

P. HAZARDS AND HAZARDOUS MATERIALS

Section 4.P, Hazards and Hazardous Materials, addresses the potential impacts of the Proposed Project related to hazardous materials during construction and operation of the Proposed Project, including impacts related to the presence of hazardous materials in the soil, soil vapor, and groundwater along with naturally occurring asbestos in the fill materials and bedrock at the site. The existing Risk Management Plan (RMP) for the *Pier 70 Preferred Master Plan* area (which includes the 28-Acre Site and the 20th/Illinois Parcel) and Site Management Plan (SMP) for the Hoedown Yard provide a framework and protocols for the management of hazardous materials in soil and groundwater during development of the 28-Acre Site and the Illinois Parcels. These plans are described in this section, and the impact analyses provide mitigation measures to address human health and environmental risks associated with development of the Proposed Project. Known hazardous building materials in the buildings to be demolished and those to be reused are also identified along with the regulatory requirements that address abatement of these materials. Mitigation measures are provided to ensure the appropriate handling of polychlorinated biphenyl (PCB)-containing electrical transformers at the site, and to address the potential for contamination resulting from leakage. The potential for the proposed development to interfere with an adopted emergency response plan or emergency evacuation plan or result in fire hazards is also addressed. Impacts related to emergency access are addressed in Section 4.E, Transportation and Circulation, pp. 4.E.106-4.E.108.

The *Pier 70 Preferred Master Plan* area includes both the 28-Acre Site and the 20th/Illinois Parcel, and the risk management requirements in the RMP would apply equally to these portions of the project site. The Hoedown Yard is located on property owned by Pacific Gas & Electric Company (PG&E) and the requirements of the SMP for the Hoedown Yard apply to that portion of the project site. Much of the site background discussion is supplemented by information from the Phase I Environmental Site Assessment completed only for the 28-Acre Site and various documents applicable to either the Hoedown Yard or 20th/Illinois Parcel.

ENVIRONMENTAL SETTING

HAZARDOUS MATERIALS AND WASTES DEFINITIONS

A *hazardous material*, defined in Section 25501(n) of the California Health and Safety Code, is a material that, “because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released to the workplace or environment.” Hazardous materials have been and are commonly used in commercial, agricultural, and industrial applications as well as in residential areas to a limited extent.

A waste is any material that is relinquished, recycled, or inherently waste-like. Title 22 of the California Code of Regulations, Division 4.5, Chapter 11 (Identification and Listing of Hazardous Waste) contains regulations for the classification of hazardous wastes. A waste is considered a *hazardous waste* if it is toxic (causes human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), or reactive (causes explosions or generates toxic gases) in accordance with the criteria established in Article 3 of Chapter 11. Articles 4 and 4.1 also list specific hazardous wastes, and Article 5 identifies specific waste categories, including Federal Resource Conservation and Recovery Act (RCRA) hazardous wastes, non-RCRA hazardous wastes, extremely hazardous wastes, hazardous wastes of concern, and special wastes. If improperly handled and if released to the soil, groundwater, or air (in the form of vapors, fumes, or dust), hazardous materials and wastes can result in public health hazards.

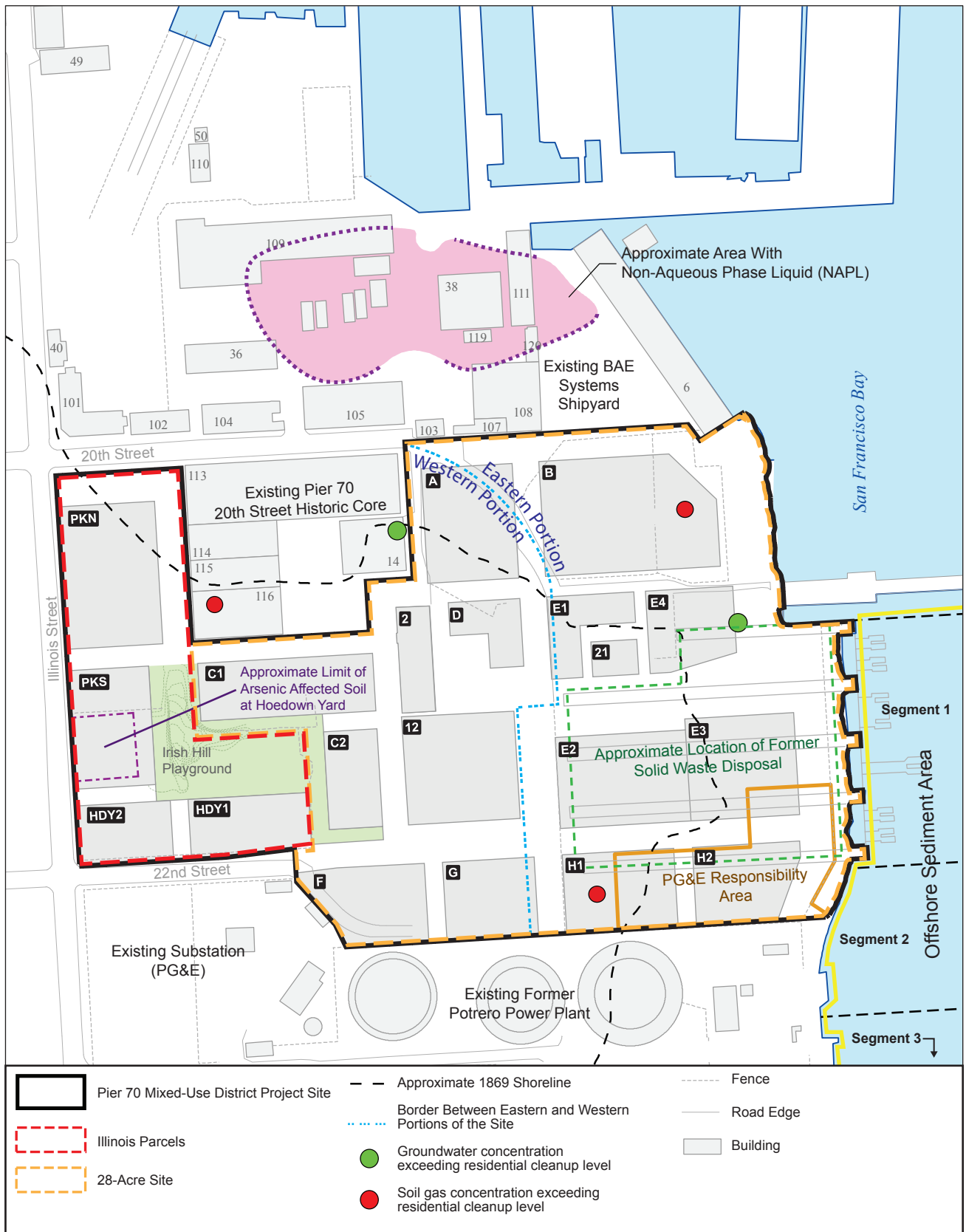
HISTORIC LAND USES

This subsection describes the site history of the 28-Acre Site and the Illinois Parcels, and presents a brief site history of the Potrero Power Plant adjacent to the southern property boundary that was formerly owned by PG&E. Both the 28-Acre Site and the 20th/Illinois Parcel are located within the *Pier 70 Preferred Master Plan* area. Although the 28-Acre Site has been used for a number of industrial and shipbuilding uses, none of these activities have been conducted on the 20th/Illinois Parcel. The Hoedown Yard is owned by PG&E and historically has been used for a number of industrial uses not related to shipbuilding. Historic uses in each of these areas are described in more detail below.

28-Acre Site

The 28-Acre Site is located within the *Pier 70 Preferred Master Plan* area described in the Project Description and includes Parcels 5 through 8 identified in the *Pier 70 Preferred Master Plan*, as well as Central Park Plaza and Slipways Park. The parcel numbers have been revised for the Proposed Project, as indicated in Table 2.2: Proposed Pier 70 Special Use District – Primary Uses by Parcel and Rehabilitated Building, in Chapter 2, Project Description, p. 2.26. Previously known as the San Francisco Yard and the Bethlehem Steel Shipyard, Pier 70 was a nineteenth century shipbuilding and repair facility. Ships built and serviced at Pier 70 served the U.S. Navy from the Spanish American War in the late 1800s through the two World Wars and into the 1970s. The Phase I Environmental Site Assessment (Phase I ESA) prepared for the 28-Acre Site states that the western and eastern portions of the site are separated by the existing 20th Street, extending south to the existing 22nd Street, as shown on Figure 4.P.1: Sample Locations and Areas of Identified Impact. Each portion of the site has different site histories prior to World War II, as described below.¹

¹ Geosyntec Consultants, *Draft Phase I Environmental Site Assessment, Pier 70 Waterfront Site, San Francisco, California*. November 2011 (hereinafter referred to as “*Pier 70 Phase I ESA*”).



Source: Treadwell & Rollo (2013)



PIER 70 MIXED-USE DISTRICT PROJECT

FIGURE 4.P.1: SAMPLE LOCATIONS AND AREAS OF IDENTIFIED IMPACT

Eastern Portion of 28-Acre Site

The eastern portion of the 28-Acre Site has a long history of iron working and shipbuilding. Pacific Rolling Mills first began operation in 1866. This facility produced roll iron from scrap and manufactured iron products; supplies were delivered to the site via ship, including coal and fuel, firebrick and clay for construction, and scrap iron. Around this time, filling of the site began with materials from Irish Hill to level the site and fill in some mudflats areas outside of the historic 1869 shoreline. Foundries, metal shops, piers, storehouses, and wharves were constructed within 2 years.

Risdon Iron & Locomotive Company purchased the mills in 1900. This company removed all of the previous buildings and replaced them with steel-clad structures used for the manufacturing of mining equipment until 1911. Of the newly constructed buildings, only Building 21 remains. The chronology of the change in ownership at this point is inconsistent in historical records. However, it is known that a subsidiary of U.S. Steel Corporation/Union Iron Works operated a U.S. shipbuilding plant referred to as the Risdon Plant on the property during World War I which lasted from 1914 to 1918. Bethlehem Steel leased the plant in 1917 and purchased it in 1934. After World War I, shipbuilding continued, but at a slower pace. Modernization of the plant began in the late 1930s in anticipation of World War II.

Western Portion of 28-Acre Site

Union Iron Works, a shipbuilding facility, moved to the western portion of the 28-Acre Site in 1884, and portions of the facility extended north of 20th Street, beyond the project site boundaries. The fabrication yard, used for construction of ship hulls, was located partially within the 28-Acre Site and also extended beyond the project site to the north. The pattern shop was located within the project site while the machine, erecting, and smith shops were located to the north. The area to the north of 20th Street, outside of the project site, included the machine shop where engines, boilers, and hardware were built and repaired. Buildings 113 and 114 of the 20th Street Historic Core site (adjacent to the project site) were part of the original complex, but no other buildings from the facility remain.

Entire 28-Acre Site

During World War II (1939 to 1945), Union Iron Works, Bethlehem Steel, and the U.S. Navy operated a public/private partnership for shipbuilding on the merged eastern and western portions of the project site. The Building 12 complex, including Buildings 12, 15, 16, 25, and 32, was constructed in 1941 and comprised the central facilities supporting hull construction at Slipways 5 through 8. Building 66 was built in 1945 and used as a welding shed where hull

components were welded. With the exception of Building 21, all of the remaining buildings within the 28-Acre Site were built to support these shipbuilding activities.

Shipbuilding operations declined after World War II, with only a brief increase in production in the mid-1950s. The last ship manufactured at Pier 70 was delivered in 1965. Since that time, the project site was used for making the large steel tubes for the Bay Area Rapid Transit's (BART's) Transbay Tube in 1967 and for building large barges until the 1970s. The City assumed ownership of Pier 70 in 1982.

The Phase I ESA notes that the Sims Metals area to the east of the Radio Tower lot in the northeastern corner of the 28-Acre Site was used for oil storage between 1914 and 1950.² In 1900, there was also an 8,000-gallon crude oil tank located near the slipways.³ There was also oil storage adjacent to the previous location of Building 112.⁴ Numerous old utility systems remain in place, including underground oil and gas lines associated with historic land uses as well as abandoned fuel and steam distribution lines.⁵

The Phase I ESA notes that Building 116, outside of the 28-Acre Site, was used for ordnance repair, and Building 14 housed a gun test base.⁶ Extensive subsurface investigation has been conducted at the 28-Acre Site and no evidence of unexploded ordnance or munitions debris has been detected.

In 2011, concrete debris was present in the Radio Tower lot in the northern portion of the 28-Acre Site, and construction materials and old parts and equipment were present in the Courtyard area, immediately south of the 20th Street Historic Core.⁷ The Sims Metals area had scrap metal in large piles for recycling. However, the Phase I ESA did not note any evidence of uncontrolled dumping, stains or other signs of spills, stressed vegetation, or on-site waste disposal within the 28-Acre Site.

Historic Building Uses in 28-Acre Site

Historic uses of buildings within the 28-Acre Site are summarized in Table 1 of the Phase I ESA, which is included in Appendix F, Hazards and Hazardous Materials. Many of these buildings have been removed. The historic uses of buildings remaining within the 28-Acre Site (shown on Figure 2.2: Existing Site Plan, in Chapter 2, Project Description, p. 2.11) are as follows.

² Geosyntec Consultants, *Pier 70 Phase I ESA*, Table 1, p. 5 of 23.

³ Geosyntec Consultants, *Pier 70 Phase I ESA*, Table 1, p. 6 of 23.

⁴ Geosyntec Consultants, *Pier 70 Phase I ESA*, Table 1, p.11 of 23.

⁵ Geosyntec Consultants, *Pier 70 Phase I ESA*, p. 69.

⁶ Geosyntec Consultants, *Pier 70 Phase I ESA*, p. 68.

⁷ Geosyntec Consultants, *Pier 70 Phase I ESA*, p. 37.

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- Building 2, built 1941 and 1944, was used to support hull construction at the Building 12 complex during World War II. Around 2011 the Port disposed of drums of hazardous waste previously stored in this building.
- Building 11, built in 1941 as part of the U.S. Navy shipyard, was used to support hull construction at the Building 12 complex in the western portion of the 28-Acre Site.
- Building 12, built in 1941, was the central building of the shipbuilding yard and included a plate shop and mold loft. Leaking transformers containing PCBs were removed from the building in 1981. The Phase I ESA noted that one PCB-containing transformer remains in a utility room of the building.
- Building 15, built in 1944, was used for intermediate staging of steel plates used for hull construction. The Phase I ESA noted large burning tables in this building in 1944. The building also was used to store oily waste drums in 2011.
- Building 16, built in 1941, was the stress relief building. Stress release involved modifying steel joints by heating them, inserting a strong back, and re-welding the joint. This building had two furnaces, at least one of which is still present, and two preheat rooms.
- Building 19, built in 1941 as part of the U.S. Navy shipyard, has been used as a garage and bus maintenance and storage area. The Phase I ESA noted that the building includes a sifter/conveyor for grit used to sandblast ships prior to painting. Previous environmental site assessments noted that sandblast waste had been processed in this building, and was considered a hazardous waste based on copper concentrations. PCB-containing transformers were also stored in this building.
- Building 21, built around 1900 as part of the Risdon Iron & Locomotive Works and Pacific Rolling Mills Company building, housed a machine shop and transformer house, and these or similar uses continued through at least 1945. The Phase I ESA notes that forges were used in this building around 1900. In 2001, the east wing of the building was used for furniture manufacturing. This building is currently the electrical substation for the 28-Acre Site.
- Building 25, built in 1941, was used as a washroom and locker room.
- Building 32, built in 1941, was used to store wooden templates used in shaping steel hull plates.
- Building 66, built in 1945, was used for welding preassemblies and other hull components. This facility included small aboveground storage tanks.
- Building 117, built in 1937 and 1941, was used as a warehouse, and was constructed in the location of a former coke pile. San Francisco Drydock Corporation used this building as a sandblast pit.⁸ The Port proposed to demolish the 30,940-gross-square-foot (gsf)

⁸ Geosyntec Consultants, *Pier 70 Phase I ESA*, p. 47.

Building 117, located on the project site, prior to commencement of the Proposed Project.⁹

Illinois Parcels

20th/Illinois Parcel

The 20th/Illinois Parcel is also a part of the *Pier 70 Preferred Master Plan* Area described in the Project Description, and includes Parcel 3 identified in the *Pier 70 Preferred Master Plan*. The 20th/Illinois Parcel was not historically used for industrial or shipbuilding purposes. Union Iron Works used this parcel for residential lodging in 1900 and Bethlehem Steel Corporation subsequently used this area for offices in 1950.¹⁰ Since 1987, this parcel has been used for parking by Todd Shipyard, Southwest Marine, and San Francisco Drydock Corporation. The Port currently uses this area for paid parking, construction lay-down, and other temporary purposes such as temporary retail activities including a beer garden, food trucks, and food carts, and a variety of cultural, educational, and recreational activities, including special events.

Hoedown Yard

The 3-acre Hoedown Yard is currently owned by PG&E and was a part of the former Potrero Power Plant adjacent to the southern and western boundaries of the 28-Acre site. Two parcels, the western and eastern parcels, comprise the Hoedown Yard. The eastern parcel was filled in the 1800s and 1900s. In some areas, the fill includes clasts of serpentinite bedrock, which commonly contains naturally occurring asbestos.¹¹

The Hoedown Yard has been occupied since about 1886, when it was used for horse stables.¹² Historic industrial operations at the site began around 1910 and initially included operation of aboveground fuel storage tanks in the southern portion of the western parcel. The tanks were constructed on concrete slabs which may still be present beneath the ground surface and their capacities ranged from 30,000 to 40,000 barrels. The storage facility also included an oil heater house and associated aboveground pipelines that ran adjacent to the western perimeter of the

⁹ Building 117 is proposed for demolition as part of the 20th Street Historic Core project to allow the adjacent building (Building 116) located on the 20th Street Historic Core site to be rehabilitated to meet fire code. The Port filed an application to demolish Building 117 on January 7, 2016, Case No. 2016-000346ENV. Any approval of the demolition of Building 117 will undergo appropriate environmental review, as required by CEQA. San Francisco Planning Department, Notification of Project Receiving Environmental Review, Illinois and 20th Streets/Pier 70 (“20th Street Historic Core”), Case No. 2016-000346ENV, September 8, 2016.

¹⁰ Treadwell & Rollo, *Feasibility Study and Remedial Action Work Plan, Pier 70 Master Plan Area, San Francisco, California*, May 2012 (hereinafter “*Feasibility Study and Remedial Action Work Plan*”), Table 1.

¹¹ AMEC, *Site Management Plan, Hoe Down Yard, 22nd Street and Illinois Street, San Francisco, California*, June 22, 2012 (hereinafter “*Hoe Down Yard Site Management Plan*”), p. 3.

¹² AMEC, *Hoe Down Yard Site Management Plan*, p. 2.

Hoedown Yard between the aboveground storage tanks and the oil heater house. The aboveground storage tanks and associated piping were removed by 1996.

PG&E currently uses the western parcel of the Hoedown Yard for vehicle parking and equipment storage and the eastern parcel for temporary stockpiling of materials generated from subsurface utility maintenance operations in San Francisco, including broken concrete slabs as well as mixed soil, sand, gravel, and asphalt. PG&E uses a portion of the western parcel as a settling area for drilling mud (a mixture of bentonite and water) that has been used by PG&E crews for off-site utility work. The drilling mud is periodically disposed of off-site as a non-hazardous waste.

Potrero Power Plant

Before natural gas drilling and recovery technology became widespread, manufactured gas plants used coal and oil to produce gas for lighting, heating, and cooking. The San Francisco Gas Company operated a manufactured gas plant on the Potrero Power Plant property, immediately south of the 28-Acre Site, from 1872 until to 1911.¹³ PG&E took ownership of the manufactured gas plant and operated it until approximately 1930. The manufactured gas plant was dismantled in the early 1960s. Historical operations in other areas of the Potrero Power Plant include sugar refining (1870s through 1950s) and barrel manufacturing (1880s through early 1900s) in the southern and western portions of the Potrero Power Plant property, respectively. Additionally, a former steam turbine electric generation facility operated from approximately 1910 through the 1970s in the south-central portion of the Potrero Power Plant property. These historical uses burned coal, coke, and oil to generate power.

PG&E sold the power plant property in 1999 and Southern Company (subsequently, Mirant Corporation and now NRG Potrero LLC) operated the power plant until 2011 when the Trans Bay Cable electric transmission project was built, bringing electricity across the Bay from Pittsburg to San Francisco.¹⁴ The Potrero Power Plant property (now owned by NRG Potrero LLC) houses the infrastructure of the former power plant operations, consisting of one natural gas-fired electric generating unit and three diesel fuel-fired peaker units. None of the units are currently in operation and the peaker units have been removed from the property. Three aboveground storage tanks located less than 50 feet south of 22nd Street and the southern boundary of the 28-Acre Site have historically supplied back-up fuel oil and diesel fuel for the power generation units. The PG&E property to the south of the Hoedown Yard is referred to as the switchyard/general construction area.¹⁵ This area is used for construction staging and power transmission equipment and is not a part of the Potrero Power Plant.

¹³ AMEC, *Report of Results: Phase III Subsurface Investigation, Pier 70 Property*, August 2011, p. 5.

¹⁴ PG&E, "Potrero Power Plant." Available online at <http://www.pge.com/en/about/environment/taking-responsibility/mgp/Potrero/site-overview/index.page>. Accessed December 4, 2015.

¹⁵ AMEC, *Hoe Down Yard Site Management Plan*, p. 2.

NATURALLY OCCURRING ASBESTOS

In 1986, the California Air Resources Board (CARB) identified naturally occurring asbestos, which is present in many parts of California, as a Toxic Air Contaminant (TAC). Naturally occurring asbestos is commonly associated with serpentine¹⁶ and ultramafic¹⁷ rock types such as serpentinite of the Franciscan Complex. Serpentinite rock is apple green, brown, reddish brown, and gray to black and has a waxy or shiny appearance. The usual appearance of serpentine is fine grain and compact, but it can be flaky or fibrous. Chrysotile asbestos (a form of asbestos from the serpentine mineral group) and amphibole asbestos (including tremolite) are naturally occurring asbestos minerals that may present a human health hazard if they become airborne and are inhaled.

