Chapter 2
Project Description

2.1 Introduction

This chapter provides background information related to the Proposed Project and describes the Proposed Project's physical and operational elements. This section also provides a discussion of the California Environmental Quality Act (CEQA) baseline that forms the basis of the environmental analyses in Chapter 3, and a description of the Project alternatives evaluated in this Draft Environmental Impact Report (EIR).

2.2 Background and Project Overview

2.2.1 Background

Cement is needed in the production of concrete for the construction of homes, schools, commercial buildings, roads, tunnels, bridges, and infrastructure to support water and energy conveyance. Cement is a vital component of the construction industry in Southern California, being used in all concrete and in a variety of other construction applications. In 2021, approximately 6.3 million metric tons of cement were shipped for consumption in Southern California (USGS 2022).

Because of the large amounts of energy required, the production of cement is carbon-intensive: one estimate is that cement production is responsible for approximately 8% of worldwide carbon dioxide (CO_2) emissions (Ellis et al. 2020) and nearly 2% of California's emissions (CARB 2021). Despite its relatively high production-related carbon emissions, cement will continue to be one of the most consumed resources in the world. A reliable supply of cement is therefore important for sustained economic growth. Shortages, such as the one in 2020 and early 2021, inhibit that growth.

In September 2021, California passed Senate Bill (SB) 596 "Greenhouse gases: cement sector: net-zero emissions strategy" which requires the California Air Resources Board (CARB) to develop a comprehensive strategy for the state's cement sector to achieve net-zero emissions of greenhouse gases associated with cement used in the state as soon as possible, but no later than December 31, 2045. (Health and Saf. Code, Section 39561.2.) Ecocem (the parent company of Orcem) has a process for making a binder (ground granulated blast furnace slag [GGBFS])) that requires smaller amounts of carbon-based fuels than traditional Portland cement and that serves as a partial substitute to traditional Portland cement and Portland limestone cement in concrete. Ecocem estimates the energy (thermal and electric) consumption of their process to be approximately 14 percent that of the typical cement making process (Table 2-1). For this reason, this document refers to GGBFS as a “low carbon binder”. Ecocem is a world leader in low-carbon binder technologies and the European leader in the production of the lowest-carbon binder, GGBFS (ASTM C-989).

Table 2-1 Typical energy consumption per ton of Portland cement and GGBFS

Consumption	Thousand BTUs per metric ton	
	Traditional Cement	GGBFS
Electricity	461	298
Thermal Energy (Fuel Combustion)	3264	232
TOTAL Energy	3726	530
% of Traditional Cement	-	14%

Source: Ecocem 2023.
Note: values represent industry average energy consumption. GGBFS values would be similar but not exact to the specific design of the Proposed Project.

GGBFS is categorized as a supplementary cementing material (“SCM”); SCMs, in addition to their lower embodied carbon footprint, are the primary resource to assure concrete quality, particularly durability, for infrastructure projects. For example, CalTrans, through its highway and bridge projects, is a major local consumer of SCMs because its specifications require the use of hundreds of thousands of tons of SCMs every year. Over the last several years there have been serious shortages, to the point where projects were delayed pending delivery of SCMs from alternative sources. In 2016 and again in 2021, following regional shortages, CalTrans assembled task forces to research the outlook for long-term SCM supplies for California. Caltrans (2021) noted the advantages of GGBFS as providing sulfate resistance, prevention of alkali silica reaction (ASR), and reduced permeability, while the only disadvantages noted were that SCMs are imported and in limited supply.

Ecocem is proposing to build a facility that would produce this binder for the Southern California building industry, helping the region avoid shortages of a vital material and California to reach its carbon reduction and net-zero emissions goals. The Proposed Project would require berthing facilities for oceangoing vessels that would deliver the principal raw material, granulated blast furnace slag (GBFS), from overseas sources. Accordingly, the facility requires ocean access and would be constructed and operated at Port of Los Angeles Berth 191 and the backlands areas behind Berths 192-194.

2.2.2 Project Overview

The purpose of the Proposed Project is to supply the Southern California construction industry with the lowest-carbon binder (GGBFS), to enable the use of Ecocem’s cementitious technologies in the construction of eco-efficient projects, and to help the State of California meet its net-zero emissions target for the cement industry. As briefly summarized below and described in detail in Section 2.5, the Proposed Project would construct and operate a low-carbon binder processing facility on the backlands behind Berths 192-194 and operate a vessel berthing facility at Berth 191.

The Project site is largely vacant, although a small boat storage and repair facility occupies a portion of the site. Construction of the Proposed Project would consist of improving the structural characteristics of the soil, installing foundations for buildings and infrastructure, including an electrical substation, constructing an office building, a grinding mill, and storage silos, and to repair and upgrade the wharf at Berth 191.

During operation of the Proposed Project, a portable belt conveyor system would convey GBFS from oceangoing vessels at Berth 191 to open storage piles in the processing facility. Mobile equipment such as front-end loaders would feed the GBFS and natural gypsum (delivered by truck) into hoppers that would feed the processing mill, where it would be ground, dried, and mixed to produce GGBFS. That product would be stored in silos from which third-party trucks would be loaded with the GGBFS product for transport to concrete production facilities throughout the region.

2.3 Project Purpose, Need, and Objectives

2.3.1 Project Purpose and Need

The Proposed Project would help Southern California avoid further shortages of a construction material that is vital to provide the safe and durable infrastructure required for sustained economic growth, while at the same time meeting California's goals for reducing future greenhouse gas emissions.

The purpose of the Proposed Project is to provide Southern California's construction industry with a robust supply chain for GGBFS, and to use GGBFS in combination with Ecocem's proprietary technologies to help the State of California:

1. Meet its net-zero emission targets for all cement used in the state; and
2. Construct durable, resilient, and eco-efficient infrastructure required for a sustainable economy.

2.3.2 Project Objectives

To achieve this purpose, the Proposed Project has the following objectives:

- Provide necessary raw material import capacity for an environmentally sustainable product;
- Establish a processing facility to produce the binder at a deep-water berth in Southern California, with permanent local manufacturing jobs, that is:
    - Capable of adapting to changes in raw material sources in order to maintain a steady supply of product;
    - Capable of providing storage capacity for the rapid unloading of bulk ships delivering raw materials and for loading product on bulk tanker trucks; and
    - Located near the center of the Southern California market to reduce the traffic burden, road wear, and energy requirements associated with truck transport of product.
- Facilitate the future development of improved low-carbon, high-performance binders.

2.4 Project Location and Setting

2.4.1 Regional Setting

As described in Section 1.2.1, the Port of Los Angeles (POLA) is located approximately 20 miles south of downtown Los Angeles on the western side of San Pedro Bay (Figure 1-1 in Chapter 1). The Port of Los Angeles consists of 43 miles of waterfront, approximately 300 commercial berths, and approximately 7,500 acres of land and water. The Los Angeles - Long Beach Port Complex serves as one of the nation's primary gateways for international trade, particularly with Pacific Rim countries, since it includes the nation's largest (POLA) and second largest (Port of Long Beach [POLB]) container ports. International trade is a key economic engine for Southern California, directly supporting jobs in cargo terminal operations, warehousing, freight management, trucking and railroading, and supplying goods that support retail and manufacturing jobs throughout the region. The Port Complex has traditionally been vital to the construction industry, having imported lumber for over a century and other construction materials such as cement, wallboard, and steel.

Approximately half of the cargo coming through the Port Complex is moved by trucks to the Los Angeles metropolitan area regional market; the remainder is moved by rail and trucks to markets outside the region. The Port Complex is served by two major interstate (I) highways (I-110 and I-710), several local major highways (e.g., State Route [SR]-47, Alameda Street, and Anaheim Street), and two Class 1 transcontinental railroads (Burlington Northern Santa Fe and Union Pacific). Access to the ocean from the waterfront is via the Angel's Gate (for the Port of Los Angeles) and Queen's Gate (for the Port of Long Beach), which are openings in the federal breakwater that protects the Port Complex.

2.4.2 Project Site and Surrounding Uses

The Project site occupies approximately 6.1 acres adjacent to the East Basin of Los Angeles Harbor, and is generally bounded by the Vopak liquid bulk terminal to the north and west, and the University of Southern California (USC) Boathouse and the East Basin to the south and east, as shown in Figures 2-1 and 2-2. Orcem would have access to an additional 1.33 acres at Berth 191 (Figure 2-2) for vessel unloading.

Road access is currently provided by Avalon Boulevard, Canal Street, and Yacht Street. The Project site is located at 100 Yacht Street, Wilmington, CA in the City of Los Angeles. The site is part of Assessor Parcel Number 7440010910. The site has a General Plan land use designation of General Bulk Cargo (Non-Hazardous Industrial and Commercial) and is zoned [Q] M3-1 ("Qualified Heavy Industrial") by the City of Los Angeles' Zoning Ordinance (City of Los Angeles 2022).

