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San Francisco Bay Regional Water Quality Control Board

January 24, 2014
File No. 38S0058 (mej)

Port of San Francisco
Attn: Ms. Carol Bach
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SUBJECT: Approval of July 25, 2013, Final Risk Management Plan
Pier 70 Master Plan Area, San Francisco, San Francisco County

Dear Ms. Bach:

Regional Water Board staff has completed its review of the July 25, 2013, Risk Management Plan, Pier 70 Master Plan Area (RMP), prepared on behalf of the Port of San Francisco by Treadwell and Rollo. The RMP sets forth measures to mitigate risks to human health and the environment posed by pollutants at the site. The RMP specifies measures to be taken prior to, during and post development of the property. In addition to our review, the Regional Water Board held a 30-day public comment period on a draft version of the document. As part of our public participation activities a fact sheet summarizing the draft document was distributed to the local community and interested parties, and a community meeting held to present the draft document and answer questions.

Based on our review of the RMP, we find it acceptable and it is hereby approved as final. As part of our public participation efforts, we will be preparing a public notice/fact sheet announcing the approval of the RMP and will be distributing it to the local community and interested parties.

The RMP contains a schedule for annual reporting to the Regional Water Board on compliance with the RMP. We expect to receive the first Annual Report by April 31, 2014.

DR. TERRY F. YOUNG, CHAIR | BRUCE H. WOLFE, EXECUTIVE OFFICER

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Sincerely,

Bruce H. Wolfe
Executive Officer

cc:

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PIER 70 RISK MANAGEMENT PLAN
Pier 70 Master Plan Area
San Francisco, California

Prepared For:
Port of San Francisco
San Francisco, California

25 July 2013
Project No. 730496301

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ACRONYM AND ABBREVIATION LIST

ADMP	Asbestos Dust Mitigation Plan
AMEC	AMEC Geomatrix Inc.
ATCM	Airborne Toxic Control Measures
BAAQMD	Bay Area Air Quality Management District
BCDC	San Francisco Bay Conservation and Development Commission
BMPs	Best management practices
CARB	California Air Resources Board
Cal/OSHA	California Department of Occupational Safety and Health
CCR	California Code of Regulations
CERCLA	the Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CHHSLs	California Human Health Screening Levels
CHSC	the California Health and Safety Code Section
CIH	Certified Industrial Hygienist
City	City and County of San Francisco
COCs	Constituents of Concern
CUPA	California Unified Program Agency
DCP	Dust Control Plan
DNAPL	Dense non-aqueous phase liquids
DTSC	California Department of Toxic Substances Control
DWR	Department of Water Resources
EHSP	Environmental Health and Safety Plan
EPA	United States Environmental Protection Agency
ESLs	Environmental Screening Levels
FS	Feasibility Study
FS/RAP	FS and Remedial Action Plan
ft bgs	feet below ground surface
GMP	Groundwater Management Plan
HHRA	Human Health Risk Assessment
IRM	Interim Remedial Measure
LUC Agreement	Land Use Control Agreement
LUCs	Land Use Controls

**ACRONYM AND ABBREVIATION LIST
(Continued)**

The Master Plan	the Pier 70 Preferred Master Plan
MHHW	mean higher high water
NAPL	non-aqueous phase liquid
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NOA	naturally occurring asbestos
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
O&M	operation and maintenance
OSHA	Cal/Occupational Safety and Health Administration
OVA	organic vapor analyzer
OVM	organic vapor monitor
PAHs	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PDR	Product Distribution & Repair (also referred to as "light industrial")
PG&E	Pacific Gas and Electric
PID	photoionization detector
Port	the Port of San Francisco
QSD	Qualified SWPPP Developer
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
R&D	Research and Development
RCM	Reactive Core Mat
RMP	Risk Management Plan
SFDPH	the San Francisco Department of Public Health
SFFD	San Francisco Fire Department
SFPUC	City and County of San Francisco Public Utilities Commission
SI	The Site Investigation
SIP	Soil Importation Plan
SSHO	Site Safety and Health Officer
STLC	soluble threshold limit concentration
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	the California State Water Resource Control Board

**ACRONYM AND ABBREVIATION LIST
(Continued)**

TCLP	toxicity characteristic leaching potential
TPH	total petroleum hydrocarbons
T&R	Treadwell & Rollo, a Langan Company
TSCA	Toxic Substances Control Act
TTLC	total threshold limit concentration
USACE	US Army Corps of Engineers
USFWS	US Fish and Wildlife Service
USTs	Underground storage tanks
VOC	volatile organic compound
Water Board	the Regional Water Quality Control Board – San Francisco Bay Region
WDRS	Waste Discharge Requirements
WET	the California waste extraction test

**RISK MANAGEMENT PLAN
Pier 70 Master Plan Area
San Francisco, California**

1.0 INTRODUCTION

Treadwell & Rollo, a Langan Company (T&R) has prepared this Risk Management Plan (RMP) for the Pier 70 Master Plan Area (Figure 1) on behalf of the Port of San Francisco (Port). The Pier 70 Master Plan Area is located on the eastern shoreline of San Francisco at Potrero Point (a continuation of serpentinite based Potrero Hill). It is roughly bounded by Mariposa Street to the north, San Francisco Bay to the north and east, 22nd Street and the former GenOn Site (now owned by GenOn Potrero LLC, hereafter referred to in this RMP as "the GenOn Site") to the south, and Illinois Street to the west. For the purposes of this RMP, the "Site" or "Pier 70 RMP Area" consists of the onshore portions of the Pier 70 Master Plan Area (above mean higher high water (MHHW¹)) delineated in Figure 2. Intertidal and subtidal areas around the Pier 70 RMP Area are not addressed by this RMP. Onshore portions of the Pier 70 RMP Area where constituents associated with the former power plant operations at the adjacent GenOn Site are present in the subsurface have been investigated by PG&E, the former property owner, and are included in this RMP (Figure 2).

Treadwell & Rollo, on behalf of the Port, completed a Feasibility Study and Remedial Action Plan (FS/RAP) for the Site (Treadwell & Rollo, 2012), with oversight by the Regional Water Quality Control Board – San Francisco Bay Region (Water Board) and the San Francisco Department of Public Health (SFPDH). The FS/RAP underwent public review and comment and was approved by the Water Board on 9 August 2012. The chosen remedy consists of engineering controls (e.g., removing, replacing, or capping soil with durable cover) and institutional controls (e.g., deed restrictions, soil management measures, health and safety plans) to manage potential health risks. The remedy includes:

- Durable Covers over existing native soil that meet the remedial action objective of preventing human exposure to constituents of concern (COCs) in the soil beneath the Site.
- Long-term maintenance and monitoring of durable covers to ensure that covers continue to function as designed are described further in Appendix A.

¹ Mean Higher High Water is a tidal datum equal to the average of the higher high water height of each tidal day observed over the National Tidal Datum Epoch. For stations with shorter series, simultaneous observational comparisons are made with a control tide station in order to derive the equivalent datum of the National Tidal Datum Epoch.

- Institutional controls to minimize the potential to impact human health and the environment after installation of durable cover.

The RMP is an essential component of the remedy for the Site. It is a tool for ensuring effectiveness of the institutional controls and provides a framework to manage residual COCs in soil in a manner that protects site users under current and future land use. This RMP specifies pre-development, development, and post-development measures to mitigate potential risks to the environment, current and future on-site employees, future residents, construction and maintenance workers, visitors, and the public. It was prepared under Water Board and SFDPH oversight to provide specifications and details on how risk will be mitigated and managed during future construction, operation, and maintenance.

The Land Use Control (LUC) Agreement is another important component of the Institutional Controls. It will describe activity restrictions, specifically those presented in the RMP, that will be enforceable through a deed restriction, recorded in the official records of the City and County of San Francisco against all land that is subject to this RMP. The RMP and LUC Agreement will be enforceable regardless of land ownership. The RMP is a component of the environmental deed restriction and will be incorporated into the deed restriction by reference. The deed restriction and RMP compliance is binding on all owners, occupants and their agents. Therefore, if a project proponent does not comply with the RMP, they would also violate the terms of the Deed Restriction.

1.1 Redevelopment Plans

The Port has developed a Pier 70 Preferred Master Plan dated April 2010 (the Master Plan) that envisions continued operation of the BAE San Francisco Ship Repair facility and redevelopment of other portions of the Site with a mix of commercial (office, retail), light industrial, education/cultural, mixed use including residential, public open space, and multi-family housing. Although the Port's 2010 Master Plan lays out general land use types and locations, opportunities for Commercial, Residential, and Recreational land uses exist site-wide and exact locations and boundaries of different land uses in various portions of the Pier 70 RMP area will be developed over time. The currently anticipated layout of future land uses in different subareas within Pier 70 is illustrated in Figure 3. There are portions of the Pier 70 Master Plan Area (i.e. parcels identified as 2, 4, 6, 8 or Slipways Park in the 2010 Master Plan and 2011 Site Investigation, as further described in Section 2.1.2 of this RMP) that may require additional risk evaluations and potentially mitigation measures if developed for residential use.

1.2 Intended Users

This RMP is intended for use by the following entities or their designees who may occupy, manage, or perform or oversee maintenance or construction within the Pier 70 RMP Area as delineated in Figure 1:

- The Port;
- "Project proponents": developers, ground lessees, tenants, licensees or other entities authorized by the Port to conduct operations, maintenance, construction or other activities at the Site;
- The Water Board; and,
- SFDPH.

The Port shall provide a copy of the RMP to project proponents who will perform work that poses the potential for exposure to contaminants on the Site. However, the Port as landowner retains ultimate responsibility and authority for compliance with all aspects of the RMP and LUC Agreement.

1.3 Regulatory Oversight

The Water Board is the lead agency overseeing environmental investigation and remediation activities at the Site, including implementation of this RMP, except for implementation of local regulations as discussed below with respect to the City and County of San Francisco Health Code, which is implemented by SFDPH. The Water Board is also the beneficiary of the environmental deed restriction. The Water Board may delegate portions of the regulatory oversight to SFDPH. The United States Environmental Protection Agency (EPA) is the lead agency with respect to impacts from polychlorinated biphenyls (PCBs) in Crane Cove Park under the Toxic Substances Control Act (TSCA), as it applies.

The Pier 70 RMP Area is outboard of the original historic shoreline and therefore subject to the requirements of the City and County of San Francisco Health Code Article 22A. Article 22A states that construction projects located in San Francisco which are bayward of the historic 1852 high tide line and disturb more than 50 cubic yards (cy) of soil, require assessment of the site history and subsurface soil quality². The SI, combined with information from previous investigations, documented the Site history and characterized the Site subsurface conditions. The shallow subsurface materials consist of fill placed

² Article 22A requires analysis of soil for TPHg,TPHd, TPHmo, PAHs, VOCs, PCBs, CAM 17 metals, asbestos, cyanide, pH, methane (soil gas), and, sulfide.

along the historic shoreline. As discussed below and typical of bayshore fill sites, this material contains residual chemical concentrations that exceed FS/RAP risk-based cleanup levels. Therefore, the chosen soil remedy consists of capping native soil with durable cover to mitigate the exposure of human and ecological receptors to residual COCs (T&R, 2012). This RMP contains risk mitigation and soil management procedures required by Article 22A as outlined in Sections 2.2 and 6.5 respectively; however, additional project-specific review and/or sampling may be required by SFDPH as outlined in Section 4.2.

The San Francisco Health Code Article 22B requires dust control during construction (demolition, earth-moving activities), including implementation of certain dust control measures. In some circumstances, Article 22B requires monitoring to ensure that dust is not emanating from the construction site and reporting to SFDPH. The Dust Control Plan (DCP) in Appendix B incorporates the Port Building Code Section 106A.3.2.3, San Francisco Health Code Article 22B, and the California Air Resources Board (CARB) Airborne Toxic Control Measures (ATCM). The RMP also requires that appropriate dust mitigation measures are performed as outlined in Section 6.6.

The EPA under TSCA is involved in an advisory capacity to Water Board in matters relating to impacts due to PCBs. As described below and in the approved RAP for the Site (T&R, 2012), PCBs have been detected only in soil at Crane Cove Park.

2.0 BACKGROUND

The Pier 70 Risk Management Plan Area has been in use for various industrial and commercial purposes since at least the 1850s. The majority of the Site is currently covered by buildings or pavement with the exception of portions of Crane Cove Park and other small isolated unpaved areas (Figure 2). On-site tenants at the time of RMP publication include BAE San Francisco Ship Repair, a large drydock and ship repair facility, and smaller interim-use facilities including automobile towing and storage, trucking, various storage and warehousing operations, and a scrap metal yard.

2.1 Summary of Environmental Conditions

Several investigations and remediation activities have been conducted throughout the Pier 70 Master Plan Area between 1989 and 2011. The Site Investigation (SI) and Human Health Risk Assessment (HHRA) conducted in 2009 and 2010 included soil gas, soil and groundwater sampling and analysis. Results from that and previous investigations were evaluated with respect to applicable regulatory standards and risk-

based site-specific Cleanup Levels presented in the FS/RAP to identify COCs. A thorough discussion of Site environmental conditions is provided in the SI report (T&R, 2011) and summarized, including lists of COCs for all impacted media, in Section 4.4 of the RAP (T&R, 2012).

2.1.1 Soil

Pier 70 is like many areas along San Francisco's waterfront that are comprised primarily of fill material. Pier 70 soil contains naturally occurring metals and asbestos (NOA) as well as heavy hydrocarbons typical of bayshore fill material. Soil throughout the site contains polycyclic aromatic hydrocarbons (PAHs), metals and/or total petroleum hydrocarbons (TPH) at concentrations exceeding Cleanup Levels.

PCBs are present at concentrations above risk-based screening levels only in soil in the Crane Cove Park area. In 2002, there was a release of PCB transformer oil from Building 50 in this area. The Port conducted emergency response and subsequent removal actions that are described in the *Final Closure Report PCB Removal Action Building 50, Pier 70* (AEW Engineering, 2008). During excavation of PCB-impacted soil, confirmation samples collected at 10 feet below ground surface (bgs) were found to contain PCB at concentrations exceeding risk-based Cleanup Levels in five samples. At this depth, the soil does not pose a human health risk to park users, nor is it anticipated that park construction or maintenance will require excavation of soil to that depth. PCBs are also present in shallow soil elsewhere within the Crane Cove Park area at concentrations above Cleanup Levels (T&R, 2011 and 2012).

The SI included waste characterization analysis to assist in the development of appropriate soil management procedures for soil that may be removed during future construction activities. Results indicated that shallow soil in some areas (shown on Figure 4) exhibits characteristics of California-regulated hazardous waste due to concentrations of total and soluble metals. None of the analyses found concentrations exceeding criteria for federally-regulated hazardous waste. In shallow soil, metals are present at levels that would be regulated under California Hazardous Waste criteria in areas indicated on Figure 4. At approximately 20 percent of the historical and SI soil sampling locations, if removed from the Site, the soil would be classified as California-regulated hazardous waste due to total or soluble metals concentrations (T&R, 2011, 2012). None of the shallow soil sample results exceeded federal criteria for classification as hazardous waste; the remainder would be non-hazardous. None of the samples of deeper soil (greater than 10 feet bgs) would be characterized as state or federally-regulated hazardous waste.

2.1.2 Soil Gas

Benzene (in locations identified as Parcels 2 and 4 in the SI), naphthalene (in locations identified as Parcels 6 and 8 of the SI), and/or TPH as gasoline (TPHg) (Parcel 2 in the SI) were found in soil gas exceeding the Residential Cleanup Levels at four locations (Table 1 and Figure 5). The concentrations of these compounds detected in soil gas in these parcels do not pose a significant health risk based on the HHRA under current use or land use anticipated by the Master Plan. If residential development is proposed for locations where volatile organic compounds (VOCs) or TPHg in soil gas exceed the calculated risk-based Residential Cleanup Levels (Table 1 and Figure 5), such development would be subject to additional evaluation and/or potential mitigation measures in accordance with this RMP.

During the SI, 30 temporary soil gas probes were sampled and six semi-permanent probes were sampled up to four times. This maximum methane level detected (0.183%) is well below the 1.25% for protection of indoor air quality in overlying structures (T&R, 2011).

2.1.3 Groundwater

Vapor Intrusion

Benzene was found in groundwater at concentrations exceeding the risk-based vapor intrusion Residential Cleanup Level at one location in Slipways Park (Figure 5). TPH in the gasoline range was found to exceed its risk-based Residential Cleanup Level at one location at SI Parcel 4 (Figure 5). Concentrations of these compounds detected in groundwater do not pose a significant health risk based on the HHRA under current use or land use anticipated by the Master Plan. If residential development is proposed at either of the above referenced locations, such development would be subject to additional soil gas sampling and evaluation, and/or potential mitigation measures as described in Section 2.2.1 of this RMP.

DNAPL

Site investigations conducted by the Port and PG&E have found a hydrocarbon-based dense non-aqueous phase liquid (DNAPL) within some portions of the fill adjacent to and beneath the pier which forms the edge of the three southernmost historical dry docks on the Pier 70 Property (AMEC, 2011). PG&E has delineated the extent of DNAPL beneath Pier 70 associated with former Manufactured Gas Plant (MGP) operations and anticipates completing remediation activities at the former power plant and within the Site, as described in Section 2.2, in 2017.

NAPL

The SI found that residual petroleum is present in the form of non-aqueous phase liquid (NAPL), generally beneath and adjacent to the BAE Ship Repair facility as shown in Figure 5. The NAPL is present in discontinuous globules that are nonvolatile, insoluble, highly viscous, highly degraded and essentially immobile, and does not pose a significant risk to human health or migration to San Francisco Bay (T&R, 2011). Activities that would potentially encounter impacted groundwater will be governed by the RMP.

2.1.4 Known Existing or Former Below-grade Features

Utility maps for existing storm and sanitary sewer are presented in Appendix C along with historical water, steam, storm and sanitary sewer line maps. Underground storage tanks (USTs) were removed or investigated during previous investigations within Pier 70. During the SI, to further identify potential UST locations at the Site, T&R reviewed records and conducted field reconnaissance at the Site and determined that additional investigation or field sampling to investigate USTs is not warranted. A memorandum summarizing the UST reconnaissance is presented in Appendix C. However, unknown existing below-grade features, such as sumps, oil-water separators, steam lines, or additional USTs, may exist beneath building foundations or elsewhere that have not yet been identified or removed.

2.2 Remedy

2.2.1 Description of Remedy

The FS/RAP identifies the preferred remedy to protect human health and the environment and allow the reuse of the property. In summary, the remedy includes engineering controls and institutional controls that will mitigate the exposure of human and ecological receptors to residual COCs in the soil, soil gas, and groundwater beneath the Site. The remedy does not require any specific cleanup at the Site. The following components comprise the remedy:

- Installation of durable covers over Site soil and, where needed, shoreline revetment, to provide a physical barrier against the exposure of human and ecological receptors to COCs in soil, including metals, PAHs, petroleum hydrocarbons, and PCBs. Acceptable durable covers include:
 - New or existing building foundations.
 - New or existing streets and sidewalks.
 - New or existing hardscapes or paved parking areas.

- New landscaping on a minimum of 2 feet of clean import soil over a demarcation layer. The clean soil layer must accommodate the depth of root bearing zones and/or irrigation systems to assure 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.
- Six inches of gravel over a demarcation layer or geotextile.
- Shoreline revetment or other shoreline improvements.
- Long-term monitoring, maintenance, and repair of the durable covers. The required monitoring, operation and maintenance (O&M) for the durable cover are provided in the O&M Plan (Appendix A).
- Institutional controls, including land use and activity restrictions to prevent or minimize exposure to contaminated soil and soil vapor, and to prevent or minimize exposure to impacted groundwater by restricting activities related to groundwater.

Additionally, the RAP specifies that if residential land use is proposed in any portion of the site where VOCs have been found at concentrations above soil gas or groundwater Residential Cleanup Levels (Parcels 2, 4, 6, 8 or Slipways Park, see Figure 5 for specific locations within the subject parcels), then additional risk evaluation and/or mitigation measures to minimize or eliminate exposure to soil gas through the vapor intrusion pathway, may be required. Appropriate vapor intrusion mitigation measures include: i) additional soil gas sampling to verify current condition; ii) design of an intrinsically-safe building configuration; iii) installation of a vapor barrier and/or iv) design and installation of a vapor mitigation system (VMS). Additional soil gas sampling may be used to document that an unacceptable vapor intrusion risk (greater than 1×10^{-6} cancer risk or non-cancer hazard index greater than 1) does not exist under a project-specific scenario, potentially including residential occupation on the first floor, and therefore mitigation is not required

For the purpose of the RMP, ground surface within the Pier 70 RMP Area is categorized as “native soil”, “existing cover”, or “durable cover”. The term “native soil” refers to existing Site soil, regardless of its provenance, that is not paved or otherwise covered. The native soil in the Pier 70 RMP Area consists mostly of historic fill placed during the evolution and development of Pier 70 and typically contains COCs at concentrations that pose a potential threat to human health and the environment as described in the FS/RAP. “Existing cover” refers to any of the various types of surface treatments that currently exist within the Pier 70 RMP area, including streets, buildings, sidewalks, asphalt, concrete paving, and/or

other durable hardscape that prevents contact with native soil. The term “durable cover” as used in this RMP refers to existing durable surface treatments that adequately prevent exposure to native soil, as well as new or replacement durable cover installed during construction and redevelopment, such as those listed above.

Currently, the Site includes existing durable cover or hardscape of several types. The existing hardscape at Pier 70 is considered acceptable and conforms with the requirements of a durable cover discussed in the FS/RAP and this RMP. In some portions of the Site (i.e. Crane Cove and Central Plaza Parks), native soil is exposed and acceptable durable cover is not yet present. After full implementation of the remedy, durable cover that conforms with the intent of the RAP, including buildings (existing, historic structures rehabilitated for reuse, new construction), streets, sidewalks, asphalt and concrete pavement, hardscape, two-foot minimum layer of clean fill underlain by a demarcation layer to identify native soil, and other approved covers will exist throughout the Site. Certain shoreline areas may have a rock revetment or other shoreline strengthening measures installed for stabilization and erosion control. Such shoreline improvements will be designed to prevent erosion of contaminated soil into the bay.

PG&E has completed and the Water Board has approved a FS for the northeast portion of the GenOn site and the southeast portion of Pier 70 (Haley & Aldrich, 2012). The subject area is shown on Figure 5. For the portion of the DNAPL-impacted area within the Pier 70 site, the remedial action plan includes excavation of soil containing continuous DNAPL and installation of durable cover over remaining FS area.

2.2.2 Cleanup Levels

The chosen soil remedy consists of capping native soil with durable cover to mitigate the exposure of human and ecological receptors to residual COCs that exceed the soil Cleanup Levels (T&R, 2012). The risk-based Cleanup Levels for COCs in soil gas and groundwater established by the HHRA are listed in Tables 1 and 2. The cleanup levels will be used to assess unanticipated soil gas and groundwater conditions as discussed in Section 6.9.

3.0 RISK MANAGEMENT PLAN

This RMP defines and governs two types of activities that will occur at the Site: “ground disturbing”, and “prohibited” activities as described in Section 4. The geographic area subject to this RMP, the “Site” or “Pier 70 RMP Area”, is depicted on Figure 2. This RMP was prepared solely for use within the Site and is not intended to be applied for the management of risks within any other area or project. Although this

RMP sets forth the requirements to appropriately manage the potential risks in soil and groundwater prior to, during, and following remedy completion, the RMP is not intended to catalog all other legal requirements that may apply to the property or to activities conducted under the RMP such as, worker health and safety as governed by the Occupational Safety and Health Administration (OSHA), Building Code, Port Building or Encroachment Permit conditions, or other applicable laws, regulations or agency requirements.

Although intertidal portions along the perimeter of the Pier 70 RMP Area are not included in the RMP, construction and maintenance activities at the Site may include maintenance or improvements to revetment walls, rip rap, sheet piles, quay walls, or bulkheads at the bay margin. Work in these areas will require permits and approvals from the Port and other appropriate agencies, which may include the US Army Corps of Engineers (USACE), US Fish and Wildlife Service (USFWS), San Francisco Bay Conservation and Development Commission (BCDC), Water Board, and State Lands Commission.

3.1 Regulatory Oversight Responsibilities for RMP Implementation

The Water Board is the lead regulatory agency for this RMP. The SFDPH has jurisdiction over implementation of local regulations, including Articles 22A and 22B. This RMP specifies site mitigation measures that will be implemented throughout the Pier 70 RMP area, for activities ranging from single excavations to excavation and grading activities conducted over a large area during various phases of development. Implementation of the RMP will mitigate potential risks to human health and the environment due to the presence of COCs in soil, soil gas, or groundwater. These risk management measures generally fulfill the requirements of a Site Mitigation Report as referenced in Article 22A and the dust control measures referred to in Article 22B. However, SFDPH remains responsible to review project-specific information for compliance with Article 22A.

The Water Board and SFDPH roles include, but are not limited to:

- Review, oversight, and approval of notification packages and completion reports for any ground disturbing projects as described in Section 4.3 (Water Board).
- Review and approval of modifications to the RMP (Water Board in consultation with SFDPH).
- Inspection to verify compliance with the RMP procedures and protocols (Water Board and SFDPH).
- Review and approval of notification packages, environmental health and safety plans (EHSP), and completion reports in accordance with Article 22A (SFDPH).

- Review and approval of dust control and monitoring plans in accordance with Article 22B (SFDPH).
- Review and approval of activities involving unknown conditions that fall outside the prescribed remedy for the Site (Water Board, in consultation with SFDPH). If required (see Section 2.2.1), review and approval of VMS design plans (Water Board, in consultation with SFDPH).

As the property owner and issuer and approver of building and encroachment permits, the Port will be copied on, review, and approve all notification packages.

A summary of the RMP notification and regulatory oversight process is presented in Table 3. Contact information for the Port, Water Board and SFDPH is presented in Appendix D. The categories of activities subject to this RMP are described further in Section 4. The required regulatory approvals for each type of activity are described below.

3.2 Ground Disturbing Activities

The project proponent must notify the Water Board of proposed activities that will disturb areas 1,250 square feet (sf) or larger in accordance with Section 4.1. The project proponent must also notify SFDPH (Section 4.2) of any activities that will disturb 50 cy or more of native soil, and therefore are subject to Article 22A, or will disturb one-half acre or more of soil, and therefore are subject to Article 22B. Project proponents must apply for Port Building and Encroachment Permits as applicable, and the Port must be copied on all Water Board and SFDPH notifications.

Ground disturbing activities that impact less than 1,250 sf, do not require advance notification to the Water Board. The project proponent must provide documentation compliant with the RMP (including photographs) using the Annual Owner RMP Inspection Report (see Section 4.4 and Appendix A) which will be provided to the Port for inclusion in the Annual Inspection Report to the Water Board.

3.3 Prohibited Activities

Using groundwater and growing vegetables, fruit, or any edible items in native soil for human consumption are prohibited throughout the RMP Area. Plants for human consumption may be grown in the RMP Area if they are planted in raised beds (above the approved cover) containing non-native soil. Fruit trees (including nut-bearing trees) may also be planted provided that they are grown in containers

with a bottom that prevents the roots from penetrating the native soil. The Port and regulatory agencies have the authority to perform inspections without prior notice to verify that no such activities are being performed.

3.4 Compliance with Existing Requirements

Compliance with this RMP is required in addition to all other applicable federal, state and City permitting and environmental regulations and procedures for any construction or maintenance activity. The following is a list of state and local agencies that have environmental, health and safety requirements for certain construction and maintenance activities, in addition to those described in this RMP. This list is a summary, and is not intended to be complete.

- Bay Area Air Quality Management District (BAAQMD) – regulates air emissions and/or dust control.
- City and County of San Francisco Public Utilities Commission (SFPUC) – Regulates wastewater discharge to the City’s combined storm and sanitary sewer system, including permitting discharges from dewatering.
- OSHA – regulates worker health and safety.
- The Port is responsible for numerous regulatory and proprietary approvals, including issuing building and encroachment permits. With respect to implementation of the RMP, the Port will be responsible for ensuring that development design and construction within the Pier 70 RMP Area conform to the RMP and other agency requirements through its various project review and approvals.
- USACE and Water Board permit construction in or over water.
- BCDC - approval of any land use and construction within its jurisdiction, generally within 100 feet of the shoreline.
- SFPDPH implements Articles 22A (also known as the Maher Ordinance), which requires soil characterization and soil management planning prior to construction, and 22B, which requires dust control during construction. SFPDPH also issues soil boring and monitoring well permits.

3.5 Agency Site Access

The Port, Water Board, and SFPDPH are responsible for enforcing compliance with the RMP and may elect to visit the site, as needed. In addition, project proponents will submit copies of all permit applications,

construction drawings, and construction specifications to the Port, Water Board, and SFDPH for information and consideration in enforcing compliance with the RMP.

3.6 Modifications to the RMP

Modifications to the RMP may become necessary to address unanticipated events, such as newly-identified COCs for which cleanup levels have not been established, in the event of a remedy failure, or a change in regulatory requirements. Additionally, based on the progress of development, modification or termination of specific conditions or controls stated in this RMP may be warranted. The oversight agencies may also propose modifications to the RMP based on new information that the RMP must address for the remedy to remain protective of human health and the environment. The Port as the landowner and the Water Board as the lead agency and in consultation with SFDPH will review any proposed revision to the RMP, request any additional background information needed, and issue a decision regarding the proposal within approximately 60 (calendar) days of receiving the proposal and any additional requested information. Both the Port and Water Board must agree to any proposed modification to the RMP before it is approved.

Modification to the RMP will consist of a permanent change to the entire document, which would affect the entire Pier 70 RMP Area and result in a revised or amended RMP (termed Amended RMP).

Alternatively, individual variances may be granted on a project specific basis with notification to and approval by the Water Board (termed RMP Variance). RMP Variances would be granted on a single time basis and affect only the area or activity covered by the request for variance.

Once approved, an Amended RMP would be distributed to all then current Site owners and lessees and filed in the public information repositories (Section 3.4). A Variance approval would be returned to the project proponent and also added to the information repositories outlined in Section 3.4.

Changes in notification personnel (Appendix D) are not considered a modification to the RMP and do not require regulatory agency approval, but will be documented in the public information repositories.

3.7 Public Information Repositories

Key technical documents will be available in the File Room at the Water Board's Oakland office and online at the Water Board's GeoTracker website. Interested parties may make appointments with the Water Board to review and copy any Site documents in Water Board files. Electronic versions of the documents

may be downloaded from the GeoTracker website:

http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000001210.

Additionally, the Port will maintain information regarding the project for convenience of interested people where Site documents will be available for public review. Information repositories will contain reports, fact sheets, public notices, and other information as appropriate, and will be updated as documents are issued. Information will be available :

- On-line at <http://www.sf-port.org/index.aspx?page=245> [to be established]; electronic versions of key documents may be downloaded and
- At the Port's offices at Pier 1 on The Embarcadero; to be made available upon request.

4.0 GROUND DISTURBING ACTIVITY NOTIFICATION AND REPORTING

“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. Examples of anticipated ground disturbing activities include, but are not limited to:

- Excavation of trenches, potholes or other movement of native soil in support of the installation of new below grade utilities, foundations, or other foundational structures (e.g., sewer lines, water lines, storm water pump station wet wells, pile caps and/or grade beams, fences, etc.). Following completion of these activities, all excavated soil must be handled in accordance with the Soil Management Protocols and durable cover protocols as described in Section 6.5.
- Demolition of existing below-grade, at-grade or above-grade structures. Following completion of demolition activities exposed native soil must be covered with a durable cover.
- Grading for the purpose of raising and/or lowering site elevation, creating building pads, or to support road installation, and associated excavating, loading, hauling, stockpiling and/or compacting soil. Following completion of these activities native soils must be covered with a durable cover.

- Pre-drilling for pile installation, including drilling pilot holes through fill material prior to the installation of foundation piles.
- Extraction of groundwater and installation of new groundwater extraction, injection, or monitoring wells with the exception of construction, operation, and maintenance activities associated with responses or remedial actions undertaken by PG&E or for other purpose. In areas where there is no known groundwater contamination and to the extent that such activities will not impact areas of known groundwater contamination, temporary dewatering activities may be conducted including temporary pumping of groundwater to dewater below-grade excavations in support of both infrastructure installation and/or foundation installation, which may include both pumping of groundwater from an open excavation and/or pumping groundwater via perimeter temporary dewatering wells (typically used for building foundation installation). Additional information on groundwater management is provided in Section 6.10.
- Alteration, disturbance, or removal of the durable cover or project specific components of a remedy following completion and regulatory agency approval (including, but not limited to, revetment walls and shoreline protection).

Following completion of any ground disturbing activities, all native soil that has been moved from below the durable cover must either be hauled offsite in compliance with Section 6.8 or placed underneath the durable cover, when re-installed. Excavated soil may be moved within the Pier 70 RMP Area and used at other locations in the Pier 70 RMP Area so long as it is placed beneath a durable cover. All surplus excavated soil must be handled in accordance with the Soil Management Protocols in Section 6.5 and durable cover must be reinstalled as described in Section 6.2.

Any entity performing the above-noted activities will be required to implement a DCP (see Section 6.6 and Appendix B), including soil stockpile management (see Section 6.5.2), a Soil Importation Plan (SIP) (see Section 6.5.3), a Storm Water Pollution Prevention Plan (SWPPP, see Section 6.7 and Appendix E), their own EHSP (see Section 6.4 and Appendix F), and if needed, a Groundwater Management Plan (GMP, see Section 6.10 and Appendix G). A summary of ongoing or completed activities will be included in the Annual Inspection and O&M Checklist discussed in Section 4.4 and/or will be reported to SFDPH as a part of Article 22A requirements.

The risk management measures established in this RMP are appropriate and sufficient to ensure that ground-disturbing activities performed anywhere within the Pier 70 RMP area do not pose significant risk to human health and the environment. Activities that may disturb NAPL in groundwater (Figure 5) will include measures to appropriately manage and contain residual petroleum hydrocarbons.