As discussed in Section 4.N, Geology and Soils, the historic 1869 shoreline crossed the project area south of 20th Street and north of the Hoedown Yard, which is shown on Figure 4.N.1: Project Site Vicinity Geologic Map, p. 4.N.3. Extensive blasting and quarrying of Potrero Point and Irish Hill during the late 1800s and early 1900s nearly leveled Irish Hill, which is composed of serpentinite bedrock of the Franciscan Complex. The resultant rock was placed in the tidal areas to extend and develop the shoreline toward the east, including a substantial portion of the 28-Acre Site and the northeast portion of the Illinois Parcels. Environmental investigations of the sites, described below, have confirmed that the fill material contains naturally occurring asbestos. Some occurrences of serpentine and ultramafic rock are also known to have potentially elevated concentrations of naturally occurring metals such as arsenic, cobalt, copper, chromium (including hexavalent chromium), and nickel.¹⁸

REGULATORY DATABASE REVIEW

The Phase I ESA describes the regulatory database review that was conducted in 2011 to identify current or previous reports of hazardous materials use, storage, and/or unauthorized releases that may have impacted the 28-Acre Site.¹⁹ As summarized in that document, the *Pier 70 Preferred Master Plan* area, which includes the 28-Acre Site and 20th/Illinois Parcel, was identified in the Spills, Leaks, Investigation and Cleanup (SLIC) database maintained by the San Francisco Bay

¹⁶ Serpentinite is a rock consisting of one or more serpentine minerals formed when ultramafic rocks have been metamorphosed (ultramafic rocks formed in high-temperature environments well below the surface of the earth), and is commonly associated with ultramafic rock along faults such as the San Andreas fault. Serpentinite commonly contains chrysotile, an asbestiform variety of the serpentine minerals. Amphibole asbestos is also found in some forms of Franciscan Complex bedrock such as blueschist.

¹⁷ Ultramafic rocks are one type of igneous rock (formed at high temperatures well below the surface of the earth) that is rich in iron and magnesium.

¹⁸ Wilke, Wolfgang, *Small-Scale Variability of Metal Concentrations in Soil Leachates*. Soil Science Society of America Journal 64, 2000: pp. 138-143.

¹⁹ Geosyntec, *Pier 70 Phase I ESA*, pp. 40-44.

Regional Water Quality Control Board (RWQCB), indicating that groundwater contamination has occurred. The 28-Acre Site in the *Pier 70 Preferred Master Plan* area includes two former businesses: Sims Metals and Auto Return. These and adjacent sites were also identified in several other regulatory databases. The environmental database review completed for the Phase I ESA indicates that the PG&E Potrero Plant, including the Hoedown Yard, is identified in the Voluntary Cleanup Program database maintained by the California Department of Toxic Substances Control (DTSC), indicating that the site represents a low threat to the environment, and that PG&E has agreed to regulatory oversight by the DTSC.²⁰

PREVIOUS UNDERGROUND TANK REMOVALS AND CLEANUP ACTIVITIES

A number of historic land uses within the 28-Acre Site previously used underground storage tanks (USTs) to store petroleum products. The Phase I ESA for the 28-Acre Site identified the following historic USTs that have been removed:

- Two USTs were removed from an area south of Building 19, and east of Building 113 in 1990.²¹ The USTs were a maximum of 5,000 gallons each and were used to store diesel and gasoline. Soil sampling conducted during the UST removal detected total petroleum hydrocarbons (TPH) gasoline at a maximum concentration of 710 milligrams per kilogram (mg/kg); TPH diesel at a maximum concentration of 5,600 mg/kg; and benzene, toluene, ethylbenzene, and xylenes (BTEX) at a maximum concentration of 2,690 mg/kg. Groundwater sampling detected TPH gasoline at a maximum concentration of 2.7 milligrams per liter (mg/L), TPH diesel at a maximum concentration of 1,600 mg/L, and BTEX at a maximum concentration of 0.152 mg/L. A 1991 letter from the Port indicated that this soil would be removed and disposed of offsite when the San Francisco Public Utilities Commission (SFPUC) constructed modifications to the combined sewer system along Mariposa and 20th streets. Based on San Francisco Department of Public Health (DPH) records, free product²² was observed in the UST excavation at the tank removal.²³ Two 1,000-gallon heating oil USTs were also removed from this location in 1988.
- Four USTs were reportedly located between Buildings 117 and 116.²⁴ The Phase I ESA did not find details regarding their size or contents; however, a 1990 inspection worksheet from DPH indicates that 5,000-gallon and 2,500-gallon USTs were removed. The inspector noted odor and discoloration of the soil as well as petroleum sheen on the groundwater. Files reviewed for the Phase I ESA also included an application filed in 1992 for in-place closure of a 2,160-gallon UST and a 576-gallon UST near Building 117. The figure attached to the application identifies the two USTs as “sumps.”

²⁰ Environmental Data Resources, Pier 70, 20th Street/Illinois Street, San Francisco, CA 94107. Inquiry Number 3149453.2s, August 18, 2011.

²¹ Geosyntec Consultants, *Pier 70 Phase I ESA*, p. 18.

²² Most fuels such as gasoline and diesel are not soluble in water and do not readily mix with water. When released to the groundwater, they will float on top of the groundwater surface. When this occurs, the floating fuels are referred to as free product.

²³ Geosyntec Consultants, *Pier 70 Phase I ESA*, p. 46.

²⁴ Geosyntec Consultants, *Pier 70 Phase I ESA*, p. 19.

Soil samples collected by coring through the bottom of the sumps did not contain detectable levels of any constituents not associated with potential laboratory contamination.

- Two boiler fuel USTs previously located immediately east of Building 113 in the 20th Street Historic Core and adjacent to the 28-Acre Site were removed in 1988.²⁵ Soil sampling conducted during the UST removal detected TPH at a maximum concentration of 600 mg/kg and oil and grease at a maximum concentration of 46,020 mg/kg. Groundwater sampling adjacent to the UST excavation detected TPH gasoline at a maximum concentration of 0.43 mg/L, TPH diesel at a maximum concentration of 41 mg/L, toluene at a maximum concentration of 0.00069 mg/L, and xylenes at a total concentration of 0.0088 mg/L. DPH issued a no further action letter regarding the closure of these USTs in 2000. A subsequent site assessment identified arsenic in three soil samples at a maximum concentration of 448 mg/kg.²⁶

No historic USTs have been identified within the 20th/Illinois Parcel.²⁷

In 2000 and 2002, approximately 550 tons of soil from the Pick Your Part and City Tow lease area, which included Buildings 12 and 15, parking lots to the east and west, and the area overlying Slipway 8, was disposed of offsite.²⁸ The excavations were conducted to remove stained surface soil and deeper soil containing TPH diesel, TPH motor oil, and benzo(a)pyrene. In 2004, an approximately 20- by 20-foot and 7-foot-deep area was excavated to remove soil containing TPH gasoline and BTEX.

HAZARDOUS MATERIALS IN SOIL AND GROUNDWATER

Hazardous materials have been identified in the soil and groundwater at both the 28-Acre Site and the Illinois Parcels as a result of previous site uses that involved the use of hazardous materials. Naturally occurring asbestos is also present in the fill materials derived from Irish Hill that were used to fill substantial portions of the 28-Acre Site and Illinois Parcels. As discussed below, the extent of these materials has been extensively evaluated. An RMP and associated deed restriction have been prepared for the *Pier 70 Preferred Master Plan* area which includes the 28-Acre Site and the 20th/Illinois Parcel, and a SMP and associated deed restriction have been prepared for the Hoedown Yard. Collectively, these plans specify procedures for the safe handling of soil and groundwater during construction at the 28-Acre Site, the 20th/Illinois Parcel, and the Hoedown Yard.

The Pier 70 RMP, which covers the 28-Acre Site and the 20th/Illinois Parcel, also includes measures to ensure that future occupants of the site are not exposed to unacceptable levels of

²⁵ Geosyntec Consultants, *Pier 70 Phase I ESA*, pp. 16 and 17.

²⁶ Geosyntec Consultants, *Pier 70 Phase I ESA*, pp. 21 and 22.

²⁷ Treadwell & Rollo, *Memo to Carol Bach of the Port of San Francisco, UST Reconnaissance*, August 26, 2011, Table 1.

²⁸ Geosyntec Consultants, *Pier 70 Phase I ESA*, pp. 19 and 20.

hazardous materials. The requirements of the Pier 70 RMP and the Hoedown Yard SMP are described separately below.

28-Acre Site and 20th/Illinois Parcel

Soil, Soil Vapor, and Groundwater Quality

Several soil and groundwater investigations have been conducted throughout the *Pier 70 Preferred Master Plan* area, including the 28-Acre Site and the 20th/Illinois Parcel, between 1989 and 2011. The Feasibility Study/Remedial Action Plan (FS/RAP) completed for the *Pier 70 Preferred Master Plan* area in 2012 analyzed the results from these investigations along with the results of a human health risk assessment (HHRA) and an ecological screening level risk assessment (ESLRA) conducted in 2011 to identify site-specific cleanup levels for the soil and groundwater. Using this information, the FS/RAP evaluated potential remediation alternatives to meet the specified cleanup levels or restrict exposure to chemicals in the soil and groundwater so that human health and ecological risks would not occur.²⁹ The measures approved in the FS/RAP are implemented through the Pier 70 RMP.

HUMAN-HEALTH RISK-BASED CLEANUP LEVELS

As summarized in the FS/RAP, the HHRA for the *Pier 70 Preferred Master Plan* area evaluated human exposures and health risks associated with both construction and subsequent future land uses to identify areas that require remediation.³⁰ The HHRA calculated site-specific risk-based target concentrations (RBTCs) for each chemical, which are defined as the concentration of a chemical that can remain in soil, soil gas, or groundwater and still be protective of human health, even if exposure were to occur. The National Contingency Plan (NCP) provides the framework for the Federal government response to hazardous materials releases. In accordance with the NCP, acceptable exposure levels are generally concentration levels that represent an excess lifetime cancer risk of between one in ten thousand and one in 1 million (10^{-4} to 10^{-6}).³¹ The RBTCs were conservatively calculated by setting a target cancer risk of 10^{-6} and a non-cancer Hazard Index (HI) of 1.0 for individual chemicals and calculating the corresponding soil, soil gas, and groundwater concentration at which that target is met. RBTCs were developed for commercial workers, residents, and recreational park users for the purpose of establishing cleanup levels for soil, soil gas, and groundwater, depending on the future land use. The RBTCs are primarily referred to as cleanup levels in the remainder of this section, and the adopted cleanup levels are included in Appendix F, Hazards and Hazardous Materials.

²⁹ Treadwell & Rollo, *Feasibility Study and Remedial Action Plan*.

³⁰ Treadwell & Rollo, *Pier 70 Feasibility Study and Remedial Action Plan*, pp. 16-18.

³¹ The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (U.S. EPA, Code of Federal Regulations, Title 40, Part 300.430[e][2]).

The cleanup levels are chemical concentrations that result in acceptable health risks for the intended land use (in this case, residential, commercial, and recreational) without using controls to eliminate or restrict exposure to hazardous materials left in place. Residential exposure, including exposure of young children, to hazardous materials in the soil could occur for more hours per day over longer periods than would occur for a commercial worker. Therefore, residential cleanup levels (i.e., the amount of a chemical that is allowed to remain in the soil) are lower than commercial cleanup levels, and are the most stringent of the two. Recreational exposures to chemicals in the soil occur over shorter durations and more infrequently; therefore, recreational cleanup levels are typically higher than those for both residential and commercial land uses. If a site is cleaned up to residential cleanup levels, it is considered suitable for all land uses. If it is cleaned up to commercial or recreational cleanup levels, future residential land uses of the site would be restricted. In addition, control measures (referred to as Institutional Controls or Engineering Controls) must be incorporated into a project to ensure that unacceptable exposures do not occur if the approved remediation approach for a site includes leaving soil or groundwater in place with chemical concentrations that exceed cleanup levels.

RBTCs were also developed for construction workers to inform health and safety planning during future construction or maintenance activities, including use of personal protective equipment and Hazardous Waste Operations and Emergency Response (Occupational Safety and Health Administration [OSHA] Standard 1910.120) training requirements for construction workers engaged in earth-disturbing activities during future remediation, construction, and maintenance activities. The RBTCs for construction workers are not intended to be used as cleanup levels.

ECOLOGICAL SCREENING LEVEL RISK ASSESSMENT

The FS/RAP also discussed an ESLRA conducted to identify whether hazardous materials in the soil, soil vapor, and/or groundwater beneath the *Pier 70 Preferred Master Plan* area could pose a potential ecological risk.³² The ESLRA provided a conservative estimate of potential ecological risks. The ESLRA concluded that the potential exists for unacceptable risk to terrestrial ecological receptors (i.e., wildlife and other animals that could come into contact with the site soil) based on the levels of chemicals present in the soil within the Pier 70 area. Based on the ESLRA, the FS/RAP concluded that no specific response action is needed for groundwater because the chemicals of concern present in the fill are either at low concentrations or are relatively immobile. Therefore, they would not likely pose a low risk to the San Francisco Bay and associated ecological resources.³³

³² Treadwell & Rollo, *Pier 70 Feasibility Study and Remedial Action Plan*, p. 16.

³³ Treadwell & Rollo, *Pier 70 Feasibility Study and Remedial Action Plan*, p. 41.

SOIL QUALITY

As summarized in the FS/RAP, soil within the *Pier 70 Preferred Master Plan* area contains naturally occurring metals and naturally occurring asbestos as well as heavy hydrocarbons as is typical of bayshore fill material. Soil throughout the site also contains polycyclic aromatic hydrocarbons (PAHs), metals, and/or TPH at concentrations exceeding residential, commercial, and/or recreational cleanup levels.

Oily residue was observed in the soil from two locations within the 20th Street Historic Core immediately north of the project site.³⁴ No oily residue was identified in soil samples from the 28-Acre Site or the 20th/Illinois Parcel, except the PG&E Responsibility Area which is described below.

Naturally occurring asbestos concentrations in the fill material used within the Pier 70 area range from less than 1 percent to 2 percent.³⁵

PCB concentrations did not exceed residential, commercial, or recreational cleanup levels in any of the soil samples from within the 28-Acre Site or 20th/Illinois Parcel.

GROUNDWATER AND SOIL VAPOR QUALITY

Based on the HHRA completed for the *Pier 70 Preferred Master Plan* area, the concentrations of chemicals detected in groundwater and soil vapor (vapors occurring within the soil, above the groundwater table) in the 28-Acre Site and 20th/Illinois Parcel do not pose a significant health risk under current use or under future use for commercial purposes. However, chemical concentrations exceeded residential cleanup levels in the groundwater or soil vapor at the following three locations, shown on Figure 4.P.1, p. 4.P.3:³⁶

- Benzene in groundwater from one location within the proposed Waterfront Promenade, adjacent to proposed Parcel E4 (sampling location SPSB-04).
- Naphthalene in soil vapors from one location within proposed Parcel H1 (sampling location P8SG-01) and one location within proposed Parcel B (sampling location P6SGP-01).

In addition, TPH gasoline exceeded the residential cleanup level in groundwater from one location (sampling location B-01-TT) and benzene exceeded the residential cleanup level in soil vapor at one location (sampling location P4SG-09) within the 20th Street Historic Core immediately

³⁴ Treadwell & Rollo, *Pier 70 Feasibility Study and Remedial Action Plan*, Figure 6.

³⁵ Treadwell & Rollo, *Pier 70 Feasibility Study and Remedial Action Plan*, p. 11.

³⁶ Treadwell & Rollo, *Pier 70 Feasibility Study and Remedial Action Plan*, Tables 8 and 9, and Figures 20 and 21.

adjacent to the project site. It is possible for soil vapors and groundwater to migrate; therefore, conditions within the Historic Core could affect conditions within nearby areas of the project site.

Methane was detected at a maximum concentration of 0.183 percent by volume in temporary soil vapor probes throughout the *Pier 70 Preferred Master Plan* area.³⁷ This maximum methane level is well below the 1.25 percent by volume criteria for protection of indoor air quality in overlying structures specified in Title 27 of the California Code of Regulations, which is the criterion used by DPH to determine if additional monitoring of methane concentrations or implementation of gas migration controls is required³⁸ (see discussion of this criterion under “State” in Regulatory Framework, p. 4.P.46).

WASTE CLASSIFICATION

Although the majority of the soil within the *Pier 70 Preferred Master Plan* area would be characterized as non-hazardous for waste disposal purposes, previous sampling has demonstrated that approximately 20 percent of the shallow soil in the upper 10 feet of the *Pier 70 Preferred Master Plan* area exhibits characteristics of California-regulated hazardous waste due to concentrations of total and soluble metals that exceed the total threshold limit concentration (TTL) or soluble threshold limit concentration (STLC).³⁹ However, none of the soil analyses found soluble concentrations exceeding criteria for Federally regulated hazardous waste. Soil from depths of 10 feet or more does not exceed criteria for State- or Federally regulated hazardous waste. Criteria applicable to the characterization of hazardous wastes are described below under “State” in Regulatory Framework on p. 4.P.41.

PG&E RESPONSIBILITY AREA

Hydrocarbon-based dense non-aqueous phase liquid⁴⁰ (DNAPL) has been identified within some portions of the fill material adjacent to and beneath the pier which forms the edge of the three southernmost slipways in the southern portion of the 28-Acre Site (Parcels H1 and the

³⁷ Treadwell & Rollo, *Pier 70 Risk Management Plan, Pier 70 Master Plan Area, San Francisco, California*, July 25, 2013 (hereinafter referred to as the “*Pier 70 Risk Management Plan*”), p. 6.

³⁸ California Regional Water Quality Control Board, Letter to Mr. Scott Nakamura, City and County of San Francisco Department of Public Health, *Subject: Clarification of the AB2061 Process, Clarification of the California Integrated Waste Management Board (CIWMB) Letter Dated April 4, 2001, and Development of a Protocol for Management of Methanated, Mission Bay Project Area, City and County of San Francisco*, May 15, 2001.

³⁹ Treadwell & Rollo, *Pier 70 Risk Management Plan*, p. 5.

⁴⁰ Many common contaminants are liquids that, like oil, are not soluble in water and do not readily mix with water. These are referred to as non-aqueous phase liquids. A dense non-aqueous phase liquid (DNAPL) is a liquid that is denser than water and can sink through the groundwater and accumulate on underlying layers of fine geologic materials such as clay.

southernmost part of the Waterfront Terrace), adjacent to the former Potrero Power Plant.⁴¹ The DNAPL is associated with former manufactured gas plant operations in the northern portion of the power plant property. Site investigations conducted by the Port and PG&E identified two localized areas within the Pier 70 area where the accumulated DNAPL is at least 1 foot thick as well as additional areas of discontinuous DNAPL.⁴² The area where DNAPL is present within the 28-Acre Site is referred to as the PG&E Responsibility Area and is shown on Figure 4.P.1, p. 4.P.3.

As approved by the RWQCB on December 27, 2012, PG&E's remediation of the DNAPL area within the 28-Acre Site will include excavating the continuous DNAPL areas at the southernmost slipway to a depth of about 23 feet and backfilling the excavations with clean fill.⁴³ Durable cover(s), consisting of pavement, hardscape, or clean fill and vegetation over a demarcation layer, will be installed over the excavated and backfilled areas. With future development of the site, concrete slabs, asphalt, or new buildings may also act as a durable cover. Areas of discontinuous DNAPL will remain at the project site and PG&E will prepare an RMP for controlling exposure to chemicals left in place during future use of the PG&E Responsibility Area. The RWQCB has also required a deed restriction be imposed on this property, limiting future land uses. PG&E will conduct long-term groundwater monitoring to monitor for potential off-site migration of chemicals left in place. Some of the concrete structures associated with the slipway may be demolished during excavation of the continuous DNAPL. PG&E anticipates beginning these remediation activities in 2017, prior to development under the Proposed Project.⁴⁴ Based on sampling of the in-place soil in 2014, at least a portion of the excavated soil would be considered a California hazardous waste based on soluble concentrations of chromium, nickel, and lead.⁴⁵

FORMER SOLID WASTE DISPOSAL SITE

The Phase I ESA reports that the former slipways were filled with approximately 17,000 cubic yards of debris and soil produced during demolition of many of the original Pier 70 structures.⁴⁶

⁴¹ Haley & Aldrich, Draft Remedial Action Plan, Northeast Area of the Potrero Power Plant Site and a Portion of the Southeast Area of Pier 70, Potrero Power Plant Site, San Francisco, California. July 7, 2015.

⁴² Discontinuous DNAPL refers to DNAPL that is present as isolated droplets adhering to the soil matrix. These isolated droplets are not interconnected and there is no possibility for the DNAPL to flow.

⁴³ Haley & Aldrich, Report on the Northeast Area of the Former Potrero Power Plant and a Portion of the Southeast Area of Pier 70 Feasibility Study, Potrero Power Plant Site, San Francisco, California. December 20, 2012, Section 5.

⁴⁴ Pacific Gas & Electric web site, Potrero Power Plant, Cleanup Areas and Recent Activities. Available online at <http://www.pge.com/en/about/environment/taking-responsibility/mgp/Potrero/cleanup-and-activities/index.page>. Accessed December 11, 2015.

⁴⁵ Haley & Aldrich, Upland Remediation Pre-Design Investigation Report, Northeast Area of the Potrero Power Plant and a Portion of the Southeast Area of Pier 70, Potrero Power Plant Site, San Francisco, California. June 18, 2014, p. 25.

⁴⁶ Geosyntec, Pier 70 Phase I ESA, pp. 28 and 29.

The location of this former solid waste disposal site is shown on Figure 4.P.1, p. 4.P.3. The type of wastes placed into this area is not well documented, but the waste is thought to have contained concrete, wood, glass, plastic, and metal along with unspecified amounts of soil. As approved by the RWQCB, the Port capped the fill area with asphaltic concrete pavement in approximately 1970. In 1971, the RWQCB issued Cleanup and Abatement Order No 71-5 and subsequently issued waste discharge requirements (WDRs), Order No. 87-060, for the former Pier 70 solid waste disposal area in 1987. The WDRs specified the necessary actions to investigate, mitigate, and monitor potential water quality effects of the former disposal site. After more than 10 years of monitoring by the Port, most volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) were not detected in the groundwater. Although some metals were detected in groundwater at levels above (then current) water quality objectives, studies reported that the concentrations were typical of adjacent bayfront fill areas. Monitoring of near-shore surface water from San Francisco Bay indicated that the adjacent bay water did not contain TPH, VOCs, SVOCs, or metals at concentrations above water quality objectives. Based on this, the RWQCB issued Order No. 00-030 in 2000, rescinding Order No. 87-060.

AREAS ADJACENT TO 28-ACRE SITE

An area to the north of the 28-Acre Site (within the BAE Systems Ship Repair facility) includes petroleum products in the soil, referred to as non-aqueous phase liquid (NAPL).⁴⁷ This area is shown on Figure 4.P.1, p. 4.P.3, and the NAPL within this area occurs in discontinuous globules. These petroleum products are nonvolatile, insoluble, highly viscous, highly degraded, and essentially immobile; they do not pose a significant risk to human health or migration to San Francisco Bay.