The Port Master Plan (PMP) (LAHD 2018) establishes policies and guidelines to direct the future development of the Port. The Project site is in Planning Area 2 of the PMP, which encompasses the West Basin and Wilmington areas between the intersection of Harbor Freeway and Harry Bridges Boulevard to Commodore Schuyler F. Helm Bridge along the boundary of the Port and the Port of Long Beach. Planning Area 2 extends from Berths 96 to 204 and includes a range of land use activities (LAHD 2018). The PMP designates the Project site for liquid bulk uses.

Figure 2-1. Proposed Project Location.

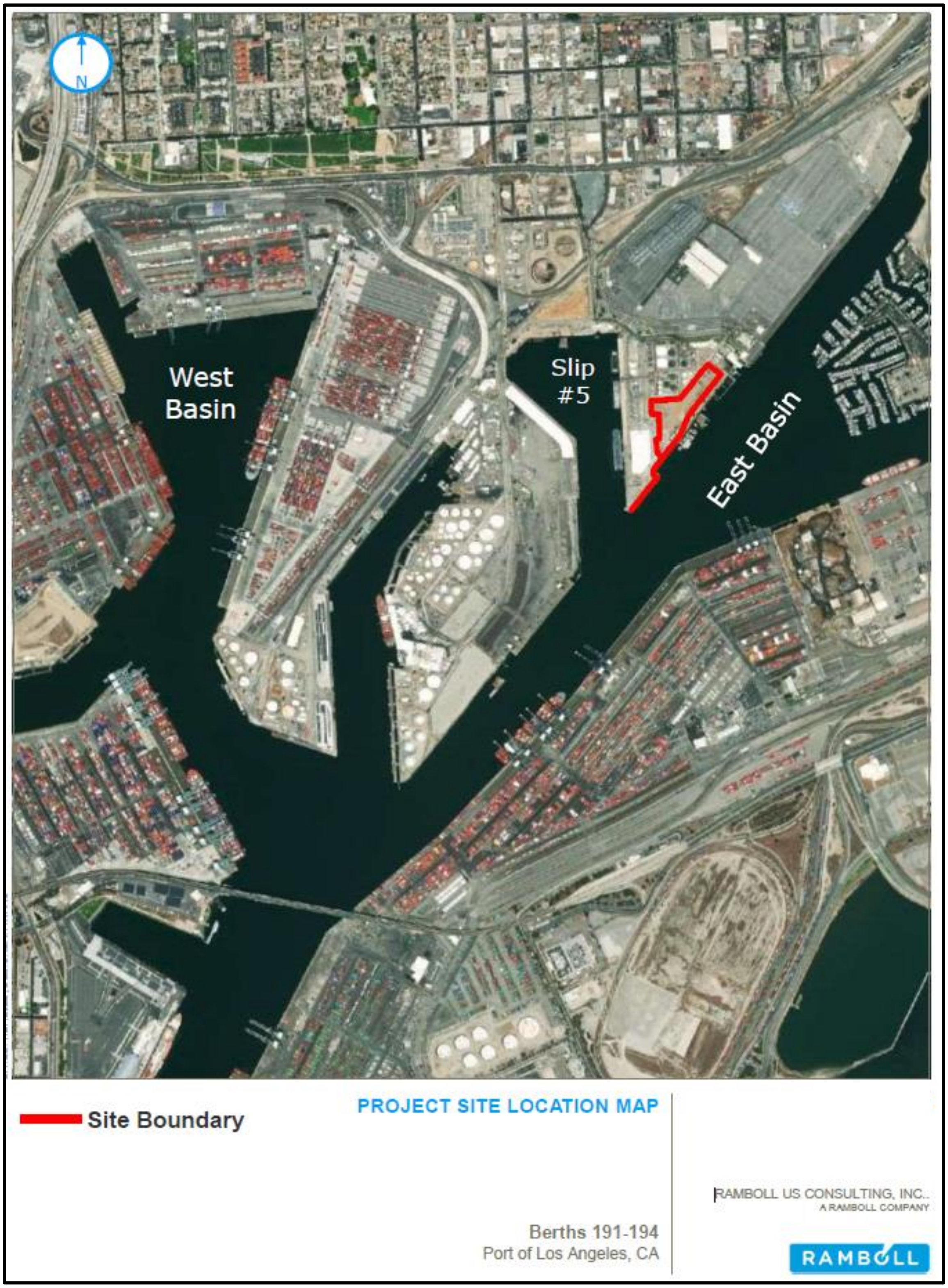


Figure 2-2. Existing Project Site (Berths 191-194)

Formerly occupied by a succession of water-related uses, including a yacht club, a terminal for steamship passengers, and small tank farms, the site has been largely vacant for the last 35 years. The site is supplied with electricity and natural gas through existing infrastructure, but the Proposed Project would require upgrades to that infrastructure to supply the necessary amounts of energy. As of 2021, abandoned small craft and marine-related debris, as well as small storage and office structures, were present at the site, and small craft moored to temporary floating docks were present along the shoreline of Berths 192-194. The backlands area is largely unpaved, although degraded remnants of former paving cover portions of the site.

Berth 191, where oceangoing vessels would berth to unload raw material (i.e., GBFS), is southwest of, and immediately adjacent to, the main portion of the site and would be connected to the Orcem site behind Berths 192-194 through lease provisions. The berth consists of a pile-supported wharf with a combination of timber, asphalt/concrete, and concrete decking. Berth 191 was previously used for unloading dry bulk cement into a facility in the Vopak leasehold at Berths 187-191, but that operation has not occurred since 2009. That operation utilized a mobile vacuum ship unloading system known as a KOVAKO® that traveled along the wharf deck and used its pneumatically-controlled arm to reach into ships' holds to suction out the powdered cement cargo. The loads imposed by that operation resulted in damage to the wharf deck and its supporting piles. In addition, other processes, including aging and vessel activity, have resulted in deterioration of the concrete supporting piles, the fender piles at the wharf face, and other concrete elements. As a result, the wharf requires repairs in order to return it to design capacity and meet the requirements of the dry-bulk unloading operation of the Proposed Project.

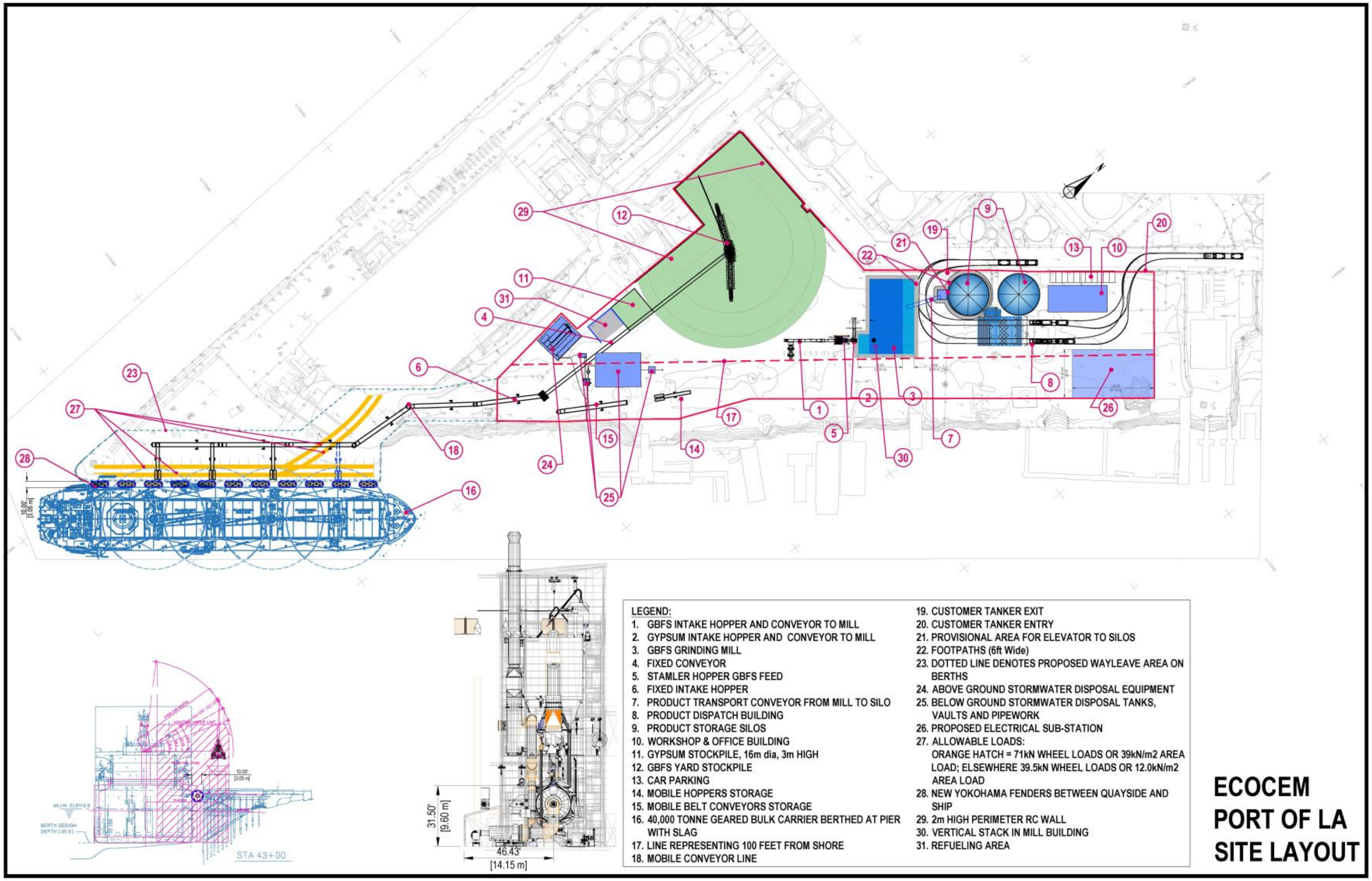
As of 2021, much of the Project site was vacant, but temporary uses related to boat storage and restoration and ongoing use for the Los Angeles Harbor Department (LAHD) equipment storage occupied a small portion of the site. Abandoned small craft and marine-related debris, as well as small storage and office structures, were present at the site, and small craft moored to temporary floating docks were present along the shoreline of Berths 192-194. Although soil and groundwater are known to be contaminated by heavy metals, petroleum hydrocarbons and volatile organic compounds (Leighton 2018), the Project site is not on the State's Cortese list of contaminated sites (Government Code section 65962.5), is not under regulatory cleanup oversight, and is not proposed for remediation.