Although the SI did not find VOCs in groundwater or soil gas that indicate a significant potential risk from vapor intrusion into structures under current or anticipated land use, additional sampling to evaluate vapor intrusion risk may be required if residential land use is planned in locations previously identified as having elevated VOC concentrations in soil gas and groundwater (see Figure 5). If warranted, vapor intrusion risk can be mitigated through engineering controls as described in Section 2.2.1. For projects that include construction of enclosed residential structures at these locations, the project proponent will submit vapor mitigation design drawings stamped by a professional engineer licensed in the State of California (California licensed professional), to the Water Board and SFDPH as part of the notification package (Section 4.2) prior to construction. The Water Board, in consultation with SFDPH will review and accept or request revisions. The completion report (Section 4.3) for any engineering controls will include as built design plans stamped by a California licensed engineer, inspection reports, and a project specific O&M plan.

4.1 Information Required for Water Board Notification

4.1.1 Notification for RMP Compliant Submittals

The project proponent must submit a notification to the Port and Water Board 45 days prior to performing any ground disturbing activity that disturbs 1,250 sf or more of native soil. A notification package must be submitted for activities ranging in size from a single excavation that exceeds the threshold square footage (1,250 sf) to grading and excavation for large areas undergoing one or more phases of development. Notifications are the responsibility of project proponent. The notification submittal must include the following:

- 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 California licensed Professional that describes construction of the applicable components of the remedy, including installation of durable cover in accordance with this RMP and potentially including VMS design plans if required.

- Completed project-specific plans including DCP (Appendix B), SWPPP (Appendix E), EHSP (Appendix F), SIP (Section 6.5.3) and GWMP (Appendix G) as applicable to the project.
- A project schedule, prepared to track activities and installation or restoration of the remedy (e.g., reinstallation of the durable cover) following completion of the ground disturbing activity.

Once the notification package is submitted to the Water Board and 45 days have passed without Water Board comment, the project proponent may proceed with the ground disturbing activity without a formal approval letter from the Water Board. The Water Board has the authority to stop work if they find that the notification package does not conform to the requirements of this RMP. This process does not replace or supersede the requirement for building or encroachment permits from the Port.

4.1.2 Notification and Approval Process of RMP Variance Submittals

If the notification package is requesting a specific variance from the RMP, in addition to the items discussed above in Section 4.1.1 it should also include:

- A precise description of the request and reason for variance from the RMP; and,
- 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 at least 60 days prior to performing the activity. The project proponent may not proceed with the project until the Water Board and Port have approved the variance.

4.2 Information Required for SFDPH Notification

The project proponent must submit a notification to the SFDPH of any ground disturbing activity greater than 50 cy in accordance with Articles 22A and/or affecting an area greater than one-half acre in accordance with Article 22B. The following documents must be submitted to SFDPH 45 days in advance of the proposed activity for review and approval:

- 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 an excavation footprint. If, based on historical results presented in the SI report (T&R, 2011), 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 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. Either a work plan or site evaluation report will be subject to SFDPH approval. Whether the project warrants submittal of a work plan or site evaluation report, a Site History Report will not be required.

- All of the items listed in Section 4.1.1 above as information required for Water Board notification.

4.3 Completion Reports

Following completion of the ground disturbing activity, the project proponent shall prepare a completion report for submittal to the Port, Water Board and SFDPH. One of the purposes of the completion reports is to document the activity and, if necessary, any corrective actions implemented in the event the ground disturbing activity had any unforeseen impact. A completion report shall include the following components, as appropriate:

- 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 O&M Plan for durable cover presented in Appendix A.
- Other appropriate documentation or components as specified as a condition of undertaking the subject activity and/or required by the Port and/or regulatory agencies.

The project proponent performing the work that requires prior notification to regulatory agencies (i.e. disturbing greater than 1,250 sf or 50 cy of native soil, or removal/replacement of more than 10,000 sf of durable cover) shall submit completion reports to the Port and regulatory agencies within 45 days of completing the ground disturbing activities.

The Port, Water Board, and SFDPH will review all completion reports to confirm that the actions taken are consistent with the RMP procedures and protocols. Within 45 calendar days of receiving the completion report, the Port and agencies will notify the entity performing the work of any discrepancies or deficiencies in the completion report regarding compliance with this RMP. The authors and regulators will work collaboratively to resolve such issues.

Upon concluding that the actions taken are consistent with the RMP and the RAP, the Water Board will issue an approval letter for the completion report.

4.4 Annual Inspection and Reporting to the Port and Water Board

The Port is required to conduct annual inspections and produce an Annual Inspection Report to be submitted to the Water Board by April 31 of each year. 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) will be responsible for completing an Annual Reporting and O&M Checklist (Appendix A) and submitting the Annual Reporting and O&M Checklist to the Port by March 31 of each year. The Port shall conduct annual site inspections of the Pier 70 RMP Area outside of those areas owned/operated by tenants or development partners, compile all owner/operator annual checklists, and submit an Annual Inspection and O&M Checklist (Appendix A) for the entire Site to the Water Board. The report prepared by the Port will include the results of the Port's annual inspection and self-certification of compliance with the LUC Agreement and RMP and any recommendations for any modification, update or revisions to the RMP. Any changes would be subject to the procedures for modification to the RMP discussed in Section 3.6.

Should the Port discover any actions or conditions inconsistent with the RMP at any time, including during the annual site inspection, the Port will 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 shall provide the written explanation to the Water Board within 15 working days of the Port's discovery.

The Port as the property owner is ultimately responsible for the annual inspection and reporting requirements, and incident reporting that is outside of the annual inspection process. The Port shall 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.

The Annual Inspection Report includes forms to be submitted to the Port that will allow it to report on the RMP activities that have been conducted over the previous year. The Port's submittal of these forms to the Water Board, with any additional explanation as required, will comply with the annual inspection and reporting obligations of the RMP.

5.0 RISK MANAGEMENT MEASURES PRIOR TO DEVELOPMENT

5.1 Maintain Existing Protections

Existing protections include access control measures (e.g., fencing, locks on building doors); signage (e.g., no trespassing, hazardous materials notification); and existing durable covers (e.g., streets and sidewalks, existing buildings, hardscaped or paved areas). Maintenance of these protections is the responsibility of the Port, as well as the project proponent as may be delegated by lease, license, permit, access agreement, or development agreement.

5.2 Control Access

Due to the fact that the remedy will not be fully in-place until some future time, the potential for trespassers or visitors to gain access to the Site and come into direct contact with potentially contaminated soil will be controlled through the implementation of the following access and perimeter security measures:

- Existing access control measures will be maintained, especially those areas with exposed native soil, while still allowing tenant, public, and others' access to specific portions of the Site as warranted.
- Security fencing will be placed as-needed to prevent pedestrian/vehicular access to unpaved areas. Gates will be closed and locked during non-business hours. Fencing will consist of a 6-foot chain link or equivalent fence.
- Access to any exposed native soil will be restricted with fencing and warning signs at approximately 200-foot intervals, where appropriate. Areas of unpaved soil will be accessible to Port staff and Port-authorized personnel.

- Warning signs should read as follows with 2-inch lettering height in black capital letters on a yellow background:

CAUTION- NO TRESPASSING
PORT OF SAN FRANCISCO PROPERTY
POTENTIAL ENVIRONMENTAL POLLUTION
NO GROUND DISTURBANCE
ALLOWED

CONTACT: (415) 274-0400
PORT OF SAN FRANCISCO

Compliance with and maintenance of the specific access control measures is the responsibility of the Port, and the project proponent that performs work on the Site prior to redevelopment, as may be delegated by lease, license, permit, access agreement, or development agreement.

5.3 Notification & Reporting

A fact sheet will be provided to notify Port tenants, project proponents, building owners and operators of existing conditions (such as areas of exposed native soil), requirements, and prohibited activities outlined in the RMP. The Port, Port tenants, project proponents, and building operators and owners shall provide a copy of the RMP to lessees, permittees, tenants, contractors, future transferees or any other party with the legal right to perform subsurface work on the property. However, the Port, Port tenants, project proponents, and building owners and operators remain responsible for compliance with all aspects of this RMP.

The Port will report annually to the Water Board and SFDPH on Site conditions, ground disturbing activities, development plans, and schedules through the Annual Inspection and Reporting process described in Section 4.4.

5.4 Existing Cover Disturbance

Any maintenance or repair activities that disturb more than 10,000 sf of existing cover must comply with the Existing or Durable Cover Disturbance Requirements presented in Section 6.2. If any activity disturbs more than 1,250 sf or greater than 50 cy of native soil, the project proponent must notify the Water Board and SFDPH in accordance with Section 4.1 through 4.4, and comply with Articles 22A and B.

6.0 RISK MANAGEMENT MEASURES DURING DEVELOPMENT

6.1 Access Control during Construction

Access to the Site during construction and maintenance activities will be limited to authorized personnel in compliance with EHSP requirements (Section 6.4).

The potential for trespassers or visitors to gain access to construction areas and come into direct contact with native soil will be controlled through the implementation of the following access and perimeter security measures:

- Except in streets, security fencing will be placed around any portion of the site that is under construction or where existing or other durable cover has been disturbed to prevent pedestrian/vehicular entry except at controlled (gated) points. Gates will be closed and locked during non-construction hours. Fencing will consist of a 6-foot chain link or equivalent fence unless particular safety considerations warrant the use of a higher fence. Use of fences during small routine maintenance activities will be determined in the EHSP.
- In streets, use a combination of K-rails or similar barriers and fences with locked gates.
- Post "No Trespassing" signs every 200 feet.
- Post signs warning that contamination within the fenced areas may be harmful to health.

Implementation of appropriate site-specific measures as outlined above will reduce the potential for trespassers or visitors to gain access to construction areas and to come into direct contact with soil or groundwater. Compliance with the specific access control measures is the responsibility of the Port and the project proponent, as may be delegated by lease, license, permit, access agreement or development agreement.

6.2 Existing or Durable Cover Disturbance

Following completion of any maintenance or repair work that disturbs any durable cover, the integrity of the previously existing durable cover shall be re-established in accordance with the protocols described in the O&M Plan. The O&M Plan describes procedures for the inspection, maintenance and repair of durable and soil covers.

Disturbance of the durable cover must follow the RMP requirements including the DCP (Appendix B) and, if applicable, a project-specific SIP (see Section 6.5.3). In landscaped areas, disturbed areas must be re-covered with either clean segregated soil (i.e. previously imported) or with minimum of 2 feet of imported clean soil that meets soil importation requirements. The layer of clean soil must accommodate the depth of root bearing zones and/or irrigation systems over a demarcation layer to assure that maintenance workers will not directly contact any of the native soil below the demarcation layer. When a project is complete, project proponents must document that the durable cover was replaced with one of the approved durable covers (see Section 4.3 and 4.4). Documentation is to include photographs of the work, measured cover thickness and/or elevation survey, and a statement signed by the person(s) performing the maintenance activities that the work was completed as per these instructions. This documentation will be attached to the RMP annual inspection form.

The project proponent will submit a completion report documenting that any disturbed cover is replaced with one of the acceptable durable covers specified by the RMP to the entities previously notified in accordance with the protocols described in this RMP. The Port and the regulatory agencies have the authority to inspect to verify that these conditions are being met.

6.3 Notification for Ground Disturbing Activities

The project proponent shall notify the Port, Water Board and/or SFDPH prior to conducting ground disturbing activities in accordance with Section 4.1 and 4.2. Following completion of ground disturbing activities, any affected portions of durable cover will be restored as described in this RMP and the project proponent shall prepare a completion report as described in Section 4.3.

6.4 Environmental Health & Safety

Construction and maintenance contractors, whose workers may contact native soil, soil vapor, or groundwater within the RMP Area during activities disturbing 50 cubic yards or more are required to prepare project-specific EHSPs under the direction of a CIH and in a manner consistent with applicable occupational health and safety standards, including, but not limited to OSHA 1910.120. If a ground disturbing project triggers Article 22A, the EHSPs must be certified and stamped by a CIH and submitted to SFDPH for review and approval. The EHSPs will be maintained by the contractor at the Site.

It is the responsibility of the contractor preparing their EHSP to review information available in the project information repositories (see Section 3.4) regarding site conditions and potential health and safety

concerns. It is also the responsibility of the contractor or other person preparing an EHSP to verify that the components of the EHSP are consistent with applicable OSHA occupational health and safety standards and currently available toxicological information for potential COCs at the work site. Contractor compliance with the RMP obligations will be specified in the project proponent's contract documentation for the contractors performing subsurface work. Each contractor must require its employees who may directly contact native Site soil or groundwater to perform all activities in accordance with the contractor's EHSP. Each construction contractor will assure that its onsite construction workers will have the appropriate level of health and safety training, site-specific training, and will use the appropriate level of personal protective equipment as determined in the relevant EHSP based upon the evaluated job hazards and monitoring results. An example EHSP outline is included in Appendix F.

6.5 Soil Management Protocols

6.5.1 Movement of Soil

The Pier 70 RMP Area is considered to be a single area of contamination, and soil within the boundaries of the Site may be moved within or between various portions of the Site, managed and reused without need for sampling, provided that reuse is conducted in accordance with this RMP and that no unknown or unexpected conditions are encountered. Soil that is excavated and moved must remain within the RMP Area and must be placed under durable cover. Soil reuse must be addressed in the notification package (Sections 4.1 and 4.2). Soil moved within the Pier 70 area may be temporarily stockpiled with adequate protection, as further described in Section 6.5.2, until final placement under durable cover. Soil which originates outside the RMP Area and is brought into the RMP Area must comply with requirements presented in Section 6.5.2 and Section 6.5.3.

Trucks used to transport solid bulk material, such as soil or other construction materials, that have the potential to cause visible dust emissions will be loaded in a manner to provide at least 1 foot of freeboard. When transported within or leaving the Site, loads will be either covered with a tarp, or the materials will be sufficiently wetted to prevent dust generation. Unpaved haul routes will be wetted or stabilized to prevent dust generation; trucks will not exceed speeds of 10 miles per hour. Potential impacts from dust associated with the handling and movement of soil, soil compaction, soil stockpiling, etc., will be addressed through the implementation of the DCP (Appendix B).

6.5.2 Soil Stockpile Management Protocols

Stockpiling of excavated and/or imported soils may be necessary on a temporary basis to support the logistical phasing of the redevelopment activities. Whenever possible, soil stockpiles will be located in close proximity to the work area or the ultimate disposition area as practicable within the Site.

Stockpiles will be managed in compliance with storm water runoff and dust control requirements. Storm water runoff requirements will be specified in a project-specific SWPPP and the DCP. The project specific SWPPP will be generated for each project involving earth disturbing activity and is incorporated herein by reference. The DCP that will apply to all work is summarized in Section 6.6 and the detailed plan is included in Appendix B. In general, stockpiles must be covered with a tarp, wetted, sloped, or controlled via appropriate means and methods as specified in the DCP (Appendix B). Best management practices (BMPs) for erosion and sediment control will be implemented, as specified in the SWPPP (Appendix E), during construction activities. BMPs may include diversion of drainage from the stockpiles, installation of silt fencing/straw bale filter barriers on the down gradient toe of the stockpile slope and dust control. Stockpiles will be under control of the project proponent at all times and inspected at least weekly to ensure dust control and runoff control measures are functioning adequately and as specified in the appropriate plans.

6.5.3 Soil Import Criteria

All soil imported onto the Site will be subject to sampling and soil quality controls established in a project-specific SIP, to be prepared by the project proponent, stamped by a California licensed Professional, and provided to the Water Board, SFDPH and Port as part of the Notification Package (Section 4.1). When the chemical properties of imported fill are known (e.g., engineered fill), sampling may not be required. The SIP may include reference to the Department of Toxic Substances Control's (DTSCs) October 2001 Clean Imported Fill Material Information Advisory or other appropriate regulatory guidance. Soil quality parameters for acceptable imported soil are provided in Table 4 and based on the Water Board Direct Exposure Soil Environmental Screening Levels (ESLs) for residential land use (Water Board, 2013 Table K-1), the Residential California Human Health Screening Levels (CHHSLs; California Environmental Protection Agency, 2005), or background concentrations for metals in soil. If an ESL, CHHSL or background concentration is not available the EPA Regional Screening Levels (RSLs) for Residential Land Use will be used (EPA, 2013). Import soil with visual or olfactory evidence of petroleum hydrocarbons is prohibited. The Water Board may approve the placement of imported soil that does not meet direct exposure ESLs or background levels. It is important to note that the soil remedy described above in

Section 2.2.1, allows COCs in soil at concentrations exceeding Cleanup Levels (T&R, 2012) to remain in place under durable cover.

6.6 Dust Control Plan

A DCP (Appendix B) identifies the measures that will be taken to reduce particulate emissions during demolition of existing structures, grading, soil handling and stockpiling, vehicle loading, utility work, truck traffic and construction of site infrastructure. The DCP incorporates 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 CARB ATCM. As described in Section 2, NOA has been found in the serpentinite bedrock and soil throughout the San Francisco Bay Area, and within the Pier 70 RMP area. Projects involving disturbance of one acre or more of native soil in such areas are subject to the ATCM, including requirement for an Asbestos Dust Mitigation Plan (ADMP) to be submitted to and approved by the BAAQMD.

6.7 Construction Stormwater Management

A Construction Storm Water Pollution Prevention Plan (Construction SWPPP) will be required prior to the start of construction projects that disturb one acre or more of soil. The Construction SWPPP will describe the storm water pollution prevention measures that contractors will implement during construction. The Construction SWPPP must conform to the requirements of the California State Water Resource Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS00002, Waste Discharge Requirements (WDRs) for Discharges of Stormwater Runoff Associated with Construction and Land Disturbance Activities. Compliance with the SWPPP will be maintained throughout the duration of the construction work. The SWPPP will be prepared by a Qualified SWPPP Developer (QSD) per Section VII of the 2009-0009-DWQ Permit (http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/stormwater/construction.shtml) A Construction SWPPP outline appears in Appendix E.

Because the permittee must own the title to the land, the Port of San Francisco will apply for coverage under the state-wide general permit and be the permittee. Project proponent or contractor shall retain a Qualified SWPPP Developer (QSD). The QSD shall work with the Port to file the required project record documents, including a Notice of Intent (NOI) with the SWRCB prior to commencement of regulated construction work. All decisions pertaining to this permit shall be made by the QSD with oversight by the

Port staff that are responsible for the Municipal Separate Sanitary Sewer System (MS4) Permit. Project proponents and contractors shall abide by the Construction Permit in full.

Construction projects that disturb less than one acre of land will be subject to building and encroachment permit requirements that may include preparation of a SWPPP or other BMPs.

6.8 Off-site Soil Disposal

Soil excavations will be required during construction of utility trenches, building foundations and other facilities. It is likely that excavated soil will be reused within the RMP area. As a result, offsite soil disposal should be limited. Any offsite soil disposal is subject to all applicable federal and state laws and regulations. All activities associated with waste disposal, such as truck loading, truck traffic and decontamination of trucks leaving the facility will be performed in accordance with the DCP provided in Appendix B (and summarized below) and any other applicable federal or state law or regulation.

Project proponents generating surplus soil, which cannot be reused on-site and is to be removed for off-site disposal, are the generators of the waste soil and are responsible for all testing, waste classification, selection of appropriate disposal site, transportation, and all documentation related to off-site disposal of soil, debris, or other waste resulting from the project proponent's activities. Although SI data indicate that soil within the RMP area would generally not be classified as hazardous waste, soil removed from the site must be characterized and managed in accordance with Title 22 of the California Code of Regulations, Division 4.5, Chapter 11, if applicable, as well as the requirements of the disposal facility, and any other applicable law. To the extent applicable, labeling requirements for transportation of waste shall additionally be in accordance with Title 29 of the Code of Federal Regulations, Parts 172 and 173.

All soil to be disposed will be taken only to a certified and permitted California landfill or an equivalent out-of-state landfill, as appropriate and as determined by the waste profile.

6.9 Unanticipated Conditions Response Protocol

The potential exists for encountering unknown conditions during the course of development. Unknown conditions are physical or chemical conditions that have not been previously identified and evaluated as documented in the SI and FS/RAP. Unknown conditions may include unanticipated soil and/or groundwater contamination, unexpected subsurface structures, buried pipelines, USTs tanks, and/or other visual or olfactory evidence of contamination. This section establishes a protocol for the initial

response to the discovery of an unknown condition, notification protocols, and a path forward such that development activities can continue safely. The site-specific health and safety training that project proponents are required to provide to site workers will include instruction on how to identify potential unknown conditions.

The primary purposes of this protocol are to: i) provide initial required response and notification of the discovered condition, ii) prescribe the collection and analysis of initial samples; and iii) provide the regulatory agencies and the Port with initial sampling data, documentation of proposed further work, and results of response actions, when complete. The specific sampling to be conducted will be dependent on the nature of the discovered condition, COCs and potential impacts, and Water Board and SFDPH requirements. The primary SFDPH contact (Appendix D) will manage or refer the unanticipated condition within SFDPH depending on the condition identified.

Buried physical objects including USTs, sumps, barrels, drums, containers, or other underground structures of potential concern, and/or visual or olfactory evidence of contamination could be discovered during site grading and excavation activities. Visual or olfactory evidence of potential contamination would include, but is not limited to:

- Oily or shiny soil or soil saturated with free-phase petroleum product;
- Soil with a significant chemical or hydrocarbon-like odor;
- Groundwater odor, sheen or free-phase globules; or,
- Any other indication that contamination other than that identified by the SI and FS/RAP may exist that would trigger notification protocols.

If unexpected subsurface conditions are encountered during construction, the project proponent will initiate the procedures described below.

For UST encounters, the contractor must stop work, notify the SFDPH contact (Appendix D) and gain permits from San Francisco Fire Department (SFFD) and SFDPH Hazardous Materials Unified Program Agency (HMUPA) before proceeding. If an UST is broken open, then the contractor should immediately take action to stop or prevent a release by removing fluid, and then notify SFDPH, SFFD and HMUPA.

6.9.1 Field Screening

Upon initial discovery, the project proponent or on-site representative will initiate field screening and physical observation of the affected soil or other unanticipated condition. Measures may include conducting field monitoring by taking organic vapor readings using portable field screening devices such as an organic vapor monitor (OVM), an organic vapor analyzer (OVA), and/or photoionization detector (PID).

6.9.2 Health and Safety

In accordance with the site-specific EHSP, appropriate measures will be undertaken to ensure worker safety in areas where unknown conditions are encountered. The Site Safety and Health Officer (SSHO) will be responsible for evaluating any change in site conditions. The SSHO may stop work to determine if the level of site security and personnel protective equipment is adequate. If warranted, the area in which the unknown condition was encountered will be secured with barricades or fencing, as appropriate, and signage will be installed to prevent unauthorized access to the area.

6.9.3 Notification

Upon discovery of a non-emergency unanticipated subsurface condition as described in Section 6.9, the project proponent shall notify the Port, Water Board and SFDPH as soon as practicable, but in no case more than 5 days after discovery. If any unanticipated subsurface condition is discovered work must stop and the project proponent must consult with a California licensed Professional.

Most subsurface work will require a building permit or encroachment permit from the Port, and a Port Permit Inspector will be assigned to each permit. For large development projects, the Port may assign a designated representative working under direction of the Port. The project proponent should first notify the assigned Port Permit Inspector or designated representative of discovery of unanticipated conditions to facilitate a coordinated response by the Port. Contact information for referenced agencies is provided in Appendix D. Table 3 summarizes notification procedures for unanticipated conditions.

6.10 Groundwater Management Protocols

As presented in Section 2.0 and Figure 5, there are localized areas within the RMP area where NAPL and DNAPL have been found in groundwater. This section describes protocols to follow during performance of ground disturbing activities in these areas in order to minimize worker exposure to contaminated

groundwater and provide for the appropriate management of groundwater containing COCs. All activities discussed below will require notification and completion reporting in accordance with the protocols described in Section 4.0.

6.10.1 Temporary Dewatering Activities

Current development plans include excavation of native soil to depths that may be below groundwater levels to support the installation of utilities, construction of parks, and residential and commercial development. Due to the depth of these proposed excavations, temporary construction dewatering may be necessary. A GMP to manage the groundwater during construction activities to protect workers' health and safety and ensure proper handling of extracted groundwater will be prepared by each project proponent executing the construction effort. A draft GMP will be submitted to the Port and Water Board for review and approval. A GMP outline is provided in Appendix G.

If it is determined via the procedure outlined in the GMP that construction necessitates the use of temporary dewatering and that the dewatering activities may occur in or around an area of known NAPL or DNAPL in groundwater, the work plan submitted to the Port and Water Board for review and approval prior to construction will discuss the dewatering scope and related risk management measures. As a general guide, the following risk management protocols will be included in the work plan:

- Conduct preliminary estimates of the amount of water that will need to be removed and the duration of pumping for the specific construction activity.
- Review of available groundwater monitoring data to evaluate groundwater quality in the vicinity of the planned dewatering activities.
- Based on the location of the proposed dewatering, a California licensed Professional will evaluate whether the volume of water that would need to be removed would result in significant alterations in the groundwater flow patterns.
- If the volume estimates, duration estimates and location of the groundwater dewatering suggest that such activities are not likely to significantly alter groundwater flow patterns, then simple dewatering methods, such as use of a sump pump, may be proposed to prevent groundwater from accumulating in an open excavation.
- Water removed during dewatering activities will be sampled and tested for profiling and the water disposed of in accordance with applicable permits and regulations. If approved in advance by the Port and Water Board, 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. The project proponent may also apply for an NPDES permit through the Water Board for discharge to the Bay. Compliance with provisions of any discharge permit is the responsibility of the project proponent (or other entity designated by the Port or project proponent).

- The results of the analysis and the plans for dewatering and disposition of accumulated groundwater will be contained in the notification to the regulatory agencies.

6.10.2 Conduits Prevention

As much as practicable, installation of subsurface utilities in areas of known NAPL or DNAPL in groundwater will be avoided. Prior to subsurface utility trench installation in areas of known contamination, existing groundwater monitoring data will be evaluated by a Professional Engineer or Geologist licensed in the State of California to identify areas where NAPL or DNAPL remain at the site. As described in Section 6.10.1, a GMP will be approved prior to the start of construction activities.

Backfill placed into utility trenches that extend through the vicinity of known NAPL or DNAPL contamination may create a horizontal conduit for impacted groundwater and/or soil vapor containing COCs to flow and migration into other areas of the site and/or the Bay. In the event that such trench installation is proposed, the project proponent's design plans submitted for Port and regulatory agency review and approval prior to construction will include risk management measures to minimize the potential for creating conduits. The appropriate method for managing the groundwater and soil vapor will be determined by a California licensed Professional and will be approved by the regulatory agencies.

Groundwater

Material that is less permeable than the surrounding soil can be placed at 200-foot intervals within the trench through a variety of methods. At a minimum, less-permeable material can be placed in the utility trench at the edges of the area of known groundwater contamination to disrupt the flow into the trench backfill. One method is backfilling a short section of the utility pipe with a concrete or cement/bentonite mixture. Another method is the installation of a clay plug by compacting the clay around the circumference of the pipe for a five-foot section of trench. A third method is the installation of barrier collars (cutoff features) around the pipes by forming and pouring concrete in place. Trench plug locations will be selected to mitigate lateral migration of impacted groundwater.

Soil Vapor

To minimize potential migration of soil vapor through backfill in utility corridors, currently available engineering controls may be used including sealing the end of utility conduits with inert gas - impermeable material such as closed cell polyurethane foam. The seals will extend into the conduit a minimum of six conduit diameters or six inches, whichever is greater (EPA, 2008). The need for soil vapor control in utility corridor backfill will be evaluated on a project-specific basis.

6.10.3 Groundwater Intrusion Prevention

For new subsurface utilities placed in the areas of known or newly discovered areas of groundwater contamination, the pipe joints of non-pressurized utilities (e.g., sanitary sewer, storm drain) will be adequately sealed to prevent COCs in groundwater from entering the buried piping, and all materials will be selected to ensure the integrity of the piping when in contact with known contaminants.

6.11 Groundwater Monitoring Wells

Groundwater monitoring wells may be present within the Site at any point in time, and additional wells associated with remedial action monitoring may be installed in the future. Prior to the initiation of any demolition or earth-disturbing activities, the project proponent will review all available information regarding the presence of groundwater monitoring wells, including maps of existing monitoring wells in the final RAP, which may be found in the public information repositories and on the Port's Pier 70 website. Locations of additional wells to be installed as part of remedial alternatives will be presented in future Remedial Design Implementation Reports and Remedial Action Completion Reports, which will also be made available in public information repositories and on the Port's website. Any abandonment, unintentional damage to, or replacement of groundwater monitoring wells will require notification, as described in Section 6.3, regulatory approval of a work plan as described in Section 4.2, and adherence to the procedures presented below in Sections 6.11.1 through 6.11.3. Only the Water Board can determine that a monitoring well that was installed as a part of a groundwater remedy is no longer needed or can be relocated. Assuming that Water Board approval for the work is obtained, any well that is part of a remedial action that is damaged or abandoned during construction must be replaced within sixty calendar days unless the Water Board grants an extension.

The Port, project proponent, tenant, or other authorized occupant must allow access to monitoring wells as-needed to perform any required monitoring or maintenance. Thus, regulatory approval must be

obtained prior to any action that will bar access to a monitoring well for a period of greater than seven calendar days.

6.11.1 Abandonment of Existing Monitoring Wells

Prior to the abandonment of groundwater monitoring wells, the project proponent (i.e., Port, Lessee, permittee, tenant or any other party with the legal right to perform subsurface work on the Site) will obtain Water Board approval, notify the Port, and select replacement well locations in coordination with the Port. If an existing groundwater monitoring well cannot be preserved, the well will be abandoned in accordance with applicable State and SFDPH regulations. The project proponent is responsible for obtaining all appropriate permits and approvals for well abandonment.

Following abandonment of groundwater monitoring wells, a completion report will be prepared by a California licensed Professional Engineer or Geologist describing the abandonment procedures and submitted to the Port and agencies. The report will include:

- The well location (with coordinates)
- Photographic documentation of the abandonment
- A description of the well destruction activities, including rationale for abandonment
- All associated permits and waste disposal manifests, if necessary
- Department of Water Resources (DWR) well completion and abandonment reports.

6.11.2 Replacement of Monitoring Wells

Any required replacement of abandoned monitoring wells that are part of an ongoing groundwater monitoring network will be re-installed within sixty days of the prior well's abandonment date unless the Water Board grants an extension. Replacement wells will be located as close as possible and constructed in the same manner as the original well, and will monitor, to the extent possible, the same groundwater zone as the original well. The location of any replacement wells will be documented by global positioning satellite equipment (GPS), marked and protected by the project proponent. The project proponent is responsible for obtaining all appropriate permits and approvals for well replacement.

Prior to the replacement of an abandoned well, a work plan, prepared by a California licensed Professional Engineer or Geologist, will be submitted to the Water Board. The work plan will include soil management protocols, sampling and analysis requirements for waste profiling, monitoring procedures,

health and safety requirements, the boring log of the original well (obtained from the public information repositories), proposed well construction details, and will describe procedures to be followed during installation of the replacement well. The location of the replacement well must be approved by the Port and Water Board.

Following installation of the replacement well(s), a monitoring well installation completion report (see Section 4.3) will be submitted to the Port and agencies. The report will include, among other things:

- Well location
- Identification of driller and drilling procedures
- DWR Well Completion Report
- Decontamination procedures
- Well installation procedures
- Lithologic log
- Well development procedures
- Horizontal location coordinates and vertical elevation of top of casing
- Well completion details (depth, screen interval, materials used, materials used, surface completion, etc.)
- Initial water level measurement
- Well sampling, if necessary
- Permitting information and
- Disposition of installation-derived wastes.

The report shall be signed by a California licensed Professional Engineer or Geologist.

6.11.3 Measures to Protect Monitoring Wells

Existing monitoring wells that are not removed prior to earthwork will be located by using global positioning satellite equipment (GPS), marked and protected by the project proponent, in coordination with the Port. All monitoring wells present within a construction area will be addressed in this manner before starting construction anywhere within subject area. Monitoring wells will be marked with brightly

colored paint if flush with the ground surface, or painted steel pipes or bollards. The pipes and bollards will extend above ground not less than four feet so as to be easily visible. All wells will be kept locked.

6.12 Shoreline Improvements

Construction and maintenance activities at the Site may include maintenance or improvements to revetment walls, rip rap, sheet piles, quay walls, or bulkheads at the bay margin. Although this RMP does not address intertidal and subtidal areas along the Pier 70 shoreline, it is anticipated that construction along the shoreline will include installation of durable cover and/or shoreline revetment designs that prevent migration of Site soil. Shoreline construction will be subject to existing regulatory and permitting requirements, and in the case of shoreline construction that is part of a remedial action, will be regulated by the Water Board. The Port and Water Board 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, potential activities being performed in these areas by others, requirements for work plans and other specific requirements.

7.0 RISK MANAGEMENT MEASURES AFTER DEVELOPMENT

7.1 Notification

Building or facility operators/owners and or tenants will 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. If any activities that occur after initial development disturb 1,250 sf or 50 cy or more of native soil, remove/replace 10,000 sf or more of durable cover, or request approval to vary from the requirements of the RMP, then Water Board and SFDPH must be notified in accordance with Sections 4.1 and 4.2.

7.2 Durable Cover Disturbance

If any maintenance or repair work disturbs durable cover, the integrity of the previously existing durable cover shall be re-established in accordance with the protocols described in Section 6.2 and the O&M Plan.

7.3 Health and Safety

Based on information provided by building or facility owner/operators, contractors that will perform any activity that will disturb native soil or impacted groundwater, including those listed in Section 4.0, must develop an EHSP to protect their workers during subject activities. Nothing in this section is intended to

relieve any person, including contractors or employers, of other mandated worker health and safety planning and training requirements under any federal, state, or local statute or regulations.

8.0 PUBLIC PARTICIPATION

This RMP was presented at a public meeting on 27 February 2013 and subject to a 30-day public review and comment period in March 2013. The RMP was revised to address comments raised during the public review period, and submitted to the Water Board and SFDPH on July 25, 2013. The Water Board approved this RMP in an approval letter dated 24 January 2014.