Pier 70 Risk Management Plan

The Port has selected a remedial action approach for the *Pier 70 Preferred Master Plan* area, including the 28-Acre Site and the 20th/Illinois Parcel, that includes construction of a durable cover over the entire site that would prevent exposure to hazardous materials in the soil once the site is developed, and also the use of institutional controls to effectively manage site risks during construction and post-development maintenance activities that may breach the durable cover. The Pier 70 RMP, adopted in 2013, provides the framework for implementing the selected controls for managing residual constituents of concern in the soil, soil vapor, and groundwater.⁴⁸

The Pier 70 RMP includes specific measures to be implemented during construction and maintenance activities, as well as post-development measures that must be implemented to minimize potential risks to the environment, current and future on-site employees, future

⁴⁷ Treadwell & Rollo, Pier 70 Risk Management Plan, p. 7.

⁴⁸ Treadwell & Rollo, Pier 70 Risk Management Plan.

residents, construction and maintenance workers, visitors, and the public. These measures in the Pier 70 RMP apply to the entire *Pier 70 Preferred Master Plan* area which includes the 28-Acre Site and the 20th/Illinois Parcel. The RWQCB is the lead agency overseeing implementation of the Pier 70 RMP and approved the RMP on January 24, 2014, after soliciting public review and comment.⁴⁹

In accordance with the Pier 70 RMP, the RWQCB has developed Covenants and Environmental Restrictions that incorporate the requirements of the RMP and will be recorded in the deed of the property so all of the Pier 70 RMP requirements will run with the land and bind the Port and all future property owners to those requirements. This deed restriction is enforceable by the RWQCB. DPH is responsible for overseeing activities conducted in accordance with local regulations, including Articles 22A and 22B of the San Francisco Health Code, described below under “Local” in Regulatory Framework, pp. 4.P.47-4.P.48.

The site-specific risk management measures required by the Pier 70 RMP are summarized below and incorporate the risk management and soil management requirements of Article 22A of the San Francisco Health Code as well as the dust mitigation requirements of Article 22B of the San Francisco Health Code. However, DPH may require additional project-specific review and/or sampling as described below, as needed to fulfill the requirements of Article 22A.

NOTIFICATION REQUIREMENTS FOR GROUND-DISTURBING ACTIVITIES

The Pier 70 RMP specifies regulatory notification requirements for ground-disturbing activities within the *Pier 70 Preferred Master Plan* area that would disturb an area of 1,250 square feet or more of native soil, 50 cubic yards or more of native soil, 0.5 acre or more of soil, or 10,000 square feet or more of durable cover. The notification requirements are different for submittals that are compliant with the Pier 70 RMP and those that request a variance from the specific requirements of the RMP. For RMP-compliant submittals, the notification must include the following in accordance with Section 4.1.1 of the Pier 70 RMP, Notification for RMP Compliant Submittals:

- A description of current site conditions within the proposed limits of work.
- A description of the proposed ground-disturbing activity, together with appropriate exhibits to illustrate the location and/or issue that triggers the notification.
- Engineering design drawings stamped by a California-licensed professional that describe construction of the applicable components of the remedy, including installation of durable cover in accordance with the Pier 70 RMP and vapor monitoring system design plans for residential land use in areas where soil vapor or groundwater concentrations exceeded residential cleanup levels (see Figure 4.P.1, p. 4.P.3).

⁴⁹ San Francisco Bay Regional Water Quality Control Board, *Approval of July 25, 2013 Final Risk Management Plan, Pier 70 Master Plan Area, San Francisco, San Francisco County*, January 24, 2014.

- Completed project-specific plans including a Dust Control Plan, Stormwater Pollution Prevention Plan, Environmental Health and Safety Plan, Soil Import Plan, and Groundwater Management Plan as applicable to the project. The Pier 70 RMP includes specific criteria for each of these plans.
- A project schedule that tracks site activities and reinstallation of the durable cover following completion of the ground-disturbing activity.
- If the RWQCB has not provided comments within 45 days of the submittal, the project proponent (e.g., the project sponsors) may proceed with the ground-disturbing activity without a formal approval letter from the RWQCB. The RWQCB has the authority to stop work if they find that the notification package does not conform to the requirements of the Pier 70 RMP. This process does not replace or supersede the requirement for building or encroachment permits from the Port, but is in addition to the requirements of these permits.

If the project proponent is requesting a specific variance from the Pier 70 RMP, Section 4.1.2, Notification of RMP Variance Submittals, requires that they submit the following items in addition to those discussed above to demonstrate that human health and the environment are protected:

- A precise description of the request and reason for variance from the Pier 70 RMP.
- The analysis and reasoning of how the variance is protective of human health and environment, stamped by a California-licensed professional.

Variance requests must be submitted 60 days prior to performing the activity, and the project proponent is not allowed to proceed with the project until the RWQCB and Port have approved the variance.

Articles 22A and 22B Submittals. The project proponent must also notify DPH of any ground-disturbing activity of 50 cubic yards or more in accordance with Article 22A of the San Francisco Health Code and/or any activity affecting an area greater than 0.5 acre in accordance with Article 22B of the San Francisco Health Code as specified in Pier 70 RMP Section 4.2, Information Required for SFDPH Notification. In addition to the above requirements, the submittal must include a work plan stamped by a California-licensed professional that describes excavation activities (general limits and depth of excavation) and a proposed sampling plan to characterize soil within the excavation footprint. If additional sampling is not warranted, the project proponent may submit a site evaluation report, stamped by a California-licensed professional, instead of a work plan for additional sampling. Such a site evaluation report should describe the proposed excavation activities and provide an evaluation of the adequacy of existing data to characterize the potential risks related to the proposed activity. Both the work plan and site evaluation report are subject to DPH approval. Regardless of whether the project warrants submittal of a work plan or site evaluation report, a site history report is not required.

DEFINITION OF GROUND-DISTURBING ACTIVITIES

“Ground-disturbing activities” include, but are not limited to, (1) excavation of native soil; (2) grading or related construction of roads, utilities, facilities, structures, and appurtenances that disturbs native soil; (3) demolition or removal of “hardscape” (for example, concrete roadways, parking lots, foundations, asphalt, and sidewalks) that exposes native soil; (4) any activity that moves native soil to the surface from below the surface of the land; and (5) any activity that causes or facilitates the movement of known contaminated groundwater (RMP Section 4.0, Ground Disturbing Activity Notification and Reporting). Following completion of any ground-disturbing activities, all excavated soil must be handled in accordance with the soil management protocols and durable cover protocols specified in the Pier 70 RMP.

RISK MANAGEMENT MEASURES PRIOR TO DEVELOPMENT

The Pier 70 RMP (Section 5.0, Risk Management Measures Prior to Development) specifies access control measures, such as fencing and signage, to ensure that trespassers and visitors to the site are not exposed to unacceptable levels of chemicals in the soil. In addition, the RMP requires that the Port provides a fact sheet to all tenants, project proponents, and building owners/operators, informing them of the existing conditions, RMP requirements, and prohibited activities.

RISK MANAGEMENT MEASURES DURING CONSTRUCTION AND MAINTENANCE

Section 6.0 of the Pier 70 RMP specifies risk management measures that must be implemented during construction and maintenance to ensure that workers and the public are not exposed to unacceptable levels of hazardous materials in the soil and groundwater. These measures are discussed below.

Soil and Stormwater Management. During all construction, the Pier 70 RMP requires implementation of the following.

- A site-specific health and safety plan that addresses site health and safety requirements in accordance with applicable State and Federal health and safety standards, including protective elements such as use of personal protective clothing and equipment, air monitoring action levels, training and documentation protocols, and an emergency response plan (RMP Section 6.4, Environmental Health and Safety). If a ground-disturbing project triggers Article 22A of the San Francisco Health Code, the site safety plan must be certified and stamped by a Certified Industrial Hygienist and submitted to DPH for review and approval.
- Access controls that limit access only to authorized personnel in compliance with the site health and safety plan requirements (RMP Section 6.1, Access Controls during Construction).

- Soil management protocols that address on-site reuse of soil within the *Pier 70 Preferred Master Plan* area restrict the generation of visible dust emissions from excavation equipment and soil haul trucks, require wetting of unpaved roads to restrict generation of visible dust, and limit on-site truck speeds to prevent the generation of visible dust. These include:
 - Soil movement protocols that allow movement of soil within the boundaries of the *Pier 70 Preferred Master Plan* area and reuse of the soil with no further sampling, provided that reuse is conducted in accordance with the RMP and that no unknown or unexpected conditions are encountered (RMP Section 6.5.1, Movement of Soil). Soil that is excavated and moved must remain within the Pier 70 area and must be placed under durable cover. Alternately, soils may be disposed of off-site as provided in Section 6.8 of the RMP, Off-Site Soil Disposal.
 - Soil stockpile management protocols that require locating stockpiles in as close proximity to the work site as possible (RMP Section 6.5.2, Stockpile Management Protocols). The protocols must address stormwater runoff and dust generation.
 - A project-specific Soil Import Plan stamped by a California-licensed professional that requires sampling to demonstrate that imported soil quality meets the chemical criteria specified in the RMP (RMP Section 6.5.3, Soil Import Criteria, and Table 4 of the RMP which is provided in Appendix F, Hazards and Hazardous Materials).
- A dust control plan in accordance with Article 22B of the San Francisco Health Code, (RMP Section 6.6, Dust Control Plan). The dust control plan must incorporate existing State and local regulations applicable to maintenance, construction, and redevelopment activities, including Port Building Code Section 106A.3.2.3, San Francisco Health Code Article 22B, and the Asbestos Airborne Toxic Substances Control Measure (Asbestos ATCM) described under “State” in Regulatory Framework on pp. 4.P.45-4.P.46.
- A stormwater pollution prevention control plan prepared in accordance with the California State Water Resource Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities RMP Section 6.7, Construction Stormwater Management).
- Soil for off-site disposal must be analyzed for waste classification purposes then transported and disposed of in accordance with applicable laws for the disposal of hazardous and non-hazardous waste disposal (RMP Section 6.8, Off-site Soil Disposal).

If the durable cover, constructed in accordance with the post-development measures described below, is disturbed during construction or maintenance activities, the durable cover must be reestablished in accordance with the protocols of the Operations and Maintenance Plan, described below under “Annual Inspection and Reporting,” pp. 4.P.25-4.P.26. Reestablishment of the cover must be documented in a completion report submitted and subject to approval by the Port and the RWQCB.

Temporary Dewatering. The Pier 70 RMP requires a project proponent to prepare a Groundwater Management Plan for the management of groundwater produced by temporary construction dewatering during construction (RMP Section 6.10.1, Temporary Dewatering Activities). Implementation of the Groundwater Management Plan provides for the safe handling of groundwater generated by dewatering and discharge of the groundwater in accordance with applicable regulations. The plan must assess the potential for groundwater dewatering to alter groundwater flow patterns. For projects in or around areas of known NAPL and DNAPL, the plan must include appropriate risk management measures as outlined in the Pier 70 RMP.

The Pier 70 RMP requires sampling of water removed during dewatering activities and profiling the water for disposal in accordance with applicable permits and regulations. If approved in advance by the Port and RWQCB, water may be reused for dust control purposes. Disposal options may include pre-treatment and discharge into the City's combined sanitary sewer system under a SFPUC batch wastewater discharge permit. A project proponent may also apply for an NPDES permit through the RWQCB for discharge to the Bay. The Port and the RWQCB are responsible for review and approval of the Groundwater Management Plan.

Unanticipated Conditions. A project proponent must also implement the RMP's protocol addressing unforeseen conditions such as unanticipated soil and/or groundwater contamination, unexpected subsurface structures, buried pipelines, USTs, and or other indications of contamination (RMP Section 6.9, Unanticipated Conditions Response Protocol). The protocol specifies that any USTs encountered must be closed in accordance with Article 21 of the San Francisco Health Code, described below under "Local" in Regulatory Framework on p. 4.P.21. In addition, the protocol requires a project proponent to stop work and consult a California-licensed professional in the event that unanticipated subsurface conditions are encountered. A project proponent is also required to notify the Port, RWQCB, and DPH within 5 days of discovering a non-emergency unanticipated subsurface condition.

Prevention of Conduits. The Pier 70 RMP requires that a project proponent avoid the installation of underground utilities in areas of known NAPL and DNAPL to the extent practicable (RMP Section 6.10.2, Conduits Prevention). If these areas cannot be avoided, a professional geologist or engineer must review existing data to determine where NAPL or DNAPL remains, and specify risk management measures to minimize the potential for the new utilities to become conduits for the spread of groundwater contamination, subject to approval by the RWQCB and/or DPH. Potential methods for control of groundwater include placing regularly spaced low-permeability materials within the backfill (e.g., concrete, a cement/bentonite mixture, or clayey materials) or installing barrier collars around the pipes. Potential methods for control of soil vapor include sealing the end of utility conduits with inert gas-impermeable material. The need for vapor controls is determined on a project-specific basis.

Prevention of Groundwater Intrusion. The Pier 70 RMP specifies that unpressurized pipelines constructed within zones of existing or newly identified groundwater contamination must be adequately sealed at pipe joints to prevent the intrusion of groundwater and constructed of materials that would not be degraded by the presence of chemicals in the groundwater (RMP Section 6.10.3, Groundwater Intrusion Prevention).

Groundwater Monitoring Wells. The Pier 70 RMP requires a project proponent to review available information prior to construction and identify any monitoring wells within the construction area (RMP Section 6.11, Groundwater Monitoring Wells). The wells must be appropriately abandoned prior to construction or protected during construction. If construction necessitates destruction of an existing well, the destruction must be conducted in accordance with California and DPH regulations, and must be approved by the RWQCB. The Port must also be notified of the destruction. Project proponents also may be required to reinstall any groundwater monitoring wells that are part of the ongoing groundwater monitoring network.

Shoreline Improvements. Under the Pier 70 RMP, shoreline construction is subject to existing regulatory and permitting requirements and should include the installation of a durable cover and/or shoreline revetment designed to prevent the migration of site soil (RMP Section 6.12, “Shoreline Improvements”). The Port and RWQCB must be contacted during the planning phase of any shoreline construction to obtain information concerning the nature of the sediments to be disturbed where known, requirements for work plans, and other specific requirements.

POST-DEVELOPMENT MEASURES

Durable Cover. The Pier 70 RMP requires placement of durable covers over any soil with chemicals at concentrations greater than cleanup levels for the planned land use (RMP Section 2.2.1, Description of Remedy). Durable covers will prevent human exposure to the soil and can include features such as new or existing buildings, new or existing roadways and sidewalks, new and existing hardscapes or paved parking areas, shoreline revetments, 6 inches of gravel overlying a demarcation layer, or landscaped areas covered with a minimum of 2 feet of clean imported soil. If a cover of clean soil is used, the clean soil layer must accommodate the depth of root-bearing zones and/or irrigation systems to ensure that general maintenance workers will not contact any of the native soil below the demarcation layer. The demarcation layer must provide a visual indicator that distinguishes the native soil beneath the demarcation layer from overlying clean soil. The demarcation layer is not intended to be impermeable to water. The Pier 70 RMP requires long-term maintenance and monitoring of the durable covers to ensure that they continue to function as designed. The Operation and Maintenance Plan provided in the Pier 70 RMP, discussed further below, provides the specific requirements for long-term maintenance and monitoring. If any maintenance or repair work disturbs durable cover, the integrity of the

previously existing durable cover must be re-established (RMP Section 7.2, Durable Cover Disturbance).

Additional Risk Evaluations and Vapor Intrusion Measures. As discussed above under “Groundwater Quality and Soil Vapor Quality,” pp. 4.P.14-4.P.15, VOCs have been identified in the soil vapor and groundwater at concentrations greater than residential cleanup levels at locations within or adjacent to Parcels H1, E4, and B, as well as in the adjacent 20th Street Historic Core site. The Pier 70 RMP requires additional risk evaluation if these areas are to be used for residential purposes, potentially including additional soil vapor sampling to verify current conditions (RMP Section 2.2.1, Description of Remedy). Depending on the results of the risk evaluations, measures may be required to minimize or eliminate exposure to soil vapor that may migrate into new residential buildings without implementation of appropriate measures. Appropriate vapor intrusion measures may include, for example, design of an intrinsically safe building configuration; installation of a vapor barrier; and/or design and installation of a vapor monitoring system that is protective of the residential use. The project proponent may also demonstrate that vapor intrusion risks would be within acceptable levels (greater than 1×10^{-6} incremental cancer risk or a non-cancer hazard index greater than 1) under a project-specific development scenario.

Notification Requirement and Health and Safety. The Pier 70 RMP requires building or facility operators/owners and/or tenants to notify any future contractors of existing site conditions and hazards of exposure to native soil if routine maintenance that would impact durable cover is required (RMP Section 7.1, Notification and Reporting). Based on this information, contractors who perform any activity that will disturb native soil or impacted groundwater must develop a site health and safety plan to protect their workers during subject activities (RMP Section 7.3, Health and Safety).

COMPLETION REPORTS

Within 45 days of completing a ground-disturbing activity, a project proponent must submit a completion report to the Port, the RWQCB, and DPH (RMP Section 4.3, Completion Reports). The completion report must document the activity and, if necessary, any corrective actions implemented if the ground-disturbing activity encountered any unforeseen conditions. The completion report must include the following components, as appropriate.

- A description of activities performed;
- Boring logs/well completion diagrams;
- Laboratory analytical reports;
- Waste disposal manifests;

- As-built drawings of the components of the remedy, including the durable cover or other engineered control, stamped by a California-licensed professional;
- All permits and inspection reports of the installed remedy components, including the durable cover or other engineered control stating that it was properly installed and inspected by a California-licensed professional licensed in the technical area representative of the work;
- A long-term maintenance and monitoring plan for any permanent remedy components not covered by the Operation and Maintenance Plan for durable cover; and
- Other appropriate documentation or components as specified as a condition of undertaking the subject activity and/or required by the Port, RWQCB, and/or DPH.

The Port, DPH, and RWQCB must review all completion reports to confirm that the actions taken were consistent with the Pier 70 RMP procedures and protocols. The Port, DPH, and RWQCB are required to notify the project proponent of any discrepancies or deficiencies in the completion report within 45 days. Under the Pier 70 RMP, the project proponent(s), Port, DPH, and RWQCB must work collaboratively to resolve such issues. Upon concluding that the actions taken are consistent with the RMP, the RWQCB would issue an approval letter for the completion report.

OPERATION AND MAINTENANCE PLAN

The Operation and Maintenance Plan included as Appendix A of the Pier 70 RMP describes the long-term maintenance and monitoring requirements for the durable cover. This plan requires the Port or operators of facilities within the *Pier 70 Preferred Master Plan* area to retain a qualified professional to perform operations and maintenance activities, and specifies annual inspection requirements to observe for issues of concern, including any breach in the durable cover. The plan also specifies procedures for security when the cover is breached along with required maintenance and repair activities to maintain the durable cover. An emergency response plan is included that specifies procedures to be implemented in the event of an emergency (such as vandalism, fire, or flooding) that could affect the integrity of effectiveness of the durable cover.

ANNUAL INSPECTION AND REPORTING

The Pier 70 RMP requires annual inspections and production of an Annual Inspection Report (RMP Section 4.4, Annual Inspection and Reporting). For properties occupied by building/facility owners (e.g., development partners with tenants or other operators in new or renovated facilities) or operators (e.g., tenants in Port-owned facilities, Port in Port-operated facilities), the owners and operators are responsible for submitting the Annual Reporting and Operations and Maintenance Checklist to the Port by March 31 of the following year. The Port must conduct annual site inspections of the *Pier 70 Preferred Master Plan* area outside of those areas owned/operated by tenants or development partners, compile all owner/operator annual

checklists, and submit an Annual Inspection and Operations and Maintenance Checklist for the entire site to the RWQCB. The report prepared by the Port must include the results of the Port's annual inspection and self-certification of compliance with the Pier 70 RMP and deed restriction that has been recorded on the property.

Should the Port discover any actions or conditions inconsistent with the Pier 70 RMP at any time, including during the annual site inspection, the Port must prepare a written explanation indicating the specific deficiencies and what efforts or measures the Port has taken or will take to correct those actions. The Port must provide the written explanation to the RWQCB within 15 working days of discovery.

As the property owner, the Port is ultimately responsible for the annual inspection and reporting requirements, and incident reporting that is outside of the annual inspection process. The Port must work with the project proponents, building owner/operators, and/or regulatory agencies to correct any problem(s) discovered and cooperate with the agencies during the performance of their inspection and enforcement responsibilities.

PROHIBITED ACTIVITIES

The Pier 70 RMP prohibits using groundwater and prohibits growing vegetables, fruit, or any edible items for human consumption in native soil throughout the *Preferred Pier 70 Master Plan* area (see RMP Section 3.3, Prohibited Activities). Plants for human consumption may be grown in the *Pier 70 Preferred Master Plan* area only if they are planted in raised beds (above the approved durable cover) containing soil that was not obtained from the *Pier 70 Preferred Master Plan* area. Fruit trees (including nut-bearing trees) may be planted provided that they are grown in containers with a bottom that prevents the roots from penetrating the native soil. The Port, RWQCB, and DPH have the authority to perform inspections without prior notice to verify that no prohibited activities are being performed.

REGULATORY OVERSIGHT

The RWQCB is the lead agency providing oversight for implementation of the RMP and associated environmental investigations and remediation, but may delegate portions of the oversight to DPH. For implementation of Articles 22A and 22B of the San Francisco Health Code, DPH is the lead agency.

Pier 70 Article 22A Compliance

The project sponsors submitted a Site Evaluation Report and Subsurface Site Mitigation Plan for the 28-Acre Site and 20th/Illinois Parcel to DPH in August 2015.⁵⁰ This report fulfills the requirements of the soils analysis report and Site Mitigation Plan required by Article 22A of the San Francisco Health Code, Analyzing the Soils for Hazardous Waste (also referred to as the Maher Ordinance) for these areas. This report summarizes soil and groundwater quality at the 28-Acre Site and 20th/Illinois Parcel, and commits the project sponsors to implementing specific Pier 70 RMP requirements.

DPH conditionally approved the Site Evaluation Report and Site Mitigation Plan in November 2015.⁵¹ The conditional approval requires the following additional information or documentation:

- Future documents will need to provide a narrative summary of analytical findings along with tables of the data and/or laboratory reports.
- A dust control addendum will need to be prepared to address new regulatory requirements and standards implemented since approval of the Pier 70 RMP in 2014. The conditional approval specifies additional measures that must be implemented to ensure that no visible dust crosses the property boundaries during construction.
- Soil stockpiles will need to be thoroughly wetted at the end of each day.
- The site mitigation plan will need to include measures to control dust from construction traffic.
- On-site signage must be in English, Spanish, and the predominant language of persons who use the area.
- The site safety plan will need to be submitted a minimum of 2 weeks prior to the start of work.
- A final report will need to be submitted at the completion of the project.