2.5 Proposed Project

2.5.1 Overview

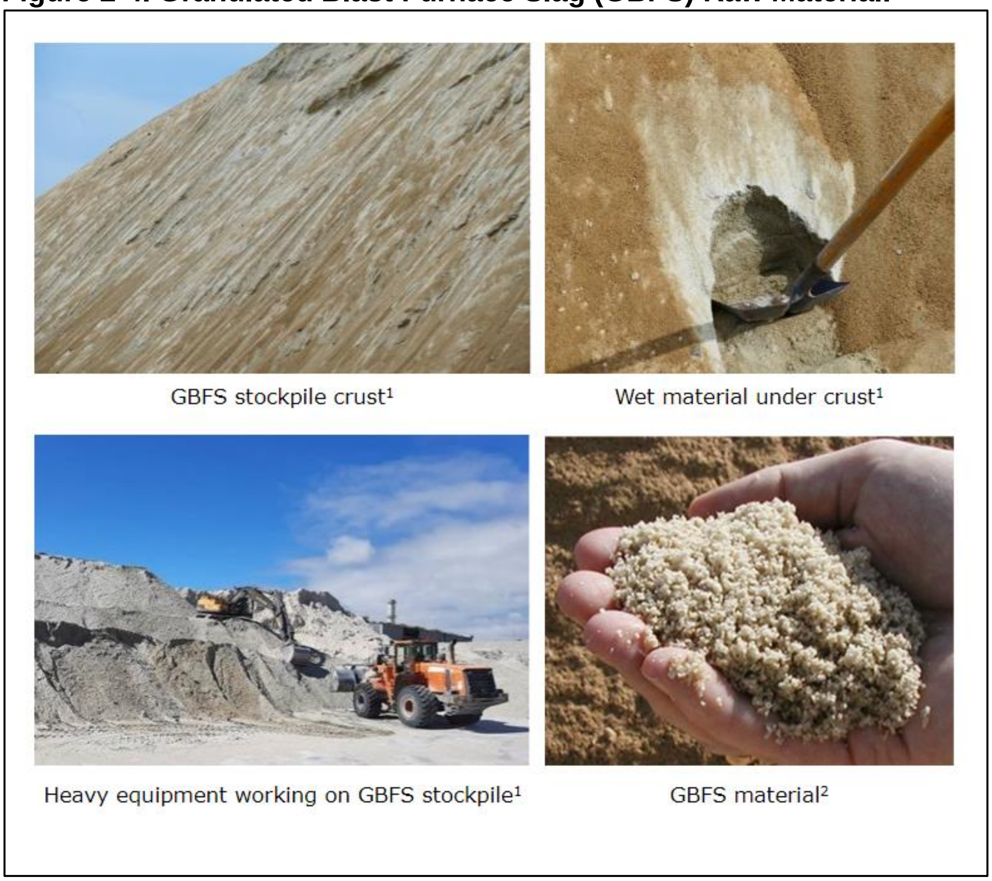
The Proposed Project includes construction of facilities on the backlands behind Berths 192-194, repairs to the wharf at Berth 191, and operation of the facility. Additional elements of the Proposed Project include amendment of the Port Master Plan to change the designated use of the Berths 192-194 site from liquid bulk to dry bulk (see Section 3.6 for more detail) and issuance by the LAHD of a 30-year entitlement for the site that would include access to Berth 191. The Project site (Figure 2-3) would be occupied by process buildings and conveyors, an administration and maintenance building, material storage silos and piles, and truck loading facilities.

Figure 2-3. Proposed Project Elements.



The proposed facility would produce the GGBFS product by grinding imported GBFS and combining it with natural gypsum minerals in the proportions of approximately 95-97% GBFS and 3-5% gypsum. GBFS is a by-product of the production of molten iron in a blast furnace, as the molten slag from the blast furnace is quenched in water. The water drains away, effectively washing the GBFS and resulting in a material resembling damp coarse sand (with 95% of the material between approximately 0.125 and 5 millimeters in size) (AWS Consulting 2014). It is sufficiently coarse and dense not to be susceptible to erosion and its high remaining moisture content (6-12%) further reduces its susceptibility to wind erosion. When piled outdoors, as in a stockpile, the material forms a crust, due to humidity and precipitation that further reduces erosion potential (Figure 2-4). The GBFS is a moist, granular, glassy material (Figure 2-4); accordingly, these properties minimize the dust created in both handling and storage.

Figure 2-4. Granulated Blast Furnace Slag (GBFS) Raw Material.



1: Ecocem (2022)
2: Phoenix Enterprise (2023)

GBFS is classified as non-hazardous. Although the chemical composition of GBFS varies somewhat between sources and between shipments, depending upon the composition of the materials used in the smelting process, laboratory testing of GBFS and gypsum procured by Ecocem, shown in Table 2-2, showed that concentrtions of heavy metals detected in the samples were well below the toxicity thresholds set by 40 CFR 350-372 (AWS Consulting 2014).

Table 2-2: Concentrations of Heavy Metals in GBFS and Gypsum. Source: AWS Consulting 2014.