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- USEPA Regional Screening Levels for Residential Land Use, November 2012. Available Online at: <http://www.epa.gov/region9/superfund/prg/>

TABLES

Table 1
Cleanup Levels for Soil Gas
Pier 70 Master Plan Area
Risk Management Plan
San Francisco, California

Chemical	Vapor Pressure Limit (µg/L)	Cleanup Level for a Resident (µg/L)	Cleanup Level for a Commercial Worker (µg/L)	Cleanup Level for a Recreational User (µg/L)
Volatile Organic Compounds (VOCs)				
Acetone	1.6E+09	2.5E+04	2.6E+05	1.7E+07
Benzene	4.1E+08	8.3E-02	1.0E+00	6.4E+01
2-Butanone	5.1E+08	5.2E+03	5.3E+04	4.3E+06
Carbon Disulfide	1.5E+09	7.5E+02	7.7E+03	5.4E+05
Chloroform	1.2E+09	4.1E-01	5.1E+00	2.9E+02
Dichlorodifluoromethane	3.9E+09	2.4E+02	2.5E+03	2.1E+05
1,1-Difluoroethane	2.7E+09	3.8E+04	3.9E+05	2.8E+07
Ethanol	2.0E+08	4.6E+03	4.7E+04	3.0E+06
Ethylbenzene	5.4E+07	1.1E+00	1.3E+01	8.7E+02
4-Ethyltoluene	1.5E+07	5.0E+02	5.1E+03	4.3E+05
Tetrachloroethene	1.5E+08	4.6E-01	5.7E+00	3.8E+02
Toluene	1.4E+08	3.1E+02	3.2E+03	2.4E+05
1,1,1-Trichloroethane	9.4E+08	1.1E+03	1.1E+04	8.9E+05
Trichloroethene	6.2E+08	1.3E+00	1.6E+01	1.0E+03
Trichlorofluoromethane	4.4E+09	7.2E+02	7.5E+03	5.6E+05
1,2,4-Trimethylbenzene	1.4E+07	9.1E+00	9.4E+01	8.0E+03
1,3,5-Trimethylbenzene	4.8E+05	9.1E+00	9.4E+01	8.1E+03
Vinyl Acetate	4.2E+08	2.1E+02	2.2E+03	1.6E+05
m,p-Xylene	5.8E+07	7.8E+02	8.0E+03	6.3E+05
o-Xylene	3.8E+07	7.2E+02	7.5E+03	5.6E+05
Semi-Volatile Organic Compounds (SVOCs)				
Naphthalene	6.1E+05	9.0E-02	1.1E+00	8.1E+01
Total Petroleum Hydrocarbons (TPH)				
TPH-Gasoline	----	4.9E+02	5.1E+03	Unlimited

Notes:

---- = Value not calculated: vapor pressures for individual fractions are presented in Table C-23 of Remedial Action Plan (T&R, 2012).

When RBTC is listed as Unlimited, the Hazard Index is less than 1 even when the vapor concentrations of all hydrocarbon fractions are at their maximum levels.

Values are the lower of the cancer or noncancer endpoint for each population evaluated.

Exposure pathways for soil gas Cleanup Levels include vapor migration to indoor air for residents and workers, and vapor migration to ambient air for the recreational scenario.

Table 2
Cleanup Levels for Groundwater
Pier 70 Master Plan Area
Risk Management Plan
San Francisco, California

Chemical	Water Solubility Limit (µg/L)	Cleanup Level for a Resident (µg/L)	Cleanup Level for a Commercial Worker (µg/L)	Cleanup Level for a Recreational User (µg/L)
Volatile Organic Compounds (VOCs)				
Acetone	1.0E+09	4.4E+07	4.6E+08	1.7E+11 a
Benzene	1.8E+06	1.4E+00	1.7E+01	6.6E+03
Bromobenzene	4.5E+05	2.2E+03	2.3E+04	1.1E+07 a
2-Butanone	2.2E+08	7.3E+06	7.5E+07	3.2E+10 a
sec-Butylbenzene	3.9E+03	5.4E+05 a	5.6E+06 a	2.5E+09 a
tert-Butylbenzene	3.0E+04	2.0E+03	2.1E+04	1.0E+07 a
Carbon Disulfide	1.2E+06	2.0E+03	2.1E+04	9.4E+06 a
Chloroform	7.9E+06	9.5E+00	1.2E+02	4.5E+04
Chloromethane	5.3E+06	6.0E+02	6.2E+03	2.7E+06
Cumene	6.1E+04	4.3E+03	4.4E+04	2.2E+07 a
p-Cymene	2.3E+04	3.2E+03	3.3E+04 a	1.6E+07 a
1,1-Dichloroethane	5.1E+06	2.7E+01	3.4E+02	1.3E+05
1,1-Dichloroethene	2.2E+06	2.3E+02	2.3E+03	1.1E+06
Ethylbenzene	1.7E+05	1.4E+01	1.8E+02	7.0E+04
Methyl tert-butyl ether	5.1E+07	1.1E+03	1.4E+04	5.2E+06
Methylene Chloride	1.3E+07	8.4E+01	1.0E+03	3.9E+05
n-Propylbenzene	6.0E+04	4.4E+03	4.5E+04	2.2E+07 a
Toluene	5.3E+05	4.5E+03	4.7E+04	2.2E+07 a
1,2,4-Trimethylbenzene	5.7E+04	1.8E+02	1.8E+03	9.1E+05 a
m,p-Xylene	1.8E+05	1.1E+04	1.1E+05	5.3E+07 a
o-Xylene	1.8E+05	1.5E+04	1.5E+05	7.0E+07 a
Xylenes (total)	1.8E+05	1.1E+04	1.1E+05	5.3E+07 a
Semi-Volatile Organic Compounds (SVOCs)				
Acenaphthylene	1.6E+04	7.8E+03	8.1E+04 a	3.9E+07 a
Naphthalene	3.1E+04	2.3E+01	2.9E+02	1.2E+05 a
Phenanthrene	1.2E+03	2.2E+04 a	2.3E+05 a	1.1E+08 a
Total Petroleum Hydrocarbons (TPH)				
TPH-Diesel	----	Unlimited	Unlimited	Unlimited
TPH-Gasoline	----	2.0E+02	3.0E+04	Unlimited
TPH-Residual (Oil and Grease)	----	Unlimited	Unlimited	Unlimited

Notes:

a - The Cleanup Level is greater than the water solubility limit, therefore it should not be possible to have cancer risks greater than 1x10⁻⁶, or non-cancer hazards greater 1.

---- = Value not calculated: vapor pressures for individual fractions are presented in Tables C-25 to C-27 of the Remedial Action Plan (T&R, 2012).

When RBTC is listed as Unlimited, the Hazard Index is less than 1 even when the dissolved concentrations of all hydrocarbon fractions are at their maximum levels.

Values are the lower of the cancer or noncancer endpoint for each population evaluated.

Exposure pathways for groundwater Cleanup Levels include vapor migration to indoor air for residents and workers, and vapor migration to ambient air for the recreational scenario.

Table 3
RMP Notification and Oversight Responsibilities
Risk Management Plan
Pier 70 Master Plan Area
San Francisco, California

Project Activity or Condition	Owner	Regulatory Agency		
	Port of San Francisco	San Francisco Fire Department	San Francisco Department of Public Health	Regional Water Quality Control Board
Ground Disturbing Activity Less Than 50 Cubic Yards				
<ul style="list-style-type: none"> Submit Notification Letter and apply for Port Building or Encroachment Permit as applicable 	Review and Comment; issue Building or Encroachment Permit as applicable	NA	Receive copy	Receive copy
<ul style="list-style-type: none"> Submit Annual Inspection Checklist 	Review and Comment	NA	NA	NA
<ul style="list-style-type: none"> Annual Report 	Prepare	NA	Receive copy	Review and Approve
Ground Disturbing Activity Greater Than 50 Cubic Yards ¹				
<ul style="list-style-type: none"> Submit Notification Package and apply for Port Building or Encroachment Permit as applicable 	Review and Comment; issue Building or Encroachment Permit as applicable	NA	Review and approve as required by Article 22A	Review and Approve
<ul style="list-style-type: none"> Submit Completion Report 	Review and Comment	NA	Review and approve as required by Article 22A	Review and Approve Issue Approval Letter
<ul style="list-style-type: none"> Submit Annual Inspection Checklist 	Review and Comment	NA	NA	NA
<ul style="list-style-type: none"> Annual Report 	Prepare	NA	Receive copy	Review and Approve

Table 3
RMP Notification and Oversight Responsibilities
Risk Management Plan
Pier 70 Master Plan Area
San Francisco, California

Project Activity or Condition	Owner	Regulatory Agency		
	Port of San Francisco	San Francisco Fire Department	San Francisco Department of Public Health	Regional Water Quality Control Board
Unknown Conditions				
<i>UST (containing TPH only)</i>				
<ul style="list-style-type: none"> Notification, apply for SFDPH and SFFD Tank Removal Permit and Port Building or Encroachment Permit as applicable 	Issue building or encroachment permit as applicable	Permitting Field Oversight	HMUPA - Issue Tank Removal Permit, Field Oversight	NA
<ul style="list-style-type: none"> Tank Removal Report 	Review and Comment	NA	LOP - Review and Approve	NA
<i>Buried Physical Objects (Except a UST containing TPH)</i>				
<ul style="list-style-type: none"> Notification 	Building or Encroachment Permitting as applicable	NA	Review and approve as required	Review and Approve
<ul style="list-style-type: none"> Work Plan 	Review and Comment	NA	Review and approve as required	Review and Approve
<ul style="list-style-type: none"> Completion Report 	Review and Comment	NA	Review and approve as required	Review and Approve
<i>Soil with Unanticipated "non-RAP²" Contamination</i>				
<ul style="list-style-type: none"> Notification with Further Action to be Determined by Agencies 	Review and Comment	NA	Review and Comment	Review and Comment

Table 3
RMP Notification and Oversight Responsibilities
Risk Management Plan
Pier 70 Master Plan Area
San Francisco, California

Project Activity or Condition	Owner	Regulatory Agency		
	Port of San Francisco	San Francisco Fire Department	San Francisco Department of Public Health	Regional Water Quality Control Board
<i>Groundwater Contaminated with Free Product</i>				
• Notification	Review and Comment	NA	Receive copy	Review and Approve
• Work Plan	Review and Comment	NA	Review and approve as required by Article 22A	Review and Approve
• Completion Report	Review and Comment	NA	Review and approve as required by Article 22A	Review and Approve
<i>Groundwater Contaminated with other Chemicals</i>				
• Notification	Review and Comment	NA	Receive copy	Review and Approve
• Work Plan	Review and Comment	NA	Receive copy	Review and Approve
• Completion Report	Review and Comment	NA	Receive copy	Review and Approve

Notes:

TPH – Total Petroleum Hydrocarbons

SFFD – San Francisco Fire Department

SFDPH – San Francisco Department of Public Health

¹ Document adequate soil data exists per Article 22 or proposed additional soil sampling.

² Contaminant with no remedy specified in Remedial Action Plan (T&R, 2012).

HMUPA – Hazardous Materials Unified Program Agency

LOP – Local Oversight Program

**Table 4
Soil Import Criteria
Pier 70 Master Plan Area
Risk Management Plan
San Francisco, California**

Chemical	Environmental Screening Levels ¹	Background Concentrations Soil	Background Concentrations Serpentine Rock
Volatile Organic Compounds (VOCs)	(mg/kg)	(mg/kg)	(mg/kg)
Acetone	60,000		
Benzene	0.74		
2-Butanone	--		
Butylbenzene	--		
Carbon Disulfide	82		
Carbon Tetrachloride	0.12		
Chloroform	1.1		
p-Cymene	--		
1,2-Dichloroethane	0.44		
trans-1,3-Dichloropropene	0.27		
Ethylbenzene	4.8		
2-Hexanone	21		
Methyl Acetate	7,800		
4-Methyl-2-pentanone	530		
Methylene Chloride	9.9		
n-Propylbenzene	340		
Tetrachloroethene	0.55		
Toluene	1,000		
1,1,1-Trichloroethane	11,000		
Trichloroethene	1.7		
Trichlorofluoromethane	79		
Vinyl Acetate	97		
m,p-Xylene	600		
o-Xylene	600		
Xylenes (total)	600		
Semi-Volatile Organic Compounds (SVOCs)			
Acenaphthene	3,400		
Acenaphthylene	--		
Anthracene	23,000		
Benzo(a)anthracene	0.38		
Benzo(a)pyrene	0.038		
Benzo(b)fluoranthene	0.38		
Benzo(g,h,i)perylene	--		
Benzo(k)fluoranthene	0.38		
bis(2-Ethylhexyl)phthalate	160		
Butylbenzylphthalate	260		
Chrysene	3.8		
Dibenz(a,h)anthracene	0.11		
Fluoranthene	2,300		
Fluorene	3,100		
Indeno(1,2,3-cd)pyrene	0.38		
2-Methylnaphthalene	230		
Naphthalene	3.1		
Phenanthrene	--		
Pyrene	3,400		
Pesticides/Polychlorinated Biphenyls			
Polychlorinated biphenyls	0.22		
gamma-Chlordane (chlordane ESL)	0.44		
2,3,7,8-Tetrachlorodibenzo-p-dioxin	0.0000045		
Endosulfan I (Endosulfan ESL)	470		
Heptachlor epoxide	0.061		
beta-Hexachlorocyclohexane	0.27		
Metals			
Aluminum	7,700	9.05 ²	12- 14 ⁶
Antimony	30		
Arsenic *	9.5	11.5 ³	0.8- 10 ⁶
Barium	5,200	314.4 ²	0.9- 11.4 ⁶
Beryllium	150	0.71 ²	0.5 ⁶
Cadmium	1.7	2.2 ² -3.14 ⁵	0.5 ⁶
Chromium (total)	--	81 ⁴	1,300 ⁴
Chromium VI	17	NA	NA
Cobalt	660	11 ⁴	140 ⁴
Copper	3,000	124 ² -175 ⁵	5- 16.6 ⁶
Cyanide (total)	37		
Lead	150	8.99 ²	0.2- 36.1 ⁶
Manganese	180		
Mercury	18	2.28 ²	0.1 ⁶ - 0.2 ⁶
Molybdenum	380	2.68 ²	5 ⁶
Nickel	1,600	50 - 2,930 ⁵	499- 1910 ⁶
Selenium	380	0.5 ⁴	5 ⁶
Silver	380	1.43 ²	5 ⁶
Thallium	5	1 ⁴	1.6 - 3 ⁶
Vanadium	530	83 ² -117 ⁵	5.0- 15.6 ⁶
Zinc	23,000	110 ² -423 ⁵	20.8- 51.7 ⁶
Total Petroleum Hydrocarbons (TPH)			
TPH-Diesel	240		
TPH-Gasoline	490		
TPH-Residual (Oil and Grease)	10,000		

Notes:

mg/kg - milligrams per kilogram

Values are the lower of the cancer or noncancer endpoint for each population evaluated.

Exposure pathways for soil Cleanup Levels include dermal contact with soil, ingestion of soil, and inhalation of wind-blown particulates.

* As presented in the Remedial Action Plan (T&R, 2012), the background arsenic level is 9.5 mg/kg.

-- Not Established

USEPA Regional Screening Levels for Residential Land Use, May 2013. Available Online at:
<http://www.epa.gov/region9/superfund/prg/>

California EPA Human Health Screening Levels for Residential Land Use, January 2005

¹ - Water Board Environmental Screening Level from Regional Water Quality Control Board Screening for Environmental Concerns at Contaminated Sites (Table K-1 - Soil Direct Contact Residential Land Use) May 2013.

² - Background concentrations from *Draft Final Remedial Investigation/Feasibility Study Report for Parcel E-2, Hunters Point Shipyard, San Francisco, California*. Engineering Remediation Resource Group (ERRG), February 2009.

³ - Arsenic background concentration from *Addendum - Work Plan for Additional Soil Investigation, Hoe Down Yard Pacific Gas and Electric Company, Potrero Power Plant Site, San Francisco, California*. AMEC Geomatrix, 9 July 2009.

⁴ - Background concentrations from *Development of Presidio-Wide Cleanup Levels for Soil, Sediment, Groundwater, and Surface Water. Presidio of San Francisco, California*, Presidio Trust, October 2002. Soil background concentrations from Beach Dune Sand.

⁵ - Background concentrations from *Memorandum regarding Comparison of Ambient Levels of Arsenic, Cadmium, Copper, Manganese, Nickel, Vanadium, and Zinc Present at Parcel A with Four Non-HPS Sites*. T&R, 12 October 2004.

⁶ - Background concentrations from *Metals Concentrations in Franciscan Bedrock Outcrops, Hunters Point Shipyard, San Francisco, California*. Tetra Tech, Inc. 17 March 2004.

* Represents background concentration presented in the RAP (Treadwell & Rollo 2012)

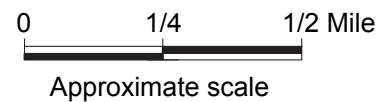
-- Not Established

EPA - United States Environmental Protection Agency

FIGURES



Base map: The Thomas Guide
 San Francisco County
 1999



**PIER 70 MASTER PLAN AREA
 RISK MANAGEMENT PLAN**
 San Francisco, California

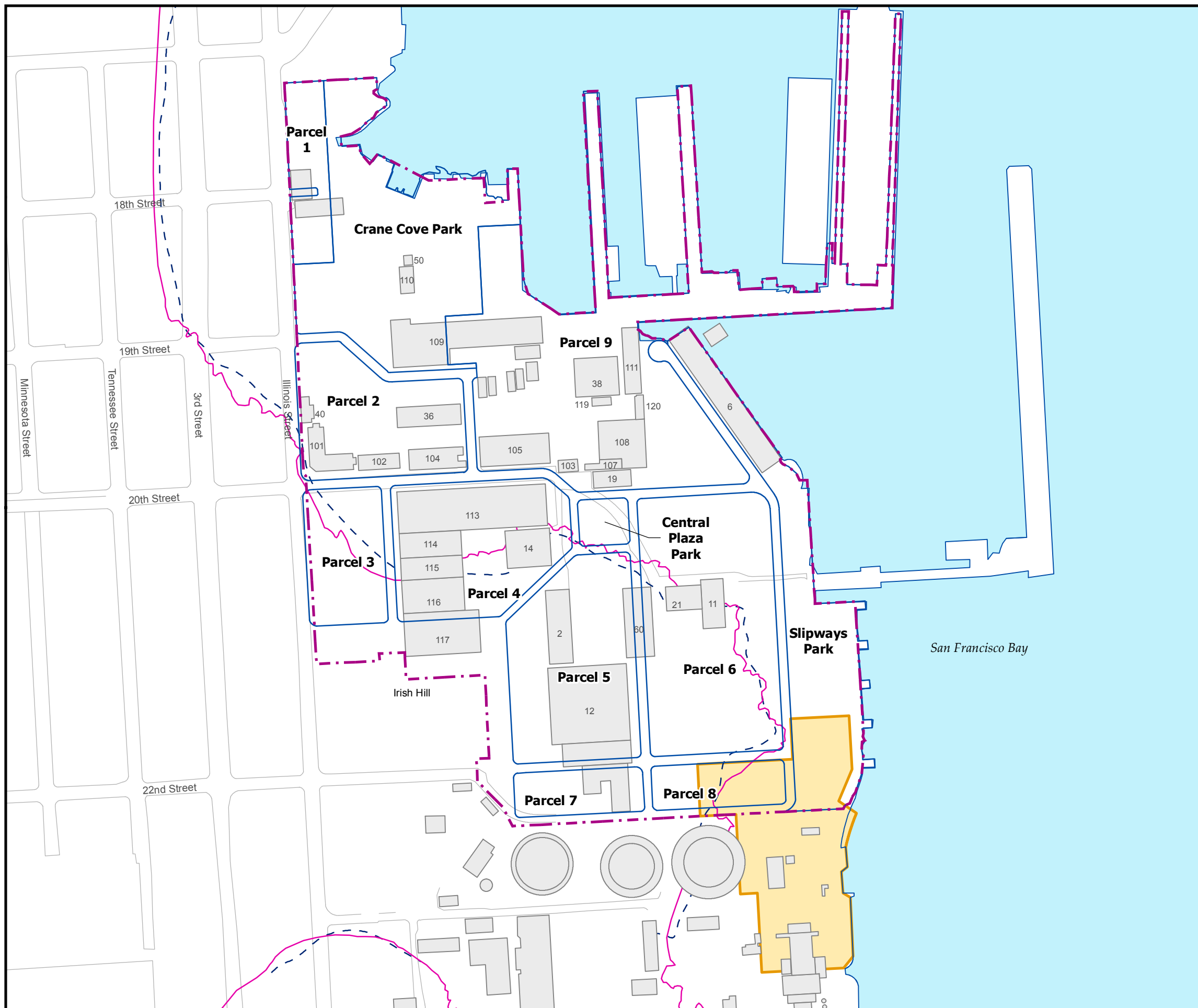
SITE LOCATION MAP



Date 07/24/13

Project No. 730496301

Figure 1

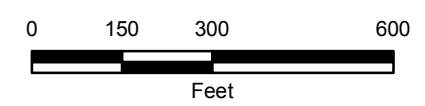


Legend

- Site Area Included in Pier 70 RMP
- Site Area Included in PG&E FS
- Parcel Boundary
- Shoreline
 - Existing
 - Building
 - Approximate 1851 Shoreline
 - Approximate 1869 Shoreline
 - Road Edge

Notes:

1. RMP = Risk Management Plan.
2. Pacific Gas & Electric Feasibility Study (FS) Area taken from Haley & Aldrich, Inc., *Draft Report on Upland Feasibility Study Potrero Power Plant Site San Francisco, California*, 22 March 2012.
3. Parcels from ROMA Design Group, *Draft Preferred Pier 70 Master Plan*, 17 July 2009.
4. Approximate 1851 shoreline provided by the Port of San Francisco.
5. Approximate 1869 shoreline based upon Board of Tidelands Commissioners, *Map of the Salt Marsh and Tide Lands and Lands Lying Under Water South of Second Street and Situate in the City and County of San Francisco*, 1869.
6. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

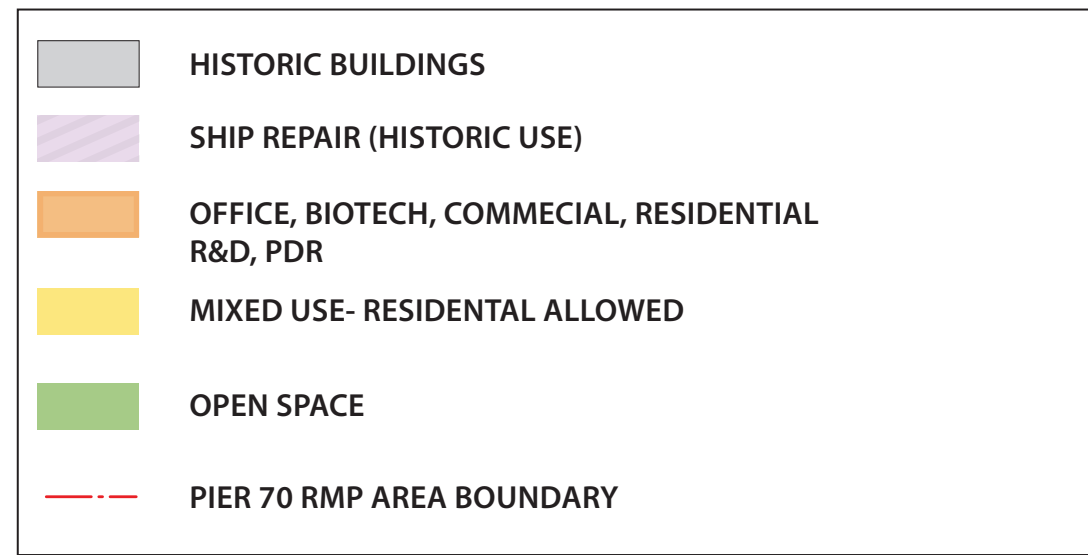


**PIER 70 RISK MASTER PLAN AREA
RISK MANAGEMENT PLAN
San Francisco, California**

SITE AREA FOR RISK MANAGEMENT PLAN

Date 7/24/2013	Project 730496301	Figure 2
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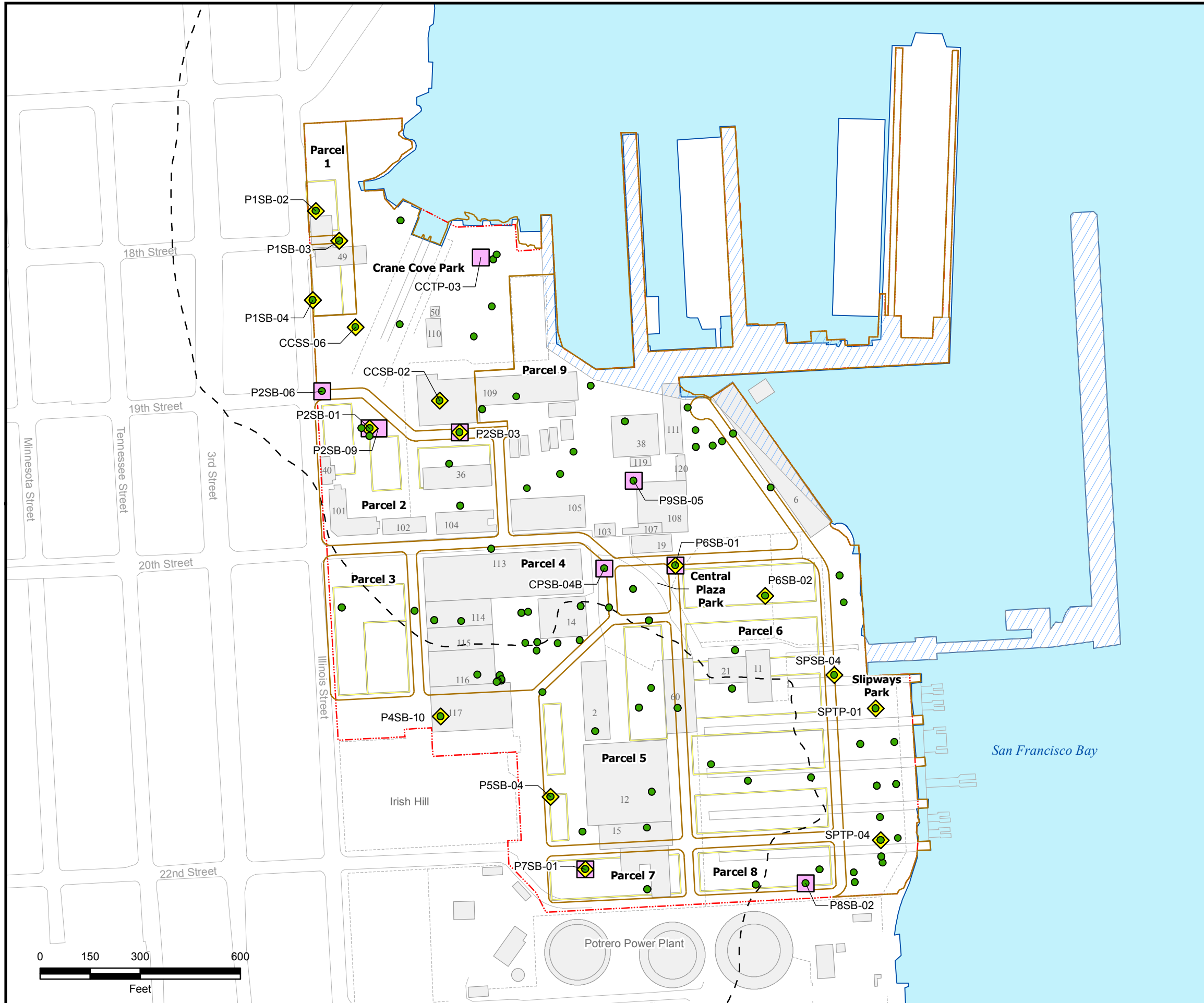




Source:
Port of San Francisco, February 2013.



PIER 70 MASTER PLAN AREA RISK MANAGEMENT PLAN San Francisco, California		
PIER 70 MASTER PLAN LAND USE SUB AREAS PROJECT PLAN		
Date 07/24/13	Project No. 730496301	Figure 3
Treadwell&Rollo <small>A LANGAN COMPANY</small>		



Legend

- California Hazardous Material Criteria Result
- Non Hazardous
 - ◆ Exceeded California Soluble Threshold Limit Concentration (STLC) - State of California Non-RCRA
 - Exceeded California Total Threshold Limit Concentration (TTL) - State of California Non-RCRA
- Surface Feature
- Fence
 - Other
 - - - Approximate 1869 Shoreline
 - Road Edge
 - Building
 - Proposed Building
 - Pier 70 Site Area
 - Master Plan Parcel Areas (eg. Parcel 1 = P1, Crane Cove Park = CC, etc...)
 - ▨ Pile-Supported Structure Over Water

Notes:

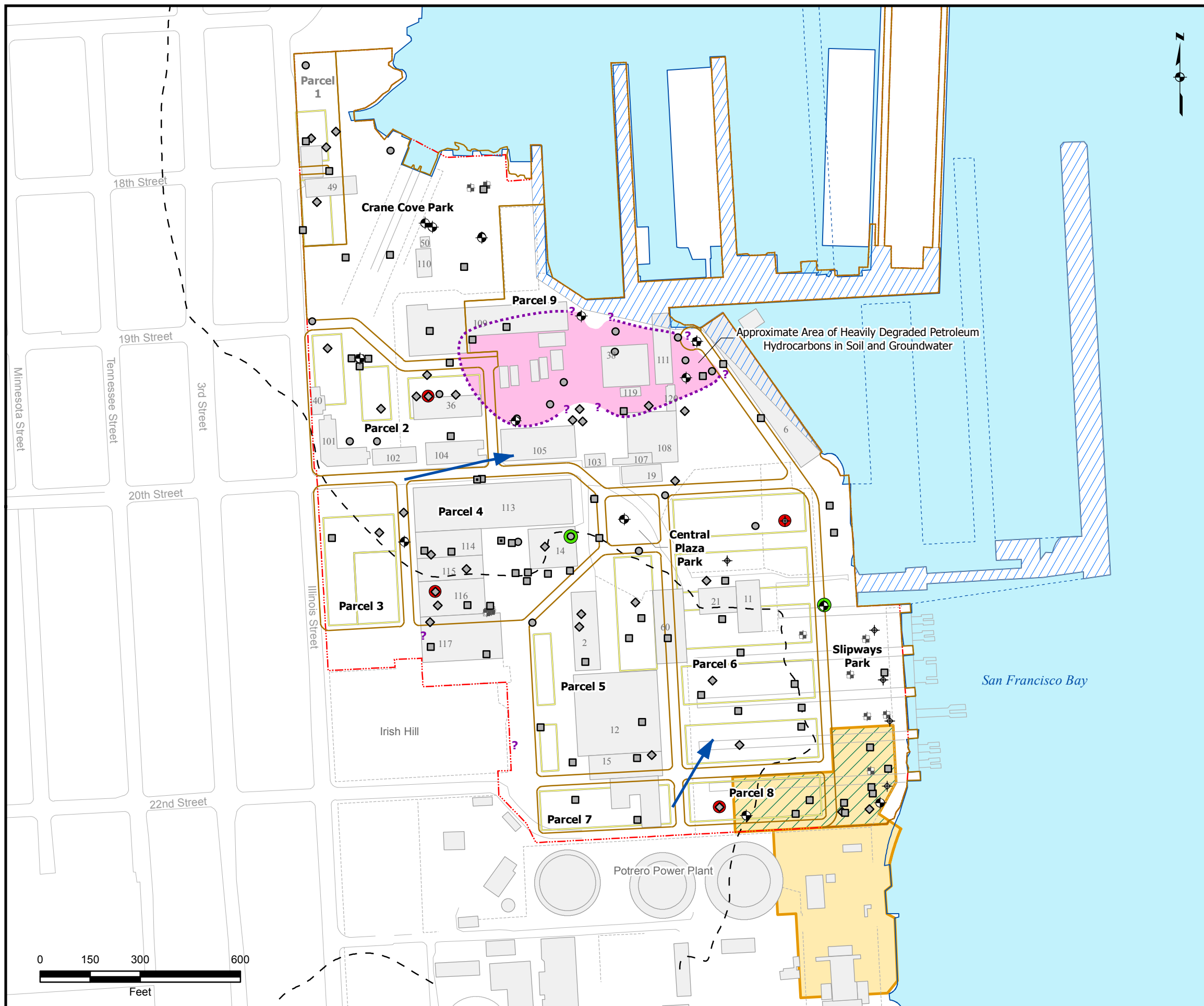
1. Some locations show results that both exceed and do not exceed the hazardous waste standards. In such cases, samples were collected at differing depths and provided more than one result per location.
2. No samples exceeded the Federal Toxicity Characteristic Leaching Potential (TCLP).
3. Buildings, surface features, and road edges digitized from digital orthophotos 10SEG535775.tif and 10SEG535790, California Spatial Information Library (CASIL) UC Davis, ca 2005, <http://archive.casil.ucdavis.edu/casil/>.
4. Shoreline based upon San Francisco Enterprise GIS, *Extended San Francisco Shoreline Shapefile*, <http://gispub02.sfgov.org/website/sfshare/catalog/sfshoreext.zip>.
5. Approximate 1869 Shoreline based upon Board of Tidelands Commissioners, *Map of the Salt Marsh and Tide Lands and Lands Lying Under Water South of Second Street and Situate in the City and County of San Francisco*, 1869.
6. Site boundary, parcels, and acreages from ROMA Design Group, *Pier 70 Draft Preferred Master Plan*, 17 July 2009.
7. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

**PIER 70 MASTER PLAN AREA
RISK MANAGEMENT PLAN
San Francisco, California**

**CALIFORNIA HAZARDOUS WASTE
CRITERIA EXCEEDANCES IN
SHALLOW SOIL 0 TO 10 FEET**

Date 7/24/2013 | Project 730496301 | Figure 4





Legend

Sample Location

- ◆ Monitoring Well
- Geotechnical Boring
- Soil
- Soil and or Groundwater
- ◇ Soil Gas
- ◆ Soil Gas Probe
- ⊠ Test Pit
- Groundwater concentration exceeding residential cleanup level
- Soil gas concentration exceeding residential cleanup level
- - - Approximate 1869 Shoreline
- ➔ Approximate Groundwater Flow Direction

Surface Feature

- Fence
- Other
- Road Edge
- Area with Non-aqueous Phase Liquid (NAPL) Impacts
- Building
- Proposed Building
- Pier 70 Site Area
- Master Plan Parcel Areas (eg. Parcel 1 = P1, Crane Cove Park = CC, etc...)
- ▨ Pile-Supported Structure Over Water
- ▨ Area with Dense Non-Aqueous Phase Liquids (DNAPL) Impacts
- ▨ Limit of Upland Feasibility Study for Former PG&E Potrero Power Plant

Notes:

- Buildings, surface features, and road edges digitized from digital orthophotos 10SEG535775.tif and 10SEG535790, California Spatial Information Library (CASIL) UC Davis, CA 2005, [HTTP://archive.casil.ucdavis.edu/casil/](http://archive.casil.ucdavis.edu/casil/).
- Shoreline based upon San Francisco Enterprise GIS, Extended San Francisco Shoreline shapefile, <http://gispub02.sfgov.org/website/sfshare/catalog/sfshoreext.zip>
- Approximate 1869 Shoreline based upon Board of Tidelands Commissioners, Map of the Salt Marsh and Tide Lands and Lands Lying Under Water South of Second Street Situate in the City and County of San Francisco, 1869.
- Site boundary and parcels from ROMA Design Group, Pier 70 Draft Preferred Master Plan, 17 July, 2009.
- Historical Manufactured Gas Plant Subsurface Investigation Area taken from AMEC Geomatrix, Report of Results: Subsurface Investigation Activities Evaluation of Impact to Fill and Bay Mud, Potrero Power Plant, Figure 2, September 2010.
- Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

**PIER 70 MASTER PLAN AREA
RISK MANAGEMENT PLAN
San Francisco, California**

**SAMPLE LOCATIONS AND AREAS
WITH IDENTIFIED IMPACTS**

Date 7/24/2013 Project 730496301 Figure 5



**PIER 70 RISK MANAGEMENT PLAN
Pier 70 Master Plan Area
San Francisco, California**

**Prepared For:
Port of San Francisco
San Francisco, California**

**25 July 2013
Project No. 730496301**

APPENDIX A

ANNUAL INSPECTION O&M CHECKLIST AND DURABLE COVER O&M PLAN

**APPENDIX A
OPERATION AND MAINTENANCE PLAN
PIER 70 MASTER PLAN AREA
RISK MANAGEMENT PLAN
SAN FRANCISCO, CALIFORNIA**

1.0 INTRODUCTION AND BACKGROUND

Over the course of redevelopment, the Port and various project proponents will incorporate construction of a durable cover over native soil that meets the requirements of the Remedial Action Plan (RAP) for the Pier 70 Master Plan Area, San Francisco, California (Site). Inspection and maintenance of the durable cover to ensure that it remains in a condition that prevents site user exposure to native soil is an essential component of the remedy for the Pier 70 Master Plan Area. Project proponents will prepare durable cover designs for review and approval by the Regional Water Quality Control Board (Water Board). Upon completion, project proponents will submit a completion report to document durable cover installation (See Section 4.3). The remedial action completion reports must also document that required long-term operation and maintenance (O&M) of the durable cover is taking place. This O&M plan describes the long-term maintenance and monitoring requirements for the durable cover and includes:

- A description of inspection, maintenance, and repair for the durable cover;
- A maintenance schedule;
- Guidance for inspection of signs, drainage features, vegetation, and the condition of the durable cover and shoreline strengthening;
- Repair procedures;
- Reporting requirements; and
- Emergency response planning and procedures related to O&M of the Site.