Deed Restriction

The Port recorded a deed restriction on the *Pier 70 Preferred Master Plan* area on August 11, 2016.⁵² The deed restriction incorporates the information and requirements of the Pier 70 RMP

⁵⁰ Geosyntec Consultants, Site Evaluation Report and Subsurface Site Mitigation Plan, Article 22A Compliance Program, Pier 70 Waterfront Site, San Francisco, California (hereinafter referred to as “Site Evaluation Report and Site Mitigation Plan”), August 31, 2015.

⁵¹ San Francisco Department of Public Health, Conditional Site Mitigation Plan Approval, Pier 70 Waterfront Site, Residential and Commercial Development; Open Space Land Use, Pier 60 – 28-Acre Site and 20th/Illinois Parcel, November 9, 2015.

⁵² Covenant and Environmental Deed Restriction on Property, Property Consisting of Seawall Lot 349, Seawall Lot 345 (portion), Assessors Block 4110 (portion), and 20th Street (portion), generally bounded by Mariposa Street, Illinois Street, 22nd Street, and San Francisco Bay, San Francisco, California. August 11, 2016.

described above, and includes the following restrictions on uses within the *Preferred Master Plan* area:

- Native soil may not be used for growing produce for human consumption;
- Uses involving regular exposure to native soil are not permitted;
- Hospitals are prohibited; and
- No groundwater wells or groundwater uses are allowed for purposes other than construction dewatering.

The deed restriction is on file with the RWQCB and runs with the property. Accordingly, the requirements of the Pier 70 RMP apply to subsequent owners, tenants, and occupants of the property.

Hoedown Yard

PG&E has conducted several environmental investigations at the Hoedown Yard since 2006, including the analysis of numerous samples to assess soil and groundwater quality at the site. The screening-level human health risk evaluation conducted by PG&E in 2011 characterizes health risks associated with exposure to chemicals in the soil and groundwater based on the results of these investigations.⁵³ The human health risk evaluation addressed risks related to commercial and industrial land uses, but did not evaluate risks associated with potential future residential land uses because this land use was not anticipated when the risk evaluation was completed. The human health risk evaluation concluded that the vapor intrusion pathway does not present a potential health risk related to commercial or industrial use of the Hoedown Yard because VOCs were not consistently detected in the soil or groundwater and all detected concentrations were below their respective screening criteria, which are conservatively established and human health-based.

Soil Quality

Based on future use of the Hoedown Yard for commercial or industrial purposes, arsenic is the primary chemical of concern identified in the soil; it was identified at concentrations greater than the site-specific background level of 11.5 mg/kg in samples from the shallow fill materials within an approximately 140- by 140-foot area in the northwest corner of the property (see Figure 4.P.1, p. 4.P.3).⁵⁴ The maximum concentration was 530 mg/kg. Some soil samples from within this area also contained lead, TPH diesel, and TPH motor oil at concentrations exceeding the screening criteria for commercial land uses.

⁵³ AMEC, *Updated Human Screening-Level Health Risk Evaluation, Hoe Down Yard, 22nd Street and Illinois Street, San Francisco, California*, August 2011.

⁵⁴ AMEC, *Hoe Down Yard Site Management Plan*, pp. 4 and 5.

Several VOCs and SVOCs as well as other metals were identified in the soil samples, but none of the concentrations exceeded health-based screening levels. Pesticides, PCBs, and cyanide were not detected in any of the soil samples.

Seven soil samples were analyzed for naturally occurring asbestos which was detected in each sample analyzed at concentrations ranging from 0.50 percent to 6.30 percent, all of which exceed the screening level of 0.25 percent. On the basis of this, the human health risk evaluation recommended implementation of dust management practices during site remediation and construction to limit the potential resuspension of chrysotile asbestos associated with naturally occurring asbestos into the air. The human health risk evaluation also recommended evaluating the need for perimeter dust monitoring during these activities.

The human health risk evaluation concluded that, based on the presence of arsenic in the northwest portion of the Hoedown Yard, current and future industrial/commercial workers in this area as well as construction workers could be exposed to chemicals in the soil at concentrations that could pose a health risk.⁵⁵ In other areas of the Hoedown Yard, the human health risk evaluation concluded that none of the chemicals detected would pose a significant health risk to current or future workers.

Groundwater Quality

Groundwater beneath the Hoedown Yard is not considered a potential source of drinking water. Therefore, the human health risk evaluation compared groundwater concentrations to environmental screening levels for groundwater that is not a current or potential drinking water source. On the basis of three grab groundwater samples collected in 2006, the human health risk evaluation determined that the maximum detected concentration of TPH diesel and TPH motor oil (13,000 microgram per liter [$\mu\text{g/L}$] and 5,300 $\mu\text{g/L}$, respectively) exceeded the then-current environmental screening level of 2,500 $\mu\text{g/L}$ for each compound. No other chemicals detected in the groundwater exceeded health-based screening levels. The human health risk evaluation did not recommend any long-term risk management measures to restrict exposure to chemicals in groundwater because there would be no contact with or use of groundwater when the site is developed. However, the human health risk evaluation concluded that any construction-related dewatering should be conducted in a way to preclude skin contact with the groundwater by the construction workers.

Site Management Requirements

PG&E prepared an SMP in 2012 specifying procedures for protection of human health and the environment during routine site maintenance/construction activities where workers could be

⁵⁵ AMEC, Hoe Down Yard Updated Screening Level Health Risk Evaluation, p. 11.

exposed to environmentally impacted soil and groundwater, referred to as the Hoedown Yard SMP.⁵⁶ The RWQCB concluded in December 2012 that with implementation of the requirements of the Hoedown Yard SMP, no further action is required related to the investigation or remediation of the Hoedown Yard under the current industrial land use.⁵⁷ However, the Hoedown Yard SMP considers potential exposure under PG&E's current and future use of the site for industrial purposes, but does not consider future residential uses of the property. The SMP must be modified if there is a change in property use, if there is a change in understanding of environmental conditions at the site, if there are planned intrusive activities that are not addressed in the SMP, or if new legal or regulatory requirements are implemented.

NOTIFICATION REQUIREMENTS

Consistent with existing law and local ordinances, the Hoedown Yard SMP requires the following notification requirements for activities that will disturb soil or groundwater (see SMP Section 4.2, Notifications):

- Notification of DPH of work disturbing 50 cubic yards or more of soil in accordance with the Article 22A of the San Francisco Health Code;
- Notification of DPH of work that could generate dust in accordance with the Article 22B of the San Francisco Health Code;
- Notification of the Bay Area Air Quality Management District (BAAQMD) of work that would disturb 1.0 or more acres of soil containing naturally occurring asbestos in accordance with Title 17 of the California Code of Regulations, Section 93105; and
- Notification of the RWQCB of work requiring water management activities (such as excavation dewatering or storm water management).

HEALTH AND SAFETY DURING CONSTRUCTION AND MAINTENANCE

The Hoedown Yard SMP requires implementation of a health and safety plan for the protection of construction workers and maintenance workers who could come into contact with the soil or groundwater (SMP Section 5.0, Guidelines for Health and Safety During Construction/Maintenance Activities). The plan must include measures consistent with Cal-OSHA regulations and specify personal protective equipment to be used, decontamination procedures, spill response procedures, and emergency contact information, as detailed in the SMP. Other measures to prevent public exposure to hazardous materials during construction and ensure appropriate management of soil and groundwater encountered during construction are described below.

⁵⁶ AMEC, Hoe Down Yard Site Management Plan. 2014-001272ENV.

⁵⁷ San Francisco Bay Regional Water Quality Control Board, No Further Action Status, Hoe Down Yard Area, Potrero Power Plant, City and County of San Francisco, December 6, 2012.

DUST MANAGEMENT MEASURES

The Hoedown Yard SMP requires implementation of dust control and dust monitoring measures, described below, to minimize the potential for exposure to arsenic, TPH, and naturally occurring asbestos in the soil during construction and maintenance activities.

Dust Control. The following dust control measures are required to minimize potential exposure to residual chemicals and naturally occurring asbestos in dust generated during construction or maintenance activities (SMP Section 6.1, Dust Management Measures):

- Stabilizing unpaved areas subject to vehicle traffic by adequate wetting, treatment with a chemical dust suppressant, or by covering with material that contains less than 0.25 percent asbestos to prevent visible emissions from crossing the property line.
- Restricting vehicle and equipment speeds to no more than 10 miles per hour to prevent vehicles from generating visible dust which crosses the property line.
- Applying sufficient water prior to any ground disturbance to prevent visible dust from crossing the property line.
- Stabilizing stockpiles of soil and disturbed areas not subject to vehicular traffic by keeping them adequately wetted, treated with a chemical dust suppressant, or covered by a tarp or material that contains less than 0.25 percent asbestos when material is not being added to or removed from the pile.
- Washing down equipment or using one of the following track-out prevention measures before the equipment is moved from the property onto a paved public road:
 - a gravel pad designed using good engineering practices to clean the tires of exiting vehicles;
 - a tire shaker;
 - a wheel-wash system;
 - pavement extending for not less than 50 consecutive feet into the site from the intersection with the paved public road; or
 - any other measure as effective as the measures listed above.
- Preventing track-out from any construction project that is visible on any paved roadway open to the public. Visible track-out on a paved or public road must be cleaned within 24 hours using wet sweeping or a high-efficiency particulate air (HEPA) filter-equipped vacuum device.
- Ensuring that equipment and operations do not cause the emission of any visible dust that crosses the property line.
- Conducting any load-out of soil or debris from the site such that no spillage can occur from holes or other openings in cargo compartments.

The Hoedown Yard SMP also specifies the following procedures that may be used to control emission of dust from disturbed surfaces after completion of intrusive site activities:

- Establishing a vegetative cover;
- Placing at least 3 inches of non-asbestos-containing material;
- Paving; or
- Any other measures deemed sufficient to prevent wind speeds of 10 miles per hour or greater from causing visible dust emissions.

The Hoedown Yard SMP also specifies that activities that disturb soil containing greater than 0.25 percent naturally occurring asbestos must comply with the Asbestos ATCM. In general, work disturbing less than 1.0 acre of soil requires specific work practices. If the work would disturb greater than 1.0 acre of land, preparation of an Asbestos Dust Mitigation Plan for review and approval by the BAAQMD would be required prior to starting work. (See additional discussion of the Asbestos ATCM under “State” in Regulatory Framework, pp. 4.P.45-4.P.46.)

Dust Monitoring. The Hoedown Yard SMP specifies requirements for monitoring worker exposure to naturally occurring asbestos and other constituents during construction activities (SMP Section 6.2, Dust Monitoring). The exposure monitoring requirements are specified in California’s Construction Safety Orders contained in Title 8 of the California Code of Regulations, Subchapter 4, Article 4, Section 1529. The purpose of the requirements is to evaluate the potential for specific site activities (e.g., grading or trenching) to result in worker exposures to naturally occurring asbestos and other constituents. The dust monitoring would be used to evaluate the effectiveness of dust control measures and to determine the need for additional dust control measures to reduce airborne levels of asbestos and other constituents.

SOIL AND WATER MANAGEMENT MEASURES

The Hoedown Yard SMP specifies soil-handling procedures to prevent unacceptable worker exposure to hazardous materials during construction or maintenance activities.

Stockpile Management. In addition to the dust control measures already specified, the Hoedown Yard SMP requires that stockpiles are protected from the adverse effects of rainfall and winds (SMP Section 7.1.2, Soil Stockpiling). Accordingly, the SMP requires that stockpiles are watered and securely covered with a tarp to prevent wind erosion and dust generation. The stockpiles must be separated from public areas by a fence and be located in an area with no direct connection to the storm drain system or Bay shore.

On-Site Reuse of Soil. The Hoedown Yard SMP emphasizes that to the extent possible, soil excavated during construction or maintenance activities should be reused onsite rather than disposed of offsite (SMP Section 7.1.3, On-Site Reuse of Soil). To accomplish this, the

Hoedown Yard SMP specifies that excavated soil must be temporarily stockpiled and evaluated for potential re-use. This evaluation may include additional sampling to evaluate the concentration of asbestos and metals in the soil, which would be determined by the engineer or consultant conducting the work or PG&E's Environmental Field Specialist. Soil exhibiting physical evidence of environmental impacts such as staining or odors must be stockpiled separately for characterization and off-site disposal. The SMP specifies that soil generated from within the area of arsenic impacts may not be re-used for any purposes within the Hoedown Yard.

Off-Site Disposal of Soil. Soil designated for off-site disposal must be sampled and characterized for waste disposal purposes. Soil characterized as a Federal or State hazardous waste must be disposed of at a licensed hazardous waste facility. The Hoedown Yard SMP specifies that in accordance with applicable law, soil containing greater than 1 percent asbestos must be disposed of at a facility licensed to accept friable (easily crumbled) asbestos-containing material. However, the soil would not be classified as a hazardous waste on the basis of asbestos concentrations (SMP Sections 7.1.4, Off-Site Soil Disposal, and 7.1.1, Soil Handling).

Excavation Dewatering. Based on the presence of TPH diesel and TPH motor oil in the groundwater, the Hoedown Yard SMP specifies measures to be implemented to protect workers from contact with groundwater during excavation dewatering, including containerization and appropriate disposal of groundwater (SMP Section 7.1.5, Excavation Dewatering). The SMP requires testing to establish water quality and compliance with the discharge limitations applicable to discharges to the City's combined sewer system, the stormwater system, or an appropriately permitted off-site facility.

Stormwater Management. Contractors must prepare a Stormwater Pollution Prevention Control Plan in accordance with the SWRCB NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (SMP Section 7.1.6, Stormwater Management), including implementation of best management practices (BMPs) specified in the required Stormwater Pollution Prevention Plan to minimize the sediment load in stormwater runoff and prevent a release of hazardous materials to stormwater.

Site Access and Security. Access to areas where soil will be disturbed must be controlled with caution tape, cones, fencing, steel plates, or other measures that clearly designate the active work area and prevent access by the public (SMP Section 7.17, Site Access and Security). Stockpiles of excavated soil shall be secured by temporary fences or other means to prevent unauthorized access.

The Hoedown Yard is bounded by secure perimeter fencing preventing unauthorized access. Contractors should not damage perimeter fencing. Site perimeter security fencing should not be altered or removed without the approval of PG&E. Should removal or modification of perimeter

fencing be necessary to facilitate construction, a temporary security fencing plan and fencing replacement plan must be developed and approved by the owner and/or PG&E's Environmental Field Specialist. The plan must include details for replacement of perimeter fencing and must conform to local building codes.

Unanticipated Subsurface Conditions. The Hoedown Yard SMP acknowledges that previously unidentified subsurface features could be present at the site including slabs and piping associated with the former aboveground storage tanks, USTs, and concrete vaults (SMP Section 7.2, Unanticipated Subsurface Conditions). Previously unidentified contamination also may be present. If unanticipated conditions are identified, the SMP requires notification of PG&E's Environmental Field Specialist to make the appropriate regulatory notifications. If significant odors are identified, the SMP requires that work is immediately stopped and that the work area is covered.

RESPONSIBILITIES AND MODIFICATIONS TO HOEDOWN YARD SITE MITIGATION PLAN

PG&E is responsible for overseeing implementation of the Hoedown Yard SMP and PG&E workers and/or contractor(s) are responsible for adhering to the SMP, as discussed in Section 8.1, Responsibilities, of the SMP.

Deed Restriction

PG&E recorded a deed restriction on the Hoedown Yard on October 17, 2012.⁵⁸ The deed restriction incorporates the information and requirements of the Hoedown Yard SMP described above, and restricts future property uses to industrial/commercial. Residences, hospitals, health care facilities, schools, day care centers, senior centers, or agricultural uses are specifically prohibited under the existing conditions. In addition, the RWQCB must be notified of any construction or maintenance activities that would disturb 50 cubic yards or more of soil. The deed restriction is on file with the RWQCB and runs with the property. Accordingly the requirements of the SMP apply to subsequent owners of the property. However, new owners may apply to the RWQCB for a written variance from the provisions of the deed restriction. The deed restriction requires a revised risk assessment and potentially site remediation if the Hoedown Yard would be used for residential purposes.

Offshore Sediments

Investigations by PG&E have detected elevated PAH concentrations in the sediments offshore of the Potrero Power Plant and 28-Acre Site in an area referred to as the Offshore Sediment Area

⁵⁸ Covenant and Environmental Deed Restriction on Property, Potrero Hoe Down Yard, 1201 Illinois Street, San Francisco, California. APN 4110-008A, & Michigan Street (portion). October 17, 2012.

shown on Figure 4.P.1, p. 4.P.3. The PAHs are likely the result of the historical manufactured gas plant, power plant, and other industrial operations at the Potrero Power Plant; the investigation and remediation of the sediments is the responsibility of PG&E. Based on PG&E's investigations, the Offshore Sediment Area is divided into two zones requiring remediation:

- The Nearshore Zone which extends approximately 50 to 75 feet from the shoreline and includes areas within the former slipways at the 28-Acre Site. The sediments in this zone contain construction debris, remnants of wooden and concrete pilings, and similar debris associated with former industrial operations. This zone exhibits the highest PAH concentrations found in surface sediments within the Offshore Sediment Area.
- The Transition Zone which extends another approximately 100 to 150 feet bayward from the Nearshore Zone. The sediments in this zone contain PAHs at concentrations that are much lower than in the Nearshore Zone, but greater than the Central San Francisco Bay ambient sediment concentrations.

For remedial planning purposes, the Offshore Sediment Area is divided into three segments. Segment 1 and the northern portion of Segment 2 are adjacent to the 28-Acre Site, as shown on Figure 4.P.1, p. 4.P.3; the southern portion of Segment 2 and Segment 3 are adjacent to the Potrero Power Plant and only a portion of Segment 3 is included on the figure. The preferred remedial alternative for the offshore sediments includes dredging up to several feet of sediment from all three segments of the Nearshore Zone to remove those sediments with the highest concentration of PAHs and placement of a cap over the entire Nearshore Zone. In Segment 1, adjacent to the 28-Acre Site, the approach also includes using Enhanced Monitored Natural Recovery to enhance the natural recovery of contaminated sediments by accelerating natural sedimentation rates and encouraging the recolonization of benthic organisms that live in the sediments. Additional remediation is planned in the Transition Zone, 100 to 150 feet offshore.

The RWQCB approved this remedial approach on December 11, 2015, and PG&E is currently preparing a remedial action plan for implementation of the selected remedy.⁵⁹ The draft remedial action plan was expected to be submitted to the RWQCB by mid-2016, but had not yet been submitted as of November 2016.

RECENT CHEMICAL USES

The Phase I ESA completed for the 28-Acre Site notes chemical usage by several Port tenants in 2011, including the following.⁶⁰

- In 2011, Auto Return collected oily absorbents from leaking automobiles and stored them in drums for off-site disposal. This facility also used propane stored in small

⁵⁹ San Francisco Bay Regional Water Quality Control Board, Approval of October 9, 2015, Draft Feasibility Study Report, Offshore Sediment Area, Potrero Power Plant, City and County of San Francisco. December 11, 2015.

⁶⁰ Geosyntec Consultants, Pier 70 Phase I ESA, pp. 34 and 35.

- aboveground tanks to fuel forklifts. Subsequent to preparation of the Phase I ESA, Auto Return has moved from the project site.
- SOMArts used small quantities of paints and cleaners that were stored in a flammable storage cabinet and workshop container.
 - Sims Metals included a hazardous materials and waste trailer on the north side of its facility. The trailer was covered, had a locking mechanism, and contained waste oil collected from scrapped vehicles, batteries, and other universal waste removed from scrapped appliances (e.g., mercury switches, light ballasts). Subsequent to preparation of the Phase I ESA, Sims Metals has moved from the project site.

The Phase I ESA also noted a small container crusted with a thick brown substance located to the east of a parked bus, adjacent to the eastern boundary of the 28-Acre Site, in the central lot leased by Affordable Self Storage. The container was sitting on gravel and was in good condition. In the courtyard area (located in the northwest corner of the 28-Acre Site, immediately south of the 20th Street Historic Core), there was a pile of wood beams resembling railroad ties that had a couple of small containers sitting on the ties. There were also small containers in the hazardous waste storage area to the west of Building 14 (within the 20th Street Historic Core adjacent to the eastern boundary of the 20th/Illinois Parcel). No spills or obvious signs of mismanagement of any of these materials were noted.

No USTs or aboveground storage tanks are in use at the 28-Acre Site.⁶¹ The Phase I ESA did note two small, old aboveground tanks that were not in use. One was located on the storage racks in front of Building 116 and one was located adjacent to the northwest side of Building 66. The tanks were small and appeared empty. There were no signs of leaks from these tanks. In addition, former process tanks were noted in the courtyard area adjacent to the 28-Acre Site (within the 20th/Illinois Parcel), but these tanks were not in use.

Based on the environmental database review completed for the Phase I ESA, the City and several tenants manifest hazardous waste for off-site disposal.⁶² This indicates that hazardous wastes have been generated on site, but does not indicate that a release has occurred.

PCB-CONTAINING ELECTRICAL TRANSFORMERS

Electrical transformers are in use in several locations of the 28-Acre Site and historically may have been used or stored in other locations. Known electrical transformers include:

- Former Building 3, which has been demolished, included transformers.⁶³ Currently, a parking lot is in the location of this former building;

⁶¹ Geosyntec Consultants, Pier 70 Phase I ESA, p. 36.

⁶² Geosyntec Consultants, Pier 70 Phase I ESA, pp. 49 to 53.

⁶³ Geosyntec Consultants, Pier 70 Phase I ESA, Table 1, p. 18 of 23.

- A utility room in Building 12 included a PCB-containing transformer in 2011;⁶⁴
- Building 19, which historically has been used as a garage, was previously used for storage of PCB-containing transformers;⁶⁵ and
- Building 21 houses transformers currently used a part of the electrical substation in the building. Based on their age, some of the transformers may include PCB-containing oils.

The Phase I ESA for the project site reports that, based on information available in the California Department of Toxic Substances Control (DTSC) on-line Envirostor Database, the following cleanup activities have been conducted at or near Building 21, referred to as Operational Area 1 in the following text, and Building 12, referred to as Operational Area 2:⁶⁶

“In 1981, IT Corporation conducted a cleanup of polychlorinated biphenyls (PCBs) at the Site as a result of an EPA inspection after a fire occurred in the area between Pier 7 and 8 in November, 1980. Old leaking transformers containing PCBs were removed from operational areas 1 and 2, and the fire damaged area. Walls, floors, and asphalt driveways were sampled with wipes. PCB (Aroclor 1260) results before cleanup ranged from 17 to 5,888 microgram per wipe (ug/wipe) in Operational Area 1, from 3 to 229 ug/wipe in Operational Area 2, and from less than 1 microgram per wipe area (ug/wipe area) to 49,200 ug/wipe area in the fire damaged area. Samples taken from the floor area (asphalt floor) ranged from non-detect to 62 parts per million (ppm). Aroclor 1260 was not detected in samples of mud, water or mussels in the area where the fire occurred (adjacent to the east of the Site). After decontamination, confirmation samples were taken in operational area 1 and 2. Samples collected in operational area 1 ranged from 4 to 80 ug/wipe, and from less than 1 ug/wipe to 32 ug/wipe for operational area 2. The fire damaged area results ranged from non-detect to 82 ug/wipe. The asphalt confirmation samples were all within residential cleanup levels. The cleanup level for Aroclor 1260 was 220 ug/wipe area for residential and 1,000 ug/wipe area for industrial.”