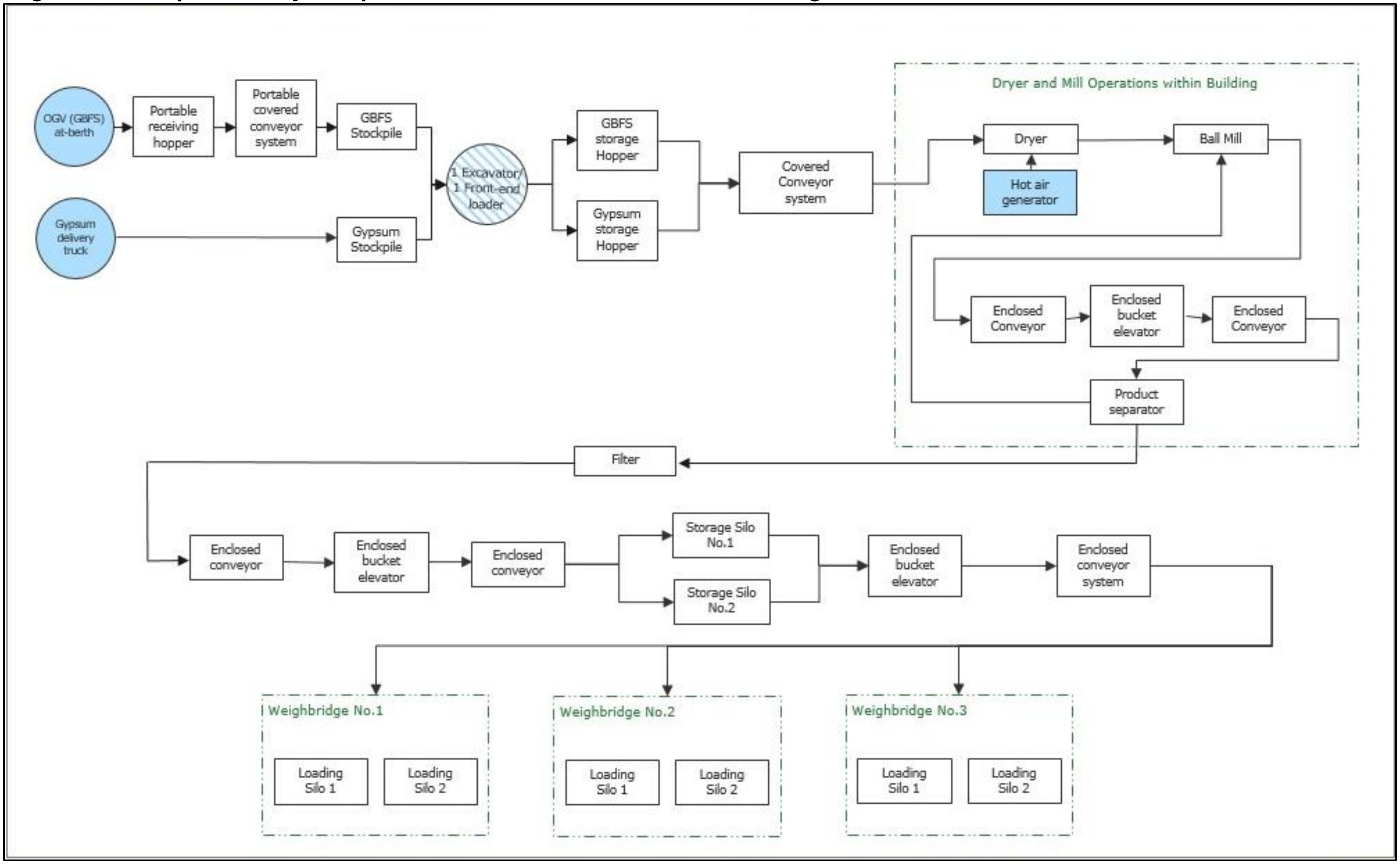
Constituent	GBFS Concentration[1] (mg/kg)	Gypsum Concentration [2] (mg/kg)	Regulatory Threshold[3] (mg/kg)	Below Threshold (Yes/No)
Antimony	6.1	ND (2.0)	1,000	Yes
Arsenic	ND (1.0)	ND (1.0)	100	Yes
Barium	430	2.3	1,000	Yes
Beryllium	6.9	ND (0.50)	100	Yes
Cadmium	ND (0.50)	ND (0.50)	100	Yes
Chromium	17	ND (1.0)	1,000	Yes
Cobalt	ND (1.0)	ND (1.0)	100	Yes
Copper	ND (5.0)	ND (5.0)	1,000	Yes
Lead	ND (1.0)	ND (1.0)	- [4]	N/A
Mercury	ND (0.01)	ND (0.01)	- [4]	N/A
Nickel	ND (2.0)	ND (2.0)	100	Yes
Selenium	2.6	1.3	1,000	Yes
Thallium	ND (3.0)	ND (3.0)	1,000	Yes
Vanadium	29	ND (1.0)	1,000	Yes

1: Analysis of constituent concentrations in a sample of GBFS [sourced from ORCEM]
2: Analysis of constituent concentrations in a sample of gypsum [sourced from ORCEM]
3: Regulatory threshold is the de minimis limit defined in EPCRA Section 313 (USEPA 2021)
4: Regulatory threshold for this material not established in EPCRA 313
*ND: Non-detect, meaning concentrations below the laboratory reporting limit presented in the parentheses
N/A: Unable to determine if the concentration value is below the threshold as the laboratory reporting limit is above the regulatory threshold.

As noted, the other material that would be used in the manufacturing process is gypsum. Gypsum is composed of calcium sulfate, and it is a naturally occurring material that is mined and processed for use in the construction industry. Gypsum is classified as a non-hazardous substance. Due to its relatively soft, friable nature, gypsum may produce a nuisance dust by breaking into smaller particle sizes when handled with heavy equipment, but that can be kept below occupational exposure limits (15 mg/m^3 [29 CFR Part 1910]) with the watering protocol specified in the Southern California Air Quality Management District (SCAQMD) permit, which would be several times per day, depending on wind conditions. In particular, the areas that would be subject to heavy equipment movement (front end loader/excavator/trucks) would be watered between every 1 hour and every 8 hours. Furthermore, to minimize degradation and because gypsum would arrive more or less continuously by truck, the gypsum would be stored on-site for only 4 to 5 days before use. The natural gypsum sources for the Proposed Project are in the Southern California/Nevada region. As gypsum is a naturally occurring mineral, it is expected that its chemical nature varies somewhat between shipments, but laboratory analysis of a typical sample showed that concentrations of heavy metals detected in the sample were below hazardous materials criteria, as shown in Table 2-1.

The GBFS would arrive by ship and the gypsum by truck. Delivery of gypsum by vessel is uneconomical, as the projected annual consumption by the Proposed Project would be less than one shipload; furthermore, truck delivery ensures a domestic, rather than a foreign, source. Mobile conveyor systems would transfer the GBFS to outdoor storage piles; the gypsum would be offloaded from trucks to an uncovered outdoor storage pile. The GBFS and the gypsum from the stockpiles would be metered onto a common belt and conveyed to the mill to be ground together into the final GGBFS product. A state-of-the-art natural gas, heater would be used to pre-heat ambient air before it is sucked into the mill to dry the feed material and to carry the finer particles in the mill away from the coarser material, which would remain in the mill for further grinding. The GGBFS product would be conveyed in the air stream to be captured in large fabric filter bags, allowing the heated air and evaporated moisture to pass through to the exhaust stack. The GGBFS product captured by the filter bags would be collected and conveyed to sealed storage silos and ultimately loaded into vacuum-sealed pneumatic tanker trailers and trucked to customers' sites. These key steps in the operations of the Proposed Project are described in Figure 2-5. More details on operations are described in Section 2.5.3. Project Operations.

Figure 2-5. Proposed Project Operational Elements - Process Flow Diagram.



2.5.2 Project Construction

The majority of Project construction would be land-based, including construction of the storage facilities, mill, and loading facilities in the backlands behind Berths 192-194, and repairs to the wharf deck at Berth 191. In-water work would be required at Berth 191 to remove damaged timber pilings and replace them with new pilings to bring the wharf into serviceable condition, installation of pilings for the Yokohama fenders, as well as possible minor post-construction clean-up dredging.

2.5.2.1 Construction at Berths 192-194

Construction of the Proposed Project at the backlands of Berths 192-194 would consist of the following primary elements:

- Site preparation, including minor site clearance;
- Ground improvements such as soil stabilization and paving;
- Development of the enclosed milling plant, storage facilities, open-storage yard, conveyance systems, and processing equipment;
- Construction of ancillary buildings (workshop and plant office); and
- Improvement of site infrastructure and supporting facilities, including fire hydrants, stormwater infrastructure improvements, electricity (including a new substation in the northeast corner of the Project site), water, sewer, and natural gas lines, bermed area for refueling front end loader, and equipment for loading of customer trucks.

Following site clearance and preparation, ground improvements would be done to enhance the load-bearing capability of the soil mass, particularly liquefiable soils, and provide sufficient capacity for intended uses to meet building code requirements. Stone columns (a technique in which deep holes are drilled and backfilled with aggregate) would be installed to a depth of 50 feet below ground surface in selected configurations to improve the strength of the site's soils and minimize the possibility of lateral displacement during a seismic event. Structures representing significant loads, such as the storage pile spreader support, mill buildings, and silos, would be supported on piled foundations or concrete mat foundations supported by stone columns. Non-settlement-sensitive structures would be supported on concrete mat foundations. Stone columns would be installed by drill rigs using a technique that does not bring soil to the surface. Pilings underneath the landside structures would be installed using a conventional piling rig. Mass concrete foundations would be poured to support the equipment and structures.

Soil and groundwater at the site are known to be contaminated to varying degrees (Leighton 2018). Given the extent of ground improvement activity, contaminated soils and groundwater will be encountered during the course of construction. Accordingly, a soil management plan would be prepared in accordance with applicable regulatory requirements and the recommendations of the site-specific health risk assessment (EnviroTox 2018). The plan would be developed by the Port to direct the management of the specific contaminated media that could reasonably be expected to be encountered at the Project site, and implementation of the plan would be a condition of the entitlement with Orcem. The plan would identify known site contaminants, specify protocols for handling and managing contaminated media, including necessary personnel training, the use of appropriate personal protective equipment for construction personnel, stockpiling and testing of excavated soils, and appropriate containment and disposal at appropriate licensed waste disposal facilities.

