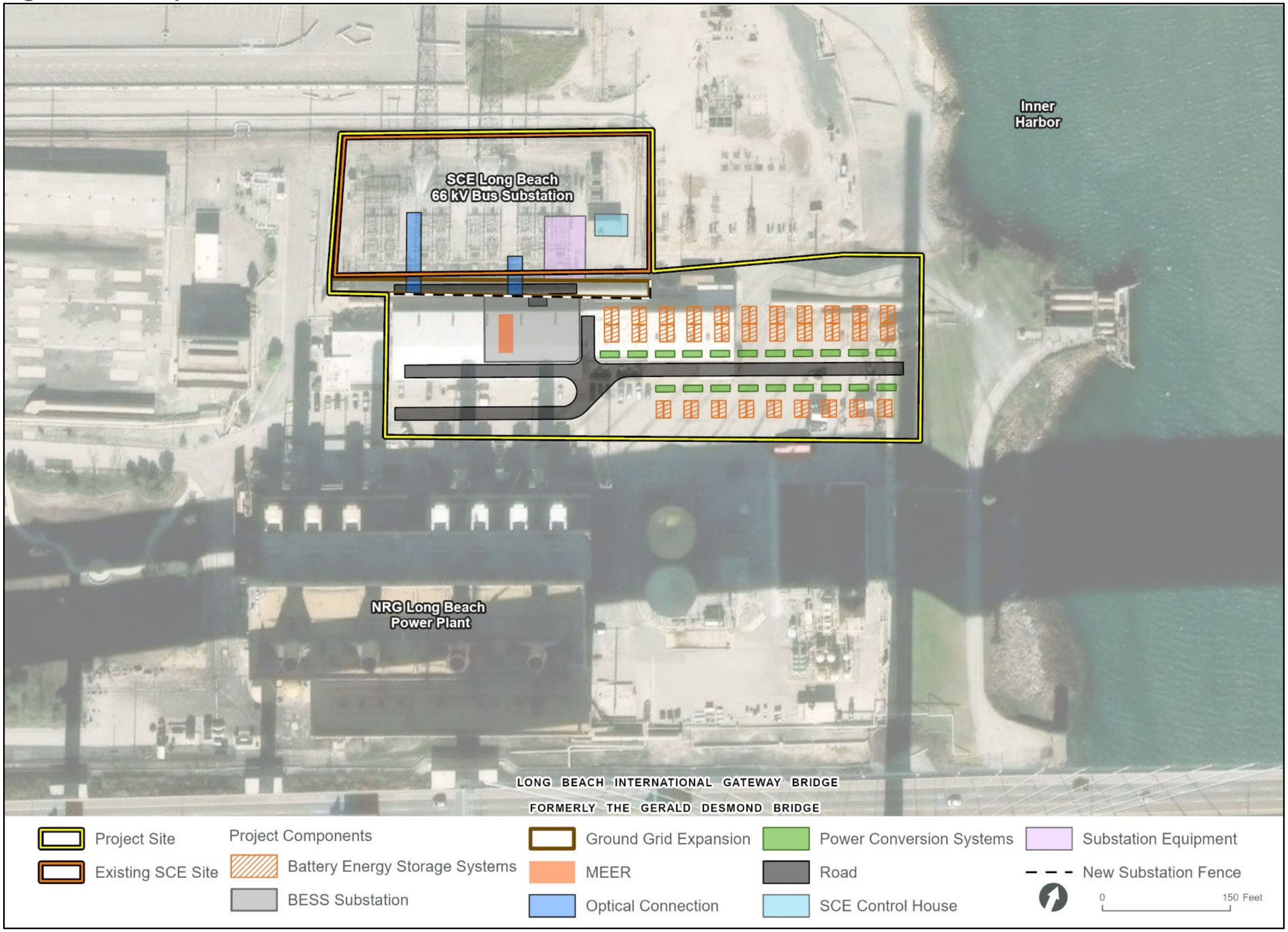

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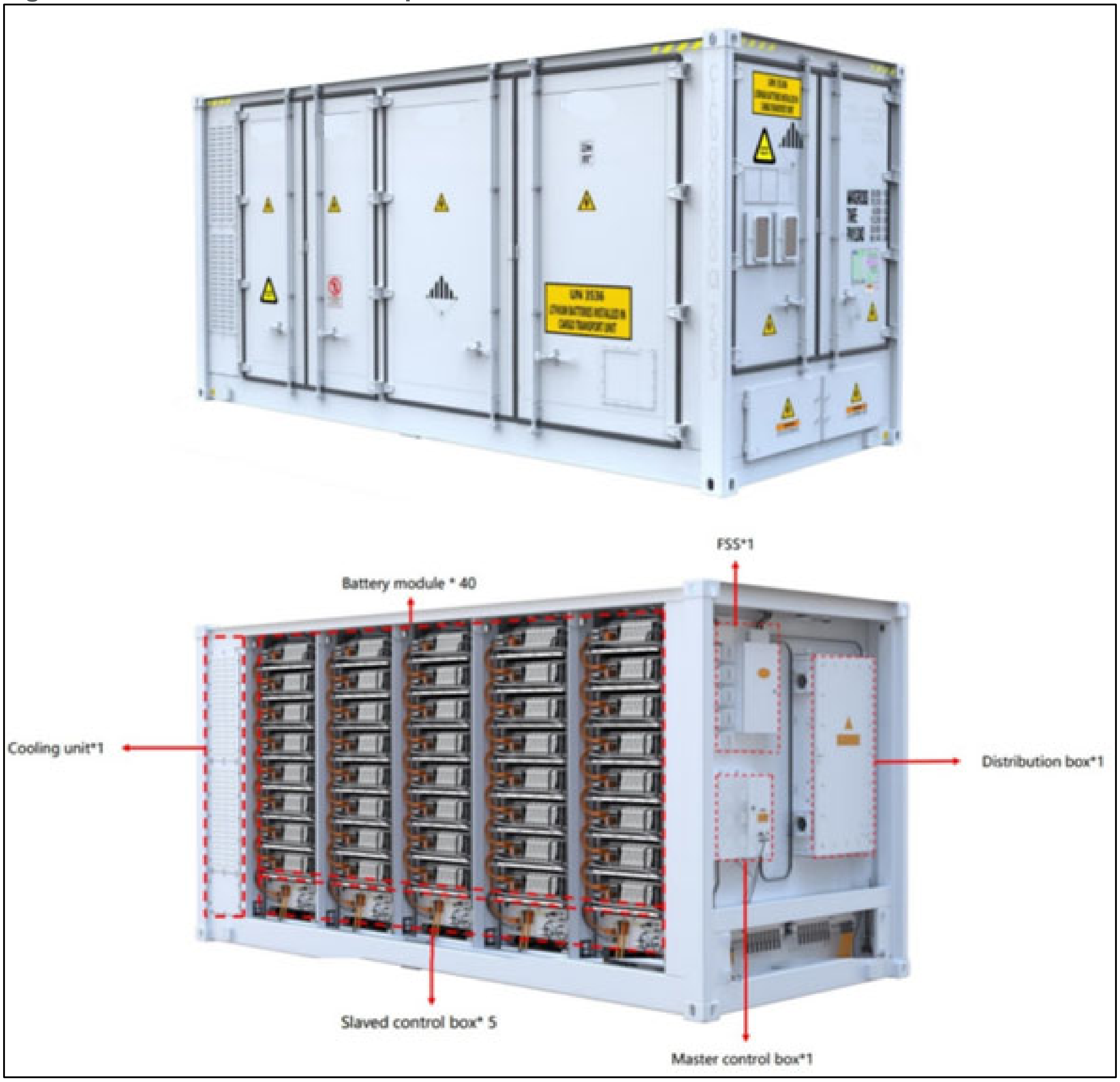
Figure 6. BESS Container Conceptual Overview



2.9.1 Construction

Construction is anticipated to be completed in approximately 14 months. **Table 1** provides the proposed Project's construction phases and approximate duration of each phase. Construction would primarily occur during daylight hours, Monday through Friday, between 7:00 a.m. and 6:00 p.m., as required to meet the construction schedule. Any construction work performed outside the normal work schedule would be coordinated with the POLB and City of Long Beach and would conform to City of Long Beach regulations.

Table 1. Project Construction Phasing

Construction Phase	Duration	Number of Work Days	Shifts/Hours	Workers per Day
Site Mobilization	2 weeks	5 days/week	1 shift/10 hours	20
Demolition/Relocations	8 weeks	5 days/week	1 shift/10 hours	20
Civil	8 weeks	5 days/week	1 shift/10 hours	40
Foundations	8 weeks	5 days/week	1 shift/10 hours	60
Battery Installation	12 weeks	5 days/week	1 shift/10 hours	60
Commissioning	8 weeks	5 days/week	1 shift/10 hours	30
Completion	8 weeks	5 days/week	1 shift/10 hours	10

Source: Pier S Energy Storage LLC

Site preparation and mobilization would involve equipment delivery and site preparation. Flatbed trailers and trucks would be used to transport construction equipment to the proposed Project site where it would be staged within the site. As shown in **Figures 3** and **4**, three buildings consisting of a warehouse/receiving building, a locker building, and a fabrication/machine shop along with sections of abandoned concrete saltwater intake pipes would be demolished along the northern boundary of the proposed Project site.

Because the proposed Project involves demolition of buildings, a Construction and Demolition Management Plan (CDMP) is required to be prepared and submitted to the City of Long Beach for review and approval. Demolition would be conducted in accordance with requirements listed in the demolition permit and in compliance with all applicable federal, State, and local laws and regulations. Demolition could include, but is not limited to, the use of cranes, shearing machines, man lifts, saws, cutting torches and similar equipment to complete the demolition. Any waste material would be transported off-site to an approved disposal facility.

Ground disturbance on the proposed Project site would be limited to the construction of concrete pads to support transformers. The concrete pads would be constructed as foundations for the BESS containers and piles drilled to a maximum depth of 5 feet and would be prepared per geotechnical engineer recommendations and taking into account existing groundwater levels and soil conditions at the proposed Project site. Based on the depth to groundwater at the proposed Project site, wet construction conditions are anticipated.

As part of associated upgrades to the existing, adjacent SCE Long Beach Bus Substation, ground disturbance would be required for the installation of new fencing and removal of below grade foundations. The removal of below grade foundations would require excavation on portions of the SCE site up to 5 feet below existing ground level. For purposes of this analysis, it is anticipated that ground disturbance associated with SCE Long Beach Bus Substation upgrades would generate up to 34 cubic yards (cy) of soil that would be removed and hauled offsite via haul trucks. In addition, it is anticipated that foundation demolition and removal would generate up to 29 cy of concrete that would also be hauled offsite via haul trucks. Foundation replacement and new fence posts are anticipated to require up to 33 cy of concrete which would be delivered via concrete trucks.

Battery installation would include transport of equipment to the site by truck and placement of batteries and power conversion systems on the foundation pads. The primary construction phase would consist of electrical conduit, wiring, and communications installations. Commissioning would include connecting the electrical and communication terminations and confirming circuits work prior commencing full operation. The completion phase would involve site clean-up and demobilization. **Table 2** shows the breakdown of equipment to be used during construction activities.

Table 2. Equipment Types and Schedules

Construction Phase	Equipment Type	Number of Equipment in Use	Number of Days Equipment Operates	Runtime (including idle), Average Day (Hours/Day)
Demolition/Relocations	Mini Excavator with Hammer	1	20	8
	Haul Truck	1	20	8
	Forklift	1	20	8
Civil	Scrapers	1	20	8
	Loader	1	30	8
	Water Truck	1	200	8
Foundations	Concrete Truck	1	30	8
Battery Installation	Crane	1	90	8
All	Forklift	3	200	8

Source: Pier S Energy Storage LLC

2.9.2 Operations and Maintenance

The proposed Project is designed to operate continuously year-round during both daylight and non-daylight hours. It would store and dispatch power as demanded by SCE, to the point-of-interconnection at the SCE Long Beach Bus Substation. It is anticipated that BESS charging would occur during the peak of the day, when there is excess solar capacity in southern California, and be discharged in the evening during non-daylight hours.

Once fully constructed, the proposed Project would be remotely monitored and routinely inspected on a continuous basis. However, the adjacent Long Beach Power Plant would be staffed continuously with at least two employees at any given time who would be fully trained on response, operations, and safety procedures for the BESS facility. As previously discussed, in the event that stored battery energy is needed to meet energy demands, notification from SCE would automatically be sent electronically or via telephone to control room operations staff located at the Long Beach Power Plant. In addition, the on-site employees located at the Long Beach Power Plant would be available to respond to any unplanned maintenance needs at the BESS facility as appropriate. Typical operations and maintenance activities would include, but not limited to, the following activities:

- Periodic inspection and testing;
- Site security (performed by staff/contractors at the existing, adjacent thermal power plant);

- Routine maintenance; and
- Periodic equipment repair and replacement for optimal operation.

The proposed Project is not expected to require new continuous exterior lighting, but motion sensor lighting may be placed in specific locations as needed to ensure site access. Due to the Project’s location within a larger, operational thermal power plant with existing security procedures and fencing, additional internal fencing around the proposed Project site is not anticipated. However, as part of the SCE Long Beach Bus Substation upgrades, new fencing on the SCE site would be installed. During operation and maintenance, existing roadways would be used to access the proposed Project site.

2.9.3 Safety and Security

The BESS facility would be equipped with a battery management system (BMS) containing integrated safety systems to actively monitor electrical current, voltage, and temperature to optimize performance and mitigate potential failures. The BMS prevents batteries within the BESS facility containers from exceeding safe operating conditions by shutting down the charging system and isolating the batteries. This is achieved with several redundant fire protection measures at the lithium-ion cell level, the module level, the battery rack level, and the battery enclosure level. Protection methods and materials would include smoke and fire detection sensors; ground fault detection, alarms, systems for automatic shutdown of cooling fans and opening of electrical contacts, and automatic activation of fire suppression systems. Batteries performing out of specification would be immediately taken offline by the automated monitoring system.

Fire protection systems would include fire detection, alarms (including visible and audible on-site alarms), and notification systems (including notifications related to preventative maintenance requirements); automatic wet pipe sprinkler systems; double interlock pre-action sprinkler systems; carbon dioxide extinguishing systems; automatic wet standpipes and Class III hose stations; and handheld portable fire extinguishers. The fire protection system would be designed by a certified fire protection engineer and installed by a fire protection system contractor licensed in CA and approved by Long Beach Fire Department (LBFD).

Additionally, the inclusion of a safe buffer zone and fire-resistant structural barriers or fixed fire suppression, would be provided between the BESS facility and any adjacent facilities based on coordination with POLB and LBFD. Cybersecurity measures would adhere to industry standards and best practices. Only vetted, trained personnel would have access to the BESS facility. Connections between the BESS facility and other web-based systems would adhere to the Project applicant’s proprietary cybersecurity policies.

2.9.4 Decommissioning

The proposed Project is expected to operate for a term of approximately 20 years. At the end of the proposed Project’s operational term, Pier S Energy may determine that the proposed Project should be decommissioned and deconstructed to remove the BESS facility and its components, or it may seek a subsequent operational term. agreements Should the BESS facility be decommissioned and deconstructed, the proposed Project would include best management practices (BMPs) to ensure the collection and recycling of batteries and to avoid the potential for batteries to be disposed of as municipal waste. All decommissioning and restoration activities would adhere to the requirements of the appropriate governing authorities and would be in accordance with all applicable city, state, and federal regulations.

It is anticipated that during Project decommissioning, Project structures would be removed from the ground on the proposed Project site in accordance with an approved CDMP from the City of Long Beach. Aboveground equipment that would be removed includes inverters, transformers, electrical wiring, and equipment on the inverter pads. Equipment would be de-energized prior to removal, salvaged (where possible), placed in appropriate shipping containers, and secured in a truck transport trailer for shipment off-site to be recycled or disposed of at an appropriately licensed disposal facility. Site infrastructure would be removed along with the concrete pads that may support the inverters, transformers, and related equipment. The demolition debris and removed equipment may be cut or dismantled into pieces that can be safely lifted or carried with the equipment being used. A collection and recycling program would be executed to promote recycling of project components and minimize disposal in landfills.

Following decommissioning and deconstruction, the proposed Project site could potentially be available for other uses in accordance with the applicable land use regulations in effect at that time, including environmental review pursuant to CEQA.

2.10 Other Permits and Approvals

For the purposes of CEQA, the POLB is the Lead Agency, but other discretionary permits may be required from public agencies other than the POLB. It is assumed the anticipated actions that are required to implement the proposed Project include:

- POLB – Harbor Development Permit
- City of Long Beach Building and Safety Bureau – demolition permit and grading permit
- South Coast Air Quality Management District (SCAQMD) – Rule 1403 demolition notification
- Regional Water Quality Control Board (RWQCB) Los Angeles Region – National Pollutant Discharge Elimination System (NPDES) General Construction Permit and Waste Discharge Requirements (WDR)

2.11 Tribal Consultation

Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

In accordance with Assembly Bill (AB 52) (Gatto), on June 4, 2024, the POLB sent notification letters to Native American tribes on the list provided by the Native American Heritage Commission (NAHC) identified as having traditional and cultural affiliation with the proposed Project site (**Appendix A**). This list includes thirteen contacts at seven tribes. One Native American Tribe (Gabrieleño Band of Mission Indians – Kizh Nation) responded with a request for additional information related to types of soil present on the proposed Project site. POLB provided additional information on June 11, 2024 and on August 28, 2024 to the Gabrieleño Band of Mission Indians – Kizh Nation. The Gabrieleño Band of Mission Indians – Kizh Nation responded on August 28, 2024 that there are no further concerns related to the proposed Project. No other tribes responded. This officially concluded the tribal consultation undertaken for the proposed Project.

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3 Environmental Determination

3.1 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a “Potentially Significant Impact” and requiring implementation of mitigation as indicated by the checklist on the following pages.

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

3.2 Environmental Determination

On the basis of this initial evaluation:

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

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

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

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

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

	12/13/2024
Signature	Date

3.3 Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors, as well as general standards (e.g., the project would not expose sensitive receptors to pollutants, based on a project specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as onsite, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level.
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
   (a) Earlier Analyses Used. Identify and state where they are available for review.
   (b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   (c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used, or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
   (a) the significance criteria or threshold, if any, used to evaluate each question; and
   (b) the mitigation measure identified, if any, to reduce the impact to less than significance.

4 Environmental Analysis

I. Aesthetics

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

Discussion

a. Would the Project have a substantial adverse effect on a scenic vista?

No Impact. The proposed Project site is located within an urbanized area characterized by a mix of industrial uses. Current uses adjoining the proposed Project site include a chassis support facility and the SCE Long Beach Bus Substation to the north, Inner Harbor to the east, a crude oil and vacuum gas oil tankage terminal to the west, and the thermal power plant to the south. The nearest scenic vistas to the proposed Project site are ground level views along the boundary of Queensway Bay, located approximately 2.0 miles southeast, and ground level views along Harbor Scenic Drive from southbound lanes south of Anaheim Street, located at the closest point approximately 1.2 miles northeast of the proposed Project site (POLB 1990). Due to distance and intervening structures, these scenic vistas would be unaffected by implementation of the proposed Project and no impacts related to scenic vistas are anticipated to occur.

Mitigation Measures: No mitigation is required.

b. Would the Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?

No Impact. According to the California Department of Transportation (Caltrans) Scenic Highway Mapping System, the nearest officially designated scenic highway is a portion of Route 91, located more than 20 miles northeast of the proposed Project site in northeastern Orange County, California (Caltrans 2024). The proposed Project would not be visible from either of these designated or eligible State scenic highways due to distance or obstructions from intervening structures. No impact would occur to scenic resources located within a State scenic highway due to implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

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

Less than Significant Impact. Development of the proposed Project could result in a significant impact if it resulted in substantial degradation of the existing visual character or quality of the site and its surroundings, or if it would conflict with applicable zoning or other regulations governing scenic quality. Degradation of visual character or quality is defined by substantial changes to the existing site appearance through construction of structures such that they are poorly designed or conflict with the site's existing surroundings. Public views are those that are experienced from publicly accessible vantage points.

The proposed Project site is located within an urbanized area characterized by a mix of industrial uses. Current uses adjoining the proposed Project site include a chassis support facility and the SCE Long Beach Bus Substation to the north, Inner Harbor to the east, a crude oil and vacuum gas oil tankage terminal to the west, and the thermal power plant to the south.

Construction of the BESS facility would result in short-term impacts to the existing visual character and quality of the site. Construction activities would require the use of equipment and storage of materials within the proposed Project site. However, construction activities are temporary and would not result in any permanent visual impact to the site or surrounding area. Existing buildings on the proposed Project site would be demolished as part of Project development. However, demolition activities would be temporary and would not permanently degrade the visual character or quality of the proposed Project site or its surroundings.

As discussed in Response I.a. and I.b. above, the proposed Project would not have a substantial adverse effect on a scenic vista and is not located within a State scenic highway. The proposed Project site is ideally suited for an energy utility project that requires interconnection to the existing SCE Long Beach Bus Substation. Development of the proposed Project would alter the existing visual character of the site; however, the proposed use would be comparable with industrial and energy-related development and facilities in the Project area. The inclusion of overhead power lines and support structures would not substantially degrade the existing visual character of the proposed Project site because other such structures already exist in the Project vicinity. The surrounding area is not visually distinct and does not portray a particular architectural theme or aesthetic.

While implementation of the proposed Project would alter the visual character of the proposed Project site through the removal of existing buildings and the installation of the BESS facility, these activities and equipment would generally be consistent with the existing industrial and port-related activities and facilities in the Project vicinity, and would not conflict with the aesthetics/visual resources plans and policies of the City of Long Beach Conservation Element (COLB 1973), Mobility Element (COLB 2013) or Urban Design Element (COLB 2019b). For the reasons stated above, the proposed Project would have less than significant impacts on the visual character of the site and the surroundings.

Mitigation Measures: No mitigation is required.

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

Less Than Significant Impact. The proposed Project site is located within an urbanized area currently developed with industrial uses where typical sources of glare include the reflection of sunlight or artificial light by highly polished surfaces such as window glass or reflective materials. In addition, existing industrial uses located on and surrounding the proposed Project site include nighttime security, wayfinding lighting, and light from outdoor sources, such as street lighting, parking lot lighting, building illumination, and vehicles. No light sensitive residential uses are located immediately adjacent to the proposed Project site with the nearest light sensitive residential land uses located approximately more than 1.2 miles northeast of the proposed Project site across the Los Angeles River. Implementation of the proposed Project and Project-related offsite improvements would introduce new sources of nighttime lighting on the proposed Project site through installation of exterior light fixtures required for security and wayfinding.

Pursuant to Long Beach Municipal Code (LBMC) Section 21.54.250, all exterior lighting installed on the proposed Project site would be arranged and controlled so it would not create a nuisance or hazard to traffic or to the living environment. As such, all exterior lighting would be shielded and/or recessed to reduce light trespass (i.e., excessive or unwanted light generated on one property illuminating another property). Therefore, through compliance with local requirements, impacts associated with light and nighttime glare would be less than significant.

Mitigation Measures: No mitigation is required.

II. Agriculture and Forestry Services

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion

a. ***Would the Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as Shown on the Maps Prepared Pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to Non-agricultural use?***

No Impact. According to the California Department of Conservation's (DOC) California Important Farmland Finder, the proposed Project site is designated as Urban and Built-Up Land (DOC 2022a). In addition, the proposed Project site is entirely urban and built-up land and contains no agricultural uses. Implementation of the proposed Project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural use. Therefore, no impact would occur with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

b. ***Would the Project conflict with existing zoning for agricultural use, or a Williamson Act contract?***

No Impact. The proposed Project site is zoned "IP – Port-Related Industrial" by the City of Long Beach (COLB 2021). Permitted uses in areas zoned IP primarily include Port-related or water dependent activities, as well as water-oriented commercial and recreational facilities. The proposed Project site is not zoned for agricultural uses and no agricultural use occurs within the proposed Project site or surrounding areas. According to the DOC's California Williamson Act Enrollment Finder, there are no lands identified as part of the Williamson Act Program within or adjacent to the proposed Project site (DOC 2022b). Therefore, the proposed Project would not conflict with existing zoning for agricultural use or lands within a Williamson Act contract and no impact is identified.

Mitigation Measures: No mitigation is required.

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

No Impact. The proposed Project site is not located on forest land as defined in Public Resources Code (PRC) Section 1220 (g) and is not zoned as forest, timberland or for Timberland Production. In addition, there are no existing forest lands, timberlands, or timberland zoned Timberland Production either on-site or in the immediate vicinity (CDFW 2015). Therefore, the proposed Project would not conflict with existing zoning of forest land or cause rezoning of any forest land. No impact is identified for this issue area.

Mitigation Measures: No mitigation is required.

d. ***Would the Project result in the loss of forest land or conversion of forest land to non- forest use?***

No Impact. As discussed in Response II.c above, there are no existing forest lands either on-site or in the immediate vicinity of the proposed Project site. The proposed Project would not result in the loss of forest land or conversion of forest land to non-forest use. Therefore, no impact is identified for this issue area.

Mitigation Measures: No mitigation is required.

e. ***Would the Project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?***

No Impact. As discussed in Response II.a above, the proposed Project site is not located on land designated as Important Farmland and would not convert farmland to non-agriculture use. The proposed Project site is entirely urban and built-up land and contains no agricultural uses. Therefore, the proposed Project would not result in the conversion of farmland to non-agriculture use. No impact is identified for this issue area.

Mitigation Measures: No mitigation is required.

III. Air Quality

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Discussion

a. Would the Project conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant Impact. The proposed Project is located in the South Coast Air Basin (SCAB) which includes all of Orange County and the non-desert portions of Los Angeles, San Bernardino, and Riverside counties. The South Coast Air Quality Management District (SCAQMD) is the air pollution control agency for the SCAB. The SCAQMD has primary responsibility for regulating stationary sources of air pollution within the SCAB, implementing air quality programs required by state and federal mandates, and enforcing rules and regulations based on air pollution laws.

The federal and state Clean Air Acts mandate the control and reduction of certain air pollutants. Under these laws, the United States Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) have established the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS) for “criteria pollutants” and other pollutants.

Some pollutants are emitted directly from a source (e.g., vehicle tailpipe, an exhaust stack of a factory, etc.) into the atmosphere, including carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_x), particulate matter with diameters of 10 microns or less (PM_{10}) and 2.5 microns or less ($PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). Other pollutants not emitted directly but instead are created indirectly through chemical reactions in the atmosphere, such as ozone, which is created by atmospheric chemical and photochemical reactions primarily between VOC and NO_x. Known as secondary pollutants, they include oxidants, ozone (O_3), and sulfate and nitrate particulates (smog). The SCAQMD is required to monitor air pollutant levels to ensure that the NAAQS and CAAQS are met and, if they are not met, to develop strategies to meet the standards. Depending on whether the standards are met or exceeded, the SCAB is classified as being in "attainment" or "nonattainment." The attainment status of the SCAB for each pollutant regulated by the NAAQS and CAAQS is summarized in **Table 3**.

Table 3. South Coast Air Basin Attainment Status (Los Angeles County)

Pollutant	National Standards (NAAQS) Date Attained	California Standards (CAAQS) Date Attained
O_3 (1-hour standard)	Not applicable[1] (12/31/2022)	Non-attainment – Extreme (N/A)
O_3 (8-hour standard)	Non-attainment – Extreme (8/3/38)	Non-attainment (N/A)
CO	Attainment (6/11/2007)	Attainment (6/11/2007)
NO_2	Attainment (9/22/1998)	Attainment (N/A)
SO_2	Attainment (1/9/2018)	Attainment (N/A)
PM_{10}	Attainment (7/26/2013)	Non-attainment (N/A)
$PM_{2.5}$	Non-attainment – Serious (12/31/2030)	Non-attainment (N/A)
Lead	Non-attainment (Partial)[2] (12/31/2015)	Not applicable (N/A)
Visibility Reducing Particles	Not applicable (N/A)	Unclassified (N/A)
Sulfates	Not applicable (N/A)	Attainment (N/A)
Hydrogen Sulfide	Not applicable (N/A)	Unclassified (N/A)
Vinyl Chloride[3]	Not applicable (N/A)	Not applicable (N/A)

[1] The NAAQS for 1-hour ozone was revoked on June 15, 2005, for all areas except Early Action Compact areas.
[2] Partial Non-attainment designation – Los Angeles County portion of the Air Basin only for near source monitors.
[3] In 1990, the California Air Resources Board identified vinyl chloride as a toxic air contaminant and determined that it does not have an identifiable threshold. Therefore, the California Air Resources Board does not monitor or make status designations for this pollutant.
Source: USEPA 2024, CARB 2024

The SCAQMD has developed air quality management plans (AQMPs) to meet the requirements of the Federal Clean Air Act. SCAQMD's most recent AQMP is the 2022 Air Quality Management Plan (SCAQMD 2022), adopted on December 2, 2022. This plan addresses various federal non-attainment and attainment/maintenance planning requirements, is incorporated into the State Implementation Plan by the CARB and has been approved by the USEPA. The 2022 AQMP presents a combined state and County strategy (including related mandated elements) to attain the federal 8-hour ozone standard by 2037[1], as required by the federal Clean Air Act Amendments of 1990 and applicable USEPA clean air regulations. Los Angeles County is anticipated to attain the federal 8-hour ozone standard, using local, state, and federal clean air programs (SCAQMD 2022). The SCAQMD has also recently adopted the PM2.5 Plan which includes a request to

[1] Attainment date is August 3, 2038, which is 20 years from the designation as "extreme" nonattainment areas. The U.S. EPA requires that all control measures in the attainment demonstration must be implemented no later than the beginning of the attainment year ozone season. The U.S. EPA also defines the attainment year ozone season as the ozone season immediately preceding a nonattainment area's maximum attainment date, which is August 3, 2038, therefore, 2037 is the attainment year for the South Coast Air Basin.

extend the attainment date to December 2030 to meet the federal CAA requirements (SCAQMD 2024).

The AQMP contains a comprehensive list of pollution control strategies directed at reducing emissions from stationary sources and on-road and off-road mobile sources and achieving ambient air quality standards. These strategies are developed, in part, based on regional population, housing, and employment projections prepared by the Southern California Association of Governments (SCAG). As part of its air quality planning, SCAG has prepared the Regional Comprehensive Plan (RCP) and the Regional Transportation Program/Sustainable Communities Strategy (RTP/SCS). These plans provide the basis for the land use and transportation components of the AQMP and are used in the preparation of the air quality forecasts and the consistency analysis included in the AQMP.

A significant impact could occur if the proposed Project conflicts with or obstructs implementation of the AQMP. Conflicts and obstructions that hinder implementation of the AQMP can delay efforts to meet attainment deadlines for criteria pollutants and to maintain existing compliance with applicable air quality standards. Pursuant to the methodology provided in Chapter 12 of the 1993 SCAQMD CEQA Air Quality Handbook, consistency with the AQMP is affirmed when a project (1) does not increase the frequency or severity of an air quality standards violation or cause a new violation and (2) is consistent with the growth assumptions in the AQMP (SCAQMD 1993). A consistency review is presented below.

Consistency Criterion 1 refers to the CAAQS and NAAQS. In developing its CEQA significance thresholds, the SCAQMD considered the emission levels at which a project's individual emissions would be cumulatively considerable. As described below in Response III.b., the proposed Project would not generate construction or operational emissions in excess of SCAQMD regional CEQA thresholds.

Consistency Criterion 2 refers to the growth forecasts and associated assumptions included in the AQMP. The 2022 AQMP was designed to achieve attainment for all criteria air pollutants within the SCAB while still accommodating growth in the region. Projects that are consistent with the AQMP growth assumptions would not interfere with attainment of air quality standards, because this growth is included in the projections used to formulate the AQMP. The proposed Project would not generate any long-term employment or support any new population. Once operational, the proposed BESS facility would be operated remotely and would only require intermittent inspections and maintenance. In addition, the proposed Project would not include any housing.

As stated in SCE's 2023 Sustainability Report, one of SCE's major focuses in energy grid resiliency is to develop reliable, sustainable, and resilient infrastructure that is needed to accommodate projected population and economic growth. To economically meet both the 2030 and 2045 decarbonization goals outlined by the State of California, the electric sector needs to decarbonize more quickly than currently required. SCE identifies that by 2045, significant electrification of the state's economy combined with population and economic growth are projected to result in a 60 percent increase in electricity sales from the grid and a 40 percent increase in peak load demands (SCE 2023).

Therefore, the proposed Project would not exceed the growth assumptions contained in the AQMP and is needed to address future electricity needs projected across the region. The proposed Project would satisfy Criterion 2 and would not conflict with the SCAQMD 2022 AQMP.

The San Pedro Bay Ports Clean Air Action Plan (CAAP) was adopted by the Boards of Harbor Commissioners of the Ports of Long Beach and Los Angeles to reduce the environmental impacts and health risk associated with port-related emissions sources, specifically ships, trains, trucks, cargo-handling equipment, and harbor craft. The 2017 CAAP Update, which is the most recent CAAP, contains the following emission reduction targets (POLB and POLA 2017).

- By 2014, reduce port-related emissions by 22 percent for NO_X, 93 percent for SO_X and 72 percent for diesel particulate matter (DPM), compared to 2005 levels.
- By 2023, reduce port-related emissions by 59 percent for NO_X, 93 percent for SO_X and 77 percent for DPM, compared to 2005 levels.

Project consistency with the CAAP is provided in Section VIII. Greenhouse Gas Emissions. Attainment of these CAAP emission reduction targets would contribute to overall goals and emission reduction targets identified in the 2022 AQMP. As identified in Section VIII, the proposed Project would not conflict with the goals set forth by the CAAP. Implementation of the proposed Project would help decarbonization efforts in the electrical sector and ultimately contribute to overall reductions of emissions of air quality pollutants through the storage of energy generated from renewable sources.

Impacts associated with this issue would be less than significant with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

b. Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable Federal or State ambient air quality standard?

Less Than Significant Impact. By its very nature, regional air pollution is largely a cumulative impact. No single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse regional air quality impacts. If a project's individual emissions exceed their identified significance thresholds, the project's regional impacts would be cumulatively considerable. Projects that do not exceed significance thresholds would not be considered cumulatively considerable. The SCAQMD's application of thresholds of significance for criteria air pollutants is relevant to the determination of whether a project's individual emissions would have a cumulatively significant impact on regional air quality.

Construction

The proposed Project has the potential to generate temporary criteria pollutant emissions through the use of heavy-duty construction equipment and through vehicle trips generated from workers and construction trucks traveling to and from the proposed Project site. In addition, fugitive dust emissions would result from demolition activities. Mobile source emissions, primarily NO_X, would result from the use of construction equipment such as loaders. Construction emissions would vary substantially from day to day, depending on the level of activity, the specific type of construction activity, and prevailing weather conditions. The assessment of construction air quality impacts considers each of these potential sources.

Daily regional emissions during construction and operational activities were estimated using the CalEEMod software, an emissions inventory software program recommended by the SCAQMD, and the most recent version of CARB's on-road vehicle emissions factor model (EMFAC2021). The analysis used project-specific input values for equipment types and the construction schedule identified by Pier S Energy. The duration of construction activity and associated equipment usage represents a reasonable approximation of the expected construction fleet as required per CEQA guidelines. Site specific construction fleet may vary due to specific project needs at the time of construction. Detailed emissions calculations as well as a summary of construction equipment assumptions by phase are provided in **Appendix B** of this IS/MND. The proposed Project's maximum daily unmitigated construction emissions are shown in **Table 4**.

Table 4. Estimated Maximum Daily Regional Construction Emissions – Unmitigated (pounds per day)

Construction Phase	VOC	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Site Mobilization (2025)	1.78	14.61	19.26	0.02	3.66	1.92
Demolition/Relocations (2025)	1.90	16.13	20.49	0.03	2.01	0.88
Civil (2025)	1.28	18.16	18.16	0.10	5.67	1.80
Foundations (2025)	1.07	4.61	15.89	0.01	1.93	0.58
Install Batteries (2025)	1.90	13.46	19.96	0.04	2.70	0.98
Install Batteries (2026)	1.76	12.83	19.32	0.04	2.65	0.94
Commissioning (2026)	1.50	7.11	14.15	0.01	1.04	0.40
Paving (2026)	0.85	8.93	12.03	0.03	1.24	0.54
Completion (2026)	1.46	12.20	14.80	0.02	3.29	1.76
Overlapping Phase						
Paving (2026) + Commissioning (2026)	2.35	16.03	26.19	0.04	2.28	0.94
Total Project	**2.35**	**18.16**	**26.19**	**0.10**	**5.67**	**1.92**
SCAQMD Threshold	**75**	**100**	**550**	**150**	**150**	**55**
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: SCAQMD 2023, HDR 2024 (Appendix B of this IS/MND)
Note: Emissions contained in this table assume the use of Tier 3 equipment which is considered to be the unmitigated fleet average scenario. Special conditions would be applied to the HDP requiring construction equipment operating at the site to comply with U.S. EPA Tier 4 non-road engine standards, further reducing total construction emissions below SCAQMD thresholds.

As shown in **Table 4**, emissions resulting from the proposed Project's construction would not exceed any criteria pollutant thresholds established by the SCAQMD. Therefore, air quality construction impacts would be considered less than significant, and no mitigation is required.

Operation

Long term criteria air pollutant emissions would result from operational activities associated with the proposed Project. These operational activities include maintenance vehicles travelling to the proposed Project site for periodic maintenance, testing, and inspection of BESS containers and supporting infrastructure, the use of consumer products such as cleaning products and periodic repainting of the proposed Project, and electricity utilized for BESS utility infrastructure systems (i.e., MEER, BESS Substation, mechanical cabinets) and security lighting. The electricity required to power the ventilation and cooling systems for the BESS containers would be obtained through each individual container's direct connection to the energy storage. Therefore, the BESS containers would not require additional electrical input. The Project's maximum daily unmitigated operational emissions are shown in **Table 5**.

Table 5. Estimated Maximum Daily Regional Operational Emissions - Unmitigated (pounds per day)

Emission Source	VOC	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Mobile	1.90	1.83	19.21	0.04	3.51	0.91
Area	0.77	0.00	0.00	0.00	0.00	0.00
Energy	0.01	0.22	0.18	0.00	0.02	0.02
Stationary	2.60	0.25	6.78	0.00	0.01	0.01
Total Project	**5.28**	**2.30**	**26.18**	**0.04**	**3.54**	**0.94**
SCAQMD Threshold	**55**	**55**	**550**	**150**	**150**	**55**
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: SCAQMD 2023, HDR 2024 (Appendix B of this IS/MND)

As shown in **Table 5**, emissions resulting from the proposed Project's operation would not exceed any criteria pollutant thresholds established by the SCAQMD. Therefore, air quality operational impacts would be considered less than significant, and no mitigation is required.

For purposes of the cumulative air quality analysis with respect to CEQA Guidelines Section 15064(h)(3), the proposed Project's incremental contribution to cumulative air quality impacts is determined based on the determination of whether a project's individual emissions would have a cumulatively significant impact on regional air quality. As shown in **Table 4** and **Table 5**, the proposed Project's construction and operational emissions would not exceed the SCAQMD regional significance thresholds.

Therefore, the proposed Project would not result in new significant construction or operational air quality impacts and the proposed Project's incremental contribution to long-term emissions of non-attainment pollutants and ozone precursors, considered together with cumulative projects, would not be cumulatively considerable. Therefore, the proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the SCAB is non-attainment. Impacts associated with a cumulatively considerable net increase of any criteria pollutant would be less than significant with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

c. *Would the Project expose sensitive receptors to substantial pollutant concentrations?*

Less Than Significant Impact. Sensitive receptors include land uses where exposure to pollutants could result in health-related risks to individuals more susceptible to air pollution, such as children, the elderly, and individuals with pre-existing respiratory illness and/or cardiovascular disease. Residential dwellings, schools, hospitals, playgrounds, and similar facilities are of primary concern because of the presence of individuals particularly sensitive to pollutants and the potential for increased and prolonged exposure of individuals to pollutants.

Localized Emissions

The localized effects from anticipated Project emissions were evaluated at nearby sensitive receptor locations potentially impacted by the proposed Project according to the SCAQMD's Localized Significance Threshold Methodology, which relies on on-site mass emission rate screening tables and project-specific dispersion modeling, which may be used for sites greater than 5 acres or for projects that exceed the screening tables, as appropriate (SCAQMD 2008). Localized Significance Thresholds (LSTs) represent the maximum emissions from a project site that are not expected to result in an exceedance of a NAAQS or CAAQS.

The LSTs are applicable to NO_X, CO, PM_{10}, and $PM_{2.5}$. For NO_X and CO, the thresholds are based on the ambient air quality standards. For PM_{10} and $PM_{2.5}$, the thresholds are based on requirements in SCAQMD Rule 403 (Fugitive Dust) for construction and Rule 1303 (New Source Review Requirements) for operations. The SCAQMD has established screening criteria that can be used to determine the maximum allowable daily emissions that would satisfy the LSTs and, therefore, not cause or contribute to an exceedance of the applicable ambient air quality standards without Project-specific dispersion modeling. The screening criteria depend on: (1) the area in which the Project is located, (2) the size of the Project area, and (3) the distance between the Project area and the nearest sensitive receptor (e.g., residences, schools, hospitals).

For the proposed Project, the appropriate Source Receptor Area (SRA) for the LSTs is the South Los Angeles County Coastal monitoring station (SRA 4). The nearest sensitive receptors to the proposed Project are the residential uses located 1.2 miles to the east of the Project site. The LST analysis were based on the SCAQMD's look-up tables for a 1-acre site in SRA 4 with sensitive receptors located 500 meters (1,641 feet) from the Project site.

The localized effects from the proposed Project's daily emissions were evaluated at the sensitive receptor locations that would be potentially impacted by the proposed Project according to the SCAQMD's LST methodology. Daily localized emissions caused by the proposed Project were compared to the LSTs in the SCAQMD's look-up tables to determine whether the emissions would cause violations of ambient air quality standards.

Construction

Table 6 presents the localized emissions from on-site equipment during the construction of the proposed Project, located 500 meters (1,641 feet) from the project site in the vicinity of the project area without mitigation. Based on the results summarized in **Table 6**, the unmitigated localized emissions would not exceed the LSTs.

Table 6. Estimated Unmitigated Maximum Daily Construction Emissions (pounds per day)

Construction Year	NO_x	CO	PM_{10}	$PM_{2.5}$
Site Mobilization (2025)	14.3	15.3	3.1	1.8
Demolition/Relocations (2025)	15.5	16.4	1.4	0.7
Civil (2025)	6.2	8.6	0.7	0.3
Foundations (2025)	3.3	3.9	0.2	0.1
Install Batteries (2025)	10.7	11.7	0.4	0.4
Install Batteries (2026)	10.18	11.6	0.4	0.3
Commissioning (2026)	6.7	8.5	0.2	0.2
Paving (2026)	6.4	9.6	0.3	0.2
Completion (2026)	12.0	12.9	3.0	1.7
Overlapping Phases				
Paving (2026) + Commissioning (2026)	13.2	18.1	0.5	0.4
Maximum Daily Emissions	**15.5**	**18.1**	**3.1**	**1.8**
SCAQMD Threshold	**142**	**7,558**	**158**	**93**
Exceeds LST?	**No**	**No**	**No**	**No**

Source: SCAQMD 2023, HDR 2024 (Appendix B of this IS/MND)

Operation

According to SCAQMD LST methodology, LSTs would apply to the operational phase of a project, if the project includes stationary sources, or attracts mobile sources. **Table 7** presents the localized emissions during the operation of the proposed Project. Based on the results summarized in **Table 7**, the unmitigated localized emissions would not exceed the LSTs.

Table 7. Estimated Unmitigated Maximum Daily Operational Emissions (pounds per day)

Source	NO_x	CO	PM_{10}	$PM_{2.5}$
Area	<0.1	<0.1	<0.1	<0.1
Energy	0.2	0.2	<0.1	<0.1
Stationary	0.3	6.8	<0.1	<0.1
Maximum Daily Emissions	**0.5**	**7.0**	**<0.1**	**<0.1**
SCAQMD Threshold	**142**	**7,558**	**38**	**23**
Exceeds LST?	**No**	**No**	**No**	**No**

Source: SCAQMD 2023, HDR 2024 (Appendix B of this IS/MND)

CO "Hot Spot" Analysis

A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. While construction-related traffic on the local roadways would occur during construction, the net increase of construction worker vehicle trips to the existing daily traffic volumes on the local roadways would be relatively small and would not result in CO hotspots. Additionally, the construction-related vehicle trips would be short-term, and cease once construction activities are completed. As previously mentioned, the proposed Project would be monitored remotely with minimal periodic visits conducted for on-site equipment inspections, monitoring and testing. Therefore, the proposed Project would not cause or contribute to the formation of CO hotspots based on the AQMP's 2003 study, which estimates 100,000 vehicles per day could cause the formation of a CO hotspot (SCAQMD 2003a). Therefore, impacts would be less than significant.

Toxic Air Contaminants

Concentrations of toxic air contaminants (TACs) are also used as indicators of ambient air quality conditions. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

Intermittent construction activities associated with the proposed Project would result in short-term emissions of diesel particulate matter, which the State has identified as a TAC. During construction, the exhaust of off-road heavy-duty diesel equipment would emit diesel particulate matter (DPM) during general construction activities, such as excavation and materials transport/handling. During operational activities, DPM would be emitted by the diesel trucks traveling to, on, and from the project site for periodic equipment inspections, monitoring and testing. However, the number of trips would be minimal.

According to the California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA) Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA Guidance), DPM poses a carcinogenic health risk that is generally measured using an exposure period of 30 years for sensitive residential receptors (OEHHA 2015).

TACs could be released and may pose a hazard to human health during operation of the proposed Project in the event of a thermal runaway, explosion, gas release or fire event. Although the probability of these potential occurrences would be low, a Hazard Mitigation Analysis (HMA) and an Offsite Consequence Analysis (OCA) were prepared to evaluate potential risk scenarios such as a thermal runaway, toxic gas release, overpressure from explosion, and thermal effects from fires. The HMA is provided as **Appendix D;** the OCA is provided as **Appendix E**. Further discussion related to the hazard risks is provided in Hazards and Hazardous Materials (Section IX).

Two scenarios were modeled as part of the OCA: a worst-case scenario involving a battery malfunction and release from a rack in a container, and an alternate scenario involving a release from a single battery pack in a rack. The alternate release scenario was analyzed under different weather conditions for both morning and night, considering various wind stability classes. Each of the scenarios was modeled for the potential release of TACs including hydrogen chloride (HCl), hydrogen fluoride (HF), hydrogen cyanide (HCN), carbon monoxide (CO) and phosphine (PH_3) to determine the characteristics of emissions, the possible smoke or emissions plume under several weather and wind scenarios, and the potential exposure impacts to receptors within the plume area.

To assess the potential hazards impact on nearby receptors, the OCA includes dispersion modeling of a potential release from containerized BESS. The predicted maximum airborne concentrations of each HCl, HF, HCN, CO, and PH3 were then compared to a Level of Concern (LOC). Potential releases of these substances are regulated by the USEPA under Chemical Accident Prevention Provisions in 40 Code of Federal Regulations (CFR) Part 8. The maximum airborne concentrations modeled were compared to LOCs based on the American Industrial Hygiene Association's (AIHA) Emergency Response Planning Guidelines (ERPG-2) and Acute Exposure Guideline Levels (AEGL-2) values listed in Appendix A of the USEPA's Chemical Accident Prevention Provisions (40 CFR Part 68).[2]

The OCA considered adjacent receptors to the Project site and the potential for TAC impacts associated with a battery malfunction. As discussed in Air Quality (Section III), the nearest sensitive receptors to the proposed Project are residential uses located 1.2 miles to the east of the Project site. Due to the distance of these sensitive residential receptors, the potential off-gases from a battery malfunction at the proposed Project site are not anticipated. Additional receptors evaluated in the OCA include the Long Beach International Gateway Bridge located approximately 519 feet south and at an approximate vertical height of 208 feet to the nearest proposed battery cabinet; the container support facility currently located on the Pier S terminal approximately 350 feet northwest of nearest proposed battery cabinet; and the Inner Harbor shipping channel located approximately 676 feet east from nearest proposed battery cabinet.

Construction

Temporary TAC emissions associated with DPM emissions from heavy construction equipment would occur during construction activities. According to OEHHA and the SCAQMD's Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis, (SCAQMD 2003b) health effects from TACs are described in terms of individual cancer risk based on a lifetime (i.e., 70-year) resident exposure duration. Given the temporary and short-term construction schedule (approximately 14 months), the proposed Project would not result in a long-term (i.e., lifetime or 70-year) exposure as a result of construction activities.

The proposed Project would be consistent with the applicable 2022 AQMP requirements for control strategies intended to reduce emissions from construction equipment and activities. The proposed Project would comply with regulatory control measures including the CARB Air Toxics Control Measure (ATCM) that limits diesel powered equipment and vehicle idling to no more than 5 minutes at a location, and the CARB In-Use Off-Road Diesel Vehicle Regulation that requires fleets to retire, replace, or repower of older, dirtier engines with newer emission-controlled models; compliance with these would minimize emissions of TACs during construction.

SCAQMD recommends that construction health risk assessments be conducted for substantial sources of DPM emissions (e.g., earth-moving construction activities) in proximity to sensitive receptors and has provided guidance for analyzing mobile source diesel emissions. The nearest sensitive receptors, consisting of residential uses, are located 1.25 miles (2,011 meters) east of

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[2] Both AEGLs and ERPGs have three levels of exposure values for each covered chemical.

AEGL-1/ERPG-1 is the maximum airborne concentration below which nearly all individuals could be exposed to for up to one hour without experiencing more than mild, transient adverse health effects or without perceiving a clearly defined objectionable odor.

AEGL-2/ERPG-2 is the maximum airborne concentration below which nearly all individuals could be exposed to for up to one hour without experiencing or developing irreversible or other serious health effects or systems which could impair an individual's ability to take protective action.

AEGL-3/ERPG-3 is the maximum airborne concentration below which nearly all individuals could be exposed to for up to one hour without experiencing or developing life-threatening health effects.

the proposed Project site. In addition, localized DPM emissions (strongly correlated with $PM_{2.5}$ emissions) are less than significant (as shown in **Table 6**) at 0.31 miles (500 meters).

Although the localized analysis does not directly measure health risk impacts, it does provide data that can be used to evaluate the potential to cause health risk impacts. The low level of $PM_{2.5}$ emissions coupled with the relatively short-term duration of construction activity anticipated resulted in an overall low level of DPM concentrations at the proposed Project. Furthermore, compliance with the aforementioned CARB ATCM anti-idling measure further minimizes DPM emissions in the Project area. Therefore, due to the distance of the nearest sensitive receptors combined with compliance of regulatory control measures and the limited duration of construction activities, impacts would be less than significant.

Operation

SCAQMD recommends that health risk assessments be conducted for substantial sources of operational DPM emissions (e.g., truck stops and warehouse distribution facilities that generate more than 100 trucks per day or more than 40 trucks with operating transport refrigeration units) and has provided guidance for analyzing mobile source diesel emissions (SCAQMD 2003b). During operational activities, DPM would be emitted by the diesel trucks traveling to, on, and from the site for periodic equipment inspections, monitoring and testing. However, the land uses that would be developed under the proposed Project are not considered a substantial source of operational DPM, as described by the SCAQMD.

Operational activities associated with the proposed Project would generate only minor amounts of diesel emissions from mobile sources, such as delivery/box trucks and occasional maintenance activities that would not exceed 100 trucks per day or more than 40 trucks with operating transport refrigeration units. Therefore, operational activities associated with the proposed Project would not be considered a substantial source of diesel particulates.

TACs associated with a potential battery malfunction event during operations were modeled as part of the OCA. There are no emissions with anticipated effects to the receptors during normal operations of a BESS facility. However, in the unlikely event of a battery cell malfunction, such as a thermal runaway reaction or external impact event, the proposed Project could result in TACs emitted from the combustion of plastics during a fire event, with the primary hazardous pollutant associated with a BESS fire identified as phosphine.

For these types of battery cell malfunctions, emissions could be generated due to elevated temperatures within a single storage cell or group of storage cells caused by a runaway reaction. When lithium-ion batteries are mistreated with high over-temperature, strong overcharge, or suffer damage, they can transition into a thermal runaway. During a thermal runaway, the battery temperature increases due to exothermic reactions. In turn, the increased temperature accelerates those degradation reactions, and the system destabilizes. At the end of a thermal runaway, battery temperatures higher than 1,000 °C can be reached and flammable and toxic gases can be released (Golubkov 2015).

Based on the plume modeling results summarized in **Table 8** and shown in **Figures 7 and 8**, TAC emissions would not reach the height of the Long Beach International Gateway Bridge, nor significantly impact transient receptors within the adjacent Inner Harbor shipping channel or workers accessing the southeast corner of the Pacific Terminal Services Corporation property. It should be noted that the plume modeling results do not take into consideration safety features of the battery containers such as required fire suppression systems, which are anticipated to reduce the likelihood and severity of such incidents.

Table 8. Estimated Unmitigated Toxic and Combustible Distance Results (feet)

Exposure Duration[1]	CO	HF	HCN	PH_3
Scenario – Rack				
ERPG-2	46.4	212.7	212.7	584.49
AEGL-2 (10 minutes)	40.2	68.5	149.7	191.9
AEGL-2 (30 minutes)	90.2	149.7	214.0	190.4
AEGL-2 (1 hour)	140.4	189.6	262.4	284.2
Scenario – Pack (Stability Class F, Night and Clear)				
ERPG-2	43.6	187.7	186.9	979.0
AEGL-2 (10 minutes)	39.5	55.9	157.2	220.8
AEGL-2 (30 minutes)	66.5	107.3	213.4	179.3
AEGL-2 (1 hour)	98.3	155.8	258.4	299.6
Scenario – Pack (Stability Class E, Night and Clear)				
ERPG-2	43.5	182.8	182.5	754.8
AEGL-2 (10 minutes)	39.2	55.5	155.9	212.8
AEGL-2 (30 minutes)	66.4	106.9	206.0	175.6
AEGL-2 (1 hour)	97.6	154.4	243.7	278.3
Scenario – Pack (Stability Class C, Morning)				
ERPG-2	43.4	125.3	125.3	409.7
AEGL-2 (10 minutes)	38.7	51.4	111.4	140.8
AEGL-2 (30 minutes)	57.8	86.1	137.5	121.6
AEGL-2 (1 hour)	80.6	110.6	156.9	174.8

Notes: CO = carbon monoxide; PH_3 = phosphine; HCN = hydrogen cyanide; HF = hydrogen fluoride
[1] ERPG-2 values based on NIOSH 2019 threshold levels; AEGL-2 values based on 2024 thresholds levels. ERPG-2 threshold value for CO is 350 parts per million (PPM), HCL is 20 ppm, HCN is 10 ppm, HF is 20 ppm, and PH_3 is 0.5 ppm. AEGL-2 threshold value for CO is 83 PPM, HCL is 22 ppm, HCN is 7.1 ppm, HF is 24 ppm, and PH_3 is 2 ppm.
Source: ERM 2024 (Appendix E of this IS/MND)

The HMA and OCA provide a preliminary assessment of potential impacts in the event of a battery malfunction event. The HMA and OCA summary of impacts and conclusions presented are based on the current design and layout, which are subject to change. As the proposed Project progresses into the final design and engineering phase, adjustments may be necessary due to evolving design specifications, layout modifications, or new data. It is important to note that both the HMA and OCA should be viewed as a flexible framework, which may be updated as additional information becomes available. Based on the limited activity of TAC sources and TAC concentrations at offsite receptors relative to existing conditions, potential TAC impacts would be less than significant.

Mitigation Measures: No mitigation is required.

Figure 7. Worst Case Scenario Distances for TAC Pollutant Modelled Plume

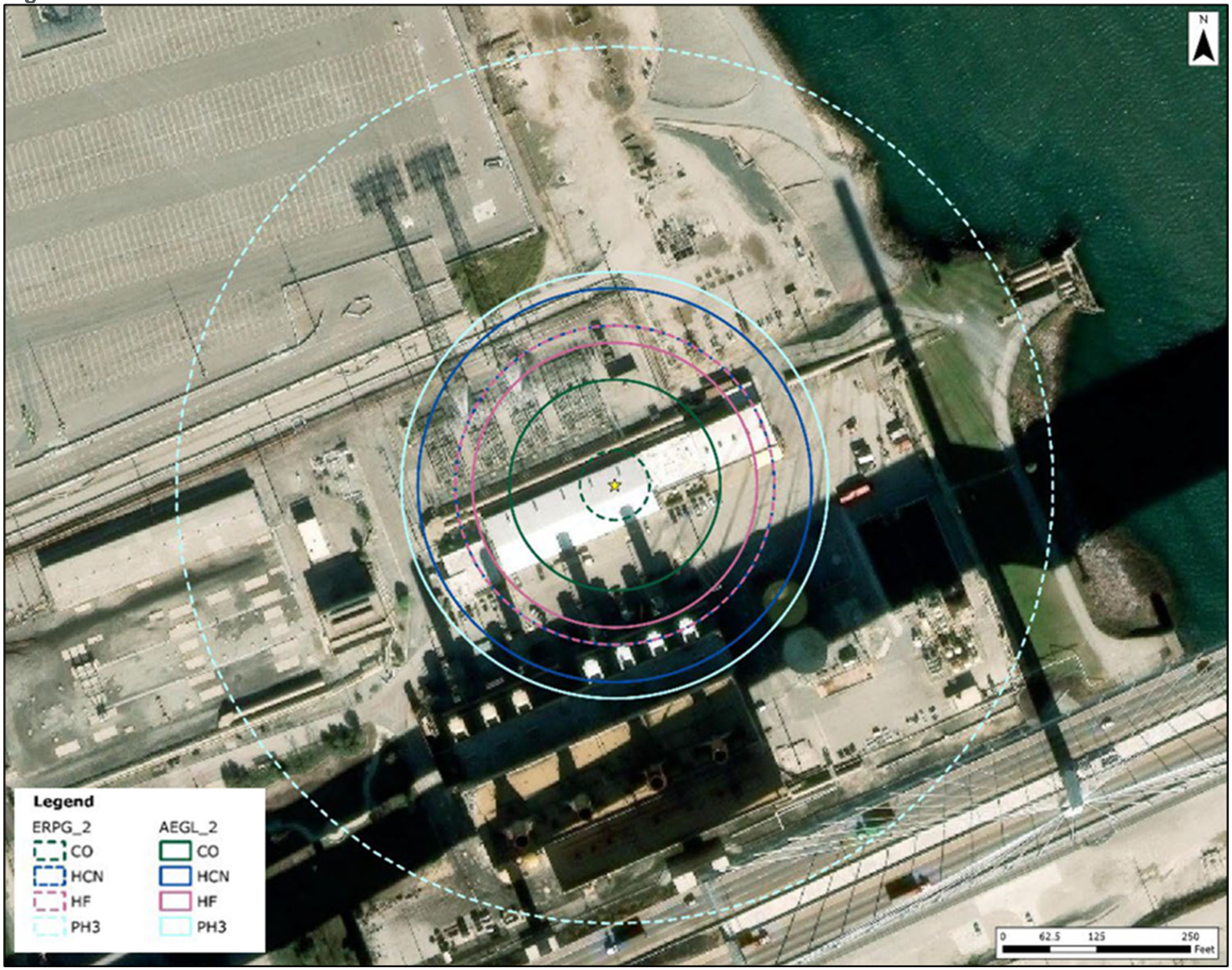

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Figure 8. Height of Phosphine Plume Modeling Diagram

Source: ERM 2024 (Appendix E of this IS/MND)

d. ***Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?***

Less than Significant Impact. According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints include agricultural operations, wastewater treatment plants, landfills, and certain industrial operations (such as manufacturing uses that produce chemicals, paper, etc.). The proposed Project would involve construction activities that could generate odors from the following sources and activities:

- Evaporation of gasoline, oil, and other equipment fluids that can escape from pumps, hoses, and tanks in construction equipment or at construction staging and work areas.
- Evaporation and off-gassing of volatile compounds from paints, coatings, and new concrete and asphalt surfaces.
- Exhaust emissions from on-site vehicle and truck maneuvering and idling.

Construction

The potential odors associated with construction of the proposed Project are common throughout the POLB and would be intermittent and temporary. The release of odorous compounds from vehicle fluids, paints and coatings, asphalt and concrete, and fuel storage and dispensing are associated with many industrial, commercial, and residential operations and applications.

Operation

During operation, no odors are anticipated as operational activities are limited to periodic inspections and maintenance of the BESS facility containers and infrastructure. Operation of the proposed Project would not involve any odor generating sources and would not result in the release of atypical odors or odors associated with unique processes (e.g., laundromats, coffee roasting, landfills, etc.).

As such, the proposed Project would not result in the creation of objectionable odors that would affect a substantial number of people during construction or operation. This impact would be less than significant with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

IV. Biological Resources

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or US 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, and 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 wildlife nursery sites?	☐	☐	☐	☒
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion

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

No Impact. The proposed Project site is within a highly developed area, consisting of existing buildings, parking, pipelines, ornamental landscaping, and other infrastructure features. No special-status plant species are known to occur in the Project area and there are no habitats that would support such species due to the existing industrial related activities on-site. Therefore, no impacts would occur to special-status plants with implementation of the proposed Project.

The POLB is known to provide habitat for a wide variety of avian species inclusive of waterfowl, shorebirds, gulls, aerial fish foragers, upland birds, and raptors. According to the 2018 Biological Survey of the Los Angeles and Long Beach Harbors final report (referred to herein as the 2018 Biosurvey), ten bird species were found to nest in the San Pedro Bay Port Complex including: California least tern (*Sterna antillarum browni*); peregrine falcon (*Falco peregrinus*); elegant tern (*Thalasseus elegans*); Caspian tern (Hydroprogne caspia); black skimmer (*Rynchops niger*); great blue heron (*Ardea Herodias*); black-crowned night heron (*Nycticorax nycticorax*); doublecrested cormorant (*Phalacrocorax auratus*); black oystercatcher (*Haematopus bachmani*); and osprey (*Pandion haliaetus*) (POLA and POLB 2018).

According to Figure 6-1 (Bird and Marine Mammal Survey Zones) of the 2018 Biosurvey, the proposed Project site is located adjacent to Zone 25b. Within Zone 25b there have been recorded instances of the peregrine falcon nesting under urban bridges, such as the former Gerald Desmond Bridge (POLA and POLB 2018). The former Gerald Desmond Bridge has been replaced by the new Long Beach International Gateway Bridge. As part of the construction of the new Long Beach International Gateway Bridge, two nesting boxes were installed on the understory of the new bridge to provide habitat for nesting falcons. However, per POLB staff, there are no indicators that these nesting boxes are being utilized by falcons or any other avian species.

The federal Migratory Bird Treaty Act (MBTA) prohibits the take of any migratory bird, including active nests, except as permitted by regulation (e.g., waterfowl or upland game bird hunting). The MBTA broadly defines “migratory bird” as “any species or family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle” and thus applies to most native bird species. California Fish and Game Code Section 3503 prohibits the take or possession of nests or eggs of any bird, Section 3503.5 prohibits take or possession of birds of prey or their eggs; and Section 3513 prohibits take or possession of any migratory nongame bird. Except for a few nonnative birds such the rock dove and house sparrow, the take of any birds or active bird nests or young is regulated by these statutes.

Due to distance from the proposed Project site, proposed Project demolition activities are not expected to directly impact a peregrine falcon nesting pair that has historically been observed nesting on the nearby bridge. No impacts are anticipated to occur with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

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

No Impact. The proposed Project site is located within a highly developed area primarily with port-related land uses and does not contain any riparian habitat identified by the California Department of Fish and Wildlife (CDFW) or the U.S. Fish and Wildlife Service (USFWS) (USFWS 2024a and 2024b). Los Angeles County has established Significant Ecological Areas (SEAs) to preserve a variety of biological communities for public education, research, and other non-disruptive outdoor uses. The proposed Project site is not within any SEAs. According to the Los Angeles County SEA and Coastal Resource Areas Policy Map, the nearest ecological area to the proposed Project site is the Harbor Lake Regional Park, located approximately 3.5 miles northwest of the proposed Project site (Los Angeles County 2019). The nearest SEA within the San Pedro Bay Port Complex is located on POLA Pier 400, Terminal Island, which is a known California least tern nesting site, located approximately 3.6 southwest of the proposed Project site (Los Angeles County 2019).

According to the 2018 Biosurvey, eelgrass beds are the only Environmentally Sensitive Habitat Area (ESHA) located within the San Pedro Bay Port Complex. Eelgrass beds are a community-structuring seagrass, typically growing in beds in silty sand sediments, which have been abundant in shallow areas of the Port Complex (POLB 2022). Eelgrass beds support an abundant rich food web and provide structure, food, and nursery habitat for a diverse range of fish, invertebrates, and birds, including commercially and recreationally important fish species (POLA and POLB 2018). Given their diverse biological functions, the USEPA has designated eelgrass beds as special aquatic sites under the Clean Water Act and recognized as a Habitat Area of Particular Concern (HAPC) under the Magnuson-Stevens Act (POLB 2022). The nearest eelgrass beds to the proposed Project site are located within the Back Channel/Inner Harbor, which are adjacent to the proposed Project site (POLA and POLB 2018). Demolition activities would not directly impact the existing eelgrass beds within the San Pedro Bay Port Complex due to the nature of construction activities (e.g., no in water work) and improvements being proposed (e.g., installation of BESS facility components on a developed parcel). In addition, any runoff generated on the proposed Project site would be routed to the existing treatment system (oil/water separator and retention basin) prior to being discharged back into the Back Channel. Therefore, the proposed Project would not have the potential to adversely impact riparian habitat or other sensitive natural communities near the proposed Project site. No impacts associated with this issue are anticipated to occur with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

c. Would the Project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) either individually or in combination with the known or probable impacts of other activities through direct removal, filling, hydrological interruption, or other means?

No Impact. According to the USFWS, there are no federally protected wetlands on the proposed Project site (USFWS 2024c). The nearest recognized wetland to the proposed Project site is Inner Harbor/Back Channel, which is adjacent to the proposed Project site. The Inner Harbor and Back Channel are identified by the USFWS as Estuarine and Marine Deepwater wetlands. Demolition activities would not directly impact the Inner Harbor or Back Channel areas as no construction activities would require any in water work, and improvements being proposed (e.g., installation of BESS facility components on a developed parcel) would not be placed immediately adjacent to the Inner Harbor or Back Channel areas. Therefore, the proposed Project would not have a substantial adverse impact on any State or federally protected wetlands through direct removal of the existing structures on-site, or the fill of soil, and no impact to State or federally protected wetlands would occur.

Mitigation Measures: No mitigation is required.

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

No Impact. The Project area is within a highly developed area consisting primarily of port industrial-related land uses. No terrestrial wildlife corridors overlap with the proposed Project site. As discussed above, the nearest open space area and/or significant ecological area to the proposed Project site is the Harbor Lake Regional Park, located approximately 3.5 miles northwest of the proposed Project site (Los Angeles County 2019). Therefore, no impacts to wildlife species with an established nursery, wildlife corridors or wildlife movement would occur.

Mitigation Measures: No mitigation is required.

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

No Impact. The proposed Project involves the demolition of the existing structures on-site and the removal of a small amount of ornamental landscaping (located in concrete planter beds in front of the locker building) and one Mexican fan palm (*Washingtonia robusta*) (located behind the eastern fabrication/machine shop). The City of Long Beach Municipal Code prohibits the cutting, trimming, pruning, removing, or in any way interfering with the natural growth of any tree planted along City streets or on other City property without having first obtained a permit from the Director of Public Works. However, the one Mexican fan palm that would be removed is not planted along a City Street or within City right of way. Therefore, the proposed Project would not conflict with any local policies or ordinances protecting biological resources, and no impact would occur.

Mitigation Measures: No mitigation is required.

f. ***Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or State habitat conservation plan?***

No Impact. There are no adopted Habitat Conservation Plans, Natural Community Conservation Plans, or other similar plans that overlap with the proposed Project site (USFWS 2024a, 2024b). The only designated SEA within the San Pedro Bay Port Complex is Pier 400, corresponding to the California least tern nesting site located in the Port of Angeles. No SEAs occur within the POLB and polices and regulations for SEAs do not apply within the City of Long Beach boundaries (POLB 2019). Therefore, the proposed Project would not conflict with an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. No impacts associated with this issue would occur with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

V. Cultural Resources

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	☒
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c. Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

Discussion

a. Would the Project cause a substantial adverse change in the significance of an historical resource pursuant to §15064.5?

No Impact. CEQA requires analysis of impacts to historical resources and defines historical resources as those listed in or determined to be eligible for listing in the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), those designated locally, and those that the POLB elects to treat as historical resources based on substantial evidence that they meet federal, state, or local listing criteria. Historical resources may include buildings, structures, sites, objects, and historic districts. For the purposes of CEQA review, a historical resource is defined as follows (14 CCR 15064.5[a]):

- A resource listed in, or determined eligible by the State Historical Resources Commission for listing in, the CRHR.
- A resource included in a local register of historical resources.
- A resource identified as significant in a historical resource survey meeting the requirements specified in PRC 5024.1(g).
- Any resource that the lead agency determines to be historically significant based on substantial evidence.

Pursuant to PRC 5024.1, a resource is considered historically significant if it retains “substantial integrity” and meets at least one the criteria for listing in the NRHP or CRHR (14 CCR 4852[b]):

- **NRHP Criterion A/CRHR Criterion 1.** The resource is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.
- **NRHP Criterion B/CRHR Criterion 2.** The resource is associated with the lives of persons important to local, California, or national history.
- **NRHP Criterion C/CRHR Criterion 3.** The resource embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values.

- **NRHP Criterion D/CRHR Criterion 4.** The resource has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Determining the integrity of a resource involves evaluating the authenticity of that resource's physical identity—that is, the survival of characteristics that were present during the resource's period of significance. In order to be listed on the CRHR, resources must "retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance" (14 CCR 4852[c]). Integrity is evaluated with regard to the retention of location, design setting, materials, workmanship, feeling, and association.

On July 2, 2024, a record search was performed at the South Central Coastal Information Center of all previously recorded cultural resources (including archaeological sites and historic built environment resources) within 0.25 miles of the Project footprint. Two previously recorded cultural resources – the Long Beach Generating Station (P-19-187078) and the Port of Long Beach Smokehouses (P-19-190588) – were identified outside of the Project footprint but within the 0.25-mile record search buffer. No previously recorded resources were identified within the Project footprint. However, while there are no previously recorded archaeological or historic built environment resources identified within the Project footprint, there are existing buildings and structures on-site that are close to or more than 50 years in age. As shown on **Figures 3** and **4**, these include the following:

- **Western Warehouse/Receiving Building.** Constructed in 1945 and utilized as a warehouse and machine shop until 1972 where it was remodeled to accommodate warehouse and receiving uses.
- **Locker Building.** Constructed in 1975 and utilized as a locker area.
- **Eastern Fabrication/Machine Shop Building.** Constructed in 1975 and utilized as a fabrication/machine shop.
- **Concrete Saltwater Intake Pipe.** Constructed in 1945, portions of the remaining concrete saltwater intake pipe were part of the overall intake structure previously used to take in seawater from the Back Channel as part of the cooling system used during turbine operations.

As identified in the Built Environment Technical Memorandum (**Appendix C**), the buildings and pipe segments to be demolished have been evaluated in accordance with Section 15064.5(a)(2)-(3) of the CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code.

- **NRHP Criterion A/CRHR Criterion 1.** The Warehouse, Locker Building, Machine Shop, and pipe segments are historically associated with the LBGS. The LBGS appears to possess significance in the area of industry; however, its historic integrity has been substantially diminished since the mid-twentieth century. Furthermore, the three buildings were completed after the LBGS's early twentieth century period of significance. As the Warehouse, Locker Building, Machine Shop, and pipe segments lack demonstrable individual significance, they are recommended not eligible for listing in the NRHP or CRHR.

- **NRHP Criterion B/CRHR Criterion 2.** The Warehouse, Locker Building, Machine Shop, and pipe segments are recommended not eligible for listing under NRHP Criterion B or CRHR Criterion 2 as the individual resources are not significantly associated with any individuals important in local, state, or national history.

- **NRHP Criterion C/CRHR Criterion 3.** The Warehouse, Locker Building, Machine Shop, and pipe segments are recommended not eligible for listing under NRHP Criterion C or CRHR Criterion 3. The Warehouse, Locker Building, and Machine Shop, which were constructed as support facilities for an industrial complex, do not embody the distinctive characteristics of a type, period, or method of construction. In addition, the buildings have undergone multiple alterations since their original construction. Research did not uncover information that indicates the reinforced concrete pipe segments, which are abandoned components of LBGS's saltwater intake system, possess engineering significance. Therefore, the pipe segments are recommended not eligible under Criterion C/3.

- **NRHP Criterion D/CRHR Criterion 4.** The recording of these built-environment resources encapsulates the likely information potential and it is unlikely that further survey would reveal additional potential for information important to history. Therefore, the Warehouse, Locker Building, Machine Shop, and pipe segments are recommended not eligible under Criterion D/4.

Based on the information provided, the buildings and concrete pipe do not meet the criteria for listing in the HRHP or CRHR, nor are they considered to be historical resources for the purposes of CEQA. Therefore, no impacts are anticipated as the proposed Project would not cause a substantial adverse change in the significance of a historical resource.

Mitigation Measures: No mitigation is required.

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

No Impact. The proposed Project would not cause substantial adverse change or affect an archaeological resource. The proposed Project site is situated on the Los Angeles Coastal Plain, one mile west of the mouth of the Los Angeles River and is located on Terminal Island, which was built over marshlands in the early 1900s by placement of fill dredged from the adjacent channels (NEM 2024). The proposed Project site is currently developed with existing warehouse buildings, parking, and landscaping. Based on the records search conducted for the proposed Project, no previously recorded resources were identified within the proposed Project site. Given the extent of man-made fill currently under the proposed Project site no archaeological resources are anticipated to present. No impacts associated with this issue are anticipated to occur.

Mitigation Measures: No mitigation is required.

c. Would the Project disturb any human remains, including those interred outside of formal cemeteries?

Less Than Significant Impact. The proposed Project site is located within an urbanized area characterized by a mix of industrial uses. Current uses adjoining the proposed Project site include a chassis support facility and the SCE Long Beach Bus Substation to the north, Inner Harbor to the east, a crude oil and vacuum gas oil tankage terminal to the west, and the thermal power plant to the south. There are no known cemeteries or burials on the proposed Project site or immediate area. Health and Safety Code Section 7050.5 and CEQA Guidelines Section 15064.5(e) describe the process to be followed in the event human remains are discovered during Project construction. In the event of discovery of human remains during construction activities associated with the proposed Project, no further disturbance shall occur until the Los Angeles County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. The Los Angeles County Coroner must be notified of the find immediately.

If the remains are determined by the coroner to be Native American in origin, the coroner is responsible for contacting the Native American Heritage Commission (NAHC) within 24 hours. NAHC, pursuant to PRC Section 5097.98, will immediately notify those persons it believes to be the Most Likely Descendent (MLD) of the deceased person so the MLD may inspect the burial site and make recommendations for treatment and/or disposition. The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of the human remains and items associated with Native American burials.

Per CEQA Guidelines Section 15064.5(e)(2), the landowner or landowner's authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance if (a) the NAHC is unable to identify a MLD or if the MLD failed to make a recommendation within 24 hours after being notified by the NAHC; (b) the descendent identified fails to make a recommendation; or (3) the landowner or their authorized representative rejects the recommendation of the descendent and mediation by the NAHC fails to provide measures acceptable to the landowner. Adherence to Health and Safety Code Section 7050.5 and CEQA Guidelines Section 15064.5(e), which provide procedures to follow in the event of the discovery of human remains, would reduce impacts to a less than significant level.

Mitigation Measures: No mitigation is required.

VI. Energy

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

Discussion

a. Would the Project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than Significant Impact. The proposed Project would provide energy storage. The use of energy associated with the proposed Project would include both construction and operational activities. Construction activities consume energy through the use of heavy construction equipment and construction worker traffic. The proposed Project would use energy-conserving construction equipment, and would include standard BMPs for construction combustion equipment recommended by the SCAQMD in addition to standard Port Air Quality BMPs. The proposed Project would involve storage of power from the energy grid during non-peak electricity usage, so that it can be released back into the grid during peak periods, allowing for resiliency on the electrical grid. The proposed BESS facility would improve grid reliability as California transitions to more renewable energy resources and would allow for the electrical grid to draw from stored battery energy to meet peak demand, reduce electricity costs, and to decrease reliance on fossil fuels. Based on these considerations, the proposed Project would not result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation. Therefore, impacts are considered to be less than significant.

Mitigation Measures: No mitigation is required

b. Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less than Significant Impact. As identified in the Project description, the proposed Project would allow for the electrical grid to draw from stored battery energy to meet peak demand, reduce electricity costs, and to decrease reliance on fossil fuels as California transitions to more renewable energy resources. Implementation of the proposed Project would provide additional capacity to deliver on-demand distributed energy to a critical load pocket in response to the CPUC's mandate to procure 15,500 MWs from non-fossil fuel sources by 2028 to meet reliability goals within the State. As detailed in **Table 9**, the proposed Project would not conflict with or obstruct a state or local plan for renewable energy of energy efficiency. Impacts associated with this topic are considered to be less than significant.

Mitigation Measures: No mitigation is required

VII. Geology and Soils

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

Discussion

a. Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

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

No Impact. The City of Long Beach is in a seismically active region at the junction of

Southern California's Transverse and Peninsular Ranges. These two ranges experience ongoing seismic activity associated with the lateral movement of the North American and Pacific tectonic plates. The San Andreas Fault system, located approximately 55 miles northeast of the City, delineates the boundary where these two plates meet. The U.S. Geological Survey defined active faults as those that have had surface displacements within the Holocene epoch (about the last 11,000 years). Potentially active faults are those that have had surface displacement during the Quaternary period, within the last 1.6 million years.

Based on the City of Long Beach Seismic Safety Element, the proposed Project site is not in proximity to an Alquist-Priolo Special Study Zone, with the closest Alquist-Priolo Special Study Zone located approximately 4.0 miles northeast of the proposed Project Site (COLB 2022). The proposed Project would result in the demolition of existing structures on-site and installation of a BESS facility. No active or potentially active faults cross or are in close proximity to the proposed Project site and implementation of the proposed Project would not result in a change or increase in seismic hazards to people. Therefore, no impacts associated with a known earthquake fault are anticipated to occur with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

ii) Strong seismic ground shaking?

No Impact. The proposed Project is located in Southern California, an area that is subject to strong seismic ground shaking. Seismically induced ground acceleration is the shaking motion that is produced by an earthquake. The proposed Project site is in proximity to the Newport-Inglewood-Rose Canyon Fault Zone, the Palos Verdes Fault Zone, and the THUMS-Huntington Beach Fault Zone. However, the proposed Project site is not located within nor crossed by any active fault (COLB 2022). The proposed Project would construct and operate a BESS facility, which would not have the potential to cause substantial severe adverse effects, including risk of loss, injury or death due to strong seismic ground shaking; therefore, there would be no impact associated with the proposed Project and no mitigation measures are required.

Mitigation Measures: No mitigation is required.

iii) Seismic-related ground failure, including liquefaction?

Less Than Significant Impact. Soil liquefaction occurs when water-saturated sands, silts or gravelly soils are shaken so violently that the individual grains lose contact with one another and float freely in the water, turning the ground into a pudding-like liquid. Building and road foundations lose load-bearing strength and may sink into the ground. A program called the National Earthquake Hazard Reduction Program (NEHRP) creates maps based on soil characteristics to help identify locations subject to liquefaction. As identified in the City's Natural Hazard Mitigation Plan, the majority of land within the POLB, including the proposed Project site, is located within an area susceptible to liquefaction (COLB 2023).

NEHRP soil types define the locations that will be significantly impacted by an earthquake and are classified as one of the six soil categories (Soil Type A through F). In general, NEHRP Soil Types D, E, and F are most affected by ground shaking and are therefore also the most susceptible to liquefaction. The majority of land within the POLB, including the proposed Project site, is identified as containing NEHRP Soil Type D and is located in an area with moderate liquefaction susceptibility (COLB 2023).