HAZARDOUS BUILDING MATERIALS

Building 21 was constructed in approximately 1900. The remaining existing structures at the project site, including Buildings 2, 11, 12, 15, 16, 19, 25, 32, 66, and 117, were constructed between 1937 and 1945. Based on their age, hazardous building materials may have been used in their construction. These potential hazardous building materials include asbestos-containing

⁶⁴ Geosyntec Consultants, Pier 70 Phase I ESA, Table 1, p. 14 of 23.

⁶⁵ Geosyntec Consultants, Pier 70 Phase I ESA, Table 1, p. 10 of 23.

⁶⁶ Geosyntec Consultants, Pier 70 Phase I ESA, p. 48.

materials;⁶⁷ electrical equipment such as transformers and fluorescent light ballasts that contain PCBs⁶⁸ or bis (2 ethylhexyl) phthalate (DEHP);⁶⁹ fluorescent lights containing mercury;⁷⁰ and lead-based paints.⁷¹

Surveys have been conducted to assess the presence of asbestos-containing materials in three of the site buildings:

- A 1998 survey of the Building 2 roofing materials identified asbestos-containing materials in the tar and gravel composite roofing as well as in the roof sealants and/or felts used on the flashings of the parapets and where vents penetrated the roof.⁷² The transite vent pipes were also constructed of asbestos-containing materials. The asbestos content of these materials ranged from 5 to 30 percent. Also in 1998, a survey identified chrysotile asbestos in boiler insulation at 15 percent, and amosite asbestos at 40 percent.⁷³ A building survey conducted in 2008 identified fiberboard ceiling materials as potential

⁶⁷ Because of its physical properties, asbestos was commonly used until the 1970s as a component of numerous building materials, including use in insulation materials, shingles and siding, roofing felt, floor tiles, the mastic used to affix floor tiles to the floor, and acoustical ceiling material. Asbestos was also used in pipe gaskets, valve packing, and automotive brakes and clutches. Today, asbestos continues to be used in roofing mastic. Asbestos is a known carcinogen and may present a public health hazard if it is present and exposed in the friable (easily crumbled) form. Long-term, chronic inhalation of asbestos can cause lung diseases such as asbestosis, mesothelioma, and lung cancer.

⁶⁸ PCBs are mixtures of synthetic organic chemicals with physical properties ranging from oily liquids to waxy solids. PCBs are a known human carcinogen; they are highly toxic substances that remain persistent in the environment, accumulate in biological systems, interfere with the reproductive system, and act as immuno-suppressants.

⁶⁹ Between 1979 and the early 1990s, DEHP was used in place of PCB as a dielectric fluid in some fluorescent light ballasts and other electrical equipment. DEHP is classified as a probable human carcinogen by the U.S. Department of Health and Human Services and as a hazardous substance by the U.S. EPA.

⁷⁰ Spent fluorescent lamps and tubes commonly contain mercury vapors and are considered a hazardous waste in California (California Code of Regulations [CCR], Title 22, Section 66261.50).

⁷¹ Lead-based paint is paint that contains lead, a heavy metal historically added to paint as pigment and to speed drying, increase durability, retain a fresh appearance, and resist moisture (which causes corrosion); 17 CCR Section 35033 defines lead-based paint as paint that contains 1.0 milligram of lead per square centimeter of paint, or 5,000 mg/kg of lead. Because of its toxicity, paint containing more than 0.6 percent lead was banned for residential use in 1978 by the U.S. Consumer Product Safety Commission, but continues to be used in some industrial applications. Lead is toxic to humans, particularly young children, and can cause a range of human health effects depending on the level of exposure. When adhered to the surface of a material, lead-based paint poses little health risk. Where the paint is delaminated or chipping, it can cause a potential threat to the health of young children or other building occupants who may ingest the paint. Lead dust also presents public health risks during the demolition of structures that contain lead-based paint, particularly when metal coated with paint containing lead is torch cut. Similarly, the lead concentrations of coatings applied to many types of ceramic tiles as glaze may result in exposure to workers when dust is generated by breaking the tiles. Lead-based paint that has separated from a structure and dust generated from breaking ceramic tiles may also contaminate nearby soil.

⁷² IHI Environmental, Pier 70 Warehouse #2 Roof Asbestos Material Sampling, July 29, 1998, pp. 2 and 3.

⁷³ Ecology and Environment, *Phase I Environmental Site Assessment for Maritime Use Area of Pier 70*. March 12, 2001, pp. 4-4 through 4-19.

asbestos-containing materials.⁷⁴ Beige paint in the building was classified as lead-based paint because it contained 12 percent lead. Other paint samples contained 2.4 to 4.1 percent lead.

- A survey of Building 11 in 2005 found asbestos in the gray roof caulk, ceiling mastic, transite wall and ceiling boards, and pipe insulation at concentrations ranging from 2 to 25 percent.⁷⁵ The survey also stated that the following building materials are assumed to contain asbestos: building paper, roofing materials, floor tile, gaskets, ceiling tape, and a metal-asbestos flue. The 2005 survey noted lead-based paint throughout much of the building.⁷⁶
- A limited inspection to assess the asbestos content of the glazier's putty used on the windows of Building 12 found that asbestos was not detected in any of the 12 samples analyzed in 2014.⁷⁷ A building survey conducted in 2008 identified fiberboard wainscoting that could contain asbestos.⁷⁸
- A 2008 inspection identified asbestos-containing materials in the root tar and felt as well as debris on the roof of Building 21.⁷⁹ The concentrations ranged from 3 to 40 percent. With lead concentrations of 120,000 mg/kg and 6,300 mg/kg, the off-white paint on the interior panels and on the steel I-Beam is considered lead-based paint. Gray paint on the interior panels contained lead at 2,300 mg/kg. In 1981, old leaking transformers were removed from Building 21.

In addition, the Phase I ESA notes that PCB-containing ballasts and mercury switches and thermostats were present in most buildings when investigated.⁸⁰

Prior to 1912, isolated steam-powered plants generated electricity for all machinery at certain off-site portions of Pier 70 including the boiler shop (Building 14), machine shop (Building 113), and foundry, as well as for the steam compressors used for air tools.⁸¹ Based on their age, the pipes associated with these utilities are likely to include transite materials.

REGULATORY FRAMEWORK

Hazardous materials and hazardous wastes are subject to extensive Federal, State, and local regulations, with the major objective of protecting public health and the environment. In general, these regulations define hazardous materials; establish reporting requirements; set guidelines for

⁷⁴ Carey & Co. and OLM, Inc., *Historic Buildings Condition and Assessment*, May 2008, p. 6.

⁷⁵ Port of San Francisco, Notice To Employees, Owners, Lessees, Sublessees, Agents, and Contractors. Asbestos in Buildings. For: SWL 3491/Noonan Building. For Period Through: April 2012, pp. 3 and 4.

⁷⁶ SCA Environmental, Inc., *2008 Report Summaries, Pier 70 Buildings, San Francisco, CA*, May 29, 2008, Appendix A, p. 3.

⁷⁷ VBA, Inc., *Hazardous Materials Inspection Report, Pier 70, Building 12, San Francisco, CA*, May 22, 2014.

⁷⁸ Carey & Co. and OLM, Inc., *Historic Buildings Condition and Assessment*, May 2008, p. 35.

⁷⁹ SCA Environmental, Inc., *2008 Report Summaries, Pier 70 Buildings, San Francisco, CA*, May 29, 2008, Appendix A, p. 4.

⁸⁰ Geosyntec Consultants, Pier 70 Phase I ESA, p. 28.

⁸¹ Geosyntec Consultants, Pier 70 Phase I ESA, p. 14.

handling, storage, transport, remediation, and disposal of hazardous wastes; and require health and safety provisions for workers and the public. The major Federal, State, and regional agencies enforcing these regulations include the U.S. Environmental Protection Agency (EPA), OSHA, and the U.S. Department of Transportation (DOT) at the Federal level; the DTSC, SWRCB, and RWQCB at the State level; and the BAAQMD at the regional level. Various agencies and departments of the City and County of San Francisco implement and enforce these requirements as well as specific requirements of the City and County of San Francisco, as discussed below.

FEDERAL

State and local agencies often have either parallel or more stringent rules than Federal agencies. In most cases, to the extent that State law is more stringent than Federal law, it prevails over Federal law and enforcement of these laws is typically the responsibility of the State, or of a local agency to which enforcement powers are delegated.

PCB Regulations

Under the Toxic Substance Control Act, the EPA began to impose bans on PCB manufacturing and sales and on most PCB uses in 1978; however, some electrical transformers still in use today use oils that contain PCBs. Title 40 of the Code of Federal Regulations, Section 761.60, allows disposal of transformers that contain greater than 50 parts per million PCB at a chemical waste landfill, if they have been drained of free liquids. If the PCB concentration is greater than 500 parts per million, the transformer must also be cleaned once it is drained. If the PCB concentration of the liquid is 500 parts per million or more, the liquid must be incinerated or destroyed using an EPA-approved alternative method. If the PCB concentration is between 50 and 499 parts per million, the liquid may be disposed of at a chemical waste landfill provided that the waste is not ignitable and is stabilized to a non-flowing consistency; these liquids may also be disposed of in an EPA-approved high-efficiency boiler or incinerated. Under Federal regulations, any transformer containing less than 50 parts per million PCBs in its dielectric fluid is considered a non-PCB transformer and its disposal is not regulated by Part 761, though the transformer must be disposed of responsibly.

Title 40 of the Code of Federal Regulations, Section 761.61, governs the management of PCB waste generated as the result of PCB spills and associated cleanup activities (e.g., contaminated environmental media, rags, debris). The EPA provides guidance for compliance with these regulations in their publication “Polychlorinated Biphenyl (PCB) Site Revitalization Guidance Under the Toxic Substances Control Act.”⁸² In accordance with these regulations, the surfaces of a building would be considered a PCB remediation waste if they have been contaminated by a

⁸² U.S. EPA, Polychlorinated Biphenyl (PCB) Site Revitalization Guidance Under the Toxic Substances Control Act, November 2005.

spill of PCB liquids. Common building surfaces such as floors, walls, and ceilings made of concrete, brick, wood, plaster, or plasterboard are considered porous surfaces under these regulations. In high-occupancy areas, such as those included in the Proposed Project, porous surfaces must be cleaned to a PCB level of 1 part per million or less. Any wastes produced as part of the cleanup must be disposed of in accordance with the requirements of Section 761.61.

STATE

Hazardous Waste Classification Criteria

In accordance with Title 22 of the California Code of Regulations, Section 66261.20, et seq., excavated soil would be classified as a hazardous waste for off-site disposal purposes if it exhibits the characteristics of ignitability, corrosivity, reactivity, or toxicity. A waste is considered toxic in accordance with Title 22 of the California Code of Regulations, Division 4.5, Article 3 Section 66261.24, if it contains certain substances at concentrations that meet any of the following thresholds:

- Total concentrations of certain substances at concentrations greater than the State TTLIC;
- Soluble concentrations greater than the State STLC;
- Soluble concentrations of certain substances greater than Federal toxicity regulatory levels using a test method called the Toxicity Characteristic Leaching Procedure (TCLP);
or
- Specified carcinogenic substances at a single or combined concentration of 0.001 percent or more.

Under Section 66261.24, a waste would be considered hazardous under State and Federal regulations if the soluble concentration exceeds the TCLP level as determined by the TCLP method. Because the TCLP involves a 20-to-1 dilution of the sample, the total concentration of a substance in the soil would need to exceed 20 times the regulatory level for the soluble concentration to exceed the regulatory level in the extract. A waste would also be considered hazardous under State regulations if the soluble concentration of a substance exceeds the STLC determined by a waste extraction test, which involves a 10-to-1 dilution of the sample. Because of this, the total concentration of a substance would need to exceed 10 times the STLC for the soluble concentration to possibly exceed the STLC in the extract. A waste also may be classified as toxic if testing indicates toxicity greater than specified criteria.

Asbestos-Containing Materials

Asbestos wastes transported off-site are considered a hazardous waste in accordance with Title 22 of the California Code of Regulations, Division 4.5, Article 3 Section 66261.24, if the asbestos is friable and the asbestos content is 1 percent or greater.

Lead-Based Paint

Demolition debris that is painted with lead-based paint that is intact may or may not be considered hazardous waste. In order for the entire item to be hazardous, the lead concentration in the paint and the painted item (i.e., door, beam, etc.) must exceed a TTLC of 1,000 mg/kg of lead, STLC of 5 mg/L, or TCLP of 5 mg/L in accordance with Title 22 of the California Code of Regulations, Division 4.5, Article 3 Section 66261.24. In most cases, the lead concentration from the intact paint alone would not exceed hazardous lead levels for both the item and the intact paint; therefore, most materials with intact lead-based paint can be disposed of through normal practices at a regularly licensed waste facility. If the paint has been separated from the building material (e.g., chemically or physically removed), then the paint waste should be evaluated independently from the building material to determine if it is hazardous and to identify the proper management practice.

Polychlorinated Biphenyls

In California, PCB wastes are regulated as hazardous waste under Title 22 of the California Code of Regulations, Division 4.5, Chapter 11, Section 66261.24, if the PCB concentration exceeds TTLC of 50 mg/kg or the soluble concentration exceeds the STLC of 5 mg/L.

Asbestos Abatement in Buildings

Section 19827.5 of the California Health and Safety Code requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with notification requirements under applicable Federal regulations regarding hazardous air pollutants, including asbestos. The BAAQMD is vested by the California legislature with authority to regulate airborne pollutants, including asbestos, through both inspection and law enforcement, and implements the California regulatory requirements through Regulation 11, Rule 2 (Asbestos Demolition, Renovation, and Manufacturing). Pursuant to California law, the Port will not issue a permit for demolition or renovation of a building until the applicant has complied with the following notice and abatement requirements.

In accordance with Regulation 11, Rule 2, the BAAQMD must be notified 10 days in advance of proposed demolition or abatement work that would involve removal of asbestos-containing materials. Notification includes the following:

- The names, addresses, and telephone numbers of both the owner(s) of the structure and the operator of the demolition or renovation;
- A description of the structure to be renovated, including location, size, number of floors, age of the oldest portion, and the present and prior use;
- The approximate amount of friable asbestos that would be removed;

- The name, address, and telephone number of the person who completed the asbestos survey, including the State Occupational Safety and Health Administration (CalOSHA) certification number;
- The procedures used, including the laboratory method, to locate asbestos-containing materials;
- The scheduled starting and completion dates of demolition or renovation;
- A description of the planned demolition or renovation and the methods to be used;
- A description of work practices and engineering control to be used, including emission control procedures for asbestos removal and waste handling;
- The name, address, and location of the waste disposal site to be used;
- Certification that at least one trained person will supervise the asbestos removal described in the plan;
- Procedures to be followed in the event that unexpected friable asbestos is encountered; and
- The name, address, and telephone number of the waste transporter.

Rule 11, Regulation 2 requires a survey of any building planned for demolition to identify asbestos-containing materials that may be present. If asbestos-containing materials are identified, they must be removed prior to demolition or alteration activities. During renovation, regulated asbestos-containing materials also must be removed prior to any operations that would cover the asbestos materials, making them inaccessible. During removal activities, the contractor must implement controls to ensure that there are no visible asbestos emissions to the outside air. The contractor can use methods such as wetting exposed asbestos-containing materials or providing exhaust controls to prevent asbestos emissions to the outside air. The structure being abated must also be isolated by containment barriers during removal operations, and a negative air pressure must be maintained within the containment barrier. The BAAQMD periodically inspects asbestos removal operations, and will typically inspect removal operations when a complaint has been received.

The local office of CalOSHA must be notified of work involving 100 square feet or more of asbestos-containing material work. The work must be conducted in accordance with the requirements Title 8 of the California Code of Regulations, Division 1, Chapter 3.2, Sections 341.6 through 341.17, and the asbestos requirements of the General Construction Safety Orders specified in Title 8 of the California Code of Regulations, Chapter 4, Subchapter 4, Article 4, Section 1529. To ensure adequate compliance with these regulatory requirements, asbestos removal contractors must be certified as such by the Contractors Licensing Board of the State of California.

Lead in Construction Standard

CalOSHA's Lead in Construction Standard (contained in Title 8 of the California Code of Regulations, Section 1532.1) addresses the demolition, removal, cleanup, transportation, storage, and disposal of lead-containing material. The regulations outline the permissible exposure limit, protective measures, monitoring requirements, and compliance standards to ensure the safety of construction workers exposed to lead-based materials. CalOSHA's Lead in Construction Standard requires project proponents to develop and implement a lead compliance plan when lead-based paint would be disturbed during construction. The plan must describe activities that could emit lead, methods for complying with the standard, safe work practices, and a plan to protect workers from exposure to lead during construction activities. CalOSHA requires 24-hour notification if more than 100 square feet of lead-based paint would be disturbed.

Cleanup of PCBs

The RWQCB has established a residential Environmental Screening Level of 0.22 mg/kg for soil,⁸³ and this is the criterion used in the Pier 70 RMP for the evaluation of risks associated with residential land uses. The commercial Environmental Screening Level for PCBs is 0.74 mg/kg.

Disposal of Fluorescent Light Ballasts

Most fluorescent light ballasts manufactured before 1978 contain PCBs in their capacitor and potting material. Ballasts manufactured after January 1, 1978, do not contain PCBs and should be labeled as such on the ballast. California requirements for management of fluorescent light ballasts containing PCBs are specified in Title 22 of the California Code of Regulations, Division 4.5, Chapter 42. In accordance with these regulations, generators who transport no more than two 55-gallon drums of PCB-containing ballasts per transportation vehicle are exempt from California regulatory requirements for generators of hazardous waste. The transporter of the ballasts must meet certain regulatory requirements, depending on the number of ballasts transported in one load. In accordance with Title 40 of the Code of Federal Regulations, Section 761.60, fluorescent light ballasts with PCBs in their potting material must be disposed of in an approved landfill or decontaminated.

Between 1979 and the early 1990s, DEHP was used in place of PCB as a dielectric fluid in some fluorescent light ballasts and other electrical equipment.⁸⁴ DEHP is classified as a probable

⁸³ California Regional Water Quality Control Board, San Francisco Bay Region. Update to Environmental Screening Levels. Interim final, December 23, 2013.

⁸⁴ Green Lights Recycling, Inc., *Ballasts*. Available online at <http://glrnow.com/ballasts/>. Accessed November 23, 2015.

human carcinogen by the U.S. Department of Health and Human Services⁸⁵ and as a hazardous substance by the EPA in accordance with Title 40 of the Code of Federal Regulations, Chapter I, Subchapter I, Part 261, Subpart D, Section 261.33. Because of this, ballasts containing DEHP must be legally disposed of or recycled and are commonly handled in the same manner as PCB ballasts.

Disposal of Mercury-Containing Equipment

Spent fluorescent lamps and tubes commonly contain mercury vapors. These, and electrical switches that contain mercury, are considered a hazardous waste in California under Title 22 of the California Code of Regulations, Division 4.5, Chapter 11, Section 66261.50. Because they are considered a hazardous waste, all fluorescent lamps and mercury-containing switches must be recycled or taken to a universal waste handler.

Naturally Occurring Asbestos

Asbestos-containing material is defined in Title 17 of the California Code of Regulations Section 93105(h)(9) as any material that has an asbestos content of 0.25 percent or greater. In 2001, the CARB adopted the Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations in areas of serpentine and other ultramafic rocks (contained in Title 17 of the California Code of Regulations, Section 93105), which became effective in July 2002. The ATCM protects public health and the environment by requiring the use of best available dust mitigation measures to prevent the offsite migration of asbestos-containing dust from road construction and maintenance activities, construction and grading operations, and quarrying and surface mining operations in areas of ultramafic rock, serpentine, or naturally occurring asbestos. The BAAQMD implements the regulation.

For construction activities that would disturb more than 1 acre of land where asbestos-containing materials are present, construction contractors are required to prepare an asbestos dust mitigation plan specifying measures that will be taken to ensure that no visible dust crosses the property boundary during construction. The asbestos dust mitigation plan must be submitted to and approved by the BAAQMD prior to the beginning of construction, and the site operator must ensure the implementation of all specified dust mitigation measures throughout the construction project. In addition, the BAAQMD may require air monitoring for offsite migration of asbestos dust during construction activities and may change the plan on the basis of the air monitoring results. The BAAQMD may provide an exemption from the requirements of the Asbestos ATCM if a geologic evaluation by a professional geologist determines that no serpentine or ultramafic

⁸⁵ U.S. Department of Health and Human Services, Public Health Service, National Toxicology Program, *Substances Listed in the Thirteenth Report on Carcinogens*, 2014. Available online at http://ntp.niehs.nih.gov/ntp/roc/content/listed_substances_508.pdf. Accessed June 2, 2016.

rock is likely to be found in the area to be disturbed. A construction contractor engaged in construction activities within materials containing naturally occurring asbestos would also be required to comply with the work practices and personnel exposure monitoring requirements specified in Title 8 of the California Code of Regulations, Section 1529.

Methane Control

Title 27 of the California Code of Regulations includes requirements for the control of methane from waste disposal units. In accordance with Section 20921, Gas Monitoring and Control, to provide for the protection of public health and safety and the environment, the disposal site operator must ensure that landfill gas generated at a disposal site is controlled in such a manner that the concentration of methane gas does not exceed 1.25 percent by volume in air within any portion of any on-site structures. The project site is not a landfill; however, this criterion is used by DPH to determine if additional monitoring of methane concentrations or implementation of gas migration controls is required.⁸⁶

Hazardous Waste Tracking and Transportation

Title 40 of the Code of Federal Regulations, Section 260.10, defines the “Generator” of hazardous waste as the person or entity whose action produces a waste or causes a hazardous waste to become subject to regulation. Generators of hazardous wastes are subject to the regulatory requirements of the California Department of Toxic Substances Control. In accordance with Title 22 of the California Code of Regulations, Division 4.5, Chapter 12, the generator of hazardous waste must have a Hazardous Waste Generator Number assigned by and registered with the State of California Department of Toxic Substances Control.

Regulatory requirements for the transport of hazardous wastes in California are specified in Title 22 of the California Code of Regulations, Division 4.5, Chapters 13 and 29. In accordance with these regulations, all hazardous waste transporters must have identification numbers. Hazardous waste transporters must comply with the California Vehicle Code, California Highway Patrol regulations (contained in Title 13 of the California Code of Regulations); the California State Fire Marshal regulations (contained in Title 19 of the California Code of Regulations); DOT regulations (Title 49 of the Code of Federal Regulations); and EPA regulations (contained in Title 40 of the Code of Federal Regulations).