Buildings would generally be constructed of structural steel and concrete with suitable cladding to the exterior. The largest building would be the mill, which would be approximately 150 feet high with a 165-foot-high stack and cover approximately 10,000 square feet. The product storage silos would be approximately 135 feet high and cover 8,000 square feet, and the truck loading building would be 120 feet high and cover 4,000 square feet. There would also be a low-rise workshop/office building covering 4,400 square feet.

Conventional construction techniques (e.g., cranage and mobile access platforms) would be employed, and equipment would be installed in conjunction with the erection of the structural steelwork. Electrical and instrumentation installations would follow the equipment installation, and lighting, utilities (including a new electrical substation), paving, a bermed area for refueling the front-end loader, landscaping, and fencing would also be installed. Testing and commissioning of the equipment would be the final stage of the construction phase in advance of the plant becoming operational.

To minimize potential impacts to surface water resources from increased surface water runoff and/or stormwater contaminants, permanent stormwater control systems would be provided. All permanent stormwater control system(s) for future development at the site would be developed and constructed in accordance with the National Pollutant Discharge Elimination System (NPDES) Industrial General Permit (IGP), for areas that would generate runoff related to industrial activities and the Los Angeles County MS4 Permit, for non-industrial related areas, as applicable.

The majority of the site, including stockpiles, material handling areas, areas under the conveyors, and the mill, silo and truck loading areas (see Figure 2-4), would be covered by the IGP. To ensure compliance with the IGP, a comprehensive stormwater management approach would be implemented. This approach would involve the implementation of berms, grading, and trench drains to confine all anticipated stormwater within these designated areas. Subsequently, the captured stormwater would be conveyed to a treatment system that would be designed to meet the specific discharge requirements outlined by the IGP.

Consistent with the requirements of the City’s Low Impact Development (LID), the stormwater system(s) for all non-industrial areas would incorporate water quality management BMPs, site-design Best Management Practices (BMP)s, and drainage infrastructure to manage surface runoff.

Construction would last approximately 18 months and require up to 75 construction workers on a peak construction day. Construction-phase traffic would include worker vehicles and a variety of medium- and heavy-duty vehicles hauling debris and excavated material and bringing in imported soil, supplies, equipment, and construction materials. Construction is assumed to take place between 7 a.m. and 5 p.m. five days per week (Monday through Friday) except national holidays.

2.5.2.2 Berth 191 Repairs

The Proposed Project would include repairs and modifications to the wharf at Berth 191 that would be used by oceangoing vessels, specifically bulk carriers, serving the Ecocem facility. The existing footprint of the wharf at Berths 191 would not change as a result of the proposed repairs and modifications.

Modifications to the wharf at Berth 191 would consist of repairs to deteriorated and/or damaged existing structures caused by the KOVAKO® machines (see Section 2.4) used during past cement unloading operations and improvements to accommodate the Proposed Project's vessels. The modifications would include:

- Retrofitting and strengthening of wharf deck, bracing, stringers, and pile caps;
- Replacing (in-kind) 41 timber structural piles;
- Removing and replacing the existing asphalt overlay and timber deck in the KOVAKO® travel path;
- Repairing 28 concrete structural piles;
- Retrofitting and strengthening other timber structural members;
- Bulkhead concrete patching and general concrete repairs, as needed;
- Replacing 11 timber fender piles in kind;
- Installing 47 new fender piles at the wharf's edge; and
- Installing Yokohama fenders.

The concrete piles would be repaired by installing reinforcing jackets, but the damaged timber piles would need to be pulled out and replaced with new timber piles. Some damaged timber piles may end up being broken off at the mudline instead of being pulled, but the goal would be to remove all of each pile. At the edge of the existing wharf, 11 timber fender piles would be replaced with new timber piles. In addition, 47 new timber piles would be driven along the wharf's edge to support the floating fender panel and Yokohama fenders necessary to hold vessels several feet away from the wharf.

The work at Berth 191, including pile driving, could be entirely land-based, but to be conservative this EIR assumes that some pile removal and driving would be accomplished using water-borne equipment such as a derrick barge, tugboat, and supporting small craft. Other equipment involved may include a crane, pile driver, front end loader, asphalt paver, and delivery/dump trucks. Up to six additional workers would be on-site to support construction activities. In-water construction activities at Berth 191 (e.g., pile installation) could result in the potential for minor clean-up dredging to remove up to 1,500 cubic yards of sediment from the berthing area; the dredge material would likely be disposed of in the Port's nearby Berths 243-245 Confined Disposal Facility, but if sediment testing indicates the dredge material is suitable for ocean disposal, it could be disposed of at the approved upland disposal site.

Repairs would last 12 months and occur 5 days per week (Monday through Friday) except for holidays, for 8 hours per day starting from 8 a.m. through 5 p.m. No construction would occur on existing structures at Berth 191 other than the wharf.

2.5.3 Project Operations

2.5.3.1 Entitlement Conditions

The Proposed Project includes an entitlement allowing use of the premises for up to 30 years. The entitlement would require that the premises be used for activities related to operation of a GGBFS processing facility and would require compliance with all applicable laws, regulations, and policies. The latter would include, for example, measures adopted as mitigation based on the Final EIR, Clean Air Action Plan (CAAP) measures, Port Environmental Policy measures, and Port Real Estate Leasing Policy measures (POLA 2013), as applicable.

In addition, the U.S. Army Corps of Engineers (USACE) has authority to place special conditions in any USACE permit that may be required for the wharf repairs, which would constitute mitigation measures specific to USACE jurisdiction (i.e., waters of the United States).

2.5.3.2 Facility Activity

The facility is projected to begin operation in 2025 and to reach full operation by 2027 (Table 2-2). At full operation, projected to be at 97% capacity, the facility would produce approximately 775,000 metric tons of GGBFS per year (note that all tonnage figures in this document are metric tons [1 metric ton = 2,204 pounds]), requiring approximately 800,000 metric tons of GBFS and 39,500 metric tons of gypsum (the difference between the quantities of raw materials and the quantity of product is due to moisture loss during processing). At that level of activity, the facility would have a 24 vessel calls per year delivering GBFS and approximately 65,950 truck trips per year distributing GGBFS to customers and receiving gypsum. The facility would operate up to 24 hours per day, 7 days per week, but trucks carrying product would arrive and depart 5-6 days per week. No rail operations would be conducted because the facility would not have rail access.

Table 2-2. Operational Activity of the Ecocem GGBFS Facility Under the Proposed Project

Activity	2025	2026	2027 and thereafter
GBFS Import, metric tons/yr	400,000	600,000	800,000
Gypsum Import, metric tons/yr	19,750	29,600	39,500
GGBFS production, metric tons/yr	387,500	581,000	775,000
Vessel calls per year	12	18	24
Gypsum truck trips, one-way trips/yr	1,975	2,960	3,950
GGBFS truck trips, one-way trips/yr	31,000	46,480	62,000
Total trucks one-way trips/yr	32,975	49,440	65,950
Employees on site	20	20	26

Notes:

1. Vessel call = vessel visits, which are comprised of arrival transit, time at berth, departure transit, and possible anchorage time (only a fraction of the calls will experience anchorage)
2. Truck or vehicle trip = one-way, individual trips
3. Differences in mass balance between raw materials (GBFS and gypsum) and product (GGBFS) is related to moisture content in raw materials.

2.5.3.3 Vessel Operations

GBFS would be delivered by moderate-size oceangoing bulk carrier vessels with a capacity of up to 45,000-56,000 deadweight tons and a length of 500 to 625 feet, powered by marine diesel engines and equipped with onboard cargo unloading cranes. The vessels would arrive from Asia or Mexico and would transit the approaches to Los Angeles Harbor, the Precautionary Zone outside the harbor entrances, the Angel's Gate entrance to Los Angeles Harbor, and the Main Channel up to the East Basin.

Vessels would dock at Berth 191, the use of which would be shared between the Ecocem facility and the neighboring Vopak terminal. Each vessel would be escorted by one or two tugboats, depending on conditions, that would help the ship maneuver within the harbor. Once at-berth, each vessel would typically spend approximately five days (120 hours) at-berth, and on average approximately 60% of that time would be spent actively unloading cargo. While at-berth, the vessels would turn off the main engines and run auxiliary diesel engines to provide power for the unloading gear and general vessel needs such as lights, air conditioning, unloading cranes, and miscellaneous machinery. Once unloaded, the vessels would transit back out of the Port with tug assistance. Each pair of one-way transits and the time at-berth is a vessel call.