A list of the projected inspection items, inspection procedures, generalized repair procedures, and inspection frequency is included as Attachment 1. This attachment will be supplemented or replaced during and after redevelopment based on the actual construction of the remedy (durable covers) and the materials used.

Inspection, maintenance, and monitoring of the durable cover are required and are the responsibility of the Port as landowner. The Port may impose requirements to inspect, maintain, and repair durable cover

on tenants, licensees, permittees, and other entities responsible for construction and/or operation of facilities at Pier 70, but remains responsible for ensuring compliance and submitting annual monitoring reports to the San Francisco Department of Public Health (SFPDH) and the Water Board. Facility owners or operators that conduct annual self-inspections and certify completion may use the Owner Checklist and Certification found in Attachment 1, and submit it to the Port.

This O&M Plan applies only to the durable cover. Potential future conditions (e.g. changes in land use, type of construction) may require additional engineering controls, such as soil vapor intrusion mitigation systems. In the event that additional engineering controls are installed, this O&M Plan will be revised as described in Section 1.2.

1.1 Remedy Components

The remedial alternative selected for this Site is described in Treadwell & Rollo's *Feasibility Study Remedial Action Plan Report (FS/RAP) Pier 70 Master Plan Area, Port of San Francisco, San Francisco California*, dated 31 May 2012, was approved by the Water Board on 9 August 2012, and is summarized below. The Risk Management Plan (RMP) is an essential component of the remedy for the Site. It is a tool for ensuring effectiveness of the institutional controls and provides a framework to manage residual constituents of concern (COCs) in soil in a manner that protects site users under current and future land use. The RMP specifies pre-development, development, and post-development measures to mitigate potential risks to the environment, current and future on-site employees, future residents, construction and maintenance workers, visitors, and the public. It has been prepared under Water Board and the SFPDH oversight to provide specifications and details on how risk will be mitigated and managed during future construction, operation, and maintenance.

1.1.1 Durable Cover

The essential design criterion for durable cover is that it prevent site users' contact with native soil. The durable cover over the Site currently consists of the existing building foundations, asphalt and concrete pavement, streets and sidewalks. Over the course of redevelopment, rehabilitation of existing structures and new construction will result in installation of durable cover including historic and new building foundations; new streets and sidewalks; hardscapes; and new landscaping on a minimum of 2 feet of clean import soil over a demarcation layer. The clean soil layer must accommodate the depth of root bearing zones and/or irrigation systems to assure that general maintenance workers will not contact any of the native soil below the demarcation layer. The cover will be graded to direct storm water flow

toward drainage features that run through the Site. Shoreline strengthening measures will be designed to protect the shoreline sediment and landward soil from erosion. If any activities that occur after initial development disturb 1,250 square feet (sf) or 50 cubic yards (cy) or more of native soil, remove/replace 10,000 sf or more of durable cover, or request approval to vary from the requirements of the RMP, then Water Board and SFDPH must be notified in accordance with Sections 4.1 and 4.2 of the RMP.

1.1.2 Institutional Controls

Institutional controls are legal and administrative mechanisms that limit site users' exposure to contaminants and enable reuse of the site while protecting human health and the environment. The RAP for Pier 70 includes two primary institutional controls: deed restrictions that impose conditions under which other land uses can occur, and implementation of the RMP, which establishes those conditions under which land can be used. Inspections are required to ensure that land use controls are implemented and maintained effectively

1.2 O&M Plan Revisions

As redevelopment proceeds, changes to the O&M Plan may be needed to address changes in land use, design, construction materials and methods, or other conditions. This O&M plan may therefore change as durable cover construction is completed in various portions of the Site. Soil vapor controls may become necessary at the Site, depending on the results of additional risk evaluation or sampling that may be required if residential land use is proposed in areas within the Site where volatile organic compounds (VOCs) in soil gas and groundwater are present above Human Health Cleanup Levels (see RMP, Sections 2.1.2 and 2.1.3). Any soil vapor controls would likely require long-term O&M provisions, and therefore a revision of the O&M plan. If short-or long-term groundwater monitoring is found to be necessary in the area where Dense Non Aqueous Phase Liquids (DNAPL) are present (See RMP Section 2.1.3) or elsewhere on the Site, appropriate O&M procedures would need to be added to this O&M plan.

The Port will revise the O&M Plan as needed to reflect as-built conditions, or when experience shows a deficiency in the identification, frequency, or adequacy of repair needs over time. The Port or project proponents will develop and submit proposed revisions to SFDPH and the Water Board for review and approval.

2.0 INSPECTION, MAINTENANCE, AND REPAIR

This section describes the O&M personnel responsible for inspecting site conditions, and the inspection maintenance, and repair tasks associated with site security measures, durable covers, and shoreline improvements.

2.1 O&M Personnel

The Port or facility operators will retain qualified personnel and contractors to perform O&M at the Site to provide adequate long-term support for the remedy. O&M activities and associated qualifications may change after the Site is redeveloped and the O&M plan is revised for specific Site conditions as they change over time.

2.2 Inspection of Site Conditions

The Port or its designated representative will inspect general conditions throughout the Site annually. However, the Port or its designated representative may be required or choose to conduct annual and/or additional site inspections for unforeseen emergencies as described in Section 4.0. Inspections must assess all portions of the Site to identify any changes in land use, grading, excavation, new construction, damage to durable cover, or other conditions that could result in unacceptable exposure to native soil. Inspections will include site access points and integrity of site access controls and signage. Any issues of concern (i.e. evidence of unauthorized digging, evidence that site security is compromised, damage to durable cover that results in exposure to native soil) must be reported to the Port remedied as soon as practicable but no later than 2 weeks after the Port becomes aware of the breach. Repairs to the durable cover should be consistent with and functionally equivalent to the original installation design drawings.

2.3 Inspection, Maintenance, and Repair of Site Security Measures

The Site security measures are intended to protect the public from physical and chemical hazards that exist at the Site. In order to minimize potential contact with exposed native soil greater than 100 sf, barriers, fencing and signs will be installed and maintained to restrict access or covered with a temporary cover, such as "cold" asphalt patch or 12-inches of gravel.

Where durable cover is in place, signage and fencing are required only when and where Site activities include disturbance of more than 100 sf of durable cover. If any native soil is exposed, the Dust Control Plan (DCP) must be followed (Appendix B of the RMP). The goal of the DCP is no visible dust. While it is

understood that soil disturbance and excavation activities will produce dust, dust controls will be used to mitigate visible dust as it occurs (see Sections 4.6 and 5.0 of the DCP).

Signs will be used to warn against unauthorized access to the Site and provide emergency contact information. The project proponent will replacement signs as necessary to ensure legibility. Signage requirements are described in Section 5.2 of the RMP.

2.4 Inspection, Maintenance, and Repair of Durable Covers

This section describes the procedures for inspection, maintenance, and repair for the durable covers, which include the existing asphalt and concrete pavement, soil cover, and building foundations. In general, any deficiencies that reduce the protectiveness of the cover to human health and the environment will be corrected. In some cases, damaged areas may need to be secured to prevent access by the public while repairs are planned and implemented. The Port or its designated representative will evaluate the need for and type of security appropriate in relation to the repair needed.

Recording the inspection through forms, note taking, and photographs is a necessary part of the inspection. An Inspection logbook will be maintained and include field notes and photographs recorded during inspections. The list of inspection items, procedures, and frequency is included as Attachment 1 to this O&M plan and will be modified as necessary after construction, during the course of redevelopment, and during O&M.

The Port or its designated representative will inspect general conditions throughout the Site annually, and will inspect asphalt pavement cover and building foundations after earthquakes for settling, cracking, or other breaches. Refer to Attachment 1 for inspection tasks, triggers, and procedures.

2.4.1 Asphalt Pavement Cover and Building Foundations

Existing pavement, primarily asphalt, and building foundations minimize contact with and release of the COCs in soil at the Site. Building foundations appear to be primarily constructed of reinforced concrete.

Maintenance, repair, or replacement of the asphalt pavement or building foundations is required when damage that reduces the effectiveness of the remedy is observed. During the required annual inspections and after significant seismic events asphalt pavement will be inspected for signs of stress, which may include excessive cracking and settlement. Cracking of these covers is expected over time

and is not necessarily an immediate concern, but should be repaired when underlying soil becomes exposed or accessible or when expansion of cracks is observed. Settlement and subsidence are not an immediate concern but should be monitored over time and repaired if water accumulation is or becomes persistent.

Items to note during inspection of the asphalt pavement and building foundations include:

- Pavement condition (depressions and excessive cracking)
- Cracks in the building foundation
- Crawl spaces access is blocked off (where applicable)
- Wear and tear due to excessive vehicle or pedestrian traffic
- Settlement and subsidence
- Surface water accumulation indicative of inadequate drainage
- Vandalism and unauthorized access to Site or buildings

Vegetation should not be present over the asphalt pavement portion of the Site. Vegetation should be removed when present and cover should be repaired to prevent future growth.

Building foundations should be inspected for cracking or signs of stress from outside of the buildings. Building interiors should be inspected when exterior cracking or evidence of unauthorized access is observed. Buildings themselves do not require maintenance because they are not considered part of the durable cover. Access points to subslab or subfloor crawl spaces should be inspected for integrity and evidence of vandalism or tampering.

Deficiencies, damage, settlement, or failure of the asphalt pavement and the building foundations will be repaired when underlying soil is exposed or accessible. Temporary repairs will be made, if necessary, until permanent repairs can be scheduled.

2.4.2 Vegetated Soil Cover

The soil cover specified by the RAP is designed to minimize contact with contaminants in native soil at the Site. The specified cover consists of a minimum 2-foot-thick clean soil layer over a demarcation layer in landscaped portions of the Site. The clean soil layer must accommodate the depth of root bearing zones

and/or irrigation systems to assure that general maintenance workers will not contact any of the native soil below the demarcation layer. Applicable O&M-related documentation for the components of the soil cover is included in Attachment 1 of this O&M plan and will be updated after construction of soil covered or landscaped areas.

Items to note during inspection of the vegetated soil cover include:

- Evidence of erosion, potentially including exposed demarcation layer;
- Visible depressions;
- Proper surface water drainage;
- Cracks;
- Settlement and subsidence;
- Slope failure;
- Vandalism;
- Evidence of burrowing pests;
- Vegetation stress; and
- Bare spots.

2.4.3 Shoreline Protection

Some portions of the shoreline within the Pier 70 Master Plan area will be improved, including construction of shoreline strengthening or stabilization. Shoreline improvements will be designed and constructed to prevent upland and intertidal soil from eroding into the bay, thereby minimizing potential release of contaminants into the San Francisco Bay. Refer to Attachment 1 for inspection tasks and procedures related to improved shoreline areas. Items to note during inspection include observations of settlement, vandalism, and displacement of materials.

3.0 REPORTING

An annual inspection report will be prepared to summarize the inspections for each year (see RMP Section 4.4); this report will be forwarded for review and approval by the regulatory agencies. The annual inspection report will include, at a minimum, the results of the inspections and a summary of all repair and maintenance activities conducted. The annual inspection report will be certified by an Owner or designated Port representative.

Additional reporting may be necessary following significant repairs to components of the remedy, such as repairs conducted under an agency-approved work plan¹, or after inspection triggered by an earthquake or other natural event. General maintenance tasks, such as filling potholes, sealing pavement, repair of fencing or signage, and replacing damaged drainage features would not require the submittal of a work plan and agency approval. Additional reporting requirements and procedures should be considered through the course of O&M to refine the plan based on experience at the Site.

A copy of the O&M plan will be maintained by the Port. The O&M Plan will also be provided to all tenants, licensees, permittees or others with operational control over facilities or land within the Pier 70 Master Plan area for 12 months or longer, or whose operations have potential to impact native soil and/or durable cover.

4.0 EMERGENCY RESPONSE PLAN

Some emergencies can affect the integrity or effectiveness of the durable cover, fencing and signage, or other features of the remedy. Although the Port and future lessees will take action to reduce the potential for emergencies, it is possible for events to occur at the Site that cannot be prevented. This plan provides response procedures for the following occurrences that threaten the effectiveness of the durable cover:

- Vandalism
- Fires
- Earthquake
- Floods
- Surface drainage problems
- Release of potentially contaminated materials (soil, soil gas, or water)

Attachment 2 provides recommended responses for the above emergencies. This plan is intended to address contingencies that are reasonably foreseeable, but will be amended if the need for additional contingency measures is identified.

¹ Work that disturbs a 1,250 sf or larger area requires advance notification to the Water Board. Work that does not comply with the RMP requires a Water Board approved work plan. Work that disturbs more than 50 cy of soil may require work plans and site mitigation plans in accordance with the City of San Francisco's Article 22A (Maher) Ordinance.

**Attachment 1
 Inspection Checklist
 Pier 70 Master Plan Area
 Risk Management Plan**

Date and time of inspection:	Inspector name and organization:		
Weather and tidal conditions – include details of most recent rain event:			
Response for inspection (circle one): Scheduled Emergency response	If inspection is initiated by an emergency response, explain condition:		
General Site Condition (Applies to all Areas of Site)			
Item	Inspection Frequency	Action/Inspection Item	Comments – Including Explanation if not Completed. Include any Photo Descriptions
Overall condition of Site	Every inspection	Note general conditions. Trash and debris accumulation, unauthorized access, etc.	
Land use	Every inspection	Digging or unauthorized land use per Land Use Control	
Security of Area	Every inspection	Assess condition of fence, including holes, corrosion, digging, and concrete condition – repair as necessary	
		Condition of locks, fencing, and gates – repair and replace as necessary	
		Note signs of vandalism	
		Note evidence of unauthorized access to areas of exposed native soil.	

**Attachment 1
 Inspection Checklist
 Pier 70 Master Plan Area
 Risk Management Plan**

General Site Condition (Applies to all Areas of Site)			
Item	Inspection Frequency	Action/Inspection Item	Comments – Including Explanation if not Completed. Include any Photo Descriptions
		All signs in place and secure – repair and replace as necessary	
Site signage	Every inspection	All signs in place and secure – repair and replace as necessary	
		Wording legible – replace and repair as necessary or document degradation	
		Note signs of vandalism	
Surface Inspection	Every inspection	Access cracking in asphaltic concrete layer and inspect transition between cover and utility features such as manholes and utility boxes	
		Assess cracking in foundations	
		Assess the crawl space access to maintain the prevention of unauthorized access	
		Evidence of settlement and subsidence	
		Note evidence of burrowing pests	
		Assess accumulation of soils over cover	
		Inspect areas of previous repair	
		Remove vegetation, repair asphalt	
		Note signs of unauthorized access to the Site or the buildings	
Storm water drainage	Every inspection	Observe areas of accumulated water for cracking and settlement	
		Remove trash and debris from catch basins	
		Monitor areas of accumulation in the vicinity of Site buildings	

**Attachment 1
 Inspection Checklist
 Pier 70 Master Plan Area
 Risk Management Plan**

General Site Condition (Applies to all Areas of Site)			
Item	Inspection Frequency	Action/Inspection Item	Comments – Including Explanation if not Completed. Include any Photo Descriptions
		Note evidence of overflow in drainage channels	
		Remove trash or debris from drainage channels	
		Note any change in condition of drainage contributing areas	
Soil Cover			
Vegetation	Every inspection	Assessment of unhealthy/bare areas, degradation of durable cover, or exposed demarcation layer	
		Note evidence of burrowing pests Note signs of unauthorized access	
Soil cover	Every inspection	Note evidence of cover settlement	
		Evidence of slope failure along boundaries and slope transition areas	
		Evidence of cracking or soil movement	
Shoreline Strengthening			
Shoreline inspection	Every inspection	Note evidence of settlement or movement of materials	
		Note evidence of wave overtopping	
		Assess any areas of visible erosion, scour or changes in slope	

Attachment 1
Inspection Checklist
Pier 70 Master Plan Area
Risk Management Plan

Other Observations:	
Follow-Up Actions (Include area requiring further action):	
Signature:	Date:

**ANNUAL RISK MANAGEMENT PLAN (RMP) OWNER INSPECTION REPORT
PIER 70 MASTER PLAN AREA
SAN FRANCISCO, CALIFORNIA**

Property Owner/
Site
Operator/Port's
Designated
Representative:

Address:

Site Contact:

1. Have any of the following activities been conducted within the past year? (Check all that apply.)
- Excavation of soil;
 - Construction of roads, utilities, facilities, structures, and appurtenances of any kind;
 - Demolition or removal of hardscape (e.g., concrete or asphalt roadways, parking lots, foundations, and sidewalks);
 - Any maintenance activities that may have disturbed the final soil cover except for the upper 2 feet of landscaped areas where clean fill has been placed; or
 - Grading or other movement of soil.

Describe all pertinent activities related to each checked above.

Have any of the following ground-disturbing activities been conducted in the past year that required Water Board approval?

- Land disturbance activities which include but are not limited to those listed above, and any other activity that causes or facilitates the movement of known contaminated groundwater;
- Alteration, disturbance, or removal of any component of a response or cleanup action (including but not limited to shoreline protection and durable cover), groundwater extraction, injection, and monitoring wells and associated piping and equipment, or associated utilities;
- Extraction of groundwater and installation of new groundwater wells; or
- Removal of or damage to security features (e.g., locks on monitoring wells, survey monuments, fencing, signs, or monitoring equipment and associated pipelines and appurtenances).

Describe all pertinent activities related to each activity checked above.

2. For activities conducted in the past year describe durable cover remedy completion. Attach remedy completion report as required by the RMP (Section 4.3) or refer to previously submitted documentation. Remedy completion report to include activity description, notification protocol

description, reference to Work Plan for restricted activity, boring/well logs if completed, analytical laboratory reports if applicable, waste disposal manifests, and description of final site conditions including as-built construction drawings.

a. Is a modification of durable cover required due to the activity?

Yes No

If Yes, describe proposed modification and attach a Work Plan, revised operations and maintenance protocol, a revised monitoring program, and an implementation schedule.

3. Are there any proposed activities for the coming year? Yes No

If Yes, please describe activity and attach Work Plan as required:

SOIL MANAGEMENT

a. Has an environmental health and safety plan (EHSP) been prepared for the ground-disturbing activity? Yes No

b. Indicate any unexpected conditions that were encountered.

- Soil Contamination
- Groundwater Contamination
- Naturally Occurring Asbestos (NOA)
- Subsurface Structures (Underground Storage Tanks, sumps, other)
- Buried Pipelines
- Olfactory or Visual Evidence of Contamination
- Other: _____

c. Were corrective actions or notifications conducted in response to unexpected conditions?

Yes No

Describe: _____

d. Was any soil generated as part of the activity? Yes No

If soil was generated describe below:

Profiling. Describe sampling methods and attach analytical laboratory data:

Reuse. Specify method and location of final disposition of soil:

Off-site disposal. Describe the disposal facility:

e. Was soil imported to the site ? Yes No

If Yes, describe sampling and quality controls and compliance with the Soil Importation Plan (SIP) or refer to previously submitted documentation: _____

Has a Stormwater Pollution Prevention Plan (SWPPP) been implemented for construction activity that triggers construction stormwater permit requirements? Yes No

Describe runoff testing, best management practices implemented as part of the SWPPP or refer to previously submitted documentation:

GROUNDWATER MANAGEMENT

a. Were dewatering activities conducted as part of the activity? Yes No

b. If Yes:

i. How much water was extracted and what were the methods? _____

ii. What were the storage vessels for extracted groundwater? _____

iii. Describe profiling and disposal procedures: _____

iv. Was water disposed to the sewer system? Yes No

If Yes, was an NPDES permit obtained? Yes No

If Yes, please attach all compliance documentation.

- c. As part of the activity, were any groundwater monitoring wells destroyed, repaired, or installed?
Yes No

If Yes, please describe including notifications and regulatory approval and attach report including well locations, identification of driller and drilling procedures, decontamination procedures, lithologic logs, wells development procedures, survey data, any sampling data if collected, and investigation-derived waste disposal.

OWNER ANNUAL INSPECTION REPORT CERTIFICATION
Pier 70 Master Plan Area
San Francisco, California

Property Owner: _____

Address: _____

Site Contact: _____

I certify that this document and all attachments presented in this report are accurate and complete. This report was prepared by the staff of **PROPERTY OWNER or PORT DESIGNATED REPRESENTATIVE** under my supervision to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person(s) who are directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature

Date

**Attachment 2
Emergency Response Plan
Pier 70 Master Plan Area
Risk Management Plan**

Occurrence	Threat Posed	Response
Vandalism (that results in exposure of soil)	Monitoring systems rendered inoperative Site security compromised Health or safety hazards, or both Damage to durable cover Exposure to contaminated soil or sediment Release of soil or sediment	<ol style="list-style-type: none"> 1. Immediately conduct visual inspection of vandalism to assess damage and potential impacts 2. In the event of a safety hazard, immediately cordon off the affected area. 3. Notify in accordance with Appendix D of the RMP. 4. For damage to durable cover that results in unacceptable exposure to native soil, arrange immediate temporary repairs (if necessary) and arrange repair or restoration within 2 weeks (weather conditions permitting) to design conditions and in accordance with repair specifications. 5. Recommended preventative measures.
Fire	Health and safety hazards Damage to monitoring systems Damage to vegetation Impacts to erosion and drainage	<ol style="list-style-type: none"> 1. Notify City of San Francisco Fire Department (call 911), notify in accordance with Appendix D when safe to do so. 2. Immediately conduct visual inspection of area to assess damage and potential impact. 3. Immediately cordon off affected area. 4. For damage or potential damage to other components that affect integrity of the durable cover, security, or safety, arrange immediate temporary repairs (if necessary) and arrange repair or restoration within 2 weeks (weather and conditions permitting) to design conditions and in accordance with repair specifications. 5. Notify regulatory agencies in accordance with Appendix D of the RMP.

**Attachment 2
Emergency Response Plan
Pier 70 Master Plan Area
Risk Management Plan**

Occurrence	Threat Posed	Response
Earthquake ^a	<p>Health and safety hazards</p> <p>Damage to monitoring systems</p> <p>Slope failure</p> <p>Damage to durable cover and/or shoreline improvements from differential settlement, translocation, or cracking</p> <p>Exposure of contaminated soil</p> <p>Release of sediment</p>	<ol style="list-style-type: none"> 1. Immediately conduct visual inspection of area to assess damage and potential impact. 2. In the event of safety hazards, immediately cordon off area. 3. Inspect Site building foundations for damages, such cracking, and repairs as necessary to restore to previous conditions. 4. In the event of damage to monitoring systems, contact maintenance contractor to facilitate repairs. 5. Resurvey the area and increase the frequency of inspection and maintenance of final cover and final grading to quarterly for period of 1 year. 6. In event of apparent slope failure, surface cracking, or similar damage, contact the contracted geotechnical consultant, as appropriate, to participate in an evaluation of problem areas within 10 days of notice. If necessary, perform a geotechnical investigation of failure to develop a corrective action plan. 7. For damage or potential damage to other components that affect integrity of the durable cover, site security or safety, arrange immediate temporary repairs (if necessary) and arrange repair or restoration within 2 weeks (weather and conditions permitting) to design conditions in accordance with repair specifications. <p>Notify regulatory agencies in accordance with Appendix D of the RMP</p> <p>Recommended Equipment: erosion control blankets or media, bulldozer, loader, compactor, sand, clean fill, cordon tape, cover materials, patching and sealing materials, and paving equipment.</p>

**Attachment 2
Emergency Response Plan
Pier 70 Master Plan Area
Risk Management Plan**

Occurrence	Threat Posed	Response
Flooding and Surface Drainage Problems	Damage to cover or its components Saturation of soil slopes and instability Erosion and undercutting of foundations, cover, and utilities	<ol style="list-style-type: none"> 1. Immediately conduct visual inspection of area to assess damage and potential impact. 2. In the event of safety hazard, immediately cordon off the affected area. 3. If necessary, conduct a geotechnical investigation of failure in order to develop a corrective action plan. 4. For damage or potential damage to components that affect Site integrity, security, or safety, arrange repair or restoration within 2 weeks (weather and conditions permitting) to design conditions and in accordance with repair specifications. 5. Investigate preventative measures. 6. Notify in accordance with Appendix D of the RMP. <p>Recommended Equipment: portable berm, absorbency media or blankets, loader/backhoe, clean fill soil, high-solids-passing explosion-proof portable pump, Baker tank or waste receptacles, cordon tape, sandbags, cover materials, patching and sealing materials, and paving equipment.</p>
Release of potentially contaminated soils	Health and safety hazards Potential environmental impacts	<ol style="list-style-type: none"> 1. Immediately conduct visual inspection of area to assess damage and potential impacts. 2. In the event of safety hazards, immediately cordon off area. 3. Notify Port. 4. Identify the discharged material, if possible. If hazardous or toxic, contact a licensed company that handles hazardous or toxic waste disposal to remove the waste. 5. Use necessary heavy equipment to restore area. 6. Notify regulatory agencies in accordance with Appendix D of the RMP. 7. Repair cause of release. <p>Recommended Equipment: portable berm, absorbency media or blankets, loader/backhoe, clean fill soil, high-solids-passing explosion-proof portable pump, Baker tank or waste receptacles, cordon tape, sandbags, cover materials, patching and sealing materials, and paving equipment.</p>

Notes:

- a The Port or its designated representative will determine the appropriate trigger for inspection and emergency response in consultation with other agencies.

**PIER 70 RISK MANAGEMENT PLAN
Pier 70 Master Plan Area
San Francisco, California**

**Prepared For:
Port of San Francisco
San Francisco, California**

**25 July 2013
Project No. 730496301**

APPENDIX B
DUST CONTROL PLAN

**DUST CONTROL PLAN
PIER 70 MASTER PLAN AREA**

**Pier 70
San Francisco, California**

**Port of San Francisco
San Francisco, California**

**July 2013
Project No. 730496301**

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**APPENDIX B
DUST CONTROL PLAN
Pier 70 Master Plan Area
San Francisco, California**

1.0 INTRODUCTION

1.1 Objective of the Dust Control Plan

Dust control to prevent or minimize workers or site user's exposure to native soil is an essential component of the Risk Management Plan (RMP) for the Pier 70 Master Plan Area in San Francisco, California (Site) (Figure 1). This Dust Control Plan (DCP) identifies steps that will be taken to reduce dust generation during excavation, grading, demolition and construction, and describes required dust monitoring and reporting during potential dust-generating activities.

1.2 Regulatory Basis

This DCP incorporates requirements of the following applicable regulations:

- California Code of Regulations (CCR) Title 17, Section 93105, the Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations
- Bay Area Air Quality Management District (BAAQMD) Regulation 2, Permits
- BAAQMD Regulation 6, Particulate Matter and Visible Emissions
- City and County of San Francisco Ordinance Number 176-08
- City of San Francisco Health Code Article 22B Construction Dust Ordinance
- Port Building Code Section 106A.3.2.3 Construction Dust Control

City Ordinance 176-08 specifies a goal of no visible dust emissions from construction and other dust-generating activities, and outlines housekeeping measures required to meet this goal. The requirements of the ordinance are codified in the above-referenced sections of the San Francisco Health Code and Port Building Code. BAAQMD Regulation 6, which generally prohibits emission of visible dust beyond the property boundary, is also applicable. Because the Site is in an area with serpentine rock potentially containing naturally occurring asbestos (NOA), CCR Title 17, Section 93105 (ATCM) applies. ATCM includes, among other things, the requirement for submission of an Asbestos Dust Mitigation Plan (ADMP) for BAAQMD approval prior to dust generating activities in areas where serpentine rock is

anticipated to be present. The ATCM also includes very specific dust mitigation measures to be implemented during construction. In addition, BAAQMD Regulation 11, Rule 14 prohibits the use or sale of asbestos-containing serpentine materials for road surfacing.

1.3 Responsibility for Implementing the Dust Control Plan

The Port, tenants, licensees, or other entity undertaking construction or other dust-generating activity at Pier 70 (the project proponent) will be responsible for implementing all provisions of this DCP applicable to its activities, including conveying the requirements of the DCP to its contractors and enforcing contractors' compliance. Project proponents undertaking dust-generating projects of one-half acre or more in size must designate a person responsible for compliance with a site-specific DCP, post contact information for the designated person, and notify adjacent occupants. The project proponent must respond to complaints regarding dust and take corrective action within 24 hours. The project proponent is also responsible for ensuring that for projects that require air monitoring, monitoring is performed by a qualified third party.

2.0 BACKGROUND

The Pier 70 Master Plan Area (Figures 1 and 2) is located on the eastern shoreline of San Francisco at Potrero Point (a continuation of serpentine based Potrero Hill). It is roughly bounded by Mariposa Street to the north, San Francisco Bay to the north and east, 22nd Street to the south, and Illinois Street to the west. For the purposes of this DCP, the "Site" consists of the onshore portions of the Pier 70 Master Plan Area (above the mean higher high water (MHHW¹)). The onshore portions of the former Potrero Power Plant where constituents associated with manufactured gas plant (MGP) waste are present in the subsurface within the Pier 70 property boundaries have been investigated by PG&E and are also included in this DCP (Figure 2).

The Site encompasses approximately 65 acres and is largely underlain by fill material placed seaward of the San Francisco historic shoreline between the late 1800s to early 1900s. The historic shoreline is shown in Figure 2. The original shoreline was comprised of serpentine bluffs overlooking mud flats that extended into San Francisco Bay. Much of the land that now makes up the Site was constructed by blasting the serpentine hills of Potrero Point (Port of San Francisco, 2009) and placing the resultant rock

¹ Mean Higher High Water is a tidal datum equal to the average of the higher high water height of each tidal day observed over the National Tidal Datum Epoch. For stations with shorter series, simultaneous observational comparisons are made with a control tide station in order to derive the equivalent datum of the National Tidal Datum Epoch.

in the bay to create new land along the shoreline. The ground surface elevation at Pier 70 ranges from below mean sea level (msl) in the shoreline portion of the Site to approximately 10 feet above msl inland.

The majority of the Site is generally covered by buildings or pavement with the exception of portions of Crane Cove Park and other small areas of unpaved native soil (Figure 2). On-site tenants at the time of DCP publication include ship repair, towing and car return, automobile storage and trucking, various storage and warehousing operations, and a metal recycling yard.

The detailed Site history is provided in the *Feasibility Study and Remedial Action Plan Pier 70 Master Plan Area, San Francisco, California* dated 31 May 2012 (FS RAP).