Although the proposed Project site is located within an area susceptible to liquefaction, proposed improvements would adhere to POLB, COLB, and SCE design standards. As identified in SCE Geotechnical Design Criteria for Electrical Substations and Other Substation-Type Facilities, engineering design, such as allowable bearing pressure, are required to be prepared in accordance with Section 1802 of the California Building Code along with a Geotechnical Investigation Report conforming to all informational requirements identified by Section 1803.6 of the California Building Code. The Geotechnical Investigation Report, completed during final design, would provide findings, design recommendations, and conclusions of existing surface and subsurface conditions encountered, groundwater conditions, foundation design, construction, and earthwork proposed taking into account flooding potential, seismically induced ground failure (i.e., liquefaction and lateral spread), and seismic design parameters. As the proposed Project would be designed in accordance with regulatory design criteria governing electrical infrastructure which take into account seismic conditions onsite, impacts related to liquefaction are considered to be less than significant.

Mitigation Measures: No mitigation is required.

iv) Landslides?

No Impact. Landslides (or slope failures) are the dislodging and failing of a mass of soil or rocks along a sloped surface. The geologic and topographic characteristics of an area often determine the potential for landslides. Landslide activity generally occurs in areas that lack vegetation and have steep slopes. Generally, small-scale slope failure typically occurs along stream banks, margins of drainage channels, and similar settings where steep banks or slopes occur. The flat terrain of the proposed Project site minimizes this potential geologic hazard. In addition, the proposed Project site is not identified as being within an area susceptible to landslides (CGS 2024). Therefore, implementation of the proposed Project is not anticipated to expose people or structures to landslide risks. No impacts associated with landslides are anticipated to occur.

Mitigation Measures: No mitigation is required.

b. Would the Project result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact. The proposed Project site is within a highly developed area, consisting of the existing warehouse buildings, parking, and landscaping. While there is a narrow strip of unpaved area adjacent to the existing abandoned pipe, implementation of the proposed Project would not result in substantial soil erosion or the loss of topsoil. Because the proposed Project site is greater than 1 acre, any construction activities would be covered with a NPDES Construction Stormwater Permit, which would include BMPs that would minimize the potential for any soil erosion that could occur. With implementation of construction BMPs, impacts associated with soil erosion or the loss of topsoil would be reduced to a less than significant level.

Mitigation Measures: No mitigation is required.

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

Less Than Significant Impact. As discussed above, there would be no impact from landslides as the proposed Project site is not located in an area susceptible to landslides (CGS 2024) due to the proposed Project site's flat topography. The proposed Project site originally sat approximately 15 feet above mean lower water datum; however, oil field development commenced in the area around 1939 and subsidence due to crude oil well pumping continued up to around 1960 when total subsidence reached approximately 29 feet. A water injection program was initiated on Terminal Island in the late 1950s, which halted the subsidence around 1960 (NEM 2024). The levee located on the northeastern portion of the proposed Project site was constructed in 1942 after the proposed Project site settled approximately 2 feet due to oil pumping in the nearby oil fields. The levee was subsequently raised three times in 1948, 1951, and 1955 with the top of the levee approximately 30 feet higher than the ground floor of the proposed Project site.

Although the proposed Project site is located in an area with known historic subsidence attributable to past oil pumping activities, subsidence in the area has been controlled/stopped as noted above. The demolition of existing structures on the proposed Project site along with the placement of BESS containers and installation of supporting energy connection infrastructure would not result in the construction of any new groundwater extraction wells. Implementation of the proposed Project would not contribute to declining groundwater levels, subsidence, or liquefaction on the proposed Project site.

Liquefaction is the phenomenon in which saturated granular sediments temporarily lose their shear strength during periods of earthquake-induced strong ground shaking. The susceptibility of a site to liquefaction is a function of the depth, density, and water content of the granular sediments, and the magnitude and frequencies of earthquakes in the surrounding region. Saturated, unconsolidated silts, sands, and silty sands within 50 feet of the ground surface are most susceptible to liquefaction. Liquefaction-related phenomena include lateral spreading, ground oscillation, flow failures, loss of bearing strength, subsidence, and buoyancy effects. In addition, densification of the soil resulting in vertical settlement of the ground can also occur. This phenomenon can result in damage to infrastructure, including foundations. As previously identified, the proposed Project site is located in an area susceptible to liquefaction.

The proposed Project would result in the development of a BESS facility which would consist of BESS containers and associated supporting energy connection infrastructure (i.e., MEER, substation, and utility lines). Installation of supporting energy connection infrastructure would be required to adhere to POLB, COLB, and SCE design standards. As identified in SCE Geotechnical Design Criteria for Electrical Substations and Other Substation-Type Facilities, engineering design conducted during final design of the proposed Project is required to take into account flooding potential, seismically induced ground failure (i.e., liquefaction and lateral spread), and seismic design parameters.

Therefore, implementation of the proposed Project would result in less than significant impacts with respect to unstable geologic units and will not result in landslide, lateral spreading, subsidence, liquefaction, or collapse.

Mitigation Measures: No mitigation is required.

d. Would the Project be located on expansive soil, as defined in the latest Uniform design standards, creating substantial direct or indirect risk to life or property?

Less Than Significant Impact. Expansive soils are fine-grained soils (generally, high-plasticity clays) that can undergo a significant increase in volume with an increase in water content or, conversely, a significant decrease in volume with a decrease in water content. Changes in the water content of an expansive soil can result in severe distress to structures built upon it.

The proposed Project site is situated on the Los Angeles Coastal Plain, one mile west of the mouth of the Los Angeles River. The proposed Project site is located on POLB's Terminal Island, which was built over marshlands in the early 1900s by placement of fill dredged from the adjacent channels. Geological investigations conducted between 1941 and 1975 indicate that there are three zones of sediments in the area. The upper zone of sediments consists of the locally derived dredge fill which was placed over native marshland deposits to create Terminal Island. This upper material is approximately 20 feet thick and consists of loose to medium dense sand and silty sand, gray to tan in color with a fine grain size. Localized layers of soft to stiff clay exist within the upper layer.

Dredge fill material overlays natural estuarine sediment deposits (the second zone of sediments) formed from the confluence of the Los Angeles and San Gabriel Rivers. The estuarine deposits are approximately 30 feet thick. This layer is composed of interbedded layers of loose to dense silty sand with silt and clay deposits. The sand is gray and is fine grained and is overlaid with a thin silt or clay layer interpreted to be the top of the marsh deposits that were deposited prior to the dredge material. The third and final zone is located below an elevation of 64 feet below msl and is classified as very dense silty sand with layers of very stiff silt and clay (NEM 2024).

The soils anticipated to underlie the proposed Project site include sand, clay, and silt. The clay material is considered to be a type of expansive soil. However, due to existing shallow groundwater conditions at the proposed Project site (i.e., groundwater is 3 to 6 feet below ground surface), the soils are anticipated to remain relatively wet, which would reduce the potential effects of any expansive soils onsite.

The proposed Project would result in the development of a BESS facility which would consist of BESS containers and associated supporting energy connection infrastructure (i.e., MEER, substation, and utility lines). While the BESS containers would be placed on existing area where no ground excavation would be required, energy connection infrastructure improvements on the adjacent SCE parcel would require limited excavation activities (i.e., replacement of existing foundation). As identified in SCE Geotechnical Design Criteria for Electrical Substations and Other Substation-Type Facilities, engineering design conducted during final design of the proposed Project is required to take into account seismic design parameters, foundation design, and problematic soils (i.e., expansive). Impacts related to expansive soils are considered to be less than significant.

Mitigation Measures: No mitigation is required.

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

No Impact. The proposed Project would not involve the installation of a septic tank or alternative wastewater disposal system. Therefore, there would be no impact related to soils incapable of adequately supporting the use of septic tanks or wastewater disposal systems.

Mitigation Measures: No mitigation is required.

f. ***Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?***

No Impact. As previously stated, site excavations would occur as deep as 5 feet below ground surface on the adjacent SCE site. Ground disturbance would be mostly undertaken on previously excavated soils and would not extend into places where native soil would be present. Therefore, no potential impact related to paleontological resources or unique geologic features would occur with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

VIII. Greenhouse Gas Emissions

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

Discussion

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

Less Than Significant Impact. Greenhouse Gas Emissions (GHGs) include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF_3), and sulfur hexafluoride (SF_6). CO_2 is the most abundant GHG in the atmosphere. Not all GHGs exhibit the same ability to induce climate change; as a result, GHG contributions are commonly quantified in equivalent mass of CO_2, denoted as carbon dioxide equivalent (CO_2e). Mass emissions are calculated by converting pollutant specific emissions to CO_2e emissions by applying the proper global warming potential (GWP) value. These GWP ratios are available from the USEPA and are published in the California Climate Action Registry (CCAR) General Reporting Protocol. By applying the GWP ratios, Project related CO_2e emissions can be tabulated in metric tons per year.

CEQA Guidelines Section 15064.4 gives lead agencies the discretion to determine whether to assess GHG emissions quantitatively or qualitatively and recommends consideration of certain factors in the determination of significance (i.e., extent to which the project may increase or reduce GHG emissions compared to the existing environment; whether the project exceeds an applicable significance threshold; and extent to which the project complies with regulations or requirements adopted to implement a reduction or mitigation of GHGs).

Section 15064.4 of the State CEQA Guidelines does not establish a threshold of significance; rather, lead agencies are granted discretion to establish significance thresholds for their respective jurisdictions, including looking to thresholds developed by other public agencies, or suggested by other experts, such as the California Air Pollution Control Officers Association (CAPCOA), so long as any threshold chosen is supported by substantial evidence (State CEQA Guidelines CEQA Section 15064.7(c)). State CEQA Guidelines allow the lead agencies discretion in how to address and evaluate significance.

To provide guidance to local lead agencies, the SCAQMD established a 10,000 metric ton of CO_2e ($MTCO_2e$) per year significance threshold for industrial facilities (SCAQMD 2008, 2023).

Construction

The proposed Project would generate GHG emissions from construction equipment, construction worker vehicles and heavy-duty trucks during temporary demolition and construction activities. Construction emissions were estimated using CalEEMod software.

Consistent with calculations in Section III, Air Quality, construction emissions were estimated using Project-specific information based on equipment types and the construction schedule provided by Pier S Energy. These values were then applied to the same construction phasing assumptions used in the criteria pollutant analysis in Section III, Air Quality, to generate GHG emissions values for the proposed Project.

Industry standards recommend that construction project GHG emissions should be "amortized over a 30-year project lifetime, so that construction GHG emissions are included as part of the operational GHG life cycle" (SCAQMD 2008). Project construction GHG emissions are summarized in **Table 9** with detailed GHG emissions calculations are provided in **Appendix B**. Construction emissions as amortized over a 30-year project lifetime are also included in **Table 10**.

Table 9. Annual Construction Greenhouse Gas Emissions (metric tons per year)

Year	CO_2e
2025	593
2026	236
Total Project	829
Amortized over 30 Years	28
Total Project	28

Source: HDR 2024 (Appendix B of this IS/MND)

As identified in **Table 9**, Project construction is estimated to generate a total of 829 $MTCO_2e$ (or 28 $MTCO_2e$ per year when amortized over 30 years), over the estimated 14 months of construction activities, which is well below the 10,000 $MTCO_2e$ per year significance threshold for industrial facilities. Therefore, the proposed Project would not result in significant construction GHG emissions and impacts would be less than significant.

Operation

Operational activities associated with the proposed Project would result in emissions of CO_2 and, to a lesser extent CH_4 and N_2O. As previously identified, operational activities include maintenance vehicles travelling to the proposed Project site for periodic maintenance, testing, and inspection of BESS containers and supporting infrastructure, the use of consumer products such as cleaning products and periodic repainting of the proposed Project, and electricity utilized for BESS utility infrastructure systems (i.e., MEER, BESS Substation, mechanical cabinets) and security lighting. Project operation GHG emissions are summarized in **Table 10**.

Table 10. Annual Operational Greenhouse Gas Emissions (metric tons per year)

Emission Source	CO_2e
Mobile	635
Energy	181
Water	53
Waste	32
Stationary	2
Construction	28
Total Project	**931**
SCAQMD Threshold	**10,000**
Exceeds Threshold?	**No**

Source: HDR 2024 (Appendix B of this IS/MND)

As identified in **Table 10**, Project construction and operation are estimated to generate a total of 931 $MTCO_2e$ per year which is well below the 10,000 $MTCO_2e$ per year significance threshold for industrial facilities. Therefore, the proposed Project would not result in significant operational GHG emissions. Impacts related to GHG emissions during construction and operation would be less than significant.

Mitigation Measures: No mitigation is required.

b. Would the Project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

Less Than Significant Impact. Project compliance with GHG emissions reduction plans, policies, and regulations would result in a less than significant GHG impact. The analyses provided below in **Table 11** demonstrates that the proposed Project would be consistent with applicable GHG emission reduction plans, policies and regulations included within the CARB 2022 Scoping Plan for Achieving Climate Neutrality (2022 Scoping Plan), SCAG Connect SoCal 2024, and 2017 San Pedro Bay Ports CAAP.

Table 11. Applicable GHG Emissions Reduction Strategies from 2022 Scoping Plan

Strategy	Compliance with Strategy
2022 Scoping Plan	
Increase in Renewable Energy and Decrease in Oil and Gas Use Actions	**No Conflict.** This strategy applies to increasing renewable energy and a decrease in oil and gas actions. The proposed Project is an energy storage facility that would provide energy storage capacity and dispatch for the electricity grid when needed. The proposed Project would improve the ability to store renewable energy for later use when needed.
Low Carbon Fuels Actions	**No Conflict.** The proposed Project would generate minimal vehicle trips during periodic visits for on-site equipment inspections, monitoring and testing. Vehicles accessing the proposed Project including construction vehicles and trucks, employees, and delivery service trucks would utilize fuels that comply with the State of California low carbon fuel standard. Therefore, the proposed Project

	would not conflict with the State's ability to implement the low carbon fuel standard.
Expansion of Electrical Infrastructure Actions	**No Conflict.** The proposed Project is an energy storage facility that would provide energy storage capacity and dispatch for the electricity grid. The proposed Project would require upgrades to the existing SCE Long Beach Bus Substation and the installation of a BESS Substation to transfer power between the proposed Project site and the SCE Long Beach Bus Station. However, these would benefit the State and SCE's compliance with providing additional reliability to the electrical grid.
Climate Ready and Climate-Friendly Buildings	**Not Applicable.** The proposed Project is an energy storage facility and does not include residential units. Therefore, this action does not apply to the proposed Project.
Expanded Use of Zero-Emission Mobile Source Technology Actions	**No Conflict.** The proposed Project is an energy storage facility that would result in an improvement to the existing electrical power system through the ability for batteries to charge from paired solar facilities throughout the day and to discharge energy to the grid in the evening when power needs peak and solar facilities are unable to generate electricity. Energy distributed from the BESS facility back into the SCE energy grid would assist in helping SCE meeting peak demand, which would include energy demands associated with electrical vehicle charging. Therefore, the proposed Project would be consistent with this strategy.
Mechanical Carbon Dioxide Removal and Carbon Capture and Sequestration Actions	**Not Applicable.** The proposed Project would result in the construction and operation of a BESS facility on a developed industrial site that would provide energy storage capacity and dispatch for the electricity grid. Therefore, this strategy does not apply to the proposed Project.
Improvements to Oil and Gas Facilities Actions	**Not Applicable.** The proposed Project is an energy storage facility that would provide energy storage capacity and dispatch for the electricity grid and does not include improvements to oil and gas facilities. Therefore, this strategy does not apply to the proposed Project.
Reduced High-GWP Fluorinated Gases Actions	**No Conflict.** This strategy includes expanding use of low GWP refrigerants within buildings; increasing funding to decarbonize existing buildings and appliance replacements; and implementing biomethane procurement targets for investor owned utilities. The proposed Project would utilize refrigerants within the proposed enclosures (e.g., air conditioning systems) in compliance with applicable State and local regulations and as such, the proposed Project would not conflict with the State's ability to achieve GHG reductions under this strategy.
Forest, Shrubland, and Grassland Management Actions	**Not Applicable.** This strategy strives to increase the urban forestry investment annually by 200 percent relative to business as usual. The proposed Project would result in the construction and operation of a BESS facility on a developed industrial site that would provide energy storage capacity and dispatch for the electricity grid. The proposed Project is not anticipated to generate organic waste. Therefore, this strategy does not apply to the proposed Project.
Agricultural Actions	**Not Applicable.** This strategy strives to increase climate smart forest, shrubland, and grassland management to at least 2.3 million acres a year, an approximately 10x increase from current levels. The proposed Project would result in the construction and operation of a BESS facility on a developed industrial site that would provide energy storage capacity and dispatch for the electricity grid. The proposed Project is not anticipated to generate organic waste. Therefore, this strategy does not apply to the proposed Project.

Organic Waste Diversion and Composing Actions	**Not Applicable.** The proposed Project would result in the construction and operation of a BESS facility on a developed industrial site that would provide energy storage capacity and dispatch for the electricity grid. The proposed Project is not anticipated to generate organic waste. Therefore, this strategy does not apply to the proposed Project.
Afforestation, Urban Forestry Expansion, Urban Greening, Avoided Natural and Working Land Use Conversion, and Wetland Restoration Actions	**Not Applicable.** The proposed Project is not located on natural or working lands. Therefore, this strategy does not apply to the proposed Project.
Reduced VMT Actions	**No Conflict.** The proposed Project would be monitored remotely. Minimal vehicle trips would be generated during periodic visits for onsite equipment inspections, monitoring and testing. Therefore, the proposed Project would not conflict with the State's ability to reduce VMT.

Source: HDR 2024

Southern California Association of Governments Connect SoCal 2024. As previously stated, implementation of the proposed Project is part of a larger state effort to improve energy grid resiliency associated with the development of reliable, sustainable, and resilient infrastructure that is needed to accommodate projected population and economic growth in regional and state plans. To economically meet both the 2030 and 2045 decarbonization goals outlined by the State of California, the electric sector needs to decarbonize more quickly than currently required. SCE identifies that by 2045, significant electrification of the state's economy combined with population and economic growth are projected to result in a 60 percent increase in electricity sales from the grid and a 40 percent increase in peak load demands (SCE 2023). Therefore, the proposed Project is in response to existing and projected demands on the existing electrical infrastructure and is not anticipated to induce growth.

***San Pedro Bay Ports CAAP*.** The San Pedro Bay Ports CAAP was adopted by the Boards of Harbor Commissioners of the Ports of Long Beach and Los Angeles to reduce the health risks posed by air pollution from all port-related emissions sources, specifically ships, trains, trucks, terminal equipment, and harbor craft. The 2017 CAAP Update contains emission reduction targets set in the 2010 CAAP Update for 2014 and 2023 for DPM, NOx, and SOx, as compared to 2005 conditions (POLB and POLA 2017). As previously stated, the proposed Project is an energy storage facility that would provide energy storage capacity and dispatch for the electricity grid. The proposed Project site would be monitored remotely. Minimal vehicle trips would be generated during periodic visits for on-site equipment inspections, monitoring and testing. Therefore, the proposed Project would not conflict with the goals set forth by the San Pedro Bay Ports CAAP.

Overall, the proposed Project would not conflict with an applicable plan, policy, or regulation to reduce GHG emissions. Impacts associated with this issue would be less than significant.

Mitigation Measures: No mitigation is required.

IX. Hazards and Hazardous Materials

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

Discussion

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

Less Than Significant Impact with Mitigation Incorporated. Exposure of the public or the environment to hazardous materials can occur through transportation accidents; environmentally unsound disposal methods; and/or improper handling of hazardous materials or hazardous wastes (particularly by untrained personnel) during construction or operation. The severity of these potential effects varies by type of activity, concentration and/or type of hazardous materials or wastes, and proximity to sensitive receptors.

The hazardous materials used for construction would be typical of most construction projects of this type. Materials would include small quantities of gasoline, diesel fuel, oils, lubricants, solvents, detergents, degreasers, paints, ethylene glycol, dust palliatives, herbicides, and welding materials/supplies.

The California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act), requires preparation of hazardous materials business plans (HMBP) and disclosure of hazardous materials inventories, including an inventory of hazardous materials handled, plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency response procedures (California Health and Safety Code, Division 20, Chapter 6.95, Article 1).

The City of Long Beach is the local Certified Unified Program Agency (CUPA) with jurisdiction over the hazardous materials of the proposed Project. The HMBP for the Project would be provided to the POLB and City of Long Beach and would include necessary information to prevent or mitigate possible environmental contamination or worker exposure. During proposed Project construction, material safety data sheets for all applicable materials present at the proposed Project site will be made readily available to on-site personnel. Construction contractors would implement BMPs for handling hazardous materials during construction activities, including following manufacturers' recommendations and regulatory requirements for use, storage, and disposal of chemical products and hazardous materials used in construction; avoiding overtopping construction equipment fuel tanks; routine maintenance of construction equipment; and properly disposing of discarded containers of fuels and other chemicals. Construction contractors are required to implement safety measures in accordance with the General Industry Safety Orders of the California Code of Regulations as well as BMPs identified as part of the NPDES Construction Stormwater Permit. In addition, all construction-related materials would be transported and disposed of in accordance with applicable codes and regulations.

Adherence to the HMBP and implementation of BMPs, would ensure impacts related to the routine transport, use, or disposal of hazardous materials during proposed project construction, would be less than significant.

Operations at the proposed Project would consist of periodic in-person equipment inspections, monitoring and testing, and maintenance as needed. Limited amounts of hazardous materials would be stored or used on the proposed Project site during operations, including diesel fuel, gasoline, and motor oil for vehicles; mineral oil to be sealed within the transformers; and lead-acid-based batteries for emergency backup. Appropriate spill containment and cleanup kits would be maintained during operation of the proposed Project. In addition to the HMBP that would be prepared for the proposed Project material disposal and solid waste management plan would also be developed for site operations.

Spill Prevention Control and Countermeasure (SPCC) plans are required by the USEPA for facilities where construction and removal operations involve oil in the vicinity of navigable waters or shorelines. SPCC plans ensure that facilities implement containment and other countermeasures that would prevent oil spills from reaching navigable waters. SPCC plans are regulated by USEPA and are required for projects that meet three criteria:

(1) the facility must be non-transportation-related, or, for construction, the construction operations involve storing, using, transferring, or otherwise handling oil;

(2) the project must have an aggregate aboveground storage capacity greater than 1,320 gallons or completely buried storage capacity greater than 42,000 gallons; and

(3) there must be a reasonable expectation of a discharge into or upon navigable waters of the United States or adjoining shorelines.

In order for the proposed Project to trigger the preparation of an SPCC plan, it would need to meet all three criteria identified above. Implementation of the proposed Project meets two of the three criteria: construction would involve storing, using, transferring, or otherwise handling oil, and the Project site is located adjacent to navigable waters of the United States; however, the construction phase of the proposed Project would not result in an aggregate aboveground storage capacity greater than 1,320 gallons or an underground storage capacity greater than 42,000 gallons. Therefore, an SPCC plan is not required.

Fuels and lubricants used in operations would be subject to the material disposal and solid waste management plan to be prepared for the proposed Project. For batteries needing to be disposed during operational activities, end of life management of waste lithium-ion batteries would include battery removal, interim storage, packaging for waste transport, transport, recycling, and record retention which are governed by existing state and federal regulations. Batteries are considered “Universal Waste”, which is a special classification of hazardous waste and governed by the Code of Federal Regulations, 40 CFR part 273.

The storage, use, transport and disposal of hazardous materials are regulated by applicable federal, State, and local regulations. Compliance with federal, State and local requirements would serve to minimize health and safety risks to people or structures associated with hazardous materials stored or used for operations of the proposed Project. Therefore, operational impacts associated with the proposed Project related to use, transport, storage, or disposal of hazardous materials would be less than significant.

Mitigation Measures:

HAZ-1 **Development of a Hazardous Materials Business Plan.** During final design of the Project, the Project Applicant, in coordination with the City of Long Beach Fire Department, shall submit a Hazardous Materials Business Plan (HMBP) for the BESS facility to the City of Long Beach Fire Department for review and approval. The HMBP shall include a Final Hazards Mitigation Assessment and Emergency Response Guide for the BESS facility detailing hazards (e.g., thermal runaway and fires), firefighting measures, shutting down and disposal of materials and would also recommend a number of firefighting measures. These shall include but are not limited to the following:

- Identification of system protection devices to monitor potential for thermal runaway including emergency systems and emergency response protocols designed to extinguish fires and ventilate enclosures before entry.
- Identification of hazard detection systems including but not limited to smoke and heat detectors, and gas meters that would be monitored by control centers and alert operators to emergency situations.
- Identification of thermal runaway prevention technologies including but not limited to current interrupt devices (CIDs), ceramic-coated separators, and solid polymer electrolytes.
- Identification of a failsafe protection system that provides for forced shutdown, should all other countermeasures fail to prevent thermal runaway. The UL 9540 listing ensures BESS are designed to provide system-level thermal runaway mitigation through detection, suppression, and/or containment measures.

- Identification of how temperatures will be controlled and how the system will protect against excess humidity, salinity, and dust.

In addition, the Final Hazards Mitigation Assessment and Emergency Operations Plan shall detail how the BESS facility incorporates or complies with applicable National Safety codes and standards including but not limited to the following:

- **National Fire Protection Association (NFPA) 855:** Standard for the Installation of a Stationary Energy Storage Systems
- **International Fire Code (IFC) 1207:** Electrical Energy Storage Systems
- **Underwriters Laboratories (UL) 9540:** Standard for Energy Storage Systems and Equipment
- **National Fire Protection Association (NFPA) 68:** Standard on Explosion Protection by Deflagration Venting
- **National Fire Protection Association (NFPA) 69:** Standard on Explosion Prevention Systems

The final HMBP approved by the City of Long Beach Fire Department shall also be submitted to the POLB Director of Environmental Planning via electronic mail at CEQA@polb.com.

b. ***Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?***

Less Than Significant with Mitigation Incorporated.

Construction

Construction of the proposed Project would involve minimal uses of hazardous materials typical to construction, including gasoline, motor oils, paints, solvents, and other miscellaneous materials (e.g., engine oil, etc.). To prevent releases of hazardous materials to the environment, all potentially hazardous materials would be used and stored in accordance with manufacturers' instructions and handled in compliance with applicable standards and regulations. The construction phase would involve the use of heavy equipment, which require small amounts of oil and fuels and other potential flammable substances.

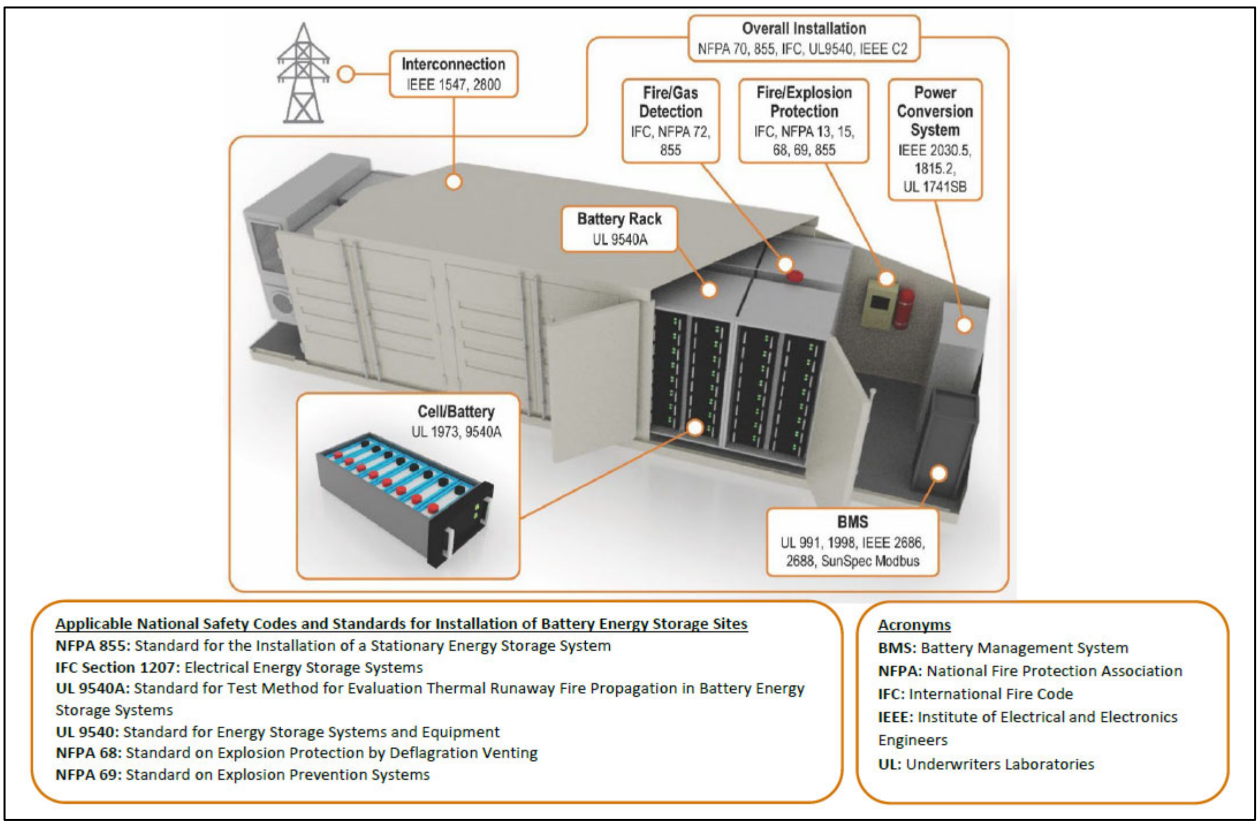
During construction, equipment would require refueling and minor maintenance on location that could lead to fuel and oil spills. The contractor would be required to identify a staging area for storing materials. Additionally, operators of heavy-duty equipment are trained to remain alert and nearby during fueling of equipment to ensure spills, should they occur, do not reach the off-site environment. Construction contractors would be required to implement safety measures in accordance with the General Industry Safety Orders of the California Code of Regulations. All construction-related materials would be transported and disposed of in accordance with applicable codes and regulations. Compliance with applicable federal, State, and local standards would be required; therefore, construction related impacts related to accidental release of hazardous materials would be less than significant.

Operations

As discussed above, limited amounts of hazardous materials would be stored or used on the site during operations, including diesel fuel, gasoline, and motor oil for vehicles; mineral oil to be sealed within the transformers; and lead-acid-based batteries for emergency backup. Appropriate spill containment and cleanup kits would be maintained during operation of the proposed Project. In addition to the HMBP that would be prepared for the proposed Project, material disposal and solid waste management plan would also be developed for site operations. Fuels and lubricants used in operations will be subject to the material disposal and solid waste management plan to be prepared for the proposed Project.

As part of the HMBP that would be prepared, the proposed Project would be required to develop an Emergency Operations Plan in compliance with National Fire Protection Association (NFPA) codes and standards specific to the handling of BESS operations. **Figure 9** provides an example of applicable national safety codes and standards that are typically applied to containerized BESS facilities.

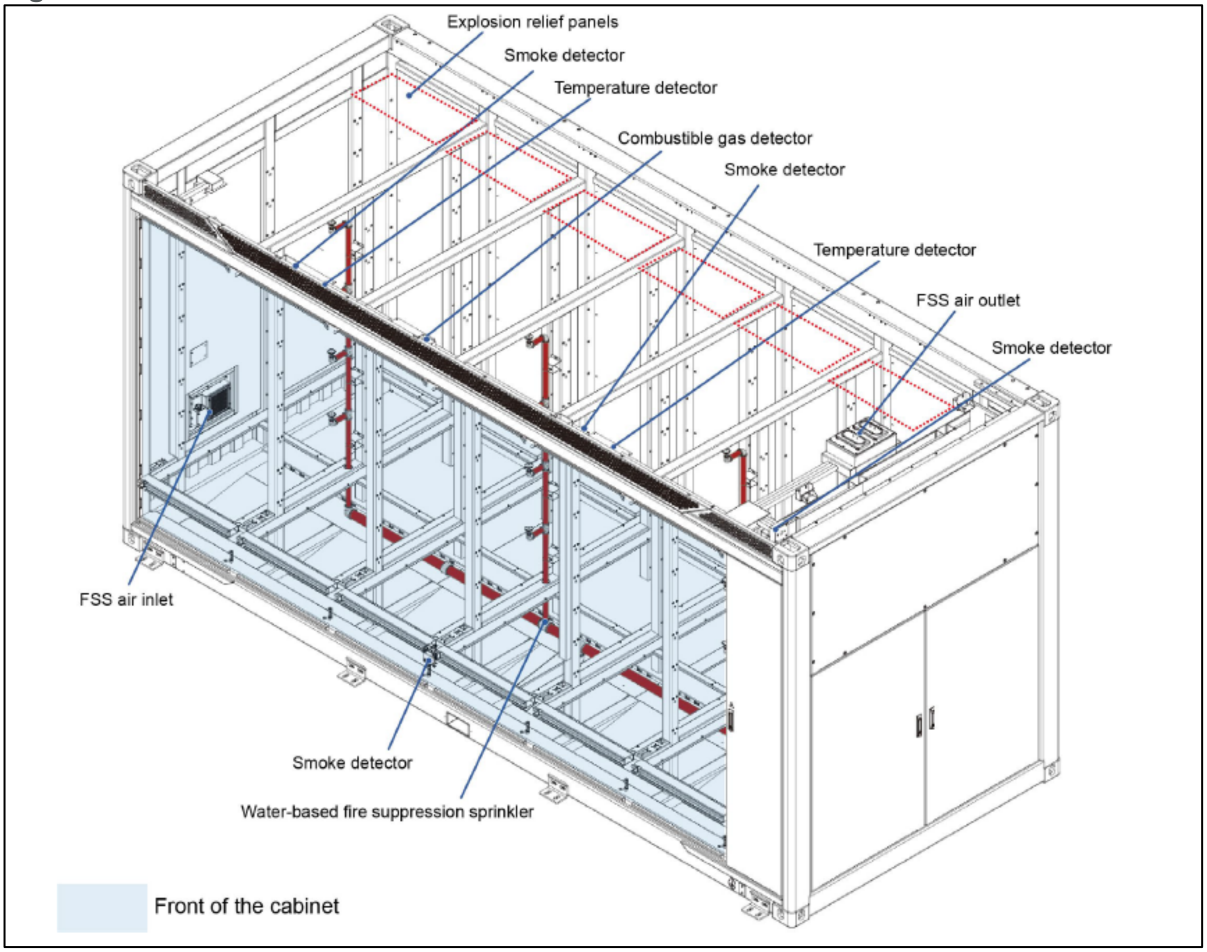
Figure 9. Example of Containerized BESS and Applicable National Safety Codes and Standards



Source: USDOE 2024

As shown in **Figure 10**, fire prevention systems would include proposed cabinets designed to limit or eliminate the potential for fire to spread from one cabinet to another, infrared camera monitoring at the site for external fire detection and onsite fire hydrants. Additional items include video monitoring of the site, site lighting, site security, training, fire access planning and fire water flow design.

Figure 10. Fire Protection Features of BESS Container



Source: Energy Safety Response Group, LCC 2024 (Appendix D of this IS/MND)

The HMBP would include an Emergency Response Guide for the BESS facility detailing potential hazards (e.g., thermal runaway, fires, and fumes), firefighting measures, shutting down and disposal of materials. The Battery Management System (BMS) would monitor all cell voltages, currents and temperatures and shut down equipment if unsafe conditions are detected. Additionally, the on-site staff and operations center will monitor and control the proposed Project site.

For battery systems, specialized heating, ventilation and air conditioning (HVAC) systems and the continuous monitoring of temperature, current, and voltage are effective in protecting BESS from thermal runaway. For enclosed BESS containers, protection from thermal runaway would also take into account external sources of heat, such as high ambient temperatures in the summer. The HMA evaluated potential battery cell malfunction scenarios including:

- A thermal runaway condition in a single ESS rack, module, or unit.
- Failure of any battery (energy) management system.
- Failure of any required ventilation or exhaust system.
- Voltage surges on the primary electric supply.

- Short circuits on the load side of the ESS.
- Failure of the smoke detection, fire detection, fire suppression, or gas detection system.

Thermal runaway, as defined in NFPA 855 is the condition when an electrochemical cell increases its temperature through self-heating in an uncontrollable fashion and progresses when the cell's heat generation is at a higher rate than it can dissipate. This results in off-gassing, fire, or explosion. The cause of a thermal runaway event can range from a manufacturer defect in the cell, external impact, exposure to dangerously high temperatures, or a multitude of controls and electrical failures. Furthermore, a thermal runaway event in a single cell can propagate to nearby cells, thus creating a cascading runaway event across battery modules and racks, leading to more heat generation, fire, off-gassing, and increased potential for a deflagration event.

A number of protections are provided to reduce the potential for thermal runaway at the cell level, most notably via monitoring and controls provided by the battery management system (BMS) which will trigger respective corrective actions based on the fault signal received. Should a thermal runaway condition spread to a single module, array, or unit, additional protections including BMS control and system shutdown and disconnects are anticipated to mitigate further propagation of failure throughout the system electrically.

Should a thermal runaway event occur, flammable gases may accumulate within the enclosure, leading to a potentially explosive atmosphere. Given a source of ignition (for example from fire, heat, or electrical arcing), a deflagration or explosion event may occur. To limit the impact of such an event, the proposed battery containers are equipped with deflagration vent panels intended to direct any blast overpressure upwards and away from any nearby exposures or emergency personnel who may be arriving on-scene. Per NFPA 855 §9.6.5.6.3, these panels are to be designed in accordance with NFPA 68: Standard on Explosion Protection. The inclusion of gas detection and exhaust ventilation system may also prevent flammable gas from accumulating within the enclosure before an explosion can occur. In a worst-case scenario in which a deflagration event does occur, impacts may be further reduced by proper emergency response procedures, which would be developed as part of the HMBP, identified as Mitigation Measure HAZ-1.

In the event of a thermal runaway condition in a single rack, module, or unit, passive and active measures would be implemented to reduce the potential of a thermal runaway event from occurring including BMS control and active cooling to internal components. Proposed battery modules and cells have been listed to UL 1973. In the event of a battery (energy) management system failure, the proposed BMS includes a three-level management structure for monitoring and control of the systems at the battery module, battery cluster, and batter cabinet level for redundance in the event that one level of control should fail.

If voltage surges on the primary electric supply or short circuits on the load side of the BESS facility occur, inverter controls, voltage monitoring and automatic disconnects are provided by the BMS as well as passive circuit protection and design. In the event of smoke detection, fire detection, fire suppression, or gas detection system failures, it is anticipated that the BMS would still be capable of triggering respective safety actions.

It should be noted that the summary of impacts and conclusions presented in the HMA and OCA are based on the current design and layout, which are subject to change. As the Project progresses into final design and engineering, adjustments may be necessary due to evolving design specifications, layout modifications, or new data. It is important to note that the HMA and

OCA should be viewed as a flexible framework, which may be updated as additional information becomes available.

As identified in the HMA and OCA conducted for the proposed Project and implementation of Mitigation Measure HAZ-1 requiring the development of the HMBP, the hazards associated with potential reasonable worst-case battery cell malfunction scenarios would be managed, with ground-level thermal and deflagration hazards remaining on-site. Therefore, the maximum potential public health impacts for the BESS facility are considered less than significant with mitigation and impacts related to reasonably foreseeable upset and accident conditions would be less than significant.

Mitigation Measures:
HAZ-1 Development of a Hazardous Materials Business Plan.

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

No Impact. There are no existing or proposed schools within 0.25 mile of the proposed Project site. The closest school is the Cesar Chavez Elementary School, approximately 1.3 miles east of the proposed Project site, across the Los Angeles River. Therefore, the proposed Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school. No impacts associated with this issue would occur with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

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

Less Than Significant with Mitigation Incorporated. Section 65962.5 of the California Government Code requires the California Environmental Protection Agency (CalEPA) to develop and update annually the Cortese List, which is a compilation of various sites throughout the state that have been compromised due to soil or groundwater contamination from past uses. As identified in the Department of Toxic Substances Control (DTSC) EnviroStor database, the LBGS parcel has an existing covenant to restrict certain types of land uses due to prior uses on the site. These land use restrictions prohibit the development of day care centers, elder care centers, hospital uses, public or provide school uses, and residential uses on site. In addition, no raising of food (i.e., livestock or food crops) or fiber crops is permitted (DTSC 2006). The proposed Project does not propose land uses that would be restricted under the existing property covenant but would still be required to adhere to soil management requirements as identified by state and federal rules and regulations.

The entire 18.03-acre LBGS parcel, which includes the proposed Project site, is also identified by the DTSC as undergoing corrective action as part of the DTSC's Site Cleanup Program (DTSC 2024a). As part of the ongoing corrective action process, a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Work Plan was prepared in 2024 for the larger 18.03-acre parcel, of which the proposed Project site is part of (NEM 2024).

Several Areas of Interest (AOIs) were identified as part of the RFI Work Plan and include areas where previous sampling has identified chemicals of potential concern (COPCs) above regulatory screening levels or where there is a potential for COPCs to be detected above applicable screening levels based on SCE's historical operations conducted within the area. Previous Environmental Site Assessments (ESAs) have been conducted including a Phase I and II ESA in 1997 and another Phase II ESA in 1998. The RFI Work Plan proposes evaluating VOCs, semi-volatile organic compounds (SVOCs), Title-22 metals, total petroleum hydrocarbons, and polychlorinated biphenyls in soil samples, one groundwater monitoring well, and two dewatering wells for the overall 18.03-acre parcel. Soil vapor sampling is not proposed due to the shallow groundwater table, which lies between 3 and 6 feet below ground surface on the site.

As shown on **Figure 11**, three AOIs identified in the RFI Workplan overlap with the proposed Project site. These include AOI-8 (Hazardous Waste Storage Area), AOI-9 (Administration Building, Warehouse, and Machine Shop), and AOI-10 (Former Fuel Oil System) (NEM 2024).

- *AOI-8 (Hazardous Waste Storage Area).* A small hazardous waste storage area currently exists within the northeastern portion of the proposed Project site in a covered and lined area finished with concrete. According to the 1998 Phase II ESA, the hazardous waste storage area has been in use since approximately 1996. Sampling conducted during the 1997 and 1998 Phase II ESAs in the vicinity to assess soil near the hazardous waste storage area did not indicate concentrations of COPCs above current regulatory screening levels. Based on the RFI Work Plan, five borings (A8-1 through A8-5) are proposed to further assess this AOI. Proposed boring locations A8-3 and A8-4 were recommended by the DTSC to investigate the nearby stormwater catch basin and a stained area of pavement. Installation of soil boring A8-5, within the secondary containment structure, is planned to be completed in tandem with demolition of the hazardous waste storage area.
- *AOI-9 (Administration Building, Warehouse, and Machine Shop)*. Historical Phase II ESAs did not perform any investigation activities at the warehouse or machine shop buildings; however, soil borings were advanced near a clean barrel storage area, located just north of the machine shop. Historical analytical results from the 1997 and 1998 ESA investigations did not identify COPCs in soil above current regulatory screening levels at the clean barrel storage area. A groundwater sample collected from the 1998 reported a vinyl chloride concentration slightly above the current drinking water California maximum contaminant level. This area has been identified as an AOI based on the historical storage or use of chemicals at the warehouse and machine shop and the potential for occupants within the administration building, warehouse, and machine shop to be exposed to subsurface VOCs via the vapor intrusion pathway

  Based on the RFI Work Plan and as shown on **Figure 11**, five borings (A9-1 through A9-5) are proposed to assess this AOI along with groundwater samples collected from monitoring wells LB-1, DW-8, and DW-9 and analyzed for VOCs to evaluate the potential for vapor intrusion into the occupied buildings associated with this AOI. Depth to water measurements will be compared to the foundation depth of occupied buildings to assess if groundwater is in contact with the building foundations. If building foundations are in contact with groundwater and groundwater samples indicate significant VOC contamination, a higher potential for vapor forming chemicals to migrate into occupied buildings may exist.

- *AOI-10 (Former Fuel Oil System)*. Generating units at the LBGS were driven by heavy fuel oil-fired boilers since construction of each unit between 1910 and 1928. To supply fuel oil to the boilers located within Plant Nos. 1, 2, and 3, a system of pipelines, storage tanks, and pumphouses was utilized within the area. Current status of the underground tanks and pipelines (removed or abandoned in place) is not well understood based on a review of available site documentation. A number of soil borings were advanced during the 1997 and 1998 Phase II ESAs that targeted specific areas of the former fuel oil system. Soil sample results from the 1997 and 1998 ESA investigations did not indicate concentrations of COPCs above regulatory screening levels. Metals and VOC concentrations in groundwater samples collected near various fuel oil system features were above drinking water MCLs. Based on the RFI Work Plan and as shown on **Figure 11**, eighteen soil borings (A10-1 through A10-18) are proposed to further assess this AOI.

Figure 11. Areas of Interest
(Page 1 of 2)

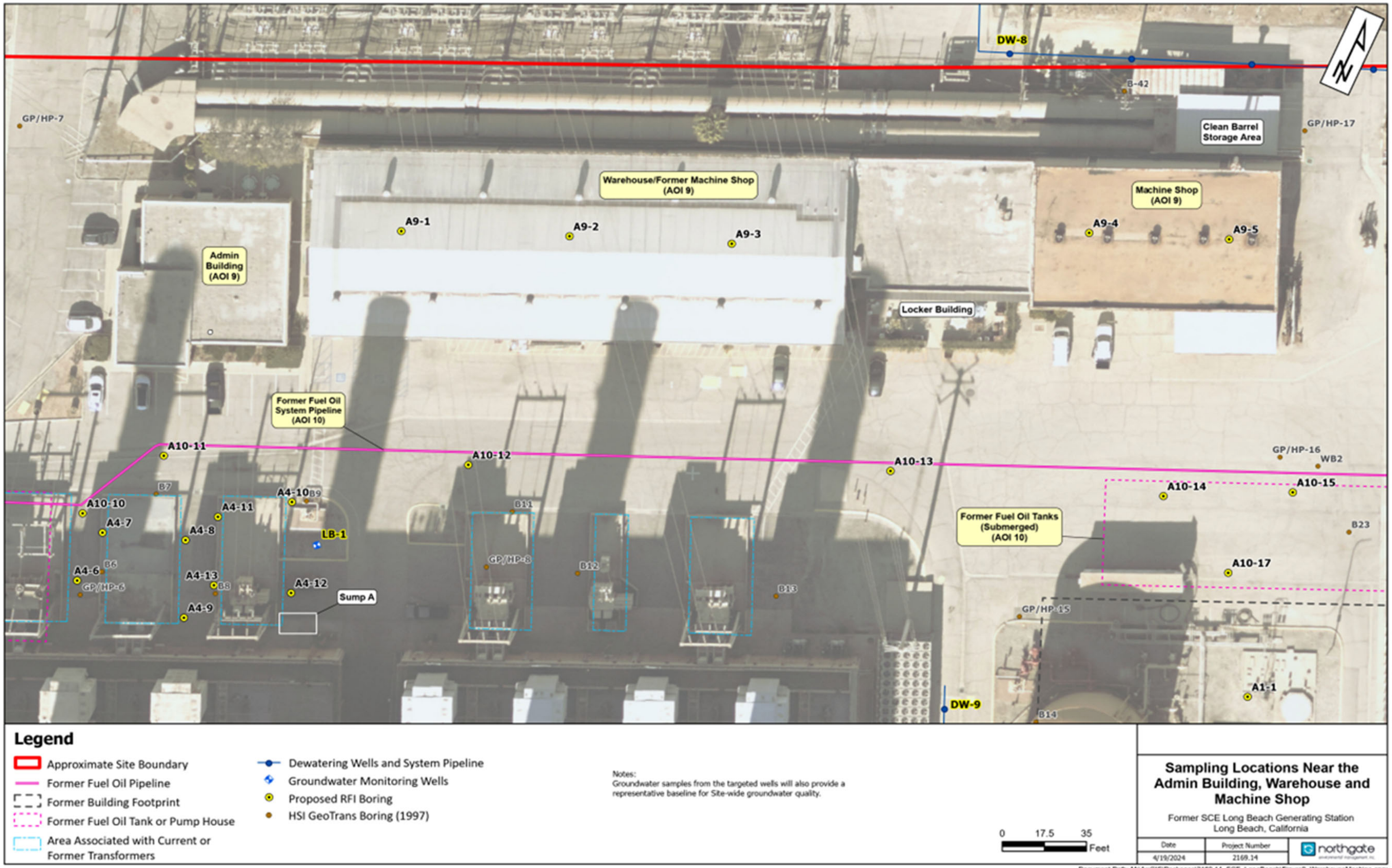


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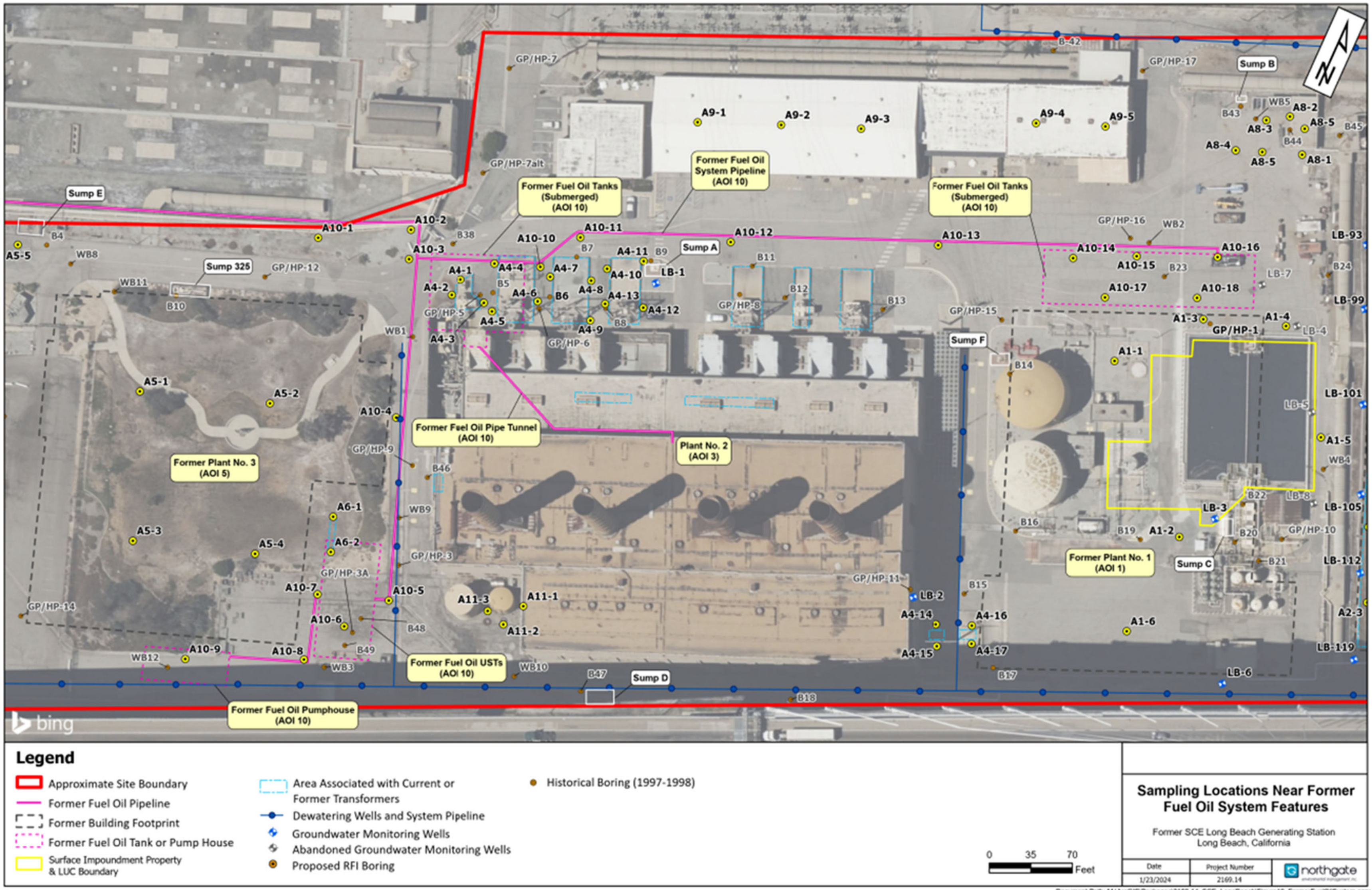
Figure 11. Areas of Interest
(Page 2 of 2)



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As of May 2024, the DTSC has approved the RFI Work Plan (DTSC 2024b) for the overall site. At the conclusion of the sampling identified in the RFI Work Plan and analytical data review, an RFI Report would be prepared summarizing the results from the field sampling, regulatory screening comparisons, and site characterization determinations. The data contained in the RFI Report will be used to determine if additional remedial actions are necessary to address potential risks to human health or the environment.

With the exception of the engineered dike on the eastern portion of the proposed Project site, the proposed Project site is paved by concrete and asphalt and utilized for power generation operations. Site pavement limits exposure to COPCs in shallow soil for workers on-site; however, construction/utility workers could potentially be exposed to COPCs (if present) in shallow soil during activities that involve soil excavation or trenching.

Contaminated soil or groundwater encountered during construction would be considered to be hazardous by the State of California and would be handled, stored, transported and disposed of according to applicable federal, State, and local regulations. In addition, to ensure that there are no conflicts with sampling recommendations identified in the RFI Work Plan, Mitigation Measure HAZ-2 has been identified. Mitigation Measure HAZ-2 requires additional coordination with the DTSC during final project design as it is currently unknown as to when the sampling identified in the RFI Work Plan would be conducted and when the RFI Report will be completed. Adherence to applicable federal, State, and local regulations and Mitigation Measure HAZ-2 would reduce potential impacts to less than significant.

Implementation of the proposed Project would also include removal of three existing buildings which may contain asbestos containing materials (ACM) or lead based paint (LBP) on or with building materials. Demolition of the existing building on the proposed Project site could expose construction workers in the vicinity of the proposed Project site to ACMs or LBP. Compliance with appropriate federal, State, and local regulations regarding the handling, storage, removal, and disposal of ACM and LBP would reduce potential impacts. Implementation of Mitigation Measure HAZ-3 (Asbestos and Lead Based Paint Testing and Removal) would ensure that ACM and LBP are identified and properly removed/remediated prior to building demolition resulting in a less than significant impact to construction workers or the public related to ACM or LBP exposure.

Mitigation Measures:

HAZ-2 **DTSC Agency Notification and Coordination.** During final design of the Project, the Project Applicant shall notify and consult with the Department of Toxic Substances Control in order to ensure any construction activities associated with the Project do not hinder site characterization recommendations identified in the Resource Conservation and Recovery Act Facility Investigation Work Plan developed for the area. Prior to construction activities, the Project Applicant shall submit documentation that the required notification and consultation with the Department of Toxic Substances Control has been conducted. This documentation shall be submitted to the POLB Director of Environmental Planning via electronic mail at CEQA@polb.com.

HAZ-3 **Asbestos and Lead Based Paint Testing and Removal.** The Project shall implement the following measures to reduce impacts due to the presence of unknown asbestos containing materials (ACMs) and/or lead based paint (LBP) in the structures to be demolished:

- In conformance with State and local laws, a visual inspection/pre-demolition survey, and sampling and testing, shall be conducted prior to the demolition of the on-site buildings to determine the presence of asbestos containing materials and/or lead based paint, and to determine appropriate handling and disposal requirements.
- Prior to demolition activities, all building materials containing lead-based paint shall be removed in accordance with Cal/OSHA Lead in Construction Standard, Title 8, California Code of Regulations (CCR) 1523.1. Employee training, employee air monitoring, and dust control shall be conducted during demolition also in accordance with this Standard. Any debris or soil containing lead-based paint or coatings would be disposed of at landfills that meet acceptance criteria for the waste being disposed.
- All potentially friable ACMs shall be removed in accordance with Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP) guidelines prior to any building demolition or renovation that may disturb the materials. All demolition activities will be undertaken in accordance with Cal/OSHA standards contained in Title 8 of CCR, Section 1529, to protect workers from exposure to asbestos.
- A registered asbestos abatement contractor shall be retained to remove and dispose of ACMs identified in the asbestos survey performed for the Project site in accordance with the standards stated above.

Prior to demolition activities, the Project Applicant shall submit documentation that these measures have been completed. This documentation shall be submitted to the POLB Director of Environmental Planning via electronic mail at CEQA@polb.com.

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

No Impact. The proposed Project site is not located within 2 miles of a public airport or a private airstrip. The nearest airport is the Long Beach Municipal Airport located approximately 5 miles northeast of the proposed Project site. In addition, the proposed Project site is not within the Airport Influence Area for the Long Beach Municipal Airport (LACALUC 2003). Therefore, implementation of the proposed Project would not expose people working in the Project area to a safety hazard or excessive airport noise levels and no impact would occur.

Mitigation Measures: No mitigation is required.

f. Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less than Significant Impact. The proposed Project would be contained entirely within the proposed Project site and served by the Long Beach Fire and Police Departments. The proposed Project would not substantially affect traffic circulation or increase demand for existing emergency response services. While local roadways would be utilized to bring construction materials to the proposed Project site, the construction activities would take place entirely on the Project site, outside of public roadways, and would not result in temporary blockage or closure of local access routes within the POLB. Proposed Project operational activities would consist of periodic maintenance of BESS containers and infrastructure and would not involve modifications to the POLB roads. Therefore, implementation of the proposed Project would not interfere with an adopted emergency response plan or emergency evacuation plan and impacts would be less than significant.

Mitigation Measures: No mitigation is required.

g. Would the Project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

No Impact. State law (California Government Code, Section 51175–51189) requires that all local jurisdictions identify Very High Fire Hazard Severity Zones (VHFHSZ) within their areas of responsibility. Inclusion within these zones is based on vegetation density, slope severity, and other relevant factors that contribute to fire severity. As identified on the latest Fire Hazard Severity Zone (FHSZ) maps prepared by the California Department of Forestry and Fire Protection (CalFIRE), the proposed Project site and areas adjacent to the proposed Project site are not located within a fire hazard zone (CalFIRE 2023). In addition, the proposed Project site is not located in a State Responsibility Area (CalFIRE 2011) and is identified as being within a Least Critical Fire Hazard Area by the City of Long Beach (COLB 1975). Therefore, implementation of the proposed Project would not expose people or structures to risk of loss, injury, or death involving wildland fires as there is no wildfire risk for the BESS facility is proposed. No impact associated with wildland fires would occur with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

X. Hydrology and Water Quality

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

Discussion

a. Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less Than Significant Impact. As part of Clean Water Act Section 402, the USEPA has established regulations under the National Pollutant Discharge Elimination System (NPDES) program to control direct stormwater discharges. In California, the State Water Resources Control Board (SWRCB) administers the NPDES permitting program and is responsible for developing NPDES permitting requirements. The NPDES program regulates pollutant discharges, which include construction activities. The SWRCB works in coordination with the nine Regional Water

Quality Control Boards (RWQCBs) to preserve, protect, enhance, and restore water quality. The proposed Project site is within the jurisdiction of the Los Angeles RWQCB. The Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties (Basin Plan) establishes water quality standards for ground and surface waters within the Los Angeles Region, which includes the City of Long Beach, and is the basis for the Los Angeles RWQCB regulatory programs.

A project normally would have an impact on surface water quality if discharges associated with the project would create pollution, contamination, or nuisance as defined in Water Code § 13050, or that cause regulatory standards to be violated as defined in the applicable NPDES stormwater permit or Water Quality Control Plan for the receiving water body. For the purpose of this specific issue, a significant impact could occur if the proposed BESS facility would discharge water that does not meet the quality standards of the agencies that regulate surface water quality and water discharge into stormwater drainage systems. Significant impacts could also occur if the Project does not comply with all applicable regulations with regard to surface water quality as governed by the Los Angeles RWQCB.

According to information provided in the current NPDES permit (CA0001171) for the larger 18.03 parcel, fluids generated from generating plant drains, groundwater dewatering, fire water system testing, and stormwater are collected in the 550,000-gallon retention basin located south of the proposed Project site. Combined fluids within the retention basin are then processed via a wastewater treatment system before being discharged to the Back Channel. Wastewater treatment system effluent is sampled in accordance with NPDES Waste Discharge Requirements (WDR) (Los Angeles RWQCB 2001).

Construction of the proposed Project could result in short-term impacts to water quality due to the handling, storage, and disposal of construction materials, and maintenance and operation of construction equipment. Construction projects that disturb 1 acre or more of soil or disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 acre or more, are required to obtain coverage under the SWRCB’s General Permit for Discharges of Stormwater Associated with Construction Activity Construction General Permit Order 2022-0057-DWQ (General Construction Permit). The General Construction Permit requires the project applicant to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP).

The Project would be required to obtain coverage under the General Construction Permit because it would disturb more than 1 acre of soil. The SWPPP would specify BMPs to be used during construction of the proposed Project to minimize or avoid water pollution, thereby reducing potential short-term impacts to water quality. Potential BMPs would include but not be limited the following BMP categories:

- **Good Housekeeping.** Good housekeeping generally consists of practical procedures to maintain a clean and orderly facility.
- **Preventive Maintenance.** Preventive maintenance includes the regular inspection and maintenance of structural stormwater controls (e.g., catch basins) as well as other facility equipment and systems.
- **Spill Response.** This includes spill clean-up procedures and necessary clean-up equipment based upon the quantities and locations of significant materials that may spill or leak.

- **Material Handling and Storage.** This includes all procedures to minimize the potential for spills and leaks and to minimize exposure of significant materials to stormwater and authorized non-stormwater discharges.
- **Employee Training.** This includes training of personnel who are responsible for (1) implementing activities identified in the SWPPP, (2) conducting inspections, sampling, and visual observations, and (3) managing stormwater. Training should address topics such as spill response, good housekeeping, and material handling procedures, and actions necessary to implement all BMPs identified in the SWPPP. The SWPPP shall identify periodic dates for such training. Records shall be maintained of all training sessions held.
- **Waste Handling/Recycling.** This includes the procedures or processes to handle, store, or dispose of waste materials or recyclable materials.

Upon completion of the proposed Project, the Project applicant would be required to submit a Notice of Termination to the SWRCB to indicate that construction has been completed.

In addition to NPDES BMPs, the proposed Project would also be required to adhere to HDP Special Condition (SC) WQ-1, which includes the following stormwater BMPs:

- To control runoff during construction activities, Permittee shall implement stormwater BMPs, as appropriate, as described in the Stormwater BMPs Handbook developed by the California Stormwater Quality Association (CASQA).
- Permittee shall ensure that all trash cans and/or dumpsters used on-site have lids and remain covered for the duration they are on-site.
- Permittee shall ensure that containment trays are placed under all portable toilets on-site.

Compliance with NPDES permit requirements and HDP SC WQ-1 would ensure that construction of the BESS facility would not violate any water quality standards or discharge requirements, or otherwise substantially degrade water quality. Impacts would be less than significant with implementation of existing regulations.

During operation, the proposed BESS facility would not generate stormwater that would require any special waste discharge permits. The proposed BESS components would be enclosed within the storage containers, and battery fluids or substances would not be susceptible to spills or release as runoff. The primary water quality constituents of concern during the operational phase of the proposed Project would be solids, oils, and greases from the proposed and existing paved access roads, parking lots, and driveways. All stormwater associated with the BESS facility would be processed through the existing oil/water separator before being impounded in the existing retention basin for approximately 24 hours. The wastewater would then be discharged with plant cooling water via a discharge pipe which flows to the Back Channel. The discharge to Back Channel is monitored in accordance with the existing NPDES permit for the larger 18.03-acre parcel, of which the approximately 2-acre proposed Project site is a part of. Compliance with these water quality and water discharge standards currently in place with the existing NPDES permit (NPDES Number CA0001171, CI Number 5764) would ensure that the proposed Project would not degrade surface or ground water quality, and impacts would be less than significant.

Mitigation Measures: No mitigation is required.

b. *Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?*

No Impact. The proposed Project site is located on the southern edge of the West Coast Groundwater Basin, a rectangular sub-basin of the Los Angeles Coastal Groundwater Basin. The surficial deposits in the basin consist primarily of Holocene age alluvial deposits and are underlain by Pleistocene age marine and continental deposits. The upper aquifers are the Holocene-aged Gaspar and Pleistocene Gage aquifers and contain saline water below the proposed Project site (NEM 2024). According to the Los Angeles RWQCB, the groundwater underlying the POLB is not designated for beneficial use in drinking water supply systems; however, groundwater below the proposed Project site is currently designated for beneficial use such as agricultural supply, industrial service supply, and industrial process supply (Los Angeles RWQCB 2020).

The proposed Project site is located approximately 15 to 20 feet below mean sea level and relies on the use of dikes and a dewatering system to prevent flooding from adjacent surface waters and groundwater. The dewatering system, which serves the entire 18.03-acre parcel of which the proposed Project site is part of, consists of over 200 dewatering wells and removes groundwater at a rate of about 350 gallons per minute. Groundwater at the proposed Project site is maintained at approximately 5 feet below ground surface (bgs). Since the elevation of the proposed Project site is below sea level, the direction of groundwater gradient is determined almost entirely by the onsite dewatering wells, with the groundwater flow at the proposed Project site occurring predominantly in a north-northeast direction (NEM 2024).

Due to the ongoing corrective actions being implemented on the larger 18.03-acre parcel as part of the DTSC's Site Cleanup Program, the active groundwater dewatering system limits the offsite migration of any potential groundwater plumes. All extracted groundwater is treated via the onsite wastewater treatment system prior to discharge to the Back Channel.

It is anticipated that during construction activities, any activities requiring water would use either existing water main connections at the proposed Project site or have the water trucked in, neither of which would affect groundwater levels. Operation of the proposed Project would not result in a substantial increase in water demand as the BESS facility would generate minimal water use for operation and maintenance activities. Any water needed during operations would come through existing water main connections at the proposed Project site and would not utilize groundwater supplies. Therefore, no impacts associated with groundwater supplies are anticipated to occur with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

c. *Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:*

i) Result in substantial erosion or siltation on- or off-site?

Less Than Significant Impact. The proposed Project site is mostly developed with impervious surfaces (e.g., existing buildings, pavement, and parking lots). There is an existing earthen dike located on the eastern portion of the proposed Project site which is approximately 30 feet higher than the rest of the site, however, implementation of the proposed Project would not require any modifications to this proposed Project site feature. Construction activities would result in the demolition of existing buildings and installation of electrical transmission equipment while operational activities would result in the periodic maintenance of the BESS facility. Construction and operational activities would not result in modifications in existing drainage patterns or changes to locations of existing stormwater sumps or storm drain catch basins on the proposed Project site. Therefore, implementation of the proposed Project would not result in substantial changes to the existing drainage pattern of the site that could result in erosion or siltation on or off-site. Stormwater generated during construction and operation would be collected and conveyed via existing storm drain catch basins to the existing detention basin south of the proposed Project site for treatment and then discharged to the Back Channel in accordance with the existing NPDES WDRs, similar to existing Project site conditions. Impacts associated with erosion or siltation would be less than significant with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

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

Less Than Significant Impact. As described under Response X.c.(i) above, the proposed Project site is covered primarily with impervious surfaces consisting of buildings, pavement, and parking lot. While construction activities would require excavation, such activities would be limited to a small area in the existing SCE site and applicable SWPPP BMPs applied. Operational activities would be limited to periodic maintenance activities to service the BESS facility, which are not anticipated to increase the rate or amount of surface runoff. Therefore, implementation of the proposed Project would not substantially increase the rate or amount of surface runoff, nor is the amount of impervious surfaces anticipated to change from existing site conditions. The proposed Project site currently drains to the existing wastewater collection system which has adequate capacity to treat wastewater or stormwater being generated on the overall Project site. Therefore, impacts associated with surface runoff would be less than significant with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less Than Significant Impact. Please refer to Responses X.c.(i) and X.c.(ii) above.

Mitigation Measures: No mitigation is required.

iv) Impede or redirect flood flows?

No Impact. Based on a review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, the proposed Project site is located within Zone X, indicating an area of minimal flood hazard due to the existing levee system located northeast of the proposed Project site (FEMA 2021). As identified in Response X.a. and X.b, the proposed Project site is located approximately 15 to 20 feet below mean sea level and relies on the use of levees and a dewatering system to prevent flooding from adjacent surface waters and groundwater. The BESS facility components would all be located within the mapped Zone X area of reduced flooding due to the presence of the existing levee system and, therefore would not pose a substantial obstruction to flood flows such that flood flows would be impeded or redirected on the proposed Project site. No impacts associated with flood flows are anticipated to occur with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

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

Less Than Significant Impact. As described under Response X.c.(iv) above, the BESS facility components would all be located within the mapped Zone X area of reduced flooding due to the presence of the existing levee system.

Tsunami/Seiches. Based on the Tsunami Hazard Area Map, the proposed Project site is within a Tsunami Hazard Area (CGS 2024, COLB 2023). A tsunami is a series of high-energy waves that radiate outward like pond ripples from an area where a generating event occurs, arriving at shorelines over an extended period (COLB 2023). Numerous studies have been conducted to analyze tsunami hazards to the Port of Long Beach area including a 2007 tsunami hazard assessment (THA) completed by Moffatt & Nichol (Moffat & Nichol 2007) and a 2010 THA completed by the Joint Institute for the Study of the Atmosphere and Ocean (JISAO), National Oceanic and Atmospheric Administration (NOAA) and Pacific Marine Environmental Laboratory (PMEL).

The 2007 THA evaluated several tsunami scenarios and determined that impacts from a tsunami would be equal to or more severe than those from a seiche. The 2007 THA concluded that large earthquakes (i.e., magnitude 7.5 or higher) are very infrequent and that a large and locally generated tsunami would likely not occur more than once every 10,000 years, resulting in a limited potential for inundation within the Port of Long Beach area (Moffat & Nichol 2007). The 2010 THA evaluated 322 possible earthquake scenarios and determined that a large earthquake (i.e., magnitude 9.3) could generate a tsunami with potentially substantial impact on the Port of Long Beach area resulting in heavy damage to waterfronts, vessels, moorings, piers, and docks (JISAO, NOAA, PMEL 2010). No waterside activities, vessels, mooring, piers or docks are associated with the proposed Project. In addition, the proposed Project site is located adjacent to the Inner Harbor and is further inland than the southern portions of the Port of Long Beach. If a tsunami were to occur, the outermost portions of the coast and Port of Long Beach would be impacted first with waves dissipating in size and strength as it passes inland through the Port of Long Beach’s channels. Based on the 2010 THA models, maximum wave amplitudes for the Inner Harbor area from a tsunami event would range from 1 to 1.5 meters (3 to 5 feet).

As identified in the RCRA RFI Work Plan, the proposed Project site is currently protected by an existing levee system with the top of the levee approximately 30 feet higher than the ground floor of the proposed Project site.

Construction

Staging for construction activities would occur entirely within the proposed Project site with construction activities requiring the use of construction equipment and industrial chemicals such as oils, fuels, and lubricants. In the event that the proposed Project site is inundated by a flood hazard event such as a tsunami or seiche, construction equipment and vehicles could be moved off site in the event of a tsunami warning or expected flood hazard event. Due to the limited amount of industrial chemicals that could be used, potential release is not anticipated to be significant.

Construction of the proposed Project would not require the use of groundwater but would include limited excavation activities that may require dewatering due to the presence of shallow groundwater onsite. Temporary dewatering during construction would generate small volumes of water that would be contained onsite. As previously identified, fluids generated from generating plant drains, groundwater dewatering, fire water system testing, and stormwater are collected in the 550,000-gallon retention basin located south of the proposed Project site. Combined fluids within the retention basin are then processed via a wastewater treatment system before being discharged to the Back Channel. Wastewater treatment system effluent is sampled in accordance with NPDES Waste Discharge Requirements (WDR) (Los Angeles RWQCB 2001). Due to the existing wastewater treatment system currently in place, potential release of contaminated groundwater is not anticipated during a flood hazard event. Impacts are considered to be less than significant.

Operation

In the event that the proposed Project site is inundated by a flood hazard event such as a tsunami or seiche, battery fluids would be contained within the storage containers. Battery fluids or substances would not be susceptible to spills or release as runoff as the BESS would be designed in accordance with the NFPA 855 Standard for the Installation of Stationary Energy Storage Systems to generally contain any fluids through a liquid-tight spill containment system. Weatherproof enclosures marked with the environmental rating suitable for the type of exposure required by NFPA 70 would be also utilized as an additional level of containment. In further accordance with NFPA standards, the temperature, humidity, and other environmental conditions in which the BESS is located would be maintained in accordance with the listing and the manufacturer’s specifications.

Although the proposed Project site is within an identified tsunami inundation area, based on the 2007 and 2010 THA modeling results, the location of where the proposed Project site is in relation to the coast, and the presence of an existing levee system, the tsunami or seiche threat to the Project site would be considered low. Therefore, impacts would be less than significant.

Sea Level Rise. To consider the effects of future SLR at the Mean Higher High Water (MHHW) condition as well as the MHHW in combination with a 100-year storm tide, the POLB completed a Climate Adaptation and Coastal Resiliency Plan (CRP) in 2016. The CRP inundation mapping was updated in December 2022 to reflect the updated *State of California Sea Level Rise Guidance* issued by California Ocean Protection Council (OPC 2018).

The 2018 OPC SLR Guidance recommends evaluating various future-looking SLR scenarios depending on the type of project and the level of risk associated with the development type (OPC 2018). These scenarios include:

1) “low risk aversion scenario” for projects that would have limited consequences or higher ability to adapt (unpaved coastal trails, public access ways, small temporary structures)

2) "medium-high risk aversion scenario" for projects with greater consequences and/or lower ability to adapt (residential and commercial structures), and
3) "extreme risk aversion scenario" for projects that have little to no adaptive capacity that would be irreversibly destroyed or significantly costly to repair, and/or would have considerable public health, public safety, or environmental impacts (new wastewater treatment plants, power stations, highways).

For the proposed Project, OPC's medium-high risk aversion scenario would be the most appropriate to evaluate. According to the updated CRP inundation mapping, under the medium-high risk aversion scenario, the Project site could experience temporary inundation of zero to 1.8 feet by 2050. In addition, the 2018 OPC Guidance states that under the medium-high risk aversion scenario, there is an approximate 1 in 200 chance, or 0.5% probability, that sea-level rise will meet or exceed 1.8-feet of rise, including a 100-year storm surge, by 2050 (OPC 2018). This 1.8-foot sea-level rise scenario was identified as the most appropriate and applicable scenario for future planning based on the approximate 20 year lifespan and adaptive capacity of Project assets, as it would be representative of a medium-high risk sea-level rise projection for the year 2050.

The POLB CRP considered SLR inundation and extreme tide (storm surge) flooding of POLB property, as well as an overtopping assessment along existing shoreline strictures and the POLB's three sections of federal breakwater. Each SLR scenario was evaluated on both inundation depth and extent and used to identify vulnerable areas of the Port. Based on the asset inventory and inundation maps prepared for the CRP, vulnerability profiles[3] were developed for various Port asset types including pier infrastructure, transportation networks, critical facilities, utilities, and the federal breakwater. As identified in the CRP, electrical systems that are vulnerable to SLR will no longer be operable if they are subjected to even minimal flooding. Electrical system components that will be impacted by flooding include switchgear, substations, transformers, switchboards, panel boards, and building/facility lighting. Other electrical system components such as conduits, manholes and pull boxes are not expected to experience flood impacts because all cable joints and splices are waterproof and all cables used in underground distribution are rated to operate under flooded conditions.

As part of the POLB 2016 CRP, a preliminary list of potential adaptation strategies was identified which includes addressing physical vulnerabilities through modification of existing infrastructure, such as strengthening sea walls or raising electrical equipment. For purposes of this analysis, a review of SCE's *Climate Adaptation Vulnerability Assessment* (CAVA) was conducted to further identify potential adaptation strategies specifically for SCE electrical infrastructure.

SCE updated its CAVA in 2022 per compliance with Rulemaking 18-04-019 (Climate Adaptation Rulemaking) that addresses how energy utilities plan and prepare for increased operational risks due to changing climate conditions and heightened risks from wildfires, extreme heat, storms, drought, subsidence and sea level rise (SCE 2022). Per the CAVA, projects associated with power stations or utilities would fall within OPC's "extreme risk aversion scenario." However, it should be noted that OPC's extreme risk aversion scenario, also known as the H++ scenario, was deemed too extreme and speculative and was thus removed from OPC guidance in mid-2024. As identified in the SCE's CAVA, SCE evaluated SLR projections under average conditions, king tide conditions, 100-year storm conditions, and 100-year storm conditions coinciding with king tide

[3] Vulnerability is defined as the level to which an asset is exposed to a climate impact combined with its sensitivity to that impact. Understanding the level of vulnerability of an asset to climate impacts is an essential part of decision making and policy development for future adaption, as it provides a basis for establishing priorities.

conditions with the Coastal Storm Modeling System (CoSMos) 3.0 for baseline (2000), Year 2030, Year 2050, and Year 2070. The layer depth used was based on the average project for SLR under the H++ scenario as recommended at the time in the 2018 OPC SLR Guidance. The average was taken across the three NOAA tide gauge locations in SCE territory (Santa Barbara, Santa Monica, and Los Angeles). Based on these projections, there is a potential for SLR to require SCE asset relocation due to permanent inundation of low-lying coastal areas (SCE 2022).

SCE used a conservative assumption of SLR causing a 2-foot flood as part of the vulnerability analysis and determined that electric system assets sensitive to a 2-foot saltwater flood are substations, underground structures, and pad mounted distribution equipment. Overhead equipment is located high enough above water levels to remain energized and operating and underground equipment within underground structures are designed to remain energized while submersed in water. A 2-foot saltwater flood within a substation can damage critical control room equipment such as protection relays, DC batteries, and control cables as each piece of sensitive equipment is located near ground level and has exposed electrical components. All other equipment outside of the control room but within SCE substations is not considered to be sensitive to 2 feet of saltwater flooding. Examples of non-exposed equipment include substation transformers, circuit breakers, and switch racks. In addition, most equipment within a substation is raised up on structures that can be five feet above ground.

Construction

Construction would take place immediately following Project approval. Therefore, no sea level rise impacts during the construction phase are anticipated.

Operation

Based on SCE's CAVA, a total of 1 subtransmission substation and 28 distribution substations within SCE's service area were identified as being vulnerable to SLR by 2050. However, no SCE assets were considered "at risk" from SLR based on the ability of the subtransmission system to continue to serve customers. The largest threat from SLR is causing an entire substation outage due to damaging equipment within the control room. Although SCE assets are not deemed "at-risk", they do remain vulnerable to SLR. SCE has identified that near term adaption strategies for transmission substations impacts by SLR include monitoring flood height and preventing water from entering critical areas through raising substation sensitive control room equipment to a height that would have significantly less probability of being exposed to water.

SCE's CAVA is required to outline an "array of options for dealing with vulnerabilities, ranging from easy fixes, where applicable, to more complicated, longer term mitigations, and an indication of the IOUs' plans for potential next steps." The adaptation options presented SCE's CAVA are not proposals but potential options that are expected to be refined. SCE elected to develop adaptation options for those identified "at-risk assets, operations and services that were vulnerable in the 2030 timeframe as well as in the 2050 timeframe, as near-term vulnerabilities require potential near term action, and currently available regulatory funding mechanisms align with this near term timeframe. After further refinements, all or a subset of these adaptation measures may be proposed for funding in SCE's 2025 regulatory funding request.

The CAVA analysis identified a wide range of adaptation options, including options that may be needed in the near-term, may not be needed near-term due to a longer time horizon for the climate risks these are meant to address, or may not be cost-efficient to pursue in the near-term due to uncertainties around the nature or timing of the risk. SCE has filtered these options to identify those that will be considered further as part of the 2025 regulatory funding request process, based on the following set of guiding principles:

1. Address Near Term Risks: Exposure projections validate that risks these measures are meant to address could occur by 2030.
2. Mitigate Cost of Inaction: The adaptation options address risks that have highest relative safety, reliability, or financial consequences.
3. Part of Least Regrets Path: Proposed adaptations are not expected become obsolete as climate projections and analytical methods mature. This criterion allows for near term adaptation measures in the 2025 – 2028 timeframe before more robust solutions are considered in the future.

Given that near term SLR impacts are not anticipated to impact the proposed Project, in addition to the proposed Project being considered as part of the larger SCE regulatory vulnerability assessment framework, impacts related to SLR are anticipated to be less than significant.

Mitigation Measures: No mitigation is required.

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

Less Than Significant Impact. The 2014 Sustainable Groundwater Management Act resulted in the formation of groundwater sustainability agencies in areas located in high- and medium-priority basins and provided a mechanism to develop and implement groundwater sustainability plans to address groundwater overdraft. As previously identified, the proposed Project site is located on the southern edge of the West Coast Groundwater Basin that is designated as a Very Low priority basin (DWR 2020). Therefore, no groundwater sustainability plan has been established for this basin.