Ecocem plans to use a control technology based on a barge-mounted scrubber system that captures and treats auxiliary engine exhaust emissions from vessels while at-berth. The technology has been employed to control at-berth emissions from containerships in the Port and is estimated to result in emissions reductions from the uncontrolled case. However, the technology is not yet certified by CARB for controlling emissions from dry bulk cargo ships. Accordingly, although capture of at-berth emissions would be required by a lease measure once the technology is certified and deemed feasible, the air quality analysis in this Draft EIR does not take credit for reductions achieved by those controls.

2.5.3.4 Truck Operations

The GGBFS would be shipped in contracted, third-party, sealed dry-bulk pneumatic tanker trailer trucks. Ecocem would not have ownership or control of the truck fleet used by their customer base. The heavy-duty trailer/tractors would be diesel or alternative fuel-powered, 18-wheel semi-trailer rigs, compliant with California's Truck and Bus Rule, each capable of carrying up to approximately 25 metric tons of GGBFS. Gypsum would be delivered to the facility by medium-duty box trucks.

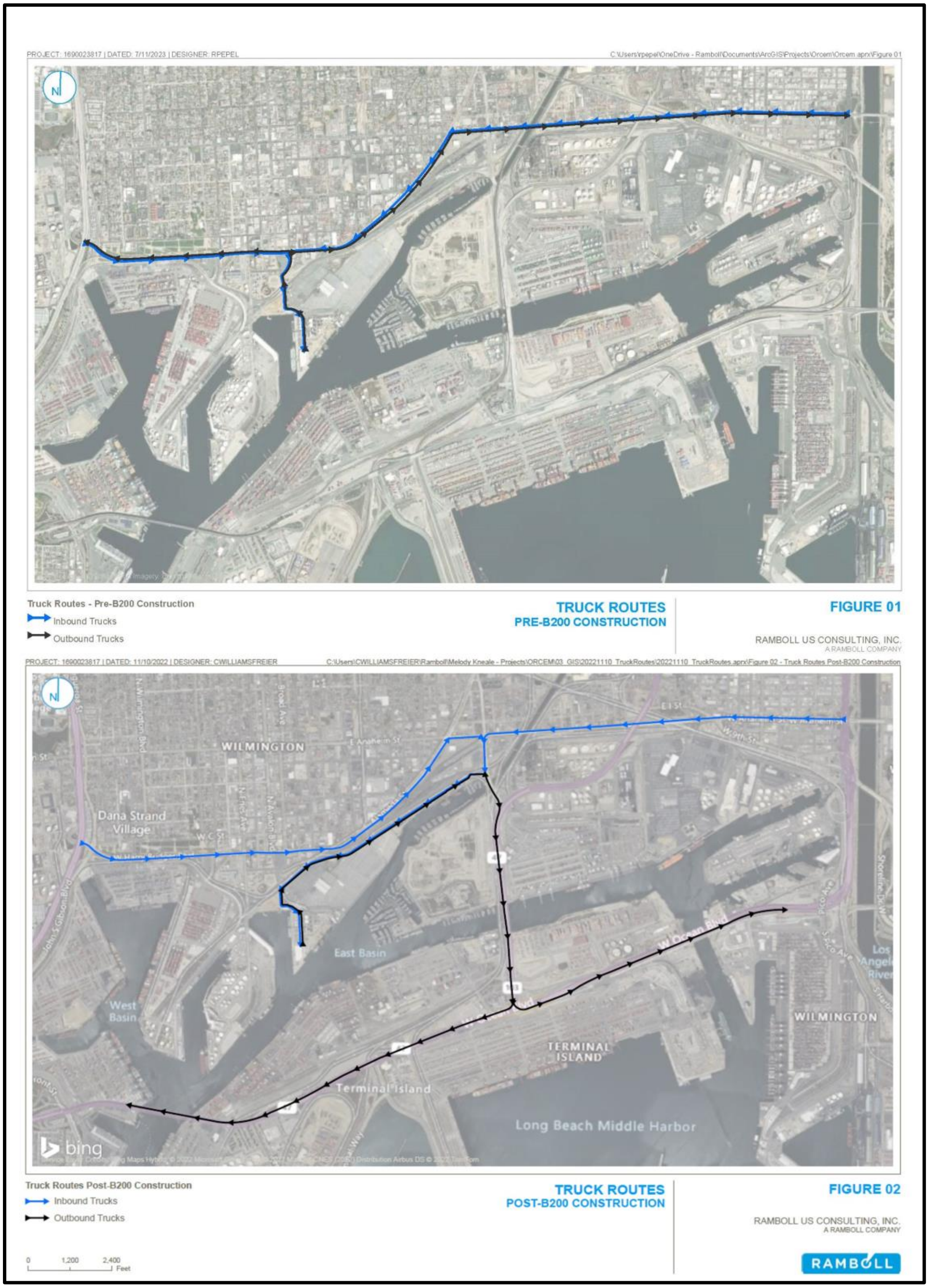
Truck routes are depicted in Figure 2-7. Inbound and outbound trucks would use Caltrans-designated truck routes in the Port area. Prior to construction of the Berth 200 Roadway Extension (LAHD 2018), it is anticipated that trucks would arrive at the facility by traveling using major highways I-110 or I-710 down either Alameda Street (SR-47), Anaheim Street to Harry Bridges Boulevard, then south on Pier A Street, left on Access Road, left on Fries Avenue, and finally onto Water Street and Yacht Street to the facility (the departures would follow the same reversed route). After the Berth 200

Typical Cement Truck (Pixabay, 2023)

Roadway Extension is built, which is estimated to be completed in 2027, the arriving trucks traveling on major highways I-110 or I-710 would go south on Henry Ford Ave from eastbound or westbound- Anaheim Street and make a right unto the B200 Roadway Extension, connecting to Avalon Road and Water Street. All departing vehicles would use the Berth 200 Roadway Extension to leave the peninsula and would turn south on Henry Ford Avenue to merge on the Terminal Island Freeway towards their final destination.

Once in the facility, the empty trucks destined to load GGBFS would enter an enclosed loading area and be positioned on weighbridges where a snorkel loading tube would descend into the open hatches on the tank trailers to be precisely loaded, thereby reducing the risk of dust release during loading. When loading is complete, the hatches would be sealed, and the trucks would then use the same routes in reverse to arrive at customer locations throughout Southern California.

Figure 2-7. Project Truck Routes. Pre- and Post- Construction of Berth 200 Roadway Extension.



2.5.3.5 Facility Operations

A portable, covered, electric-powered conveyor belt system stored on the facility site would be deployed into position along the waterfront for each vessel call to transport raw material (GBFS) from Berth 191 to the stockpiles in the facility. The vessel's deck cranes would discharge into portable hoppers positioned to discharge onto the portable conveyor on the wharf.

Mobile conveyors for transporting material to stockpile (Ecocem 2022).

The portable conveyor systems would feed the GBFS into a fixed, covered electric conveyor that would transport the GBFS onto a radial stacker conveyor, which would discharge the material onto the paved, open yard stockpile. Gypsum would be offloaded from delivery trucks onto the ground and stacked with the wheel loader into the paved gypsum storage stockpile.

Stockpile management would include watering areas used by heavy equipment several times a day, as described in Section 2.5.1, to control entrainment of the material throughout the day, and areas near the stockpiles would be graded to collect and convey industrial and stormwater runoff into the storm drainage system described in Section 2.5.2.1. If recycling treated stormwater is consistent with regulatory requirements, the collected water would be treated and recycled for use in dust control, but to be conservative, that is not assumed in the analyses of impacts.

Mobile Hopper for receiving GBFS at Berth 191 (Ecocem 2022)

A small electric forklift for general maintenance activities would also be on site.

An excavator would be used to manage the stockpiles, lifting material to stack it higher or to reshape the pile.

A front-end loader would transport raw stockpiled materials to hoppers, which would meter the material onto a fixed electric conveyor system. The front-end loader would be refueled periodically by a mobile fueling truck contracted from outside sources that would conduct the refueling operation on a dedicated area within the facility that would be bermed and operated in accordance with best management practices.

The conveyor system would transport the GBFS and gypsum to an electric-powered mill for processing. Fixed electric conveyors would transport the finished product collected in the bag filter to the product storage silos. The conveyors would be covered to minimize the escape of fugitive particulates that could enter stormwater or the air, and watering at the raw material intake hoppers and on equipment operating areas would further reduce particulate matter escape.