3.0 POTENTIAL SOURCES OF DUST EMISSIONS

Possible sources of dust emissions include:

- Construction Traffic - Movement of construction equipment and vehicles around excavated or cleared areas and unpaved roads can create dust emissions. Construction equipment or vehicles on paved roads and parking lots may also generate dust if soil from unpaved ground is tracked out onto adjacent paved roadways.
- Earthwork - Site Preparation, grading, excavation, trenching, and backfilling can produce dust.
- Material Handling, Transport, and Stockpiles - Loading or unloading, trucking or other transport, and stockpiling potentially dust-generating materials (soil, excavated material, backfill, sand, gravel, aggregate base or other import material) may contribute to windborne dust emissions.
- Demolition activities – Wrecking, cutting, disjoints, stripping, moving or dismantling any structure.

4.0 DUST CONTROL MEASURES

4.1 Measures Required for All Dust-generating Activities

All Site preparation, demolition, construction, grading, excavation, or other activities that have the potential to create dust (collectively referred to as "construction activities") or will expose or disturb more

than 10 cubic yards or 500 square feet of soil shall implement the following dust control measures as required by the Port Building Code:

- Water all active construction areas or dust-generating activities at least every two hours to prevent dust from becoming airborne, applying as much water as necessary to control dust without creating run-off. Increased watering frequency may be needed during hot, dry weather or when wind speed exceeds 15 miles per hour.
- Minimize trackout of mud, dirt and other potentially dust-generating material on vehicles and equipment by inspecting tires and cleaning as necessary to remove material prior to entering paved roadways. Trackout of loose materials such as dust, mud, and construction debris will be minimized by using a stabilized construction exit (gravel pads) installed at the access/egress point to the project site. Gravel pads will be installed in accordance with the Erosion and Sediment Control Best Management Practices (BMPs) as outlined in the Stormwater Pollution and Prevention Plan (SWPPP) (prepared separately). Vehicle tires and equipment will be inspected and cleaned if dry soil particles are present. Wheel washers will be utilized if cleaning will not remove particulates before they reenter paved roadways.
- Wet-sweep or vacuum (with a high efficiency particulate air (HEPA) filter equipped vacuum) streets, sidewalks, and intersections where work is in progress at least two times a day or more often as needed to prevent material carried out of the construction area from being deposited onto adjacent paved areas.
- Cover or otherwise stabilize (e.g., soil stabilizer products like a bonded fiber matrix material) any inactive (no disturbance for more than 10 days) cleared areas, or stockpiles of potentially dusty material greater than 10 cubic yards (cy), with a 10 mil polyethylene plastic tarp or equivalent and brace it down; or use other equivalent stabilization method.
- Use dust enclosures, curtains, and dust collectors as necessary to control dust generation.
- In accordance with Article 22B, signs will be posted with a project proponent's contact phone number around the project boundary. This phone number will be provided to adjacent businesses, residences, and schools, and will allow community members to report any visible dust problems.

4.2 Traffic Control

Mitigation of dust mitigation from construction traffic, paved and unpaved roads, parking lots, and construction staging areas shall include:

1. A maximum vehicle speed limit of ten (10) miles per hour (mph) or less and
2. One or more of the following:
 - Watering every two hours of active operations or sufficiently often to keep the area adequately wetted. Watering may be increased during above average temperatures or wind speeds
 - Applying chemical dust suppressants consistent with manufacturer's directions.
 - Maintaining a gravel, recrushed/recycled concrete or asphalt cover with a silt content that is less than five (5) percent to a depth of three (3) inches on the surface being used for travel.
 - Paved roads within a construction site will be swept twice daily with a wet sweeper during dust-generating activities.
 - At least the first 500 feet of any public roadway exiting from the construction site will be swept twice daily during dust-generating activities.
 - Implementation of erosion control BMPs as identified in the SWPPP (prepared separately), will control dust emissions from public roadways, parking areas and any above grade unpaved staging areas or roadways.
 - Construction employees will park in paved or graveled laydown areas, to reduce dust emissions
 - To the extent possible, heavy equipment will be left on the construction site and not staged outside the construction site to minimize potential for trackout.
 - Reduced vehicle trips through efficient truck and equipment usage by minimizing equipment mobilization and demobilization and using full truck loads, etc.

4.3 Transport

Trucks transporting potentially dust-generating material shall not enter or leave the construction area unless:

1. Trucks are maintained such that no spillage can occur from holes or other openings in cargo compartments; and
2. Loads are adequately wetted and either:
 - Covered with tarps; or
 - Loaded such that the material does not touch the front, back, or sides of the cargo compartment at any point less than six inches from the top and that no point of the load extends above the top of the cargo compartment.
3. Onsite vehicle speeds are limited to 10 mph or less.
4. Site personnel will be stationed at project Site access points to monitor inflow and outflow of traffic to and from Site and will be responsible for inspecting all vehicles exiting and performing tire cleaning or other trackout preventative measures.

4.4 Earthwork

Dust Control for earthmoving activities shall include one or more of the following:

- If grading will not take place immediately following demolition, and unattended, exposed soil could generate dust, exposed surface soil will be stabilized with a chemical dust suppressant and water or equivalent soil stabilization measure.
- Areas to be graded or excavated must be kept adequately wetted to prevent visible dust emissions from crossing the property line.
- Pre-wetting the ground prior to grading excavation.
- Suspending all demolition, grading and earthmoving operations when wind speeds are high enough (sustained winds at an hourly average speed of 25 mph) to result in dust emissions crossing the property line, despite the application of dust mitigation measures.
- Application of water prior to any land clearing.

- Limit the area subject to excavation, grading, or other construction activity at any one time.
- Any other measure as effective as the measures listed above.

4.5 Dust-Generating Foundation Work

1. Sprinklers, wobblers, water trucks, or water pulls will be used to pre-water during cut and fill activities to allow time for penetration.
2. Building pads will be laid as soon as possible after grading to minimize fugitive dust emissions, unless seeding or soil binders are used in the interim.
3. Wind erosion control techniques, such as wind breaks, water/chemical dust suppressants, and vegetation, will be used on all construction areas that may be disturbed. Any windbreaks used will remain in place until the soil is stabilized or permanently covered with vegetation.
4. For back-filling during earthmoving operations, backfill material will be watered as needed to maintain moisture. If required, backfill soil will be wetted prior to moving. Loader buckets will be emptied slowly and drop height from loader buckets minimized. Once backfill material is in place and compacted, water will be applied immediately to form a crust, if necessary. A water truck or large hose will be dedicated to back-filling equipment and operations.
5. While clearing forms, single stage pours will be used where allowed. Use of high-pressure air to blow soil and debris from the form will be avoided; instead, water spray, sweeping, and/or an industrial shop vacuum will be used to clear the form.

4.6 Post-Construction Durable Cover

Upon completion of construction, formerly unpaved areas will be covered with durable cover as described in the RMP such as building related hardscape construction (i.e. sidewalks, building foundations, roadways), or at least 2 feet of clean fill. If durable cover is not installed or replaced within 10 days after removal of durable cover, the exposed surface soil must be temporarily stabilized with a chemical dust suppressant and water or equivalent soil stabilization measure, and inspected periodically to maintain the stable surface until the durable cover is installed.

4.7 Additional Requirements for Serpentine Material

Because the Site is in an area with serpentine rock potentially containing NOA, CCR Title 17, Section 93105 (ATCM) applies. ATCM includes, among other things, the requirement for submission of an ADMP

to BAAQMD for approval prior to grading areas greater than one acre. In addition, BAAQMD Regulation 11, Rule 14 prohibits the use or sale of asbestos-containing serpentine materials for road surfacing. It is anticipated that any serpentine materials excavated during Site remediation or redevelopment will be reused on Site, and none will be used as a surfacing agent.

If any excavated soil containing serpentine material or demolition debris suspected of containing asbestos is slated for off-site disposal, it must be analyzed for asbestos content. In accordance with the CCR Section 66261.24, material with greater than 1 percent by-weight asbestos is considered a Class I California Hazardous Waste, and will be handled and disposed of offsite in accordance with all requirements for proper disposal of asbestos. In such circumstance, the following waste management methods will be used when handling serpentine waste designated as hazardous waste:

- Keep asbestos-containing waste material adequately wetted at all times during handling and loading.
- Adhere to requirements of Section 11-2-608 for marking of vehicles used to transport asbestos-containing waste.
- Maintain waste shipment records as specified in Section 11-2-502.
- Provide a copy of the waste shipment record to the disposal site owner or operator upon delivery.
- Contact transporter and/or owner of the disposal site if the waste shipment has not arrived within 35 days of initial acceptance by the transporter as hazardous waste.
- Provide a written report to the Air Pollution Control Officer (APCO) if the waste shipment is not received within 45 days of initial acceptance by the transporter.

5.0 PROJECTS GREATER THAN ONE-HALF ACRE AREA – DUST CONTROL PLAN

For projects that disturb more than greater than one-half acre of soil, all above-listed measures are required and the project proponent must identify "sensitive receptors" (residences, schools, child-care centers, hospital or health-care facilities, group living quarters) located within 1,000 feet of the project boundary. Figure 3 shows the approximate 1,000 foot sensitive receptor zone around the Pier 70 Master Plan area. If no sensitive receptors are determined to be within 1,000 feet of the project, the Director of Public Health or designee may waive the requirement to submit a site-specific DCP.

If sensitive receptors are present within 1,000 feet of the project boundary, the project proponent must submit a site-specific DCP to the SFDPH for review and approval. The site-specific DCP will include all of the requirements specified by Health Code Article 22B, the Port Building Code (the measures listed in Section 4.1) and this DCP. Additionally, the site-specific DCP must:

- Specify wetting any areas of exposed or disturbed soil at least three (3) times per day (or 8-hour shift), and paving, wetting three times daily, or applying non-toxic soil stabilizer to all unpaved access roads, parking areas or staging areas within the construction area.
- Specify that dust-generating activities will be shut down if dust control measures cannot be made sufficiently effective to prevent dust generation as outlined in Section 6.0.
- Designate a person who will be responsible for monitoring compliance with dust control requirements. The Designated Person must be on-site or available by telephone at all times during site preparation, demolition, or construction activities, including holidays and weekends. The name and telephone number for the Designated Person with responsibility for compliance with the dust control requirements must be posted in publicly visible location(s) at the project site and provided to the Port representative, the Department of Public Health, and adjacent residents, schools, and businesses prior to beginning work.
- Establish protocols for air monitoring by developing a, site specific Dust Monitoring Plan (DMP) that is implemented by an independent third party.

6.0 VISIBLE DUST EMISSIONS

6.1 Visible Dust during Site Activities

The goal of this plan is no visible dust. While it is understood that soil disturbance and excavation activities will produce dust, dust controls will be used to mitigate visible dust as it occurs. In the event that visible dust from soil disturbance or excavation is observed on-site, but does not cross the construction area boundary, the following procedures will be followed:

1. A more aggressive application of the existing mitigation measures described in Section 4.0 will be implemented within 15 minutes of making the observation.
2. Additional methods of dust suppression will be implemented if Step 1 specified above fails to result in adequate mitigation within 30 minutes of the original observation.

3. If Step 2 specified above fails to result in effective mitigation within 1 hour of the original observation, the source of emissions will be temporarily shut down until the implemented dust control mitigation is effective or, due to changed conditions, no longer necessary.

6.2 Visible Dust Crossing the Property Boundary

In the event that visible dust from soil disturbance or excavation is observed crossing the property boundary, the following procedures will be followed:

1. The specific source of the emissions will be immediately shut down and a more aggressive application of the existing mitigation measures described in Section 4.0 will be implemented.
2. Once the mitigation measures have been applied, the operation at the source of emissions will resume and observations will be conducted to verify that the mitigation measures were successful.

In addition, dust curtains, plastic tarps, or tree windbreaks will be installed on the windward and down windward sides of construction areas to prevent visible dust from crossing property boundary.

6.3 Windblown Visible Dust during Inactive Periods

The standards in this section apply on weekends, holidays, or any other times when no work is being performed on site. In the event that visible dust originating on the project site is observed emanating beyond the construction site area boundary, mitigation measures described in Sections 4.0, 6.1 and 6.2 will be implemented within less than 8 hours of making the observation. Mitigation measures will be applied until the visible dust plumes originating from the project site are minimized or eliminated. Any observations of visible dust originating from the project site during inactive periods should be reported to the Contractor's Designated Person as defined in Section 5.0.

7.0 AIR MONITORING AND RECORDS

This section discusses air monitoring and record and reporting requirements for Particulate Matter with a diameter of less than 10 micrometers (μm) (PM10) (Article 22B, Port Building Code) and the CCR Title 17, Section 93105 (ATCM).

7.1 Air Monitoring for Dust

In accordance with Article 22b and the Port Building Code, for projects that disturb one acre or more of soil, the required site-specific dust control plan will include procedures for real time dust monitoring including the following:

- Air samples will be collected continuously during any dust-generating activity; and
- Placement of particulate dust monitors (DataRAM PDR-1000 or equivalent) at least two locations at the project site: one at the downwind edge of the dust generating activity, and one upwind. SFDPH may request more dust monitors for larger projects. Monitors will be checked four times daily. Monitoring locations will initially be established based on Site prevailing winds but will be checked four times daily and adjusted if necessary to maintain the upwind and downwind locations.

More detailed dust monitoring procedures will be outlined in the site-specific DMP in accordance with Article 22B (Section 5.0).

7.1.1 Monitoring Equipment

Monitoring will be performed for PM10 using a portable real time dust monitor, such as a Data RAM (or equivalent). The monitoring devices will have a minimum detection limit of 50 µg/m³ and a minimum accuracy of 1.0 µg/m³. The dust monitor will be calibrated according to the manufacturer’s specifications and the calibration records will be maintained in the field daily notes.

**Table 1
Action Levels for PM10**

PM10 Concentration	Response Actions
50 µg/m ³ Daily Average	Review work procedures for compliance with BMPs. Implement additional dust mitigation measures to prevent exceedances above action level
250 µg/m ³ 10 minute Average	Particulate monitor alarms. Stop work and apply more aggressive dust mitigation measures until the 10 minute average concentration drops below 250 µg/m ³

7.2 Personnel Air Sampling for Asbestos

In accordance with the ATCM, if a project will disturb an area greater than 1 acre in size for sites where NOA is present, an air monitoring plan may be required by the APCO (i.e. BAAQMD) and submitted with the ADMP. If BAAQMD requests personnel air monitoring, an asbestos exposure assessment will be performed in accordance with the California Occupational Health and Safety Administration (OSHA) Title

8 Section 1529 regulations. This monitoring will be conducted when work begins for a period of at least three days, and once every 10 days working days thereafter.

7.3 Recordkeeping and Reporting

Dust monitors will be equipped with data loggers. If air monitoring is required by BAAQMD, to comply with ATCM, air monitoring records will be kept for a minimum of seven years. BAAQMD has the authority to request air monitoring reports or results for this duration. Reporting requirements are at the discretion of BAAQMD and may change on a project by project basis.

In accordance with Article 22B, if a site-specific dust control plan (as discussed in Section 4.0) is required, the project proponent must submit monitoring data that includes real time data and daily averages along with corrective actions to SFDPH on a weekly basis for no less than four weeks. Following review of the monitoring data, SFDPH may determine that additional monitoring is not required.

REFERENCES

Air Resources Board, 2002. *California Code of Regulations (CCR) Title 17, Section 93105, the Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations*. 29 July.

California Air Resources Board (CARB), 2012. *Ambient Air Quality Standards*. 7 June.
<http://www.arb.ca.gov/research/aags/aags2.pdf>

City and County of San Francisco, 2012. *San Francisco Health Code, Article 22B, Construction Dust Control Requirements*. Last amended by [Ordinance 229-12](#), File No. 120815, approved 14 November 2012, effective 14 December 2012.

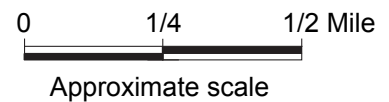
Port of San Francisco, 2009. *Pier 70 Draft Preferred Master Plan, Pier 70 Northeastern Shoreline, San Francisco, California*. August.

Treadwell & Rollo, 2012. *Feasibility Study and Remedial Action Plan Pier 70 Master Plan Area, Pier 70 San Francisco California*. 31 May.

FIGURES



Base map: The Thomas Guide
 San Francisco County
 1999



**PIER 70 MASTER PLAN AREA
 DUST CONTROL PLAN**
 San Francisco, California

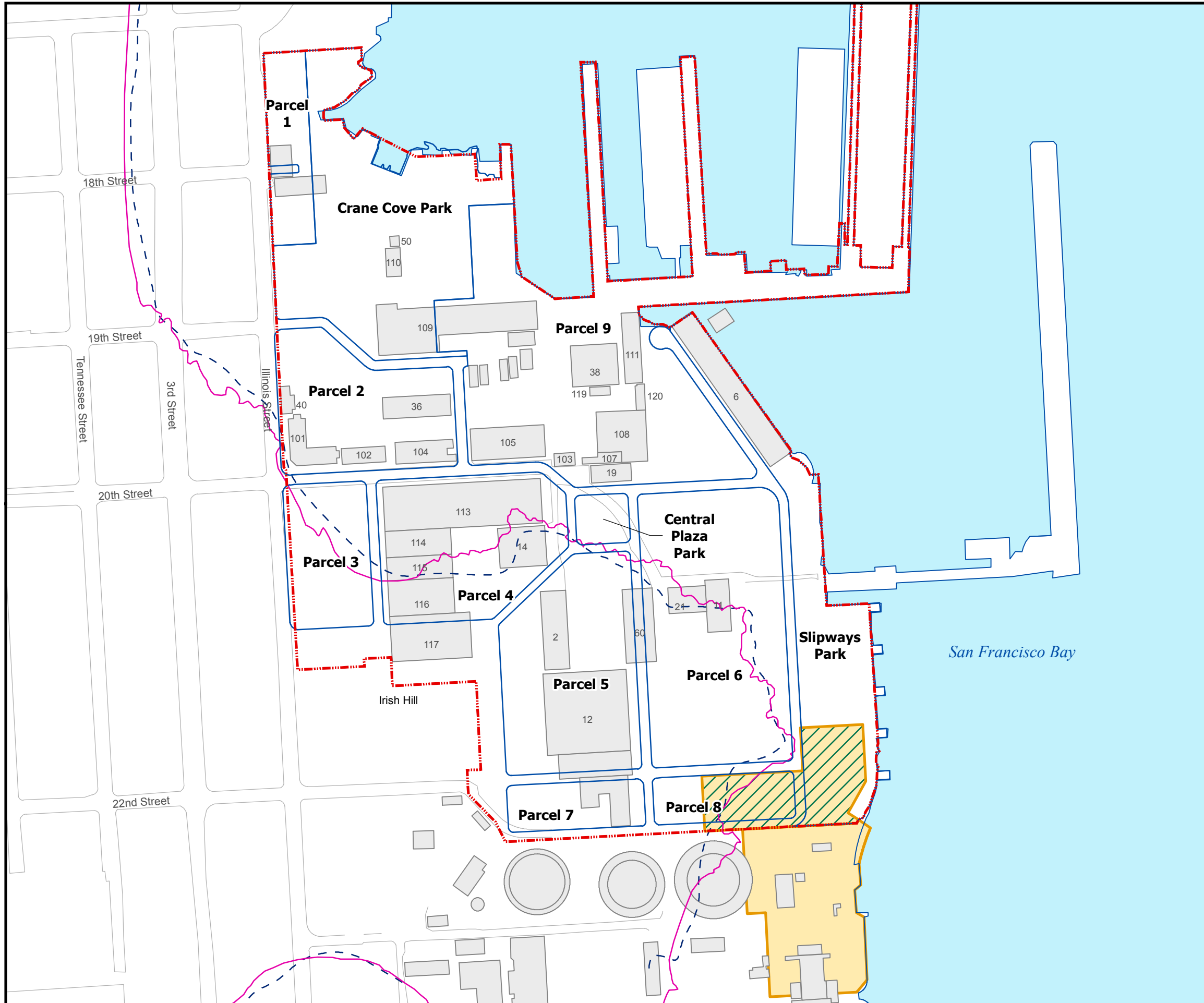
SITE LOCATION MAP



Date 07/24/13

Project No. 730496301

Figure 1

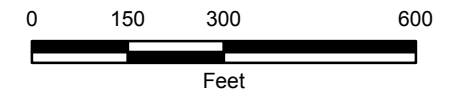


Legend

- Parcel Boundary
- Site Area Included in Pier 70 DCP
- Area of Special Concern with Dense Non-Aqueous Phase Liquids (DNAPL) Impacts
- Limit of Upland Feasibility Study for Former PG&E Potrero Power Plant
- Building
- Existing Shoreline
- Approximate 1851 Shoreline
- Approximate 1869 Shoreline
- Road Edge

Notes:

1. DCP = Dust Control Plan.
2. Pacific Gas & Electric Feasibility Study (FS) Area taken from Haley & Aldrich, Inc., *Draft Report on Upland Feasibility Study Potrero Power Plant Site San Francisco, California*, 22 March 2012.
3. Parcels from ROMA Design Group, *Draft Preferred Pier 70 Master Plan*, 17 July 2009.
4. Approximate 1851 shoreline provided by the Port of San Francisco.
5. Approximate 1869 shoreline based upon Board of Tidelands Commissioners, *Map of the Salt Marsh and Tide Lands and Lands Lying Under Water South of Second Street and Situate in the City and County of San Francisco*, 1869.
6. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.



**PIER 70 MASTER PLAN AREA
DUST CONTROL PLAN
San Francisco, California**

SITE AREA FOR DUST CONTROL PLAN

Date 7/24/2013 Project 730496301 Figure 2

Treadwell&Rollo
A LANGAN COMPANY

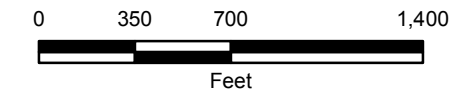


Legend

- 1,000 Foot Sensitive Receptor Zone
- Existing Shoreline
- Approximate 1851 Shoreline
- - - Approximate 1869 Shoreline
- Parcel Boundary
- Site Area Included in Pier 70 DCP
- Area of Special Concern with Dense Non-Aqueous Phase Liquids (DNAPL) Impacts
- Limit of Upland Feasibility Study for Former PG&E Potrero Power Plant
- Building
- Schools (Private & Public)
- Park
- Residential Zoning

Notes:

1. DCP = Dust Control Plan.
2. Pacific Gas & Electric RMP Area taken from Haley & Aldrich, Inc., *Draft Report on Upland Feasibility Study Potrero Power Plant Site San Francisco, California*, 22 March 2012.
3. Parcels from ROMA Design Group, *Draft Preferred Pier 70 Master Plan*, 17 July 2009.
4. Approximate 1851 shoreline provided by the Port of San Francisco.
5. Approximate 1869 shoreline based upon Board of Tidelands Commissioners, *Map of the Salt Marsh and Tide Lands and Lands Lying Under Water South of Second Street and Situate in the City and County of San Francisco*, 1869.
6. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.
7. Bing Maps Hybrid aerial and roads basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online © 2010 Microsoft Corporation and its data suppliers.
8. Parks schools and zoning Shapefile obtained from the City and County Planning Department of San Francisco.



**PIER 70 MASTER PLAN AREA
DUST CONTROL PLAN
San Francisco, California**

**DUST CONTROL PLAN 1,000 FOOT
SENSITIVE RECEPTOR ZONE**

Date 7/24/2013 Project 730496301 Figure 3



MEMORANDUM

TO: Carol Bach
Port of San Francisco
Pier 1
San Francisco, California

FROM: Dustyne Sutherland
Dorinda Shipman

DATE: 26 August 2011

PROJECT: Pier 70 Master Plan Area
San Francisco, California
Project: 730496301

SUBJECT: UST Reconnaissance

Number of Pages: 19

On 23 March 2010 the status of the Environmental Investigation for the Pier 70 Master Plan area (Site) was presented to the San Francisco Port Commission. Port Commissioner Stephanie Shakofsky suggested that additional Site reconnaissance activities be completed to identify potentially unknown or suspect UST locations.

UST Reconnaissance and Data Review

To further identify potential UST locations at the Site, T&R reviewed recent data and historic information presented in Environmental Site Investigation Report Pier 70 Master Plan Area (SI report) dated 13 January 2011, and conducted field reconnaissance at the Site. T&R performed the following tasks:

- Evaluated maps of TPH distribution in soil and groundwater relative to groundwater flow conditions to identify patterns that may indicate a leaking UST source
- Reviewed Sanborn maps and other historic maps for the presence of USTs or pipelines used to convey fuels and oils
- Reviewed information regarding former UST locations, materials stored, and UST removals
- Reviewed SI report Table 2 and created attached Table 1 summarizing historical information regarding USTs and identify areas where USTs may currently exist
- Performed Site reconnaissance and looked for potential indicators of USTs including: vent pipes, surface patches, fill ports, trenching, and suspect piping.

Site Mitigation Unit (Unit IV)
San Joaquin Environmental Health Department
26 August 2011
Page 2

Results of Data Review

Historical UST information presented in Table 1 was reviewed along with Sanborn and other historic maps. This review indicated that the only historical information that has not been resolved is related to former USTs at Building 113. Historical information suggests that east of Building 113 up to two USTs were removed in 1990 and two additional USTs were removed and filled with sand in 1992. T&R reviewed a map titled, "Utilities – Steam & Fuel Oil, Bethlehem Steel", latest revision 13 April 1982, which shows two fuel oil USTs located near the east end of Building 113. The current status of these two fuel oil USTs is not known, and it is unclear whether they are related to USTs located near Building 113 that were reportedly removed filled with sand in 1992, or if these two USTs are UST3 and UST4 as mentioned in Table 1. Soil TPH concentrations were reported below Environmental Screening Levels (ESLs) at historic sample locations near the east end of Building 113 (Table 1). Historic sample location B-01-TT located in a narrow alleyway between Buildings 113 and 14 reported TPHg and TPHd concentrations in soil and groundwater above ESLs (Figures 19 and 25 from SI Report).

At SI location CPSB-04B located 50 feet east of Building 113, TPHd and TPHmo concentrations in soil and groundwater were reported above ESLs (Figures 19 and 25). In soil, at 10 feet below ground surface (bgs) TPHd and TPHmo concentrations ranged between 2,500 µg/L and 2,700 µg/L. In groundwater, TPHd and TPHmo was reported at 8,200 µg/L.

Results of Site Reconnaissance

On 28 June 2010 a Site visit was conducted to look for evidence of unknown or suspect USTs at the Site. Site reconnaissance was focused in areas associated with reported former USTs (near Buildings 14, 113, 101 and Central Plaza Park) as identified in Table 1, and in areas with elevated TPH in groundwater or soil as presented in the SI report. T&R also performed site reconnaissance around the perimeters of all Site buildings and the inside of Buildings 12, 15, 36, 38, 60, 101, 104, 108, 109, and 111. Suspect potential evidence of USTs were observed at the following locations:

- Suspected vent pipe located in sidewalk on east side of Illinois Street, at 699 Illinois Street outside of Building 49 (Photograph 1);
- Circular metal vault with lid and square cap located in driveway east of Building 14 (Photograph 2);
- Two vertical vent pipes on south wall of Building 49 (Photograph 3); and
- Unidentified circular metal object imbedded in concrete patch near the northeast corner of Building 11 (Photograph 4).

The suspected vent pipe located in the sidewalk on the east side of Illinois Street was approximately two-inches in diameter and eight feet high (Photograph 1), and has a downturn at the top and a screen covering the opening to the pipe. Fill ports were not observed near the pipe.

An approximate ten-inch diameter round metal vault was observed east of Building 14. The inside of the vault was lined with an approximately six-inch diameter vertical open metal casing and contained an approximately 1.5-inch square cap at the bottom of the vault, buried by soil approximately 8 inches below the ground surface (Photograph 2). The cap could not be removed during the reconnaissance. No

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San Joaquin Environmental Health Department
26 August 2011
Page 3

other evidence of USTs (surface patches, vent pipes, fill ports) was observed near the east end of Buildings 14 or 113 located nearby.

The two vertical vent pipes on the south wall of Building 49 are approximately 22 feet high and extend approximately two feet above the rooftop of the building (Photograph 3). It was unclear as to whether the vent pipes were for the sewer or UST venting though no other evidence of USTs (surface patches, vent pipes, fill ports) was observed nearby.

The unidentified circular steel object near the corner of Building 11 consists of a convex steel rim of approximately six-inches diameter with a glass object imbedded in the center (Photograph 4). The object did not resemble a fill port, however it was still investigated using the air knife rig as discussed below.

UST Air Knife Investigation Activities

On 22 October 2010, T&R used air-knife drilling to investigate suspect UST locations identified during the UST reconnaissance activities. Gregg Drilling and Testing, Inc. of Martinez, California (Gregg) used air-knife methods to advance shallow borings. Osborne's Concrete Coring of Fremont, California (Osborne) provided saw-cutting services. Air-knife borings were all approximately ten inches in diameter and did not exceed a depth of five feet below ground surface (bgs). During air-knifing, a T&R field geologist classified subsurface materials, performed visual observation for evidence of contamination, and screened subsurface materials for organic vapors using a calibrated photoionization detector (PID). Investigation activities, observations, and PID screening results were documented in field logs. Upon completion, each boring was backfilled with soil from the air knife excavation.

Results of UST Air Knife Investigation

The following sections describe detailed investigation activities and results for each suspect potential UST location.

Suspected vent pipe located in sidewalk on east side of Illinois Street, at 699 Illinois Street

Two borings were advanced in the sidewalk next to the suspected vent pipe (Photograph 5). Prior to advancing borings, Osborne cut and removed two sidewalk sections. Removal of the sidewalk sections revealed a Christy box immediately beneath (Photograph 6). Gregg hand dug to expose the Christy box and removed the lid. The inside of the Christy box was filled with soil. T&R removed the soil by hand and uncovered a closed valve, a cut (abandoned) 1-inch diameter steel pipe trending towards Building 49, and an uncut 1-inch steel line entering the box from Illinois Street. There was no evidence of contamination around the valve, pipe, or Christy box. The pipe is suspected to be an abandoned water supply line (Photograph 7). Gregg replaced the soil in the excavation around the pipe.

An air-knife boring was advanced approximately two feet north of the suspected water pipe (two feet west of suspect vent line). Wood debris which could not be removed by air-knifing was encountered at approximately 3 feet bgs. There was no indication of contamination in the soil at this location and it was subsequently backfilled.

An additional air knife boring was advanced approximately two feet west and one foot north of the suspect vent pipe (Photograph 8). This boring was terminated at five feet bgs. There was no indication

Site Mitigation Unit (Unit IV)
San Joaquin Environmental Health Department
26 August 2011
Page 4

of USTs or contamination at this location. The subsurface materials consisted of serpentinite cobbles in a crushed serpentinite and sand matrix with wood and metal debris.

T&R directed Gregg to excavate around the base of the suspect vent pipe to trace the source of the pipe. The soil was removed around the pipe, revealing a continuation of the suspect vent line trending approximately 11 degrees in the northwest direction towards Illinois Street (Photograph 9). T&R considered an additional boring to attempt to locate the pipe where it intersects Illinois Street, but this was not feasible due to proximity of marked underground utilities. Upon conclusion of investigation activities all exploratory borings and excavations were backfilled. Golden Gate Tank Removal Inc. replaced the sidewalk.

Circular metal vault east of Building 14

The inside of the metal vault located east of Building 14 was observed and contained a square cap surrounded by soil that apparently washed into and filled the vault over time (Photograph 10). Soil was removed from the cap, to the bottom of the vault approximately 1.25 feet below grade, exposing a valve. The valve was corroded seeped water, indicating it is a water valve.

One air knife boring was advanced approximately four feet east of Building 14 near the vault and met refusal at four feet bgs upon encountering a large piece of bedrock or concrete (Photograph 11). The subsurface material consisted of bedrock cobbles, sand, and brick debris. There was no evidence of USTs or contamination in this boring.

Conversations with Tom Miesenbach and Jose Herrera, from the Port of San Francisco Maintenance Department confirmed that the valve is a shut off valve for the fire hydrant located directly adjacent to the metal vault.

Vertical vent pipes on south wall of Building 49

One boring was advanced approximately two feet south of the vertical vent pipes at Building 49 (Photograph 12). The boring was terminated upon reaching refusal at 4.5 feet bgs due to large pieces of debris. The subsurface material was reddish-brown sand. There was no evidence of USTs or contamination in this boring.

Unidentified circular metal object imbedded in concrete patch near the northeast corner of Building 11

Osborne used a roto-hammer to break out the metal object from the concrete patch northeast of Building 11. The metal object was a one-inch thick, six-inch diameter steel ring set into the surface of the concrete patch (Photograph 13). Osborne patched the newly created void with concrete. There was no evidence of USTs or contamination.

Tom Meisenbach confirmed that the concrete patch was a result of electrical upgrades for SIMs Metals.

San Francisco Department of Public Health (SFDPH) and San Francisco Fire Department (SFFD) Records Review

Treadwell & Rollo reviewed records for historical USTs in the *1990 City and County of San Francisco Department of Public Health Tank Characteristics by Street Address Inventory Guide*. A UST installed in the 1900 was on record for 680 Illinois Street, a building located on the west side of Illinois Street across the street from Pier 70. Treadwell & Rollo reviewed files for 680 Illinois at the SFDPH and SFFD. The

Site Mitigation Unit (Unit IV)
San Joaquin Environmental Health Department
26 August 2011
Page 5

SFFD records indicated the tank was installed on 22 January 1956. On 1 May 1990 a 1,000 gallon UST was removed from 680 Illinois Street. A no further action letter was submitted by the Water Board on 10 January 1992. It was not clear whether the pipe observed in the street at 699 Illinois Street was related to the historic tank at 680 Illinois Street, but it seems unlikely that a vent pipe would have been placed beneath Illinois Street.

No USTs were on record at the SFFD or SFDPH for the Port property location 699 Illinois Street, where the suspected vent pipe was observed. After further investigation it appeared that the suspect vent pipe in Illinois street adjacent to 699 Illinois Street was not associated with unknown USTs therefore further investigation was not warranted.

Conclusion

Results of the historical information and data review, Site reconnaissance, and air knife investigation indicate that additional investigation or field sampling is not warranted for any of the suspected potential UST locations.