As identified in Response X.a. and X.b, the proposed Project site is located approximately 15 to 20 feet below mean sea level and relies on the use of levees and a dewatering system to prevent flooding from adjacent surface waters and groundwater. The dewatering system, which serves the entirely of larger 18.03-acre parcel of which the approximately 2-acre proposed Project site is part of, consists of over 200 dewatering wells and removes groundwater at a rate of about 350 gallons per minute. Groundwater at the proposed Project site is maintained at approximately 5 feet bgs. Due to the ongoing corrective actions being implemented on the larger 18.03 parcel as part of the DTSC's Site Cleanup Program, the active groundwater dewatering system limits the offsite migration of any potential groundwater plumes. All extracted groundwater is treated via the onsite wastewater treatment system prior to discharge to the Back Channel.

There are no features of the proposed Project that would otherwise generate water quality impairments, nor are there any components of the Project construction or use that could otherwise conflict with the implementation of a water quality control plan. The proposed Project would have minimal water use, mainly during construction, which would be obtained from local water purveyors. There are no operational features of the proposed Project that would otherwise have any effect on the existing groundwater management currently in place. Therefore, impacts associated with conflicts with applicable water quality control or groundwater sustainability plans are less than significant.

Mitigation Measures: No mitigation is required.

XI. Land Use and Planning

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

Discussion

a. Would the Project physically divide an established community?

No Impact. For the purpose of this impact analysis, physically dividing an established community means the creation of barriers that prevent or hinder the existing flow of people or goods through an established community, or the placement of a development in such a manner that it physically separates one portion of an established community from the remainder of that community. The proposed Project site is located within an urbanized area characterized by a mix of industrial uses within the POLB. Current uses adjoining the proposed Project site include a chassis support facility and the SCE Long Beach Bus Substation to the north, Inner Harbor to the east, a crude oil and vacuum gas oil tankage terminal to the west, and the thermal power plant to the south. The proposed Project would result in the construction and operation of a BESS facility on a previously developed industrial site surrounded by other industrial uses. Implementation of the proposed Project would not physically divide an established community. No impact related to the physical division of an established community would occur as a result of the proposed Project.

Mitigation Measures: No mitigation is required.

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

No Impact. The PMP identifies land uses specific to the POLB and is also a requirement of the California Coastal Act (CCA), of which POLB is subject to (Chapter 8, Section 30711(a)). The proposed Project site is located within Long Beach Harbor Planning District 4 – Terminal Island. Permitted uses in Harbor Planning District 4 include primary port facilities, hazardous cargo facilities, port-related, navigation, federal uses, oil production, ancillary port facilities, utilities, and police headquarters and training academy (POLB 1990). The proposed Project, which would result in the construction and operation of a BESS facility, would not conflict with the proposed Project site's PMP permitted uses. Therefore, the proposed Project would be consistent with the applicable permitted uses of the PMP. The proposed Project's consistency with the certified PMP is discussed in detail in the Application Summary Report prepared in conjunction with this IS/MND (POLB 2024).

The proposed Project site is located in the City of Long Beach-designated Port-Related Industrial (IP) zone. Land uses designated as IP are established to preserve and enhance areas for maritime industry and marine resources. Permitted uses in the IP district are primarily port-related or water dependent but may also include water-oriented commercial and recreational facilities primarily serving the public, and utility installations and rights-of-way. The construction and operation of a BESS facility would be consistent with existing City of Long Beach zoning regulations. The proposed Project would be consistent with relevant City of Long Beach General Plan goals and policies, as discussed in **Table 12**.

The proposed Project would not have any significant impact on the environment due to any conflicts with such plans and regulations. No impact associated with land use planning would occur with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

Table 12. Project Consistency Analysis

Relevant Policies	Project Consistency Analysis
City of Long Beach General Plan – Air Quality Element	
Goal 7. Reduce emissions through reduced energy consumption.	The proposed Project includes the development of a BESS facility that would assist the CPUC in procuring 15,500 MWs to address energy reliability goals within the State. The proposed Project would improve grid reliability by allowing for the electrical grid to draw from stored battery energy to meet peak demand, reduce electricity costs, and to decrease reliance on fossil fuels. The proposed Project is consistent with this goal.
Policy 7.1. Reduce energy consumption through conservation improvements and requirements.	The proposed Project would assist with reducing fossil-fueled energy produced by allowing energy to be stored and discharged back to the market when necessary. The proposed Project is consistent with this policy.
City of Long Beach General Plan – Land Use Element	
Goal 1. Implement sustainable planning and development practices.	The proposed Project includes the development of a BESS facility that would reliably capture and manage energy in an economically feasible and commercially financeable manner. The proposed Project would assist with reducing fossil-fueled energy produced by allowing energy to be stored and discharged back to the market when necessary. The proposed location for the BESS facility also provides co-location benefits and takes advantage of existing electric transmission infrastructure as it would connect to an existing SCE substation located adjacent to the proposed Project site. The proposed Project is consistent with this goal.
Policy LU 2-1. Promote the establishment of local green energy generation projects along with the infrastructure to support such projects.	The proposed Project includes the development of a BESS facility that would utilize energy storage technology that is efficient, low-maintenance, and recyclable. The proposed Project would include a collector substation as well as the ability to interconnect the proposed Project to the existing SCE Long Beach Bus Substation adjacent to the proposed Project site. In addition, the proposed Project would support ongoing SCE's efforts on the transition of the electric power industry toward a clean energy future through the co-location of battery energy storage projects and existing SCE transmission infrastructure. The proposed Project is consistent with this policy.

Relevant Policies	Project Consistency Analysis
Policy LU 4-2. Promote the transition of some heavy industrial and manufacturing sites to creative green and sustainable industries.	The proposed Project would allow for the siting of the BESS facility near, but not connected to, the existing Long Beach Power Plant. The proposed Project would further the transition of heavy industrial uses to alternative energy production by adding a sustainable energy generation use to the proposed Project site. The proposed Project is consistent with this policy.
City of Long Beach General Plan – Urban Design Element	
Policy UD 6-4. Promote sustainability through the use of new technologies and green infrastructure to upgrade city infrastructure systems and equipment. Prioritize areas to retrofit with green infrastructure, Low Impact Development, and Best Stormwater Management Practices.	The proposed Project includes the development of a BESS facility that would also result in upgrades to existing SCE infrastructure which would allow for the capture and management of alternative energy generation in an economically feasible and commercially financeable manner. The proposed Project is consistent with this policy.
Policy UD 24-4. Utilize sites away from neighborhoods for more intense industrial uses.	The proposed Project site is located within an urbanized area characterized by a mix of industrial uses. There are no residential uses adjacent to or in close proximity to the proposed Project site, with the nearest residence located approximately 1.25 miles northwest, across the Los Angeles River. The proposed Project is consistent with this policy.

Source: COLB 2013

XII. Mineral Resources

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

Discussion

a. Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?

No Impact. The Surface Mining and Reclamation Act of 1975 required the State Geologist to initiate mineral land classification to help identify and protect mineral resources in areas within the state. Based on guidelines adopted by the California State Mining and Geology Board, areas known as Mineral Resource Zones (MRZs) are classified according to the presence or absence of significant nonfuel mineral resource deposits. As previously identified, the proposed Project site is located within Long Beach Harbor Planning District 4 – Terminal Island. Harbor Planning District 4 is classified by the California State Mining and Geology Board as MRZ-1, which is defined as an area where adequate information indicates that no significant mineral resources (e.g., aggregate deposits) are present and that little likelihood exists for their presence (POLB 2019). Therefore, implementation of the proposed Project would not result in any impacts to known mineral resources or mineral resource recovery sites. Additionally, the proposed Project would not preclude future mineral resource exploration throughout the proposed Project site. No impact associated with mineral resources are anticipated to occur.

Mitigation Measures: No mitigation is required.

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

No Impact. As discussed in Response XII. A., implementation of the proposed Project would not result in any impacts to known mineral resources or mineral resource recovery sites. No impact associated with mineral resources are anticipated to occur.

Mitigation Measures: No mitigation is required.

XIII. Noise

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?	☐	☐	☐	☒

Discussion

a. ***Would the Project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?***

Less Than Significant Impact. Noise is defined as unwanted sound; however, not all unwanted sound rises to the level of a potentially significant noise impact. To differentiate unwanted sound from potentially significant noise impacts, the City of Long Beach has established noise regulations that take into account noise-sensitive land uses. The following analysis evaluates potential noise impacts at nearby noise-sensitive land uses that may result from construction and operation of the proposed Project.

The City of Long Beach has adopted a quantitative Noise Control Ordinance ("noise ordinance", LBMC Chapter 8.80), which sets forth regulations controlling unnecessary, excessive, and annoying noise and vibration in the City of Long Beach. As outlined in Section 8.80.150 of the LBMC, maximum exterior noise levels are based on land use districts. The Long Beach Noise Control Ordinance also governs the time of day that construction work can be conducted. However, these restrictions do not apply to any construction activities within the Long Beach Harbor District. **Table 13** summarizes the exterior sound level criteria from LBMC Section 8.80.160.

Table 13. City of Long Beach Exterior Noise Limits

Receiving Land Use District	Time Period	Noise Level (dBA, Leq)
District One: Predominantly residential with other land use types present	**Night:** 10:00 p.m. – 7:00 a.m.	45
	Day: 7:00 a.m. – 10:00 p.m.	50
District Two: Predominantly commercial with other land use types present	**Night:** 10:00 p.m. – 7:00 a.m.	55
	Day: 7:00 a.m. – 10:00 p.m.	60
District Three: Predominantly industrial with other land use types present	Anytime	65
District Four: Predominantly industrial with other land use types present	Anytime	70
District Five: Airport, freeways, and waterways.	Regulated by other agencies and laws	Not applicable

Source: COLB 1977a

Note: Districts Three and Four limits are intended primarily for use at their boundaries rather than for noise control within those districts. If the measurement location is on a boundary between two (2) different districts, the noise level limit applicable shall be the arithmetic mean of the two (2) districts.

Noise from construction activities would be generated by the operation of vehicles and equipment involved during various stages of construction. The noise levels generated by construction equipment would vary depending on factors such as the type and number of equipment, the specific model (horsepower rating), the construction activities being performed, and the maintenance condition of the equipment. Construction activities associated with the proposed Project are anticipated to last approximately 14 months, and generally involve site preparation, system installation, and testing, commissioning, and cleanup. These types of construction activities would generate noise and vibration from heavy equipment operation and vehicle trips and could temporarily increase noise levels at adjacent properties. Typical noise levels that could be generated by equipment at the proposed Project site are presented below in **Table 14**.

Table 14. Typical Construction Equipment Noise Levels

Equipment	Noise Level at 50 feet (L_{max})[1]	Usage Factor	Predicted Equipment Noise Levels (L_{eq})[2]				
			50 feet	100 feet	200 feet	400 feet	600 feet
Excavator	85	40	81	75	69	63	59
Scraper	85	40	81	75	69	63	59
Loader	85	40	77	71	65	59	55
Water Truck	85	20	81	75	69	63	59
Concrete Truck	85	40	81	75	69	63	59
Crane	85	16	77	71	65	59	55
Forklift	85	40	77	71	65	59	55

[1] L_{max} noise levels based on manufacturer's specifications.

[2] Estimate does not account for any atmospheric or ground attenuation factors.

Source: Caltrans 2013, FHWA 2011

The proposed Project site is located within Noise District 4 per the City of Long Beach's Nosie District Map (COLB 1977b). The proposed Project site is located within an urbanized area characterized by a mix of industrial uses that are not considered noise sensitive. Current uses adjoining the proposed Project site include a chassis support facility and the SCE Long Beach Bus Substation to the north, Inner Harbor to the east, a crude oil and vacuum gas oil tankage terminal to the west, and the thermal power plant to the south. The nearest noise sensitive uses would be existing residential uses approximately 1.25 miles northeast of the proposed Project site, across the Los Angeles River.

The proposed Project site is located in an industrialized area and there are no nearby noise sensitive receptors. Any noise generated by the proposed Project during construction would attenuate substantially before reaching the nearest sensitive receptors, which are approximately 1.25 miles away. At this distance, noise levels associated with the proposed Project would be well below noise limits established in LBMC 8.80.160. Therefore, impacts from onsite construction noise would be less than significant.

Typical operation and maintenance activities that would occur on the proposed Project site during operation include, but are not limited to, liaison and remote monitoring administration and reporting; semi-annual and annual services; remote operations of batteries, inverters, substation, and site security and management; additional communication protocols; and repair and maintenance of the proposed BESS, electrical transmission lines, and other proposed Project facilities. The electrical equipment; heating, ventilation, and air conditioning; fire protection systems; and security would be automated and monitored remotely. Batteries and various components would be replaced or renewed as necessary to ensure optimal performance.

Mechanical equipment and the BESS would be housed within onsite structures that would limit noise emission and would not generate considerable noise from operation. In addition, the proposed Project site is located in an industrialized area and there are no nearby noise sensitive receptors. Therefore, impacts from onsite operational noise would be less than significant.

Mitigation Measures: No mitigation is required.

b. Would the Project result in generation of excessive groundborne vibration or ground- borne noise levels?

Less than Significant Impact. Groundborne vibration from development is primarily generated from the operation of construction equipment and from vehicle traffic. Groundborne vibration propagates from the source through the ground to adjacent buildings by surface waves. Vibration energy dissipates as it travels through the ground, causing the vibration amplitude to decrease with distance away from the source. Vibration in buildings is typically perceived as rattling of windows, shaking of loose items, or the motion of building surfaces. The vibration of building surfaces also can be radiated as sound and heard as a low-frequency rumbling noise, known as groundborne noise.

Groundborne vibration is generally limited to areas within a few hundred feet of certain types of industrial operations and construction activities such as pile driving. Road vehicles rarely create enough groundborne vibration amplitude to be perceptible to humans unless the receiver is in immediate proximity to the source or the road surface is poorly maintained and has potholes or bumps. If traffic, typically heavy trucks, does induce perceptible building vibration, it is most likely an effect of low-frequency airborne noise or ground characteristics.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal and is most frequently used to describe vibration impacts to buildings. The PPV velocity is normally described in inches per second (in/sec). California Department of Transportation (Caltrans) guidance states that for continuous/ frequent vibration sources the vibration damage potential threshold is 0.1 in/sec PPV for fragile buildings, 0.25 in/sec PPV for historic and some old buildings, 0.3 in/sec PPV for older residential structures, and 0.5 in/sec for new residential structures and modern industrial/commercial buildings (Caltrans 2020). Human response/annoyance potential is barely perceptible at 0.01 in/sec PPV, distinctly perceptible at 0.04 in/sec PPV, strongly perceptible at 0.10 in/sec PPV, and severe at 0.4 in/sec PPV (Caltrans, 2013 – Table 20). Equipment used during construction activities would include trucks, excavator, crane, scraper, loader, and forklift.

Operation of large trucks, specifically flatbed truck and dump trucks, could cause ground-borne vibration associated with general operation but also due to travel on cracked/potholes or faulting roadway surfaces (Caltrans 2020). Truck traveling over pavement discontinuities often rattle and make noise, which tend to make the event more noticeable when the ground vibration generated may only be barely noticeable. Vehicles traveling on a smooth roadway are rarely, if ever, the source of perceptible ground vibration. Paved roads in the Project area are maintained and relatively smooth, such that groundborne vibration is not anticipated to occur from the use of haul or material delivery trucks or trucks during construction or operational activities.

According to the Federal Transit Administration (FTA), groundborne vibrations from construction activities very rarely reach the level that can damage structures. The construction activities that typically generate the most severe vibrations are blasting and impact pile driving, which would not be used for the proposed Project. Of the anticipated construction equipment to be utilized, loaded trucks would generate the most vibration. As identified by the FTA, loaded trucks would result in vibration levels of 0.076 in/sec PPV at 25 feet (FTA 2018).

These vibration levels would attenuate rapidly from the source and would not be perceptible outside of the construction areas, which are not located in proximity to vibration-sensitive land uses. As discussed above, the vibration damage potential threshold is 0.25 in/sec PPV for older buildings (e.g., control building). Based on the proposed Project's specified equipment, the vibration levels generated (maximum of 0.076 in/sec PPV at 25 feet) would not result in damage to the LBGS. Therefore, groundborne vibration and noise levels generated by the types of equipment required to construct the proposed Project would be minimal and would not cause human annoyance or structure damage at a distance of 25 feet or beyond from the source. No historic structures that would be potentially vulnerable to vibration are located in the immediate vicinity of the proposed Project site such that any damage related to groundborne vibration from construction activities would occur.

Once construction activities have been completed, there would be no substantial sources of vibration activities from the proposed Project site. The operations of the proposed Project would include periodic inspection and maintenance of industrial-grade stationary mechanical and electrical equipment, such as batteries installed in racks, inverters, a collector substation, and other associated equipment to interconnect into the existing SCE Long Beach Bus Substation. Impacts associated with excessive groundborne noise and vibration would be less than significant during the construction and operation of the proposed Project.

Mitigation Measures: No mitigation is required.

c. For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?

No Impact. The proposed Project site is not located within 2 miles of a public airport or a private airstrip. The nearest airport is the Long Beach Municipal Airport located approximately 5 miles northeast of the proposed Project site. In addition, the proposed Project site is not within the Airport Influence Area for the Long Beach Municipal Airport (LACALUC 2003). Therefore, implementation of the proposed Project would not expose people working in the Project area to excessive airport noise levels and no impact would occur.

Mitigation Measures: No mitigation is required.

XIV. Population and Housing

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

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

No Impact. The growth inducing potential of a project would typically be considered significant if it fosters growth or a concentration of population in excess of what is assumed in applicable land use plans. Significant growth impacts could also occur if a project provides infrastructure or service capacity to accommodate levels of growth beyond levels currently permitted by local or regional plans or policies. The proposed Project would involve the construction and operation of a BESS facility on a previously developed parcel located within an urbanized industrial area within the POLB and City of Long Beach. Implementation of the proposed Project would not involve new homes or businesses on the proposed Project site (including the SCE Long Beach Bus Substation site where Project-related improvements would occur). Therefore, the proposed Project would not induce direct population growth.

During construction of the proposed Project, up to 60 construction workers would be employed. However, these workers are anticipated to already reside and work in the region. As previously stated, employment opportunities during operation of the proposed Project would consist of two on-site employees who would co-locate with the existing employees at the adjacent thermal power plant. Similar to workers working at the proposed Project site during construction, employees would likely already consist of local and regional commuters.

While new access roads are proposed for internal circulation on the existing Project site, implementation of the proposed Project would not require extension of roadways outside of the proposed Project site. The proposed Project would include energy infrastructure improvements, however these improvements would improve grid reliability to meet peak energy demand, reduce electricity costs, and address energy reliability goals within the region. As stated in SCE's 2023 Sustainability Report, one of SCE's major focus in energy grid resiliency is to develop reliable, sustainable, and resilient infrastructure that is needed to accommodate projected population and economic growth. SCE identifies that by 2045, significant electrification of the state's economy combined with population and economic growth are projected to result in a 60 percent increase in electricity sales from the grid and a 40 percent increase in peak load demands (SCE 2023).

Therefore, implementation of the proposed Project is not anticipated to induce direct or indirect population growth in the area and no impacts associated with this issue are anticipated to occur.

Mitigation Measures: No mitigation is required.

b. Would the Project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. The proposed Project would involve the construction and operation of a BESS facility on a previously developed parcel located within an urbanized industrial area. The proposed Project site is currently developed with three buildings that are used for fabrication, maintenance, and storage, sections of an abandoned concrete saltwater intake pipe, existing utility lines, and internal access roads. There are no residential uses located currently on the proposed Project site (including the SCE Long Beach Bus Substation where Project-related improvements would occur). Therefore, implementation of the proposed Project would not displace existing people or housing necessitating the construction of replacement housing elsewhere. No impacts associated with this issue are anticipated to occur.

Mitigation Measures: No mitigation is required.

XV. Public Services

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
a. Fire Protection?	☐	☐	☒	☐
b. Police Protection?	☐	☐	☒	☐
c. Schools?	☐	☐	☐	☒
d. Parks?	☐	☐	☐	☒
e. Other public facilities?	☐	☐	☐	☒

Discussion

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

a. Fire protection?

Less Than Significant Impact. The proposed Project site is currently served by the Long Beach Fire Department (LBFD) Fire Station No. 24 located at 111 Pier S Avenue, approximately 1.0 mile west of the proposed Project site. Construction of the proposed Project could increase the potential for onsite fires from such sources as the operation of mechanical equipment, the use of flammable construction materials, or the careless disposal of cigarettes. However, implementation of “good housekeeping” procedures by the construction contractors and the work crews would minimize fire hazards associated with the construction of the proposed Project and project-related offsite improvements. Such measures would be identified in the HMBP and SWPPP developed for the proposed Project and would be in effect during construction of the proposed Project.

Construction activities associated with the proposed Project would occur onsite, and no public street closures are anticipated that would potentially impact service ratios, response times, or other LBFD objectives. Construction is anticipated to take approximately 14 months and would not require additional fire protection and emergency services to maintain acceptable service rations, response times, or other performance objectives of the LBFD.

Operational activities associated with the proposed Project would be limited to periodic visits for maintenance and inspection of the BESS facility. It is anticipated that these activities would not result in changes to existing fire services provided at the proposed Project site. Therefore, construction and operational related impacts to fire protection services would be less than significant.

The proposed Project would redevelop a currently developed site with a BESS facility, supporting electrical infrastructure, and upgrades to the existing SCE Long Beach Bus Substation. The proposed Project is located in an area currently served by the LBFD. The LBFD is anticipated to continue to service the proposed Project site in the event that fire protection services are needed. The proposed BESS would be NFPA 855 Code compliant and include built-in failsafe and cooling systems designed to prevent thermal runaway and the spread of fire.

A fire protection system would be installed to automatically shut down any affected battery storage components and prevent the spread of the fire to the other battery storage modules in the event of an emergency. The LBFD would review and approve the facility fire protection and suppression plans prior to approval of the proposed Project. In addition, as required by the California Health and Safety Code, the proposed Project would be required to comply with all requirements pertaining to fire protection systems, such as the adequate provisions of fire extinguishers, emergency response notification systems, and fire flows. With adherence to California Health and Safety Code and LBFD standards and regulations and installation of adequate fire protection systems, the proposed Project would not result in the need for new or physically altered fire protection facilities. Therefore, impacts to fire protection services would be less than significant.

Mitigation Measures: No mitigation is required.

b. Police Protection?

Less Than Significant Impact. The Long Beach Police Department (LBPD) currently provides police services to the proposed Project site. The closest police station is the Police Headquarters South Division located at 400 W Broadway, approximately 1.7 miles east of the site. The proposed Project would be located in an area already outfitted with security fencing and gate access to prevent access by the public. Visitors to the proposed Project site are currently required to check in at the security booth located at the entrance of the Project site. The existing security features in place at the proposed Project site ensure the safety of the public and would protect proposed and existing equipment and infrastructure from potential theft and vandalism. Therefore, implementation of the proposed Project and Project-related improvements would not significantly increase demand for police protection services provided by the LBPD.

In addition, the proposed Project would be subject to site plan review by the City of Long Beach prior to approval of the proposed Project to ensure that it meets City requirements in regard to safety (e.g., nighttime security lighting); thus, discouraging criminal activity and reducing demand for police protection services. As such, the proposed Project would not require LBPD to expand or construct new stations to serve the proposed Project site and impacts would be less than significant.

Mitigation Measures: No mitigation is required.

c. Schools?

No Impact. The proposed Project site is located within the Long Beach Unified School District (LBUSD) boundaries for educational services (LBUSD 2024). Implementation of the proposed Project would result in the construction and operation of a BESS facility and supporting energy infrastructure updates to the existing SCE Long Beach Bus Substation. As such, the proposed Project does not include the development of residential land uses that would result in an increase in new student residents to the LBUSD. During construction, construction workers would be temporarily present on the proposed Project site and on the adjacent SCE Long Beach Bus Substation site to construct the BESS facility and Project-related offsite improvements. As previously identified, there would be a peak workforce of 60 construction workers during the 14 month construction period for the proposed Project. It is anticipated that the construction workers would be from the existing local and/or regional construction labor force and would not require the relocation of their households to the area in order to work on the proposed Project. The temporary increase of construction workers associated with the proposed Project would not result in a notable increase in the residential population in the area and would not result in an increase in student population the area. During operation of the proposed Project, it is anticipated that maintenance of the BESS facility will be minimal to perform periodic visual inspections for security, maintenance, and system monitoring. The proposed Project would not result in an increase in student population within the LBUSD. Therefore, the proposed Project would have no impact on increase demand of school services or on school facilities.

Mitigation Measures: No mitigation is required.

d. Parks?

No Impact. The proposed Project would not induce population growth in the area that could cause an increase in the use of existing parks of recreational facilities provided by the Long Beach Department of Parks, Recreation and Marine Administration. The proposed Project would not introduce residential uses and would not generate a new residential population that would regularly utilize nearby parks and recreational facilities. As mentioned, during construction activities, approximately 10 to 60 construction workers per day would be present for approximately 14 months. While some of the construction workers may utilize local parks and recreational facilities during the work day, such use would be anticipated to be limited.

Operational activities associated with the proposed Project would be limited to periodic visits for maintenance and inspection of the BESS facility. The onsite staff that would be monitoring the facility would be existing staff currently working on the proposed Project site. Therefore, the proposed Project would not require the construction of new or expanded park facilities as a result of construction or operational activities. No impact related to existing or planned parks would occur.

Mitigation Measures: No mitigation is required.

e. Other Public Facilities?

No Impact. The proposed Project would not introduce residential uses and would not generate a new residential population that would require other public facilities, such as libraries, community centers, or medical facilities. Therefore, the proposed Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered public facilities. Impacts related to other government services or public facilities would not occur.

Mitigation Measures: No mitigation is required.

XVI. Recreation

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

Discussion

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

No Impact. The closest park is Santa Cruz Park, located approximately 1.25 miles east of the proposed Project site, across the Los Angeles River. Project employees during construction and operation are not anticipated to make use of the Santa Cruz Park to an extent that would affect park facilities. The proposed Project would develop a BESS facility and once operational, activities associated with the BESS facility would consist of periodic in-person inspections, monitoring, and maintenance as needed. The proposed Project would not introduce residential uses or residential inhabitants to the Project area that would increase the use of existing neighborhood or regional parks or other recreational facilities in the vicinity of the proposed Project site. Therefore, no impacts associated with use of existing parks and recreational facilities would occur with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

b. ***Does the Project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?***

No Impact. The proposed Project would not include the construction or expansion of recreational facilities. In addition, the proposed Project would not result in the development of residential uses or an increase in the residential population in the area, so the proposed Project would not require the construction or expansion of recreation facilities. Therefore, no impacts associated with this issue would occur with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

XVII. Transportation

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

Discussion

a. Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less Than Significant Impact. The proposed Project would result in temporary passenger vehicles and haul truck trips during construction activities. As identified in **Table 1**, during construction activities, anywhere between 10 and 60 construction workers per day would be present on-site, depending on the construction phase. Truck trips associated with the proposed Project would be distributed throughout the workday, with a higher number of trucks traveling to the site during the early hours of the day. Given the temporary period of construction activities (approximately 14 months), truck trips would occur during a limited time and along designated roadways outlined in the City of Long Beach General Plan Mobility Element and PMP. Any transportation of heavy construction equipment and/or materials that requires the use of oversized transport vehicles on state highways would also require a Caltrans transportation permit.

In compliance with the City of Long Beach General Plan Mobility Element, demolition debris would be transported via designated routes such as the Interstate 710 (I-710) and the Interstate 110 (I-110) Freeways (COLB 2013). Per California State Tarping Law and Requirement CVC 23115.a, trucks hauling demolition-generated materials are required to be covered with a tarpaulin to avoid debris spillage onto state highway facilities.

Once fully constructed, the proposed Project would be remotely monitored and routinely inspected on a continuous basis. However, the adjacent Long Beach Power Plant would be staffed continuously with at least two employees at any given time who would be fully cross trained on response, operations, and safety procedures for the BESS facility. The on-site employees would be available to respond to any unplanned maintenance needs at the BESS facility as appropriate. However, it is anticipated that these on-site employees already travel to the site. A nominal amount of additional trips during operational activities are anticipated, however, these would be periodic and attributed to contractors who may need to service the BESS facility.

The proposed Project would be consistent with the existing roadway circulation system as the proposed Project does not propose closure of nearby roads and would not include modifications to any public roadways or driveways. There are no transit, bicycle and pedestrian facilities in the Project vicinity (COLB 2013). The nearest transit and bicycle routes are located over 1.2 miles east of the proposed Project site across the Los Angeles River and there are no formal pedestrian routes (i.e., sidewalks) located in the Project vicinity. Therefore, the proposed Project would not conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities and no modifications to the circulation system or public roadways are proposed. Impacts would be less than significant with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

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

Less Than Significant Impact. Section 15064.3 of the CEQA Guidelines, describes specific considerations for evaluating a project's transportation impacts under CEQA. Section 15064.3(b) establishes vehicle miles traveled (VMT) as the most appropriate measure of transportation impacts, shifting away from the use of Level of Service (LOS) analysis that evaluates a project's impacts on traffic conditions at nearby roadways and intersections. VMT refers to the amount of travel and distance of automobile travel attributable to a project. The term "automobile" refers to on-road passenger vehicles, specifically cars and light-duty trucks trips.

The OPR Technical Advisory on Evaluating Transportation Impacts in CEQA acknowledges that conditions may exist that would presume a land development project has a less than significant impact. These may be size, location, proximity to transit, or trip-making potential. CEQA gives the lead agency discretion to determine thresholds, including screening thresholds. The City of Long Beach has reviewed the recommendations and examples in the OPR Technical Advisory on Evaluating Transportation Impacts in CEQA and has established several screening thresholds as part of the City's Traffic Impact Analysis Guidelines (COLB 2020). As identified in the City's Traffic Impact Analysis Guidelines, a project generating 500 average daily trips (ADT) or less is considered to have a less than significant VMT impact.

As identified in **Table 1**, during construction activities, anywhere between 10 and 60 construction workers per day would be present on-site, depending on the construction phase with construction anticipated to last approximately 14 months. It is anticipated that construction activities would generate up to 120 trips per day over the 14 month construction period. Construction activities would generate less than 500 ADT.

As discussed in Response XVII a., once fully constructed, the proposed Project would be remotely monitored and routinely inspected on a continuous basis. However, the adjacent Long Beach Power Plant would be staffed continuously with at least two employees at any given time who would be fully cross trained on response, operations, and safety procedures for the BESS facility. The on-site employees would be available to respond to any unplanned maintenance needs at the BESS facility as appropriate. However, it is anticipated that these on-site employees already travel to the site and are included as part of the 7 to 10 employees that are on-site during the week. Therefore, a nominal amount of additional trips during operational activities are anticipated, however, these would be periodic and attributed to contractors who may need to service the BESS facility. Operational activities would generate less than 500 ADT, even taking into account existing employee trips to the proposed Project site (i.e., 20 ADT based on existing staffing levels). Therefore, VMT associated with the proposed Project would be less than significant.

Mitigation Measures: No mitigation is required.

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

No Impact. An impact would occur if the proposed Project substantially increased hazards due to a design feature. A review of existing site conditions and nearby roadways determined that there are no existing hazardous design features, such as sharp curves, non-standard driveways, or dangerous intersections, onsite or within the vicinity of the proposed Project site. The proposed Project would not introduce any such design hazards or include any uses that are incompatible with normal traffic operations. The proposed Project would provide direct access to and from Pier T Avenue and Pier T Lane to the south. Access to the proposed Project site would remain unchanged with the Project driveway approach stop-controlled (i.e., not signalized). The design of the proposed Project would be required to comply with all applicable State and City regulations regarding minimum clearances. Therefore, the proposed Project would not result in a traffic safety hazard due to any design features or incompatible uses. No impacts related to traffic hazards or incompatible uses are anticipated to occur.

Mitigation Measures: No mitigation is required.

d. Would the project result in inadequate emergency access?

Less than Significant Impact. Primary access to the proposed Project site would be provided from Pier T Avenue and Pier T Lane to the south. There is a secondary access to the proposed Project site to the northeast, however, this access is limited to emergency vehicles only. While additional internal access roads may be constructed as part of the proposed Project, implementation of the proposed Project is not anticipated to change existing vehicular access on public roads to the proposed Project site or alter the secondary emergency access to the proposed Project site. Therefore, impacts related to emergency access would be less than significant with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

XVIII. Tribal Cultural Resources

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

Discussion

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

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

Less Than Significant Impact. AB 52 specifies that a project that may cause a substantial adverse change to a defined Tribal Cultural Resources (TCRs) may result in a significant effect on the environment. AB 52 requires tribes interested in development projects within a traditionally and culturally affiliated geographic area to notify a lead agency of such interest and to request notification of future projects subject to CEQA prior to determining if a negative declaration, mitigated negative declaration, or environmental impact report is required for a project.

The proposed Project is subject to compliance with AB 52 (PRC Section 21074), which requires consideration of impacts to tribal cultural resources as part of the CEQA process, and requires the lead agency to notify any California Native American tribes of the Project who are traditionally or culturally affiliated with the geographic area of the Project. The NAHC was contacted on March 20, 2024 to request a CEQA Tribal Consultation List (tribes who have requested notification) and to perform a search of their Sacred Lands File (SLF) for the presence of tribal cultural resources.

The NAHC responded on April 5, 2024 stating that the results of the SLF search came back positive for the presence of Native American sacred lands and to contact the Gabrieleño/Tongva San Gabriel Band of Mission Indians for more information. The NAHC also provided a contact list of 13 Native American individuals or tribal organizations that are traditionally and culturally affiliated with the geographic area (**Appendix A**).

In compliance with AB 52, on June 4, 2024, 13 certified letters were sent to the NAHC listed Native American contacts requesting information regarding any known Native American cultural resources within or immediately adjacent to the Project area. The certified letters provided a description of the proposed Project, the lead agency's contact information, and a request for the Native American tribes to respond within 30 days to request consultation pursuant to PRC Section 21080.3.1. In addition to the certified letters, copies of the letters were emailed to the NAHC listed Native American contacts on June 5, 2024. **Table 15** provides a summary of AB52 consultation efforts associated with the proposed Project.

Table 15. Summary of AB 52 Consultation

Native American Tribe	Contact/Title	Date Certified Letter Sent	Response
Gabrieleño Band of Mission Indians - Kizh Nation	Andrew Salas, Chairperson	6/4/24	6/11/24, 8/28/24
Gabrieleño Band of Mission Indians - Kizh Nation	Christina Swindall Martinez, Secretary	6/4/24	No
Gabrieleño/Tongva San Gabriel Band of Mission Indians	Anthony Morales, Chairperson	6/4/24	No
Gabrielino/Tongva Nation	Sandonne Goad, Chairperson	6/4/24	No
Gabrielino Tongva Indians of California Tribal Council	Christina Conley, Cultural Resource Administrator	6/4/24	No
Gabrielino Tongva Indians of California Tribal Council	Robert Dorame, Chairperson	6/4/24	No
Gabrielino-Tongva Tribe	Charles Alvarez, Chairperson	6/4/24	No
Gabrielino-Tongva Tribe	Sam Dunlap, Cultural Resource Director	6/4/24	No
Juaneno Band of Mission Indians Acjachemen Nation - Belardes	Joyce Perry, Cultural Resource Director	6/4/24	No
Juaneno Band of Mission Indians Acjachemen Nation 84A	Heid Lucero, Chairperson THPO	6/4/24	No
Santa Rosa Band of Cahuilla Indians	Lovina Redner, Tribal Chair	6/4/24	No
Soboba Band of Luiseno Indians	Jessica Valdez, Cultural Resource Specialist	6/4/24	No
Soboba Band of Luiseno Indians	Joseph Ontiveros, Cultural Historic Preservation Officer	6/4/24	No

Source: Port of Long Beach

One Native American Tribe (Gabrieleño Band of Mission Indians – Kizh Nation) responded with a request for additional information related to types of soil present on the proposed Project site. POLB provided additional information on June 11, 2024 and on August 28, 2024 to the Gabrieleño Band of Mission Indians – Kizh Nation. The Gabrieleño Band of Mission Indians – Kizh Nation responded on August 28, 2024 that there are no further concerns related to the proposed Project. No TCRs were identified as a result of consultation. As of August 28, 2024, no additional responses have been received from any other Native American contacts.

In addition, a review of City, POLB, and cultural records indicate that there are no TCRs or archaeological resources relating to TCRs (prehistoric and historic) located within the Project's boundaries or in the vicinity of the Project site. The Project site has been highly disturbed by modern human activities that would have displaced surface and subsurface archaeological resources relating to TCRs. In addition, the extent of excavation required during construction (e.g., up to 5 feet below ground surface) would not extend below artificial fill located on the proposed Project site. Therefore, the Project will not impact TCRs or archaeological resources relating to TCRs. Impacts associated with this issue are anticipated to be less than significant with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

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

No Impact. Please see Response XVIII.a

Mitigation Measures: No mitigation is required.

XIX. Utilities and Service Systems

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	☒
c. Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

Discussion

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

Less Than Significant Impact.

Water Supplies. The proposed Project would not generate a substantial increase in demand for water as the Project does not propose development that could increase demand for water services. During construction activities, there would be a temporary, intermittent demand for water for such activities as site preparation, fugitive dust control, concrete preparation, cleanup, and other short-term activities. Water supply for the proposed Project during construction would be supplied via existing municipal connections onsite. Construction related water usage is not expected to have an adverse impact on available water supplies. Operation of the proposed BESS facility would not require the provision of any additional municipal water supplies. The proposed Project would therefore not require the construction of new facilities or expansion of existing water supply facilities. Therefore, impacts are considered to be less than significant.

Wastewater. The local wastewater treatment system is designed to comply with federal regulations (NPDES) administered by the RWRCB. In addition, as identified in Response XIX c., the proposed Project is anticipated to generate nominal wastewater during construction activities and no wastewater during operations and periodic maintenance activities. Therefore, implementation of the proposed Project would not require new or expanded wastewater treatment facilities and no impact are anticipated to occur.

Stormwater. The proposed Project site is currently comprised of mostly impervious surfaces. At Project completion the site would be comprised of mostly impervious surfaces with nominal new impervious surfaces. As discussed in the Hydrology section of this document, stormwater associated with the new impervious surfaces would be collected on-site, treated, then discharged to the Back Channel per the existing WDR issued for the area. Implementation of BMPs as identified in the Project's SWPPP and WDR would reduce pollutants in stormwater and urban runoff from the proposed Project site. No mitigation beyond compliance with existing regulations is required. The proposed Project would therefore not require the construction of new facilities or expansion of existing storm drainage facilities. Impacts are considered to be less than significant.

Electric Power. The proposed Project represents an improvement to the existing electrical power system through the ability for batteries to charge from paired solar facilities throughout the day and to discharge energy to the grid in the evening when power needs peak and solar facilities are unable to generate electricity. Although the Project would require new electrical line tie-ins for service, nominal use of electricity to power the security, monitoring, and lighting systems for the BESS containers is anticipated. These limited uses of electricity would not result in the excessive use of electricity during operation. Therefore, the proposed Project would have a less than significant impact.

Natural Gas. The proposed Project would not require new natural gas services connections, and would not result in the need for new natural gas supplies or infrastructure. Therefore, the Project would have no impact with regard to natural gas.

Telecommunication Facilities**.** The proposed Project would require specialized telecommunication facilities to meet the communication requirements for interconnecting with the existing SCE facility and to support remote Project operations monitoring. To provide for communication with the SCE Long Beach Bus Substation, it is anticipated that a fiber-optic cable would be placed along the line connecting the proposed Project site GSU transformer with the SCE point of interconnection. Utility interconnection regulations require the installation of a second, separate, redundant fiber-optic cable. The redundant fiber-optic cable would also be installed within the Project footprint.

The Project would use local exchange carrier services for telecommunication to support remote monitoring requirements. The Project would connect to telecommunication fiber-optic lines owned and managed by local telecommunication providers. The connection to these fiber-optic lines would allow for connection to the Supervisory Control and Data Acquisition (SCADA) equipment. The SCADA system is essential to the California Independent System Operator (CAISO) and SCE interconnection as it functions as a remote start, stop, reset, and tag out for the BESS facility and would control the BESS substation, allowing for the fully centralized operation of the Project to meet all CAISO and utility interconnection requirements. The Project does not require relocation or construction of new or expanded telecommunication facilities beyond these limited interconnection facilities at the proposed Project site. Further, the construction of the telecommunication facilities for interconnection described above have been analyzed herein as part of the proposed Project and no significant environmental effects have been identified; therefore impacts related to telecommunication facilities will be less than significant.

For the above reasons, the proposed Project is not anticipated to require relocation or construction of new or expanded water, wastewater treatment, storm drainage, electric power, or natural gas facilities and the limited telecommunication facilities that will be constructed as part of the project will not result in significant impacts. Therefore, impacts related to relocation or construction of new or expanded water, wastewater treatment, storm drainage, electric power, natural gas, or telecommunications facilities would be less than significant.

Mitigation Measures: No mitigation is required.

b. Would the Project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

No Impact. The proposed Project would not generate a substantial increase in demand for water as the Project does not propose development that could increase demand for water services. During construction activities, there would be a temporary, intermittent demand for water for such activities as site preparation, fugitive dust control, concrete preparation, cleanup, and other short-term activities. As previously identified, water supply for the proposed Project during construction would be supplied by existing municipal connections onsite. The limited construction related water usage is not expected to have an adverse impact on available water supplies. Operation of the proposed BESS facility would not require the provision of any additional municipal water supplies. Therefore, no impacts are anticipated to occur.

Mitigation Measures: No mitigation is required.

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

No Impact. During construction activities, portable restrooms would be available for construction workers and would not contribute to wastewater flows to the City's wastewater system. Once construction is complete, the portable toilets would be removed by the licensed portable toilet provider. Given the number of construction workers and duration of the construction phase of the proposed Project, the treatment of wastewater generated during construction activities would be minimal and would not exceed the wastewater treatment capacity of the Long Beach Water Reclamation Plant. During operation, no wastewater is anticipated to be generated as operational activities would consist of periodic inspection and maintenance of the BESS facility and associated supporting infrastructure. No impacts associated with waste water treatment capacity are anticipated to occur with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

d. Would the Project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less Than Significant Impact. The proposed Project would temporarily generate demolition debris such as trash, scrap metal, abrasive material, concrete, and general demolition scrap. During operation, the amount of solid waste that would be generated is anticipated to be minimal as operational activities would consist of periodic inspection and maintenance of the BESS facility and associated supporting infrastructure.

All collection, transportation, and disposal of any solid waste generated by the proposed Project during construction and operation would comply with all applicable federal, State, and local statutes and regulations. In particular, AB 939 requires that at least 50 percent of solid waste generated by a jurisdiction be diverted from landfill disposal through source reduction, recycling, or composting. Cities, counties, and regional agencies are required to develop a waste management plan that would achieve a 50 percent diversion from landfills (PRC Section 40000 et seq.). In addition, as part of the CDMP required for the proposed Project, Pier S Energy would be required to demonstrate how the proposed Project would meet requirements of the City of Long Beach Construction and Demolition Debris Recycling Program, which requires projects to divert at least 65 percent through recycling, salvage, or deconstruction (COLB 2024). Furthermore, as required by existing regulations, any hazardous materials collected on the proposed Project site during demolition, construction, or operational activities would be transported and disposed of by a permitted and licensed hazardous materials service provider at a facility permitted to accept such hazardous materials.

Depending on the condition of the demolition materials to be disposed of, demolition debris could be exported to multiple facilities including El Sobrante Landfill, Landcaster Landfill, and Simi Valley Landfill or as far as Buttonwillow Landfill in Kern County. The total permitted throughput for El Sobrante Landfill, Landcaster Landfill, and Simi Valley Landfill is 85,904 tons per day with approximately 241.4 million cubic yards of capacity remaining (California Department of Resources Recycling and Recovery [CalRecycle] 2019a, 2019b, 2019c). The Buttonwillow facility serves a wide variety of industrial customers throughout California, with a permitted landfill capacity of 950,000cubic yards (Clean Harbors). In addition, according to the 2020 Annual Report for the Countywide Integrated Waste Management Plan (CIWMP), the remaining capacity at County-operated landfills is 207.31 million tons (County of Los Angeles 2021).

Construction activities would result in approximately 30,463 cy of demolition debris (463 cy of building materials and 30,000 cy of soil) over the course of the 14 month construction period that would need to be disposed of. This amount of demolition debris anticipated during construction of the proposed Project is not anticipated to significantly impact daily permitted throughout or remaining capacity of landfills that would be utilized.

As previously mentioned, the proposed Project would be monitored remotely with minimal periodic visits conducted for on-site equipment inspections, monitoring and testing. These operational activities are not anticipated to impact remaining capacity at existing landfills. Therefore, the proposed Project is not anticipated to generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals during construction or operational activities. Impacts associated with solid waste capacity would be less than significant with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

e. Would the Project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact. The proposed Project would be required to comply with all applicable local and state regulations pertaining to solid waste disposal. These regulations include AB 939 which requires each city in the State to divert at least 50 percent of their solid waste from landfill disposal through source reduction, recycling, and composting (CalRecycle 2023). In addition, as part of the CDMP required for the proposed Project, Pier S Energy would be required to demonstrate how the proposed Project would meet requirements of the City of Long Beach Construction and Demolition Debris Recycling Program, which requires projects to divert at least 65 percent through recycling, salvage, or deconstruction (COLB 2024). Therefore, the proposed Project would comply with federal, State, and local statutes and regulations related to solid waste. No impacts regarding compliance with federal, State, and local solid waste regulations would occur with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

XX. Wildfire

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

Discussion

a. ***Would the Project substantially impair an adopted emergency response plan or emergency evacuation plan?***

No Impact. As previously identified in Section IX (Hazards and Hazardous Materials), state law requires that all local jurisdictions identify (VHFHSZ) within their areas of responsibility per California Government Code, Section 51175–51189. Inclusion within these zones is based on vegetation density, slope severity, and other relevant factors that contribute to fire severity. As identified on the latest FHSZ maps prepared by CalFIRE, the proposed Project site and areas adjacent to the proposed Project site are not located within a fire hazard zone (CalFIRE 2023). In addition, the proposed Project site is not located in a State Responsibility Area (CalFIRE 2011) and is identified as being within a Least Critical Fire Hazard Area by the City of Long Beach (COLB 1975). Therefore, implementation of the proposed Project would not impair an adopted emergency response plan or emergency evacuation plan related to wildfire risk, as there is little to no wildfire risk in where the BESS facility is proposed. No impact associated with this issue would occur with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

b. Would the Project, due to slope, prevailing winds, and other factors, exacerbate wild- fire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

No Impact. As discussed in Response XX.a above, the proposed Project is not located within or near any, VHFHSZ, State Responsibility Area or FHSZ. The proposed Project site is relatively flat and is located in an urbanized area that is not susceptible to wildfire risks. No impact associated with this issue would occur with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

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

No Impact. As discussed in Response XX.a above, the proposed Project is not located within or near any VHFHSZ, State Responsibility Area or FHSZ. Construction and operation of the proposed Project would not require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or result in a temporary or ongoing impact from wildfires. No impact associated with this issue would occur with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

d. Would the Project expose people or structures to significant risks, including down- slope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact. As discussed in Response XX.a above, the proposed Project is not located within or near any VHFHSZ, State Responsibility Area or FHSZ. The proposed Project does not propose any residential uses and is located in an urbanized area where wildfire risk or impacts associated with post-wildfire risks do not exist. No impact associated with this issue would occur with implementation of the proposed Project.

Mitigation Measures: No mitigation is required.

XXI. Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Does the Project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b. Does the Project have impacts that are individually limited, but cumulatively considerable ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c. Does the Project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Discussion

a. ***Does the Project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?***

Less Than Significant Impact. The proposed project is a BESS facility consisting of lithium-ion (or similar technology available at the time of construction) batteries installed in racks, inverters, MV transformers, a collector substation, and other associated equipment to interconnect into the SCE Long Beach Bus Substation. As discussed in Section IV, Biological Resources, the proposed Project site is currently developed and is located within a highly industrialized area. Database reviews showed that the proposed Project site is not overlain within USFWS-designated Critical Habitat for any special-status plant or wildlife species (USFWS 2023). Therefore, the proposed Project does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish and wildlife species, cause a fish, or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of rare or endangered plant or animals.

As discussed in Section V., Cultural Resources and Section XVIII., Tribal Cultural Resources, no archeological or built environment resources have the potential to be affected by the project because none are known to be present on the proposed Project site. The buildings and water pipe that would be demolished are not considered to be historic resources. Therefore, the proposed Project would not eliminate important examples of the major periods of California history or prehistory. In addition, the Project site has been highly disturbed by modern human activities that would have displaced surface and subsurface archaeological resources relating to TCRs. The extent of excavation required during construction (e.g., up to 5 feet below ground surface) would also not extend below artificial fill located on the proposed Project site. Therefore, the Project will not impact TCRs or archaeological resources.

Mitigation Measures: No mitigation is required.

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

Less Than Significant with Mitigation Incorporated. The potential for cumulative impacts occurs when the independent impacts of a given Project are combined with the impacts of related projects in proximity to the proposed Project site that would create impacts that are greater than those of the Project alone. Related projects include past, current, and/or probable future projects whose development could contribute to potentially significant cumulative impacts in conjunction with a given project. Information on past, present, and reasonably foreseeable future projects within a 1-mile radius of the proposed Project site was obtained from the POLB and City of Long Beach. The 1-mile radius was utilized for the cumulative analysis as it captures nearby developments or projects that could potentially interact with the proposed Project. A review was carried out of all projects that are proposed, on appeal, approved, or under construction as shown in **Table 16**.

The proposed Project would result in less than significant or no impacts to aesthetics, agriculture and forestry resources, air quality, biological resources, cultural resources, energy, geology and soils, greenhouse gas emissions, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation, tribal cultural resources, utilities and service systems, and wildfire. As a result, the proposed Project's contribution to these potential cumulative impacts would be less than cumulatively considerable and therefore, less than significant.

As discussed in Section IX, Hazards and Hazardous Materials, while the proposed Project site is under a DTSC corrective action to prevent exposure of subsurface contaminated materials, implementation of the mitigation measures identified would reduce the Project's impact related to hazards and hazardous materials to a less than significant level. In a similar manner, cumulative projects identified would also be required to address potential impacts to hazards and hazardous materials on a project level and mitigate where appropriate. In addition, the proposed Project, as well as cumulative projects would be required comply with all applicable permits, regulations, and other conditions imposed by the City of Long Beach, POLB, and responsible agencies. Therefore, impacts associated with the proposed Project would be less than significant.

c. ***Does the Project have environmental effects, which would cause substantial adverse effects on human beings, either directly or indirectly?***

Less Than Significant with Mitigation Incorporated. Please refer to Response XXI,b.

Table 16. Related and Cumulative Projects

Project No.	Project Title/ Location	Project Summary	Project Status
		Port of Long Beach	
1	TI Wye Track Realignment at Pier S and Pier T	Construct new rail tracks and enhance a triangular rail junction for the staging of trains.	Construction on-going, completion expected in early 2025.
2	Pier B On-Dock Rail Support Facility	Expansion of the existing Pier B Rail Yard in two phases, including realignment of the adjacent Pier B Street and utility relocation.	FEIR certified February 2018. Construction commenced 2024, completion expected in 2032.
3	Mitsubishi Cement Corporation Facility Modifications	Facility modification, including the addition of a catalytic control system, construction of four additional cement storage silos, and upgrading existing cement unloading equipment on Pier F.	Project approved in April 2015. Construction commenced June 2021.
4	Southern California Edison Transmission Tower Replacement	Replace a series of transmission towers across the Cerritos Channel.	FEIR certified in 2017. Construction completed in August 2021. Demolition of old towers underway.
5	Toyota Facility Improvements	Construction of a new consolidated Vehicle Processing and Distribution Center, Hydrogen Call and Generator Facility, and Fueling Station. Demolition of some existing facilities.	Mitigated Negative Declaration adopted in 2018. Construction ongoing.
6	World Oil Tank Installation	Installation of two 25,000 petroleum tanks at existing World Oil Terminals Facility at Pier C.	FEIR certified September 2024.
7	Pier Wind Terminal Development	Development of a 400-acre terminal to construct and assemble large offshore floating wind turbines and a 30-acre transport corridor to transport turbines for offshore wind projects in Northern and Central California coastal waters. The project will construct new land at the port and dredge approximately 50 million cy for wharf construction, sinking basin, wet storage areas, and concrete piers adjacent to the transportation corridor.	NOP/Notice of Intent of Joint EIR/EIS with U.S. Army Corps of Engineers issued in November 2023. Preparation of DEIR/DEIS underway.
8	Tesoro Calciner Demolition Project	Demolition of existing Calciner facility at Pier A including all above-grade buildings, underground storage tanks, process equipment, footings, piers, piles, electrical equipment, concrete slabs and asphalt paving.	Mitigated Negative Declaration adopted September 2024. Demolition pending.
		Alameda Corridor Transportation Authority/Caltrans	
9	Schuyler Heim Bridge Replacement and State Route (SR) 47 Terminal	Replace the Schuyler Heim Bridge with a fixed structure and improve the SR-47/Henry Ford Avenue/ Alameda Street transportation corridor by constructing an elevated expressway from the Heim Bridge to SR-1	Construction completed. Elevated expressway deferred indefinitely.

Project No.	Project Title/ Location	Project Summary	Project Status
	Island Expressway	(Pacific Coast Highway [PCH]).	
10	Pier D Street Realignment	Realign Pier D Street between the Middle Harbor out-gate and Pico Avenue and Broadway between the former POLB maintenance yard (western terminus of the roadway) and Pico Avenue.	Construction expected to begin July 2027 and end May 2029.
		Caltrans	
11	Vincent Thomas Bridge Deck Replacement	Replacement of the Vincent Thomas Bridge deck and seismic sensors to preserve structural integrity and enhance safety.	Draft EIR/EA released May 2023. Final EIR/EA in preparation. Construction estimated to begin October 2025 and end March 2027.
12	SR-103 Bridge Deck Replacement	Replacement of the SR-103 overhead bridge deck at the Union Pacific rail lines near Terminal Island	Construction estimated to begin March 2024 and end November 2027.
		City of Long Beach	
13	Shoemaker Bridge Replacement, between Shoreline Drive and 9th Street	Replacement of the existing Shoemaker Bridge with a new bridge over the Los Angeles River south of the existing bridge.	Project approved August 2020. Construction expected to begin in 2025.
		United States Army Corps of Engineers	
14	Shoemaker Bridge Ramp Demolition Project	Early Action Project of the overall Shoemaker Bridge Replacement Project. Demolition of existing Shoemaker Bridge ramps at 9th and 10th Street. Project would facilitate future infrastructure improvements associated with the overall Shoemaker Bridge Replacement Project and Pier B On-Dock Rail Support Facility Project.	Draft Section 408 permitting package currently in preparation.

5 Mitigation Monitoring and Reporting Program

5.1 Introduction

This Mitigation Monitoring and Reporting Program (MMRP) fulfills the requirements of California Public Resources Code Section 21081.6 and CEQA Guidelines Section 15097. As stated in PRC Section 21081.6(a)(1):

> *The public agency shall adopt a reporting or monitoring program for the changes made to the project, or conditions of approval, adopted in order to mitigate or avoid significant effects on the environment.*

The POLB is the lead agency for the proposed Project under CEQA and, therefore, has the primary responsibility for ensuring that the Project's mitigation measures are implemented. The MMRP ensures that the mitigation measures identified in the Initial Study/Mitigated Negative Declaration (IS/MND) are implemented to reduce or avoid identified environmental effects and to appropriately assign the mitigation responsibilities for implementing the proposed Project. The mitigation measures listed in the MMRP will be considered by the POLB Board of Harbor Commissioners as conditions of primary Project approval.

5.2 CEQA Guidelines

State CEQA Guidelines Section 15097 discusses mitigation monitoring and reporting as required in PRC Section 21081.6(a). Mitigation is defined in State CEQA Guidelines Section 15370 as a measure that:

- Avoids the impact altogether by not taking a certain action or parts of an action;
- Minimizes impacts by limiting the degree or magnitude of the action and its implementation;
- Rectifies the impacts by repairing, rehabilitating, or restoring the impacted environment;
- Reduces or eliminates the impact over time be preservation and maintenance activities during the life of the project; and
- Compensates for the impacts by replacing or providing substitute resources or environments, including through permanent protection of such resources through conservation easements.

Mitigation measures provided in this MMRP are identified in IS/MND Section 4 (Environmental Setting and Impacts) as feasible and effective in mitigating Project-related environmental impacts due to hazards and hazardous materials. Based on the findings of the IS/MND, mitigation measures are not required for aesthetics, agriculture and forestry resources, air quality, biological resources, cultural resources, energy, geology and soils, greenhouse gas emissions, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, transportation, public services, recreation, utilities and service systems, tribal cultural resources, and wildfire.

5.3 MMRP Approach

The MMRP is organized in a table format in **Table 17**. For each mitigation measure, the MMRP identifies the following:

- Required action;
- Description of the mitigation measure, including when the action is required to be taken, and any required submittal or documentation.
- Entity responsible for the action and/or monitoring;
- Timing/Phase for completion of the action;
- Person(s) or Party verifying implementation of the action;
- Any notes or comments

When a proposed project is undertaken by an Applicant's contractors, the pertinent mitigation measures shall be included in the terms and conditions of the contractor's contracts with issued by the Applicant/Permittee. The Applicant/Permittee shall undertake regular inspections of the job site to ensure that contractors are implementing the mitigation measures associated with the Project and complying with their respective contracts. POLB officials will also conduct periodic inspections of the job site to verify the mitigation measures are being implemented. The Port's Environmental Planning project manager will be responsible for ensuring completion of the mitigation measures that are the responsibility of the Applicant/Permittee.

Table 17. Mitigation Monitoring and Reporting Program

Mitigation Measure No.	Description of Mitigation Measure	Responsible Party/ Monitor(s)	Timing/Phase	Measure Completed/ Tracked (Signature and Date)
HAZARDS & HAZARDOUS MATERIALS				
MM HAZ-1	**Development of a Hazardous Materials Business Plan.** During final design of the Project, the Project Applicant, in coordination with the City of Long Beach Fire Department, shall submit a Hazardous Materials Business Plan (HMBP) for the BESS facility to the City of Long Beach Fire Department for review and approval. The HMBP shall include a Final Hazards Mitigation Assessment and Emergency Response Guide for the BESS facility detailing hazards (e.g., thermal runaway and fires), firefighting measures, shutting down and disposal of materials and would also recommend a number of firefighting measures. These shall include but are not limited to the following: • Identification of system protection devices to monitor potential for thermal runaway including emergency systems and emergency response protocols designed to extinguish fires and ventilate enclosures before entry. • Identification of hazard detection systems including but not limited to smoke and heat detectors, and gas meters that would be monitored by control centers and alert operators to emergency situations. • Identification of thermal runaway prevention technologies including but not limited to current interrupt devices (CIDs), ceramic-coated separators, and solid polymer electrolytes. • Identification of a failsafe protection system that provides for forced shutdown, should all other countermeasures fail to prevent thermal runaway. The	Applicant, Long Beach Fire Department, Port of Long Beach	Applicant to coordinate with Long Beach Fire Department during final design for final approval of HMBP. Applicant to submit final, approved HMBP to the POLB Director of Environmental Planning via electronic mail to: CEQA@polb.com.	

Mitigation Measure No.	Description of Mitigation Measure	Responsible Party/ Monitor(s)	Timing/Phase	Measure Completed/ Tracked (Signature and Date)
	UL 9540 listing ensures BESS are designed to provide system-level thermal runaway mitigation through detection, suppression, and/or containment measures. • Identification of how temperatures will be controlled and how the system will protect against excess humidity, salinity, and dust. In addition, the Final Hazards Mitigation Assessment and Emergency Operations Plan shall detail how the BESS facility incorporates or complies with applicable National Safety codes and standards including but not limited to the following: • **National Fire Protection Association (NFPA) 855:** Standard for the Installation of a Stationary Energy Storage Systems • **International Fire Code (IFC) 1207:** Electrical Energy Storage Systems • **Underwriters Laboratories (UL) 9540:** Standard for Energy Storage Systems and Equipment • **National Fire Protection Association (NFPA) 68:** Standard on Explosion Protection by Deflagration Venting • **National Fire Protection Association (NFPA) 69:** Standard on Explosion Prevention Systems The final HMBP approved by the City of Long Beach Fire Department shall also be submitted to the POLB Director of Environmental Planning via electronic mail at CEQA@polb.com.			

Mitigation Measure No.	Description of Mitigation Measure	Responsible Party/ Monitor(s)	Timing/Phase	Measure Completed/ Tracked (Signature and Date)
MM HAZ-2	**DTSC Agency Notification and Coordination.** During final design of the Project, the Project Applicant shall notify and consult with the Department of Toxic Substances Control in order to ensure any construction activities associated with the Project do not hinder site characterization recommendations identified in the Resource Conservation and Recovery Act Facility Investigation Work Plan developed for the area. Prior to construction activities, the Project Applicant shall submit documentation that the required notification and consultation with the Department of Toxic Substances Control has been conducted. This documentation shall be submitted to the POLB Director of Environmental Planning via electronic mail at CEQA@polb.com.	Applicant/ Contractor, DTSC, Port of Long Beach	During final design Applicant to submit documentation to the POLB Director of Environmental Planning via electronic mail to: CEQA@polb.com.	
MM HAZ-3	**Asbestos and Lead Based Paint Testing and Removal.** The Project shall implement the following measures to reduce impacts due to the presence of unknown asbestos containing materials (ACMs) and/or lead based paint (LBP) in the structures to be demolished: • In conformance with State and local laws, a visual inspection/pre-demolition survey, and sampling and testing, shall be conducted prior to the demolition of the on-site buildings to determine the presence of asbestos containing materials and/or lead based paint, and to determine appropriate handling and disposal requirements. • Prior to demolition activities, all building materials containing lead-based paint shall be removed in accordance with Cal/OSHA Lead in Construction Standard, Title 8, California Code of Regulations (CCR) 1523.1. Employee training, employee air monitoring, and	Applicant/ Contractor, Port of Long Beach	Prior to demolition activities Applicant to submit documentation to the POLB Director of Environmental Planning via electronic mail to: CEQA@polb.com	

Mitigation Measure No.	Description of Mitigation Measure	Responsible Party/ Monitor(s)	Timing/Phase	Measure Completed/ Tracked (Signature and Date)
	dust control shall be conducted during demolition also in accordance with this Standard. Any debris or soil containing lead-based paint or coatings would be disposed of at landfills that meet acceptance criteria for the waste being disposed. • All potentially friable ACMs shall be removed in accordance with Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP) guidelines prior to any building demolition or renovation that may disturb the materials. All demolition activities will be undertaken in accordance with Cal/OSHA standards contained in Title 8 of CCR, Section 1529, to protect workers from exposure to asbestos. • A registered asbestos abatement contractor shall be retained to remove and dispose of ACMs identified in the asbestos survey performed for the proposed Project site in accordance with the standards stated above. Prior to demolition activities, the Project Applicant shall submit documentation that these measures have been completed. This documentation shall be submitted to the POLB Director of Environmental Planning via electronic mail at CEQA@polb.com.			

6 Report Preparation

A consultant team headed by HDR prepared this document under the direction of the Port of Long Beach. The preparers and technical reviewers of this document are presented below.

6.1 Lead Agency

6.1.1 Port of Long Beach

Anjana Mepani, Environmental Officer ....CEQA Lead Agency Contact, Environmental Planning Division

Jennifer Blanchard, Environmental Specialist ....Environmental Planning Division

Renee Moilanen, Director..Environmental Planning Division

James Vernon, Assistant Director ....Environmental Planning Division

Allyson Teramoto, Manager, CEQA/NEPA Practices ....Environmental Planning Division

Dylan Porter, Manager, Water Quality Practices ....Environmental Planning Division

Daniel Ramsay, Manager, Environmental Remediation..........Environmental Planning Division

Justin Luedy, Senior Environmental Specialist.......................Environmental Planning Division

Davinder Badial, Manager, Strategic Plan and Land Use .....Port Planning Division

Tony Chan, PhD, Office Systems Analyst............................Port Planning Division

Sudhir N. Lay, Deputy City Attorney ....Long Beach City Attorney's Office

6.2 Project Management and Document Production

6.2.1 HDR

Kelly Czechowski ....Project Manager

Tim Gnibus...Principal in Charge

Victoria Hsu...Air Quality Technical Lead

Anitra Rice...Senior Air Quality Specialist

Emily Barone...Environmental Planner

Madison Gallagher ....Environmental Planner

Anders Burvall...GIS Technical Lead

Steven Dong ....Technical Editor

6.3 Project Review and Quality Control Services

6.3.1 Leidos

Jessica Degner ....Program Manager/CEQA Specialist

Charlie Phillips………………………………………………….Senior Scientist

Jay Austin………………………………………………………..Environmental Scientist/Noise Specialist

John Castleberry (Castle Environmental Consulting)………..Air Quality/GHG Scientist

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Appendix A. AB 52 Consultation Materials

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NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov

April 5, 2024

Jennifer Blanchard
Port of Long Beach

Via Email to: jennifer.blanchard@polb.com

Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, Battery Energy Storage System Facility Project, Los Angeles County

To Whom It May Concern:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) ("Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.")

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measures.

     All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of any Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was positive. Please contact the Gabrieleno/Tongva San Gabriel Band of Mission Indians on the attached list for more information.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

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Port of LONG BEACH THE GREEN PORT

June 4, 2024

Charles Alvarez, Chairperson
Gabrielino-Tongva Tribe
23454 Vanowen Street
West Hills, CA, 91307

Email: Chavez1956metro@gmail.com

**Subject: Pier S Energy Storage LLC Battery Energy Storage System Project, Harbor Development Permit Application No. 23-022
Tribal Cultural Resources under the California Environmental Quality Act,
AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1**

Dear Chairperson Charles Alvarez,

Pier S Energy Storage LLC (Pier S Energy) has submitted a Harbor Development Permit Application to the Port of Long Beach (Port) for the proposed Pier S Battery Energy Storage System Project (Project). Pursuant to the California Environmental Quality Act Review (CEQA), the Port will serve as the Lead Agency for the environmental review of the proposed Project. Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1(d). Figures showing the proposed Project regional location (Figure 1) and specific Project location (Figure 2) are attached.

Project Description

The proposed Project, located at 2665 Pier S Lane, in Long Beach, CA, would construct an approximately 70-megawatt battery energy storage system (BESS) on 2.9 acres of an existing privately-owned 18.03-acre power generation site located on Pier S in the Port Terminal Island Planning District. The Project consists of installing up to 100 to 200 individual metal containers containing lithium-ion BESS connected to an existing power pole and an existing Southern California Edison (SCE) Long Beach 66-kilovolt substation. Approximately 400 to 500 feet of electrical conduit would be installed on aboveground cable trays to connect the BESS infrastructure to the existing SCE substation. A new substation and associated infrastructure and equipment would be installed to transform the voltage necessary to tie into the existing SCE substation. The proposed Project would also demolish three buildings and remove sections of abandoned pipes located in the Project site.

Project Contact Information and to Request Consultation

Port of
LONG BEACH
THE GREEN PORT

Pursuant to California Public Resources Code Section 21080.3, the Gabrielino-Tongva Tribe has 30 days from the receipt of this letter to request in writing, consultation with the Port. Should the Gabrielino-Tongva Tribe request consultation, the Port will begin the consultation process within 30 days of receiving your request.

To request consultation under AB 52 for the proposed Project, please submit your request, in writing to:

Ms. Jennifer Blanchard
Environmental Specialist
Port of Long Beach
Environmental Planning Division
415 W. Ocean Blvd
Long Beach, CA 90802
Email: jennifer.blanchard@polb.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Gabrielino-Tongva Tribemay have on the proposed Project.

Very Respectfully,

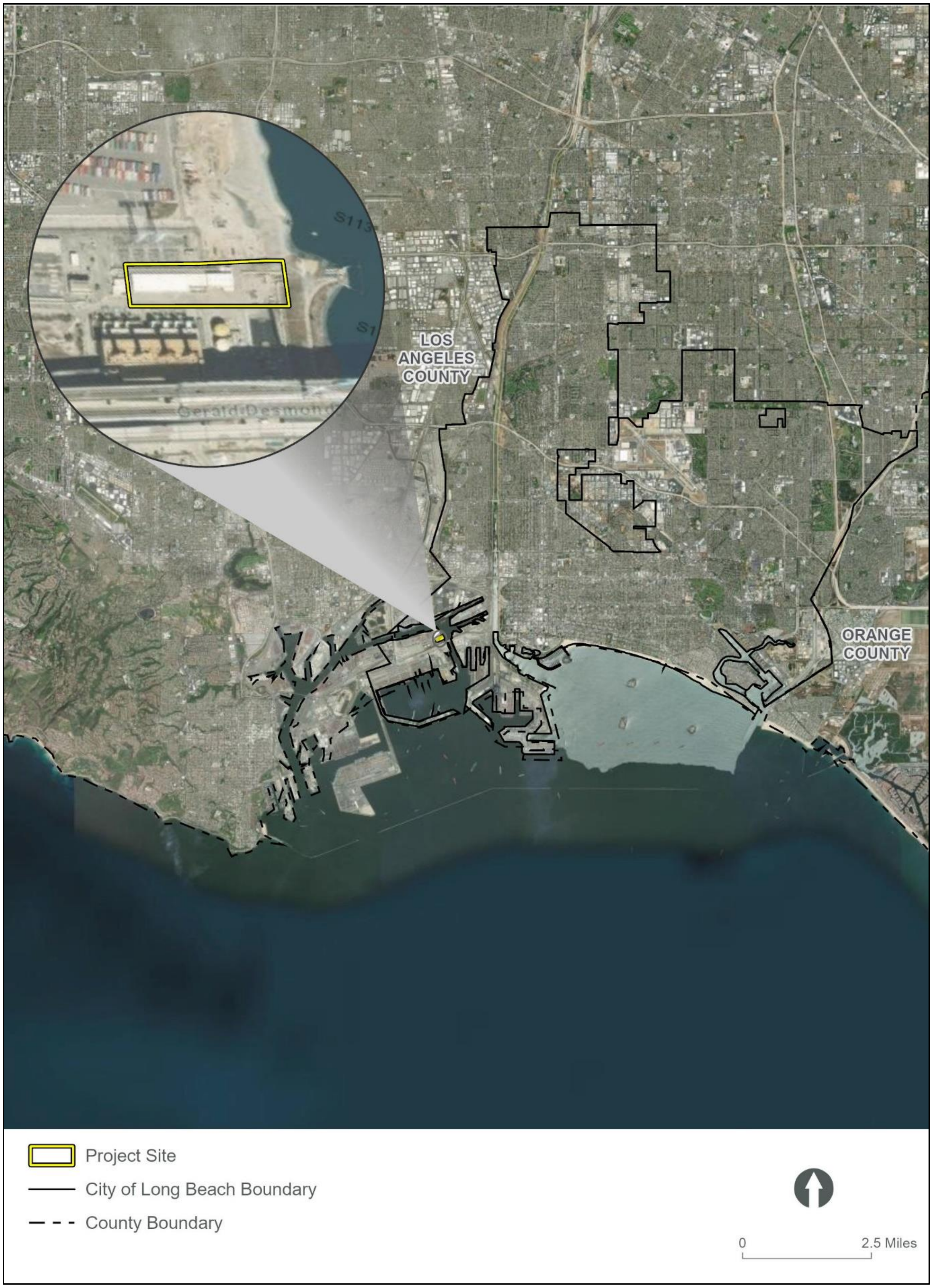
James Vernon
Acting Director of Environmental Planning

Attachments

Figure 1. Regional Vicinity Location
Figure 2. Project Location

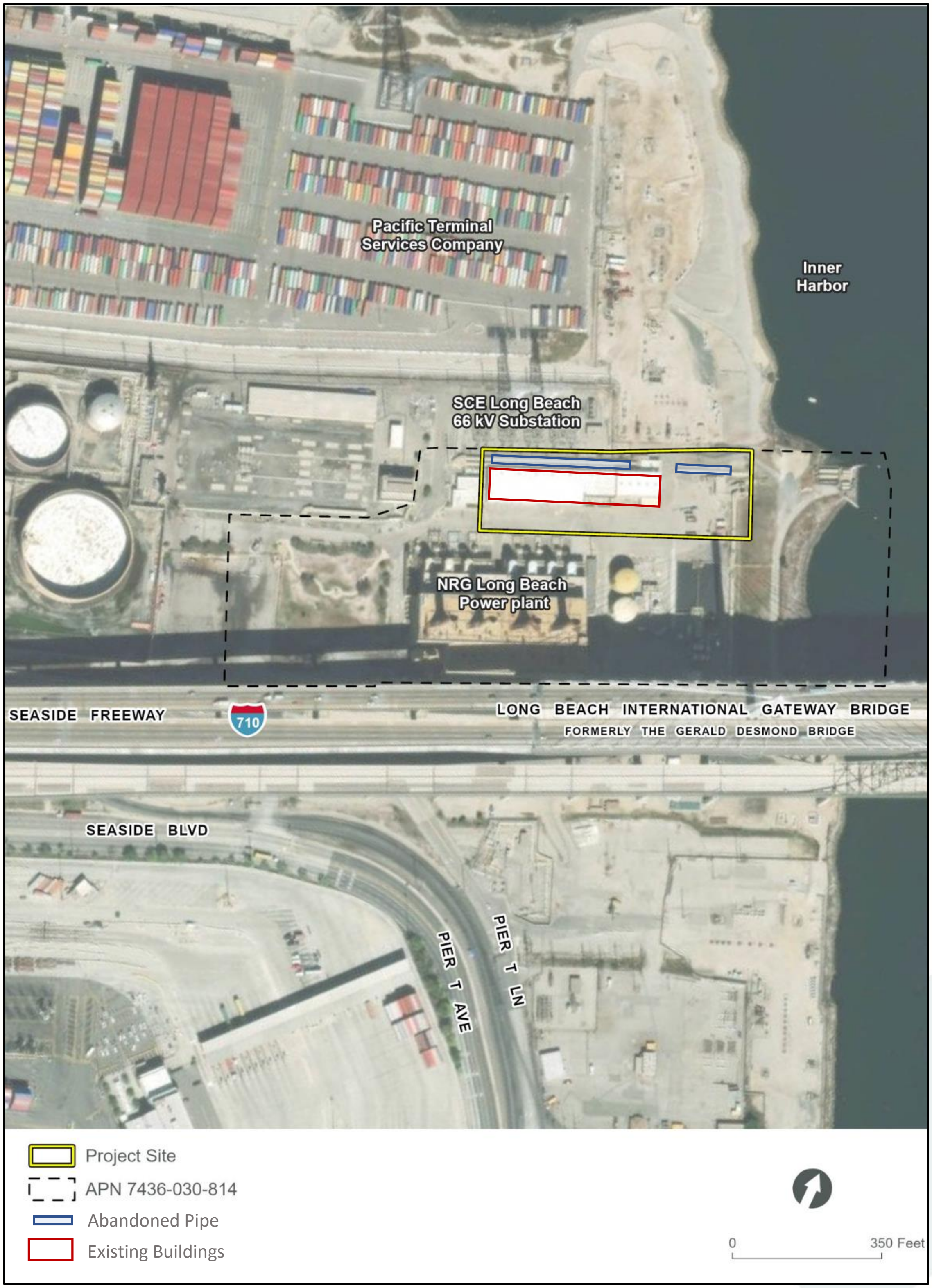
Port of
LONG BEACH
THE GREEN PORT

Figure 1: Regional Vicinity Map. 2665 Pier S Lane, Long Beach, California



Port of LONG BEACH THE GREEN PORT

Figure 2: Project location. 2665 Pier S Lane, Long Beach, California



Port of
LONG BEACH
THE GREEN PORT

June 4, 2024

Christina Conley, Cultural Resource Administrator
Gabrielino Tongva Indians of California Tribal Council
P.O. Box 941078
Simi Valley, CA, 93094

Email: christina.marsden@alumni.usc.edu

Subject: **Pier S Energy Storage LLC Battery Energy Storage System Project, Harbor Development Permit Application No. 23-022**
Tribal Cultural Resources under the California Environmental Quality Act,
AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1

Dear Christina Conley,

Pier S Energy Storage LLC (Pier S Energy) has submitted a Harbor Development Permit Application to the Port of Long Beach (Port) for the proposed Pier S Battery Energy Storage System Project (Project). Pursuant to the California Environmental Quality Act Review (CEQA), the Port will serve as the Lead Agency for the environmental review of the proposed Project. Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1(d). Figures showing the proposed Project regional location (Figure 1) and specific Project location (Figure 2) are attached.

Project Description

The proposed Project, located at 2665 Pier S Lane, in Long Beach, CA, would construct an approximately 70-megawatt battery energy storage system (BESS) on 2.9 acres of an existing privately-owned 18.03-acre power generation site located on Pier S in the Port Terminal Island Planning District. The Project consists of installing up to 100 to 200 individual metal containers containing lithium-ion BESS connected to an existing power pole and an existing Southern California Edison (SCE) Long Beach 66-kilovolt substation. Approximately 400 to 500 feet of electrical conduit would be installed on aboveground cable trays to connect the BESS infrastructure to the existing SCE substation. A new substation and associated infrastructure and equipment would be installed to transform the voltage necessary to tie into the existing SCE substation. The proposed Project would also demolish three buildings and remove sections of abandoned pipes located in the Project site.

Project Contact Information and to Request Consultation

Port of LONG BEACH THE GREEN PORT

Pursuant to California Public Resources Code Section 21080.3, the Gabrielino Tongva Indians of California Tribal Council has 30 days from the receipt of this letter to request in writing, consultation with the Port. Should the Gabrielino Tongva Indians of California Tribal Council request consultation, the Port will begin the consultation process within 30 days of receiving your request.

To request consultation under AB 52 for the proposed Project, please submit your request, in writing to:

Ms. Jennifer Blanchard
Environmental Specialist
Port of Long Beach
Environmental Planning Division
415 W. Ocean Blvd
Long Beach, CA 90802
Email: jennifer.blanchard@polb.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Gabrielino Tongva Indians of California Tribal Councilmay have on the proposed Project.