⁸⁶ California Regional Water Quality Control Board, Letter to Mr. Scott Nakamura, City and County of San Francisco Department of Public Health, *Subject: Clarification of the AB2061 Process, Clarification of the California Integrated Waste Management Board (CIWMB) Letter Dated April 4, 2001, and Development of a Protocol for Management of Methaned, Mission Bay Project Area, City and County of San Francisco*, May 15, 2001.

A hazardous waste manifest is required for transport of hazardous wastes. The hazardous waste manifest documents the legal transport and disposal of the waste, and is signed by the generator and transporter(s) of the waste as well as the disposal facility. California regulations require specific cleanup actions that must be taken by a hazardous waste transporter in the event of a discharge or spill, and for the safe packaging and transport of hazardous wastes.

LOCAL

San Francisco Health Code – Hazardous Materials and Hazardous Wastes

The City and County of San Francisco has enacted local ordinances and regulations to address the potential to encounter hazardous materials in the soil, groundwater, and hazardous building materials, and to ensure the safe handling of hazardous materials and hazardous wastes. The following sections of the San Francisco Health Code, implemented by DPH as the Hazardous Materials Unified Program Agency and briefly summarized below, would apply to the Proposed Project to address the potential to encounter hazardous materials in the soil and the use of hazardous materials:

- Article 21 (Hazardous Materials) provides for safe handling of hazardous materials in the City. It requires any person or business that handles, sells, stores, or otherwise uses specified quantities of hazardous materials to keep a current certificate of registration and to implement a hazardous materials business plan (HMBP). Threshold quantities are 500 pounds for solids, 55 gallons for liquids, and 200 cubic feet for compressed gases. Every business that must implement an HMBP must also obtain a certificate of registration certifying that the HMBP meets the requirements of Article 21. This article also specifies requirements for the installation and operation of USTs, reporting of unauthorized releases, and closure of permitted facilities (including USTs). The closure of any UST must also be conducted in accordance with a permit from the San Francisco Fire Department.
- Article 21A (Risk Management Program) requires any business that handles, sells, stores, or otherwise uses regulated substances⁸⁷ in quantities exceeding specified threshold amounts to register with DPH and prepare an RMP. The RMP must be submitted to DPH before a Certificate of Occupancy can be issued. This article does not apply to the Proposed Project, because regulated substances would not be used during construction or operation.
- Article 22 (Hazardous Waste Management) provides for safe handling of hazardous wastes in the City. It authorizes DPH to implement the State hazardous waste regulations, including authority to conduct inspections and document compliance.
- Article 22A (Analyzing the Soils for Hazardous Waste, known as the Maher Ordinance and updated in 2013) applies to projects that involve disturbance of more than 50 cubic

⁸⁷ Regulated substances include those regulated under Section 68.130 of Title 40 of the Code of Federal Regulations, or those identified as an extremely hazardous substance in Appendix A of Part 355 of Title 40 of the Code of Federal Regulations, and those identified in Chapter 6.95, Article 2 of the California Health and Safety Code.

yards of soil, if they are located bayward of the historic high tide line, have been zoned or used for industrial purposes, are located within 150 feet of an elevated highway, have soil or groundwater contamination, or are within 100 feet of a known or suspected underground storage tank. In accordance with this article, covered projects must prepare a site history report to identify whether past site uses may have caused contamination, conduct soil and/or groundwater testing for the presence of the potentially hazardous constituents (including methane), prepare a soils analysis report, and prepare a Site Mitigation Plan (if contamination is identified).

If hazardous materials remain in the soil or groundwater, approval of the Site Mitigation Plan by DPH may be conditioned upon submittal of an RMP, health and safety plan, and possibly a cap maintenance plan to prevent exposure to hazardous materials in soil or groundwater after construction of the project. A deed restriction may also be required. Upon completion of site mitigation, the site owner must submit certification that the project has received certification or verification from the appropriate State or Federal agency that mitigation is complete, before DPH can issue a letter of no further action.

- Article 22B (Construction Dust Control Requirements) and San Francisco Building Code Section 106.A.3.2.6 collectively constitute the Construction Dust Control Ordinance which was adopted in July 2008. The ordinance applies to all site preparation work, demolition, or other construction activities within San Francisco that have the potential to create dust. Projects that expose or disturb more than 10 cubic yards or 500 square feet of soil must comply with specified dust control measures whether or not the activity requires a permit from the San Francisco Department of Building Inspection (DBI). For projects over 0.5 acre, the Dust Control Ordinance requires that the project sponsor submit a Dust Control Plan for approval by DPH prior to issuance of a building permit by the DBI. Building permits will not be issued without written notification from the Director of Public Health that the applicant has a site-specific Dust Control Plan, unless the Director waives the requirement.

The Construction Dust Control Ordinance requires project sponsors and contractors responsible for construction activities to control construction dust on the site or to implement other practices that result in equivalent dust control. Dust suppression activities may include sufficient watering of all active construction areas to prevent dust from becoming airborne; increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water must be used if required by Article 21, Section 1100 et seq. of the San Francisco Public Works Code.

Port of San Francisco Building Code – Work Practices for Lead-Based Paint

Work that could result in disturbance of lead-based paint must comply with Section 3426 of the *Port of San Francisco Building Code*, Work Practices for Lead-Based Paint on Pre-1979 Buildings and Steel Structures. Where any work may disturb or remove lead paint on the exterior of any building built prior to 1979, Section 3426 requires specific notification and work standards, and identifies prohibited work methods and penalties. (Such notices are commonly placed on residential and other buildings in San Francisco that are undergoing re-painting. Generally affixed to a drape that covers all or portions of a building, these notices are a required part of the Section 3426 notification procedure.)

Section 3426 applies to the exterior of all buildings or steel structures on which original construction was completed prior to 1979 (which are assumed to have lead-based paint on their surfaces, unless demonstrated otherwise through sampling and laboratory analysis), and to the interior of residential buildings, hotels, and childcare centers. The ordinance contains performance standards, including requirements for restricting access during abatement activities; establishing containment barriers that are at least as effective at protecting human health and the environment as those in the U.S. Department of Housing and Urban Development Guidelines (the most recent Guidelines for Evaluation and Control of Lead-Based Paint Hazards); protecting the ground from contamination during exterior work; protecting floors and other horizontal surfaces from work debris during interior work; preventing migration of lead paint beyond containment barriers during the course of the work; and achieving clean-up standards. The clean-up standards require the removal of visible work debris, including the use of a HEPA vacuum following interior work. Section 3426 prohibits these work practices for the removal of lead-based paint: (1) open flame burning or torching; (2) heat guns without containment and barrier systems, or operating above 1,100 degrees Fahrenheit (611.1 degrees Celsius) or causing the charring of paint; (3) hydroblasting or high-pressure washing without containment and barrier systems; and (4) dry manual sanding or scraping, or machine sanding or grinding, or abrasive blasting or sandblasting without containment and barrier systems or a HEPA vacuum local exhaust tool.

The ordinance also includes notification requirements and requirements for signs. Prior to the commencement of work, the responsible party must provide written notice to the Port's Building Permit Group of the address and location of the project; the scope of work, including specific location within the site; methods and tools to be used; the approximate age of the structure; anticipated job start and completion dates for the work; whether the building is residential or nonresidential, owner-occupied or rental property; the dates by which the responsible party has fulfilled or will fulfill any tenant or adjacent property notification requirements; and the name, address, telephone number, and pager number of the party who will perform the work. Further notice requirements include a Post Sign notifying the public of restricted access to work area; a Notice to Residential Occupants, Availability of Pamphlet related to protection from lead in the home; and Notice of Early Commencement of Work (by Owner, Requested by Tenant), and Notice of Lead Contaminated Dust or Soil, if applicable. Section 3426 contains provisions regarding inspection and sampling for compliance by the Port, as well as enforcement, and describes penalties for non-compliance with the requirements of the ordinance.

Port of San Francisco Building Code – Asbestos Abatement

Section 3425 of the Port of San Francisco Building Code addresses work practices for asbestos-containing materials. In accordance with this section, applicants for a building permit application are required to include an asbestos survey report with the building permit application. The

submittal must also identify the scope of asbestos removal; methods and tools for disturbance and/or removal of asbestos-containing materials; the start and end dates; dates by which the responsible party will fulfill notification requirements for the occupants and adjacent properties; and information regarding the party responsible for performing the asbestos abatement work. The Port is authorized to inspect any asbestos abatement work conducted in accordance with Section 3425 of the Port of San Francisco Building Code.

Emergency Response

The City's Emergency Response Plan addresses the roles and responsibilities of the City during hazards-related emergency response, in particular their interaction with regional, State, and Federal entities and the role of the San Francisco Emergency Operations Center and City agencies.⁸⁸ Integral to this plan, the Transportation Annex describes the procedures for assessment, identification of temporary alternative solutions, and restoration of damage to transportation systems, facilities, and infrastructure due to an emergency incident. To provide flexibility for incident response to select appropriate routing, the plan does not specify designated emergency response or evacuation routes.

San Francisco General Plan

The Community Safety Element of the *General Plan* includes Objective 1, which requires the City to “reduce structural and non-structural hazards to life safety and minimize property damage resulting from future disasters.” The Community Safety Element contains the following relevant hazardous materials policies in support of this objective:

- Policy 1.23 Enforce state and local codes that regulate the use, storage, and transportation of hazardous materials in order to prevent, contain, and effectively respond to accidental releases.
- Policy 1.24 Educate public about hazardous materials procedures including transport, storage, and disposal.

The Community Safety Element of the *General Plan* also includes Objective 3, which requires the City to “establish strategies to address the immediate effects of a disaster.” The Community Safety Element contains the following relevant emergency response and hazardous materials policies in support of this objective:

- Policy 3.1 After an emergency, follow the mandates of the Emergency Response Plan and Citywide Earthquake Response Plan.

⁸⁸ CCSF Emergency Management Program, *City and County of San Francisco Emergency Response Plan*. 2010. A copy of this document is available online at <http://www.sfdem.org/Modules/ShowDocument.aspx?documentid=1154>. Accessed January 5, 2016.

Policy 3.12 Address hazardous material and other spills by requiring appropriate cleanup by property owners per local, state, and federal environmental laws.

IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE THRESHOLDS

The thresholds for determining the significance of impacts in this analysis are consistent with the environmental checklist in Appendix G of the State CEQA Guidelines, which has been modified by the San Francisco Planning Department. For the purpose of this analysis, the following applicable thresholds were used to determine whether implementing the Proposed Project would result in a significant impact on hazards and hazardous materials. Implementation of the Proposed Project would have a significant effect on hazards and hazardous materials if the project would:

- P.1 Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- P.2 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;
- P.3 Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- P.4 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 create a significant hazard to the public or the environment;
- P.5 For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area;
- P.6 For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area;
- P.7 Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- P.8 Expose people or structures to a significant risk of loss, injury, or death involving fires.

Due to the nature of the Proposed Project, there would be no impact related to safety hazards in the vicinity of a public airport or private airstrip, Criteria P.5 and P.6. This is because the nearest airports to the project site are San Francisco International Airport approximately 8.5 miles to the south and Oakland International Airport approximately 9.5 miles to the southeast, and development under the Proposed Project would not interfere with air traffic.

APPROACH TO ANALYSIS

This analysis evaluates the Proposed Project's potential effects related to hazards and hazardous materials during construction and operation as discussed below. Potential hazardous materials effects are assessed with respect to exposure of people to hazardous materials present in the soil and groundwater, including those from past site activities and naturally occurring asbestos. The impact analysis assumes that all construction and operational activities would be completed in compliance with the Pier 70 RMP and Hoedown Yard SMP and the requirements of applicable regulations. Because of the potential for exposure to hazardous materials in the soil and groundwater during construction and operation, impacts related to this topic would be significant and mitigation measures are included as needed to provide clarification regarding implementation of the requirements of the Pier 70 RMP and Hoedown Yard SMP. Regarding the routine use, transport, or disposal of hazardous materials during construction and operation, the analysis assumes that the Proposed Project would comply with applicable regulations which ensure that impacts related to these topics would be less than significant. Similarly, regarding fire and emergency planning, the impact analysis discusses applicable building and fire codes, and the City emergency response planning which ensure that impacts related to these topics would be less than significant.

PROJECT FEATURES

The specific Proposed Project elements that could result in hazards and hazardous materials impacts include proposed building demolitions (Buildings 11, 15, 16, 19, 25, 32, and 66) and renovations (Buildings 2, 12, and 21); proposed grading and excavation for the construction of basements on all parcels as well as improvements to Building 12; occupation of the new residential and commercial buildings; street improvements, including the new 21st Street; installation of new utilities for potable water, recycled water, fire protection water, wastewater, stormwater, electricity, and natural gas; and use of the Irish Hill Playground at the existing Irish Hill remnant.

Several features of the Proposed Project have the potential to encounter hazardous materials in the soil and groundwater based on their location, depth of excavation, and area of ground disturbance within the project site. Demolition of existing buildings could also encounter hazardous building materials used in their construction. These project features are the same or substantially similar under the Maximum Commercial Scenario and the Maximum Residential Scenario. In addition, the three stormwater and wastewater management options and the three options for grading around Building 12 that are analyzed in this EIR are generally the same relative to ground disturbance. To the extent that these features may differ slightly from one to another, they are generally included and accounted for in an analysis of maximum ground disturbance within the project site.

The same hazards and hazardous materials regulatory requirements and mitigation measures applicable to the Proposed Project are equally applicable under the Proposed Project's various scenarios and options. Therefore, this impact analysis of hazards and hazardous materials impacts applies to all project scenarios and options; no separate analysis of impacts under each scenario or option is necessary.

IMPACT EVALUATION

Impact HZ-1: Construction and operation of the Proposed Project would not create a significant hazard through routine transport, use, or disposal of hazardous materials. (*Less than Significant*)

The Proposed Project would use common hazardous materials during both construction and operation. Impacts related to hazardous materials use during both construction and operation are discussed below along with regulations that are in place and ensure that impacts related to the use of hazardous materials would be less than significant.

Construction

During construction of the Proposed Project, diesel fuel and hazardous materials such as paints, fuels, solvents, and adhesives would be used, and an inadvertent release of large quantities of these materials into the environment could adversely affect soil and Bay water quality. As described in Section 4.O, Hydrology and Water Quality, and above in the discussion of the Pier 70 RMP and Hoedown Yard SMP requirements, the Proposed Project would be subject to the Construction General Stormwater Permit issued by the RWQCB, and an Erosion Control Plan would be required in accordance with Article 4.1 of the San Francisco Public Works Code. In accordance with these regulatory requirements, the project sponsors would be required to prepare and implement a Storm Water Pollution Prevention Plan and Erosion Control Plan to minimize construction-related water quality impacts.

The Storm Water Pollution Prevention Plan and Erosion Control Plan would identify hazardous materials sources within the construction area and recommend site-specific BMPs to prevent discharge of these materials into stormwater and Bay waters. The minimum BMPs that would be required include maintaining an inventory of materials used onsite; storing chemicals in water-tight containers protected from rain; developing a spill response plan and procedures to address hazardous and nonhazardous spills; maintaining spill cleanup equipment onsite; assigning and training spill response personnel; and preventing leaked oil, grease, and fuel from equipment from entering the storm drain or Bay. In accordance with the Construction General Permit, the project sponsors would be required to ensure that the construction site is visually inspected weekly, and daily during rain events, and to implement corrective actions if any shortcomings are

identified. If a discharge of pollutants to the Bay were indicated, the discharge would be sampled in accordance with the General Construction Permit.

Further, the vendors and contractors responsible for delivery of hazardous materials would comply with the regulations of the California Highway Patrol and the California Department of Transportation related to the transportation of hazardous materials during construction (described above under “State” in Regulatory Framework, pp. 4.P.46-4.P.47).

With implementation of these legal requirements, as they may be updated in the future, impacts related to the routine use, transport, and disposal of hazardous materials during construction would be less than significant. No mitigation measures are necessary.

Operation

Commercial businesses, offices, restaurants, and residential uses would use common types of hazardous materials such as cleaners, disinfectants, and chemical agents required to maintain the sanitation of the public use and residential areas as well as the commercial bathrooms and food preparation areas. These commercial products are labeled to inform users of potential risks and to instruct them in appropriate handling procedures. Arts and light industrial uses may also use some hazardous materials in their operations. In addition, as described in Section 4.G, Air Quality, building heights up to 90 feet would be allowed on 10 parcels (all on the 28-Acre Site): Parcels A, B, C1, C2, D, E1, F, G, H1, and H2. Each of the buildings proposed on these parcels would have a back-up generator that would operate in emergency situations and would require the use of diesel for operation; due to the anticipated larger size of a building that can be constructed on Parcel B, it is assumed that two generators will be installed, for a total of 11 generators on the project site. When tenant spaces are maintained, remodeled, or sold, the maintenance and renovation activities would also include the use of paints, glues, and other materials similar to those used during construction. Operations, including proposed commercial, retail, residential, arts, and light industrial uses (in particular), may also result in the production of minor amounts of hazardous waste requiring offsite disposition such as disposal or recycling.

However, as described above under “Local” in Regulatory Framework, pp. 4.P.47-4.P.48, the use and storage of hazardous materials would be required to comply with the requirements of Article 21 of the San Francisco Health Code, and the management of hazardous wastes would be required to be conducted in accordance with Article 22 of the San Francisco Health Code, which provides for the safe handling of hazardous materials and wastes in the City. In accordance with Article 21, any facility that handles hazardous materials, including hazardous wastes, in excess of specified quantities would be required to obtain a Certificate of Registration from DPH and to implement an HMBP that includes inventories, a program for reducing the use of hazardous materials and generation of hazardous wastes, site layouts, a program and implementation plan

for training all new employees and annual training for all employees, and emergency response procedures and plans. In accordance with Article 22, generators of hazardous waste are required to pay an annual fee to DPH, based on the quantity of hazardous wastes generated annually.

Further, the vendors responsible for delivery of hazardous materials would comply with the regulations of the California Highway Patrol and the California Department of Transportation related to the transportation of hazardous materials during construction (described above under “State” in Regulatory Framework, pp. 4.P.46-4.P.47).

With implementation of these regulatory requirements, as they may be updated in the future, impacts related to the routine use, transport, and disposal of hazardous materials during operation would be less than significant. No mitigation measures are necessary.

Impact HZ-2: Demolition and renovation of buildings under the Proposed Project would not expose workers and the public to hazardous building materials including asbestos-containing materials, lead-based paint, bis (2-ethylhexyl) phthalate (DEHP), and mercury, or result in a release of these materials into the environment during construction. However, workers and the public would be exposed to PCBs as a result of the removal of electrical transformers (*Less than Significant with Mitigation*)

Construction

As described above under “Hazardous Building Materials,” pp. 4.P.37-4.P.39, Building 21 was constructed in approximately 1900. All of the other existing buildings at the project site were constructed between 1937 and 1945. Previous surveys for hazardous building materials have identified asbestos-containing materials and lead-based paint in Building 11 which would be demolished under the Proposed Project. Based on their age, these hazardous building materials are likely present in Buildings 15, 16, 19, 25, 32, and 66 which also would be demolished under the Proposed Project. Similarly, previous surveys for hazardous building materials have identified asbestos-containing materials and lead-based paint in Buildings 2, 12, and 21, all of which would be renovated under the Proposed Project. The Phase I ESA for the Proposed Project also noted PCB-containing light ballasts and mercury switches and thermostats in most buildings in 2011 as well as PCB-containing transformers in several locations. In addition, the Phase I ESA noted that pipes associated with the historic distribution of steam are likely to include transite materials. Other existing utility systems could include asbestos in their coatings, gaskets, or other features.

Workers and the public could be exposed to hazardous building materials if they were not removed or abated prior to demolition or renovation of the existing buildings and utility systems. As described above under “State” and “Local” in Regulatory Framework on pp. 4.P.41-4.P.51,

there is a well-established regulatory process that must be followed for ensuring adequate abatement of these materials prior to building demolition or renovation.

Asbestos-Containing Materials. In accordance with BAAQMD Rule 11, Regulation 2 (discussed above under “State” in Regulatory Framework), the project sponsors would be required to retain a qualified contractor to conduct a survey to identify asbestos-containing materials in any building planned for demolition or renovation and in any utility systems that would be demolished. If asbestos-containing materials are identified, the project sponsors would retain a qualified asbestos removal contractor certified as such by the Contractors Licensing Board of the State of California to remove the regulated materials prior to demolition or alteration activities. During removal activities, the contractor would implement controls to ensure that there are no visible asbestos emissions to the outside air. This may include methods such as wetting exposed asbestos-containing materials or providing exhaust controls to prevent asbestos emissions to the outside air; and constructing a containment barrier around the building and maintaining negative air pressure within the containment barrier. The removal activities would be conducted in accordance with the State regulations contained in Title 8 of the California Code of Regulations, Section 1529, and Title 8 of the California Code of Regulations, Sections 341.6 through 341.17. The owner of the property would dispose of the asbestos-containing materials at a permitted disposal facility under the Port’s Hazardous Waste Generator Number. The contractor and hauler of the material are required to file a Hazardous Waste Manifest which details the hauling of the material from the site and the disposal of it. Pursuant to California law, the Port would not issue the building demolition or renovation permit until the project sponsors have complied with the notice and abatement requirements described above.

Section 3425 of the Port of San Francisco Building Code also addresses work practices for asbestos-containing materials. In accordance with this section, the project sponsors would be required to include an asbestos survey report with the building permit application for any subsequent development. The submittal must also identify the scope of asbestos removal; methods and tools for disturbance and/or removal of asbestos-containing materials; the start and end dates; dates by which the responsible party will fulfill notification requirements for the occupants and adjacent properties; and information regarding the party responsible for performing the asbestos abatement work. The Port is authorized to inspect any asbestos abatement work conducted in accordance with Section 3425 of the Port of San Francisco Building Code.

Compliance with the regulatory requirements described above and implementation of the required procedures prior to building demolition or renovation would ensure that potential impacts due to demolition or renovation of structures with asbestos-containing materials would be less than significant. No mitigation measures are necessary.

Lead-Based Paint. Because all of the buildings that would be demolished or renovated were constructed prior to 1979, and could contain lead-based paint, the project sponsors would be required to implement the requirements of Section 3426 of the Port of San Francisco Building Code, Work Practices for Lead-Based Paint on Pre-1979 Buildings and Steel Structures (described above under “Local” in Regulatory Framework, pp. 4.P.48-4.P.49). Accordingly, the project sponsors would retain a qualified contractor to abate the lead-based paint prior to demolition or renovation of any buildings. Prior to demolition or renovation, the contractor would conduct the required notifications. During demolition, the contractor would establish containment barriers that are at least as effective at protecting human health and the environment as those in the U.S. Department of Housing and Urban Development Guidelines (the most recent Guidelines for Evaluation and Control of Lead-Based Paint Hazards); protect the ground from contamination during exterior work; protect floors and other horizontal surfaces from work debris during interior work; and make all reasonable efforts to prevent migration of lead paint beyond containment barriers during the course of the work. At the completion of abatement activities, the contract would demonstrate compliance with the clean-up standards of Section 3426 that require removal of visible work debris, including the use of a HEPA vacuum following interior work. Pursuant to Section 3426, the Port would not issue the building demolition or renovation permit until the project sponsors have complied with the requirements described above.