Attachments: Table
Figures
Photographs

TABLE

Table 1
Underground Storage Tank Historical Information Review
Pier 70 Environmental Site Investigation
San Francisco, California

Pier 70 Master Plan Reuse Area	UST Location	UST Removal/Storage Information	Potential Contaminants of Concerns	Historical TPH, and BTEX in Groundwater or Soil	Remarks	Source Document Titles	SI Results
Parcel 2		UST 106 was removed in January 1988. Elevated concentrations of petroleum hydrocarbons and oil and grease in soil and groundwater from samples collected from within the excavation area. Approximately 1/8-inch of floating product was observed on the water table.	TPH-g, TPH-d, TPH-mo, BTEX, MTBE, Metals, oil and grease	Soil samples from UST Excavation had TPH (specific hydrocarbons not defined) up to 3,200 ppm and oil and grease up to 4,045 ppm. TPH was detected at 16,000 ppm in groundwater within the excavation. BTEX was detected in soil at the capillary fringe in the assumed downgradient direction from the vault (approximately 20 feet away). A grab groundwater sample contained TPH-diesel at 1,100 ppb, but TPH-G and BTEX were not detected.	TPH exceeds ESLs in groundwater at historic sample location B-04-TT, located approximately 20 feet east of Building 101. This TPH exceedance may be associated with the former UST near Building 101.	Phase I ESA for Pier 70, Mixed Use Opportunity Area, corner of Illinois St and 20th St, SF CA 94107, Volume I of II, Tetra Tech, August 1998 Pier 70 Mixed Use Opportunity Area, SF, CA, Phase II Brownfields Target Site Assessment Report, Ecology and Environment, Inc, November 2000. Subsurface Investigation for Port of San Francisco, Pier 70 San Francisco, CA, Tetra Tech, December 1997.	Sample location P2SB-04 (adjacent to B-04-TT) contained TPH concentrations in groundwater below ESLs.
Parcel 4	Four Former USTs associated with Building 113	Two USTs removed in 1990. Status not known. Two additional USTs filled with sand in 1992, Status not known.	TPH-g, TPH-d, TPH-mo, BTEX, MTBE, PAHs, VOCs, and CAM 17 Metals	Samples were taken during two UST removals in 1990. Sample media and results not known. Odor and discoloring were observed in the soil, a sheen was observed on the water in the open tank excavation. A UST unauthorized release form indicated that unknown quantities of diesel fuel and oil were discovered during UST removal activities. The form indicated that remedial action has not been taken and cleanup is pending. Soil concentrations at historic sample locations (G-47-EE2000, B-02-TT, and G-48-EE2000) near the east end of Building 113 were all below ESLs. Historic sample location B-01-TT, located in the narrow alleyway between Buildings 113 and 14 contained TPH-gas (430 ppb) and TPH-diesel (41,000 ppb).	The exact locations of these tanks have not been confirmed, but may have been near sample location B-01-TT based upon the elevated concentrations of TPHd and TPHg in groundwater at that location. See information below for Central Plaza, because two of the tanks reportedly removed in 1990 may have been UST 3 and UST 4 mentioned below.	Phase I ESA for Pier 70, Mixed Use Opportunity Area, corner of Illinois St and 20th St, SF CA 94107, Volume II of II, Tetra Tech, August 1998.	Shallow soil and groundwater at CPSB-04B, located about 50 feet east of Building 113, had ESL exceedances for TPH. CPSB-01, located approximately 150 feet east of Building 113, exceeded ESLs for TPH in groundwater and soil. No additional borings were successfully completed closer to Building 113 due to utilities.
	East of Building 113, just outside of building perimeter	Two fuel oil tanks, 1,000 gallons each, with distribution lines coming from the USTs trending north to the former boilers in Building 103.	TPH, PAH, LUFT metals	These tanks may have been near historic sample location B-01-TT and may have been the source of elevated TPHd concentrations in groundwater at this sampling location	These two USTs may be two of the four USTs previously identified above as having been removed during 1990 or filled with sand during 1992. This status and location of these two fuel oil USTs is unknown. See above regarding USTs removed in 1990.	Steam & Fuel Oil line schematic, Bethlehem Steel San Francisco Yard, rev. 4-13-1982	
	East of Building 113	USTs 104 and 105 were removed in 1988.	CAM 17 Metals, TPH-gas, TPH-diesel, TPH-motor oil, BTEX, and MTBE	USTs 104 and 105 in soil within the excavation had TPHs (specific hydrocarbon not defined) to 600 ppm and oil and grease up to 46,020 ppm. No concentrations of TPHs, oil and grease or BTX were detected in the grab groundwater sample. TPH-gas (12 ppm), TPH-diesel (2,600 ppm), TPH-motor oil (2,700 ppm) and trace concentrations of BTX were in soil at the detected capillary fringe immediately outside of former excavation in 1997. Grab groundwater sample (B-01-TT) contained TPH-gas (430 ppb) and TPH-diesel (41,000 ppb).	Detected concentrations of toluene, ethylbenzene and xylenes in USTs 104 and 105 soil were below USEPA PRGs using the industrial land use scenarios. Exact location of USTs 104 and 105 unknown.	Pier 70 Mixed Use Opportunity Area, SF, CA, Phase II Brownfields Target Site Assessment Report, Ecology and Environment, Inc, November 2000. Site History Report and Work Plan City Tow Pier 70 San Francisco, CA, Iris Environmental, February 7, 2002. Subsurface Investigation for Port of San Francisco, Pier 70 San Francisco, CA, Tetra Tech, December 1997.	

Table 1
Underground Storage Tank Historical Information Review
Pier 70 Environmental Site Investigation
San Francisco, California

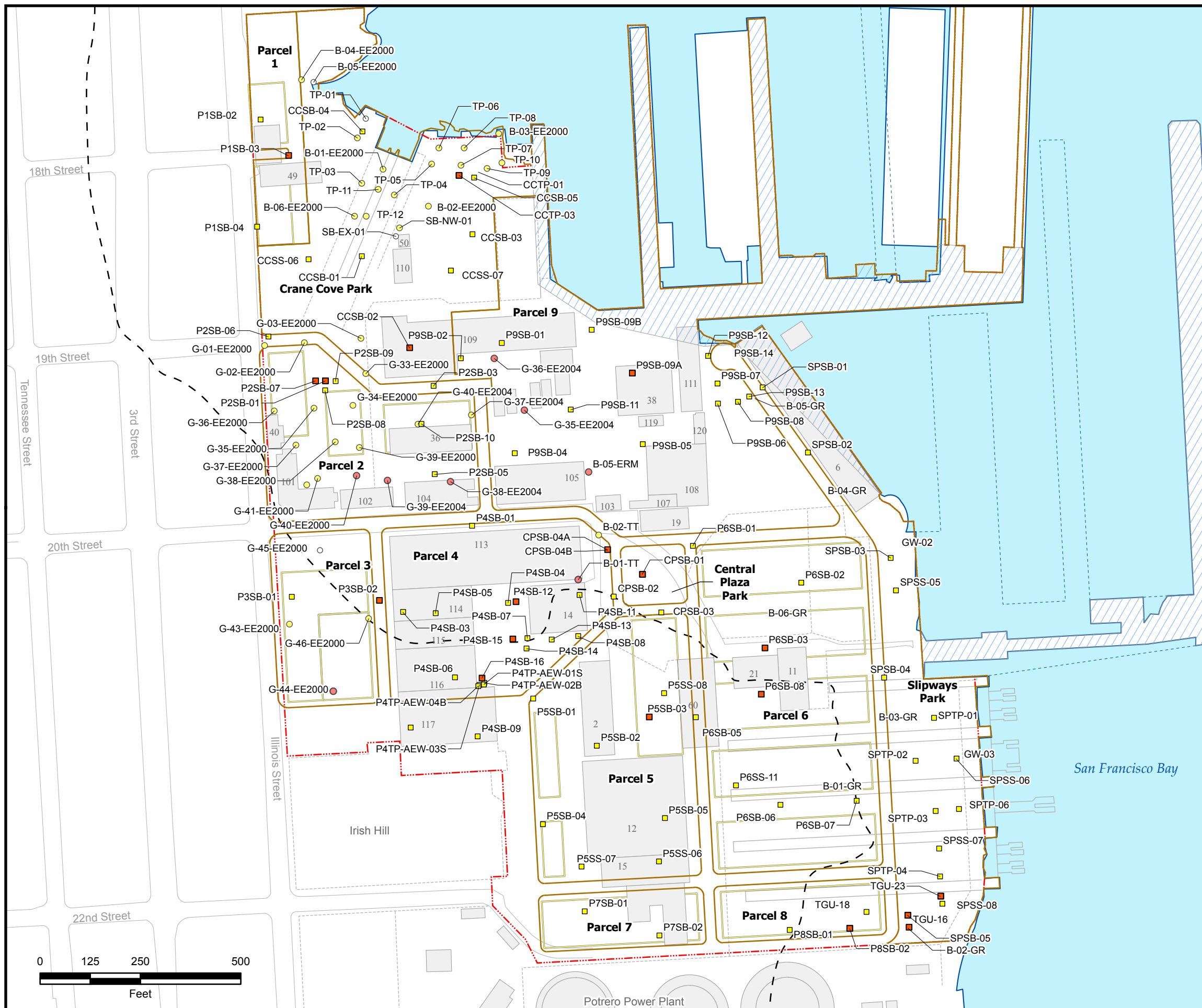
Pier 70 Master Plan Reuse Area	UST Location	UST Removal/Storage Information	Potential Contaminants of Concerns	Historical TPH, and BTEX in Groundwater or Soil	Remarks	Source Document Titles	SI Results
Central Plaza Park	USTs 3 and 4 were located approximately 150 north of the Operational Area 2 of City Tow. Tank tightness test records indicate that the USTs were 2,500 and 5,000-gallon diesel tanks. A letter dated April 1, 1991 from the Port indicate that the USTs were 5,000-gallons each and were used to store gasoline and diesel fuel, respectively.	USTs 3 and 4 were removed in 1990.	CAM 17 Metals, TPH-gas, TPH-diesel, TPH-motor oil, BTEX, and MTBE	USTs 3 and 4 soil samples from the excavation had the following maximum concentrations: TPH-gasoline at 710 ppm, TPH-diesel at 5,600 ppm, and BTEX at 2,690 ppm. Maximum groundwater concentrations reported TPH-gasoline at 2,700 ppb, TPH-diesel at 1,600,000 ppb, and BTEX at 152 ppb.	For USTs 3 and 4, a letter from the Port to SFDPH dated April 1, 1991 stated that because both USTs were within the right-of-way of a "current Clean Water Program modifying the combined sanitary sewer and stormwater drain system along Mariposa and 20th Street," the soil would be reexcavated during construction of the planned new sewer line and disposed off-site.	Pier 70 Mixed Use Opportunity Area, SF, CA, Phase II Brownfields Target Site Assessment Report, Ecology and Environment, Inc, November 2000. Site History Report and Work Plan City Tow Pier 70 San Francisco, CA, Iris Environmental, February 7, 2002. Subsurface Investigation for Port of San	CPSB-01, located approximately 150 feet east of Building 113, in the center of Central Plaza, exceeded ESLs for TPH in groundwater and soil. Samples from nearby borings CPSB-01, CPSB-02, CPSB-03, and P6SB-01 did not exceed ESLs for TPH in groundwater or soil
Parcel 9, BAE Systems	4170 Barrel fuel oil AST located southeast of Building 111.	None identified during source document review.	TPH	There were ESL exceedances for TPH in soil at borings G-35-EE2004, and G-36-EE2004, located in Parcel 9.	A 4,170 barrel AST was located south of Building 111 releases from which may be the source of historical ESL exceedances, heavily degraded petroleum hydrocarbons or non-aqueous phase liquid (NAPL) as discussed in the SI results. In addition, a 23 August 1936 Bethlehem Shipbuilding Corporation memo proposing a sheet pile bulk head north of current Buildings 38 and 111 states that between seven and 17 feet below ground surface (bgs) a coarse gravel fill layer is present, and that the groundwater has been replaced by "oil with no known origin" (Bethlehem Steel, 1936).	Sanborn Maps (Appendix A of Workplan dated 29 October 2009)	TPH exceeds ESLs at numerous sample locations in Parcel 9. TPH as non aqueous phase liquid (NAPL) was observed at sample locations P9SB-04, P9SB-06, P9SB-07, P9SB-09A, P9SB-10, and P9SB-11.


Notes:

ASTs - aboveground storage tanks
BTEX - benzene, toluene, ethylbenzene, and xylenes
ESL - Environmental Screening Levels taken from San Francisco Bay Regional Water Quality Control Board, California Environmental Protection Agency Screening for environmental concerns at Sites with contamination in soil and groundwater Table B - Groundwater and Soil for Residential and Commercial Land Use.
RWQCB - Regional Water Quality Control Board
SFDPH LOP - San Francisco Department of Public Health Local Oversight Program

TPHd - Total Petroleum Hydrocarbons as Diesel Range
TPHg - Total Petroleum Hydrocarbons as Gasoline
TPHmo - Total Petroleum Hydrocarbons as Motor Oil
mg/L - micrograms per liter
ppb - parts per billion
ppm - parts per million
PRG - Preliminary Remediation Goal

FIGURES





Legend

Historical Sample Location
 ○ Not Detected
 ● Detected Below ESL
 ● Exceedance of ESL
Recent Sample Location
 ■ Detected Below ESL
 ■ Exceedance of ESL
Surface Feature
 - - - Fence
 - - - Other
 - - - Approximate 1869 Shoreline
 - - - Road Edge
 [] Building
 [] Proposed Building
 [] Pier 70 Site Area
 [] Master Plan Parcel Areas (eg. Parcel 1 = P1, Crane Cove Park = CC, etc...)
 [] Pile-Supported Structure Over Water


Notes:

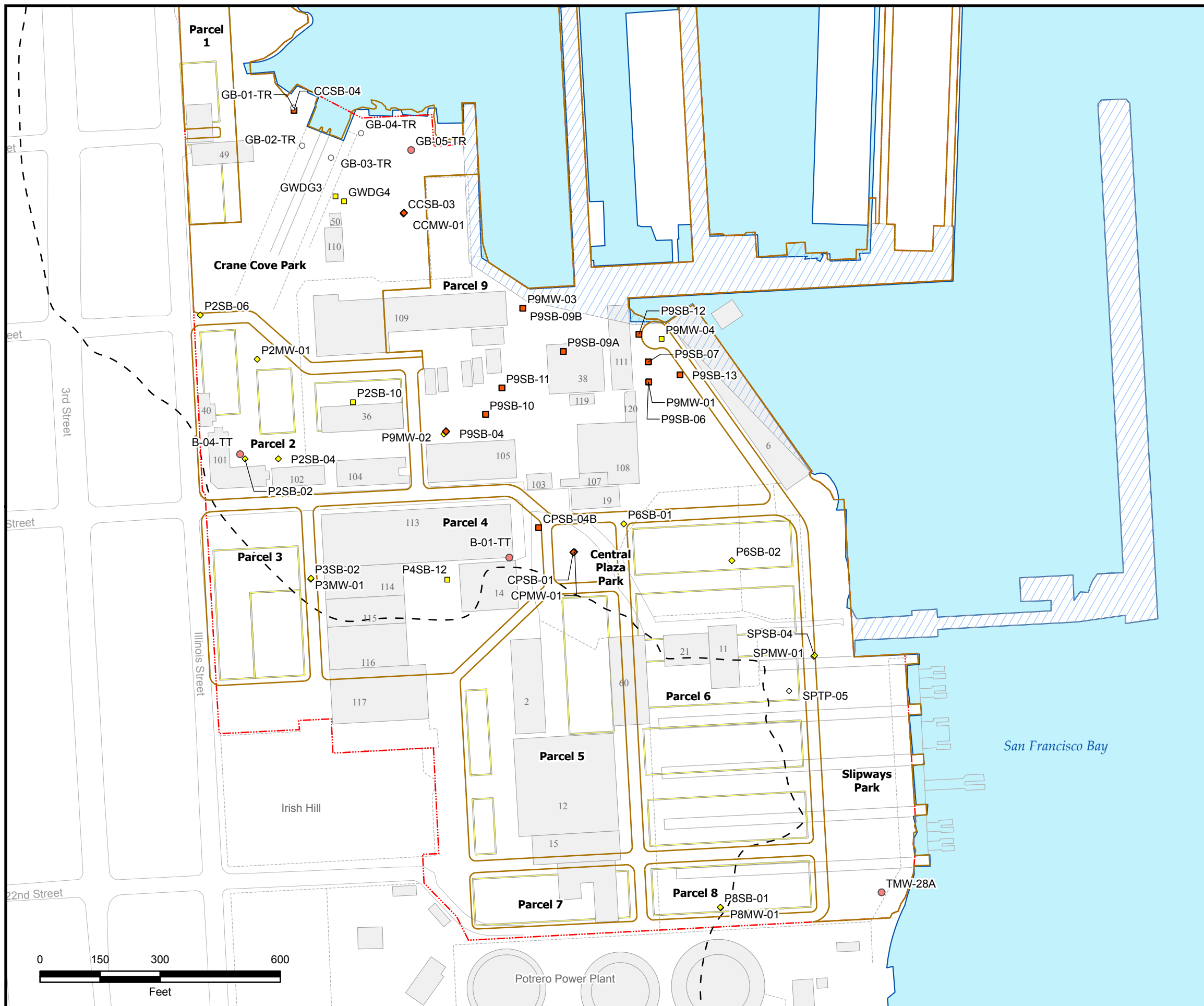
- Buildings, surface features, and road edges digitized from digital orthophotos 10SEG535775.tif and 10SEG535790, California Spatial Information Library (CASIL) UC Davis, ca 2005, <http://archive.casil.ucdavis.edu/casil/>.
- Current and recent historical shoreline based upon San Francisco Enterprise GIS, *Extended San Francisco Shoreline Shapefile*, <http://gispub02.sfgov.org/website/sfshare/catalog/sfshoreext.zip>.
- Approximate 1869 Shoreline based upon Board of Tidelands Commissioners, *Map of the Salt Marsh and Tide Lands and Lands Lying Under Water South of Second Street and Situate in the City and County of San Francisco*, 1869.
- Site boundary, parcels, and acreages from ROMA Design Group, *Pier 70 Draft Preferred Master Plan*, 17 July 2009.
- Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Francisco, California

TPH RESULTS AND ESL EXCEEDANCES
IN SHALLOW SOIL (0-10 FEET)

Date 1/3/2011	Project 4963.01	Figure 19
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Legend

Historical Sample Location

- Not Detected
- Detected Below ESL
- Exceedance of ESL

Recent Sample Location

Phase 1

- ◇ Not Detected
- ◇ Detected Below ESL
- ◇ Exceedance of ESL

Phase 2

- Detected Below ESL
- Exceedance of ESL

Surface Feature

- Fence
- Other
- - - Approximate 1869 Shoreline
- Road Edge
- Building
- Proposed Building
- Pier 70 Site Area
- Master Plan Parcel Areas (eg. Parcel 1 = P1, Crane Cove Park = CC, etc...)
- ▨ Pile-Supported Structure Over Water

Notes:

- Buildings, surface features, and road edges digitized from digital orthophotos 10SEG535775.tif and 10SEG535790, California Spatial Information Library (CASIL) UC Davis, ca 2005, <http://archive.casil.ucdavis.edu/casil/>.
- Current and recent historical shoreline based upon San Francisco Enterprise GIS, *Extended San Francisco Shoreline Shapefile*, <http://gispub02.sfgov.org/website/sfshare/catalog/sfshoreext.zip>.
- Approximate 1869 Shoreline based upon Board of Tidelands Commissioners, *Map of the Salt Marsh and Tide Lands and Lands Lying Under Water South of Second Street and Situate in the City and County of San Francisco*, 1869.
- Site boundary, parcels, and acreages from ROMA Design Group, *Pier 70 Draft Preferred Master Plan*, 17 July 2009.
- Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

PIER 70 ENVIRONMENTAL SITE INVESTIGATION
San Francisco, California

TPH RESULTS AND ESL EXCEEDANCES IN GROUNDWATER

Date 1/3/2011	Project 4963.01	Figure 25
---------------	-----------------	-----------

Treadwell&Rollo

PHOTOGRAPHS



Photograph 1 - Suspected vent pipe located in sidewalk on east side of Illinois Street, in front of Building 49



Photograph 2 – Circular metal vault with lid and square cap- located in driveway east of Building 14



Photograph 3 - Two vertical vent pipes on south wall of Building 49



Photograph 4 - Unidentified circular metal object imbedded in concrete patch near the northeast corner of Building 11



Photograph 5 – Air-knifing in sidewalk at suspect vent pipe at Building 49



Photograph 6 – Concrete valve box beneath sidewalk



Photograph 7 - Air-knife boring located two feet west of suspect vent line. Photograph shows abandoned water valve inside valve box.



Photograph 8 - Second boring at Building 49, located approximately two feet west, one foot north of the suspect vent pipe.



Photo 9 - Continuation of the suspect vent line plunging approximately 11 degrees in the northwest direction towards Illinois Street



Photograph 10 – Valve inside circular steel vault east of Building 14



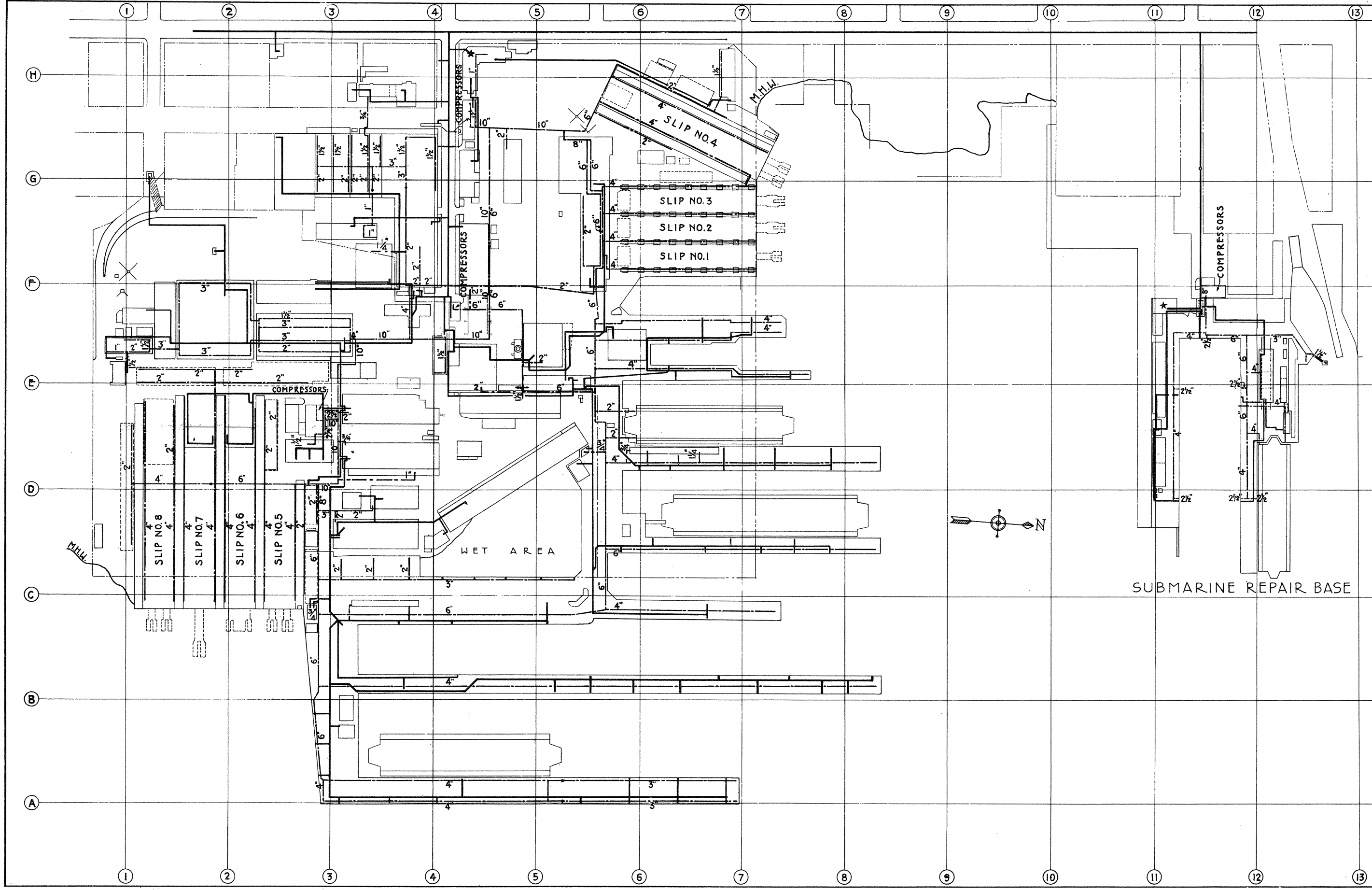
Photograph 11 – Boring located three feet southeast of circular steel vault at Building 14



Photograph 12 – Boring area near suspect vent pipes south of Building 49



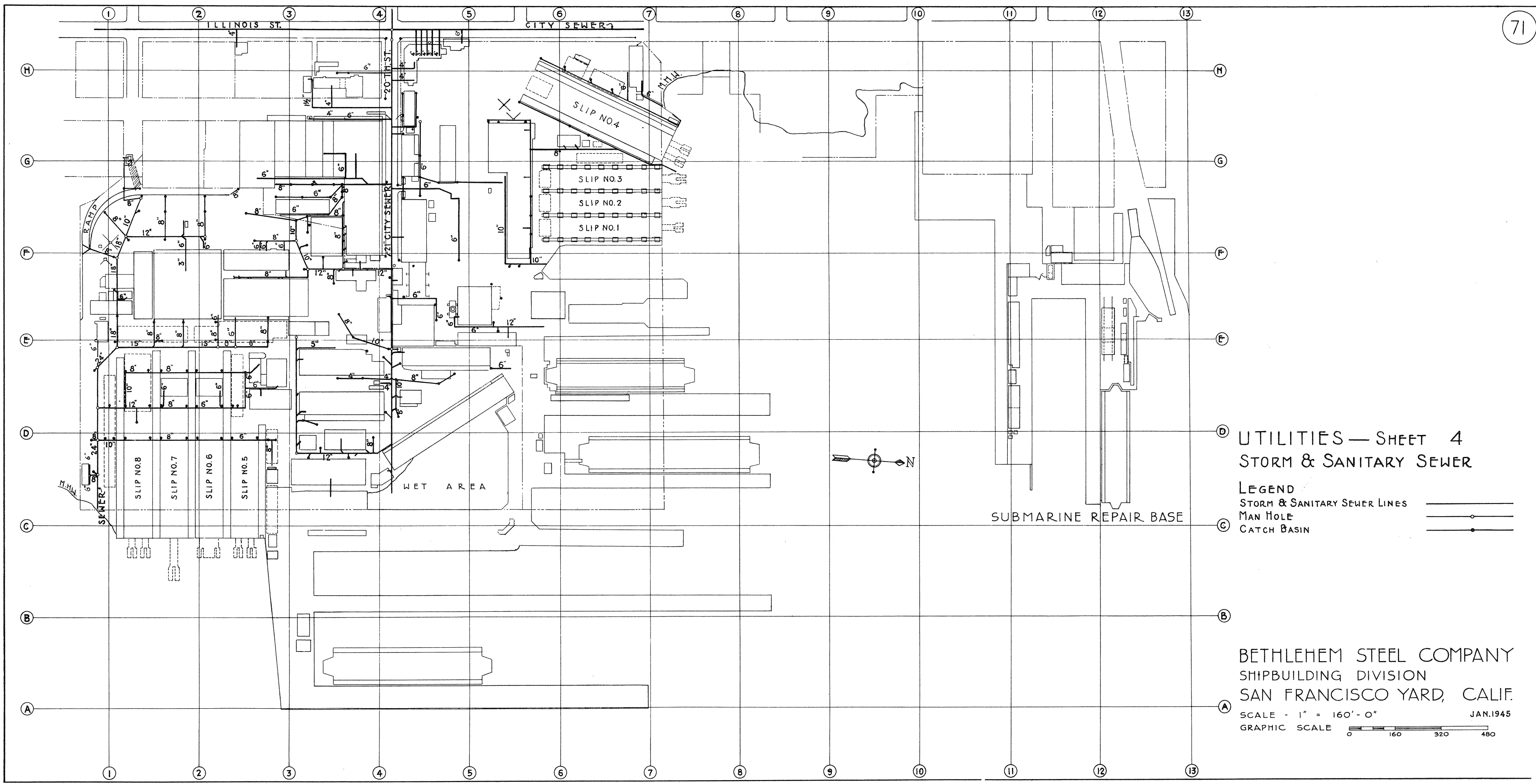
Photograph 13 – Previously unidentified metal object imbedded in concrete near Building 11 is removed and identified as a steel ring



UTILITIES — SHEET 1
AIR & TELEPHONE

- LEGEND
- AIR LINES _____
 - TELEPHONE LINES - - - - -
 - * TELEPHONE SWITCH BOARD STATION

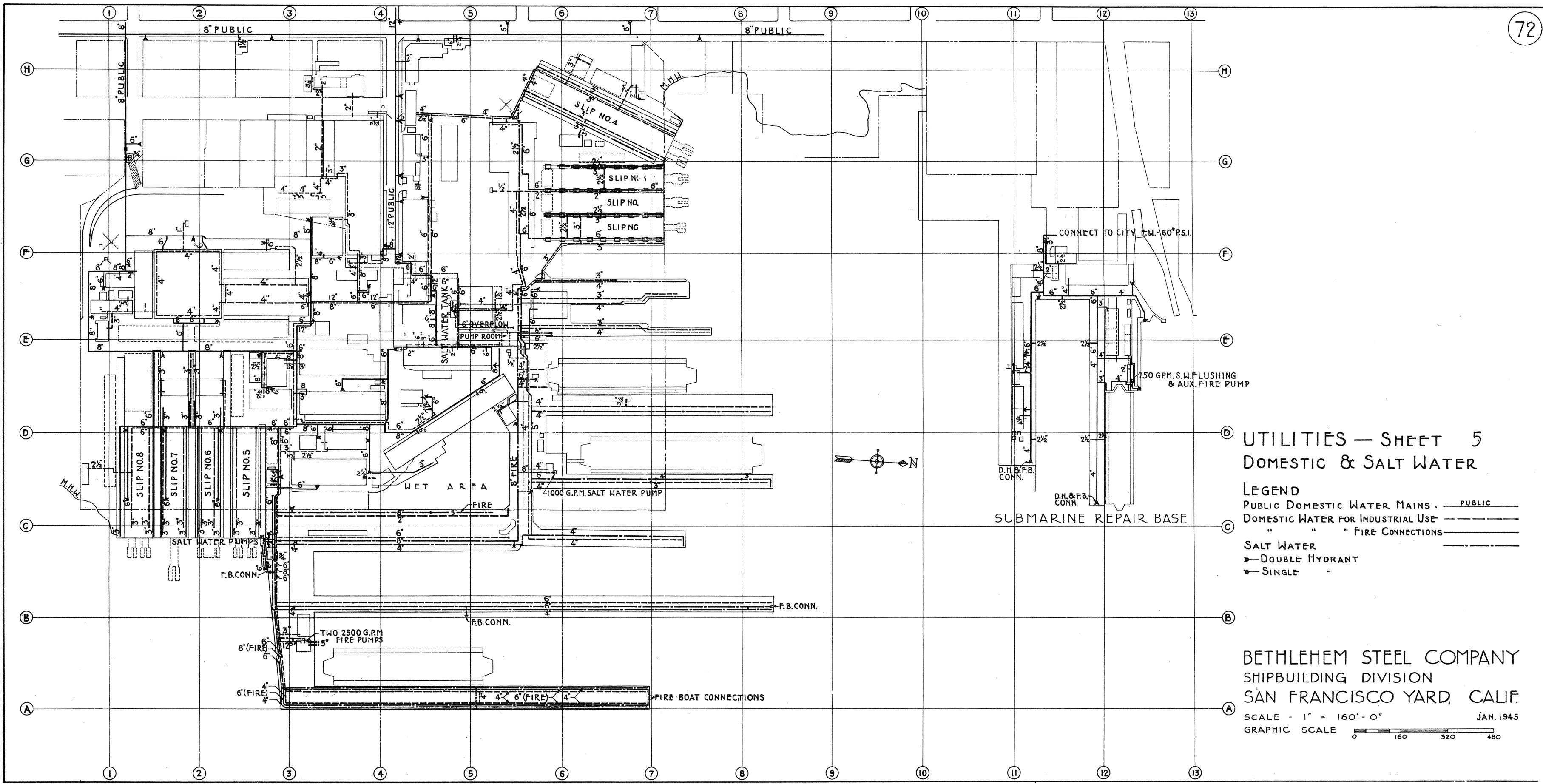
BETHLEHEM STEEL COMPANY
SHIPBUILDING DIVISION
SAN FRANCISCO YARD, CALIF.
SCALE - 1" = 160' - 0"
JAN. 1945
GRAPHIC SCALE 0 160 320 480



UTILITIES — SHEET 4
STORM & SANITARY SEWER

- LEGEND
- STORM & SANITARY SEWER LINES
 - MAN HOLE
 - CATCH BASIN

BETHLEHEM STEEL COMPANY
SHIPBUILDING DIVISION
SAN FRANCISCO YARD, CALIF.
SCALE - 1" = 160' - 0"
JAN. 1945
GRAPHIC SCALE

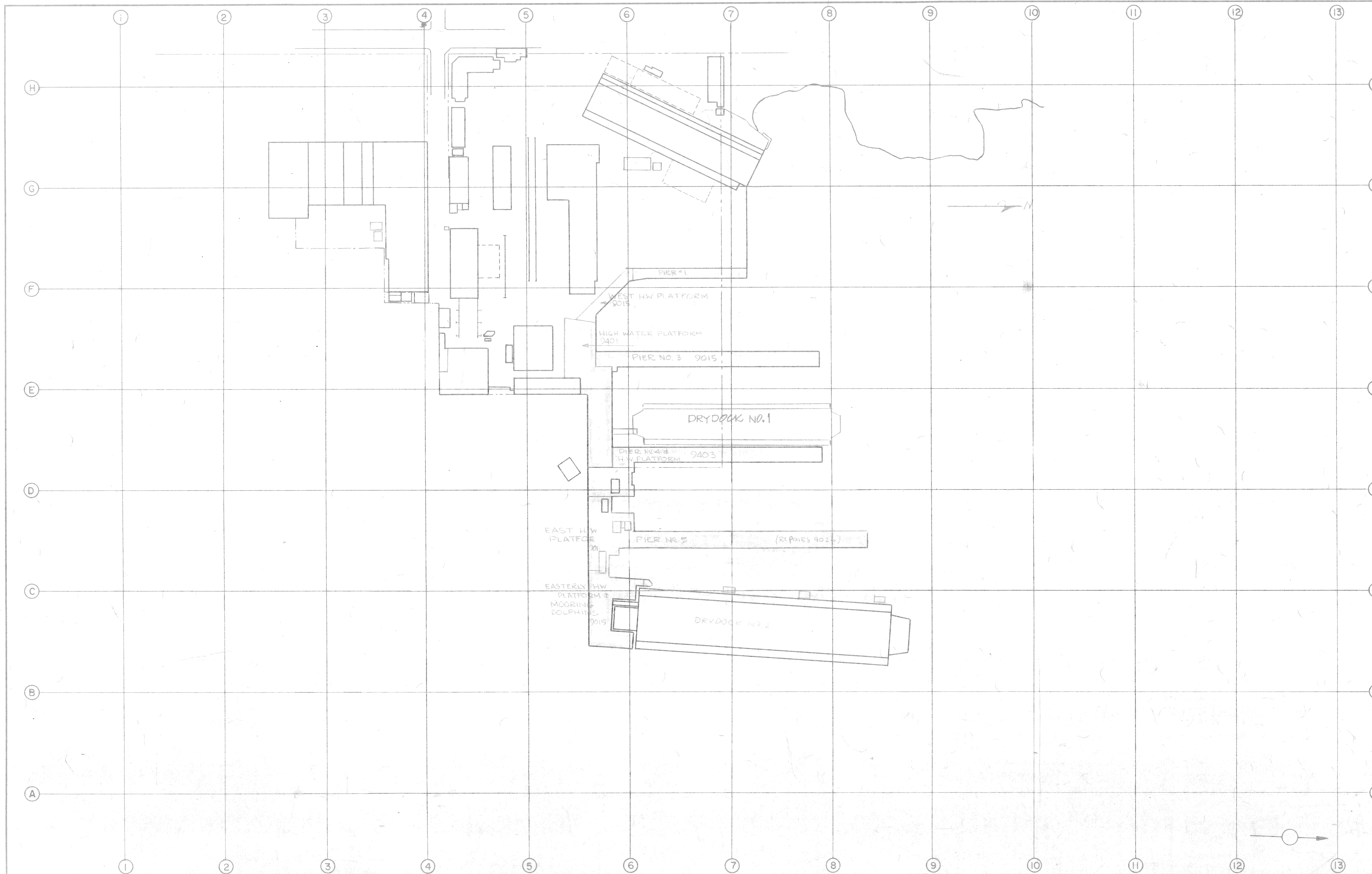


UTILITIES — SHEET 5
DOMESTIC & SALT WATER

- LEGEND
- PUBLIC DOMESTIC WATER MAINS . . . PUBLIC
 - DOMESTIC WATER FOR INDUSTRIAL USE . . .
 - " " " FIRE CONNECTIONS . . .
 - SALT WATER
 - DOUBLE HYDRANT
 - SINGLE

BETHLEHEM STEEL COMPANY
SHIPBUILDING DIVISION
SAN FRANCISCO YARD, CALIF.