Very Respectfully,

James Vernon
Acting Director of Environmental Planning

Attachments

Figure 1. Regional Vicinity Location
Figure 2. Project Location

Figure 1: Regional Vicinity Map. 2665 Pier S Lane, Long Beach, California

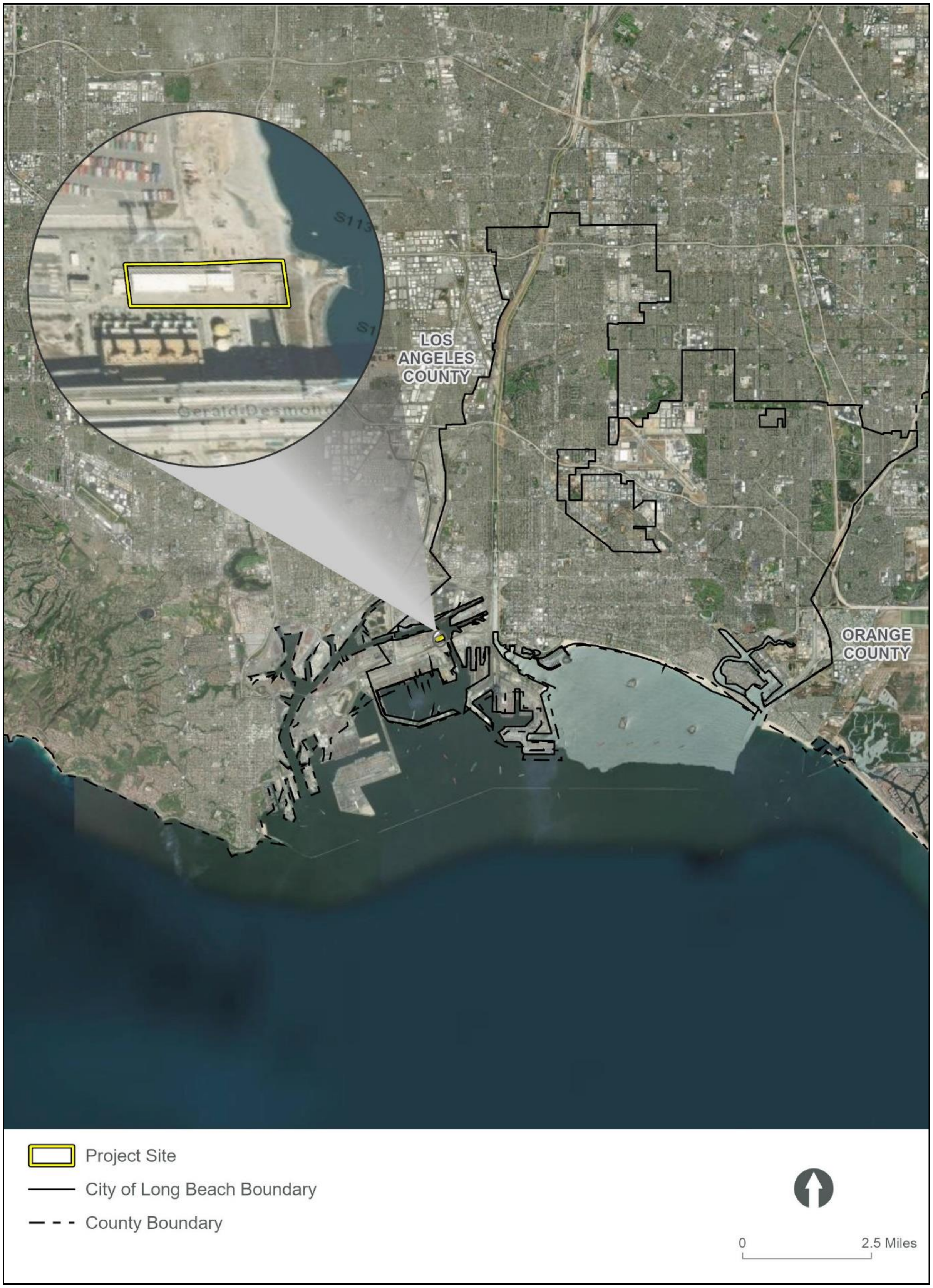
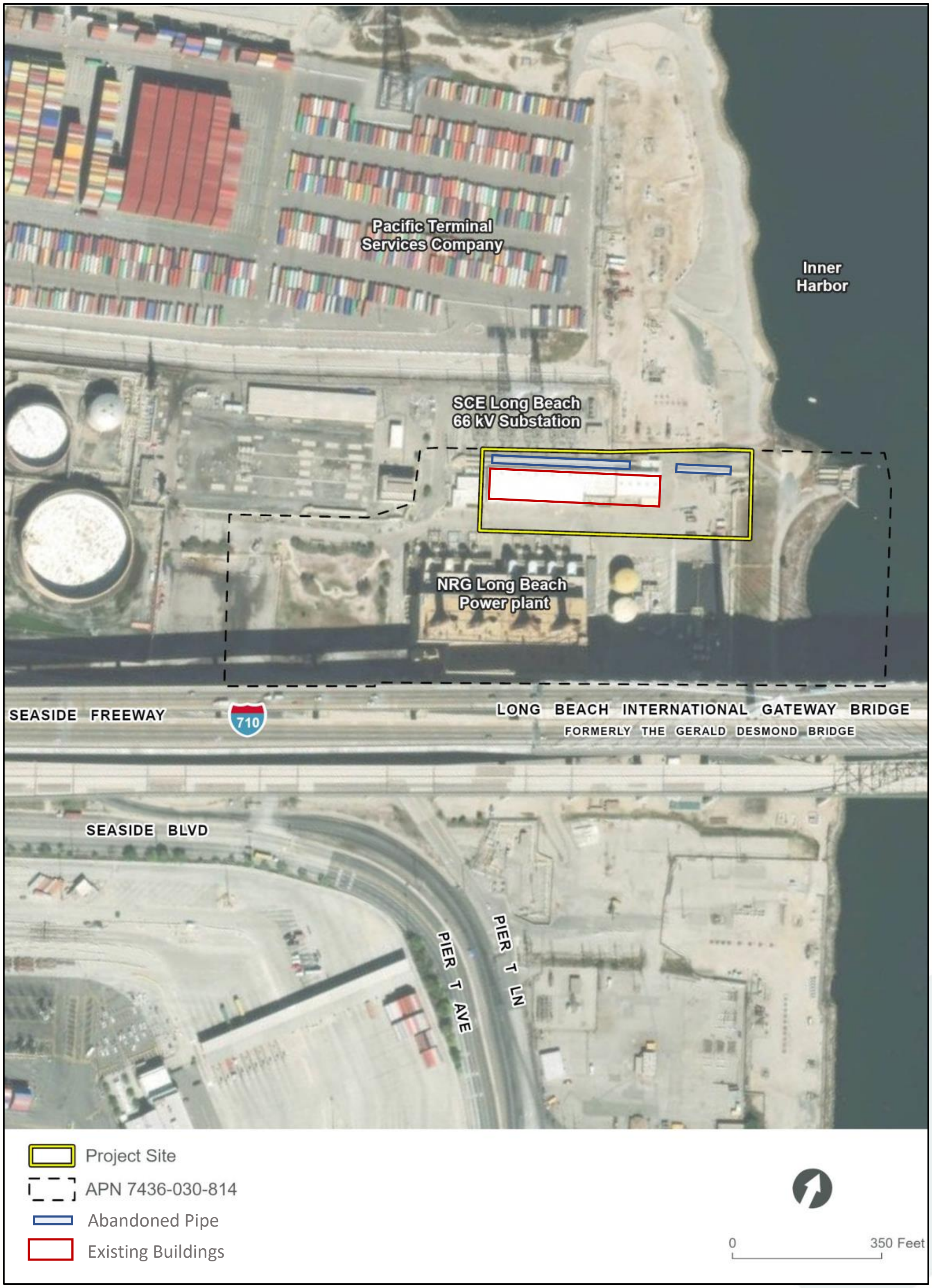


Figure 2: Project location. 2665 Pier S Lane, Long Beach, California



Port of
LONG BEACH
THE GREEN PORT

June 4, 2024

Robert Dorame, Chairperson
Gabrielino Tongva Indians of California Tribal Council
P.O. Box 490
Bellflower, CA, 90707

Email: gtongva@gmail.com

Subject: **Pier S Energy Storage LLC Battery Energy Storage System Project, Harbor Development Permit Application No. 23-022**
Tribal Cultural Resources under the California Environmental Quality Act,
AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1

Dear Chairperson Robert Dorame,

Pier S Energy Storage LLC (Pier S Energy) has submitted a Harbor Development Permit Application to the Port of Long Beach (Port) for the proposed Pier S Battery Energy Storage System Project (Project). Pursuant to the California Environmental Quality Act Review (CEQA), the Port will serve as the Lead Agency for the environmental review of the proposed Project. Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1(d). Figures showing the proposed Project regional location (Figure 1) and specific Project location (Figure 2) are attached.

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Project Contact Information and to Request Consultation

Port of
LONG BEACH
THE GREEN PORT

Pursuant to California Public Resources Code Section 21080.3, the Gabrielino Tongva Indians of California Tribal Council has 30 days from the receipt of this letter to request in writing, consultation with the Port. Should the Gabrielino Tongva Indians of California Tribal Council request consultation, the Port will begin the consultation process within 30 days of receiving your request.

To request consultation under AB 52 for the proposed Project, please submit your request, in writing to:

Ms. Jennifer Blanchard
Environmental Specialist
Port of Long Beach
Environmental Planning Division
415 W. Ocean Blvd
Long Beach, CA 90802
Email: *jennifer.blanchard@polb.com*

We understand that consultation is a private and ongoing process; we would appreciate any input the Gabrielino Tongva Indians of California Tribal Councilmay have on the proposed Project.

Very Respectfully,

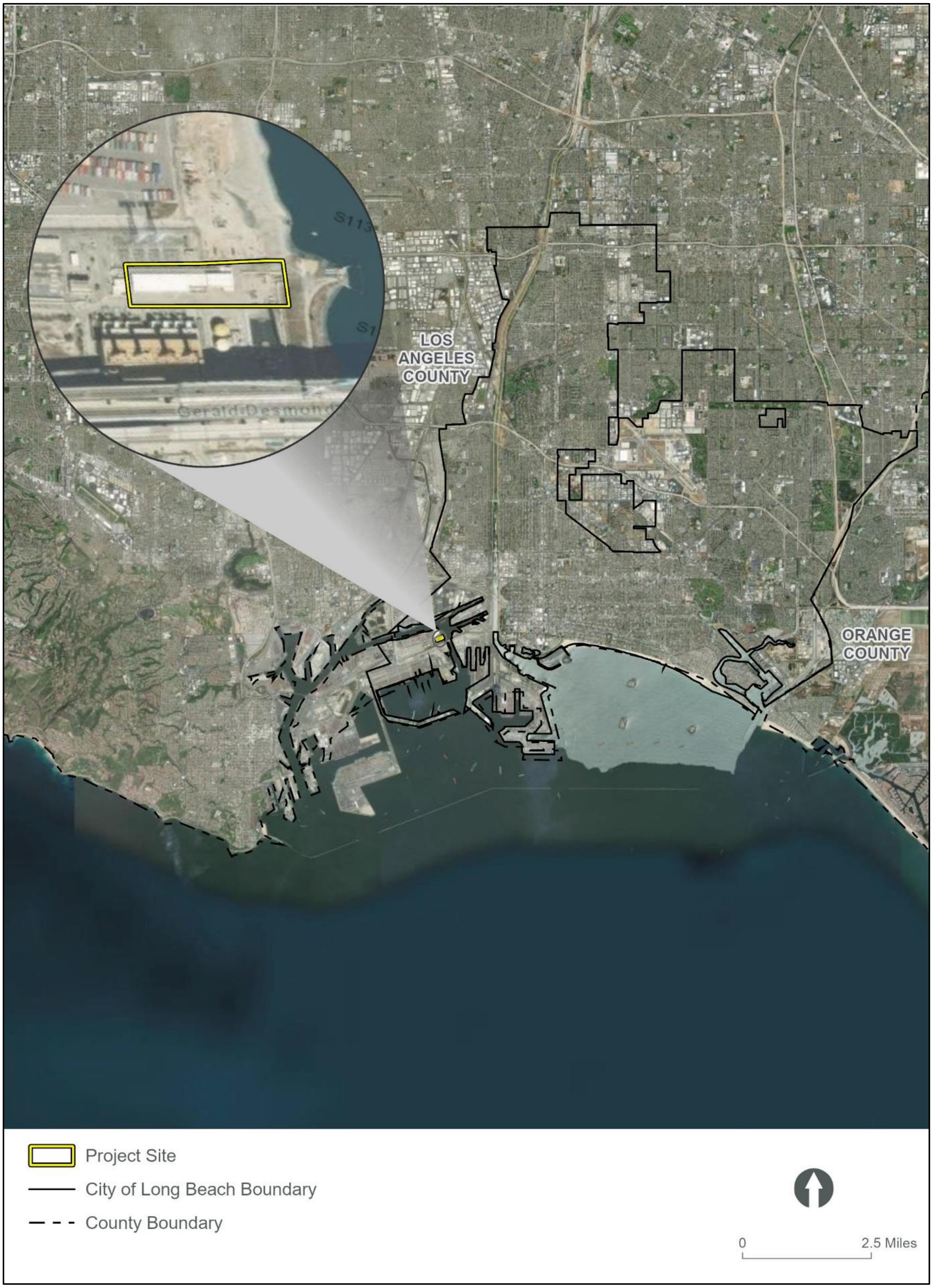
James Vernon
Acting Director of Environmental Planning

Attachments

Figure 1. Regional Vicinity Location
Figure 2. Project Location

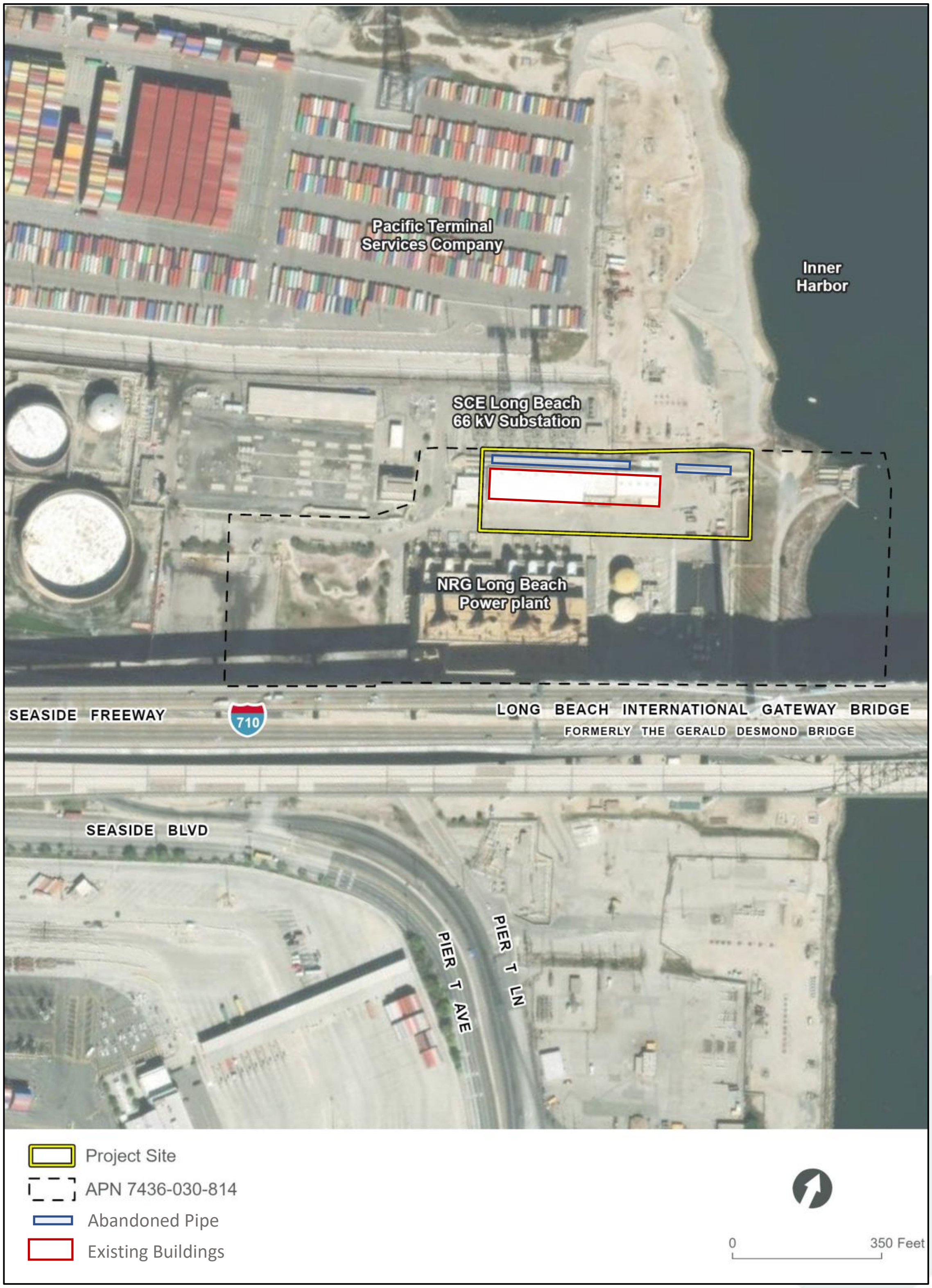
Port of LONG BEACH THE GREEN PORT

Figure 1: Regional Vicinity Map. 2665 Pier S Lane, Long Beach, California



Port of
LONG BEACH
THE GREEN PORT

Figure 2: Project location. 2665 Pier S Lane, Long Beach, California



Port of
LONG BEACH
THE GREEN PORT

June 4, 2024

Sam Dunlap, Cultural Resource Director
Gabrielino-Tongva Tribe
P.O. Box 3919
Seal Beach, CA, 90740

Email: tongvatcr@gmail.com

Subject: **Pier S Energy Storage LLC Battery Energy Storage System Project, Harbor Development Permit Application No. 23-022**
Tribal Cultural Resources under the California Environmental Quality Act,
AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1

Dear Sam Dunlap,

Pier S Energy Storage LLC (Pier S Energy) has submitted a Harbor Development Permit Application to the Port of Long Beach (Port) for the proposed Pier S Battery Energy Storage System Project (Project). Pursuant to the California Environmental Quality Act Review (CEQA), the Port will serve as the Lead Agency for the environmental review of the proposed Project. Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1(d). Figures showing the proposed Project regional location (Figure 1) and specific Project location (Figure 2) are attached.

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Project Contact Information and to Request Consultation

Port of
LONG BEACH
THE GREEN PORT

Pursuant to California Public Resources Code Section 21080.3, the Gabrielino-Tongva Tribe has 30 days from the receipt of this letter to request in writing, consultation with the Port. Should the Gabrielino-Tongva Tribe request consultation, the Port will begin the consultation process within 30 days of receiving your request.

To request consultation under AB 52 for the proposed Project, please submit your request, in writing to:

Ms. Jennifer Blanchard
Environmental Specialist
Port of Long Beach
Environmental Planning Division
415 W. Ocean Blvd
Long Beach, CA 90802
Email: jennifer.blanchard@polb.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Gabrielino-Tongva Tribemay have on the proposed Project.

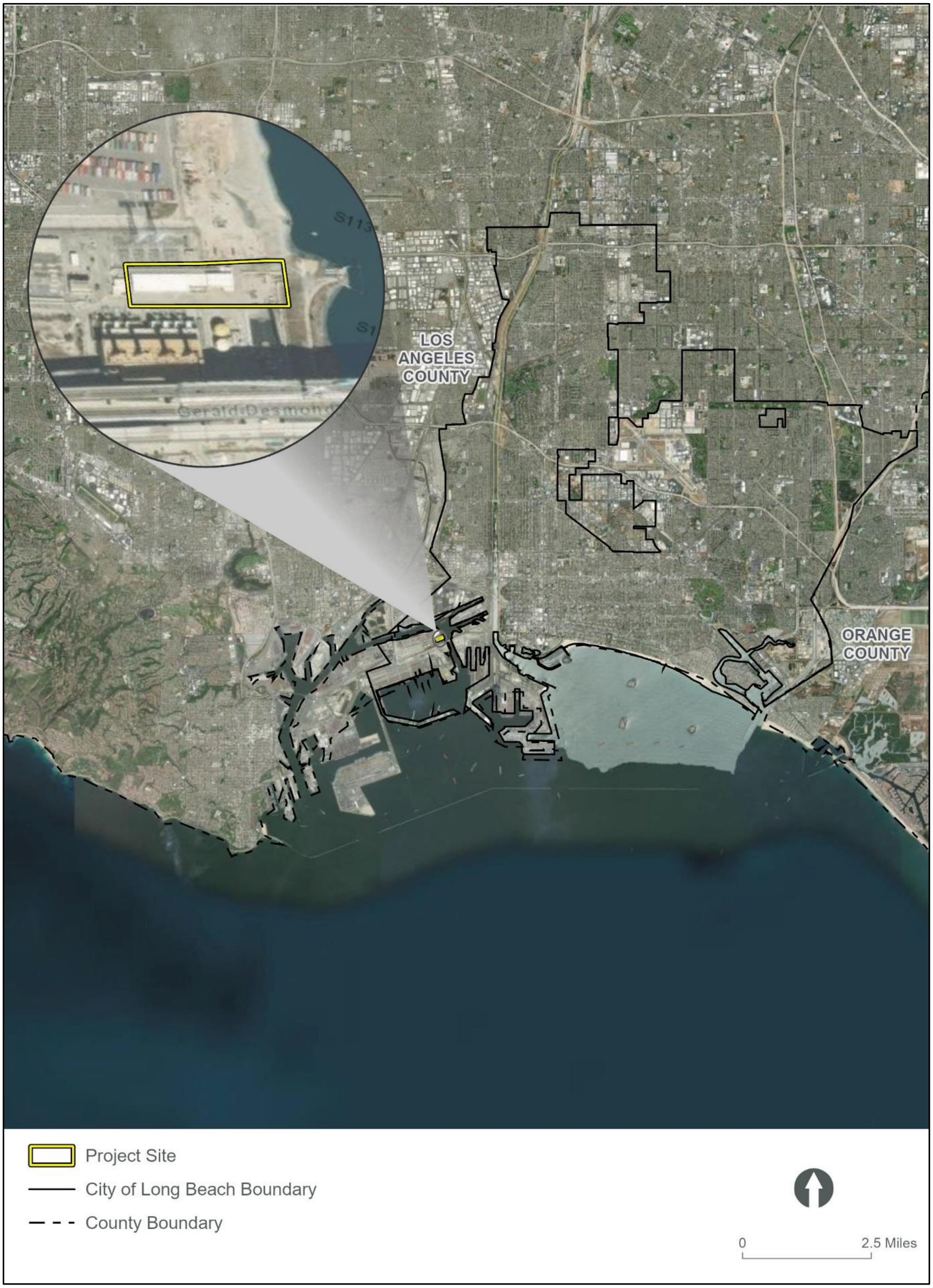
Very Respectfully,

James Vernon
Acting Director of Environmental Planning

Attachments

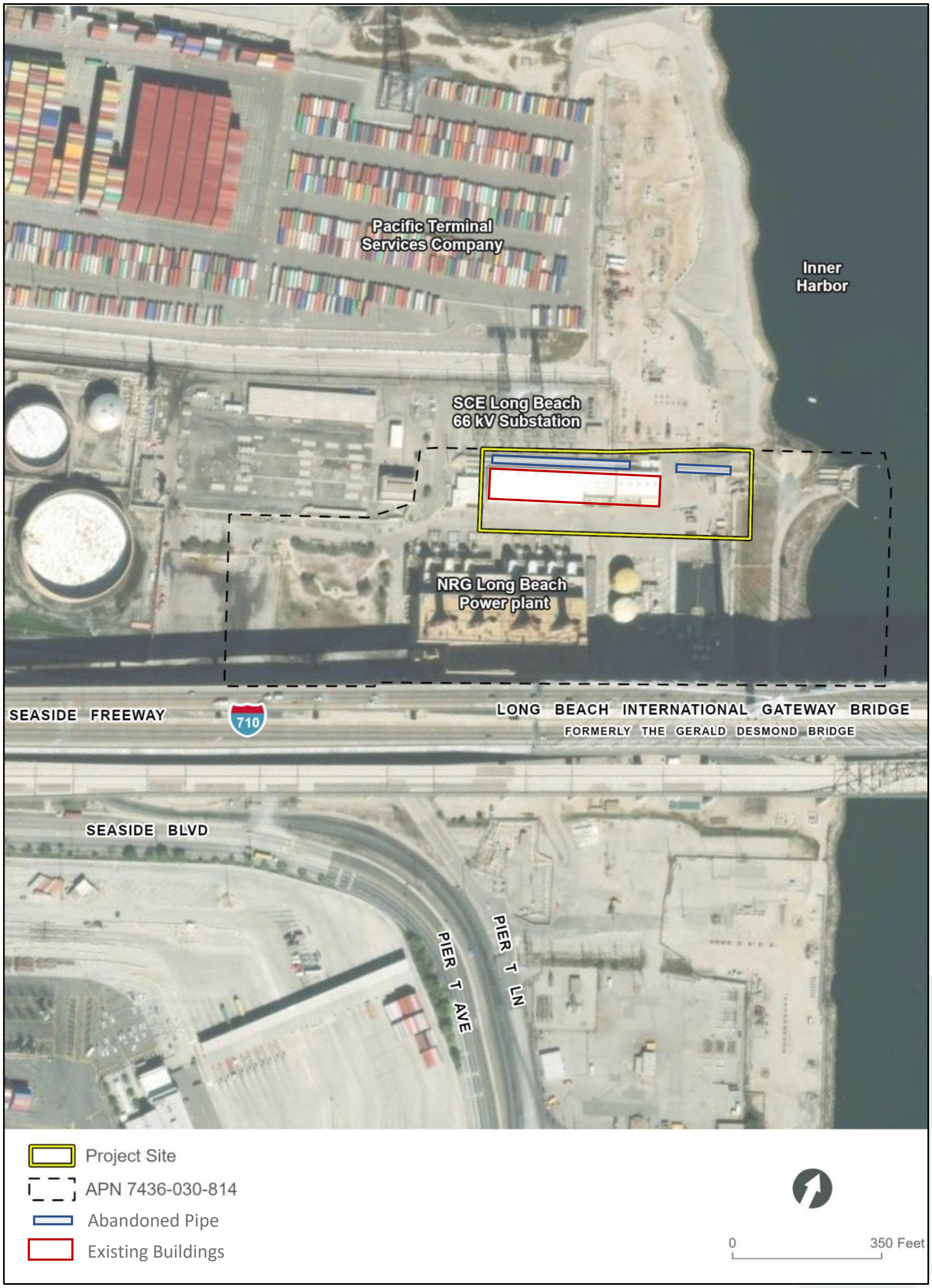
Figure 1. Regional Vicinity Location
Figure 2. Project Location

Figure 1: Regional Vicinity Map. 2665 Pier S Lane, Long Beach, California



Port of
LONG BEACH
THE GREEN PORT

Figure 2: Project location. 2665 Pier S Lane, Long Beach, California



Port of
LONG BEACH
THE GREEN PORT

June 4, 2024

Sandonne Goad, Chairperson
Gabrielino /Tongva Nation
106 1/2 Judge John Aiso St., #231
Los Angeles, CA, 90012

Email: sgoad@gabrielino-tongva.com

Subject: **Pier S Energy Storage LLC Battery Energy Storage System Project, Harbor Development Permit Application No. 23-022**
Tribal Cultural Resources under the California Environmental Quality Act,
AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1

Dear Chairperson Sandonne Goad,

Pier S Energy Storage LLC (Pier S Energy) has submitted a Harbor Development Permit Application to the Port of Long Beach (Port) for the proposed Pier S Battery Energy Storage System Project (Project). Pursuant to the California Environmental Quality Act Review (CEQA), the Port will serve as the Lead Agency for the environmental review of the proposed Project. Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1(d). Figures showing the proposed Project regional location (Figure 1) and specific Project location (Figure 2) are attached.

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Project Contact Information and to Request Consultation

Port of
LONG BEACH
THE GREEN PORT

Pursuant to California Public Resources Code Section 21080.3, the Gabrielino /Tongva Nation has 30 days from the receipt of this letter to request in writing, consultation with the Port. Should the Gabrielino /Tongva Nation request consultation, the Port will begin the consultation process within 30 days of receiving your request.

To request consultation under AB 52 for the proposed Project, please submit your request, in writing to:

Ms. Jennifer Blanchard
Environmental Specialist
Port of Long Beach
Environmental Planning Division
415 W. Ocean Blvd
Long Beach, CA 90802
Email: jennifer.blanchard@polb.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Gabrielino /Tongva Nationmay have on the proposed Project.

Very Respectfully,

James Vernon
Acting Director of Environmental Planning

Attachments

Figure 1. Regional Vicinity Location
Figure 2. Project Location

Port of
LONG BEACH
THE GREEN PORT

Figure 1: Regional Vicinity Map. 2665 Pier S Lane, Long Beach, California

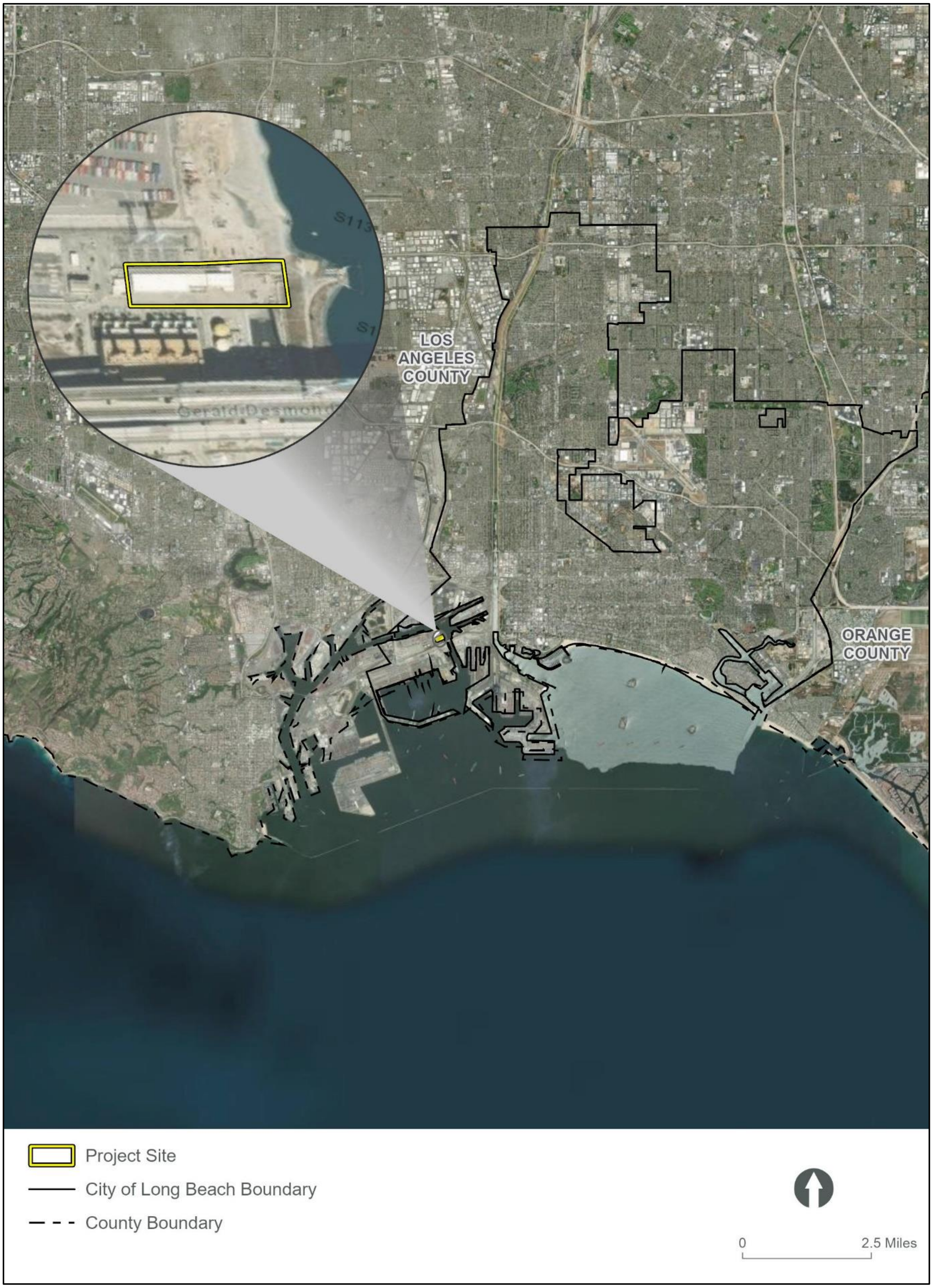
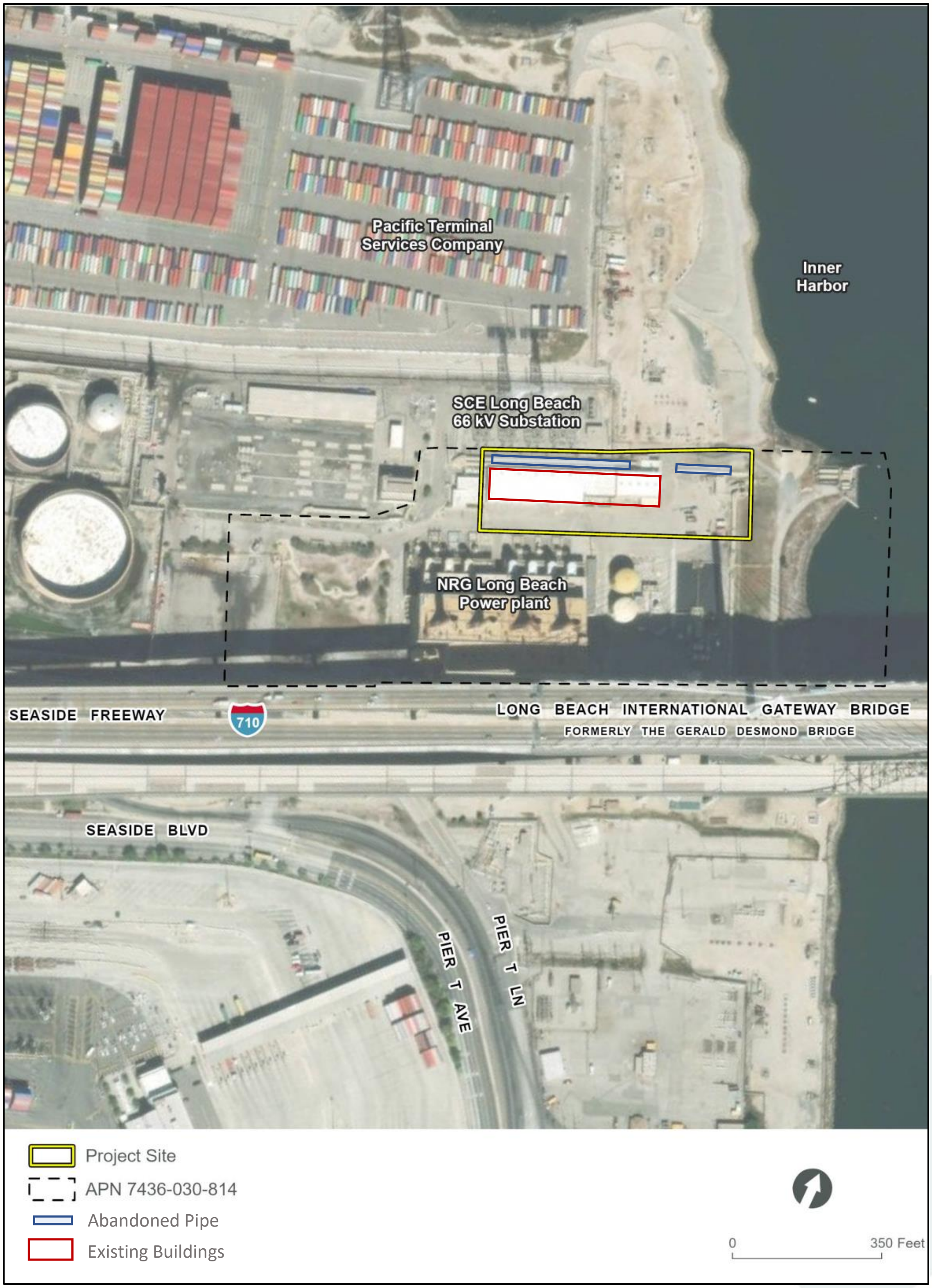


Figure 2: Project location. 2665 Pier S Lane, Long Beach, California



Port of
LONG BEACH
THE GREEN PORT

June 4, 2024

Heidi Lucero, Chairperson, THPO
Juaneno Band of Mission Indians Acjachemen Nation 84A
31411-A La Matanza Street
San Juan Capistrano, CA, 92675

Email: jbmian.chairwoman@gmail.com

Subject: **Pier S Energy Storage LLC Battery Energy Storage System Project, Harbor Development Permit Application No. 23-022**
Tribal Cultural Resources under the California Environmental Quality Act,
AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1

Dear Chairperson Lucero,

Pier S Energy Storage LLC (Pier S Energy) has submitted a Harbor Development Permit Application to the Port of Long Beach (Port) for the proposed Pier S Battery Energy Storage System Project (Project). Pursuant to the California Environmental Quality Act Review (CEQA), the Port will serve as the Lead Agency for the environmental review of the proposed Project. Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1(d). Figures showing the proposed Project regional location (Figure 1) and specific Project location (Figure 2) are attached.

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Project Contact Information and to Request Consultation

Pursuant to California Public Resources Code Section 21080.3, the Juaneno Band of Mission Indians Acjachemen Nation 84A has 30 days from the receipt of this letter to request in writing, consultation with the Port. Should the Juaneno Band of Mission Indians Acjachemen Nation 84A request consultation, the Port will begin the consultation process within 30 days of receiving your request.

To request consultation under AB 52 for the proposed Project, please submit your request, in writing to:

Ms. Jennifer Blanchard
Environmental Specialist
Port of Long Beach
Environmental Planning Division
415 W. Ocean Blvd
Long Beach, CA 90802
Email: jennifer.blanchard@polb.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Juaneno Band of Mission Indians Acjachemen Nation 84Amay have on the proposed Project.

Very Respectfully,

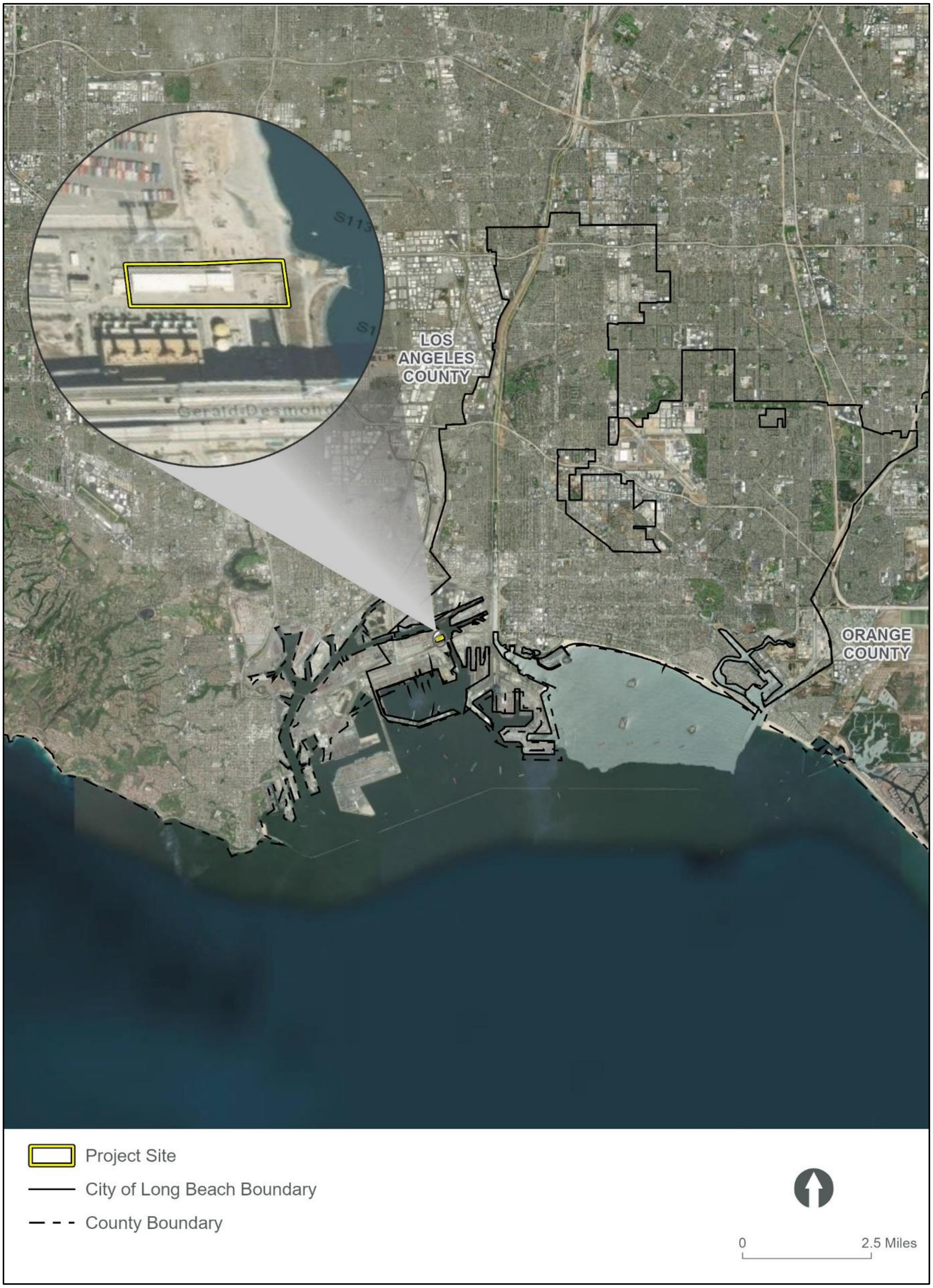
James Vernon
Acting Director of Environmental Planning

Attachments

Figure 1. Regional Vicinity Location
Figure 2. Project Location

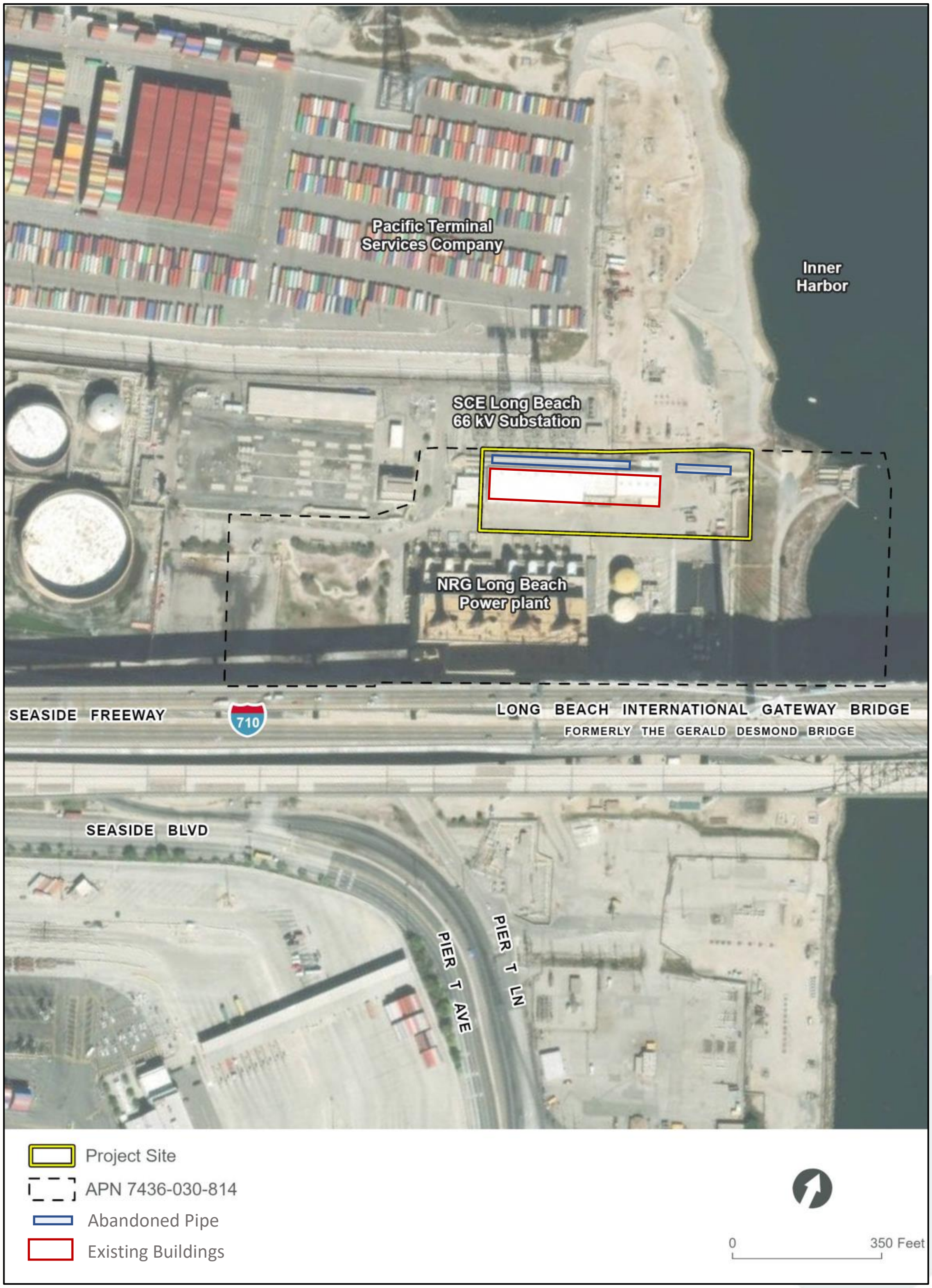
Port of LONG BEACH THE GREEN PORT

Figure 1: Regional Vicinity Map. 2665 Pier S Lane, Long Beach, California



Port of
LONG BEACH
THE GREEN PORT

Figure 2: Project location. 2665 Pier S Lane, Long Beach, California



Port of
LONG BEACH
THE GREEN PORT

June 4, 2024

Christina Swindall Martinez, Secretary
Gabrieleno Band of Mission Indians - Kizh Nation
P.O. Box 393
Covina, CA, 91723

Email: admin@gabrielenoindians.org

Subject: **Pier S Energy Storage LLC Battery Energy Storage System Project, Harbor Development Permit Application No. 23-022**
Tribal Cultural Resources under the California Environmental Quality Act,
AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1

Dear Christina Swindall Martinez,

Pier S Energy Storage LLC (Pier S Energy) has submitted a Harbor Development Permit Application to the Port of Long Beach (Port) for the proposed Pier S Battery Energy Storage System Project (Project). Pursuant to the California Environmental Quality Act Review (CEQA), the Port will serve as the Lead Agency for the environmental review of the proposed Project. Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1(d). Figures showing the proposed Project regional location (Figure 1) and specific Project location (Figure 2) are attached.

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Project Contact Information and to Request Consultation

Pursuant to California Public Resources Code Section 21080.3, the Gabrieleno Band of Mission Indians - Kizh Nation as 30 days from the receipt of this letter to request in writing, consultation with the Port. Should the Gabrieleno Band of Mission Indians - Kizh Nation request consultation, the Port will begin the consultation process within 30 days of receiving your request.

To request consultation under AB 52 for the proposed Project, please submit your request, in writing to:

Ms. Jennifer Blanchard
Environmental Specialist
Port of Long Beach
Environmental Planning Division
415 W. Ocean Blvd
Long Beach, CA 90802
Email: jennifer.blanchard@polb.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Gabrieleno Band of Mission Indians - Kizh Nation may have on the proposed Project.

Very Respectfully,

James Vernon
Acting Director of Environmental Planning

Attachments

Figure 1. Regional Vicinity Location
Figure 2. Project Location

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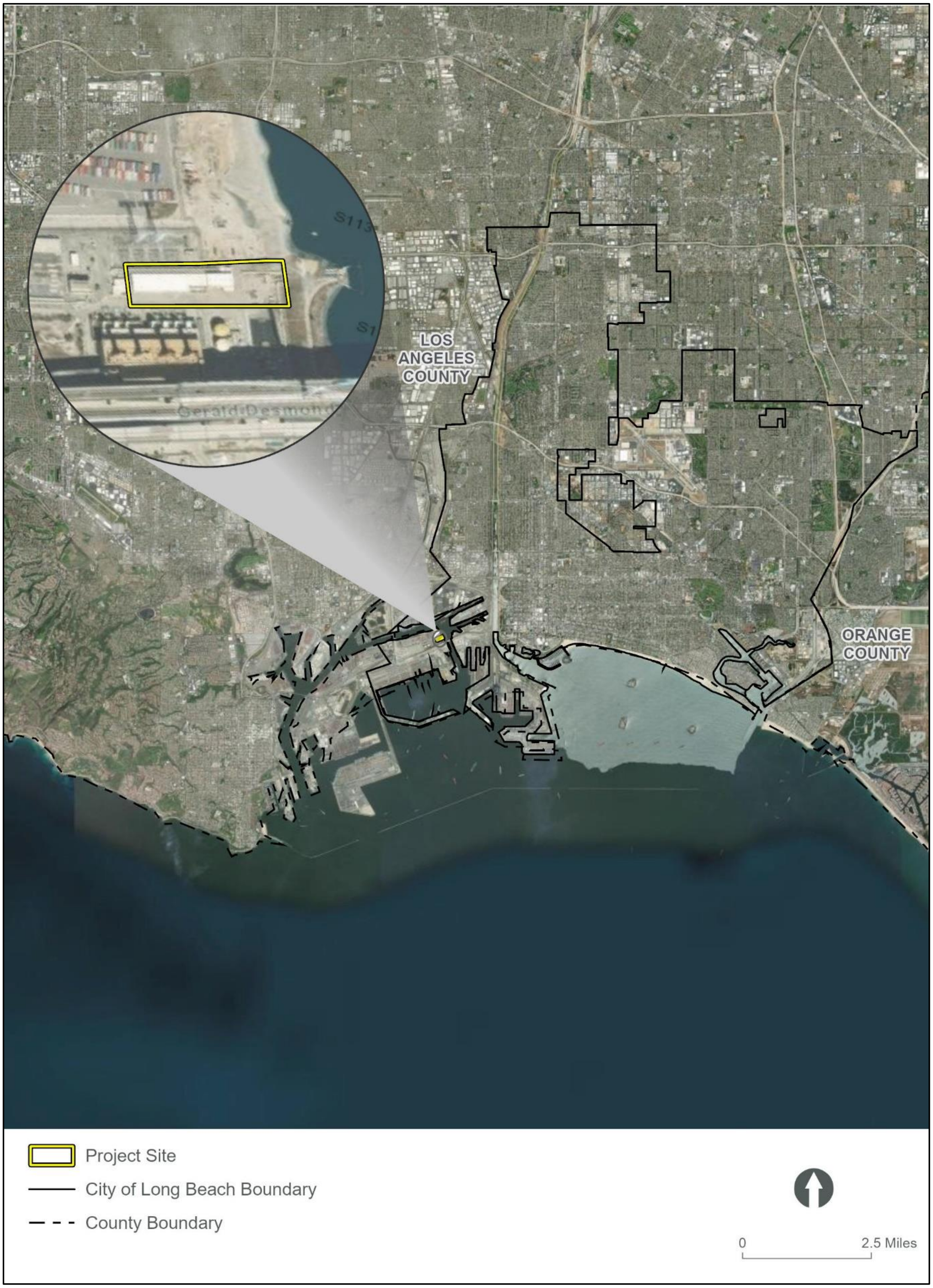
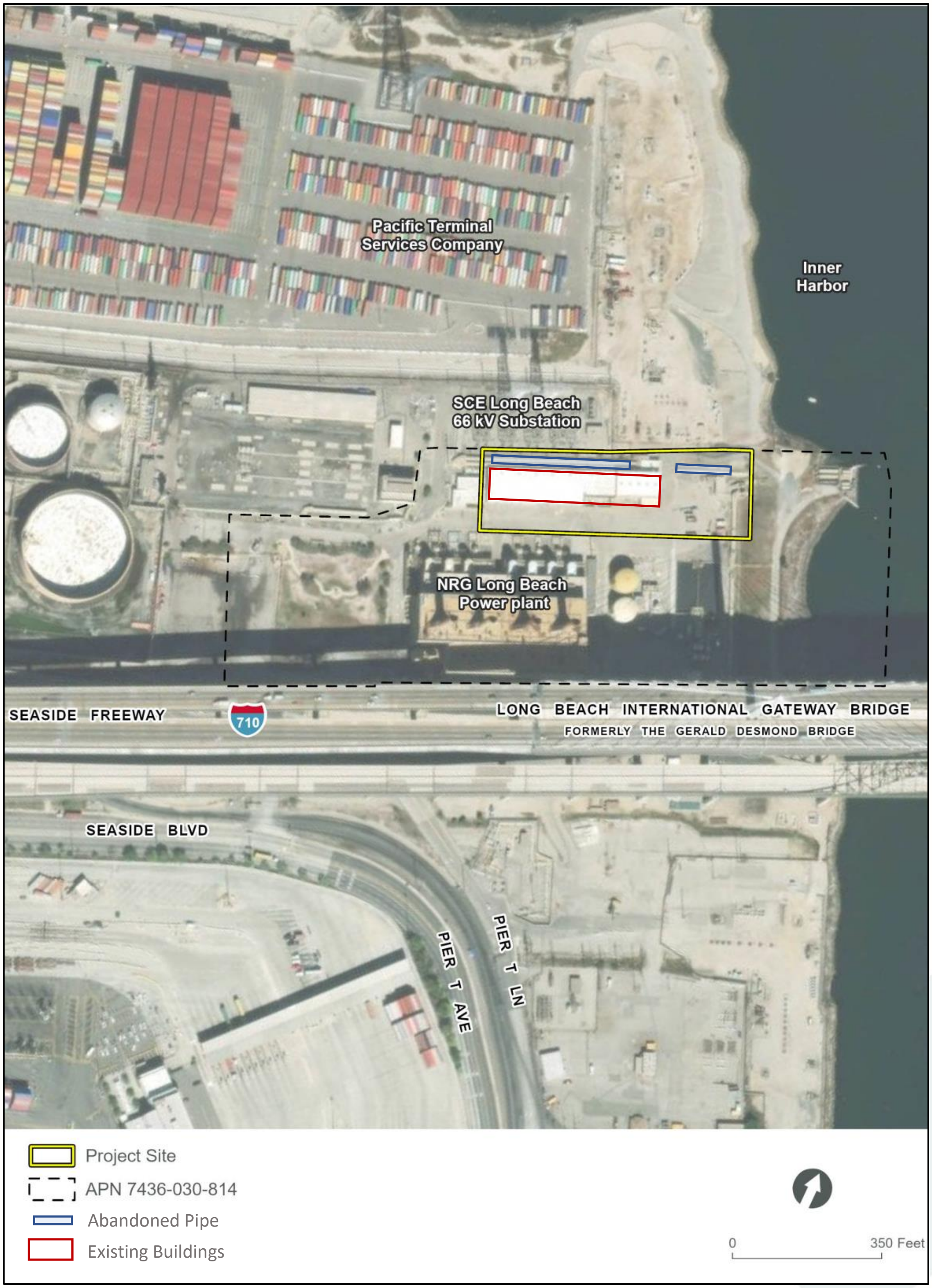


Port of
LONG BEACH
THE GREEN PORT

Figure 2: Project location. 2665 Pier S Lane, Long Beach, California



Port of
LONG BEACH
THE GREEN PORT

June 4, 2024

Joseph Ontiveros, Tribal Historic Preservation Officer
Soboba Band of Luiseno Indians
P.O. Box 487
San Jacinto, CA, 92581

Email: jontiveros@soboba-nsn.gov

Subject: **Pier S Energy Storage LLC Battery Energy Storage System Project, Harbor Development Permit Application No. 23-022**
Tribal Cultural Resources under the California Environmental Quality Act,
AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1

Dear Joseph Ontiveros,

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Project Contact Information and to Request Consultation

Pursuant to California Public Resources Code Section 21080.3, the Soboba Band of Luiseno Indians has 30 days from the receipt of this letter to request in writing, consultation with the Port. Should the Soboba Band of Luiseno Indians request consultation, the Port will begin the consultation process within 30 days of receiving your request.

To request consultation under AB 52 for the proposed Project, please submit your request, in writing to:

Ms. Jennifer Blanchard
Environmental Specialist
Port of Long Beach
Environmental Planning Division
415 W. Ocean Blvd
Long Beach, CA 90802
Email: jennifer.blanchard@polb.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Soboba Band of Luiseno Indiansmay have on the proposed Project.

Very Respectfully,

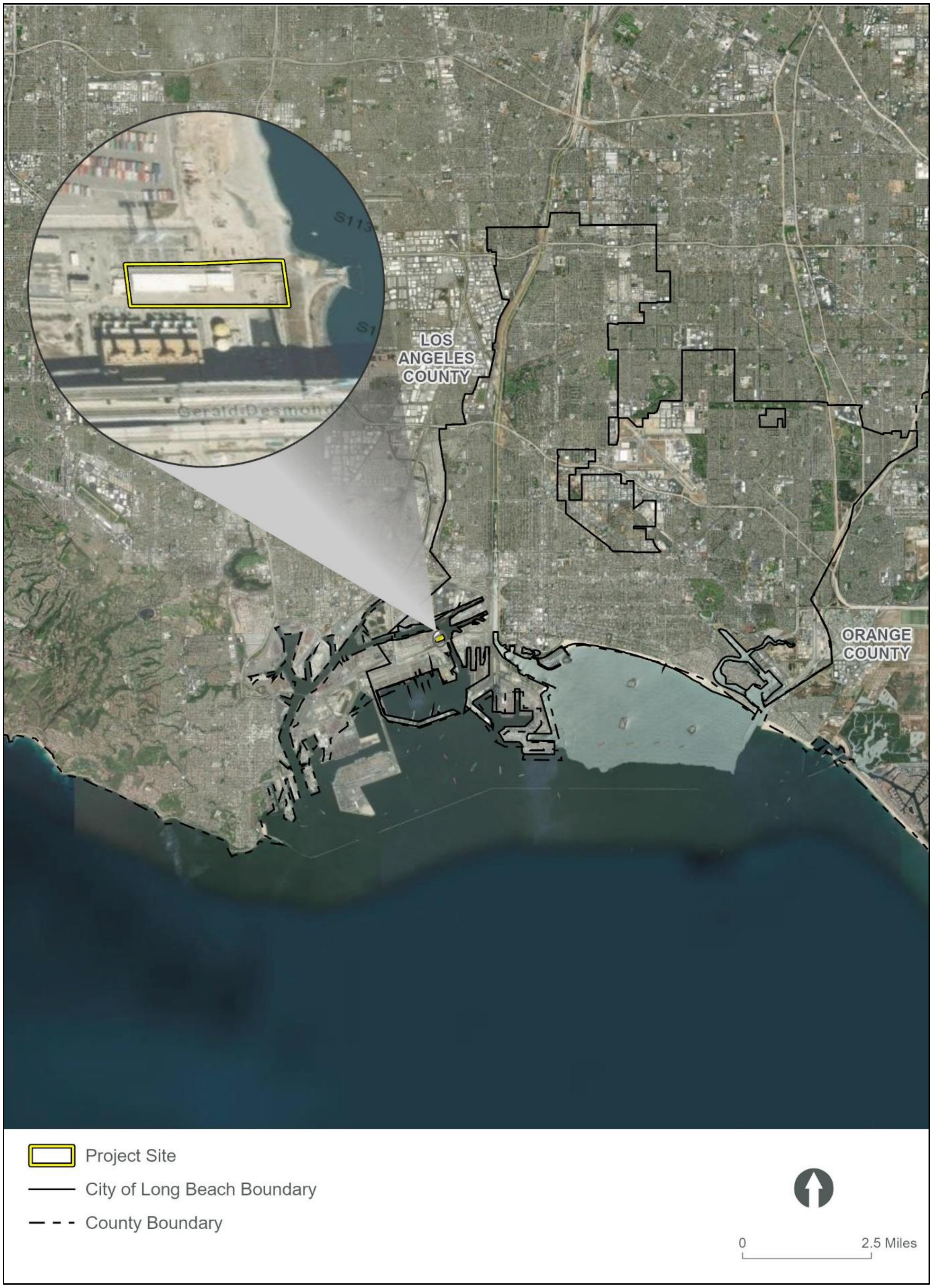
James Vernon
Acting Director of Environmental Planning

Attachments

Figure 1. Regional Vicinity Location
Figure 2. Project Location

Port of
LONG BEACH
THE GREEN PORT

Figure 1: Regional Vicinity Map. 2665 Pier S Lane, Long Beach, California



Port of
LONG BEACH
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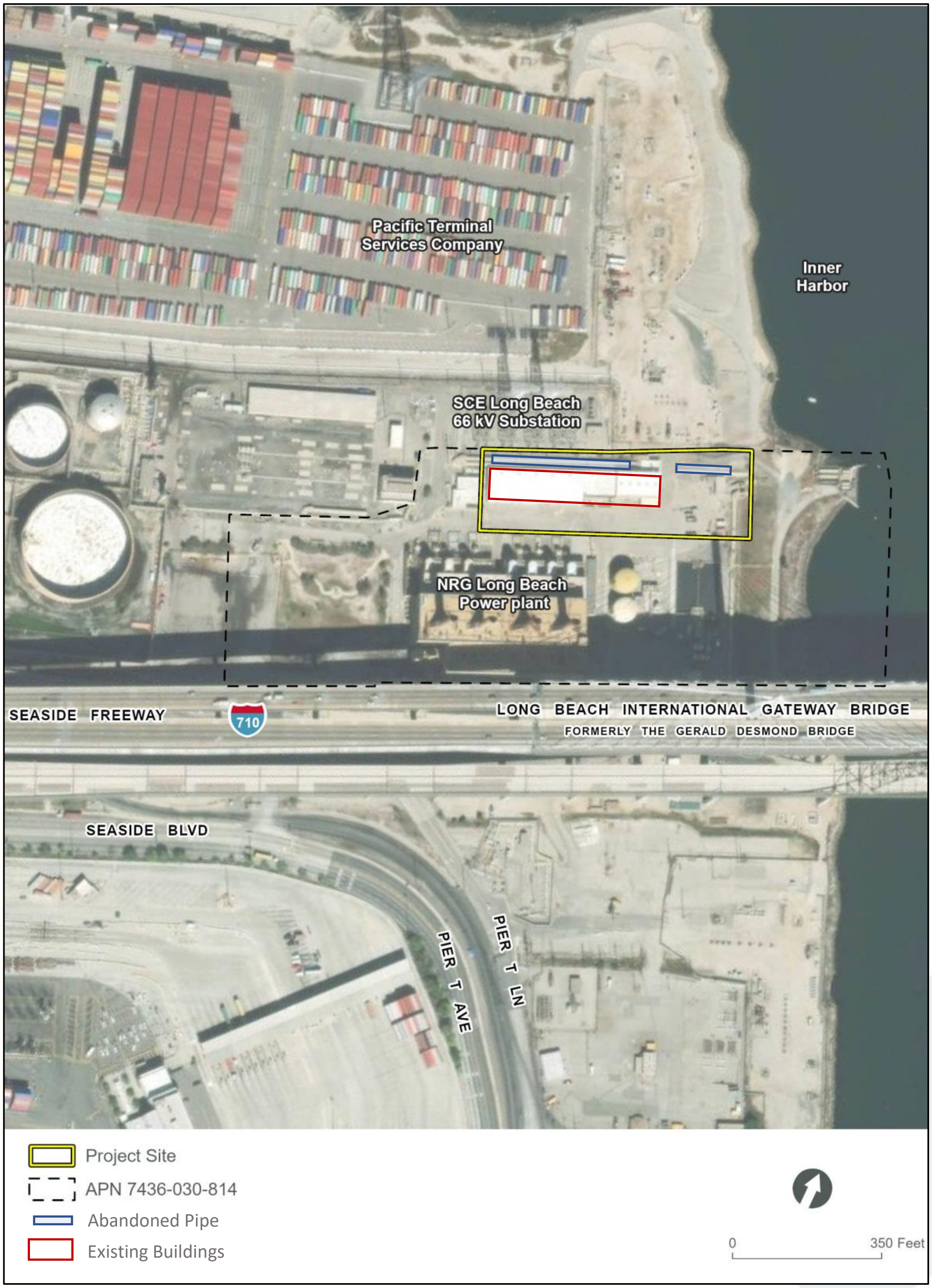
Figure 2: Project location. 2665 Pier S Lane, Long Beach, California



Port of
LONG BEACH
THE GREEN PORT

June 4, 2024

Joyce Perry, Cultural Resource Director
Juaneno Band of Mission Indians Acjachemen Nation - Belardes
4955 Paseo Segovia
Irvine, CA, 92603

Email: kaamalam@gmail.com

Subject: **Pier S Energy Storage LLC Battery Energy Storage System Project, Harbor Development Permit Application No. 23-022**
Tribal Cultural Resources under the California Environmental Quality Act,
AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1

Dear Joyce Perry,

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Project Contact Information and to Request Consultation

Port of
LONG BEACH
THE GREEN PORT

Pursuant to California Public Resources Code Section 21080.3, the Juaneno Band of Mission Indians Acjachemen Nation - Belardes has 30 days from the receipt of this letter to request in writing, consultation with the Port. Should the Juaneno Band of Mission Indians Acjachemen Nation - Belardes request consultation, the Port will begin the consultation process within 30 days of receiving your request.

To request consultation under AB 52 for the proposed Project, please submit your request, in writing to:

Ms. Jennifer Blanchard
Environmental Specialist
Port of Long Beach
Environmental Planning Division
415 W. Ocean Blvd
Long Beach, CA 90802
Email: *jennifer.blanchard@polb.com*

We understand that consultation is a private and ongoing process; we would appreciate any input the Juaneno Band of Mission Indians Acjachemen Nation - Belardesmay have on the proposed Project.

Very Respectfully,

James Vernon
Acting Director of Environmental Planning

Attachments
Figure 1. Regional Vicinity Location
Figure 2. Project Location

Figure 1: Regional Vicinity Map. 2665 Pier S Lane, Long Beach, California

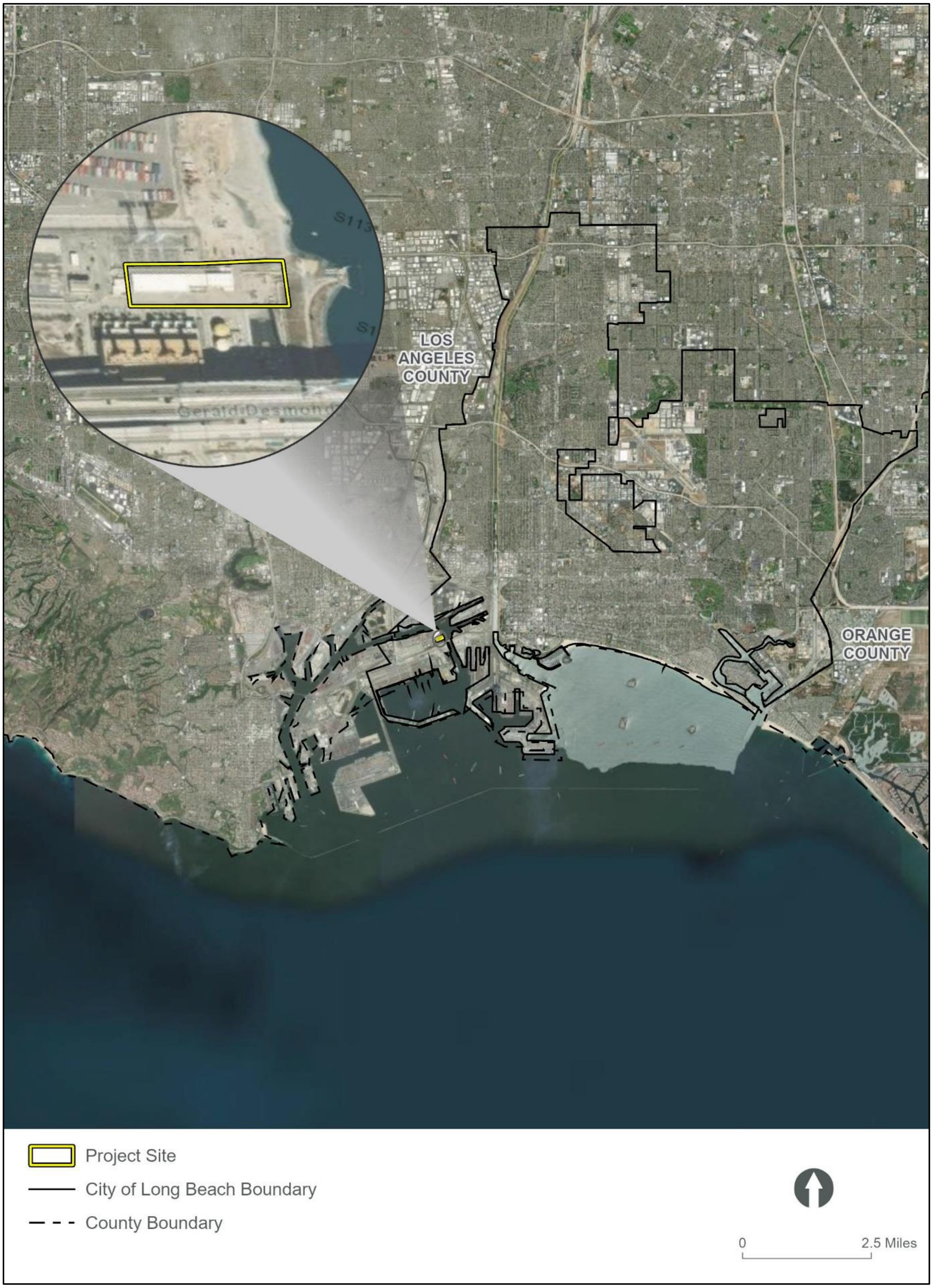
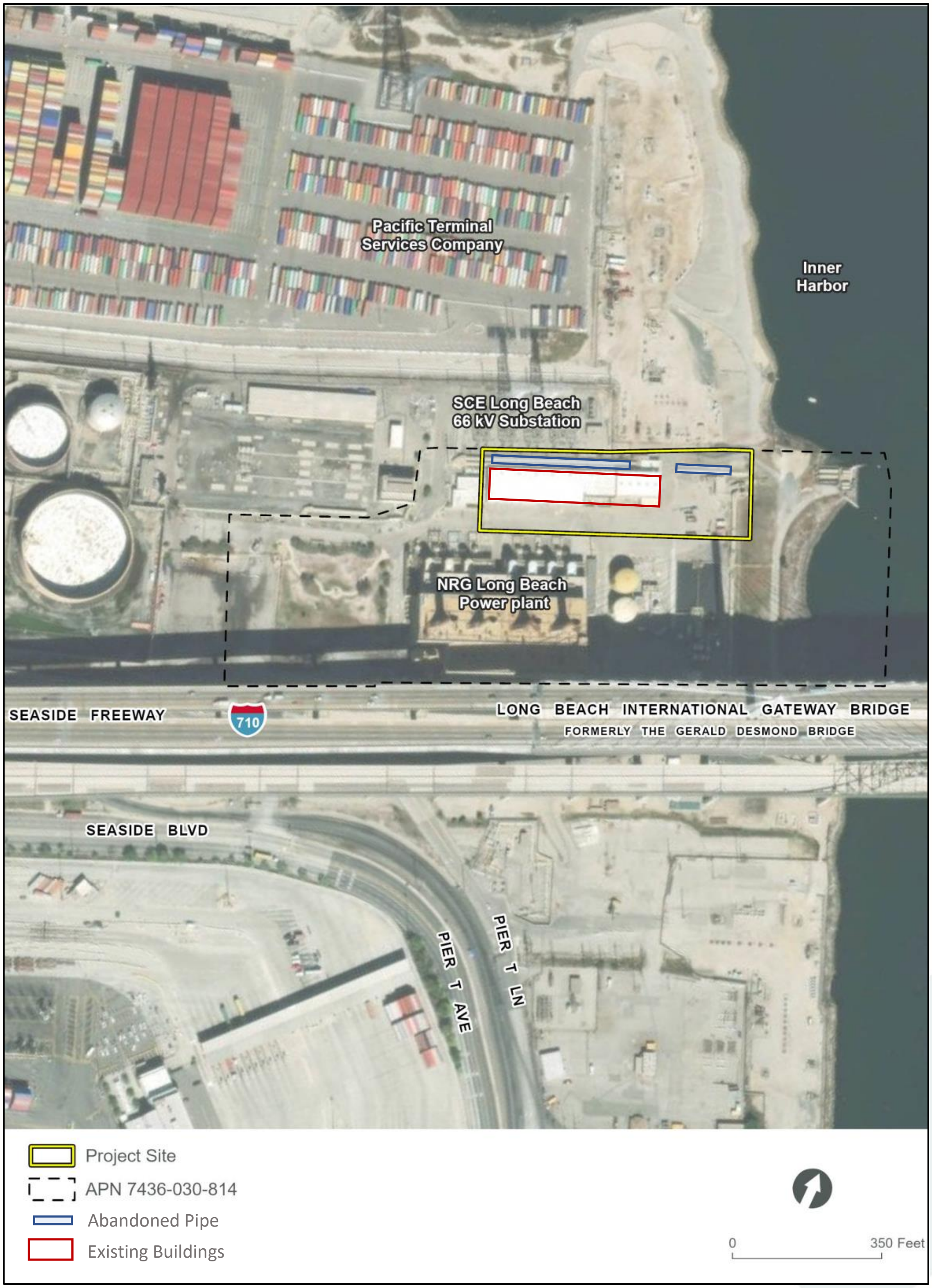


Figure 2: Project location. 2665 Pier S Lane, Long Beach, California



Port of
LONG BEACH
THE GREEN PORT

June 4, 2024

Anthony Morales, Chairperson
Gabrieleno/Tongva San Gabriel Band of Mission Indians
P.O. Box 693
San Gabriel, CA, 91778

Email: GTTribalcouncil@aol.com

Subject: **Pier S Energy Storage LLC Battery Energy Storage System Project, Harbor Development Permit Application No. 23-022**
Tribal Cultural Resources under the California Environmental Quality Act,
AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1

Dear Chairperson Morales,

Pier S Energy Storage LLC (Pier S Energy) has submitted a Harbor Development Permit Application to the Port of Long Beach (Port) for the proposed Pier S Battery Energy Storage System Project (Project). Pursuant to the California Environmental Quality Act Review (CEQA), the Port will serve as the Lead Agency for the environmental review of the proposed Project. Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1(d). Figures showing the proposed Project regional location (Figure 1) and specific Project location (Figure 2) are attached. A Sacred Lands File search requested by the Port through the California Native American Heritage Commission was completed with positive results.

Project Description

The proposed Project, located at 2665 Pier S Lane, in Long Beach, CA, would construct an approximately 70-megawatt battery energy storage system (BESS) on 2.9 acres of an existing privately-owned 18.03-acre power generation site located on Pier S in the Port Terminal Island Planning District. The Project consists of installing up to 100 to 200 individual metal containers containing lithium-ion BESS connected to an existing power pole and an existing Southern California Edison (SCE) Long Beach 66-kilovolt substation. Approximately 400 to 500 feet of electrical conduit would be installed on aboveground cable trays to connect the BESS infrastructure to the existing SCE substation. A new substation and associated infrastructure and equipment would be installed to transform the voltage necessary to tie into the existing SCE substation. The proposed Project would also demolish three buildings and remove sections of abandoned pipes located in the Project site.

Project Contact Information and to Request Consultation

Pursuant to California Public Resources Code Section 21080.3, the Gabrieleno/Tongva San Gabriel Band of Mission Indians has 30 days from the receipt of this letter to request in writing, consultation with the Port. Should the Gabrieleno/Tongva San Gabriel Band of Mission Indians request consultation, the Port will begin the consultation process within 30 days of receiving your request.

To request consultation under AB 52 for the proposed Project, please submit your request, in writing to:

Ms. Jennifer Blanchard
Environmental Specialist
Port of Long Beach
Environmental Planning Division
415 W. Ocean Blvd
Long Beach, CA 90802
Email: jennifer.blanchard@polb.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Gabrieleno/Tongva San Gabriel Band of Mission Indians may have on the proposed Project.

Very Respectfully,

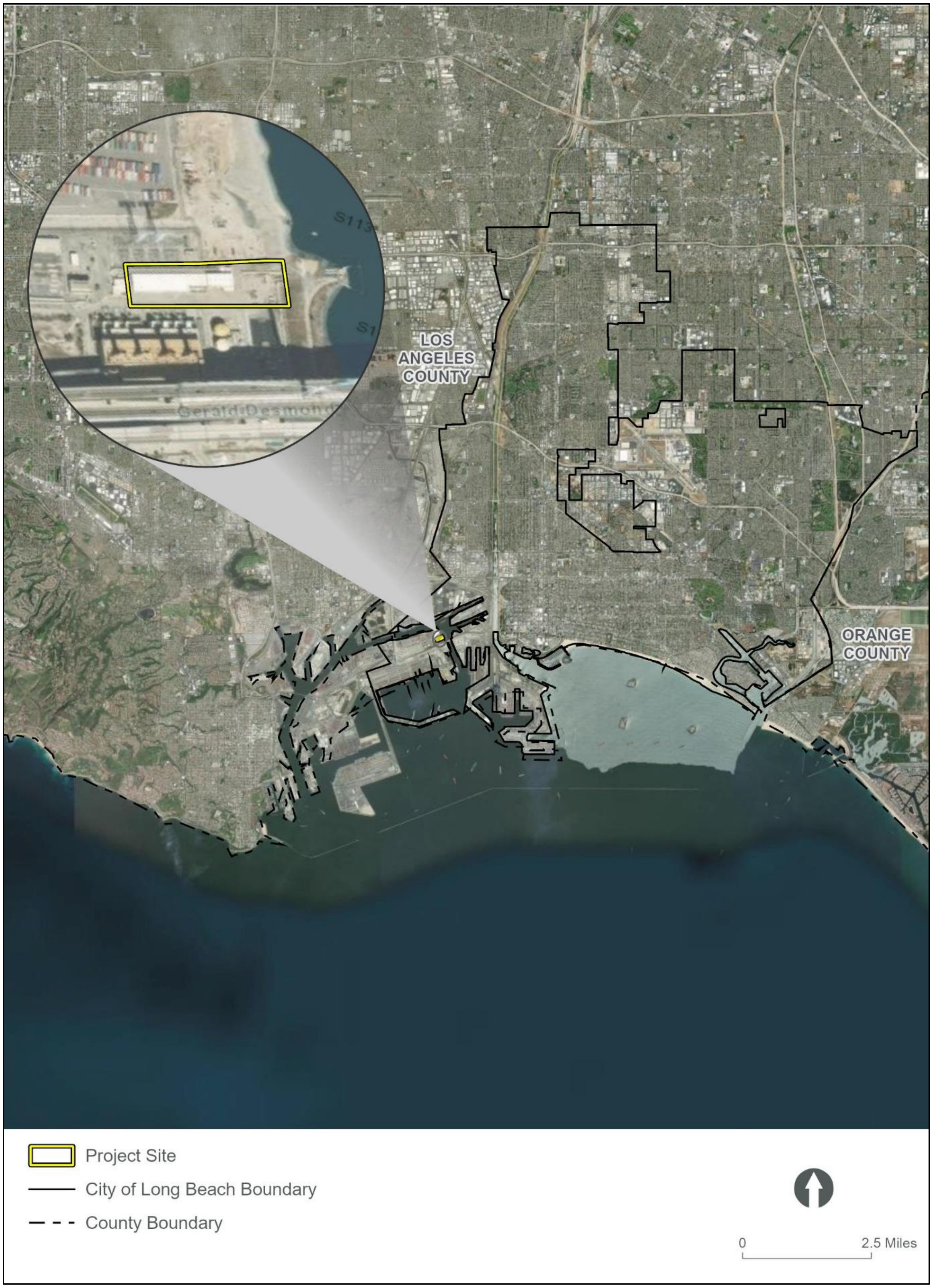
James Vernon
Acting Director of Environmental Planning

Attachments

Figure 1. Regional Vicinity Location
Figure 2. Project Location

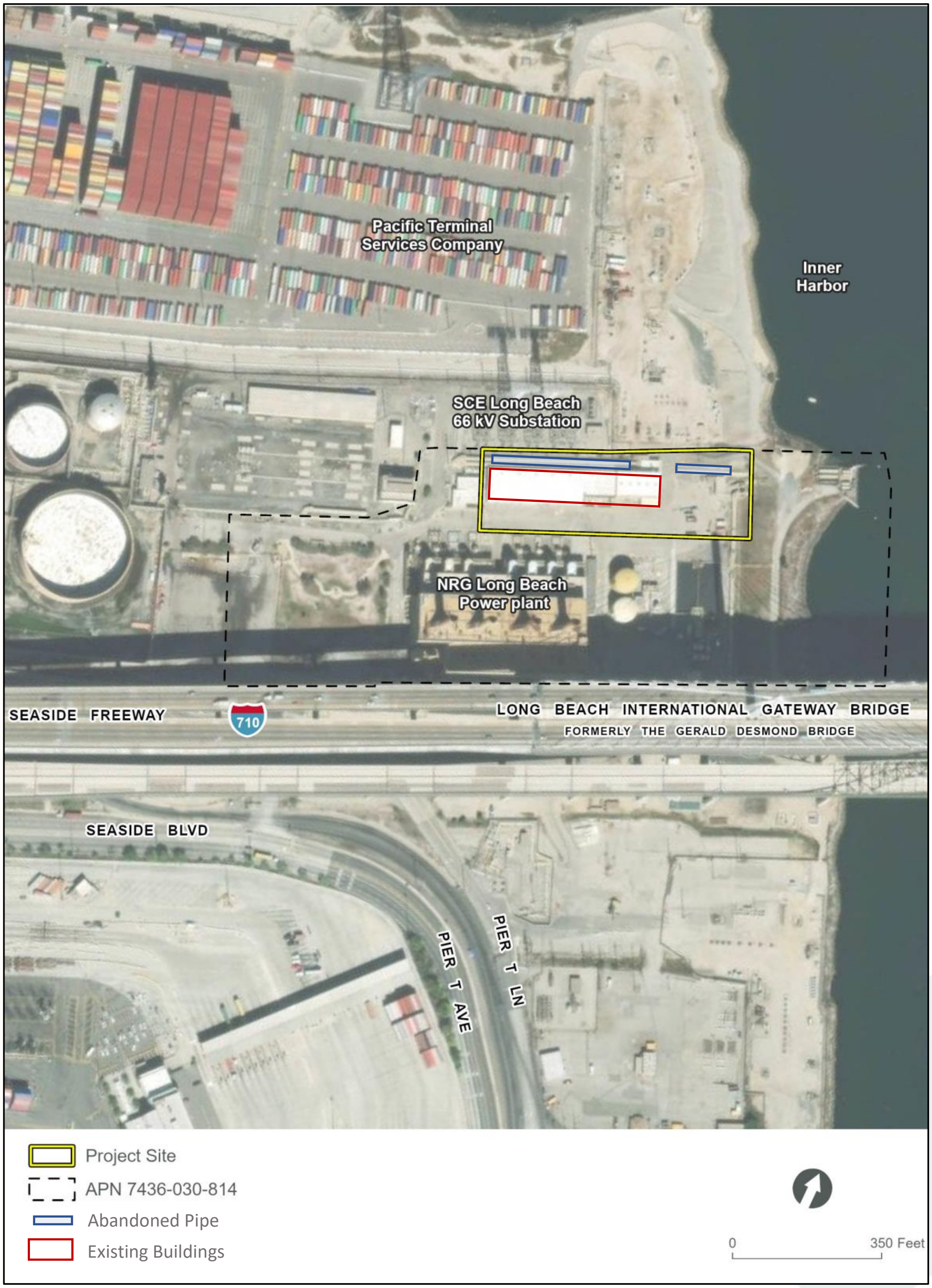
Port of
LONG BEACH
THE GREEN PORT

Figure 1: Regional Vicinity Map. 2665 Pier S Lane, Long Beach, California



Port of LONG BEACH THE GREEN PORT

Figure 2: Project location. 2665 Pier S Lane, Long Beach, California



Port of
LONG BEACH
THE GREEN PORT

June 4, 2024

Lovina Redner, Tribal Chair
Santa Rosa Band of Cahuilla Indians
P.O. Box 391820
Anza, CA, 92539

Email: lsaul@santarosa-nsn.gov

Subject: **Pier S Energy Storage LLC Battery Energy Storage System Project, Harbor Development Permit Application No. 23-022**
Tribal Cultural Resources under the California Environmental Quality Act,
AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1

Dear Tribal Chair Lovina Redner,

Pier S Energy Storage LLC (Pier S Energy) has submitted a Harbor Development Permit Application to the Port of Long Beach (Port) for the proposed Pier S Battery Energy Storage System Project (Project). Pursuant to the California Environmental Quality Act Review (CEQA), the Port will serve as the Lead Agency for the environmental review of the proposed Project. Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1(d). Figures showing the proposed Project regional location (Figure 1) and specific Project location (Figure 2) are attached.