Demolition of other structures that include lead-containing materials and renovation of the interiors of Buildings 2, 12, and 21 could also result in exposure of workers and the public to lead. However, these activities would be subject to the CalOSHA Lead in Construction Standard (Title 8 of the California Code of Regulations, Section 1532.1) described above in “State” in Regulatory Framework. This standard requires development and implementation of a lead compliance plan when materials containing lead would be disturbed during construction. The plan must describe activities that could emit lead, methods that will be used to comply with the standard, safe work practices, and a plan to protect workers from exposure to lead during construction activities. Measures to reduce and maintain low levels of worker exposure to lead include implementing good housekeeping practices, providing adequate hand and face washing facilities, providing worker training, and using proper respirators. CalOSHA would require 24-hour notification if more than 100 square feet of materials containing lead would be disturbed.

Any lead-based paint during abatement activities would be consolidated, and disposed of at a permitted facility in accordance with applicable law. Implementation of procedures required by Section 3426 of the Port of San Francisco Building Code and the Lead in Construction Standard, along with legal disposal of the lead-based paint by the project sponsors would ensure that potential impacts of demolition or renovation of structures with lead-based paint would be less than significant. No mitigation measures are necessary.

Electrical Transformers. As noted in the Environmental Setting on pp. 4.P.36-4.P.37, electrical transformers are present in at least two locations of the 28-Acre Site, including Building 21 which houses an operating electrical substation and Building 12 where a PCB-containing transformer was observed in a utility room during the 2011 Phase I ESA conducted for the 28-Acre Site in support of the Proposed Project. However, a complete survey of electrical transformers present at the site, and their PCB content, has not been conducted. If a PCB transformer is present in a building that would be demolished, a release of PCBs could occur, potentially exposing workers and the public to PCBs, or resulting in a release of PCBs to the environment. Both Buildings 12 and 21 would be reused for retail-light industrial-arts purposes under the Proposed Project. If a release of PCB-containing dielectric fluid has occurred, future occupants of the building could be exposed to residual PCBs in the building or in the soil if a release has affected soil. Therefore, impacts related to the potential release of PCBs from existing transformers at the site would be significant, if not mitigated.

This impact would be reduced to a less-than-significant level with implementation of Mitigation Measures M-HZ-2a: Conduct Transformer Survey and Remove PCB Transformers; M-HZ-2b: Conduct Sampling and Cleanup if Stained Building Materials Are Observed; and M-HZ-2c: Conduct Soil Sampling if Stained Soil Is Observed, requiring the project sponsors to retain a qualified contractor to conduct a survey of buildings and structures planned for demolition or renovation for PCB transformers, remove any identified PCB transformers in accordance with applicable laws and regulations, and conduct subsequent sampling and clean up if a release of PCB-containing dielectric fluid is indicated.

Mitigation Measure M-HZ-2a: Conduct Transformer Survey and Remove PCB Transformers

The project sponsors shall retain a qualified contractor to survey any building and/or structure planned for demolition, renovation, or relocation to identify all electrical transformers in use and in storage. The contractor shall determine the PCB content using name plate information, or through sampling if name plate data do not provide adequate information regarding the PCB content of the dielectric equipment. The project sponsors shall retain a qualified contractor to remove and dispose of all transformers in accordance with the requirements of Title 40 of the Code of Federal Regulations, Section 761.60 (described under Regulatory Framework) and Title 22 of the California Code of Regulations, Section 66261.24. The removal shall be completed in advance of any building or structural demolition, renovation, or relocation.

Mitigation Measure M-HZ-2b: Conduct Sampling and Cleanup if Stained Building Materials Are Observed

In the event that leakage is observed in the vicinity of a transformer containing greater than 50 parts per million PCB (determined in accordance with Mitigation Measure H-HZ-2a), or the leakage has resulted in visible staining of the building materials or surrounding surface areas, the project sponsors shall retain a qualified professional to obtain samples

of the building materials for the analysis of PCBs in accordance with Part 761 of the Code of Federal Regulations. If PCBs are identified at a concentration of 1 part per million, then the project sponsors shall retain a contractor to clean the surface to a concentration of 1 part per million or less in accordance with Title 40 of the Code of Federal Regulations, Section 761.61(a). The sampling and cleaning shall be completed in advance of any building or structural demolition, renovation, or relocation.

Mitigation Measure M-HZ-2c: Conduct Soil Sampling if Stained Soil Is Observed

In the event that leakage is observed in the vicinity of a PCB-containing transformer that has resulted in visible staining of the surrounding soil (determined in accordance with Mitigation Measure M-HZ-2a), the project sponsors shall retain a qualified professional to obtain soil samples for the analysis of PCBs in accordance with Part 761 of the Code of Federal Regulations. If PCBs are identified at a concentration less than the residential Environmental Screening Level of 0.22 milligram per kilogram, then no further action shall be required. If PCBs are identified at a concentration greater than or equal to the residential Environmental Screening Level of 0.22 milligrams per kilogram, then the project sponsors shall require the contractor to implement the requirements of the Pier 70 RMP, as required by Mitigation Measure M-HZ-6. The sampling and implementation of the Pier 70 RMP requirements shall be completed in advance of any building or structural demolition, renovation, relocation, or subsequent development.

Other Hazardous Building Materials. Other hazardous building materials that are likely present within the buildings to be demolished or renovated include fluorescent light ballasts that could contain PCBs or DEHP, fluorescent lamps that contain mercury vapors, and electrical switches and thermostats that also contain mercury. Disruption or disturbance of these materials could pose health threats for construction workers if not properly disposed of. However, prior to demolition or renovation, the project sponsors, through their contractor, would remove these items and dispose of them in accordance with the established State Regulatory Framework described above. Therefore, through compliance with regulatory requirements, impacts related to exposure to PCBs, DEHP, and mercury in these materials would be less than significant. No mitigation measures are necessary.

Operation

Buildings 2, 12, and 21 would be renovated and reused under the Proposed Project. These buildings are known to include asbestos-containing materials and lead-based paint as well as other hazardous building materials such as fluorescent lamps, PCB-containing light ballasts, and mercury switches and thermostats. However, these materials would be abated and/or removed during the construction phase of the Proposed Project, prior to reuse of the buildings, as discussed above. Although electrical transformers are also present in Buildings 12 and 21, and release of PCB-containing oil from these transformers could have potentially contaminated building surfaces, the transformers would be removed and the surfaces would be cleaned during the construction phase of the Proposed Project in accordance with Mitigation Measures M-HZ-2a and

M-HZ-2b, pp. 4.P.58-4.P.59. Soil containing PCBs would be managed in accordance with the Pier 70 RMP as specified in Mitigation Measure M-HZ-2c, p. 4.P.59. Therefore, site occupants and the public would not be exposed to hazardous building materials during operation of the Proposed Project, and this impact would be less than significant.

Impact HZ-3: Project development within the 28-Acre Site and 20th/Illinois Parcel would be conducted on a site included on a government list of hazardous materials sites and could encounter hazardous materials in the soil and groundwater, creating 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*)

As discussed in the Environmental Setting, the *Pier 70 Preferred Master Plan* area (including the 20th/Illinois Parcel, the 28-Acre Site, and Sims Metals and Auto Return which are two businesses formerly operated within the 28-Acre Site) is identified on several lists of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Numerous site investigations have been completed for both the 28-Acre Site and the 20th/Illinois Parcel, located within the *Pier 70 Preferred Master Plan* area, and these investigations have identified chemicals in the soil and groundwater. Groundwater monitoring wells also could be located within the *Pier 70 Preferred Master Plan* area, or new wells could be constructed in the future as part of remedial activities at the project site or other project activities. These wells could be damaged during construction.

Exposure to Chemicals in Soil and Groundwater during Construction

During development, including excavation for new structures, utilities, and shoreline improvements, construction workers could be exposed to chemicals in the soil, including naturally occurring asbestos, and groundwater through skin contact with the soil or groundwater, ingestion of the soil, or inhalation of airborne dust or vapors. The public, including students and staff at nearby schools as well as occupants of off-site residences and developments on adjacent parcels that have previously been developed, could be exposed to these chemicals through inhalation of airborne dust, contact with accumulated dust, and contaminated runoff. Therefore, impacts related to exposure to chemicals in the soil and groundwater during construction would be significant if not mitigated. The Pier 70 RMP specifies risk management procedures that must be implemented during development activities, described in the Environmental Setting section on pp. 4.P.17-4.P.18, to ensure the protection of construction workers and the public, and to ensure that contaminated materials are appropriately disposed of. Implementation of these measures in accordance with Mitigation Measure M-HZ-3a: Implement Construction and Maintenance-Related Measures of the Pier 70 Risk Management Plan, shown below, would reduce this impact

to a less-than-significant level. The deed restriction prepared and enforced by the RWQCB for the *Pier 70 Preferred Master Plan* area also incorporates these requirements of the Pier 70 RMP.

Mitigation Measure M-HZ-3a: Implement Construction and Maintenance-Related Measures of the Pier 70 Risk Management Plan

The project sponsors shall provide notice to the RWQCB, DPH, and Port in accordance with the Pier 70 RMP, in advance of ground-disturbing activities that would disturb an area of 1,250 square feet or more of native soil, 50 cubic yards or more of native soil, more than 0.5 acre of soil, or 10,000 square feet or more of durable cover (Pier 70 RMP Sections 4.1, 4.2, and 6.3).

The project sponsors shall also (through their contractor) implement the following measures of the Pier 70 RMP during construction to provide for the protection of worker and public health, including nearby schools and other sensitive receptors, and to ensure appropriate disposition of soil and groundwater removed from the site:

- A project-specific health and safety plan (Pier 70 RMP Section 6.4);
- Access controls (Pier 70 RMP Section 6.1);
- Soil management protocols, including those for:
 - soil movement (Pier 70 RMP Section 6.5.1),
 - soil stockpile management (Pier 70 RMP Section 6.5.2), and
 - import of clean soil (including preparation of a project-specific Soil Import Plan) (Pier 70 RMP Section 6.5.3);
- A dust control plan in accordance with the measures specified by the California Air Resources Board for control of naturally occurring asbestos (Title 17 of California Code of Regulations, Section 93105) and Article 22B of the San Francisco Health Code and other applicable regulations as well as site-specific measures (Pier 70 RMP Section 6.6);
- A project-specific stormwater pollution prevention control plan (Pier 70 RMP Section 6.7);
- Off-site soil disposal (Pier 70 RMP Section 6.8);
- A project-specific groundwater management plan for temporary dewatering (Pier 70 RMP Section 6.10.1);
- Risk management measures to minimize the potential for new utilities to become conduits for the spread of groundwater contamination (Pier 70 RMP Section 6.10.2);
- Appropriate design of underground pipelines to prevent the intrusion of groundwater or degradation of pipeline construction materials by chemicals in the soil or groundwater (Pier 70 RMP Section 6.10.3); and
- Protocols for unforeseen conditions (Pier 70 RMP Section 6.9).

Following completion of construction activities that disturb any durable cover, the integrity of the previously existing durable cover shall be re-established in accordance with Section 6.2 of the Pier 70 RMP and the protocols described in the Operations and Maintenance Plan of the Pier 70 RMP.

All plans prepared in accordance with the Pier 70 RMP shall be submitted to the RWQCB, DPH, and/or Port for review and approval in accordance with the notification requirements of the RMP (Pier 70 RMP Section 4.0).

Damage of Groundwater Monitoring Wells

If groundwater monitoring wells are damaged during construction, they could potentially create a conduit for downward migration of chemicals in the overlying soil, potentially degrading groundwater quality. This would be a significant impact. This impact would be reduced to a less-than-significant level with implementation of Mitigation Measure M-HZ-3b: Implement Well Protection Requirements of the Pier 70 Risk Management Plan, requiring a review of available information to determine the presence of absence of wells, implementation of the well protection and destruction requirements of the Pier 70 RMP, and replacement of monitoring wells that are destroyed, if necessary. The deed restriction prepared and enforced by the RWQCB for Pier 70 also incorporates these requirements of the Pier 70 RMP.

Mitigation Measure M-HZ-3b: Implement Well Protection Requirements of the Pier 70 Risk Management Plan

In accordance with Section 6.11 of the Pier 70 RMP, the project sponsors shall review available information prior to any ground-disturbing activities to identify any monitoring wells within the construction area. The wells shall be appropriately protected during construction. If construction necessitates destruction of an existing well, the destruction shall be conducted in accordance with California and DPH well abandonment regulations, and must be approved by the RWQCB. The Port shall also be notified of the destruction. If required by the RWQCB, DPH, or the Port, the project sponsor shall reinstall any groundwater monitoring wells that are part of the ongoing groundwater monitoring network.

Impact HZ-4: Project development within the Hoedown Yard would be conducted on a site included on a government list of hazardous materials sites and could encounter hazardous materials in the soil and groundwater, creating 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*)

As discussed in the Environmental Setting on pp. 4.P.9-4.P.10, the Hoedown Yard is included in the Voluntary Cleanup Program database as part of the Potrero Power Plant. Several environmental investigations have identified chemicals in the soil and groundwater at the Hoedown Yard which is within the Illinois Parcels. During project construction, including excavation for new structures and utilities, construction workers could be exposed to chemicals in the soil and groundwater through skin contact with the soil or groundwater, ingestion of the soil, or inhalation of airborne dust. The public, including students and staff at nearby schools and occupants of adjacent parcels that have been previously developed, could be exposed to these

chemicals through inhalation of airborne dust, contact with accumulated dust, and contaminated runoff. Therefore, impacts related to exposure to chemicals in the soil and groundwater during construction at the Hoedown Yard would be significant, if not mitigated. This property is owned by PG&E, and a separate SMP has been prepared and approved by the RWQCB for development of this site. The Hoedown Yard SMP specifies measures that must be implemented during development activities, as described in the Environmental Setting, to ensure the protection of construction workers and the public, and to ensure that contaminated materials are appropriately disposed of. Implementation of these measures in accordance with Mitigation Measure M-HZ-4: Implement Construction-Related Measures of the Hoedown Yard Site Management Plan, shown below, would reduce this impact to a less-than-significant level. Implementation of the Hoedown Yard SMP requirements is enforced by the RWQCB through the deed restriction recorded on the property in 2012, described on p. 4.P.34.

Mitigation Measure M-HZ-4: Implement Construction-Related Measures of the Hoedown Yard Site Management Plan

In accordance with the notification requirements of the Hoedown Yard SMP (Section 4.2), the project sponsors (through their contractor) shall notify the RWQCB, DPH, and/or Port prior to conducting any intrusive work at the Hoedown Yard. During construction, the contractor shall implement the following measures of the Hoedown Yard SMP to provide for the protection of worker and public health, and to ensure appropriate disposition of soil and groundwater.

- A project-specific Health and Safety Plan (Hoedown Yard SMP Section 5):
 - Dust management measures in accordance with the measures specified by the California Air Resources Board for control of naturally occurring asbestos (Title 17 of California Code of Regulations, Section 93105) and Article 22B of the San Francisco Health Code. The specific measures must address dust control (SMP Section 6.1) and dust monitoring (SMP Section 6.2).
- Soil and water management measures, including:
 - soil handling (Hoedown Yard SMP Section 7.1.1),
 - stockpile management (Hoedown Yard SMP Section 7.1.2),
 - on-site reuse of soil (Hoedown Yard SMP Section 7.1.3),
 - off-site soil disposal (Hoedown Yard SMP Section 7.1.4),
 - excavation dewatering (Hoedown Yard SMP Section 7.1.5),
 - stormwater management (Hoedown Yard SMP Section 7.1.6),
 - site access and security (Hoedown Yard SMP Section 7.1.7), and
 - unanticipated subsurface conditions (Hoedown Yard SMP Section 7.2).

Impact HZ-5: Operation of the Proposed Project within the PG&E Responsibility Area would expose residents, site workers, and site visitors to hazardous materials in the soil, creating a significant hazard to the public or the environment. (Less than Significant with Mitigation)

As described in the Environmental Setting on pp. 4.P.15-4.P.16, site investigations conducted by the Port and PG&E identified two localized areas in the southeast portion of the 28-Acre Site where the accumulated DNAPL is at least 1 foot thick or has accumulated in areas of discontinuous DNAPL.⁸⁹ The area of both continuous and discontinuous DNAPL, referred to as the PG&E Responsibility Area, is shown on Figure 4.P.1, p. 4.P.3. Parcel H2, the eastern portion of Parcel H1, and the southeast corner of Parcel E3 of the project site are included within this area.

As the responsible party for the contamination, PG&E will be conducting site remediation with regulatory oversight by the RWQCB that involves excavating the continuous DNAPL areas at the southernmost slipway to a depth of about 23 feet and backfilling the excavations with clean fill.⁹⁰ Durable cover(s), consisting of pavement, hardscape, or clean fill and vegetation over a demarcation layer, will be installed over the excavated and backfilled areas and the entire area containing discontinuous DNAPL to prevent exposure to chemicals in the subsurface soil. An RMP will be prepared for controlling exposure to chemicals left in place during future use of the property and a deed restriction restricting future land uses will be issued.

PG&E anticipates completing these remediation activities by 2017,⁹¹ prior to construction of the Proposed Project beginning in 2018. However, implementation of the remediation activities in the PG&E Responsibility Area is outside of the project sponsors' control. If PG&E's remediation activities are delayed, construction of the proposed development on Parcels H1, H2, and E3 could preclude implementation of the planned remediation and the presence of DNAPL would continue to threaten water quality, a significant impact. This impact would be reduced to a less-than-significant level with implementation of Mitigation Measure M-HZ-5: Delay Development on Proposed Parcels H1, H2, and E3 Until Remediation of the PG&E Responsibility Area is Complete, requiring the project sponsors to ensure that project construction on Parcels H1, H2, and E3 does not begin until remediation activities in the PG&E Responsibility Area have been completed to the satisfaction of the RWQCB. Implementation of this measure would ensure that

⁸⁹ Discontinuous DNAPL refers DNAPL that is present as isolated droplets adhering to the soil matrix. These isolated droplets are not interconnected and there is no possibility for the DNAPL to flow.

⁹⁰ Haley & Aldrich, Report on the Northeast Area of the Former Potrero Power Plant and a Portion of the Southeast Area of Pier 70 Feasibility Study, Potrero Power Plant Site, San Francisco, California. December 20, 2012, Section 5.

⁹¹ Pacific Gas & Electric web site, Potrero Power Plant, Cleanup Areas and Recent Activities. Available online at <http://www.pge.com/en/about/environment/taking-responsibility/mgp/Potrero/cleanup-and-activities/index.page>. Accessed December 11, 2015.

future site occupants and workers would not be exposed to residual DNAPL or associated vapors at levels that would cause substantial health risks.

Mitigation Measure M-HZ-5: Delay Development on Proposed Parcels H1, H2, and E3 Until Remediation of the PG&E Responsibility Area is Complete

The project sponsors shall not start construction of the proposed development or associated infrastructure on proposed Parcels H1, H2, and E3 until PG&E's remedial activities in the PG&E Responsibility Area within and adjacent to these parcels have been completed to the satisfaction of the RWQCB. During subsequent development, the project sponsors shall implement the requirements of the Pier 70 RMP within the PG&E Responsibility Area, as enforced through the recorded deed restriction.

Impact HZ-6: Operation of the Proposed Project within the 28-Acre Site and the 20th/Illinois Parcel would expose residents, site workers, and site visitors to hazardous materials in the soil or soil vapors, creating a significant hazard to the public or the environment. (*Less than Significant with Mitigation*)

Once the site is developed, site occupants, visitors, and maintenance workers could be exposed to hazardous materials in the soil, if mitigation measures are not implemented. In addition, future residents potentially could be exposed to chemicals in the soil vapors or groundwater as a result of vapor intrusion, if mitigation measures are not implemented. These effects are discussed below.

Exposure to Hazardous Materials in Soil

As described the Environmental Setting on p. 4.P.14, previous sampling within the 28-Acre Site and 20th/Illinois Parcel which are part of the *Pier 70 Preferred Master Plan* area has found that chemical concentrations throughout the sites contain PAHs, metals, and/or TPH at concentrations exceeding residential, commercial, and/or recreational cleanup levels. Naturally occurring asbestos concentrations in the fill material within the *Pier 70 Preferred Master Plan* area range from less than 1 percent to 2 percent⁹² indicating that much of the soil could be classified as asbestos-containing materials under the Asbestos ATCM because the asbestos concentration is greater than 0.25 percent.

To avoid unacceptable health risks associated with exposure to the soil by residents, site workers, and visitors, the Pier 70 RMP requires placement of a durable cover over the any soil with chemical concentrations greater than the cleanup level for the planned land use. The durable covers would prevent human exposure to the soil under normal conditions and can include features such as new or existing buildings, new or existing roadways and sidewalks, new and

⁹² Treadwell & Rollo, Pier 70 Feasibility Study and Remedial Action Plan, p. 11.

existing hardscapes or paved parking areas, shoreline revetments, 6 inches of gravel overlying a demarcation layer, or landscaped areas covered with a minimum of 2 feet of clean imported soil.

However, maintenance workers would occasionally need to breach the durable cover to conduct repairs of utilities and other systems. This could result in exposure to chemicals in the soil beneath the durable cover, a significant impact. This impact would be reduced to less-than-significant level with implementation of Mitigation Measure M-HZ-3a, pp. 4.P.61-4.P.62, which requires implementation of the Pier 70 RMP risk management procedures that must be implemented when construction or maintenance activities would encounter contaminated soil beneath the durable cover. Implementation of these measures would ensure the protection of maintenance workers and the public, and would also ensure that contaminated materials are appropriately disposed of. The deed restriction for the *Pier 70 Preferred Master Plan* area also incorporates these requirements of the Pier 70 RMP.

Residential Exposure to Soil Vapors

In areas where groundwater and soil vapor concentrations exceed residential Environmental Screening Levels, building occupants in residential developments could be exposed to chemicals present in the soil vapors and groundwater as a result of vapor intrusion into the subsurface features of the building, resulting in a significant impact if mitigation measures are not implemented. The human health risk assessment for the project found that the groundwater and soil vapor concentrations were below risk-based cleanup levels for commercial land uses throughout the *Pier 70 Preferred Master Plan* area. However, the concentrations of chemicals detected in the soil vapor or groundwater exceeded residential cleanup levels in the groundwater or soil vapor at the following locations.