SCALE - 1" = 160'-0"
JAN. 1945
GRAPHIC SCALE 0 160 320 480



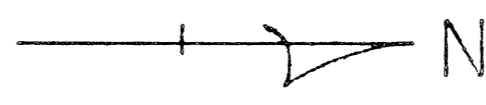
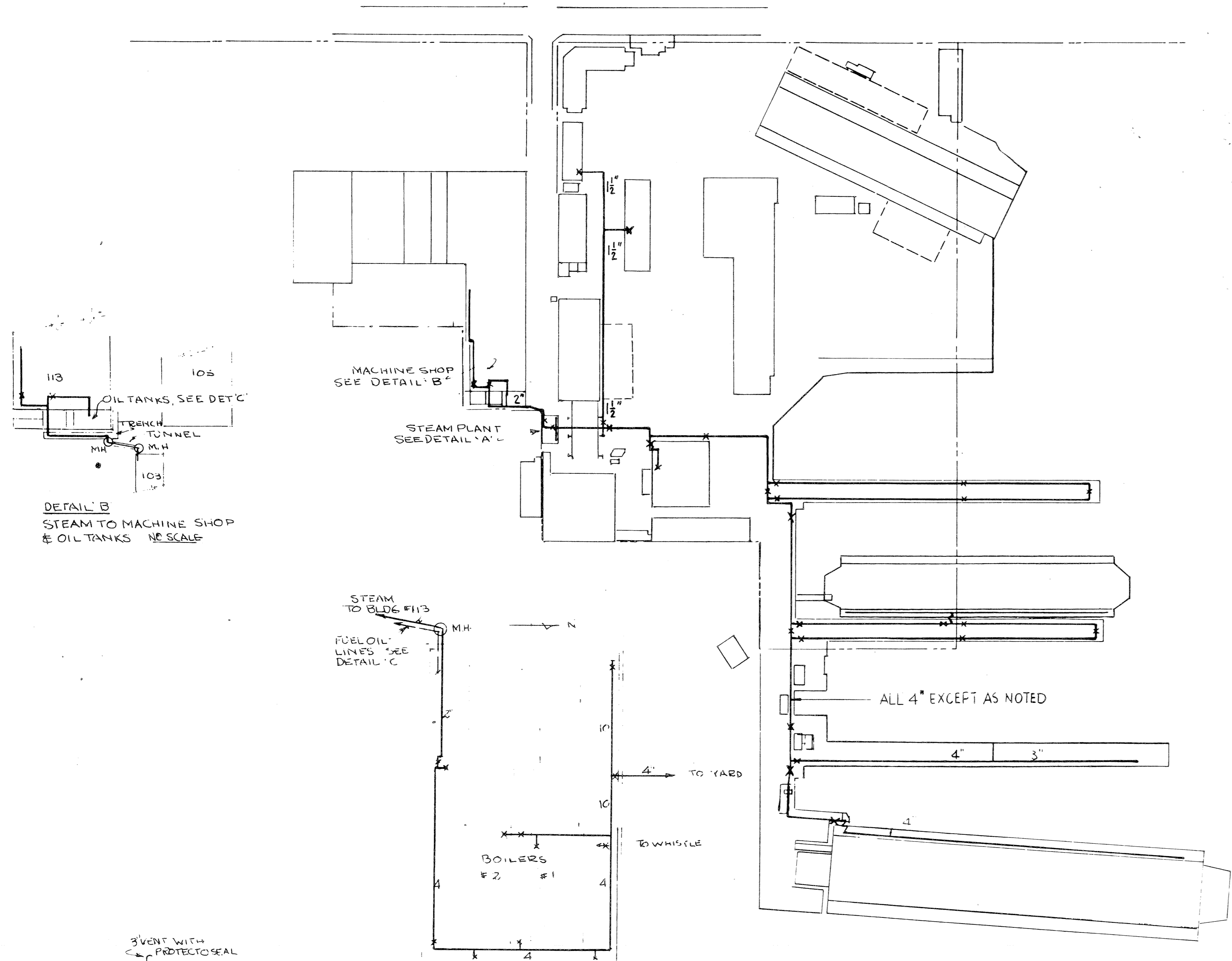
FACILITY	YEAR	C.O.NO.	FAC.NO.	SQ.FT.
PIER NO.1 (REBUILT)	1939	-	1908	12,400
PIER NO.3	1967	9015	6243	34,800
PIER NO.4	1958	9403	6078	48,900
PIER NO.5	1942	1148	5961	41,100
" REPAIRS	1970	9026		
WEST HIGH WATER PLATFORM	1967	9015	6244	12,500
HIGH WATER PLATFORM	1957	9401	5873	30,400
HIGH WATER PLATFORM	1958	9403	6226	16,900
EAST HIGH WATER PLATFORM	1967	9014	6227	26,600
EASTERLY H.W.PLATFORM & MOORING DOLPHINS	1970	9024	6246-002	24,500
				2,100

**WHARF & PIER AREAS
LEGEND**

**BETHLEHEM STEEL
SAN FRANCISCO YARD**
SCALE: 1" = 160'-0"
GRAPHIC SCALE-



REV. FEB 1971, 11-1-77



**UTILITIES —
STEAM & FUEL OIL**

LEGEND

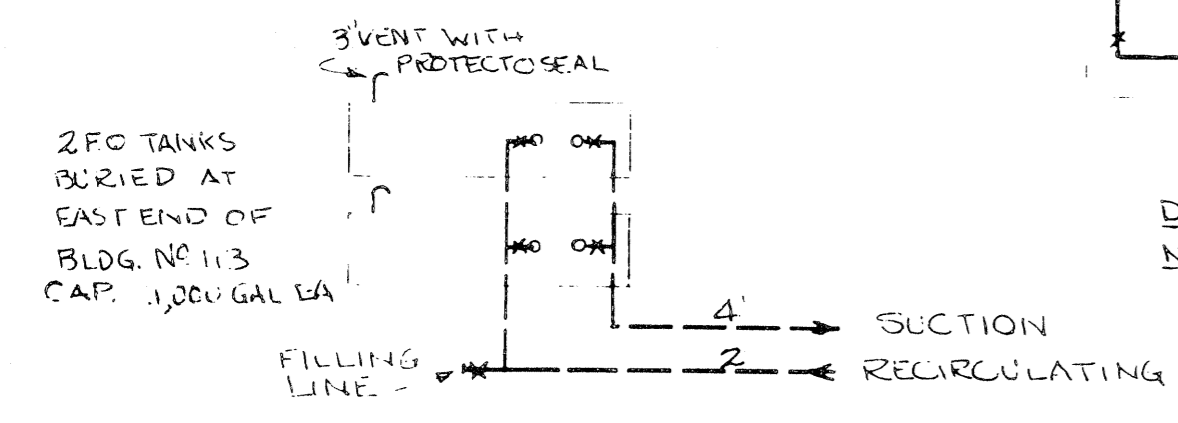
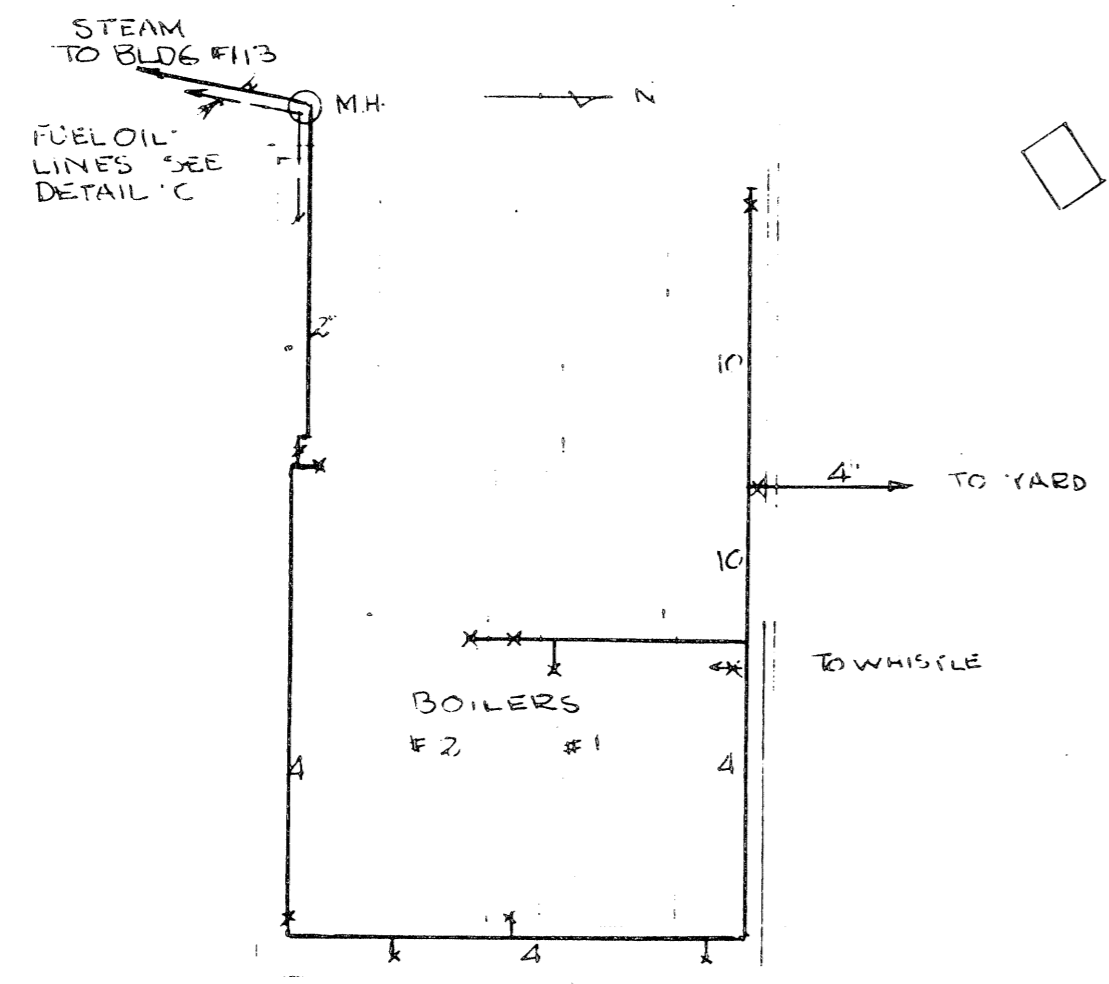
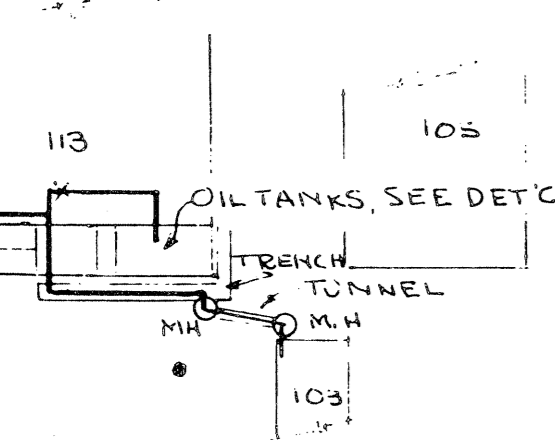
- STEAM LINE
- FUEL OIL LINE
- LINE VALVE
- STEAM RISER TO DRY DOCK

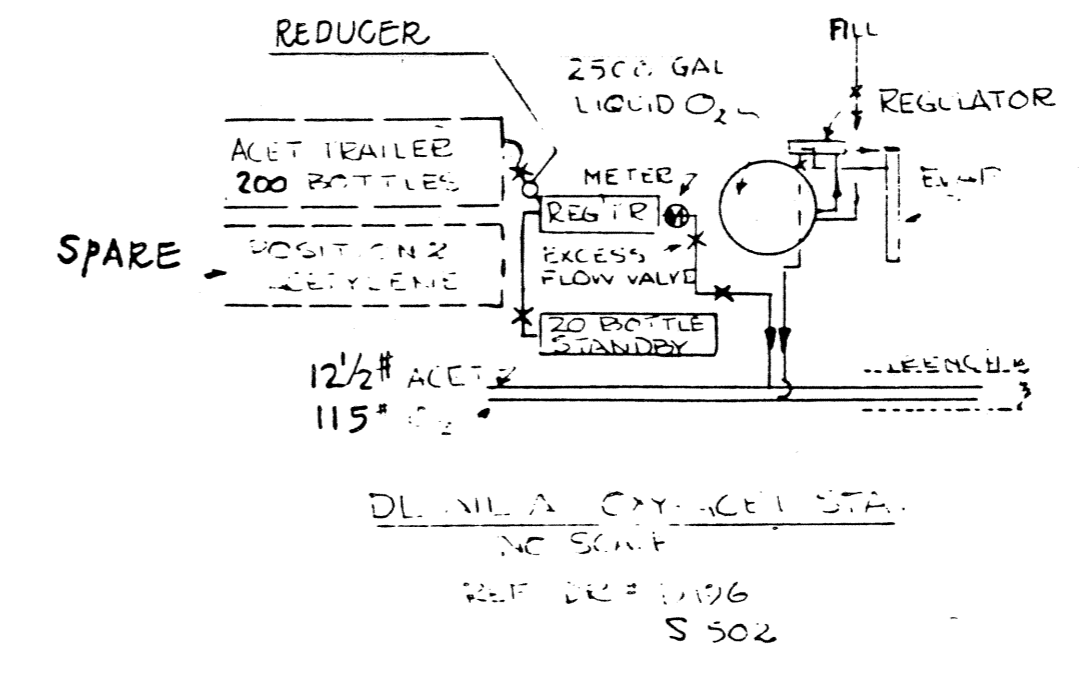
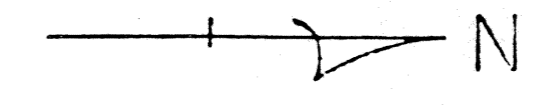
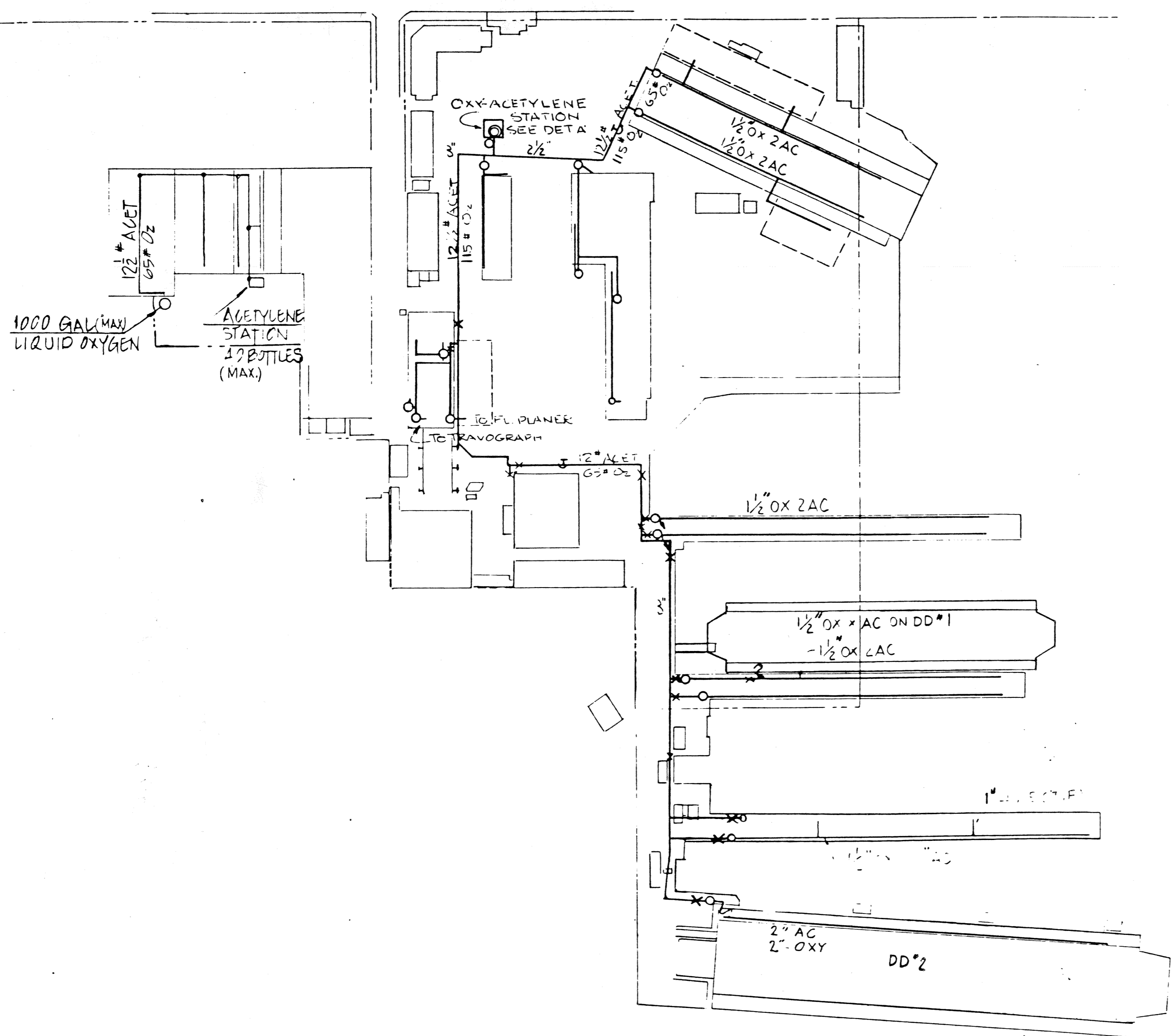
**BETHLEHEM STEEL
SAN FRANCISCO YARD**

SCALE: 1" = 160'
GRAPHIC SCALE

REV. FEB. 1971, 11-1-77, 4-13-82

These drawings are provided for informational purposes only, and Todd makes no representations or warranties whatever as to the accuracy or completeness of the contents thereof.





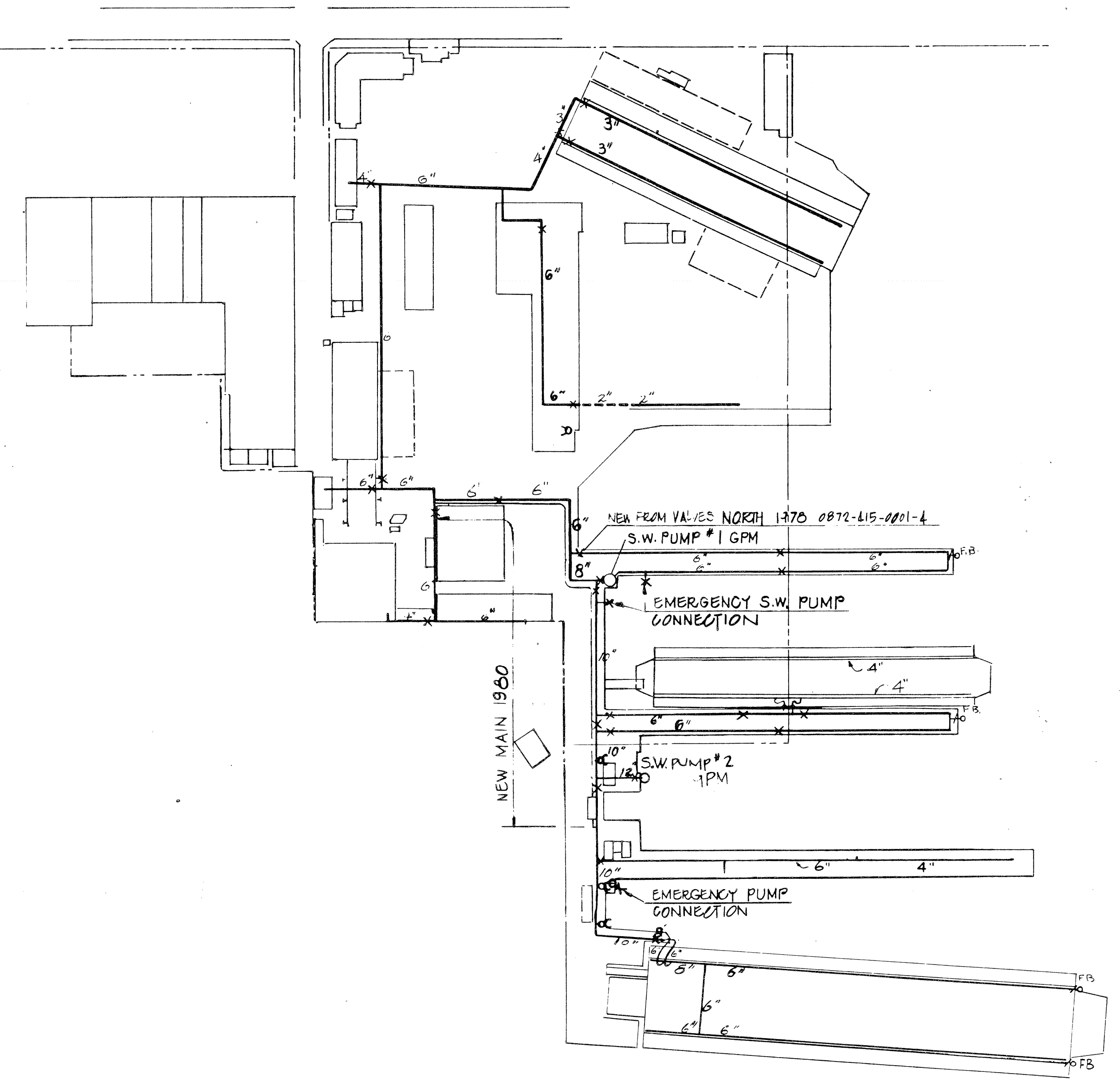
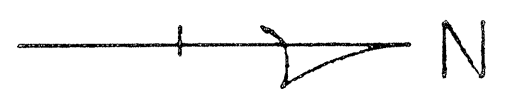
UTILITIES —
OXYGEN & ACETYLENE

- LEGEND
- OXY-ACETYLENE LINES
 - LINE VALVE
 - ACETYLENE FLASHBACK ARRESTER
 - ⊕ OXYGEN PRESSURE REGULATOR
 - ⊙ OXYGEN STORAGE TANK
 - ⌋ FLEXIBLE HOSE RISER
 - ⌋ ACETYLENE BURSTING DISC

BETHLEHEM STEEL
SAN FRANCISCO YARD
SCALE: 1" = 160'
GRAPHIC SCALE-

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REVISED JAN '71, M, 71, 11-1-77, 6-1-79, 4-13-82



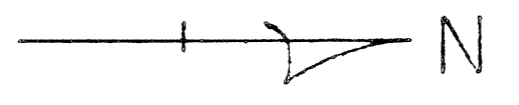
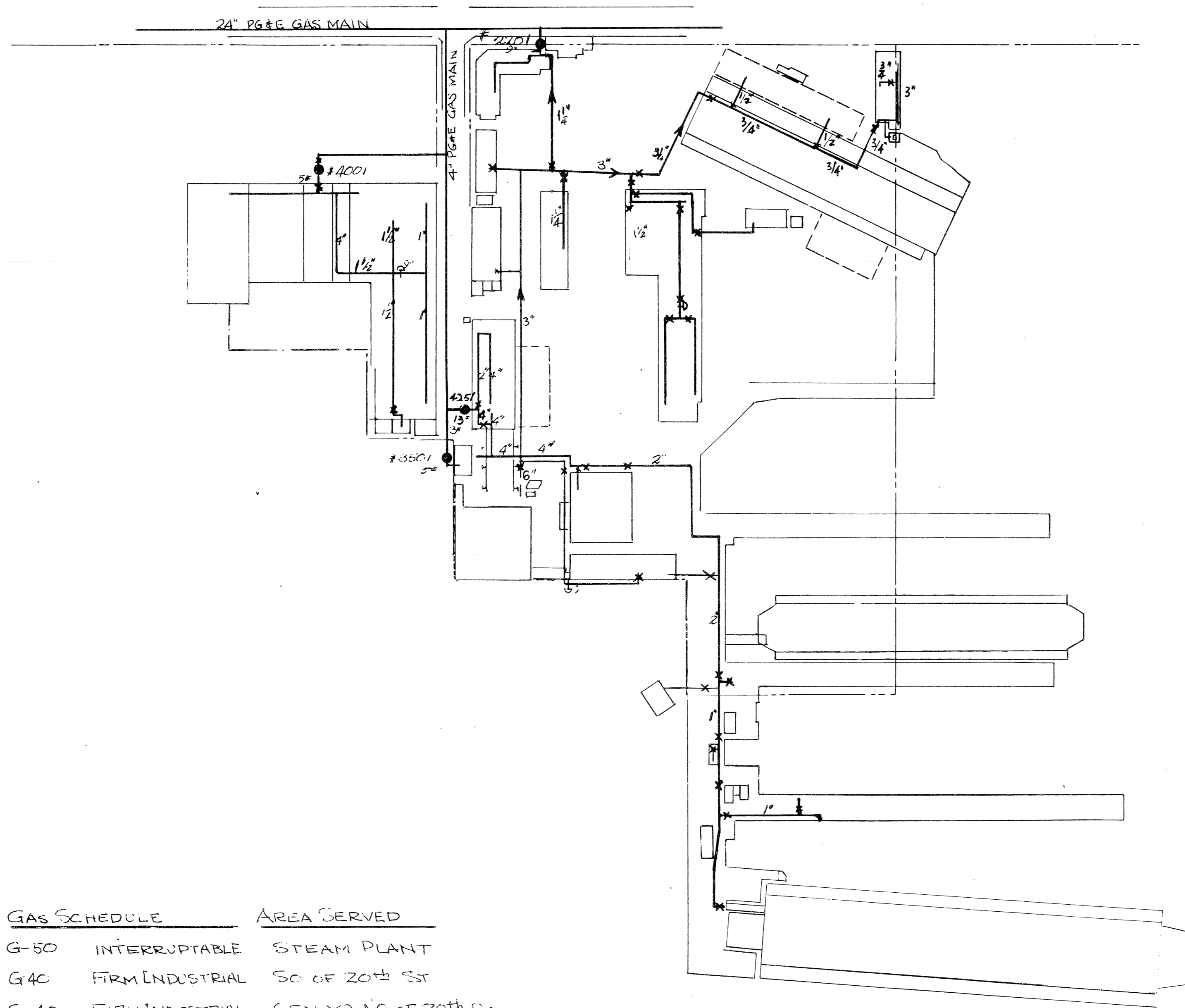
UTILITIES —
SALT WATER

- LEGEND
- SALT WATER LINE
 - SALT WATER PUMP
 - x FIRE BOAT CONNECTION
 - d FIRE HYDRANT
 - | HOSE RISER TO DRYDOCK

BETHLEHEM STEEL
SAN FRANCISCO YARD
SCALE: 1" = 160'
GRAPHIC SCALE-

These drawings are provided for informational purposes only, and Todd makes no representations or warranties whatever as to the accuracy or completeness of the contents thereof.