Project Description

The proposed Project, located at 2665 Pier S Lane, in Long Beach, CA, would construct an approximately 70-megawatt battery energy storage system (BESS) on 2.9 acres of an existing privately-owned 18.03-acre power generation site located on Pier S in the Port Terminal Island Planning District. The Project consists of installing up to 100 to 200 individual metal containers containing lithium-ion BESS connected to an existing power pole and an existing Southern California Edison (SCE) Long Beach 66-kilovolt substation. Approximately 400 to 500 feet of electrical conduit would be installed on aboveground cable trays to connect the BESS infrastructure to the existing SCE substation. A new substation and associated infrastructure and equipment would be installed to transform the voltage necessary to tie into the existing SCE substation. The proposed Project would also demolish three buildings and remove sections of abandoned pipes located in the Project site.

Project Contact Information and to Request Consultation

Port of
LONG BEACH
THE GREEN PORT

Pursuant to California Public Resources Code Section 21080.3, the Santa Rosa Band of Cahuilla Indians has 30 days from the receipt of this letter to request in writing, consultation with the Port. Should the Santa Rosa Band of Cahuilla Indians request consultation, the Port will begin the consultation process within 30 days of receiving your request.

To request consultation under AB 52 for the proposed Project, please submit your request, in writing to:

Ms. Jennifer Blanchard
Environmental Specialist
Port of Long Beach
Environmental Planning Division
415 W. Ocean Blvd
Long Beach, CA 90802
Email: jennifer.blanchard@polb.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Santa Rosa Band of Cahuilla Indiansmay have on the proposed Project.

Very Respectfully,

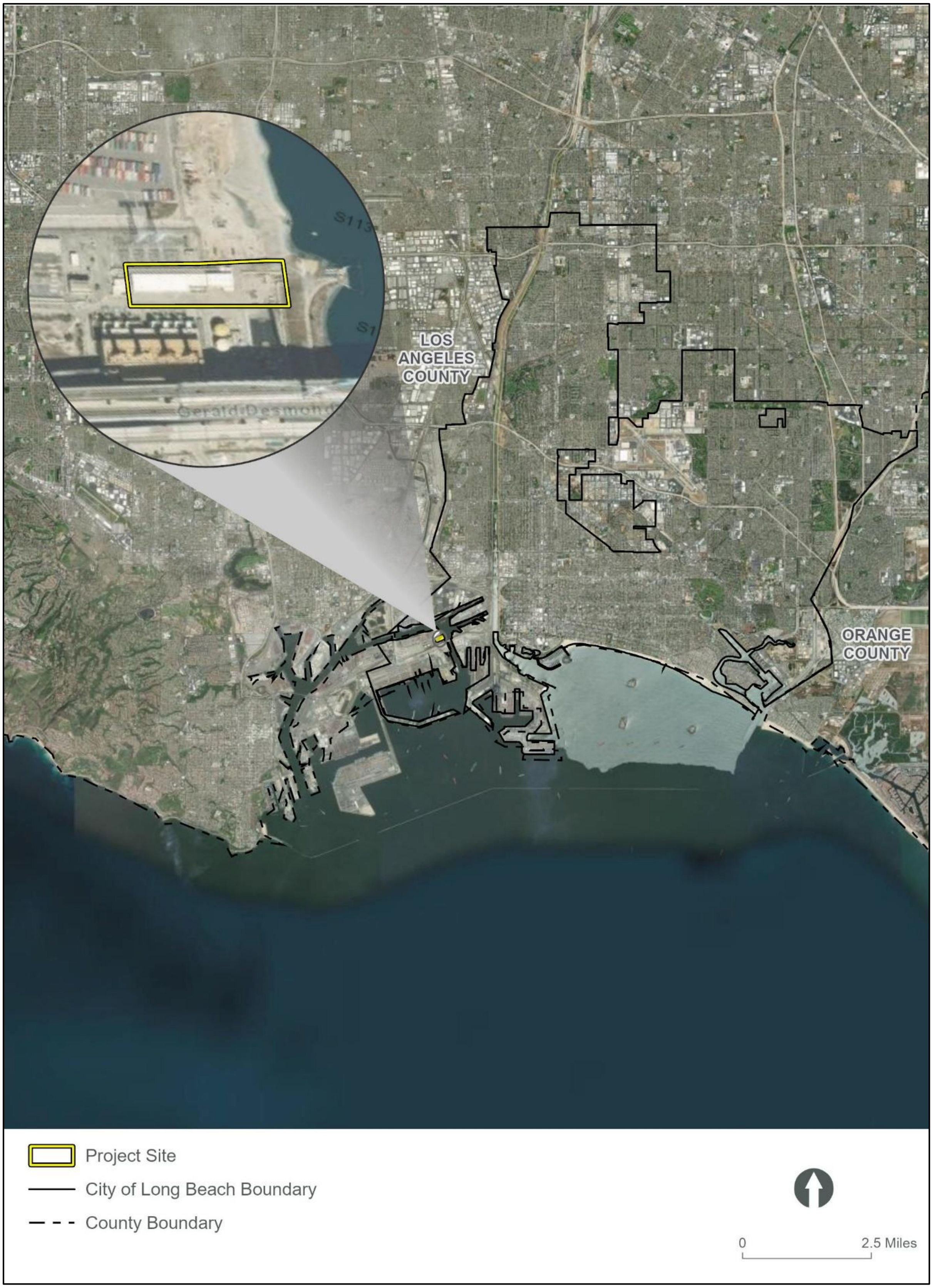
James Vernon
Acting Director of Environmental Planning

Attachments

Figure 1. Regional Vicinity Location
Figure 2. Project Location

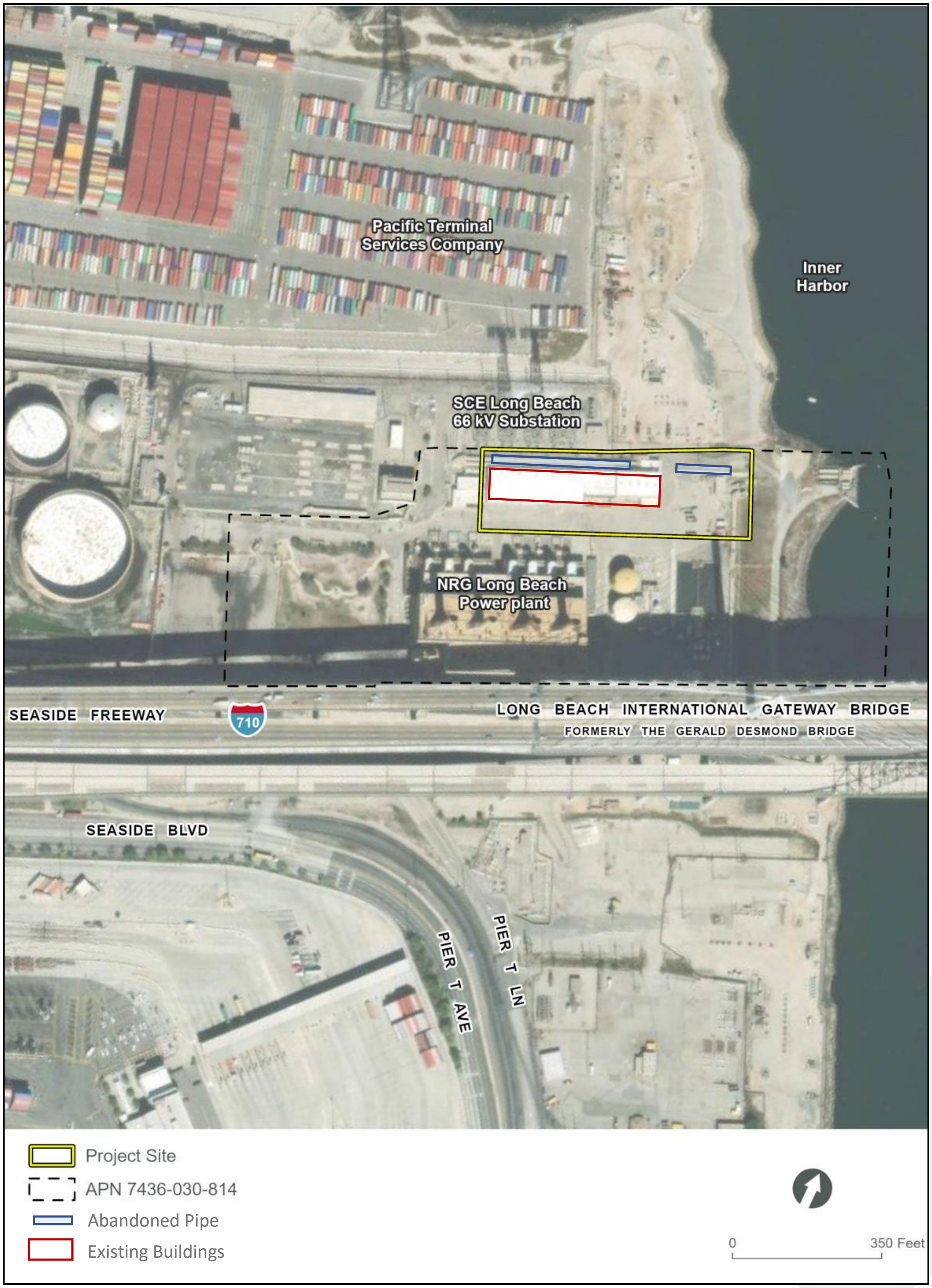
Port of LONG BEACH THE GREEN PORT

Figure 1: Regional Vicinity Map. 2665 Pier S Lane, Long Beach, California



Port of
LONG BEACH
THE GREEN PORT

Figure 2: Project location. 2665 Pier S Lane, Long Beach, California



Port of
LONG BEACH
THE GREEN PORT

June 4, 2024

Andrew Salas, Chairperson
Gabrieleno Band of Mission Indians - Kizh Nation
P.O. Box 393
Covina, CA, 91723

Email: admin@gabrielenoindians.org

Subject: **Pier S Energy Storage LLC Battery Energy Storage System Project, Harbor Development Permit Application No. 23-022**
Tribal Cultural Resources under the California Environmental Quality Act,
AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1

Dear Chairperson Andrew Salas,

Pier S Energy Storage LLC (Pier S Energy) has submitted a Harbor Development Permit Application to the Port of Long Beach (Port) for the proposed Pier S Battery Energy Storage System Project (Project). Pursuant to the California Environmental Quality Act Review (CEQA), the Port will serve as the Lead Agency for the environmental review of the proposed Project. Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1(d). Figures showing the proposed Project regional location (Figure 1) and specific Project location (Figure 2) are attached.

Project Description

The proposed Project, located at 2665 Pier S Lane, in Long Beach, CA, would construct an approximately 70-megawatt battery energy storage system (BESS) on 2.9 acres of an existing privately-owned 18.03-acre power generation site located on Pier S in the Port Terminal Island Planning District. The Project consists of installing up to 100 to 200 individual metal containers containing lithium-ion BESS connected to an existing power pole and an existing Southern California Edison (SCE) Long Beach 66-kilovolt substation. Approximately 400 to 500 feet of electrical conduit would be installed on aboveground cable trays to connect the BESS infrastructure to the existing SCE substation. A new substation and associated infrastructure and equipment would be installed to transform the voltage necessary to tie into the existing SCE substation. The proposed Project would also demolish three buildings and remove sections of abandoned pipes located in the Project site.

Project Contact Information and to Request Consultation

Port of
LONG BEACH
THE GREEN PORT

Pursuant to California Public Resources Code Section 21080.3, the Gabrieleno Band of Mission Indians - Kizh Nation has 30 days from the receipt of this letter to request in writing, consultation with the Port. Should the Gabrieleno Band of Mission Indians - Kizh Nation request consultation, the Port will begin the consultation process within 30 days of receiving your request.

To request consultation under AB 52 for the proposed Project, please submit your request, in writing to:

Ms. Jennifer Blanchard
Environmental Specialist
Port of Long Beach
Environmental Planning Division
415 W. Ocean Blvd
Long Beach, CA 90802
Email: jennifer.blanchard@polb.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Gabrieleno Band of Mission Indians - Kizh Nation may have on the proposed Project.

Very Respectfully,

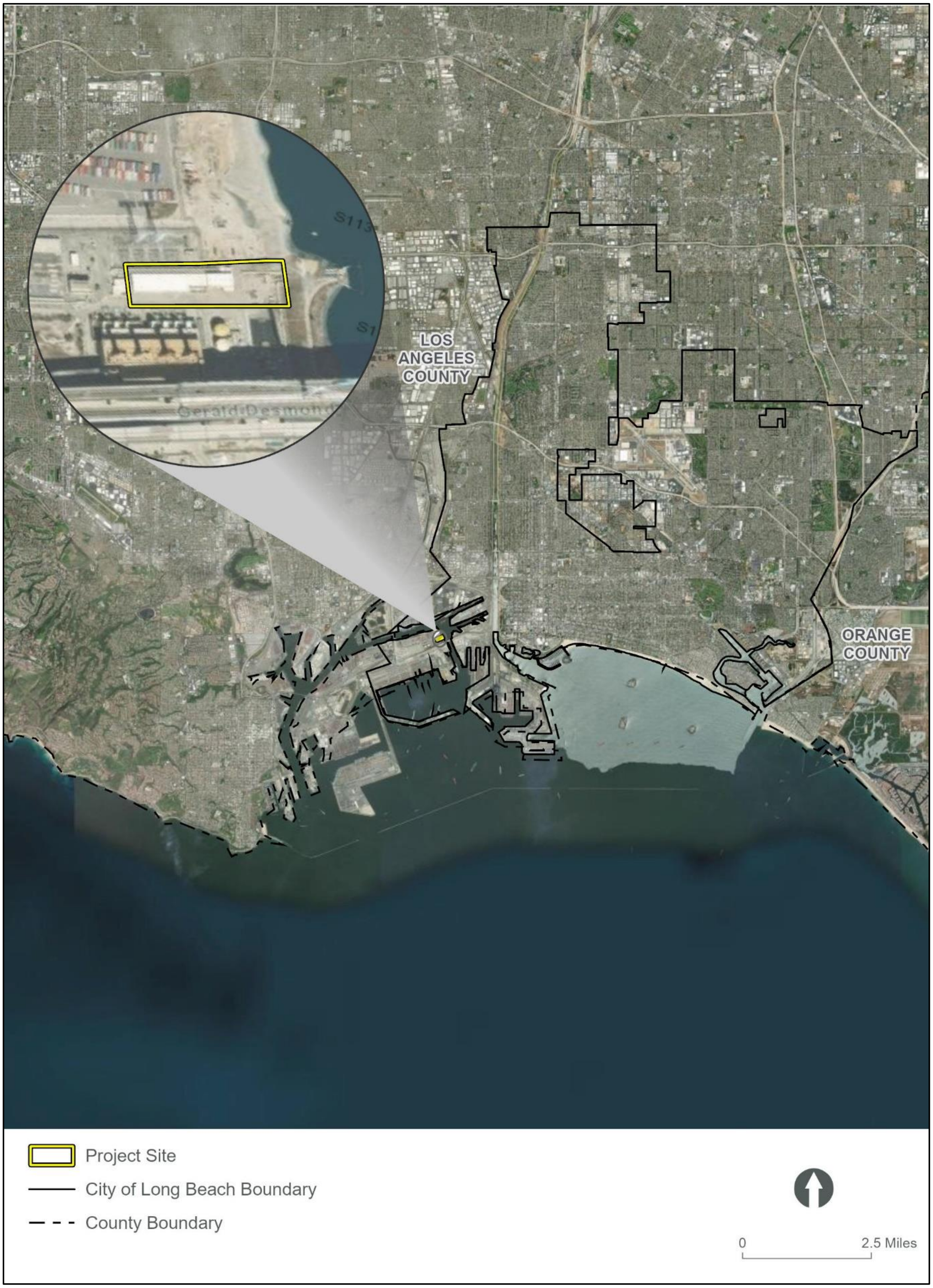
James Vernon
Acting Director of Environmental Planning

Attachments

Figure 1. Regional Vicinity Location
Figure 2. Project Location

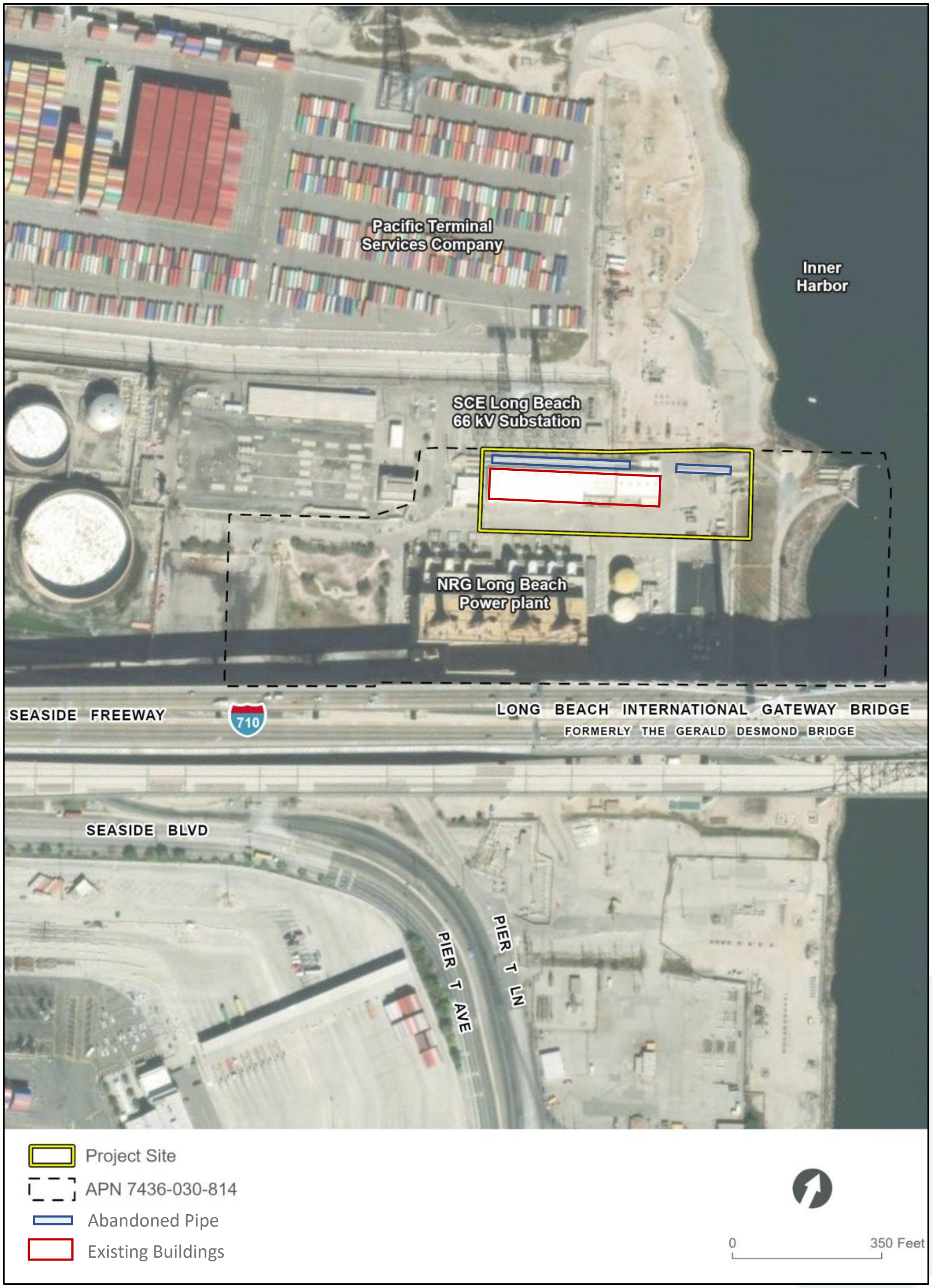
Port of
LONG BEACH
THE GREEN PORT

Figure 1: Regional Vicinity Map. 2665 Pier S Lane, Long Beach, California



Port of
LONG BEACH
THE GREEN PORT

Figure 2: Project location. 2665 Pier S Lane, Long Beach, California



June 4, 2024

Jessica Valdez, Cultural Resource Specialist
Soboba Band of Luiseno Indians
P.O. Box 487
San Jacinto, CA, 92581

Email: jvaldez@soboba-nsn.gov

Subject: **Pier S Energy Storage LLC Battery Energy Storage System Project, Harbor Development Permit Application No. 23-022**
Tribal Cultural Resources under the California Environmental Quality Act,
AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1

Dear Jessica Valdez,

Pier S Energy Storage LLC (Pier S Energy) has submitted a Harbor Development Permit Application to the Port of Long Beach (Port) for the proposed Pier S Battery Energy Storage System Project (Project). Pursuant to the California Environmental Quality Act Review (CEQA), the Port will serve as the Lead Agency for the environmental review of the proposed Project. Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1(d). Figures showing the proposed Project regional location (Figure 1) and specific Project location (Figure 2) are attached.

Project Description

The proposed Project, located at 2665 Pier S Lane, in Long Beach, CA, would construct an approximately 70-megawatt battery energy storage system (BESS) on 2.9 acres of an existing privately-owned 18.03-acre power generation site located on Pier S in the Port Terminal Island Planning District. The Project consists of installing up to 100 to 200 individual metal containers containing lithium-ion BESS connected to an existing power pole and an existing Southern California Edison (SCE) Long Beach 66-kilovolt substation. Approximately 400 to 500 feet of electrical conduit would be installed on aboveground cable trays to connect the BESS infrastructure to the existing SCE substation. A new substation and associated infrastructure and equipment would be installed to transform the voltage necessary to tie into the existing SCE substation. The proposed Project would also demolish three buildings and remove sections of abandoned pipes located in the Project site.

Project Contact Information and to Request Consultation

Pursuant to California Public Resources Code Section 21080.3, the Soboba Band of Luiseno Indians has 30 days from the receipt of this letter to request in writing, consultation with the Port. Should the Soboba Band of Luiseno Indians request consultation, the Port will begin the consultation process within 30 days of receiving your request.

To request consultation under AB 52 for the proposed Project, please submit your request, in writing to:

Ms. Jennifer Blanchard
Environmental Specialist
Port of Long Beach
Environmental Planning Division
415 W. Ocean Blvd
Long Beach, CA 90802
Email: jennifer.blanchard@polb.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Soboba Band of Luiseno Indiansmay have on the proposed Project.

Very Respectfully,

James Vernon
Acting Director of Environmental Planning

Attachments

Figure 1. Regional Vicinity Location
Figure 2. Project Location

Port of
LONG BEACH
THE GREEN PORT

Figure 1: Regional Vicinity Map. 2665 Pier S Lane, Long Beach, California

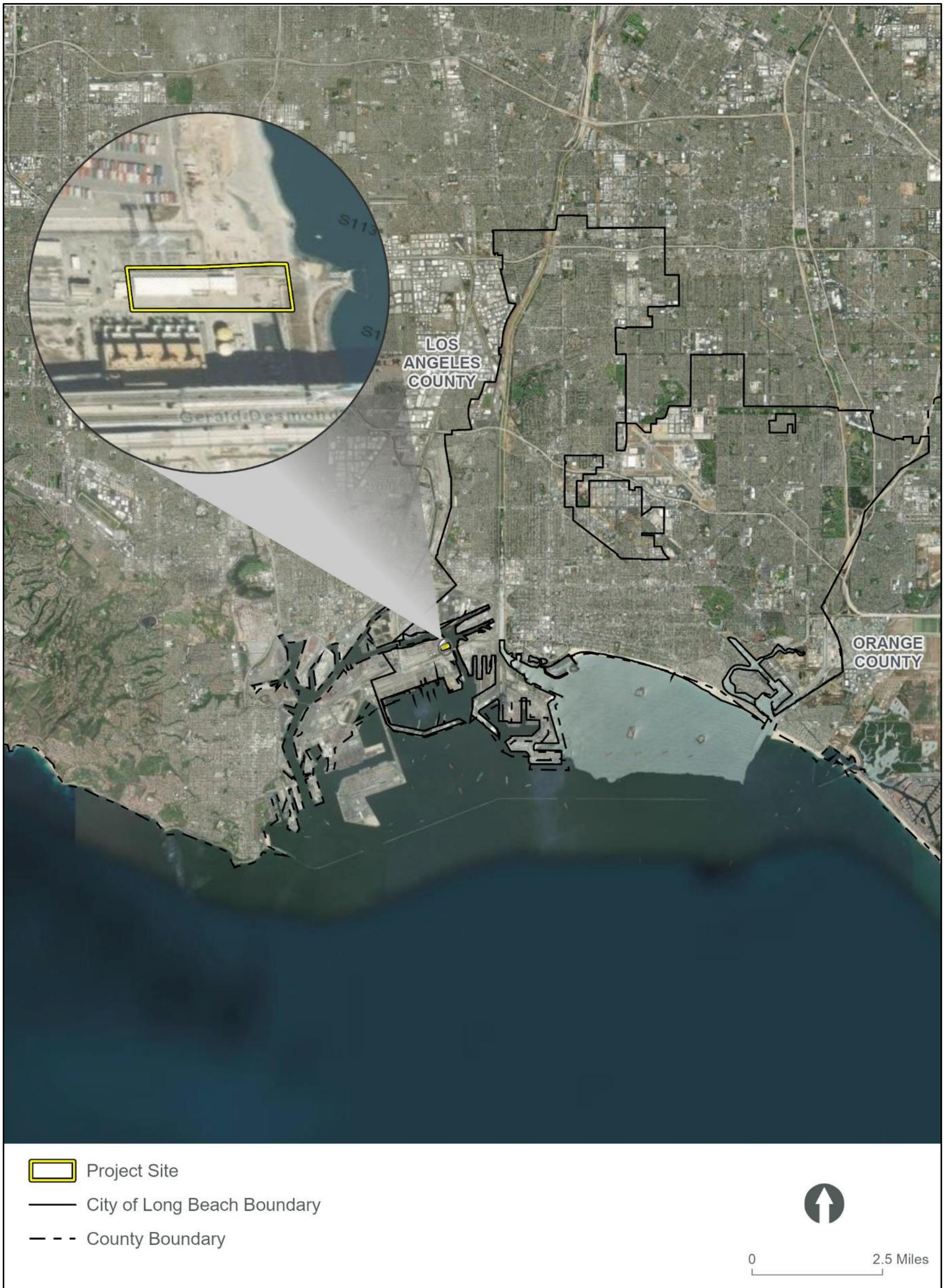
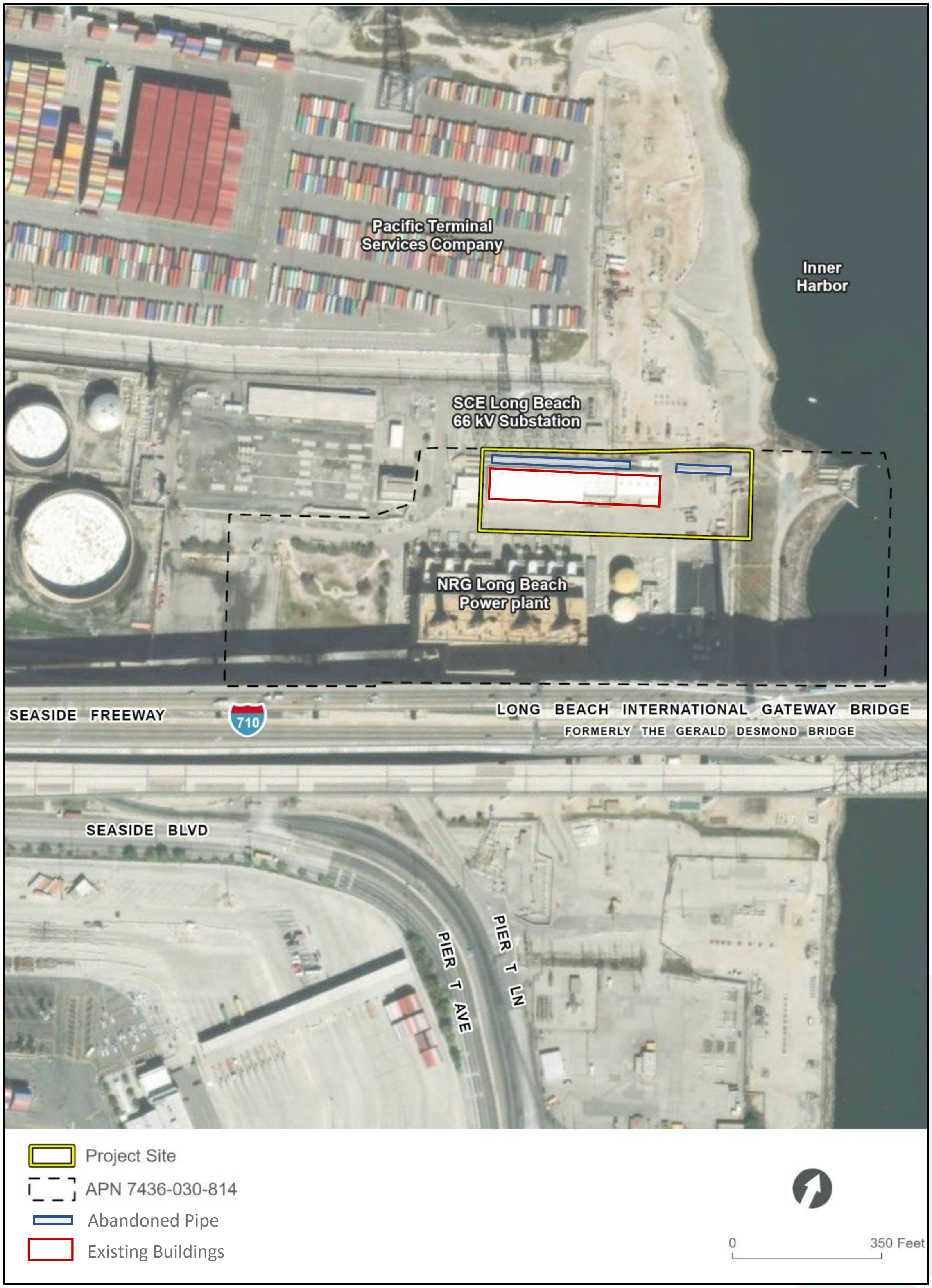


Figure 2: Project location. 2665 Pier S Lane, Long Beach, California



	NAHC-Provided Contact	Coordination Efforts	Results of Coordination Efforts	Notes
1	***Gabrieleno Band of Mission Indians - Kizh Nation*** P.O. Box 393 Covina, CA, 91723 admin@gabrielenoindians.org Contact: Christina Swindall Martinez, Secretary	**6/4/24:** Letter sent via certified U.S. Mail **6/5/24:** Emailed letter.	**6/6/24:** Delivery confirmed.	
2	***Gabrieleno Band of Mission Indians - Kizh Nation*** P.O. Box 393 Covina, CA, 91723 admin@gabrielenoindians.org Contact: Andrew Salas, Chairperson	**6/4/24:** Letter sent via certified U.S. Mail. **6/5/24:** Emailed letter.	**6/5/24:** Email response from NA Tribe with question about type of soil on site – are soils man made? **6/6/24:** Delivery confirmed. **6/6/24:** Response from NA Tribe regarding clarification on documentation of soils on site – are materials from locations well-documented? **6/7/24:** Response back to NA Tribe stating materials consisting of the constructed fill are from locations widely known and well documented. **6/11/24:** Response back to NA Tribe contact stating Project site is located on constructed fill. **6/11/24:** Email response back from NA Tribe with no further concerns noted due to Project site being located on constructed fill.	
3	***Gabrieleno/Tongva San Gabriel Band of Mission Indians*** P.O. Box 693 San Gabriel, CA, 91778 GTTribalcouncil@aol.com Contact: Anthony Morales, Chairperson	**Sacred Lands File positive** **6/4/24:** Letter sent via certified U.S. Mail. **6/5/24:** Emailed letter. **6/25/24:** Sent follow-up email to tribe.	**6/6/24:** Delivery arrived at destination. **6/11/24:** Delivery attempt. Not yet picked up.	
4	***Gabrielino /Tongva Nation*** 106 1/2 Judge John Aiso St., #231 Los Angeles, CA, 90012 sgoad@gabrielino-tongva.com Contact: Sandonne Goad, Chairperson	**6/4/24:** Letter sent via certified U.S. Mail. **6/5/24:** Emailed letter.	**6/6/24:** Delivery confirmed.	
5	***Gabrielino Tongva Indians of California Tribal Council***	**6/4/24:** Letter sent via certified U.S. Mail.	**6/6/24:** Delivery confirmed.	

	P.O. Box 941078 Simi Valley, CA, 93094 christina.marsden@alumni.usc.edu Contact: Christina Conley, Cultural Resource Administrator	**6/5/24:** Emailed letter.		
6	***Gabrielino Tongva Indians of California Tribal Council*** P.O. Box 490 Bellflower, CA, 90707 gtongva@gmail.com Contact: Robert Dorame, Chairperson	**6/4/24:** Letter sent via certified U.S. Mail. **6/5/24:** Emailed letter.	**6/6/24:** Delivery confirmed.	
7	***Gabrielino-Tongva Tribe*** 23454 Vanowen Street West Hills, CA, 91307 Chavez1956metro@gmail.com Contact: Charles Alvarez, Chairperson	**6/4/24:** Letter sent via certified U.S. Mail. **6/5/24:** Emailed letter.	**6/7/24:** Arrived in West Hills. Forwarded to Fresno address. **6/10/24:** Delivery confirmed.	
8	**Gabrielino-Tongva Tribe** P.O. Box 3919 Seal Beach, CA, 90740 tongvatcr@gmail.com Contact: Sam Dunlap, Cultural Resource Director	**6/4/24:** Letter sent via certified U.S. Mail. **6/5/24:** Emailed letter.	**6/13/24:** Delivery confirmed.	
9	***Juaneno Band of Mission Indians Acjachemen Nation - Belardes*** 4955 Paseo Segovia Irvine, CA, 92603 kaamalam@gmail.com Contact: Joyce Perry, Cultural Resource Director	**6/4/24:** Letter sent via certified U.S. Mail. **6/5/24:** Emailed letter.	**6/11/24:** Delivery confirmed.	
10	***Juaneno Band of Mission Indians Acjachemen Nation 84A*** 31411-A La Matanza Street San Juan Capistrano, CA, 92675 jbmian.chairwoman@gmail.com Contact: Heid Lucero, Chairperson THPO	**6/4/24:** Letter sent via certified U.S. Mail. **6/5/24:** Emailed letter.	**6/6/24:** Delivery confirmed.	
11	***Santa Rosa Band of Cahuilla Indians*** P.O. Box 391820	**6/4/24:** Letter sent via certified U.S. Mail. **6/5/24:** Emailed letter.	**6/6/24:** Delivery confirmed.	

	Anza, CA, 92539 lsaul@santarosa-nsn.gov Contact: Lovina Redner, Tribal Chair			
12	***Soboba Band of Luiseno Indians*** P. O. Box 487 San Jacinto, CA, 92581 jvaldez@soboba-nsn.gov Contact: Jessica Valdez, Cultural Resource Specialist	**6/4/24:** Letter sent via certified U.S. Mail. **6/5/24:** Emailed letter.	**6/6/24:** Delivery confirmed.	
13	***Soboba Band of Luiseno Indians*** P.O. BOX 487 San Jacinto, CA, 92581 jontiveros@soboba-nsn.gov Contact: Joseph Ontiveros, Cultural Historic Preservation Officer	**6/4/24:** Letter sent via certified U.S. Mail. **6/5/24:** Emailed letter.	**6/6/24:** Delivery confirmed.	

The proposed Project is subject to compliance with Assembly Bill [AB] 52 (PRC Section 21074), which requires consideration of impacts to tribal cultural resources as part of the CEQA process, and requires the lead agency to notify any California Native American tribes of the Project who are traditionally or culturally affiliated with the geographic area of the Project.

March 20, 2024. The Native American Heritage Commission (NAHC) was contacted on March 20, 2024 to request a CEQA Tribal Consultation List (tribes who have requested notification) and to perform a search of their Sacred Lands File (SLF) for the presence of tribal cultural resources.

April 5, 2024. The NAHC responded on April 5, 2024 stating that the results of the SLF search came back positive for the presence of Native American sacred lands and to contact the Gabrieleno/Tongva San Gabriel Band of Mission Indians for more information. The NAHC also provided a contact list of 13 Native American individuals or tribal organizations that are traditionally and culturally affiliated with the geographic area.

June 4, 2024. In compliance with AB 52, on June 4, 2024 certified letters were sent to the NAHC-listed Native American contacts requesting information regarding any known Native American cultural resources within or immediately adjacent to the Project area and providing each tribe an opportunity to request consultation with the POLB within 30 days from the date of receipt.

June 5, 2024. On June 5, 2024, the letters were emailed to all tribes.

June 11, 2024. As of June 11, 2024, the certified letter sent to the Gabrieleno/Tongva San Gabriel Band of Mission Indians has not been picked up from the Post Office and remains undelivered.

June 25, 2024. On June 25, 2024, a second email with letter attached was sent to the Gabrieleno/Tongva San Gabriel Band of Mission Indians.

From: Gabrieleno Administration
To: Blanchard, Jennifer
Subject: Re: AB 52 Notification for the Proposed Pier S Energy Storage System Project
Date: Tuesday, June 11, 2024 4:17:32 PM

Hello Jennifer

Thank you for your email. Since the soil is man made we do not have any concerns.

Admin Specialist
Gabrieleno Band of Mission Indians - Kizh Nation
PO Box 393
Covina, CA 91723
Office: 844-390-0787
website: www.gabrielenoindians.org

The region where Gabrieleño culture thrived for more than eight centuries encompassed most of Los Angeles County, more than half of Orange County and portions of Riverside and San Bernardino counties. It was the labor of the Gabrieleño who built the missions, ranchos and the pueblos of Los Angeles. They were trained in the trades, and they did the construction and maintenance, as well as the farming and managing of herds of livestock. "The Gabrieleño are the ones who did all this work, and they really are the foundation of the early economy of the Los Angeles area ". "That's a contribution that Los Angeles has not recognized--the fact that in its early decades, without the Gabrieleño, the community simply would not have survived."

On Tue, Jun 11, 2024 at 3:55 PM Blanchard, Jennifer <jennifer.blanchard@polb.com> wrote:

> Good afternoon,
>
> Yes, you are correct. The Project site is situated on constructed fill.
>
> ***Jennifer Blanchard***
>
> Environmental Specialist
>
> Environmental Planning Division
>
> Port of Long Beach

Mobile (562) 743-6297

Office Direct (562) 283-7107

HDP Desk (562) 283-7102

415 W. Ocean Blvd, Long Beach, CA 90802

Jennifer.blanchard@polb.com

www.polb.com/hdp

Port of LONG BEACH THE GREEN PORT

From: Gabrieleno Administration <admin@gabrielenoindians.org>
Sent: Wednesday, June 5, 2024 10:53 AM
To: Blanchard, Jennifer <jennifer.blanchard@polb.com>
Subject: Re: AB 52 Notification for the Proposed Pier S Energy Storage System Project

Hello Jennifer

Thank you for your email. Are the soils man made?

Admin Specialist
Gabrieleno Band of Mission Indians - Kizh Nation
PO Box 393
Covina, CA 91723

Office: 844-390-0787

website: www.gabrielenoindians.org

The region where Gabrieleño culture thrived for more than eight centuries encompassed most of Los Angeles County, more than half of Orange County and portions of Riverside and San Bernardino counties. It was the labor of the Gabrieleño who built the missions, ranchos and the pueblos of Los Angeles. They were trained in the trades, and they did the construction and maintenance, as well as the farming and managing of herds of livestock. "The Gabrieleño are the ones who did all this work, and they really are the foundation of the early economy of the Los Angeles area ". "That's a contribution that Los Angeles has not recognized--the fact that in its early decades, without the Gabrieleño, the community simply would not have survived."

On Wed, Jun 5, 2024 at 9:30 AM Blanchard, Jennifer <jennifer.blanchard@polb.com> wrote:

> Dear Chairperson Salas,
>
> As the Lead Agency under the California Environmental Quality Act (CEQA), the City of Long Beach Harbor Department (Port of Long Beach) has decided to undertake the Pier S Battery Energy Storage System Project (proposed Project). Attached please find a formal project notification letter with a description of the proposed Project pursuant to Public Resources Code Section 21080.3.1 (d). A hard copy of the attached letter was sent to you via USPS certified mail on Tuesday, June 4, 2024.
>
> Should the Gabrieleno Band of Mission Indians - Kizh Nation request consultation, the Port will begin the consultation process within 30 days of receiving your request. We appreciate any input you may have on the Project and understand that consultation is a private and ongoing process.
>
> Very respectfully,
>
> ***Jennifer Blanchard***
>
> Environmental Specialist

Environmental Planning Division

Port of Long Beach

Mobile (562) 743-6297

Office Direct (562) 283-7107

HDP Desk (562) 283-7102

415 W. Ocean Blvd, Long Beach, CA 90802

Jennifer.blanchard@polb.com

www.polb.com/hdp

Port of LONG BEACH THE GREEN PORT

CONFIDENTIALITY NOTE: This email message and its attachments contain work product or other information which is privileged, confidential and/or protected from disclosure. This information is intended only for the use of the individual or entity named above. If you think that you have received this message in error, please email or phone the sender. If you are not the intended recipient, any dissemination, distribution or copying is strictly prohibited.

From:	Blanchard, Jennifer
To:	"GTTribalcouncil@aol.com"
Subject:	RE: AB 52 Notification for the Proposed Pier S Energy Storage System Project
Date:	Tuesday, June 25, 2024 8:25:00 AM
Attachments:	20240604_AB52 Tribal Consultation Letter_Positive Hit_Morales.pdf

Good morning Chairperson Morales,

I sent the attached AB 52 notification letter certified mail to the mailing address provided by the NAHC but as of 6/11/24 its status shows that it has not yet been picked up. Out of an abundance of caution, I am sending you this follow-up email with the attached AB 52 notification letter originally emailed to you on 6/5/24.

Please let me know if you have any questions.

Respectfully,

Jennifer Blanchard
Environmental Specialist
Environmental Planning Division
Port of Long Beach
Mobile (562) 743-6297
Office Direct (562) 283-7107
HDP Desk (562) 283-7102
415 W. Ocean Blvd, Long Beach, CA 90802
Jennifer.blanchard@polb.com
www.polb.com/hdp

Port of LONG BEACH THE GREEN PORT

From: Blanchard, Jennifer
Sent: Wednesday, June 5, 2024 9:34 AM
To: GTTribalcouncil@aol.com
Subject: AB 52 Notification for the Proposed Pier S Energy Storage System Project

Dear Chairperson Morales,

As the Lead Agency under the California Environmental Quality Act (CEQA), the City of Long Beach Harbor Department (Port of Long Beach) has decided to undertake the Pier S Battery Energy Storage System Project (proposed Project). Attached please find a formal project notification letter with a description of the proposed Project pursuant to Public Resources Code Section 21080.3.1 (d). A Sacred Lands File search requested by the Port through the California Native American Heritage Commission was completed with positive results. A hard copy of the attached letter was sent to you via USPS certified mail on Tuesday, June 4, 2024.

Should the Gabrieleno/Tongva San Gabriel Band of Mission Indians request consultation, the Port will begin the consultation process within 30 days of receiving your request. We appreciate any input you may have on the Project and understand that consultation is a private and ongoing process.

Very respectfully,

Jennifer Blanchard
Environmental Specialist
Environmental Planning Division
Port of Long Beach
Mobile (562) 743-6297
Office Direct (562) 283-7107
HDP Desk (562) 283-7102
415 W. Ocean Blvd, Long Beach, CA 90802
Jennifer.blanchard@polb.com
www.polb.com/hdp

From:	Blanchard, Jennifer
To:	"Gabrieleno Administration"
Cc:	Matthew Teutimez
Subject:	RE: Pier S. Energy Storage LLC Battery Storage System project Harbor Development Long Beach
Date:	Wednesday, August 7, 2024 12:51:00 PM

Good afternoon,

If im understanding your question correctly, you are asking if the materials used to fill this area are well-documented. Yes, the materials used to fill the project area are from locations widely known and well documented. The Project is located on Terminal Island, which was built in the early 1900s by placement of sediment from fill dredged from adjacent channels. There have been many exploratory borings in the project site that indicate that the fill depth could be on the order of 50 feet or more.

Jennifer Blanchard
Environmental Specialist
Environmental Planning Division
Port of Long Beach
Mobile (562) 743-6297
Office Direct (562) 283-7107
HDP Desk (562) 283-7102
415 W. Ocean Blvd, Long Beach, CA 90802
Jennifer.blanchard@polb.com
www.polb.com/hdp

Port of LONG BEACH THE GREEN PORT

From: Gabrieleno Administration <admin@gabrielenoindians.org>
Sent: Tuesday, August 6, 2024 9:06 AM
To: Blanchard, Jennifer <jennifer.blanchard@polb.com>
Cc: Matthew Teutimez <Matthew.Teutimez@gabrielenoindians.org>
Subject: Re: Pier S. Energy Storage LLC Battery Storage System project Harbor Development Long Beach

Good morning, Jennifer,
Thank you for your response. Just to clarify, are we discussing materials from locations that are not well-documented or widely known correct ?

Admin Specialist
Gabrieleno Band of Mission Indians - Kizh Nation

PO Box 393
Covina, CA 91723
Office: 844-390-0787
website: www.gabrielenoindians.org

The region where Gabrieleño culture thrived for more than eight centuries encompassed most of Los Angeles County, more than half of Orange County and portions of Riverside and San Bernardino counties. It was the labor of the Gabrieleño who built the missions, ranchos and the pueblos of Los Angeles. They were trained in the trades, and they did the construction and maintenance, as well as the farming and managing of herds of livestock. "The Gabrieleño are the ones who did all this work, and they really are the foundation of the early economy of the Los Angeles area " . "That's a contribution that Los Angeles has not recognized--the fact that in its early decades, without the Gabrieleño, the community simply would not have survived."

On Tue, Jul 23, 2024 at 12:30 PM Gabrieleno Administration <admin@gabrielenoindians.org> wrote:

> Good afternoon Ms. Jennifer Blanchard
>
> Thank you for your letter regarding the above project. Is the soil man made for this project?
>
> Thank you
>
> Brandy Salas
> Admin Specialist
> Gabrieleno Band of Mission Indians - Kizh Nation
> PO Box 393
> Covina, CA 91723
> Office: 844-390-0787
> website: www.gabrielenoindians.org
>
> *The region where Gabrieleño culture thrived for more than eight centuries encompassed most of Los Angeles County, more than half of Orange County and portions of Riverside and San Bernardino counties. It was the labor of the Gabrieleño who built the missions, ranchos and the pueblos of Los Angeles. They were trained in the trades, and they did the construction and maintenance, as well as the farming and managing of herds of livestock. "The Gabrieleño are the ones who did all this work, and they really are the foundation of the early economy of the Los Angeles area " . "That's a contribution that Los Angeles has not recognized--the fact that in*

> *its early decades, without the Gabrieleño, the community simply would not have survived."*

From: Gabrieleno Administration <admin@gabrielenoindians.org>
Sent: Wednesday, August 28, 2024 9:39 PM
To: Blanchard, Jennifer <jennifer.blanchard@polb.com>
Subject: Re: Pier S. Energy Storage LLC Battery Storage System project Harbor Development Long Beach

Hello Jennifer

Excellent this is the information we needed. We do not have any further concerns we thank you for your time.

Thank you

Brandy Salas

Admin Specialist
Gabrieleno Band of Mission Indians - Kizh Nation
PO Box 393
Covina, CA 91723
Office: 844-390-0787
website: www.gabrielenoindians.org

The region where Gabrieleño culture thrived for more than eight centuries encompassed most of Los Angeles County, more than half of Orange County and portions of Riverside and San Bernardino counties. It was the labor of the Gabrieleño who built the missions, ranchos and the pueblos of Los Angeles. They were trained in the trades, and they did the construction and maintenance, as well as the farming and managing of herds of livestock. "The Gabrieleño are the ones who did all this work, and they really are the foundation of the early economy of the Los Angeles area " . "That's a contribution that Los Angeles has not recognized--the fact that in its early decades, without the Gabrieleño, the community simply would not have survived."

On Wed, Aug 28, 2024 at 3:43 PM Blanchard, Jennifer <jennifer.blanchard@polb.com> wrote:

> Good afternoon,
>
> Sorry for causing any confusion. Terminal Island was built in the early 1900s by placement of sediment from fill dredged from adjacent channels. The Project site is located on the eastern edge of Terminal Island at 2665 West Seaside Blvd. The Project site is situated on constructed fill (engineered fill). Below is a link to the site's 2024 Department of Toxic Substances Control (DTSC) RCRA Work Plan - the document is too large to attach to an email.
>
> https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=60001193&doc_id=60381175.

- **Page 22 of the PDF** provides the background on the geology at the site, copied below for convenience:
- **Page 265 of the PDF:** (note the documented statement of "silt dredge spoils" – documented in the 1997 Phase II ESA for the LBGS)

4.0 PROJECT BACKGROUND

4.1 Location

The Site is located on the eastern edge of Terminal Island at 2665 West Seaside Boulevard, Long Beach, California (Figure 1). As shown in Figure 2, the Site is bounded to the east by the Back Channel, to the north and west by switchyards and a tank farm (associated with LBGS Parcel 2), and to the south by the Long Beach International Gateway Bridge (Interstate 710).

4.2 Topography

The Site is generally flat with a ground surface elevation of approximately 15 to 20 feet below msl. Earthen dikes and a groundwater dewatering system are used to help prevent flooding at the Facility (Woodward-Clyde, 1998). The dike can be observed along the eastern margin of the Site and manifests as an approximately 30-foot-high berm (Figure 3). An entrance road with a guard station is located near the western portion of the Site.

4.3 Geology and Hydrogeology

The Site is situated on the Los Angeles Coastal Plain, one mile west of the mouth of the Los Angeles River. The Site is located on Terminal Island, which was built over marshlands in the early 1900s by placement of fill dredged from the adjacent channels (Dames & Moore, 1985).

Geological investigations conducted between 1941 and 1975 indicate that there are three zones of sediments beneath the Site. The upper zone of sediments consists of the locally derived dredge fill which was placed over native marshland deposits to create Terminal Island. This upper material is approximately 20 feet thick and consists of loose to medium dense sand and silty sand, gray to tan in color with a fine grain size. Localized layers of soft to stiff clay exist within the upper layer (Komex, 2005).

Dredge fill material overlays natural estuarine sediment deposits (the second zone of sediments) formed from the confluence of the Los Angeles and San Gabriel Rivers. The estuarine deposits are approximately 30 feet thick beneath the eastern portion of the Site. This layer is composed of interbedded layers of loose to dense silty sand with silt and clay deposits. The sand is gray and is fine grained and is overlaid with a thin silt or clay layer interpreted to be the top of the marsh deposits that were deposited prior to the dredge material (Komex, 2005).

The third and final zone is located below an elevation of 64 feet below msl and is classified as very dense silty sand with layers of very stiff silt and clay (Komex, 2005).

Jennifer Blanchard

Environmental Specialist

Environmental Planning Division

Port of Long Beach

Mobile (562) 743-6297

Office Direct (562) 283-7107

HDP Desk (562) 283-7102

415 W. Ocean Blvd, Long Beach, CA 90802

Jennifer.blanchard@polb.com

www.polb.com/hdp

From: Gabrieleno Administration <admin@gabrielenoindians.org>
Sent: Tuesday, August 27, 2024 10:34 PM
To: Blanchard, Jennifer <jennifer.blanchard@polb.com>
Subject: Re: Pier S. Energy Storage LLC Battery Storage System project Harbor Development Long Beach

Hello Jennifer

Thank you for your recent email. To clarify our position, we are seeking documented history regarding the soils you have referred to as "fill material." Could you please confirm whether the 1900 fill material you mentioned has documentation indicating that it consists of engineered materials? Alternatively, are you using the term "fill" to describe native soils that were disturbed and subsequently relocated from one location to another? If this soil is indeed dredged soils from the 1900s, please provide the relevant documentation. If such information is available, we would be open to working together on language to implement protective measures, especially considering the significance of the port and our Indigenous ancestry. We appreciate your prompt attention to this matter and look forward to your clarification.

Sincerely,

Brandy Salas

Admin Specialist
Gabrieleno Band of Mission Indians - Kizh Nation
PO Box 393
Covina, CA 91723

Office: 844-390-0787

website: www.gabrielenoindians.org

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Appendix B. CALEEMOD Modeling Results

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CalEEMod Input

Project Name:	POLB BESS
Project Location:	South Coast AQMD
CEC Climate Zone:	13
Land Use Setting:	Rural
Operational Year:	2026
Utility Company	Long Beach P&G

Land Use

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	SF
Industrial	Industrial Park	1.6	Acres	1.6	69,696.00
Parking Lot		0.4	Acre	0.4	17,424.00

Construction Schedule

Construction Phase Name	Phase Type	Start Date	End Date	# Days/Week	# one-way worker trips/d	# one-way vendor trips/day	# Total haul trips	Worker Trip Length	Vendor Trip Length	Haul Trip Length
Site Mobilization	Site Preparation	4/15/2025	5/1/2025	5	40	2	0	18.5	10	
Demo/Relocate	Demolition	5/2/2025	7/1/2025	5	40	2	2	18.5	10	60
Civil	Grading	7/2/2025	9/1/2025	5	80	2	68	18.5	10	60
Foundations	Trenching	9/2/2025	11/4/2025	5	120	3	3	18.5	60	
Install Batteries	Building Construction	11/5/2025	2/2/2026	5	120	2	200	18.5	365	
Commissioning	Building Construction	2/3/2026	4/1/2026	5	60	2	0	18.5	10	
Paving	Paving	2/3/2026	4/1/2026	5	20	2	36	18.5	10	20
Completion	Site Preparation	4/2/2026	6/1/2026	5	20	2	0	18.5	10	

Notes:

5	# of days per week. No weekend work.
Varies	daily construction workers

Trip lengths for worker are CalEEMod defaults
Paving phase not included in applicant data needs. Phase was assumed to account for internal paved road. Default trips used.
One water truck and one delivery truck assumed in each phase. VMT of 10 miles assumed based on default
2 max daily trucks for battery installation and debris haul (civil). 3 max daily concrete trucks (foundation).

List of Construction Equipment							
5.2. Off-Road Equipment							
5.2.1 Unmitigated							
Phase Name	Equipment Type	Fuel Type	Engine Tier	#/day	Hrs/day	Hp	Load Factor
Demolition/Relocations	Tractors/Loaders/Backhoes	Diesel	Average	1	8	84	0.37
Demolition/Relocations	Rubber Tired Dozers	Diesel	Average	1	8	367	0.4
Demolition/Relocations	Concrete/Industrial Saws	Diesel	Average	1	8	33	0.73
Demolition/Relocations	Forklifts	Diesel	Average	4	8	82	0.2
Demolition/Relocations	Excavator	Diesel	Average	1	8	36	0.38
Site Mobilization	Tractors/Loaders/Backhoes	Diesel	Average	1	8	84	0.37
Site Mobilization	Graders	Diesel	Average	1	8	148	0.41
Site Mobilization	Forklifts	Diesel	Average	3	8	82	0.2
Site Mobilization	Rubber Tired Dozers	Diesel	Average	1	7	367	0.4
Completion	Graders	Diesel	Average	1	8	148	0.41
Completion	Forklifts	Diesel	Average	3	8	82	0.2
Completion	Rubber Tired Dozers	Diesel	Average	1	7	367	0.4
Civil	Scrapers	Diesel	Average	1	8	148	0.41
Civil	Tractors/Loaders/Backhoes	Diesel	Average	1	8	84	0.37
Civil	Forklifts	Diesel	Average	3	8	82	0.2
Install Batteries	Cranes	Diesel	Average	1	8	367	0.29
Install Batteries	Forklifts	Diesel	Average	3	8	82	0.2
Install Batteries	Generator Sets	Diesel	Average	1	8	14	0.74
Install Batteries	Welders	Diesel	Average	3	8	46	0.45
Commissioning	Forklifts	Diesel	Average	3	8	82	0.2
Commissioning	Generator Sets	Diesel	Average	1	8	14	0.74
Commissioning	Welders	Diesel	Average	3	8	46	0.45
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1	8	84	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	1	6	10	0.56
Paving	Pavers	Diesel	Average	1	6	81	0.42
Paving	Rollers	Diesel	Average	1	7	36	0.38
Paving	Forklifts	Diesel	Average	3	8	82	0.2
Paving	Paving Equipment	Diesel	Average	1	8	89	0.36
Foundations	Forklifts	Diesel	Average	3	8	82	0.2
Foundations	Cement and Mortar Mixers	Diesel	Average	1	8	10	0.56
Foundations	Pumps	Diesel	Average	1	8	11	0.74

Paving phase included and default equipment included. Added Excavator and one additional forklift in Demo phase per applicant.

Phase	Quantity (cy)	Truck Capacity (cy)	No. of Trucks	Phase Length	Maximum Daily Total Trucks	
Demolition	463	10	**46.3**	43	**2**	12,500 cf provided by Applicant. Convert to CY. Assumed 10 cy trucks
Civil (soil)	30,000	20	**1500**	44	**68**	Provided by Applicant, 20k import, 10k export.
Debris Haul			**25**		**2**	Provided by Applicant. Include in Demolition phase.

Foundation (concrete)		
Total Trucks	Max Daily Trucks	
45	**3**	Provided by Applicant. Max of 3 trucks per day

Included as haul due to vehicle class.

Paving (asphalt)		
Length	400	feet
width	24	feet
depth	0.5	feet
Total	4,800.00	ft^3
	178	cy
Truck Capacity	10	cy
Total Trucks	**18**	
Max daily	**3**	**Trucks**

Estimated using Figure 2-3 and Google Earth and applicant email

Paving included as hauling

Internal cut/fill of 20,000 cy is balanced on site.

Estimated Maximum Daily Regional Construction Emissions - Unmitigated
(pounds per day)

Emission Source	VOC	NOx	CO	SO_2	PM10	PM2.5
Site Mobilization (2025)	1.78	14.61	19.26	0.02	3.66	1.92
Demolition/Relocations (2025)	1.90	16.13	20.49	0.03	2.01	0.88
Civil (2025)	1.28	18.16	18.16	0.10	5.67	1.80
Foundations (2025)	1.07	4.61	15.89	0.01	1.93	0.58
Install Batteries (2025)	1.90	13.46	19.96	0.04	2.70	0.98
Install Batteries (2026)	1.76	12.83	19.32	0.04	2.65	0.94
Commissioning (2026)	1.50	7.11	14.15	0.01	1.04	0.40
Paving (2026)	0.85	8.93	12.03	0.03	1.24	0.54
Completion (2026)	1.46	12.20	14.80	0.02	3.29	1.76
Overlapping Phase						
Paving (2026) + Commissioning (2026)	2.35	16.03	26.19	0.04	2.28	0.94
Total Project	**2.35**	**18.16**	**26.19**	**0.10**	**5.67**	**1.92**
SCAQMD Threshold	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
Exceed Threshold	**No**	**No**	**No**	**No**	**No**	**No**

Note: Emissions in the Install Battery phases conservatively assume 365 miles, however the distance to the end of the air district boundary is

Estimated Maximum Daily Regional Operational Emissions - Unmitigated
(pounds per day)

Source	VOC	NOx	CO	SO_2	PM10	PM2.5
Mobile	1.90	1.83	19.21	0.04	3.51	0.91
Area	0.77	0.00	0.00	0.00	0.00	0.00
Energy	0.01	0.22	0.18	0.00	0.02	0.02
Stationary	2.60	0.25	6.78	0.00	0.01	0.01
Total Project	**5.28**	**2.30**	**26.18**	**0.04**	**3.54**	**0.94**
SCAQMD Threshold	**55.00**	**55.00**	**550.00**	**150.00**	**150.00**	**55.00**
Exceed Threshold	**No**	**No**	**No**	**No**	**No**	**No**
Note: Totals may not add up due to rounding.						

Annual Construction Greenhouse Gas Emissions

Year/Description	CO_2e (Metric Tons per Year)
2025	593
2026	236
Total Project	829
Amortized over 30 Years	28
Total Project	**28**
Note: Totals may not add up due to rounding.	

Annual Project Greenhouse Gas Emissions

Emission Source	CO_2e (Metric Tons per Year)
Mobile	635
Area	0
Energy	181
Water	53
Waste	32
Stationary	2
Construction	28
Total Project	**930**
SCAQMD Threshold	**10,000**
Exceed Threshold	**No**

POLB BESS Custom Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	POLB BESS
Construction Start Date	4/15/2025
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.30
Precipitation (days)	18.4
Location	33.76528350357255, -118.22473386930369
County	Los Angeles-Mojave Desert
City	Long Beach
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4619
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Long Beach Gas & Oil
App Version	2022.1.1.26

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Industrial Park	82.8	1000sqft	1.90	32,000	0.00	—	—	—

Other Asphalt Surfaces	4.80	1000sqft	0.10	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.70	2.35	18.2	26.2	0.10	0.68	5.18	5.67	0.63	1.33	1.92	—	15,755	15,755	0.16	2.15	34.8	16,432
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.66	2.28	16.2	23.8	0.04	0.55	2.25	2.70	0.50	0.56	0.98	—	6,122	6,122	0.17	0.46	0.32	6,262
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.90	0.77	6.81	8.89	0.02	0.23	1.35	1.58	0.22	0.35	0.57	—	3,475	3,475	0.07	0.35	3.10	3,583
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.16	0.14	1.24	1.62	< 0.005	0.04	0.25	0.29	0.04	0.06	0.10	—	575	575	0.01	0.06	0.51	593

2.2. Construction Emissions by Year, Unmitigated

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

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

Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.24	1.90	18.2	20.5	0.10	0.68	5.18	5.67	0.63	1.33	1.92	—	15,755	15,755	0.13	2.15	34.8	16,432
2026	2.70	2.35	16.0	26.2	0.04	0.57	2.72	3.29	0.52	1.24	1.76	—	6,215	6,215	0.16	0.44	9.61	6,359
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.21	1.90	13.5	20.0	0.04	0.45	2.25	2.70	0.42	0.56	0.98	—	6,122	6,122	0.17	0.46	0.32	6,262
2026	2.66	2.28	16.2	23.8	0.04	0.55	2.25	2.65	0.50	0.56	0.94	—	6,091	6,091	0.16	0.44	0.30	6,226
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.90	0.77	6.81	8.89	0.02	0.23	1.35	1.58	0.22	0.35	0.57	—	3,475	3,475	0.07	0.35	3.10	3,583
2026	0.65	0.55	4.14	5.81	0.01	0.16	0.66	0.82	0.14	0.23	0.38	—	1,397	1,397	0.04	0.08	0.87	1,424
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.16	0.14	1.24	1.62	< 0.005	0.04	0.25	0.29	0.04	0.06	0.10	—	575	575	0.01	0.06	0.51	593
2026	0.12	0.10	0.76	1.06	< 0.005	0.03	0.12	0.15	0.03	0.04	0.07	—	231	231	0.01	0.01	0.14	236

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.40	5.28	2.30	26.2	0.04	0.06	3.48	3.54	0.06	0.88	0.94	92.0	5,460	5,552	9.87	0.26	24.2	5,902
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.20	5.08	2.46	21.7	0.04	0.06	3.48	3.54	0.06	0.88	0.94	92.0	5,107	5,199	9.88	0.27	8.74	5,535
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	2.71	2.66	2.28	16.6	0.04	0.05	3.44	3.49	0.04	0.87	0.92	92.0	5,033	5,125	9.56	0.27	15.2	5,461
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.49	0.49	0.42	3.03	0.01	0.01	0.63	0.64	0.01	0.16	0.17	15.2	833	849	1.58	0.05	2.51	904

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.07	1.90	1.83	19.2	0.04	0.03	3.48	3.51	0.03	0.88	0.91	—	4,042	4,042	0.15	0.17	15.9	4,111
Area	0.77	0.77	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.02	0.01	0.22	0.18	< 0.005	0.02	—	0.02	0.02	—	0.02	—	1,091	1,091	0.07	0.01	—	1,095
Water	—	—	—	—	—	—	—	—	—	—	—	36.7	161	197	3.77	0.09	—	319
Waste	—	—	—	—	—	—	—	—	—	—	—	55.3	0.00	55.3	5.53	0.00	—	194
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.33	8.33
Stationary	0.54	2.60	0.25	6.78	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	0.00	166	166	0.35	0.00	0.00	175
Total	3.40	5.28	2.30	26.2	0.04	0.06	3.48	3.54	0.06	0.88	0.94	92.0	5,460	5,552	9.87	0.26	24.2	5,902
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.86	1.69	2.00	14.7	0.04	0.03	3.48	3.51	0.03	0.88	0.91	—	3,689	3,689	0.16	0.17	0.41	3,745
Area	0.77	0.77	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.02	0.01	0.22	0.18	< 0.005	0.02	—	0.02	0.02	—	0.02	—	1,091	1,091	0.07	0.01	—	1,095
Water	—	—	—	—	—	—	—	—	—	—	—	36.7	161	197	3.77	0.09	—	319
Waste	—	—	—	—	—	—	—	—	—	—	—	55.3	0.00	55.3	5.53	0.00	—	194
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.33	8.33
Stationary	0.54	2.60	0.25	6.78	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	0.00	166	166	0.35	0.00	0.00	175

Total	3.20	5.08	2.46	21.7	0.04	0.06	3.48	3.54	0.06	0.88	0.94	92.0	5,107	5,199	9.88	0.27	8.74	5,535
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.88	1.71	2.04	15.9	0.04	0.03	3.44	3.47	0.03	0.87	0.90	—	3,770	3,770	0.16	0.18	6.85	3,834
Area	0.77	0.77	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.02	0.01	0.22	0.18	< 0.005	0.02	—	0.02	0.02	—	0.02	—	1,091	1,091	0.07	0.01	—	1,095
Water	—	—	—	—	—	—	—	—	—	—	—	36.7	161	197	3.77	0.09	—	319
Waste	—	—	—	—	—	—	—	—	—	—	—	55.3	0.00	55.3	5.53	0.00	—	194
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.33	8.33
Stationary	0.04	0.18	0.02	0.46	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	11.4	11.4	0.02	0.00	0.00	12.0
Total	2.71	2.66	2.28	16.6	0.04	0.05	3.44	3.49	0.04	0.87	0.92	92.0	5,033	5,125	9.56	0.27	15.2	5,461
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.34	0.31	0.37	2.91	0.01	0.01	0.63	0.63	< 0.005	0.16	0.16	—	624	624	0.03	0.03	1.13	635
Area	0.14	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	181	181	0.01	< 0.005	—	181
Water	—	—	—	—	—	—	—	—	—	—	—	6.07	26.6	32.7	0.62	0.01	—	52.7
Waste	—	—	—	—	—	—	—	—	—	—	—	9.16	0.00	9.16	0.92	0.00	—	32.0
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.38	1.38
Stationary	0.01	0.03	< 0.005	0.08	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	1.89	1.89	< 0.005	0.00	0.00	1.99
Total	0.49	0.49	0.42	3.03	0.01	0.01	0.63	0.64	0.01	0.16	0.17	15.2	833	849	1.58	0.05	2.51	904

3. Construction Emissions Details

3.1. Demolition/Relocations (2025) - Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.98	1.66	15.5	16.4	0.03	0.67	—	0.67	0.61	—	0.61	—	2,664	2,664	0.11	0.02	—	2,673
Demolition	—	—	—	—	—	—	0.69	0.69	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	0.20	1.83	1.94	< 0.005	0.08	—	0.08	0.07	—	0.07	—	314	314	0.01	< 0.005	—	315
Demolition	—	—	—	—	—	—	0.08	0.08	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.33	0.35	< 0.005	0.01	—	0.01	0.01	—	0.01	—	52.0	52.0	< 0.005	< 0.005	—	52.1
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.25	0.23	0.23	3.97	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	578	578	0.02	0.02	2.33	587
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	60.0	60.0	< 0.005	0.01	0.17	62.7
Hauling	< 0.005	< 0.005	0.34	0.05	< 0.005	0.01	0.11	0.11	0.01	0.03	0.04	—	389	389	< 0.005	0.06	0.88	408
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.03	0.35	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	62.3	62.3	< 0.005	< 0.005	0.12	63.2
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.07	7.07	< 0.005	< 0.005	0.01	7.38
Hauling	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	45.8	45.8	< 0.005	0.01	0.05	48.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.3	10.3	< 0.005	< 0.005	0.02	10.5
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.17	1.17	< 0.005	< 0.005	< 0.005	1.22
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.59	7.59	< 0.005	< 0.005	0.01	7.95

3.3. Site Mobilization (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.84	1.54	14.3	15.3	0.02	0.68	—	0.68	0.62	—	0.62	—	2,522	2,522	0.10	0.02	—	2,531
Dust From Material Movement	—	—	—	—	—	—	2.44	2.44	—	1.17	1.17	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.51	0.54	< 0.005	0.02	—	0.02	0.02	—	0.02	—	89.8	89.8	< 0.005	< 0.005	—	90.1
Dust From Material Movement	—	—	—	—	—	—	0.09	0.09	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.9	14.9	< 0.005	< 0.005	—	14.9
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.23	0.23	3.97	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	578	578	0.02	0.02	2.33	587
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	60.0	60.0	< 0.005	0.01	0.17	62.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	18.8	18.8	< 0.005	< 0.005	0.04	19.1
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.14	2.14	< 0.005	< 0.005	< 0.005	2.23
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.12	3.12	< 0.005	< 0.005	0.01	3.16
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.35	0.35	< 0.005	< 0.005	< 0.005	0.37
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Completion (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.60	1.35	12.0	12.9	0.02	0.57	—	0.57	0.52	—	0.52	—	2,232	2,232	0.09	0.02	—	2,240
Dust From Material Movement	—	—	—	—	—	—	2.44	2.44	—	1.17	1.17	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.42	1.52	< 0.005	0.07	—	0.07	0.06	—	0.06	—	263	263	0.01	< 0.005	—	264
Dust From Material Movement	—	—	—	—	—	—	0.29	0.29	—	0.14	0.14	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.26	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	—	43.5	43.5	< 0.005	< 0.005	—	43.7
Dust From Material Movement	—	—	—	—	—	—	0.05	0.05	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.10	1.86	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	284	284	0.01	0.01	1.08	288
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	58.9	58.9	< 0.005	0.01	0.15	61.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.17	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	30.5	30.5	< 0.005	< 0.005	0.05	31.0

Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.94	6.94	< 0.005	< 0.005	0.01	7.24
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.06	5.06	< 0.005	< 0.005	0.01	5.13
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.15	1.15	< 0.005	< 0.005	< 0.005	1.20
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Civil (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.79	0.66	6.25	8.62	0.01	0.31	—	0.31	0.29	—	0.29	—	1,317	1,317	0.05	0.01	—	1,322
Dust From Material Movement	—	—	—	—	—	—	0.43	0.43	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.75	1.04	< 0.005	0.04	—	0.04	0.03	—	0.03	—	159	159	0.01	< 0.005	—	159

Dust From Material Movement	—	—	—	—	—	—	0.05	0.05	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.14	0.19	< 0.005	0.01	—	0.01	0.01	—	0.01	—	26.3	26.3	< 0.005	< 0.005	—	26.4
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.50	0.46	0.46	7.94	0.00	0.00	1.05	1.05	0.00	0.25	0.25	—	1,157	1,157	0.05	0.04	4.66	1,175
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	60.0	60.0	< 0.005	0.01	0.17	62.7
Hauling	0.16	0.15	11.4	1.58	0.09	0.18	3.69	3.87	0.18	1.04	1.22	—	13,221	13,221	0.01	2.09	30.0	13,873
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.06	0.73	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	128	128	0.01	< 0.005	0.24	129
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.24	7.24	< 0.005	< 0.005	0.01	7.55
Hauling	0.02	0.02	1.45	0.19	0.01	0.02	0.44	0.46	0.02	0.12	0.15	—	1,594	1,594	< 0.005	0.25	1.57	1,671
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	21.1	21.1	< 0.005	< 0.005	0.04	21.4

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.20	1.20	< 0.005	< 0.005	< 0.005	1.25
Hauling	< 0.005	< 0.005	0.27	0.03	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.03	—	264	264	< 0.005	0.04	0.26	277

3.9. Install Batteries (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.51	1.26	10.7	11.7	0.02	0.42	—	0.42	0.39	—	0.39	—	2,174	2,174	0.09	0.02	—	2,181
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.19	1.31	< 0.005	0.05	—	0.05	0.04	—	0.04	—	243	243	0.01	< 0.005	—	243
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.22	0.24	< 0.005	0.01	—	0.01	0.01	—	0.01	—	40.1	40.1	< 0.005	< 0.005	—	40.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.69	0.62	0.74	8.06	0.00	0.00	1.57	1.57	0.00	0.37	0.37	—	1,542	1,542	0.08	0.06	0.18	1,562
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	60.1	60.1	< 0.005	0.01	< 0.005	62.6
Hauling	0.02	0.02	1.96	0.15	0.02	0.03	0.66	0.69	0.03	0.19	0.22	—	2,345	2,345	< 0.005	0.37	0.14	2,456
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.09	1.01	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	177	177	0.01	0.01	0.34	180
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.69	6.69	< 0.005	< 0.005	0.01	6.99
Hauling	< 0.005	< 0.005	0.22	0.02	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	—	262	262	< 0.005	0.04	0.26	274
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.02	0.18	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.3	29.3	< 0.005	< 0.005	0.06	29.7
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.11	1.11	< 0.005	< 0.005	< 0.005	1.16
Hauling	< 0.005	< 0.005	0.04	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	43.3	43.3	< 0.005	0.01	0.04	45.4

3.11. Install Batteries (2026) - Unmitigated

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

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

Off-Road Equipm	1.43	1.19	10.2	11.6	0.02	0.37	—	0.37	0.34	—	0.34	—	2,174	2,174	0.09	0.02	—	2,181
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.66	0.75	< 0.005	0.02	—	0.02	0.02	—	0.02	—	140	140	0.01	< 0.005	—	141
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.12	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	23.2	23.2	< 0.005	< 0.005	—	23.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.66	0.55	0.69	7.54	0.00	0.00	1.57	1.57	0.00	0.37	0.37	—	1,512	1,512	0.08	0.06	0.17	1,532
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	58.9	58.9	< 0.005	0.01	< 0.005	61.5
Hauling	0.02	0.02	1.90	0.14	0.02	0.03	0.66	0.69	0.03	0.19	0.22	—	2,296	2,296	< 0.005	0.35	0.13	2,402
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.05	0.55	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	100	100	< 0.005	< 0.005	0.18	102
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.80	3.80	< 0.005	< 0.005	< 0.005	3.97
Hauling	< 0.005	< 0.005	0.12	0.01	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	148	148	< 0.005	0.02	0.14	155

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.6	16.6	< 0.005	< 0.005	0.03	16.9
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.63	0.63	< 0.005	< 0.005	< 0.005	0.66
Hauling	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.5	24.5	< 0.005	< 0.005	0.02	25.7

3.13. Commissioning (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.99	0.82	6.73	8.55	0.01	0.23	—	0.23	0.21	—	0.21	—	1,184	1,184	0.05	0.01	—	1,188
Architectural Coatings	0.35	0.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.99	0.82	6.73	8.55	0.01	0.23	—	0.23	0.21	—	0.21	—	1,184	1,184	0.05	0.01	—	1,188
Architectural Coatings	0.35	0.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.77	0.98	< 0.005	0.03	—	0.03	0.02	—	0.02	—	136	136	0.01	< 0.005	—	137
Architectural Coatings	0.04	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.14	0.18	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	22.5	22.5	< 0.005	< 0.005	—	22.6
Architectural Coatings	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.36	0.33	0.31	5.58	0.00	0.00	0.78	0.78	0.00	0.18	0.18	—	851	851	0.04	0.03	3.24	864
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	58.9	58.9	< 0.005	0.01	0.15	61.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.33	0.27	0.34	3.77	0.00	0.00	0.78	0.78	0.00	0.18	0.18	—	756	756	0.04	0.03	0.08	766
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	58.9	58.9	< 0.005	0.01	< 0.005	61.5

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.04	0.49	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	89.5	89.5	< 0.005	< 0.005	0.16	90.8
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.78	6.78	< 0.005	< 0.005	0.01	7.08
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	14.8	14.8	< 0.005	< 0.005	0.03	15.0
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.12	1.12	< 0.005	< 0.005	< 0.005	1.17
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Paving (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81	0.68	6.45	9.59	0.01	0.28	—	0.28	0.26	—	0.26	—	1,449	1,449	0.06	0.01	—	1,454
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81	0.68	6.45	9.59	0.01	0.28	—	0.28	0.26	—	0.26	—	1,449	1,449	0.06	0.01	—	1,454

Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.74	1.10	< 0.005	0.03	—	0.03	0.03	—	0.03	—	167	167	0.01	< 0.005	—	167
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.01	0.14	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.6	27.6	< 0.005	< 0.005	—	27.7
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	0.10	1.86	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	284	284	0.01	0.01	1.08	288
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	58.9	58.9	< 0.005	0.01	0.15	61.6
Hauling	0.05	0.05	2.32	0.56	0.02	0.03	0.65	0.68	0.03	0.18	0.21	—	2,330	2,330	< 0.005	0.36	4.99	2,443
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.09	0.11	1.26	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	252	252	0.01	0.01	0.03	255
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	58.9	58.9	< 0.005	0.01	< 0.005	61.5
Hauling	0.05	0.04	2.44	0.58	0.02	0.03	0.65	0.68	0.03	0.18	0.21	—	2,332	2,332	< 0.005	0.36	0.13	2,440