The electric-powered mill would grind the GBFS and gypsum into the powdered product (GGBFS) in a continuous process. The GBFS would enter the mill with a moisture content of 6-12% and in the mill be dried to less than 0.2% moisture by the incoming air preheated by a natural-gas-fueled air heater. The moist mill exhaust air would be filtered through the fabric filter bag house and then be vented out the exhaust stack. The GGBFS product would be conveyed from the mill discharge to a particle separator. Particles fine enough to meet product specifications would be conveyed by air to a fabric filter bag house, while coarser material would be returned to the mill for further grinding. Material collected on the bag filter would be transported by an enclosed air slide to a bucket elevator that would lift it to the top of the final product storage silos, where the bulk of the GGBFS product would be stored. Air injection systems at the bottom of the product storage silos would fluidize the GGBFS powder that would be transported via air slide and bucket elevator to truck loading silos. The loading silos would be located above scales to weigh trucks during the loading process to control load weights.

Truck loading would be carried out within a building located below the product dispatch silos. Each truck loading event would take approximately 6 to 10 minutes. The truck loading equipment would be of the latest design, each unit having an automated control system and dedicated filtration unit. Together, these features would ensure an efficient, safe, and largely dust-free loading process. The dust control measures during loading would also minimize the escape of particulates that could enter stormwater, and material that does enter the stormwater system would be captured and treated in accordance with the requirements of the IGP, the LID, and the Stormwater Pollution Prevention Plan (SWPPP) required by the permit.

Throughout the transport, milling, storage, and truck loading of GGBFS product, particulate matter would be controlled by dust collectors installed at transfer points between the conveyors, silos, and loading points. A total of 14 transfer point dust collectors would be installed, with three on conveyors, two on storage silos, three on loading silos (each filter is shared by two loading silos), and six on loading chutes.

Dust control cover on conveyors

The facility would consume water for fugitive dust control on surfaces and storage piles, as well as potable water for office; natural gas for heating ambient air used in the process; renewable diesel fuel for onsite mobile equipment, and electricity for operating process equipment and facility lighting and office uses.

2.6 CEQA Baseline

To determine whether the proposed action would have significant and unavoidable impacts on the environment, impacts resulting from implementation of the Proposed Project and project alternatives are compared to a baseline condition. The difference between the Proposed Project or Project Alternative and the baseline is then compared to a threshold to determine if the difference between the two is significant.

CEQA provides for an EIR to assess the significance of a project's impacts in comparison to a baseline that consists of the existing physical environmental conditions at and near the project site. Baseline conditions are normally, but not always, measured at the time of commencement of environmental review of the Proposed Project.

CEQA Guidelines, Section 15125, subdivision (a), provides that an EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant.

The LAHD's normal practice is to define the baseline as the conditions in the first full calendar year preceding publication of the Notice of Preparation (NOP), which was January to December 2021. Since the NOP was released in March, 2022, the LAHD has determined that the full calendar year of 2021 serves as the appropriate baseline year for the EIR's CEQA analysis. In 2021, activity within the boundaries of the Project site (i.e. at Berth 191 and the backlands at Berths 192-194; see per Figure 2-2) was nil as the site is largely vacant and there were no vessel calls at Berth 191. Activity on the waterfront of Berths 192-194 consisted of operation of the boat restoration and equipment storage uses. That activity involved operation of a few light- and medium-duty vehicles and equipment such as lifts and powered tools, and use of small amounts of chemicals and materials associated with marine repair operations. The existing conditions for specific resource areas are described in more detail in Chapter 3. However, for purposes of defining the Project site's CEQA Baseline, it is considered that annual activities at the Project site during 2021 are negligible and the baseline has essentially no activity.

2.7 Project Alternatives

2.7.1 Alternatives Evaluated in This Draft EIR

According to State CEQA Guidelines Section 15126.6, an EIR need only examine in detail those alternatives that could reasonably meet most of the basic objectives of the Proposed Project. The primary objectives of the Proposed Project are, as described in Section 2.2.2, to help supply the Southern California construction industry with sufficient amounts of a specific, lower-carbon binder to replace cement. Only alternatives that would meet most of those objectives will be considered in the EIR. Those alternatives include the No Project Alternative (Alternative 1), the Reduced Project Alternative (Alternative 2), and the Product Import Terminal Alternative (Alternative 3). Each of these alternatives is summarized below.

This section first presents a description of the alternatives that are carried forward in the detailed impact analysis, and then describes the remaining alternatives that were considered but eliminated from further discussion (including the rationale for the decisions to eliminate the alternatives from detailed analysis). Because the Proposed Project is a development, State CEQA Guidelines section 15126.6(e)(3)(B) is directly applicable to the Proposed Project:

> *"If the project is…a development project on an identifiable property, the 'no project' alternative is the circumstance under which the project does not proceed. Here the discussion would compare the environmental effects of the property remaining in its existing state against environmental effects that would occur if the project is approved. If disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this 'no project' consequence should be discussed. In certain instances, the 'no project' alternative means 'no build' wherein the existing environmental setting is maintained. However, where failure to proceed with the project will not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment."*

A more detailed description of each alternative, along with a general discussion of how the characteristics of the alternative would result in impacts different from those of the Proposed Project, is provided below.

Table 2-3. Summary of Proposed Project and Alternatives

Activity	2021	2027 and thereafter			
	CEQA Baseline	Proposed Project	Alt 1: No Project	Alt. 2: Reduced Project	Alt. 3: Product Import Terminal
GBFS Import (tons/year)	0	800,000	0	540,000	0
Gypsum Imports (tons/yr)	0	39,500	0	26,700	0
GGBFS Production (tons/yr)	0	775,000	0	522,950	775,000
Vessel Calls per year	0	24	0	16	23
Gypsum truck trips, one-way trips/yr	0	3,950	0	2,670	0
GGBFS truck trips, one-way trips/yr	0	62,000	0	41,836	62,000
Total Truck Trips (one-way/yr)*	0	65,950	0	44,506	62,000
Employees	0	26	0	18	12

*Notes: it is assumed the annual vehicle trips at the Project site during 2021 are negligible and the baseline has essentially no activity.

2.7.1.1 Alternative 1 – No Project

The No Project Alternative (Alternative 1) required by CEQA represents what would reasonably be expected to occur in the foreseeable future if the Proposed Project were not approved. Under this alternative, the Project site would remain largely unused at the backlands of Berth 192-194. Like the CEQA Baseline, the activities under the No Project Alternative (Alternative 1) are considered negligible in the foreseeable future as no future development has been permitted or approved.

2.7.1.2 Alternative 2 – Reduced Project

In the Reduced Project Alternative (Alternative 2), all of the elements of the Proposed Project described above would be built, but the capacity of the facility to produce GGBFS would be reduced. However, the logistics of stockpiling GBFS delivered by oceangoing vessels and the economies that could arise from simply operating the mill fewer hours per day mean that it is likely that the Reduced Project Alternative (Alternative 2) would construct a facility very similar in size and configuration to the Proposed Project. Under this alternative, the maximum capacity of the Ecocem facility would be 522,950 metric tons/yr of GGBFS product, derived from 540,000 metric tons/yr of GBFS and 26,700 metric tons/yr of gypsum raw material received per year. The facility would generate approximately 44,500 total one-way truck trips per year and 16 vessel calls per year, and employ 18 full-time workers on site.