- Benzene in groundwater from one location adjacent to proposed Parcel E4 (sampling location SPSB-04); and
- Naphthalene in soil vapors from one location within proposed Parcel H1 (sampling location P8SG-01) and one location within proposed Parcel B (sampling location P6SGP-01).

Within the 20th Street Historic Core site, north of the project site, there is one location (sampling location B-01-TT) where TPH gasoline exceeded the residential cleanup level in groundwater and another location (sampling location P4SG-09) where benzene exceeded the residential clean up level in soil vapor. Because it is possible for soil vapors and groundwater to migrate, conditions within the Historic Core potentially could affect conditions within the project site, particularly within Parcels PKN and A.

If residential development is constructed at or near any of these locations, residents could be subjected to health risks, a significant impact unless mitigated. This impact would be reduced to

a less-than-significant level with implementation of Mitigation Measure M-HZ-6: Additional Risk Evaluations and Vapor Control Measures for Residential Land Uses, requiring additional risk evaluations and implementation of measures to ensure that unacceptable health risks would not occur. The need for such evaluations would be confirmed by the RWQCB, DPH, and Port based on site conditions at the time of development through their review of the notification submittals required under Mitigation Measure M-HZ-3a, pp. 4.P.61-4.P.62. Feasible methods to control exposure to soil vapors include actions such as installing a vapor barrier beneath the proposed structure or implementation of a vapor intrusion mitigation system to prevent the intrusion of soil vapors. If a barrier were used, all protrusions through the subsurface features (such as pipelines) would be sealed and a barrier constructed of impermeable materials such as high-density polyethylene would be constructed beneath the structure. An active vapor control system would include inducing a pressure gradient between the indoor air and the underlying soil to prevent the intrusion of soil vapors. This can be accomplished by creating a positive pressure inside the structure or a negative pressure in the underlying soil. Other measures to minimize risk to below the significance level may also be implemented. The deed restriction prepared and enforced by the RWQCB for Pier 70 also incorporates these requirements of the Pier 70 RMP.

Mitigation Measure M-HZ-6: Additional Risk Evaluations and Vapor Control Measures for Residential Land Uses

The notification submittals required under Mitigation Measure M-HZ-3a shall describe site conditions at the time of development. If residential land uses are proposed at or near locations where soil vapor or groundwater concentrations exceed residential cleanup standards for vapor intrusion (based on information provided in the Pier 70 RMP), this information shall be included in the notification submittal and the RWQCB and DPH will determine whether a risk evaluation is required. If required, the project sponsors or future developer(s) shall conduct a risk evaluation in accordance with the Pier 70 RMP. The risk evaluation shall be based on the soil vapor and groundwater quality presented in the Pier 70 RMP and the proposed building design. The project sponsors shall conduct additional soil vapor or groundwater sampling as needed to support the risk evaluation, subject to approval by the RWQCB and DPH.

If the risk evaluation demonstrates that there would be unacceptable health risks to residential users (i.e., greater than 1×10^{-6} incremental cancer risk or a non-cancer hazard index greater than 1), the project sponsors shall incorporate measures into the building design to minimize or eliminate exposure to soil vapor through the vapor intrusion pathway, subject to review and approval by the RWQCB and DPH. Appropriate vapor intrusion measures include, but are not limited to design of a safe building configuration that would preclude vapor intrusion; installation of a vapor barrier; and/or design and installation of an active vapor monitoring and extraction system.

If the risk evaluation demonstrates that vapor intrusion risks would be within acceptable levels (i.e., less than 1×10^{-6} incremental cancer risk or a non-cancer hazard index less than 1) under a project-specific development scenario, no additional action shall be required. (For instance, the project sponsors could locate all residential uses above the

first floor which, in some cases, could eliminate the potential for residential exposure to organic compounds in soil vapors.)

Impact HZ-7: Operation of the Proposed Project within the Hoedown Yard would expose residents, site workers, and site visitors to hazardous materials in the soil, creating a significant hazard to the public or the environment. (*Less than Significant with Mitigation*)

As described in the Environmental Setting on p. 4.P.28, previous sampling within the Hoedown Yard has found that, based on future use of the Hoedown Yard for commercial or industrial purposes, arsenic is the primary chemical of concern identified in the soil. Arsenic was identified at concentrations greater than the site-specific background level of 11.5 mg/kg in samples from the shallow fill materials within an approximately 140- by 140-foot area in the northwest corner of the Hoedown Yard (see Figure 4.P.1, p. 4.P.3). The maximum concentration was 530 mg/kg. Some soil samples from within this area also contained lead, TPH diesel, and TPH motor oil at concentrations exceeding the screening criteria for commercial land uses. Naturally occurring asbestos was also identified in the fill materials at concentrations ranging from 0.50 percent to 6.30 percent, all of which exceeded the screening level of 0.25 percent used for the classification of asbestos-containing materials under the Asbestos ATCM.

Although the Hoedown Yard SMP addresses risk management measures necessary to manage site risks based on industrial use of the site by PG&E, the plan does not provide measures for redevelopment of the site, and does not address risks related to potential residential uses. Without additional evaluation and implementation of additional risk management measures, future site occupants and visitors of the residential and commercial land uses under the Proposed Project could be subjected to potential health risks as a result of contact with the site soil, a significant impact unless mitigated.

The Hoedown Yard SMP states that it may be necessary to modify the plan in the event of one of the following conditions.

- There is a change in property use;
- There is a change in understanding of environmental conditions (e.g., newly identified chemicals);
- A new intrusive activity is proposed that is not addressed by the SMP; or
- New legal or regulatory requirements are adopted.

Because the Proposed Project would result in a change in property use, the Hoedown Yard SMP would have to be modified to account for potential risks to future site occupants under the Proposed Project. Mitigation Measure M-HZ-7: Modify Hoedown Yard Site Mitigation Plan, shown below, requires the project sponsors to modify the Hoedown Yard SMP to address future land uses proposed as part of the Proposed Project. Implementation of this measure is required

by the deed restriction and would be overseen by the RWQCB, DPH, and Port, and would reduce this impact to a less-than-significant level.

Mitigation Measure M-HZ-7: Modify Hoedown Yard Site Mitigation Plan.

The project sponsors shall conduct a risk evaluation to evaluate health risks to future site occupants, visitors, and maintenance workers under the proposed land use within the Hoedown Yard. The risk evaluation shall be based on the soil, soil vapor, and groundwater quality data provided in the existing SMP and supporting documents and the project sponsors shall conduct additional sampling as needed to support the risk evaluation.

Based on the results of the risk evaluation, the project sponsors shall modify the Hoedown Yard SMP to include measures to minimize or eliminate exposure pathways to chemicals in the soil and groundwater, and achieve health-based goals (i.e., an excess cancer risk of 1×10^{-6} and a Hazard Index of 1) applicable to each land use proposed for development within the Hoedown Yard. At a minimum, the modified SMP shall include the following components:

- Regulatory-approved cleanup levels for the proposed land uses;
- A description of existing conditions, including a comparison of site data to regulatory-approved cleanup levels;
- Regulatory oversight responsibilities and notification requirements;
- Post-development risk management measures, including management measures for the maintenance of engineering controls (e.g., durable covers, vapor mitigation systems) and site maintenance activities that could encounter contaminated soil;
- Monitoring and reporting requirements; and
- An operations and maintenance plan, including annual inspection requirements.

The risk evaluation and proposed risk management plan shall be submitted to the RWQCB, DPH, and Port for review and approval prior to the start of ground disturbance.

Impact HZ-8: Operation of the Irish Hill Playground would expose site visitors to naturally occurring asbestos and naturally occurring metals, creating a significant hazard to the public or the environment. (*Less than Significant with Mitigation*)

The Irish Hill Playground would consist of a 2-acre area south and east of the existing Irish Hill and would include children's play areas (play slope and play pad), a picnic grove, a lounging terrace, and planted slopes and pathways. The playground area would include relatively level areas to the east of and adjacent to the Irish Hill remnant.

As discussed in the Environmental Setting on p. 4.P.9, the Irish Hill remnant is composed of serpentinite bedrock of the Franciscan Complex. Serpentinite commonly contains naturally

occurring chrysotile and amphibole asbestos, fibrous minerals that can be hazardous to human health if they become airborne, as well as naturally occurring metals (i.e., arsenic, cadmium, copper, chromium, nickel, vanadium, and zinc). If visitors to the playground play on exposed bedrock or fill materials derived from the bedrock, they could cause naturally occurring asbestos and naturally occurring metals to become airborne. As a result, playground users, including young children, could be exposed to airborne asbestos fibers and/or potentially hazardous concentrations of naturally occurring metals, a significant impact unless mitigated. This impact would be reduced to a less-than-significant level with implementation of Mitigation Measure M-HZ-8a: Prevent Contact with Serpentine Bedrock and Fill Materials in Irish Hill Playground, requiring placement of clean fill in level portions of the playground and construction of barriers designed to preclude climbing directly on the Irish Hill remnant.

Mitigation Measure M-HZ-8a: Prevent Contact with Serpentine Bedrock and Fill Materials in Irish Hill Playground

The project sponsors shall ensure that a minimum 2-foot-thick durable cover of asbestos-free clean imported fill with a vegetated cover is emplaced above serpentine bedrock and fill materials in the level portions of Irish Hill Playground. The fill shall meet the soil criteria for clean fill specified in Table 4 of the Pier 70 RMP and included in Appendix F, Hazards and Hazardous Materials, of this EIR. Barriers shall be constructed to preclude direct climbing on the bedrock of the Irish Hill remnant. The design of the durable cover and barriers shall be submitted to DPH and the Port for review and approval prior to commencement of construction of the Irish Hill Playground.

Implementation of Mitigation Measure M-HZ8a would not result in any significant impacts to the contributory remnant of Irish Hill feature. While the level areas surrounding the remnant would be altered by installing a 2-foot-thick durable cover, it would not result in the removal of or substantial altering of the remnant of the contributory feature. Installation of barriers to preclude direct climbing on the remnant would continue to allow views into the site, and would not largely alter the appearance of Irish Hill.

Similarly, visitors to the Irish Hill Playground could be exposed to airborne naturally occurring asbestos and naturally occurring metals if they use the playground during ground-disturbing activities for construction on adjacent parcels or during the construction of the new 21st Street which would remove a portion of the northern spur of the Irish Hill remnant. This would also be a significant impact unless mitigated. This impact would be reduced to a less-than-significant level with implementation of Mitigation Measure M-HZ-8b: Restrictions on the Use of Irish Hill Playground, which requires that the playground not be operational during ground-disturbing activities for construction of the new 21st Street and on the adjacent parcels (PKN, PKS, HDY-1, HDY2, C1, and C2).

Mitigation Measure M-HZ-8b: Restrictions on the Use of Irish Hill Playground

To the extent feasible, the project sponsors shall ensure that the Irish Hill Playground is not operational until ground-disturbing activities for construction of the new 21st Street and on the adjacent parcels (PKN, PKS, HDY-1, HDY2, C1, and C2) is completed. If this is not feasible, and Irish Hill Playground is operational prior to construction of the new 21st Street and construction on all adjacent parcels, the playground shall be closed for use when ground-disturbing activities are occurring for the construction of the new 21st Street and on any of the adjacent parcels.

Impact HZ-9: The Proposed Project would not handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. Although construction activities would emit diesel particulate matter and naturally occurring asbestos, these emissions would not result in adverse effects on nearby schools. (*Less than Significant*)

Section 15186 of the CEQA Guidelines requires that the environmental document for projects that are located within one quarter mile of a school address the use of extremely hazardous materials and hazardous air emissions. Certain consultation and notification requirements apply if either of these activities would result in a health or safety hazard to persons who would attend or work at a school.

The Proposed Project would be located within one-quarter mile of five schools:

- Dogpatch AltSchool, a transitional Kindergarten through 8th grade school located at 616 20th Street, about 140 feet to the northwest of the project site;
- Potrero Kids at Third, a preschool located at 810 Illinois Street, approximately 350 feet north of the project site boundary;
- La Piccola Scuola Italiana preschool, located at the 728 20th Street, approximately 470 feet northwest of the project site boundary;
- Friends of Potrero Nursery School at 1060A Tennessee Street, approximately 630 feet west of the project site boundary; and
- Dogpatch Alternative School at 2265 Third Street, about 250 feet to the northwest of the project site boundary.

The State of California defines extremely hazardous materials and other regulated substances in Section 25532 (i) of the Health and Safety Code. Construction of the Proposed Project would only use common hazardous materials: paints, solvents, cements, adhesives, and petroleum products (such as asphalt, oil, and fuel). None of these materials is considered extremely hazardous under the State's definition. Therefore, there is no impact related to the use of these materials within one-quarter mile of a school.

Toxic Air Contaminants that constitute hazardous air emissions are listed in Title 17 of the California Code of Regulations, Section 93000. As discussed in Section 4.G, Air Quality

(Impact AQ-3, pp. 4.G.62-4.G.69), construction equipment and vehicular traffic would emit diesel particulate matter (DPM) and fine particulate matter (PM_{2.5}) during construction. Additionally, emergency generators and vehicular traffic would emit DPM, PM_{2.5}, and some compounds or variations of reactive organic gases (ROGs) during operation. All of these compounds are Toxic Air Contaminants. However, the health risk assessment conducted for the Proposed Project indicates the primary source of these toxic air contaminants in the project area is background (existing) conditions. The increased cancer risks at nearby schools as a result of project-related emissions in combination with existing conditions would be 50 in one million as a result of construction emissions and 45 in one million as a result of operational emissions, neither of which is considered significant. Similarly, PM_{2.5} concentrations at the nearest school would be 8.5 µg/m³ which would not be considered significant. Further, implementation of Mitigation Measure M-AQ-1a: Construction Emissions Minimization, pp. 4.G.42-4.G.44, would reduce the construction-related emissions of DPM, and implementation of Mitigation Measure M-AQ-1b: Diesel Backup Generator Specifications, p. 4.G.45, would reduce emissions of DPM during operation.

As discussed in Impacts M-HZ-3 and M-HZ-4, construction activities at the 28-Acre Site, Illinois Parcels, and Hoedown Yard could disturb rock and soil that contain naturally occurring asbestos. Asbestos is also considered a Toxic Air Contaminant by the CARB. However, the project sponsors would implement the dust control measures of the Pier 70 RMP and Hoedown Yard SMP, including compliance with Article 22B or the San Francisco Health code (required by Mitigation Measures M-HZ-3a and M-HZ-4, pp. 4.P.61-4.P.62 and p. 4.P.63, respectively). Implementation of these measures would ensure that no visible dust crosses the property boundary during construction, and this would prevent adverse exposure of school occupants to airborne asbestos. Therefore, impacts related to emissions of Toxic Air Contaminants within one-quarter mile of a school would be less than significant and no mitigation is necessary.

Impact HZ-10: The Proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving fires, nor would it impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (*Less than Significant*)

San Francisco and the Port of San Francisco ensure fire safety primarily through provisions of the San Francisco and Port of San Francisco Building Codes. Accordingly, the proposed developments would be required to comply with the applicable sections of these building codes that require several fire safety features, such as equipping the building with a fire protection system, constructing the building with noncombustible materials or with a fire-resistive design, and including fire walls, fire barriers, fire partitions, smoke barriers, and smoke partitions in the building. The final building plans would be reviewed by the San Francisco Fire Department or Port Fire Marshal (as well as the Chief Harbor Engineer) of the San Francisco Department of

Building Inspection to ensure conformance with these provisions. Consequently, the Proposed Project would not create a substantial fire hazard or increase the risk of fires above existing levels.

The Proposed Project could be subject to earthquake hazards as discussed in Section 4.N, Geology and Soils, and tsunami hazards as discussed in Section 4.O, Hydrology and Water Quality. Occupants of, and visitors to, the proposed developments would increase the temporary and permanent localized population along the waterfront. This increased population could contribute to congestion if an emergency evacuation were required in the event of one of these or other emergencies. Although not “adopted” by legislative action, the City has a published Emergency Response Plan, prepared by the Department of Emergency Management as part of the City’s Emergency Management Program, which includes plans for hazard mitigation and disaster preparedness and recovery.⁹³ The Emergency Response Plan contains 16 “annexes” (similar to appendices) that cover a number of emergency topics. The Earthquake Annex, in particular, sets forth planning assumptions for a series of earthquakes of varying magnitudes on different faults, and sets forth procedures for assessment of damage and injuries, as well as operational response strategies in the event of a major earthquake. The Tsunami Annex specifies emergency response procedures in the event of a tsunami, as described in more detail in Section 4.O, Hydrology and Water Quality, pp. 4.O.17-4.O.20.

During a major earthquake, glass, and in some cases building cladding, may endanger those on the streets and sidewalks. However, the buildings that would be constructed under the Proposed Project would be subject to the most up-to-date building and structural standards, and this would reduce the potential for damage in the event of a major earthquake. Therefore, persons attending or living and working in and around the new buildings as well as those passing by would be relatively safer than those in some older existing buildings. The Proposed Project is required to include provisions for emergency response for visitors and residents of the completed project. These provisions would integrate and be compatible with existing emergency response plans, and would neither obstruct implementation of the City’s Emergency Response Plan, nor interfere with emergency evacuation planning. Through compliance with the existing codes and regulations noted above and implementation of project provisions for emergency response that account for and are compatible with the City’s Emergency Response Plan, impacts related to interference with emergency response or evacuation plans would be less than significant, and no mitigation is necessary.

⁹³ San Francisco Department of Emergency Management, *City and County of San Francisco Emergency Response Plan*, December 2009. Available online at <http://www.sfdem.org/Modules/ShowDocument.aspx?documentid=1154>. Accessed November 25, 2015.

Cumulative Impacts

Impacts from hazards and hazardous materials are generally site-specific and do not generally result in cumulative impacts unless the potentially cumulative projects are in close proximity to one another. Accordingly, the geographic scope of potential hazards and hazardous materials is limited to the project site and immediate vicinity and the cumulative analysis uses a list-based approach to analyze the effects of the project in combination with past, present, and probable future projects in the immediate vicinity. The analysis considers whether or not there would be a significant, adverse cumulative impact associated with project implementation in combination with past, present, and probable future projects in the immediate vicinity, and if so, whether or not the Proposed Project's contribution to the cumulative impact would be cumulatively considerable.

Impact C-HZ-1: The Proposed Project, in combination with other past, present or reasonably foreseeable future projects in the project vicinity, would not result in a considerable contribution to significant cumulative impacts related to hazards and hazardous materials. (*Less than Significant*)

As discussed above, the Proposed Project would not result in any significant impacts with respect to hazards or hazardous materials that could not be mitigated to a less-than-significant level. All cumulative development in San Francisco would be subject to the same regulatory framework as the project for the transport, use, and storage of hazardous materials (Impact HZ-1) as well as the abatement of hazardous building materials (Impact HZ-2). Compliance with these existing regulations, including implementation of Mitigation Measures M-HZ-2a through M-HZ-2c, pp. 4.P.58-4.P.59, that address PCB transformers, would serve to ensure that cumulative impacts related to these topics are less than significant.

The Proposed Project could result in exposure to chemicals in the soil and naturally occurring asbestos and metals during construction (Impacts HZ-3 and HZ-4, pp. 4.P.60-4.P.62 and pp. 4.P.62-4.P.63, respectively), and cumulative projects in the area could also encounter these materials on their sites, potentially resulting in a significant cumulative impact related to exposure of the public and site occupants to contaminated materials. However, the project sponsors would implement Mitigation Measure M-HZ-3a, pp. 4.P.61-4.P.62, requiring implementation of the construction and maintenance-related measures of the Pier 70 RMP; Mitigation Measure M-HZ-3b, p. 4.P.62, requiring implementation of the well protection requirements of the Pier 70 RMP; and Mitigation Measure M-HZ-4, p. 4.P.63, requiring implementation of the construction-related measures of the Hoedown Yard SMP. Implementation of these mitigation measures would ensure that the public, students and staff at nearby schools, and site occupants are not exposed to contaminated materials during construction, and the project's contribution to this cumulative impact would not be cumulatively considerable. Further, other projects in the *Pier 70 Preferred*

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Master Plan area such as the 20th Street Historic Core Project and Crane Cove Park would be required to implement the requirements of the Pier 70 RMP. Projects outside of the *Pier 70 Preferred Master Plan* area would similarly be required to address site risks in accordance with Article 22A of the San Francisco Health Code, Article 22B of the San Francisco Health Code, and the Asbestos Air Toxics Control Measure. Implementation of these requirements would ensure that risks are within acceptable levels at these potentially cumulative sites. Implementation of these same measures would ensure that the project would not have a substantial contribution to impacts on schools within one-quarter mile of a school (Impact HZ-9).

Similarly, the Proposed Project could expose site occupants, workers, recreational users, and visitors to chemicals in the soil during operation, once the project is constructed. Because other cumulative projects also could be constructed on contaminated properties, including other areas within the *Pier 70 Preferred Master Plan* area, greater numbers of people could be exposed to chemicals in soil and this would potentially be a significant cumulative impact. However, in accordance with the Pier 70 RMP, the project sponsors would install a durable cover over the contamination within the *Pier 70 Preferred Master Plan* area and would implement Mitigation Measure M-HZ-3a for any maintenance activities that would disturb the durable cover. The project sponsors would also implement Mitigation Measure M-HZ-5, p. 4.P.65, requiring that development on proposed Parcels H1, H2, E3 is delayed until remediation of the PG&E Responsibility Area is complete, and Mitigation Measure M-HZ-6, pp. 4.P.67-4.P.68, requiring additional risk evaluations and vapor control measures for residential projects where soil vapor chemical concentrations exceed residential cleanup levels. The project sponsors would implement Mitigation Measure M-HZ-7, p. 4.P.69, requiring modification of the Hoedown Yard SMP to address risks associated with future uses of the Hoedown Yard. Implementation of these mitigation measures would ensure that the public and site occupants are not exposed to contaminated materials during operation, and the contribution of the Proposed Project to this cumulative impact would not be cumulatively considerable. Further, other projects in the *Pier 70 Preferred Master Plan* area such as the Orton Historic Core Sub Area and Crane Cove Park would be required to implement the requirements of the Pier 70 RMP. Projects outside of the *Pier 70 Preferred Master Plan* area would similarly be required to address site risks in accordance with Article 22A of the San Francisco Health Code. Implementation of these requirements would ensure that risks are within acceptable levels at these potentially cumulative sites.

None of the potentially cumulative projects would involve construction on, or use of, the Irish Hill remnant; therefore, there would be no cumulative impact related to exposure of site visitors to naturally occurring asbestos and metals associated with the Irish Hill remnant.

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With implementation of the City's Emergency Response Plan, which provides a framework for Citywide emergency planning, and compliance with the San Francisco and Port of San Francisco's building code by all projects, cumulative impacts related to increased fire risks and interference with or impedance of an emergency response plan would be less than significant.