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.8	29.8	< 0.005	< 0.005	0.05	30.3
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.78	6.78	< 0.005	< 0.005	0.01	7.08
Hauling	0.01	0.01	0.28	0.07	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	—	268	268	< 0.005	0.04	0.25	281
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.94	4.94	< 0.005	< 0.005	0.01	5.01
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.12	1.12	< 0.005	< 0.005	< 0.005	1.17
Hauling	< 0.005	< 0.005	0.05	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	44.4	44.4	< 0.005	0.01	0.04	46.5

3.17. Foundations (2025) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.44	0.37	3.25	3.88	0.01	0.16	—	0.16	0.15	—	0.15	—	595	595	0.02	< 0.005	—	597
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.44	0.37	3.25	3.88	0.01	0.16	—	0.16	0.15	—	0.15	—	595	595	0.02	< 0.005	—	597
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.41	0.49	< 0.005	0.02	—	0.02	0.02	—	0.02	—	75.0	75.0	< 0.005	< 0.005	—	75.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.4	12.4	< 0.005	< 0.005	—	12.5
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.75	0.69	0.68	11.9	0.00	0.00	1.57	1.57	0.00	0.37	0.37	—	1,735	1,735	0.07	0.06	6.99	1,762
Vendor	< 0.005	< 0.005	0.09	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	90.0	90.0	< 0.005	0.01	0.26	94.0
Hauling	0.01	0.01	0.50	0.07	< 0.005	0.01	0.16	0.17	0.01	0.05	0.05	—	583	583	< 0.005	0.09	1.32	612
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.69	0.62	0.74	8.06	0.00	0.00	1.57	1.57	0.00	0.37	0.37	—	1,542	1,542	0.08	0.06	0.18	1,562
Vendor	< 0.005	< 0.005	0.10	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	90.1	90.1	< 0.005	0.01	0.01	93.9
Hauling	0.01	0.01	0.53	0.07	< 0.005	0.01	0.16	0.17	0.01	0.05	0.05	—	583	583	< 0.005	0.09	0.03	611
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.14	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	200	200	0.01	0.01	0.38	203
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.3	11.3	< 0.005	< 0.005	0.01	11.8
Hauling	< 0.005	< 0.005	0.07	0.01	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	73.5	73.5	< 0.005	0.01	0.07	77.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.02	0.01	0.02	0.21	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	33.1	33.1	< 0.005	< 0.005	0.06	33.6
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.88	1.88	< 0.005	< 0.005	< 0.005	1.96
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	12.2	12.2	< 0.005	< 0.005	0.01	12.8

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Industria l Park	2.07	1.90	1.83	19.2	0.04	0.03	3.48	3.51	0.03	0.88	0.91	—	4,042	4,042	0.15	0.17	15.9	4,111
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	2.07	1.90	1.83	19.2	0.04	0.03	3.48	3.51	0.03	0.88	0.91	—	4,042	4,042	0.15	0.17	15.9	4,111
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Industria l Park	1.86	1.69	2.00	14.7	0.04	0.03	3.48	3.51	0.03	0.88	0.91	—	3,689	3,689	0.16	0.17	0.41	3,745
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.86	1.69	2.00	14.7	0.04	0.03	3.48	3.51	0.03	0.88	0.91	—	3,689	3,689	0.16	0.17	0.41	3,745
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Industrial Park	0.34	0.31	0.37	2.91	0.01	0.01	0.63	0.63	< 0.005	0.16	0.16	—	624	624	0.03	0.03	1.13	635
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.34	0.31	0.37	2.91	0.01	0.01	0.63	0.63	< 0.005	0.16	0.16	—	624	624	0.03	0.03	1.13	635

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Industrial Park	—	—	—	—	—	—	—	—	—	—	—	—	831	831	0.05	0.01	—	834
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	831	831	0.05	0.01	—	834
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Industrial Park	—	—	—	—	—	—	—	—	—	—	—	—	831	831	0.05	0.01	—	834
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	831	831	0.05	0.01	—	834
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Industrial Park	—	—	—	—	—	—	—	—	—	—	—	—	138	138	0.01	< 0.005	—	138
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	138	138	0.01	< 0.005	—	138

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Industrial Park	0.02	0.01	0.22	0.18	< 0.005	0.02	—	0.02	0.02	—	0.02	—	260	260	0.02	< 0.005	—	261
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.22	0.18	< 0.005	0.02	—	0.02	0.02	—	0.02	—	260	260	0.02	< 0.005	—	261
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Industrial Park	0.02	0.01	0.22	0.18	< 0.005	0.02	—	0.02	0.02	—	0.02	—	260	260	0.02	< 0.005	—	261
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.01	0.22	0.18	< 0.005	0.02	—	0.02	0.02	—	0.02	—	260	260	0.02	< 0.005	—	261
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Industrial Park	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	43.0	43.0	< 0.005	< 0.005	—	43.2

Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	43.0	43.0	< 0.005	< 0.005	—	43.2

4.3. Area Emissions by Source

4.3.1. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.69	0.69	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.08	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.77	0.77	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.69	0.69	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.08	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.77	0.77	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consum Products	0.13	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architect ural Coating s	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.14	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Industrial Park	—	—	—	—	—	—	—	—	—	—	—	36.7	161	197	3.77	0.09	—	319
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	36.7	161	197	3.77	0.09	—	319
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Industrial Park	—	—	—	—	—	—	—	—	—	—	—	36.7	161	197	3.77	0.09	—	319
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	36.7	161	197	3.77	0.09	—	319
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Industrial Park	—	—	—	—	—	—	—	—	—	—	—	6.07	26.6	32.7	0.62	0.01	—	52.7
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	6.07	26.6	32.7	0.62	0.01	—	52.7

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Industrial Park	—	—	—	—	—	—	—	—	—	—	—	55.3	0.00	55.3	5.53	0.00	—	194
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	55.3	0.00	55.3	5.53	0.00	—	194
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Industrial Park	—	—	—	—	—	—	—	—	—	—	—	55.3	0.00	55.3	5.53	0.00	—	194
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	55.3	0.00	55.3	5.53	0.00	—	194
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Industria Park	—	—	—	—	—	—	—	—	—	—	—	9.16	0.00	9.16	0.92	0.00	—	32.0
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	9.16	0.00	9.16	0.92	0.00	—	32.0

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Industrial Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.33	8.33
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.33	8.33
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Industrial Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.33	8.33
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8.33	8.33
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Industrial Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.38	1.38
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.38	1.38

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

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

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.54	2.60	0.25	6.78	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	0.00	166	166	0.35	0.00	0.00	175
Total	0.54	2.60	0.25	6.78	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	0.00	166	166	0.35	0.00	0.00	175

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.54	2.60	0.25	6.78	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	0.00	166	166	0.35	0.00	0.00	175
Total	0.54	2.60	0.25	6.78	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	0.00	166	166	0.35	0.00	0.00	175
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.01	0.03	< 0.005	0.08	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	1.89	1.89	< 0.005	0.00	0.00	1.99
Total	0.01	0.03	< 0.005	0.08	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	1.89	1.89	< 0.005	0.00	0.00	1.99

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

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

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition/Relocations	Demolition	5/2/2025	7/1/2025	5.00	43.0	—
Site Mobilization	Site Preparation	4/15/2025	5/1/2025	5.00	13.0	—
Completion	Site Preparation	4/2/2026	6/1/2026	5.00	43.0	—
Civil	Grading	7/2/2025	9/1/2025	5.00	44.0	—
Install Batteries	Building Construction	11/5/2025	2/2/2026	5.00	64.0	—
Commissioning	Building Construction	2/3/2026	4/1/2026	5.00	42.0	—
Paving	Paving	2/3/2026	4/1/2026	5.00	42.0	—
Foundations	Trenching	9/2/2025	11/4/2025	5.00	46.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition/Relocations	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Demolition/Relocations	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Demolition/Relocations	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition/Relocations	Forklifts	Diesel	Average	4.00	8.00	82.0	0.20
Demolition/Relocations	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Site Mobilization	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Site Mobilization	Graders	Diesel	Average	1.00	8.00	148	0.41

Site Mobilization	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Site Mobilization	Rubber Tired Dozers	Diesel	Average	1.00	7.00	367	0.40
Completion	Graders	Diesel	Average	1.00	8.00	148	0.41
Completion	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Completion	Rubber Tired Dozers	Diesel	Average	1.00	7.00	367	0.40
Civil	Scrapers	Diesel	Average	1.00	8.00	148	0.41
Civil	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Civil	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Install Batteries	Cranes	Diesel	Average	1.00	8.00	367	0.29
Install Batteries	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Install Batteries	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Install Batteries	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Commissioning	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Commissioning	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Commissioning	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	6.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Foundations	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Foundations	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Foundations	Pumps	Diesel	Average	1.00	8.00	11.0	0.74

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Mobilization	—	—	—	—
Site Mobilization	Worker	40.0	18.5	LDA,LDT1,LDT2
Site Mobilization	Vendor	2.00	10.2	HHDT,MHDT
Site Mobilization	Hauling	0.00	20.0	HHDT
Site Mobilization	Onsite truck	—	—	HHDT
Demolition/Relocations	—	—	—	—
Demolition/Relocations	Worker	40.0	18.5	LDA,LDT1,LDT2
Demolition/Relocations	Vendor	2.00	10.2	HHDT,MHDT
Demolition/Relocations	Hauling	2.00	60.0	HHDT
Demolition/Relocations	Onsite truck	—	—	HHDT
Civil	—	—	—	—
Civil	Worker	80.0	18.5	LDA,LDT1,LDT2
Civil	Vendor	2.00	10.2	HHDT,MHDT
Civil	Hauling	68.0	60.0	HHDT
Civil	Onsite truck	—	—	HHDT
Foundations	—	—	—	—
Foundations	Worker	120	18.5	LDA,LDT1,LDT2
Foundations	Vendor	3.00	10.2	HHDT,MHDT
Foundations	Hauling	3.00	60.0	HHDT
Foundations	Onsite truck	—	—	HHDT
Install Batteries	—	—	—	—
Install Batteries	Worker	120	18.5	LDA,LDT1,LDT2
Install Batteries	Vendor	2.00	10.2	HHDT,MHDT
Install Batteries	Hauling	2.00	365	HHDT

Install Batteries	Onsite truck	—	—	HHDT
Commissioning	—	—	—	—
Commissioning	Worker	60.0	18.5	LDA,LDT1,LDT2
Commissioning	Vendor	2.00	10.2	HHDT,MHDT
Commissioning	Hauling	0.00	20.0	HHDT
Commissioning	Onsite truck	—	—	HHDT
Completion	—	—	—	—
Completion	Worker	20.0	18.5	LDA,LDT1,LDT2
Completion	Vendor	2.00	10.2	HHDT,MHDT
Completion	Hauling	0.00	19.0	HHDT
Completion	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	20.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	2.00	10.2	HHDT,MHDT
Paving	Hauling	36.0	20.0	HHDT
Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Commissioning	0.00	0.00	2,400	800	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition/Relocations	0.00	0.00	0.00	30,000	—
Site Mobilization	0.00	0.00	6.50	0.00	—
Completion	0.00	250	21.5	0.00	—
Civil	20,000	10,000	44.0	0.00	—
Paving	0.00	0.00	0.00	0.00	0.10

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Industrial Park	0.00	0%
Other Asphalt Surfaces	0.10	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	532	0.03	< 0.005
2026	0.00	532	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Industrial Park	331	331	331	120,835	4,918	4,918	4,918	1,795,185
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO_2 and CH_4 and N_2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO_2	CH_4	N_2O	Natural Gas (kBTU/yr)
Industrial Park	570,249	532	0.0330	0.0040	811,087
Other Asphalt Surfaces	0.00	532	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Industrial Park	19,139,175	0.00
Other Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Industrial Park	103	—
Other Asphalt Surfaces	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Industrial Park	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

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

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Emergency Generator	CNG	1.00	2.00	50.0	148	0.73

5.16.2. Process Boilers

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

5.17. User Defined

Equipment Type	Fuel Type

8. User Changes to Default Data

Screen	Justification
Characteristics: Project Details	Area is not rural but rather urban
Land Use	included paved roads

Construction: Construction Phases	Applicant provided information
Construction: Off-Road Equipment	Applicant provided information
Construction: Dust From Material Movement	Updated based on applicant information provided.
Construction: Trips and VMT	Updated based on applicant information. One water truck assumed per phase.
Operations: Vehicle Data	Updated based on information provided by applicant.
Operations: Emergency Generators and Fire Pumps	Included an emergency generator consistent with similar BESS facility, 110 kw CNG
Construction: Paving	Included applicant provided information

Estimated Unmitiated Maximum Project Daily LST Construction Emissions - Unmitigated

Construction Year	Pounds/Day			
	NOx	CO	PM10	PM2.5
Site Mobilization (2025)	14.3	15.3	3.1	1.8
Demolition/Relocations (2025)	15.5	16.4	1.4	0.7
Civil (2025)	6.2	8.6	0.7	0.3
Foundations (2025)	3.3	3.9	0.2	0.1
Install Batteries (2025)	10.7	11.7	0.4	0.4
Install Batteries (2026)	10.18	11.62	0.37	0.34
Commissioning (2026)	6.7	8.5	0.2	0.2
Paving (2026)	6.4	9.6	0.3	0.2
Completion (2026)	12.0	12.9	3.0	1.7
Overlapping Phases				
Paving (2026) + Commissioning (2026)	13.2	18.1	0.5	0.4
Maximum Daily Emissions	**15.5**	**18.1**	**3.1**	**1.8**
SCAQMD Thresholds (1-acre)	142	7,558	158	93
Exceeds LST?	**No**	**No**	**No**	**No**

Note: Based on a 1-acre site in SRA 4 with sensitive receptors located 500 meters from the project site.

Nearest sensitive receptor is located approximately 1.25 miles (2,011 meters) from the project site.

LST - Localized Significance Thresholds

Estimated Maximum Project Daily LST Operational Emissions - Unmitigated

Source	Pounds/Day			
	NOx	CO	PM10	PM2.5
Area	<0.1	<0.1	<0.1	<0.1
Energy	0.2	0.2	<0.1	<0.1
Stationary	0.3	6.8	<0.1	<0.1
Total Project	**0.5**	**7.0**	**<0.1**	**<0.1**
SCAQMD Threshold	142	7,558	38	23
Exceed Threshold	**No**	**No**	**No**	**No**

Note: Based on a 1-acre site in SRA 4 with sensitive receptors located 500 meters from the project site.

Nearest sensitive receptor is located approximately 1.25 miles (2,011 meters) from the project site.

LST - Localized Significance Thresholds

Appendix C. Built Environment Technical Memorandum

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Technical Memorandum

To: Jennifer Blanchard, Environmental Specialist, Port of Long Beach

From: Shoshana Jones, Architectural Historian, HDR

Date: August 20, 2024

Subject: **Port of Long Beach Pier S Battery Energy Storage System Project – Cultural Resource Technical Study**

1. Introduction

HDR, under contract with the Port of Long Beach (POLB), conducted a cultural resource technical study in support of the proposed Pier S Battery Energy Storage System Project (Project) in Long Beach, Los Angeles County, California (**Figure 1**). Pier S Energy Storage LLC, the project applicant, is proposing to construct and operate a 70-megawatt (MW) battery energy storage system (BESS) and accompanying infrastructure on an existing privately owned power generation site located on Pier S within the POLB Harbor District. The proposed Project involves installing up to approximately 100 to 200 individual metal containers enclosing lithium-ion BESS, a power conversion system, a new BESS substation, and upgrades to the adjacent Southern California Edison (SCE) Long Beach Bus Substation.

The Project Study Area is located at 2665 Pier S Lane, Long Beach, CA 90802 in the Northwest Harbor Planning District (District 3) of the Long Beach Harbor (**Figure 2**). The proposed Project would be sited on approximately 2.9 acres of an existing 18.03-acre privately owned parcel (APN 7436-030-814) in the southeastern border of Pier S. Additional infrastructure upgrades would also occur on 1.5 acres of an existing 23.49-acre SCE parcel (APN 7436-030-006) adjacent to the Project site. The Project Study Area is at the eastern end of San Pedro Bay and is surrounded by industrial development. The Inner Harbor is to the north and east; Pacific Terminal Services Company, which consists of container yard service facilities, is to the north and west; the SCE Long Beach Bus Substation is to the north; and the Long Beach International Gateway Bridge/Interstate 710 (formerly the Gerald Desmond Bridge) is to the south.

2. Methods

To support environmental review for the project, HDR carried out archival research and a desktop review to identify historic built environment resources that may be impacted by the project. Archival research included a record search at the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System and a review of available historical aerial photographs and maps to identify potential cultural resources that may be present within the Project Study Area.

On July 2, 2024, HDR archaeologist Amber Parron conducted a record search at the SCCIC, housed at California State University, Fullerton, to identify known cultural resources within 1/4 mile of the Project Study Area. Two historic built environment resources were identified within the record search area (**Table 1**). No previously recorded cultural resources are present in the Project Study Area.

Table 1. Previously Recorded Cultural Resources Within 1/4 Mile of the Project Study Area

Primary #	Eligibility	Resource Description	Year / Company
P-19-187078	2S2 (Determined eligible for National Register of Historic Places through the Section 106 process), July 21, 2003	SCE Long Beach Generating Station, originally constructed in 1911-27.	2003 / Parsons
P-19-190588	6Z (Found ineligible for National Register of Historic Places, California Register of Historical Resources, or local designation through survey evaluation),	Port of Long Beach Smokehouses, comprising 28 smokehouses constructed in 1929 as office buildings and 1952 as restrooms.	2012 / Parsons

P-19-187078, the SCE Long Beach Generating Station (LBGS), is located south of the Project Study Area. This resource was determined eligible for listing in the National Register of Historic Places (NRHP) in 2003 and is listed in the CRHR. According to the State Historic Preservation Officer (SHPO) concurrence correspondence dated October 10, 2003, the LBGS is significant under Criterion A for its association with the development of Long Beach Harbor and the Los Angeles Area. The LBGS is also significant under Criterion D for retaining sufficient and continuing use of technology built to early-twentieth century standards; this functioning technology affords an opportunity to study and understand early engineering techniques as they relate to early power plant development and operation. The period of significance was identified as 1912-1977. Commenting on a separate eligibility evaluation from the same year, SHPO noted that the resource is not eligible for the NRHP under Criterion C based on a loss of integrity due to a 1975 addition that comprises 80 percent of the plant. The south block of Plant No. 3, which is the eligible portion of the resource, is not visible from the Project Study Area as it is separated by large intervening buildings that do not contribute to the resource's eligibility.

P-19-190588, the Port of Long Beach Smokehouses, consist of 28 extant buildings constructed in 1929 and 1952 that are currently located throughout the Port. The closest building is located across the Long Beach Channel from the Project Study Area. The buildings were evaluated as not eligible for listing in the NRHP, California Register of Historical Resources (CRHR), or local register in 2012.

HDR also reviewed historical aerial photographs, maps, and plan sheets to identify potential cultural resources within the Project Study Area. Site photographs were reviewed by a Secretary of Interior–qualified architectural historian.

3. Historic Context

Port of Long Beach

Circa 1900, POLB was developed from 800 acres of San Pedro Bay swampland at the mouth of the Los Angeles River. During that period, the federal government designated San Pedro as the Port of Los Angeles site. In 1909, the City of Long Beach (COLB) sold developed oceanfront to the Long Beach Land and Navigation Company to establish industrial sites. Local developers, who had acquired an option on part of the parcel and created the Los Angeles Dock and Terminal Company, ultimately purchased the entire parcel. Dredging created entry and inner channels, a turning basin, and water frontage. Craig Shipbuilding, which had been located at the site since 1906, became the only ship repair yard south of San Francisco. Craig Shipbuilding also won the contract to dredge a channel from open ocean to an inner harbor (ICF 2020).

Circa 1910, COLB approved a bond to purchase water frontage in the inner harbor and fund construction of new piers, wharves, and sheds. Additionally, the State of California granted COLB possession of tideland areas for development of port operations, allowing COLB to dredge for deep water and use the fill to create more land and piers. POLB was officially dedicated in June 1911. COLB then issued a bond for harbor improvements and commercial development, including construction of the 500-foot long Municipal Pier 1, completed in 1911. In 1917, COLB assumed port operations from the Los Angeles Dock and Terminal Company. A newly established Board of Harbor Commissioners focused on establishing a flood control channel, and COLB and the U.S. Army Corps of Engineers enlarged the Cerritos Channel to open navigation between the Long Beach and Los Angeles Inner Harbors. By 1918, POLB employed 9,000 workers. Industry there expanded beyond importing lumber during World War I with industries such as shipbuilding, canneries, and war material production. The discovery of oil at Signal Hill in 1921 enabled creation of a prime harbor and established Long Beach as a major hub for the oil industry; oil revenues helped fund inner and outer harbor improvements. In 1926, POLB attained deep water status to accommodate larger ships carrying more cargo (ICF 2020).

During the 1930s, the improved port infrastructure attracted new industries, including Ford Motor Company and Procter and Gamble, which opened factories that provided thousands of jobs. In 1932, the U.S. Navy located its headquarters for the Pacific Fleet and 50 ships at POLB, which led to the construction of a new navy landing and facilities. In 1940, the Navy acquired nearly 400 acres on Terminal Island to construct the Long Beach Naval Shipyard. During World War II, military expansion replaced commerce and development at POLB, and the Navy assumed control of POLB after the December 1941 bombing of Pearl Harbor. The Terminal Island Naval Base was commissioned in 1942, and defense industries such as shipbuilding expanded (ICF 2020).

During the postwar period, COLB used oil profits to substantially expand the harbor and, during the 1950s, wharf replacement and modern dock construction effectively replaced the old harbor. Containerization, a technique that emerged in the late 1950s, significantly changed the shipping industry and quickly rendered existing commercial fleets and port facilities obsolete. At POLB, construction began to accommodate container terminal service and adapt to containerization's evolution of the industry (ICF 2020).

During the early 1970s, POLB began constructing three new container terminals and a container freight station, enlarging its existing container operations, and dredging to deepen the harbor to 60 feet, making it the nation's deepest. Fill was used for extensive pier expansion, and POLB added wharves and storage space on every side of its landfill. These improvements expanded POLB's container trade, making it the busiest on the West Coast (ICF 2020).

SCE Long Beach Generation Station

SCE began construction of the 47.5 megawatt "Long Beach Steam Plant" in 1910. Operation of Unit 1 began in 1911 with Units 2 and 3 coming online in 1913 and 1914, respectively. Each turbine generator unit included boilers that were fired with heavy fuel oil. By approximately 1930, the Long Beach Generation Station (LBGS) grew to include construction of three separate power plants on 38 acres over two adjacent parcels on Terminal Island. The original Units 1, 2, and 3 were housed in what became known as Plant No. 1. Plant No. 2 contained six smaller turbine generators (Units 4 through 9) and header-system type boilers, which were installed between 1924 and 1926. Plant No. 3, completed in 1927, contained seven header system boilers and two turbine generators (Units 10 and 11) which came online between 1928 and 1930 and were operated on an as-needed basis (Northgate 2024). The plant complex was one of the world's largest and helped enable Long Beach to offer industry "the greatest supply of low-cost power and fuel to be found anywhere" (Ballard 1941).

Since the completion of Plant No. 3 ca. 1930, substantial changes have occurred to the LBGS and its vicinity. Between 1939 and 1944, a segment of Interstate 710 was constructed immediately south of the plant. Units 1, 2, and 3 were retired in place on January 5, 1954, and Plant No. 1 was demolished by November 1954. The present retention basin and water treatment area are situated in the former Plant No. 1 area (the water treatment plant was constructed ca. 2010). A major storm in early 1983 caused flooding at LBGS and water flowed into the basement of Plant No. 2, the site's lowest area. The flooding damaged the boiler and turbine equipment and SCE decided that repairing the outdated auxiliary equipment would be too costly (Northgate 2024). As a result, Plant No. 2 was demolished in 1989/1990 and replaced by the current-day park located west of Plant No. 3 (NETR 2024). Thus, only Plant No. 3 remains from the original three plant facilities. Plant No. 3 was substantially modified in the 1970s, with only the south power block (the portion closest to the Long Beach International Gateway Bridge) retaining original features; the north power block was completely upgraded.

SCE operated the LBGS until 1998 when Parcel 1 (19-acre parcel where current and former generating units were located) was sold to Long Bech Generation LLC (NR Energy, Inc.). In 2003, SCE sold Parcel 2 (where the oil tank farm, switchyards and support operations are located) to Pacific Terminals but maintains easements for electrical infrastructure (Northgate 2024). By 2020, the substation equipment and two large transmission structures immediately west of the warehouses were removed. That year, construction was completed on the Long Beach International Gateway bridge, a cable-stayed bridge which crosses east over the channel and connects Terminal Island with downtown Long Beach. The bridge replaced the 1968 Gerald Desmond Bridge, which was removed in 2022 (Google Earth Pro 2024).

4. Historic Built Environment Resources Identified

One grouping of five historic built environment resources — the LBGS Auxiliary Facilities — was identified within the Project Study Area (**Figure 3** and **Photographs 1** through **7**). Based on the present study, the LBGS Auxiliary Facilities are recommended not eligible for the NRHP or CRHR. A California Department of Parks and Recreation (DPR) 523 Series form documenting and evaluating the LBGS Auxiliary Facilities is provided in Appendix A.

No other historic built environment resources were identified within the Project Study Area.

Long Beach Generation Station Auxiliary Facilities

The LBGS Auxiliary Facilities are located at the SCE Power Plant/Long Beach Generating Station (P-19-187078) (shown ca. 1941 in **Photograph 8**).

Description

The historic-age resources that comprise the LBGS Auxiliary Facilities consist of three buildings — Warehouse (ca. 1952), Locker Building (ca. 1976), and Machine Shop (ca. 1976) — and two pipe segments (ca. 1945). These five resources are briefly described below.

WAREHOUSE

The Warehouse, constructed ca. 1952, is situated between a ca. 1976 Administrative Building to the west and the ca. 1976 Locker Building to the east. Also known as the Warehouse/Former Machine Shop, the tall one-story building has a rectangular plan and medium-pitched side-gable roof covered with metal panels (see **Photograph 2**). The building measures approximately 220 feet long and 80 feet wide, has steel frame construction, and is clad in ca. 1980 corrugated metal siding. The Warehouse is depicted on a plan sheet dated October 7, 1952. In that drawing, the western 2/3 of the building is noted as “Warehouse” and the eastern 1/3 is noted as “Annex Machine Shop.” Known alterations include a remodel and the removal of the building’s original west section ca. 1976, which occurred to create room for the adjacent Administrative Building on the west side and the Locker Room on the east side. Around that time, it appears that original doors and windows were replaced, original façade openings were infilled with corrugated metal, corrugated metal entrance canopies were installed above pedestrian entrances, and the previous siding was replaced.

LOCKER BUILDING, CONSTRUCTED CA. 1976

The Locker Building, constructed ca. 1976, is situated between the Warehouse to the west and Machine Shop to the east. The Locker Building is one story with a rectangular plan, concrete construction, and flat roof with parapet (see **Photograph 3**). The building measures approximately 75 feet long and 60 feet wide. The Locker Building is depicted on a plan sheet dated September 1, 1976, as “Locker Building New”. Alterations visible in aerial imagery include a front patio addition completed between 1987 and 1991 and partially enclosed by low concrete walls.

MACHINE SHOP, CONSTRUCTED CA. 1976

The Machine Shop, constructed ca. 1976 and located adjacent to the Locker Building's east side, measures approximately 100 feet long and 60 feet wide. The tall one-story building has a rectangular plan with façade (south elevation) addition, steel frame construction, and flat roof with metal panel covering (see **Photograph 4**). The siding appears to be original corrugated metal panels. Between 1987 and 1991, a tall shed-roofed addition was constructed on the east side of the façade (south elevation). The Machine Shop is depicted on a plan sheet dated September 1, 1976, as "Machine Shop New". The Machine Shop is no longer in use.

PIPE SEGMENTS (2), CONSTRUCTED CA. 1945

Two reinforced concrete pipe segments, constructed ca. 1945 as part of the same pipeline, are located within the project area (see **Photographs 5** and **6**). The pipe was originally a component of the saltwater intake system that powered the LBGS and was abandoned between 1987 and 1991. The now-abandoned pipe segments extend roughly west-southwest/east-northeast, measure approximately 12 feet in diameter, and consist of approximately 12-foot sections. They are currently separated by approximately 80 feet. Both segments are stamped multiple times with the word "ABANDONED." The West Pipe Segment is a double pipe measuring approximately 400 feet long and extending along the north side (rear) of the three buildings. At each end of this segment is a large concrete thrust block. The East Pipe Segment is a single pipe measuring approximately 170 feet long. The East Pipe Segment's west end has been covered mostly with plywood sheets, and the east end runs below ground at the project area's east side.

Eligibility

This evaluation assesses resource eligibility for listing in the NRHP (Criteria A through D) and the CRHR (Criteria 1 through 4), which are modeled on the NRHP criteria.

NRHP CRITERION A/CRHR CRITERION 1

The Warehouse, Locker Building, Machine Shop, and pipe segments are located at the LBGS property. The LBGS was determined eligible for the NRHP under Criterion A on July 21, 2003. While the auxiliary facilities are part of the LBGS property, they were not specifically evaluated as part of the previous eligibility determination, were not identified as contributing resources, and have been substantially altered since the period of significance (1912-77). As the Warehouse, Locker Building, Machine Shop, and pipe segments lack demonstrable individual significance and sufficient integrity to contribute to the LBGS, they are recommended not eligible for listing in the NRHP or CRHR.

NRHP CRITERION B/CRHR CRITERION 2

The Warehouse, Locker Building, Machine Shop, and pipe segments are recommended not eligible for listing under NRHP Criterion B or CRHR Criterion 2 as the individual resources are not significantly associated with any individuals important in local, state, or national history.

NRHP CRITERION C/CRHR CRITERION 3

The Warehouse, Locker Building, Machine Shop, and pipe segments are recommended not eligible for listing under NRHP Criterion C or CRHR Criterion 3. The Warehouse, Locker Building, and Machine Shop, which were constructed as support facilities for an industrial complex, do not embody the distinctive characteristics of a type, period, or method of construction. In addition, the buildings have undergone multiple alterations since their original construction. Research did not uncover information that indicates the reinforced concrete pipe segments, which are abandoned components of LBGS's saltwater intake system, possess engineering significance.

NRHP CRITERION D/CRHR CRITERION 4

The LBGS was determined eligible for the NRHP under Criterion D on July 21, 2003. According to the previous documentation, "the continued use of technology built to early 20th century specifications provides an opportunity to study and understand early engineering techniques" as they relate to early power plant development and operation. The LBGS's Criterion D significance relates specifically to the surviving portions of Plant No. 3 and does not refer to the Warehouse, Locker Building, Machine Shop, or pipe segments, which were all constructed in the mid-twentieth century. Thus, this recording of the Warehouse, Locker Building, Machine Shop, and pipe segments encapsulates their likely information potential, and it is unlikely that further survey would reveal additional potential for information important to history. Therefore, the Warehouse, Locker Building, Machine Shop, and pipe segments are recommended not eligible under NRHP Criterion D or CRHR Criterion 4.

5. Summary and Conclusions

A grouping of five historic built environment resources — the LBGS Auxiliary Facilities — was identified within the Project Study Area. The resources have been evaluated for this study as not eligible for listing in the NRHP or CRHR. The results of this cultural resource technical study support a determination that the Project would not result in a significant impact to cultural resources.

6. References

Ballard, Lynn W.
1941 "Industries: Harbor Teems With Many Factories." *Long Beach Sun*. June 17, page 41.

Google Earth Pro
2024 Data SIO, NOAA, U.S. Navy, NGA, GEBCO. Image Landsat/Copernicus. Image IBCAO. Image U.S. Geological Survey.

ICF
2020 Section 106 Identification and Evaluation Technical Report For The Port of Long Beach Pier B On-Dock Rail Support Facility Project, Long Beach, California. February (ICF 00614.19) Prepared for United States Maritime Administration, Department of Transportation, Washington, D.C.

Nationwide Environmental Title Research, LLC (NETR)
2024 Historic Aerials. https://www.historicaerials.com/. Accessed August 2024.

Northgate Environmental Management, Inc. (Northgate)
2024 RCRA Facility Investigation Work Plan, Former SCE Long Beach Generating Station, 2665 West Seaside Boulevard. April 29 (Project No. 2169.14). Prepared for SCE.

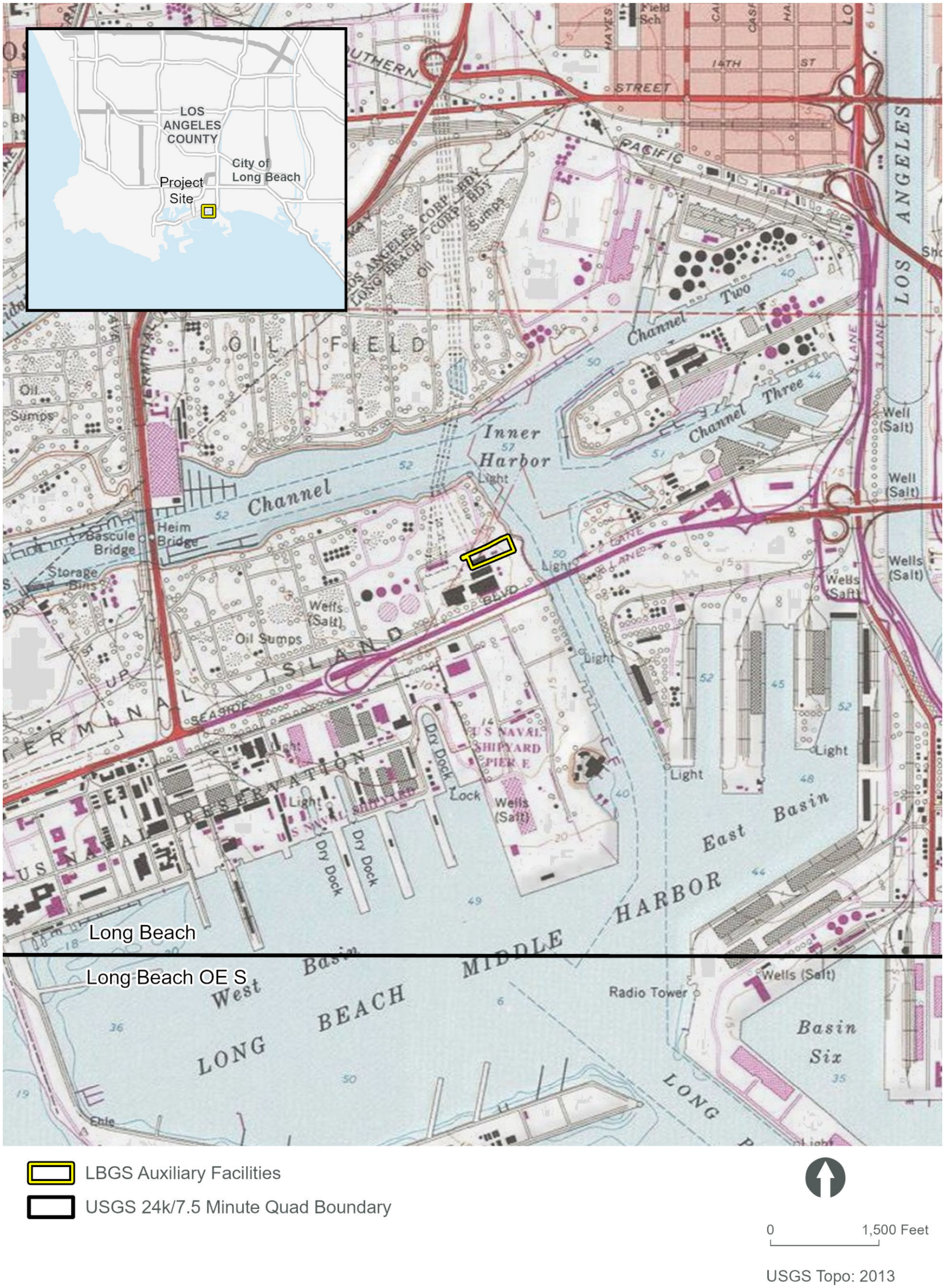


Figure 1. Project Site on the USGS 7.5-minute *Long Beach* quadrangle

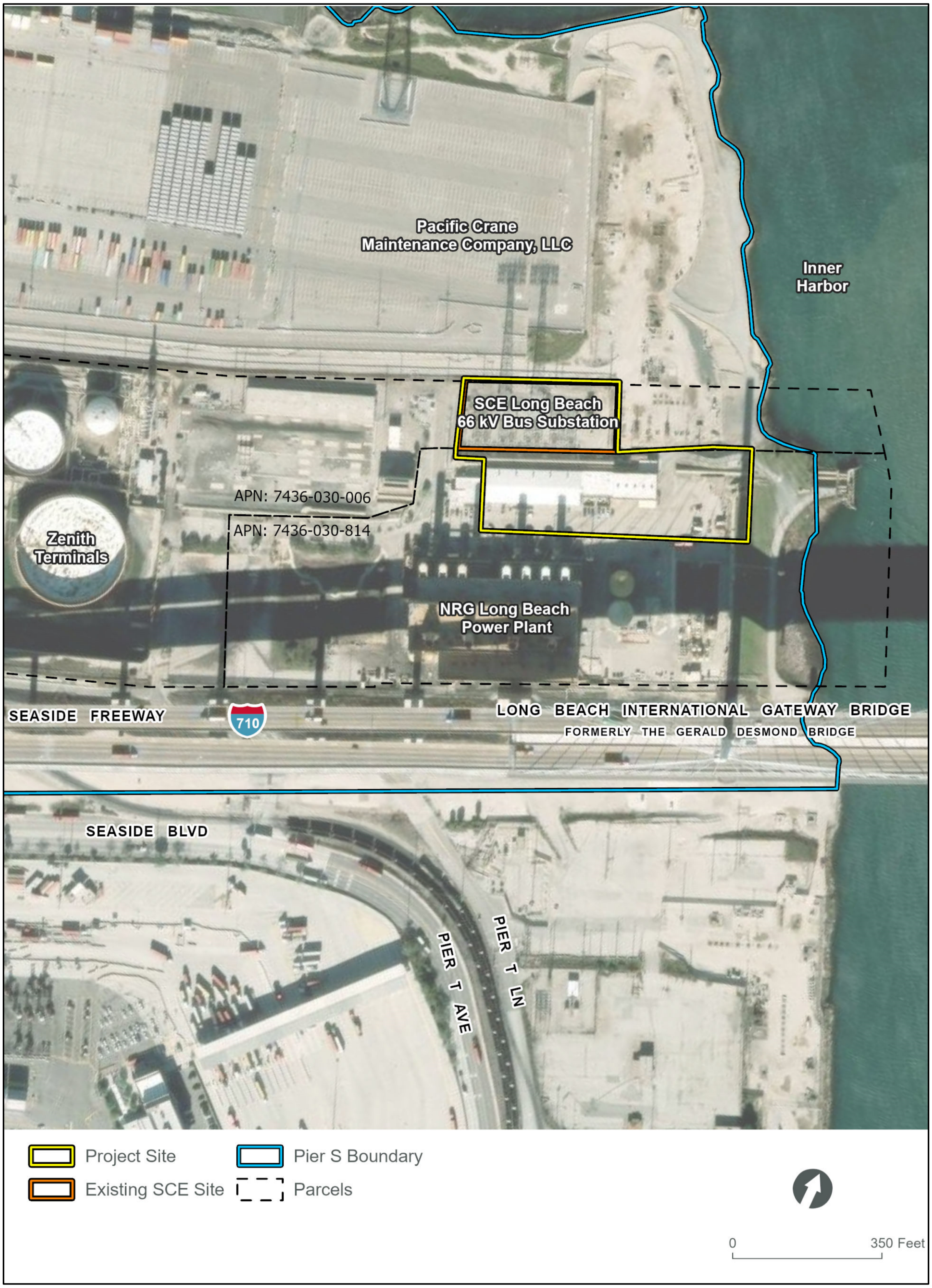


Figure 2. Project Site on aerial background

Figure 3. LBGS Auxiliary Facilities on aerial background. Plant No. 3 is immediately south of the auxiliary facilities, on the north side of Interstate 710.

Photograph 1. Overview of LBGS Auxiliary Facilities (buildings and pipe segments), viewing west-northwest.

Photograph 2. Warehouse façade (south elevation), viewing west.

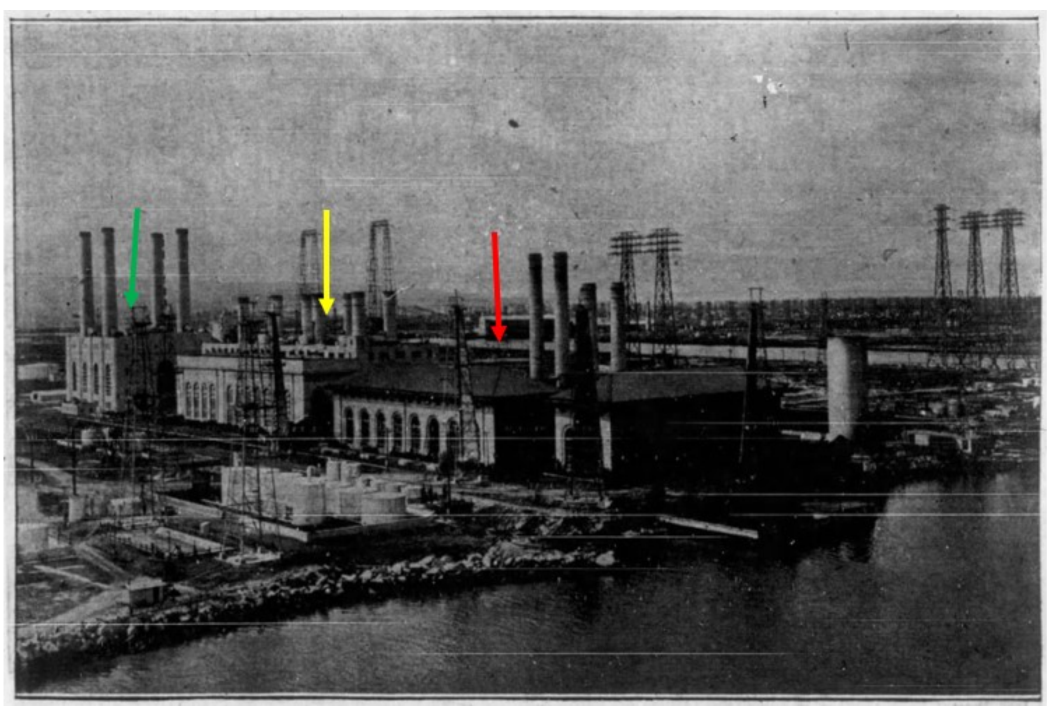
Photograph 3. Locker Building façade (south elevation), viewing northeast.

Photograph 4. Machine Shop façade (south elevation), viewing north.

Photograph 5. West Pipe Segment, viewing west.

Photograph 6. East Pipe Segment, viewing northeast.

Photograph 7. Plant No. 3 with the Long Beach International Gateway Bridge in the background, viewing south-southeast. Plant Nos. 1 and 2, which flanked Plant No. 3, are no longer extant. The black arrow identifies the Warehouse.



Photograph 8. LBGS ca. 1941, showing Plant Nos. 1 (red arrow), 2 (green arrow), and 3 (yellow arrow), viewing northwest (Ballard 1941). Plant Nos. 1 and 2 are no longer extant.

Appendix A. DPR 523 Series Form

State of California ♣ The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code Reviewer Date

 ***Resource Name or #:** (Assigned by recorder) Long Beach Generating Station Auxiliary Facilities

P1. Other Identifier: N/A

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted**

***a. County** Los Angeles **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad** Long Beach, CA **Date** 2021

c. Address 2665 Pier S Lane City Long Beach Zip 90802

d. UTM: (Give more than one for large and/or linear resources) Zone , mE/ mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate)
Assessor Parcel Number (APN) 7436-030-814

***P3a. Description:**
The historic-age resources that comprise the Long Beach Generating Station Auxiliary Facilities consist of three buildings – Warehouse (ca. 1952), Locker Building (ca. 1976), and Machine Shop (ca. 1976) – and two pipe segments (ca. 1945) located on 2 acres of a privately-owned 18.03-acre parcel at the southeastern border of Pier S in the Port of Long Beach (POLB). The buildings and pipe segments are historically associated with Southern California Edison's (SCE) Long Beach Steam Plant, which was constructed in three primary phases: Plant No. 1 (1911), Plant No. 2 (1925), and Plant No. 3 (1928). Later known as the Long Beach Generating Station (LBGS), the facility's fuel oil tank farm, electrical switchyards, and other support operations are located on an adjacent 24-acre parcel (APN 7436-030-006). The facility is currently operated by NRG Long Beach Power. (see continuation sheet page 3)

***P3b. Resource Attributes:** HP4 (Buildings) and HP39 (Pipe Segments)

P5a. Photograph or Drawing

***P4. Resources Present:**
☒ Buildings ☒ Structures ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other

P5b. Description of Photo: Overview of buildings and pipe segments, viewing west-northwest. Digital image taken 6/13/2024.

***P6. Date Constructed/Age and Source:** ☒ Historic ☐ Prehistoric
Circa 1952 (Warehouse), ca. 1976 (Locker Building and Machine Shop), ca. 1945 (pipes) (Northgate 2024)

***P7. Owner and Address:**
NRG Long Beach Power,
2665 Pier S Lane, Long Beach, CA 90802

***P8. Recorded by:** Shoshana Jones, HDR Engineering, Inc. (HDR), 591 Camino de la Reina, Suite 300, San Diego, CA 92108-3104

***P9. Date Recorded:** 6/13/2024

***P10. Survey Type:** Cultural Resources Inventory and Evaluation

***P11. Report Citation**: Shoshana Jones. 2024. *Port of Long Beach Pier S Battery Energy Storage System Project – Cultural Resource Technical Study (Memorandum)*. Prepared by HDR, Inc., San Diego, California. On file at the Port of Long Beach.

***Attachments:** ☐NONE ☒Location Map ☒Continuation Sheet ☒Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record

State of California ♁ The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
Primary #
HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** (Assigned by recorder) Long Beach Generating Station Auxiliary Facilities ***NRHP Status Code** 6Z

B1. Historic Name: B2. Common Name:

B3. Original Use: Industrial B4. Present Use: Industrial

***B5. Architectural Style:** Utilitarian

***B6. Construction History:** (Construction date, alterations, and date of alterations)

The Warehouse was constructed ca. 1952, Locker Building ca. 1976, Machine Shop ca. 1976, and pipe segments ca. 1945. See **P3a. Description** for information about alterations.

***B7. Moved?** ☒No ☐Yes ☐Unknown **Date:** ________________ **Original Location:** ________________

***B8. Related Features:** SCE's former Long Beach Steam Plant/ Long Beach Generating Station (LBGS)

B9a. Architect: Unknown b. Builder: Unknown

***B10. Significance: Theme** N/A **Area** N/A
Period of Significance N/A **Property Type** Industrial **Applicable Criteria** N/A

The Warehouse, Locker Building, Machine Shop, and pipe segments are recommended not eligible for listing in the National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR). In accordance with Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code, these auxiliary facilities are not historical resources for purposes of CEQA.
(see continuation sheet, page 5)

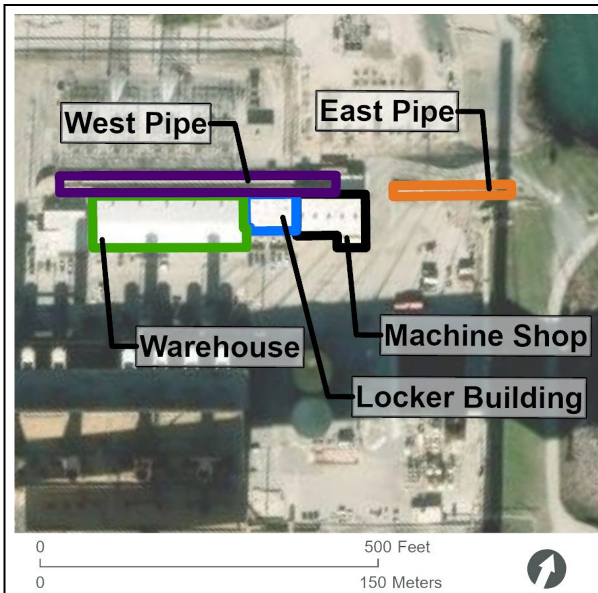
B11. Additional Resource Attributes: ________________

***B12. References:**
(see continuation sheet, page 9)

B13. Remarks:

***B14. Evaluator:** Shoshana Jones, HDR
***Date of Evaluation:** 8/20/2024

(This space reserved for official comments.)



P3a. Description (continued from page 1)

The buildings and pipe segments evaluated in this form are within the Northwest Harbor Planning District (Planning District 3), defined by the POLB Master Plan. The POLB is located at the eastern end of San Pedro Bay and in the southwestern portion of the City of Long Beach in southern Los Angeles County. The City, acting by and through its Board of Harbor Commissioners, administers the POLB, which consists of approximately 35 miles of waterfront, 3,200 acres of land, 10 piers, and 80 deep-water berths. POLB includes diverse land uses, such as cargo terminals; commercial fishing facilities; light manufacturing and industry; recreational destinations; and commercial operations such as sport fishing, concessions, marinas, two hotels, retail shops, and a public boat launch. Permitted uses in the Northwest Harbor Planning District include oil production, primary port facilities, utilities, and ancillary port facilities. The area is surrounded by industrial development to north, south, and west with the Inner Harbor to the north and east; Pacific Terminal Services Company, which comprises of container yard services facilities, to the north and west; the Southern California Edison Long Beach Bus Substation to the north; and the Long Beach International Gateway Bridge/Interstate 710 (formerly the Gerald Desmond Bridge) to the south.

Warehouse

The Warehouse, constructed ca. 1952, is situated between a ca. 1976 Administrative Building to the west and the ca. 1976 Locker Building to the east. Also known as the Warehouse/ Former Machine Shop, the Warehouse is a tall one-story building with a rectangular plan and medium-pitched, side-gable roof covered with metal panels. The building measures approximately 220 feet long and 80 feet wide, has steel frame construction, and is clad in ca. 1980 corrugated metal siding. The façade (south elevation) has multiple pedestrian doors and equipment bays. The façade's four single-leaf pedestrian doors are replacement steel-clad models with tall narrow inset panes and keypad access. The doors, which may be larger than the originals, are sheltered by corrugated metal canopies that are not of historic age. The three equipment bays have historic-age roll top doors. Three tall, narrow wall sections originally containing fenestration have been infilled with corrugated metal panels. The windows appear to be ca. 1980 metal sliders.

The west elevation displays one single-leaf steel pedestrian door sheltered by a corrugated metal canopy at the elevation's north side and a pair of steel doors leading to the "Assembly Room" and "Records Retention Center." The pair of doors share a single, non-historic corrugated metal canopy. Mounted to the exterior wall between the entrances are two disconnects which power the two condensers seated on separate concrete pads adjacent to the elevation. The disconnects are linked to two split systems that serve the building. A metal vent is located off-center along the elevation. The rear (north) elevation is mostly obscured from view by the adjacent pipe segment and a section of the adjacent SCE Long Beach 66kV substation. The east elevation, which partially abuts the Locker Building, has a steel pedestrian door beneath a corrugated metal canopy and a condenser adjacent to the elevation.

The Warehouse is depicted on a plan sheet dated October 7, 1952. In that drawing, the western 2/3 of the building is noted as "Warehouse" and the eastern 1/3 is noted as "Annex Machine Shop." Known alterations include a remodel and the removal of the building's original west section ca. 1976, which occurred to create room for the adjacent Administrative Building on the west side and the Locker Room on the east side (NETR 2024). Around that time, it appears that original doors and windows were replaced, original façade openings were infilled with corrugated metal, corrugated metal entrance canopies were installed above pedestrian entrances, and the previous siding was replaced.

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P3a. Description (continued from previous page)

Locker Building

The Locker Building, constructed ca. 1976, is situated between the Warehouse to the west and Machine Shop to the east. The Locker Building is one-story with a rectangular plan, concrete construction, and flat roof with parapet. The building measures approximately 75 feet long and 60 feet wide. The façade (south elevation) has five bays, including one recessed west bay, each containing a pedestrian door. The bays are articulated by textured concrete masonry units surrounding scored concrete surfaces. The recessed west bay contains an original double-leaf metal door with louvered panels and likely leads to an equipment or storage room. A similar door is located at the façade's east bay. The center bay contains what appears to be an original off-center, double-leaf metal-framed glass door. The flanking bays contain what appear to be original off-center, single-leaf metal doors with inset panes. A ca. 2005 metal-framed canopy is mounted to the façade and supported by metal poles. The canopy roofing consists of corrugated metal panels (Google Earth Pro 2024). The west and east elevations abut adjacent buildings, and views of the rear (north) elevation are obscured by the adjacent pipe segment.

The Locker Building is depicted on a plan sheet dated September 1, 1976, as "Locker Building New." Alterations visible in aerial imagery include a front patio addition completed between 1987 and 1991 and partially enclosed by low concrete walls (NETR 2024).

Machine Shop

The Machine Shop, constructed ca. 1976 and located adjacent to the Locker Building's east side, measures approximately 100 feet long and 60 feet wide. The tall one-story building has a rectangular plan with façade (south elevation) addition, steel frame construction, and flat roof with metal panel covering. The siding appears to be original corrugated metal panels. Between 1987 and 1991, a tall shed-roofed addition was constructed on the east side of the façade (NETR 2024). The addition contains two south-facing vehicle/equipment bays, corrugated metal siding, and metal panel roof covering. The façade's west side contains an original flush steel pedestrian door and a vehicle/equipment bay with an original roll up metal door. Both doorways are topped by sets of metal vents. The west elevation abuts the Locker Building. The rear (north) elevation appears to have an infilled pedestrian doorway, a metal chimney, and a metal exhaust at the east side. Adjacent to the rear are two ca. 1995 equipment/materials shelters (NETR 2024). The east elevation contains an original double-leaf metal door with louvered panels and likely leads to an equipment or storage room, an original flush steel pedestrian door with inset metal vent, and a vehicle/equipment bay with an original roll up metal door topped by a set of metal vents.

The Machine Shop is depicted on a plan sheet dated September 1, 1976, as "Machine Shop New." The Machine Shop is no longer in use (Northgate 2024:40).

Pipe Segments

Two reinforced concrete pipe segments, constructed ca. 1945 as part of the same pipeline, are located within the project area. The pipe was originally a component of the saltwater intake system that powered the LBGS and was abandoned between 1987 and 1991 (NETR 2024). The now-abandoned pipe segments extend roughly west-southwest/east-northeast, measure approximately 12 feet in diameter, and consist of approximately 12-foot sections. They are currently separated by approximately 80 feet. Both segments are stamped multiple times with the word "ABANDONED."

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P3a. Description (continued from previous page)

The West Pipe Segment is a double pipe measuring approximately 400 feet long and extending along the north side (rear) of the three buildings. At each end of this segment is a large concrete thrust block. The East Pipe Segment is a single pipe measuring approximately 170 feet long. The East Pipe Segment's west end has been covered mostly with plywood sheets, and the east end runs below ground at the project area's east side.

B10. Significance (continued from page 2)

Long Beach

The City of Long Beach in Los Angeles County is located approximately 20 miles south of downtown Los Angeles. Non-native settlement in the Long Beach area appears to have started in 1875, when Jotham Bixby began selling lots along the Los Angeles River on the city's west side. Throughout the early 1900s, the city continued to grow as a tourist-focused urban center, particularly along the beach and wharf. A series of annexations in the early 1900s increased the city's population and size and, between 1902 and 1905, the population tripled from approximately 4,000 to 12,000. By 1910, the population was 17,809, and the city had grown to approximately 10 square miles. After 1921, when Shell Oil Company's discovery of oil in Signal Hill, the city's economy became dominated by oil production and sales. Employment related to the local oil boom helped double the population between 1920 and 1925 (Sapphos 2009:39-45).

Like most of California and the nation, the Great Depression interrupted Long Beach's growth. The city's oil-driven economy suffered from the nationwide drop in demand for petroleum products. The local tourism industry faced hotel and entertainment center closures, while car and home sales dramatically declined as values dropped. An earthquake in 1933 caused city-wide building and infrastructure damage. Following that event, federal grants and loans helped rebuild and revitalize the city, and the earthquake's devastation led to changes in municipal building codes. Funding and assistance from the Works Progress Administration improved parks, transportation facilities, and civic and recreational buildings. The city experienced another boost in 1936 when oil was located at the Wilmington Oil Field near Long Beach Harbor (Sapphos 2009:47-48).

During the late 1930s, as the nation anticipated entering World War II, Reeves Field on Terminal Island (1937) became the city's first permanent naval base. In 1941, Roosevelt Naval Base opened, and an 8.9-mile-long breakwater was constructed. In 1942, the Douglas Aircraft Company (a predecessor of McDonnell Douglas) built a 242-acre production plant adjacent to the Long Beach Airport. These facilities provided jobs, new construction, and economic development. In 1943, Douglas Aircraft had over 41,000 employees, 54 percent of which were women. By 1944, 87 percent of the company's employees were women, and the company was producing 11 airplanes a day. Plant production rapidly declined following the war, ending the company's run as a major Long Beach employer. By 1945, the wartime defense industry had slowed, and development began to center around the massive influx of soldiers returning home from the war (Sapphos 2009:48-49).

Long Beach experienced extraordinary growth from 1946 until 1965, with home sales steeply climbing due in large part to the G.I. Bill, which provided veterans low-interest loans and long-term mortgages. Between 1950 and 1956, the city grew an additional 9.8 square miles through 69 annexations. Residential development on the city's east and north sides transformed vast agricultural lands into residential communities. The increase in suburban living, coupled with the loss of the streetcar system in the early 1940s, led to a reliance on the automobile and an increase in automobile sales. The automobile's popularity led to construction of shopping centers, strip malls, and auto-related establishments along main thoroughfares (Sapphos 2009:48-49).

(continued on next page)

B10. Significance (continued from previous page)

By the 1950s and 1960s, the Long Beach's postwar suburban boom had resulted in the decline of the commercial and civic core, especially downtown and along the shoreline. Attractions such as Disneyland and Knott's Berry Farm drew tourism from the shoreline, which had been heavily altered by the breakwater installed during the war and had lost most of its iconic sandy beaches. During the 1960s, the City began exploring ways to revitalize its downtown area. It adopted its first redevelopment plan in 1962 and purchased the RMS Queen Mary in 1967 to increase shoreline tourism. The original oceanfront attractions were demolished, and the convention center, hotels, shops, restaurants, and a marina were constructed. Currently, the city has over 460,000 residents and the primary industries are aerospace manufacturing, shipping, and education. The Port of Long Beach is the busiest harbor on the West Coast (Sapphos 2009:50).

Port of Long Beach

Circa 1900, POLB was developed from 800 acres of San Pedro Bay swampland at the mouth of the Los Angeles River. During that period, the federal government designated San Pedro as the Port of Los Angeles site. In 1909, the City of Long Beach (COLB) sold developed oceanfront to the Long Beach Land and Navigation Company to establish industrial sites. Local developers, who had acquired an option on part of the parcel and created the Los Angeles Dock and Terminal Company, ultimately purchased the entire parcel. Dredging created entry and inner channels, a turning basin, and water frontage. Craig Shipbuilding (Craig), which had been located at the site since 1906, became the only ship repair yard south of San Francisco. Craig also won the contract to dredge a channel from open ocean to an inner harbor (ICF 2020).

Circa 1910, COLB approved a bond to purchase water frontage in the inner harbor and fund construction of new piers, wharves, and sheds. Additionally, the State of California granted COLB possession of tideland areas for development of port operations, allowing COLB to dredge for deep water and use the fill to create more land and piers. The POLB was officially dedicated in June 1911. COLB then issued a bond for harbor improvements and commercial development, including construction of the 500-foot long Municipal Pier 1, completed in 1911. In 1917, COLB assumed port operations from the Los Angeles Dock and Terminal Company. A newly established Board of Harbor Commissioners focused on establishing a flood control channel, and Long Beach and the U.S. Army Corps of Engineers enlarged the Cerritos Channel to open navigation between the Long Beach and Los Angeles Inner Harbors. By 1918, POLB employed 9,000 workers. Industry there expanded beyond importing lumber during World War I with industries such as shipbuilding, canneries, and war material production. The discovery of oil at Signal Hill in 1921 enabled creation of a prime harbor and established Long Beach as a major hub for the oil industry; oil revenues helped fund inner and outer harbor improvements. In 1926, POLB attained deep water status to accommodate larger ships carrying more cargo (ICF 2020).

During the 1930s, the improved port infrastructure attracted new industries, including Ford Motor Company and Proctor and Gamble, which opened factories that provided thousands of jobs. In 1932, the U.S. Navy located its headquarters for the Pacific Fleet and 50 ships to POLB, which led POLB to build a new navy landing and facilities. In 1940, the Navy acquired nearly 400 acres on Terminal Island to construct the Long Beach Naval Shipyard. During World War II, military expansion replaced commerce and development at POLB, and the Navy assumed control of POLB after the December 1941 bombing of Pearl Harbor. The Terminal Island Naval Base was commissioned in 1942, and defense industries such as shipbuilding expanded (ICF 2020).

During the postwar period, COLB used oil profits to substantially expand the harbor and, during the 1950s, wharf replacement and modern dock construction effectively replaced the old harbor. Containerization, a technique that emerged in the late 1950s, significantly changed the shipping industry and quickly rendered existing commercial fleets and port facilities obsolete. At POLB, construction began to accommodate container terminal service and adapt to containerization's evolution of the industry (ICF 2020).

(continued on next page)

B10. Significance (continued from previous page)

During the early 1970s, POLB began constructing three new container terminals and a container freight station, enlarging its existing container operations, and dredging to deepen the harbor to 60 feet, making it the nation's deepest. Fill was used for extensive pier expansion, and POLB added wharves and storage space on every side of its landfill. These improvements expanded POLB's container trade, making it the busiest on the West Coast (ICF 2020).

Long Beach Steam Plant/ Long Beach Generation Station

SCE began construction of the 47.5 megawatt "Long Beach Steam Plant" in 1910. Operation of Unit 1 began in 1911 with Units 2 and 3 coming online in 1913 and 1914, respectively. Each turbine generator unit included boilers that were fired with heavy fuel oil. By approximately 1930, the LBGS grew to include construction of three separate power plants on 38 acres over two adjacent parcels on Terminal Island. The original Units 1, 2, and 3 were housed in what became known as Plant No. 1. Plant No. 2 contained six smaller turbine generators (Units 4 through 9) and header-system type boilers, which were installed between 1924 and 1926. Plant No. 3, completed in 1927, contained seven header system boilers and two turbine generators (Units 10 and 11) which came online between 1928 and 1930 and were operated on an as-needed basis (Northgate 2024). The plant complex was one of the world's largest and helped enable Long Beach to offer industry "the greatest supply of low-cost power and fuel to be found anywhere" (Ballard 1941).

Since the completion of Plant No. 3 ca. 1930, substantial changes have occurred to the plant and its vicinity. Between 1939 and 1944, a segment of Interstate 710 was constructed immediately south of the plant. Units 1, 2, and 3 were retired in place on January 5, 1954 and Plant No. 1 was demolished by November 1954. The present retention basin and water treatment area are situated in the former Plant No. 1 area (the water treatment plant was constructed ca. 2010). A major storm in early 1983 caused flooding at LBGS and water flowed into the basement of Plant No. 2, the site's lowest area. The flooding damaged the boiler and turbine equipment and SCE decided that repairing the outdated auxiliary equipment would be too costly (Northgate 2024). As a result, Plant No. 2 was demolished in 1989/1990 and replaced by the current day park located west of Plant No. 3 (NETR 2024). Thus, only Plant No. 3 remains from the original three plant facilities.

SCE operated the LBGS until 1998 when Parcel 1 (19-acre parcel where current and former generating units were located) was sold to Long Bech Generation LLC (NR Energy, Inc.). In 2003, SCE sold Parcel 2 (where the oil tank farm, switchyards and support operations are located) to Pacific Terminals but maintains easements for electrical infrastructure (Northgate 2024). By 2020, the substation equipment and two large transmission structures immediately west of the warehouses were removed. That year, construction was completed on the Long Beach International Gateway bridge, a cable-stayed bridge which crosses east over the channel and connects Terminal Island with downtown Long Beach. The bridge replaced the 1968 Gerald Desmond Bridge, which was removed in 2022 (Google Earth Pro 2024).

Previous Documentation

The Warehouse, Locker Building, Machine Shop, and pipe segments are located on the LBGS parcel. The LBGS was determined eligible for the NRHP under Criteria A and D on July 21, 2003, by consensus through the Section 106 process and has been listed in the CRHR (P-19-187078, California Historical Resource Status Code 2S2). According to the SHPO concurrence correspondence dated October 10, 2003, the LBGS is significant under Criterion A for its association with the development of Long Beach Harbor and the Los Angeles Area. The LBGS is also significant under Criterion D for retaining sufficient and continuing use of technology built to early-twentieth century standards; this functioning technology affords an opportunity to study and understand early engineering techniques as they relate to early power plant development and operation. The previous documentation identified a period of significance of 1912-77.

(continued on next page)

B10. Significance (continued from previous page)

Eligibility for the NRHP and CRHR

This evaluation assesses resource eligibility under the National Register of Historic Places (NRHP) (Criteria A through D) and the California Register of Historical Resources (CRHR) (Criteria 1 through 4), which are modeled on the NRHP criteria. This evaluation assesses integrity based on the seven aspects of integrity defined by the NRHP and used by the CRHR.

Significance

NRHP Criterion A/CRHR Criterion 1

The Warehouse, Locker Building, Machine Shop, and pipe segments are located at the LBGS property. The LBGS was determined eligible for the NRHP under Criterion A on July 21, 2003 by Section 106 consensus and has been listed in the CRHR. While the auxiliary facilities are part of the LBGS property, they were not specifically evaluated as part of the previous eligibility determination, were not identified as contributing resources, and have been substantially altered since the period of significance (1912-77). As the Warehouse, Locker Building, Machine Shop, and pipe segments lack demonstrable individual significance and sufficient integrity to contribute to the LBGS, they are recommended not eligible for listing in the NRHP or CRHR.

NRHP Criterion B/CRHR Criterion 2

The Warehouse, Locker Building, Machine Shop, and pipe segments are recommended not eligible for listing under NRHP Criterion B or CRHR Criterion 2 as the individual resources are not significantly associated with any individuals important in local, state, or national history.

NRHP Criterion C/CRHR Criterion 3

The Warehouse, Locker Building, Machine Shop, and pipe segments are recommended not eligible for listing under NRHP Criterion C or CRHR Criterion 3. The Warehouse, Locker Building, and Machine Shop, which were constructed as support facilities for an industrial complex, do not embody the distinctive characteristics of a type, period, or method of construction. In addition, the buildings have undergone multiple alterations since their original construction. Research did not uncover information that indicates the reinforced concrete pipe segments, which are abandoned components of LBGS's saltwater intake system, possess engineering significance.

NRHP Criterion D/CRHR Criterion 4

The LBGS was determined eligible for the NRHP under Criterion D on July 21, 2003. According to the previous documentation, "the continued use of technology built to early 20th century specifications provides an opportunity to study and understand early engineering techniques" as they relate to early power plant development and operation. The LBGS's Criterion D significance relates specifically to the surviving Plant No. 3 and does not refer to the Warehouse, Locker Building, Machine Shop, or pipe segments, which were all constructed in the mid-twentieth century. Thus, this recording of the Warehouse, Locker Building, Machine Shop, and pipe segments encapsulates their likely information potential, and it is unlikely that further survey would reveal additional potential for information important to history. Therefore, the Warehouse, Locker Building, Machine Shop, and pipe segments are recommended not eligible under Criterion D/4.

B12. References (continued from page 2)

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Google Earth Pro
2024 Data SIO, NOAA, U.S. Navy, NGA, GEBCO. Image Landsat/Copernicus. Image IBCAO. Image U.S. Geological Survey.

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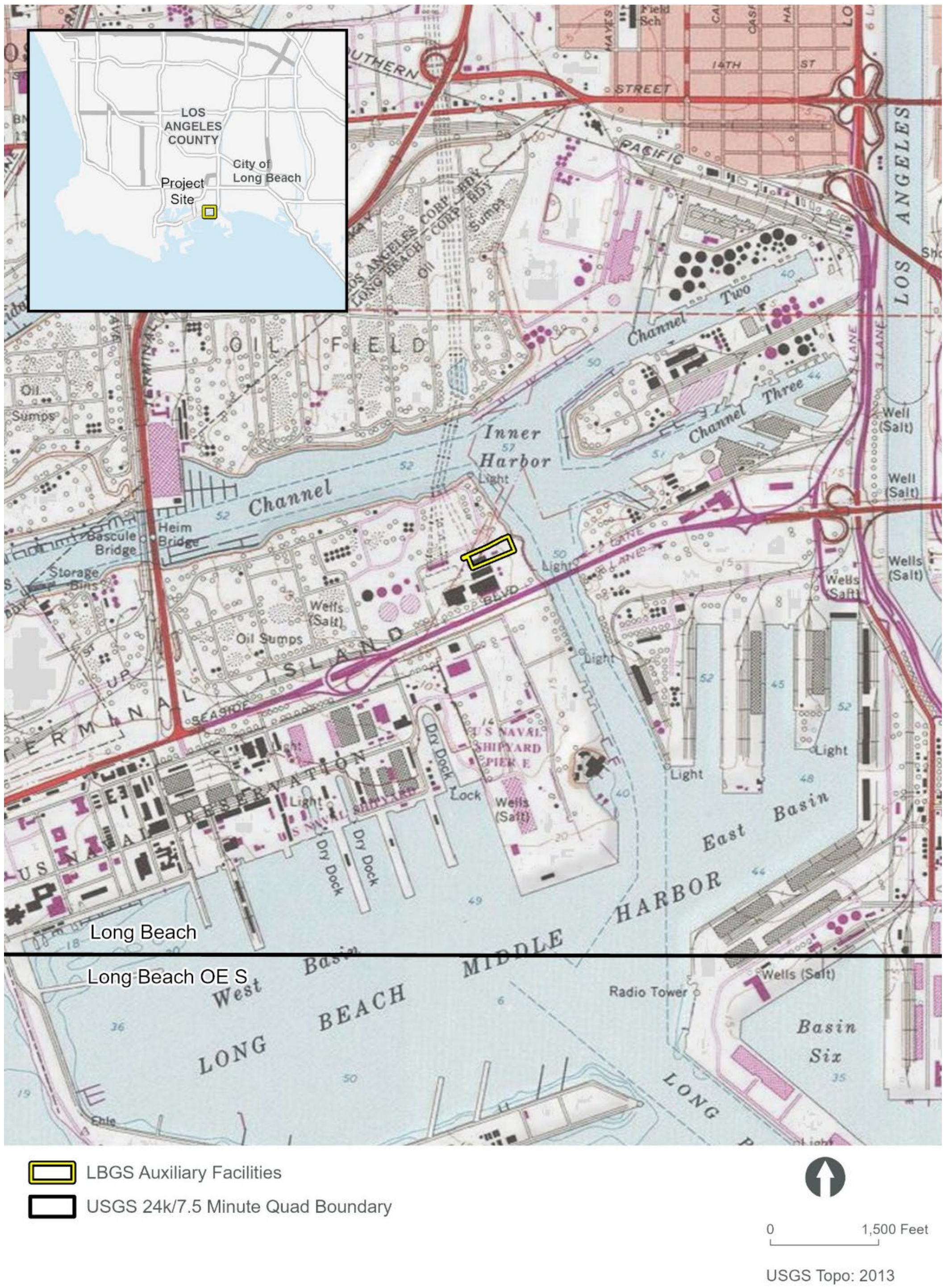
Location Map



Enlarged Sketch Map

LBGS Auxiliary Facilities

CONTINUATION SHEET

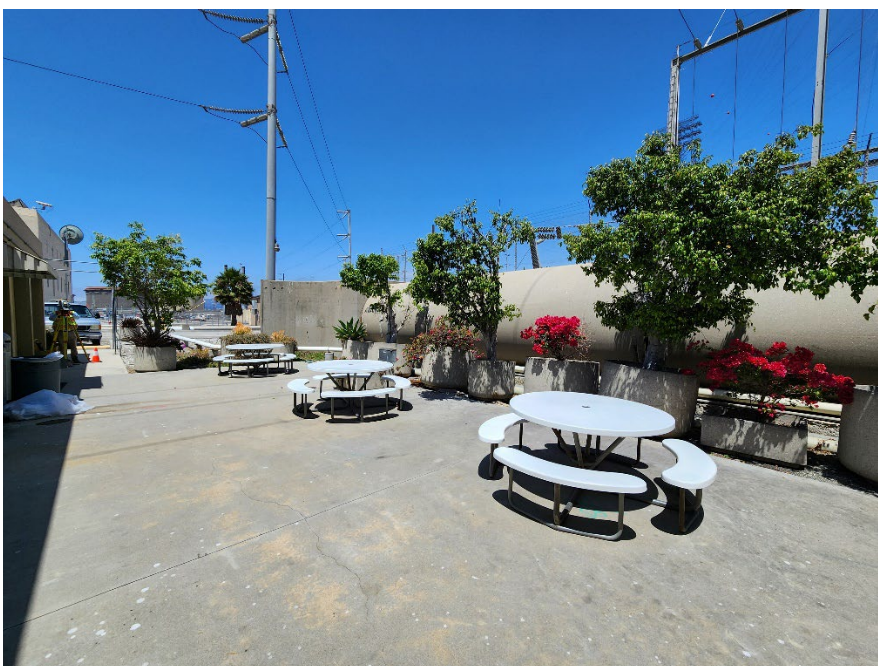
Property Name: Long Beach Generating Station Auxiliary Facilities

Warehouse façade (south elevation), viewing west.

Locker Building façade (south elevation), viewing facing northeast.

CONTINUATION SHEET

Machine Shop façade (south elevation), viewing north.



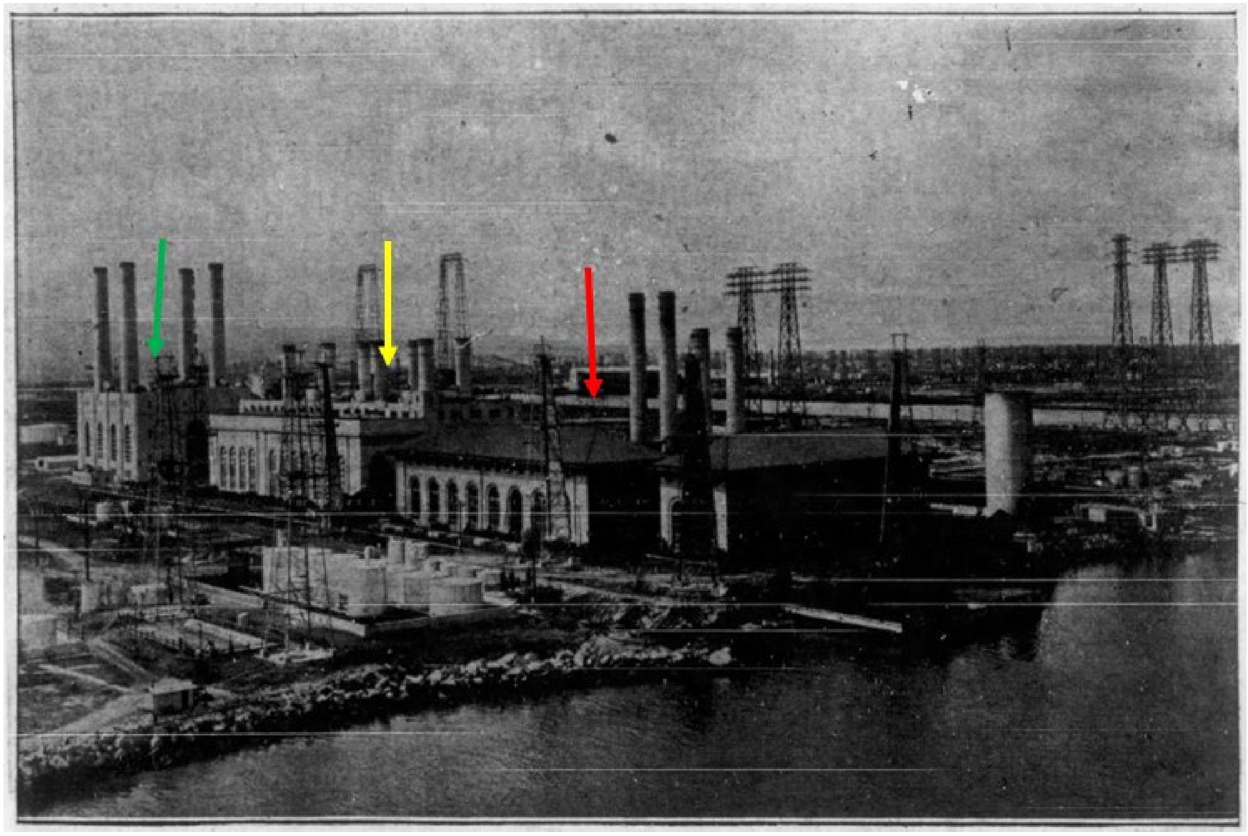
West Pipe Segment, viewing west.

CONTINUATION SHEET

Property Name: Long Beach Generating Station Auxiliary Facilities

East Pipe Segment, viewing northeast.

Plant No. 3 with the Long Beach International Gateway Bridge in the background, viewing south-southeast. Plant Nos. 1 and 2, which flanked Plant No. 3, are no longer extant. The black arrow identifies the Warehouse.



LBGS ca. 1941, showing Plant Nos. 1 (red arrow), 2 (green arrow), and 3 (yellow arrow), viewing northwest (Ballard 1941). Plant Nos. 1 and 2 are no longer extant.

Appendix D. Hazard Mitigation Analysis

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ELEVATE RENEWABLES

ESRG ENERGY SAFETY RESPONSE GROUP

Sungrow PowerTitan 2.0

HAZARD MITIGATION ANALYSIS – Pier S BESS

Ver. 0 | November 4th, 2024

SUMMARY

This document serves as the Hazard Mitigation Analysis performed for the Sungrow *PowerTitan 2.0* battery energy storage system proposed for use in the Long Beach BESS Facility.

Prepared For:

Elevate/ArcLight

Energy Safety Response Group, LLC
8350 US Highway 23 North
Delaware, OH 43015

www.energyresponsegroup.com
1-833-SAFE-ESS

PROJECT DESCRIPTION

Project Name	Sungrow PowerTitan 2.0 Hazard Mitigation Analysis for Long Beach
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Prepared For	Elevate
Revision No.	Ver. 0
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Prepared By:

Nick Petrakis
Senior Consultant
michael.bowes@energyresponsegroup.com

Reviewed By:

Nick Warner
Co-Founder, Principal
nick.warner@energyresponsegroup.com

Revision History

Revision No.	Date of Issue	Substance of Change	Prepared By	Reviewed By
Rev. 0	11/4/2024	Draft issue	N. Petrakis	N. Warner

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1 INTRODUCTION

1.1 Background

Energy Safety Response Group (ESRG) has been retained by Elevate to provide permitting support services to advance the development of the Long Beach Battery Energy Storage System (ESS or BESS) project to be located in Long Beach, California. This report summarizes findings from a site-specific Hazard Mitigation Analysis (HMA) performed in compliance with *2022 California Fire Code (CFC) §1207.1.4* and *NFPA 855, Standard for the Installation of Stationary Energy Storage Systems (2023 Edition)*. This HMA can be utilized to assess the anticipated overall effectiveness of protective barriers in place to mitigate the consequences of a battery-related failure. The analysis was performed based on the current documentation available at the time of the report.

1.2 Applicable Codes and Standards

CFC §1207.1.4 requires that an approved hazard mitigation analysis be performed where allowed as a basis for increasing maximum allowable quantities (MAQ) of energy storage capacity (600 kWh for lithium-ion batteries). This hazard mitigation analysis is conducted in accordance with *CFC* and evaluates the consequences of the following failure modes as required per *§1207.1.4.1*:

1. *A thermal runaway condition in a single ESS rack, module, or unit.*
2. *Failure of any battery (energy) management system.*
3. *Failure of any required ventilation or exhaust system.*
4. *Voltage surges on the primary electric supply.*
5. *Short circuits on the load side of the ESS.*
6. *Failure of the smoke detection, fire detection, fire suppression, or gas detection system.*
7. *Required spill neutralization not being provided or failure of a required secondary containment system.*

Similar failure modes for a hazard mitigation analysis are required by *NFPA 855 §4.4.2* as a basis for increasing maximum stored energy (600 kWh for lithium-ion batteries), though items 4, 5, and 7 above are not required.