REV. JAN. 1971, 11-1-77, 6-1-79, 4-13-82



ACCT. #	GAS SCHEDULE	AREA SERVED
3501	G-50 INTERRUPTABLE	STEAM PLANT
4001	G-40 FIRM INDUSTRIAL	SO. OF 20th ST
4251	G-40 FIRM INDUSTRIAL	GEN. YD. N. OF 20th ST
2201	G-1 GENERAL	KITCHEN, BLDG 101

UTILITIES — NATURAL GAS

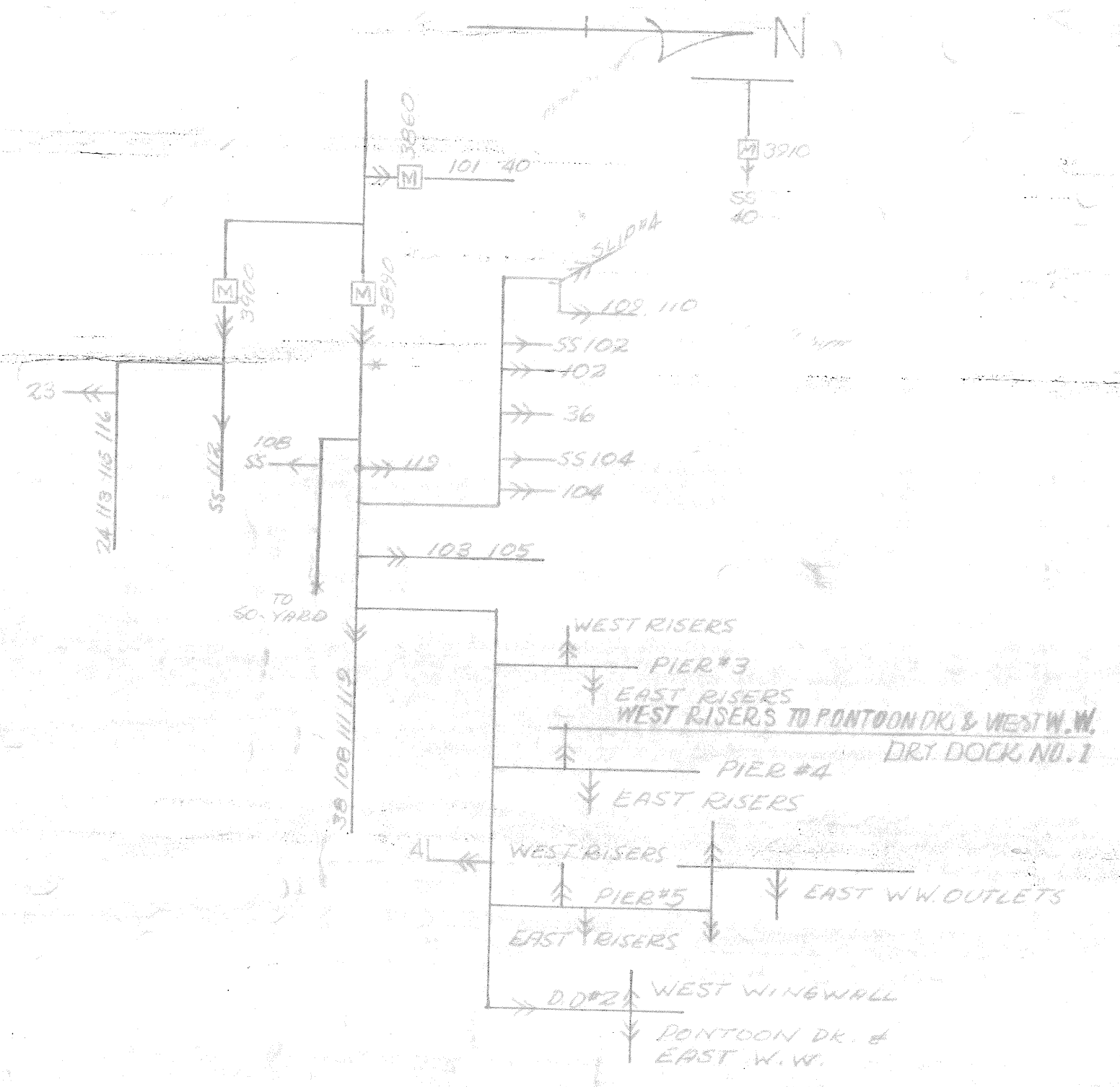
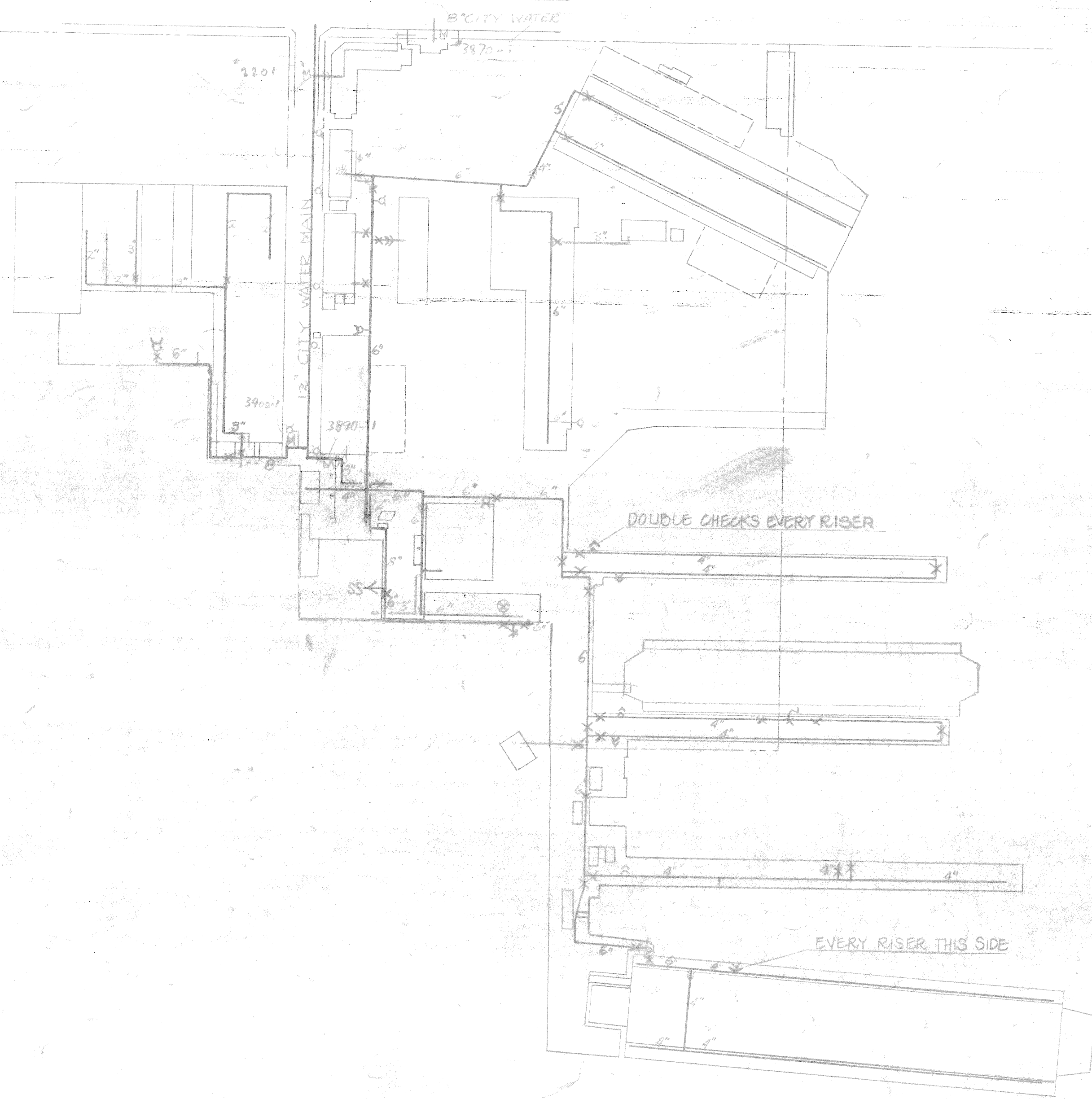
LEGEND

- NAT. GAS LINE
- LINE VALVE
- GAS METER & ACCT. NO.
- REGULATOR & DOWNSTREAM PRESSURE

**BETHLEHEM STEEL
SAN FRANCISCO YARD**
SCALE: 1" = 160'
GRAPHIC SCALE-

These drawings are provided for informational purposes only, and Todd makes no representations or warranties whatever as to the accuracy or completeness of the contents thereof.

REV. FEB. 1971, W/71, 11-1-77, 6-79, 4-13-83



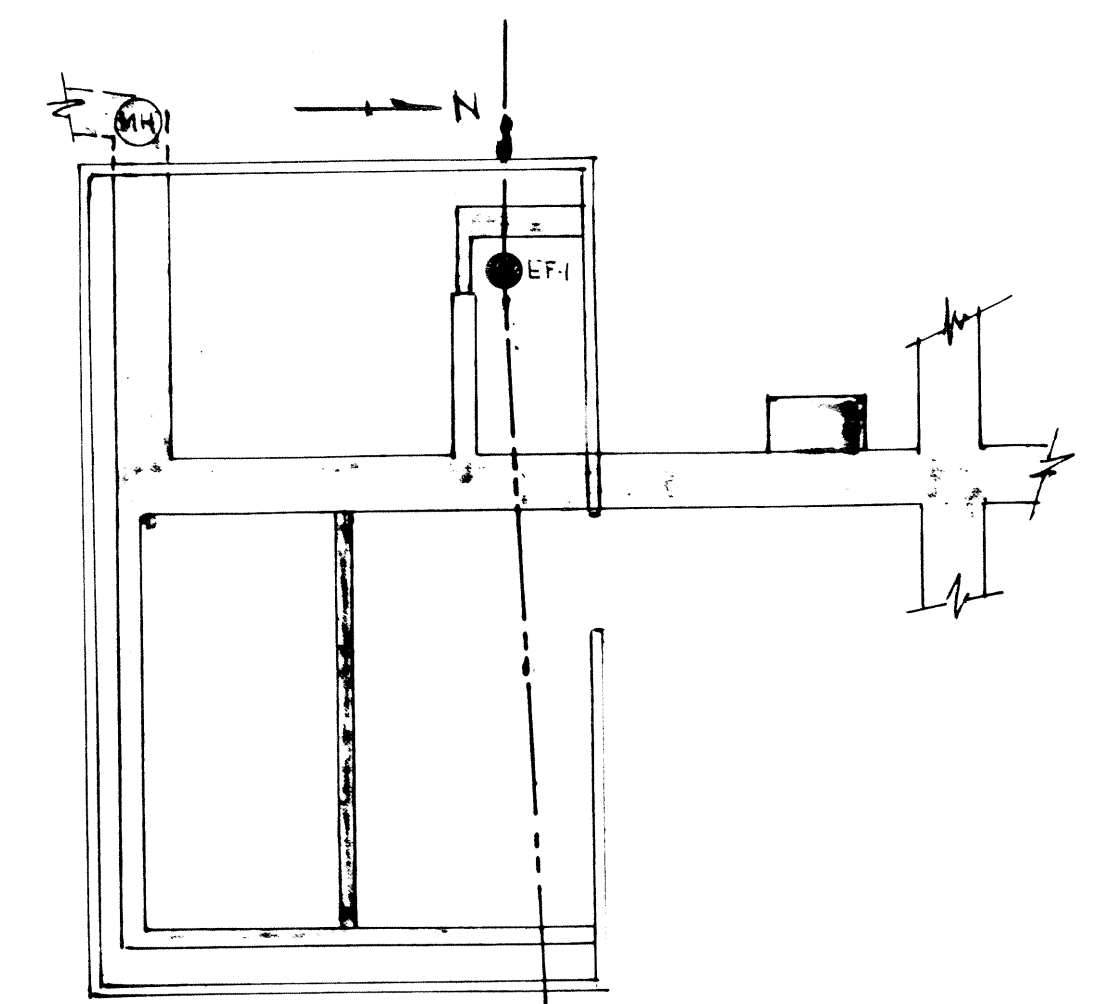
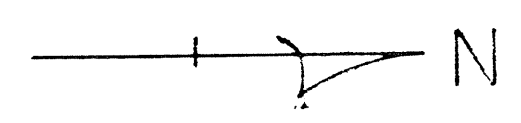
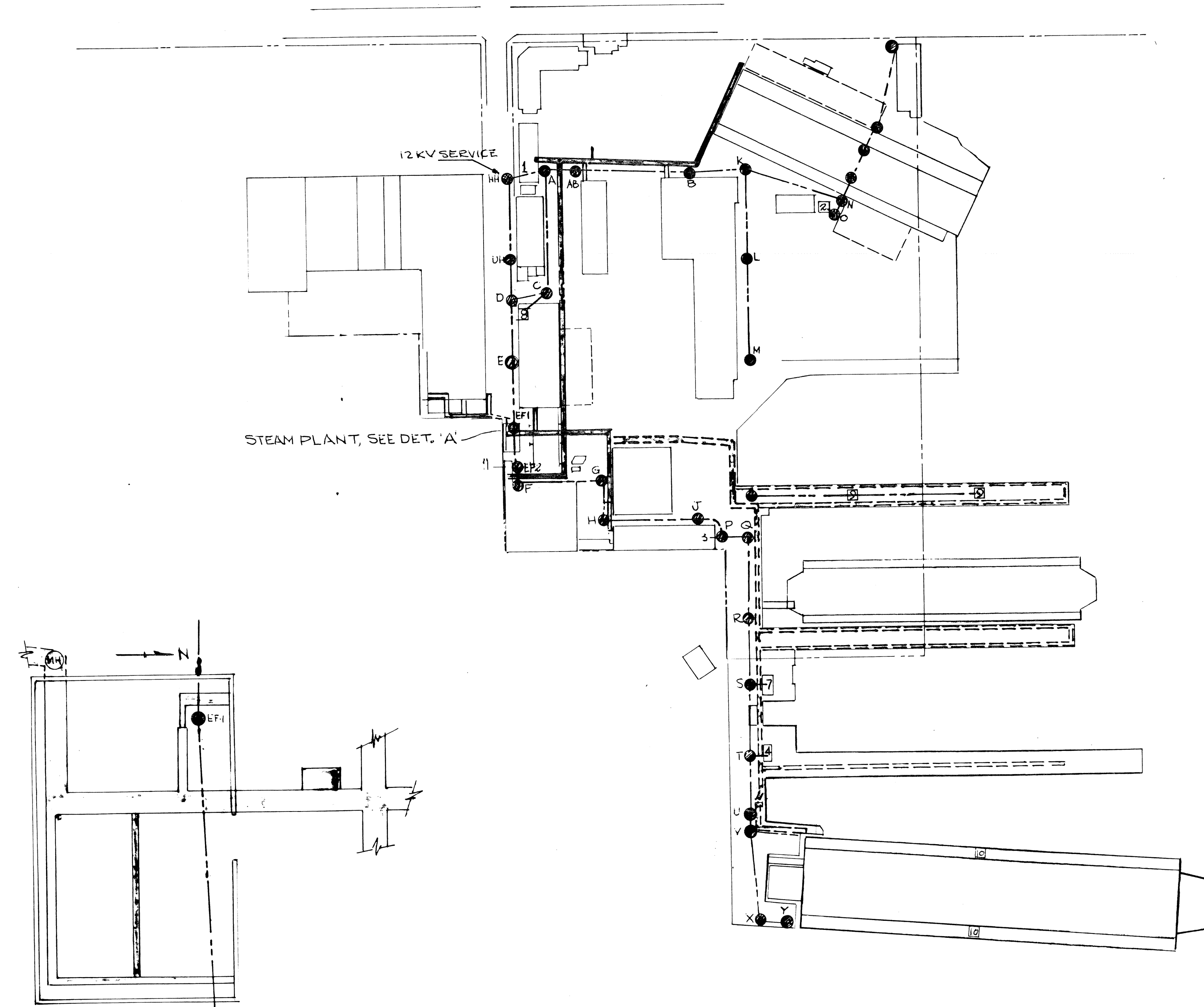
SCHEMATIC DIAGRAM
NO SCALE

UTILITIES —
DOMESTIC WATER

- LEGEND
- METER & ACC'T NO.
 - FRESH WATER LINE
 - HYDRANT
 - STORAGE TANK
 - LINE VALVE
 - FUTURE LINE
 - DOUBLE CHECK
 - ^ SYMBOL INDICATES THAT PIER OR DRYDOCK OUTLETS ARE PROTECTED BY BACKFLOW PREVENTION DEVICES
 - SS SINGLE CHECK & SPRINKLER SYSTEM

TODD SHIPYARDS CORPORATION
SAN FRANCISCO DIVISION

SCALE: 1" = 160'
GRAPHIC SCALE -



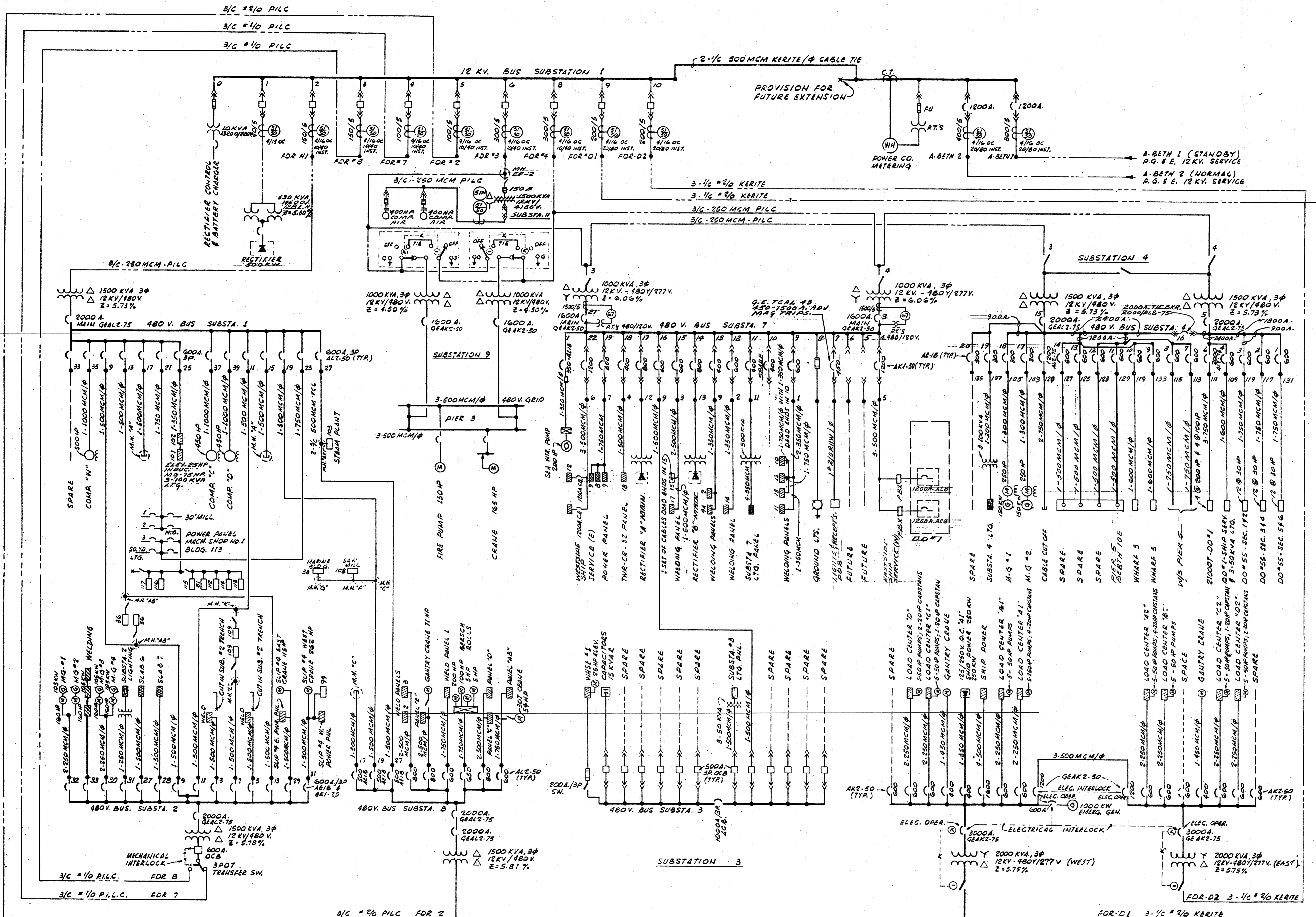
**UTILITIES — MECHANICAL
UTILITY TRENCHES & ELECTRICAL
MANHOLE SYSTEM**

- LEGEND**
- ==== PIPE TRENCHES
 - PIPE TUNNELS & UNDER PIER RUNS
 - ELECTRICAL DUCT & MANHOLE SYSTEM
 - A ELECTRICAL MANHOLE & DESIGNATION
 - ④ SUBSTATION & NUMBER

**BETHLEHEM STEEL
SAN FRANCISCO YARD**
SCALE: 1" = 160'
GRAPHIC SCALE- 0 160 320 480

These drawings are provided for informational purposes only, and Todd makes no representations or warranties whatever as to the accuracy or completeness of the contents thereof.

REV. MAR. 1971, 11-1-77



- LEGEND**
- 3-POLE OIL CIRCUIT BREAKER, NON-DRAWOUT TYPE
 - 3-POLE OIL CIRCUIT BREAKER, DRAWOUT TYPE
 - 3-POLE AIR CIRCUIT BREAKER, NON-DRAWOUT TYPE
 - 3-POLE AIR CIRCUIT BREAKER, DRAWOUT TYPE
 - 480V. INDUCTION MOTOR
 - 480V. SYNCHRONOUS MOTOR
 - D. C. GENERATOR
 - MOTOR-GENERATOR SET
 - 480V. POWER PANEL OR DISTRIBUTION CENTER
 - 208Y/120 V, 3 ϕ , 4W. LTG. DISTRIBUTION CENTER.
 - WELDING SLAB POWER DISTRIBUTION CENTER.
 - BLDG. OR SLIP POWER CENTER
 - CRANE
 - CAPACITOR BANK
 - LIGHTING TRANSFORMER BANK 480V-208Y/120V.
 - 3 ϕ TRANSFORMER, 12 KV - 480 V.
 - KEY INTERLOCK BETWEEN SWITCHES & OR CIRCUIT BREAKERS.
 - BUSES IN SWITCHGEAR
 - 480 VOLT FEEDERS
 - 12000 VOLT FEEDERS
 - 3 POLE SINGLE THROW SW.
 - 3 POLE DOUBLE THROW SW.
 - INDICATING AMMETER
 - INDICATING VOLTMETER
 - WATT-HOUR METER
 - A.C. OVERCURRENT RELAY - FUNCTIONS WHEN CURRENT EXCEEDS GIVEN VALUE
 - A.C. OVERCURRENT RELAY W/ INSTANTANEOUS TRIP ON EXCESSIVE VALUE OR EXCESSIVE RISE OF CURRENT CAUSED BY A FAULT.
 - REVERSE POWER RELAY
 - INSTRUMENT TRANSFER SW.
 - FUSE
 - CURRENT TRANSFORMER
 - POTENTIAL TRANSFORMER - RATIO AS SHOWN

SINGLE LINE DISTRIBUTION DIAGRAM - 12 KV & 480 V. POWER

These drawings are provided for informational purposes only, and Iod makes no representations or warranties whatsoever as to the accuracy or completeness of the contents thereof.

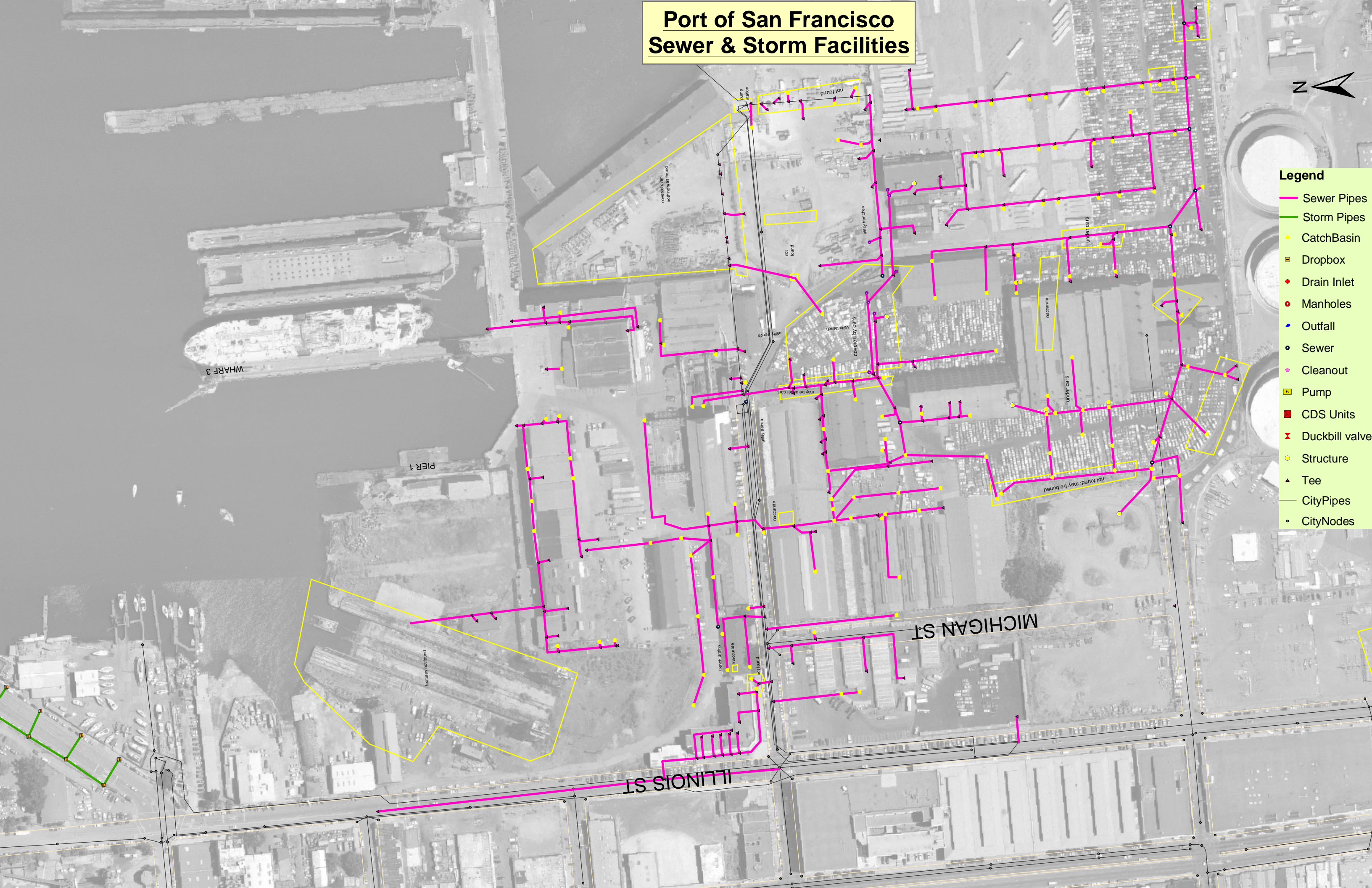
DATE: 7-30-69	GARRETSON-ELMENDORF-KLEIN-REIBIN ARCHITECTS • ENGINEERS 124 SPEAR STREET, SAN FRANCISCO, CALIFORNIA 94105 TELEPHONE 415 • 434 • 3838	BETHLEHEM STEEL CORP. SAN FRANCISCO, CALIFORNIA	DWG. NO. E-1
SCALE: NONE		SWITCHGEAR & FEEDERS - JULY 1978	REV. NO. 1
DESIGNED BY: F. REIBIN	APPROVED BY:	12 KV & 480V. POWER DISTRIBUTION SYSTEM	
DRAWN BY: C. W.	JOB NO. 1279		
CHECKED BY: A.M.R. & JON			

Port of San Francisco Sewer & Storm Facilities



Legend

- Sewer Pipes
- Storm Pipes
- CatchBasin
- Dropbox
- Drain Inlet
- Manholes
- Outfall
- Sewer
- Cleanout
- Pump
- CDS Units
- Duckbill valve
- Structure
- Tee
- CityPipes
- CityNodes



APPENDIX D
CONTACT INFORMATION

APPENDIX D
Contact Information

Port of San Francisco

Permit Inspector: A permit inspector will be assigned upon issuance of project-specific building or encroachment permit.

Port of San Francisco, Pier 1 – The Embarcadero
San Francisco, CA 94111

Carol Bach, Environmental Affairs Manager, Port Planning & Development
Port of San Francisco, Pier 1 – The Embarcadero
San Francisco, CA 94111
Phone: 415-274-0568
Email: Carol.Bach@sfport.com

Regional Water Quality Control Board

Mr. Mark Johnson
Case Worker
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612
Phone: 510-622-2493
Email: mjohnson@waterboards.ca.gov

San Francisco City and County Department of Public Health

Ms. Elyse Heilsorn
Senior Environmental Health Inspector
Local Oversight Program
1390 Market Street, Suite 210
San Francisco, CA 94102
Phone: 415-252-3885
Email: Elyse.Heilsorn@sfdph.org

San Francisco Fire Department

Department Headquarters
698 2nd Street
San Francisco, CA 94107
Phone: 415-558-3200 or 911

**PIER 70 RISK MANAGEMENT PLAN
Pier 70 Master Plan Area
San Francisco, California**

**Prepared For:
Port of San Francisco
San Francisco, California**

**25 July 2013
Project No. 730496301**

APPENDIX E

STORMWATER POLLUTION PREVENTION PLAN OUTLINE

Appendix E
Stormwater Pollution Prevention Plan Outline

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Legally Responsible Person

Amendment Log

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- 1.4 SWPPP Amendments
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- 1.6 Required Non-Compliance Reporting
- 1.7 Annual Report

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CSMP Attachment 1: Weather Reports

CSMP Attachment 2: Monitoring Records

CSMP Attachment 3: Example Forms

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Appendix B: Site Maps

Appendix C: Permit Registration Documents

Appendix D: SWPPP Amendment Certifications

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Appendix J: Training Reporting Form

Appendix K: Responsible Parties

Authorization of Approved Signatories

Appendix L: Contractors and Subcontractors

Appendix M: Construction General Permit Error! Bookmark not defined.

Qualified SWPPP Developer

Approval and Certification of the Stormwater Pollution Prevention Plan

Project Name: _____

Project Number/ID [if applicable] _____

Note About Stormwater Pollution Prevention Plan and Attachments.

"This Stormwater Pollution Prevention Plan and Attachments were prepared under my direction to meet the requirements of the California Construction General Permit (SWRCB Orders No. 2009-009-DWQ as amended by Order 2010-0014-DWQ). I certify that I am a Qualified SWPPP Developer in good standing as of the date signed below."

QSD Signature

Date

QSD Name

QSD Certificate Number

Title and Affiliation

Telephone Number

Email

Legally Responsible Person

Approval and Certification of the Stormwater Pollution Prevention Plan

Project Name:

Project Number/ID

"I certify under penalty of law that this document and all Attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Legally Responsible Person

Signature of Legally Responsible Person or Approved Signatory

Date

Name of Legally Responsible Person or Approved Signatory

Telephone Number

Amendment Log

Project Name: _____

Project Number/ID [if applicable] _____

Amendment No.	Date	Brief Description of Amendment, include section and page number	Prepared and Approved By
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#
			Name: QSD#

**PIER 70 RISK MANAGEMENT PLAN
Pier 70 Master Plan Area
San Francisco, California**

**Prepared For:
Port of San Francisco
San Francisco, California**

**25 July 2013
Project No. 730496301**

APPENDIX F

ENVIRONMENTAL HEALTH AND SAFETY PLAN OUTLINE

APPENDIX F

Example Environmental Health and Safety Plan Outline

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 - 3.3 Subcontractors
- 4.0 HAZARD EVALUATION AND CONTROL
 - 4.1 Chemical Hazards and Controls
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 - 5.4 Site Control and Safe Work Practices
 - 5.5 General Decontamination Procedures
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Approval and Certification of Environmental Health and Safety Plan

Project Name: _____

Project Number/ID _____

"This Project Specific Environmental Health and Safety Plan and Attachments were prepared under my direction to comply with applicable occupational health and safety standards, including, but not limited to OSHA 1910.120"

Certified Industrial Hygienist Signature and Stamp

Date

**PIER 70 RISK MANAGEMENT PLAN
Pier 70 Master Plan Area
San Francisco, California**

**Prepared For:
Port of San Francisco
San Francisco, California**

**25 July 2013
Project No. 730496301**

APPENDIX G

GROUNDWATER MANAGEMENT PLAN OUTLINE

Appendix G Groundwater Management Plan Outline

A Groundwater Management Plan (GMP) will be prepared to describe the pumping of groundwater for both temporary or permanent dewatering projects in support of development and construction activities. If there are projects that propose permanent pumping of groundwater (i.e. ongoing dewatering of the area around and within below grade parking garages), a detailed plan encompassing permanent dewatering system design, geotechnical considerations, permitting and construction, among other items, would be required. The outline presented provides a framework for designing and permitting such a system but the primary purpose of this outline is to support temporary dewatering in support of redevelopment activities.

The outline presented below uses Section 7.10 of the RMP to describe information that should be included in a GMP. Also presented below is other required information that describes the scope of work: Project Description, Subsurface Conditions, Hydrogeologic Analysis, Description of Groundwater Extraction Means and Methods, and Permitting and Reporting Requirements. The GMP should be prepared in advance of planned construction activities to allow adequate time for review, comment, and approval by the Regulatory Agencies.

1.0 INTRODUCTION

- 1.1 Project Description and Schedule
- 1.2 Local Groundwater Description - Describe known groundwater conditions in and around the area proposed for dewatering.
 - 1.2.1 Presentation and discussion of existing groundwater data (locations, levels, flow direction, flow velocity, chemicals of concern (COCs), type of data, date of collection, source of data with references).
 - 1.2.2 Project location and proximity to existing groundwater plumes (i.e. Areas of Special Concern with Non Aqueous Phase Liquid (NAPL) and Dense Non Aqueous Phase Liquid (DNAPL) Impacts)
 - 1.2.3 Description of Proposed Project Requiring Dewatering
- 1.3 Hydrogeology

2.0 GROUNDWATER MANAGEMENT PLAN

- 2.1 Hydrogeologic Evaluation
 - 2.1.1 Radius of influence of pumping
 - 2.1.2 Potential effects on known COCs in groundwater (if near areas of special concern)
 - 2.1.2.1 Data from nearby existing groundwater monitoring wells to establish baseline water quality
 - 2.1.3 Proposed mitigation measures to minimize negative effects on groundwater plumes (if near areas of special concern)
 - 2.1.3.1 Pumping rate and/or duration to minimize/eliminate negative effects on known groundwater plumes - If necessary based on the judgment of a qualified professional, the installation of "guard wells" may be appropriate to provide an early warning of adverse impacts from the temporary pumping on the nearby plume.
 - 2.1.3.2 Monitoring Well Sampling - If necessary, collect groundwater samples from select (new or existing) monitoring wells in the vicinity to ensure

existing plumes are not negatively affected by localized and temporary pumping.

2.1.3.3 Other engineering measures (i.e., sheet pile walls, tide fluctuation management, injection grouting, etc.)

2.1.4 Permitting and Discharge Requirements

2.2 Proposed Groundwater Extraction

2.2.1 Dewatering Project Duration

2.2.1.1 Dewatering system design

2.2.1.2 Groundwater treatment design (if required as a condition of discharge permit) - Description of chemical treatment to address pre-existing condition of extracted groundwater (i.e., activated charcoal, physical filtration, pH adjustment, etc.)

2.2.1.3 Groundwater Infiltration Mitigation- Description of any measures to slow or minimize groundwater infiltration into below grade excavations for the duration of the project (i.e., sheet pile walls, injection grouting, management of tidal water if close to the bay margin, not-to-exceed pumping rates, etc.)

2.2.1.4 Conveyance system and temporary storage, and discharge design (if any)

2.2.1.5 Discharge point - Describe location and ownership of discharge point (i.e. San Francisco Public Utilities Commission [SFPUC] combined sewer)

2.2.1.6 Provide engineering drawings of dewatering and treatments systems, locations of any wells, discharge point(s), sampling point(s)

3.0 PERMITTING AND REPORTING REQUIREMENTS

3.1 Permit Requirements

3.1.1 Performance/discharge criteria

3.1.2 Sampling criteria (Field monitoring, field observation, collection and laboratory analysis of discharge water samples)

3.2 Reporting Requirements

3.2.1 Permit-specific reporting requirements

3.2.1.1 Field notes/observations

3.2.1.2 Laboratory results

3.2.1.3 Quarterly/annual reporting

3.2.1.4 Project completion process

3.2.2 Regulatory Agency Approval and Reporting

3.2.2.1 RWQCB

3.2.2.2 San Francisco Department of Public Health (SFDPH) requirements

3.2.2.3 Other City and County of San Francisco (City) entities, when appropriate: San Francisco Public Utilities Commission (SFPUC), San Francisco Department of Public Works (SFPDW-Bureau of Construction Management [BCM]), Department of Building Inspection (DBI)

4.0 HEALTH AND SAFETY

4.1 Site Specific Health and Safety Measures

4.1.1 Groundwater-specific health and safety measures designed to protect workers conducting dewatering and subsurface work covered under the Environmental Health and Safety Plan (EHSP).

4.1.2 Health and Safety issues, Notification requirements, and Site Security

5.0 DISCOVERY OF UNKNOWNNS

5.1 Refer reader to Unknown Condition Response Protocol in RMP

6.0 REFERENCES