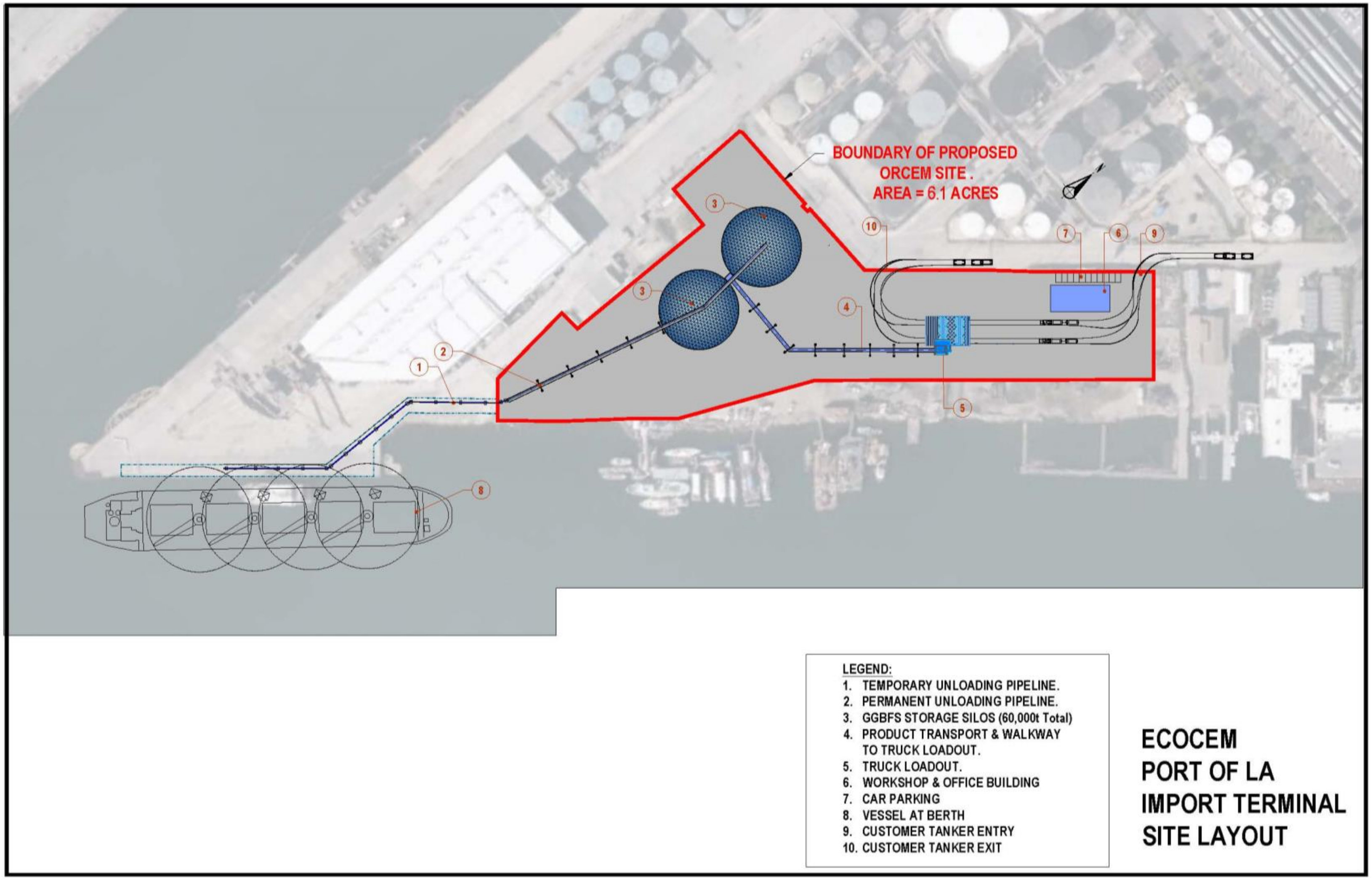
2.7.1.3 Alternative 3 – Product Import Terminal

In the Product Import Terminal Alternative (Alternative 3), there would not be any processing of raw materials and the finished product would come from overseas by vessel. The finished powder product that is produced overseas would be transported by ocean-going bulk vessels to Berth 191, where it would be off-loaded to a storage dome by the vacuum conveyor system. The operations would be essentially the import of the product and the loading of customer trucks.

In this alternative, the office building, truck-loading silos, weighbridges, and possibly the electrical substation, of the Proposed Project would remain the same, but there would be no open storage piles for GBFS and gypsum and none of the mobile equipment needed to manage the storage piles, as shown in Figure 2-8. In addition to the truck loading and office facilities, this alternative would include 60,000-ton bulk storage structures and a fixed, enclosed vacuum suction conveyor system connecting Berth 191 to the storage structure. The storage structure would be two domes located approximately where the Proposed Project’s GBFS storage piles would be. Construction would be similar to the Proposed Project, as the bulk storage facility would require similar ground improvements and foundations.

In addition to importing GGBFS, the Product Import Alternative (Alternative 3) would be expected to handle a variety of cementitious products of the types handled by other cement import terminals at Southern California ports (e.g., Portland cement, fly ash, ground natural pozzolan) in order to lower the risk of not being able to secure large cargoes of GGBFS. The most profitable operating scenario for a cementitious import terminal owned by a business not operating a cement plant in California would be to import Portland cement, not GGBFS, fly ash, or natural pozzolan. In this case the price of cement in the market would likely be reduced, and the Proposed Project’s benefit related to reducing the carbon footprint of the cement consumed in California would not be realized. Under this alternative, the maximum capacity of the Ecocem facility would be unchanged at 775,000 metric tons of cementitious materials per year. The facility would generate approximately 62,000 one-way truck trips per year, receive 23 vessel calls per year, and have 12 employees.

1 **Figure 2-8. Product Import Terminal Layout – Alternative 3 Elements.**



2

3

2.7.2 Alternatives Considered But Not Further Evaluated

An EIR must briefly describe the rationale for selection and rejection of alternatives. The lead agencies may make an initial determination as to which alternatives are ostensibly feasible and therefore merit in-depth consideration, and which are infeasible. Alternatives that are remote or speculative, or the effects of which cannot be reasonably predicted, need not be considered (CEQA Guidelines section 15126(f)(2)). Under CEQA, alternatives may be eliminated from detailed consideration in the EIR if they fail to meet most of the project objectives, are infeasible, or would not avoid or substantially reduce any significant environmental effects (CEQA Guidelines section 15126.6(c)). A number of alternatives were considered based on comments received on the NOP and during preparation of this Draft EIR but were eliminated from further discussion and analysis because they would not meet most of the basic Project objectives, were deemed infeasible, or would be unable to avoid significant environmental impacts. (CEQA Guidelines section 15126.6[c]). Those alternatives were:

- Maximum Site Capacity Alternative;
- Rail-Based Product Distribution Alternative;
- Covered Stockpile Alternative;
- Recreational/Other Use Alternative; and
- Alternate Site Alternative.

These alternatives are described in Chapter 5 Comparison of Alternatives along with an explanation of the rationale leading to their elimination from further analysis.

References

AWS Consulting. 2014. Certificate of Analysis Weck Laboratories, Inc. Work order: 3J02078.

Caltrans. 2021. Supplementary Cementitious Material Supply Look-Ahead. Concrete Task Group: Work Product Final Report. July. https://dot.ca.gov/programs/maintenance/pavement/pavement-materials-partnering-committee/concrete-task-group.

CARB (California Air Resources Board). 2021. California Greenhouse Gas Emissions for 2000 to 2019: Trends of Emissions and Other Indicators. https://ww2.arb.ca.gov/sites/default/files/classic/cc/inventory/2000_2019_ghg_inventory_trends_04-01.pdf

City of Los Angeles. 2022. Department of City Planning. ZIMAS (Zone Information and Map Access System). https://planning.lacity.org/zoning/zoning-search.

Code of Federal Regulations Title 29, 2023. 29CFR part 1910 (Z) Hazardous waste operations and emergency response. Accessible https://www.ecfr.gov/current/title-29/subtitle-B/chapter-XVII/part-1910/subpart-H/section-1910.120.

Ecocem. 2022. Email communication from Clive Moutray to Ramboll. 8/5/2022.

Ecocem. 2023. Email communication from Clive Moutray to Ramboll. 1/19/2023.

Ellis, L.D., A.F. Badel, M.L. Chiang, R. J-Y Park, and Y-M. Chiang. 2020. Toward electrochemical synthesis of cement – An electrolyzer-based process for decarbonizing CaCO3 while producing useful gas streams. PNAS 117(23): 12584-12591.

Enviro-Tox Services, Inc. 2018. Human health risk assessment, Berths 191-193, Wilmington, California. Prepared for Leighton Consulting. June.

LAHD (Los Angeles Harbor Department). 2018. Port Master Plan. September. https://kentico.portoflosangeles.org/getmedia/adf788d8-74e3-4fc3-b774-c6090264f8b9/port-master-plan-update-with-no-29_9-20-2018.

Leighton Consulting Inc. 2018. Baseline Environmental Site Characterization Report. Port of Los Angeles. Berths 191 to 193. Wilmington, California. Leighton Project 11618.05. April.

Phenix Enterprise. 2023. GBFS/GGBFS. https://www.phenixenterprise.com/product/gbfs-ggbfs/

Pixabay, 2023. Cement Truck Construction. Open access photo database. Available at: https://pixabay.com/photos/cement-truck-concrete-construction-5240567/

POLA (Port of Los Angeles). 2013. Leasing Policy. https://kentico.portoflosangeles.org/getmedia/aa9f4c08-7d5e-47bf-8858-2b2c3523f91d/072513_item_11_transmittal_1

USEPA (U.S. Environmental Protection Agency). 2021. Table II. EPCRA Section 313 Chemical List For Reporting Year 2021. Available at: https://www.epa.gov/system/files/documents/2022-03/ry-2021-tri-chemical-list-03-07-2022_0.pdf.

USGS (United States Geological Survey). 2022. Mineral Industry Surveys. Cement in December 2021. https://www.usgs.gov/centers/national-minerals-information-center/cement-statistics-and-information.