Per *CFC §1207.1.4.2*, the fire code official shall be permitted to approve the hazard mitigation analysis as documentation of the safety of the ESS installation provided the consequences of the analysis demonstrate the following:

1. *Fires will be contained within unoccupied ESS rooms or areas for the minimum duration of the fire-resistance rated separations identified in Section 1207.7.4.*
2. *Fires in occupied work centers will be detected in time to allow occupants within the room or area to safely evacuate.*

3. *Toxic and highly toxic gases released during fires will not reach concentrations in excess of IDLH level in the building or adjacent means of egress routes during the time deemed necessary to evacuate occupants from any affected area.*
4. *Flammable gases released from ESS during charging, discharging and normal operation will not exceed 25 percent of their lower flammability limit (LFL).*
5. *Flammable gases released from ESS during fire, overcharging and other abnormal conditions will be controlled through the use of ventilation of the gases preventing accumulation, or by deflagration venting.*

The above analysis approval requirements, per *CFC*, also comply with the requirements set forth by *NFPA 855 §4.4.3*.

The following key codes, standards, and local requirements are referenced throughout the report:

- *2022 California Fire Code §1207 Electrical Energy Storage Systems*
- *NFPA 855 Standard for the Installation of Stationary Energy Storage Systems*, 2023 Edition
- *UL 9540A Standard for Test Method for Evaluation Thermal Runaway Fire Propagation in Battery Energy Storage Systems,* 4th Edition
- *UL 9540 Standard for Energy Storage Systems and Equipment,* 2nd Edition
- *NFPA 68 Standard on Explosion Protection by Deflagration Venting,* 2018 Edition
- *NFPA 69 Standard on Explosion Prevention Systems,* 2019 Edition
- *NFPA 72 National Fire Alarm and Signaling Code,* 2019 Edition
- *UL 1973 Standard for Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications, 2018 Edition*

1.3 Summary of Findings

- The Sungrow *PowerTitan 2.0* is equipped with a number of protection systems including heat, smoke, and gas detection, exhaust ventilation system, deflagration vent panels, BMS control, active liquid-cooling system for thermal management, electrical shutdowns and disconnects, etc. to mitigate fault conditions required per *NFPA 855 §4.4.2.1 and CFC §1207.1.4.2*.
- The Sungrow PowerTitan 2.0 has been listed to *UL 9540 Standard for Energy Storage Systems and Equipment* for the following models: ST5015UX-2H-US, ST4595UX-US, ST4175UX-2H-US, ST3760UX-2H-US, ST3340UX-2H-US, ST5015UX-4H-US, ST4175UX-4H-US, and ST3340UX-4H-US models.
- UL 9540A large-scale fire testing was conducted at the cell, module, and unit level. Unit level testing was favorable, in which thermal runaway was limited to the initiating module, and no external flaming, flying debris, explosive discharge of gases, sparks, electrical arcs, or other electrical events were observed.

- It is noted that battery cells and modules are listed to UL 1973; Certificate of Compliance (COC) should be provided for submission to the AHJ.
- Two layers of explosion mitigation are provided in the form of exhaust ventilation system designed in accordance with NFPA 69 as well as deflagration vent panels designed in accordance with NFPA 68.
- The proposed BESS facility and location poses minimal risk to public or life safety and property by way of being on a secured site away from public spaces or roadways with no public access to the site. It is recommended that training is provided to the First Responders to familiarize themselves with the site and hazards associated with lithium-ion ESS and are instructed to stay at a safe distance in the unlikely event of a system failure.
- Additional site-specific protections including availability of BMS data from remote monitoring facility, Central station monitoring of the automatic fire alarm system (with First Responder staging area), private hydrants, and a site-specific Emergency Management Plan (EMP) will be provided for the facility and will pose additional layers of safety for the facility.

2 ENERGY STORAGE SYSTEM OVERVIEW

2.1 Energy Storage System Description

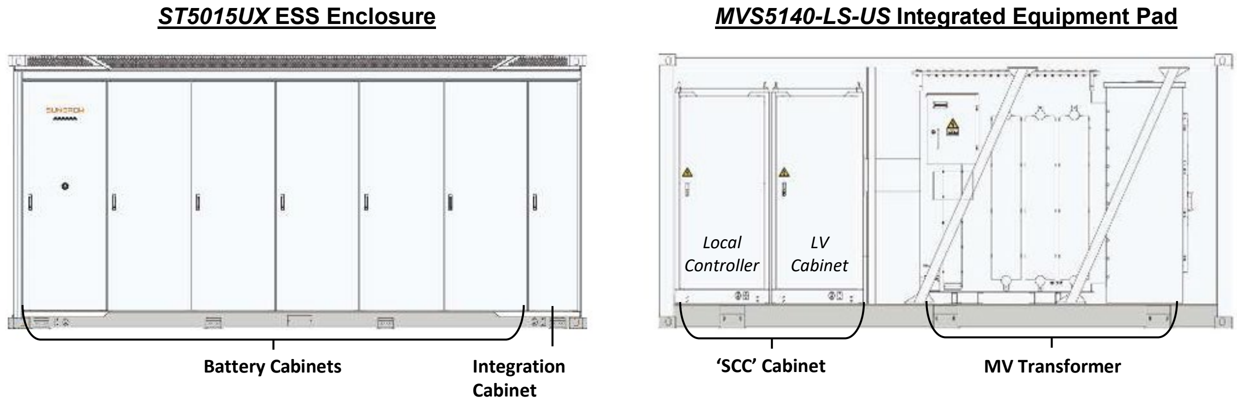
The Sungrow PowerTitan 2.0 is a modular, liquid-cooled stationary storage battery system used in medium and large-scale energy storage projects. The 19′-11″ x 8′ x 9′-6″ IP55-rated (NEMA 3S) enclosure utilizes a cabinet-style design, is fully populated by battery modules and associated electrical components, and therefore cannot physically be entered at any time.

The system utilizes Contemporary Amperex Technology Co., Limited (CATL) CBC00 lithium iron phosphate (LFP) battery cells, which are packaged into battery modules (or “packs”) consisting of 104 cells in series. Packs are contained within IP67-rated housing. Each PowerTitan 2.0 enclosure consists of twelve (12) racks (also referred to as clusters) for a total 48 battery packs and 4992 battery cells per enclosure. Each rack also includes a dedicated terminal box (TB) and Power Conversion System (PCS), as depicted in Figure 4 below. UL 9540A large-scale fire testing was conducted at the Cell, Module, and Unit level, as is summarized in Section 4.1 of this report. The PowerTitan 2.0 is listed to UL 9540 (3rd Ed.)

Each PowerTitan 2.0 enclosure comes equipped with a number of fire safety devices (referred to as the “Fire Suppression System” or FSS in Sungrow documentation). By default, each enclosure includes two (2) heat detectors, four (4) smoke detectors, dedicated UL 864-listed Fire Alarm Control Panel (FACP), and six (6) deflagration vent panels located in the roof of the enclosure. Additional features including flammable gas detector, sounder beacon, internal sprinkler heads, and emergency ventilation system may be requested by customers on a project-specific basis.

Figure 1 - Typical Sungrow PowerTitan 2.0 (ST5015UX) Enclosure

Figure 2 - Sungrow PowerTitan 2.0 Configuration Overview



2.1.1 Battery Cell

The PowerTitan 2.0 utilizes CATL prismatic LFP (lithium iron phosphate) battery cells, nominally rated 314Ah and 3.2V (model № *CBC00*). Battery cells are listed to UL 1973.

2.1.2 Battery Module / Pack

The PowerTitan 2.0 utilizes Sungrow battery modules, nominally rated 314Ah and 332.8V, consisting of 104 cells in series (model № *P1044AL-ACA*). Aerogel separation is provided to limit thermal propagation to adjacent cells. Battery modules are listed to UL 1973.

2.1.3 Battery Racks / Clusters

The PowerTitan 2.0 includes a total of 12 battery racks (also termed "clusters" by Sungrow), nominally rated 418kWh and 104.5kW, consisting of four (4) battery packs in series before terminating at a parallel connection. Enclosures are configured with two rack clusters stacked within each of the six (6) battery cabinet bays, with a dedicated terminal box and PCS at the bottom of each cabinet – 12 PCS (one per rack) in the 2-hr model, and six (6) PCS in 4-hr model (two per rack).

Figure 3 - PowerTitan 2.0 Battery Cell, Pack, Rack Images

Figure 4 - Example Battery Stack Configuration

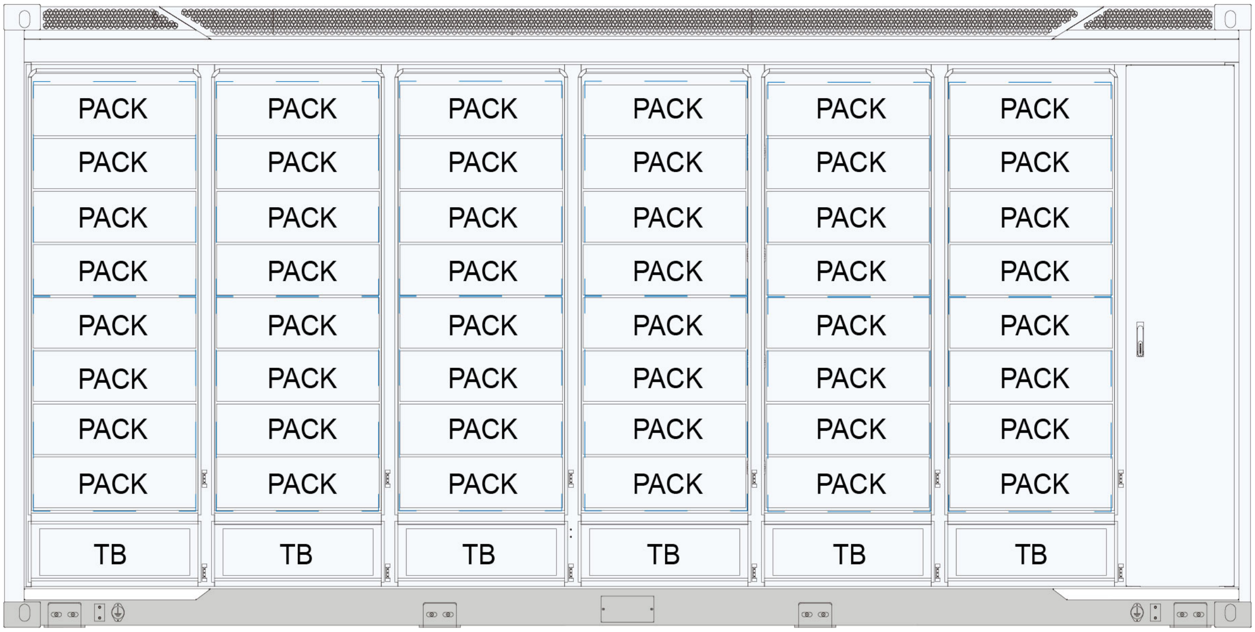


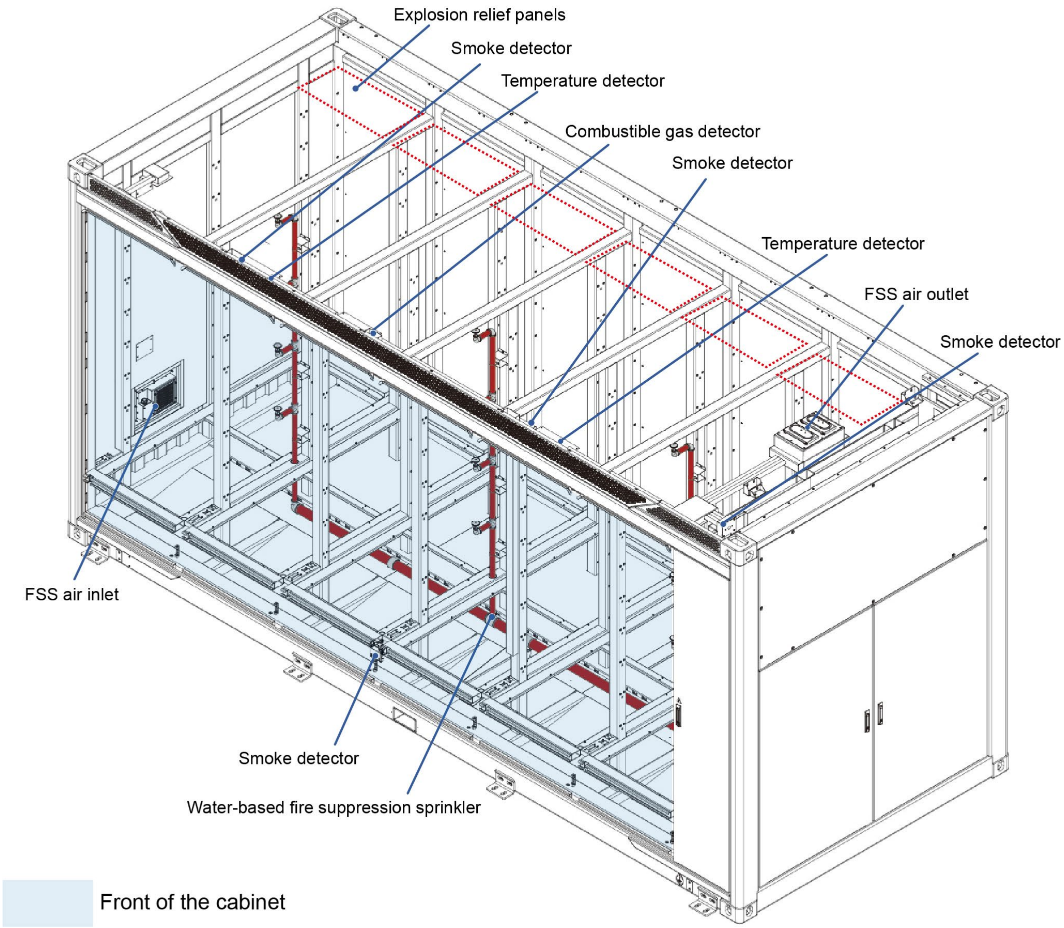
Table 1 - 4-hr and 2-hr Configurations

4hr	2hr
1 rack = 417.9kWh (104.5kW)	1 rack = 417.9kWh (104.5kW)
12 racks = 5,015kWh (1,254kW)	12 racks = 5,015kWh (2,508kW)
12 Racks per enclosure	12 Racks per enclosure
6 PCSs per enclosure	12 PCSs per enclosure
2 Racks per pcs	1 Racks per pcs

2.2 Fire Protection Features

The Sungrow PowerTitan 2.0 is equipped with a number of built-in and optional fire safety features (designated by Sungrow as "Fire Suppression System" (FSS) designed to mitigate the propagation of a battery failure or potentially prevent the failure from occurring altogether.

Figure 5 - Fire Protection Features



***Note**: While enclosures include an optional internal water-based fire suppression system, it is recommended by ESRG that this system is not utilized during a fire event.*

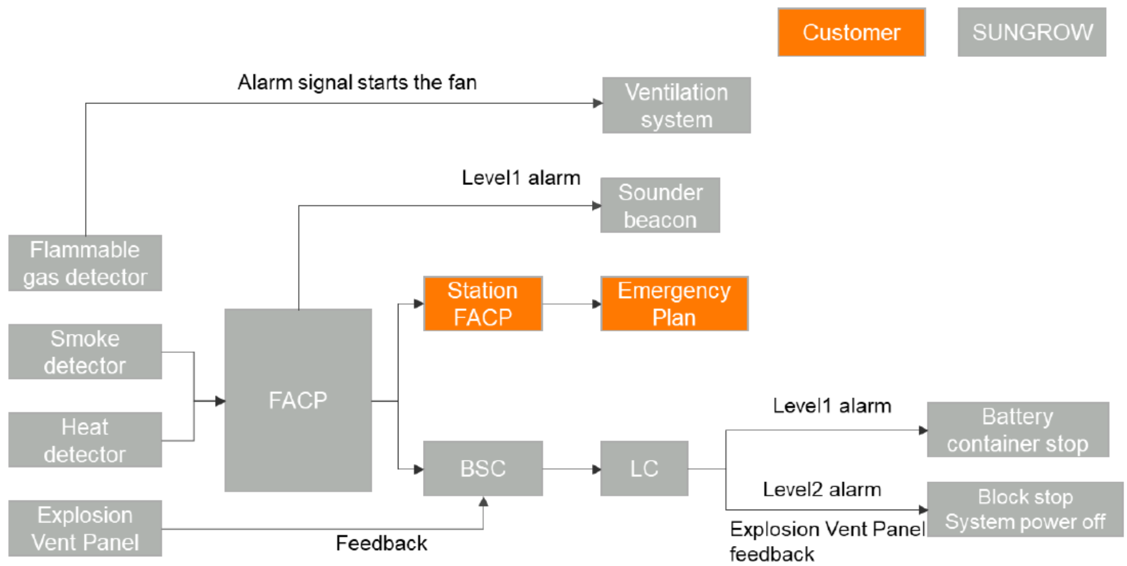
2.2.1 Smoke and Heat Detection

The PowerTitan 2.0 is equipped standard with four (4) smoke detectors and two (2) heat detectors, as depicted in Figure 5 above. Smoke and heat detectors are listed to UL 268 and UL 521, respectively. Signals from the detectors are transmitted to the enclosure “Mini” FACP which communicates with the Battery System Controller (BSC), Local Controller (LC), and site-level Station FACP.

In the event of a single heat or smoke detector activation, a level 1 alarm is raised, resulting in automatic shutdown of the alarm battery cabinet. In the event that both smoke and heat detectors are activated simultaneously, a level 2 alarm is raised, resulting in shutdown of the whole block system. If the customer chooses to include the optional sounder beacon, this shall be triggered upon activation of either heat or smoke detection.

Visible and audible annunciation will be provided at the main Fire Alarm Control Panel located at the First Responders station.

Figure 6 - Fire Signal and Response Logic



2.2.2 Gas Detection

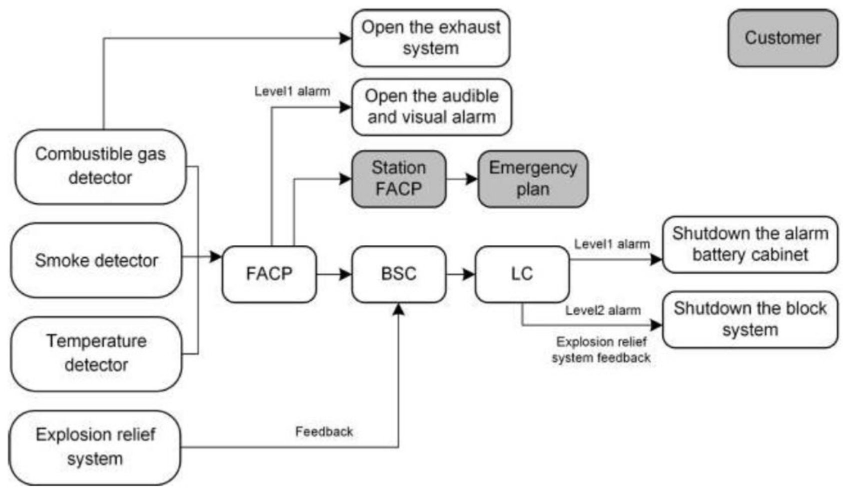
The PowerTitan 2.0 is equipped with combustible gas detection. The combustible gas detector is located in the center of the enclosure ceiling and calibrated to trigger at 10% LEL (lower explosive limit), activating both alarms and exhaust ventilation system to remove flammable gas from the enclosure. Corresponding alarms will be sent to the FACP, BSC, LC, and customer, as described in Figure 6 above.

2.2.3 Exhaust Ventilation System

The PowerTitan 2.0 is equipped with exhaust ventilation system designed in accordance with *NFPA 69: Standard on Explosion Prevention Systems* to remove flammable gas from the enclosure before an explosive atmosphere is allowed to accumulate. The system consists of one exhaust fan with rated flow rate of 750 m^3/h (441 CFM). In the event that the flammable gas detector (described above) is activated, the FSS air intake equipment and FSS exhaust equipment are triggered.

Computational Fluid Dynamics (CFD) modeling was performed for the PowerTitan 2.0 exhaust ventilation system, demonstrating that the system shall effectively reduce average concentration of flammable gases below 25% LFL (see Section 4.2 for summary of NFPA 69 analysis performed for the PowerTitan 2.0).

Figure 7 - Control Logic of Exhaust System



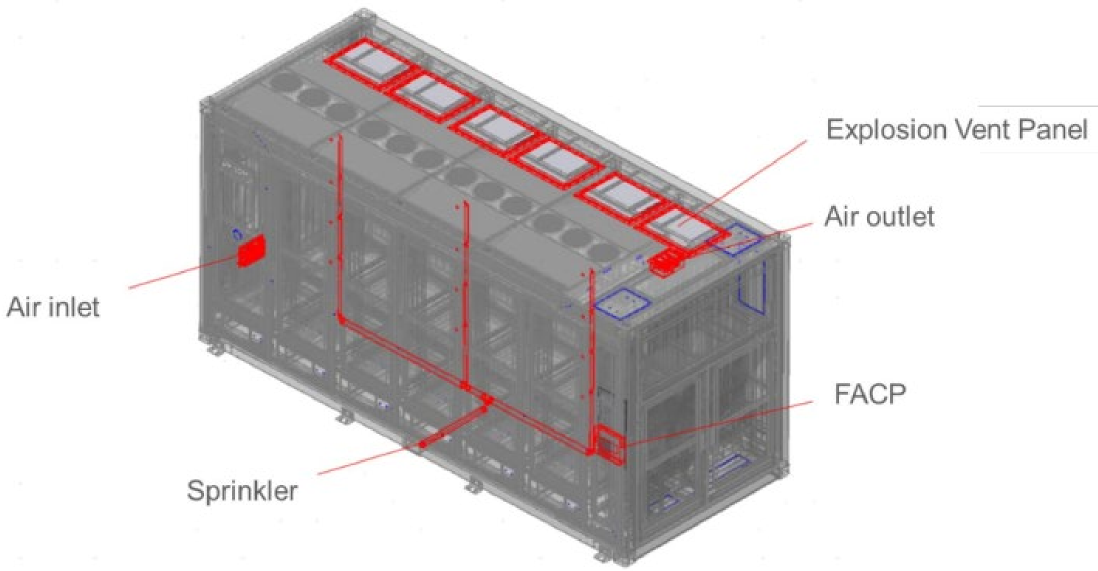
2.2.4 Deflagration Vent Panels

In addition to the automatic explosion prevention system, the PowerTitan 2.0 comes standard with six (6) passive deflagration vent panels designed in accordance with NFPA 68 *Standard on Explosion Protection by Deflagration Venting*. In the event that the primary explosion prevention system should fail for any reason, these deflagration panels provide a secondary means of protection, directing any blast overpressure upwards and away from the direction of any nearby exposures or emergency personnel who may be arriving on-site. In the event that the relief panels open, the BSC also transmits an alarm signal / feedback signal to the LC and the block system is shutdown.

CFD modeling was performed for the PowerTitan 2.0, demonstrating that the panels shall adequately manage a deflagration event should it occur (see Section 4.3 for summary of NFPA 68 analysis).

It is also noted that routine maintenance (such as snow and ice removal) may be required to ensure vent panels are able to function properly during winter months.

Figure 8 - Deflagration Vent Panels



2.2.5 Battery Management System

An integrated Battery Management System (BMS) monitors key datapoints such as voltage, current, and state of charge (SOC) of battery cells, in addition to providing control of corrective and protective actions in response to any abnormal conditions. Critical BMS sensing parameters include battery module over / under voltage, cell string over / under voltage, battery module over temperature, temperature signal loss, and battery module over current. In the event of any abnormal conditions, the BMS will first raise an information warning, and then trigger a corresponding corrective action should certain levels be reached.

The Sungrow Battery Management System (BMS) adopts a three-level management structure design consisting of the following:

- **Battery Management Unit (BMU):** Managed a battery module, monitors battery status (voltage, temperature, etc.), and provides communication interface for the battery.
- **Battery Cluster Management Unit (CMU):** The battery cluster management unit realizes daily management and monitoring of battery clusters, referred to as CMU for short.
- **Battery Management System Controller (BSC):** Built into the BSP in battery cabinet and manages battery clusters within a single battery cabinet.

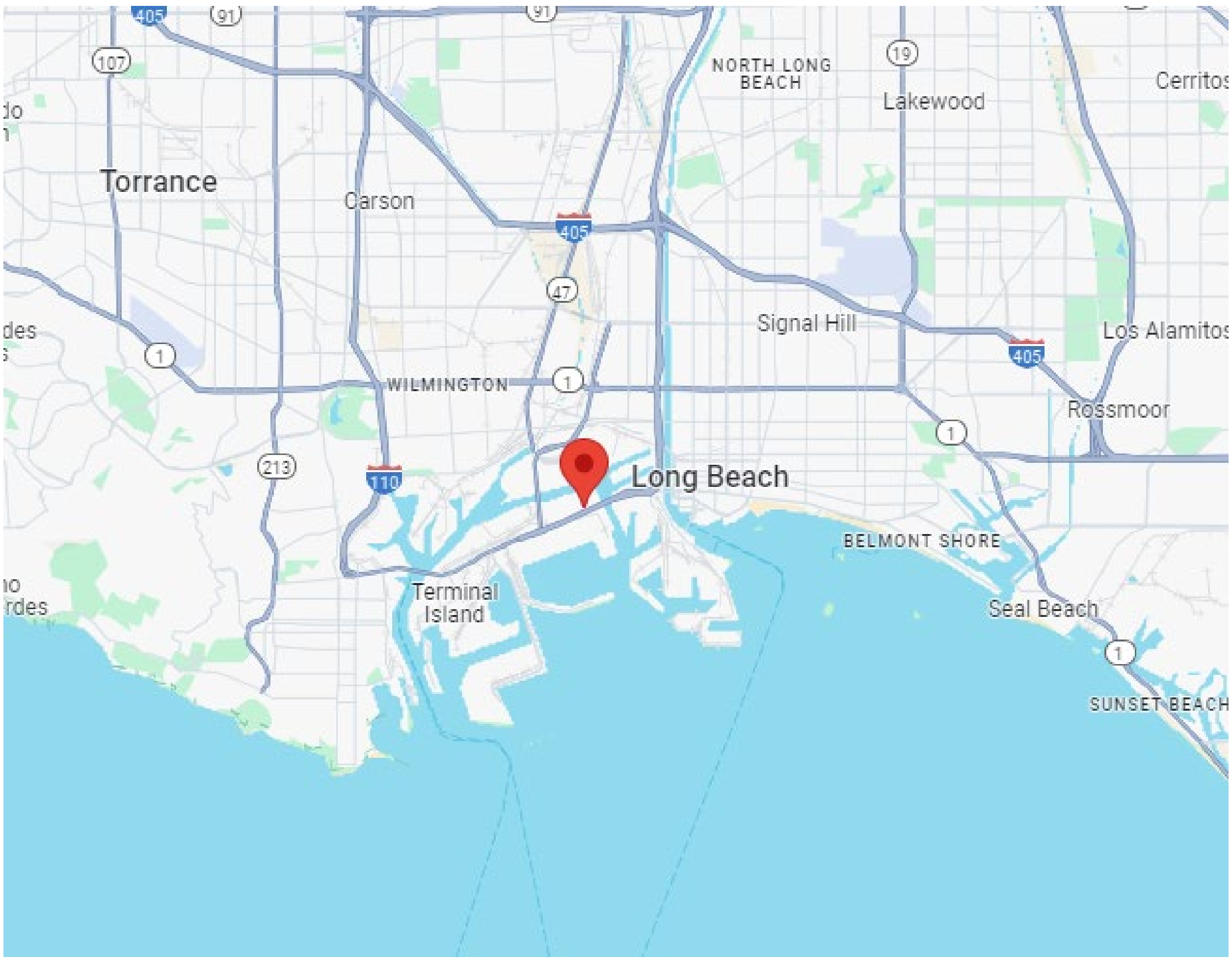
It is also noted that the BMS functional safety was evaluated according to UL 60730-1 Annex H by TÜV Rheinland.

3 SITE DESCRIPTION

3.1 Site Overview

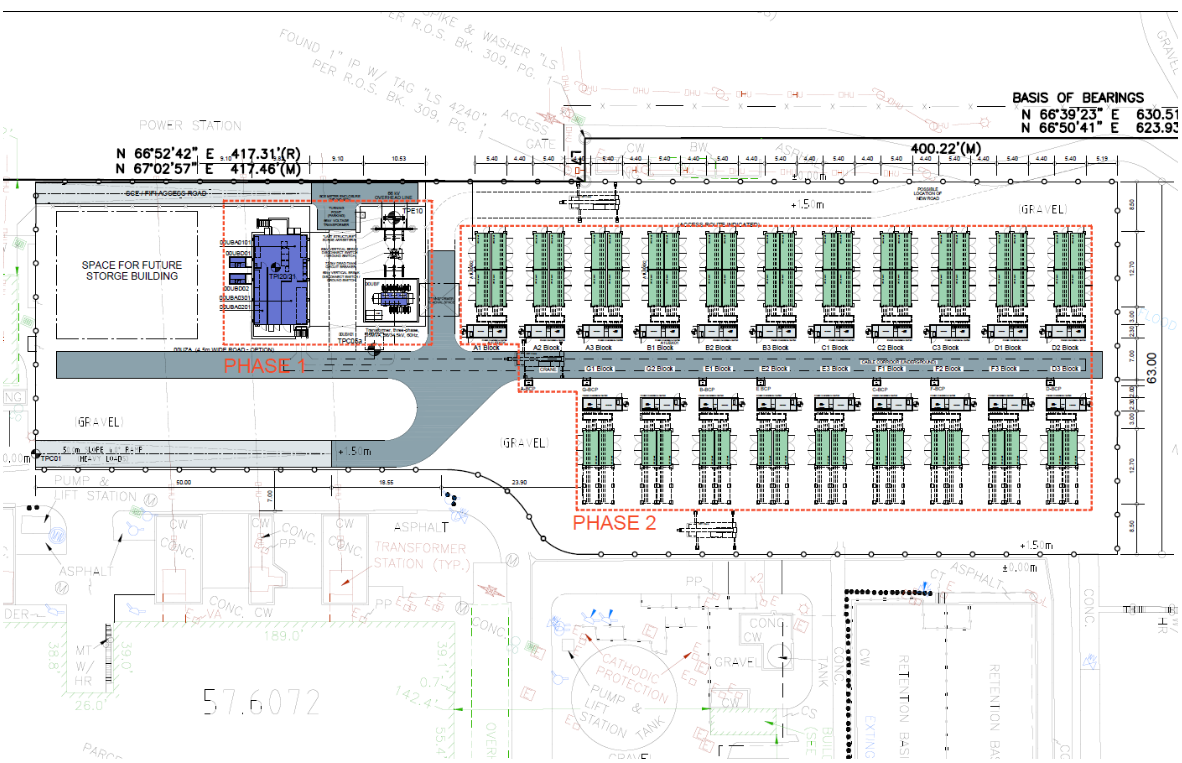
The proposed BESS facility is proposed to be located at 2665 W Seaside Blvd, Long Beach, CA 90802. Access to the facility is provided via Pier T Avenue, as a fire apparatus accessible exposure. The BESS portion of the facility will be bounded along all exposures by chain-link fencing.

Figure 2-1 – Site Overview and Nearby Exposures



Access to the facility will be provided via a 15’-0” wide paved internal apparatus accessible vehicle road, set back approximately 1,150 linear feet from Pier T Avenue (apparatus accessible exposure).

Figure 2-2 – Site Layout and Access



The site will be comprised of Ninety (90) Sungrow PowerTitan 2 (ST5015KWh-1250kW-4h-US) Battery Energy Storage Systems (BESS), for a total system capacity of 70 MW/280 MWh. The neighborhood is indicated as an Industrial Zoned (IP) including the subject lot. The lot is currently an NRG owned power generating facility. The BESS facility footprint is not located within any floodplains.

3.2 Nearby Exposures

The PowerTitan 2 units will be sited outdoors at grade level. The nearest exposures to the BESS include the NRG owned substation to the south east (approximately 100 feet from the nearest PowerTitan 2), a pump and lift station tank (approximately 80 feet from the nearest PowerTitan 2), and the Long Beach International Gateway Bridge (approximately 360 feet from the nearest PowerTitan 2). The separation distances between PowerTitan 2 BESS and within the facility meet or exceed the manufacturer's recommended separation distances.

3.3 Fire Department Access and Water Supply

There are multiple fire stations in proximity to the installation and units are anticipated to arrive on scene expeditiously after receiving an emergency alert from the central station monitoring facility communicating with the Fire Department. The closest fire station (Long Beach Fire Dept. Station 24) is located approximately 1.3 miles away.

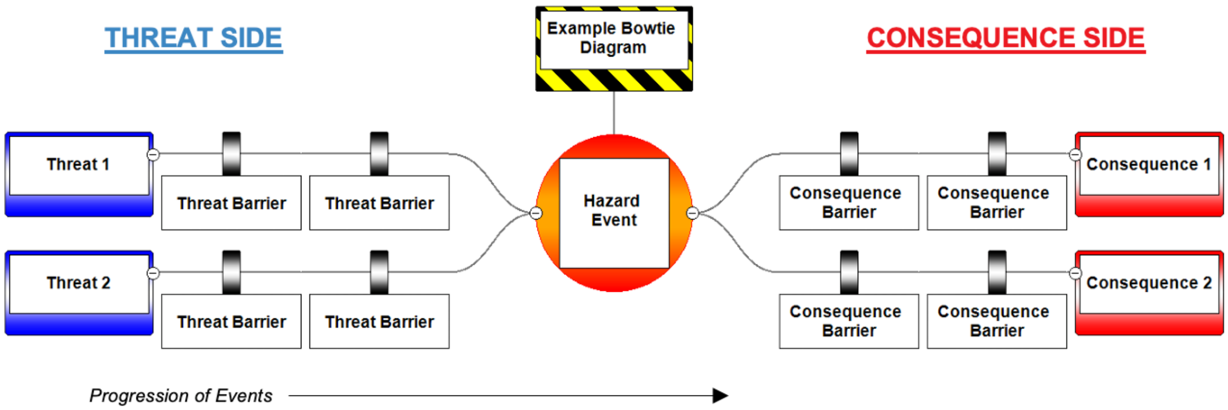
Fire hydrants are provided for the site located in proximity to the BESS facility, providing a robust water supply to first responders. The closest hydrant will be located adjacent to the First Responder station, approximately 70 feet from the nearest Sungrow enclosure. (Proposed hydrant map attached with submission)

4 HAZARD MITIGATION ANALYSIS

4.1 HMA Methodology

ESRG utilizes the bowtie methodology for hazard and risk assessments, as is described in *2023 NFPA 855 Appendix G.3.*, as it allows for in-depth analysis on individual **mitigative barriers** and serves as a strong tool for visualizing the chronological pathway of **threats** leading to critical hazard events, and ultimately to greater potential **consequences**, as depicted in the figure below. This diagrammatic method of describing and analyzing the pathways of a risk from hazards to outcomes can be considered to be a combination of the logic of a fault tree analyzing the cause of an event and an event tree analyzing the consequences.

Figure 3 - Example Bowtie Diagram



Each fault condition per *NFPA 855* is accompanied by a corresponding bowtie diagram indicating critical threat and consequence pathways and the mitigative barriers between them. As the most critical risk posed by lithium-ion battery cells comes from the propagation of thermal runaway from a failing cell (or multiple cells) to surrounding cells, this serves as the primary critical hazard for the subsequent failure scenarios.

In addition to main barriers for fault conditions on the threat side of the diagram, the consequence barriers on the right side of the diagram (e.g., explosion protection and emergency response plan) **also** contribute added layers of safety on top of the main threat barriers shown. It is important to note that the barriers on the left side, along a threat path, are intended to keep the threat from becoming a thermal runaway, while the barriers on the right side, along the consequence pathway, are intended to keep that single thermal runaway from evolving into one of the more severe consequences such as fire spread beyond containment, off-gassing leading to explosion, or fire spread beyond containment. For more on the methodology and relevant terminology, see Appendix B of this report.

4.2 Primary Consequences of ESS Failure and Mitigative Barriers

The dynamics of lithium-ion ESS failures are extremely complex, and the pathway of failure events may vary widely based on system design, mitigative approaches utilized, and even small changes in environmental or situational conditions. However, the primary consequences stemming from a propagating lithium-ion battery failure largely fall into a number of specific hazard scenarios, as depicted in the diagram and associated table below (though other scenarios not listed may certainly also occur). These primary consequences serve as the basis for the consequence side of the majority of the fault condition diagrams in the following sections of this report.

Figure 4 – HMA Diagram

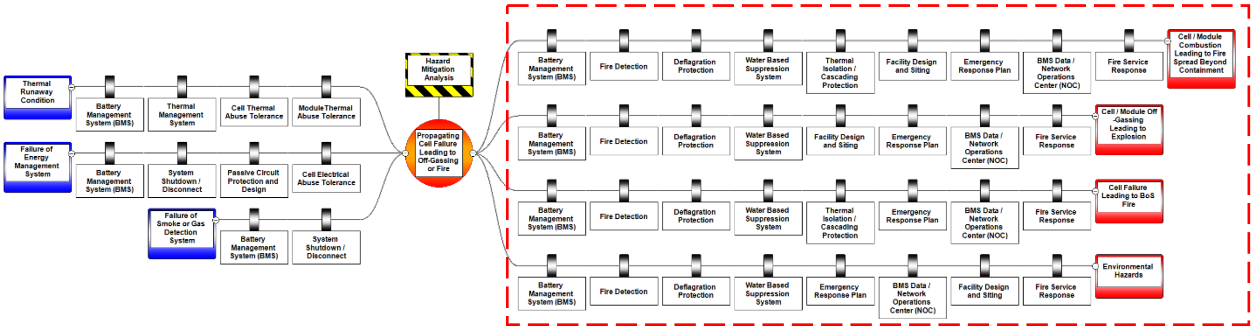


Figure 5 - Primary Consequence Barriers Diagram

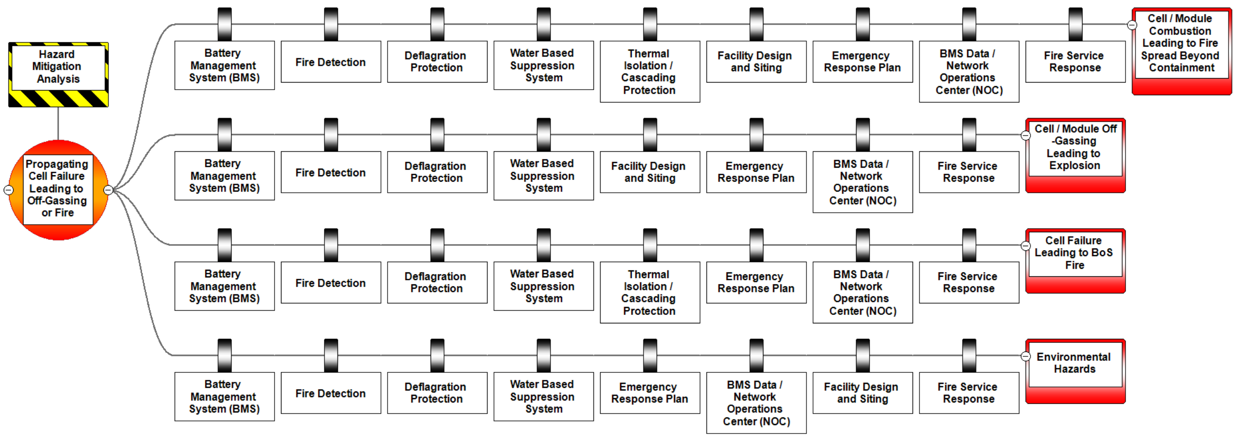


Table 2 - Primary Consequence Barriers

PRIMARY CONSEQUENCE BARRIERS	
Detection Systems / FACP	The PowerTitan 2.0 comes standard with four (4) smoke detectors and two (2) heat detectors. Signals from the detectors are transmitted to the enclosure “Mini” FACP which communicates with the Battery System Controller (BSC), Local Controller (LC), and site-level Station FACP.
BMS Data Availability	The PowerTitan 2.0 is equipped with BMS capable of 24/7 remote monitoring though additional information (such as BMS manual) on specific datapoints, thresholds, etc., should be provided for review. Furthermore, contract agreement for remote monitoring facility should be provided by project developers utilizing PowerTitan 2.0 in site-specific applications.
Explosion Protection	The Sungrow PowerTitan 2.0 comes equipped with explosion prevention system designed in accordance with NFPA 69 to remove flammable gases from the enclosure in the event of a thermal runaway event before a deflagration is allowed to occur. Provisions will also be made on a site-specific basis to allow for remote operation of this exhaust system in compliance with *R608-01(h)(9) Smoke / Gas Purge System.* Additionally, the PowerTitan 2.0 comes standard with six (6) passive deflagration panels located in the roof of the enclosure to direct any blast overpressure upwards and away from any nearby exposures or emergency personnel who may

	be arriving in the area in the event that the exhaust system should fail for any reason.
Thermal Isolation / Cascading Protection	UL 9540A Unit level testing indicated no external flaming, flying debris, explosive discharge of gases during testing, thus minimal, if any, fire spread across units is anticipated.
Electrical Protections	Automatic disconnect in response to critical alarm notifications such as loss of communication with EMS, low SOC, ground fault detection, over or under-voltage, etc. Inverter / PCS controls provided. A site-wide E-stop will be provided at the First Responder Station.
Facility Design and Siting	The proposed BESS facility and location poses minimal risk to public or life safety and property by way of being on a secured site away from public spaces or roadways with no public access to the site. It is recommended that training is provided to the First Responders to familiarize themselves with the site and hazards associated with lithium-ion ESS and are instructed to stay at a safe distance in the unlikely event of a system failure.
Emergency Response Plan	A product-level Emergency Response Guide (ERG) has been provided by Sungrow with general guidance around response in the event of an emergency. Additionally, a site-specific Emergency Response Plan (ERP) is currently developed by ESRG and may greatly improve the strength of this barrier. Familiarization with the site and applicable equipment by the designated Subject Matter Experts (SMEs), and corporate responders may also provide an increased level of safety.
Fire Service Response	It is anticipated that adequate water shall be available at most sites for firefighting purposes within the Port of Long Beach, and that fire department response, equipment, and capabilities shall be strong. Additional private hydrants will be provided in proximity to the BESS within the Long Beach facility. Site-specific training and installation familiarization for local responding stations may further increase the strength of this barrier.

4.3 Fault Condition Analysis

Per *CFC §1207.1.4.1*, the hazard mitigation analysis shall evaluate the consequences of the following failure modes. Only single failure modes shall be considered.

1. *A thermal runaway condition in a single ESS rack, module, or unit.*
2. *Failure of any battery (energy) management system.*
3. *Failure of any required ventilation or exhaust system.*
4. *Voltage surges on the primary electric supply.*
5. *Short circuits on the load side of the ESS.*
6. *Failure of the smoke detection, fire detection, fire suppression, or gas detection system.*
7. *Required spill neutralization not being provided or failure of a required secondary containment system.*

For the purposes of this report, it shall be assumed that all construction, equipment, and systems that are required for the ESS shall be installed, tested, and maintained in accordance with local codes and the manufacturer's instructions. The analysis is based on the most recent information provided by Sungrow at the time of this writing.

The following table provides a summary of findings from the hazard mitigation analysis performed in fulfillment of *CFC §1207.1.4.1,* with each fault condition described in greater detail, accompanied by simplified bowtie diagrams for visualization of mitigative barriers. Additionally, full bowtie diagrams with barrier descriptions are provided in Appendix A.

Table 3 – Summary of Fault Condition Analysis

Compliance Requirement	Comments
1. A thermal runaway condition in a single ESS rack, module, or unit.	A number of passive and active measures are implemented to reduce the potential of a thermal runaway event from occurring including BMS control and active cooling to internal components. Battery modules and cells have been listed to UL 1973. Should a thermal runaway event occur, additional mitigative measures are provided to prevent further propagation of failure throughout the system (see Section 3.2 above for list of all consequence barriers).
2. Failure of any battery (energy) management system.	The Sungrow BMS adopts a three-level management structure for monitoring and control of the systems at the battery module, battery cluster, and battery cabinet level for redundancy in the event that one level of control should fail, as described in Section 2.2.5 of this report. To further isolate any failure stemming from a failure of the energy storage management system, passive and active electrical fault protections are provided at multiple levels, along with all additional consequence barriers listed in Section 3.2 above.
3. Failure of any required ventilation or exhaust system.	In the event of failure of the exhaust ventilation system, the potential for accumulation of flammable gases leading to a potential for explosion within the enclosure may be present. Proper Facility Siting, Emergency Response Planning, and Fire Department response shall be critical to mitigate the potential consequences stemming from failure of the exhaust ventilation system.

4. Voltage surges on the primary electric supply.	Voltage surges on the primary electric supply are mitigated by inverter / PCS controls, voltage monitoring, and automatic disconnects provided by the BMS, as well as several passive circuit protections.
5. Short circuits on the load side of the ESS.	Short circuits on the load side of the ESS are mitigated by BMS control and subsequent safety actions as well as by passive circuit protection and design.
6. Failure of the smoke detection, fire detection, fire suppression, or gas detection system.	Failure of the provided heat or smoke detectors may result in failure to properly activate respective safety systems and cause notification signals to the fire alarm control panel and central station to be relayed to the fire department. However, it is anticipated that the BMS shall still be capable of triggering the respective safety actions in the event of heat or smoke detectors, depending on the nature of the battery failure. Failure of the provided gas detectors may directly affect proper activation of the exhaust ventilation system; therefore, it is imperative that proper emergency response procedures be developed and documented in site-specific Emergency Management Plans for all sites utilizing the PowerTitan 2.0.
7. Required spill neutralization not being provided or failure of a required secondary containment system.	**Not applicable**. No spillable liquid electrolyte present.

4.3.1 Thermal Runaway Condition or Mechanical Failure Condition in a Single ESS Unit

Thermal runaway, as defined in NFPA 855 is the condition when an electrochemical cell increases its temperature through self-heating in an uncontrollable fashion and progresses when the cell's heat generation is at a higher rate than it can dissipate. This results in off-gassing, fire, or explosion. The cause of a thermal runaway event can range from a manufacturer defect in the cell, external impact, exposure to dangerously high temperatures, or a multitude of controls and electrical failures. Furthermore, a thermal runaway event in a single cell can propagate to nearby cells, thus creating a cascading runaway event across battery modules and racks, leading to more heat generation, fire, off-gassing, and increased potential for a deflagration event.

A number of protections are provided to reduce the potential for thermal runaway at the cell level, most notably via monitoring and controls provided by the battery management system (BMS) which will trigger respective corrective actions based on the fault signal received. Should a thermal runaway condition spread to a single module, array, or unit, additional protections including BMS control and system shutdown and disconnects are anticipated to mitigate further propagation of failure throughout the system electrically.

Should a thermal runaway event occur, flammable gases may accumulate within the enclosure, leading to a potentially explosive atmosphere. Given a source of ignition (for example from fire, heat, or electrical arcing), a deflagration or explosion event may occur, posing serious threat to the nearby area. To limit the impact of such an event, the PowerTitan 2.0 is equipped with deflagration vent panels intended to direct any blast overpressure upwards and away from any nearby exposures or emergency personnel who may be arriving on-scene. Per *NFPA 855 §9.6.5.6.3*, these panels are to be designed in accordance with *NFPA 68: Standard on Explosion Protection*. A CFD analysis was provided to demonstrate that these panels shall operate as intended and critical rupture of the enclosure will not occur.

The inclusion of gas detection and exhaust ventilation system (described in sections above) may also prevent flammable gas from accumulating within the enclosure before an explosion can occur.

In a worst-case scenario in which a deflagration event does occur, consequences may be further mitigated by proper emergency response procedures, which should be developed on a site-specific basis.

UL 9540A Unit level testing indicated no external flaming, flying debris, or explosive discharge of gases during testing, thus minimal to no fire spread across units is anticipated. If further propagation of failure occurs, additional site-specific items including Facility Siting, Emergency Response Plan (ERP), and Fire Service Response will be important to mitigating further impact to the system, site, and nearby areas and communities. These items should be provided in the site specific application and reviewed on a site-specific basis.

Figure 6 - Thermal Runaway Condition Diagram

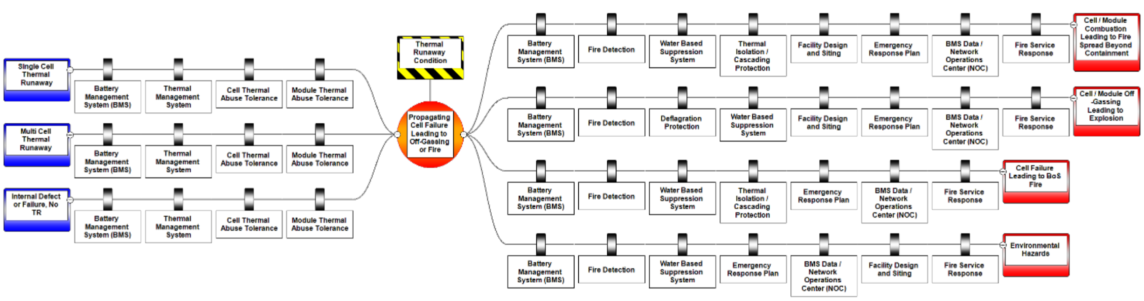


Table 4 - Thermal Runaway Condition Barriers

Barrier	Description

THREAT BARRIERS	
Battery Management System (BMS)	BMS consisting of three layers (BMU, CMU, BSC). Critical BMS sensing parameters include, but are not limited to, battery cell over / under voltage, cell string over / under voltage, battery cell over temperature, temperature signal loss, and battery module over current. In the event of abnormal conditions, the BMS will first raise an information warning, and then trigger a corresponding corrective action in the event that certain levels are reached.
Thermal Management System	Liquid cooling provided to each battery pack. While this system will not stop a thermal runaway condition in a battery cell once it has occurred, it may provide a level of thermal cooling to adjacent cells or modules, potentially limiting spread of failure across the system.
Cell Thermal Abuse Tolerance	UL 9540A cell level test report notes that module has been listed to UL 1973, in which thermal abuse tolerance was tested, though it is recommended that official COC be provided.
Module Thermal Abuse Tolerance	UL 9540A module level test report notes that module has been listed to UL 1973, in which thermal abuse tolerance was tested, though it is recommended that official COC be provided.
CONSEQUENCE BARRIERS	
See Section 3.2 above for list of primary consequence barriers.	

4.3.2 Failure of an Energy Storage Management System

The loss, failure, or abnormal operation of an energy storage control system (controllers, sensors, logic / software, actuators, and communications networks) may directly impact the proper function of the system. The PowerTitan 2.0 utilizes a tiered hierarchy of controls, as noted in Section 2.2.5 above, providing multiple levels of redundancy in the event that one level of controls fails. To further isolate any failure stemming from a failure of the energy storage management system, passive and active electrical fault protections are provided at multiple levels, as described in previous sections.

Finally, should a propagating thermal runaway occur, a number of key barriers are provided to mitigate against propagation of failure throughout the system leading to more severe consequences, as are described in Section 3.2 of this report above.

Figure 7 - Failure of an Energy Storage Management System Diagram

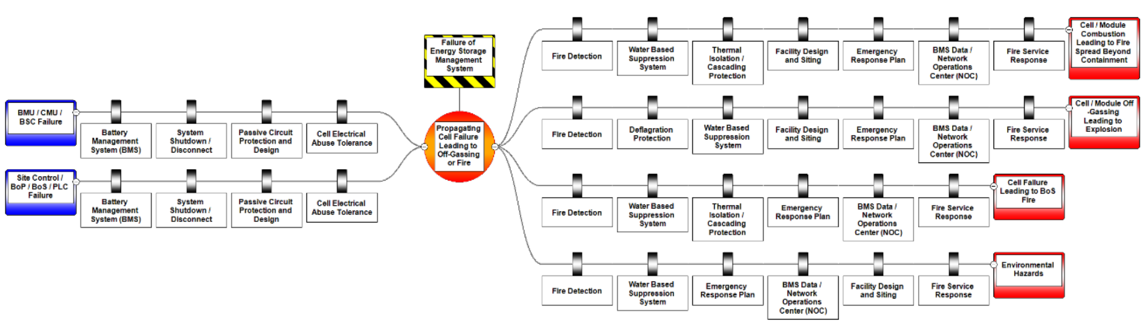


Table 5 - Failure of an Energy Storage Management System Barriers

Barrier	Description
THREAT BARRIERS	
Battery Management System (BMS)	The PowerTitan 2.0 utilizes three levels of BMS control (BMU, CMU, BSC) for redundancy in the event that one level should fail.
System Shutdown / Disconnect	Automatic disconnect in response to critical alarm notifications such as loss of communication with EMS, low SOC, ground fault detection, over or under-voltage, etc.
Passive Circuit Protection / Design	Fused disconnects and DC disconnect switches, in addition to ground fault detection / interruption and over voltage protection provided.
Cell Electrical Abuse Tolerance	UL 9540A cell level test report notes that cell has been listed to UL 1973, in which electrical abuse tolerance was tested, though it is recommended that official COC be provided.
CONSEQUENCE BARRIERS	
See Section 3.2 above for list of primary consequence barriers.	

4.3.3 Failure of a Required Smoke Detection, Fire Detection, Fire Suppression System, or Gas Detection System

The failure of the provided heat, smoke, or gas detection systems may result in failure to automatically shut down the ESS, activate respective safety systems, or provide notification signals to the fire alarm control panel and central station to be relayed to the fire department.

While it is anticipated that the BMS shall still be capable of triggering the respective safety actions should the provided smoke or heat detectors fail, depending on the nature of the battery failure event, notification signals to the fire alarm control panel and central station may be directly impacted.

If flammable gas detection and exhaust ventilation systems are provided, a potential failure of the gas detector may directly affect activation of the exhaust ventilation system, allowing flammable concentrations of off-gases to accumulate within the enclosure, posing a serious deflagration risk should a source of ignition be provided.

It is noted that failure of such system may limit ability to provide external cooling to ESS units to limit heat spread from failed ESS. However, it is also anticipated that adequate water supply will be available at the Long Beach facility, and that fire department hose lines may be utilized to provide cooling in the event that exposure protection would be required.

In the event of a failure of any one of these systems, proper response procedures should be established and provided in a site-specific emergency response plan. If BMS data is available via Network Operations Center (NOC) / remote monitoring facility, a more detailed understanding of the failure event and required emergency response procedures may be put together. Additionally, as noted in previous sections, strong facility siting may reduce direct impact to the surrounding areas.

UL 9540A Unit level testing indicated no external flaming, flying debris, explosive discharge of gases during testing, thus limited to no fire spread across units is anticipated. It is, however, understood that recent ESS fires across the globe have seen fire propagation across entire units and additional fire testing may be helpful to verify. If further propagation of failure occurs, additional site-specific items including Facility Siting, Emergency Management Plan (EMP), and Fire Service Response will be important to mitigating further impact to the system, site, and nearby areas and communities.

Figure 8 - Failure of a Required Protection System Diagrams

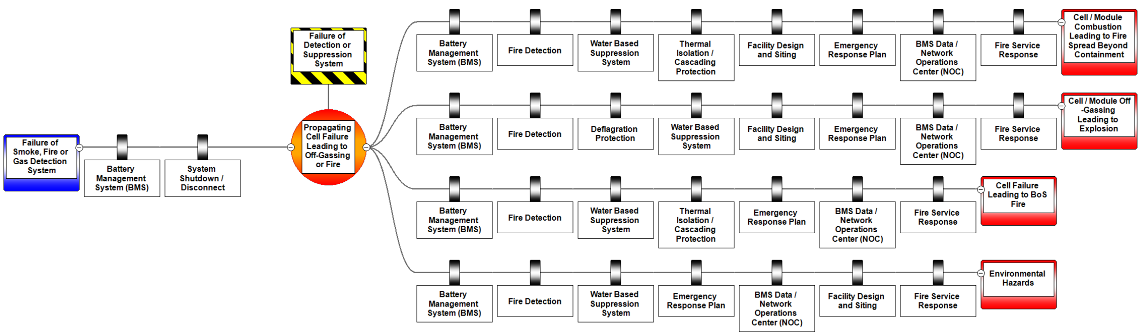


Table 6 - Failure of a Required Protection System Barriers

Barrier	Description
THREAT BARRIERS	
Battery Management System (BMS)	BMS consisting of three layers (BMU, CMU, BSC). Critical BMS sensing parameters include, but are not limited to, battery cell over / under voltage, cell string over / under voltage, battery cell over temperature, temperature signal loss, and battery module over current. In the event of abnormal conditions, the BMS will first raise an information warning, and then trigger a corresponding corrective action in the event that certain levels are reached.
System Shutdown / Disconnect	Automatic disconnect in response to critical alarm notifications such as loss of communication with EMS, low SOC, ground fault detection, over or under-voltage, etc.
Passive Circuit Protection / Design	Fused disconnects and DC disconnect switches, in addition to ground fault detection / interruption and over voltage protection provided.
System Electrical Abuse Tolerance	The PowerTitan 2.0 is listed to UL 9540 in which system electrical abuse tolerance is assessed.
Cell Electrical Abuse Tolerance	Cell has been tested and listed to UL 1973 in which electrical abuse tolerance was tested.
CONSEQUENCE BARRIERS	

See Section 3.2 above for list of primary consequence barriers.

4.4 Analysis Approval

Per *CFC §1207.1.4.*2, the fire code official shall be permitted to approve the hazard mitigation analysis as documentation of the safety of the ESS installation provided the consequences of the analysis demonstrate the following:

1. *Fires will be contained within unoccupied ESS rooms or areas for the minimum duration of the fire-resistance rated separations identified in Section 1207.7.4.*
2. *Fires in occupied work centers will be detected in time to allow occupants within the room or area to safely evacuate.*
3. *Toxic and highly toxic gases released during fires will not reach concentrations in excess of IDLH level in the building or adjacent means of egress routes during the time deemed necessary to evacuate occupants from any affected area.*
4. *Flammable gases released from ESS during charging, discharging and normal operation will not exceed 25 percent of their lower flammability limit (LFL).*
5. *Flammable gases released from ESS during fire, overcharging and other abnormal conditions will be controlled through the use of ventilation of the gases preventing accumulation, or by deflagration venting.*

Table 7 – Summary of Analysis Approval

Compliance Requirement	Comments
1. **Fires will be contained within unoccupied ESS rooms or areas for the minimum duration of the fire-resistance rated separations identified in Section 1207.7.4.**	**Not applicable.** The Sungrow PowerTitan 2.0 is intended for outdoor ground-mounted installations only and shall not be installed within any ESS rooms or occupied structures.
2. **Fires in occupied work centers will be detected in time to allow occupants within the room or area to safely evacuate.**	**Not applicable.** The Sungrow PowerTitan 2.0 is not intended to be installed in any occupied work centers.

3. Toxic and highly toxic gases released during fires will not reach concentrations in excess of IDLH level in the building or adjacent means of egress routes during the time deemed necessary to evacuate occupants from any affected area.	While UL 9540A 4th Ed. does not require measurement of many toxic gases (only flammable gases), limited information on toxic gases released for the specific battery system is available. In ESRG's extensive experience performing large-scale fire testing of li-ion batteries, proprietary gas data measured indicates that toxicity levels are much in line with that of typical structural fires. Further, despite multiple BESS fires across the US, no adverse health effects have been reported from these events. Ultimately, all fires are capable of producing toxic smoke and gases, and ESRG recommends the same precautions and practices be exercised for BESS fires as with any high gas and smoke producing event in a populated area..
4. Flammable gases released from ESS during charging, discharging and normal operation will not exceed 25 percent of their lower flammability limit (LFL).	**Not applicable.** Lithium-ion batteries do not release flammable gases during charging, discharging, or normal operation.
5. Flammable gases released from ESS during fire, overcharging and other abnormal conditions will be controlled through the use of ventilation of the gases preventing accumulation, or by deflagration venting.	The Sungrow PowerTitan 2.0 comes equipped with explosion prevention system designed in accordance with NFPA 69 to remove flammable gases from the enclosure in the event of a thermal runaway event before a deflagration is allowed to occur. Additionally, the PowerTitan 2.0 comes standard with six (6) passive deflagration panels located in the roof of the enclosure to direct any blast overpressure upwards and away from any nearby exposures or emergency personnel who may be arriving in the area in the event that the exhaust system should fail for any reason. CFD modeling was performed for both systems to demonstrate the effectiveness of the systems to adequately manage deflagration hazards.

5 SUPPORTING DOCUMENTATION

5.1 UL 9540A Large-Scale Fire Testing

5.1.1 Cell Level Test

UL 9540A (4th Edition) Cell level testing was conducted on the Contemporary Amperex Technology Co., Limited (CATL) CBC00 3.2V, 314Ah lithium iron phosphate (LFP) battery cell by UL (Changzhou) Quality Technical Service Co., LTD in Changzhou, China (project number 4790870196, issued 9/18/2023).

Thermal runaway was initiated via four external heaters, maintaining a heating rate of 4°C to 7°C per minute. Cell venting occurred at an average of 179°C over four test samples, with average onset of thermal runaway at 226°C, during which approximately 176 L of gas were released. Gas analysis was provided to determine Lower Flammability Limit (LFL), burning velocity, and maximum pressure, as noted in the tables below.

As all performance criteria in accordance with Clause 7.7 and Figure 1.1 of UL 9540A 4th Ed. were not met, Module level testing was required to be conducted on a complete module employing the CBC00 cell.

Table 8 - Cell Level Information

Avg. Cell Surface Temperature at Venting (°C)	179
Avg. Cell Surface Temperature at Thermal Runaway (°C)	226
Gas Volume (L)	176
Lower Flammability Limit (LFL) at Ambient Temperature	7.05
Lower Flammability Limit (LFL) at Venting Temperature	5.85
Burning Velocity (S_u)	213.2
Maximum Pressure (P_{max})	100.4

Table 9 - Cell Level Gas Measurements

Gas Component	Volume Released (%)
Carbon Monoxide (CO)	12.642
Carbon Dioxide (CO2)	26.413
Hydrogen (H2)	46.491
Methane (CH4)	7.016
Acetylene (C2H2)	0.158

Ethylene (H2H4)	3.111
Ethane (C2H6)	1.174
Propylene (C3H6)	0.422
Propane (C3H8)	0.154
C4 (Total)	0.657
C5 (Total)	0.200
C6 (Total)	0.082
1-Heptene (C7H14)	0.016
Benzene (C6H6)	0.058
Toluene (C7H8)	0.008
Dimethyl Carbonate (C3H6O3)	1.209
Ethyl Methyl Carbonate (C4H8O3)	0.188
Total	100

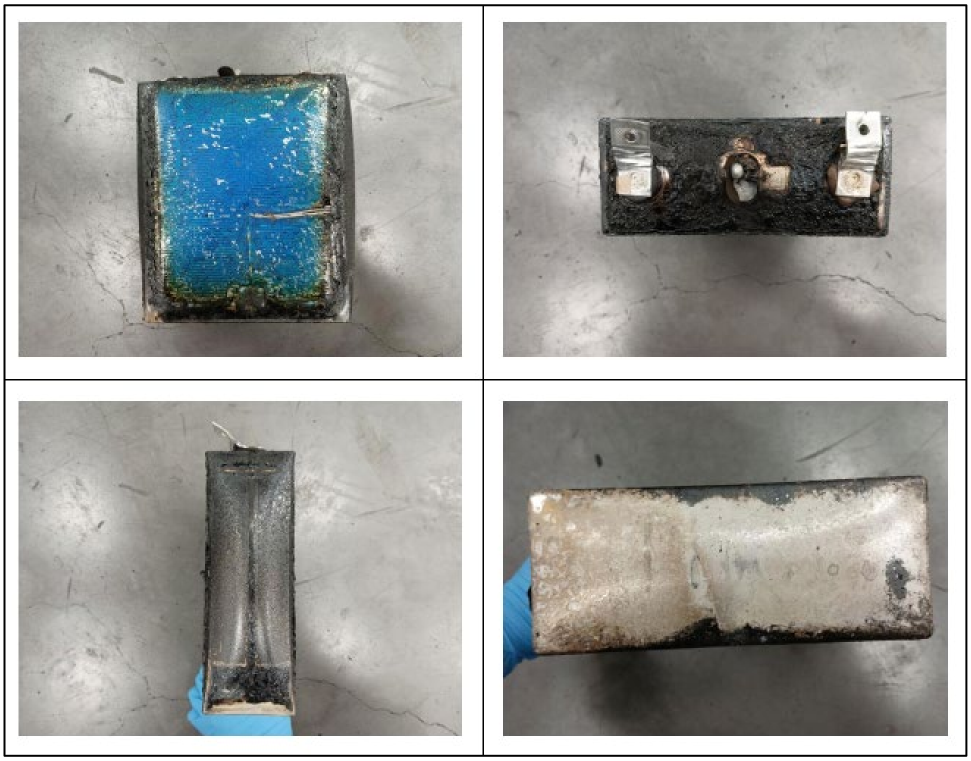
Figure 9 – Highlights of Cell 1 Testing

(a) Test Start
[00:00]

(b) Cell Venting
[41:25]

(c) Thermal runaway behavior
[54:03]

Figure 10 - Sample 1 Post Test Photos



5.1.2 Module Level Test

UL 9540A (4th Edition) Module level testing was performed for the Sungrow Power Supply Co., Ltd. P1044AL-ACA battery packs by TÜV Rheinland (Shanghai) (test report number CN23WZDT 001, issued 12/8/2023).

Thermal runaway was initiated via two external heaters maintaining a heating rate of 4°C to 7°C per minute. Audible pops were heard at 11:53 into testing, with large amounts of white smoke observed beginning at 12:09. A total of 5 cells were damaged during the test (3 were initiating cells and another 2 were from cell-to-cell thermal propagation). No flying debris, explosive discharge of gases, or flaming were observed during the test. Additionally, no sparks, electrical arcs, or other electrical events were observed.

As all performance criteria in accordance with Clause 8.4 and Figure 1.1 of UL 9540A 4th Ed. were not met, Unit level testing was required to be conducted on a complete unit employing the P1044AL-ACA battery packs.

Table 10 - Module Level Test Information

Weight Before Test (kg)	663.6 (with thermocouples)
Weight After Test (kg)	658.8 (with thermocouples)
Weight Loss (kg)	4.8

Peak Chemical Heat Release Rate (HRR_t) (kW)	32.680
Peak Smoke Release Rate (SRR) (m^2/s)	3.492
Total Smoke Release (TSR) (m^2)	213.493

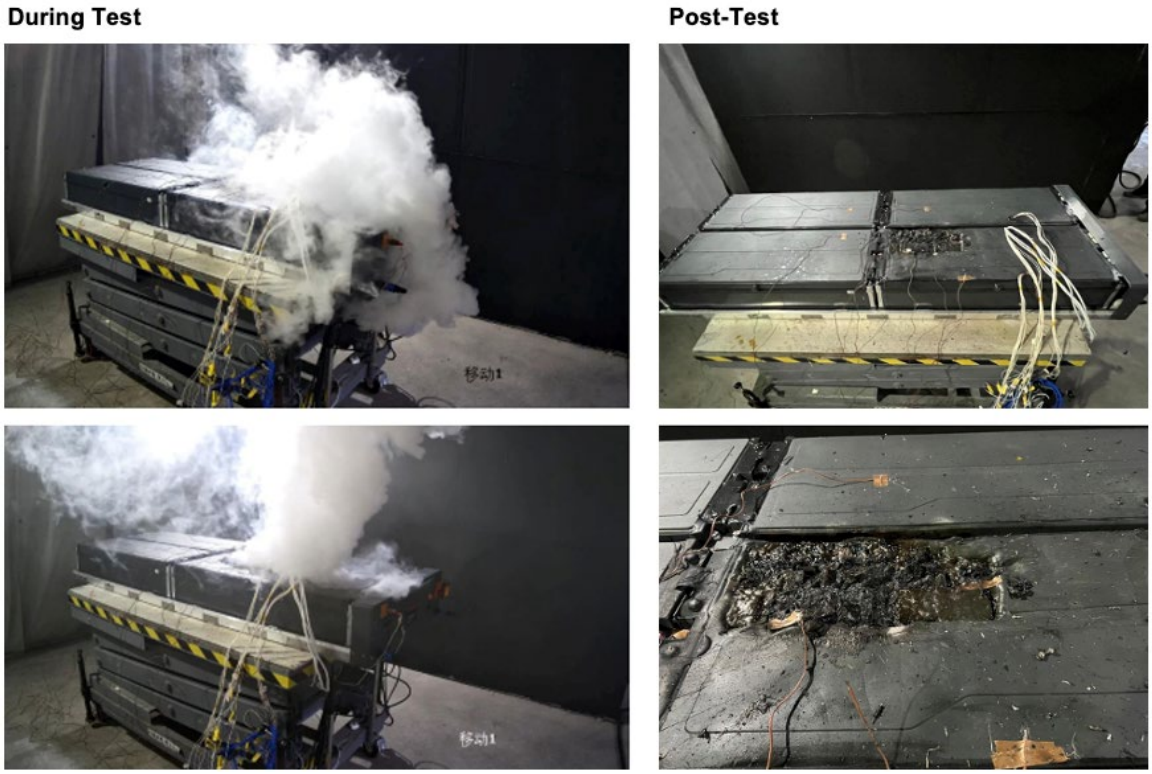
Table 11 - Module Level Gas Measurements

Gas Type	**Gas Components**	**Total Volume of Gas (L)**	
		Before Cell Venting	**Throughout the Test**
Hydrocarbon Species	Methane (CH4)	0.00	104.2
	Ethylene (C2H4)	0.00	79.72
	Ethane (C2H6)	0.00	99.23
	Propylene (C3H6)	0.00	269.6
Others	Carbon Monoxide (CO)	0.00	161.06
	Carbon Dioxide (CO2)	0.00	492.3
	Hydrogen (H2)	0.00	897.3
Total Hydrocarbons (equivalent to CH4, measured by FID)			734.2

Note:

1) The collection time is from 10:46 to 14:10
2) The Hydrogen measured by Palladium nickel thin film solid state sensor.

Figure 11 - Module During Test and Post-Test



5.1.3 Unit Level Test

UL 9540A (4th Edition) Unit level testing was conducted for representative Sungrow Power Supply Co., Ltd. unit by TÜV Rheinland (Shanghai) and partner labs under the supervision of TÜV Rheinland's engineer (test report number CN23EYFB 001, issued 12/8/2023).

During testing, cell-to-cell propagation was observed in the initiating module, with white offgas released. No module-to-module propagation was observed. After first thermal runaway, a large amount of white offgas was observed on 14:05, 14:13, 14:16, and 14:27. A total of 5 cells were involved and vented during the test (three were initiating cells and two others were from cell-to-cell thermal propagation). No flying debris or explosive discharge of gases observed during the test. No sparks, electrical arcs, or other electrical events observed during the test. No external flaming was observed during the test.

Table 12 - Unit Level Test Information

Peak Chemical Heat Release Rate (HRR) (kW)	89.37
Total Heat Release (THR) (MJ)	251.97
Peak Smoke Release Rate (SRR) (m^2/s)	3.91
Total Smoke Release (TSR) (m^2)	3938.31

Total Hydrocarbons (L)	701.3

Table 13 - Unit Level Gas Measurements

Gas Type	Gas Components	Total Volume of Gas (L)	
		Before Cell Venting	Throughout the Test
Hydrocarbon Species	Methane (CH4)	0.00	104.92
	Ethylene (C2H4)	0.00	70.60
	Ethane (C2H6)	0.00	89.45
	Propylene (C3H6)	0.00	247.77
Others	Carbon Monoxide (CO)	0.00	184.3
	Carbon Dioxide (CO2)	0.00	441.9
	Hydrogen (H2)	0.00	786.3
Total Hydrocarbons (equivalent to CH4, measured by FID)			701.3
Note: 1) The collection time is from 12:16 to 15:02 2) The Hydrogen measured by Palladium nickel thin film solid state sensor.			

Figure 12 - Unit Test Setup

Figure 13 - Unit During and Post-Test

Figure 14 - Module Post-Test (Unit Level Test)

5.2 NFPA 69 ANALYSIS

An engineering assessment of NFPA 69 compliance for the PowerTitan 2.0 battery energy storage systems was provided by TÜV Rheinland in which a Computational Fluid Dynamics (CFD) analysis was performed utilizing UL 9540A test data to demonstrate the system design successfully reduces the concentration of combustible gases in the container to less than 25% of the lower flammability limit (LFL) of the gas mixture. Based on this CFD modeling, TÜV determined that the system is capable of reducing the combustible concentration in the container for five cells undergoing thermal runaway, mitigating the explosion risk to a substantially low and manageable level, and that the BESS meets the intent of NFPA 69.

High-level notes from the report include:

- The container is fitted with one exhaust fan with rated flow rate of 750 m^3/h (441 CFM), though the model assumes a flow rate of 480 m^3/h (283 CFM) as a conservative measure. The fan is activated when gas detection reaches 10% LFL of hydrogen and includes a 5s lag time to account for fan ramping up.
- A total of four dispersion scenarios were run representing progressively worse-case scenarios. The modeling covers 2 leakage positions, with each run with and without extraction fan.
- All scenarios with extraction fan activated can reduce flammable volume of gas and are able to keep average flammable gas concentration below 25% LFL in the container. Scenarios which did not utilize the extraction fan did not keep LFL within acceptable limits.
- The system was reviewed against the requirements of NFPA 69 and found to comply with the applicable requirements.
- It is noted that small pockets of gas are seen to exceed 25% LFL for small periods, though requirements for average concentrations per NFPA 69 are properly met.

Table 14 – Average Gas Concentration

Scenario	**Maximum Average Gas Concentration (% Vol)**	
	Without Extraction Fan	With Extraction Fan
001	43.79	0.97
002	44.62	1.44

Table 15 - Average Concentrations with and without Extraction Fan

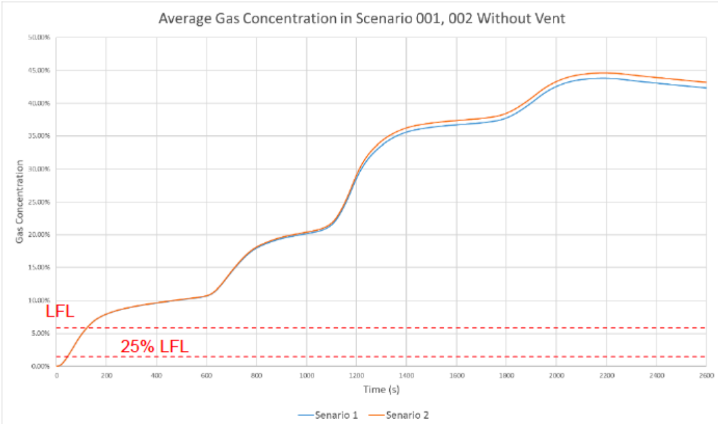


Figure 4-7: Average gas concentration in scenario 001 and 002 without vent

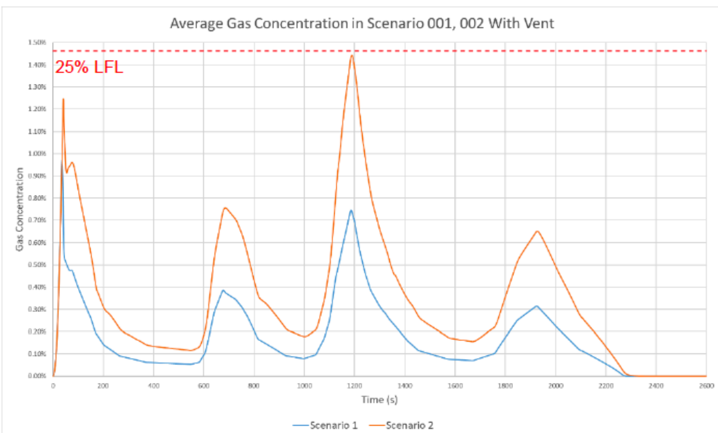
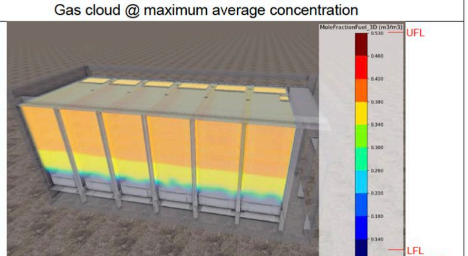
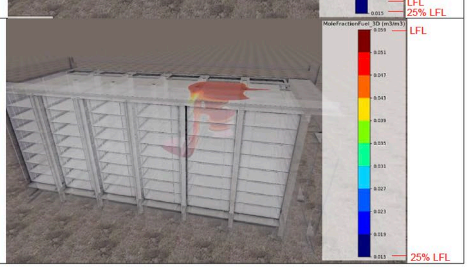
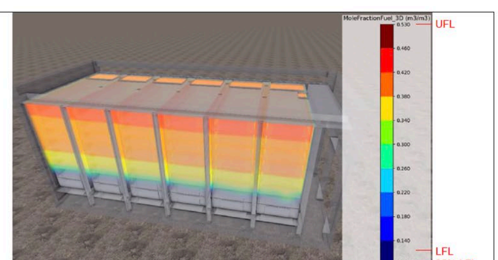


Figure 4-8: Average gas concentration in scenario 001 and 002 with vent

Table 16 - CFD Models with and without Extraction Fan

Scenario	Gas cloud @ maximum average concentration
001 (No Vent)	
001 (Vent)	
002 (No Vent)	
002 (Vent)	

5.3 NFPA 68 ANALYSIS

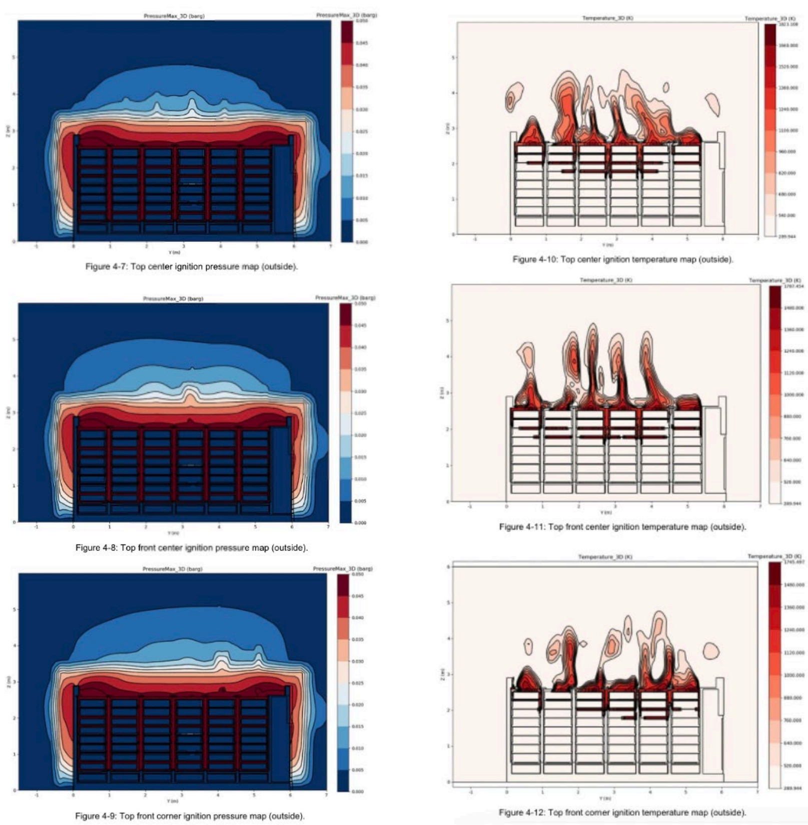
An engineering assessment of the PowerTitan 2.0 deflagration vent panels was performed by TÜV Rheinland. This report includes compliance assessment of the panels to NFPA 68 as well as CFD analysis using UL 9540A test data, demonstrating that the panels shall effectively manage a potential deflagration event. In the study, a series of explosion scenarios were run representing progressively worse-case scenarios based on ignition position. During these, the flammable gas cloud is ignited when the gas amount reaches the highest value. Maximum pressure for each of the scenarios are provided in Table 13 below.

The report states that the CFD model shows that the predicted maximum average pressure on the wall is 0.18 bar-g and that the enclosure could maintain at least 0.60 bar-g pressure, therefore the enclosure could handle the deflagration pressure and requirements of NFPA 68 are met.

Table 17 - NFPA 68 Simulation Pressures

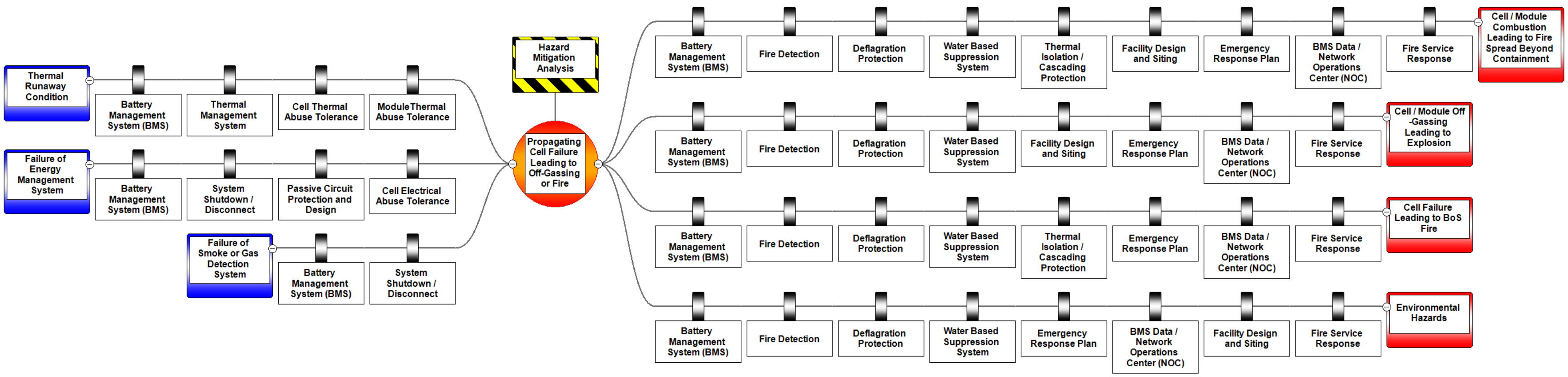
Scenario	Ignition Position	Maximum Pressure (bar-g)
001	251.97	0.175
002	3.91	0.160
003	3938.31	0.180

Table 18 - Pressure and Temperature Results

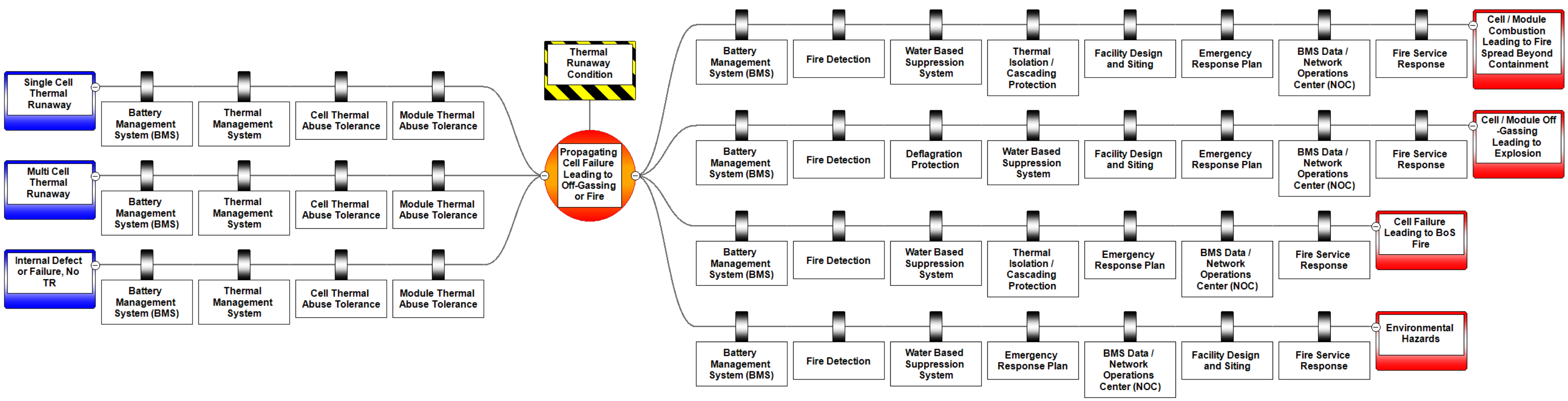


6 APPENDIX A – DETAILED HMA DIAGRAMS

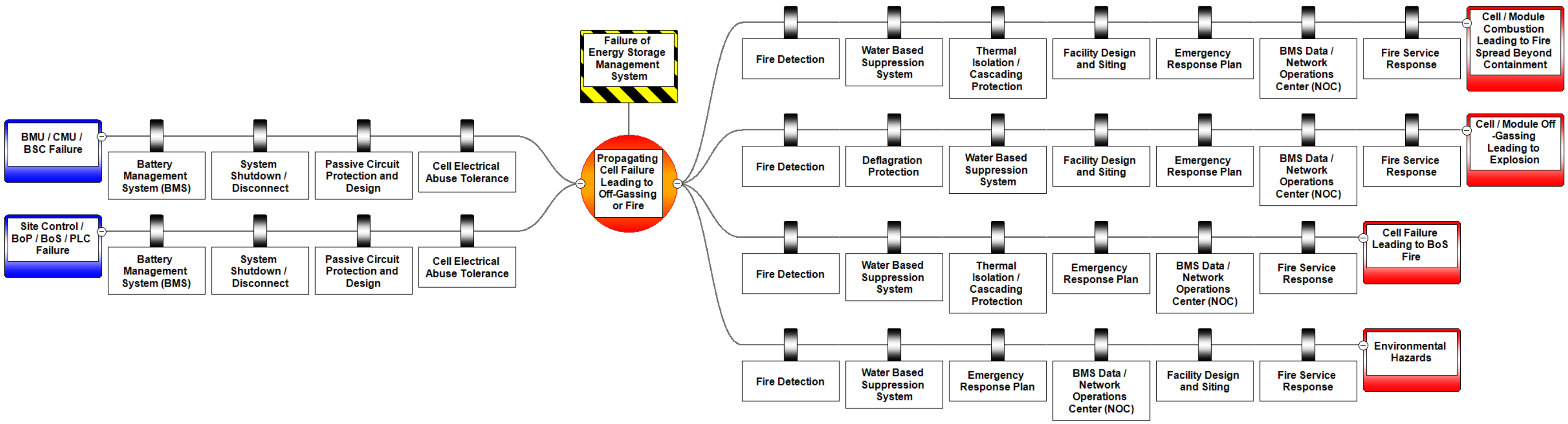
6.1 A.1 All Fault Conditions



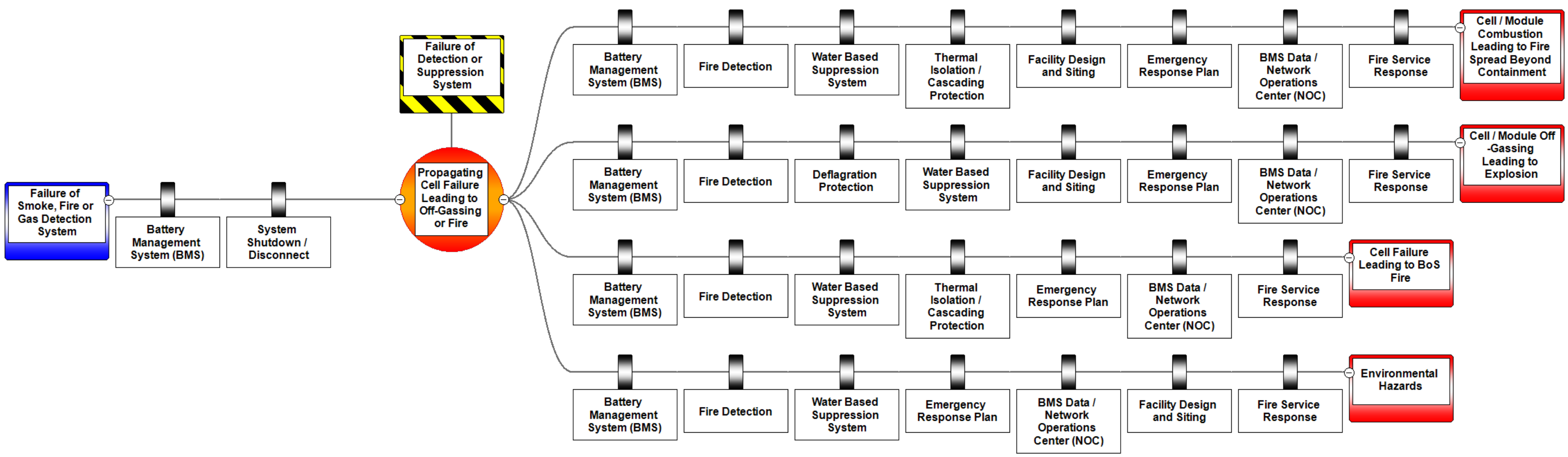
6.2 A.2 Thermal Runaway Condition



6.3 A.3 Failure of an Energy Storage Management System



6.4 A.4 Failure of a Required Protection System

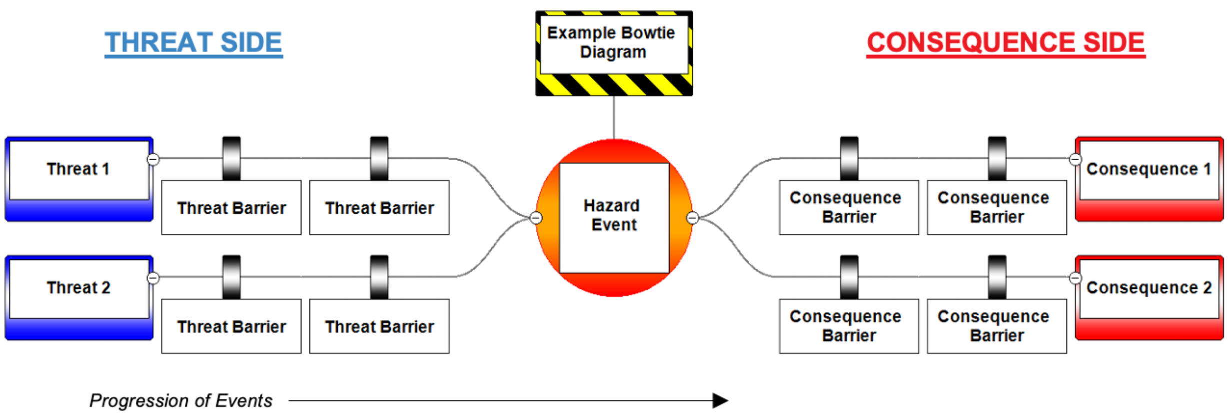


7 APPENDIX B – HMA METHODOLOGY

This Appendix serves as a supplemental write up for the overall Hazard Mitigation Analysis (HMA) and provides additional context on the Bowtie methodology used, as well as key definitions and concepts.

ESRG utilizes the bowtie methodology for hazard and risk assessments, as is described in *ISO.IEC IEC 31010 §B.21*, as it allows for in-depth analysis on individual mitigative **barriers** and serves as a strong tool for visualizing the chronological pathway of **threats** leading to critical hazard events, and ultimately to greater potential **consequences**, as depicted in the figure below. This simple diagrammatic way of describing and analyzing the pathways of a risk from hazards to outcomes can be considered to be a combination of the logic of a fault tree analyzing the cause of an event and an event tree analyzing the consequences.

The strength of the bowtie approach comes from its visual nature, which forgoes complex, numerical tables for threat pathways which show a single risk or consequence and all the barriers in place to stop it. On the left side are the threats, which are failures, events, or other actions which all result in a single, common hazard event in the center. For our model, many of these threats are the requirements of the fire code such as an unexpected thermal runaway.



- **Hazard Event / Top Event**

  The hazard (or “top”) event – depicted as the center point in the middle of the bowtie diagram – represents a deviation from the desired state during normal operations (in this case, a thermal runaway or cell failure event), at which point control is lost over the hazard and more severe consequences ensue. This event happens before major damage has occurred, and it is still possible to prevent further damage.

- **Threats**

  There often may be several factors that cause a “top event”. In bowtie methodology, these are called threats. Each threat itself has the ability to cause the center event. Examples of threats are hazardous temperature conditions, BMS failure, and water damage from condensation, each leading to cell failure (the center event for many of the following bowtie diagrams for lithium-ion ESS failures).

Threats may not necessarily address a fully involved system fire or severe explosion, but rather smaller, precursor events which could lead to these catastrophic consequences. Some threats occur without any intervention, such as defect propagation or weather-related events, while others represent operational errors (either human or system-induced). Often threats may also be consequences of even earlier-stage threats, spawning a new bowtie model that includes the threat at the center point or right side of the new bowtie. The diagrams that follow include careful selection and placement of each of the elements to best capture the perspective of system owners and operators responsible for ensuring safe operation.

- **Consequences**

  Consequences are the results of a threat pathway reaching and exceeding its center event. For the models described here, the center events were selected as the event in which proactive protections give way to reactive measures mostly related to fire protection systems and direct response. As the center event then is defined as either “cell failure” or propagating cell failure, the consequences in the models described assume a condition exists in which flammable gas is being released into the system or a fire is burning within the system.

  Consequence pathways include barriers that may help to manage or prevent the consequence event. Threat pathways are often consequence pathways from a separate hazard assessment, as is the case with thermal runaway. In other words, thermal runaway may result from many different threats at the end of a separate hazard pathway (if not properly mitigated) and may also be the threat that could result in several other consequences. The task force identified a set of common consequences representing areas of key concern to utilities, energy storage system operators, and first responders.

- **Barriers**

  In order to control risks, mitigative “barriers” are placed to prevent propagation of failure events across the system. A barrier can be any measure taken that acts against an undesirable force or intention, in order to maintain a desired state, and can be included as proactive threat barriers or reactive consequence barriers.

  Each barrier in these models is more indicative of a concept that may include a single approach or may consist of a complex series of combined measures. Similarly, the analysis may not include barriers required to prevent the threats at the far left of the diagram (which would be placed even further left) to ensure the models do not extend infinitely, though the incorporation of these variables into site-specific safety evaluations may provide additional benefit. This list does not contain all possible solutions and in some designs, these barriers may not exist at all. Many of the same barriers apply to a number of threats.

Barriers may mitigate hazards or consequences in a variety of ways. For example, common barriers to thermal runaway include active electrical monitoring and controls, redundant failure detection, and even passive electrical safeties (such as over-current protection devices and inherent impedances). Should these systems fail to detect the threat, shutdown the system, or otherwise prevent thermal runaway from occurring, the hazard may persist.

8 APPENDIX D – REFERENCED CODES AND STANDARDS

- *NFPA 855 Standard for the Installation of Stationary Energy Storage Systems*, 2023 Edition
- *UL 9540A Standard for Test Method for Evaluation Thermal Runaway Fire Propagation in Battery Energy Storage Systems,* 4th Edition
- *UL 9540 Standard for Energy Storage Systems and Equipment,* 2nd Edition
- *NFPA 68 Standard on Explosion Protection by Deflagration Venting,* 2018 Edition
- *NFPA 69 Standard on Explosion Prevention Systems,* 2019 Edition
- *UL 1973 Standard for Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications, 2018 Edition*

Appendix E. Offsite Consequence Analysis

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Offsite Consequence Analysis

Pier S Battery Energy Storage System
Port of Long Beach, CA

PREPARED FOR
Elevate Renewables

DATE
07 November 2024

REFERENCE
0757167

SIGNATURE PAGE

Offsite Consequence Analysis

Elevate Renewables

0757167

Fred Woody
Partner

Matt Frazell
Associate Partner

Renato Gonzalez
Consultant

Michael Woodward
Consulting Associate

Environmental Resources Management
Southwest, Inc.
CityCentre Four
840 West Sam Houston Parkway North
Suite 600
Houston, Texas 77024

281-600-1000 (T)
281-520-4625 (F)

EXECUTIVE SUMMARY

Elevate Renewables intends to construct and operate a 70 MW Battery Energy Storage System (BESS) at the Port of Long Beach, California. The project will span approximately 2.9 acres across two privately-owned parcels in Pier S. This BESS is designed to enhance grid reliability by providing on-demand energy storage, reducing electricity costs, and decreasing reliance on fossil fuels. The facility will connect to the nearby Southern California Edison (SCE) Long Beach Substation, utilizing existing infrastructure to support California's transition to renewable energy sources.

The BESS will employ Power Titan 2.0 lithium iron phosphate (LFP) batteries, manufactured by Sungrow. The project includes a power conversion system to switch between direct current (DC) and alternating current (AC), necessary for integrating stored energy into the electrical grid. Additionally, a liquid thermal cooling system will be installed to maintain optimal battery temperatures.

Environmental Resources Management, Inc. (ERM) conducted an Offsite Consequence Analysis (OCA) to evaluate potential risks associated with the BESS. The analysis considered scenarios such as thermal runaway, chemical leaks, and equipment failures. It focused on the impacts of toxic gas releases, overpressure from explosions, and thermal effects from fires.

This OCA is based on several key assumptions:

- The analysis primarily focuses on offsite impacts, with less emphasis on onsite consequences unless they directly influence offsite risk.
- Potential impacts to onsite personnel or emergency response personnel are outside the scope of this analysis.
- The surrounding area's population density, infrastructure, and land use are relatively stable and known.
- Typical environmental conditions (e.g., wind speed, temperature) are used for modeling impacts unless specific data is available.
- Under normal operating conditions, the facility poses no significant health or flammable risks.
- This model assumes a flat horizontal plane and does not incorporate topography such as the project's location below sea level and adjacent buildings

The sensitive receptors include the Long Beach International Gateway Bridge to the south, Pacific Terminal Services Corporation to the northwest, and the Inner Harbor shipping channel to the east.

Modeling was conducted using Process Hazard Analysis Software Tool (PHAST) by Det Norske Veritas (DNV) version 8.7, a widely recognized and reliable software for consequence analysis. PHAST is known in industry for its accuracy in simulating the dispersion of hazardous materials, and is one of only a few simulation technologies tested against real-world validation trials; making it a trusted tool for assessing potential consequences.

Two scenarios were modeled: a worst-case scenario involving the release from a rack in a container, and an alternate scenario involving the release from a single pack in a rack. The alternate release scenario was analyzed under different weather conditions for both morning and night, considering various wind stability classes.

The concentrations of off-gases were assessed using Emergency Response Planning Guidelines (ERPG-2) and Acute Exposure Guideline Levels (AEGL-2), and the distance to the endpoint for potential off-gases from a battery malfunction was determined. From our evaluation of various pollutants that may be emitted from the combustion of plastics during a fire event, the primary hazardous pollutant associated with a BESS fire was identified as phosphine (PH3).

Plume modeling results indicate that ERPG-2 levels of phosphine will not reach the height of the Long Beach International Gateway Bridge, nor significantly impact transient receptors in the adjacent ship channel or transitory workers on the southeast corner of Pacific Terminal Services Corporation. Additionally, the analysis did not consider mitigation measures like fire suppression systems, which would likely reduce the severity of such incidents.

Overall, we conclude that the proposed BESS does not pose any additional significant health and safety risk to the surrounding community and environment.

This OCA report provides a preliminary assessment of the potential impacts of the proposed Battery Energy Storage System (BESS) at the Port of Long Beach, California, in the event of a maximum credible fire. The summary of impacts and conclusions presented are based on the current design and layout, which are subject to change. As the project progresses, adjustments may be necessary due to evolving design specifications, layout modifications, or new data. Additionally, this assessment may be revised in response to public feedback or further detailed analysis. It is important to note that this document should be viewed as a flexible framework, which may be updated as additional information becomes available.

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ACRONYMS AND ABBREVIATIONS

Ah	Amp hour
ALARP	As low as reasonably practicable
BESS	Battery Energy Storage System
BMS	Battery Management System
CEQA	California Environmental Quality Act
CFC	California Fire Code
CO	Carbon monoxide
EPA	Environmental Protection Agency
ERM	Environmental Resource Management
ERPG	Emergency Response Planning Guidelines
ESS	Energy Storage Systems
DNV	Det Norske Veritas
gpm	Gallons per minute
g/hr	Grams per hour
g/s	Grams per second
HCL	Hydrogen chloride
HCN	Hydrogen cyanide
HF	Hydrogen fluoride
kW/m^2	Kilowatts per square meter
kWh	Kilowatt hour
kg/s	Kilogram per second
L	Liter
LFL	Lower flammability limit
LFP	Lithium-Iron Phosphate
PowerTitan	PowerTitan 2.0
mg/s	Milligrams per second
mg/Wh	Milligram per watt hour

NCA	Nickel cobalt aluminum
NFPA	National Fire Protection Association
NMC	Nickel manganese cobalt
NPDES	National Pollutant Discharge Elimination System
NRTL	Nationally Recognized Testing Laboratory
OEHHA	Office of Environmental Health Hazard Assessment
OSHA	Occupational Health and Safety Administration
PH_3	Phosphine
PHAST	Process Hazard Analysis Software Tool
POF_3	Phosphoryl Fluoride
ppm	Parts per million
Project	Pier S BESS Project
psi	Pounds per square inch
South Coast AQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SOC	State Of Change
TS	Toxic Score
UL	Underwriter Laboratory

1. INTRODUCTION

Elevate Renewables (Elevate) proposes to construct and operate a utility-scale Battery Energy Storage System (BESS), referred to as the Pier S Battery Energy Storage System Project (Project). The Project site parcel is located in the City of Long Beach, in Los Angeles County, California in the Terminal Island Harbor Planning District (District 4) of Long Beach Harbor (POLB, 1990). The Project will have a capacity of 70 megawatts (MW). Batteries will be arrayed in individual metal containers. The development footprint will be approximately 2.9 acres on an existing 18.03-acre privately-owned parcel (APN 7436-030-814) and 1.5 acres of an existing 23.49-acre privately-owned parcel (APN 7436-030-006) on the southeastern border of Pier S.

The project would provide additional capacity to deliver on-demand distributed energy to a critical load pocket in response to the California Public Utilities Commission's (CPUC) mandate to procure 15,500 MWs to address reliability goals within the State. The proposed BESS facility would improve grid reliability as California transitions to more renewable energy resources. The BESS facility would allow for the electrical grid to draw from stored battery energy to meet peak demand, reduce electricity costs, and to decrease reliance on fossil fuels. The siting of the BESS facility near, but not connected to, the existing thermal power plant located within the POLB may reduce the run time associated with the fossil fuel asset (i.e., the existing thermal power plant). The proposed location of the BESS facility (project site) also provides co-location benefits and takes advantage of existing infrastructure, as it would connect to the existing SCE Long Beach Substation located adjacent to the project site.

This report documents the analysis methodology and outcomes of the potential consequences of an upset event in the BESS from flammable and toxic gas release, thermal, and overpressure perspective. It is assumed that the facility will not have any health related or flammable impacts during normal operating conditions. Potential impacts to onsite personnel or emergency response personnel are outside the scope of this analysis.

2. PROJECT DESCRIPTION

2.1 SITE AND SURROUNDING USES

Elevate Renewables proposes to construct and operate a utility-scale BESS. The Project site is located at 2665 Pier S Lane, Long Beach, CA 90802 in the Terminal Island Harbor Planning District (District 4) of the Long Beach Harbor (POLB, 1990). The proposed Project would be sited on approximately 2.9 acres of an existing 18.03-acre privately-owned parcel (APN 7436-030-814) and 1.5 acres of an existing 23.49-acre privately-owned parcel (APN 7436-030-006) on the southeastern border of Pier S.

Surrounding uses include the Long Beach International Gateway Bridge to the south, Pacific Terminal Services Company to the northwest, and the Inner Harbor Shipping Channel to the east. Figure 1 shows the Project location within the regional context of the vicinity. Figure 2 shows the Project site plan with the proposed BESS locations and adjacent receptors.

FIGURE 1. PROJECT LOCATION

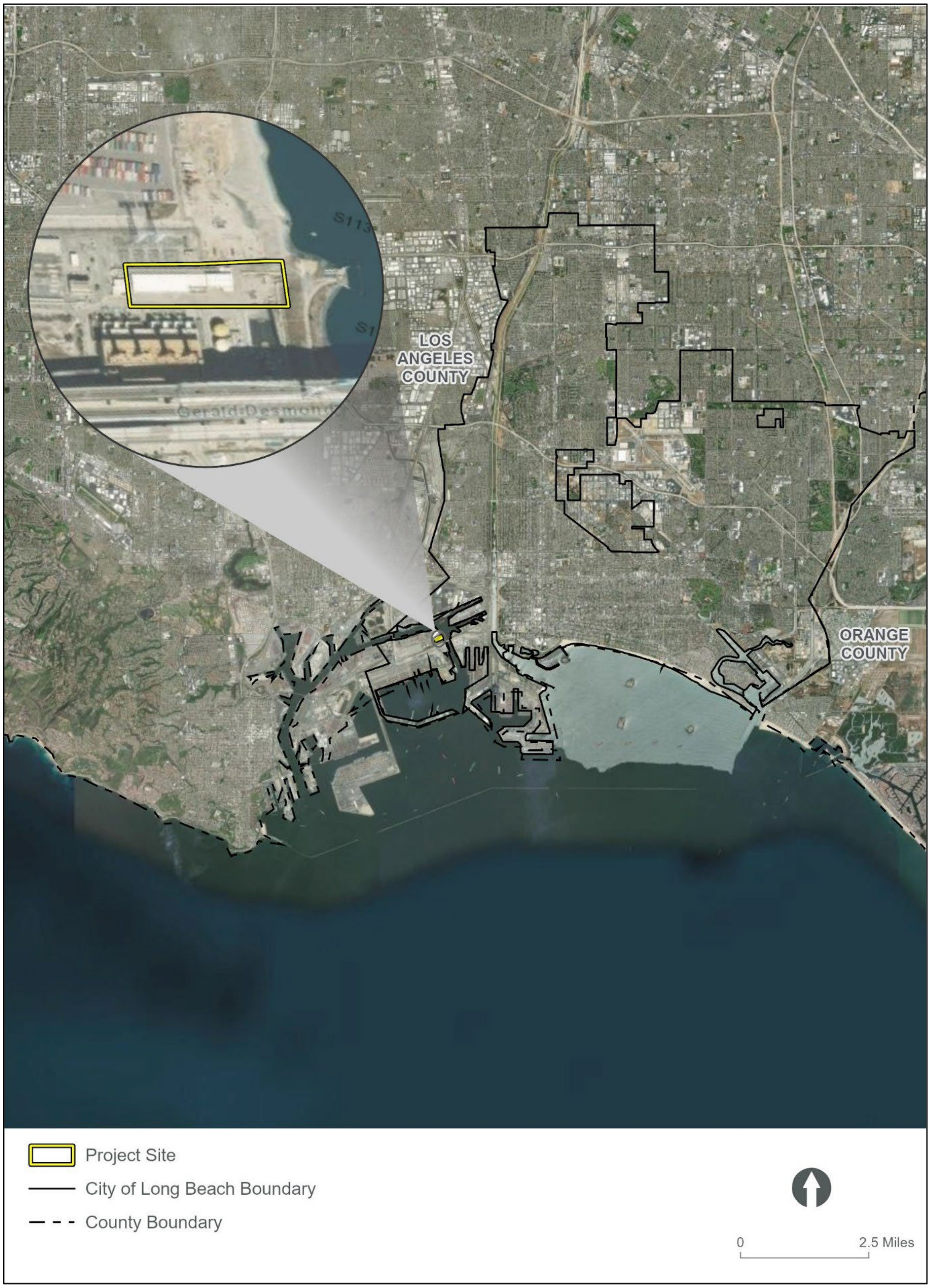
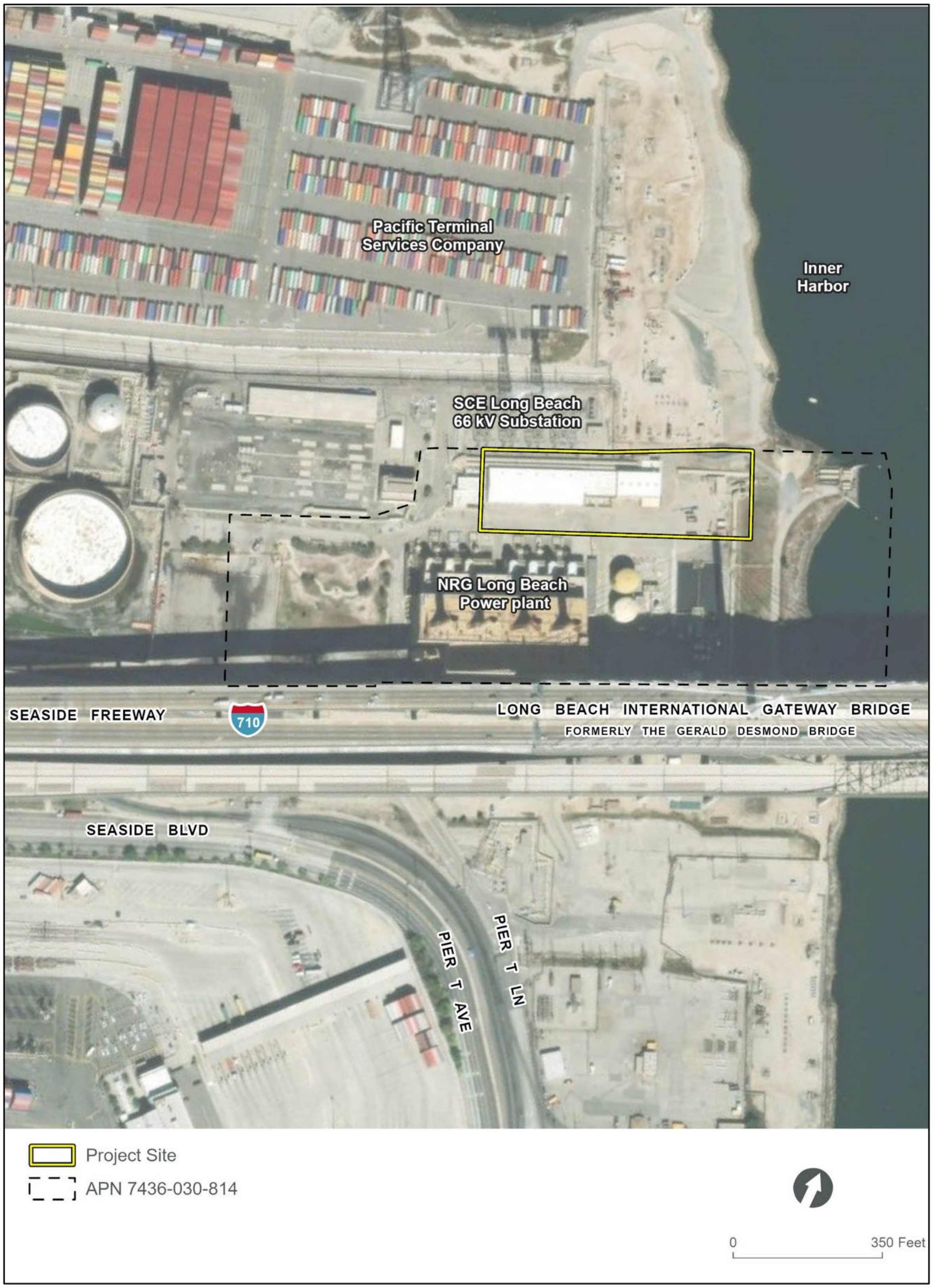


FIGURE 2. PROJECT PLAN



2.2 PROJECT DEVELOPMENT

The Project will have a capacity of 70 MW. Batteries will be arrayed in individual metal containers. The development footprint will be approximately 2.9 acres on an existing 18.03-acre privately-owned parcel (APN 7436-030-814) and 1.5 acres of an existing 23.49-acre privately-owned parcel (APN 7436-030-006) on the southeastern border of Pier S.

Energy stored in the BESS would be routed to an existing power pole on-site which would then connect to the existing Southern California Edison (SCE) Long Beach Substation immediately adjacent to the project site. To connect the BESS infrastructure to the substation, the project proposes to install approximately 400 to 500 feet of electrical conduit which would be in aboveground cable trays.

The project would provide additional capacity to deliver on-demand distributed energy to a critical load pocket in response to the California Public Utilities Commission's (CPUC) mandate to procure 15,500 MWs to address reliability goals within the State. The proposed BESS facility would improve grid reliability as California transitions to more renewable energy resources. The BESS facility would allow for the electrical grid to draw from stored battery energy to meet peak demand, reduce electricity costs, and to decrease reliance on fossil fuels. The siting of the BESS facility near, but not connected to, the existing thermal power plant located within the POLB may reduce the run time associated with the fossil fuel asset (i.e., the existing thermal power plant). The proposed location of the BESS facility (project site) also provides co-location benefits and takes advantage of existing infrastructure, as it would connect to the existing SCE Long Beach Substation located adjacent to the project site.

2.3 BESS OVERVIEW AND COMPONENTS

The Project involves the installation of PowerTitan 2.0 Liquid Cooled Energy Storage Systems. Each cabinet holds up to 48 battery packs. The Project does not include facilities intended for human occupancy. The System Controller would have a physically small footprint (similar in size to a desktop computer), is typically located within or adjacent to the substation, along with the rest of the site's communications equipment, and would not be a walk-in enclosure. The System Controller houses the external communication interface over Transmission Control Protocol (Modbus RTU or Modbus TCP) to the utility, network operator, or customer Supervisory Control and Data Acquisition systems. The Controller communicates to each PowerTitan System over a private Transmission Control Protocol network. Each PowerTitan System is controlled by the inverter; based on the signal received from the controller, the PowerTitan System will trigger the charge or discharge of each battery module. The Controller aggregates real-time information from all the PowerTitan Systems and leverages the information to optimize the commands sent to each PowerTitan System. Figure 3 illustrates the structure of the PowerTitan as well as its associated safety features.

The proposed battery cell type would be lithium iron phosphate (LFP) and manufactured by Sungrow. This analysis is conducted for an LFP-type battery.

As part of the proposed project, a power conversion system would be installed on the project site. The power conversion system consists of paired inverters and transformers that change power from direct current (DC) to alternating current (AC). The power conversion system is needed as the electricity transmission grid system operates in AC, but the battery energy is stored as DC. Therefore, the power needs to be converted from AC to DC to enable its storage in the batteries, and conversely, it needs to be converted from DC to AC when power from the batteries is fed back into the electrical transmission grid.

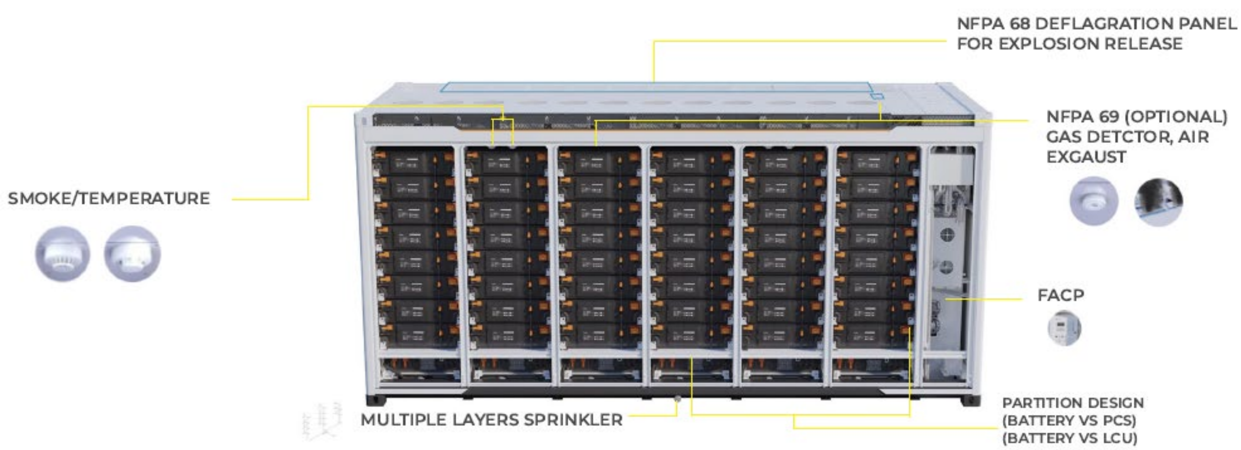
The power conversion system components, including the cables which connect to the batteries, would be installed on above-ground cable trays on the project site and would be electrically connected between the BESS and the substation.

There would also be a liquid thermal cooling system integrated into the cabinets to provide cooling to the batteries and powered electronics.

Fire prevention systems would include cabinets designed to limit or eliminate the threat of the spread of fire from one cabinet to another, sprinklers, and condensed aerosol generator.

The Battery Management System (BMS) would monitor all cell voltages, currents, and temperatures and shut down equipment if unsafe conditions are detected.

FIGURE 3. POWERTITAN 2.0 BESS SAFETY SYSTEM OVERVIEW



The hydrocarbon gas detector senses the percentage of hydrocarbon gases within each compartment and is used for reporting and interfacing with safety systems. When an LFP battery fails, hydrocarbon gasses may be produced. The hydrocarbon gas detector will provide a warning to the site Fire Alarm and Control Panel (FACP). The FACP shall be setup to provide a trigger signal to the NFPA72 compliant fan ventilation interface within the Liquid Cooling Unit.

The system uses a liquid cooling system for heat dissipation and can be used in an environment of -30 to 50°C (>45°C with derate). Liquid cooling is a technology that uses liquid as a refrigerant to remove heat from cells. It has excellent temperature homogeneity and low power consumption. The liquid cooling system mainly consists of pipes, pumps, heat exchangers and compressors. The coolant of the system is ethylene glycol. The coolant is pumped to the battery. After absorbing the heat generated by the battery it is returned to the reservoir.

The possibility of a spill of electrolyte from a PowerTitan is very remote. Electrolyte can be extracted from a single cell using a centrifuge, or under some extreme abuse conditions such as a severe crush. However, it is very difficult to mechanically damage cells in such a way as to cause leakage of electrolyte. Even if a single cell were damaged in a manner that could cause electrolyte leakage, it is extremely difficult to cause a leak from more than a few cells due to any incident. Finally, there is sufficient volume (120% of total liquid) in secondary containment built into the bottom of each PT2 container to capture the entire volume of liquid if a complete leakage. Therefore, the physical impacts from this scenario are not considered in this study.

3. ENVIRONMENTAL AND REGULATORY SETTING

There are several different lithium battery types currently used for large scale BESS installations including the following:

- Lithium Nickel Cobalt Aluminum (NCA)
- Lithium Nickel Manganese Cobalt (NMC)
- Lithium Manganese Oxide (LMO)
- Lithium Titanate Oxide (LTO)
- Lithium-Iron Phosphate (LFP)

This study assumed the use of the lithium LFP battery type based on the planned use of the PowerTitan 2.0 system for the Project.

3.1 BATTERY TESTING REQUIREMENTS AND REGULATIONS

Batteries used in BESS installations are subject to many codes and standards such as Underwriters Laboratories (UL), Institute of Electrical and Electronics Engineers, California Fire Code (CFC), National Fire Protection Association (NFPA), and the Occupational Safety and Health Administration (OSHA). It should be noted that the manufacturer of the PowerTitan ensures the "PowerTitan 2.0's adherence to rigorous certifications and design standards, including NFPA, IEC, and UL standards." (Sungrow 2024) Listed below are some of the codes and standards that were used as part of this analysis.

UL 9540: Safety for Energy Storage Systems. This requirement addresses the inherent design and performance, as well as the interface of the ESS with the infrastructure. Addresses construction, performance, electrical, mechanical, environmental, manufacturing, and markings.

UL 9540A: Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems. This test methodology evaluates the fire characteristics of a BESS that undergoes thermal runaway. The data generated can be used to determine the fire and explosion protection required for an installation of a BESS.

UL 1973: Standard for Batteries for Use in Stationary, Vehicle Auxiliary Power, and Light Electric Rail (LER) Applications. This standard covers battery systems used as energy storage for stationary applications such as for photovoltaic, wind turbine storage, uninterrupted power supply, or other similar applications. This standard evaluates the battery system's ability to safely withstand simulated abuse conditions. This standard evaluates the system based upon the manufacturer's specified charge and discharge parameters. The standard requires that an ESS is not allowed to be an explosion hazard when exposed to an external fire source and that a single cell failure will not result in a cascading thermal runaway of cells.

IEEE C2: This code covers basic provisions for safeguarding persons from hazards arising from the installation, operation, or maintenance of (1) conductors and equipment in electric supply stations, and (2) overhead and underground electric supply and communication lines. It also includes work rules for the construction, maintenance, and operation of electric supply and communication lines and equipment. The code is applicable to the systems and equipment operated by utilities, or similar systems and equipment, of an industrial establishment or complex under the control of qualified persons.

CFC 608 and International Fire Code: This code specifies minimum size requiring permits (Lithium, all types, 20 kilowatt hours [kWh]), specifies maximum limits on sizing for battery systems (Lithium, all types, 50 kWh each array), seismic and structural design, spacing (minimum 3 feet separation of arrays), vehicle impact protection, testing, maintenance and repairs, maximum quantities within a building (Lithium of 600 kWh), BMS monitoring, shutdown and notification requirements, automatic smoke detector requirements, and ventilation specifications. CFC Section 1210 also requires that the battery systems be "listed," which is achieved through testing by an OSHA-certified Nationally Recognized Testing Laboratory (NRTL) (discussed further below).

NFPA 1: The General NFPA Fire Code addressing extracts from other NFPA codes.

NFPA 68: Specifies and recommends standards regarding design, installation, location, maintenance, and use of deflagration devices.

NFPA 69: Outlines standards for explosion prevention, explosion isolation, and ignition control systems.

NFPA 70: National Electrical Code, addresses electrical design, installation, and inspection.

NFPA 550: Guide to Fire Safety Concepts Tree for Protecting Energy Systems - addresses issues such as utilizing BMS and compatible equipment, ventilation as needed, fire resistive separation, array spacing, and signage.

NFPA 855: Standard for the Installation of Stationary Energy Storage Systems - establishes criteria for minimizing the hazards associated with ESS.

OSHA NRTL: The OSHA NRTL program recognizes private sector organizations to perform certification for certain products to ensure that they meet the requirements of both the construction and general industry OSHA electrical standards. Each NRTL has a scope of test standards that they are recognized for, and each NRTL uses its own registered certification mark(s) to designate product conformance to the applicable product safety test standards, thereby "listing" the product. After certifying a product, the NRTL authorizes the manufacturer to apply a registered certification mark to the product. If the certification is done under the NRTL program, this mark signifies that the NRTL tested and certified the product, and that the product complies with the requirements of one or more appropriate product safety test standards. Two testing laboratories certified for the electrical components discussed in this analysis are UL and Technischer Überwachungsverein (TUV) Rheinland.

3.2 HEALTH PROTECTIVE REGULATIONS

The California Air Pollution Control Officers Association in consultation with the California Air Resources Board and Office of Environmental Health Hazard Assessment (OEHHA) implements the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (Air Toxics "Hot Spot" Act, Health, and Safety Code §44344.4(c).). The Hot Spots regulation requires the assessment of the potential acute, chronic, and cancer health risks associated with facilities. OEHHA also publishes the reference exposure levels for a range of pollutants, which defines the concentration levels at which pollutants start to generate health effects. The South Coast Air Quality Management District (South Coast AQMD) provides guidance, and a spreadsheet tool associated with a facility prioritization protocol.

The Environmental Protection Agency (EPA) defines the Acute Exposure Guideline Levels (AEGL) standard for pollutants. The American Industrial Hygiene Association has defined Emergency Response Planning Guidelines (ERPGs) to define the levels at which toxic pollutants may cause harm. This analysis utilized AEGL-2 and ERPG-2 levels to determine the consequences associated with toxic release on adjacent receptors. These levels are defined as concentrations that persons exposed for 1 hour could develop irreversible or serious health effects.

In 2016, a technical working group comprised of utility and industry representatives worked with the California Public Utilities Commission Safety and Enforcement Division's Risk Assessment and Safety Advisory section to develop a set of guidelines for documentation and safe practices at ESS co-located at electric utility substations, power plants, or other facilities (CPUC 2017). The guidelines require a safety plan and inspection procedures.

4. METHODOLOGY

4.1 RECEPTORS

Public receptors located near the Project site are listed in Table 1 and a visual overview of the receptors is shown in Figure 4.

TABLE 1. DISTANCE TO RECEPTORS

Receptor	Distance to Battery Cabinets, feet *
Long Beach International Gateway Bridge (I-710)	518.63
Long Beach International Gateway Bridge (I-710) (vertical indicator)	208
Pacific Terminal Services Corporation	349.39
Shipping Channel	676.13

* Distance to battery cells within cabinets.

FIGURE 4. SITE MAP WITH DISTANCES TO RECEPTORS

4.2 ASSESSMENT METHODOLOGY

There are no emissions with anticipated effects to the receptors during normal operations. However, in the unlikely event of a battery cell malfunction, such as a thermal runaway reaction or external impact event, the Project could emit pollutants to the atmosphere. For these types of battery cell malfunctions, emissions could be generated due to elevated temperatures within a single storage cell or group of storage cells caused by a runaway reaction. When lithium-ion batteries are mistreated with high over-temperature, strong overcharge, or suffer damage, they can transition into a thermal runaway. During a thermal runaway, the battery temperature increases due to exothermic reactions. In turn, the increased temperature accelerates those degradation reactions, and the system destabilizes. At the end of a thermal runaway, battery temperatures higher than 1,000 °C can be reached and flammable and toxic gases can be released (Golubkov 2015).

This analysis is limited to a reasonable worst-case event. A catastrophic event, such as an airplane impact, run-away vehicle impact, or terrorist incident could cause multiple PowerTitans to be destroyed, causing substantial emissions associated with a large-scale fire. A reasonable worst-case event is more limited in scope and is defined as a control system failure or a puncture of a module, similar to that conducted as part of the UL 1973 testing, which could cause a runaway reaction in a group of cells. A reasonable worst-case scenario is appropriate for a planning scenario as opposed to a more extreme scenario such as catastrophic events noted above. This approach has been approved by the City of Long Beach and Los Angeles County for previous projects of similar design and function.

The BESS will be equipped with monitoring and control systems that will prevent and/or control battery cell malfunctions. However, to determine an unlikely, but reasonable worst-case public health impacts scenario for this analysis, it is assumed that these control systems fail and do not control the battery cell malfunction. For this unlikely event, it is assumed that the battery cell malfunction continues until the fire department arrives onsite.

Different manufacturers have developed various studies examining the potential scenarios related to battery malfunctions, although most of these studies are proprietary. Some studies have been independently performed for agencies, including a study conducted by Det Norske Veritas (DNVGL 2017) for the New York State Energy Research & Development Authority and Consolidated Edison. Other studies by Anderson (2013), Blum (2016), Larsson (2017), and LG Chem (another battery manufacturer) addressed scenarios where batteries were exposed to heat sources and off gases were measured.

Different battery cell malfunctions could produce emissions. These include:

(1) an elevated temperature situation due to a runaway reaction with no combustion (venting with no combustion);

(2) an elevated temperature situation due to a runaway reaction with combustion. Studies have shown (Rincon 2017) that a localized runaway reaction with combustion produces the greatest flow of emissions. Emissions would occur both during the pre-combustion phase and

during the combustion phase. During the pre-combustion phase, the off gassed materials would contain flammable and toxic materials. During the combustion phase, most of the off-gassed materials would be combusted and hence would contain only low levels of flammable gasses. The off-gassed toxics would also be combusted, but a different array of toxic combustion products, mostly from the combustion of the plastics used in the PowerTitans, would be produced. In addition, during combustion, the heat of combustion would produce substantial plume buoyancy, thereby causing the materials to rise into the air. As the downwind, ground-level impacts could be greater during the pre-combustion phase, both phases are examined in this analysis.

The BESS will be enclosed in cabinets with venting capabilities to the local environment. It is assumed that the emissions caused by these malfunction scenarios will be vented during the malfunction scenario. As per the Fisher Engineering Report (Fisher 2020) and Det Norske Veritas testing (DNVGL 2019), emissions are assumed to occur over a period of a few hours. Two reasonable worst-case scenarios are addressed: the loss of a battery pack within a PowerTitan module (pack event), and the loss of an entire rack within the PowerTitan system (rack event). For these malfunction scenarios, it is assumed that the release of pollutants to the atmosphere would occur all within one hour as a reasonable worst case. While emissions could occur over a longer period of time, a worst-case analysis is produced if the same quantity of pollutants are released over a shorter period of time, thereby increasing the emission rates and increasing the downwind distance and potential impacts.

In addition, as part of the UL 1973 requirements, battery malfunctions and punctures are required to have limited cascading capabilities. Therefore, it is highly unlikely that an entire rack would be involved in a single event. Therefore, as a reasonable worst-case scenario, it is assumed that a single rack would be involved in the battery malfunction. Sungrow's historical experience with battery cell malfunctions indicate that this is a very conservative scenario that has not occurred to date with their batteries.

4.2.1 TOXIC POLLUTANTS

Battery malfunctions can result in the release of toxic materials and/or the release of a flammable gas mixture and subsequent flammable gas vapor cloud with subsequent fire or explosion. Toxic pollutants emitted from battery malfunctions are partially dependent on the battery type. A list of primary toxic pollutants that can be found in lithium-ion batteries is provided in Table 2, and data sources are listed in Table 3.

TABLE 2. POTENTIAL TOXIC POLLUTANTS FROM BATTERY MALFUNCTIONS

Pollutant	OEHHA REL, $\mu g/m^3$ (ppm)	AEGL-2	ERPG-2
Carbon monoxide (CO)	23,000/26.7	83 ppm	350 ppm
Hydrogen Chloride (HCL)	2100/3.2	22 ppm	20 ppm
Hydrogen Cyanide (HCN)	340/0.4	7.1 ppm	10 ppm
Hydrogen Fluoride (HF)	240/0.2	24 ppm	20 ppm

Methanol (CH_3OH)	28,000/37	2,100 ppm	1,000 ppm
Nitrogen Oxide (NO_x)	470/0.9	-	15 ppm
Phosphine (PH_3)**	400/0.6	2 ppm	0.5 ppm
Phosphorous Pentafluoride (PF_5)	240/0.2*	-	-
Phosphoryl Fluoride (POF_3)	240/1.0*	-	-
Styrene	21,000/90	130 ppm	250 ppm
Sulfur Dioxide (SO_2)	660/1.8	0.75 ppm	3 ppm
Toluene	37,000/140	560 ppm	300 ppm

Sources: See Table 3.

Acronyms: $\mu g/m^3$ = micrograms per cubic meter; ERPG = emergency response planning guidelines; AEGL = Acute Exposure Guideline Levels; NIOSH = National Institute for Occupational Safety and Health; ppm = parts per million; REL = reference exposure level

* Utilized the acute REL for hydrogen fluoride as per OEHHA REL tables for Fluorides chronic are very similar.

** OEHHA does not have REL for acute PH_3. Estimated based on NIOSH values.

*** NIOSH does not have a listing for PF_5. PF_5 and POF_3 estimated based on general fluorides.

Generally, the battery cell will begin to off-gas if the temperature exceeds 120 °C (DNVGL 2017). Several studies have examined the emissions of toxic pollutants from battery off-gassing situations, with some studies examining only the concentration of toxic pollutants and others also examining emission rates. The relevant studies are listed in Table 3.

TABLE 3. STUDIES ON EMISSIONS FROM BATTERY MALFUNCTIONS

Study	Description	Results
Anderson 2013	Exposure of battery to heat source, off gasses tested. LFP battery, 1.2 kg, 35 Ah.	HF: 30-50ppm peak POF_3: 1-2ppm peak HF Rate: 0.01 g/s
Blum 2016	Modules tested with heat exposure until thermal runaways. 100 kWh unit by Tesla.	HF: 100 ppm peak
CATL	UL 9540A testing.	Composition of off gassing: primary pollutants only. Up to 153.5 L off gas per cell
Larsson 2017	External propane burner used to heat batteries, measured toxic gasses. Examined different battery types.	HF: up to 145 ppm peak HF rate: 50 mg/s peak HF rate: 200mg/Wh peak POF_3 rate: 22 mg/Wh peak

LG Chem	Proprietary data on LFP battery tests. NMC battery type.	HF-0.2ppm PH_3-1.0ppm HF rate: 4.7e-7 g/hr PH_3 rate: 2.4e-4 g/hr Up to 244 L off gas per cell
DNVGL 2017	Measured characteristics of a wide range of battery types and failures.	release rates per kg of battery weight: HF rate: 1.7e-7 kg/s
DNVGL 2019	Measured characteristics of a Tesla powerpack thermal runaway scenario.	Maximum Values: HCL: 538 ppm HF: 183 ppm HCN: 67 ppm
Fisher Engineering 2020	Tesla PowerTitan 9540A test results.	HF: 0.5 ppm

Some of the key findings from these studies include the following:

- HF was found to be produced by all battery types.
- For LFP batteries, HF and POF_3 were found to be off-gassed (Anderson 2013)
- PH_3 was identified by LG Chem for the LFP battery type
- PF_5 rapidly decomposes to HF and was therefore generally not detected (Anderson 2013).

It was also found that the average emission rate of HF in a plastics fire can be higher than the average emission rate of a battery fire (DNVGL 2017), indicating that potentially most of the toxic emissions from a battery fire are a result of the combustion of the plastic components.

This consequence analysis reviewed the studies listed in Table 3 and utilized the highest toxic and flammable concentrations identified in any of these studies. As a battery off-gassing event could have a range of characteristics, utilizing the maximum levels seen in a range of studies ensures a conservative analysis.

4.3 FLAMMABLE COMPONENTS AND FLAMMABILITY

Flammable components are also emitted from battery malfunction. Table 4 lists the potential flammable components from battery off gassing based on information found in the studies listed in Table 3.

TABLE 4. POTENTIAL FLAMMABLE COMPONENTS FROM BATTERY OFF-GASSING

Component	Lower Flammability Limit (LFL), vol%
Carbon monoxide (CO)	12.5
Ethane (C_2H_6)	3.0
Ethylene (C_2H_4)	2.7
Hydrogen (H_2)	4.0
Methane (CH_4)	5.0

Depending on the combination of these flammable materials, the off-gasses can have varying degrees of flammability. The composition on battery off-gassing components was determined by testing from Wang et al., 2024. This information is listed in Table 5.

TABLE 5. LFP BATTERY PRIMARY FLAMMABLE COMPONENTS

Component	Mole Percent
Hydrogen (H_2)	36.2
Carbon monoxide (CO)	6.3
Methane (CH_4)	4.3
Ethylene (C_2H_4)	3.8
Propane (C_2H_8)	-

Note: These data indicate a worst-case level encountered (most flammable), for single cell level testing. Other components, such as nitrogen and carbon dioxide, are also produced but are not shown because these components are not flammable.

4.4 MODELING

Fire consequence, flammable gas, and toxic gas dispersion modeling was undertaken using PHAST 8.7, a Det Norske Veritas software program. PHAST is a comprehensive consequence analysis software tool that examines the progress of a potential incident from the initial release to far-field dispersion including modeling of pool spreading and evaporation, and flammable and toxic effects. Some key features of PHAST include:

- discharge and dispersion models;
- flammable models, including resulting radiation effects, for jet fires, pool fires and fireballs; and
- models for the toxic hazards of a release including indoor toxic dose calculations.

The PHAST model was utilized for this project to determine the areas affected by toxic vapor release at levels both AEGL and ERPG, overpressure scenarios of 1 pound per square inch (psi), and heat flux levels in the event of a fire. Site assumptions used for PHAST modelling are summarized in Appendix A.

5. CONSEQUENCE ANALYSIS

This section presents the consequence analysis associated with battery malfunctions based on the methodology described in Section 4.

5.1 EXPOSURE ASSESSMENT

Project emissions to the air would consist of combustion and vent products from the burning and/or venting of the battery cells due to a battery cell malfunction under the reasonable worst-case scenario. Inhalation is the main pathway by which toxic air pollutants could potentially cause public health impacts.

5.2 TOXIC AND COMBUSTIBLE GAS IMPACTS

Potential human health impacts associated with the Project stem from exposure to air emissions from the battery cell malfunction reasonable worst-case scenario discussed above. The reasonable worst-case scenario would involve the battery malfunctions associated with off-gassing and combustion. Research conducted by Projekt ALBERO provided information on primary and toxic pollutants from the battery malfunction, and that information was utilized for the analysis.

Combustion products were also considered for this consequence analysis. These can include a number of components that can be toxic: particles, vapors, toxic gases including CO, HCN from the burning of plastics, and phosgene from vinyl materials. Fire can also reduce oxygen levels, either by consuming the oxygen, or by displacing it with other gases.

The dispersion and downwind impacts of smoke is highly complex due to the influence of the flame and fire-induced turbulence as well as the effect of building and meteorological parameters. To estimate the dispersion of smoke, the PHAST model was utilized assuming 60 percent combustion of the off gassed materials.

The pack scenario was modelled using a 2.6 m/s wind speed based on average wind speed data from Long Beach Airport wind rose chart. The rack scenario was modelled using 1.5 m/s wind speed as per RMP offsite consequence analysis guidelines.

Modeling conducted utilizing PHAST software indicated that the plume centerline rapidly rises due to the elevated temperature of the off gassed materials, with ERPG and AEGL values remaining either onsite or elevated. PHAST modeling indicated that the maximum offsite exposed concentration of toxic materials would remain below the AEGL-2 levels for all locations.

Therefore, the public health impacts from toxic pollutants associated with the reasonable worst- case rack malfunction would be less than significant for those receptors located near the site. Modelling results for potential offsite downwind impacts are presented in Table 6 and the potential offsite downwind impacts for the worst-case rack scenario are shown on Figure 5. Figure 6 depicts the phosphine plume that would be produced in a worst-case scenario. Appendix A contains figures depicting the potential offsite downwind impacts for the other scenarios analyzed and modelling assumptions.

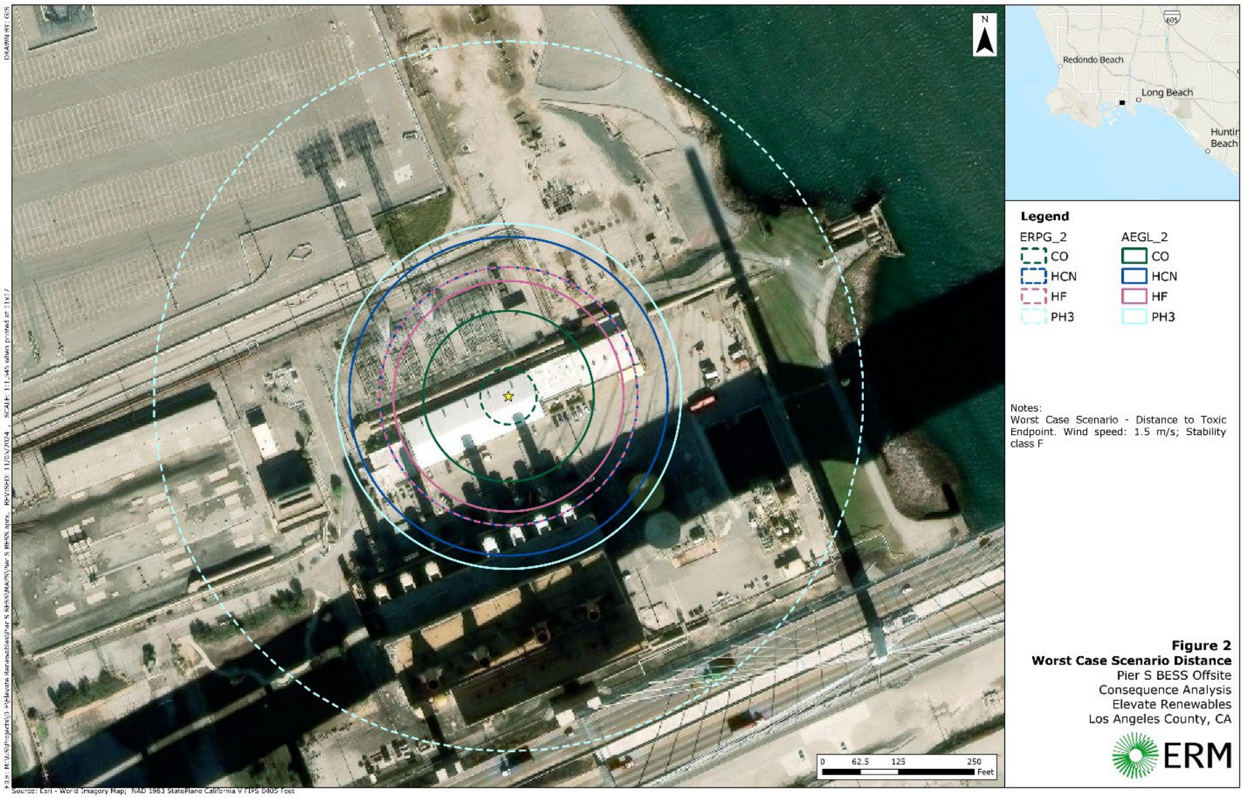
TABLE 6. TOXIC AND COMBUSTIBLE MATERIALS MODELING RESULTS

Pollutant	**ERPG-2 Distance, feet**	**AEGL-2 (1 hr) Distance, feet**	**AEGL-2 (30 min) Distance, feet**	**AEGL-2 (10 min) Distance, feet**
Rack				
CO	46.44	140.42	90.22	40.19
HF	212.74	189.63	149.66	68.50
HCN	212.76	262.36	214	149.67
PH_3	584.49	284.18	190.42	191.96
Pack (Stability Class F (Night; Clear))				
CO	43.56	98.33	66.47	39.48
HF	187.67	155.78	107.28	55.86
HCN	186.97	258.38	213.43	157.21
PH_3	979.01	299.66	179.34	220.79
Pack (Stability Class E (Night; Clear))				
CO	43.47	97.85	66.4	39.16
HF	182.83	154.44	106.86	55.52
HCN	182.49	243.68	206.03	155.9
PH_3	754.8	278.35	175.57	212.83
Pack (Stability Class C (Morning))				
CO	43.42	80.55	57.77	38.7
HF	125.28	110.57	86.11	51.36
HCN	125.28	156.95	137.45	111.35
PH_3	409.74	174.84	121.61	140.83

Notes: Based on PHAST modeling. ERPG-2 values based on NIOSH 2019 threshold levels. AEGL-2 values based on EPA 2024 threshold levels.

Acronyms: CO = carbon monoxide; PH_3 = phosphine; HCN = hydrogen cyanide; HF = hydrogen fluoride

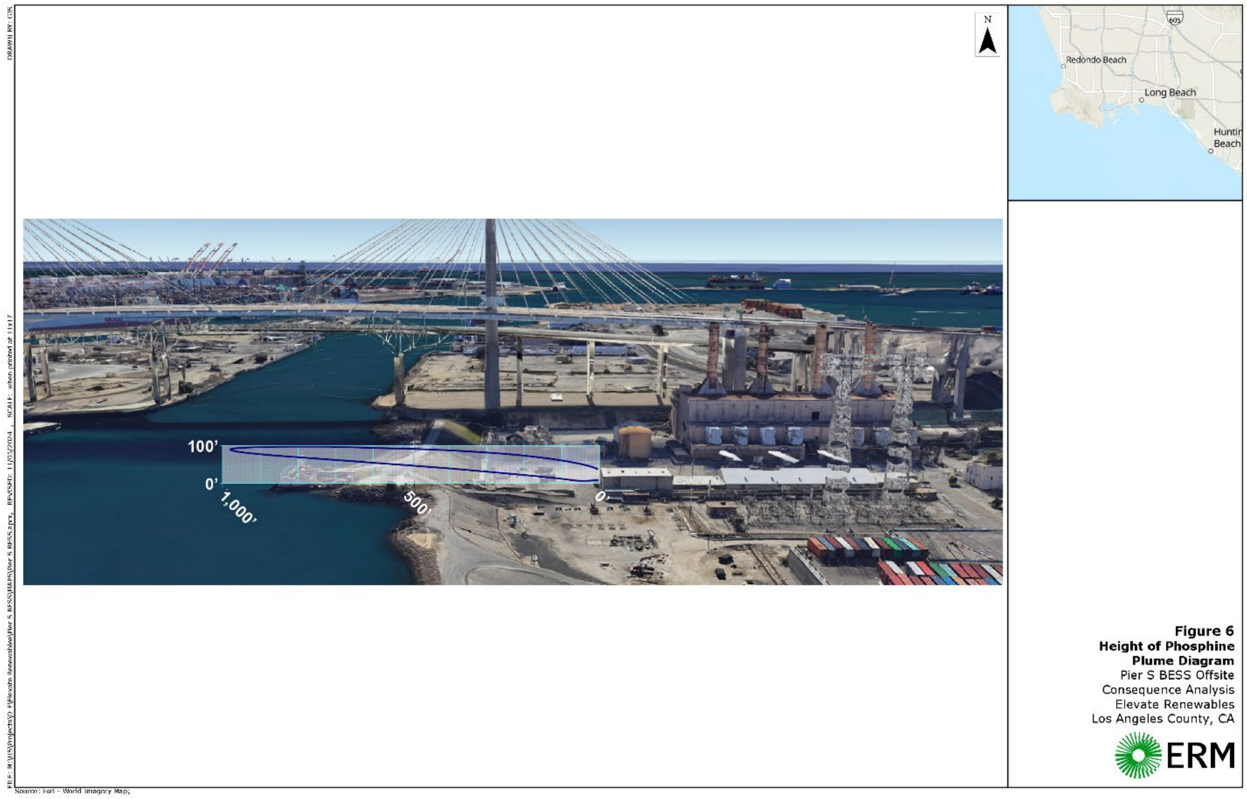
FIGURE 5. SITE MAP WITH TOXIC GAS ESTIMATES



Notes: Based on PHAST modeling. ERPG-2 values based on NIOSH 2019 threshold levels. AEGL-2 values based on EPA 2024 threshold levels.

Acronyms: CO = carbon monoxide; PH_3 = phosphine; HCN = hydrogen cyanide; HF = hydrogen fluoride

FIGURE 6. HEIGHT OF PHOSPHINE PLUME DIAGRAM



Notes: Based on PHAST modeling. ERPG-2 values based on NIOSH 2019 threshold levels.

5.3 OVERPRESSURE IMPACTS

An overpressure scenario could occur at the site when thermal runaway occurs due to battery malfunction. This scenario could cause impacts on the surrounding area. Therefore, using PHAST, a model was created to estimate the potential areas of impact based on a 1 psi level of overpressure. The worst-case rack scenario created 1 psi of overpressure 280.17 feet from the BESS. The 1 psi impulse threshold was chosen as this is the overpressure level at which structural damage begins to occur.

5.4 THERMAL IMPACTS

Impacts from a fire could produce thermal radiation which could affect areas near the fire and areas offsite. PHAST modelling software was used to estimate the thermal radiation at different distances from the PowerTitan during a fire event.

Using this software, Table 7 was produced to describe specific distances these areas of thermal flux would reach. This figure shows areas that could be affected in a failure scenario resulting in large amounts of thermal radiation. These areas were generated based on the heat flux safety thresholds outlined in Table 8.

In general, when estimating the potential impacts of thermal radiation, both the level of heat flux and the duration are used to estimate the thermal dose or amount of heat transferred or the "thermal load." Probit equations demonstrate this effect, as higher heat flux impacts to humans and materials can be substantially more tolerated at shorter durations (Lees 2012). Table 8 below shows different heat flux levels and associated impacts on humans and materials.

Note that heat flux impacts to humans can generally be tolerated below 5 kilowatts per square meter (kW/m^2) and below 12.5 kW/m^2 if sufficient time to escape is feasible. Heat flux levels that can produce spontaneous ignition in building materials generally does not occur below 12.5 to 20 kW/m^2.

TABLE 7. PHAST ANALYSIS ESTIMATED HEAT FLUX DISTANCES

Heat Intensity (kW/m2)	**Distance from PowerTitan, Rack (feet)**	**Distance from PowerTitan, Pack Stability C (feet)**	**Distance from PowerTitan Pack Stability E (feet)**	**Distance from PowerTitan Pack Stability F (feet)**
5	133.77	61.21	61.19	61.05
12.5	52.33	19.88	19.87	19.4
37.5	-	-	-	-

Acronym: kW/m^2 = kilowatts per square meter

Notes: Using PHAST modelling software. Describes distance from BESS at which heat intensity thresholds occur.

TABLE 8. POTENTIAL THERMAL IMPACTS FROM HEAT FLUX EXPOSURE AND DURATION

Incident Flux, kW/m^2	**Duration**	**Impact**
Impacts on Humans		
5	Multiple minutes	Emergency actions lasting several minutes can be performed without shielding
12.5	1 minute 10 seconds	1% fatalities First degree burns
37.5	10 seconds	100% fatality
Impacts on Materials		
12.5	Long exposure	Threshold for ignition of combustible materials (plastics and wood).
37.5	13 minutes	7mm steel plate failure

Notes: from NRC 2004, NIOSH 2017, SFPE 1999 and 2020, FMGlobal 2019

Acronyms: kW/m^2 = kilowatts per square meter

Note that per the PHAST analysis, thermal impacts would not reach areas outside the site that would be continuously populated. Therefore, thermal impacts to nearby structures would not be sufficient to produce impacts.

6. SUMMARY OF IMPACTS AND CONCLUSION

Results from the offsite consequence analysis are summarized in Table 9.

TABLE 9. OFFSITE CONSEQUENCE ANALYSIS SUMMARY

Sensitive Receptors	
Long Beach International Gateway Bridge	ERPG-2 levels of phosphine will not impact any vehicles passing over the Long Beach International Gateway Bridge as it is at an elevation significantly higher than the plume height.
Adjacent shipping channel	ERPG-2 concentrations of phosphine will not adversely affect transient receptors in the adjacent ship channel, including vessels navigating through the plume, whether fully or partially. Notably, any plume would only extend into the shipping channel to an area where physical obstructions from shore would likely prevent transit.
Pacific Terminal Services Corporation	ERPG-2 concentrations of phosphine will not impact transitory workers located in the small are of the southeast corner of Pacific Terminal Services Corporation (PTSC) where the plume might extend, as most operations are situated in other areas of the site. Additionally, there are no administrative premises on that side of PTSC that involve personnel working for extended hours.

Additionally, the analysis did not take into account mitigation measures such as fire suppression systems, which would likely lessen the severity of such incidents.

Therefore, we conclude that the proposed Battery Energy Storage System does not present any significant additional health and safety risk to the area's sensitive receptors, in the event of a maximum credible fire.

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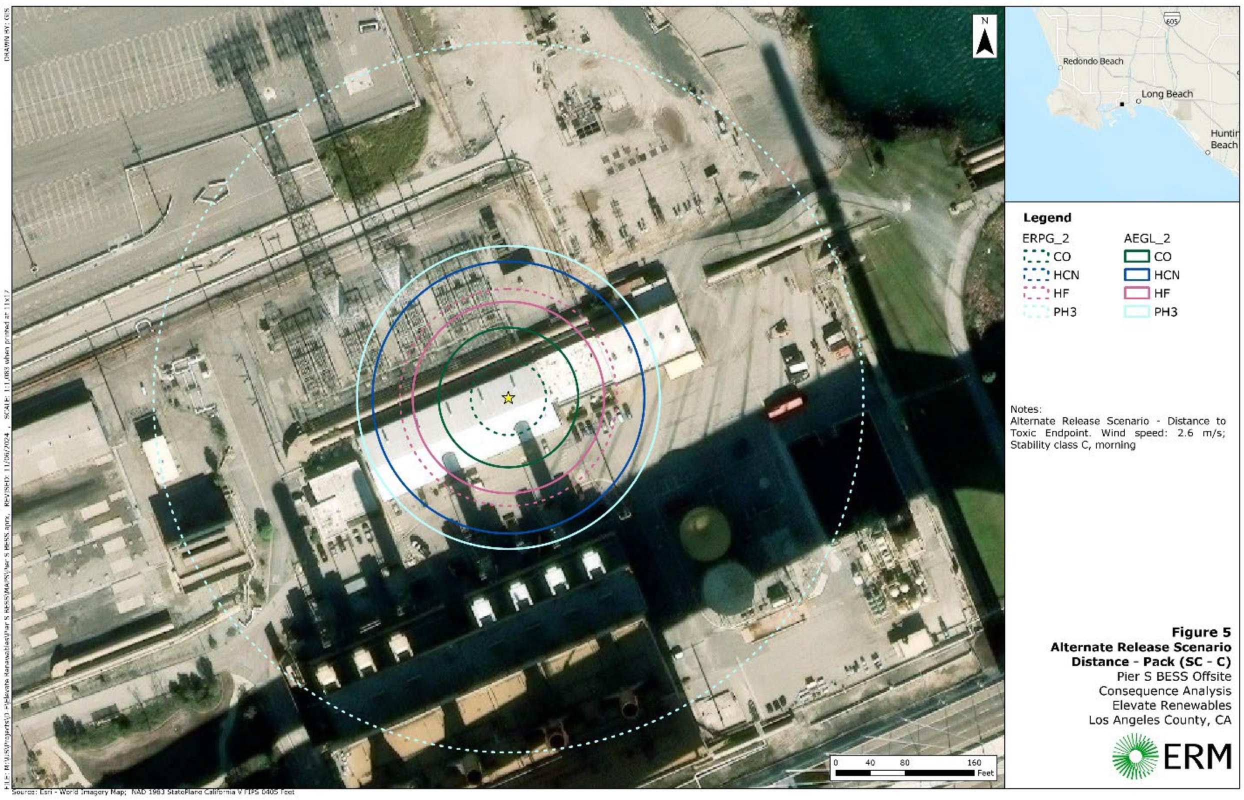
APPENDIX A PHAST MODELING DATA

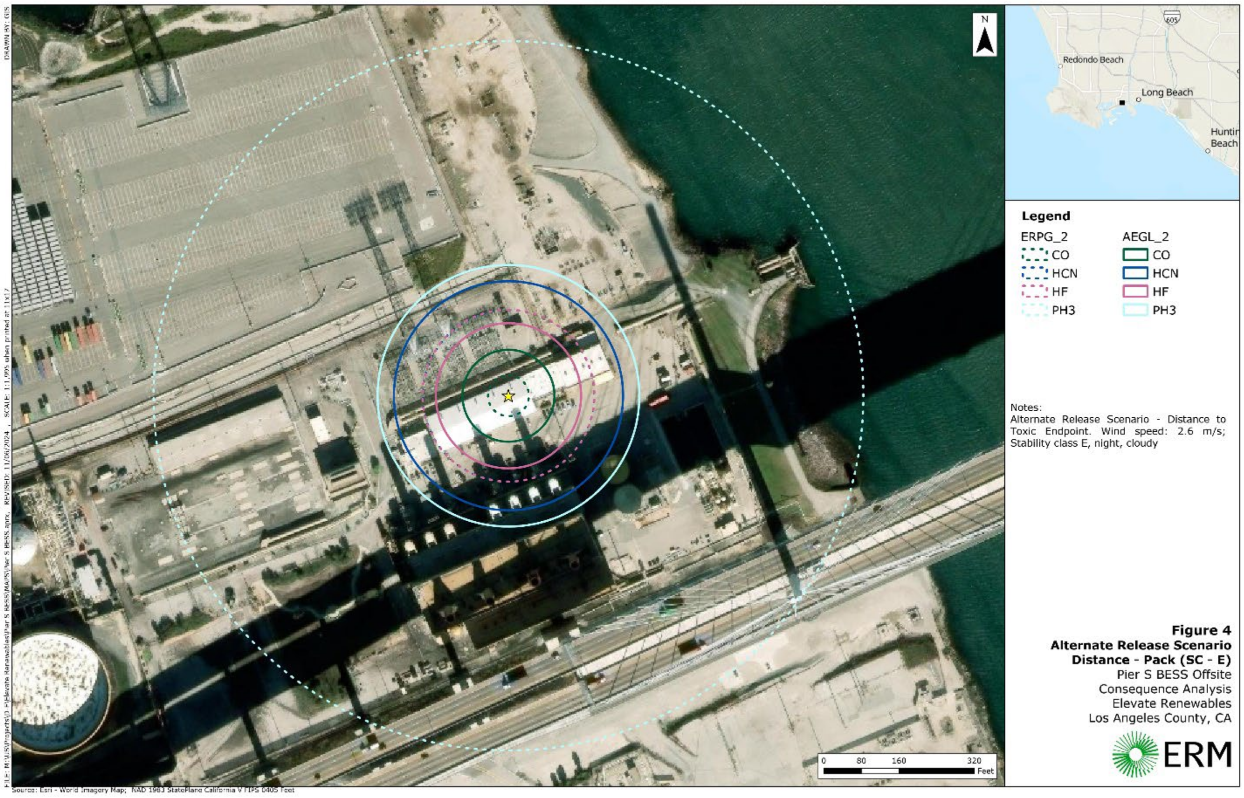
PHAST SITE ASSUMPTIONS FOR WORST-CASE SCENARIO

P Assumptions	
Parameter	**Value**
Wind Temperature	65 F
Atmosphere	1 atm
Stability Class	F
Temperature of vessel (PowerTitans)	270 C
Relative Humidity	0.7
Wind Speed	1.5 m/s

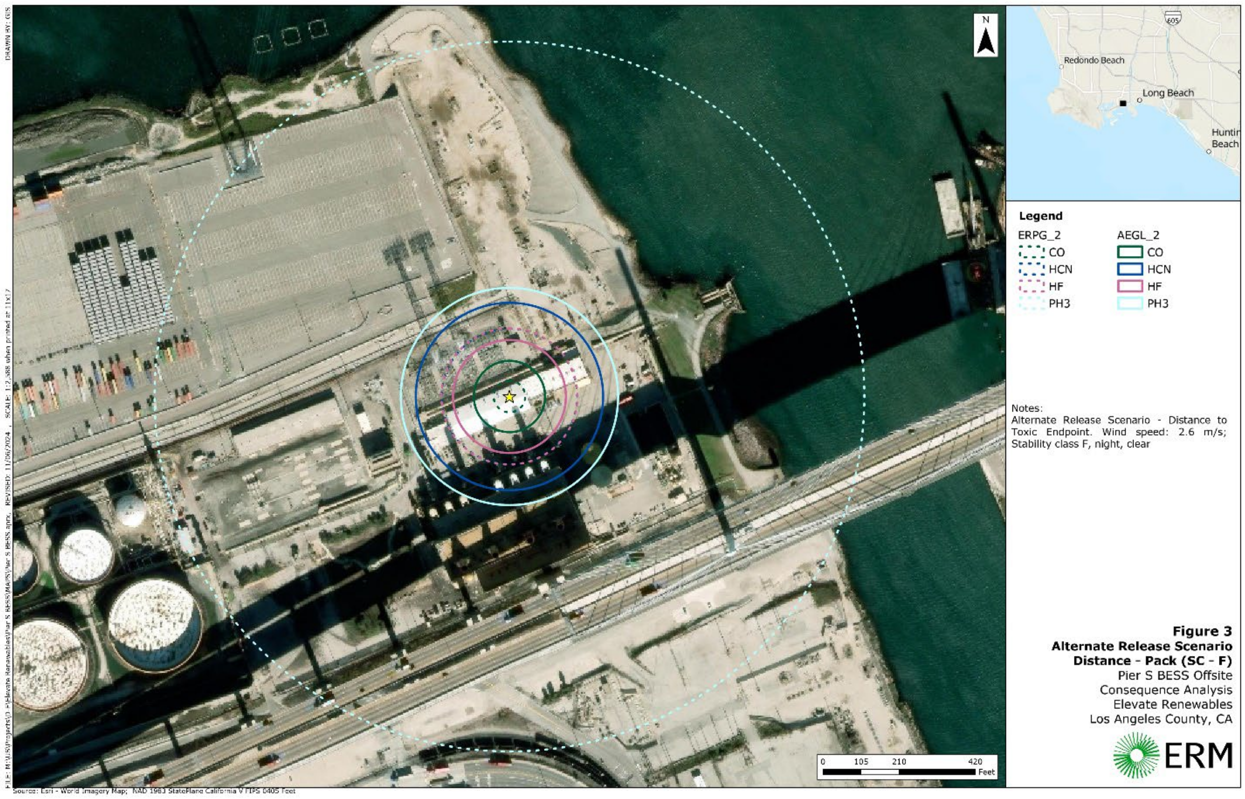
PACK STABILITY CLASS C (MORNING)



PACK STABILITY CLASS E (NIGHT; CLOUDY)



PACK STABILITY CLASS F (NIGHT; CLEAR)



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ERM's Houston Office
CityCentre Four
840 W Sam Houston Pkwy N
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